



Memorandum Department of Planning & Public Works

To: Planning and Public Works Committee
From: Annissa McCaskill-Clay, Lead Senior Planner
Date: September 21, 2009
RE: T.S.P. 16-2009-B Verizon Wireless (132 Woodcliffe Place Dr.) - EXEMPTION FROM PUBLIC HEARING REQUEST: A request to obtain approval for a Telecommunication Siting Permit for the purpose of; replacing an emergency generator and enlargement of the concrete pad for said generator at an existing tower on a R3 (PEU)-zoned 0.41 acre tract of land located a 132 Woodcliffe Place Drive in Woodcliffe Subdivision. (18T410128)

Summary

At the September 24, 2009 Planning and Public Works Committee meeting, Verizon Wireless presented its request for exemption from a public hearing to obtain a Telecommunications Siting Permit for an existing lattice work tower located at 132 Woodcliffe Place. Applicants may seek relief from the requirements Ordinance 2391 with a written statement to the City Council. Verizon initially requested to: 1. Remove four (4) existing antennas and replace three (3) of them with new antennas of similar dimension; 2. Replace the existing emergency generator; and 3. Enlarge the concrete pad for said generator within the existing equipment yard. The Committee divided the request into two (2) parts:

1. Replacement of the antennas.
2. Replacement of the emergency generator and expansion of the concrete pad.

By a vote of 4-0, the Committee voted to forward request #1 to the October 5, 2009 session of City Council for vote. The Petitioners were asked to provide additional information relative size, noise, screening and expansion of the concrete pad relative to Request #2.

Attached please find a letter from the Petitioner explaining noise levels and dimensions for the proposed generator. Additionally, the Petitioners have provided revised plans showing proposed screening for the site and withdrawing the previous note for expansion of the concrete pad. Cut sheets for the existing and proposed generators, as well as the sound enclosure, have also been provided for the Committee's review.

Respectfully submitted,

Annissa McCaskill-Clay

Annissa McCaskill-Clay, AICP
Lead Senior Planner

CC: Michael G. Herring, City Administrator
Rob Heggie, City Attorney
Michael O. Geisel, Director of Planning & Public Works
Aimee Nassif, Director of Planning & Development Services



Annissa McCaskill-Clay, AICP
Lead Senior Planner
City of Chesterfield
690 Chesterfield Parkway West
Chesterfield, Missouri 63017

Oct. 5, 2009

To Whom It May Concern:

We have confirmed that, while the new generator is more powerful, it is actually quieter at the same measured distance (7 Meters/23 feet). The existing generator has a 70 Db noise rating at this distance, while the new proposed generator has a decibel reading of 65 Db. This data is set out in each respective cut sheet.

Please also note the new Kohler generator for which you supplied a cut sheet appears to be about six inches wider, ten inches longer, and an inch shorter than the present generator. I'm not sure whether that affects the ability to use the existing footing. However, because we are proposing new screening around the compound, I would think any difference in size should be moot since it will not be visible to adjoining property owners.

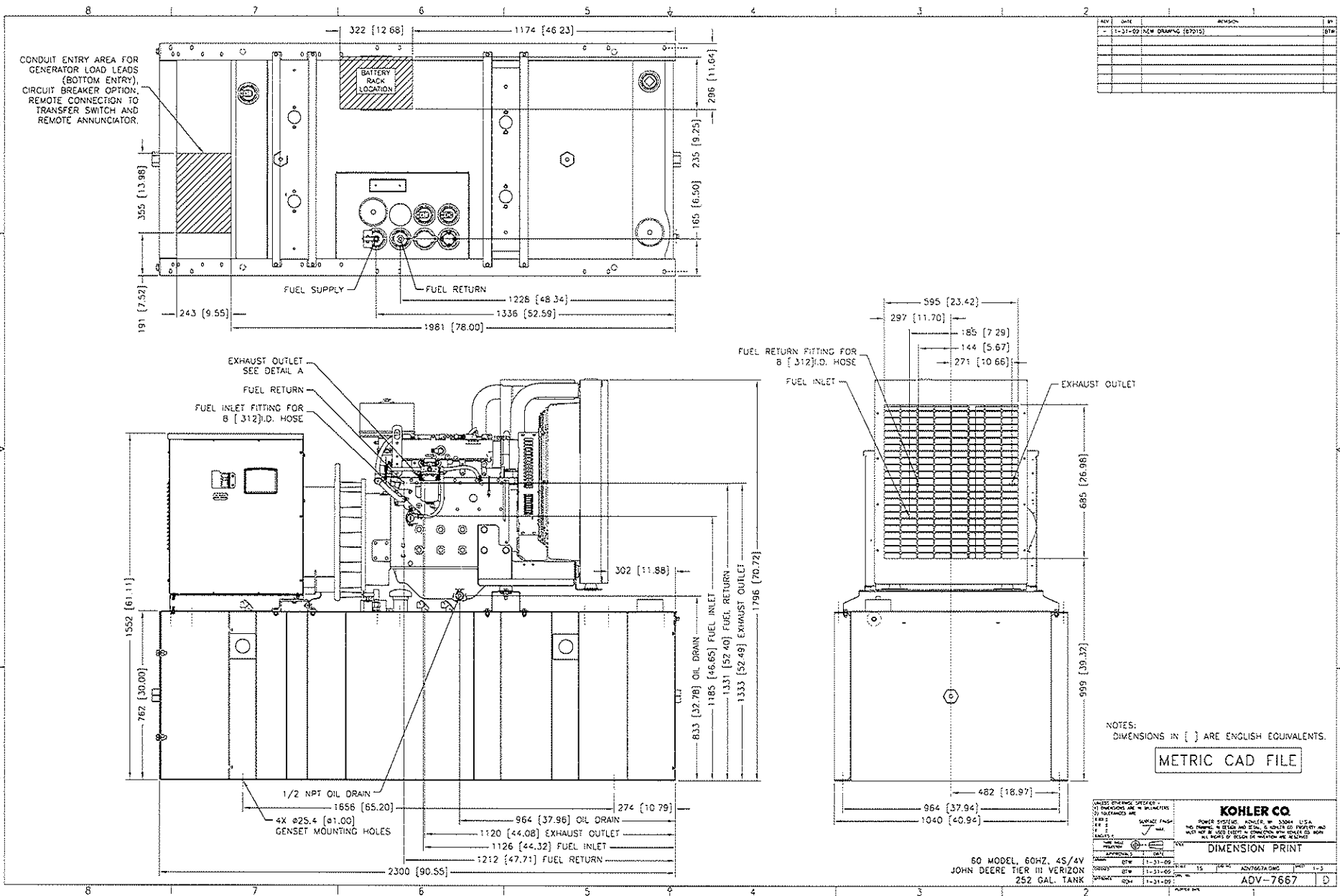
If you have any questions I can be reached at (314) 993-1010.

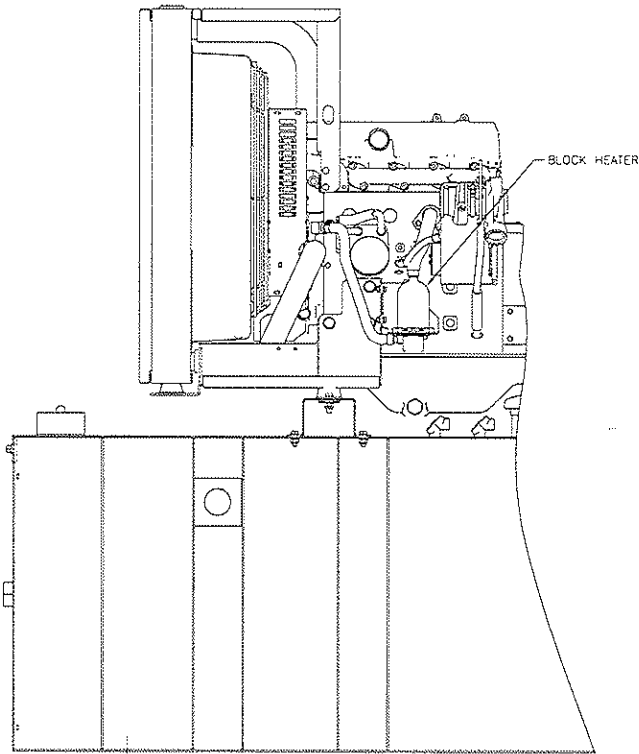
Thank you,

Trena Prewitt

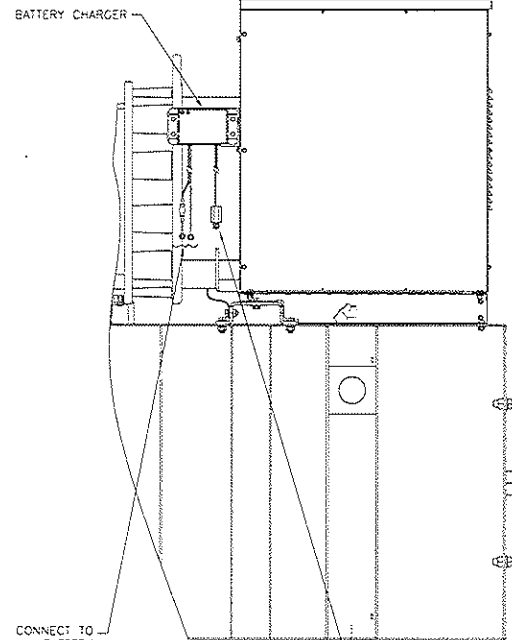
PROPOSED GENERATOR

05/05/2009 Controlled Document





BLOCK HEATER
120 AND 240 VOLT



CONNECT TO BATTERY

BATTERY CHARGER

90-135V AC
POWER CORD
LENGTH 1829 [72.0]

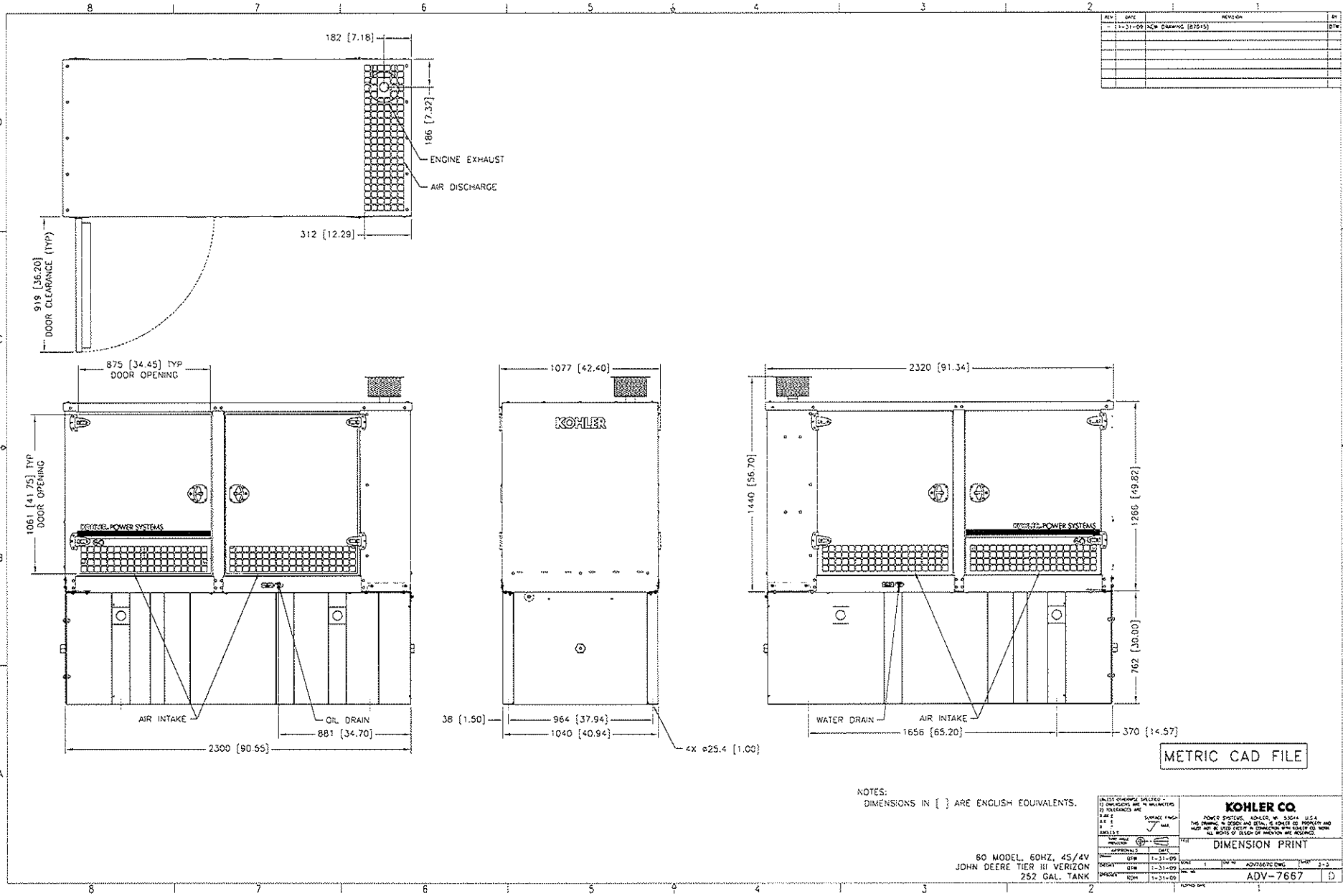
REV	DATE	REVISION	BY
1	11-21-09	NEW DRAWING (87012)	601W

NOTES:
DIMENSIONS IN [] ARE ENGLISH EQUIVALENTS.

METRIC CAD FILE

NEED CHANGES SPECIFIED: (1) DIMENSIONS AND MATERIALS (2) DIMENSIONS ARE (3) DIMENSIONS ARE (4) DIMENSIONS ARE (5) DIMENSIONS ARE (6) DIMENSIONS ARE (7) DIMENSIONS ARE (8) DIMENSIONS ARE (9) DIMENSIONS ARE (10) DIMENSIONS ARE		KOHLER CO POWER SYSTEMS, KOHLER, WI, U.S.A. THIS DRAWING IS DESIGN AND DRAWING IS SOLELY THE PROPERTY AND SHALL NOT BE LOANED, REPRODUCED, COPIED, OR REPRODUCED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF KOHLER CO. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.	
DIMENSION PRINT			
DATE	DWG	SCALE	NO. OF SHEETS
11-21-09	601W	1:1	2-3
DRAWN BY		DATE	NO. OF SHEETS
601W		11-21-09	2-3
CHECKED BY		DATE	NO. OF SHEETS
601W		11-21-09	2-3
APPROVED BY		DATE	NO. OF SHEETS
601W		11-21-09	2-3
DRAWN BY		DATE	NO. OF SHEETS
601W		11-21-09	2-3

106 | 41.75 | TYP



REV	DATE	REVISION	BY
1	11-31-09	ADW/DUM/VCS (27015)	DTW

METRIC CAD FILE

NOTES:
DIMENSIONS IN [] ARE ENGLISH EQUIVALENTS.

ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS DIMENSIONS ARE TO UNLESS OTHERWISE SPECIFIED		KOHLER CO. POWER SYSTEMS, ADVISER, W. WAUKESHA, WISCONSIN, U.S.A. THE INFORMATION ON THIS DRAWING IS THE PROPERTY OF KOHLER CO. AND MUST NOT BE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN PERMISSION OF KOHLER CO.	
DIMENSION PRINT		ADVISER	
DATE	11-31-09	BY	ADW/DUM/VCS
DRAWN	11-31-09	CHKD	DTW
PROJECT	ADV-7667	SCALE	1:1

80 MODEL, 60HZ, 45/4V
JOHN DEERE TIER III VERIZON
252 GAL. TANK

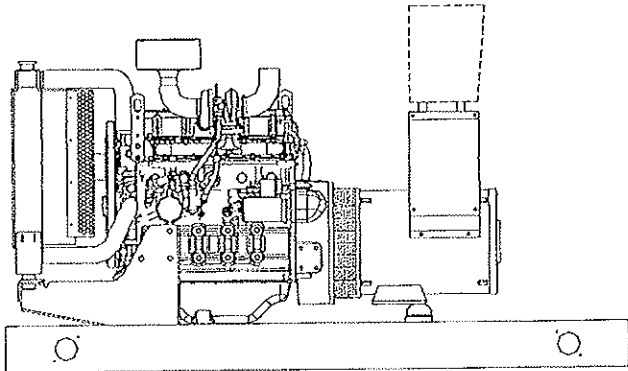
EXISTING GENERATOR



DETROIT DIESEL



35 ekW 60 Hz Standby
30 ekW 60 Hz Prime
208 - 600V



- EPA Tier 2 Certified
- Generator Set Tested to ISO 8528-5 for Transient Response
- UL2200, CSA Listing Offered
- Accepts Rated Load in One Step Per NFPA 110, Level 1
- All gen-sets are prototype and factory tested
- MTU DD is a single source supplier
- Global Product Support
- 2 Year Standard Warranty
- Complete Range of Accessories
- Custom Design for any Application

5030TF270 Diesel Engine

- 3.0 Liter Displacement
- Electronic Unit Pump Injection
- 4-Cycle

Permanent Magnet Generator (PMG) - optional

- Brushless, Rotating Field
- 300% Short Circuit Capability
- 2/3 Pitch Windings

Digital Control Panel

- UL 508 Listed, CSA Certified, NFPA 110
- Complete System Metering
- LCD Display

Cooling System

- Integral Set-mounted
- Engine Driven Fan

GEN-SET RATINGS

Standby - 130° Rise

Voltage (L-L)	Phase	PF	Hz	kW	kVA	AMPS	skVA @ 30% voltage dip	Generator Model*	Connection
240v	1	1.0	60	35	35	146	66	285PSL1700	12 LEAD ZIG-ZAG
240v	1	1.0	60	35	35	146	102	284PSL1750	4 LEAD
208v	3	0.8	60	35	43.75	121	93	284PSL1708	12 LEAD LOW WYE
240v	3	0.8	60	35	43.75	105	93	284PSL1708	12 LEAD HI DELTA
480v	3	0.8	60	35	43.75	53	123	284PSL1708	12 LEAD HI WYE
600v	3	0.8	60	35	43.75	42	123	284PSL1752	4 LEAD WYE

