

GENERAL NOTES:

- CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AT SITE. ALL INCONSISTENCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- INFORMATION ON NEW OR EXISTING CONDITIONS WAS OBTAINED FROM DRAWINGS PROVIDED BY OTHERS AND FROM LIMITED JOB SITE WALK OBSERVATIONS. ACTUAL CONDITIONS MAY VARY.
- THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN ALL EQUIPMENT IN A SAFE MANNER. KEEP DEAD FRONT EQUIPMENT IN PLACE WHILE EQUIPMENT IS ENERGIZED. CONDUCT CONSTRUCTION OPERATIONS IN A SAFE MANNER FOR EMPLOYEES AS WELL AS OTHER WORK PERSONS AT THE SITE. PROVIDE THE NECESSARY SAFETY EQUIPMENT TO MAINTAIN SAFETY.
- PRIOR TO COMMENCING, COORDINATE AND REVIEW WORK ACTIVITIES WITH THE OWNERS REPRESENTATIVE. PROVIDE A PROJECT SCHEDULE OUTLINING DATES, TIMES, AND DURATION OF PROPOSED WORK.
- PROVIDE DEBRIS CONTAINERS FOR GARBAGE AND RECYCLING OF MATERIALS. CLEAN SITE EACH DAY BEFORE END OF WORK DAY AND UPON COMPLETION OF WORK CLEAN PREMISES OF ALL DBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
- CONTRACTOR SHALL WORK ONLY DURING DESIGNATED HOURS. APPROVED BY SAN BENITO COUNTY, CALIFORNIA.
- CONTRACTOR SHALL TRAIN AND PROVIDE GUIDANCE TO ALL EMPLOYEES AND VISITORS TO THE PROJECT SITE ABOUT BIOLOGICAL CONDITION AND REQUIREMENTS WHEN ENTERING CONSTRUCTION SITE.
- CONTRACTOR SHALL REINFORCE THE WORKING ENVIRONMENTAL CONDITIONS AND RESTRICTIONS AS PROVIDED BY SAN BENITO COUNTY FOR MTIGATION. SEE ATTACHED DOCUMENTS.
- CONTRACTOR SHALL PROVIDE A COMPLETE SET OF "AS-BUILT" DRAWINGS AT THE COMPLETION OF THE PROJECT.
- IT IS NOT THE INTENT OF THESE CONSTRUCTION NOTES TO COVER ALL DETAILS AND/OR CONDITIONS AND/OR SPECIFICATION REQUIRMENTS OF THE "AUTHORITY HAVING JURISDICTION" (AHJ). ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE PROJECTS STANDARD SPECIFICATIONS, GENERAL DESIGN STANDARDS, ORDANCES, RULES, POLICIES, REQUIREMENTS AND REGULATIONS, AS WELL AS ANY OTHER APPLICABLE STATE AND/OR GOVERN FOR CONSTRUCTION OF ALL PROJECT ELEMENTS.

- THE EXISTENCE AND LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN (MAIN LINE, NO LATERAL OR SERVICE SHOWN) ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS AND ARE APPROXIMATE, NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR SHALL DETERMINE THE DEPTH AND LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO TRENCHING FOR CONDUIT OR PLOWING OF CABLES AND SHALL BE REQUIRED TO TAKE ANY PRECAUTIONARY MEASURES TO PROTECT ALL LINES SHOWN AND/OR ANY OTHER UNDERGROUND UTILITIES NOT OF RECORD OR NOT SHOWN ON THE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITIES PRIOR TO CONSTRUCTION, CALL BEFORE YOU DIG!
- ANY CONTRACTOR / SUBCONTRACTOR PERFORMING WORK ON THIS PROJECT SHALL FAMILIARIZE HIMSELF/HERSELF WITH THE SITE AND SHALL SOLELY RE RESPONSIBLE FOR ANY DAMAGES TO EXISTING FACILITIES RESULTING DIRECTLY OR INDIRECTLY FORM HIS OPERATIONS, EXISTING SITE IMPROVEMENTS SHALL INCLUDE BUT NOT LIMITED TO BERMS, DITCHES, FENCES, ANIMALS AND PLANTS. ANY REMOVAL OR DAMAGE TO EXISTING IMPROVEMENTS SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR AT HIS EXPENSE AND SHALL BE APPROVED BY THE OWNER.
- ALL SUBMITTALS MUST BE ORIGINALS WITH SIGNAURES WERE APPLICABLE; FACSIMILES OR E MAILS SHALL BE FOLLOWED UP WITH ORIGINALS.
- THE CONTRACTOR SHALL PROVIDE, FURNISH AND INSTALL ALL NECESSARY TRAFFIC CONTROL IN ACCORDANCE WITH THE MINIMUM REQUIRMENTS OF SAN BENITO COUNTY.
- THE CONTRACTOR SHALL MAKE EVERY EFFORT TO NOT IMPEDE TRAFFIC ON THE EXISTING STREETS AND /OR FIRE LANES. THE CONTRACTOR SHALL POST ALL NECESSARY SIGNS REQUIRED FOR THE TRAFFIC CONDITION THAT THE CONTRACTOR PLACES UPON THE TRAFFIC WAY PER CALIFORNIA DEPARTMENT OF TRAANSPORTATION (CDOT), COORDINATION WITH THE COUNTY AND THE CITY OF HOLLISTER, CALIFORNIA AS NEEDED.

**SITE SECURITY**

THE SITE WILL HAVE 24/7 MONITORING THAT INCLUDES THE FOLLOWING:

- GATE ENTRY INTO THE OPERATIONS AREAS WILL BE CONTROLLED.
- KEY AREAS WILL HAVE VIDEO RECORDING AND CAPABLE OF BEING RETAINED FOR 30 DAYS. VIDEO RECORDS WILL BE MADE AVAILABLE TO THE COUNTY ON REQUEST. THE VIDEO RECORDING WILL BE CAPABLE OF BEING EXPORTED IN MPREG FORMAT.
- EXTERIOR LIGHTING WILL BE DIRECTED TOWARD KEY AREAS, SUCH AS PERIMETER AND BETWEEN BUILDINGS.
- ALARM AND SYSTEM CONTROLS WILL MONITORED BY A CENTRAL REMOTE STATION. ALARM SYSTEM WILL INCLUDE PRIVATE SECURITY COMPANY RESPONSE TO CRITICAL ALARMS: FIRE, ROBBERY AND BURGLAR.

**PERMIT DISPLAY**

ALL CURRENT VALID PERMITS SHALL BE DISPLAYED INSIDE THE LOBBY OR WAITING AREA OF THE MAIN ENTRANCE TO THE SITES. THE PERMITS SHALL BE IN A CONSPICUOUS PLACE SO THAT IT MAY BE READILY SEEN BY ALL PERSONS ENTERING THE SITE.

**SIGNAGE**

AT THE ENTRANCE TO THE FACILITY THE FOLLOWING WILL BE DISPLAYED:

- "THIS SITE IS NOT OPEN TO THE PUBLIC"
- "SMOKING IS PROHIBITED"
- "ONLY AUTHORIZED PERSONAL MAY ENTER"
- "ALL VISITORS MUST CHECK IN AT OFFICE"
- "THIS SITE IS BEING VIDEO RECORDED"

**ODOR CONTROL**

CULTIVATION AND BIOMASS GENERATION FACILITY SHALL PREVENT ODORS BEING GENERATED THAT ARE ABOVE PERMITTED LEVELS FROM ESCAPING THE BOUNDARIES OF THE PARCEL, SUCH THAT THE ODOR CANNOT BE DETECTED BY A REASONABLE PERSON OF NORMAL SENSITIVITY.

- GENERAL ELECTRICAL AND STRUCTURAL NOTES:
- THESE DRAWINGS ARE BASED UPON AVAILABLE DOCUMENTS WHICH MAY NOT ACCURATELY DETAIL AS-BUILT CONDITIONS. EXISTING ELECTRICAL EQUIPMENT, CONDUIT AND WIRE SIZE, LOCATIONS AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER IMMEDIATELY OF ALL DISCREPANCIES AFFECTING THE INSTALLATION OF THE NEW EQUIPMENT.
  - INSTALL ELECTRICAL EQUIPMENT, BOXES, PLATFORMS, CONDUITS TO BEST SUIT ACTUAL CONDITIONS. COORDINATE THE NEW CONSTRUCTION WITH OTHER TRADES.
  - PROTECT ALL EXISTING ELECTRICAL EQUIPMENT AND EXISTING CONDUITS. NOTIFY OWNER OR REPRESENTATIVE IF EXISTING EQUIPMENT MUST BE SHUT DOWN OR MOVED DURING THE CONSTRUCTION PHASE.
  - REPAIR AND/OR REPLACE ALL EXISTING EQUIPMENT OR CIRCUITS THAT ARE DAMAGED DURING CONSTRUCTION.
  - PROVIDE EQUIPMENT, CODUIT, CABLES, HARDWARE, SOFTWARE, WIRING AND DEVICES IN ACCORDANCE WITH THE SPECIFICATIONS AND MANUFACTURES REQUIREMENTS FOR ALL WORK INSTALLED AS PART OF THE PROJECT.
  - ALL EQUIPMENT SHALL BE GROUNDED PER NEC ARTICLE 250.
  - ALL CIRCUIT BREAKERS, FUSES, AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN MAXIMUM SHORT CIRCUIT TO WHICH THEY MAY BE SUBJECTED TO AND MINIMUM OF 10,000 AJC.
  - ALL CONDUCTORS SHALL BE COPPER.
  - EACH CONDUCTOR SHALL BE PERMANNTLY TAGGED IN EACH PANELBOARD, PULLBOX, J-BOX, SWITCH, ETC.
  - PENETRATIONS IN FIRED RATED WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH LOCAL BUILDING CODES USING UL RATED MATERIALS.
  - ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT LABELS.
- GENERAL SYSTEM NOTES
- INFORMATION ABOUT THE EXISTING SITE CONDITIONS WAS PRIMARILY FROM EXISTING DRAWINGS AND LOCAL KNOWLEDGE. FIELD VERIFY ALL REFERENCES AND CONDITIONS BEFORE CONSTRUCTION. MAKE ALL NECESSARY ADJUSTMENTS FOR ACTUAL SITE CONDITIONS.
  - ALL WORK SHALL CONFORM TO AND BE PERFORMED IN ACCRODANCE WITH CODES, STANDARDS, AND LOCAL REQUIRMENTS SPECIFIED BY THE AUTHORITIES HAVING JURIDATION (AHJ)
  - ALL EQUIPMENT SHALL BE LISTED AND LABELED PER RECONGIZED ELECTRICAL TESTING LABORATORY.
  - ALL EQUIPMENT SHALL BE INSTALLED PER THE LISTING REQUIREMENTS AND MANUFACTURERS INSTALLATION INSTRUCTIONS.
  - ALL EQUIPMENT SHALL BE GROUNDED PER NEC CODE 250 AND 690.
  - AT COMPLETION OF THE PV SYSTEM INSTALLATION, COMPLETE A SYSTEM COMMISSIONING TEST AS REQUIRED BY PROJECT REQUIREMENTS.

**APPLICABLE BUILDING CODES**

CBC VOLUME II CHAPTER 31 (SPECIAL CONSTRUCTION)  
SECTION 3102 (MEMBRANE STRUCTURES) >180 DAYS  
SECTION 3102.1 - 3102.8  
3102.3 TYPE OF CONSTRUCTION - TYPE IIB  
NON-COMBUSTIBLE MEMBRANE AND FRAME  
3102.6 MIXED CONSTRUCTION SHALL BE PERMITTED  
3102.6.1 NON-COMBUSTIBLE MEMBRANE SHALL BE PERMITTED AS A ROOF IF NOT LESS THAN 20 FEET ABOVE FLOOR.

