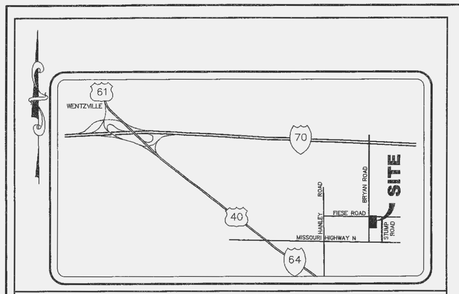

LOCATION MAP
(NOT TO SCALE)

A SET OF GRADING PLANS FOR
DARDENNE PRAIRIE PLAZA
A TRACT OF LAND BEING PART OF THE SOUTHWEST QUARTHER OF SECTION 6, TOWNSHIP 46 NORTH, RANGE 3 EAST OF THE FIFTH PRINCIPAL MERIDIAN
ST. CHARLES COUNTY, MISSOURI

STANDARD SYMBOLS & ABBREVIATIONS

TREE OR BUSH	
LIGHT POLE	
SANITARY SEWER & MANHOLE	
STORM SEWER & INLET	
MAILBOX	
ELECTRIC LINE	—E—
GAS LINE	—G—
WATER LINE	—W—
TELEPHONE LINE	—T—
CABLE TV LINE	—CATV—
OVERHEAD WIRE	—OHW—
UTILITY POLE	
UTILITY POLE W/ DOWN GUY	
FIRE HYDRANT	
WATER VALVE	WV
WATER METER	WM
GAS VALVE	GV
ROAD SIGN	
TELEPHONE PEDESTAL	TEL. PED.
FENCE	—— x ——

PRINCIPLES & 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 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. The design to be approved by the Designated Official. Temporary siltation control measures (structural) 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 reestablished in such a density as to prevent erosion. Permanent type grasses shall be reestablished 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 according to the City Engineer's recommendations. 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 rip rap or concrete or other suitable materials as approved by the City Engineer. Detention basins, diversions, or 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 with the approval of the City Engineer.

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 stream bank erosion control measures and shall be approved by the City Engineer, 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 at the minimum rates defined in Appendix A 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.

VEGETATIVE ESTABLISHMENT
For Urban Development Sites
APPENDIX A

Seeding Rates:

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 1 to June 1
August 1 to October 1
Wheat or Rye – March 15 to November 1
Oats – March 15 to September 15

Mulch Rates:
100 lbs. per 1,000 sq. feet (4,356 lbs. per acre)

Fertilizer Rates:
Nitrogen 30 lbs./ac.
Phosphate 30 lbs./ac.
Potassium 30 lbs./ac.
Lime 600 lbs./ac. ENM*
* ENM = effective neutralizing material as per State evaluation of quarried rock.

MISSOURI ONE CALL SYSTEM INC. – IT'S THE LAW! – STOP! CALL BEFORE YOU DIG!

CALL BEFORE
YOU DIG!
1–800–DIG–RITE

GENERAL NOTES:

1. Underground utilities have been plotted from available information and therefore locations shall be considered approximate only. The verifications 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 improvements.

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

3. All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match pre construction conditions.

4. All fill, including places under proposed storm and sanitary sewer lines 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 the maximum density as determined by the Standard Proctor Test (AASTHO T–99).

5. All fill placed in proposed paved areas shall be compacted from the bottom of the fill up to 90% of the maximum density as determined by the Modified AASHTO T–180 Compaction Test or 95% of the maximum density as determined by the Standard Proctor Test AASHTO T–99. All test shall be verified by soils engineer concurrent with grading and backfilling.

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

7. All sanitary sewer flowlines and tops built without elevations furnished by the engineer will be the responsibility of the sewer contractor.

8. Easements shall be provided for all public sanitary sewers, storm sewers and utilities on the record plat. See record plat (if required) for location and size of easement.

9. All sanitary sewer construction and materials shall conform to the current construction standards of Duckett Creek Sanitary district.

10. Duckett Creek Sanitary District shall be notified at least 48 hours prior to start of construction for coordination and inspection.

