

GENERAL NOTES

1. Driveway locations shall not interfere with the sidewalk handicap ramps, or curb inlet slumps.
2. Sidewalks, curb ramps, ramps and accessible parking spaces shall be constructed in accordance with the current approved "American with Disabilities Act Accessibility Guidelines" (ADAAG) along with the required grades, construction materials, specifications and signage. If any conflict occurs between the above information and the plans, the ADAAG guidelines shall take precedence and the contractor prior to any construction shall notify the Project Engineer.
- 2.1. Truncated domes for curb ramps located in public right of way shall meet PROWAG requirements and shall be constructed using red pre-cast truncated domes per pavement details.
3. Any proposed pavilions or playground areas will need a separate permit from the Building Division.
4. The Contractor shall coordinate with the City of O'Fallon for the location of utilities. Contact the City of O'Fallon (636) 379-3814 for the location of City maintained cable for street lights and traffic signals, all other utilities call Missouri One Call 1-800-DIG-RITE. 1-800-344-7483
5. All proposed utilities and/or utility relocations shall be located underground.
6. All proposed fencing requires a separate permit through the Building Safety Division.
7. All construction operations and work zone traffic control within the right of way will follow MoDOT or M.U.T.C.D. standards whichever is more stringent.
8. (INTENTIONALLY OMITTED)
9. All subdivision identification or directional sign(s) must have the locations and sizes approved and permitted separately through the Planning and Development Division.
10. Materials such as trees, organic debris, rubble, foundations, and other deleterious material shall be removed from the site and disposed of in compliance with all applicable laws and regulations. If the material listed herein is reused, a letter from a soil Engineer must be included with the construction plans. Landfill tickets for material disposal shall be maintained on file by the developer. Burning on site shall be allowed only by permit from the local fire district. If a burn pit is proposed the location and mitigation shall be shown on the grading plan and documented by the soils engineer.
11. Twenty-four (24) hours advance notice of the work covered by the above plans and after approval thereof, the developer shall make arrangements with the Construction Inspection Office to provide for inspection of the work, sufficient in the opinion of the City Engineer, to assure compliance with the plans and specifications as approved.
12. The City Engineer or their duly authorized representative shall make all necessary inspections of City infrastructure, escrow items or infrastructure located on the approved plans.
13. All installations and construction shall conform to the approved engineering drawings. However, if the developer chooses to make minor modifications in design and/or specifications during construction, he/she shall make such changes at his/her own risk, without any approval of the completed installation or construction. It shall be the responsibility of the developer to notify the City Engineer of any changes from the approved drawings. The developer may be required to correct the installed improvements so as to conform to the approved engineering drawings. The developer may request a letter from the Construction Inspection Division regarding any field changes approved by the City inspectors.
14. City approval of the construction site plans does not mean that any building can be constructed on the lots without meeting the building setbacks as required by the zoning code.

Additional General Notes

1. The original of these drawings are on file at the office of The Clayton Engineering Company. Any modifications to these drawings shall release said Clayton Engineering Company and the Engineer and/or the Surveyor whose seal appears hereon from any liability resulting from said unauthorized modifications.
2. All offset property owners shall be given notice 48 hours in advance of any work by the Contractor.
3. Any disturbed offset property (e.g. bushes, fences, mailboxes, etc.) shall be replaced, in kind, at the developer's expense.
4. All existing on-site structures, sidewalks, concrete or asphalt surfaces, curbing, utility poles, sewer structures, utility services, fences, trees, shrubs, and debris noted for removal on the drawings shall be demolished and removed from the site and properly disposed of in a manner approved by the regulating governmental agencies.
5. Contractor shall be responsible for determining the amount of removals, demolition, clearing and grubbing, stripping of vegetation, pavement breaking, and haul off.
6. Contractor shall furnish and provide all services and fees necessary to obtain the required building department permits and for fees by the various utilities associated with the disconnection and termination of their services.
7. Contractor shall obtain all necessary state and local permits required for hauling and disposal of demolition, clearing, and non-suitable materials from the project site. Hauling methods and conditions of the permit shall be strictly adhered to.
8. Contractor shall preserve and protect from damage all existing improvements that are not to be removed within the project limits or adjacent thereto as a result of their activities in the performance of work.
9. Underground facilities, structures and utilities have been plotted from available surveys, records and information and, therefore, do not necessarily reflect the actual existence, nonexistence, size, type, number of, location, or depth of these facilities, structures and utilities. The Contractor shall be responsible for verifying the actual location of all underground facilities, structures and utilities, either shown or not shown on these plans. The underground facilities, structures and utilities shall be located in the field prior to any grading, excavation or construction of improvements. Should the actual location, size or depth of any underground facilities, structures or utilities differ from those indicated on these plans, the Contractor shall immediately notify Clayton Engineering prior to proceeding with the installation of any proposed improvements in the area where the difference exists. These provisions shall in no way absolve any party from complying with the Underground Facility Safety and Damage Prevention Act, Chapter 319, RSMo.
10. Contractor to verify horizontal and vertical location and flow line of all existing utilities prior to connection. All connections to be made in accordance with local codes and/or utility companies requirements.
11. Contractor to notify Engineer as soon as possible if site conditions differ from those shown on plans.
12. The developer is advised that utility companies will require compensation for utility facilities within the public road right-of-way. Utility relocation cost shall be considered the developer's responsibility. The developer should also be aware of extensive delays in utility company relocation and adjustments. Such delays will not constitute a cause of action for occupancy prior to completion of road improvements.
13. Provide adequate off-street parking for construction employees. Parking on non-surfaced areas shall be prohibited in order to eliminate the condition whereby mud from construction and employee vehicles is tracked onto the pavement and into the surrounding conditions.
14. All storm water shall be discharged at an adequate natural discharge point.
15. All landscape areas shall be irrigated.

