IN THE TENNESSEE PUBLIC UTILITY COMMISSION
AT NASHVILLE, TENNESSEE

IN RE:	)	
	)	
JOINT APPLICATION OF LIMESTONE WATER UTILITY OPERATING COMPANY, LLC, AND INTEGRATED RESOURCE MANAGEMENT, INC. D/B/A IRM UTILITY, INC, FOR APPROVAL OF THE ACQUISITION OF AND TO OPERATE THE WASTEWATER SYSTEM OF INTEGRATED RESOURCE MANAGEMENT, INC. D/B/A IRM UTILITY, INC, AND TO TRANSFER OR ISSUE A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY	)	**DOCKET NO. 23-00037**

CONSUMER ADVOCATE'S FIRST SET OF DISCOVERY REQUESTS TO LIMESTONE WATER UTILITY OPERATING COMPANY, LLC

Pursuant to Rules 26, 33, 34, and 36 of the Tennessee Rules of Civil Procedure and Tenn. Comp. R. & Reg. 1220-01-02-.11, the Consumer Advocate Division of the Office of the Tennessee Attorney (the "Consumer Advocate"), by and through counsel, propounds the following Informal First Set of Discovery Requests to Limestone Water Utility Operating Company, LLC ("Limestone" or the "Company") and its parent company, Central States Water Resources, Inc. ("CSWR").

The Company shall serve full and complete responses in accordance with the Tennessee Rules of Civil Procedure. The responses are to be produced at the Office of the Tennessee Attorney General and Reporter, Consumer Advocate Division, John Sevier Building, 500 Dr. Martin L. King Jr. Blvd., Nashville, Tennessee 37243, c/o Karen H. Stachowski, on or before 2:00 p.m. (CDT), September 21, 2023.

PRELIMINARY MATTERS AND DEFINITIONS

1. **Continuing Request.** These discovery requests are to be considered continuing in nature and are to be supplemented from time to time as information is received by the Company and any of its affiliates which would make a prior response inaccurate, incomplete, or incorrect.

2. **Clear References**. To the extent that the data or information requested is incorporated or contained in a document, identify the document including page/line number if applicable.

3. **Format of Responses.** Provide all responses in the format in which they were created or maintained, for example, Microsoft Word or Microsoft Excel format with all cells and formulas intact and in working order. If a document (including without limitation a financial or other spreadsheet or work paper) is not created or maintained in Microsoft Excel format, convert the document to Microsoft Excel format or provide the document in a format that enables or permits functionality like or similar to Microsoft Excel (including without limitation the functionality of working cells and formulas), or provide the software program(s) that will enable the Consumer Advocate to audit and analyze the data and information in the same manner as would be enabled or permitted if the document were provided in Microsoft Excel format.

4. **Objections.** If any objections to this discovery are raised on the basis of privilege or immunity, include in your response a complete explanation concerning the privilege or immunity asserted. If you claim a document is privileged, identify the document and state the basis for the privilege or immunity asserted. If you contend that you are entitled to refuse to fully answer any of this discovery, state the exact legal basis for each such refusal.

5. **Singular/Plural.** The singular shall include the plural, and vice-versa, where appropriate.

6. **Definitions.** As used in this Request:

(a) "You," "Your," "Company," "Buyer," or "Limestone," shall mean Limestone Water Utility Operating Company, LLC and all employees, agents, attorneys, representatives, or any other person acting or purporting to act on its behalf.

(b) "Central States Water" or "CSWR" shall mean Central States Water Resources, Inc. and all employees, agents, attorneys, representatives, or any other person acting or purporting to act on its behalf.

(c) "IRM" or "Seller" shall mean Integrated Resource Management Inc. d/b/a IRM Utility, Inc., and all employees, agents, attorneys, representatives, or any other person acting or purporting to act on its behalf.

(d) "Affiliate" shall mean any entity who, directly or indirectly, is in control of, is controlled by, or is under common control with the Company. For greater clarification, "control" is the ownership of 20% or more of the shares of stock entitled to vote for the election of directors in the case of a corporation, or 20% or more of the equity interest in the case of any other type of entity, or status as a director or officer of a corporation or limited liability company, or status as a partner of a partnership, or status as an owner of a sole proprietorship, or any other arrangement whereby a person has the power to choose, direct, or manage the board of directors or equivalent governing body, officers, managers, employees, proxies, or agents of another person. In addition, the term "Affiliate" shall mean any entity that directly or indirectly provides management or operational services to the Company or any affiliate (as defined in the preceding sentence) of the Company, or to which the Company provides management or operational services. Further, the payment of money to the Company or receipt by the Company of money from an entity with which the Company has any relationship, other than such payment or receipt, shall include the payor or recipient of such money as an "Affiliate."

(e) "Communication" shall mean any transmission of information by oral, graphic, written, pictorial or otherwise perceptible means, including but not limited to personal conversations, telephone conversations, letters, memoranda, telegrams, electronic mail, newsletters, recorded or handwritten messages, meetings and personal conversations, or otherwise.

(f) "Document" shall have the broadest possible meaning under applicable law. "Document" shall mean any medium upon which intelligence or information can be recorded or retrieved, such as any written, printed, typed, drawn, filmed, taped, or recorded medium in any manner, however produced or reproduced, including but not limited to any writing, drawing, graph, chart, form, letter, note, report, electronic mail, memorandum (including memoranda, electronic mail, report, or note of a meeting or communication), work paper, spreadsheet, photograph, videotape, audio tape, computer disk or record, or any other data compilation in

any form without limitation, which is in your possession, custody or control. If any such document was, but no longer is, in your possession, custody or control, state what disposition was made of the document and when it was made.

(g) "Person" shall mean any natural person, corporation, firm, company, proprietorship, partnership, business, unincorporated association, or other business or legal entity of any sort whatsoever.

(h) "Identify" with respect to:

i. Any natural person, means to state the full name, telephone number, email address and the current or last known business address of the person (if no business address or email address is available provide any address known to you) and that person's relationship, whether business, commercial, professional, or personal with you;

ii. Any legal person, business entity or association, means to state the full name, the name of your contact person with the entity, all trade name(s), doing business as name(s), telephone number(s), email address(es), and current or last known business address of such person or entity (if no business address is available provide any address known to you);

iii. Any document, means to state the type of document (e.g., letter), the title, identify the author, the subject matter, the date the document bears and the date it was written; and

iv. Any oral communication, means to state the date when and the place where it was made, identify the person who made it, identify the person or persons who were present or who heard it, and the substance of it.

(i) "And" and "or" shall be construed conjunctively or disjunctively as necessary to make the discovery request inclusive rather than exclusive.

(j) "Including" shall be construed to mean including but not limited to.

FIRST SET OF DISCOVERY REQUESTS

1-1. Refer to the Petition, Exhibit 7, Sales Agreement, p. 3, ¶ 4. Explain how the purchase price of $21,000 for the Riverstone Estates system was negotiated and determined. Include within the response all analytical support/workpapers for the purchase price.

RESPONSE:

1-2. Refer to the Petition, Exhibit 7, Sales Agreement, p. 3, ¶ 6.D. Provide an estimate of the surveyor and easement expenses. Additionally, state whether Limestone intends to attempt to recover these expenses from ratepayers at a later date.

RESPONSE:

1-3. Refer to the Petition, Exhibit 7, Sales Agreement, p. 8, ¶ 26. With both Butler Snow and Farris Bobango representing parties in this matter, will costs be billed separately for each party? Provide a statement detailing how costs are recorded for each party and costs incurred to date for each party. This is an ongoing request and should be seasonably updated.

RESPONSE:

1-4. Explain the extent to which Limestone (including all affiliates) reviewed the accounting practices and records of IRM as part of the due diligence performed before entering into the purchase agreement and explain whether Limestone agrees with such historic accounting practices.

RESPONSE:

1-5. Does Limestone contend that IRM's historic accounting practices and records provide sufficient information from which a reasoned determination can be made as to the prudency of acquiring the system?

RESPONSE:

1-6. In its due diligence has CSWR identified any accounting errors or deficiencies of IRM? If so, identify and provide a full description of such deficiencies.

RESPONSE:

1-7. Confirm that Limestone intends to maintain separate accounting records for the Riverstone Estates system such that the assets, liabilities, revenues, and expenses incurred in operating the system will be separately identifiable from the financial results of other Limestone operating systems.

RESPONSE:

1-8. Refer to the Petition, Exhibit 21, IRM Tariff, TRA Tariff No.1, § 4, First Revised Page 2 (Residential); IRM Tariff, TRA Tariff No.1, § 6, Original Page 1 (Commercial without food); IRM Tariff, TRA Tariff No.1, § 6, Original Page 1.2 (Campground); IRM Tariff, TRA Tariff No.1, § 6, First Revised Page 2.1 (Commercial with food); and Exhibit 31, Limestone's Proposed Tariff. Limestones' Proposed Tariff does not contain a line for a "financial security surcharge" of $2.87 for residential and commercial customers. Confirm Limestone's intention collecting the Financial Security surcharge, as laid out in IRM's tariff, after closing? If not, provide an explanation.

RESPONSE:

1-9. Refer to the Petition, Exhibit 21, IRM Tariff, TRA Tariff No.1, § 4, Section Revised Page 1, and Exhibit 31, Limestone's Proposed Tariff. Limestones' Proposed Tariff does not contain a line for an escrow account charge, but it does have a line for "Monthly Capital Recovery Surcharge," which is identified as "N/A" for Riverstone Estates for residential customers. IRM's Tariff states that "$10.13 of the residential rate will be placed in the Company's escrow account." Confirm Limestone's intent on continuing with placing $10.13 of the residential rate into a separate escrow account, as laid out in IRM's tariff, after closing? If not, provide an explanation.

RESPONSE:

1-10. Refer to the Petition, CONFIDENTIAL Exhibit 22, IRM Customers by Class. Is Limestone aware of any commercial customers for the IRM wastewater system at issue? If yes, identify the commercial customer(s) and identify the type of commercial customer (e.g., without food service; campgrounds; or with food service).

RESPONSE:

1-11. Refer to the Petition, Exhibit 21, IRM Tariff, TRA Tariff No.1, § 6, Second Revised Page 1, and Exhibit 31, Limestone's Proposed Tariff. Limestones' Proposed Tariff does not contain a line for an escrow account fee. IRM's Tariff does contain an escrow charge for the Commercial Rate (without food service) which is set by "expected design flow." Confirm Limestone's intent on assessing the escrow charge for commercial rate (without food service) customers, as laid out in IRM's tariff, after closing? If not, provide an explanation.

RESPONSE:

1-12. Refer to the Petition, Exhibit 21, IRM Tariff, TRA Tariff No.1, § 6, Original Page 1.2, and Exhibit 31, Limestone's Proposed Tariff. Limestones' Proposed Tariff does not contain a line for an escrow account charge. IRM's Tariff does contain an escrow charge for the Commercial Rate (campgrounds) which that "$199.64 of the commercial campground rate will be placed in the Company's escrow account." Confirm Limestone's intent on continuing with placing $199,64 of the commercial campgrounds rate into a separate escrow account, as laid out in IRM's tariff, after closing? If not, provide an explanation.

RESPONSE:

1-13. Refer to the Petition, Exhibit 21, IRM Tariff, TRA Tariff No.1, § 6, Second Revised Page 2, and Exhibit 31, Limestone's Proposed Tariff. Limestones' Proposed Tariff does not contain a line for an escrow account charge. IRM's Tariff does contain an escrow charge for the Commercial Rate (with food service) which is set by "expected design flow." Confirm Limestone's intent on assessing the escrow charge for commercial rate (with food service) customers, as laid out in IRM's tariff, after closing? If not, provide an explanation.

RESPONSE:

1-14. Refer to the Petition, Exhibit 21, IRM Tariff, TRA Tariff No.1, § 4, First Revised Page 2 (Residential); IRM Tariff, TRA Tariff No.1, § 6, Original Page 1 (Commercial without food); IRM Tariff, TRA Tariff No.1, § 6, Original Page 1.2 (Campground); IRM Tariff, TRA Tariff No.1, § 6, First Revised Page 2.1 (Commercial with food); and Exhibit 31, Limestone's Proposed Tariff. Limestone's Proposed Tariff does not contain a line for an excess water surcharge for both its residential and commercial customers. Confirm

Limestone's intent on collecting the "excess water usage surcharge", as laid out in IRM's tariff, after closing? If not, provide an explanation.

RESPONSE:

1-15. Refer to the Petition, Exhibit 21, IRM Tariff, TRA Tariff No. 1, § 1, Original Pages 6-7 (Definitions); IRM Tariff, TRA Tariff No.1, § 2, Original Pages 1-7 (Rules and Regulations); IRM Tariff, TRA Tariff No.1, Attachment No. 1 (Sewer Subscription Agreement); IRM Tariff, TRA Tariff No.1, Attachment No. 2 (List of Required Practices); and Exhibit 31, Limestone's Proposed Tariff. Limestone's Proposed Tariff sets out rates, fees, and charges for its residential and commercial customers; however, it does not contain non-monetary tariff terms and conditions such as definitions, rules and regulations; sewer subscription agreements or list of required practices. Confirm Limestone's intent on following these non-monetary terms and conditions as laid out in IRM's tariff, after closing? If not, please provide a list of the non-monetary terms and conditions that will be different from the IRM tariff after closing.

RESPONSE:

1-16. Refer to the Petition, Exhibit 9, Direct Testimony of Josiah Cox at 12:12 – 18:2 and Exhibit 24, Anticipated Capital Budget. Provide an estimate of Riverstone Estates anticipated capital expenditures by project, by year for the period 2024–2026.

RESPONSE:

1-17. Refer to the Petition, Exhibit 9, Direct Testimony of Josiah Cox at 15:12 – 16:11. Mr. Cox used the term "novel" when describing the operation of the intermittent discharging point source system. Does Limestone (or its affiliate) operate any other systems with a similar

National Pollutant Discharge Elimination Permit with an intermittent discharge point source. If yes, provide the permit number for the system; the system name; and the state in which the system is located.

RESPONSE:

1-18. Refer to the Petition, Exhibit 9, Direct Testimony of Josiah Cox at 13:12-22. Specifically, refer to his discussion of the use of third-party contractors to provide Operating and Maintenance services on behalf of Limestone and provide the following:

(a) Identify the entity(ies) providing third-party Operating and Maintenance (O&M) services to Limestone's existing systems;
(b) Provide the annualized cost of such services based upon the current contract in effect; and
(c) Provide the estimated annual incremental O&M cost accruing to Limestone as a result of this acquisition.

RESPONSE:

1-19. Provide an analysis estimating the incremental impact to CSWR overhead costs allocated to Limestone as a result of this acquisition.

RESPONSE:

1-20. Identify Limestone's annualized cost of third-party billing and customer service functions based upon the existing contract in effect.

RESPONSE:

1-21. Refer to Petition, Exhibit 9, Direct Testimony of Josiah Cox at 3:5-17 and 7:5-15. Mr. Cox states that CSWR affiliates currently own and operate "approximately 800 water or wastewater systems in Missouri, Kentucky, Louisiana, Tennessee, Mississippi, North Carolina, South Carolina, Florida, Arizona and Arkansas." Additionally, Mr. Cox states

that the CSWR affiliates have "additional applications pending in Missouri, Texas, Kentucky, Louisiana, North Carolina, Arizona, Mississippi, Florida, and California. Provide the number of customers CSWR affiliates seek to acquire in each state regulatory docket that is currently pending as of September 1, 2023. Provide this information by state and docket/case number.

RESPONSE:

1-22. Refer to the Petition, Exhibit 25, Regulatory Transactions and Closing Costs. Provide the detailed makeup of the projected "legal regulatory cost" of $3,422.50?

RESPONSE:

1-23. Refer to Petition, Exhibit 9, Direct Testimony of Josiah Cox at 8:19-23. Mr. Cox explains that CSWR's in-house workforce are experienced with small, distressed systems. Also, CSWR "routinely supplement those in-house with qualified, third-party contractors with whom [CSWR personnel] work on a regular basis. Having sufficient personnel to operate the System we propose to acquire will not be a problem for Limestone or CSWR." However, the Tennessee Department of Environment and Conservation ("TDEC") issued a Notice of Violation ("NOV") regarding the Hideaway Wastewater Treatment Facility which is owned and operated by Limestone. During TDEC's Compliance Evaluation, TDEC identified multiple concerns including, but not limited to, the following:

- The identified certified operator in TDEC's records was not the certified operator working the system at the time of its visit.
- Failure to follow the permit requirements for monthly monitoring.
- Serious concerns regarding the maintenance, availability, and veracity of records at this Limestone facility.
- The construction of the system does not match TDEC's records.

- The failure of the site inspections to meeting permit requirements.

Copies of TDEC's NOV and Limestone/CSWR's response are attached as Exhibit CA DR 1-23. This NOV raises concerns regarding the use and supervision of third-party contractors. Provide a response to the following:

(a) How many certified operators has Limestone/CSWR hired for the systems it owns and operates in Tennessee.

(b) Provide the information by the name of the certified operator and the systems for which the certified operator has responsibilities.

(c) Who, in the CSWR organizational structure, has responsibility for the supervision of the certified operators in Limestone's systems? How many certified operators does this CSWR staff member supervise?

(d) What other Limestone systems did the certified operator that "was let go in January" operate in Tennessee? *See* Exhibit CA DR 1-23 for Email from Dana Douglas on June 29, 2023. Has Limestone conducted an inspection of those systems to determine if the systems were having the same type issues as the Hideaway system? If so, what steps has Limestone taken to address issues at those facilities?

RESPONSE:

RESPECTFULLY SUBMITTED,

Karen H Stachowski

KAREN H. STACHOWSKI (BPR No. 019607)
Deputy Attorney General
VANCE L. BROEMEL (BPR No. 011421)
Senior Assistant Attorney General
Office of the Tennessee Attorney General
Consumer Advocate Division
P.O. Box 20207
Nashville, Tennessee 37202-0207
Phone: (615) 741-2370
Fax: (615) 741-8151
Email: Karen.Stachowski@ag.tn.gov
Email: Vance.Broemel@ag.tn.gov

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing was served via U.S. Mail, with a courtesy copy by electronic mail, upon:

Melvin Malone
Katherine Barnes
Butler Snow LLP
The Pinnacle at Symphony Place
150 Third Avenue South, Suite 1600
Nashville, TN 37201
Phone: (615) 651-6700
Email: Melvin.Malone@butlersnow.com
Email: Katherine.Barnes@butlersnow.com

Charles B. Welch, Jr.
Farris Bobango PLC
414 Union St., Suite 1105
Nashville, TN 37219
Email: cwelch@fairris-law.com

On this the 7th day of September 2023.

Karen H Stachowski

KAREN H. STACHOWSKI
Deputy Attorney General

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Water Resources
Nashville Environmental Field Office
711 R.S. Gass Blvd.
Nashville, Tennessee 37216
Phone 615-687-7000 Statewide 1-888-891-8332 Fax 615-687-7078

July 10, 2023

Mr. Josiah Cox, President
Ecopy: jcox@CSWRgroup.com
Central States Water Resources (CSWR)
1630 Des Peres Rd., Suite 140
Des Peres, MO 63131

Re: **Compliance Evaluation Inspection and Notice of Violation**
Limestone Water Utility Operating Company, LLC
Hideaway Wastewater Treatment Facility
SOP# 07090
Williamson County

Dear Mr. Cox,

On Tuesday, June 13, 2023, Mrs. Christina Wingett performed a Compliance Evaluation Inspection on the Limestone Water Utility Operating Company, LLC Hideaway Wastewater Treatment Facility for compliance with State Permit SOP-07090, which became effective on April 1, 2023, and expires on March 31, 2028, and the previous permit which was effective June 1, 2021 to January 31, 2023. The inspection covered the time period from June 2018 to June 2023. She met with Mr. Dana Douglas and Mr. Kevin Parham during the inspection. The Division of Water Resources (Division) would like to thank Mr. Douglas and Mr. Parham for their time and courtesy shown while on site.

Permit and Records Review

Records are not maintained per the permit requirements and could not be produced in a timely manner. The listed certified operator in charge was not correct and a Certified Operator in Charge designation letter was provided electronically by Mr. Douglas on June 29, 2023. Copies of Quarterly Operation Reports and *E. coli* laboratory data were provided via e-mail on June 29, 2023. Copies of contract laboratory data were provided via e-mail on June 21, 2023. The Standard Operating Procedure for *E. coli* was provided in the electronic documentation and did include the

required method number and reference to the *23rd Edition of the Standard Methods*. In reviewing the *E. coli* bench sheets several issues were found:

1. Numbers should not be scribbled out or written over, a clean strike through with initials and date is sufficient.
2. Incorrect dates were provided with results given for December 20, **2023** and December 29, **2023**.
3. The bench sheet well count section was blank for March 2, 2023 but data was reported on the Quarterly Operating Report.
4. Insufficient significant figures are given for the incubator temperature, the tenths place must be included in the reported number.
5. The well count "dateplates counted" is incorrect for May 25, 2023, with the sample collection date and date counted as the same but a twenty-four hour incubation period is necessary.

When Ms. Wingett inquired if the *E. coli* bench sheets provided to her were the original copy of record or a secondary transcription on Wednesday July 5, 2023 via email, Mr. Douglas replied in part on July 10, 2023, "*The transcribed data is the data that was recorded on the day of sample collection (location, date, etc.), the MPN is based upon the Iddexx colony chart which does not change. Most instances, the data was recorded in phone notes. After collection, the sample was delivered to the Grasslands facility for analysis. With that being said, I guess there aren't any official-original copies of record from that day to provide*." This is not acceptable laboratory record-keeping practice. Bench sheets at minimum must include:

a. The exact place, date, and time of sampling;
b. The exact person(s) collecting samples;
c. The dates and times the analyses were performed;
d. The person(s) or laboratory who performed the analyses;
e. The analytical techniques or methods used, and;
f. The results of all required analyses.

The aforementioned discrepancies and issues with the bench sheets lead the Division to question the veracity of the documentation. This phenomenon is repeated in the 2022 data for multiple different analyses where numbers are reported on the Monthly Operating report, but no bench sheets or laboratory data could be produced to support their validity.

No contract laboratory data could be provided before July 2022 due to the change in ownership according to Mr. Lundgren and Mr. Douglas. However, even after the transition, not all data was collected or maintained with no *E. coli* bench sheet data provided before January 2023. *E. coli* analysis is conducted at a sister facility with a laboratory by the operators. All documentation for the permit must be maintained for the required minimum of three years. Required sampling frequencies are not met with samples taken quarterly rather than monthly.

- June 2021- Did not meet required sampling frequency for Ammonia, *E. coli*, Total Suspended Solids (TSS), or Nitrite plus Nitrate.

- July 2021- No samples reported. Did not meet required sampling frequency for Biochemical Oxygen Demand (BOD), Ammonia, *E. coli*, TSS, or Nitrite plus Nitrate.
- August 2021- No samples reported. Did not meet required sampling frequency for BOD, Ammonia, *E. coli*, TSS, or Nitrite plus Nitrate.
- September 2021- Did not meet required sampling frequency for Ammonia, *E. coli*, or Nitrite plus Nitrate.
- October 2021- Late report. No samples reported. Did not meet required sampling frequency for BOD, Ammonia, *E. coli*, TSS, or Nitrite plus Nitrate.
- November 2021- Late report. No samples reported. Did not meet required sampling frequency for BOD, Ammonia, *E. coli*, TSS, or Nitrite plus Nitrate.
- December 2021- Late report. Did not meet required sampling frequency for Ammonia, *E. coli*, or Nitrite plus Nitrate. *E. coli* value written over on report submitted to Division.
- January 2022- Late report. No samples reported. Did not meet required sampling frequency for BOD, Ammonia, *E. coli*, TSS, or Nitrite plus Nitrate. Date not listed on Quarterly Operating Report, had to deductively estimate by signature dates.
- February 2022- Late report. Did not meet required sampling frequency for Ammonia, *E. coli*, or Nitrite plus Nitrate. Date not listed on Quarterly Operating Report, had to deductively estimate by signature dates. *E. coli* sample results not listed for correct date of collection according to attached analytical report.
- March 2022- Late report. No samples reported. Did not meet required sampling frequency for BOD, Ammonia, *E. coli*, TSS, or Nitrite plus Nitrate. Date not listed on Quarterly Operating Report, had to deductively estimate by signature dates.
- April 2022- No Quarterly Operating Report provided and no report on file at the Division office.
- May 2022- No Quarterly Operating Report provided and no report on file at the Division office.
- June 2022- No Quarterly Operating Report provided and no report on file at the Division office.
- July 2022- No samples reported. Did not meet required sampling frequency for BOD, Ammonia, *E. coli*, TSS, or Nitrite plus Nitrate. Values for BOD, TSS, Ammonia, and Nitrite plus Nitrate present on contract laboratory report but were not transferred to Quarterly Operating Report.
- August 2022- No Quarterly Operating Report provided and no report on file at the Division office.
- September 2022- No samples reported. Did not meet required sampling frequency for BOD, Ammonia, *E. coli*, TSS, or Nitrite plus Nitrate.
- October 2022- TSS was reported on the incorrect date. *E. coli* value was reported on the operating report, but a corresponding bench sheet was not provided. *E. coli*, Ammonia, and Nitrite plus Nitrate did not meet required sampling frequency.
- November 2022- No samples reported. Did not meet required sampling frequency for BOD, Ammonia, *E. coli*, TSS, or Nitrite plus Nitrate.
- December 2022- *E. coli* values on the bench sheets, 4.2 and 1.0, do not match what was reported to the Division on the Quarterly Operating Report 151.5. Did not meet required sampling frequency for BOD, Ammonia, *E. coli*, TSS, or Nitrite plus Nitrate.

- January 2023- Values from the contract laboratory analytical report are not transcribed to the correct date on the Quarterly Operating Report. *E. coli* did not meet required sampling frequency. BOD exceedance violation.
- February 2023- *E. coli* value reported on Quarterly Operating Report is <1 for 2/2/2023, *E. coli* value reported on bench sheet is 25.9. *E. coli* value reported on bench sheet for 2/16/2023 is 1 but no *E. coli* value is reported on Quarterly Operating Report for that date. *E. coli* value reported on Quarterly Operating Report is <1, no *E. coli* value reported on bench sheet. Did not meet required sampling frequency for BOD, Ammonia, TSS, or Nitrite plus Nitrate.
- March 2023- *E. coli* value reported on Quarterly Operating Report is <1 for 3/2/2023, no *E. coli* value reported on bench sheet. Values for Ammonia and Nitrite plus Nitrate are reported on the Quarterly Operating Report for 3/16/2023 but no corresponding analytical report was provided. *E. coli* value reported on bench sheet for 3/16/2023 is 1 but no *E. coli* value is reported on Quarterly Operating Report for that date. *E. coli* value reported on Quarterly Operating Report for 3/23/2023 is <1, but no *E. coli* value reported on bench sheet.

Site Review

The collections system is comprised of individual E-One grinder pump units for a subdivision, followed by bar screening, into a Sheaffer system deep cell lagoon and storage cell, into a Baswood Trickling Filter/Attached Growth system with a 75/25 recirculation rate, clarification, disc filtration, and ultraviolet disinfection and expanded drip irrigation fields. Active acreage amongst both drip fields is 13.7 acres, reserve drip field acreage is 18.2 acres according to Mr. Douglas.

The system described does not meet the design submitted to the Division on March 4, 2019. According to the discussions during the inspection, the solids handling area is not in operation, no polymer is used, and solids are not removed from the system according to the information provided by Mr. Parham. Due to the presence of media in the treatment lagoon, an incorrectly placed pipe may be allowing solids from the Cambrian system to flow back to the lagoon rather than where a sludge de-waterer should be according to the submitted plans. Dye testing could be a useful tool to investigate unexpected flows.

The bar screenings fall into a trash can that Mr. Parham indicated takes months to fill. However, documentation was not provided that this waste was hauled off appropriately as the correct classification of waste with records maintained for a minimum of five years.

The lagoon is in three cells with baffles present to prevent short circuiting. The wastewater flows between anoxic and aerated zones to help with nutrient removal. Mr. Douglas was unsure of the depth of solids in the lagoon or the lagoon depth overall. There is a short-term storage pond or finishing pond that has wastewater in it rather than the designed finished water due to a leak in the lining of the lagoon in 2017. Wastewater was diverted to the finishing pond to repair the liner of the lagoon. According to an email correspondence with Mr. John Newberry by Mr. Bruce Meyer on November 15, 2017, the wastewater was all returned to the main lagoon, but this is not the case as wastewater was present in the finishing pond at the time of inspection. This finishing pond is

not made to contain solids or untreated waste because there is not a pipe to return this wastewater to the main lagoon. A blanket of solids was visible just below the waterline. This wastewater is aerated to prevent it from becoming septic. An equalization pond is in the process of being constructed.

The trickling filter system is comprised of three large above-ground tanks. Due to low flow, one of the three tanks is not in operation. Media from the attached growth system was observed in the lagoon. This should not be possible.

Solids within the system are concerning. Mr. Douglas indicated the clarifier sludge blanket is zero and the solid's handling basin is not operational. Mr. Douglas said no solids have been removed from the system. In the event solids are removed, ensure proper protocols are in place by a licensed contractor to remove the waste with all manifests and what landfill receives the waste maintained for the required five years.

One of the ultraviolet disinfection units was not working correctly, potentially due to low flow according to Mr. Douglas. Spare UV bulbs are present on site and are of the mercury containing variety therefore documentation of proper disposal must be maintained.

No process control analyses are occurring. Preventative maintenance is occurring at the site. Mr. Douglas indicated the facility is visited three times per week, which exceeds the required frequency of observation. However, required inspections are not occurring that meet the requirements outlined in your permit under A. General Requirements:

> *The site shall be inspected by the certified operator or his/her designee, at a minimum, once per fourteen days . . .*
- *the condition of the treatment facility security controls (doors, fencing, gates, etc.),*
- *the condition of the drip area security controls (doors, fencing, gates, etc.),*
- *the condition of the site signage,*
- *the operational status of the mechanical parts of the treatment system (pumps, filters, telemetry equipment, etc.)*
- *the condition of the UV bulbs (if applicable)*
- *the condition of the land application area including the location of any ponding*
- *the name of the inspector*
- *the description of any corrective actions*

No instances of ponding water were viewed in the drip field adjacent to the treatment facility. This field was not fenced but did include signage along each perimeter. The second drip field down the road is reserve with drip installed and is fenced. Mr. Douglas and Mr. Parham were also advised of the added permit requirement of:

> *"Instances of surface saturation, ponding or pooling within the land application area as a result of system operation are prohibited. Instances of surface saturation, ponding or pooling. . . shall be promptly investigated and noted on the Monthly Operations Report. . . Any instances of surface saturation, ponding or pooling not associated with a major*

> *precipitation event not corrected within three days of discovery shall be reported to the local Environmental Field Office at that time for investigation. Surface saturation, ponding or pooling resulting in the discharge of treated wastewater into Waters of the State or to locations where it is likely to move to Waters of the State shall be immediately reported to the local Environmental Field Office"*

There has been a release from the collection system that was not reported to the Division. Releases and overflows must be reported as outlined in the permit section C. Noncompliance. 2. Reporting of Noncompliance.

Conclusions

Compliance with your permit requirements helps ensure the protection of human health and the environment. Inadequate sampling, failure to provide reports in a timely manner, inaccurate data handling and reporting, improper operation and maintenance of the facility, lack of self-monitoring on Quarterly Operating Reports, unsupported data reported to the Division, and exceedance of permitted effluent limits are hazards to human health and the environment and a violation of the permit. This letter hereby serves as a **Notice of Violation**.

Action Items and Recommendations

Steps must be taken to protect data integrity and transcription. Provide a written response addressing the following items within **30 days** of the receipt of this letter or by August 13, 2023, whichever occurs first:

1. Immediately begin conducting all required monthly, quarterly, and annual monitoring.
2. Report all releases to the Division according to the permit requirements. Provide a written overflow/release report for the incident that occurred that was not reported to the Division.
3. Continually update the Division on the Certified Operator in Charge of the facility through signed letters designating their position as soon as you are aware the change will occur.
4. Records must be maintained in accordance with the permit for a minimum of three years for all operations reports and a minimum of five years for all sludge and solids. *These documents must be available at the time of inspection.*
5. *E. coli* documentation is not sufficient. Scribbles should not be used; greater care must be taken to ensure correct transcription from bench sheet to Quarterly Operating Report. All data reported to the Division must have a documented trail to support is creation and validity. Original laboratory documentation must be maintained in accordance with the *40 Code of Federal Regulations Part 136*. Update all bench sheets to include the required information.
6. Immediately begin conducting all permit required inspections and document details.
7. Provide written process control procedures and analyses as required in the permit for Proper Operation and Maintenance.

Provide a written response addressing the following items within **60 days** of the receipt of this letter or by September 13, 2023, whichever occurs first:

8. Remove the wastewater from the finishing pond as was indicated in the correspondence to the Division in 2017.
9. Provide as-built specifications for what systems are "in the ground" at the facility.
10. Investigate solids in the system and provide an explanation of the solids handling process.

Due to the state of recordkeeping and sampling this letter serves as notification of a formal referral to the Compliance and Enforcement Unit for potential further enforcement. You are required to attend a Compliance Review Meeting to outline what is being done to correct and prevent the violations from continuing and to show why the Division should not pursue further enforcement action. The Compliance Review Meeting will be held at the Nashville Environmental Field Office, address is provided at the top of this letter, on **August 2, 2023, at 1:00 PM.** You should be prepared to discuss all the violations outlined in this letter and any other items related to the operation of the wastewater treatment facility at your site.

The Division would like to thank Mr. Douglas and Mr. Parham again for their courtesy and cooperation shown during these inspections. If you have any questions or concerns, please contact your inspector Christina Wingett at 615-961-3875 or christina.wingett@tn.gov.

Sincerely,

Michael Murphy
Program Coordinator
Division of Water Resources

e-copy: Dana Douglas, Supervisor, dana.douglas@clearwatersol.com
Kevin Parham, Grade III Operator, kevin.parham@clearwatersol.com
Josh Martin, Regulatory Compliance Officer, josh.martin@clearwatersol.com
Mandy Sappington, EHS Compliance Manager, msappington@cswrgroup.com
Sara Elias, TDEC Compliance and Enforcement, sarah.elias@tn.gov
Brad Harris, TDEC, brad.harris@tn.gov
Timmy Jennette, Field Office Manager, tim.jennette@tn.gov

August 7th, 2023

Ms. Christina Wingett
Division of Water Resources
Nashville Field Office
711 R.S. Gass Blvd
Nashville TN 37216

Sent Via email: Christina.Wingett@tn.gov

Re: State Operating Permit No. SOP-07090
Hideaway Wastewater Treatment Facility
Limestone Water UOC, LLC
College Grove, Williamson County, TN

Dear Ms. Wingett,

This letter is in response to the violations noted in the Compliance Evaluation Inspection and Notice of Violation dated July 10th, 2023. Limestone Water purchases distressed small water and wastewater systems that often require extensive upgrades and repairs. Limestone Water transforms these utilities by using technology and innovation to quickly assess and invest in infrastructure that meets or exceeds state and federal standards. Based on your Inspection Report we understand the following deficiencies need addressed at this time:

Hideaway Wastewater Treatment Facility Deficiencies

1. *Immediately begin conducting all required monthly, quarterly, and annual monitoring.*

    - Required monthly sampling was instituted in December of 2022 when it was realized that the previous operator interpreted the sampling as quarterly and not monthly. All required monthly tests have been completed since this date and that operator is no longer contracted to work for any Limestone Water UOC facilities. The new operator was thoroughly trained in all permit requirements.

2. *Report all releases to the Division according to the permit requirements. Provide a written overflow/report for the incident that occurred that was not reported to the Division.*

    - *A Sanitary Sewer Overflow (SSO) occurred on March 27, 2023, at green #7 in Troubadour Golf Course. This was due to Troubadour maintenance having a valve closed on the force main, not allowing flow to progress through the system as it should. The sewage found the weakest point of discharge at an air relief valve.*

It is estimated that approximately 1,200 gallons of sewage were spilled. The spill was cleaned up and treated with dehydrated lime and chlorine. No wastewater left the property. The required form is included here as Attachment 1.

3. *Continually update the Division on the Certified Operator in Charge of the facility through signed letters designating their position as soon as you are aware the change will occur.*

    - This was done on June 29, 2023, as noted in the last paragraph of page 1 of the report. Per the report "The listed certified operator in charge was not correct and a Certified Operator in Charge designation letter was provided electronically by Mr. Douglas on June 29, 2023." Limestone Water will ensure that documents are submitted to division as soon as possible in the future.

4. *Records must be maintained in accordance with the permit for a minimum of three years for all operations reports and a minimum of five years for all sludge and solids. These documents must be available at the time of inspection.*

    - This will be done as required going forward. CSWR's asset management software will be used to issue work orders and collect manifests any time a sludge haul is completed. We have discussed this with our operating partners and ensured they understand the importance of maintaining correct, legible records and having them available for inspection on request.

5. *E. coli documentation is not sufficient. Scribbles should not be used; greater care must be taken to ensure correct transcription from bench sheet to Quarterly Operating Report. All data reported to the Division must have a documented trail to support it's creation and validity. Original laboratory documentation must be maintained in accordance with the 40 Code of Federal Regulations Part 136. Update all bench sheets to include the required information.*

    - A new bench sheet for E. coli has been created with the appropriate information. Personnel has been instructed to use the new sheet for every E. coli sample presented for analysis. A copy of the new bench sheet is included as Attachment 2 with the response.

6. *Immediately begin conducting all permit required inspections and document details.*

    - A new bi-weekly inspection form (every 14 days according to permit) has been created and put in use. (A copy of this inspection sheet is included here as Attachment 3)

7. *Provide written process control procedures and analyses as required in the permit for Proper Operation and Maintenance.*

    - Limestone Water is still in the process of reviewing and updating all procedures for this facility. We would like to request an extension on this deliverable until September 13, 2023, to ensure a complete response.

8. *Remove the wastewater from the finishing pond as was indicated in the correspondence to the Division in 2017.*

    - A trash pump is onsite to transfer the short-term storage (STS) pond to the 3-cell lagoon. Once lagoon levels allow, the STS pond will be transferred. An additional update to this item will be provided on or before September 13, 2023.

9. *Provide as-built specifications for what systems are "in the ground" at the facility.*

    - Please see the technical drawings and approval letter from 2021 included with this response as Attachment 4. We believe they accurately reflect the facility as it exists now. According to our records, plans were submitted on April 2, 2021, and approved by the division on May 18, 2021. Those plans were then revised to include the Long Term Storage Mods and resubmitted to the Division on September 2, 2021, and approved on October 19, 2021. The changes to the process flow diagram are clouded on G-001.

10. *Investigate solids in the system and provide an explanation of the solids handling process.*

    - To date, no solids have been processed and removed from the facility. The operator for this facility has stated that the loading rate of the influent flow is low enough that the microorganisms successfully consume the solids. We believe that the solids being seen in the system were from a past event prior to Limestone Water purchasing the system, where flow was bypassed to the polishing lagoon for a repair. It is our understanding that no solids are currently moving through the system and are contained to the polishing lagoon. As stated in item 8, the solids will be removed from the system as soon as lagoon levels allow.

I have attached to this response the following requested documentation; Completed SSO Report Form, E. Coli Bench sheet, Bi-weekly Inspection form, approved design drawings of the treatment plant, and the corresponding approval letter from the Division.

We appreciate your ongoing compliance assistance at our facilities throughout Tennessee. If you have any questions regarding this submittal, please contact me directly at 314-492-8425.

Sincerely,

Justin Lundgren

Justin Lundgren
EHS Compliance Coordinator

cc: Mandy Sappington
Brad Thibault
Cody Harris

Attachment 1
SSO Reporting Form

Tennessee Division of Water Resources
Wastewater Collection System Overflow
Treatment Unit Bypass
Report Form

System Name & Permit Number:	Hideaway WWTP SOP #07090
County:	Williamson
Date & Time Reported To DWR:	Operator at that time failed to report. Reported during compliance inspection June 13, 2023.
System Contact:	Dana Douglas
Title:	KY/TN Regional Supervisor
Phone Number(s):	615-603-6812
Location --- Cause --- Corrective Action	
Location of Pump Station, Manhole, Other:	Other: Air relief valve at green #7
Date & Time Overflow or Bypass of Treatment Units Began:	March 27, 2023 at approximately 1645
Date & Time Overflow/Bypass Ended:	March 28, 2023 at approximately 1155
Estimated Volume:	Approximately 1200 gallons
Treatment Unit(s) Bypassed:	Low pressure collection system air relief valve
Cause of Overflow or Bypass:	Contractor had a valve off which was not allowing flow, flow found weakest point in system.
Corrective Action or Repairs:	Opened valve
Time & Date Completed, or Estimated:	March 28, 2023 at approximately 1155
Volume Contained or Recovered:	Approximately 1200 gallons
Potential Impact	
Did wastewater enter a residence or other structure	No
Wastewater Entered Stream:	No
Name of Stream:	N/A
Stream Conditions Observed:	N/A
Fish or Aquatic Life Killed:	No
Distance of Impact:	Approximately 20 – 30 feet
Actions Taken to Minimize Health Hazards or Impact to Water Quality:	Treated with granular HTH and dehydrated lime
Cleanup, Disinfection of Area:	Treated with granular HTH and dehydrated lime
Public Notified, Signs Posted, or Access Restricted:	Area closed off with caution tape.
Stream Sampling Conducted:	N/A
Comments:	
Information Received By:	Dana Douglas

Attachment 2
Eschericia coli Bench Sheet

Hideaway WWTP SOP #07090

S.M. 9223 B-Enzyme Substrate Coliform Test_Colilert Method
Standard Methods 23rd Edition (2016 Revision) 2 Days / Month

DATE	Collected by: (initials)	Grab sample Time collected	Location	Analysis by: (initials)	Time Analysis Run	Time/Date plates counted
			Effluent Discharge Tank			

Incubator Temp. ºC (Start)		(End)			
Sample		mL filtered	# Large wells counted	#Small wells counted	MPN
Effluent		100			
Duplicate Effluent		100			
Blank		100			
Positive Control		100			
Negative Control		100			

DATE	Collected by: (initials)	Grab sample Time collected	Location	Analysis by: (initials)	Time Analysis Run	Time/Date plates counted
			Effluent contact chamber			

Incubator Temp. ºC (Start)		(End)			
Sample		mL filtered	# Large wells counted	#Small wells counted	MPN
Effluent		100			
Duplicate Effluent		100			
Blank		100			
Positive Control		100			
Negative Control		100			

DATE	Collected by: (initials)	Grab sample Time collected	Location	Analysis by: (initials)	Time Analysis Run	Time/Date plates counted
			Effluent contact chamber			

Incubator Temp. ºC (Start)		(End)			
Sample		mL filtered	# Large wells counted	#Small wells counted	MPN
Effluent		100			
Duplicate Effluent		100			
Blank		100			
Positive Control		100			
Negative Control		100			

DUPLICATES AND BLANK SAMPLES: ONCE PER MONTH

POSITIVE CONTROL AND NEGATIVE CONTROL SAMPLES: ONCE PER QUARTER

Mistakes or other edits should not be scribble out. Changes must be made by striking through the original writing and initialing new data with initials of the person making the change. Example: ~~100~~ *jkn*

Attachment 3
Bi-Weekly Inspection Log

Exhibit CA DR 1-23
TPUC Dkt. 23-00037

Hideaway Bi-Weekly Inspection

Initials, Date, and Time	Security Controls	Drip Field Security Controls	Condition of Site Signage	Facility Operational Status of Mechanical Equipment	Condition of UV bulbs	Drip field condition & ponding areas if any noticed	Corrective actions if any

Attachment 4
Design Drawings and Approval Letter

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1102

October 19, 2021

Mr. Barney Fullington, P.E.
President
e-copy: barney.fullington@inflodesign.com
Inflo Design Group, LLC
406 Wild Elm St
Franklin, TN 37064

Subject: **Cartwright Creek Utility Co.**
County: Williamson
Wastewater Project Number: 21.0308R
Project: Troubadour Club Development (Hideaway WWTP)

Dear Mr. Fullington:

The Tennessee Department of Environment and Conservation, Division of Water Resources, acknowledges the receipt of your construction documents on September 2, 2021.

The previously approved plans for the expansion of the WWTP (WPN 21.0308) have been revised to include modifications for the existing Long-Term & Short-Term Storage cells. The modifications are clouded and shown on C-101, C-102, C-103, C-702, & E-100 and also specified in sections 01 29 00, 31 05 00, 31 05 19.16, 31 05 19.26, 43 25 13. In summary, the project includes relining the existing LT Storage cell with an HDPE liner and modifying the piping to provide a new gravity-fed influent pipe to ST Storage and a new effluent pipe and pumping station for LT Storage.

Approval is granted in accordance with certain requirements of the Water Quality Control (WQC) Act of 1977 and Regulations of the Water Quality Control Board. **On the coversheet(s) of the site's set of plans and specifications, an approval date and its expiration date will be stamped by the division. Any indication of tampering with the bound set of documents will be subject to investigation and prosecution.** One complete set of construction documents, bearing the official stamp, must be kept at the construction site.

Approval expires one year from the stamped approval date (October 19, 2021) unless construction is either underway or complete. Any request for extension must be made prior to this expiration date. Significant deviations from the approved plan documents must be submitted and approved in writing before such changes are made. Minor changes made during construction need not have prior written approval. Modifications, however, may be required by this Department should the changes be deemed inappropriate. It is advisable, therefore to obtain prior approval in cases where the significance of the change is uncertain.

The Division of Water Resources is authorized to inspect the construction work to verify compliance with the approved plans and specifications, which are on the site. Therefore, the engineer shall notify our staff at the Nashville Environmental Field Office by calling (615) 687-7000 before the start of construction.

Approval of these construction documents should not be construed as a permit for any activities related to this project. Activities which may require a permit under the WQC Act and Regulations include, but are not limited to, the following: streambank vegetation removal; creek crossing(s) for equipment or utility lines; construction within twenty (20) feet of a stream bank; construction in or near a marshy area or wetland, and/or land disturbance equal to or greater than one acre. Additionally, this approval does not authorize connection and use of sewer that will cause or contribute to collection system overflow or overload of receiving wastewater treatment facility.

The Nashville Environmental Field Office should also be contacted for determinations regarding whether modification of the existing NPDES or SOP permit, an Aquatic Resource Alteration Permit (ARAP) and/or a National Pollutant Discharge Elimination System (NPDES) construction stormwater permit will need to be obtained prior to the beginning of construction of this project.

The division's most recent TDEC Technical/Engineering Documents, including "*Design Criteria for Review of Sewage Works Construction Plans and Documents*", Chapters 1-17, of November 1, 2017, is available on our website: https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/water-quality-reports---publications.html.

To expedite matters, please reference the assigned wastewater project number 21.0308R on any future correspondence. If you have any questions, please feel free to contact Ms. Anastasia Sharp, E.I. at (615) 532-1508 or by E-mail at *Anastasia.Sharp@tn.gov*.

Sincerely,

Robert G. O'Dette, M.S., P.E. BCEE
WEF Fellow
Engineering Services Unit

cc: Land-Based Systems File
Mr. Bruce Meyer, Operations Manager, Sheaffer Wastewater Solutions, LLC, bmeyer@sheafferwws.com
Mr. Tim Jennette, Program Manager, TDEC Division of Water Resources, tim.jennette@tn.gov

HIDEAWAY WWTP PHASE II EXPANSION

WILLIAMSON COUNTY, TENNESSEE

DISCOVERY LAND COMPANY

DESIGN DRAWINGS ISSUED FOR TDEC REVIEW SEPTEMBER 2021

GENERAL
* 1. G-000 COVER SHEET
* 2. G-001 WWTP PROCESS FLOW DIAGRAM
3. G-002 WWTP HYDRAULIC PROFILE

CIVIL
* 4. C-001 WWTP EXISTING SITE PLAN
5. C-002 WWTP PIPING DEMOLITION PLAN
* 6. C-101 WWTP PROPOSED SITE PLAN
* 7. C-102 WWTP PROPOSED PIPING PLAN
* C-103 WWTP PROPOSED SITE PIPING PLAN
8. C-701 CIVIL DETAILS
* C-702 LONG TERM STORAGE SECTIONS & DETAILS

PROCESS
9. D-001 ABBREVIATIONS
10. D-002 PROCESS LEGEND AND SYMBOLS
11. D-003 PROCESS NOTES
12. D-100 CONTROL BUILDING DEMOLITION PLAN
13. D-101 CONTROL BUILDING PLAN
14. D-111 CAMBRIAN BUILDING & INFLUENT SCREEN PLANS
15. D-115 CAMBRIAN INFLUENT PS PLANS & SECTION
16. D-120 WWTP DRIP FIELD PLANS
17. D-121 PHASE 2 DRIP FIELD ZONE LAYOUT
18. D-300 CONTROL BUILDING SECTIONS
19. D-301 CAMBRIAN BUILDING SECTIONS
20. D-302 INFLUENT SCREEN & SLUDGE TRANSFER TANK SECTIONS
21. D-303 CAMBRIAN TANKS PLAN & SECTION
22. D-310 PHASE 2 DRIP FIELD RETURN PS
23. D-510 DRIP IRRIGATION DETAILS
24. D-701 PROCESS DETAILS
25. D-702 PIPE SUPPORT DETAILS
26. DI-001 INFLUENT SCREENING & AERATED LAGOON P&ID
27. DI-002 CAMBRIAN TANKS & ODOR CONTROL P&ID
28. DI-003 CAMBRIAN PUMP SKID P&ID
29. DI-004 CLARIFICATION & SLUDGE MANAGEMENT P&ID
30. DI-005 TERTIARY FILTRATION & UV DISINFECTION P&ID
31. DI-006 DRIP IRRIGATION FEED TANK & PUMPS P&ID
32. DI-007 DRIP FIELDS & RETURN PS P&ID

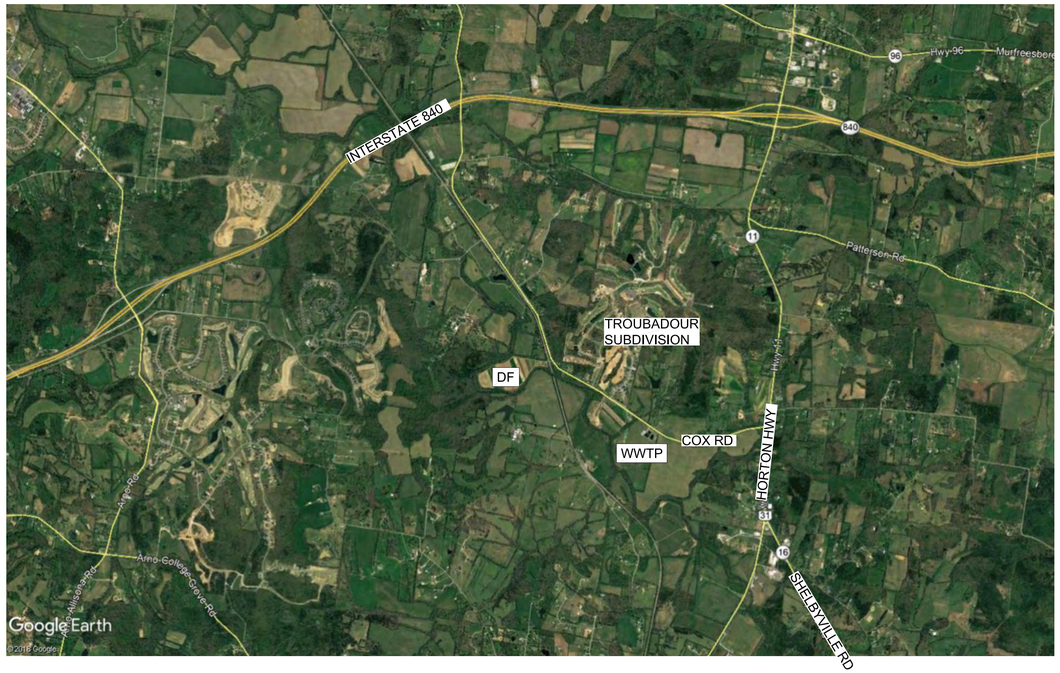
STRUCTURAL
33. S-001 STRUCTURAL NOTES & CRITERIA
34. S-100 STRUCTURAL DEMOLITION PLANS
35. S-101 CONTROL BUILDING SLAB & FLOOR PLANS
36. S-102 CONTROL BUILDING ROOF PLANS
37. S-111 CAMBRIAN BUILDING SLAB & FLOOR PLANS
38. S-112 CAMBRIAN BUILDING ROOF PLANS
39. S-301 WALL SECTIONS
40. S-500 BUILDING FOUNDATION & SLAB DETAILS
41. S-501 BUILDING WALL & ROOF DETAILS
42. S-600 BUILDING SCHEDULES & DETAILS
43. S-700 CONCRETE DETAILS
44. S-701 CONCRETE DETAILS
45. S-710 MASONRY DETAILS
46. S-720 STAIR & GUARDRAIL DETAILS
47. S-721 FRAMING DETAILS

BUILDING MECHANICAL
48. M-001 MECHANICAL GENERAL NOTES & LEGENDS
49. M-101 CONTROL BUILDING MECHANICAL PLAN
50. M-102 CONTROL BUILDING MECHANICAL ROOF PLAN
51. M-103 CAMBRIAN BUILDING MECHANICAL PLAN
52. M-104 CAMBRIAN BUILDING MECHANICAL ROOF PLAN
53. M-501 MECHANICAL DETAILS
54. M-502 MECHANICAL DETAILS
55. M-601 MECHANICAL SCHEDULES

ELECTRICAL
56. E-001 'MDP-C' ONE-LINE DIAGRAM
57. E-002 EXISTING MPD ONE-LINE DIAGRAM
* 58. E-100 WWTP ELECTRICAL SITE PLAN
59. E-102 PARTIAL WWTP ELECTRICAL SITE PLANS
60. E-103 CAMBRIAN BUILDING & INFLUENT SCREEN ELECTRICAL PLANS
61. E-104 CONTROL BUILDING ELECTRICAL PLANS
62. E-105 CAMBRIAN BUILDING ROOF ELECTRICAL PLAN
63. E-121 PHASE 2 DRIP FIELD ZONE LAYOUT ELECTRICAL
64. E-310 PHASE 2 DRIP FIELD RETURN PS ELECTRICAL
65. E-400 ELECTRICAL DETAILS
66. E-401 ELECTRICAL DETAILS
67. E-402 ELECTRICAL SCHEDULES

INSTRUMENTATION
68. I-001 INSTRUMENT NETWORK ARCHITECTURE
69. I-002 CONTROL WIRING BLOCK DIAGRAM
70. I-003 NEW PLANT PLC PANEL I/O AND WIRE LIST
71. I-004 NEW PLANT PLC PANEL I/O AND WIRE LIST
72. I-005 NEW PLANT PLC PANEL I/O AND WIRE LIST
73. I-006 CAMBRIAN PLC PANEL I/O AND WIRE LIST
74. I-102 PARTIAL WWTP INSTRUMENTATION SITE PLAN
75. I-103 CAMBRIAN BUILDING & INFLUENT SCREEN INSTRUMENT PLAN
76. I-104 CONTROL BUILDING INSTRUMENT PLAN
77. I-121 PHASE 2 DRIP FIELD INSTRUMENT SITE PLAN

* NEW/REVISED DRAWING FOR LONG-TERM STORAGE MODIFICATIONS



N

LOCATION PLAN
SCALE: NONE

WWTP INDICATES LOCATION OF EXISTING WASTE WATER TREATMENT PLANT & PHASE I DRIP FIELDS

DF INDICATES PROPOSED LOCATION OF PHASE II DRIP FIELDS & RETURN PUMP STATION

JASON E. ENGLISH
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 111665
STATE OF TENNESSEE
9-22-21

WPN 21.0308R
Troubadour Club WWTP
APPROVED FOR CONSTRUCTION

THE DOCUMENT BEARING THIS STAMP HAS BEEN RECEIVED AND REVIEWED BY THE

TENNESSEE DEPT. OF ENVIRONMENT & CONSERVATION

DIVISION OF WATER RESOURCES

AND IS HEREBY APPROVED FOR CONSTRUCTION BY THE COMMISSIONER

October 20, 2021

THIS APPROVAL SHALL NOT BE CONSTRUED AS CREATING A PRESUMPTION OF CORRECT OPERATION OR AS WARRANTING BY THE COMMISSIONER THAT THE APPROVED FACILITIES WILL REACH THE DESIGNED GOALS.

APPROVAL EXPIRES ONE YEAR FROM ABOVE DATE

TREATMENT PLANT OWNER: CARTWRIGHT CREEK, LLC
ADDRESS: 6545 COX ROAD,
COLLEGE GROVE, TN 37046
PLANT MANAGER: BRUCE MEYER

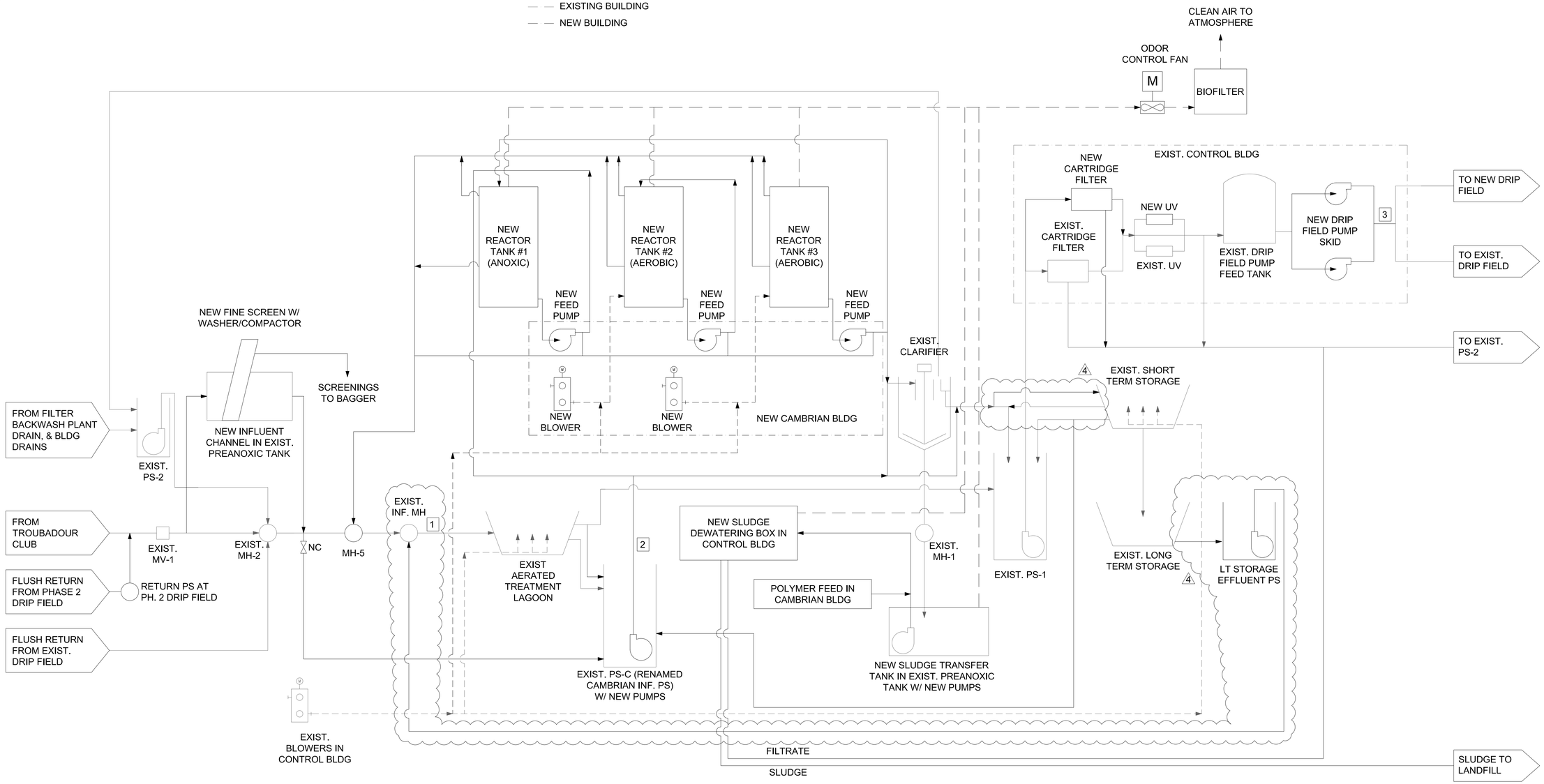
ENGINEERING CONSULTANT: INFLO DESIGN GROUP, LLC
ADDRESS: 7000 EXECUTIVE CENTER DRIVE, SUITE 240
BRENTWOOD, TN 37027
PROJECT MANAGER: JASON ENGLISH, P.E.

idg
INFLO DESIGN GROUP

HIDEAWAY WWTP PHASE II DESIGN TABLE							
ID #	*DESCRIPTION*	*BOD (mg/L)*	*BOD (lb/d)*	*TSS (mg/L)*	*TSS (lb/d)*	*TN (mg/L)*	*TN (lb/d)*
1	INFLUENT TO LAGOON	369	361.8	143	140	77.7	76.0
2	INFLUENT TO CAMBRIAN T-100	250	245	142.8	140	77.5	76.0
3	EFFLUENTO DRIP FIELDS	30	29.42	30	29.42	25	24.5

LINE TYPE LEGEND

- EXISTING PROCESS WATER PIPING
- NEW PROCESS WATER PIPING
- EXISTING PROCESS AIR PIPING
- NEW PROCESS AIR PIPING
- NEW ODOR CONTROL PIPING
- EXISTING EQUIPMENT/TANK
- NEW EQUIPMENT/TANK
- EXISTING BUILDING
- NEW BUILDING



PROPOSED PROCESS FLOW DIAGRAM
SCALE: NONE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM
3	05/20/21	ISSUED FOR CONSTRUCTION	DBM
4	09/02/21	LT STORAGE MODIFICATIONS	DBM

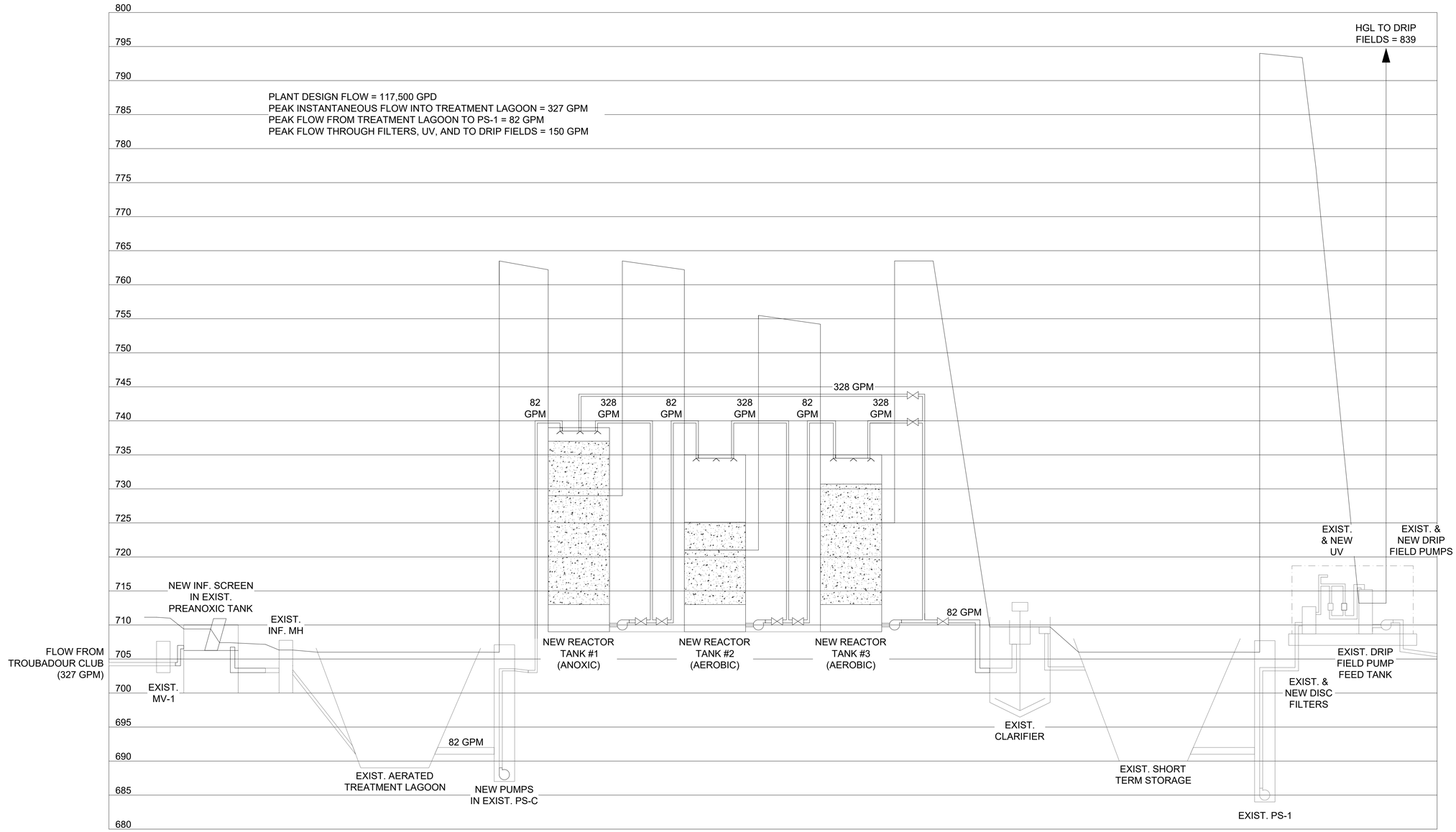
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP PROCESS FLOW DIAGRAM

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
G-001

SHEET NUMBER
02



PROPOSED HYDRAULIC PROFILE
VERTICAL SCALE: 1" = 8'-0"
HORIZONTAL SCALE: NONE

INFLO DESIGN GROUP

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP HYDRAULIC PROFILE

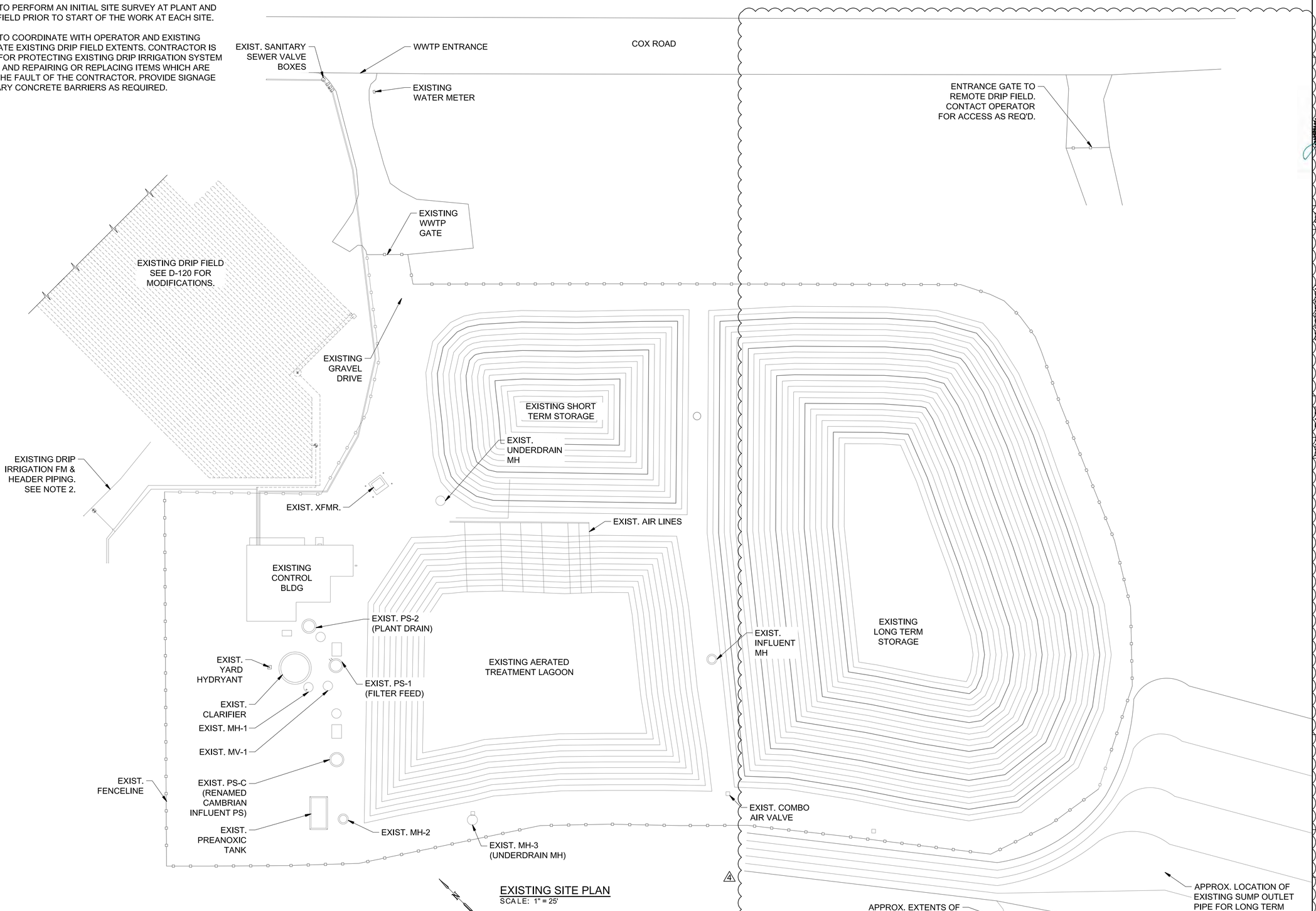
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
G-002

SHEET NUMBER
03

SHEET NOTES:

1. CONTRACTOR TO PERFORM AN INITIAL SITE SURVEY AT PLANT AND PHASE II DRIP FIELD PRIOR TO START OF THE WORK AT EACH SITE.
2. CONTRACTOR TO COORDINATE WITH OPERATOR AND EXISTING PLANS TO LOCATE EXISTING DRIP FIELD EXTENTS. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING DRIP IRRIGATION SYSTEM FROM DAMAGE AND REPAIRING OR REPLACING ITEMS WHICH ARE DAMAGED TO THE FAULT OF THE CONTRACTOR. PROVIDE SIGNAGE &/OR TEMPORARY CONCRETE BARRIERS AS REQUIRED.



EXISTING SITE PLAN
SCALE: 1" = 25'

idg
INFLO DESIGN GROUP

JASON E. ENGLISH
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 111662
STATE OF TENNESSEE
9-2-21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM
3	05/20/21	ISSUED FOR CONSTRUCTION	DBM
4	09/02/21	LT STORAGE MODIFICATIONS	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP EXISTING SITE PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
C-001

SHEET NUMBER
04

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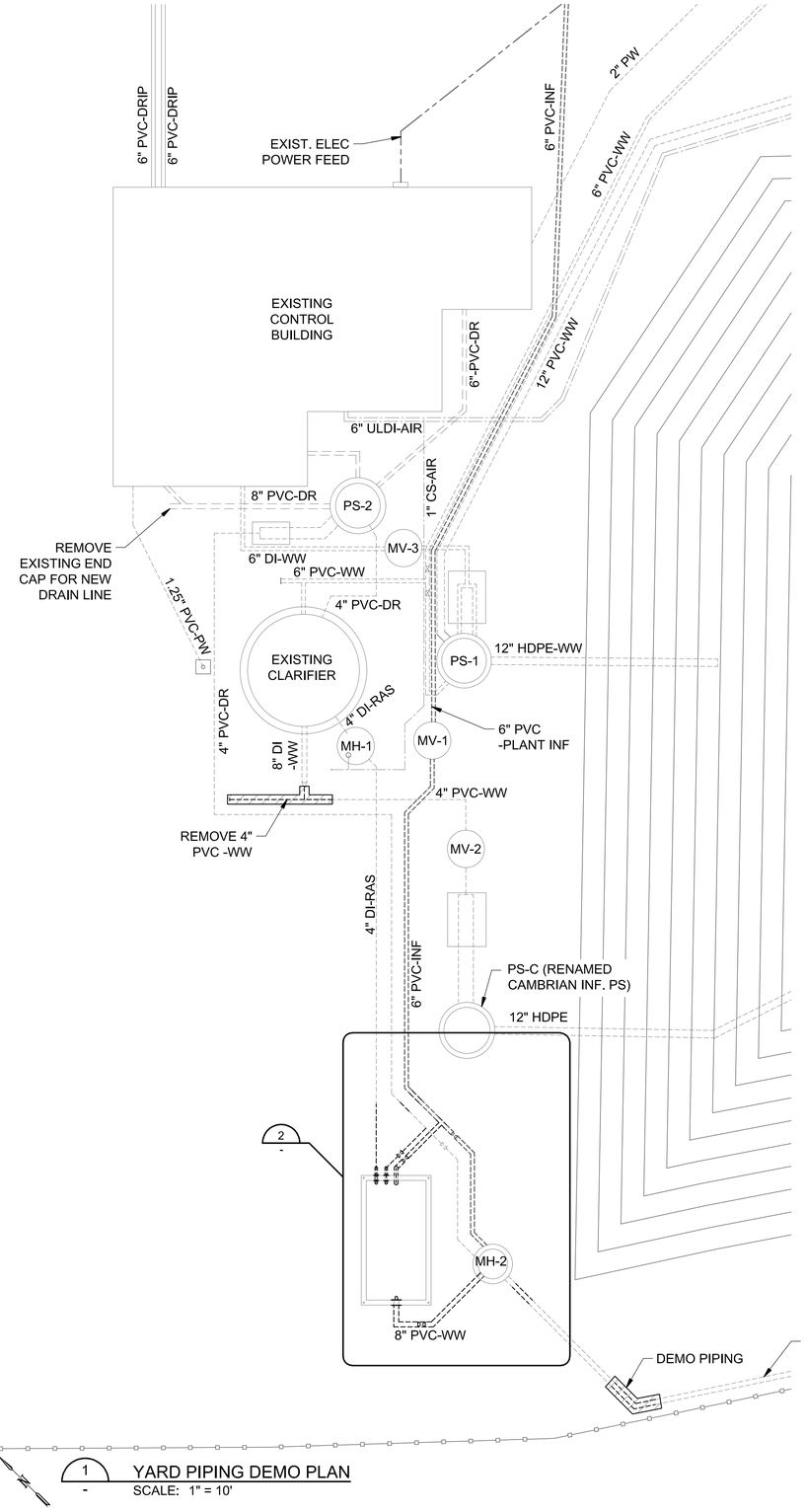
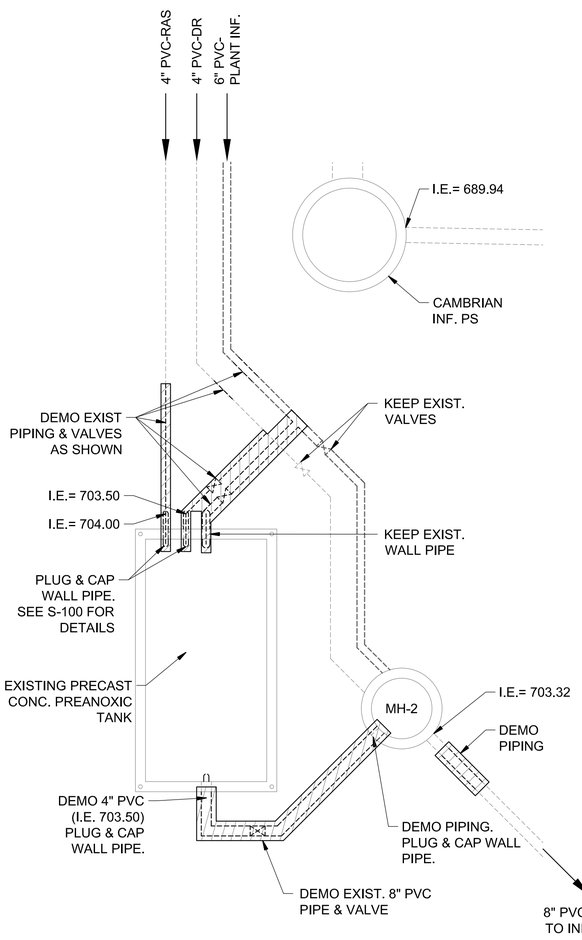
Exhibit CA DR 1-23
TPUC Dkt. 23-00037



1 - YARD PIPING DEMO PLAN
SCALE: 1" = 10'



2 - INFLUENT STRUCTURE PIPING DEMO PLAN
SCALE: 1" = 5'

SHEET NOTES:

1. EXISTING PIPING INFORMATION IS APPROXIMATE BASED ON DESIGN DRAWINGS FROM PHASE 1 OF THE WWTP. CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL PIPING AND VERIFYING EXISTING INFORMATION.
2. EXISTING WALL PIPES INDICATED AS PLUG & CAP SHALL BE CAPPED ON THE INTERIOR OF THE TANK W/ ½" SSTL PLATE WHICH IS SEAL WELDED TO WALL PIPE, THEN FILLED WITH 4,000 PSI NONSHRINK GROUT & CAPPED ON EXTERIOR OF TANK W/ ½" SSTL PLATE WHICH IS SEAL WELDED TO WALL PIPE. SEE 3/S-100
3. CONTRACTOR SHALL DEMOLISH AND ABANDON PIPES AS CONSTRUCTION PROGRESSES. THE CONTRACTOR SHALL NOT ABANDON OR DEMO ANYTHING WITHOUT PRIOR APPROVAL FROM OWNER/ENGINEER.

idg
INFLO DESIGN GROUP

BARNEY G. FULLINGTON
REGISTERED ENGINEER
No. 108111
STATE OF TENNESSEE
4/2/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP PIPING DEMOLITION PLAN

THIS LINE IS 1" AT FULL SIZE

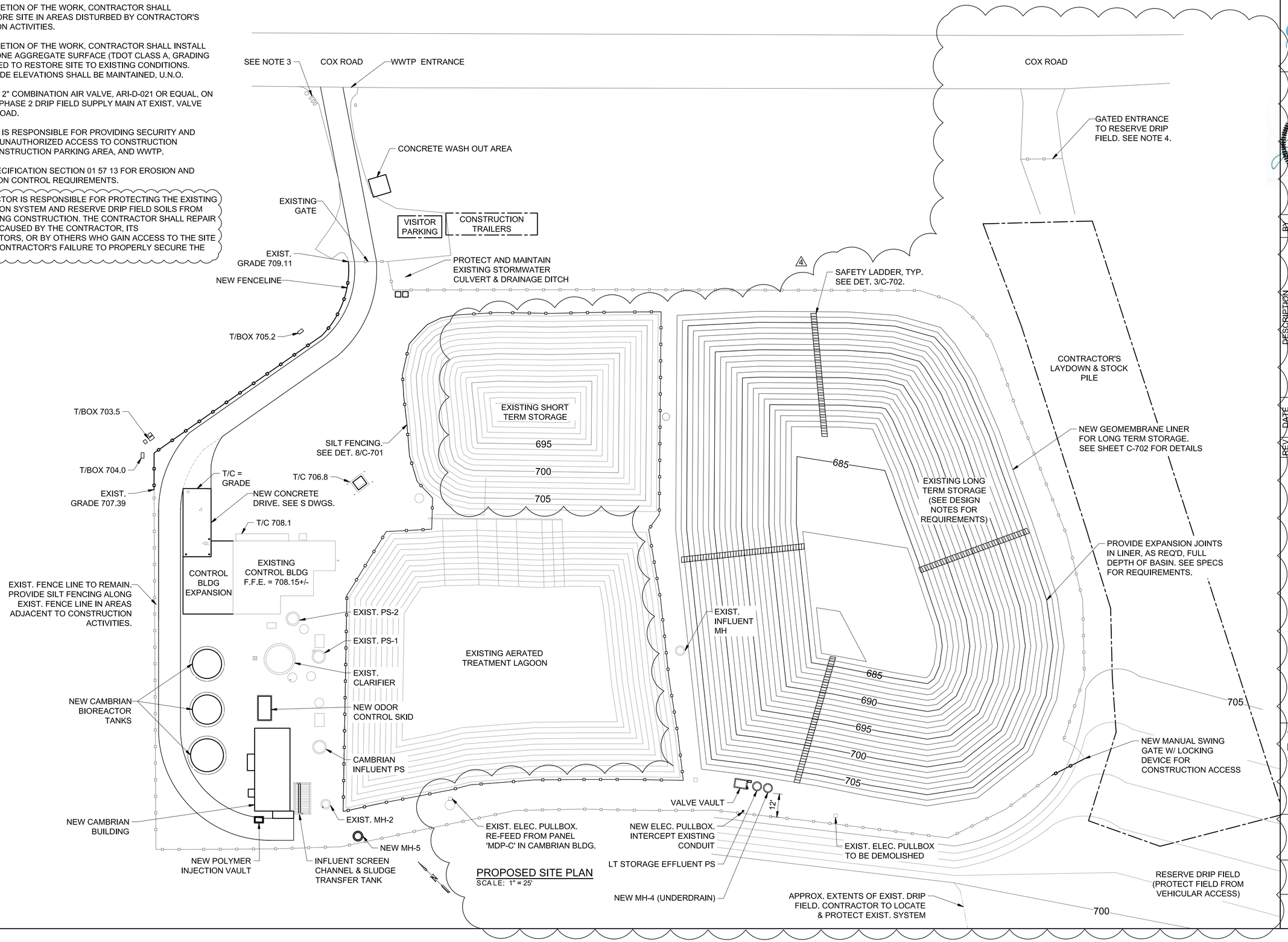
DRAWING NUMBER
C-002

SHEET NUMBER
05

File: C:\Users\dbmor\Google Drive\Inflo Design Group\M2 Group\Hideaway WWTP\Design\CAD\Hideaway C.dwg Last Save: 3/30/2021 1:43 PM Last saved by: Dbmor
Last plotted by: Daniel Morgan Plot Style: ---- Plot Scale: 1:1 Plot Date: 4/2/2021 1:59 PM Plotter used: Microsoft Print to PDF

SHEET NOTES:

1. AFTER COMPLETION OF THE WORK, CONTRACTOR SHALL REPAIR/RESTORE SITE IN AREAS DISTURBED BY CONTRACTOR'S CONSTRUCTION ACTIVITIES.
2. AFTER COMPLETION OF THE WORK, CONTRACTOR SHALL INSTALL CRUSHED STONE AGGREGATE SURFACE (TDOT CLASS A, GRADING D) AS REQUIRED TO RESTORE SITE TO EXISTING CONDITIONS. EXISTING GRADE ELEVATIONS SHALL BE MAINTAINED, U.N.O.
3. PROVIDE NEW 2" COMBINATION AIR VALVE, ARI-D-021 OR EQUAL, ON EXIST. 6" PVC PHASE 2 DRIP FIELD SUPPLY MAIN AT EXIST. VALVE BOX AT COX ROAD.
4. CONTRACTOR IS RESPONSIBLE FOR PROVIDING SECURITY AND RESTRICTING UNAUTHORIZED ACCESS TO CONSTRUCTION TRAILERS, CONSTRUCTION PARKING AREA, AND WWTP.
5. REFER TO SPECIFICATION SECTION 01 57 13 FOR EROSION AND SEDIMENTATION CONTROL REQUIREMENTS.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE EXISTING DRIP IRRIGATION SYSTEM AND RESERVE DRIP FIELD SOILS FROM DAMAGE DURING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY THE CONTRACTOR, ITS SUBCONTRACTORS, OR BY OTHERS WHO GAIN ACCESS TO THE SITE DUE TO THE CONTRACTOR'S FAILURE TO PROPERLY SECURE THE SITE.



