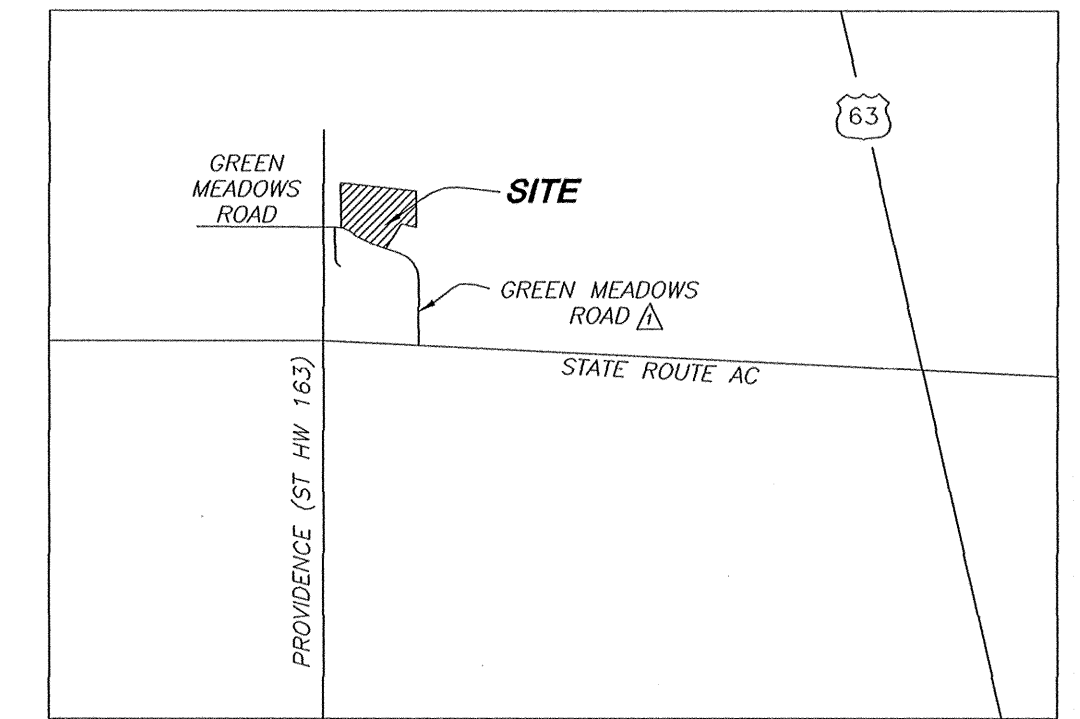


P.U.D. PLAN
OAK FOREST P.U.D.
JANUARY 29, 2004



SITE LOCATION MAP
NOT TO SCALE

NOTES

1. LOCATION OF WATER AND ELECTRIC LINES TO BE DETERMINED BY THE CITY OF COLUMBIA WATER AND LIGHT DEPARTMENT.
2. THE TOTAL AREA OF THIS TRACT IS 25.94 ACRES.
3. THE NUMBER OF PROPOSED UNITS ON THIS TRACT IS 246.
4. THE COMMON DENSITY = $246/25.94 = 9.48$ OR 10 UNITS/ACRE
5. THE PUD DENSITY = $246/24.87 = 9.89$ OR PUD-10
6. THE SIDE YARD BUILDING LINE SHALL BE FIVE FEET AND MEASURED FROM THE LOT LINE TO THE FOUNDATION.
7. THE STREETS AND BUILDINGS WILL BE BUILT IN ONE-PHASE.
8. 9 DUPLEX BUILDINGS OR 18 UNITS MAY BE BUILT ON LOT 1003, WHICH MAY BE FURTHER SUBDIVIDED.
9. A TRAFFIC IMPACT STUDY HAS BEEN PREPARED AND IS ON FILE WITH THE CITY PLANNING DEPARTMENT.
10. GARAGES WILL PROVIDE HANDICAPPED SPACES AS NECESSARY.

LIGHTING

ALL PARKING ILLUMINATION WILL BE PROVIDED BY BUILDING MOUNTED LIGHTS AND SHALL BE AIMED SO THAT THE LIGHT IS INWARD DIRECTED.

SIGNAGE

A MONUMENT SIGN IS PROPOSED AT THE GREEN MEADOWS ENTRANCE AND THE INTERSECTION OF GREEN MEADOWS ROAD AND MONTCLAIR LANE (TWO SIGNS) AND THE SIGN AREA SHALL NOT EXCEED 16 SQUARE FEET AND 4 FEET IN HEIGHT.

SITE DATA

EXISTING ZONING: PUD-11
ACREAGE: 25.94 ACRES
LOCATION: E 1/2 SECTION 25, T48N, R13W

OWNER

MIKE KELLY
3735 OLD RIDGE ROAD
COLUMBIA, MO 65203
(573)443-4724

FLOOD PLAIN STATEMENT

THIS TRACT DOES NOT LIE WITHIN THE 100-YEAR FLOOD PLAIN AS SHOWN ON THE CITY OF COLUMBIA AND BOONE COUNTY FLOOD PLAIN MAPS.

BENCHMARK

TOP OF FIRE HYDRANT LOCATED AT THE CORNER OF BUTTWOOD AND GRAY OAK.
ELEV. = 729.28

BUILDING INFORMATION

BUILDING TYPE: SINGLE-FAMILY APARTMENTS
APPROXIMATE BUILDING SIZE: 80' L X 64' W
NOTE: APPROXIMATE BUILDING ENVELOPE SHOWN
MAXIMUM BUILDING HEIGHT: 38' TALL

LEGEND

- 1% PROPOSED STREET GRADE
- PROPOSED STORM DRAINAGE STRUCTURE/PIPE
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- FENCE
- UTILITY POLE
- SANITARY MANHOLE
- SANITARY CLEAN OUT
- EXISTING CONTOUR

SCALE: 1" = 100'
0 50 100 200
BEARINGS ARE REFERENCED TO THE RANGE LINE SHOWN IN SURVEY BK 428, PG 835: N014°30'E=N0°40'15"W

PARKING DATA

—APARTMENTS—

PROVIDED:
495 SPACES PROVIDED
18 HANDICAP SPACES PROVIDED

REQUIRED:
(84) 1 BEDROOM UNITS X 1.5 = 126
(144) 2 BEDROOM UNITS X 2 = 288
TOTAL UNITS (228)/5 = 46 (VISITOR)
OFFICE: 2,400 SQ. FT. X 0.8 = 1,920 SQ. FT.
1,920/300 = 6.4 OR 7
SUBTOTAL: 467 SPACES
- 5% (24) FOR BICYCLE = -24 SPACES
TOTAL: 443 SPACES REQUIRED
18 HANDICAP SPACES REQUIRED

—DUPLEXES—

PROVIDED:
54 SPACES PROVIDED
NO HANDICAP SPACES PROVIDED

REQUIRED:
(18) 3-4 BEDROOM UNITS X 3 = 54
TOTAL: 54 SPACES REQUIRED
NO HANDICAP SPACES REQUIRED

P.U.D. PLAN - OVERALL PLAN

DATE	1/29/04	DRAWN BY	SMH
CITY COMMENTS	JG	CHECKED BY	JG
CITY COMMENTS	JG	DATE	1/29/04
NO.	DATE	DESCRIPTION	BY
1	1/29/04	BASE.DWG	JG
2	1/29/04	BASE.DWG	JG
3	1/29/04	BASE.DWG	JG
4	1/29/04	BASE.DWG	JG
5	1/29/04	BASE.DWG	JG
6	1/29/04	BASE.DWG	JG
7	1/29/04	BASE.DWG	JG
8	1/29/04	BASE.DWG	JG
9	1/29/04	BASE.DWG	JG
10	1/29/04	BASE.DWG	JG



STORM WATER DETENTION NOTE

1) PRIOR TO APPROVAL OF A FINAL PLAT OF THIS PROPERTY, A DEVELOPMENT AGREEMENT MUST BE PROVIDED AND ACCEPTED CONCERNING THE CONSTRUCTION OF SITE OR REGIONAL DETENTION FACILITIES ON THE SITE.

UTILITIES

WATER

CITY OF COLUMBIA
P.O. BOX N
WATER & LIGHT DEPARTMENT
COLUMBIA, MISSOURI 65205
CONTACT: DON WILSON
(573)874-7315

NATURAL GAS

AMEREN UE
P.O. BOX N
COLUMBIA, MISSOURI 65205
CONTACT: GARY WHISTLER
(573)876-3030

TELEPHONE

CENTURYTEL
625 E. CHERRY
COLUMBIA, MISSOURI 65205
CONTACT: DON WILSON
(573)886-3500

SANITARY SEWER

CITY OF COLUMBIA
P.O. BOX N
PUBLIC WORKS DEPARTMENT
COLUMBIA, MISSOURI 65205
CONTACT: DAVE SORRELL
(573)874-7250

ELECTRICITY

CITY OF COLUMBIA
P.O. BOX N
WATER & LIGHT DEPARTMENT
COLUMBIA, MISSOURI 65205
CONTACT: JIM TROYER
(573)874-7321

CABLE TV

CHARTER COMMUNICATIONS OR MEDIACOM
1500 E. BOONE INDUSTRIAL DR.
COLUMBIA, MISSOURI 65202
CONTACT: JIM GUSENBERRY
(573)875-8875

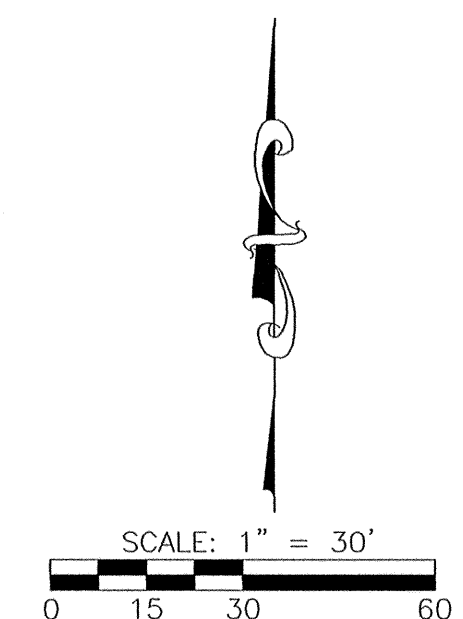
901 NORTH COLLEGE AVENUE
COLUMBIA, MISSOURI 65201
CONTACT: JIMMY RUNYON
(573)443-1535

APPROVED BY THE CITY OF COLUMBIA PLANNING AND ZONING COMMISSION THIS 22nd DAY OF April, 2004.
JERRY WAJE, CHAIRPERSON

APPROVED BY THE CITY OF COLUMBIA CITY COUNCIL THIS 22nd DAY OF May, 2004.
DARWIN A. HINDMAN, MAYOR

SHEELA AMIN, CITY CLERK

SITE PLAN
OAK FOREST P.U.D.
JANUARY 29, 2004



LEGEND

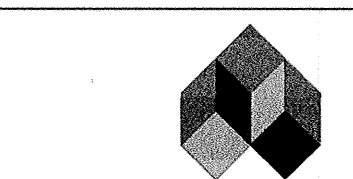
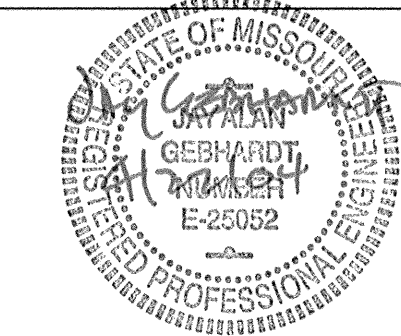
- 1% PROPOSED STREET GRADE
- PROPOSED STORM DRAINAGE STRUCTURE/PIPE
- S PROPOSED SANITARY SEWER
- S EXISTING SANITARY SEWER
- X FENCE
- PP UTILITY POLE
- SANITARY MANHOLE
- SANITARY CLEAN OUT
- 700 EXISTING CONTOUR

