County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

DATE: January 2, 2025

TO: Department of Public Works and Planning, Attn: Steven E. White, Director
Department of Public Works and Planning, Attn: Bernard Jimenez,
Planning and Resource Management Officer
Development Services and Capital Projects Attn: William M. Kettler, Deputy Director
Development Services and Capital Projects Attn: Chris Motta, Division Manager
Development Services and Capital Projects Attn: Tawanda Mtunga, Principal Planner
Development Services and Capital Projects, Attn: James Anders, Principal Planner
Development Services and Capital Projects, Current/Environmental Planning
Attn: David Randall, Senior Planner
Development Services and Capital Projects, Policy Planning,
Attn: Mohammad Khorsand, Senior Planner
Development Services and Capital Projects, Zoning & Permit Review,
Attn: Daniel Gutierrez, Senior Planner
Development Services and Capital Projects, Development Engineering,
Attn: Laurie Kennedy, Office Assistant III
Water and Natural Resources Division, Attn: Augustine Ramirez, Division Manager
Water and Natural Resources Division, Attn: Roy Jimenez, Senior Planner
Water and Natural Resources Division, Transportation Planning, Attn:
Hector Luna, Senior Planner/Brody Hines, Planner
Resources Division, Attn: Daniel Amann, Division Manger
Resources Division, Special Districts Attn: Christopher Bump, Principal Staff Analyst
Road Maintenance and Operations Division Attn: Wendy Nakagawa,
Supervising Engineer
Department of Public Health, Environmental Health Division, Attn: Deep Sidhu,
Supervising Environmental Health Specialist; Kevin Tsuda,
Environmental Health Specialist
Agricultural Commissioner, Attn: Melissa Cregan
CA Regional Water Quality Control Board, Attn: centralvalleyfresno@waterboards.ca.gov
CALTRANS, Attn: David Padilla, Branch Chief
CA Department of Fish and Wildlife, Attn: R4CEQA@wildlife.ca.gov
State Water Resources Control Board, Division of Drinking Water,
Attn: Cinthia Reyes
U.S. Department of Agriculture Natural Resources Conservation Attn: Brook Fuller
San Joaquin Valley Air Pollution Control District (PIC-CEQA Division)
Attn: PIC Supervisor
Fresno County Fire Protection, FKU.Prevention-Planning@fire.ca.gov

FROM: Jeremy Shaw, Planner
Development Services and Capital Projects Division

SUBJECT: **Unclassified Conditional Use Permit No. 3696 Time Extension No. 1 (anaerobic digesters and biomethane processing facility).**

OWNER: John Verwey

APPLICANT: SAR1, LLC

DUE DATE: January 14, 2025

NOTE:

The sole purpose of this request is to address an extension of time for the life of the land use permit.

Approval of a time extension request is appropriate if circumstances pertaining to the mandatory findings have not changed since the date of the original approval. It is important, therefore, that you limit your review to identifying any circumstances or factors that may have changed since the original approval.

The lead agency or decision-making body may impose conditions when approving a time extension request, or may deny such a request only if it determines either of the following: (1) A failure to do so would place the residents of the subject property(s) or the immediate community, or both, in a condition dangerous to their health or safety; or (2) The condition or denial is required in order to comply with state or federal law.

The Department of Public Works and Planning, Development Services and Capital Projects Division is reviewing the subject application requesting a first one-year time extension to exercise Conditional Use Permit No. 3696 which approved the construction and operation of two anaerobic digesters and biomethane processing facility to produce pipeline complaint biomethane gas for delivery via a new pipeline to a utility owned pipeline point of interconnection on a 98.14-acre and 48.48-acre parcel in the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District.

The project site is located approximately 0.5 miles west of S. Jameson Avenue, between W. Floral Avenue, and W. Nebraska Avenue; the proposed pipeline route would extend southwesterly to an existing dairy site located approximately one half mile northeast of the intersection of W. Kamm Avenue and the S. Bishop Avenue alignment, and approximately 4 miles northeast of the unincorporated community of Helm (APNs: 041-030-47S 48S, 20S, 041-020-30S, 29S, 31S, 32S, 27S, 041-060-60S) (11511 W. Floral Avenue) (Sup. Dist. 4).

We must have your comments by **January 14, 2025**. Any comments received after this date may not be used.

If you do not have comments, please provide a "NO COMMENT" response to our office by the above deadline (e-mail is also acceptable; see email address below).

Please address any correspondence or questions related to environmental and/or policy/design issues to me, Jeremy Shaw, Planner Development Services and Capital Projects Division, Fresno County Department of Public Works and Planning, 2220 Tulare Street, Sixth Floor, Fresno, CA 93721, or call (559) 600-4207 or email jshaw@fresnocountyca.gov.

JS:
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Activity Code (Internal Review):2384

Enclosures

Date: 9/13/2024

Subject: Request for Extension of Conditional Use Permit E202210000286

To Whom It May Concern,

I am writing to formally request an extension of the conditional use permit for our ongoing waste to renewable natural gas (RNG) development project in California. This initiative is designed to transform dairy waste into sustainable energy, contributing to environmental preservation and local economic growth.

We are currently in the advanced stages of finalizing financing arrangements with a key investor. This process necessitates additional time to ensure that all terms are meticulously aligned with both parties' strategic objectives. Unfortunately, the late receipt of the Authority to Construct (ATC) in November 2023 has contributed to delays in our timeline.

This extension is crucial to maintain the project's momentum and ensure its successful completion. Your understanding and support in granting this extension would be invaluable, allowing us to uphold the project's integrity and continue contributing positively to the community.