PROPOSED SITE PLAN
SCALE: 1" = 25'

idg INFLO DESIGN GROUP

JASON E. ENGLISH — REGISTERED PROFESSIONAL ENGINEER — AGRICULTURE — COMMERCE — CIVIL — No. 111602 — STATE OF TENNESSEE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM
3	05/20/21	ISSUED FOR CONSTRUCTION	DBM
4	08/11/21	LT STORAGE MODIFICATIONS	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

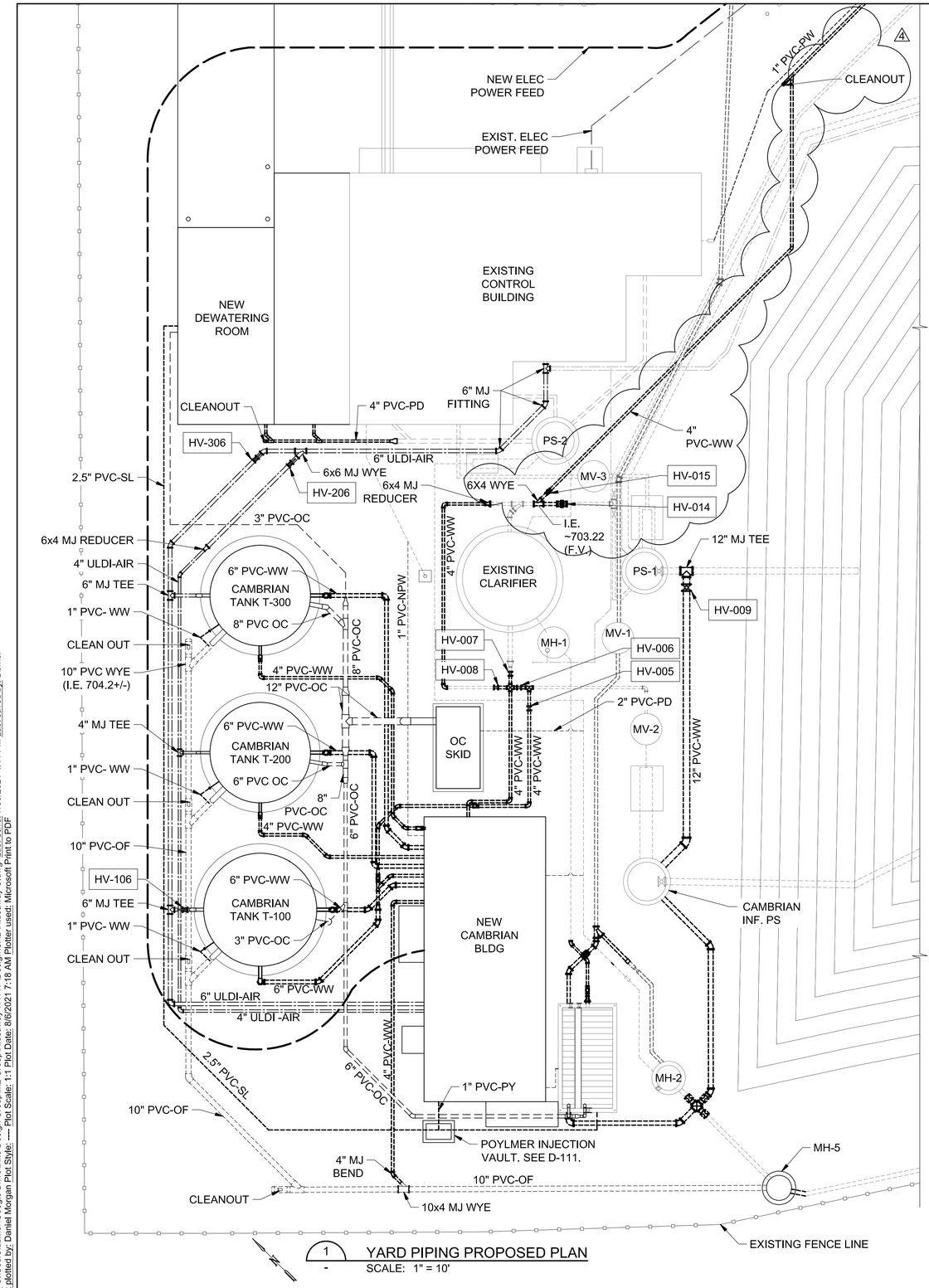
WWTP PROPOSED SITE PLAN

THIS LINE IS 1" AT FULL SIZE

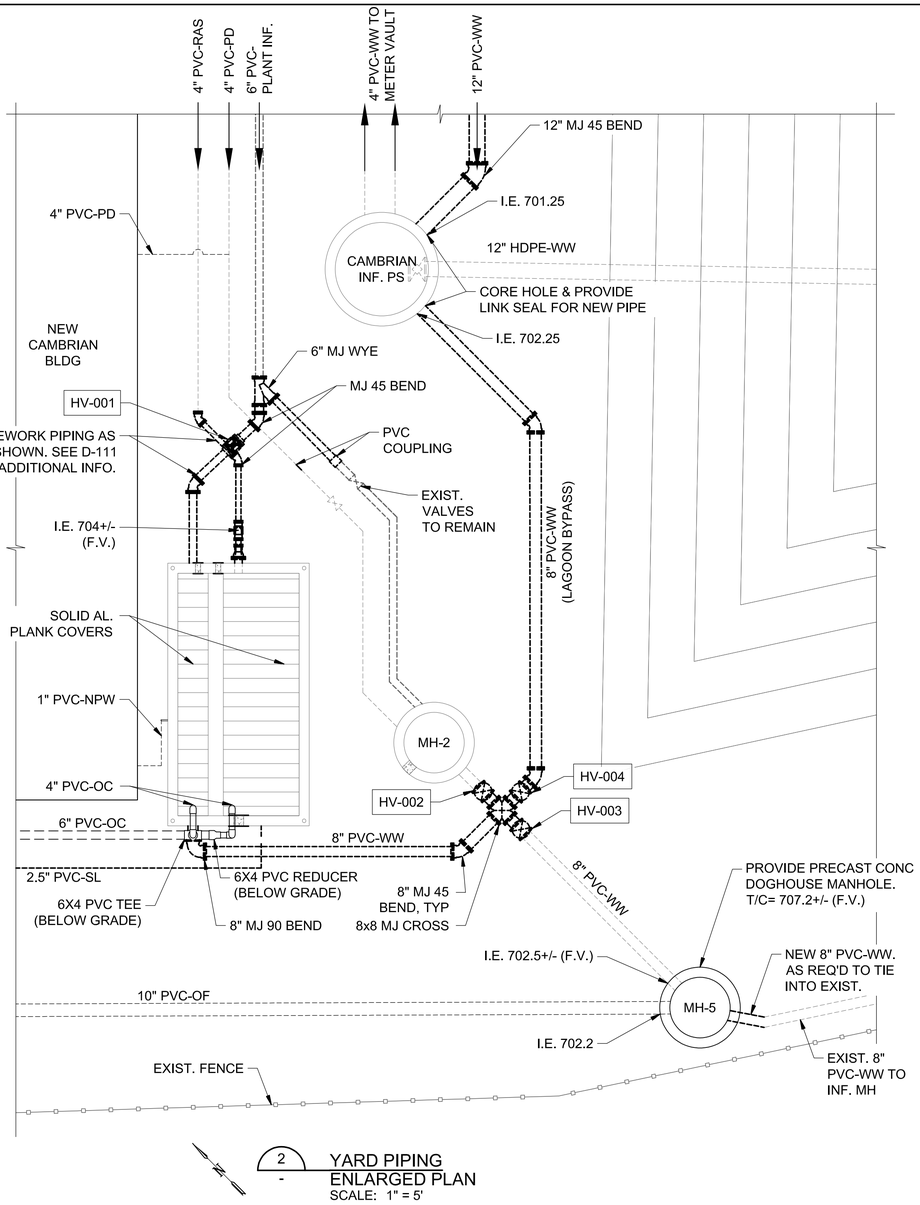
DRAWING NUMBER **C-101**

SHEET NUMBER **06**

File: C:\Users\dbmor\Google Drive\Inflo Design Group\M2 Group\Hideaway WWTP\Design\CAD\Hideaway C.dwg Last Save: 9/2/2021 12:33 PM Last saved by: Dbmor
Last plotted by: Daniel Morgan Plot Style: ---- Plot Scale: 1:1 Plot Date: 9/2/2021 1:16 PM Plotter used: Microsoft Print to PDF



1 YARD PIPING PROPOSED PLAN
SCALE: 1" = 10'



2 YARD PIPING ENLARGED PLAN
SCALE: 1" = 5'

SHEET NOTES:

1. EXISTING PIPING INFORMATION IS APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL PIPING AND VERIFYING EXISTING INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTMENTS AND PIPING CONNECTIONS.
2. REFER TO CIVIL DRAWINGS BY M2 GROUP FOR PIPE ROUTING ALONG COX ROAD TO/FROM PHASE 2 DRIP FIELD. SEE D-121 FOR PHASE 2 DRIP FIELD SITE PLAN.
3. REFER TO D-001 THROUGH D-003 FOR ABBREVIATIONS, PIPING SYMBOLS AND LEGEND, PIPING NOTES, AND ADDITIONAL INFORMATION.

idg
INFLO DESIGN GROUP

JASON E. ENGLISH — REGISTERED ENGINEER — AGRICULTURAL — No. 111662 — STATE OF TENNESSEE
6-21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM
3	05/20/21	ISSUED FOR CONSTRUCTION	DBM
4	08/11/21	LT STORAGE MODIFICATIONS	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP PROPOSED PIPING PLAN

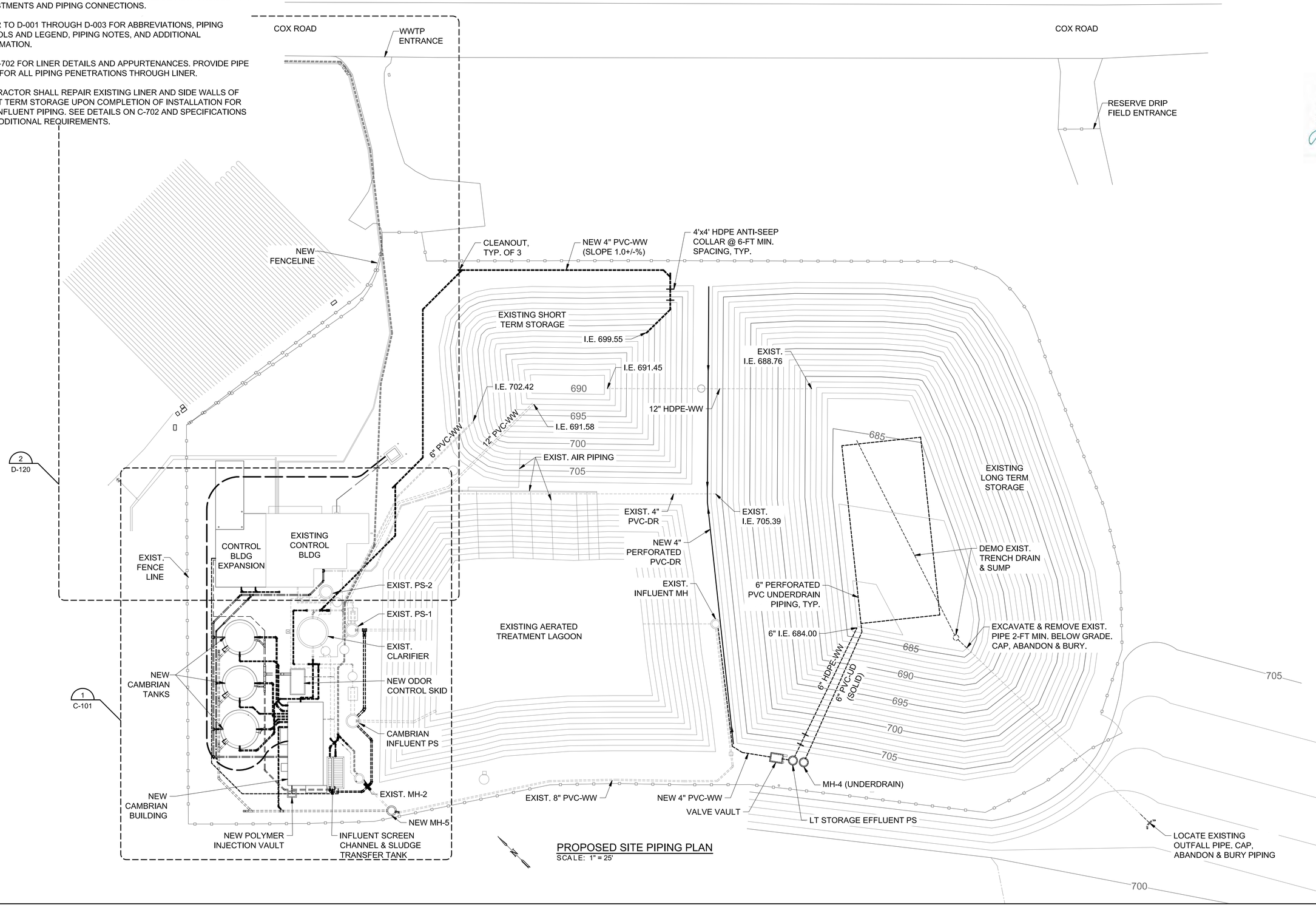
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
C-102

SHEET NUMBER
07

SHEET NOTES:

1. EXISTING PIPING INFORMATION IS APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL PIPING AND VERIFYING EXISTING INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTMENTS AND PIPING CONNECTIONS.
2. REFER TO D-001 THROUGH D-003 FOR ABBREVIATIONS, PIPING SYMBOLS AND LEGEND, PIPING NOTES, AND ADDITIONAL INFORMATION.
3. SEE C-702 FOR LINER DETAILS AND APPURTENANCES. PROVIDE PIPE BOOT FOR ALL PIPING PENETRATIONS THROUGH LINER.
4. CONTRACTOR SHALL REPAIR EXISTING LINER AND SIDE WALLS OF SHORT TERM STORAGE UPON COMPLETION OF INSTALLATION FOR NEW INFLUENT PIPING. SEE DETAILS ON C-702 AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



PROPOSED SITE PIPING PLAN
SCALE: 1" = 25'

idg
INFLO DESIGN GROUP

JASON E. ENGLISH
REGISTERED ENGINEER
AGRICULTURE
BIOSYSTEMS
ENGINEERING
No. 111642
STATE OF TENNESSEE

REV	DATE	DESCRIPTION	BY
0	08/11/21	LT STORAGE MODIFICATIONS	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP PROPOSED SITE PIPING PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
C-103

SHEET NUMBER
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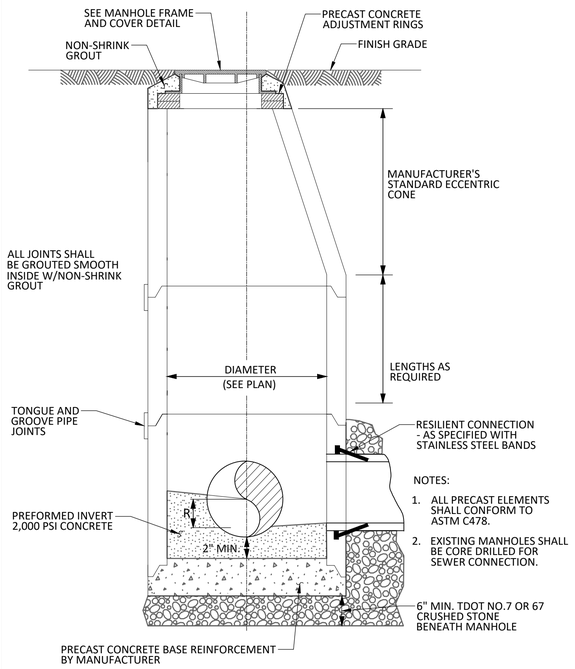
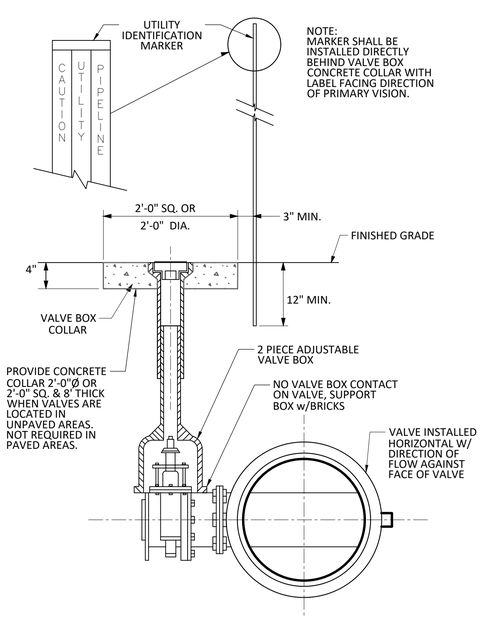
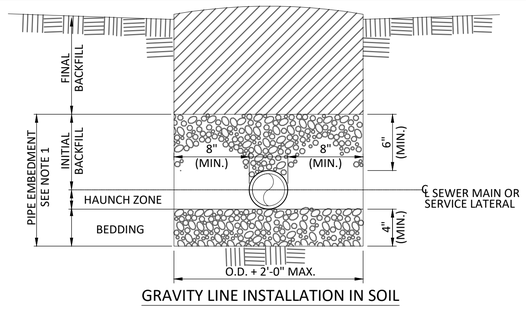


1 STANDARD PRECAST MANHOLE
- SCALE: NONE

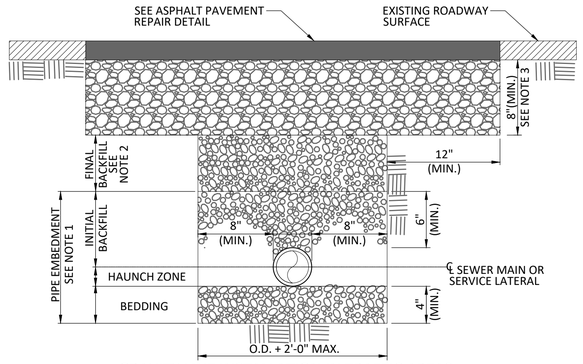


2 STANDARD BURIED VALVE DETAIL
- SCALE: NONE



GRAVITY LINE INSTALLATION IN SOIL

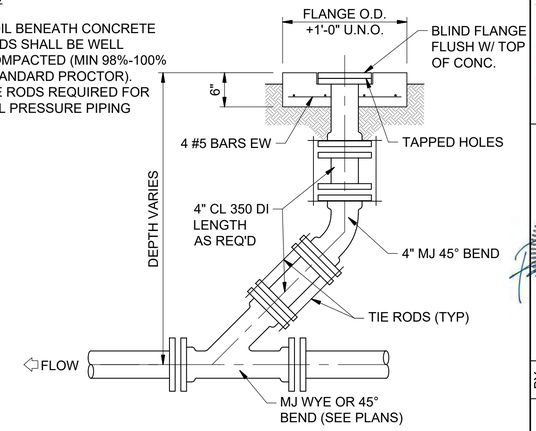
NOTES:
1. PIPE EMBEDMENT & BACKFILL MATERIAL SHALL BE TDOT NO.7 OR 67 CRUSHED STONE.
2. PROVIDE TDOT CLASS 'A' GRADE 'D' CRUSHED STONE UNDER PAVEMENT OR AGGREGATE SURFACE ROADWAY.



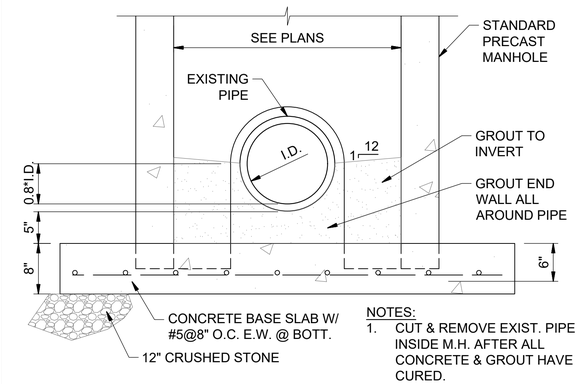
GRAVITY LINE INSTALLATION IN TRAFFIC AREAS

3 STANDARD SEWER MAIN BEDDING AND BACKFILL
- SCALE: NONE

NOTES:
1. SOIL BENEATH CONCRETE PADS SHALL BE WELL COMPACTED (MIN 98%-100% STANDARD PROCTOR).
2. TIE RODS REQUIRED FOR ALL PRESSURE PIPING

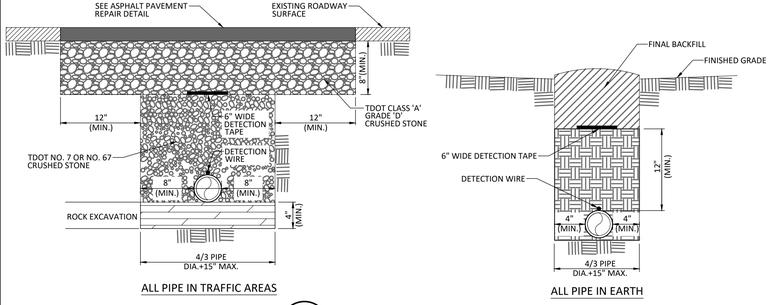


4 TYPICAL CLEANOUT DETAIL
- SCALE: NONE



NOTES:
1. CUT & REMOVE EXIST. PIPE INSIDE M.H. AFTER ALL CONCRETE & GROUT HAVE CURED.

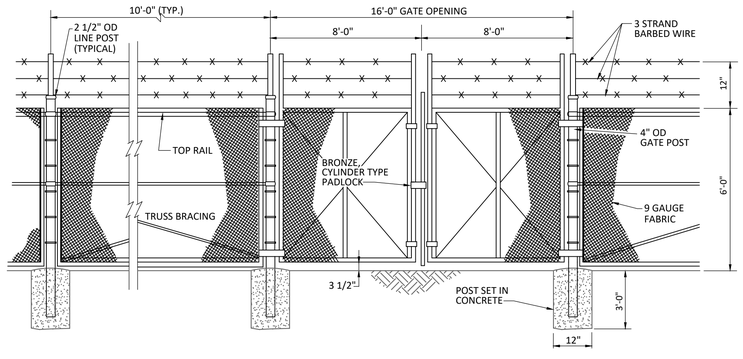
6 PRECAST MANHOLE OVER EXISTING SEWER
- SCALE: NONE



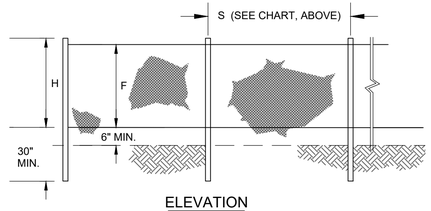
ALL PIPE IN TRAFFIC AREAS

ALL PIPE IN EARTH

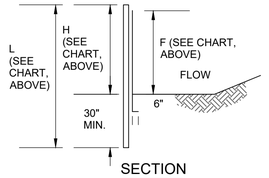
5 STANDARD PRESSURE MAIN BEDDING AND BACKFILL
- SCALE: NONE



7 CHAIN LINK FENCE AND GATE DETAIL
- SCALE: NONE



ELEVATION



SECTION

POST SIZE, MATERIAL AND SPACING CHART		
	WITHOUT BACKING	WITH BACKING
MIN. LENGTH = L	58"	58"
MIN. HEIGHT = H	1'-6"	2'-6"
MAX. SPACING = S	6'-0"	6'-0"
MATERIAL	2.25"x2.25" PINE OR 1.25 LB./FT. STEEL	1.25 LB./FT. STEEL
	WITHOUT BACKING	WITH BACKING
TENSILE STRENGTH (LBS. MIN.) (1) (ASTM D-4632)	WARP - 120 FILL - 100	WARP - 310 FILL - 200
ELONGATION (% MAX.) (ASTM D-4632)	20	---
AOS (APPARENT OPENING SIZE) (MAX. SIEVE SIZE) (ASTM D-4751)	#30	#70
FLOW RATE (GAL./MIN./SQ. FT.) (GDT-87) (MAX.)	4	18
ULTRAVIOLET STABILITY (2) (ASTM D-4632 AFTER 300 HOURS WEATHERING IN ACCORDANCE WITH ASTM D-4355)	70	90
BURSTING STRENGTH (PSI MIN.) (ASTM D-3786 DIAPHRAGM BURSTING STRENGTH TESTER)	250	400
MINIMUM FABRIC WIDTH (INCHES) = F+8"	36	36

(1) MINIMUM ROLL AVERAGE OF FIVE SPECIMENS.
(2) PERCENT OF REQUIRED INITIAL MINIMUM STRENGTH.
(3) PROVIDE WIRE FABRIC BACKING FOR TYPE C.

NOTES:
1. USE SILT FENCE WITHOUT BACKING UNLESS OTHERWISE NOTED.
2. SILT FENCE SHALL BE INSTALLED USING A MECHANICAL TRENCHING MACHINE.
3. FABRIC, IN AREAS WHERE ROCK PROHIBITS PROPER EMBEDMENT, SHALL BE SECURED BY PLACING CLEAN CRUSHED STONE OR SAND ALONG THE BASE OF THE FENCE, 20 POUNDS OF STONE OR SAND, PER FOOT, MIN.
4. FILTER FABRIC SHALL BE FASTENED TO WOODEN POSTS WITH A MINIMUM OF FIVE, 17 GAUGE (¾" WIDE X 1½" LONG) WIRE STAPLES.
5. FILTER FABRIC SHALL BE FASTENED TO STEEL POSTS WITH A MINIMUM OF FIVE WIRES OR PLASTIC ZIP TIES WITH A MINIMUM OF 50 LBS TENSILE STRENGTH.
6. CONTRACTOR SHALL PERIODICALLY REMOVE ACCUMULATED SEDIMENT WHEN SEDIMENT DEPTH REACHES 12".

8 SILT FENCING
- SCALE: NONE

idg
INFLO DESIGN GROUP

BARNEY G. FULLINGTON
REGISTERED ENGINEER
No. 109117
STATE OF TENNESSEE
4/2/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM

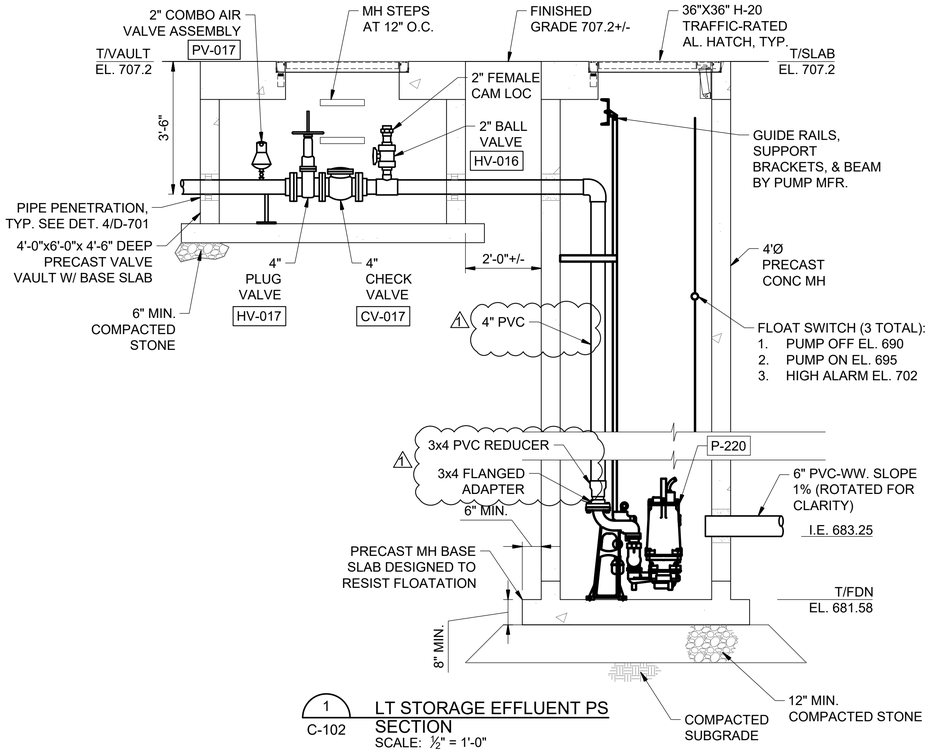
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CIVIL DETAILS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
C-701

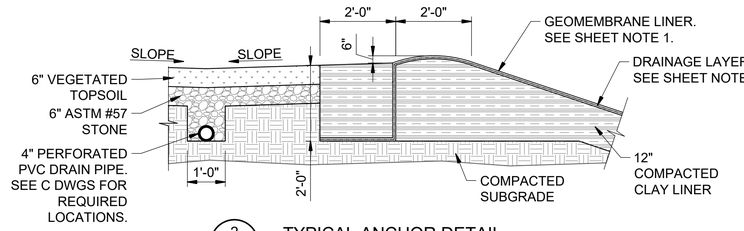
SHEET NUMBER
08



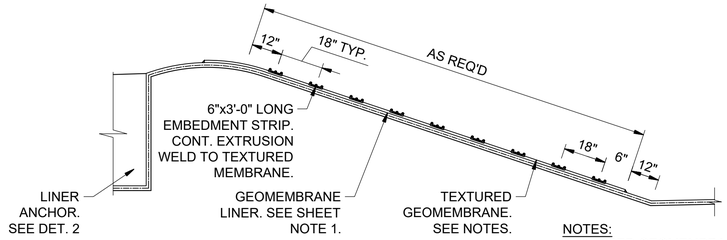
1 C-102 LT STORAGE EFFLUENT PS SECTION
SCALE: ½" = 1'-0"

SHEET NOTES:

1. GEOMEMBRANE LINER SHALL BE HIGH PERFORMANCE, CONDUCTIVE 60-MIL HDPE SMOOTH GEOMEMBRANE. PROVIDE EXPANSION JOINTS AT CORNERS OR AS REQUIRED TO ACCOMMODATE THERMAL EXPANSION & CONTRACTION OF LINER.
2. TEXTURED GEOMEMBRANE FOR SAFETY LADDER SHALL BE HIGH PERFORMANCE, CONDUCTIVE 60-MIL HDPE TEXTURED GEOMEMBRANE.
3. DRAINAGE LAYER SHALL BE DOUBLE-SIDED GEOCOMPOSITE 200-MIL GEONET W/ 6 OZ./SY GEOTEXTILE FABRIC HEAT BONDED TO BOTH SIDES.
4. SEE SPECS FOR ADDITIONAL REQUIREMENTS.

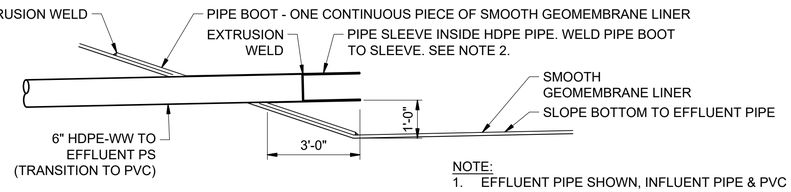


2 - TYPICAL ANCHOR DETAIL
SCALE: NONE



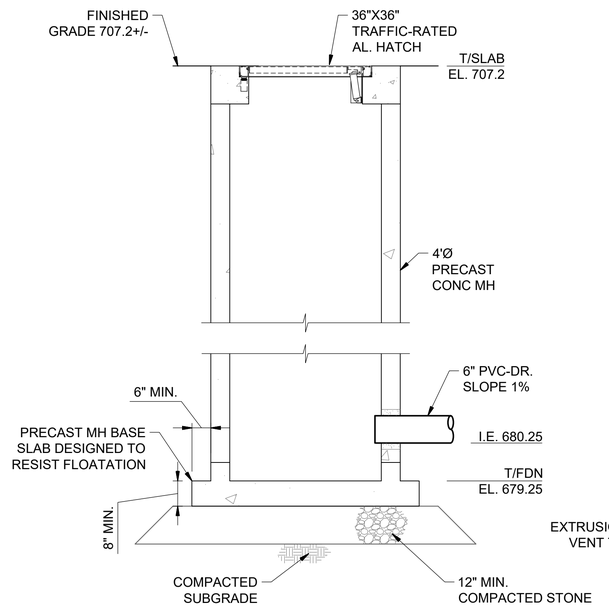
NOTES:
TEXTURED GEOMEMBRANE SHALL BE EXTRUSION WELDED TO SMOOTH LINER W/ 6" LONG WELDS AT 36" O.C. EACH SIDE OF LADDER AND CONT. WELDS TOP & BOTT.

3 - SAFETY LADDER DETAIL
SCALE: NONE

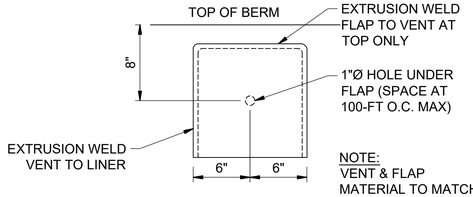


NOTE:
1. EFFLUENT PIPE SHOWN, INFLUENT PIPE & PVC UNDERDRAIN PIPE BOOT DETAILS ARE SIMILAR.
2. PRE-FABRICATE CONNECTION OF PIPE BOOT TO SLEEVE & INSPECT WELD PRIOR TO INSTALLATION.

4 - PIPE BOOT DETAIL
SCALE: ½" = 1'-0"

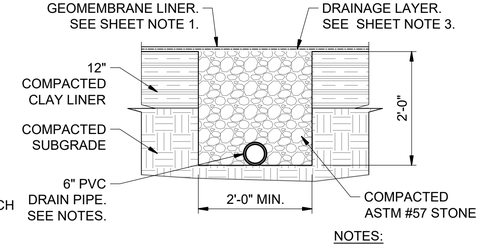


5 C-102 MH-4 UNDERDRAIN SECTION
SCALE: ½" = 1'-0"



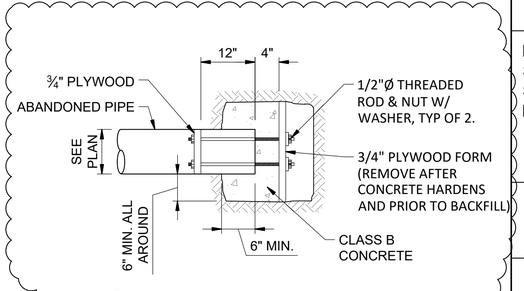
NOTE:
VENT & FLAP MATERIAL TO MATCH LINER MATERIAL.

6 - TYPICAL POCKET VENT DETAIL
SCALE: NONE



NOTES:
1. PROVIDE PERFORATED DRAIN PIPE UNDER BOTTOM OF STORAGE CELL.
2. PROVIDE SOLID DRAIN PIPE BACK TO MH-4.

7 - DRAIN PIPE DETAIL
SCALE: NONE



1 8 - ABANDONED PIPE DETAIL
SCALE: ½" = 1'-0"

REV	DATE	DESCRIPTION	BY
0	08/11/21	LT STORAGE MODIFICATIONS	DBM
1	09/02/21	LT STORAGE MODIFICATIONS	DBM

idg INFLO DESIGN GROUP

JASON E. ENGLISH — REGISTERED ENGINEER — AGRICULTURE — CIVIL — STRUCTURAL — No. 111642 — STATE OF TENNESSEE — 8-2-21

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

LONG TERM STORAGE SECTIONS & DETAILS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
C-702

SHEET NUMBER
--

VALVE & GATE TYPES	
– VALVES –	
ARV	AIR RELEASE VALVE
AVV	AIR VACUUM VALVE
BCV	BALL CHECK VALVE
BFP	BACKFLOW PREVENTER
BPV	BACKPRESSURE VALVE
BV	BALL VALVE
BFV	BUTTERFLY VALVE
CNV	CONE VALVE
CV	CHECK VALVE
DDCV	DOUBLE DISC CHECK VALVE
DV	DIAPHRAGM VALVE
DWV	DIAPHRAGM WEIR VALVE
GBV	GLOBE VALVE
GTV	GATE VALVE
HOV	HYDRAULICALLY OPERATED VALVE
KGV	KNIFE GATE VALVE
MOV	MOTOR OPERATED VALVE
MV	MUD VALVE
NV	NEEDLE VALVE
PHV	PINCH VALVE
POV	PNEUMATICALLY OPERATED VALVE
PRV	PRESSURE REDUCING/RELIEF VALVE
PSV	PRESSURE SUSTAINING VALVE
PV	PLUG VALVE
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
RV	ROTARY VALVE
SRV	SURGE RELIEF VALVE
SV	SOLENOID VALVE
SWCV	SWING CHECK VALVE
TDCV	TILT DISC CHECK VALVE
– GATES –	
DVG	DIVERTER GATE
RG	ROLLER GATE
SLG	SLUICE GATE
SHG	SHEAR GATE
SG	SLIDE GATE
WG	WEIR GATE

PIPE SERVICES/SYSTEM IDENTIFIERS		
*	AA	ACETIC ACID
**	ACS	ACTIVATED CARBON SYSTEM
**	AER	AERATION SYSTEM
*	AG	AMMONIA GAS
*	AIR	AIR
*	AL	ALUMINUM SULFATE
*	ALUM	ALUMINUM CHLORIDE, ALUMINUM HYDROXIDE
*	AM	AMMONIA
*	AS	AQUEOUS AMMONIA (SOLUTION)
	BD	BUILDING DRAIN
*	BW	BACKWASH
*	BWR	BACKWASH RETURN
	CA	COMPRESSED AIR
*	CAUS	CAUSTIC
*	CHLMN	CHLORAMINE
	CHR	CHILLED WATER RETURN
	CHS	CHILLED WATER SUPPLY
**	CI	CHEMICAL INJECTION SYSTEM
**	CIP	CLEAN IN PLACE SYSTEM
*	CIT	CITRIC ACID
*	CL	LIQUID CHLORINE
*	CLDX	CHLORINE DIOXIDE
	CLG	CHLORINE GAS
	CLGV	CHLORINE GAS VACUUM
	CLS	CHLORINE SOLUTION
	CO2	CARBON DIOXIDE
*	COAG	COAGULANT
*	CORH	CORROSION INHIBITOR
*	CS	CHLORINE SOLUTION
*	CUS	COPPER SULFATE
**	CW	CLEARWELL
**	CWS	CHILLED WATER SYSTEM
**	DAF	DISSOLVED AIR FLOTATION SYSTEM
	DCNT	DECANT
*	DR	DRAIN
**	EQ	EQUALIZATION SYSTEM
*	FECL	FERRIC CHLORIDE
*	FES	FERROUS SULFATE
*	FES04	FERRIC SULFATE
*	FIL	FILTRATE / FILTERED
**	FIL	FILTRATION SYSTEM
*	FL	FLUORIDE
**	FLOC	FLOCCULATION SYSTEM

PIPE SERVICES/SYSTEM IDENTIFIERS		
**	FMX	FLASH MIX SYSTEM
	FOR	FUEL OIL RETURN
*	FOS	FUEL OIL SUPPLY
*	FP	FIRE PROTECTION
*	FW	FINISHED WATER
*	GAS	GASOLINE
*	GOX	GASEOUS OXYGEN
*	H2S	HYDROGEN SULFIDE
*	HS	HIGH SERVICE
	HWR	HOT WATER RETURN
*	HWS	HOT WATER SUPPLY
*	IA	INSTRUMENT AIR
**	IES	ION EXCHANGE SYSTEM
	IRR	IRRIGATION
*	LI	LIME
*	LNG	LIQUID NATURAL GAS
*	LOX	LIQUID OXYGEN
*	LPG	LIQUID PROPANE GAS
*	LS	LIME SOLUTION OR SLURRY
**	MEM	MEMBRANE FILTRATION SYSTEM
*	N2	NITROGEN GAS
*	NACL	SALT/SALT SOLUTION
*	NG	NATURAL GAS
	NPW	NON POTABLE WATER
*	O3	OZONE
	OF	OVERFLOW
	OG	OFF GAS
**	OZ	OZONE SYSTEM
	PA	PROCESS AIR
*	PAC	POWDERED ACTIVATED CARBON
*	PACL	POLYALUMINUM CHLORIDE
*	PD	PROCESS DRAIN
*	POA	PHOSPHORIC ACID
*	POT	POTASSIUM PERMANGANATE
*	PRM	PERMEATE
	PW	POTABLE WATER
*	PY	POLYMER
	RC	REJECT CLARIFIER
	RD	ROOF DRAIN
*	REC	RECYCLE
*	REW	REWASH
*	RW	RAW WATER
*	SA	SULFURIC ACID
*	SAMP	SAMPLE
*	SBS	SODIUM BISULFITE
**	SCC	SOLIDS CONTACT CLARIFIER

PIPE SERVICES/SYSTEM IDENTIFIERS		
**	SCR	SOLIDS CONTACT REACTOR SYSTEM
**	SCRN	SCREENINGS
**	SCS	SURGE CONTROL SYSTEM
	SD	STORM DRAIN
**	SED	SEDIMENTATION SYSTEM
	SFTW	SOFTENED WATER
*	SH	SODIUM HYDROXIDE
*	SHCLR	SODIUM HYPOCHLORITE
*	SL	SLUDGE
	SN	SUPERNATANT
*	SP	SODIUM PERMANGANATE
	SS	SANITARY SEWER
	SW	SETTLED WATER
*	TS	THICKENED SLUDGE
	TW	TREATED WATER
*	UD	UNDER DRAINS
**	UV	ULTRAVIOLET LIGHT DISINFECTION SYSTEM
*	UW	UTILITY WATER
	VENT	VENT

* INDICATES BOTH PIPE SERVICE AND SYSTEM IDENTIFIER.

** INDICATES SYSTEM IDENTIFIER ONLY.

NO ASTERISK INDICATES PIPE SERVICE ONLY.

PIPE MATERIAL	
ABS	ACRYLONITRILE BUTADIENE STYRENE
BSP	BLACK STEEL PIPE
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CMP	CORRUGATED METAL PIPE
CP	CONCRETE PIPE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CSP	CARBON STEEL PIPE (SEAMLESS)
CU	COPPER
DIP	DUCTILE IRON PIPE
FRP	FIBERGLASS REINFORCED PLASTIC
GIP	GALVANIZED IRON PIPE
GSP	GALVANIZED STEEL PIPE
HA	HALAR
HASTC	HASTALLOY C
HDPE	HIGH DENSITY POLYETHYLENE
IP	IRON PIPE
PB	POLYBUTYLENE
PCP	PRESTRESSED CONCRETE PRESSURE
PE	POLYETHYLENE
PEX	CROSSLINKED PE
PP	POLYPROPYLENE
PVC	POLYVINYL CHLORIDE
PVDF	POLYVINYLIDENE FLUORIDE
RCP	REINFORCED CONCRETE PIPE
RH	RUBBER HOSE
SST	STAINLESS STEEL PIPE
STL	STEEL (FABRICATED)
TEF	TEFLON
TI	TITANIUM
VCP	VITRIFIED CLAY PIPE

UNIT DESIGNATION	
BC	BRIDGE CRANE
BFP	BELT FILTER PRESS
BL	BLOWER
BLR	BOILER
CC	CALIBRATION COLUMN
CCR	CARBON COLUMN REACTOR
CENT	CENTRIFUGE
CH	CHILLER
CHLR	CHLORINATOR
CLAS	CLASSIFIER
CNVR	CONVEYOR
COMP	COMPRESSOR
DC	DAVIT CRANE
DIFF	DIFFUSER
DRY	DRYER
DTK	DAY TANK
DVG	DIVERTER GATE
EDU	EDUCTOR
F	FAN
FDR	FEEDER
FLTR	FILTER
FP	FILTER PRESS
GBT	GRAVITY BELT THICKENER
HEX	HEAT EXCHANGER
HST	HOIST
MRL	MONORAIL
MX	MIXER
P	PUMP
PD	PULSATION DAMPENER
PE	PROCESS EQUIPMENT
PR	PRESS
R	REACTOR
RCVR	RECEIVER
RDT	ROTARY DRUM THICKENER
SAMP	SAMPLER
SCRB	SCRUBBER
SCRN	SCREEN
SMX	STATIC MIXER
STLR	TUBE OR PLATE SETTLERS
STN	STRAINER
TC	TOWER/COLUMNS
TCENT	THICKENING CENTRIFUGE
TK	TANK
VIB	VIBRATOR

JOINT TYPE	
CC	CORRUGATED COUPLING
CPL	COUPLING
FCA	FLANGED COUPLING ADAPTOR
FLG	FLANGE
FREJ	FLEXIBLE RUBBER EXPANSION JOINT
GVD	GROOVED
MJ	MECHANICAL JOINT
NPT	THREADED

JOINT TYPE	
OR	O RING
PE	PLAIN END
PO	PUSH ON
RFA	RESTRAINED FLANGE ADAPTOR
RJ	RESTRAINED JOINT
SW	SOLVENT WELD
SWT	SWEAT

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PROCESS ABBREVIATIONS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-001

SHEET NUMBER
09

PIPING AND VALVE SYMBOLS

- GATE VALVE
- GLOBE VALVE
- BALL VALVE
- CHECK VALVE
- TWIN DISC CHECK VALVE
- CUSHIONED SWING CHECK VALVE
- BUTTERFLY VALVE
- PLUG VALVE
- CONE VALVE
- DIAPHRAGM
- ANGLE VALVE
- THREE WAY VALVE
- PRESSURE REDUCING VALVE
- BACKFLOW PREVENTER
- SOLENOID OPERATED VALVE
- BACK PRESSURE VALVE
- PRESSURE RELIEF OR SAFETY VALVE
- AIR RELEASE VALVE
- KNIFE GATE VALVE
- NEEDLE VALVE
- FOOT VALVE
- MUD VALVE
- POST INDICATING VALVE
- PINCH VALVE
- DIAPHRAGM WEIR VALVE
- PNEUMATIC DIAPHRAGM OPERATED VALVE
- ELECTRIC MOTOR OPERATED VALVE
- FLOAT VALVE
- PRESSURE CONTROL VALVE
- WEIR GATE
- SLIDE GATE
- SLUICE GATE
- TELESCOPING VALVE
- SPACE HEATER/HEAT TRACING
- ELECTRIC MOTOR
- AUTOMATIC AIR VENT
- MANUAL AIR VENT
- THERMOWELL
- CAP
- STEAM TRAP
- FLEXIBLE CONNECTION
- EXPANSION JOINT
- REDUCER
- UNION
- WYE STRAINER
- COUPLING (TRANSITION)
- QUICK COUPLING
- CALIBRATION CHAMBER
- WATER HAMMER ARRESTOR
- ROTAMETER
- PULSATION DAMPER
- EDUCTOR
- INJECTOR
- STATIC METER
- MIXER
- V-NOTCH WEIR
- DRAIN
- AIR SET
- INSERTION INSTRUMENT
- AUTOMATIC CONDENSATE TRAP
- RUPTURE DISK (ON PRESSURE)
- RUPTURE DISK (ON VACUUM)
- FLEXIBLE HOSE WITH QUICK COUPLINGS
- FLANGES
- PRESSURE INSTRUMENT PROTECTOR
- PARTICULATE FILTER
- DESICCANT DRYER
- SEPARATOR
- BASKET STRAINER
- BUBBLER SYSTEM

PUMP SYMBOLS

- CENTRIFUGAL PUMP
- SPLIT CASE PUMP
- SUBMERSIBLE OR SUMP PUMP
- METERING PUMP
- PROGRESSIVE CAVITY PUMP
- DIAPHRAGM PUMP
- VERTICAL TURBINE PUMP
- ROTARY LOBE PUMP
- PISTON PUMP
- ROTOR PUMP
- HOSE PUMP

BLOWER/COMPRESSOR SYMBOLS

- CENTRIFUGAL COMPRESSOR
- CENTRIFUGAL BLOWER
- POSITIVE DISPLACEMENT COMPRESSOR
- POSITIVE DISPLACEMENT BLOWER

FLOW ELEMENT SYMBOLS

- VORTEX FLOW METER
- CORIOLIS FLOW METER
- PROPELLER FLOW METER
- ORIFICE PLATE
- PARSHALL FLUME
- MAGNETIC FLOW METER
- FLOW TUBE (VENTURI)
- DISC FLOW METER

LINE SYMBOLS

- PRIMARY PROCESS LINE
- SECONDARY PROCESS LINE
- EXISTING
- EXISTING TO BE REMOVED
- EXISTING TO BE ABANDONED
- HYDRAULIC
- FUTURE
- PIPE SPEC CHANGE (PVC DIP)
- SHEET CONTINUATION
- CONTINUATION ELSEWHERE, SAME SHEET (XX)

EQUIPMENT SYMBOLS

NEW EQUIPMENT | EXIST EQUIPMENT | FUTURE EQUIPMENT

PIPE LINE IDENTIFICATION

ND MAT-SSS
- SSS – PIPE SERVICE
- MAT – PIPE MATERIAL
- ND – NOMINAL PIPE DIAMETER

NOTES:

1. PIPE MATERIAL AND PIPE SERVICE TABLES ARE SHOWN ON PROCESS LEGEND.

EQUIPMENT/UNIT IDENTIFICATION

UD-UN
- UN – UNIT NUMBER
- UD – UNIT DESIGNATION (EQUIP. TYPE)

NOTES:

1. UNIT DESIGNATOR TABLE IS SHOWN ON PROCESS LEGEND.

HEAT TRACE

HT-FF##
- ## – TAG (SEQUENTIAL NUMBER)
- FF – FACILITY NUMBER

NOTES:

1. THIS IS A STANDARD LEGEND SHEET. ALL INFORMATION ON THIS LEGEND MAY NOT BE USED.

INFLO DESIGN GROUP

BARNEY G. FULLINGTON – REGISTERED ENGINEER – NO. 101111 – STATE OF TENNESSEE – 4/2/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
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2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PROCESS LEGEND & SYMBOLS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-002

SHEET NUMBER
10

PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		– EXISTING PIPE
		– DEMOLISHED PIPE
		– ABANDON PIPE
		– NEW PIPE
		– WELDED JOINT
		– GROOVED END JOINT
		– FLANGED JOINT
		– MECHANICAL JOINT
		– PUSH ON JOINT
		– BALL JOINT
		– FLANGE ADAPTOR
		– RESTRAINED FLANGE ADAPTOR
		– EXPANSION COUPLING
		– 90° BEND
		– 90° BEND DOWN
		– 90° BEND UP
		– 45° BEND
		– 45° BEND DOWN

DOUBLE LINE	SINGLE LINE	
		– 45° BEND UP
		– TEE
		– CROSS
		– TEE DOWN
		– TEE OR CROSS UP
		– WYE
		– WYE DOWN
		– WYE UP
		– CONCENTRIC REDUCER
		– ECCENTRIC REDUCER
		– BELLOWS EXPANSION JOINT – ELASTOMERIC
		– BELLOWS EXPANSION JOINT – METAL

NOTE:

1. DOUBLE LINE FITTINGS ARE FLANGED. OTHER CONNECTIONS ARE SHOWN SIMILAR ON THE DRAWINGS.
2. SINGLE LINE FITTINGS ARE GENERIC ONLY.

VALVE SYMBOLS

DOUBLE LINE	SINGLE LINE	
		– BALL VALVE
		– BUTTERFLY VALVE
		– PLUG VALVE
		– GATE VALVE
		– CHECK VALVE
		– GLOBE VALVE
		– KNIFE GATE VALVE
		– PINCH VALVE
		– DIAPHRAGM VALVE
	S	– SOLENOID VALVE
		– NEEDLE VALVE
		– FLUSHING CONNECTION W/QUICK DISCONNECT

NOTE:

1. THIS IS A STANDARD LEGEND SHEET. ALL INFORMATION ON THIS LEGEND MAY NOT BE USED.

GENERAL NOTES:

1. LAY GRAVITY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
2. SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT PIPING, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT PIPE SEGMENTS.
3. INDICATED LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS ARE APPROXIMATE. CONTRACTOR SHALL DESIGN SUPPORTS AS SPECIFIED.
4. ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL UNLESS INDICATED OTHERWISE.
5. ALL FLEXIBLE CONNECTORS AND COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST PROTECTION AS SPECIFIED UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR 110% OF TEST PRESSURES SPECIFIED.
6. SYMBOLS, LEGENDS AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE DRAWINGS WHEREVER APPLICABLE.
7. ALL BURIED PIPING SPECIFIED TO BE PRESSURE TESTED, EXCEPT FLANGED, WELDED OR SCREWED PIPING, SHALL BE PROVIDED WITH THRUST RESTRAINTS AS SPECIFIED AT ALL DIRECTION CHANGES, SIZE CHANGES, AND DEAD ENDS UNLESS OTHERWISE NOTED. SEE THRUST RESTRAINT DETAILS (DETAIL SHEETS) AND NOTES ON THIS SHEET. ALL CONNECTIONS TO EXISTING PIPE SHALL BE MADE WITH RETAINER GLANDS.
8. NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS IS ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND PROCESS EQUIPMENT.
9. WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER.
10. ALL PIPELINES LEAVING STRUCTURES SHALL INCORPORATE FLEXIBILITY FEATURES AS SPECIFIED IN SECTION 02610 AND SECTION 15062. IN SOME CASES, PIPING JOINTS OUTSIDE FACILITIES ARE SHOWN ON DRAWINGS. PIPING FLEXIBILITY FEATURES SHALL BE INCORPORATED AS SPECIFIED REGARDLESS OF WHETHER OR NOT THEY ARE SHOWN ON A DRAWING.
11. ALL PROCESS PIPING IS TO BE LABELED IN ACCORDANCE WITH ASME A131 AND SECTION 09900 OF THE SPECIFICATIONS.
12. VALVE SYMBOLS SHOWN ON THIS SHEET ARE APPLICABLE TO STANDARD DETAILS

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BARNEY G. FULLINGTON REGISTERED ENGINEER NO. 109119 STATE OF TENNESSEE 4/2/21

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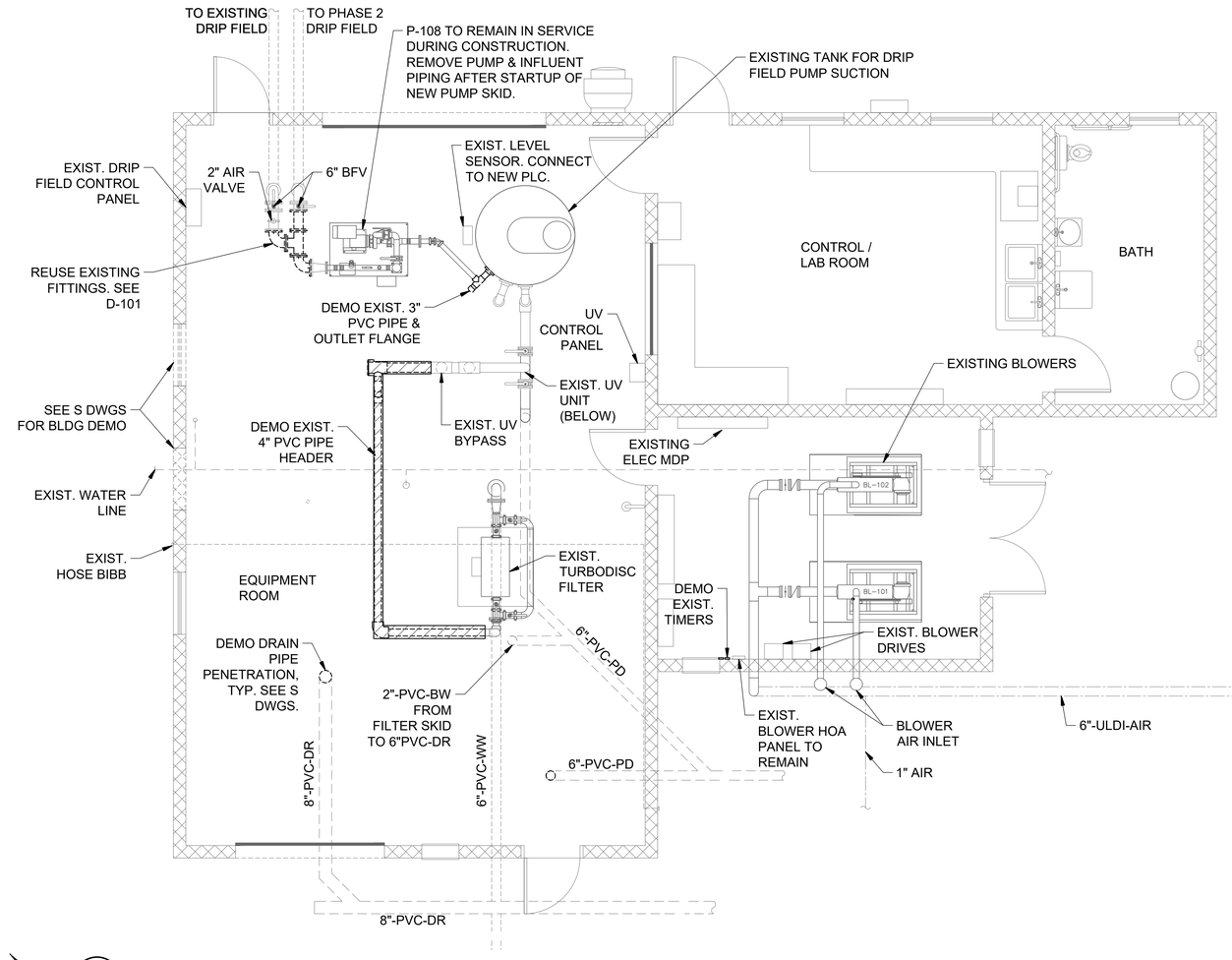
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PROCESS SYMBOLS & NOTES

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-003

SHEET NUMBER
11



1 CONTROL BUILDING PLAN
SCALE: ¼" = 1'-0"

SHEET NOTES:

1. CONTRACTOR SHALL DEMOLISH AND ABANDON PIPING AS CONSTRUCTION PROGRESSES. CONTRACTOR SHALL NOT DEMOLISH OR ABANDON ANYTHING WITHOUT PRIOR APPROVAL OF OWNER/ENGINEER.
2. CONTRACTOR SHALL OBTAIN APPROVAL FROM OWNER PRIOR TO OPERATING ANY VALVES AND/OR BYPASSES WHICH MAY BE REQUIRED TO PERFORM THE WORK.

idg INFLO DESIGN GROUP

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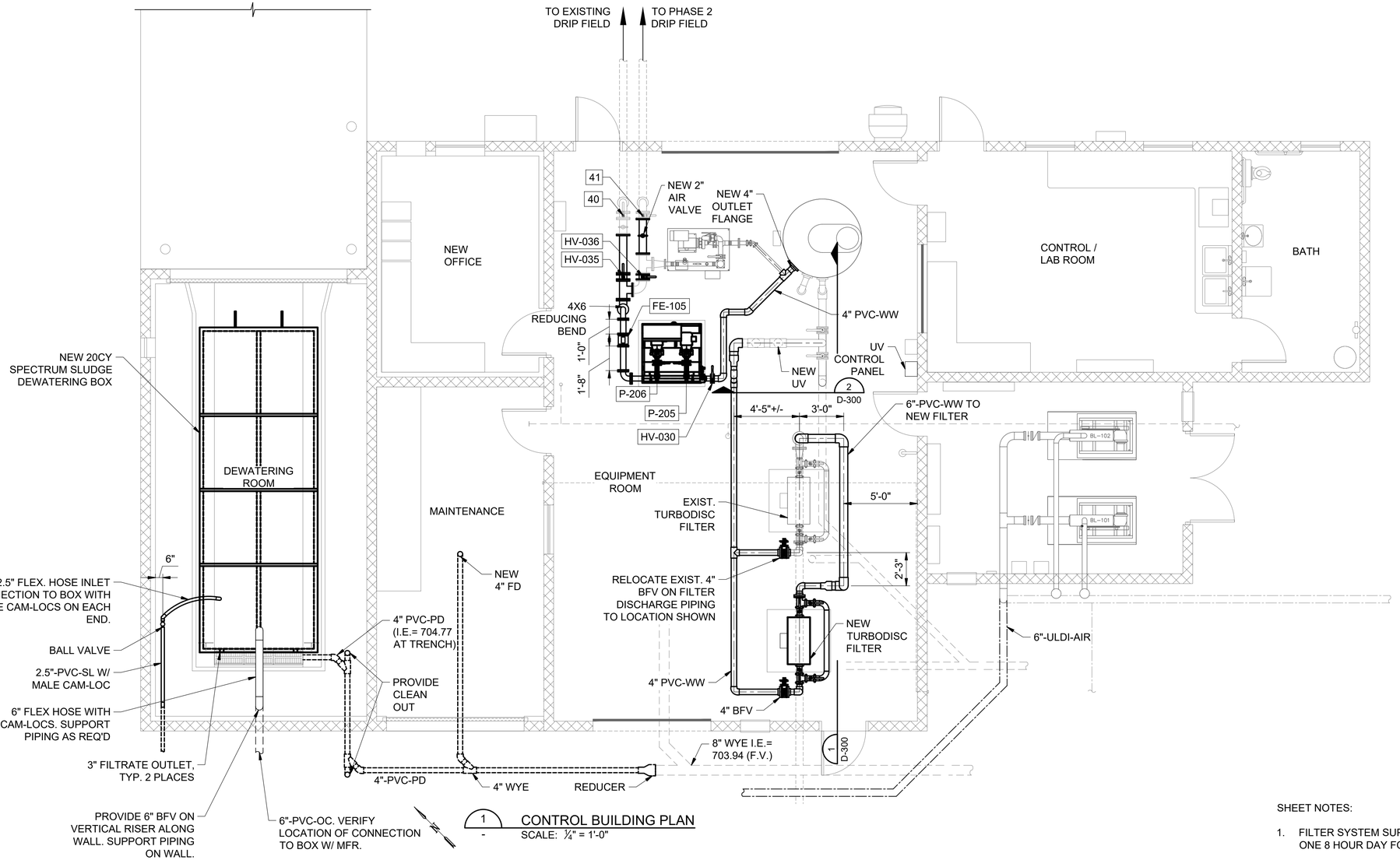
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONTROL BUILDING DEMOLITION PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-100

SHEET NUMBER
12



1 CONTROL BUILDING PLAN
SCALE: ¼" = 1'-0"

SHEET NOTES:

1. FILTER SYSTEM SUPPLIER TO PROVIDE ONE TRIP AND ONE 8 HOUR DAY FOR STARTUP AND TRAINING.
2. UV SYSTEM SUPPLIER TO PROVIDE ONE TRIP AND TWO 8 HOUR DAYS FOR STARTUP AND TRAINING.
3. PUMP SYSTEM SUPPLIER TO PROVIDE ONE TRIP AND ONE 8 HOUR DAY FOR TRAINING AND CERTIFICATIONS.

idg INFLO DESIGN GROUP

BARNEY G. FULLINGTON REGISTERED ENGINEER No. 104117 STATE OF TENNESSEE
4/2/21

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONTROL BUILDING PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-101

SHEET NUMBER
13

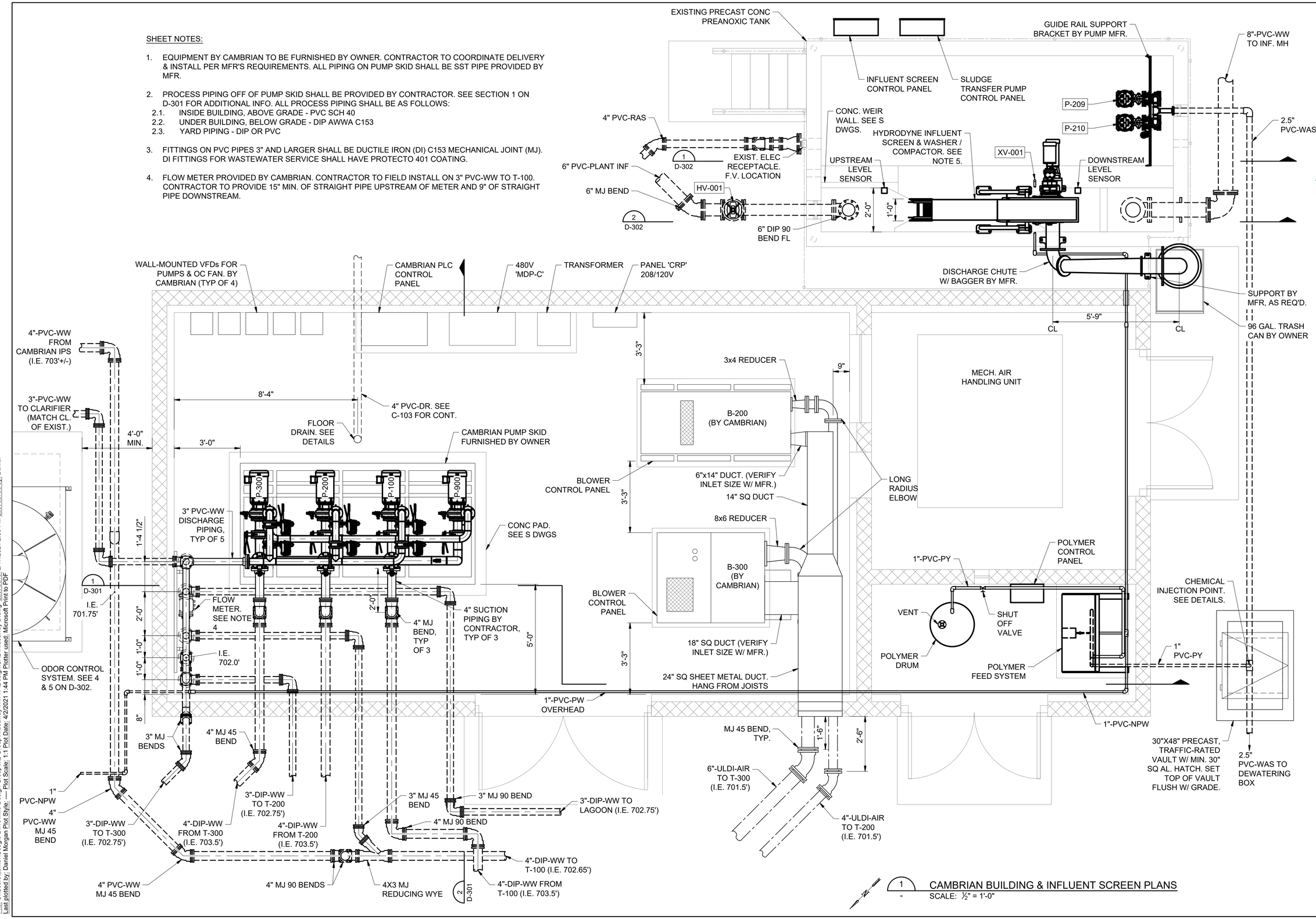
SHEET NOTES:

1. EQUIPMENT BY CAMBRIAN TO BE FURNISHED BY OWNER. CONTRACTOR TO COORDINATE DELIVERY & INSTALL PER MFR'S REQUIREMENTS. ALL PIPING ON PUMP SKID SHALL BE SST PIPE PROVIDED BY MFR.

2. PROCESS PIPING OFF OF PUMP SKID SHALL BE PROVIDED BY CONTRACTOR. SEE SECTION 1 ON D-301 FOR ADDITIONAL INFO. ALL PROCESS PIPING SHALL BE AS FOLLOWS:
   2.1. INSIDE BUILDING, ABOVE GRADE - PVC SCH 40
   2.2. UNDER BUILDING, BELOW GRADE - DIP AWWA C153
   2.3. YARD PIPING - DIP OR PVC

3. FITTINGS ON PVC PIPES 3" AND LARGER SHALL BE DUCTILE IRON (DI) C153 MECHANICAL JOINT (MJ). DI FITTINGS FOR WASTEWATER SERVICE SHALL HAVE PROTECTO 401 COATING.

4. FLOW METER PROVIDED BY CAMBRIAN. CONTRACTOR TO FIELD INSTALL ON 3" PVC-WW TO T-100. CONTRACTOR TO PROVIDE 15" MIN. OF STRAIGHT PIPE UPSTREAM OF METER AND 9" OF STRAIGHT PIPE DOWNSTREAM.