Missouri Department of Transportation (MoDOT) Notes

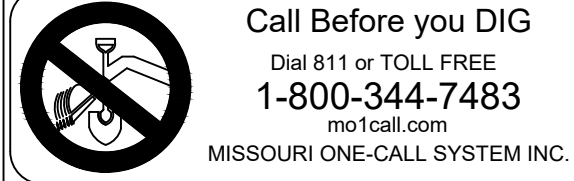
1. All proposed improvements shall conform to Highway Design Manual 2003, MoDOT Standards.
2. All grading and drainage adjacent to Highway DD to be in conformance with MoDOT and City of O'Fallon Standards.
3. No slopes within MoDOT right-of-way shall exceed 3 (horizontal) to 1 (vertical).
1. Developer must supply City Construction Inspectors with an Engineer's soil reports prior to and during site grading. The soil report will be required to contain the following information on soil test curves (Proctor reports) for projects within the City:
 - 1.1. Maximum city density
 - 1.2. Optimum moisture content
 - 1.3. Maximum and minimum allowable moisture content
 - 1.4. Curve must be plotted on a graph with a minimum of 90% Compaction and above as determined by the "Modified AASHTO T-180 Compaction Test" (A.S.T.M.-D-1517) or from a minimum of 95% as determined by the "Standard Proctor Test AASHTO T-99, Method C" (A.S.T.M.-D-698). Proctor type must be designated on document.
 - 1.5. Curve must have at least 5 density points with moisture content and sample locations listed on document
 - 1.6. Specific gravity
 - 1.7. Natural moisture content
 - 1.8. Liquid limit
 - 1.9. Plastic limit
2. Be advised that if this information is not provided to the City's Construction Inspector the City will not allow grading or construction activities to proceed on any project site.
2. All fill placed in areas other than proposed storm sewers, sanitary sewers, proposed roads, and paved areas shall be compacted from the bottom of the fill in 6" lifts and compacted to 90% maximum density as determined by Modified AASHTO T-180 compaction test or 95% of maximum density as determined by the Standard Proctor Test AASHTO T-99. Ensure the moisture content of the soil in fill areas corresponds to the compactive effort as defined by the Standard or Modified Proctor Test. Optimum moisture content shall be determined using the same test that was used for compaction. Soil compaction curves shall be submitted to the City of O'Fallon prior to the placement of fill.
 - 3. The surface of the fill shall be finished so it will not impound water. If at the end of a days work it would appear that there may be rain prior to the next working day, the surface shall be finished smooth. If the surface has been finished smooth for any reason, it shall be scarified before proceeding with the placement of succeeding lifts. Fill shall not be placed on frozen ground, nor shall filling operations continue when the temperature is such that the water placement will be frozen.
 - 4. All sediment and detention basins are to be constructed during the initial phase of the grading operation or in accordance with the approved SWPPP.
 - 5. When grading operations are complete or suspended for more than 14 days, permanent grass must be established at sufficient density to provide erosion control on site. Between permanent grass seeding periods, temporary cover shall be provided according to Missouri Department of Natural Resources Protecting Water Quality - a field guide to erosion, sediment and stormwater best management practices for development sites in Missouri and Kansas. All finished grades (areas not to be disturbed by improvements) in excess of 20% slopes (5-1) shall be mulched and backed at a rate of 100 pounds per 1000 square feet when seeded.
 - 6. No slopes shall exceed 3 (horizontal) : 1 (vertical) unless otherwise approved by the soils report and specifically located on the plans and approved by the City Engineer.
 - 7. All low placement material to be graded to proper finishing and compaction tolerances.
 - 8. Any existing wells and/or springs which may exist on the property must be sealed in a manner acceptable to the City of O'Fallon Construction Inspection Department and following Missouri Department of Natural Resources standards and specifications.
9. (INTENTIONALLY OMITTED)
10. All trench back fills under paved areas shall be granular back fill, and compacted mechanically. All other trench back fills may be earth material (free of large clods, or stones) and compacted using either mechanical tamping or water jetting. Granular material and earth material associated with new construction outside of pavements may be jetted, taking care to avoid damage to newly laid sewers. The jetting shall be performed with a probe rod on not greater than 7.5 foot centers with the jetting probe centered over and parallel with the direction of the pipe. Trench widths greater than 10 feet will require multiple probes every 7.5 foot centers.
 - 10.1. Depth. Trench back fills less than 8 feet deep shall be compacted to a depth extending half the depth of the trench back fill, but not less than 3 feet. Trench back fill greater than 8 feet in depth shall be compacted to half the depth of the trench back fill but not greater than 8 feet.
 - 10.2. Equipment. The jetting probe shall be a metal pipe with an interior diameter of 1.5 to 2 inches.
 - 10.3. Method. Jetting shall be performed from the lowest surface topographic point and from the bottom of the trench back fill toward the surface. The flooding of each jetting probe shall be started slowly allowing slow saturation of the soil. Water is not allowed to flow away from the trench without first saturating the trench.
 - 10.4. Surface Bridging. The contractor shall identify the locations of the surface bridging (the tendency for the upper surface to crust and arch over the trench rather than collapse and consolidate during the jetting process). The contractor shall break down the bridged areas using an appropriate method such as wheels or bucket of a backhoe. When surface crust is collapsed, the void shall be back filled with the same material used as trench back fill and re-jetted. Bridging of the materials within the sunken/jetted area shall be compacted such that no further surface subsidence occurs.
11. Site grading.
 - 11.1. Within City right-of-way. Material to be placed in eight (8) inch to twelve (12) inch loose lifts and compacted per the approved compaction requirements. One (1) compaction test will be performed every two hundred fifty (250) cubic yards for each lift.
 - 11.2. Outside of City right-of-way. Material is to be placed in eight (8) inch to twelve (12) inch loose lifts and compacted per the approved compaction requirements. One (1) compaction test will be performed at two (2) foot vertical intervals and approximately every one thousand (1,000) cubic yards.
12. Access to the site from any other location other than the proposed construction entrance is strictly prohibited!

