

A SET OF IMPROVEMENT PLANS FOR BRADFORD HEIGHTS

A TRACT OF LAND BEING PART OF SECTIONS 3 AND 4
TOWNSHIP 46 NORTH, RANGE 3 EAST OF THE FIFTH PRINCIPAL MERIDIAN
ST. CHARLES COUNTY, MISSOURI



DEVELOPMENT NOTES

- Area of Tract: 26.02 Acres
- Existing Zoning: R-1A (St. Charles County)
- Proposed Zoning: R-1 (City of O'Fallon)
- Proposed Use: Single Family Homes
- Number of Lots Proposed: 68 Lots
- The proposed height and lot setbacks are as follows:
 - Minimum Front Yard: 25 feet
 - Minimum Side Yard: 6 feet
 - Minimum Rear Yard: 25 feet
 - Minimum Lot Area: 10,000 square feet
 - Maximum Height of Building: 2 1/2 stories or 35 feet
 - Minimum Lot Area Provided: 10,000 square feet
- Average Lot Area (not including Common Ground): 12,908 square feet
- Average Lot Area (including Common Ground): 13,779 square feet
- Current Owner/Developer: Kaplan Development and Investment Co., Inc.
5140 North Service Road
St. Peters, Missouri 63376
- Site is served by: Duckett Creek Sewer District & P.W.S.D. #2 Sewers
AmerenUE
St. Charles Gas Company
St. Charles County Public Water District No. 2
GTE of Missouri Telephone Company
Fort Zumwalt School District
O'Fallon Fire Protection District

GRADING NOTES

- 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.
- 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.
- The Contractor shall notify the Soils Engineer at least two days in advance of the start of the grading operation.
- All areas shall be allowed to drain. All low points shall be provided with temporary ditches.
- 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.
- 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.
- All trash and debris on site, either existing or from construction, must be removed and properly disposed of off-site.
- 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.
- 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 non-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.
- Compaction equipment shall consist of tamping rollers, pneumatic-tired rollers, vibratory roller, or high speed impact 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Fill and backfill should be compacted to the criteria specified in the following table:



GENERAL NOTES

- 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.
- All manhole tops built without elevations furnished by the Engineer will be the responsibility of the sewer contractor.
- 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).
- 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.
- No area shall be cleared without the permission of the Project Engineer.
- All soils test shall be verified by a Soils Engineer concurrent with the grading and backfilling operations.
- Easements shall be provided for sanitary sewers, and all utilities on the Record Plat. See Record Plat for location and size of easements.
- Maintenance and upkeep of the common ground area shall be the responsibility of the developer and/or successors.
- A 25' building line shall be established along all Public Rights-Of-Way.
- 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.
- 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.
- Water lines, valves, sleeves, meters, and fittings shall meet all specifications and installation requirements of Public Water Supply District No. 2 of St. Charles County.
- 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.
- All pipes shall have positive drainage through manholes. No flat base structures are allowed.
- The City of O'Fallon shall be notified 48 hours prior to construction for coordination and inspection.
- 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.
- All sign posts and hardware to be painted black, using Carboline Rustbond Penetrating Sealer SG and Carboline 133 HB point (or equivalent as approved by City and MoDOT).
- The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system.
- All sanitary sewer laterals shall be a minimum of 4" in diameter per City of O'Fallon.
- All creek crossings shall be grouted rip-rap as directed by District inspectors (All grout shall be high slump ready-mix concrete.)
- Existing sanitary sewer service shall not be interrupted.
- Pre-manufactured adapters shall be used at all PVC to DIP connections. Rubber boot/ Mission-type couplings will not be allowed.

GENERAL NOTES (CONTINUED)

- All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match pre-construction conditions.
- All construction and materials shall conform to the current construction standards of the City of O'Fallon and Duckett Creek Sanitary District.
- All sanitary and storm sewer trench backfills shall be water jetted. Granular backfill will be used under pavement areas.
- No flushing hydrants or water meters shall be located in driveways and/or walkways.
- 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".
- The ADS N-12 pipe shall have a smooth interior wall.
- Concrete pipe joints shall be MSD type "A" approved compression-type joints and shall conform to the requirements of the specifications for sewer and culvert pipe, using flexible, watertight, rubber-type gaskets depending entirely on cement displacement during jointing.
- When HDPE pipe is used, manufacturer's specifications, which are more stringent, shall be followed.
- The use of High Density Polyethylene Corrugated pipe, ADS N-12 or equal will be permitted as a concrete pipe, ADS N-12 HDPE shall meet A.S.T.M. D-2321 and A.A.S.H.T.O. M-294-291.
- All flared end sections and inlet structures will be concrete.
- All storm sewer pipe installed in the Public Right-of-Way shall be reinforced concrete Class III pipe.
- All concrete pipe or ADS N-12 Rubber type gaskets per M.S. manufacturer.
- All Fire Hydrants and Water meters shall not be located in driveways and/or sidewalks.
- Any permits, licenses, easements or approvals required to work on public or private properties or roadways are the responsibility of the developer.
- No slopes shall exceed 3 (horizontal) to 1 (vertical).
- Driveway locations shall not interfere with the sidewalk handicap ramps in the cul-de-sacs.
- Additional traffic signage may be added as required by the City traffic engineer.
- Contractor shall assume complete responsibility for controlling all siltation and erosion of the project area. The contractor shall use whatever means necessary, but not limited to, staked rows, straw bales and/or siltation fabric fences are detailed in the plan. Control shall be maintained throughout the project until the owner and/or the City of O'Fallon, the contractors responsibility include all design and implementation as required to prevent erosion and the depositing of silt. The Owner and/or the City of O'Fallon may at their option direct the contractor in his methods as deemed fit to protect property and improvements. Any depositing of silts or mud on existing storm sewers or on affected areas cleaned to the satisfaction of the Owner and/or City of O'Fallon.

