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County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING

STEVEN E. WHITE DIRECTOR

FILED
JUN 24 2019
11:04 PM
FRESNO COUNTY CLERK
By Nina Lopez DEPUTY

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

For County Clerk's Stamp

Notice is hereby given that the County of Fresno has prepared Initial Study Application (IS) No. 7608 pursuant to the requirements of the California Environmental Quality Act for the following proposed project:

INITIAL STUDY APPLICATION NO. 7608 and UNCLASSIFIED CONDITIONAL USE PERMIT APPLICATION NOS. 3642-3647 filed by **MASS ENERGY WORKS, INC.** on behalf of **FIVE POINTS PIPELINE, LLC, L&J VANDERHAM DAIRY, VAN DER HOEK DAIRY BIOGAS LLC, VAN DER KOOI DAIRY POWER LLC, and WILSON DAIRY BIOGAS LLC**, proposing to allow the installation of four new covered lagoon anaerobic dairy digesters with related biogas conditioning equipment and biogas generators to produce electricity on four existing dairies; the installation of biogas conditioning equipment at a fifth dairy with an existing digester and generator; the construction of an approximately 10.5 mile underground pipeline to connect the participating dairies; and allow produced biomethane to be transported to a centralized hub where a biogas upgrading facility will be constructed to clean and condense the biogas before it is injected into the PG&E natural gas transmission line.

The project is bounded by the unincorporated communities of Five Points to the southwest, Helm to the north, Burrell to the northeast, and Lanare to the east and southeast; State Route 145 (Madera Avenue) on the west; Mount Whitney Avenue on the south; Jameson Avenue on the east; and Kamm Avenue on the north; within the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) and AE-40 (Exclusive Agricultural, 40-acre minimum parcel size) Zone Districts (SUP. DIST. 1 and 4) (Dairies: APN Nos. 040-130-51S, 050-160-16S, 050-270-56S, 050-170-41S, 050-260-12S, 040-130-35S) (Pipeline APN Nos. 040-130-35S, 49, 44S, 48S, 51S; 041-100-17, 45S; 050-160-13S, 16S; 050-170-41S; 050-200-38S; 050-230-20S, 23S; 050-260-10S, 11S, 12S; 050-270-56S).

Adopt the Mitigated Negative Declaration prepared for Initial Study Application No. 7608, and take action on Unclassified Conditional Use Permit Application Nos. 3642-3647 with Findings and Conditions.

(hereafter, the "Proposed Project")

The County of Fresno has determined that it is appropriate to adopt a Mitigated Negative Declaration for the Proposed Project. The purpose of this Notice is to (1) provide notice of the availability of IS Application No. 7608 and the draft Mitigated Negative Declaration, and request

written comments thereon; and (2) provide notice of the public hearing regarding the Proposed Project.

Public Comment Period

The County of Fresno will receive written comments on the Proposed Project and Mitigated Negative Declaration from June 26, 2019 through July 25, 2019.

Email written comments to jshaw@fresnocountyca.gov, or mail comments to:

Fresno County Department of Public Works and Planning
Development Services and Capital Projects Division
Attn: Jeremy Shaw
2220 Tulare Street, Suite A
Fresno, CA 93721

IS Application No. 7608 and the draft Mitigated Negative Declaration may be viewed at the above address Monday through Thursday, 9:00 a.m. to 5:00 p.m., and Friday, 8:30 a.m. to 12:30 p.m. (except holidays), or at www.co.fresno.ca.us/initialstudies. An electronic copy of the draft Mitigated Negative Declaration for the Proposed Project may be obtained from Jeremy Shaw at the addresses above.

Public Hearing

The Planning Commission will hold a public hearing to consider approving the Proposed Project and the Mitigated Negative Declaration on August 8, 2019 at 8:45 a.m., or as soon thereafter as possible, in Room 301, Hall of Records, 2281 Tulare Street, Fresno, California 93721. Interested persons are invited to appear at the hearing and comment on the Proposed Project and draft Mitigated Negative Declaration.

For questions please call Jeremy Shaw (559) 600-4207.

Published: June 26, 2019

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: Initial Study Application No. 7608, Unclassified Conditional Use Permit Application Nos. 3642, 3643, 3644, 3645

Lead Agency: County of Fresno Contact Person: Jeremy Shaw
Mailing Address: 2220 Tulare Street, 6th Floor Phone: (559)-600-4207
City: Fresno Zip: 93721 County: Fresno

Project Location: County: Fresno City/Nearest Community: Helm
Cross Streets: W. Mt. Whitney Ave./ S. Howard Ave., Elkhorn Grade/ W. Elkhorn Ave., W. Elhorn Ave./ Zip Code: 93656,93627
Longitude/Latitude (degrees, minutes and seconds): Section: 3,4,5,6 Twp.: 16S,17S Range: 18E Base: MDBM
Assessor's Parcel No.: (050-170-41S) (050-160-13S,16S)
Within 2 Miles: State Hwy #: 145 (S. Lassen Ave.) Waterways: Fresno Slough
Airports: American Ag Aviation/Private Railways: Southern Pacific Schools: Helm Elementary School

Document Type:

- CEQA: [] NOP [] Draft EIR NEPA: [] NOI Other: [] Joint Document
[] Early Cons [] Supplement/Subsequent EIR [] EA [] Final Document
[] Neg Dec (Prior SCH No.) [] Draft EIS [] Other:
[X] Mit Neg Dec Other: [] FONSI

Local Action Type:

- [] General Plan Update [] Specific Plan [] Rezone [] Annexation
[] General Plan Amendment [] Master Plan [] Prezone [] Redevelopment
[] General Plan Element [] Planned Unit Development [X] Use Permit [] Coastal Permit
[] Community Plan [] Site Plan [] Land Division (Subdivision, etc.) [] Other:

Development Type:

- [] Residential: Units Acres
[] Office: Sq.ft. Acres Employees Transportation: Type
[X] Commercial: Sq.ft. Acres Employees Mining: Mineral
[] Industrial: Sq.ft. Acres Employees Power: Type biogas generator MW
[] Educational: Waste Treatment: Type anaerobic digester MGD
[] Recreational: Hazardous Waste: Type
[] Water Facilities: Type MGD Other:

Project Issues Discussed in Document:

- [X] Aesthetic/Visual [] Fiscal [X] Recreation/Parks [X] Vegetation
[X] Agricultural Land [X] Flood Plain/Flooding [X] Schools/Universities [X] Water Quality
[X] Air Quality [X] Forest Land/Fire Hazard [X] Septic Systems [X] Water Supply/Groundwater
[X] Archeological/Historical [X] Geologic/Seismic [X] Sewer Capacity [X] Wetland/Riparian
[X] Biological Resources [X] Minerals [X] Soil Erosion/Compaction/Grading [X] Growth Inducement
[] Coastal Zone [X] Noise [X] Solid Waste [X] Land Use
[X] Drainage/Absorption [X] Population/Housing Balance [X] Toxic/Hazardous [X] Cumulative Effects
[] Economic/Jobs [X] Public Services/Facilities [X] Traffic/Circulation [] Other:

Present Land Use/Zoning/General Plan Designation:

Agriculture (Dairies)/AE-20/AE-40/Agriculture

Project Description: (please use a separate page if necessary)

This project proposes to allow the installation of four new covered lagoon anaerobic dairy digesters with related biogas conditioning equipment and biogas generators to produce electricity on four existing dairies; the installation of biogas conditioning equipment at a fifth dairy with an existing digester and generator; the construction of an approximately 10.5 mile underground pipeline to connect the participating dairies; and allow produced biomethane to be transported to a centralized hub where a biogas upgrading facility will be constructed to clean and condense the biogas before it is injected into the PG&E natural gas transmission line.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with an "X".
If you have already sent your document to the agency please denote that with an "S".

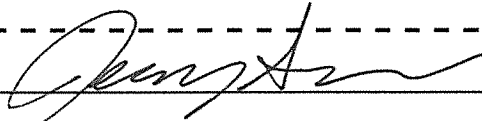
<input type="checkbox"/> Air Resources Board	<input type="checkbox"/> Office of Historic Preservation
<input type="checkbox"/> Boating & Waterways, Department of	<input type="checkbox"/> Office of Public School Construction
<input type="checkbox"/> California Emergency Management Agency	<input type="checkbox"/> Parks & Recreation, Department of
<input type="checkbox"/> California Highway Patrol	<input type="checkbox"/> Pesticide Regulation, Department of
<input checked="" type="checkbox"/> Caltrans District #6	<input checked="" type="checkbox"/> Public Utilities Commission
<input type="checkbox"/> Caltrans Division of Aeronautics	<input type="checkbox"/> Regional WQCB # _____
<input type="checkbox"/> Caltrans Planning	<input type="checkbox"/> Resources Agency
<input type="checkbox"/> Central Valley Flood Protection Board	<input type="checkbox"/> Resources Recycling and Recovery, Department of
<input type="checkbox"/> Coachella Valley Mtns. Conservancy	<input type="checkbox"/> S.F. Bay Conservation & Development Comm.
<input type="checkbox"/> Coastal Commission	<input type="checkbox"/> San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
<input type="checkbox"/> Colorado River Board	<input type="checkbox"/> San Joaquin River Conservancy
<input type="checkbox"/> Conservation, Department of	<input type="checkbox"/> Santa Monica Mtns. Conservancy
<input type="checkbox"/> Corrections, Department of	<input type="checkbox"/> State Lands Commission
<input type="checkbox"/> Delta Protection Commission	<input type="checkbox"/> SWRCB: Clean Water Grants
<input type="checkbox"/> Education, Department of	<input checked="" type="checkbox"/> SWRCB: Water Quality
<input type="checkbox"/> Energy Commission	<input type="checkbox"/> SWRCB: Water Rights
<input checked="" type="checkbox"/> Fish & Game Region #9	<input type="checkbox"/> Tahoe Regional Planning Agency
<input type="checkbox"/> Food & Agriculture, Department of	<input type="checkbox"/> Toxic Substances Control, Department of
<input checked="" type="checkbox"/> Forestry and Fire Protection, Department of	<input type="checkbox"/> Water Resources, Department of
<input type="checkbox"/> General Services, Department of	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Health Services, Department of	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Housing & Community Development	
<input type="checkbox"/> Native American Heritage Commission	

Local Public Review Period (to be filled in by lead agency)

Starting Date June 26, 2019 Ending Date July 25, 2019

Lead Agency (Complete if applicable):

Consulting Firm: _____	Applicant: <u>Maas Energy Works, Inc.</u>
Address: _____	Address: <u>3711 Meadow View Drive, Suite 100</u>
City/State/Zip: _____	City/State/Zip: <u>Redding, CA 96002</u>
Contact: _____	Phone: <u>530-410-0859</u>
Phone: _____	

Signature of Lead Agency Representative:  Date: 6-24-19

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.



County of Fresno

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

INITIAL STUDY ENVIRONMENTAL CHECKLIST FORM

1. **Project title:**
Initial Study Application No. 7608, Unclassified Conditional Use Permit Application Nos. 3642, 3643, 3644, 3645, 3646, and 3647.
2. **Lead agency name and address:**
Fresno County Department of Public Works and Planning
Development Services and Capital Projects Division
2220 Tulare Street, 6th Floor
Fresno, CA 93721-2104
3. **Contact person and phone number:**
Jeremy Shaw, Planner, (559) 600-4207
4. **Project location:**
The proposed project area is bounded by the unincorporated communities of Five Points, Helm, Burrel and Lanare; South Lassen Avenue (State Route 145) to the west, and the Fresno Slough to the east. The subject parcels are located within both the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District and the AE-40 (Exclusive Agricultural, 40-acre minimum parcel size) Zone District.
5. **Project sponsor's name and address:**
Five Points Pipeline, LLC
3711 Meadow View Drive, Suite 100
Redding, CA 96002
6. **General Plan designation:**
Agriculture
7. **Zoning:**
The project sites are located in both the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District and AE-40 (Exclusive Agricultural, 40-acre minimum parcel size) Zone District.
8. **Description of project: (Describe the whole action involved, including, but not limited to, later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)**
Allow a dairy digester cluster and pipeline, which entails the installation of four new covered lagoon type, anaerobic dairy digesters with related biogas conditioning equipment and biogas generators at four existing dairy sites, the installation of biogas conditioning equipment at an existing digester site, the construction of a 10.5 mile long underground pipeline to connect the participating dairies and allow produced biomethane to be transported to one centralized hub, where a biogas upgrading facility will be constructed to clean and condense the biogas before it is injected into the PG&E main natural gas line. The gas upgrading equipment will remove moisture, hydrogen sulfide, and carbon dioxide before the gas is compressed and injected.

There will also be a separate Electrical Generation Facility constructed on the same site, which will contain biogas generator(s) and ancillary equipment, similar to the upgrading facility, to condition the biogas before it is utilized in the generators. The electrical generation facility will require new or upgraded service and connection equipment from PG&E, including the installation of new utility poles. The new biogas generators at each dairy and the central

hub, will produce electrical power to be utilized for the dairy operation and delivered to the PG&E grid, through a net energy metering agreement.

The central hub/biogas upgrading facility, including a PG&E Point of Interconnection and Injection, will include a Meter Set Assembly (MSA) to measure, odorize, and control the flow of gas to the PG&E main pipeline, which is located on the Open Sky Dairy (APN 050-170-41S). The central hub/biogas upgrading facility will allow cleaned and conditioned biogas to be converted into renewable natural gas, and injected into the PG&E main transmission/distribution line, which traverses the central hub site.

The approximately 10.5 mile long, underground, biogas pipeline, will consist of four-inch to six-inch diameter, high-density polyethylene (HDPE) low-pressure lines, connecting the five participating dairies to the central hub, thereby allowing each dairy to contribute conditioned biogas to the gathering lines (pipeline) leading to the central hub. The pipeline will be buried at a minimum depth of four feet, except where greater depth is necessary. The pipeline route will traverse a total of 17 parcels, including those containing the five participating dairies, make approximately five (5) County road right-of-way crossings, and approximately eight (8) irrigation canal crossings.

Project construction of the central hub/biogas upgrading facility, electrical generation facility, pipeline and participating digesters is anticipated to take approximately 10 months to complete, and once complete will operate 24 hours per day, seven days per week.

9. Surrounding land uses and setting: Briefly describe the project's surroundings:

The project site is located primarily on established dairies and the proposed pipeline will primarily traverse other large farming parcels adjacent to the dairies, as well as one parcel with an established agricultural aviation operation.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

California Water Resources Control Board

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Per Assembly Bill 52 (AB52), participating California Native American Tribes, which had previously requested notification of land use projects were notified of the project and given the opportunity to enter consultation with the County regarding the proposal pursuant to Public Resources Code Section 21080.3.1; Of the four tribes that were notified, (Dumna Wo Wah, Picayune Rancheria of the Chuckchansi Indians, Santa Rosa Rancheria Tachi Yokut Tribe, and Table Mountain Rancheria), none responded to the notice or requested consultation.

NOTE: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code Section 21080.3.2.)

Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code Section 21082.3(c) contains provisions specific to confidentiality.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

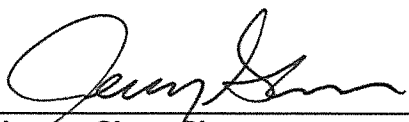
- | | |
|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources |
| <input type="checkbox"/> Air Quality | <input type="checkbox"/> Biological Resources |
| <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality |
| <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Transportation | <input type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Wildfire |
| <input type="checkbox"/> Mandatory Findings of Significance | |

DETERMINATION OF REQUIRED ENVIRONMENTAL DOCUMENT:

On the basis of this initial evaluation:

- I find that the proposed project **COULD NOT** have a significant effect on the environment. **A NEGATIVE DECLARATION WILL BE PREPARED.**
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the Mitigation Measures described on the attached sheet have been added to the project. **A MITIGATED NEGATIVE DECLARATION WILL BE PREPARED.**
- I find the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required
- I find that as a result of the proposed project, no new effects could occur, or new Mitigation Measures would be required that have not been addressed within the scope of a previous Environmental Impact Report.

PERFORMED BY:



Jeremy Shaw, Planner

Date: 6-24-19

REVIEWED BY:



Marianne Mollring, Senior Planner

Date: 6-24-19

**INITIAL STUDY
ENVIRONMENTAL CHECKLIST FORM
(Initial Study Application No. 7608 and
Classified Conditional Use Permit
Application Nos. 3642-3647)**

The following checklist is used to determine if the proposed project could potentially have a significant effect on the environment. Explanations and information regarding each question follow the checklist.

1 = No Impact

2 = Less Than Significant Impact

3 = Less Than Significant Impact with Mitigation Incorporated

4 = Potentially Significant Impact

I. AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:

- 1 a) Have a substantial adverse effect on a scenic vista?
- 1 b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
- 1 c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?
- 3 d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

II. AGRICULTURAL AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology in Forest Protocols adopted by the California Air Resources Board. Would the project:

- 2 a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?
- 2 b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract?
- 1 c) Conflict with existing zoning for forest land, timberland or timberland zoned Timberland Production?
- 1 d) Result in the loss of forest land or conversion of forest land to non-forest use?
- 2 e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

- 2 a) Conflict with or obstruct implementation of the applicable Air Quality Plan?
- 2 b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
- 2 c) Expose sensitive receptors to substantial pollutant concentrations?
- 2 d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

IV. BIOLOGICAL RESOURCES

Would the project:

- 3 a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
- 3 b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
- 3 c) Have a substantial adverse effect on state or federally-protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- 1 d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
- 1 e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
- 1 f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan?

V. CULTURAL RESOURCES

Would the project:

- 3 a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?
- 3 b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?
- 3 c) Disturb any human remains, including those interred outside of formal cemeteries?

VI. ENERGY

Would the project:

- 2 a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?
- 2 b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

VII. GEOLOGY AND SOILS

Would the project:

- 2 a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - 2 i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?
 - 2 ii) Strong seismic ground shaking?
 - 2 iii) Seismic-related ground failure, including liquefaction?
 - 2 iv) Landslides?
- 2 b) Result in substantial soil erosion or loss of topsoil?
- 2 c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?
- 2 d) Be located on expansive soil as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?
- 1 e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?
- 3 f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

VIII. GREENHOUSE GAS EMISSIONS

Would the project:

- 2 a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- 2 b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

- 2 a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- 2 b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- 1 c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- 1 d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?
- 2 e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area?
- 1 f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- 1 g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

X. HYDROLOGY AND WATER QUALITY

Would the project:

- 2 a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?
- 2 b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
- 1 c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off site?
 - 1 i) Result in substantial erosion or siltation on or off site;
 - 1 ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;
 - 1 iii) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or
 - 1 iv) Impede or redirect flood flows?
- 1 d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?
- 1 e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

XI. LAND USE AND PLANNING

Would the project:

- 1 a) Physically divide an established community?
- 1 b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

XII. MINERAL RESOURCES

Would the project:

- 2 a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?
- 2 b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local General Plan, Specific Plan or other land use plan?

XIII. NOISE

Would the project result in:

- 2 a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- 2 b) Generation of excessive ground-borne vibration or ground-borne noise levels?
- 2 c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposing people residing or working in the project area to excessive noise levels?

XIV. POPULATION AND HOUSING

Would the project:

- 1 a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and

businesses) or indirectly (for example, through extension of roads or other infrastructure)?

- 1 b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.)

XV. PUBLIC SERVICES

Would the project:

- 1 a) Result in substantial adverse physical impacts associated with the provision of new or physically-altered governmental facilities, or the need for new or physically-altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
- 1 i) Fire protection?
1 ii) Police protection?
1 iii) Schools?
1 iv) Parks?
1 v) Other public facilities?

XVI. RECREATION

Would the project:

- 1 a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- 1 b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

XVII. TRANSPORTATION

Would the project:

- 2 a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?
- 2 b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?
- 2 c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- 2 d) Result in inadequate emergency access?

XVIII. TRIBAL CULTURAL RESOURCES

Would the project:

- 3 a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
- 3 i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or
- 3 ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:

- 1 a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?
- 1 b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?
- 2 c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
- 2 d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?
- 2 e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

XX. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

- 1 a) Substantially impair an adopted emergency response plan or emergency evacuation plan?
- 1 b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?
- 1 c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?
- 1 d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

- 3 a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?
- 2 b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)
- 2 c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Documents Referenced:

This Initial Study is referenced by the documents listed below. These documents are available for public review at the County of Fresno, Department of Public Works and Planning, Development Services and Capital Projects Division, 2220 Tulare Street, Suite A, Fresno, California (corner of M & Tulare Streets).

Fresno County General Plan, Policy Document and Final EIR
Fresno County Zoning Ordinance
Important Farmland 2016 Map, State Department of Conservation

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County of Fresno

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

EVALUATION OF ENVIRONMENTAL IMPACTS

- APPLICANT:** Five Points Pipeline, LLC
- APPLICATION NOS.:** Initial Study Application No. 7608 and Unclassified Conditional Use Permit Application Nos. 3642, 3643, 3644, 3645, 3646, and 3647.
- DESCRIPTION:** This project proposes to allow the installation of four new covered lagoon, anaerobic dairy digesters with related biogas conditioning equipment and biogas generators to produce electricity on four existing dairies; the installation of biogas conditioning equipment at a fifth dairy with an existing digester and generator; the construction of an approximately 10.5 mile underground pipeline to connect the participating dairies and allow produced biomethane to be transported to a centralized hub, where a biogas upgrading facility will be constructed to clean and condense the biogas before it is injected into the PG&E natural gas transmission line.
- LOCATION:** The project is bounded by the unincorporated communities of Five Points to the southwest, Helm to the north, Burrell to the northeast, and Lanare to the east and southeast; State Route 145 (Madera Avenue) on the west, Mount Whitney Avenue on the south, Jameson Avenue on the east, and Kamm Avenue on the north within the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) and AE-40 (Exclusive Agricultural, 40-acre minimum parcel size) Zone Districts. (SUP. DIST. 1 and 4) (Dairies: APN Nos. 040-130-51S; 050-160-16S; 050-270-56S; 050-170-41S; 050-260-12S; 040-130-35S) (Pipeline APN Nos. 040-130-51S, 49, 44S, 48S; 041-100-17, 45S; 050-160-13S, 16S; 050-200-38S; 050-230-20; 050-260-10S; 050-230-23S; 050-260-12S, 11S; 050-270-56S; 040-130-35S).

I. AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:

- A. Have a substantial adverse effect on a scenic vista?

FINDING: NO IMPACT:

The project is located in an agricultural area and is not near any scenic vistas. The proposed project involves the installation of a 10.5 mile underground gas pipeline to connect 5 existing dairies, which will introduce biomethane to the pipeline, to be collected at a central hub where the biogas will be conditioned to meet commercial standards before it is injected into Pacific Gas and Electric's (PG&E) main natural gas line, which traverses the central hub site. The project area encompasses portions of 17 parcels, consisting of the five participating dairies, and an additional 12 parcels to be traversed by the proposed pipeline. This area is characterized by large farming parcels and open space. The project will not add any structures that would obstruct any views from neighboring properties or from adjacent roadways. Project construction will be limited to the proposed underground pipeline and the installation of new gas conditioning equipment at the existing dairy sites. Therefore, the project will have no impact on scenic vistas.

- B. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

FINDING: NO IMPACT:

No scenic resources, including trees, rock outcroppings, or historic buildings were identified in the analysis or by any reviewing agencies. One of the dairy sites is located approximately one third-mile east of State Route 145 (South Lassen Avenue), which is not a Scenic Highway per the Fresno County General Plan, Figure OS-2.

- C. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

FINDING: NO IMPACT:

The project area is entirely located in a rural area characterized by large-scale agricultural operations. As previously stated, the project does not entail the addition of any structures that would negatively impact viewsheds from surrounding properties or public roadways, or substantially degrade the visual character or quality of public views of any of the project sites. The proposed improvements are consistent with the existing dairy operations.

- D. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

FINDING: LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED:

The proposed project will not introduce substantial, new sources of light or glare. The proposed facilities will utilize outdoor security lighting and all lighting will be required to be hooded and directed downward so as not to shine on adjacent properties or roadways.

* **Mitigation Measure(s)**

1. *All outdoor lighting shall be hooded and directed so as not to shine toward adjacent properties and public streets.*

II. AGRICULTURAL AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology in Forest Protocols adopted by the California Air Resources Board. Would the project:

- A. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

FINDING: LESS THAN SIGNIFICANT IMPACT:

Farmland on the subject parcels has been classified as a mixture of farmland of statewide importance and confined animal agriculture. The confined animal designation is limited to the area where the dairy cows are housed and the new improvements will be located in the area of the existing dairies where the land has been designated for confined animal agriculture. The proposed pipeline will transverse farmland of statewide importance, but will be located at least four feet below the surface of the farming operation, and will not hinder agricultural operations. The new improvements will be supportive of dairy operations.

- B. Conflict with existing zoning for agricultural use, or a Williamson Act Contract?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The parcels involved with the proposed project are restricted by Williamson Act Contracts, and due the commercial nature of gas and electrical exportation to gas pipelines and the electrical grid, the areas of each dairy where the digesters and supporting equipment are located will be required to non-renew the existing contracts on those portions of the property. The amount of land that will be non-renewed does

not represent a significant reduction in land restricted by Williamson Act Contracts and will not result in the reduction of agricultural products.

- C. Conflict with existing zoning for forest land, timberland or timberland zoned Timberland Production; or
- D. Result in the loss of forest land or conversion of forest land to non-forest use?

FINDING: NO IMPACT:

The project is not located near any land that is used or zoned for Timberland Production. Therefore, there are no conflicts with, or loss of, timberland or forest land as a result of this project. All of the land involved is zoned Agricultural and limited to uses allowed in such zone districts.

- E. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The project entails the installation of new dairy digesters at four existing dairy sites along with ancillary equipment; the addition of ancillary equipment at a fifth dairy site with an existing digester; construction of an approximately 10.5 mile underground pipeline connecting the five dairies to one central hub; and allowing biomethane produced at each participating dairy to be collected and transported via the pipeline, to the central hub, located on the Open Sky Dairy which is centrally located to the other dairies. From the central hub, the collected biogas will be conditioned to commercial natural gas standards before being injected into the adjacent PG&E main natural gas pipeline.

The portions of the parcels where the digesters and ancillary equipment will be located have been submitted for non-renewal of the associated Williamson Act Contracts. The conflict with the Williamson Act is primarily due to the commercial nature of the operation, which proposes to generate gas and electricity for sale to PG&E. The continued dairy operations on these parcels is necessary to feed the digesters. Therefore, approval of this project will not result in the conversion of farmland to non-agricultural uses.

As noted above, the project is not located in the vicinity of forestland and therefore, will have no impacts on the conversion of forestland to non-forest uses.

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

A. Conflict with or obstruct implementation of the applicable Air Quality Plan?

FINDING: LESS THAN SIGNIFICANT IMPACT:

This project proposal was reviewed by the San Joaquin Valley Air Pollution Control District (SJVAPCD). The District recommended that the evaluation of this proposal include estimates of construction, operation, mobile and stationary emissions sources, and the project's proximity to sensitive receptors and other existing emission sources, and that District established thresholds of significance for criteria pollutants be considered in the evaluation. The District also recommended that Operational Emissions (stationary sources) and non-permitted (mobile sources) be evaluated separately, and that project related criteria pollutant emissions from construction and operation should be identified and quantified.

The applicant provided an air quality impact and greenhouse gas analysis, completed by Insight Environmental/Trinity Consultants, dated May 2019. According to the analysis, the proposed project's construction and operations would contribute the following criteria pollutant emissions: reactive organic gases (ROG), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and suspended particulate matter (PM₁₀ and PM_{2.5}). Project operations would generate air pollutant emissions from mobile sources (automobile activity from employees) and area sources (incidental activities related to facility maintenance). Criteria and GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 (California Air Pollution Control Officers Association (CAPCOA) 2017), which is the most current version of the model approved for use by the San Joaquin Valley Air Pollution Control District (SJVAPCD).

Based on the air quality impact analysis, the short-term construction emissions would not exceed Air District significance thresholds for criteria pollutant levels during a given year and impacts would therefore, be less than significant. Project operational emissions are not anticipated to be a substantial source of PM₁₀ emissions, but rather the main sources of PM₁₀ would be vehicular traffic associated with the project. Transportation related activities from employees and maintenance would generate mobile source ROG, NO_x, SO_x, CO, PM₁₀, PM_{2.5} from vehicle exhaust.

Stationary source emissions from the project are anticipated to consist of VOC emissions from the biogas upgrade process and ROG, No_x, SO_x, CO, PM₁₀ and PM_{2.5} exhaust emissions from the combustion of the biogas to generate electrical power.

Air pollution associated with stationary sources is regulated through the permitting authority of the SJVAPCD under the New and Modified Stationary Source Review Rule (SJVAPCD Rule 2201). Owners of any new or modified equipment that emits, reduces, or controls air contaminants, except those specifically exempted by the SJVAPCD, are required to apply for an Authority to Construct and Permit to Operate (SJVAPCD Rule 2010). Additionally, best available control technology (BACT) is required on specific

types of stationary equipment and are required to offset both stationary source emission increases along with increases in cargo carrier emissions if the specified threshold levels are exceeded (SJVAPCD Rule 2201, 4.7.1). Through this mechanism, the SJVAPCD would require that all stationary sources within the project area would be subject to the standards of the SJVAPCD to ensure that new developments do not result in net increases in stationary sources of criteria air pollutants.

With adherence to the rules and requirements of the SJVAPCD, the estimated construction and operational emissions from the proposed project will be less than significant.

- B. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The project area is located in the San Joaquin Valley Air Basin (SJVAB), which is included among the eight counties that comprise the SJVAPCD. Under the provisions of the U.S. Clean Air Act, the Fresno County portion of the SJVAB has been classified as nonattainment/extreme, nonattainment/severe, nonattainment, attainment/unclassified, attainment for various criteria pollutants. As shown in the analysis by Insight Environmental Consultants, the project does not pose a substantial increase to basin emissions. Because the proposed project would generate less than significant project-related operational impacts to criteria air pollutants, the project's contribution to cumulative air quality impacts would not be cumulatively considerable.

- C. Expose sensitive receptors to substantial pollutant concentrations; or
- D. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

FINDING: LESS THAN SIGNIFICANT IMPACT:

Dairies are known to release objectionable odors, primarily due to animal waste from the milking cows. The project proposes to install covered digesters, which will process manure. The manure will be anaerobically activated to release methane, which will then be piped through a gas collection system to a central hub to generate renewable energy. The capture of methane gas is anticipated to remove adverse odors from the air as compared to the baseline.

Lead Agencies should consider situations wherein a new or modified source of hazardous air pollutants (HAPs) is proposed for a location near an existing residential area or other sensitive receptor when evaluating potential impacts related to HAPs. Typical sources of HAPs include diesel trucks or permitted sources such as engines, boilers, or storage tanks. The project will be located near scattered rural residences on large agricultural parcels. Since there will be HAPs emitted from the project and

occasional diesel truck travel on-site, a prioritization score was determined for the facility to determine if a health risk assessment (HRA) would be required. A Health Risk Assessment (HRA) is not required for a project with a total facility prioritization score of less than or equal to one. The project's prioritization score was 0.04, which is less than one. Therefore, no further analysis is required to determine the HAPs impacts from this project and potential risk to the population attributable to emissions of HAPs from the proposed project would be less than significant.

According to the analysis, the proposed project would not exceed any screening trigger levels to be considered a source of objectionable odors or odorous compounds. Furthermore, there does not appear to be any significant source of objectionable odors in close proximity that may adversely impact the project site when it is in operation. The project emission estimates indicate that the proposed project would not be expected to adversely impact surrounding receptors. As such, the project would not be a source of any odorous compounds nor would it likely be impacted by any odorous source.

Development in this area is dominated by large parcels of agricultural production with very limited residential development. Due to the anticipated reduction in objectionable odors and the distance between the closest residences and the project site, this project will not expose sensitive receptors to substantial pollutant concentrations and will not create objectionable odors affecting a substantial number of people.

IV. BIOLOGICAL RESOURCES

Would the project:

- A. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service; or
- B. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

FINDING: LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED:

A Biological Analysis Report (BAR), dated April 2019, was prepared for the project by the applicant's consultant, Quad Knopf, Inc. (QK). Reviews of agency-maintained databases were conducted to determine the potential presence of sensitive biological resources and special-status species. The results of the database and literature review indicate that eight (8) special-status species have the potential to occur within the vicinity of the project. Those species are the Swainson's hawk (*Buteo swainsoni*), western burrowing owl (*Athene cunicularia*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), loggerhead shrike (*Lanus ludovicianus*), tricolored blackbird (*Agelaius tricolor*), American badger (*Taxidea taxus*), San Joaquin kit fox (*Vulpes macrotis mutica*), and long-billed curlew (*Numenius americanus*).

A reconnaissance level field survey was conducted to identify sensitive biological resources on site and to document the suitability of the habitat on the project to support special-status species. No sensitive natural plant communities occur on the project sites. No special-status plant species were observed on the project sites. Swainson's hawk, loggerhead shrike, and long-billed curlew were observed near the site. No other special-status animal species were observed on site.

The project sites are highly disturbed and currently mostly cleared of vegetation. The pipeline route will run through private agricultural land. The presence of special-status species on these sites prior to ground disturbance cannot be positively determined. Reviews of the databases and on-site field examinations indicated that there are five defined waters or wetlands on or near the project sites. There are no designated migratory corridors or linkages, significant nursery sites, or designated Critical Habitat that occur on the project site.

A reconnaissance-level site survey was conducted on April 6, 2019 by QK. The survey consisted of meandering pedestrian transects with supplemental windshield survey of the Biological Study Area (BSA). Adjacent parcels were visually scanned for potential special-status resources and habitat conditions that could support special-status resources. The BSA supports a variety of bird, and mammal species. Various wildlife sign (i.e. scat, tracks, burrows etc.) were detected on all five sites. Wildlife sign detected included common bird species, two stick nests that could potentially be used by raptors, and numerous small mammal burrows. Twelve animal species or their sign were observed within the BSA. The project contained a few small mammal burrows scattered throughout the BSA.

Within the BSA, suitable San Joaquin kit fox habitat is not present; however, the pipeline route, specifically along the agriculture irrigation canals, may be used by the species while foraging or traveling through the area. The surrounding area near the pipeline route and dairy digester sites may provide suitable habitat for the species. There are multiple records of this species occurring near the BSA, but there is no positive evidence that the San Joaquin kit fox is present in the BSA.

Suitable foraging Swainson's hawk habitat is present in the agricultural fields surrounding the site. A Swainson's hawk was observed approximately 0.2-miles north, outside of the project area and east of the Van der Kooi Dairy. Suitable nesting habitat is found near the intersection of W. Elkhorn Avenue and S. Howard Avenue and along the Fresno Slough, but no nesting Swainson's hawks were found in the BSA during the reconnaissance survey.

Within the BSA, suitable foraging habitat for tricolored blackbird is present, but no nesting habitat is present. Suitable foraging loggerhead shrike habitat is present in the agricultural fields. Suitable nesting habitat is unlikely to be present within the BSA, but it may be present in the surrounding area. Trees with dense foliage that have the potential to house nests for this species occur in areas surrounding the BSA. Also, suitable foraging habitat for yellow-headed blackbird is present, but no nesting habitat is

present within the BSA. Suitable foraging and nesting long-billed curlew habitat is present. They typically nest in areas that are relatively dry and exposed. The nests are built near conspicuous objects such as livestock dung piles, rocks, or dirt mounds.

Within the project area, suitable badger habitat is not present, but the pipeline route, specifically along the irrigation canals, may be used by this species while foraging or traveling through the area.

Due to the high level of disturbance within the project footprint, lack of potential suitable areas for special-status plant species on the project site, and lack of potential for special status plants to exist on the site, no avoidance or minimization measures for special-status plant species are warranted.

The lack of special-status species within the localized project impact area and the short duration of activities, coupled with implementation of avoidance and minimization mitigation measures will be sufficient to reduce impacts of the projects to special-status wildlife species to level that would be less than significant.

* **Mitigation Measure(s)**

1. *Pre-activity Surveys for Special Status Species. No less than 14 days prior to the start of project ground disturbance activities in any specific area, a pre-activity clearance survey should be conducted by a qualified biologist knowledgeable in the identification of listed species. The surveys should cover the project site plus a 250-foot buffer. Pedestrian surveys achieving 100% visual coverage should be conducted. Multiple surveys are anticipated to be needed as each project site and the pipeline route is initiated. If no evidence of these species is detected, no further action is required.*
2. *Avoidance of Burrows for San Joaquin Kit Fox, and American Badger. If dens/burrows that could support any of these species are discovered during the pre-activity clearance surveys conducted under BIO-1, the avoidance buffers outlined below should be established. No work would occur within these buffers unless the biologist approves and monitors the activity. Dens or burrows of these species shall not be destroyed unless it is determined that the den/burrow is not occupied. In no case shall a San Joaquin kit fox natal den or known den be destroyed without the concurrence of the USFWS and CDFW and appropriate artificial den replacements are provided.*

San Joaquin Kit Fox

- *Potential Den – 50-feet*
- *Atypical Den – 50-feet (includes pipes and other man-made structures)*
- *Known Den – 100-feet*
- *Natal/Pupping Den – 500-feet*

American Badger

- *Known Den — 100-feet*

3. *Standard Avoidance and Minimization Measures for the San Joaquin kit fox and American badger. The following standard avoidance and minimization measures are recommended to be implemented:*

- *Construction-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all project areas, except on County and City roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time construction should be minimized to the extent possible. However, if night construction activities do occur, then the speed limit should be reduced to 10-mph. Off-road traffic outside of designated project areas should be prohibited.*
- *To prevent inadvertent entrapment of kit foxes or other wildlife during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2-feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks should be installed. Before such holes or trenches are filled, they should be thoroughly examined for trapped animals. If at any time a trapped or injured kit fox is discovered, the USFWS and the CDFW should be contacted as noted below.*
- *Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.*
- *All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.*
- *No pets, such as dogs or cats, should be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.*
- *Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of special-status species and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and*

federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.

- *A representative should be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a special-status species or who finds a dead, injured, or entrapped special-status species. The representative will be identified during the employee education program and their name and telephone number should be provided to the USFWS.*
- *In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for guidance.*
- *Any person who is responsible for inadvertently killing or injuring a special-status animal species should immediately report the incident to their representative. This representative should contact the CDFW immediately in the case of a dead, injured, or entrapped special-status species. The CDFW contact for immediate assistance is State Dispatch at 916-445-0045. They will contact the local warden or wildlife biologist. The USFWS should be contacted at the number below.*
- *The region 8 Sacramento Fish and Wildlife Office and Region 4 CDFW should be notified in writing within three working days of the accidental death or injury to a kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below.*

*U.S. Fish and Wildlife Service
Region 8 – California and Nevada
2800 Cottage Way
Sacramento, CA 95825
Contact: Tim Ludwick
Phone: 916-414-6464*

- *New sightings of kit fox should be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the appropriate wildlife agencies.*

4. *Den Avoidance. In the event that a potential den that may be suitable for American badger, San Joaquin, or burrowing owl is detected during pre-activity clearance surveys, the biologist should monitor the den using cameras and tracking medium for five days to determine if the den is occupied by a special-*

status species. If after five (5) days no activity is detected, then the den can be backfilled. Construction personnel may collapse the den only under the direct supervision of the biologist. If a special-status species is detected using the den, the den must be avoided until the animal leaves on its own. A minimum 100-foot buffer should be constructed using orange construction fencing around the den during the nonbreeding season (April to November). During the breeding season (December to March), the buffer should be extended to 250 feet. Consultation with the USFWS and/or CDFW will be required prior to collapsing dens known to be occupied by kit foxes. If authorized by the CDFW, passive relocation of wildlife may be accomplished using one-way doors to exclude wildlife from dens. An exclusion plan approved by CDFW would be required prior to the installation of one-way doors.

5. *If project activities are planned to start during the migratory bird nesting season, February 1 to September 15, a pre-activity nesting bird survey should be conducted within seven (7) days of the start of these activities. These surveys should be phased with construction of the project. If active nests are detected during the survey, or at any time during construction of the project, an avoidance buffer will be established by a qualified biologist based on the species and the activities that are underway. For raptor species (except Swainson's hawk), the avoidance will typically be 500 feet. For non-raptor species, the buffer will be 250-feet. Note that some bird species are known to nest on human structures, including construction equipment. Construction personnel should be educated about this possibility as part of the employee education program included under measure BIO-7*
6. *Swainson's Hawk Avoidance and Minimization. If project activities are planned to start during the Swainson's hawk nesting season, March 20 to July 30, a pre-activity nesting bird survey should be conducted within seven (7) days of the start of these activities. These surveys should be phased with construction of the project site. A report of survey findings should be provided to the County to confirm compliance with this measure. If an active Swainson's hawk nest is present on-site, no work may occur within 0.5 mile of the nest without consultation with the CDFW.*
7. *Worker Environmental Awareness Training. Prior to the initiation of construction and for the duration of project construction and maintenance activities that could affect natural habitat, all new personnel should attend a Construction Personnel Environmental Awareness Training and Education Program. The program should be developed by a qualified biologist. Any employee responsible for the operation and maintenance (O&M) of the completed facilities should also attend the Construction Personnel Environmental Awareness Training and Education Program.*
 - a. *The program should include information on the life history of the burrowing owl, American badger, San Joaquin kit fox, Swainson's hawk, migratory birds*

and raptors, and special-status plant species that may be encountered during construction and operations and maintenance activities.

- b. The program should discuss each species' legal protection, status, the definition of "take" under the Endangered Species Act, measures the project operator must implement to protect the species, reporting requirements, specific measures that each worker should employ to avoid take of wildlife species, and penalties for violation of the State and federal ESAs.*
- c. The program should provide information on how and where to bring injured animals for treatment in the case any animals are injured on the project site, and how to document animal mortalities and injuries.*
- d. An attendance form signed by each worker indicating that environmental training has been completed will be kept on record.*

- C. Have a substantial adverse effect on state or federally-protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

FINDING: LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED:

Reviews of the National Wetlands Inventory (NWI; USFWS 2019b) and National Hydrography Dataset (USGS 2019) were completed to identify whether wetlands had previously been documented on or adjacent to the project site. There are five defined waters or wetlands on or near the project site.

The United States Army Corps of Engineers (USACE) has regulatory authority over the Clean Water Act (CWA), as provided for by the EPA. The USACE has established specific criteria for the determination of wetlands based upon the presence of wetland hydrology, hydric soils, and hydrophilic vegetation. There are no federally-protected wetlands or vernal pools that occur within the project site.

Wetlands, streams, reservoirs, sloughs, and ponds typically meet the criteria for federal jurisdiction under Section 404 of the CWA and State jurisdiction under the Porter-Cologne Water Quality Control Act. Streams and ponds typically meet the criteria for State jurisdiction under Section 1602 of the California Fish and Game Code. There are no features on the project site that would meet the criteria for either federal or State jurisdiction. No waters of the U.S., including wetlands, or waters of the State were observed on the project site. Therefore, the project would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA. Accordingly, there are no wetlands or Waters of the U.S. occurring on the project site. There would be no impact to federally protected wetlands or waterways as a result of the proposed project. Therefore, impacts would be considered less than significant.

However, the gathering lines will cross several existing irrigation drainages or canals, as well as the Stinson Canal. Stinson Canal may be considered Waters of the US or

Waters of the State. As proposed, the pipeline will be installed using either a jack and bore method or an open cut method to traverse the Stinson Canal. If the jack and bore method is used, there would be no disturbance of the drainage bed and bank, and therefore impacts would be considered less than significant. If the open cut method is used, as required by BIO-8, prior to the commencement of gathering pipeline construction, a jurisdictional delineation of the Stinson Canal would be conducted by a qualified biologist to determine if the drainage was considered Waters of the US or Waters of the State, identify the bed and bank, and determine the amount of disturbance area that would be required. Applications for the appropriate permits such as a 401 water quality certification, a Section 404 permit or a Section 1602 permit would be obtained prior to any construction activities. Implementation of BIO-8 would reduce impacts to less than significant.

* **Mitigation Measure(s)**

8. *Prior to the issuance of building permits, if Stinson Canal cannot be avoided, specific impacts on the features shall be quantified by an aquatic resources delineation prepared by a qualified biologist. A Central Valley Regional Water Quality Control Board Section 401 Water Quality Certification, a Section 404 ACOE permit and Section 1602 California Department of Fish and Wildlife Streambed Alteration Agreement shall be obtained, or confirmation received from these agencies that regulatory permits are not required.*

D. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

FINDING: NO IMPACT:

The project would have no impacts to wildlife movement corridors or wildlife nursery sites and no mitigation measures are required. No fisheries resources that would be impacted by the project and no mitigation measures are warranted.

E. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

F. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan?

FINDING: NO IMPACT:

The project will not conflict with local policies or ordinances protecting biological resources or a tree preservation policy. The project is within the PG&E Habitat Conservation Plan (HCP) covered areas; however, the HCP is limited to PG&E maintenance activities. The project will not impact or conflict with the PG&E HCP and will not conflict with any Natural Conservation Community Plans or other approved

conservation plans in the project area. Therefore, the project will not conflict with adopted or approved plans.

V. CULTURAL RESOURCES

Would the project:

- A. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5; or
- B. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5; or
- C. Disturb any human remains, including those interred outside of formal cemeteries?

FINDING: LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED:

The project is located in an area of moderate archeological sensitivity. The applicant's consultant, QK, evaluated the project site and conducted a Cultural Resources Records Search. The purpose of the search was to determine whether any known cultural resources or previously conducted cultural resource surveys were located on or near the subject property, and whether construction of the project would impact any known or potential cultural resources. The records search covered an area within one-half mile of the project and included a review of the *National Register of Historic Places, California Points of Historical Interest, California Registry of Historic Resources, California Historical Landmarks, California State Historic Resources Inventory*, and a review of cultural resource reports on file.

The records search indicated that one previous linear cultural resource survey had intersected with the project route near the center of Section 5, T.17S, R.18E (MDB&M). No other studies have been done along the route. One additional cultural resource study was conducted within a half mile of the project. No cultural resources have been recorded along the project route and it is not known if any exist there. One cultural resource has been recorded within a half mile of the project. This is the historic Stinson Canal that was built between 1891 and 1900.

Based on the results of cultural records search findings and the lack of historical or archaeological resources previously identified within a 0.5-mile radius of the proposed project, the potential to encounter subsurface cultural resources is minimal. However, there is still a possibility that historical or archaeological materials may be exposed during construction or trenching for underground pipes. Grading and trenching, as well as other ground-disturbing actions have the potential to damage or destroy these previously unidentified and potentially significant cultural resources within the project area, including historical or archaeological resources. Implementation of Mitigation Measure 1 would reduce the potential impacts on cultural resources, including historical resources associated with the proposed project to less than significant levels.

* **Mitigation Measure(s)**

1. *In the event that cultural resources are unearthed during ground-disturbing activities, all work shall be halted in the area of the find. An archeologist shall be called to evaluate the findings and make any necessary mitigation recommendations. If human remains are unearthed during ground-disturbing activities, no further disturbance is to occur until the Fresno County Sheriff-Coroner has made the necessary findings as to origin and disposition. All normal evidence procedures should be followed by photos, reports, video, etc. If such remains are determined to be Native American, the Sheriff-Coroner must notify the Native American Commission within 24 hours.*

VI. ENERGY

Would the project:

- A. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; or
- B. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The project will produce renewable energy in the form of gas and electricity. Some energy will be expended during construction, but it is not expected to be wasteful or unnecessary with adherence to standard construction practices. The project will not conflict with or obstruct a state or local plan for renewable energy.

VII. GEOLOGY AND SOILS

Would the project:

- A. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
 1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?
 2. Strong seismic ground shaking?
 3. Seismic-related ground failure, including liquefaction?
 4. Landslides?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The topography of the site is relatively flat with little topographic variation. The project area is located geographically east of the San Andres Fault and is to the east of the Coast Range. Figure 9-5 of the Fresno County General Plan Background Report (FCGPBR) indicates that the project site is located in an area where ground acceleration due to seismic hazards has only a 10% chance to exceed 20%g (speed of gravity) within the next 50 years. The structures associated with this project will be subject to building standards at the time of development, which include specific regulations to protect against damage caused by earthquake and/or ground acceleration.

Figure 9-6 (FCGPBR) shows that the project site is not in an area of moderate or high landslide hazards and the project site is generally flat, precluding site-specific risk factors. The site is however, in an area of deep subsidence. With required compliance to the Fresno County Building code, development of this project will have a less than significant impact on the risk of adverse effects due to rupture of a known earthquake, strong seismic ground shaking or ground-related failure, and landslides.

B. Result in substantial soil erosion or loss of topsoil?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The proposed improvements to the existing dairies will not represent a significant expansion of graded area. Any grading that is performed will require a grading permit or voucher and ministerial review of those permits will ensure that substantial erosion or loss of topsoil does not occur.

C. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse; or

D. Be located on expansive soil as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The area is underlain by three soil types, Tachi Clay, Armona Loam, and Gepford Clay. Tachi Clay is a very deep and very poorly drained soils that formed in alluvium derived from igneous and/or sedimentary rocks. It is typically found on flood plains on basin floors. These soils are used for irrigation crops such as cotton, fruits, and wheat. It is not a hydric soil. Armona Loam is very deep and poorly drained soil that formed in alluvium from igneous and/or sedimentary rock. It is typically found on flood plains on basin floors and basin rims. This soil is used for irrigated crops. Gepford Clay is a very deep and poorly drained soil that is formed in mixed alluvium derived predominately from granitic rocks, influenced by lacustrine sediments. It is typically found flood plains, basin floors, and basin rims. This soil is used as irrigated cropland including barley,

grain, sorghum, and sugar beets. The soil can also be used for dairy and cattle production and building site development. It is not a hydric soil.

The project site is not located in an area that is at risk of on-site or offsite landslide, lateral spreading, liquefaction, or collapse, according to Figure 7-1 (FCGPBR), and will not be located on expansive soils. The project is located in an area of deep subsidence, however, the Fresno County Department of Public Works and Planning, Water and Natural Resources Division, had no concerns with the operation of this project as planned.

- E. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

FINDING: NO IMPACT:

The project currently operates with the use of the existing permitted septic systems. No new septic is proposed as part of this application.

- F. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

FINDING: LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED:

The subject parcel is located in an area which has been designated as moderately to archaeological or paleontological finds, however there are no known paleontological resources in the area. On March 29, 2019, the applicant provided a Cultural Resources Records Search Result, prepared by QK. No evidence of unique paleontological resources was noted in the report. However, there is still a possibility that paleontological or archaeological materials may be exposed during construction or trenching for underground pipes. Disturbance of any deposits of paleontological material that have the potential to provide significant scientific data would be considered a significant impact under CEQA. Implementation of the mitigation measure 1 (Cultural Resources, Section V, would reduce potential impacts on paleontological resources to less than significant.

* **Mitigation Measure(s)**

1. *See Mitigation Measure 1, Section V, above.*

VIII. GREENHOUSE GAS EMISSIONS

Would the project:

- A. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

- B. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

FINDING: LESS THAN SIGNIFICANT IMPACT:

Human activities, including fossil fuel combustion and land use changes, release carbon dioxide (CO₂) and other compounds cumulatively termed greenhouse gases. GHGs are effective at trapping radiation that would otherwise escape the atmosphere. The SJVAPCD, a CEQA Trustee Agency for this project, has developed thresholds to determine significance of a proposed project – either implement Best Performance Standards or achieve a 29% reduction from Business as Usual (BAU) (a specific numerical threshold). On December 17, 2009, SJVAPCD adopted *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (SJVAPCD 2009), which outlined the SJVAPCD’s methodology for assessing a project’s significance for GHGs under CEQA.

Project construction and operational activities would generate greenhouse gas (GHG) emissions. In the Air Quality Impact Analysis, GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 (California Air Pollution Control Officers Association (CAPCOA) 2017), which is the most current version of the model approved for use by the San Joaquin Valley Air Pollution Control District (SJVAPCD).

The proposed project will be subject to any regulations developed under AB 32 as determined by CARB. In order for the project to be considered less than significant, it would need to conform with the goals of AB32. The proposed project is designed to capture methane gas, that would otherwise be emitted to the air from dairy operations, and convert it to renewable power. With the incorporation of electrical generation from a renewable resource the project would decrease overall GHG emissions. Therefore, the GHG emissions increases associated with this project would have a less than significant individual and cumulative impact on global climate change.

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

- A. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; or
- B. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

FINDING: LESS THAN SIGNIFICANT IMPACT:

Methane will be produced in anaerobic digesters by natural biological processes (the decomposition of manure waste). The digesters will be created by first double-lining a new or existing storage pond. All digester ponds will meet the Central Valley Regional

Water Quality Control Board (CRWQCB) Tier 1 standards, which include the installation of double-layered liners of welded 60 mil High-density polyethylene (HDPE) with leak detection to ensure water quality. Once produced, the methane is transferred by pipe to a biogas generator and subsequently by the Five Points pipeline to the meter set assembly hub and then to the PG&E gas line injection point. All portions of the project will comply with Pipeline and Hazardous Materials Safety Administration (PHMSA) guidelines, 49 CFR Part 192, and with the CPUC's Safety Enforcement Division (SED) General Order 112-F.

Therefore, while the routine use of the hazardous methane gas will occur, risk to the public as a result of its transport or accidental release is less than significant. The operator is required to maintain an emergency response plan. With compliance to the existing regulations and the operation of the digester system distant from nearby residences, there will be a less than significant impact on public hazards as a result of the transport or use of hazardous materials.

- C. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

FINDING: NO IMPACT:

The project is not located within one quarter-mile of an existing or proposed school.

- D. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

FINDING: NO IMPACT:

Review of the US EPA's NEPAAssist report indicates that there are no hazardous or contaminated sites within one mile of the project site. The following lists were consulted: Resource Conservation and Recovery Act (RCRA), Toxic Releases Inventory (TRI), Superfund/National Priorities List, Brownfields Assessment Cleanup and Redevelopment Exchange System (ACRES), RADInfo, and Toxic Substances Control Act.

- E. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The project is not located within an airport land use plan or within two miles of a public airport or public use airport. The project is located adjacent to a private use airport (crop dusting) at the intersection of W. Barrett and S. Bishop Avenues, however, based

on land use, and limited residences and workforce needed for the operation of project, the airport safety risk and noise will be minimal.

- F. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- G. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

FINDING: NO IMPACT:

Approval of this project will not impair the implementation of an Emergency Response Plan or Emergency Evacuation Plan. Following construction, there will be a negligible increase in the amount of traffic generated by this project for maintenance and operation of the system. The project site is located in an area of local responsibility for fire protection and is not at significant risk of damage due to wildfire.

X. HYDROLOGY AND WATER QUALITY

Would the project:

- A. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality; or
- B. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The project area is adjacent to several riverine or canal features. There are four unnamed blue line streams (irrigation canals) and the Stinson Canal that are intersected or traversed by the project area. Two of the canal features are present along the north side of the project approximately 0.5-miles east of the Vander Hoek Dairy. Another canal is located northwest of the Van Der Kooi Dairy along W. Elkhorn Avenue. Another unnamed canal and the Stinson Canal are located along north of W. Cerini Avenue and S. Bishop Avenue, northwest of the J&D Wilson and Sons Dairy. The Fresno Slough is approximately 0.4 miles east of the project, which will not be impacted. Portions of the project are located within the 1% annual chance of flood (500-year flood zone) or an area of minimal flood hazard zone

No concerns related to groundwater supplies were expressed by any of the reviewing agencies or departments.

The subject dairies are required to enroll under Waste Discharge Requirements, which is associated with a monitoring and reporting program. The Central Valley Regional Water Quality Control Board is responsible for monitoring the quality of water produced

by this dairy. With the technical reports required by the Digester Order and associated operational requirements, this project will be in compliance with the Water Boards' standards and will not violate any water quality standards

C. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

1. Result in substantial erosion or siltation on or off site?
2. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?
3. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or
4. Impede or redirect flood flows?

FINDING: NO IMPACT:

The project will not result in the alteration of an existing drainage pattern of any of the individual sites or the larger project area. The project site is not located in an area of special flood hazard; however, all development in the County of Fresno that involves grading is required to obtain a grading permit or voucher. Compliance to the provisions in the permit or voucher will ensure that excessive flooding and erosion do not occur.

D. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

FINDING: NO IMPACT:

The proposed project is not located in an area prone to flood hazard, tsunami, or seiche.

E. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

FINDING: NO IMPACT:

The project will not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

XI. LAND USE AND PLANNING

Would the project:

- A. Physically divide an established community; or
- B. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

FINDING: NO IMPACT:

The community of Burrel is 1.3 miles east of the project; the community of Lanare is 2.8 miles east, the community of Five Points is four miles west; and the community of Helm is 1.5 miles north. Therefore, approval of this project does not have the potential to divide an established community. The proposed use is allowed in the County of Fresno with the approval of an Unclassified Conditional Use Permit, which will be reviewed by the Planning Commission concurrently with this Initial Study.

XII. MINERAL RESOURCES

Would the project:

- A. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- B. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local General Plan, Specific Plan or other land use plan?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The proposed project is located in an identified oil production zone, per the Fresno County General Plan Background Report (FCGPBR). This proposal was reviewed by the California Department of Conservation, Division of Oil Gas and Geothermal Resources (DOGGR). DOGGR comments and map exhibits indicate the presence of a number of abandoned oil and gas wells in the vicinity of the project and located on some of the parcels directly involved with this project, however the Division expressed no further concerns with this proposal, provided that construction does not build over or impede access to the abandoned well sites.

XIII. NOISE

Would the project result in:

- A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; or
- B. Generation of excessive ground-borne vibration or ground-borne noise levels; or

- C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; or

FINDING: LESS THAN SIGNIFICANT IMPACT:

The project is not located within an airport land use plan or within two miles of a public airport or public use airport. The project is located adjacent to a private use airport (crop dusting) at the intersection of W. Barrett and S. Bishop Avenues, however, that use is not expected to expose people in the project area to excessive noise levels. Noise generated by the project equipment will not be above typical agriculture facility levels and the project is distant to sensitive receptors. Therefore, due to the project's distance from sensitive receptors, there will be no increase in the exposure of persons to severe or adverse noise levels or ground borne noise or vibration.

XIV. POPULATION AND HOUSING

Would the project:

- A. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?; or
- B. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

FINDING: NO IMPACT:

Approval of this project would allow methane produced by the manure of cows to produce renewable energy, which would be sold to PG&E. This will not induce substantial population growth because it will not create a significant number of new job opportunities or otherwise increase the desirability of living in this area. No housing will be displaced as a result of this project. This project similarly will not displace substantial numbers of people. It will be developed on areas of farmland that were previously dedicated to agricultural production.

XV. PUBLIC SERVICES

Would the project:

- A. Result in substantial adverse physical impacts associated with the provision of new or physically-altered governmental facilities, or the need for new or physically-altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

1. Fire protection;
2. Police protection;
3. Schools;
4. Parks; or
5. Other public facilities?

FINDING: NO IMPACT:

This project will not increase the need for public facilities associated with fire or police protection. As this project will not lead to population growth, there will be no impacts on schools or parks. Any structures associated with this project will be reviewed by the Fresno County Fire Protection District to ensure compliance with California Code of Regulations Title 24 – Fire Code.

XVI. RECREATION

Would the project:

- A. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- B. Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

FINDING: NO IMPACT:

This project will not increase the use of existing neighborhood and regional parks. There are no such facilities in the vicinity of the project and the request to add anaerobic digesters and a pipeline to convey methane gas will not result in population expansion.

XVII. TRANSPORTATION

Would the project:

- A. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities; or
- B. Be in conflict or be inconsistent with the California Environmental Quality Act (CEQA) Guidelines Section 15064.3, subdivision (b); or
- C. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or

D. Result in inadequate emergency access?

FINDING: LESS THAN SIGNIFICANT IMPACT:

Operation of this facility will require less than 10 round trips per day by service and delivery vehicles. The addition of 1-2 trips per month for maintenance of the digesters and related facilities will not conflict with any circulation plans or contribute to existing congestion of nearby County streets. Streets in the area are rectilinear, crossing at 90 degree angles and do not have sharp curves. There are no plans, policies, or programs that relate to public transit, bicycle, or pedestrian facilities in this area. The surrounding development consists of large parcels, which have been planted with row crops or support dairies similar to the project site.

XVIII. TRIBAL CULTURAL RESOURCES

Would the project:

- A. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or
 2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? (In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.)

FINDING: LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED:

Under the provisions of Assembly Bill 52, the County of Fresno was required to provide notice that this Initial Study was being prepared to Native American Tribes who had previously indicated interest in reviewing CEQA projects. Notices were sent on April 19, 2019, to Robert Ledger of the Dumna Wo Wah, Robert Pennell of Table Mountain Rancheria, Ruben Barrios of Santa Rosa Rancheria and to Tara Estes-Harter of the Picayune Rancheria of Chukchansi Indians. None of the Tribal Governments responded to the notice.

The project is located in an area of moderate archeological sensitivity. The applicant's consultant, QK, evaluated the project site and conducted a Cultural Resources Records

Search. The purpose of the search was to determine whether any known cultural resources or previously conducted cultural resource surveys were located on or near the subject property, and whether construction of the project would impact any known or potential cultural resources. See the discussion in Section V, above.

Despite the failure of the tribes and historical databases to identify known tribal cultural resources, the potential exists for significant artifacts to be excavated during construction. Therefore, the following mitigation measure is proposed to ensure that impacts to previously unknown tribal cultural resources can be reduced to less than significant.

* **Mitigation Measure(s)**

1. See Mitigation Measure 1, Section V, above.

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:

- A. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

FINDING: NO IMPACT:

The project will not require construction or expansion of new water or wastewater treatment facilities. Approximately 5,000 gallons/day will be used during the 40-day construction period and will be provided by on-site wells. Operational water is anticipated to be 2,500 gallons/day or 2.8 AF annually.

The inclusion of the digesters will add an additional step between collection of manure from the herd and application of the wastewater to the surrounding fields. Wastewater is not exported to any offsite system for processing. It is retained on site and used for irrigation, typically after being diluted with fresh water. The project site is not in an area that is known to be short of water, so there are no concerns that the limited increase in use will result in the need to obtain additional water entitlements.

- B. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

FINDING: NO IMPACT:

The project is not in a water short area and is served by on-site wells. The Water and Natural Resources Division had no concerns with the project.

- C. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments; or
- D. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or
- E. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

FINDING: LESS THAN SIGNIFICANT IMPACT:

Upon completion of construction, the applicants will be required to submit technical reports to the Central Valley Regional Water Quality Control Board. These submissions are required by Provisions in Section E of the Digester Order. The operation will also be required to obtain a permit to operate a Solid Waste Facility from the County of Fresno, Environmental Health Division, acting as the Local Enforcement Agency. The need to comply with the Digester Order and other regulations enforced by the Water Quality Control Board will ensure that there is no adverse impact regarding noncompliance with statutes and regulations related to solid waste.

XX. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

- A. Substantially impair an adopted emergency response plan or emergency evacuation plan, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects; or
- B. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire; or
- C. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
- D. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

FINDING: NO IMPACT:

The project is not located in or near a state responsibility area or land classified as very high fire hazard severity zones, and will not impair an adopted emergency response or

evacuation plan. The project will adhere to the site development and operational requirements of the Fresno County Fire Protection District.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

- A. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

FINDING: LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED:

The pipeline route will run through private agricultural land. The presence of special-status species on these sites prior to ground disturbance cannot be positively determined. Based upon habitat conditions surrounding the site and the assumption that the site contain similar habitat characteristics, it is possible that the Swainson's hawk, western burrowing owl, tricolored blackbird, loggerhead shrike, American badger, San Joaquin kit fox, long-billed curlew, and yellow-headed blackbird may have been present prior to site disturbances. Therefore, the Mitigation Measures noted in Section IV. will be implemented, requiring preconstruction surveys and avoidance measures if construction occurs during the nesting season.

In addition, it is unlikely but possible that previously undiscovered subsurface paleontological, cultural or tribal resources are present in the proposed area of development. Implementation of the mitigation measure in Section V, which describes avoidance and reporting requirements, will ensure that impacts are less than significant.

* **Mitigation Measures**

1. See Section IV.
2. See Section V.

- B. Have impacts that are individually limited, but cumulatively considerable ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

FINDING: LESS THAN SIGNIFICANT IMPACT:

Emissions of criteria pollutants from this project will be consistent with the State Implementation Plan administered by the San Joaquin Valley Air Pollution Control

District. The proposed improvements do not represent a substantial increase in the size of the dairy and will not result in adverse cumulative aesthetic or odor impacts. The proposed digester will capture some of the methane that is currently released into the air by the natural decomposition of manure and will convert it into electricity. Said power will be sold to PG&E, providing a source of renewable energy.

- C. Have environmental effects which will cause substantial adverse effects on human beings either directly or indirectly?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The proposed improvements will generally decrease the odor in the area of the project site and will contribute renewable energy to be transferred to PG&E operations.

CONCLUSION/SUMMARY

Based upon the Initial Study prepared for Unclassified Conditional Use Permit Application Nos. 3642-3647, staff has concluded that the project will not have a significant effect on the environment. It has been determined that there would be no impacts to Land Use and Planning, Population and Housing, Public Services and Wildfire.

Potential impacts related to Agriculture, Air Quality, Energy, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Mineral Resources, Noise, Utilities and Service Systems, and Transportation have been determined to be less than significant. Potential impacts relating to Aesthetics, Biological Resources, Cultural Resources, Geology and Soils, and Tribal Cultural Resources have determined to be less than significant with compliance with noted Mitigation Measures.

A Mitigated Negative Declaration/Negative Declaration is recommended and is subject to approval by the decision-making body. The Initial Study is available for review at 2220 Tulare Street, Suite A, street level, located on the southwest corner of Tulare and "M" Street, Fresno, California.

JS

G:\4360Devs&Pln\PROJSEC\PROJDOCS\CUP\3600-3699\3642\IS CEQA\CUP 3642 Initial Study Writeup.docx

File original and one copy with: Fresno County Clerk 2221 Kern Street Fresno, California 93721		Space Below For County Clerk Only. CLK-2046.00 E04-73 R00-00	
Agency File No: IS 7608	LOCAL AGENCY PROPOSED MITIGATED NEGATIVE DECLARATION		County Clerk File No: E-
Responsible Agency (Name): Fresno County	Address (Street and P.O. Box): 2220 Tulare St. Sixth Floor	City: Fresno	Zip Code: 93721
Agency Contact Person (Name and Title): Jeremy Shaw, Planner	Area Code: 559	Telephone Number: 600-4207	Extension: N/A
Project Applicant/Sponsor (Name): MAAS Energy Works, Inc.	Project Title: Unclassified Conditional Use Permit Application Nos. 3642-3647		
Project Description: <p>Allow the installation of four new covered lagoon anaerobic dairy digesters with related biogas conditioning equipment and biogas generators to produce electricity on four existing dairies; the installation of biogas conditioning equipment at a fifth dairy with an existing digester and generator; the construction of an approximately 10.5 mile underground pipeline to connect the participating dairies; and allow produced biomethane to be transported to a centralized hub where a biogas upgrading facility will be constructed to clean and condense the biogas before it is injected into the PG&E natural gas transmission line. The project is bounded by the unincorporated communities of Five Points to the southwest, Helm to the north, Burrell to the northeast, and Lanare to the east and southeast; State Route 145 (Madera Avenue) on the west; Mount Whitney Avenue on the south; Jameson Avenue on the east; and Kamm Avenue on the north; within the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) and AE-40 (Exclusive Agricultural, 40-acre minimum parcel size) Zone Districts (SUP. DIST. 1 and 4) (Dairies: APN Nos. 040-130-51S, 050-160-16S, 050-270-56S, 050-170-41S, 050-260-12S, 040-130-35S) (Pipeline APN Nos. 040-130-35S, 49, 44S, 48S, 51S; 041-100-17, 45S; 050-160-13S, 16S; 050-170-41S, 050-200-38S; 050-230-20S, 23S; 050-260-10S, 11S, 12S; 050-270-56S).</p>			
Justification for Negative Declaration: <p>Based upon the Initial Study prepared for Unclassified Conditional Use Permit Application Nos. 3642-3647, staff has concluded that the project will not have a significant effect on the environment. It has been determined that there would be no impacts to Aesthetics, Land Use and Planning, Mineral Resources, Population and Housing, and Recreation.</p> <p>Potential impacts related to Air Quality, Geology and Soils, Greenhouse Gases, Hazard and Hazardous Materials, Hydrology and Water Quality, Noise, Public Services, Transportation/Traffic, and Utilities and Service Systems have been determined to be less than significant.</p> <p>Potential impacts relating to Biological Resources and Cultural Resources have determined to be less than significant with compliance with noted Mitigation Measures</p>			
FINDING: <p>With the Mitigation Measures incorporated, the proposed project will not have a significant impact on the environment.</p>			
Newspaper and Date of Publication: Fresno Business Journal – June 26, 2019		Review Date Deadline: Planning Commission – August 8, 2019	
Date:	Type or Print Signature: Marianne Mollring Senior Planner	Submitted by (Signature): Jeremy Shaw, Planner	

State 15083, 15085

County Clerk File No.: _____

**LOCAL AGENCY
MITIGATED NEGATIVE DECLARATION**



County of Fresno

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

DATE: April 8, 2019

TO: Department of Public Works and Planning, Attn: Steven E. White, Director
Department of Public Works and Planning, Attn: Bernard Jimenez, Assistant Director
Department of Public Works and Planning, Attn: John R. Thompson, Assistant Director
Development Services and Capital Projects, Attn: William M. Kettler, Division Manager
Development Services and Capital Projects, Attn: Chris Motta, Principal Planner
Development Services and Capital Projects, Current Planning, Attn: Marianne Mollring, Senior Planner
Development Services and Capital Projects, Policy Planning, ALCC, Attn: Mohammad Khorsand, Senior Planner
Development Services and Capital Projects, Zoning & Permit Review, Attn: Tawanda Mtunga
Development Services and Capital Projects, Site Plan Review, Attn: Hector Luna
Development Services and Capital Projects, Building & Safety/Plan Check, Attn: Chuck Jonas
Development Services and Capital Projects, Building & Safety/Plan Check, CASp, Attn: Dan Mather
Resources Division, Solid Waste, Attn: Amina Flores-Becker/ Sally Lopez
Development Engineering, Attn: Kevin Nehring, Deputy County Surveyor
Development Engineering, Attn: Laurie Kennedy, Grading/Mapping
Road Maintenance and Operations, Attn: Frank Daniele/ Wendy Nakagawa/Nadia Lopez
Design Division, Transportation Planning, Attn: Mohammad Alimi/Dale Siemer
Water and Natural Resources Division, Attn: Glenn Allen, Division Manager
Department of Public Health, Environmental Health Division, Attn: Kevin Tsuda/Deep Sidhu/Steven Rhodes
San Joaquin Valley Air Pollution Control District (PIC-CEQA Division), Attn: ceqa@valleyair.org
Agricultural Commissioner, Attn: Melissa Cregan
Sheriff's Office, Attn: Captain John Zanoni, Lt. John Reynolds, Lt. Louie Hernandez, Lt. Kathy Curtice, Lt. Ryan Hushaw
U.S. Fish and Wildlife Service, San Joaquin Valley Division, Attn: Sarah D. Yates
U.S. Army Corps of Engineers, Sacramento District, Regulatory Division, CA South Branch, Attn: Kathleen Dadey
CA Regional Water Quality Control Board, Attn: centralvalleyfresno@waterboards.ca.gov
CA Department of Conservation, Division of Oil Gas and Geothermal Resources, Attn: Rohit Sharma
NAS Lemoore, NAVFAC, Public Works, Attn: John Dirickson, CPLO
CALTRANS, Attn: Dave Padilla
CALTRANS Aeronautics Program, Attn: Chris Ferrell
CA Department of Fish and Wildlife, Attn: Renee Robison, Environmental Scientist
State Water Resources Control Board, Division of Drinking Water, Fresno District,

DEVELOPMENT SERVICES AND CAPITAL PROJECTS DIVISION

2220 Tulare Street, Sixth Floor / Fresno, California 93721 / Phone (559) 600-4497 / 600-4022 / 600-4540 / FAX 600-4200

The County of Fresno is an Equal Employment Opportunity Employer

Attn: Jose Robledo
CA Department of Resources Recycling & Recovery, Permitting & Assistance
Branch, Attn: Patrick Snider, Sr. Environmental Scientist
CA Department of Toxic Substance Control (CEQA unit), Attn: Dave Kereazis
Dumna Wo Wah Tribal Government, Attn: Robert Ledger, Tribal Chairman
Picayune Rancheria of the Chukchansi Indians, Attn: Tara C. Estes-Harter,
THPO/Cultural Resources Director
Santa Rosa Rancheria Tachi-Yokut Tribe, Attn: Hector Franco/ Shana Powers
Table Mountain Rancheria, Attn: Robert Pennell, Cultural Resources Director/ Kim
Taylor/ Sara Barnett
Southern San Joaquin Valley Information Center, Attn: Celeste Thomson
San Joaquin Valley Unified Air Pollution Control District (PIC-CEQA Division),
Attn: PIC Supervisor
Kings River Conservation District, Attn: comments@krccd.org
Stinson Canal & Irrigation Company, Attn: Herb Simmons, Engineer/ Manager
Fresno Westside Mosquito Abatement District, Attn: Elizabeth Cline
Consolidated Mosquito Abatement District, Attn: Steve Mulligan/Mark Amorino
Fresno County Fire Protection District, Attn: Chris Christopherson, Battalion Chief
PG&E (Pacific Gas and Electric), Attn: pgeplanreview@pge.com

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

SUBJECT: Initial Study Application No. 7608; Unclassified Conditional Use Permit Application
Nos. 3642, 3644, 3645, 3646, 3647 and Classified Conditional Use Permit Application
No. 3643 (Amending CUP No. 3590).

APPLICANTS: Five Points Pipeline, LLC

DUE DATE: April 22, 2019

The Department of Public Works and Planning, Development Services and Capital Projects Division is reviewing the subject applications proposing to allow a dairy digester cluster and pipeline, which entails the installation of four new covered lagoon type, anaerobic dairy digesters with related biogas conditioning equipment and biogas generators at four existing dairy sites, the installation of biogas conditioning equipment at an existing digester site, the construction of a 10.5 mile long underground pipeline to connect the participating dairies and allow produced bio methane to be transported to one centralized hub, digester site, where a biogas upgrading facility will be constructed to clean and condense the biogas before it is injected into the PG&E main natural gas line. The upgrading equipment will remove moisture, hydrogen sulfide, and carbon dioxide before the gas is compressed and injected.

There will also be a separate Electrical Generation Facility constructed on the same site, which will contain biogas generator(s) and any ancillary equipment, similar to the upgrading facility, to condition the biogas before it is utilized in the generators. The electrical generation facility will require new or upgraded service and connection equipment from PG&E, including the installation of new utility poles. The new biogas generators at each dairy site and Central Hub site, will produce electrical power to be utilized for the dairy operation and delivered to the PG&E grid, through a net energy metering agreement.

The Central Hub/Biogas Upgrading facility including a PG&E Point of Interconnection and Injection, will include a Meter Set Assembly (MSA) to measure, odorize, and control the flow of gas to the

PG&E main pipeline, which is located on the Open Sky Dairy site (APN 050-170-41S/ CUP 3642). The Central Hub/ Biogas Upgrading facility will allow cleaned and conditioned biogas to be converted into renewable natural gas, and injected into the PG&E main transmission/distribution line, which traverses the Central Hub site.

The approximately 10.5 mile long, underground, biogas pipeline, will consist of four-inch to six-inch diameter, high density polyethylene (HDPE) low-pressure lines, connecting the five participating dairies to the Central Hub facility, thereby allowing each dairy to contribute conditioned biogas to the gathering lines (pipeline), leading to the Central Hub. The pipeline will be buried at a minimum depth of four feet, except where greater depth is necessary. The pipeline route will traverse a total of 17 parcels, including those containing the five participating dairies, make approximately five (5) County Road right-of-way crossings, and approximately eight (8) irrigation canal crossings.

Project construction of the Hub/Upgrading facility, electrical generation facility, pipeline and participating digesters is anticipated to take approximately 10 months to complete, and once complete will operate 24 hours per day, seven days per week.

The proposed pipeline and dairy digester cluster project area is bounded by the unincorporated communities of Five Points, Helm, Burrel and Lanare; South Lassen Avenue (State Route 145) to the west, and the Fresno Slough to the east. The subject parcels are located within both the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District and the AE-40 (Exclusive Agricultural, 40-acre minimum parcel size) Zone District. The individual project components are listed below.

CUP 3642: Open Sky Dairy - Existing Operation, including a lagoon digester, allowed as a by right use, on a 518.45-acre parcel, currently authorized for a herd size of approximately 6,084 cows per the approval of CUP 3590, which authorized 700 additional cows and the installation of a second biogas powered generator to produce electrical power for dairy operation and with the surplus electricity to be sold to the grid. Current application: An approximately 10.5 mile long Biogas pipeline, with an interconnection point to the PG&E main gas line and a biogas upgrading facility to be located on the Open Sky Dairy site, in the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District (APN No. 050-170-41S (SUP. DIST 1) (12103 W. Elkhorn Avenue, Riverdale, CA 93656).

CUP 3643: Open Sky Dairy – Current application proposes to allow the installation of a 2,400 square-foot steel prefabricated mechanical building to contain the biogas chilling equipment and other supporting equipment, in conjunction with an existing digester and biogas generator, amending CUP 3590 approved March 27, 2018 (APN 050-170-041) (SUP. DIST 1) (12103 W. Elkhorn Avenue, Riverdale, CA 93656).

CUP 3644: Vanderham Dairy - Existing Operation allowed as a by right use, with expansion authorized by DRA 4514 for up to 5,300 cows on a 320.40-acre parcel. Current application: Installation of a dairy digester, sand lane, 8-inch to 24-inch manure pipes, biogas pipes, moisture trap and pad, biogas blower and chilling equipment, to be housed in a new 2,400 square-foot, steel prefabricated mechanical building, along with the biogas powered generator and supporting equipment, in the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District, and the AE-40 (Exclusive Agricultural, 40-acre minimum parcel size) Zone District (APN 050-270-56S) (SUP. DIST 4) (10846 West Mount Whitney Avenue, Riverdale, CA 93656).

CUP 3645: Van der Hoek Dairy - Existing Operation, allowed as a by right use, on a 627.92-acre parcel. Current application: Installation of a dairy digester, sand lane, 8-inch to 24-inch manure pipes, biogas pipes, moisture trap and pad, biogas blower and chilling equipment, to be housed in a new 2,400 square-foot, steel prefabricated mechanical building, along with the biogas powered

generator and supporting equipment, in the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District (APN 040-130-51S) (SUP. DIST. 1) (15886 South Lassen Avenue, Helm, CA 93627).

CUP 3646: Van der Koi Dairy - Existing Operation, allowed as a by right use on a 606.22-acre parcel. Current application: Installation of a dairy digester, sand lane, 8-inch to 24-inch manure pipes, biogas pipes, moisture trap and pad, biogas blower and chilling equipment, to be housed in a new 2,400 square-foot, steel prefabricated mechanical building, along with the biogas powered generator and supporting equipment, in the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District (APN 050-160-16S) (SUP. DIST. 1) (13695 West Elkhorn Avenue, Riverdale, CA 93656).

CUP 3647: J&D Wilson Dairy - Existing Operation, allowed as a by right use, on a 156.36-acre parcel. Current application: Installation of a dairy digester, sand lane, 8-inch to 24-inch manure pipes, biogas pipes, moisture trap and pad, biogas blower and chilling equipment, to be housed in a new 2,400 square-foot, steel prefabricated mechanical building, along with the biogas powered generator and supporting equipment, in the AE-40 (Exclusive Agricultural, 40-acre minimum parcel size) Zone District (APN No. 050-260-12S) (SUP. DIST. 4) (11720 West Mount Whitney Avenue, Riverdale, CA 93656).

Full APN list (Including participating dairies, hub/upgrading facility, and pipeline): (050-170-41S) (050-160-13S,16S) (050-200-38S) (050-230-20S, 23S) (050-260-10S,11S, 12S) (050-270-56S)(040-130-35S, 51S, 49, 44S, 48S) (041-100-45S)) (SUP. DIST. 1 & 4)

The Department is also reviewing for environmental effects, as mandated by the California Environmental Quality Act (CEQA) and for conformity with plans and policies of the County.

Based upon this review, a determination will be made regarding conditions to be imposed on the project, including necessary on-site and off-site improvements.

We must have your comments by **April 22, 2019**. Any comments received after this date may not be used.

NOTE - THIS WILL BE OUR ONLY REQUEST FOR WRITTEN COMMENTS. 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).