WIRING COLOR CODE:

	480 VAC, 3/0	277 VAC, 1/0	240/120 VAC, 1/0
L1	BROWN	BROWN	BLACK
L2	ORANGE		RED
L3	YELLOW		
NEUTRAL	GREY	GREY	WHITE
GROUND	GREEN/BARE	GREEN/BARE	GREEN/BARE

**PROCESSING OF AG-FOREST WOOD AND BUILDING**

DESCRIPTION	ALLOWABLE		ACTUAL
	U	U	
OCCUPANCY GROUP (CBC, CHAPTER 3):			
CONSTRUCTION TYPE	TYPE IIB	TYPE IIB	
NUMBER OF STORIES (CBC)	ONE (1)	ONE (1)	
NUMBER OF STORIES INCREASED FOR FIRE SPRINKLERS (CBC, SECTION 504.2):	N/A	N/A	
BUILDING HEIGHT (CBC, TABLE 504.3)	55'	26'-0"	
BUILDING HEIGHT INCREASE:	N/A	N/A	
BUILDING HEIGHT INCREASE FOR FIRE SPRINKLERS (CBC, SECTION 504):	N/A	N/A	
BUILDING AREA (CBC, TABLE 503) PER STORY:	8,500 SF	4,800 SF	
BUILDING AREA WITHOUT FIRE SPRINKLERS CBC, TABLE 506.2	8,500 SF	4,800 SF	
BUILDING AREA INCREASE FOR FRONTAGE (CBC, TABLE 506.2)	N/A	N/A	
TOTAL BUILDING AREA PER STORY:	-		
BUILDING SETBACK (NORTH):		+ 864'	
BUILDING SETBACK (EAST):		+ 846'	
BUILDING SETBACK (SOUTH):		+ 260'	
BUILDING SETBACK (WEST):		+ 100'	
FIRE SPREINKLER SYSTEM:		NO	
FIRE ALARM:		NO	
YEAR BUILDING ORIGINALLY CONSTRUCTED:		NEW	
HIGH FIRE HAZARD SAFETY ZONE:		NO	
SEISMIC SAFETY JOINTS:		NO	
EMERGENCY RESPONDER RADIO COVERAGA:		YES	

NA

TABLE 504.3<sup>a, i</sup>

ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION									
		TYPE I		TYPE II		TYPE III		TYPE IV		TYPE V	
		A	B	A	B	A	B	HT	A	B	
B, F, M, S, U	NS <sup>p</sup>	UL	160	65	55	65	55	65	50	40	
	S	UL	180	85	75	85	75	85	70	60	

NS = Buildings not equipped throughout with an automatic sprinkler system;

TABLE 506.2<sup>a, b, i</sup>

ALLOWABLE AREA FACTOR (A<sub>t</sub> = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION									
		TYPE I		TYPE II		TYPE III		TYPE IV		TYPE V	
		A	B	A	B	A	B	HT	A	B	
U	NS	UL	35,500	19,000	8,500	14,000	8,500	18,000	9,000	5,500	
	S1	UL	142,000	76,000	34,000	56,000	34,000	72,000	36,000	22,000	
	SM	UL	106,500	57,000	25,500	42,000	25,500	54,000	27,000	16,500	

NS = Buildings not equipped throughout with an automatic sprinkler system;

LEASED AREA OF APN: 004-010-040-000  
AN AREA CONSISTING OF 5+- ACRES THAT IS SITUATED WITHIN THE BOUNDARY OF PARCEL 004-010-040-000 IN THE UNINCORPORATED AREA, COUNTY OF LAKE, STATE OF CALIFORNIA

**COVER PAGE  
GENERAL INFORMATION**  
755 E. HWY 20, UPPER LAKE , CA 95485

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION  
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453  
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DATE: 5-27-2023  
DRAWN BY:  
DESIGN LEAD:  
PROJECT MANAGER: Steve Rumbaugh  
PROJECT ENGINEER:

**SVEC UPPER LAKE PROJECT**

DRAWING NUMBER: **G-0.1**

FIELD: SCALE: NONE



- PROJECT NOTES: THIS PROJECT IS DESIGNED TO HAVE LOW ENVIRONMENTAL IMPACT.**
- NO UTILITY CONNECTIONS
  - SELF GENERATION / MIRCOGRID
  - NO SPETIC / ADA PORTABLE RESTROOMS USED
  - NO TREES TO BE REMOVED
  - NO EXCAVATION PLANNED
  - ABOVE GROUND RAINWATER RUNOFF BIORETENTION
  - CONEX BOXES AND HOOP CANOPY FARM STRUCTURE 4,800 SF. GRAY IN COLOR
  - MINIMAL CONCRETE TO BE USED
  - GROUND SCREW FOUNDATIONS TO BE USED

LEASED AREA OF APN: 004-010-040-000  
AN AREA CONSISTING OF 5+ ACRES THAT IS SITUATED WITHIN THE BOUNDARY OF PARCEL 004-010-040-000 IN THE UNINCORPORATED AREA, COUNTY OF LAKE, STATE OF CALIFORNIA

**SITE PLAN AND ELEVATION**  
**755 E. HWY 20, UPPER LAKE, CA 95485**

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FIELD SCALE NONE

# BIORETENTION RAINWATER RUNOFF CALCULATION

## BIORETENTION FEASIBILITY

1. Is the use of Bioretention appropriate?
2. Confirm other design criteria and applicability. Pollutant Removal Effectiveness Required

## PRELIMINARY HYDROLOGIC CALCULATIONS

3. Compute site hydrologic input parameters  
Development Conditions  
Area  
CN (SCS curve number)  
Adjusted CN (curve number adjusted for 1-inch storm)  
Time of concentration
4. Compute  $WQ_v$ , water quality volume requirements  
Compute Runoff Coefficient,  $R_v$   
Compute  $WQ_v$  Volume requirements  
Compute  $WQ_p$ , peak flow using SCS  
Compute modified SCS curve number
6. Compute  $CP_v$   
Compute S (maximum retention)  
Compute 1-yr. 24-hr total rainfall depth  
Compute  $Q_d$  (runoff volume)  
Compute  $CP_v$  (channel protection volume)
7. Size Flow Diversion Structure  
**BIORETENTION AREA DESIGN**
8. Pretreatment facility type and design parameters
9. Determine Area of bioretention ponding/filter area

### NOTES:

Optimal

Development Conditions	Pre-developed	Post-developed
Area	42 acres	41 acres
CN (SCS curve number)	77	80
Adjusted CN (curve number adjusted for 1-inch storm)		79.14
Time of concentration	2.86 min 0.05 hours	7 min 0.12 hours

$R_v = 0.07$   
 $WQ_v = 0.25$  acre-ft  
 $WQ_p =$  cfs  
 $CN = 79.14$

$S = 2.50$   
Rainfall Depth = 2.58 inches  
 $Q_d = 0.94$  inches  
 $CP_v = 3.23$  acre-ft

$A_r = 13359$  ft<sup>2</sup>

## PRELIMINARY DRAINAGE PLAN FOR HOOP / CANOPY TENT FOR FOREST WOOD MATERIAL PROCESSING FACILITY

ARROWS INDICATE NATURAL DRAINAGE DIRECTION

### LOOKING SOUTH

42 Acre Parcel  
1,830,000 sf  
0.273% of Land is Impervious Area

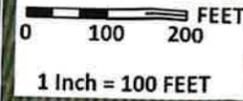
ONLY 5,000 SF OF IMPERVIOUS AREA

5 Acres

1 Acre

Existing Drainage Ditch

Existing Drainage Ditch

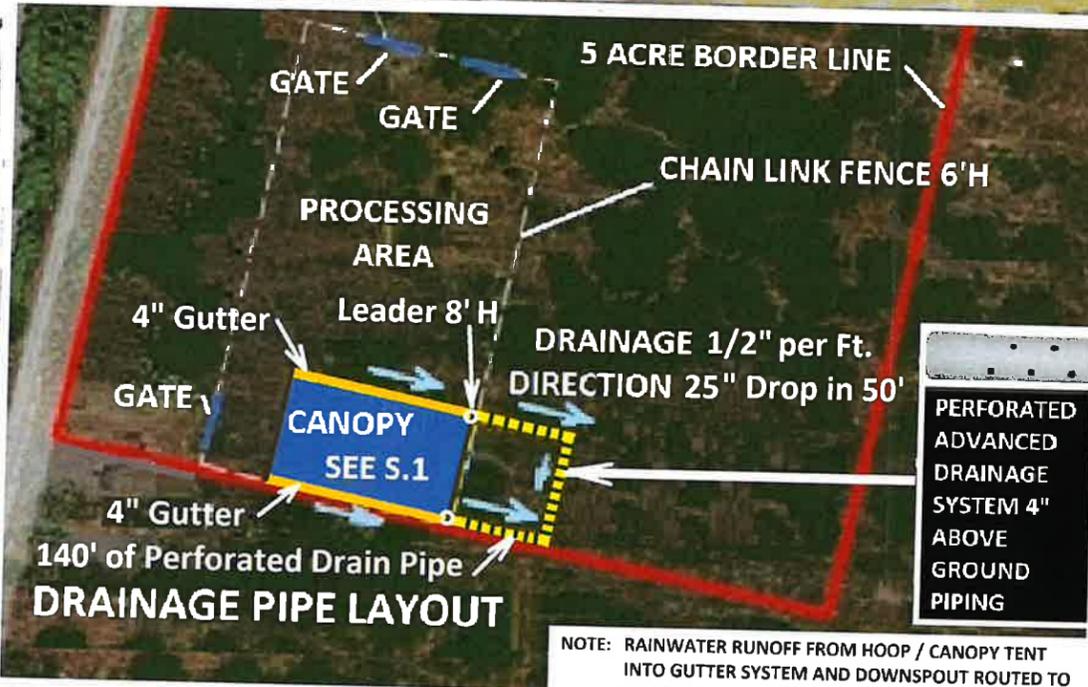
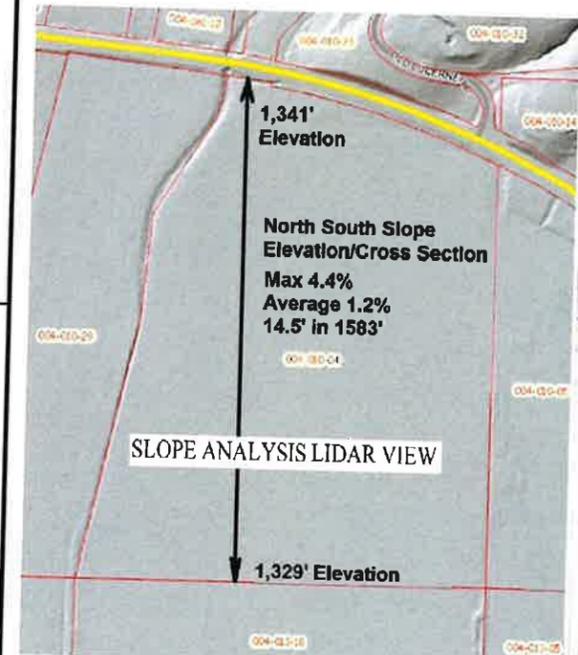


SEE ENCROACHMENT DRAWING

APN#: 004-010-040

Acres: 42.6

Zoning: APZ



### Post Developed Basin Data

Drainage Area = 41.000 ac  
Impervious % (I) = 2.439 %  
Impervious acres = 1.000 ac  
Curve Number (CN) = 80.000  
 $T_c =$   
 $T$  lag =

### Water Quality Volume Calculations

$R_v = 0.05 + 0.009(I) = 0.072$   
 $WQ_v = 1.0R_vA/12 = 0.246$  ac-ft  
 $WQ_v = 1.0R_v = 0.072$  inches  
Modified CN = 79.143

### Pre-Developed Basin Data

Drainage Area = 42.000 ac  
Impervious % (I) = 0.000 %  
Impervious acres = 0.000 ac  
Curve Number (CN) = 77.000  
 $T_c =$   
 $T$  lag =

### Channel Protection Volume Calculations

$Q = (P - 0.2S)^2 / (P + 0.8S) = 0.945$  inches  
 $S = 1000 / CN - 10 = 2.500$   
 $CP_v =$   
 $3.227$  acre-ft

### ALLOWABLE FLOW FOR VERTICAL LEADERS AND HORIZONTAL STORM DRAIN

#### ALLOWABLE FLOW IN G.P.M.

PIPE SIZE	VERTICAL LEADER	HORIZONTAL STORM DRAIN SLOPE PER FOOT		
		1/8"	1/4"	1/2"
2	30	12	17	24
3	90	36	51	72
4	192 / 96	78	111	157 / 78

Lake County Code	4,800	4,800
	Roof Area to Drain	Roof Area to Drain
Cu Ft per Hr	1200	1200
Cu Ft per Min	0.0167	0.0167
minutes in hr	60	60
gpm drain	149.6	149.6
Drain Lines	2	2
gpm per Line	74.8	74.8

0.2% Annual Chance Flood  
Rebuilt Encroachment  
Access Driveway Entrance  
See Detail of Asphalt

Parcel Boundary  
Leased Area  
Rocked Access Corridor  
Existing Farm Access Driveway

Hazard, Area of 1% annual chance with average depth less than one foot or with drainage areas of less than one square mile

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## BIORETENTION RAINWATER RUNOFF PLAN

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DRAWN BY:

DESIGN LEAD:

PROJECT MANAGER:

Steve Rumbaugh

PROJECT ENGINEER:

## SVEC UPPER LAKE PROJECT

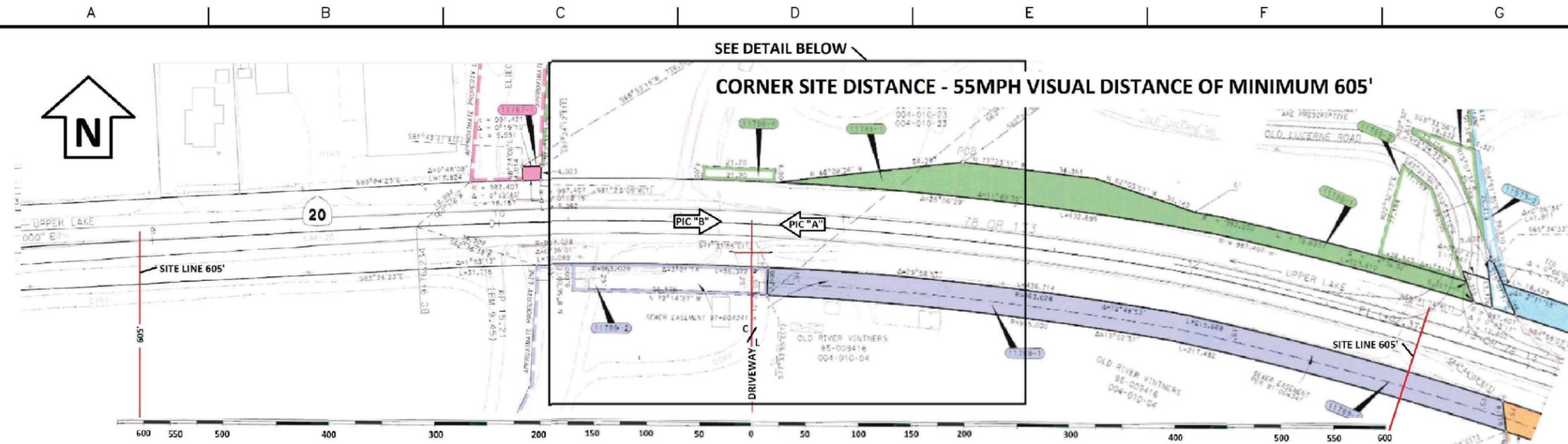
DRAWING NUMBER:

CP-1.2

FIELD

SCALE  
NONE

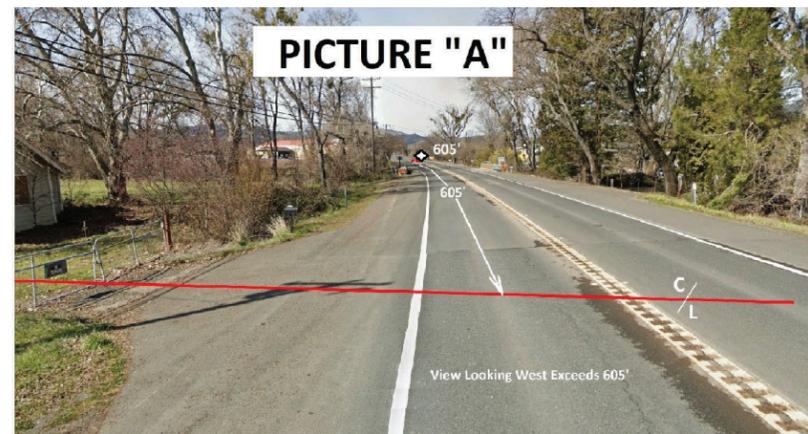
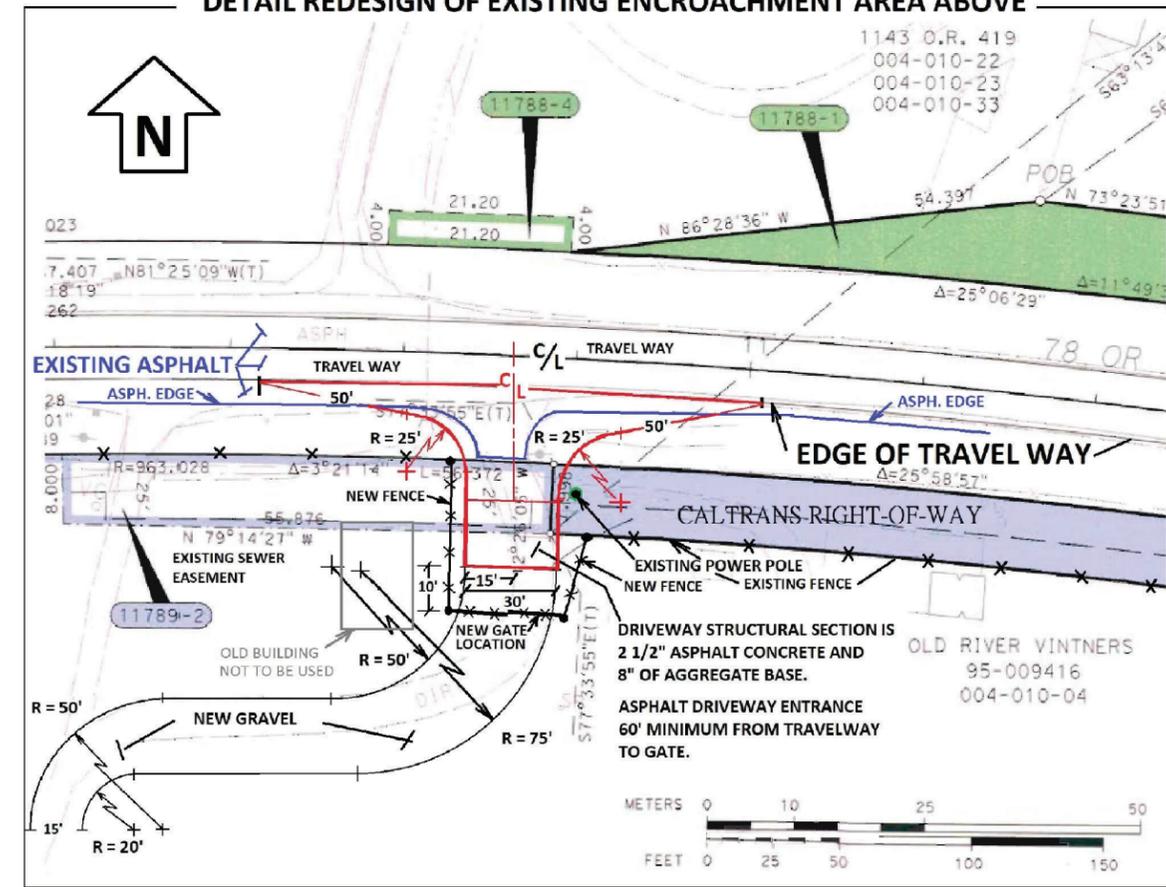
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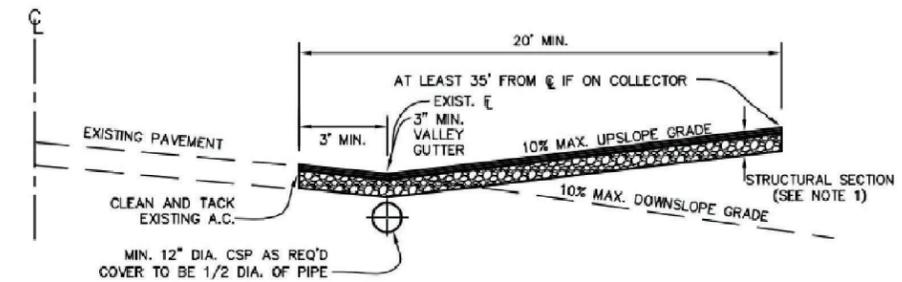
**Table 405.1A  
Corner Sight Distance  
(7-1/2 Second Criteria)**

Design Speed (mph)	Corner Sight Distance (ft)
25	275
30	330
35	385
40	440
45	495
50	550
55	605
60	660
65	715
70	770

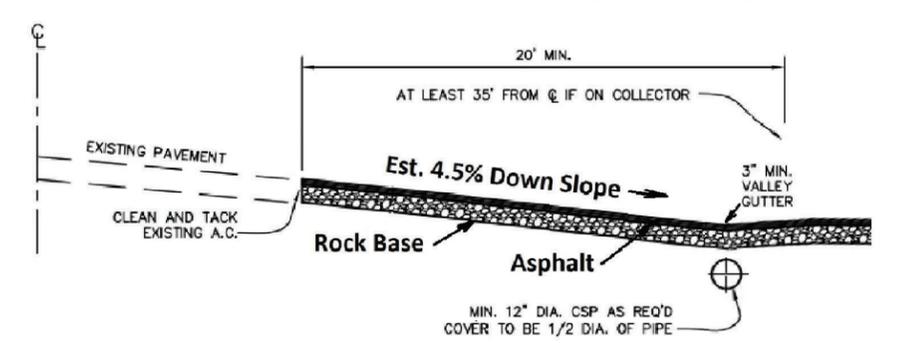
**DETAIL REDESIGN OF EXISTING ENCROACHMENT AREA ABOVE**



**TYPICAL CALTRANS DRIVEWAY DESIGN CRITERIA**



**PLANNED REDESIGN OF DRIVEWAY @ 4.5% DOWN SLOPE**



**GENERAL - ENCROACHMENT**  
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DESIGN LEAD:  
PROJECT MANAGER:  
Steve Rumbaugh  
PROJECT ENGINEER:

**SVEC UPPER LAKE PROJECT**

DRAWING NUMBER: **GE-0.1**

FIELD SCALE: NONE



FABRIC AND TRIM COLOUR OPTIONS: PVC FABRIC OPTIONS:

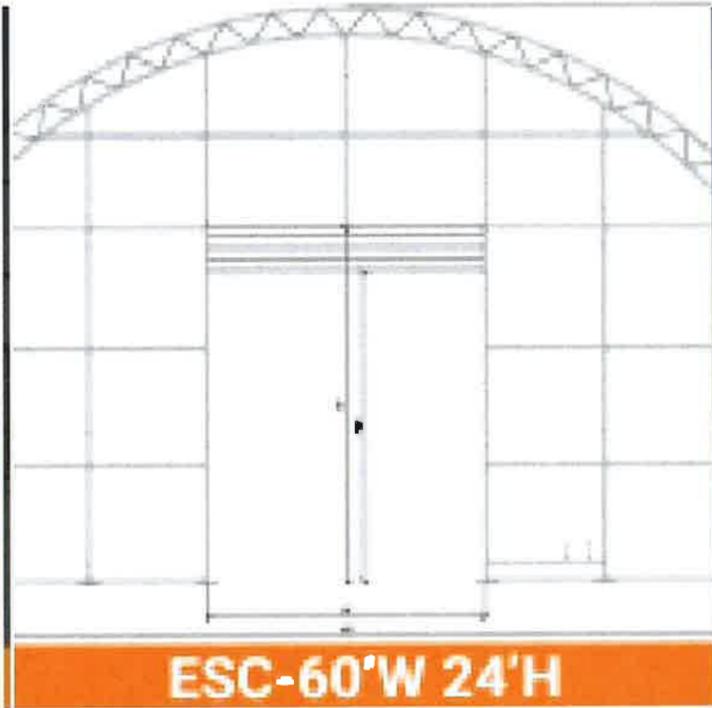


- PVC 450 Fabric – 4 to 7 years
- PVC 610 Fabric – 5 to 8 years
- PVC 750 Fabric – 6 to 10 years
- PVC 900 Fabric – 7 to 12 years

**TYPICAL MOUNTING TO CONEX BOX CONFIGURATION**



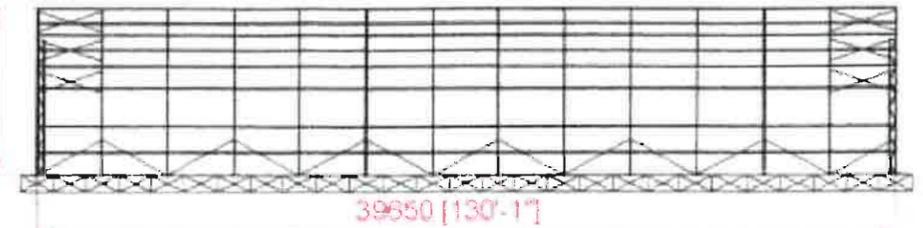
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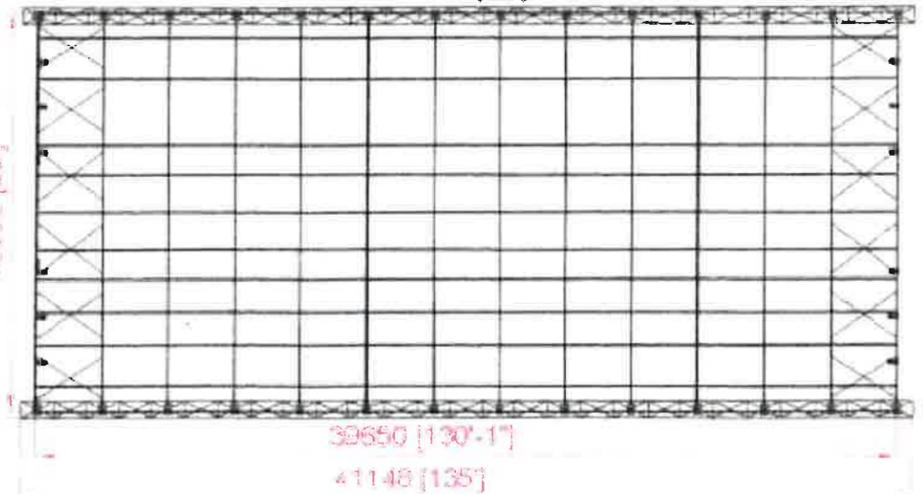
ESC-60'W 24'H

