### **GENERAL NOTES**

- ALL UTILITIES SHOWN HAVE BEEN LOCATED FROM AVAILABLE RECORDS. THEIR LOCATION SHOULD BE CONSIDERED APPROXIMATE. THE CONTRACTOR HAS THE RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES, PRIOR TO CONSTRUCTION, TO HAVE EXISTING UTILITIES FIELD LOCATED. THE CONTRACTOR SHALL BE ON RECORD WITH THE MISSOURI ONE CALL SYSTEM. ALL PROPOSED UTILITIES TO BE
- 2. ALL ON-SITE MATERIALS AND METHODS OF CONSTRUCTION TO MEET THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF O'FALLON DEPARTMENT OF PUBLIC WORKS.
- ALL GRADED AREAS SHALL BE PROTECTED FROM EROSION BY EROSION CONTROL DEVICES AND/OR SEEDING AND MULCHING AS REQUIRED BY THE CITY OF O'FALLON.
- PRIOR TO BEGINNING ANY WORK ON THE SITE, THE SUB-CONTRACTOR SHALL CONTACT THE GENERAL CONTRACTOR FOR SPECIFIC INSTRUCTIONS RELEVANT TO THE SEQUENCING OF WORK.
- GRADING CONTRACTOR SHALL INSTALL SILTATION CONTROL PRIOR TO STARTING THE GRADING. ADDITIONAL SILTATION CONTROL DEVICES SHALL BE INSTALLED AS DIRECTED BY THE CITY OF O'FALLON.
- ALL FILLS AND BACKFILLS SHALL BE MADE OF SELECTED EARTH MATERIALS, FREE FROM BROKEN MASONRY, ROCK, FROZEN EARTH, RUBBISH, ORGANIC MATERIAL AND DEBRIS.
- 7. GRADING CONTRACTOR SHALL KEEP EXISTING ROADWAYS CLEAN OF MUD AND DEBRIS AT ALL TIMES.
- 8. ALL GRADING & DRAINAGE TO BE IN CONFORMANCE WITH THE CITY OF O'FALLON STANDARDS. SEEDING, SODDING, MULCHING AND PLANTINGS FOR ALL DISTURBED AREAS SHALL BE SPECIFIED ON THE
- LANDSCAPE PLAN. 10. SIDEWALKS ALONG THE ACCESSIBLE ROUTE SHALL NOT HAVE A SLOPE EXCEEDING 1'V: 20'H. SLOPES
- 11. SIDEWALKS, CURB RAMPS, RAMPS AND ACCESSIBLE PARKING SPACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT APPROVED "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES" (ADAAG) ALONG WITH THE REQUIRED GRADES, CONSTRUCTION MATERIALS, SPECIFICATIONS AND SIGNAGE. IF ANY CONFLICT OCCURS BETWEEN THE ADAA GUIDELINES AND THE INFORMATION ON THE PLANS, THE ADAA GUIDELINES SHALL TAKE PRECEDENCE AND THE CONTRACTOR SHALL NOTIFY THE

GREATER THAN 1'V: 20'H MUST BE DESIGNED AS A RAMP. SIDEWALKS TO BE CONSTRUCTED TO ADA

- 12. A DRAINLAYER PERMIT IS REQUIRED BY THE CITY DEPARTMENT OF PUBLIC WORKS FOR ALL PRIVATE STORM SEWERS.
- 13. BY GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN UNSHADED ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO THE FLOOD INSURANCE RATE MAP PANEL NUMBER 29183C0241G, 290316 (ST CHARLES COUNTY MISSOURI) WHICH BEARS AN EFFECTIVE OF
- 14. NO GRADE SHALL EXCEED 3:1 SLOPE.
- 15. STORMWATER SHALL BE DISCHARGED AT AN ADEQUATE NATURAL DISCHARGE POINT. SINKHOLES ARE NOT ADEQUATE NATURAL DISCHARGE POINTS.
- 16. ALL LANDSCAPE AREAS TO BE FILLED WITH A MINIMUM OF 6" OF TOPSOIL.
- 17. ALL LANDSCAPED AREAS DISTURBED BY OFF-SITE WORK SHALL BE IMMEDIATELY SEEDED OR SODDED. AS DIRECTED BY CITY DEPARTMENT OF PUBLIC WORKS UPON COMPLETION OF WORK IN AREA AFFECTED.
- 18. ADEQUATE TEMPORARY OFF-STREET PARKING FOR CONSTRUCTION EMPLOYEES SHALL BE PROVIDED. PARKING ON NON-SURFACED AREAS SHALL BE PROHIBITED IN ORDER TO ELIMINATE THE CONDITION WHEREBY MUD FROM CONSTRUCTION AND EMPLOYEES' VEHICLES IS TRACKED ONTO THE PAVEMENT CAUSING HAZARDOUS ROADWAY AND DRIVEWAY CONDITIONS
- 19. ALL PUBLIC SEWER CONSTRUCTION MUST CONFORM TO THE REQUIREMENTS OF THE CITY OF O'FALLON.
- 20. NO STEP ALLOWED AT ACCESSIBLE ENTRANCE DOORS. ALL ROOF TOP UNITS SHALL BE SCREENED BY A PARAPET WALL THAT EXTENDS AROUND THE

