

## IN-PLACE DENSITY: K49852

**CLIENT:** WOODLAND OAKS LLC  
656 BAYBERRY LN, STE 101  
LEE'S SUMMIT, MO 64063

**REPORT NO:** K49852  
**REPORT DATE:** 11/21/2022  
**SERVICE DATE:** 11/7/2022

**PROJECT:** R20-22-093  
WOODLAND OAKS FINAL PLAT

**AUTHORIZATION:**  
**CONTRACTOR:**

**SERVICES:** Perform in-place density and moisture content tests to determine the degree of field compaction.

### Gauge

Type	Serial No.	Test Mode	Density Current	Density Previous	Moisture Current	Moisture Previous
TROXLER 3440	22323	Direct Transmission	1860	1835	596	591

### Requirements

	Density Method	Density Specification	Moisture Method	Moisture Specification
A	ASTM D6938	$\geq 95\%$	ASTM D3017	-3% / +3% of optimum

### Test Proctors

No.	Test Type	Material	Optimum Moisture	Max Density	Reference
1	STANDARD PROCTOR ASTM D698, Method B	GRAY BROWN SILTY CLAY	20.8%	101 pcf	K47485



## Results

No.	Location	Probe Depth	Lift/Elev	Proctor	Field Moist.	Opt. Moist.	Moist. Result (Req.)	Dry Density (pcf)	Max Density (pcf)	Compaction %	Density Result (Req.)
1	Road Crossing Storm Drain Curb Inlet 2-5, NE Woodland Oak Circle	8"	-12"	1	20.5%	20.8%	Pass (A)	102.0	101.0	101%	Pass (A)
2	Road Crossing Storm Drain Curb Inlet 2-5, NE Woodland Oak Circle	8"	0"	1	18.8%	20.8%	Pass (A)	109.2	101.0	108%	Pass (A)
3	Sanitary Line in R/W, Lot 19 at Station 10 +09'	8"	-12"	1	22.7%	20.8%	Pass (A)	97.2	101.0	96%	Pass (A)
4	Sanitary Line in R/W, Lot 19 at Station 10+09'	8"	-20"	1	20.2%	20.8%	Pass (A)	98.6	101.0	98%	Pass (A)
5	Sanitary Line in R/W, Lot 13 at Station 5 +00'	8"	-12"	1	20.4%	20.8%	Pass (A)	99.0	101.0	98%	Pass (A)
6	Sanitary Line in R/W, Lot 13 at Station 5 +00'	8"	-24"	1	20.8%	20.8%	Pass (A)	98.3	101.0	97%	Pass (A)
7	Road Crossing Storm Drain Curb Inlet 2-4, NE Woodland Oak Circle	8"	-12"	1	21.3%	20.8%	Pass (A)	97.3	101.0	96%	Pass (A)
8	Road Crossing Storm Drain Curb Inlet 2-4, NE Woodland Oak Circle	8"	-24"	1	21.4%	20.8%	Pass (A)	99.3	101.0	98%	Pass (A)
9	Water Line in R/W, Lot 22	8"	-24"	1	22.2%	20.8%	Pass (A)	97.3	101.0	96%	Pass (A)
10	Water Line in R/W, Lot 22	8"	-12"	1	21.7%	20.8%	Pass (A)	99.1	101.0	98%	Pass (A)
11	Sanitary Line in R/W, Lot 10, at Station 3	8"	-24"	1	21.8%	20.8%	Pass (A)	101.1	101.0	100%	Pass (A)
12	Sanitary Line in R/W, Lot 10, at Station 3	8"	-12"	1	19.4%	20.8%	Pass (A)	98.7	101.0	98%	Pass (A)
13	Road Crossing Storm Drain Curb Inlet 4-4, NE Woodland Oaks Circle	8"	-12"	1	18.8%	20.8%	Pass (A)	104.2	101.0	103%	Pass (A)
14	Road Crossing Storm Drain Curb Inlet 4-4, NE Woodland Oaks Circle	8"	0"	1	19.2%	20.8%	Pass (A)	101.2	101.0	100%	Pass (A)
15	Sanitary Line in R/W, Lot 28, at Station 28	8"	-24"	1	17.8%	20.8%	Pass (A)	102.0	101.0	101%	Pass (A)
16	Sanitary Line in R/W, Lot 28, at Station 28	8"	-12"	1	18.2%	20.8%	Pass (A)	102.6	101.0	102%	Pass (A)
17	Water Line in R/W, Lot 24, at Station 24	8"	-20"	1	17.8%	20.8%	Pass (A)	98.2	101.0	97%	Pass (A)
18	Water Line in R/W, Lot 24, at Station 24	8"	-10"	1	18.8%	20.8%	Pass (A)	101.3	101.0	100%	Pass (A)
19	Water Line in R/W, Lot 31, at Station 19	8"	-24"	1	22.2%	20.8%	Pass (A)	98.9	101.0	98%	Pass (A)
20	Water Line in R/W, Lot 31, at Station 19	8"	-12"	1	17.9%	20.8%	Pass (A)	102.8	101.0	102%	Pass (A)