Prime - 105° Rise

Voltage (L-L)	Phase	PF	Hz	kW	kVA	AMPS	skVA @ 30% voltage dip	Generator Model*	Connection
240v	1	1.0	60	30	30	125	66	285PSL1700	12 LEAD ZIG-ZAG
240v	1	1.0	60	30	30	125	102	284PSL1750	4 LEAD
208v	3	0.8	60	30	37.5	104	93	284PSL1708	12 LEAD LOW WYE
240v	3	0.8	60	30	37.5	90	93	284PSL1708	12 LEAD HI DELTA
480v	3	0.8	60	30	37.5	45	123	284PSL1708	12 LEAD HI WYE
600v	3	0.8	60	30	37.5	36	123	284PSL1752	4 LEAD WYE

The Generator Model Number Identified in the table is for standard C Series Configuration. Consult the factory for alternate configuration



STANDARD EQUIPMENT

ENGINE

- Air Cleaners
- Oil Pump
- Full Flow Oil Filter
- Jacket Water Pump
- Thermostat
- Exhaust Manifold – dry
- Blower Fan & Fan Drive
- Radiator - Unit Mounted
- Electric Starting Motor - 12V
- Governor – Electric Isochronous
- Base - Formed Steel
- SAE Flywheel & Bell Housing
- Charging Alternator - 12V
- Battery Box & Cables
- Flexible Fuel Connectors
- Flexible Exhaust Connection
- EPA Certified Engine

DIGITAL CONTROL PANEL

- Digital Metering
- Engine Parameters
- Generator Protection Functions
- Engine Protection
- SAE J1939 Engine ECU Communications
- Windows-based Software
- Multilingual Capability
- Remote Communications to our RDP-110 Remote Annunciator
- 16 Programmable Contact Inputs
- 7 contact outputs
- UL Recognized, CSA certified, CE approved
- Event Recording
- IP 54 Front Panel Rating with Integrated Gasket
- NFPA110 Level Compatible

GENERATOR

- NEMA MG1, IEEE and ANSI standards compliance for temperature rise and motor starting
- Sustained short circuit current of up to 300% of the rated current for up to 10 seconds
- Self Ventilated and Drip-proof
- Superior Voltage Waveform
- Digital, Solid State, Volts-per-hertz Regulator
- No Load to Full Load Regulation
- Brushless Alternator with Brushless Pilot Exciter
- 4 pole, Rotating Field
- 130°C Standby Temperature Rise
- 1 Bearing, Sealed
- Flexible Coupling
- Full Amortisseur Windings
- 125% Rotor Balancing
- 3-phase Voltage Sensing
- ± 1% Voltage Regulation
- 100% of Rated Load - One Step
- 3% Maximum Harmonic Content



APPLICATION DATA

Engine

Manufacturer:	John Deere	Rated RPM:.....	1800
Model:	5030TF270	Engine Governor:.....	Electric Isochronous
Type:.....	4-Cycle	Max Power: Standby: bhp (kWm) ..	80 (60)
Arrangement:.....	5-Inline	Prime: bhp (kWm) ..	72 (54)
Displacement: in. ³ (lit)	186 (3.05)	Speed Regulation:	± .25%
Bore: in. (cm)	3.4 (8.6)	Frequency:	60 Hz
Stroke: in. (cm)	4.1 (10.5)	Air Cleaner:.....	Dry
Compression Ratio:.....	20.5:1		

Liquid Capacity (Lubrication)

Total oil system: (gal/lit)	2.96 (11.2)
Engine Jacket water capacity: (gal/lit).....	0.78 (2.9)
System Coolant capacity: (gal/lit)	3.14 (11.9)

Electrical

Electric volts DC:	12
Cold cranking Amps under 0°F (-17.8°C):.....	750

Fuel System

Fuel Supply Connection Size:.....	3/8" NPT
Fuel Return Connection Size:	3/8" NPT
Maximum Fuel Lift: ft (m)	10 (3)
Recommended Fuel:	Diesel #2
Total Fuel Flow: gal/hr (lit/hr)	26.4 (100)

Fuel Consumption

	Standby	Prime
100% Power Rating: gal/hr (lit/hr).....	3.7 (14.0)	3.5 (13.3)
75% Power Rating: gal/hr (lit/hr).....	2.8 (10.6)	2.6 (9.8)
50% Power Rating: gal/hr (lit/hr).....	1.8 (6.8)	1.8 (6.8)

Cooling - Radiator System

	Standby	Prime
Ambient Capacity of Radiator: °F (°C).....	122 (50)	122 (50)
Maximum Allowable Static Pressure on Radiator Exhaust: in. H ₂ O (kPa)	0.5 (0.12)	0.5 (0.12)
Water Pump Capacity: gal/min (lit/min)	27 (102)	27 (102)
Heat Rejection to Coolant: BTUM (kW).....	2,090 (37)	2,037 (35.8)
Heat Radiated to Ambient: BTUM (kW)	420 (7.4)	323 (5.7)

Air Requirements

	Standby	Prime
Aspirating: CFM (m ³ min)	149 (4.2)	140 (4.0)
Air Flow Required for Radiator Cooled Unit: CFM (m ³ min)	4,208 (119.2)	4,208 (119.2)
Air Flow Required for Heat Exchanger/ Remote Radiator based on 25°F Rise: CFM (m ³ min)	933 (26.4)	718 (20.3)

Exhaust System

	Standby	Prime
Gas Temp.(Stack): °F (°C).....	957 (514)	953 (512)
Gas Volume at Stack Temp: CFM (m ³ min).....	402 (11.4)	396 (11.2)
Maximum Allowable Back Pressure: in. H ₂ O (kPa)	30 (7.5)	30 (7.5)



35 kW Diesel Gen-Set

EMISSIONS DATA

NO _x + NMHC	CO	PM
5.23	1.4	0.104

All units are in g/hp-hr

Emission levels of the engine may vary as a function of ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data provided are laboratory results from one engine representing this rating. The data was obtained under controlled environmental conditions with calibrated instrumentation traceable to the United States National Bureau of Standards and in compliance with US EPA regulations found within 40 CFR Part 89. The weighted cycle value from each engine is guaranteed to be below the US EPA Standards at the US EPA defined conditions.

SOUND DATA

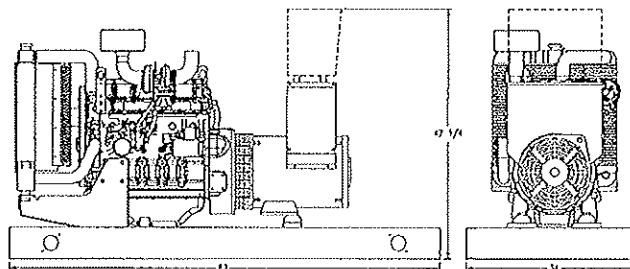
	Standby Full Load	Standby No Load	Prime Full Load	Prime No Load
23 ft (7m) OPU w/ critical grade muffler: (dBA)	77	72	76	72
23 ft (7m) Sound Attenuated Enclosure: (dBA)	70	67	69	67

RATING DEFINITIONS and CONDITIONS

- Ambient capability factor at 300m (984 ft). Consult your local MTU DD Power Generation Distributor for other altitudes.
- Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. No overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271.
- Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory.
- Deration Factors:
 Altitude: Derate 4% per 1,000 ft (305m) above 10,000 ft (3,050m).
 Temperature: Derate 0.5% per 10°F (5.5°C) above 77°F (25°C).

Weights & Dimensions

Length: in. (cm)	82 (208)
Width: in. (cm)	34 (86.4)
Height: in. (cm)	47.25 (120)
Weight (dry): lb. (kg)	1,253 (568)



Drawing above for illustration purposes only, based on standard open power 480 volt generator. Lengths may vary with other voltages.
*Do Not Use for Installation Design

DISTRIBUTED BY:

Materials and specifications subject to change without notice.
© MTU DD Power Generation. A Tognum Group Company.
100 Power Drive, Mankato, MN 56001
Phone: 800-325-5450
www.mtuddpowergeneration.com

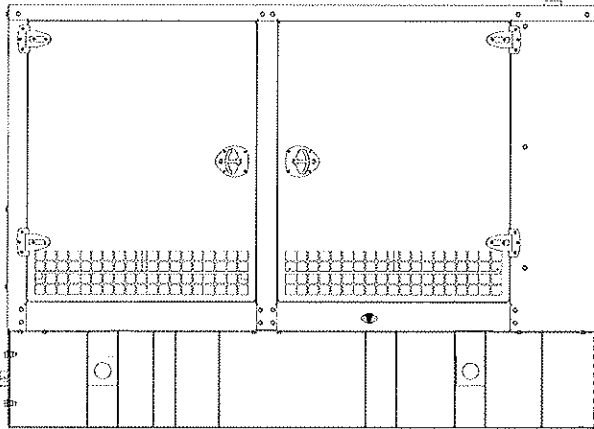
SOUND ENCLOSURE

Industrial Generator Set Accessories

KOHLER POWER SYSTEMS

Sound Enclosure and
Subbase Fuel Tank Package

ISO 9001
KOHLER
POWER SYSTEMS
NATIONALLY REGISTERED



Sound Enclosure with
Short Fuel Tank shown

Applicable to the following:
30/60REOZJC-VER

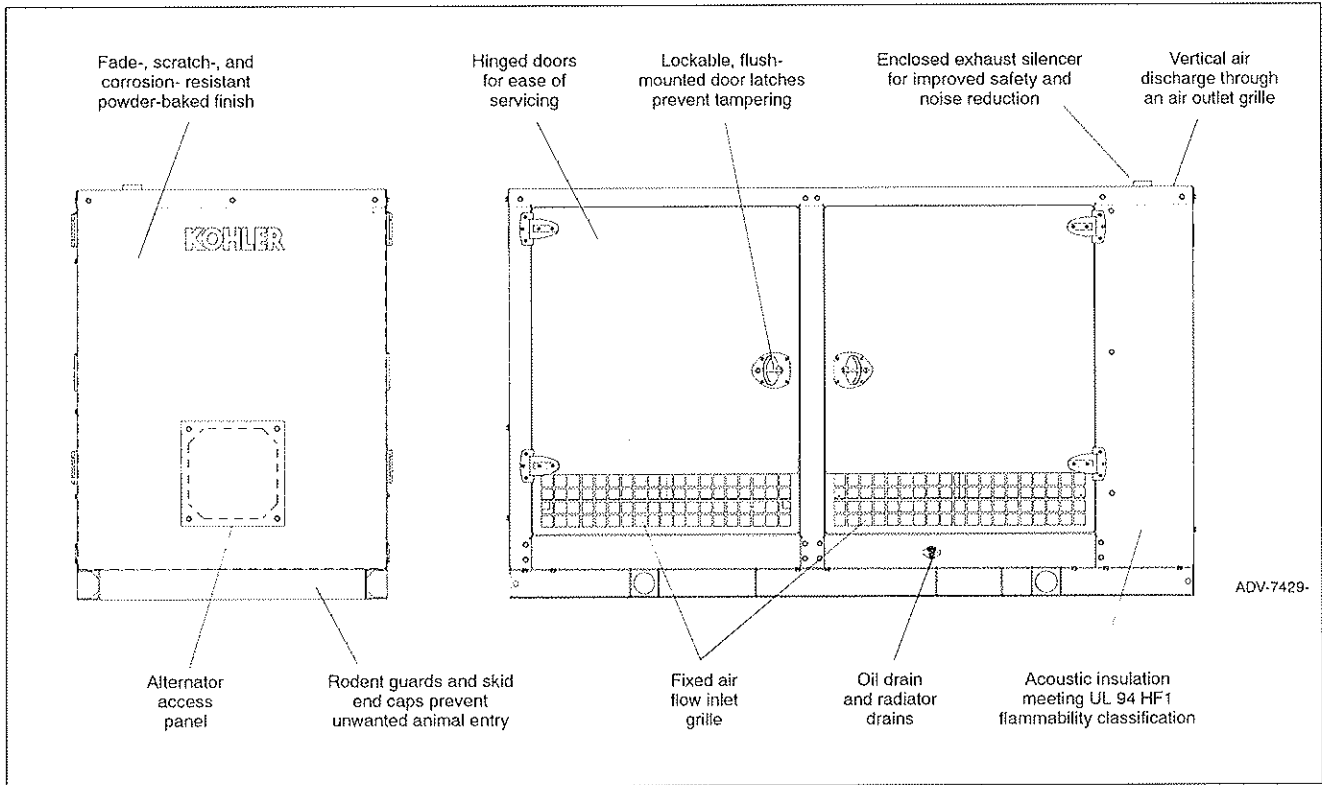
Sound Enclosure Standard Features

- Internal-mounted critical silencer and flexible exhaust connector.
- Lift base or tank-mounted, steel construction with hinged doors.
- Fade-, scratch-, and corrosion-resistant Kohler® cream beige powder-baked finish.
- Lockable, flush-mounted door latches.
- Vertical air inlet and outlet hoods with 90 degree angles to redirect air and reduce noise.
- Lift base or tank-mounted, steel construction with hinged doors.
- Acoustic insulation that meets UL 94 HF1 flammability classification and repels moisture absorption.
- Sound attenuated enclosure that offers an average of 65 dB(A) sound level at 7 m (23 ft.) using up to 25 mm (1 in.) of acoustic insulation, acoustic-lined air inlet hoods, and acoustic-lined air discharge hood.

Subbase Fuel Tank Features

- The above-ground rectangular secondary containment tank mounts directly to the generator set, below the generator set skid (subbase).
- Both the inner and outer tanks have emergency relief vents.
- Flexible fuel lines are provided with subbase fuel tank selection.
- The secondary containment generator set base tank meets UL 142 tank requirements. The inner (primary) tank is sealed inside the outer (secondary) tank. The outer tank contains the fuel if the inner tank leaks or ruptures.

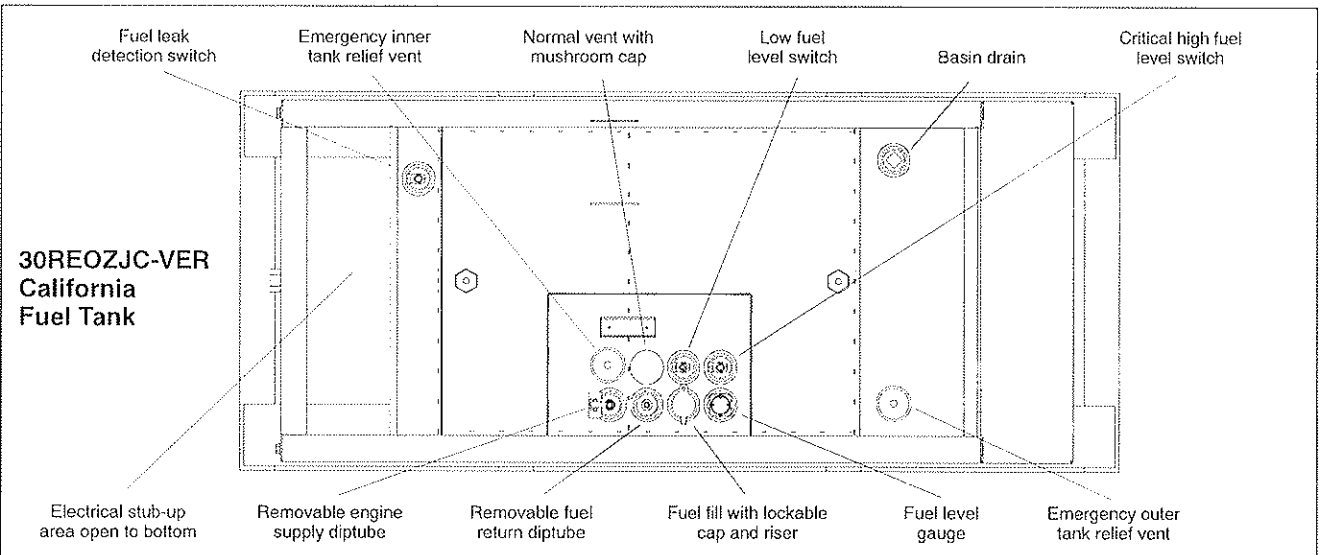
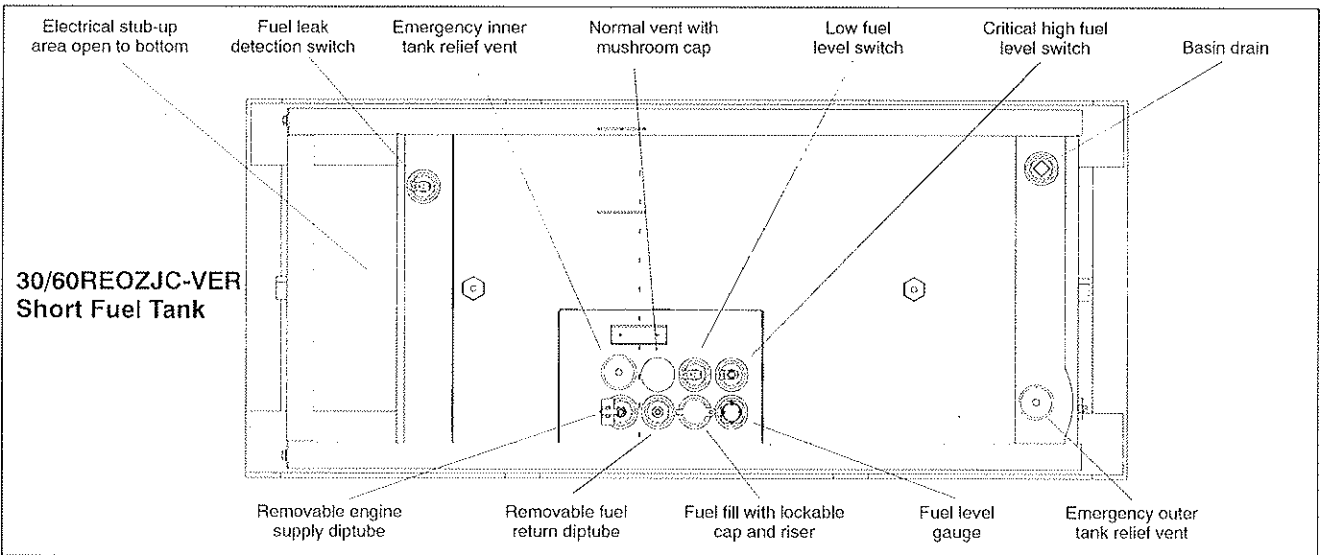
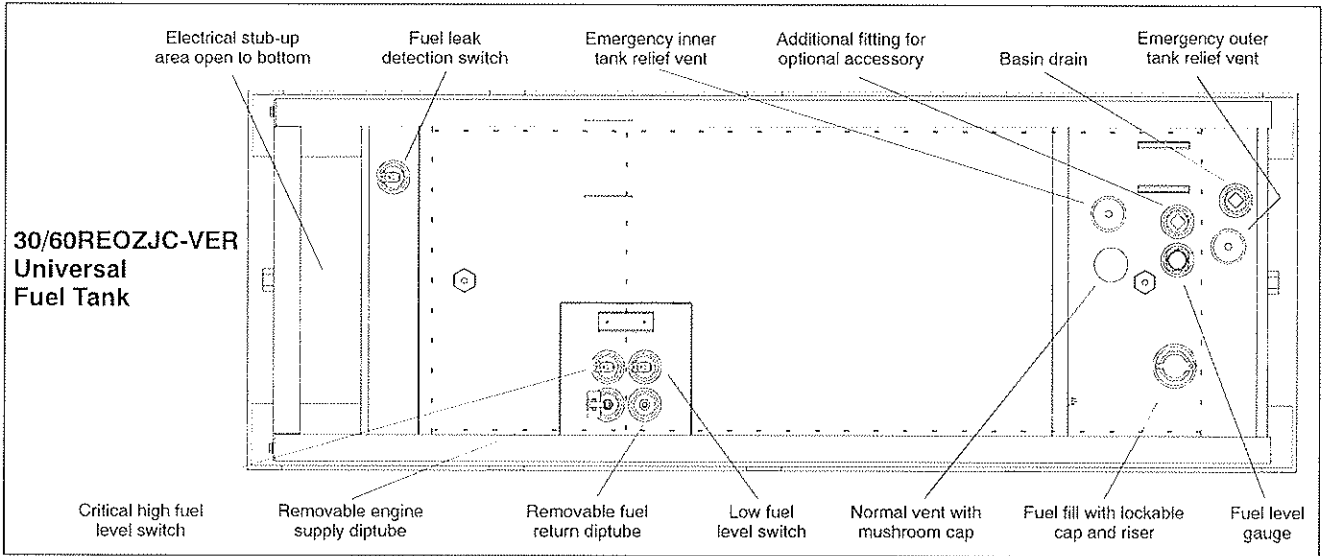
Sound Enclosure



