

GRADING NOTES

- 1. Underground utilities have been plotted from available information and therefore their locations 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 and/or construction of improvements.
2. The sediment control plan should be implemented before grading begins. No graded area is to remain bare without being seeded and mulched. When deemed necessary, positive steps should be exercised to prevent this soil from damaging adjacent properties and silt on any storm drainage.
3. Sediment and erosion control shall not be limited to what is shown on the plans. The contractor, with the approval of the County Inspector, shall utilize best management practices to prevent sediment from entering adjacent properties, roadways, storm sewers and drainage ways.
4. No area shall be cleared without permission of the developer.
5. Owner/Developer assumes full responsibility as to the performance of the grading operation and assurance that all properties and County and State roads will be adequately protected.
6. Soil preparation and re-vegetation shall be performed according to Appendix A of the Model Sediment and Erosion Control Regulations for Urban Development.
7. Where natural vegetation is removed during grading, vegetation shall be reestablished in such a density as to prevent erosion. Permanent type grasses shall be established as soon as possible or during the next seeding period after grading has been completed. Refer to Appendix A of St. Charles Soil and Water Conservation District - Model Sediment and Erosion Control Regulations.
8. Site preparation includes the clearance of all stumps, trees, bushes, shrubs, and weeds, the grubbing and removal of roots and other surface obstructions from the site, and the demolition and removal of any man-made structures. The unsuitable material shall be properly disposed of off-site. Topsoil and grass in the fill areas shall be thoroughly disc'd prior to the placement of any fill. The Soils Engineer shall approve the discing operation.
9. Design equipment shall consist of tamping rollers, pneumatic-tired rollers, vibratory rollers or high speed impact type drum rollers acceptable to the Soils Engineer. The rollers shall be equipped so as to avoid the creation of a layered fill without proper blending of successive fill layers.
10. The Soils Engineer shall observe and test the placement of the fill to verify that specifications are met. A series of fill density tests will be determined on each lift of fill. Interim reports showing fill quality will be made to the Owner at regular intervals.
11. The Soils Engineer shall notify the Contractor of rejections of a lift of fill or portion thereof. The Contractor shall rework the rejected portion of fill and obtain notification from the Soils Engineer of its acceptance prior to the placement of additional fill.
12. All Areas to receive fill shall be scarified to a depth of not less than 6 inches and then compacted to at least 85 percent of the maximum density as determined by the Modified AASHTO T-180 Compaction Test (ASTM-D-1557). Natural slopes steeper than 1 vertical to 5 horizontal to receive fill shall have horizontal benches cut into the slopes before the placement of any fill. The width and height to be determined by the Soils Engineer. The fill shall be loosely placed in horizontal layers not exceeding 8 inches in thickness and compacted in accordance with the specifications given below. The Soils Engineer shall be responsible for determining the acceptability of soils placed. Any unacceptable soils placed shall be removed at the Contractor's expense.
13. The sequence of operation in the fill areas will be, fill, compact, verify acceptable soil density, and repeat the sequence. The acceptable moisture contents during the filling operation are those at which satisfactory dry densities can be obtained. The acceptable moisture contents during the filling operation in the remaining areas are from 2% below to 6% above the optimum.
14. The surface of the fill shall be finished so that 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.
15. All low places whether on site or off site should be graded to allow drainage. This may be accomplished with temporary ditches. Any off site drainage easements shall be acquired before off site grading is to begin.
16. All excavations, grading or filling shall have a finished grade not to exceed a 3:1 slope (3.33%).
17. All filled places under proposed storm and sanitary sewer lines and/or paved areas including trench backfills within and off the road right-of-way shall be compacted to 90% of maximum density as determined by the Modified AASHTO T-180 Compaction Test (ASTM D-1557). All tests shall be verified by a Soils Engineer concurrent with grading and backfilling operations.
18. All filled places in proposed and existing St. Charles County roads (highways) shall be compacted from the bottom of the fill up to 90% maximum density as determined by the Modified AASHTO T-180 Compaction Test (ASTM D-1557). Paved areas in cuts shall meet the same compaction requirements. All tests shall be verified by a Soils Engineer concurrent with grading operations.
19. Soft soils in the bottom and banks of any existing or former pond sites or tributaries or any sediment basins or traps should be removed, spread out and permitted to dry sufficiently to be used as fill. None of this material should be placed in proposed public right-of-way locations or on any storm sewer location.
20. Any wells and/or springs which may exist on this property should be located and sealed in a manner acceptable with the City of Dardenne Prairie, St. Charles County Highway Department and St. Charles County Building Department.
21. Temporary siltation control measures (structural) shall be maintained until vegetative cover is established at a sufficient density to provide erosion control on the site.
22. If straw bales or silt fences are destroyed by heavy rains, vandalism, etc., they are to be repaired and/or replaced immediately.
23. When grading operations are completed or suspended for more than thirty (30) days, permanent grass must be established at sufficient density to provide erosion control on the site. Between permanent grass seeding periods, temporary cover shall be provided according to the Designated Official's recommendation. Refer to Appendix A of St. Charles Soil and Water Conservation District - Model Sediment and Erosion Control Regulations. All finished grades (areas not to be disturbed by improvement) in excess of 20% slopes (5:1) shall be mulched and locked at the rate of 100 pounds per 1000 square feet when seeded.
24. All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced.
25. All trash and debris on-site, either existing or from construction, must be removed and properly disposed of off-site.
26. Debris and foundation material from any existing on-site building or structure which is scheduled to be razed for this development must be disposed of off-site.
27. The total yardage of this project is based on a 15 % shrinkage factor.
28. The shrinkage factor is subject to change, due to soil conditions (types and moisture content), weather conditions, and the percentage of compaction actually achieved at the time of the year grading is performed. As a result, adjustments in final grade may be required. If adjustments need to be made, the contractor shall contact the Project Engineer at St. Charles Engineering and Surveying, Inc. prior to completion of the grading.
29. The vertical grading tolerance shall be plus or minus 0.2 feet for all rough grading.
30. All construction and materials shall conform to City of Dardenne Prairie Sanitary Sewer and Water Standards and Specifications.
31. Forty-eight (48) hours notice shall be given to the City of Dardenne Prairie before any grading is to begin in order to allow scheduling of required inspections.
32. Please notify the Chief Inspector of the St. Charles County Highway Department 24 hours prior to the commencement of grading and/or prior to the commencement of construction.
33. The Contractor shall prevent all storm/surface water, mud or construction debris from entering the existing sanitary sewer system.
34. The contractor shall maintain access to existing residential driveways and streets at all times.
35. Upon completion of storm sewers, siltation control shall be provided around all open sewer inlets and shall remain until the disturbed drainage areas have been properly stabilized.
36. When mechanized land clearing activities are completed or suspended for more than 30 days, either temporary vegetation must be established or temporary siltation control measures must be put in place with the review and approval of the City Engineer.
37. Developer must supply City construction inspectors with soil reports prior to or during site soil testing.