APPROVED BY THE CITY OF COLUMBIA PLANNING AND ZONING COMMISSION THIS 27th DAY OF April, 2004
[Signature]
BERRY WADE, CHAIRPERSON

APPROVED BY THE CITY OF COLUMBIA CITY COUNCIL THIS 17th DAY OF May, 2003
[Signature]
DARWIN A. HINDMAN, MAYOR

[Signature]
SHEELA AMIN, CITY CLERK

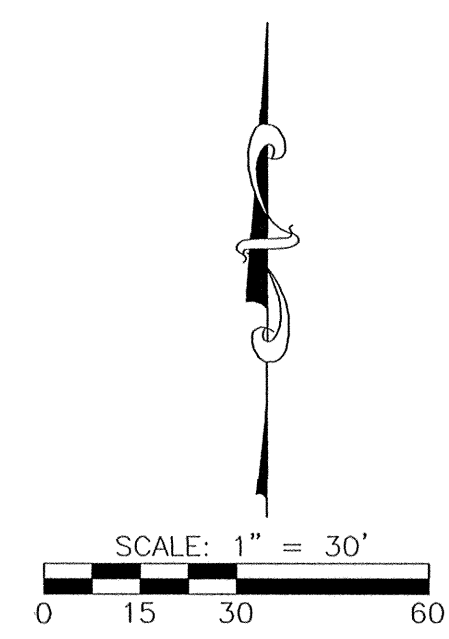
P.U.D. SITE PLAN



A CIVIL GROUP
CIVIL ENGINEERING, PLANNING, SURVEYING
1010 FAY STREET
COLUMBIA, MO 65201
PHONE: (619)811-5750, FAX: (619)811-4111

DRAWN BY: SMH		DATE: 1/29/04	
CHECKED BY: JG		DRAWING NO.: BASE.DWG	
JOB NO.: MKEL03-03		SHEET 2 OF 10	
NO.	DATE	DESCRIPTION	BY
1	4/9/04	CITY COMMENTS	JG
2	3/18/04	CITY COMMENTS	JG
3	2/18/04	CITY COMMENTS	JG

SITE PLAN
OAK FOREST P.U.D.
JANUARY 29, 2004



- LEGEND**
- 1% PROPOSED STREET GRADE
 - PROPOSED STORM DRAINAGE STRUCTURE/PIPE
 - S PROPOSED SANITARY SEWER
 - S EXISTING SANITARY SEWER
 - X FENCE
 - O- PP UTILITY POLE
 - SANITARY MANHOLE
 - SANITARY CLEAN OUT
 - 700 EXISTING CONTOUR

APPROVED BY THE CITY OF COLUMBIA PLANNING AND ZONING COMMISSION THIS 27th DAY OF April, 2004

APPROVED BY THE CITY OF COLUMBIA CITY COUNCIL THIS 17th DAY OF May, 2003

JERRY WADE, CHAIRPERSON

Darwin A. Hindman, Mayor

Shirley Ann, City Clerk

P.U.D. SITE PLAN

JAY GEBHARDT MO E-25052

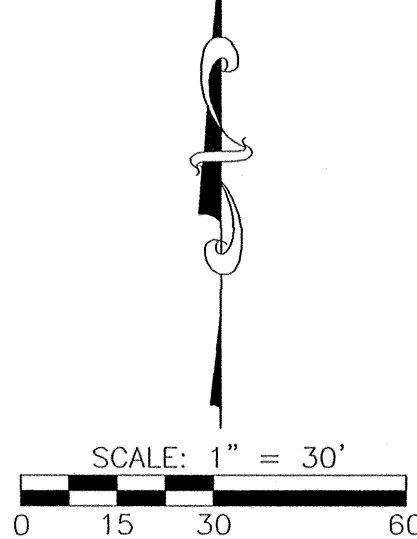
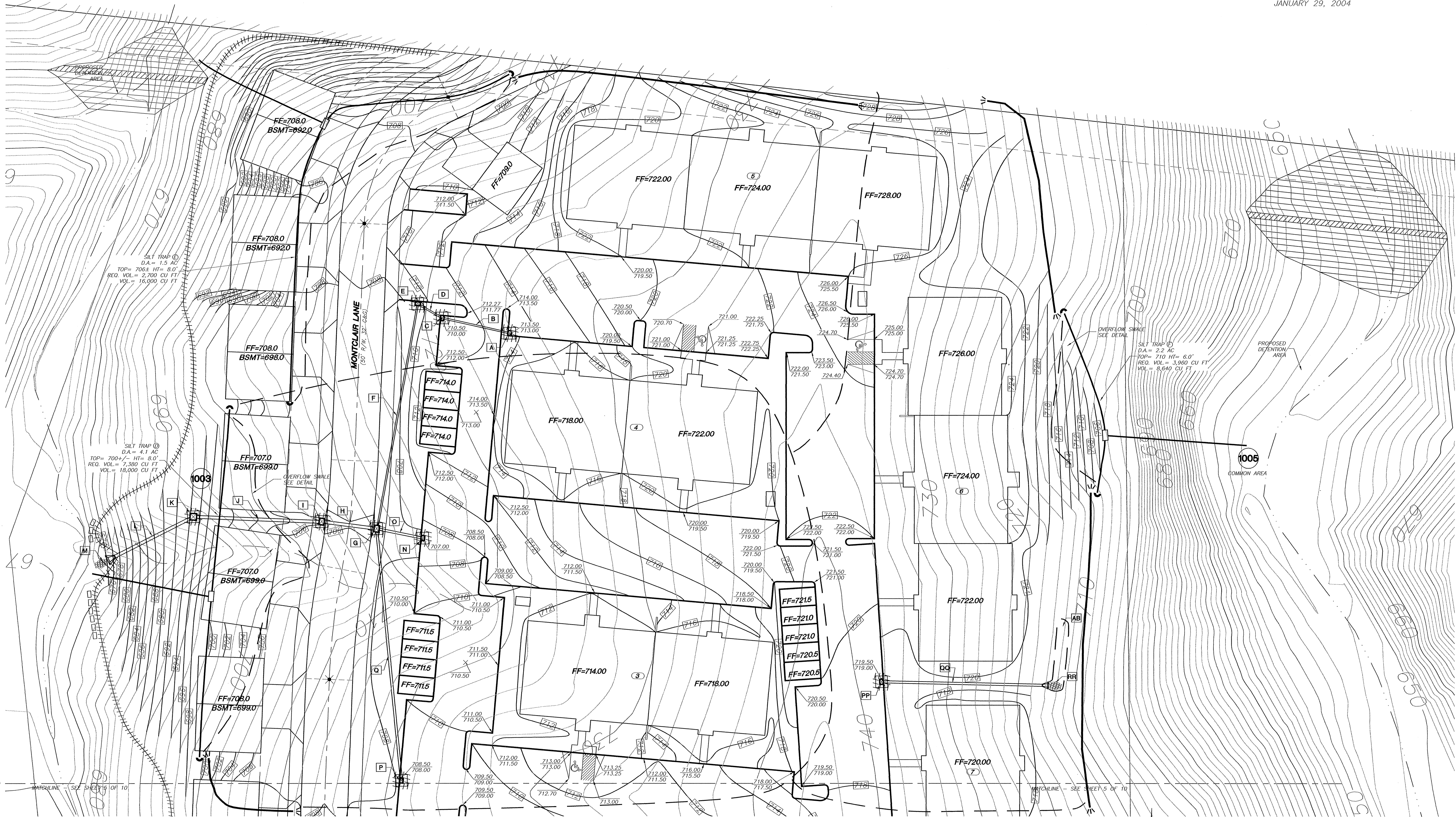
A CIVIL GROUP
CIVIL ENGINEERING, PLANNING, SURVEYING
1010 FAY STREET
COLUMBIA, MO 65201
PHONE: (573) 811-5750, FAX: (573) 811-1071

DRAWN BY: SMH		DATE: 1/29/04	
4/9/04	CITY COMMENTS	JG	CHECKED BY: JG
3/10/04	CITY COMMENTS	JG	CHECKED BY: JG
2/18/04	CITY COMMENTS	JG	CHECKED BY: JG
NO.	DATE	DESCRIPTION	BY
		NO. 1	DATE
		NO. 2	DATE
		NO. 3	DATE
		NO. 4	DATE
		NO. 5	DATE
		NO. 6	DATE
		NO. 7	DATE
		NO. 8	DATE
		NO. 9	DATE
		NO. 10	DATE

DRAWING NO.: BASE.DWG
SHEET 3 OF 10

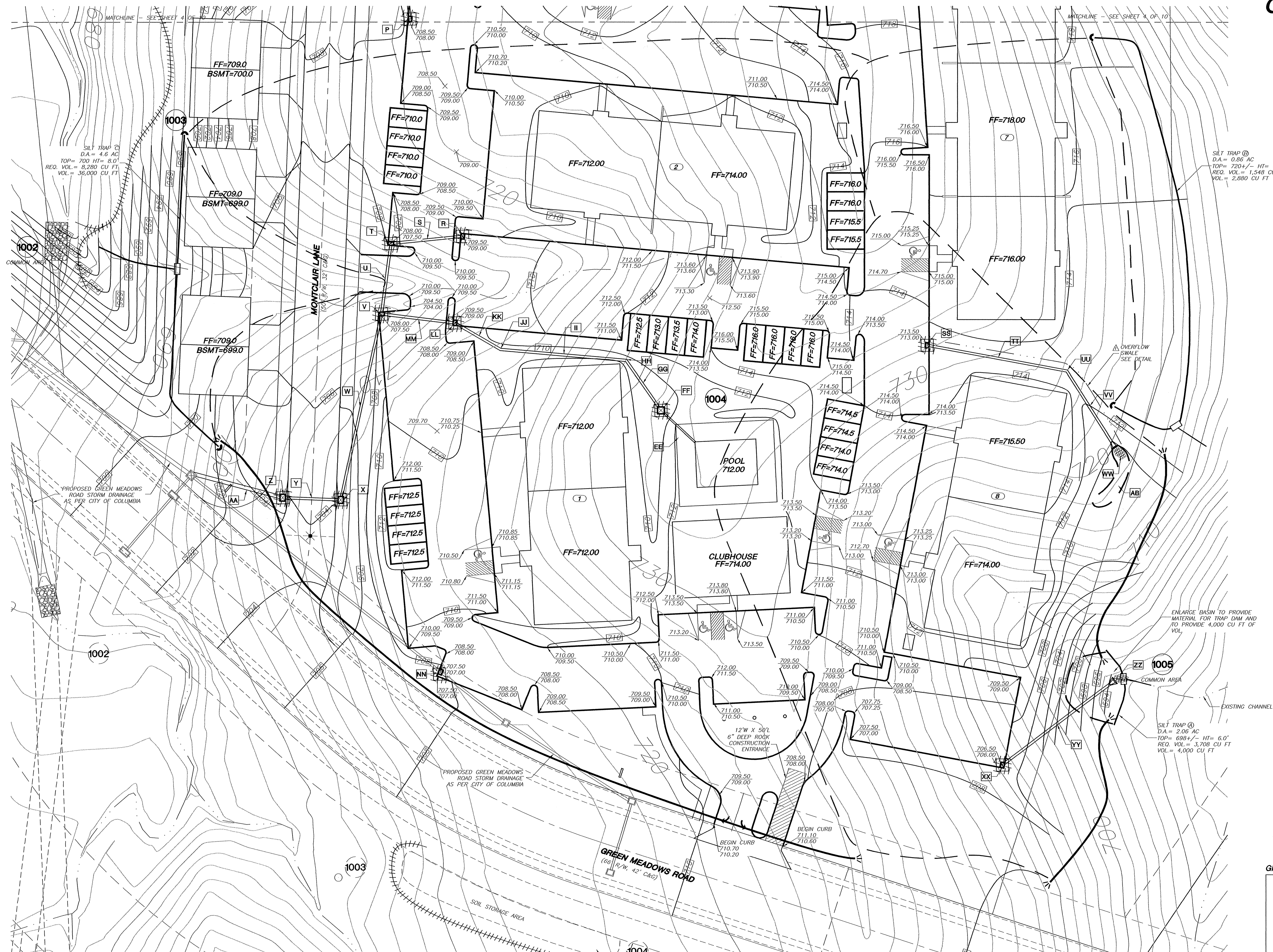
I:\Projects\Mike Kelly\PUD Oak Forest\p\mkelo3-03 Base\mkelo3-03.dwg