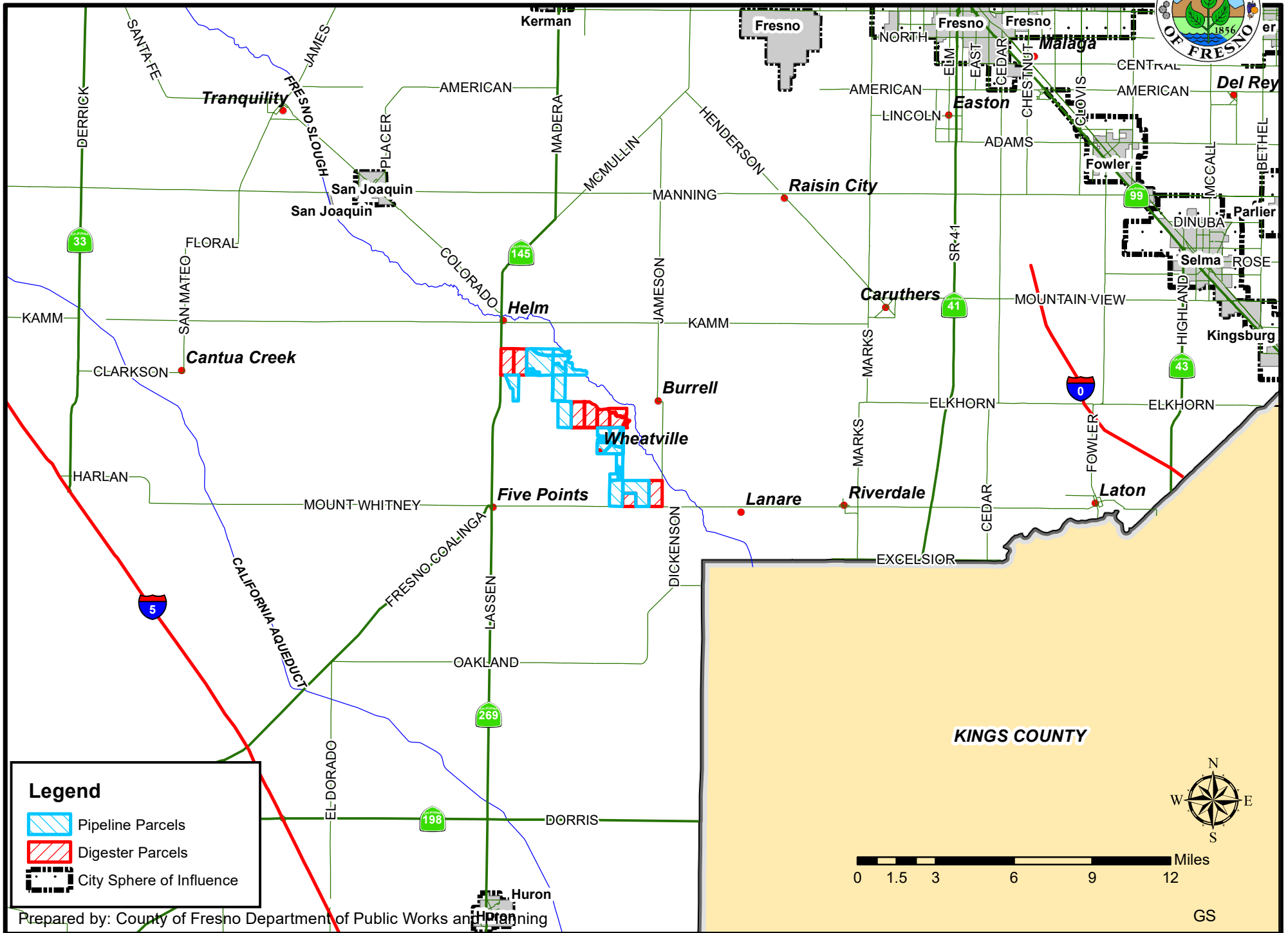
Please address any correspondence or questions related to environmental and/or policy/design issues to me, Jeremy Shaw, Planner, Development Services and Capital Projects Division, Fresno County Department of Public Works and Planning, 2220 Tulare Street, Sixth Floor, Fresno, CA 93721, or call (559)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

JS
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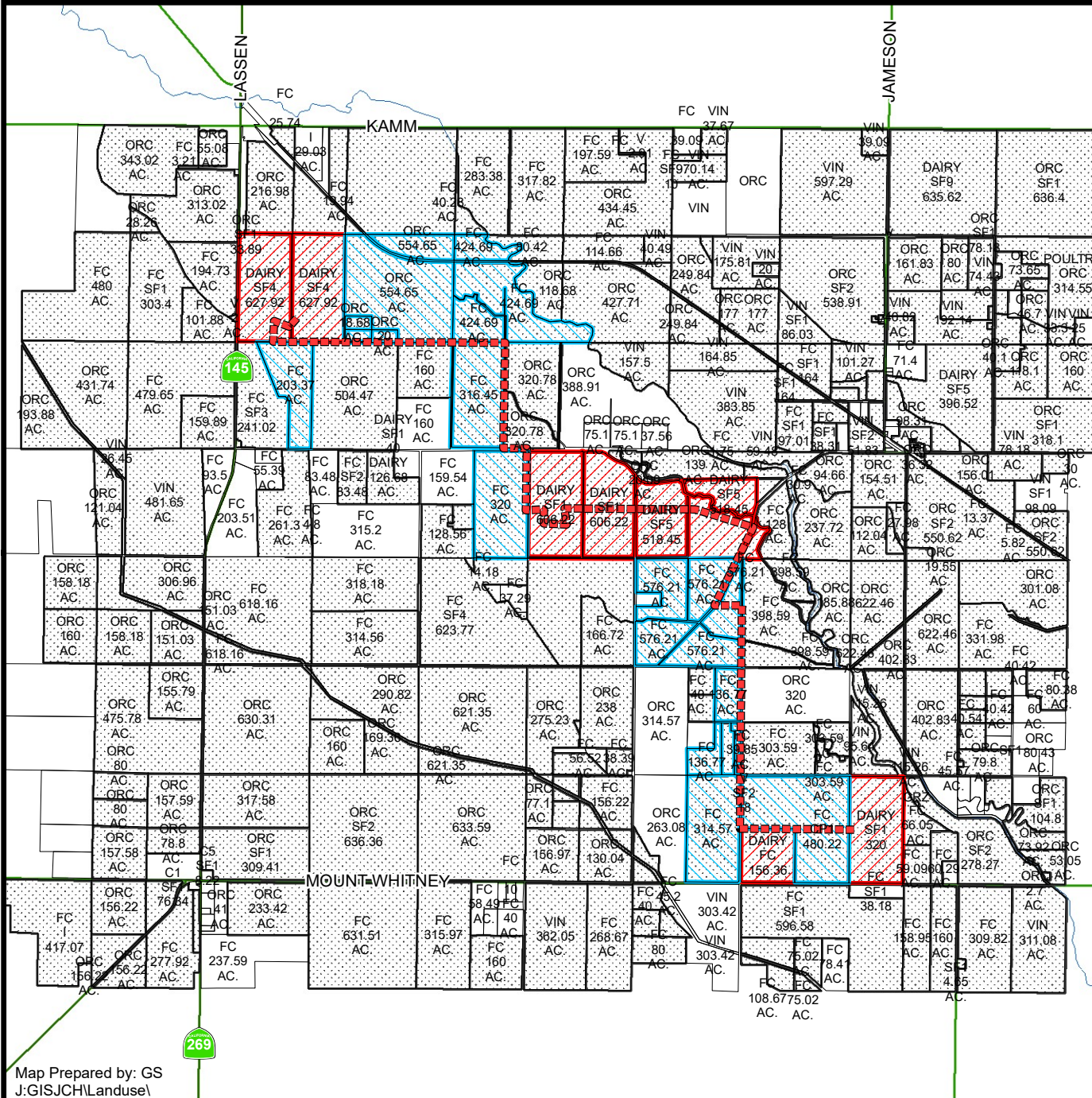
Activity Code (Internal Review) :2381

Enclosures

LOCATION MAP

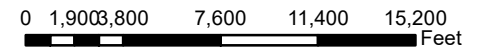
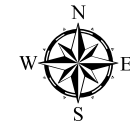


EXISTING LAND USE MAP



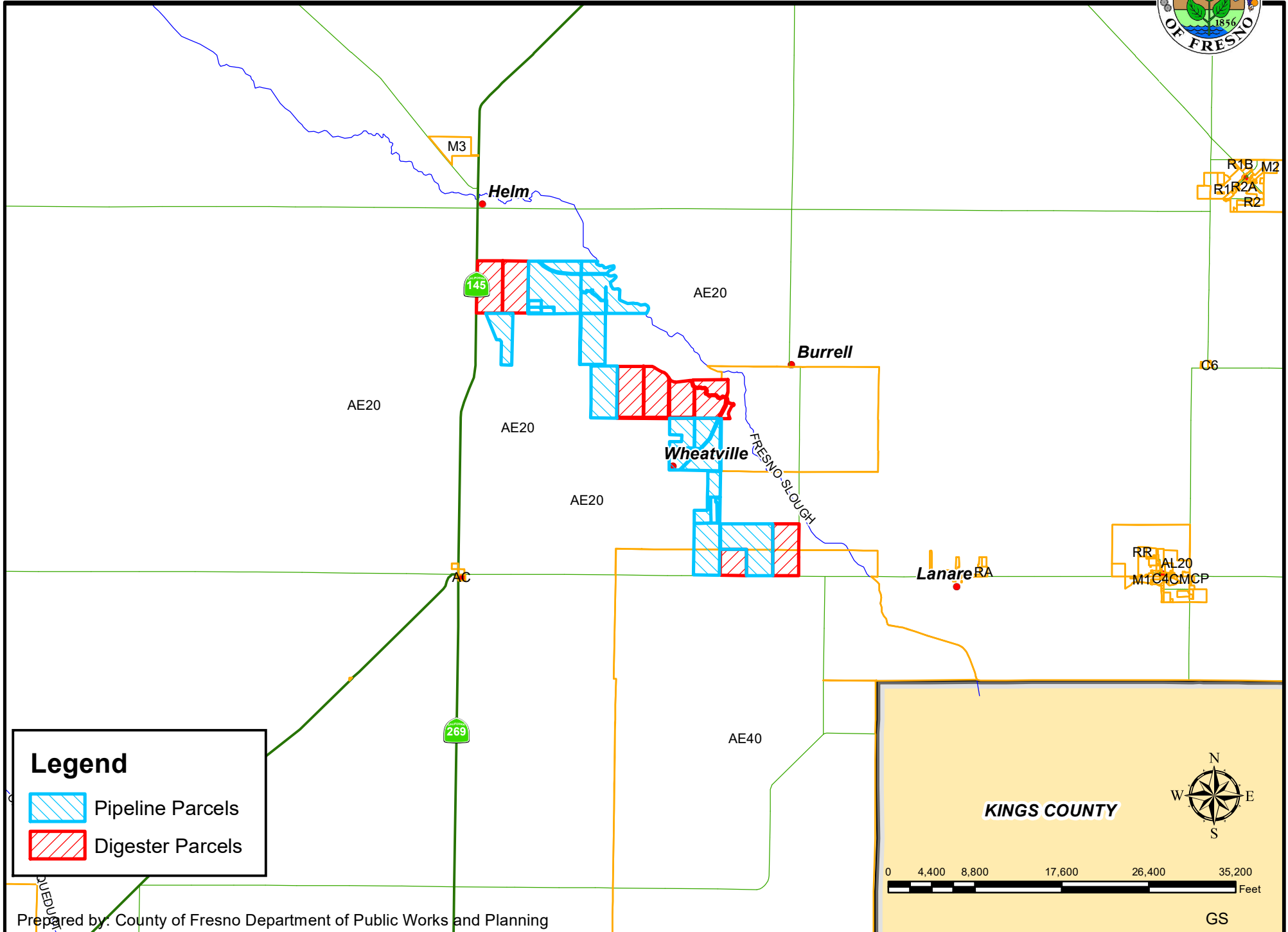
LEGEND	
CP# -	OFFICE COMM./PROF
C -	COMMERCIAL
C# -	COMMERCIAL
DAIRY	
FC -	FIELD CROP
FEE -	FEED LOT
GRZ -	GRAZING
I -	INDUSTRIAL
ORC -	ORCHARD
SF# -	SINGLE FAMILY RESIDENCE
V -	VACANT
VIN -	VINEYARD

Legend	
	Proposed Pipeline
	Pipeline Parcels
	Digester Parcels
	Ag Contract Land



Department of Public Works and Planning
Development Services Division

EXISTING ZONING MAP

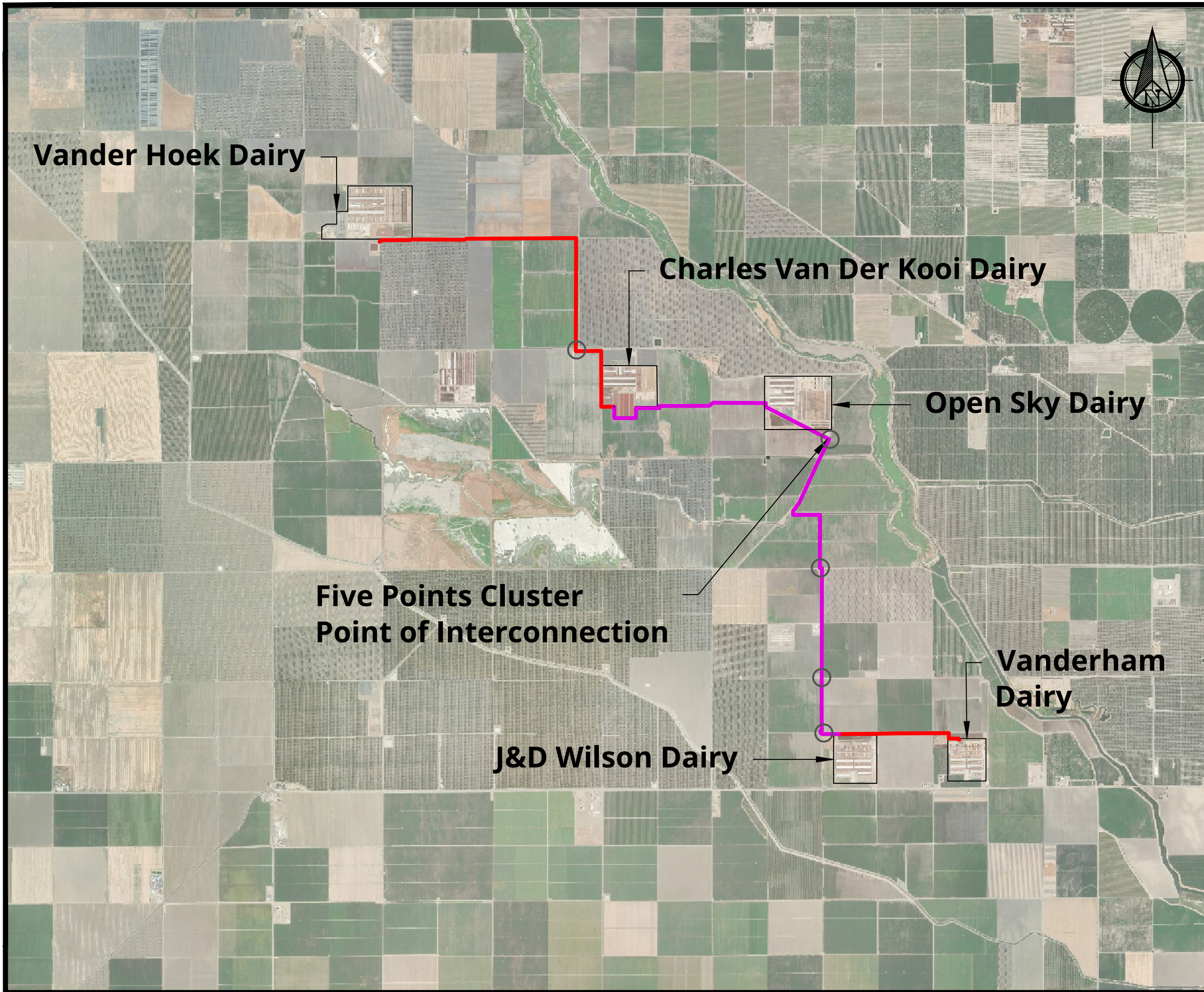


Legend

- Pipeline Parcels
- Digester Parcels

KINGS COUNTY

0 4,400 8,800 17,600 26,400 35,200 Feet



General Notes

Confidential and Not for Construction

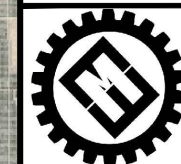
HDPE SDR 21, 6", 11 PSI

HDPE SDR 21, 4", 13 PSI

Right of Way Crossings



All pipes are in private easement with the exception of crossings shown.



MAAS
ENERGY WORKS

Firm Address

3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

Project Name and Address

Five Points Cluster
Pipeline Map
Fresno County, CA

Date
10/15/18

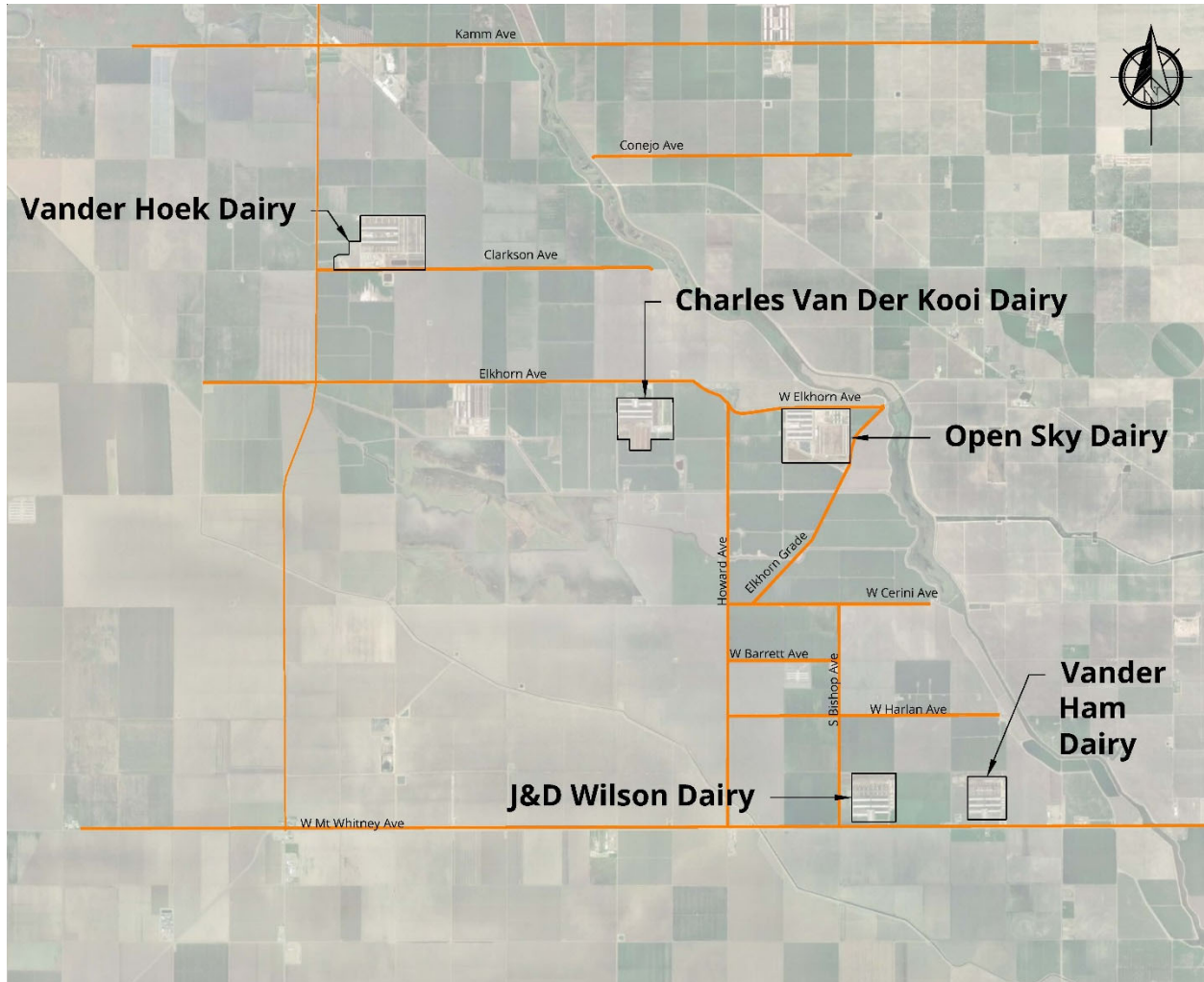
Drawn By
HD, SG

Version

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Five Points Pipeline Dairy Digester Cluster Project
Five Points Pipeline LLC



Prepared by Maas Energy Works, Inc

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Project Overview

Introduction

The Five Points Pipeline Dairy Digester Cluster project (project) is being developed by Maas Energy Works Inc., California's largest and most reliable dairy digester developer. The project is a renewable gas production project that has the potential of expanding into a power generation project.

The biogas upgrading hub and common pipeline infrastructure will be owned by a new entity, Five Points Pipeline LLC, which is owned by Maas Energy Works Inc. Land owned by Open Sky Ranch will host the biogas upgrading facility and Pacific Gas & Electric (PG&E) natural gas transmission line and electrical interconnection points.

A total of 5 dairies have signed agreements with Five Points Pipeline LLC and Maas Energy Works to participate in this cluster as shown in Figure 1. The project hub location at Open Sky Ranch is the only previous dairy biomethane pipeline injection facility in the State, which will be recommissioned as part of this project. The particulars of the proposed upgrades of each participating dairy is discussed in detail throughout. The goals of the project are as follows:

- 1) Build covered lagoon anaerobic digesters on four of the five participating dairies to capture biomethane;
- 2) Transport the captured biomethane: via a newly constructed underground, fusion welded high-density polyethylene low-pressure pipeline, with easements from landowners to the biogas upgrading hub and interconnection point and/or via underground biogas pipe to individual biogas generators on site at each dairy;
- 3) Construct a state-of-the-art biogas conditioning facility that will clean the biomethane and convert it to renewable natural gas and/or construct a biogas generator at each dairy site to generate electricity;
- 4) Compress and then inject the resulting renewable natural gas into the PG&E distribution line and/or deliver electricity to the PG&E grid under the Bioenergy Market Adjusting Tariff (BioMAT), net energy metering with aggregation (NEM-A) or other applicable exporting tariff.

The project will utilize covered lagoon digester technology. Nearly all successful digesters in California utilize this technology since it is ideal for the State's high ambient temperatures and flush manure management systems. A total of 5 digesters are included in the project as listed in Table 1 below. The Open Sky Digester has already been designed, permitted (amendments needed) and constructed, while the other four digesters have thus far completed the design phase. All 5 participating dairy property owners have signed an agreement consenting their property's involvement in the project (see Five Points Pipeline Attachments Table and corresponding documentation: A-3, OS-3, B-3, C-3, D-3 and E-3). Two of the dairies whose projects will be built and owned by 3rd parties have signed a "Lease Agreement" consenting their property's involvement in the project (including the installation of the proposed pipeline and manure digesters). For the remaining three digester projects that are being built and owned by the dairy owners, a "Grant of Easement and Agreement" consenting their property's involvement in the project (for the installation of the proposed pipeline only) has been obtained. **For Private Land Owners whose land needs to be traversed in order to connect the various gathering lines to the Hub we have also obtained a "Acknowledgement of and Consent to Application" or "Grant of Easement and Agreement" consenting their property's involvement in the project application.** (for the installation of the proposed pipeline only) (see Attachment A-3.1 and A-3.2).

Project Owner and Developer

- Project Owner:
Five Points Pipeline, LLC
3711 Meadow View Dr,
Ste. 100, Redding, CA 96002
- Project Developer:
Maas Energy Works, Inc.
3711 Meadow View Dr,
Ste. 100 Redding, CA 96002

Project Locations and Property Owners

The Five Points Pipeline Dairy Digester Cluster project is located in the western portion of unincorporated Fresno County, approximately 3 miles west of the community of Riverdale and approximately 21.5 miles south of the City of Fresno (Figure 1).

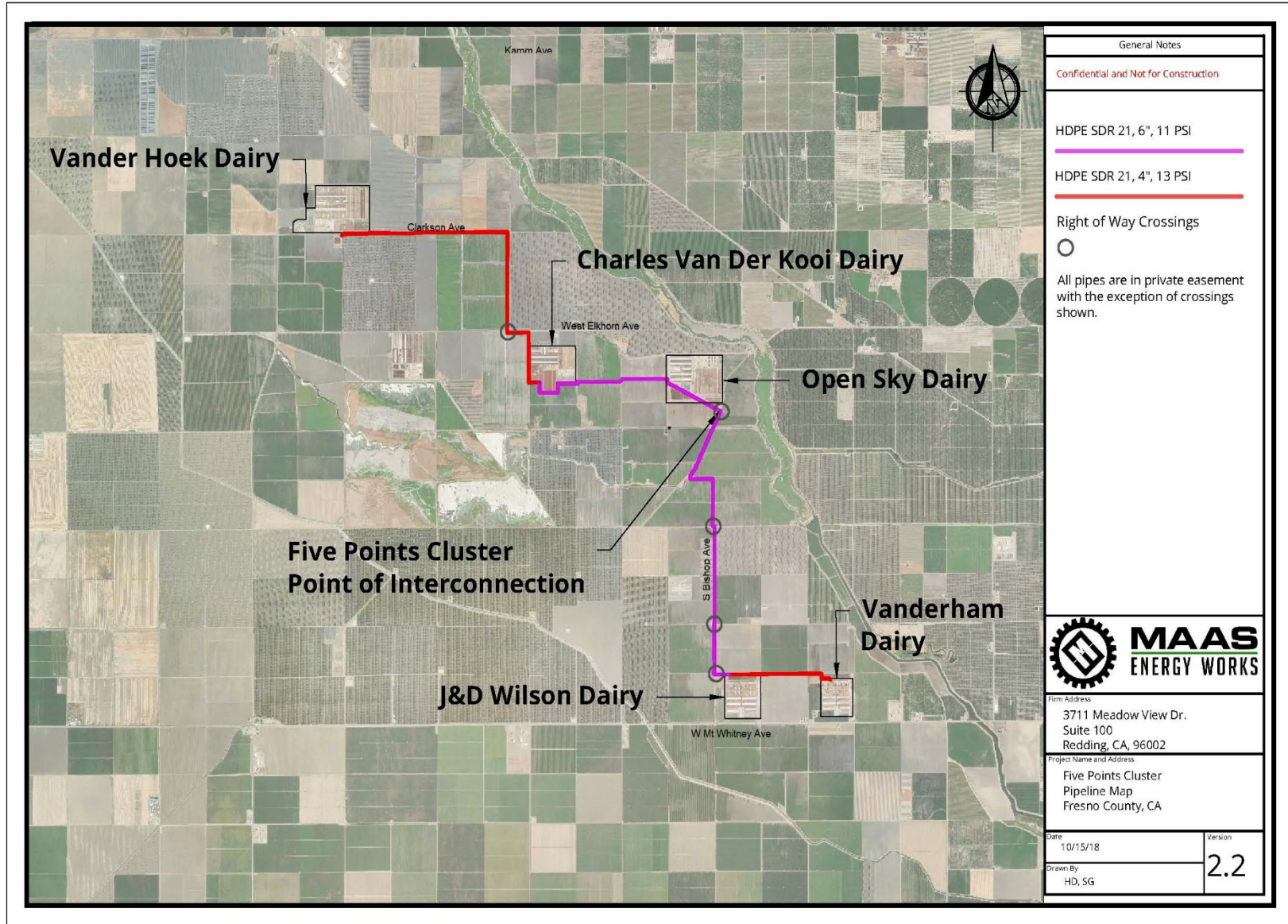


Figure 1- Project location



The project facility is located within Helm and Five Points, California USGS 7.5-minute topographic quadrangle maps, Township (T) 16 South, Range (R) 17 East, T 16S R 18E, and T 17S R 18E of the Mount Diablo Base and Meridian (MDB&M).

Table 1 lists the project components, property owners, addresses and associated Assessor’s Parcel Numbers (APNs).

Table 1
List of Project Locations

Description	Property Owner	Address	APNs
Biogas Upgrading Hub	Eric and Katelyn te Velde	12103 W Elkhorn Ave Riverdale, CA 93656	050-170-41S
PG&E Point of Interconnection	Eric and Katelyn te Velde	12103 W Elkhorn Ave Riverdale, CA 93656	050-170-41S
Digester #1 – Open Sky	Eric and Katelyn te Velde	12103 W Elkhorn Ave Riverdale, CA 93656	050-170-41S
Digester #2 – Vanderham	L&J Vanderham Dairy	10846 W Mt Whitney Ave, Riverdale, CA 93656	050-270-56S
Digester #3 – Van der Hoek	Pier and Darlene Van der Hoek	15886 S Lassen Avenue, Helm, CA 93627	040-130-51S
Digester #4 – Van der Kooi	Charles and Lynette Van der Kooi	13695 West Elkhorn Avenue, Riverdale, CA 93656	050-160-16S
Digester #5 – Wilson	Dry Creek Holdings, LLC	11720 West Mount Whitney Avenue, Riverdale, CA 93656	050-260-12S
Biogas Pipeline Route	Van Der Hoek		040-130-35S, 040-130-51S
	Steven Maddox		040-130-49, 040-130-44S, 040-130-48S, 041-100-17
	Van Der Kooi Family Trust		041-100-45S 050-160-13S. 050-160-16S,
	E. te Velde		050-170-41S, 050-200-38S
	Dry Creek Holdings		050-230-20S, 050-260-10S
	American AG Aviation Inc		050-230-23S
	J&D Wilson		050-260-12S
	L&J Vanderham		050-260-11S, 050-270-56S

Entitlement Request

The project proponent is requesting approval of five Conditional Use Permits (CUPs) (See Table 2 Below and Attachments A-1, B-1, C-1, D-1 and E-1) and one amended CUP (see Table 2 below and Attachment OS-1) from the County of Fresno to allow for the construction and operation of a series of biogas collection facilities (digesters), gathering pipelines, and one upgrading facility. Initial Study Applications have been included to supplement CUP applications per the County’s request (See Attachments A-2, OS-2, B-2, C-2, D-2, E-2). The upgrading facility will consist of moisture removal, H₂S scrubbing, CO₂ stripping, and biomethane compressors. Approximately 10.5 miles of underground high-density polyethylene (HDPE) biogas gathering lines will also be installed to connect with up to four new dairy digesters and one existing digester (see Table 2, below and Attachment OS-5). The Five Points Cluster project will interconnect to the Pacific Gas and Electric (PG&E) Gas Transmission Line 138. An MSA will monitor gas quality, odorization and control equipment per the relevant Tariffs and Rules including but not limited to PG&E Gas Rule 21. All the equipment will be designed specifically for this use.

Project Permit Applications

Table 2 - List of CUPs Requested by Fresno County

Description	Applications
Biogas Upgrading Hub - Open Sky	CUP “A” – Name to be assigned by Fresno County
PG&E Point of Interconnection	
Pipeline Route	
Digester #1 – Open Sky	Amendment to CUP 3590
Digester #2 – Vanderham	CUP “B” – Name to be assigned by Fresno County
Digester #3 – Van der Hoek	CUP “C” – Name to be assigned by Fresno County
Digester #4 – Van der Kooi	CUP “D” – Name to be assigned by Fresno County
Digester #5 – Wilson	CUP “E” – Name to be assigned by Fresno County

The dairies participating in the Five Points Pipeline Dairy Cluster project include entitlements for four new CUPs and an amendment to CUP 3590. A list of the items to be installed and detailed explanations of each project component is included for every application under “CUP Application Project Details”, which is listed throughout. Each of the dairy sites (CUP “B” through CUP “E”) has similar components. However, CUP “A” includes several key components that will only be associated with this site. This information is presented below.

CUP 3642 Operational Statement

CUP “A” Application Project Details (PG&E Interconnection, Hub & Gathering Lines)

Lists the proposed project components to be installed at the participating project site for CUP “A”.

- PG&E Point of Interconnection and Injection Point
 - Meter Set Assembly
- Biogas Upgrading and Electrical Generation Facility (Hub)
- Biogas Gathering Lines

PG&E Point of Interconnection and Injection Point

- Meter Set Assembly (MSA)

The project proposes to install an interconnection and injection point with PG&E. The MSA includes equipment which measures, odorizes, and controls the biomethane gas flow into the PG&E pipeline. This equipment will be controlled by PG&E via SCADA. PG&E will monitor gas quality 24/7 through this equipment. If at any point, the biomethane is not within the PG&E Rule 30 standards, the equipment automatically closes the injection valve and the biomethane is not injected into the pipeline. The interconnection point is shown in the attached facility layout.

All portions of the project will comply with Pipeline and Hazardous Materials Safety Administration (PHMSA) guidelines, 49 CFR Part 192, and with the CPUC’s Safety Enforcement Division (SED) General Order 112-F.

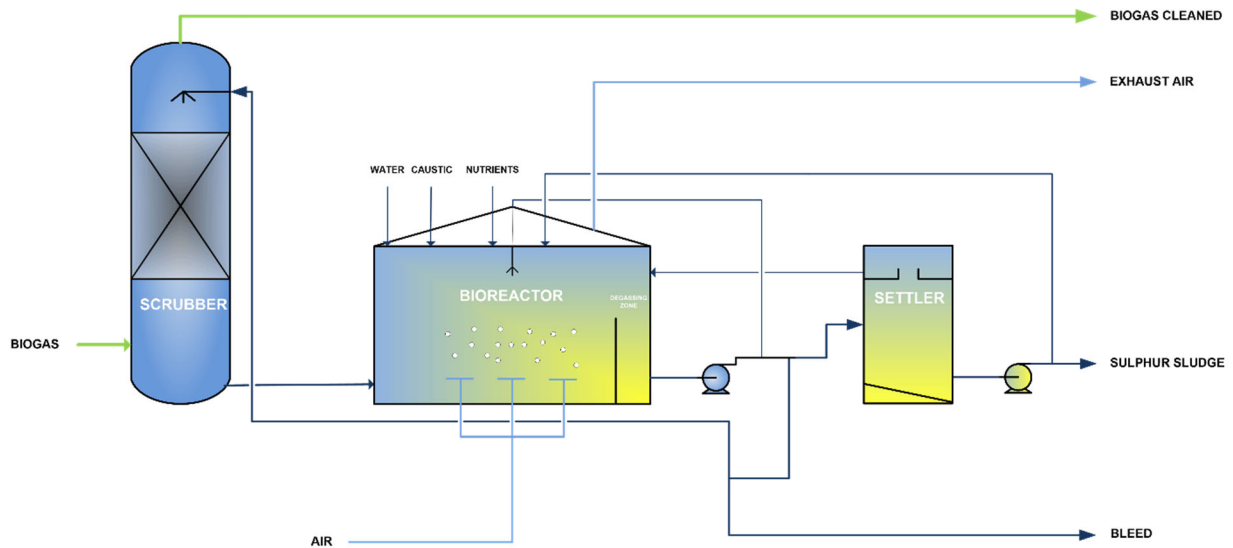
Biogas Upgrading and Electrical Generation Facility (Hub)

- Blower Skid
- Primary H₂S Removal System
- Chiller/Re-Heater Package
- Biogas Feed Compressor
- Secondary H₂S Removal System
- CO₂ Membrane Skid
- Product Gas Compression
- Biogas Generator

The project proposes to install the biogas upgrading facility APN 050-170-41S. The upgrading facility will consist of moisture removal, H₂S scrubbing, CO₂ stripping, and biomethane compressors. The facility will require upgraded or new electrical service from Pacific Gas and Electric (PG&E) to power the equipment. All the equipment will be designed specifically for this use and sourced from experienced vendors. The proposed footprint is approximately 160 feet x 130 feet. (See facility site plan found in Attachment A-5.)

The upgrading facility removes impurities, moisture, and gas constituents that are not suitable for injection into the PG&E pipeline. After the incoming gas is metered, it enters the hydrogen sulfide removal system. The project will use a Sulfurex (or equivalent) Caustic Scrubber with biological media regeneration to remove Hydrogen Sulfide (H₂S). Sulfurex is a desulfurization process that combines chemical desulfurization, at medium to high pH, with biological regeneration of the solvent (caustic). The system consists of a packed column, a biological reactor and a settler. The Figure below shows a basic process flow diagram of the Sulfurex process.

Figure 2 – Caustic Scrubber Flow Diagram



The biogas enters the scrubber at the bottom of the tower and flows upwards through a packed column that is approximately 12 meters in height. A caustic solution is distributed on top of the column over the packing media and falls through the packing material in a counter-current direction of the gas. The packing material inside the column ensures good contact between hydrogen sulfide and the process liquid for maximum efficiency. While the biogas flows through the packed column, H₂S is absorbed in the caustic solvent. The biogas leaves the column free of hydrogen sulfide at the top. The saturated process liquid is collected in the sump at the bottom of the scrubber and flows under gravity to the bioreactor. In the bioreactor, the hydrogen sulfide present in the liquid is biologically oxidized into elemental sulfur by Thiobacillus bacteria. The oxygen required for this biological process is supplied by an aeration system installed at the bottom of the bioreactor. During oxidation, the caustic solution is regenerated before being reused for another washing step in the scrubber. In the bioreactor water, nutrients and caustic are automatically refreshed for cellular growth and guarantee good operating conditions. The elemental sulfur is separated from the process liquid in the settler, which can be integrated inside the bioreactor. The settler is fed with a small part of the effluent coming from the bioreactor. The overflowing process liquid (low TSS) flows from the settler to the bioreactor. Sulfur sludge is removed from the bottom of the settler with a high dry matter content of 5-10% mass, which can then be used as high-quality fertilizer.

The Sulfurex system is an extremely flexible desulfurization technology that achieves low hydrogen sulfide outlet concentrations with low operational expenses. Since the air injection takes place in the bioreactor, no oxygen mixes with the product biogas making it suitable for biogas upgrading. This technology is also able to operate efficiently under very high loads of sulfur as is common with dairy biogas.

After passing through the hydrogen sulfide (H₂S) removal system at the hub, the gas runs through one more chilling and reheating system to ensure any remaining moisture is captured and the gas is dry enough to meet pipeline quality standards. Thereafter, the gas is drawn via a compressor to provide operating pressure for the CO₂ removal membranes. To remove CO₂, the project will use an CO₂ membrane removal system. After passing through the membranes, the purified gas is monitored in a project-owned gas chromatograph for gas quality. If the gas does not meet pipeline quality standards, it is recirculated through the gas

conditioning process and new deliveries of raw gas from the digesters are reduced or paused. Once the biogas meets pipeline quality standards and pressure, the biogas will be delivered to the MSA.

A byproduct of the biogas cleaning and conditioning process includes elemental sulfur. Elemental sulfur is considered a non-hazardous material that can be used as an organic soil additive that can be used to safely correct soil pH levels and as a plant nutrient (PubMed, 2018). Currently elemental sulfur is added to some of the surrounding farmland as a soil amendment. It is anticipated that this additive will be allowable as determined by each dairy's nutrient management plan. This material will only be generated at the project hub site.

The amount of elemental sulfur generated during the biogas cleaning process depends upon the quantity and H₂S content of the biogas. In a worst-case scenario, at 2,500 standard cubic feet per minute (scfm) and 3,000 parts per million (ppm), the combined project would generate approximately 450 lbs of sulfur per day or approximately 82 tons per year. In the unlikely event that the sulfur is not used as a soil amendment, it is anticipated that the material would be transported to a landfill by a qualified disposal firm. Based on the worst-case scenario, one truck every four weeks would transport the material to an appropriate disposal site.

Electrical Generation Facility

The project proposes to install the biogas generation facility adjacent the biogas upgrading facility on APN 050-170-41S, with a footprint of approximately 70' x 45'. This facility houses the generator(s) and any ancillary equipment (including but not limited to Carbon H₂S Scrubbers, Chillers, Condensers and Blower Equipment). (Please reference Attachment A-5 for a depiction of the facility's location and dimensions in relation to surrounding equipment).

Biogas Generators

The project's internal combustion engine's emissions will be regulated by the SJVACPD under the latest Best Available Control Technology (BACT) standards. This power generation project will consume biogas in an onsite generator, to create electricity for delivery to the PG&E grid under the Bioenergy Market Adjusting Tariff (BioMAT), net energy metering with aggregation or other exporting tariff. When the engine is off for maintenance, the biogas will be stored in the covered lagoon, which has capacity for approximately 2 days of biogas storage. An emergency vent will also be installed per San Joaquin Valley Air Pollution Control District permit requirements.

The engine(s) are Guascor SFGLD-560 or similar, 16-cylinder lean-burn, turbo-charged reciprocating internal combustion engine mated with a synchronous generator. The combined rated electrical power of the system is 800-1,000 kW. The biogas from this project will be conditioned to remove moisture and reduce hydrogen sulfide below 40 ppm. Moisture from the biogas will be removed using a Bell & Gosset (or equivalent) plate and frame heat exchanger cooled by a Cold Shots (or equivalent) 240,000 BTU/hr industrial air-cooled chiller. H₂S reduction will be achieved in two stages. First a built-in air injection system under the digester's cover will encourage biological fixation of sulfur molecules. Secondly, the project will employ a media-based scrubber using non-toxic media (Sulfatreat or similar). CO₂ does not need to be removed prior to combustion under this design. The project engine generator(s) is oversized to increase reliability and to allow the project to generate during the time of day when the power prices are most profitable. The project will signed a final interconnection agreement with PG&E.

Emissions Reduction Plan: The project will treat exhaust emissions using a Selective Catalytic Reduction (SCR) system with Oxidation Catalyst from HUG Engineering (or similar manufacturer) that comes with a guarantee of performance.

Biogas Gathering Lines

The project will install HDPE biogas collection lines between the hub and the individual digesters. All of the necessary land is controlled by dairy farms and so no third party or public easements are required to complete the pipeline, except where crossing county roads. The pipeline will be constructed of SDR 17 and SDR 21 HDPE, which does not corrode when exposed to biogas (even if wet) and has excellent wall strength for this application. The pipeline will be operated at between 3 and 20 pounds per square inch. This very low pressure has several advantages. First, it requires much less electricity than higher pressure gas lines. Second, the biogas compression equipment installed at the farms is limited to single stage rotary lobe blowers, which are easy to repair and maintain in a farm environment. Finally, the safety risks of all equipment and pipelines are greatly attenuated by operating them at lower pressures.

The project pipelines will maintain minimum vertical and horizontal utility clearances during installation. Since the project is not building in public rights of way except where the pipeline crosses county roads, there is very little interaction with existing buried utilities. The pipeline minimum depth will be 48 inches although in nearly all locations it will be significantly deeper due to engineering requirements such as channel crossings and line sloping. The line will be sloped toward designed low points with moisture removal traps to enable draining, testing, and maintenance. No High-Speed Rail crossings are required for any initial or future digesters.

The project's design and operation will comply with all county code requirements and any applicable portions of the federal Pipeline and Hazardous Materials Safety Administration. The project will install tracer wires and marker tapes on all gas gathering pipelines.

as gathering pipelines. The pipeline will be hydrotested prior to first use. Isolation valves will be installed at each dairy, and at the hub, to allow disconnection of biogas for equipment repair and maintenance.

Biogas Gathering Lines in Relation to Dairies and Blowers

The gathering lines will move biogas from each participating dairy to the central upgrading facility. A blower will be installed at each digester to move the biogas into the gathering lines at pressure of less than 20 psi. Each blower will be controlled by a central SCADA system that is overseen by operators on a 24/7 basis. When a blower increases in speed, more biogas is pushed to the upgrading facility, and when it decreases, less biogas is sent. The gathering lines will be pressure monitored via SCADA equipment in real time to detect leaks or major failures. Additionally, flow meters will be installed at each digester site and at the upgrading facility to monitor biogas flows.

Biogas condensate in the pipeline will be primarily managed via moisture removal at each dairy, and further checked by relative humidity sensors at the outlet of each dairy's gas handling equipment. However, the gas gathering pipelines are further protected from moisture using moisture condensate traps at the outlet of each dairy, and at low points along the pipeline route. These moisture traps include a visual indicator when they are approximately half full. These traps will be checked weekly as part of standard operating procedures, and more often whenever the project's control system indicates high moisture gas may have been delivered by one or more dairy digesters.

Pipeline integrity will be monitored via several methods. First, the project's control system monitors outgoing and incoming pressures at various points along the line. The system automatically generates alarms and shuts down when extreme failures are indicated by rapid loss of pressure/increase of flow. Additionally, the total gas volume delivered and received is metered and will be tracked over time via trend analysis. This analysis can indicate any gradual loss of integrity due to mismatched delivery/receipts indicating missing gas or other anomalies. Finally, the pipeline will be walked at least once per year with

handheld gas detection equipment to search for very small methane leaks. Remote sensing of such leaks via drone-mounted sensors may also be employed if such techniques are approved by regulatory authorities.

Operation Details

Safety Plan

The project will include an Operations and Maintenance manual. The O&M manual will outline safety protocols and procedures which will be utilized in the unlikely event of a pipeline or liner failure, or gas leakage. Though it is excluded from their regulatory scope, the O&M manual is built to the standards of DOT's Pipeline and Hazardous Materials Safety Administration. The project will also be monitored using a computerized SCADA remote control system and monitoring equipment.

The pipeline utilizes fusion-welded joints and will be pressure tested during construction to ensure it was installed without leaks. The blowers are equipped with a SCADA system and are designed to inject biogas into the pipeline at a maximum working pressure of 20 psi, so the likelihood of over-pressurization is minimal.

The possibility of accidental breach of the pipeline by either unauthorized excavation or farming activities has been accounted for. The following measures will be implemented in the design process to minimize accidental breaches of the pipeline:

- The pipeline will be registered with the Utility Services Alert (USA) system. There are legal requirements for contacting USA prior to any excavation, and the pipeline operator will mark the location of the pipeline in the area of the proposed excavation.
- Marker posts are installed at maximum 700-foot intervals warning of the presence of the pipeline and providing contact information of the pipeline operator.
- Copper clad steel tracer will be installed with the pipeline to aid in the future location of the pipeline by the pipeline operator.
- Marker tape will be installed 1-foot above the pipeline to warn excavators that the pipeline is located below the marker tape.
- The pipe will be installed with a minimum of 4-feet of cover, which is below the depth of normal farming activities.

Additionally, the pipeline operator will develop an education program to inform landowners and farm operators of the existence of the pipeline, along with its location and restrictions regarding farm operations in the area of the pipeline.

In the unlikely event of an accidental breach of the pipeline, the following procedures will minimize risk to the public:

- The blowers that pressurize the pipeline are controlled by the central SCADA system, which can remotely turn off all of the system blowers. All the blowers should then be turned off, which would stop the flow of biogas into the pipeline.
- High performance butterfly valves are located throughout the pipeline network. The valves near the breached section of pipeline should be closed to isolate the breach from the rest of the system.

If such an event were to occur, local emergency personnel must be notified to restrict access to the area adjacent to the breach and assist with any required evacuations.

Operational Times and Visitors

The facility will be operational 24/7, but not open to public visitors without prior permission.

Number of Employees

Construction:

Hub: a maximum of 20 people for short periods of time, with an average of 10 people on site during the 10 months of construction.

Pipeline: a maximum 10 people for the 7 months of construction.

Operations:

Remote sensor and computer monitoring of the equipment will be operated permanently. One employee will make a daily inspection of the facility. That work will be conducted during regular business hours, 8am-5pm, and on-call 24/7. No permanent facility employees will work or live on-site.

The number of dairy employees will not increase.

Service and Delivery Vehicles

A service truck will visit once per day, two delivery trucks and one disposal truck will be on site approximately once per month.

Access to the Site

The closest access to the project hub is via a private driveway off Elkhorn Grade. However, there are several other private driveways on the dairy's property that will provide additional routes if needed, to the proposed equipment for any initial construction or future maintenance. Other surrounding public streets that may be used for access to the hub equipment include: West Elkhorn Avenue, South Howard Avenue; as well as nearby unnamed farm roads. In projects such as this, pipeline is always located adjacent to public or private roads.

Parking

Construction crews and equipment will use the existing dairy for parking and staging. The primary parking location will be on the southeast side of the property as this is closest to the proposed construction. This area already exists as a flat dirt parking area for farm equipment and vehicles as necessary.

Goods

No goods will be sold on site.

Equipment

Equipment used on site will include but is not limited to chillers, valves, condensers and electrical distribution and automation.

Supplies or Materials

The facility will use and store small quantities of materials such as fuels, lubricants, and hydraulic fluids. Handling of hazardous materials are regulated by federal and State laws, which minimizes worker safety risks from both physical and chemical hazards in the workplace.

Appearance/Noise/Dust

The project facility is similar in nature to the existing dairy infrastructure and fits into its surroundings. The pipeline will run underground and will not be seen. Noise generated by the project equipment will not be above typical agriculture facility levels. The facility does not include any lights or other sources of glare beyond what is currently used for security reasons at the dairy. Once operational, the project will not generate fugitive dust. The project will not emit or concentrate any odors.

Solid or Liquid Wastes to be Produced

Facility will produce less than 10 gallons per week of waste compressor oil. Oil will be stored in marked and sealed containers onsite until picked up by oil recycling company about once per quarter. In addition, facility will produce minimal amounts of other varied solid wastes. This will be stored in marked containers and picked up once per month by a solid waste disposal company for disposal at an appropriate landfill.

The elemental sulfur will be removed from the site on a monthly basis for use as a soil amendment or it will be disposed of at an appropriate disposal site.

Construction and Operational Water Usage

Construction of the hub will take approximately 10 months (200 working days) and pipeline is anticipated to take approximately 7 months (140 working days). Water for construction and operations would be supplied by an existing on-site agricultural well.

Construction (Hub and Pipeline): An estimated 5,000 gallons/day is anticipated during up to 10 months of construction activities. Based on an average 20 work days a month, approximately 3.0 AF would be required (5,000 gallons x 200 days = 1,00,000 gallons).

Operations: Water usage is anticipated to be approximately 2,500 gallons per day or 2.8 AF annually during operation.

Advertising

There will be no advertisements at the project site.

Buildings

The project will not construct any new buildings, but 2-3 small containers may be installed for electrical controls and other equipment. These will be steel and unobtrusive colors. No office or Operations and Maintenance building is proposed.

Lighting and Outdoor Sound Amplification

No outdoor sound amplification systems will be installed for the project. The facility will function 24 hours a day and will include the same standard security lighting as found on the surrounding parcels. All lighting

would be directed downward and shielded to focus illumination on the desired work areas only and prevent light spillage onto adjacent properties.

Landscaping and Fencing

There will be chain link fencing installed around the perimeter of the facility. No landscaping is proposed for the project.

Restrooms

There is no on-site permanent staff. Maintenance staff will use the existing dairy restroom facilities.

-Proposed Injection and Clean Up Location
(Facing North)



-Proposed Injection and Clean Up Location
(Facing North - from West to East)



-Proposed Injection and Clean Up Location
(Facing South - from East to West)



-Proposed Injection and Clean Up Location
(Facing East)



-Proposed Injection and Clean Up Location
(Facing South)



-Proposed Injection and Clean Up Location
(Facing West)



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Fresno County Department of Public Works and Planning

Date Received: 3/21/19 CUP 3643 (Application No.)

MAILING ADDRESS: Department of Public Works and Planning, Development Services and Capital Projects Division, 2220 Tulare St., 6th Floor, Fresno, Ca. 93721

LOCATION: Southwest corner of Tulare & "M" Streets, Suite A Street Level, Fresno Phone: (559) 600-4497

APPLICATION FOR:

- Pre-Application (Type)
Amendment Application
Amendment to Text
Conditional Use Permit
Variance (Class)/Minor Variance
Site Plan Review/Occupancy Permit
No Shool/Dog Leash Law Boundary
General Plan Amendment/Specific Plan/SP Amendment)
Time Extension for
Director Review and Approval
for 2nd Residence
Determination of Merger
Agreements
ALCC/RLCC
Other

DESCRIPTION OF PROPOSED USE OR REQUEST:

Ammendment to CUP 3590 for the purpose of installing a mechanical building biogas blower, chilling equipment and supporting equipment. Proposed upgrades will allow biogas to be transported to the cleanup equipment on site (cleanup equipment to be permitted through a seperate CUP). Biogas will then be injected into the PG&E transmission line through the on site injection point.

CEQA DOCUMENTATION: [X] Initial Study [] PER [] N/A

PLEASE USE FILL-IN FORM OR PRINT IN BLACK INK. Answer all questions completely. Attach required site plans, forms, statements, and deeds as specified on the Pre-Application Review. Attach Copy of Deed, including Legal Description.

LOCATION OF PROPERTY: South side of W Elkhorn Ave between Elkhorn Grade and S. Howard Ave Street address: 12103 W. Elkhorn Ave, Riverdale, CA 93656

APN: 050-170-041S Parcel size: Approximately 506.1 Acres Section(s)-Twp/Rg: S 3 - T 17 S/R 18 E

ADDITIONAL APN(s):

I, Eric te Velde (signature), declare that I am the owner, or authorized representative of the owner, of the above described property and that the application and attached documents are in all respects true and correct to the best of my knowledge. The foregoing declaration is made under penalty of perjury.

Table with 4 columns: Name, Address, City, Zip, Phone. Rows include Eric A. te Velde and Katelyn J. te Velde Revocable Family Trust, Five Points Pipeline, LLC, and Maas Energy Works, Inc.

CONTACT EMAIL: stephanie@maasenergy.com

OFFICE USE ONLY (PRINT FORM ON GREEN PAPER)

Application Type / No.: Amend/Classified/CUP No. 3643 Fee: \$ 2,284.50
Application Type / No.: Fee: \$
Application Type / No.: Fee: \$
Application Type / No.: Fee: \$
PER/Initial Study No.: Fee: \$
Ag Department Review: Fee: \$
Health Department Review: Fee: \$654.00
Received By: J.S. Invoice No.: 117391 TOTAL: \$ 2,938.50

UTILITIES AVAILABLE:

WATER: Yes [] / No [X] Agency: Well
SEWER: Yes [] / No [X] Agency: Septic

STAFF DETERMINATION: This permit is sought under Ordinance Section: Sect-Twp/Rg: - T - S/R - E
Related Application(s): APN # - -
Zone District: AE-20 APN # - -
Parcel Size: APN # - -

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CUP 3643 Operational Statement

Amendment to CUP 3590 Application Project Details (Open Sky)

The existing digester at the Open Sky Ranch is permitted by CUP 3590. The additional proposed components to be installed at the participating project site for the amendment to CUP 3590 are listed below.

Digester #1 – Open Sky Ranch:

- Biogas Blower and Chilling Equipment
- Mechanical Building
- Supporting Equipment

Biogas Blower and Chilling Equipment

A chiller and condenser will be installed to condense most of the water in the biogas before blowing into the gathering pipeline. The chiller is a typical commercial unit for cooling glycol. The condenser is a commercially available unit for condensing moisture from biogas. A blower will be installed at the existing digester to move the biogas into the gathering lines at pressure of less than 20 psi. Each blower will be controlled by a central SCADA system that is overseen by operators on a 24/7 basis. When a blower increases in speed, more biogas is pushed to the upgrading facility, and when it decreases, less biogas is sent. The gathering lines will be pressure monitored via SCADA equipment in real time to detect leaks or major failures. Additionally, flow meters will be installed at each digester site and at the upgrading facility to monitor biogas flows.

Mechanical Building

The mechanical building will be a prefabricated steel building no larger than 25' x 25' and placed on a new concrete pad. This building will house the blower and chilling equipment.

Supporting Equipment

Supporting equipment is any equipment which is essential for the function of the aforementioned equipment and completion of the project ambitions. Such equipment may include small pumps, electrical controls, and other minor equipment which is deemed necessary.

Operational Times and Visitors

The facility will be operational 24/7, but not open to public visitors without prior permission.

Number of Employees

Construction:

A maximum of 10 people on site during the 2 months (40 work days) of construction.

Operations:

Remote sensor and computer monitoring of the equipment will be operated permanently. One employee will make a daily inspection of the facility. That work will be conducted during regular business hours, 8am-5pm, and on-call 24/7. No permanent facility employees will work or live on-site.

The number of dairy employees will not increase.

Service and Delivery Vehicles

There will be one service truck visit per day and a disposal truck once a month. No delivery trucks will be required.

Access

Access would be taken from South Howard Avenue onto a private driveway to the facility.

Parking

Parking will be accessible directly at the project facility. This area already exists as a flat dirt parking area for farm equipment. Construction crews and equipment will use the existing dairy for parking and staging.

Goods

No goods will be sold on site.

Supplies or Materials

The facility will use and store small quantities of materials such as fuels, lubricants, and hydraulic fluids. Handling of hazardous materials are regulated by federal and State laws, which minimizes worker safety risks from both physical and chemical hazards in the workplace.

Appearance/Noise/Dust

The project facility is similar in nature to the existing dairy infrastructure and fits into its surroundings. The pipeline will run underground and will not be seen. Noise generated by the project equipment will not be above typical agriculture facility levels. The facility does not include any lights or other sources of glare beyond what is currently used for security reasons at the dairy. Once operational, the project will not generate fugitive dust. The project will not emit or concentrate any odors.

Solid or Liquid Wastes to be Produced

Facility will produce minimal amounts of solid or liquid waste. Waste will be picked up once per month by a solid waste disposal company and taken to an appropriate landfill.

Construction and Operational Water Usage

Construction of the mechanical building and the installation of the equipment is anticipated to take approximately 2 months (40 working days).

Water for construction and operations would be supplied by an existing on-site agricultural well.

Construction: An estimated 5,000 gallons/day is anticipated during up to 2 months of construction activities. Based on an average 20 work days a month, approximately 0.6 AF would be required (5,000 gallons x 40 days = 200,000 gallons).

Operations: Water usage is anticipated to be approximately 2,500 gallons per day or 2.8 AF annually during operation.

Advertising

There will be no advertisements at the project sites.

Buildings

The project will not construct any new buildings, but 2-3 small containers may be installed for electrical controls and other equipment. These will be steel and unobtrusive colors.

Lighting and Outdoor Sound Amplification

No outdoor sound amplification systems will be installed for the project. The facility will function 24 hours a day and will include the same standard security lighting as found on the surrounding parcels. All lighting would be directed downward and shielded to focus illumination on the desired work areas only and prevent light spillage onto adjacent properties.

Landscaping and Fencing

There will be chain link fencing installed around the perimeter of the facility. No landscaping is proposed for the project.

Restrooms

There is no on-site permanent staff. Maintenance staff will use the existing dairy restroom facilities.



MAAS
ENERGY WORKS

Attachment OS-4



Site Overhead

Photo Courtesy of Google Earth



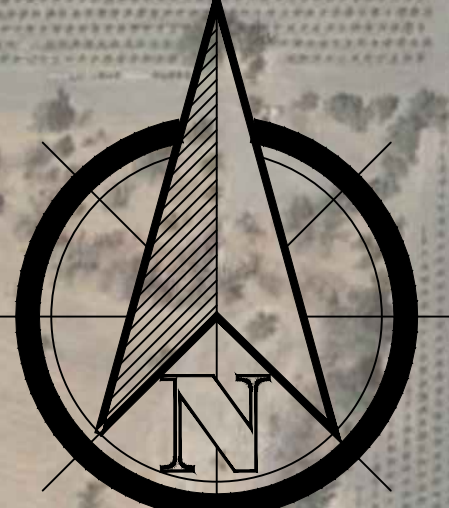
MAAS
ENERGY WORKS

Attachment OS-4



Project Site

Photo Courtesy of Maas Energy Works, Inc



General Notes

CONFIDENTIAL Not for Construction

Cleanup Hub and Interconnection Property Detail Map

- (E) – Existing
- (P) – Proposed
- Access to the Property
- Proposed Fencing
- No improvements to streets have been propose.
- Off-street dirt parking and loading areas exist throughout the property. No new parking/loading areas have been proposed.

• 4" Biogas Gathering Lines

• 6" Biogas Gathering Lines

• PG&E Transmission Line

• APN Boundaries

• 10" Biogas Gathering Lines

• Approximate County Right of Way

○ Property Access

-All pipes are in private easement with the exception of crossings shown.
 -Proposed pipeline is 20' or more from ROW.
 -Bishop Ave, 60' County Right of Way.
 -W Harlan Ave, 60' County Right of Way.

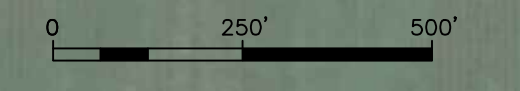


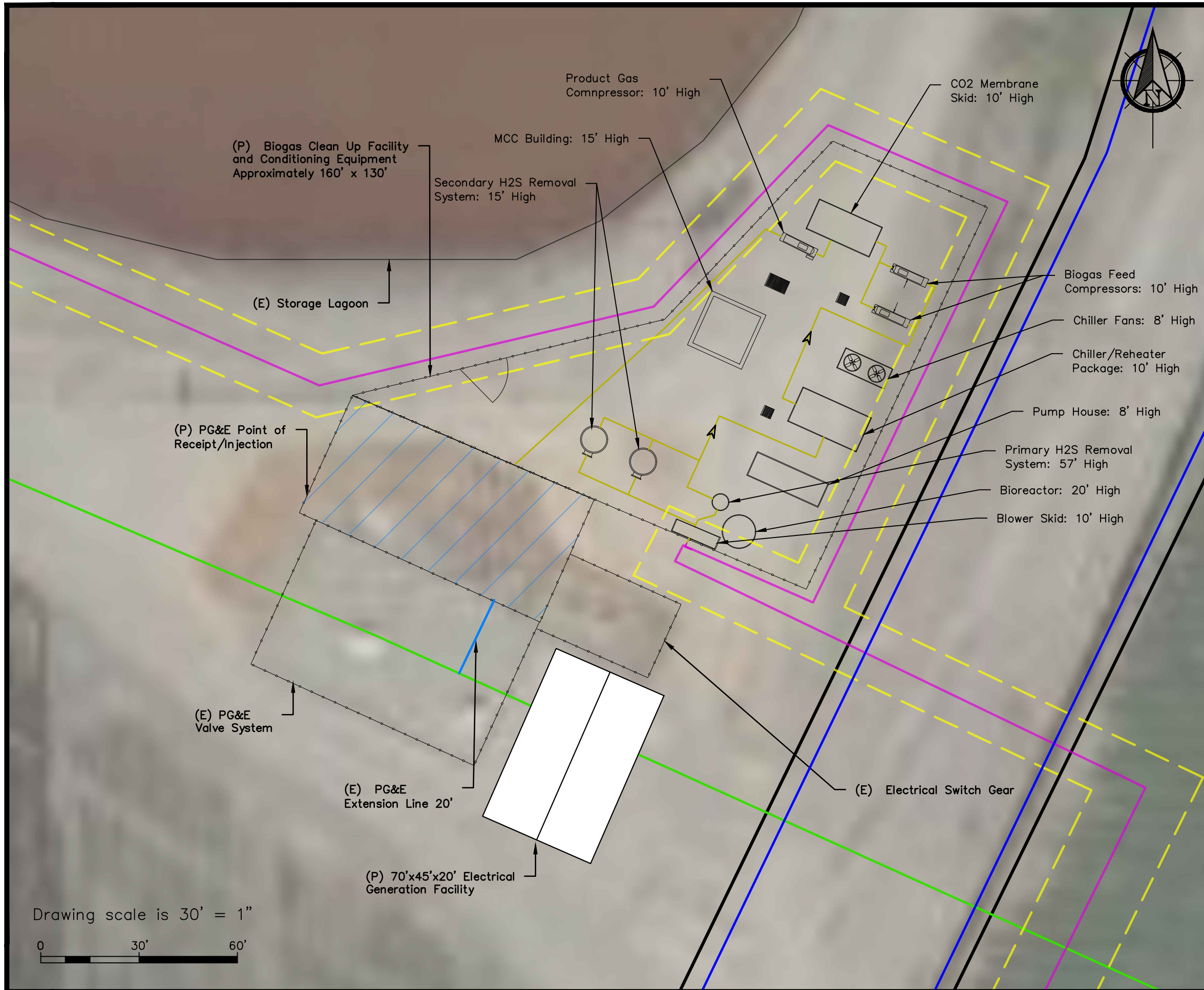
3711 Meadow View Dr.
 Suite 100
 Redding, CA, 96002

Five Points Cluster
 Cleanup Hub & Injection Point
 12103 Elkhorn Ave,
 Riverdale, CA 93656

Date: 3/21/19
 Drawn By: SG, BO
 Version: 2.2

Drawing scale is 250' = 1"





General Notes

Confidential and Not for Construction

Cleanup Hub and Interconnection Detail Map

- (P) – Proposed
- (E) – Existing
- Proposed Fencing
- PG&E Transmission Line
- HDPE SDR 21, 6", 11 PSI
- APN Boundaries
- Biogas Processing Pipeline
- Approximate County Right of Way
- Pipeline Easement

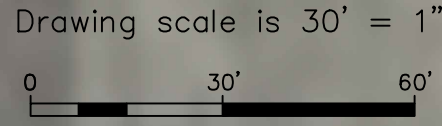
Note: Separation is shown between Right of Way and property boundary in order to make lines distinguishable.

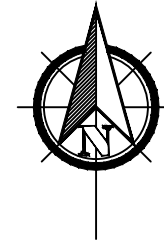


Firm Address
 3711 Meadow View Dr.
 Suite 100
 Redding, CA, 96002

Project Name and Address
 Five Points Cluster
 Cleanup Hub & Injection Point
 12103 Elkhorn Ave,
 Riverdale, CA 93656

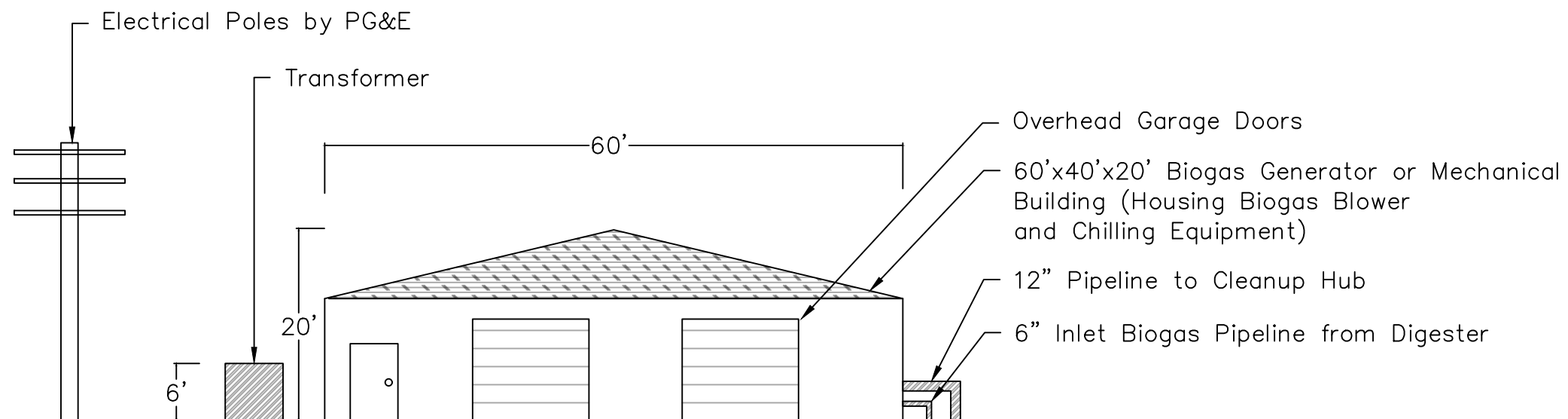
Date 3/21/19	Version 2.4
Drawn By SG, BO	





General Notes

Not for Construction



Firm Address

3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

Project Name and Address

Five Points Cluster
Cleanup Hub & Injection Point
12103 Elkhorn Ave,
Riverdale, CA 93656

Date

3/22/19

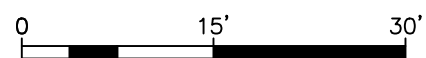
Version

1.0

Drawn By

Byron Oja

Drawing scale is 15' = 1"



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Fresno County Department of Public Works and Planning

Date Received: <u>3/21/19</u>	<u>CUP</u> <u>3644</u> <small>(Application No.)</small>
-------------------------------	---

MAILING ADDRESS:
 Department of Public Works and Planning
 Development Services and Capital Projects Division
 2220 Tulare St., 6th Floor
 Fresno, Ca. 93721

LOCATION:
 Southwest corner of Tulare & "M" Streets, Suite A
 Street Level
 Fresno Phone: (559) 600-4497

APPLICATION FOR:

- Pre-Application (Type) _____
- Amendment Application Director Review and Approval
- Amendment to Text for 2nd Residence
- Conditional Use Permit Determination of Merger
- Variance (Class)/Minor Variance Agreements
- Site Plan Review/Occupancy Permit ALCC/RLCC
- No Shoot/Dog Leash Law Boundary Other _____
- General Plan Amendment/Specific Plan/SP Amendment)
- Time Extension for _____

DESCRIPTION OF PROPOSED USE OR REQUEST:

Request is to allow the installation of a digester, sandlane, 8"-24" manure pipes, biogas pipe, moisture trap and pad, biogas blower and chilling equipment, mechanical building, biogas generator and supporting equipment.

Proposed upgrades will allow biogas to be transported to the upgrading/injection point and ultimately to the PG&E transmission line.

CEQA DOCUMENTATION: Initial Study PER N/A

PLEASE USE FILL-IN FORM OR PRINT IN BLACK INK. Answer all questions completely. Attach required site plans, forms, statements, and deeds as specified on the Pre-Application Review. Attach Copy of Deed, including Legal Description.

LOCATION OF PROPERTY: North side of W Mt Whitney Ave
 between W Harlan Ave and W Mt Whitney Ave
 Street address: 10846 W Mt Whitney Ave, Riverdale, CA 93656

APN: 050-270-56S Parcel size: 320.4 Acres Section(s)-Twp/Rg: S 23 - T 17 S/R 18 E

ADDITIONAL APN(s): _____

I, Luke Vanderham (Dec 20, 2018) (signature), declare that I am the owner, or authorized representative of the owner, of the above described property and that the application and attached documents are in all respects true and correct to the best of my knowledge. The foregoing declaration is made under penalty of perjury.

<u>L&J Vanderham Dairy</u> Owner (Print or Type)	<u>10846 W Mt Whitney Ave</u> Address	<u>Riverdale</u> City	<u>93656</u> Zip	<u>559-8665344</u> Phone
<u>L&J Vanderham Dairy</u> Applicant (Print or Type)	<u>10846 W Mt Whitney Ave</u> Address	<u>Riverdale</u> City	<u>93656</u> Zip	<u>93656</u> Phone
<u>Maas Energy Works, Inc.</u> Representative (Print or Type)	<u>3711 Meadow View Dr, Ste 100</u> Address	<u>Redding</u> City	<u>96002</u> Zip	<u>951-847-6613</u> Phone

CONTACT EMAIL: stephanie@maasenergy.com

OFFICE USE ONLY (PRINT FORM ON GREEN PAPER)

Application Type / No.: UCUP No. 3644 Fee: \$ 9,123.00
 Application Type / No.: _____ Fee: \$ _____
 Application Type / No.: _____ Fee: \$ _____
 Application Type / No.: _____ Fee: \$ _____
 PER/Initial Study No.: _____ Fee: \$ _____
 Ag Department Review: _____ Fee: \$ 50.00
 Health Department Review: _____ Fee: \$ 654.00
 Received By: J.S. Invoice No.: 117392 TOTAL: \$ 9,828.00

UTILITIES AVAILABLE:

WATER: Yes / No
 Agency: Well

SEWER: Yes / No
 Agency: Septic

STAFF DETERMINATION: This permit is sought under Ordinance Section: _____ Sect-Twp/Rg: _____ - T _____ S/R _____ E

Related Application(s): _____ APN # _____ - _____ - _____
 Zone District: AE-20, AE-40 APN # _____ - _____ - _____
 Parcel Size: _____ APN # _____ - _____ - _____

OVER.....

CUP 3644 Operational Statement

CUP “B” Application Project Details (Vanderham)

Lists the proposed project components to be installed at the participating project site for CUP “B”.

Digester #2 – L&J Vanderham Dairy:

- Sandlane
- Various 8”-24” Manure Pipes
- Digester
- 8” Biogas Pipe
- Moisture Trap and Pad
- Biogas Blower and Chilling Equipment
- Mechanical Building
- Biogas Generator
- Supporting Equipment

Dairy Liquid Manure Handling System

(Sandlane and Manure Pipes)

To prepare the dairy for the digester installation, the project will modify the existing liquid manure handling system on the dairy to accommodate the digester. This modification will include the installation of various liquid manure pipes between 8” and 24” in diameter. These pipes are installed via standard open trenching practices in compliance with all OSHA standards.

Additionally, the project will include the installation of a manure sandlane. This sandlane will be no longer than 400’ and no wider than 16’. The final design is in process, but the preliminary design is a flat, 300’ long, 14’ wide, 6” thick, concrete slab with a 4’ high push wall. The preliminary design indicates that the slab will be installed on a slope of 1-3% to allow the manure to flow at a consistent speed. The sandlane is designed to slow the flow of flushed manure down in order to capture sand and other inorganics.

Digester Technology

The anaerobic covered lagoon digesters are a passive addition to the dairy and require minimal oversight. Cameras and automation equipment will be installed at each digester sight to enable remote monitoring. The digester will be suited with an emergency vent as required by the San Joaquin Valley Air District (SJVAPCD). A small mechanical building will be constructed on-site that will house a biogas chiller to remove condensate prior to entering the biogas gathering lines and a biogas blower to move the gas from the digester system to the biogas gathering lines as discussed in more detail below.

The digester will be created by first double-lining a new or existing storage pond. All digester ponds will meet the Central Valley Regional Water Quality Control Board (CRWQCB) Tier 1 standards, which include the installation of double-layered liners of welded 60 ml HDPE with leak detection to ensure water quality. All digester pond designs must be pre-approved by the CRWQCB and their installation is monitored by professional engineers. Once constructed and prior to actual operation of the ponds to treat wastewater, an installation report will be submitted to CRWQCB for their review and approval.

The project will then cover the newly lined pond(s) with 80 ml flexible HDPE material to create the project’s biogas collection system. The lagoon cover will be welded to the liner ensuring a complete seal.

A perforated pipe runs above the water line around the entire perimeter of the covered lagoon to ensure uninterrupted gas flow to the outlet. The cover will also include submersible mixers to agitate the manure which will minimize settling, reduce sludge in the digester, and increase biogas production. An HDPE baffle creates a pathway for manure to slowly flow through the digester, ensuring hydraulic retention time and eliminating dead spots. Finally, sludge draw-off pipes are commonly added as a final protection against sludge buildup. This type of covered lagoon technology is highly commercialized and represents 100% of the successful digester installations in California since 2014. Engineered site plan and design drawings for the proposed digester are found in Attachment B-5. A summary of digester type, digester dimensions, digester volume, and estimated gas output is also summarized in the table below.

Table 3 - Vanderham Dairy Digester

Digester	Participating Dairy	Digester Dimensions (ft)	Digester Volume (gal)	Gas Output (mmBTU/yr)
Digester #2	L&J Vanderham Dairy	1,630' x 125' x 25'	21,027,058	65,882

Biogas Pipe

The biogas pipe is responsible for the delivery of the biogas from the digester to the moisture trap.

Moisture Trap and Pad

After leaving the digester but before entering the mechanical building, the biogas is processed through a moisture trap to reduce the amount of H₂O in the biogas. The trap is supported by a new concrete pad which will also accommodate the blower, chilling equipment and mechanical building.

Biogas Blower and Chilling Equipment

Once it has passed through the moisture trap, the biogas will be pulled through the blower and sent to chilling equipment and then the gathering lines.

A chiller and condenser will be installed to condense most of the water in the biogas before blowing into the gathering pipeline. The chiller is a typical commercial unit for cooling glycol. The condenser is a commercially available unit for condensing moisture from biogas.

A blower will be installed near the digester to move the biogas into the gathering lines at pressure of less than 20 psi. Each blower will be controlled by a central SCADA system that is overseen by operators on a 24/7 basis. When a blower increases in speed, more biogas is pushed to the upgrading facility, and when it decreases, less biogas is sent. The gathering lines will be pressure monitored via SCADA equipment in real time to detect leaks or major failures. Additionally, flow meters will be installed at each digester site and at the upgrading facility to monitor biogas flows.

Mechanical Building

The mechanical building will be a prefabricated steel building no larger than 60' x 40'. This building will house chilling equipment and the blower and the biogas generator.

Biogas Generator

The project's internal combustion engine's emissions will be regulated by the SJVACPD under the latest Best Available Control Technology (BACT) standards. This power generation project will consume biogas in an onsite generator, to create electricity for delivery to the PG&E grid under the Bioenergy Market Adjusting Tariff (BioMAT), net energy metering with aggregation or other exporting tariff. When the engine is off for maintenance, the biogas will be stored in the covered lagoon, which has capacity for approximately 2 days of biogas storage. An emergency vent will also be installed per San Joaquin Valley Air Pollution Control District permit requirements.

The engine is a Guascor SFGLD-560 or similar, 16-cylinder lean-burn, turbo-charged reciprocating internal combustion engine mated with a synchronous generator. The combined rated electrical power of the system is 800-1,000 kW. The biogas from this project will be conditioned to remove moisture and reduce hydrogen sulfide below 40 ppm. Moisture from the biogas will be removed using a Bell & Gosset (or equivalent) plate and frame heat exchanger cooled by a Cold Shots (or equivalent) 240,000 BTU/hr industrial air-cooled chiller. H₂S reduction will be achieved in two stages. First a built-in air injection system under the digester's cover will encourage biological fixation of sulfur molecules. Secondly, the project will employ a media-based scrubber using non-toxic media (Sulfatreat or similar). CO₂ does not need to be removed prior to combustion under this design. The project engine generator is oversized to increase reliability and to allow the project to generate during the time of day when the power prices are most profitable. The project will sign a final interconnection agreement with PG&E.

Emissions Reduction Plan: The project will treat exhaust emissions using a Selective Catalytic Reduction (SCR) system with Oxidation Catalyst from HUG Engineering (or similar manufacturer) that comes with a guarantee of performance.

Supporting Equipment

Supporting equipment is including but not limited to a transformer and electrical poles which will be installed per PG&E requirements in order to support the biogas generator. Furthermore, supporting equipment is any equipment which is essential for the function of the aforementioned equipment and completion of the project ambitions. Such equipment may include small pumps, electrical controls, and other minor equipment which is deemed necessary.

Operational Times and Visitors

The facility will be operational 24/7, but not open to public visitors without prior permission.

Number of Employees

Construction:

Digester: a maximum of 10 people for short periods of time, with an average of 5 people on site during the 7 months of construction.

Operations:

Remote sensor and computer monitoring of the equipment will be operated permanently. One employee will make a daily inspection of the facility. That work will be conducted during regular business hours, 8am-5pm, and on-call 24/7. No permanent facility employees will work or live on-site.

Service and Delivery Vehicles

A service truck will visit once per day. No delivery trucks will be on site.

Access

Access to the site would be from South Bishop Avenue to a private driveway to the dairy and facility.

Parking

Construction crews and equipment will use the existing dairy for parking and staging. This area already exists as a flat dirt parking area for farm equipment.

Goods

No goods will be sold on site.

Supplies or Materials

The facility will use and store small quantities of materials such as lubricants, and hydraulic fluids. Handling of hazardous materials are regulated by federal and State laws, which minimizes worker safety risks from both physical and chemical hazards in the workplace.

Appearance/Noise/Dust

The project facility is similar in nature to the existing dairy infrastructure and fits into its surroundings. The pipeline will run underground and will not be seen. Noise generated by the project equipment will not be above typical agriculture facility levels. The facility does not include any lights or other sources of glare beyond what is currently used for security reasons at the dairy. Once operational, the project will not generate fugitive dust. The project will not emit or concentrate any odors, and in fact will reduce odors with the installation of the covered manure lagoons.

Solid or Liquid Wastes to be Produced

Facility will produce minimal amounts of solid or liquid waste. Waste will be picked up once per month by a solid waste disposal company and taken to an appropriate landfill.

Water

Water usage is estimated to be no more than 2,500 gallons per day during operation. Water will be sourced from onsite well.

Advertising

There will be no advertisements at the project sites.

Buildings

The project will not construct any new buildings, but 2-3 small containers may be installed for electrical controls and other equipment. These will be steel and unobtrusive colors.

Lighting and Outdoor Sound Amplification

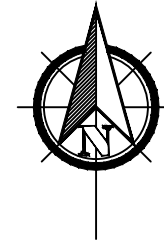
No outdoor lighting or sound amplification systems will be installed for the project.

Landscaping and Fencing

There will be chain link fencing installed around the perimeter of the facility. No landscaping is proposed for the project.

