A SET OF CONSTRUCTION PLANS FOR

MANDERLEY PLACE

A TRACT OF LAND BEING PART OF
SECTION 24, TOWNSHIP 47, RANGE 2 EAST
ST. CHARLES COUNTY, MISSOURI

PRINCIPALS & STANDARDS

1. All excavations, grading, or filling shall have a finished grade not to exceed a 3:1 slope (33%). Steeper grades may be approved by the designated official if the excavation is through rock or the excavation or the fill is adequately protected (a designed head wall or toe wall may be required). Retaining walls that exceed a height of four (4) feet shall require the construction of safety guards as identified in the appropriate section(s) of the adopted BOCA Codes and must be approved by the City Building Department. Permanent safety guards will be constructed in accordance with the appropriate section(s) of the adopted BOCA Codes.

2. Sediment and erosion control plans for sites that exceed 20,000 square feet of grading shall provide for sediment or debris basins, silt traps or filters, staked straw bales or other approved measures to remove sediment from run-off waters.
   Temporary siltation control measures shall be maintained until vegetative cover is established at a sufficient density to provide erosion control on the site.

3. Where natural vegetation is removed during grading, vegetation shall be re-established 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.

4. When grading operations are completed or suspended for more 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.

   All finished grades (areas 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.

5. Provisions shall be made to accommodate the increased runoff caused by changed soils and surface conditions during and after grading. Unvegetated open channels shall be designed so that gradients result in velocities of 2 fps (feet per second) or less. Open channels with velocities more than 2 fps and less that 5 fps shall be established in permanent vegetation by use of commercial erosion control blankets or lined with rock riprap or concrete or other suitable materials. Detention basins, diversions or any other appropriate structures shall be constructed to prevent velocities above 5 fps.

6. The adjoining ground to development sites (lots) shall be provided with protection from accelerated and increased surface water, silt from erosion, and any other consequence of erosion. Run-off water from developed areas (parking lots, paved sites and buildings) above the area to be developed shall be directed to diversions, detention basins, concrete gutters and/or underground outlet systems. Sufficiently anchored straw bales may be temporarily substituted.

7. Development along natural watercourses shall have residential lot lines, commercial or industrial improvements, parking areas or driveways set back a minimum of 25 feet from the top of the existing stream bank. The watercourse shall be maintained and made the responsibility of the subdivision trustees or in the case of a site plan by the property owner. Permanent vegetation should be left intact. Variances will include designed streambank erosion control measures. FEMA and U.S. Army Corps of Engineers guidelines shall be followed where applicable regarding site development areas designated as flood plains and wetlands.

8. All lots shall be seeded and mulched or sodded before an occupancy permit shall be issued except that a temporary occupancy permit may be issued by the Building Department in cases of undue hardship because of unfavorable ground conditions.

9. 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 watertop as approved by the sewer district shall be installed between P.V.C. pipe and masonry structures.

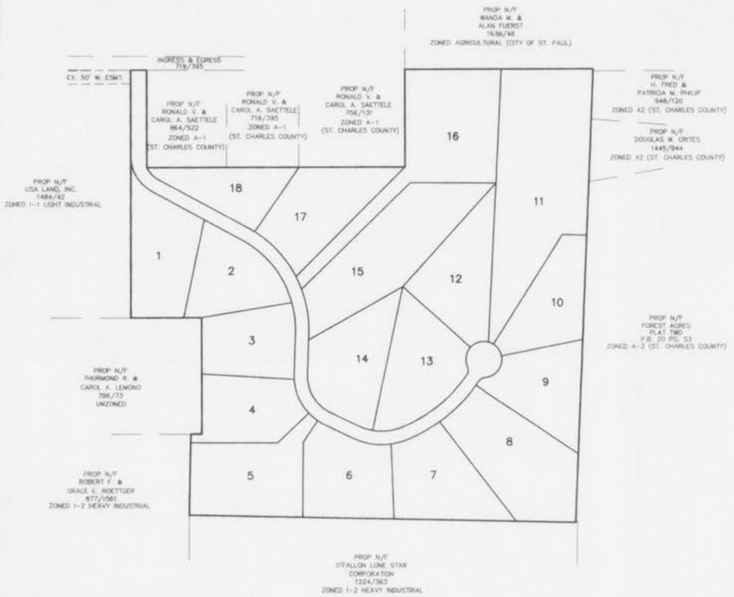
10. All PVC water pipe 6" and larger in size shall be Class C-900 per St. Charles County Public Water District No. 2 Specifications. All other mains shall have a minimum pressure rating of PR-200 or SDR-21. NOTE: Ultra-Blue PVC (MO) Pressure Pipe with a minimum pressure rating of 200 p.s.i. shall also be considered acceptable.