Enclosure Features

- Available in steel (14 gauge) formed panel, solid construction. Preassembled package offering corrosion resistant, dent resilient structure mounting directly to lift base or fuel tank.
- Powder-baked paint. Superior finish, durability, and appearance.
- Internal critical exhaust silencer offering maximum component life and operator safety.
- Interchangeable modular panel construction. Allows complete serviceability or replacement without compromising enclosure design.
- Cooling/combustion air intake with a horizontal air inlet.
- Service access. Multi-personnel doors for easy access to generator set control and servicing of the fuel fill, fuel gauge, oil fill, and battery.
- Cooling/combustion air intake. Sized for maximum cooling airflow.
- Cooling air discharge. Weather protective design featuring vertical air discharge. Exhausts air through a punched air outlet grille.
- Cooling air discharge with a vertical air outlet grille. Redirects cooling air up and above enclosures to reduce noise ambient.
- Acoustic insulation UL 94 HF1 listed for flame resistance offering up to 25 mm (1 in.) mechanically restrained acoustic insulation.
- Cooling air discharge. The sound enclosures include acoustic insulation with urethane film.

Subbase Fuel Tank



Subbase Fuel Tank Features

- Extended operation. Usable tank capacity offers full load standby operation of up to 48 hours.
- UL listed. Secondary containment generator set base tank meeting UL 142 requirements.
- NFPA compliant. Designed to comply with the installation standards of NFPA 30 and NFPA 37.
- Integral external lift lugs. Enables crane with spreader-bar lifting of the complete package (empty tank, mounted generator set, and enclosure) to ensure safety.
- Emergency pressure relief vents. Vents ensure adequate venting of the inner and outer tank under extreme pressure and/or emergency conditions.
- Normal vent with cap. Vent is raised above lockable fuel fill.
- Low fuel level switch. Annunciates a 50% low fuel level condition at generator set control.
- Leak detection switch. Annunciates a contained primary tank fuel leak condition at generator set control.
- High fuel level switch.
- Electrical stub-up area.

Enclosure and Subbase Fuel Tank Specifications

Model	Fuel Tank Capacity, L (gal.)	Est. Fuel Supply Hours at 60 Hz w/Full Load	Enclosure and Subbase Fuel Tank				Fuel Tank Height, mm (in.)	Sound Enclosure, Sound Pressure at 7 m (23 ft.), dB(A)
			Max. Dimensions, mm (in.)			Weight, kg (lb.)		
			Length	Width	Height	With Steel Enclosure		

Universal Fuel Tank

30 kW	681 (150)	48	2896 (114.0)	1077 (42.4)	1666 (65.6)	1457 (3213) *	381 (15)	65
60 kW	965 (255)	48	2896 (114.0)	1077 (42.4)	1869 (73.6)	1736 (3826) *	584 (23)	65

Short Fuel Tank

30 kW	681 (150)	48	2300 (90.6)	1077 (42.4)	1768 (69.6)	1421 (3133) *	483 (19)	65
60 kW	965 (255)	48	2320 (91.3)	1077 (42.4)	2047 (80.6)	1687 (3719) *	762 (30)	65

California Fuel Tank

30 kW	681 (150)	48	2032 (80.0)	1077 (42.4)	1920 (75.6)	1457 (3213) *	635 (25)	65
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Note: Refer to the respective ADV drawings for details.

* Weight includes the generator set (wet), enclosure, silencer, and tank (no fuel).

The generator set weight represents using the largest alternator option.

The enclosure weight is with acoustic insulation added.

Availability is subject to change without notice. Kohler Co. reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.



**VERIZON WIRELESS
DEPARTMENTAL APPROVALS**

CONSTRUCTION MANAGER	INITIALS TM	DATE 05/19/09
DESIGN ENGINEER	GB	05/19/09
OPERATIONS MANAGER	SY	05/19/09
IMPLEMENTATION MANAGER		
REAL ESTATE MANAGER	MC	05/27/09

LESSOR/LICENSOR APPROVAL	
	DATE
SEAN FLANAGAN	06/02/09

PROJECT INFORMATION

CELL SITE NAME: STLC CHESTERFIELD LTE & GENERATOR REPLACEMENT

PROPERTY OWNER: CROWN CASTLE
1001 CRAIG ROAD, SUITE 460
SAINT LOUIS, MISSOURI 63146
PHONE: 314-432-3158

TOWER INFORMATION:
LATITUDE: 38° 39' 29.4" N
LONGITUDE: 90° 35' 31.6" W
TOWER HT: 120'-0"
ANTENNA CENTERLINE: 124'-0"

CROWN CASTLE NAME: CHESTERFIELD
CROWN CASTLE #: 816929

VERIZON WIRELESS CONTACT:
MARION CRABLE (913) 344-2800

PROJECT TEAM

SELECTIVE SITE CONSULTANTS, INC.
1816 LACKLAND HILL PARKWAY, SUITE 400
ST. LOUIS, MISSOURI 63146
PHONE: 314-993-1010
FAX: 314-993-1036

M.L. OWENS LEAD CIVIL/STRUCTURAL
T.M. SUPER LEAD ELECTRICAL
S.A. ASH LEAD DESIGNER

DRAWING INDEX

DWG NUMBER	TITLE	REVISION	RESPONSIBLE ENGINEER
STL-0911 - T01	TITLE SHEET	2	MLO/TMS
	SURVEY		
STL-0911 - A01	SITE PLAN	1	MLO
STL-0911 - A02	TOWER ELEVATION	1	MLO
STL-0911 - A03	CROSS SECTION	0	MLO
STL-0911 - A04	DETAILS	1	MLO
STL-0911 - E01	ELECTRICAL PLAN AND DETAILS	1	TMS
STL-0911 - SP1	SPECIFICATIONS (1 OF 2)	0	MLO
STL-0911 - SP2	SPECIFICATIONS (2 OF 2)	0	MLO

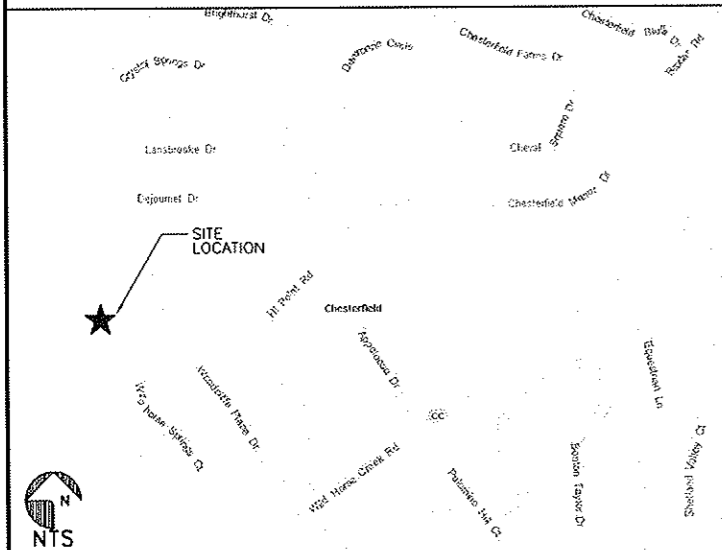
GENERAL NOTES

- THE CONTRACTOR SHALL SUPERVISE AND DIRECT ALL WORK USING HIS BEST SKILL AND ATTENTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, PROCEDURES AND SEQUENCES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- THE CONTRACTOR SHALL VISIT THE JOB SITE TO REVIEW THE SCOPE OF WORK AND EXISTING CONDITIONS INCLUDING, BUT NOT LIMITED TO ELECTRICAL SERVICE AND OVERALL COORDINATION.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO SUBMITTING HIS BID. ANY DISCREPANCIES, CONFLICTS OR OMISSIONS, ETC. SHALL BE REPORTED TO VERIZON WIRELESS BEFORE PROCEEDING WITH THE WORK.
- THE CONTRACTOR SHALL PROTECT ALL AREAS FROM DAMAGE WHICH MAY OCCUR DURING CONSTRUCTION. ANY DAMAGE TO NEW AND EXISTING CONSTRUCTION, STRUCTURE, OR EQUIPMENT SHALL BE IMMEDIATELY REPAIRED OR REPLACED TO THE SATISFACTION OF VERIZON WIRELESS, AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL SAFEGUARD THE OWNER'S PROPERTY DURING CONSTRUCTION AND SHALL REPLACE ANY DAMAGED PROPERTY OF THE OWNER TO ORIGINAL CONDITION.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSES FOR REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED IN CONJUNCTION WITH THE EXECUTION OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE SECURITY OF THE SITE WHILE THE JOB IS IN PROGRESS AND UNTIL THE JOB IS COMPLETE.
- ALL CONSTRUCTION WORK SHALL CONFORM TO THE U.B.C. OR B.O.C.A. AND ALL APPLICABLE LOCAL REGULATIONS, ORDINANCES, STATUTES & CODES.
- VERIZON WIRELESS SHALL OBTAIN THE CONSTRUCTION PERMIT. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL PERMITS, LICENSES AND INSPECTIONS NECESSARY FOR PERFORMANCE OF THE WORK AND INCLUDE THOSE IN THE COST OF THE WORK TO THE OWNER.
- CITY APPROVED PLANS SHALL BE KEPT IN A PLAN BOX AND SHALL NOT BE USED BY WORKMEN. ALL CONSTRUCTION SETS SHALL REFLECT SAME INFORMATION. THE CONTRACTOR SHALL ALSO MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES. THESE ARE TO BE UNDER THE CARE OF JOB SUPERINTENDENT.
- PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A RATING OF NOT LESS THAN 2-A OR 2-A-10-B:C WITHIN 75 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF THE BUILD OUT AREA DURING CONSTRUCTION.
- ANY CONNECTION FEE FOR ELECTRICAL SERVICE SHALL BE PAID BY THE CONTRACTOR.

DIRECTIONS

FROM STLC MTSO 1 ON MLK: TAKE MARTIN LUTHER KING WEST TO N 20TH ST. TAKE N 20TH STREET SOUTH TO PINE ST. TAKE PINE STREET WEST TO I-64. TAKE I-64 WEST (19.4 MI) TO CHESTERFIELD AIRPORT RD. TAKE CHESTERFIELD AIRPORT RD NORTH (0.5 MI) TO WILD HORSE CREEK RD. TAKE WILD HORSE CREEK RD WEST (0.9 MI) TO WOODCLIFFE PLACE DR. TAKE WOODCLIFFE PLACE DR NORTH (0.4 MI) TO SITE. SITE IS LOCATED ON THE RIGHT.

AREA MAP



ABBREVIATIONS

AGL	ABOVE GRADE LINE	GND	GROUND
AMP	AMPERE	HT	HEIGHT
ARCH	ARCHITECT	LF	LINEAL FEET
BLDG	BUILDING	MIN	MINIMUM
CL	CENTER LINE	MISC	MISCELLANEOUS
CONC	CONCRETE	NTS	NOT TO SCALE
CONST	CONSTRUCTION	OC	ON CENTER
CONTR	CONTRACTOR	PL	PLATE
DET	DETAIL	REQ'D	REQUIRED
DIA	DIAMETER	SF	SQUARE FEET
DIAG	DIAGONAL	SHT	SHEET
DIM	DIMENSION	SIM	SIMILAR
DN	DOWN	SPECS	SPECIFICATIONS
DWG	DRAWING	SSC, INC.	SELECTIVE SITE CONSULTANTS, INC.
EA	EACH	STD	STANDARD
ELEC	ELECTRICAL	STL	STEEL
ELEV	ELEVATOR, ELEVATION	STRUCT	STRUCTURAL
EQ	EQUAL	TC	TOP OF CURB
EQUIP	EQUIPMENT	TOP	TOP OF PAVING
EXIST	EXISTING	TOS	TOP OF STEEL
FND	FOUNDATION	TOC	TOP OF CONCRETE
FTG	FOOTING	TYP	TYPICAL
GA	GAUGE	UNO	UNLESS NOTED OTHERWISE
GALV	GALVANIZED		

DESCRIPTION OF PROPOSED SITE USE

THE CONSTRUCTION OF THIS COMMUNICATION TOWER SITE IS FOR THE TRANSMISSION AND RECEPTION OF CALLS FOR A NEW WIRELESS TELEPHONE SYSTEM.

REV	DATE	REVISION DESCRIPTION	DSGN
A	02/16/09	ISSUED FOR REVIEW	SAA
B	03/17/09	REVISED PER NEW STANDARDS	MV
C	05/15/09	REVISED PER CLIENT COMMENTS	SAA
D	05/28/09	REVISED PER CLIENT COMMENTS	MV
0	06/03/09	ISSUED FOR CONSTRUCTION	DMG
1	09/11/09	ADDED CROSS SECTION SHEET	FG
2	10/01/09	REVISED GENERATOR, AND FENCE SCREEN	FG

STATE OF MISSOURI
CERTIFICATE OF AUTHORIZATION #001640

RESPONSIBLE ENGINEERS:
KMY KEVIN VANMAELE E-21561 STRUCTURAL/CIVIL
MLO MICHAEL L. OWENS E-29058 STRUCTURAL/CIVIL
SOK SHELTON KEISLING E-27323 ELECTRICAL
TMS TERRANCE M. SUPER E-18521 ELECTRICAL

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10749 NALL AVE., SUITE 400
OVERLAND PARK, KS 66211
PHONE: (913) 344-2800

1816 Lackland Hill Pkwy, Suite 400
St. Louis, Missouri 63146
Phone: 314-993-1010
Fax: 314-993-1036

PLANS PREPARED UNDER THE SUPERVISION OF:	
DESIGNED BY	SAA
CHECKED BY	MLO
SUPERVISOR	TKW
LEAD ENGR	MLO/TMS

STLC CHESTERFIELD	
TITLE SHEET	
215 RUETHER LANE CHESTERFIELD, MISSOURI 63005	
DRAWING NUMBER	STL-0911 - T01
REV	2

STLC CHESTERFIELD

LOTS 59 & 60, WILDHORSE SPRINGS PLAT TWO, IN ST. LOUIS COUNTY, MISSOURI

PROPERTY DESCRIPTION: Parent Parcel as Provided

Parcel 1:
Lot 59 of Wildhorse Springs Plat Two, a subdivision in St. Louis County, Missouri, according to the Plat Book 344, Page 66 of the St. Louis County Records.

Parcel 2:
Lot 60 of Wildhorse Springs Plat Two, a subdivision in St. Louis County, Missouri, according to the Plat thereof recording in Plat Book 344, Page 66 of the St. Louis County Records, together with access to Woodcliffe Place Drive.

NOTE: The parent parcel graphically shown hereon, in full or in part, is the same as that described above.

Property information shown hereon was provided by Commonwealth Land Title Insurance Company, File No. 11610095, effective April 2, 2009 at 8:00 a.m.

Schedule B information affecting Lease Area is noted unless shown hereon.

Schedule B information not shown hereon:

- (#4) Esmt. in Bk. 2844, Pg. 485. (Document not legible)
- (#5) Esmt. in Bk. 2791, Pg. 461. (Document not legible)
- (#6) Esmt. in Bk. 2810, Pg. 613. (Document not legible)
- (#7) Esmt. in Bk. 3161, Pg. 533 and amended in Bk. 3970, Pg. 122. (Does not affect Lease Area)
- (#8) Esmt. in Bk. 7534, Pg. 1370 and Bk. 7534, Pg. 1374. (Does not affect Lease Area)
- (#9) Esmt. in Bk. 3190, Pg. 124. (Does not affect Lease Area)
- (#10) Esmt. in Bk. 3947, Pg. 73. (Does not affect Lease Area)
- (#11) Esmt. in Bk. 6364, Pg. 2020. (Does not affect Lease Area)
- (#12) Maintenance Agreement in Bk. 10888, Pg. 2127. (Unable to plot agreement)
- (#26) Deed of Trust in Bk. 15147, Pg. 2011. (Describes Parent Parcel)
- (#27) Request for Notice of Foreclosure in Bk. 15629, Pg. 804. (Unable to plot request)
- (#28) Request for Notice of Foreclosure in Bk. 17783, Pg. 2877. (Unable to plot request)
- (#29) Deed of Trust in Bk. 17783, Pg. 2868. (Describes Parent Parcel)

Notes:
** An utility locate was performed on 05-05-09, Ticket No. 91182527. According to field observation there were no visible marking within locate limits.