GRADING PLAN
OAK FOREST P.U.D.
JANUARY 29, 2004

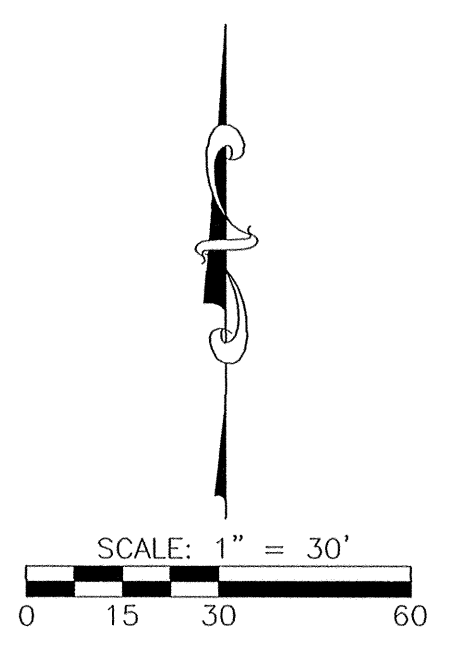


GRADING PLAN			
JAY GEHARDT MO E-25052		A CIVIL GROUP CIVIL ENGINEERING, PLANNING, SURVEYING 1010 FAY STREET COLUMBIA, MO 65201 PHONE: (573)811-5150, FAX: (573)811-1071	
		DRAWN BY: SMH	DATE: 1/29/04
Δ 4/3/04	CITY COMMENTS	JG	DRAWING NO.: BASE.DWG
Δ 3/10/04	CITY COMMENTS	JG	
Δ 2/18/04	CITY COMMENTS	JG	
NO.	DATE	DESCRIPTION	SHEET 4 OF 10

GRADING PLAN
OAK FOREST P.U.D.
JANUARY 29, 2004



- LEGEND**
- DIVERSION BERM
 - ++++ SILT FENCE
 - - - - - EXISTING FENCE
 - - - - - EXISTING CONTOUR
 - - - - - FLOWLINE (E)
 - - - - - EXISTING TREELINE
 - - - - - PRESERVED TREELINE
 - - - - - PROPOSED STORM SEWER
 - 694 LOW FLOOR ELEVATION
 - TEMPORARY SILT TRAP WITH ROCK OUTLET
 - TEMPORARY SILT TRAP WITH PIPED OUTLET
 - 700 DESIGN CONTOUR
 - T/C 772.00 PROPOSED SPOT ELEVATION
 - F/G 771.50



GRADING PLAN

STATE OF MISSOURI
Professional Engineer
Jeffrey A. Gehring
E-25052
JANUARY 29, 2004

A CIVIL GROUP
CIVIL ENGINEERING, PLANNING, SURVEYING
1010 FAY STREET
COLUMBIA, MO 65201
PHONE: (573)871-5150, FAX: (573)871-1471

NO.	DATE	DESCRIPTION	BY
1	4/29/04	CITY COMMENTS	JG
2	3/10/04	CITY COMMENTS	JG
3	2/18/04	CITY COMMENTS	JG

NO.	DATE	DESCRIPTION	BY
1	4/29/04	CITY COMMENTS	JG
2	3/10/04	CITY COMMENTS	JG
3	2/18/04	CITY COMMENTS	JG

DRWN BY: SMH DATE: 1/29/04
CHECKED BY: JG
JOB NO.: MKEL03-03 SHEET 5 OF 10

NOTE: NO SOIL STORAGE IS EXPECTED
BUT IF IT IS REQUIRED THEN IT WILL
BE PLACED HERE.

GRADING NOTES
OAK FOREST P.U.D.
JANUARY 29, 2004

EROSION CONTROL NARRATIVE SECTION 12A-68

A. 1. THE PROJECT CONSISTS OF CREATING 228 APARTMENT UNITS AND 18 DUPLEX UNITS. THIS INCLUDES CONSTRUCTION OF THE APARTMENTS AND DUPLEXES, STREETS, SANITARY SEWERS, STORM SEWERS, ELECTRIC, GAS, WATER, TELEPHONE, AND CABLE TV UTILITIES. IN MY OPINION, THERE ARE NO SIGNIFICANT SILTATION OR EROSION CONTROL PROBLEM AREAS ON THE SITE AT THIS TIME. HOWEVER, CONSTRUCTION OF THESE IMPROVEMENTS WILL CREATE THE POTENTIAL OF SILTATION AND EROSION PROBLEMS IF NOT CAREFULLY MANAGED.

2. TO MY KNOWLEDGE THERE ARE NO EXISTING OFF-SITE EROSION, SILTATION PROBLEMS DOWN STREAM FROM THIS DEVELOPMENT. HOWEVER, SEVEN OAKS SUBDIVISION DOES HAVE SOME EXISTING DRAINAGE PROBLEMS. THIS DEVELOPMENT WILL ADD TO THE PEAK DISCHARGE AND VOLUME TO THESE PIPES. TO ADDRESS THIS AGGRAVATION OF AN EXISTING PROBLEM, DETENTION IN ACCORDANCE WITH CITY STANDARDS & ORDINANCES WILL BE PROVIDED AND THE PLANS IS TO BE SEPARATE. THE DEVELOPMENT WILL HAVE MINOR IMPACTS TO THE RECEIVING STREAMS IMMEDIATELY DOWN STREAM FROM THE SITE DURING THE 2 TO 3 YEARS OF CONSTRUCTION OF THE DEVELOPMENT. AFTER CONSTRUCTION, LAND DISTURBANCE ACTIVITIES WILL DIMINISH AND THEIR EFFECTS OFF-SITE WILL DECREASE TO VERY MINOR IMPACT.

3. THE RUNOFF PRODUCING FACTORS ON THE SITE INCLUDE MATURE FOREST, CURRENT WEATHER CONDITIONS, SEASONAL LEAF COVER ON TREES AND PLANTS AND OTHER MATTERS WHICH EFFECT THE ABSTRACTION OF A RAINFALL. THE SITE WILL CHANGE TO APPROXIMATELY 30 % IMPERVIOUS AREAS, THE FOREST WILL BE REPLACED WITH STREETS, HOMES, SIDEWALKS, MANICURED LAWNS AND LANDSCAPING. MY ESTIMATED CHANGES TO THESE FACTORS WOULD HAVE TO BE APPROXIMATELY 30%.

4. THE PEAK DISCHARGE FOR THE 10 YEAR STORM IS 30 ACRES X 0.45 X 7 = 94.5 CFS.

5. THE MANAGEMENT OF THE EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/OWNER UNTIL ALL AREAS ARE ESTABLISHED WITH NEW GROUND COVER.

6. THE CONSTRUCTION OF THE PROJECT SHALL INCLUDE THE PHASES OF CLEARING, GRADING, BUILDING AND PARKING CONSTRUCTION. THE ENTIRE SITE SHALL BE GRADED AT ONE TIME AND SHALL NOT BE DENUEDED FOR A PERIOD TO EXCEED THE LESSOR OF 30 WORKING DAYS OR 120 CALENDAR DAYS. ALL STOCKPILES SHALL BE PROTECTED BY SILT FENCE. ALL GRADING ACTIVITIES SHALL BE DONE IN A MANNER THAT CONFORMS TO THE MEASURES SHOWN ON THE PLAN.

7. THE EROSION CONTROL MEASURES SHOWN ON THE PLAN WERE CHOSEN AS THE BEST MANAGEMENT PRACTICES APPROPRIATE FOR THE SITE.

8. THE EROSION CONTROL MEASURES SHALL BE INSPECTED DAILY, TO INSURE MAXIMUM EFFECTIVENESS OF THE PROTECTIVE MEASURES AND TO ASSURE THAT PREVENTATIVE MAINTENANCE EFFORTS WILL BE CARRIED OUT WHEN NEEDED. ALL AREAS SHALL BE RESEDED AFTER GRADING IS COMPLETE. ALL STRUCTURAL MEASURES SHALL BE MAINTAINED AND THE WASTE MATERIALS REMOVED AND DISPOSED OF PROPERLY.

LEVEL SPREADER CONSTRUCTION NOTES

1. THE MATING SHOULD BE A MINIMUM OF 4 FEET WIDE EXTENDING 6 INCHES OVER THE LIP AND BURIED 6 INCHES DEEP IN A VERTICAL TRENCH ON THE LOW EDGE. THE UPPER EDGE SHOULD BUTT AGAINST SMOOTHLY CUT SOO AND BE SECURELY HELD IN PLACE WITH CLOSELY SPACED HEAVY DUTY WIRE STAPLES AT LEAST 12 INCHES LONG.
2. ENSURE THAT THE SPREADER LIP IS LEVEL FOR UNIFORM SPREADING OF STORM RUNOFF.
3. CONSTRUCT THE LEVEL SPREADER ON UNDISTURBED SOIL (NOT ON FILL).
4. CONSTRUCT A 20-FOOT TRANSITION SECTION FROM THE DIVERSION CHANNEL TO BLEND SMOOTHLY TO THE WIDTH AND DEPTH OF THE SPREADER.
5. DISPERSE RUNOFF FROM THE SPREADER ACROSS A PROPERLY STABILIZED SLOPE NOT TO EXCEED 10%. MAKE SURE THE SLOPE IS SUFFICIENTLY SMOOTH TO KEEP FLOW FROM CONCENTRATING.
6. IMMEDIATELY AFTER ITS CONSTRUCTION, APPROPRIATELY SEED AND MULCH THE ENTIRE DISTURBED AREA OF THE SPREADER.

MAINTENANCE

INSPECT LEVEL SPREADERS AFTER EVERY RAINFALL UNTIL VEGETATION IS ESTABLISHED, AND PROMPTLY MAKE NEEDED REPAIRS. AFTER THE AREA HAS BEEN STABILIZED, MAKE PERIODIC INSPECTIONS AND KEEP VEGETATION IN A HEALTHY, VIGOROUS CONDITION.

