A SET OF IMPROVEMENT PLANS FOR

ANNABROOK

PHASE TWO

A TRACT OF LAND BEING PART OF FRACTIONAL SECTION 6, TOWNSHIP 46 NORTH, RANGE 3 EAST, OF THE FIFTH PRINCIPAL MERIDIAN ST. CHARLES COUNTY, MISSOURI

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 concurrent with the grading and backfilling operations.
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.
3. The Contractor shall notify the Soils Engineer 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 remain bare without being seeded and mulched. Care should be exercised to prevent soil from damaging adjacent property and silting up existing downstream storm drainage system.
6. Debris and foundation material from any existing on-site building or structure which is scheduled to be razed for this development must be disposed of off-site.
7. All trash and debris on site, either existing or from construction, must be removed and properly disposed of off-site.
8. Soft soil in the bottom and banks of any existing or former pond sites or tributaries or on any sediment basins or traps should be removed, spread out and permitted to dry sufficiently to be used as fill. None of this material should be placed in proposed public right-of-way locations or on any storm sewer locations.
9. 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 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 shall approve the discing operation.
10. Compaction equipment shall consist of tamping rollers, pneumatic-tired rollers, vibratory roller, or high speed impact type drum rollers acceptable to the Soils Engineer. The roller shall be designed so as to avoid the creation of a layered fill without proper blending of successive fill layers.
11. The Soils Engineer shall observe and test the placement of the fill to verify that specifications are met. A series of fill density tests will be determined on each lift of fill. Interim reports showing fill quality will be made to the Owner at regular intervals.
12. The Soils Engineer shall notify the Contractor 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.
13. 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. 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.
14. 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.
15. 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.
16. Fill and backfill should be compacted to the criteria specified in the following table:

CATEGORY	MINIMUM PERCENT COMPACTION
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%

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.

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. All manhole tops built without elevations furnished by the Engineer will be the responsibility of the sewer contractor.
3. 8" 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 waterstop as approved by the sewer district shall be installed between P.V.C. pipe and masonry structures.
4. All filled places, including trench backfills, 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 Test AASHTO T-99, Method C" (A.S.T.M.D.-698).
5. 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.
6. 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.
7. No area shall be cleared without the permission of the Project Engineer.
8. 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 backfill over pipe shall consist of same size "clean" or minus stone from springline of pipe to 6" above the top of pipe.
9. All soils test shall be verified by a Soils Engineer concurrent with the grading and backfilling operations.
10. Easements shall be provided for sanitary sewers, and all utilities on the Record Plat. See Record Plat for location and size of easements.
11. Maintenance and upkeep of the common ground area shall be the responsibility of the developer and/or successors.
12. A 25' building line shall be established along all Public Right-Of-Way.
13. 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.
18. All PVC water pipe shall conform to ASTM D2241, SDR 21 Standard Specification for P.V.C. Pressure Pipe, 200 P.S.I. working pressure for water, with approved joint.
19. Water lines, valves, sleeves, meters, and fittings shall meet all specifications and installation requirements of City of O'fallon.
20. 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 CC-110. All rubber gasket joints for water ductile iron pressure pipe and fittings shall conform to A.W.W.A. Specification C-111.
21. All sanitary manholes shall be waterproofed on the exterior in accordance with Missouri Department of Natural Resources specifications 10 CSR-8.120 (7)E.
22. Brick will not be used in the construction of sanitary sewer manholes.
23. All pipes shall have positive drainage through manholes. No flat invert structures are allowed.
24. The City of O'Fallon and the Duckett Creek Sanitary District shall be notified 48 hours prior to construction for coordination and inspection.
25. 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.
26. All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match preconstruction conditions.
27. The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system.
28. All construction and materials shall conform to the current construction standards of the City of O'Fallon and the Duckett Creek Sanitary District.
29. All sanitary and storm sewer trench backfills shall be water jetted. Granular backfill will be used under pavement areas.
30. All existing areas disturbed during construction of the offsite sanitary sewer line shall be seeded and mulched to prevent erosion.
31. All sanitary sewer laterals shall be a minimum of 4" in diameter
32. No flushing hydrants or water meters shall be located in driveways and or walkways.
33. 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".
34. The ADS N-12 pipe shall have a smooth interior wall.
35. Concrete pipe joints shall be MSD type "A" approved compression-type joints and shall comform to the requirements of the specifications for joints for circular concrete sewer and culvert pipe, using flexible, watertight, rubber-type gaskets ASTM C443. Band-type gaskets depending entirely on cement for adhesion and resistance to displacement during jointing shall not be used.
36. When HDPE pipe is used, City of O'Fallon specifications or manufacturers specifications, which ever are more stringent, shall be followed.
37. The use of High Density Polyethylene Corrugated pipe, ADS N-12 or equal will be permitted as an acceptable alternative to rein-forced concrete pipe. Pipe shall meet A.S.T.M. D-2321 and A.A.S.H.T.O. M-294-291.
38. All flared end sections and inlet structures will be concrete.
39. All storm sewer pipe installed in the Public Right-of-Way shall be Rein-forced concrete Class III pipe.
40. 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.
41. Existing sanitary sewers service shall not be interrupted.
42. pre-manufactured adapters shall be used at all PVC to DIP connections. Rubber boot / Mission-type couplings will not be allowed.