VEGETATIVE ESTABLISHMENT For Urban Development Sites APPENDIX A

| | | |
|-------------------|---|-----------------------------|
| Permanent: | | |
| Tall Fescue | 30 lbs./ac. | |
| Smooth Brome | 20 lbs./ac. | |
| Combined Fescue | 15 lbs./ac. and Brome | 10 lbs./ac. |
| Temporary: | | |
| Wheat or Rye | 150 lbs./ac. | (3.5 lbs. per square foot) |
| Oats | 120 lbs./ac. | (2.75 lbs. per square foot) |
| Seeding Periods: | | |
| Fescue or Brome | March to June 1 | |
| | August to October 1 | |
| Wheat or Rye | March to November 1 | |
| Oats | March to September 15 | |
| Mulch Rates: | 100 lbs. per 100 sq. feet (4,356 lbs. per acre) | |
| Fertilizer Rates: | Nitrogen 30 lbs./ac. | |
| | Phosphate 30 lbs./ac. | |
| | Potassium 30 lbs./ac. | |
| | Lime 500 lbs./ac. ENM* | |
| | * ENM = effective neutralizing material as per State evaluation of quarried rock. | |

DUCKETT CREEK SANITARY DISTRICT CONSTRUCTION NOTES

- Underground utilities have been plotted from available information and, therefore, location 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 improvements.
- Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing or proposed sanitary and storm sewers, including house laterals.
- All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match preconstruction conditions.
- All fill, including places under proposed storm and sanitary sewer lines and paved areas, including trench backfills within and off the road right-of-way, shall be compacted to 90 percent of maximum density as determined by the "Modified AASHTO T-180 Compaction Test (ASTM D 1557)". All tests shall be verified by a Soils Engineer concurrent with grading and backfilling operations. The compacted fill shall be free of rutting and shall be non-yielding and non-pumping during proofrolling and compaction.
- The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system.
- All sanitary sewer flowlines and taps built without elevations furnished by the engineer will be the responsibility of the sewer contractor.
- Easements shall be provided for all sanitary sewers, storm sewers and all utilities on the record plat.
- All construction and materials shall conform to the current construction standards of the Duckett Creek Sanitary District.
- The Duckett Creek Sanitary District shall be notified at least 48 hours prior to construction for coordination of inspection.
- All sanitary sewer building connections shall be designed so that the minimum vertical distance from the low point of the basement to the flowline of a sanitary sewer at the corresponding building connection shall not be less than the diameter of the pipe plus the vertical distance of 2 1/2 feet.
- All sanitary sewer manholes shall be waterproofed on the exterior in accordance with Missouri Department of Natural Resources specification 10 CSR-8.120(7)(E).
- All PVC sanitary sewer pipe shall conform to the requirements of ASTM D-3034 Standard Specification for PSM Polyvinyl Chloride Sewer Pipe, SDR-35 or equal, with "clean" 1/2 inch to 1 inch granular stone bedding uniformly graded, this bedding shall extend 4 inches below the pipe to springline of pipe, immediate backfill over pipe shall consist of same size "clean" or "minus" stone from springline of pipe to 6 inches above the top of pipe.
- All sanitary and storm sewer trench backfills shall be water jetted. Granular backfill will be used under pavement areas.
- All pipes shall have positive drainage through manholes. No flat invert structures are allowed.
- All creek crossings shall be grouted rip-rap as directed by District inspectors. (All grout shall be high slump ready-mix concrete.)
- Brick shall not be used on sanitary sewer manholes.
- Existing sanitary sewer service shall not be interrupted.
- Maintain access to existing residential driveways and streets.
- Pre-manufactured adapters shall be used at all PVC to DIP connections. Rubber boot/Mission-type couplings will not be allowed.
- Any permits, licenses, easements or approvals to work on public or private properties or roadways are the responsibility of the developer.
- All sanitary sewer laterals shall be a minimum of 4" in diameter.