[LOAD TYPE DEAD + SNOW + WIND]						[LOAD TYPE DEAD + WIND]								
Load Type	REACTION (kN)			MOMENT (kNm)			Load Type	REACTION (kN)			MOMENT (kNm)			
	Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)		Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)	
D+SN+WD	0.07	-0.01	3.05	0	0.04	0	81	D+WD	-0.31	0.04	-2.55	-0.01	-0.1	0
D+SN+WD	0.1	0	3.02	0	0	0	82	D+WD	-0.5	0	-3.78	0	0	0
D+SN+WD	0.01	0	3.73	0	0.01	0	83	D+WD	-0.03	0	-4.48	0	0	0
D+SN+WD	0.02	0	3.04	0	0.01	0	84	D+WD	0.03	0	-5.79	0	0	0
D+SN+WD	0	0	3.76	0	0.02	0	85	D+WD	-0.03	0	-6.85	0	0.01	0
D+SN+WD	0	0	3.04	0	0	0	86	D+WD	0	0	-7.05	0	0	0
D+SN+WD	0	0	3.76	0	0	0	87	D+WD	0	0	-8.88	0	0	0
D+SN+WD	-0.03	0	3.27	0	0	0	88	D+WD	0.01	0	-4.52	0	0	0
D+SN+WD	-0.01	0	3.27	0	0	0	89	D+WD	0.37	0	-3.94	0	0	0
D+SN+WD	-0.86	0	1.88	0	0.07	0	91	D+WD	-2.84	0	-4.51	0	-0.88	0
D+SN+WD	-4.8	0	1.88	0	0.04	0	92	D+WD	-4.72	0	-2.04	0	-2.26	0
D+SN+WD	-3.1	0	-1.87	0	-0.04	0	93	D+WD	4.47	0	0.08	0	0.05	0
D+SN+WD	-1.87	0	1.91	0	-0.4	0	94	D+WD	2.42	0	-7.58	0	0.37	0
D+SN+WD	-0.8	0	1.65	0	0.1	0	95	D+WD	-2.82	0	-1.89	0	-0.8	0
D+SN+WD	4.92	0	1.22	0	0.04	0	96	D+WD	-4.3	0	-5.48	0	-0.22	0
D+SN+WD	-3.11	0	-1.99	0	-0.04	0	97	D+WD	4.28	0	3.14	0	0.05	0
D+SN+WD	-1.89	0	1.34	0	-0.41	0	98	D+WD	2.38	0	-7.43	0	0.37	0
D+SN+WD	-0.72	0	1.78	0	0.08	0	99	D+WD	-1.19	0	-15.21	0	-0.27	0
D+SN+WD	6.03	0	1.12	0	0.05	0	100	D+WD	-4.94	0	-1.48	0	-0.26	0
D+SN+WD	-3.18	0	-1.45	0	-0.04	0	101	D+WD	4.72	0	3.94	0	0.05	0
D+SN+WD	-1.87	0	1.64	0	-0.4	0	102	D+WD	2.58	0	-18.34	0	0.31	0
D+SN+WD	-0.58	0	1.69	0	0.1	0	103	D+WD	-2.83	0	-10.57	0	-0.8	0
D+SN+WD	4.34	0	1.21	0	0.04	0	104	D+WD	-4.28	0	-5.49	0	-0.22	0
D+SN+WD	-3.1	0	-1.95	0	-0.04	0	105	D+WD	4.37	0	3.14	0	0.05	0
D+SN+WD	-1.88	0	1.3	0	-0.4	0	106	D+WD	2.35	0	-17.44	0	0.37	0
D+SN+WD	-0.72	0	1.78	0	0.08	0	107	D+WD	-1.19	0	-15.2	0	-0.27	0
D+SN+WD	5.03	0	1.13	0	0.05	0	108	D+WD	-4.94	0	-1.48	0	-0.26	0
D+SN+WD	-3.18	0	-1.45	0	-0.04	0	109	D+WD	4.72	0	3.93	0	0.05	0
D+SN+WD	-1.87	0	1.64	0	-0.4	0	110	D+WD	2.57	0	-18.33	0	0.31	0

SIDE VIEW (1:4)



TOP VIEW (1:4)



ALLOWABLE COMBINED LOAD AS PER BC BUILDING CODE DIV B SECTION 4.1 STRUCTURAL LOAD AND PROCEDURE

- GROUND SNOW LOAD : 3.50 kPa
- REFERENCE WIND VELOCITY PRESSURE : 0.39 kPa

- Meets Building Codes for most snow and wind loads.
- Independent engineer drawings.
- Covered under liability insurance
- Bolt Together Arches & Quad Tension System

- PVC Fabric cover – Allows natural light in while blocking harmful UV; fire retardant; creates comfortable working conditions
- 100% Waterproof – Superior resistance to rain/snow, mold, wind, cuts, and rips

- Double truss, non-rust, heavy duty galvanized steel frame with 6.56', 7.5' or 10' Bay Spacing
- Roll-up mechanical doors – 16' W x 18' H (Note: The passable height is approximately 18" to 30" less depending upon door heights)

**ARCHITECTURAL & STRUCTURAL DRAWING**

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION  
 ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453  
 PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DATE: 5-27-2023  
 DRAWN BY:  
 DESIGN LEAD:  
 PROJECT MANAGER: Steve Rumbaugh  
 PROJECT ENGINEER:

**SVEC UPPER LAKE PROJECT**

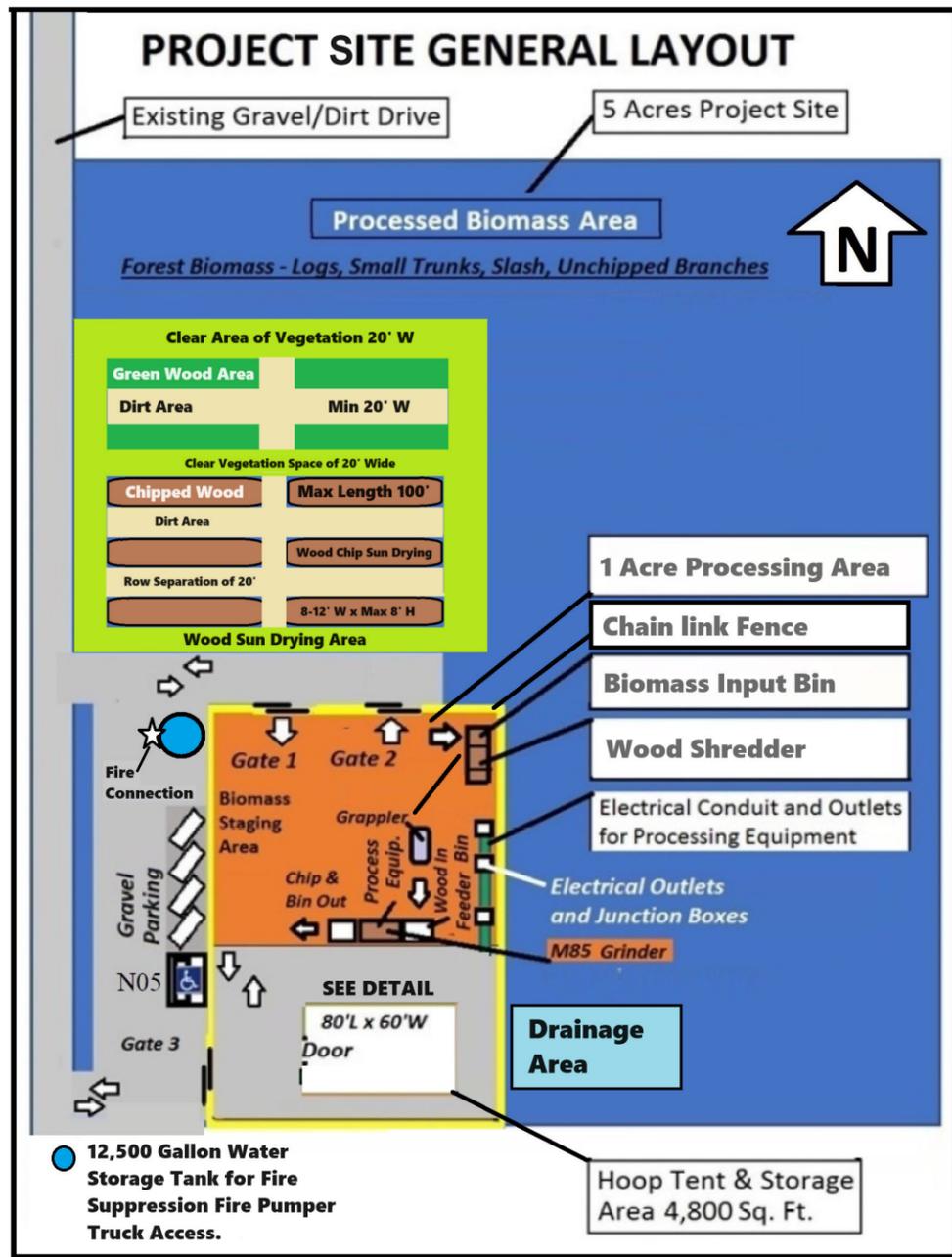
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**AS-1.1**

FIELD SCALE NONE

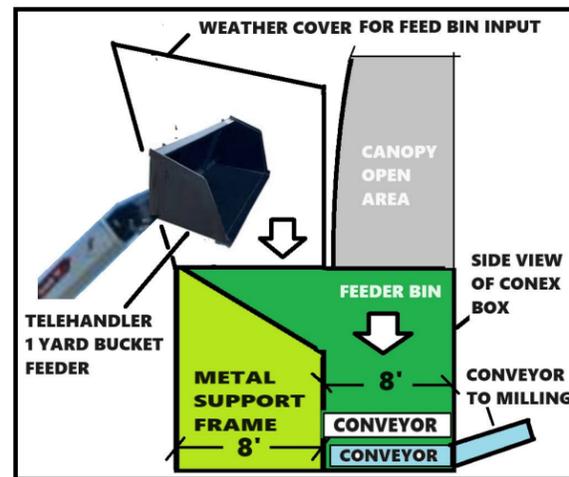
REV.

# DETAIL "B"

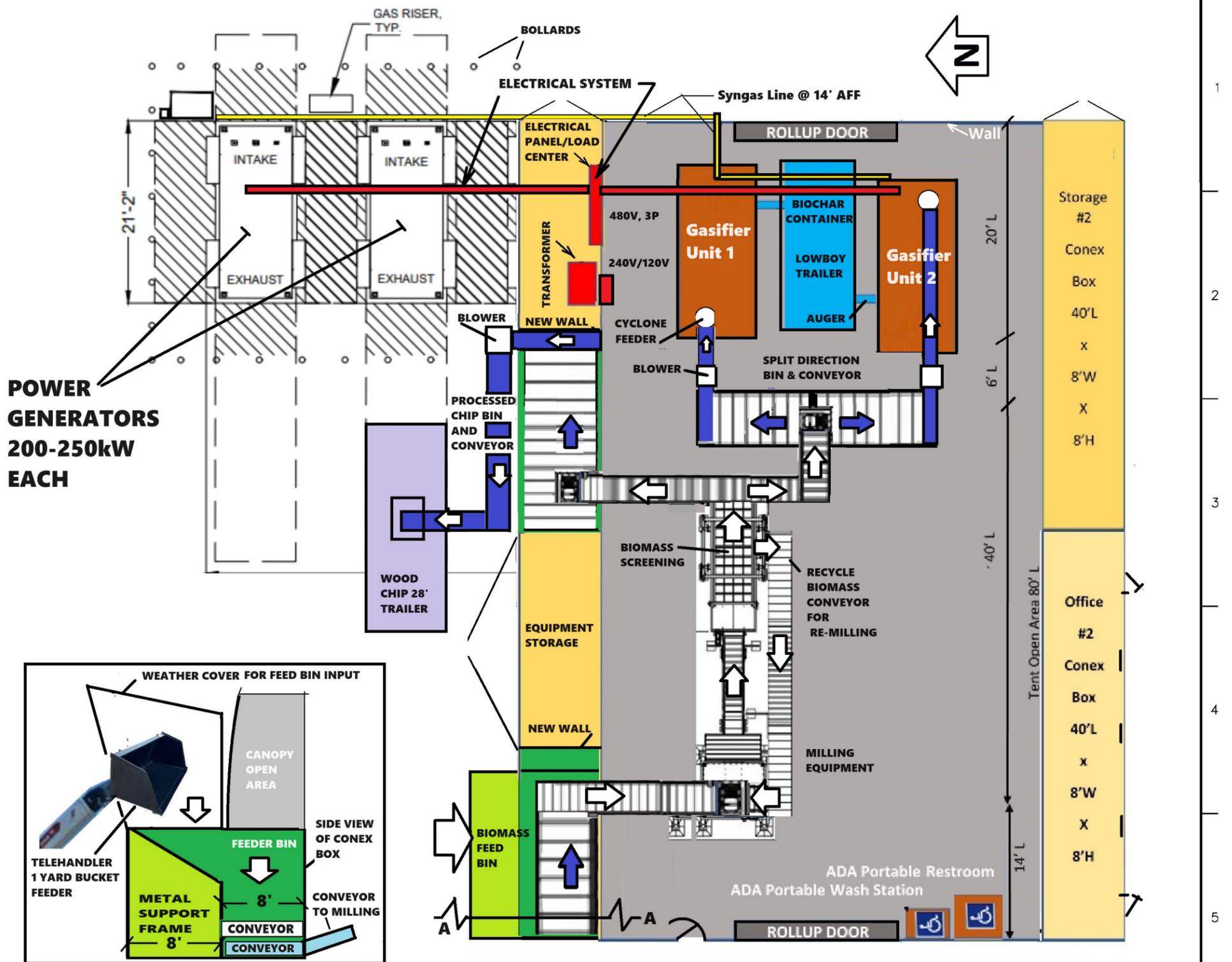


EQUIPMENT LAYOUT OF 5 ACRE LEASED SITE

**POWER GENERATORS 200-250kW EACH**



DETAIL "A-A"