PROJECT ENGINEER PRIOR TO ANY CONSTRUCTION.

- PERIMETER OF THE BUILDING. THE PARAPET SHALL HAVE A MINIMUM HEIGHT THAT IS AT LEAST AS TALL AS THE TALLEST UNIT MOUNTED ON THE ROOF. GROUND MOUNTED HVAC AND MECHANICAL UNITS SHALL BE SCREENED BY FENCING, VEGETATION, OR SOME OTHER MEANS (APPROVED BY THE PLANNING AND ZONING COMMISSION) THAT HAS A MINIMUM HEIGHT THAT IS AT LEAST AS TALL AS THE TALLEST UNIT BEING SCREENED.
- 22. STORM WATER DETENTION IS PROVIDED IN THE EXISTING DETENTION BASIN. NO ADDITIONAL DETENTION MEASURES ARE PROPOSED.
- 23. ALL PAVING TO BE TO ST. CHARLES COUNTY STANDARDS EXCEPT AS MODIFIED BY THE CITY OF O'FALLON. CONCRETE SHALL BE 4,000 PSI
- 24. SETBACKS PER ZONING ("I-1", LIGHT INDUSTRIAL)
- FRONT FRONT = 30'SIDE = 20'SIDE = 10'
- PARKING REQUIREMENTS (OFFICE / WAREHOUSE / MANUFACTURING) EXISTING PARKING = 160 SPACES
- PROPOSED PARKING
  - BUILDING AREAS: = 14,180 s.f.WARFHOUSE = 40.000 s.MANUFACTURING = 50,000 s.f.**EMPLOYEES** OFFICE WAREHOUSE
- 132 EMPLOYEES A. OFFICES — One (1) space per 300 sq. ft. of floor area = 4,700 s.f. + 9,480 s.f. (EXIST. & PROP.)

MANUFACTURING = 93

- B. <u>WAREHOUSE AND STORAGE</u>
- One (1) space for every employee on the maximum work shift, plus one (1) for each vehicle utilized in the operation of the business, plus two (2) guest spaces. Any other uses within a warehouse building (office, retail, manufacturing, etc.) would also require parking based upon those separate calculations. = 7 (WAREHOUSE) FMPLOYFFS WARFHOUSE AREA = 40.000 s.f.

= 14,180 s.f. / 300

- = 7 SPACES + 2 GUEST SPACES = 9 SPACES PARKING REQUIRED C. MANUFACTURING FACILITIES
- One (1) space per employee, plus one (1) space per 1,000 sq. ft. of floor area FMPL ÖYFFS = 93 MANUFACTURING AREA = 50,000 s.f. / 1,000PARKING REQUIRED = 93 + 50= <u>143 SPACES</u>

TOTAL PARKING REQUIRED = 48 + 9 + 143

TOTAL PARKING PROVIDED = 160 SPACES (INCLUDES 7 ADA) NOTE: THE PROPOSED PARKING COUNT MATCHES THE EXISTING PARKING COUNT OF 160 STALLS. NO CHANGES ARE ANTICIPATED TO THE NUMBER OF EMPLOYEES OR THE NUMBER OF VISITORS WITH THE PROPOSED OFFICE EXPANSION, THEREFORE, NO INCREASES TO THE QUANITITY OF EXISTING STALLS IS PROPOSED.

