



## Property Services

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District Service Center  
3805 Marlane Drive  
Grove City, OH 43123  
Phone: (614) 801-3120  
Fax: (614) 801-3131

## INTRODUCTION

The South-Western City School District proposes to install a new radio antenna measuring 130 feet in height to support its new district-wide two-way communication system. The proposed tower would replace an existing 70 foot tower, as the existing tower does not provide reliable coverage throughout the district, including many locations that serve schools in the Grove City attendance area. The narrative, exhibit #2, further expands upon the benefits of this new enhanced system. Primary benefits of the system include immediate connectivity to law enforcement as well as immediate connectivity to any or all buildings during an emergency. The district did make an attempt to utilize other existing light towers at several high school sites but encountered logistical issues that would prove more costly and also hamper reliable reception throughout the district.

The Transportation facility is open Monday through Friday, 5am to 5pm; employs 255 people, and is the sole facility to house 194 school buses. The facility is adjacent to a warehouse to the east and Beulah Park on the south and west boundaries. The installation of this tower would not be an eyesore or present any hazards to the adjoining properties. The district does not intend to lease space to any outside party for additional antenna or transmission purposes and reserves any and all use for district equipment.

On behalf of the district, I am requesting an expedited review and approval of this project in order to complete construction and be ready for the start of the new school year. Thank you in advance for your consideration.

Respectfully,

A handwritten signature in cursive script that reads "Mark Waller".

Mark Waller  
Supervisor of Property Services

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[www.swcs.us](http://www.swcs.us)

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GC PLANNING COMMISSION



**CITY OF GROVE CITY**  
 4035 Broadway  
 Grove City, Ohio 43123  
 (614) 277-3000  
 Fax (614) 277-3011  
 www.ci.grove-city.oh.us

**SPECIAL USE PERMIT  
 APPLICATION  
 FEE \$100.00**

Date Submitted 5/20/2011

PROJECT INFORMATION		
BUSINESS NAME South-Western City Schools Transportation Facility		
BUSINESS ADDRESS 3427 Southwest Blvd, Grove City, OH 43123		
PARCEL TAX ID # 040-006337-00		
EXISTING ZONING Mixed use including B AND S-1 (Public Bus Garage)		
PROPERTY OWNER(S) South-Western City Schools		
MAILING ADDRESS 3805 Marlane Drive, Grove City, OH 43123		
DAYTIME TELEPHONE (614)-801-3133	FAX NUMBER ( ) 614-801-3131	E-MAIL mark.waller@swcs.us

APPLICANT/AGENT		
NAME OF APPLICANT Mark Waller on behalf of South-Western City Schools		
MAILING ADDRESS 3805 Marlane Drive, Grove City, OH 43123		
DAYTIME TELEPHONE ( ) 614-801-3133	FAX NUMBER ( ) 614-801-3131	E-MAIL mark.waller@swcs.us
DESIGNATED CONTACT PERSON Mark Waller	DAYTIME TELEPHONE ( ) 614-801-3133	

I, Mark Waller, the applicant or the applicant's duly authorized agent, have read and understand the contents of this submittal. The information contained, including attached exhibits, is complete and true/correct, to the best of my knowledge. This request conforms to the requirements of Section 1135.08.

Site visits to the property may be necessary by City representatives. The Owner/Applicant hereby authorizes representatives to visit and/or photograph the property described in this application.

Signature of Applicant Mark Waller Date May 19, 2011  
 Signature of Owner Mark Waller for SWCS Date May 19, 2011

FOR OFFICE USE ONLY		
DATE RECEIVED	PAYMENT RECEIVED/AMOUNT	CHECK NUMBER
RECEIVED BY	DATE SCHEDULED FOR PLANNING COMMISSION	
PROJECT ID #	PLANNING COMMISSION ACTION APPROVED _____ DISAPPROVED _____	

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Effective as of 12001  
 MAY 20 2011

## Project Narrative

The South-Western City School District is the sixth largest public school district in the State of Ohio and the second largest in Franklin County. The District covers 119 square miles, including urban, suburban, and rural settings.

In the fall of 2009, SWCSD began looking at the current two-way communication system in preparation for the January 2013 transition to Narrowbanding. On January 1, 2013, all public safety and business industrial land mobile radio systems operating in the 150-512 MHz radio bands must cease operating using 25 kHz efficiency technology, and begin operating using at least 12.5 kHz efficiency technology. This deadline is the result of an FCC effort that began almost two decades ago to ensure more efficient use of the spectrum and greater spectrum access for public safety and non-public safety users. Migration to 12.5 kHz efficiency technology (once referred to as Refarming, but now referred to as Narrowbanding) will allow the creation of additional channel capacity within the same radio spectrum, and support more users.

After January 1, 2013, licensees not operating at 12.5 KHz efficiency will be in violation of the Commission's rules and could be subject to FCC enforcement action, which may include admonishment, monetary fines, or loss of license.

As we looked at our current system and inventory, we saw that buses operated on a UHF frequency and building radios operated on a VHF frequency. Maintenance vehicles communicated through the use of the Nextel Direct-Connect feature. We lacked the ability to communicate throughout the district using two-way communication. We also knew we would need a system to meet future Narrowbanding requirements slated for January 2020.

With B&C Communication and Motorola providing assistance, SWCSD re-engineered the current system. In August 2011, we plan to roll out the new system. All radios in the district will operate on a UHF frequency. School buses will be equipped with digital radios that will have a built in GPS and a direct channel to the Grove City Police Department. The GPS will allow our Transportation Department to capture real-time data on our buses throughout their routes. The direct channel to the Grove City Police Department will serve two purposes. The first will be in the event of an emergency on the bus. With the push of a button on the front of the radio, a channel will open and the bus driver will be able to talk directly to a dispatcher at the Grove City Police Department. It will also activate a beacon on the GPS system that will assist identifying the bus and its location on a map. The second purpose of the direct link between the Grove City Police Department dispatch center and school buses will be the ability for the dispatch center to broadcast emergency information directly to all the school buses on their routes. In the event of an incident such as possible child abduction, descriptions of the vehicle and suspect will be shared and the Grove City Police Department will have extra sets of eyes looking for the suspect. This direct channel also meets the inter-operability standard required by the Department of Homeland Security.

SWCSD is paying for the radio in the Grove City Police Department dispatch center and in the dispatch center for the Franklin County Sheriff's Office.

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Exhibit #2

All of the maintenance employees who operate a district vehicle will have a portable digital radio that will allow the employees to talk with the maintenance department, transportation, district officials in the event of an emergency, and the Grove City Police Department. SWCSD currently has Memorandums of Understanding with the City of Grove City and is working on an MOU with Franklin County Emergency Management and Homeland Security. In the event of a city or county wide emergency where SWCSD is providing buses or equipment, we will have the inter-operability needed to communicate with emergency responders.

Two types of radios will be in our school buildings. The first is an analog radio that will be used during normal day to day operations. Attendance offices, custodians, hall monitors, and others will use these radios. These radios have a limited range outside of the building. The second type is a digital radio that will be carried by all administrators and School Resource Officers. During normal activities, these radios will operate inside the building in an analog capacity. However, in the event of an emergency where administrators need to communicate with first responders or district officials, the radios will operate in a digital capacity, increasing their range and functionality. In October 2011, a tornado warning was issued at the time our elementary schools were getting ready to dismiss for the day. In accordance with our Emergency Response Plans, students are not released during a tornado warning. Students, staff and administrators went to their tornado safe areas of the building to wait until the warning was over. However, because they were in their tornado safe area when the warning was lifted, administrators did not know it was safe to release their students. Administrators will be able to receive and send voice and text messages on their radios across the entire district to prevent this type of situation in the future.

Besides specific training on the operations of the new radios, Kelly Davidson of the Grove City Police Department has created a training program for the administrators, bus drivers, and maintenance workers on proper radio usage and protocols. This training is necessary because of the inter-operability of the new system.

With the increased functionality of the new system, it is necessary to remove the existing tower and antenna and install a new, taller radio tower and antenna at the Transportation Facility located at 3427 Southwest Blvd. The repeaters and back-up power supply will also be located at the Transportation Facility. Due to the size of SWCSD, a taller tower is needed for district wide communication during an emergency. Without the increased height, there would be 'dead zones' in some of the remote areas of the district, negating the inter-operability needed for coverage throughout the district.

