#### GENERAL 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 or construction of the improvements.

2. The City of O'Fallon shall be notified 48 hours prior to construction for coordination and inspection.

3. All construction and materials shall conform to the current construction standards of the City of O'Fallon. Where conflicts exist, the contractor shall notify the Engineer for resolution.

4. All construction methods and practices shall conform with current OSHA standards.

5. City approval of the construction site plans does not mean that single family and two family dwelling units can be constructed on the lots with meeting the building setbacks as required by the Zoning Code.

6. Maintenance and upkeep of the common ground area shall be the responsibility of the developer and/or successors.

7. All existing site improvements or features disturbed, damaged or destroyed shall be repaired or replaced to closely match pre-construction conditions by the contractor and shall remain the contractor's responsibility.

8. All mechanical equipment to be screened from public view.

9. All fill placed under proposed storm and sanitary sewer, proposed roads, and/or paved areas shall be compacted to 90 % of maximum density as determined by the Modified AASHTO T-180 Compaction Test or 95% of maximum density as determined by the Standard Proctor Test AASHTO T-99. All filled placed in proposed roads shall be compacted from the bottom of the fill up. All test shall be verfied by a soils engineer concurrent with grading and backfilling operations. Ensure the moisture content of the soil in fill areas is to correspond 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. Proof rolling may be required to verfiy soil stability at the discretion of the City of O'Fallon.

10. All trench backfills under paved areas shall be granular backfill, and shall be compacted to 90 % of the maximum density as determined by the "Modified AASHTO T-180 Compaction Test," (A.S.T.M.-D.-1557). All other trench backfills may be earth material (free of large clods or stones). All trench backfills shall be water jetted.

11. All paving to be inaccordance with St. Charles County standards and specifications except as modified by the City of O'Fallon ordinances.

12. Driveway locatoins shall not interfere with the sidewalk handicap ramps.

13. Sidewalks, curb ramps, ramp and accessible parking spaces shall be constructed in accordance with the current approved "American with Disabilities Act Accessibility Guidelines" (ADAAC) along with the required grades, construction materials, specifications and signage. If any conflict occurs between the above infomartion and the plans, the ADAAC guidelines shall take precedence and the contractor prior to any construction shall notify the Project Engineer.

14. All sign post and backs and bracket arms shall be painted black using Carboline Rustbond Penetrating Sealer SG and Carboline 133 HB paint (or equivalent as approved by the City of

15. Gas, water and other underground utilities shall not conflict with depth or horizontal location of existing or proposed sanitary or storm sewers, including house laterals.

16. Contractor shall keep road clear of mud and debris.

17. Developer is notified that permit(s) from U.S. Army Corps of Engineers and Mo.D.N.R. may be required for this development.

18. The grading and elevations shown on the grading plans are for construction purposes only. Finished grades and slopes vary from those shown on the plans depending upon location, size, and type of house built on lot. However, care should be taken to insure that the finished grading conforms to the drainage area maps.

19. Any permits, licenses, easements, or approvals required to work on public or private properties or roadways are the responsibility of the developer.

20. The developer is responsible for adjusting all structure tops to match finished grade.

21. All joint for sidewalks shall be at least 24' spacing.

22. A portion of this property is labeled "Zone X" areas outside the limits of the 500-year floodplain as determined by the Flood Insurance Rate Map (F.I.R.M.) of the St. Charles County, Missouri: Map #29183c0237 E.

23. A portion of this property is labeled "Zone X" areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot as determined by the Flood Insurance Rate Map (F.I.R.M.) of the St. Charles County, Missouri: Map #29183C0237 E.

24. No slopes shall exceed 4 % within City Right-of-Way and 3:1 on all other slopes.

#### **GRADING NOTES**

1. A Geotechnical Engineer shall be employed by the owner and be on site during grading operations. All soils tests shall be verified by the Geotechnical Engineer and City of O'Fallon concurrent with the grading and backfilling operations. Copies of the soil testing shall be provided to the City of O'Fallon.