1 - CAMBRIAN BUILDING & INFLUENT SCREEN PLANS
SCALE: ½" = 1'-0"

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WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

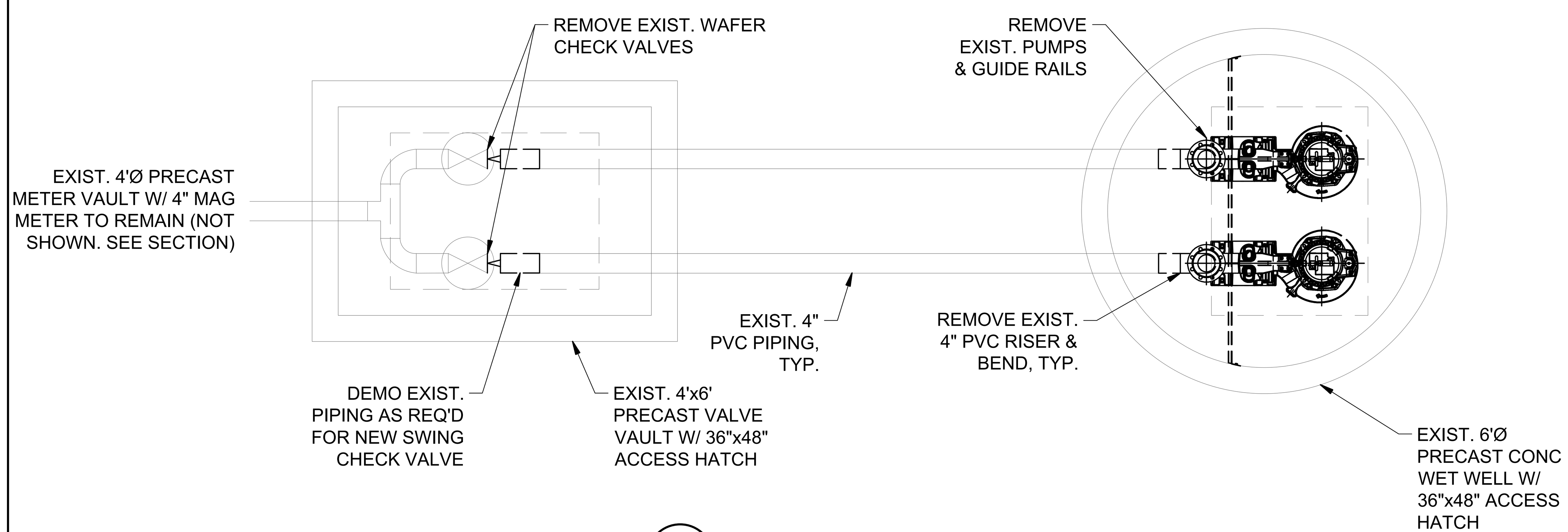
CAMBRIAN BUILDING & INFLUENT SCREEN PLANS

THIS LINE IS 1" AT FULL SIZE

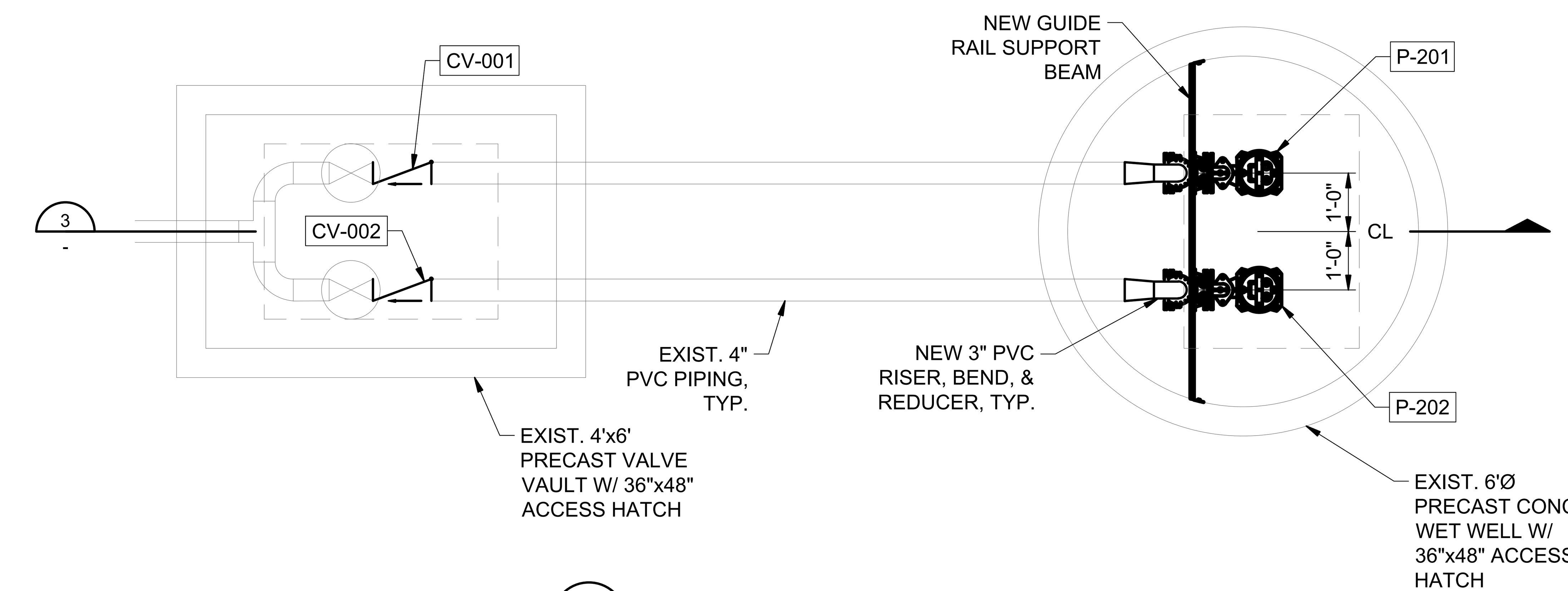
DRAWING NUMBER
D-111

SHEET NUMBER
14

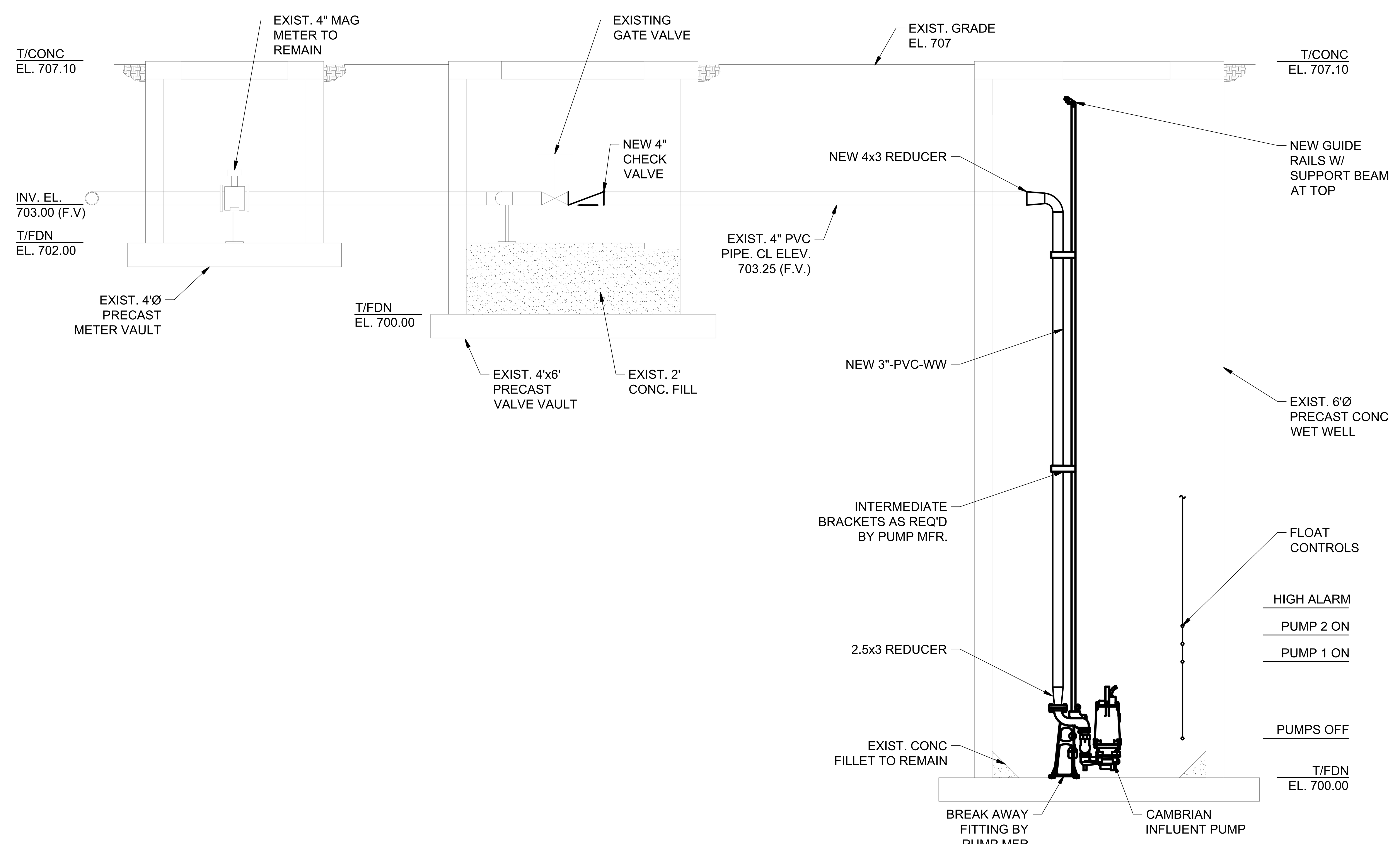
Exhibit CA DR 1-23
TPUC Dkt. 23-00037



1 - CAMBRIAN INFLUENT PS DEMO PLAN
SCALE: ½" = 1'-0"



2 - CAMBRIAN INFLUENT PS PROPOSED PLAN
SCALE: ½" = 1'-0"



3 - CAMBRIAN INFLUENT PS PROPOSED SECTION
SCALE: ½" = 1'-0"

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HIDEAWAY WWTP PHASE II EXPANSION
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DISCOVERY LAND COMPANY

CAMBRIAN INFLUENT PS PLANS & SECTION

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-115

SHEET NUMBER
15

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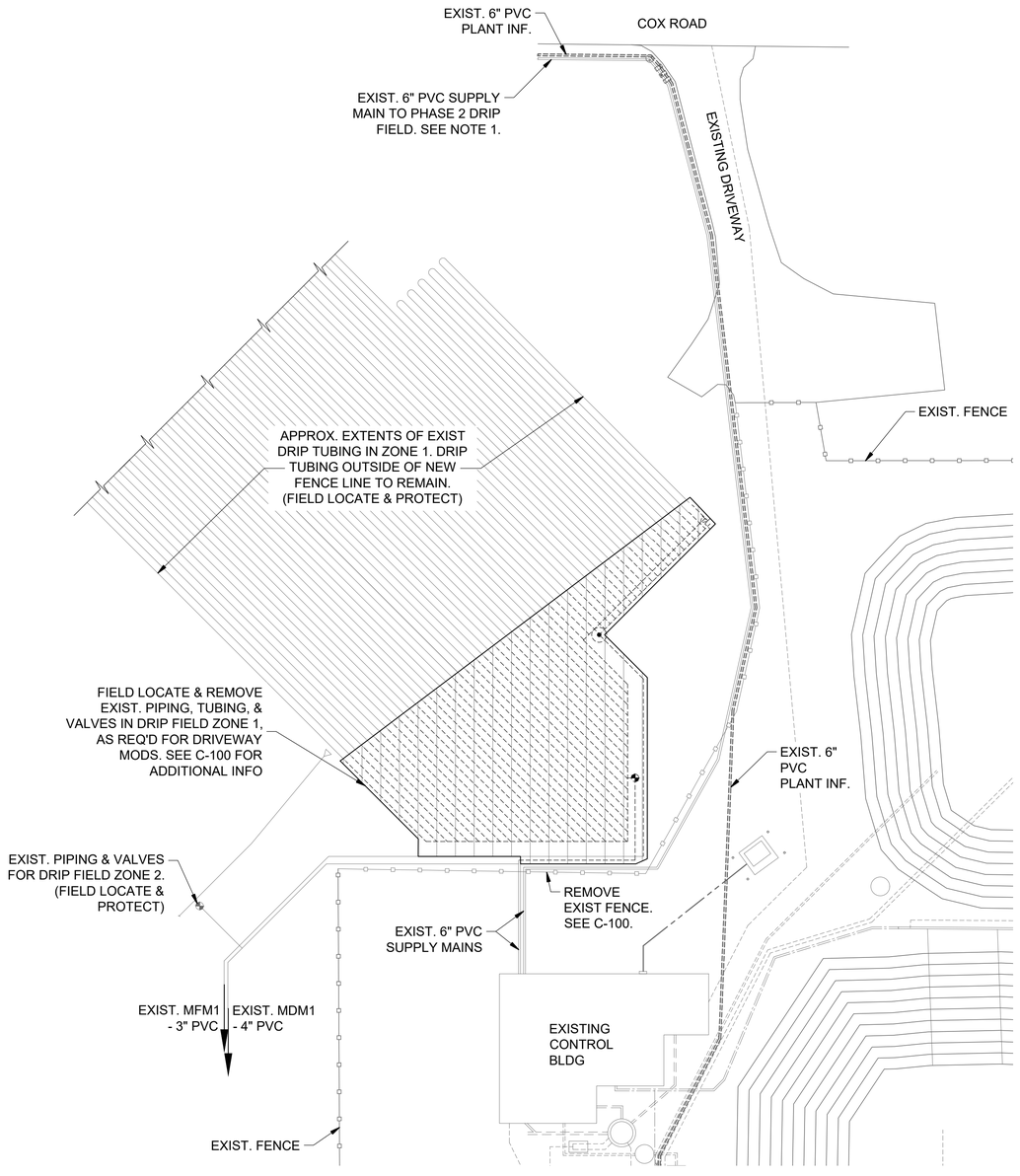
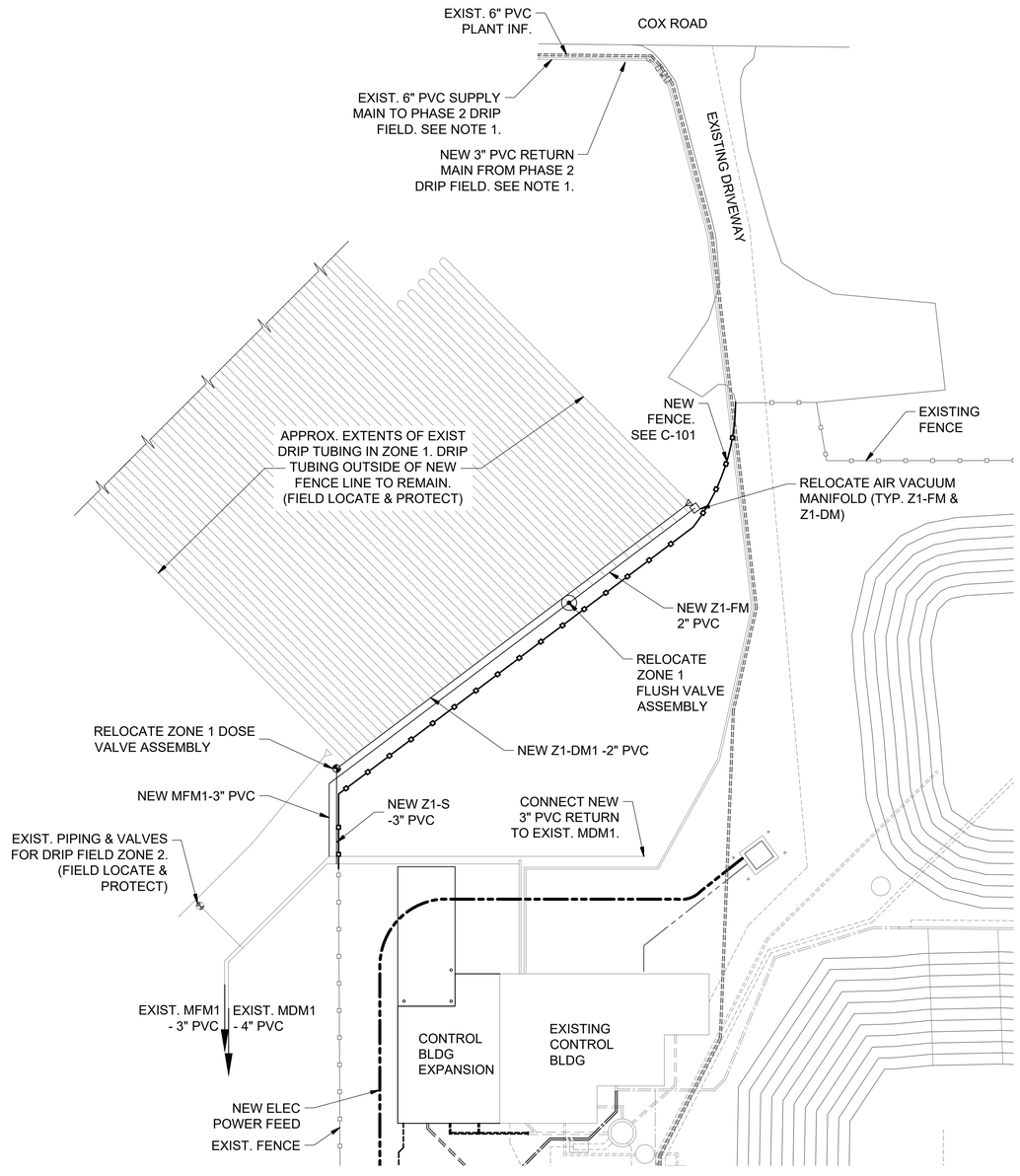


1 - DRIP FIELD MODIFICATIONS ZONE 1 DEMO PLAN
SCALE: 1" = 20'



2 - DRIP FIELD MODIFICATIONS ZONE 1 NEW PLAN
SCALE: 1" = 20'

NOTES:

1. REFER TO CIVIL DRAWINGS BY M2 GROUP FOR PIPE ROUTING ALONG COX ROAD. SEE D-121 FOR PHASE 2 DRIP FIELD.
2. DRIP FIELD PIPING, TUBING, AND VALVES ARE REPRESENTATIVE OF PORTIONS OF ZONES 1 & 2 FROM EXISTING INSTALLATION. CONTRACTOR SHALL REFER TO PHASE 1 DRIP IRRIGATION DRAWINGS FOR ADDITIONAL INFO. FIELD VERIFY LOCATIONS AND EXTENTS DURING CONSTRUCTION.
3. SEE D-510 FOR DRIP IRRIGATION SYSTEM DETAILS AND REQUIREMENTS.
4. PRIOR TO REUSING ZONE 1 FOR DRIP IRRIGATION, CONTRACTOR SHALL FLUSH ZONE. REFER TO SPECIFICATION SECTION 01 92 10 FOR ADDITIONAL REQUIREMENTS.
5. EXISTING DRIP IRRIGATION VALVES SHALL BE REUSED & RELOCATED AS INDICATED. EXISTING DRIP IRRIGATION TUBING & PIPING WHICH IS REMOVED MAY BE REUSED, WHERE PRACTICAL, FOR NEW TUBING & PIPING.

idg INFLO DESIGN GROUP

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

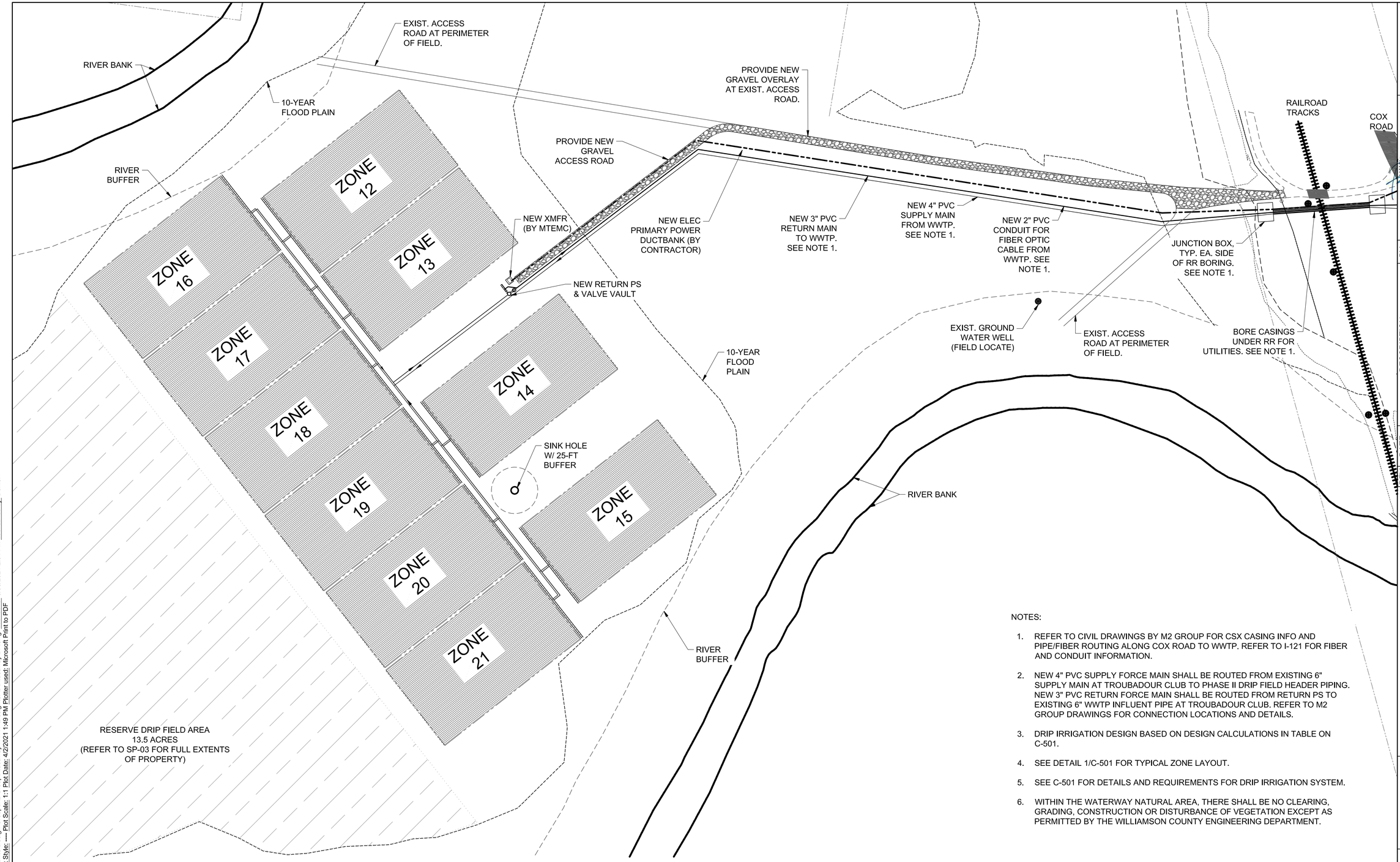
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP DRIP FIELD PLANS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-120

SHEET NUMBER
16



1 - PHASE 2 DRIP FIELD ZONE LAYOUT PLAN
SCALE: 1" = 60'

NOTES:

1. REFER TO CIVIL DRAWINGS BY M2 GROUP FOR CSX CASING INFO AND PIPE/FIBER ROUTING ALONG COX ROAD TO WWTP. REFER TO I-121 FOR FIBER AND CONDUIT INFORMATION.
2. NEW 4" PVC SUPPLY FORCE MAIN SHALL BE ROUTED FROM EXISTING 6" SUPPLY MAIN AT TROUBADOUR CLUB TO PHASE II DRIP FIELD HEADER PIPING. NEW 3" PVC RETURN FORCE MAIN SHALL BE ROUTED FROM RETURN PS TO EXISTING 6" WWTP INFLUENT PIPE AT TROUBADOUR CLUB. REFER TO M2 GROUP DRAWINGS FOR CONNECTION LOCATIONS AND DETAILS.
3. DRIP IRRIGATION DESIGN BASED ON DESIGN CALCULATIONS IN TABLE ON C-501.
4. SEE DETAIL 1/C-501 FOR TYPICAL ZONE LAYOUT.
5. SEE C-501 FOR DETAILS AND REQUIREMENTS FOR DRIP IRRIGATION SYSTEM.
6. WITHIN THE WATERWAY NATURAL AREA, THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION EXCEPT AS PERMITTED BY THE WILLIAMSON COUNTY ENGINEERING DEPARTMENT.

idg
INFLO DESIGN GROUP

BARNEY G. FULLINGTON
REGISTERED ENGINEER
NO. 108117
STATE OF TENNESSEE
3/2/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

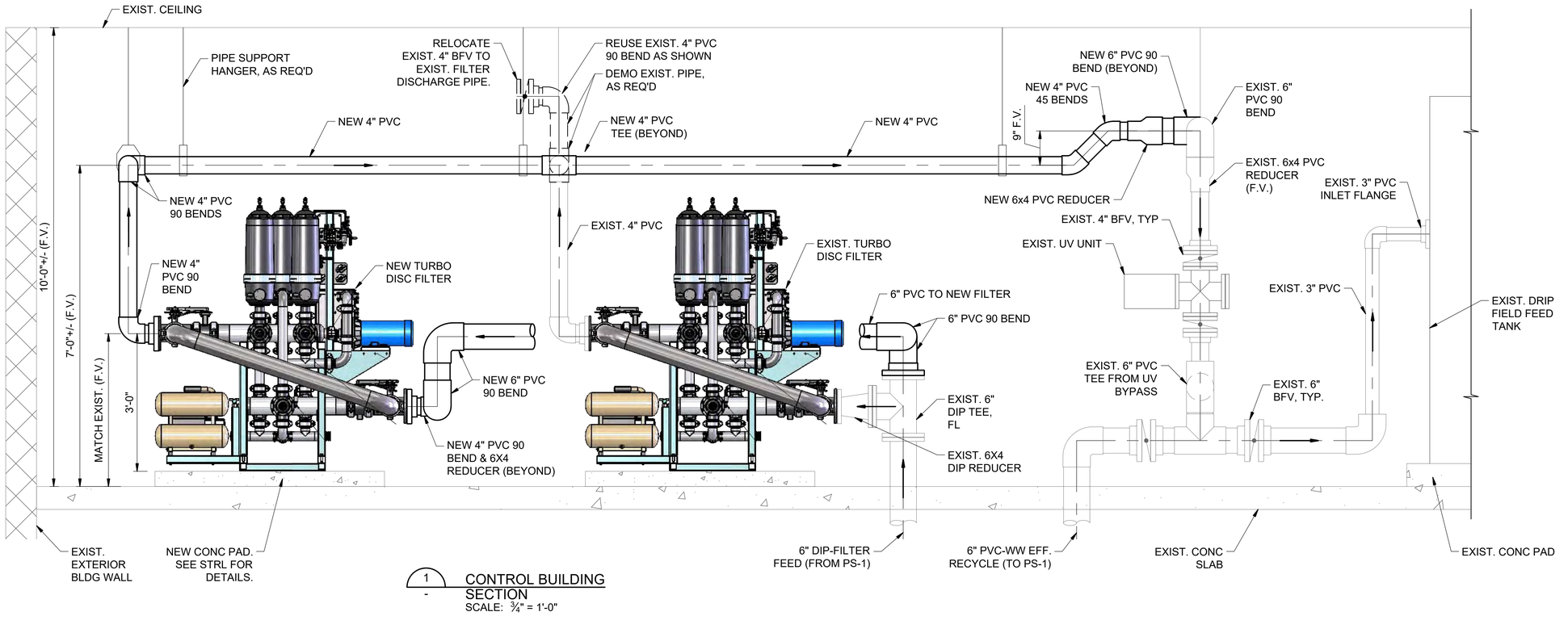
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PHASE 2 DRIP FIELD ZONE LAYOUT

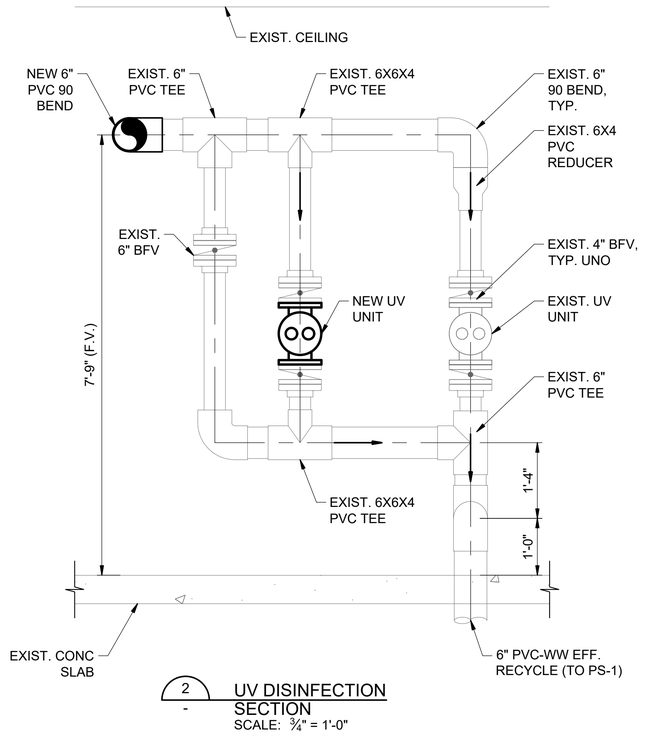
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-121

SHEET NUMBER
17



1 - CONTROL BUILDING SECTION
SCALE: ¾" = 1'-0"



2 - UV DISINFECTION SECTION
SCALE: ¾" = 1'-0"

SHEET NOTES:

1. PIPE SUPPORTS NOT SHOWN. PROVIDE PIPE SUPPORTS AS REQ'D.
2. CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT FOR NEW PIPING CONNECTIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTMENTS AND CONNECTIONS, AS REQUIRED.
3. ⟵ INDICATES NORMAL FLOW OF WASTEWATER THROUGH SYSTEM.

idg
INFLO DESIGN GROUP

BARNEY G. FULLINGTON
REGISTERED ENGINEER
No. 104178
STATE OF TENNESSEE
4/2/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

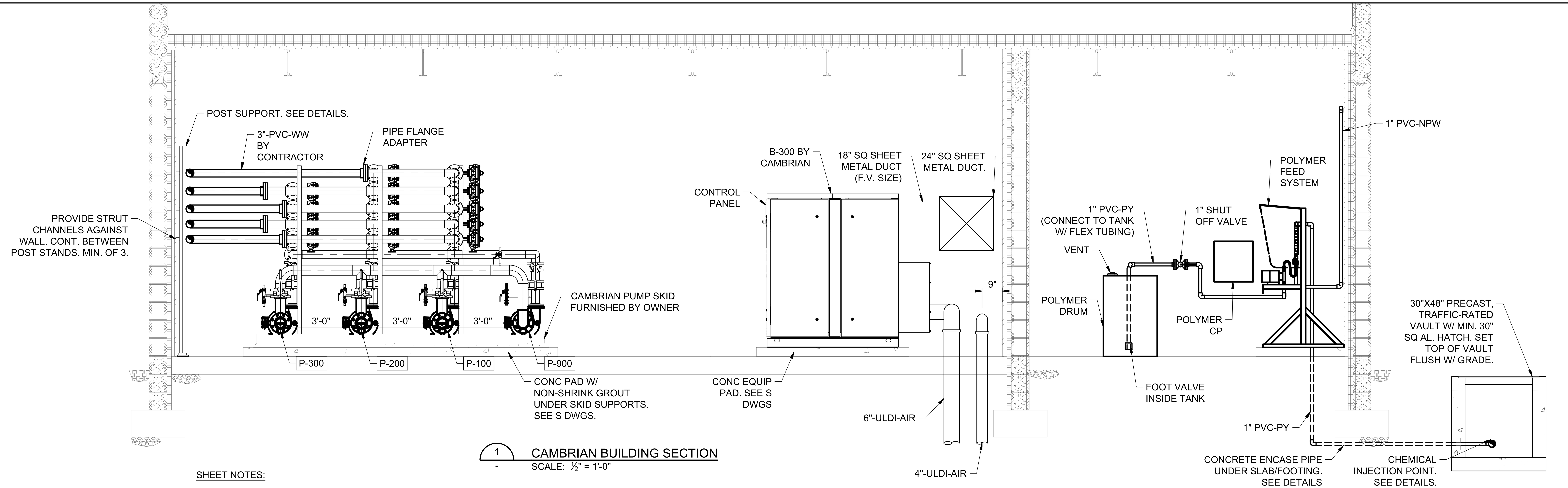
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONTROL BUILDING SECTIONS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-300

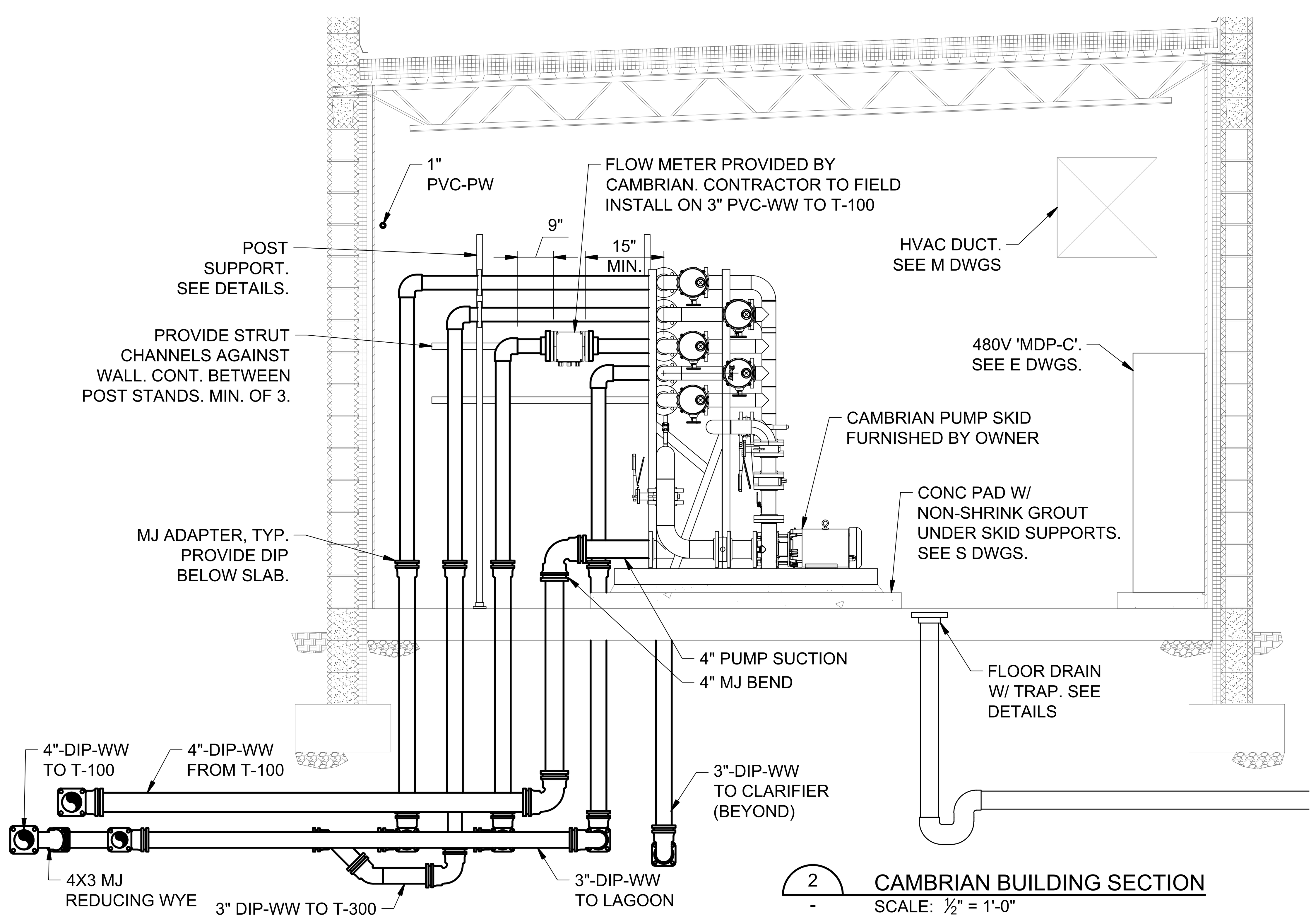
SHEET NUMBER
18A



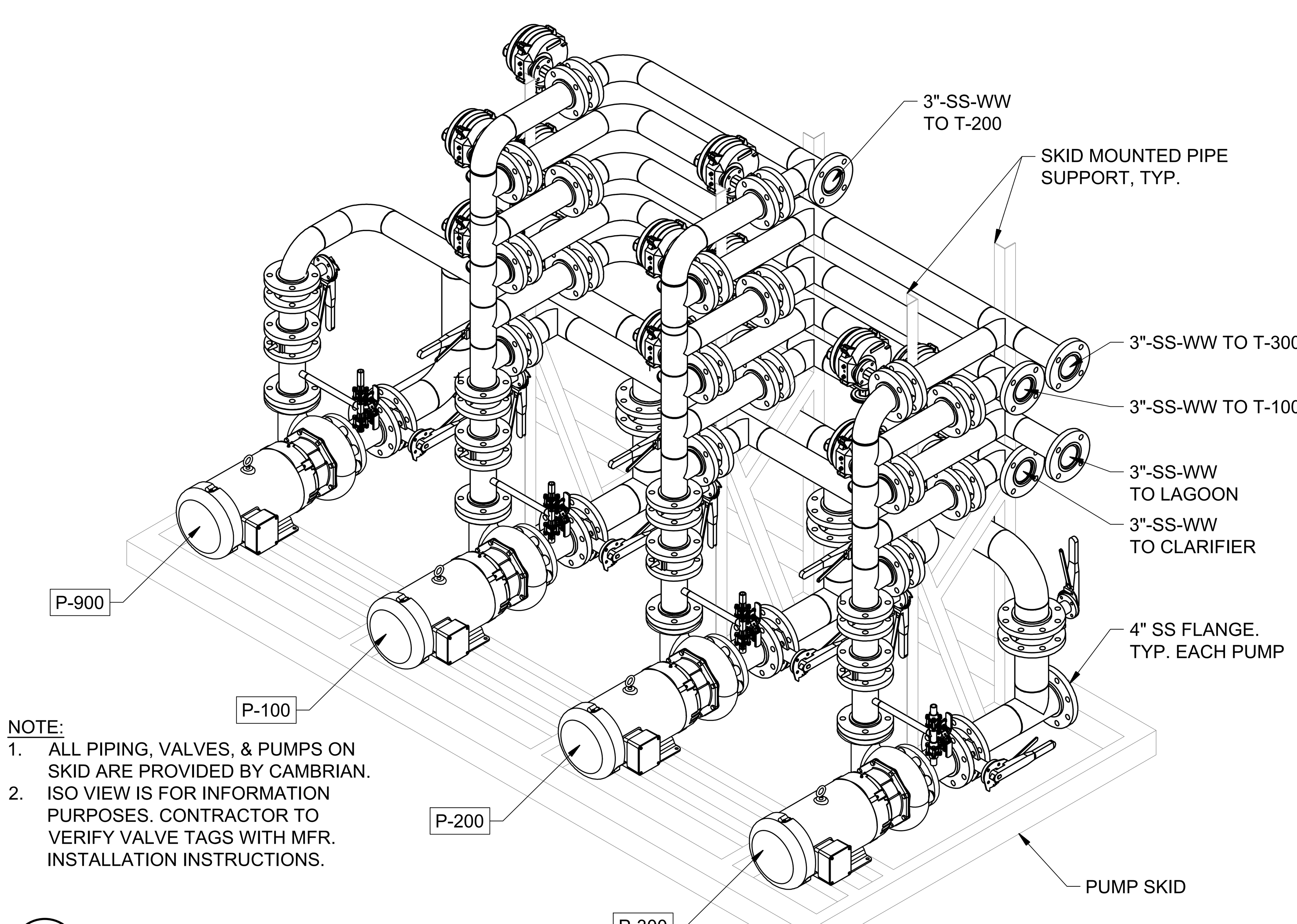
1 - CAMBRIAN BUILDING SECTION
SCALE: ½" = 1'-0"

SHEET NOTES:

1. CONTRACTOR TO VERIFY PIPING CONFIGURATION AND REQUIREMENTS WITH PUMP SKID MFR.
2. PIPE SUPPORTS TO BE PROVIDED AS REQUIRED AND COORDINATED WITH ENGINEER BASED ON FINAL PIPING CONFIGURATION.
3. PROVIDE SUPPORTS FOR DUCTWORK AS REQUIRED.



2 - CAMBRIAN BUILDING SECTION
SCALE: ½" = 1'-0"



NOTE:
1. ALL PIPING, VALVES, & PUMPS ON SKID ARE PROVIDED BY CAMBRIAN.
2. ISO VIEW IS FOR INFORMATION PURPOSES. CONTRACTOR TO VERIFY VALVE TAGS WITH MFR. INSTALLATION INSTRUCTIONS.

3 - CAMBRIAN PUMP SKID ISOMETRIC NORTH EAST PERSPECTIVE
SCALE: NONE

idg INFLO DESIGN GROUP

BARNEY G. FULLING — REGISTERED ENGINEER — STATE OF TENNESSEE — No. 100117
4/2/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
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2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

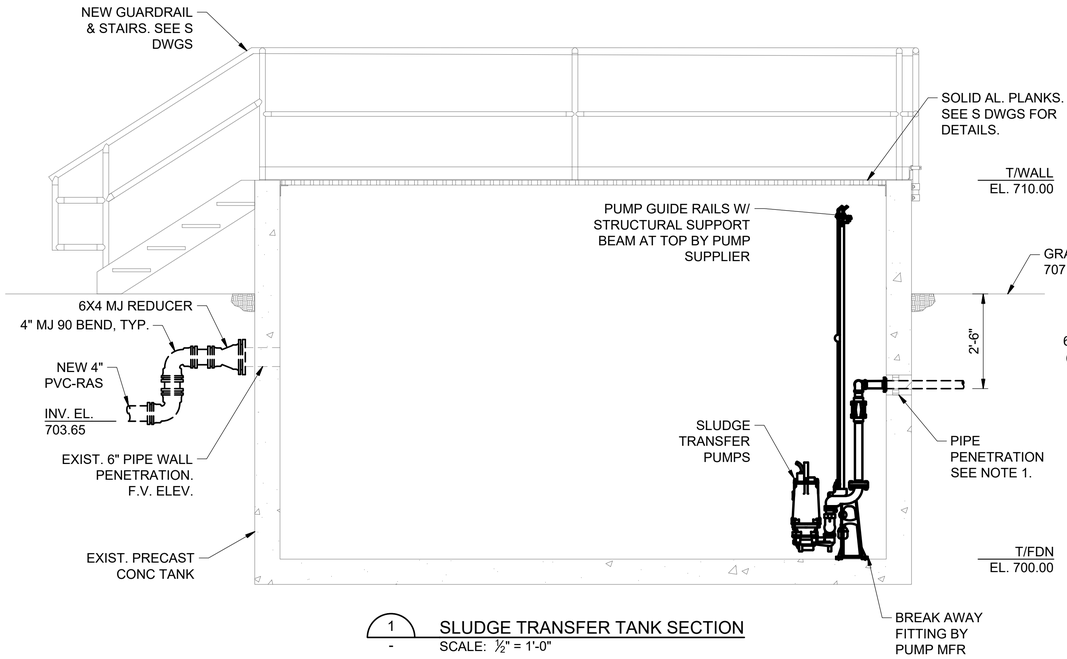
CAMBRIAN BUILDING SECTIONS

THIS LINE IS 1" AT FULL SIZE

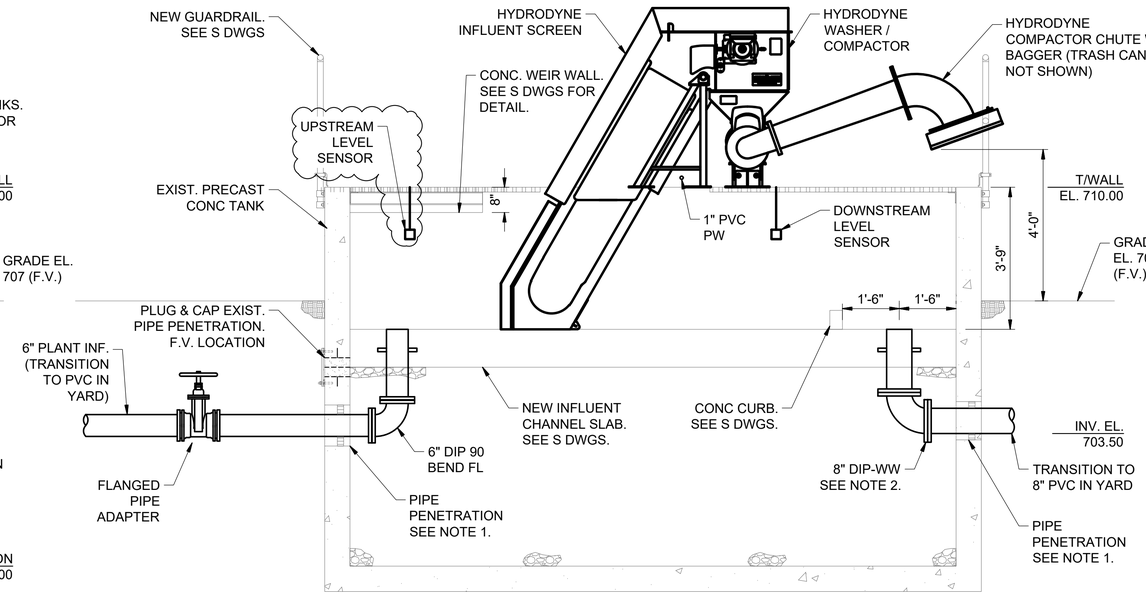
DRAWING NUMBER
D-301

SHEET NUMBER
18B

File: C:\Users\dbmor\Google Drive\Info Design Group\M2 Group\Hideaway WWTP\Design\CAD\Hideaway D.dwg Last Save: 2/17/2021 2:36 PM Last saved by: Dbmor
Last plotted by: Daniel Morgan Plot Style: --- Plot Scale: 1:1 Plot Date: 4/2/2021 1:46 PM Plotter used: Microsoft Print to PDF



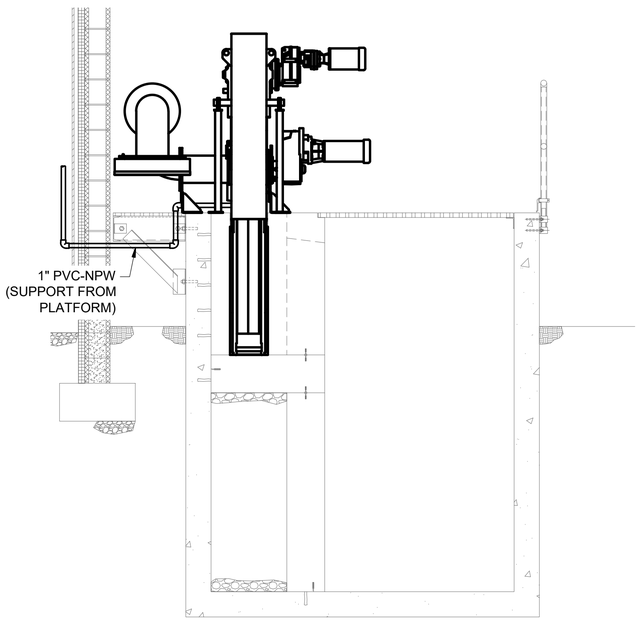
1 - SLUDGE TRANSFER TANK SECTION
SCALE: ½" = 1'-0"



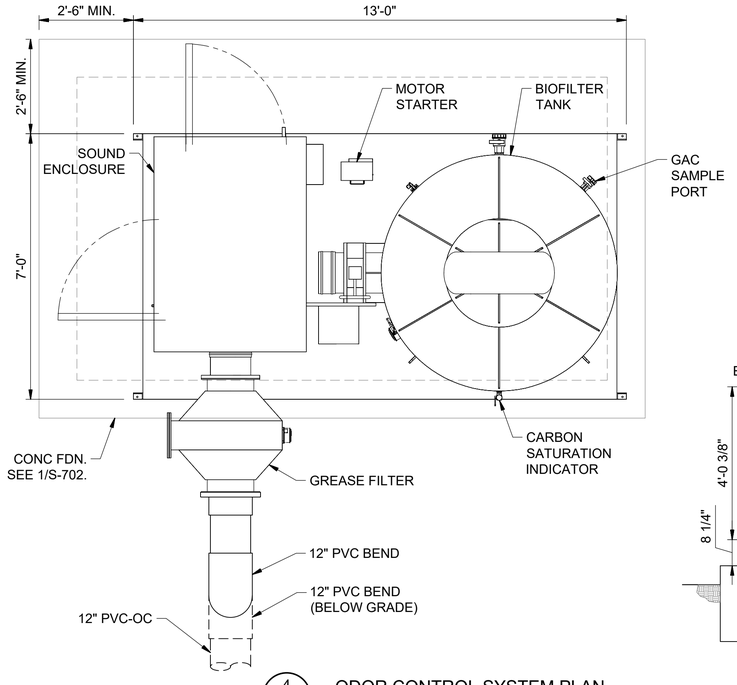
2 - INFLUENT CHANNEL SECTION
SCALE: ½" = 1'-0"

SHEET NOTES:

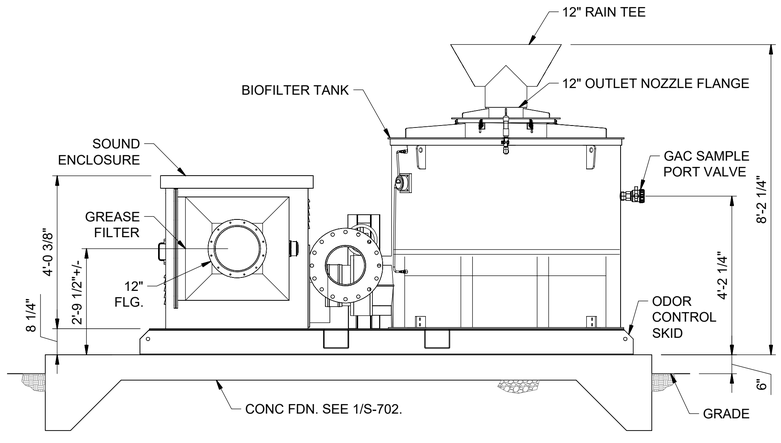
1. CORE DRILL EXISTING WALL. INSTALL LINK SEAL AND GROUT ANNULAR SPACE ON INSIDE SURFACE OF BASIN.
2. ALL NEW PIPING PENETRATIONS AND PIPING INSIDE BASIN SHALL BE DIP. TRANSITION TO PVC IN YARD, WHERE INDICATED.
3. ODOR CONTROL SYSTEM BY CAMBRIAN AND FURNISHED BY OWNER. CONTRACTOR TO INSTALL.
4. ALL EXPOSED POTABLE WATER PIPING TO BE HEAT TRACED AND INSULATED.
5. SCREEN SUPPLIER TO PROVIDE ONE TRIP AND ONE 8-HOUR DAY FOR TRAINING AND CERTIFICATIONS.



3 - INFLUENT CHANNEL SECTION
SCALE: ½" = 1'-0"



4 - ODOR CONTROL SYSTEM PLAN
SCALE: ½" = 1'-0"



5 - ODOR CONTROL SYSTEM SECTION
SCALE: ½" = 1'-0"

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
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BARNEY G. FULLINGTON — REGISTERED ENGINEER — No. 109113 — STATE OF TENNESSEE — 4/2/21

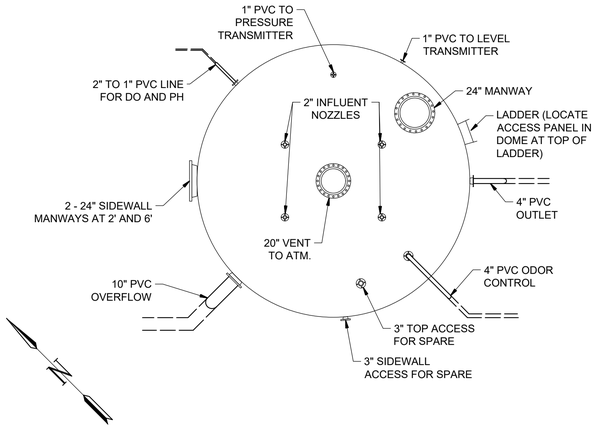
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

INFLUENT SCREEN & SLUDGE TRANSFER TANK SECTIONS

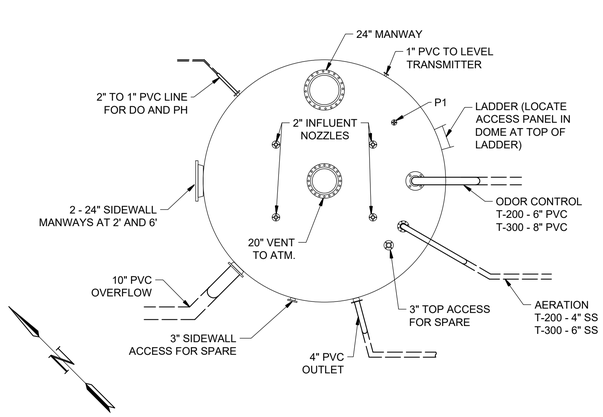
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-302

SHEET NUMBER
19



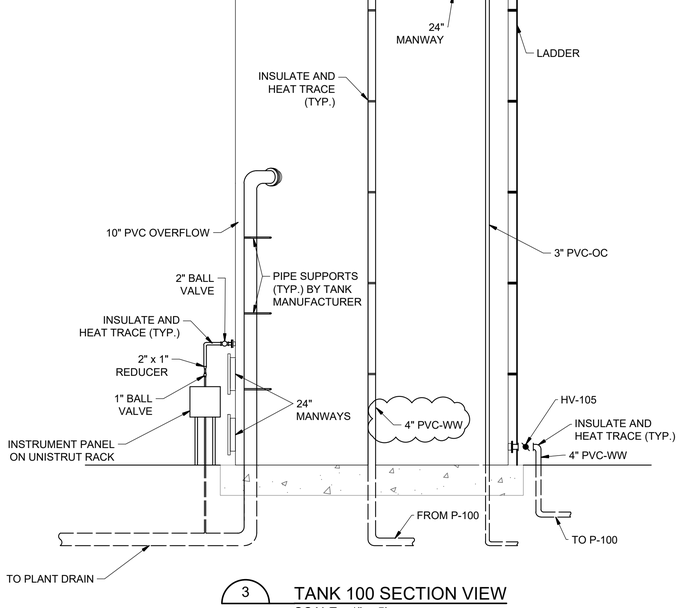
1 TANK 100 PLAN VIEW
- SCALE: 1" = 5'



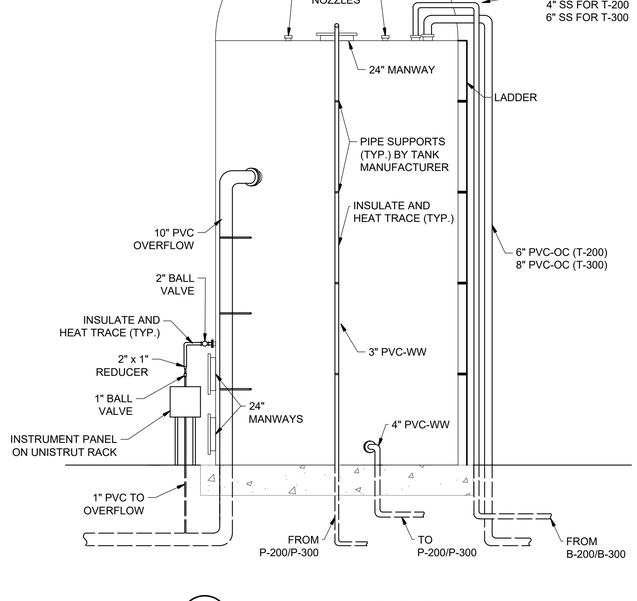
2 TANK 200/300 PLAN VIEW
- SCALE: 1" = 5'

T-100					
ID	SIZE	SERVICE	LOCATION	DISTANCE ABOVE BOTTOM TANK (FT)	DISTANCE FROM TANK CENTER (FT)
A1-4	2"	FILL	TOP	TOP	4
C	4"	OUTLET	90°	1.2	N/A
D	2"	TESTING TO OF	45°	8	N/A
E	10"	OVERFLOW	225°	19	N/A
L1	1"	LEVEL TRANSMITTER	30°	2	N/A
P1	1"	PRESSURE TRANSMITTER	TOP	TOP	7
MW1	24"	MANWAY	TOP	TOP	7
MW2	24"	SIDE MANWAY	270°	6	N/A
MW3	24"	SIDE MANWAY	270°	2	N/A
V1	20"	VENTING	TOP	TOP	0
O	3"	ODOR CONTROL	TOP	TOP	7
S1	3"	SPARE	TOP	TOP	7
S2	3"	SPARE	175°	2	N/A
		LADDER	70°	N/A	N/A

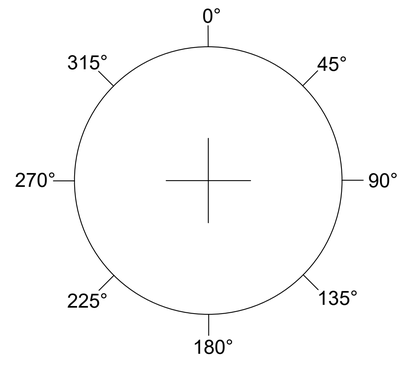
T-200/300					
ID	SIZE	SERVICE	LOCATION	DISTANCE ABOVE BOTTOM TANK (FT)	DISTANCE FROM TANK CENTER (FT)
A1-4	2"	FILL	TOP	TOP	4
C	4"	OUTLET	165°	1.2	N/A
D	2"	TESTING TO OF	315°	8	N/A
E	10"	OVERFLOW	225°	19	N/A
F	4"/6"	PROCESS AIR	TOP	TOP	6
L1	1"	LEVEL TRANSMITTER	30°	2	N/A
P1	1"	PRESSURE TRANSMITTER	TOP	TOP	6
MW1	24"	MANWAY	TOP	TOP	6
MW2	24"	SIDE MANWAY	270°	6	N/A
MW3	24"	SIDE MANWAY	270°	2	N/A
V1	20"	VENTING	TOP	TOP	0
O	6"/8"	ODOR CONTROL	TOP	TOP	6
S1	3"	SPARE	TOP	TOP	6
S2	3"	SPARE	195°	2	N/A
		LADDER	70°	N/A	N/A



3 TANK 100 SECTION VIEW
- SCALE: 1" = 5'



4 TANK 200/300 SECTION VIEW
- SCALE: 1" = 5'



DESIGN NOTES:
1. TANK DESIGN AND INSTALLATION BY TANK MFR. CONTRACTOR TO INSTALL PIPING. SEE C-102 FOR YARD PIPING. CONTRACTOR TO VERIFY PIPING ARRANGEMENT WITH TANK MFR. PRIOR TO ORDERING PIPING.
2. TANK FOUNDATION DESIGN BY TANK MFR. CONTRACTOR TO PROVIDE MATERIALS AND INSTALLATION OF FOUNDATIONS.
3. TANK MFR IS RESPONSIBLE FOR PROVIDING OSHA-COMPLIANT LADDER OR PLATFORM FOR ACCESSING TOP OF TANK.
4. PROVIDE DOME ACCESS DOOR PANEL AT TOP OF LADDER. TANK MFR. TO COORDINATE REQUIREMENTS WITH DOME MFR.

idg
INFLO DESIGN GROUP

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM

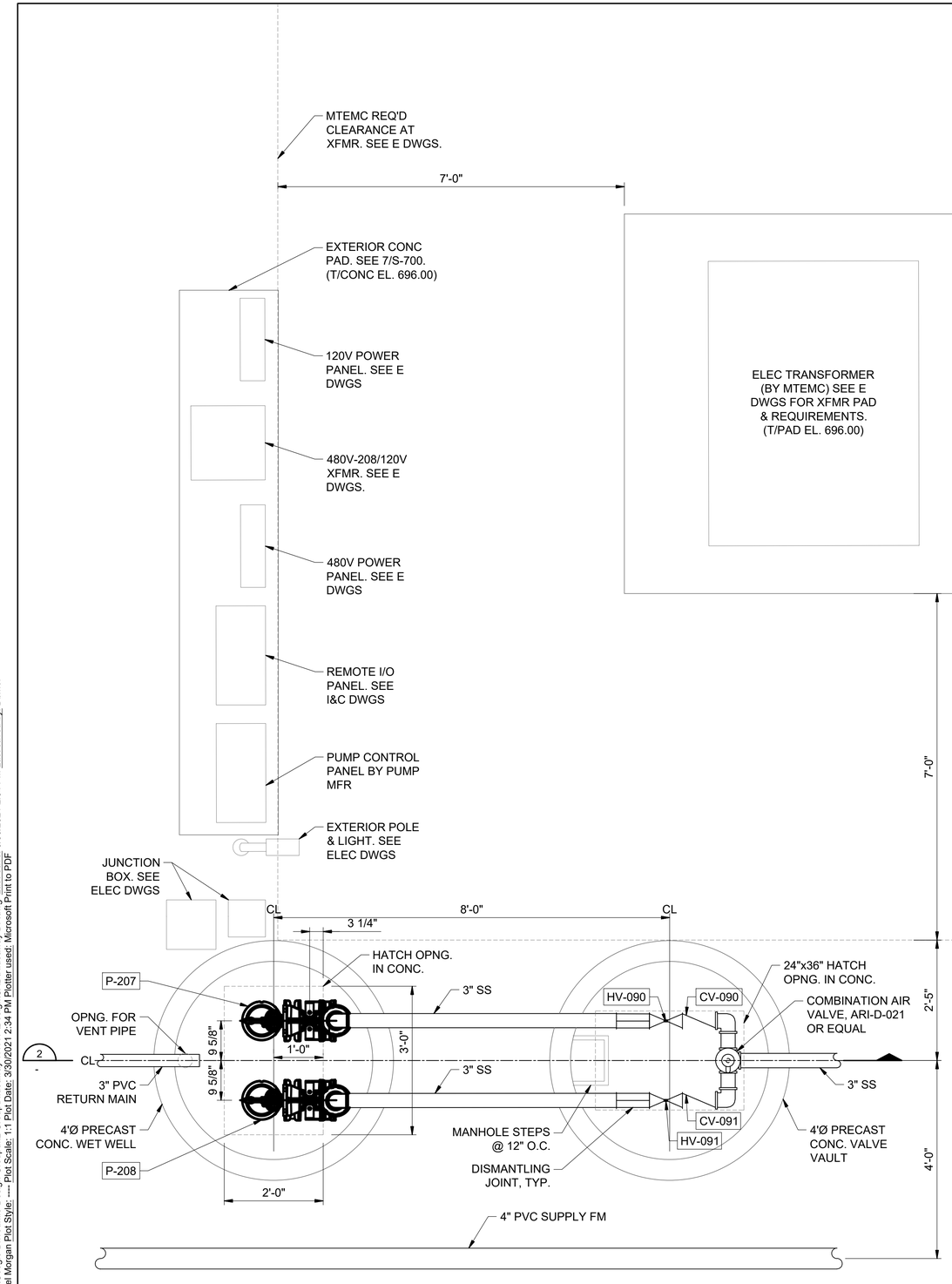
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CAMBRIAN TANKS PLAN & SECTION

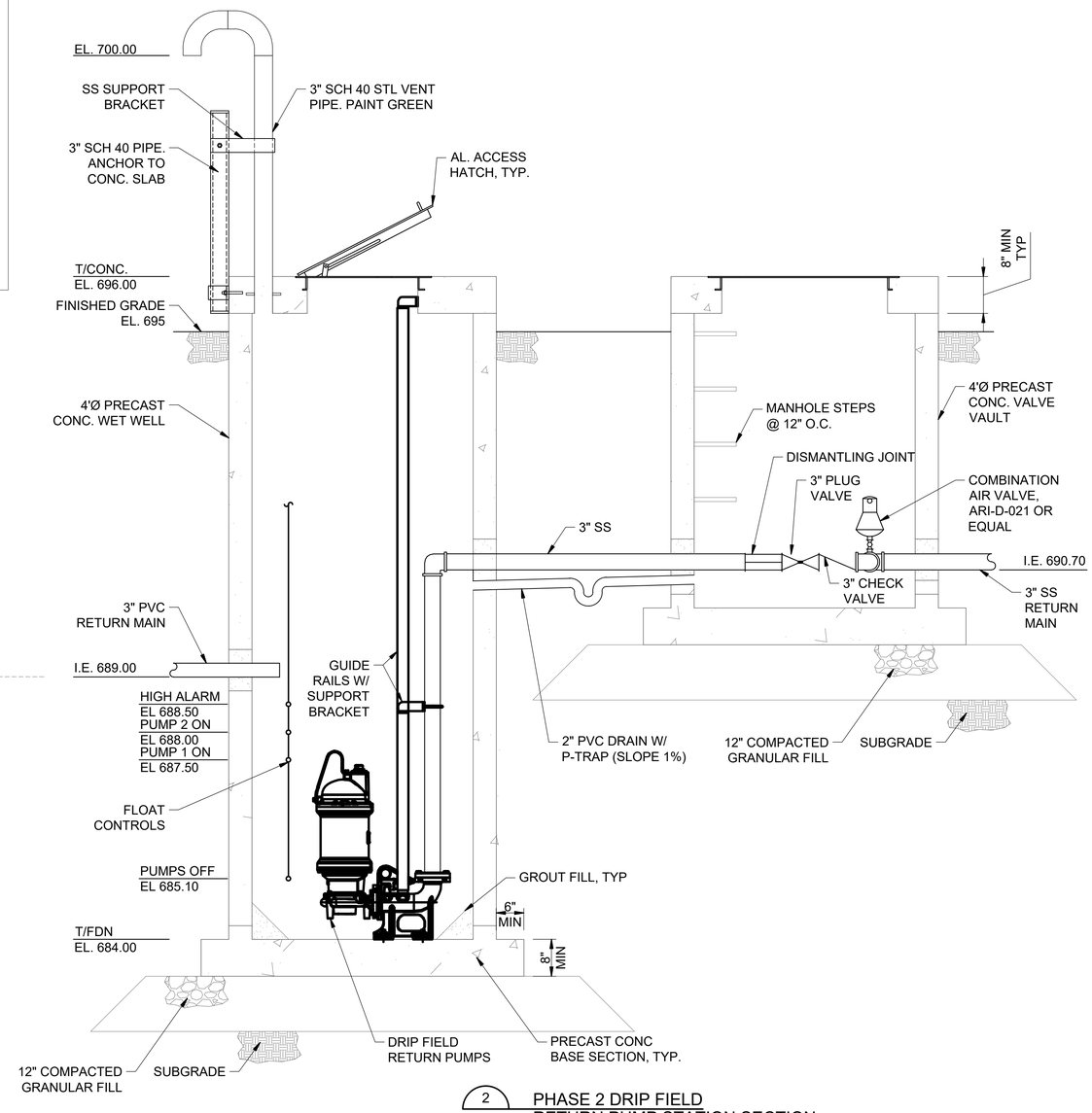
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-303

SHEET NUMBER
20



1 C-511 PHASE 2 DRIP FIELD RETURN PUMP STATION PLAN
SCALE: ¾" = 1'-0"



2 C-511 PHASE 2 DRIP FIELD RETURN PUMP STATION SECTION
SCALE: ¾" = 1'-0"

idg INFLO DESIGN GROUP

BARNEY G. FULLINGTON REGISTERED ENGINEER NO. 101113 STATE OF TENNESSEE
4/2/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PHASE 2 DRIP FIELD RETURN PS

THIS LINE IS 1" AT FULL SIZE

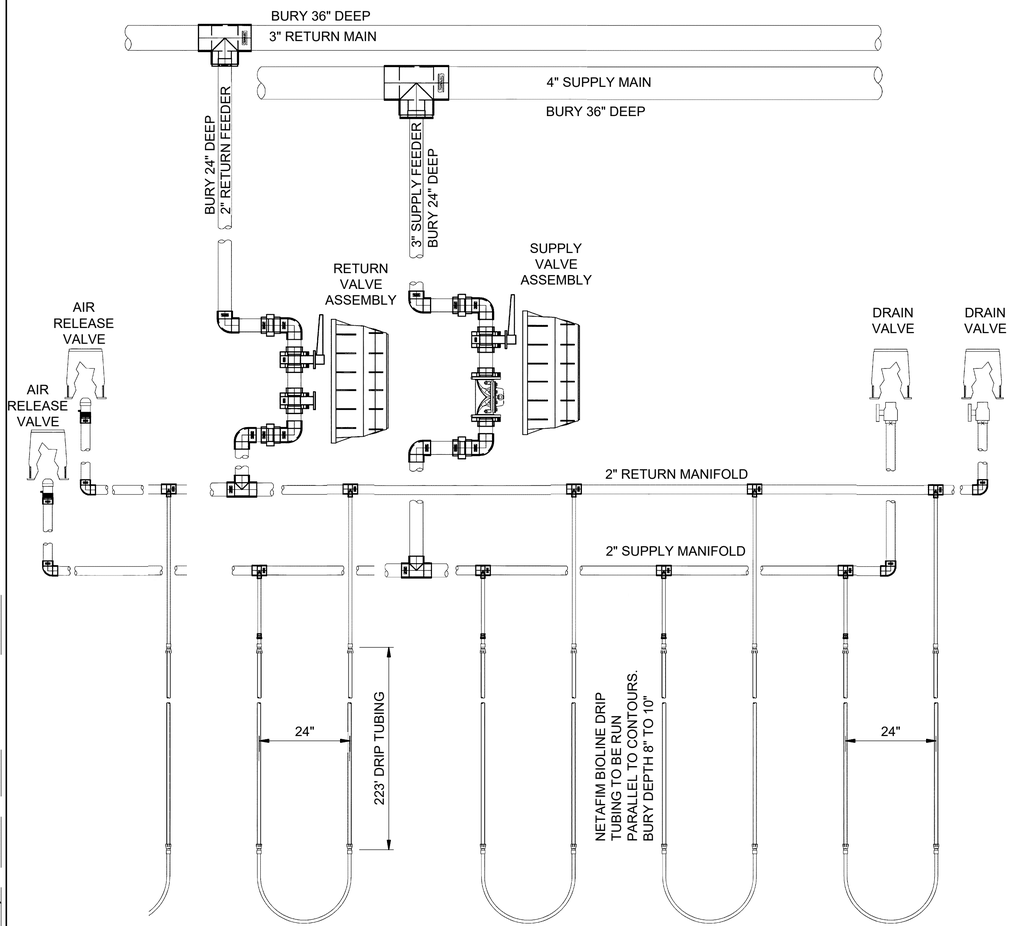
DRAWING NUMBER
D-310

SHEET NUMBER
21

TABLE 2: DESIGN CALCULATIONS FOR SIZING DRIP IRRIGATION ZONES- PHASE 2

DAILY AVERAGE FLOW	**55,523**	GPD	EMITTER SPACING	**2.00**	FT
PUMP DESIGN FLOW	**120**	GPM	FLOW / EMITTER	**0.61**	GPH
TOTAL PUMP RUNTIME / DAY	**463**	MINUTES	DISTAL END FLOW	**1.60**	GPM

ZONE #	AREA (SF)	AREA (AC)*	APPROX. LENGTH OF TUBING (LF)	NUMBER OF DRIP EMITTERS	DOSING FLOW (GPM)	DOSE TIME (MIN /DAY)	TOTAL FLOW (GPD /ZONE)	HYDRAULIC LOADING RATE (GPD /SF)	# OF DISTAL ENDS	FLUSH FLOW-BACK (GPM)	TOTAL FLUSHING FLOW (GPM)
12	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
13	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
14	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
15	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
16	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
17	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
18	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
19	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
20	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
21	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
PH2 Total	**276,520**	**6.35**	**138,260**				**55,523**				
PH1 Total (per previous design documents)							63,849				
Existing Zone 1A (removed for driveway modifications at WWTP)							-1,465				
WWTP Total Treatment Capacity							**117,907**				



NOTE:
1. PROVIDE A TOTAL OF 31 LOOPED RUNS PER ZONE.
2. PROVIDE 5' SPACING BETWEEN DRIP TUBING OF ADJACENT ZONES.

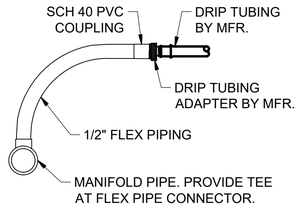
1 C-111 PHASE 2 DRIP FIELD TYPICAL ZONE LAYOUT
SCALE: NONE

NOTES:

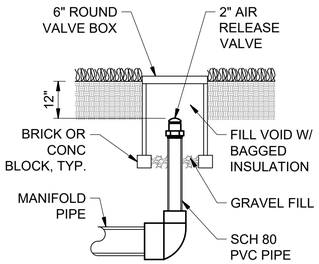
1. GENERAL
   - 1.1. DRIP IRRIGATION SYSTEM DESIGN, DRIP TUBING (INCL. ANY REQUIRED COUPLERS AND ADAPTERS), AND VALVES BY NETAFIM USA.
   - 1.2. MFR SHALL REVIEW DESIGN DRAWINGS AND PROVIDE VERIFICATION OF DESIGN TO ENGINEER PRIOR TO ORDERING MATERIALS.
   - 1.3. DRIP IRRIGATION SYSTEM INSTALLER SHALL BE MANUFACTURER-CERTIFIED DEALER FOR WASTEWATER APPLICATIONS.

2. MATERIALS
   - 2.1. MAIN SUPPLY HEADER SHALL BE PVC PIPE SDR 32.5 (125 PSI RATED) AND SHALL CONFORM TO ASTM D2241.
   - 2.2. MAIN RETURN HEADER SHALL BE PVC PIPE SDR 32.5 (125 PSI RATED) AND SHALL CONFORM TO ASTM D2241.
   - 2.3. ZONE MANIFOLDS (DOSE AND FLUSH) SHALL BE PVC SCH. 40 PIPE CONFORMING TO ASTM D1785 & D2665.
   - 2.4. PVC FITTINGS SHALL BE SCH. 40 CONFORMING TO ASTM D1785 & D2665.
   - 2.5. ZONE CONTROL VALVES SHALL BE NETAFIM 323 PRESSURE REGULATING VALVES.
   - 2.6. CHECK VALVES SHALL BE SWING CHECK VALVES (1.5" TO 3") WITH PVC BODY, VITON SEATS, AND RATED FOR 150 PS.
   - 2.7. BUTTERFLY VALVES (3" TO 6") SHALL HAVE CAST IRON BODY, BUNA N SEATS, EPOXY COVERED IRON DISCS, RATED FOR 200 PSI, AND CONFORMED TO AWWA C504. BUTTERFLY VALVES SHALL BE ORDERED WITH 2" SQUARE NUT OPERATORS AND A 46" RISER.
   - 2.8. PRESSURE RELIEF VALVE FOR MAIN SUPPLY HEADER SHALL BE KUNKLE VALVE BY PENTAIR (MODEL 0019-H01-MG-0065 2" VALVE SET AT 65 PSI RELIEF PRESSURE.
   - 2.9. AIR/VACUUM RELEASE VALVES (1" & 2") FOR EACH INDIVIDUAL ZONE SHALL BE NETAFIM GUARDIAN AIR & VACUUM RELIEF VENTS.
   - 2.10. DRIP TUBING- NETAFIM BIOLINE WASTEWATER TUBING 08WRAM.6-24V (0.66" O.D. & 0.57" I.D. W/ 0.61 GPH EMITTERS SPACED @ 24")

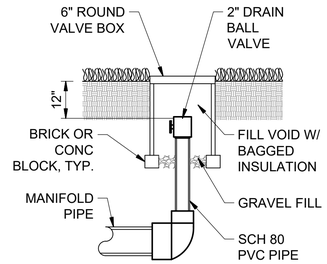
3. INSTALLATION
   - 3.1. PIPING MAINS SHALL BE INSTALLED WITH A MINIMUM OF 36" OF SOIL COVER.
   - 3.2. ZONE MANIFOLDS SHALL BE INSTALLED WITH 24" OF SOIL COVER.
   - 3.3. ALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH ASTM GUIDELINES AND MANUFACTURER RECOMMENDATIONS.
   - 3.4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL PIPING IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
   - 3.5. ZONE CONTROL VALVES AND ACCESSORIES SHALL BE INSTALLED IN CARSON VALVE BOXES PER MANUFACTURER'S INSTRUCTIONS.
   - 3.6. DRIP TUBING SHALL BE PLOUGHED IN AT A DEPTH OF 10" USING A VIBRATORY PLOUGH. DRIP LATERALS SHALL BE SET AT 24" O.C. AS SHOWN ON THE DRAWINGS AND DETAILS.



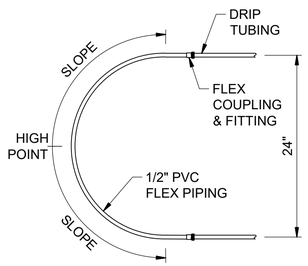
2 MANIFOLD CONNECTION
SCALE: NONE



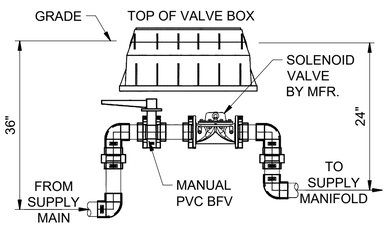
3 AIR RELEASE VALVE
SCALE: NONE



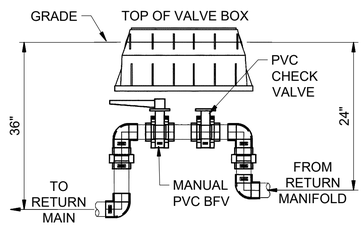
4 DRAIN VALVE
SCALE: NONE



5 LOOPED END
SCALE: NONE



6 ZONE SUPPLY VALVE ASSEMBLY
SCALE: NONE



7 ZONE RETURN VALVE ASSEMBLY
SCALE: NONE

idg INFLO DESIGN GROUP

BARNEY G. FULLINGTON — REGISTERED ENGINEER — No. 109111 — STATE OF TENNESSEE — 4/2/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

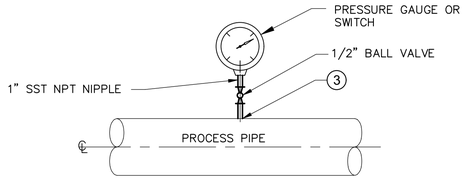
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PHASE 2 DRIP IRRIGATION DETAILS

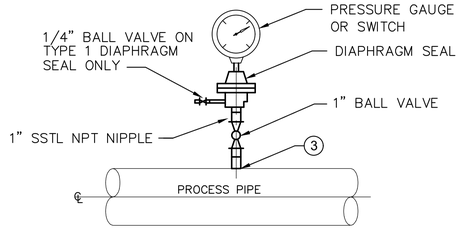
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-510

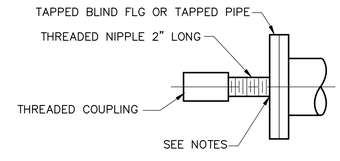
SHEET NUMBER
22



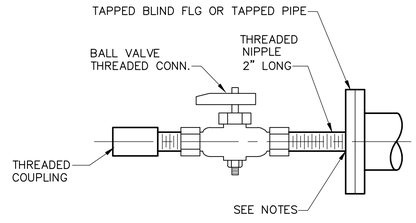
1 PRESSURE GAUGE
- SCALE: NONE



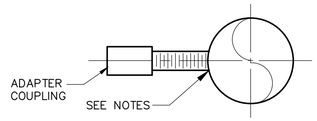
2 PRESSURE GAUGE WITH DIAPHRAGM SEAL
- SCALE: NONE



TAP CONNECTION W/O ISOLATION VALVE



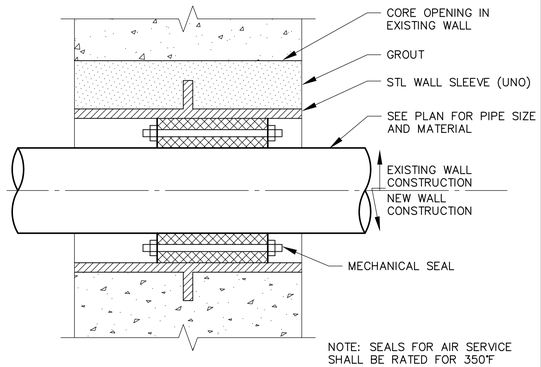
TAP CONNECTION W/ISOLATION VALVE



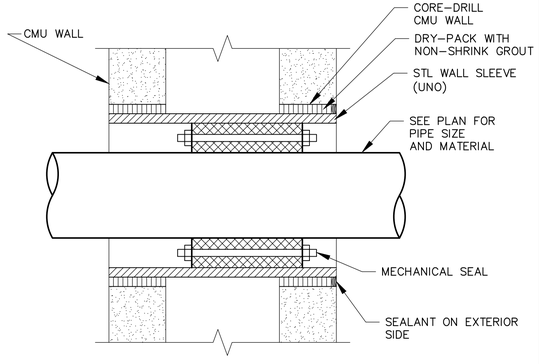
TAP CONNECTION FOR PIPE

NOTES:
1. FOR STL GALV AND PVC 2 1/2" AND SMALLER USE BUSHING IN A TEE
2. FOR DIP ALL SIZES USE DIRECT PIPE TAP (2" MAX TAP SIZE.
3. FOR TAP SIZES OVER 2", USE A SERVICE SADDLE OR SERVICE CLAMP.
4. FOR FRP, ALL SIZES, USE PIPE SADDLE W/BUSHING
5. FOR STL AND SST PIPES 3" AND LARGER AND PRESSURE VESSELS, USE THREAD-O-LET

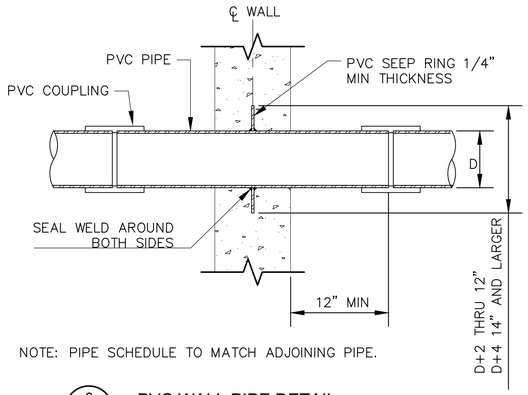
3 TAP CONNECTION
- SCALE: NONE



4 EXISTING CONCRETE WALL SLEEVE PENETRATION
- SCALE: NONE

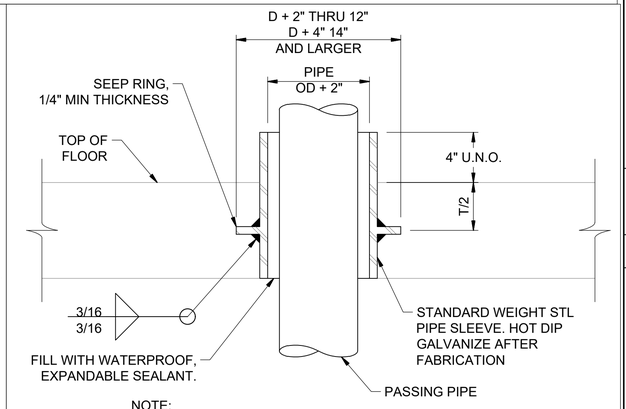


5 EXISTING CMU BLOCK WALL SLEEVE PENETRATION
- SCALE: NONE



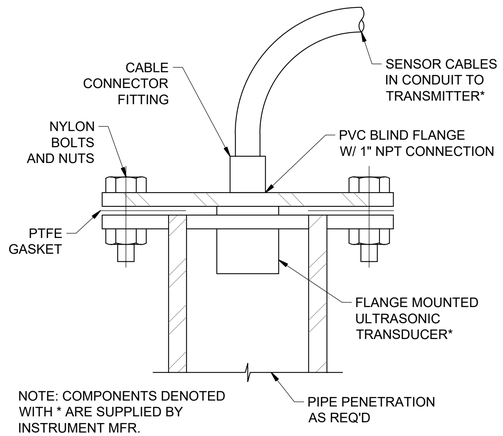
NOTE: PIPE SCHEDULE TO MATCH ADJOINING PIPE.

6 PVC WALL PIPE DETAIL
- SCALE: NONE



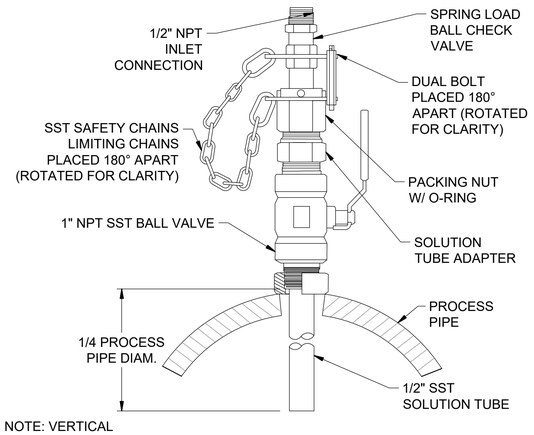
NOTE:
COAT FLOOR SLEEVE WITH SPECIFIED PAINT SYSTEM BEFORE CONCRETE PLACEMENT.