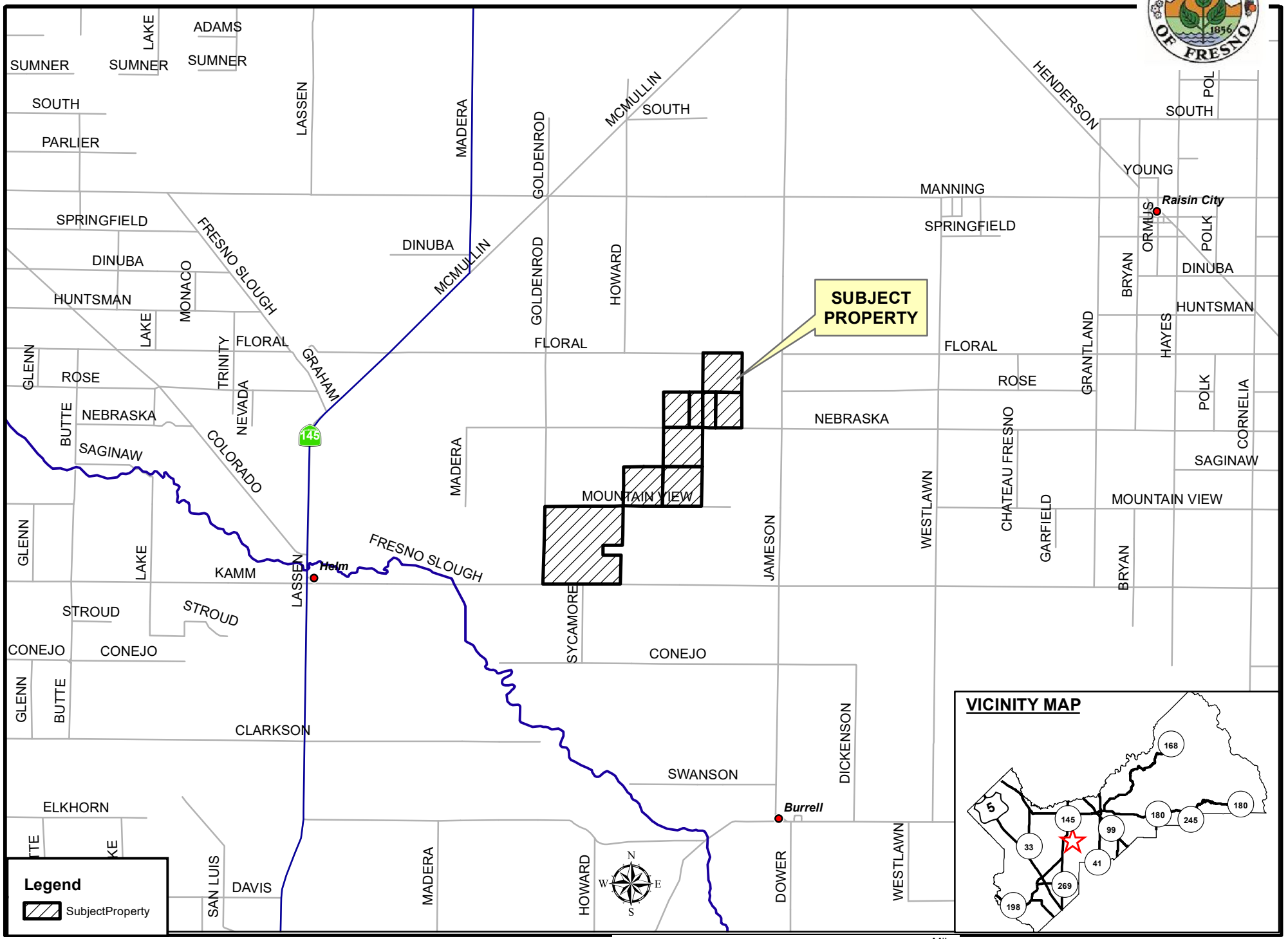
Yours sincerely,

Brano Dej

559-942-1688

LOCATION MAP

CUP 3696 REV



Prepared by: County of Fresno Department of Public Works and Planning

GS

EXHIBIT 6

SAR1 Dairy Digester/Biomethane Facility Project Description

SCS ENERGY

06219013.02 | May 13, 2022

3900 Kilroy Airport Way Suite 100
Long Beach, CA 90806
562-426-9544

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Tables

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1 PROJECT OVERVIEW

The project development consists of an anaerobic digester/biomethane facility on the Johann Dairy site located at 11544 W. Floral Ave, Fresno, CA, to produce pipeline quality and compliant biomethane gas for delivery to a utility owned pipeline point of connection.

The anaerobic digester/biomethane facility (SAR1 Biomethane Plant) at Johann Dairy will utilize manure feedstock from its dairy operations. The facility will also import manure feedstock from two sister dairy facilities, Generations and John DeGroot and Sons Dairies. The location of the SAR1 Plant and sister dairy facilities are shown in Figure 1 below.

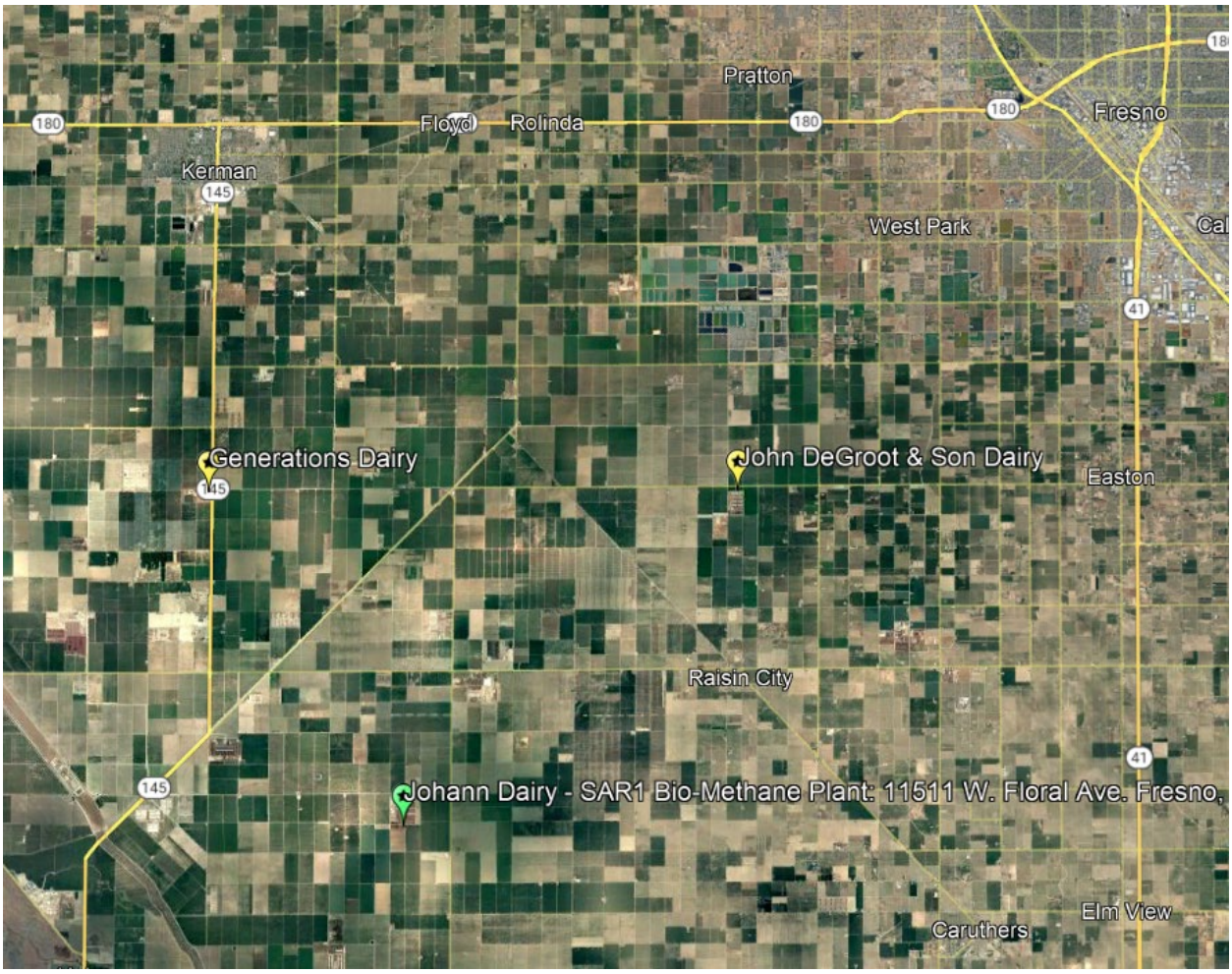

Figure 1. Vicinity Map

Renewable Natural Gas (RNG) produced at the SAR1 plant will be routed via an approximately 3.5-mile underground pipeline to a pipeline owned by California Energy Exchange (CEE) located approximately 2 miles west of the Maddox Dairy. The proposed routing for the pipeline from the SAR1 plant to the CEE interconnection point is shown in Figure 2 below.

