GENERAL NOTES

GN # 1 Driveway locations shall not interfere with the sidewalk handicap ramps, or curb inlet sumps

GN # 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.

GN # 3 Truncated domes for curb ramps located in public right of way shall meet ADA requirements and shall be constructed using red pre cast truncated domes per pavement details.

GN # 4 Any proposed pavilions or playground areas will need a separate permit from the Building Division.

GN # 5 The Contractor is responsible to call Missouri One Call and 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

GN # 6 All proposed utilities and/or utility relocations shall be located underground.

GN # 7 All proposed fencing requires a separate permit through the Planning and Development Division.

GN # 8 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.

GN # 9 All free standing signs shall be located a minimum of ten (10) feet away from any right of way line and/or property line and a minimum of three (3) feet from the back of curbing or sidewalk. All signs shall abide by the regulations for visibility at corners, including corners from driveways and the street it intersects per Section 400.260 of the O'Fallon Zoning Code.

GN #10 All subdivision identification or directional sign(s) must have the locations and sizes approved and permitted separately through the Planning and Development Division.

GN #11 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 previously are reused, a letter from a soil Engineer must clarify amount, location, depth. ect. and be approved with the construction plans. Landfill tickets for such 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.

GN #12 Twenty-four (24) hours prior to starting any 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.

GN #13 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.

Erosion Control Notes

EN # 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, staked 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."

EN # 2 All erosion control systems are to be inspected and corrected weekly, especially within 48 hours of any rain storm resulting in one-half inch of rain or more. Any slit 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.

EN # 3 Erosion control devices (silt fence, sediment bosin, etc.) shall be in accordance with St. Charles County Soil and Water Conservation District Erosion and Sediment Control guidelines.

EN # 4 This development 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 maximum extent practical in compliance with Phase II Illicit Storm Water Discharge Guidelines. (Ord. 5082, section 405.0245)

EN #5 Graded areas shall be seeded and mulched (strawed) 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. 5242, Section 405.070

Grading Notes

GRN #1 Developer must supply City construction inspectors with 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. Maximum dry density

2. Optimum moisture content 3. Maximum and minimum allowable moisture content

4. Curve must be plotted to show density from a minimum of 90% Compaction and above as determined by the "Modified AASHTO T-180 Compaction Test* (A.S.T.M.-D-1157) or from a minimum of 95% as determined by the "Standard Proctor Test ASSHTO T-99, Method C"

(A.S.T.M.-D-698). Proctor type must be designated on document. 5. Curve must have at least 5 density points with moisture content and sample locations listed on document

6. Specific gravity

7. Natural moisture content 8. Liquid limit

9. Plastic limit

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.

GRN #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 up in 8" 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 Practor 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.

GRN # 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 as to permit the layer under placement to freeze.

GRN # 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.

GRN # 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 St. Charles Soil and Water Conservation District - Model Sediment and Erosion Control Regulations. All finished grades (areas not to be disturbed by improvements) in excess of 20% slopes (5:1) shall be mulched and tacked at a rate of 100 pounds per 1000 square feet when seeded.

GRN # 6 No slopes shall exceed 3 (horizontal): 1 (vertical) unless otherwise approved by the soils report and specifically located

on the plane and approved by the City Engineer.

GRN # 7 All low places whether on site or off shall be graded to provide drainage with temporary ditches.

GRN # 8 All existing wells on site shall be capped per DNR standards.

Grading Notes Continued

GRN #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 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 route 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.

a) Depth, Trench back fills less than 8 feet deep shall be probed 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 probed to half the depth of the trench back fill but not greater

b) Equipment, The jetting probe shall be a metal pipe with an interior diameter of 1.5 to 2 inches.

c) Method, Jetting shall be performed from the lowest surface topographic point and proceed toward the highest 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.

d) 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 rejetted. Compaction of the materials within the sunken/jetted area shall be compacted such that no further surface subsidence occurs.

GRN #11 Site grading.

a. Within 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 every two hundred fifty (250) feet along the centerline for each lift.

b. 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) faat vertical intervals and approximately every one thousand (1,000) cubic yards.

anitary Sewer Notes

All sanitary sewer installation is to be in accordance with M.S.D. 2007 standards and specifications except as modified by the City of O'Fally

Brick shall not be used in the construction of sanitary sewer structures. Pre cast concrete structures are to be used unless otherwise by the City of O'Fallon.

pections at all sanitary structures are to be made with A-Lock joint or equal

SAN # 4 A loitary laterals shall be a minimum of 4" residential, 6" commercial diameter pipe.

ary mains shall be a minimum of 8" diameter pipe.