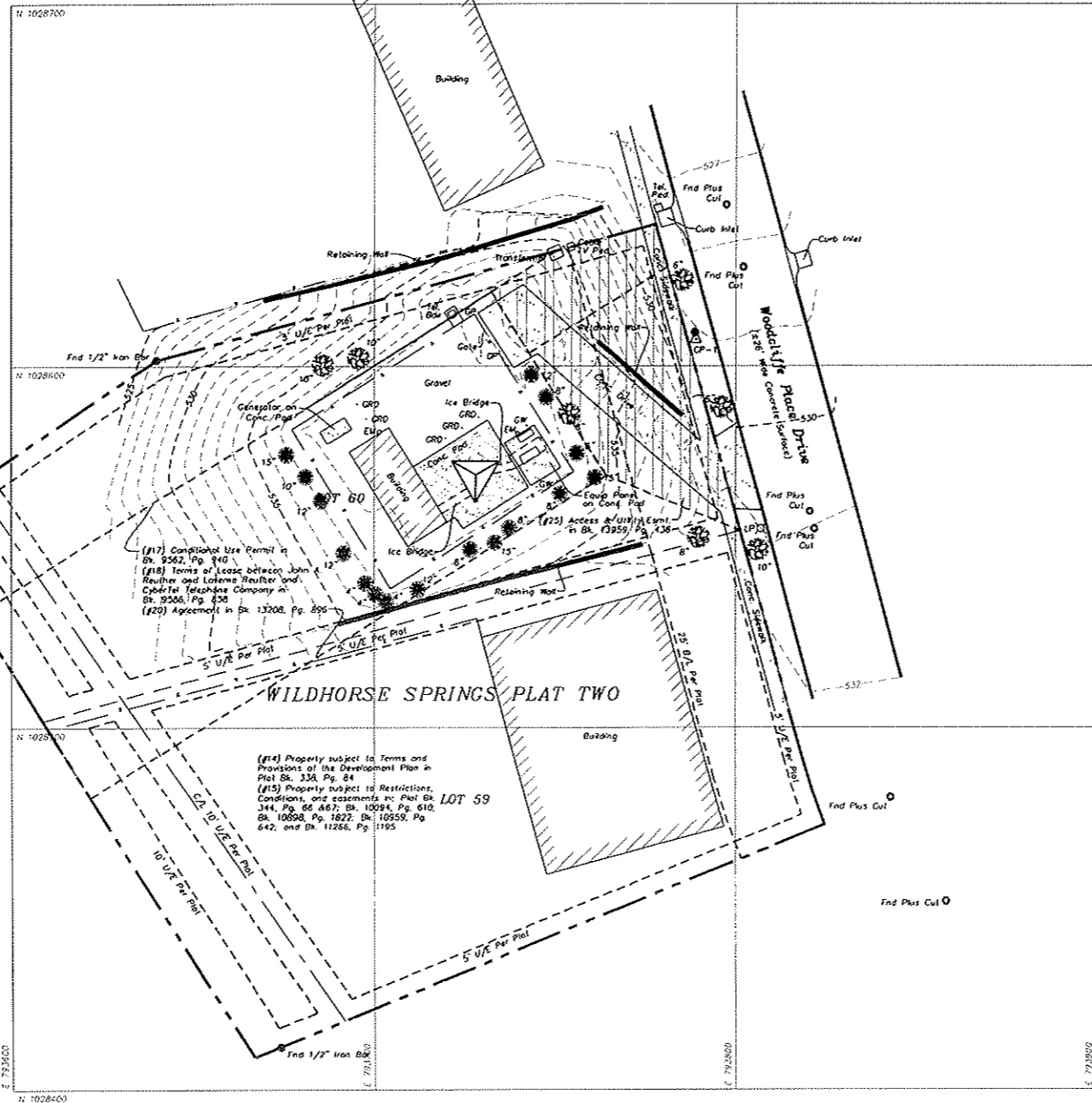
Bearings shown hereon are based on Missouri State Plane Coordinate System of 1983 (NAD 83).

Coordinates were derived using GPS Static Survey methods and post processed data with Magellan/Ashtech receivers and "Locus System" processor software.

Set 1/2" iron bar at loose corners unless otherwise noted.

The purpose of this survey is to establish and describe a Lease Parcel and associated easements. This is not a boundary survey of the Parent Parcel.

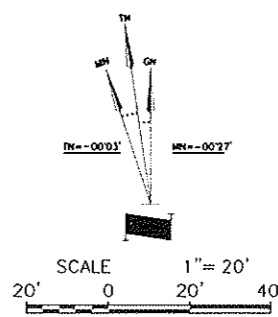
The utilities as shown on this drawing were developed from the information available (existing utility maps, aboveground observations and or surface markings placed on the ground by the utility company or a representative thereof). This company has made no attempt to excavate or go below surface to locate utilities and does not extend or imply a warranty or warranty as to the exact location of or complete inventory of utilities in this area. It shall be the contractor's responsibility to verify the location and depth of all utilities (whether shown or not) prior to excavation or construction and to protect said utilities from damage.



LEGEND

LIGHT POLES	LP
TELEPHONE PEDESTAL	Tel. Ped.
ANCHOR	Anchor
ELECTRIC METER	EM
BENCHMARK	Bench
CONTROL POINT	CP
GATE POST	GP
GUARD POST	GPO
GROUND WIRE	GW
PROPERTY CORNER	PC
TOWER POINT	TP
TREE (DIA.)	T
PAVE TREE (DIA.)	PT
FENCE	F

FLOOD NOTE:
According to my interpretations of Community Panel No. 29189C0140 H of the Flood Insurance Rate Map for St. Louis County, Missouri, dated 08-02-1995, the subject property is in Flood Zone "X", is "areas determined to be outside 500 year flood plain".



Note: Missouri State Plane Coordinates East Zone Conversion

1 Meter = 3.28083333 Feet
Project Grid Factor = 0.99991374

Project Coordinates:

CP-1 (Set 1/2" Iron Bar w/Red Control Cap)
N 1028607.464
E 793789.139
Elevation = 529.31ft

CP-2 (Set 1/2" Iron Bar w/Red Control Cap)
N 1028346.208
E 793966.515
Elevation = 534.50ft

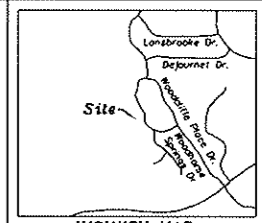
BENCH MARK
Top of 1/2" Iron Bar w/Red Cap at CP-1
Elevation = 529.31ft

CERTIFICATION:
I HEREBY CERTIFY THAT A SURVEY WAS MADE BY ME, OR UNDER MY DIRECT SUPERVISION, ON THE GROUND OF THE LEASE AREA, LEASE ACCESS EASEMENT, AND LEASE UTILITY EASEMENT PREMISES HEREIN DESCRIBED, AND THE RESULTS OF SAID SURVEY ARE REPRESENTED HEREON. THIS SURVEY WAS EXECUTED IN ACCORDANCE WITH THE CURRENT MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS OVER SAID LEASE PREMISES TO THE BEST OF MY PROFESSIONAL KNOWLEDGE AND BELIEF.

JEFFREY B. LOVELACE MO-LS2500

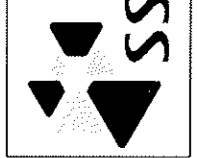
DATE: _____

05-28-09: ADDED PROPERTY AND TITLE



VICINITY MAP

1816 Lockland Hill Parkway, Suite 400
St. Louis, Missouri 63146
Phone: 314-993-1010
Fax: 314-993-1036



LOVELACE & ASSOCIATES
Land Surveying - Civil Engineering
Lead Planning
929 St. 3rd Street Lee's Summit, Missouri 64083
Phone: (816) 347-9997 Fax: (816) 347-9997

SURVEY PROVIDED FOR:
SELECTIVE SITE CONSULTANTS
1816 Lockland Hill Parkway
Suite 400
St. Louis, MO 63146
Tel: (314) 993-1010

SURVEY PROVIDED BY:
LOVELACE & ASSOC., LLC
P.O. Box 68
Lee's Summit, MO 64083
Tel: (816) 347-9997

SITE I.D.: STL-0911
SITE NAME & LOCATION
STLC Chesterfield
St. Louis County
Missouri

SITE SURVEY
L & A PROJECT NO. 09080
DRAWN BY: Z.E.H.
CHECKED BY: J.B.L.
DATE: 05-05-09
FIELDWORK DATE: 05-01-09

CALL BEFORE YOU DIG - ORILL - BLAST
1-800-344-7432
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

SHEET NUMBER
1 OF 1

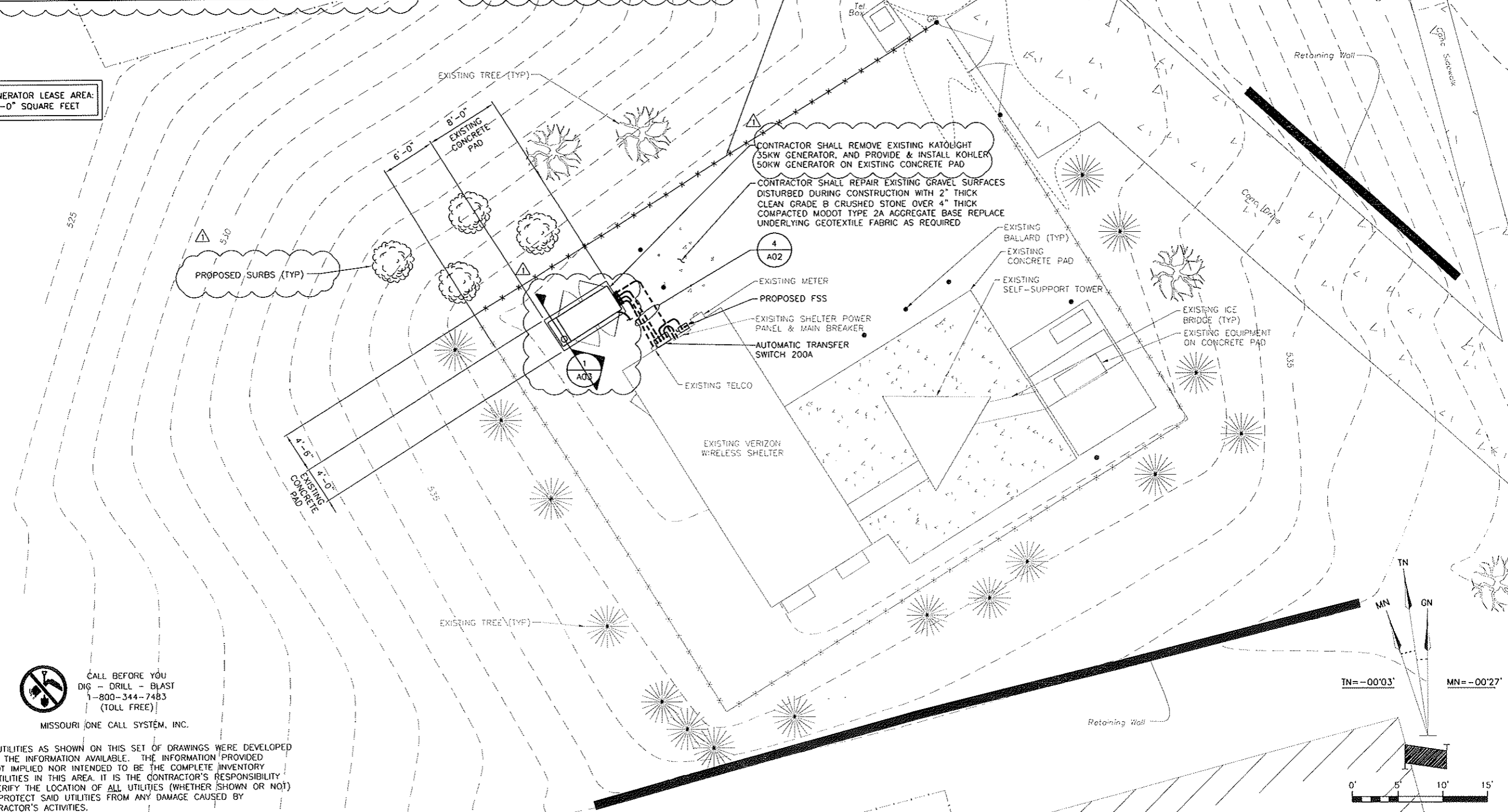
QTY.	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
4	BLACK HILLS SPRUCE	PICEA GLAUCA DENSATA	6'-0" HT.	10' CENTERS 2 OFFSET ROWS

EXISTING GENERATOR SHALL BE REMOVED BY CONTRACTOR. 1999 KATOLIGHT 35KW DIESEL GENERATOR, DIESEL TANK
 PROPOSED GENERATOR SHALL BE PROVIDED AND INSTALLED BY CONTRACTOR: KOHLER 50KW DIESEL GENERATOR, DIESEL TANK

EXISTING CHAIN-LINK FENCE, CONTRACTOR SHALL PROVIDE AND INSTALL BLACK SUPER SCREEN WINDSCREEN SCREENING MATERIAL TO THIS NORTH SIDE OF COMPOUND TO SCREEN GENERATOR FROM VIEW

NOTE: EXISTING CHAIN LINK FENCE (NORTH SIDE) SHALL BE COVERED WITH A SUPER SCREEN WINDSCREEN BLACK IN COLOR TO SCREEN GENERATOR FROM VIEW BY SIGNATURE FENCING OR APPROVED EQUAL, INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

GENERATOR LEASE AREA:
32'-0" SQUARE FEET



CALL BEFORE YOU DIG - DRILL - BLAST
 1-800-344-7483
 (TOLL FREE)
 MISSOURI ONE CALL SYSTEM, INC.

THE UTILITIES AS SHOWN ON THIS SET OF DRAWINGS WERE DEVELOPED FROM THE INFORMATION AVAILABLE. THE INFORMATION PROVIDED IS NOT IMPLIED NOR INTENDED TO BE THE COMPLETE INVENTORY OF UTILITIES IN THIS AREA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES (WHETHER SHOWN OR NOT) AND PROTECT SAID UTILITIES FROM ANY DAMAGE CAUSED BY CONTRACTOR'S ACTIVITIES.

SITE PLAN

REV	DATE	REVISION DESCRIPTION	DSGN
A	05/15/09	ISSUED FOR REVIEW	SAA
B	05/28/09	REVISED PER CLIENT COMMENTS	MV
D	06/03/09	ISSUED FOR CONSTRUCTION	DMG
1	10/01/09	REVISED GENERATOR, AND FENCE SCREEN	FC

STATE OF MISSOURI
 CERTIFICATE OF AUTHORIZATION #001640
 RESPONSIBLE ENGINEERS:
 NAY KEVIN VANMAELE E-21561 STRUCTURAL/CIVIL
 MLO MICHAEL L. OWENS E-29058 STRUCTURAL/CIVIL
 SDR SHELTON KEUSLING E-27323 ELECTRICAL
 TMS TERRANCE M. SUPER E-18521 ELECTRICAL

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verizonwireless

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 OVERLAND PARK, KS 66211
 PHONE: (913) 344-2800

1816 Lackland Hill Pkwy, Suite 400
 St. Louis, Missouri 63146
 Phone: 314-993-1010
 Fax: 314-993-1036

SSC

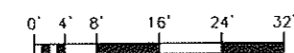
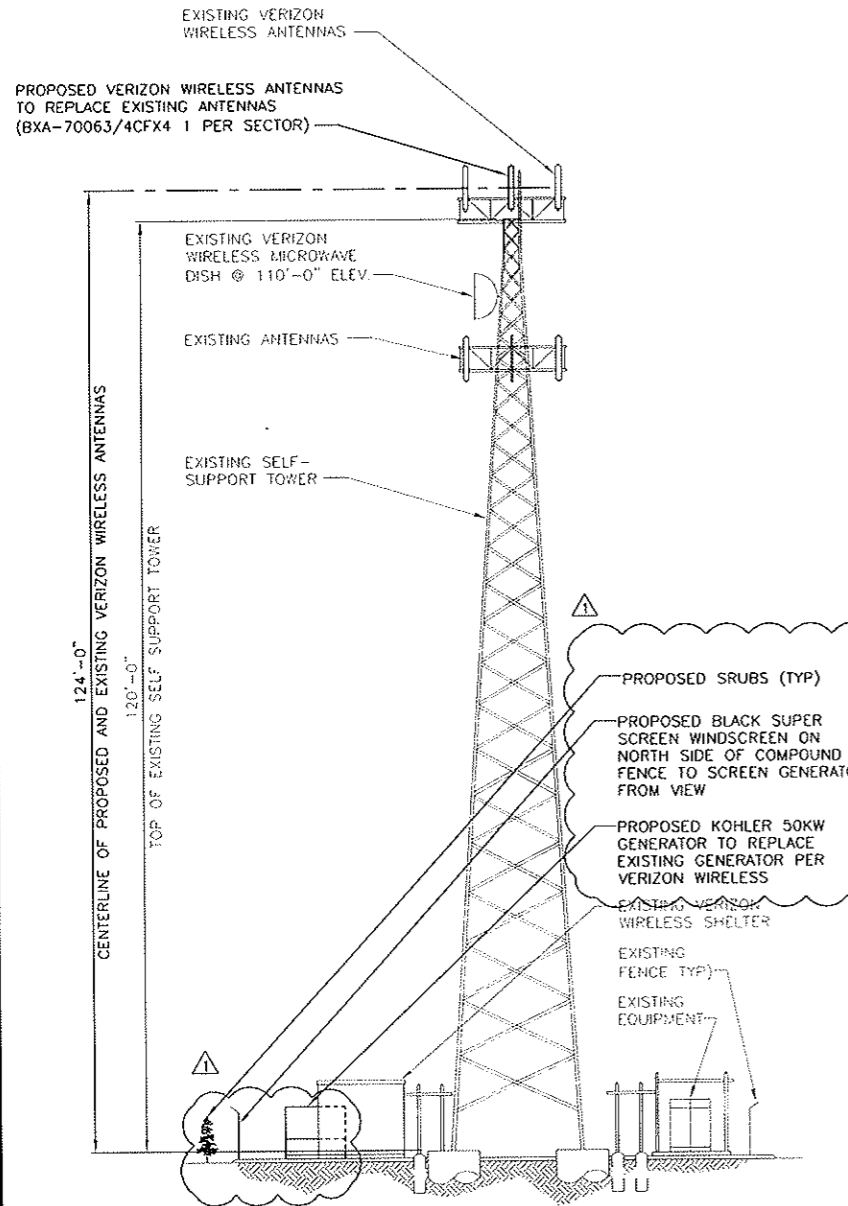
PLANS PREPARED UNDER THE SUPERVISION OF:

DESIGNED BY	SAA
CHECKED BY	MLO
SUPERVISOR	TKW
LEAD ENGR	MLO/TMS

STLC CHESTERFIELD	
SITE PLAN	
215 RUETHER LANE CHESTERFIELD, MISSOURI 63005	
DRAWING NUMBER	STL-0911 - A01
REV	1

ANTENNA KEY

POSITION	STATUS	ANTENNA MODEL NO	ANTENNA VENDOR	AZIMUTH	ELECTRICAL DOWNTILT	MECHANICAL DOWNTILT	ANTENNA TYPE	ANTENNA LENGTH WIDTH AND DEPTH	ANTENNA WEIGHT	HEIGHT TO CL OF ANTENNA (AGL)	COAX	COAX MODEL EXISTING &/OR PROPOSED		COAXIAL FEEDER	
												SIZE	LENGTH		
A	EXISTING	DB844H80-XY	DECIBEL	0°		8	CDMA	48.0" x 6.5" x 8.5"	10 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
B	PROPOSED	BXA-70063/4CFX4	ANTEL	0°		5	LTE	47.4" x 11.2" x 5"	9.9 LBS	124'-0"	2	ANDREW	AVA5-50	7/8"	174'-0"
C	REMOVE	DB844H80-XY	DECIBEL	0°		8	CDMA	47.4" x 11.2" x 5"	10 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
D	EXISTING	DB844H80-XY	DECIBEL	0°			CDMA	48.0" x 6.5" x 8.5"	10 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
E	EXISTING	LPD-7908/4DIN	ANTEL	120°			CDMA	47.3" x 5.1" x 25.2"	35.3 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
F	PROPOSED	BXA-70063/4CFX4	ANTEL	120°			LTE	47.4" x 11.2" x 5"	9.9 LBS	124'-0"	2	ANDREW	AVA5-50	7/8"	174'-0"
G	EXISTING	LPD-7908/4DIN	ANTEL	120°			CDMA	47.3" x 5.1" x 25.2"	35.3 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
H	EXISTING	PD10197	RFS	240°			CDMA	46.0" x 7.0" x 4.5"	10 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
I	PROPOSED	BXA-70063/4CFX4	ANTEL	240°			LTE	47.4" x 11.2" x 5"	9.9 LBS	124'-0"	2	ANDREW	AVA5-50	7/8"	174'-0"
J	EXISTING	PD10197	RFS	240°			CDMA	46.0" x 7.0" x 4.5"	10 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
A	EXISTING	LBX6-59	ANDREW	0°			MICROWAVE DISH	6' DIAMETER	143.0 LBS	110'-0"	1	ANDREW	LDF5-50A	7/8"	160'-0"



EQUIPMENT

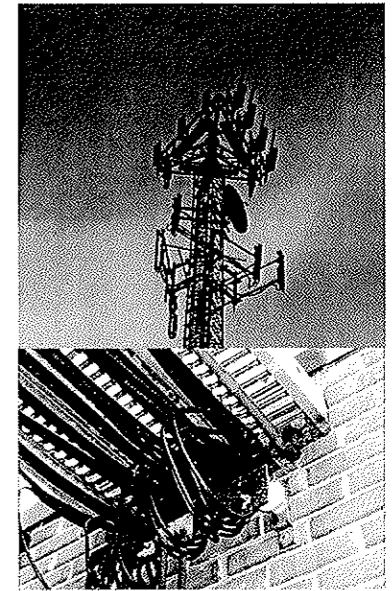
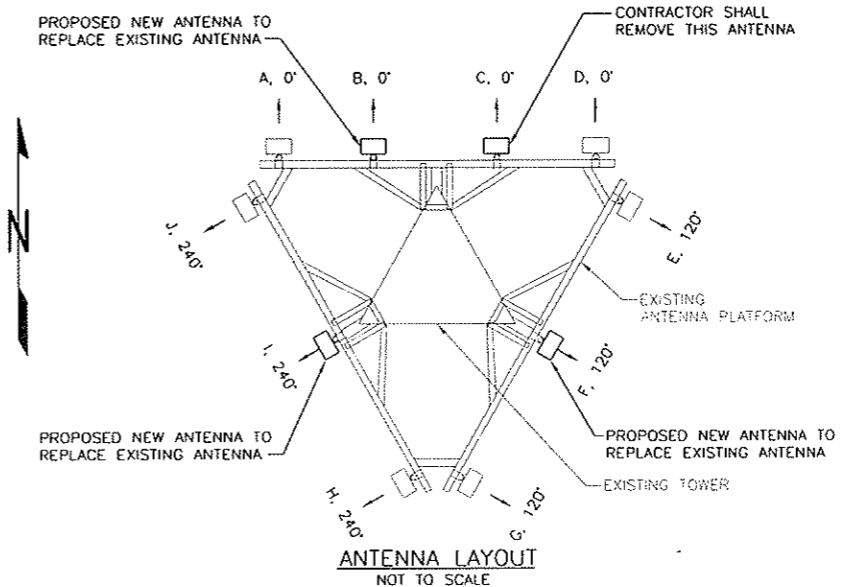
EQUIPMENT FURNISHED AND/OR INSTALLED BY:

DESCRIPTION	FURNISHED	INSTALLED
ANTENNA MOUNTS	TOWER VENDOR	CONTRACTOR
CABLE LADDER	TOWER VENDOR	CONTRACTOR
ANCHOR BOLTS	TOWER VENDOR	CONTRACTOR
TOWER BUS BARS	TOWER VENDOR	CONTRACTOR
ANTENNAS	VERIZON WIRELESS	CONTRACTOR
JUMPERS	CONTRACTOR	CONTRACTOR
COAX	VERIZON WIRELESS	CONTRACTOR
GROUND KITS	CONTRACTOR	CONTRACTOR
CONNECTORS	CONTRACTOR	CONTRACTOR
ENTRY PORT BOOTS	CONTRACTOR	CONTRACTOR
HANGER KITS	CONTRACTOR	CONTRACTOR

STRUCTURAL TOWER ANALYSIS HAS BEEN PERFORMED BY PIER STRUCTURAL ENGINEERING CORP. REPORT DATED 04/15/2009. CONTRACTOR SHALL OBTAIN A COPY OF THIS REPORT AND SHALL FOLLOW ALL REPORT RECOMMENDATIONS.

LOCATION OF ANTENNAS AS SHOWN HAVE BEEN APPROVED BY CLIENT AND/OR CLIENT'S RADIO FREQUENCY ENGINEERS. SSC ASSUMES NO RESPONSIBILITY FOR, NOR HAS SSC PERFORMED ANY INVESTIGATIONS OR STUDIES CONCERNING, THE COMPLIANCE OR NONCOMPLIANCE OF SAID ANTENNA LOCATIONS WITH ANY FCC RADIO FREQUENCY EXPOSURE REGULATIONS.

CONTRACTOR SHALL OBTAIN A COPY OF VERIZON WIRELESS ENGINEERING SITE DATA FORM FOR ANTENNA INFORMATION.



ANTENNA KEY AND DETAIL NOTES:

- 1.) ALL COAX SHALL BE COLOR CODED AT THREE (3) PLACES EACH: AT ANTENNA, EXTERIOR OF SHELTER, AND THE INTERIOR OF SHELTER.
- 2.) CONTRACTOR TO CALL PROJECT MANAGER TO SCHEDULE ANTENNA AND LINE SWEEP.
- 3.) ANTENNAS SHALL BE DESIGNATED FROM RIGHT TO LEFT, FACING THE ASSEMBLY FROM THE GROUND. RIGHT TO LEFT FACING THE BACK OF THE ANTENNA.
- 4.) THE OUTER MOST ANTENNAS ON EACH FACE SHALL BE DESIGNATED AS THE RECEIVE ANTENNAS. THE INNER ANTENNAS SHALL BE DESIGNATED AS THE TRANSMIT ANTENNAS.
- 5.) EACH TRANSMISSION LINE SHALL BE LABELED WITH BRASS "TOE TAGS". GRANGER PART NUMBER 1F035-8, STAMPED WITH 1/4" LETTERS/NUMBERS STAMPS, GRANGER PART NUMBER 3W639. THE LABELS SHALL BE ATTACHED WITH A SEMI-PERMANENT METHOD (I.E. BLACK UV RESISTANT CABLE TIES). THE TAGS SHALL BE PLACED SO AS NOT TO COME IN CONTACT WITH THE CONNECTOR ON THE LINE AND THE METAL OF THE TOWER. LINES SHALL BE LABELED AT THE TOP AND BOTTOM, AND OUTSIDE OF THE ENTRY PORT.
- 6.) EACH LINE SHALL ALSO BE LABELED AT THE LIGHTNING/SURGE PROTECTOR MOUNTING PLATE WITH A PRINTABLE LABEL MAKER TO INDICATE LINE NUMBER AND FUNCTION, THE SAME AS THE TOE TAG.
- 7.) CONTRACTOR SHALL INSTALL INTERMITTANT COAX TIN PLATED GROUND BARS AT 75' INTERVALS STARTING FROM THE ANTENNA CENTERLINE DOWN ON SELF SUPPORT AND GUYED TOWERS.
- 8.) CONTRACTOR SHALL FIELD VERIFY THE EXACT TMA'S (IF THEY ARE REQUIRED) PER THE OPERATIONS MANAGER.
- 9.) COAX GROUND KITS SHALL BE AT 75' INTERVALS STARTING FROM THE ANTENNA CENTERLINE DOWN.

TOWER ELEVATION

2

ANTENNA KEY AND GENERAL NOTES

1

REV	DATE	REVISION DESCRIPTION	DSGN
A	02/16/09	ISSUED FOR REVIEW	SAA
B	03/17/09	REVISED PER NEW STANDARDS	MV
C	05/15/09	REVISED PER CLIENT COMMENTS	SAA
D	05/28/09	REVISED PER CLIENT COMMENTS	MV
0	06/03/09	ISSUED FOR CONSTRUCTION	DMG
1	10/01/09	REVISED GENERATOR, AND FENCE SCREEN	FG

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 PHONE: (913) 344-2800

1816 Lackland Hill Pkwy, Suite 400
 St. Louis, Missouri 63146
 Phone: 314-993-1010
 Fax: 314-993-1036

PLANS PREPARED UNDER THE SUPERVISION OF:

STLC CHESTERFIELD
 TOWER ELEVATION
 215 RUETHER LANE
 CHESTERFIELD, MISSOURI 63005

DESIGNED BY SAA
 CHECKED BY MLO
 SUPERVISOR TKW
 LEAD ENGR MLO/TMS

DRAWING NUMBER STL-0911 - A02
 REV 1

EXISTING SELF-SUPPORT TOWER
 BASE ELEVATION = 538.6 FEET
 TOP ELEVATION = 658.6 FEET

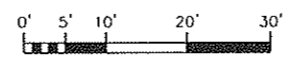
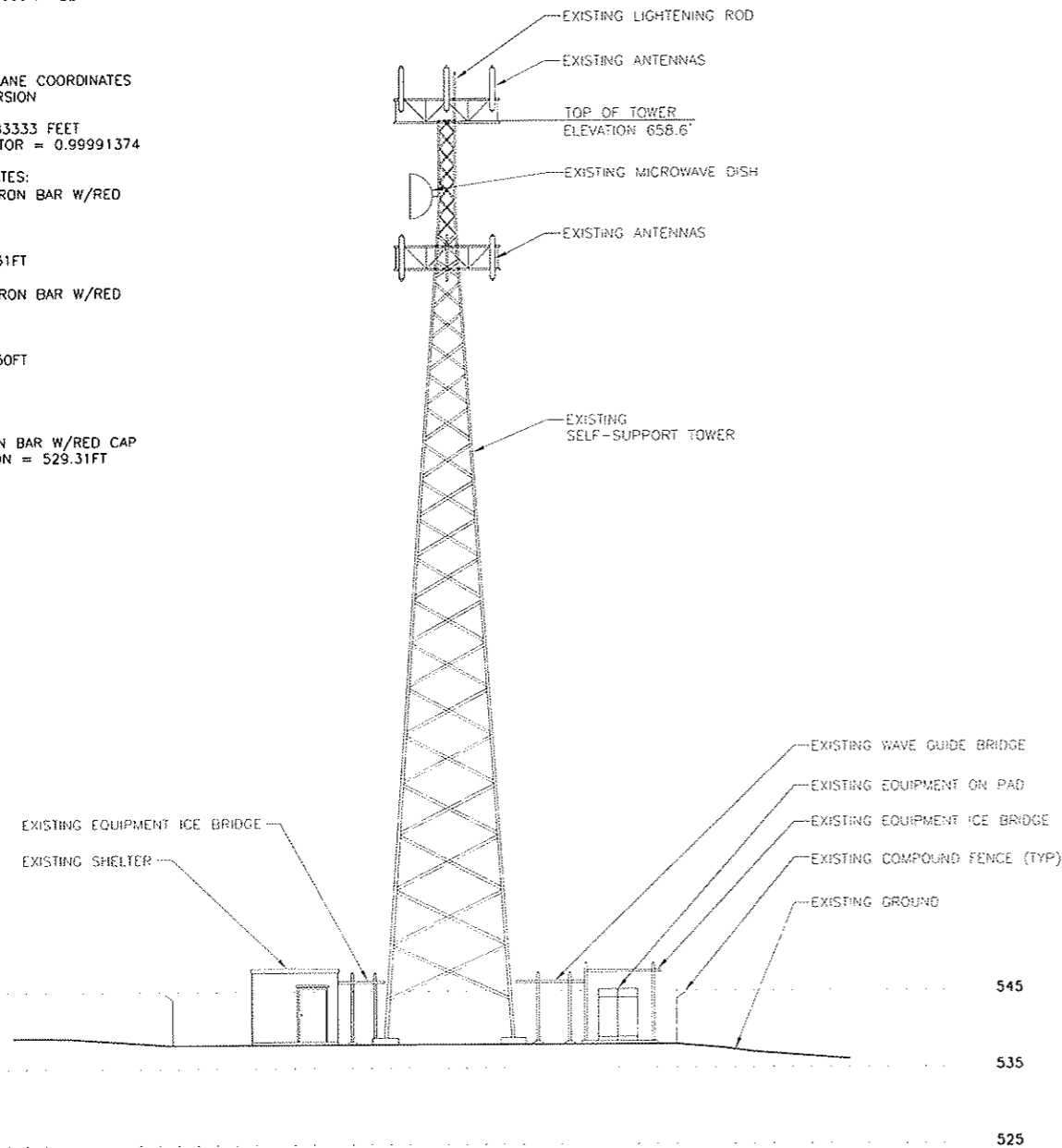
NOTE:
 MISSOURI STATE PLANE COORDINATES
 EAST ZONE CONVERSION

1 METER = 3.28083333 FEET
 PROJECT GRID FACTOR = 0.99991374

PROJECT COORDINATES:
 CP-1 (SET 1/2" IRON BAR W/RED
 CONTROL CAP)
 N 1028607.464
 E 793789.139
 ELEVATION = 529.31FT

CP-2 (SET 1/2" IRON BAR W/RED
 CONTROL CAP)
 N 1028346.208
 E 793966.515
 ELEVATION = 534.50FT

BENCH MARK
 TOP OF 1/2" IRON BAR W/RED CAP
 AT CP-1 ELEVATION = 529.31FT



SOUTH ELEVATION

EXISTING SELF-SUPPORT TOWER
 BASE ELEVATION = 538.6 FEET
 TOP ELEVATION = 658.6 FEET

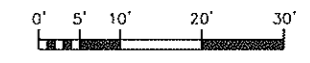
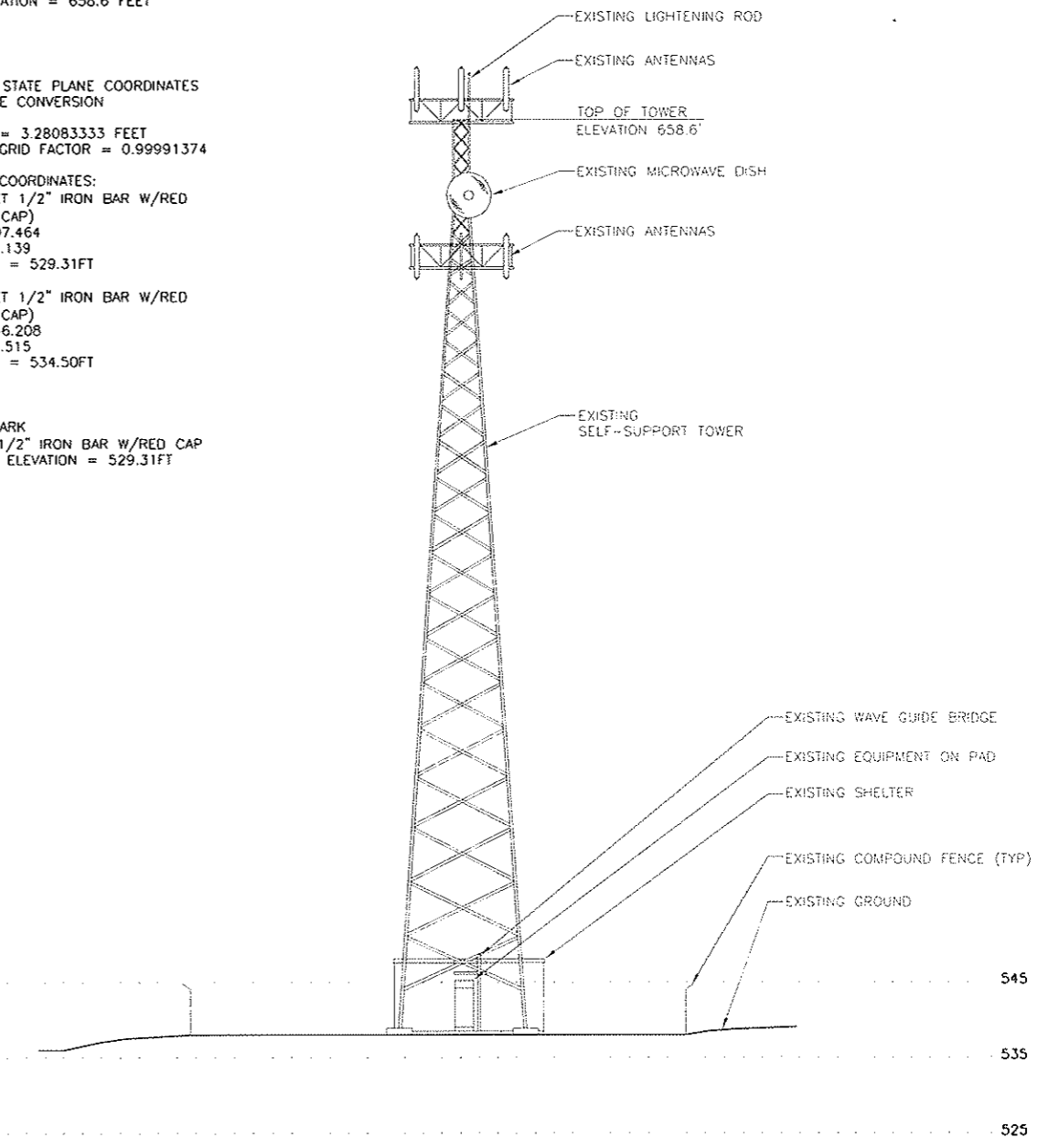
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 N 1028607.464
 E 793789.139
 ELEVATION = 529.31FT