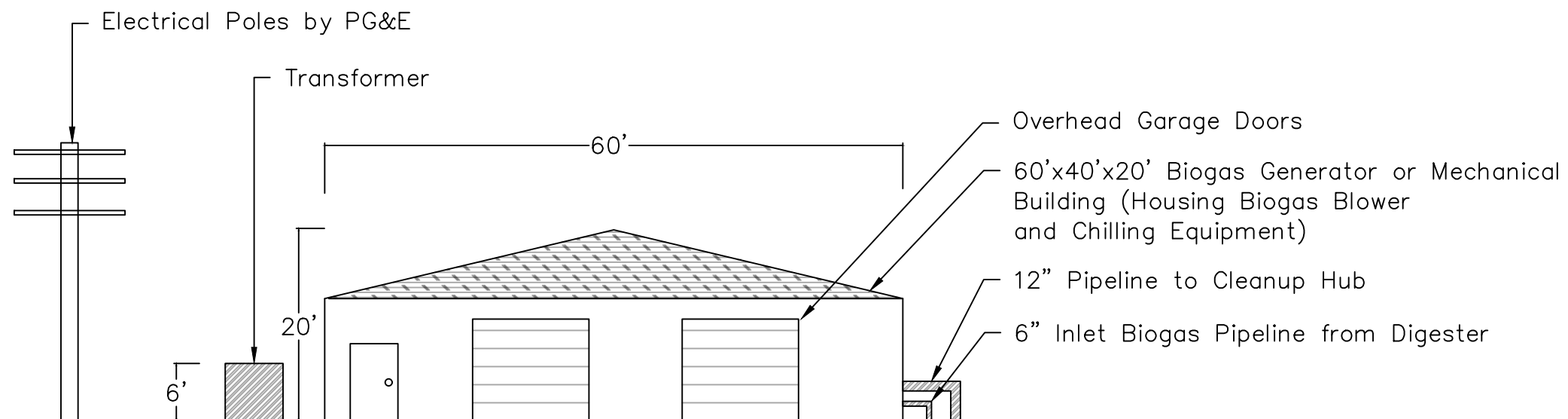
Restrooms

There is no on-site permanent staff. Maintenance staff will use the existing dairy restroom facilities.



General Notes

Not for Construction



Firm Address

3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

Project Name and Address

Five Points Cluster
Cleanup Hub & Injection Point
12103 Elkhorn Ave,
Riverdale, CA 93656

Date

3/22/19

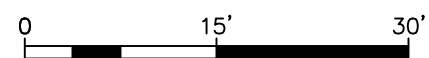
Version

1.0

Drawn By

Byron Oja

Drawing scale is 15' = 1"





Digester Site

Photo Courtesy of Maas Energy Works, Inc



Digester Site

Photo Courtesy of Maas Energy Works, Inc

VANDERHAM DAIRY DIGESTER

BENCHMARK

THE TOPOGRAPHIC SURVEY WAS PERFORMED UTILIZING GLOBAL POSITIONING SYSTEM OBSERVATIONS. DISTANCES AND NUMBERS SHOWN ARE TO BE CONSIDERED GROUND VALUES. BENCHMARK AND CONTROL SHOWN ON CONTROL PLAN SHEET. THE BENCHMARK AND VERTICAL ELEVATIONS WERE DERIVED FROM THE NGS ONLINE POSITIONING SERVICE (OPUS), AND IS SHOWN ON THE NAVD 88 DATUM UTILITIZING THE GEOID 09 AS THE VERTICAL MODEL.

PRESERVATION OF MONUMENTS

PURSUANT TO SECTIONS 8771(B) AND 8771(C) OF THE GOVERNMENT CODE, ANY MONUMENTS THAT CONTROL THE LOCATION OF BOUNDARIED, OR OTHERWISE PROVIDE HORIZONTAL OR VERTICAL SURVEY CONTROL WITHIN THE CONSTRUCTION AREA, SHALL BE LOCATED AND REFERENCED PRIOR TO CONSTRUCTION, AND A CORNER RECORD OR RECORD OF SURVEY OF THE REFERENCES SHALL BE FILED WITH THE COUNTY SURVEYOR.

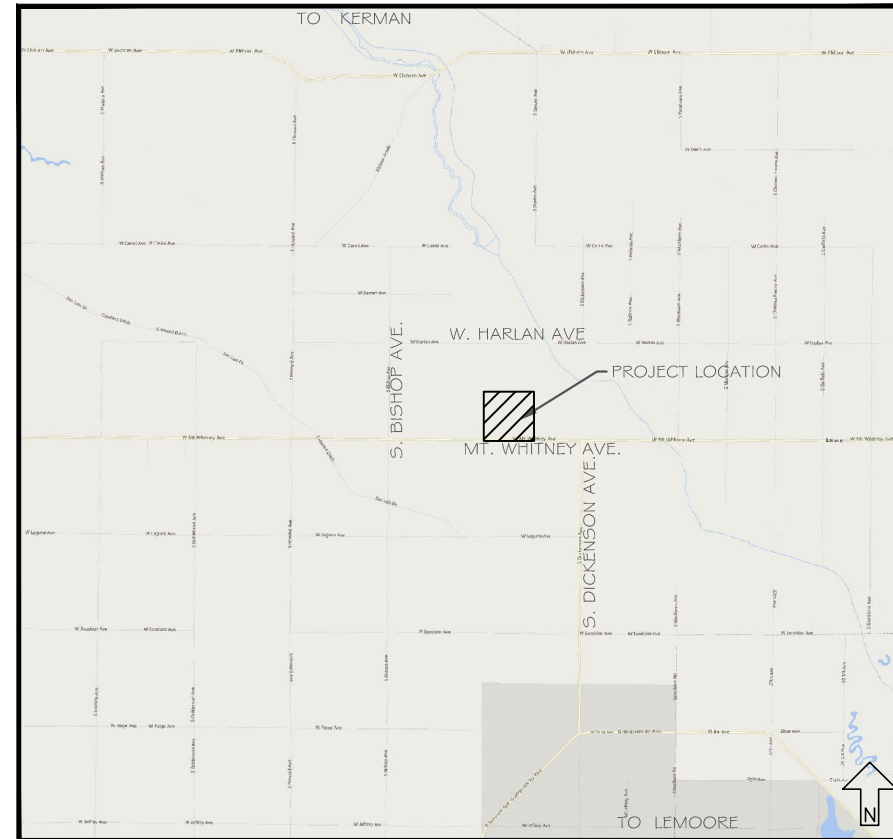
PERMANENT MONUMENTATION SHALL BE SET TO PERPETUATE THE LOCATION OF ANY MONUMENT WHICH COULD BE DAMAGED OR DESTROYED, AND A CORNER RECORD OR RECORD OF SURVEY SHALL BE FILED WITH THE COUNTY SURVEYOR PRIOR TO THE RECORDING OF A CERTIFICATE OF COMPLETION FOR THE PROJECT.

DUST CONTROL NOTES

CONTRACTOR IS REQUIRED TO COMPLY WITH GOOD HOUSE KEEPING PRACTICES

STORMWATER (SWPPP) NOTES

CONTRACTOR IS REQUIRED TO COMPLY WITH GOOD HOUSE KEEPING PRACTICES



VICINITY MAP

SCALE 1" : 2 MI

SHEET INDEX

GENERAL NOTES

- A.1 COVER SHEET
- A.2 GENERAL NOTES
- A.3 SITE PLAN - DAIRY
- A.4 SITE PLAN - DIGESTER

CIVIL DRAWINGS

- C.1 GRADING PLAN
- C.2 CROSS SECTIONS
- C.3 GRADING DETAILS

DIGESTER DRAWINGS

- D.1 COVER SYSTEM
- D.2 SLURRY SYSTEM
- D.3 MIXERS
- D.4 DETAILS

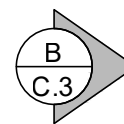
LINER DRAWINGS

- L.1 LINER - DETAILS
- L.2 LINER - DETAILS
- L.3 LINER - DETAILS

SHEET REFERENCE

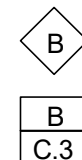
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SECTION NAME
SHEET NUMBER



DETAILS:

DETAIL NAME
SHEET NUMBER



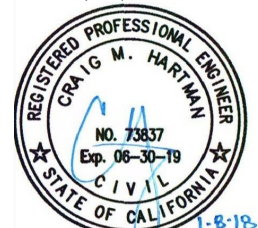
CONTACT INFO

ENGINEER:
CRAIG HARTMAN, RCE 73837
HARTMAN ENGINEERING, INC.
3121 W. CERES CT.
VISALIA, CA 93291
(559) 563-0181

DAIRY CONTACT:
LUKE VANDERHAM 10846 W.
WHITNEY AVE,
RIVERDALE, CA 93656



113 N. CHURCH ST,
SUITE 521
VISALIA, CA 93291
(559) 563-0181



PROJECT:

VANDERHAM

DAIRY
DIGESTER

CLIENT:

LUKE VANDERHAM
10846 W. WHITNEY AVE,
RIVERDALE, CA 93656

REVISION LOG:

PLOT DATE: 01/08/18

JOB NO.: 17003

SCALE: AS SHOWN

SHEET NO.: A.1

SPECIFICATIONS FOR ENGINEERED FILL MATERIAL OF ABOVE GRADE EMBANKMENTS OR AS REQUIRED

TEST PARAMETER	TEST METHOD	FREQUENCY	ACCEPTANCE CRITERIA
Compaction Curves	ASTM D1557 (Modified Proctor)	Change in material	N/A
Grain Size Distribution	ASTM D422 (Sieve)	Change in material	At least 30% passing No. 200 U.S. Standard Sieve. Per Specifications (1)
Soil Classification	ASTM D2487 (USCS)	Change in material	Suitable for compaction (2)
Maximum Particle Size	ASTM D422 (Sieve)	Change in material	½ inch, ¼ top 6 inches
Maximum Water soluble Sulfate (SO ⁴⁻) in Soil (Concrete Slab locations)	ASTM C1580	Change in material	0.2% by weight

Site Preparation Specifications:

- Clearing: Prior to earthwork operations, the area to be developed should be stripped of vegetation, organic topsoil, and cleared of cow waste and miscellaneous debris from the proposed construction areas. Deeper clearing may be required in localized areas. The actual depth of clearing should be reviewed by a licensed Geotechnical Engineer at the time of construction. The limits of stripping and clearing should be at least five feet beyond the limits of construction.
- Compaction: The scarified subgrade and subsequent fill placed at the site should be moisture conditioned to near optimum moisture content, and compacted to at least and 90 percent for 2:1 side slope pond of maximum dry density as determined by ASTM test method D1557.
- Material for fill: Fill should consist of select material. Native soil, free from organic, vegetation, and rocks or cobbles larger than three inches, may be used as fill at the site. Import material must be reviewed by licensed Geotechnical Engineer prior to transport to the site.
- Fill placement: Fill material should be moisture-conditioned to +/- 2% of the optimum moisture content prior to compaction. Fill material with excessive moisture should be allowed to dry prior to compaction or be mixed with dry soil to bring the fill to a workable moisture content. Fill should be placed in level lifts not exceeding a loose, uncompacted thickness of eight inches, and compacted as engineered fill.

Sub-grade requirements for fill only:

- Over Excavate for minimum 1 ft. to meet Engineered Fill Borrow Material Guidelines and Pond Liner Sub-grade requirements
- Well mixed soil
- 6 in max lifts
- Upper 6 inches is of fine-finished soil particles no greater than ¼ in. +

Notes:

- Field tests shall not be required, but fill borrow material specifications must meet the acceptance criteria outlined in Table 1.
- Refer to Geotechnical Report

NOTES:

THE APPROVED WORK PLAN WHICH INCLUDES THE CONSTRUCTION QUALITY ASSURANCE PLAN, OPERATION, MAINTENANCE AND MONITORING PLAN, CONSTRUCTION DRAWINGS, AND SOILS REPORT TOGETHER AS A PACKAGE ARE THE COMPLETE SPECIFICATIONS REQUIRED FOR CONSTRUCTION OF THE POND AND LINER SYSTEM.

FILL TEST SPECIFICATIONS FOR SUB-GRADE

TEST PARAMETER	TEST METHOD (1)	FREQUENCY	ACCEPTANCE CRITERIA
Uncompacted Lift Thickness	Visual Observation	Continuous	8-in.(2)
Construction Oversight	Visual Observation	Continuous	Maximum particle size 1/2 inch.
In-Place Moisture Alternative Method	ASTM D2216 (Oven Dry)	1 per every 10 Nuclear tests	+/-2% of Optimum Moisture Content per ASTM D1557
In-Place Moisture Rapid Field Methods (3)	ASTM D6938 (4) (Nuclear Method)	3 per acre per lift, min. 2 per day	+/-2% of Optimum Moisture Content per ASTM D1557
In-Place Density Alternate Method	ASTM D2937 (Drive Cylinder)	1 per every 10 Nuclear tests	90% of Maximum Dry Density per ASTM D1557
In-Place Density Rapid Field Methods (5)	ASTM D6938 (6) (Nuclear Method)	3 per acre per lift, min. 2 per day	90% of Maximum Dry Density per ASTM D1557
Subgrade Thickness	Surveying Measurement	At 50-foot centers	Minimum 1 ft.(7)
Clod Size	Visual Observation	Continuous	Per Specification

Notes:

See earthwork section for anchor trench, excavation, backfill, and compaction requirements.

- (1) ASTM Test Method, unless otherwise noted. Results of all tests performed to be reported as per method reporting criteria.
- (2) The sub-grade shall be scarified to a depth of 1 ft. lower than finished grade, compacted, and tested in accordance with the requirements of this table.
- (3) Must be verified by ASTM D2216 (Oven) overnight method once every day or once per change in material
- (4) Must be verified by ASTM D2937 (Dry Cylinder) twice per day or per change in material
- (5) Calibration Procedure: ASTM D7013-04: Standard Guide for Nuclear Surface Moisture and Density Gauge Calibration Facility Set-up

POND SPECIFICATIONS FOR SUBGRADES CUT BELOW GROUND (For Slopes 2:1 or shallower)

Side Slopes: The certified Civil Engineer/CQA Chief Officer shall walk final side slopes after cut by heavy equipment and confirm no SW or SP soils and no loose soils. All SW, SP, or soils that are not amenable to a firm and unyielding subgrade shall be removed and replaced down to a minimum 3 ft. below sloped surface. Any soils removed and replaced shall meet the Engineered Fill requirements in Table 1.

Pond Bottom: 1. An as-built survey of the pond bottom shall take place after subgrade construction to insure minimum slopes are achieved. Pond Bottom shall be tested per criteria below. Any soils not meeting the requirements below (i.e. that is not firm and unyielding) shall be removed and replaced down to a minimum 2 ft. Any soils removed and replaced shall meet the Engineered Fill requirements in Table 1. The Civil Engineer may make determination of soils meeting requirements or not based upon visual inspection which shall be included in the Subgrade Certification Report and signed and sealed by a Civil Engineer and CQA Officer.

TEST PARAMETER	TEST METHOD (1)	FREQUENCY	ACCEPTANCE CRITERIA
In-Place Density Rapid Field Methods (2)	ASTM D6938 (3) (Nuclear)	3 per acre	90% of Maximum Dry Density per ASTM D1557
In-Place Moisture Rapid Field Methods (4)	ASTM D6938 (5) (Nuclear Methods)	3 per acre per lift, min. 2 per day	+/-2% of Optimum Moisture Content per ASTM D1557
Construction Oversight	Visual Observation	Continuous	Maximum particle size 1/2 inch.
Subgrade Slope	Surveying Measurement	200 ft. maximum grid	Min 1%

60 MIL HDPE GEOMEMBRANE CONSTRUCTION QUALITY ASSURANCE (CQA)

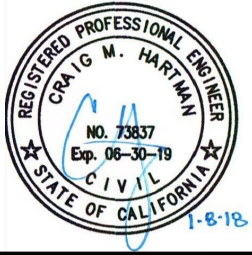
TEST PARAMETER	TEST METHOD	FREQUENCY	ACCEPTANCE CRITERIA
Thickness (min. ave.) -Lowest individual for 8 out of 10 values -Lowest individual for any of the 10 values	ASTM D5994	1 per lot or 1 per 70,000 ft ² , whichever is greater	Nom. (-5%) -10% -15%
Tensile Properties -yield strength -break strength -strain at yield -break strength	ASTM D6693 Type IV	1 per lot or 1 per 70,000 ft ² , whichever is greater	≥126 lb./in. ≥90 lb./in. ≥12% ≥100%
Puncture Resistance	ASTM D4833	1 per lot or 1 per 70,000 ft ² , whichever is greater	108 lb. (min.)
Tear Resistance	ASTM D1004, Die C	1 per lot or 1 per 70,000 ft ² , whichever is greater	42 lb. (min.)
Interface Shear -60-mil HDPE/subgrade soil -Drainage geocomposite	ASTM D5321 ASTM D6243	2 tests or 1 per 200,000 ft ² , whichever is greater	
Seam Shear	ASTM D6392	1 test per 500 lineal feet or per GRI GM-14 and 20.	95% of min. yield strength
Seam Peel -Extrusion -Fusion	ASTM D6392	1 test per 500 lineal feet or per GRI GM-14 and 20.	72% yield & ftb (1)
Non-destructive Seam Test	ASTM D5820 (Pressure Test)	Continuous	35 psi for 5 min.
	ASTM D5641 (Vacuum Box)		5 psi for 15 sec.
	ASTM D5641 (Spark Test)		No Spark
Electric Leak Location	ASTM D7002 (Water Puddle)	Once on constructed liner	Max 1 mm. diameter hole sensitivity
	ASTM D6747 (Selection Process)		
	ASTM D7007 (Water /Earth)		Max 6 mm. diameter hole sensitivity
	ASTM D7240 (Spark Test 2011)		

Notes:

- ftb: Film Tear Bond



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PROJECT:

VANDERHAM

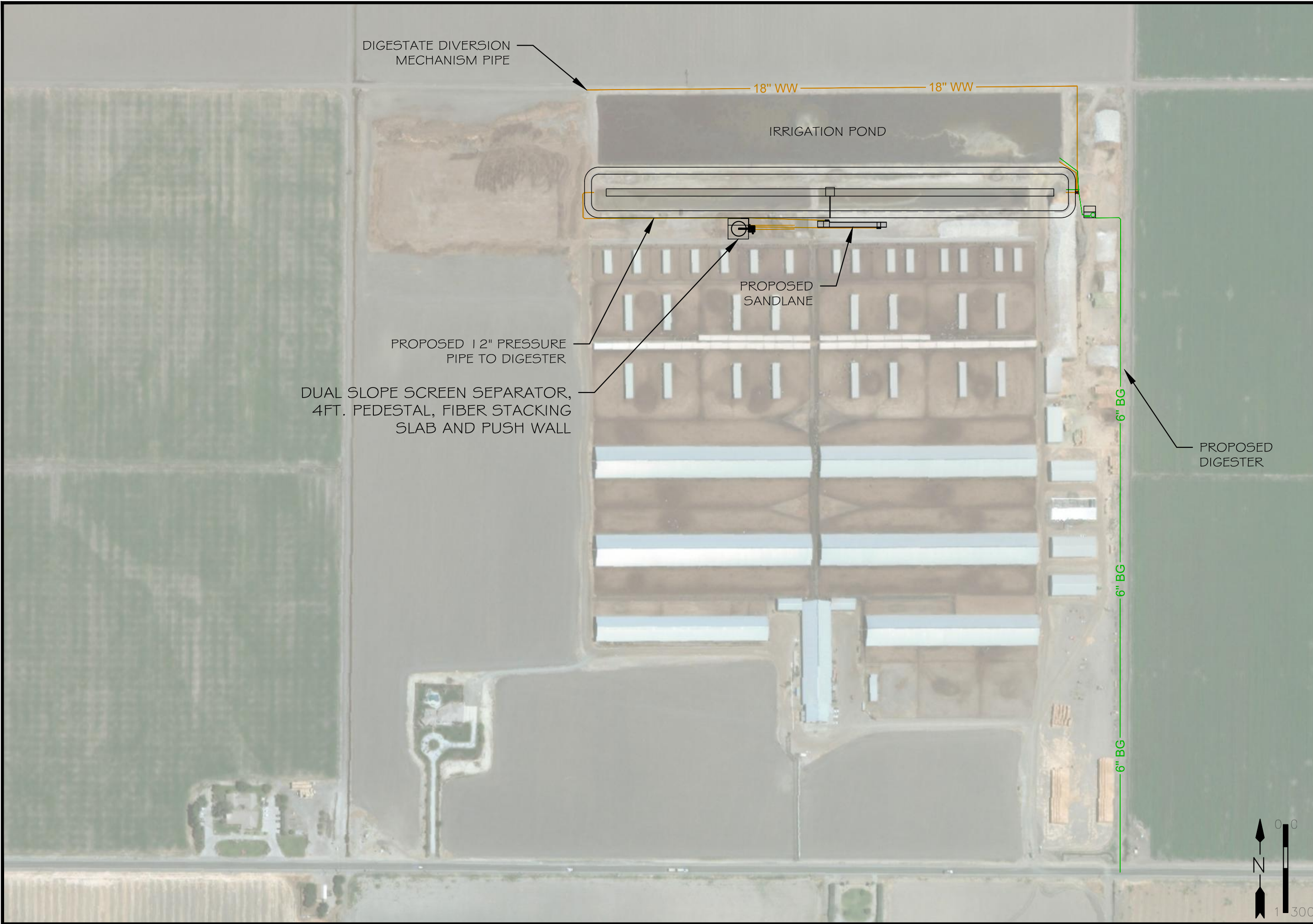
DAIRY
DIGESTER

CLIENT:
LUKE VANDERHAM
10846 W. WHITNEY AVE,
RIVERDALE, CA 93656

GENERAL NOTES
CONSTRUCTION

REVISION LOG:

PLOT DATE: 01/08/18
JOB NO.: 17003
SCALE: AS SHOWN
SHEET NO.: A.2



DIGESTATE DIVERSION MECHANISM PIPE

18" WW

18" WW

IRRIGATION POND

PROPOSED SANDLANE

PROPOSED 12" PRESSURE PIPE TO DIGESTER

DUAL SLOPE SCREEN SEPARATOR, 4FT. PEDESTAL, FIBER STACKING SLAB AND PUSH WALL

PROPOSED DIGESTER

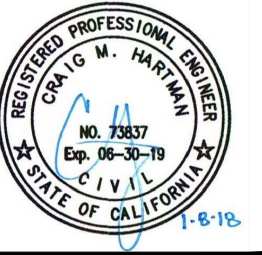
6" BG

6" BG

6" BG



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PROJECT:

VANDERHAM

**DAIRY
DIGESTER**

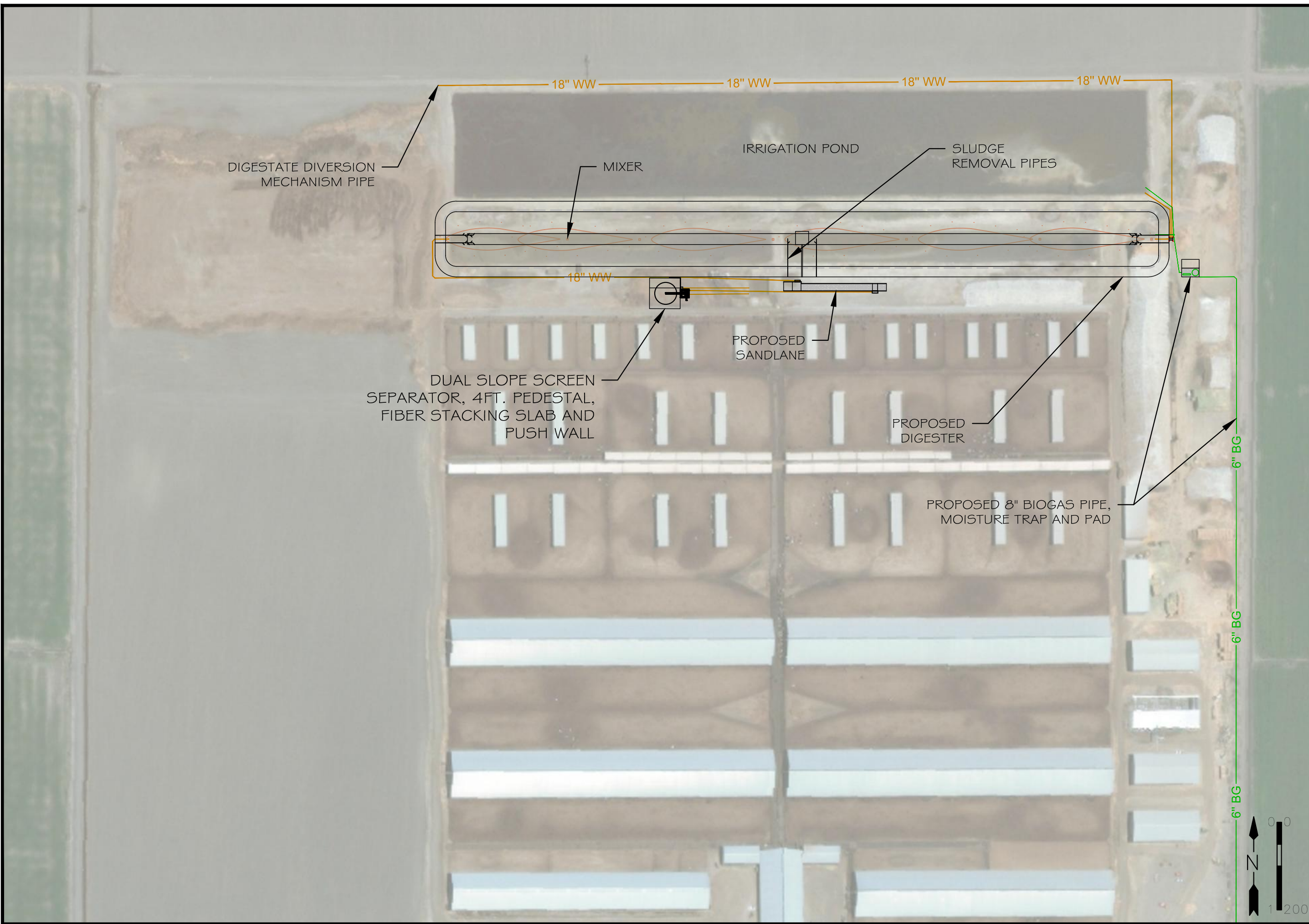
CLIENT:
LUKE VANDERHAM
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RIVERDALE, CA 93656

SITE PLAN

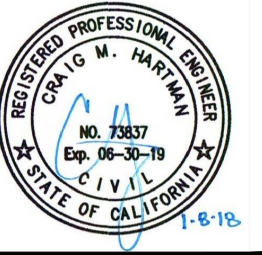
DIGESTER

REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	A.3



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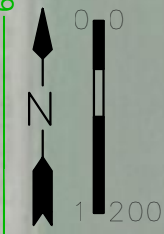
PROJECT:
VANDERHAM

DAIRY
DIGESTER

CLIENT:
LUKE VANDERHAM
10846 W. WHITNEY AVE,
RIVERDALE, CA 93656

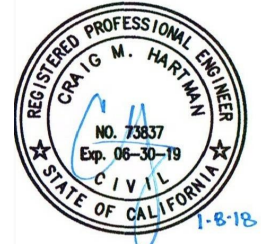
SITE PLAN	DAIRY
	REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	A.4





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PROJECT:
VANDERHAM
DAIRY
DIGESTER

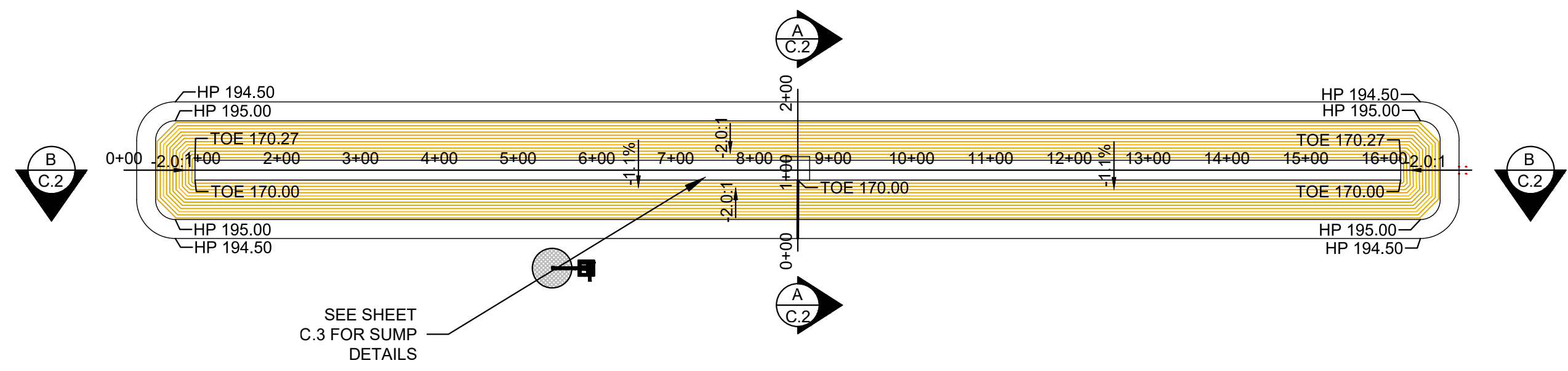
CLIENT:
LUKE VANDERHAM
10846 W. WHITNEY AVE,
RIVERDALE, CA 93656

GRADING PLAN

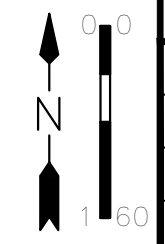
DIGESTER

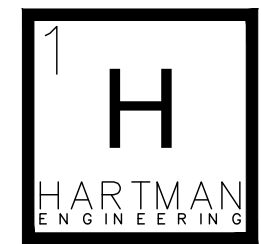
REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	C.1



- GRADING NOTES:**
1. CONTRACTOR SHALL INFORM ENGINEER OF ANY DISCREPANCIES OR ERRORS IN PLANS PRIOR TO CONSTRUCTION.
 2. CONTRACTOR SHALL MEET SPECIFICATIONS OF TABLE 2 WITHIN THE APPROVED CONSTRUCTION QUALITY CONTROL PLAN.
 3. CONTRACTOR SHALL SMOOTH DRUM ROLL FINAL SURFACE AND REMOVE ANY ROCK OR MATERIAL GREATER THAN 1/2 INCH.





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PROJECT:
VANDERHAM

DAIRY
DIGESTER

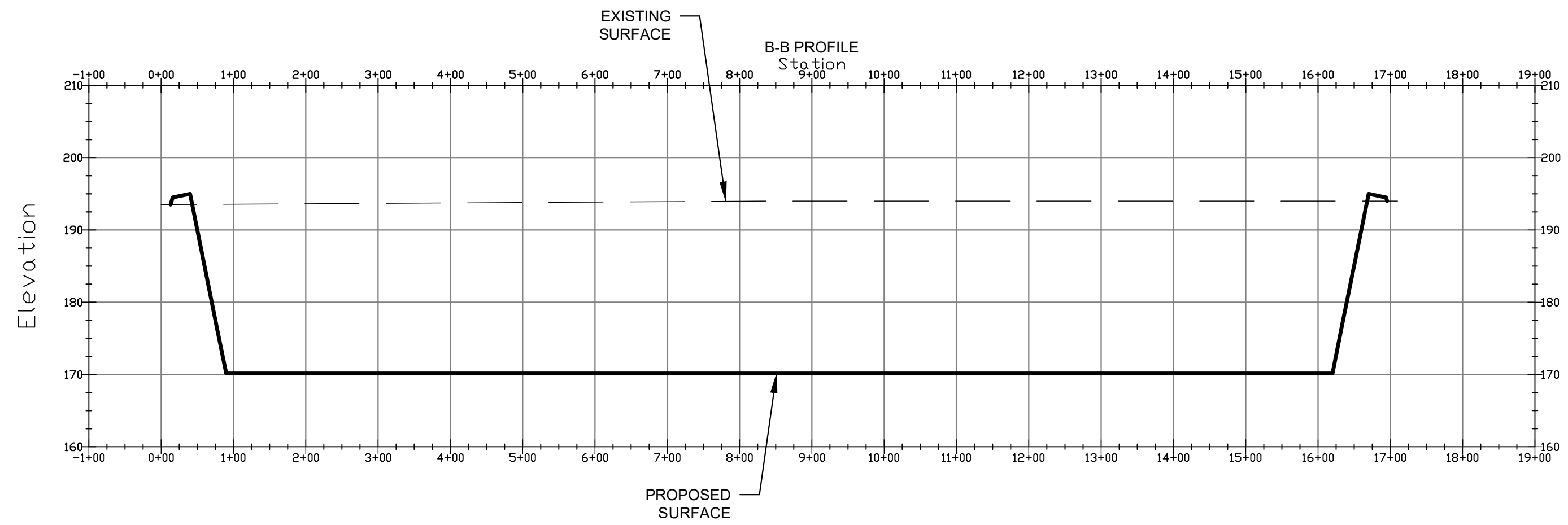
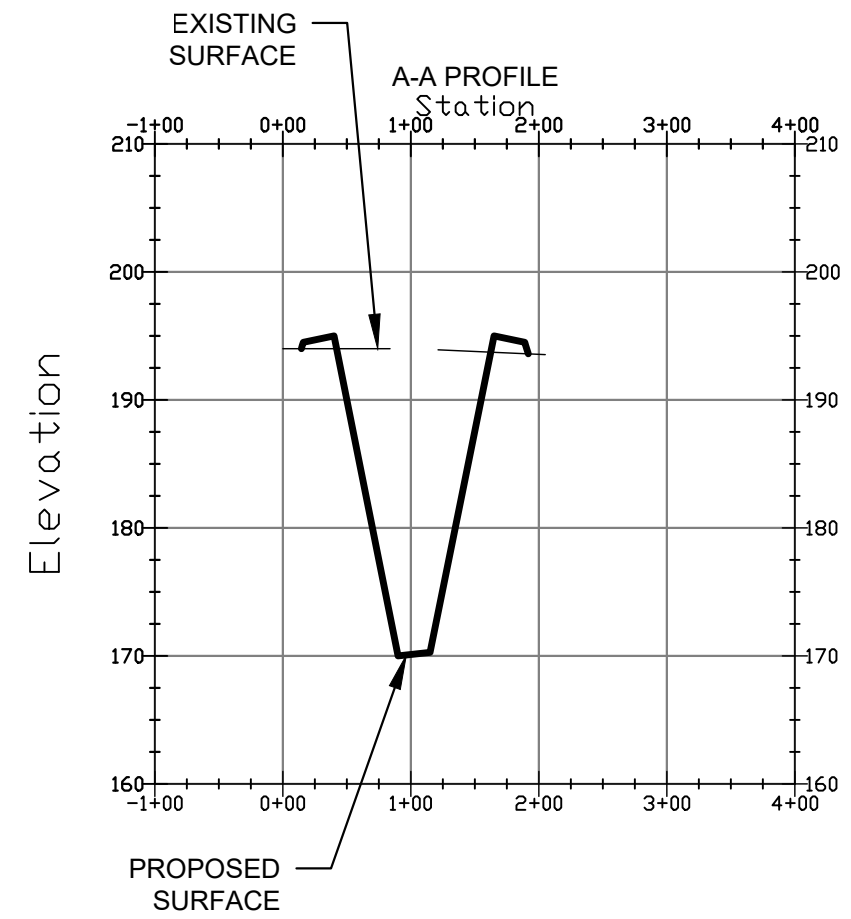
CLIENT:
LUKE VANDERHAM
10846 W. WHITNEY AVE,
RIVERDALE, CA 93656

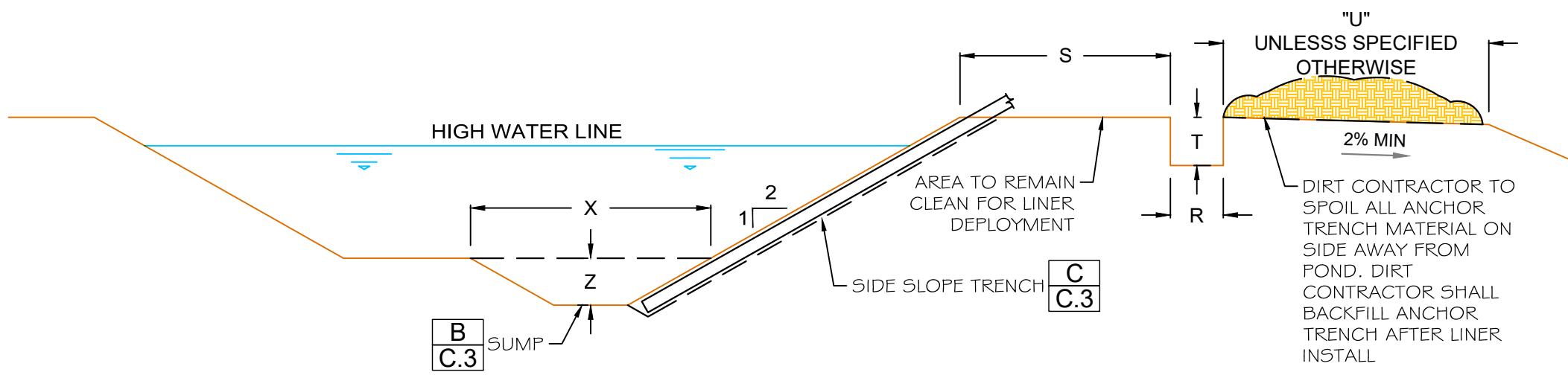
GRADING SECTIONS

DIGESTER

REVISION LOG:

PLOT DATE: 01/08/18
JOB NO.: 17003
SCALE: AS SHOWN
SHEET NO.: C.2

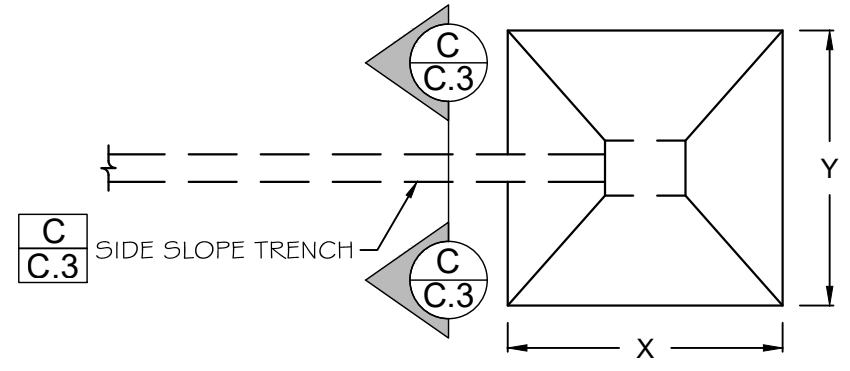




A ANCHOR TRENCH / SUMP PROFILE VIEW

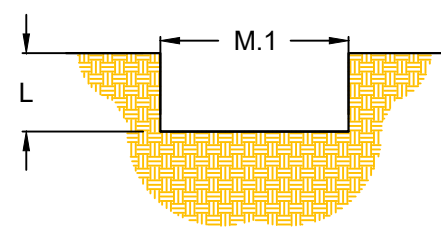
N.T.S.

DIMENSION TABLE (FT.)	
LETTER	POND
L	1.7'
M.1	2.7'
U	20'
R	1.5'
S	3'
T	3'
X	30'
Y	30'
Z	5.5'



B SUMP PLAN VIEW

N.T.S.

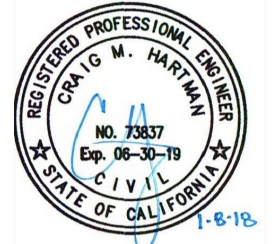


C SIDE SLOPE TRENCH

N.T.S.



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PROJECT:
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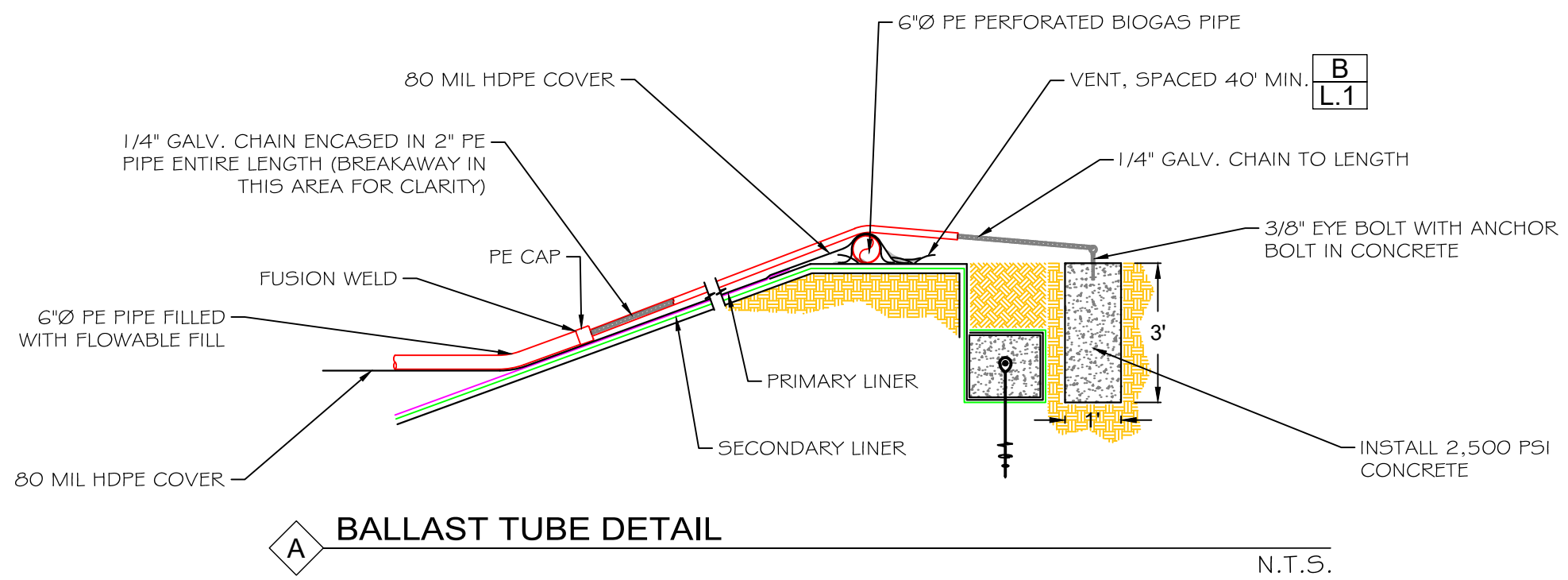
CLIENT:
LUKE VANDERHAM
10846 W. WHITNEY AVE,
RIVERDALE, CA 93656

GRADING DETAIL
DIGESTER

REVISION LOG:

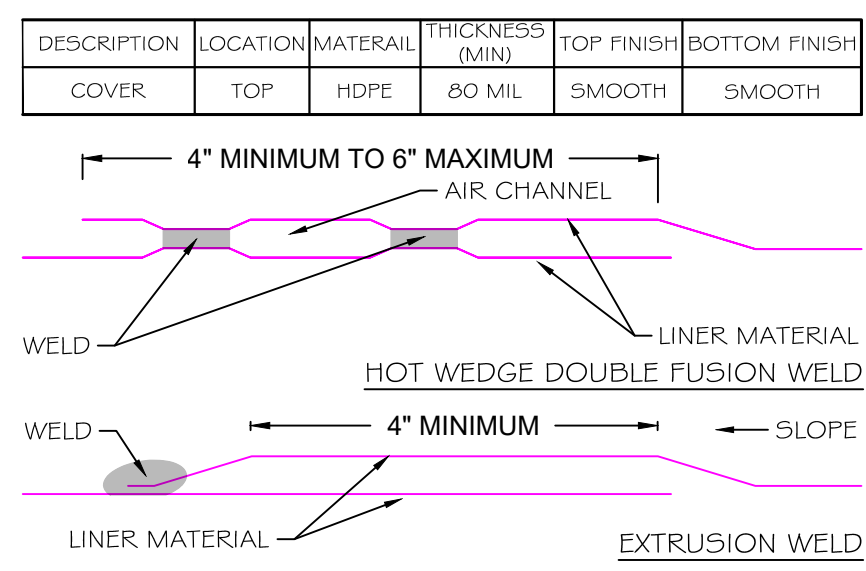
PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	C.3

COVER SYSTEM	DIGESTER	REVISION LOG:



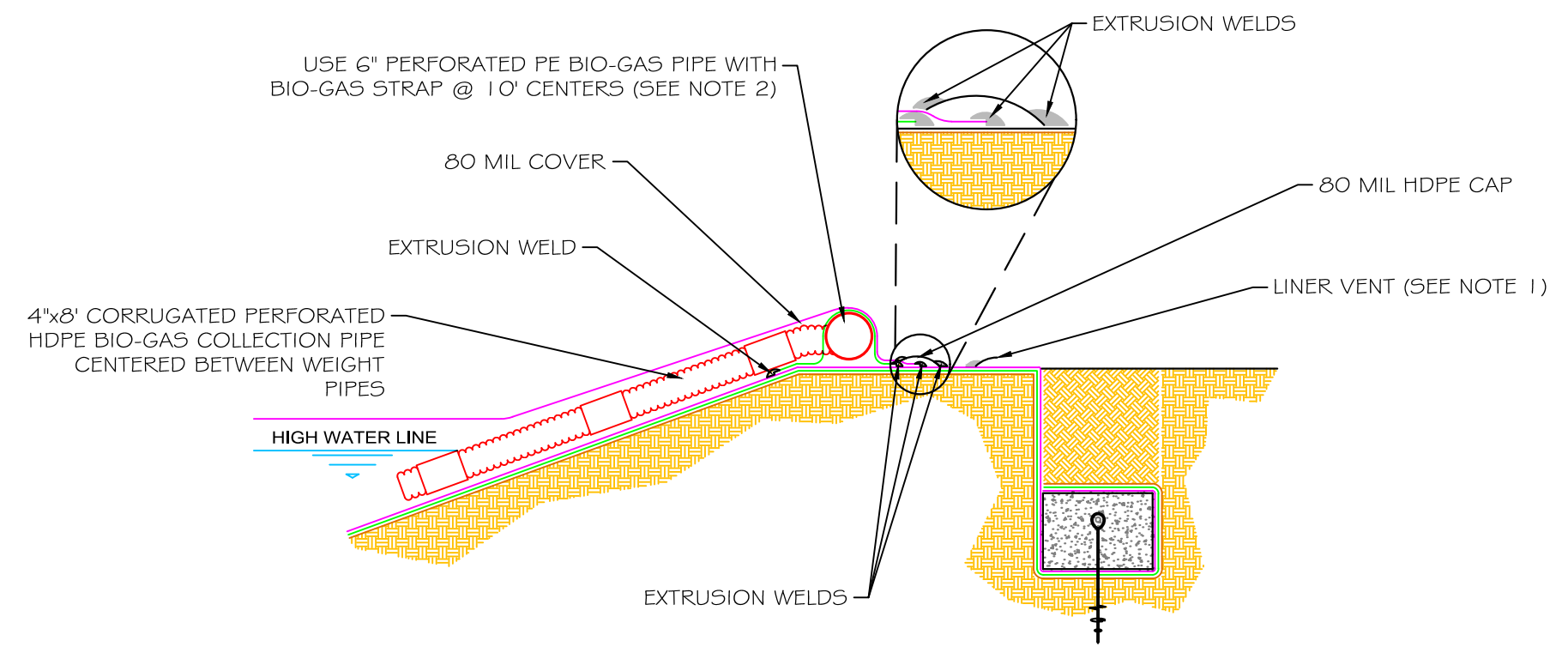
A BALLAST TUBE DETAIL

N.T.S.



C HDPE COVER-SMOOTH WELDS

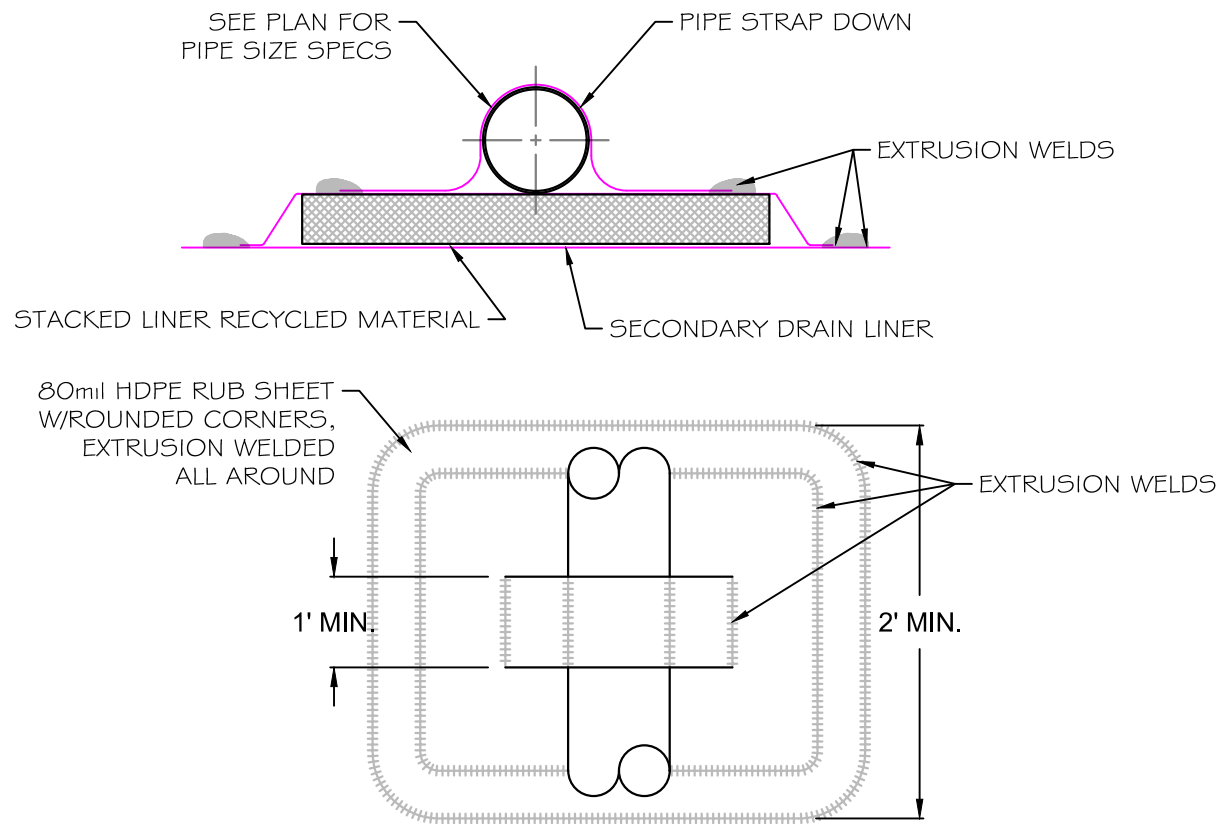
N.T.S.



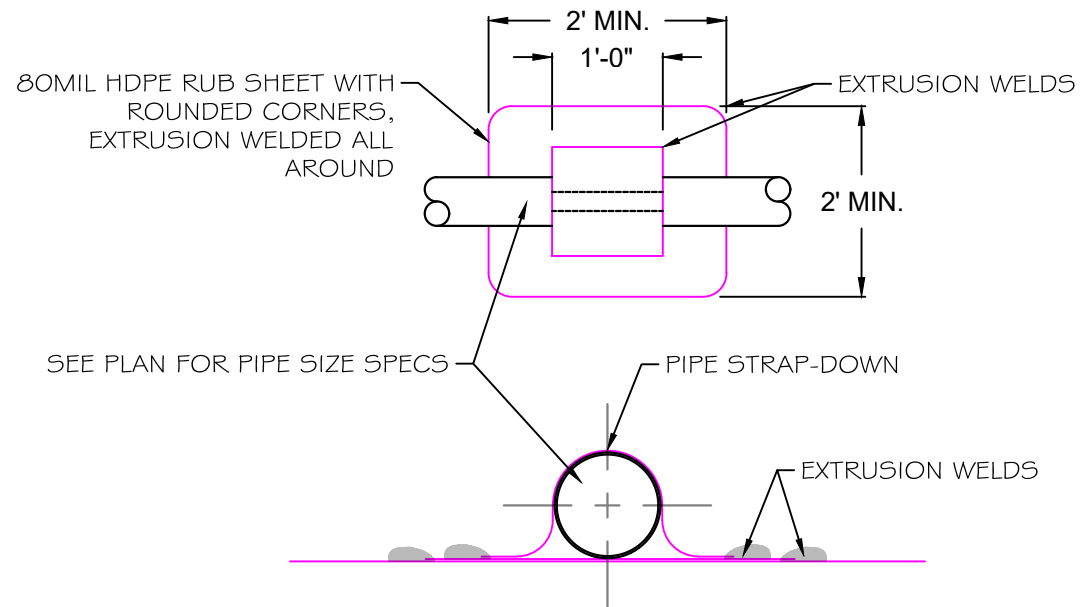
B BIO-GAS PIPING DETAIL

N.T.S.

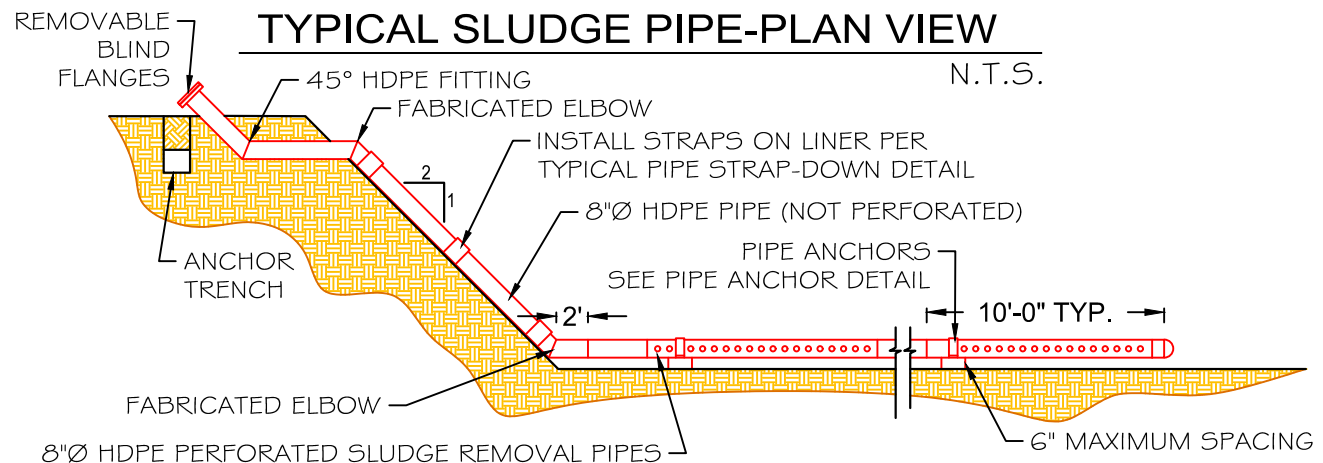
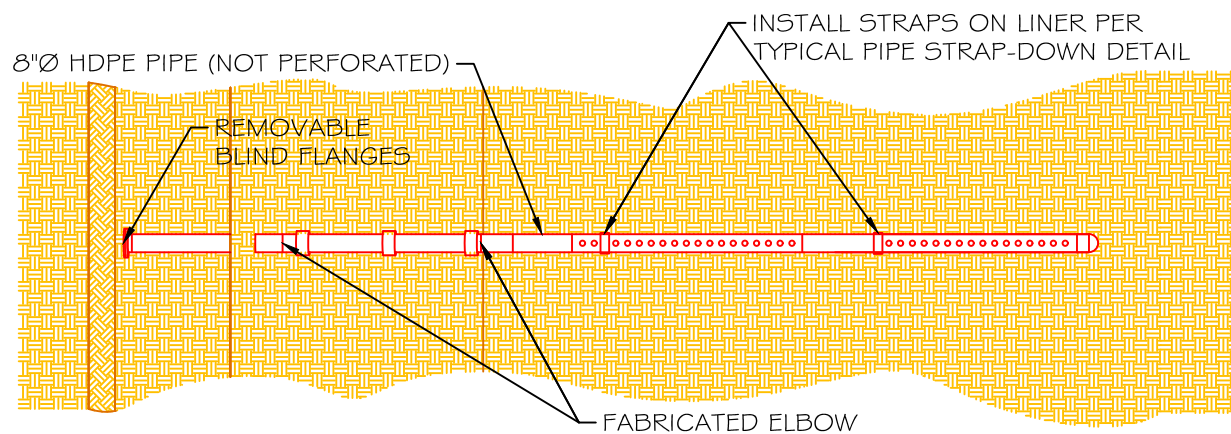
- NOTES:
1. GAS VENTS AROUND PERIPHERY OF LAGOON @ MAX. 40' O.C.
 2. STRAP NOT WELDED TO BIO-GAS HEADER PIPE.
 3. WRAP 60 MIL PRIMARY LINER OVER CONCRETE & EXTRUSION WELD.



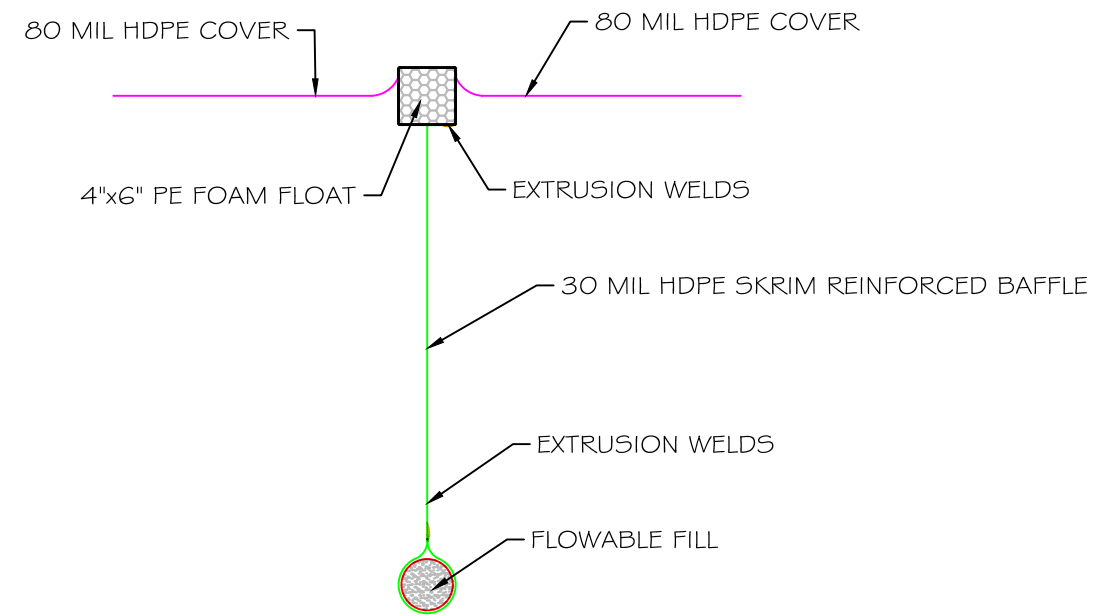
A **SLUDGE REMOVAL PIPE ANCHOR DETAIL**
 NOTE: ANCHOR TO BE USED ON HORIZONTAL SURFACES ONLY, AT BOTTOM OF LAGOON N.T.S.



B **TYPICAL PIPE STRAP-DOWN DETAIL**
 NOTE: MAXIMUM 10' O.C. SPACING BETWEEN PIPE STRAP-DOWNS, U.N.O. N.T.S.



C **TYPICAL SLUDGE PIPE-PROFILE**
 N.T.S.



D **BAFFLE SECTION**
 N.T.S.



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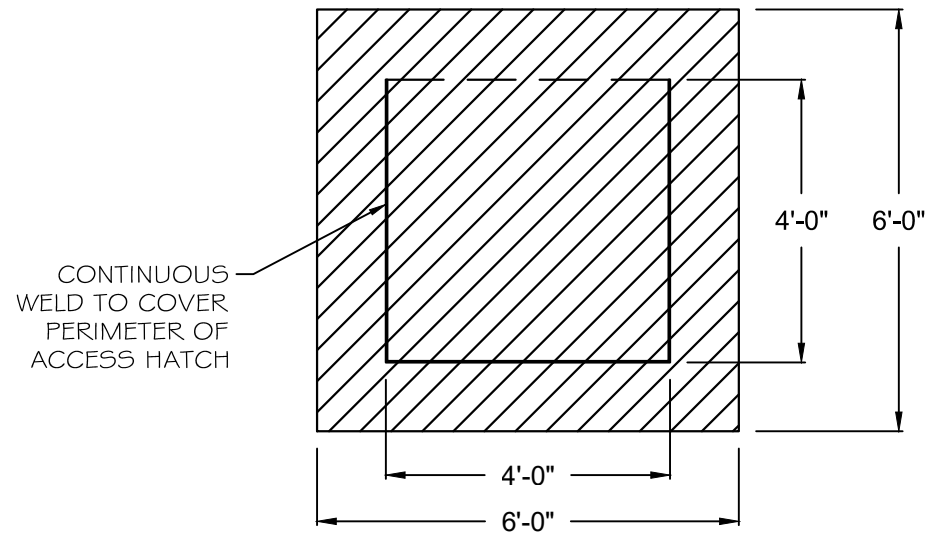
PROJECT:
VANDERHAM
DAIRY
DIGESTER

CLIENT:
 LUKE VANDERHAM
 10846 W. WHITNEY AVE,
 RIVERDALE, CA 93656

SLURRY REMOVAL
 SYSTEM
 DIGESTER

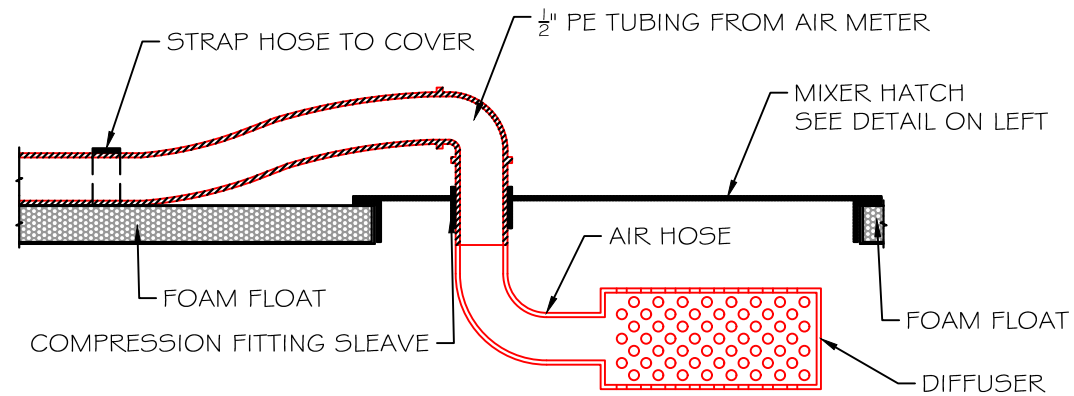
REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	D.2



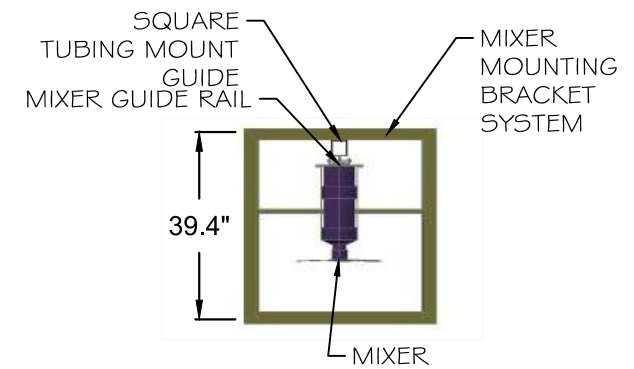
MIXER - HATCH

N.T.S.



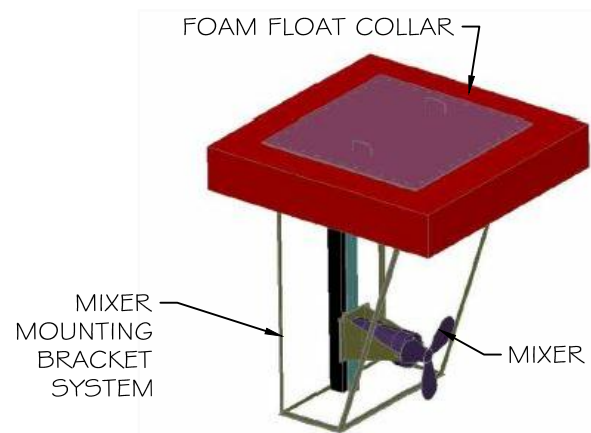
AIR INJECTION & MIXER HATCH

N.T.S.



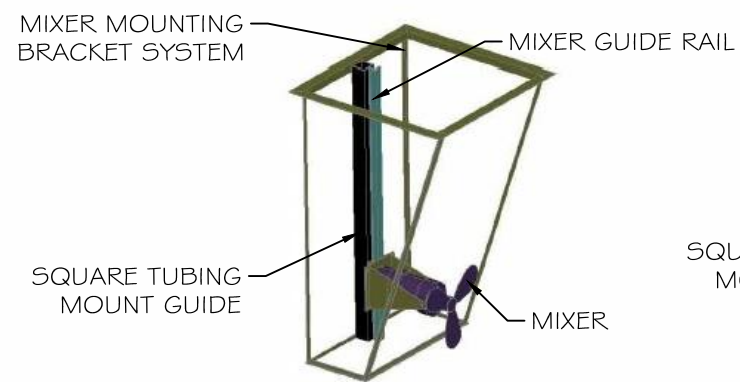
MIXER - PLAN VIEW

N.T.S.



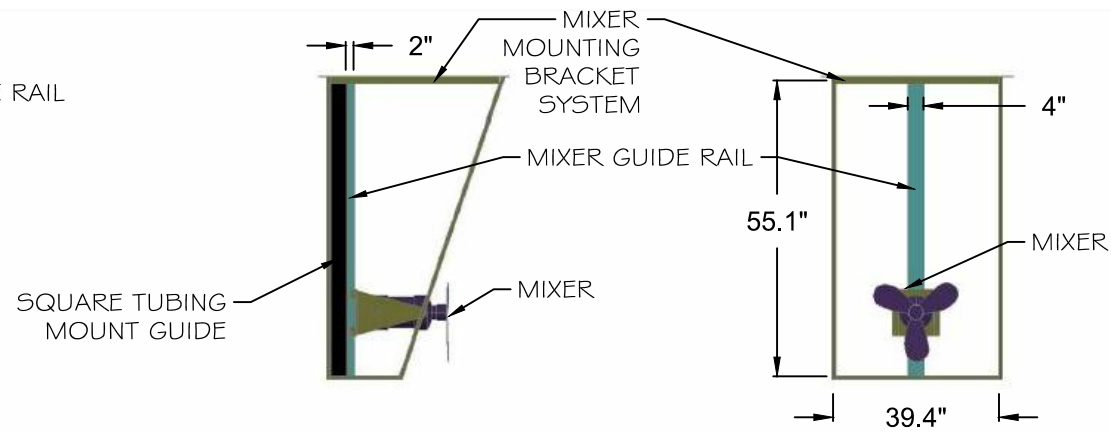
MIXER - ISOMETRIC W/FLOAT IN PLACE

N.T.S.



MIXER - ISOMETRIC

N.T.S.



MIXER - SIDE VIEW

N.T.S.

MIXER - FRONT VIEW

N.T.S.



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PROJECT:
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DIGESTER

CLIENT:
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RIVERDALE, CA 93656

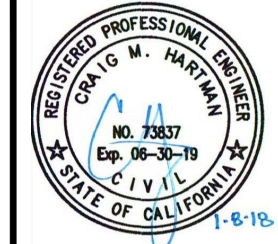
MIXER
DETAILS

REVISION LOG:

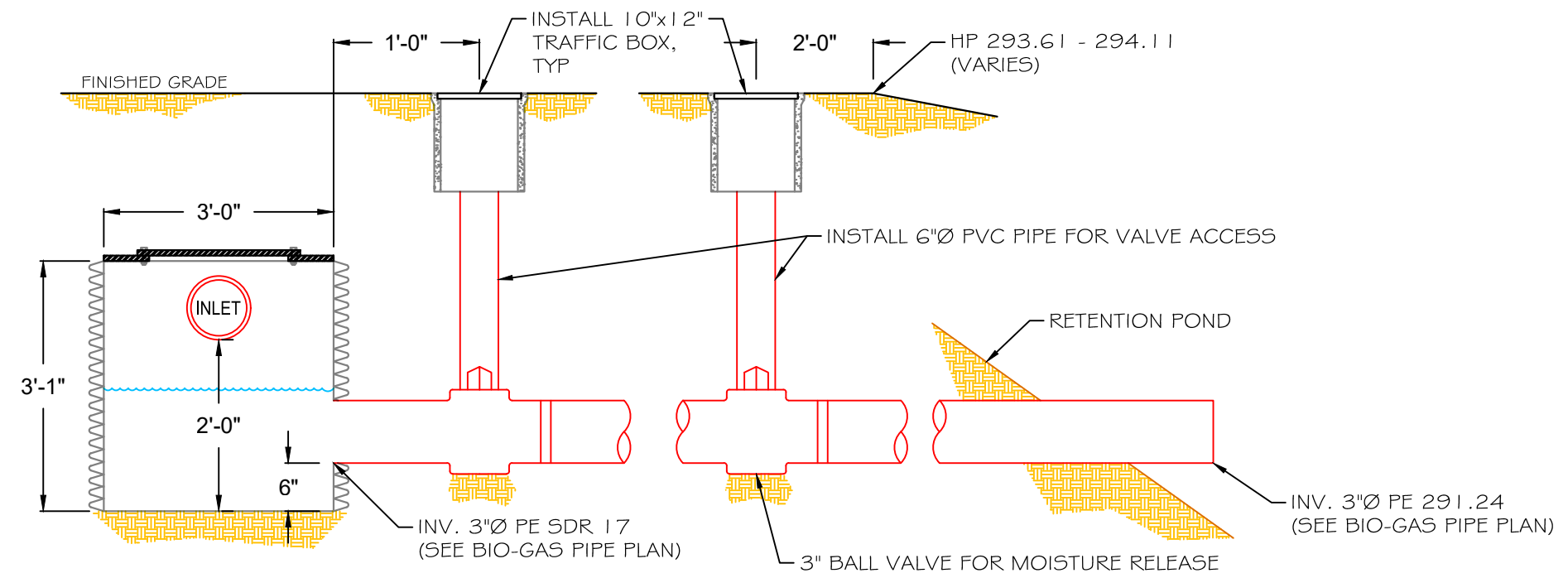
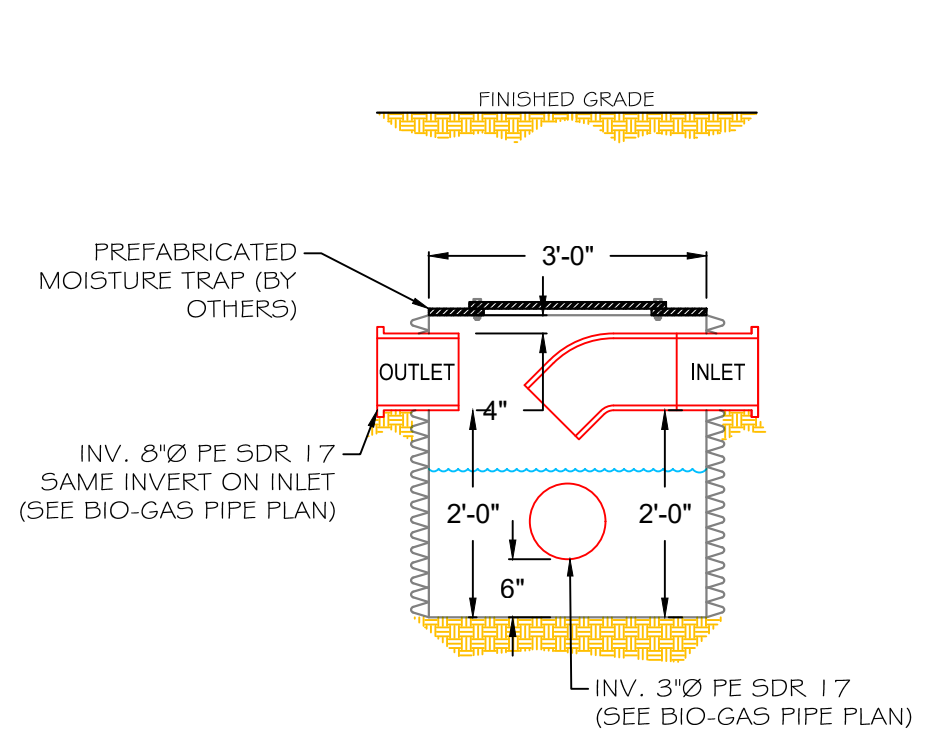
PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	D.3



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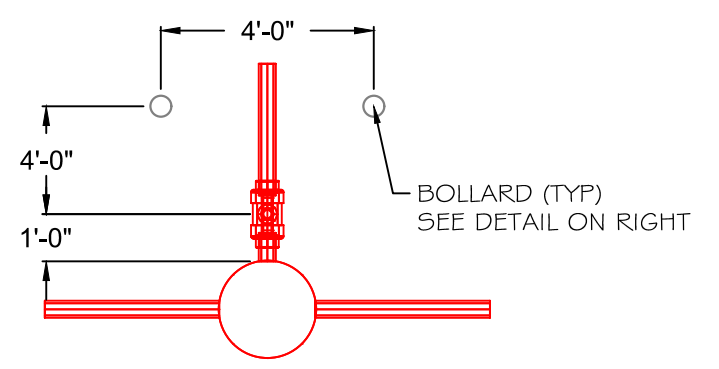


PROJECT:
VANDERHAM
DAIRY
DIGESTER
CLIENT:
LUKE VANDERHAM
10846 W. WHITNEY AVE,
RIVERDALE, CA 93656



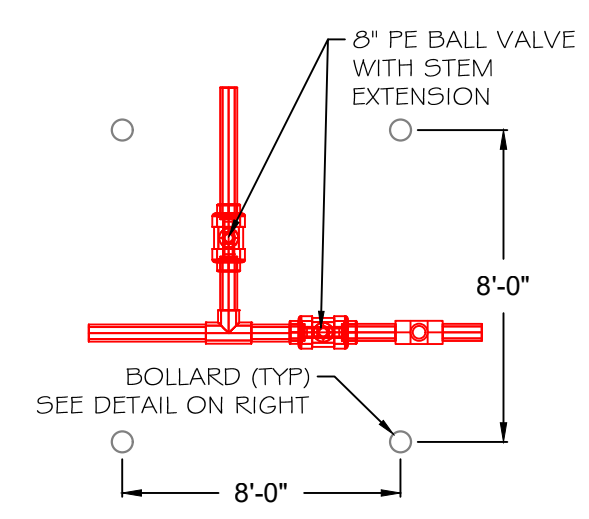
MOISTURE TRAP DETAIL

N.T.S.



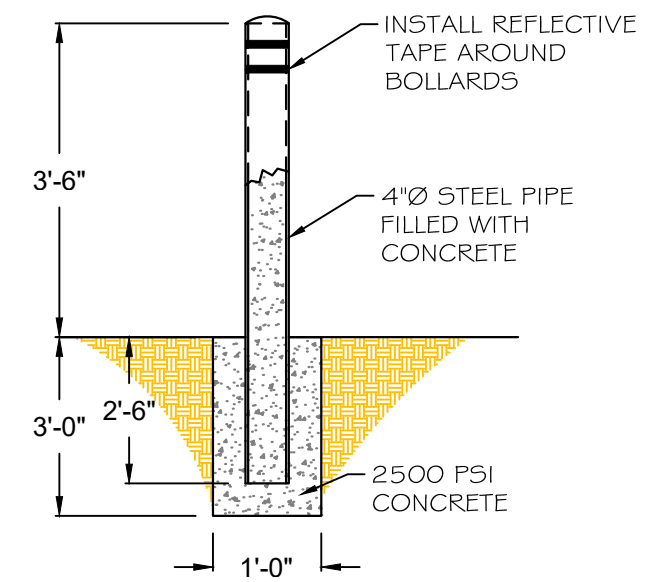
BIO-GAS VALVE

N.T.S.



BALL VALVE JUNCTION

N.T.S.



BOLLARD DETAIL

N.T.S.

DETAILS

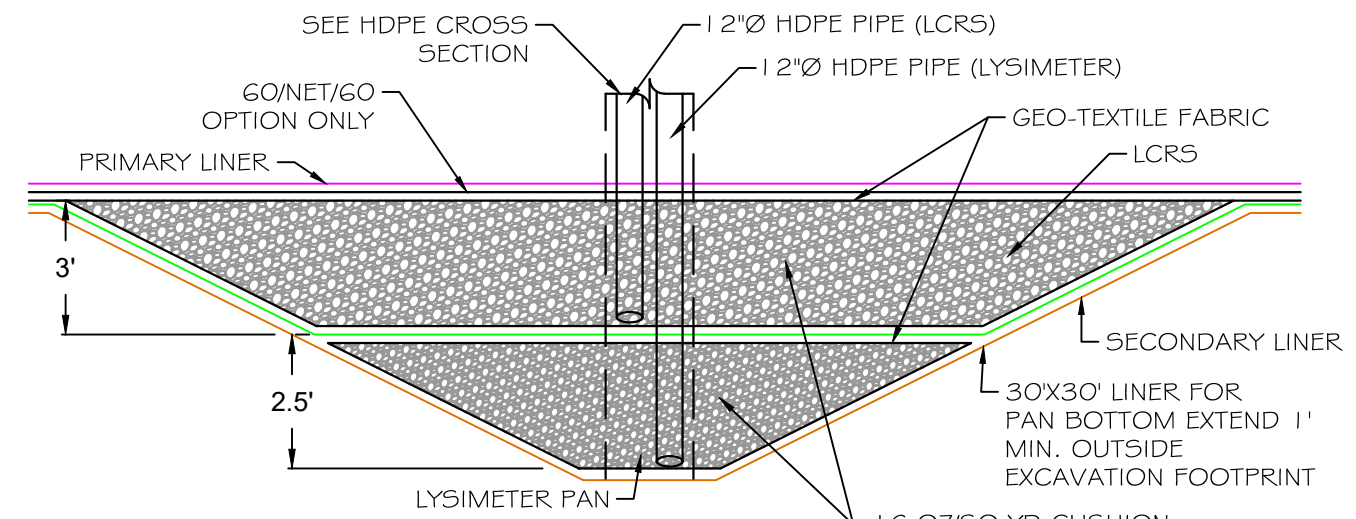
REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
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SHEET NO.:	D.4

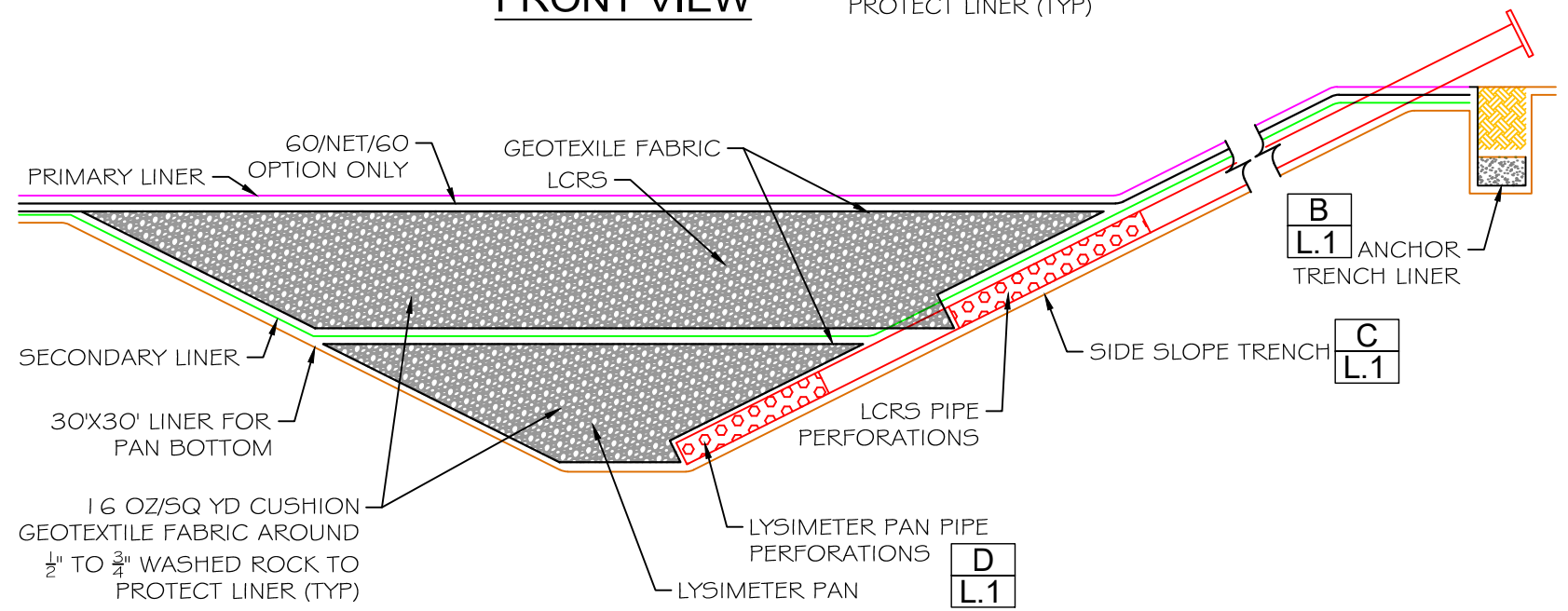
GENERAL NOTES
LINER
DETAILS

REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	L.1



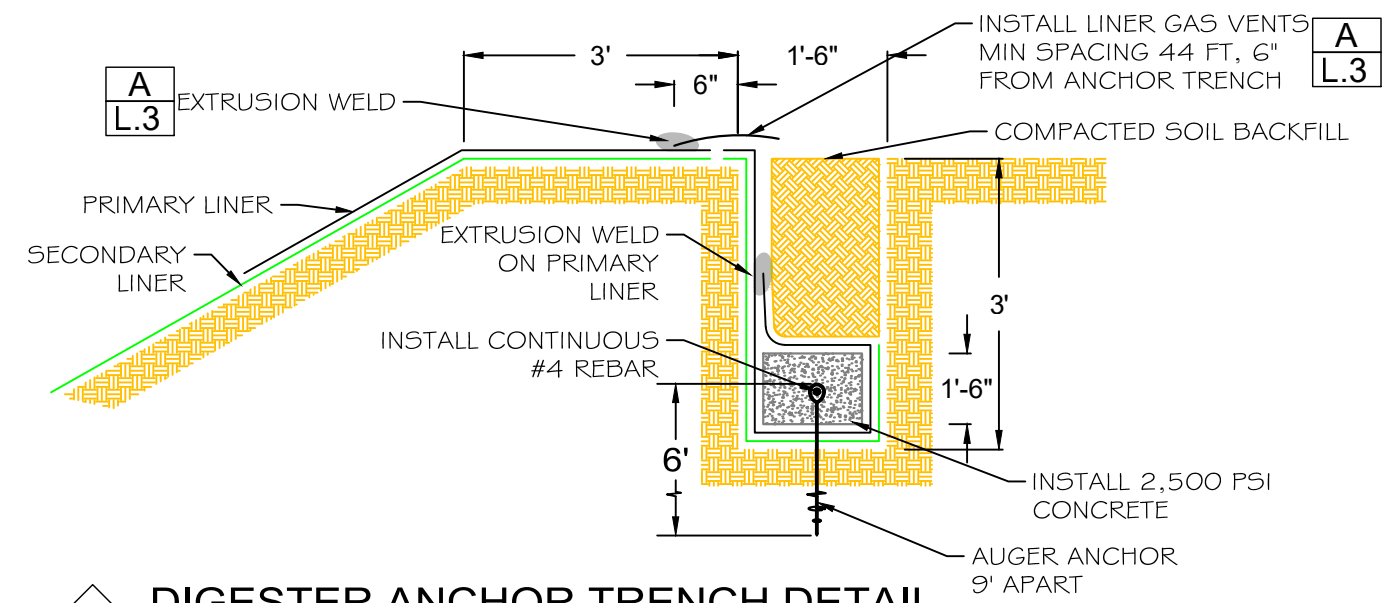
FRONT VIEW



SIDE VIEW

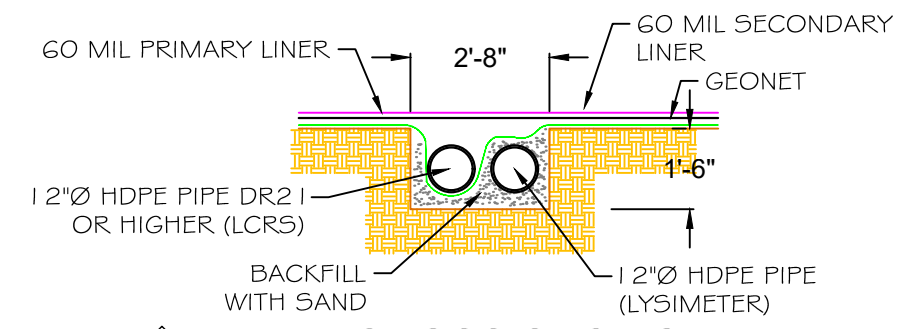
LCRS, LYSIMETER AND DRAINAGE SUMP PROFILE

N.T.S.