MDNR REQUIREMENTS

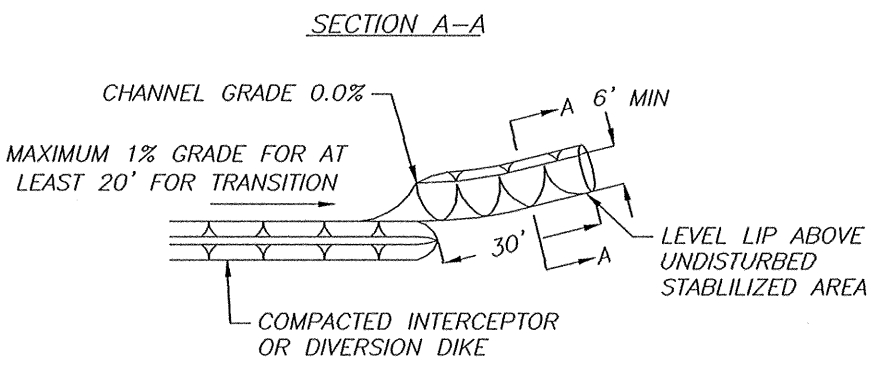
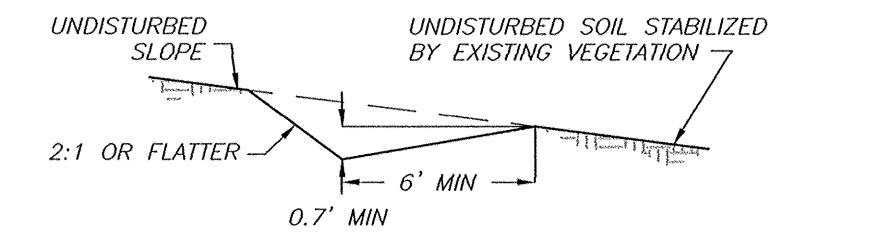
1. SUBSTANCES REGULATED BY FEDERAL LAW UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) OR THE COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA) WHICH ARE TRANSPORTED, STORED OR USED FOR MAINTENANCE, CLEANING OR REPAIRS SHALL BE MANAGED ACCORDING TO THE PROVISIONS OF RCRA AND CERCLA.

2. ALL PAINTS, SOLVENTS, PETROLEUM PRODUCTS AND PETROLEUM WASTE PRODUCTS (EXCEPT FUELS) AND STORAGE CONTAINERS (SUCH AS DRUMS, CANS, OR CARTONS) SHALL BE STORED SUCH THAT THESE MATERIALS ARE NOT EXPOSED TO STORM WATER. SUFFICIENT PRACTICES OF SPILL PREVENTION, CONTROL AND/OR MANAGEMENT SHALL BE PROVIDED TO PREVENT ANY SPILLS OF THESE POLLUTANTS FROM ENTERING A WATER OF THE STATE. ANY CONTAINMENT SYSTEM USED TO IMPLEMENT THIS REQUIREMENT SHALL BE CONSTRUCTED OF MATERIALS COMPATIBLE WITH THE SUBSTANCES CONTAINED AND SHALL ALSO PREVENT THE CONTAMINATION OF GROUNDWATER.

3. THE APPLICANT SHALL NOTIFY BY TELEPHONE AND IN WRITING THE DEPARTMENT OF NATURAL RESOURCES, WATER POLLUTION CONTROL PROGRAM, POST OFFICE BOX 1716, JEFFERSON CITY, MO 65102, 1-800-361-4827, OF ANY OIL SPILLS OR IF HAZARDOUS SUBSTANCES ARE FOUND DURING THE PROSECUTION OF WORK UNDER THIS PERMIT.

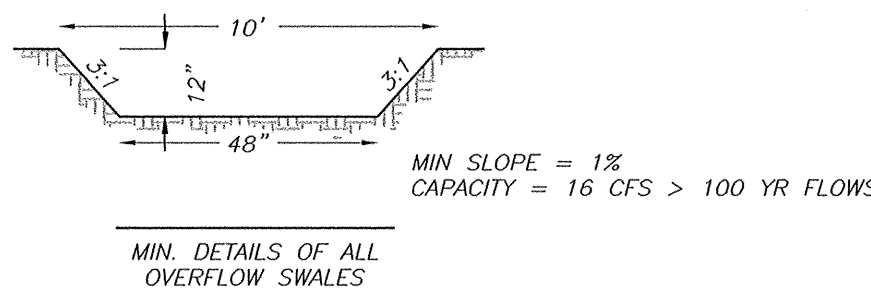
NOTE:

THE SILT FENCE HAS BEEN DESIGNED TO ENSURE THAT THE DRAINAGE AREA IS NO GREATER THAN 1/4 ACRE PER 100 FOOT OF FENCE. IF AFTER INSTALLED THE AREA IS GREATER THAN 1/4 ACRE BUT LESS THAN 1/2 ACRE, THE FENCE WILL BE REINFORCED WITH STRAW BALES.



PLAN VIEW

LEVEL SPREADER



OVERFLOW SWALE CAPACITY

$$N = (n_0 + n_1 + n_2 + n_3 + n_4)M = (0.0020 + 0 + 0 + 0 + 0.005) \times 1 = 0.025$$

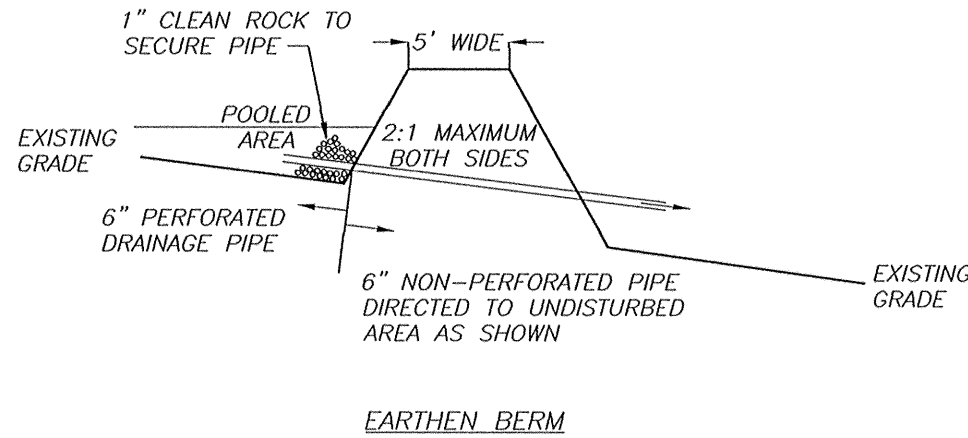
4' F.B.D. WITH 3:1 SIDE SLOPES, MIN SLOPE = 0.01
FT/FT, $n = 0.025$, 1 FOOT DEEP, $QCAP = 32.11$ CFS > THAN ALL 100 YEAR FLOWS

OVERFLOW SWALES

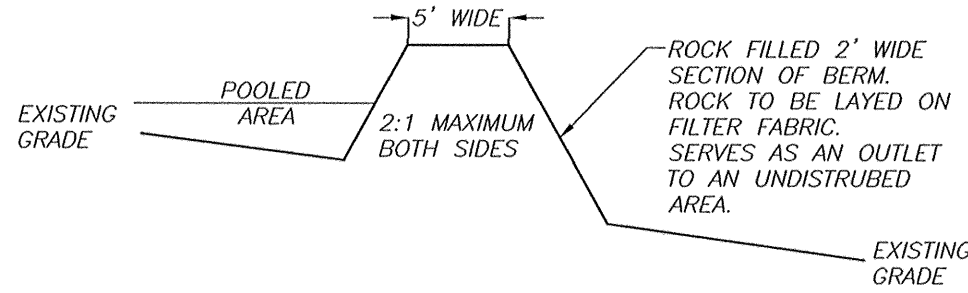
DRAINAGE NOTES

- A SINGLE TYPE 'A' INLET, TOP = 713.50, $\bar{E}$ IN = 711.00
- B 46 L.F. 12" HDPE @ 6.50%
- C SINGLE TYPE 'A' INLET, TOP = 710.50, $\bar{E}$ IN = 709.01, $\bar{E}$ OUT = 707.91
- D 18 L.F. 12" HDPE @ 2.50%
- E SINGLE TYPE 'A' INLET, TOP = 709.00, $\bar{E}$ IN = 707.46, $\bar{E}$ OUT = 707.36
- F 154 L.F. 12" HDPE @ 3.00%
- G 4' X 8' TYPE 'M' INLET, TOP = 706.00, $\bar{E}$ IN N = 702.84, $\bar{E}$ IN E = 702.83, $\bar{E}$ IN S = 702.77, $\bar{E}$ OUT = 702.67
- H 35 L.F. 24" CMP @ 3.70%
- I 4' X 3' TYPE 'M' INLET, TOP = 706.00, $\bar{E}$ IN = 701.38, $\bar{E}$ OUT = 696.00
- J 85 L.F. 33" CMP @ 11.76%
- K 3' X 3' J-BOX TOP = 690.00, $\bar{E}$ IN = 688.00, $\bar{E}$ OUT = 680.00
- L 60 L.F. 33" CMP @ 10.0% W/F.E.S. $\bar{E}$ = 674.00±
- M 1.5' X 9' X 18' RIP RAP
- N SINGLE TYPE 'A' INLET, TOP = 707.00, $\bar{E}$ OUT = 704.00
- O 30 L.F. 12" HDPE @ 3.90%
- P DOUBLE TYPE 'A' INLET, TOP = 708.50, $\bar{E}$ OUT = 706.00
- Q 170 L.F. 15" HDPE @ 1.90%
- R SINGLE TYPE 'A' INLET, TOP = 709.50, $\bar{E}$ OUT = 707.00
- S 44 L.F. 12" HDPE @ 3.40%
- T SINGLE TYPE 'A' INLET, TOP = 708.00, $\bar{E}$ IN = 705.50, $\bar{E}$ OUT = 705.40
- U 45 L.F. 12" HDPE @ 1.70%
- V SINGLE TYPE 'A' INLET, TOP = 708.00, $\bar{E}$ IN N = 704.64, $\bar{E}$ IN E = 703.52, $\bar{E}$ OUT = 703.42
- W 122 L.F. 18" HDPE @ 1.50%
- X 4' X 3' TYPE 'M' INLET, TOP = 704.50, $\bar{E}$ IN = 701.59, $\bar{E}$ OUT = 701.49
- Y 35 L.F. 24" CMP @ 1.50%
- Z 4' X 3' TYPE 'M' INLET, TOP = 704.50, $\bar{E}$ IN = 700.97, $\bar{E}$ OUT = 700.87

- AA 56.35 L.F. 33" CMP $\bar{E}$ = 693.78 @ CITY INLET
- EE OPTIONAL POOL DRAIN PIPE
- FF 2' X 2' SIDE OPENING INLET, TOP = 709.00, $\bar{E}$ OUT = 706.00
- GG 38 L.F. 12" HDPE @ 1.10%
- HH 50' BEND, 12" HDPE ELBOW, $\bar{E}$ = 705.58
- II 82 L.F. 12" HDPE @ 1.10%
- JJ 26' BEND, 12" HDPE ELBOW, $\bar{E}$ = 704.68
- KK 34 L.F. 12" HDPE @ 1.10%
- LL SINGLE TYPE 'A' INLET, TOP = 709.50, $\bar{E}$ IN = 704.31, $\bar{E}$ OUT = 704.21
- MM 46 L.F. 12" HDPE @ 1.50%
- NN SINGLE TYPE 'A' INLET, TOP = 707.50, $\bar{E}$ IN = 701.16, $\bar{E}$ OUT = 701.09
- PP SINGLE TYPE 'A' INLET, TOP = 719.50, $\bar{E}$ OUT = 717.00
- QQ 110 L.F. 12" HDPE @ 1.35% W/F.E.S. $\bar{E}$ = 715.50±
- RR 1' X 4' X 12' RIP RAP, MIN. FLOW TO BE SPREAD TO PREVENT CUTTING OF DITCH
- SS SINGLE TYPE 'A' INLET, TOP = 713.50, $\bar{E}$ OUT = 711.00
- TT 90 L.F. 12" HDPE @ 0.75%
- UU 47' BEND, 12" HDPE ELBOW, $\bar{E}$ = 710.33
- VV 55 L.F. 12" HDPE @ 0.75% W/F.E.S. $\bar{E}$ = 709.91
- WW 1' X 4' X 12' RIP RAP, MIN. FLOW TO BE SPREAD TO PREVENT CUTTING OF DITCH
- XX SINGLE TYPE 'A' INLET, TOP = 706.50, $\bar{E}$ OUT = 704.00
- YY 87 L.F. 12" HDPE @ 12.6% W/F.E.S. $\bar{E}$ = 693.03±
- ZZ 1' X 4' X 12' RIP RAP, MIN. FLOW TO BE SPREAD TO PREVENT CUTTING OF DITCH
- AB CONSTRUCT LEVEL SPREADER AS PER 10.03.5.1 OF THE STORM DESIGN MANUAL. SPREADER TO BE 30' LONG, A MINIMUM OF 0.7' DEEP, AND 3.0' WIDE.