Additional Grading Notes

1. See Geotechnical Report(s) by SCI Engineering, Inc., dated June 2021 for design and construction specifications and recommendations. The specifications and requirements contained in this report shall supersede those found in the specification sections and on these Site Construction Plans. The Engineer shall be notified if discrepancies occur between the report and these plans.
2. Trucks shall not exceed posted weight limits for bridges during haul operations.
3. All grading shall be within 0.2 feet, more or less, of the contours shown on the grading plan, unless otherwise directed by the Owner or Engineer, with the following exceptions. All Stormwater Best Management Practices (BMPs) shall be within 0.04 feet of contours and spot elevations shown on plans. All paved areas shall be within 0.08 feet of the contours and the spot elevations shown on the plans. All structures providing ADA access, including ramps, walkways, designated parking spaces, etc., shall be within 0.02 feet of contours and spot elevations shown on plans.
4. Any grading quantities shown on the plans are for permitting purposes only for public review agencies and shall not be used for Bid quantities. The Contractor shall calculate their own quantities for bidding.
5. Upon completion of construction, all disturbed areas shall either be paved, landscaped, or sodded for these project requirements. Permanent seeding will not be permitted on this development. In addition, public right-of-ways, all slopes steeper than 5:1, and all drainage swales shall be protected by sodding or paving upon completion of construction or compaction.
6. All fills are to be left with a temporary lip (berm) at the top of the slope at the end of each day's operations.
7. Before filling, the Contractor shall identify and remove all objectionable material, rubbish and debris. If applicable to the geotechnical engineer, existing concrete and asphalt paving shall be broken up to a maximum dimension of 6 inches in size, and may be mixed with sufficient excavated soil to eliminate voids and disposed of in fill areas on the site. Broken asphalt or concrete shall not be placed in building areas, stormwater BMP areas, or utility trenches.
8. If any unsuitable soil is uncovered during the excavation for footings, the Contractor shall follow the Geotechnical Report recommendations for remediation.

Erosion Control Notes

1. The Permittee shall assume complete responsibility for controlling all siltation and erosion of the project area. The Permittee shall use whatever means necessary to control erosion and siltation including, but not limited to, stacked straw bales and/or siltation fabric fences (possible methods of control are detailed in the plan). Control shall commence with the clearing operations and be maintained throughout the project until acceptance of the work by City of O'Fallon and as needed by MoDOT. The Permittee's responsibilities include all design and implementation as required to prevent erosion and the depositing of silt. The City of O'Fallon and as required by MoDOT may at their option direct the Permittee in his methods as deemed fit to protect property and improvements. Any depositing of silt or mud on new or existing pavement shall be removed immediately. Any depositing of silts or mud in new or existing storm sewers and/or swales shall be removed after each rain and affected areas cleaned to the satisfaction of the City of O'Fallon and as required by MoDOT."
2. All erosion control systems are to be inspected and corrected weekly, especially within 48 hours of any rain storm resulting in one-quarter inch of rain or more. Any silt or debris leaving the site and affecting public right of way or storm water drainage facilities shall be cleaned up within 24 hours after the end of the storm.
3. Erosion control devices (silt fence, sediment basin, etc.) shall be in accordance with Missouri Department of Natural Resources Protecting Water Quality - a field guide to erosion, sediment and stormwater best management practices for development sites in Missouri and Kansas.
4. This construction is required to provide long term post construction BMP's such as, low impact design, source control and treatment controls that protects water quality and controls run off to Storm Water Discharge Guidelines (Ord. 5082, section 405.245)
5. Graded areas shall be seeded and mulched (straw) within 14 days of stopping land disturbance activities. Unless it can be shown to the City Engineer that weather conditions are not favorable, vegetative growth is to be established within 6 weeks of stopping grading work on the project. The vegetative growth established shall be sufficient to prevent erosion and the standard shall be as required by EPA and DNR. (70% coverage per square foot) Ord. 6496, Section 405.095