7 PIPE FLOOR SLEEVE
- SCALE: NONE



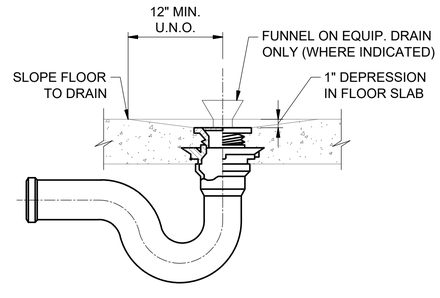
NOTE: COMPONENTS DENOTED WITH * ARE SUPPLIED BY INSTRUMENT MFR.

8 ULTRASONIC LEVEL SENSOR INSTALLATION
- SCALE: NONE



NOTE: VERTICAL INSTALLATION SHOWN FOR CLARITY. SEE DWG. FOR ACTUAL LOCATION.

9 CHEMICAL INJECTION QUILL
- SCALE: NONE



10 FLOOR OR EQUIP DRAIN WITH TRAP
- SCALE: NONE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
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idg INFLO DESIGN GROUP

BARNEY G. FULLINGTON — REGISTERED ENGINEER — AGRICULTURAL — NO. 105113 — STATE OF TENNESSEE — 4/2/21

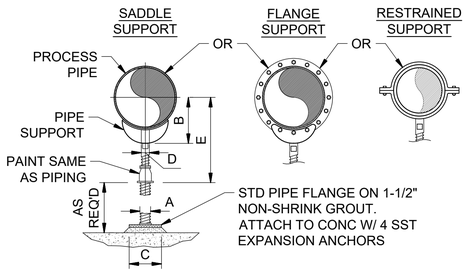
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PROCESS DETAILS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-701

SHEET NUMBER
23A



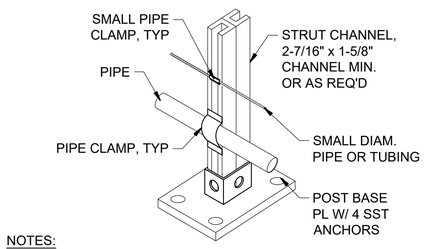
ADJUSTABLE SUPPORT DIMENSION TABLE

(ALL DIMENSIONS IN INCHES)

PIPE SIZE	*A*	*B*	*C*	*D*	*E*	
					MIN	*MAX*
≤ 2-1/2	2-1/2	3-1/2	9	1-1/2	8	13
3	2-1/2	3-3/4	9	1-1/2	8-1/4	13-1/4
3-1/2	2-1/2	4	9	1-1/2	8-1/2	13-1/2
4	3	4-1/4	9	2-1/2	9-1/4	14
5	3	4-7/8	9	2-1/2	10	14-3/4
6	3	5-1/2	9	2-1/2	10-1/2	15-1/4
8	3	6-7/8	9	2-1/2	11-3/4	15-1/2
10	3	8-1/2	9	2-1/2	13-1/2	18-1/4
12	3	9-15/16	9	2-1/2	15	19-3/4

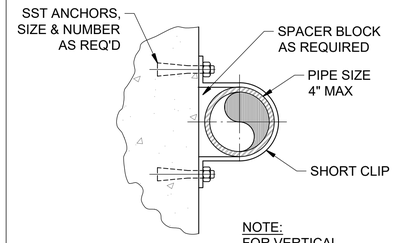
NOTES:
1. PROVIDE HALF ROUND RIGID INSULATION AND INSULATION PROTECTION SHIELD WHERE PIPING IS INSULATED
2. PROVIDE NEOPRENE WAFFLE INSULATION PAD, SIMILAR TO MASON TYPE "W" OR KORFUND 40, UNDER SUPPORT BASE WHEN PIPING IS ISOLATED OR SUPPORT IS ADJACENT TO MECH. EQUIP.

1 - ADJUSTABLE FLOOR MOUNTED PIPE SUPPORT
SCALE: NONE

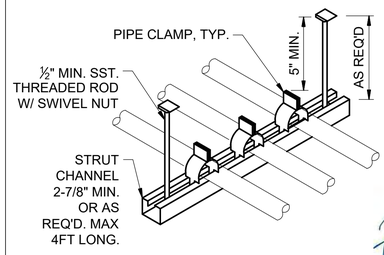


NOTES:
1. PIPING AS REQUIRED, SEE DWGS
2. DUAL CHANNEL SHOWN FOR MAXIMUM SUPPORT W/ MULTIPLE PIPES AND AIR TUBING. USE SINGLE CHANNEL FOR SINGLE PIPE.
3. SEE DETAIL 5 FOR MAX SUPPORT SPACING. SPACING BASED ON SMALLER PIPE SUPPORTED.

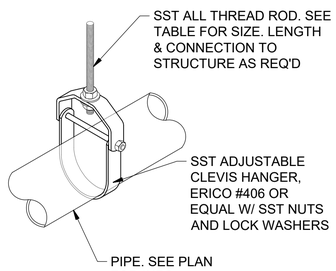
2 - FABRICATED POST PIPE SUPPORT
SCALE: NONE



3 - WALL MOUNTED PIPE SUPPORT
SCALE: NONE



4 - TRAPEZE PIPE HANGER
SCALE: NONE



ALL THREAD MININMUM SUPPORT ROD SIZE

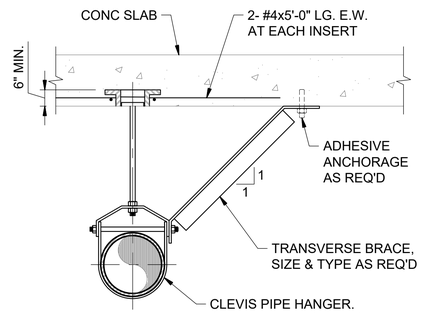
PIPE SIZE	*≤ 6"*	*8"*	*10"-12"*	*14"*	*16"-18"*	*20"*	*24"*
ROD SIZE	⅜"	½"	⅝"	¾"	⅞"	1"	1-1/4"

SUPPORT SPACING

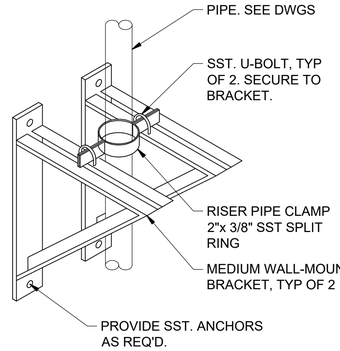
PIPE SIZE /MAT'L	*≤ 1"*	*1½" - 2½"*	*3"-4"*	*6"*	*8"*	*10"-12"*	*14"-16"*	*18"*	*20"-24"*
STL PIPE	6'	8'	10'	12'	12'	14'	16'	16'	18'
DI PIPE	6'	8'	10'	12'	12'	14'	16'	16'	18'
SST PIPE	8'	8'	8'	8'	10'	10'	12'	14'	14'
COPPER PIPE	5'	6'	6'	6'	8'	8'	10'	12'	12'

NOTES:
1. PROVIDE BRACING AS REQ'D FOR THRUST & SEISMIC REQUIREMENTS. REFER TO PIPE HANGER BRACE DETAIL AND SPECS FOR ADDITIONAL INFO.
2. FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.
3. UTILIZE PURLIN BEAM CLAMPS OR CONC INSERTS FOR ATTACHMENT TO STRUCTURE.

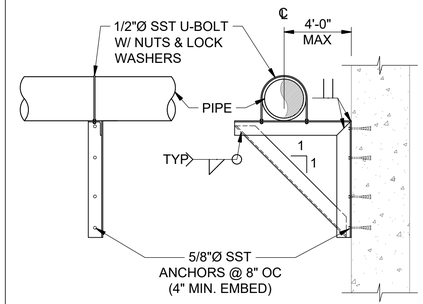
5 - CLEVIS PIPE HANGER
SCALE: NONE



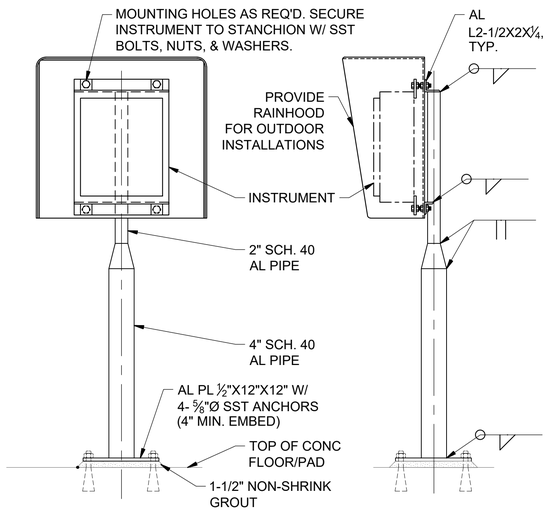
6 - PIPE HANGER- BRACE
SCALE: NONE



7 - RISER PIPE SUPPORT
SCALE: NONE

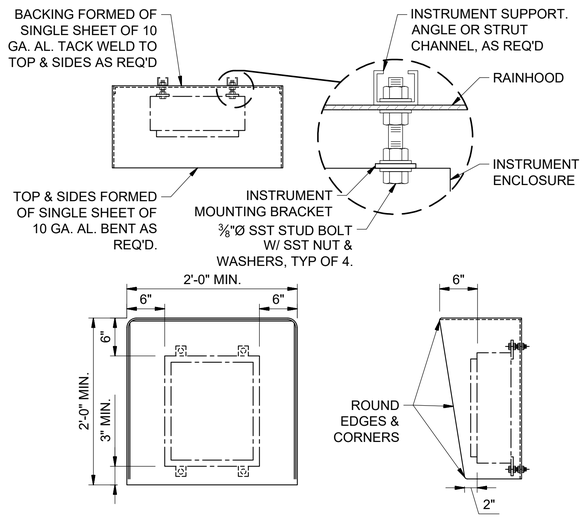


8 - WALL MOUNTED PIPE SUPPORT
SCALE: NONE



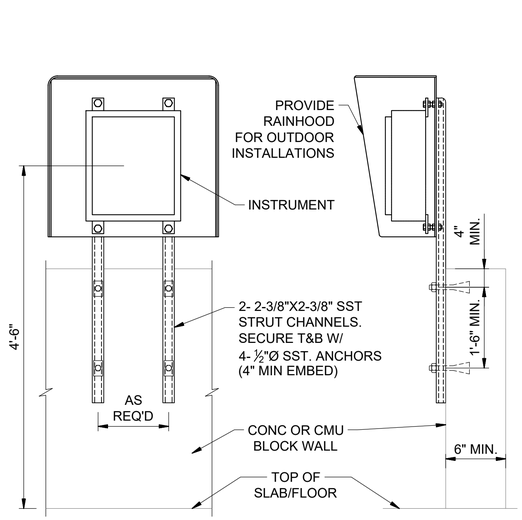
NOTES:
1. ROUND OFF ALL EXPOSED EDGES & CORNERS.
2. ISOLATE ALUMINUM FROM CONTACT W/ CONCRETE.

9 - CASE MOUNTED INSTRUMENTS STANCHION SUPPORT
SCALE: NONE



NOTES:
1. ROUND OFF ALL EXPOSED EDGES & CORNERS.
2. ISOLATE ALUMINUM FROM CONTACT W/ CONCRETE.

10 - CASE MOUNTED INSTRUMENTS RAIN HOOD
SCALE: NONE



11 - CASE MOUNTED INSTRUMENTS SHORT WALL MOUNTING
SCALE: NONE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
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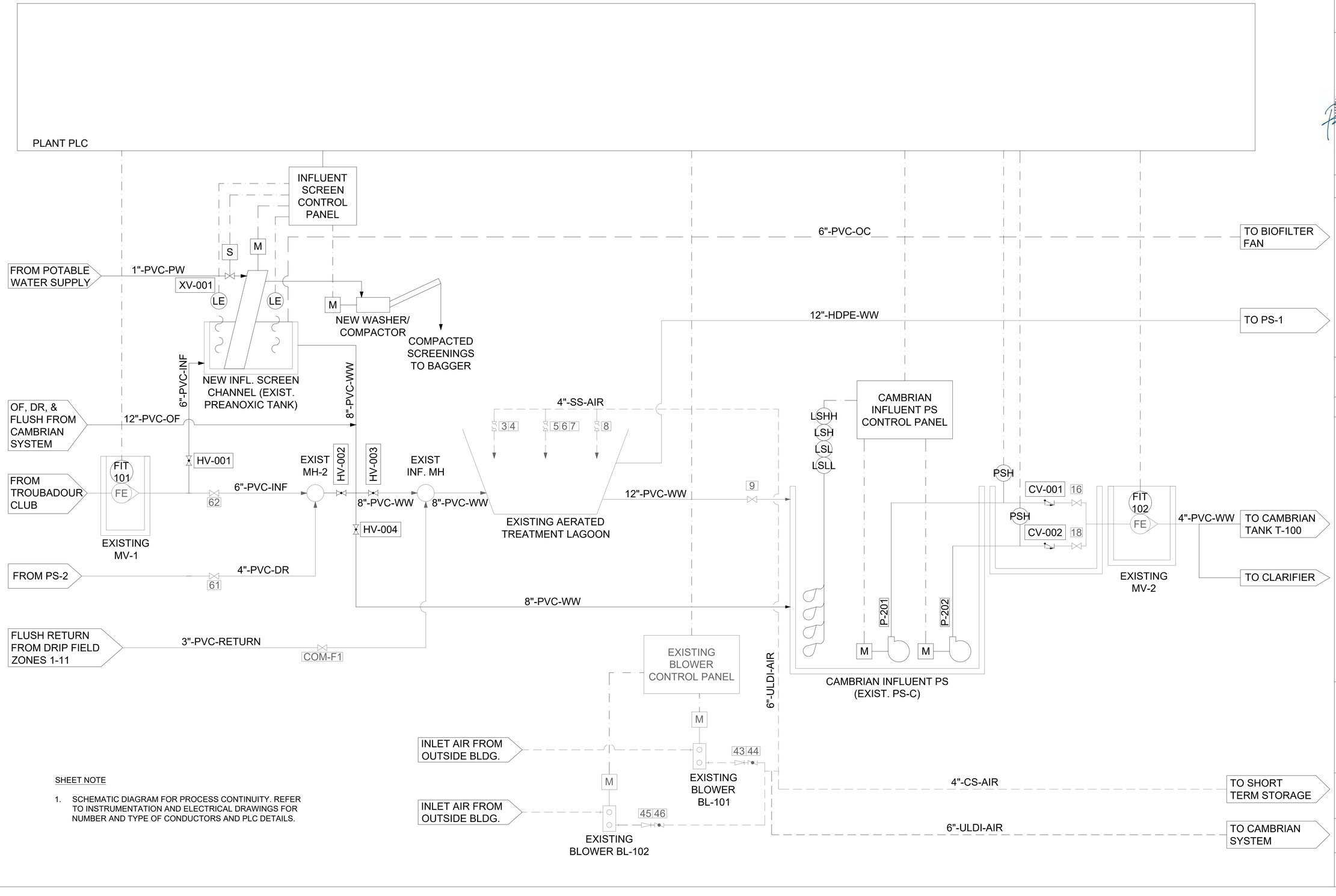
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PIPE SUPPORT DETAILS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
D-702

SHEET NUMBER
23B



SHEET NOTE

1. SCHEMATIC DIAGRAM FOR PROCESS CONTINUITY. REFER TO INSTRUMENTATION AND ELECTRICAL DRAWINGS FOR NUMBER AND TYPE OF CONDUCTORS AND PLC DETAILS.

idg
INFLO DESIGN GROUP

BARNEY G. FULLINGTON
REGISTERED ENGINEER
No. 104178
STATE OF TENNESSEE
4/2/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
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2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

INFLUENT SCREENING & AERATED LAGOON P&ID

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
DI-001

SHEET NUMBER
24

PLANT PLC

CAMBRIAN SYSTEM PLC

1 SIGNAL TO CAMBRIAN PLC

FROM INF. CHANNEL & SLUDGE TRANSFER TANK — 12"-PVC-OC

FROM P-300 — 3"-PVC-WW

FROM P-200 — 3"-PVC-WW

FROM P-100 — 3"-PVC-WW

FROM CAMBRIAN INF. PS — 4"-PVC -WW — HV-005 — 6"-PVC -WW — 6"-SS -WW

FROM DEWATERING BOX — 6"-PVC-OC

12"-SS-OC — VFD — M — CLEAN AIR TO ATMOSPHERE

T-1501 — HV-1515 — HV-1516 — LSH 1501 — XV 1501 — 2"-PVC-DR — TO INFLUENT SCREEN

3"-SS-OC — 6"-SS-OC — 8"-SS-OC

VENT TO ATM

10"-PVC-OF

T-100
HV-100 — LSH 100 — LSHH 101 — PT 100
HV-101 — XV 01DO — 1"-PVC-WW
HV-104 — LT 100
HV-112 — AT 100 pH — AT 101 DO — ENCLOSURE
HV-105
12"-PVC-WW

T-200
HV-200 — LSH 200 — LSHH 201 — PT 200
HV-201 — XV 02DO — 1"-PVC-WW
HV-204 — LT 200
HV-212 — AT 200 pH — AT 201 DO — ENCLOSURE
HV-205
3"-SS-WW — 4"-SS-AIR

T-300
HV-300 — LSH 300 — LSHH 301 — PT 300
HV-301 — XV 0300 — 1"-PVC-WW
HV-312 — AT 300 pH — AT 301 DO — ENCLOSURE
HV-304 — LT 300
HV-305
6"-SS-AIR

4"-PVC-WW — TO P-300
4"-PVC-WW — TO P-200
4"-PVC-WW — TO P-100
12"-PVC-WW — TO AERATED LAGOON

4"-ULDI-AIR — HV-207 — HV-206

B-200
TI 200 — CV-200 — M — B-200EF — FACTORY ENCLOSURE
PI 200 — M — VFD — 1 — AIR DUCT — INLET AIR FROM OUTSIDE BLDG.
PSV 200
6"-ULDI-AIR

HV-306 — HV-307 — 6"-ULDI-AIR

B-300
TI 300 — CV-300 — M — B-300EF — FACTORY ENCLOSURE
PI 300 — M — VFD — 1 — AIR DUCT — INLET AIR FROM OUTSIDE BLDG.
PSV 300
6"-ULDI-AIR

FROM EXISTING BLOWERS — 6"-ULDI-AIR

SHEET NOTE

1. SCHEMATIC DIAGRAM FOR PROCESS CONTINUITY. REFER TO INSTRUMENTATION AND ELECTRICAL DRAWINGS FOR NUMBER AND TYPE OF CONDUCTORS AND PLC DETAILS.

idg INFLO DESIGN GROUP

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

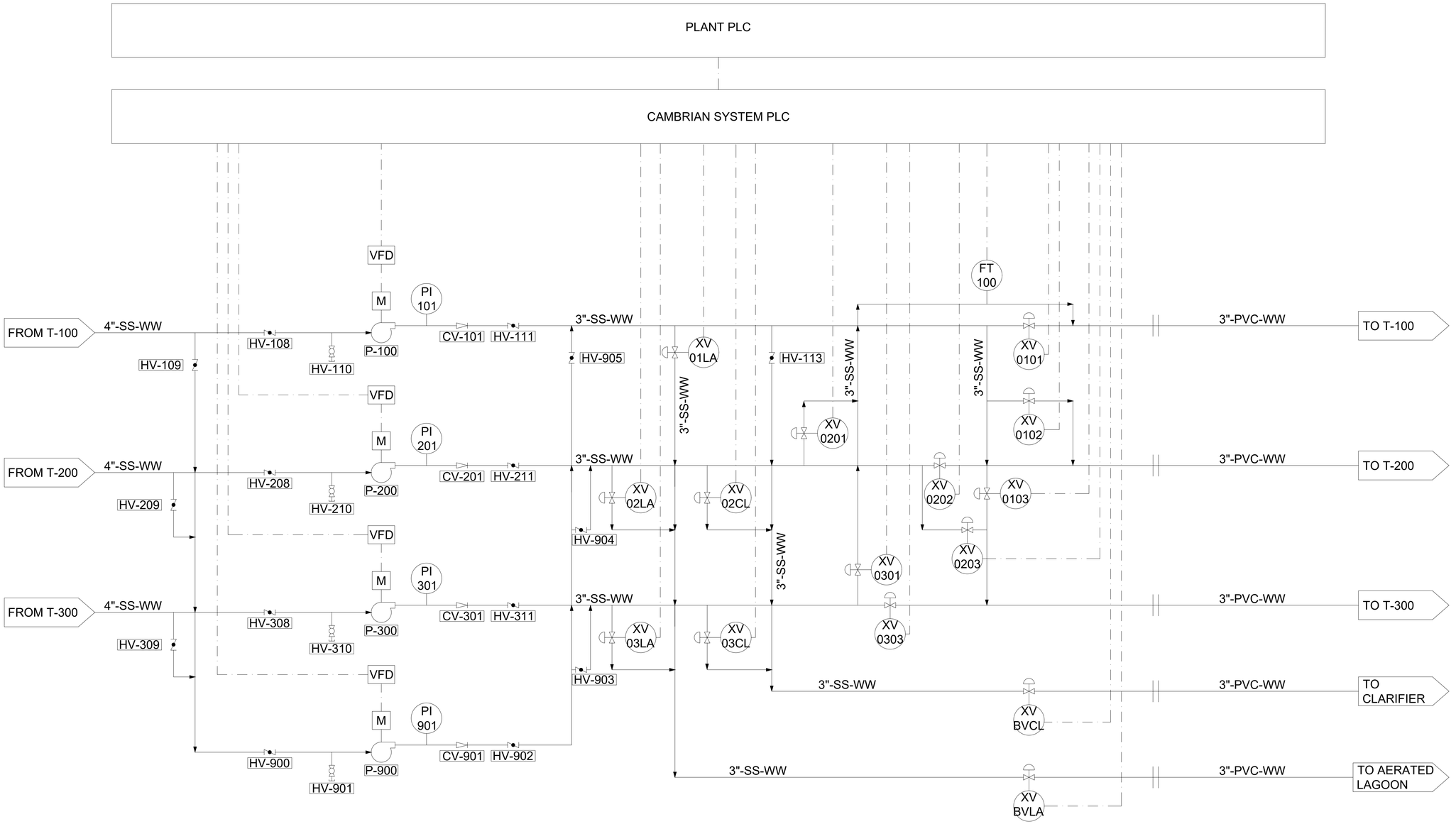
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CAMBRIAN TANKS & ODOR CONTROL SYSTEM P&ID

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
DI-002

SHEET NUMBER
25



SHEET NOTE

1. SCHEMATIC DIAGRAM FOR PROCESS CONTINUITY. REFER TO INSTRUMENTATION AND ELECTRICAL DRAWINGS FOR NUMBER AND TYPE OF CONDUCTORS AND PLC DETAILS.

REV	DATE	DESCRIPTION	BY
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1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

idg INFLO DESIGN GROUP

DARRELL G. FULLINGTON REGISTERED ENGINEER No. 104117 STATE OF TENNESSEE 4/2/21

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CAMBRIAN PUMP SKID P&I D

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
DI-003

SHEET NUMBER
26

PLANT PLC

SLUDGE TRANSFER PUMP CONTROL PANEL

CLARIFIER CONTROL PANEL

FROM EXISTING BLOWER HEADER — 4"-CS-AIR

FROM CAMBRIAN INFLUENT PS — 4"-PVC-WW — HV-006

FROM CAMBRIAN SYSTEM — 3"-PVC-WW — 4"-PVC-WW

FROM EXISTING BLOWER HEADER — 1"-CS-AIR

6"-PVC-OC

6"-PVC-OC

TO BIOFILTER FAN

19

8"-DI-WW

M

4"-PVC-DR

TO PS-2

52

6"-PVC-WW

51

6"-PVC-WW

DUMPSTER HAULED TO LANDFILL

NEW SLUDGE DEWATERING BOX

2.5"-PVC-SL

4"-PVC-PD

DEWATERING FILTRATE TO CAMBRIAN INF. PS

1"-PVC-PY

LSHH
LSH
LSL
LSLL

EXIST. CLARIFIER

20

21

EXIST. SHORT TERM STORAGE

65

12"-HDPE-WW

12" -PVC -WW

LSHH
LSH
LSL
LSLL

PS-1 CONTROL PANEL

PSH

24

25

PSH

26

27

FIT 103

FE

6"-PVC -WW

TO FILTRATION

EXISTING MV-3

POLYMER CONTROL PANEL

HV-010

HV-011

CV-010

CV-011

PSH

PSH

4"-DI-RAS

FROM POTABLE WATER SUPPLY — 1"-PVC-PW

MX-201

P-209

P-210

M

M

M

M

M

P-104

P-105

POLYMER DRUM

P-203

POLYMER FEED SYSTEM

NEW SLUDGE TRANSFER TANK
(IN EXIST. PREANOXIC MIX TANK)

EXIST. AIR LIFT PUMP IN MH-1

EXIST. LONG TERM STORAGE

EXISTING PS-1
(FILTER FEED)

FROM AERATED TREATMENT LAGOON — 12"-HDPE-WW — 23

SHEET NOTE

1. SCHEMATIC DIAGRAM FOR PROCESS CONTINUITY. REFER TO INSTRUMENTATION AND ELECTRICAL DRAWINGS FOR NUMBER AND TYPE OF CONDUCTORS AND PLC DETAILS.

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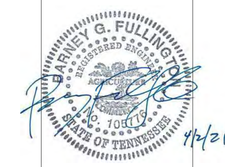

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CLARIFICATION & SLUDGE MANAGEMENT P&ID

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
DI-004

SHEET NUMBER
27

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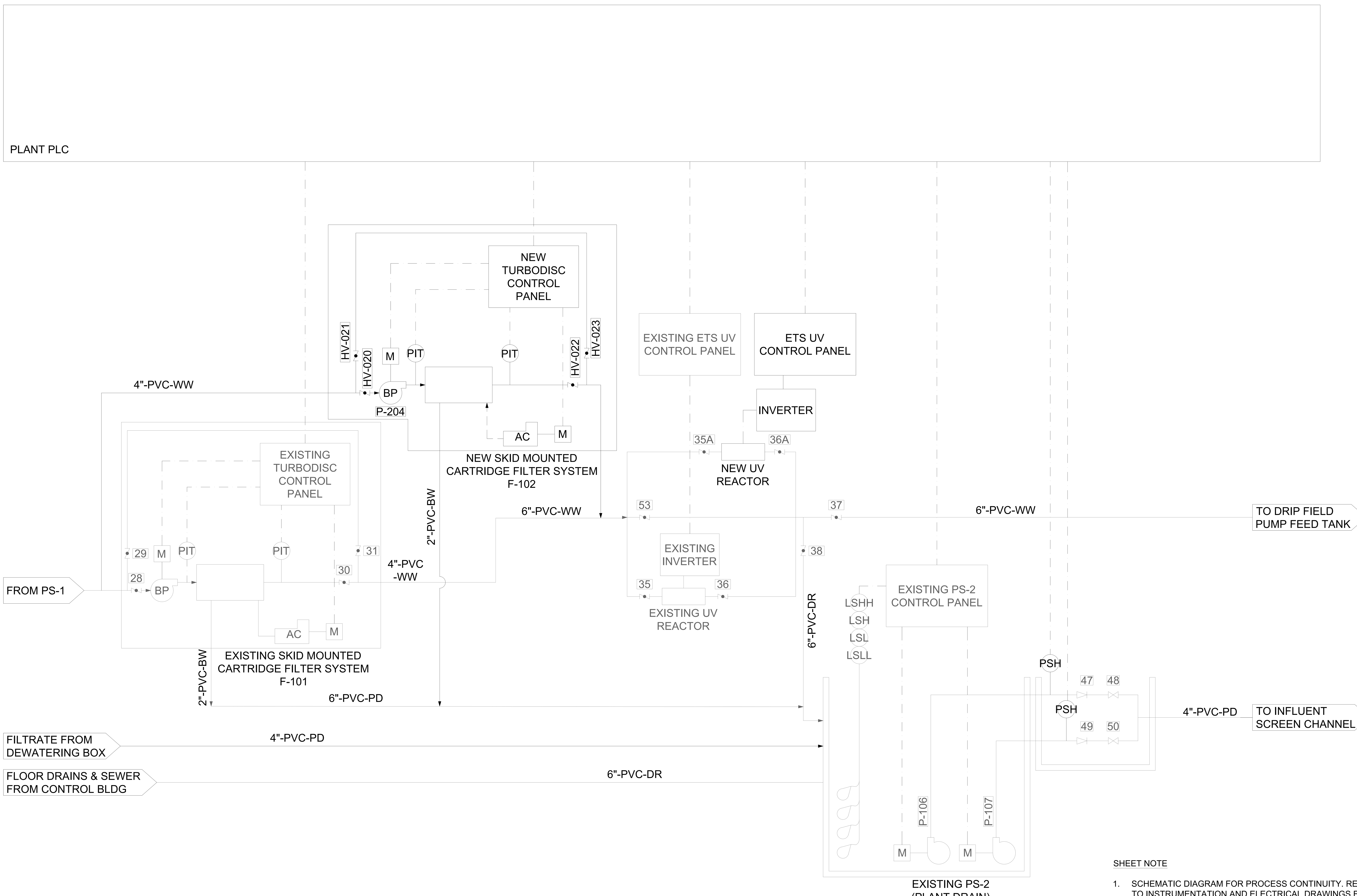
Last plotted by: Daniel Morgan Plot Style: ---- Plot Scale: 1:1 Plot Date: 4/2/2021 1:51 PM Plotter used: Microsoft Print to PDF



SHEET NOTE

1. SCHEMATIC DIAGRAM FOR PROCESS CONTINUITY. REFER TO INSTRUMENTATION AND ELECTRICAL DRAWINGS FOR NUMBER AND TYPE OF CONDUCTORS AND PLC DETAILS.

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BARNEY G. FULLINGTON — REGISTERED ENGINEER — STATE OF TENNESSEE — 4/2/21

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

TERTIARY FILTRATION & UV DISINFECTION P&ID

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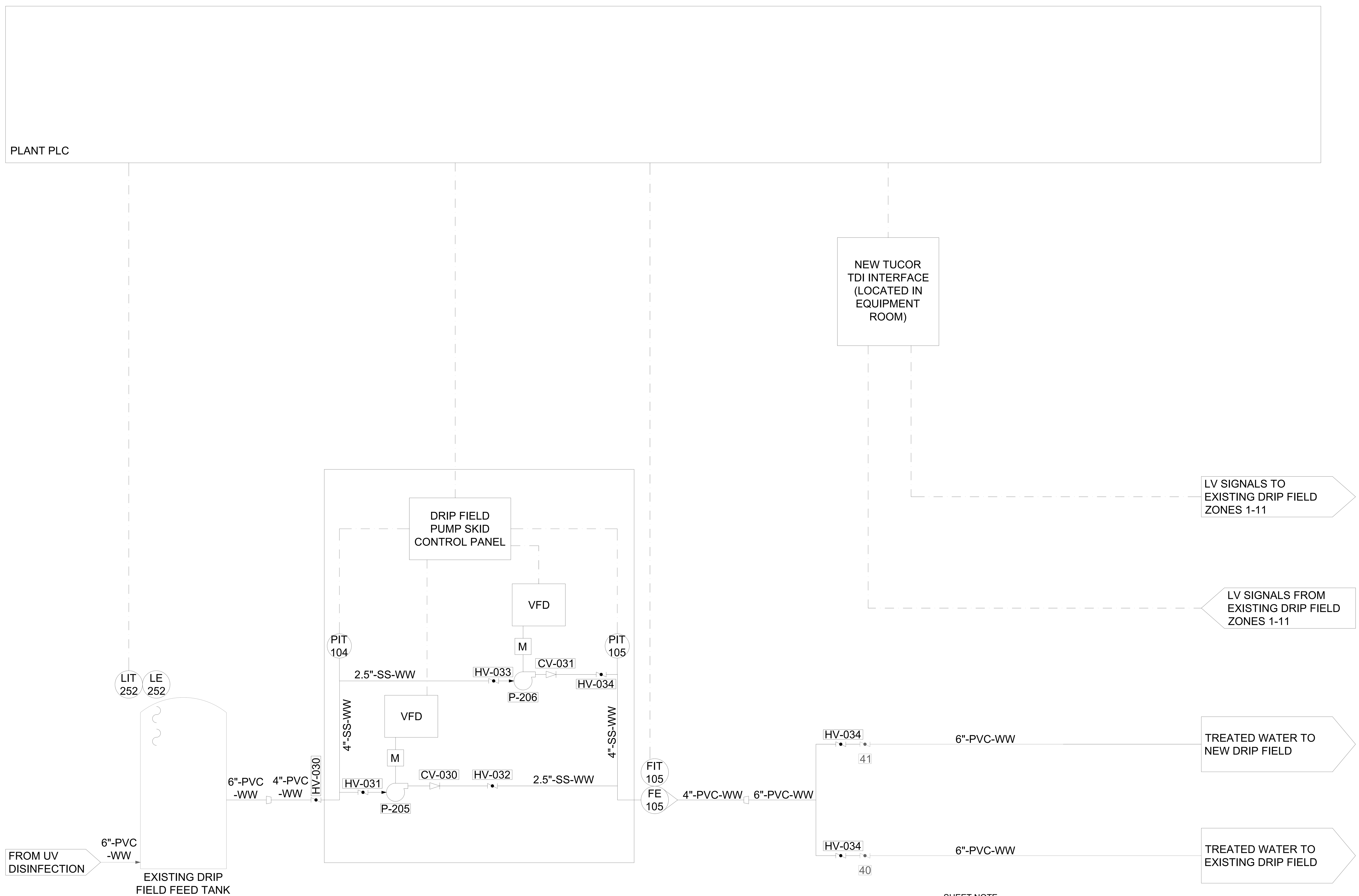
DRAWING NUMBER
DI-005

SHEET NUMBER
28



SHEET NOTE

1. SCHEMATIC DIAGRAM FOR PROCESS CONTINUITY. REFER TO INSTRUMENTATION AND ELECTRICAL DRAWINGS FOR NUMBER AND TYPE OF CONDUCTORS AND PLC DETAILS.

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

DRIP IRRIGATION FEED TANK & PUMPS P&ID

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
DI-006

SHEET NUMBER
29

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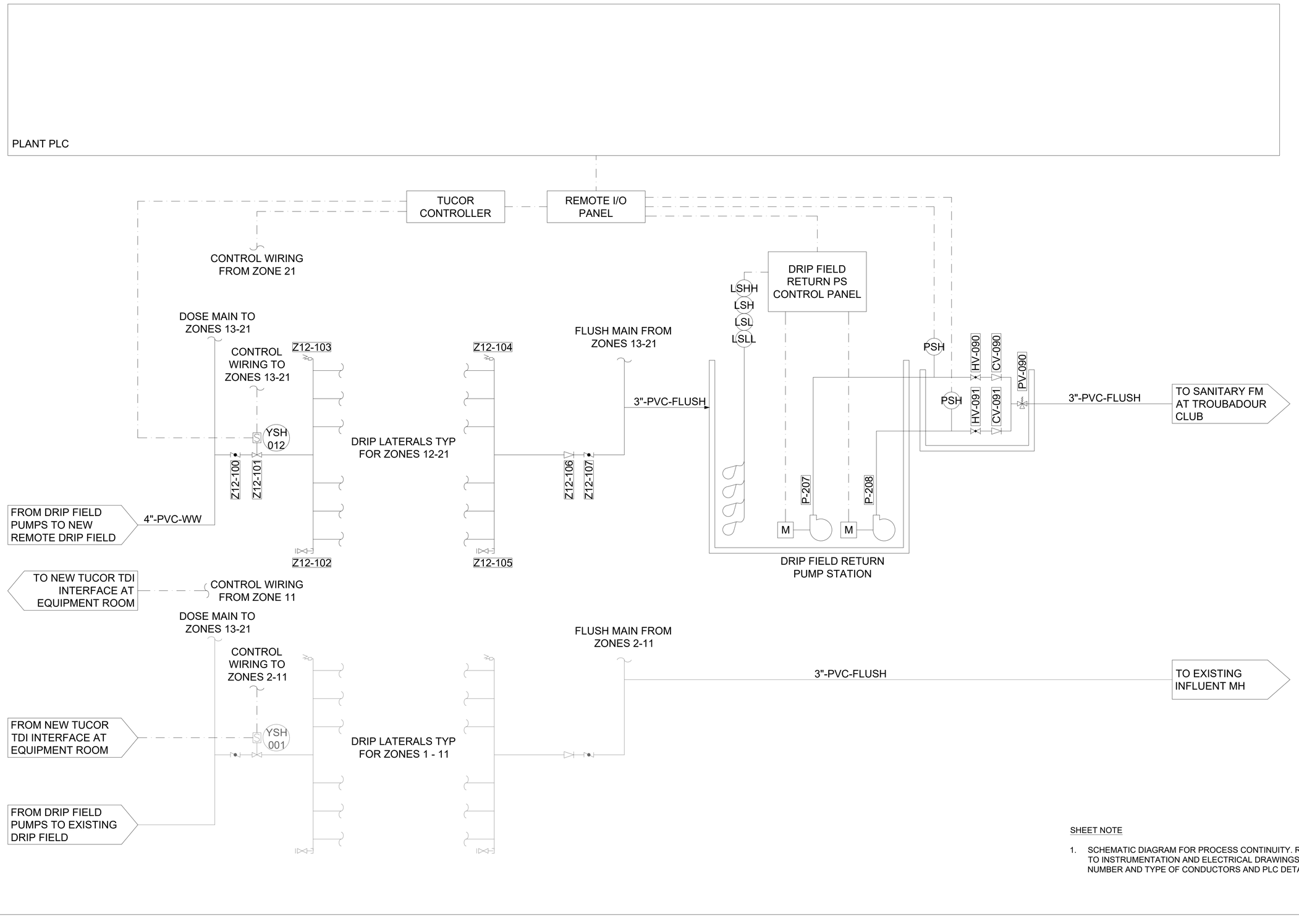

SHEET NOTE

1. SCHEMATIC DIAGRAM FOR PROCESS CONTINUITY. REFER TO INSTRUMENTATION AND ELECTRICAL DRAWINGS FOR NUMBER AND TYPE OF CONDUCTORS AND PLC DETAILS.

idg INFLO DESIGN GROUP

BARNEY G. FULLINGTON — REGISTERED ENGINEER — No. 104177 — STATE OF TENNESSEE — 4/2/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

DRIP FIELDS & RETURN PS P&ID

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
DI-007

SHEET NUMBER
30

CODES & STANDARDS:

1. THE STRUCTURAL DESIGN HAS BEEN PERFORMED BASED ON THE CODES, STANDARDS, AND LISTED DESIGN CRITERIA LISTED BELOW. ALL DELEGATED DESIGN ITEMS PROVIDED BY THE CONTRACTOR SHALL ALSO BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS.
2. THE FOLLOWING CODES AND STANDARDS SHALL BE USED BY THE CONTRACTOR TO ESTABLISH A MINIMUM LEVEL OF QUALITY AND CONSTRUCTION TECHNIQUES.
3. GOVERNING BUILDING CODE:
   - 3.1. 2015 INTERNATIONAL BUILDING CODE (IBC)
4. DESIGN LOADS:
   - 4.1. ASCE 7-2010, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"
   - 4.2. ASCE 24-2014, "FLOOD RESISTANT DESIGN AND CONSTRUCTION"
5. STRUCTURAL CONCRETE:
   - 5.1. ACI 318-2014, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
   - 5.2. ACI 350-2006, "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES"
   - 5.3. ACI 117, LATEST EDITION, "SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS"
   - 5.4. ACI 301, LATEST EDITION, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"
   - 5.5. ACI 302.1, LATEST EDITION, "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION"
   - 5.6. ACI 308.1, LATEST EDITION, "SPECIFICATION FOR CURING CONCRETE"
   - 5.7. CRSI "MANUAL OF STANDARD PRACTICE", LATEST EDITION
6. MASONRY:
   - 6.1. ACI 530-2013, "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES"
   - 6.2. ACI 530.1-2013, "SPECIFICATION FOR MASONRY STRUCTURES"
7. STRUCTURAL STEEL:
   - 7.1. AISC "MANUAL OF STEEL CONSTRUCTION, 14TH EDITION"
   - 7.2. AWS D1.1, "STRUCTURAL WELDING CODE- STEEL"
   - 7.3. AWS D1.3, "STRUCTURAL WELDING CODE- SHEET STEEL"
   - 7.4. AWS D1.6, "STRUCTURAL WELDING CODE- STAINLESS STEEL"
   - 7.5. SDI, "DESIGN MANUAL FOR COMPOSITE DECK, FORM DECKS, AND ROOF DECKS"
   - 7.6. SJI 100-2015, "STANDARD SPECIFICATION FOR K-SERIES, LH-SERIES, & DLH-SERIES OPEN WEB STEEL JOISTS"
8. ALUMINUM:
   - 8.1. 2015 ALUMINUM DESIGN MANUAL (ADM1-2015)
   - 8.2. AWS D1.2, "STRUCTURAL WELDING CODE- ALUMINUM"
9. WOOD:
   - 9.1. AWC NDS-2015, "NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION WITH 2015 NDS SUPPLEMENT"
   - 9.2. AWC SDPWS-2015, "SPECIAL DESIGN PROVISIONS FOR WIND AND SEISMIC"
   - 9.3. TPI 1-2014, "NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION"

BUILDING CODE NOTES:

1. PROJECT DESCRIPTION: EXPANSION OF EXISTING RESIDENTIAL WASTEWATER TREATMENT PLANT TO INCREASE TREATMENT CAPACITY. THE PROJECT INCLUDES MODIFICATION TO EXISTING TANKS AND CONTROL BUILDING, AS WELL CONSTRUCTION OF NEW TANKS AND EQUIPMENT BUILDING.
   - 1.1. CONTROL BUILDING: 960-SF ADDITION TO EXISTING CONTROL BUILDING, INCLUDING AN OFFICE, MAINTENANCE ROOM, AND DUMPSTER ROOM. BUILDING CONSTRUCTION TO MATCH EXISTING BUILDING (SLAB ON GRADE, CMU BLOCK WALLS, WOOD ROOF TRUSSES & METAL ROOFING).
     - 1.1.1. USE & OCCUPANCY CLASSIFICATION: (F-2 (UNCHANGED))
     - 1.1.2. CONSTRUCTION TYPE: V-B
     - 1.1.3. NOT REQUIRED TO BE SPRINKLERED PER SECTION 903.
     - 1.1.4. ALLOWABLE AREA / HEIGHT / STORIES: 13,000 SF / 40-FT / 2-STORIES
     - 1.1.5. BUILDING AREA / HEIGHT / STORIES: 2,736 SF / 15-FT / 1-STORY
     - 1.1.6. MAXIMUM TOTAL TRAVEL DISTANCE (300-FT) AND COMMON PATH OF EGRESS (75-FT) NOT EXCEEDED.
   - 1.2. CAMBRIAN BUILDING: NEW BUILDING TO HOUSE EQUIPMENT FOR WASTEWATER TREATMENT PROCESSES. BUILDING CONSTRUCTION WILL CONSIST OF SLAB ON GRADE, CMU BLOCK WALLS, STEEL JOISTS & METAL ROOFING.
     - 1.2.1. USE & OCCUPANCY CLASSIFICATION: (U)
     - 1.2.2. CONSTRUCTION TYPE: V-B
     - 1.2.3. NOT REQUIRED TO BE SPRINKLERED PER SECTION 903.
     - 1.2.4. ALLOWABLE AREA / HEIGHT / STORIES: 13,000 SF / 40-FT / 2-STORIES
     - 1.2.5. BUILDING AREA / HEIGHT / STORIES: 876 SF / 15-FT / 1-STORY
     - 1.1.6. MAXIMUM TOTAL TRAVEL DISTANCE (300-FT) AND COMMON PATH OF EGRESS (75-FT) NOT EXCEEDED.

STRUCTURAL DESIGN CRITERIA:

1. BUILDING RISK CATEGORY: III
2. DEAD LOADS: ACTUAL WEIGHTS OF BUILDING MATERIALS, STRUCTURAL COMPONENTS, & EQUIPMENT.
3. LIVE LOADS: ASCE 7
   - 3.1. ROOF: 20 PSF OR 300 LB CONCENTRATED LOAD APPLIED AT ANY POINT
   - 3.2. OFFICES: 50 PSF
   - 3.3. EQUIPMENT AREAS: 150 PSF
   - 3.4. STAIRS/PLATFORMS: 100 PSF
   - 3.5. FIXED LADDERS: 300 LB CONCENTRATED LOAD FOR EVERY 10-FT OF HEIGHT
     - 3.5.1. RAIL EXTENSIONS: 100 LB CONCENTRATED LOAD IN ANY DIRECTION
   - 3.6. GUARDRAILS/HANDRAILS (THE WORST CASE OF THE FOLLOWING):
     - 3.6.1. 20 PLF FOR AREAS W/ OCCUPANT LOAD LESS THAN 50
     - 3.6.2. 200 LB CONCENTRATED LOAD APPLIED IN ANY DIRECTION AT ANY POINT
   - 3.7. VEHICULAR DRIVEWAYS & YARDS SUBJECT TO TRUCKING: 250 PSF
4. WIND DESIGN PARAMETERS: ASCE 7
   - 4.1. ULTIMATE WIND SPEED: 120 MPH
   - 4.2. NOMINAL WIND SPEED: 93 MPH
   - 4.3. EXPOSURE CATEGORY: C
   - 4.4. INTERNAL PRESSURE COEFFICIENT, GCPI:
     - 4.4.1. PARTIALLY ENCLOSED: ± 0.55
5. SEISMIC DESIGN PARAMETERS: ASCE 7
   - 5.1. IMPORTANCE FACTOR, Ie: 1.25
   - 5.2. SITE CLASS: C
   - 5.3. MAPPED SPECTRAL RESPONSE ACCELERATIONS:
     - 5.3.1. Ss: 0.276g S_1: 0.136g
   - 5.4. SEISMIC DESIGN CATEGORY: C
   - 5.5. SPECTRAL DESIGN ACCELERATIONS:
     - 5.5.1. S_{DS} : 0.221g S_{D1} : 0.151g
   - 5.6. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE
   - 5.7. BASIC SEISMIC FORCE RESISTING SYSTEM: INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
   - 5.8. RESPONSE MODIFICATION FACTOR, R: 3.5
   - 5.9. SEISMIC RESPONSE COEFFICIENT, Cs: 0.08
   - 5.10. DESIGN BASE SHEAR: CONTROL BUILDING: 27.5 KIPS
   - 5.11. DESIGN BASE SHEAR: CAMBRIAN BUILDING: 11.0 KIPS
6. SNOW DESIGN PARAMETERS: ASCE 7
   - 6.1. IMPORTANCE FACTOR, Is: 1.10
   - 6.2. GROUND SNOW LOAD, Pg: 10 PSF
   - 6.3. EXPOSURE FACTOR, Ce: 0.90
   - 6.4. THERMAL FACTOR, Ct: 1.0
   - 6.5. FLAT ROOF SNOW LOAD, Pf: 7 PSF
7. FLOOD DESIGN PARAMETERS: ASCE 24
   - 7.1. FLOOD DESIGN CLASS: 3
   - 7.2. FLOOD HAZARD MAP: 47187C0385F (EFF. 09/29/06)
   - 7.3. FLOOD HAZARD AREA: ZONE X
   - 7.4. BASE FLOOD ELEVATION (BFE): EL. 700
   - 7.5. ELEVATION OF LOWEST FLOOR: EL. 708
   - 7.6. ELEVATION OF LOWEST STRUCTURE: EL. 700
   - 7.7. DESIGN FLOOD ELEVATION (DFE): BFE + 1-FOOT

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO ANY PERTINENT WORK. ALL EXISTING CONDITIONS AND DIMENSIONS SHALL BE NOTED ON THE SHOP DRAWINGS.
2. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE DESIGN DRAWINGS, SUBMITTALS, AND EXISTING CONDITIONS TO DETERMINE WHERE OPENINGS ARE REQUIRED IN WALLS AND SLABS.
3. THE STRUCTURE SHOULD NOT BE CONSIDERED TO BE STABLE DURING CONSTRUCTION UNTIL ALL ELEMENTS ARE IN PLACE AND CONNECTED. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING ALL TEMPORARY CONSTRUCTION BRACING, AS REQUIRED.
4. CONSTRUCTION METHODS, PROCEDURES, AND SEQUENCES ARE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL TAKE THE ALL NECESSARY MEANS TO MAINTAIN AND PROTECT THE STRUCTURAL INTEGRITY OF ALL CONSTRUCTION, NEW AND EXISTING, AT ALL STAGES.
5. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING OR RELOCATING, AS APPLICABLE, ALL EXISTING UNDERGROUND UTILITIES AND OTHER STRUCTURES FROM DAMAGE DURING CONSTRUCTION.

FOUNDATIONS:

1. ALLOWABLE SOIL BEARING PRESSURE IS 2,500 PSF.
2. ALL EXCAVATED AREAS SHALL BE PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER OR ENGINEER'S REPRESENTATIVE. UNSUITABLE BEARING MATERIALS SHALL BE REMOVED AND REPLACED WITH COMPACTED FILL, AS DIRECTED BY THE ENGINEER.
3. ALL BACKFILL BENEATH FOUNDATIONS/SLABS, AND AGAINST BELOW GRADE WALLS SHALL BE COMPACTED GRANULAR FILL (ASTM C-33 #57 OR #67 STONE).
4. FOR FILL PLACED WITHIN 5-FEET OF BUILDING OR TANK FOUNDATIONS AND UNDERNEATH ALL SLABS ON GRADE, COMPACT TO 98% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-698 (STANDARD PROCTOR).
5. PROVIDE VAPOR BARRIER UNDER BUILDING SLABS ON GRADE.

CONCRETE:

1. STRUCTURAL CONCRETE: MIN. 28-DAY COMPRESSIVE STRENGTH: 4,500 PSI
2. NON-STRUCTURAL CONCRETE: MIN. 28-DAY COMPRESSIVE STRENGTH: 3,000 PSI
3. CONCRETE SHALL BE PROPORTIONED, MIXED, PLACED, CONSOLIDATED, AND CURED IN ACCORDANCE WITH THE REFERENCED CODES AND STANDARDS.
4. CONSTRUCTION JOINTS SHALL BE LOCATED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
5. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4-INCH.
6. ALL INTERIOR SLABS ON GRADE SHALL BE FINISHED WITH FLOOR HARDENER AND SEALER.
7. EXTERIOR WALKWAYS AND SIDEWALKS SHALL BE POURED WITH SLIGHT SLOPE AWAY FROM ANY ADJACENT STRUCTURES.
8. WATERSTOPS SHALL BE PROVIDED AT ALL CONCRETE JOINTS IN LIQUID-CONTAINING STRUCTURES. SEE SPECS FOR ADDITIONAL INFO.
9. PRECAST MANHOLES SHALL BE DESIGNED BY A QUALIFIED PROFESSIONAL ENGINEER AND COMPLY WITH ASTM C-478 AND C-443.

REINFORCING STEEL:

1. REINFORCING STEEL SHALL COMPLY WITH ASTM A-615 GRADE 60 (DEFORMED BARS).
2. DETAILING SHALL BE IN ACCORDANCE WITH THE REFERENCED CODES AND STANDARDS.
3. ALL LAP SPLICES SHALL BE CLASS B TENSION LAP SPLICES. SEE DETAIL 1/S-700.

STRUCTURAL STEEL:

1. STRUCTURAL STEEL SHAPES SHALL CONFORM TO THE FOLLOWING MATERIALS, U.N.O.: W- ASTM A992; M, S, C, MC- ASTM A36; HSS- ASTM A500, GRADE B; PIPE- ASTM A53, GRADE B; ANGLES, PLATES, BARS: ASTM A36.
2. STRUCTURAL BOLTS SHALL CONFORM TO THE FOLLOWING, U.N.O.: STEEL BOLTS- ASTM A325; STAINLESS STEEL (SST) BOLTS- ASTM F593
3. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS IN ACCORDANCE WITH THE REFERENCED CODES AND STANDARDS. WELDING ELECTRODE- E70XX.
4. NO OPENINGS SHALL BE CUT IN STRUCTURAL STEEL MEMBERS, EXCEPT AS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE ENGINEER.
5. NONSHRINK GROUT FOR BASE PLATES SHALL BE MASTER BUILDERS MASTERFLOW 885.

MASONRY:

1. HOLLOW CONCRETE MASONRY UNITS (CMU) SHALL CONFORM TO ASTM C-90, TYPE 1 NORMAL WEIGHT UNITS, WITH 2 CELL BLOCKS AND HAVE A MIN. SPECIFIED COMPRESSIVE STRENGTH OF 1,900 PSI ON THE NET AREA AT 28-DAYS.
2. MORTAR SHALL CONFORM TO ASTM C-270, TYPE S.
3. CMU AND MORTAR SHALL CONTAIN INTEGRAL WATER REPELLENT ADMIXTURES, WHICH ARE COMPATIBLE.
4. MASONRY GROUT SHALL CONFORM TO ASTM C-476 AND HAVE A MIN. COMPRESSIVE STRENGTH OF 3,000 PSI.
5. ALL CELLS CONTAINING REINFORCING OR EMBEDDED ANCHORS SHALL BE FULLY GROUTED. ALL COURSES BELOW GRADE SHALL BE FULLY GROUTED.
6. ALL WALL CORNERS AND INTERSECTIONS SHALL BE INTERWOVEN WITH CORNER BLOCKS OR T-BLOCKS.
7. LADDER TYPE HORIZONTAL JOINT REINFORCING SHALL BE PROVIDED IN ALL REINFORCED CMU AND START IN THE FIRST JOINT ABOVE THE BOTTOM OF THE WALL. JOINT REINFORCING SHALL BE 9GA. (0.148-INCH OR W1.7) LADDER MESH WITH COLD-DRAWN WIRE & CONFORM TO ASTM A-951. SPACE AT 16-INCHES VERTICALLY AND LAP 8-INCHES AT EACH END.
8. PRE-FORMED CONTROL JOINT GASKETS SHALL BE EXTRUDED RUBBER MATERIAL CONFORMING TO ASTM D2000 M2AA-805.

ANCHORING TO CONCRETE & MASONRY:

1. CAST-IN-PLACE ANCHORING SHALL BE WITH ASTM F1554 (GRADE 36, U.N.O.) THREADED RODS AND HEAVY NUT OR PLATE WASHER TACK WELDED TO THE ROD. SIZE AND EMBEDMENT DEPTH SHALL BE AS INDICATED ON THE DRAWINGS.
2. POST-INSTALLED ANCHORING SYSTEMS FOR CONCRETE:
   - 2.1. BASIS OF DESIGN: HILTI, INC. SEE SECTION 05 05 23 FOR ADDITIONAL INFO.
   - 2.2. ADHESIVE ANCHORING- HIT-HY 200 W/ HIT-Z-R SST 316, HAS-R SST 316, OR ASTM F593 SST 316 THREADED ROD.
   - 2.3. MECHANICAL ANCHORING- KWIK BOLT TZ SST 316 EXPANSION ANCHOR.
3. POST-INSTALLED ANCHORING SYSTEMS FOR MASONRY:
   - 3.1. BASIS OF DESIGN: HILTI CORPORATION, OR APPROVED EQUAL. SEE SPEC FOR ADDITIONAL INFO.
   - 3.2. ADHESIVE ANCHORING- HIT-HY 70 W/ HAS-R SST 316, OR ASTM F593 SST 316 THREADED ROD. FOR ANCHORAGE TO HOLLOW MASONRY, PROVIDE MFR'S SCREEN TUBE AS APPROPRIATE FOR THE ANCHOR SIZE INDICATED.
   - 3.3. MECHANICAL ANCHORING- KWIK BOLT TZ SST 316 EXPANSION ANCHOR.

ALUMINUM FRAMING, GUARDRAIL, & GRATING:

1. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE, MASONRY, OR DISSIMILAR METALS SHALL BE COATED WITH BITUMINOUS PAINT.
2. ALUMINUM SHAPES SHALL CONFORM TO THE FOLLOWING MATERIALS, U.N.O.:
   - 2.1. STRUCTURAL SHAPES & EXTRUSIONS- ASTM B221, 6061-T6; PLATE & SHEET- ASTM B209, 6061-T6; CASTINGS- ASTM B26, ALLOY 443.0-F.
3. GRATING AND PLANK SHALL CONFORM TO ASTM B221, 6063, I-BAR TYPE GRATING. PROFILE A-19-4, WITH SIZE AS INDICATED, SHALL BE USED FOR ALL WALKING SURFACES WITHOUT VEHICULAR TRAFFIC, U.N.O. PANEL SECTIONS SHALL BE FABRICATED IN THE LARGEST PRACTICAL SIZE FOR HANDLING, BUT NO PIECE SHALL WEIGH MORE THAN 100 LB, U.N.O.
4. GUARDRAIL SHALL BE AS INDICATED ON THE DRAWINGS AND CONFORM TO ASTM-B429 OR B221, ALLOY 6105-T5 OR 6063-T5.

WOOD TRUSSES:

1. ROOF TRUSSES SHALL BE DESIGNED TO SUPPORT THE FOLLOWING LOADS:
   - 1.1. TOP CHORD- DEAD LOAD = 12 PSF
   - 1.2. TOP CHORD- LIVE LOAD = 20 PSF
   - 1.3. BOTTOM CHORD- DEAD LOAD = 8 PSF
   - 1.4. IN ADDITION TO THE UNIFORM LOADING, THE TRUSS DESIGNER SHALL INCLUDE ANY CONCENTRATED LOADS CAUSED BY ARCHITECTURAL FEATURES & MECHANICAL OR ELECTRICAL PIPING OR EQUIPMENT.
2. ROOF TRUSSES SHALL BE DESIGNED BY A QUALIFIED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TENNESSEE. SHOP DRAWINGS- INCLUDING TRUSS DESIGNS, PLAN LAYOUT, TEMPORARY BRACING, PERMANENT BRACING, & TYPICAL JOINT DETAILS- SHALL BE SIGNED AND SEALED BY THE TRUSS DESIGNER AND SUBMITTED THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.
3. UNLESS NOTED OTHERWISE ON DRAWINGS, TRUSS SUPPLIER SHALL BE RESPONSIBLE FOR DESIGNING AND SUPPLYING OR SPECIFYING ALL TEMPORARY BRACING AND PERMANENT INDIVIDUAL TRUSS MEMBER BRACING REQUIRED BY DESIGN, ALL TRUSS-TO-TRUSS CONNECTIONS, AND ALL UPLIFT CONNECTIONS AT BEARING LOCATIONS. ALL PERMANENT BRACING OF TRUSS MEMBERS SHALL BE CONTINUOUS AND BE ATTACHED TO AN END WALL STUD OR HIP TRUSS TOP CHORD WITH 2 #16D COMMON NAILS.
4. REFER TO THE T.P.I. "HIB SUMMARY SHEET COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING, & BRACING METAL PLATE CONNECTED WOOD TRUSSES".

LUMBER FRAMING:

1. ALL NON-PREFABRICATED LOAD BEARING FRAMING MEMBERS SHALL BE #2 SOUTHERN PINE W/ 19% MOISTURE CONTENT.
2. ALL PLYWOOD SHEATHING SHALL BE APA RATED. SEE PLANS FOR ADDITIONAL INFORMATION.
3. ½"Ø ANCHOR BOLTS EMBEDDED IN TOP OF CMU WALL SHALL HAVE 2"x2"x3/16" PLATE WASHER BETWEEN NUT AND WOOD TOP PLATE.

STRUCTURAL SPECIAL INSPECTION REQUIREMENTS:

1. THE CONTRACTOR SHALL MAKE THE WORK AVAILABLE &, WHEN NECESSARY, PROVIDE EQUIPMENT FOR ACCESSING THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE ENGINEER OR OWNER'S REP. AT LEAST 72-HOURS PRIOR TO ANY INSPECTIONS.
2. ALL DISCREPANCIES SHALL BE RESOLVED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER OR OWNER'S REP. PRIOR TO PROCEEDING WITH THE WORK.
3. THE FOLLOWING SHALL BE PERFORMED BY AN INDEPENDENT TESTING AGENCY:
   - 3.1. CONCRETE TESTING - REFER TO SPEC SECTION 03 30 00.
   - 3.2. MASONRY GROUT & MORTAR TESTING - REFER TO SPEC SECTION 04 20 00.
   - 3.3. SOIL COMPACTION TESTING - REFER TO SPEC SECTIONS 31 23 00 & 31 23 33.
4. ALL REINF. BARS FOR CONC. & MASONRY SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER OR OWNER'S REP. PRIOR TO PLACING CONC. OR GROUT.
5. ADHESIVE ANCHORING FOR REINF. & THREADED RODS, SHALL BE PERIODICALLY INSPECTED FOR PROPER DRILL BIT, HOLE PREPARATION, ADHESIVE INSTALLATION, & EMBEDMENT DEPTH IN ACCORDANCE WITH THE DWGS, SECTION 05 05 23, & ADHESIVE MFR'S WRITTEN INSTRUCTIONS.
6. WOOD TRUSS INSTALLATION, INCLUDING BLOCKING, BRACING, AND CONNECTORS, SHALL BE INSPECTED BY THE ENGINEER OR OWNER'S REP FOR CONFORMANCE WITH THE DESIGN DRAWINGS & THE TRUSS ENGINEER'S REQUIREMENTS.

idg
INFLO DESIGN GROUP

DANIEL B. MORGAN
REGISTERED ENGINEER
AGRICULTURE & ENVIRONMENT
COMMERCE
No. 117709
STATE OF TENNESSEE
03/31/21

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WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

STRUCTURAL NOTES & CRITERIA

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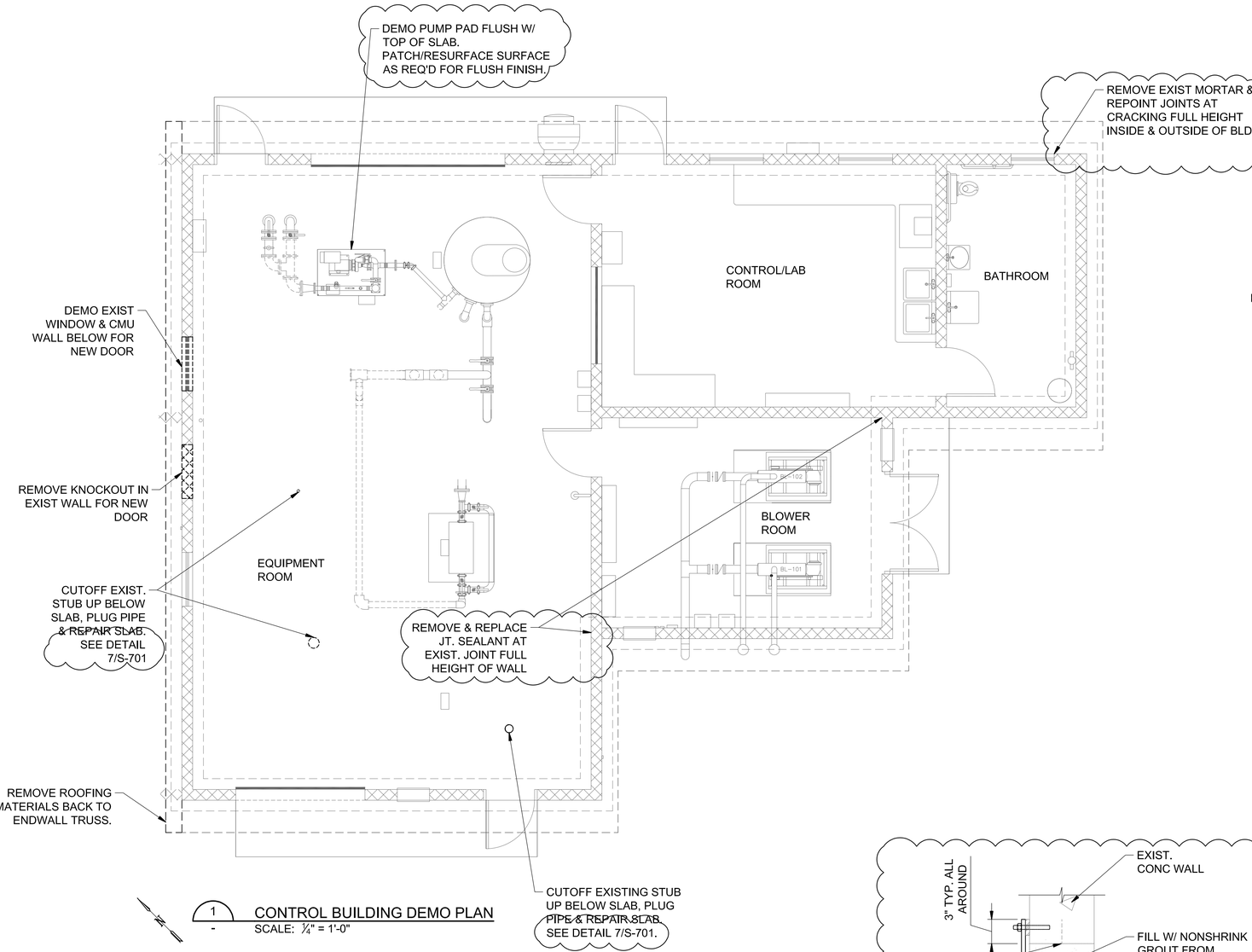
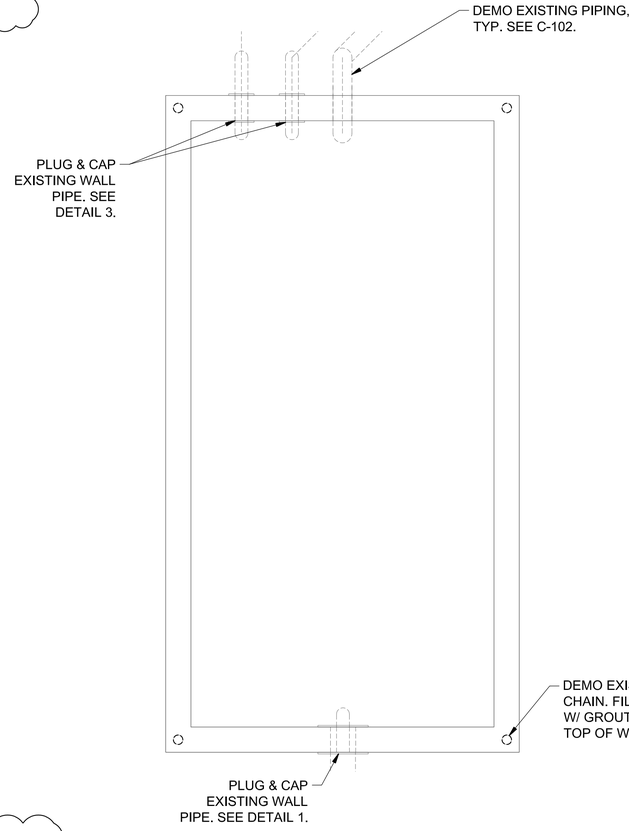
S-001

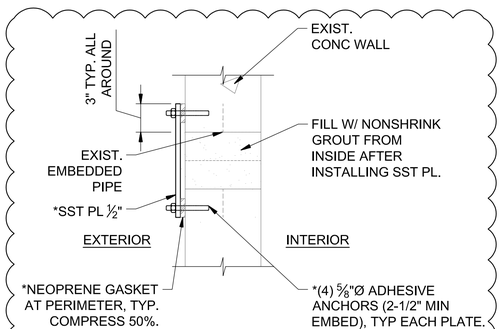
SHEET NUMBER
31



1 - CONTROL BUILDING DEMO PLAN
SCALE: ¼" = 1'-0"



2 - PREANOXIC TANK DEMO PLAN
SCALE: ½" = 1'-0"



NOTE:
* INDICATES ITEM IS ONLY REQUIRED WHEN INTERIOR SURFACE IS EXPOSED TO LIQUID.

3 - WALL REPAIR DETAIL
SCALE: 1½" = 1'-0"

PREANOXIC TANK DEMO & CLEANING NOTES:

1. REMOVE ALL EXISTING EQUIPMENT, PIPING, & SUPPORTS.
2. REMOVE DEBRIS, WASTE, & SLUDGE
3. PRESSURE WASH EXISTING CONCRETE SURFACES & PUMP WASH WATER TO LAGOON.

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

idg INFLO DESIGN GROUP

DANIEL B. MORGAN — REGISTERED ENGINEER — AGRICULTURAL — COMMERCE — No. 117709 — STATE OF TENNESSEE — 03/31/21

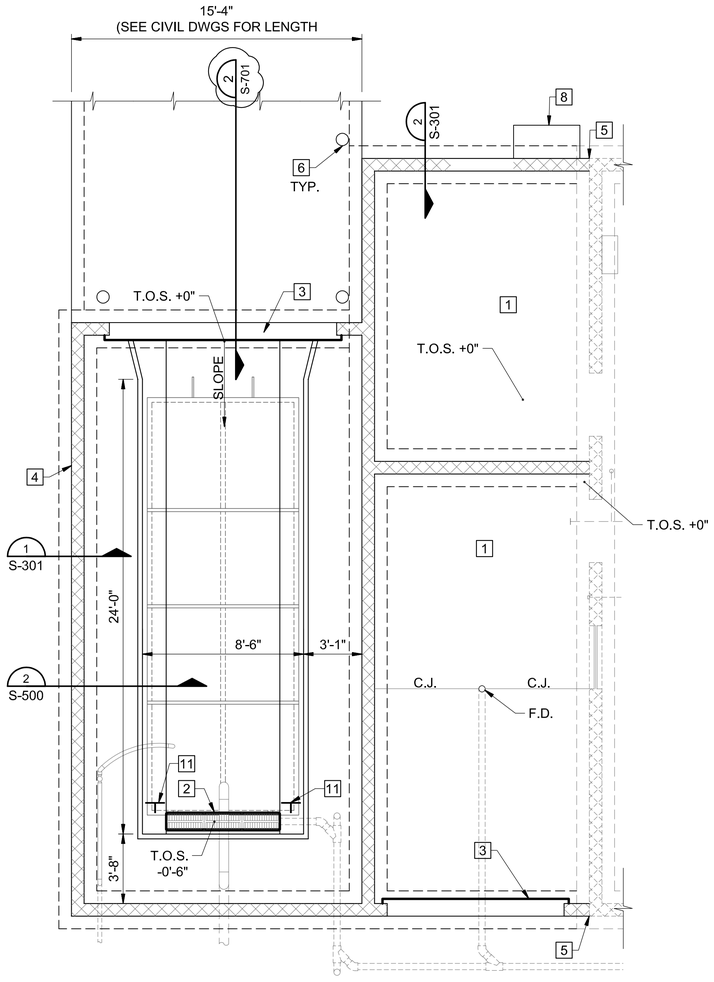
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

STRUCTURAL DEMOLITION PLANS

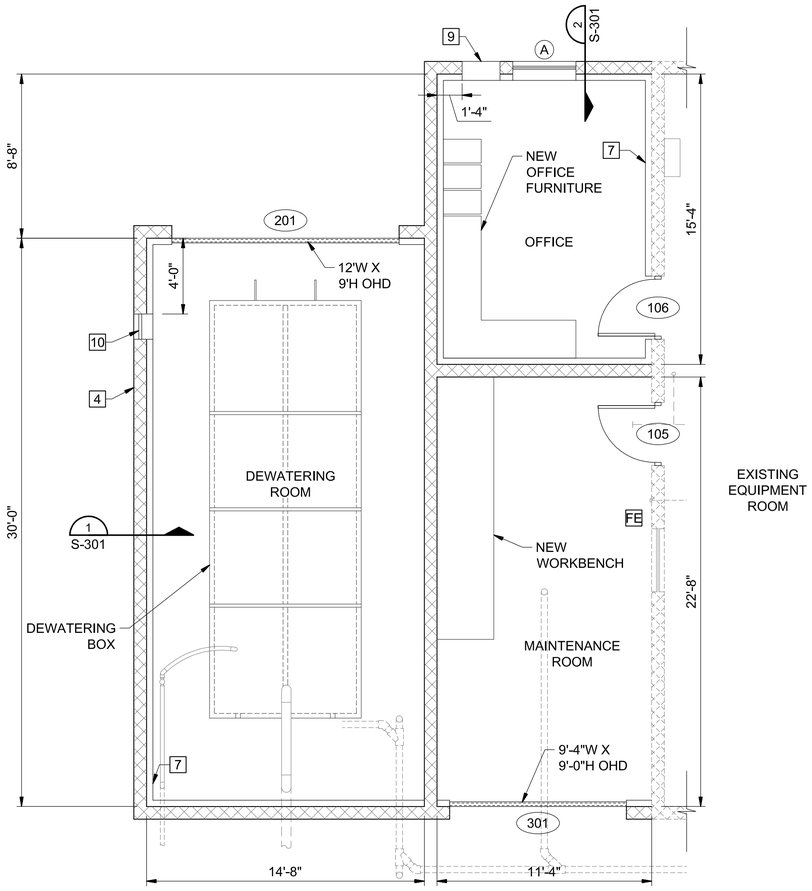
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
S-100

SHEET NUMBER
32



1 - CONTROL BUILDING SLAB PLAN
SCALE: ¼" = 1'-0"



2 - CONTROL BUILDING FLOOR PLAN
SCALE: ¼" = 1'-0"

KEYED NOTES:

1. 6" CONC. SLAB OVER 10 MIL. VAPOR BARRIER & 6" COMPACTED GRANULAR BASE. SEE DETAILS ON S-500 FOR REINFORCING.
2. CONC. TRENCH W/ NEENAH R-4990-CX (TYPE A) TRENCH GRATE W/ BOTTOM OUTLET PIPE
3. 1" SLAB DEPRESSION, TYP. AT OH DOORS. SEE DETAIL 8/S-600.
4. 8" NOM. SPLIT-FACE CMU BLOCK. REINFORCED W/ #5@48". SEE CMU DETAILS ON S-710 FOR ADDITIONAL REINF. REQUIREMENTS.
5. CONNECTION TO EXIST. BUILDING. SEE DET. 3/S-500.
6. 6" CONCRETE PIPE BOLLARD. SEE DETAIL 3/S-701.
7. ⅝" TYPE 'X' MOLD RESISTANT GYP. BD. OVER ⅞" METAL FURRING CHANNELS OVER CONT. RIGID INSULATION.
8. CONCRETE EQUIPMENT PAD FOR CONDENSING UNIT.
9. 24"X24" SUPPLY GRILL. BOTT. AT 7'-4" AFF. SEE M DWGS FOR INFO.
10. 16"X16" MECHANICAL LOUVER. BOTT. AT 7'-4" AFF. SEE M DWGS FOR INFO.
11. STEEL STOP PL 1/2"x8"x1'-0" W/ STIFFENER (A588). FIELD WELD CONT. TO EMBEDDED SKID PLATE.

