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**GTC**

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## **Stanwood Septage Facility Traffic Impact Analysis**

**Prepared for: McDay Holdings, LLC  
Jurisdiction: City of Stanwood**

**September 2016**



GTC #16-153

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## 1. INTRODUCTION

Gibson Traffic Consultants, Inc. (GTC) has been retained by McDay Holdings, LLC to provide a Traffic Impact Analysis for the proposed Stanwood Septage Facility. The proposed development is located in the City of Stanwood, West of 84<sup>th</sup> Avenue NW and South of 270<sup>th</sup> Street NW. The site address is 8622 270<sup>th</sup> Street NW. The site will have an inbound access off of 270<sup>th</sup> Street NW and an outbound access point to 84<sup>th</sup> Avenue NW. A site vicinity map is included in Figure 1. This report summarizes the trip generation, trip distribution, access analysis, and mitigation fees.

The development is proposed to consist of 11 single-family lots, 19 duplex lots (2 units each), and 28 townhome lots for a total of 77 units. All units were analyzed as single-family units as the most conservative trip generator for analysis. No units currently exist on site. The horizon year used in the analysis is the expected completion date for the development, 2015.

Matthew Palmer, responsible for this report, is a licensed professional engineer (Civil) in the State of Washington and member of the Washington State section of ITE.

## 2. SCOPING AND METHODOLOGY

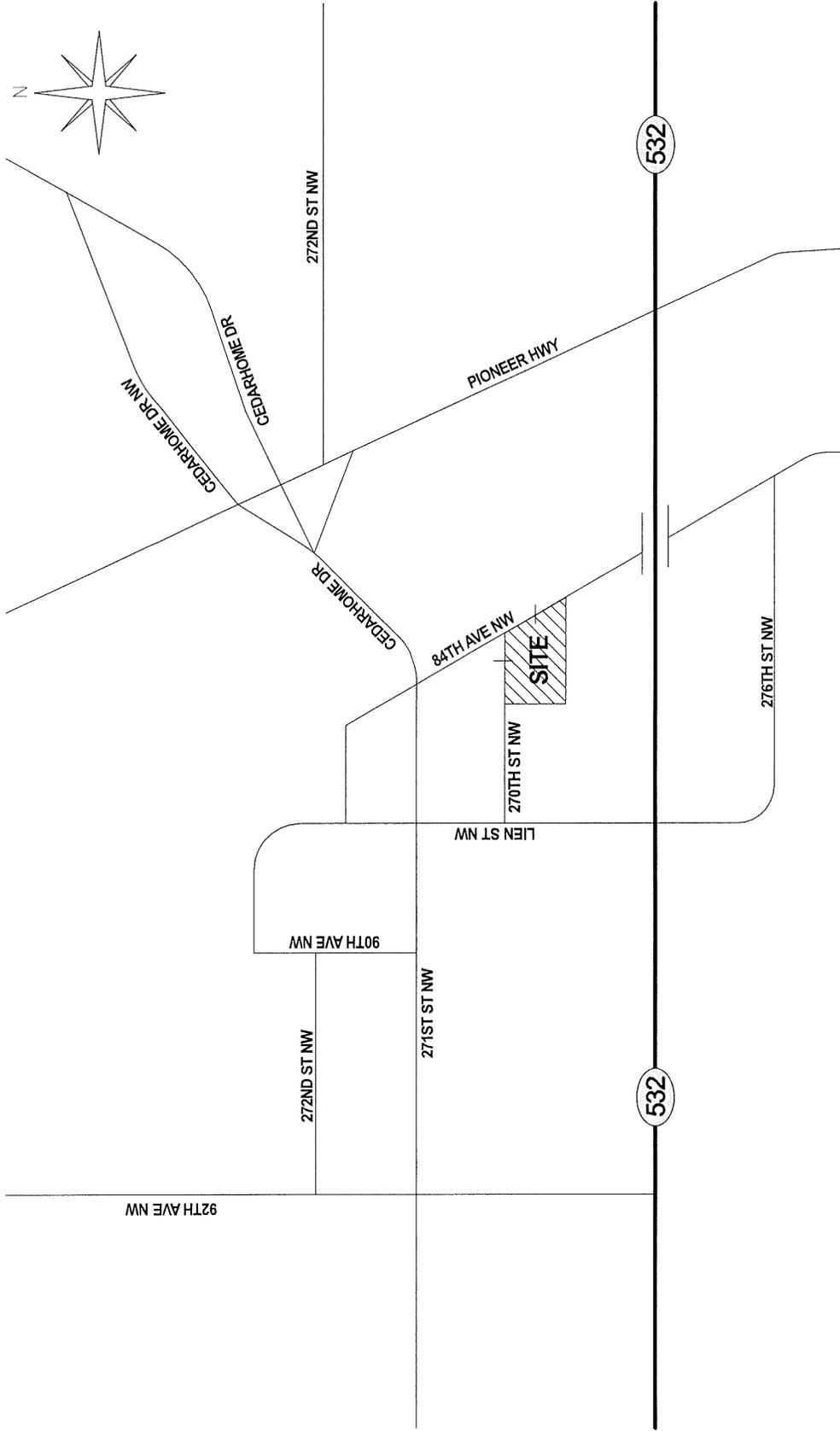
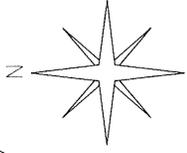
The scope of the analysis for this report is based on scoping with Ryan Larsen at the City of Stanwood.