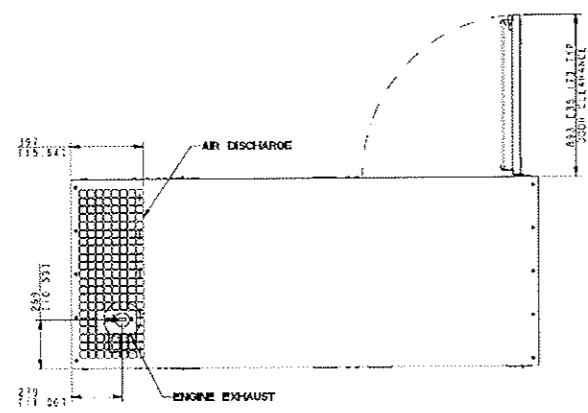
CP-2 (SET 1/2" IRON BAR W/RED
 CONTROL CAP)
 N 1028346.208
 E 793966.515
 ELEVATION = 534.50FT

BENCH MARK
 TOP OF 1/2" IRON BAR W/RED CAP
 AT CP-1 ELEVATION = 529.31FT

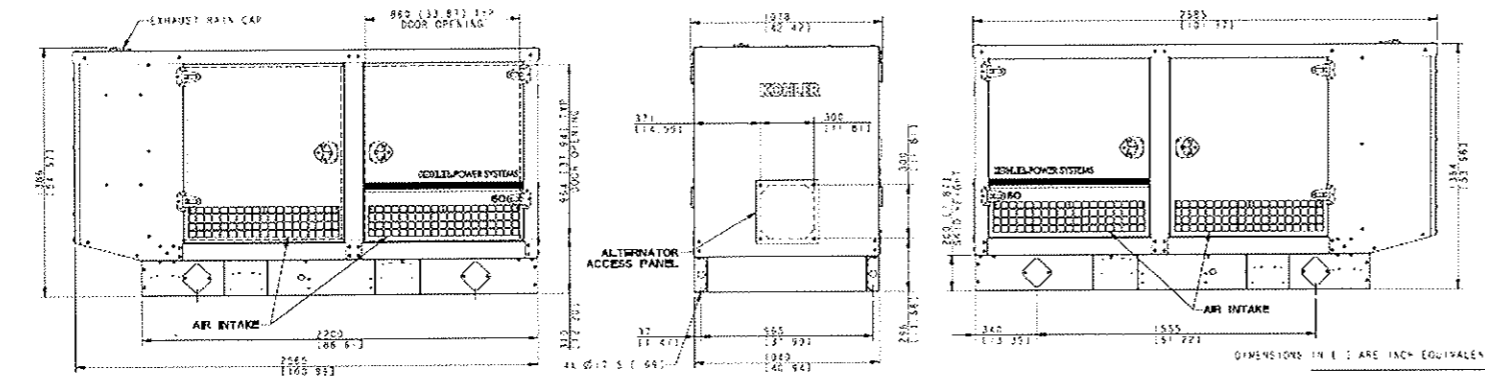


EAST ELEVATION

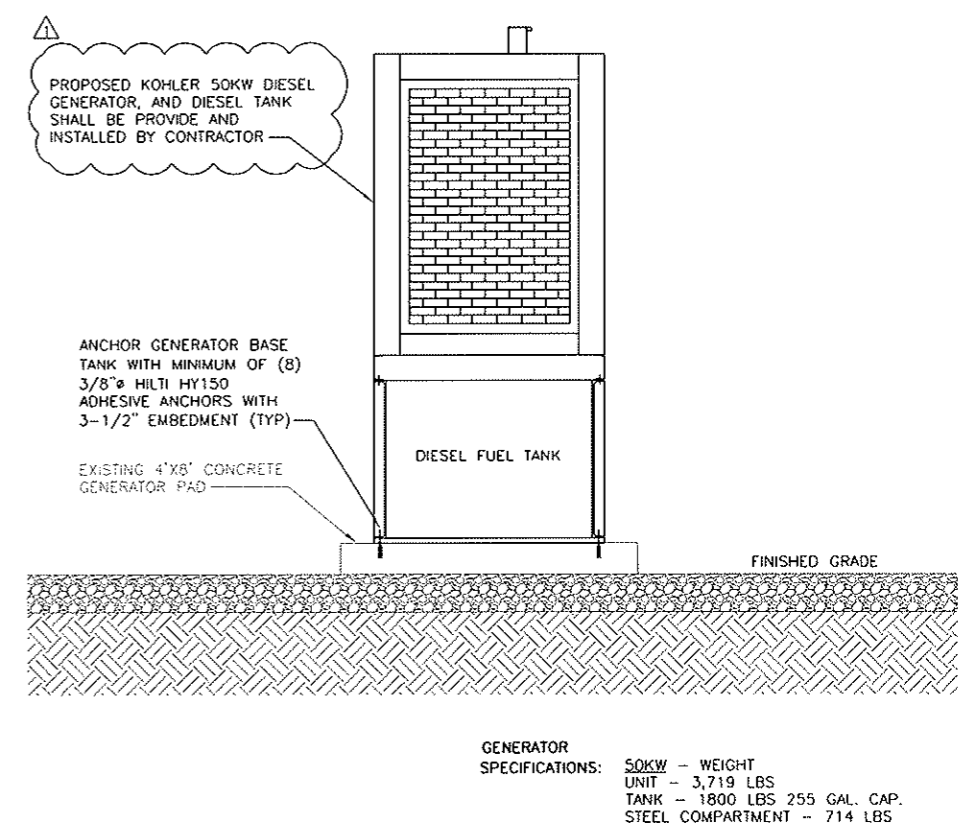
REV		DATE	REVISION DESCRIPTION	DSGN	STATE OF MISSOURI CERTIFICATE OF AUTHORIZATION #001640	 10740 HALL AVE, SUITE 400 OVERLAND PARK, KS 66211 PHONE: (913) 344-2800	 1816 Lackland Hill Pkwy, Suite 400 St. Louis, Missouri 63146 Phone: 314-993-1010 Fax: 314-993-1036	PLANS PREPARED UNDER THE SUPERVISION OF:		STLC CHESTERFIELD	
0	09/11/09	ISSUED FOR CONSTRUCTION	FG	RESPONSIBLE ENGINEERS: RMV KEVIN VANMAELE E-21561 STRUCTURAL/CIVIL MLO MICHAEL L. OWENS E-28058 STRUCTURAL/CIVIL SOK SHELTON KEISLING E-27323 ELECTRICAL TMS TERRANCE M. SUPER E-18521 ELECTRICAL	DESIGNED BY SAA CHECKED BY MLO SUPERVISOR TKW LEAD ENR MLO/TMS			CROSS SECTIONS 215 RUETHER LANE CHESTERFIELD, MISSOURI 63005		DRWING NUMBER	REV
										STL-0911 - A03	0



MODEL	ONSET WEIGHT (MET) WITH ENCLOSURE	ENCLOSURE ONLY	MODEL	ONSET WEIGHT (MET) WITH ENCLOSURE	ENCLOSURE ONLY
25KW 4P4/404	STEEL WEATHER 745 Kg (1647 LBS)	239 Kg (527 LBS)	30KW 4P6	931 Kg (2067 LBS)	244 Kg (538 LBS)
30KW 404	STEEL SOUND 752 Kg (1658 LBS)	244 Kg (538 LBS)	30KW 4P6	936 Kg (2078 LBS)	244 Kg (538 LBS)
30KW 4P6	ALUMINUM SOUND 661 Kg (1455 LBS)	157 Kg (335 LBS)	30KW 4P6	954 Kg (2105 LBS)	157 Kg (335 LBS)
30KW 4P6	STEEL WEATHER 776 Kg (1706 LBS)	239 Kg (527 LBS)	30KW 4P7	1032 Kg (2280 LBS)	239 Kg (527 LBS)
30KW 4P6	STEEL SOUND 776 Kg (1706 LBS)	244 Kg (538 LBS)	30KW 4P7	1037 Kg (2281 LBS)	244 Kg (538 LBS)
30KW 4P7	ALUMINUM SOUND 684 Kg (1505 LBS)	152 Kg (333 LBS)	30KW 4P7	1065 Kg (2345 LBS)	152 Kg (333 LBS)
30KW 4P7	STEEL WEATHER 812 Kg (1791 LBS)	239 Kg (527 LBS)	30KW 4P7	1094 Kg (2414 LBS)	239 Kg (527 LBS)
30KW 4P7	STEEL SOUND 812 Kg (1791 LBS)	244 Kg (538 LBS)	30KW 4P7	1099 Kg (2415 LBS)	244 Kg (538 LBS)
40KW 4P6/406	ALUMINUM SOUND 708 Kg (1560 LBS)	152 Kg (333 LBS)	40KW 4P6	1123 Kg (2475 LBS)	244 Kg (538 LBS)
40KW 4P6/406	STEEL WEATHER 836 Kg (1843 LBS)	239 Kg (527 LBS)	40KW 4P6	1131 Kg (2492 LBS)	239 Kg (527 LBS)
40KW 4P6/406	STEEL SOUND 836 Kg (1843 LBS)	244 Kg (538 LBS)			
45KW 4P7	ALUMINUM SOUND 844 Kg (1860 LBS)	152 Kg (333 LBS)			
45KW 4P7	STEEL WEATHER 972 Kg (2145 LBS)	239 Kg (527 LBS)			
45KW 4P7	STEEL SOUND 972 Kg (2145 LBS)	244 Kg (538 LBS)			
45KW 4P8	ALUMINUM SOUND 896 Kg (1969 LBS)	152 Kg (333 LBS)			
45KW 4P8	STEEL WEATHER 1024 Kg (2255 LBS)	239 Kg (527 LBS)			
45KW 4P8	STEEL SOUND 1024 Kg (2255 LBS)	244 Kg (538 LBS)			
45KW 4QD	ALUMINUM SOUND 904 Kg (1994 LBS)	244 Kg (538 LBS)			
45KW 4QD	STEEL WEATHER 1032 Kg (2280 LBS)	239 Kg (527 LBS)			
45KW 4QD	STEEL SOUND 1032 Kg (2280 LBS)	244 Kg (538 LBS)			
60 4P7	ALUMINUM SOUND 931 Kg (2052 LBS)	239 Kg (527 LBS)			
60 4P7	STEEL WEATHER 1059 Kg (2331 LBS)	244 Kg (538 LBS)			
60 4P7	STEEL SOUND 1059 Kg (2331 LBS)	244 Kg (538 LBS)			
60KW 4QD	ALUMINUM SOUND 1044 Kg (2300 LBS)	152 Kg (333 LBS)			
60KW 4QD	STEEL WEATHER 1172 Kg (2585 LBS)	244 Kg (538 LBS)			
60KW 4QD	STEEL SOUND 1172 Kg (2585 LBS)	244 Kg (538 LBS)			



50KW KOHLER GENERATOR SPECIFICATIONS

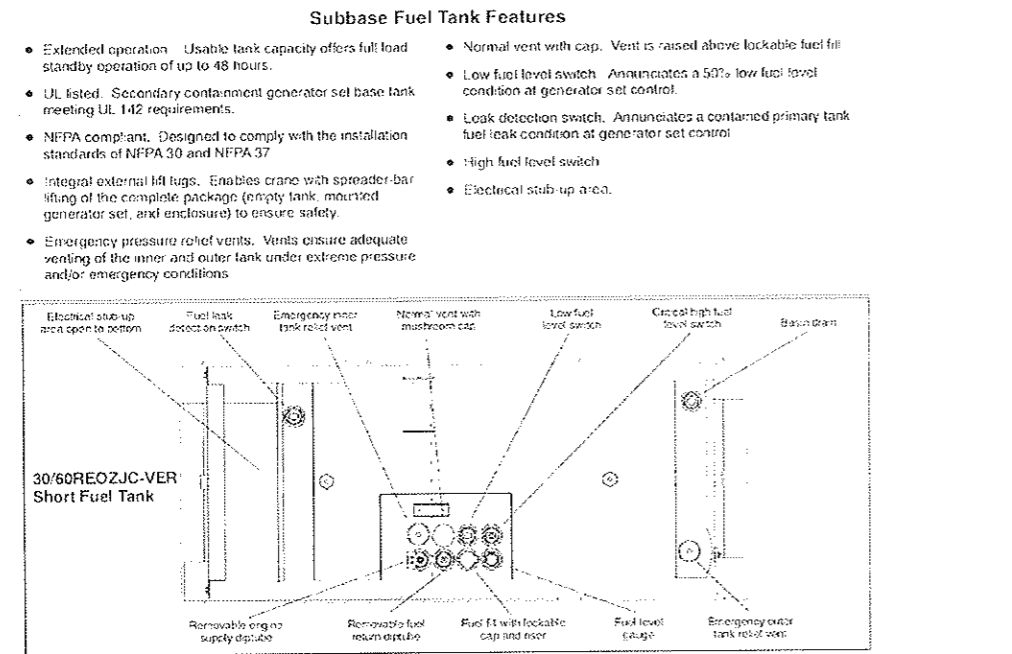


ANCHOR GENERATOR BASE TANK WITH MINIMUM OF (8) 3/8" HILTI HY150 ADHESIVE ANCHORS WITH 3-1/2" EMBEDMENT (TYP)

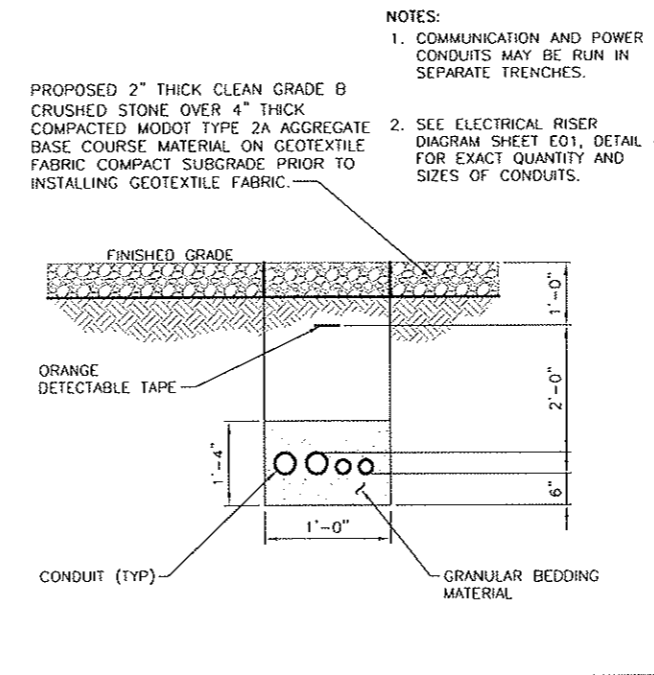
EXISTING 4'X8' CONCRETE GENERATOR PAD

GENERATOR SPECIFICATIONS: 50KW - WEIGHT UNIT - 3,719 LBS TANK - 1800 LBS 255 GAL. CAP. STEEL COMPARTMENT - 714 LBS

GENERATOR PAD



50KW KOHLER GENERATOR FUEL TANK FEATURES



GENERATOR CONDUIT TRENCH

NOTES:

- COMMUNICATION AND POWER CONDUITS MAY BE RUN IN SEPARATE TRENCHES.
- SEE ELECTRICAL RISER DIAGRAM SHEET EQ1, DETAIL 4 FOR EXACT QUANTITY AND SIZES OF CONDUITS.

FOUNDATION GENERAL NOTES:

- THE SITE SHALL BE STRIPPED OF ALL VEGETATION PRIOR TO FILL OR CONSTRUCTION OF THE FOUNDATION PAD.
- ALL FILL SAND SHALL BE 0-15 P.I. WITH A COMPACTION TEST RUN ON EACH 6" LIFT - COMPACTION TO 90% MODIFIED PROCTOR.
- ANY SOFT AREAS (TREE STUMP HOLES, ETC.) SHALL BE CUT OUT AND RECOMPACTION TO SAID PROCTOR.
- THE CONTRACTOR SHALL KEEP THE SITE SO IT WILL HAVE POSITIVE DRAINAGE AT ALL TIMES.
- ALL EXCAVATIONS SHALL BE FREE OF WATER BEFORE POURING CONCRETE.
- MINIMUM SOIL BEARING CAPACITY OF 2,000 PSF IN ALL FOUNDATION AND SLAB AREAS.

REINFORCING STEEL:

- ALL STEEL BARS SHALL BE GRADE 60 STEEL.
- CLEAR DIMENSIONS FOR STEEL: STEEL AGAINST EARTH SHALL BE 3". STEEL AGAINST FORM SHALL BE 1-1/2"
- ALL STEEL BAR SPLICES SHALL BE 36 TIMES BAR DIAMETER.
- ALL CORNER AND INTERSECTIONS SHALL HAVE CORNER BARS (TOP AND BOTTOM) INSTALLED.
- ALL WIRE AND BARS SHALL BE SECURED PROPERLY BEFORE POURING CONCRETE.