SHEET NOTES:

1. TOP OF SLAB (T.O.S.) IS BASED OFF OF FINISHED FLOOR ELEVATION IN EXISTING CONTROL BUILDING ~ 708.07'. CONTRACTOR TO VERIFY.
2. FE INDICATES WALL MOUNTED FIRE EXTINGUISHER (TYPE 2-A 10-B/C)
3. REFER TO S-600 FOR DOOR AND FINISH SCHEDULES.

idg
INFLO DESIGN GROUP

DANIEL B. MORGAN
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 117709
STATE OF TENNESSEE
03/31/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
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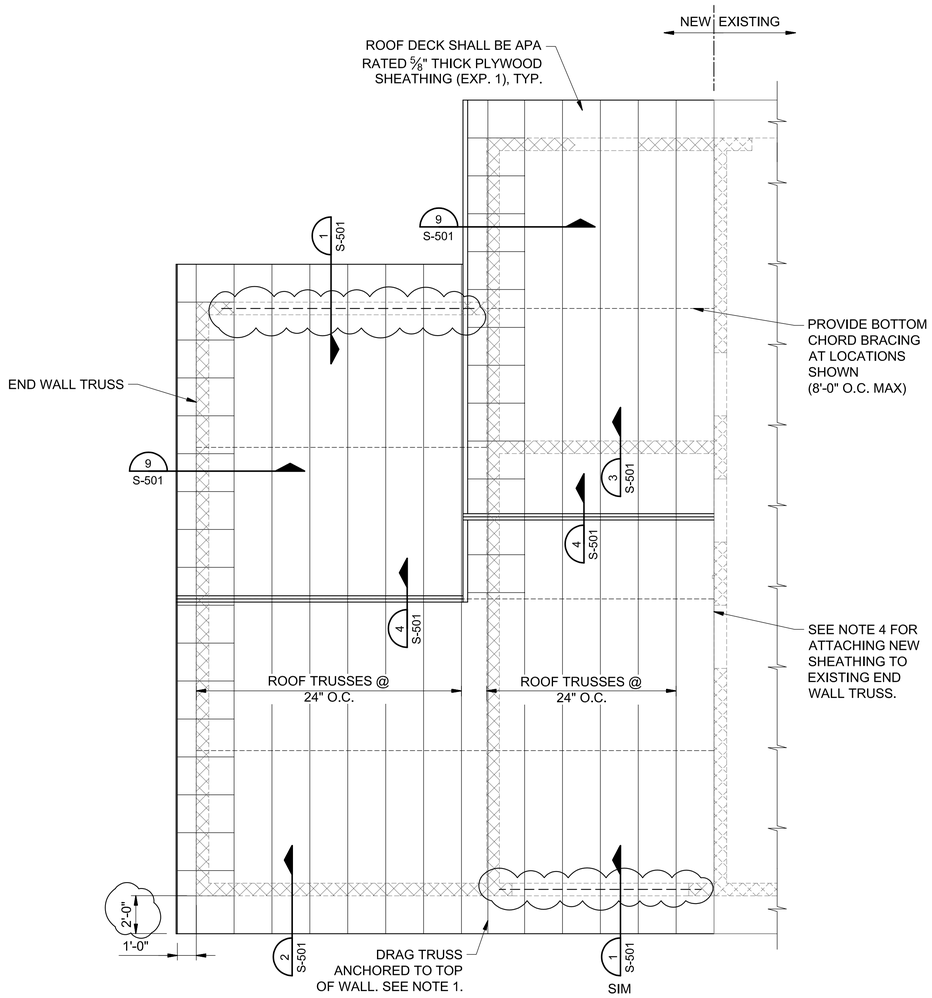
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONTROL BUILDING SLAB & FLOOR PLANS

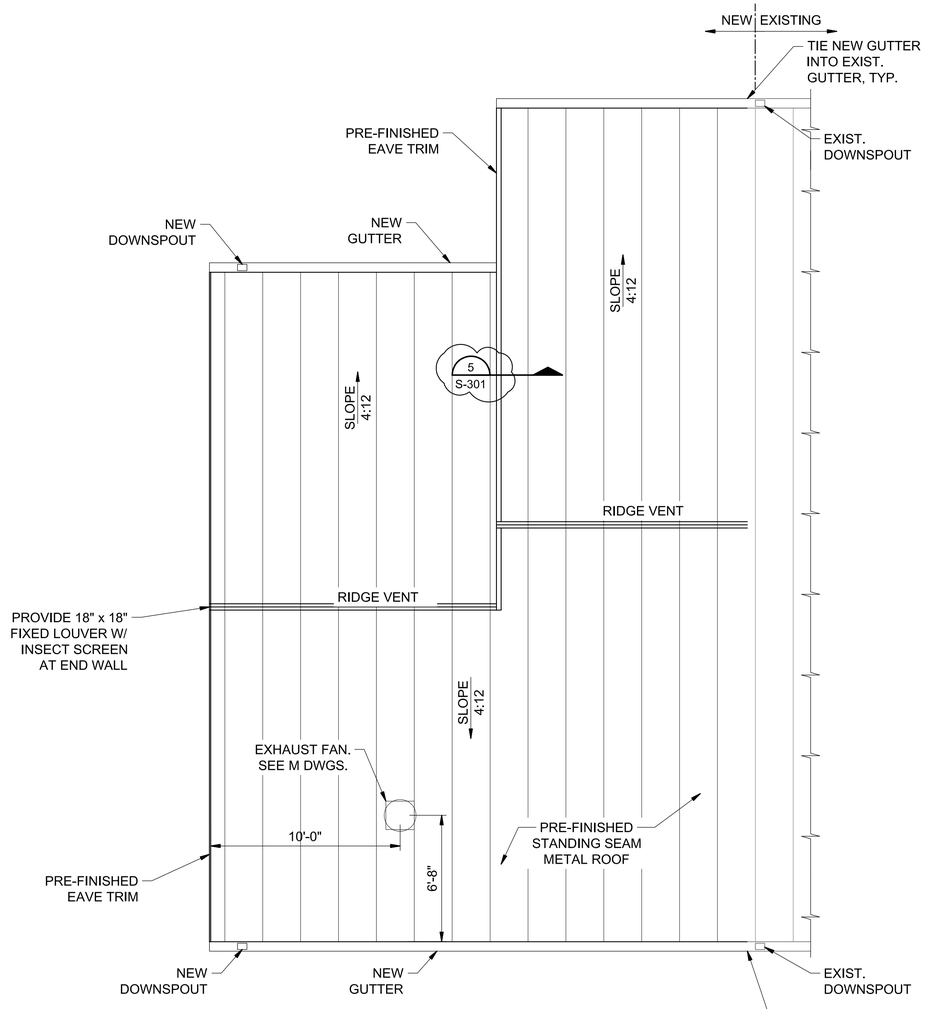
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
S-101

SHEET NUMBER
33



1 - CONTROL BUILDING ROOF FRAMING PLAN
SCALE: ¼" = 1'-0"



2 - CONTROL BUILDING ROOFING PLAN
SCALE: ¼" = 1'-0"

DESIGN NOTES:

1. REFER TO DESIGN NOTES ON S-001 FOR TRUSS DESIGN REQUIREMENTS.
   1.1. DRAG TRUSS ALLOWABLE DESIGN SHEAR FORCE = 5,200 LB (0.7*Ω*E)
2. ALL BLOCKING AND BRACING TO BE JOB CUT AND FRAMED. SEE SHEET S-501 FOR DETAILS.
3. PROVIDE 1 SIMPSON PSCL SHEATHING CLIP BETWEEN TRUSSES AT ALL UNSUPPORTED EDGES.
4. AT EXISTING END WALL, NEW SHEATHING SHALL BE INTERWOVEN WITH EXISTING SHEATHING, SO THAT PANEL END JOINTS ARE STAGGERED AS SHOWN IN DETAIL 5/S-501.
5. PRE-FINISHED STANDING SEAM METAL ROOF SHALL MATCH EXISTING METAL ROOF IN COLOR AND RIB PATTERN.
6. PROVIDE ALUMINUM SEAMLESS GUTTERS & DOWNSPOUTS (MATCH EXISTING) W/ PRECAST CONCRETE SPLASH BLOCKS.

idg
INFLO DESIGN GROUP

DANIEL B. MORGAN
REGISTERED ENGINEER
AGRICULTURE
CIVIL
COMMERCE
No. 117728
STATE OF TENNESSEE
03/31/21

REV	DATE	DESCRIPTION	BY
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1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

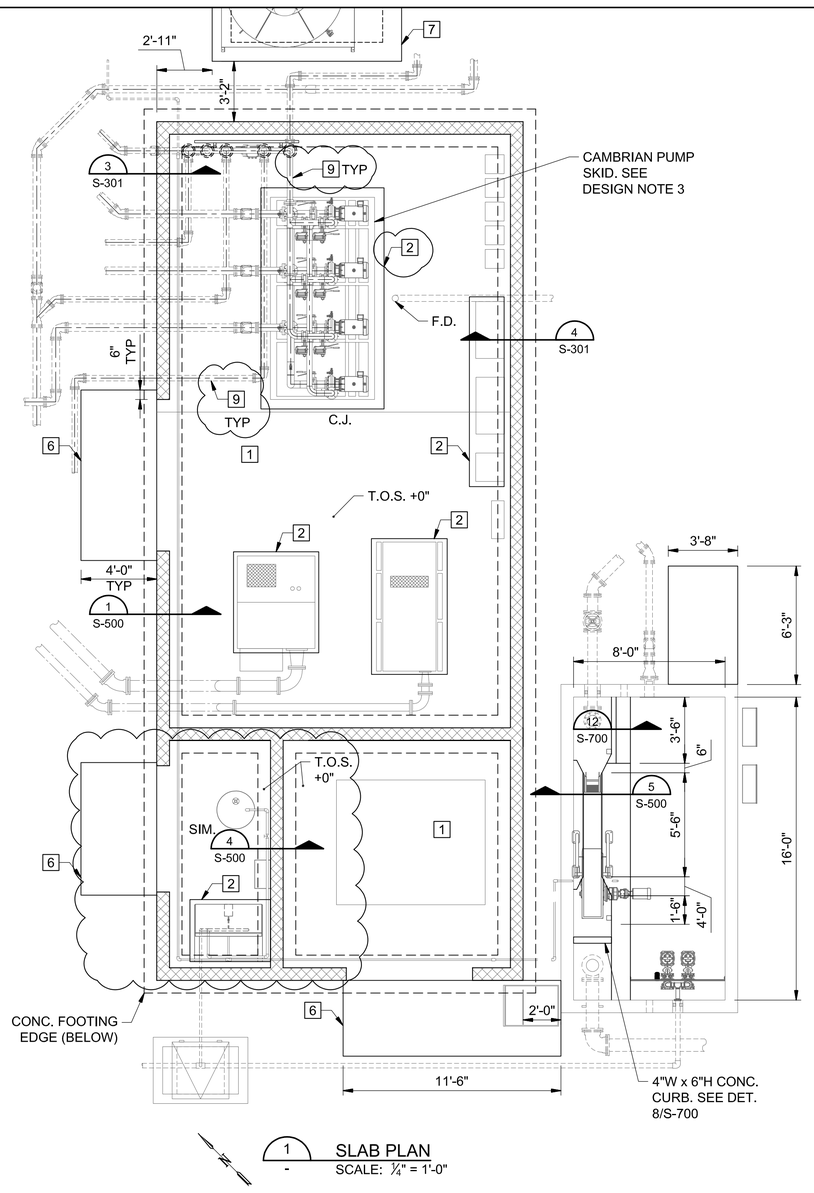
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONTROL BUILDING ROOF FRAMING & ROOFING PLANS

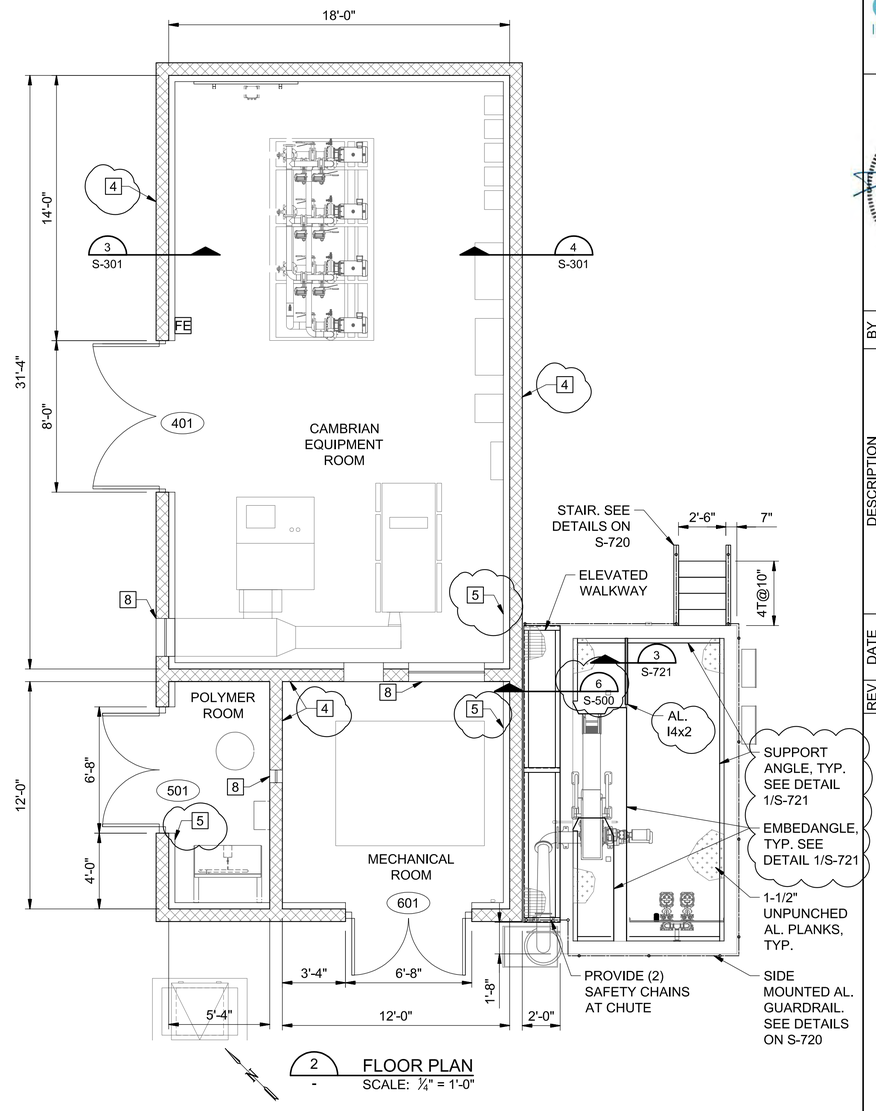
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
S-102

SHEET NUMBER
34



1 - SLAB PLAN
SCALE: ¼" = 1'-0"



2 - FLOOR PLAN
SCALE: ¼" = 1'-0"

KEYED NOTES: ☐

1. 8" CONC. SLAB OVER 10 MIL. VAPOR BARRIER & 6" COMPACTED GRANULAR BASE. SEE DETAILS ON S-500 FOR REINFORCING.
2. CONCRETE EQUIPMENT PAD. SEE DETAIL 9/S-700.
3. 1" SLAB DEPRESSION, TYP. AT OH DOORS. SEE DETAIL 8/S-600.
4. 8" NOM. SPLIT-FACE CMU BLOCK WALL. REINFORCED W/ #5@48". SEE DETAILS ON S-710 FOR ADDITIONAL REQUIREMENTS.
5. ⅝" TYPE 'X' MOISTURE RESISTANT GYP. BD. OVER ⅞" METAL FURRING CHANNELS OVER CONT. RIGID INSULATION.
6. CONCRETE STOOP. SEE DETAIL 2/S-701.
7. CONCRETE EQUIPMENT PAD FOR ODOR CONTROL SKID. SEE DETAIL 1/S-701.
8. MECH. LOUVER. SEE M DWGS.
9. CONCRETE ENCASE PROCESS PIPING BELOW SLAB. SEE DETAILS 5&6 ON S-701.

DESIGN NOTES:

1. TOP OF SLAB (T.O.S.) ELEVATION = 707.75' (+0'-6" ABOVE FINISHED GRADE). CONTRACTOR TO VERIFY WITH FINISHED GRADE ELEVATIONS.
2. SEE CONCRETE DETAILS ON S-700 & S-701 FOR ADDITIONAL REQUIREMENTS. PROVIDE ADDITIONAL REINFORCING AT ALL SLAB PENETRATIONS PER DETAIL 3/S-700.
3. CONTRACTOR TO PROVIDE 2" MIN. OF CEMENT GROUT UNDER PUMP SKID SUPPORT FRAMING. INSTALL PUMP SKID LEVEL.
4. REFER TO S-600 FOR DOOR & FINISH SCHEDULES.
5. FE INDICATES WALL MOUNTED FIRE EXTINGUISHER (TYPE 2-A 10-B/C)

idg
INFLO DESIGN GROUP

DANIEL B. MORGAN
REGISTERED ENGINEER
AGRICULTURAL
COMMERCE
No. 117709
STATE OF TENNESSEE
03/31/21

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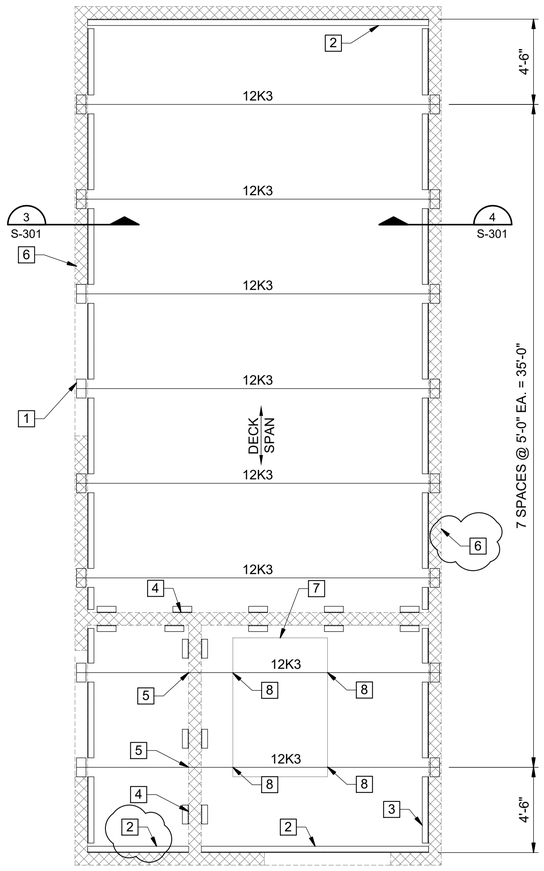
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CAMBRIAN BUILDING & INFLUENT SCREEN PLANS

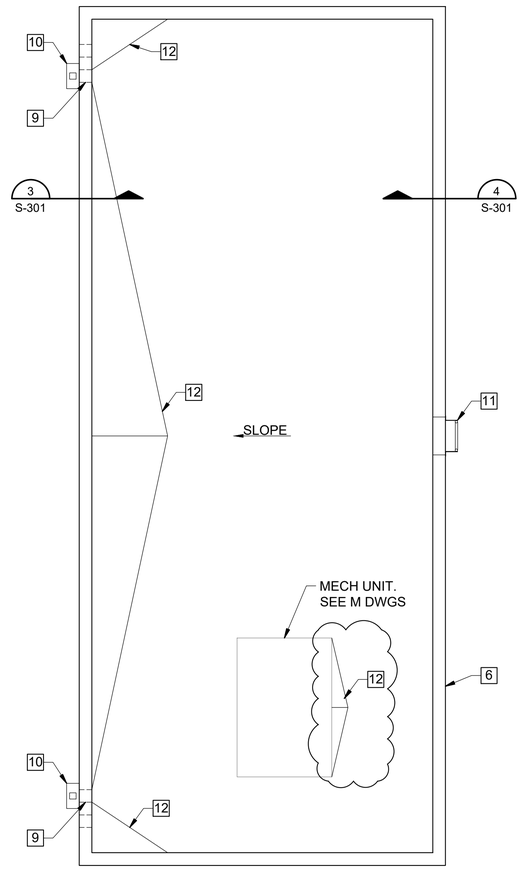
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
S-111

SHEET NUMBER
35



1 - ROOF FRAMING PLAN
SCALE: ¼" = 1'-0"



2 - ROOFING PLAN
SCALE: ¼" = 1'-0"

KEYED NOTES:

1. JOIST BEARING PLATE. SEE DETAIL 8/S-501.
2. L6X4X⅜" GALV. STEEL ANGLE. SEE DETAIL 7/S-501.
3. DECK EDGE SUPPORT, TYP. AT PERIMETER. SEE DET. 6/S-501.
4. NON-LOAD BEARING CMU WALL. SEE DETAIL 6/S-710 FOR INFO.
5. STEEL JOIST AT INTERIOR NON-LOAD BEARING CMU BLOCK WALL. SEE DET. 8/S-710 FOR INFO.
6. EXTERIOR LOAD-BEARING CMU BLOCK WALL.
7. MECH. ROOF TOP UNIT. COORDINATE ROOF DECK OPENING REQUIREMENTS WITH EQUIP SUBMITTAL. PROVIDE DECK OPENING REINF. PER DET. 5/S-721, AS REQ'D.
8. PROVIDE JOIST REINF. AT CONCENTRATED LOADS PER DET. 6/S-721
9. AL. SCUPPER. PROVIDE OVERFLOW SCUPPER 2" HIGHER AND ADJACENT TO SCUPPER.
10. 4" AL. PRE-FINISHED DOWNSPOUT
11. AL. LADDER W/ WALL BRACKETS ANCHORED TO CMU. PROVIDE 2'-0" OPENING IN PARAPET. PROVIDE VERT. REINF. FOR JAMB AT OPNG. IN PARAPET PER 1/S-710.
12. BUILT UP INSULATION

DESIGN NOTES:

1. ROOF DECK SHALL BE 1.5B 22GA GALVANIZED METAL DECK. ATTACH TO SUPPORT USING #12 SCREWS ON 36/4 PATTERN. SIDELAP FASTENERS SHALL BE (4) #10 TEK SCREWS EQUALLY SPACED PER SPAN.
2. UNFACTORED UNIFORM JOIST LOADS (BASED ON 5'-0" TRIBUTARY WIDTH):
   - 2.1. DEAD LOAD, PERMANENT = 60 PLF (INCL. JOIST WEIGHT)
   - 2.2. DEAD LOAD, COLLATERAL = 125 PLF
   - 2.3. ROOF LIVE LOAD = 100 PLF
   - 2.4. WIND LOAD (+C&C, ALL ZONES) = 80 PLF
   - 2.5. WIND LOAD (-C&C, ZONES 2&3) = -170 PLF (UPLIFT)
     - 2.5.1. EFFECTIVE WIND AREA > 100 SF
     - 2.5.2. WIDTH, a = 3'-0"
   - 2.6. SNOW (MIN.) = 55 PLF
     - 2.6.1. SNOW (BALANCED) = 35 PLF
     - 2.6.2. SNOW (DRIFT SURCHARGE) = 45 PLF
     - 2.6.1. DRIFT WIDTH, w = 4'-0"
3. JOIST BRIDGING NOT SHOWN. JOIST MFR. IS RESPONSIBLE FOR DESIGNING AND PROVIDING BRIDGING AS REQUIRED.

idg
INFLO DESIGN GROUP

DANIEL B. MORGAN
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 117709
STATE OF TENNESSEE
03/31/21

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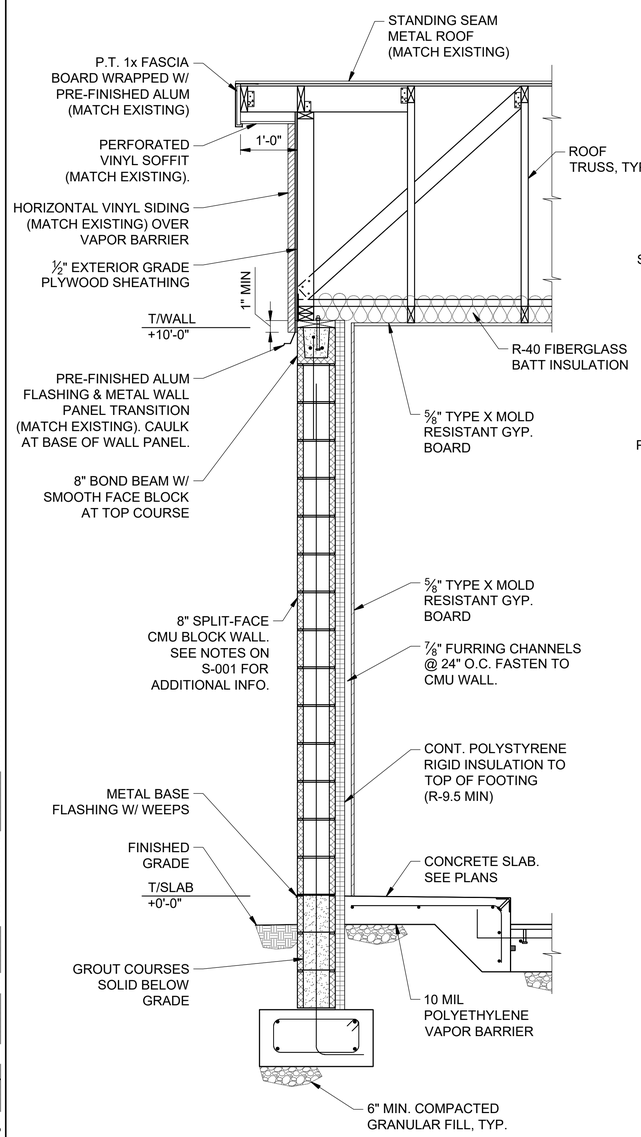
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CAMBRIAN BUILDING ROOF PLANS

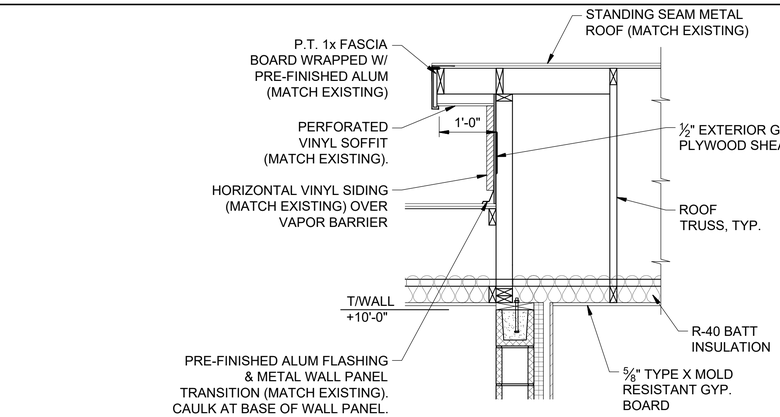
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
S-112

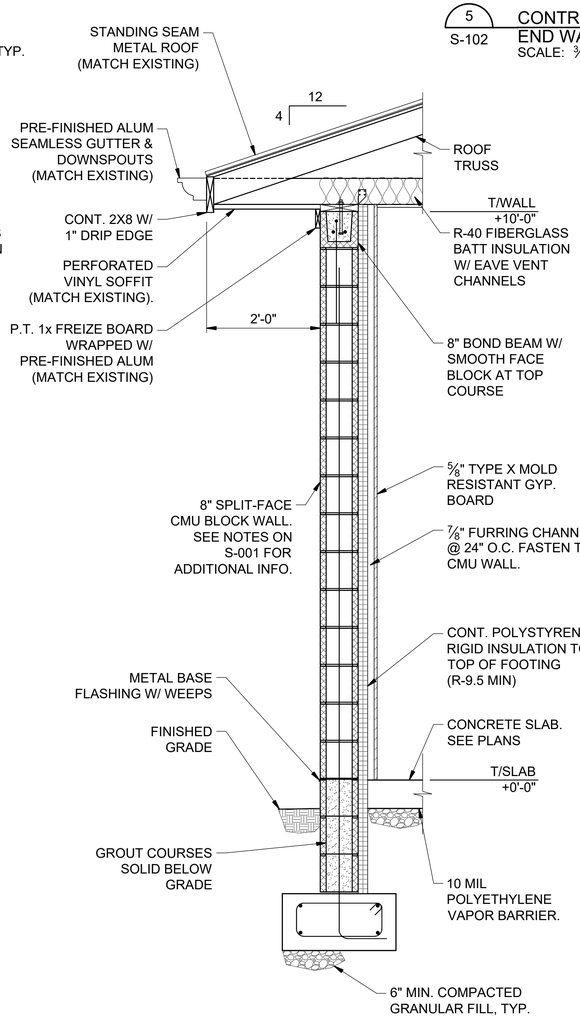
SHEET NUMBER
36



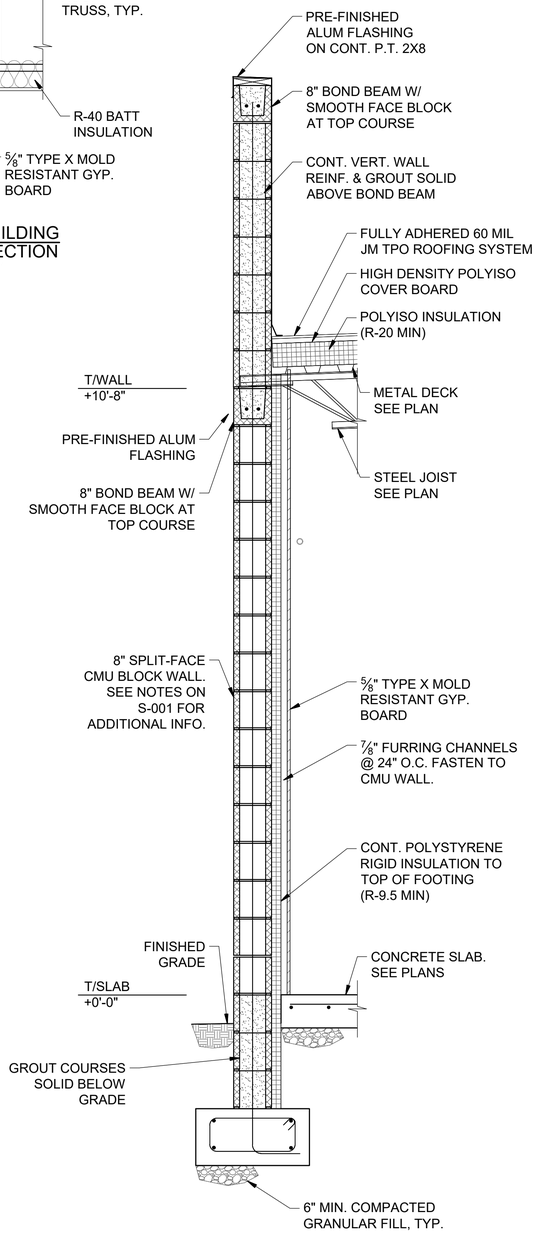
1 S-101 CONTROL BUILDING END WALL SECTION
SCALE: ¾" = 1'-0"



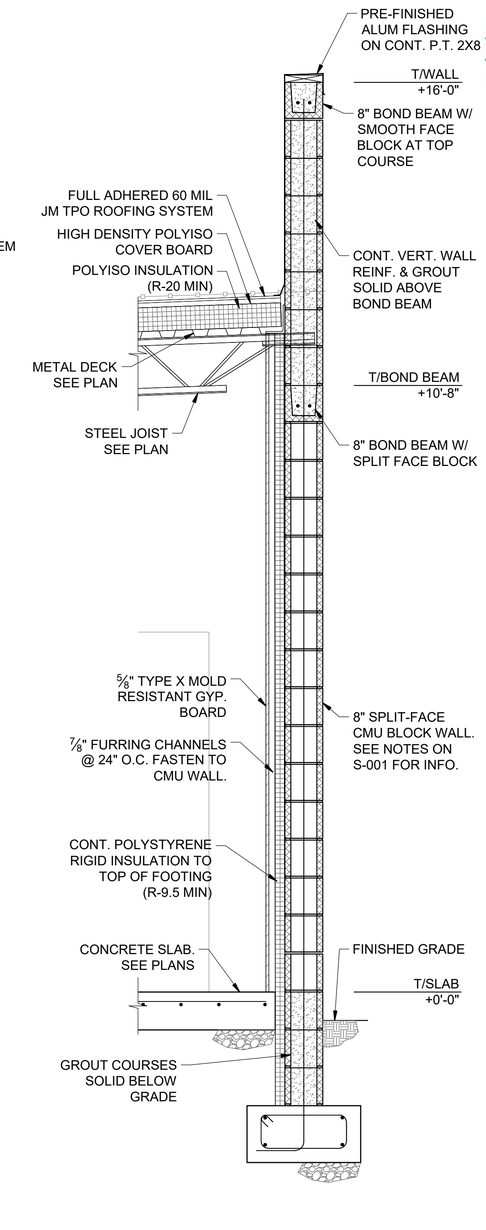
5 S-102 CONTROL BUILDING END WALL SECTION
SCALE: ¾" = 1'-0"



2 S-101 CONTROL BUILDING EAVE SECTION
SCALE: ¾" = 1'-0"



3 S-111 CAMBRIAN BUILDING LOW WALL SECTION
SCALE: ¾" = 1'-0"



4 S-111 CAMBRIAN BUILDING HIGH WALL SECTION
SCALE: ¾" = 1'-0"

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DANIEL B. MORGAN — REGISTERED ENGINEER — AGRICULTURE — COMMERCE — No. 117709 — STATE OF TENNESSEE — 03/31/21

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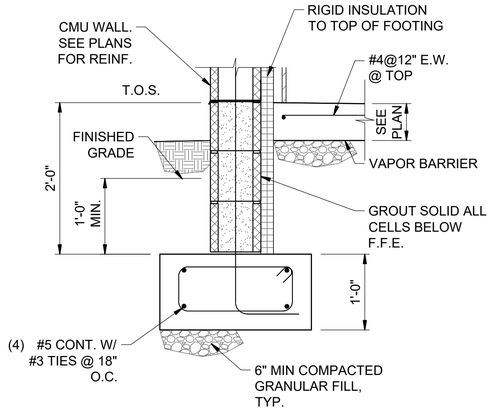
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WALL SECTIONS

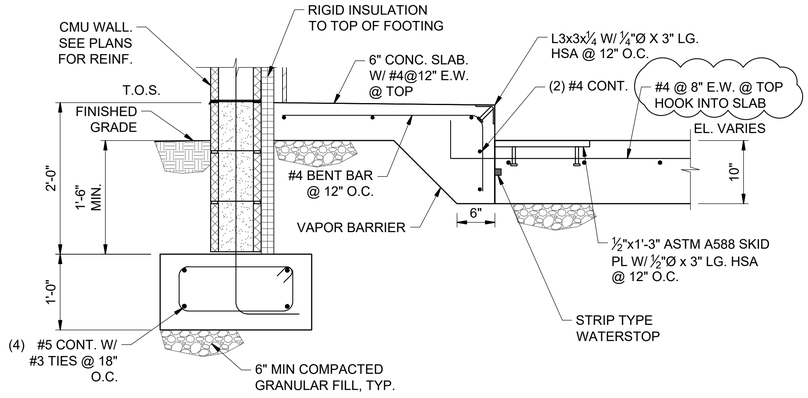
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
S-301

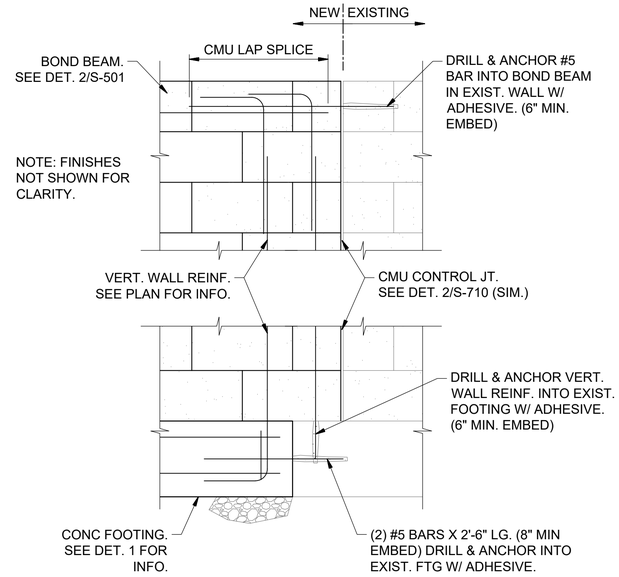
SHEET NUMBER
37



1 S-101 EXTERIOR FOOTING DETAIL
SCALE: 1" = 1'-0"



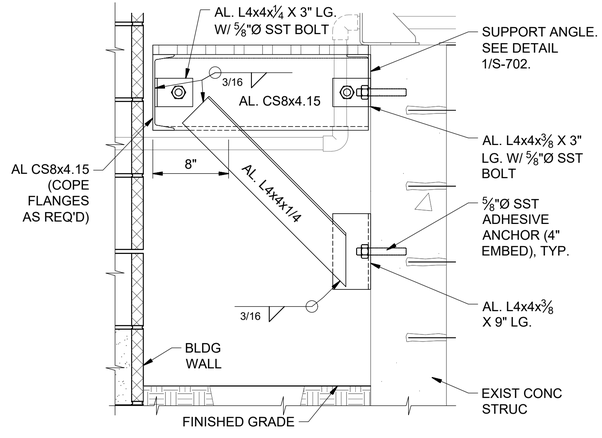
2 S-101 DEWATERING SLAB DETAIL
SCALE: 1" = 1'-0"



3 S-101 WALL/FOUNDATION DETAIL
CONTROL BULDING
SCALE: 1" = 1'-0"

4 S-101 INTERIOR FOOTING DETAIL
SCALE: 1" = 1'-0"

5 S-111 INFLUENT CHANNEL DETAIL
SCALE: 1" = 1'-0"



6 S-111 INFLUENT CHANNEL PLATFORM
SCALE: 1½" = 1'-0"

idg INFLO DESIGN GROUP

DANIEL B. MORGAN — REGISTERED ENGINEERING AGENT — No. 117709 — STATE OF TENNESSEE — 03/31/21

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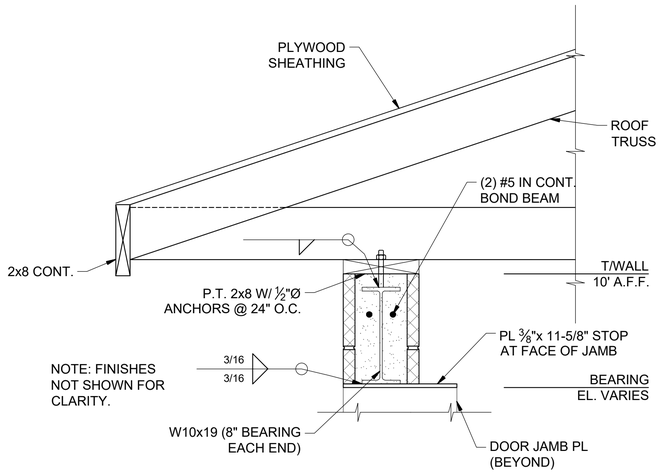
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

BUILDING FOUNDATION & SLAB DETAILS

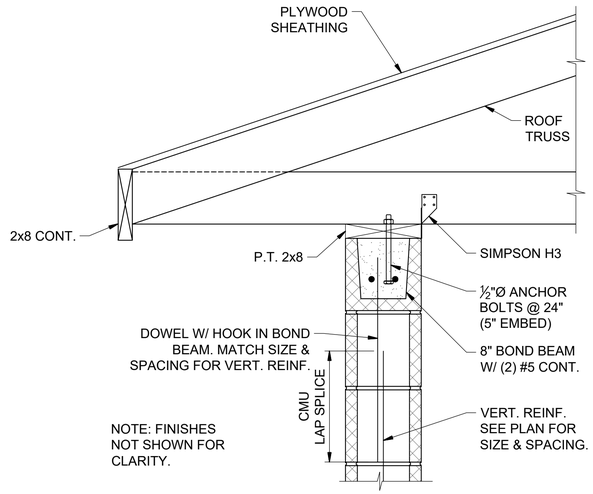
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
S-500

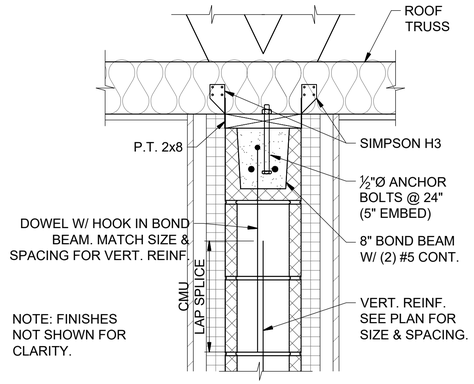
SHEET NUMBER
38



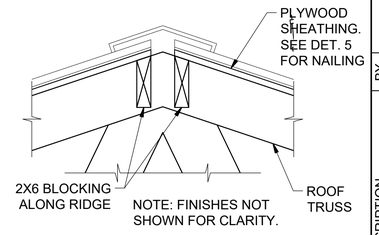
1 S-102 OH DOOR LINTEL DETAIL AT CONTROL BLDG
SCALE: 1½" = 1'-0"



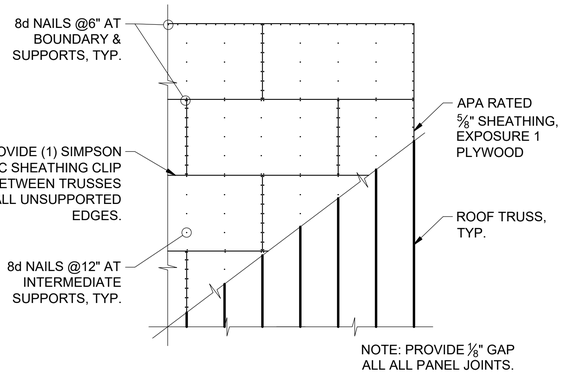
2 S-102 TYP. TRUSS CONNECTION AT CONTROL BLDG
SCALE: 1½" = 1'-0"



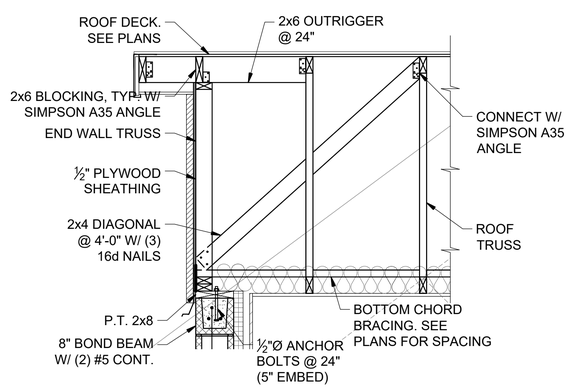
3 S-102 TYP. TRUSS CONNECTION AT CONTROL BLDG
SCALE: 1½" = 1'-0"



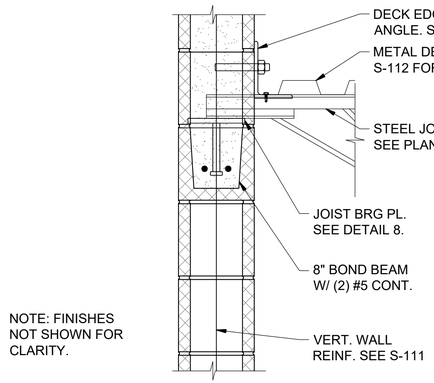
4 S-102 RIDGE DETAIL AT CONTROL BLDG
SCALE: 1½" = 1'-0"



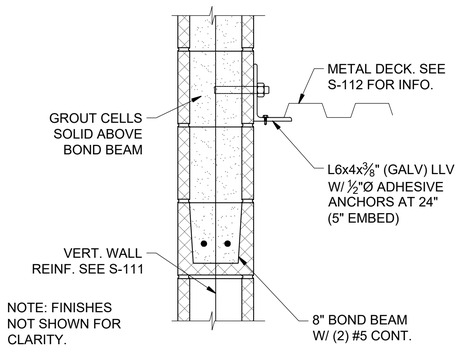
5 S-102 ROOF SHEATHING DETAIL AT CONTROL BLDG
SCALE: ¼" = 1'-0"



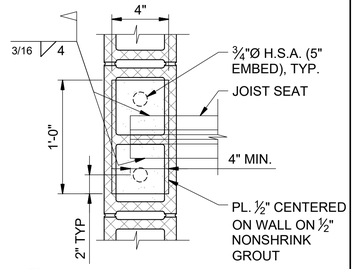
9 S-102 ROOF EAVE SECTION AT CONTROL BLDG
SCALE: ¾" = 1'-0"



6 S-112 JOIST BEARING DETAIL AT CAMBRIAN BLDG
SCALE: 1½" = 1'-0"



7 S-112 DECK EDGE DETAIL AT CAMBRIAN BLDG
SCALE: 1½" = 1'-0"



8 S-112 JOIST BEARING PLATE AT CAMBRIAN BLDG
SCALE: 1½" = 1'-0"

idg INFLO DESIGN GROUP

DANIEL B. MORGAN — REGISTERED ENGINEER — AGENT/LICENSEE — COMMERCE — No. 117709 — STATE OF TENNESSEE — 03/31/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

BUILDING WALL & ROOF DETAILS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
S-501

SHEET NUMBER
39

DOOR SCHEDULE

NO.	DOOR					FRAME		DETAILS			HARD WARE
	WIDTH	HT	THICK	TYPE	MAT'L	TYPE	MAT'L	HEAD	JAMB	SILL	
105	3'-0"	7'-0"	1-3/4"	A	AL	F-1	AL	4	3	7	-
106	3'-0"	7'-0"	1-3/4"	A	AL	F-1	AL	4	3	7	-
201	12'-0"	9'-0"	2"	OH	AL	OH	-	6	5	8	-
301	9'-4"	9'-0"	2"	OH	AL	OH	-	6	5	8	-
401	7'-8"	7'-0"	1-3/4"	B	AL	F-1	AL	4	3	7	-
501	6'-0"	7'-0"	1-3/4"	B	AL	F-1	AL	2	1	7	-
601	6'-0"	7'-0"	1-3/4"	B	AL	F-1	AL	2	1	7	-

NOTE:
1. SEE SPEC SECTION 08 71 00 FOR HARDWARE SETS.
2. SEE SPEC SECTION 08 33 23 FOR REQUIREMENTS FOR DOOR TYPE OH.

WINDOW SCHEDULE

TYPE	QTY	WIDTH	HT	ELEV	FRAME	NOTES
W1	1	3'-4"	3'-4"	A	AL	

NOTE:
1. PROVIDE INSULATED DOUBLE HUNG WINDOW TO MATCH EXISTING.

FINISH SCHEDULE

ROOM NAME	FLOOR	WALL				BASE	CEILING
		NORTH	EAST	SOUTH	WEST		
OFFICE	F1	W1	W1	W1	W1	B1	C1
MAINTENANCE SHOP	F1	W2	W2	W1	W2	B1 (SOUTH)	C1
DEWATERING ROOM	F1	W1	W2	W1	W1	B1	C1
CAMBRIAN EQUIPMENT ROOM	F1	W1	W1	W1	W1	B1	C2
POLYMER ROOM	F1	W1	W1	W1	W1	B1	C2
MECHANICAL ROOM	F1	W1	W1	W1	W1	B1	C2

FINISH LEGEND

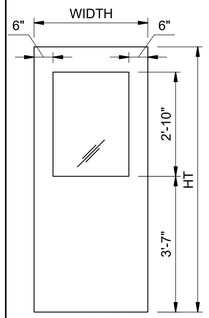
FLOOR FINISH:
F1 - SEALED CONCRETE

WALL FINISH:
W1 - ⅝" GYP. BD. OVER ⅞" FURRING CHANNELS
W2 - CMU

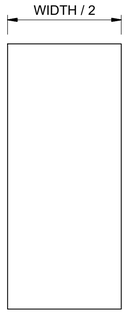
BASE FINISH:
B1 - 4" VINYL BASE

CEILING FINISH:
C1 - ⅝" GYP. BD.
C2 - EXPOSED TO STRUC.

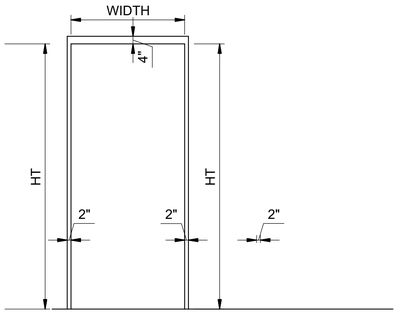
NOTES:
1. REFER TO SPECS FOR ADDITIONAL INFORMATION.
2. PAINT & COATINGS SHALL BE PER SCHEDULE IN SPEC SECTION 09 90 00.



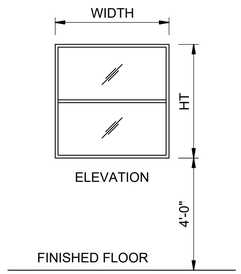
DOOR TYPE A
HM W/ HALF GLASS



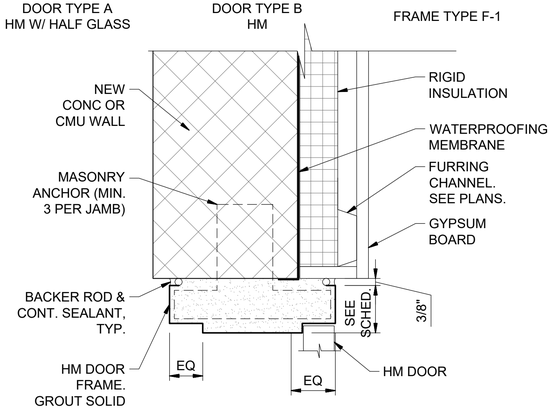
DOOR TYPE B
HM



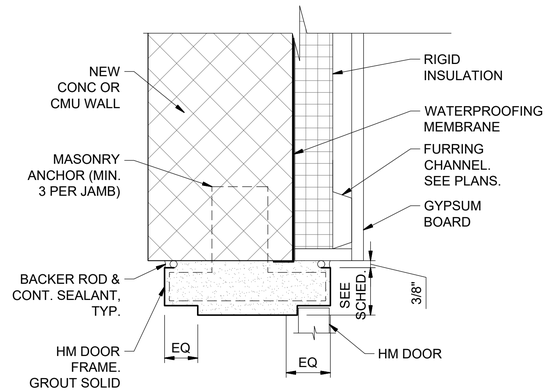
FRAME TYPE F-1



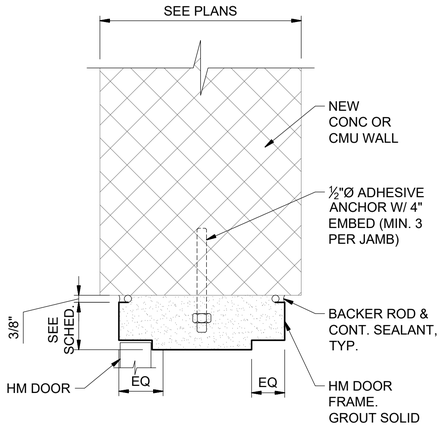
ELEVATION



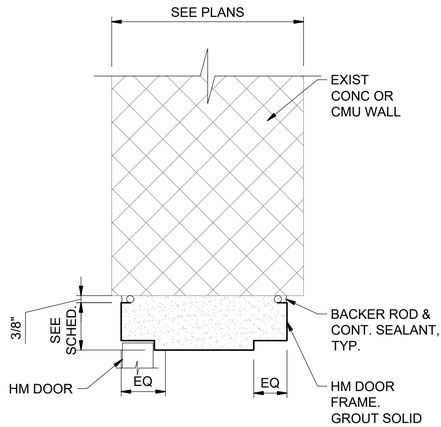
1 DOOR JAMB
NEW WALL
SCALE: NONE



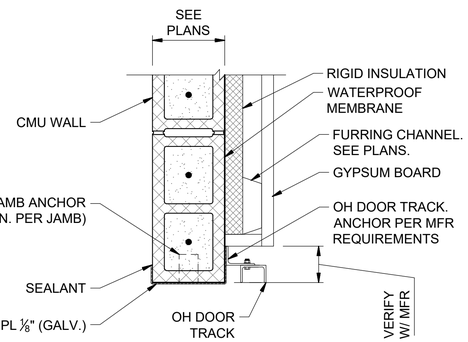
2 DOOR HEAD
NEW WALL
SCALE: NONE



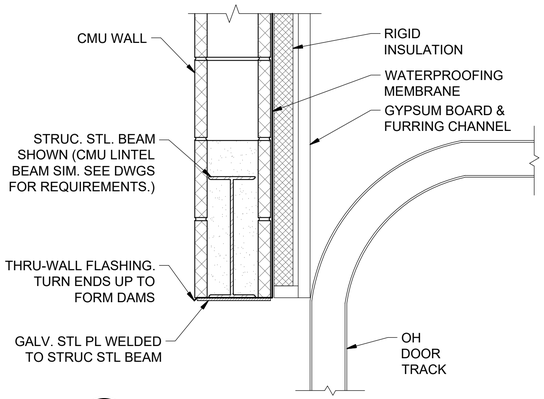
3 DOOR JAMB
EXISTING WALL
SCALE: NONE



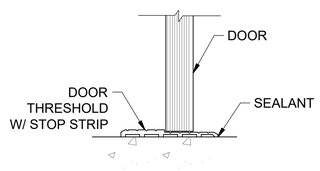
4 DOOR HEAD
EXISTING WALL
SCALE: NONE



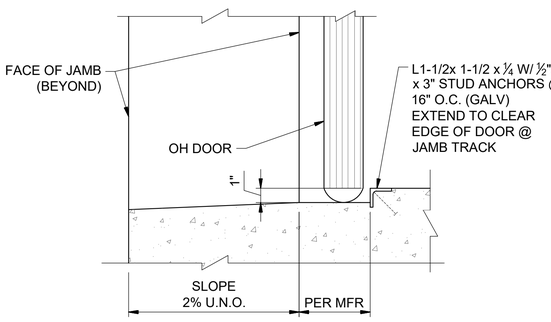
5 OH DOOR JAMB
SCALE: NONE



6 OH DOOR HEAD
SCALE: NONE



7 DOOR SILL
EXTERIOR
SCALE: NONE



8 OH DOOR SILL
SCALE: NONE

idg
INFLO DESIGN GROUP

DANIEL B. MORGAN
REGISTERED ENGINEER
AGRICULTURAL
COMMERCE
No. 117709
STATE OF TENNESSEE
03/31/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

BUILDING SCHEDULES & DETAILS

THIS LINE IS 1" AT FULL SIZE

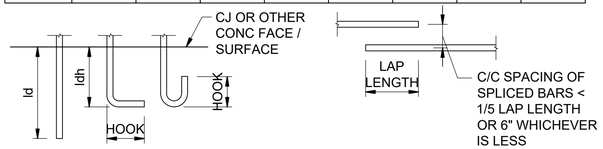
DRAWING NUMBER
S-600

SHEET NUMBER
40

REBAR DEVELOPMENT LENGTH, LAP SPLICE, AND STANDARD HOOKS

BASED ON THE FOLLOWING: NORMAL WEIGHT CONCRETE ; UNCOATED BARS
f'c ≥ 4,500 PSI ; fy = 60,000 PSI ; CLEAR COVER ≥ 2"

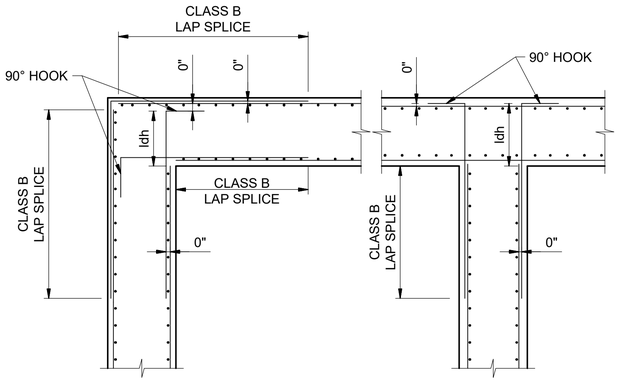
BAR SIZE	DEVELOPMENT LENGTH, ld		CLASS B TENSION LAP SPLICE		HOOK DEVELOPMENT LENGTH, ldh		STANDARD HOOK LENGTHS	
	"TOP" BARS	OTHER	"TOP" BARS	OTHER	"CONC COVER"	OTHER	90° HOOK	180° HOOK
#3	12	12	14	12	6	8	7	5
#4	14	12	20	14	7	10	9	6
#5	18	14	24	18	8	12	12	7
#6	21	17	28	22	10	14	14	8
#7	32	24	40	32	12	16	16	9
#8	36	28	46	36	14	18	18	10
#9	44	34	58	44	15	20	23	14
#10	54	42	70	54	16	24	26	15
#11	64	50	84	64	18	26	28	17



NOTES:

1. FOR OTHER MATERIALS OR CONDITIONS, LENGTHS SHALL BE DETERMINED IN ACCORDANCE WITH ACI 318.
2. ALL LENGTHS ARE INCHES.
3. ALL LAP SPLICES SHALL BE CLASS B U.N.O. IF BAR SIZES DIFFER, USE THE MINIMUM LAP LENGTH AS REQUIRED FOR THE SMALLER OF THE TWO BARS BEING SPLICED.
4. "TOP" BARS SHALL BE HORIZONTAL BARS PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE.
5. "CONC COVER" DEVELOPMENT LENGTHS SHALL APPLY FOR SIDE COVER NORMAL TO PLANE OF HOOK AT LEAST 2-1/2", AND FOR 90° HOOK, END COVER BEYOND OUTSIDE END OF HOOK AT LEAST 2".

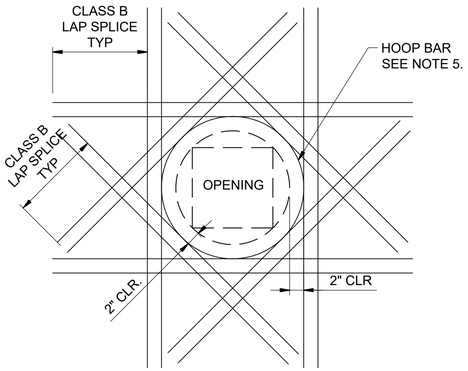
1 CONCRETE REBAR SCHEDULE DEVELOPMENT, SPLICES, & HOOKS
SCALE: NONE

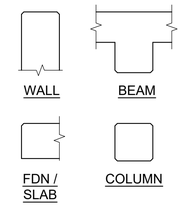


NOTES:

1. LAP SPLICE, DEVELOPMENT LENGTH, AND HOOKS SHALL BE FULLY CONTAINED WITHIN MONOLITHIC CONCRETE POUR.
2. CORNER BAR SIZE AND SPACING SHALL MATCH HORIZ. BAR SIZE AND SPACING. SEE PLANS FOR REINFORCEMENT SIZE, SPACING, AND ORIENTATION.

2 TYPICAL WALL REINFORCING DETAIL
SCALE: NONE





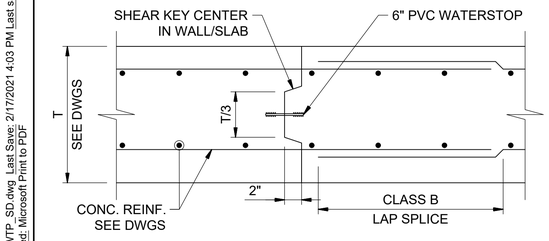
NOTES:
PROVIDE ¾" CHAMFER ON ALL ABOVE GRADE CONCRETE EDGES.

4 CONCRETE CHAMFER
SCALE: NONE

NOTES:

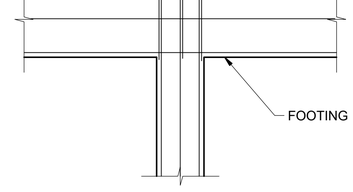
1. THIS DETAIL APPLIES FOR OPENINGS 8" & LARGER. FOR SMALLER OPENINGS, BEND BARS OR ADJUST SPACING OF REINF. TO AVOID OPENING.
2. HORIZ. AND VERT. BARS SHALL BE SAME SIZE AS INTERRUPTED REINF. & SPACED AT 6" O.C. ADDITIONAL REINF. SHALL BE PROVIDED IN EACH FACE OF MEMBER.
3. QUANTITY OF ADDITIONAL BARS AT EACH SIDE OF OPENING SHALL EQUAL HALF THE QUANTITY OF INTERRUPTED BARS.
4. PROVIDE TWO DIAGONAL BARS AT EACH FACE OF OPENING INSIDE OF PRIMARY REINF. DIAGONALS BAR SIZE SHALL MATCH VERT BAR SIZE.
5. AT EMBEDDED WALL PIPE PENETRATIONS, PROVIDE #4 HOOP BAR IN EACH FACE INSIDE OF NORMAL REINF.
6. WHERE OPENING IS LOCATED CLOSER THAN A LAP SPLICE LENGTH TO AN ADJACENT WALL OR SLAB, PROVIDE DOWELS INTO ADJACENT WALL OR SLAB FOR ADDITIONAL VERT. AND HORIZ. BARS. DIAGONAL BARS MAY BE TERMINATED 2" FROM THE ADJACENT WALL OR SLAB.

3 REINFORCING AT OPENINGS DETAIL
SCALE: NONE

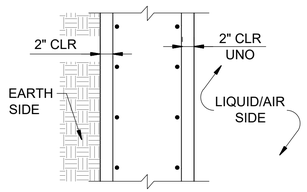


NOTES:
1. SIMILAR FOR WALL OR SLAB IN LIQUID CONTAINING STRUCTURE.
2. OMIT WATERSTOP IN NON-LIQUID CONTAINING STRUCTURE.
3. SEE DWGS FOR REBAR ORIENTATION.

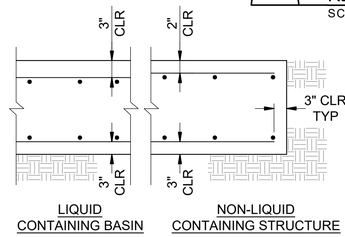
5 TYPICAL CONCRETE CONSTRUCTION JOINT
SCALE: NONE



6 FOOTING INTERSECTION DETAIL
SCALE: NONE



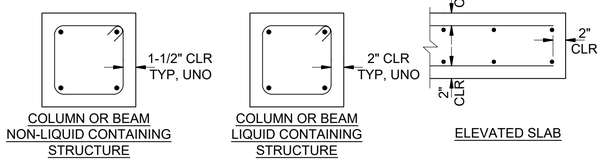
CONCRETE WALLS



LIQUID CONTAINING BASIN

NON-LIQUID CONTAINING STRUCTURE

FOUNDATION PLACED AGAINST EARTH



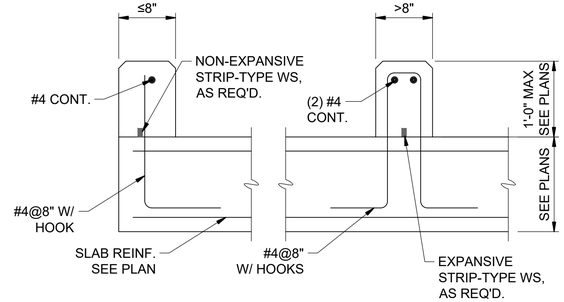
COLUMN OR BEAM NON-LIQUID CONTAINING STRUCTURE

COLUMN OR BEAM LIQUID CONTAINING STRUCTURE

ELEVATED SLAB

NOTE: SEE DRAWINGS FOR PROPER REBAR ORIENTATION.

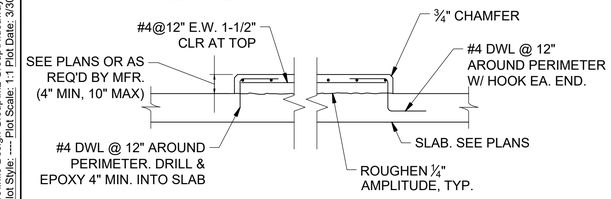
7 CONCRETE REBAR CLEAR COVER
SCALE: NONE



NOTES:

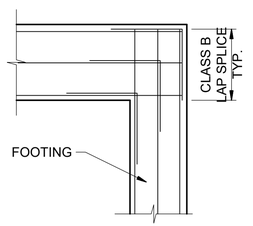
1. SEE PLANS FOR CONCRETE CURB DIMENSIONS.
2. WATERSTOPS (WS) SHALL BE PROVIDED IN LIQUID CONTAINING AREAS ONLY, AS INDICATED ON THE PLANS.
3. DOWELS MAY BE CAST-IN-PLACE W/ APPLICABLE DEVELOPMENT LENGTH AND STANDARD HOOK PROVIDED OR DRILLED AND EPOXIED WITH REBAR ADHESIVE. EMBEDMENT DEPTH SHALL BE LESSER OF 6" MIN. AND 2" FROM BOTTOM OF SLAB.

8 CONCRETE CURB DETAIL
SCALE: NONE

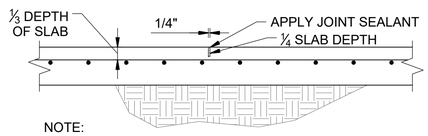


NOTES:
1. PROVIDE PAD 4" LARGER THAN EQUIP. ON ALL SIDES U.N.O. OR AS REQUIRED BY EQUIP. MFR.
2. CONTRACTOR MAY ELECT TO CAST DOWELS INTO SLAB OR DRILL & EPOXY, AS SHOWN.

9 TYPICAL EQUIPMENT PAD DETAIL
SCALE: NONE

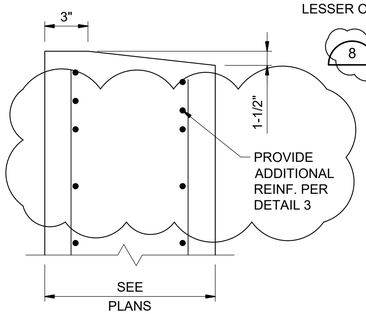


10 FOOTING CORNER DETAIL
SCALE: NONE



NOTE:
CONTRACTOR MAY TOOL OR SAWCUT CONTROL JOINTS

11 SLAB ON GRADE CONTROL JOINT
SCALE: NONE



NOTE:
1. SEE PLANS FOR REBAR SIZE, SPACING, & ORIENTATION.
2. SEE PROCESS DETAILS FOR WEIR PLATE, WHERE APPLICABLE.

12 WEIR WALL DETAIL
SCALE: NONE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

idg INFLO DESIGN GROUP

DANIEL B. MORGAN — REGISTERED ENGINEER — AGRICULTURAL — No. 117728 — STATE OF TENNESSEE — 03/31/21

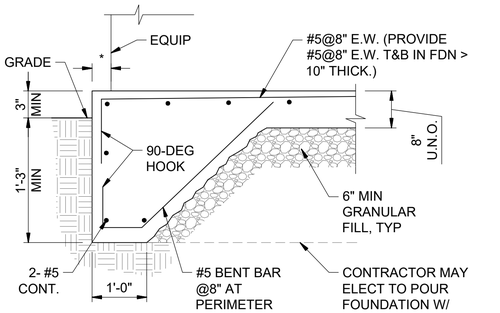
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONCRETE DETAILS

THIS LINE IS 1" AT FULL SIZE

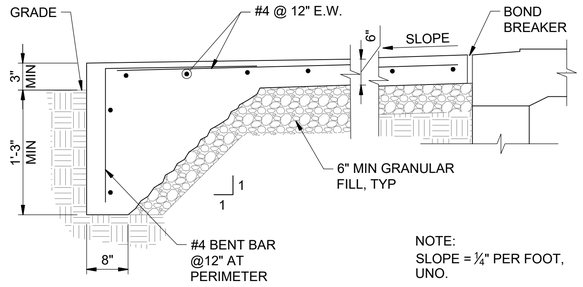
DRAWING NUMBER
S-700

SHEET NUMBER
41



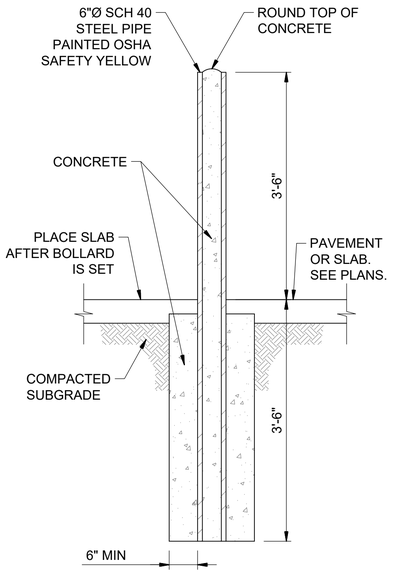
* EDGE DISTANCE SHALL BE 4" MIN. U.N.O. OR AS REQ'D BY EQUIP. MFR. CONTRACTOR SHALL COORDINATE W/ EQUIP. MFR. FOR ANCHORAGE REQUIREMENTS.

1 EXTERIOR CONC EQUIP FOUNDATION
SCALE: NONE

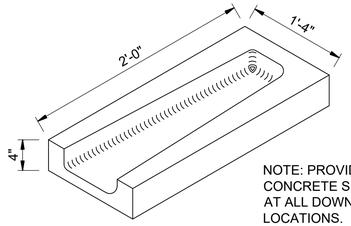


NOTE:
SLOPE = ¼" PER FOOT, UNO.

2 STOOP/APPROACH SLAB
SCALE: NONE

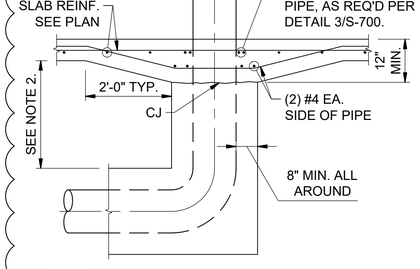


3 EXTERIOR PIPE BOLLARD
SCALE: NONE



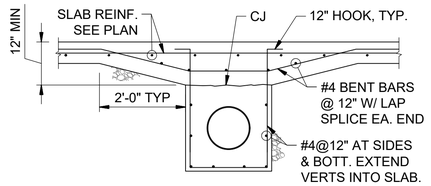
NOTE: PROVIDE PRECAST CONCRETE SPLASH BLOCK AT ALL DOWNSPOUT LOCATIONS.

4 CONCRETE SPLASH BLOCK DETAIL
SCALE: NONE



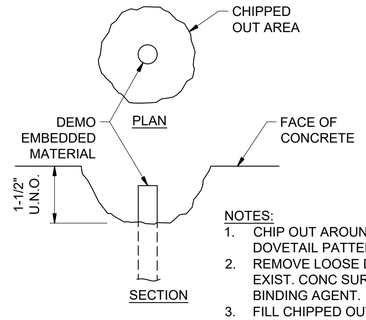
NOTES:
1. SECTION APPLIES TO PROCESS PIPING & PROCESS FLOOR DRAINS W/ DIAM. 18" AND SMALLER
2. WHEN CONCRETE ENCASEMENT IS CLOSER THAN 6" TO SLAB, SEE DETAIL 6/S-701.

5 PIPE ENCASEMENT
\- SCALE: NONE



NOTES:
1. SECTION APPLIES TO PROCESS PIPING & PROCESS FLOOR DRAINS W/ DIAM. 18" AND SMALLER WHEN DISTANCE BETWEEN PIPE ENCASEMENT AND BOTTOM OF SLAB IS LESS THAN 6".

6 PIPE ENCASEMENT AT SLAB
\- SCALE: NONE



NOTES:
1. CHIP OUT AROUND CONC EMBED IN DOVETAIL PATTERN.
2. REMOVE LOOSE DEBRIS, CLEAN EXIST. CONC SURFACE & COAT W/ BINDING AGENT.
3. FILL CHIPPED OUT AREA W/ NON-SHRINK GROUT & FINISH LEVEL W/ ADJACENT SURFACE.

7 CHIPPED OUT CONCRETE REPAIR DETAIL
\- SCALE: NONE

idg
INFLO DESIGN GROUP

DANIEL B. MORGAN
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 117709
STATE OF TENNESSEE
03/31/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

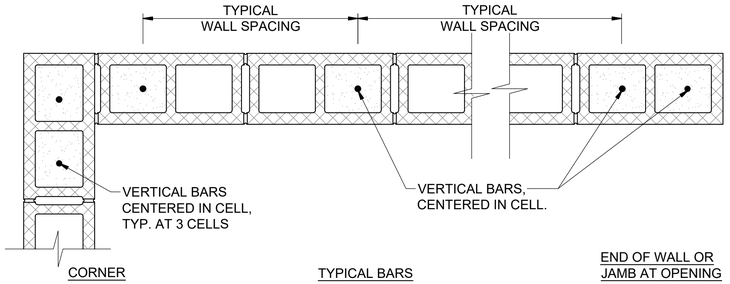
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONCRETE DETAILS

THIS LINE IS 1" AT FULL SIZE

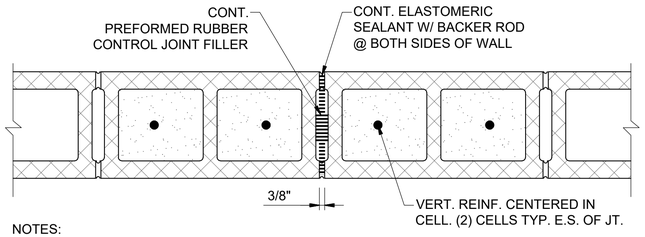
DRAWING NUMBER
S-701

SHEET NUMBER
42



NOTES:
1. SEE PLANS FOR VERT. BAR SIZE AND TYP. SPACING. ALL REINF. CELLS SHALL BE GROUT FILLED.
2. ALL VERT. BARS SHALL LAP WITH FOUNDATION DOWEL BAR & EXTEND 6" INTO BOND BEAM AT TOP OF WALL, U.N.O.
3. PROVIDE 9 GA. LADDER TYPE HORIZONTAL JOINT REINFORCING @ 16" O.C. VERTICALLY, U.N.O.
4. PROVIDE 3 REINF. CELLS FOR EACH JAMB OF OH DOOR OPENING.

1 TYPICAL CMU WALL REINFORCEMENT
SCALE: NONE

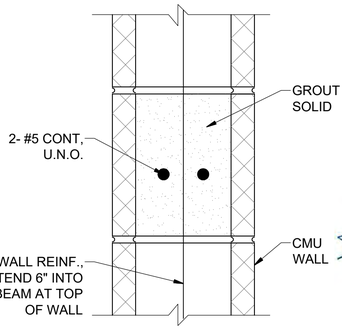


NOTES:
1. CONTROL JOINTS SHALL BE LOCATED AS SHOWN ON PLANS OR AS APPROVED BY THE ENGINEER. (16" MIN. FROM OPENINGS IN WALL. 25'-0" MAX SPACING.)
2. SEE PLANS FOR VERT. BAR SIZE AND TYP. SPACING. ALL REINF. CELLS SHALL BE GROUT FILLED.
3. ALL VERT. BARS SHALL LAP WITH FOUNDATION DOWEL BAR & EXTEND 6" INTO BOND BEAM AT TOP OF WALL, U.N.O.
4. DISCONTINUE HORIZONTAL JOINT REINFORCING AT EACH SIDE OF JOINT.
5. BOND BEAM REINF. AT TOP OF WALL SHALL BE CONTINUOUS THROUGH JOINT.

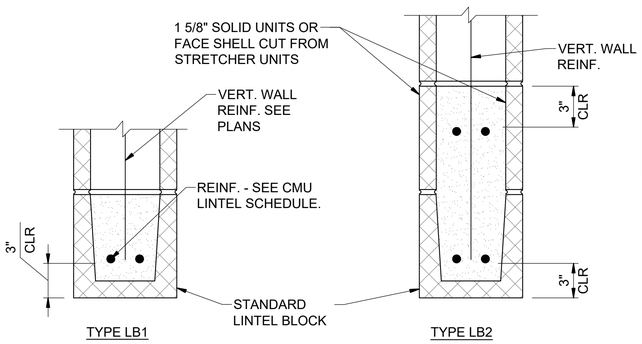
2 CMU CONTROL JOINT DETAIL
SCALE: NONE

CMU LAP SPLICE LENGTHS (f'm = 1,900 PSI)

BAR SIZE	8" CMU	12" CMU
	SINGLE BAR	SINGLE BAR
#3	14"	14"
#4	18"	18"
#5	22"	22"
#6	38"	27"
#7	53"	34"



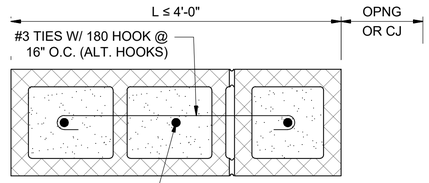
3 8" BOND BEAM DETAIL
SCALE: NONE



CMU LINTEL SCHEDULE

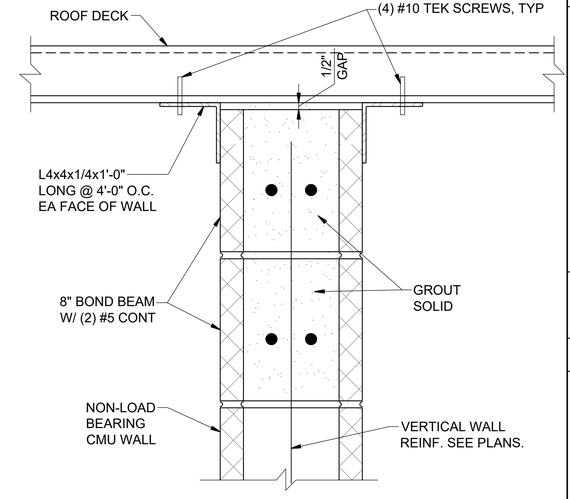
OPENING DESCRIPTION	NOM. THICKNESS	BEAM DEPTH	BOTT. REINF.	TOP REINF.	NOTES
≤ 3'-4"	8"	8"	2- #5	--	TYPE LB1
3'-4" TO 6'-4"	8"	16"	2- #5	2- #5	TYPE LB2
6'-6" TO 8'-0"	8"	16"	2- #6	2- #6	TYPE LB2
NOTE: ALL LINTEL BEAMS SHALL BEAR 16" MIN. EACH END OF OPENING.					

4 CMU LINTEL DETAIL
SCALE: NONE

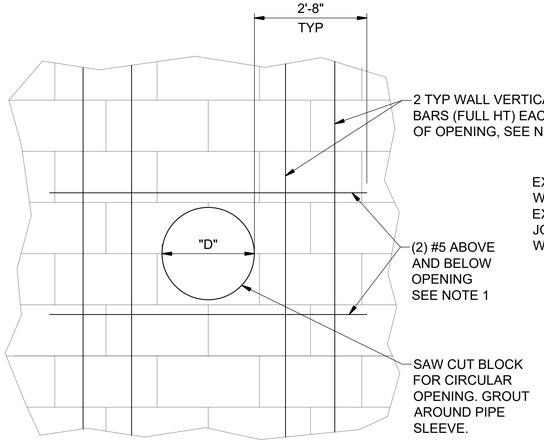


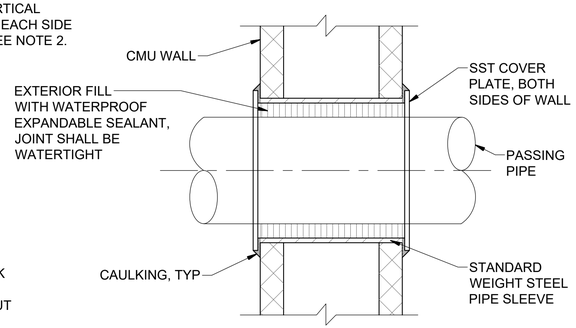
NOTES:
PROVIDE CMU WALL PIER REINF.
FOR ANY WALL W/ L ≤ 4'-0" WIDTH.

5 CMU PIER DETAIL
SCALE: NONE



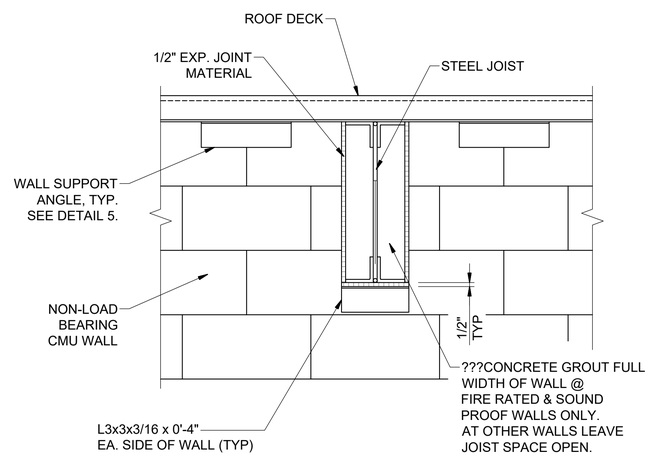
6 NON-LOAD BEARING CMU WALL SUPPORT DETAIL
SCALE: NONE



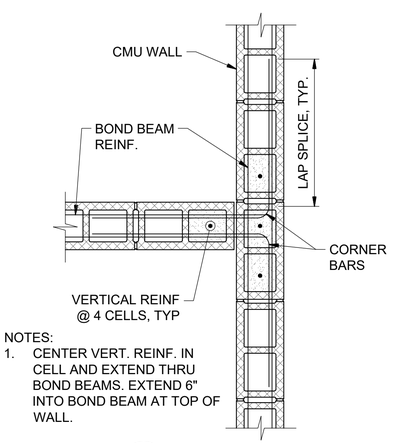


NOTES:
1. AT ADJACENT OPENINGS, CONTINUE HORIZONTAL REINFORCING TO 2'-8" BEYOND FURTHEST OPENING.
2. FOR VERTICAL REINFORCING:
   2.1. IN 8" NOM. CMU, PROVIDE 1 BAR CENTERED IN EACH CELL.
   2.2. IN 12" NOM. CMU, PROVIDE 1 BAR EACH FACE OF WALL.
3. GROUT ALL REINFORCED CELLS SOLID.

7 CMU WALL PIPE PENETRATION
SCALE: NONE



8 STEEL JOIST AT INTERIOR NON-LOAD BEARING CMU WALL
SCALE: NONE



NOTES:
1. CENTER VERT. REINF. IN CELL AND EXTEND THRU BOND BEAMS. EXTEND 6" INTO BOND BEAM AT TOP OF WALL.