In applying for the Special Use Permit, we will show:

- That the proposed use will not be contrary to the public interest or injurious to nearby properties.
- That the proposed use will not enlarge or encourage the development of a blighted influence.
- That the establishment of an additional regulated use in the area will not be contrary to any program of neighborhood conservation.
- That all applicable regulations of this section shall be observed.

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## Summary

### Parcel Info

#### Summary

[Property Profile](#)

[Land](#)

[Building](#)

[Improvements](#)

[MAP\(GIS\)](#)

[Sketch](#)

[Photo](#)

[Transfer History](#)

[2010 BOR](#)

[Area Sales Activity](#)

[Area Rentals](#)

[Tax/Payment Info](#)

[Current Levy Info](#)

[Assessment Payoff](#)

[Tax Distribution](#)

[Levy Distribution](#)

[Rental Contact](#)

[Tax Estimator](#)

[Property Reports](#)

 Recorder's Office  
Document Search

Area Sex Offender  
Inquiry

Pay Real Estate  
Taxes Here

Tax Estimator by  
School District

Parcel ID	Map Routing Number	Owner	Location
040-006337-00	040-0031D-007-02	<u>SOUTH-WESTERN CITY BOARD OF EDUCATION</u>	3427 SOUTHWEST BL

Owner Information	
Owner	<b>SOUTH-WESTERN CITY BOARD OF EDUCATION</b> 2975 KINGSTON AVE GROVE CITY OH 43123 <a href="#">If the address above is incorrect - Click Here</a>
Tax Bill Mailing Info	<b>SOUTH WESTERN CITY SCHOOL CAROLYN YOUNG ADMIN ASST</b> 3805 MARLANE DR GROVE CITY, OH 43123 <a href="#">To change mailing information ONLY - Click Here</a>

Current Value		
	Market	Taxable
Land	\$790,100	\$276,540
Improvements	\$815,900	\$285,570
Total	\$1,606,000	\$562,110
Cauv	0	0

Building Data			
Year Built	1986	Total Sq Footage	13,039

Legal Description
<b>3427 SOUTHWEST BLVD</b> <b>ENTRY 1388</b> <b>13.00 ACRES</b>

2010 Tax Status			
Land Use	<b>[650] OWNED BY BOARD OF EDUCATION</b>		
Tax District	<b>[040] CITY OF GROVE CITY</b>		
School District	<b>[2511] SOUTH-WESTERN CSD</b>		
Neighborhood	<b>08203</b>		
Board of Revision	<b>NO</b>	CDQ	
Homestead Exemption	<b>NO</b>	Owner Occupied Reduction (2.5%)	<b>NO</b>

Most Recent Transfer	
Sale Amount	\$0
Date of Transfer	03/09/2000
Conveyance Type	CB
Exempt Number	(040)15-M
Number of Parcels	1

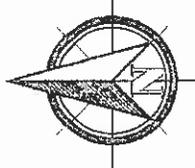
Tax Year 2010			
Annual Taxes	\$0.00	Taxes Paid	\$0.00

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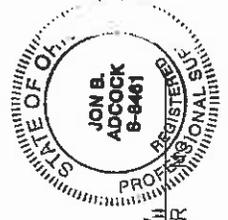
MAY 20 2011 Disclaimer



1346 Hemlock Court N.E., Lancaster, Ohio 43130  
 Contact: Brett Adcock  
 740-654-0600  
 Fax: 740-654-0604  
 www.americanlandsurveyors.com

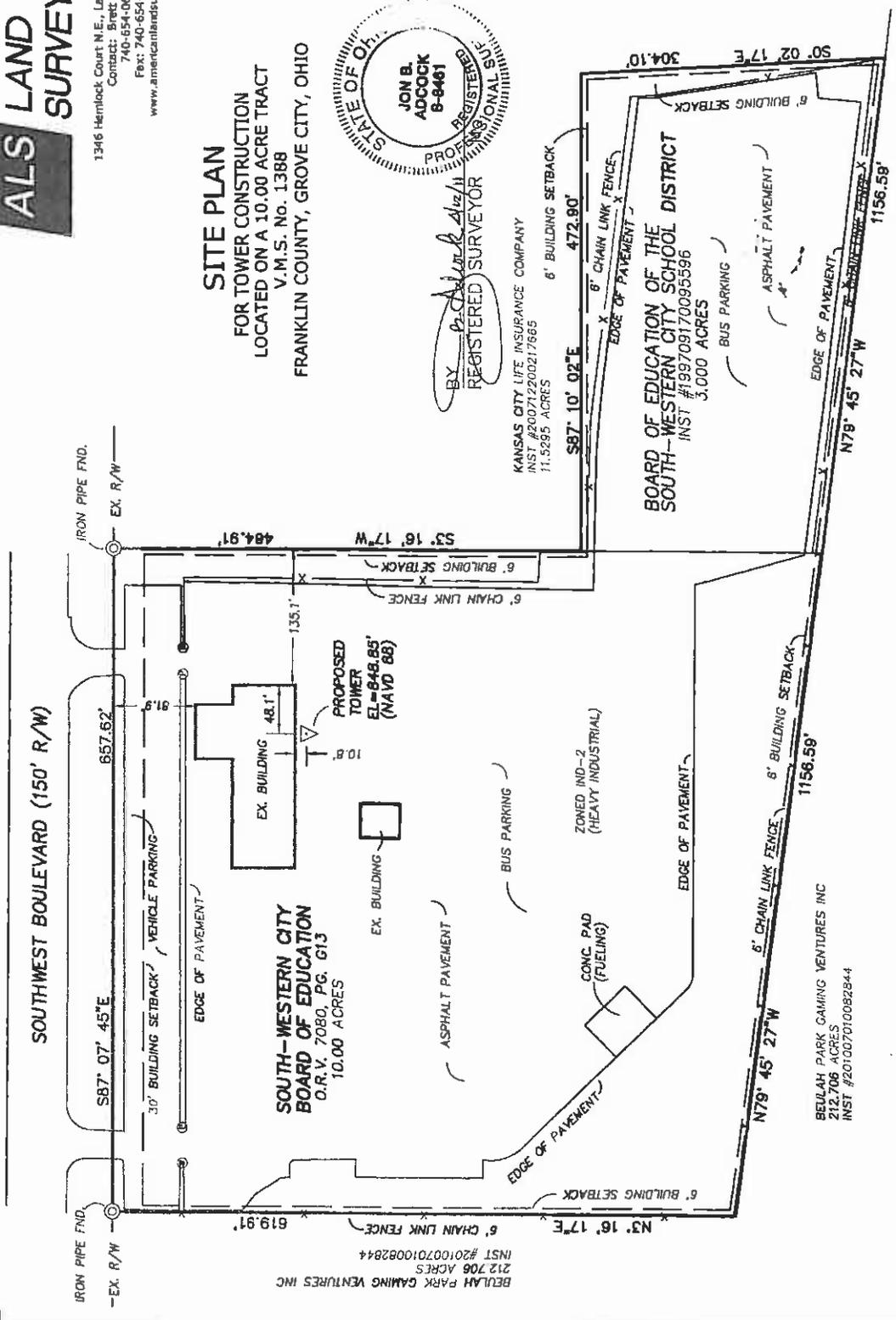


**SITE PLAN**  
 FOR TOWER CONSTRUCTION  
 LOCATED ON A 10.00 ACRE TRACT  
 V.M.S. No. 1388  
 FRANKLIN COUNTY, GROVE CITY, OHIO