DETAIL LAYOUT OF INTERIOR EQUIPMENT LOCATION

## ARCHITECTURAL EQUIPMENT DRAWING INTERIOR LAYOUT

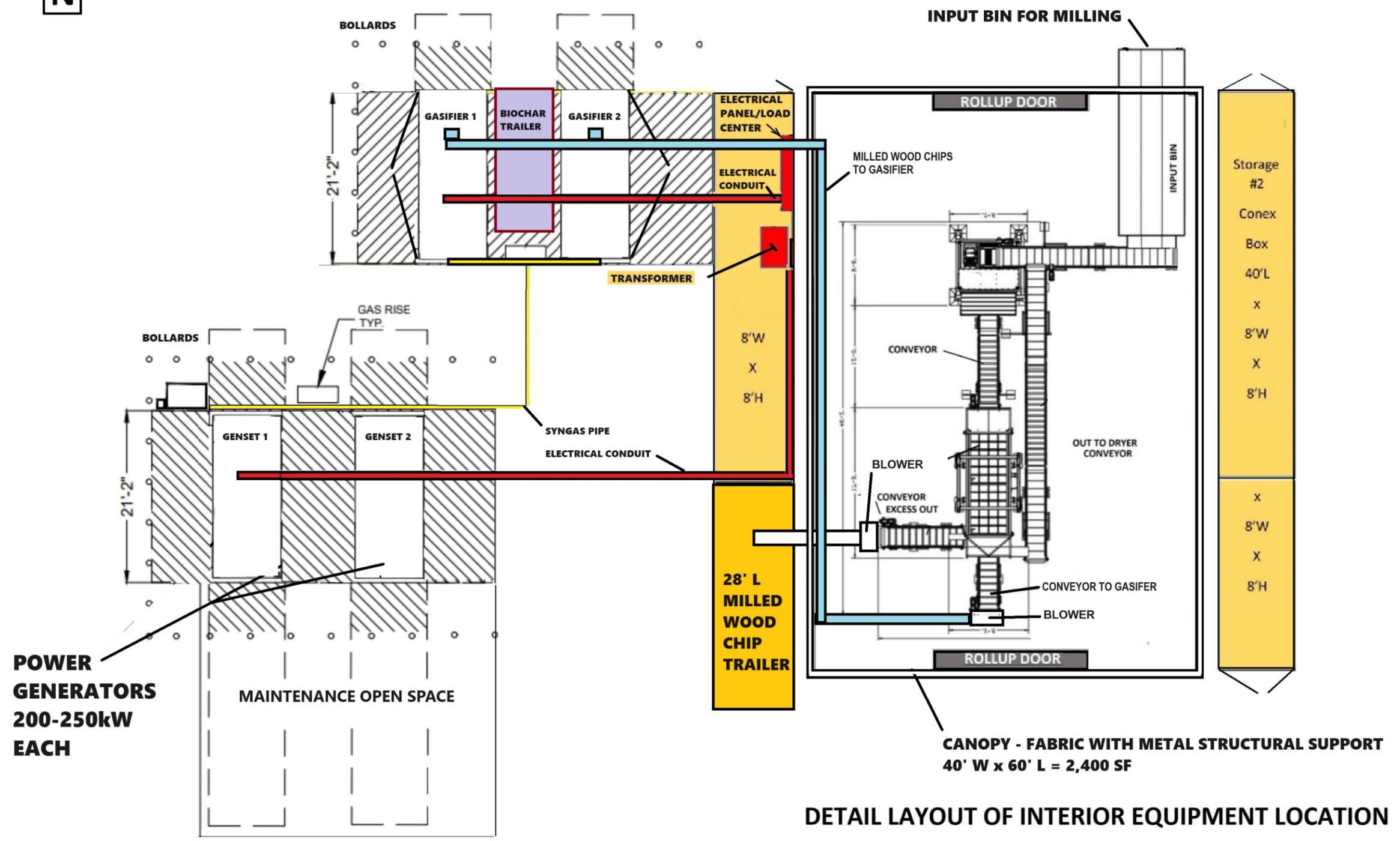
APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION  
 ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453  
 PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DATE: 12-18-2023  
 DRAWN BY:  
 DESIGN LEAD:  
 PROJECT MANAGER: Steve Rumbaugh  
 PROJECT ENGINEER:

## SVEC UPPER LAKE PROJECT

DRAWING NUMBER:

**AQ-5.1**



DRAWING NO.	REFERENCE DRAWINGS

**ARCHITECTURAL EQUIPMENT DRAWING INTERIOR LAYOUT**

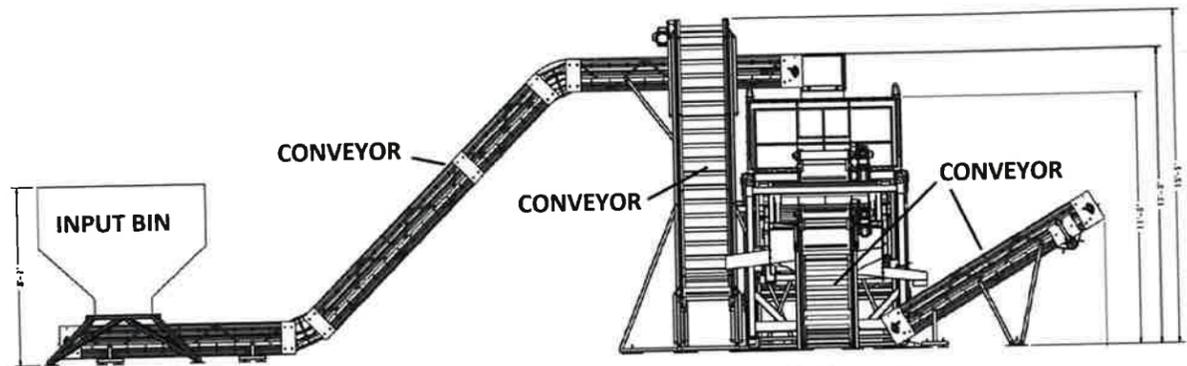
APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS,  
 SCOTTS VALLEY ENERGY CORPORATION  
 ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453  
 PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DATE: 1-15-2024  
 DRAWN BY:  
 DESIGN LEAD:  
 PROJECT MANAGER: Steve Rumbaugh  
 PROJECT ENGINEER:

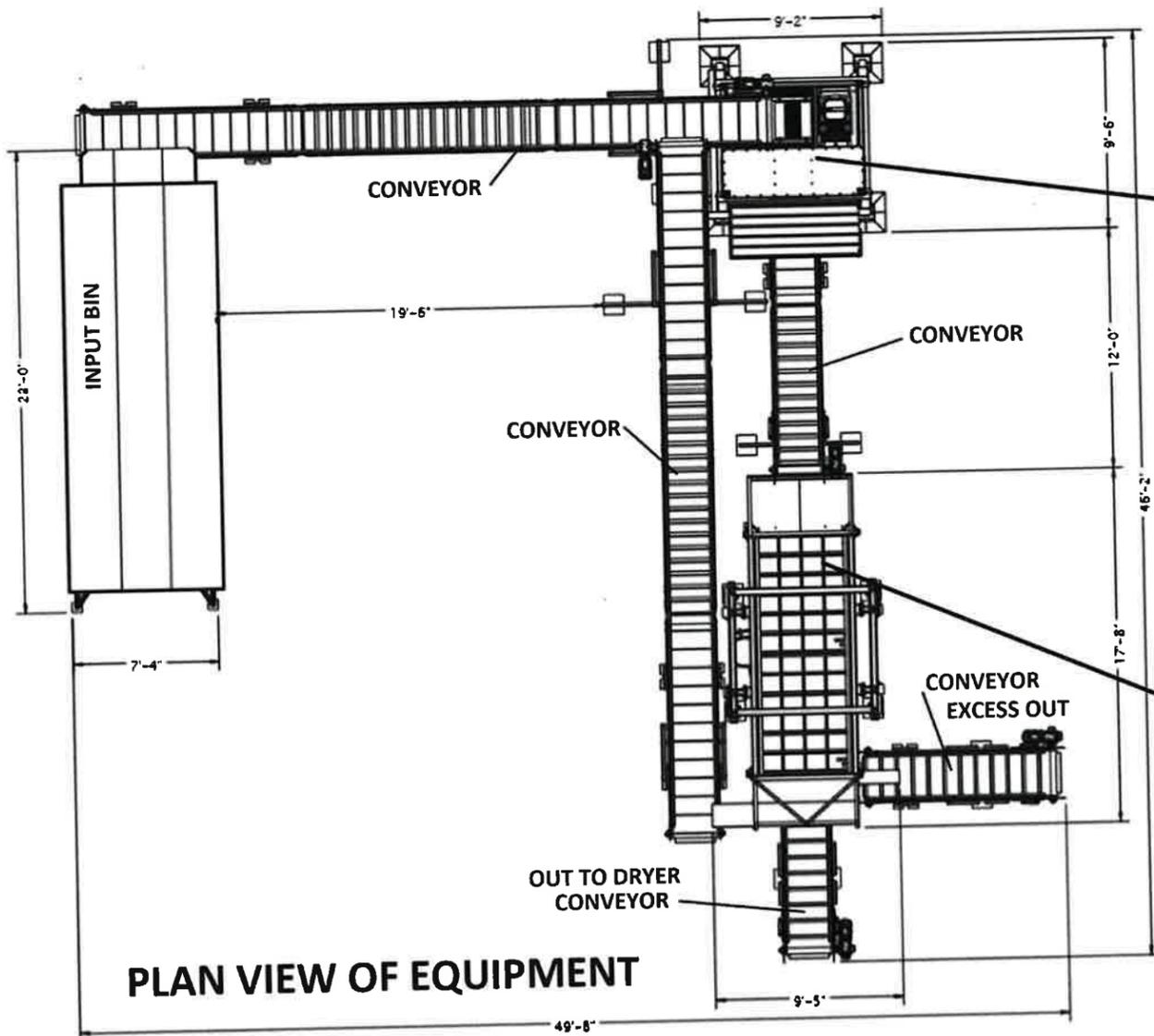
**SVEC UPPER LAKE PROJECT**

DRAWING NUMBER: **AQ-5.1**

FIELD SCALE NONE REV.



**ELEVATION OF EQUIPMENT**



**PLAN VIEW OF EQUIPMENT**

**CRUMBLER / ROTARY SHEAR**



**Orbital Screen System**



**PROCESSED WOOD DRYER SYSTEM FOR FEED MATERIAL INTO GASIFIER UNITS.**

DRAWING NO.	REFERENCE DRAWINGS

**ARCHITECTURAL EQUIPMENT  
DRAWING INTERIOR LAYOUT**

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS,  
SCOTTS VALLEY ENERGY CORPORATION  
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453  
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DATE: 5-27-2023  
DRAWN BY:  
DESIGN LEAD:  
PROJECT MANAGER:  
Steve Rumbaugh  
PROJECT ENGINEER:

**SVEC UPPER LAKE PROJECT**

DRAWING  
NUMBER:

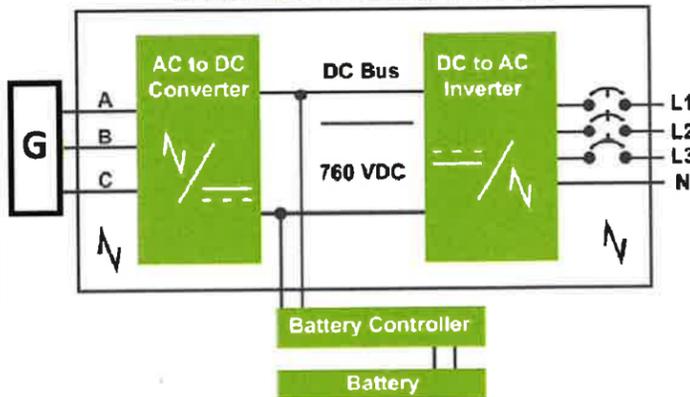
**AQ-5.2**

FIELD SCALE  
NONE

REV.



# POWER GENSET SCHEMATIC OF INVERTER BASED ELECTRICAL



**Load Center 240/120V, 200A, 3 Phase Subpanel (lighting, Security, Outlets)**

**Description:**  
SQD Q0342MQ200 LOAD CENTER QO MB 200A 3PH 42 CIRCUIT \*\*COVER NOT INCLUDED ORDER SEPARATELY

**Technical Description**  
Main Breaker Type: 14.25 Inch Width X 3.75 Inch Depth X 39.37 Inch Height Size; 42 Max. Number of Circuits; 42 Max. Number of Spaces UL Approval

UPC: 78590129056

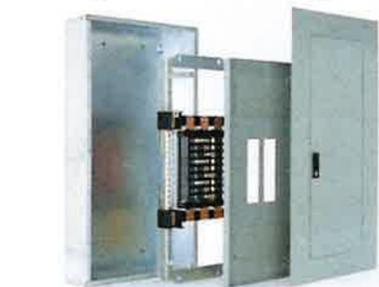
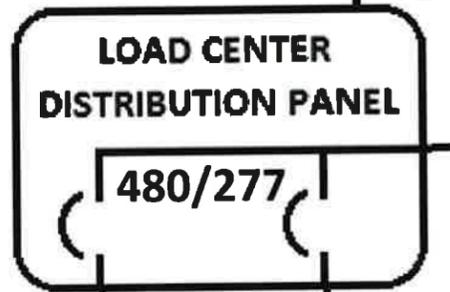
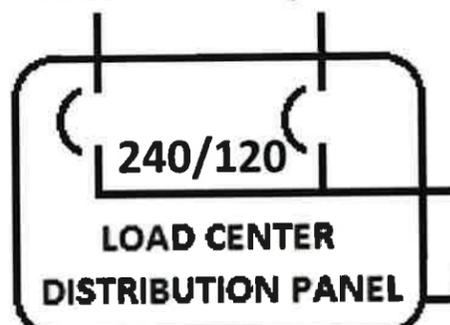
Part Number: Q0342MQ200