9 BOND BEAM & WALL INTERSECTION DETAIL
SCALE: NONE

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0	08/07/20	ISSUED FOR PRICING	DBM
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idg INFLO DESIGN GROUP

DANIEL B. MORGAN — REGISTERED ENGINEER — AGRICULTURAL — CIVIL — COMMERCE — No. 117709 — STATE OF TENNESSEE — 03/31/21

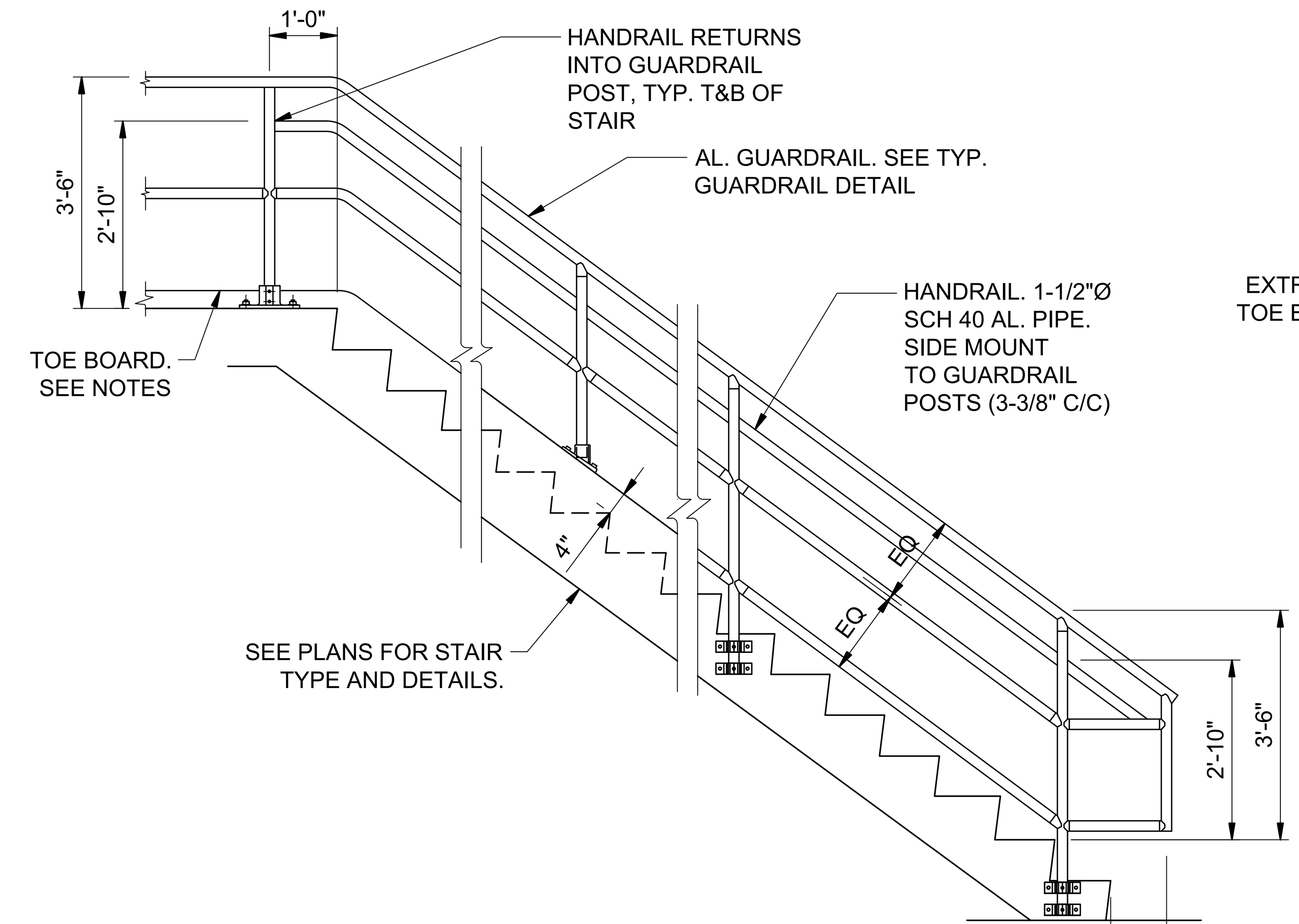
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

MASONRY DETAILS

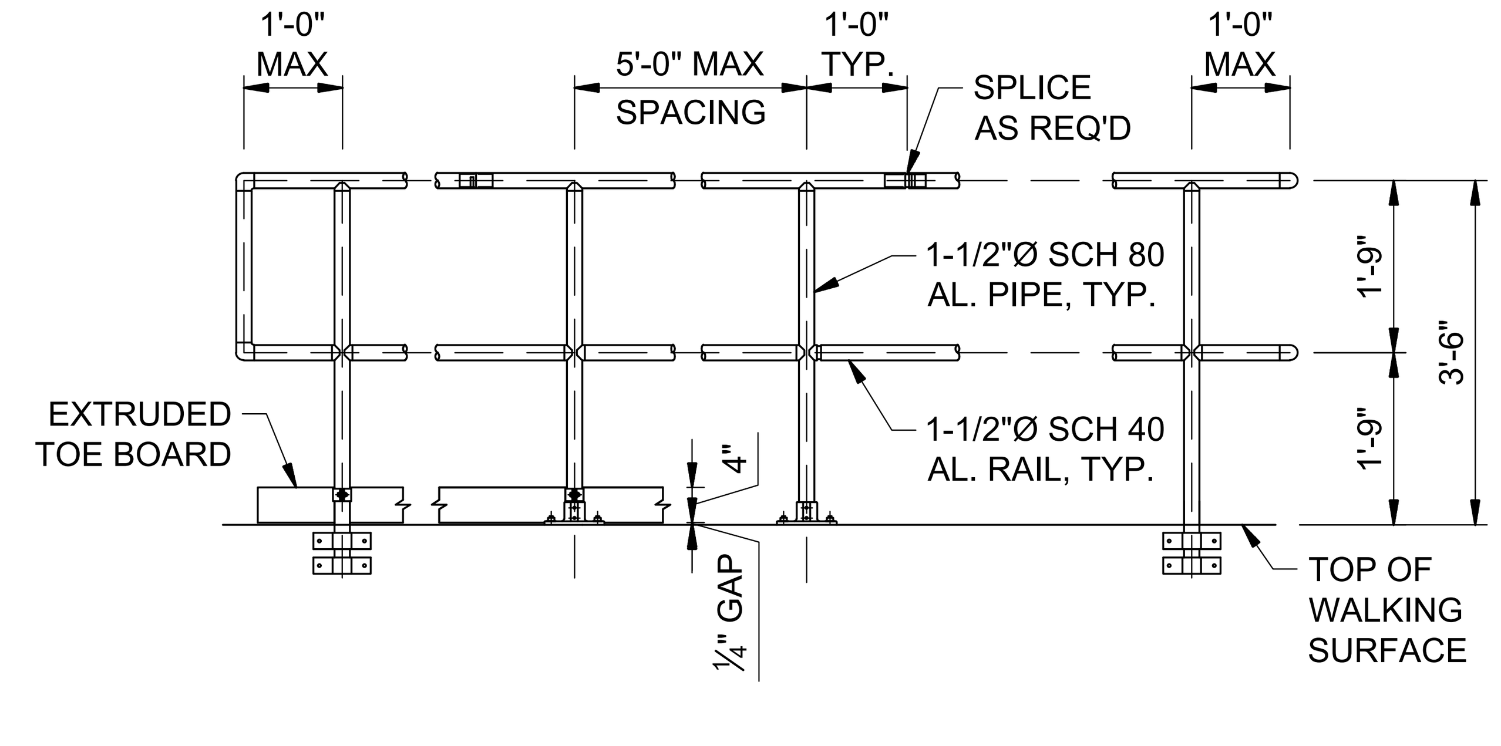
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
S-710

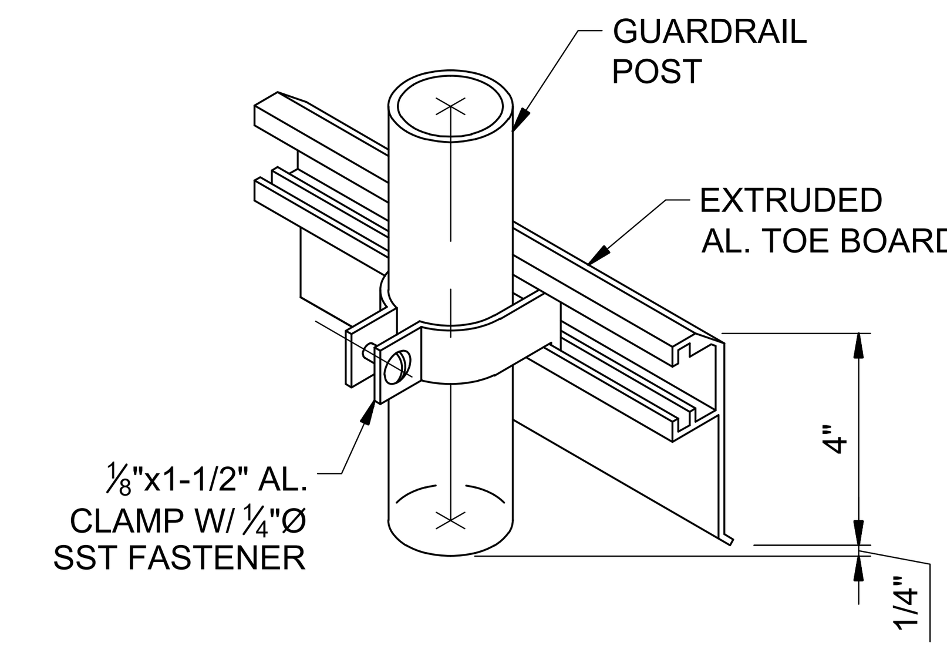
SHEET NUMBER
43



1 TYPICAL STAIR HANDRAIL & GUARDRAIL DETAILS
SCALE: NONE



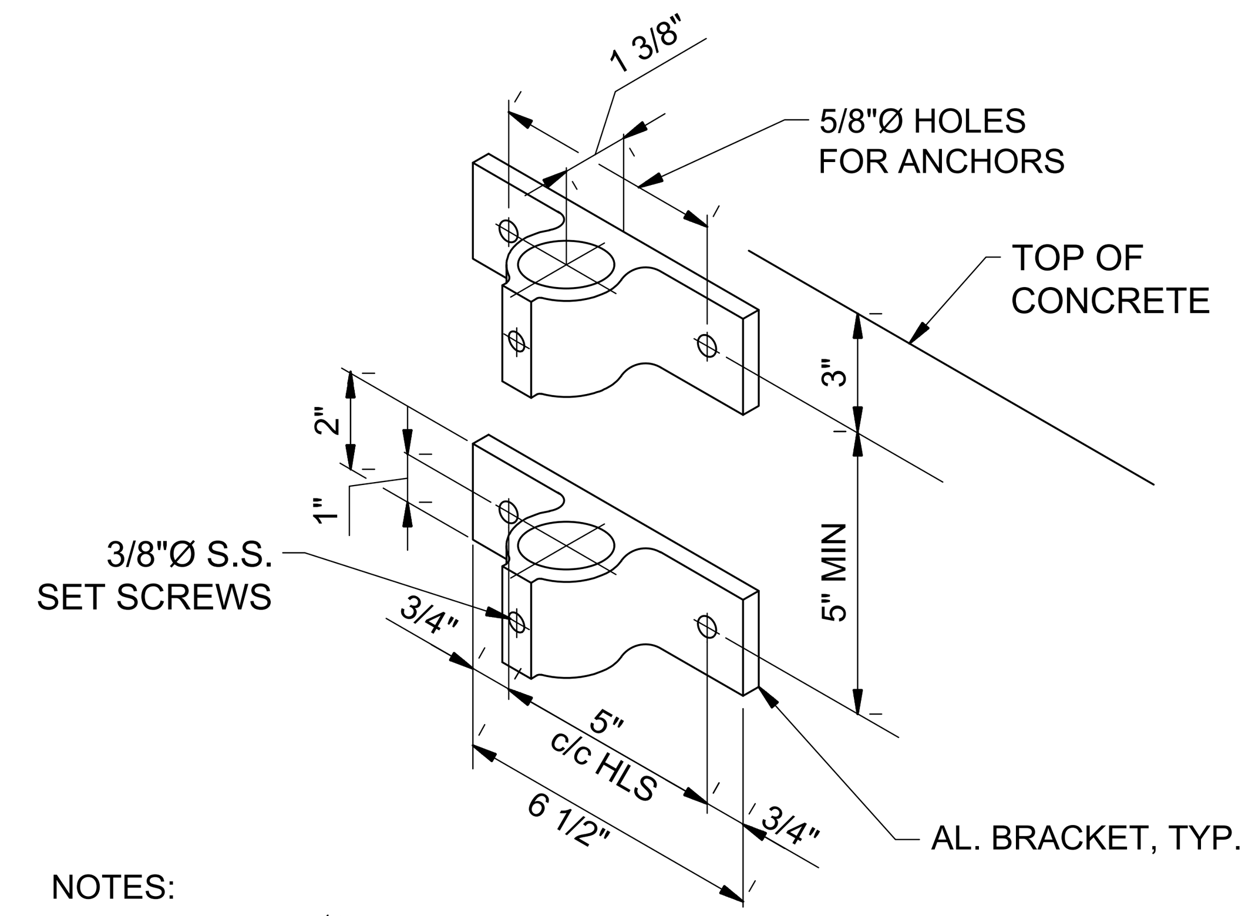
2 TYPICAL GUARDRAIL DETAIL
SCALE: NONE



3 TOE BOARD DETAIL
SCALE: NONE

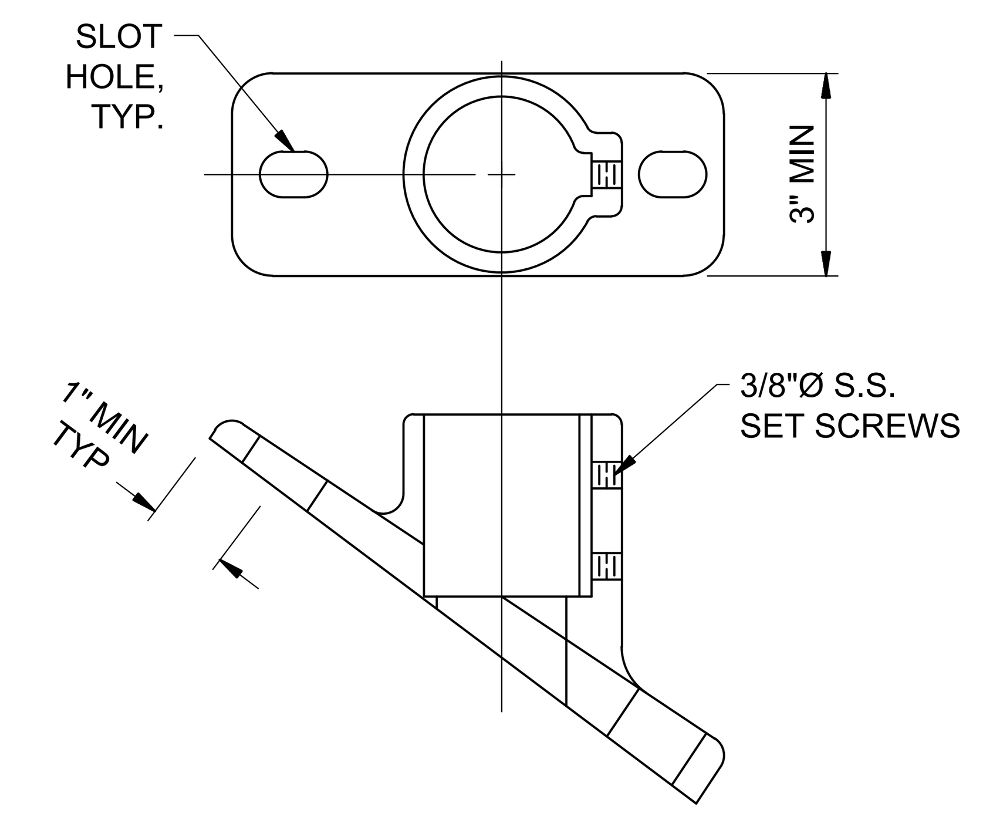
STAIR NOTES:

1. SEE STRUCTURAL GENERAL NOTES & SPECS FOR ADDITIONAL REQUIREMENTS.
2. SEE PLANS FOR REQUIRED GUARDRAIL TYPE, TOP OF STAIR DETAIL, BASE OF STAIR DETAIL, AND BASE FLANGE DETAIL.
3. MAX POST SPACING SHALL BE AS REQUIRED BY DETAILS OR AS INDICATED ON THE PLANS.
4. STAIR STRINGER SHALL BE AL. C12x10.4 MIN. U.N.O. COORDINATE DETAILING REQUIREMENTS W/ STAIR MFR.
5. AL. EXTRUDED TOE BOARD NOT REQ'D WHERE GUARDRAIL IS INSTALLED ON A 4" HIGH CONCRETE CURB.
6. ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT OR DISSIMILAR METALS WILL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR ISOLATORS OR OTHER APPROVED MATERIAL.
7. TOP MOUNT BASE FLANGE FOR STAIR STRINGER SHALL BE MFR. STANDARD BASE FLANGE DESIGNED TO MEET OSHA, IBC, & ASCE 7.

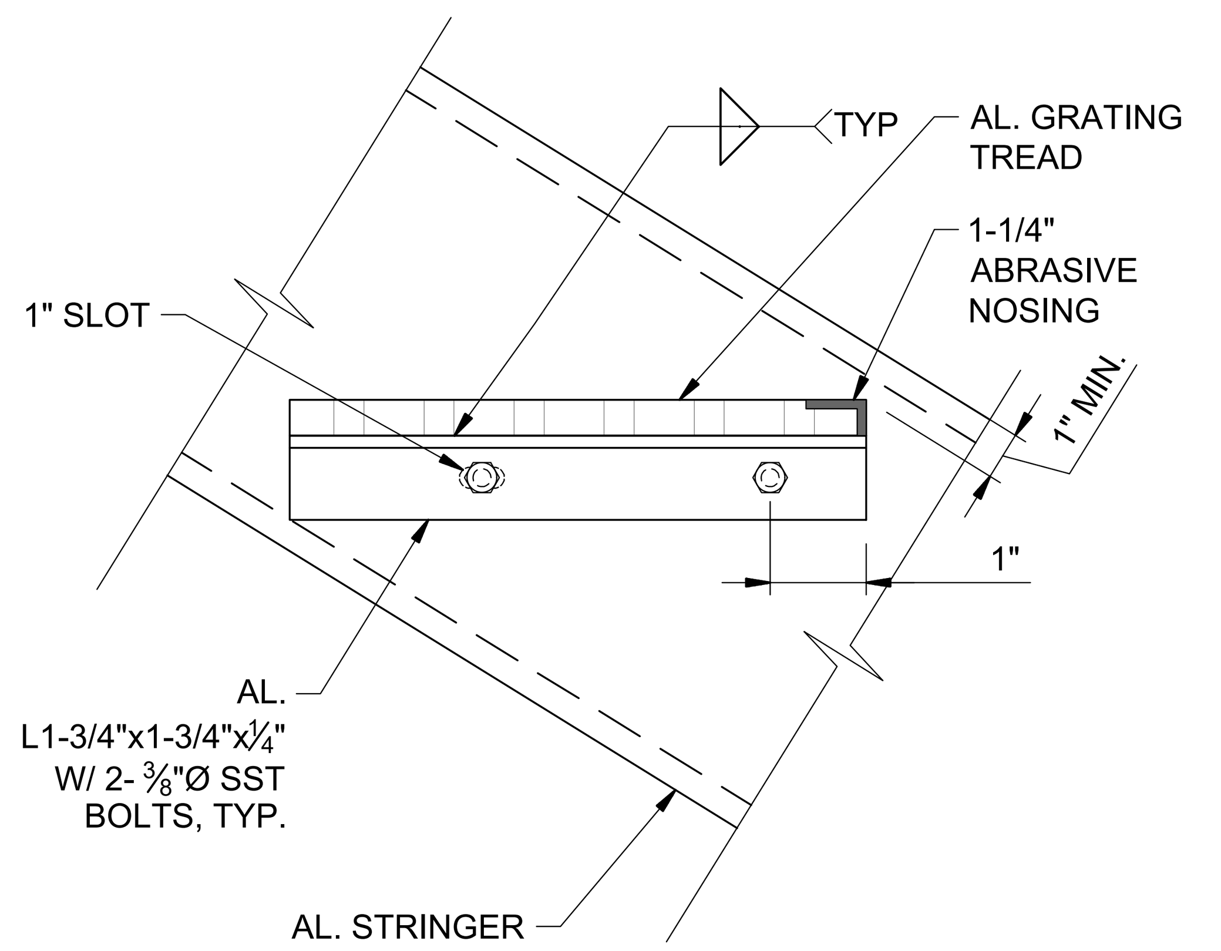


NOTES:
1. PROVIDE 4- ½"Ø ADHESIVE ANCHORS W/ 5" MIN. EMBED.

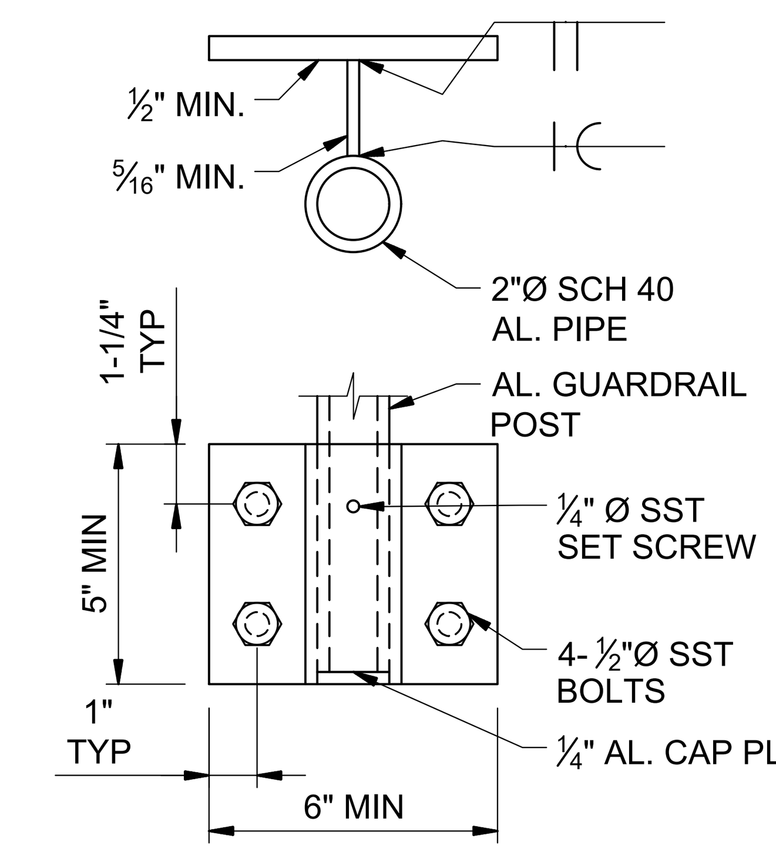
4 GUARDRAIL BASE FLANGE DETAIL SIDE MOUNT TO CONCRETE
SCALE: NONE



5 GUARDRAIL BASE FLANGE DETAIL TOP MOUNT TO METAL STAIR
SCALE: NONE

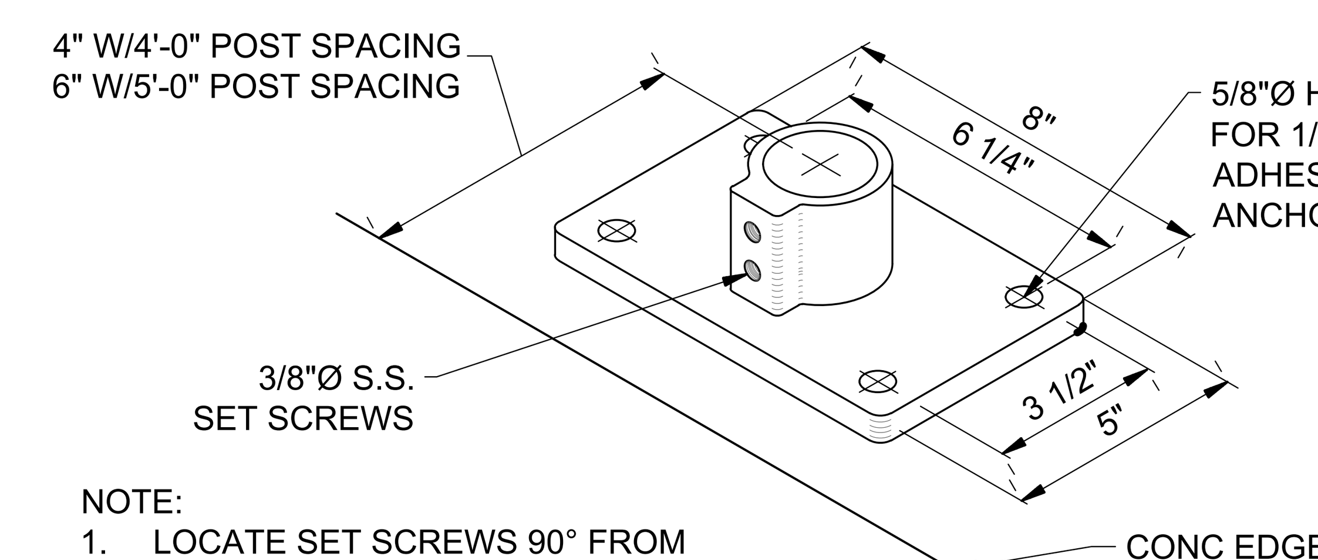


6 TREAD DETAIL
SCALE: NONE



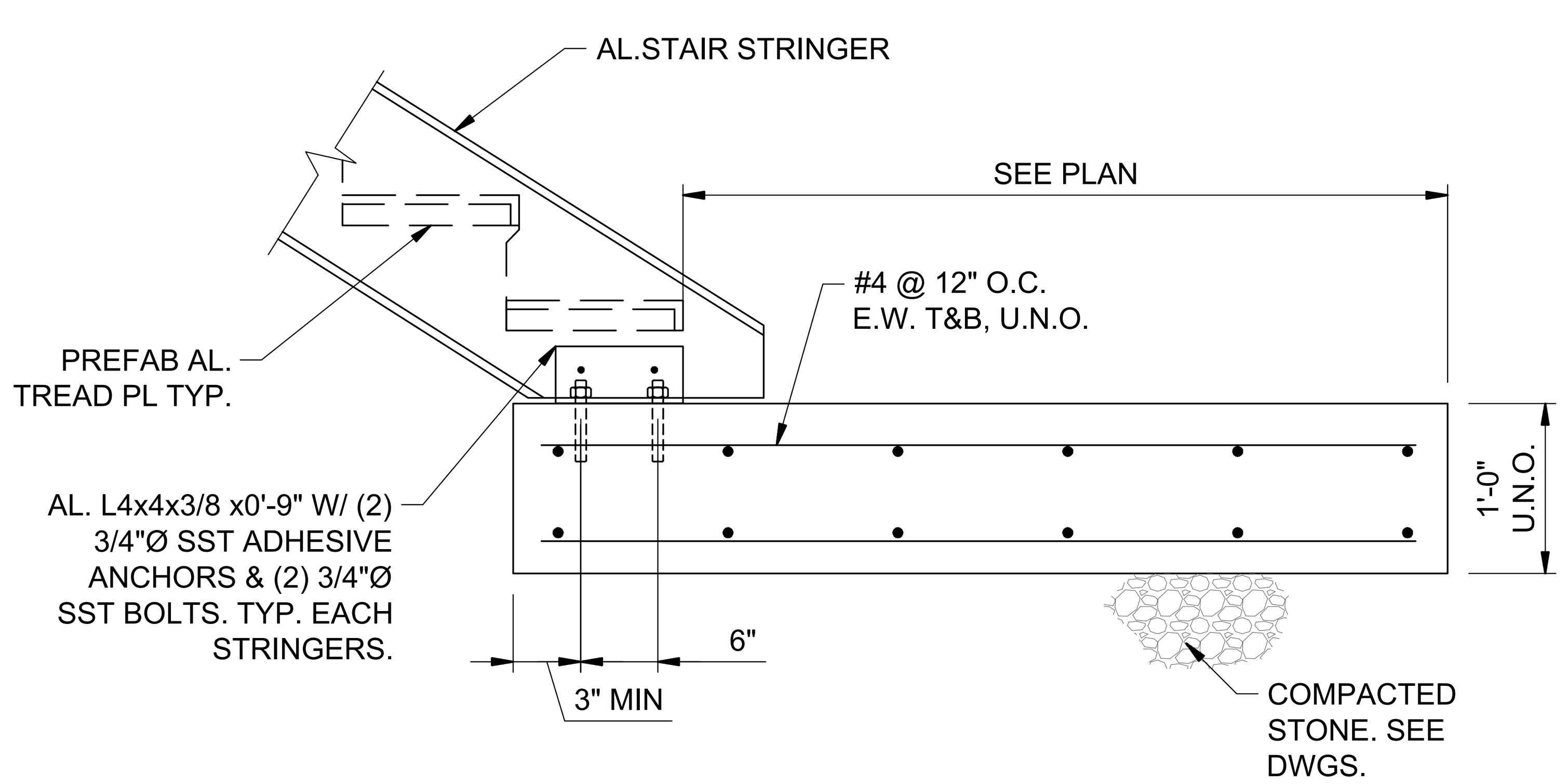
NOTES:
1. CONTRACTOR MAY PROVIDE EXTRUDED AL. BRACKET MEETING REQUIREMENTS SHOWN, IN LIEU OF WELDED PLATES & PIPE.

8 GUARDRAIL BASE FLANGE DETAIL SIDE MOUNT TO METAL
SCALE: NONE

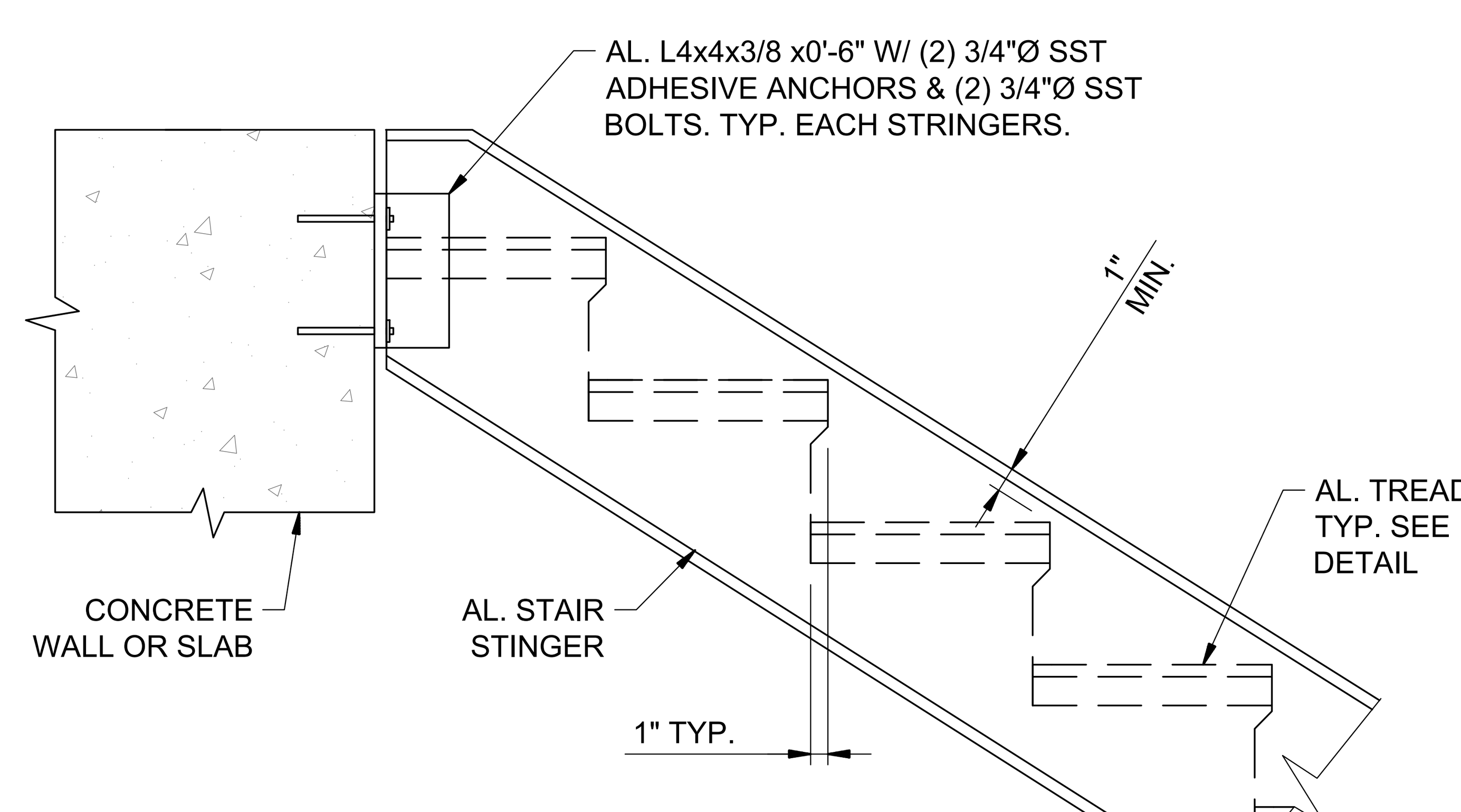


NOTE:
1. LOCATE SET SCREWS 90° FROM CENTERLINE OF HANDRAIL RUN AND AWAY FROM WALKING SURFACE.

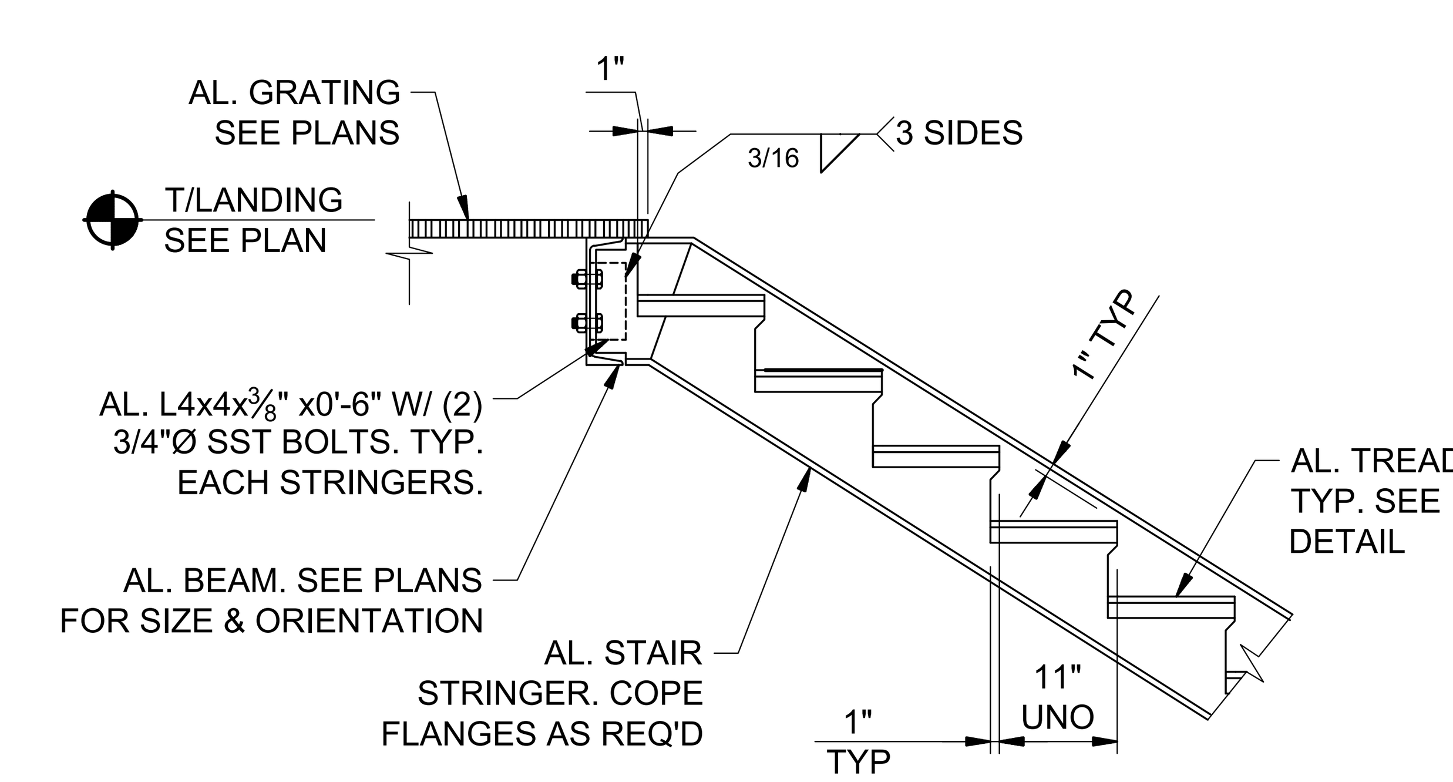
7 GUARDRAIL BASE FLANGE DETAIL TOP MOUNT BRACKET
SCALE: NONE



9 BASE OF STAIR AT CONC. SLAB
SCALE: NONE



10 HEAD OF STAIR AT CONC. WALL OR SLAB
SCALE: NONE



11 HEAD OF STAIR AT LANDING PLATFORM
SCALE: NONE

idg INFLO DESIGN GROUP

DANIEL B. MORGAN REGISTERED ENGINEER AGRICULTURE COMMERCE No. 117708 STATE OF TENNESSEE 03/31/21

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR PRICING	DBM
1	01/28/21	ISSUED FOR REVIEW	DBM
2	03/31/21	ISSUED FOR TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

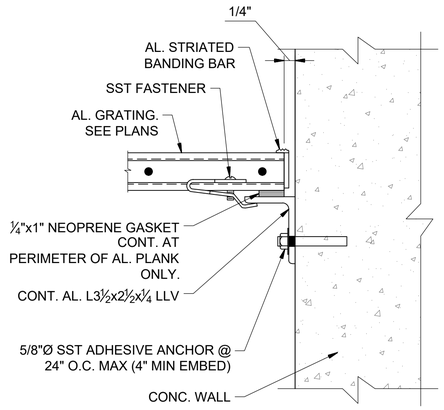
STAIR & GUARDRAIL DETAILS

THIS LINE IS 1" AT FULL SIZE

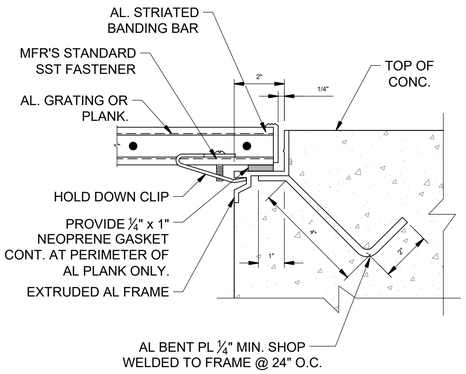
DRAWING NUMBER
S-720

SHEET NUMBER
44

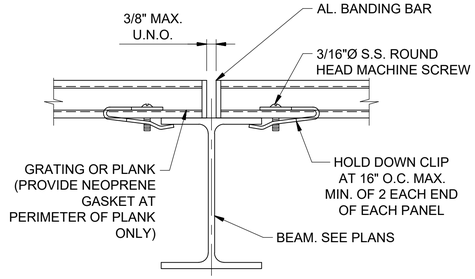
File: C:\Users\dbmor\Google Drive\Info Design Group\M2 Group\Hideaway WWTP\Design\CAD\HWWTP_SD.dwg Last Save: 3/30/2021 2:24 PM Last saved by: Dbmor
Last plotted by: Daniel Morgan Plot Style: --- Plot Scale: 1:1 Plot Date: 3/30/2021 2:24 PM Plotter used: Microsoft Print to PDF



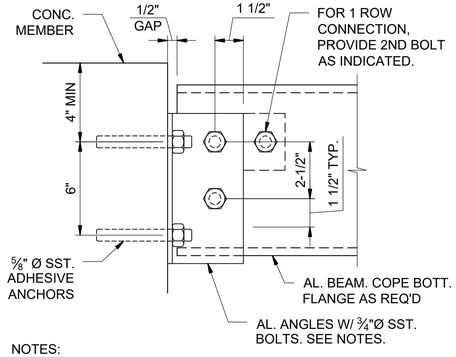
1 SUPPORT ANGLE DETAIL
SCALE: NONE



2 EMBED ANGLE DETAIL
SCALE: NONE

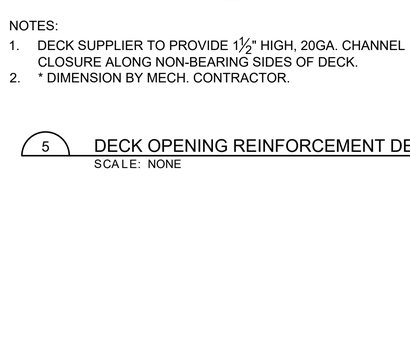


3 BEAM SUPPORT DETAIL
SCALE: NONE



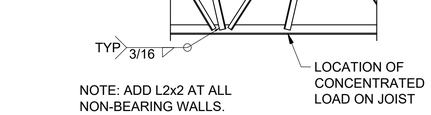
NOTES:
1. SEE PLANS FOR BEAM SIZE & CONC THICKNESS.
2. AL. ANGLES & FASTENERS SHALL BE BASED ON THE FOLLOW:
   - 2.1. FOR BEAM DEPTHS ≤ 6", PROVIDE 2- L6x4x3/8 X 0'-3" LG. ANGLES W/ 1 ROW OF BOLTS & 2 ADHESIVE ANCHORS (4" MIN EMBED)
   - 2.2. FOR BEAM DEPTHS > 6" & < 12", PROVIDE 2- L4x4x3/8 x 9" LG. ANGLES W/ 2 ROWS OF BOLTS & 4 ADHESIVE ANCHORS (5" MIN EMBED), AS SHOWN.
   - 2.3. FOR BEAM DEPTHS ≥ 12", PROVIDE 2- L4x4x3/8 x 9" LG. ANGLES W/ 3 ROWS OF BOLTS & 4 ADHESIVE ANCHORS (6" MIN EMBED)

4 AL. CHANNEL CONNECTION DETAIL
BEAM TO CONCRETE
SCALE: NONE



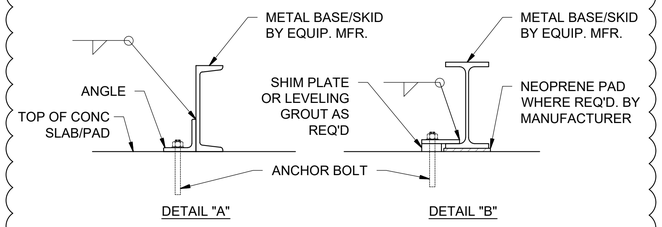
NOTES:
1. DECK SUPPLIER TO PROVIDE 1½" HIGH, 20GA. CHANNEL CLOSURE ALONG NON-BEARING SIDES OF DECK.
2. * DIMENSION BY MECH. CONTRACTOR.

5 DECK OPENING REINFORCEMENT DETAIL
SCALE: NONE



NOTE: ADD L2x2 AT ALL NON-BEARING WALLS.

6 JOIST REINFORCEMENT DETAIL
SCALE: NONE



NOTES:
1. CONTRACTOR SHALL PROVIDE EQUIPMENT MFR. ANCHOR BOLT REQUIREMENTS TO ENGINEER FOR REVIEW.
2. PROVIDE MIN. ⅝"Ø SST. ANCHOR BOLTS W/ MIN. 3" EMBED OR AS REQUIRED BY EQUIP. MFR. ANCHOR BOLTS SHALL BE CAST-IN-PLACE, ADHESIVE, OR EXPANSION ANCHORS.
3. PROVIDE NON-SHRINK LEVELING GROUT UNDER EQUIPMENT BASE AS SHOWN ON DWGS OR REQ'D BY MFR. (1" MIN.; 3" MAX WHERE REQ'D)

7 EQUIPMENT BASE FRAME ANCHORS
SCALE: NONE

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0	08/07/20	ISSUED FOR PRICING	DBM
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idg INFLO DESIGN GROUP

DANIEL B. MORGAN — REGISTERED ENGINEER — AGRICULTURAL — COMMERCE — No. 117709 — STATE OF TENNESSEE — 03/31/21

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

FRAMING DETAILS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
S-721

SHEET NUMBER
45

MECHANICAL GENERAL NOTES:

1. 1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE OPERATIONAL COOLING, VENTILATION, AND HEATING SYSTEM IN ACCORDANCE WITH THE DESIGN DRAWINGS.

2. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2015 INTERNATIONAL MECHANICAL CODE, NFPA REQUIREMENTS, AND ALL LOCAL CODES.

3. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS. DRAWINGS SHALL NOT BE SCALED.

4. CONTRACTOR SHALL FIELD VERIFY BY MEASUREMENT THE EXACT LOCATION OF EQUIPMENT, DUCTWORK, PIPING, STRUCTURE, AND OTHER CONDITIONS WHICH WILL AFFECT INSTALLATION. CONTRACTOR SHALL LOCATE EQUIPMENT AND ROUTE DUCTWORK AND PIPING TO AVOID CONFLICTS AND INTERFERENCES WITH EXISTING CONDITIONS.

5. COORDINATE DUCT, PIPING, AND EQUIPMENT LOCATIONS WITH ELECTRICAL ROOMS, ELEVATOR EQUIPMENT ROOMS, AND ALL ELECTRICAL PANEL LOCATIONS. DO NOT PASS ANY MECHANICAL OR PLUMBING PIPING OR CONDENSATE PRODUCING EQUIPMENT DIRECTLY OVER ELECTRICAL PANELS, ELECTRICAL EQUIPMENT, ELEVATOR EQUIPMENT, CONTROLS, OR TELECOMMUNICATIONS EQUIPMENT. SEE ELECTRICAL AND TELECOMMUNICATION DRAWINGS FOR EXACT EQUIPMENT LOCATIONS.

6. CEILING DIFFUSER AND REGISTER LOCATIONS ARE APPROXIMATE ONLY.

7. ALL CUTTING AND PATCHING SHALL BE COORDINATED. ALL PATCHING SHALL RESTORE EACH DAMAGED SURFACE TO ITS ORIGINAL FINISH.

8. ALL EXPOSED DUCTWORK, PIPING, AND EQUIPMENT IN FINISHED SPACES TO BE INSTALLED AS HIGH AS POSSIBLE ABOVE FINISHED FLOOR.

9. ALL AIR DISTRIBUTION SYSTEM(S) SHALL BE TESTED AND BALANCED IN ACCORDANCE WITH A.A.B.C. OR N.E.B.B. REQUIREMENTS. A CERTIFIED AIR BALANCE REPORT SHALL BE PREPARED PRIOR TO PROJECT CLOSEOUT.

10. ALL LOW PRESSURE DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST SMACNA HVAC DUCT CONSTRUCTION MANUAL FOR 2" W.G. STATIC PRESSURE. DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL.

11. ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE CLEAR. ALLOWANCE MUST BE MADE IN SHEET METAL SIZE WHERE DUCT LINER IS SPECIFIED.

12. CONCEALED LOW PRESSURE SUPPLY DUCT NOT SHALL HAVE EXTERIOR WRAP INSULATION AS SPECIFIED.

13. NO FLEXIBLE DUCT SHALL BE EXPOSED. NO DUCT WRAP INSULATION SHALL BE EXPOSED. DUCT EXPOSED IN MECHANICAL ROOMS SHALL BE EXTERNALLY INSULATED WITH RIGID INSULATION AS SPECIFIED.

14. DUCT RUNOUTS TO REGISTERS TO BE AS SCHEDULED UNLESS OTHERWISE INDICATED ON PLANS. CONTRACTOR TO PROVIDE A TRANSITION AT NECK OF EACH AIR DISTRIBUTION DEVICE AS REQUIRED.

15. PROVIDE 4" HIGH CONCRETE PAD FOR ALL GROUND / FLOOR-MOUNTED EQUIPMENT.

16. WHERE BRANCH TAPS OCCUR, PROVIDE INDIVIDUAL SPIN-IN FITTINGS WITH MANUAL-VOLUME DAMPERS FOR BALANCING. DO NOT USE TYPE WITH AIR SCOOP/EXTRACTOR. ADDITIONALLY, PROVIDE OPPOSED-BLADE VOLUME DAMPERS AT EACH AIR DISTRIBUTION DEVICE.

17. COORDINATE LOCATION AND PROVIDE DUCT ACCESS DOORS FOR ACCESS TO VALVES AND OTHER ENCLOSED ITEMS. DUCT ACCESS DOORS MAY BE OMITTED WHERE TYPE "A" FIRE DAMPERS ARE ACCESSIBLE THROUGH SIDEWALL REGISTER FACE. ENSURE DUCT ACCESS DOORS AND DAMPERS ARE ACCESSIBLE THROUGH CEILINGS AND WALLS. LOCATE DUCT ACCESS DOORS ABOVE SPACES WITH LAY-IN CEILINGS OR EXPOSED CEILINGS WHERE POSSIBLE. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING TYPES.

18. PROVIDE CANVAS, FLAME RETARDANT FLEXIBLE DUCT CONNECTORS AT ALL CONNECTIONS OF FANS OR AIR HANDLING EQUIPMENT TO DUCTWORK.

19. PROVIDE A MINIMUM 10'-0" SEPARATION BETWEEN ANY FRESH AIR INTAKE AND ANY MECHANICAL EXHAUST, PLUMBING VENT, OR OTHER VENT OUTLETS.

20. COORDINATE INSTALLATION OF DUCT-MOUNTED SMOKE DETECTORS WITH FIRE ALARM SYSTEM PROVIDER. DUCT SMOKE DETECTORS TO BE 120 VOLT.

21. DUCT-MOUNTED SMOKE DETECTORS ARE PROVIDED BY DIV. 26, INSTALLED BY DIV. 23. DUCT SMOKE DETECTORS TO BE 120 VOLT.

22. DUCTWORK AND PIPE UNDER ROOF DECK SHALL BE SUPPORTED FROM STEEL BEAMS OR FROM SUPPLEMENTARY FRAMING SUPPORTED BY STEEL BEAMS.

23. REFER TO THE IBC AND NFPA FOR CAULKING REQUIREMENTS AROUND FIRE AND FIRE/SMOKE DAMPERS.

24. PROVIDE 3/4" MCD FOR ALL A/C UNITS. ROUTE MCD FROM A/C UNITS TO NEAREST FLOOR DRAIN, HUB DRAIN OR SINK TAIL PIECE.

SUPPLY DIFFUSER SCHEDULE

SYMBOL	ADAPTOR/ NECK SIZE	FACE SIZE	MAX CFM	MAX TP	MAX NC	THROW	DUCT RUNOUT SIZE *
SA	6" Ø	24"x24"	100	0.022	20	4-WAY	8"x5"/6" Ø
SB	8" Ø	24"x24"	200	0.042	20	4-WAY	10"x7"/8" Ø

1. SA THRU SE ARE TITUS MODEL OMNI STEEL DIFFUSERS.

ALL SUPPLY DIFFUSERS SHALL BE PROVIDED W/2" INSULATION BLANKET ON BACK OF DIFFUSER.
ALL DIFFUSERS SHALL HAVE OPPOSED BLADE DAMPERS (OBD).
* RUNOUTS ARE DUCTS SERVING ONLY ONE SUPPLY DIFFUSER.

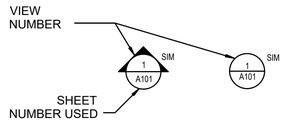
SIDEWALL GRILLE SCHEDULE

SYMBOL	ADAPTOR / NECK SIZE	FACE SIZE	MAX CFM	MAX TP	MAX NC	THROW	DUCT RUNOUT SIZE
SWD	12"x10"	14"x12"	500	0.152	25	2-WAY	12"x10"

REMARKS:

1. COORDINATE FINISH WITH OWNER.
2. PROVIDE OPPOSED BLADE DAMPERS.

VIEW NAME LEGEND



LEGEND

- MEDIUM PRESSURE TEE
- RECTANGULAR DUCT TURNING DOWN
- ROUND DUCT TURNING DOWN
- DUCT TURNING DOWN TO SIDEWALL REGISTER
- DUCTWORK
- DUCT LINER IN LOW PRESSURE DUCT OR DOUBLE WALL INSULATED MEDIUM PRESSURE DUCT
- BRANCH TAP OFF MAIN W/45° BOOT FITTING OR SPIN-IN FITTING W/DAMPER (LOW PRESSURE)
- TRANSITION IN DUCT (NOT DIRECTION OF AIRFLOW)
- REGISTER TAPPING INTO BOTTOM OF DUCT
- FD — FIRE DAMPER
- FSD — FIRE/SMOKE DAMPER
- SD — SMOKE DETECTOR
- DSD — DUCT SMOKE DETECTOR
- AD — ACCESS DOOR
- AFF — ABOVE FINISHED FLOOR
- BFF — BELOW FINISHED FLOOR
- VFD — VARIABLE FREQUENCY DRIVE
- TAD — TRANSFER AIR DUCT
- TAO — TRANSFER AIR OPENING
- BAS — BUILDING AUTOMATION CONTROL SYSTEM
- P — PRESSURE SENSOR
- 90 — 3/4" DOOR UNDERCUT WITH CFM
- DUCT TERMINATION
- 45° FULL RADIUS TURN
- SQUARE ELBOW W/TURNING VANES
- FULL RADIUS TURN
- H — HUMIDISTAT
- T — THERMOSTAT
- MVD — MANUAL VOLUME DAMPER
- VAV — VARIABLE VOLUME BOX
- EA 100 — INDICATES A SIZE "A" EXHAUST REGISTER SET FOR 100 CFM
- RB 200 — INDICATES A SIZE "B" RETURN REGISTER SET FOR 200 CFM
- SB 200 — INDICATES A SIZE "B" SUPPLY DIFFUSER SET FOR 200 CFM
- SUPPLY DIFFUSER (1-WAY)
- SUPPLY DIFFUSER (2-WAY)
- SUPPLY DIFFUSER (3-WAY)
- SUPPLY DIFFUSER (4-WAY)
- EXHAUST GRILLE
- RETURN GRILLE
- DG — DOOR GRILLE
- 90 — AIR PRESSURIZATION WITH CFM

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CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
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ICT PROJECT No. 190112

idg INFLO DESIGN GROUP

STATE OF TENNESSEE — COURT WILLIAMS — LICENSED PROFESSIONAL ENGINEER — AGRICULTURE — CHEROKEE — No. 117115 — 8/7/20

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	CL

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

MECHANICAL GENERAL NOTES & LEGENDS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
M-001

SHEET NUMBER
46

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112M-001.dwg Last Save: 8/6/2020 10:48 AM Last saved by: Clewis
Last plotted by: Corey R. Lewis Plot Style: ---- Plot Scale: 1:1 Plot Date: 8/6/2020 10:49 AM Plotter used: Microsoft Print to PDF

KEY NOTES:

1. 12.5" x 12.5" OPENING FOR EXHAUST FAN, F-2, ON ROOF.
2. COMBINATION H-STAT / T-STAT FOR EXHAUST FAN, F-2, ON ROOF.
3. PROVIDE CONCRETE PAD FOR CONDENSING UNIT, CU-1. EXTEND 4" BEYOND A/C UNIT.
4. INTAKE LOUVER BOTTOM ELEVATION AT 7'-4" AFF.
5. SUPPLY DUCT TO BE ROUTED THROUGH ATTIC SPACE.

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CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
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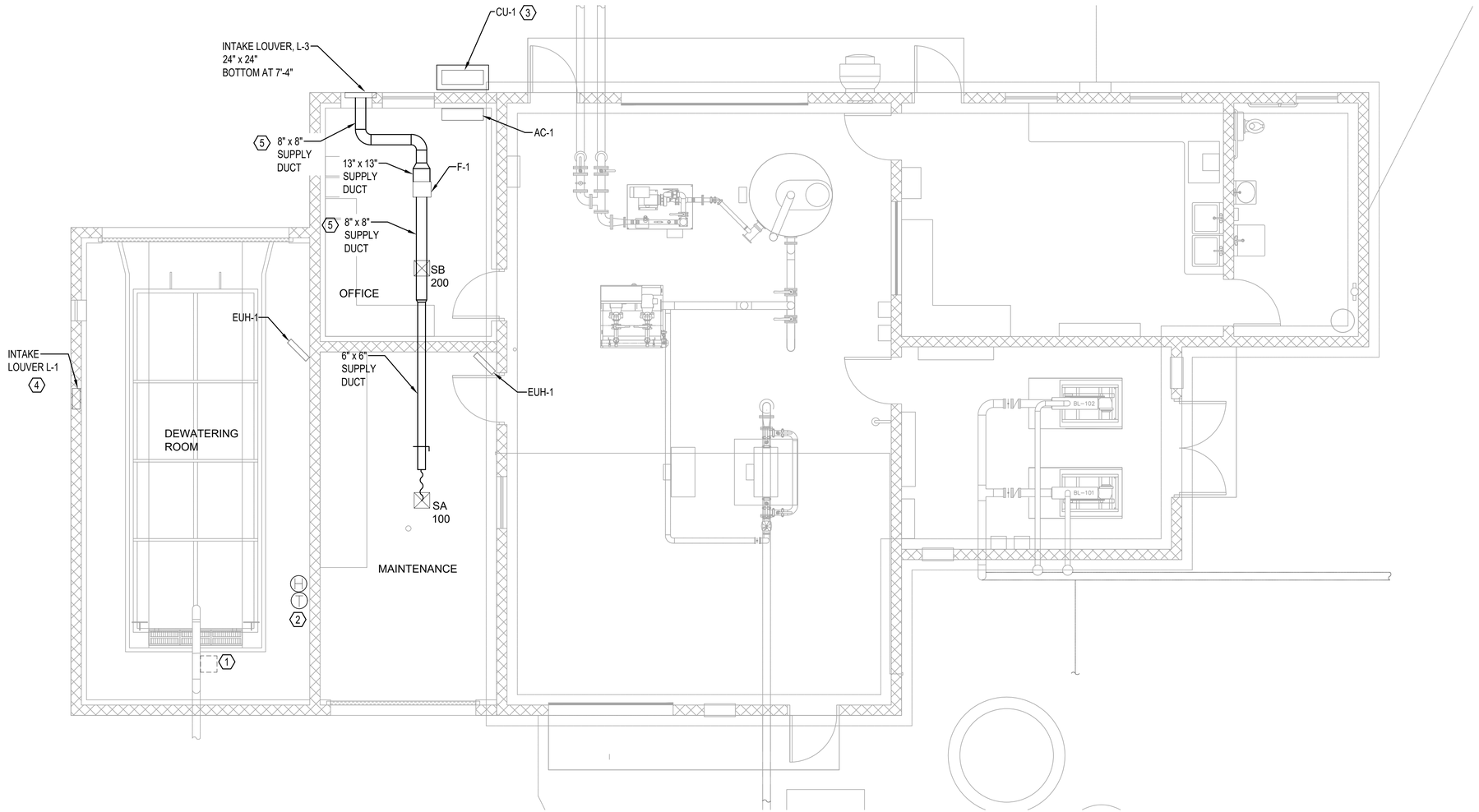

CONTROL BUILDING MECHANICAL PLAN

SCALE;1/4"=1'-0"

0 1' 2' 4' 8'

SCALE:1/4"=1'-0"

NOTE: EXISTING ITEMS ARE SHOWN SCREENED BACK.

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	CL

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONTROL BUILDING MECHANICAL PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER **M-101**

SHEET NUMBER **47**

KEY NOTES:

1. 12.5" x 12.5" DUCT OPENING FOR EXHAUST FAN, F-2, ON ROOF.

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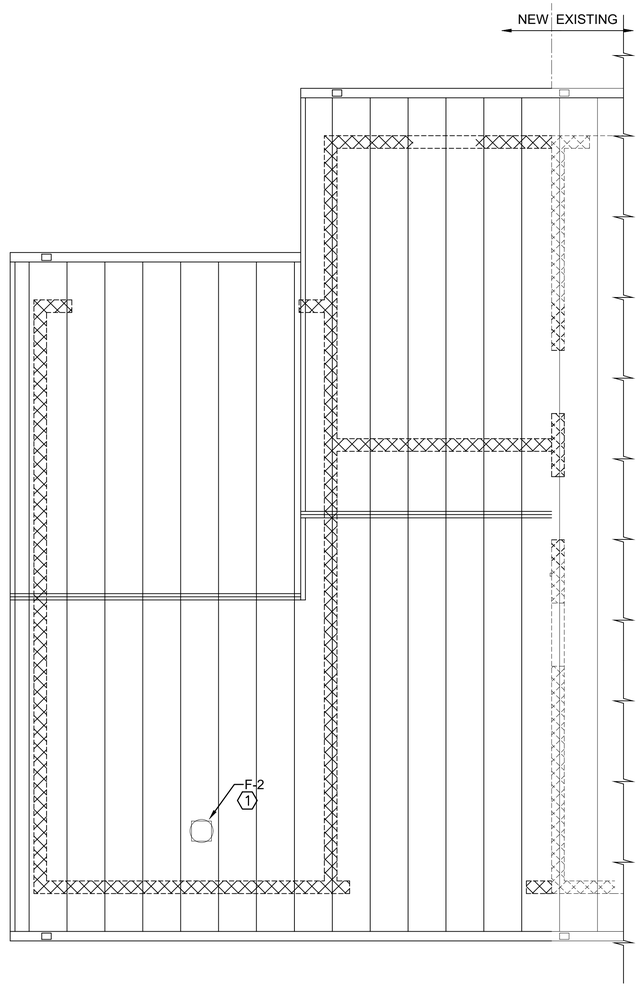


CONTROL BUILDING ROOF MECHANICAL PLAN

SCALE;1/4"=1'-0"

0 1' 2' 4' 8'

SCALE:1/4"=1'-0"

idg INFLO DESIGN GROUP

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	CL

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONTROL BLDG ROOF MECHANICAL PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
M-102

SHEET NUMBER
48

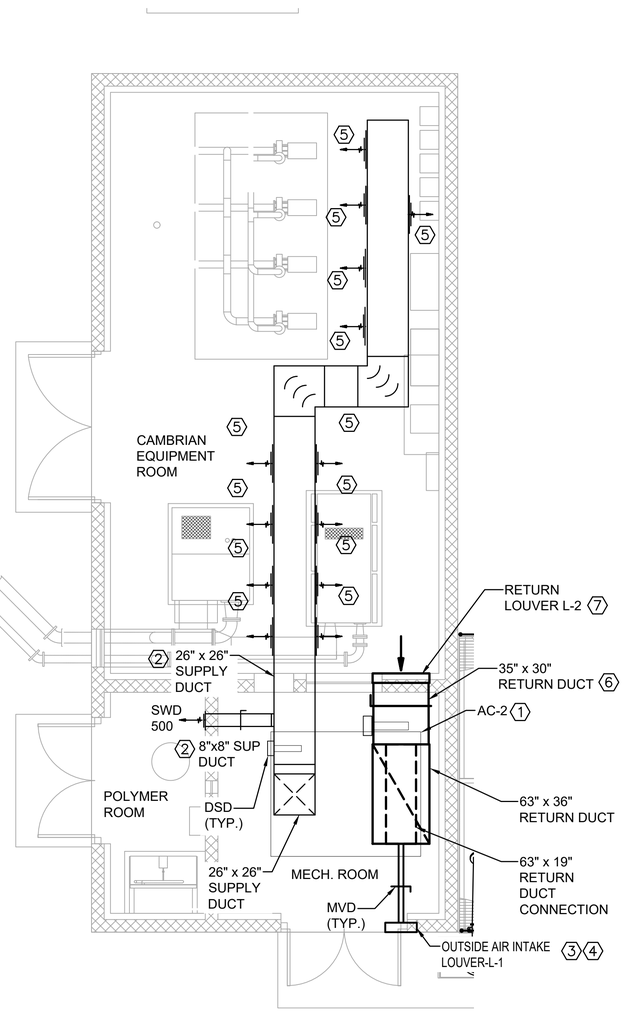
File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112M-102.dwg Last Save: 8/6/2020 11:32 AM Last saved by: Clewis
Last plotted by: Corey R. Lewis Plot Style: ---- Plot Scale: 1:1 Plot Date: 8/6/2020 11:34 AM Plotter used: Microsoft Print to PDF

KEY NOTES:

1. ROUTE CONDENSATE DRAIN TO NEAREST FLOOR DRAIN OR OUTSIDE WALL.
2. BOTTOM OF DUCT MINIMUM 7'-4" AFF.
3. BOTTOM LOUVER 8'-8" AFF.
4. DUCT TO BE 3" x 3". SIZE IS ALLOWED TO CHANGE AT CONNECTION POINTS.
5. METALAIRE SIDEWALL GRILLE MODEL 4000 SERIES OR EQUAL. 770 CFM, 24"x10".
6. ROUTE AS NECESSARY TO BE BELOW STRUCTURAL BOND BEAM IN CMU WALL.
7. LOUVER TO BE BELOW STRUCTURAL BOND BEAM IN CMU WALL. CONTRACTOR TO COORDINATE.

GENERAL NOTES:

A. PROVIDE TURNING VANES IN ALL 90 DEGREE ELBOWS.



CAMBRIAN BUILDING MECHANICAL PLAN

0 1' 2' 4' 8'

SCALE:1/4"=1'-0"

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CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
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COURT WILLIAMS LICENSED PROFESSIONAL ENGINEER IN AGRICULTURE ENGINEER No. 117116 STATE OF TENNESSEE
8/7/20

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	CL

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CAMBRIAN BUILDING MECHANICAL PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
M-103

SHEET NUMBER
49

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Last plotted by: Corey R. Lewis Plot Style: ---- Plot Scale: 1:1 Plot Date: 8/6/2020 12:56 PM Plotter used: Microsoft Print to PDF

KEY NOTES: ⬡

1. CONDENSING UNIT ON ROOF.
2. ROUTE SUPPLY AND RETURN REFRIGERANT PIPING DOWN THROUGH ROOF TO AC-2 UNIT IN MECH ROOM.

I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
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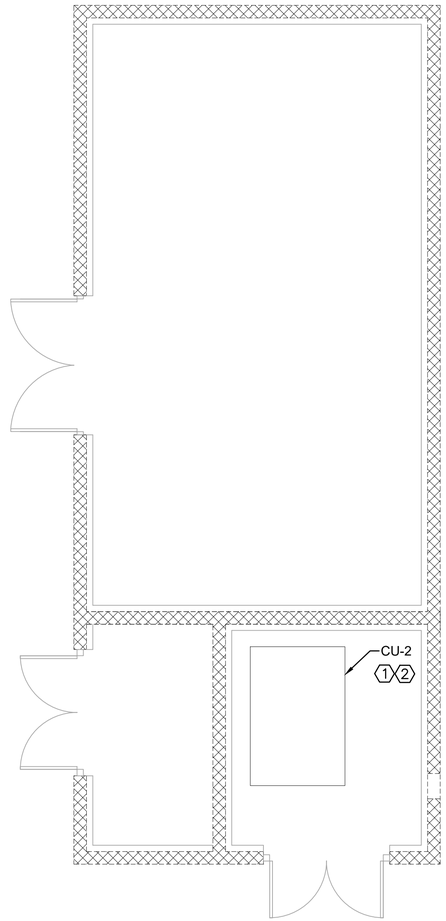


CAMBRIAN BUILDING ROOF MECHANICAL PLAN

SCALE;1/4"=1'-0"

0 1' 2' 4' 8'

SCALE:1/4"=1'-0"

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	CL

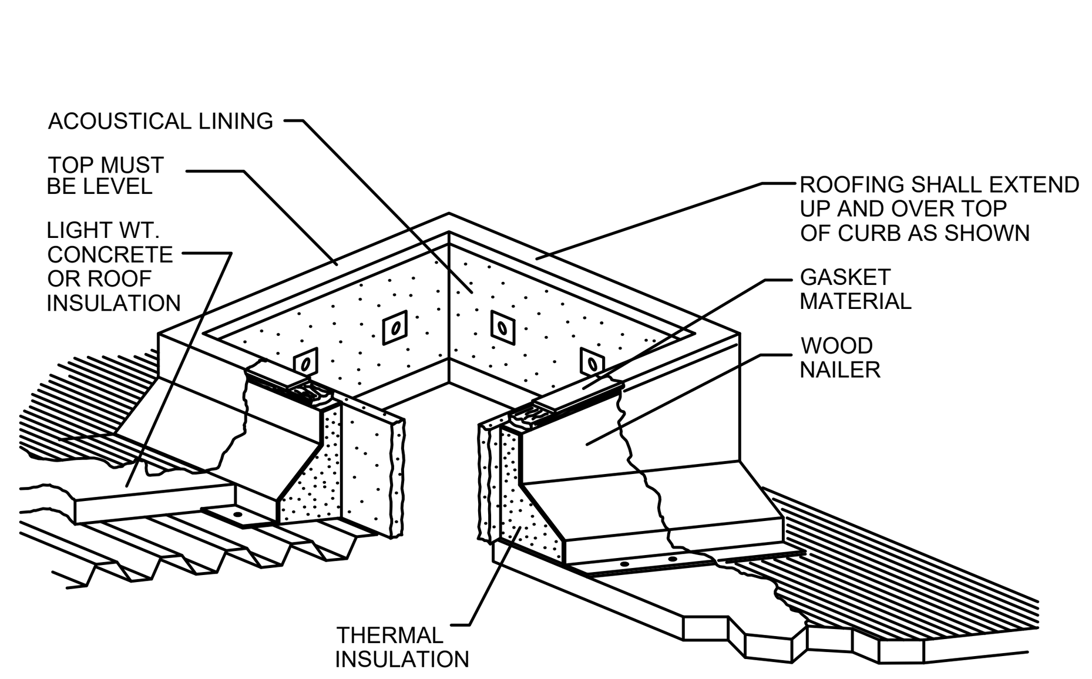
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CAMBRIAN BLDG ROOF MECHANICAL PLAN

THIS LINE IS 1" AT FULL SIZE

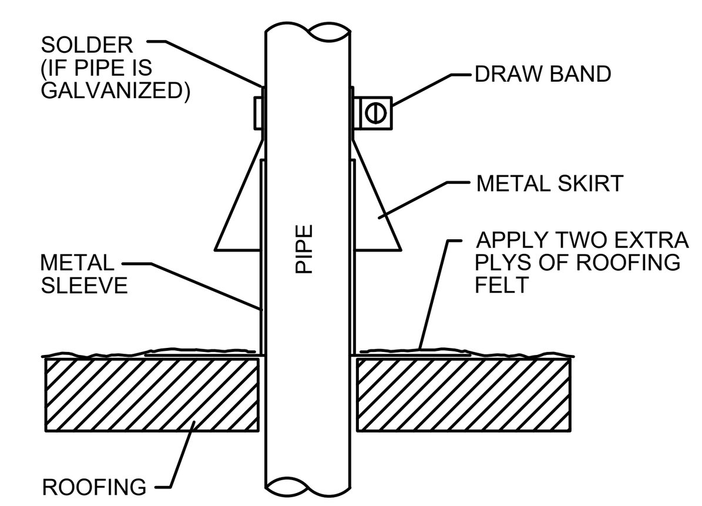
DRAWING NUMBER
M-104

SHEET NUMBER
50

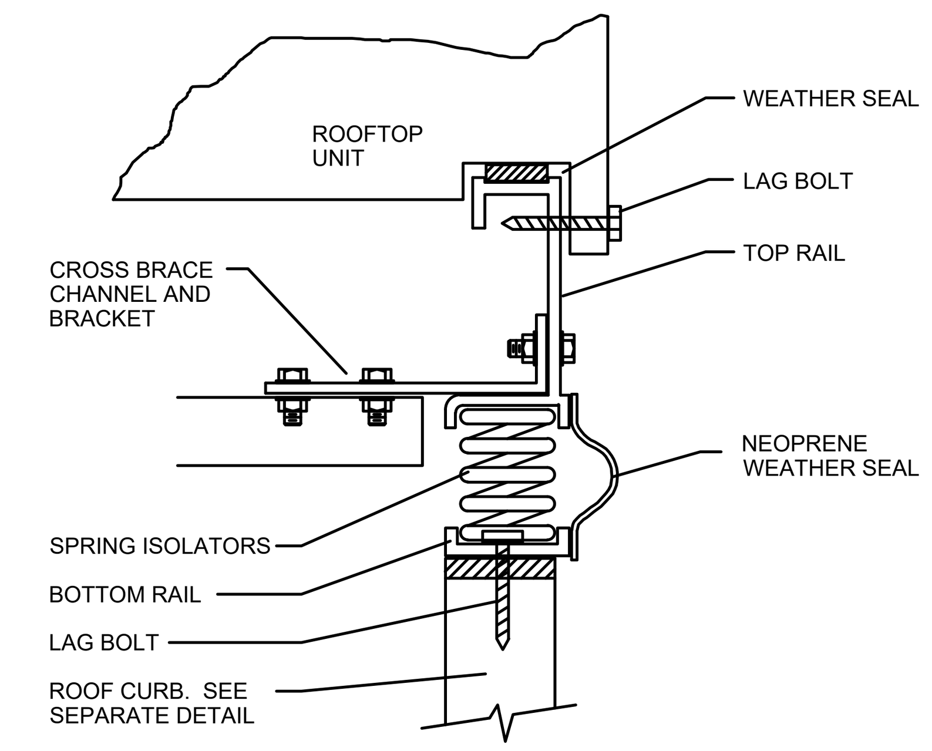


NOTES:
1. CURB HEIGHT ON UP-SLOPE SIDE SHALL BE AS SET FORTH IN MECH. SPECS. SECURE CURB TO ROOF WITH SHEET METAL SCREWS, LAG BOLTS, OR OTHER METHODS CONSISTENT WITH ROOF CONSTRUCTION.
2. COORDINATE FASTENING SPACING WITH LOCAL WIND LOADS AND SIESMIC REQUIREMENTS.

SLOPED ROOF CURB ON METAL DECK DETAIL — 1
No Scale



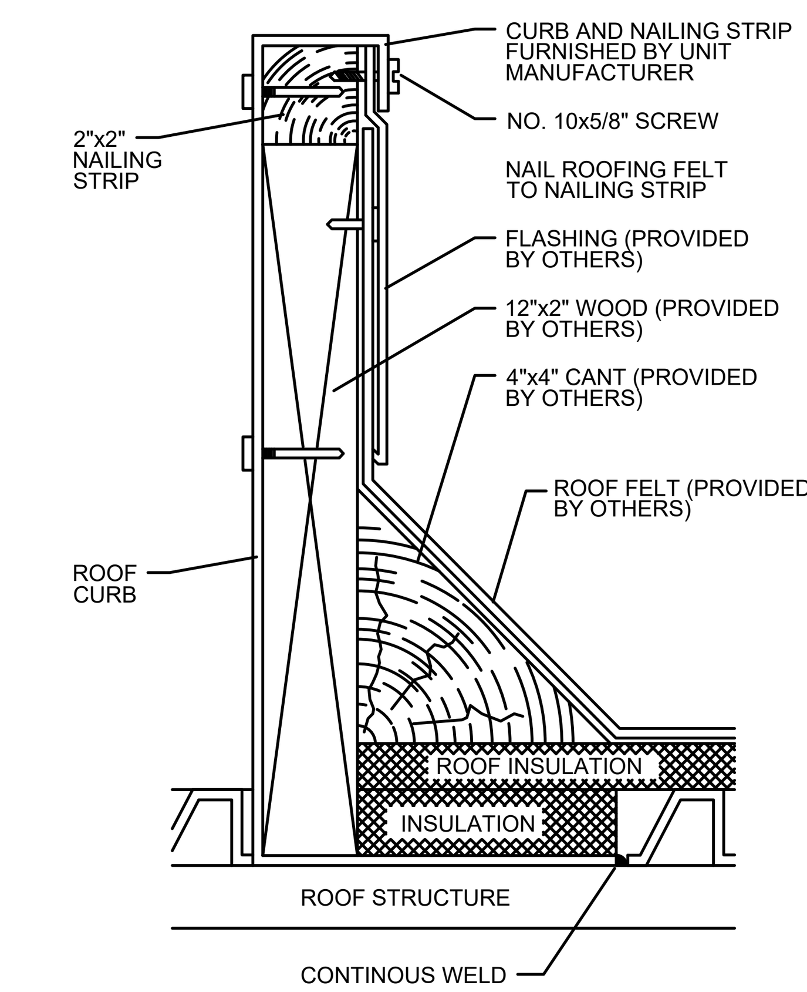
PIPING THRU ROOF DETAIL — 2
No Scale



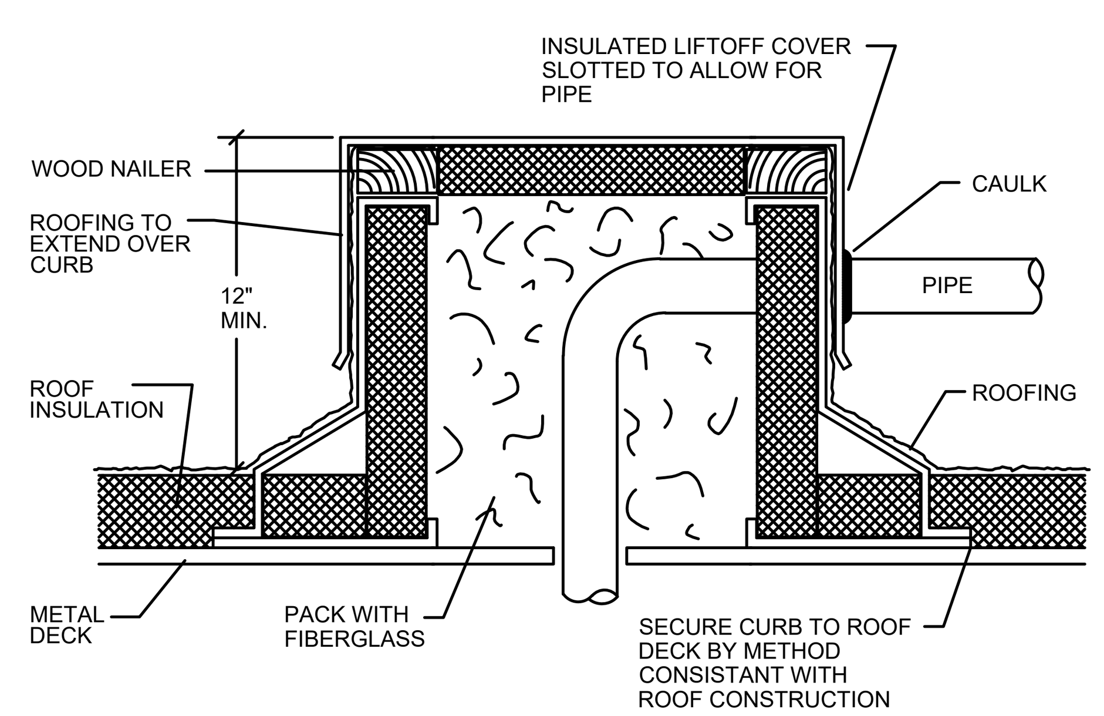
KINETICS MODEL KSR ISOLATION BASE SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

INSTALL WIND/SEISMIC RESTRAINTS (NOT SHOWN HERE) PER MANUFACTURER'S RECOMMENDATIONS TO WITHSTAND WIND LOAD AS INDICATED ON STRUCTURAL DRAWINGS.