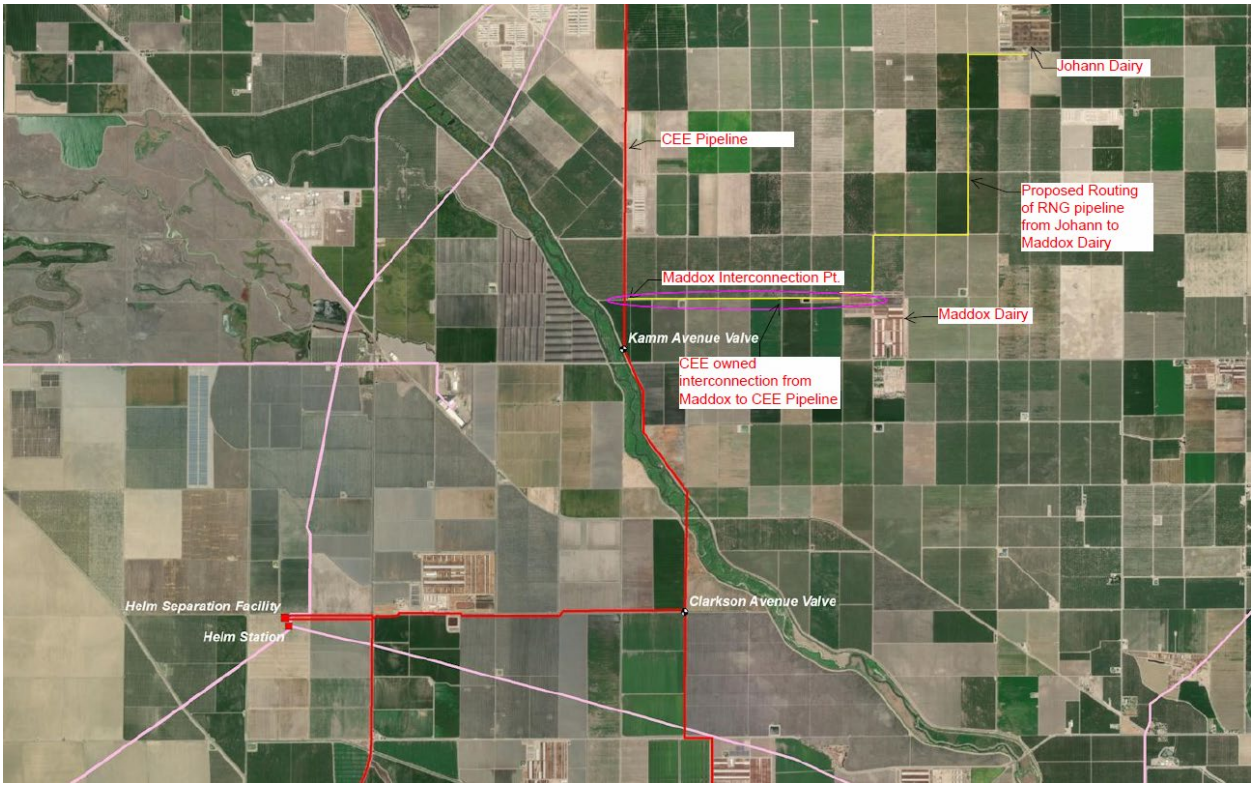

Figure 2. Proposed Pipeline Route

PROJECT DESCRIPTION

The project development involves a portion of the 160.08-acre parcel (identified by APN 041-030-20S) developed with improvements related to the dairy and 98.10-acre undeveloped parcel identified by APN 041-030-48s, further defined as LAT/LONG N36o34'04" W120o00'13". Please see Figure 1, 6 and 7 for project vicinity, overall layout and equipment locations.

The process will require power supplied by extending the existing 12KV overhead electrical lines located on the dairy property.

The existing site improvements consist of a solid separation area and lagoons. These are to be used in conjunction with this proposal and are located on the dairy site. Integration is described within the Digester Facilities description below.

The proposed project improvements are addressed as two project elements below:

Digester Facility

The digester portion of this project will consist of above or below grade digesters and two fabricated metal buildings. The first building will include approximate 3,200 square-foot (40' W X 80' L X 28' H) to house mechanical equipment and digester control systems, boilers, pumps, blowers, etc. The second metal building will consist of and an approximately 1200 square-foot (25'W X 50'L X 28' H) digested solids management building. The anaerobic digester process including all related equipment will utilize an approximate 8-acre portion of the undeveloped parcel. Please see Figure 6. 6.

Digester Process Description: A DVO or similar style digester is sized for a 22-day retention time. The circulation is facilitated by cattle waste being continuously added to the digester with an equal amount leaving the digester. A series of sub 2MM Btu/hour pre-certified hydronic boilers will supply heat to elements in the digester to allow the bacteria to generate biogas in a mesophilic process. Recirculation of a portion of the biogas is used for mixing to help maintain digestate consistency in the digester.

The flushed cow manure feedstock to the digester first goes through a vibratory screen with solids directed into a receiving pit (See Figures 3 and 4) where heavy, non-digestible sediments such as sand and rocks from the open lot feed lanes are removed from the process. The remaining optimized slurry of 6-10% total solids is pumped into the digester vessel. Remaining undigested liquids from the pit system are recirculated as flush water resulting in water savings. This separation step negates the need for composting thus reducing odors, vectors and emissions.

Within the digester vessel, the manure slurry will be mixed and heated to 100 deg F where methanogenic bacteria convert the feedstock into a biogas, consisting primarily of methane and CO2 with smaller amounts of hydrogen sulfide (H2S), oxygen, and water.

The biogas collected from the digester vessel is directed toward the RNG Facility described below to produce pipeline quality RNG.

During service intervals or times when the system is down for any reason, excess biogas will be directed to a permitted flare. Please see Figure 5 for flare description

After digestion, a mechanical manure screen located in the digested solids management building separates the effluent (digestate) into solid and liquid fractions. The solids are dried via a screw press to 30-35% dry solids content for use by the dairy for bedding replacement, land application on dairy-owned lands, or sold to other dairies, nurseries, or composters, as a soil amendment. The digested liquid will gravity flow to a buffer facility for direct land application via the farm's irrigation system in accordance with the dairy's Nutrient Management Plan & Waste Discharge Requirements.

RNG Facility

The RNG portion of the facility the facility consists of blowers, compressors, coolers, scrubbers, filters, and a separation skid that together accept raw digester biogas and purify it into pipeline quality RNG. This equipment will encompass an overall footprint approximately 100' x 80' with a maximum filter vessel height of approximately 20' tall. (See Figures 2-1a and 2-1b) The RNG facility will initially be designed to accept up to 1,000 scfm of digester biogas, which provides a level of conservativeness over the expected 900 scfm of biogas that is currently expected.

Location	Production from digesters		Delivery to pipeline[1]	
	SCFM	MSCFH	SCFM	MSCFH
SAR 1 FACILITY	900	54	567	34

Note 1: Assumes that digester produces biogas at 63 percent methane content

The biogas quality from the digester is expected to be approximately 55-64% methane, 35-41% CO2, with the remaining being nitrogen and oxygen. The upgrading process will precondition the biogas at its onset by compressing it to 2-3 psig, and then chilling to remove most of the water entrained in the biogas (See Figure 2-2). Then as shown in Figure 2-3, the biogas will go through H2S removal technology to lower H2S content to less than 50ppm. At this point the biogas is further compressed to 205-210 psig and chilled and filtered to remove the remaining water. The gas is then "polished" in an activated carbon vessel to reduce H2S concentration to less than 10ppm, and sent through a membrane separation skid that removes the remaining H2S, the CO2, and approximately 75% percent of the O2 in order to create RNG compliant with utility gas quality requirements. A final compression and cooling stage conditions the gas to be delivered at a pressure and temperature compliant with the requirements of the receiving utility (PG&E or CEE) specifications at the point of reception.

Production: The summary production estimates for the SAR1 RNG facility are based upon an approximate herd size of 20,000 head of dairy cows including milk cows, dry cows and heifers comprised from three dairies as listed below. Details as to how the production estimates below were formed are available upon request.

Location	Milk Cows	Dry cows	Heifers	Total lbs of Manure (maximum)
Johann Dairy Herd Size	**4,420**	**780**	**4,800**	
Lbs/day of Manure Generated at 8% Solids	1,216,472	150,271	660,526	2,027,269
Collection Efficiency (%)	95%	65%	35%	
Lbs/Day of Manure Collected at 8% Solids	1,155,648	97,676	231,184	1,484,509
Location	Milk Cows	Dry cows	Heifers	
Generations Dairy Herd Size	**2,200**	**240**	**850**	
Lbs/day of Manure Generated at 8% Solids	605,484	46,237	116,968	768,689
Collection Efficiency (%)	100%	40%	35%	
Lbs/Day of Manure Collected at 8% Solids	605,484	18,495	40,939	664,918
Location	Milk Cows	Dry cows	Heifers	
John DeGroot and Sons Dairy Herd Size	**3,000**	**410**	**3,410**	
Lbs/day of Manure Generated at 8% Solids	743,094	57,796	412,829	1,213,719
Collection Efficiency (%)	90%	40%	35%	
Lbs/Day of Manure Collected at 8% Solids	668,785	23,118	144,490	836,393
	Grand Total Manure Generated/day			**4,009,677**
	Grand Total Manure Collected/day			**2,985,819**

Importing of Manure from sister dairies: The SAR1 Biomethane Facility located at the Johann Dairy will be receiving manure from two sister dairies, Generations and John DeGroot and Sons (JDS) via 6,500-gallon tanker trucks. The tank trucks will be well under the 80,000 lbs total weight limit for California.