Underground facilities, structures & utilities have been plotted from available surveys, records & information and, therefore, do not necessarily reflect the actual existence, nonexistence, size, type, number of, or location of these facilities, structures, & utilities.

The Contractor shall be responsible for verifying the actual location of all underground facilities, structures, & utilities, either shown or not shown on these plans. The underground facilities, structures, & utilities shall be located in the field prior to any grading, excavation or construction of improvements. These provisions shall in no way absolve any party from complying with the Underground Facility Safety and Damage Prevention Act.

The original signed and sealed of this drawing is on file at the office of The Clayton Engineering Company. Any modifications to this drawing shall release said The Clayton Engineering Company, the Engineer and/or Surveyor whose seal appears hereon from any liability resulting from said unauthorized modifications. The signed and sealed original is the official document and shall take precedence over any digital version.

Sanitary Sewer Notes

1. All sanitary sewer installation is to be in accordance with M.S.D. standards and specifications except as modified by the City of O'Fallon Ordinances.
2. Brick shall not be used in the construction of sanitary sewer structures. Pre cast concrete structures are to be used unless otherwise approved by the City of O'Fallon.
3. Connections at all sanitary structures are to be made with A-LOCK joint or equal
4. All sanitary laterals shall be a minimum of 4" residential, 6" commercial diameter pipe.
5. All sanitary mains shall be a minimum of 8" diameter pipe.
6. All sanitary sewers shall be installed with a slope greater than 20% will require concrete cradle or concrete collar at each pipe joint. Sanitary line with a slope greater than 50% will require a special approved design as shown on detail sheet.
7. All manholes built within the 100 year flood plain must have lock type watertight manhole covers.
8. All sanitary sewer mains must have a minimum of 42" cover.
9. When sanitary mains cross over storm line the sanitary main must be ductile iron pipe for 10 feet on each side of the crossing.
10. Encase with concrete both sanitary and storm sewer at crossing when storm sewer is within 18 inches above sanitary sewer. Add concrete cradle to only RCP storm sewer and encase flexible storm sewer when it is more than 18 inches above sanitary line. Show on profile sheet.
11. The sanitary sewers shall run diagonally through the side yards to minimize any additional utility easements required.
12. All sanitary sewer structures shall be waterproofed on the exterior in accordance to Missouri DNR specifications 10CSR-8-120 (7)(f).
13. All sanitary sewer pipe shall be SDR35 or equal. All sanitary sewer laterals shall be Schedule 40.
14. All sanitary sewer manholes and pipes will be tested to the following specifications. ASTM C1244, Standard Testing Method for Concrete Sewer Manhole by Negative Air Pressure (Vacuum). Latest revision ASTM F1417, Standard testing method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air, Latest revision.
15. Add 1" minus rock back fill to all sanitary sewer and all other utilities that lie within the 1:1 shear plane of the road.

Storm Sewer Notes

1. All Storm Sewer installation is to be in accordance with M.S.D. standards and specifications except as modified by the City of O'Fallon ordinances.
2. Brick shall not be used in the construction of storm sewer structures. Pre cast concrete structures are to be used unless otherwise approved by the City of O'Fallon.
3. A 6" trash bar shall be installed horizontally in the center of the opening(s) in all curb inlets and area inlets.
4. Encase with concrete both sanitary and storm sewer at crossing when storm sewer is within 18 inches above sanitary sewer. Add concrete cradle to only RCP storm sewer and encase flexible storm sewer when it is more than 18 inches above sanitary line. Show on profile sheet.
6. The storm sewers shall run diagonally through the side yards to minimize any additional utility easements required.
7. All manholes shall be built with a minimum of 42" cover.
8. Connections at all storm structures are to be made with A-LOCK joint or equal.
9. Pre cast concrete inlet covers are not to be used.
10. All structures and manholes shall be constructed of concrete. H.D.P.E. pipe will not be allowed for detention basin outflows, final pipe run to detention basins, creek discharge or other approved means.
11. Add 1" minus rock back fill to all storm sewer that lie within the 1:1 shear plane of the road.