= 200 SPACES

- BIKE PARKING (1) RACK SPACE PER FIFTEEN (15) REQUIRED AUTOMOBILE PARKING SPACES, WITH A MINIMUM OF FOUR (4) RACK SPACES PER INDIVIDUAL BUILDING. = 160 / 15 = 11 SPACES= 12 SPACES (6 BIKE RACKS W/ 2 BIKES/RACK) PROVIDED
- 27. LOADING REQUIREMENTS: (PER SEC. 400.512) Number of loading spaces required. Uses having over five thousand (5,000) square feet of gross floor area shall provide at least one (1) off-street loading and unloading space. For every additional twenty thousand (20,000) square feet of gross floor space, one (1) additional loading and unloading space shall be provided (LOADING SPACE =  $12'W \times 35'L$ )

= 104.180 s.f.

- LOADING REQUIRED = 1 + 104.180 s.f. 5.000 = 6 LOADING SPACESLOADING PROVIDED = 6 SPACES HEIGHT REQUIREMENTS: (PER SEC. 400.140 "I-1" LIGHT INDUSTRIAL)
- EXCEPT AS OTHERWISE PROVIDED IN ARTICLE VI OF THIS CHAPTER, NO BUILDING OR STRUCTURE SHOULD EXCEED FIFTY (50) FEET OR THREE (3) STORIES. BUILDING HEIGHTS = 18'-4" a. NEW OFFICE
- b. EXISTING OFFICE = 14'-2"c. WAREHOUSE/MANUFACTURING = 28'-0"

BUILDING AREA = 14,180 + 90,000

- 29. ALL PROPOSED FENCING REQUIRES A SEPARATE PERMIT.
- 30. ALL SIGN LOCATIONS AND SIZES MUST BE APPROVED SEPARATELY THROUGH THE PLANNING DIVISION.
- LIGHTING VALUES WILL BE REVIEWED ON SITE PRIOR TO THE FINAL OCCUPANCY INSPECTION. CORRECTIONS WILL NEED TO BE MADE IF NOT IN COMPLIANCE WITH CITY STANDARDS. LIGHTING ON SITE MUST BE AIMED AND SHIELDED SO THAT AMBIENT LIGHT LEVEL ON SITE DOES NOT EXCEED 0.5 FOOT CANDLES AT THE PROPERTY LINE.
- 32. ALL PROPOSED UTILITIES TO BE LOCATED UNDERGROUND.
- 33. ALL SILTATION CONTROL DEVICES (SILT FENCES AND SEDIMENTATION BASINS) SHALL FOLLOW ST. CHARLES COUNTY SOIL AND WATER CONSERVATION DISTRICT EROSION AND SEDIMENT CONTROL GUIDELINES.
- 34. A LOT CONSOLIDATION PLAT IS PROPOSED AS PART OF THIS DEVELOPMENT.
- 35. ALL PROPOSED UTILITIES AND/OR UTILITY RELOCATIONS SHALL BE LOCATED UNDERGROUND.

- CITY 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 PAYEMENT 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.
- 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. ETC. 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.
- GN #14 ALL EXISTING CURB REMOVALS ARE TO BE TO THE NEXT JOINT.
- 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-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.
- EN # 3. EROSION CONTROL DEVICES (SILT FENCE, SEDIMENT BASIN, 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

- 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 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 PAYED 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 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.
- 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 PLANS 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. 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 FOLLOWING MISSOURI DEPARTMENT OF NATURAL RESOURCES STANDARDS AND SPECIFICATIONS.
- GRN # 9. 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 THAN 8 FEET. 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 #10. 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) FOOT VERTICAL INTERVALS AND APPROXIMATELY EVERY ONE THOUSAND (1,000) CUBIC