SAN # 6 All solution sewer line with a slope greater than 20% will require concrete cradle or concrete collar. Sanitary line with a slope ire a special approved design as shown on detail sheet.

SAN # 7 All manho will within the 100 year flood plain must have lock type watertight manhole covers.

SAN # 8 All sanitary r mains must have a minimum of 42" cover. SAN # 9 When sanitary to san some storm line the sanitary main must be ductile iron pipe for 10 feet on each side of

both sanitary and storm sewer at crossing when storm sewer is within 18 inches above so sewer. Add concrete cradle SAN #10 Encase with con-

sewer and encase HDPE storm sewer when it is more than 18 inches above sanitary light Show on profile sheet. SAN #11 The sanitary sewers wild run diagonally through the side yards to minimize any additional utility easements

SAN #12 All sanitary sewer strates shall be waterproofed on the exterior in accordance to Missouri DNR specification SAN #13 All sanitary sewer pipe be SDR35 or equal.

SAN #14 All sanitary sewer manholes and pipes will be tested to the following specifications. ASTM C1244, Standard sesting method for Concrete Sewer Manhole by Negative Air Susure (Vacuum), Latest revision ASTM F1417, Standard testing methods installation Acceptance of Plastic Gravity Sewer Lines Using Low PA See Air, Latest revision.

SAN #15 Add 1" minus rock back fill to a military sewer and all other utilities that lie within the 1:1 sh

Storm Sewer Notes

STM # 1 All Storm Sewer installation is to be in redance with M.S.D. 2007 standards and specific on except as modified by the City of O'Fallon STM # 2 Brick shall not be used in the construction sewer structures. Pre cast cong structures are to be used unless otherwise approved

by the City of O'Fallon. STM # 3 A 5/8" trash bar shall be installed horizontally the center of the opening(s) curb inlets and area inlets.

STM # 4 HDPE pipe is to be N-12WT or equal and peet ASTM F1417 wat

STM # 5 Encase with concrete both sanitary and storm sewer processing when storm stern than 18 inches above sanitary sewer. Add concrete cradle to only RCP storm sewer and encase HDPE storm were when it is not than 18 inches above sanitary line. Show on profile sheet.

STM # 6 The storm sewers should run diagonally through the side of the minimal story additional utility easements required.

STM # 7 All concrete pipes will be installed with 0-ring rubber type

STM # 8 Connections at all storm structures are to be made with A joint

STM # 9 Pre cast concrete inlet covers are not to be used.

inal slope and be lined with a permanent erosion control blanket that STM \$10 The swale in the detention basins shall have a minimum 1% los will allow infiltration of storm water.

STM #11 All storm sewer shall be reinforced concrete pipe or H.D.P. pipe. As a uctures and flared end sections must be concrete. Manufacturing specifications must be followed and details provided the installs of H.D.P.E. pipe. H.D.P.E. pipe will not be allowed for detention basin outflows, final pipe run to detention basins, discharge of the approved means.

STM #12 The discharge point of all flared end sections shall be otected by rip rouse other approved means.

STM #13 Rip rap shown at flared end sections will be evaluation for effectiveness and field modified, if necessory reduce erosion on and o

STM #14 Add 1" minus rock back fill to all storm sewed to lie within the 1:1 shear pla

Water Notes

WN # 1 Fire hydrants shall be a maximum of apart. Local fire district approval is required.

WN # 2 Coordinate with the water company the location of water meters.

WN # 3 All water main must have a minim of 42" of cover. (City water mains)

WN # 4 Provide water valves to isolate WN # 5 All water mains shall be classed SDR 21 or equal with locator/tracer wires

WN # 6 DISINFECTING:

Disinfecting shall be complished by placing sufficient hypo chlorite granule (HTH) in each section to ochieve a chlorine residual in the pipeline, upon initial ring, of 50 mg/L (PPM). HT. tablets will not be allowed. Following completion a pipeline, it shall be slowly filled with water and simple will be taken immediately and the chlorine residual must be 50 mg/L or great The solution shall be allowed to stand for 24 hours of a sample shall then be taken. The chlorine residual after 24 hours shall be 30 mg/L reater. If the piping shows insufficient chlorine residual in either test, the piping shall be re-chlorinated by the injection of hypo chlorite solution. It satisfactory results are rainfecting shall be done by the contractor. Only the testing to determine the chlorine residual be done by the City. achieved.