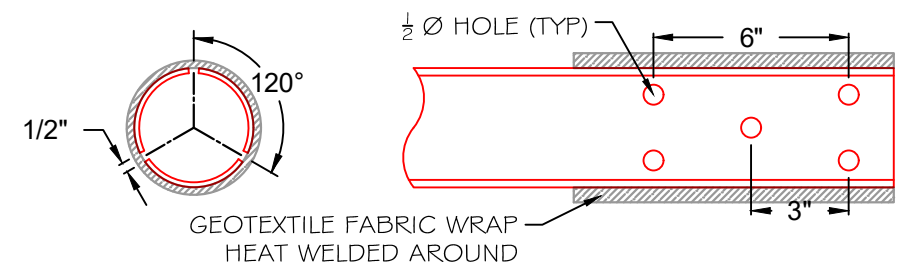
DIGESTER ANCHOR TRENCH DETAIL

NOTES: 1. CONTRACTOR TO USE ANCHOR SYSTEM OR PROVIDE DETAILS AND DESIGN FOR ALTERNATIVE TO BE APPROVED BY ENGINEER. N.T.S.



HDPE CROSS SECTION

N.T.S.

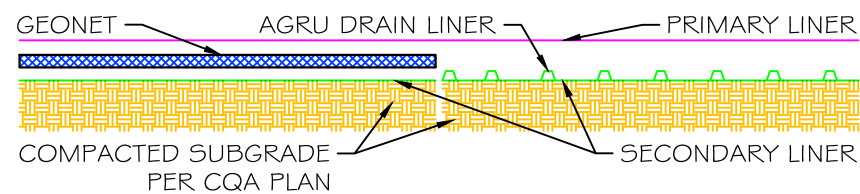


TYPICAL PERFORATION DETAIL

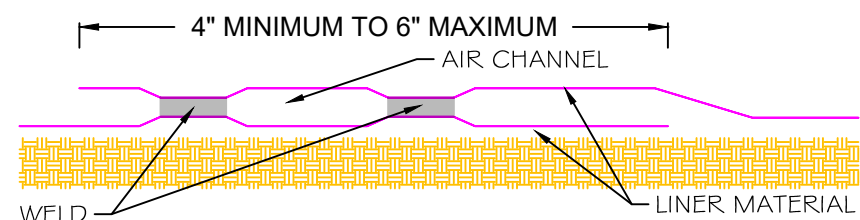
N.T.S.

OPTIONAL TIER 1 DOUBLE LINER-LAYERING SYSTEM WITH DRAIN LINER VERIFY WITH OWNER

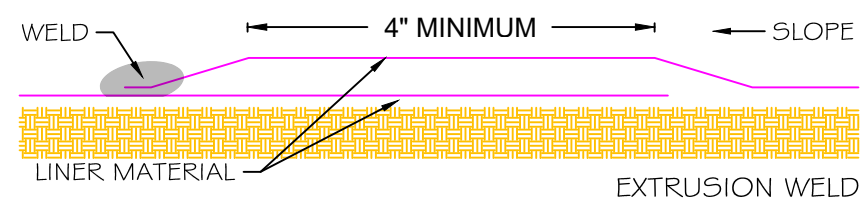
SMOOTH/STUDDED/ 60-NET-60 LINER LAYERS					
DESCRIPTION	LOCATION	MATERIAL	THICKNESS (MIN)	TOP FINISH	BOTTOM FINISH
PRIMARY LINER	TOP	HDPE	60 MIL	SMOOTH	SMOOTH CONDUCTIVE
DRAINAGE NET	MIDDLE	HDPE	200 MIL	N/A	N/A
SECONDARY LINER	BOTTOM	HDPE	60 MIL	SMOOTH	SMOOTH



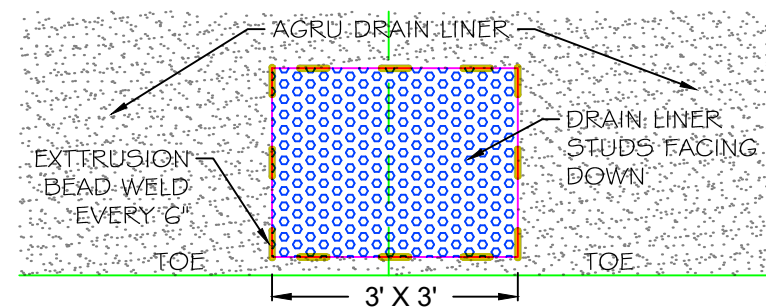
A DOUBLE LAYER 60-NET-60 DOUBLE LAYER WITH DRAIN LINER N.T.S.



HOT WEDGE DOUBLE FUSION WELD

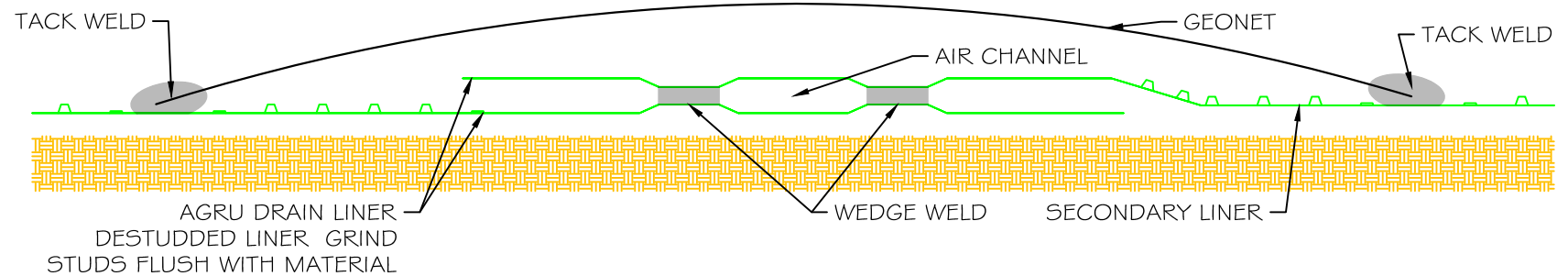
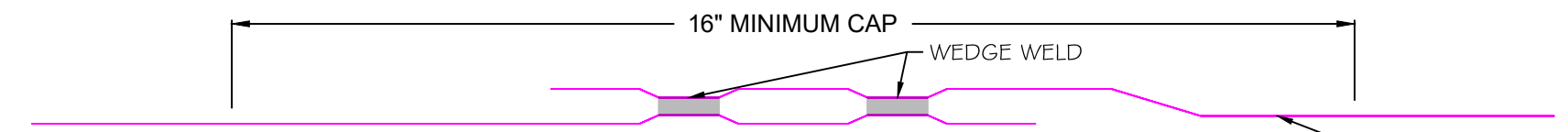
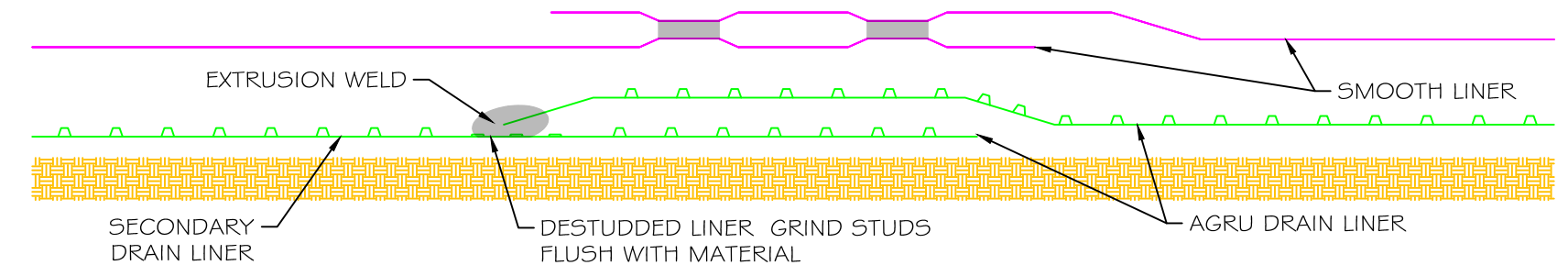


B HDPE LINER-SMOOTH WELDS N.T.S.



DRAIN LINER SMOOTH END WELD PATCH

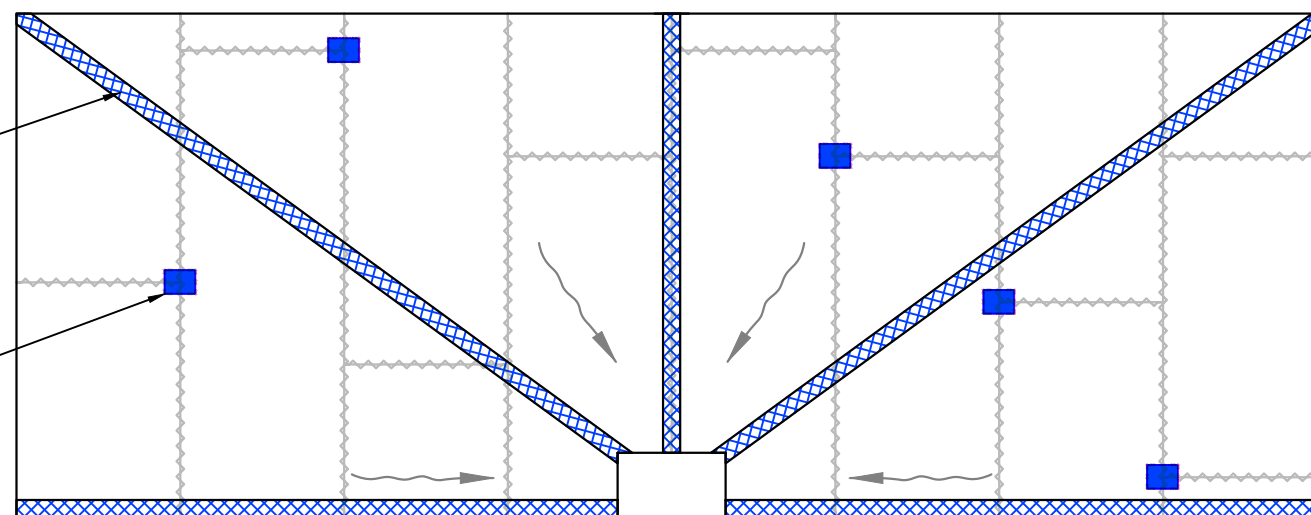
C 3'X3' DRAIN PATCH WELD N.T.S.



D AGRU DRAIN LINER END/END WELD
NOTE: AGRU DRAIN LINER DOES NOT HAVE STUDS ALONG THE EDGE SO EDGE/EDGE SEAMS DO NOT REQUIRE DRINGING OR CAP. N.T.S.

2' WIDE STRIP OF 200 MIL GEONET. TACK WELD AT 8'

C 3'X3' DRAIN PATCH
P.3



NOTE: CQA OFFICER IS RESPONSIBLE TO ADD PATCHES AS NEEDED FOR FLOW

E AGRU DRAIN LINER CROSS SEAM NET PLAN VIEW
NOTE: TYPICAL OF ALL DRAIN LINERS N.T.S.

H
HARTMAN
ENGINEERING

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(559) 563-0181

REGISTERED PROFESSIONAL ENGINEER
CRAIG M. HARTMAN
NO. 73837
Exp. 06-30-19
CIVIL
STATE OF CALIFORNIA 1-8-18

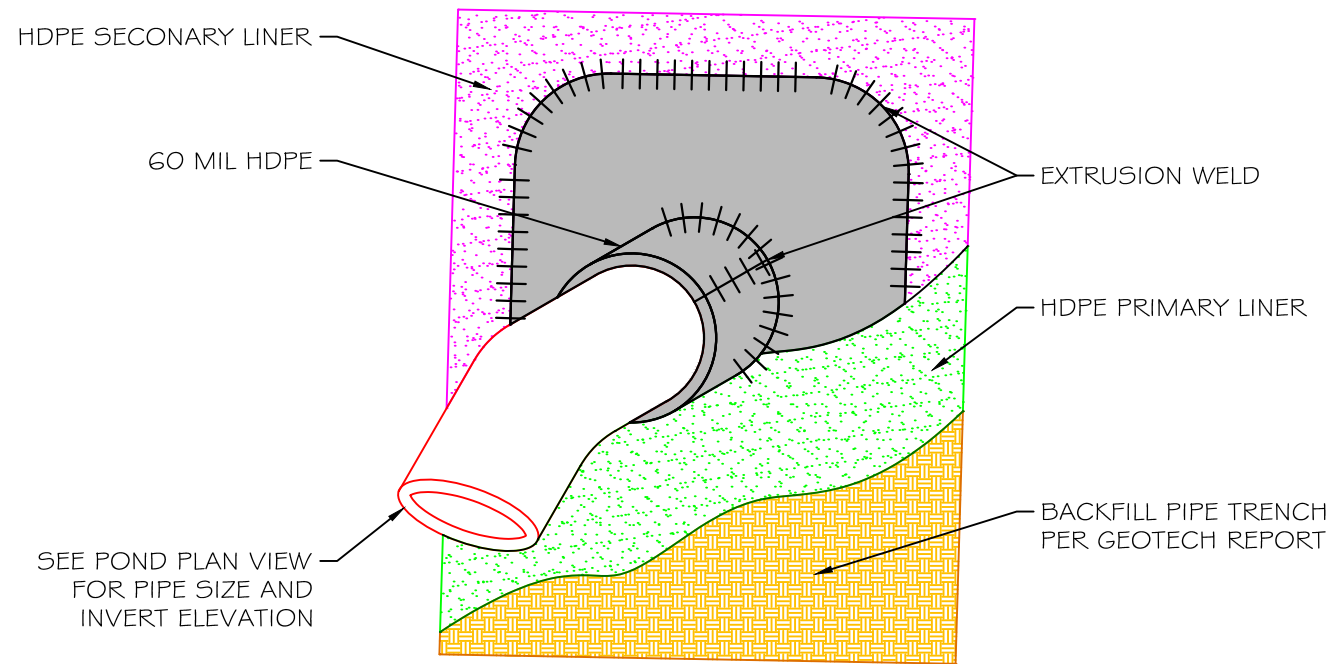
PROJECT:
VANDERHAM
DAIRY
DIGESTER

CLIENT:
LUKE VANDERHAM
10846 W. WHITNEY AVE,
RIVERDALE, CA 93656

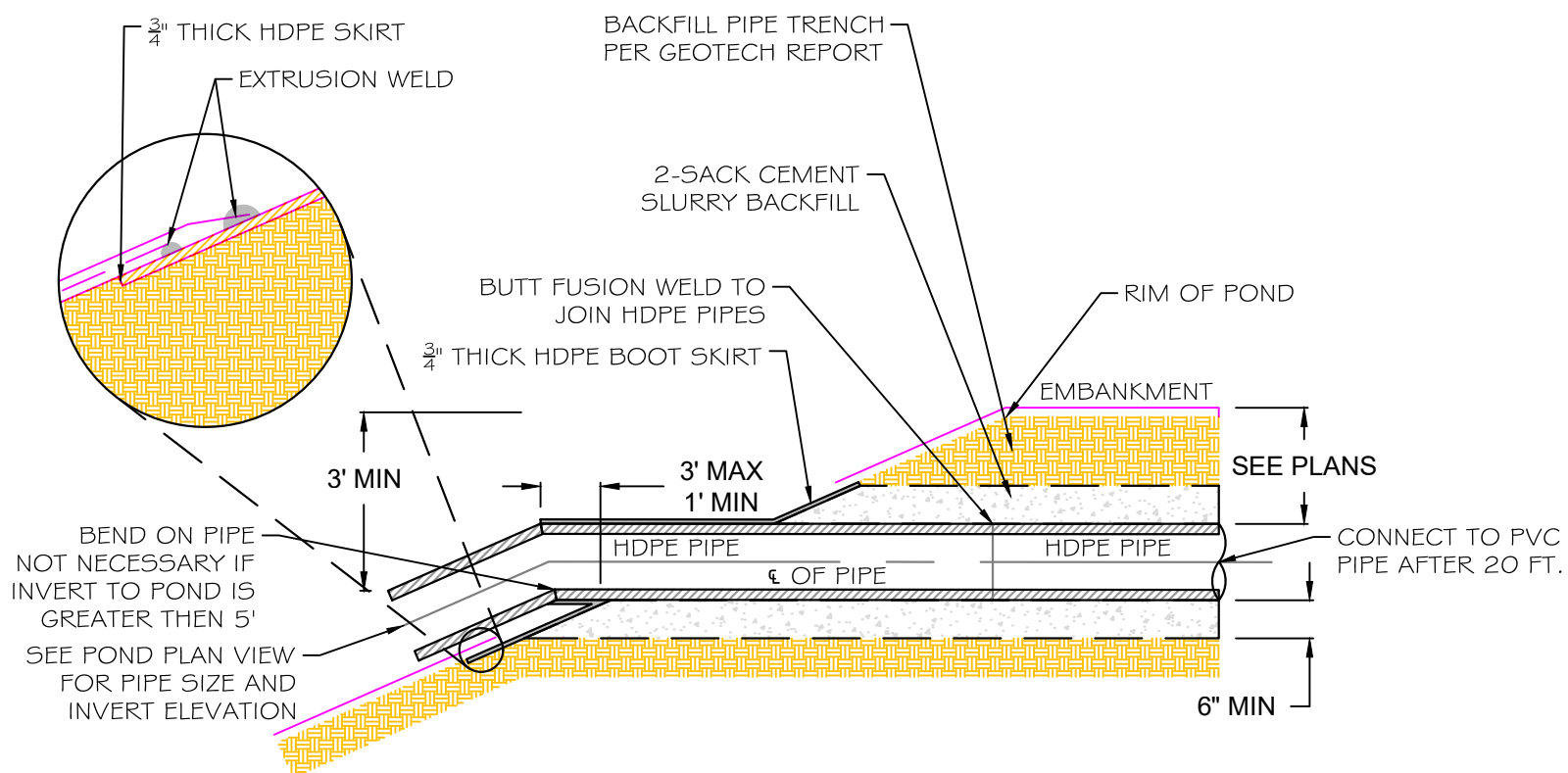
LINER
DETAILS

REVISION LOG:

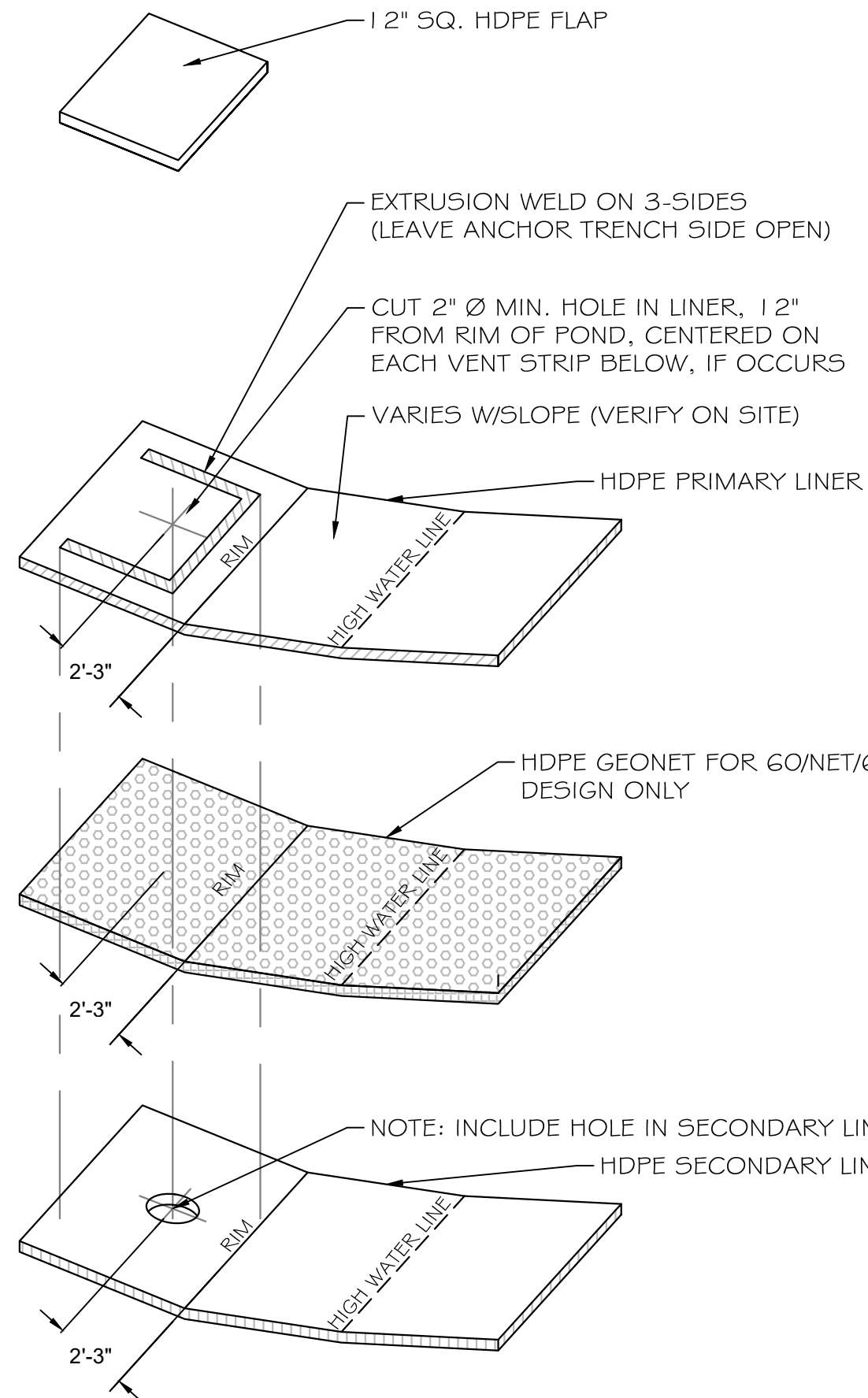
PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	L.2



A BOOT SKIRT N.T.S.



B BOOTLESS PIPE PENETRATION LINER FASTENING N.T.S.



C VENT ORIFICE (ISOMETRIC VIEW) N.T.S.

1
H
HARTMAN
 ENGINEERING
 113 N. CHURCH ST,
 SUITE 521
 VISALIA, CA 93291
 (559) 563-0181
 REGISTERED PROFESSIONAL ENGINEER
 CRAIG M. HARTMAN
 NO. 73837
 Exp. 06-30-19
 CIVIL
 STATE OF CALIFORNIA
 1-8-18

PROJECT:
VANDERHAM
DAIRY
DIGESTER
 CLIENT:
 LUKE VANDERHAM
 10846 W. WHITNEY AVE,
 RIVERDALE, CA 93656

LINER	DETAILS
	REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	L.3



General Notes

Confidential and Not for Construction

- (E) – Existing
- (P) – Proposed
- Access to the Property
- Proposed Fencing
- No improvements to streets have been propose.
- Off-street dirt parking and loading areas exist throughout the property. No new parking/loading areas have been proposed.
- 4" Biogas Gathering Lines
- 6" Biogas Gathering Lines
- Manure Piping
- PG&E Transmission Line
- APN Boundaries
- Williamson Act
- 20' Pipeline Easement
- Property Access

APN 050-270-56S Acres 320.1

2950' TO PARCEL BOUNDARY

(E) ROW CROPS

(E) DAIRY MANURE STORAGE LAGOON

(P) DIGESTER 1630'x125'x25' 21.8MM GALLONS

(P) MOISTURE TRAP AND PAD

702'-2"

(P) 60'x40' BIOGAS GENERATOR OR MECHANICAL BUILDING (HOUSING BIOGAS BLOWER AND CHILLING EQUIPMENT)

(P) OVERHEAD ELECTRICAL POLES AND TRANSFORMER

(E) SHADE STRUCTURES

ELECTRICAL SERVICE TO BE MOVED FROM NORTH TO SOUTH SIDE OF POND

(E) PROCESS PIT

(E) SEPARATOR

201'-5"

277'-4"

(P) 200'x20' RAISED SANDLANE

(E) COMODITIES SHEDS

831'-1"

207'-5"

(E) STORAGE BARN

(E) FREE STALL BARNS

(E) MILK PARLOR

(E) SINGLE RESIDENTIAL UNIT

(E) WELL

1110'-2"

(E) W MT WHITNEY AVE

All pipes are in private easement

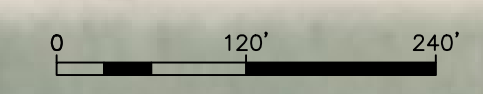


Firm Address 3711 Meadow View Dr. Suite 100 Redding, CA, 96002

Project Name and Address L & J Vander Ham Dairy 10846 W Mt Whitney Ave, Riverdale, 93656

Date 1/28/19 Version 1.0 Drawn By Byron Ojo

Drawing scale is 120' = 1"





APN
050-270-56S
Acres
320.1



- General Notes
Confidential and Not for Construction
- (E) – Existing
 - (P) – Proposed
 - Access to the Property
 - Proposed Fencing
 - No improvements to streets have been propose.
 - Off-street dirt parking and loading areas exist throughout the property. No new parking/loading areas have been proposed.
 - 4" Biogas Gathering Lines
 - 6" Biogas Gathering Lines
 - Manure Piping
 - PG&E Transmission Line
 - APN Boundaries
 - Williamson Act
 - Property Access

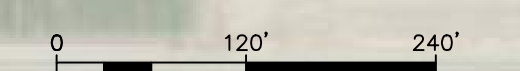
MAAS ENERGY WORKS

Firm Address
3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

Project Name and Address
L & J Vander Ham Dairy
10846 W Mt Whitney Ave,
Riverdale, 93656

Date: 1/15/19
Version: 1.0

Drawn By: Byron Ojo





General Notes

Confidential and Not for Construction

- (E) – Existing
- (P) – Proposed
- Access to the Property
- Proposed Fencing
- No improvements to streets have been propose.
- Off-street dirt parking and loading areas exist throughout the property. No new parking/loading areas have been proposed.
- 4" Biogas Gathering Lines
- 6" Biogas Gathering Lines
- Manure Piping
- PG&E Transmission Line
- APN Boundaries
- Williamson Act
- 20' Pipeline Easement
- Property Access

APN 050-270-56S Acres 320.1

2950' TO PARCEL BOUNDARY

(E) ROW CROPS

(E) DAIRY MANURE STORAGE LAGOON

(P) DIGESTER 1630'x125'x25' 21.8MM GALLONS

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ELECTRICAL SERVICE TO BE MOVED FROM NORTH TO SOUTH SIDE OF POND

(E) PROCESS PIT

(E) SEPARATOR

201'-5"

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(E) COMODITIES SHEDS

831'-1"

207'-5"

(E) STORAGE BARN

(E) FREE STALL BARNS

(E) MILK PARLOR

(E) SINGLE RESIDENTIAL UNIT

1110'-2"

(E) WELL

(E) W MT WHITNEY AVE

All pipes are in private easement

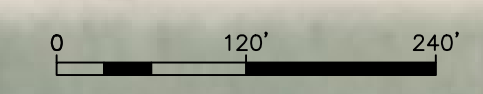


Firm Address
3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

Project Name and Address
L & J Vander Ham Dairy
10846 W Mt Whitney Ave,
Riverdale, 93656

Date: 3/21/19
Version: 1.0
Drawn By: Byron Ojo

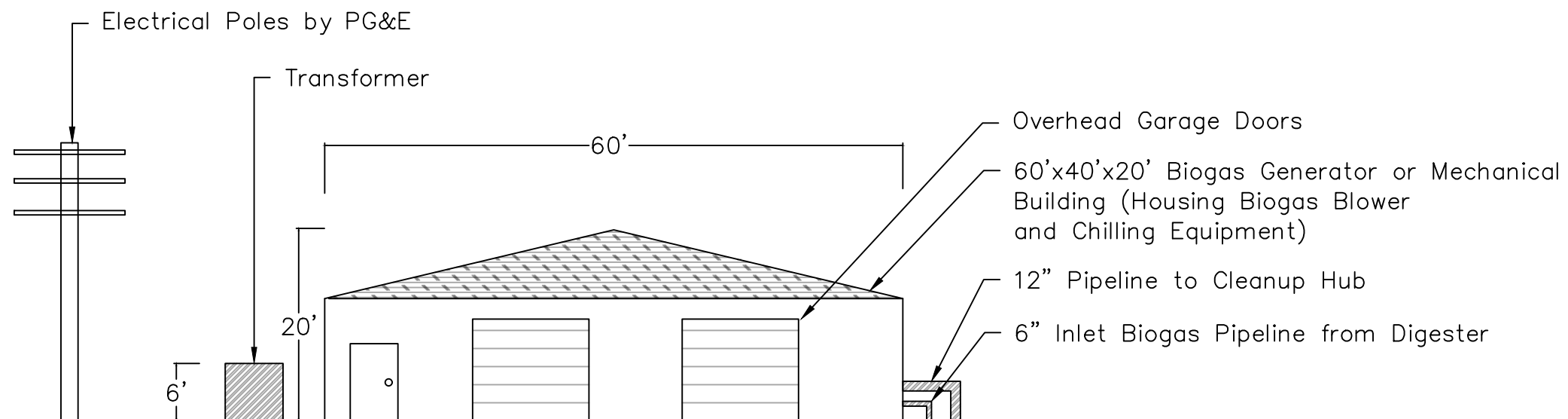
Drawing scale is 120' = 1"





General Notes

Not for Construction



Firm Address

3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

Project Name and Address

Five Points Cluster
Cleanup Hub & Injection Point
12103 Elkhorn Ave,
Riverdale, CA 93656

Date

3/22/19

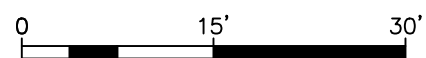
Version

1.0

Drawn By

Byron Oja

Drawing scale is 15' = 1"



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Fresno County Department of Public Works and Planning

Date Received: 3/21/19

CUP 3645 (Application No.)

MAILING ADDRESS: Department of Public Works and Planning, Development Services and Capital Projects Division, 2220 Tulare St., 6th Floor, Fresno, Ca. 93721

LOCATION: Southwest corner of Tulare & "M" Streets, Suite A Street Level, Fresno Phone: (559) 600-4497

APPLICATION FOR:

- Pre-Application (Type)
Amendment Application
Amendment to Text
Conditional Use Permit
Variance (Class)/Minor Variance
Site Plan Review/Occupancy Permit
No Shoot/Dog Leash Law Boundary
General Plan Amendment/Specific Plan/SP Amendment)
Time Extension for
Director Review and Approval
for 2nd Residence
Determination of Merger
Agreements
ALCC/RLCC
Other

DESCRIPTION OF PROPOSED USE OR REQUEST:

Request is to allow the installation of a digester, sandlane, 8"-24" manure pipes, biogas pipe, moisture trap and pad, biogas blower and chilling equipment, mechanical building, biogas generator and supporting equipment. Proposed upgrades will allow biogas to be transported to the upgrading/injection point and ultimately to the PG&E transmission line.

CEQA DOCUMENTATION: [X] Initial Study [] PER [] N/A

PLEASE USE FILL-IN FORM OR PRINT IN BLACK INK. Answer all questions completely. Attach required site plans, forms, statements, and deeds as specified on the Pre-Application Review. Attach Copy of Deed, including Legal Description.

LOCATION OF PROPERTY: North side of W Clarkson Ave between Lassen Ave and W Clarkson Ave. Street address: 15886 S Lassen Ave, Helm, CA 93627

APN: 040-130-51S Parcel size: 625.5 Acres Section(s)-Twp/Rg: S 26 - T 16 S/R 17 E

ADDITIONAL APN(s):

I, Pier van der Hoek (signature), declare that I am the owner, or authorized representative of the owner, of the above described property and that the application and attached documents are in all respects true and correct to the best of my knowledge. The foregoing declaration is made under penalty of perjury.

Table with 5 columns: Name, Address, City, Zip, Phone. Rows include Owner (Pier van der Hoek), Applicant (Van der Hoek Dairy Biogas LLC), and Representative (Maas Energy Works, Inc.).

CONTACT EMAIL: stephanie@maasenergy.com

OFFICE USE ONLY (PRINT FORM ON GREEN PAPER)

Application Type / No.: UCUP No. 3645 Fee: \$9,123.00
Application Type / No.: Fee: \$
Application Type / No.: Fee: \$
Application Type / No.: Fee: \$
PER/Initial Study No.: Fee: \$
Ag Department Review: Fee: \$ 51.00
Health Department Review: Fee: \$ 654.00
Received By: J.S. Invoice No.: 117395 TOTAL: \$9,828.00

UTILITIES AVAILABLE:

WATER: Yes [] / No [X] Agency: Well
SEWER: Yes [] / No [X] Agency: Septic

STAFF DETERMINATION: This permit is sought under Ordinance Section: Sect-Twp/Rg: - T - S/R - E

Related Application(s): APN # - - -
Zone District: AE-20 APN # - - -
Parcel Size: APN # - - -

CUP 3645 Operational Statement

CUP “C” Application Project Details (Van der Hoek)

Lists the proposed project components to be installed at the participating project site for CUP “C”.

Digester #3 – Van der Hoek Dairy:

- Sandlane
- Various 8”-24” Manure Pipes
- Digester
- 8” Biogas Pipe
- Moisture Trap and Pad
- Biogas Blower and Chilling Equipment
- Mechanical Building
- Biogas Generator
- Supporting Equipment

Dairy Liquid Manure Handling System

(Sandlane and Manure Pipes)

To prepare the dairy for the digester installation, the project will modify the existing liquid manure handling system on the dairy to accommodate the digester. This modification will include the installation of various liquid manure pipes between 8” and 24” in diameter. These pipes are installed via standard open trenching practices in compliance with all OSHA standards.

Additionally, the project will include the installation of a manure sandlane. This sandlane will be no longer than 400’ and no wider than 16’. The final design is in process, but the preliminary design is a flat, 300’ long, 14’ wide, 6” thick, concrete slab with a 4’ high push wall. The preliminary design indicates that the slab will be installed on a slope of 1-3% to allow the manure to flow at a consistent speed. The sandlane is designed to slow the flow of flushed manure down in order to capture sand and other inorganics.

Digester Technology

The anaerobic covered lagoon digesters are a passive addition to the dairy and require minimal oversight. Cameras and automation equipment will be installed at each digester sight to enable remote monitoring. The digester will be suited with an emergency vent as required by the San Joaquin Valley Air District (SJVAPCD). A small mechanical building will be constructed on-site that will house a biogas chiller to remove condensate prior to entering the biogas gathering lines and a biogas blower to move the gas from the digester system to the biogas gathering lines as discussed in more detail below.

The digester will be created by first double-lining a new or existing storage pond. All digester ponds will meet the Central Valley Regional Water Quality Control Board (CRWQCB) Tier 1 standards, which include the installation of double-layered liners of welded 60 ml HDPE with leak detection to ensure water quality. All digester pond designs must be pre-approved by the CRWQCB and their installation is monitored by professional engineers. Once constructed and prior to actual operation of the ponds to treat wastewater, an installation report will be submitted to CRWQCB for their review and approval.

The project will then cover the newly lined pond(s) with 80 ml flexible HDPE material to create the project’s biogas collection system. The lagoon cover will be welded to the liner ensuring a complete seal.

A perforated pipe runs above the water line around the entire perimeter of the covered lagoon to ensure uninterrupted gas flow to the outlet. The cover will also include submersible mixers to agitate the manure which will minimize settling, reduce sludge in the digester, and increase biogas production. An HDPE baffle creates a pathway for manure to slowly flow through the digester, ensuring hydraulic retention time and eliminating dead spots. Finally, sludge draw-off pipes are commonly added as a final protection against sludge buildup. This type of covered lagoon technology is highly commercialized and represents 100% of the successful digester installations in California since 2014. Engineered site plan and design drawings for the proposed digester are found in Attachment C-5. A summary of digester type, digester dimensions, digester volume, and estimated gas output is also summarized in the table below.

Table 4 - Van der Hoek Dairy Digester

Digester	Participating Dairy	Digester Dimensions (ft)	Digester Volume (gal)	Gas Output (mmBTU/yr)
Digester #3	Van der Hoek Dairy	400' x 400' x 24'	21,287,541	67,222

Biogas Pipe

The biogas pipe is responsible for the delivery of the biogas from the digester to the moisture trap.

Moisture Trap and Pad

After leaving the digester but before entering the mechanical building, the biogas is processed through a moisture trap to reduce the amount of H₂O in the biogas. The trap is supported by a new concrete pad which will also accommodate the blower, chilling equipment and mechanical building.

Biogas Blower and Chilling Equipment

Once it has passed through the moisture trap, the biogas will be pulled through the blower and sent to chilling equipment and then the gathering lines.

A chiller and condenser will be installed to condense most of the water in the biogas before blowing into the gathering pipeline. The chiller is a typical commercial unit for cooling glycol. The condenser is a commercially available unit for condensing moisture from biogas.

A blower will be installed near the digester to move the biogas into the gathering lines at pressure of less than 20 psi. Each blower will be controlled by a central SCADA system that is overseen by operators on a 24/7 basis. When a blower increases in speed, more biogas is pushed to the upgrading facility, and when it decreases, less biogas is sent. The gathering lines will be pressure monitored via SCADA equipment in real time to detect leaks or major failures. Additionally, flow meters will be installed at each digester site and at the upgrading facility to monitor biogas flows.

Mechanical Building

The mechanical building will be a prefabricated steel building no larger than 60' x 40'. This building will house chilling equipment and the blower and the biogas generator.

Biogas Generator

The project's internal combustion engine's emissions will be regulated by the SJVACPD under the latest Best Available Control Technology (BACT) standards. This power generation project will consume biogas in an onsite generator, to create electricity for delivery to the PG&E grid under the Bioenergy Market Adjusting Tariff (BioMAT), net energy metering with aggregation or other exporting tariff. When the engine is off for maintenance, the biogas will be stored in the covered lagoon, which has capacity for approximately 2 days of biogas storage. An emergency vent will also be installed per San Joaquin Valley Air Pollution Control District permit requirements.

The engine is a Guascor SFGLD-560 or similar, 16-cylinder lean-burn, turbo-charged reciprocating internal combustion engine mated with a synchronous generator. The combined rated electrical power of the system is 800-1,000 kW. The biogas from this project will be conditioned to remove moisture and reduce hydrogen sulfide below 40 ppm. Moisture from the biogas will be removed using a Bell & Gosset (or equivalent) plate and frame heat exchanger cooled by a Cold Shots (or equivalent) 240,000 BTU/hr industrial air-cooled chiller. H₂S reduction will be achieved in two stages. First a built-in air injection system under the digester's cover will encourage biological fixation of sulfur molecules. Secondly, the project will employ a media-based scrubber using non-toxic media (Sulfatreat or similar). CO₂ does not need to be removed prior to combustion under this design. The project engine generator is oversized to increase reliability and to allow the project to generate during the time of day when the power prices are most profitable. The project will sign a final interconnection agreement with PG&E.

Emissions Reduction Plan: The project will treat exhaust emissions using a Selective Catalytic Reduction (SCR) system with Oxidation Catalyst from HUG Engineering (or similar manufacturer) that comes with a guarantee of performance.

Supporting Equipment

Supporting equipment is including but not limited to a transformer and electrical poles which will be installed per PG&E requirements in order to support the biogas generator. Additionally, a wet well with a flush pump and a second primary dual screen separator are proposed as upgrades to the liquid manure handling system. This upgrade better supports the functionality of the digester. Furthermore, supporting equipment is any equipment which is essential for the function of the aforementioned equipment and completion of the project ambitions. Such equipment may include small pumps, electrical controls, and other minor equipment which is deemed necessary.

Operational Times and Visitors

The facility will be operational 24/7, but not open to public visitors without prior permission.

Number of Employees

Construction:

Digester and ancillary equipment: a maximum of 10 people for short periods of time, with an average of 5 people on site during the 7 months of construction.

Operations:

Remote sensor and computer monitoring of the equipment will be operated permanently. One employee will make a daily inspection of the facility. That work will be conducted during regular business hours, 8am-5pm, and on-call 24/7. No permanent facility employees will work or live on-site.

Service and Delivery Vehicles

There will be one service truck which will visit once per day. No delivery trucks will be on site pertaining to the digester on site.

Access to the Site

Access to the site would be from West Elkhorn Avenue to a private driveway.

Parking

There is existing parking at the dairy. The construction crew will utilize this parking during construction activities.

Goods

No goods will be sold on site.

Supplies or Materials

The facility will use and store small quantities of materials such as lubricants, and hydraulic fluids. Handling of hazardous materials are regulated by federal and State laws, which minimizes worker safety risks from both physical and chemical hazards in the workplace.

Appearance/Noise/Dust

The project facility is similar in nature to the existing dairy infrastructure and fits into its surroundings. The pipeline will run underground and will not be seen. Noise generated by the project equipment will not be above typical agriculture facility levels. The facility does not include any lights or other sources of glare beyond what is currently used for security reasons at the dairy. Once operational, the project will not generate fugitive dust. The project will not emit or concentrate any odors, and in fact will reduce odors with the installation of the covered manure lagoons.

Solid or Liquid Wastes to be Produced

Facility will produce minimal amounts of solid or liquid waste. Waste will be picked up once per month by a solid waste disposal company and taken to an appropriate landfill.

Construction and Operational Water Usage

Construction of the digester and ancillary equipment is anticipated to take approximately 140 working days.

Water for construction and operations would be supplied by an existing on-site agricultural well.

Construction: An estimated 5,000 gallons/day is anticipated during up to 7 months of construction activities. Based on an average 20 work days a month, approximately 2.1 AF would be required (5,000 gallons x 140 days = 700,000 gallons).

Operations: Water usage is anticipated to be approximately 2,500 gallons per day or 2.8 AF annually during operation.

Advertising

There will be no advertisements at the project sites.

Buildings

The project will not construct any new buildings, but 2-3 small containers may be installed for electrical controls and other equipment. These will be steel and unobtrusive colors.

Lighting and Outdoor Sound Amplification

No outdoor sound amplification systems will be installed for the project. The facility will function 24 hours a day and will include the same standard security lighting as found on the surrounding parcels. All lighting would be directed downward and shielded to focus illumination on the desired work areas only and prevent light spillage onto adjacent properties.

Landscaping and Fencing

There will be chain link fencing installed around the perimeter of the facility. No landscaping is proposed for the project.

Restrooms

There is no on-site permanent staff. Maintenance staff will use the existing dairy restroom facilities.



Site Overhead

Photo Courtesy of Google Earth



Digester Site

Photo Courtesy of Maas Energy Works, Inc



Digester Site

Photo Courtesy of Maas Energy Works, Inc

VANDER HOEK DAIRY DIGESTER

BENCHMARK

THE TOPOGRAPHIC SURVEY WAS PERFORMED UTILIZING GLOBAL POSITIONING SYSTEM OBSERVATIONS. DISTANCES AND NUMBERS SHOWN ARE TO BE CONSIDERED GROUND VALUES. BENCHMARK AND CONTROL SHOWN ON CONTROL PLAN SHEET. THE BENCHMARK AND VERTICAL ELEVATIONS WERE DERIVED FROM THE NGS ONLINE POSITIONING SERVICE (OPUS), AND IS SHOWN ON THE NAVD 88 DATUM UTILITIZING THE GEOID 09 AS THE VERTICAL MODEL.

PRESERVATION OF MONUMENTS

PURSUANT TO SECTIONS 8771(B) AND 8771(C) OF THE GOVERNMENT CODE, ANY MONUMENTS THAT CONTROL THE LOCATION OF BOUNDARIED, OR OTHERWISE PROVIDE HORIZONTAL OR VERTICAL SURVEY CONTROL WITHIN THE CONSTRUCTION AREA, SHALL BE LOCATED AND REFERENCED PRIOR TO CONSTRUCTION, AND A CORNER RECORD OR RECORD OF SURVEY OF THE REFERENCES SHALL BE FILED WITH THE COUNTY SURVEYOR.

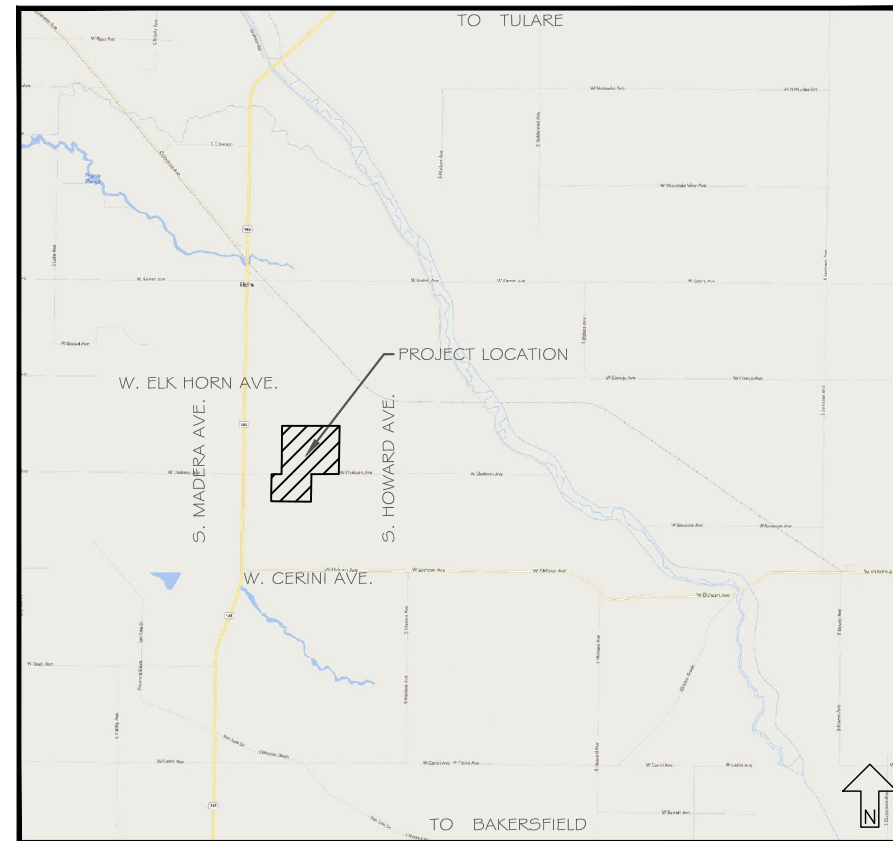
PERMANENT MONUMENTATION SHALL BE SET TO PERPETUATE THE LOCATION OF ANY MONUMENT WHICH COULD BE DAMAGED OR DESTROYED, AND A CORNER RECORD OR RECORD OF SURVEY SHALL BE FILED WITH THE COUNTY SURVEYOR PRIOR TO THE RECORDING OF A CERTIFICATE OF COMPLETION FOR THE PROJECT.

DUST CONTROL NOTES

CONTRACTOR IS REQUIRED TO COMPLY WITH GOOD HOUSE KEEPING PRACTICES

STORMWATER (SWPPP) NOTES

CONTRACTOR IS REQUIRED TO COMPLY WITH GOOD HOUSE KEEPING PRACTICES



VICINITY MAP

SCALE 1" : 2 MI

SHEET INDEX

GENERAL NOTES

- A.1 COVER SHEET
- A.2 GENERAL NOTES
- A.3 SITE PLAN - DAIRY
- A.4 SITE PLAN - DIGESTER

CIVIL DRAWINGS

- C.1 GRADING PLAN
- C.2 CROSS SECTIONS
- C.3 GRADING DETAILS

DIGESTER DRAWINGS

- D.1 COVER SYSTEM
- D.2 SLURRY SYSTEM
- D.3 MIXERS
- D.4 DETAILS

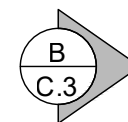
LINER DRAWINGS

- L.1 LINER - DETAILS
- L.2 LINER - DETAILS
- L.3 LINER - DETAILS

SHEET REFERENCE

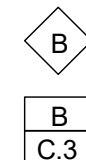
SECTIONS:

SECTION NAME
SHEET NUMBER



DETAILS:

DETAIL NAME
SHEET NUMBER



CONTACT INFO

ENGINEER:

CRAIG HARTMAN, RCE 73837
HARTMAN ENGINEERING, INC.
3121 W. CERES CT.
VISALIA, CA 93291
(559) 563-0181

DAIRY CONTACT:

PIER, HENRY AND HANS VANDER HOEK
15886 S. LASSEN AVE
HELM, CA 93627



PROJECT:

**VANDERHOEK
DAIRY
DIGESTER**

CLIENT:

VAN DER HOEK DAIRY
15886 S. LASSEN AVE
HELM, CA 93627

REVISION LOG:

PLOT DATE:

JOB NO.: 17003

SCALE: AS SHOWN

SHEET NO.: A.1

SPECIFICATIONS FOR ENGINEERED FILL MATERIAL OF ABOVE GRADE EMBANKMENTS OR AS REQUIRED

TEST PARAMETER	TEST METHOD	FREQUENCY	ACCEPTANCE CRITERIA
Compaction Curves	ASTM D1557 (Modified Proctor)	Change in material	N/A
Grain Size Distribution	ASTM D422 (Sieve)	Change in material	At least 30% passing No. 200 U.S. Standard Sieve. Per Specifications (1)
Soil Classification	ASTM D2487 (USCS)	Change in material	Suitable for compaction (2)
Maximum Particle Size	ASTM D422 (Sieve)	Change in material	½ inch, ¼ top 6 inches
Maximum Water soluble Sulfate (SO ⁴⁻) in Soil (Concrete Slab locations)	ASTM C1580	Change in material	0.2% by weight

Site Preparation Specifications:

- Clearing: Prior to earthwork operations, the area to be developed should be stripped of vegetation, organic topsoil, and cleared of cow waste and miscellaneous debris from the proposed construction areas. Deeper clearing may be required in localized areas. The actual depth of clearing should be reviewed by a licensed Geotechnical Engineer at the time of construction. The limits of stripping and clearing should be at least five feet beyond the limits of construction.
- Compaction: The scarified subgrade and subsequent fill placed at the site should be moisture conditioned to near optimum moisture content, and compacted to at least and 90 percent for 2:1 side slope pond of maximum dry density as determined by ASTM test method D1557.
- Material for fill: Fill should consist of select material. Native soil, free from organic, vegetation, and rocks or cobbles larger than three inches, may be used as fill at the site. Import material must be reviewed by licensed Geotechnical Engineer prior to transport to the site.
- Fill placement: Fill material should be moisture-conditioned to +/- 2% of the optimum moisture content prior to compaction. Fill material with excessive moisture should be allowed to dry prior to compaction or be mixed with dry soil to bring the fill to a workable moisture content. Fill should be placed in level lifts not exceeding a loose, uncompacted thickness of eight inches, and compacted as engineered fill.

Sub-grade requirements for fill only:

- Over Excavate for minimum 1 ft. to meet Engineered Fill Borrow Material Guidelines and Pond Liner Sub-grade requirements
- Well mixed soil
- 6 in max lifts
- Upper 6 inches is of fine-finished soil particles no greater than ¼ in. +

Notes:

- Field tests shall not be required, but fill borrow material specifications must meet the acceptance criteria outlined in Table 1.
- Refer to Geotechnical Report

NOTES:

THE APPROVED WORK PLAN WHICH INCLUDES THE CONSTRUCTION QUALITY ASSURANCE PLAN, OPERATION, MAINTENANCE AND MONITORING PLAN, CONSTRUCTION DRAWINGS, AND SOILS REPORT TOGETHER AS A PACKAGE ARE THE COMPLETE SPECIFICATIONS REQUIRED FOR CONSTRUCTION OF THE POND AND LINER SYSTEM.

FILL TEST SPECIFICATIONS FOR SUB-GRADE

TEST PARAMETER	TEST METHOD (1)	FREQUENCY	ACCEPTANCE CRITERIA
Uncompacted Lift Thickness	Visual Observation	Continuous	8-in.(2)
Construction Oversight	Visual Observation	Continuous	Maximum particle size 1/2 inch.
In-Place Moisture Alternative Method	ASTM D2216 (Oven Dry)	1 per every 10 Nuclear tests	+/-2% of Optimum Moisture Content per ASTM D1557
In-Place Moisture Rapid Field Methods (3)	ASTM D6938 (4) (Nuclear Method)	3 per acre per lift, min. 2 per day	+/-2% of Optimum Moisture Content per ASTM D1557
In-Place Density Alternate Method	ASTM D2937 (Drive Cylinder)	1 per every 10 Nuclear tests	90% of Maximum Dry Density per ASTM D1557
In-Place Density Rapid Field Methods (5)	ASTM D6938 (6) (Nuclear Method)	3 per acre per lift, min. 2 per day	90% of Maximum Dry Density per ASTM D1557
Subgrade Thickness	Surveying Measurement	At 50-foot centers	Minimum 1 ft.(7)
Clod Size	Visual Observation	Continuous	Per Specification

Notes:

See earthwork section for anchor trench, excavation, backfill, and compaction requirements.

- (1) ASTM Test Method, unless otherwise noted. Results of all tests performed to be reported as per method reporting criteria.
- (2) The sub-grade shall be scarified to a depth of 1 ft. lower than finished grade, compacted, and tested in accordance with the requirements of this table.
- (3) Must be verified by ASTM D2216 (Oven) overnight method once every day or once per change in material
- (4) Must be verified by ASTM D2937 (Dry Cylinder) twice per day or per change in material
- (5) Calibration Procedure: ASTM D7013-04: Standard Guide for Nuclear Surface Moisture and Density Gauge Calibration Facility Set-up

POND SPECIFICATIONS FOR SUBGRADES CUT BELOW GROUND (For Slopes 2:1 or shallower)

Side Slopes: The certified Civil Engineer/CQA Chief Officer shall walk final side slopes after cut by heavy equipment and confirm no SW or SP soils and no loose soils. All SW, SP, or soils that are not amenable to a firm and unyielding subgrade shall be removed and replaced down to a minimum 3 ft. below sloped surface. Any soils removed and replaced shall meet the Engineered Fill requirements in Table 1.

Pond Bottom: 1. An as-built survey of the pond bottom shall take place after subgrade construction to insure minimum slopes are achieved. Pond Bottom shall be tested per criteria below. Any soils not meeting the requirements below (i.e. that is not firm and unyielding) shall be removed and replaced down to a minimum 2 ft. Any soils removed and replaced shall meet the Engineered Fill requirements in Table 1. The Civil Engineer may make determination of soils meeting requirements or not based upon visual inspection which shall be included in the Subgrade Certification Report and signed and sealed by a Civil Engineer and CQA Officer.

TEST PARAMETER	TEST METHOD (1)	FREQUENCY	ACCEPTANCE CRITERIA
In-Place Density Rapid Field Methods (2)	ASTM D6938 (3) (Nuclear)	3 per acre	90% of Maximum Dry Density per ASTM D1557
In-Place Moisture Rapid Field Methods (4)	ASTM D6938 (5) (Nuclear Methods)	3 per acre per lift, min. 2 per day	+/-2% of Optimum Moisture Content per ASTM D1557
Construction Oversight	Visual Observation	Continuous	Maximum particle size 1/2 inch.
Subgrade Slope	Surveying Measurement	200 ft. maximum grid	Min 1%

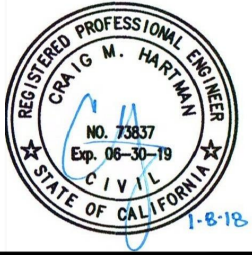
60 MIL HDPE GEOMEMBRANE CONSTRUCTION QUALITY ASSURANCE (CQA)

TEST PARAMETER	TEST METHOD	FREQUENCY	ACCEPTANCE CRITERIA
Thickness (min. ave.) -Lowest individual for 8 out of 10 values -Lowest individual for any of the 10 values	ASTM D5994	1 per lot or 1 per 70,000 ft ² , whichever is greater	Nom. (-5%) -10% -15%
Tensile Properties -yield strength -break strength -strain at yield -break strength	ASTM D6693 Type IV	1 per lot or 1 per 70,000 ft ² , whichever is greater	≥126 lb./in. ≥90 lb./in. ≥12% ≥100%
Puncture Resistance	ASTM D4833	1 per lot or 1 per 70,000 ft ² , whichever is greater	108 lb. (min.)
Tear Resistance	ASTM D1004, Die C	1 per lot or 1 per 70,000 ft ² , whichever is greater	42 lb. (min.)
Interface Shear -60-mil HDPE/subgrade soil -Drainage geocomposite	ASTM D5321 ASTM D6243	2 tests or 1 per 200,000 ft ² , whichever is greater	
Seam Shear	ASTM D6392	1 test per 500 lineal feet or per GRI GM-14 and 20.	95% of min. yield strength
Seam Peel -Extrusion -Fusion	ASTM D6392	1 test per 500 lineal feet or per GRI GM-14 and 20.	72% yield & ffb (1)
Non-destructive Seam Test	ASTM D5820 (Pressure Test)	Continuous	35 psi for 5 min.
	ASTM D5641 (Vacuum Box)		5 psi for 15 sec.
	ASTM D5641 (Spark Test)		No Spark
Electric Leak Location	ASTM D7002 (Water Puddle)	Once on constructed liner	Max 1 mm. diameter hole sensitivity
	ASTM D6747 (Selection Process)		
	ASTM D7007 (Water /Earth)		Max 6 mm. diameter hole sensitivity
	ASTM D7240 (Spark Test 2011)		

Notes:
ffb: Film Tear Bond



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PROJECT:
VAN DER HOEK DAIRY DIGESTER

CLIENT:
VAN DER HOEK DAIRY
15886 S. LASSEN AVE
HELM, CA 93627

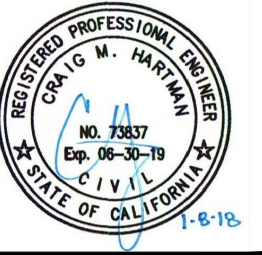
GENERAL NOTES
CONSTRUCTION

REVISION LOG:

PLOT DATE:
JOB NO.: 17003
SCALE: AS SHOWN
SHEET NO.: A.2



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PROJECT:
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DIGESTER**

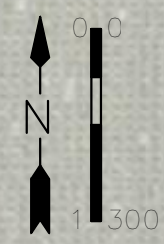
CLIENT:
VAN DER HOEK DAIRY
15886 S. LASSEN AVE
HELM, CA 93627

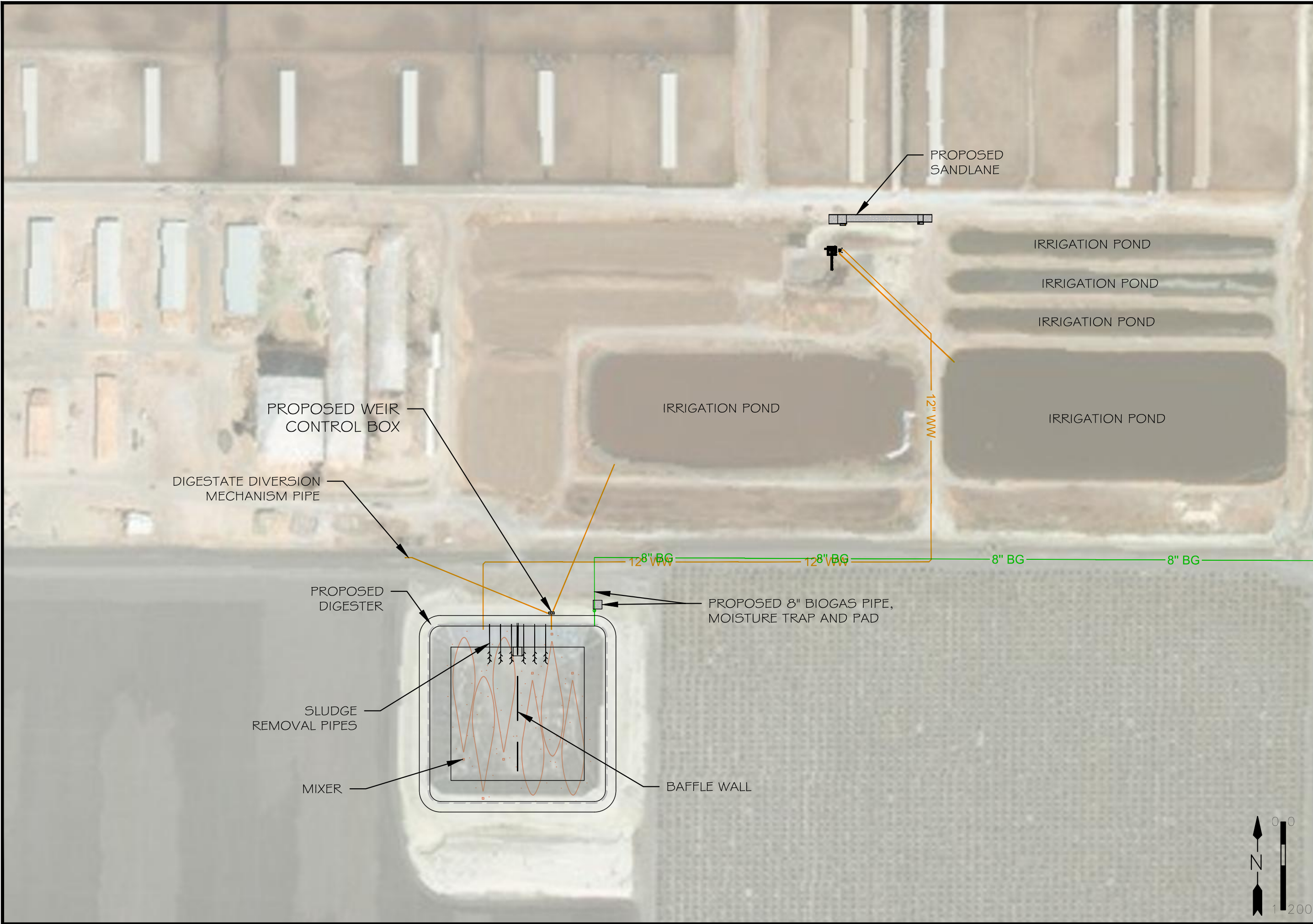
SITE PLAN

DIGESTER

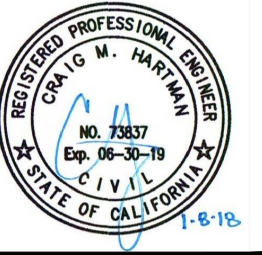
REVISION LOG:

PLOT DATE:	
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	A.3





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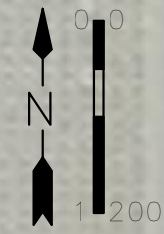
PROJECT:
**VAN DER HOEK
DAIRY
DIGESTER**

CLIENT:
VAN DER HOEK DAIRY
15886 S. LASSEN AVE
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SITE PLAN
DAIRY

REVISION LOG:

PLOT DATE:	
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	A.4





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PROJECT:
**VAN DER HOEK
DAIRY
DIGESTER**

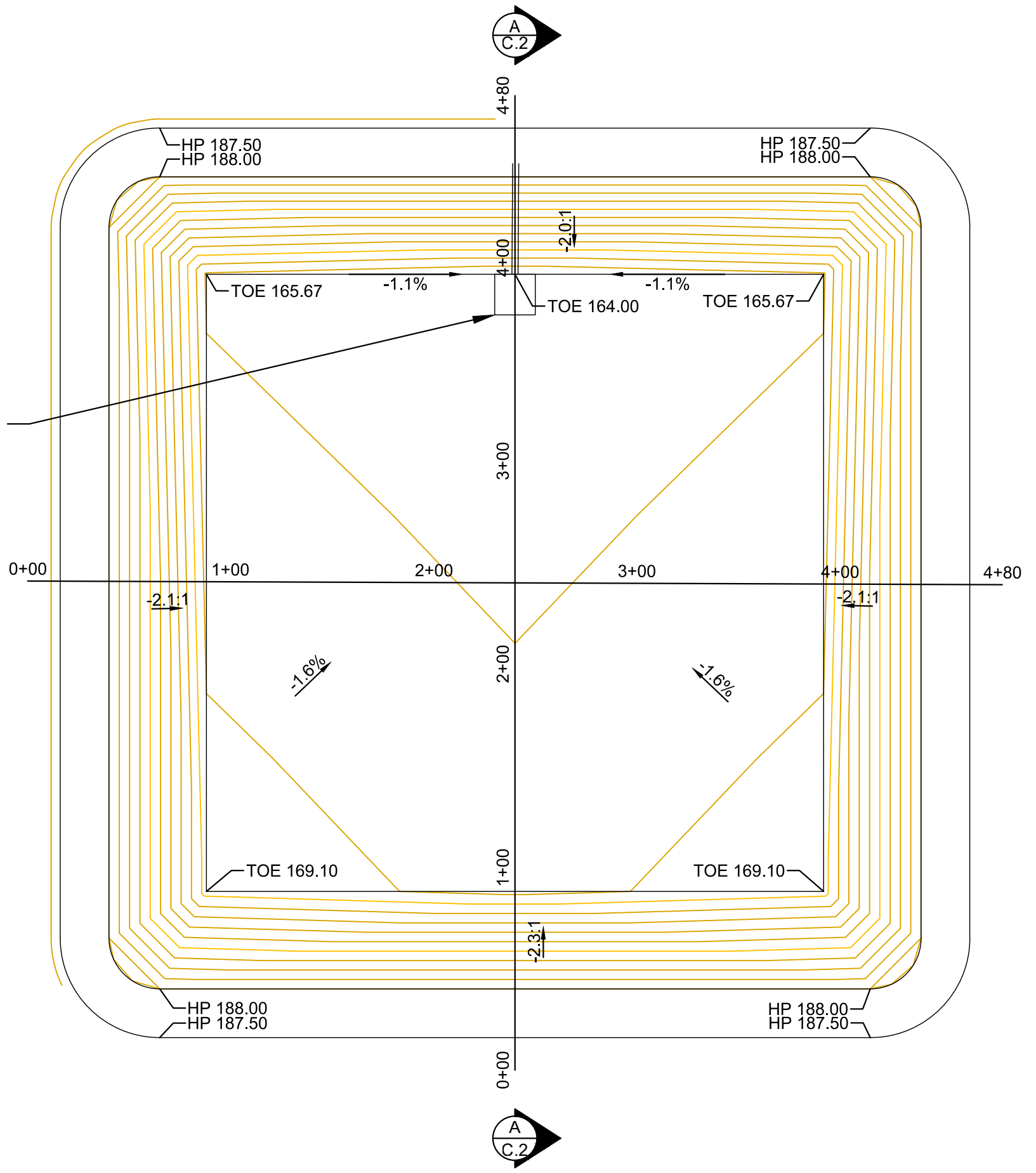
CLIENT:
VAN DER HOEK DAIRY
15886 S. LASSEN AVE
HELM, CA 93627

GRADING PLAN

DIGESTER

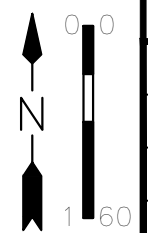
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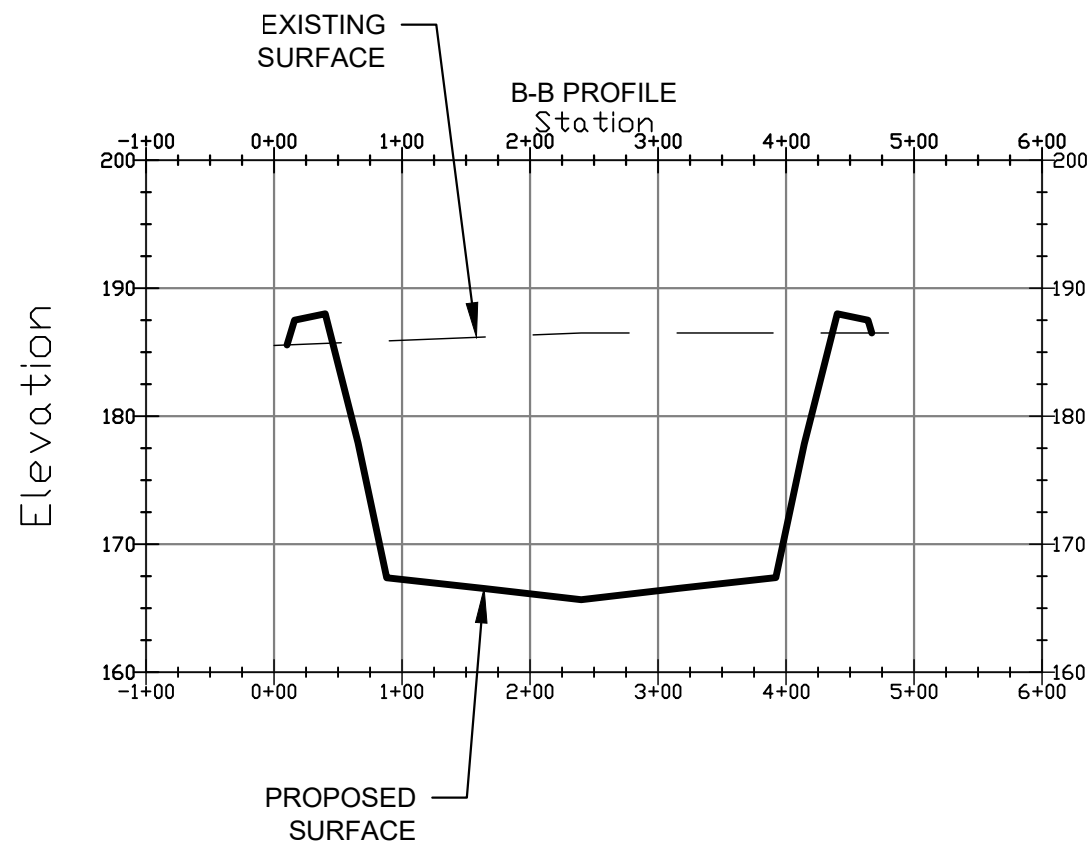
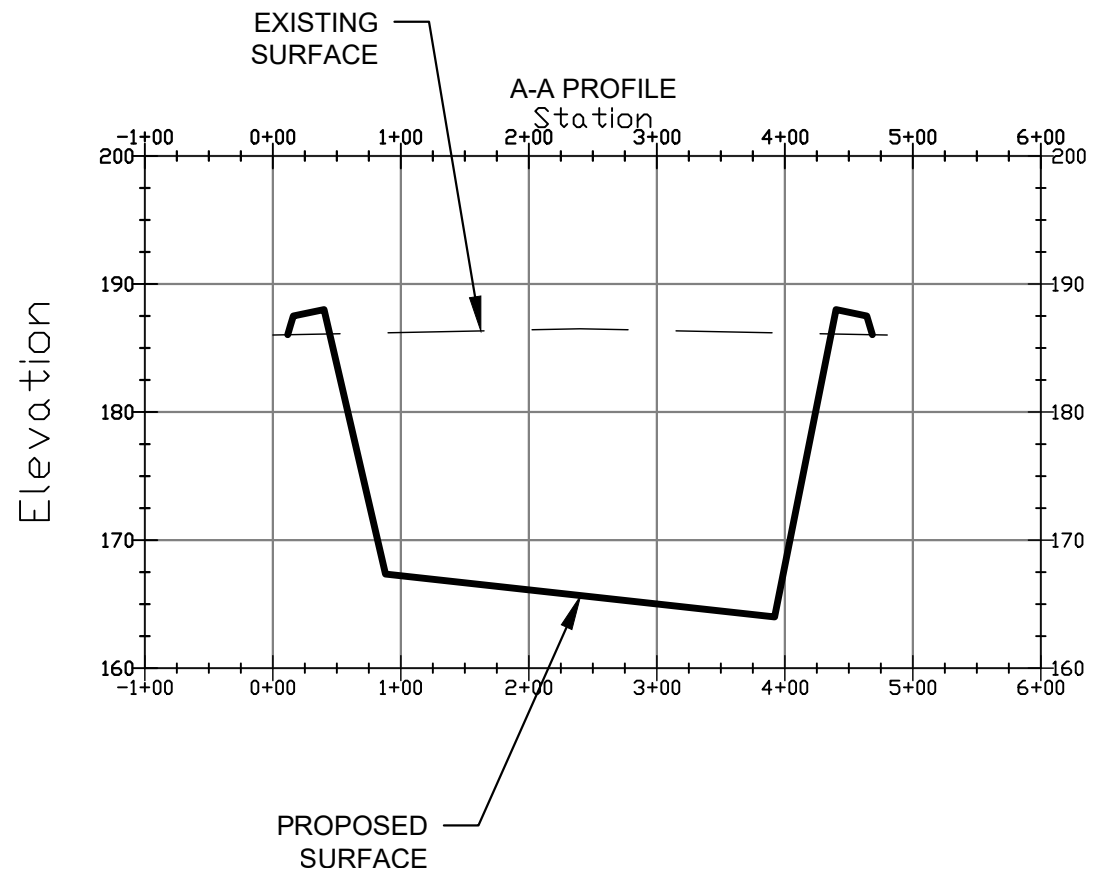
PLOT DATE:	
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	C.1



SEE SHEET
C.3 FOR SUMP
DETAILS

- GRADING NOTES:**
1. CONTRACTOR SHALL INFORM ENGINEER OF ANY DISCREPANCIES OR ERRORS IN PLANS PRIOR TO CONSTRUCTION.
 2. CONTRACTOR SHALL MEET SPECIFICATIONS OF TABLE 2 WITHIN THE APPROVED CONSTRUCTION QUALITY CONTROL PLAN.
 3. CONTRACTOR SHALL SMOOTH DRUM ROLL FINAL SURFACE AND REMOVE ANY ROCK OR MATERIAL GREATER THAN 1/2 INCH.





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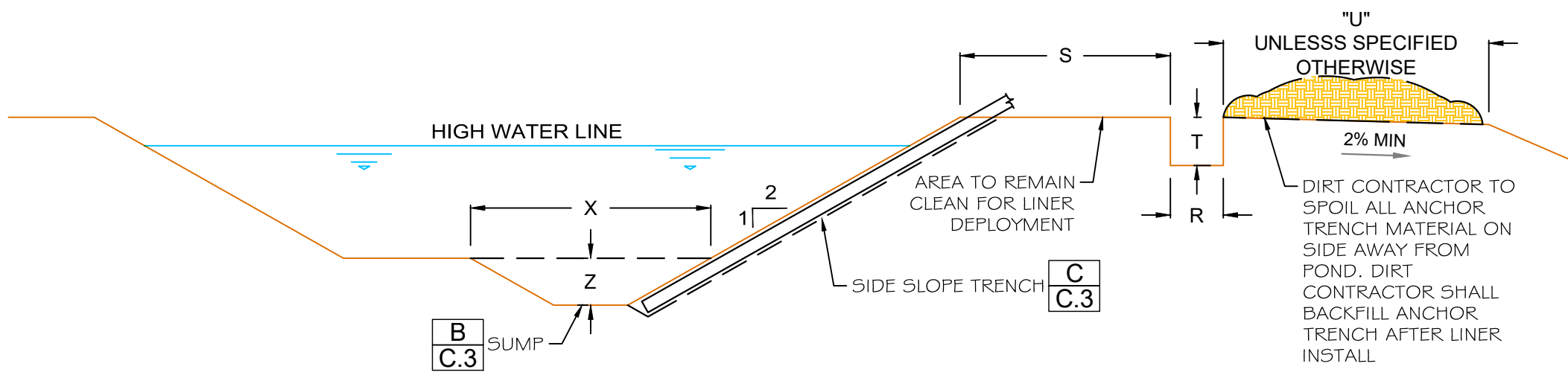


PROJECT:
VAN DER HOEK DAIRY DIGESTER

CLIENT:
VAN DER HOEK DAIRY
15886 S. LASSEN AVE
HELM, CA 93627

GRADING SECTIONS	DIGESTER
	REVISION LOG:

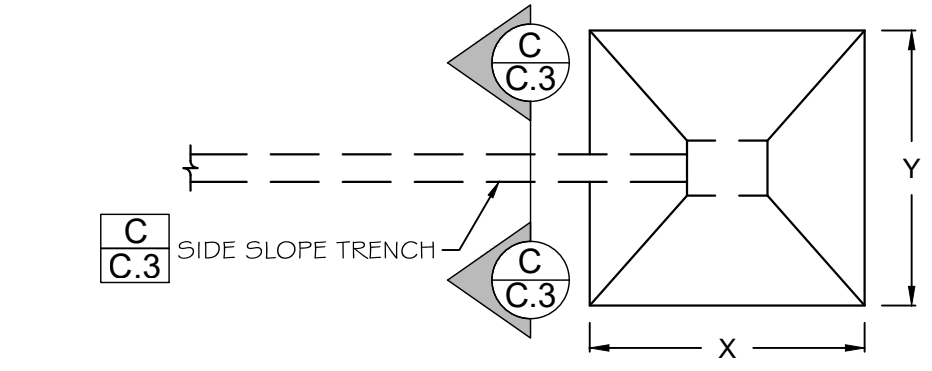
PLOT DATE:	
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	C.2



A ANCHOR TRENCH / SUMP PROFILE VIEW

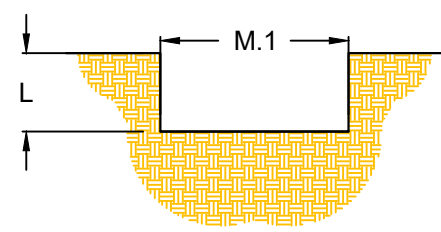
N.T.S.

DIMENSION TABLE (FT.)	
LETTER	POND
L	1.7'
M.1	2.7'
U	20'
R	1.5'
S	3'
T	3'
X	30'
Y	30'
Z	5.5'



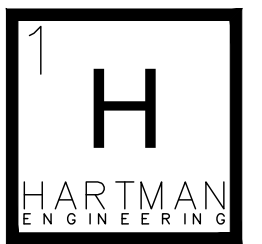
B SUMP PLAN VIEW

N.T.S.

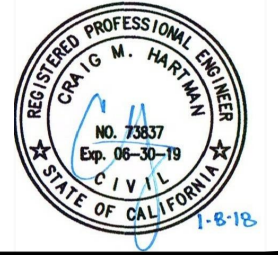


C SIDE SLOPE TRENCH

N.T.S.