- STORM SEWER NOTES STM # 1. ALL STORM SEWER INSTALLATION IS TO BE IN ACCORDANCE WITH LATEST EDITION M.S.D. STANDARDS AND
- SPECIFICATIONS EXCEPT AS MODIFIED BY THE CITY OF O'FALLON ORDINANCES.
- STM # 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.
- STM # 3. A 5/8" TRASH BAR SHALL BE INSTALLED HORIZONTALLY IN THE CENTER OF THE OPENING(S) IN ALL CURB INLETS AND AREA INLETS.
- STM # 4. HDPE PIPE IS TO BE N-12WT OR EQUAL AND TO MEET ASTM F1417 WATER TIGHT FIELD TEST. STM # 5. 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 HDPE STORM SEWER WHEN IT IS MORE THAN 18 INCHES ABOVE SANITARY LINE. SHOW ON
- STM # 6. THE STORM SEWERS SHOULD RUN DIAGONALLY THROUGH THE SIDE YARDS TO MINIMIZE ANY ADDITIONAL UTILITY EASEMENTS REQUIRED.
- STM # 7. ALL CONCRETE PIPES WILL BE INSTALLED WITH O-RING RUBBER TYPE GASKETS.
- STM # 8. CONNECTIONS AT ALL STORM STRUCTURES ARE TO BE MADE WITH A-LOCK JOINT OR EQUAL.
- STM # 9. PRE CAST CONCRETE INLET COVERS ARE NOT TO BE USED.

NECESSARY TO REDUCE EROSION ON AND OFF SITE.

- STM #10. ALL STORM SEWER SHALL BE REINFORCED CONCRETE PIPE OR H.D.P.E. PIPE. ALL STRUCTURES AND FLARED END SECTIONS MUST BE CONCRETE. MANUFACTURING SPECIFICATIONS MUST BE FOLLOWED AND DETAILS PROVIDED FOR THE INSTALLATION 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, CREEK DISCHARGE OR OTHER
- STM #11. THE DISCHARGE POINT OF ALL FLARED END SECTIONS SHALL BE PROTECTED BY RIP RAP OR OTHER
- APPROVED MEANS. STM #12. RIP RAP SHOWN AT FLARED END SECTIONS WILL BE EVALUATED IN THE FIELD BY THE ENGINEER. CONTRACTOR, AND CITY INSPECTORS AFTER INSTALLATION FOR EFFECTIVENESS AND FIELD MODIFIED, IF
- STM #13. ADD 1" MINUS ROCK BACK FILL TO ALL STORM SEWER THAT LIE WITHIN THE 1:1 SHEAR PLANE OF THE
- STM #14. ALL STORM SEWER INLET STRUCTURES SHALL BE PERMANENTLY PROVIDED WITH A MARKER/SYMBOL THAT
- RETAINING WALLS: TERRACED AND VERTICAL

STATES: "DUMP NO WASTE DRAINS TO STREAM".

- RW # 1. A PERMIT IS REQUIRED FOR ALL RETAINING WALLS THAT ARE 48 INCHES OR TALLER IN WALLS THAT SUPPORT A SURCHARGE LOAD OR THAT ALTERS THE CHANNELIZED DRAINAGE OF ANY LOT OR DRAINAGE AREA.
- RW # 2. RETAINING WALLS WILL NOT BE ALLOWED IN PUBLIC RIGHT-OF-WAY WITHOUT WRITTEN APPROVAL FROM THE CITY ENGINEER.
- RW # 3. ANY RETAINING WALL MORE THAN THIRTY (30) INCHES TALL WHICH SUPPORTS A WALKING SURFACE THAT IS WITHIN TWO (2) FEET OF THE WALL WILL REQUIRE A GUARD ON THE
- RW # 4. RETAINING WALLS THAT ALTER THE CHANNELED 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.
- RW # 5. SEE SECTION 405.275 OF THE CITY CODE FOR ADDITIONAL DESIGN REQUIREMENTS.

### RN # 1. ALL PAVING (PUBLIC AND PRIVATE) TO BE IN ACCORDANCE WITH ST. LOUIS COUNTY STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.