REFERENCE BENCHMARK

RM-74, Elevation 493.07 (U.S.G.S.) Chiseled square on the top of the east concrete headwall of the Birdie Hills Bridge over Knaust Road at #437 Knaust Road.

SITE BENCHMARK

ELEV. 603.47 - Cut box on the south edge of concrete drive on the east side of Knaust Road, 16' east of the centerline of Knaust Road at #437 Knaust Road.



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1-800-DIG-RITE

- The entirety of this tract lies within Zone X, "areas determined to be outside 500-year floodplain", per F.I.R.M. No. 29183C0243E, dated August 2, 1996.
- Topographic information from survey done by Bax Engineering, dated July 2000.
- Boundary information from survey by Trabue, Hansen and Hinshaw, Inc., Columbia, Missouri, June 1999 & by boundary survey by Bax Engineering, dated July 2000.
- All lots shall have one (1) tree (deciduous) planted in front yard for every fifty (50) of street frontage, as required by City code.
- All streets will be constructed to City of O'Fallon standards. Streets will consist of 26 foot wide concrete pavement which shall have integral rolled curb centered in a 50 foot right-of-way. Minimum radius shall be 150 feet.
- All cul-de-sacs and bubbles will have pavement radii of 42 feet with right-of-way radii of 54 feet. Street intersections shall have a minimum rounding radius of 25 feet with pavement radii of 37 feet.
- Minimum street grades shall be 1%.
- A 4 foot wide concrete sidewalk shall be constructed on one side of streets where indicated.
- All homes shall have a minimum of 2 off-street parking places with 2-car garages.
- All utilities must be located underground.
- The developer realizes that they will comply with current Tree Preservation Ordinance Number 1689 and provide landscaping as set forth in Article 23 of the City of O'Fallon Zoning Ordinance.
- Existing tree masses shall be identified during the topographic survey. An overall landscape plan shall be submitted prior to any grading operation.
- Additional lighting may be required by the City of O'Fallon.
- The following lots are susceptible to street movement: 6, 7, 10, 11, 13, 14, 18, 19, 20, 21, 22, 29, 30, 31, 32, 33, 38, 40, 41, 42, 45, 46, 47, 48, 49, 51, 52, 53, 55, 56, 57, 66, 67, 68.
- The smallest lots will require very close individual lot site plan reviews and inspection during construction to ensure required separation of structures and any required fire separation walls.
- Tree Preservation Calculations:
 - Total Area of Existing Tree Masses = 1.0 Acres
 - 1.0 Acres x 20% = 0.2 Acres
 - Total Area of Proposed Clearing = 1.0 Acres
 - Total Area of Remaining Trees = 0.2 Acres
 - Total Area of Trees to be Replaced = 0.2 Acres
 - 0.2 Acres x 15 Trees/Acre = 3 Trees
- Landscape Requirements:
 - Length of Centerline of Streets = 3194 L.F.
 - 3194 L.F. x 2 = 6388 L.F.
 - 6388 L.F. / 50 L.F. = 128 Trees
 - Street Trees required = 128 Trees
 - Total Trees required = 128 Trees
- Street trees shall be centered within the area between back of curb and sidewalk or back of curb and property line, or per detail on sheet 3. Required street trees meet the requirements of tree preservation ordinance.
- Note: Proposed trees shall be hardwood varieties with a 2" minimum diameter and a height of 8'. Trees to be planted on the individual lots shall be planted after home construction and yard finish grading by the homeowner, as required by the covenants and restrictions.
- Stormwater detention shall be provided in detention basins in the vicinity of Lots 1 to 6, inclusive, and in the vicinity of Lots 42 to 47, inclusive.
- Intersection of Pearview Drive with Knaust Road shall conform to the proposed Knaust Road Improvements by St. Charles County Highway Department.
- Lot 1 nor 68 shall not be permitted access to Knaust Road.
- All areas disturbed offsite to be sodded.

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9-17-01
APPROVED

BRADFORD HEIGHTS
KAPLAN DEVELOPMENT AND INVESTMENT CO., INC.
5140 NORTH SERVICE ROAD
ST. PETERS, MISSOURI 63376
(636) 397-4471



| REVISIONS | |
|-----------|-----------------------|
| 5/17/01 | Per O'Fallon Comments |
| 5/30/01 | Per O'Fallon Comments |
| 7/10/01 | Per D.C.S.D. Comments |
| 8/15/01 | Per SLECC Comments |
| 8/31/01 | Per O'Fallon Comments |

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

APRIL 12, 2001
DATE
99-10916
PROJECT NUMBER
SHEET OF 23
1 of 23
10916COV.dwg
FILE NAME
BF/JH MCG
DRAWN CHECKED