11. All sanitary sewer building connections have been designed so that the minimum vertical distances from the low point of the basement to the flowline of a sanitary sewer at the corresponding building connection is not less than the diameter of the pipe plus the vertical distance of 2–1/2 feet. (unless otherwise noted)

12. All sanitary sewer manholes shall be waterproofed on the exterior in accordance Missouri Dept. Of Natural Resources specifications 10 CSR–8.120(7)(E).

13. All PVC sanitary sewer pipe is to be SDR–35 or equal with "clean" 1/2 inch to 1 inch granular stone bedding uniformly graded. This bedding shall extend from 4 inches below the pipe to springline of pipe. Immediate back fill over pipe shall consist of same size "clean" or "minus" stone from springline of pipe to 6 inches above the top pipe. (Note: All P.V.C. Force Main shall be C–900, Class 200 P.V.C.)

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

15. All pipes shall have positive drainage through manholes. No flat invert base structures are allowed.

16. Brick shall not be used on sanitary sewer manholes nor shall brick be used in the construction of storm sewer structures.

17. All PVC 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 watertap as approved by the sewer district shall be installed between P.V.C. pipe and masonry structures. (Note: All P.V.C. Force Main shall be C–900, Class 200 P.V.C.)

18. All sanitary and storm sewers shall meet all specifications and installation requirements of the local governing authority.

19. Storm sewers 18 inch diameter and smaller shall be A.S.T.M. C–14 unless otherwise shown on the plans.

20. Storm sewers 21 inch diameter and larger shall be A.S.T.M. C–76, Class II minimum otherwise shown on the plans.

21. All storm sewer pipe in the right–of–way shall be reinforced concrete pipe (A.S.T.M. C–76, Class III minimum).

22. All storm sewer pipe shall be "O–ring" pipe.

23. All water lines shall be laid at least 10 feet horizontally from any sanitary sewer, or manhole. Whenever 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 18 inches 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.

24. All water lines shall be C–900 Class 200 P.V.C..

25. The grading yardage shown on these drawings is an approximation only, and not for bidding purposes. The contractor shall verify quantities prior to construction.

26. All sanitary sewer laterals shall be a minimum of 6 inches in diameter.

27. All storm sewer construction and materials to be in accordance with the Metropolitan St. Louis Sewer District Standard Construction Specifications for Sewers and Drainage Facilities, 2000.

28. Maintenance of the sewers designated as "public" shall be the responsibility of the Duckett Creek Sanitary Sewer District upon dedication of the sewers to the district.

29. Existing sanitary sewer service shall not be interrupted.

30. "Type N" Lock–Type cover and locking device (lock–lug) shall be used where Lock–Type covers are required.

31. A seperate demolition permit will be required prior to the removal of any existing structures.

32. Pre–manufactured adapters shall be used at all PVC to DIP connections. Rubber boot/mission–type couplings will not be allowed.

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 back filling 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. No grading area is to remain without at least 75% of vegetative ground cover for more than 30 days without being seeded and mulched or sodded. Also positive steps must be exercised to prevent transported soil from damaging adjacent property and being deposited in the form of silt in storm drainage systems whether on–site or off–site.

6. 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 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 system.

7. Any existing trash and debris currently on this property must be removed and disposed of off–site.

8. 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.

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 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 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. All siltation control devices shall be inspected by the contractor after any rain of 1/2" or more with any appreciable accumulation of mud to be removed and siltation measures repaired where necessary.

17. No slope shall be steeper than 3(Horizontal):1(Vertical). All slopes shall be sodded or seeded and mulched.

18. Fill and back fill shall be compacted to the criteria specified in the following table:

CATEGORY	MINIMUM PERCENT COMPACTION %
Fill in building areas below footings	95 %
Fill under slabs, walks, and pavement	95 %
Fill other than building areas	90 %
Natural sub grade	90 %
Pavement sub grade	90 %
Pavement base course	90 %

Measured as a percent of the maximum dry density as determined by Standard Proctor Test (ASTM–D–698). Moisture content must be within 2 percent below or 4 percent above optimum moisture content if fill is deeper than 10 feet.