2. The grading contractor shall perform a complete grading and compaction operation as shown on the plans, stated in these notes, or reasonably implied there from, all in accordance with the plans and notes as interpreted by the Geotechnical Engineer and City of O'Fallon.

3. The Contractor shall notify the Soils Engineer and City of O'Fallon at least two days in advance of the start of the grading operation.

4. All areas shall be allowed to drain. All low points shall be provided with temporary ditches.

5. A sediment control plan that includes monitored and maintained sediment control basins and/or straw bales should be implemented as soon as possible. No graded area is to be allowed to bare over the winter without being seeded and mulched. Care should be exercised to prevent soil from damaging adjacent property and silting up existing downstream storm drainage

6. Soft soil in the bottom and banks of any existing or former pond sites or tributaries should be removed, spread out and permitted to dry sufficiently to be used as fill. None of this material should be placed in proposed right-of-way locations or on storm sewer locations.

7. 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 disced prior to the placement of any fill. The Soils Engineer and the City of O'Fallon shall approve the discing operation.

8. Compaction equipment shall consist of tamping rollers, pneumatic-tired rollers, vibratory roller, or high speed impact type drum rollers acceptable to the Soils Engineer and the City of O'Fallon. The roller shall be designed so as to avoid the creation of a layered fill without proper blending of successive fill layers.

9. 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 and the City of O'Fallon at regular intervals.

10. The Soils Engineer shall notify the Contractor and the City of O'Fallon of rejection 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.

11. All areas to receive fill shall be scarified to a depth of not less than 6 inches and then compacted in accordance with the specifications given below. 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 and the City of O'Fallon. 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.

12. The sequence of operation in the fill areas will be fill, compact, verify acceptable soil density, and repetition of 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 to 8 percent above the optimum moisture control.

13. 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, nor shall filling operations continue when the temperature is such as to permit the layer under placement to freeze.

14. Fill and backfill should be compacted to the criteria specified in the following table: MINIMUM PERCENT COMPACTION CATEGORY Fill in building areas below footings 90 % Fill under slabs, walks, and pavement 90 %

Fill other than building areas	88 %
Natural subgrade	88 %
Pavement subgrade	90 %
Pavement base course	90 %

Pavement subgrade shall be compacted to City Standards or optimum moisture, which ever is greater

Measured as a percent of the maximum dry density as determined by modified Proctor Test (ASTM-D-1557).

Moisture content must be within 2 percent below or 4 percent above optimum moisture content if fill is deeper than 10 feet.

15. No slope shall exceed 3 (horizontal) to 1 (vertical)

#### SILTATION NOTES:

1. Siltation controls will be installed prior to any grading or construction operations and shall be inspected and maintained as necessary to insure their proper function until sufficient vegetation has been established to prevent erosion.

2. The installation and maintenance of all siltation control shall be the responsibility of the developer.

3. Temporary siltation control measures (structural) shall be maintained until vegetative cover is established at a sufficient density to provide erosion control on the site.

4. 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.

5. 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 during the next seeding period after grading has been completed.

6. 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.

7. When grading operation are completed or suspended for than 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.

8. All finished grades (area not to be disturbed by future improvement) in excess of 20 % slopes (5:1) shall be mulched and tacked at the rate of 100 pounds per 1,000 square feet when seeded.

9. Additional siltation controls may be required as directed by the local governing authority.

### A SET OF ROAD IMPROVEMENT PLANS FOR

# WABASH AVENUE

# NOT TO SCALE



# ABBREVIATIONS

GWS/OWS GAS/OIL WARNI

APPR.

ASPH.

ATGBO

B.C. BEG. BLD.

BM

CHIS.

CONC.

CONST

COR. CSB

ELEV.

EXIST.

FES

GD GDP

MISC.

M.S.E.