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PROJECT:
VAN DER HOEK DAIRY DIGESTER

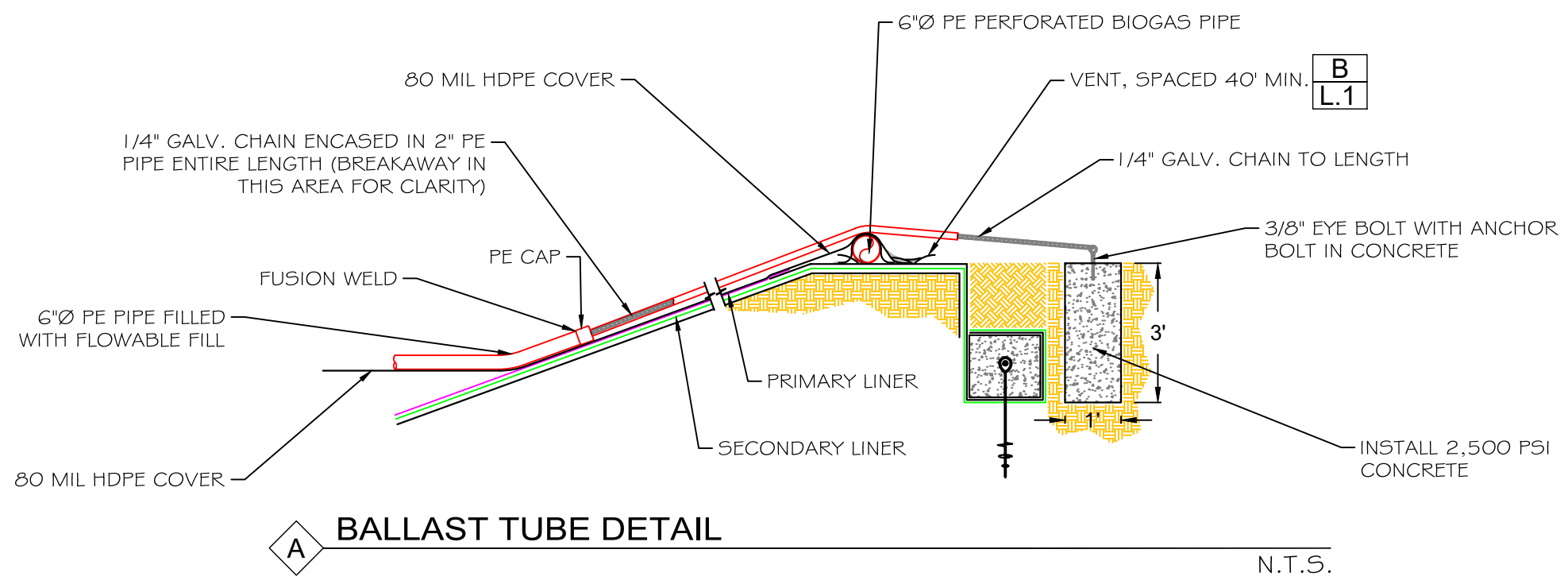
CLIENT:
VAN DER HOEK DAIRY
15886 S. LASSEN AVE
HELM, CA 93627

GRADING DETAIL
DIGESTER

REVISION LOG:

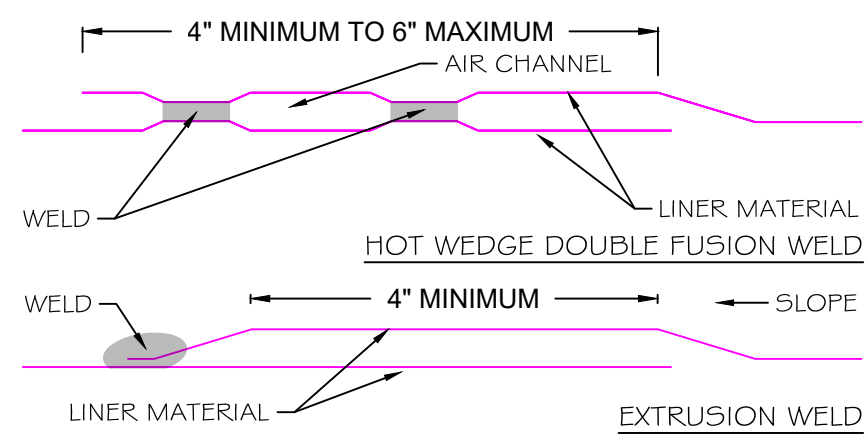
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JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	C.3

COVER SYSTEM	DIGESTER	REVISION LOG:

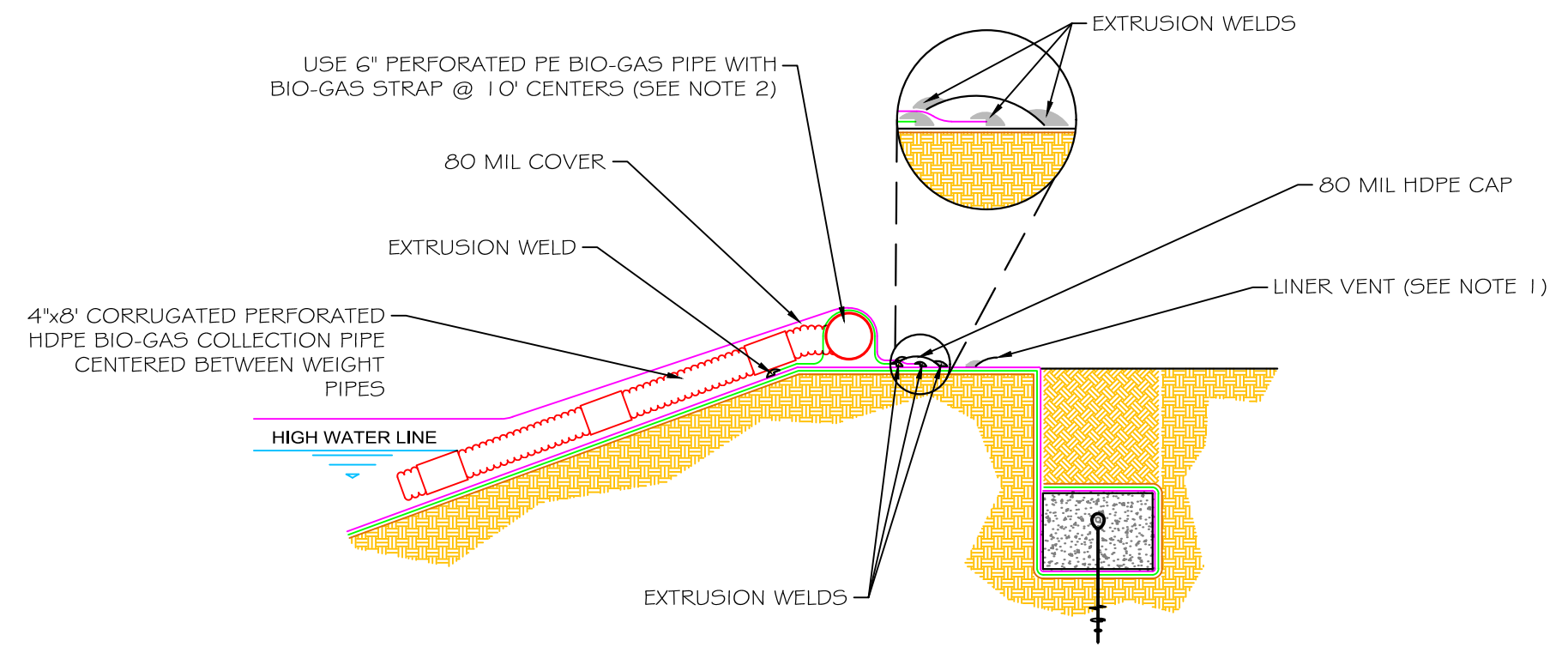


A BALLAST TUBE DETAIL
N.T.S.

DESCRIPTION	LOCATION	MATERIAL	THICKNESS (MIN)	TOP FINISH	BOTTOM FINISH
COVER	TOP	HDPE	80 MIL	SMOOTH	SMOOTH

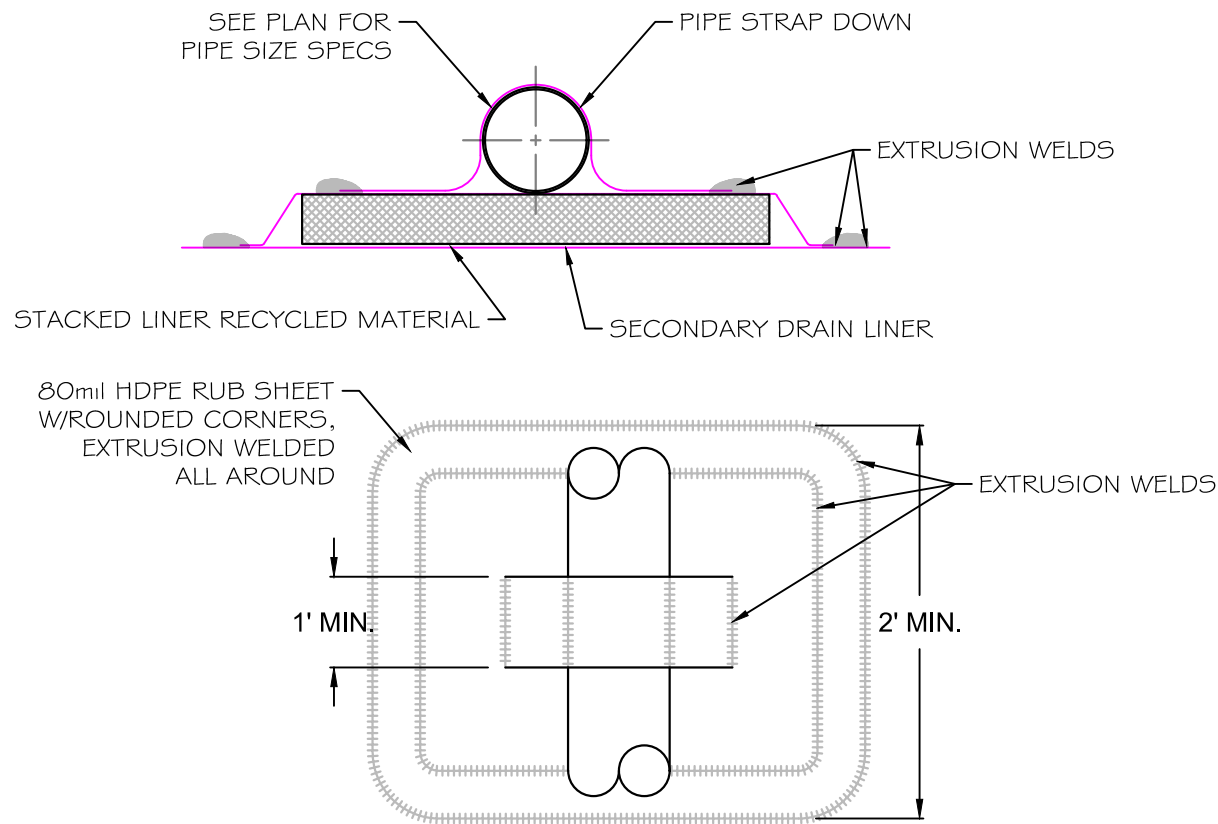


C HDPE COVER-SMOOTH WELDS
N.T.S.

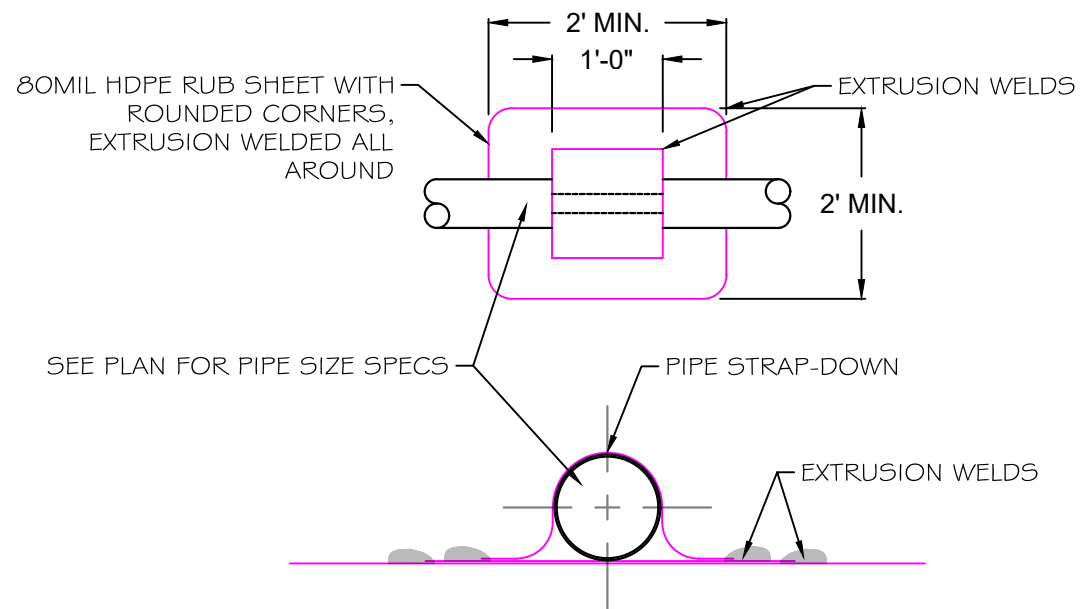


B BIO-GAS PIPING DETAIL
N.T.S.

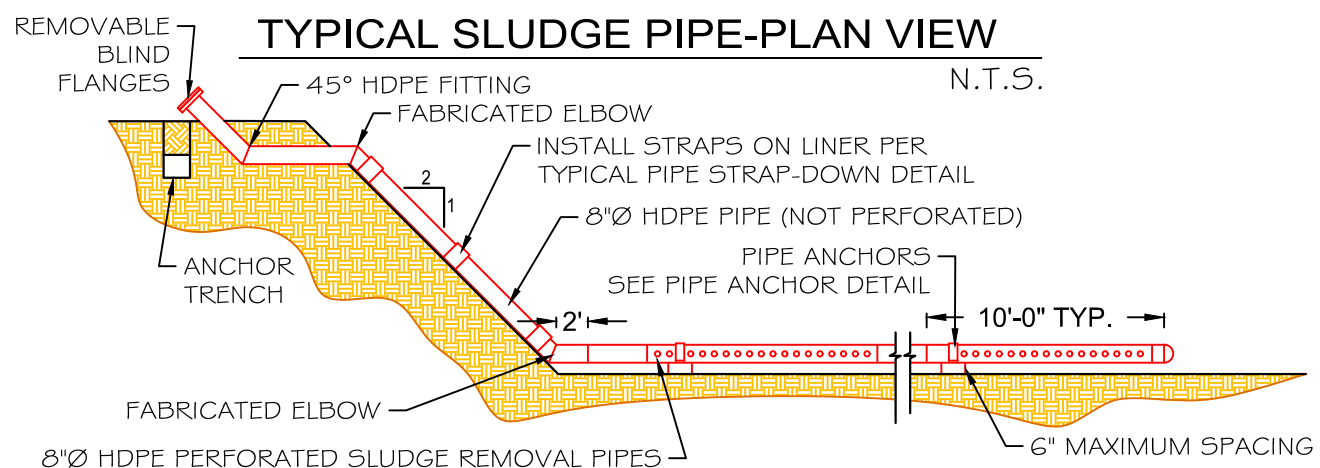
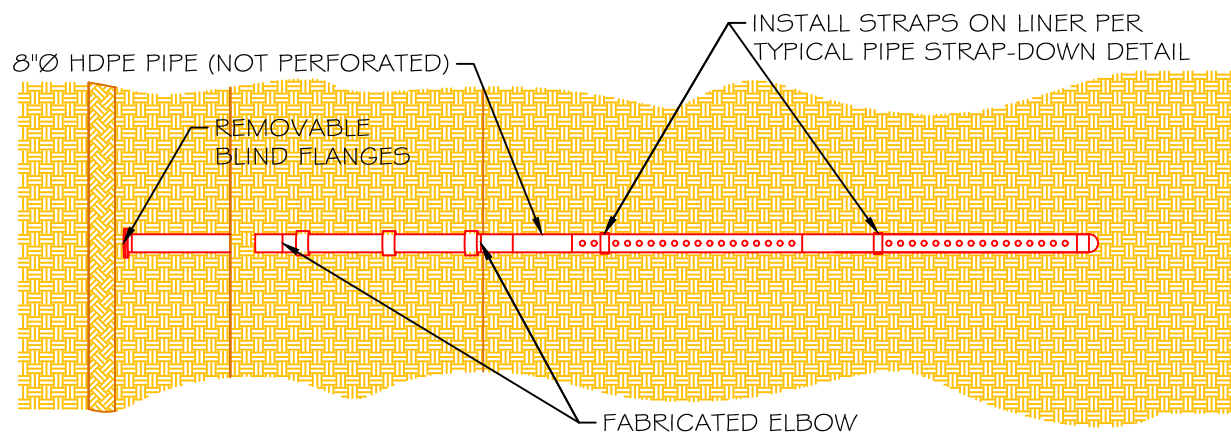
- NOTES:
1. GAS VENTS AROUND PERIPHERY OF LAGOON @ MAX. 40' O.C.
 2. STRAP NOT WELDED TO BIO-GAS HEADER PIPE.
 3. WRAP 60 MIL PRIMARY LINER OVER CONCRETE & EXTRUSION WELD.



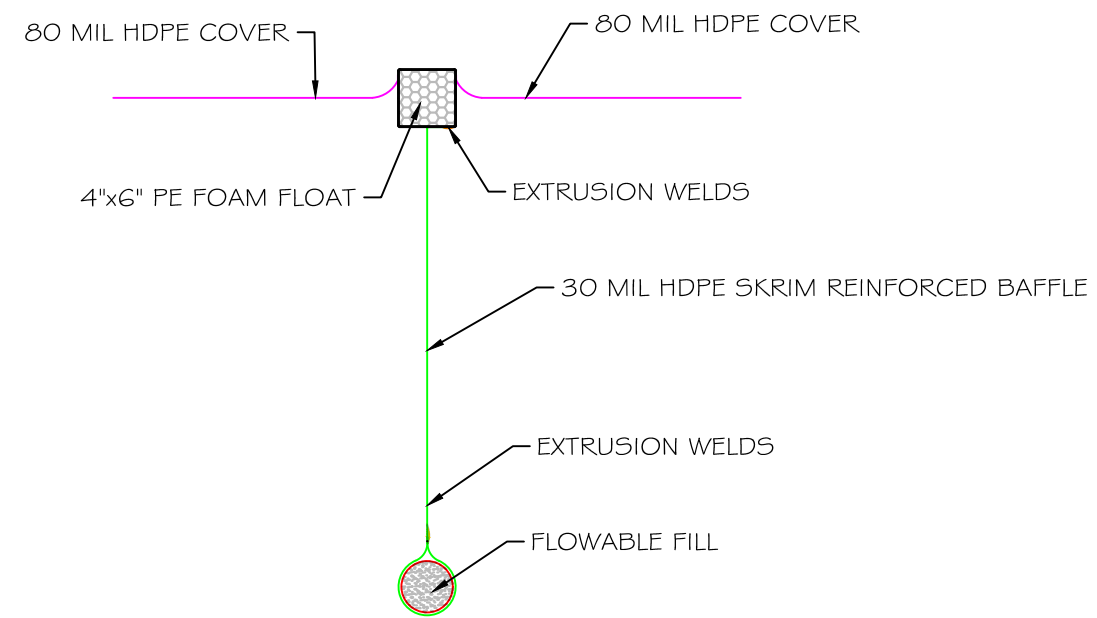
A **SLUDGE REMOVAL PIPE ANCHOR DETAIL**
 NOTE: ANCHOR TO BE USED ON HORIZONTAL SURFACES ONLY, AT BOTTOM OF LAGOON N.T.S.



B **TYPICAL PIPE STRAP-DOWN DETAIL**
 NOTE: MAXIMUM 10' O.C. SPACING BETWEEN PIPE STRAP-DOWNS, U.N.O. N.T.S.



C **TYPICAL SLUDGE PIPE-PROFILE**
 N.T.S.



D **BAFFLE SECTION**
 N.T.S.



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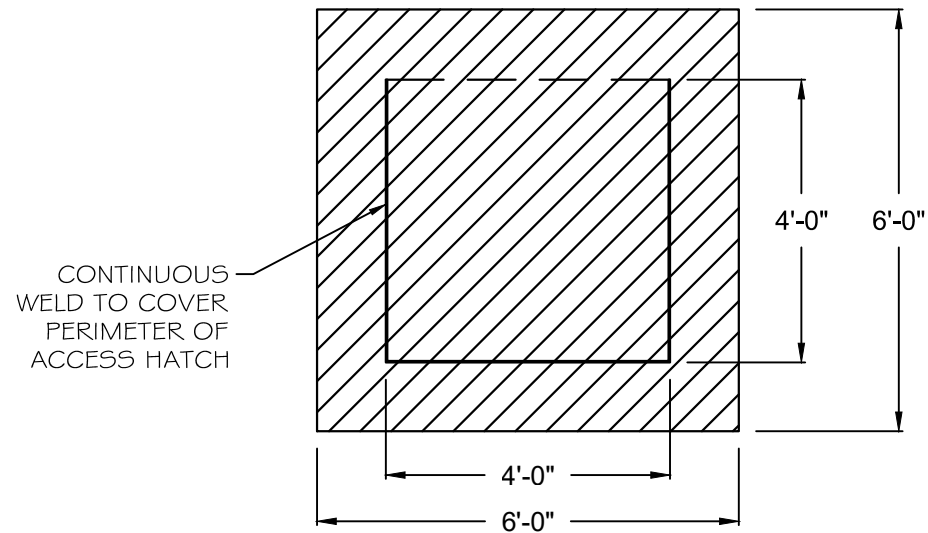
PROJECT:
**VAN DER HOEK DAIRY
 DIGESTER**

CLIENT:
 VAN DER HOEK DAIRY
 15886 S. LASSEN AVE
 HELM, CA 93627

SLURRY REMOVAL
 SYSTEM
 DIGESTER

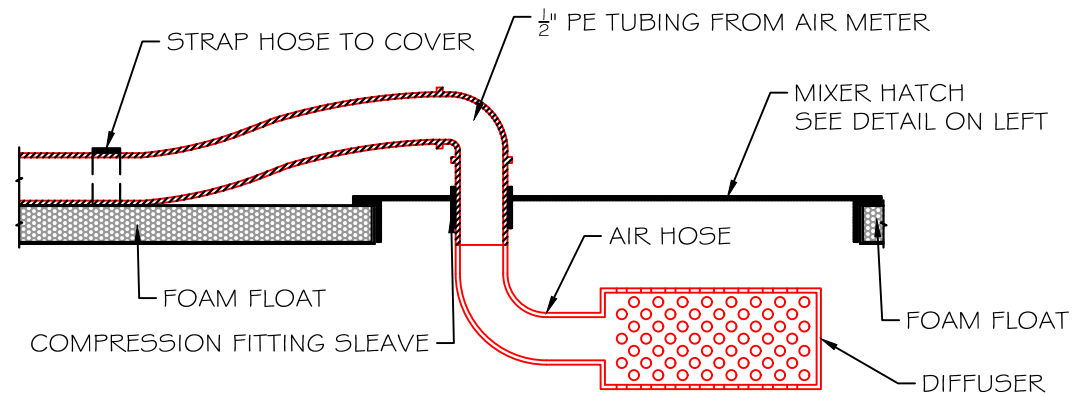
REVISION LOG:

PLOT DATE:	
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	D.2



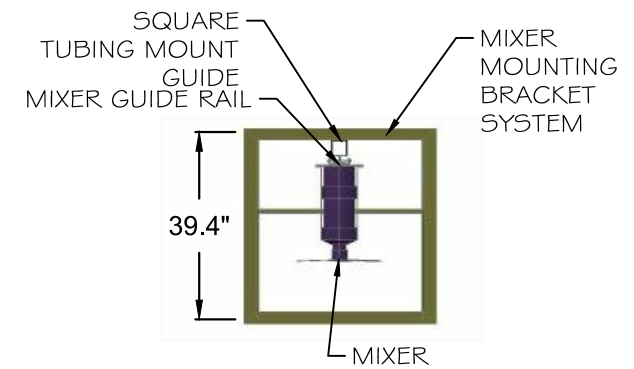
MIXER - HATCH

N.T.S.



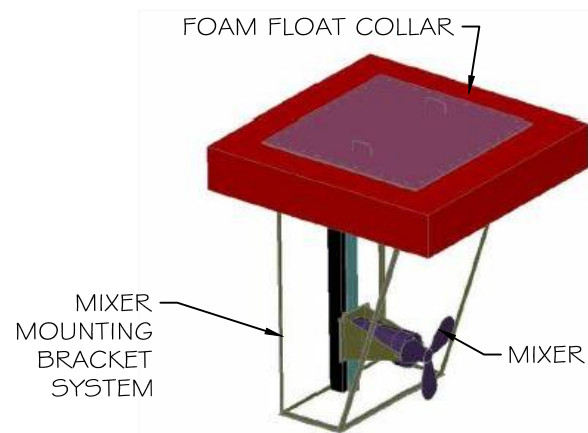
AIR INJECTION & MIXER HATCH

N.T.S.



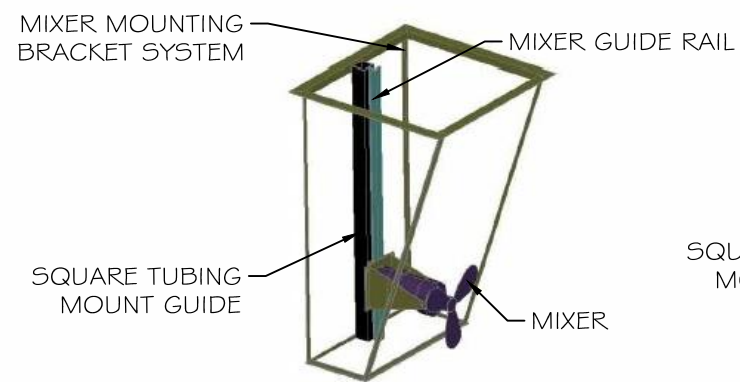
MIXER - PLAN VIEW

N.T.S.



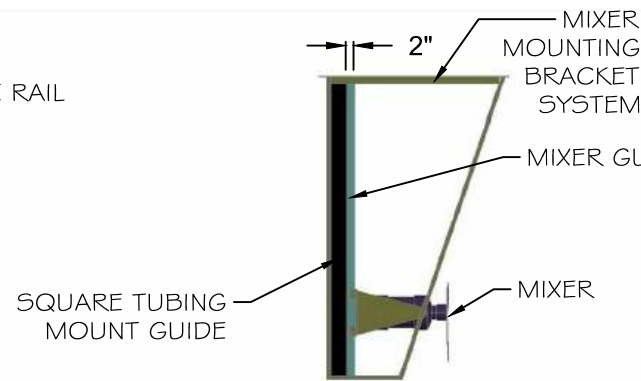
MIXER - ISOMETRIC W/FLOAT IN PLACE

N.T.S.



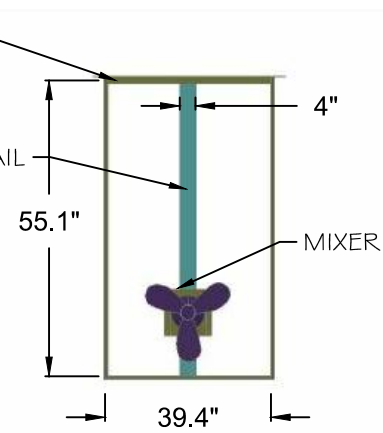
MIXER - ISOMETRIC

N.T.S.



MIXER - SIDE VIEW

N.T.S.



MIXER - FRONT VIEW

N.T.S.



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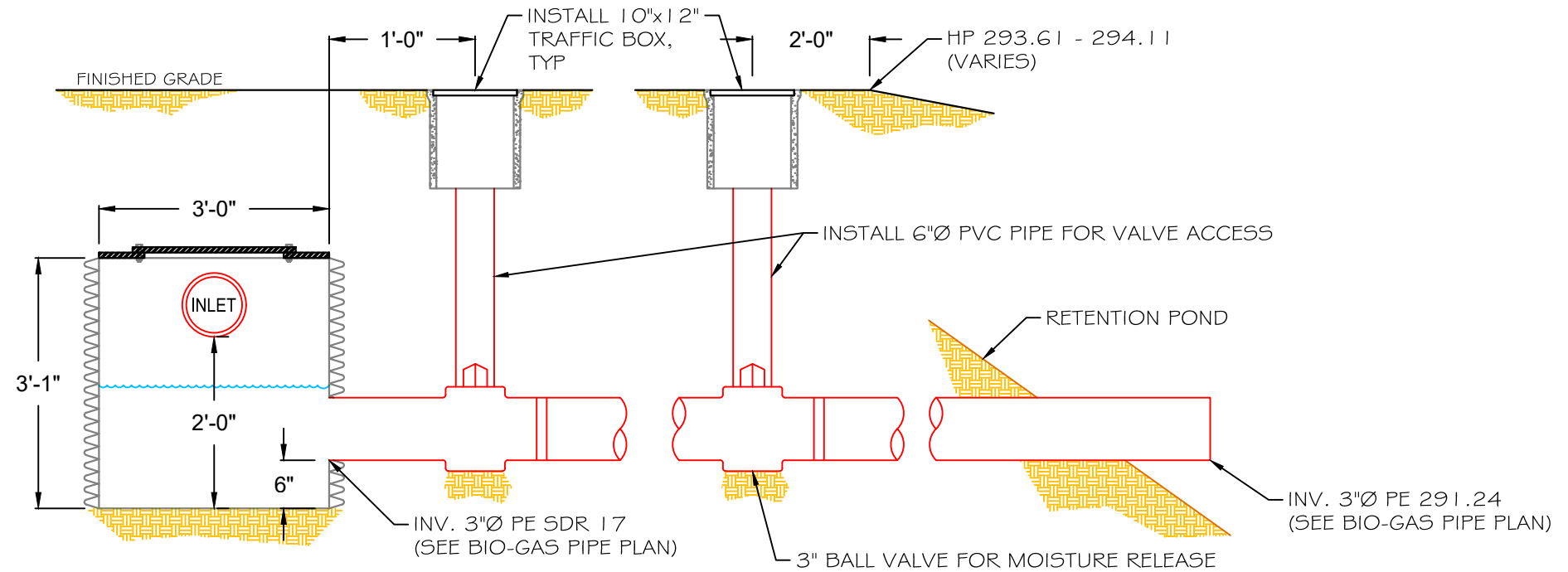
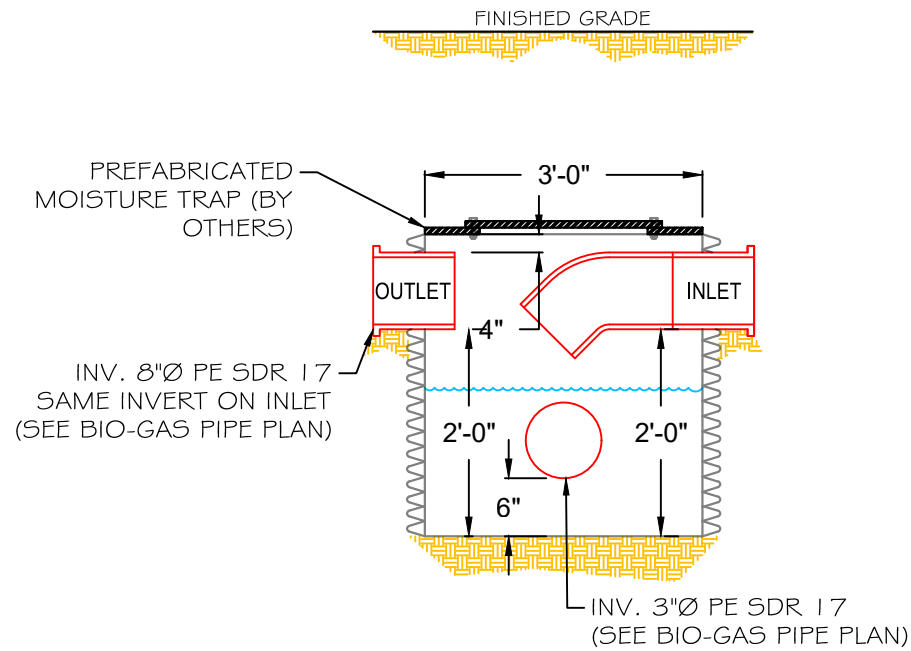
PROJECT:
VAN DER HOEK DAIRY DIGESTER

CLIENT:
VAN DER HOEK DAIRY
15886 S. LASSEN AVE
HELM, CA 93627

MIXER
DETAILS

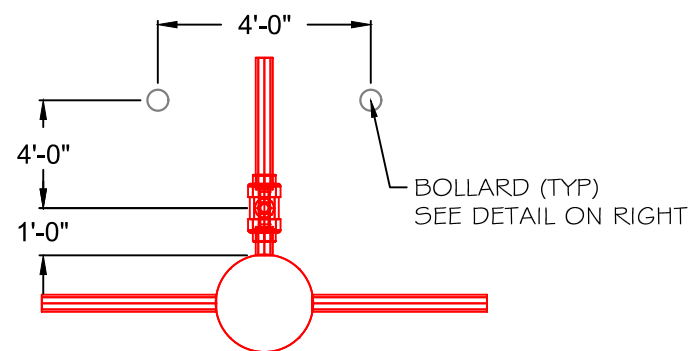
REVISION LOG:

PLOT DATE:	
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	D.3



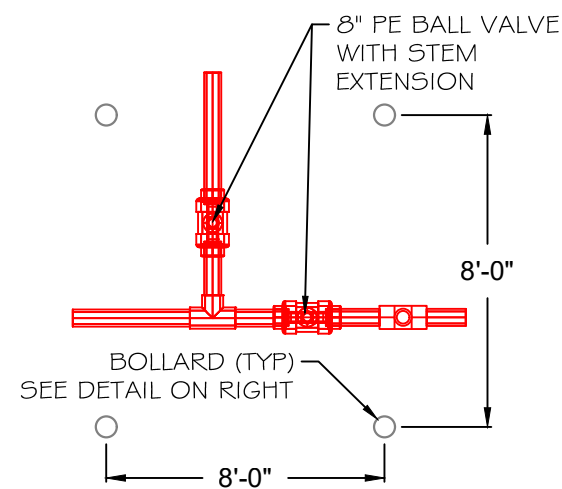
MOISTURE TRAP DETAIL

N.T.S.



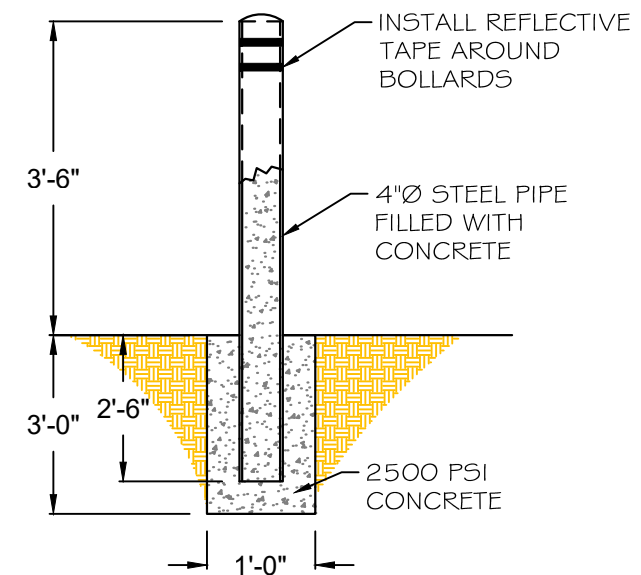
BIO-GAS VALVE

N.T.S.



BALL VALVE JUNCTION

N.T.S.



BOLLARD DETAIL

N.T.S.



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PROJECT:
VAN DER HOEK DAIRY DIGESTER

CLIENT:
VAN DER HOEK DAIRY
15886 S. LASSEN AVE
HELM, CA 93627

DETAILS

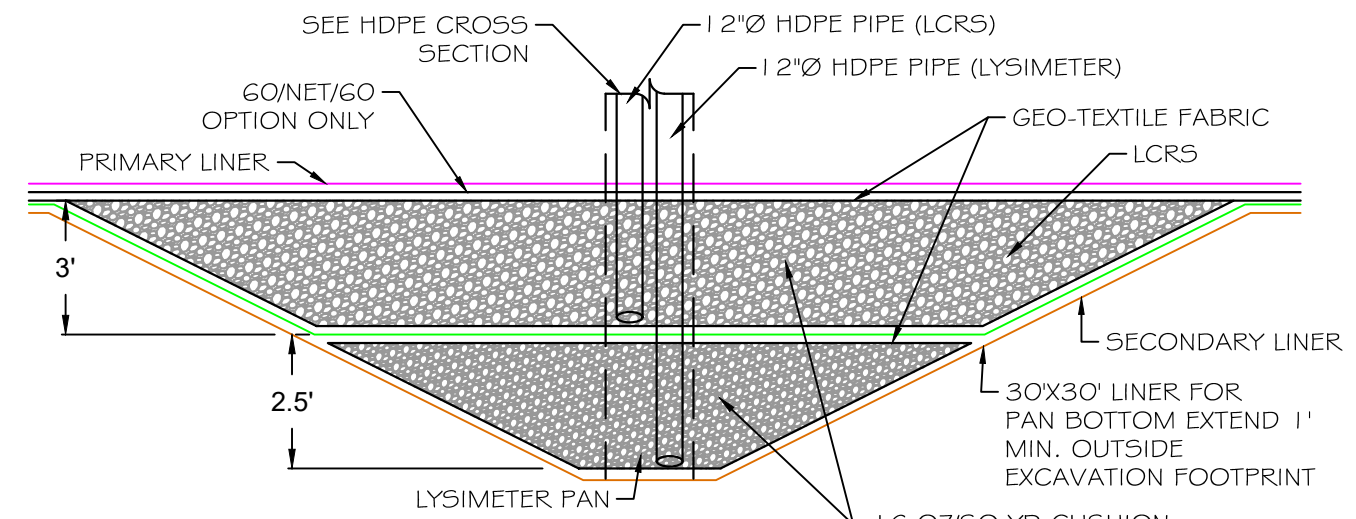
REVISION LOG:

PLOT DATE:

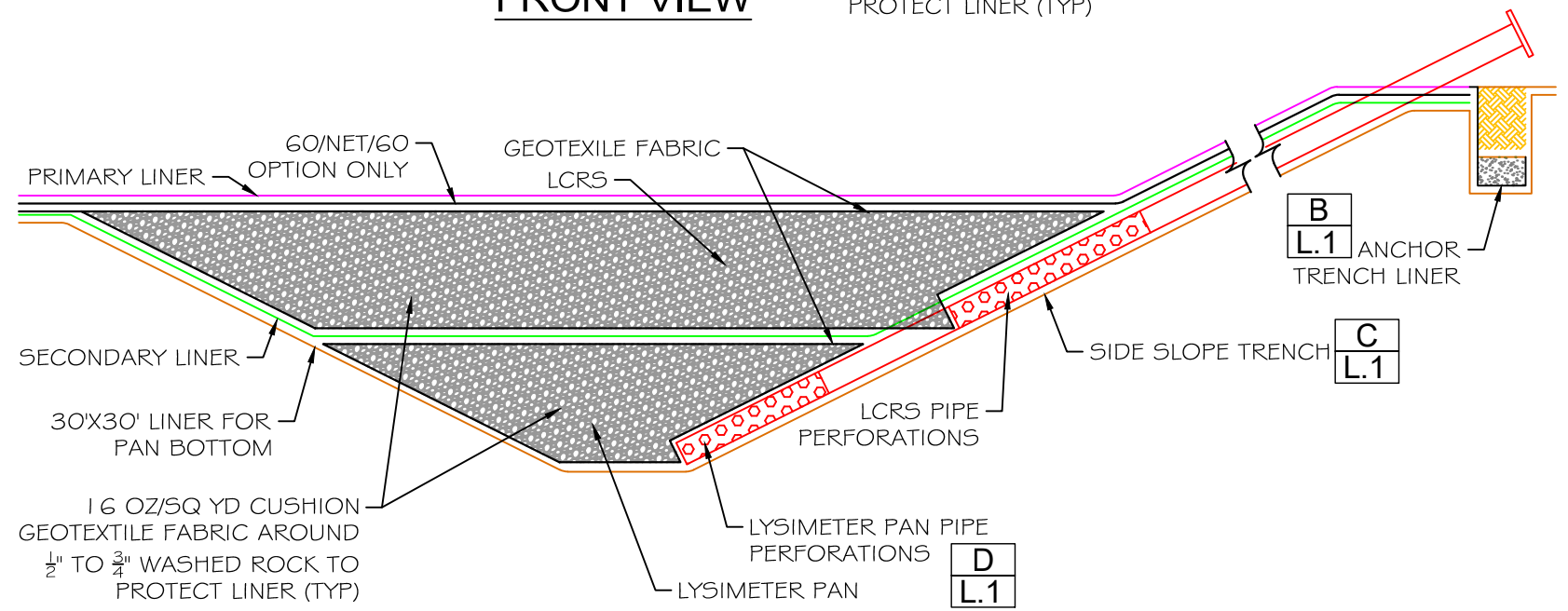
JOB NO.: 17003

SCALE: AS SHOWN

SHEET NO.: D.4



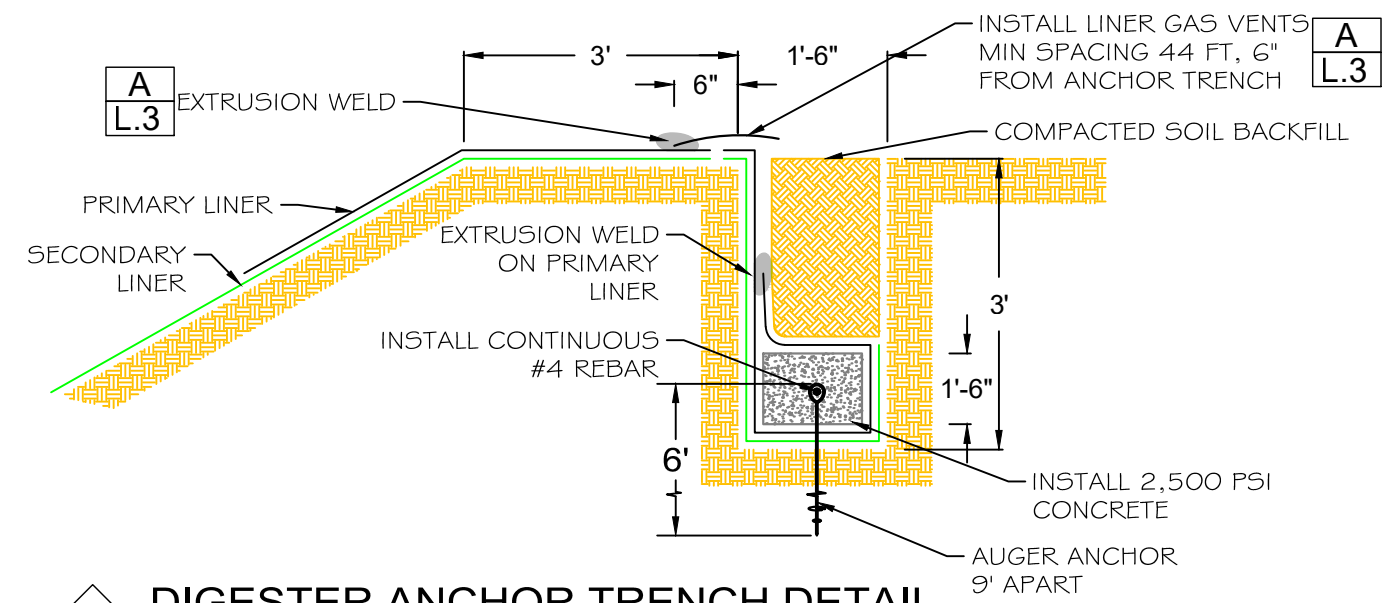
FRONT VIEW



SIDE VIEW

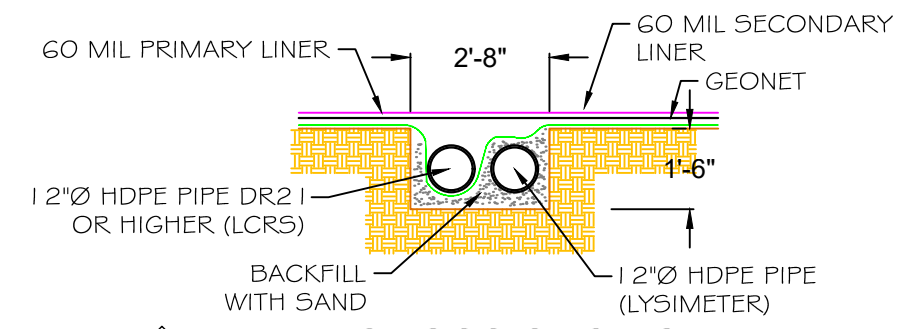
LCRS, LYSIMETER AND DRAINAGE SUMP PROFILE

N.T.S.



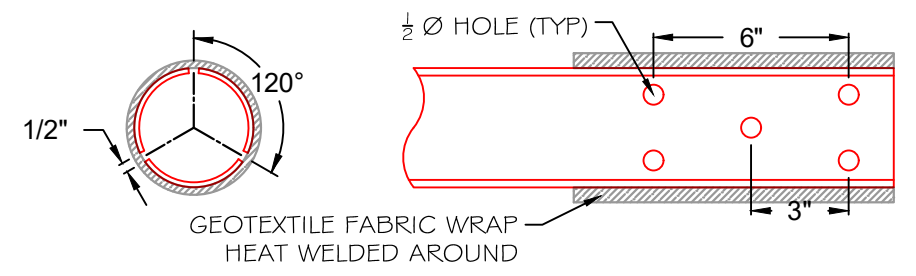
DIGESTER ANCHOR TRENCH DETAIL

NOTES: 1. CONTRACTOR TO USE ANCHOR SYSTEM OR PROVIDE DETAILS AND DESIGN FOR ALTERNATIVE TO BE APPROVED BY ENGINEER. N.T.S.



HDPE CROSS SECTION

N.T.S.



TYPICAL PERFORATION DETAIL

N.T.S.

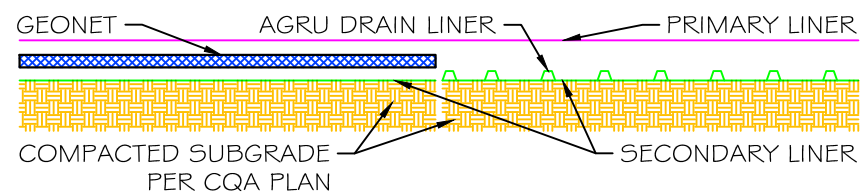
GENERAL NOTES
LINER DETAILS

REVISION LOG:

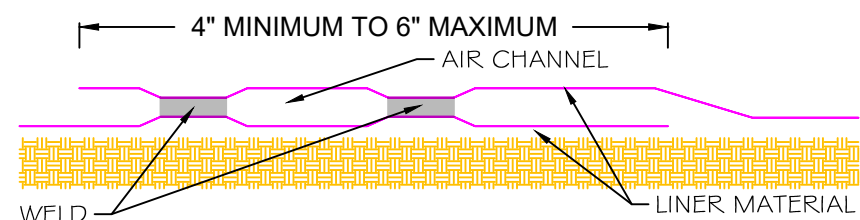
PLOT DATE:	
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	L.1

OPTIONAL TIER 1 DOUBLE LINER-LAYERING SYSTEM WITH DRAIN LINER VERIFY WITH OWNER

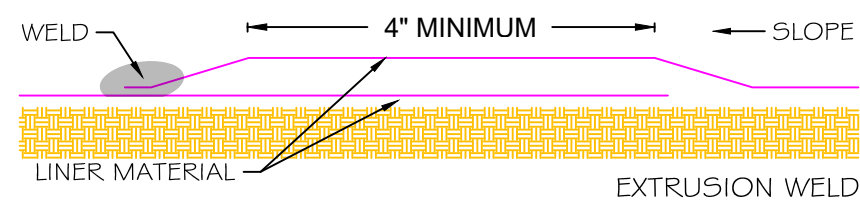
SMOOTH/STUDDED/ 60-NET-60 LINER LAYERS					
DESCRIPTION	LOCATION	MATERIAL	THICKNESS (MIN)	TOP FINISH	BOTTOM FINISH
PRIMARY LINER	TOP	HDPE	60 MIL	SMOOTH	SMOOTH CONDUCTIVE
DRAINAGE NET	MIDDLE	HDPE	200 MIL	N/A	N/A
SECONDARY LINER	BOTTOM	HDPE	60 MIL	SMOOTH	SMOOTH



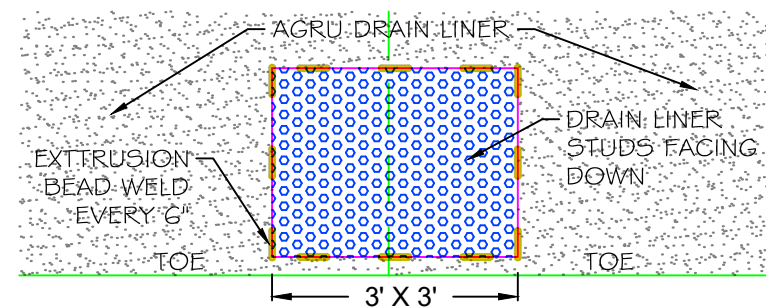
A DOUBLE LAYER 60-NET-60 DOUBLE LAYER WITH DRAIN LINER N.T.S.



HOT WEDGE DOUBLE FUSION WELD

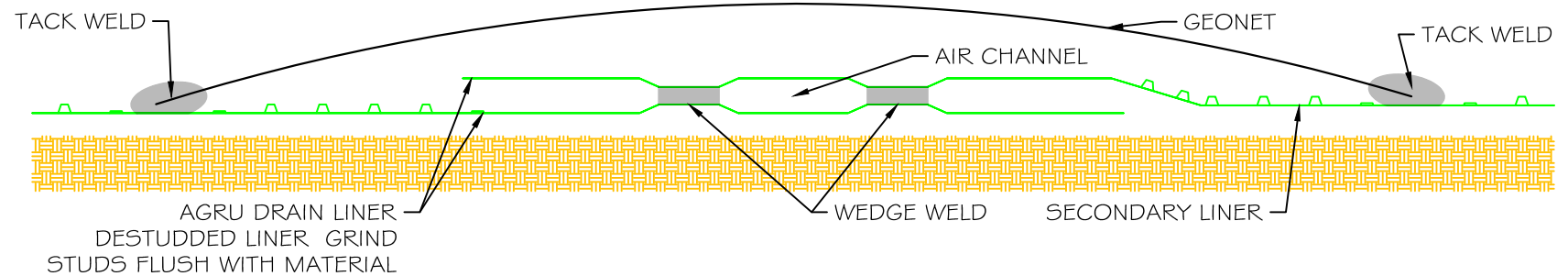
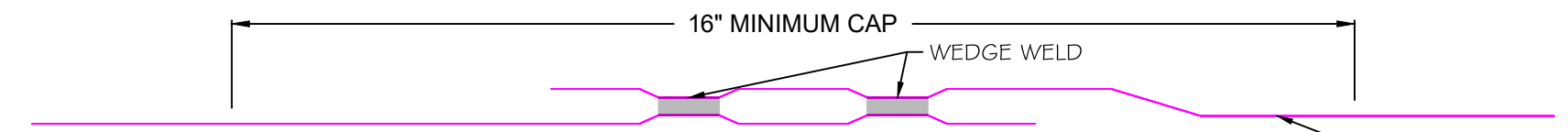
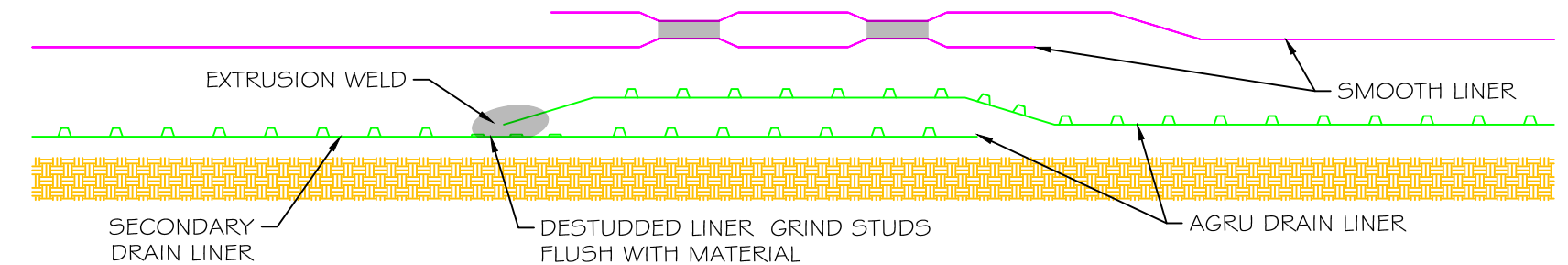


B HDPE LINER-SMOOTH WELDS N.T.S.



DRAIN LINER SMOOTH END WELD PATCH

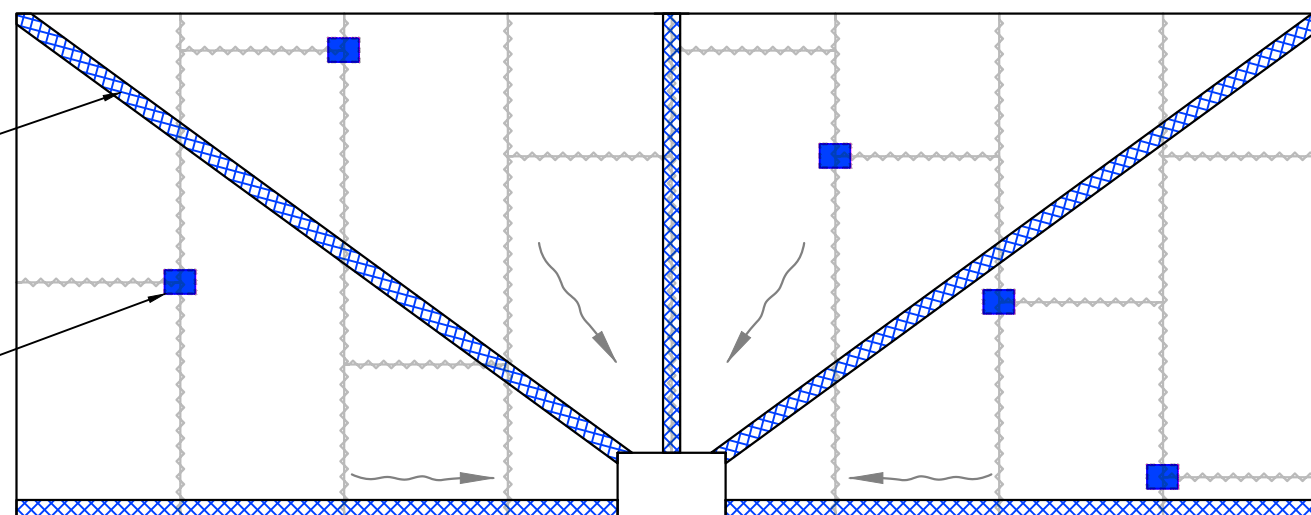
C 3'X3' DRAIN PATCH WELD N.T.S.



D AGRU DRAIN LINER END/END WELD
NOTE: AGRU DRAIN LINER DOES NOT HAVE STUDS ALONG THE EDGE SO EDGE/EDGE SEAMS DO NOT REQUIRE DRINGING OR CAP. N.T.S.

2' WIDE STRIP OF 200 MIL GEONET. TACK WELD AT 8'

C P.3 3'X3' DRAIN PATCH



NOTE: CQA OFFICER IS RESPONSIBLE TO ADD PATCHES AS NEEDED FOR FLOW

E AGRU DRAIN LINER CROSS SEAM NET PLAN VIEW
NOTE: TYPICAL OF ALL DRAIN LINERS N.T.S.

H
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ENGINEERING

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VISALIA, CA 93291
(559) 563-0181

REGISTERED PROFESSIONAL ENGINEER
CRAIG M. HARTMAN
NO. 73837
Exp. 06-30-19
CIVIL
STATE OF CALIFORNIA 1-8-18

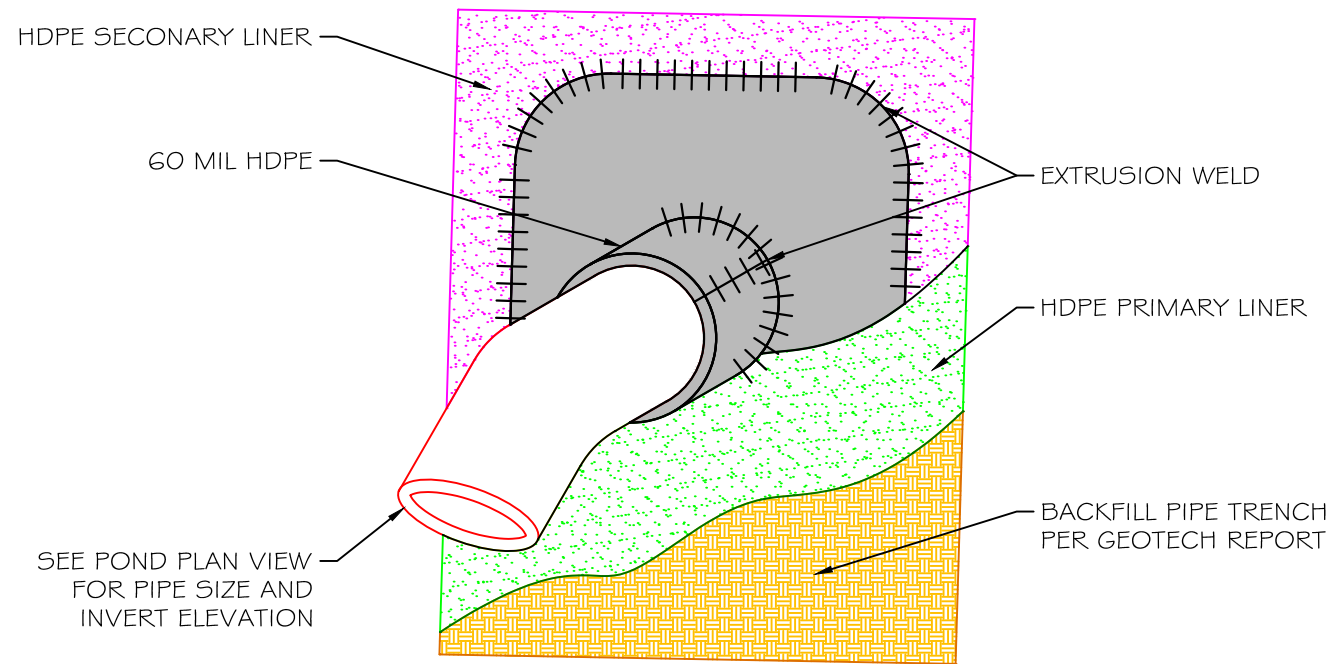
PROJECT:
VAN DER HOEK DAIRY DIGESTER

CLIENT:
VAN DER HOEK DAIRY
15886 S. LASSEN AVE
HELM, CA 93627

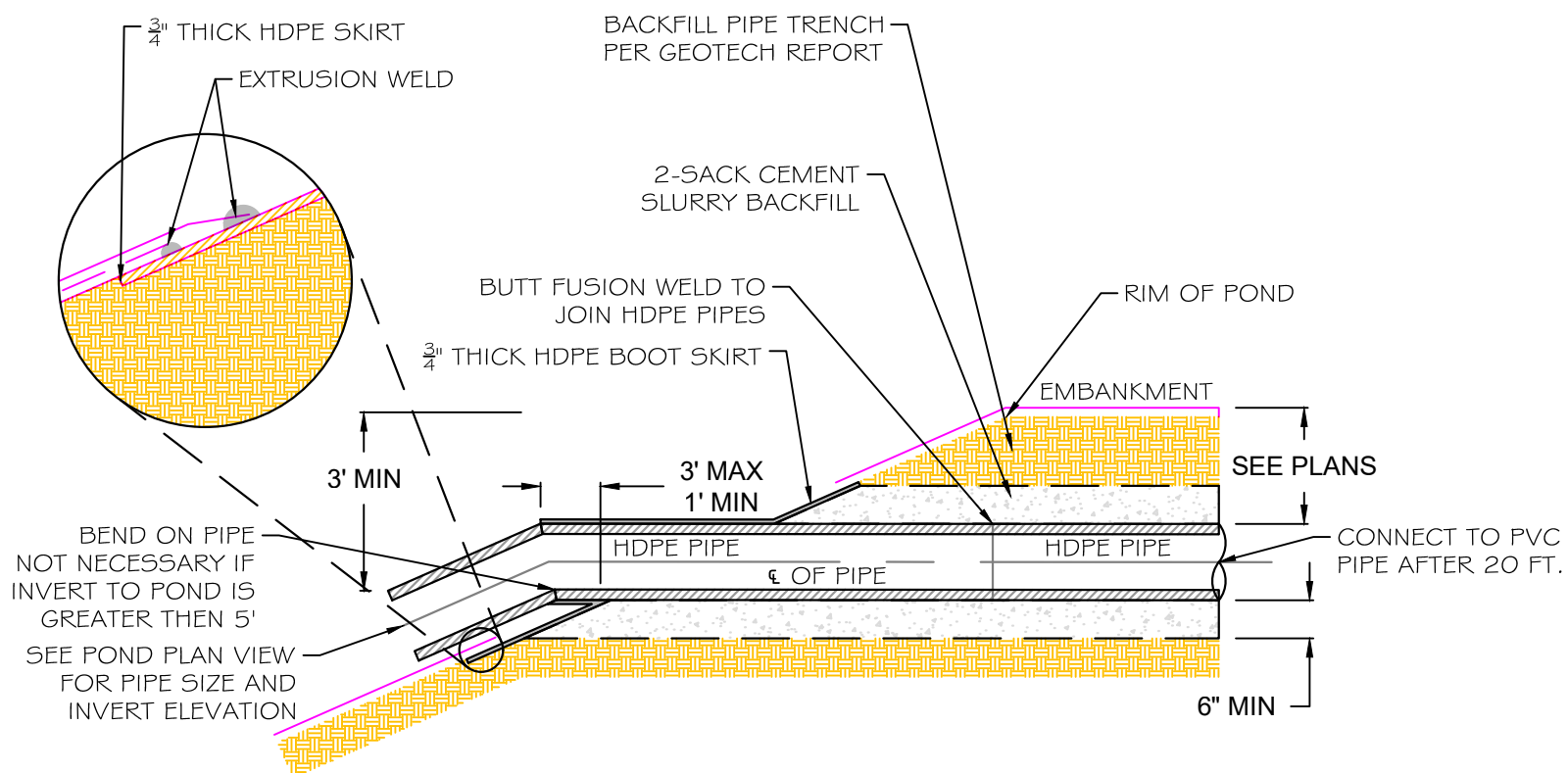
LINER DETAILS

REVISION LOG:

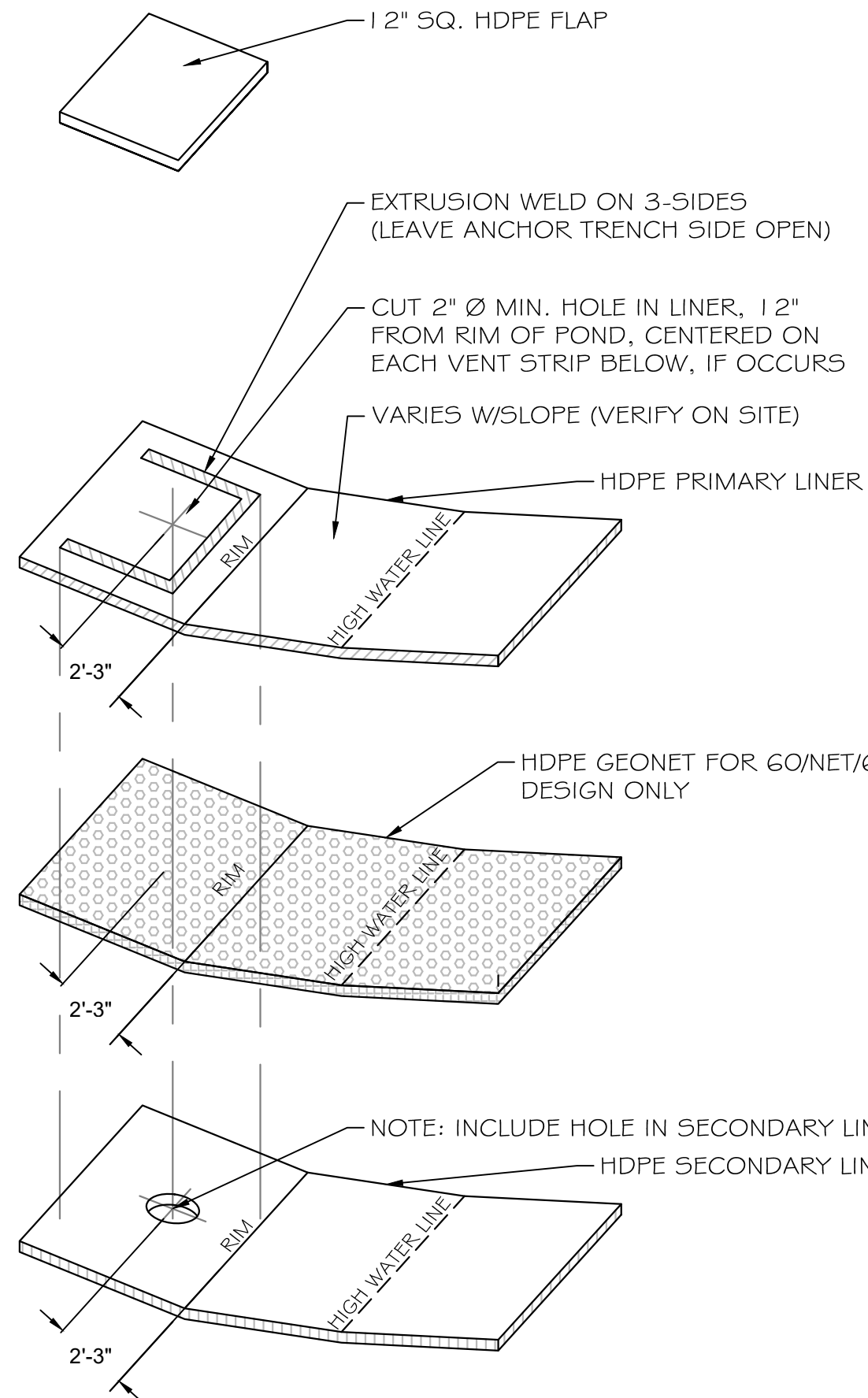
PLOT DATE:	
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	L.2



A BOOT SKIRT N.T.S.



B BOOTLESS PIPE PENETRATION LINER FASTENING N.T.S.



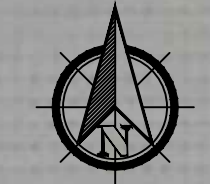
C VENT ORIFICE (ISOMETRIC VIEW) N.T.S.

1
H
HARTMAN
ENGINEERING
113 N. CHURCH ST,
SUITE 521
VISALIA, CA 93291
(559) 563-0181
REGISTERED PROFESSIONAL ENGINEER
CRAIG M. HARTMAN
NO. 73837
Exp. 06-30-19
CIVIL
STATE OF CALIFORNIA
1-8-18

PROJECT:
VAN DER HOEK DAIRY DIGESTER
CLIENT:
VAN DER HOEK DAIRY
15886 S. LASSEN AVE
HELM, CA 93627

LINER
DETAILS
REVISION LOG:

PLOT DATE:
JOB NO.: 17003
SCALE: AS SHOWN
SHEET NO.: L.3



General Notes

Confidential and Not for Construction

- (E) Existing
- (P) Proposed
- Access to the Property
- Proposed Fencing
- No improvements to streets have been propose.
- Off-street dirt parking and loading areas exist throughout the property. No new parking/loading areas have been proposed.
- 4" Biogas Gathering Lines
- 6" Biogas Gathering Lines
- Manure Piping
- PG&E Transmission Line
- APN Boundaries
- Nearest Water Courses to Dairy Parcel
- Williamson Act
- 20' Pipeline Easement
- Property Access

All pipes are in private easement

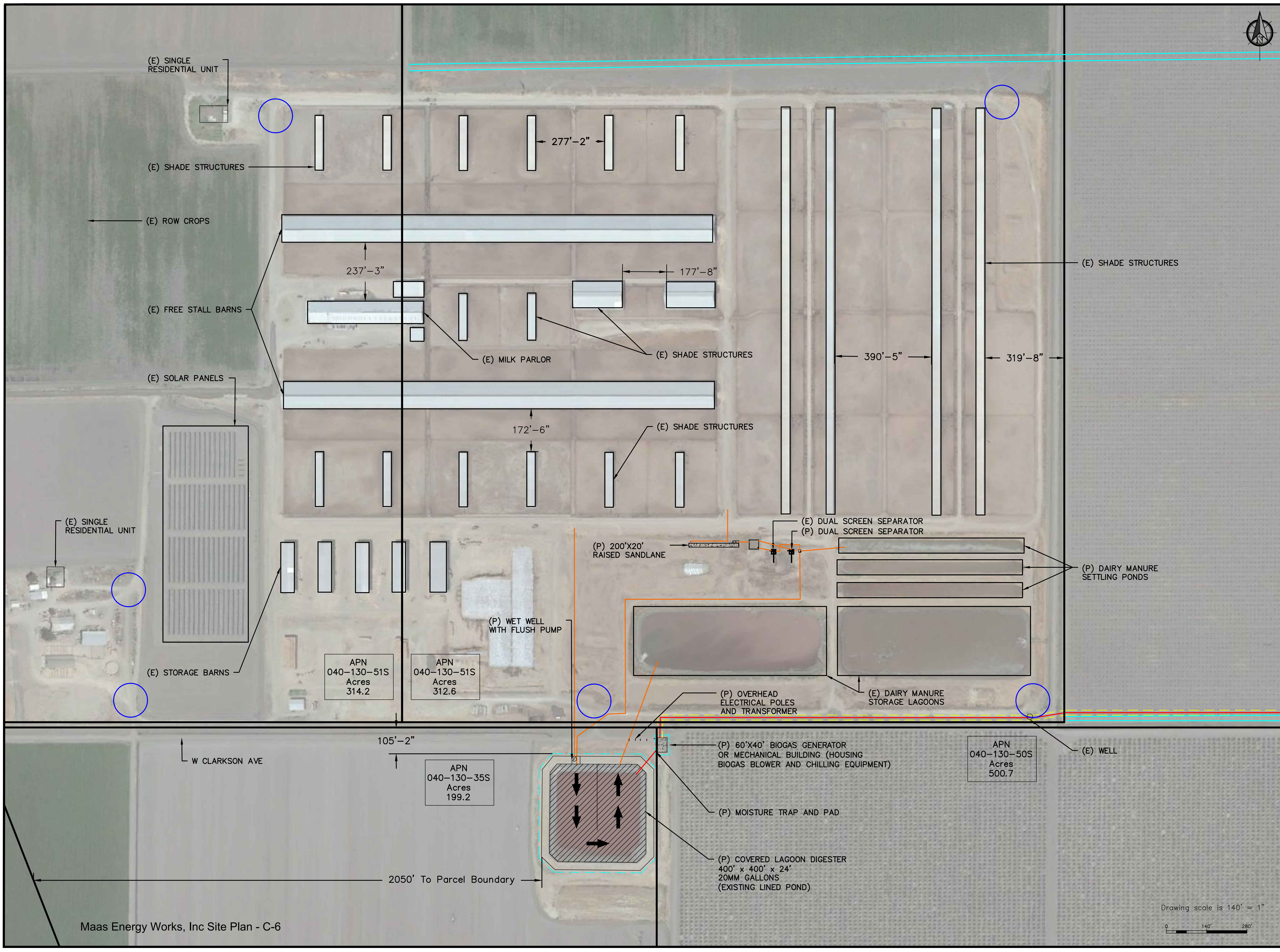
W Clarkson Ave, no County Public Right of Way.



Firm Address
3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

Project Name and Address
Vander Hoek Dairy
15886 S Lassen Avenue
Helm, California 93627

Date: 1/28/19
Version: 1.0
Drawn By: Byron Oja

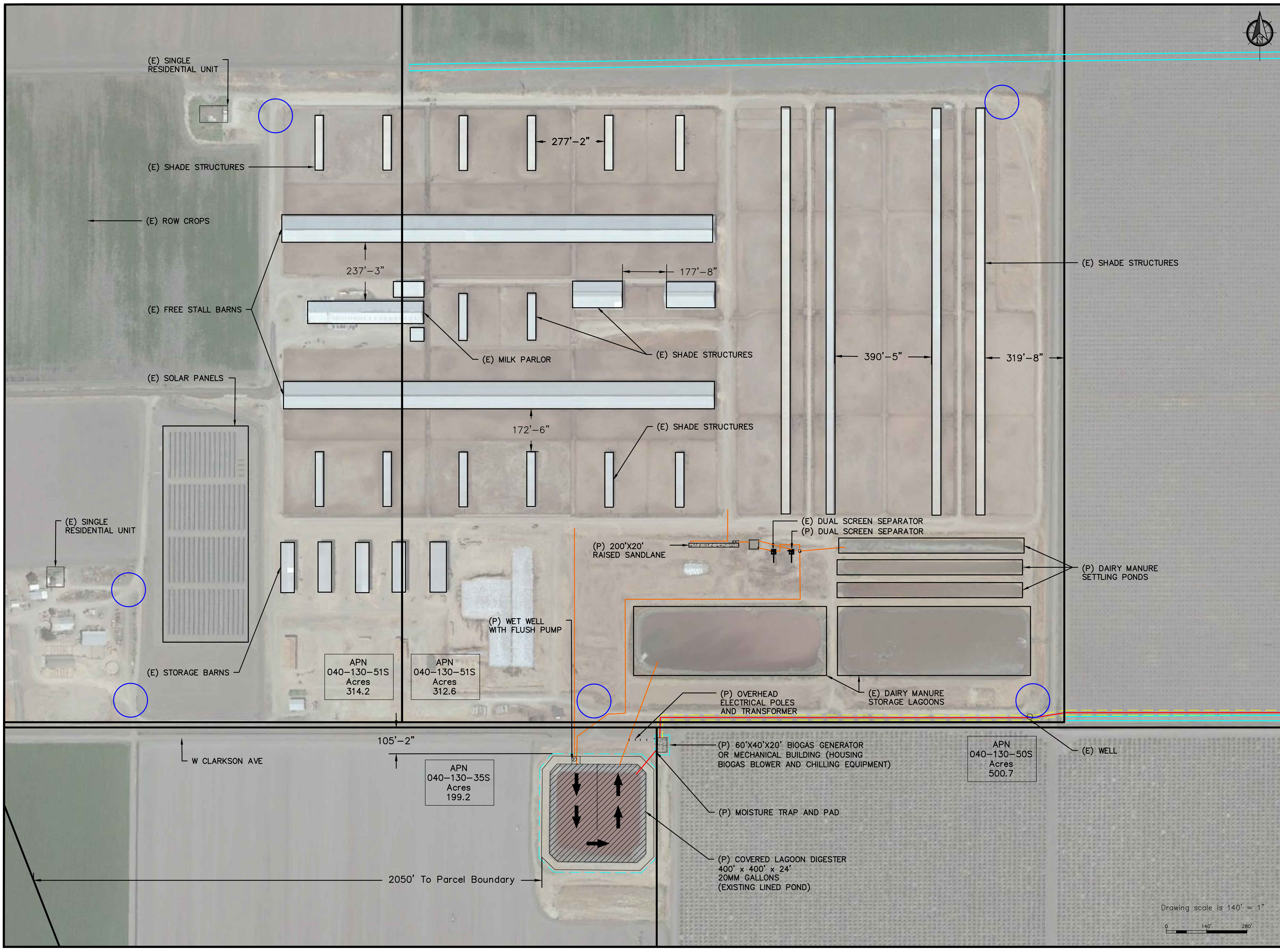




General Notes

Confidential and Not for Construction

- (E) Existing
- (P) Proposed
- Access to the Property
- Proposed Fencing
- No improvements to streets have been propose.
- Off-street dirt parking and loading areas exist throughout the property. No new parking/loading areas have been proposed.
- 4" Biogas Gathering Lines
- 6" Biogas Gathering Lines
- Manure Piping
- PG&E Transmission Line
- APN Boundaries
- Nearest Water Courses to Dairy Parcel
- Williamson Act
- 20' Pipeline Easement
- Property Access



All pipes are in private easement

W Clarkson Ave, no County Public Right of Way.

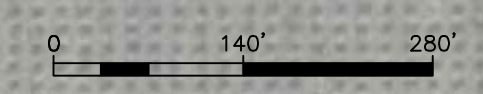


Firm Address
3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

Project Name and Address
Vander Hoek Dairy
15886 S Lassen Avenue
Helm, California 93627

Date	3/21/19	Version	1.0
Drawn By	Byron Oja		

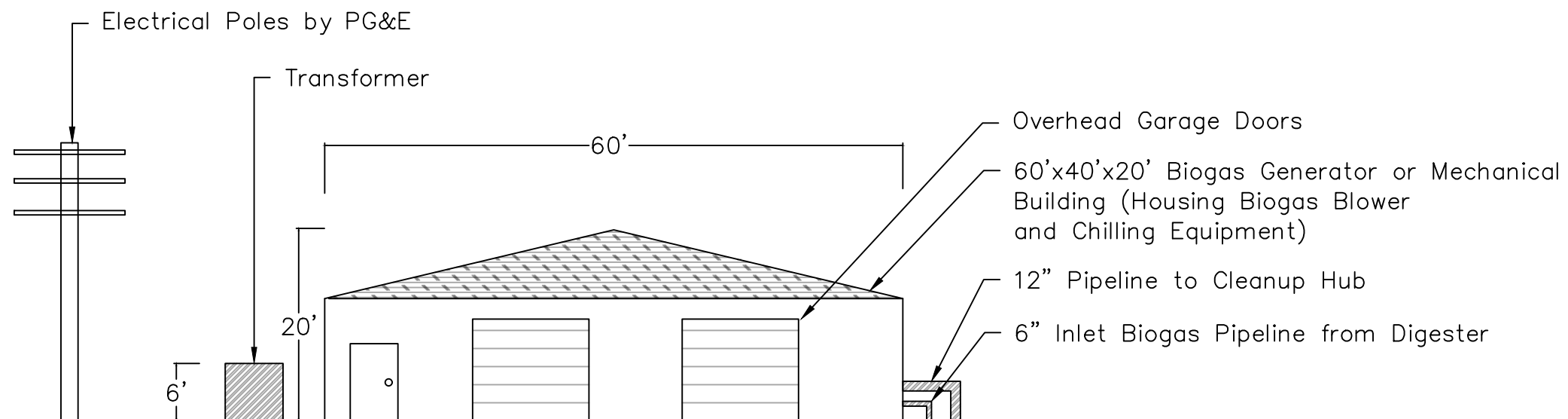
Drawing scale is 140' = 1"





General Notes

Not for Construction



Firm Address

3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

Project Name and Address

Five Points Cluster
Cleanup Hub & Injection Point
12103 Elkhorn Ave,
Riverdale, CA 93656

Date

3/22/19

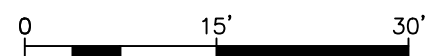
Version

1.0

Drawn By

Byron Oja

Drawing scale is 15' = 1"



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Fresno County Department of Public Works and Planning

Date Received: 3/21/19 CUP 3646 (Application No.)

MAILING ADDRESS: Department of Public Works and Planning, Development Services and Capital Projects Division, 2220 Tulare St., 6th Floor, Fresno, Ca. 93721

LOCATION: Southwest corner of Tulare & "M" Streets, Suite A Street Level, Fresno Phone: (559) 600-4497

APPLICATION FOR:

- Pre-Application (Type), Amendment Application, Amendment to Text, Conditional Use Permit, Variance (Class)/Minor Variance, Site Plan Review/Occupancy Permit, No Shoot/Dog Leash Law Boundary, General Plan Amendment/Specific Plan/SP Amendment, Time Extension for, Director Review and Approval, for 2nd Residence, Determination of Merger, Agreements, ALCC/RLCC, Other

DESCRIPTION OF PROPOSED USE OR REQUEST:

Request is to allow the installation of a digester, sandlane, 8"-24" manure pipes, biogas pipe, moisture trap and pad, biogas blower and chilling equipment, mechanical building, biogas generator and supporting equipment. Proposed upgrades will allow biogas to be transported to the upgrading/injection point and ultimately to the PG&E transmission line.

CEQA DOCUMENTATION: [X] Initial Study [] PER [] N/A

PLEASE USE FILL-IN FORM OR PRINT IN BLACK INK. Answer all questions completely. Attach required site plans, forms, statements, and deeds as specified on the Pre-Application Review. Attach Copy of Deed, including Legal Description.