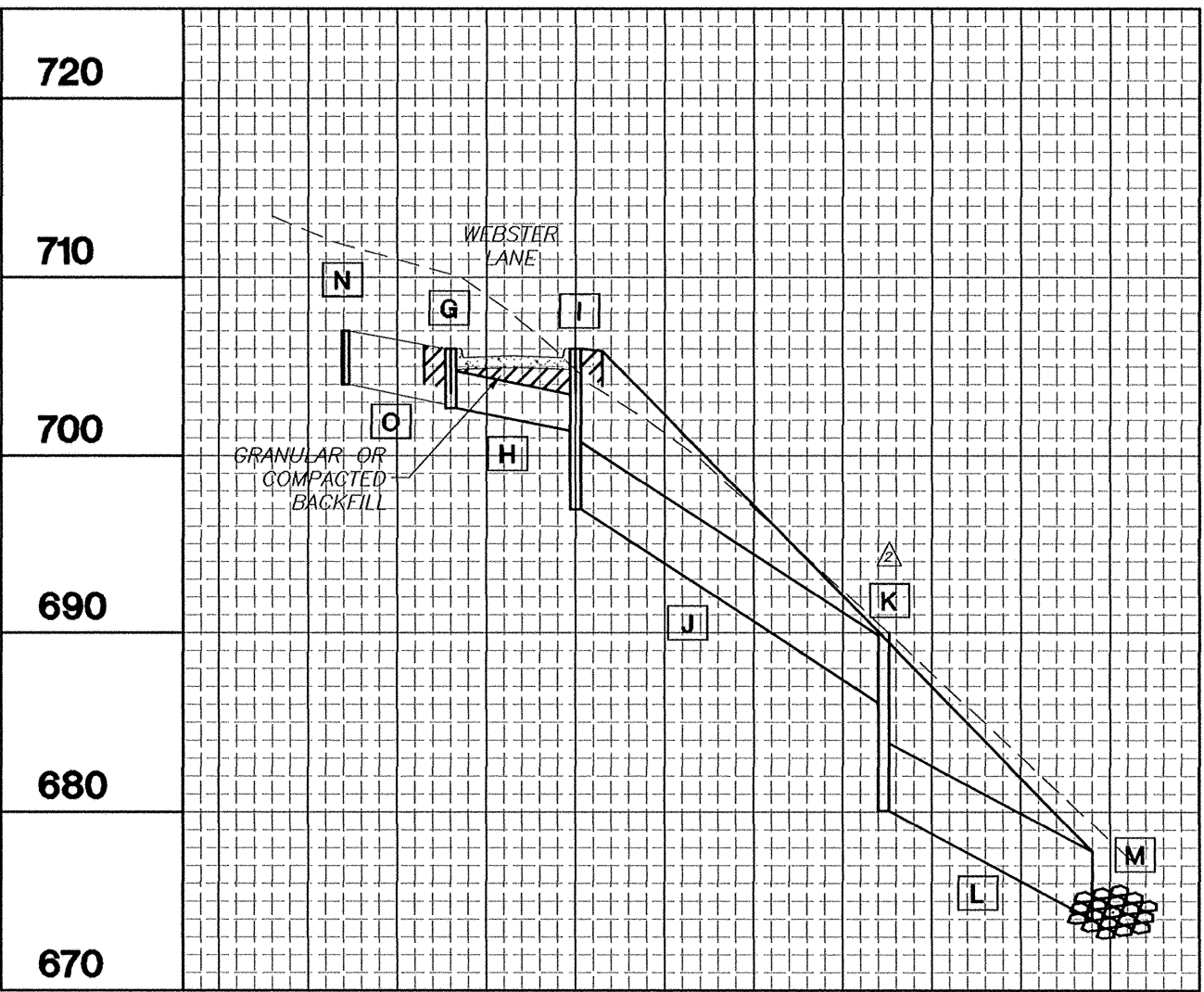
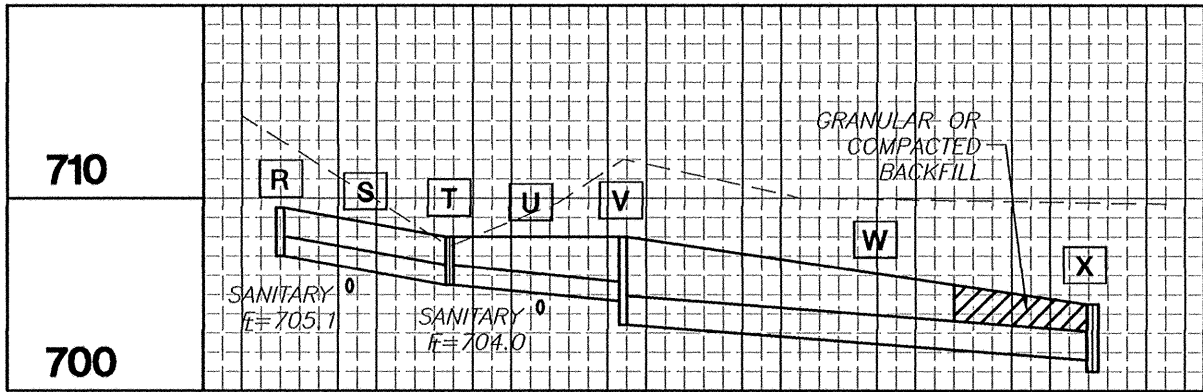
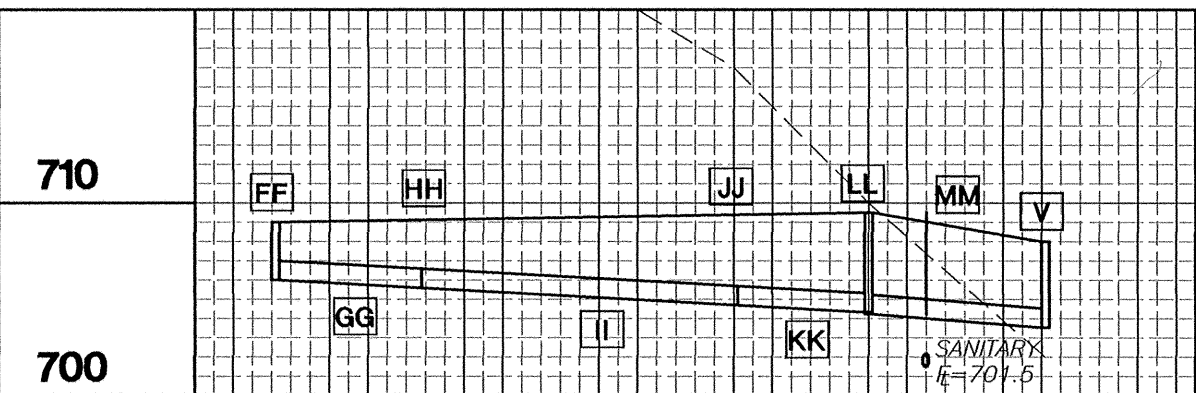
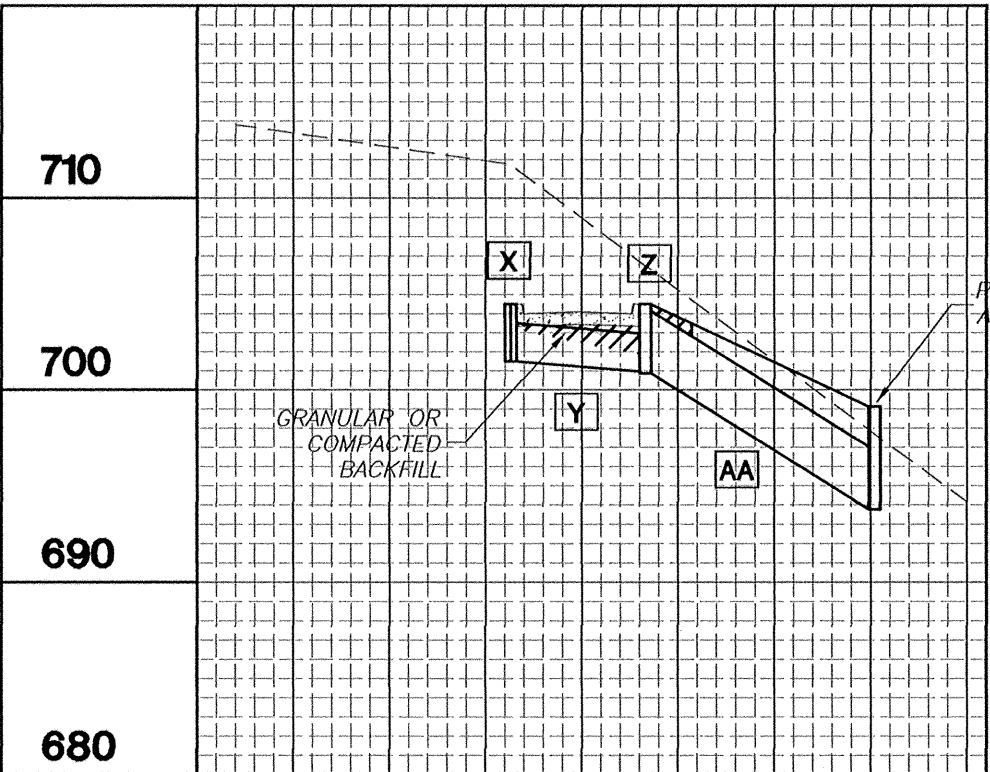
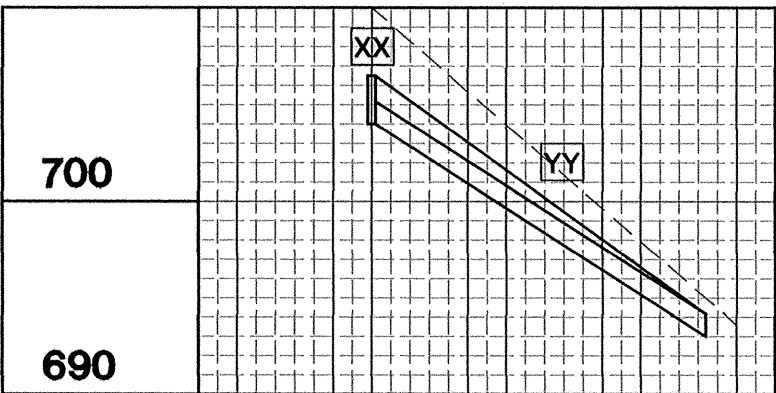
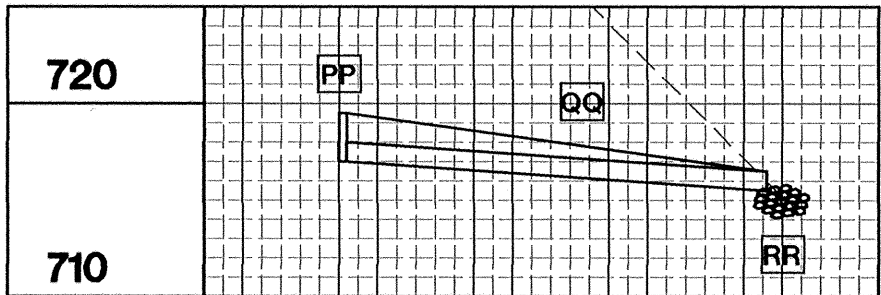
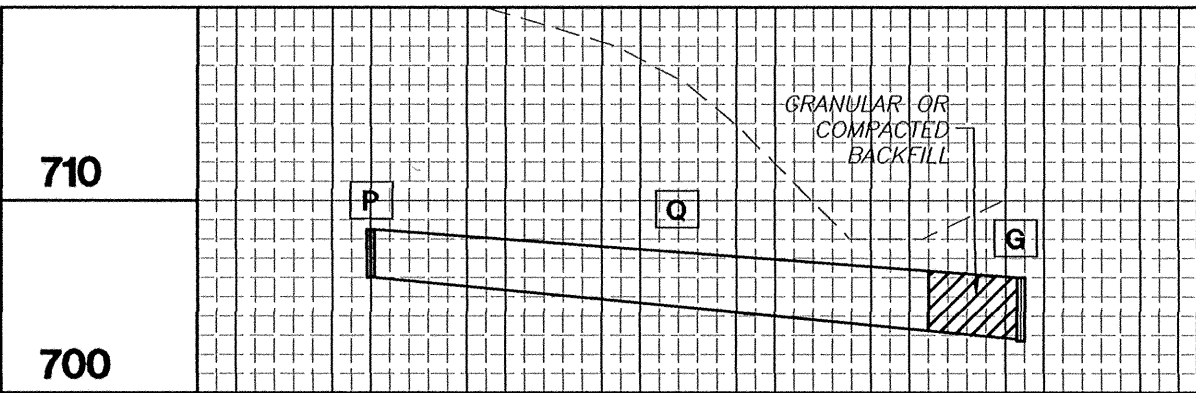
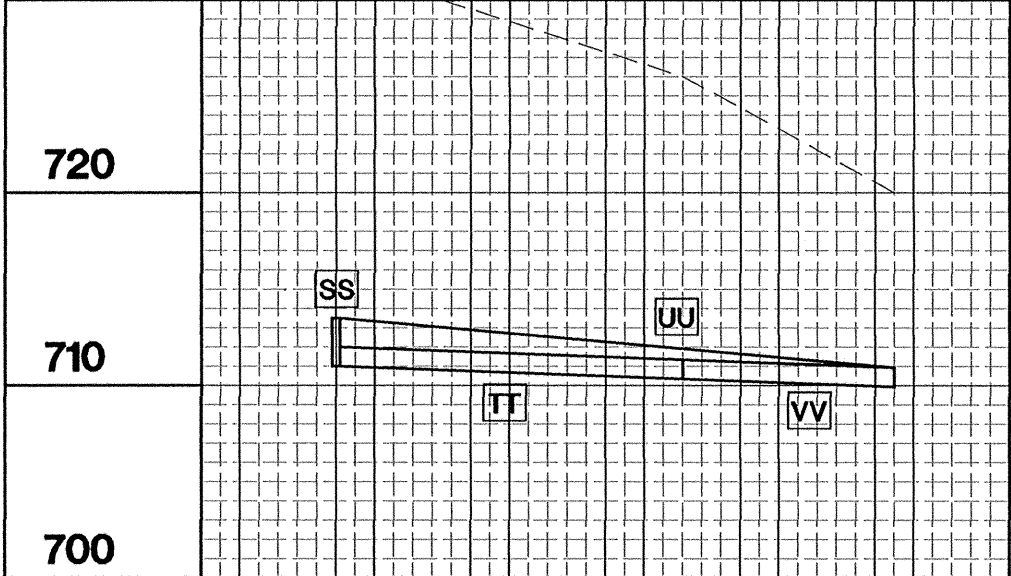
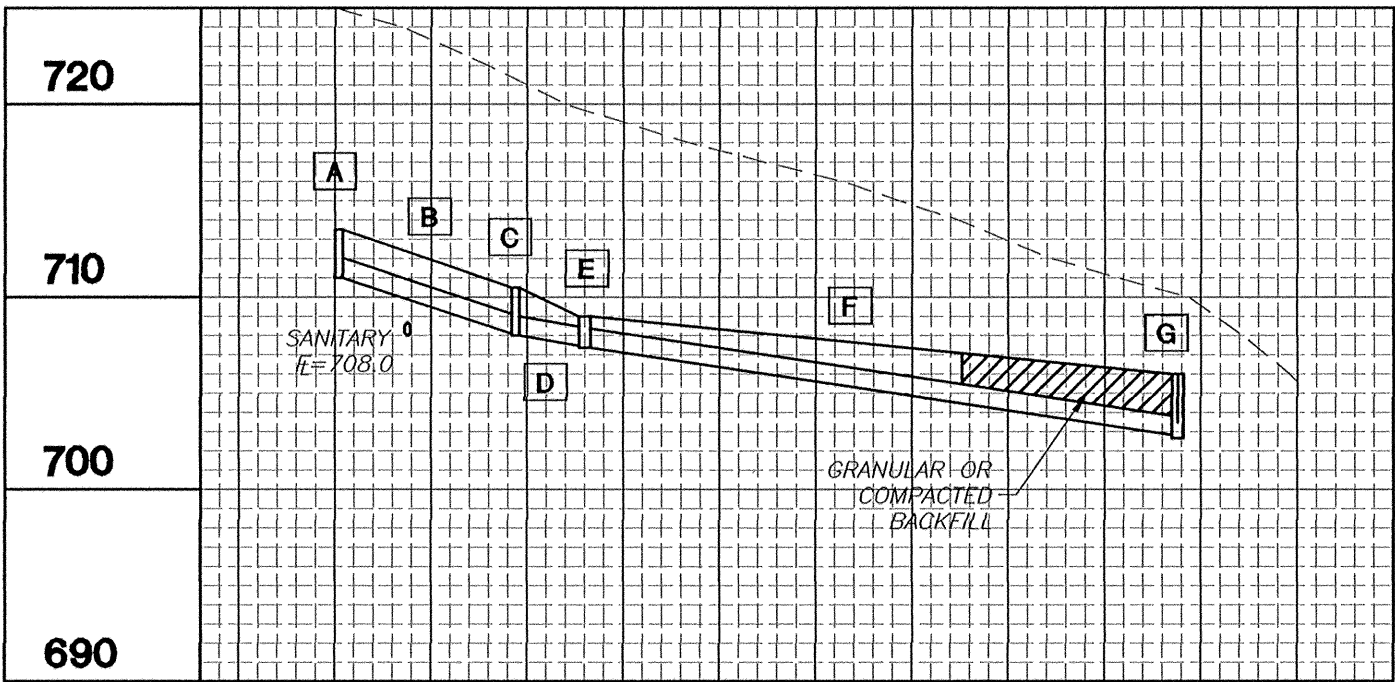
EARTHEN BERM