There will be 17 trips each day from John DeGroot & Sons Dairy (6105 W Lincoln Ave, Fresno, CA 93706) to Johann Dairy (11511 W Floral Ave, Fresno, CA 93706) and 13 trips each day from Generations Dairy (6043 S Madera Ave, Kerman, CA 93706) to Johann Dairy (11511 W Floral Ave, Fresno, CA 93706).

The distance from either Generations or JDS to Johann is approximately 10 miles. The distance between Generations and JDS is 9 miles.

Electrical Load Requirement at Johann Dairy for the SAR1 Facilities: The site requires approximately 550KW of electrical power for continuous operations. Please see Tables 1, 2 and 3 for projected electrical load requirements. The largest motors will be equipped with VFD's or soft start to reduce in-rush current. This new load will be served by extending the existing PG&E service at the Johann Dairy from the northeast corner of the dairy site near Floral Avenue and separately metering the power delivered to the SAR1 Biomethane Plant.

Natural Gas Supply for the New Boilers: The digester boilers will utilize natural gas from SoCalGas (SCG) via an extension of the existing 4-inch service to the Johann Dairy.

SAR1 FACILITY OPERATION

The entire digester and RNG facility process will run continuously 24 hours per day, 7 days per week. However, the plant will be manned Monday through Friday in single-shift operation. All maintenance and servicing work will usually be performed during this time, and only a short inspection-round is necessary on weekends and holidays.

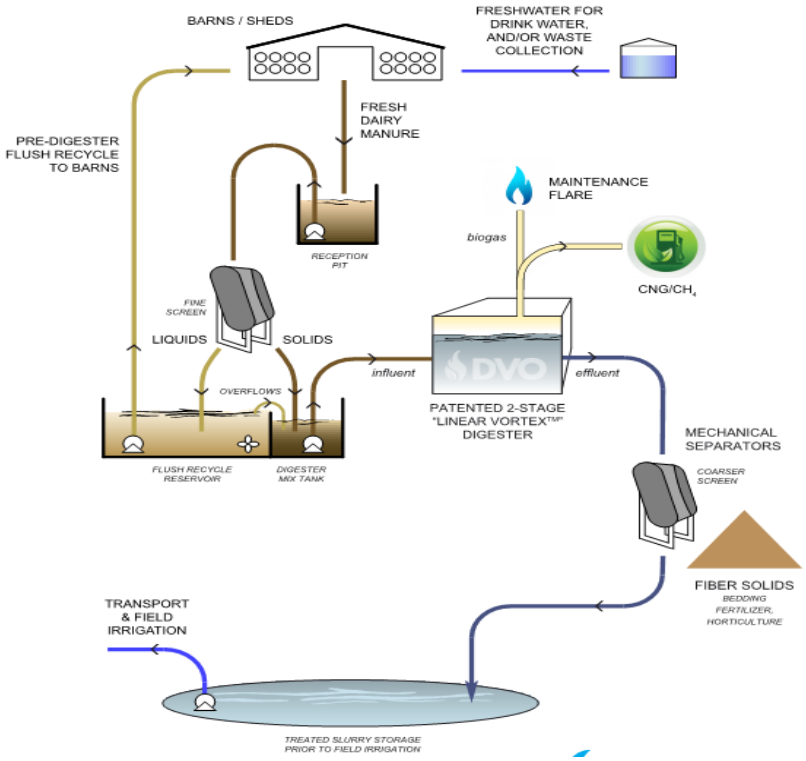

Figure 3. Digester Facility Process Flow Diagram

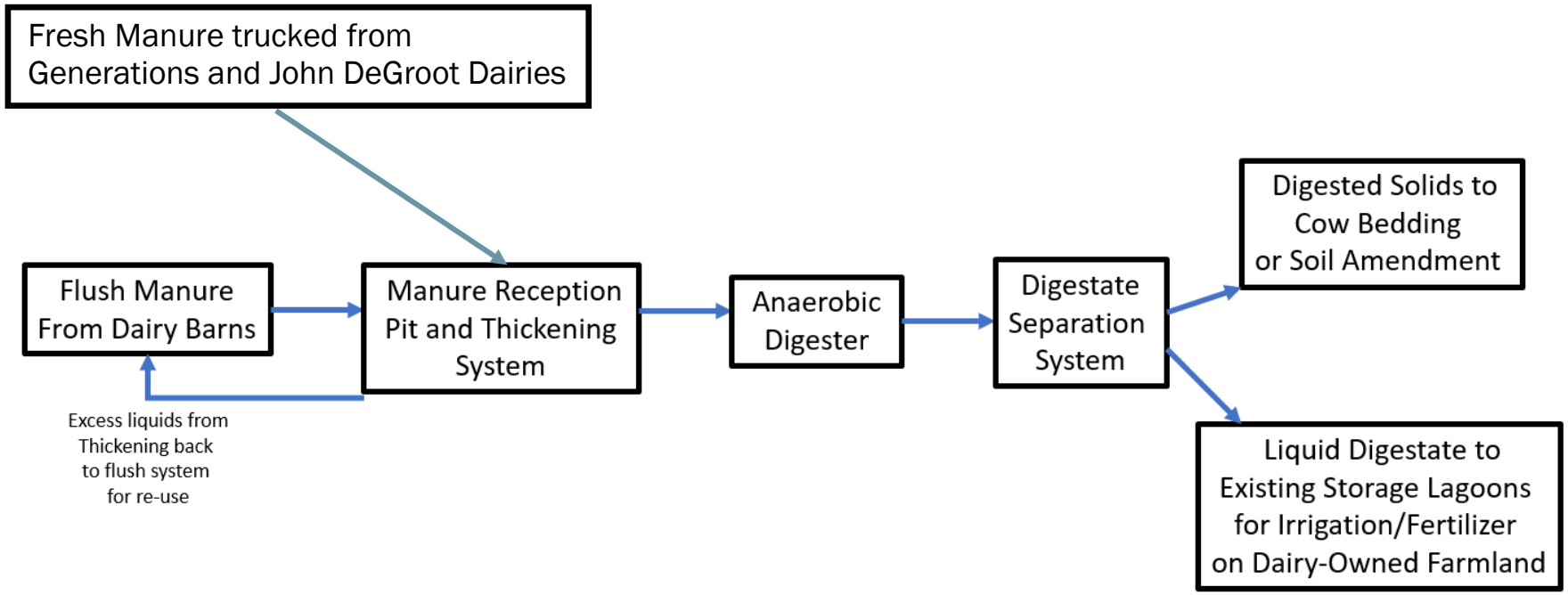

Figure 4. Digester System Block Flow Diagram

Johann Dairy Anaerobic Digester Emission Calculations
Digester Flare

Note:
The flare serves as biogas control device for the digester system. Emissions from open flares cannot be tested with conventional testing methods because the combustion occurs in the open. Therefore, emissions from the proposed flare are based on Tables 13.5-1 and 13.5-2 in the USEPA's AP-42 for industrial flares.

The flare operates when there is excess biogas in the digester vessel. The CNG system is estimated to utilize approximately 95% of the digester biogas. Therefore, the flare will combust approximately 5% of the biogas.