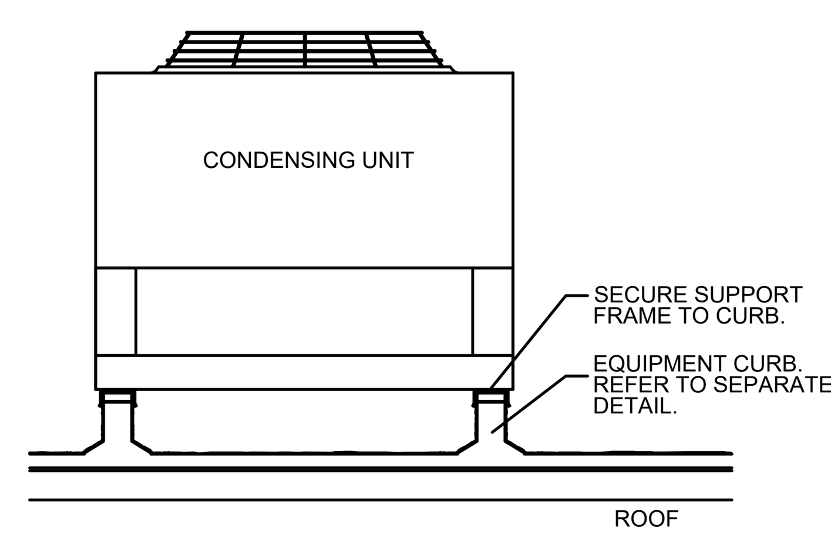
ROOFTOP UNIT VIBRATION ISOLATION BASE — 3
No Scale



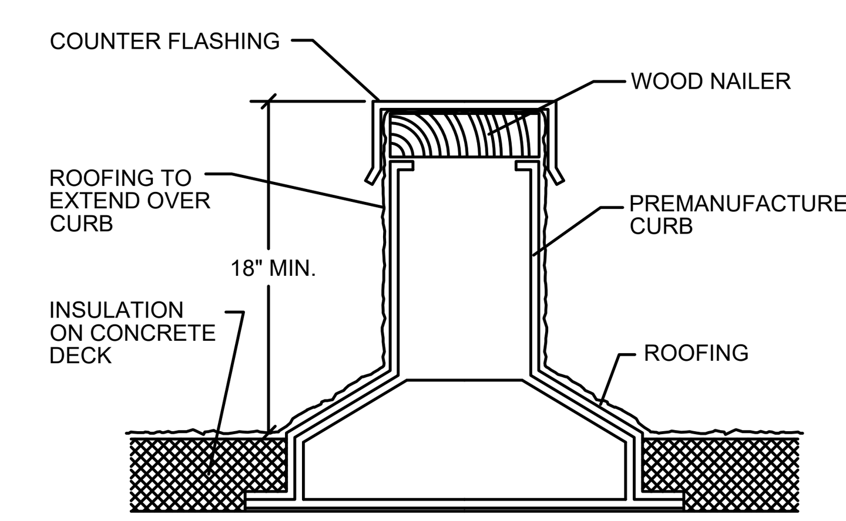
ROOFTOP UNIT CURB DETAIL — 4
No Scale



PIPE THRU ROOF DETAIL — 5
No Scale

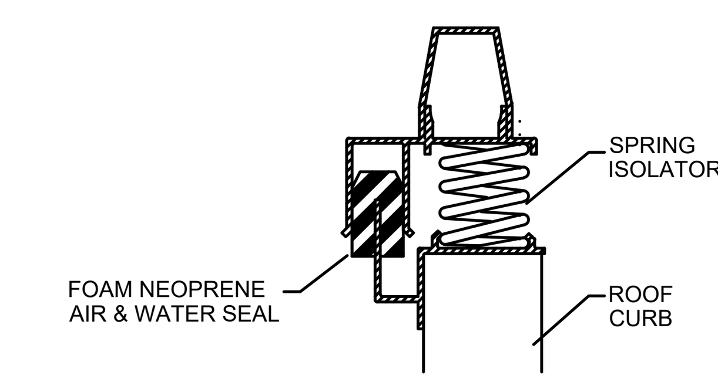


CONDENSING UNIT ON ROOF — 6
No Scale

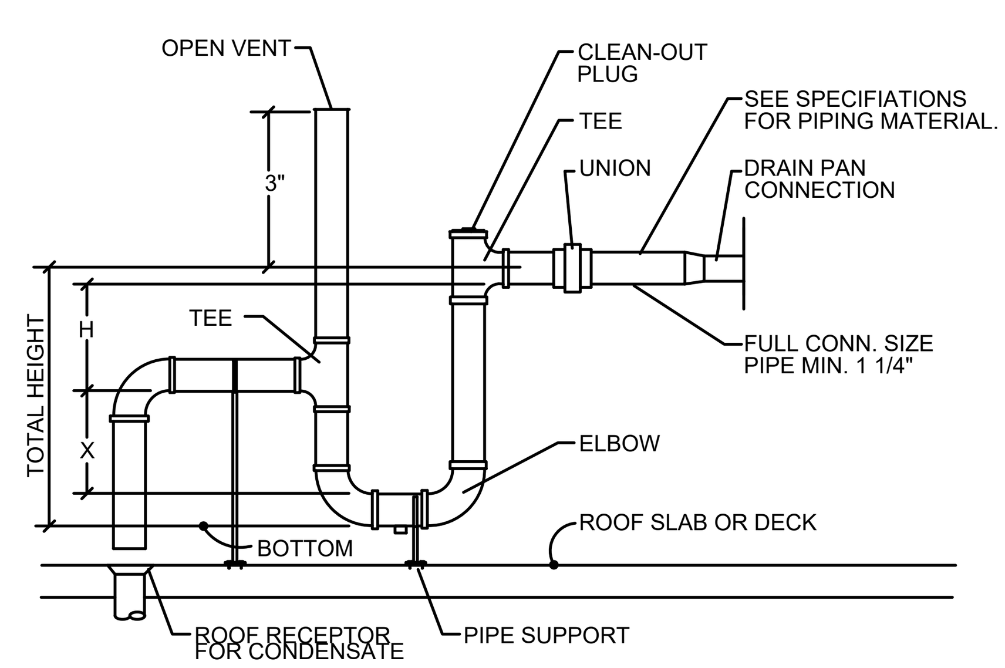


NOTES:
1. SECURE CURB TO ROOF WITH SHEET METAL SCREWS OR LAG BOLTS CONSISTENT WITH ROOF CONSTRUCTION.
2. COORDINATE FASTENING SPACING WITH LOCAL WIND LOADS AND SIESMIC REQUIREMENTS.

EQUIPMENT SUPPORT CURB — 7
No Scale



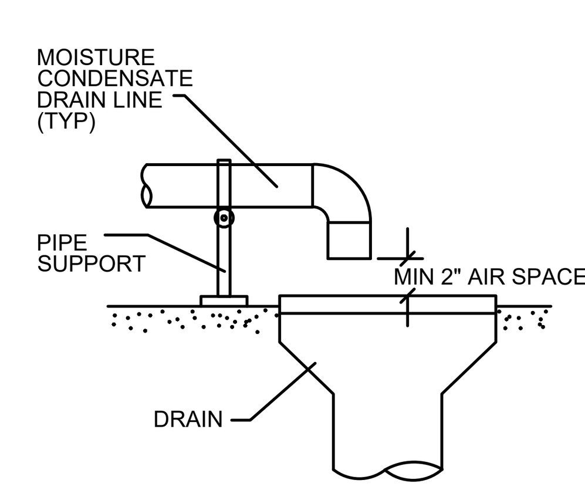
ROOFTOP EQUIPMENT ISOLATION — 8
No Scale



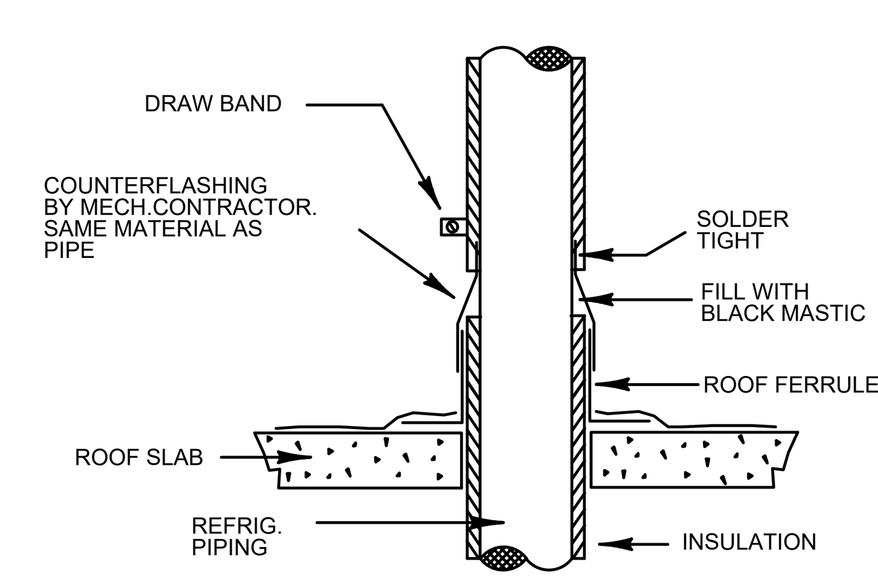
NOTE:
SLOPE DRAIN LINE MINIMUM OF 1/8" PER FOOT TO RECEPTOR.
TOTAL HEIGHT OF TRAP = X+H+ (1 1/2 x PIPE DIAMETER)

FOR DRAW THRU UNITS
X = MIN. H (PREFERRED X = H)
H = NEGATIVE STATIC PRESSURE +1"

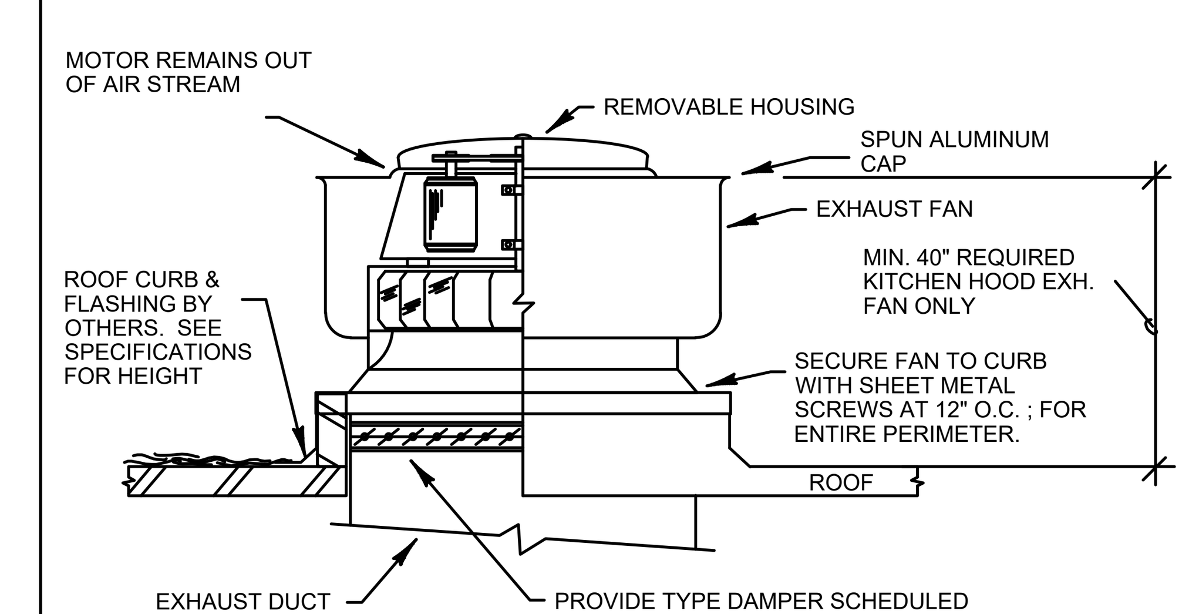
TYPICAL DRAIN TRAP — 9
No Scale



TERMINATION DETAIL OF MOISTURE CONDENSATE LINE — 10
No Scale



INSUL. REFRIG. PIPING THRU ROOF — 11
No Scale



NOTE:
1. PROVIDE RUBBER VIBRATION ISOLATORS TO PREVENT MOTOR AND BEARING NOISE FROM TRANSMITTING TO THE FAN HOUSING.
2. ROUTE POWER LEADS TO FAN INSIDE CORNER OF CURB.
3. BELT DRIVEN CENTRIFUGAL EXHAUST FAN SHOWN. DETAIL IS SIMILAR FOR DIRECT DRIVE CENTRIFUGAL EXHAUST FAN.

UPBLAST CENTRIFUGAL EXHAUST FAN — 12
No Scale

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CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
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8/7/20

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	CL

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

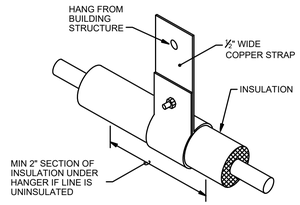
MECHANICAL DETAILS

THIS LINE IS 1" AT FULL SIZE

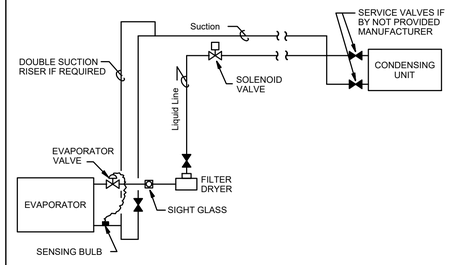
DRAWING NUMBER
M-501

SHEET NUMBER
51

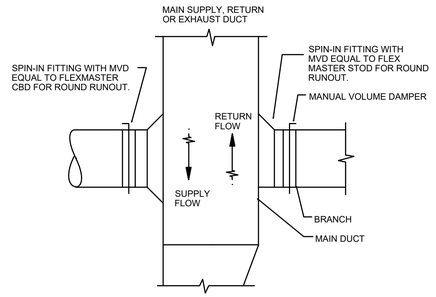
File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112M-501.dwg Last Save: 7/31/2020 2:01 PM Last saved by: Clewis
Last plotted by: Corey R. Lewis Plot Style: ---- Plot Scale: 1:1 Plot Date: 8/6/2020 10:22 AM Plotter used: Microsoft Print to PDF



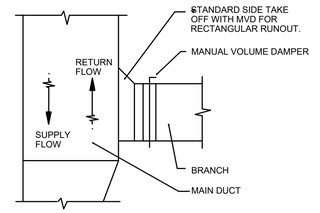
DETAIL FOR REFRIGERANT LINE HANGER — 1
No Scale



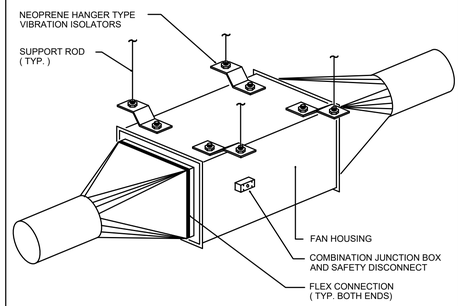
REFRIGERANT PIPING SCHEMATIC — 2
No Scale



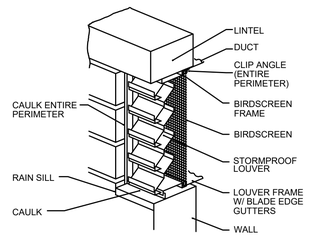
LOW PRESSURE ROUND BRANCH DUCT RUNOUT — 3
No Scale



LOW PRESSURE RECTANGULAR BRANCH DUCT RUNOUT — 4
No Scale



IN-LINE SUPPLY FAN ABOVE CEILING MOUNTING DETAIL — 5
No Scale



TYPICAL HVAC WALL LOUVER — 6
No Scale

NOTE: EXISTING ITEMS ARE SHOWN SCREENED BACK.

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REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	CL

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

MECHANICAL DETAILS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
M-502

SHEET NUMBER
52

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112M-502.dwg Last Save: 7/31/2020 2:01 PM Last saved by: Clewis
Last plotted by: Corey R. Lewis Plot Style: ---- Plot Scale: 1:1 Plot Date: 8/6/2020 10:24 AM Plotter used: Microsoft Print to PDF

LOUVER SCHEDULE

TAG	MANUFACTURER	MODEL	HEIGHT	WIDTH	TYPE	CONSTRUCTION	FINISH	DAMPER	OPERATOR	SCREEN	NOTES
L-1	GREENHECK	ESD-635	16	16	STATIONARY	ALUMINUM	STANDARD	NONE	NONE	BIRDSCREEN	
L-2	GREENHECK	ESD-635	60	36	STATIONARY	ALUMINUM	STANDARD	NONE	NONE	BIRDSCREEN	
L-3	GREENHECK	ESD-635	24	24	STATIONARY	ALUMINUM	STANDARD	NONE	NONE	BIRDSCREEN	

NOTES:
1. PROVIDE 6" DEEP LOUVERS AND COORDINATE LOUVER LOCATION WITH STRUCTURAL ENGINEER.

ELECTRICAL UNIT HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	TYPE	SERVICE	HEAT CAPACITY (KW)	VOLTS / PH / HZ	MOUNTING	NOTES
EUH-1	TRANE	UHEC031A0100	ELECTRIC	MAINTENANCE	3.3	208 / 1 / 60	VERTICAL	

NOTES:
1. PROVIDE WALL MOUNTED THERMOSTAT
2. PROVIDE DISCONNECT SWITCH
3. SEE ARCHITECTURAL/STRUCTURAL PLANS FOR CEILING TYPE.
4. PROVIDE SUPPORTS FOR HANGING FROM STRUCTURE

FAN SCHEDULE

TAG	MANUFACTURER	MODEL	TYPE	CFM	E.S.P.	RPM	DRIVE TYPE	HORSEPOWER	WEIGHT (LBS)	VOLTS / PH / HZ	NOTES
F-1	GREENHECK	CSP-A390-VG	SUPPLY	50	0.1	760	DIRECT	-	30	115 / 1 / 60	
F-2	GREENHECK	CUE-080-VG	EXHAUST	315	0.25	1406	DIRECT	1/10	40	115 / 1 / 60	

NOTES:
1. PROVIDE WALL MOUNTED THERMOSTAT
2. PROVIDE DISCONNECT SWITCH
3. PROVIDE BIRDSCREEN
4. PROVIDE ROOF CURB

SPLIT SYSTEM A/C (INDOOR) UNIT SCHEDULE

TAG	MANUFACTURER	MODEL	SERVICE	NOMINAL TONS	TOTAL CAPACITY (BTUH)	SENSIBLE CAPACITY (BTUH)	CFM	SEER	E.A.T. (DB / WB)	OUTDOOR AMBIENT	HEATING TYPE	HEATING BTUH	VOLTS / PH / HZ	MCA	MOCP	NOTES
AC-1	TRANE	NTXWST09A112A	OFFICE	0.75	9000	7800	212	24.6	90 / 73	95	ELECTRICAL	10,900	208 / 1 / 60	1	15	
AC-2	TRANE	UCCAB21C0F0RU03	CAMBRIAN BLDG.	25	365,670	255,560	10,000	-	80 / 67	95	ELECTRICAL	56,060	480 / 3 / 60	44.6	*	

NOTES:
1. 10 YEAR COMPRESSOR WARRANTY
2. WALL MOUNTED WIRED CONTROLLER/THERMOSTAT
3. 0°F LOW AMBIENT COOLING. PROVIDE & INSTALL ALL NECESSARY HOODS & WIND BAFFLES AS REQUIRED.
4. CONTRACTOR SHALL REVIEW REFRIGERANT PIPE LENGTHS & SIZING PRIOR TO SUBMITTING A BID
5. PROVIDE CONDENSATE PUMP TO DISPOSE OF CONDENSATE.

* MAX FUSE SIZE 50A.

SPLIT SYSTEM CONDENSING (OUTDOOR) UNIT SCHEDULE

TAG	MANUFACTURER	MODEL	SERVICE	NOMINAL TONS	TOTAL CAPACITY (BTUH)	C.A.T. (MAX / MIN)	OUTDOOR AMBIENT	DIMENSIONS (IN.)	WEIGHT (LBS)	VOLTS / PH / HZ	MCA	MOCP	NOTES
CU-1	TRANE	NTXSST09A112AA	OFFICE	0.75	9000	115 / 14	95	31.5 x 11 x 22	10,900	208 / 1 / 60	9	15	
CU-2	TRANE	CAUJ	CAMBRIAN BLDG.	25	300,000	-	95	88.5 x 60 x 74	1238	480 / 3 / 60	5.9	*	

NOTES:
1. 10 YEAR COMPRESSOR WARRANTY
2. WALL MOUNTED WIRED CONTROLLER/THERMOSTAT
3. PROVIDE 0° F LOW AMBIENT COOLING. PROVIDE & INSTALL ALL NECESSARY HOODS & WIND BAFFLES AS REQUIRED.
4. CONTRACTOR SHALL REVIEW REFRIGERANT PIPE LENGTHS & SIZING PRIOR TO SUBMITTING A BID

* MAX FUSE SIZE 15A

I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
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ICT PROJECT No. 190112

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

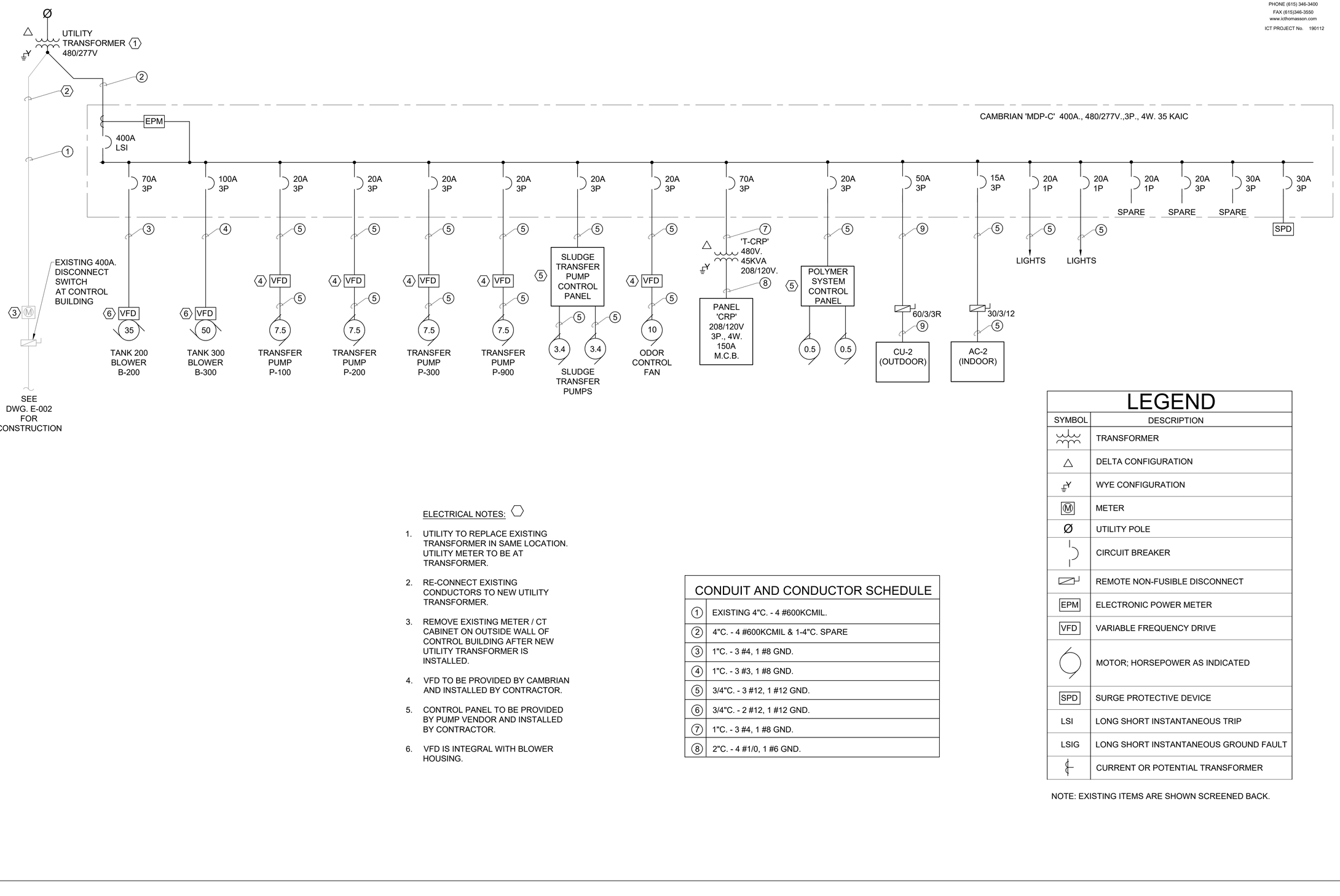
MECHANICAL SCHEDULES

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
M-601

SHEET NUMBER
53

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112M-601.dwg Last Save: 8/5/2020 5:42 PM Last saved by: Clewis
Last plotted by: Corey R. Lewis Plot Style: ---- Plot Scale: 1:1 Plot Date: 8/6/2020 10:27 AM Plotter used: Microsoft Print to PDF



ELECTRICAL NOTES: ⬡

1. UTILITY TO REPLACE EXISTING TRANSFORMER IN SAME LOCATION. UTILITY METER TO BE AT TRANSFORMER.
2. RE-CONNECT EXISTING CONDUCTORS TO NEW UTILITY TRANSFORMER.
3. REMOVE EXISTING METER / CT CABINET ON OUTSIDE WALL OF CONTROL BUILDING AFTER NEW UTILITY TRANSFORMER IS INSTALLED.
4. VFD TO BE PROVIDED BY CAMBRIAN AND INSTALLED BY CONTRACTOR.
5. CONTROL PANEL TO BE PROVIDED BY PUMP VENDOR AND INSTALLED BY CONTRACTOR.
6. VFD IS INTEGRAL WITH BLOWER HOUSING.

CONDUIT AND CONDUCTOR SCHEDULE

①	EXISTING 4"C. - 4 #600KCMIL.
②	4"C. - 4 #600KCMIL & 1-4"C. SPARE
③	1"C. - 3 #4, 1 #8 GND.
④	1"C. - 3 #3, 1 #8 GND.
⑤	3/4"C. - 3 #12, 1 #12 GND.
⑥	3/4"C. - 2 #12, 1 #12 GND.
⑦	1"C. - 3 #4, 1 #8 GND.
⑧	2"C. - 4 #1/0, 1 #6 GND.

LEGEND

SYMBOL	DESCRIPTION
	TRANSFORMER
△	DELTA CONFIGURATION
Y	WYE CONFIGURATION
M	METER
Ø	UTILITY POLE
	CIRCUIT BREAKER
	REMOTE NON-FUSIBLE DISCONNECT
EPM	ELECTRONIC POWER METER
VFD	VARIABLE FREQUENCY DRIVE
	MOTOR; HORSEPOWER AS INDICATED
SPD	SURGE PROTECTIVE DEVICE
LSI	LONG SHORT INSTANTANEOUS TRIP
LSIG	LONG SHORT INSTANTANEOUS GROUND FAULT
	CURRENT OR POTENTIAL TRANSFORMER

NOTE: EXISTING ITEMS ARE SHOWN SCREENED BACK.

I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
ICT PROJECT No. 190112

INFLO DESIGN GROUP

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REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

'MDP-C' ONE-LINE DIAGRAM

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
E-001

SHEET NUMBER
54

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112E-001.dwg Last Save: 7/31/2020 2:08 PM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: --- Plot Scale: 1:1 Plot Date: 7/31/2020 2:08 PM Plotter used: Microsoft Print to PDF

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CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
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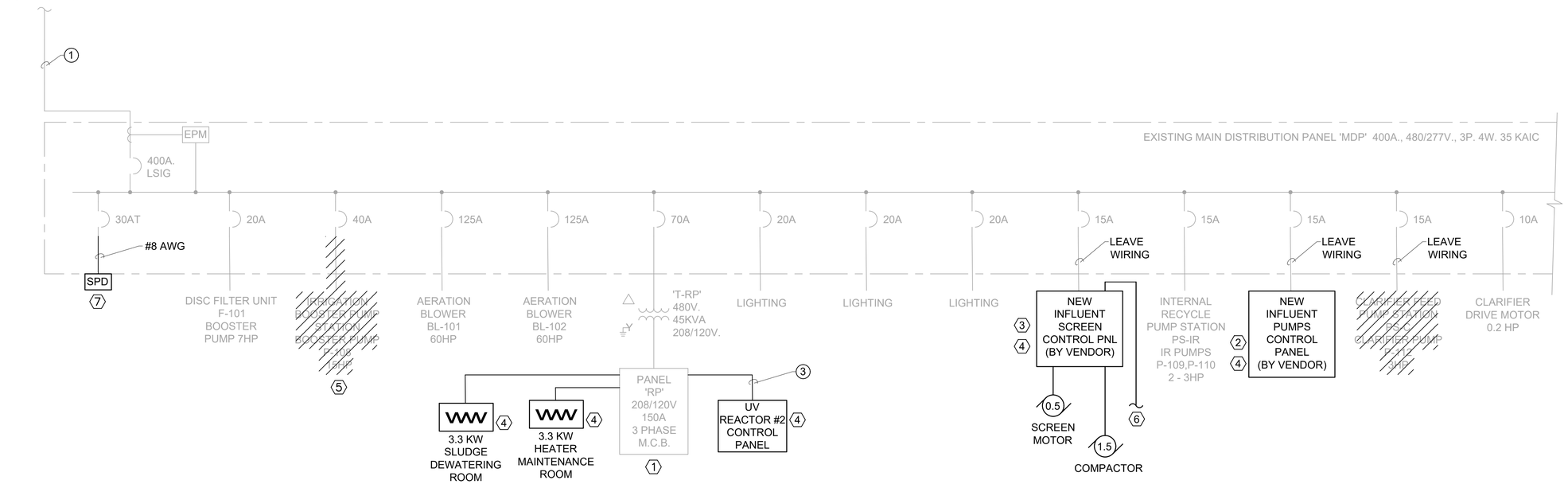
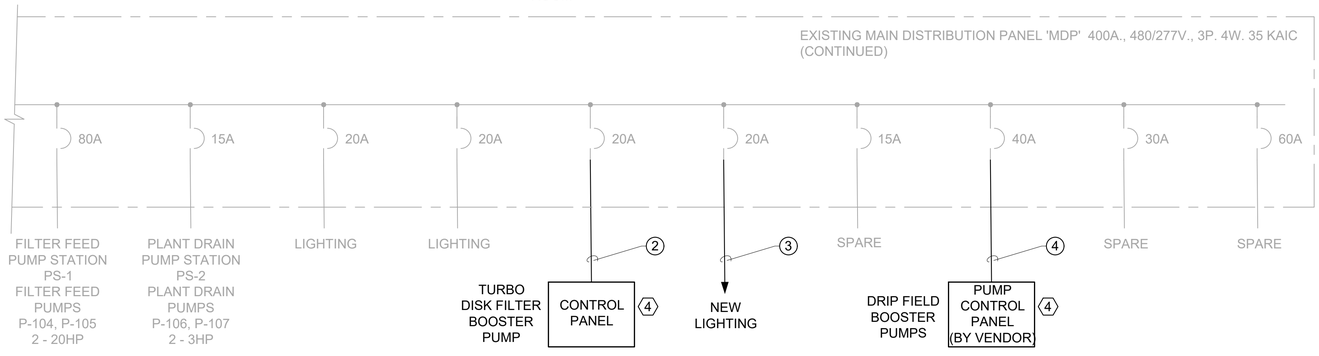
SEE DWG. E - 001 FOR CONTINUATION





ELECTRICAL NOTES:

1. INSTALL TWO 20A., 2-POLE BREAKERS IN PANEL 'RP' FOR NEW UV REACTOR #2 AND FOR HEATER IN DEWATERING ROOM.
2. REMOVE EXISTING CONTROL PANEL AT MANHOLE 'PS-C' AND RE-USE WIRING TO FEED NEW 'PS-C INFLUENT' PUMPS CONTROL PANEL.
3. REMOVE EXISTING CONTROL PANEL AT PRE-ANOXIC TANK AND RE-USE WIRING TO FEED NEW INFLUENT SCREEN CONTROL PANEL.
4. CONTROL PANEL TO BE PROVIDED BY VENDOR AND INSTALLED BY CONTRACTOR.
5. REMOVE EXISTING WIRING TO BOOSTER PUMP STATION.
6. INSTALL SPARE 3/4"C. TO PANEL 'MDP-C' AS SHOWN ON DRAWING E-102.
7. INSTALL NEW SURGE PROTECTIVE DEVICE ON SIDE OF PANEL 'MDP'. CONNECT TO SPARE 30A. BREAKER WITH #8 AWG WIRE.

CONDUIT AND CONDUCTOR SCHEDULE

1	EXISTING 4"C. - 4 #600KCMIL.
2	3/4"C. - 3 #12, 1 #12 GND.
3	3/4"C. - 2 #12, 1 #12 GND.
4	1"C. - 3 #8 ,1 #10 GND.

NOTE: EXISTING ITEMS ARE SHOWN SCREENED BACK.

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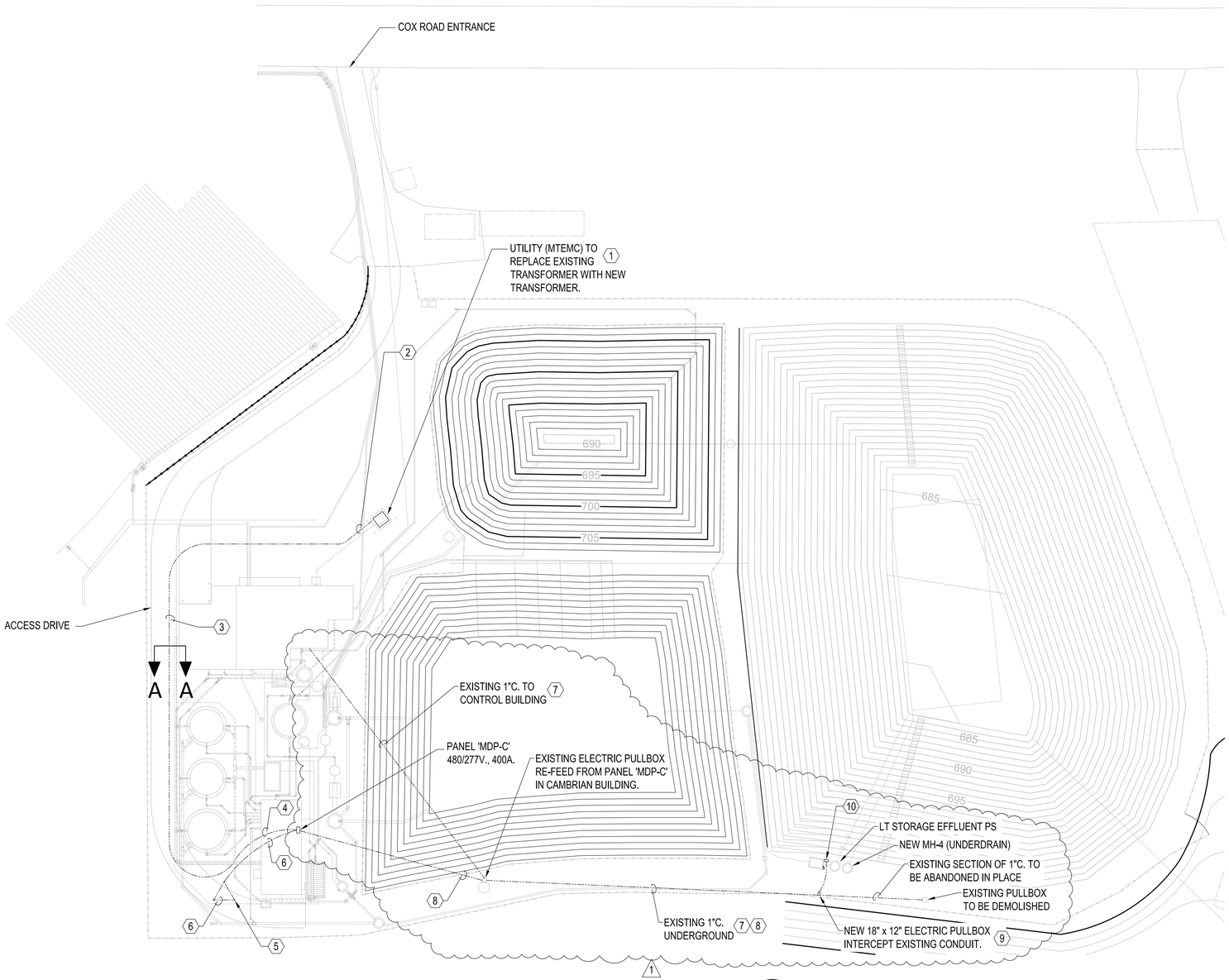
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

EXISTING 'MPD' ONE-LINE DIAGRAM

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
E-002

SHEET NUMBER
55

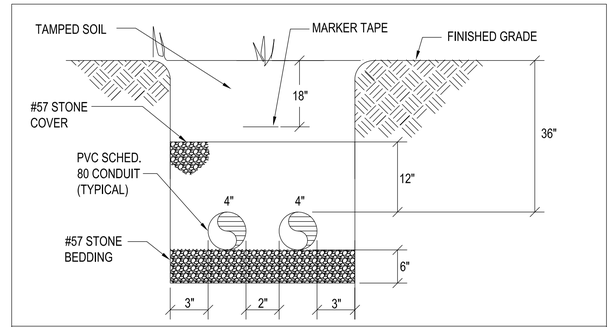


WWTP ELECTRICAL SITE PLAN

SCALE:1"=30'-0"

0 10' 20' 30' 60'

SCALE:1"=30'-0"



SECTION 'A-A'

SCALE: NONE

NOTES:

1. COORDINATE WITH MTEMC FOR TRANSFORMER REPLACEMENT. CONTACT JONATHAN McPHERSON AT (615) 595-4695.
2. INSTALL 2-4"C. UNDER EXISTING TRANSFORMER PAD INTO SECONDARY COMPARTMENT. PULL CONDUCTORS THROUGH 1-4"C. AS SHOWN ON DRAWING E-001. MTEMC TO MAKE FINAL TERMINATIONS.
3. (1) 4"C. - 4 #600KCMIL AND 1-4"C. SPARE INSTALLED UNDERGROUND AS SHOWN IN SECTION 'A-A'.
4. ROUTE CONDUITS UNDER FLOOR SLAB TO PANEL 'MDP-C'. SEE DRAWING E-103 FOR LOCATION OF PANEL.
5. 3/4" DIA. x10'-0" L COPPER CLAD GROUND ROD, DRIVEN 12" BELOW GRADE (TYP FOR 3).
6. #2/0 AWG BARE COPPER, BURIED 30" BELOW GRADE (TYPICAL). MAKE EXOTHERMIC WELDS TO GROUND RODS.

1

7. REMOVE #6 AWG CONDUCTORS FROM 1"C. BACK TO PANEL 'RP' IN CONTROL BUILDING. THEN, CONTINUE INSTALLING CONDUCTORS FROM NOTE 8 IN EMPTY 1"C.
8. INSTALL 1"C. - 3 #10. 1 #10 GND. FROM EXISTING PULLBOX TO PANEL 'MDP-C' AND ON TO PS CONTROL PANEL.
9. INTERCEPT EXISTING UNDERGROUND 1"C. WITH NEW IN-GROUND PULLBOX. THEN, PULL CONDUCTORS FROM NOTE 8 ON TO LT STORAGE PS CONTROL PANEL.
10. LONG TERM STORAGE PS CONTROL PANEL TO BE INSTALLED ON UNISTRUT RACK NEAR PUMP STATION.

I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.ictthomasson.com
ICT PROJECT No. 190112

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KEN K. PARRISH
REGISTERED ENGINEER
AGRICULTURE
NUMBER
No. 103935
STATE OF TENNESSEE
4/16/21

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0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP
1	08/03/21	LT STORAGE MODIFICATIONS	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP ELECTRICAL SITE PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
E-100

SHEET NUMBER
56

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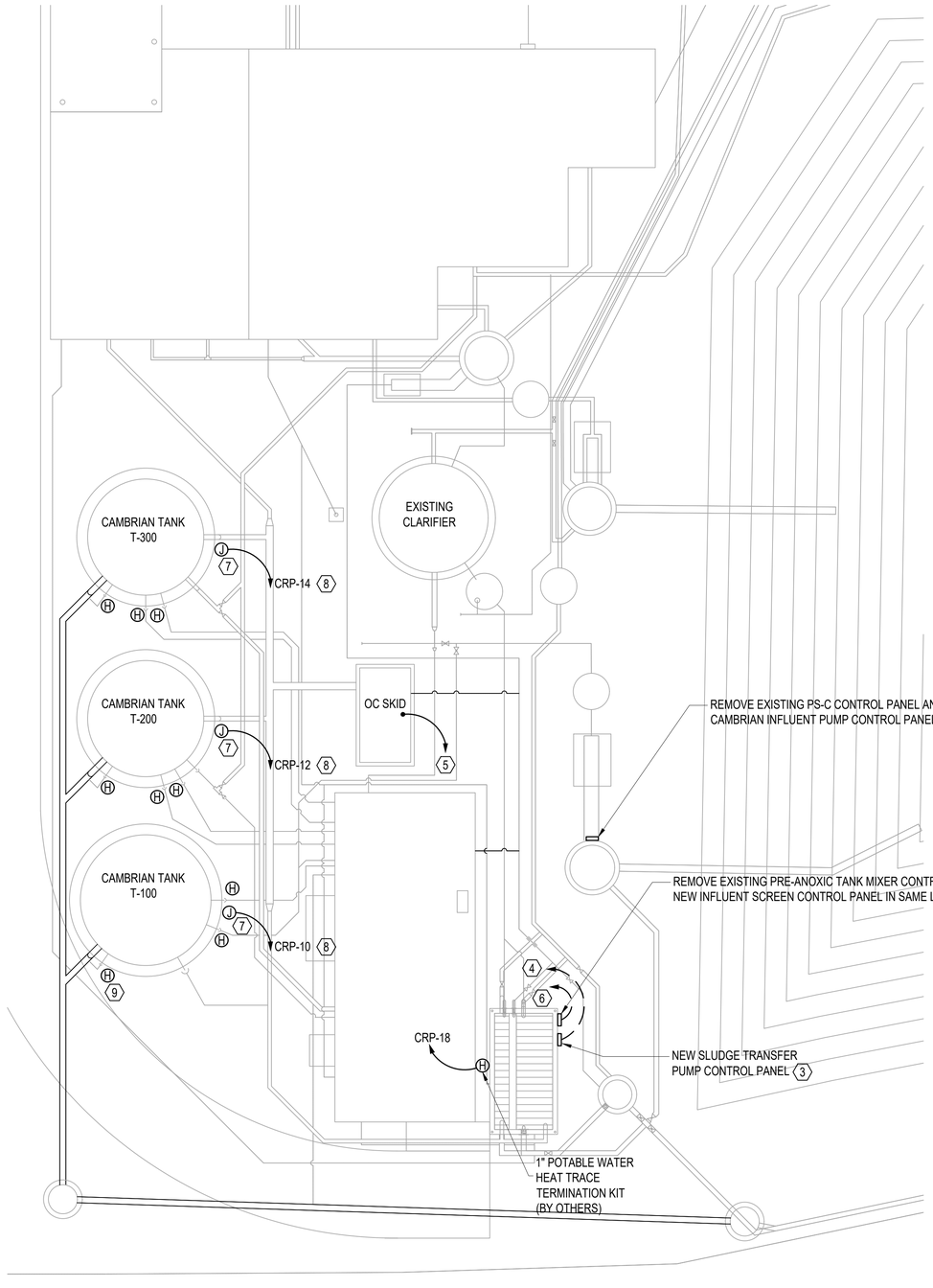

WWTP PARTIAL ELECTRICAL SITE PLAN

SCALE;1"=10'-0"

0 5' 10' 20'

SCALE:1"=10'-0"

NOTES:

1. AFTER REMOVING EXISTING PS-C CONTROL PANEL, INSTALL NEW CAMBRIAN INFLUENT PUMPS CONTROL PANEL (PROVIDED BY VENDOR) ON EXISTING STAND AND RE-TERMINATE EXISTING #12 AWG, 480V. POWER CONDUCTORS FROM CONTROL BUILDING PANEL 'MDP'.
2. AFTER REMOVING EXISTING CONTROL PANEL, INSTALL NEW INFLUENT SCREEN CONTROL PANEL (PROVIDED BY VENDOR) ON EXISTING STAND AND RE-TERMINATE EXISTING #12 AWG, 480V. POWER CONDUCTORS FROM CONTROL BUILDING PANEL 'MDP'.
3. INSTALL CONTROL PANEL (PROVIDED BY VENDOR) ON STAINLESS STEEL STAND SIMILAR TO EXISTING PUMP CONTROL PANELS ON SITE.
4. 3/4"C - 3 #12, 1 #12 GND TO 480V PANEL 'MDP-C' IN CAMBRIAN BUILDING. SEE DRAWING E-103.
5. 3/4"C - 3 #12, 1 #12 GND TO 480V VFD IN CAMBRIAN BUILDING. SEE DRAWING E-103.
6. INSTALL SPARE 3/4"C. FROM NEW INFLUENT SCREEN CONTROL PANEL TO PANEL 'MDP'.
7. INSTALL STAINLESS STEEL JUNCTION BOX AT TANK FOR PIPING HEAT TRACE. EACH TANK HAS THREE (3) HEAT TRACE CONNECTION POINTS AT TERMINATION KITS AS SHOWN. WIRE TO EACH HEAT TRACE KIT WITH 3/4"C. - 2 #12, 1 #12 GND.
8. 3/4"C - 2 #12, 1 #12 GND ROUTED WITH PIPING INTO BUILDING.
9. PIPING HEAT TRACE TERMINATION KIT BY OTHERS (TYPICAL).

I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com

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KEN K. PARRISH — REGISTERED ENGINEER — AGRICULTURE — 7/31/20 — No. 123035 — STATE OF TENNESSEE

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PARTIAL WWTP ELECTRICAL SITE PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
E-102

SHEET NUMBER
57

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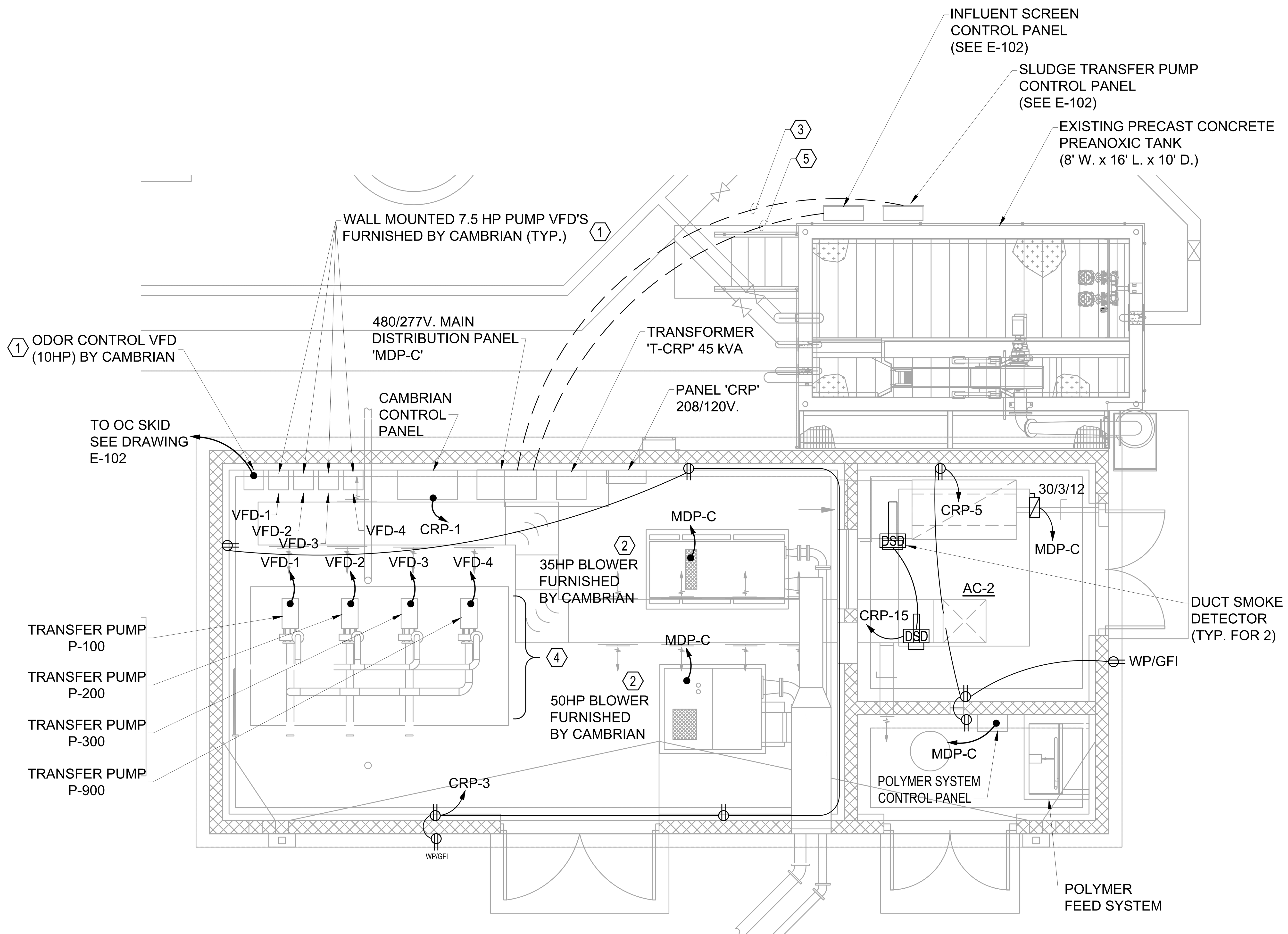
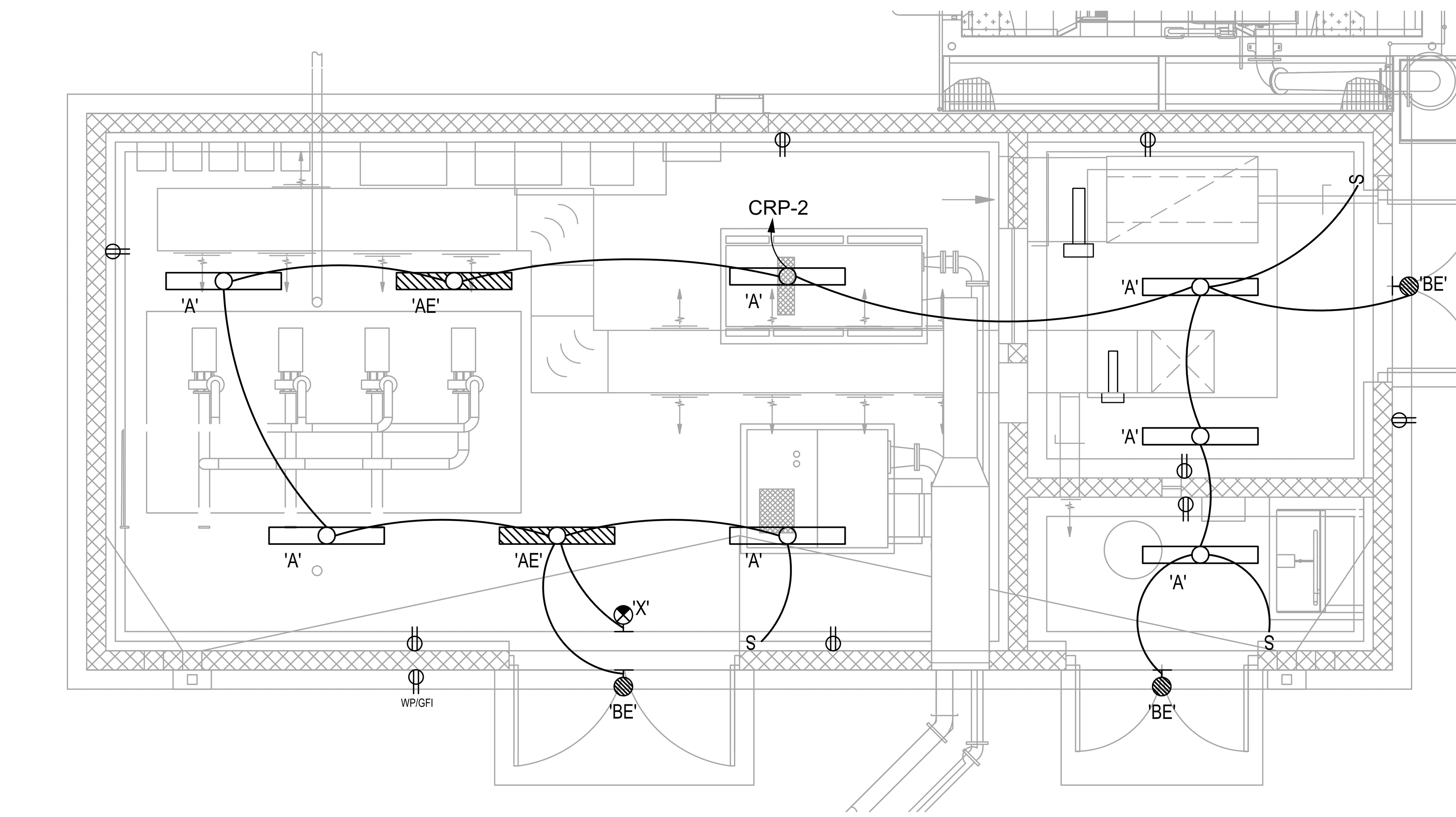


CAMBRIAN BUILDING POWER PLAN

0 1' 2' 4' 8'

SCALE:1/4"=1'-0"



CAMBRIAN BUILDING LIGHTING PLAN

0 1' 2' 4' 8'

SCALE:1/4"=1'-0"

ELECTRICAL NOTES:

1. INSTALL CONDUIT AND WIRING FROM VFD'S TO PANEL 'MDP-C' AS SHOWN ON DRAWING E-001.
2. VFD IS INTEGRAL WITH BLOWER.
3. 3/4"C. - 3 #12, 1 #12 GND. TO PANEL 'MDP-C'.
4. SEE DRAWING I-104 FOR 120V. POWER TO MODULATING VALVES ON PUMP SKID.
5. SPARE 3/4"C. TO PANEL 'MDP-C'.

GENERAL NOTES:

A. SEE DRAWING E-001 FOR CONDUIT AND CABLE SIZES TO EQUIPMENT.
B. 120V. WIRING TO PANEL 'CRP' TO BE #12 AWG IN 3/4"C. UNLESS OTHERWISE NOTED.

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL	LAMP	WATTAGE	DESCRIPTION
'A'	LITHONIA LIGHTING	FEM L48 4000LM IMACD WD MVOLT GZ10 40K 80CRI	LED	31W	1' X 4' LED SURFACE MOUNT, 4000 LUMEN, ENCLOSED AND GASKETED.
'AE'	LITHONIA LIGHTING	FEM L48 4000LM IMACD WD MVOLT GZ10 40K 80CRI - E15WCP	LED	31W	1' X 4' LED SURFACE MOUNT, 4000 LUMEN, ENCLOSED AND GASKETED, WITH EMERG. BATTERY PACK.
'BE'	RAB LIGHTING	WP1LED 30N 120-277V PC - EM	LED	30W	WALL PACK LIGHTING WITH EMERG. BATTERY PACK
'X'	LITHONIA LIGHTING	LQM-S-W-1-R-120/277-EL N-SD			EXIT SIGN - SINGLE FACE - STENCIL LETTERS, WHITE HOUSING, RED LETTERS, NICKLE CADIUM BATTERY - SELF DIAGNOSTICS

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I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
ICT PROJECT No. 190112

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KEN K. PARRISH
STATE OF TENNESSEE
No. 103035
8/7/20

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CAMBRIAN BUILDING & INFLUENT SCREEN ELECTRICAL PLANS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
E-103

SHEET NUMBER
58

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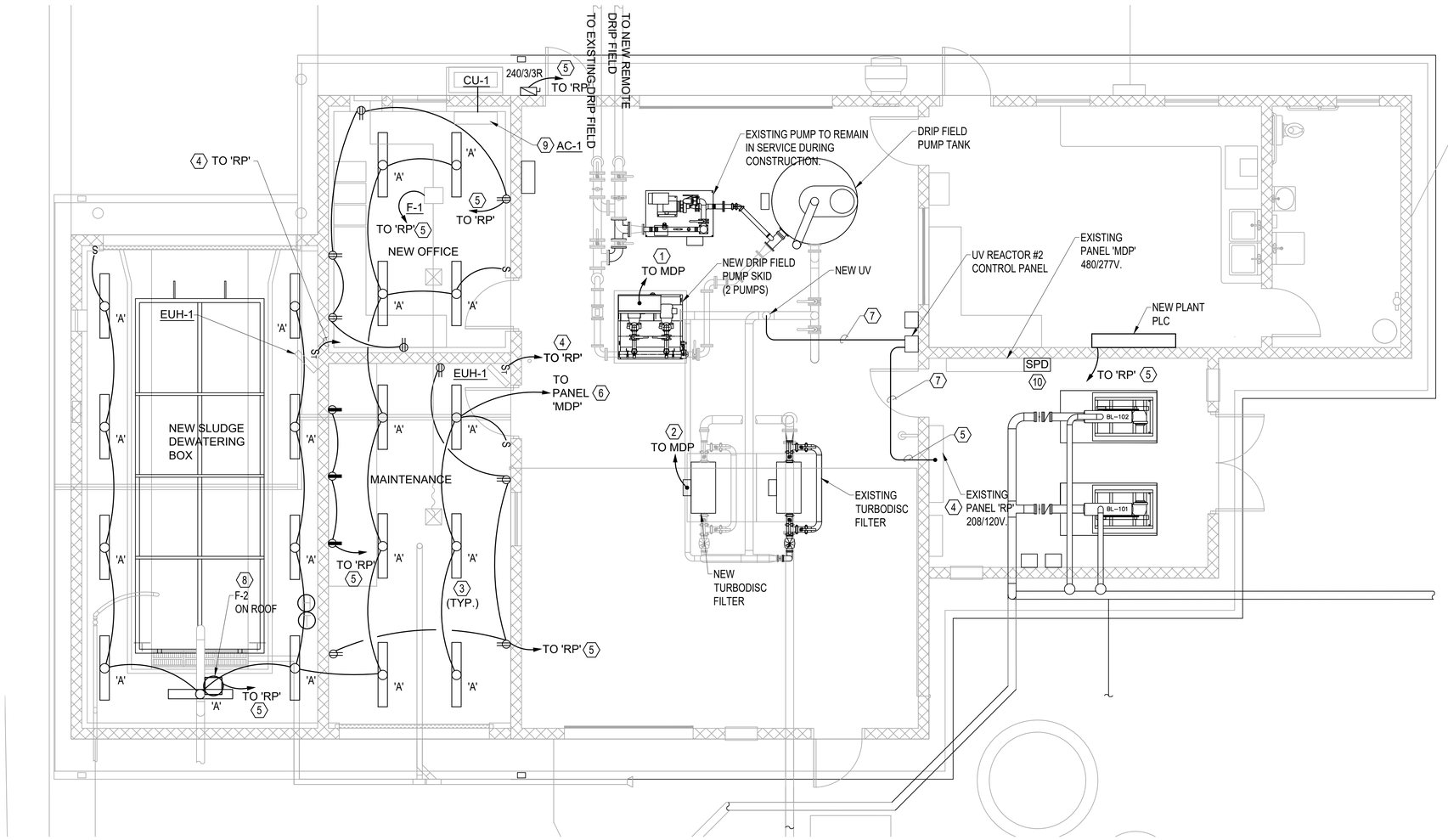

CONTROL BUILDING ELECTRICAL PLAN

SCALE;1/4"=1'-0"

0 1' 2' 4' 8'

SCALE:1/4"=1'-0"

KEY NOTES:

1. 1"C. - 3 #8, 1 #10 GND. TO SPARE 40A. BREAKER IN PANEL 'MDP'.
2. 3/4"C. - 3 #12, 1 #12 GND. TO SPARE 20A. BREAKER IN PANEL 'MDP'.
3. TYPE 'A' FIXTURE TO BE LITHONIA MODEL No. FEM L48 4000LM IMACD WD MVOLT GZ10 40K 80CRI OR APPROVED SUBSTITUTE. MOUNT FIXTURE AGAINST GYP BOARD CEILING.
4. INSTALL THREE NEW 20A., 2-POLE BREAKERS IN PANEL 'RP' FOR UV REACTOR #2 AND FOR HEATERS IN SLUDGE DEWATERING AND MAINTENANCE ROOMS.
5. CONNECT WIRING TO SPARE 20A., 1P. BREAKER IN EXISTING PANEL 'RP'.
6. 3/4"C. - 2 #12, 1 #12 GND. TO SPARE 20A., 1 POLE BREAKER IN PANEL 'MDP'.
7. 3/4"C. - 2 #12, 1 #12 GND.
8. SEE DRAWING M-102 FOR EXHAUST FAN ON ROOF.
9. AC-1 GETS POWER FROM CU-1. ROUTE 3/4"C. FROM AC-1 TO CU-1.
10. INSTALL NEW SURGE PROTECTIVE DEVICE ON SIDE OF PANEL 'MDP' AS SHOWN ON DRAWING E-002.

GENERAL NOTES:

A. SEE DRAWING E-001 FOR CONDUIT AND CABLE SIZES TO EQUIPMENT.

B. 120V. WIRING TO PANEL 'RP' TO BE #12 AWG UNLESS OTHERWISE NOTED.

NOTE: EXISTING ITEMS ARE SHOWN SCREENED BACK.

I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
ICT PROJECT No. 190112

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONTROL BUILDING ELECTRICAL PLANS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER **E-104**

SHEET NUMBER **59**

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CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
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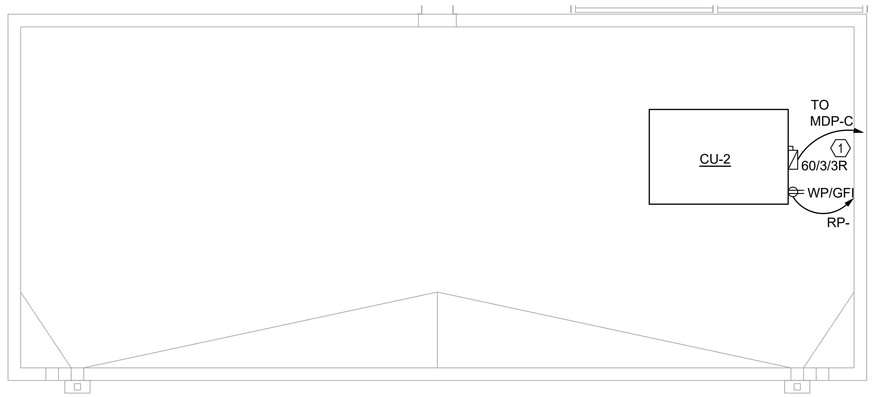

CAMBRIAN BUILDING ROOF ELECTRICAL PLAN

0 1' 2' 4' 8'

SCALE:1/4"=1'-0"

ELECTRICAL NOTES:

1. INSTALL DISCONNECT SWITCH ON SIDE OF CONDENSING UNIT.

GENERAL NOTES:

A. SEE DRAWING E-001 FOR CONDUIT AND CABLE SIZES TO EQUIPMENT.

idg INFLO DESIGN GROUP

KEN K. PARRISH — REGISTERED ENGINEER — AGRICULTURE — 7/31/20 — No. 103035 — STATE OF TENNESSEE

REV	DATE	DESCRIPTION	BY
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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CAMBRIAN BUILDING ROOF ELECTRICAL PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
E-105

SHEET NUMBER
60

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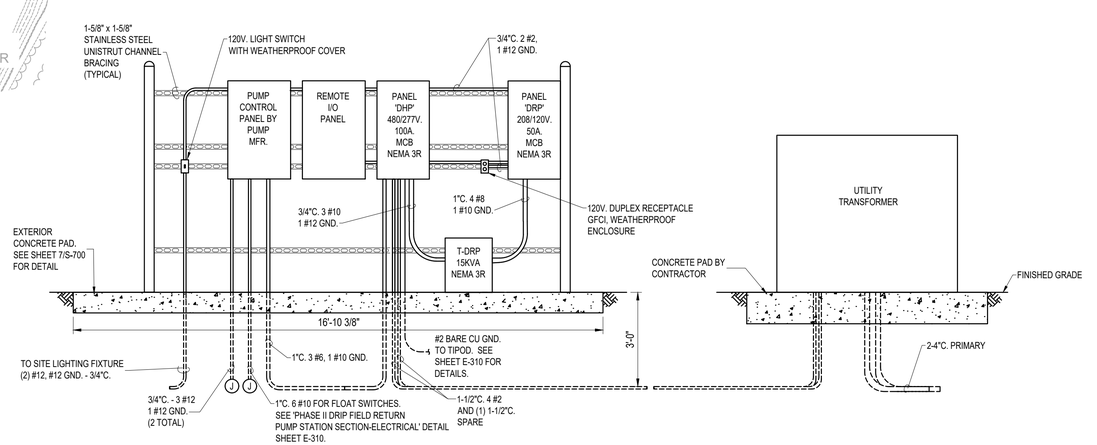
Exhibit CA DR 1-23
TPUC Dkt. 23-00037

EXIST. ACCESS ROAD AT PERIMETER OF FIELD.
RIVER BANK
298.84'
10-YEAR FLOOD PLAIN
RIVER BUFFER
PROVIDE NEW GRAVEL OVERLAY AT EXIST. ACCESS ROAD
S 80°45'51" E
1303.44'
PROVIDE NEW GRAVEL ACCESS ROAD
2-4"C. PVC SCHEDULE 40 IN DUCT BANK
COX ROAD
NEW XMFR (BY MTEMC)
NEW RETURN PS & VALVE VAULT
NEW ELEC PRIMARY POWER DUCTBANK (BY CONTRACTOR) SEE DETAIL ON DRAWING E-400.
687.6
NEW 3" PVC RETURN MAIN TO WWTP
NEW 4" PVC SUPPLY MAIN FROM WWTP
NEW 2" PVC CONDUIT FOR FIBER OPTIC CABLE FROM WWTP
JUNCTION BOX, TYP. EA. SIDE OF RR BORING
EXIST. GROUND WATER WELL (FIELD LOCATE)
EXIST. ACCESS ROAD AT PERIMETER OF FIELD.
BORE CASINGS UNDER RR FOR UTILITIES.
10-YEAR FLOOD PLAIN
SINK HOLE W/ 25-FT BUFFER
693.1
ZONE 12
ZONE 13
ZONE 14
ZONE 15
ZONE 16
ZONE 17
ZONE 18
ZONE 19
ZONE 20
ZONE 21
RESERVE DRIP FIELD AREA
13.5 ACRES
(REFER TO SP-03 FOR FULL EXTENTS OF PROPERTY)
692.3
RIVER BUFFER

N

1 - PHASE 2 DRIP FIELD ZONE LAYOUT PLAN-ELECTRICAL
SCALE: 1" = 60'

0 20' 40' 60' 120'
SCALE:1"=60'-0"



DRIP FIELD RISER DIAGRAM
NO SCALE

ICT
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CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 600
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615) 346-3550
www.ictthomasson.com
ICT PROJECT No. 190112

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INFLO DESIGN GROUP

KEN K. PARRISH
REGISTERED ENGINEER
AGRICULTURE
No. 103035
STATE OF TENNESSEE
7/31/20

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

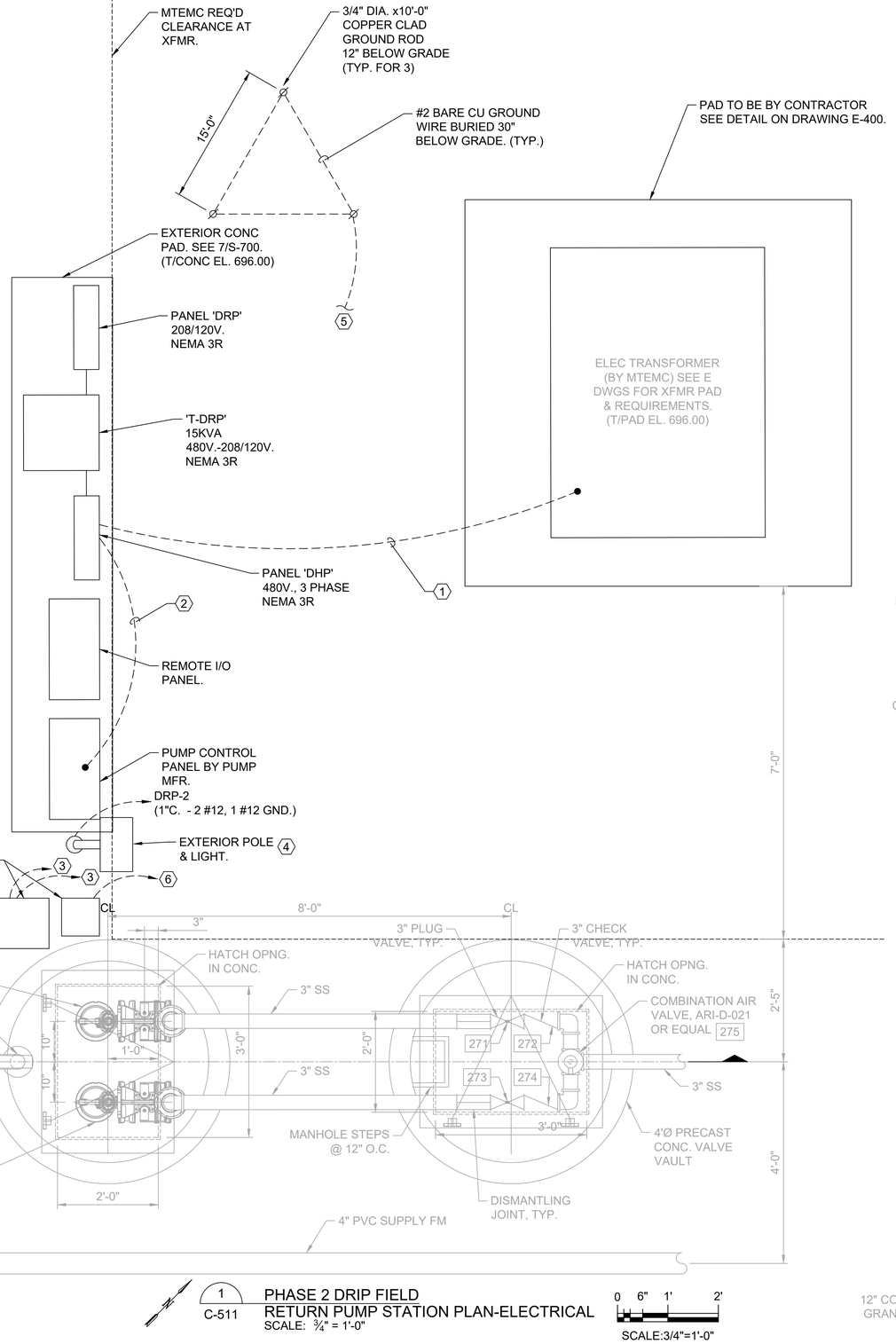
PHASE 2 DRIP FIELD ZONE LAYOUT ELECTRICAL & RISER DIAGRAM

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
E-121

SHEET NUMBER
61

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\Hideaway DF-ELECT.dwg Last Save: 7/31/2020 2:10 PM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: ---- Plot Scale: 1:1 Plot Date: 7/31/2020 2:11 PM Plotter used: Microsoft Print to PDF



1 C-511 PHASE 2 DRIP FIELD RETURN PUMP STATION PLAN-ELECTRICAL
SCALE: ¾" = 1'-0"

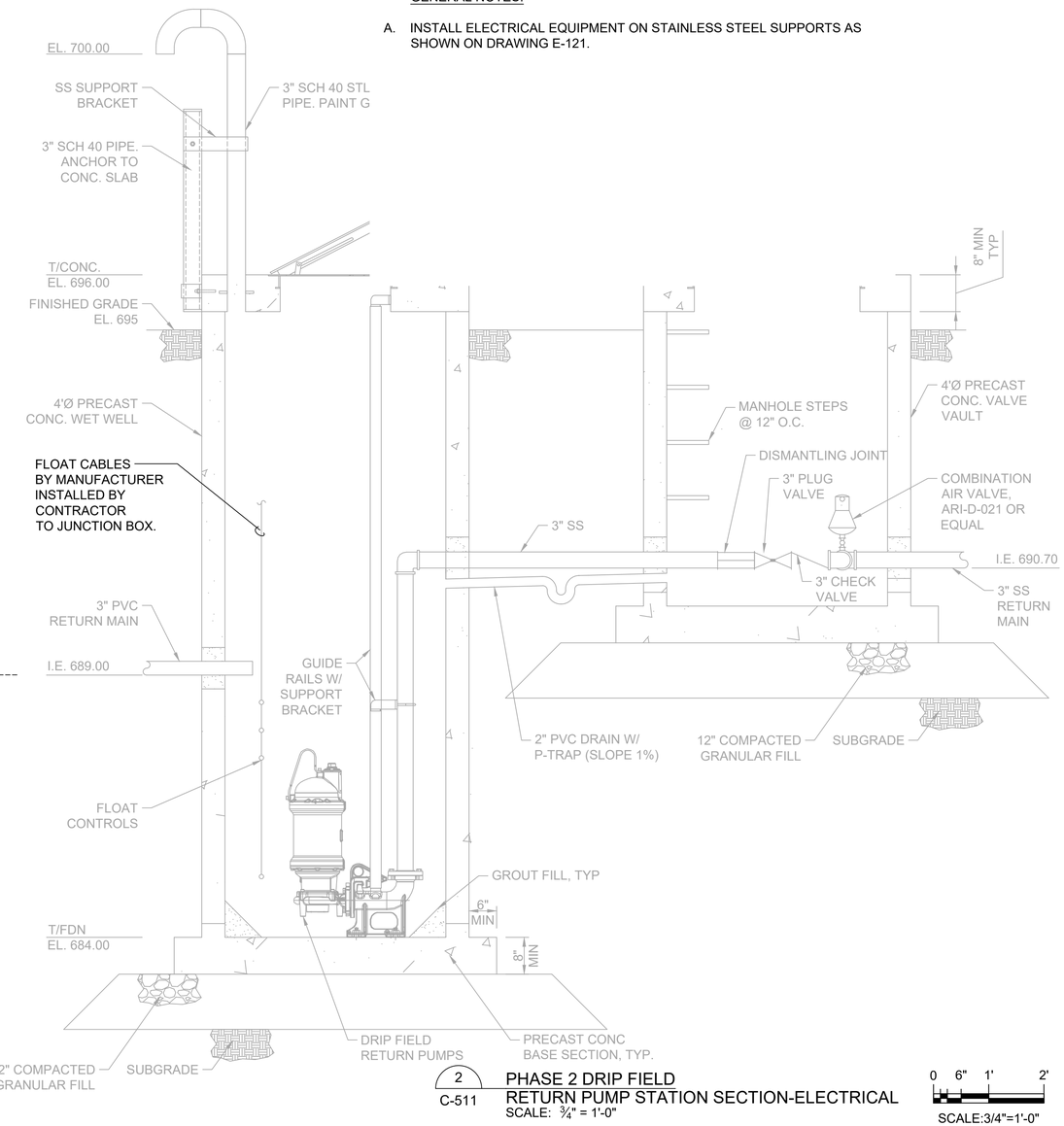
0 6" 1' 2'
SCALE:3/4"=1'-0"

NOTES:

1. 1-1/2"C. - 4 #2 AND (1) 1-1/2"C. SPARE 36" BELOW GRADE.
2. 1"C. - 3 #6, 1 #10 GND.
3. 3/4"C. - 3 #12, 1 #12 GND. TO PUMP CONTROL PANEL.
4. 25'-0" ALUMINUM POLE (SQUARE), EQUAL TO LITHONIA CAT. #SSA-25-5G-FDL2-6-P2-DDBXD. POLE MOUNTED LED FLOODLIGHT WITH PHOTOCELL, LITHONIA CAT. #DSX1-LED-P4-40K-FL-MVOLT-PER OR EQUAL.
5. #2 AWG BARE COPPER GROUND FROM GROUNDING TRIPOD TO PANEL 'DHP' NEUTRAL BUS BAR.
6. 1"C. - 10 #16 AWG TO PUMP CONTROL PANEL FOR FLOAT SWITCHES.

GENERAL NOTES:

A. INSTALL ELECTRICAL EQUIPMENT ON STAINLESS STEEL SUPPORTS AS SHOWN ON DRAWING E-121.



2 C-511 PHASE 2 DRIP FIELD RETURN PUMP STATION SECTION-ELECTRICAL
SCALE: ¾" = 1'-0"

0 6" 1' 2'
SCALE:3/4"=1'-0"

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I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.ictthomasson.com
ICT PROJECT No. 190112

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KEN K. PARRISH — REGISTERED ENGINEER — AGRICULTURE — No. 103855 — STATE OF TENNESSEE — 7/31/20

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PHASE 2 DRIP FIELD RETURN PS ELECTRICAL

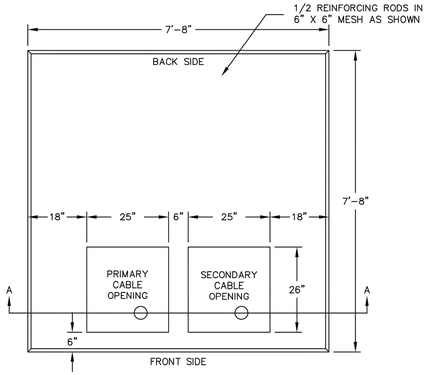
THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
E-310

SHEET NUMBER
62

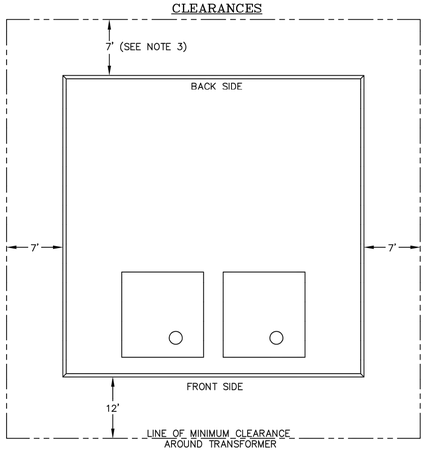
File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\Hideaway DF-ELECT.dwg Last Save: 7/31/2020 2:11 PM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: ---- Plot Scale: 1:1 Plot Date: 7/31/2020 2:12 PM Plotter used: Microsoft Print to PDF

TOP VIEW



DO NOT POUR CONCRETE AROUND CONDUIT. OPENINGS AS SHOWN ARE REQUIRED.