LOCATION OF PROPERTY: South side of W Elkhorn Ave between S Madera Ave and S Howard Ave. Street address: 13695 West Elkhorn Ave, Riverdale, CA 93656

APN: 050-160-16S Parcel size: 470.1 Acres Section(s)-Twp/Rg: S 5 - T 17 S/R 18 E

ADDITIONAL APN(s):

I, Charles Van Der Kooi (signature), declare that I am the owner, or authorized representative of the owner, of the above described property and that the application and attached documents are in all respects true and correct to the best of my knowledge. The foregoing declaration is made under penalty of perjury.

Table with 5 columns: Name, Address, City, Zip, Phone. Rows include Van der Kooi Family Trust, Van der Kooi Dairy Power LLC, and Maas Energy Works, Inc.

CONTACT EMAIL: stephanie@maasenergy.com

OFFICE USE ONLY (PRINT FORM ON GREEN PAPER)

Application Type / No.: Ucup No. 3646 Fee: \$9,123.00
Application Type / No.: Fee: \$
Application Type / No.: Fee: \$
Application Type / No.: Fee: \$
PER/Initial Study No.: Fee: \$
Ag Department Review: Fee: \$
Health Department Review: Fee: \$654.00
Received By: J.S. Invoice No.: 117397 TOTAL: \$9,828.00

UTILITIES AVAILABLE:

WATER: Yes [] / No [X] Agency: Well
SEWER: Yes [] / No [X] Agency: Septic

STAFF DETERMINATION: This permit is sought under Ordinance Section: Sect-Twp/Rg: - T - S/R - E

Related Application(s): APN # - - -
Zone District: AE-20 APN # - - -
Parcel Size: APN # - - -

CUP 3646 Operational Statement

CUP “D” Application Project Details (Van der Kooi)

Lists the proposed project components to be installed at the participating project site for CUP “D”.

Digester #4 – Charles Van der Kooi Dairy:

- Various 8”-24” Manure Pipes
- Digester
- 8” Biogas Pipe
- Moisture Trap and Pad
- Biogas Blower and Chilling Equipment
- Mechanical Building
- Biogas Generator
- Supporting Equipment

Dairy Liquid Manure Handling System

(Manure Pipes)

To prepare the dairy for the digester installation, the project will modify the existing liquid manure handling system on the dairy to accommodate the digester. This modification will include the installation of various liquid manure pipes between 8” and 24” in diameter. These pipes are installed via standard open trenching practices in compliance with all OSHA standards.

Digester Technology

The anaerobic covered lagoon digesters are a passive addition to the dairy and require minimal oversight. Cameras and automation equipment will be installed at each digester sight to enable remote monitoring. The digester will be suited with an emergency vent as required by the San Joaquin Valley Air District (SJVAPCD). A small mechanical building will be constructed on-site that will house a biogas chiller to remove condensate prior to entering the biogas gathering lines and a biogas blower to move the gas from the digester system to the biogas gathering lines as discussed in more detail below.

The digester will be created by first double-lining a new or existing storage pond. All digester ponds will meet the Central Valley Regional Water Quality Control Board (CRWQCB) Tier 1 standards, which include the installation of double-layered liners of welded 60 ml HDPE with leak detection to ensure water quality. All digester pond designs must be pre-approved by the CRWQCB and their installation is monitored by professional engineers. Once constructed and prior to actual operation of the ponds to treat wastewater, an installation report will be submitted to CRWQCB for their review and approval.

The project will then cover the newly lined pond(s) with 80 ml flexible HDPE material to create the project’s biogas collection system. The lagoon cover will be welded to the liner ensuring a complete seal. A perforated pipe runs above the water line around the entire perimeter of the covered lagoon to ensure uninterrupted gas flow to the outlet. The cover will also include submersible mixers to agitate the manure which will minimize settling, reduce sludge in the digester, and increase biogas production. An HDPE baffle creates a pathway for manure to slowly flow through the digester, ensuring hydraulic retention time and eliminating dead spots. Finally, sludge draw-off pipes are commonly added as a final protection against sludge buildup. This type of covered lagoon technology is highly commercialized and represents 100% of the successful digester installations in California since 2014. Engineered site plan and design drawings for

the proposed digester are found in Attachment D-5. A summary of digester type, digester dimensions, digester volume, and estimated gas output is also summarized in the table below.

Table 5 - Van der Kooi Dairy Digester

Digester	Participating Dairy	Digester Dimensions (ft)	Digester Volume (gal)	Gas Output (mmBTU/yr)
Digester #4	Charles Van der Kooi Dairy	1,080' x 190' x 20'	22,021,399	55,216

Biogas Pipe

The biogas pipe is responsible for the delivery of the biogas from the digester to the moisture trap.

Moisture Trap and Pad

After leaving the digester but before entering the mechanical building, the biogas is processed through a moisture trap to reduce the amount of H₂O in the biogas. The trap is supported by a new concrete pad which will also accommodate the blower, chilling equipment and mechanical building.

Biogas Blower and Chilling Equipment

Once it has passed through the moisture trap, the biogas will be pulled through the blower and sent to chilling equipment and then the gathering lines.

A chiller and condenser will be installed to condense most of the water in the biogas before blowing into the gathering pipeline. The chiller is a typical commercial unit for cooling glycol. The condenser is a commercially available unit for condensing moisture from biogas.

A blower will be installed near the digester to move the biogas into the gathering lines at pressure of less than 20 psi. Each blower will be controlled by a central SCADA system that is overseen by operators on a 24/7 basis. When a blower increases in speed, more biogas is pushed to the upgrading facility, and when it decreases, less biogas is sent. The gathering lines will be pressure monitored via SCADA equipment in real time to detect leaks or major failures. Additionally, flow meters will be installed at each digester site and at the upgrading facility to monitor biogas flows.

Mechanical Building

The mechanical building will be a prefabricated steel building no larger than 60' x 40'. This building will house chilling equipment and the blower and the biogas generator.

Biogas Generator

The project's internal combustion engine's emissions will be regulated by the SJVACPD under the latest Best Available Control Technology (BACT) standards. This power generation project will consume biogas in an onsite generator, to create electricity for delivery to the PG&E grid under the Bioenergy Market Adjusting Tariff (BioMAT), net energy metering with aggregation or other exporting tariff. When the engine is off for maintenance, the biogas will be stored in the covered lagoon, which has capacity for approximately 2 days of biogas storage. An emergency vent will also be installed per San Joaquin Valley Air Pollution Control District permit requirements.

The engine is a Guascor SFGLD-560 or similar, 16-cylinder lean-burn, turbo-charged reciprocating internal combustion engine mated with a synchronous generator. The combined rated electrical power of the system is 800-1,000 kW. The biogas from this project will be conditioned to remove moisture and reduce hydrogen sulfide below 40 ppm. Moisture from the biogas will be removed using a Bell & Gosset (or equivalent) plate and frame heat exchanger cooled by a Cold Shots (or equivalent) 240,000 BTU/hr industrial air-cooled chiller. H₂S reduction will be achieved in two stages. First a built-in air injection system under the digester's cover will encourage biological fixation of sulfur molecules. Secondly, the project will employ a media-based scrubber using non-toxic media (Sulfatreat or similar). CO₂ does not need to be removed prior to combustion under this design. The project engine generator is oversized to increase reliability and to allow the project to generate during the time of day when the power prices are most profitable. The project will have signed a final interconnection agreement with PG&E.

Emissions Reduction Plan: The project will treat exhaust emissions using a Selective Catalytic Reduction (SCR) system with Oxidation Catalyst from HUG Engineering (or similar manufacturer) that comes with a guarantee of performance.

Supporting Equipment

Supporting equipment is including but not limited to a transformer and electrical poles which will be installed per PG&E requirements in order to support the biogas generator. Furthermore, supporting equipment is any equipment which is essential for the function of the aforementioned equipment and completion of the project ambitions. Such equipment may include small pumps, electrical controls, and other minor equipment which is deemed necessary.

Operational Times and Visitors

The facility will be operational 24/7, but not open to public visitors without prior permission.

Number of Employees

Construction:

Digester and ancillary equipment: a maximum of 10 people for short periods of time, with an average of 5 people on site during the 7 months of construction.

Operations:

Remote sensor and computer monitoring of the equipment will be operated permanently. One employee will make a daily inspection of the facility. That work will be conducted during regular business hours, 8am-5pm, and on-call 24/7. No permanent facility employees will work or live on-site.

Service and Delivery Vehicles

There will be one service truck which will visit once per day. No delivery trucks will be on site pertaining to the digester on site.

Access to the Site

Access to the site would be from West Elkhorn Avenue to a private driveway.

Parking

There is existing parking at the dairy. The construction crew will utilize this parking during construction activities.

Goods

No goods will be sold on site.

Supplies or Materials

The facility will use and store small quantities of materials such as lubricants, and hydraulic fluids. Handling of hazardous materials are regulated by federal and State laws, which minimizes worker safety risks from both physical and chemical hazards in the workplace.

Appearance/Noise/Dust

The project facility is similar in nature to the existing dairy infrastructure and fits into its surroundings. The pipeline will run underground and will not be seen. Noise generated by the project equipment will not be above typical agriculture facility levels. The facility does not include any lights or other sources of glare beyond what is currently used for security reasons at the dairy. Once operational, the project will not generate fugitive dust. The project will not emit or concentrate any odors, and in fact will reduce odors with the installation of the covered manure lagoons.

Solid or Liquid Wastes to be Produced

Facility will produce minimal amounts of solid or liquid waste. Waste will be picked up once per month by a solid waste disposal company and taken to an appropriate landfill.

Construction and Operational Water Usage

Construction of the digester and ancillary equipment is anticipated to take approximately 140 working days.

Water for construction and operations would be supplied by an existing on-site agricultural well.

Construction: An estimated 5,000 gallons/day is anticipated during up to 7 months of construction activities. Based on an average 20 work days a month, approximately 2.1 AF would be required (5,000 gallons x 140 days = 700,000 gallons).

Operations: Water usage is anticipated to be approximately 2,500 gallons per day or 2.8 AF annually during operation.

Advertising

There will be no advertisements at the project sites.

Buildings

The project will not construct any new buildings, but 2-3 small containers may be installed for electrical controls and other equipment. These will be steel and unobtrusive colors.

Lighting and Outdoor Sound Amplification

No outdoor lighting or sound amplification systems will be installed for the project.

Landscaping and Fencing

There will be chain link fencing installed around the perimeter of the facility. No landscaping is proposed for the project.

Restrooms

There is no on-site permanent staff. Maintenance staff will use the existing dairy restroom facilities.



Site Overhead

Photo Courtesy of Google Earth

VAN DER KOOI RANCH

DAIRY DIGESTER

BENCHMARK

THE TOPOGRAPHIC SURVEY WAS PERFORMED UTILIZING GLOBAL POSITIONING SYSTEM OBSERVATIONS. DISTANCES AND NUMBERS SHOWN ARE TO BE CONSIDERED GROUND VALUES. BENCHMARK AND CONTROL SHOWN ON CONTROL PLAN SHEET. THE BENCHMARK AND VERTICAL ELEVATIONS WERE DERIVED FROM THE NGS ONLINE POSITIONING SERVICE (OPUS), AND IS SHOWN ON THE NAVD 88 DATUM UTILITIZING THE GEOID 09 AS THE VERTICAL MODEL.

PRESERVATION OF MONUMENTS

PURSUANT TO SECTIONS 8771(B) AND 8771(C) OF THE GOVERNMENT CODE, ANY MONUMENTS THAT CONTROL THE LOCATION OF BOUNDARIED, OR OTHERWISE PROVIDE HORIZONTAL OR VERTICAL SURVEY CONTROL WITHIN THE CONSTRUCTION AREA, SHALL BE LOCATED AND REFERENCED PRIOR TO CONSTRUCTION, AND A CORNER RECORD OR RECORD OF SURVEY OF THE REFERENCES SHALL BE FILED WITH THE COUNTY SURVEYOR.

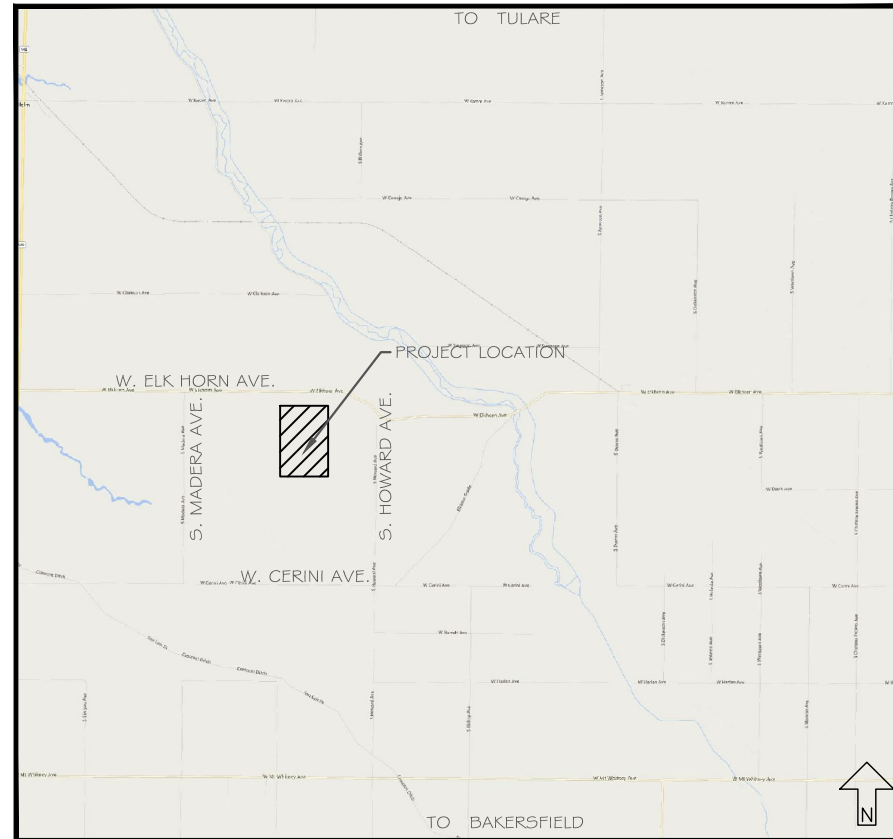
PERMANENT MONUMENTATION SHALL BE SET TO PERPETUATE THE LOCATION OF ANY MONUMENT WHICH COULD BE DAMAGED OR DESTROYED, AND A CORNER RECORD OR RECORD OF SURVEY SHALL BE FILED WITH THE COUNTY SURVEYOR PRIOR TO THE RECORDING OF A CERTIFICATE OF COMPLETION FOR THE PROJECT.

DUST CONTROL NOTES

CONTRACTOR IS REQUIRED TO COMPLY WITH GOOD HOUSE KEEPING PRACTICES

STORMWATER (SWPPP) NOTES

CONTRACTOR IS REQUIRED TO COMPLY WITH GOOD HOUSE KEEPING PRACTICES



VICINITY MAP

SCALE 1" : 2 MI

SHEET INDEX

GENERAL NOTES

- A.1 COVER SHEET
- A.2 GENERAL NOTES
- A.3 SITE PLAN - DAIRY
- A.4 SITE PLAN - DIGESTER

CIVIL DRAWINGS

- C.1 GRADING PLAN
- C.2 CROSS SECTIONS
- C.3 GRADING DETAILS

DIGESTER DRAWINGS

- D.1 COVER SYSTEM
- D.2 SLURRY SYSTEM
- D.3 MIXERS
- D.4 DETAILS

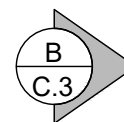
LINER DRAWINGS

- L.1 LINER - DETAILS
- L.2 LINER - DETAILS
- L.3 LINER - DETAILS

SHEET REFERENCE

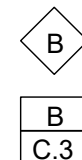
SECTIONS:

SECTION NAME
SHEET NUMBER



DETAILS:

DETAIL NAME
SHEET NUMBER



CONTACT INFO

ENGINEER:

CRAIG HARTMAN, RCE 73837
HARTMAN ENGINEERING, INC.
3121 W. CERES CT.
VISALIA, CA 93291
(559) 563-0181

DAIRY CONTACT:

CHARLES & DANIEL VAN DER KOOI
STILL WATER RANCH
13695 WEST ELKHORN AVENUE
RIVERDALE, CA 93656



113 N. CHURCH ST,
SUITE 521
VISALIA, CA 93291
(559) 563-0181



PROJECT:

**VAN DER KOOI
DAIRY
DIGESTER**

CLIENT:

VAN DER KOOI DAIRY
13695 W ELKHORN
RIVERDALE, CA 93607

REVISION LOG:

PLOT DATE: 01/08/18

JOB NO.: 17003

SCALE: AS SHOWN

SHEET NO.: A.1

SPECIFICATIONS FOR ENGINEERED FILL MATERIAL OF ABOVE GRADE EMBANKMENTS OR AS REQUIRED

TEST PARAMETER	TEST METHOD	FREQUENCY	ACCEPTANCE CRITERIA
Compaction Curves	ASTM D1557 (Modified Proctor)	Change in material	N/A
Grain Size Distribution	ASTM D422 (Sieve)	Change in material	At least 30% passing No. 200 U.S. Standard Sieve. Per Specifications (1)
Soil Classification	ASTM D2487 (USCS)	Change in material	Suitable for compaction (2)
Maximum Particle Size	ASTM D422 (Sieve)	Change in material	½ inch, ¼ top 6 inches
Maximum Water soluble Sulfate (SO ⁴) in Soil (Concrete Slab locations)	ASTM C1580	Change in material	0.2% by weight

Site Preparation Specifications:

- Clearing: Prior to earthwork operations, the area to be developed should be stripped of vegetation, organic topsoil, and cleared of cow waste and miscellaneous debris from the proposed construction areas. Deeper clearing may be required in localized areas. The actual depth of clearing should be reviewed by a licensed Geotechnical Engineer at the time of construction. The limits of stripping and clearing should be at least five feet beyond the limits of construction.
- Compaction: The scarified subgrade and subsequent fill placed at the site should be moisture conditioned to near optimum moisture content, and compacted to at least and 90 percent for 2:1 side slope pond of maximum dry density as determined by ASTM test method D1557.
- Material for fill: Fill should consist of select material. Native soil, free from organic, vegetation, and rocks or cobbles larger than three inches, may be used as fill at the site. Import material must be reviewed by licensed Geotechnical Engineer prior to transport to the site.
- Fill placement: Fill material should be moisture-conditioned to +/- 2% of the optimum moisture content prior to compaction. Fill material with excessive moisture should be allowed to dry prior to compaction or be mixed with dry soil to bring the fill to a workable moisture content. Fill should be placed in level lifts not exceeding a loose, uncompacted thickness of eight inches, and compacted as engineered fill.

Sub-grade requirements for fill only:

- Over Excavate for minimum 1 ft. to meet Engineered Fill Borrow Material Guidelines and Pond Liner Sub-grade requirements
- Well mixed soil
- 6 in max lifts
- Upper 6 inches is of fine-finished soil particles no greater than ¼ in. +

Notes:

- Field tests shall not be required, but fill borrow material specifications must meet the acceptance criteria outlined in Table 1.
- Refer to Geotechnical Report

NOTES:

THE APPROVED WORK PLAN WHICH INCLUDES THE CONSTRUCTION QUALITY ASSURANCE PLAN, OPERATION, MAINTENANCE AND MONITORING PLAN, CONSTRUCTION DRAWINGS, AND SOILS REPORT TOGETHER AS A PACKAGE ARE THE COMPLETE SPECIFICATIONS REQUIRED FOR CONSTRUCTION OF THE POND AND LINER SYSTEM.

FILL TEST SPECIFICATIONS FOR SUB-GRADE

TEST PARAMETER	TEST METHOD (1)	FREQUENCY	ACCEPTANCE CRITERIA
Uncompacted Lift Thickness	Visual Observation	Continuous	8-in.(2)
Construction Oversight	Visual Observation	Continuous	Maximum particle size 1/2 inch.
In-Place Moisture Alternative Method	ASTM D2216 (Oven Dry)	1 per every 10 Nuclear tests	+/-2% of Optimum Moisture Content per ASTM D1557
In-Place Moisture Rapid Field Methods (3)	ASTM D6938 (4) (Nuclear Method)	3 per acre per lift, min. 2 per day	+/-2% of Optimum Moisture Content per ASTM D1557
In-Place Density Alternate Method	ASTM D2937 (Drive Cylinder)	1 per every 10 Nuclear tests	90% of Maximum Dry Density per ASTM D1557
In-Place Density Rapid Field Methods (5)	ASTM D6938 (6) (Nuclear Method)	3 per acre per lift, min. 2 per day	90% of Maximum Dry Density per ASTM D1557
Subgrade Thickness	Surveying Measurement	At 50-foot centers	Minimum 1 ft.(7)
Clod Size	Visual Observation	Continuous	Per Specification

Notes:

See earthwork section for anchor trench, excavation, backfill, and compaction requirements.

- (1) ASTM Test Method, unless otherwise noted. Results of all tests performed to be reported as per method reporting criteria.
- (2) The sub-grade shall be scarified to a depth of 1 ft. lower than finished grade, compacted, and tested in accordance with the requirements of this table.
- (3) Must be verified by ASTM D2216 (Oven) overnight method once every day or once per change in material
- (4) Must be verified by ASTM D2937 (Dry Cylinder) twice per day or per change in material
- (5) Calibration Procedure: ASTM D7013-04: Standard Guide for Nuclear Surface Moisture and Density Gauge Calibration Facility Set-up

POND SPECIFICATIONS FOR SUBGRADES CUT BELOW GROUND (For Slopes 2:1 or shallower)

Side Slopes: The certified Civil Engineer/CQA Chief Officer shall walk final side slopes after cut by heavy equipment and confirm no SW or SP soils and no loose soils. All SW, SP, or soils that are not amenable to a firm and unyielding subgrade shall be removed and replaced down to a minimum 3 ft. below sloped surface. Any soils removed and replaced shall meet the Engineered Fill requirements in Table 1.

Pond Bottom: 1. An as-built survey of the pond bottom shall take place after subgrade construction to insure minimum slopes are achieved. Pond Bottom shall be tested per criteria below. Any soils not meeting the requirements below (i.e. that is not firm and unyielding) shall be removed and replaced down to a minimum 2 ft. Any soils removed and replaced shall meet the Engineered Fill requirements in Table 1. The Civil Engineer may make determination of soils meeting requirements or not based upon visual inspection which shall be included in the Subgrade Certification Report and signed and sealed by a Civil Engineer and CQA Officer.

TEST PARAMETER	TEST METHOD (1)	FREQUENCY	ACCEPTANCE CRITERIA
In-Place Density Rapid Field Methods (2)	ASTM D6938 (3) (Nuclear)	3 per acre	90% of Maximum Dry Density per ASTM D1557
In-Place Moisture Rapid Field Methods (4)	ASTM D6938 (5) (Nuclear Methods)	3 per acre per lift, min. 2 per day	+/-2% of Optimum Moisture Content per ASTM D1557
Construction Oversight	Visual Observation	Continuous	Maximum particle size 1/2 inch.
Subgrade Slope	Surveying Measurement	200 ft. maximum grid	Min 1%

60 MIL HDPE GEOMEMBRANE CONSTRUCTION QUALITY ASSURANCE (CQA)

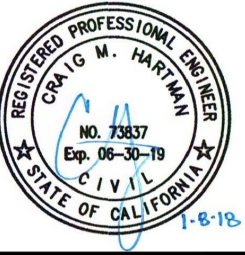
TEST PARAMETER	TEST METHOD	FREQUENCY	ACCEPTANCE CRITERIA
Thickness (min. ave.) -Lowest individual for 8 out of 10 values -Lowest individual for any of the 10 values	ASTM D5994	1 per lot or 1 per 70,000 ft ² , whichever is greater	Nom. (-5%) -10% -15%
Tensile Properties -yield strength -break strength -strain at yield -break strength	ASTM D6693 Type IV	1 per lot or 1 per 70,000 ft ² , whichever is greater	≥126 lb./in. ≥90 lb./in. ≥12% ≥100%
Puncture Resistance	ASTM D4833	1 per lot or 1 per 70,000 ft ² , whichever is greater	108 lb. (min.)
Tear Resistance	ASTM D1004, Die C	1 per lot or 1 per 70,000 ft ² , whichever is greater	42 lb. (min.)
Interface Shear -60-mil HDPE/subgrade soil -Drainage geocomposite	ASTM D5321 ASTM D6243	2 tests or 1 per 200,000 ft ² , whichever is greater	
Seam Shear	ASTM D6392	1 test per 500 lineal feet or per GRI GM-14 and 20.	95% of min. yield strength
Seam Peel -Extrusion -Fusion	ASTM D6392	1 test per 500 lineal feet or per GRI GM-14 and 20.	72% yield & ffb (1)
Non-destructive Seam Test	ASTM D5820 (Pressure Test)	Continuous	35 psi for 5 min.
	ASTM D5641 (Vacuum Box)		5 psi for 15 sec.
	ASTM D5641 (Spark Test)		No Spark
Electric Leak Location	ASTM D7002 (Water Puddle)	Once on constructed liner	Max 1 mm. diameter hole sensitivity
	ASTM D6747 (Selection Process)		
	ASTM D7007 (Water /Earth)		Max 6 mm. diameter hole sensitivity
	ASTM D7240 (Spark Test 2011)		

Notes:

- ffb: Film Tear Bond



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SUITE 521
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(559) 563-0181



PROJECT:
VAN DER KOOI DAIRY DIGESTER

CLIENT:
VAN DER KOOI DAIRY
13695 W ELKHORN
RIVERDALE, CA 93607

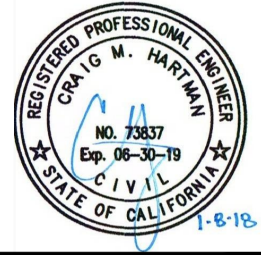
GENERAL NOTES
CONSTRUCTION

REVISION LOG:

PLOT DATE: 01/08/18
JOB NO.: 17003
SCALE: AS SHOWN
SHEET NO.: A.2



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(559) 563-0181



PROJECT:
**VAN DER KOOI
DAIRY
DIGESTER**

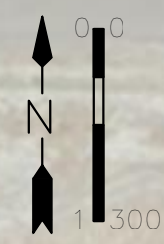
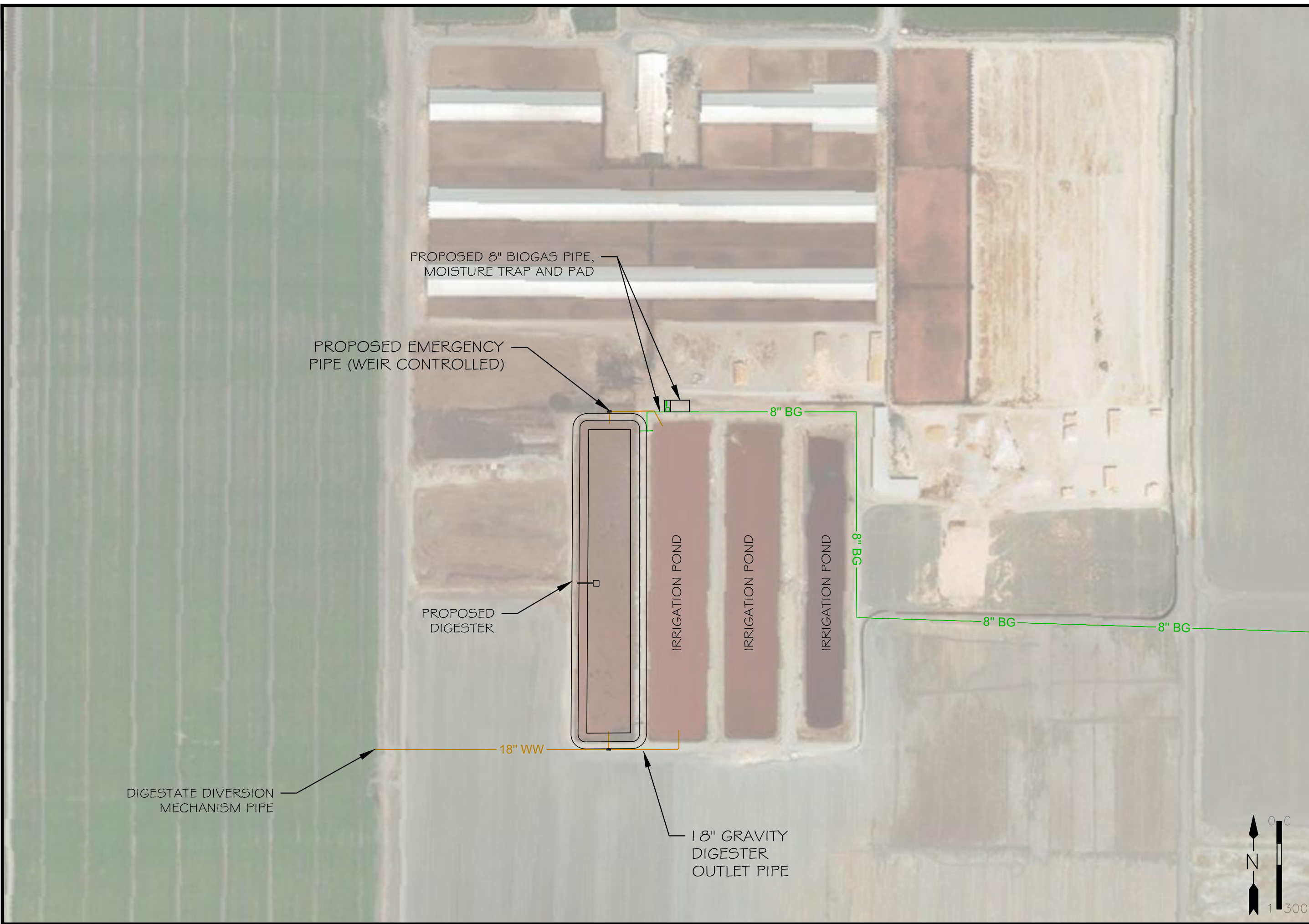
CLIENT:
VAN DER KOOI DAIRY
13695 W ELKHORN
RIVERDALE, CA 93607

SITE PLAN

DIGESTER

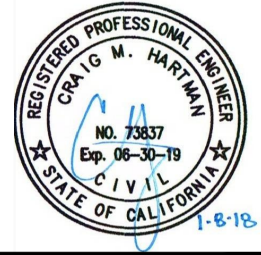
REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	A.3





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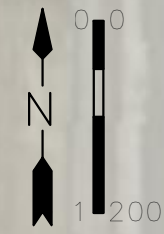
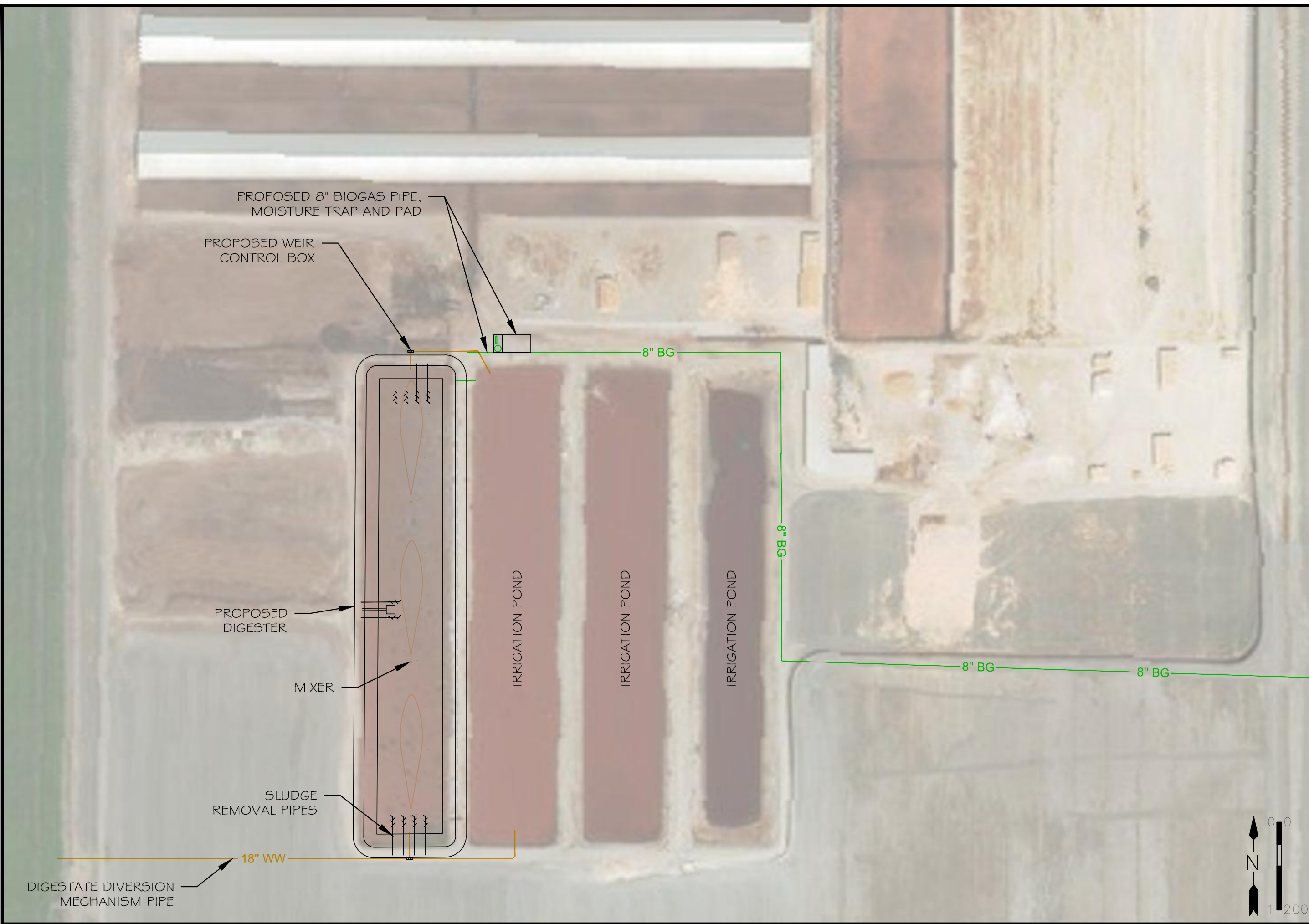
PROJECT:
**VAN DER KOOI
DAIRY
DIGESTER**

CLIENT:
VAN DER KOOI DAIRY
13695 W ELKHORN
RIVERDALE, CA 93607

SITE PLAN
DAIRY

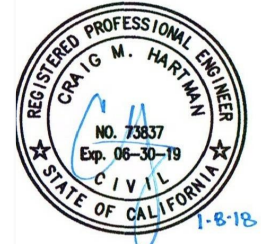
REVISION LOG:	

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	A.4





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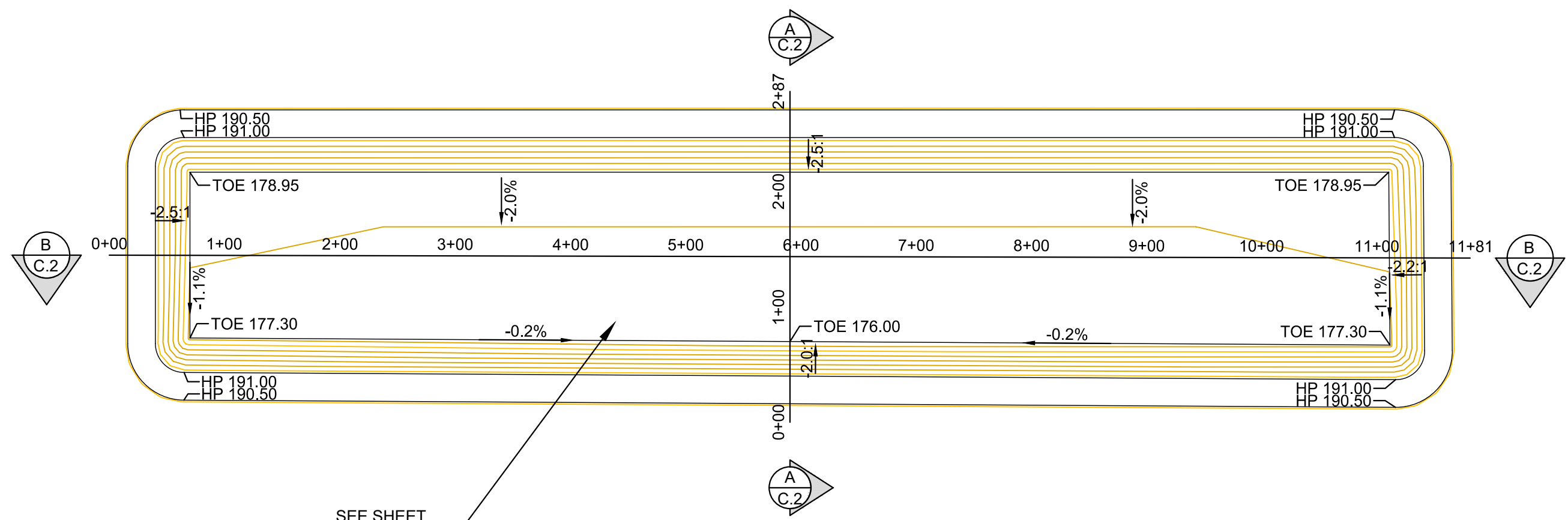
PROJECT:
**VAN DER KOOI
DAIRY
DIGESTER**

CLIENT:
VAN DER KOOI DAIRY
13695 W ELKHORN
RIVERDALE, CA 93607

GRADING PLAN
DIGESTER

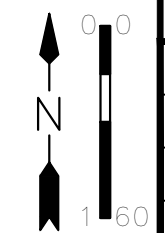
REVISION LOG:

PLOT DATE: 01/08/18
JOB NO.: 17003
SCALE: AS SHOWN
SHEET NO.: C.1



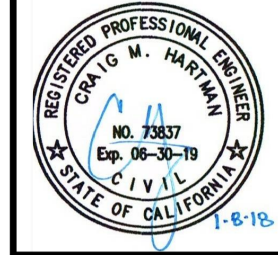
SEE SHEET
C.3 FOR SUMP
DETAILS

- GRADING NOTES:**
1. CONTRACTOR SHALL INFORM ENGINEER OF ANY DISCREPANCIES OR ERRORS IN PLANS PRIOR TO CONSTRUCTION.
 2. CONTRACTOR SHALL MEET SPECIFICATIONS OF TABLE 2 WITHIN THE APPROVED CONSTRUCTION QUALITY CONTROL PLAN.
 3. CONTRACTOR SHALL SMOOTH DRUM ROLL FINAL SURFACE AND REMOVE ANY ROCK OR MATERIAL GREATER THAN 1/2 INCH.



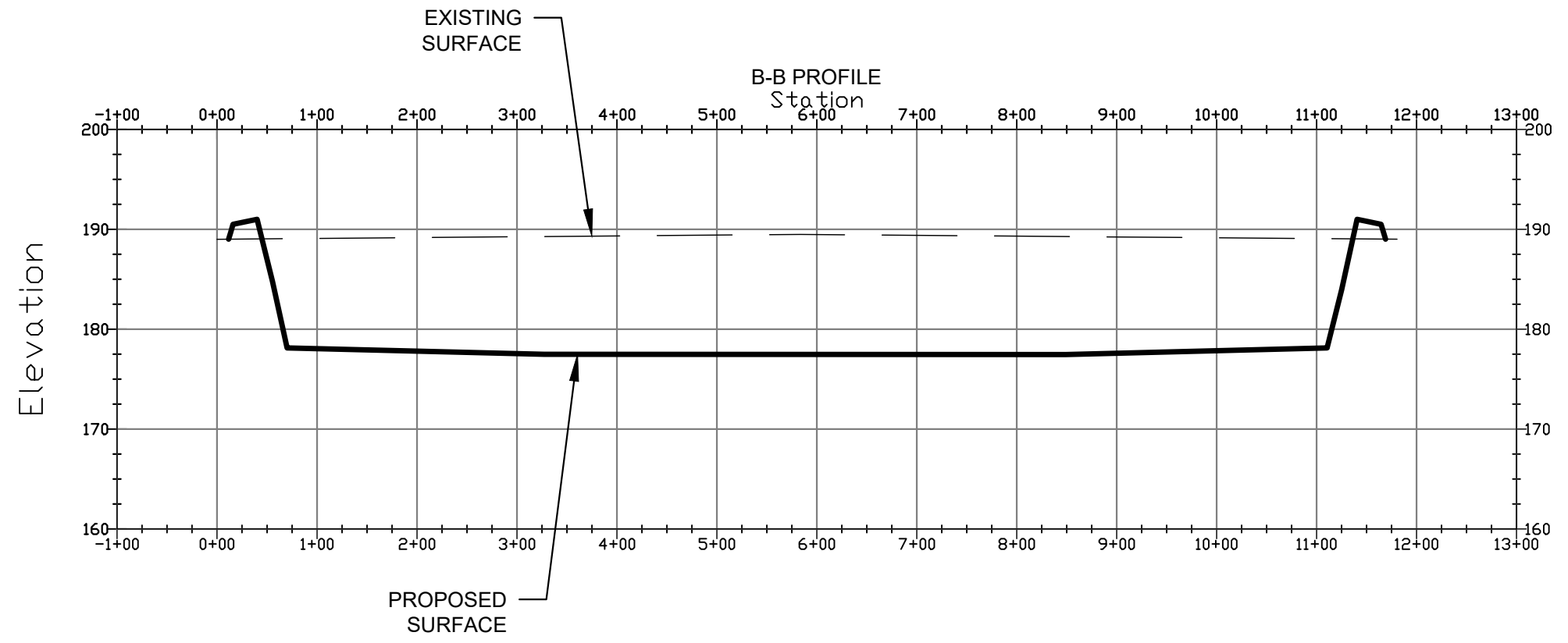
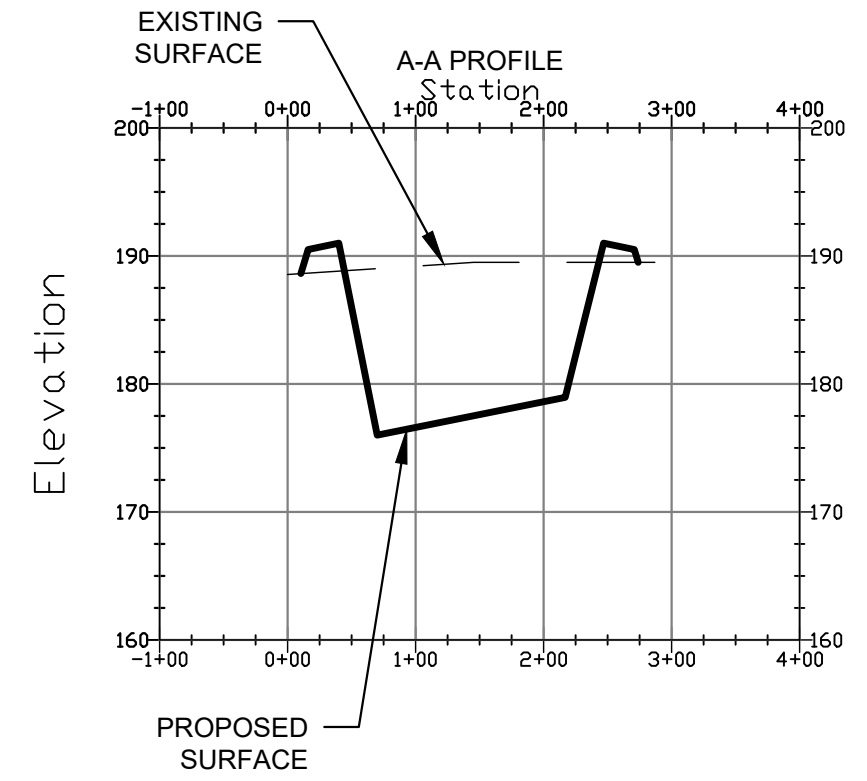


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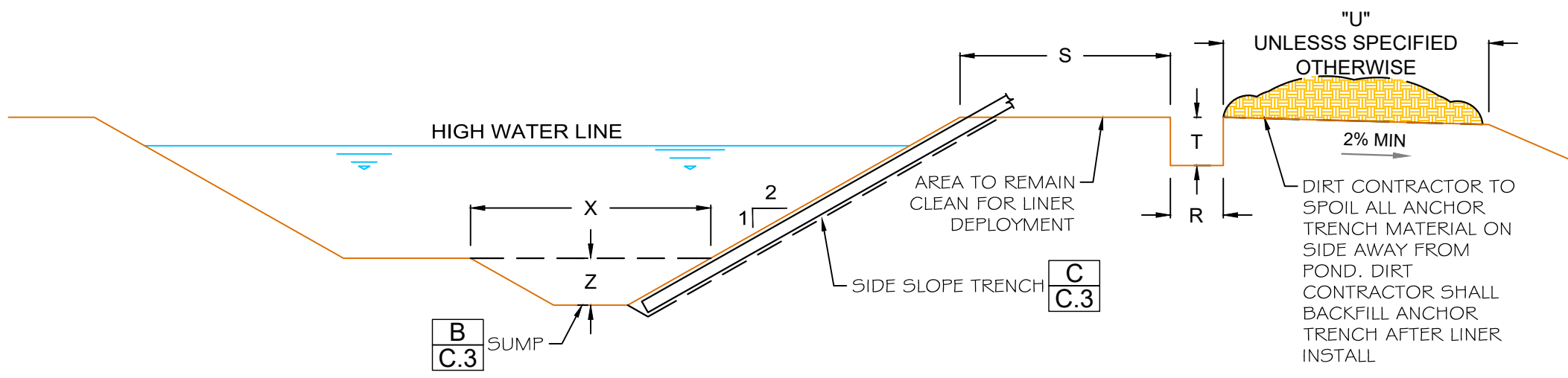
PROJECT:
**VAN DER KOOI
DAIRY
DIGESTER**

CLIENT:
VAN DER KOOI DAIRY
13695 W ELKHORN
RIVERDALE, CA 93607



GRADING SECTIONS	DIGGER
	REVISION LOG:

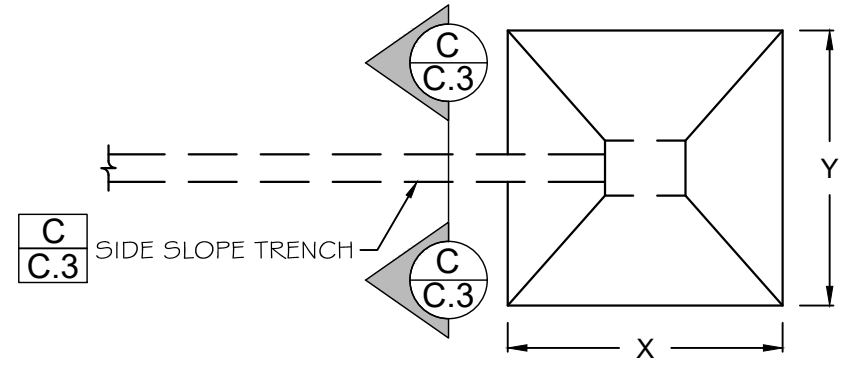
PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	C.2



A ANCHOR TRENCH / SUMP PROFILE VIEW

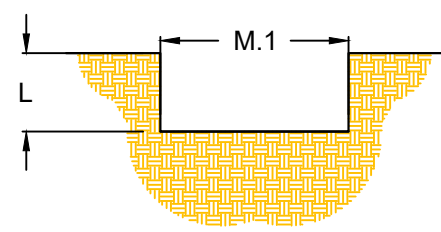
N.T.S.

DIMENSION TABLE (FT.)	
LETTER	POND
L	1.7'
M.1	2.7'
U	20'
R	1.5'
S	3'
T	3'
X	30'
Y	30'
Z	5.5'



B SUMP PLAN VIEW

N.T.S.

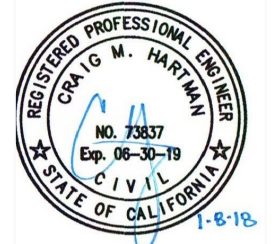


C SIDE SLOPE TRENCH

N.T.S.



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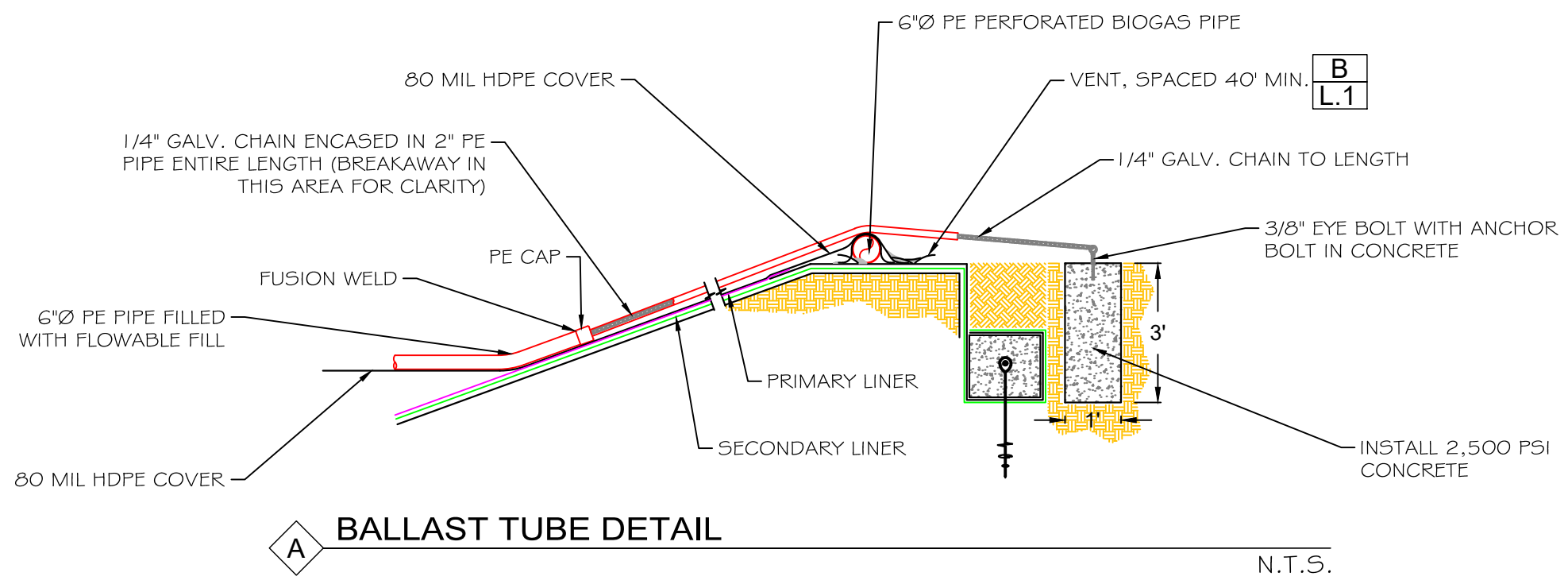
PROJECT:
VAN DER KOOI DAIRY DIGESTER

CLIENT:
VAN DER KOOI DAIRY
13695 W ELKHORN
RIVERDALE, CA 93607

GRADING DETAIL
DIGESTER

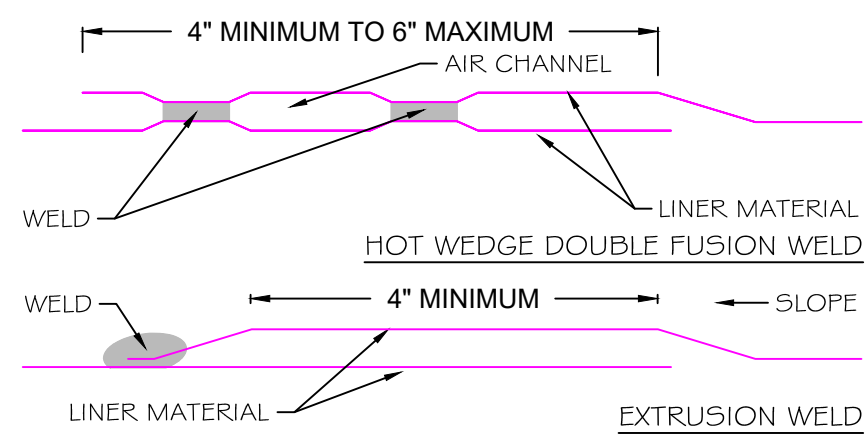
REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	C.3

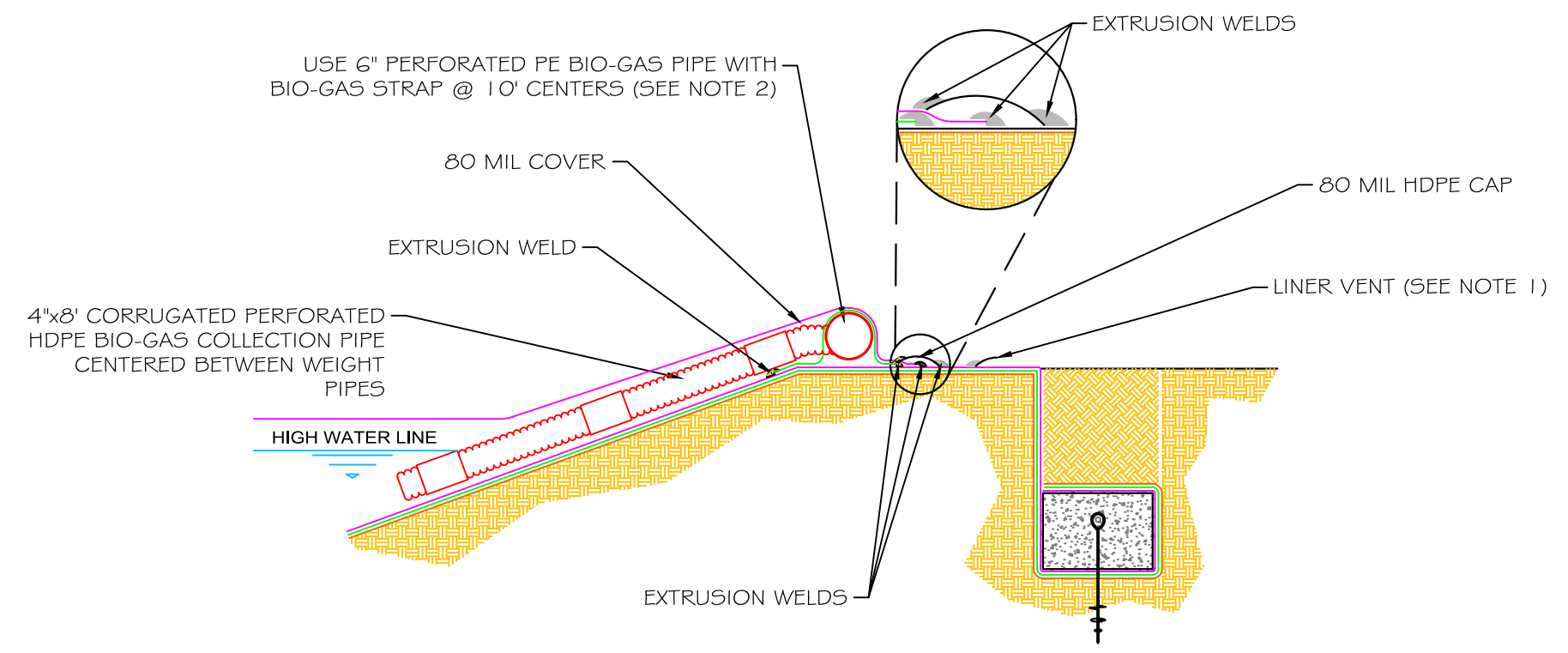


A BALLAST TUBE DETAIL
N.T.S.

DESCRIPTION	LOCATION	MATERIAL	THICKNESS (MIN)	TOP FINISH	BOTTOM FINISH
COVER	TOP	HDPE	80 MIL	SMOOTH	SMOOTH



C HDPE COVER-SMOOTH WELDS
N.T.S.



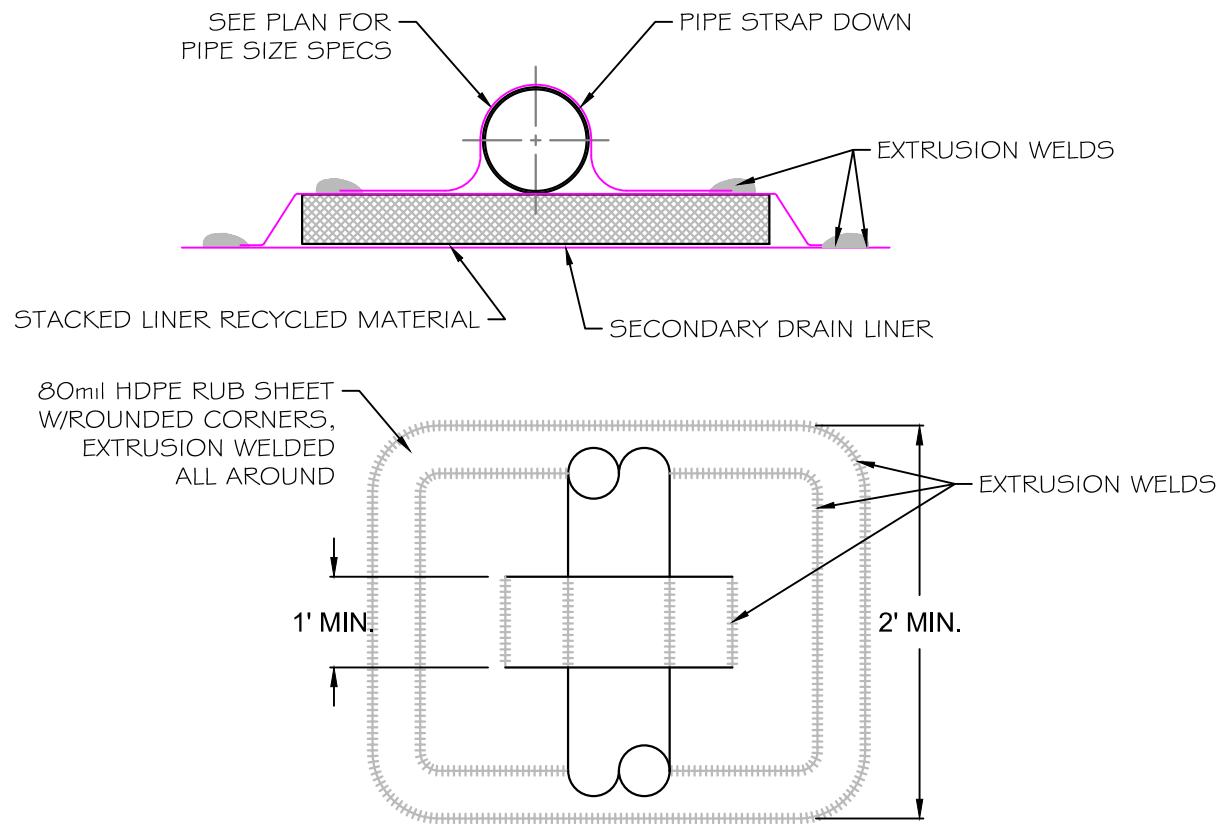
B BIO-GAS PIPING DETAIL
N.T.S.

- NOTES:
1. GAS VENTS AROUND PERIPHERY OF LAGOON @ MAX. 40' O.C.
 2. STRAP NOT WELDED TO BIO-GAS HEADER PIPE.
 3. WRAP 60 MIL PRIMARY LINER OVER CONCRETE & EXTRUSION WELD.

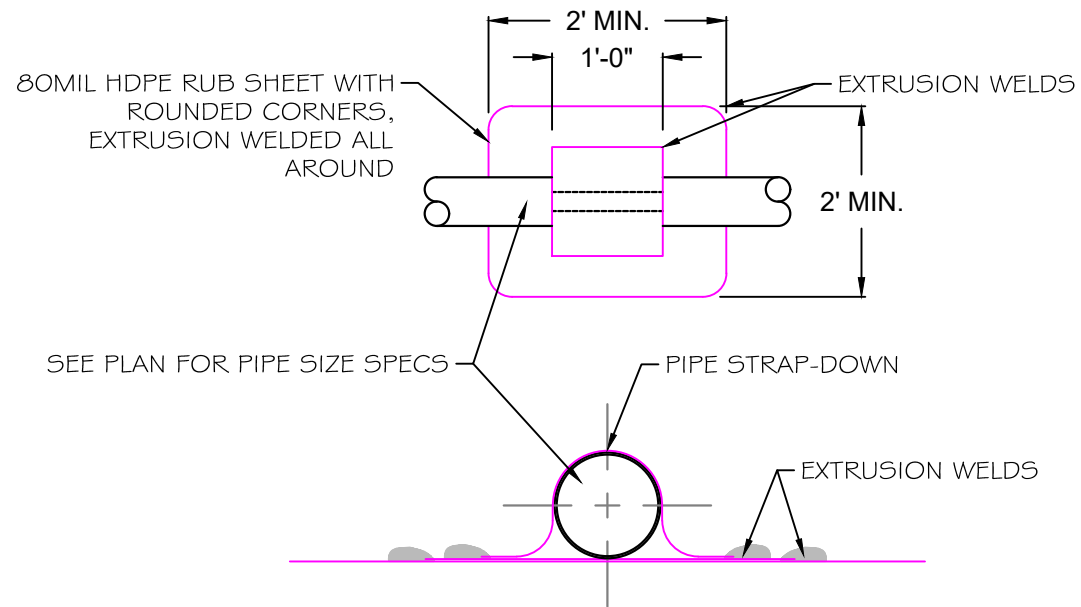
COVER SYSTEM
DIGESTER

REVISION LOG:

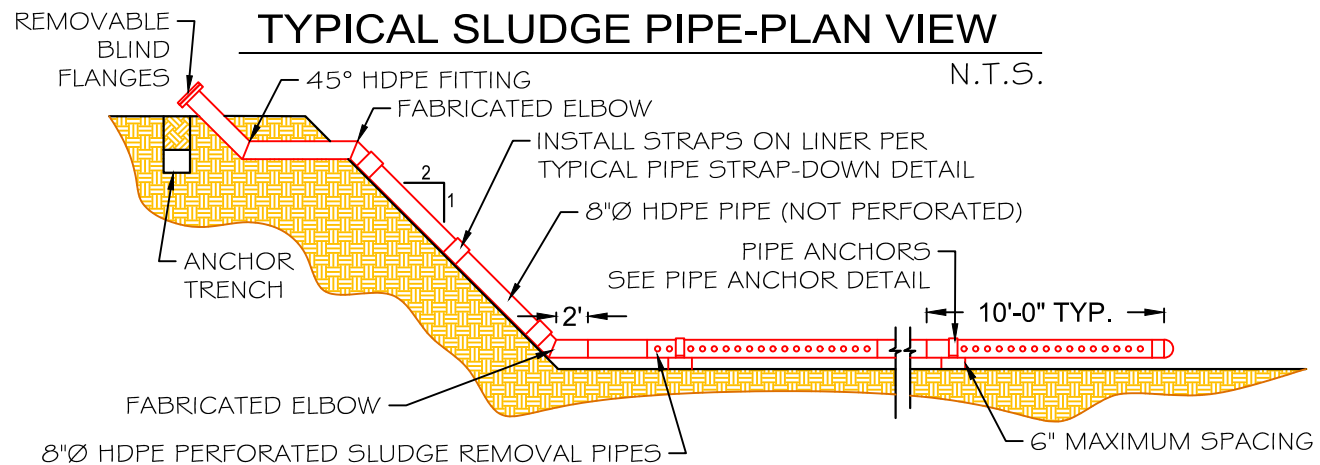
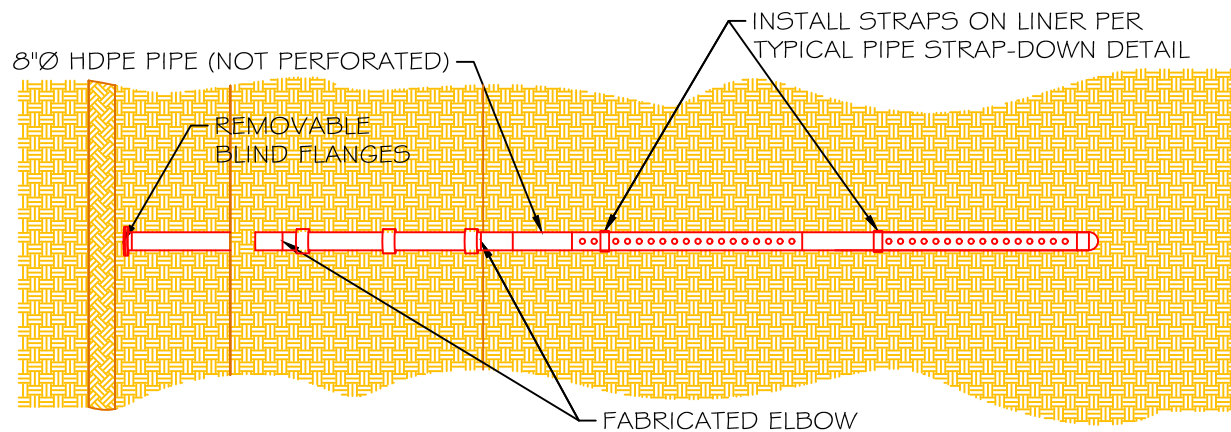
PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	D.1



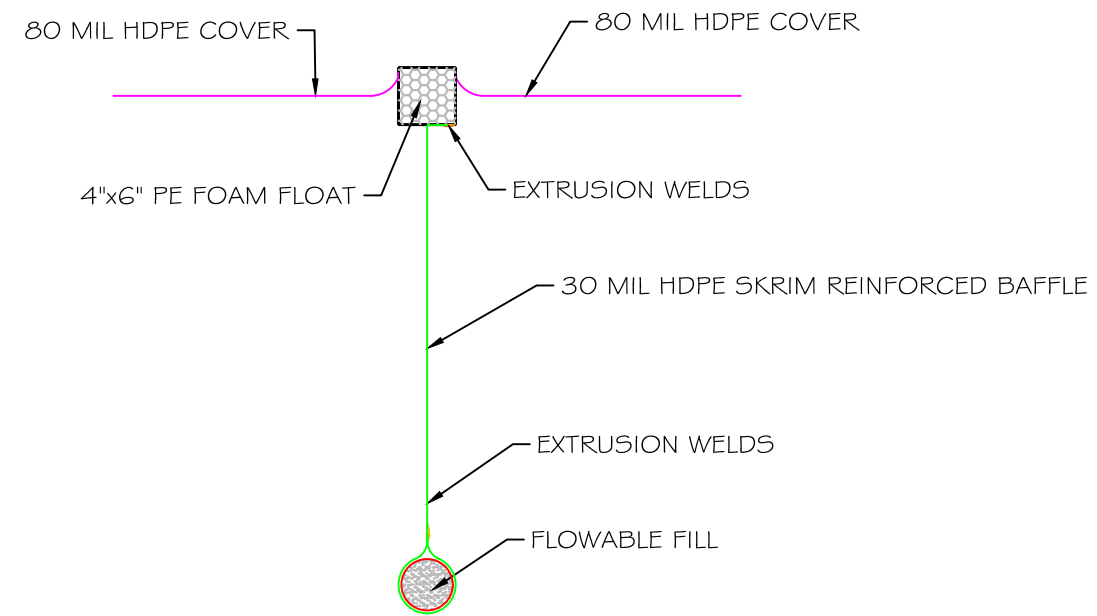
A **SLUDGE REMOVAL PIPE ANCHOR DETAIL**
 NOTE: ANCHOR TO BE USED ON HORIZONTAL SURFACES ONLY, AT BOTTOM OF LAGOON N.T.S.



B **TYPICAL PIPE STRAP-DOWN DETAIL**
 NOTE: MAXIMUM 10' O.C. SPACING BETWEEN PIPE STRAP-DOWNS, U.N.O. N.T.S.



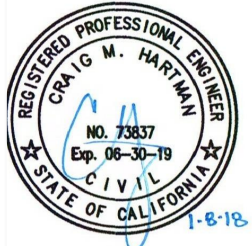
C **TYPICAL SLUDGE PIPE-PROFILE**
 N.T.S.



D **BAFFLE SECTION**
 N.T.S.



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PROJECT:
**VAN DER KOOI
 DAIRY
 DIGESTER**

CLIENT:
 VAN DER KOOI DAIRY
 13695 W ELKHORN
 RIVERDALE, CA 93607

SLURRY REMOVAL
 SYSTEM
 DIGESTER

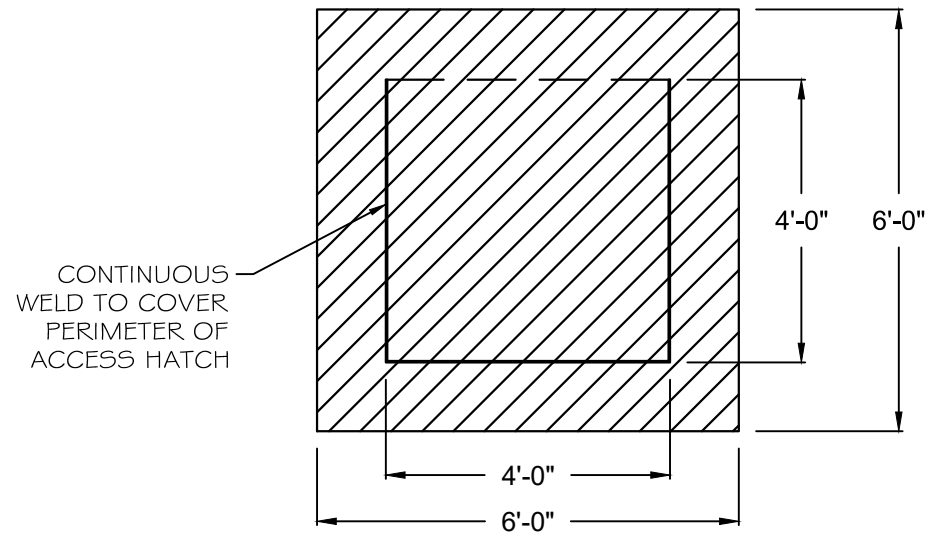
REVISION LOG:

PLOT DATE: 01/08/18

JOB NO.: 17003

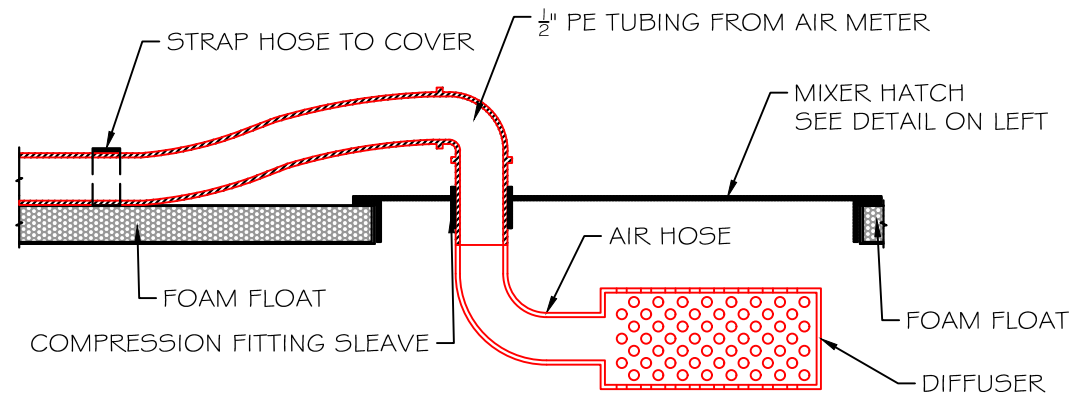
SCALE: AS SHOWN

SHEET NO.: D.2



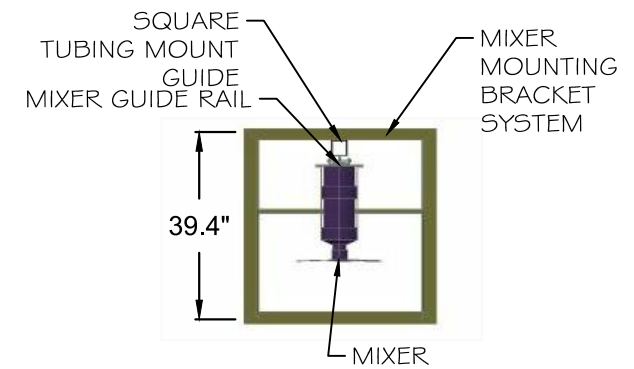
MIXER - HATCH

N.T.S.



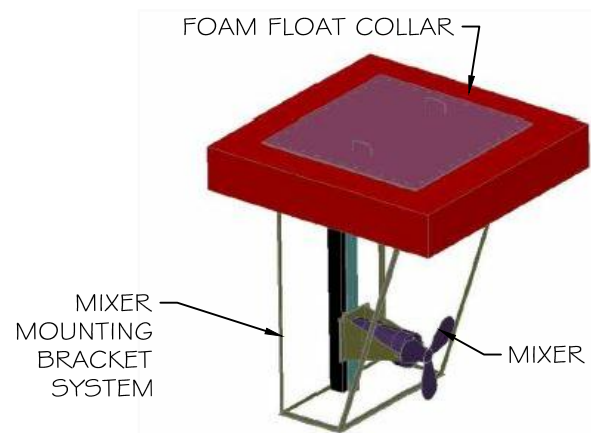
AIR INJECTION & MIXER HATCH

N.T.S.



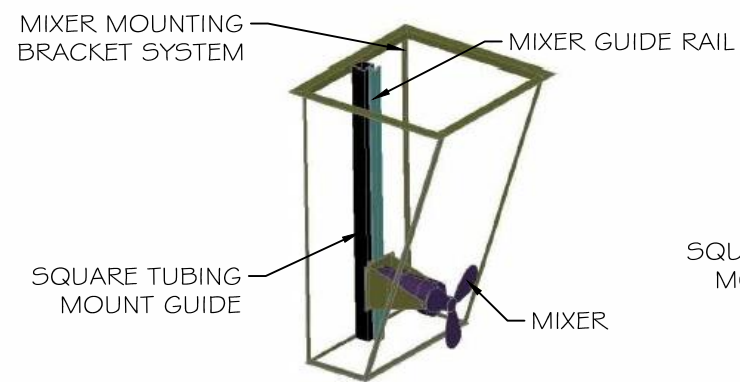
MIXER - PLAN VIEW

N.T.S.



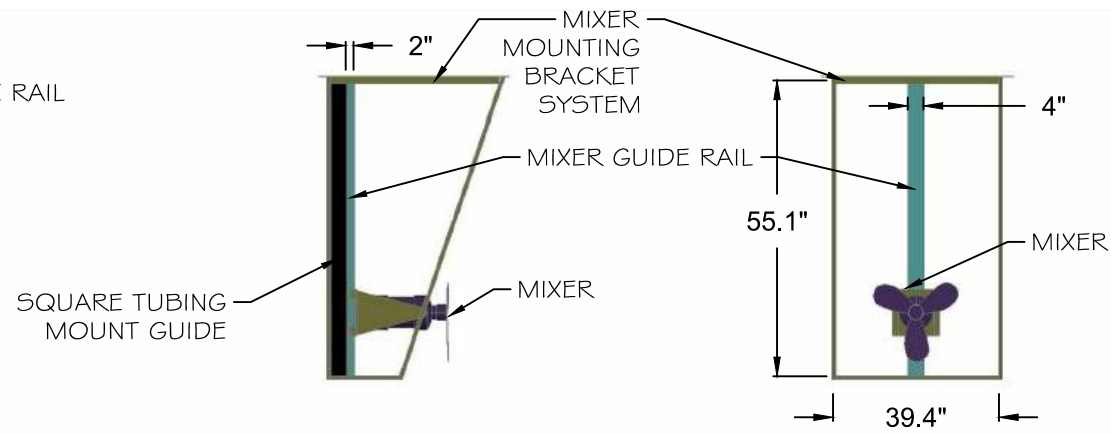
MIXER - ISOMETRIC W/FLOAT IN PLACE

N.T.S.



MIXER - ISOMETRIC

N.T.S.



MIXER - SIDE VIEW

N.T.S.

MIXER - FRONT VIEW

N.T.S.



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SUITE 521
VISALIA, CA 93291
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PROJECT:
**VAN DER KOOI
DAIRY
DIGESTER**

CLIENT:
VAN DER KOOI DAIRY
13695 W ELKHORN
RIVERDALE, CA 93607

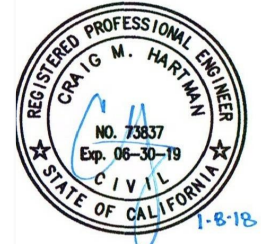
MIXER
DETAILS

REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	D.3

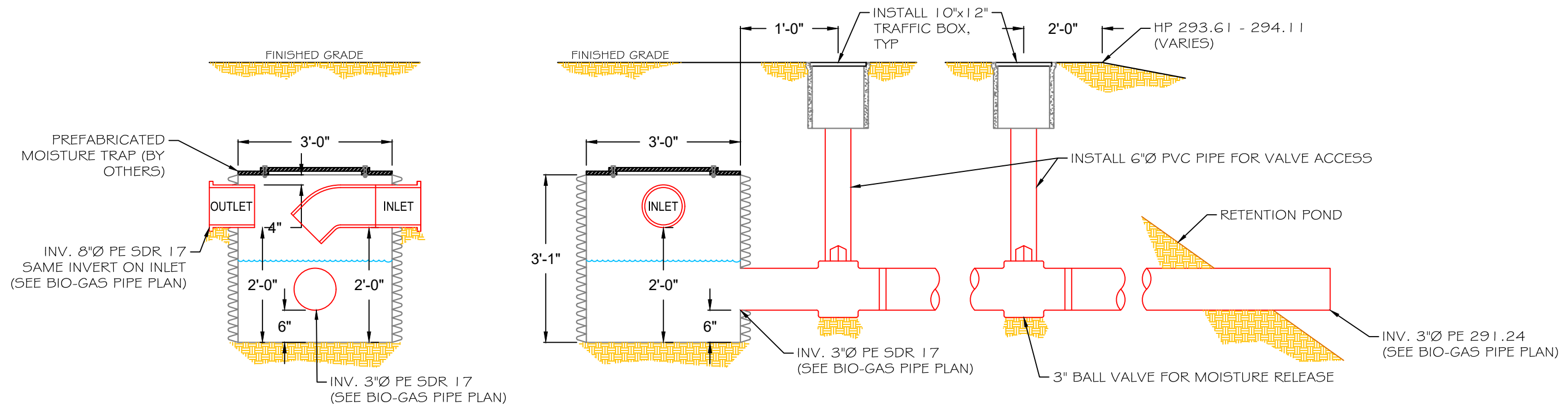


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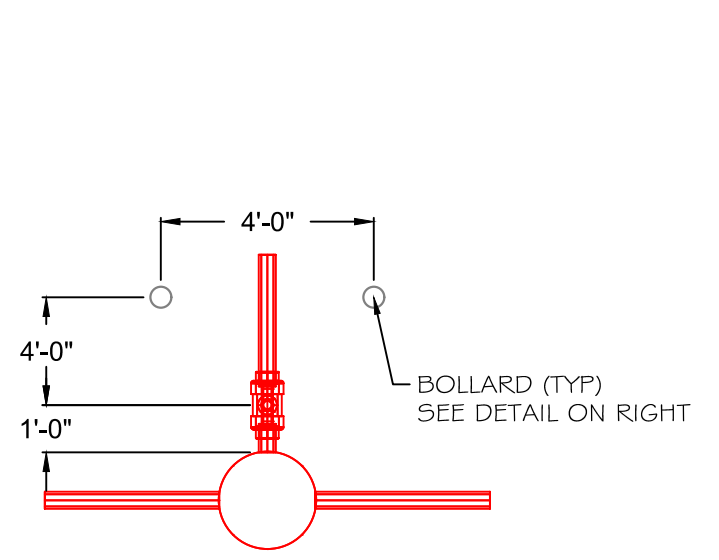
PROJECT:
VAN DER KOOI
DAIRY
DIGESTER

CLIENT:
VAN DER KOOI DAIRY
13695 W ELKHORN
RIVERDALE, CA 93607



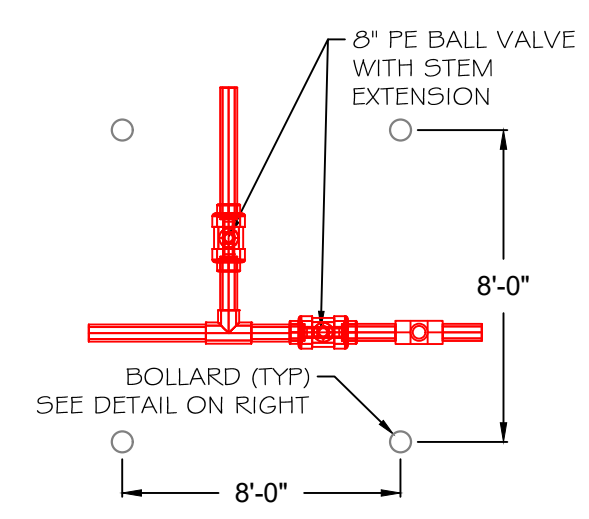
MOISTURE TRAP DETAIL

N.T.S.