IMPROVEMENT PLANS PEACEFUL VALLEY

PART OF A TRACT OF LAND BEING PART OF U.S. SURVEY 1771, PART OF U.S. SURVEY 3180, AND PART OF FRACTIONAL SECTIONS 5 AND 8, TOWNSHIP 46 NORTH; RANGE 3 EAST CITY OF DARDENNE PRAIRIE, MISSOURI

THIS PROPERTY IS SERVICED BY THE FOLLOWING UTILITY COMPANIES:

- GAS - LACLEDE GAS (800) 887-4173
WATER - PUBLIC WATER DISTRICT NO. 2 ST. CHARLES COUNTY (636) 561-3737
ELECTRIC - AMEREN UE (800) 552-7583
TELEPHONE - CENTURY TEL (800) 824-2877
SANITARY - DUCKETT CREEK SANITARY DISTRICT (636) 441-1244
CABLE - CHARTER COMMUNICATIONS (636) 441-7511
FIRE DEPARTMENT - O'FALLON FIRE PROTECTION DISTRICT (636) 272-3493
SCHOOL - FORT ZUMWALT (636) 272-6620



GENERAL NOTES

- 39. The Contractor shall assume complete responsibility for controlling all siltation and erosion of the project area. The Contractor shall use whatever means necessary to control erosion and siltation including, but not limited to, staked straw bales and/or siltation fabric fences (possible methods of control are detailed in the plan). Erosion control shall commence with grading and be maintained throughout the project until acceptance of the work by the Owner and/or the City of Dardenne Prairie and/or St. Charles County. The Contractor's responsibilities include all design and implementation as required to prevent erosion and depositing of silt. The Owner and/or the City of Dardenne Prairie and/or St. Charles County may, at their option, direct the Contractor in his methods as deemed fit to protect property and improvements. Any depositing of silt or mud onto new or existing pavement or in new or existing storm sewers or swales shall be removed after each rain and affected areas cleaned to the satisfaction of the Owner and/or the City of Dardenne Prairie and/or St. Charles County.

- 1. All standard curb inlets are to have front-of-inlet 2.5' (two and one-half feet) behind curb, within public right-of-way, unless otherwise noted.
2. No gravel shall be used in rip-rap. See plans for details.
3. 8" P.V.C. sanitary sewer pipe shall meet the following standards: A.S.T.M. D-3034 SDR35, with wall thickness compression joint A.S.T.M. D-3212. An appropriate rubber seal gasket as approved by the sewer district shall be installed between P.V.C. pipe and manhole structures.
4. The Contractor shall prevent all storm/surface water, mud or construction debris from entering the existing sanitary sewer system.
5. The minimum vertical distance from the low point of the basement to the flowline of the sanitary sewer of the corresponding house connection shall not be less than two and one half feet (2 1/2') plus the diameter of the sanitary sewer.
6. All sanitary laterals shown on plan are to be constructed of 4 inch P.V.C. pipe.
7. All P.V.C. sanitary sewer pipe is to be SDR35 or equal with "deep 1/2" to 1" granular stone bedding", uniformly graded. This bedding shall extend from 4" below the pipe to 6" above the top of pipe.
8. Brick shall not be used on sanitary manholes.
9. All sanitary sewer manholes shall be waterproofer on the exterior in accordance with Missouri D.N.R. Specification 10CSR-8126 (7) (3).
10. All sanitary sewer construction shall conform to current Duckett Creek Sanitary Sewer District Standards and Specifications.
11. All pipes shall have positive drainage through manholes. No flat base structures are allowed.
12. All trench backfills under paved areas shall be granular backfill, and water jetted. All other trench backfills may be earth material (free of large clods or stones) and shall be water jetted.
13. All sewer tops shall without elevations furnished by the Engineer will be the responsibility of the sewer contractor.