CLEARANCES



NOTES:

1. MAXIMUM NUMBER OF CONDUCTORS PER PHASE SHALL BE 16.
2. OWNER'S CONTRACTOR TO BE RESPONSIBLE FOR ALL UNDERGROUND PRIMARY AND SECONDARY CONDUITS. REFER TO DUCT SPECIFICATIONS FOR MORE DETAILS.
3. PAD SHALL NOT BE LOCATED CLOSER THAN 7'-0" TO A BUILDING OR OTHER OBSTRUCTION, EXCEPT FRONT OF PAD SHALL BE NO CLOSER THAN 12'0". UNLESS OTHERWISE APPROVED BY MTEMC ENGINEERING, THE FRONT OF THE PAD SHALL FACE AWAY FROM THE BUILDING OR TOWARD THE ACCESS ROAD. FINAL ORIENTATION TO BE DETERMINED BY MTEMC ENGINEERING.
4. CUSTOMER TO BE RESPONSIBLE FOR FURNISHING AND INSTALLING CONDUIT FROM THE FIRST 10' VERTICAL SECTION ON THE POLE TO THE TRANSFORMER PAD. CUSTOMER SHALL FURNISH AND MTEMC WILL INSTALL CONDUIT ABOVE THE FIRST 10' SECTION ON THE POLE. SEE MTEMC DRAWING RP-2.
5. CUSTOMER TO BE RESPONSIBLE FOR PROVISION AND INSTALLATION OF:
   A. SECONDARY RUNS THROUGH BUILDING WALL INTO THE TRANSFORMER CABINET.
   B. CONDUCTOR RUNS UP TO LOW VOLTAGE BUSHINGS. LOW VOLTAGE BEING 277/480 OR 120/208 VOLTS.
   C. CONNECTIONS INSIDE LOW VOLTAGE COMPARTMENTS. REFER TO DRAWING LUG NO.1 FOR FURTHER DETAILS.
6. ALL FIRE AND SAFETY CODES SHALL BE MET CONCERNING THE PLACEMENT OF TRANSFORMERS ADJACENT TO BUILDINGS.
7. AN MTEMC ENGINEER MUST APPROVE THE ORIENTATION OF THE PAD PRIOR TO CONSTRUCTION.
8. ALL ELBOWS TO BE SCHEDULE 80 PVC.
9. OLDCASTLE PAD#MTEMC 75-2000 KVA APPROVED FOR USE

FRONT VIEW

MINIMUM DESIGN STRENGTH OF 3000 PSI

A-A VIEW

GENERAL INSPECTION NOTES

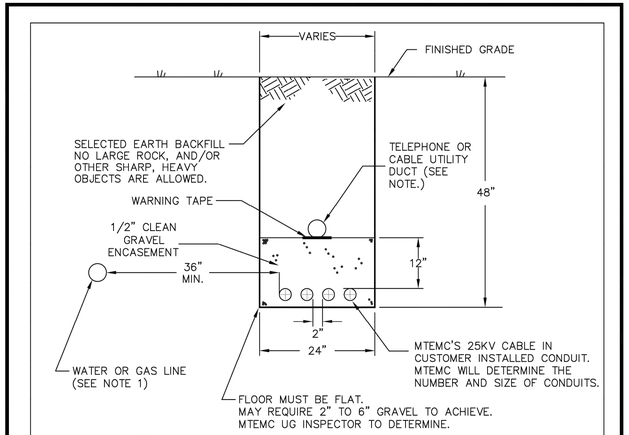
1. GET DITCH AND PVC READY, CALL MTEMC @ 1-877-886-8362 AND REQUEST INSPECTION
2. FORM 3ø PAD AND CALL FOR INSPECTION
3. CALL AND REQUEST INSPECTION AFTER POURED.
4. YOU WILL NEED A FINAL PAD INSPECTION, THIS WILL INCLUDE: FORMS WRECKED, ACCESS TO SITE, PROPER GRADE, STRINGS IN DUCT SYSTEM, AND METER BASE.

REVISED: 5-26-17
REVISED: 3-16-17
REVISED: 3-7-16
REVISED: 5-16-14
REVISED: 12-4-13
REVISED: 1-9-12
REVISED: 3-28-02

MTEMC

TRANSFORMER PAD SPECIFICATIONS
PAD MOUNT TRANSFORMER

SCALE: 1/2"=1'	APPROVED	DATE 5-11-09
STAKED BY:	DRAWING NO.	SHEET 1
DRAWN BY: D.DEMENT	PAD NO.1	OF 1 SHEETS
CHECKED BY:		



NOTES:

1. CONDUITS RUN HORIZONTAL TO WATER OR GAS LINES MUST HAVE A MINIMUM 36" HORIZONTAL SEPARATION.
2. TELEPHONE OR CABLE UTILITY MINIMUM SEPARATION FROM MTEMC DUCTS SHALL BE EITHER:
   a.) 36" PARALLEL
   b.) 12" VERTICAL
3. ALL FOREIGN UTILITY PERPENDICULAR CROSSINGS MUST HAVE 12" MINIMUM SEPARATION FROM MTEMC DUCTS.
4. CONDUIT SHALL BE PVC SCHEDULE 40, SIZE AND NO. AS SPECIFIED ON PLANS.
5. PROVIDE A 2" SEPARATION BETWEEN CONDUITS.
6. INSTALL JETLINE PULL STRING WITH MINIMUM 200 LB TENSILE STRENGTH IN EACH CONDUIT.
7. OMIT TELEPHONE OR CATV UTILITY DUCT REQUIREMENT IF NOT BEING INSTALLED.
8. A #14 THHN CU TRACER WIRE SHALL BE INSTALLED INSIDE ONE OF THE INTERIOR CONDUITS OR CENTER CONDUIT IF AN ODD NUMBER OF CONDUITS ARE INSTALLED. IF ONE END OF THE CONDUIT IS JUST A STUB OUT 10 FEET OR LONGER, THE TRACER WIRE SHALL BE BENT BACK TO THE OUTSIDE OF THE CONDUIT AND SECURELY TAPED SUCH THAT THE WIRE CAN'T BE PULLED OUT EASILY. THERE SHALL BE 10' TAILS LEFT IN ALL PULL BOXES AND MANHOLES FOR MTEMC TO CONNECT TO GROUND.

PRIMARY DITCH DETAIL 2G

REVISED: 12-27-18

ICT
I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
ICT PROJECT No. 190112

idg
INFLO DESIGN GROUP

KEN K. PARRISH
REGISTERED ENGINEER
AGRICULTURE
No. 103035
7/31/2020
STATE OF TENNESSEE

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

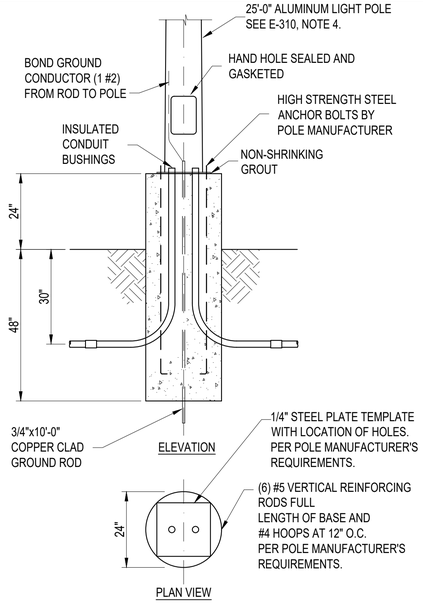
ELECTRICAL DETAILS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
E-400

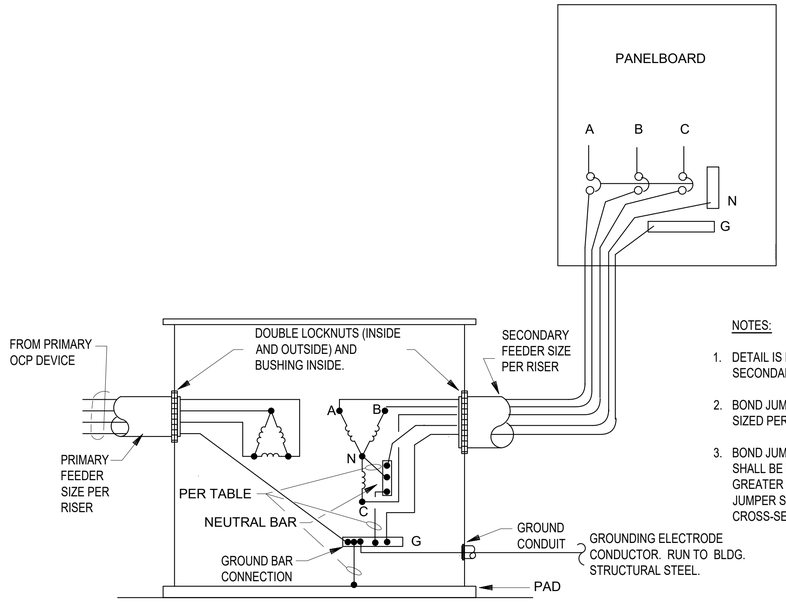
SHEET NUMBER
63

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112E-400.dwg Last Save: 7/31/2020 2:01 PM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: ---- Plot Scale: 1:1 Plot Date: 7/31/2020 2:01 PM Plotter used: Microsoft Print to PDF



POLE BASE DETAIL

SCALE: NONE



kVA	CONDUCTOR AND CONDUIT SIZE
9	1 #8 - ¾" C
15	1 #8 - ¾" C
30	1 #6 - ¾" C
45	1 #6 - ¾" C
75	1 #2 - ¾" C
112.5	1 #1/0 - ¾" C
150	1 #1/0 - ¾" C
225	1 #2/0 - ¾" C
300	1 #3/0 - ¾" C
500	1 #3/0 - ¾" C

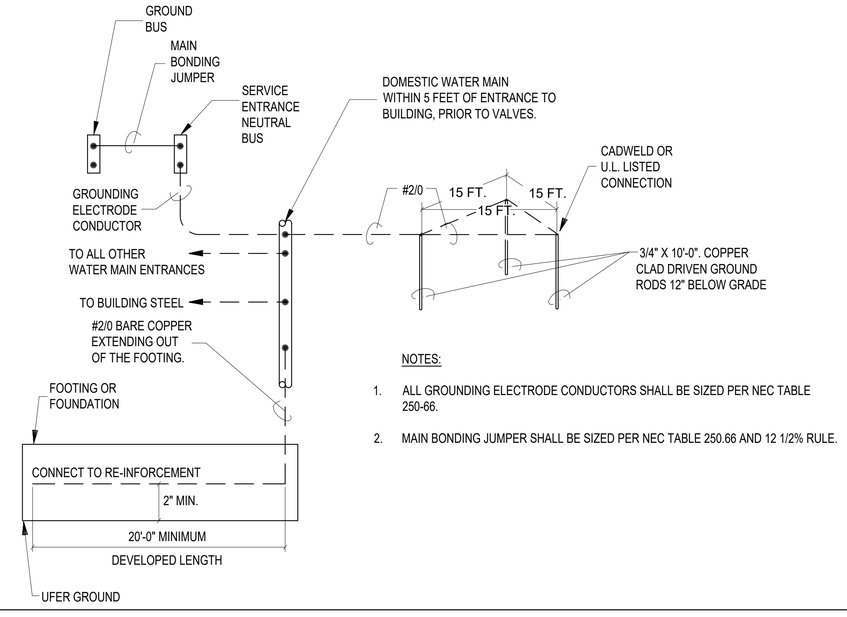
PER 99 TABLE 250-66
CHECK CABLE SIZE ON RISER
ON LONG RUNS FROM TRANFORMERS
TO PANELBOARDS

NOTES:

1. DETAIL IS FOR 3-PHASE TRANSFORMERS WITH PRIMARY 480 VOLTS AND SECONDARY 208/120 VOLTAGES
2. BOND JUMPER AND GROUNDING ELECTRODE CONDUCTOR SHALL BE SIZED PER NEC 250-94.
3. BOND JUMPER AND REQUIRED GROUNDING ELECTRODE CONDUCTOR SHALL BE SAME SIZE. IF THE SECONDARY FEEDER CONDUCTORS ARE GREATER THAN 1100MCM COPPER OR 1750MCM ALUMINUM, THE BOND JUMPER SHALL BE INCREASED IN SIZE TO 12.5 PERCENT OF THE CROSS-SECTIONAL AREA OF THE SECONDARY PHASE CONDUCTOR.

GROUND FOR TRANSFORMER DETAIL

SCALE: NONE



NOTES:

1. ALL GROUNDING ELECTRODE CONDUCTORS SHALL BE SIZED PER NEC TABLE 250-66.
2. MAIN BONDING JUMPER SHALL BE SIZED PER NEC TABLE 250.66 AND 12 1/2% RULE.

SERVICE ENTRANCE GROUNDING DETAIL

SCALE: NONE

ICT
I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
ICT PROJECT No. 190112

idg
INFLO DESIGN GROUP

KEN K. PARRISH
REGISTERED ENGINEER
AGRICULTURE
7/31/2020
No. 123035
STATE OF TENNESSEE

REV	DATE	DESCRIPTION	BY
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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

ELECTRICAL DETAILS

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
E-401

SHEET NUMBER
64

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112E-401.dwg Last Save: 7/31/2020 1:58 PM Last saved by: Snorffeet
Last plotted by: Steve Norfleet Plot Style: ---- Plot Scale: 1:1 Plot Date: 7/31/2020 1:59 PM Plotter used: Microsoft Print to PDF

'CRP" PANEL SCHEDULE

120/208 VOLT, 3 PHASE, 4 W, 10 KA INTERRUPT RATING
150 AMP X MCB __ MLO X SURFACE __ FLUSH
NOTE: ALL BREAKERS TO BE 20A SINGLE POLE, U.O.N.

SYSTEM AVAILABLE FAULT CURRENT:

TOTAL PANEL CONNECTED LOAD
(KW) 9.35
AMPS 25.95

REMARKS:

DESCRIPTION	KW PER PHASE A	B	C	CKT NO	BREAKER AMP	POLE	A	B	C	BREAKER POLE	AMP	CKT NO	KW PER PHASE A	B	C	DESCRIPTION
MASTER CONTROL PANEL - CAMBRIAN	1.60			1	30	1				1	20	2	0.30			MODULATING VALVE - BIOVAPOR TANKS
RECEPTACLES		0.90		3	20	1				1	20	4		0.50		MODULATING VALVE - PUMP SKID
RECEPTACLES			0.54	5	20	1				2	30	6				SPARE
MODULATING VALVES - PUMP SKID	1.00			7	20	1				-	-	8				
MODULATING VALVES - PUMP SKID		1.00		9	20	1				1	20	10		0.47		HEAT TRACE - TANK T-100
MODULATING VALVES - PUMP SKID			1.00	11	20	1				1	20	12			0.47	HEAT TRACE - TANK T-200
MODULATING VALVES - PUMP SKID	1.00			13	20	1				1	20	14	0.47			HEAT TRACE - TANK T-300
DUCT SMOKE DETECTORS				15	20	1				1	20	16		0.10		HEAT TRACE - 1" POTABLE WATER LINE
SPARE				17	20	1				1	20	18				SPARE
SPARE				19	20	1				1	20	20				SPARE
SPARE				21	20	1				1	20	22				SPARE
SPARE				23	20	1				1	20	24				SPARE
SPARE				25	20	2				1	20	26				SPARE
				27	-	-				1	20	28				SPARE
SPACE				29						1	20	30				SPARE
SPACE				31								32				SPACE
SPACE				33								34				SPACE
SPACE				35								36				SPACE
SPACE				37								38				SPACE
SPACE				39								40				SPACE
SPACE				41								42				SPACE
PANEL TOTAL	3.60	1.90	1.54										0.77	1.07	0.47	PANEL TOTAL

'DRP" PANEL SCHEDULE

120/208 VOLT, 3 PHASE, 4 W, 10 KA INTERRUPT RATING
50 AMP X MCB __ MLO X SURFACE __ FLUSH
NOTE: ALL BREAKERS TO BE 20A SINGLE POLE, U.O.N.

SYSTEM AVAILABLE FAULT CURRENT:

TOTAL PANEL CONNECTED LOAD
(KW) 2.70
AMPS 7.49

REMARKS:

DESCRIPTION	KW PER PHASE A	B	C	CKT NO	BREAKER AMP	POLE	A	B	C	BREAKER POLE	AMP	CKT NO	KW PER PHASE A	B	C	DESCRIPTION
PUMP CONTROL PANEL - DRIP FIELD	1.60			1	30	1				1	20	2	0.60			SITE LIGHT
RECEPTACLES		0.50		3	20	1				1	20	4				SPARE
SPARE				5	20	1				1	20	6				SPARE
SPARE				7	20	1				1	20	8				SPARE
SPARE				9	20	1				1	20	10				SPARE
SPARE				11	20	1				1	20	12				SPARE
SPARE				13	20	2				1	20	14				SPARE
SPARE				15	-	-				1	20	16				SPARE
SPARE				17	20	1				1	20	18				SPARE
SPARE				19	20	1				1	20	20				SPARE
SPARE				21	20	1				1	20	22				SPARE
SPACE				23								24				SPACE
SPACE				25								26				SPACE
SPACE				27								28				SPACE
PANEL TOTAL	1.60	0.50	0.00										0.60	0.00	0.00	PANEL TOTAL

DHP PANEL SCHEDULE

277/480 VOLT, 3 PHASE, 4 W 42 KA INTERRUPT RATING
100 AMP X MCB __ MLO X SURFACE __ FLUSH
NOTE: ALL BREAKERS TO BE 20A SINGLE POLE, U.O.N.

SYSTEM AVAILABLE FAULT CURRENT:

CONNECTED LOAD
(KW) 18
AMPS 21.65

REMARKS: SERVICE ENTRANCE RATED, NEMA 4X ENCLOSURE

DESCRIPTION	KW PER PHASE A	B	C	CKT NO	BREAKER AMP	POLE	A	B	C	BREAKER POLE	AMP	CKT NO	KW PER PHASE A	B	C	DESCRIPTION
TRANSFORMER T-DRP	1			1	25	3				3	60	2	5			PUMP CONTROL PANEL
		1		3								4		5		
			1	5								6			5	
SPARE				7	20	3				3	20	8				SPARE
				9								10				
				11								12				
SPARE				13	20	1				1	20	14				SPARE
SPARE				15	20	1				1	20	16				SPARE
SPARE				17	20	1				1	20	18				SPARE
SPARE				19	20	3				1	20	20				SPARE
SPACE				21								22				SPACE
SPACE				23								24				SPACE
TOTAL	1	1	1										5	5	5	TOTAL

ICT
I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
ICT PROJECT No. 190112

idg
INFLO DESIGN GROUP

KEN K. PARRISH
REGISTERED PROFESSIONAL ENGINEER
AGRICULTURE
LICENSE NUMBER
No. 103035
STATE OF TENNESSEE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

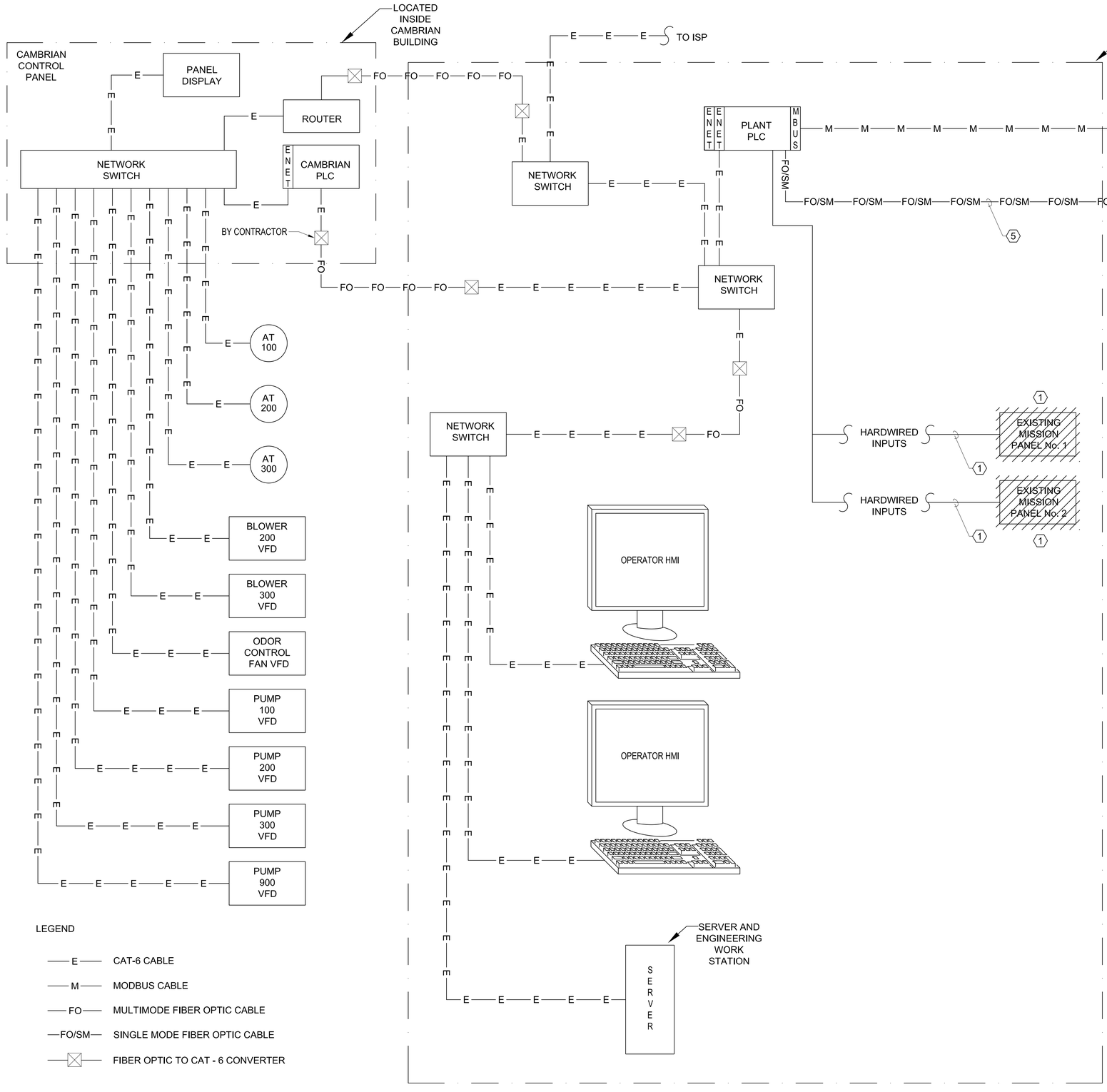
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

ELECTRICAL SCHEDULES

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
E-402

SHEET NUMBER
65



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CONSULTING ENGINEERS
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NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
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KEN K. PARRISH — REGISTERED ENGINEER — AGRICULTURE — CIVIL — No. 103035 — STATE OF TENNESSEE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

GENERAL NOTES:

A. PLANT PLC BASED ON ALLEN-BRADLEY COMPACTLOGIX SYSTEM.

B. REFER TO I-002 FOR ANTICIPATED HARDWIRED CONNECTIONS TO FIELD PANELS.

C. MAY SUPPLY ETHERNET SWITCHES WITH FIBER PORTS LIEU OF COPPER TO CAT-6 CONVERTERS.

NOTES: ⬡

1. DEMOLISH EXISTING MISSION PANELS AND RE-CONNECT I/O TO NEW PLANT PLC.
2. EXCHANGE EXISTING TUCOR PANEL WITH NEW TUCOR TDI PANEL .
3. RE-CONNECT EXISTING 2-WIRE TUCOR NETWORK FROM EXISTING DRIP FIELD TO NEW TUCOR TDI INTERFACE PANEL.
4. INSTALL NEW 2-WIRE TUCOR NETWORK WIRING TO REMOTE DRIP FIELD.
5. INSTALL NEW SINGLE MODE FIBER TO REMOTE I/O AT DRIP FIELD 2 SITE.
6. INSTALL DAISY CHAIN CONNECTION OF 2-WIRE CABLE PER TUCOR REQUIREMENTS.
7. TUCOR TDI CONTROLLED VIA HARDWIRED I/O INTERFACE TO PLC.

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

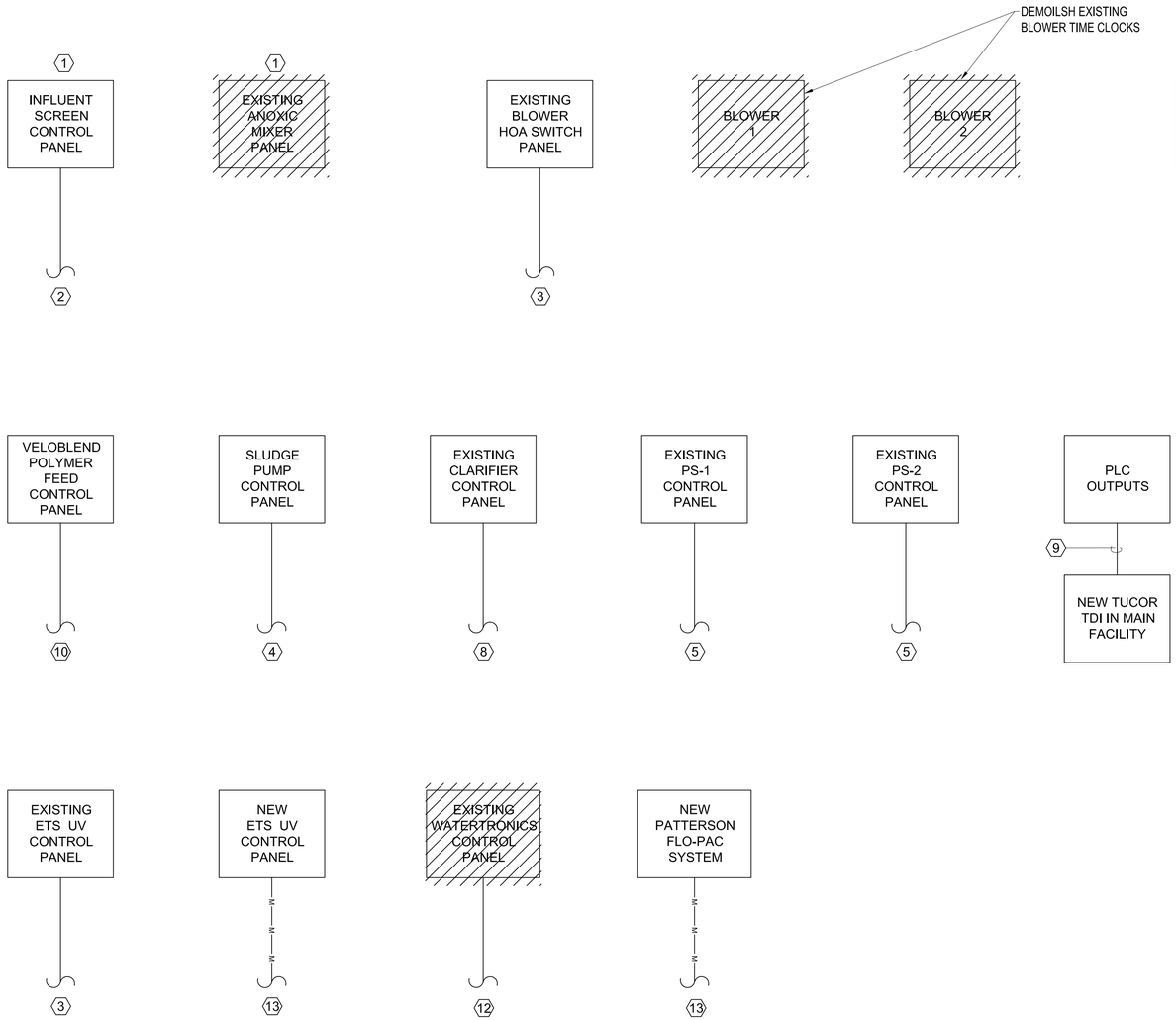
NETWORK ARCHITECTURE

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
I-001

SHEET NUMBER
66

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112H-001.dwg Last Save: 8/3/2020 9:48 AM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: --- Plot Scale: 1:1 Plot Date: 8/3/2020 9:49 AM Plotter used: Microsoft Print to PDF



GENERAL NOTES:

A. WIRING FROM FIELD PANELS ROUTES TO NEW PLANT PLC PANEL FOR I/O TERMINATION.

B. PANELS LABELED AS "EXISTING" MAY USE EXISTING BURIED CONDUIT TO OFFICE AREA WIREWAY. USE OLD WIRING TO PULL NEW WIRING WHERE POSSIBLE.

C. WIRING QUANTITIES ARE APPROXIMATE BASED ON ON I/O LIST. COORDINATE WITH PANEL DRAWINGS FOR FINAL WIRING RQUIREMENTS.

NOTES: ⬡

1. INFLUENT SCREW REPLACES ANOXIC MIXER. MAY RE-USE EXISTING CONTROL CONDUIT FOR NEW SCREEN CONTROL. DEMOLISH EXISTING ANOXIC MIXER PANEL.
2. 2 - TSP & 12 - #14 TO NEW PLANT PLC PANEL.
3. 12 - #14 TO NEW PLANT PLC PANEL. REQUIRES NEW 3/4"C.
4. 2 - TSP & 40 - #14 TO NEW PLANT PLC PANEL.
5. 4 - TSP AND 40 - #14 TO NEW PLANT PLC PANEL.
6. 6 - #14 TO NEW PLANT PLC PANEL.
7. REQUIRES INTERPOSING RELAY TO BE MOUNTED IN PANEL.
8. 8 - #14 TO NEW PLANT PLC PANEL.
9. 60 - #14 TO NEW PLANT PLC PANEL.
10. 1- TSP & 8 - #14 TO NEW PLANT PLC PANEL.
11. 20 - #14 TO RIO PANEL.
12. PANEL AND SKID REMAIN UNTIL PATTERSON FLO-PAC IS OPERATIONAL. NO PLC CONNECTION.
13. MODBUS RS-485 DATA CONNECTION.

I.C.Thomasson Associates, Inc.
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NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
ICT PROJECT No. 190112

IDG INFLO DESIGN GROUP

KEN K. PARRISH — REGISTERED ENGINEERING CONSULTANT — AGRICULTURE — COMMERCE — No. 103035 — STATE OF TENNESSEE — 8/7/20

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0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONTROL WIRING BLOCK DIAGRAM

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
I-002

SHEET NUMBER
67

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112I-002.dwg Last Save: 8/3/2020 9:47 AM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: ---- Plot Scale: 1:1 Plot Date: 8/3/2020 9:47 AM Plotter used: Microsoft Print to PDF

HIDEAWAY WASTE WATER TREATMENT PLANT

NEW PLANT PLC PANEL IO AND WIRE LIST

AI = ANALOG INPUT | **DI = DISCRETE INPUT** | **TSP = TWISTED SHIELDED PAIR**
AO = ANALOG OUTPUT | **RO = RELAY OUTPUT**

DESCRIPTION	4 WIRE AI	2-WIRE AI	DI	DO	AO	RO	PULSE IN	REQ'D WIRING	FROM	TO	COMMENTS
FIELD DEVICES											
EXISTING CLARIFIER FEED FLOW METER FIT-100	1							1-TSP	DEVICE	NEW PLANT PLC PANEL	POWER ALREADY INSTALLED
EXISTING FILTER FEED FLOW METER FIT-101	1							1-TSP	DEVICE	NEW PLANT PLC PANEL	POWER ALREADY INSTALLED
EXISTING FLOW METER FIT-102	1							1-TSP	DEVICE	NEW PLANT PLC PANEL	POWER ALREADY INSTALLED
EXISTING INFLUENT FLOW METER FIT-103	1							1-TSP	DEVICE	NEW PLANT PLC PANEL	POWER ALREADY INSTALLED
EXISTING BOOSTER PUMP FLOW METER FIT- 104	1						1	1-TSP	DEVICE	NEW PLANT PLC PANEL	POWER ALREADY INSTALLED
EXISTING BOOSTER PUMP TANK LEVEL LIT-252	1							1-TSP	DEVICE	NEW PLANT PLC PANEL	POWER ALREADY INSTALLED
NEW BOOSTER PUMP FLOW METER FIT- 105	1						1	1-TSP & 2-#14W/GND	DEVICE	NEW PLANT PLC PANEL	
CLARIFIER FEED NEW pH ANALYZER TRANSMITTER	1							1-TSP & 2-#14W/GND	DEVICE	NEW PLANT PLC PANEL	
EXISTING WATERTRONICS PANEL											
									EXISTING WATERTRONICS PANEL	NEW PLANT PLC PANEL	
NO CONNECTION											
Existing panel remains operational until new Patterson											
Flo-Pac is in service, but no new connections											
NEW PATTERSON FLO-PAC											
REMOTE RESET								MODBUS RS-485	EXISTING WATERTRONICS PANEL	NEW PLANT PLC PANEL	MODBUS CONNECTION
VFD NOT FAULTED											Expect at least the
PHASE SYSTEM MONITOR											items listed for
PLC BYPASS MODE											points to PLC.
PUMP No.1 IN AUTO											
PUMP No.1 IN HAND											
PUMP No. 1 RUNNING											
PUMP No.1 HIGH TEMP											
STATION COOLING FAN START											
VFD ENABLE											
VFD RESET											
PUMP No.1 START/STOP											
VFD CONTACT PUMP No.1											
VFD SPEED REFERENCE PUMP No.1											
GENERAL ALARM											
EXISTING TURBODISC FILTER PANEL											
REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING TURBODISC FILTER PANEL	
IN AUTO			1					2-#14	EXISTING TURBODISC FILTER PANEL	NEW PLANT PLC PANEL	
RUNNING			1					2-#14	EXISTING TURBODISC FILTER PANEL	NEW PLANT PLC PANEL	
NEW TURBODISC FILTER PANEL											
REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	NEW TURBODISC FILTER PANEL	
IN AUTO			1					2-#14	NEW TURBODISC FILTER PANEL	NEW PLANT PLC PANEL	
RUNNING			1					2-#14	NEW TURBODISC FILTER PANEL	NEW PLANT PLC PANEL	
EXISTING ETS UV PANEL											
PROCESS INTERLOCK						1		2-#14	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING ETS UV PANEL	
EXTERNAL LOW POWER						1		2-#14	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
CRITICAL ALARM HEALTHY				1				2-#14	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
REMOTE SELECTED				1				2-#14	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
NON-CRITICAL ALARM HEALTHY				1				2-#14	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
FLOW	1							1-TSP & 2-#14W/GND	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
LAMP CURRENT/UV DOSE					1			1-TSP	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
NEW ETS UV PANEL											REQUIRE VENDOR SUPPLY MODBUS CONNECTION FOR THIS PANEL
PROCESS INTERLOCK								MODBUS RS-485	NEW ETS UV PANEL	NEW PLANT PLC PANEL	MODBUS CONNECTION
REMOTE START/STOP											Expect at least the
EXTERNAL LOW POWER											items listed for
CRITICAL ALARM HEALTHY											points to PLC.
REMOTE SELECTED											
NON-CRITICAL ALARM HEALTHY											
FLOW											
LAMP CURRENT/UV DOSE											

I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
ICT PROJECT No. 190112

idg INFLO DESIGN GROUP

KEN K. PARRISH — REGISTERED ENGINEER — AGRICULTURE — COMMERCE — No. 103035 — STATE OF TENNESSEE — 8/7/20

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

NEW PLANT PLC PANEL I/O AND WIRE LIST

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
I-003

SHEET NUMBER
68

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112H-003.dwg Last Save: 8/3/2020 9:45 AM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: ---- Plot Scale: 1:1 Plot Date: 8/3/2020 9:46 AM Plotter used: Microsoft Print to PDF

HIDEAWAY WASTE WATER TREATMENT PLANT NEW PLANT
NEW PLANT PLC PANEL IO AND WIRE LIST(CONT.)

AI = ANALOG INPUT | DI = DISCRETE INPUT | TSP = TWISTED SHIELDED PAIR
AO = ANALOG OUTPUT | RO = RELAY OUTPUT

DESCRIPTION	4 WIRE AI	2-WIRE AI	DI	DO	AO	RO	PULSE IN	REQ'D WIRING	FROM	TO	COMMENTS
CAMBRIAN INFLUENT PANEL (EXISTING PS-C)											
PUMP No.1 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	CAMBRIAN INFLUENT PANEL	
PUMP No.1 SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	CAMBRIAN INFLUENT PANEL	
PUMP No.1 SPEED INDICATION		1						1-TSP	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
PUMP No.1 HIGH TEMP			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
PUMP No.1 HIGH MOISTURE			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
PUMP No.1 VFD FAULT			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
PUMP No.1 VFD RUNNING			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
PUMP No.1 VFD IN REMOTE			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
PUMP No.2 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	CAMBRIAN INFLUENT PANEL	
PUMP No.2 SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	CAMBRIAN INFLUENT PANEL	
PUMP No.2 SPEED INDICATION		1						1-TSP	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
PUMP No.2 HIGH TEMP			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
PUMP No.2 HIGH MOISTURE			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
PUMP No.2 VFD FAULT			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
PUMP No.2 VFD RUNNING			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
PUMP No.2 IN REMOTE			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
LSHH			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
LSH			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
LSL			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
LSLL			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
PUMP No. 1 PSH			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
PUMP No. 1 PSL			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
PUMP No. 2 PSH			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
PUMP No. 2 PSL			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
EXISTING PANEL PS-1											
PUMP No. 1 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING PANEL PS-1	
PUMP No.1 SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	EXISTING PANEL PS-1	
PUMP No.1 SPEED INDICATION		1						1-TSP	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No.1 HIGH TEMP			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No.1 HIGH MOISTURE			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No.1 VFD FAULT			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No.1 VFD RUNNING			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No.1 VFD IN REMOTE			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No.2 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING PANEL PS-1	
PUMP No.2 SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	EXISTING PANEL PS-1	
PUMP No.2 SPEED INDICATION		1						1-TSP	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No.2 HIGH TEMP			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No.2 HIGH MOISTURE			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No.2 VFD FAULT			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No.2 VFD RUNNING			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No.2 IN REMOTE			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
LSHH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
LSH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
LSL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
LSLL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No. 1 PSH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No. 1 PSL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No. 2 PSH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No. 2 PSL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
EXISTING PANEL PS-2											
PUMP No.1 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING PANEL PS-2	
PUMP No.1 HIGH TEMP			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
PUMP No.1 HIGH MOISTURE			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
PUMP No.1 FAULT			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
PUMP No.1 RUNNING			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
PUMP No.1 IN REMOTE			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
PUMP No.2 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING PANEL PS-2	
PUMP No.2 HIGH TEMP			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
PUMP No.2 HIGH MOISTURE			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
PUMP No.2 FAULT			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
PUMP No.2 RUNNING			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
PUMP No.2 IN REMOTE			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
LSHH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
LSH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
LSL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
LSLL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No. 1 PSH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No. 1 PSL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No. 2 PSH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
PUMP No. 2 PSL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
EXISTING CLARIFIER PANEL											
MOTOR REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING CLARIFIER PANEL	
MOTOR RUNNING			1					2-#14	EXISTING CLARIFIER PANEL	NEW PLANT PLC PANEL	
MOTOR FAULT			1					2-#14	EXISTING CLARIFIER PANEL	NEW PLANT PLC PANEL	
MOTOR IN REMOTE			1					2-#14	EXISTING CLARIFIER PANEL	NEW PLANT PLC PANEL	

I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
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PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
ICT PROJECT No. 190112

INFLO DESIGN GROUP

KEN K. PARRISH — REGISTERED ENGINEER — AGRICULTURE & COMMERCE — No. 103035 — STATE OF TENNESSEE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

NEW PLANT PLC PANEL I/O AND WIRE LIST

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
I-004

SHEET NUMBER
69

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HIDEAWAY WASTE WATER TREATMENT PLANT NEW PLANT
NEW PLANT PLC PANEL IO AND WIRE LIST(CONT.)

	AI = ANALOG INPUT	DI = DISCRETE INPUT				TSP = TWISTED SHIELDED PAIR						
	AO = ANALOG OUTPUT	RO = RELAY OUTPUT										
	DESCRIPTION	4 WIRE AI	2-WIRE AI	DI	DO	AO	RO	PULSE IN	REQ'D WIRING	FROM	TO	COMMENTS
	NEW INFLUENT SCREEN PANEL											
	REMOTE SYSTEM START/STOP						1		2-#14	NEW PLANT PLC PANEL	NEW INFLUENT SCREEN PANEL	
	SYSTEM RUNNING			1					2-#14	NEW INFLUENT SCREEN PANEL	NEW PLANT PLC PANEL	
	COMMON SYSTEM ALARM			1					2-#14	NEW INFLUENT SCREEN PANEL	NEW PLANT PLC PANEL	
	REMOTE RESET						1		2-#14	NEW PLANT PLC PANEL	NEW INFLUENT SCREEN PANEL	
	COMPACTOR FAULT			1					2-#14	NEW INFLUENT SCREEN PANEL	NEW PLANT PLC PANEL	
	DIFFERENTIAL LEVEL	1							2-#14 W/GND & 1-TSP	NEW INFLUENT SCREEN PANEL	NEW PLANT PLC PANEL	
	VFD SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	NEW INFLUENT SCREEN PANEL	
	SOLENOID VALVE XV-001				1				2-#14	NEW INFLUENT SCREEN PANEL	NEW PLANT PLC PANEL	
	NEW VELOBLEND POLYMER FEED PANEL											
	REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	NEW VELOBLEND POLYMER FEED PANEL	
	PACING DEMAND					1			1-TSP	NEW PLANT PLC PANEL	NEW VELOBLEND POLYMER FEED PANEL	
	SYSTEM RUNNING			1					2-#14	NEW VELOBLEND POLYMER FEED PANEL	NEW PLANT PLC PANEL	
	SYSTEM IN REMOTE			1					2-#14	NEW VELOBLEND POLYMER FEED PANEL	NEW PLANT PLC PANEL	
	COMMON ALARM			1					2-#14	NEW VELOBLEND POLYMER FEED PANEL	NEW PLANT PLC PANEL	
	NEW SLUDGE PUMP CONTROL PANEL (EXISTING PREANOXIC MIX)											
	PUMP 1 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	NEW SLUDGE PUMP CONTROL PANEL	
	PUMP 1 SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	NEW SLUDGE PUMP CONTROL PANEL	
	PUMP 1 HIGH TEMP			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	PUMP 1 HIGH MOISTURE			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	VFD 1 FAULT			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	VFD 1 RUNNING			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	PUMP 1 IN REMOTE			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	PUMP 2 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	NEW SLUDGE PUMP CONTROL PANEL	
	PUMP 2 SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	NEW SLUDGE PUMP CONTROL PANEL	
	PUMP 2 HIGH TEMP			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	PUMP 2 HIGH MOISTURE			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	VFD 2 FAULT			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	VFD 2 RUNNING			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	PUMP 2 IN REMOTE			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	LSHH			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	LSH			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	LSL			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	LSLL			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	No. 1 PUMP PSH			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	No. 1 PUMP PSL			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	No. 2 PUMP PSH			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	No. 2 PUMP PSL			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	EXISTING BLOWER HOA PANEL											
	BLOWER 1 IN AUTO			1					2-#14	EXISTING BLOWER HOA PANEL	NEW PLANT PLC PANEL	
	BLOWER 1 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING BLOWER HOA PANEL	
	BLOWER 1 RUNNING			1					2-#14	EXISTING BLOWER HOA PANEL	NEW PLANT PLC PANEL	
	BLOWER 2 IN AUTO			1					2-#14	EXISTING BLOWER HOA PANEL	NEW PLANT PLC PANEL	
	BLOWER 2 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING BLOWER HOA PANEL	
	BLOWER 2 RUNNING			1					2-#14	EXISTING BLOWER HOA PANEL	NEW PLANT PLC PANEL	
	REMOTE DRIP FIELD PANEL											THESE POINTS ARE TRANSMITTED WIRELESSLY.
	PUMP 1 IN AUTO			1					2-#14	REMOTE DRIP FIELD PANEL	NEW PLANT RIO PANEL	THEY ORIGINATE AT THE REMOTE SITE.
	PUMP 1 REMOTE START/STOP						1		2-#14	REMOTE DRIP FIELD PANEL	NEW PLANT RIO PANEL	THEN THEY ARE DECODED AND REPEATED
	PUMP 1 RUNNING			1					2-#14	REMOTE DRIP FIELD PANEL	NEW PLANT RIO PANEL	TO BECOME PLC INPUTS AT THE MAIN
	PUMP 2 IN AUTO			1					2-#14	REMOTE DRIP FIELD PANEL	NEW PLANT RIO PANEL	PLANT PLC.
	PUMP 2 REMOTE START/STOP						1		2-#14	REMOTE DRIP FIELD PANEL	NEW PLANT RIO PANEL	
	PUMP 2 RUNNING			1					2-#14	REMOTE DRIP FIELD PANEL	NEW PLANT RIO PANEL	
	LSHH			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	LSH			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	LSL			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	LSLL			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	No. 1 PUMP PSH			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	No. 1 PUMP PSL			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	No. 2 PUMP PSH			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	No. 2 PUMP PSL			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	OUTPUTS TO NEW TUCOR TDI PANEL AT REMOTE DRIP FIELD						10		20 - #14	TUCOR TDI PANEL AT REMOTE DRIP FIELD	NEW PLANT RIO PANEL	
	OUTPUTS TO NEW TUCOR TDI PANEL AT MAIN PLANT						30		60 - #14	TUCOR TDI PANEL AT MAIN PLANT	NEW PLANT PLC PANEL	
	TOTALS IO	**10**	**4**	**101**	**4**	**9**	**61**	**2**				

I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
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idg INFLO DESIGN GROUP

KEN K. PARRISH — REGISTERED LANDSCAPE ARCHITECT — AGRICULTURE — ENGINEERING — ARCHITECTURE — No. 103035 — STATE OF TENNESSEE — 8/7/20

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

NEW PLANT PLC PANEL I/O AND WIRE LIST

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
I-005

SHEET NUMBER
70

CAMBRIAN PANEL
I/O AND WIRE LIST

P&ID	Subassembly	Tag	ID	Tag No.	Description		TYPE I/O	Signal Information		Wiring
13-1-1	BioViper Tanks	AT-101	AT	101	DO Meter for T-100		Ethernet/IP	Factory Wire (from DO)		CAT-6
13-1-1	BioViper Tanks	AT-100	AT	100	pH Meter for T-100		Ethernet/IP	Factory Wire (from pH)		CAT-6
13-1-1	BioViper Tanks	AT-201	AT	201	DO Meter for T-200		Ethernet/IP	Factory Wire (from DO)		CAT-6
13-1-1	BioViper Tanks	AT-200	AT	200	pH Meter for T-200		Ethernet/IP	Factory Wire (from pH)		CAT-6
13-1-1	BioViper Tanks	AT-301	AT	301	DO Meter for T-300		Ethernet/IP	Factory Wire (from DO)		CAT-6
13-1-1	BioViper Tanks	AT-300	AT	300	pH Meter for T-300		Ethernet/IP	Factory Wire (from pH)		CAT-6
13-1-1	BioViper Tanks	LSH-100	LSH	100	High Level Switch	T-100 High Level Switch	DI	Digital	24V	2-#14
13-1-1	BioViper Tanks	LSHH-10	LSHH	101	High High Level Switch	T-100 High High Level Switch	DI	Digital	24V	2-#14
13-1-1	BioViper Tanks	LSH-200	LSH	200	High Level Switch	T-200 High Level Switch	DI	Digital	24V	2-#14
13-1-1	BioViper Tanks	LSHH-20	LSHH	201	High High Level Switch	T-200 High High Level Switch	DI	Digital	24V	2-#14
13-1-1	BioViper Tanks	LSH-300	LSH	300	High Level Switch	T-300 High Level Switch	DI	Digital	24V	2-#14
13-1-1	BioViper Tanks	LSHH-30	LSHH	301	High High Level Switch	T-300 High High Level Switch	DI	Digital	24V	2-#14
13-1-1	BioViper Tanks	LT-100	LT	100	Level Transmitter	T-100 Level Transmitter	AI	4 - 20mA	24V	TSP
13-1-1	BioViper Tanks	LT-200	LT	200	Level Transmitter	T-200 Level Transmitter	AI	4 - 20mA	24V	TSP
13-1-1	BioViper Tanks	LT-300	LT	300	Level Transmitter	T-300 Level Transmitter	AI	4 - 20mA	24V	TSP
13-1-1	BioViper Tanks	AT-100	PT	100	Pressure Transmitter	T-100 Air Pressure Transmitter	AI	4 - 20mA	24V	TSP
13-1-1	BioViper Tanks	PT-200	PT	200	Pressure Transmitter	T-200 Air Pressure Transmitter	AI	4 - 20mA	24V	TSP
13-1-1	BioViper Tanks	PT-300	PT	300	Pressure Transmitter	T-300 Air Pressure Transmitter	AI	4-20mA	24V	TSP
13-1-1	BioViper Tanks	TI-100	TI	100	Temperature Signal	Temperature of T-100	Ethernet/IP	Factory Wire		CAT-6
13-1-1	BioViper Tanks	TI-200	TI	200	Temperature Signal	Temperature of T-200	Ethernet/IP	Factory Wire (from		CAT-6
13-1-1	BioViper Tanks	TI-300	TI	300	Temperature Signal	Temperature of T-300	Ethernet/IP	Factory Wire (from		CAT-6
13-1-1	BioViper Tanks	XV-LA01	XV	LA01	Modulating Valve	Inlet to T-100 from	AI, AO	4-20mA	120V	2-TSP
13-1-1	BioViper Tanks	XV-01DO	XV	01DO	Solenoid	On/Off Valve for pH and DO, T-100	DO	Digital	120V	2-#14
13-1-1	BioViper Tanks	XV-02DO	XV	02DO	Solenoid	On/Off Valve for pH and DO, T-200	DO	Digital	120V	2-#14
13-1-1	BioViper Tanks	XV-03DO	XV	03DO	Solenoid	On/Off Valve for pH and DO, T-300	DO	Digital	120V	2-#14
13-1-2	BioViper Pump Skid	FT-100	FT	100	Flow Transmitter	Flow transmitter for recirculation to T-100	AI	4 - 20mA	24V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-01LA	XV	01LA	Modulating Valve	T-100 Return to Lagoon	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-0101	XV	0101	Modulating Valve	T-100 Internal Recirculation Line	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-0102	XV	0102	Modulating Valve	T-100 Transfer to T-200	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-0103	XV	0103	Modulating Valve	T-100 Transfer to T-300	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-02LA	XV	02LA	Modulating Valve	T-200 Return to Lagoon	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-0201	XV	0201	Modulating Valve	T-200 Return to T-100	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-02CL	XV	02CL	Modulating Valve	T-200 Effluent to Clarifier	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-0202	XV	0202	Modulating Valve	T-200 Internal Recirculation Line	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-0203	XV	0203	Modulating Valve	T-200 Transfer to T-300	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-0301	XV	0301	Modulating Valve	T-300 Return to T-100	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-03LA	XV	03LA	Modulating Valve	T-300 Return to Lagoon	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-03CL	XV	03CL	Modulating Valve	T-300 Effluent to Clarifier	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-0303	XV	0303	Modulating Valve	T-300 Internal Recirculation Line	AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND
13-1-2	BioViper Pump Skid	XV-BVLA	XV	BVLA	On/off Valve	BioViper Return to Lagoon	2 DI, DO	Digital	24V	5-#14
13-1-2	BioViper Pump Skid	XV-BVCL	XV	BVCL	On/off Valve	BioViper Effluent to Clarifier	2 DI, DO	Digital	24V	5-#14
13-1-1	BioViper Odor	LS-1501	LS	1501	High Level Switch	High Level Switch for KOP	DI	Digital	24V	2-#14
13-1-1	BioViper Odor	XV-1501	XV	1501	Solenoid	On/Off valve for KOP condensate	DO	Digital	120V	2-#14

NOTES:

1. ALL DEVICES WIRE FROM DEVICE TO CAMBRIAN CONTROL PANEL. SEE ELECTRICAL PANEL SCHEDULES FOR MODULATING VALVE POWER.

I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
ICT PROJECT No. 190112

INFLO DESIGN GROUP

KEN K. PARRISH — REGISTERED ENGINEER — AGRICULTURE — COMMERCE — No. 103035 — STATE OF TENNESSEE — 08/07/20

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

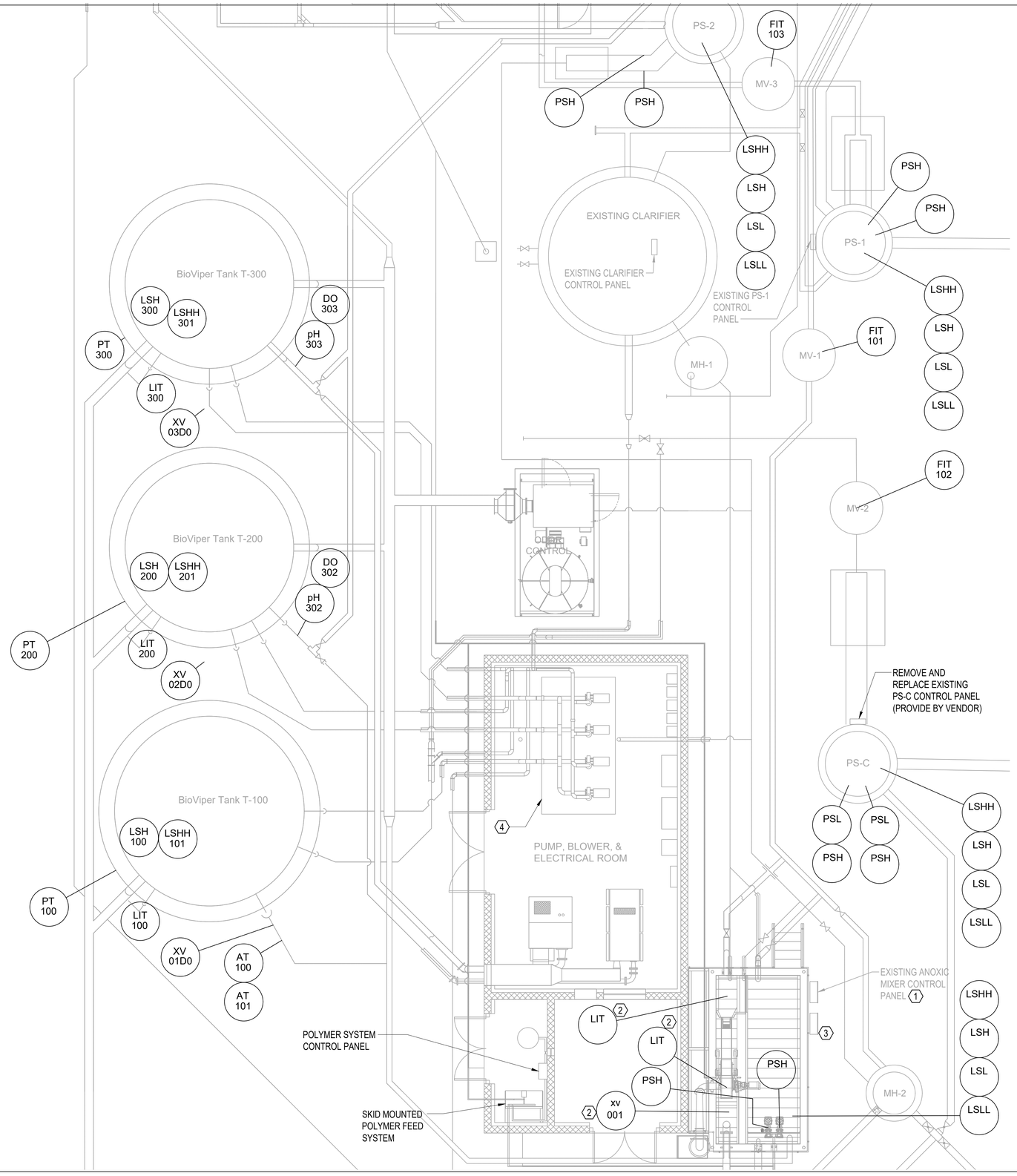
CAMBRIAN PANEL I/O AND WIRE LIST

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
I-006

SHEET NUMBER
71

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112I-006.dwg Last Save: 8/3/2020 9:37 AM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: ---- Plot Scale: 1:1 Plot Date: 8/3/2020 9:37 AM Plotter used: Microsoft Print to PDF



NOTES:

1. INFLUENT SCREEN REPLACES ANOXIC MIXER. MAY RE-USE EXISTING CONTROL CONDUIT FOR NEW SCREEN CONTROL WIRING TO PLANT PLC PANEL. DEMOLISH EXISTING ANOXIC MIXER PANEL.
2. FIELD DEVICES HERE WIRE TO NEW SCREEN CONTROL PANEL.
3. CONTROL WIRING FOR SLUDGE PANEL MAY SHARE EXISTING CONDUIT FOR SCREEN CONTROL BACK TO CONTROL ROOM TO PLC.
4. SEE PUMP SKID INFORMATION ON I-103 FOR VALVE AND PUMP LOCATION.

GENERAL NOTES:

A. REFER TO DRAWING I-003, I-004, I-005, AND I-006 FOR WIRING REQUIREMENTS.

B. ANALYZERS REQUIRE FIELD INSTALL FACTORY CABLE FROM DETECTION ELEMENT IN PIPE TO ANALYZER. EACH ANALYZER REQUIRES CAT-6 CABLE TO CAMBRIAN PANEL NETWORK SWITCH.

C. CONTRACTOR TO COORDINATE FINAL LOCATION OF TANK INSTRUMENTATION WITH TANK MANUFACTURER. SEE D-303 FOR ADDITIONAL INFORMATION.

ICT
I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
ICT PROJECT No. 190112

idg
INFLO DESIGN GROUP

KEN K. PARRISH
REGISTERED
AGRICULTURE
COMMERCE
No. 103035
7/31/20
STATE OF TENNESSEE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP PARTIAL INSTRUMENTATION SITE PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
I-102

SHEET NUMBER
72

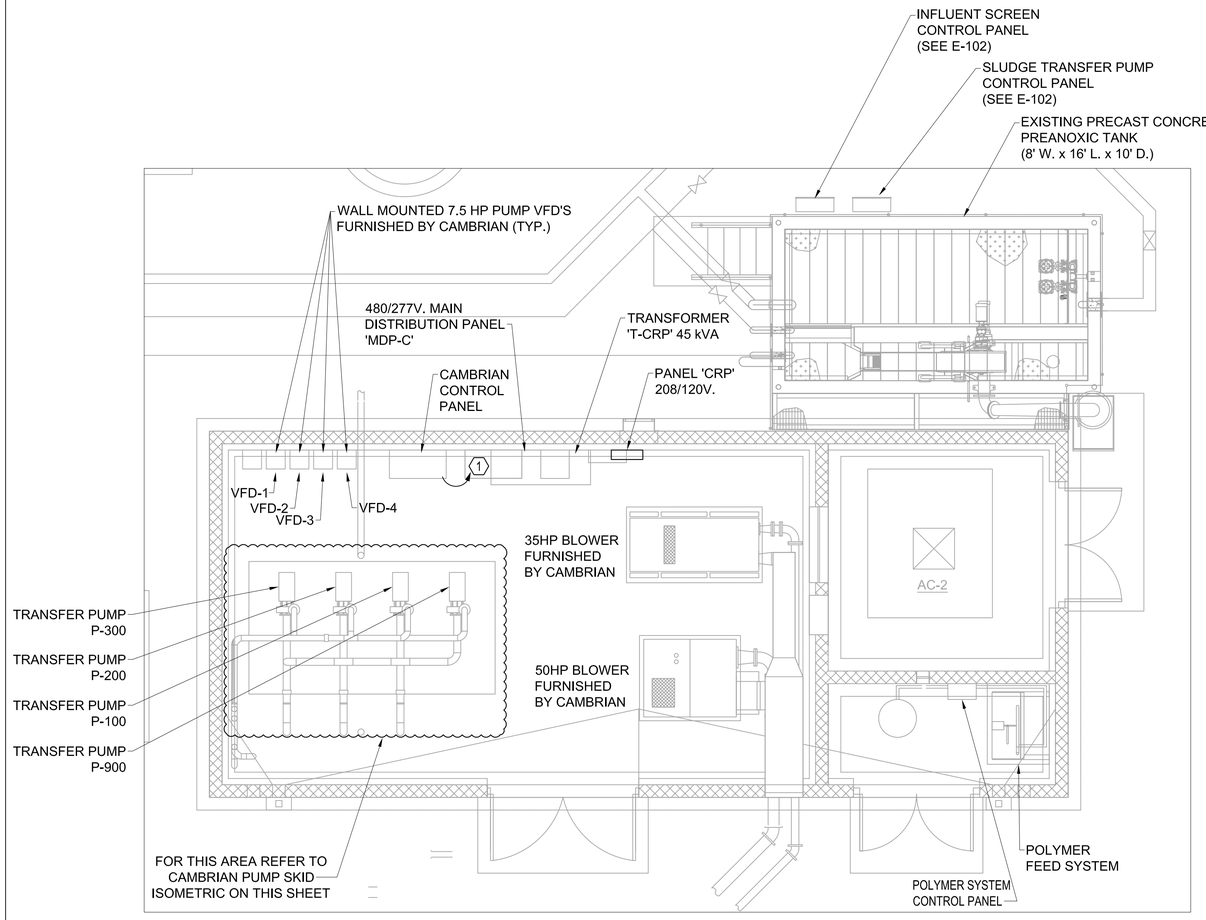
WWTP PARTIAL INSTRUMENTATION PLAN

SCALE;3/16"=1'-0"

0 5 10

3/16" = 1'-0"

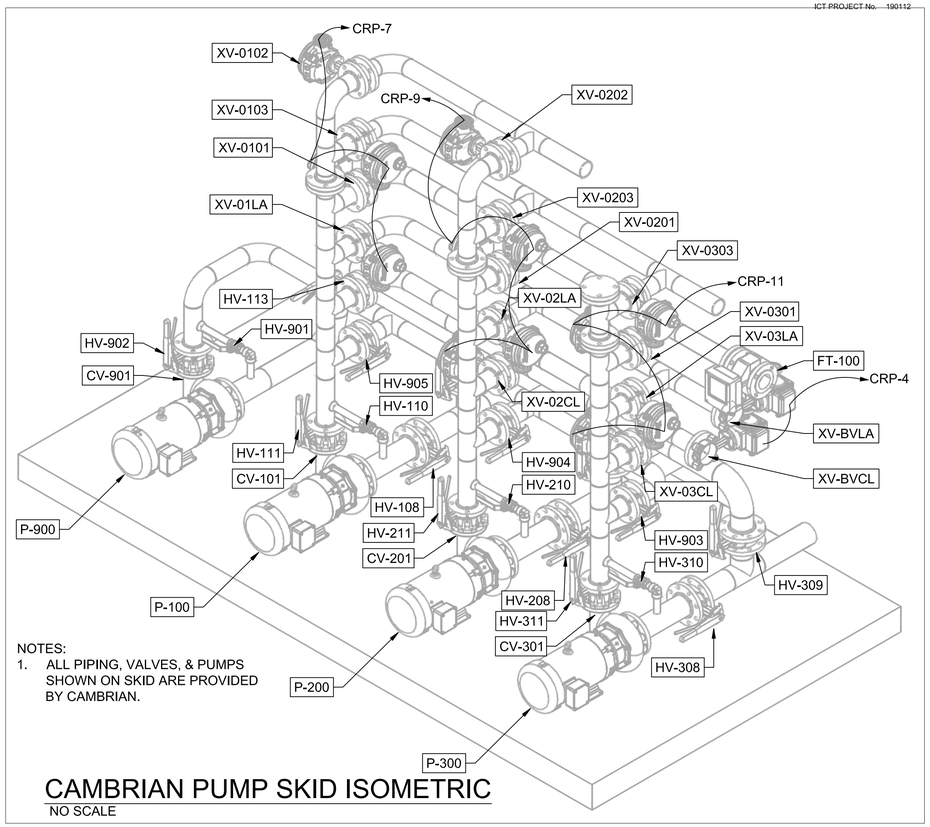
File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112I-102.dwg Last Save: 8/3/2020 3:41 PM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: ---- Plot Scale: 1:1 Plot Date: 8/3/2020 3:42 PM Plotter used: Microsoft Print to PDF



CAMBRIAN BUILDING PLAN

0 1' 2' 4' 8'

SCALE:1/4"=1'-0"



NOTES:
1. ALL PIPING, VALVES, & PUMPS SHOWN ON SKID ARE PROVIDED BY CAMBRIAN.

CAMBRIAN PUMP SKID ISOMETRIC

NO SCALE

NOTES:

1. INSTALL CONDUIT AND ETHERNET CAT-6 WIRING FROM CAMBRIAN PANEL TO PLANT PLC PANEL IN CONTROL BUILDING.

GENERAL NOTES:

A. POWER MOTOR OPERATED CONTROL VALVES FROM PANEL CRP.

B. SOLENOID VALVES ENERGIZED FROM CAMBRIAN CONTROL PANEL.

C. SEE I-003, I-004, AND I-005 FOR INSTRUMENT WIRING INFORMATION.

I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.ictthomasson.com
ICT PROJECT No. 190112

INFLO DESIGN GROUP

KEN K. PARRISH — REGISTERED PROFESSIONAL ENGINEER — AGRICULTURE — 8/3/20 — No. 103035 — STATE OF TENNESSEE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

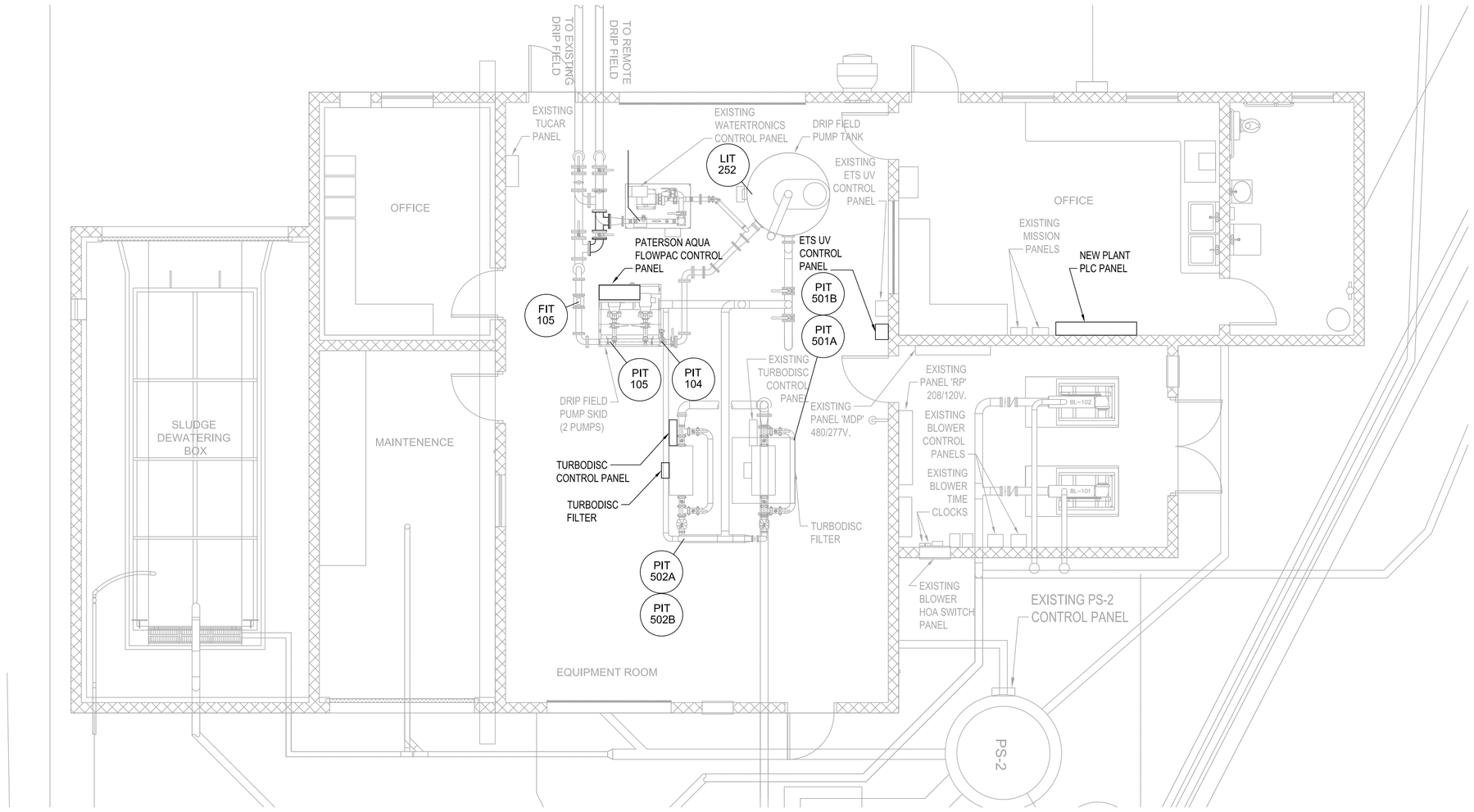
CAMBRIAN BUILDING & INFLUENT SCREEN INSTRUMENTATION PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
I-103

SHEET NUMBER
73

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112I-103.dwg Last Save: 8/3/2020 9:55 AM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: ---- Plot Scale: 1:1 Plot Date: 8/3/2020 9:56 AM Plotter used: Microsoft Print to PDF



CONTROL BUILDING INSTRUMENTATION PLAN

SCALE;1/4"=1'-0"

0 1' 2' 4' 8'

SCALE:1/4"=1'-0"

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CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
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PHONE (615) 346-3400
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KEN K. PARRISH — REGISTERED ENGINEER — AGRICULTURE & ENVIRONMENT — COMMERCE — No. 103035 — STATE OF TENNESSEE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

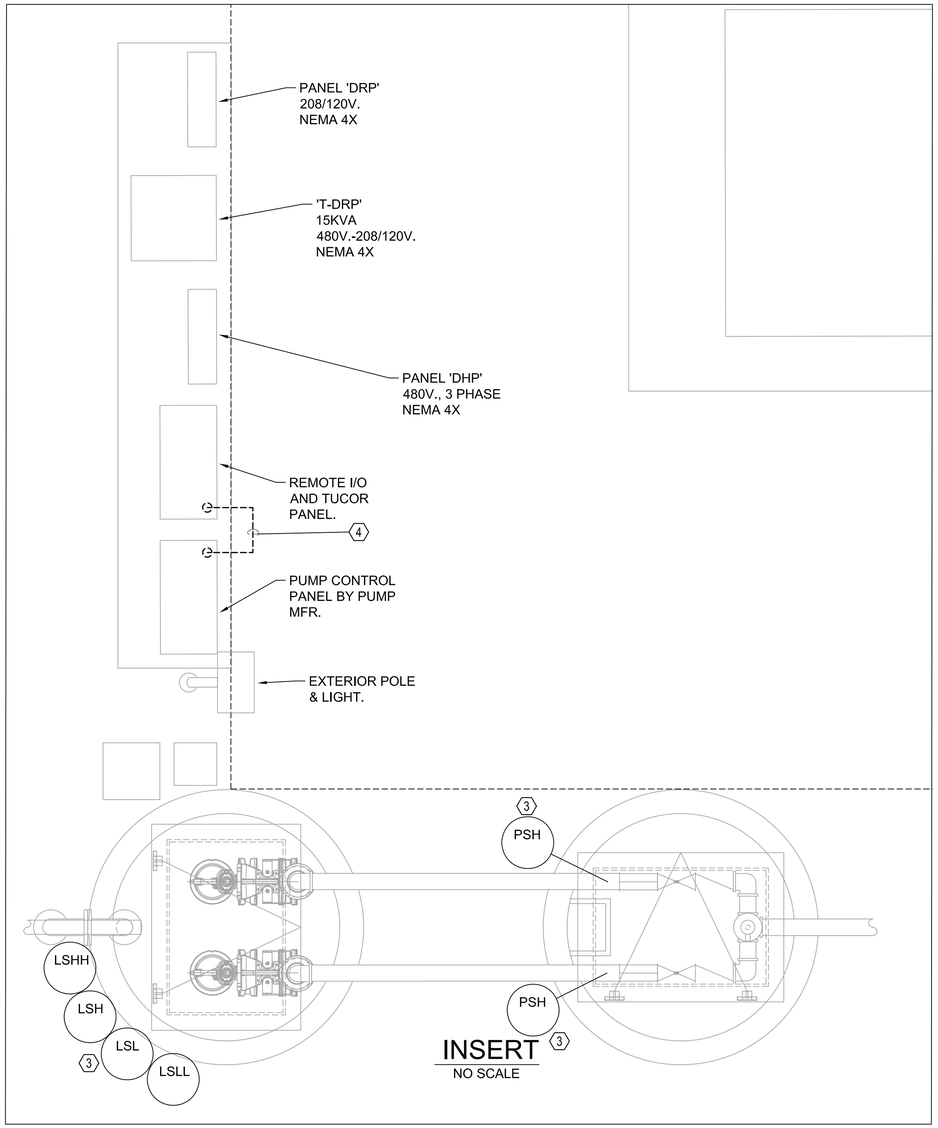
CONTROL BUILDING INSTRUMENTATION PLANS

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER **I-104**

SHEET NUMBER **74**

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112I-104.dwg Last Save: 8/3/2020 9:53 AM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: ---- Plot Scale: 1:1 Plot Date: 8/3/2020 9:54 AM Plotter used: Microsoft Print to PDF



NOTES:

1. 12 FIBER SINGLE MODE FIBER CABLE EXTENDS BACK TO MAIN WWTP. ROUTE WITH RETURN PIPING IN RIGID 1 1/4"C.
2. DAISY CHAIN 2-WIRE CONNECTION FROM EACH ZONE VALVE BACK TO TUCOR ELECTRONICS. CABLE INSTALLED PER TUCOR REQUIREMENTS.
3. CONNECT SWITCHES TO REMOTE I/O PANEL. SEE I/O AND WIRE LIST.
4. 1" CONDUIT WITH PUMP CONTROL CONNECTION FROM PUMP CONTROL PANEL TO REMOTE I/O. SEE I/O AND WIRE LIST.

DRIP FIELD ZONE SITE PLAN

SCALE;1"=60'-0"

60' 0' 60' 120'

SCALE IN FEET
1" = 60'

ICT
I.C.Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615)346-3550
www.icthomasson.com
ICT PROJECT No. 190112

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KEN K. PARRISH
REGISTERED
AGRICULTURE ENGINEER
No. 103035
STATE OF TENNESSEE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

DRIP FIELD INSTRUMENTATION SITE PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
I-121

SHEET NUMBER
75

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112I-121.dwg Last Save: 8/3/2020 9:27 AM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: --- Plot Scale: 1:1 Plot Date: 8/3/2020 9:28 AM Plotter used: Microsoft Print to PDF

From: Dana Douglas
To: Christina Wingett
Cc: Brad Thibault; Justin Lundgren; Joe Stoops; Josh Martin; MichaelP Murphy
Subject: [EXTERNAL] Re: Remaining requested reports
Date: Monday, July 10, 2023 9:38:57 AM
Attachments: image001.png

Christina,

As stated previously, the previous operator(s) did not have a bench sheet(s) that could be located. The transcribed data is the data that was recorded on the day of sample collection (location, date, etc.), the MPN is based upon the Iddexx colony chart which does not change. Most instances, the data was recorded in phone notes. After collection, the sample was delivered to the Grasslands facility for analysis. With that being said, I guess there aren't any official-original copies of record from that day to provide.

Going forward, we are modifying our plant bench sheets to accurately reflect sample data and analysis to include but not limited to; date, time collected, time in and out of incubator, incubator temp, and results.

Thank you,
Dana Douglas
CWS TN State Manager
615-603-6812

From: Christina Wingett <Christina.Wingett@tn.gov>
Sent: Monday, July 10, 2023 7:12 AM
To: Dana Douglas <dana.douglas@clearwatersol.com>
Cc: Brad Thibault <bthibault@cswrgroup.com>; Justin Lundgren <Jlundgren@cswrgroup.com>; Joe Stoops <joe.stoops@clearwatersol.com>; Josh Martin <josh.martin@clearwatersol.com>; MichaelP Murphy <MichaelP.Murphy@tn.gov>
Subject: RE: Remaining requested reports

Mr. Douglas,

Please explain your statement “The E.coli bench sheets are transcribed based upon the data from the day of collection.”. Why have you provided me something other than *official- original copies of record* from the day of analysis? The information you sent last week is therefore not what I requested nor is it sufficient or official. Why have the daily bench sheets that the analysis result was written on **that day** not been provided?

Regards,

Christina Wingett | Environmental Scientist

Division of Water Resources
615-961-3875
Christina.Wingett@tn.gov
Nashville Field Office
711 R.S. Gass Blvd
Nashville TN 37216

Tell us how we're doing! Please take a few minutes to complete the TDEC Customer Service Survey

Electronic 40 Code of Federal Regulations Part 136 Table I & II: This document oultines the approved methods for wastewater analysis as well as proper sample holding times.

Fleming Training Center: This site has many useful resource documents as well as how to sign up for operator training classes.

TN Public Data Viewer: View public data on different permit types.

From: Dana Douglas <dana.douglas@clearwatersol.com>
Sent: Sunday, July 9, 2023 10:56 AM
To: Christina Wingett <Christina.Wingett@tn.gov>
Subject: [EXTERNAL] Re: Remaining requested reports

Christina,

Apologies for the delay in getting back to you, I just got back from vacation.

The E.coli bench sheets are transcribed based upon the data from the day of collection. I collected samples in December 2022 and January 2023, Kevin began collecting samples in March 2023. Sample data prior to December 2022 was performed by the previous operators and unable to be located.

Thank you,
Dana Douglas
CWS TN State Manager
615-603-6812

From: Christina Wingett <Christina.Wingett@tn.gov>
Sent: Wednesday, July 5, 2023 12:26 PM
To: Dana Douglas <dana.douglas@clearwatersol.com>
Cc: Brad Thibault <bthibault@cswrgroup.com>; Justin Lundgren <Jlundgren@cswrgroup.com>; Joe Stoops <joe.stoops@clearwatersol.com>; Josh Martin <josh.martin@clearwatersol.com>; MichaelP Murphy <MichaelP.Murphy@tn.gov>
Subject: RE: Remaining requested reports

> important

Are these E. coli bench sheets the original copy of record that the operator wrote on the day the sample was analyzed or have these been transcribed from the original copies of record?

Regards,

Christina Wingett | Environmental Scientist
Division of Water Resources
615-961-3875
Christina.Wingett@tn.gov
Nashville Field Office
711 R.S. Gass Blvd
Nashville TN 37216

Tell us how we're doing! Please take a few minutes to complete the TDEC Customer Service Survey

Electronic 40 Code of Federal Regulations Part 136 Table I & II: This document oultines the approved methods for wastewater analysis as well as proper sample holding times.

Fleming Training Center: This site has many useful resource documents as well as how to sign up for operator training classes.

TN Public Data Viewer: View public data on different permit types.

From: Dana Douglas <dana.douglas@clearwatersol.com>
Sent: Thursday, June 29, 2023 12:18 PM
To: Christina Wingett <Christina.Wingett@tn.gov>
Cc: Brad Thibault <bthibault@cswrgroup.com>; Justin Lundgren <Jlundgren@cswrgroup.com>; Joe Stoops <joe.stoops@clearwatersol.com>; Josh Martin <josh.martin@clearwatersol.com>
Subject: [EXTERNAL] Remaining requested reports

Christina,

Attached are the files we are able to find. The previous operator that was let go in January, had very poor record keeping and knowledge of the permit requirements. If there is anything else I can get for you, please let me know.

Thank you,
Dana Douglas

CWS TN State Manager
615-603-6812