### 2.1 Trip Generation

The trip generation for the Stanwood Septage Facility has been calculated using information provided by the client on the number of: septic haul trucks, biosolids haul trucks, employees and customers

### 2.2 Intersection level of Service Analysis

It is anticipated that no City intersections would be impacted with 10 or more PM peak-hour trips; therefore, no level of service analysis was conducted. In addition, 270<sup>th</sup> Street NW is under construction and has experienced closures making traffic counts in the area not valid.



**TRAFFIC IMPACT STUDY**  
**GTC #16-153**

**GIBSON TRAFFIC CONSULTANTS**

**FIGURE 1**  
**SITE VICINITY**  
**MAP**

**STANWOOD SEPTAGE**  
**FACILITY**

**LEGEND**  
 **DEVELOPMENT SITE**

**CITY OF STANWOOD**

### 3. TRIP GENERATION AND DISTRIBUTION

#### 3.1 Trip Generation

Trip generation calculations for the Stanwood Septage Facility are based on information from the client about the operations of the facility. The conservative estimate is as follows:

- Septic Haul Trucks: Ranging in size from 1,000 gallons to 6,000 gallons semi-tractor trailer vehicles. 10 to 30 haul trucks per day. Average number of vehicles will likely be 20 per day. 20,000 to 60,000 gallons transported on-site per day. We anticipate this traffic will be spread out evenly throughout working hours.
- Biosolids Haul Trucks: Ranging in size from 10 CY to 40 CY dump truck vehicles. 1 to 3 haul trucks per day. Hope to keep this at 1 truck per day. 15 to 35 CY biosolids transported off-site per day.
- Employees: 2 to 6 vehicles per day.
- Customers: 2 to 6 vehicles per day.

The site will be open from 7 AM to 5 PM for a total of 10 hours a day. The Stanwood Septage Facility is anticipated to generate 54 new daily trips, 6 new AM peak-hour trips and 6 new PM peak-hour trips. The trip generation is summarized in Table 1.

**Table 1: Trip Generation Summary**

	Average Daily Trips			AM Peak-Hour Trips			PM Peak-Hour Trips		
	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Septic Haul Trucks	20	20	40	3	1	4	1	3	4
Biosolids Haul Trucks	2	2	4	0	0	0	0	0	0
Employees	3	3	6	1	1	2	1	1	2
Customers	2	2	4	0	0	0	0	0	0
<b>Total</b>	<b>27</b>	<b>27</b>	<b>54</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>2</b>	<b>4</b>	<b>6</b>

The trip generation calculations are included in the attachments.

### 3.2 Trip Distribution

Trip distribution and traffic assignments for the development are based on the anticipated service area for the facility. It is anticipated that 30% of the development traffic would travel to and from the west, ten percent on 271<sup>st</sup> Street NW and twenty percent along SR-532. Approximately 35% will travel to and from the east, thirty percent along SR-532 and five percent along 272<sup>nd</sup> Street NW. Approximately 25% to and from the south, fifteen percent along 84<sup>th</sup> Avenue NW and ten percent along Pioneer Highway. Approximately 10% to and from the North along Pioneer Highway. The trip distribution for the AM peak-hour is include in Figure 2 and the PM peak-hour trip distribution is included in Figure 3.

A condition of any permits for this facility will include the requirement that truck traffic to and from the plant not travel west of the site on 270th Street NW. All truck traffic will be required to travel to and from the highway via 84th Avenue NW and 267th Street.