14. Easements shall be provided for storm sewers, sanitary sewers, water mains, and all utilities on the record plot. See record plot for location, size, and width of easements.
15. Gas, water, and other underground utilities shall not conflict with the depth or horizontal location of existing and proposed sanitary and storm sewers including house laterals.
16. Duckett Creek Sewer District shall be notified at least 48 hours prior to construction of sanitary sewers for coordination and inspections.
17. All streets within this set of improvement plans shall be dedicated to public use. (After being built to St. Charles County standards and specifications & accepted by St. Charles County).
18. All streets and right-of-ways shown on these improvement plans will be dedicated to the City of Dardenne Prairie for public use forever.
19. Bypasses will be constructed per the standard specifications as shown in the "Manual of Uniform Traffic Control Devices". End of roadway markers shall be mounted 4 feet above the pavement on two post "V" channel sign posts. Each marker shall consist of an 18" diamond panel red reflectors.
20. The most stringent of the above requirements shall apply.
21. Final testing for sanitary sewer mains 8" and larger a manhole must be pulled through and an air test may be required.
22. As-built locations of laterals must be provided to Duckett Creek Sanitary District by the Contractor.
23. Sanitary Manholes
42" manholes/waterproofer for 8" sewers only
48" manholes/waterproofer for sewers over 8"
24. Concrete pipe joints shall be MSO Type "A" approved compression-type joints and shall conform to the requirements of the Specifications for joints for Circular Concrete Sewer and Culvert Pipe, using Flexible, WaterTight, Rubber-type Gaskets ASTM D443. Stand-type gaskets depending entirely on cement for adhesion and resistance to displacement during jacking shall not be used.
25. All storm sewer pipes shall be reinforced concrete pipe, Class II minimum. Any concrete pipe, conduit, or culvert beneath a street right-of-way or with reasonable probability of being so located shall be a minimum of Class II, but also shall account for all vertical loads. In no case shall the design grade be less than HS-20 loading per AASHTO. For other locations the minimum design live load shall be HS-10 loading.
26. Existing sanitary sewer service shall not be interrupted.
27. Pre-manufactured adaptors shall be used on all PVC to DIP connections. Rubber boot / Messin-type couplings shall not be allowed.
28. "Type K" Lock-Type Cover and Locking Device [Lock-Lug] shall be used where lock-type covers are required.
29. The Chief Inspector of the St. Charles County Highway Department shall be contacted 24 hours prior to the commencement of grading and/or prior to the commencement of construction.
30. Landscaping Requirements:
- One tree per 50 feet of street frontage shall be required to be installed within the setback abutting street frontage. The required trees may be clustered or arranged within the setback. They need not be placed evenly at 50 foot intervals.
- One tree shall also be required to be planted for every two multifamily dwelling units.
31. Street Lights
- One size thousand five hundred (8,500) lumen 100 watt high pressure sodium light or equal, on Union Electric approved light standards (17 foot fiberglass pole, black or gray in color), at each street intersection, but no further apart than three hundred (300) feet within or abutting the subdivision; at the entrance to the development, and at the end of each cul-de-sac. After installation, the lighting facilities will be maintained and operated at the expense of the home owner's association.
32. Driveway locations shall not interfere with the sidewalk handicap ramps.