Additional Storm and Sanitary Sewer Notes

1. PP pipe for use in storm sewers 12 to 60 inches in diameter it shall conform to the requirements of ASTM F2764 "Standard Specification for 6 to 60 In. Polypropylene (PP) Corrugated Double and Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications", except as otherwise specified herein. Dual wall polypropylene pipe shall have a smooth interior and annular exterior corrugations. Triple wall polypropylene pipe shall have a smooth interior and exterior with annular inner corrugations. Pipe shall be joined with an integral bell and gasket joint on all sizes. The joints shall be watertight in accordance with ASTM D3212. Pipe shall have a reinforced bell with a polymer composite band installed by the manufacturer.
2. Manhole frames and covers shall be standard frames and cover, R-1775, as manufactured by Neenah Foundry Company, or equivalent approved by the Engineer.
3. All cast iron pipe shall be 4 inch on 6 inch weight turned up, 4 inch elbow and riser. Cap with a round frame and cover, Neenah Foundry Company R-1976 or equivalent approved by the Engineer. Frame to be set in concrete collar.
4. All "non-sell" storm sewers will remain private owned and maintained.
5. Duckett Creek Sanitary District current construction standards shall take precedence over M.S.D. and City standards and specifications for sanitary sewer construction and materials for this project since the site is within their jurisdiction.
6. The sewer contractor may construct the building sewer laterals in conjunction with the sanitary main, trunk or lateral sewers, within a development, so long as the building sewer lateral terminates five (5) feet, or more, outside the proposed, or existing building line or foundation wall.
7. Sanitary sewer backflow prevention must be provided in accordance with the current plumbing code.

Flood plain Information

1. Refer to Section 415 for Floodplain Development Information

Retaining Walls: Terraced and Vertical

1. A permit is required for all retaining walls that are 48 inches or taller in height, measured from the top of the footing to the top of the wall or for walls that support a surcharge load or that alters the channelized drainage of any lot or drainage area.
2. Retaining walls will not be allowed in public right-of-way without written approval from the City Engineer.
3. Retaining walls shall be constructed on a minimum of 2 feet of the wall will require a grant on the retaining wall.
4. Retaining walls that alter the channelized drainage of any lot or drainage area shall not be constructed without prior approval and permitting from the City of O'Fallon Engineering Department regardless of the height of the wall.
5. See section 405.275 of the City code for additional design requirements.

Water Notes

1. Fire hydrants shall be a maximum of 800' apart. Local fire district approval is required.
2. Coordinate with the water company on the location of water meters. For meters in the City's district, meters shall be in the right-of-way, otherwise an access easement from the right-of-way shall be provided.
3. All water main shall have a minimum of 42" of cover. (City water mains)
4. Provide water valves and hydrants at the following locations:
 - 5. All water mains shall be class 200 SDR 21 or equal with lock/actuator valves.
 - 6. If the excavations are made in the improved portion of the right-of-way, twelve inches of granular backfill will be placed over exposed facilities and controlled low strength material (CLSM) aka flowable fill will fill the hole with eight inches of the finished surface for concrete pavement. There will be a plastic membrane placed between the rock base and the CLSM to prevent the material from bleeding into the rock base. The curves shall be submitted to the City of O'Fallon prior to the placement of fill.
 - 7. DISINFECTING: Disinfecting shall be accomplished by placing sufficient hypochlorite granule (HTH) in each section of pipe to achieve a chlorine residual in the pipeline, upon initial filling, of 50 mg/L (PPM) HT. tablets will not be allowed. Following completion of the pipeline, it shall be slowly filled with water and a sample will be taken immediately and the chlorine residual must be 50 mg/L or greater. The solution shall be allowed to stand for the required time and then be taken. The chlorine residual after 24 hours shall be 10 mg/L or greater. If the piping shows insufficient chlorine residuals in either test, the piping shall be re-chlorinated by the injection of hypochlorite solution until satisfactory results are achieved. All disinfecting shall be done by the contractor. Only the testing to determine the chlorine residual will be done by the City.
 - 8. PRESSURE TESTING: Immediately following disinfection, the piping shall be pumped to a pressure (at the HIGHEST point in the project) of 150 psi or higher where the working pressure is higher than 150 PSI as determined by the City. In such cases, the pressure shall be as specified by the City and two pressure tests shall be conducted. The first test shall be with the fire hydrant auxiliary valve open and be to 50 PSI. The second test shall be with the fire hydrant auxiliary valve closed and to the higher pressure as directed by the City. All pumping equipment and pressure gauges shall be provided by the contractor. After achieving the test pressure, the piping shall be left closed for a period of 20 (20) hours. At the end of this time the pressure drop shall not exceed 2 psi. In addition, if the pressure appears, in judgment of the City's representative, to be continuing to drop, the test shall be considered a failure. If the pressure test fails, the contractor will be required to find and correct the source of the leakage. If this requires draining of the pipeline, when the leakage is corrected, the pipeline must be re-disinfected and the pressure tested again until satisfactory result are achieved. Any MDRN required dechlorination will be performed by the contractor.
 - 9. All tops for valves, meters, and manholes are to be constructed to within 1 inch (0.08") of finish grade. Grading around structure tops on slopes need to be accounted for.
6. BACTERIOLOGICAL TESTING: After satisfactory disinfection and pressure testing, a sample shall be taken by the contractor in the presence of the City representative and submitted to a laboratory approved by the Missouri Department of Natural Resources and the City for bacteriological analysis. After 24 hours, a second sample shall be taken in a like manner and submitted for analysis. The two samples taken on consecutive days, a minimum of 24 hours apart, must be found to be "safe" by the testing laboratory, and copies of the test results must be supplied to the City. If the samples are not found to be "safe" further flushing and/or disinfection as directed by the City shall be conducted by the contractor until "safe" samples on two consecutive test days are achieved. Following successful bacteriological testing and a determination by the City that the samples are "safe", the mains may be placed into service.