BY *[Signature]*  
 REGISTERED SURVEYOR

KANSAS CITY LIFE INSURANCE COMPANY  
 INST #20071200217565  
 11.5285 ACRES



FIELD	DRAFT	CHECK
BA	BA	BA
JOB NO.:	11-029	
DATE:	APRIL 12, 2011	
SCALE:	1"=100	
SHEET NO.:	1/1	

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 MAY 2 2011



**Structural Design Report**  
130' S3TL Series VL Self-Supporting Tower  
located at: Grove City, OH

prepared for: Rinehart Tower Services Inc  
by: Sabre Towers & Poles™

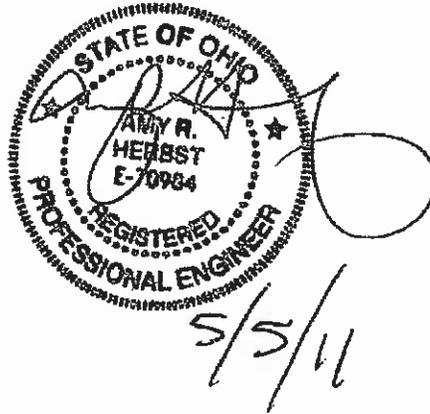
Job Number: 43953

May 5, 2011

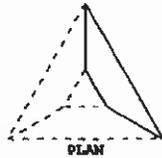
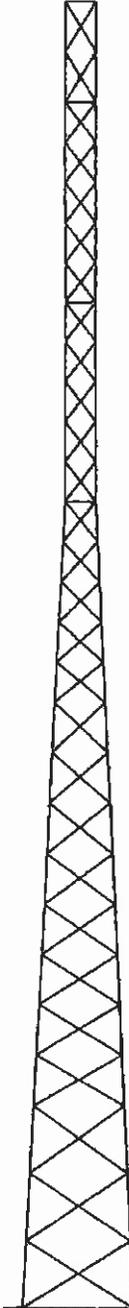
Tower Profile.....	1
Foundation Design Summary.....	2
Maximum Leg Loads.....	3
Maximum Diagonal Loads.....	4
Maximum Foundation Loads.....	5
Calculations.....	A1-A9

Prepared by

Approved by



Leg	50 ksi	3.500"x0.2160" PIPE	2.0750"x0.2030" PIPE	2.3750"x0.2180" PIPE	2.3750"x0.1540" PIPE
Diagonal	36 ksi	L 1-1/2"x1-1/2"x1/8"			
Structural	34 ksi	A			
Brace Bolts	A193A	(1) 1/2"			
Flange Width	11.0'	3.0'	3.0'	15 @ 4.0'	2 @ 5.0'
Panel Height @ Panels		3 @ 6.7'	8 @ 5.0'		
		0.0'	20.0'	40.0'	60.0'
		80.0'	76.0'	96.0'	100.0'
					116.0'
					120.0'
					125.0'
					130.0'



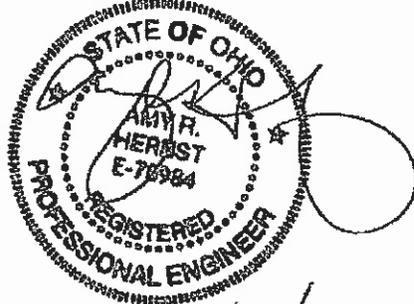
- NOTES:**
1. The tower model is S37L Series VL.
  2. Azimuths are relative (not based on true north).
  3. Foundation loads shown are maximums.
  4. (4) 3/4" dia. F1554 grade 105 anchor bolts per leg. Minimum 23.5" embedment from top of concrete to top of nut.
  5. All unequal angles are oriented with the short leg vertical.
  6. This tower was designed for Structure Class II, Exposure Category C and Topographic Category 1.
  7. The foundation loads shown below are factored loads.

**ANTENNA LIST**

NO	ELEV	ANTENNA	TK-LINE
1	130'	(1) 20' x 3in Omni + 6ft Sidearm	(1) 7/8

**MATERIAL LIST**

NO	TYPE
A	L 1-1/2"x1-1/2"x1/8"



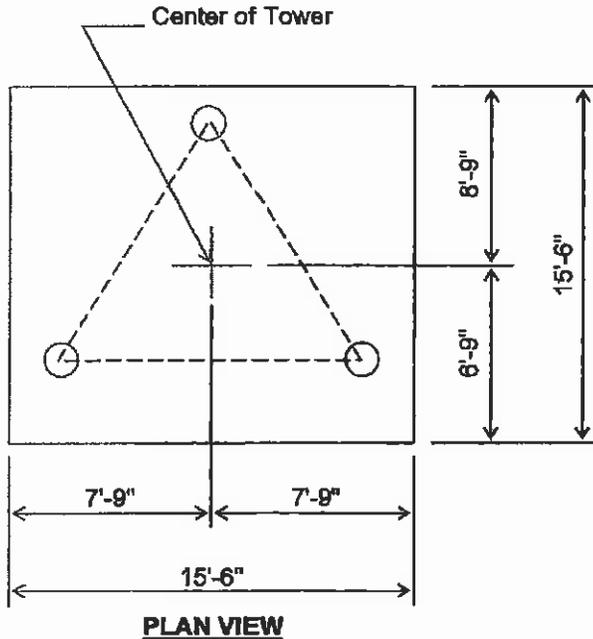
<b>TOTAL FOUNDATION LOADS</b>	<b>INDIVIDUAL FOOTING LOADS</b>
H=7.10 k	H=4.35 k
V=17.32 k	V=51.59 k
M=473.90 k-ft	U=43.62 k
T=0.44 k-ft	

**Sabre Towers & Poles**  
 2101 Murray Street (P.O. Box 658), Sioux City, Iowa 51102-0658  
 Phone: (712) 258-6690 Fax: (712) 258-8230

Client: Rinehart Tower Services Inc	Job No: 43953	Date: 5 May 2011
Location: Grove City, OH	Total Height: 130.00'	Tower Height: 130.00'
Standard: TIA 222-G-2005	Design Wind & Ice: 90mph 0" ice & 40mph 0.75" ice	

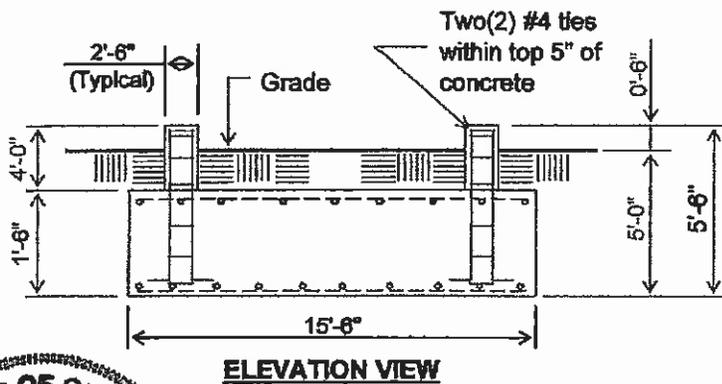
**Customer: Rinehart Tower Services Inc**  
**Site: Grove City, OH**

130 ft. Model S3TL Series VL Self Supporting Tower At  
 90 mph Wind with no ice and 40 mph Wind with 0.75 in. Ice per ANSI/TIA-222-G-2005.  
 Antenna Loading per Page 1



**Notes:**

- 1). Concrete shall have a minimum 28-day compressive strength of 4000 PSI, in accordance with ACI 318-05.
- 2). Rebar to conform to ASTM specification A615 Grade 80.
- 3). All rebar to have a minimum of 3" concrete cover.
- 4). All exposed concrete corners to be chamfered 3/4".
- 5). The foundation design is based on the geotechnical report by GCI project no. 11-G-16169, dated: 4/18/11



6). See the geotechnical report for compaction requirements, if specified.

7). The foundation is based on the following factored loads:  
 Factored download (kips) = 17.32  
 Factored overturn (kip-ft) = 473.9  
 Factored shear (kips) = 7.1

8). This is a design drawing only. Please see final construction drawings for all installation details.

(15.53 Cu. Yds.)  
 (1 REQD.; NOT TO SCALE)

Rebar Schedule per Mat and per Pier	
Pier	(8) #6 vertical rebar w/hooks at bottom w/#4 Rebar ties, two (2) within top 5" of pier then 12" C/C
Mat	(16) #6 horizontal rebar evenly spaced each way top and bottom. (64 total)