Based on the volume of the digester and feedstock consisting of manure from 6,140 milking cow equivalents, the digester has the potential to produce:

711.855 MMBtu/day x 1 day/24 hr = 29.66 MMBtu/hr of digester biogas

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Calculations based on USEPA AP-42 Table 13.5-1 emission factors
and estimated total biogas fuel production

Nox

0.068 lb/MMBtu x 29.66 MMBtu/hr 8760 hrs/year x 1 ton/2000 lb = 8.83
(@ 5% utilization) = 0.44

CO

0.37 lb/MMBtu x 29.66 MMBtu/hr 8760 hrs/year x 1 ton/2000 lb = 48.07
(@ 5% utilization) = 2.40

NMHC (Non-Methane Hydrocarbons) (AP-42 Table 13.5-2 - 45% of 0.14 lb/MMBtu)

0.063 lb/MMBtu x 29.66 MMBtu/hr 8760 hrs/year x 1 ton/2000 lb = 8.18
(@ 5% utilization) = 0.41

SO_2
Assumptions:
4000 ppm H_2S average concentration in biogas from the digester
29159 scf/hr fuel consumption at 100% of total biogas production
Reaction when H_2S is combusted: $2\ H_2S + 3\ O_2 \rightarrow 2\ SO_2 + 2\ H_2O$

4000 ppm x 34 molecular weight of H_2S / 24.45 = 5562 mg/m^3
29159 scf/hr x 1 m^3/35.28 ft^3 = 826.52 m^3/hr
5562 mg/m^3 x 826.52 m^3/hr x 1 g/1000 mg x 1 lb/454 g = 10.13 lb/hr H_2S
10.13 lb/hr H_2S x 64 molecular weight of SO_2 / 34 molecular weight of H_2S = 19.06 lb/hr SO_2
19.06 lb/hr SO_2 x 8760 hrs/yr x 1 ton/2000 lb = **83.49 tons/yr SO_2**
(at 5% flare utilization = 4.17 tons/yr SO_2)

$PM/PM_{2.5}/PM_{10}$ [worst case emission factor]

< 0.15 lb/MMBtu x 29.66 MMBtu/hr < 4.45 lb/hr
< 4.45 lb/hr x 8760 hrs/yr x 1 ton/2000 lb = 19.49 ton/yr
(@ 5% flare utilization) = 0.97 ton/yr

Figure 5. Estimated Emissions

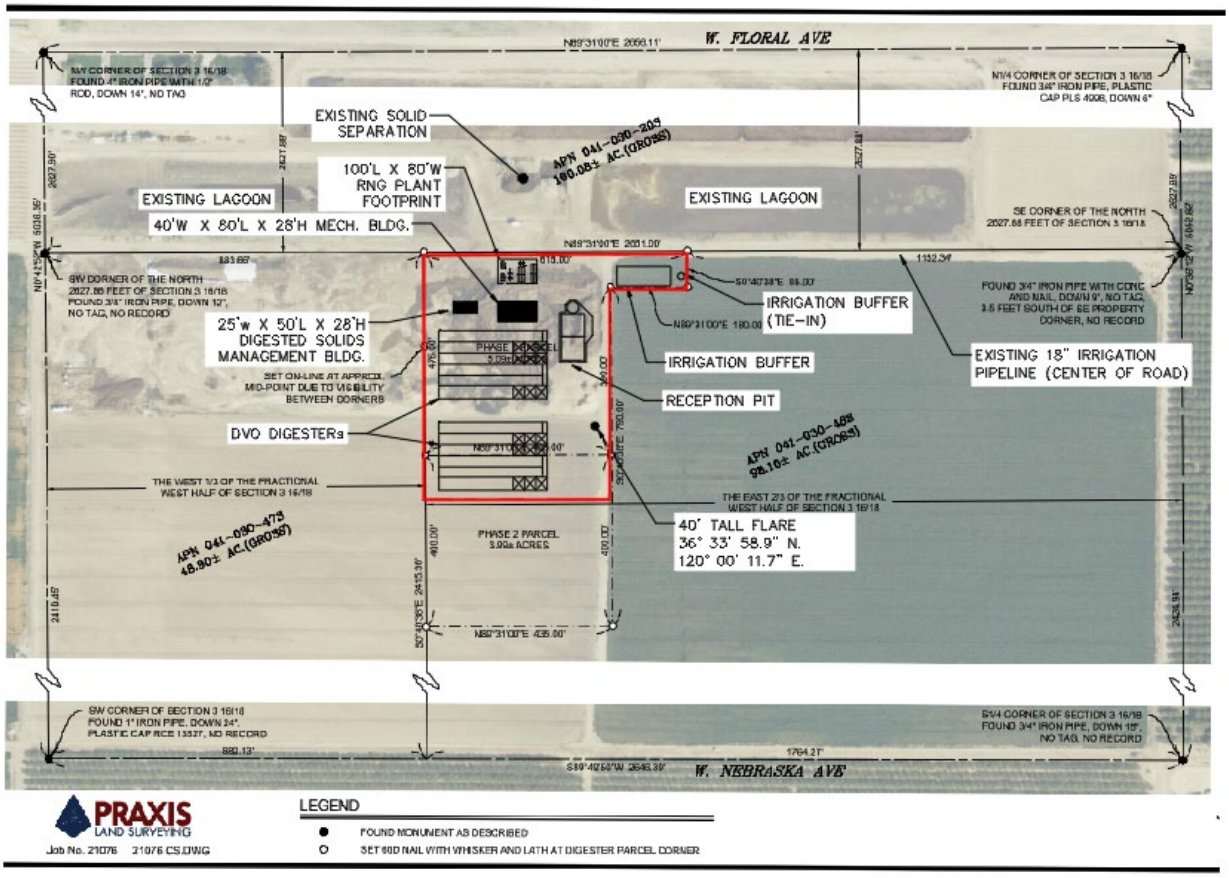
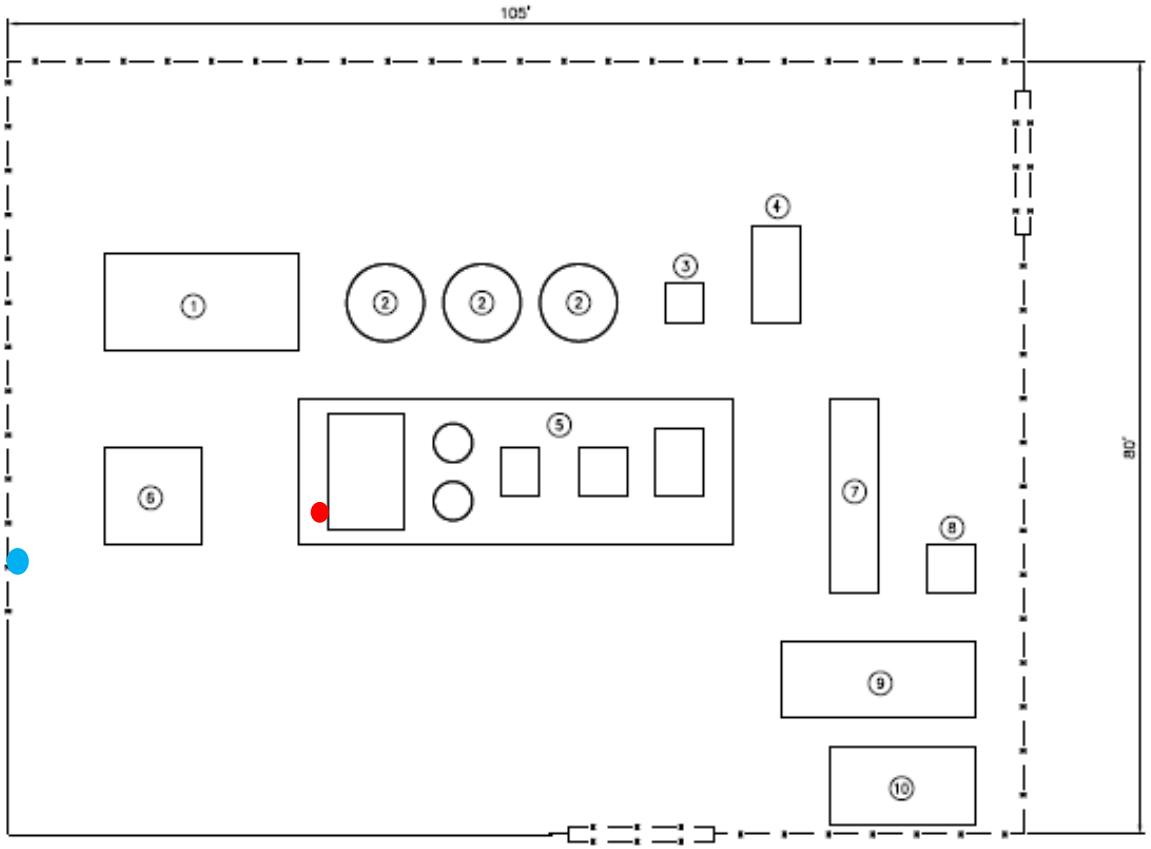


Figure 6. Biomethane Facility Overall Layout



NO	EQUIPMENT DESCRIPTION
1	BLOWER SKID
2	IRON SPONGE VESSEL
3	HEAT EXCHANGER
4	CHILLER
5	DG COMPRESSION / MEMBRANE SKID
6	PRODUCT GAS COMPRESSOR
7	SWITCHGEAR/ MCC
8	TRANSFORMER
9	MODULAR OFFICE
10	STORAGE UNIT

● Is off spec gas vent; ● is membrane system CO2 vent.