Snohomish County requires key intersections impacted with 3 or more directional peak-hour trips on any approach or departure to be shown. The development will not impact any key intersections during the AM and PM peak-hour. The City of Stanwood also uses key intersections within city limits to track pipeline volumes as well. The Stanwood Septage Facility development will not impact any City of Stanwood key intersections during the AM and PM peak-hour.





#### **4. ACCESS ANALYSIS**

The development proposes two access connections, an inbound only from 270<sup>th</sup> Street NW and an outbound only to 84<sup>th</sup> Avenue NW. 270<sup>th</sup> Street NW and 84<sup>th</sup> Avenue NW have a posted speed limit of 25 mph. The City of Stanwood has a stopping sight distance and intersection sight distance of 155 feet and 280 feet respectively. GTC staff has performed site observations to verify the access locations will have sufficient sight distance to both the north and the south with over 300 feet of sight distance.

#### **5. TRAFFIC MITIGATION FEES**

The Washington Growth Management Act and Revised Code of Washington 82.02.050(2) authorize local jurisdictions to establish proportionate share traffic mitigation fees in order to fund capital facilities, such as roads and intersections.

The City of Stanwood has an interlocal agreement with Snohomish County for reciprocal traffic mitigation fees. SCC 30.66B applies that authority to developments in order to fund road improvements that would accommodate development within Snohomish County. These traffic mitigation fees are based on the area wide traffic mitigation fee.

##### **5.1 City of Stanwood**

The City of Stanwood has determined the commercial mitigation fee per average daily trip is \$368.17. The development will create a total of 54 average daily trips for a fee of \$19,881.18 to the City of Stanwood.

##### **5.2 Snohomish County**

Snohomish County and the City of Stanwood have signed an interlocal agreement which provides for mitigation payments to Snohomish County for road improvement projects within the development's Transportation Service Area (TSA). Per the interlocal agreement, an assumed 70% of the development's daily trips would impact Snohomish County collection projects. However, the Stanwood Septage Facility development will not impact any collection projects within TSA A with 3 or more PM peak-hour trips based on the included distribution and therefore is not required to pay mitigation fees to Snohomish County.

##### **5.3 Summary of Traffic Mitigation Fees**

The Stanwood Septage Facility will have a total traffic impact fee of \$19,881.18.

## 6. CONCLUSIONS

The Stanwood Septage Facility is anticipated to generate 54 new daily trips, 6 new AM peak-hour trips and 6 new PM peak-hour trips. The development will not impact any Snohomish County or City of Stanwood key intersections. The development proposes two access connections, an inbound only from 270<sup>th</sup> Street NW and an outbound only to 84<sup>th</sup> Avenue NW. The outbound access to 84<sup>th</sup> Avenue NW is anticipated to meet the City of Stanwood sight distance requirements. The development's traffic mitigation fees will total \$19,881.18.

# **Trip Generation and 100% Distribution**

Stanwood Septage Facility  
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AM Peak-Hour