EARTHEN BERM WITH ROCK OUTLET

TEMPORARY SILT TRAP

SEE CITY OF COLUMBIA
STORM DRAINAGE DESIGN MANUAL
SECTION 10.03.7.1 FOR FURTHER INFORMATION



GRADING PLAN NOTES

JAY GEBHART MO E-25052		DATE: 1/29/04	
DRAWN BY: SMH		CHECKED BY: JG	
NO. DATE DESCRIPTION		JOB NO.: MKELO3-03	
4/28/04 CITY COMMENTS JG		DRAWING NO.: BASE.DWG	
3/10/04 CITY COMMENTS JG		SHEET 6 OF 10	
2/18/04 CITY COMMENTS JG			

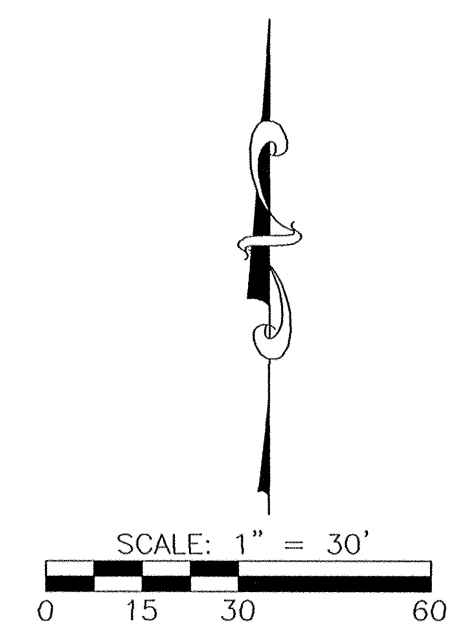
UTILITY PLAN
OAK FOREST P.U.D.
JANUARY 29, 2004

LEGEND

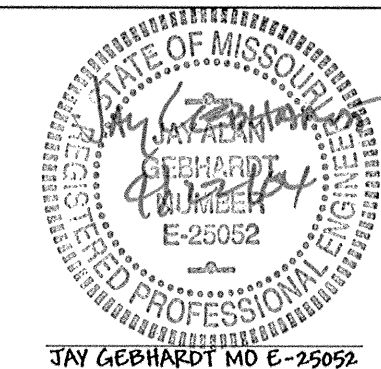
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
	HANDI CAPPED PARKING
○	EXISTING SANITARY MANHOLE
PP	POWER POLE
—	GUY WIRE
ET	ELECTRIC TRANSFORMER
EM	ELECTRIC METER
GM	GAS METER
WM	WATER METER
FH	FIRE HYDRANT
—	EXISTING OVER-HEAD ELECTRIC
G	EXISTING GAS
S	EXISTING SANITARY
G	PROPOSED GAS
W	EXISTING WATER
U/E	PROPOSED UNDERGROUND ELECTRIC
W	PROPOSED WATER
S	PROPOSED SANITARY

UTILITY NOTES

1. WATER AND ELECTRIC LINES ARE SHOWN FOR CLARITY. THE PLANS WILL BE ISSUED THROUGH AND BY THE WATER AND LIGHT DEPARTMENT.
2. TELEPHONE AND CABLE TV WILL SHARE THE SAME TRENCH AS THE ELECTRIC UNLESS OTHERWISE NOTED BY CENTURYTEL.
3. ALL EASEMENTS FOR PUBLIC UTILITIES EXCEPT SANITARY SEWERS SHALL BE DEDICATED AFTER AS-BUILT LOCATIONS ARE DETERMINED.