Figure 7. RNG Plant Layout with Emission Source Point

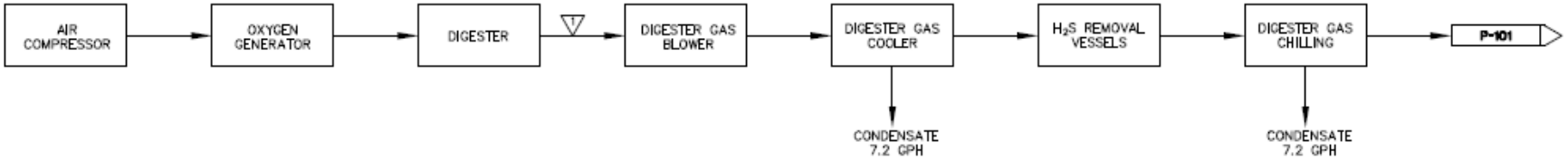


Figure 8. Biomethane Facility – Preconditioning Block Flow Diagram

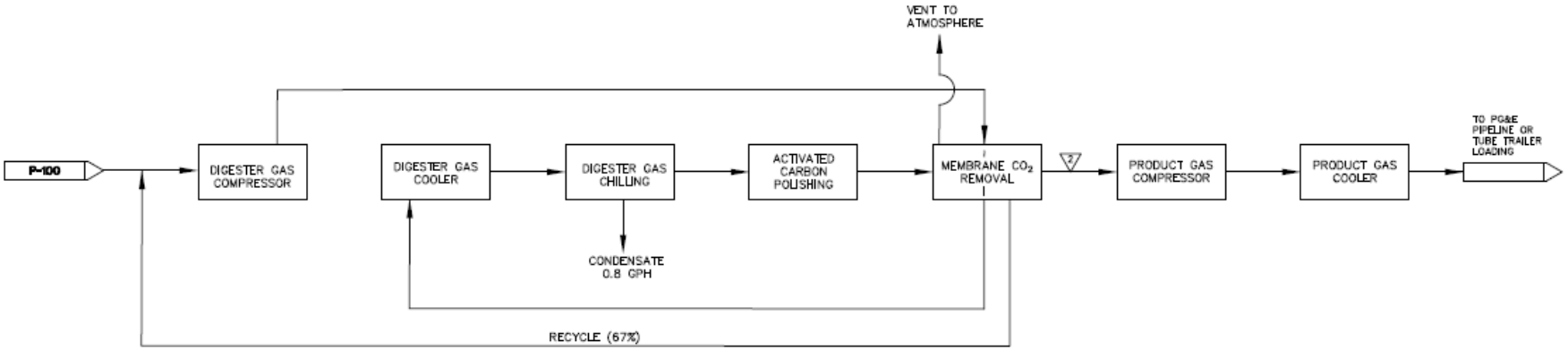


Figure 9. Biomethane Facility – Main Process Block Flow Diagram

Figure 10. SAR1 Biomethane Plant
Johann Dairy Development Site for Digester(s) and Biomethane Facility

Appendix A

Equipment List

Appendix A

Equipment List

Table 1. DVO (or similar) Style Digester system (no motors have VFD or Soft-start)

Equipment	No. of Digesters	Motor Rating (HP)	Motor Rating (KW)	No. Per Digester	Run Time per Year	Connected Load (KW)	System Load kWhr/yr
Heat Zone 1-3 Water Pump	2	3	2.24	2	50%	8.95	39,210
Heat Zone 2-5 Water Pump	2	1.5	1.12	8	40%	17.90	62,736
Main Heat Zone Water Pump	2	3	2.24	2	60%	8.95	47,052
Gas Recirculation System Blower	2	25	18.65	2	100%	74.60	653,496
Skid Pit Blower	2	3	2.24	2	100%	8.95	78,420
Sludge Pump	2	3	2.24	2	100%	8.95	78,420
Total						**128.31**	**959,332**

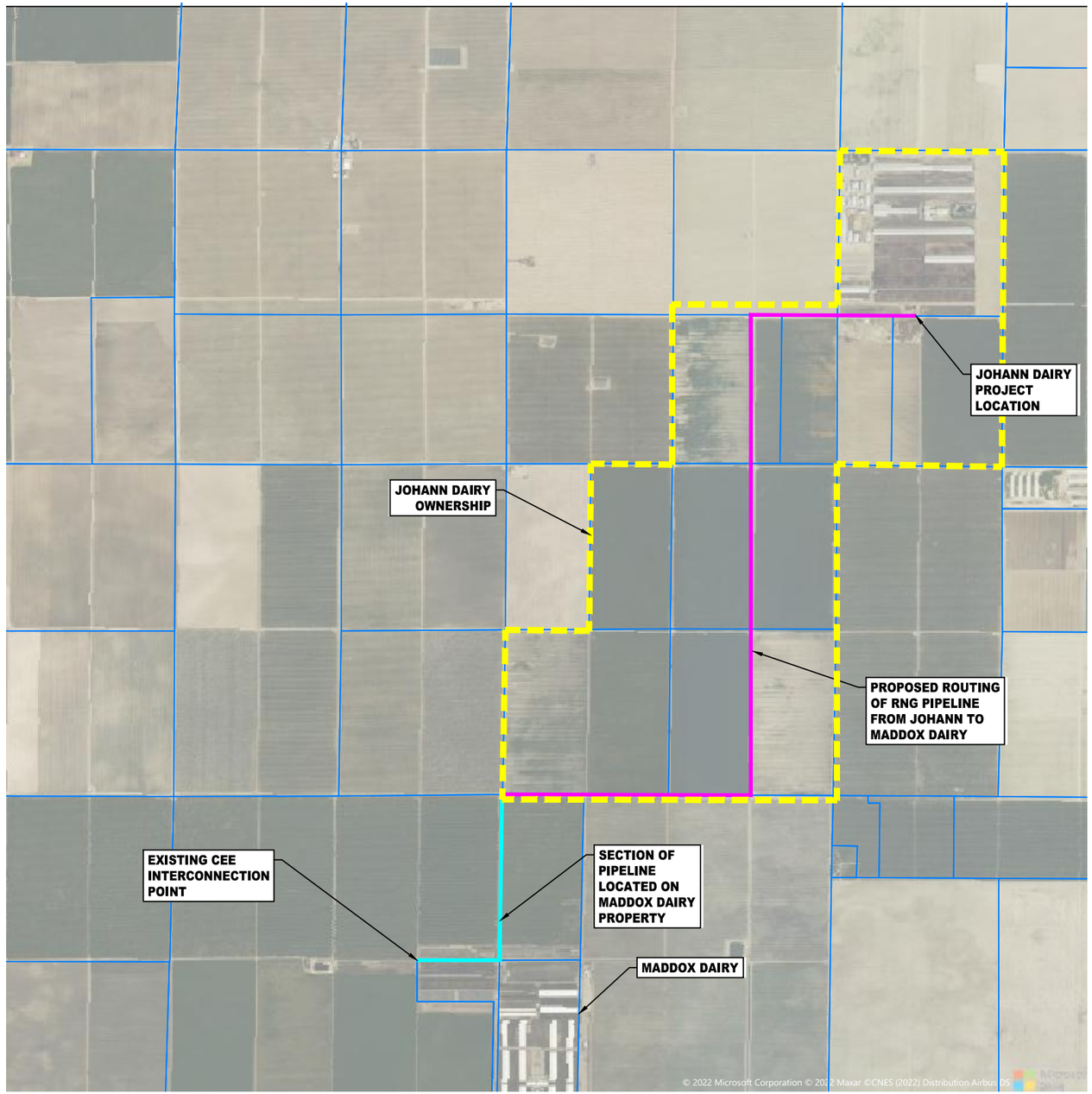
Table 2. Gas Conditioning and Biomethane System