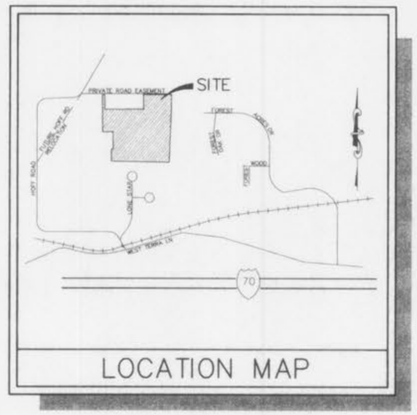
11. Water lines, valves, sleeves, meters, and fittings shall meet all specifications and installation requirements of St. Charles County Public Water District No. 2.

12. 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.

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

14. All sanitary sewer manholes to be 42 inch minimum inside diameter in accordance with Missouri Department of Natural Resources specification 10 CSR 20-8.





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	S_{ST}	STREET SIGN
F.E.	FLARED END SECTION		NO PARKING SIGN
E.P.	END PIPE		WATER VALVE
C.P.	CONCRETE PIPE	$B.O._A$	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		

SHEET INDEX

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. No area shall be cleared without the permission of the Project Engineer.

3. All grades shall be within 0.2 feet of those shown on the grading plan.

4. No slope shall be steeper than 3:1 or as called for in the soils report for the project. All slopes shall be sodded or seeded and mulched.

5. All construction and materials used shall conform to current City of O'Fallon Standards.

6. All soils test shall be verified by a Soils Engineer concurrent with the grading and backfilling operations.

7. If any wells and/or springs are discovered on this property they should be located and sealed in a manner acceptable to the City of O'Fallon. There are no visible wells.

8. No flood plain exists on this tract per FIRM MAP 29183C0230 E & 29183C0240 E dated August 2, 1996.

9. Tree preservation during development:

Area of existing trees	29.42 acres (100%)
Area of trees to be removed	3.40 acres (11.5%)
Total area of trees to be saved	26.02 acres (88.5%)

   1 Tree/50Ft. of Street frontage
   4900 Ft. of street frontage/50Ft./1 Tree= 98 trees required
   No Additional Trees are required

10. Site is served by:

    City of O'fallon Sewer District
    Cuivre River Electric Company
    St. Charles Gas Company
    City of O'Fallon Water District
    GTE Telephone Company
    Fort Zumwalt School District
    O'Fallon Fire Protection District

11. A Variance for the cul-de-sac length was approved by the City of O'Fallon Board of Adjustments on November 14, 1996.

12. 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).

13. 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.

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%
Fill under Sanitary & Storm Sewers	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.

APPROVED

Contingent upon the following:
1. St. Charles County's approval of the entrance off Hoff Road,
2. Misty Meadow Lane shall be improved to 26' wide pavement,
3. Providing storm sewer specifications and installation requirements, and
4. Providing a Copy of the construction easement for the work proposed from Manderly Place to Hoff Road.

6/2/97 Colleen Kramer

* Note: ~~Any~~ activity in the 100 yr floodplain shall need a separate permit & is not ~~approved~~ approved with this permit.

PREPARED FOR: EISENBATH DEVELPOMENT, INC.
725 LORETTA DRIVE
O'FALLON, MO 63366
PHONE (314) 978-3030

REVISIONS

11-25-96	GENERAL
1-6-96	CITY/N HOUSE
1-29-97	CITY/N HOUSE
5-6-97	ADD PIPE SPECS

BAX
ENGINEERING
PLANNING
SURVEYING
1052 South Cloverleaf Drive
St. Peters, MO. 63376-6445
314-928-5552
FAX 928-1718

10-31-96
DATE

95-8169
PROJECT NUMBER

1 OF 15
SHEET OF

8169CON.DWG
FILE NAME

PJS
DRAWN CHECKED

C:\DWG\8169CON2 Tue May 6 15:30:21 1997 STATIONS