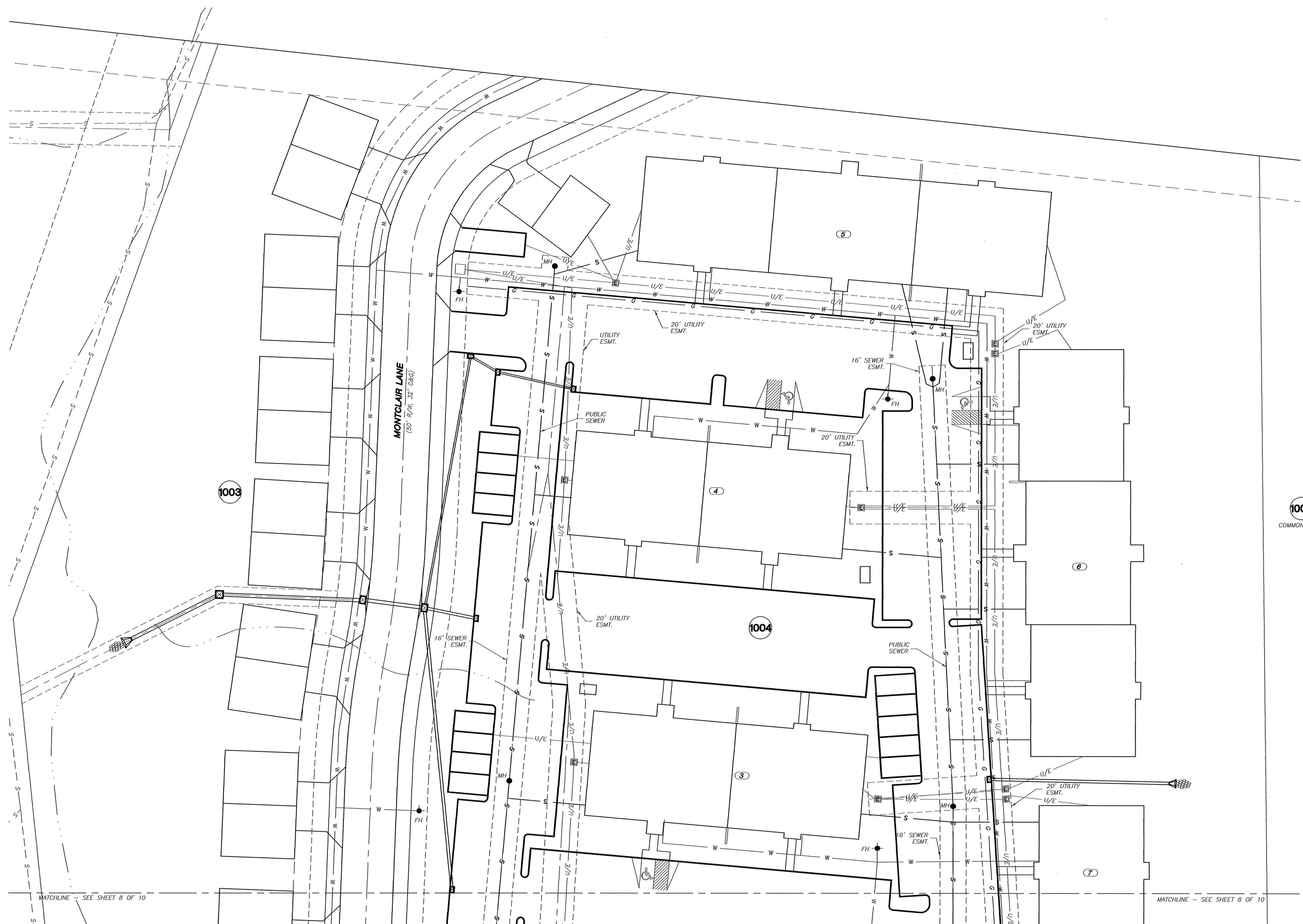


UTILITY PLAN



A CIVIL GROUP
CIVIL ENGINEERING, PLANNING, SURVEYING
1010 FAY STREET
COLUMBIA, MO 65201
PHONE: (573)817-5750, FAX: (573)817-1471

4/2/04	CITY COMMENTS	JG	DRAWN BY:	SMH	DATE:	1/29/04
3/10/04	CITY COMMENTS	JG	CHECKED BY:	JG	DRAWING NO.:	BASE.DWG
2/18/04	CITY COMMENTS	JG	BY		SHEET	7 OF 10
NO.	DATE	DESCRIPTION	BY	JOB NO.:	MKELO3-03	

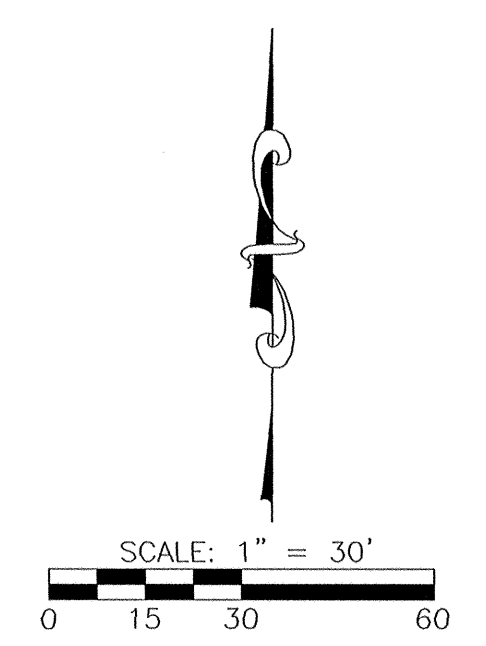
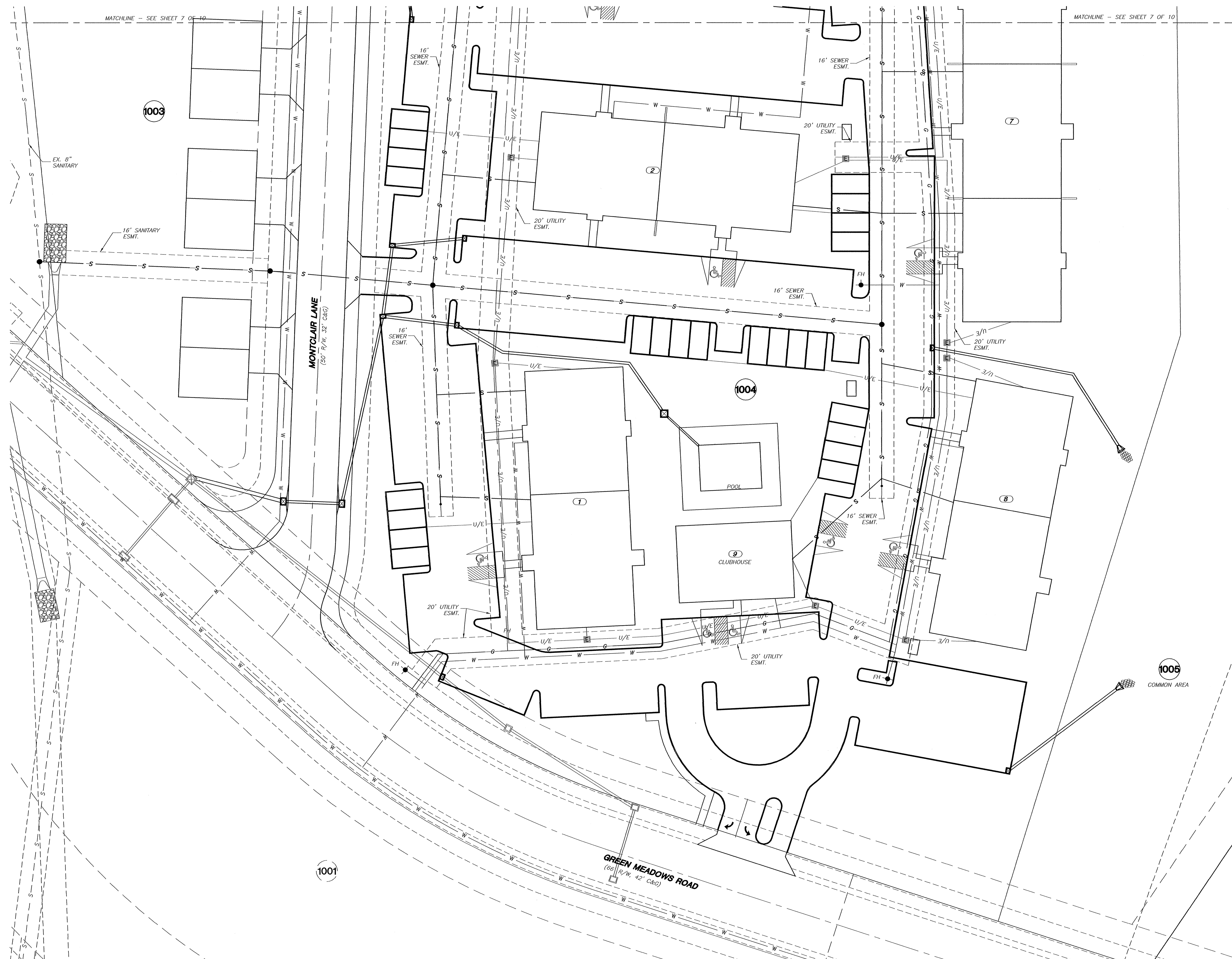


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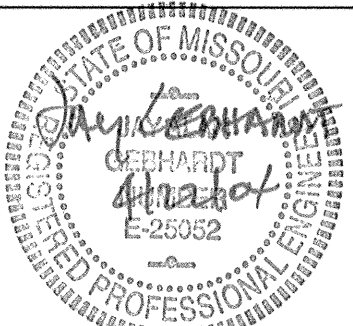
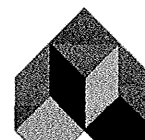
UTILITY PLAN
OAK FOREST P.U.D
 JANUARY 29, 2004