Equipment	Motor Rating (HP)	Motor Rating (KW)	Type	OpeOper Factor	Oper BHP	Oper KW
O_2 Injection Equipment	10	7.46	ATL	100%	8	7
DG Blower	75	55.95	VFD	100%	55	56
DG Blower Air Cooler	3	2.24	VFD	100%	2	2
Chiller	50	37.30	VFD	100%	34	37
DG Compressor	800	596.80	VFD	100%	400	597
DG Comp Oil/After Cooler Combo Unit	7.5	5.60	VFD	100%	2	6
Product Gas Compressor	60	44.76	VFD	100%	49	45
Product Gas Comp Gas Cooler Fan	3	2.24	VFD	100%	2	2
Plant Air Compressor No. 1	10	7.46	ATL	50%	4	4
Plant Air Compressor No. 2	10	7.46	ATL	50%	4	4
Lighting/Other						5
Connected Load	**1029**	**767**			**Operating Load**	**764.80**

Table 3. Utility and Support Equipment

Equipment	Motor Rating (HP)	Motor Rating (KW)	Type	Operating Factor	Oper KW	System Load kWhr/yr
Boiler No. 1	2	1.5	ATL	50%	1.2	5,235
Boiler No. 2	2	1.5	ATL	50%	1.2	5,235
Boiler No. 3	2	1.5	ATL	50%	1.2	5,235
Boiler No. 4	2	1.5	ATL	50%	1.2	5,235
Boiler No. 5	2	1.5	ATL	50%	1.2	5,235
Boiler No. 6	2	1.5	ATL	50%	1.2	5,235
Screw Press No. 1	40	29.9	ATL	80%	23.9	167,491
Screw Press No. 2	40	29.9	ATL	80%	23.9	167,491
Screw Press No. 3	40	29.9	ATL	80%	23.9	167,491
Screw Press No. 4	40	29.9	ATL	80%	23.9	167,491
Screw Press No. 5	40	29.9	ATL	80%	23.9	167,491
Screw Press No. 6	40	29.9	ATL	80%	23.9	167,491
Screw Press No. 7	40	29.9	ATL	80%	23.9	167,491
Screw Press No. 8	40	29.9	ATL	80%	23.9	167,491
Liquid Digestate/Irrigation Buffer Pump	25	18.7	ATL	50%	14.94	65,37
Liquid Digestate/Irrigation Buffer Pump	25	18.7	ATL	50%	14.94	65,38
HVAC (2 units)	25	11.2	ATL	75%	8.96	58,893
Conveyor from Mech to Solids Mgmt	5	3.7	ATL	50%	2.99	13,087
Conveyor from Mech to Solids Mgmt	5	3.7	ATL	50%	2.99	13,088
Miscellaneous 120VAC loads				100%	6	52,560
Lighting				30%	5.54	14,559
Total	253	189			162.73	1,523,527

EXHIBIT 5



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GRAPHIC SCALE
1000 0 1000 2000
SCALE IN FEET

22x34 SIZE: 1"=1000'
11x17 SIZE: 1"=2000'

LEGEND

PROPOSED ROUTING OF RNG PIPELINE

EXHIBIT 5

\\lbc-fs01\DATA\PROJECTS\06219013.02\Drawings\Pipeline Route\Pipeline Route.dwg Aug 01, 2022 - 5:45pm By: 3889s_s

NAME: EXPIRATION DATE: PROFESSIONAL ENGINEER LIC. NO.	SCS ENERGY 3900 KILROY AIRPORT WAY LONG BEACH, CA 90806 (562) 426-9544	CLIENT SA ENERGY	SHEET TITLE	NO. / REVISION / DATE	PROJECT DATE: 05/16/2022
	PROJ. NO. 90000001.06 / DWN. BY: / ACAD FILE:				SCALE: AS SHOWN
	DSN. BY: / CHK. BY: / APP. BY:		PROJECT TITLE SAR 1 DIGESTER FACILITY		DRAWING NO.