AREA INLET	NRPCC	NON-REINFORCED PO
APPROACH	NITC	CEMENT CONCRETE
ASPHALT	NIS	NUT TO SCALE
ADJUST TO GRADE	OF	OUTFALL
ADJUST TO GRADE BY OTHERS	PB	PULL BOX
BASELINE	PC	POINT OF CURVATUR
BACK OF CURB	PCC	PORTLAND CEMENT
BEGINNING	P.D.E.	PERMANENT DRAINAU
BUILD	PF	PRIVATE ENTRANCE
BENCHMARK	PWF	PERMANENT WALLE.
CENTEDINE	DI	DOINT OF INTERSECT
COMMERCIAL ENTRANCE		POWER DOLE
CUNNERCIAL ENTRANCE	PPOD	PROPOSED
CHISELED	PROP.	PROPOSED
CURB INLET	PS	PRIVATE SIGN
CONSTRUCTION LIMIT	P.S.E.	PERMANENT SANITAR
100 LINEAR FEET	PT	POINT OF TANGENT
CORRUGATED METAL PIPE	P.T.S.E.	PERMANENT TRAFFIC
CONCRETE	PVC	POINT OF VERTICAL
CONSTRUCTION/CONSTRUCT		OR POLYVINYL CHLO
CORNER	PN	POINT OF VERTICAL
CABLE SPLICE BOX	PVMT.	PAVEMENT
COURT	PVT	POINT OF VERTICAL
DOLIBLE CURB INLET	R	RADIIIS
DRIVE	PAN	DICUT_OF_WAY
FLEVATION	PCD	RENEARCED CONCOR
ELEVATION	RCP	REINFORCED CONCRE
EUGE OF PAVEMENT	RD.	ROAD
ELEVATION	REI	RETAINING
EXISTING	RI	RIGHT
EXISTING	SAN.	SANITARY SEWER
FACE OF CURB	SDWK.	SIDEWALK
FLARED END SECTION	SGI	SPECIAL GRATE INLE
FLOWLINE	SHLDR.	SHOULDER
GAS DRIP	SS	STREET SIGN
GUARD POST	S.S.D.	STOPPING SIGHT DIS
CRATE INIET	STA	STATION
CAS METER	SUIDE	SUPEACE
CRATED TROUCH	TDA	TO DE ADANDONED
CAS VALVE	TRADI	TO BE ADANDONED
CHY WIDE ANOLIOD	TOM	TENDODADY DENOUN
GUT WIKE ANGHUK	IBM	TEMPORARY BENCHM
SGAS/UIL WARNING SIGN	IBR	TO BE REMOVED
HORIZONTAL	TBRBO	TO BE REMOVED BY
INVERT	TBR&R	TO BE REMOVED AND
IRON PIN	TBR&RBO	TO BE REMOVED AND
JUNCTION CHAMBER		BY OTHERS
RATE OF VERTICAL CURVE	T.C.F.	TEMPORARY CONSTR
IANE		FASEMENT
LIGHT STANDARD	TEMP	TEMPORARY
IFFT	TSP	TELEDUANE SOLICE E
WETER	750	TRAFFIC LICHT
MAIL DOV	TVD	TRAFFIC LIGHT
MANUOLE	TP.	HOG WI DI LOS
MANTOLE	UIP	USE IN PLACE
MISUELLANEOUS	VC	VERTICAL CURVE
MILLIMETER	VCP	VITRIFIED CLAY PIPE
MIDDLE ORDINATE	WM	WATER METER
MECHANICALLY STABILIZED EARTH	WV	WATER VALVE
NUMBER		

### ORCED PORTLAND ONCRETE CURVA TURE CEMENT CONCRETE DRAINAGE EASEMENT NTRANCE T WALL EASEMENT INTERSECTION SANITARY EASEMENT TANGENT TRAFFIC SIGNAL EASEMENT VERTICAL CURVATURE NYL CHLORIDE VERTICAL INTERSECTION VERTICAL TANGENT D CONCRETE PIPE SEWER RATE INLET SIGHT DISTANCE ANDONED Y BENCHMARK MOVED IOVED BY OTHERS IOVED AND REPLACED IOVED AND REPLACED Y CONSTRUCTION SPLICE BOX CURVE