%	New ADT	New AM Peak Hour Trips		
		In	Out	Total
100%	54	2	4	6.00
1%	0.54	0.02	0.04	0.06
2%	1.08	0.04	0.08	0.12
3%	1.62	0.06	0.12	0.18
4%	2.16	0.08	0.16	0.24
5%	2.70	0.10	0.20	0.30
6%	3.24	0.12	0.24	0.36
7%	3.78	0.14	0.28	0.42
8%	4.32	0.16	0.32	0.48
9%	4.86	0.18	0.36	0.54
10%	5.40	0.20	0.40	0.60
11%	5.94	0.22	0.44	0.66
12%	6.48	0.24	0.48	0.72
13%	7.02	0.26	0.52	0.78
14%	7.56	0.28	0.56	0.84
15%	8.10	0.30	0.60	0.90
16%	8.64	0.32	0.64	0.96
17%	9.18	0.34	0.68	1.02
18%	9.72	0.36	0.72	1.08
19%	10.26	0.38	0.76	1.14
20%	10.80	0.40	0.80	1.20
21%	11.34	0.42	0.84	1.26
22%	11.88	0.44	0.88	1.32
23%	12.42	0.46	0.92	1.38
24%	12.96	0.48	0.96	1.44
25%	13.50	0.50	1.00	1.50
26%	14.04	0.52	1.04	1.56
27%	14.58	0.54	1.08	1.62
28%	15.12	0.56	1.12	1.68
29%	15.66	0.58	1.16	1.74
30%	16.20	0.60	1.20	1.80
31%	16.74	0.62	1.24	1.86
32%	17.28	0.64	1.28	1.92
33%	17.82	0.66	1.32	1.98
34%	18.36	0.68	1.36	2.04
35%	18.90	0.70	1.40	2.10
36%	19.44	0.72	1.44	2.16
37%	19.98	0.74	1.48	2.22
38%	20.52	0.76	1.52	2.28
39%	21.06	0.78	1.56	2.34
40%	21.60	0.80	1.60	2.40
41%	22.14	0.82	1.64	2.46
42%	22.68	0.84	1.68	2.52
43%	23.22	0.86	1.72	2.58
44%	23.76	0.88	1.76	2.64
45%	24.30	0.90	1.80	2.70
46%	24.84	0.92	1.84	2.76
47%	25.38	0.94	1.88	2.82
48%	25.92	0.96	1.92	2.88
49%	26.46	0.98	1.96	2.94
50%	27.00	1.00	2.00	3.00
51%	27.54	1.02	2.04	3.06
52%	28.08	1.04	2.08	3.12
53%	28.62	1.06	2.12	3.18
54%	29.16	1.08	2.16	3.24
55%	29.70	1.10	2.20	3.30
56%	30.24	1.12	2.24	3.36
57%	30.78	1.14	2.28	3.42
58%	31.32	1.16	2.32	3.48
59%	31.86	1.18	2.36	3.54
60%	32.40	1.20	2.40	3.60
61%	32.94	1.22	2.44	3.66
62%	33.48	1.24	2.48	3.72
63%	34.02	1.26	2.52	3.78
64%	34.56	1.28	2.56	3.84
65%	35.10	1.30	2.60	3.90
66%	35.64	1.32	2.64	3.96
67%	36.18	1.34	2.68	4.02
68%	36.72	1.36	2.72	4.08
69%	37.26	1.38	2.76	4.14
70%	37.80	1.40	2.80	4.20
71%	38.34	1.42	2.84	4.26
72%	38.88	1.44	2.88	4.32
73%	39.42	1.46	2.92	4.38
74%	39.96	1.48	2.96	4.44
75%	40.50	1.50	3.00	4.50
76%	41.04	1.52	3.04	4.56
77%	41.58	1.54	3.08	4.62
78%	42.12	1.56	3.12	4.68
79%	42.66	1.58	3.16	4.74
80%	43.20	1.60	3.20	4.80
81%	43.74	1.62	3.24	4.86
82%	44.28	1.64	3.28	4.92
83%	44.82	1.66	3.32	4.98
84%	45.36	1.68	3.36	5.04
85%	45.90	1.70	3.40	5.10
86%	46.44	1.72	3.44	5.16
87%	46.98	1.74	3.48	5.22
88%	47.52	1.76	3.52	5.28
89%	48.06	1.78	3.56	5.34
90%	48.60	1.80	3.60	5.40
91%	49.14	1.82	3.64	5.46
92%	49.68	1.84	3.68	5.52
93%	50.22	1.86	3.72	5.58
94%	50.76	1.88	3.76	5.64
95%	51.30	1.90	3.80	5.70
96%	51.84	1.92	3.84	5.76
97%	52.38	1.94	3.88	5.82
98%	52.92	1.96	3.92	5.88
99%	53.46	1.98	3.96	5.94
100%	54.00	2.00	4.00	6.00