INSTALLATION OF WATER MAINS

"ALWAYS KEEP THE WATER MAIN ON EASEMENT"

NOTE: ALL FITTINGS, VALVES AND FIRE HYDRANTS SHALL BE PUSH-ON JOINT.

- 1. No 4-way fittings are to be allowed.
2. Water main should be located as shown on plans, as not to interfere with other utility locations.
3. All water mains should be 8 inches in diameter, up to the last fire hydrant. 6" pipe can be used after the fire hydrant if there are no other fire hydrants on the main, and no future extension foresen. The pipe should have a Minimum Pressure Rating (MPR) of 200 or C-900.
4. Fire hydrant must be Mueller Steamer Centurion and painted yellow in color and all valves must be Mueller push-on joint resilient wedge gate valve.
5. All fire hydrants and the valve and tee for the fire hydrant shall be restrained push-on type joint as required by MANS specifications.
6. The contractor shall place all fire hydrants between 1.5 (1 1/2) feet and three feet (3') from the street curb (measured from the edge of the fire hydrant).
7. These water bends (45', 22 1/2', 11 1/4'), are to be made with push-on joint fittings using mega lugs or any appropriate joint restraint that meet MANS specifications.
8. Water fittings, tees, W/Downs, etc. will have mega lugs, concrete blocking, or any other appropriate joint restraint that meets MANS specifications. Concrete not to be on nuts or bolts. One 1" rock should be used to backfill above the weep holes of the fire hydrant.
9. Rocky soils shall require bedding 6" under and 6" over water pipe.
10. Concrete encasement required, to DNR Specification, when crossing sanitary sewers and when water main is within 18" vertical, 10' horizontal of any sanitary sewer.
11. Must use appropriate sized casings when crossing streets and use casing pipe only when required by Municipality, WCOOT, or MANS.
12. Must attach coated solid core, 12 gauge tracer wire, taped to the top of the pipe. All wire must run up the outside of the valve box and come up inside the valve box under the water lid.
13. Use 3M waterproof splice kits for all splicing of tracer wire.
14. Any project with over 1,500' of pipe should use the 2,500' rule of tracer wire to eliminate splicing.
15. A chlorine test is required. It must initially test at 25 PPM, or greater, and 24 hours later 10 PPM must be present. It must be tested by a Public Water Supply District No. 2 Inspector, and have 24 hours notice prior to that inspection. The main will be tested for 0.2 every 1,000' of pipe.
16. If chlorine test fails then main must be re-chlorinated.
17. The contractor will meter water and pay for it.
18. California samples should be collected every 1,000'.
19. Final Pressure Test: The water main must be pumped up to 125 PSI and maintain this pressure for one hour with zero drop in pressure.
20. Gas, water, and other underground utilities shall not conflict with the depth or horizontal location of existing and proposed sanitary and storm sewers including house laterals.
21. All waterline construction shall conform to current Missouri American Water Standards and Specifications.
22. The contractor shall place the "Stamens" outlet of the fire hydrant toward the street.
23. Backfill shall have no debris or stones larger than 4" in diameter.
24. All creek crossings will require ductile iron pipe if less than 5' of cover, concrete encasement with rip rap required.
25. Hydrant distances: 600' / 300' - Residential/Commercial pending.
26. Public Water Supply District No. 2 of St. Charles County shall be notified at least 48 hours prior to construction of water mains for coordination and inspections.
27. All open mains should be properly capped or plugged when the main is unattended for more than 4 hours.
28. All bare casings, except service lines, shall have 3 coating spacers per pipe length.
29. All service lines under the streets are to have a 2" PVC casing installed, at a minimum of 30" depth.