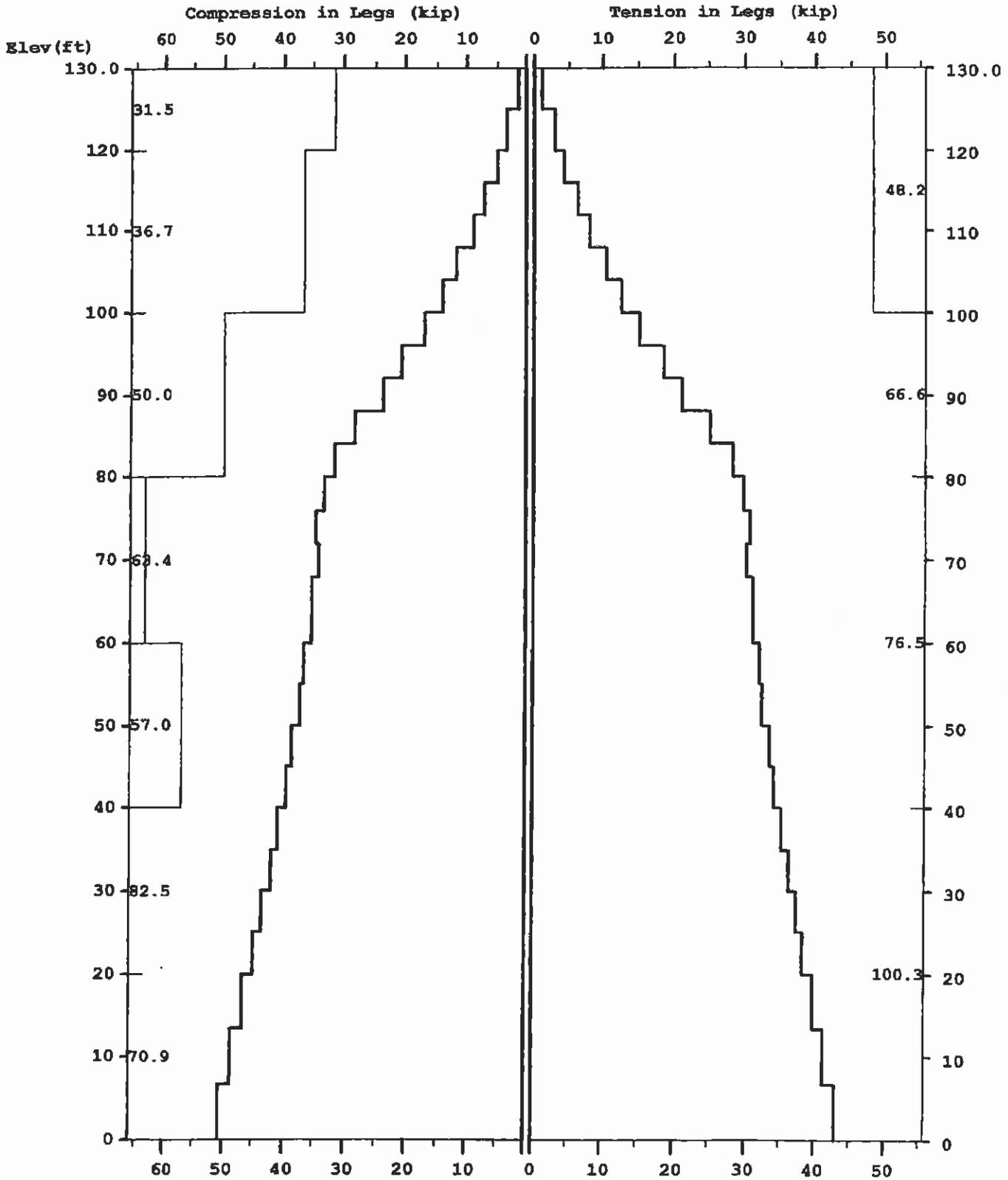


CAUTION: Center of tower is not in center of slab.

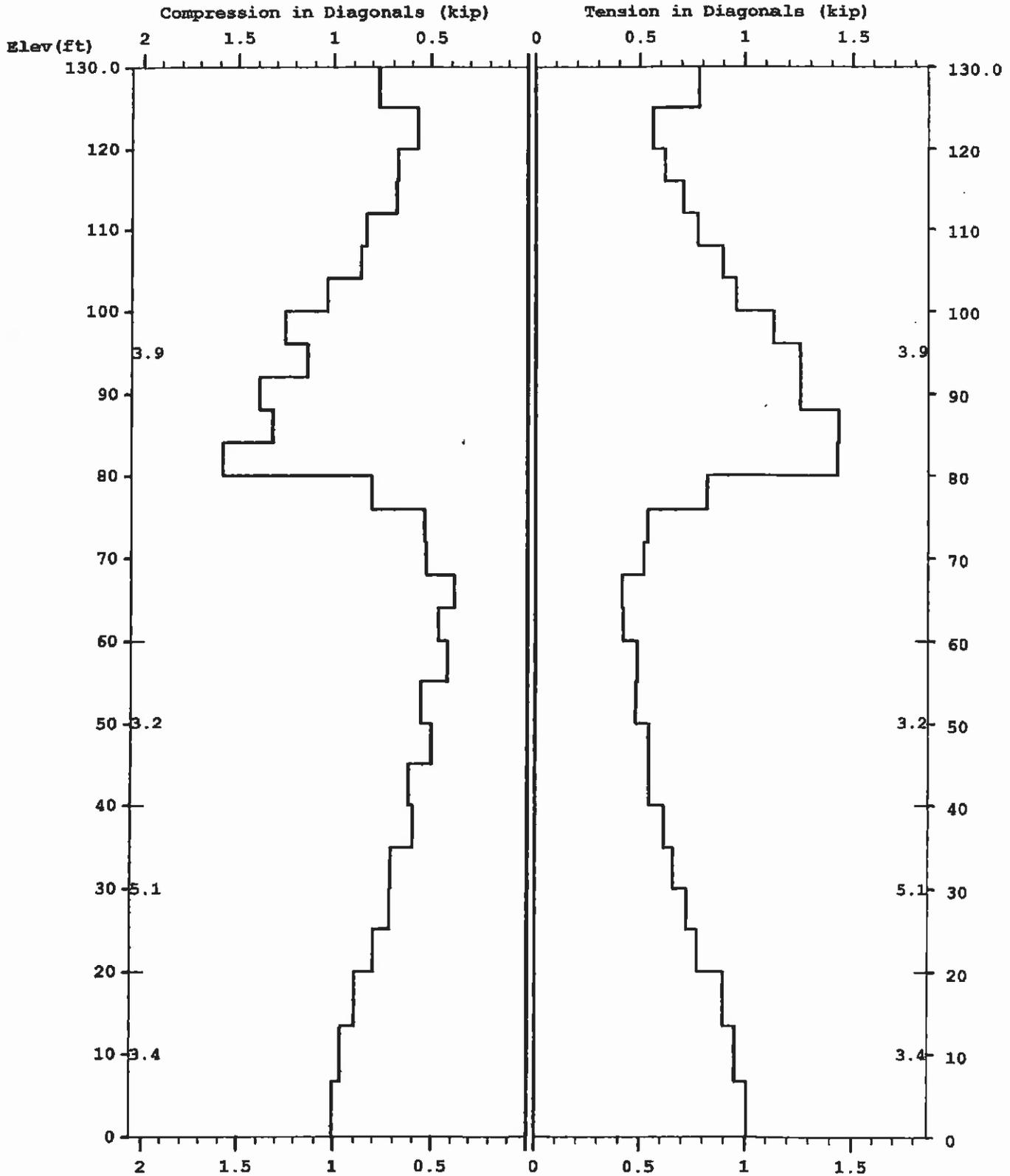
5/5/11

Information contained herein is the sole property of Sabre Towers & Poles, constitutes a trade secret as defined by Iowa Code Ch. 550 and shall not be reproduced, copied or used in whole or part for any purpose whatsoever without the prior written consent of Sabre Towers & Poles.