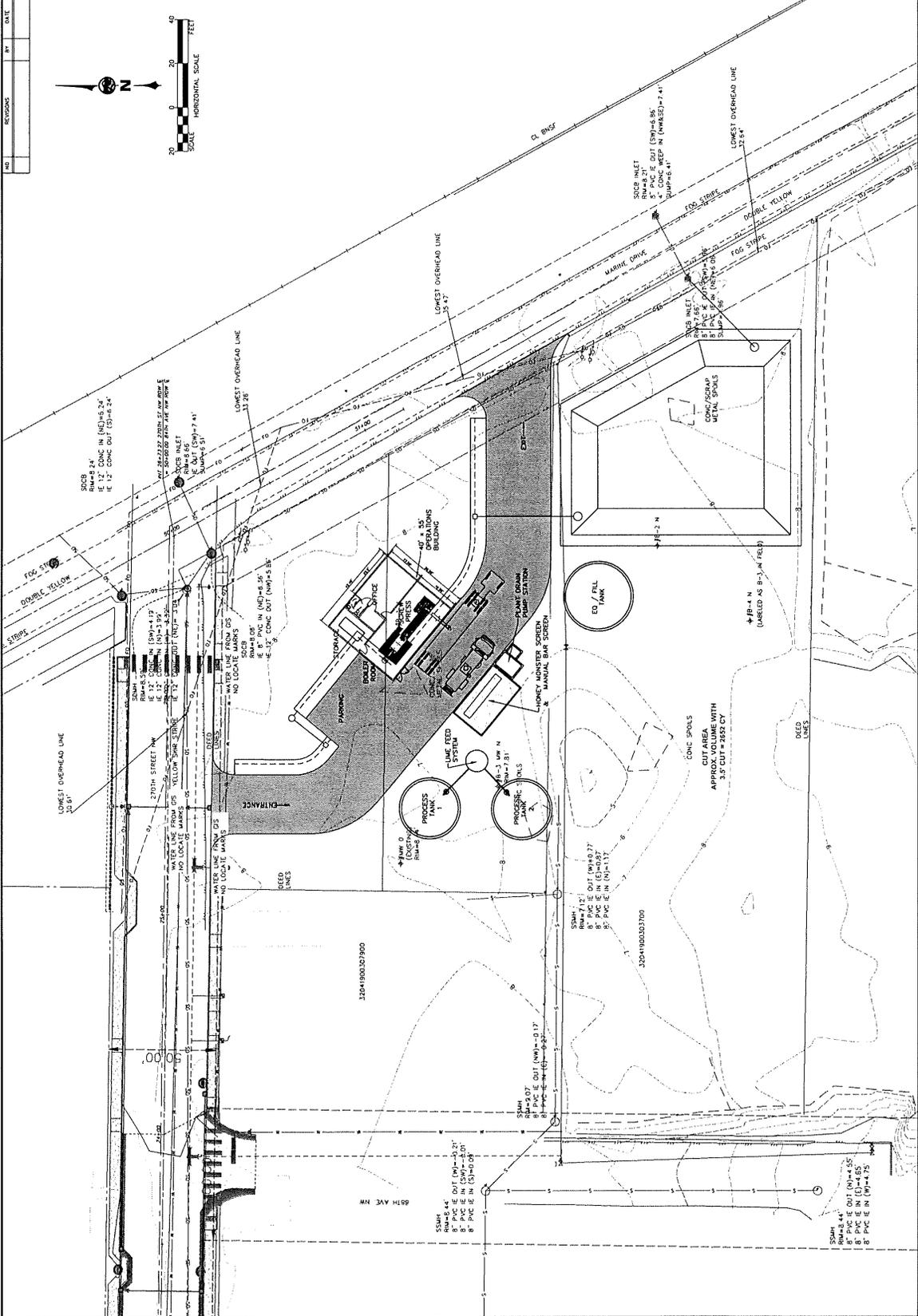
Stanwood Septage Facility  
GTC #16-153

PM Peak-Hour

%	New ADT	New PM Peak Hour Trips		
		In	Out	Total
100%	54	4	2	6.00
1%	0.54	0.04	0.02	0.06
2%	1.08	0.08	0.04	0.12
3%	1.62	0.12	0.06	0.18
4%	2.16	0.16	0.08	0.24
5%	2.70	0.20	0.10	0.30
6%	3.24	0.24	0.12	0.36
7%	3.78	0.28	0.14	0.42
8%	4.32	0.32	0.16	0.48
9%	4.86	0.36	0.18	0.54
10%	5.40	0.40	0.20	0.60
11%	5.94	0.44	0.22	0.66
12%	6.48	0.48	0.24	0.72
13%	7.02	0.52	0.26	0.78
14%	7.56	0.56	0.28	0.84
15%	8.10	0.60	0.30	0.90
16%	8.64	0.64	0.32	0.96
17%	9.18	0.68	0.34	1.02
18%	9.72	0.72	0.36	1.08
19%	10.26	0.76	0.38	1.14
20%	10.80	0.80	0.40	1.20
21%	11.34	0.84	0.42	1.26
22%	11.88	0.88	0.44	1.32
23%	12.42	0.92	0.46	1.38
24%	12.96	0.96	0.48	1.44
25%	13.50	1.00	0.50	1.50
26%	14.04	1.04	0.52	1.56
27%	14.58	1.08	0.54	1.62
28%	15.12	1.12	0.56	1.68
29%	15.66	1.16	0.58	1.74
30%	16.20	1.20	0.60	1.80
31%	16.74	1.24	0.62	1.86
32%	17.28	1.28	0.64	1.92
33%	17.82	1.32	0.66	1.98
34%	18.36	1.36	0.68	2.04
35%	18.90	1.40	0.70	2.10
36%	19.44	1.44	0.72	2.16
37%	19.98	1.48	0.74	2.22
38%	20.52	1.52	0.76	2.28
39%	21.06	1.56	0.78	2.34
40%	21.60	1.60	0.80	2.40
41%	22.14	1.64	0.82	2.46
42%	22.68	1.68	0.84	2.52
43%	23.22	1.72	0.86	2.58
44%	23.76	1.76	0.88	2.64
45%	24.30	1.80	0.90	2.70
46%	24.84	1.84	0.92	2.76
47%	25.38	1.88	0.94	2.82
48%	25.92	1.92	0.96	2.88
49%	26.46	1.96	0.98	2.94
50%	27.00	2.00	1.00	3.00
51%	27.54	2.04	1.02	3.06
52%	28.08	2.08	1.04	3.12
53%	28.62	2.12	1.06	3.18
54%	29.16	2.16	1.08	3.24
55%	29.70	2.20	1.10	3.30
56%	30.24	2.24	1.12	3.36
57%	30.78	2.28	1.14	3.42
58%	31.32	2.32	1.16	3.48