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CENTER LINE	
BUILDING, ETC.	
TREE LINE	
FENCE	
STORM SEWERS	
SANITARY SEWERS	
MANHOLE	
AREA INLET	
STORM MANHOLE	
FLARED END	
SANITARY MANHOLE	
UTILITY OR POWER POLE	
FIRE HYDRANT	
PAVEMENT	
WATER MAIN & SIZE	-
GAS MAIN & SIZE	-
TELEPHONE	_
ELECTRIC (UNDERGROUND)	-
ELECTRIC (OVERHEAD)	-

SWALE

LIGHT STANDARD

STREET SIGN

# LEGEND



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### SANITARY SEWER NOTES:

- Test AASHTO T-99, Method C" (A.S.T.M.-D-698).

- governing authority.

### STORM SEWER NOTES:

- 1. All structures shall be precast
- Test AASHTO T-99, Method C" (A.S.T.M.-D-698).

- 7. All construction and materials shall conform to the current construction standards of the City of O'Fallon.
- 8. All sanitary and storm sewer trench back fills shall be water jetted. Granular back fill will be used under pavement areas.
- 9. Concrete pipe for storm sewers shall be Class III, A.S.T.M. C-76 with a minimum diameter of 12" except in the R.O.W. it shall be 15".
- 10. The ADS N-12 pipe shall have a smooth interior wall.

- 14. All flared end sections and inlet structures will be concrete.

- 18. Provide a 5/8" trash bar in all inlet openings.

## WATER MAIN NOTES:

- 6. All bends on water main are to be made with fittings.

- . Topographical information taken from survey by Bax Engineering for the City of O'Fallon. 2. T.R. Hughes Blvd. roadway plans taken from plans by Parsons
- Brinkerhoff dated 9-15-00.
- 3. Vertical control: BM5 Elev. 514.20 (T.R. Hughes Road Project) Chiseled "+" in top of 7' dia. conc. water vault in front of VSM Abrasives.



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E UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER OR LOCATION OF THESE OR OTHER UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SAID UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319, RSMo

1. All manhole tops built without elevations furnished by the Engineer will be the responsibility of the sewer contractor.

2. Eight (8) inch P.V.C. sanitary sewer pipe shall meet the following standards. A.S.T.M.-D-3034 SDR-35, with wall thickness compression joint A.S.T.M.-D-3212. An appropriate rubber seal water stop as approved by the sewer district shall be installed between P.V.C. pipe and masonry structures.

3. All filled places, including trench back fills, under buildings, proposed storm and sanitary sewer lines and/or paved areas, shall be compacted to 90 % maximum density as determined by the "Modified AASHTO T-180 Compaction Test," (A.S.T.M.-D-1557). All filled places within public roadways shall be compacted to 95 % of maximum density as determined by the "Standard Proctor

4. All trench back fills under paved areas shall be granular back fill, and shall be compacted to 90 % of the maximum density as determined by the "Modified AASHTO T-180 Compaction Test," (A.S.T.M.-D-1557). All other trench back fills may be earth material (free of large clods or stones). All trench back fills shall be water jetted.

5. All sanitary house connections have been designed so that the minimum vertical distance from the low point of the basement to the flow line of a sanitary sewer at the corresponding house connection is not less than the diameter of the pipe plus the vertical distance of 2 1/2 feet.

6. All P.V.C. sanitary sewer is to be SDR-35 or equal with clean 1/2" to 1" granular stone bedding uniformly graded. This bedding shall extend from 4" below the pipe to the springline of the pipe. Immediate back fill over pipe shall consist of same size "clean" or minus stone from spring line of pipe to 12" above the top of pipe.

7. All sanitary manholes shall be waterproofed on the exterior in accordance with Missouri Department of Natural Resources specifications 10CSR-8.120 (7)E.

8. Brick will not be used in the construction of sanitary sewer manholes.

9. All pipes shall have positive drainage through manholes. No flat base structures are allowed. Structures shall have a 0.2' min. difference in invert elevation unless otherwise approved.