19. Any contaminated soil encountered during excavation shall be hauled and placed as directed by the owners environmental engineering representative.

20. The City Engineer shall be contacted after the installation of the siltation control devices and at least twenty–four(24) hours prior to the commencement of any grading operations.

21. Any depositing of silts or mud onto new or existing pavement or in new or existing storm sewers or swales shall be removed after each rain and affected areas cleaned to the satisfaction of the City of Dardenne Prairie.

22. The developer shall cause the "as–built" location of each storm–sewer outfall of the project to be displayed on the "as–built" plans with horizontal coordinates of the end point of the outfall clearly labeled and referenced to the Missouri Coordinate System of 1983 as defined by R.S. Mo 60.401 and shall display the project Grid Factor. In addition, the vertical elevation of each outfall shall be labeled on the "as–built" plans and shall be referenced to the project's vertical datum. One mylar set, two paper sets, and one digital copy in AutoCAD format of the "as–built" plans shall be submitted to the City Engineer before the City shall shall release the escrow established insuring or guaranteeing the stabilization and revegetation of the site.

DEVELOPMENT NOTES:

1. Area of tract: Total Area = 8.720 Acres
8.97 Acres being disturbed
2. Zoning: C–2 General Business District
3. Required building & parking setbacks:
Front yard.... ....25 feet
Side yard.... ....10 feet
Rear yard.... ....15 feet
Parking.... ....10 feet along lot perimeter
4. According to the Flood Insurance Rate Map (F.I.R.M.) number 29183C0240–E dated August 02, 1996, this property lies within Zone X. Zone X is defined as areas determined to be outside the 500–year floodplain.
5. All new utilities shall be located underground.
6. This property is served by the following utilities:
Electric – AmerenUE Electric Company 636–639–8312
Telephone – Century Telephone Co. 636–332–7318
Water – Public Water Supply District No. 2 636–561–3737
Sewer – Duckett Creek Sanitary Sewer District 636–441–1244
Gas – Laclede Gas Company 314–658–5417
Wentzville Fire Protection District 636–327–6239
7. Property owner: Spruce, L.L.C.
4343 Duncan Ave
St. Louis, MO 63110
(314)535–8700
8. 25 Year, 20 minute storm used for all hydraulic and sediment calculations.

REFERENCE BENCHMARK

Reference Benchmark: Elevation 643.21 Datum (USGS)
Existing 60D nail in power pole at the Northwest corner of Fiese road and Bryan road as shown on improvement plans for Fiese road, O'Fallon project no.210–005, as prepared by George Butler Associates

Site Benchmark: Elevation 643.34 USGS Datum
Old iron pipe at the Northwest corner of property vested in the name of Herbst as shown on this survey drawing.

GRADING QUANTITIES:

1,070 C.Y. CUT
116,960 C.Y. FILL (INCLUDES 15% SHRINKAGE)
115,890 C.Y. SHORT

THE ABOVE GRADING QUANTITY IS APPROXIMATE ONLY, NOT FOR BIDDING PURPOSES. CONTRACTOR SHALL VERIFY QUANTITIES PRIOR TO CONSTRUCTION.

4/16/04
APPROVED
construction
Maintenance

SHEET INDEX:

PREPARED FOR: SPRUCE, LLC
ST. LOUIS, MO 63110
314–355–8700

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
TIMOTHY L. FORD
NUMBER E-29817
REGISTERED PROFESSIONAL ENGINEER

REVISIONS

04–06–04	Per City Comments
04–14–04	Duckett Creek

BAX
ENGINEERING
PLANNING
SURVEYING
1052 South Cloverleaf Drive
St. Peters, MO. 63376–6445
636–928–6552
FAX 928–1718

03/03/04 DATE
03–12453 PROJECT NUMBER
1 OF 6 SHEET OF
12453PRE.DWG FILE NAME
DRB DRAWN
LDW CLH DESIGNED CHECKED

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