KEY MAP
NOT TO SCALE

LEGEND

C.I.	CURB INLET		STREET LIGHT
D.C.I.	DOUBLE CURB INLET	582	EXISTING CONTOUR
A.I.	AREA INLET	582	PROPOSED CONTOUR
M.H.	MANHOLE		STREET SIGN
F.E.	FLARED END SECTION		NO PARKING SIGN
E.P.	END PIPE		WATER VALVE
C.P.	CONCRETE PIPE		BLOW OFF ASSEMBLY
R.C.P.	REINFORCED CONCRETE PIPE		FLOWLINE ELEVATION OF HOUSE CONNECTION
C.M.P.	CORRUGATED METAL PIPE		FLOWLINE ELEVATION OF SEWER MAIN
C.I.P.	CAST IRON PIPE		
P.V.C.	POLY VINYL CHLORIDE (PLASTIC)		
C.O.	CLEAN OUT		
	FIRE HYDRANT		
	STORM SEWER		
	SANITARY SEWER		

TREE PRESERVATION CALCULATIONS:

TOTAL AREA OF EXISTING TREE MASSES: 28.67 AC.
28.67 AC. X 20% = 5.73 AC.

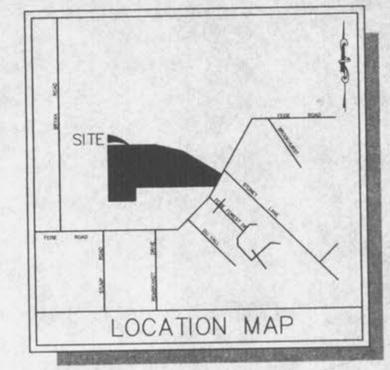
TOTAL AREA OF PROPOSED CLEARING: 21.22 AC.
TOTAL AREA OF REMAINING TREES: 5.92 AC.
5.92 AC. > 5.73 AC.= (NO ADDITIONAL TREES NEEDED)

LANDSCAPE REQUIREMENTS:

LENGTH OF CENTERLINE OF STREETS = 5,014 L.F.
5,014 L.F. X 2 = 10,028 L.F.
10,028 L.F. / 50 L.F. = 201 TREES

TOTAL PROPOSED = 201 TREES

NOTE: PROPOSED REPLACEMENTS TREES WILL BE HARDWOOD VARIETIES WITH 2" MINIMUM DIAMETER AND A HEIGHT OF 8'. TREES TO BE PLANTED ON THE INDIVIDUAL LOTS WILL BE PLANTED AFTER HOME CONSTRUCTION AND YARD FINISH GRADING BY THE HOMEOWNER AS REQUIRED IN THE COVENANTS AND RESTRICTIONS.



DEVELOPMENT NOTES

1. Area of Tract: 41.69 Acres
2. Existing Zoning: R-1 (P.U.D.)
3. Proposed Use: Single Family Homes
4. Number of Lots Proposed: 68 Lots
5. Minimum Lot Area Proposed: 9,000 Square Feet
6. The proposed height and lot setbacks are as follows:
   Minimum Front Yard: 25 feet
   Minimum Side Yard: 6 feet
   Minimum Rear Yard: 25 feet
   Maximum Height of Building: 2 1/2 stories or 35 feet
7. Site is served by:
   Duckett Creek Sanitary District
   Ameren UE
   Laclede Gas Company
   St. Charles County Public Water Supply District No. 2
   GTE Telephone Company
   Fort Zumwalt School District
   O'Fallon Fire Protection District
8. No flood plain exists on this site per F.I.R.M #29183C0240 E, dated August 2, 1996
9. All streets will be constructed to City of O'Fallon standards.
   Streets will consist of 26 foot wide concrete pavement with integral rolled curb centered in a 50 foot right-of-way.
   A minimum centerline radius shall be 150 feet.
10. Minimum street grades shall be 1%
11. All homes shall have a minimum of 2 off-street parking places with 2-car garages.
12. All utilities must be located underground.
13. A 4' foot wide concrete sidewalk shall be constructed on one side of streets as indicated on plan.
14. The developer realizes that they will comply with the current Tree Preservation Ordinance Number 1689 and provide landscaping as set forth in Article 23 of the City of O'Fallon Zoning Ordinance.
15. All lots shall access interior streets only. No driveways shall access Cool Springs Rd.

GRADING QUANTITY
131,850 cu.yds.
(INCLUDES 15% SHRINKAGE)

The above yardage is an approximation only. NOT FOR BIDDING PURPOSES. Contractors shall verify quantities prior to construction.

It is the intention of the Engineer for the earthwork to balance on-site. The Engineer shall be notified if any difficulties arise in achieving the balance.

BENCHMARK

U.S.G.S. BENCHMARK - RM62 - CHISELED SQUARE IN TOP OF SOUTH HEADWALL IN THE MIDDLE OF MEXICO ROAD BRIDGE OVER BELLEAU CREEK TRIBUTARY.
ELEVATION = 609.04

SITE BENCHMARK - AN OLD IRON ROD LOCATED AT THE MOST SOUTHWESTERN CORNER OF THE PROPERTY.
ELEVATION = 621.95

11-8-029B
APPROVED

SHEET INDEX

PREPARED FOR:
SHOWCASE HOMES
11443 ST. CHARLES ROCK ROAD
BRIDGETON, MO. 63044
(314) 739-2110

RECEIVED
NOV 04 2002
ENGINEERING DEPARTMENT

DISCLAIMER OF RESPONSIBILITY
I hereby specify that the documents intended to be authenticated by my seal are limited to this sheet, and I hereby disclaim any responsibility for all other Drawings, Specifications, Estimates, Reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project or survey.

STATE OF MISSOURI
RICHARD LEFRANCOIS
NUMBER E-25061
11/1/02
REGISTERED PROFESSIONAL ENGINEER

REVISIONS

1-21-99	D.C.S.D. Comments
2-23-99	Rock Depth
3-02-99	Sanitary Stub
10-31-02	Storm FE 124

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NOV. 16, 1998
DATE
96-8248
PROJECT NUMBER
1 of 24
SHEET OF
8248con2.DWG
FILE NAME
JP/TC MGG
DRAWN CHECKED

File