WN # 7 PRESSURE T

by following disinffection, the piping shall be pumped to a pressure (at the lowest point in the project) of psi or higher where the pressure is higher than 150 PSI as determined by the City. In such cases, the pressure shall be as specified, the City and two pressure shall be conducted. The first test shall be with the fire hydrant auxiliary valve open and be to 150 PSI. The second sest shall be with the hydrant auxiliary valve closed and be to the higher pressure as directed by the City. All pumping equipment and produced gauges shall be ovided by the contractor. After achieving the test pressure, the piping shall be left closed for a period of two (2) hours 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, the continuing to drop, the test shall be continued for another two (2) hours and if any further drops occur, the test shall be considered a re. 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 when the leakage is corrected, the pipeline must be re-disinfected and the pressure tested again until satisfactory result are achieved. MDNR required dechlorination will be performed by the contractor.

I tope 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 occounted for.

> ALL EXISTING STORM SEWER INLETS SHALL INDICATE THAT NO WASTE IS TO BE DUMPED INTO THE EXISTING STORM SEWER SYSTEM.

#10 BACTERIOLOGICAL TESTING:

After satisfactory disinfection and pressure testing, a sample shall be taken by the contractor in the presence of a City representative an submitted to a laboratory approved by the Missouri Department of Natural Resources and the City for bacteriological analysis. After 24 by a second sample shall be taken in a like manner and submitted for analysis. The two samples taken on consecutive days ,a minimum 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 same t found to be "safe" further flushing and/or disinfection as directed by the City shall be conducted by the contractor until "safe two consecutive test days are achieved. Following successful bacteriological testing and a determination by the City that the second the mains may be placed into service.

Roadway

RN # 1 All paving (c and private) to be in accordance with 2006 St. Charles County Standards and Specifications except as my City of O'h

RN # 2 If the intersection ad does not have a curb, then the curb on the new entrance shall begin 10' from the edge of the

ets per City Code 405.370. RN # 3 Provide 6" of core over 4" of MoDat type 1 or type 5 aggregate rock or asphalt equivalent for minor residential RN # 4 Multi-use trail (where guired) Shall have a minimum of 3" Type "C" Asphalt over 4" aggregate base per City requ

RN # 5 Type C (BP-1) Comp requirements shall be 98% minimum density according to St. Charles Co. Standard Sp

RN # 6 Provide pavement striping any point where the multi-use trail crosses existing or proposed pavement

RN # 7 All street stub-outs over in length will require a temporary turnaround.

RN # 8 All sub grade in cut or fill peed to conform to the City of O'Fallon Compaction requirements

te ASTM code or at the City Engineer's gals for construction shall be tested and inspected per the app RN # 9 Material Testing And Frequency. discretion. The developer's engineer perform the following quality control guidelines:

1. Concrete. a. Cylinders/compressive strength. One set of four (4) cylinders within the first fifty (50) of ards and one (1) set per one hundred (100) (14) days and two (2) at twenty-eight (28) cubic yards thereafter. One (1) cylin a must be tested at seven (7) days, one (1) at four days. If the first (1st) cylinder does not set specifications at twenty-eight (28) days, the the second (2nd) cylinder must be held and tested

at day fifty-six (56). b. Percent air and temperature. First (1st) to batch each day and two (2) thereafter a consistency is encountered. Once a consistency

is encountered, then tests will be performed onjunction with the concrete cylinder c. Slump. First (1st) truck batch each day and (2) thereafter until a consistency incountered. Once a consistency is encountered, then

tests will be performed in conjunction with the rete cylinders. d. If concrete is batched from more than one (1) planthen the aforementioned and ones will be applicable to each plant.

2. Sub grade and base.

 a. Proof roll as described in Section 405.210(B). Free (3) tests per intersection, five (5) tests within cul-de-socs b. One (1) compaction test per two hundred fifty (250) f mainline paving and one (1) test per repair slab. c. Gradation test for sub base material.

3. Asphalt. a. One (1) set of compaction tests per two hundred fifty (250) line. One (1) set includes three (3) tests across the paved lane at the

same station. b. One (1) bulk density test per poving operation.