Manufacturer: Square D **SQUARE D**

Mounted on Conex Box

## EQUIPMENT LOAD SCHEDULE

- 1 - BIOMASS DRYER: 460v, 3ph, 50 amp
- 1 - CRUMBLER-ROTARY SHEAR: 460v, 3ph, 100 amp
- 1 - ROBITAL SCREEN SYSTEM: 460v, 3ph, 50 amp
- 6 - CONVEYORS: 240v, 3ph, 30 amp
- 4 - LIGHTING, WALL OUTLETS AND SECURITY: 120V, 1PH, 20 AMP
- 2 - MISC. EQUIPMENT 240v, 3ph, 30 amp
- 2 - MISC. EQUIPMENT 480v, 3ph, 30 amp
- 2 - MISC. EQUIPMENT 120v, 1ph, 30 AMP



GE Catalog No. AEU3424RCXAXT1B4  
3 Phase 42 Circuit Interior with Subfeed Pro-Stock\*  
3 Phase 42 Circuit Interior with Subfeed 400A

Attached to Conex Box

3-PHASE 480V DELTA - 240V DELTA / 120



Select kVA: 45 kVA  
SKU # MIT-DRY-111-CU

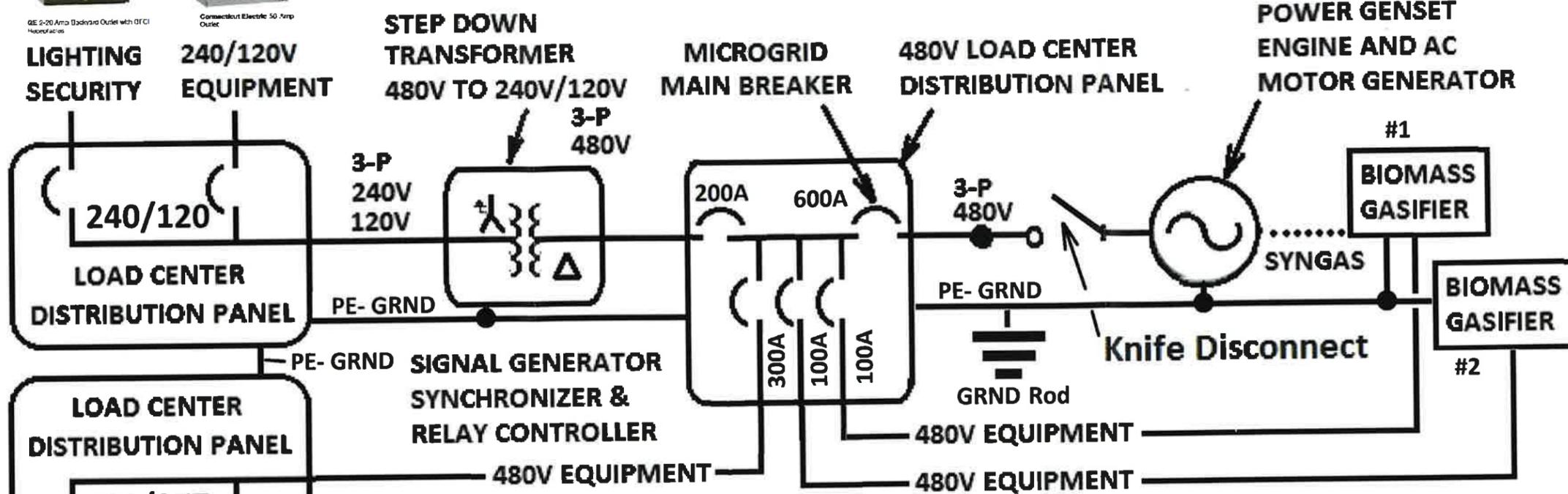
**STEP DOWN TRANSFORMER 480V TO 240V/120V**



Select Winding Material: Copper

# MICROGRID DESIGN SCHEMATIC

GENERAL ELECTRICAL SCHEMATIC OF SITE GENERATION & DISTRIBUTION



**Main Electrical 480V, 3 Phase, 600A Panel with Breaker and Distribution Load Center Panel (Indoor Rated) Mounted on Conex Box**

**Description:**  
SQUARE D HCM14486CU : PANELBOARD INTERIOR ILINE 600A MLO 3PH CU

**Technical Description:**  
Main Lug Type; 27 Max. Number of Spaces; UL Approval; Power Distribution Application; 600 Vac/250 VDC Voltage Rating; 600 Ampere Current Rating; 3 Phase 3 Wire Circuit Configuration; Bottom Feed Location; Copper Bus Material

UPC: 78590115964

Part Number: HCM14486CU  
Manufacturer: Square D **SQUARE D**



**MICROGRID MAIN BREAKER**



Safety switch, heavy duty, non fusible, 600A, 3 wire, 3 poles, 500hp, 600VAC/DC, Type 3R

HU366R Mounted on Conex Box  
**SQUARE D**

**Knife Disconnect**

**ELECTRICAL DRAWING MICROGRID SCHEMATIC**  
755 E. HWY 20, UPPER LAKE, CA 95485

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, SCOTTS VALLEY ENERGY CORPORATION  
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453  
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DATE: 5-27-2023

DRAWN BY:

DESIGN LEAD:

PROJECT MANAGER: Steve Rumbaugh

PROJECT ENGINEER:

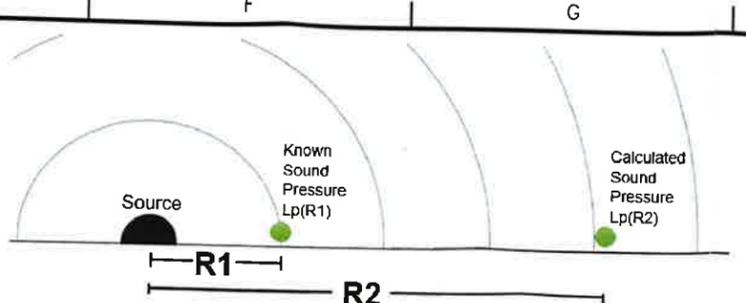
**SVEC UPPER LAKE PROJECT**

DRAWING NUMBER:

**E-1.6**

FIELD SCALE NONE

REV:



**Sound Attenuation Calculator - Inverse Square Law**  
 The formula to calculate sound attenuation over distance for a point source is:

$$Lp(R2) = Lp(R1) - 20 \cdot \log_{10}(R2/R1)$$

Where:

Lp(R1) = Known sound pressure level at the first location (typically measured data or equipment vendor data) Normally at 3 feet.

Lp(R2) = Unknown sound pressure level at the second location

R1 = Distance from the noise source to location of known sound pressure level

R2 = Distance from noise source to the second location

**Chipper Sound Levels - Source ("Exposure to noise in wood chipping operations under the conditions of agro-forestry") Published Nov. 2015**

"Noise exposure was highest during chipping time, with 81.8 dB(A). The main source of noise was the powerful diesel engine, followed by the chipper drum: they generated the highest noise levels in the 100–200 Hz and the 20–50 Hz frequency ranges, respectively. Daily noise exposure did not exceed the 80 dB(A) lower action value."

**Electric Chipper has highest expected continuous sound levels at site @ 85 dBA**

Expected dBa loss is 85 dBa - 37.3 = 47.7 dBa at nearest property line.

**SOUND TABLE of LOCATIONS**

- △ Ag Building - dBa Loss is 37.3 dBa  
Parcel#: 004-010-29
- △ Nearest Residence - dBa Loss is 51 dBa  
Parcel#: 004-010-05  
● 55 dBa Max @ Residence + 51 dBa  
Loss = 106 dBa @ Source Max.
- △ Casino Building - dBa Loss is 52.8 dBa  
Parcel#: 004-010-050

☆ Site Chainsaw Selection < 102.3 dBa Max

Model	Type	Noise Level (in dBA)
Husqvarna 560 XP	Gas	106
Husqvarna 316	Electric	90
Pouland 261	Gas	107
Makita XCU02PTX1	Battery	89
Remington (Pole)	Electric	98
Poulan Pro	Electric	99
Husqvarna 135	Gas	102
Stihl MSA 160 T	Battery	81
Husqvarna T536Li XP	Battery	93

**Noise Level of Equipment**

- Chain Saw - 110 dBa ☆
- Compressed Air - 95 dBa
- Alarms - 95 dBa
- Front End Loader - 95 dBa
- Tractor - 92 dBa
- Electric Chipper - 85 dBa

**Planned Operational Hours of Equipment Listed Above**  
 7:30am - 5:30pm  
 Weekdays

**Note: All Calculations are based on standard conditions.**

DRAWING NO.	REFERENCE DRAWINGS
-------------	--------------------

**SOUND LEVEL ANALYSIS**  
 755 E. HWY 20, UPPER LAKE, CA 95485

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS,  
 SCOTTS VALLEY ENERGY CORPORATION  
 ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453  
 PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DATE: 5-27-2023  
 DRAWN BY:  
 DESIGN LEAD:  
 PROJECT MANAGER: Steve Rumbaugh  
 PROJECT ENGINEER:

**SVEC UPPER LAKE PROJECT**

DRAWING NUMBER: X-0.6

FIELD SCALE: NONE



DRAWING NO.	REFERENCE DRAWINGS

**LOCAL PROPERTY OWNERS**  
755 E. HWY 20, UPPER LAKE, CA 95485

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS,  
SCOTTS VALLEY ENERGY CORPORATION  
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453  
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

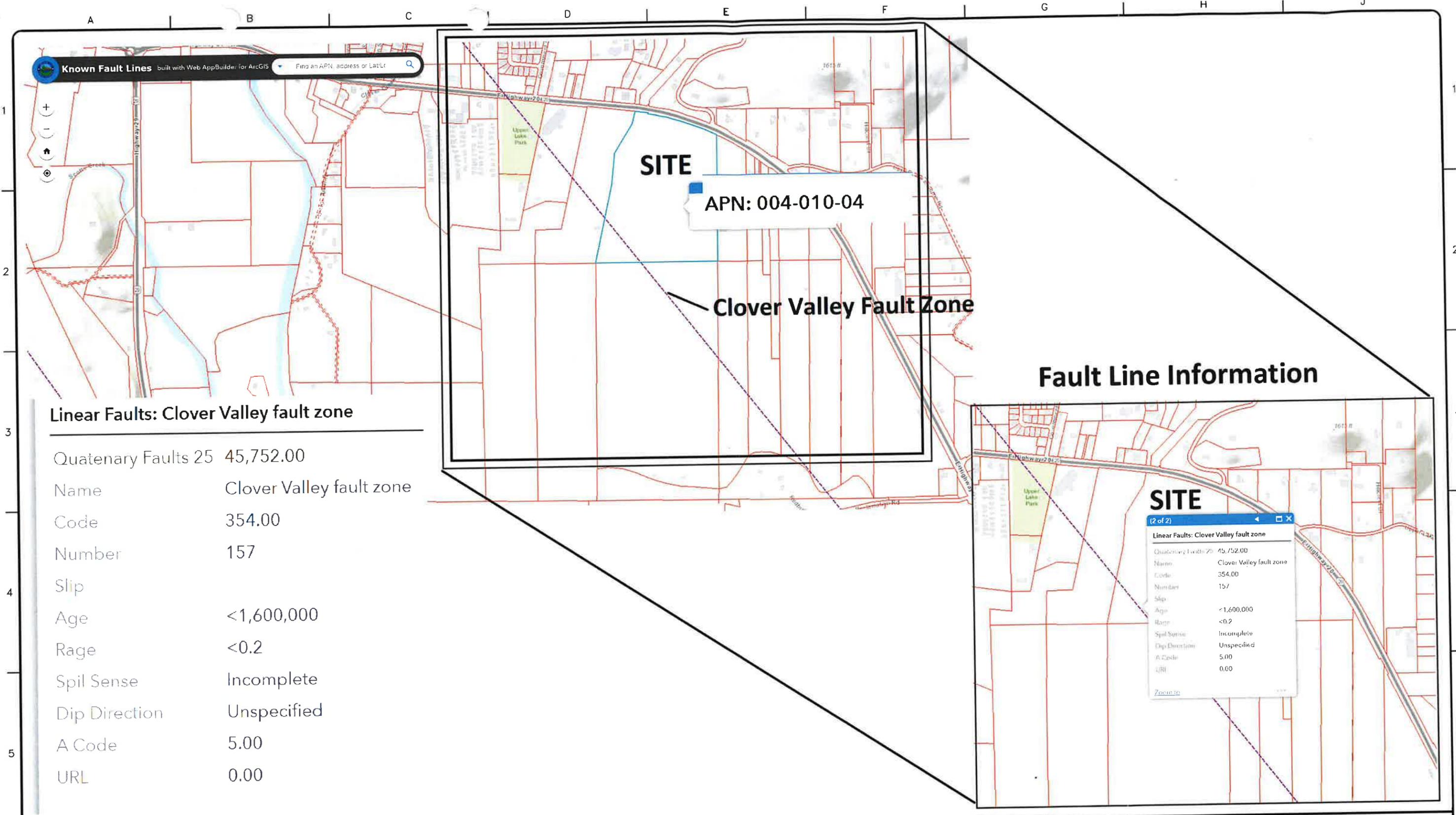
DATE: 5-27-2023  
DRAWN BY:  
DESIGN LEAD:  
PROJECT MANAGER: Steve Rumbaugh  
PROJECT ENGINEER:

**SVEC UPPER LAKE PROJECT**

DRAWING NUMBER: **X-0.7**

FIELD SCALE NONE

REV.