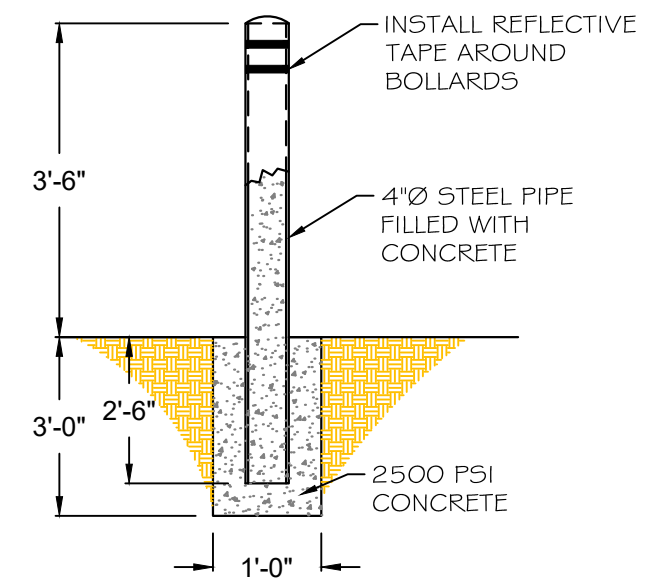
BIO-GAS VALVE

N.T.S.



BALL VALVE JUNCTION

N.T.S.



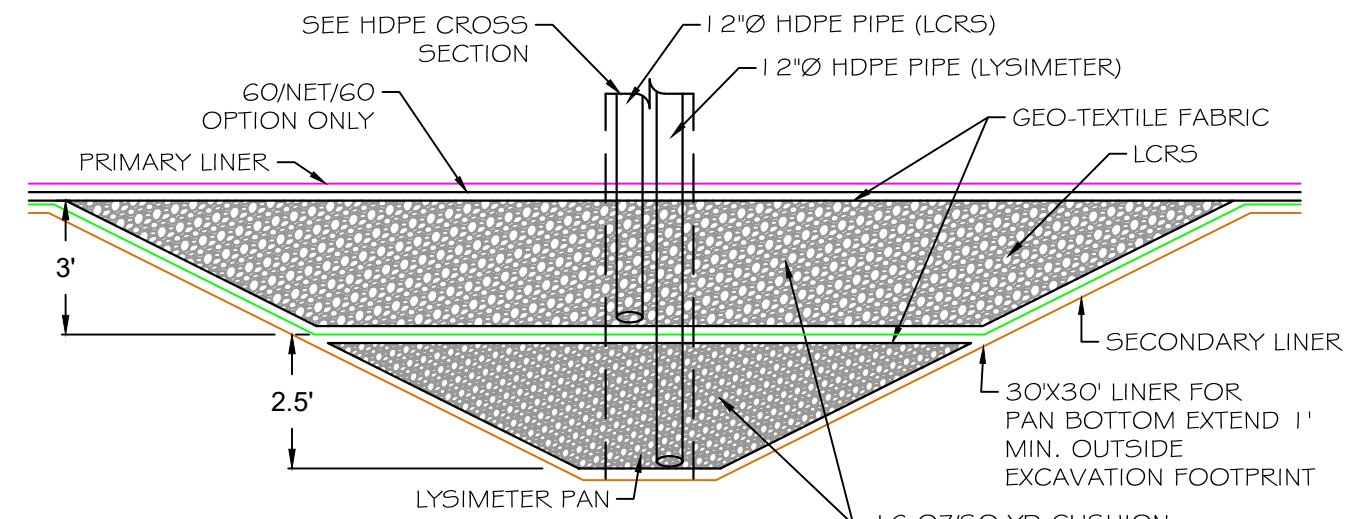
BOLLARD DETAIL

N.T.S.

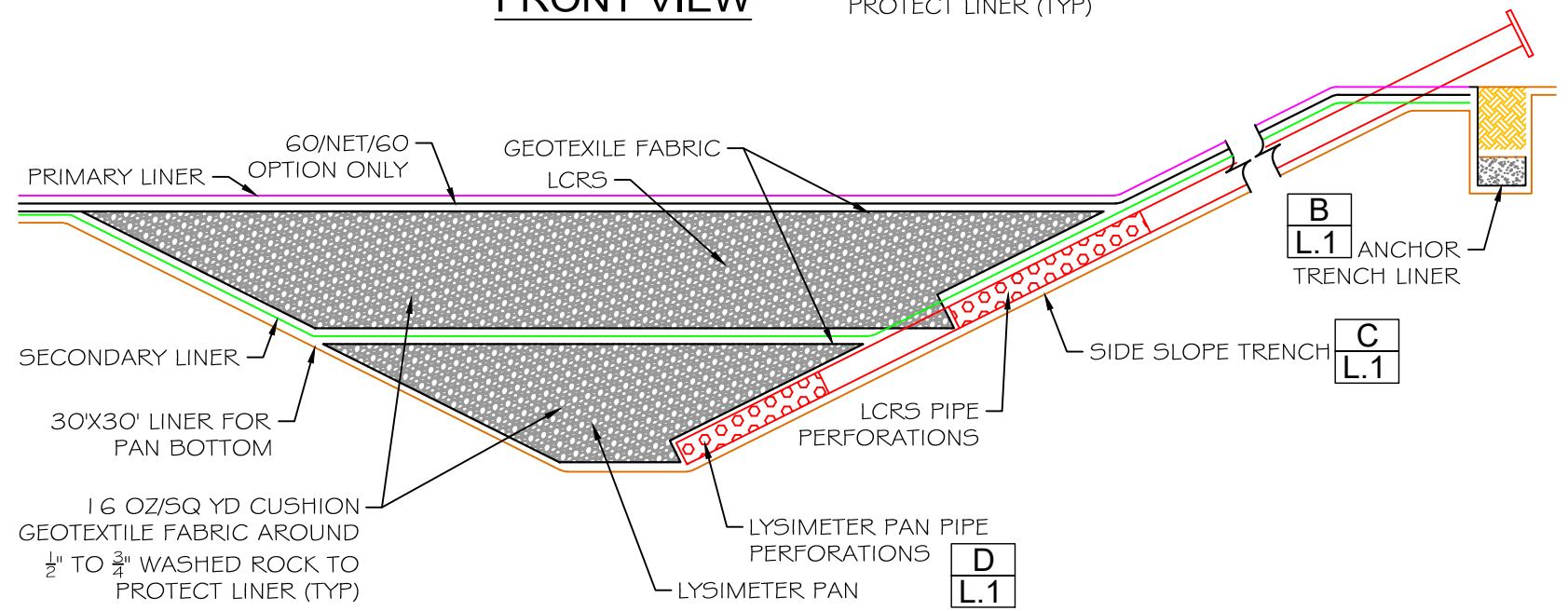
DETAILS

REVISION LOG:	
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PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	D.4



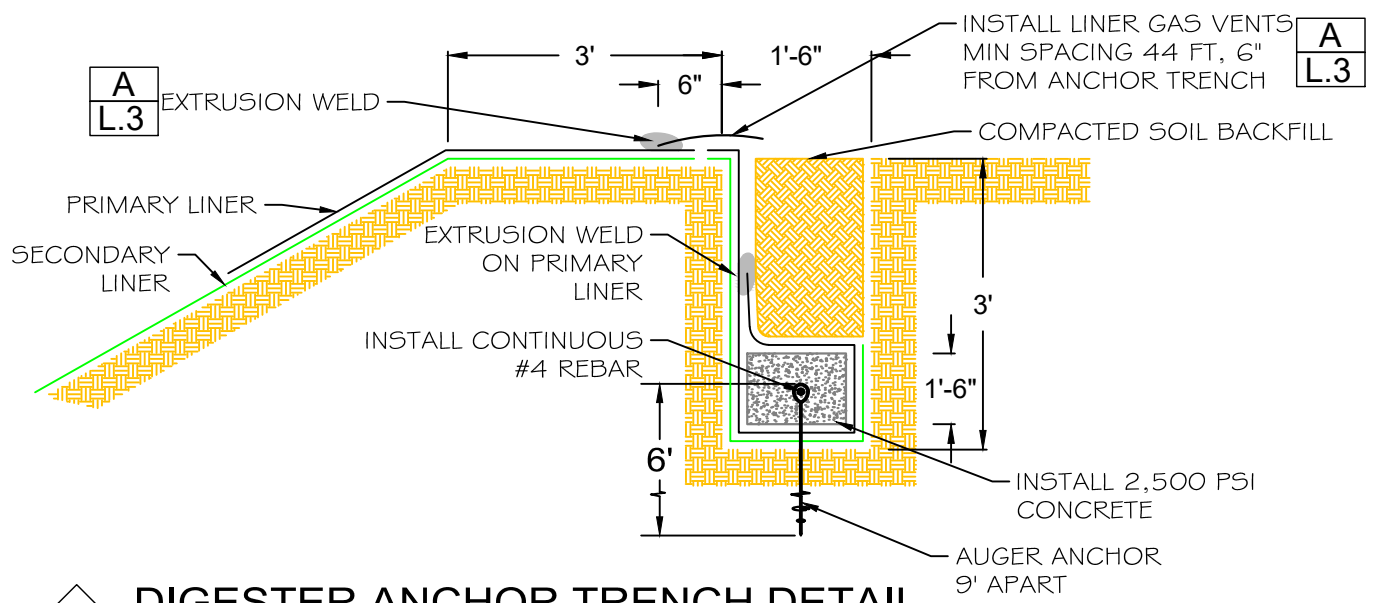
FRONT VIEW



SIDE VIEW

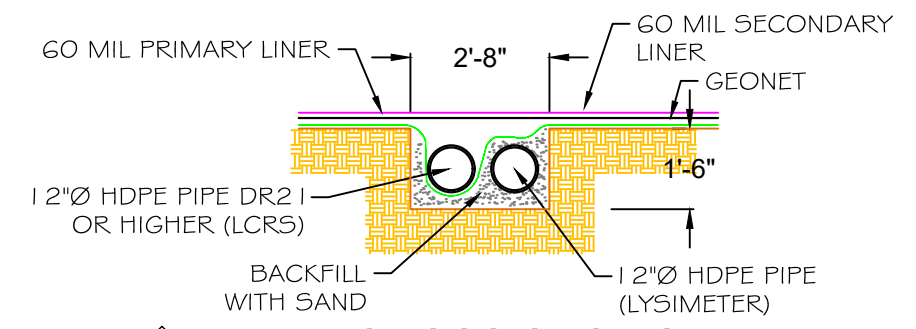
LCRS, LYSIMETER AND DRAINAGE SUMP PROFILE

N.T.S.



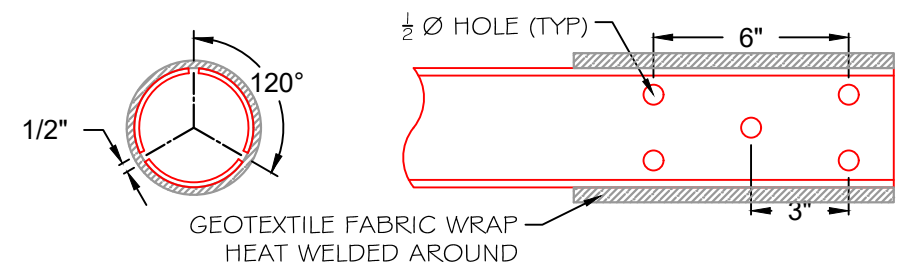
DIGESTER ANCHOR TRENCH DETAIL

NOTES: 1. CONTRACTOR TO USE ANCHOR SYSTEM OR PROVIDE DETAILS AND DESIGN FOR ALTERNATIVE TO BE APPROVED BY ENGINEER. N.T.S.



HDPE CROSS SECTION

N.T.S.



TYPICAL PERFORATION DETAIL

N.T.S.

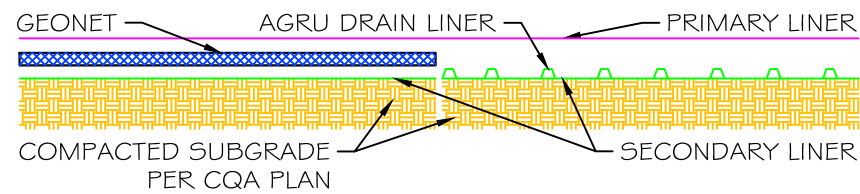
GENERAL NOTES
LINER DETAILS

REVISION LOG:

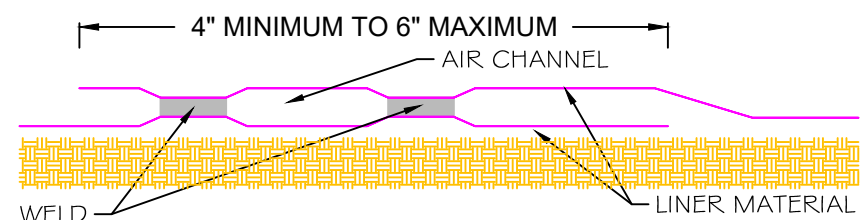
PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	L.1

OPTIONAL TIER 1 DOUBLE LINER-LAYERING SYSTEM WITH DRAIN LINER VERIFY WITH OWNER

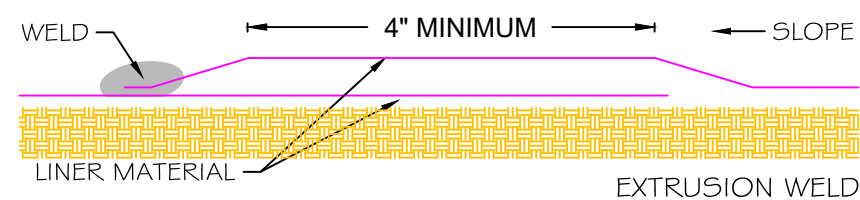
SMOOTH/STUDDED/ 60-NET-60 LINER LAYERS					
DESCRIPTION	LOCATION	MATERIAL	THICKNESS (MIN)	TOP FINISH	BOTTOM FINISH
PRIMARY LINER	TOP	HDPE	60 MIL	SMOOTH	SMOOTH CONDUCTIVE
DRAINAGE NET	MIDDLE	HDPE	200 MIL	N/A	N/A
SECONDARY LINER	BOTTOM	HDPE	60 MIL	SMOOTH	SMOOTH



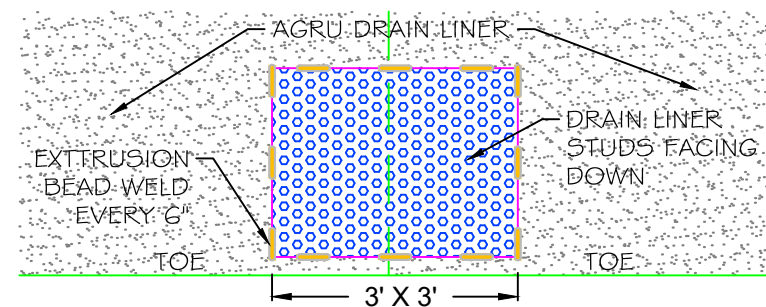
A DOUBLE LAYER 60-NET-60 DOUBLE LAYER WITH DRAIN LINER N.T.S.



HOT WEDGE DOUBLE FUSION WELD

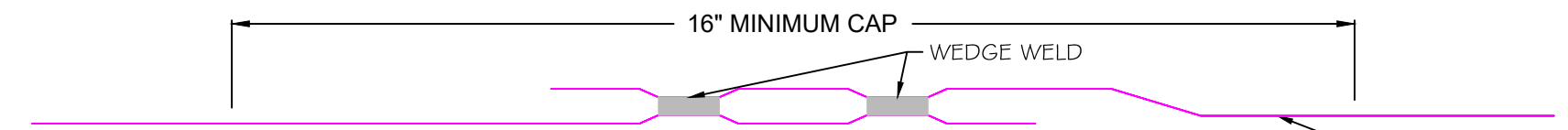
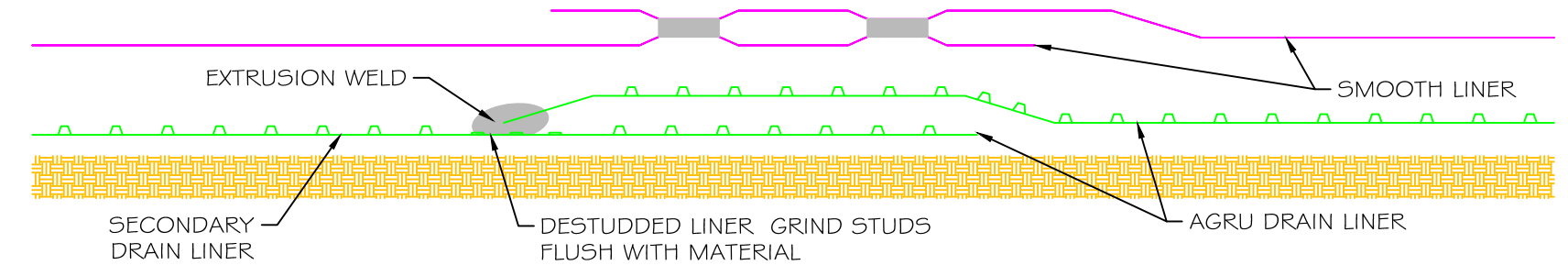


B HDPE LINER-SMOOTH WELDS N.T.S.



DRAIN LINER SMOOTH END WELD PATCH

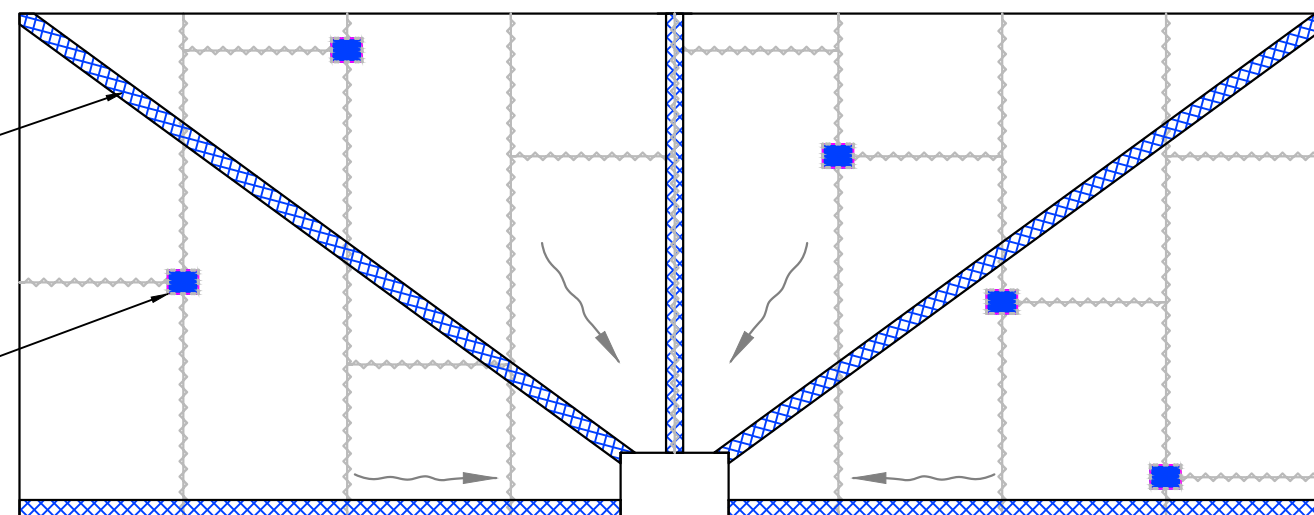
C 3'X3' DRAIN PATCH WELD N.T.S.



D AGRU DRAIN LINER END/END WELD
NOTE: AGRU DRAIN LINER DOES NOT HAVE STUDS ALONG THE EDGE SO EDGE/EDGE SEAMS DO NOT REQUIRE DRINGING OR CAP. N.T.S.

2' WIDE STRIP OF 200 MIL GEONET. TACK WELD AT 8'

C P.3 3'X3' DRAIN PATCH



NOTE: CQA OFFICER IS RESPONSIBLE TO ADD PATCHES AS NEEDED FOR FLOW

E AGRU DRAIN LINER CROSS SEAM NET PLAN VIEW
NOTE: TYPICAL OF ALL DRAIN LINERS N.T.S.



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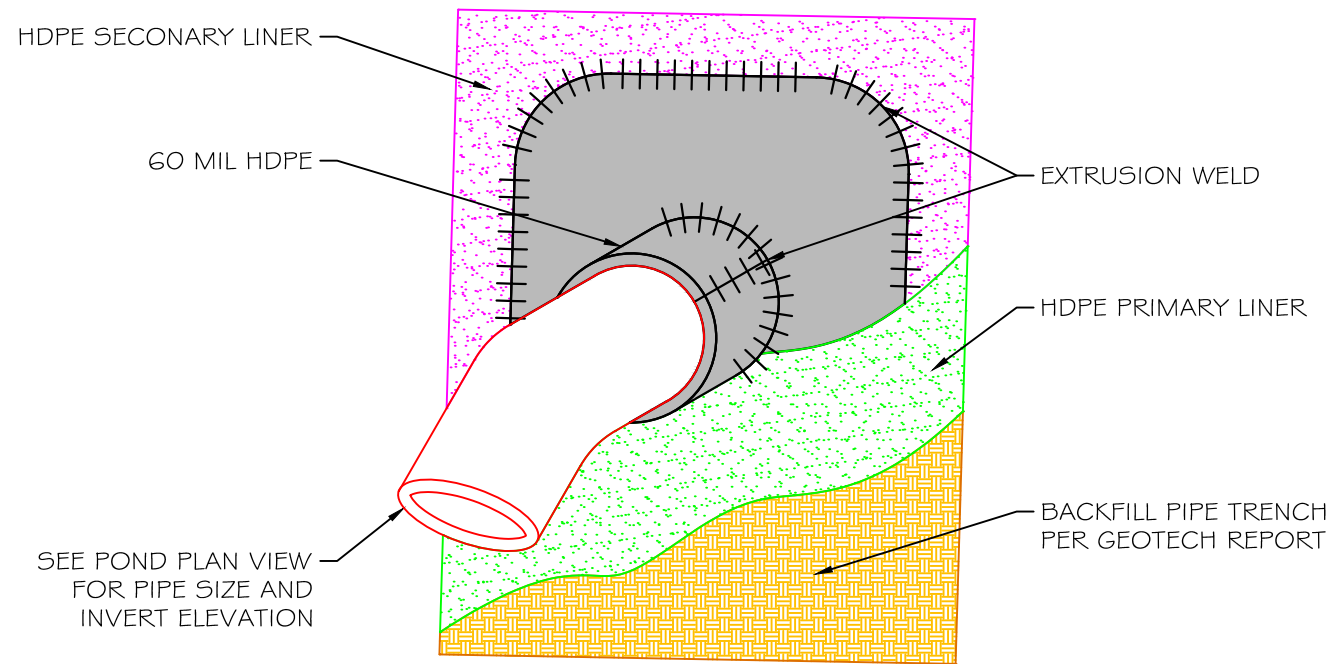
PROJECT:
VAN DER KOOI DAIRY DIGESTER

CLIENT:
VAN DER KOOI DAIRY
13695 W ELKHORN
RIVERDALE, CA 93607

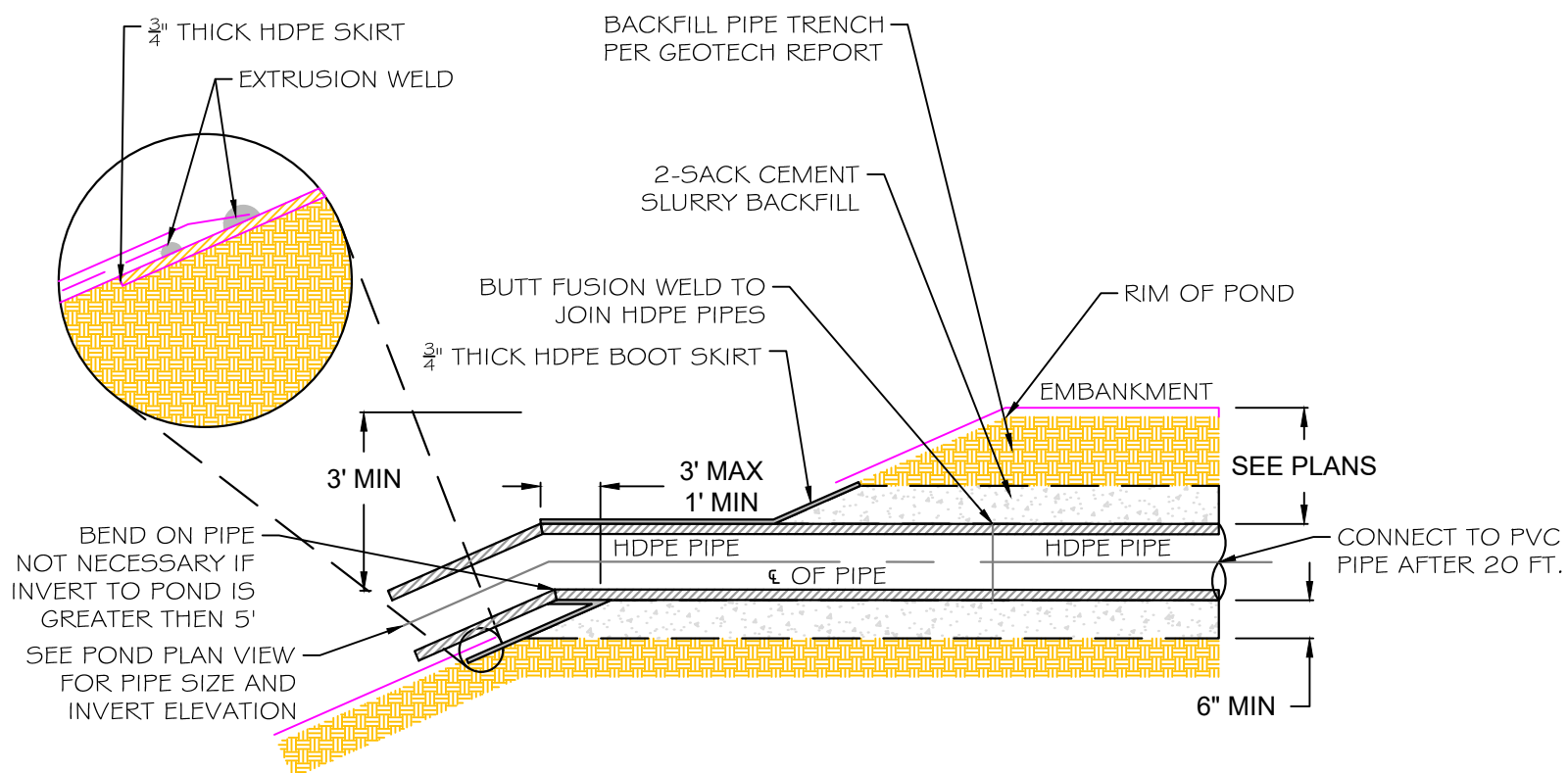
LINER
DETAILS

REVISION LOG:

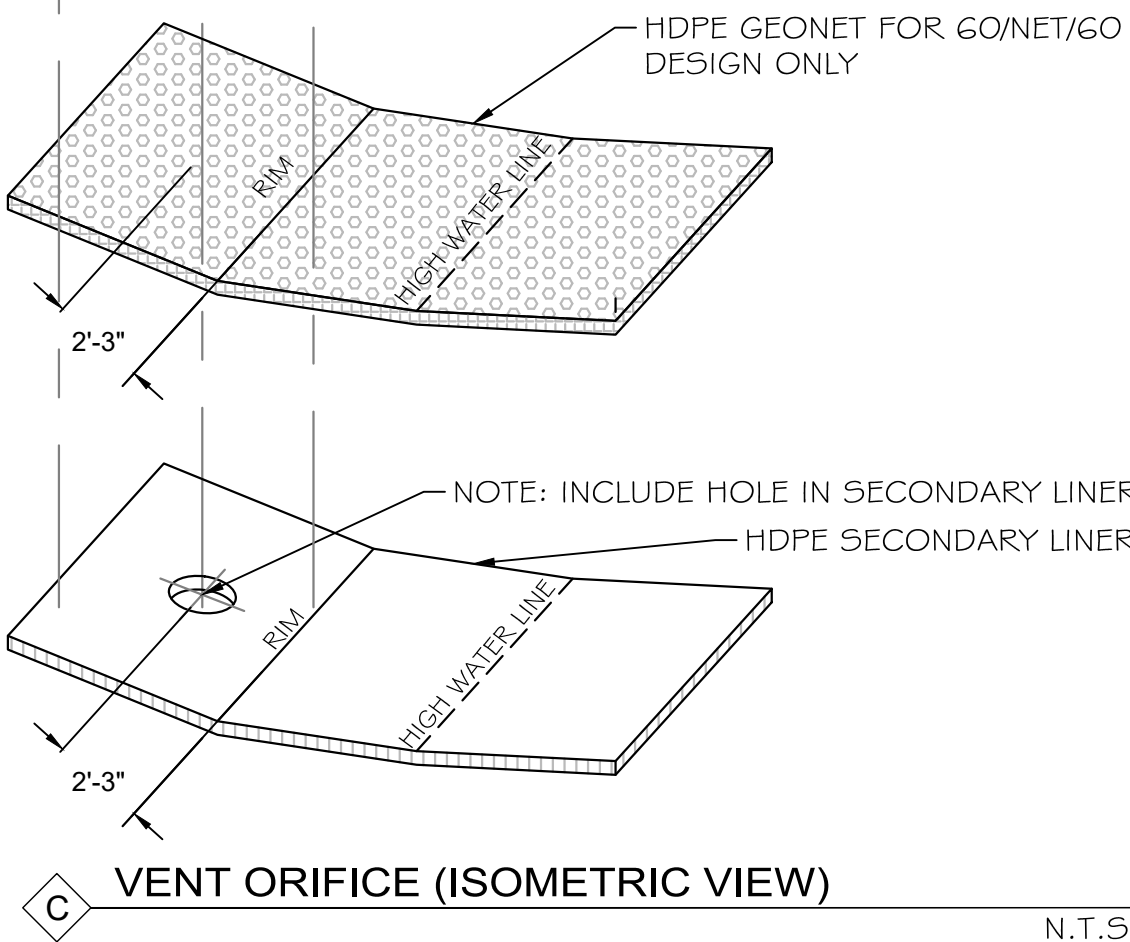
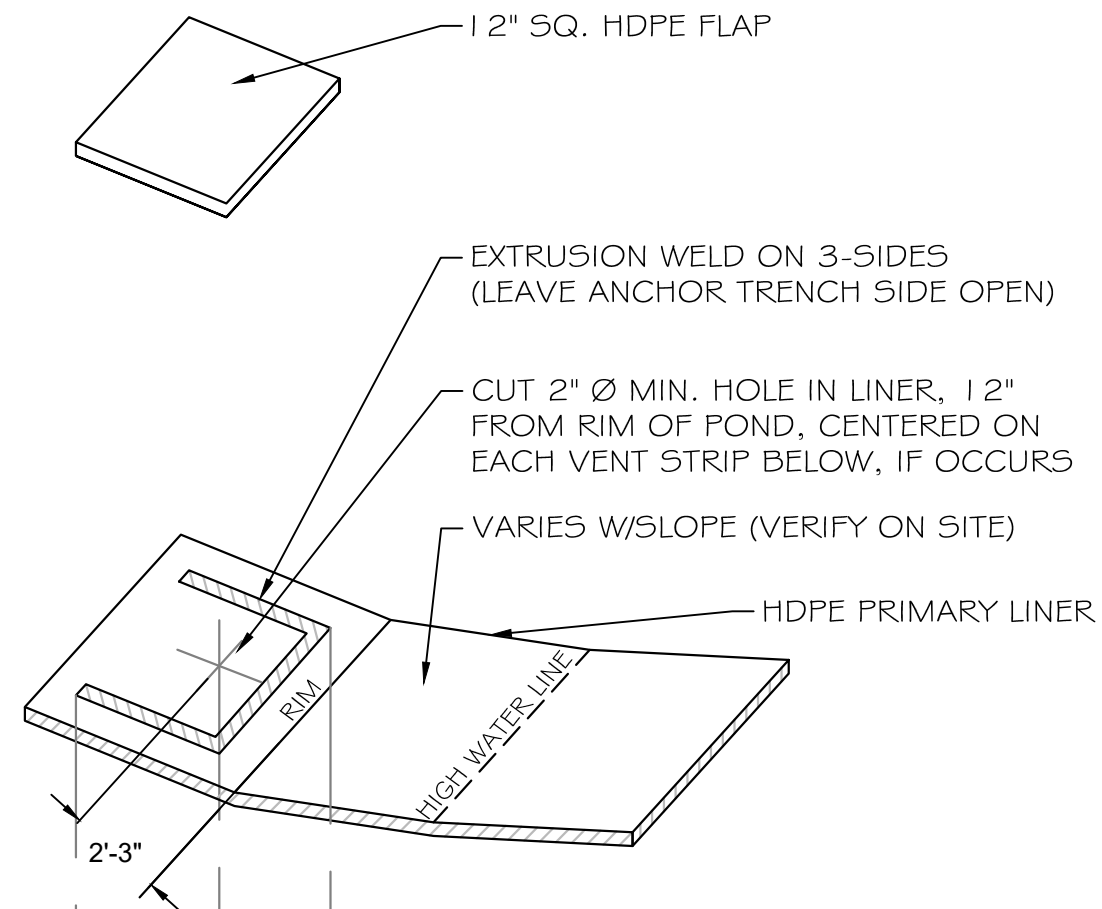
PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	L.2



A BOOT SKIRT N.T.S.



B BOOTLESS PIPE PENETRATION LINER FASTENING N.T.S.



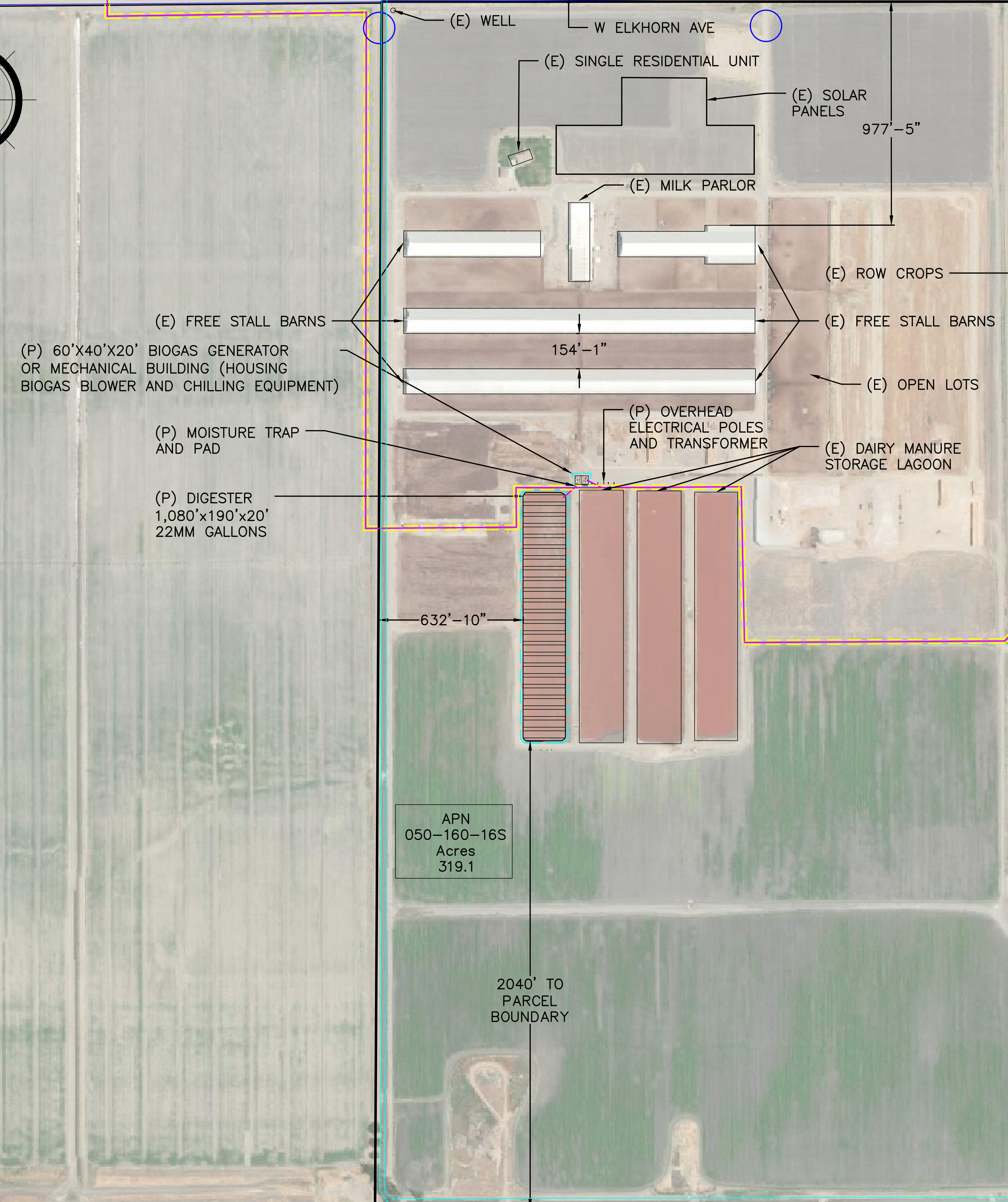
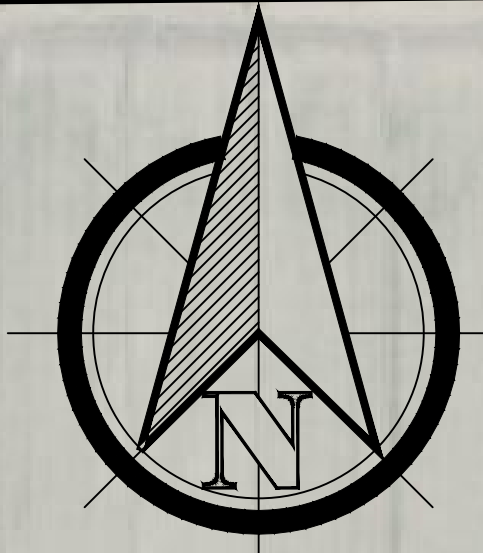
C VENT ORIFICE (ISOMETRIC VIEW) N.T.S.

1
H
HARTMAN
ENGINEERING
113 N. CHURCH ST,
SUITE 521
VISALIA, CA 93291
(559) 563-0181
REGISTERED PROFESSIONAL ENGINEER
CRAIG M. HARTMAN
NO. 73837
Exp. 06-30-19
CIVIL
STATE OF CALIFORNIA
1-8-18

PROJECT:
VAN DER KOOI DAIRY DIGESTER
CLIENT:
VAN DER KOOI DAIRY
13695 W ELKHORN
RIVERDALE, CA 93607

LINER DETAILS	REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	L.3



General Notes

CONFIDENTIAL

- (E) – Existing
- (P) – Proposed
- Access to the Property
- Proposed Fencing
- No improvements to streets have been propose.
- Off-street dirt parking and loading areas exist throughout the property. No new parking/loading areas have been proposed.
- 4" Biogas Gathering Lines
- 6" Biogas Gathering Lines
- Manure Piping
- PG&E Transmission Line
- APN Boundaries
- Nearest water courses to Dairy Parcel
- Williamson Act
- County Right of Way
- 20' Pipeline Easement
- Property Access

All pipes are in private easement with the exception of crossings shown.

Proposed pipeline is 20' or more from ROW.

Elkhorn Ave, 60' County Right of Way.

MAAS ENERGY WORKS

3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

Van Der Kooi Dairy Digester
13695 W. Elkhorn Ave
Riverdale, CA 93656

Date: 1/24/19
Version: 1.0

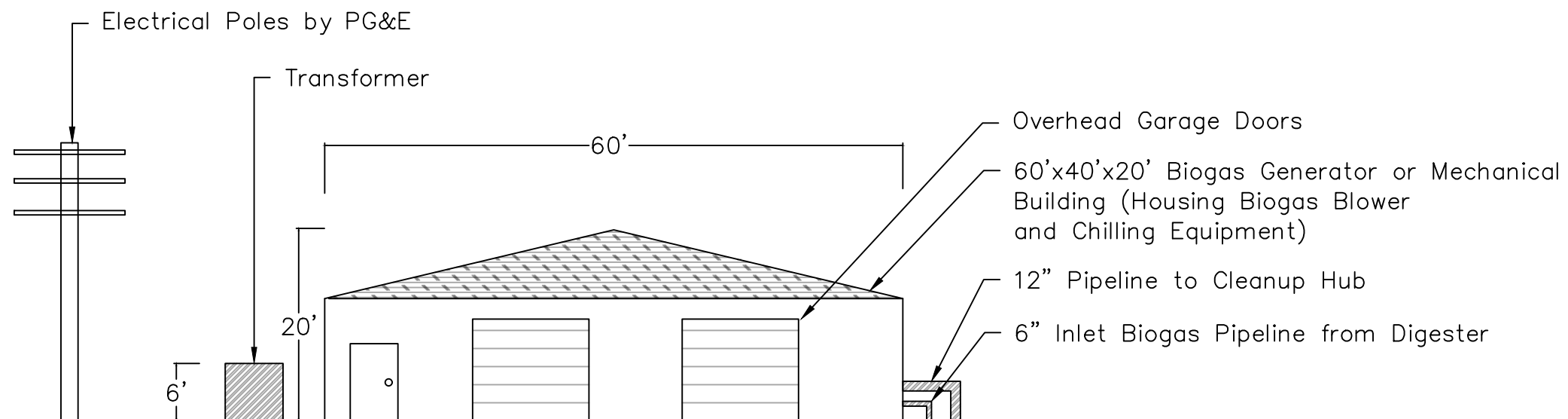
Drawn By: BO, SG

Drawing scale is 235' = 1"



General Notes

Not for Construction



Firm Address

3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

Project Name and Address

Five Points Cluster
Cleanup Hub & Injection Point
12103 Elkhorn Ave,
Riverdale, CA 93656

Date

3/22/19

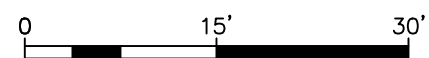
Version

1.0

Drawn By

Byron Oja

Drawing scale is 15' = 1"



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Fresno County Department of Public Works and Planning

Date Received: 3/21/19

CUP 3647

(Application No.)

MAILING ADDRESS:

Department of Public Works and Planning
Development Services and Capital Projects Division
2220 Tulare St., 6th Floor
Fresno, Ca. 93721

LOCATION:

Southwest corner of Tulare & "M" Streets, Suite A
Street Level
Fresno Phone: (559) 600-4497

APPLICATION FOR:

- Pre-Application (Type)
Amendment Application
Amendment to Text
Conditional Use Permit
Variance (Class)/Minor Variance
Site Plan Review/Occupancy Permit
No Shoot/Dog Leash Law Boundary
General Plan Amendment/Specific Plan/SP Amendment
Time Extension for
Director Review and Approval
for 2nd Residence
Determination of Merger
Agreements
ALCC/RLCC
Other

DESCRIPTION OF PROPOSED USE OR REQUEST:

Request is to allow the installation of a digester, sandlane, 8"-24" manure pipes, biogas pipe, moisture trap and pad, biogas blower and chilling equipment, mechanical building, biogas generator and supporting equipment.
Proposed upgrades will allow biogas to be transported to the upgrading/injection point and ultimately to the PG&E transmission line.

CEQA DOCUMENTATION: Initial Study PER N/A

PLEASE USE FILL-IN FORM OR PRINT IN BLACK INK. Answer all questions completely. Attach required site plans, forms, statements, and deeds as specified on the Pre-Application Review. Attach Copy of Deed, including Legal Description.

LOCATION OF PROPERTY: North side of West Mount Whitney Ave
between W Harlan Ave and W Mt Whitney Ave
Street address: 11720 West Mount Whitney Avenue, Riverdale, CA 93656

APN: 050-260-12S Parcel size: 160 Acres Section(s)-Twp/Rg: S 22 - T 17 S/R 18 E

ADDITIONAL APN(s):

I, JIM WILSON (signature), declare that I am the owner, or authorized representative of the owner, of the above described property and that the application and attached documents are in all respects true and correct to the best of my knowledge. The foregoing declaration is made under penalty of perjury.

Table with 5 columns: Name, Address, City, Zip, Phone. Rows include Dry Creek Holdings, LLC, Wilson Dairy Biogas LLC, and Maas Energy Works, Inc.

CONTACT EMAIL: stephanie@maasenergy.com

OFFICE USE ONLY (PRINT FORM ON GREEN PAPER)

Application Type / No.: UCVP No. 3647 Fee: \$9,123.00
Application Type / No.: Fee: \$
Application Type / No.: Fee: \$
Application Type / No.: Fee: \$
PER/Initial Study No.: Fee: \$
Ag Department Review: Fee: \$51.00
Health Department Review: Fee: \$654.00
Received By: J.S. Invoice No.: 117399 TOTAL: \$9,828.00

UTILITIES AVAILABLE:

WATER: Yes [] / No [X]
Agency:
SEWER: Yes [] / No [X]
Agency:

STAFF DETERMINATION: This permit is sought under Ordinance Section: Sect-Twp/Rg: - T S/R E

Related Application(s):
Zone District: AE-40
Parcel Size:

CUP 3647 Operational Statement

CUP “E” Application Project Details (Wilson)

Lists the proposed project components to be installed at the participating project site for CUP “E”.

Digester #5 – J&D Wilson & Sons Dairy:

- Sandlane
- Various 8”-24” Manure Pipes
- Digester
- 12” Biogas Pipe
- Moisture Trap and Pad
- Biogas Blower and Chilling Equipment
- Mechanical Building
- Biogas Generator
- Supporting Equipment

Dairy Liquid Manure Handling System

(Sandlane and Manure Pipes)

To prepare the dairy for the digester installation, the project will modify the existing liquid manure handling system on the dairy to accommodate the digester. This modification will include the installation of various liquid manure pipes between 8” and 24” in diameter. These pipes are installed via standard open trenching practices in compliance with all OSHA standards.

Additionally, the project will include the installation of a manure sandlane. This sandlane will be no longer than 400’ and no wider than 16’. The final design is in process, but the preliminary design is a flat, 300’ long, 14’ wide, 6” thick, concrete slab with a 4’ high push wall. The preliminary design indicates that the slab will be installed on a slope of 1-3% to allow the manure to flow at a consistent speed. The sandlane is designed to slow the flow of flushed manure down in order to capture sand and other inorganics.

Digester Technology

The anaerobic covered lagoon digesters are a passive addition to the dairy and require minimal oversight. Cameras and automation equipment will be installed at each digester sight to enable remote monitoring. The digester will be suited with an emergency vent as required by the San Joaquin Valley Air District (SJVAPCD). A small mechanical building will be constructed on-site that will house a biogas chiller to remove condensate prior to entering the biogas gathering lines and a biogas blower to move the gas from the digester system to the biogas gathering lines as discussed in more detail below.

The digester will be created by first double-lining a new or existing storage pond at each dairy. All digester ponds will meet the Central Valley Regional Water Quality Control Board (CRWQCB) Tier 1 standards, which include the installation of double-layered liners of welded 60 ml HDPE with leak detection to ensure water quality. All digester pond designs must be pre-approved by the CRWQCB and their installation is monitored by professional engineers. Once constructed and prior to actual operation of the ponds to treat wastewater, an installation report will be submitted to CRWQCB for their review and approval.

The project will then cover the newly lined ponds with 80 ml flexible HDPE material to create the project’s biogas collection system. The lagoon cover will be welded to the liner ensuring a complete seal. A perforated pipe runs above the water line around the entire perimeter of the covered lagoon to ensure

uninterrupted gas flow to the outlet. The cover will also include submersible mixers to agitate the manure which will minimize settling, reduce sludge in the digester, and increase biogas production. An HDPE baffle creates a pathway for manure to slowly flow through the digester, ensuring hydraulic retention time and eliminating dead spots. Finally, sludge draw-off pipes are commonly added as a final protection against sludge buildup. This type of covered lagoon technology is highly commercialized and represents 100% of the successful digester installations in California since 2014. Engineered site plan and design drawings for the proposed digester are found in Attachment E-5. A summary of digester type, digester dimensions, digester volume, and estimated gas output is also summarized in the table below.

Table 5 - J&D Wilson & Sons Dairy Digester

Digester	Participating Dairy	Digester Dimensions (ft)	Digester Volume (gal)	Gas Output (mmBTU/yr)
Digester #5	J&D Wilson & Sons Dairy	1,630' x 125' x 25'	21,027,058	66,423

Biogas Pipe

The biogas pipe is responsible for the delivery of the biogas from the digester to the moisture trap.

Moisture Trap and Pad

After leaving the digester but before entering the mechanical building, the biogas is processed through a moisture trap to reduce the amount of H₂O in the biogas. The trap is supported by a new concrete pad which will also accommodate the blower, chilling equipment and mechanical building.

Biogas Blower and Chilling Equipment

Once it has passed through the moisture trap, the biogas will be pulled through the blower and sent to chilling equipment and then the gathering lines.

A chiller and condenser will be installed to condense most of the water in the biogas before blowing into the gathering pipeline. The chiller is a typical commercial unit for cooling glycol. The condenser is a commercially available unit for condensing moisture from biogas.

A blower will be installed near the digester to move the biogas into the gathering lines at pressure of less than 20 psi. Each blower will be controlled by a central SCADA system that is overseen by operators on a 24/7 basis. When a blower increases in speed, more biogas is pushed to the upgrading facility, and when it decreases, less biogas is sent. The gathering lines will be pressure monitored via SCADA equipment in real time to detect leaks or major failures. Additionally, flow meters will be installed at each digester site and at the upgrading facility to monitor biogas flows.

Mechanical Building

The mechanical building will be a prefabricated steel building no larger than 60' x 40'. This building will house chilling equipment and the blower and the biogas generator.

Biogas Generator

The project's internal combustion engine's emissions will be regulated by the SJVACPD under the latest Best Available Control Technology (BACT) standards. This power generation project will consume biogas in an onsite generator, to create electricity for delivery to the PG&E grid under the Bioenergy Market Adjusting Tariff (BioMAT), net energy metering with aggregation or other exporting tariff. When the engine is off for maintenance, the biogas will be stored in the covered lagoon, which has capacity for approximately 2 days of biogas storage. An emergency vent will also be installed per San Joaquin Valley Air Pollution Control District permit requirements.

The engine is a Guascor SFGLD-560 or similar, 16-cylinder lean-burn, turbo-charged reciprocating internal combustion engine mated with a synchronous generator. The combined rated electrical power of the system is 800-1,000 kW. The biogas from this project will be conditioned to remove moisture and reduce hydrogen sulfide below 40 ppm. Moisture from the biogas will be removed using a Bell & Gosset (or equivalent) plate and frame heat exchanger cooled by a Cold Shots (or equivalent) 240,000 BTU/hr industrial air-cooled chiller. H₂S reduction will be achieved in two stages. First a built-in air injection system under the digester's cover will encourage biological fixation of sulfur molecules. Secondly, the project will employ a media-based scrubber using non-toxic media (Sulfatreat or similar). CO₂ does not need to be removed prior to combustion under this design. The project engine generator is oversized to increase reliability and to allow the project to generate during the time of day when the power prices are most profitable. The project will sign a final interconnection agreement with PG&E.

Emissions Reduction Plan: The project will treat exhaust emissions using a Selective Catalytic Reduction (SCR) system with Oxidation Catalyst from HUG Engineering (or similar manufacturer) that comes with a guarantee of performance.

Supporting Equipment

Supporting equipment is including but not limited to a transformer and electrical poles which will be installed per PG&E requirements in order to support the biogas generator. Furthermore, supporting equipment is any equipment which is essential for the function of the aforementioned equipment and completion of the project ambitions. Such equipment may include small pumps, electrical controls, and other minor equipment which is deemed necessary.

Operational Times and Visitors

The facility will be operational 24/7, but not open to public visitors without prior permission.

Number of Employees

Construction:

Digester and ancillary equipment: a maximum of 10 people for short periods of time, with an average of 5 people on site during the 7 months of construction.

Operations:

Remote sensor and computer monitoring of the equipment will be operated permanently. One employee will make a daily inspection of the facility. That work will be conducted during regular business hours, 8am-5pm, and on-call 24/7. No permanent facility employees will work or live on-site.

Service and Delivery Vehicles

There will be one service truck which will visit once per day. No delivery trucks will be on site pertaining to the digester on site.

Access

Access to the site would be taken from West Mt Whitney Avenue.

Parking

There is existing parking at the dairy. The construction crew will utilize this parking during construction activities.

Goods

No goods will be sold on site.

Supplies or Materials

The facility will use and store small quantities of materials such as lubricants, and hydraulic fluids. Handling of hazardous materials are regulated by federal and State laws, which minimizes worker safety risks from both physical and chemical hazards in the workplace.

Appearance/Noise/Dust

The project facility is similar in nature to the existing dairy infrastructure and fits into its surroundings. The pipeline will run underground and will not be seen. Noise generated by the project equipment will not be above typical agriculture facility levels. The facility does not include any lights or other sources of glare beyond what is currently used for security reasons at the dairy. Once operational, the project will not generate fugitive dust. The project will not emit or concentrate any odors, and in fact will reduce odors with the installation of the covered manure lagoons.

Solid or Liquid Wastes to be Produced

Facility will produce minimal amounts of solid or liquid waste. Waste will be picked up once per month by a solid waste disposal company and taken to an appropriate landfill.

Construction and Operational Water Usage

Construction of the digester and ancillary equipment is anticipated to take approximately 140 working days.

Water for construction and operations would be supplied by an existing on-site agricultural well.

Construction: An estimated 5,000 gallons/day is anticipated during up to 7 months of construction activities. Based on an average 20 work days a month, approximately 2.1 AF would be required (5,000 gallons x 140 days = 700,000 gallons).

Operations: Water usage is anticipated to be approximately 2,500 gallons per day or 2.8 AF annually during operation.

Advertising

There will be no advertisements at the project sites.

Buildings

The project will not construct any new buildings, but 2-3 small containers may be installed for electrical controls and other equipment. These will be steel and unobtrusive colors.

Lighting and Outdoor Sound Amplification

No outdoor lighting or sound amplification systems will be installed for the project.

Landscaping and Fencing

There will be chain link fencing installed around the perimeter of the facility. No landscaping is proposed for the project.

Restrooms

There is no on-site permanent staff. Maintenance staff will use the existing dairy restroom facilities.



Site Overhead

Photo Courtesy of Google Earth



Digester Site

Photo Courtesy of Maas Energy Works, Inc

J&D WILSON & SON DAIRY

DAIRY DIGESTER

BENCHMARK

THE TOPOGRAPHIC SURVEY WAS PERFORMED UTILIZING GLOBAL POSITIONING SYSTEM OBSERVATIONS. DISTANCES AND NUMBERS SHOWN ARE TO BE CONSIDERED GROUND VALUES. BENCHMARK AND CONTROL SHOWN ON CONTROL PLAN SHEET. THE BENCHMARK AND VERTICAL ELEVATIONS WERE DERIVED FROM THE NGS ONLINE POSITIONING SERVICE (OPUS), AND IS SHOWN ON THE NAVD 88 DATUM UTILITIZING THE GEOID 09 AS THE VERTICAL MODEL.

PRESERVATION OF MONUMENTS

PURSUANT TO SECTIONS 8771(B) AND 8771(C) OF THE GOVERNMENT CODE, ANY MONUMENTS THAT CONTROL THE LOCATION OF BOUNDARIED, OR OTHERWISE PROVIDE HORIZONTAL OR VERTICAL SURVEY CONTROL WITHIN THE CONSTRUCTION AREA, SHALL BE LOCATED AND REFERENCED PRIOR TO CONSTRUCTION, AND A CORNER RECORD OR RECORD OF SURVEY OF THE REFERENCES SHALL BE FILED WITH THE COUNTY SURVEYOR.

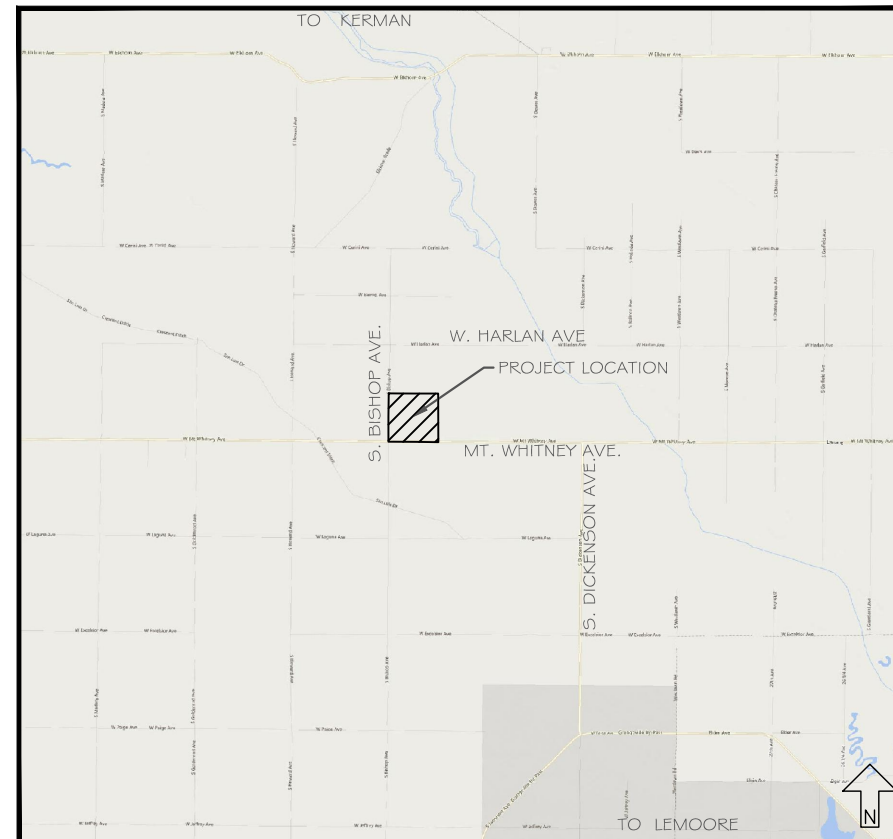
PERMANENT MONUMENTATION SHALL BE SET TO PERPETUATE THE LOCATION OF ANY MONUMENT WHICH COULD BE DAMAGED OR DESTROYED, AND A CORNER RECORD OR RECORD OF SURVEY SHALL BE FILED WITH THE COUNTY SURVEYOR PRIOR TO THE RECORDING OF A CERTIFICATE OF COMPLETION FOR THE PROJECT.

DUST CONTROL NOTES

CONTRACTOR IS REQUIRED TO COMPLY WITH GOOD HOUSE KEEPING PRACTICES

STORMWATER (SWPPP) NOTES

CONTRACTOR IS REQUIRED TO COMPLY WITH GOOD HOUSE KEEPING PRACTICES



VICINITY MAP

SCALE 1" : 2 MI

SHEET INDEX

GENERAL NOTES

- A.1 COVER SHEET
- A.2 GENERAL NOTES
- A.3 SITE PLAN - DAIRY
- A.4 SITE PLAN - DIGESTER

CIVIL DRAWINGS

- C.1 GRADING PLAN
- C.2 CROSS SECTIONS
- C.3 GRADING DETAILS

DIGESTER DRAWINGS

- D.1 COVER SYSTEM
- D.2 SLURRY SYSTEM
- D.3 MIXERS
- D.4 DETAILS

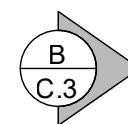
LINER DRAWINGS

- L.1 LINER - DETAILS
- L.2 LINER - DETAILS
- L.3 LINER - DETAILS

SHEET REFERENCE

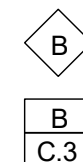
SECTIONS:

SECTION NAME
SHEET NUMBER



DETAILS:

DETAIL NAME
SHEET NUMBER



CONTACT INFO

ENGINEER:
CRAIG HARTMAN, RCE 73837
HARTMAN ENGINEERING, INC.
3121 W. CERES CT.
VISALIA, CA 93291
(559) 563-0181

DAIRY CONTACT:
JIM & DARLA WILSON
11720 W. MOUNT WHITNEY AVE
RIVERDALE, CA 93656

1
H

HARTMAN
ENGINEERING

113 N. CHURCH ST,
SUITE 521
VISALIA, CA 93291
(559) 563-0181

PROJECT:
**J&D WILSON &
SONS
DAIRY
DIGESTER**

CLIENT:
JIM & DARLA WILSON
11720 W. MOUNT
WHITNEY AVE
RIVERDALE, CA 93656

REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	A.1

SPECIFICATIONS FOR ENGINEERED FILL MATERIAL OF ABOVE GRADE EMBANKMENTS OR AS REQUIRED

TEST PARAMETER	TEST METHOD	FREQUENCY	ACCEPTANCE CRITERIA
Compaction Curves	ASTM D1557 (Modified Proctor)	Change in material	N/A
Grain Size Distribution	ASTM D422 (Sieve)	Change in material	At least 30% passing No. 200 U.S. Standard Sieve. Per Specifications (1)
Soil Classification	ASTM D2487 (USCS)	Change in material	Suitable for compaction (2)
Maximum Particle Size	ASTM D422 (Sieve)	Change in material	½ inch, ¼ top 6 inches
Maximum Water soluble Sulfate (SO ⁴) in Soil (Concrete Slab locations)	ASTM C1580	Change in material	0.2% by weight

Site Preparation Specifications:

1. Clearing: Prior to earthwork operations, the area to be developed should be stripped of vegetation, organic topsoil, and cleared of cow waste and miscellaneous debris from the proposed construction areas. Deeper clearing may be required in localized areas. The actual depth of clearing should be reviewed by a licensed Geotechnical Engineer at the time of construction. The limits of stripping and clearing should be at least five feet beyond the limits of construction.

2. Compaction: The scarified subgrade and subsequent fill placed at the site should be moisture conditioned to near optimum moisture content, and compacted to at least and 90 percent for 2:1 side slope pond of maximum dry density as determined by ASTM test method D1557.

3. Material for fill: Fill should consist of select material. Native soil, free from organic, vegetation, and rocks or cobbles larger than three inches, may be used as fill at the site. Import material must be reviewed by licensed Geotechnical Engineer prior to transport to the site.

4. Fill placement: Fill material should be moisture-conditioned to +/- 2% of the optimum moisture content prior to compaction. Fill material with excessive moisture should be allowed to dry prior to compaction or be mixed with dry soil to bring the fill to a workable moisture content. Fill should be placed in level lifts not exceeding a loose, uncompacted thickness of eight inches, and compacted as engineered fill.

Sub-grade requirements for fill only:

-Over Excavate for minimum 1 ft. to meet Engineered Fill Borrow Material Guidelines and Pond Liner Sub-grade requirements

-Well mixed soil

-6 in max lifts

-Upper 6 inches is of fine-finished soil particles no greater than ¼ in. +

Notes:

Field tests shall not be required, but fill borrow material specifications must meet the acceptance criteria outlined in Table 1.

Refer to Geotechnical Report

NOTES:

THE APPROVED WORK PLAN WHICH INCLUDES THE CONSTRUCTION QUALITY ASSURANCE PLAN, OPERATION, MAINTENANCE AND MONITORING PLAN, CONSTRUCTION DRAWINGS, AND SOILS REPORT TOGETHER AS A PACKAGE ARE THE COMPLETE SPECIFICATIONS REQUIRED FOR CONSTRUCTION OF THE POND AND LINER SYSTEM.

FILL TEST SPECIFICATIONS FOR SUB-GRADE

TEST PARAMETER	TEST METHOD (1)	FREQUENCY	ACCEPTANCE CRITERIA
Uncompacted Lift Thickness	Visual Observation	Continuous	8-in.(2)
Construction Oversight	Visual Observation	Continuous	Maximum particle size 1/2 inch.
In-Place Moisture Alternative Method	ASTM D2216 (Oven Dry)	1 per every 10 Nuclear tests	+/-2% of Optimum Moisture Content per ASTM D1557
In-Place Moisture Rapid Field Methods (3)	ASTM D6938 (4) (Nuclear Method)	3 per acre per lift, min. 2 per day	+/-2% of Optimum Moisture Content per ASTM D1557
In-Place Density Alternate Method	ASTM D2937(Drive Cylinder)	1 per every 10 Nuclear tests	90% of Maximum Dry Density per ASTM D1557
In-Place Density Rapid Field Methods (5)	ASTM D6938 (6) (Nuclear Method)	3 per acre per lift, min. 2 per day	90% of Maximum Dry Density per ASTM D1557
Subgrade Thickness	Surveying Measurement	At 50-foot centers	Minimum 1 ft.(7)
Clod Size	Visual Observation	Continuous	Per Specification

Notes:

See earthwork section for anchor trench, excavation, backfill, and compaction requirements.

(1) ASTM Test Method, unless otherwise noted. Results of all tests performed to be reported as per method reporting criteria.

(2) The sub-grade shall be scarified to a depth of 1 ft. lower than finished grade, compacted, and tested in accordance with the requirements of this table.

(3) Must be verified by ASTM D2216 (Oven) overnight method once every day or once per change in material

(4) Must be verified by ASTM D2937 (Dry Cylinder) twice per day or per change in material

(5) Calibration Procedure: ASTM D7013-04: Standard Guide for Nuclear Surface Moisture and Density Gauge Calibration Facility Set-up

POND SPECIFICATIONS FOR SUBGRADES CUT BELOW GROUND (For Slopes 2:1 or shallower)

Side Slopes: The certified Civil Engineer/CQA Chief Officer shall walk final side slopes after cut by heavy equipment and confirm no SW or SP soils and no loose soils. All SW, SP, or soils that are not amenable to a firm and unyielding subgrade shall be removed and replaced down to a minimum 3 ft. below sloped surface. Any soils removed and replaced shall meet the Engineered Fill requirements in Table 1.

Pond Bottom: 1. An as-built survey of the pond bottom shall take place after subgrade construction to insure minimum slopes are achieved. Pond Bottom shall be tested per criteria below. Any soils not meeting the requirements below (i.e. that is not firm and unyielding) shall be removed and replaced down to a minimum 2 ft. Any soils removed and replaced shall meet the Engineered Fill requirements in Table 1. The Civil Engineer may make determination of soils meeting requirements or not based upon visual inspection which shall be included in the Subgrade Certification Report and signed and sealed by a Civil Engineer and CQA Officer.

TEST PARAMETER	TEST METHOD (1)	FREQUENCY	ACCEPTANCE CRITERIA
In-Place Density Rapid Field Methods (2)	ASTM D6938 (3) (Nuclear)	3 per acre	90% of Maximum Dry Density per ASTM D1557
In-Place Moisture Rapid Field Methods (4)	ASTM D6938 (5) (Nuclear Methods)	3 per acre per lift, min. 2 per day	+/-2% of Optimum Moisture Content per ASTM D1557
Construction Oversight	Visual Observation	Continuous	Maximum particle size 1/2 inch.
Subgrade Slope	Surveying Measurement	200 ft. maximum grid	Min 1%

60 MIL HDPE GEOMEMBRANE CONSTRUCTION QUALITY ASSURANCE (CQA)

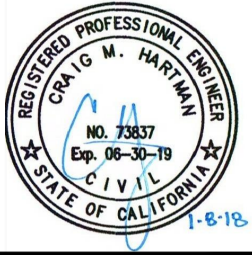
TEST PARAMETER	TEST METHOD	FREQUENCY	ACCEPTANCE CRITERIA
Thickness (min. ave.) -Lowest individual for 8 out of 10 values -Lowest individual for any of the 10 values	ASTM D5994	1 per lot or 1 per 70,000 ft ² , whichever is greater	Nom. (-5%) -10% -15%
Tensile Properties -yield strength -break strength -strain at yield -break strength	ASTM D6693 Type IV	1 per lot or 1 per 70,000 ft ² , whichever is greater	≥126 lb./in. ≥90 lb./in. ≥12% ≥100%
Puncture Resistance	ASTM D4833	1 per lot or 1 per 70,000 ft ² , whichever is greater	108 lb. (min.)
Tear Resistance	ASTM D1004, Die C	1 per lot or 1 per 70,000 ft ² , whichever is greater	42 lb. (min.)
Interface Shear -60-mil HDPE/subgrade soil -Drainage geocomposite	ASTM D5321 ASTM D6243	2 tests or 1 per 200,000 ft ² , whichever is greater	
Seam Shear	ASTM D6392	1 test per 500 lineal feet or per GRI GM-14 and 20.	95% of min. yield strength
Seam Peel -Extrusion -Fusion	ASTM D6392	1 test per 500 lineal feet or per GRI GM-14 and 20.	72% yield & ffb (1)
Non-destructive Seam Test	ASTM D5820 (Pressure Test)	Continuous	35 psi for 5 min.
	ASTM D5641 (Vacuum Box)		5 psi for 15 sec.
	ASTM D5641 (Spark Test)		No Spark
Electric Leak Location	ASTM D7002 (Water Puddle)	Once on constructed liner	Max 1 mm. diameter hole sensitivity
	ASTM D6747 (Selection Process)		
	ASTM D7007 (Water /Earth)		Max 6 mm. diameter hole sensitivity
	ASTM D7240 (Spark Test 2011)		

Notes:

ffb: Film Tear Bond



113 N. CHURCH ST,
SUITE 521
VISALIA, CA 93291
(559) 563-0181



PROJECT:
J & D WILSON & SONS DAIRY DIGESTER

CLIENT:
JIM & DARLA WILSON
11720 W. MOUNT
WHITNEY AVE
RIVERDALE, CA 93656

GENERAL NOTES
CONSTRUCTION

REVISION LOG:

PLOT DATE: 01/08/18

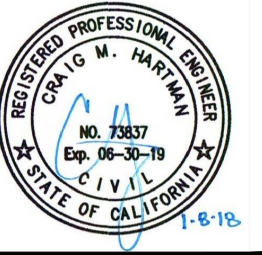
JOB NO.: 17003

SCALE: AS SHOWN

SHEET NO.: A.2



113 N. CHURCH ST,
SUITE 521
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PROJECT:
**J & D WILSON &
SONS
DAIRY
DIGESTER**

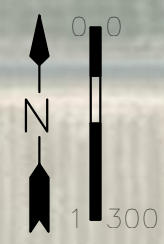
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WHITNEY AVE
RIVERDALE, CA 93656

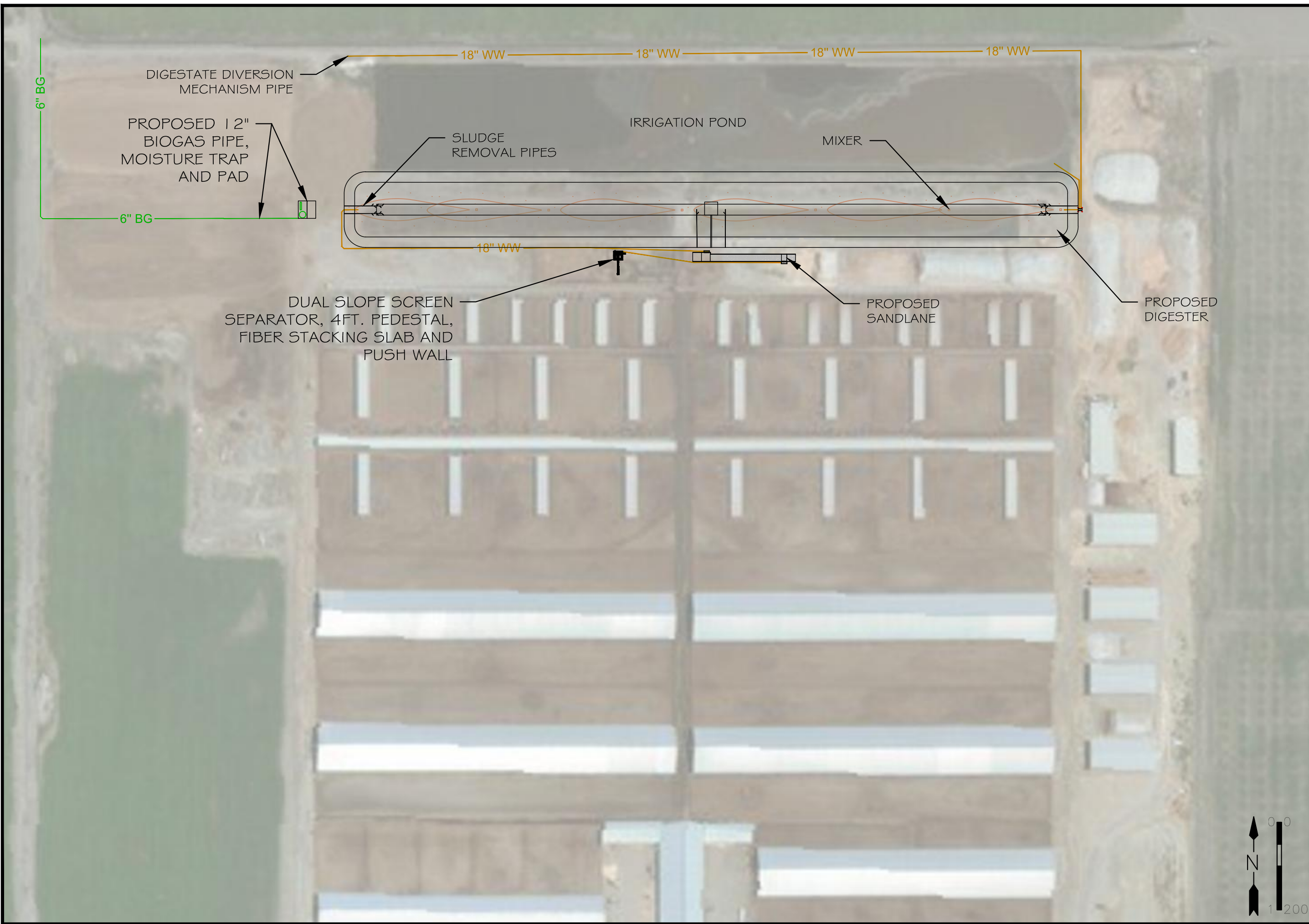
SITE PLAN

DIGESTER

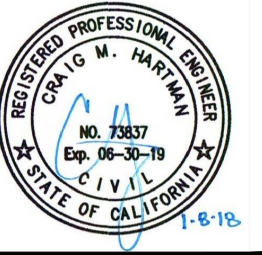
REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	A.3





113 N. CHURCH ST,
SUITE 521
VISALIA, CA 93291
(559) 563-0181



PROJECT:
**J & D WILSON &
SONS
DAIRY
DIGESTER**

CLIENT:
JIM & DARLA WILSON
11720 W. MOUNT
WHITNEY AVE
RIVERDALE, CA 93656

SITE PLAN

DAIRY

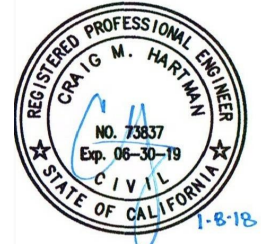
REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	A.4



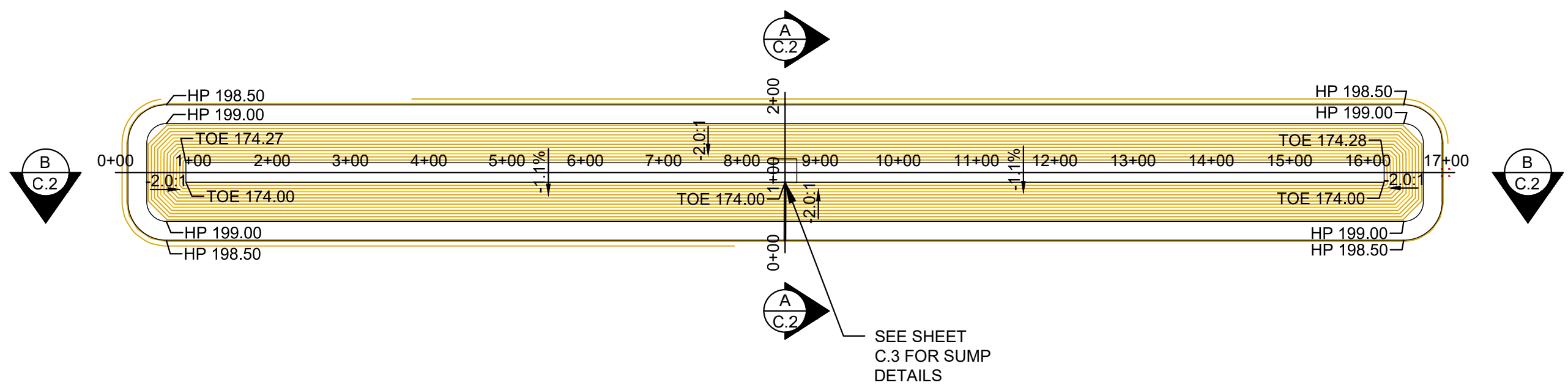


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SUITE 521
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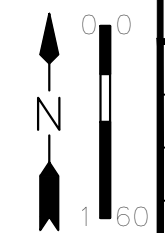


PROJECT:
**J & D WILSON &
SONS
DAIRY
DIGESTER**

CLIENT:
JIM & DARLA WILSON
11720 W. MOUNT
WHITNEY AVE
RIVERDALE, CA 93656



- GRADING NOTES:**
- 1. CONTRACTOR SHALL INFORM ENGINEER OF ANY DISCREPANCIES OR ERRORS IN PLANS PRIOR TO CONSTRUCTION.
 - 2. CONTRACTOR SHALL MEET SPECIFICATIONS OF TABLE 2 WITHIN THE APPROVED CONSTRUCTION QUALITY CONTROL PLAN.
 - 3. CONTRACTOR SHALL SMOOTH DRUM ROLL FINAL SURFACE AND REMOVE ANY ROCK OR MATERIAL GREATER THAN 1/2 INCH.