RN #10 Approval Of Sub grade And Base (Sub base). The City Engine live shall approve the sub grade before any base is placed thereon and aced. The stagrade and base shall be so constructed that it will be uniform in shall approve the base before concrete or surface course

City Engineer for each foot of fill and at least one (1) test and RN #11 In all fill areas in the roadways, soil tests shall be subtent ed and approved by (250) feet. an average of one (1) test within every two hundred

RN #12 No traffic will be allowed on new concrete pavement fil it has cured for seven (gys and it reaches three thousand five hundred (3,500) psi within 28 days. Concrete pavernents shall not be approximately inless it reaches a strength of thousand (4,000) psi.Cylinders/compressive strength. One (1) set of four (4) cylinders within the first fifty (5 Subjudic yards and one (1) set per on syndred (100) cubic yards thereafter. One (1) cylinder must be

tested at seven (7) days, one (1) at fourtee (1) days and two (2) at twenty-eight (2) days. If the first (1st) cylinder does not meet specifications at twenty-eight (28) days, then the second (2) cylinder must be held and tested at do (2) v-six (56).

RN #13 Prior to placement of aggregate base matter on sub grade and prior to placement of pave (1) on base material, the sub grade and base must be proof-ralled with a fully loaded (ten) ton load) tandem truck or equivalent tire vehicles (1) one (1) pass down each driving lane no

faster than three (3) miles per hour. Foots are detected, or purnping, rutting or heaving ours greater than one (1) inch at the sub grade, the roadbed shall be considered unat poctory and the soil in these areas shall be remediated to a depth indicated by the contractor's testing firm and approved by a representation of the City Engineer.

RN \$14 Sub grade and base beneath part onto shall be compacted to St. Charles County Highway Department recifications. The moisture range shall be determined by the Standard Modified Proctor Density Method AASHTO T-99 and within -2/+4 per large points of the optimum moisture

RN #15 The entire width and length conform to line, grade and cross section shown on the plans or as established by the engineer. If any settling or washing occurred where hauling results in ruts or other objectionable irregularities, the contracts wall improve the sub-grade or base to the attisfaction of the City before the pavement is placed. Additional rolling or method verify compaction shall be at the discretion of the City Engineer. Tolerance allowed on all lines, grades and cross sections shall be placed minus four-hundredths (+Q

RN #16 Utility Work Prior To the Construction. No base course work may proceed on any street until all utility excavation form and sanitary sewers, water, gas, and, etc.) have been properly back filled with granular material, crushed stone or gravel mechanics, amped in ten (10) inch lifts. Utility installed after sub grade preparation shall be bored. Compaction requirements shall follow St. Charles sunty standards (2006).

RN #17 Equipment a gration. The developer's contractors and subcontractors must have their equipment calibrated by the following infimum

der compression--annually by independent calibration service.

tch scales -- monthly. uclear testing devices--every six (6) months.

Proctor equipment--every six (6) months. . Slump cone--monthly.

permanent traffic control will be per M.U.T.E.D. or MoDot standards. S1-1 from the M.U.T.E.D. manual will be used at all crosswolk locations accompanied with other w16-9p or w16-7p signs

All traffic signals, street signs, sign post, backs and bracket arms shall be painted black using Carboline Rust Bond Penetrating Sealer SG of Carboline 133 HB paint (or equivalent as approved by City of O'Fallon and MoDOT).

Flood plain Information

FP #1 A flood plan development application from the City is required for any work within the flood plan limits.

Walls: Terraced and Vertical

RW #2 Retaining walls will not be allowed in public right-or-

of the footing to the top of the wall or for bat are 48 inches or taller in height, measu RW #1 A permit is required for drainage area. walls that support a surcharge R hannelized drain from the City Engineer.

s within two (2) feet of the wall will require a guard RW #3 Any retaining wall more than thirty (30) inches on the retaining wall.

RW #4 Retaining walls that ed drainage of any lot or drainage area shall not be constructed tion Engineering Department regardless of the height of the wall.

> 405.275 of the City code for additional design requirements. Provide a marking on the storm sewer inlets. The City will allow the following markers and adhesive procedures only as

Manufacturer	Size	Adhesive	Style	Message (Part #)	Website.
ACP International	3 7/8	Epoxy	Crystal Cap	No Duniping Drains To Waterways (SD-W-CC)	www.acpintensitieral.com
DAS Manufacturing, Inc.	4"	Epoxy	Standard Style	No Dumping Drains To Stream (#SDS)	www.dase.anufactuning.com

ENGINEERS AUTHENTICATION Its hecopy fimiliad for the set of plants authoritizated

> STEVE MARION P.E. PE2008007195

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P+Z No. 22-11 APPROVED 10.06.11 City No.

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