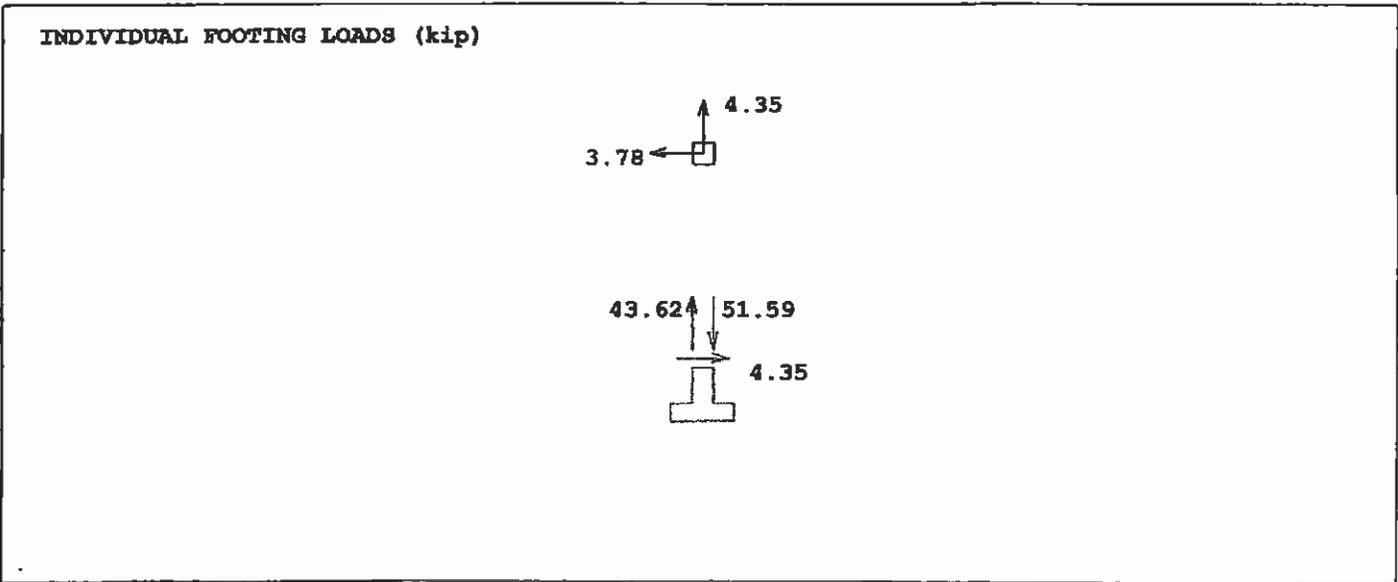
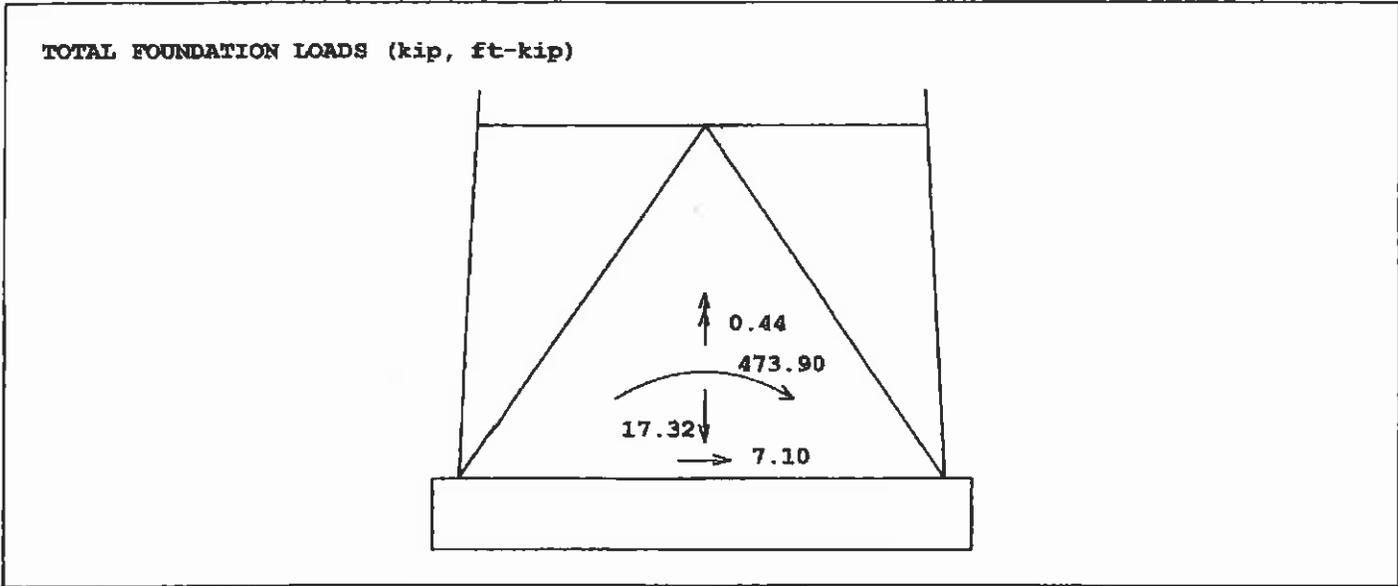
Maximum



Maximum



Maximum



MAST - Latticed Tower Analysis (Unguyed)  
 Processed under license at:

(c)1997 Guymast Inc. 416-736-7453

Sabre Communications Corporation

on: 5 may 2011 at: 14:04:11

MAST GEOMETRY ( ft )

PANEL TYPE	NO.OF LEGS	ELEV.AT BOTTOM	ELEV.AT TOP	F.W..AT BOTTOM	F.W..AT TOP	TYPICAL PANEL HEIGHT
X	3	125.00	130.00	3.00	3.00	5.00
X	3	120.00	125.00	3.00	3.00	5.00
X	3	116.00	120.00	3.00	3.00	4.00
X	3	100.00	116.00	3.00	3.00	4.00
X	3	96.00	100.00	3.00	3.00	4.00
X	3	80.00	96.00	3.00	3.00	4.00
X	3	76.00	80.00	3.40	3.00	4.00
X	3	60.00	76.00	5.00	3.40	4.00
X	3	40.00	60.00	7.00	5.00	5.00
X	3	20.00	40.00	9.00	7.00	5.00
X	3	0.00	20.00	11.00	9.00	6.67

MEMBER PROPERTIES

MEMBER TYPE	BOTTOM ELEV ft	TOP ELEV ft	X-SECTN AREA in.sq	RADIUS OF GYRAT in	ELASTIC MODULUS ksi	THERMAL EXPANSN /deg
LE	100.00	130.00	1.075	0.787	29000.	0.0000116
LE	80.00	100.00	1.477	0.787	29000.	0.0000116
LE	40.00	80.00	1.704	0.787	29000.	0.0000116
LE	0.00	40.00	2.228	0.787	29000.	0.0000116
DI	40.00	130.00	0.359	0.465	29000.	0.0000116
DI	0.00	40.00	0.484	0.465	29000.	0.0000116
HO	125.00	130.00	0.359	0.465	29000.	0.0000116
HO	116.00	120.00	0.359	0.465	29000.	0.0000116
HO	96.00	100.00	0.359	0.465	29000.	0.0000116
HO	76.00	80.00	0.359	0.465	29000.	0.0000116

FACTORED MEMBER RESISTANCES

BOTTOM ELEV ft	TOP ELEV ft	LEGS		DIAGONALS		HORIZONTALS		INT BRACING	
		COMP kip	TENS kip	COMP kip	TENS kip	COMP kip	TENS kip	COMP kip	TENS kip
125.0	130.0	31.48	48.15	3.94	3.94	3.94	3.94	0.00	0.00
120.0	125.0	31.48	48.15	3.94	3.94	0.00	0.00	0.00	0.00
116.0	120.0	36.68	48.15	3.94	3.94	3.94	3.94	0.00	0.00
100.0	116.0	36.68	48.15	3.94	3.94	0.00	0.00	0.00	0.00
96.0	100.0	49.98	66.60	3.94	3.94	3.94	3.94	0.00	0.00
80.0	96.0	49.98	66.60	3.94	3.94	0.00	0.00	0.00	0.00
76.0	80.0	63.40	76.50	3.94	3.94	3.94	3.94	0.00	0.00
60.0	76.0	63.40	76.50	3.94	3.94	0.00	0.00	0.00	0.00
40.0	60.0	57.04	76.50	3.22	3.22	0.00	0.00	0.00	0.00
20.0	40.0	82.52	100.35	5.08	5.08	0.00	0.00	0.00	0.00
0.0	20.0	70.87	100.35	3.42	3.42	0.00	0.00	0.00	0.00

\* Only 3 condition(s) shown in full

LOADING CONDITION A

90 mph wind with no ice. Wind Azimuth: 00

PL - 0

MAST LOADING

LOAD TYPE	ELEV ft	APPLY.. RADIUS ft	LOAD.. AT AZI	LOAD AZI	.....FORCES.....		.....MOMENTS.....	
					HORIZ kip	DOWN kip	VERTICAL ft-kip	TORSNAL ft-kip
C	135.0	0.00	0.0	0.0	0.54	0.40	0.00	0.00
D	130.0	0.00	0.0	0.0	0.04	0.03	0.00	0.00
D	100.0	0.00	0.0	0.0	0.04	0.03	0.00	0.00
D	100.0	0.00	0.0	0.0	0.04	0.04	0.00	0.00
D	80.0	0.00	0.0	0.0	0.04	0.03	0.00	0.00
D	80.0	0.00	0.0	0.0	0.04	0.04	0.00	0.00
D	60.0	0.00	0.0	0.0	0.04	0.04	0.00	0.00
D	60.0	0.00	0.0	0.0	0.04	0.04	0.00	0.00
D	40.0	0.00	0.0	0.0	0.05	0.04	0.00	0.00
D	40.0	0.00	0.0	0.0	0.05	0.05	0.00	0.00
D	20.0	0.00	0.0	0.0	0.05	0.05	0.00	0.00
D	20.0	0.00	0.0	0.0	0.05	0.05	0.00	0.00
D	0.0	0.00	0.0	0.0	0.05	0.05	0.00	0.00