GRADING PLAN	DIGESTER	REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	C.1



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SUITE 521
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PROJECT:
**J & D WILSON &
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DAIRY
DIGESTER**

CLIENT:
JIM & DARLA WILSON
11720 W. MOUNT
WHITNEY AVE
RIVERDALE, CA 93656

GRADING SECTIONS

DIGESTER

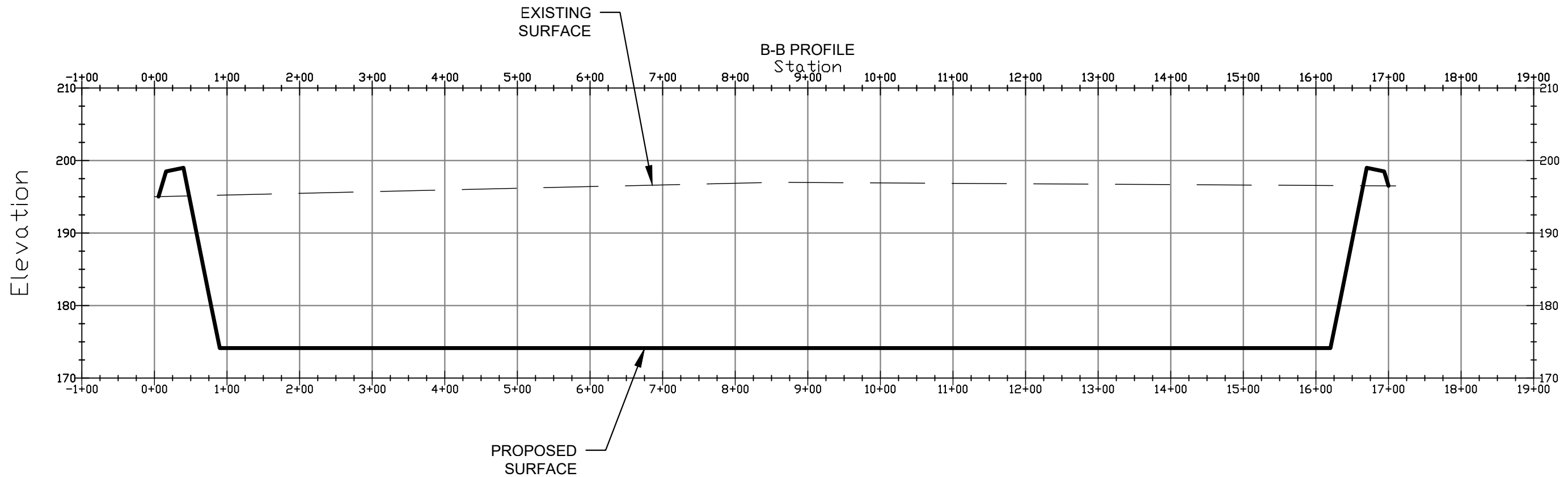
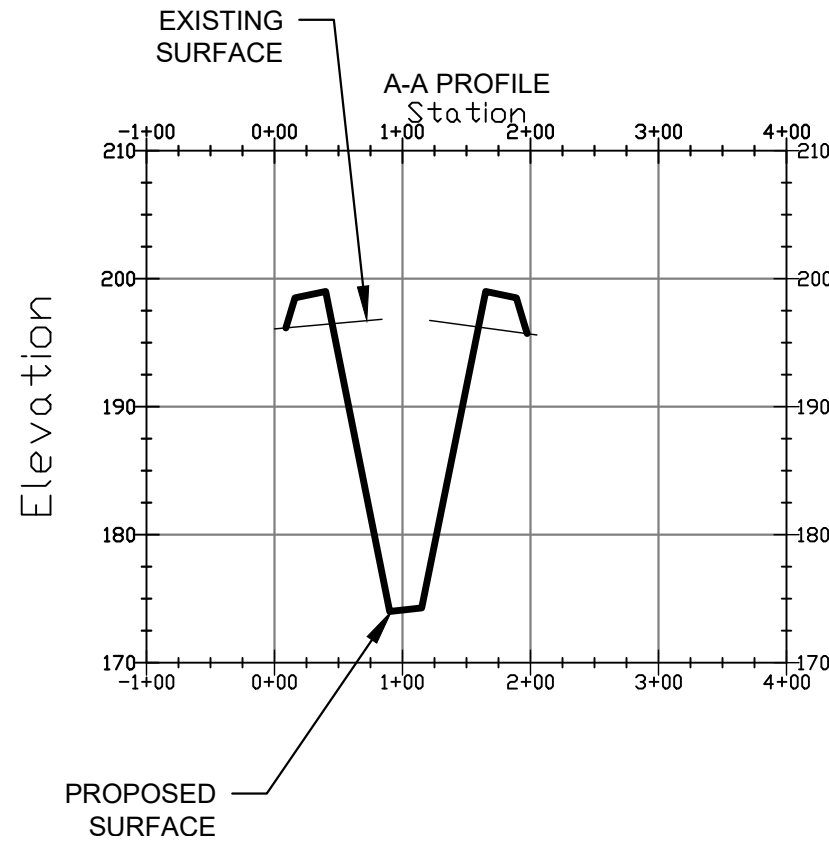
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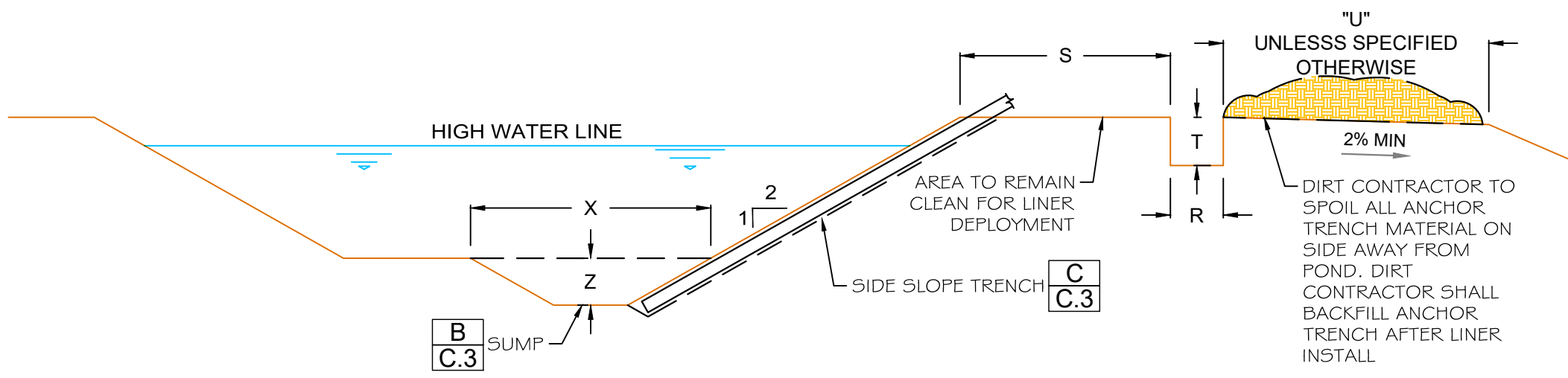
PLOT DATE: 01/08/18

JOB NO.: 17003

SCALE: AS SHOWN

SHEET NO.: C.2

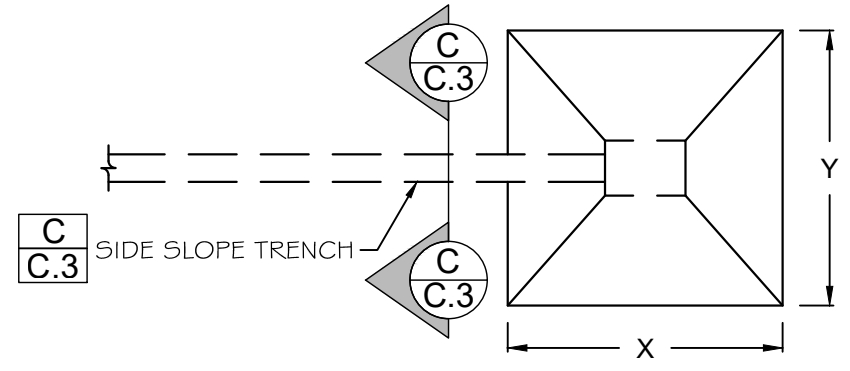




A ANCHOR TRENCH / SUMP PROFILE VIEW

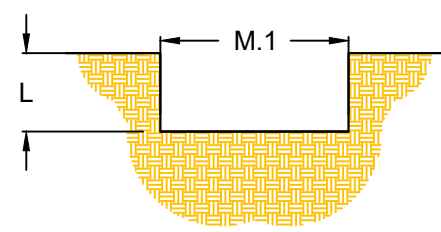
N.T.S.

DIMENSION TABLE (FT.)	
LETTER	POND
L	1.7'
M.1	2.7'
U	20'
R	1.5'
S	3'
T	3'
X	30'
Y	30'
Z	5.5'



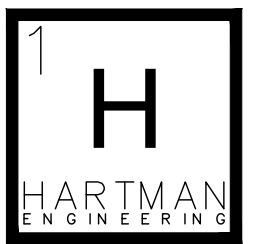
B SUMP PLAN VIEW

N.T.S.

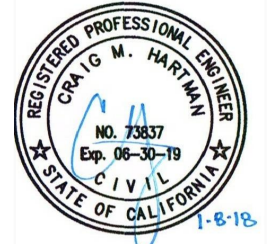


C SIDE SLOPE TRENCH

N.T.S.



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PROJECT:
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DAIRY
DIGESTER**

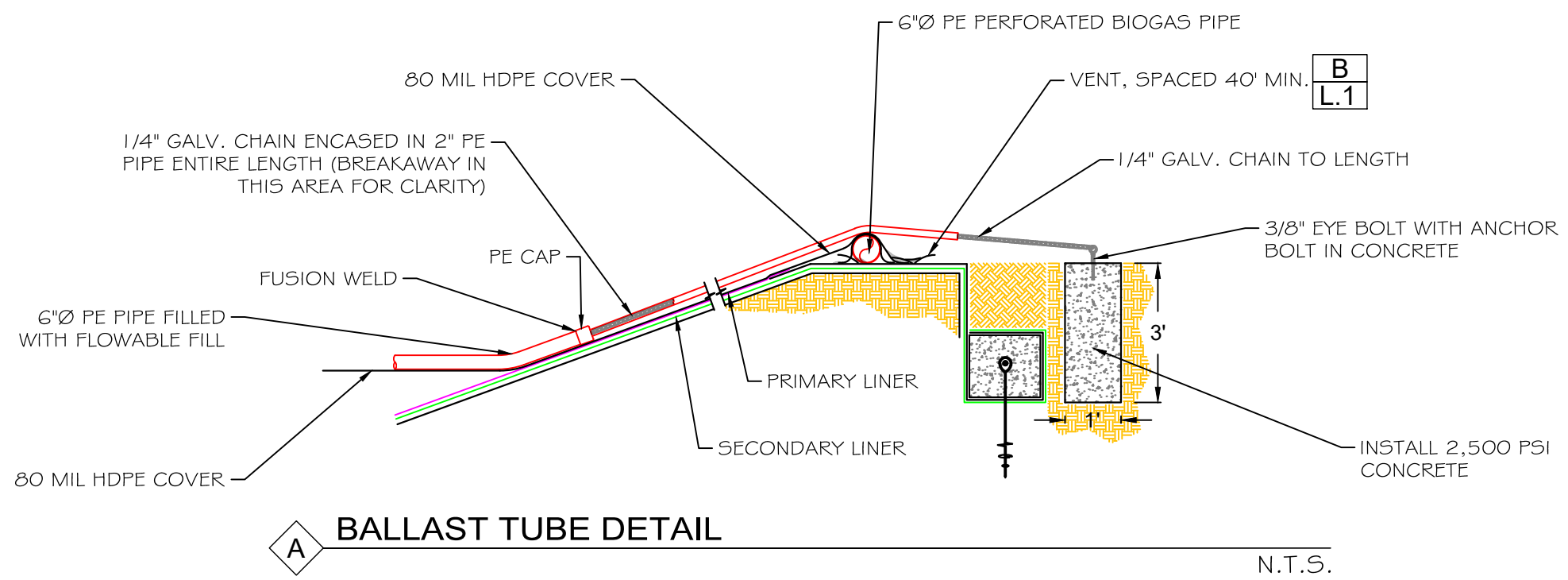
CLIENT:
JIM & DARLA WILSON
11720 W. MOUNT
WHITNEY AVE
RIVERDALE, CA 93656

GRADING DETAIL
DIGESTER

REVISION LOG:

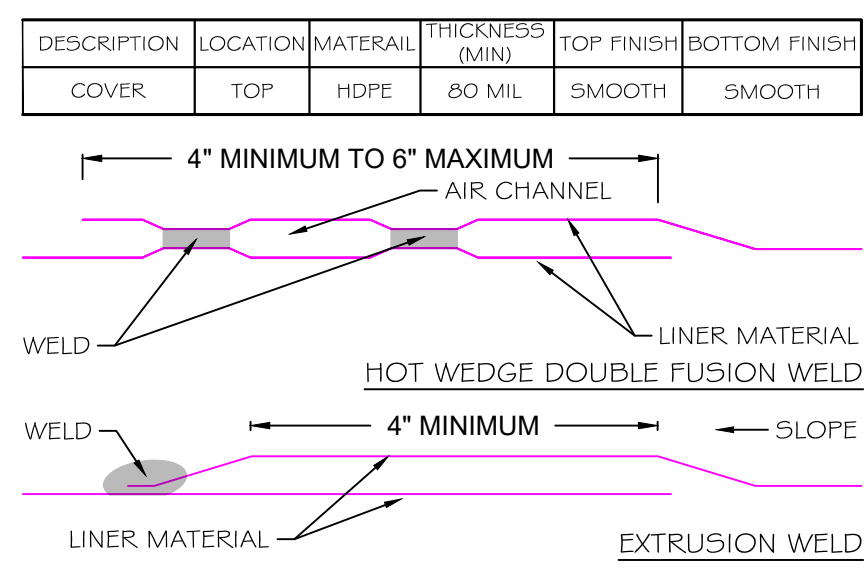
PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	C.3

COVER SYSTEM	DIGESTER	REVISION LOG:



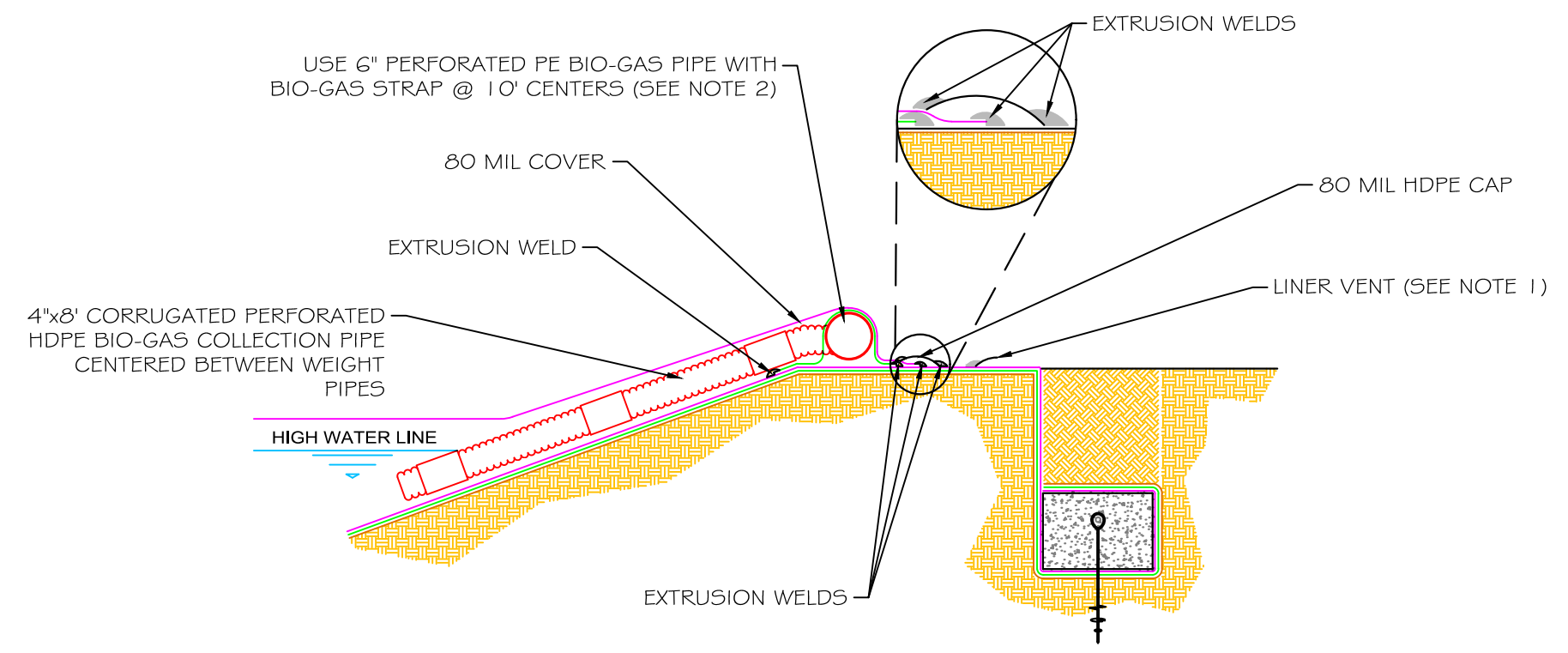
A BALLAST TUBE DETAIL

N.T.S.



C HDPE COVER-SMOOTH WELDS

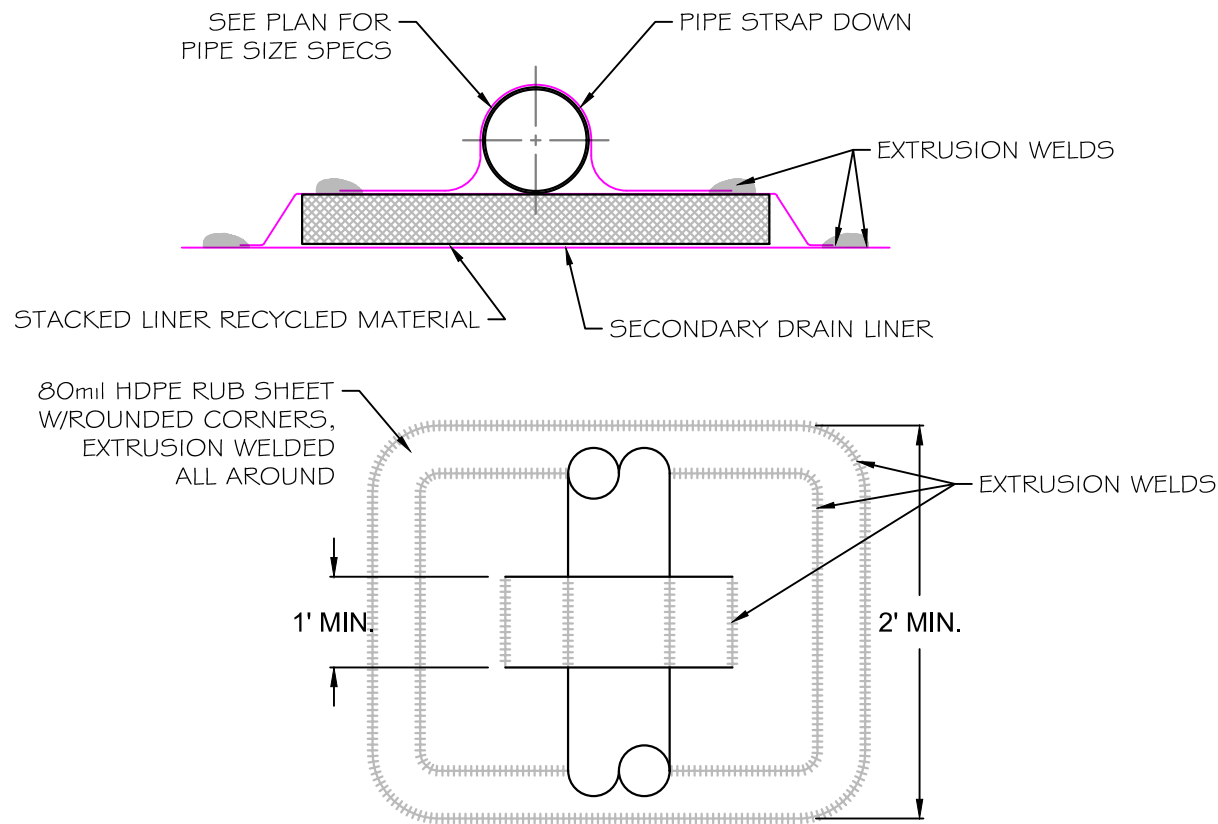
N.T.S.



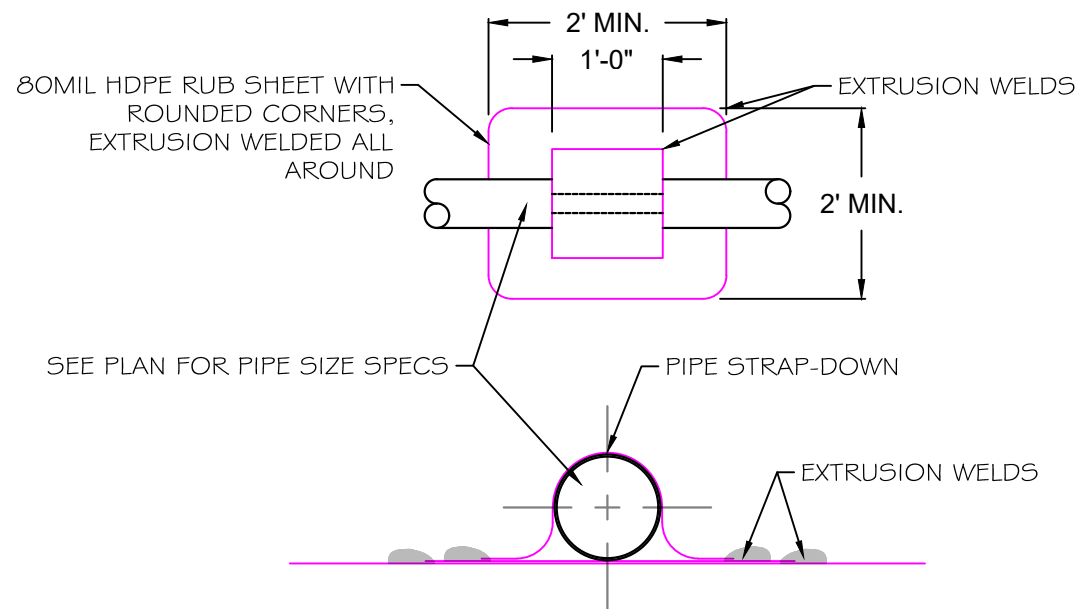
B BIO-GAS PIPING DETAIL

N.T.S.

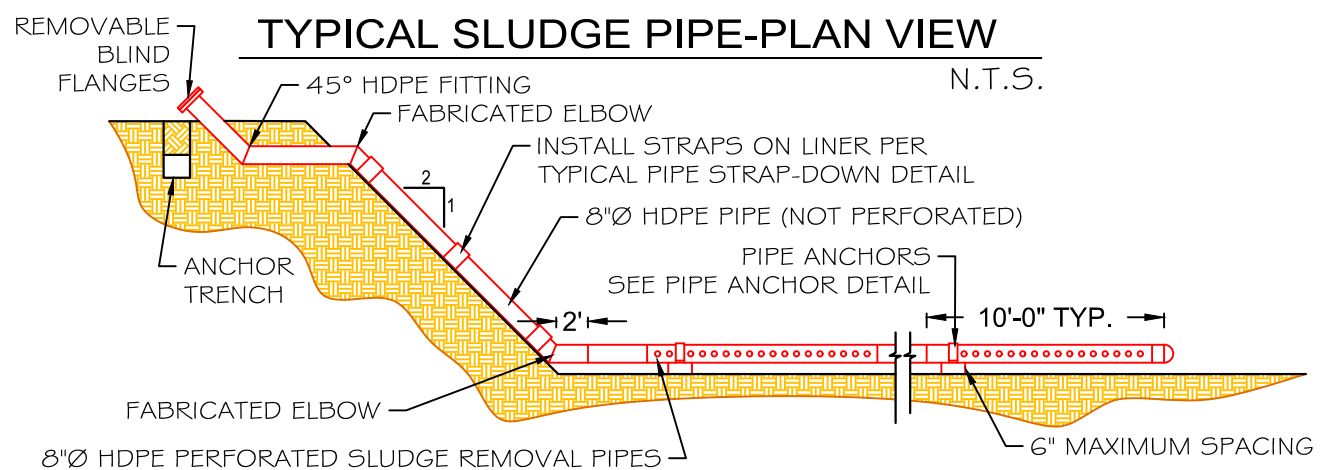
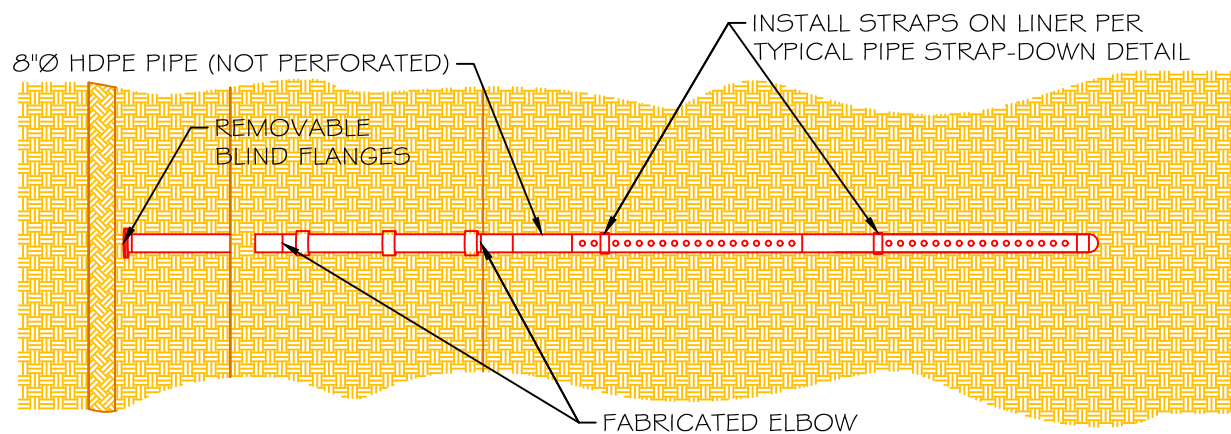
- NOTES:
1. GAS VENTS AROUND PERIPHERY OF LAGOON @ MAX. 40' O.C.
 2. STRAP NOT WELDED TO BIO-GAS HEADER PIPE.
 3. WRAP 60 MIL PRIMARY LINER OVER CONCRETE & EXTRUSION WELD.



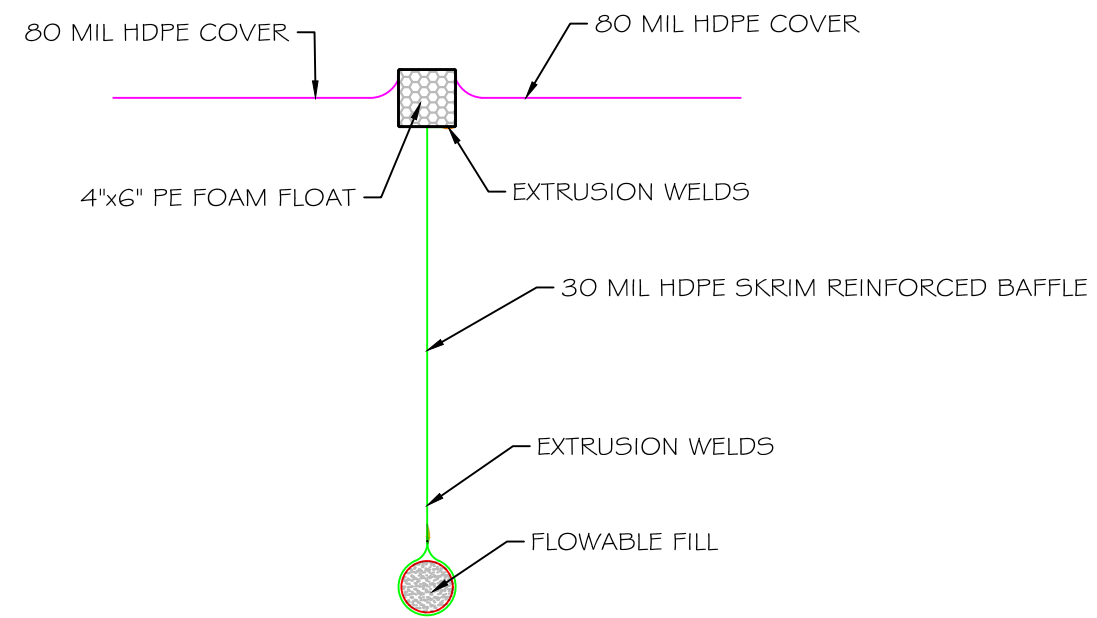
A **SLUDGE REMOVAL PIPE ANCHOR DETAIL**
 NOTE: ANCHOR TO BE USED ON HORIZONTAL SURFACES ONLY, AT BOTTOM OF LAGOON N.T.S.



B **TYPICAL PIPE STRAP-DOWN DETAIL**
 NOTE: MAXIMUM 10' O.C. SPACING BETWEEN PIPE STRAP-DOWNS, U.N.O. N.T.S.



C **TYPICAL SLUDGE PIPE-PROFILE**
 N.T.S.



D **BAFFLE SECTION**
 N.T.S.



HARTMAN
ENGINEERING
 113 N. CHURCH ST,
SUITE 521
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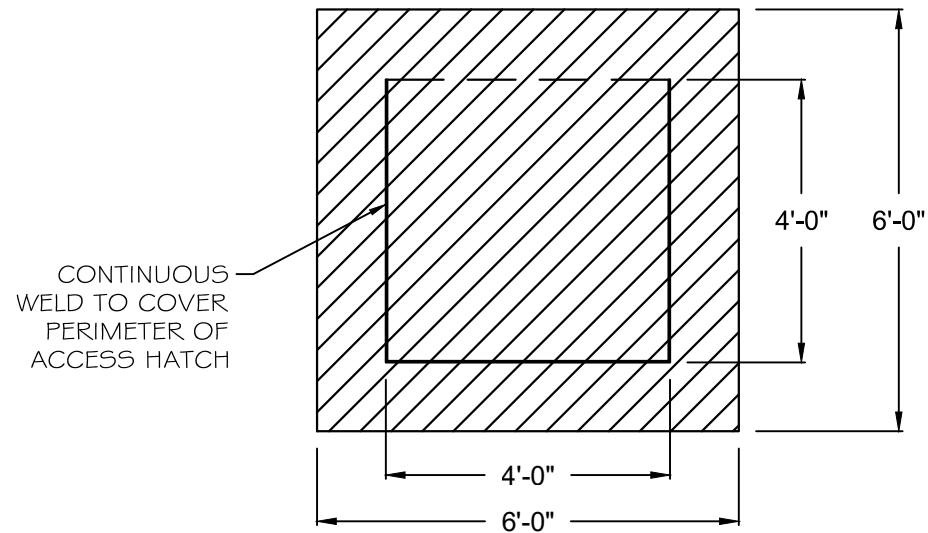
PROJECT:
**J & D WILSON &
SONS
DAIRY
DIGESTER**

CLIENT:
JIM & DARLA WILSON
11720 W. MOUNT
WHITNEY AVE
RIVERDALE, CA 93656

SLURRY REMOVAL
SYSTEM
DIGESTER

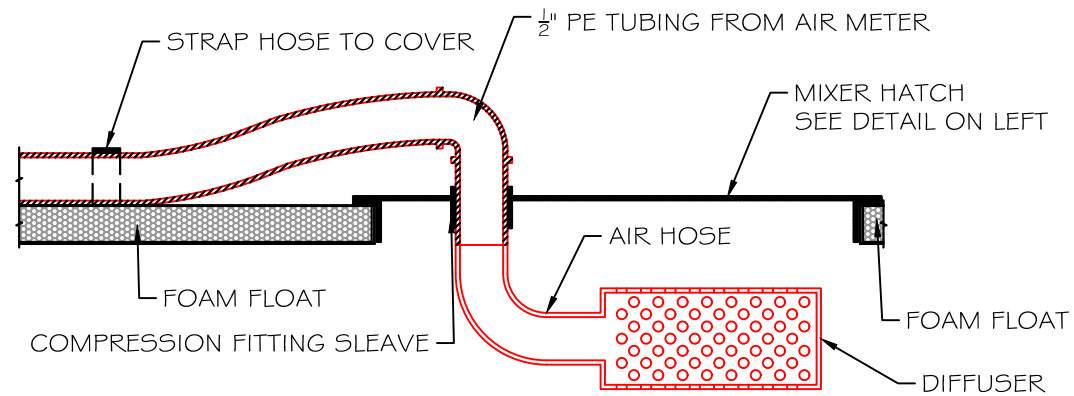
REVISION LOG:

PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	D.2



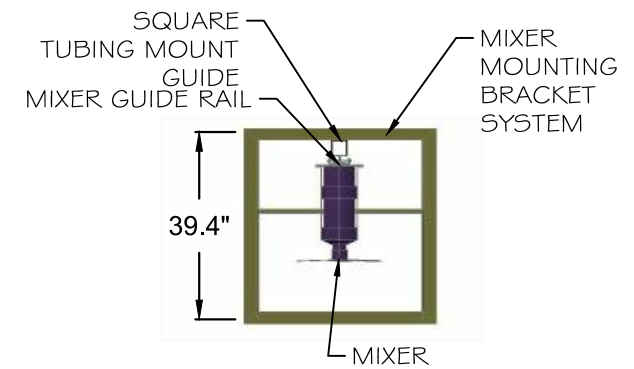
MIXER - HATCH

N.T.S.



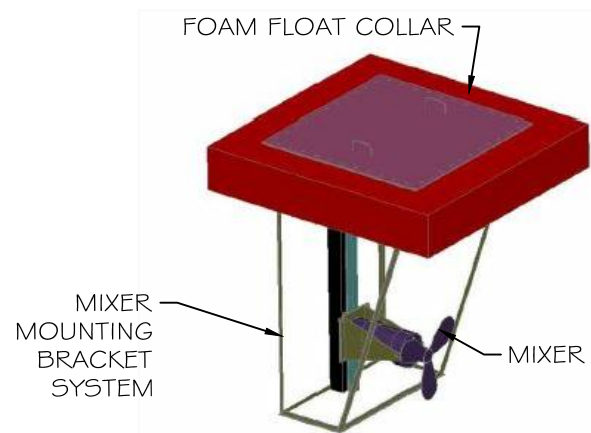
AIR INJECTION & MIXER HATCH

N.T.S.



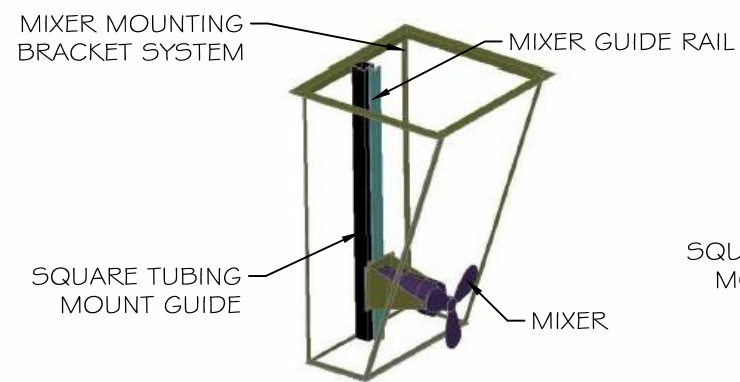
MIXER - PLAN VIEW

N.T.S.



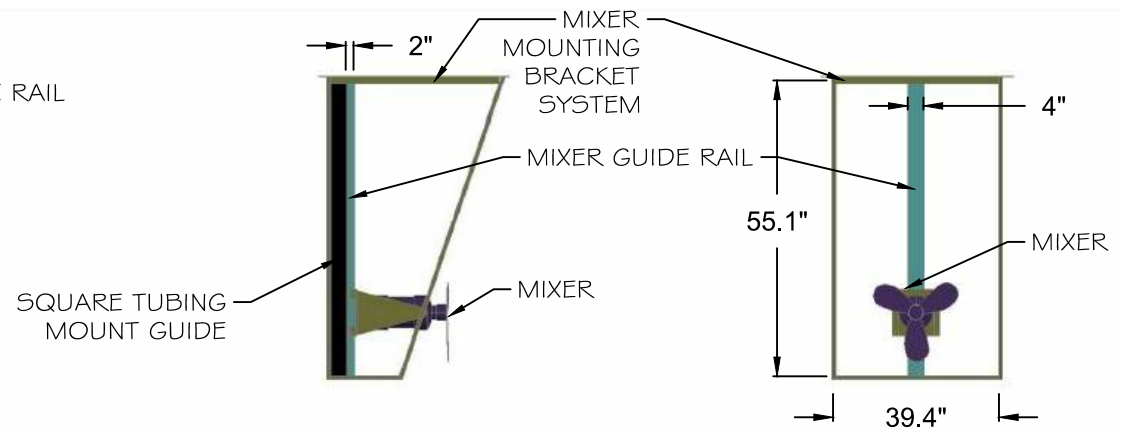
MIXER - ISOMETRIC W/FLOAT IN PLACE

N.T.S.



MIXER - ISOMETRIC

N.T.S.



MIXER - SIDE VIEW

N.T.S.

MIXER - FRONT VIEW

N.T.S.



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PROJECT:
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WHITNEY AVE
RIVERDALE, CA 93656

MIXER
DETAILS

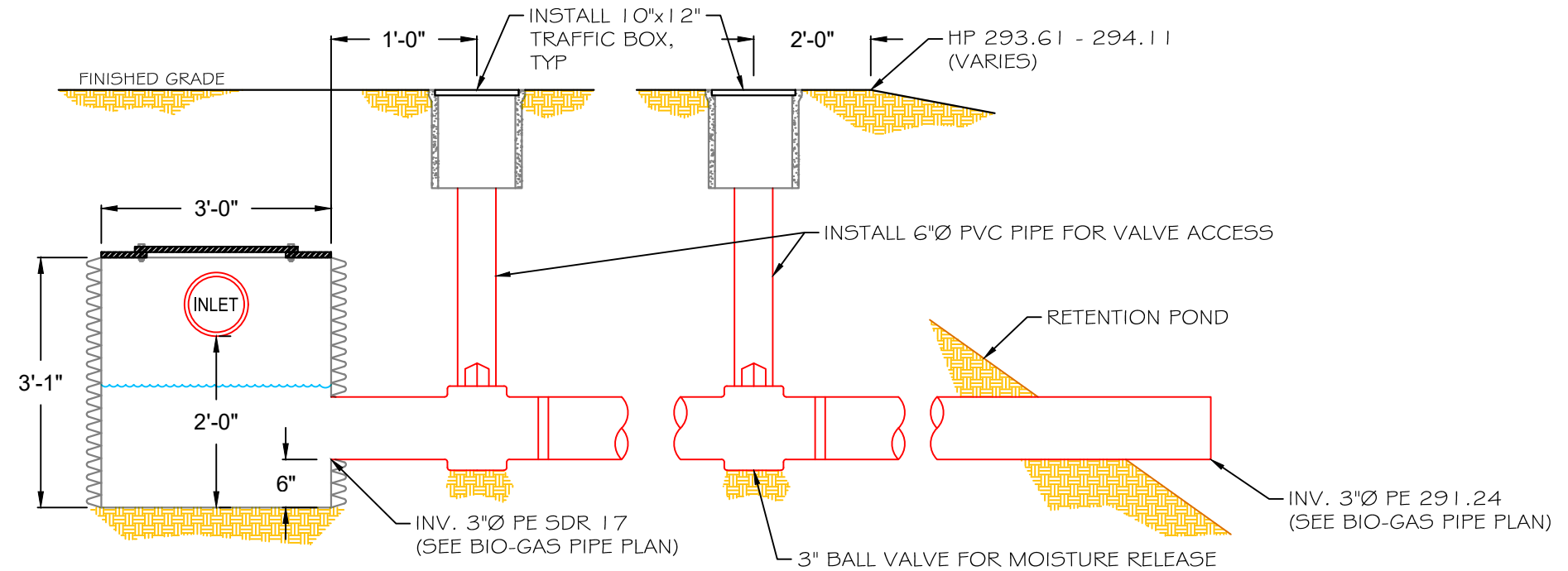
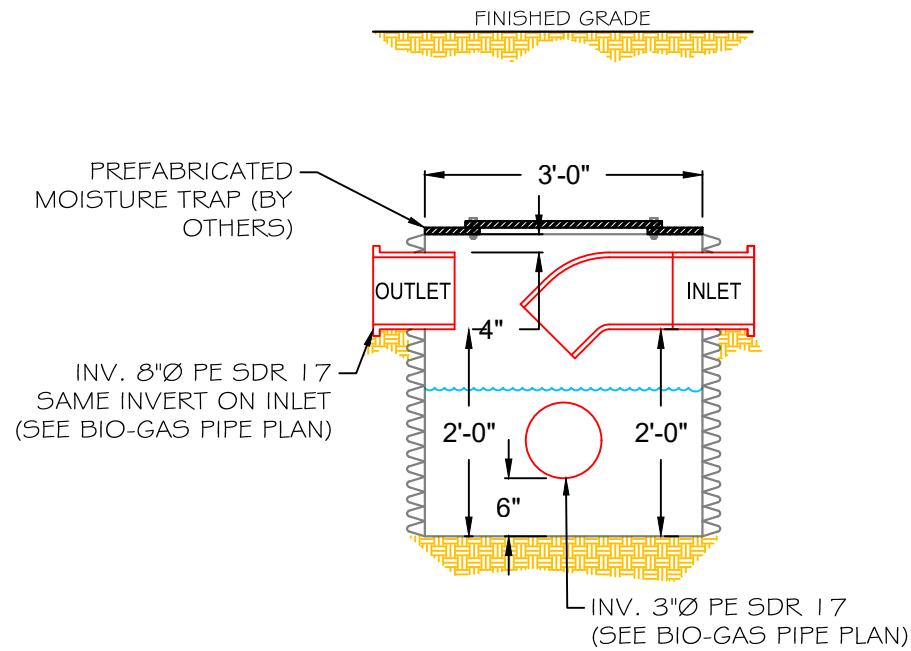
REVISION LOG:

PLOT DATE: 01/08/18

JOB NO.: 17003

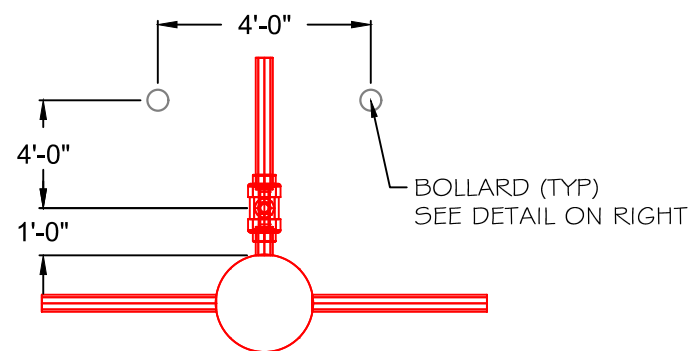
SCALE: AS SHOWN

SHEET NO.: D.3



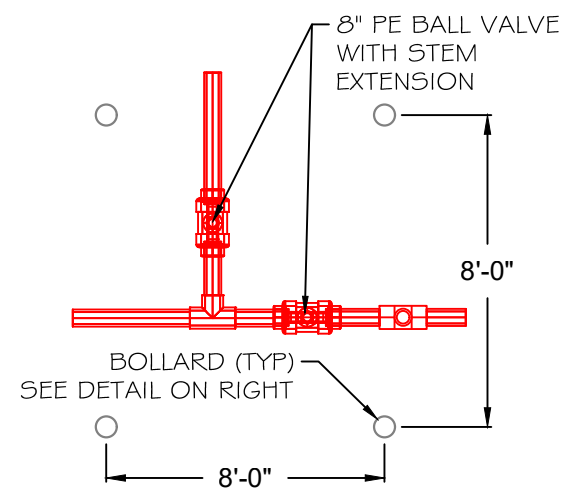
MOISTURE TRAP DETAIL

N.T.S.



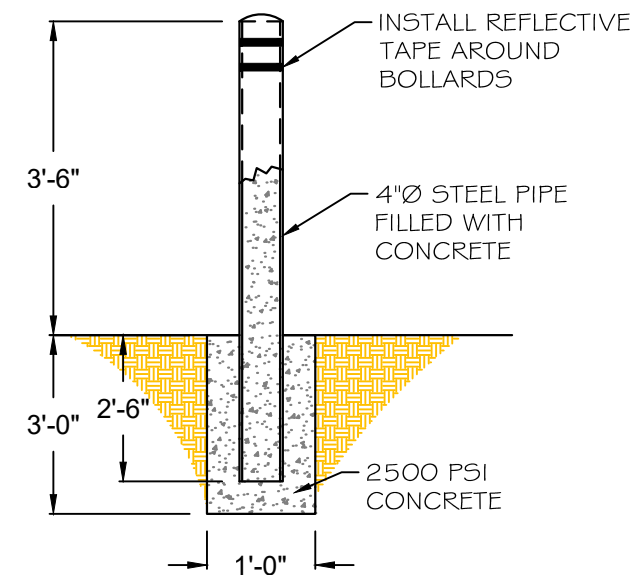
BIO-GAS VALVE

N.T.S.



BALL VALVE JUNCTION

N.T.S.



BOLLARD DETAIL

N.T.S.



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PROJECT:
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CLIENT:
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11720 W. MOUNT
WHITNEY AVE
RIVERDALE, CA 93656

DETAILS

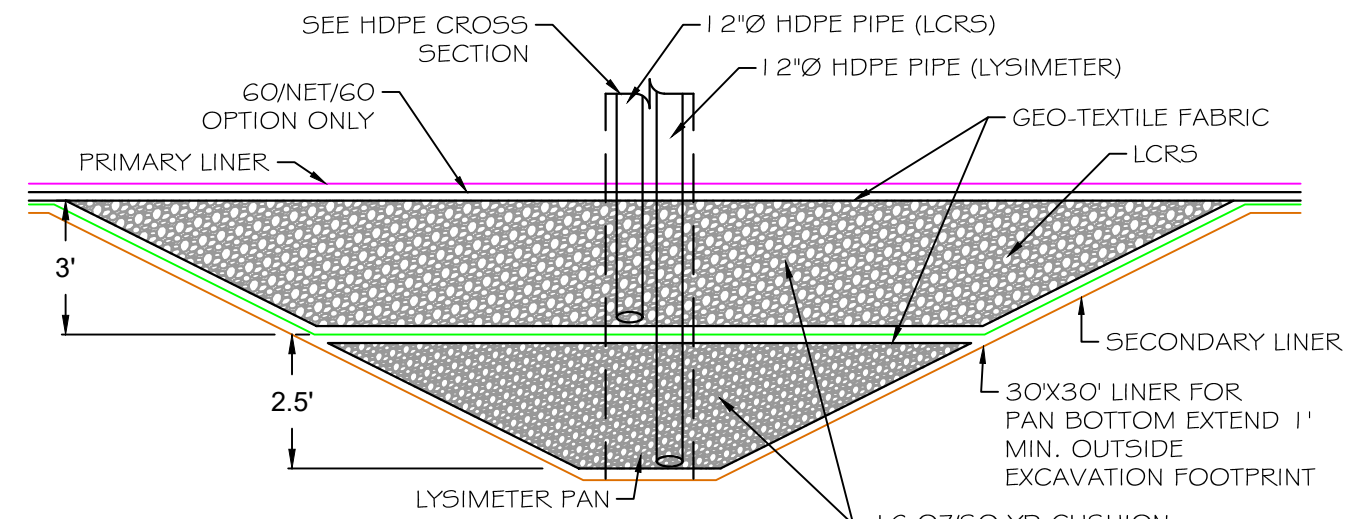
REVISION LOG:

PLOT DATE: 01/08/18

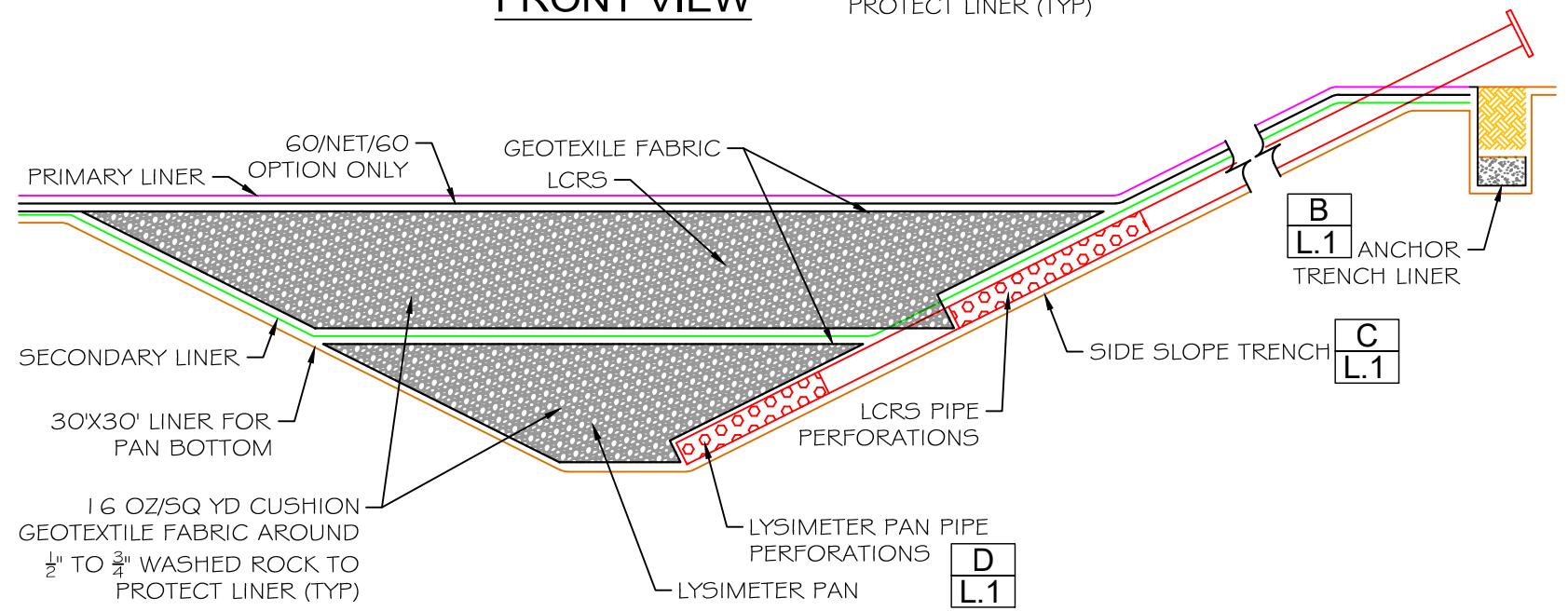
JOB NO.: 17003

SCALE: AS SHOWN

SHEET NO.: D.4



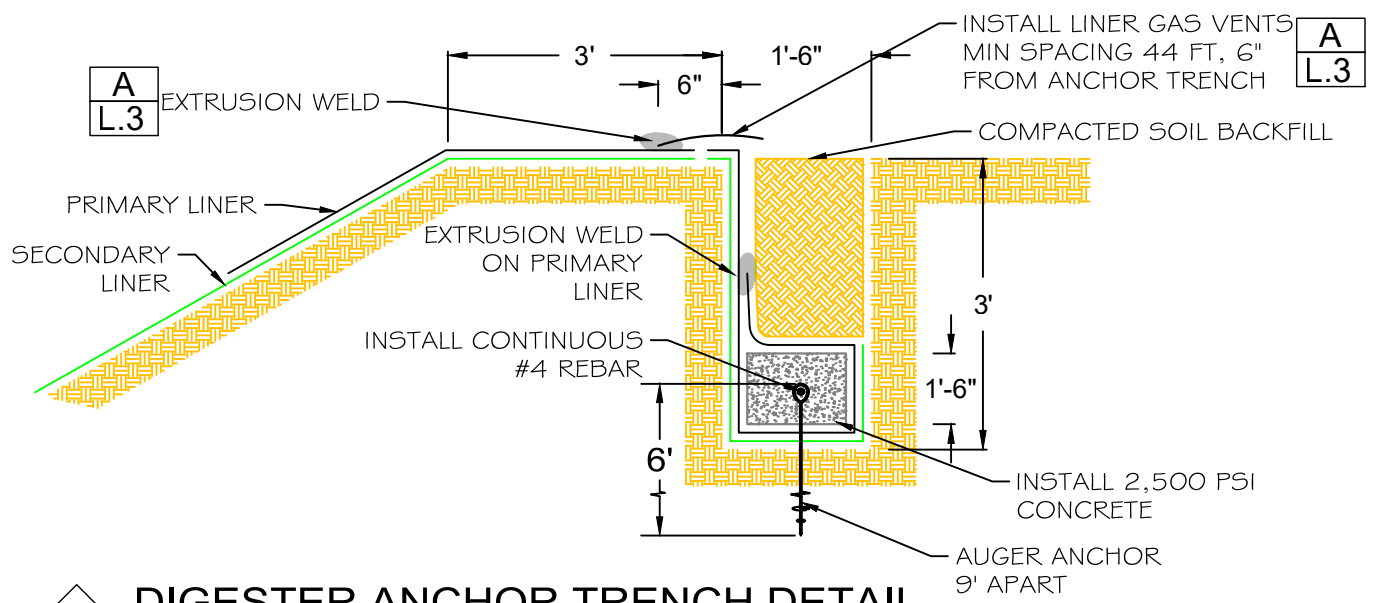
FRONT VIEW



SIDE VIEW

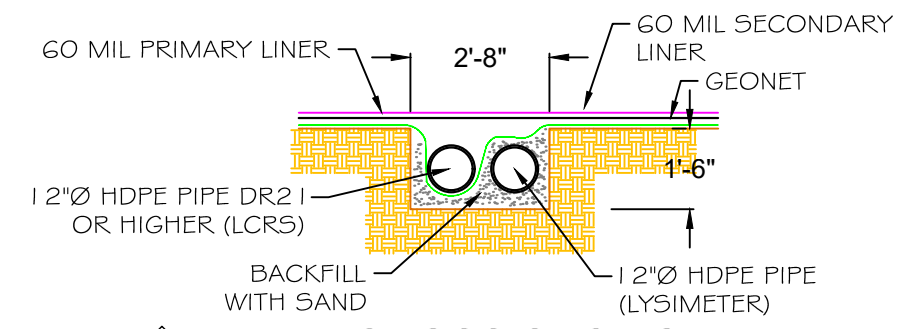
LCRS, LYSIMETER AND DRAINAGE SUMP PROFILE

N.T.S.



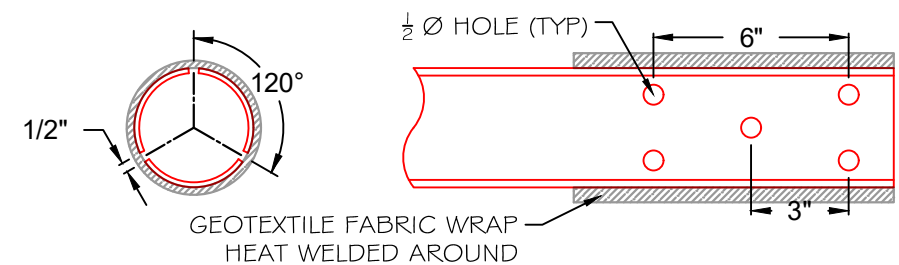
DIGESTER ANCHOR TRENCH DETAIL

NOTES: 1. CONTRACTOR TO USE ANCHOR SYSTEM OR PROVIDE DETAILS AND DESIGN FOR ALTERNATIVE TO BE APPROVED BY ENGINEER. N.T.S.



HDPE CROSS SECTION

N.T.S.



TYPICAL PERFORATION DETAIL

N.T.S.

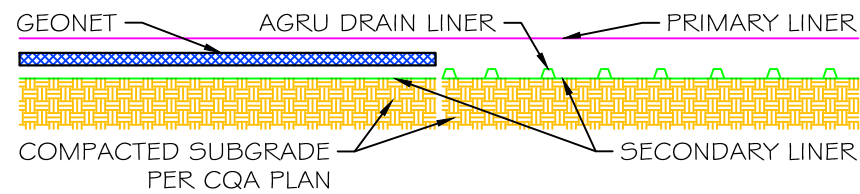
GENERAL NOTES
LINER
DETAILS

REVISION LOG:

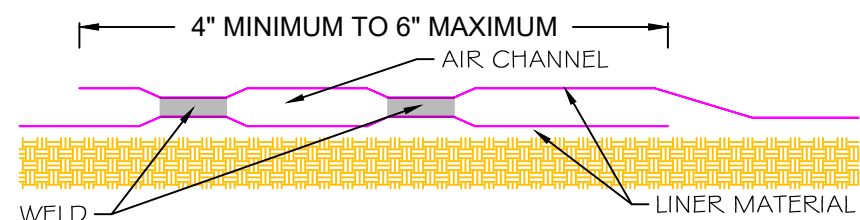
PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	L.1

OPTIONAL TIER 1 DOUBLE LINER-LAYERING SYSTEM WITH DRAIN LINER VERIFY WITH OWNER

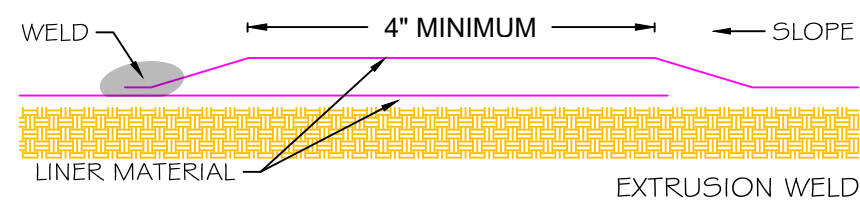
SMOOTH/STUDDED/ 60-NET-60 LINER LAYERS					
DESCRIPTION	LOCATION	MATERIAL	THICKNESS (MIN)	TOP FINISH	BOTTOM FINISH
PRIMARY LINER	TOP	HDPE	60 MIL	SMOOTH	SMOOTH CONDUCTIVE
DRAINAGE NET	MIDDLE	HDPE	200 MIL	N/A	N/A
SECONDARY LINER	BOTTOM	HDPE	60 MIL	SMOOTH	SMOOTH



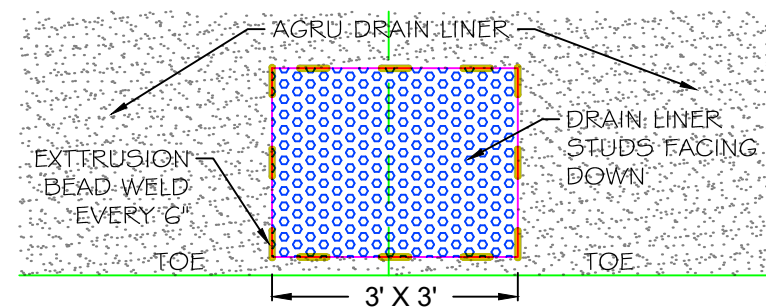
A DOUBLE LAYER 60-NET-60 DOUBLE LAYER WITH DRAIN LINER N.T.S.



HOT WEDGE DOUBLE FUSION WELD

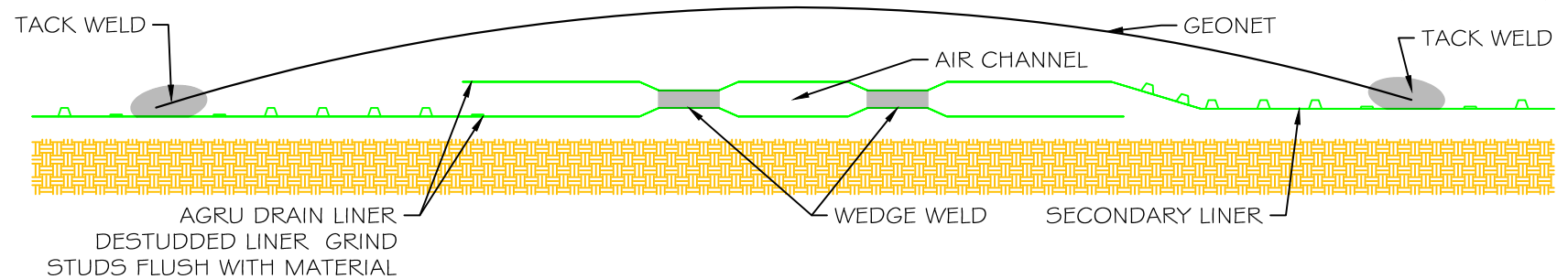
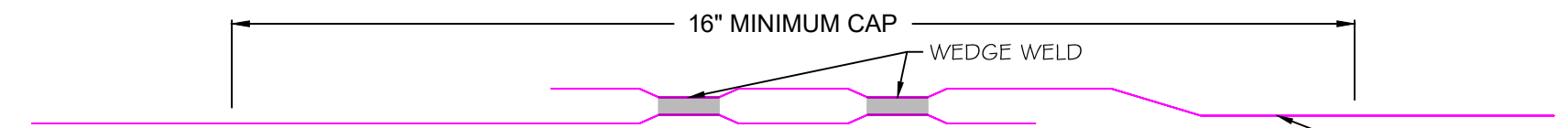
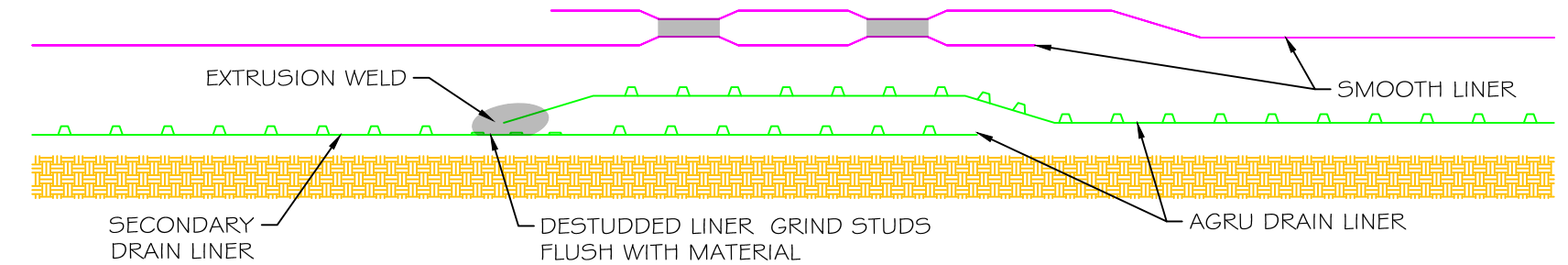


B HDPE LINER-SMOOTH WELDS N.T.S.



DRAIN LINER SMOOTH END WELD PATCH

C 3'X3' DRAIN PATCH WELD N.T.S.

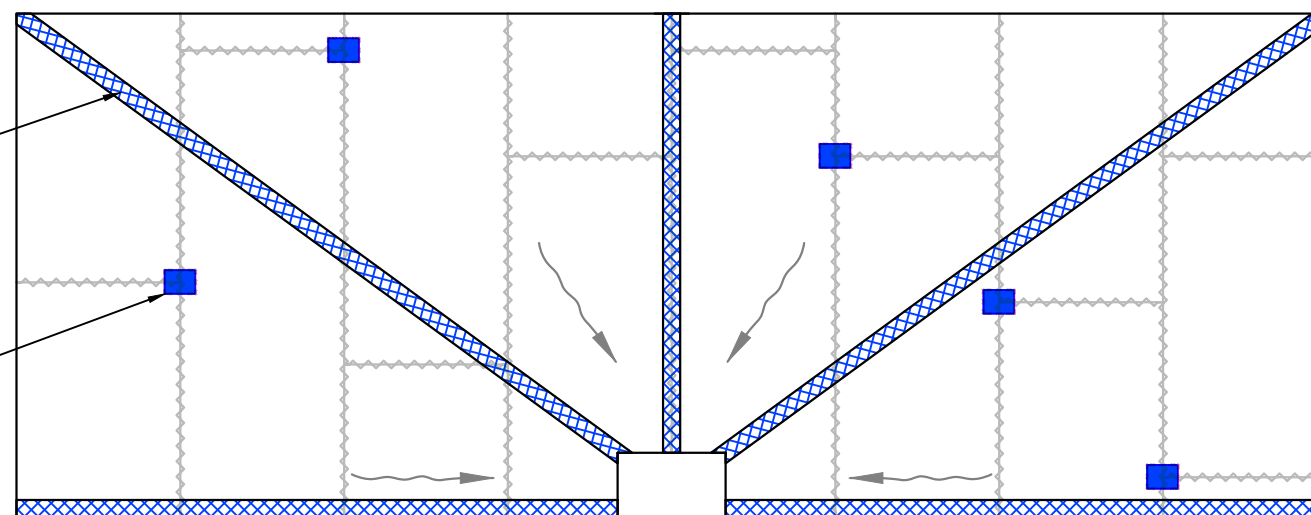


END/END OR END/EDGE HOT WEDGE DOUBLE FUSION WELD

D AGRU DRAIN LINER END/END WELD
NOTE: AGRU DRAIN LINER DOES NOT HAVE STUDS ALONG THE EDGE SO EDGE/EDGE SEAMS DO NOT REQUIRE DRINGING OR CAP. N.T.S.

2' WIDE STRIP OF 200 MIL GEONET. TACK WELD AT 8'

C 3'X3' DRAIN PATCH
P.3



NOTE: CQA OFFICER IS RESPONSIBLE TO ADD PATCHES AS NEEDED FOR FLOW

E AGRU DRAIN LINER CROSS SEAM NET PLAN VIEW
NOTE: TYPICAL OF ALL DRAIN LINERS N.T.S.



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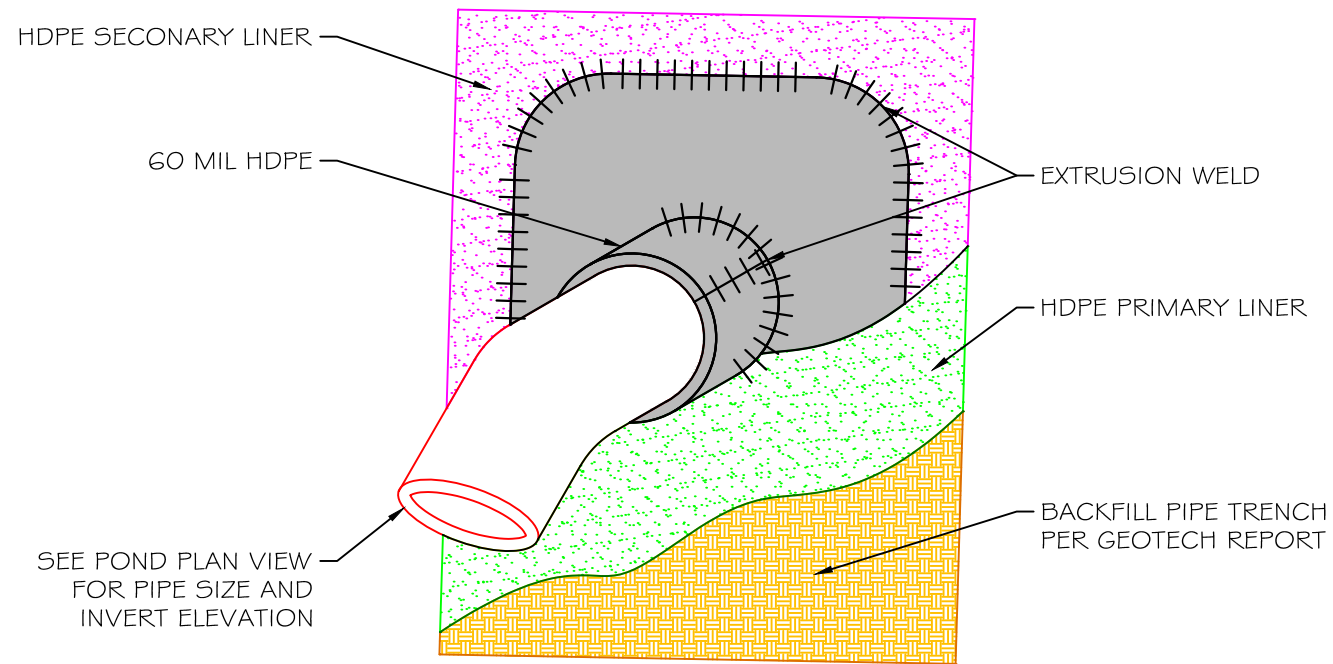
PROJECT:
J & D WILSON & SONS DAIRY DIGESTER

CLIENT:
JIM & DARLA WILSON
11720 W. MOUNT
WHITNEY AVE
RIVERDALE, CA 93656

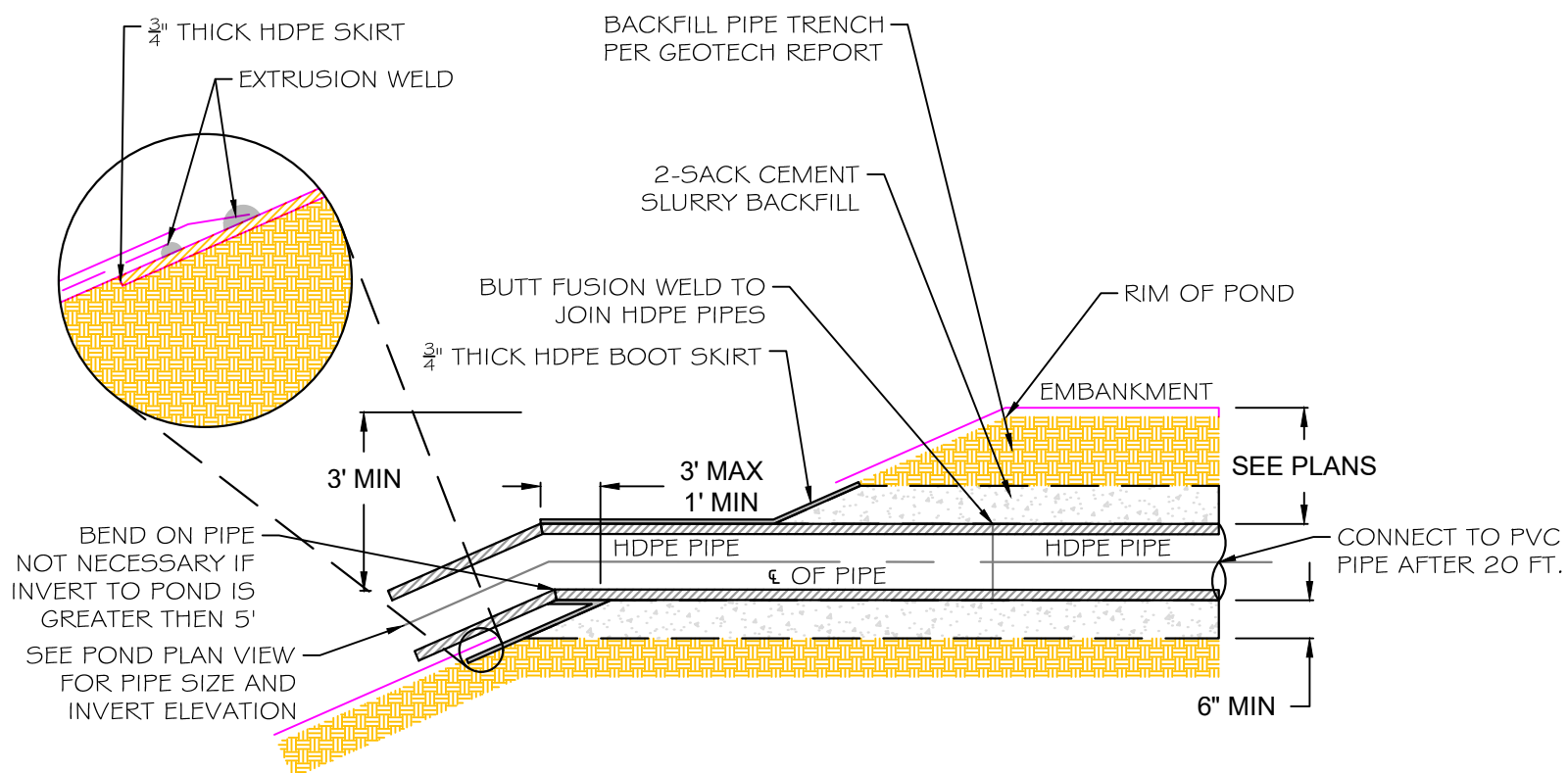
LINER
DETAILS

REVISION LOG:

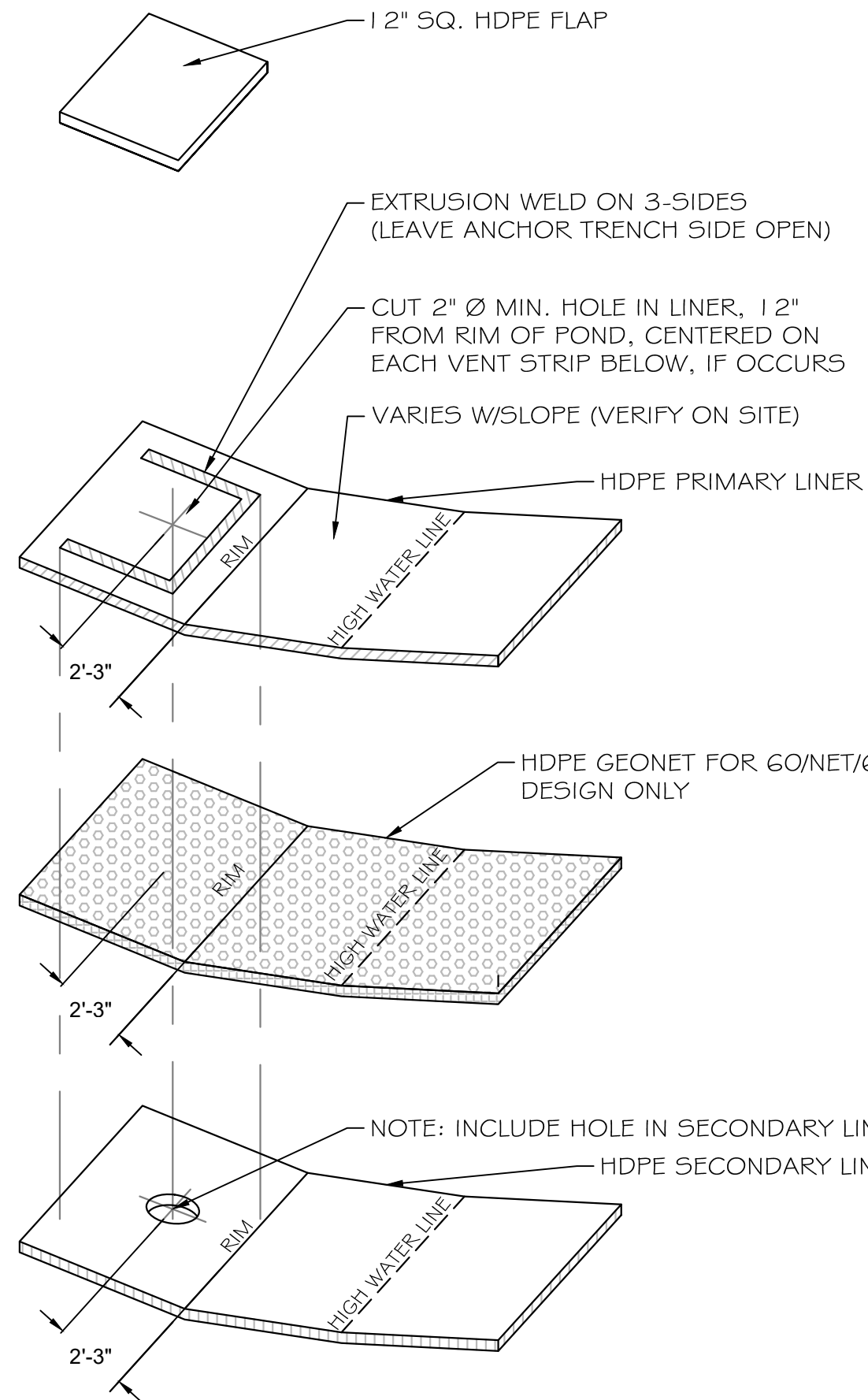
PLOT DATE:	01/08/18
JOB NO.:	17003
SCALE:	AS SHOWN
SHEET NO.:	L.2



A BOOT SKIRT N.T.S.



B BOOTLESS PIPE PENETRATION LINER FASTENING N.T.S.



C VENT ORIFICE (ISOMETRIC VIEW) N.T.S.

1
H
HARTMAN
ENGINEERING
113 N. CHURCH ST,
SUITE 521
VISALIA, CA 93291
(559) 563-0181
REGISTERED PROFESSIONAL ENGINEER
CRAIG M. HARTMAN
NO. 73837
Exp. 06-30-19
CIVIL
1-8-18
STATE OF CALIFORNIA

PROJECT:
**J&D WILSON &
SONS
DAIRY
DIGESTER**

CLIENT:
JIM & DARLA WILSON
11720 W. MOUNT
WHITNEY AVE
RIVERDALE, CA 93656

LINER
DETAILS

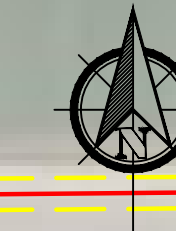
REVISION LOG:

PLOT DATE: 01/08/18

JOB NO.: 17003

SCALE: AS SHOWN

SHEET NO.: L.3



General Notes
Confidential and Not for Construction

- Existing Structures (E)
- Proposed Structures (P)
- Access to the Property
- Proposed Fencing
- No improvements to streets have been proposed
- Off-street dirt parking and loading areas exist throughout the property. No new parking/loading areas have been proposed.
- 4" Biogas Gathering Lines
- 6" Biogas Gathering Lines
- Manure Piping
- PG&E Transmission Line
- APN Boundaries
- Williamson Act
- County Right of Way
- 20' Pipeline Easement

○ Property Access

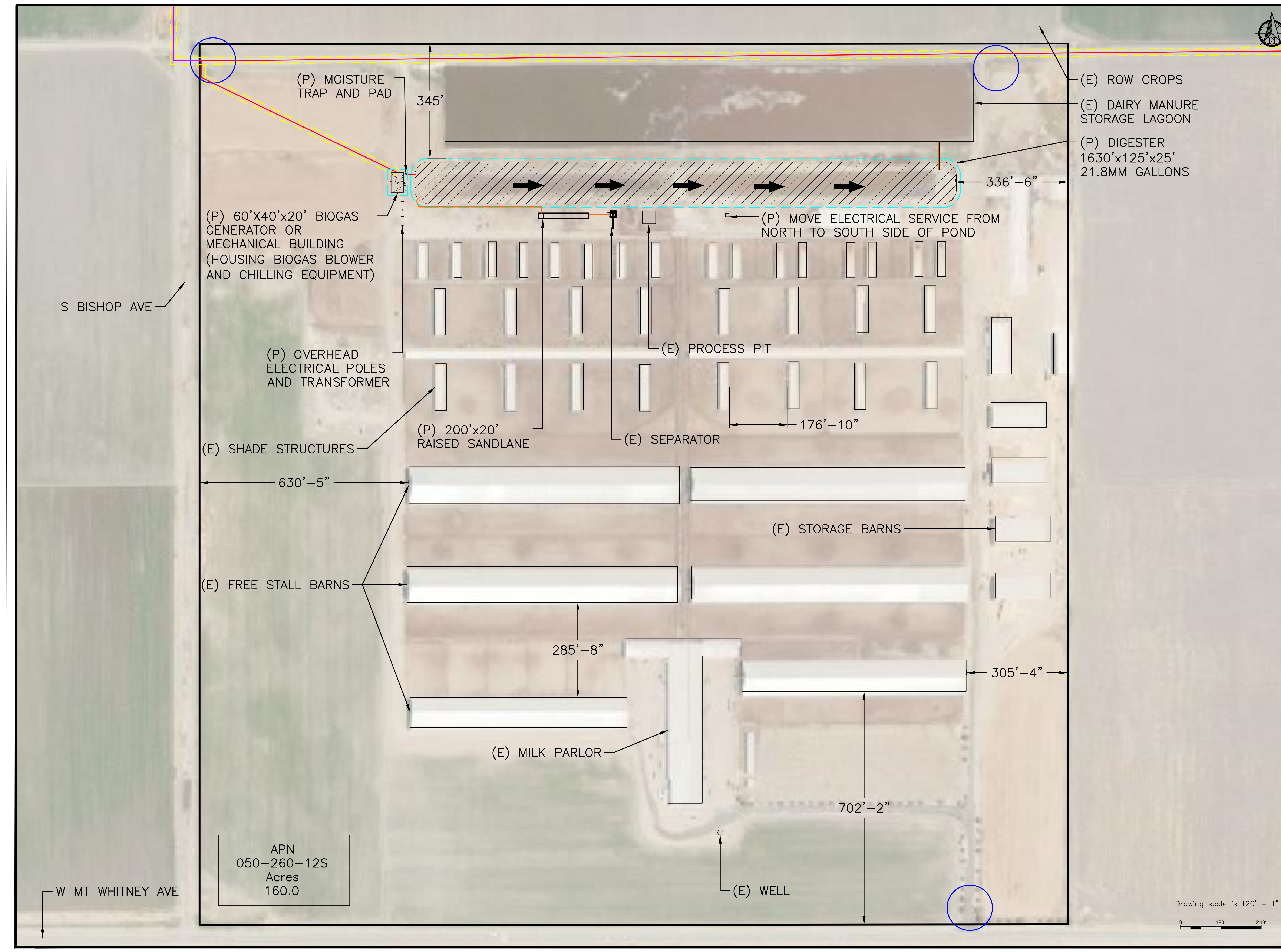
All pipes are in private easement with the exception of crossings shown.
Proposed pipeline is 20' or more from ROW.
Bishop Ave, 60' County Right of Way.



Firm Address
3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

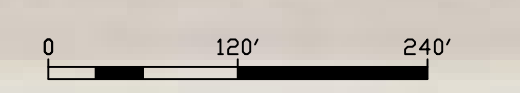
Project Name and Address
Wilson Dairy 11720
West Mount Whitney Ave
Riverdale, California 93656

Date: 3/21/19
Version: 1.0
Drawn By: Byron Oja



APN
050-260-12S
Acres
160.0

Drawing scale is 120' = 1"



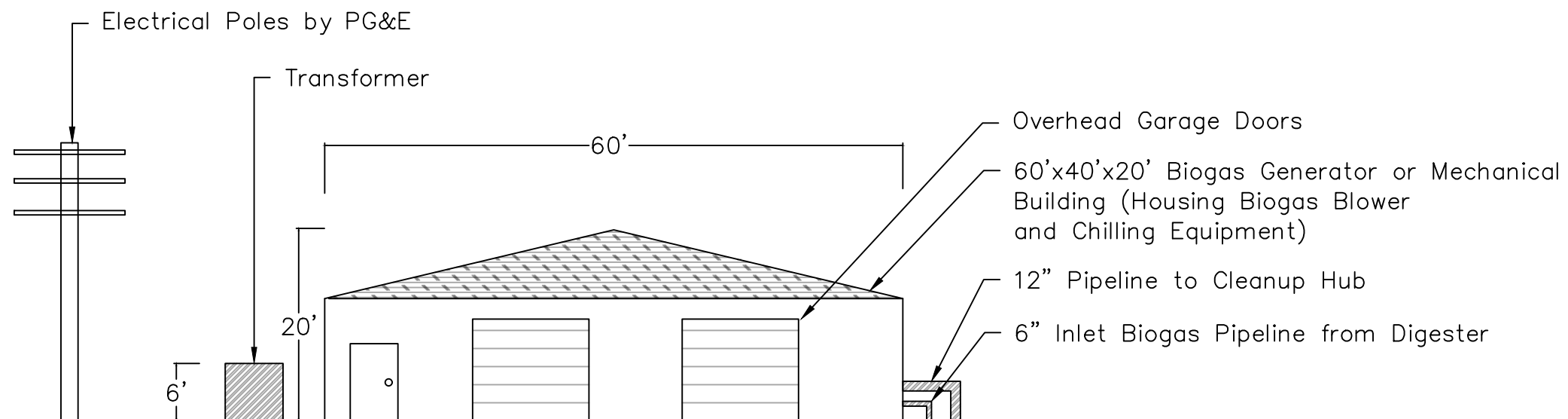
S BISHOP AVE

W MT WHITNEY AVE



General Notes

Not for Construction



Firm Address

3711 Meadow View Dr.
Suite 100
Redding, CA, 96002

Project Name and Address

Five Points Cluster
Cleanup Hub & Injection Point
12103 Elkhorn Ave,
Riverdale, CA 93656

Date

3/22/19

Version

1.0

Drawn By

Byron Oja

Drawing scale is 15' = 1"