**Linear Faults: Clover Valley fault zone**

Quaternary Faults	25	45,752.00
Name	Clover Valley fault zone	
Code	354.00	
Number	157	
Slip		
Age	<1,600,000	
Rage	<0.2	
Spil Sense	Incomplete	
Dip Direction	Unspecified	
A Code	5.00	
URL	0.00	

**Fault Line Information**

**SITE**  
(2 of 2)

**Linear Faults: Clover Valley fault zone**

Quaternary Faults	25	45,752.00
Name	Clover Valley fault zone	
Code	354.00	
Number	157	
Slip		
Age	<1,600,000	
Rage	<0.2	
Spil Sense	Incomplete	
Dip Direction	Unspecified	
A Code	5.00	
URL	0.00	

Zoom to

**Earthquake Fault Zone Map**

APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS,  
SCOTTS VALLEY ENERGY CORPORATION  
ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453  
PHONE: 707-349-8545 CONTACT: THOMAS JORDAN

DATE: 5-27-2023  
DRAWN BY:  
DESIGN LEAD:  
PROJECT MANAGER: Steve Rumbaugh  
PROJECT ENGINEER:

**SVEC UPPER LAKE PROJECT**

DRAWING NUMBER: **X-0.8**

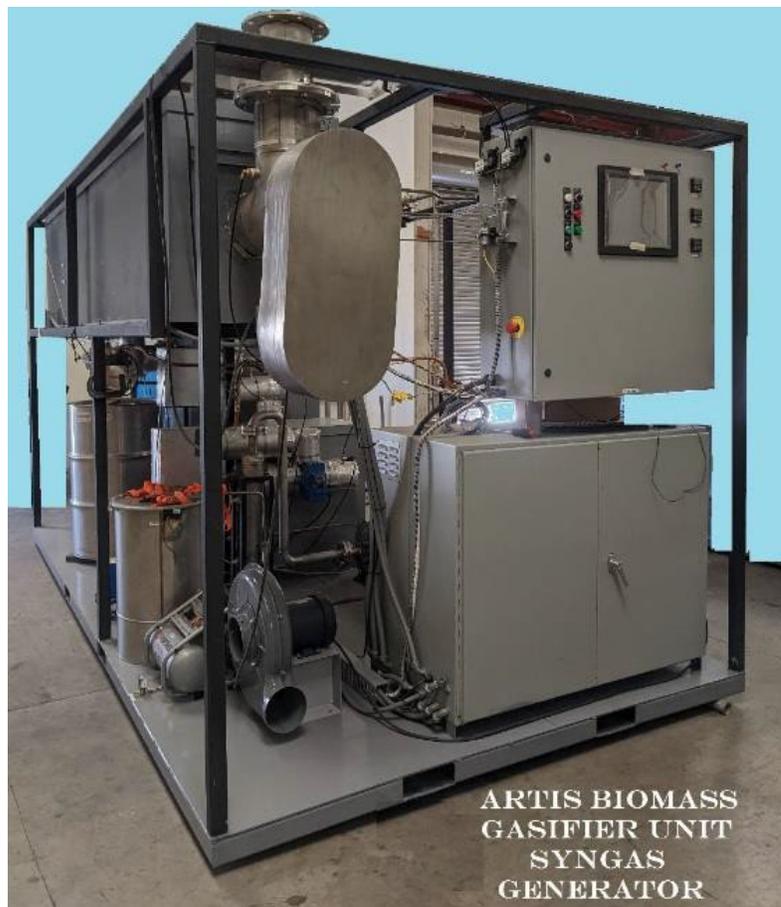
FIELD SCALE NONE

# ARTIS 200 R2

## Carbon Negative Fuel & Energy

## Attachment 6 Pyrolysis Biomass System for Renewable Energy Generation

### No to Low Emissions - Continuous Feed Airlock System



#### Continuous Feed Hopper with Airlock Pyrolysis System

##### Biomass Power Plant Based on Wood Produced Gas

As a full-service provider in the field of electricity and heat generation from wood, we provide you with a complete solution for your wood combined heat and power project: from feeding systems, conveyors to wood gasification technology.

24/7-Energy Generation, Variable Power Adaptation, CO<sub>2</sub>-Neutral, Value CHP Compatible, Quick startup, Long-term Reliability 90% or Better Uptime, Proven Technology.

OPERATIONAL	SPECIFICATIONS
RELATIVE HUMIDITY - NOMINAL	<75%
ROOM TEMPERATURE	10-40c / 50-104f Ambient
AIR EXCHANGE IN ROOM	8 Times per Hr.
SOUND PRESSURE @ 1 Meter	<75 dba
BIOMASS CONSUMPTION	148kg-220 kg/h @ Max Rate
FEED AUGER RATE	5.2 RPM - PLC Adjusted

PERFORMANCE	
CONTINUOUS METERED FEED	Gate Oxygen Restricted
FEEDSTOCK FILL LOCK HOPPER	1.08 cf, 6"D x 59"H
MILLED WOOD CHIPS INPUT	1/4" or Less
GATE OPEN-CLOSE TIME	Less than 1/2 second
FEEDER GATES CONTROL: DIGITAL PLC I/O	Oneida Air Pneumatic Slide
MATERIAL MOISTURE CONTENT	<30%, Ideal: 18%
FEED OPEN CYCLE TIME	Less than 1 minute, adj.
OVERFILL PROTECTION	Software / Laser Sensors
ERROR HANDLING	Alarms and Safe Recovery

ELECTRICAL	SPECIFICATIONS
AC VOLTAGE	480
AMPS	100
PHASES	3
Hz	60
INTERNAL FUSES	3 – 125A
AC DISCONNECT	3-Phase On-Off Switch
OCP Breaker Size	125A
WIRE Copper / Aluminum	1 AWG, 2/0 AWG Minimum
EMT CONDUIT MINIMUM	MIN.: 1-1/4" CU., 1-1/2" AL

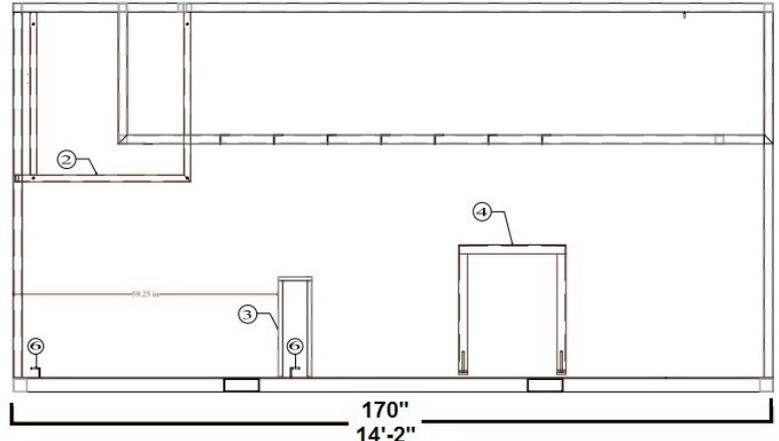
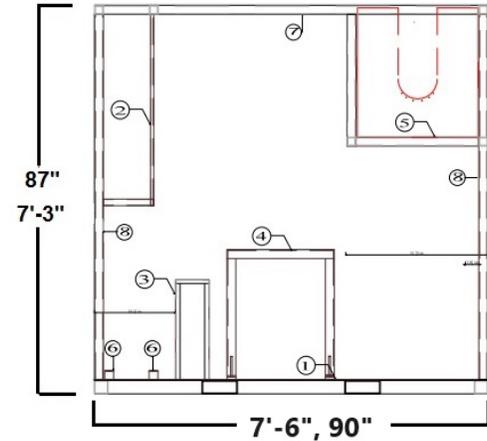
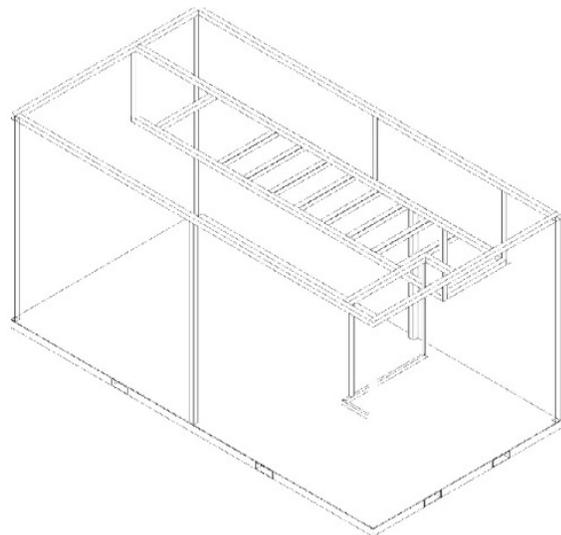
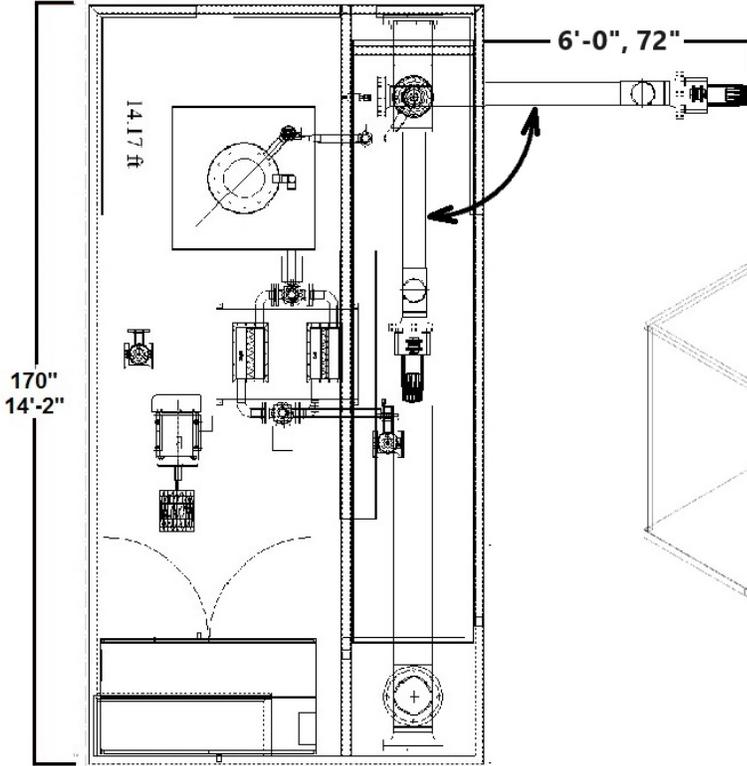
SYSTEM	SPECIFICATIONS
FOOTPRINT/MAIN FRAME	7'-6"W, 7'-3"H, 14'-2"L
FILL FUNNEL CYCLONE TOP	16'-0"
AC COOLING UNIT: Optional	Control Cabinet Only
AIR COOLING: EXTERNAL FANS	Glycol Water Mix

GENERAL	SPECIFICATIONS
SAFELY VENTING LINE PRESSURE REGULATOR	Exterior Vent 7' From Structure @14'H Shielded
TOTAL SYSTEM WEIGHT	5,000 Lb's (47 Lb per SF)

GAS / CHP OUTPUT	SPECIFICATIONS
THERMAL ENERGY-CHP ONLY	50% with Genset
ELECTRICAL ENERGY	39.6% with Genset
GAS COMPOSITION OUT: INTO GENSET	CO 45-49%, H <sub>2</sub> 40-44%, CH <sub>4</sub> 5-7%, CO <sub>2</sub> 2-4%, <3%
FLOW RATE / HEAT VALUE	752 Nm <sup>3</sup> /h, 5.6MJ/Nm <sup>3</sup>

DESCRIPTION

- Skid Base
- Instrument cabinet mounting bracket
- Liquid Knockout support frame
- HHCC support frame
- Reactor Furnace support frame
- Power cabinet mounting bracket (4 req)
- Top Frame
- Support column (2"x2"-11Ga x 81.75") (4 req)



SKID ASSEMBLE

# The Mainspring Linear Generator

**Local, scalable, fuel-flexible power for commercial and industrial customers, biogas developers, utilities, municipalities, and datacenters**

**Easy, Modular Installation  
High Availability & Low Maintenance  
Up to 25 MW per Acre Scalability**



Each package contains two linear generator cores, operated in tandem



**Breakthrough design enables an unmatched combination of features and benefits.**

**High Efficiency**  
Direct conversion of linear motion into electricity

**Fuel Flexibility**  
Continuous, adaptive control without mechanical constraints

**Near-Zero NOx**  
Low-temperature, non-combustion reaction without a flame or burning

**Fully Dispatchable**  
Load-tracking, fast on/off, black start, and islanding

**Permitting Anywhere**  
Meets any air permitting requirements in the US

**Controllable & Configurable**  
Integrates seamlessly with site components & requirements

## Performance Specifications

<b>Outputs<sup>1</sup></b>	Power (net AC) Electrical	230 kW 400/480 V, 3 Phase, 50/60 Hz
<b>Inputs<sup>2</sup></b>	Fuels Input Pressure Water Consumption	Any blend of Biogas, Natural Gas, Hydrogen, and Propane 5-25 psig (15 psig nominal) None
<b>Efficiency<sup>3</sup></b>	Electrical (LHV, net AC) Heat Rate (HHV, net AC)	45% 8,416 BTU/kWh
<b>Emissions<sup>4</sup></b>	NO <sub>x</sub> Noise	< 2.5 ppm (<0.07 lb/MWh) < 70 dBA @ 6 feet
<b>Physical</b>	Weight Dimensions (L x W x H)	20 tonnes 20.5' x 8.5' x 9.5'

<b>Environment</b>	Temperature Range Humidity	-30 to 50 C 0 to 100%
<b>Operations</b>	Power Output Range Grid Parallel to Island Transfer <sup>5</sup> Maximum Step Load Building Soft Start Capability	0 to 100% power output < 10 sec 300 kVA for up to 10 sec Yes
<b>Other</b>	<ul style="list-style-type: none"> <li>UL 2200 package</li> <li>UL 1741 SB grid-tie inverter</li> <li>Compliant with CA Rule 21</li> </ul>	<ul style="list-style-type: none"> <li>Remote monitoring</li> <li>Secure customer portal</li> <li>Modbus interface</li> </ul>

<sup>1</sup> Rated capacity may vary by fuel type.