SUPPRESS PRINTING

LOADS INPUT	...FOR THIS LOADING..			.....MAXIMUMS.....			
	DISPL	MEMBER FORCES	FOUNDN LOADS	ALL	DISPL	MEMBER FORCES	FOUNDN LOADS
no	yes	yes	yes	no	no	no	no

LOADING CONDITION k

90 mph wind with no ice. Wind Azimuth: 00

PL - 0

MAST LOADING

LOAD TYPE	ELEV ft	APPLY.. RADIUS ft	LOAD.. AT AZI	LOAD AZI	.....FORCES.....		.....MOMENTS.....	
					HORIZ kip	DOWN kip	VERTICAL ft-kip	TORSNAL ft-kip
C	135.0	0.00	0.0	0.0	0.54	0.30	0.00	0.00
D	130.0	0.00	0.0	0.0	0.04	0.02	0.00	0.00
D	100.0	0.00	0.0	0.0	0.04	0.02	0.00	0.00
D	100.0	0.00	0.0	0.0	0.04	0.03	0.00	0.00
D	80.0	0.00	0.0	0.0	0.04	0.02	0.00	0.00

43953.txt

D	80.0	0.00	0.0	0.0	0.04	0.03	0.00	0.00
D	60.0	0.00	0.0	0.0	0.04	0.03	0.00	0.00
D	60.0	0.00	0.0	0.0	0.04	0.03	0.00	0.00
D	40.0	0.00	0.0	0.0	0.05	0.03	0.00	0.00
D	40.0	0.00	0.0	0.0	0.05	0.04	0.00	0.00
D	20.0	0.00	0.0	0.0	0.05	0.04	0.00	0.00
D	20.0	0.00	0.0	0.0	0.05	0.04	0.00	0.00
D	0.0	0.00	0.0	0.0	0.05	0.04	0.00	0.00

SUPPRESS PRINTING

LOADS INPUT	...FOR THIS LOADING..			.....MAXIMUMS.....				
	DISPL	MEMBER FORCES	FOUNDN LOADS	ALL	DISPL	MEMBER FORCES	FOUNDN LOADS	
	no	yes	yes	yes	no	no	no	no

LOADING CONDITION AU

40 mph wind with 0.75 ice. wind Azimuth: 00

PL - 0

MAST LOADING

LOAD TYPE	ELEV ft	APPLY.. RADIUS ft	LOAD..AT AZI	LOAD AZI	.....FORCES.....		.....MOMENTS.....	
					HORIZ kip	DOWN kip	VERTICAL ft-kip	TORSNAL ft-kip
C	135.0	0.00	0.0	0.0	0.13	0.79	0.00	0.00
D	130.0	0.00	0.0	0.0	0.01	0.12	0.00	0.00
D	125.0	0.00	0.0	0.0	0.01	0.12	0.00	0.00
D	125.0	0.00	0.0	0.0	0.01	0.10	0.00	0.00
D	120.0	0.00	0.0	0.0	0.01	0.10	0.00	0.00
D	120.0	0.00	0.0	0.0	0.01	0.13	0.00	0.00
D	116.0	0.00	0.0	0.0	0.01	0.13	0.00	0.00
D	116.0	0.00	0.0	0.0	0.01	0.11	0.00	0.00
D	100.0	0.00	0.0	0.0	0.01	0.10	0.00	0.00
D	100.0	0.00	0.0	0.0	0.01	0.13	0.00	0.00
D	96.0	0.00	0.0	0.0	0.01	0.13	0.00	0.00
D	96.0	0.00	0.0	0.0	0.01	0.11	0.00	0.00
D	80.0	0.00	0.0	0.0	0.01	0.11	0.00	0.00
D	80.0	0.00	0.0	0.0	0.01	0.13	0.00	0.00
D	76.0	0.00	0.0	0.0	0.01	0.13	0.00	0.00
D	76.0	0.00	0.0	0.0	0.01	0.12	0.00	0.00
D	60.0	0.00	0.0	0.0	0.01	0.13	0.00	0.00
D	60.0	0.00	0.0	0.0	0.01	0.12	0.00	0.00
D	45.0	0.00	0.0	0.0	0.01	0.13	0.00	0.00
D	45.0	0.00	0.0	0.0	0.01	0.13	0.00	0.00
D	40.0	0.00	0.0	0.0	0.01	0.13	0.00	0.00
D	40.0	0.00	0.0	0.0	0.01	0.16	0.00	0.00
D	20.0	0.00	0.0	0.0	0.01	0.17	0.00	0.00
D	20.0	0.00	0.0	0.0	0.01	0.15	0.00	0.00
D	0.0	0.00	0.0	0.0	0.01	0.14	0.00	0.00

SUPPRESS PRINTING

...FOR THIS LOADING.. .....MAXIMUMS.....

LOADS INPUT	DISPL	MEMBER FORCES	FOUNDN LOADS	ALL	DISPL	MEMBER FORCES	FOUNDN LOADS
no	yes	yes	yes	no	no	no	no

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**MAXIMUM MAST DISPLACEMENTS:**


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ELEV ft	-----DEFLECTIONS (ft)-----			--TILTS (DEG)---		TWIST DEG
	NORTH	EAST	DOWN	NORTH	EAST	
130.0	1.613 S	1.515 b	0.016 e	1.470 S	1.388 b	0.036 AF
125.0	1.484 S	1.393 b	0.014 e	1.463 S	1.382 b	0.036 AF
120.0	1.357 S	1.273 b	0.013 e	1.447 S	1.365 b	0.035 AF
116.0	1.256 S	1.178 b	0.012 e	1.427 S	1.346 b	0.034 AF
112.0	1.158 S	1.085 b	0.010 e	1.398 S	1.318 b	0.033 AF
108.0	1.061 S	0.994 b	0.009 e	1.361 S	1.282 b	0.032 AF
104.0	0.967 S	0.905 b	0.008 e	1.312 S	1.236 b	0.031 AF
100.0	0.877 S	0.821 b	0.007 e	1.254 S	1.180 b	0.029 AF
96.0	0.790 S	0.739 b	0.006 e	1.203 S	1.131 b	0.027 AF
92.0	0.709 S	0.663 b	0.006 BY	1.141 S	1.072 b	0.025 AF
88.0	0.631 S	0.589 b	0.006 BY	1.069 S	1.004 b	0.023 AF
84.0	0.557 S	0.521 b	0.005 BY	0.984 S	0.923 b	0.020 AF
80.0	0.492 S	0.459 b	0.005 BY	0.889 S	0.833 b	0.017 AF
76.0	0.432 S	0.403 b	0.005 BY	0.805 S	0.754 b	0.014 AF
72.0	0.380 S	0.354 b	0.005 BY	0.731 S	0.685 b	0.013 AF
68.0	0.331 S	0.309 b	0.005 BY	0.664 S	0.621 b	0.011 AF
64.0	0.288 S	0.269 b	0.004 BY	0.603 S	0.564 b	0.010 AF
60.0	0.248 S	0.231 b	0.004 BY	0.545 S	0.509 b	0.008 AF
55.0	0.204 S	0.190 b	0.004 BY	0.478 S	0.447 b	0.007 AF
50.0	0.165 S	0.154 b	0.004 BY	0.415 S	0.388 b	0.006 AF
45.0	0.132 S	0.122 b	0.003 BY	0.356 S	0.332 b	0.005 AF
40.0	0.103 S	0.096 b	0.003 BY	0.299 S	0.279 b	0.004 AF
35.0	0.079 S	0.073 b	0.003 BY	0.258 S	0.241 b	0.003 AF
30.0	0.058 S	0.054 b	0.002 BY	0.218 S	0.203 b	0.003 AF
25.0	0.041 S	0.038 b	0.002 BY	0.180 S	0.168 b	0.002 AF
20.0	0.027 S	0.025 b	0.002 BZ	0.143 S	0.133 b	0.002 AF
13.3	0.013 S	0.012 b	0.001 BZ	0.094 S	0.087 b	0.001 AF
6.7	0.003 S	0.003 b	0.001 BZ	0.046 S	0.043 b	0.001 AF
0.0	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A