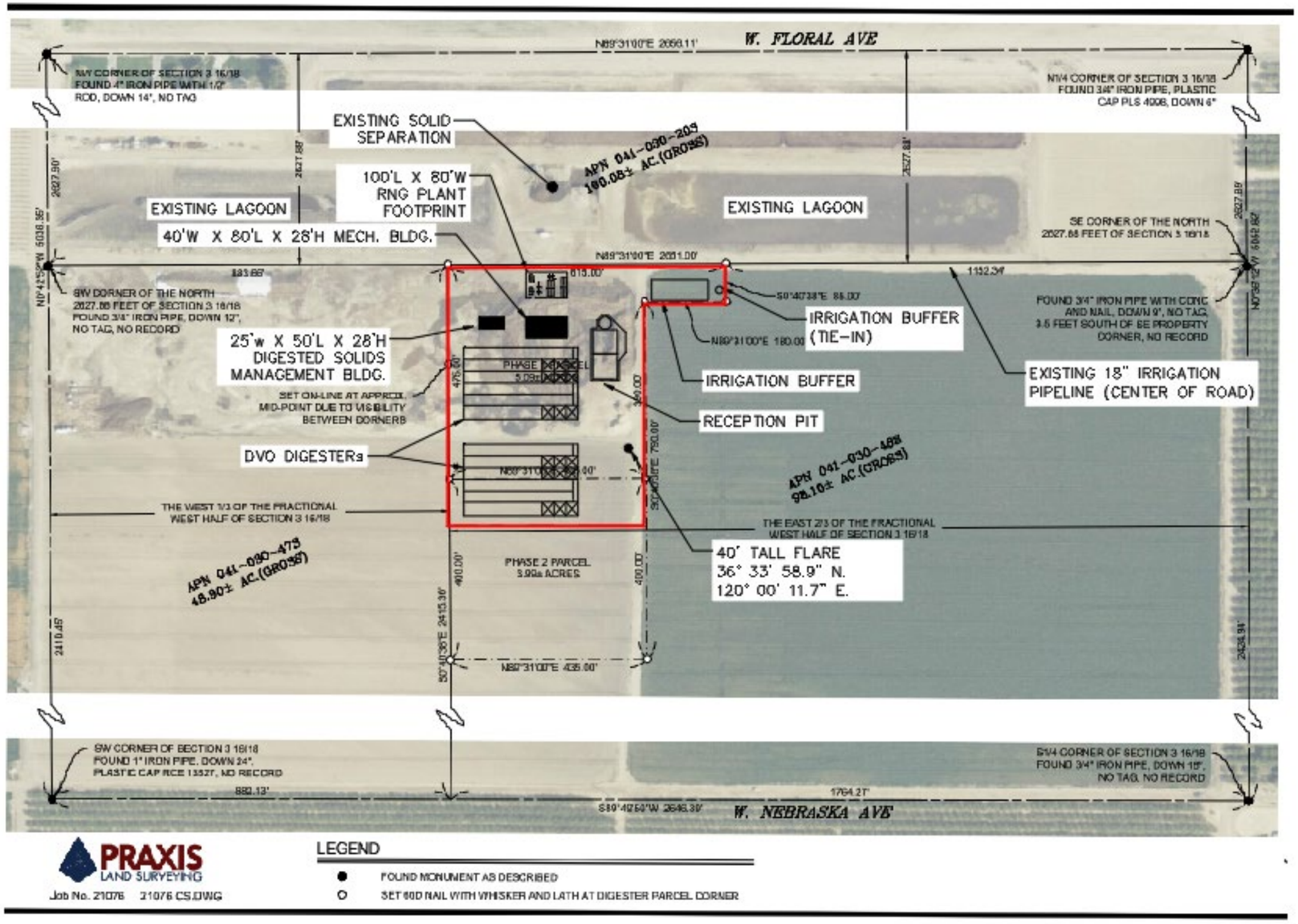

Figure 1. Facility Overall Layout

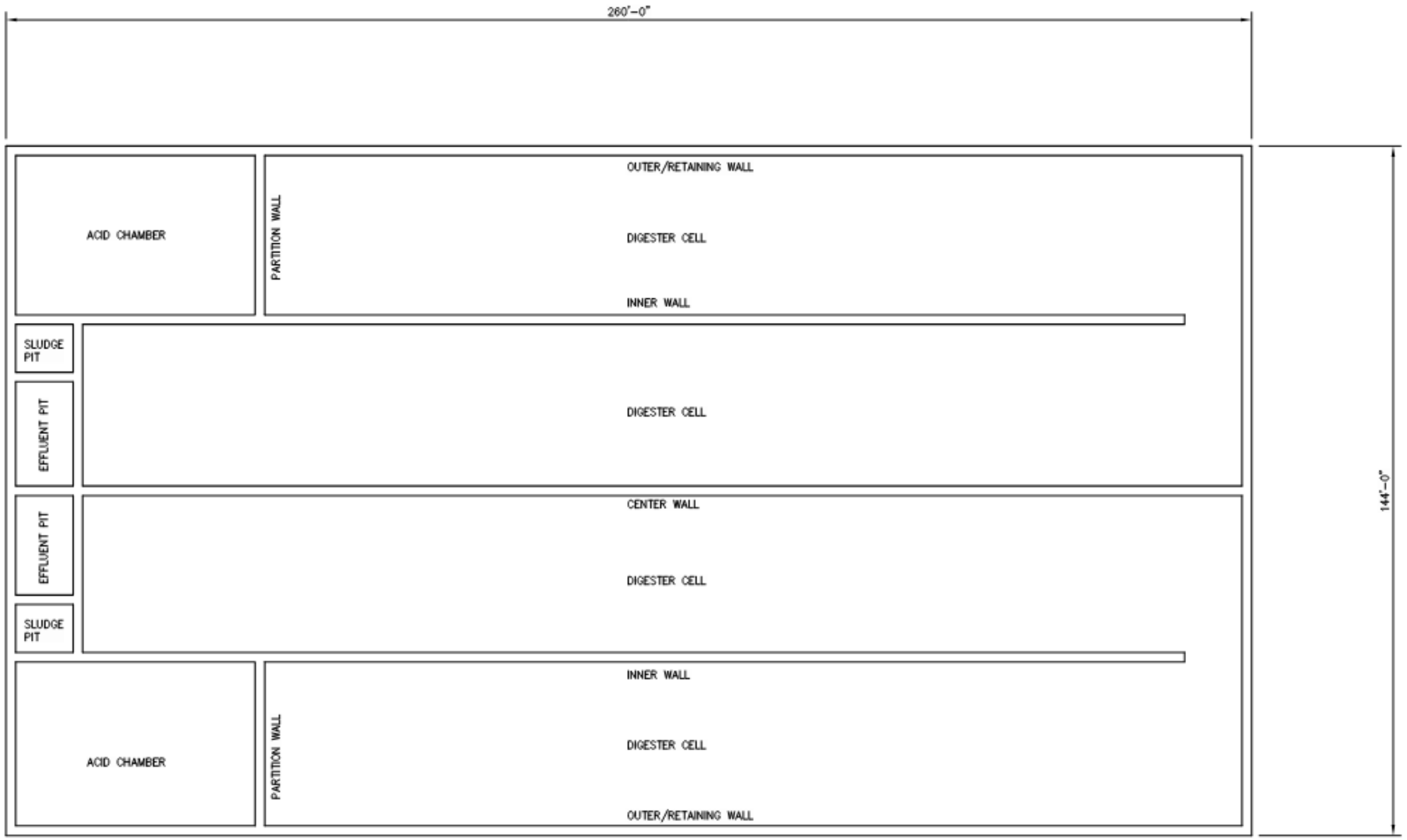

Figure 2. DVO Style Digester Option consisting of a mainly underground structure covered by a pre-cast concrete lid

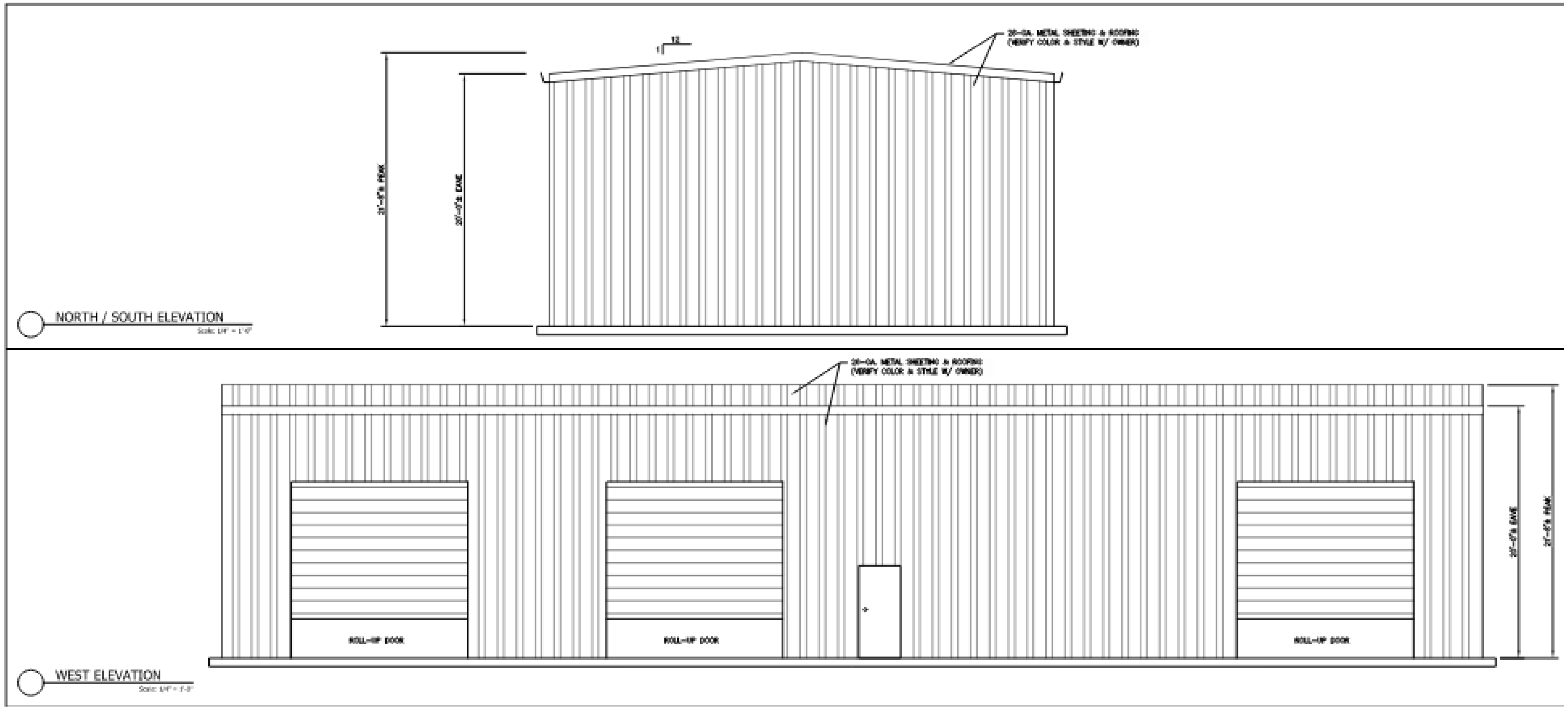

Figure 3. Typical Building Elevation (Max 25' Peak height)