<sup>2</sup> 100% hydrogen requires greater than 125 psig.

<sup>3</sup> Measured according to ASME PTC 50 at 15 C and 1 atm on natural gas and biogas. Rated efficiency may vary by fuel type.

<sup>4</sup> Products comply with emissions limits in South Coast AQMD.

<sup>5</sup> Performance with purchase and installation of external site relays and controls equipment.

All data is subject to technical development and modification. R30041

## About Mainspring Energy

Driven by its vision of the affordable, reliable, zero carbon grid of the future, Mainspring is delivering a breakthrough new category of power generation - the linear generator - to customers to increase their energy resilience, generate cost savings, and meet their sustainability and climate goals.

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[mainspringenergy.com](http://mainspringenergy.com)

# C200S Microturbine

## Digester Gas

Achieve ultra-low emissions and reliable electrical generation from digester gas.



C200S Microturbine

### Electrical Performance<sup>(1)</sup>

Electrical Power Output <sup>(2)</sup>	200kW
Voltage	400/480 VAC
Electrical Service	3-Phase, 4 Wire Wye
Frequency	50/60 Hz
Electrical Efficiency LHV	33%

### Fuel/Engine Characteristics<sup>(1)</sup>

Digester Gas HHV	20.5–32.6 MJ/m <sup>3</sup> (550–875 BTU/scf)
H <sub>2</sub> S Content	< 5,000 ppmv
Inlet Pressure	517–552 kPa gauge (75–80 psig)
Fuel Flow HHV	2,400 MJ/hr (2,280,000 BTU/hr)
Net Heat Rate LHV	10.9 MJ/kWh (10,300 BTU/kWh)

### Exhaust Characteristics<sup>(1)</sup>

NO <sub>x</sub> Emissions @ 15% O <sub>2</sub>	9 ppmvd (18 mg/m <sup>3</sup> )
Exhaust Mass Flow	1.3 kg/s (2.9 lbm/s)
Exhaust Gas Temperature	280°C (535°F)

### Benefits

- Ultra-low emissions
- Accepts sour gas fuels with up to 5,000 ppm H<sub>2</sub>S
- One moving part – minimal maintenance and downtime
- Patented air bearings – no lubricating oil or coolant
- Integrated utility synchronization – no external switchgear
- Compact modular design allows for easy, low-cost installation
- Multiple units easily combined – act as single generating source
- Remote monitoring and diagnostic capabilities
- Proven technology with tens of millions of operating hours
- Various Factory Protection Plans available

**Smarter Energy  
for a Cleaner Future**

## Dimensions & Weight<sup>(3)</sup>

Width x Depth x Height	3.0 x 2.5 x 3.0 m (117 x 100 x 119 in)
Weight - Grid Connect Model	5,200 kg (11,400 lbs)
Weight - Dual Mode Model	5,850 kg (12,900 lbs)

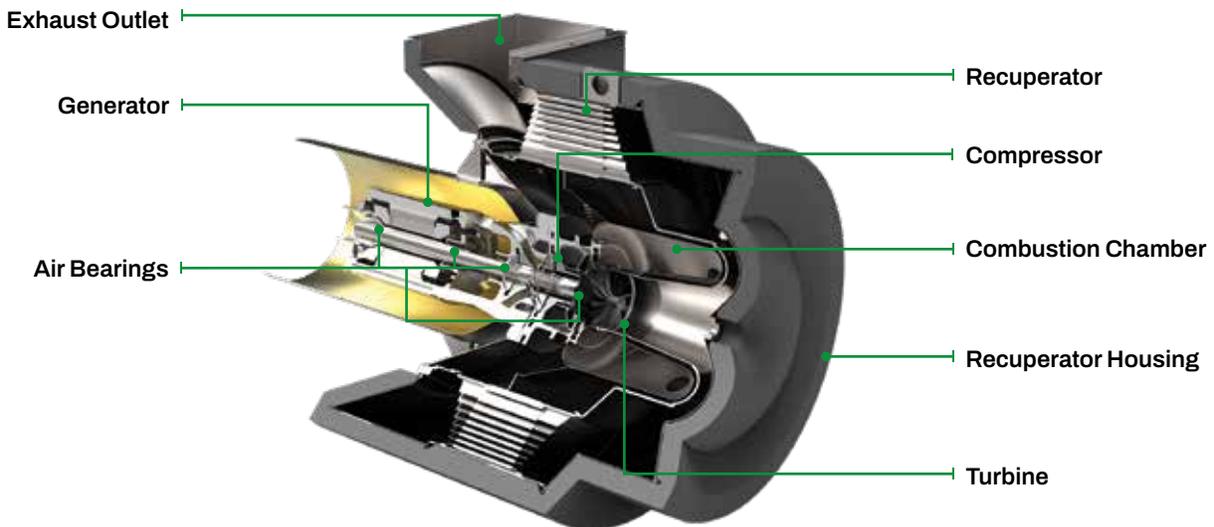
## Minimum Clearance Requirements<sup>(4)</sup>

Horizontal Clearance	
Left	1.5 m (60 in)
Right	0.0 m (0 in)
Front	1.7 m (65 in)
Rear	2.2 m (85 in)

## Certifications

- UL 2200 Listed
- CE Certified
- Certified to the following grid interconnections standards: UL 1741-SA, VDE, BDEW, CEI 0-16, and AS4777
- Compliant to California Rule 21

## C200 Engine Components



(1) Nominal full power performance at ISO conditions: 15°C (59°F), 14.696 psia, 60% RH

(2) Minimum power output is 35kW when operating in Grid Connect Mode

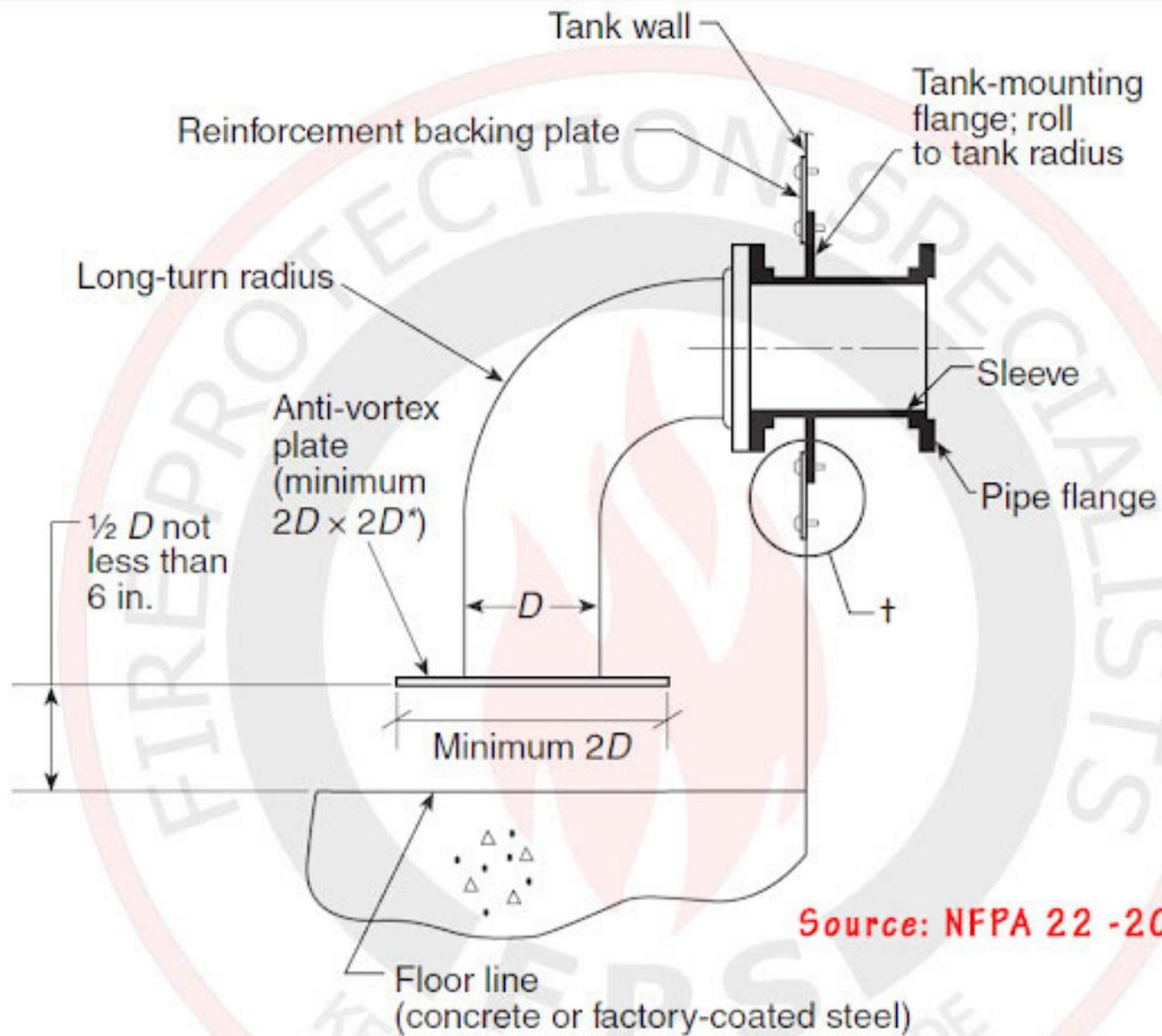
(3) Approximate dimensions and weights

(4) Clearance requirements may increase due to local code considerations

Specifications are not warranted and are subject to change without notice.



Diameter	Capacity	Eave Height	Total Height
Ft' In"	US Gallons	Ft' In"	Ft' In"
17' 11"	13,812	7' 4"	12' 6"
	27,625	14' 8"	19' 6"



Source: NFPA 22 -2018 edition

For SI units, 1 in. = 25.4 mm.

\*Frequently, a 48 in. x 48 in. size is used as a standard size that will work for any situation.

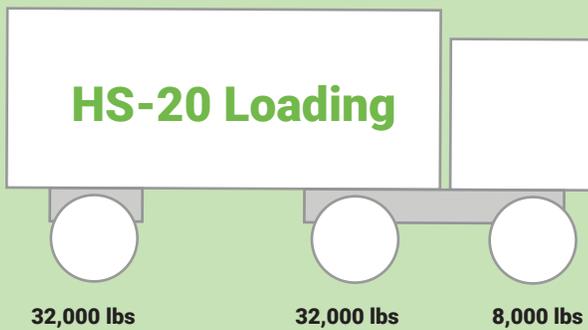
†For reinforcement requirements, see AWWA D103.

**Typical Suction Nozzle with Anti-Vortex Plate for Lap-Jointed Bolted Tanks.**

# HEAVY LOADING ON TRUEGRID®

## H-20 & HS-20 to H-25 & HS-25 Loading Examples

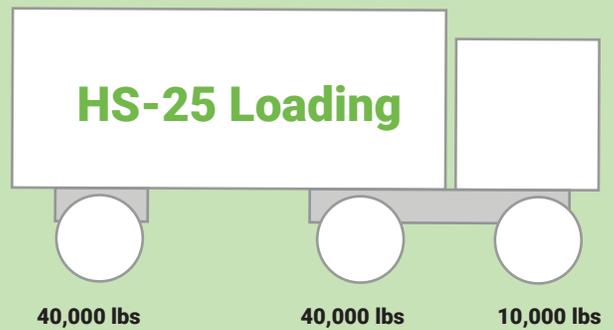
### Surface Pressure



H-20 & HS-20 = 32,000 lbs for the rear axles  
 32,000 lbs / 2 tires per rear axle = 16,000 lbs  
 200 sq inches contact\* (20" x 10")  
 16,000 lbs / 200 sq inches = 80 PSI

**80 PSI (552 kPa) Static**

### Surface Pressure



H-25 & HS-25 = 40,000 lbs for the rear axles  
 40,000 lbs / 2 tires per rear axle = 20,000 lbs  
 200 sq inches contact\* (20" x 10")  
 20,000 lbs / 200 sq inches = 100 PSI

**100 PSI (689 kPa) Static**

## TRUEGRID® PRO LITE



TRUEGRID® PRO LITE has been tested for a compressive strength of over 17,000 PSI when filled

17,000 PSI / 100 PSI = 170  
 17,000 PSI / 80 PSI = 212

Loading      Safety Factor

H-25 & HS-25	<b>170x</b>
H-20 & HS-20	<b>212x</b>

## TRUEGRID® PRO PLUS



TRUEGRID® PRO PLUS has been tested for a compressive strength of over 17,000 PSI when filled

17,000 PSI / 100 PSI = 170  
 17,000 PSI / 80 PSI = 212

Loading      Safety Factor

H-25 & HS-25	<b>170x</b>
H-20 & HS-20	<b>212x</b>