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**MAXIMUM TENSION IN MAST MEMBERS (kip)**


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ELEV ft	LEGS	DIAG	HORIZ	BRACE
130.0	-----	-----	0.30 S	0.00 A
	1.14 k	0.78 c		
125.0	-----	-----	0.02 N	0.00 A
	2.94 k	0.56 t		
120.0	-----	-----	0.13 Z	0.00 A
	4.39 k	0.62 AJ		
116.0	-----	-----	0.04 N	0.00 A
	6.34 x	0.71 H		
112.0	-----	-----	0.02 A	0.00 A
	8.05 w	0.77 t		
108.0	-----	-----	0.01 B	0.00 A
	10.48 w	0.89 G		
104.0	-----	-----	0.03 M	0.00 A
	12.64 w	0.95 AL		

43953.txt

100.0	-----			0.41 A	0.00 A
	15.13 w	1.13	AI		
96.0	-----			0.07 M	0.00 A
	18.60 w	1.25	G		
92.0	-----			0.02 Y	0.00 A
	21.25 w	1.25	AI		
88.0	-----			0.02 M	0.00 A
	25.14 w	1.43	G		
84.0	-----			0.05 M	0.00 A
	28.20 w	1.43	AI		
80.0	-----			0.21 Y	0.00 A
	29.83 w	0.82	q		
76.0	-----			0.06 M	0.00 A
	30.68 w	0.53	Y		
72.0	-----			0.01 Y	0.00 A
	30.22 w	0.52	q		
68.0	-----			0.05 M	0.00 A
	31.02 w	0.41	U		
64.0	-----			0.00 M	0.00 A
	31.08 w	0.42	AF		
60.0	-----			0.04 M	0.00 A
	31.97 w	0.48	U		
55.0	-----			0.01 A	0.00 A
	32.43 w	0.48	AK		
50.0	-----			0.02 M	0.00 A
	33.48 w	0.54	I		
45.0	-----			0.01 A	0.00 A
	34.17 w	0.54	AT		
40.0	-----			0.02 M	0.00 A
	35.26 w	0.61	I		
35.0	-----			0.01 A	0.00 A
	36.12 w	0.65	AN		
30.0	-----			0.03 M	0.00 A
	37.29 w	0.72	d		
25.0	-----			0.01 A	0.00 A
	38.31 w	0.77	AN		
20.0	-----			0.02 M	0.00 A
	39.73 w	0.89	AN		
13.3	-----			0.00 C	0.00 A
	41.24 w	0.95	v		
6.7	-----			0.02 M	0.00 A
	42.88 w	1.00	AN		
0.0	-----			0.00 A	0.00 A

MAXIMUM COMPRESSION IN MAST MEMBERS (kip)

ELEV ft	LEGS	DIAG	HORIZ	BRACE
130.0	-----		-0.30 B	0.00 A
	-1.43 T	-0.77 J		
125.0	-----		-0.01 AO	0.00 A
	-3.35 T	-0.57 C		
120.0	-----		-0.11 AP	0.00 A
	-4.93 S	-0.68 T		
116.0	-----		-0.03 AP	0.00 A
	-7.14 T	-0.68 AL		
112.0	-----		-0.02 AO	0.00 A
	-9.00 S	-0.84 G		
108.0	-----		-0.01 r	0.00 A

43953.txt

104.0	-11.73 s	-0.87 AL	-0.03 AO	0.00 A
100.0	-14.08 s	-1.04 G	-0.40 AC	0.00 A
96.0	-16.85 e	-1.26 G	-0.07 AO	0.00 A
92.0	-20.80 e	-1.14 t	-0.02 AO	0.00 A
88.0	-23.70 e	-1.39 G	-0.02 q	0.00 A
84.0	-28.12 e	-1.32 t	-0.05 AO	0.00 A
80.0	-31.49 e	-1.59 G	-0.21 AO	0.00 A
76.0	-33.37 e	-0.81 Y	-0.06 AO	0.00 A
72.0	-34.57 e	-0.54 q	-0.01 AO	0.00 A
68.0	-34.13 e	-0.53 D	-0.05 AO	0.00 A
64.0	-35.22 e	-0.38 AF	0.00 AO	0.00 A
60.0	-35.37 e	-0.47 U	-0.04 AO	0.00 A
55.0	-36.54 e	-0.42 m	-0.01 AO	0.00 A
50.0	-37.18 e	-0.56 I	-0.02 AO	0.00 A
45.0	-38.52 e	-0.50 AT	-0.01 AC	0.00 A
40.0	-39.42 e	-0.62 I	-0.02 AO	0.00 A
35.0	-40.82 e	-0.60 AN	-0.01 AC	0.00 A
30.0	-41.96 e	-0.71 I	-0.03 AO	0.00 A
25.0	-43.46 e	-0.72 v	-0.01 AC	0.00 A
20.0	-44.79 e	-0.80 I	-0.02 AO	0.00 A
13.3	-46.59 e	-0.90 L	0.00 AE	0.00 A
6.7	-48.53 e	-0.96 I	-0.02 AO	0.00 A
0.0	-50.64 e	-1.01 L	0.00 A	0.00 A

MAXIMUM INDIVIDUAL FOUNDATION LOADS: (kip)

LOAD-COMPONENTS				TOTAL
NORTH	EAST	DOWN	UPLIFT	SHEAR
4.35 S	-3.78 G	51.59 G	-43.62 w	4.35 G

MAXIMUM TOTAL LOADS ON FOUNDATION : (kip & kip-ft)

HORIZONTAL			DOWN	OVERTURNING			TORSION
NORTH	EAST	TOTAL		NORTH	EAST	TOTAL	

43953.txt

	@	0.0				@	120.0
7.1	6.5	7.1	17.3	473.9	440.0	473.9	0.4
AC	b	AC	AZ	S	b	e	AF

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**MAT FOUNDATION DESIGN BY SABRE TOWERS & POLES**

Tower Description 130' S3TL Series VL  
 Customer Rinehart Tower Services Inc  
 Project Number 43953  
 Date 5/5/2011  
 Engineer REB

<b>Overall Loads:</b>			
Factored Moment (ft-kips)	473.90	Anchor Bolt Count (per leg)	4
Factored Axial (kips)	17.32		
Factored Shear (kips)	7.10		
<b>Individual Leg Loads:</b>		Tower eccentric from mat (ft)=	1
Factored Uplift (kips)	43.62		
Factored Download (kips)	51.59		
Factored Shear (kips)	4.35		
Width of Tower (ft)	11		
Ultimate Bearing Pressure	6		
Bearing $\Phi_s$	0.75		
Overtuning $\Phi_s$	0.75		
Bearing Design Strength (ksf)	4.5	Max. Factored Net Bearing Pressure (ksf)	1.35
Water Table Below Grade (ft)	999		
Width of Mat (ft)	15.5	Minimum Mat Width (ft)	15.50
Thickness of Mat (ft)	1.5		
Depth to Bottom of Slab (ft)	5		
Bolt Circle Diameter (in)	6.5		
Top of Concrete to Top of Bottom Threads (in)	23.5		
Diameter of Pier (ft)	2.5	Minimum Pier Diameter (ft)	2.04
Ht. of Pier Above Ground (ft)	0.5	Equivalent Square b (ft)	2.22
Ht. of Pier Below Ground (ft)	3.5		
Quantity of Bars in Mat	16		
Bar Diameter in Mat (in)	0.75		
Area of Bars in Mat (in <sup>2</sup> )	7.07		
Spacing of Bars in Mat (in)	11.95	Recommended Spacing (in)	6 to 12
Quantity of Bars Pier	8		
Bar Diameter in Pier (in)	0.75		
Tie Bar Diameter in Pier (in)	0.5		
Spacing of Ties (in)	12		
Area of Bars in Pier (in <sup>2</sup> )	3.53	Minimum Pier A <sub>s</sub> (in <sup>2</sup> )	3.59
Spacing of Bars in Pier (in)	8.74	Recommended Spacing (in)	6 to 12
f <sub>c</sub> (ksi)	4		
f <sub>y</sub> (ksi)	60		
Unit Wt. of Soil (kcf)	0.11		
Unit Wt. of Concrete (kcf)	0.15		
Volume of Concrete (yd <sup>3</sup> )	15.53		