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LEGEND

Table with 2 columns: Symbol and Description. Includes symbols for Sanitary Structure, Storm Structure, Test Hole, Power Pole, Light Standard, Curbs, Grates, Area Inlets, Flared End Sections, End of Pipe, Energy Dissipator, Manholes, Reinforced Concrete Pipe, Corrugated Metal Pipe, Cast Iron Pipe, Polyvinyl Chloride Pipe, Vitrified Clay Pipe, Guy Wire, Sign, Post, Water Meter, Water Valve, Water Shut Off, Gas Valve, Overhead Electric Line, Clearing Limits, Edge of Asphalt, Edge of Concrete, Diversion Swale, Street Sign, Clean Out, To Be Removed, To Be Relocated, To Be Protected, To Be Abandoned, Base of Curbs, Top of Curbs, Top of Wall, Typical, Unless Noted Otherwise, Use in Place, Existing Contour, Proposed Contour, Tree Line, San. Sewer (Existing), San. Sewer (Proposed), Storm Drain (Existing), Storm Drain (Proposed), Phone Box, Iron Pipe, Water Line, Hydrant, Concrete Pavement, Placed Rip-Rap w/Underlain Fabric, General Surface Drainage, Not to Scale, Right-of-Way, Top Back Curbs, Ductile Iron Pipe, Diversion Swale, Stop Sign, Yield Sign.

PROJECT BENCHMARK

FEMA benchmark - RM37 as shown on F.I.R.M. map panel #2918300430 chiseled square on North end of East side of Weldon Spring road bridge over Schote Creek. BM - ELEV. 506.71'

SITE BENCHMARK

Site Bench Mark: CL-CL cross at Royal Trail Court and Royal Springs Parkway. SITE BM - ELEV. 534.22'

USGS BENCHMARK

At O'Fallon, St. Charles County on the Wobash Railroad in the Southwest corner of the O'Fallon City Hall property (formerly St. Mary Institute yard), 40' East of Main St. (HWY M) and 45' North of the centerline of main railroad tract. A standard disk, stamped F149 1935 and set in the top of a concrete post projecting 61 inches above the ground. Elevation: 542.80 Conversion to site and FEMA Benchmark: add 1.81' FEMA ELEV of F149 = 544.61

DEVELOPER

TRAVIS SHANE HOMES P.O. BOX 340 O'FALLON, MO 63366 CONTACT: HAROLD SINN 636-398-8477

ENGINEERS AUTHENTICATION

The responsibility for the professional engineering liability on this project is hereby limited to the set of plans authenticated by the seal, signature and date hereunder attached. Responsibility is disclaimed for all other engineering plans involved in the project and specifically excludes revisions after this date unless reauthenticated.

Table with 2 columns: Field Name and Value. Fields: ORDER NO. (02-0890), DATE (07/25/03), 1

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IMPROVEMENT PLANS PEACEFUL VALLEY TITLE SHEET

ST. CHARLES ENGINEERING & SURVEYING, INC. 801 S. FIFTH STREET, SUITE 202 ST. CHARLES, MO 63301 TEL: (636) 947-0607 FAX: (636) 947-2448

Handwritten signature and date: Harold Sinn 9/25/03