21	Road Crossing Storm Drain Curb Inlet 7-1	8"	-15"	1	21.2%	20.8%	Pass (A)	99.1	101.0	98%	Pass (A)
22	Road Crossing Storm Drain Curb Inlet 7-1	8"	0"	1	18.4%	20.8%	Pass (A)	105.7	101.0	105%	Pass (A)
23	Water Line in R/W, Lot 24	8"	-24"	1	17.8%	20.8%	Pass (A)	101.3	101.0	100%	Pass (A)
24	Water Line in R/W, Lot 24	8"	-12"	1	19.7%	20.8%	Pass (A)	97.6	101.0	97%	Pass (A)
25	Road Crossing, Water Line, Lashbrook Dr.	8"	-12"	1	18.0%	20.8%	Pass (A)	99.3	101.0	98%	Pass (A)
26	Road Crossing, Water Line, Lashbrook Dr.	8"	0"	1	19.1%	20.8%	Pass (A)	102.4	101.0	101%	Pass (A)
27	Road Crossing Curb Inlet 6-5, Lashbrook Dr.	8"	-10"	1	19.9%	20.8%	Pass (A)	100.2	101.0	99%	Pass (A)
28	Road Crossing Curb Inlet 6-5, Lashbrook Dr.	8"	0"	1	18.9%	20.8%	Pass (A)	104.2	101.0	103%	Pass (A)
29	Road Crossing Curb Inlet 6-4, NE Woodland Oak Dr	8"	-18"	1	20.9%	20.8%	Pass (A)	103.2	101.0	102%	Pass (A)
30	Road Crossing Curb Inlet 6-4, NE Woodland Oak Dr	8"	-8"	1	18.3%	20.8%	Pass (A)	105.2	101.0	104%	Pass (A)
31	Water Line in R/W, Lot 41	8"	-20"	1	23.2%	20.8%	Pass (A)	98.9	101.0	98%	Pass (A)
32	Water Line in R/W, Lot 41	8"	-12"	1	17.9%	20.8%	Pass (A)	101.2	101.0	100%	Pass (A)
33	Sanitary Line in R/W, Lot 39, at Station 5	8"	-20"	1	21.7%	20.8%	Pass (A)	98.2	101.0	97%	Pass (A)
34	Sanitary Line in R/W, Lot 39, at Station 5	8"	-12"	1	17.9%	20.8%	Pass (A)	108.6	101.0	108%	Pass (A)
35	Sanitary Line in R/W, Lot 36, at Station 3	8"	-24"	1	23.2%	20.8%	Pass (A)	99.5	101.0	99%	Pass (A)
36	Sanitary Line in R/W, Lot 36, at Station 3	8"	-12"	1	17.8%	20.8%	Pass (A)	100.2	101.0	99%	Pass (A)
37	Road Crossing, Sanitary Line, Lot 41	8"	-20"	1	20.1%	20.8%	Pass (A)	97.2	101.0	96%	Pass (A)
38	Road Crossing, Sanitary Line, Lot 41	8"	-10"	1	21.4%	20.8%	Pass (A)	98.8	101.0	98%	Pass (A)
39	Sanitary Line in R/W, Lot 35, at Station 2	8"	-20"	1	18.6%	20.8%	Pass (A)	97.6	101.0	97%	Pass (A)
40	Sanitary Line in R/W, Lot 35, at Station 2	8"	-10"	1	22.9%	20.8%	Pass (A)	99.7	101.0	99%	Pass (A)
41	Road Crossing, Sanitary Line, Lot 42	8"	-16"	1	17.9%	20.8%	Pass (A)	98.1	101.0	97%	Pass (A)
42	Road Crossing, Sanitary Line, Lot 42	8"	-8"	1	20.0%	20.8%	Pass (A)	98.3	101.0	97%	Pass (A)
43	Water Line in R/W, Lot 42, Cherry Park Crt	8"	-16"	1	22.8%	20.8%	Pass (A)	98.5	101.0	98%	Pass (A)
44	Water Line in R/W, Lot 42, Cherry Park Crt	8"	-8"	1	18.0%	20.8%	Pass (A)	103.7	101.0	103%	Pass (A)
45	Sanitary Line in R/W, Lot 34, Station 1	8"	-16"	1	18.4%	20.8%	Pass (A)	103.5	101.0	102%	Pass (A)
46	Sanitary Line in R/W, Lot 34, Station 1	8"	-8"	1	19.5%	20.8%	Pass (A)	100.6	101.0	100%	Pass (A)