10. The City of O'Fallon shall be notified 48 hours prior to construction for coordination and inspection.

11. Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing or proposed sanitary or storm sewers, including house laterals.

12. The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system.

13. All sanitary and storm sewer trench back fills shall be water jetted. Granular back fill will be used under pavement areas.

14. All existing areas disturbed during construction of the sanitary sewer line shall be seeded and mulched to prevent crosion

15. All sanitary sewer laterals shall be a minimum of 4" in diameter per City of O'Fallon.

16. All construction methods and practices shall conform with current OSHA standards.

17. Sod or erosion control blankets may be used in disturbed areas as directed by engineer.

18. Abandonment of existing septic tanks shall be pump out and abandonment shall be done according to specification set out by Metropolitan St. Louis Sewer District (2000) and inspected by

2. All manhole tops built without elevations furnished by the Engineer will be the responsibility of the sewer contractor.

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5. Brick will not be used in the construction of storm sewer manholes.

6. All pipes shall have positive drainage through manholes. No flat base structures are allowed. Structures shall have a 0.2' minimum difference in invert elevation unless otherwise approved.

11. Concrete pipe joints shall be MSD type "A" approved compression-type joints and shall conform to the requirements of the specifications for joins for circular concrete sewer and culvert pipe using flexible, watertight, rubber-type gaskets (A.S.T.M.-C-443). Band-type gaskets depending entirely on cement for adhesion and resistance to displacement during jointing shall not be used. 12. When HDPE pipe is used, pipe must meet ADS pro-link ultra joint specifications or equal, per ASHTO M294 be followed.

13. The use of High Density Polyethylene Corrugated pipe, ADS N-12 WT or equal will be permitted as an acceptable alternative to reinforced concrete pipe, ADS N-12 HC shall be used for all ADS pipe greater than 36". Pipe shall meet A.S.T.M.-D-2321 and AASHTO M-294-291.

15. All storm sewer pipe installed in the Public Right-of-Way shall be reinforced concrete Class III pipe.

16. All concrete pipe or ADS N-12 pipe shall be installed with "O-Ring" Rubber type gaskets per M.S.D. standard construction specifications or manufacturer.

17. All construction methods and practices shall conform with current OSHA standards.

1. The City of O'Fallon shall be notified 48 hours prior to construction for coordination and inspection

2. All water lines shall be laid at least 10 feet horizontally, from any sanitary sewer, storm sewer, or manhole. 18" vertical clearance from outside of pipe to outside of pipe shall be maintained wherever water lines must cross sanitary sewers, laterals, or storm drains. The water line shall be laid at such an elevation that the bottom of the water line is above the top of the drain or sewer. A full length of water pipe shall be centered over the sewer line to be crossed so that the joints will be equally distant from the sewer and as remote therefrom as possible. This vertical separation shall be maintained for that portion of the water line located within 10 feet horizontally, of any sewer or drain it crosses.

3. All PVC water pipe shall conform to A.S.T.M.-D-2241, SDR 21 Standard Specification for P.V.C. Pressure Pipe, 200 P.S.I. working pressure for water, with approved joint.

4. Water lines, valves, sleeved, meters, and fittings shall meet all specifications and installation requirements of the City of O'Fallon.

5. All water hydrants and valves shall be ductile iron and installed in accordance with plans and details. All ductile iron pipe for water mains shall conform to A.W.W.A. Specifications C-106 and/or C-108. The ductile iron fittings shall conform to A.W.W.A. Specification C-110. All rubber gasket joints for water ductile iron pressure pipe and fittings shall conform to A.W.W.A. Specification

7. Any water main in the 1 to 1 sheer plane or under the pavement will require compacted rock backfill.



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COVER SHEET

PLAN AND PROFILE

DRAINAGE PLAN / STORM PROFILES / DETAILS CROSS SECTIONS INTERSECTION WARPINGS / STRIPING PLAN **TRAFFIC STRIPING & SIGNAGE PLAN** 

**TYPICAL SECTIONS / DETAILS** 

CONSTRUCTION DETAILS

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