Additional Water Line Notes

1. All materials and methods of installation for new public water mains, service lines, valves, fittings, hydrants, and related items shall be installed in accordance with Public Water Supply District No. 2 of St. Charles County Guidelines and Specifications as approved by MCDNR Review No. 6050805-13.
2. 2" meter and line - the Public Water Supply District No. 2 will supply only the water meter, gaskets and bolts and nuts needed to complete the service installation. The Contractor is responsible for providing the tapping saddle as well as excavation, trenching, backfilling and installation. It shall be witnessed and inspected by the water district. 2" lines can be type K copper on discharge side of the meter. All installation to follow Public Water Supply District No. 2 standards and specifications.
3. All water lines shall be laid at least 10 feet horizontally from any sanitary sewer, storm sewer, or manhole. Whenever water lines must cross sanitary sewers, laterals or storm drains, the water lines shall be two hundred (200) vertical distance above the sanitary sewer. A minimum vertical distance of 18 inches between the outside of the water line and the outside of the sewer where the water line crosses the sewer line. This shall be the case where the water line is either above or below the sanitary line. A full length of water pipe shall be centered over the sewer line so that the joints will be equally distant from the sewer and as remote therefrom as possible. This vertical separation shall be maintained for that portion of the water line located within 10 feet, horizontally, of any sewer or drain it crosses.
4. Public Water Supply District #2 requires one (1) week notice before the start of construction.
5. It shall be the contractor's responsibility to obtain any City or MoDOT permits required to work along the roadways.