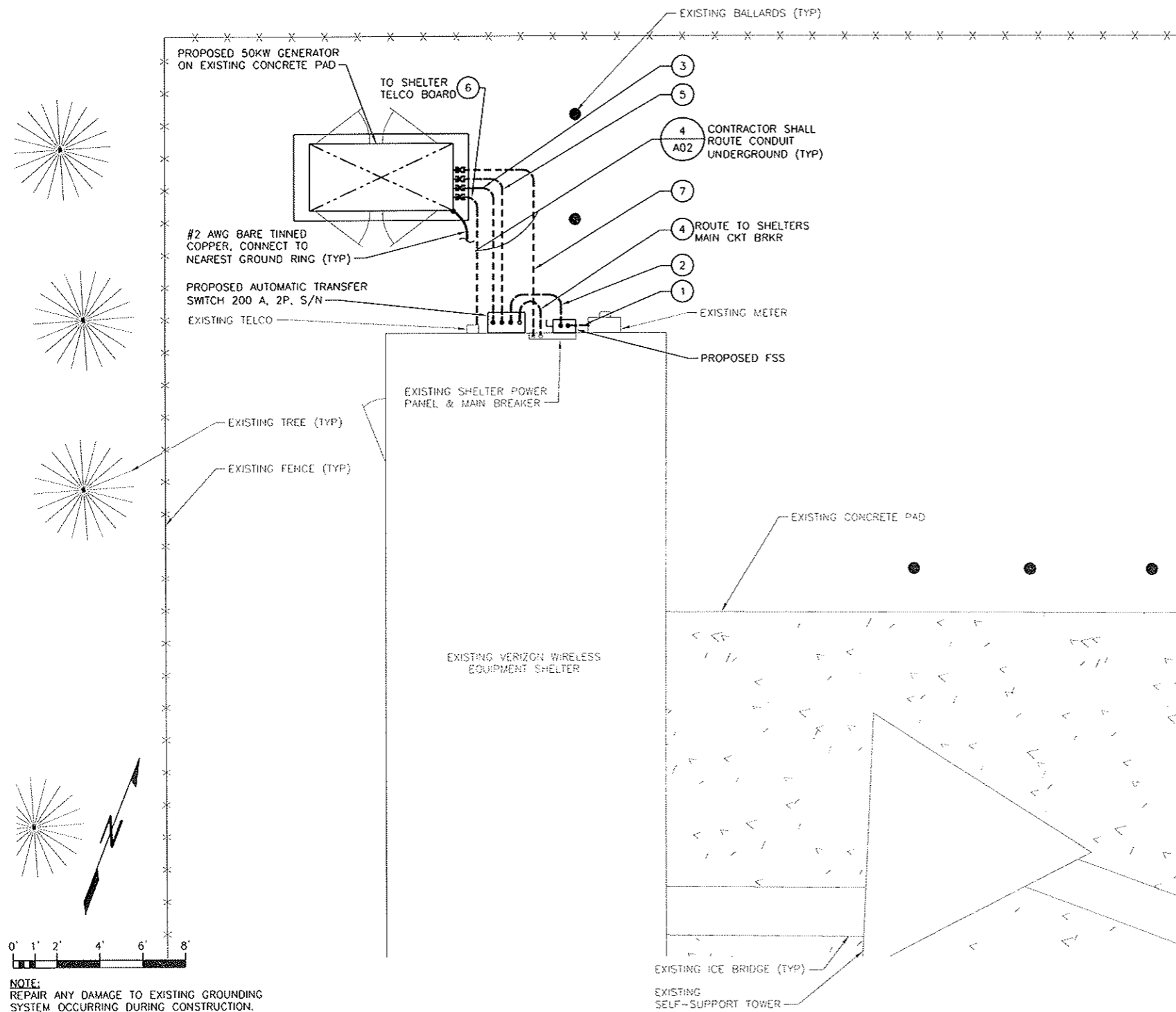
CONCRETE:

- ALL CONCRETE SHALL BE 6 SACK MIX AND HAVE A MINIMUM OF 3000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
- EDGE TROWEL ALL EXPOSED CONCRETE EDGES.
- MAXIMUM SLUMP SHALL BE 4".

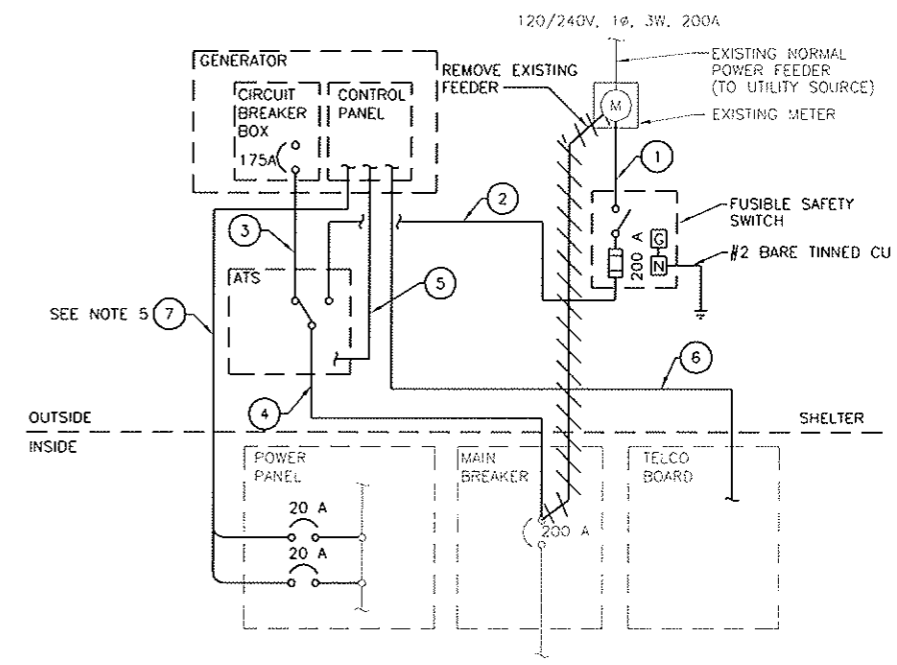
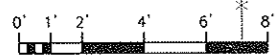
STRUCTURAL NOTES

<table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>REVISION DESCRIPTION</th> <th>DSGN</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>05/15/09</td> <td>ISSUED FOR REVIEW</td> <td>SAA</td> </tr> <tr> <td>0</td> <td>06/03/09</td> <td>ISSUED FOR CONSTRUCTION</td> <td>DMG</td> </tr> <tr> <td>1</td> <td>10/01/09</td> <td>REVISED GENERATOR, AND FENCE SCREEN</td> <td>FG</td> </tr> </tbody> </table>	REV	DATE	REVISION DESCRIPTION	DSGN	A	05/15/09	ISSUED FOR REVIEW	SAA	0	06/03/09	ISSUED FOR CONSTRUCTION	DMG	1	10/01/09	REVISED GENERATOR, AND FENCE SCREEN	FG	<p>STATE OF MISSOURI CERTIFICATE OF AUTHORIZATION #001640 RESPONSIBLE ENGINEERS: KMV KEVIN VANMAELE E-21561 STRUCTURAL/CML MLO MICHAEL L. OWENS E-29058 STRUCTURAL/CIVIL SOK SHELTON KEISLING E-27323 ELECTRICAL TMS TERRANCE M. SUPER E-18521 ELECTRICAL</p>	<p>1816 Lackland Hill Pkwy, Suite 400 St. Louis, Missouri 63146 Phone: 314-993-1010 Fax: 314-993-1036</p>	<p>PLANS PREPARED UNDER THE SUPERVISION OF:</p> <p>DESIGNED BY SAA CHECKED BY MLO SUPERVISOR TKW LEAD ENGR MLO/TMS</p>	<p>STLC CHESTERFIELD DETAILS 215 RUETHER LANE CHESTERFIELD, MISSOURI 63005</p>	<p>DRAWING NUMBER STL-0911 - A04 REV 1</p>
REV	DATE	REVISION DESCRIPTION	DSGN																		
A	05/15/09	ISSUED FOR REVIEW	SAA																		
0	06/03/09	ISSUED FOR CONSTRUCTION	DMG																		
1	10/01/09	REVISED GENERATOR, AND FENCE SCREEN	FG																		

NOTE:
SEE A01 FOR SUPER SCREEN WINDSCREEN BLACK SCREENING MATERIAL TO BE ADDED TO THE FENCE, AND THE 4 PROPOSED SRUBS THAT WILL BE ADDED TO THE NORTHWEST CORNER OF THE COMPOUND (OUTTER SIDE OF FENCE)



NOTE:
REPAIR ANY DAMAGE TO EXISTING GROUNDING SYSTEM OCCURRING DURING CONSTRUCTION.



CONNECTION DIAGRAM

	FROM	TO	CONFIGURATION	FUNCTION
1	METER	FUSIBLE SAFETY SWITCH	3#3/0, 1#6G, 2" C	NORMAL POWER FEEDER TO FSS (MOVED)
2	FUSIBLE SAFETY SWITCH	AUTOMATIC TRANSFER SWITCH	3#3/0, 1#6G, 2" C	NORMAL POWER FEEDER TO ATS
3	GENERATOR	AUTOMATIC TRANSFER SWITCH	3#3/0, 1#6G, 2" C	EMERGENCY POWER FEEDER TO ATS
4	AUTOMATIC TRANSFER SWITCH	SHELTER MAIN BREAKER	3#3/0, 1#6G, 2" C	POWER FEEDER FROM ATS
5	AUTOMATIC TRANSFER SWITCH	GENERATOR	WIRING AS REQ'D, 3/4" C	GENERATOR START CIRCUIT
6	GENERATOR	SHELTER TELCO BOARD	WIRING AS REQ'D, 3/4" C	GENERATOR STATUS AND ALARM REMOTE INDICATION
7	SHELTER POWER PANEL	GENERATOR	4#12, 1#12G, 3/4" C	AUXILIARY GENERATOR LOADS (BLOCK HEATER & BATTERY CHARGER)

CIRCUIT SCHEDULE

- ALL ELECTRICAL WORK SHALL CONFORM TO REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AS A MINIMUM STANDARD.
- GENERATOR, BASE TANK AND AUTOMATIC TRANSFER SWITCH SHALL BE FURNISHED BY OWNER AND INSTALLED BY THE CONTRACTOR. ALL OTHER MATERIAL & EQUIPMENT SHALL BE CONTRACTOR FURNISHED & INSTALLED.
- GENERATOR AND ATS INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS.
- ALL ABOVE GROUND CONDUIT SHALL BE RIGID GALVANIZED STEEL (RGS). ALL UNDERGROUND CONDUIT SHALL BE SCH 40 PVC.
- BATTERY CHARGER & BLOCK WATER HEATER CIRCUITS RUN IN SAME 3/4" C.

GENERAL NOTES

ELECTRICAL PLAN

REV	DATE	REVISION DESCRIPTION	OSCN
A	05/15/09	ISSUED FOR REVIEW	SAA
B	05/28/09	REVISED PER CLIENT COMMENTS	MV
O	06/03/09	ISSUED FOR CONSTRUCTION	DMG
1	10/01/09	REVISED GENERATOR, AND FENCE SCREEN	FG

STATE OF MISSOURI
CERTIFICATE OF AUTHORIZATION #001640

RESPONSIBLE ENGINEERS:

KMV KEVIN VANMAELE E-21561 STRUCTURAL/CIVIL
MLO MICHAEL L. OWENS E-29058 STRUCTURAL/CIVIL
SDK SHELTON KEISLING E-27323 ELECTRICAL
TMS TERRANCE M. SUPER E-18521 ELECTRICAL

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PLANS PREPARED UNDER THE SUPERVISION OF:

DESIGNED BY	SAA
CHECKED BY	MLO
SUPERVISOR	TKW
LEAD ENGR	MLO/TMS

STLC CHESTERFIELD

ELECTRICAL PLAN AND DETAILS

215 RUEHER LANE
CHESTERFIELD, MISSOURI 63005

DRAWING NUMBER
STL-0911 - E01

REV
1

PART 1 - GENERAL

1.1 SUMMARY

A. SCOPE OF SPECIFICATION

THIS SPECIFICATION PRESCRIBES THE REQUIREMENTS FOR THE INSTALLATION OF CHAIN LINK FENCE (GALVANIZED) AND THE ASSOCIATED POSTS, RAILS, BRACES, TERMINAL POSTS, GATES, BARBED WIRE, CONTROLS, AND OTHER RELATED MATERIALS.

B. RELATED SPECIFICATIONS

THE FOLLOWING SPECIFICATIONS PRESCRIBE ITEMS OF RELATED WORK:
- 02200: SITE WORK

COORDINATE WORK PRESCRIBED BY THIS SPECIFICATION WITH WORK PRESCRIBED BY THE ABOVE LISTED SPECIFICATIONS.

C. TERMINOLOGY

- CHAIN LINK FENCE CLASSIFICATION: CHAIN LINK FENCING SHALL BE CLASSIFIED BY FABRIC CATEGORY AS GALVANIZED (ZINC COATED). WIRE TO BE REFERRED TO AS GALVANIZED.
- BARBED WIRE: BARBED WIRE FOR ADDITIONAL SECURITY SHALL BE CLASSIFIED AS GALVANIZED (ZINC COATED).
- NPS: NOMINAL PIPE SIZE

1.2 REFERENCES

THE PUBLICATIONS LISTED BELOW FORM PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT AT THE TIME OF THE PROJECT'S EXECUTION UNLESS NOTED OTHERWISE. EXCEPT AS MODIFIED BY THE REQUIREMENTS SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS, ALL WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THESE PUBLICATIONS.

A. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)

- ASTM A53 - SPECIFICATION FOR PIPE - STEEL, BLACK, AND HOT DIPPED, ZINC-COATED WELDED, AND SEAMLESS.
- ASTM A116 - SPECIFICATION FOR ZINC-COATED (GALVANIZED) STEEL WOVEN WIRE FENCE FABRIC.
- ASTM A120 SPECIFICATION FOR PIPE, STEEL, BLACK, AND HOT DIPPED ZINC-COATED (GALVANIZED) WELDED AND SEAMLESS, FOR ORDINARY USES.
- ASTM A121 - SPECIFICATION FOR ZINC-COATED (GALVANIZED) STEEL BARBED WIRE.
- ASTM A123 - SPECIFICATION FOR ZINC (HOT-DIPPED GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS.
- ASTM A143 - RECOMMENDED PRACTICE FOR SAFEGUARDING AGAINST EMBRITTLMENT OF HOT DIPPED (GALVANIZED) STRUCTURAL STEEL PRODUCTS AND PROCEDURE FOR DETECTING EMBRITTLMENT.
- ASTM A153 - SPECIFICATION FOR ZINC COATING (HOT DIP) ON IRON AND STEEL HARDWARE.
- ASTM A392 - SPECIFICATION FOR ZINC-COATED STEEL CHAIN LINK FENCE FABRIC.
- ASTM A475 - SPECIFICATION FOR ZINC-COATED STEEL WIRE STRAND.
- ASTM A525 - SPECIFICATION FOR GENERAL REQUIREMENTS FOR STEEL SHEET, ZINC-COATED (GALVANIZED) BY THE HOT DIP PROCESS.
- ASTM A570 - SPECIFICATION FOR STEEL, SHEET AND STRIP, CARBON, HOT ROLLED STRUCTURAL QUALITY.
- ASTM A641 - SPECIFICATION FOR ZINC-COATED (GALVANIZED) CARBON STEEL WIRE.
- ASTM A817 - SPECIFICATION FOR METALLIC COATED STEEL WIRE FOR CHAIN LINK FENCE FABRIC.
- ASTM F567 - PRACTICE FOR INSTALLATION OF CHAIN LINK FENCE.
- ASTM F626 - SPECIFICATION FOR FENCE FITTINGS.

16. ASTM F669 - SPECIFICATION FOR STRENGTH REQUIREMENTS OF METAL POSTS AND RAILS FOR INDUSTRIAL CHAIN LINK FENCE.

17. ASTM F1083 - SPECIFICATION FOR PIPE, STEEL, HOT-DIPPED, ZINC-COATED (GALVANIZED), WELDED FOR FENCE STRUCTURES.

B. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)

- OSHA CONSTRUCTION INDUSTRY STANDARD, TITLE 29, CODE OF FEDERAL REGULATIONS, PART 192, SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION.

1.3 STORAGE AND PROTECTION

- STORE MATERIALS 12 INCHES OFF THE GROUND OR SLAB BY USING WOOD BLOCKING OR OTHER APPROVED MATERIALS.
- STORE MATERIALS IN AREAS OF THE JOB SITE DESIGNATED OR APPROVED BY CONSTRUCTION MANAGER.

1.4 SCHEDULING AND SEQUENCING

CERTAIN PORTIONS OF THE WORK ARE SPECIFIED TO BE COMPLETED AND OPERATIONAL PRIOR TO COMPLETION OF ALL WORK. SEQUENCE EQUIPMENT AND GATE INSTALLATION, AND PROPERLY PROTECT EQUIPMENT TO PREVENT CONTAMINATION OR DAMAGE TO EQUIPMENT IN ADJACENT WORK AREAS. PHASING AND SEQUENCING SHALL BE SUBJECT TO THE APPROVAL OF CONSTRUCTION MANAGER.

1.5 SUBMITTALS

MATERIALS ARE SUBJECT TO TESTING. MILL CERTIFICATES AND PRODUCT SPECIFICATION VERIFICATION SHALL BE SUBMITTED TO CONSTRUCTION MANAGER.

PART 2 - PRODUCTS

2.1 MATERIALS

A. GENERAL

FENCE FABRIC, POSTS, TOP RAIL, TENSION WIRE, CORNER POSTS, BARBED WIRE, AND APPURTENANCES SHALL CONFORM TO THE ASTM CODES AND STANDARDS FOR THE APPROPRIATE TYPE OF MATERIALS AS LISTED IN SECTIONS OF THIS SPECIFICATION, AND MORE SPECIFICALLY LISTED IN THE SECTIONS BELOW.