- RN # 2. 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.
- RN # 3. PROVIDE 6" OF CONCRETE OVER 4" OF MODOT TYPE 1 OR TYPE 5 AGGREGATE ROCK OR ASPHALT EQUIVALENT FOR MINOR RESIDENTIAL STREETS PER CITY CODE 405.370.
- RN # 4. MULTI-USE TRAIL (WHEN REQUIRED) SHALL HAVE A MINIMUM OF 3" TYPE "C" ASPHALT OVER 4" AGGREGATE BASE PER CITY REQUIREMENTS.
- RN # 5. TYPE C (BP-1) COMPACTION REQUIREMENTS SHALL BE 98% MINIMUM DENSITY ACCORDING TO ST. CHARLES CO. STANDARD SPECIFICATIONS.
- RN # 6. PROVIDE PAVEMENT STRIPING AT ANY POINT WHERE THE MULTI-USE TRAIL CROSSES EXISTING OR PROPOSED
- RN # 7. ALL STREET STUB-OUTS OVER 250' IN LENGTH WILL REQUIRE A TEMPORARY TURNAROUND.
- RN # 8. ALL SUB GRADE IN CUT OR FILL WILL NEED TO CONFORM TO THE CITY OF O'FALLON COMPACTION
- RN # 9. MATERIAL TESTING AND FREQUENCY. MATERIALS FOR CONSTRUCTION SHALL BE TESTED AND INSPECTED PER THE APPROPRIATE ASTM CODE OR AT THE CITY ENGINEER'S DISCRETION. THE DEVELOPER'S ENGINEER SHALL PERFORM THE FOLLOWING QUALITY CONTROL GUIDELINES:
  - CONCRETE. A. CYLINDERS/COMPRESSIVE STRENGTH. ONE (1) SET OF FOUR (4) 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, ONE (1) AT FOURTEEN (14) DAYS AND TWO (2) AT TWENTY-EIGHT (28) DAYS. IF THE FIRST (1ST) CYLINDER DOES NOT MEET SPECIFICATIONS AT
  - TWENTY-EIGHT (28) DAYS, THEN THE SECOND (2ND) CYLINDER MUST BE HELD AND TESTED AT DAY FIFTY-SIX (56). B. PERCENT AIR AND TEMPERATURE. FIRST (1ST) TRUCK BATCH EACH DAY AND TWO (2) THEREAFTER UNTIL A CONSISTENCY IS ENCOUNTERED. ONCE A CONSISTENCY IS ENCOUNTERED, THEN TESTS WILL BE PERFORMED IN CONJUNCTION WITH THE CONCRETE CYLINDERS. . SLUMP. FIRST (1ST) TRUCK BATCH EACH DAY AND TWO (2) THEREAFTER UNTIL A CONSISTENCY IS ENCOUNTERED. ONCE A CONSISTENCY IS ENCOUNTERED, THEN TESTS WILL BE PERFORMED IN

CONJUNCTION WITH THE CONCRETE CYLINDERS.

. GRADATION TEST FOR SUB BASE MATERIAL.

ASPHALT.

- D. IF CONCRETE IS BATCHED FROM MORE THAN ONE (1) PLANT, THEN THE AFOREMENTIONED SUIDELINES WILL BE APPLICABLE TO EACH PLANT. 2. SUB GRADE AND BASE. A. PROOF ROLL AS DESCRIBED IN SECTION 405.210(B). B. ONE (1) COMPACTION TEST PER TWO HUNDRED FIFTY (250) FEET OF MAINLINE PAVING, THREE (3) TESTS PER INTERSECTION, FIVE (5) TESTS WITHIN CUL-DE-SACS AND ONE (1) TEST PER REPAIR SLAB.
- A. ONE (1) SET OF COMPACTION TESTS PER TWO HUNDRED FIFTY (250) FEET OF MAINLINE. ONE (1) SET INCLUDES THREE (3) TESTS ACROSS THE PAVED LANE AT THE SAME STATION. B. ONE (1) BULK DENSITY TEST PER PAVING OPERATION. RN #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. RN #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. RN #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. CONCRETE PAVEMENTS SHALL NOT BE APPROVED UNLESS IT REACHES A STRENGTH OF FOUR THOUSAND (4,000) PSI.CYLINDERS/COMPRESSIVE STRENGTH. ONE (1) SET OF FOUR (4) 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, ONE (1) AT FOURTEEN (14) DAYS AND TWO (2) AT TWENTY-EIGHT