47	Water Line in R/W, Lot 42, Woodland Oak Dr	8"	-20"	1	21.0%	20.8%	Pass (A)	97.7	101.0	97%	Pass (A)
48	Water Line in R/W, Lot 42, Woodland Oak Dr	8"	-8"	1	20.2%	20.8%	Pass (A)	100.1	101.0	99%	Pass (A)
49	Sanitary Line in R/W, Lot 1, at Station 13	8"	-20"	1	18.4%	20.8%	Pass (A)	99.8	101.0	99%	Pass (A)
51	Road Crossing, Sanitary Line at Cherry Park & Woodland Oak Intersection	8"	-20"	1	18.4%	20.8%	Pass (A)	104.3	101.0	103%	Pass (A)
52	Road Crossing, Sanitary Line at Cherry Park & Woodland Oak Intersection	8"	-10"	1	18.0%	20.8%	Pass (A)	103.2	101.0	102%	Pass (A)
53	Waterline in R/W, Lot 34, Woodland Oak Dr	8"	-24"	1	18.6%	20.8%	Pass (A)	104.3	101.0	103%	Pass (A)
54	Waterline in R/W, Lot 34, Woodland Oak Dr	8"	-10"	1	19.7%	20.8%	Pass (A)	103.4	101.0	102%	Pass (A)
55	Sanitary Line in R/W, Lot 4, at Station 15	8"	-24"	1	19.4%	20.8%	Pass (A)	99.9	101.0	99%	Pass (A)
56	Sanitary Line in R/W, Lot 4, at Station 15	8"	-10"	1	20.3%	20.8%	Pass (A)	97.6	101.0	97%	Pass (A)
50	Sanitary Line in R/W, Lot 1, at Station 13	8"	-10"	1	20.8%	20.8%	Pass (A)	97.7	101.0	97%	Pass (A)
57	Road Crossing, Sanitary Line, at Lot 33	8"	-16"	1	18.6%	20.8%	Pass (A)	105.6	101.0	105%	Pass (A)
58	Road Crossing at Curb Inlet 6-3	8"	-6"	1	20.6%	20.8%	Pass (A)	104.6	101.0	104%	Pass (A)
59	Road Crossing, Sanitary Line, Station 17, Lot 32	8"	-12"	1	21.8%	20.8%	Pass (A)	101.4	101.0	100%	Pass (A)
60	Road Crossing, Sanitary Line, Station 17, Lot 32	8"	-6"	1	18.3%	20.8%	Pass (A)	107.9	101.0	107%	Pass (A)
61	Water Line in R/W, Lot 31	8"	-20"	1	22.2%	20.8%	Pass (A)	97.7	101.0	97%	Pass (A)
62	Water Line in R/W, Lot 31	8"	-10"	1	18.5%	20.8%	Pass (A)	104.6	101.0	104%	Pass (A)
63	Sanitary Line in R/W, Lot 7, at Station 18	8"	-20"	1	21.5%	20.8%	Pass (A)	98.6	101.0	98%	Pass (A)
64	Sanitary Line in R/W, Lot 7, at Station 18	8"	-10"	1	23.3%	20.8%	Pass (A)	99.5	101.0	99%	Pass (A)
65	Road Crossing, Sanitary Line, at Lot 33	8"	-8"	1	19.9%	20.8%	Pass (A)	105.4	101.0	104%	Pass (A)



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### Additional Comments

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Performed field density tests on backfill for utility lines at road crossings and in the right of way.

**TECHNICIAN:** Jon Shrout  
Engineering Technician

**REPORT DISTRIBUTION:**  
DANA WIENCEK  
ADAM NACKE  
STEVE ROBBINS

KANSAS CITY TESTING & ENGINEERING, LLC,

A handwritten signature in blue ink, appearing to read 'J. Byrnes', with a long horizontal stroke extending to the right.

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JIM BYRNES, R.G.  
PROJECT MANAGER