59%	31.86	2.36	1.18	3.54
60%	32.40	2.40	1.20	3.60
61%	32.94	2.44	1.22	3.66
62%	33.48	2.48	1.24	3.72
63%	34.02	2.52	1.26	3.78
64%	34.56	2.56	1.28	3.84
65%	35.10	2.60	1.30	3.90
66%	35.64	2.64	1.32	3.96
67%	36.18	2.68	1.34	4.02
68%	36.72	2.72	1.36	4.08
69%	37.26	2.76	1.38	4.14
70%	37.80	2.80	1.40	4.20
71%	38.34	2.84	1.42	4.26
72%	38.88	2.88	1.44	4.32
73%	39.42	2.92	1.46	4.38
74%	39.96	2.96	1.48	4.44
75%	40.50	3.00	1.50	4.50
76%	41.04	3.04	1.52	4.56
77%	41.58	3.08	1.54	4.62
78%	42.12	3.12	1.56	4.68
79%	42.66	3.16	1.58	4.74
80%	43.20	3.20	1.60	4.80
81%	43.74	3.24	1.62	4.86
82%	44.28	3.28	1.64	4.92
83%	44.82	3.32	1.66	4.98
84%	45.36	3.36	1.68	5.04
85%	45.90	3.40	1.70	5.10
86%	46.44	3.44	1.72	5.16
87%	46.98	3.48	1.74	5.22
88%	47.52	3.52	1.76	5.28
89%	48.06	3.56	1.78	5.34
90%	48.60	3.60	1.80	5.40
91%	49.14	3.64	1.82	5.46
92%	49.68	3.68	1.84	5.52
93%	50.22	3.72	1.86	5.58
94%	50.76	3.76	1.88	5.64
95%	51.30	3.80	1.90	5.70
96%	51.84	3.84	1.92	5.76
97%	52.38	3.88	1.94	5.82
98%	52.92	3.92	1.96	5.88
99%	53.46	3.96	1.98	5.94
100%	54.00	4.00	2.00	6.00

# Site Plan

SHEET C2.0	DATE 2/2/2016	SCALE AS SHOWN	JOB NUMBER 2015-135	1 OF 1	DRAWN BY WASHINGTON	CHECKED BY	DESIGNED BY	MCDAY HOLDINGS	SEPTAGE RECEIVING PLANT	OVERALL SITE PLAN	SURVEY/ENGINEERING	 WILSON ENGINEERING, LLC 803 DUNN STREET BELLEVILLE, MO 63713 (314) 333-6000 • FAX (314) 647-9061 www.wilsonengineering.com



DATE PLOTTED: 2/2/2016 10:58:11 AM. PLOT SCALE: 1"=40'. PLOT SHEET: C2.0. PLOT AREA: 11.24 SQ. FEET. PLOT BY: J. WILSON. PLOT FROM: C:\PROJECTS\2015-135\2015-135.dwg. PLOT DEVICE: HPGL2. PLOT STATUS: SUCCESS.