Roadway Notes

1. All paving (public and private) to be in accordance with St. Louis County Standards and Specifications except as modified by the City of O'Fallon ordinances.
 - 1.1. If the intersecting road does not have a curb, then the curb on the new entrance shall begin 10' from the edge of the existing road.
 - 1.2. Provide 6" of concrete over 4" of aggregate base for minor residential streets per City Code 405.370.
- 3.1. Rock to meet all the requirements of MoDOT type 5 rock with a lighter restriction on the fines being that no more than ten percent (10%) fines shall pass a no. 200 sieve. (City Code 405.210.B.1)
- The gradation of this rock needs to be submitted to the City for approval. Any deliveries made without the proper delivery ticket, including signage, will not be accepted. The delivery ticket must list the project name or job site location. A separate certification sheet may be provided attached to the delivery ticket with a signature of the company's quality control manager. The quality control certification shall be current and dated within 4 weeks of the delivery. (City Code 405.210.A.2.4)
4. Multi-use trail (when required) Shall have a minimum of 3" Type "C" Asphalt over 4" aggregate base per City specifications.
5. Type C (BP-1) Compaction requirements shall be 98% minimum density according to St. Louis Co. Standard Specifications.
6. Provide pavement striping at any point where the multi-use trail crosses existing or proposed pavement
7. All street sub-outs over 250' in length will require a temporary turnaround.
8. All sub grade in cut or fill will need to conform to the City of O'Fallon Compaction requirements
9. Material Testing And Frequency. Materials for construction shall be tested and inspected per the appropriate ASTM code or at the City of O'Fallon's discretion. The developer's engineer shall perform quality control guidelines, in accordance with St. Louis County requirements 501.3.1.
10. Approval Of Sub grade And Base (Sub base). The City Engineer or representative shall approve the sub grade before any base is placed thereon and shall approve the base before concrete or surface course is placed. The sub grade and base shall be so constructed that it will be uniform in density throughout.
11. In all fill areas in the roadways, soil tests shall be submitted and approved by the City Engineer for each foot of fill and at least one (1) test and an average of one (1) test within every two hundred fifty (250) feet.
 - 12. No traffic will be allowed on new concrete pavement until it has cured for seven (7) days and it reaches three thousand five hundred (3,500) psi within 28 days.
 - 12.1. Concrete pavements shall not be approved unless it reaches a strength of four thousand (4,000) psi. Cylinder/compressive strength. One (1) set of four (4) 6" cylinders within the first fifty (50) cubic yards and one (1) set per one hundred (100) cubic yards thereafter. One (1) cylinder must be tested at seven (7) days, three (3) at twenty-eight (28) days, and one (1) held in reserve.
 - 13. Prior to placement of aggregate base material on sub grade and prior to placement of pavement on base material, the sub grade and base must be pro-rolled with a fully loaded (ten (10) ton load) tandem truck or equivalent tire vehicle with one (1) pass down each driving lane no faster than three (3) miles per hour. If soft spots are detected, or pumping, rutting or heaving occurs greater than one (1) inch at the sub grade, the roadbed shall be considered unsatisfactory and the soil in these areas shall be remediated to the depth indicated by the contractor's testing firm and approved by a representative of the City Engineer.
 - 14. Sub grade and base beneath pavements shall be compacted to St. Charles County Highway Department specifications. The moisture range shall be determined by the Standard or Modified Proctor Density Method AASHTO T-99 and within +/-4 percentage points of the optimum moisture content.
 - 15. All sub grade and base shall be compacted to the same depth and length with conform to the same method as established by the engineer. If any settling or washing occurs, or where hauling results in ruts or other objectionable irregularities, the contractor shall improve the sub grade or base to the satisfaction of the City before the pavement is placed. Additional rolling or methods to verify compaction shall be at the discretion of the City Engineer. Tolerance allowed on all lines, grades and cross sections shall be plus or minus four-hundredths (+0.04) feet.
 - 16. Utility Work Prior To Base Construction. No base course work may proceed on any street until all plus or minus excavations (storm and sanitary sewers, water, gas, electric, etc.) have been properly back filled with granular material, crushed stone or gravel mechanically tamped in ten (10) inch lifts. Utilities installed after sub-grade preparation shall be bored. Compaction requirements shall follow St. Charles County standards.
 - 17. Equipment calibration. The developer's contractors and subcontractors must have their equipment calibrated by the following minimum standards.
 - 17.1. Air meter--weekly.
 - 17.2. Cylinder compression--annually by independent calibration service.
 - 17.3. Batch scales--monthly.
 - 17.4. Nuclear testing devices--every six (6) months.
 - 17.5. Proctor equipment--every six (6) months.
 - 17.6. Slump cone--monthly.
 - 18. All permanent traffic control will be per M.U.T.C.D. or MoDOT standards. S1-1 from the M.U.T.C.D. manual will be used at all crosswalk locations accompanied with either w16-9p or w16-7p signs.
 - 19. All traffic signals, street signs, sign posts, backs and bracket arms shall be painted black using Carboline Rust Bond Penetrating Seal SG and Carboline 133 HB paint (or equivalent as approved by City of O'Fallon and MoDOT)
 - 20. If the excavations are made in the improved portion of the right-of-way, twelve inches of granular backfill will be placed over exposed facilities and controlled low strength material (CLSM) aka flowable fill will fill the hole with eight inches of the finished surface for concrete pavement. There will be a plastic membrane placed between the rock base and the CLSM to prevent the material from bleeding into the rock base. The remaining eight inches will be restored by placing a 28 day, 4,000 psi concrete mix.

Additional Streets and Paving Notes

1. Entire Right-of-Way shall be graded and compacted prior to paving. All fill in the right-of-way and the upper 18 inches of subgrade in cut areas where deemed necessary shall be compacted. Shoulders shall be backfilled, compacted and shaped to finish grade as shown on curbs as in place and sufficiently set to remove forms.
2. All materials and methods of construction for any improvements along Highway DD to meet the requirements of the Missouri Department of Transportation (MoDOT).
3. All materials and methods of construction for the entrance on Private Side and Rear Access Drives to meet the requirements of the City of O'Fallon. Entrances, parking areas and service drives shall be paved with 8-inch un-reinforced concrete on a 4-inch type 1 aggregate base with 6-inch vertical concrete curb. Entire subgrade shall be shaped, compacted and rolled prior to placing base course. Local soft spots in subgrade encountered during pavement construction shall be undercut and replaced with a thicker rolled stone base section (see typical pavement section details on C5.0).
4. All materials and methods of construction for the pavements onsite to meet the requirements of the City of O'Fallon. Parking areas, drive-thru lane, trash enclosure pavement and service drives shall be paved with concrete pavement. Subgrade for pavement shall be compacted with a self-propelled steel wheel roller weighing not less than 10 tons. Concrete pavement shall be a 4-inch Type 1 compacted base course. Entire subgrade shall be shaped, compacted and rolled prior to placing base course. Local soft spots in subgrade encountered during pavement construction shall be undercut and replaced with a thicker rolled stone base section (see typical pavement section details on C5.1).
5. All on-site curb shall be 6" high concrete curb, unless noted otherwise. Integral sidewalk / curb shall be installed adjacent to concrete sidewalks, and vertical at all other locations, including adjacent to existing pavements.
6. All Concrete pavement and curbs shall have a minimum compressive strength of 4,000 psi @ 28 days.
7. St. Louis County Standard Type "D" joints will be required for all concrete pavement terminations at the end of a working day. All concrete joints to be sealed.
8. All concrete joints shall be sealed prior to paving. Final completion of construction and acceptance against settlement, low spots or raveling over surfaces. Contractor shall make any repairs necessary during guarantee period to maintain paving in original condition, including cost of repainting within repaired areas. Repairs shall include but not be limited to removing defective paving and replacing with new paving. (No overlays will be allowed).
9. The asphalt surface shall be compacted to 98% maximum density.
10. The Contractor shall repair any damage to the existing pavement that results from new the construction.