LEGEND

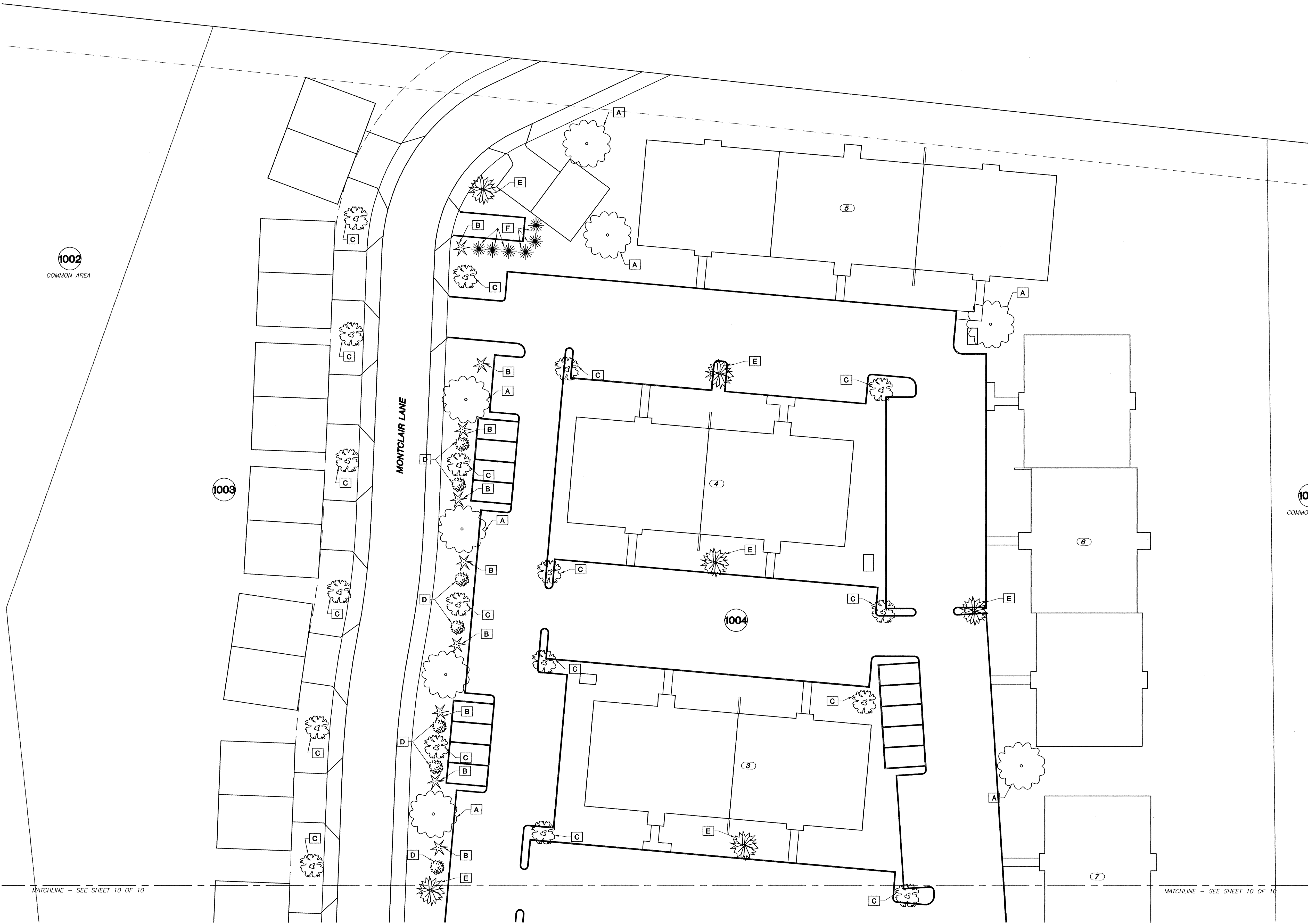
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
HC	HANDI CAPPED PARKING
SM	EXISTING SANITARY MANHOLE
PP	POWER POLE
GW	GUY WIRE
ET	ELECTRIC TRANSFORMER
EM	ELECTRIC METER
GM	GAS METER
WM	WATER METER
FH	FIRE HYDRANT
OE	EXISTING OVER-HEAD ELECTRIC
G	EXISTING GAS
S	EXISTING SANITARY
G	PROPOSED GAS
W	EXISTING WATER
U/E	PROPOSED UNDERGROUND ELECTRIC
W	PROPOSED WATER
S	PROPOSED SANITARY



UTILITY PLAN

							
JAY GEBHARDT MO E-25052				A CIVIL GROUP CIVIL ENGINEERING, PLANNING, SURVEYING 1010 FAY STREET COLUMBIA, MO 65201 PHONE: (573)811-5750, FAX: (573)811-1071			
				DRAWN BY:	SMH	DATE:	1/29/04
				CHECKED BY:	JG	DRAWN BY:	BASE.DWG
				JOB NO.:	MKELO3-03	SHEET	8 OF 10
	3/10/04	CITY COMMENTS	JG				
	2/18/04	CITY COMMENTS	JG				
NO.	DATE	DESCRIPTION	BY				

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LANDSCAPING NOTES

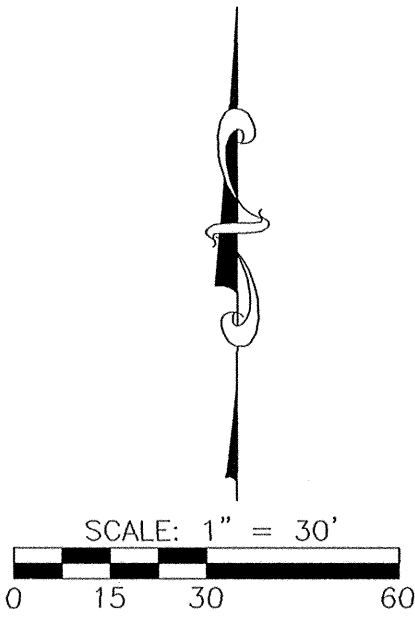
- TOTAL AREA OF LOT= 25.94 AC. = 1,129,950 SQ.FT.
TOTAL PAVED AREA = 179,860 SQ.FT. (15.9%)
TOTAL FUTURE BUILDING AREA = 130,140 SQ.FT. (11.5%)
TOTAL IMPERVIOUS AREA = 310,000 SQ.FT. (27.4%)
TOTAL AREA OF LANDSCAPING = 619,950 SQ.FT. (72.6%)
EXISTING FOREST TO REMAIN = 450,890 SQ.FT. (55.0%)
AREA OF NEW LANDSCAPING = 369,060 SQ.FT. (45.0%)
- ALL DISTURBED AREAS SHALL BE SEEDED & MULCHED AFTER CONSTRUCTION.
- REQUIRED NEW TREES:
179,860 / 4,500 = 39.97 OR 40 TREES
- STREET BUFFER:
19 MED/LG DECIDUOUS TREES (30%)
46 SCREENING SHRUBS/BUSHES (70%)

TREE PRESERVATION NOTES

- △ TREE PRESERVATION IS SHOWN BY A SEPARATE PLAN FOR THE ENTIRE 30 ACRE TRACT OWNED BY CMK LLC.

PLANT SCHEDULE

SYMBOL	QUANTITY	PLANT SPECIES	SIZE
A	24	RED OAK	2"
B	34	SEA GREEN JUNIPER	5 GAL.
C	29	RED MAPLE	2"
D	22	SPIREA	5 GAL.
E	10	ASH	2"
F	8	WHITE PINE	6' TALL

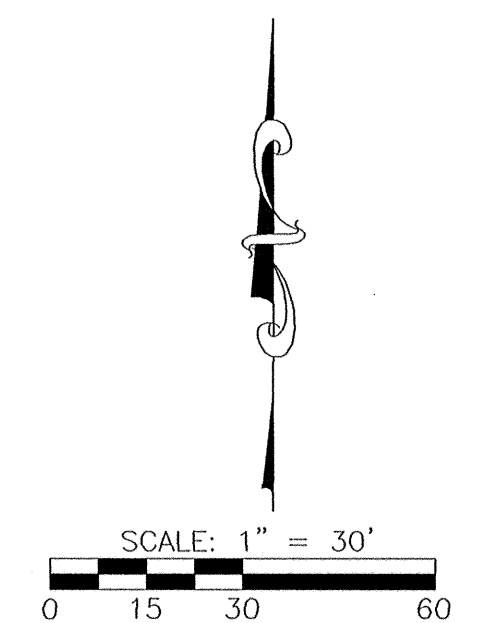
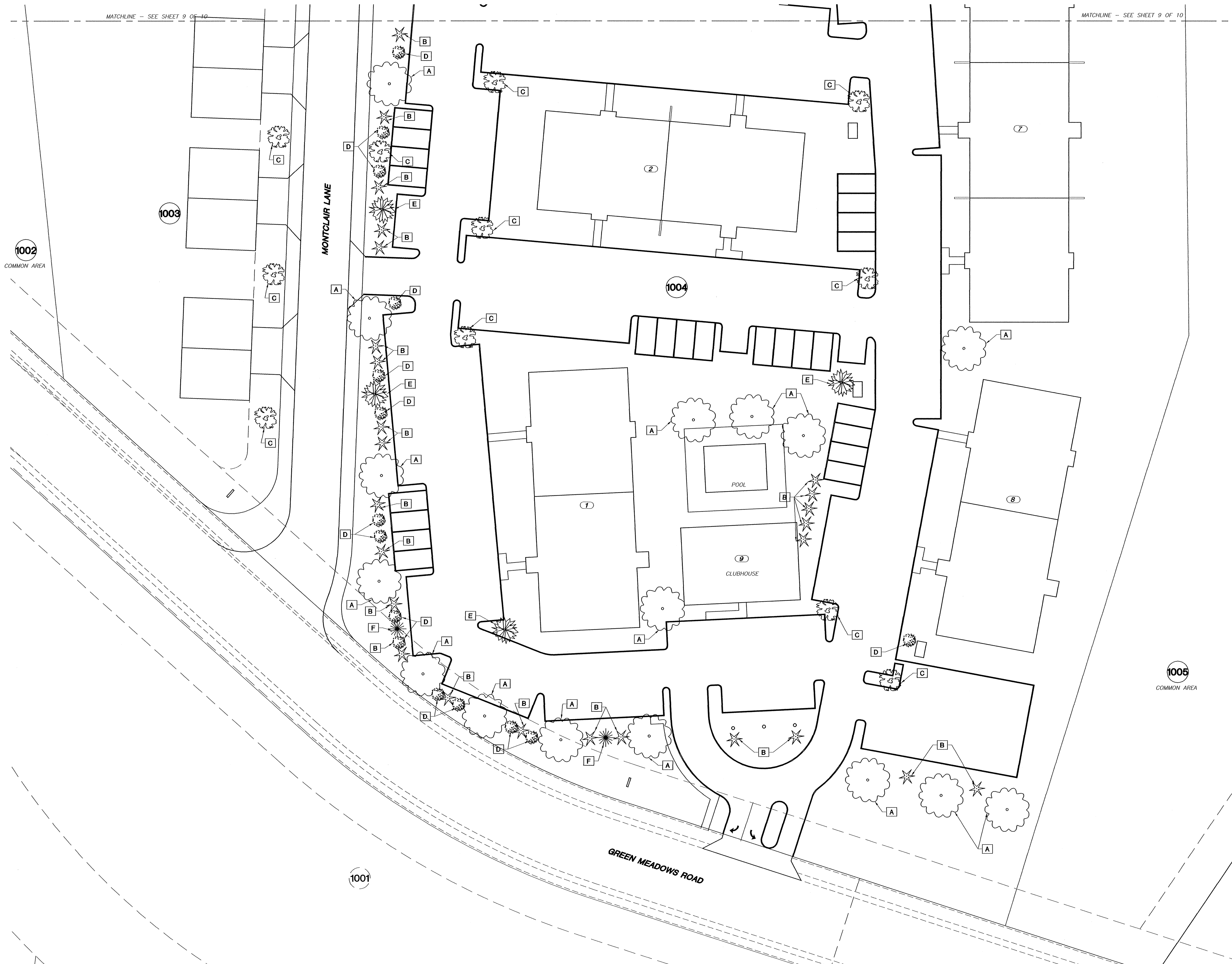


LANDSCAPING PLAN

JAY GEBHARDT MO E-25052		A CIVIL GROUP CIVIL ENGINEERING, PLANNING, SURVEYING 100 FAY STREET COLUMBIA, MO 65201 PHONE: (616)811-5150, FAX: (616)811-1471	
DRAWN BY: SMH	DATE: 1/29/04	CHECKED BY: JG	DRAWING NO.: BASE.DWG
NO. DATE DESCRIPTION	BY	JOB NO.: MKEL03-03	SHEET 9 OF 10

LANDSCAPING PLAN
OAK FOREST P.U.D
 JANUARY 29, 2004

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LANDSCAPING PLAN

JAY ZEBHARDT MO E-25595		A CIVIL GROUP CIVIL ENGINEERING, PLANNING, SURVEYING 1010 FAY STREET COLUMBIA, MO 65201 PHONE: (573)811-5150, FAX: (573)811-1471	
NO.	DATE	DESCRIPTION	BY
1	4/2/04	CITY COMMENTS	JG
2	3/10/04	CITY COMMENTS	JG
3	2/18/04	CITY COMMENTS	JG
DRAWN BY: SMH		DATE: 1/29/04	
CHECKED BY: JG		DRAWING NO.: BASE.DWG	
JOB NO.: MKELO3-03		SHEET 10 OF 10	