B. MATERIALS SHALL BE UNIFORM, CONSISTENT, AND MEET THE FOLLOWING REQUIREMENTS.

- FENCE FABRIC
 - FABRIC SHALL BE 72 INCHES HIGH, HEAVY GALVANIZED CHAIN LINK FENCE CONFORMING TO ASTM A392, CLASS 2, OF 2 INCH MESH 9 GAGE WIRE (0.148 INCHES IN DIAMETER), WITH THE TOP AND BOTTOM EDGES TWISTED AND BARBED.
- LINE POSTS
 - FOR FABRIC UP TO 8 FEET HIGH, LINE POSTS SHALL BE 2 INCH NPS SCHEDULE 40 GALVANIZED STEEL PIPE WITH AN OUTSIDE DIAMETER OF 2.375 INCHES OR IN ACCORDANCE WITH ASTM A120.
 - FOR FABRIC MORE THAN 8 FEET HIGH, LINE POSTS SHALL BE 2-1/2 INCH NPS SCHEDULE 40 GALVANIZED STEEL PIPE WITH AN OUTSIDE DIAMETER OF 2.875 INCHES, IN ACCORDANCE WITH ASTM A120.
- END CORNER AND PULL POSTS
 - END CORNER AND PULL POSTS 8 FEET HIGH OR LESS SHALL BE 2 1/2 INCH NPS SCHEDULE 40 GALVANIZED STEEL PIPE IN ACCORDANCE WITH ASTM A120.
- TOP, BOTTOM AND MID-SECTION RAILS
 - TOP, BOTTOM AND MID-SECTION RAILS SHALL CONFORM TO 1-1/4 INCH NPS SCHEDULE 40 GALVANIZED STEEL PIPE IN ACCORDANCE WITH ASTM A120.
- TENSION WIRE
 - TENSION WIRE SHALL BE 7 GAGE US STEEL WIRE GALVANIZED IN ACCORDANCE WITH ASTM A116 COATING CLASS III. THE TENSION WIRE SHALL BE STRETCHED NEAR THE BOTTOM OF THE FENCE AND ATTACHED AT TWO (2) FOOT INTERVALS. IF TOP RAIL IS NOT USED, THE TENSION WIRE SHALL BE STRETCHED AT THE TOP ALSO.
- APPURTENANCES
 - BRACE BANDS, TENSION BANDS, AND TENSION BARS SHALL BE FABRICATED OF 1/8 INCH BY 7/8 INCH GALVANIZED STEEL WITH GALVANIZED STEEL CARRIAGE BOLTS AND NUTS IN ACCORDANCE WITH ASTM A123. TENSION BARS SHALL BE 1/4 BY 3/4 INCH GALVANIZED STEEL BAR IN ACCORDANCE WITH ASTM A153.
- FABRIC TIES
 - FABRIC TIES SHALL BE CLASS I GALVANIZED STEEL WIRE NO LESS THAN 9 GAGE.

8. POST TOPS

- ONE POST TOP SHALL BE PROVIDED FOR EACH POST, WITH OPENINGS TO PERMIT THROUGH PASSAGE OF TOP RAIL. MATERIALS SHALL BE PRESSED STEEL OR MALLEABLE IRON THAT IS DESIGNED AS WATERTIGHT CLOSURE CAP FOR TUBULAR POSTS AND SHALL BE GALVANIZED PER ASTM A153.

9. BARBED WIRE

- BARBED WIRE SHALL CONSIST OF DOUBLE STRANDED, 12-1/2 GAGE WIRE ASTM A121, CLASS 3, WITH 4 POINT BARBS SPACED 5 INCHES APART. THE TOP ONE (1) FOOT OF THE FENCE SHALL CONSIST OF 3 STRANDS OF BARBED WIRE ATTACHED TO 45 DEGREE ANGLE HEAVY PRESSED ARMS CAPABLE OF WITHSTANDING WITHOUT FAILURE 250 POUNDS DOWNWARD PULL AT THE OUTERMOST END OF THE ARM.

10. GATES

- GATE MATERIALS SUCH AS FABRIC, BOLTS, NUTS, TENSION BARS, AND BARBED WIRE, SHALL BE CONSISTENT WITH FENCE MATERIALS. GATES SHALL CONSIST OF THE FOLLOWING TYPES:

- SINGLE AND DOUBLE SWING GATES
- CANTILEVER SLIDE GATES
- OVERHEAD SLIDE GATES
- VERTICAL LIFT GATES

(REFER TO DRAWINGS FOR TYPES AND LOCATIONS.)

- GATES SHALL BE MANUALLY OPERATED. SHOP DRAWINGS FOR GATES OVER 12 FEET WIDE SHALL BE SUBMITTED FOR APPROVAL.

PART 3 - EXECUTION

3.1 EXAMINATION

THE PHYSICAL LOCATIONS OF FEATURES SUCH AS FENCE LINES, GATES, TERMINAL POSTS SHALL BE IN ACCORDANCE WITH THE PLANS. REMOVAL OF TREES, SHRUBS, OR LANDSCAPE AREAS IS SUBJECT TO PRIOR APPROVAL UNLESS SPECIFICALLY SHOWN TO BE REMOVED ON THE DRAWINGS.

3.2 PREPARATION

PROVIDE A REASONABLY SMOOTH PROFILE AT THE FENCE LINE. THE BOTTOM OF THE FENCE SHALL NOT BE MORE THAN 2 INCHES ABOVE THE FINISHED GROUND LINE. WHERE THE FENCE CROSSES FEATURES SUCH AS STREAMS AND DRAINAGE DITCHES AND IT IS IMPRACTICAL TO CONFORM TO THE GROUND CONTOUR, THE FENCE SHALL SPAN THE DEPRESSION, UNLESS OTHERWISE SHOWN ON THE PLANS. CLOSE THE SPACE BELOW THE BOTTOM OF THE FENCE WITH EXTRA FENCE FABRIC OR BARBED WIRE. IF EXTRA LENGTH FENCE POSTS ARE REQUIRED AT SUCH LOCATIONS, THEY SHALL BE FURNISHED AND INSTALLED IN LIEU OF STANDARD LENGTH POSTS, TOGETHER WITH ANY INTERMEDIATE POSTS, STAKES, BRACES, EXTRA FABRIC, OR WIRE AS MAY BE REQUIRED.

3.3 INSTALLATION

A. POST SPACING

- INSTALL LINE POSTS AND BRACE POSTS AT INTERVALS NOT TO EXCEED 10 FEET. POSTS SHALL BE EVENLY SPACED. LOCATE CORNER AND TERMINAL POSTS ON THE CONSTRUCTION PLANS. INSTALL CORNER OR SLOPE POSTS WHERE CHANGES IN GRADE EXCEED A 30 DEGREE DEFLECTION.



B. INSTALLATION OF LINE, CORNER, PULL, AND TERMINAL POSTS

- SET LINE, CORNER, PULL, AND TERMINAL POSTS VERTICALLY IN CYLINDRICAL CONCRETE FOUNDATION IN ACCORDANCE WITH THE SCHEDULE IN TABLE 1 AND IN ACCORDANCE WITH ASTM F567.

TABLE 1 LINE, CORNER, PULL, AND TERMINAL POST INSTALLATION SCHEDULE

	FOUNDATION DIAMETER	FOUNDATION DEPTH	POST EMBEDMENT
LINE POST	0'-9"	3'-3"	3'-0"
TERMINAL POST	1'-0"	3'-3"	3'-0"
GATE POST	1'-0"	3'-3"	3'-0"
2-1/2 INCH	1'-6"	4'-0"	3'-6"
3-1/2 INCH	1'-6"	4'-0"	3'-6"
6 INCH	1'-6"	4'-0"	3'-6"
8 INCH	2'-0"	6'-0"	5'-6"

- THE EXPOSED SURFACE OF THE CONCRETE FOUNDATION SHALL BE SMOOTH 1/2 INCH CROWN, SLOPING AWAY FROM THE POST. THE POST SHALL BE 6 INCHES FROM THE BOTTOM OF THE CONCRETE POUR.

REV	DATE	REVISION DESCRIPTION	DSGN	STATE OF MISSOURI CERTIFICATE OF AUTHORIZATION #001640 RESPONSIBLE ENGINEERS: KMY KEVIN VANHALE E-21561 STRUCTURAL/CIVIL MLO MICHAEL L. OWENS E-29058 STRUCTURAL/CIVIL SOK SHELTON KEISUNG E-27323 ELECTRICAL TMS TERRANCE M. SUPER E-18521 ELECTRICAL	 10740 NALL AVE., SUITE 400 OVERLAND PARK, KS 66211 PHONE: (913) 344-2800	 1816 Lackland Hill Pkwy, Suite 400 St. Louis, Missouri 63146 Phone: 314-993-1010 Fax: 314-993-1036	PLANS PREPARED UNDER THE SUPERVISION OF:	DESIGNED BY SAA	STLC CHESTERFIELD SPECIFICATIONS (1 OF 2) 215 RUETHER LANE CHESTERFIELD, MISSOURI 63005	LEAD ENGR MLO/TMS	DRAWING NUMBER STL-0911 - SP1	REV 0
A	05/15/09	ISSUED FOR REVIEW	SAA					CHECKED BY MLO				
O	06/03/09	ISSUED FOR CONSTRUCTION	DMC					SUPERVISOR TKW				

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3. HOLES MAY BE HAND AUGURED OR DRILLED. SPREAD SOIL FROM THE EXCAVATIONS UNIFORMLY ADJACENT TO THE FENCE LINE OR AS DIRECTED BY THE CONSTRUCTION MANAGER. IF ROCK IS ENCOUNTERED, DRILL INTO THE ROCK FOR AT LEAST 12 INCHES FOR LINE POSTS, AND 18 INCHES FOR CORNER OR TERMINAL POSTS. DRILL HOLES 1 INCH LARGER THAN THE DIAMETERS AS PER THE SCHEDULE (REFER TO TABLE 1). IF SOLID ROCK IS BELOW SOIL OVERBURDEN, DRILL TO FULL DEPTH REQUIRED, EXCEPT PENETRATION INTO ROCK NEED NOT EXCEED MINIMUM DEPTHS SPECIFIED.

C. SETTING POSTS

1. REMOVE ANY LOOSE AND FOREIGN MATERIALS FROM THE SIDES AND BOTTOMS OF THE HOLES; MOISTEN THE SOIL PRIOR TO PLACING THE CONCRETE. CENTER AND ALIGN POSTS IN THE HOLES. PLACE THE CONCRETE IN A CONTINUOUS POUR IN THE HOLE AROUND POST, AND TAMP TO CONSOLIDATE. CHECK POSTS FOR VERTICAL AND HORIZONTAL ALIGNMENT, AND SECURE TO ALLOW PROPER CURING OF THE CONCRETE.
2. EXTEND FOOTINGS FOR GATE POSTS TO THE UNDERSIDE OF THE BOTTOM OF THE HINGE. KEEP CONCRETE SURFACES MOIST FOR AT LEAST 7 DAYS AFTER PLACEMENT, OR CURE WITH MEMBRANE CURING MATERIAL OR OTHER APPROVED METHOD.
3. POSTS THAT ARE SET IN SLEEVED HOLES SHALL BE GROUTED IN PLACE USING A NON-SHRINK PORTLAND CEMENT GROUT APPROVED BY THE ENGINEER.
4. PRIOR TO PLACING COMPONENTS SUCH AS FABRIC, RAILS, TENSION WIRE, AND GATES, ENSURE THAT THE CONCRETE HAS REACHED AT LEAST 75 PERCENT OF ITS DESIGN STRENGTH AS PRESCRIBED ON THE PLAN DETAILS, OR HAS CURED A MINIMUM OF 7 DAYS AFTER SETTING THE POSTS.

D. RAILS AND BRACING

1. INSTALL FENCE WITH A TOP RAIL AND BOTTOM TENSION WIRE. IF TOP RAIL IS OMITTED FOR A TEMPORARY FENCE, INSTALL A TOP TENSION WIRE ALSO. TOP RAILS SHALL BE CONTINUOUS THROUGH POST CAPS OR EXTENSION ARMS BENDING TO THE RADIUS FOR WIRED RUNS. SPACE 9 GAGE MINIMUM FABRIC TIE WIRE AT 2 FEET ON CENTERS.
2. INSTALL TENSION WIRES PARALLEL TO THE LINE OF FABRIC BY WEAVING NO LESS THAN 6 GAGE WIRE OF THE APPROPRIATE TYPE THROUGH FABRIC AND TYING TO EACH POST.
3. INSTALL TOP RAIL AND TENSION WIRE PRIOR TO INSTALLATION OF THE CHAIN LINK FABRIC. PROVIDE AN EXPANSION/CONTRACTION COUPLING, STANDARD WITH THE MANUFACTURER, EVERY 100 FEET ON STRAIGHT RUNS, INSTALLED WITHIN 2 FEET OF A LINE POST. USE END CLAMPS FOR ATTACHING THE TOP RAIL OR TENSION WIRE, AND AND BRACES TO THE BRACE TERMINAL AND GATE POSTS. USE CORNER CLAMPS FOR ATTACHING TOP RAILS OR TENSION WIRE AND BRACES TO CORNER POSTS.

E. INSTALLING FABRIC

1. INSTALL THE CHAIN LINK FENCE FABRIC SO THAT THE POSTS ARE ENCLOSED. STRETCH THE FABRIC TAUT, APPROXIMATELY 2 INCHES ABOVE THE GROUND, AND SECURELY TO THE POSTS.
2. CUT THE FABRIC AND ATTACH EACH SPAN INDEPENDENTLY AT ALL TERMINAL AND CORNER POSTS. USE STRETCHER BARS WITH FABRIC BANDS SPACED AT MAXIMUM 5 INCH INTERVALS TO FASTEN FABRIC TO TERMINAL POSTS. USE TIE WIRE, METAL BANDS, OR OTHER APPROVED MATERIAL ATTACHED AT MAXIMUM 15 INCH INTERVALS TO FASTEN FABRIC TO LINE POSTS. FASTEN THE TOP EDGE OF THE FABRIC TO THE TOP RAIL OR TENSION WIRE WITH WIRE TIES AT INTERVALS NOT EXCEEDING 15 INCHES. FASTEN THE EDGE OF FABRIC TO THE BOTTOM TENSION WIRE WITH WIRE TIES AT INTERVALS NOT EXCEEDING 15 INCHES.

F. BARBED WIRE

1. INSTALL BARBED WIRE ON GATES TO MATCH THAT INSTALLED ON THE LINE FENCE. TO ACCOMMODATE BARBED WIRE, EXTEND THE END MEMBERS OF GATES ONE (1) FOOT ABOVE THE HORIZONTAL SECTION OF THE GATE FRAME. SPACE STRANDS UNIFORMLY AND ATTACH TO FRAME WITH BANDS, CLIPS, OR EYEBOLTS. INCLINE EXTENSION ARMS ON LINE POSTS AND CORNER POSTS TOWARD THE PROPERTY ENCLOSED AT APPROXIMATELY 45 DEGREES. STRETCH THE STRANDS OF BARBED WIRE TO REMOVE SAG, AND ANCHOR FIRMLY TO EXTENSION ARMS. USE 3 STRANDS OF BARBED WIRE.

G. INSTALLING GATES

1. INSTALL GATES ACCORDING TO THE LOCATIONS, TYPE, AND SIZE INDICATED ON THE PLANS.
2. GATES SHALL BE PROPERLY BRACED AND TRUSSED TO PREVENT SAGGING, BUCKLING, AND WEAVING, AND SHALL BE COVERED WITH SAME TYPE OF FABRIC AS THE FENCE. VERTICAL MEMBERS OF THE GATE SHALL CARRY THE TOP OF 3 STRANDS OF BARBED WIRE. FIXED END RATCHET BANDS SHALL BE FURNISHED FOR FASTENING THE BARBED WIRE. FURNISH GATES WITH NECESSARY FITTINGS AND HARDWARE. LATCHES PROVIDED FOR USE WITH PADLOCK AND HINGES SHALL ALLOW SWING GATES TO SWING 180 DEGREES. PLUNGER BARS SHALL HAVE TOP, BOTTOM, AND MIDDLE LOCKING POINTS WITH THE MIDDLE POINT ARRANGED FOR PADLOCKING. GATES SHALL HAVE KEEPERS THAT ENGAGE AUTOMATICALLY WHEN THE GATE IS SWUNG OPEN.
3. INSTALL GATES PLUMB, LEVEL, AND SECURE FOR THE FULL OPENING WITHOUT INTERFERENCES.

4. INSTALL GROUND ITEMS SET IN CONCRETE IN ACCORDANCE WITH GATE MANUFACTURER'S RECOMMENDATIONS. INSPECT ALL PARTS AND ATTACHMENTS FOR DEFECTS, AND INSTALL, LUBRICATE, AND ADJUST EQUIPMENT TO ENSURE SMOOTH OPERATION.

H. MISCELLANEOUS INSTALLATION

1. USE U-SHAPED TIE WIRES, CONFORMING TO THE DIAMETERS OF PIPE, THAT CLASP THE PIPE AND FABRIC FIRMLY WITH ENDS TWISTED AT LEAST 2 FULL TURNS.
2. BEND ENDS OF EXPOSED WIRES TO MINIMIZE HAZARDS TO PERSONS OR CLOTHING.
3. INSTALL NUTS FOR FASTENERS ON TENSION BANDS AND HARDWARE BOLTS ON THE SIDE OF THE FENCE OPPOSITE THE FABRIC. THE ENDS OF BOLTS, ONCE SECURE AND CHECKED FOR SMOOTH OPERATION, SHALL BE PEENED TO PREVENT REMOVAL OF NUTS.
4. REPAIR COATINGS DAMAGED IN THE FIELD WITH METHODS AND TECHNIQUES AS RECOMMENDED BY THE MANUFACTURER.

3.4 CLEARING

- A. WHERE THE AREA OCCUPIED BY THE FENCE IS OUTSIDE THE LIMITS OF CLEARING AND GRUBBING FOR THE PROJECT, THE CONTRACTOR SHALL PERFORM CLEARING TO A WIDTH OF AT LEAST 2 FEET ON EACH SIDE OF THE FENCE LINE AS NECESSARY TO ALLOW A PROPER FENCE INSTALLATION.

3.5 PROTECTION

- A. A GUARANTEE SHALL BE FURNISHED FOR ALL MATERIALS, INSTALLATION, AND WORKMANSHIP TO BE FREE OF DEFECTS FOR A PERIOD OF 1 YEAR FROM THE DATE OF ACCEPTANCE UNLESS NOTED OTHERWISE IN THE CONTRACT DOCUMENTS. ANY DEFECT IN INSTALLATION OR WORKMANSHIP SHALL BE REPAIRED, AND DEFECTIVE MATERIALS SHALL BE REPLACED DURING THE GUARANTEE PERIOD WITHOUT COST TO THE OWNER.

END OF SECTION

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