(28) DAYS. IF THE FIRST (1ST) CYLINDER DOES NOT MEET SPECIFICATIONS AT TWENTY-EIGHT (28) DAYS,

- THEN THE SECOND (2ND) CYLINDER MUST BE HELD AND TESTED AT DAY FIFTY-SIX (56). RN #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 PROOF-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
- RN #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
- RN #15. THE ENTIRE WIDTH AND LENGTH WILL CONFORM TO LINE, GRADE AND CROSS SECTION SHOWN ON THE PLANS OR 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.
- RN #16. UTILITY WORK PRIOR TO BASE CONSTRUCTION. NO BASE COURSE WORK MAY PROCEED ON ANY STREET UNTIL ALL UTILITY 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 (2006). RN #17. EQUIPMENT CALIBRATION. THE DEVELOPER'S CONTRACTORS AND SUBCONTRACTORS MUST HAVE THEIR QUIPMENT CALIBRATED BY THE FOLLOWING MINIMUM STANDARDS. 4. AIR METER——WEEKLY. . CYLINDER COMPRESSION——ANNUALLY BY INDEPENDENT CALIBRATION SERVICE. BATCH SCALES--MONTHLY. D. NUCLEAR TESTING DEVICES--EVERY SIX (6) MONTHS.

PROCTOR EQUIPMENT—EVERY SIX (6) MONTHS.

F. SLUMP CONE——MONTHLY.

- RN #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 ETHER W16-9P OR
- RN #19. ALL TRAFFIC SIGNALS, STREET SIGNS, SIGN POST, BACKS AND BRACKET ARMS SHALL BE PAINTED BLACK USING CARBOLINE RUST BOND PENETRATING SEALER SG AND CARBOLINE 133 HB PAINT (OR EQUIVALENT AS
- APPROVED BY CITY OF O'FALLON AND MODOT). RN#20. ALL ENTRANCE PAVEMENT SECTIONS WITHIN THE RIGHT OF WAY SHALL BE A MINIMUM OF 7" PCC PAVEMENT ON A COMPACTED 4" ROCK BASE OR ARE TO MATCH THE PAVEMENT THICKNESS OF THE ADJOINING STREET WHICH EVER IS GREATER, UNLESS OTHERWISE APPROVED WITH THE SITE PLAN.

## **EARTHWORK NOTES**

### BULK CUT 2,500 +/- CUBIC YARD

THE CALCULATED EARTHWORK QUANTITIES SHOULD BE REGARDED AS AN ESTIMATE OF THE BULK MOVEMENT AND/OR REDISTRIBUTION OF SOILS FOR THE SUBJECT PROPERTY. THE CALCULATED QUANTITIES ARE INTENDED FOR GENERAL USE, AND SHOULD BE USED AS A

BULK FILL 100 +/- CUBIC YARD (INCLUDES 15% FOR SHRINKAGE)

COMPARISON WITH THE QUANTITIES CALCULATED BY THE EARTHWORK SUBCONTRACTOR. THE ENGINEER ASSUMES NO LIABILITY FOR COST OVERRUNS DUE TO EXCESS EXCAVATED MATERIALS OR FILL SHORTAGES. DISCREPANCIES BETWEEN THE ENGINEER'S CALCULATED

### THE EARTHWORK SUBCONTRACTOR'S ESTIMATE SHOULD BE REPORTED TO THE ENGINEER IMMEDIATELY. THE EARTHWORK QUANTITIES ESTIMATED FOR THE SUBJECT SITE ARE BASED UPON HORIZONTAL AND VERTICAL LOCATION OF THE IMPROVEMENTS AS PROPOSED ON THE

SITE ENGINEERING PLANS PREPARED BY CIVIL ENGINEERING DESIGN CONSULTANTS, INC. THE ENGINEER'S ESTIMATE DOES NOT INCLUDE ANY OF THE FOLLOWING ITEMS PERTAINING TO EARTHWORK QUANTITIES THAT MAY BE NECESSARY FOR COMPLETION OF THE PROJECT:

QUANTITIES. THE ENGINEER ALSO ASSUMES NO RESPONSIBILITY FOR COSTS INCURRED

DUE TO THE REMOVAL OF UNSUITABLE MATERIAL WHICH MUST BE REMOVED FROM THE SITE.