P-18

**MAT FOUNDATION DESIGN BY SABRE TOWERS & POLES (CONTINUED)**

**Two-Way Shear:**

Average d (in)	14.25
$\phi V_c$ (kips)	378.5
$\phi V_c = \phi(2 + 4/\beta_c)f_c^{1/2}b_o d$	567.7
$\phi V_c = \phi(\alpha_s d/b_o + 2)f_c^{1/2}b_o d$	625.9
$\phi V_c = \phi 4f_c^{1/2}b_o d$	378.5
Shear perimeter, $b_o$ (in)	123.51
$\beta_c$	1

$V_u$  (kips) 51.6

**Stability:**

Resisting moment	1135.78
Overturning Design Strength (ft-k)	531.0

Factored Overturning Moment (ft-k) 513.0

**One-Way Shear:**

$\phi V_c$ (kips)	235.0
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$V_u$  (kips) 31.8

**Pier Design:**

Design Tensile Strength (kips)	190.8
$\phi V_n$ (kips)	157.9
$\phi V_c = \phi 2(1 + N_u/(500A_g))f_c^{1/2}b_w d$	67.9
$V_s$ (kips)	

$T_u$  (kips) 43.6

$V_u$  (kips) 4.4

\*\*\*  $V_s$  max =  $4 f_c^{1/2} b_w d$  (kips)

182.1

Maximum Spacing (in) 12.00

(Only if Shear Ties are Required)

Actual Hook Development (in) 13.50

Req'd Hook Development  $l_{dh}$  (in) 9.96

\*\*\* Ref. ACI 11.5.5 & 11.5.6.3

**Anchor Bolt Pull-Out:**

$\phi P_c = \phi \lambda (2/3) f_c^{1/2} (2.8 A_{SLOPE} + 4 A_{FLAT})$	100.4
Pier Rebar Development Length (in)	12.63

$P_u$  (kips) 43.6

Required Length of Development (in) N/A

**Flexure in Slab:**

$\phi M_n$ (ft-kips)	121.6
a (in)	0.67
Steel Ratio	0.00267
$\beta_1$	0.85
Maximum Steel Ratio ( $.75p_b$ )	0.0214
Minimum Steel Ratio	0.0018

$M_u$  (ft-kips) 92.4

Rebar Development in Pad (in) 9.96

Required Development in Pad (in) 18.50

Condition	1 is OK, 0 Fails
Minimum Mat Width	1
Maximum Soil Bearing Pressure	1
Pier Area of Steel	1
Pier Shear	1
Two-Way Shear	1
Overturning	1
Anchor Bolt Pull-Out	1
Flexure	1
Steel Ratio	1
Length of Development in Pad	1
Interaction Diagram Visual Check	1
One-Way Shear	1
Hook Development	1
Minimum Mat Depth	1

P. A9

# LANDSCAPE BUFFER

## Amendment of Conditions

The district is requesting an amendment of the landscape buffer requirements at the base of the tower. A chain link fence and bollards will be at the perimeter of the tower base. The tower is located on an asphalt surface at the rear of the garage. Bus traffic and pedestrian traffic would be hampered and a hazard would be created relating to potential visibility concerns. An earthen mound and established spruce trees already exist on the east boundary. This established buffer supersedes any buffer that would be added at the base of the tower itself. With the fact that a buffer currently exists coupled with a potential safety hazard, I respectfully request that the landscape requirement for the tower base be waived.

Mark Waller

Exhibit #4



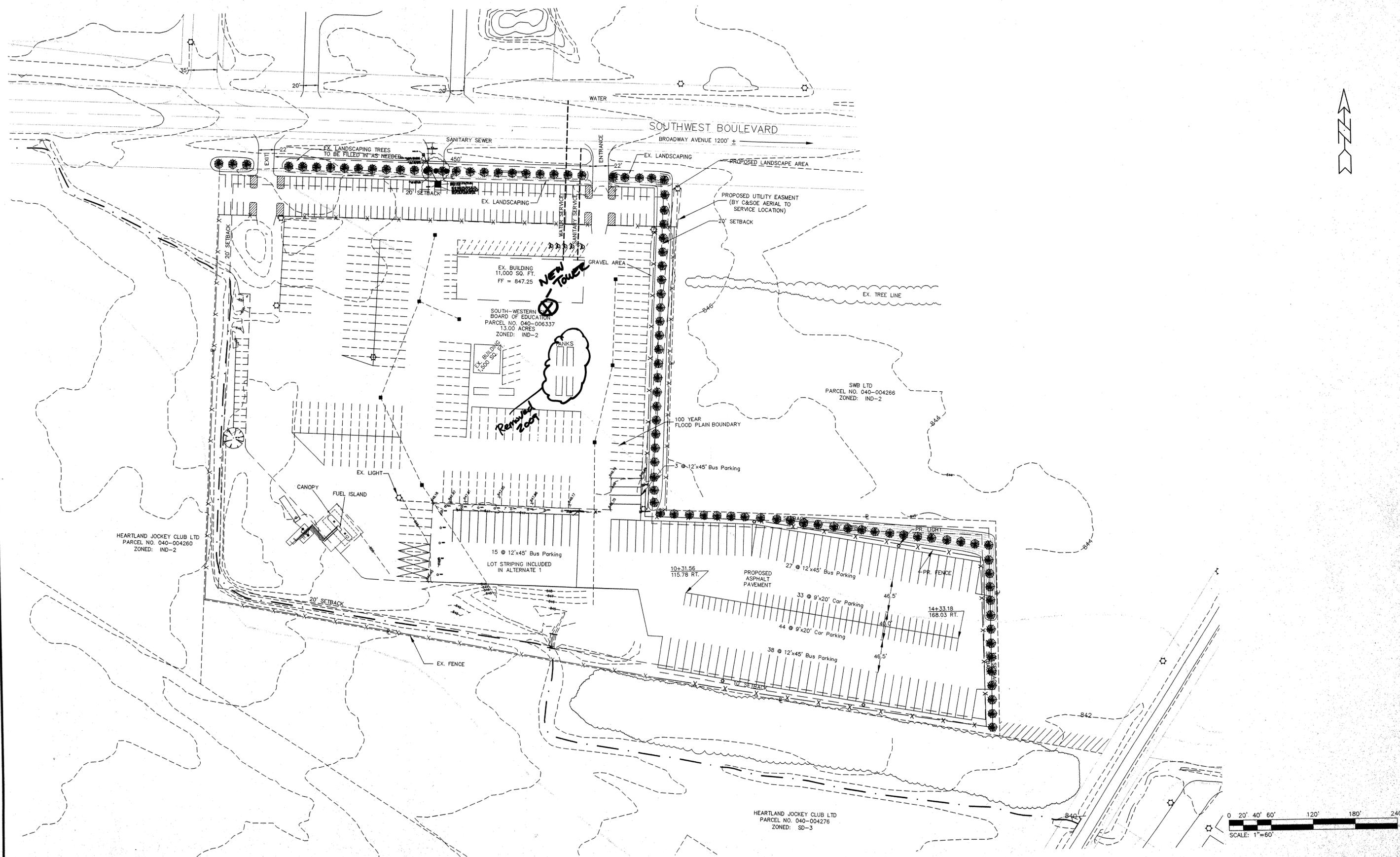
RECEIVED

MAY 20 2011

GC PLANNING COMMISSION



RECEIVED  
2011  
GC TRAINING COMMISSION



**Dodson Stilson**  
**Dodson-Stilson, Inc.**  
 ENGINEERS ARCHITECTS SCIENTISTS

**DLZ**  
 COMPANY

**SOUTH-WESTERN CITY SCHOOLS  
 BUS PARKING LOT ASPHALT PAVEMENT PROJECT**

**PROPOSED STRIPING PLAN**

NO.	REVISION	BY	DATE

DRAWN MJE  
 CHK'D. DCH  
 APPR'D DWS  
 DATE APRIL 2001  
 PROJECT NUMBER  
**0121-6506-00**

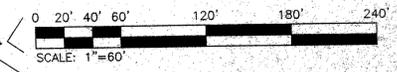


Exhibit #5

SHEET 4  
 OF 5  
 DRAWING NUMBER  
**C-3**

[DWG] \A\PROJECT\03\1-21-01\01-4.DWG - APR 02, 2001 - 13:27:56 - PLOT: 1-1