DUCKETT CREEK SANITARY DISTRICT CONSTRUCTION NOTES:

1. Underground utilities have been plotted from available information and therefore location shall be considered approximate only. The verification of the location of all underground utilities, either shown or not shown on these plans, shall be the responsibility of the contractor and shall be located prior to any grading or construction of improvements.
2. Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing or proposed sanitary and storm sewers, including house laterals.
3. All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match preconstruction conditions.
4. All fill placed under proposed storm and sanitary sewer lines and paved areas including trench backfills within and off the road right-of-way shall be compacted to 90 percent of maximum density as determined by the "Modified AASHTO T-180 Compaction Test (ASTM D1557)". All tests shall be verified by a Soils Engineer consistent with grading and backfilling operations. The compacted fill shall be free of rifting and shall be non-yielding and nonpumping during proofrolling and compaction.
5. The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system. The contractor will be required to install a brick bulkhead on the downstream side of the first new manhole constructed when connecting into existing sewers.
6. All sanitary sewer flowlines and tops built without elevations furnished by the engineer will be the responsibility of the sewer contractor.
7. It is the responsibility of the contractor to adjust all sanitary sewer manholes (that are affected by the development) to finish grade.
8. Easements shall be provided for all sanitary sewers, storm sewers and all utilities on the record plan.
9. All sanitary sewer construction and materials shall conform to the current construction and acceptance of the Duckett Creek Sanitary District.
10. The Duckett Creek Sanitary District shall be notified at least 48 hours prior to construction for coordination of inspection.
11. All sanitary sewer building connections shall be designed so that the minimum vertical distance from the low point of the basement to the flowline of a sanitary sewer at the corresponding building connection shall not be less than the diameter of the pipe plus the vertical distance of 2 1/2 feet.
12. All sanitary sewer manholes shall be watertight in accordance with Missouri Dept. of Natural Resources specification 10 CSR 204-R.1206(F)1.
13. All PVC sanitary sewer pipe shall conform to the requirements of ASTM D-3034 Standard Specification for PSM Polyvinyl Chloride Sewer Pipe, SDR-35 or equal, with "clean" 1/2 inch to 1 inch granular stone bedding uniformly graded. This bedding shall extend from 4 inches below the pipe to the springline of pipe. Immediate backfill over pipe shall consist of same size "clean" or "minus" stone from springline of pipe to 6 inches above the top of pipe. Final backfill shall be of suitable material removed from excavation except as other material is specified. Debris, frozen material, large rocks or stones, or other unstable materials shall not be used within 2 feet from top of pipe.
14. All sanitary and storm sewer trench backfills shall be water jetted. Granular backfill will be used under pavement areas.
15. All pipes shall have positive drainage through manholes. Flat invert structures not allowed.
16. Epoxy Coating shall be used on all sanitary sewer manholes that receive pressurized mains.
17. All creek crossings shall be lined with rip-rap as directed by District inspectors.
18. Brick shall not be used on sanitary sewer manholes.
19. Existing sanitary sewer service shall not be interrupted.
20. Maintain access to existing residential driveways and streets.
21. Pre-manufactured adapters shall be used at all PVC to DIP connections. Rubber boot / Mason-type couplings will not be allowed.
22. Any permits, licenses, easements, or approvals required to work on public or private property or roadways are the responsibility of the developer.
23. Type N' Lock-Type Cover and Locking Device (Lock-Lug) shall be used where lock-type covers are required.
24. All PVC sanitary sewer work shall be conducted under the inspection of a representative of the District. All work may not require inspection but the District's representative may designate specific areas that must be inspected before the work is backfilled. All testing must be witnessed by the District's inspector and the Contractor shall furnish all testing equipment as approved by the District. Testing shall include:
 - A mandrel test of all gravity sewers using a mandrel with a diameter that has a diameter 95% of the inside pipe diameter. If the mandrel test fails on any section of pipe, that section of pipe shall be uncovered and replaced. No expansion devices will be allowed to be used to "force" the pipe that is deformed back into round.
 - Any string lines used in mandrel testing shall be removed after testing is completed. Deflection testing cannot be conducted prior to 30 days after final backfill.
 - An air pressure test of all gravity sewers to a pressure of 5 PSI with no observed drop in pressure during a test period of 5 minutes.
 - A vacuum test of all manholes for a period of 1 minute and the vacuum shall be 10" of mercury and may not drop below 9" of mercury at the end of the 1 minute test.
25. Connection of new lateral requires DCSD inspection. Contact the DCSD Inspection Department, at 636-441-1244 to schedule inspection. 48 hour advance notice is required.

1. All work shall be done in accordance with the Missouri Department of Natural Resources and the City of O'Fallon standards and specifications.
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