- A.) MISCELLANEOUS UNDERGROUND CONDUITS AND MANHOLES B.) WATER MAINS LESS THAN TWENTY-FOUR INCHES IN DIAMETER.
- C.) BUILDING FOOTINGS AND FOUNDATIONS
- D.) UTILITY AND/OR LIGHT STANDARD BASES
- THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACTUAL SIZE OF THE FIELD EXCAVATIONS MADE FOR THE INSTALLATION OF UNDERGROUND STRUCTURES, AND THEREFORE, THE ACTUAL EARTHWORK QUANTITIES MAY VARY FROM THE THESE ESTIMATED

## <u> ASSUMPTIONS:</u>

- 1.) IT IS ASSUMED THAT THE TOPSOIL , IF ANY, WILL BE REUSED ON-SITE WITHIN
- LANDSCAPING AREAS AND WILL NOT BE HAULED OFF. 2.) SUBGRADE FOR ASPHALT PAVEMENT SECTIONS - 11"
- 3.) SUBGRADE FOR BUILDING PAD 10" 4.) ASSUMED 15% SHRINKAGE FACTOR

## SECTION 31 00 00 -EARTHWORK

- Note: the geotechnical report shall be considered part of these specifications. The contractor is responsible for obtaining a copy of the report which shall be used as the basis for construction means and 1.1 DEFINITIONS IN THIS SECTION INCLUDE THE FOLLOWING:
- A. Backfill: Soil materials used to fill an excavation. B. Base Course: Layer placed between the subbase course and asphalt paving.
- C. <u>Bedding Course:</u> Layer placed over the excavated subgrade in a trench before laying pipe. D. <u>Borrow:</u> Satisfactory soil imported from off—site for use as fill or backfill.
- E. <u>Drainage Course:</u> Layer supporting slab—on—grade used to minimize capillary flow of pore water. F. Excavation: Removal of material encountered above subgrade elevations. 1. <u>Additional Excavation:</u> Excavation below subgrade elevations as directed by Construction Manager
- Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work. 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Construction Manager. Unauthorized excavation, as well as remedial work directed by Construction Manager, shall be without additional compensation.
- G. Fill: Soil materials used to raise existing grades. H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground
- I. Subbase Course: Layer placed between the subgrade and base course for asphalt paving, or layer placed between the subgrade and a concrete payement or walk. J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
- K. Utilities include on—site underground pipes, conduits, ducts, and cables, as well as underground services within buildings. L. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Construction Manager and then only after arranging to provide temporary utility

## services according to requirements indicated.

encountered including rock, soil materials, and obstructions.

- A. Soil Materials: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations. B. Satisfactory Soils: ASTM D 2487 soil classification groups GW, GP, SW, SP, ML, and CL, or a combination of these group symbols; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter. The contractor shall refer to the geotechnical report or directly with the geotechnical engineer to confirm satisfactory
- soils prior to construction C. Backfill and Fill: Satisfactory soil materials. D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone,
- and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (38-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve. E. Bedding: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.
- F. Drainage Fill: Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse—aggregate grading Size 57; with 100 percent passing a 1—1/2—inch (38—mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve. G. Detectable Warning Tape: Polyethylene film warning tape encasing a metallic core, minimum 6 inches

# (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility.

construction activities.

test, according to ASTM D 698.

perform field quality control testing.

become eroded, rutted, settled or where they lose compaction.

additional soil material, compact, and reconstruct surfacing.

PART 2 PRODUCTS

- 3.1 PREPARATION: A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations. B. Provide erosion and sedimentation control measures.
- C. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project Site and surrounding area. D. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation. E. Excavate to subgrade elevations regardless of the character of surface and subsurface conditions
- 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials F. Excavate for structures, pavements, and Walks to indicated elevations and dimensions. Extend excayations for placing and removing concrete form work, for installing services and other construction, and for inspections. Trim bottoms to required lines and grades to leave solid base to receive other
- G. Excavate utility trenches to indicated gradients, lines, depths, and invert elevations of uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit. 1. Excavate trenches deeper than bottom of pipe elevations, 6 inches (150 mm) deeper in rock, 4
- inches (100 mm) deeper elsewhere, to allow for bedding course. Hand excavate for bell of pipe. H. Proof roll subgrades, before filling or placing aggregate courses, with heavy pneumatic—tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades. I. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or
- J. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation Lean concrete fill may be used when approved by Construction Manager. 1. Fill unauthorized excavations under other construction or utility pipe as directed by Construction
- K. Stockpile borrow materials and satisfactory soil materials, without intermixing, in shaped, graded, drained, and covered stockpiles. Stockpile soil materials away from edge of excavations and outside drip line of remaining trees. L. Utility Trench Backfill: Place, compact, and shape bedding course to provide continuous support for pipes and conduits over rock and other unyielding bearing surfaces and to fill unauthorized excavations.
- 1. Place and compact initial backfill of satisfactory soil material or subbase material, free of particles larger than 1 inch (25 mm), to a height of 12 inches (300 mm) over the utility pipe or conduit. Place and compact final backfill, according to the requirements of the geotechnical report, of satisfactory soil material to final subgrade. 2. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6
- inches (150 mm) below subgrade under payements and slabs. M. Fill: Place and compact fill material in layers to required elevations. N. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content. 1. Remove and replace, or scarify and air—dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.
- in loose depth for material compacted by hand—operated tampers. P. Compact soil to not less than the following percentages of maximum dry density as determined by the standard Proctor test, according to ASTM D 698:

depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm)

O. Compaction: Place backfill and fill materials in layers not more than 8 inches (200 mm) in loose

- 1. Under structures, building slabs, steps, and pavements, compact and prepare subgrade and each layer of backfill or fill material at 95 percent of standard Proctor (ASTM D 698) maximum dry density or as directed by the geotechnical engineer. 2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each
- density or as directed by the geotechnical engineer. 3. Under lawn or unpayed areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill material at 92 percent of standard Proctor (ASTM D 698) maximum dry density or as directed by the geotechnical engineer. Q. Grading: Uniformly grade areas to smooth surface, free from irregular surface changes. Comply with

layer of backfill or fill material at 95 percent of standard Proctor (ASTM D 698) maximum dry

walks, and unpayed subgrades to tolerances of plus or minus 1 inch (25 mm) and payements and areas within building lines to plus or minus 1/2 inch (13 mm). R. Subbase and Base Courses: Under pavements and walks, place subbase course on prepared subgrade. Place base course material over subbase. Compact to required grades, lines, cross sections, and thickness to not less than 98 percent of maximum dry density as determined by the standard Proctor

compaction requirements and grade to cross sections, lines, and elevations indicated. Grade lawns,

S. Under slabs—on—grade, place drainage course on prepared subgrade. Compact to required cross sections and thickness to not less than 98 percent of maximum dry density as determined by the standard Proctor test, according to ASTM D 698. T. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to

1. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with

2. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained. U. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces

V. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with

END OF SECTION 31 00 00

subsequent earthwork only after test results for previously completed work comply with

W. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of on—site at direction of Construction Manager.

ARCHITECTS

**ARCHITECT:** 

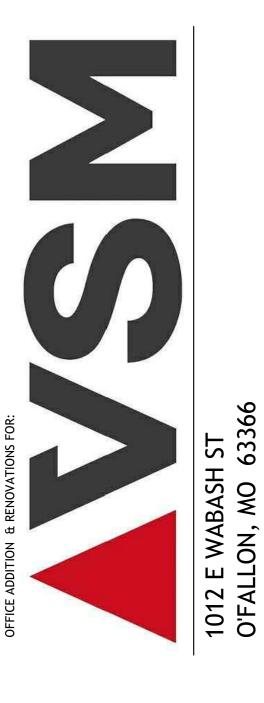
Mitchell and Hugeback Architects, Inc. D.B.A. M+H Architects 2150 Schuetz Road, Suite 200 St. Louis, Missouri 63146 314-878-3500 www.mha.us.com

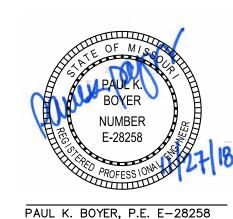
Corporate License No.: 000614

**CONSULTANTS:** Civil Engineering Design Consultants, Inc. 10820 Sunset Office Drive, Suite 200

St. Louis, MO 63127 314-729-1400 Corporate License No.:2003004674 Structural: SSC Engineering, Inc.

18207 Edison Ave. St. Louis, MO 63005 636-530-7770 Corporate License No.: 001244 (Design - Build)





CEDC LICENSE NO.: 2003004674

8-31-18

10-5-18

10-30-18

11-27-18

**DESCRIPTION:** 

Checked Bv:

Drawing Title:

PROGRESS SET

CITY SUBMITTAL

CITY RESUBMITTAL

PERMIT SET

10-5-18 Issue Date: Job Number: 1823 Drawn By: