

**MEMORANDUM**

**TO:** Board of Trustees

**THROUGH:** Brad Underwood, Director of Public Works

**FROM:** Bree Waters, District Project Manager

**SUBJECT:** Review, Discuss and Possibly Approve a Professional Services Agreement with DOWL LLC for the Preparation of Revised Bidding Documents Associated with the Sewer Pump Station #1 CIP#2599DI1703 Project. (Requesting Staff Member: Director of Public Works Brad Underwood)

**RELATED STRATEGIC PLAN BUDGET INITIATIVE(S):**

**LONG RANGE PRINCIPLE #5 – ASSETS AND INFRASTRUCTURE**

The District will practice perpetual asset renewal, replacement and improvement to provide safe and superior long term utility services and recreation venues, facilities, and services.

**Strategies**

- Maintain, renew, expand and enhance District infrastructure to meet the capacity needs and desires of the community for future generations.
- Maintain and execute a 5-year and 20-year capital improvement program.

**RELATED DISTRICT POLICIES, PRACTICES, RESOLUTIONS OR ORDINANCES**

Board Policy 3.1.0.5(f) - Conduct Meetings of the Board of Trustees; Board Policy 12.1.0 - Multi-Year Capital Planning; Board Policy 13.1.0 - Capital Project Budgeting

**DATE:** June 28, 2023

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## **I. RECOMMENDATION**

1. Review, discuss and possibly approve a professional services agreement with DOWL LLC, in an amount not to exceed \$33,833 for the preparation of revised bidding documents associated with the Sewer Pump Station #1 CIP#2599DI1703 Project.
2. Authorize Director of Public Works to execute the contract in substantially the form presented.
3. Authorize the Carry-forward of \$33,833 in available project funding from the FY22/23 capital budget to FY23/24 to support this professional services agreement.

## **II. BACKGROUND**

The Sewer Pump Station #1 Improvements Project (SPS #1), CIP#2599DI1703 (Attachment A), was proposed as a capital improvement project in 2019. SPS #1 was designed and bid. However, the bids well exceeded the available budget at the time. In 2021, PW Staff revisited the project with the engineering firm, Jacobs, and the Board of Trustees approved a contract to rebid the project. Due to unfilled positions in the Engineering Division, this work with Jacobs was not initiated. A detailed description of the history of the project is included in Attachment B.

In 2022, staff meet with a number of electrical engineers and contractors to reevaluate the original scope of the project. Also in 2022, staff began working with DOWL LLC on the Water and Sewer Masterplan Project. Since a high level review of all sewer pump stations was being completed as part of the Masterplan, staff requested they perform an in-depth review of the Jacobs plans, condition assessment of the SPS#1 existing equipment, and provide a prioritized list of work which is presented in a technical memo and included in Attachment C. Staff also requested an increase in the CIP budget FY22/23 due to the proposed scope increase (downsizing impellers and motors) and because material and labor costs have risen sharply since 2019.

Based on the technical memorandum provided by DOWL LLC, staff requested that Jacobs provide a cost proposal to re-package the documents to include Base Bid, Bid Alternate A and a Bid Alternate B. Jacob's cost for the re-packaging of the scaled down design was \$73,100. Staff deemed this cost proposal too high for the work to be performed. Therefore, staff contacted DOWL LLC for a cost proposal which was received in the amount of \$33,833 and is included in Attachment D. This amount does not include the Construction Administration Services cost of \$8,470. This part of the cost proposal would be brought back to the Board and discussed for approval when the construction contracts are awarded.

This item is placed on the Consent Calendar in accordance with Policy 3.1.0.4.

### **III. BID RESULTS**

This item is not subject to competitive bidding within the meaning of the Nevada Revised Statute (NRS) 332.115 as described in subsection (b) Professional Services.

### **IV. FINANCIAL IMPACT AND BUDGET**

This project has been listed as a Capital Improvement Project for several years. An increased budget was approved by the Board of Trustees at the May 26, 2022 meeting and with the carry forward funding, the total budget for this project is \$1,538,370. Project funding, including funding in support of this proposed action, will be requested to be carried over to FY23/24.

### **V. ALTERNATIVES**

Not authorize the work and re-bid the project as is.

### **VI. COMMENTS**

The professional services contract has been reviewed by District Legal Counsel.

### **VII. BUSINESS IMPACT/BENEFIT**

This item is not a "rule" within the meaning of Nevada Revised Statutes, Chapter 237, and does not require a Business Impact Statement.

The project is necessary to replace aging electrical infrastructure that has outlived its useful life. Maintaining SPS#1 is a high priority for the District since it is the main sewer pump station and its close proximity to the shores of Lake Tahoe. The functionality of this specific sewer pump station is key to providing sewer service to properties within the District.

### **VIII. ATTACHMENTS**

1. Attachment A\_2599DI1703 -SPS 1 Data Sheet
2. Attachment B\_SPS #1 History
3. Attachment C\_Technical Memo #1
4. Attachment D\_DOWL\_Agreement - Sewer Pump Station #1 Improvements

### **IX. DECISION POINTS NEEDED FROM THE BOARD OF TRUSTEES**

1. Review, discuss and possibly approve a professional services agreement with DOWL LLC, in an amount not to exceed \$33,833 for the preparation of revised bidding documents associated with the Sewer Pump Station #1 CIP#2599DI1703 project.
2. Authorize Director of Public Works to execute the contract in substantially the form presented.



## Project Summary

**Project Number:** 2599DI1703  
**Title:** Sewer Pump Station #1 Improvements  
**Project Type:** D - Capital Improvement - Existing Facilities  
**Division:** 99 - General Administration - Sewer  
**Budget Year:** 2023  
**Finance Options:**  
**Asset Type:** SS - Sewer System  
**Active:** Yes

<b>Project Description</b>			
The District owns 18 sewer pumping stations in Incline Village and Crystal Bay. Sewer Pump Station #1 collects and transports 50% of the raw sewage and transports it to the WRRF on Sweetwater Road. If something were to happen to Sewer Pump Station #8 there is a direct bypass that would send all of the raw sewage to Sewer Pump Station #1, thus accounting for 75% of the raw sewage in the District. Constructed in the early 1970s this station has provided reliable service. The station contains the mechanical and electrical equipment to pump sewage to the WRRF. The equipment in the station to be replaced as a part of this project are the variable frequency drives and motor control centers for the three pump sets plus instrumentation and controls. This will enhance the condition and reliability of our aging infrastructure to collect and pump sewage to the WRRF and to protect the environment.			
<b>Project Internal Staff</b>		Staff will work with an outside design consultant and the project will be publicly bid. (Supply Chain delays with electrical equipment maybe a concern)	
Staff involvement is the coordination and contracting of the removal, procurement, and replacement of equipment with rebuilt or new equipment.			
<b>Project Justification</b>			
This project funds the replacement of the equipment listed above at sewer pumping station #1. The age of the equipment, the number of hours of operation and other equipment analyses dictate replacement or rehabilitation of the equipment to maintain this reliability to provide continuous service. The project was bid in the summer/fall 2019 and one bid was received that was substantially above budget. All bids were rejected. The design team is considering modifications to the design. The construction estimate is based on the bid received and current cost escalation. There will be carry forward funds from 2019-20 CIP.			
<b>Forecast</b>	Carry Forward Funding	FY21/22 Approved by BOT 8/31/22	\$1,038,370
<b>TOTAL PROJECT FUNDING \$1,538,370.00</b>			
<b>Budget Year</b>	<b>Total Expense</b>	<b>Total Revenue</b>	<b>Difference</b>
2023			
Construction	500,000	0	500,000
Year Total	500,000	0	500,000
	<b>500,000</b>	<b>0</b>	<b>500,000</b>
		<b>Internal Staff Time</b> \$15,000 <b>Engineer – Design/Bidding/Construction Administration</b> \$80,000 <b>Permitting</b> \$10,000 <b>Construction</b> \$1,423,370	
<b>Year Identified</b>	<b>Start Date</b>	<b>Est. Completion Date</b>	<b>Manager</b>
2017	Jul 1, 2020	Jun 30, 2024 October 2024	Principal Engineer
			<b>Project Partner</b>



## SPS #1- History

Sewage Pump Station No. 1 (SPS #1) conveys wastewater from IVGID’s collection system to IVGID’s water resource recovery facility. SPS #1, IVGID’s largest sewage lift station, is a critical component of IVGID’s wastewater conveyance and advanced treatment system; reliable operation and performance of SPS #1 is essential.

SPS #1 was originally constructed in 1962 and has been modified since original construction. The pump configuration is comprised of three sets of two pumps in series, which were originally controlled by a Unitrol motor control center (MCC). Approximately 20 years ago, the original Unitrol MCC was decommissioned and a new switchboard and the Variable Drive Frequency (VFDs) were installed for pumping control.

The SPS #1 Improvements Project, CIP#2599DI1703, was identified as a proposed capital improvement in 2017. In 2018, the District hired Jacob’s (formerly CH2M HILL) to develop a modernization plan for SPS #1, which included upgrades to the VFDs, electrical systems and controls. The District had identified the need for the project because:

1. The existing VFDs are currently operable, but unserviceable, and must be replaced to mitigate the risk of component failure and to improve pumping reliability.
2. The electrical equipment is functional but has been in service over 20 years and approaching manufacturer’s rated lifetimes and anticipated life expectancy as discussed in “IEEE Gold Book –Recommended Practice for the Design of Reliable Industrial and Commercial Power Systems”. Some equipment has exceeded these expectations.

A preliminary design report was completed in January 2019, which included an engineer’s estimate of \$250,000 and the project was determined to include:

1. Existing Unitrol MCC (labeled “Old Motor Controller” on drawings), switchboard, and drive controls will be demolished. The existing motor controller is located on the Main Level (G), and the existing switchboard and three VFDs are located on Level -2. The extent of demolition is conceptually shown on the demolition drawings.
2. A new MCC (MCC-02) will be fitted and installed on the Main Level and will include a programmable logic controller (PLC) panel with an operator interface terminal, three VFDs, space for power and lighting panels, and a plug-in for temporary power will be

fitted and installed on the Main Level. Feeders from the emergency power panel (powered by a diesel generator) will also be connected to the MCC.

3. A new PLC will be connected to IVGID's supervisory control and data acquisition system (SCADA) and will provide pump control and data logging. Pumping controls will be similar to Sewage Pump Station No. 8. New wet well level instruments will be installed and connected to the new PLC and SCADA system.
4. Electrical connection compatible with a 1,200-amp diesel generator will be provided.
5. Additionally, the contractor will provide and install a power panel for a 200-horsepower skid-mounted pump. The power panel will be located near the access road and will include new conduits and conductors to the SPS #1 pump building.

Jacobs moved forward with the project design, which was completed in August 2019. Construction documents were produced with an engineer's estimate of \$400,000. The project bid October 17, 2019 and San Joaquin Electric was the only responsive bid for \$875,000, which well exceeded the available budget at the time.

The previous engineering staff considered downsizing the project and rebidding it for which Jacobs gave the District a proposal of \$12,000 for this work on January 13, 2021. It is hard to trace what happened in the next few months, but Jacobs resubmitted a proposal to rebid the work as designed but also to increase the scope of work to include downsizing the impellers and the motors on all three pump sets for a cost of \$41,380 on March 3, 2021.

The redesign proposal was brought to the Board and approved in July 2021 and approved for Jacob's rework for \$49,600. The budget for the project at this time was \$1,038,370 and we increased the budget by \$500,000 in July of 2022 because of the increase in scope. Downsizing the impellers and motors would have been a large undertaking at an expensive cost.

When the previous engineering staff departed the District and the project was put on hold while other projects took priority. The existing engineering staff decided to revisit the project in 2022. Staff met with a number of electrical engineers and contractors to reevaluate the original scope of the project. The existing PW Staff has asked "why" on many of the previously planned projects that were developed in prior years. This is due to the fact that the projects lacked clarity or these projects did not make reasonable sense with the available information. The electrical engineers all asked us why we were downsizing the impellers and motors. The motors all have 10-15 more years of useful life. The reason the previous engineers and Jacobs had wanted to downsize the impellers and the motors was to save on electricity. However, all of the engineers

we spoke to said for what it was going to cost to downsize these parts, we would not see a return on investment for 25 – 30 years.

In 2022, staff began working with DOWL LLC on the Water and Sewer Masterplan Project. Since a high level review of all sewer pump stations was being completed as part of the Masterplan, staff requested they perform an in-depth review of the Jacobs plans, condition assessment of the SPS#1 existing equipment, and provide a prioritized list of work which is presented in a technical memo.

The intention of the in-depth review by DOWL was to bring the ranking system back to Jacobs to reorganize and revisit construction phasing in an effort to reduce the base bid by outlining bid alternates. This approach intended to make sure that the project goes to construction and an antiquated facility receives key upgrades, increasing reliability. SPS #1 is a critical component to the IVGID sewage system and must be kept online or provisions put in place to allow pumping for the duration of the construction of this project. Additionally, the unique construction and hazardous areas of this station demands that efforts be made towards locating the major components of the electrical distribution system on the ground level.

Based on the technical memorandum provided by DOWL, staff requested that Jacobs provide a cost proposal to re-package the documents to include Base Bid, Bid Alternate A and a Bid Alternate B. Jacob's cost for the re-packaging of the scaled down design was \$73,100. Staff deemed this cost proposal too high for the work to be performed. Therefore, staff contacted DOWL for a cost proposal, which was received in the amount of \$42,303 which include bidding construction services. The following is a breakdown of DOWL's cost proposal:

Category	Fee
Design Review	\$1,120
Design Development of Bidding Documents	\$30,643
Bidding Services	\$2,070
<del>Construction Administration Services *</del>	<del>\$8,470</del>
Total	<del>\$42,303</del> <b>\$33,833</b>

\*Construction Admin. Services will be awarded prior to construction.

As part of DOWL's report, they completed an engineer's estimate for only the phased construction work to be done. This does not include any Engineering staff time. The engineer's estimate is as follows:

<b>Base Bid</b>						
Item	Description	Qty	Unit	Unit Cost	Total Cost	Lead
1	Level Switches	3	EA	\$200	\$400	4 wks.
2	Level Transducers	2	EA	\$1,000	\$2,000	4 wks.
3	Analyzing system	1	LS	\$8,000	\$8,000	20 wks.
4	MCC C	1	EA	\$320,000	\$320,000	52 wks.
5	RTU	1	EA	\$50,000	\$50,000	22 wks.
6	Labor, Conduit, Incidentals, appurtenances, demo, mobilization & demobilization, integration	1	LS	\$250,000	\$250,000	
				Sub Total	\$630,400	
				Contingency (15%)	\$94,560	
				Total	\$724,960	

<b>Bid Alt A</b>						
Item	Description	Qty	Unit	Unit Cost	Total Cost	Lead
1	Gen QCB 800A	1	EA	\$12,000	\$12,000	22 wks.
2	Gen QCB 400A	1	EA	\$8,000	\$8,000	22 wks.
3	Labor, Conduit, Incidentals, appurtenances, demo, mobilization & demobilization, integration	1	LS	\$22,000	\$22,000	
				Sub Total	\$42,000	
				Contingency (15%)	\$6,300	
				Total	\$48,300	

<b>Bid Alt B</b>						
Item	Description	Qty	Unit	Unit Cost	Total Cost	Lead
1	SES	1	EA	\$50,000	\$50,000	52 wks.
2	XFMR	1	EA	\$8,000	\$8,000	22 wks.
3	480V Panel	1	EA	\$5,000	\$5,000	22 wks.
4	120V Panel	1	EA	\$3,500	\$3,500	22 wks.
5	Labor, Conduit, Incidentals, appurtenances, demo, mobilization & demobilization	1	LS	\$100,000	\$100,000	
				Sub Total	\$166,500	
				Contingency (15%)	\$24,975	
				Total	\$191,475	
					<b>Grand Total</b>	<b>\$964,735</b>





## TECHNICAL MEMORANDUM #1

### INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT SEWAGE PUMPING STATION NO. 1

**Prepared For:** Kate Nelson – Engineering Manager  
**Prepared By:** Matthew Bodge, P.E.  
**Reviewed By:** Lucas Tipton, P.E.  
**Date:** 12/6/2022  
**Subject:** Sewage Pumping Station 1 Bid Package

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#### 1.0 INTRODUCTION

The Incline Village General Improvement District (IVGID) Sewer Pump Station 01 (SPS-01) project went to bid in early 2020 with an engineer’s estimate of probable construction cost between \$300,000 and \$400,000. The lowest bid came in over \$800,000; this exceeded the budget set aside by IVGID and prompted the project postponement.

In an effort to investigate ways to reduce the cost of this project, IVGID met with the apparent low bidder. The items listed below were identified as main factors contributing to the disparity in price between the engineer’s estimate and official bids.

- Unique construction of the sewage pump station made it extremely difficult to move equipment in and out.
- The importance and critical nature of this facility required additional equipment to minimize downtime and allow the facility to remain operational during construction.
- The importance and critical nature of this facility required the contractor to assume additional risk.
- The proximity of this pump station to bodies of water required the contractor to assume additional risk.

IVGID determined that reducing the overall work included as part of this project would be the best approach to reduce total cost. Farr West Engineering (Farr West) has been contracted by IVGID to evaluate the documents listed in Section 1.1 and outline the critical items that should remain part of the project and identify items that are not as high a priority.

Farr West appreciates this opportunity to provide IVGID recommendations for reducing overall costs related to the bid package for SPS-01.

#### 1.1 BASIS

The IVGID SPS-01 bid set drawings dated August 2019 and IVGID SPS-01 conceptual design report dated January 2019 were submitted by IVGID for review by Farr West and serve as the basis of recommendations within this memo. These documents have been attached to the end of this memo for reference. Notes have been added to the IVGID SPS-01 bid set drawings to clearly identify items listed within Table 1.

**2.0 STRATEGIC REPLACEMENT**

The electrical equipment at SPS-01 is functional but has been in service over 20 years and approaching manufacturer’s rated lifetimes and anticipated life expectancy as discussed in “IEEE Gold Book – Recommended Practice for the Design of Reliable Industrial and Commercial Power Systems”. Some equipment has exceeded these expectations.

Reliable and constant operation of the electrical system at SPS-01 is crucial and demands replacement of key items prior to inherent unplanned outages. Evaluating the documents identified in Section 1.1 prompted a priority list be created to assist IVGID in strategic replacement of all equipment outlined within the plan set drawings. This list can be seen in Table 1. Section 2.1 has a brief summary behind the priority rankings given to each piece of equipment.

**Table 1: SPS 01 Electrical Equipment Priority List**

Equipment	Priority
<b>Motor Control Center C W/ Variable Frequency Drives SPS-01 through SPS-03</b>	1
<b>Local Control Panel LCP-SPS1</b>	1
<b>Surge Protection Device*</b>	1*
<b>Shunt Trip**</b>	1**
<b>Kirk Key Interlock***</b>	1***
<b>Chlorine Analyzer AIT-SPS1-1 &amp; AE-SPS1-1</b>	2
<b>Wet Well Level Switches LSL-SPS1-01 &amp; 02 and LSH-SPS1-02</b>	2
<b>Wet Well Level Transducers LET-SPS1-01 &amp; 02</b>	2
<b>Power Panel PP-1</b>	3
<b>Power Panel PP-2</b>	3
<b>Motor Control Center D W/ Panel-LL &amp; Panel-HH</b>	4
<b>Main Service and Metering Switchboard MSC</b>	4
<b>ATS Relocation</b>	4
<b>Flow Meter FIT-SPS1-01 &amp; FE-SPS1-01</b>	See Section 2.1.5

- \* Down grade to priority 4 if existing unit is functional and not in fault condition.
- \*\* This upgrade may require additional modules or replacement of main breaker.
- \*\*\* Kirk key interlock to be added as necessary to prevent paralleling of “Trailer Generator” with ATS source.

**2.1 EQUIPMENT PRIORITY RANKING**

**2.1.1 Priority 1 Equipment**

Priority 1 equipment should remain part of this project.

**Motor Control Center C W/ Variable Frequency Drives SPS-01 through SPS-03:**

These VFDs are over 20 years old, unserviceable, and likely to not have replacement parts readily available. They are a critical part of the electrical infrastructure and most prone to experience problems with age compared to other major electrical equipment outlined for replacement. Additionally, upgrading these motor controllers will allow for updating the control algorithms and communication protocol to the SCADA network as part of future projects when necessary. Replacement of the existing MCC C, SWBD, and VFDs with a single unit as outlined within the bid set drawings is recommended.

**Local Control Panel LCP-SPS1:**

SCADA system RTUs are often robust but become significantly outdated within 10 years. Replacement of the RTU with LCP-SPS1 is recommended to be kept in this project and will allow for incorporating any additional functionality offered by the new VFDs and instrumentation as well as future expansions and capabilities required to be incorporated into the SCADA system.

**Surge Protection Device:**

Surge protection is cheap insurance and should be a requirement for this facility given its nature and importance. The existing surge protection device is recommended for replacement if faulty or no longer functional.

**Shunt Trip Device:**

The ability to shunt trip the electrical system is recommended for all facilities where the main breaker is located indoors. This safety device allows for quick de-energization of the electrical distribution system during an emergency without having to enter the building.

It is likely that the main breaker will require a module be added. Given the age of the main breaker, the module may not be available. If the module is not available, it would prompt a replacement of the main breaker; replacement of main breaker may require utility coordination and involvement.

**Kirk Key Interlock:**

A Kirk key interlock will be required to prevent catastrophic failure from paralleling the “Trailer Generator” and ATS source. If proposed system is altered for bidding purposes, it should be evaluated to prevent any and all paralleling.

**2.1.2 Priority 2 Equipment**

Priority 2 equipment should be replaced as part of this project. Priority 2 equipment carries relatively minimal cost while adding the benefits of increased reliability and functionality.

**Chlorine Analyzer AIT-SPS1-1 & AE-SPS1-1:**

It is recommended to keep the addition of the chlorine analyzer as part of this project.

**Wet Well Level Switches LSL-SPS1-01 & 02 and LSH-SPS1-02:**

It is recommended to keep the addition of the float switches as part of this project.

**Wet Well Level Transducers LET-SPS1-01 & 02**

It is recommended to keep the addition of the level transducers as part of this project.

**2.1.3 Priority 3 Equipment**

Priority 3 equipment should be added to this project as a bid alternate. Priority 3 equipment represents equipment that is not necessary but desired by IVGID and carries relatively moderate cost.

**Power Panel PP-1:**

It is recommended that the addition of Power Panel PP-1 remain in this project as a bid alternate.

**Power Panel PP-2:**

It is recommended that the addition of Power Panel PP-2 remain in this project as a bid alternate.

### 2.1.4 Priority 4 Equipment

Priority 4 equipment should be removed as part of this project unless IVGID regularly experiences issues and cannot find replacement parts. Priority 4 equipment represents the electrical equipment of least concern and carries significant cost.

#### **Motor Control Center D W/ Panel-LL and Panel-HH:**

Motor Control Center D replacement is recommended to be removed from this project. Motor Control Centers typically last 20-30 years without issue but can last well over this when routine regular maintenance takes place. The replacement of this motor control center adds little to no increase in desired functionality. This motor control center should be planned for replacement within the next ten years.

#### **Main Service and Metering Switchboard MSC:**

Main Service and Metering Switchboard MSC replacement is recommended to be removed from this project. Switchboards typically last 20-30 years without issue but can last well over this when routine regular maintenance takes place. The replacement of this Switchboard adds little to no increase in desired functionality. This motor control center should be planned for replacement within the next ten years.

#### **ATS Relocation:**

The ATS relocation would be unnecessary unless required to fit LCP-SPS1. This work is recommended to be removed from this project.

### 2.1.5 Flow Meter

The flow meter was brought up as a point of concern in previous discussions and meetings. The flow meter was not planned for replacement in this project but should be added to Priority 1 if necessary. Further clarification from IVGID is required to properly place a priority level on this device.

**Attachment 1**  
**Bid Set Drawings**

# INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT SEWAGE PUMPING STATION NO. 1

**INCLINE VILLAGE WASHOE COUNTY NEVADA**  
**IVGID PROJECT NO.: 2599DI1703**  
**PWP NO.: WA-2019-192**

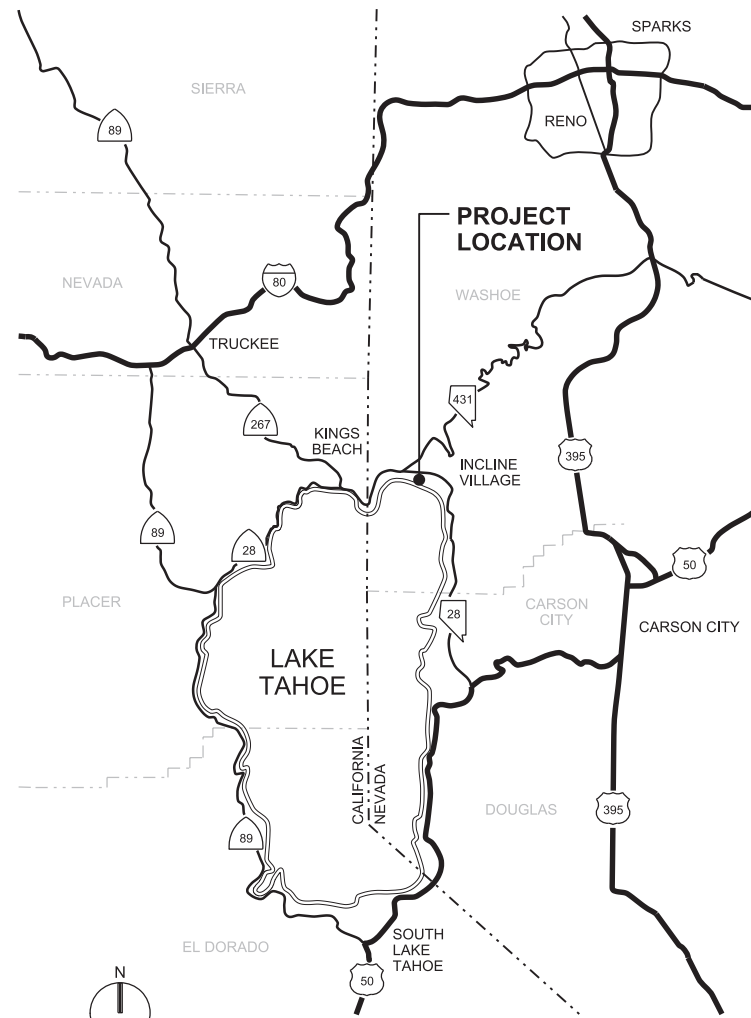
**AUGUST 2019**



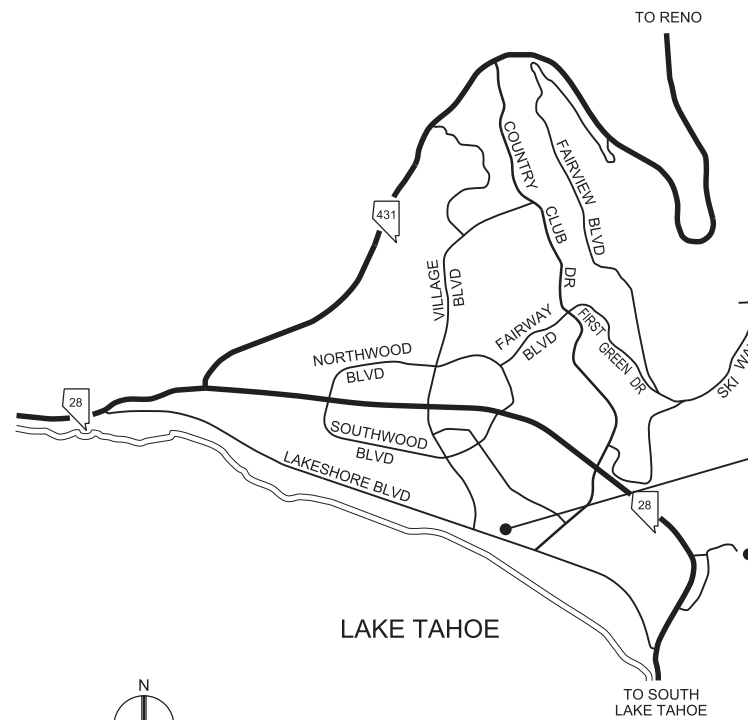
VOLUME 2 OF 2  
DRAWINGS

**INDEX TO DRAWINGS**

SHEET NO.	DRAWING NO.	TECHNOLOGY	TITLE
1	G-1001	GENERAL	COVER SHEET AND DRAWING INDEX
2	G-1002	GENERAL	ABBREVIATIONS
3	G-1003	GENERAL	ELECTRICAL LEGEND
4	G-1004	GENERAL	INSTRUMENTATION AND CONTROL LEGEND
5	D-1001	ELECTRICAL	ONE LINE DIAGRAM DEMOLITION
6	D-1002	ELECTRICAL	PUMP BUILDING DEMOLITION PLAN
7	D-1003	ELECTRICAL	PUMP BUILDING DEMOLITION PLAN
8	E-1001	ELECTRICAL	SITE PLAN
9	E-1002	ELECTRICAL	PUMP BUILDING PLAN
10	E-1003	ELECTRICAL	PUMP BUILDING PLAN AND SECTION
11	E-1004	ELECTRICAL	ONE LINE DIAGRAM
12	E-1005	ELECTRICAL	MCC ELEVATIONS AND PANEL SCHEDULE
13	E-1006	ELECTRICAL	CONTROL DIAGRAM - 1
14	E-1007	ELECTRICAL	CONTROL DIAGRAM - 2
15	E-1008	ELECTRICAL	CONTROL DIAGRAM - 3
16	E-2001	ELECTRICAL	SECTION AND DETAILS - 1
17	E-2002	ELECTRICAL	DETAILS - 2
18	N-1001	INSTRUMENTATION	PUMP STATION P&ID
19	N-1002	INSTRUMENTATION	CONTROL PANEL -TYPICAL WIRING DIAGRAMS



**LOCATION MAP**



**VICINITY MAP**

**SEWAGE PUMP STATION NO. 1**  
 TAHOE BLVD  
 INCLINE VILLAGE, NV 89451  
 COORDINATES: 39.240837, -119.947111  
 INCLINE VILLAGE WWTP  
 1250 SWEETWATER ROAD  
 INCLINE VILLAGE, NV 89451

**INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT  
BOARD OF TRUSTEES:**

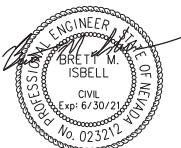
<b>KENDRA WONG</b>	<b>CHAIRWOMAN</b>
<b>PHILIP HORAN</b>	<b>VICE CHAIRMAN</b>
<b>MATTHEW DENT</b>	<b>TREASURER</b>
<b>TIM CALLICRATE</b>	<b>SECRETARY</b>
<b>PETER MORRIS</b>	<b>TRUSTEE</b>



Know what's below.  
Call before you dig.



<b>AREA OFFICE:</b> 50 WEST LIBERTY ST STE. 205 RENO, NEVADA 89501 (775) 329-7300	<b>DESIGN OFFICE:</b> 2525 AIRPARK DRIVE REDDING, CA 96001 (530) 243-5831
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NO.	DATE	DGSN	DR	CHK	APVD	BY

**INCLINE VILLAGE**  
 GENERAL IMPROVEMENT DISTRICT  
 ONE DISTRICT ~ ONE TEAM  
 SEWAGE PUMP STATION NO. 1  
 IMPROVEMENT PROJECT

**JACOBS**  
 GENERAL  
 COVER SHEET AND DRAWING INDEX

<b>VERIFY SCALE</b> BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	AUGUST 2019
PROJ	703648
DWG	G-1001
SHEET	1 OF 19

# ABBREVIATIONS

@	AT	d	PENNY (NAIL SIZE)	HP	HORSEPOWER	PSIG	POUNDS PER SQUARE INCH, GAUGE	VAC	VACUUM
AB	ANCHOR BOLT, AGGREGATE BASE	DB	DISTRIBUTION BOX	HR	HOSE RACK, HANDRAIL	PT	PRESSURE TREATED	VAR	VENT ACID RESISTANT
ABS	ACRYLONITRILE-BUTADIENE-STYRENE	DBL	DOUBLE	HT	HEIGHT	PTAC	PACKAGED TERMINAL AIR CONDITIONER	VCT	VINYL COMPOSITION TILE
AC	ASBESTOS CEMENT, ASPHALTIC CONCRETE	DD	DUCT DETECTOR	HV	HOSE VALVE	PV	PLUG VALVE	VC	VERTICAL CURVE
ACCU	AIR COOLED CONDENSING UNIT	DET	DETAIL	I&C	INSTRUMENTATION & CONTROL	PVC	POLYVINYL CHLORIDE PLASTIC	VERT	VERTICAL
ACI	AMERICAN CONCRETE INSTITUTE	DI	DROP INLET, DUCTILE IRON	IBC	INTERNATIONAL BUILDING CODE	PVMT	PAVEMENT	VIN	VINYL
ACT	ACOUSTIC TILE	DIA	DIAMETER	ID	INSIDE DIAMETER	PW	POTABLE WATER	VPS	VENEER PLASTER SYSTEM
ACU	AIR CONDITIONING UNIT	DIAG	DIAGONAL	IF	INSIDE FACE	R, RAD	RADIUS	VTR	VENT THRU ROOF
ADD	ADDITIONAL	DIL	DILUTE	IN	INCH	RC	REINFORCED CONCRETE	W1	WATER (POTABLE)
ADH AB	ADHESIVE ANCHOR BOLT	DIMJ	DUCTILE IRON MECHANICAL JOINT	INFL	INFLUENT	RCP	REINFORCED CONCRETE PIPE	W2	NON POTABLE WATER
ADJ	ADJACENT, ADJUSTABLE	DIP	DUCTILE IRON PIPE	INSTM	INSTRUMENTATION	RD	ROAD, ROOF DRAIN	W3	NON CHLORINATED WATER
AFF	ABOVE FINISH FLOOR	DIR	DIRECTION	INSUL	INSULATE	RDCR	REDUCER	W/	WITH
AFG	ABOVE FINISH GRADE	DJ	DISMANTLING JOINT	INV	INVERT	RDW	REDWOOD	W	WIDE FLANGE (BEAM), WEST
AGG	AGGREGATE	DN	DOWN	IVGID	INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT	RECIRC	RECIRCULATION	WD	WOOD
AHP	AIR: HIGH PRESSURE	DWG	DRAWING			REF	REFER OR REFERENCE	WH	WATER HEATER
AHR	ANCHOR	E	EAST			REFR	REFRIGERATOR	WM	WATER METER
AHU	AIR HANDLING UNIT	EA	EACH	JP	JEFFREY PINE	RFA	RESTRAINED FLANGE ADAPTER	WR	WATER RESISTANT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	EA	EACH	JT	JOINT	RG	RETURN GRILLE	WS	WOOD
AL	ALUM, ALUMINUM	EW	EACH WAY, EACH FACE	KIP	THOUSAND POUNDS	REINF	REINFORCED, REINFORCING, REINFORCE	WSP	WELDED STEEL PIPE
ALP	AIR LOW PRESSURE	EC	END CURVE	KW	KILOWATT	REQD	REQUIRED	WT	WEIGHT
ALTN	ALTERNATE	ECC	ECCENTRIC	L	LEFT, ANGLE, LENGTH	RH	ROD HOLE	WW	WASHWATER
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	EF	EACH FACE	LATL	LATERAL	RJ	RESTRAINED JOINT	WWF	WELDED WIRE FABRIC
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	EFL	EFFLUENT	LNG	LIQUID NATURAL GAS	RL	RAIN LEADER		
APPROX	APPROXIMATE, APPROXIMATELY	EL	ELEVATION	LB	POUNDS	RLS	RUBBER LINED STEEL	XFMR	TRANSFORMER
APVD	APPROVED	ELB	ELBOW	LB/ CU FT	POUNDS PER CUBIC FOOT	RM	ROOM	YD	YARD
ARCH	ARCHITECTURAL	ELC	ELECTRICAL LOAD CENTER	LF	LINEAR FEET	RPBA	REDUCED PRESSURE BACKFLOW ASSEMBLY		
ARV	AIR RELEASE VALVE	ELEC	ELECTRIC, ELECTRICAL	LH	LEFT HAND	RO	ROUGH OPENING		
AS	AIR SCOUR	ENGR	ENGINEER	LNTL	LINTEL	RR	RETURN REGISTER		
AUTO	AUTOMATIC	EOP	EDGE OF PAVEMENT	LONG	LONGITUDINAL	RST	REINFORCING STEEL		
AUX	AUXILIARY	EQL SP	EQUALLY SPACED	LPG	LIQUIFIED PETROLEUM GAS	RTN	RETURN		
AWG	AMERICAN WIRE GAGE	EQPT	EQUIPMENT	LR	LONG RADIUS	RV	ROOF VENT		
AWT	ADVANCED WASTE TREATMENT	ER	EXHAUST REGISTER	ML	MATERIAL	RW	RAW WATER		
		EUH	ELECTRICAL UNIT HEATER	MAX	MAXIMUM	R/W	RIGHT-OF-WAY		
		EVC	END OF VERTICAL CURVE	MB	MACHINE BOLT	S	I-BEAM, SOUTH		
		EXC	EXCAVATE	MB	MAXIMUM	SA	SAMPLE		
		EXF	EXHAUST FAN	MEX	EXCAVATE	SAT	SUSPENDED ACOUSTIC TILE		
		EXH	EXHAUST	MFB	MODIFIED BITUMEN ROOFING	SBS	SEDIMENTATION BASIN SOLIDS		
		EXP	EXPOSED, EXPANSION	MCC	MOTOR CONTROL CENTER	SC	SOLID CORE		
		EXP JT	EXPANSION JOINT	MDF	MEDIUM DENSITY FIBERBOARD	SCHED	SCHEDULE		
		EXST	EXISTING	MDO	MEDIUM DENSITY OVERLAY	SCFH	STANDARD CUBIC FEET PER HOUR		
		FAB	FABRICATION	MECH	MECHANICAL	SCFM	STANDARD CUBIC FEET PER MINUTE		
		FACT	FACTORY	MFR	MANUFACTURER	SCH	SCHEDULE		
		FB	FLAT BAR	MGD	MILLION GALLONS PER DAY	SD	STORM DRAIN, SOAP DISPENSER		
		FC	FLEXIBLE COUPLING	MG/L	MILLIGRAMS PER LITER	SEC	SECONDARY		
		FCA	FLANGED COUPLING ADAPTER	MH	MANHOLE	SECT	SECTION		
		FCO	FLOOR CLEAN OUT	MIN	MINIMUM, MINUTE	SED	SEDIMENTATION		
		FCV	FLOW CONTROL VALVE	MISC	MISCELLANEOUS	SEW	SEWAGE		
		FD	FLOOR DRAIN	MJ	MECHANICAL JOINT	SG	SUPPLY GRILLE		
		FDA	FLOOR DRAIN W/INTEGRAL TRAP	MSNRY	MASONRY	SH	SHEET		
		FDN	FOUNDATION	MO	MASONRY OPENING	SHC	SODIUM HYPOCHLORITE		
		FE	FILTERED EFFLUENT	MRL	MOTORIZED RELIEF LOUVER	SIM	SIMILAR		
		FES	FLARED END SECTION	MSC	MANUFACTURER SUPPLIED CABLE	SJI	STEEL JOIST INSTITUTE		
		FEXT	FIRE EXTINGUISHER	MWS	MAXIMUM WATER SURFACE	SLP	SLOPE		
		FF	FINISH FLOOR	N	NORTH	SOLN	SOLUTION		
		FG	FINISH GRADE	NDOT	NEVADA DEPARTMENT OF TRANSPORTATION	SP	SPACE OR SPACES		
		FH	FINISH HEAD	NIC	NOT IN CONTRACT	SPD	SUMP PUMP DRAIN		
		FHY	FIRE HYDRANT	NO	NUMBER, NUMBERING	SPEC	SPECIFICATIONS		
		FI	FILTER INFLUENT	NPT	NATIONAL PIPE THREAD	SPLY	SUPPLY		
		FIG	FIGURE	NPS	NOT TO SCALE	SQ	SQUARE		
		FIL	FILTRATE	OC	ON CENTER, OZONE CONTACTOR	SQ FT	SQUARE FOOT		
		FL	FLOOR	OD	OUTSIDE DIAMETER, OVERFLOW DRAIN	SQ IN	SQUARE INCH		
		FLG	FLANGE	OF	OUTSIDE FACE, OVERFLOW	SR	SUPPLY REGISTER		
		FLH	FLAT HEAD	OFR	OVERFLOW RETURN	SS	SANITARY SEWER		
		FLL	FLOW LINE	OG	ORIGINAL GROUND	SST	STAINLESS STEEL		
		FLTR	FILTER	OH	OVERHEAD	STA	STATION		
		FNSH	FINISH	OSD	OPEN SITE DRAIN	STD	STANDARD		
		FOC	FACE OF CONCRETE	O	OUT TO OUT	STIF	STIFFENER		
		FRP	FIBERGLASS REINFORCED PIPE	OPNG	OPENING	STL	STEEL, STEEL PIPE		
		FT	FOOT OR FEET	OZ	OUNCE	STR	STRAIGHT		
		FTG	FOOTING	P	PILASTER	STRL	STRUCTURAL		
		FTW	FILTER TO WASTE	PACL	POLYALUMINUM CHLORIDE	STRUCT	STRUCTURE		
		FW	FINISHED WATER	PC	POINT OF CURVE	SUBFL	SUBFLOOR		
		FWD	FORWARD	PCC	POINT OF COMPOUND CURVE	SUF	SUPPLY FAN		
		F °	DEGREE FAHRENHEIT	PCCP	PRETENSIONED CONCRETE CYLINDER PIPE	SUSP	SUSPEND		
		GA	GAGE	PD	PRESS DRAIN	SW	SURFACE WATER		
		GAL	GALLON	PDR	PUMPED DRAIN	SYMM	SYMMETRICAL		
		GALV	GALVANIZED	PE	PLAIN END	t	THICKNESS		
		GC	GROOVED COUPLING	PENT	PENETRATION	T	THERMOSTAT		
		GCO	GRADE CLEAN OUT	PI	POINT OF INTERSECTION	TAN	TANGENT		
		GCF	GROOVED COUPLING FITTING	P&ID	PROCESS & INSTRUMENTATION DIAGRAM	TBG	TUBING		
		GE	GROOVED END	PJF	PREMOLDED JOINT FILLER	TBR	TO BE REMOVED		
		GL	GLASS	PL	PLATE (STEEL), PROPERTY LINE	T&B	TOP AND BOTTOM		
		GLB	GLU-LAM BEAM	PLYWD	PLYWOOD	TC	TOP OF CURB		
		GPD	GALLONS PER DAY	PO	POLYMER SOLUTION	TDH	TOTAL DYNAMIC HEAD		
		GPH	GALLONS PER HOUR	POA	ANIONIC POLYMER	TECH	TECHNICAL		
		GPM	GALLONS PER MINUTE	POC	CATIONIC POLYMER	TEL	TELEPHONE		
		GRTG	GRATING	PON	NONIONIC POLYMER	TEMP	TEMPERATURE		
		GSP	GALVANIZED STEEL PIPE	PPS	POTASSIUM PERMANGANATE SOLUTION	TF	TOP FACE		
		GUH	GAS UNIT HEATER	PPM	PARTS PER MILLION	T&G	TONGUE AND GROOVE		
		GV	GATE VALVE	PRC	POINT OF REVERSE CURVE	THD	THREAD		
		GVL	GRAVEL	PRCST	PRECAST	THK	THICK		
		GW	GROUND WATER	PREFAB	PREFABRICATED	TP	TURNING POINT		
		GWB	GYPHUM WALLBOARD	PRESS	PRESSURE	TRANSV	TRANSVERSE		
		GYP	GYPHUM	PRI	PRIMARY	TST	TOP OF STEEL		
		HAS	HEADED ANCHOR STUD	PROP	PROPRIETARY RESTRAINED JOINT	TT	THRUST TIE		
		HD	HUB DRAIN	PSF	POUNDS PER SQUARE FOOT	TW	TOP OF WALL		
		HDR	HEADER	PSI	POUNDS PER SQUARE INCH	TYP	TYPICAL		
		HDW	HARDWARE			UD	UNDERDRAIN		
		HGL	HYDRAULIC GRADELINE			UH	UNIT HEATER		
		HGT	HEIGHT			UW	UTILITY WATER		
		HM	HOLLOW METAL			V	VENT, VOLT, VALVE		
		HORIZ	HORIZONTAL						

### DRAWING IDENTIFICATION SYSTEM

TECHNOLOGY DESIGNATION (SEE BELOW)

LETTER	TECHNOLOGY
A	ARCHITECTURAL
C	CIVIL
D	DEMOLITION
E	ELECTRICAL
G	GENERAL
H	HVAC
N	INSTRUMENTATION AND CONTROL (I&C)
SM	STRUCTURAL/MECHANICAL

SEQUENTIAL NUMBER

NUMBER	TYPE
0	GENERAL
1	PLAN
2	ELEVATION
3	SECTION
4	DETAIL
5	SCHEDULE OR DIAGRAM
6	RENDERING

### DETAIL AND SECTION DESIGNATION

DETAIL (NUMERAL) DESIGNATION: 1 M-1

ON DRAWING WHERE DETAIL IS TAKEN:

DRAWING NUMBER WHERE SHOWN (REPLACED WITH A LINE IF TAKEN AND SHOWN ON SAME SHEET)

ON DRAWING WHERE DETAIL IS SHOWN:

SECTION (LETTER) DESIGNATION: A S-1

ON DRAWING WHERE SECTION IS TAKEN:

DRAWING NUMBER WHERE SHOWN (REPLACED WITH A LINE IF TAKEN AND SHOWN ON SAME SHEET)

ON DRAWING WHERE SECTION IS SHOWN:

### DEMOLITION PHOTOGRAPHS

PHOTO NUMBER, SEE SPECIFICATION 02.41.00

DIRECTION IN WHICH PHOTO WAS TAKEN

### STANDARD DETAIL DESIGNATION

STANDARD DETAIL DESIGNATION: (1234-567)

SHOWN ON STANDARD DETAIL DRAWINGS (BOUND SEPARATELY)

NOTE: ALL STANDARD DETAILS ARE TYPICAL AND MUST BE USED EVEN IF STANDARD DETAIL DESIGNATION IS NOT SHOWN

### NOTES:

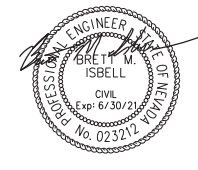
- FOR OTHER ABBREVIATIONS, SEE LEGENDS.
- CONTACT THE ENGINEER FOR ABBREVIATIONS NOT LISTED.
- THIS IS A STANDARD LEGEND SHEET, THEREFORE, SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND MAY NOT BE USED ON THIS PROJECT.

**JACOBS**

GENERAL ABBREVIATIONS

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.  
DATE AUGUST 2019  
PROJ 703648  
DWG G-1002  
SHEET 2 OF 19

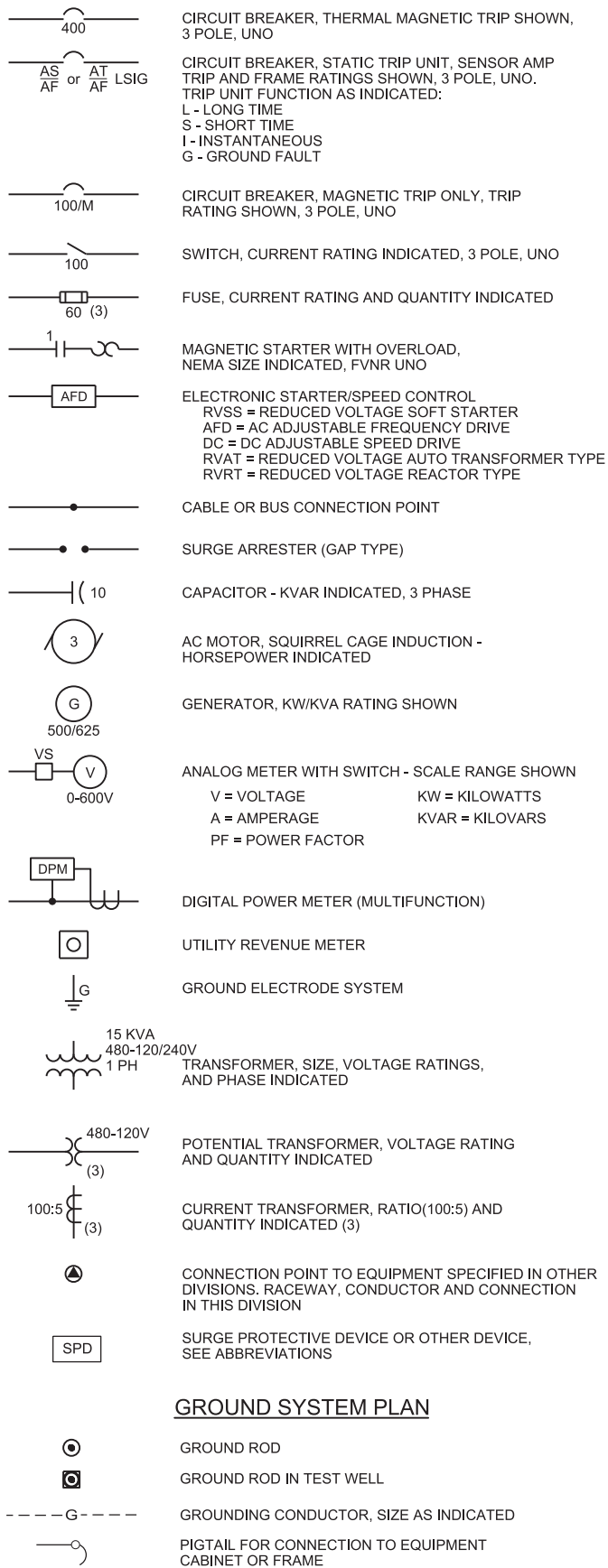
FILENAME: 001-G-002.dgn PLOT DATE: 2019/08/22



REVISION	APVD	BY	APVD
1		SPARKER	
2		BISHOP	
3		HILL	
4		DR	
5		CHK	
6		NO. DATE	DSGN

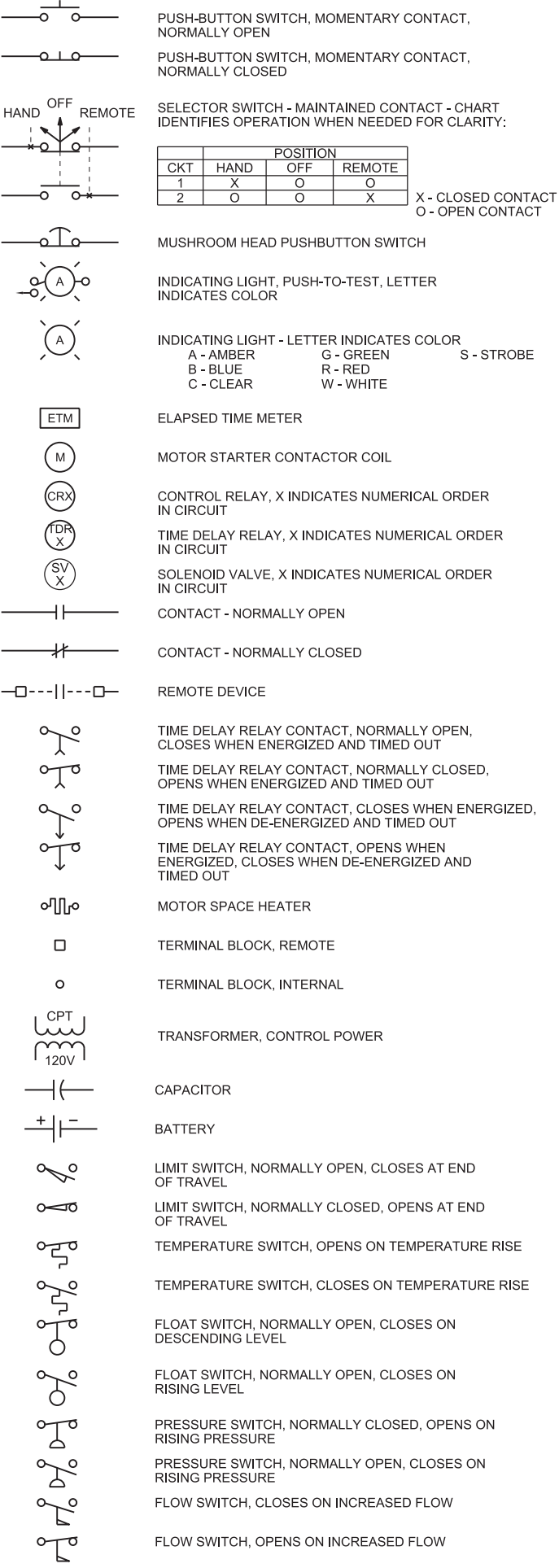
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### ONE LINE DIAGRAMS

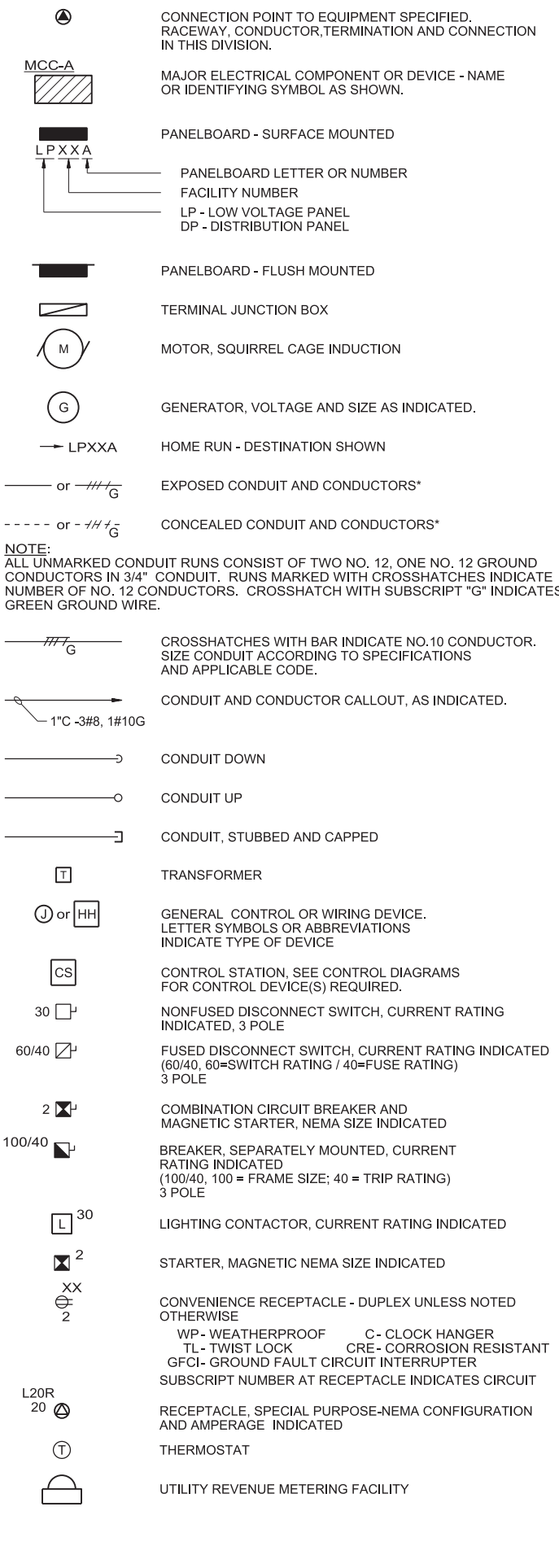


- NOTES:
1. THESE ARE STANDARD LEGEND SHEETS. SOME SYMBOLS AND ABBREVIATIONS MAY APPEAR ON THE LEGEND AND NOT ON THE DRAWINGS.
  2. FOR ADDITIONAL ABBREVIATIONS OF OTHER DIVISIONS (HVAC, MECHANICAL, AND STRUCTURAL/ARCHITECTURAL) SEE OTHER LEGENDS.

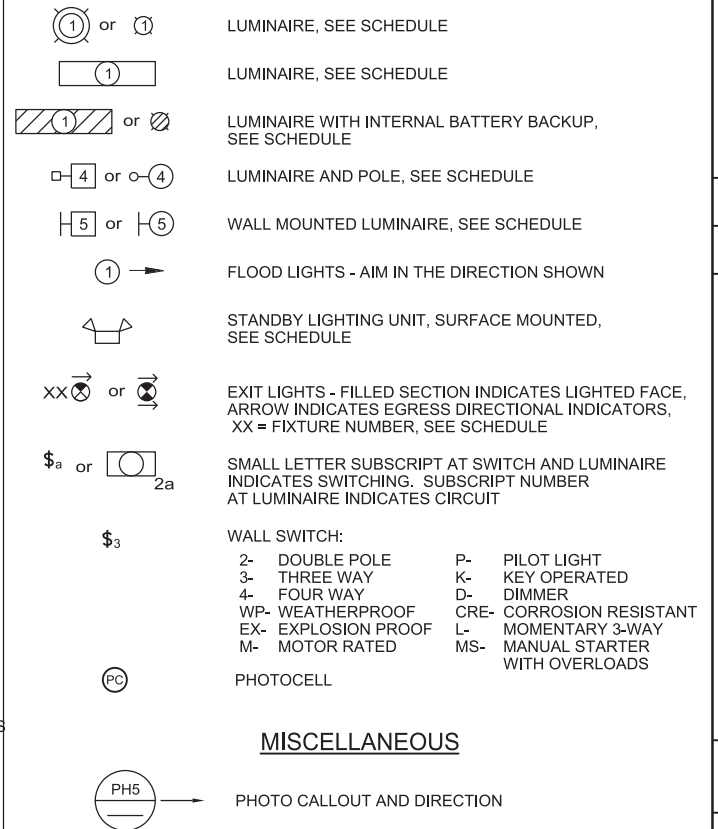
### CONTROL DIAGRAMS



### POWER SYSTEM PLAN

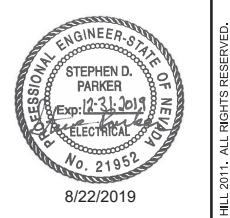


### LIGHTING SYSTEM PLAN



### ABBREVIATIONS

A	AMPERE, AUTOMATIC	K	KEY INTERLOCK
AC	ALTERNATING CURRENT	KA	KILOAMPERES
AFD	ADJUSTABLE FREQUENCY DRIVE	KV	KILOVOLT
AFF	ABOVE FINISHED FLOOR	KVA	KILOVOLT AMPERES
ATS	AUTOMATIC TRANSFER SWITCH	KW	KILOWATTS
BKR	BREAKER	M	MAGNETIC CONTACTOR COIL, MOTOR, MANUAL MOTOR CONTROL CENTER
C	CONDUIT, CONTACTOR, CONDUCTOR, CLOSE	MCC	MANHOLE, METAL HALIDE, MOUNTING HEIGHT
CPT	CONTROL POWER TRANSFORMER	MH	MANHOLE, METAL HALIDE, MOUNTING HEIGHT
CR	CONTROL RELAY	NC	NORMALLY CLOSED
CT	CURRENT TRANSFORMER, CABLE TRAY	N.O.	NORMALLY OPEN
DC	DIRECT CURRENT	NTS	NOT TO SCALE
DP	DISTRIBUTION PANEL	OL	OVERLOAD RELAY
DPM	DIGITAL POWER METER	PB	PULL BOX
E	EMPTY	RGS	RIGID GALVANIZED STEEL CONDUIT
F, FU	FUSE	SPD	SURGE PROTECTIVE DEVICE
FREQ	FREQUENCY	ST	SHUNT TRIP
G	GROUND	SS	START STOP
GEN	GENERATOR	SST	STAINLESS STEEL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SV	SOLENOID VALVE
GND	GROUND	SWBD	SWITCHBOARD
HH	HANDHOLE	TYP	TYPICAL
HOA	HAND-OFF-AUTO	UNO	UNLESS NOTED OTHERWISE
HP	HORSEPOWER	V	VOLTAGE, VOLTS
HS	HAND SWITCH	W	WATTS
HZ	HERTZ	WP	WEATHERPROOF
IC	INTERRUPTING CAPACITY	XFMR	TRANSFORMER
J, JB	JUNCTION BOX		



NO.	DATE	REVISION	CHK	APVD	BY	APVD

T. HILL      DR      K. BISHOP      S. PARKER      B. ISBELL



**JACOBS** ELECTRICAL

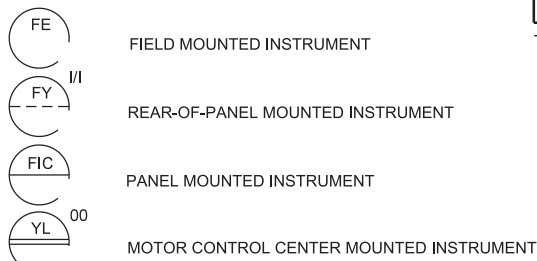
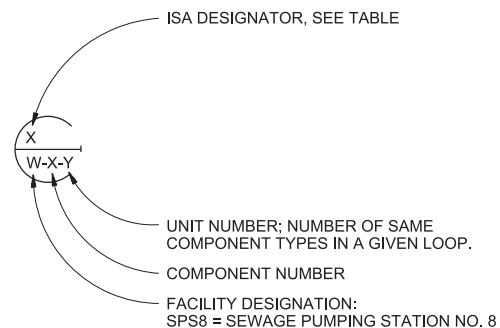
**ELECTRICAL LEGEND**

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 DATE: AUGUST 2019  
 PROJ: 703648  
 DWG: G-1003  
 SHEET: 3 OF 19

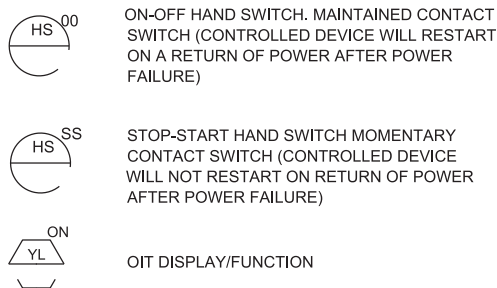


# INSTRUMENTATION IDENTIFICATION

## EXAMPLE SYMBOLS



## SPECIAL CASES



## SELF CONTAINED VALVE & EQUIPMENT TAG NUMBERS

- D: ARV = AIR RELEASE VALVE  
AS = AIR SEPARATOR  
ASV = ANTI-SYPHON VALVE  
AVRV = AIR AND VACUUM RELEASE VALVE  
BPCV = BACK PRESSURE REGULATING VALVE  
E = EDUCTOR  
ECU = EVAPORATIVE COOLER UNIT  
FAN = FAN, SUPPLY OR EXHAUST  
FCV = FLOW CONTROL VALVE  
G = GATE  
LCV = LEVEL CONTROL VALVE  
M = MECHANICAL EQUIPMENT  
MXR = MIXER  
P = PUMP  
PCV = PRESSURE CONTROL VALVE  
PVRV = PRESSURE/VACUUM RELIEF VALVE  
PSE = RUPTURE DISK  
PSV = PRESSURE RELIEF VALVE  
SV = SOLENOID VALVE  
T = TANK  
TCV = TEMPERATURE CONTROL VALVE  
W = FACILITY DESIGNATION  
X = COMPONENT NUMBER  
Y = UNIT NUMBER

## INSTRUMENT IDENTIFICATION LETTERS TABLE

LETTER	FIRST LETTER (S)		SUCCEEDING LETTERS		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (+)		ALARM		
B	BURNER FLAME		USERS CHOICE (+)	USERS CHOICE (+)	USERS CHOICE (+)
C	CONDUCTIVITY			CONTROL	
D	DENSITY (S.G.)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			
G	GAUGE		GLASS	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTION				MIDDLE
N	MOISTURE		USERS CHOICE (+)	USERS CHOICE (+)	USERS CHOICE (+)
O	USERS CHOICE (+)		ORIFICE		
P	PRESSURE (OR VACUUM)		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE	INTEGRATE		
R			RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (+)		MULTIFUNCTION	MULTIFUNCTION (+)	MULTIFUNCTION (+)
V	VISCOSITY			VALVE OR DAMPER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED (+)		UNCLASSIFIED (+)	UNCLASSIFIED (+)	UNCLASSIFIED (+)
Y	EVENT		RELAY OR COMPUTE (+)		
Z				DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

TABLE BASED ON THE INTERNATIONAL SOCIETY OF AUTOMATION (ISA) STANDARD.

(+) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS.

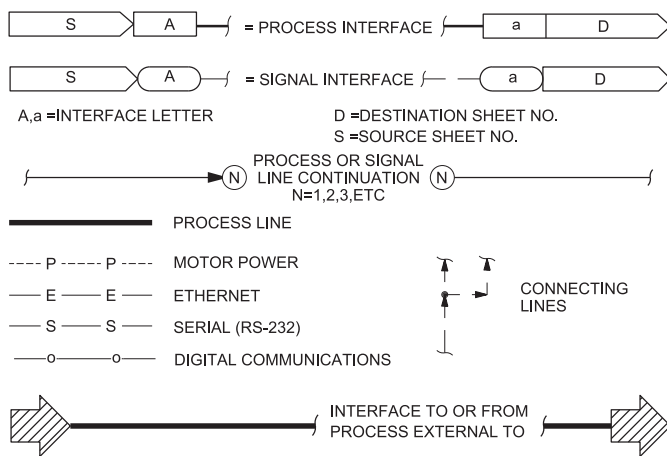
## PLC INTERFACES

- ▲ ANALOG INPUT (4-20mA DC)
- ▼ ANALOG OUTPUT (4-20mA DC)
- △ DISCRETE INPUT (24 VDC OR 120VAC)
- ▽ DISCRETE OUTPUT (DRY CONTACT, 120VAC)

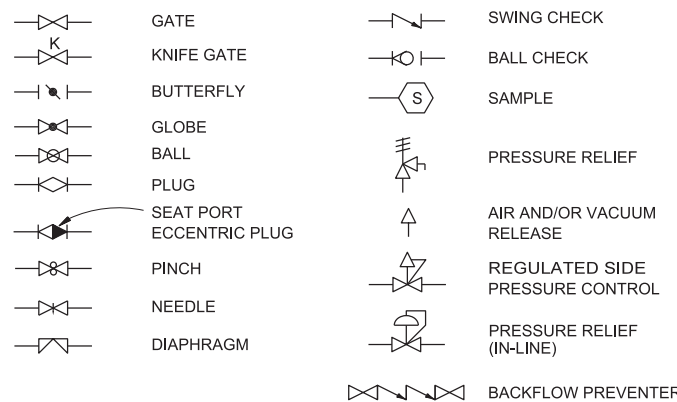
## FLOW STREAM IDENTIFICATION

- DR — DRAIN
- RS — RAW SEWAGE
- SRS — SCREENED RAW SEWAGE

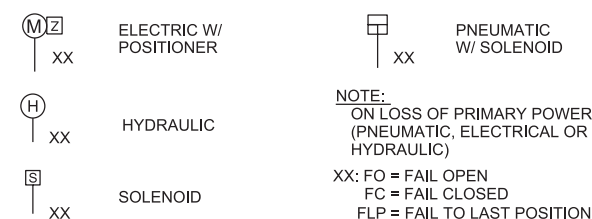
## INTERFACE SYMBOLS & LINE LEGEND



## VALVE SYMBOLS



## ACTUATOR SYMBOLS

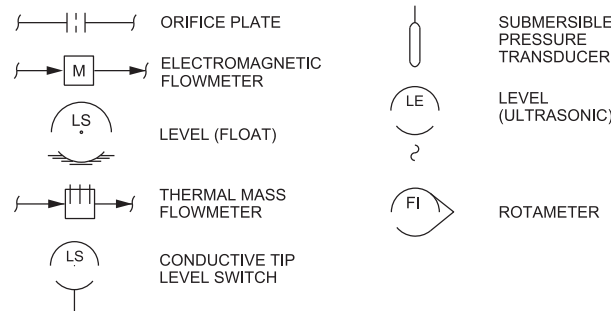


NOTE:  
ON LOSS OF PRIMARY POWER (PNEUMATIC, ELECTRICAL OR HYDRAULIC)  
XX: FO = FAIL OPEN  
FC = FAIL CLOSED  
FLP = FAIL TO LAST POSITION

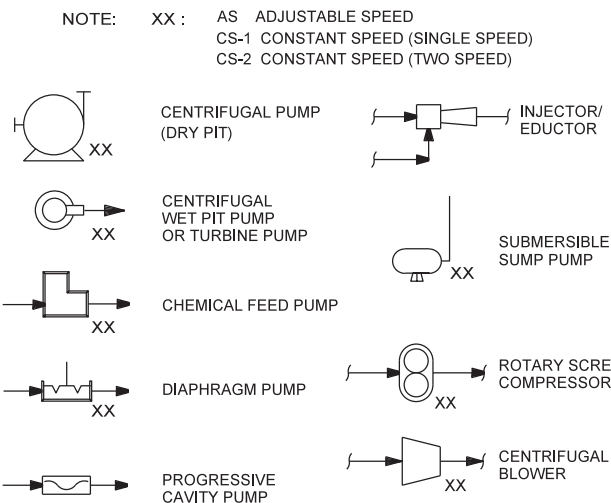
## GATE SYMBOLS



## PRIMARY ELEMENT SYMBOLS

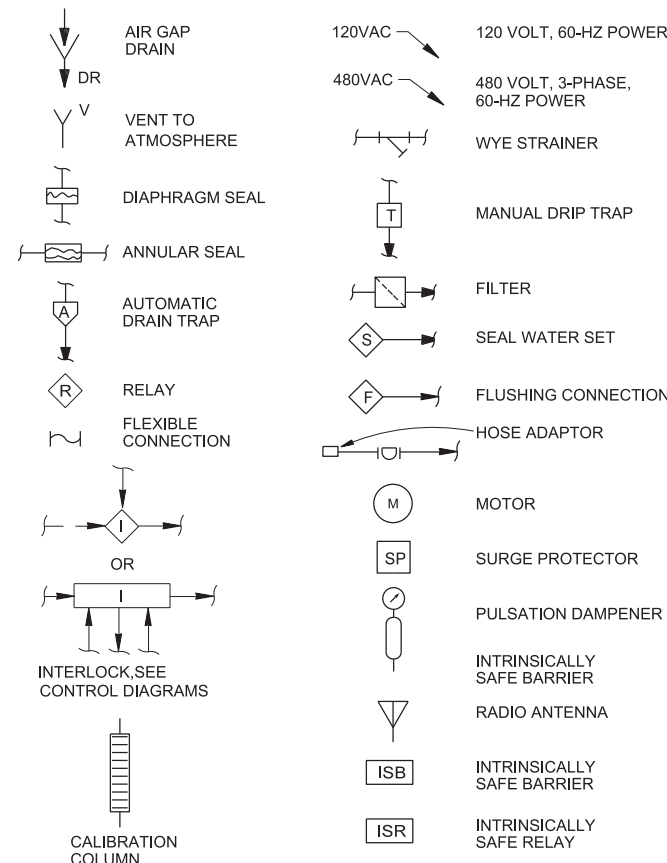


## PUMP SYMBOLS



NOTE: XX : AS ADJUSTABLE SPEED  
CS-1 CONSTANT SPEED (SINGLE SPEED)  
CS-2 CONSTANT SPEED (TWO SPEED)

## MISCELLANEOUS SYMBOLS

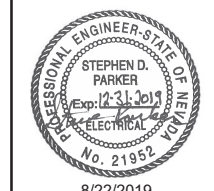


## ABBREVIATIONS

ACK	ACKNOWLEDGE	OO	ON-OFF
AFD	ADJUSTABLE FREQUENCY DRIVE	OOA	ON-OFF-AUTO
AUTO	AUTOMATIC	OOR	ON-OFF-REMOTE
ATS	AUTOMATIC TRANSFER SWITCH	OSC	OPEN-STOP-CLOSE
BTD	BEARING TEMPERATURE DETECTOR	PCP	PLANT CONTROL PANEL
CL <sub>2</sub>	CHLORINE	pH	HYDROGEN ION CONCENTRATION
CMD	COMMAND	PIPS	PRIMARY INFLUENT PUMP STATION
CP	CONTROL PANEL	PLC	PROGRAMMABLE LOGIC CONTROLLER
CS	CONSTANT SPEED, CONTROL STATION	POS	POSITION
EMERG	EMERGENCY	PS	PUMP STATION
FWD	FORWARD	QTY	QUANTITY
GCP	GENERATOR CONTROL PANEL	REV	REVERSE
GEN	GENERATOR	RIO	REMOTE I/O
HOA	HAND-OFF-AUTO	RSL	RAISE-STOP-LOWER
IPS2	INFLUENT PUMP STATION #2	RTU	REMOTE TELEMETRY UNIT
LCP	LOCAL CONTROL PANEL	RVSS	REDUCED VOLTAGE SOLID STATE
LOR	LOCAL-OFF-REMOTE	SEQ	SEQUENCE
LOS	LOCKOUT STOP	SP	SET POINT
LR	LOCAL-REMOTE	SS	SPEED
MA	MANUAL-AUTO	SS	START - STOP
MCC	MOTOR CONTROL CENTER	TJB	TERMINAL JUNCTION BOX
MFR	MANUFACTURER	UPS	UNINTERRUPTIBLE POWER SUPPLY
MPD	MOTOR PROTECTION DEVICE	UV	ULTRAVIOLET
MS	MOTOR STARTER	VFD	VARIABLE FREQUENCY DRIVE
MLD	MOTOR LEAKAGE DETECTOR		
MSC	MANUFACTURER SUPPLIED CABLE		
MTD	MOTOR TEMPERATURE DETECTOR		
OC	OPEN-CLOSE (D)		
OCR	OPEN-CLOSE-REMOTE		
OCA	OPEN-CLOSE-AUTO		
OIT	OPERATOR INTERFACE TERMINAL		
OL	OVERLOAD		

## GENERAL NOTES

- THIS A STANDARD LEGEND, THEREFORE NOT ALL OF THIS INFORMATION MAY BE USED ON THIS PROJECT.
- COMPONENTS AND PANELS SHOWN WITH A DOUBLE (\*\*\*) ARE PART OF A PACKAGE SYSTEM; SEE EQUIPMENT SPECIFICATIONS.

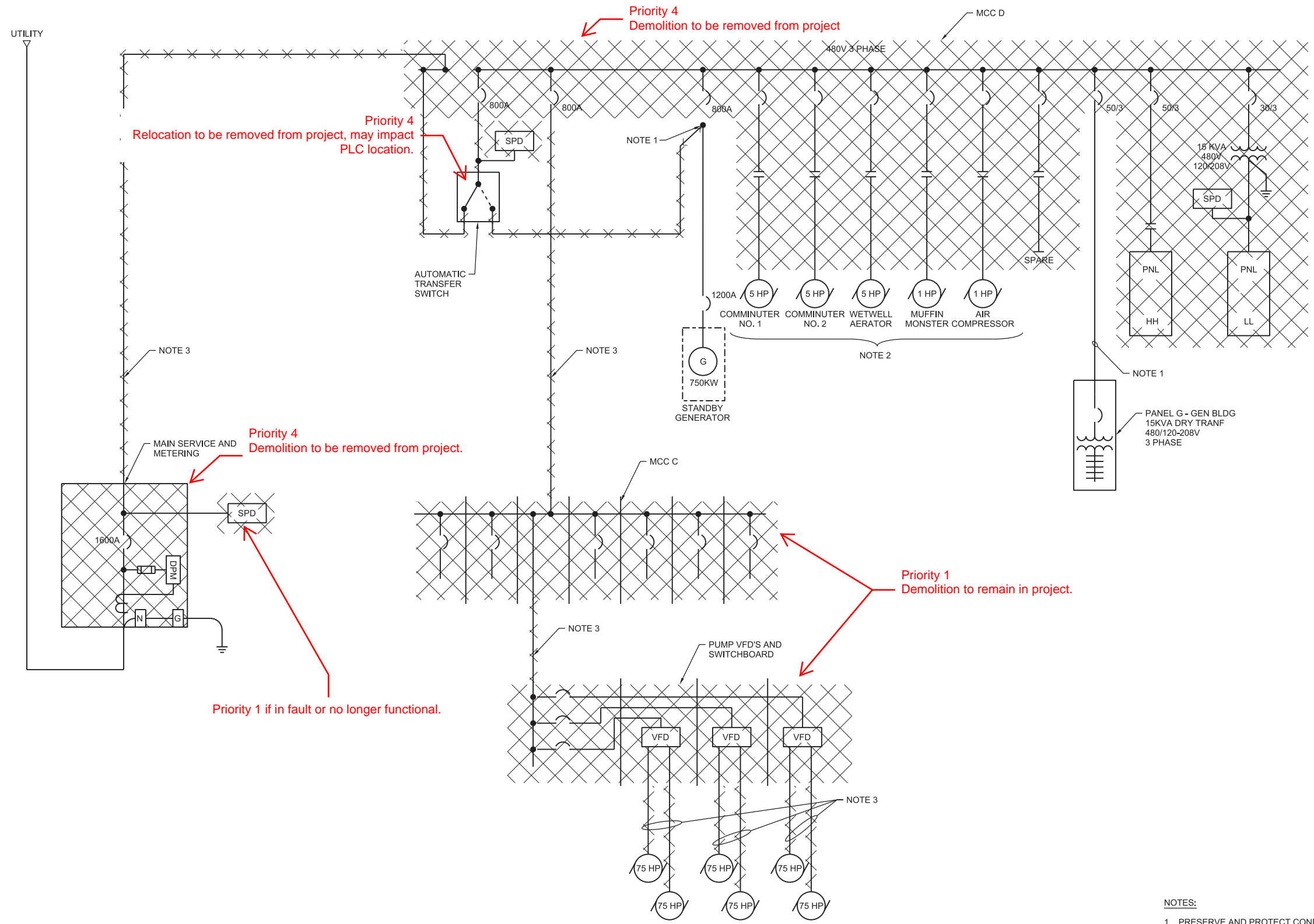


NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD



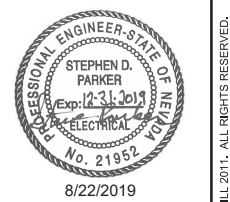
VERIFY SCALE	
DATE	AUGUST 2019
PROJ	703648
DWG	G-1004
SHEET	4 OF 19

A  
B  
C  
D



**ONE LINE DIAGRAM**  
NTS

- NOTES:**
1. PRESERVE AND PROTECT CONDUCTORS FOR RE-USE.
  2. HP OF LOADS ARE FROM RECORD DRAWINGS, CONTRACTOR TO INVESTIGATE ACTUAL HP OF LOADS AND REPORT TO ENGINEER FOR SIZING NEW MCC-D FEEDER BREAKERS AND STARTERS.
  3. DEMOLISH CONDUCTORS AND PRESERVE CONDUIT WHERE POSSIBLE.



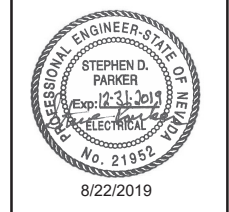
NO.	DATE	DR	CHK	REVISION	BY	APVD
		T. HILL	K. BISHOP		S. PARKER	B. ISBELL



**JACOBS**  
ELECTRICAL  
**ONE LINE DIAGRAM  
DEMOLITION**

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.  
0 1"

DATE: AUGUST 2019  
PROJ: 703648  
DWG: D-1001  
SHEET: 5 OF 19



8/22/2019

NO.	DATE	DR	CHK	REVISION	BY
		T HILL	K BISHOP		B ISBELL
			S PARKER	APVD	



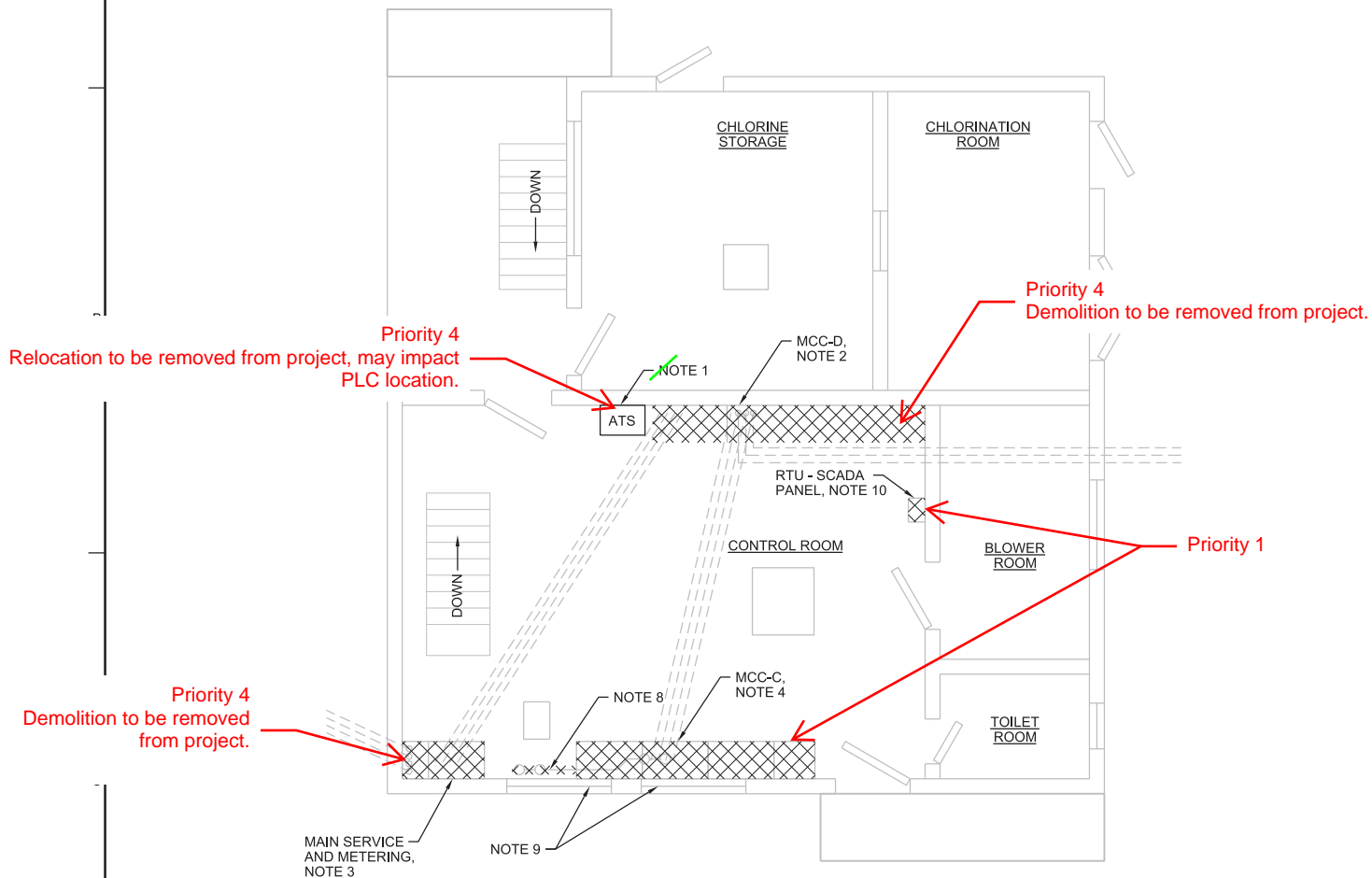
**JACOBS**  
ELECTRICAL

**PUMP BUILDING DEMOLITION PLAN**

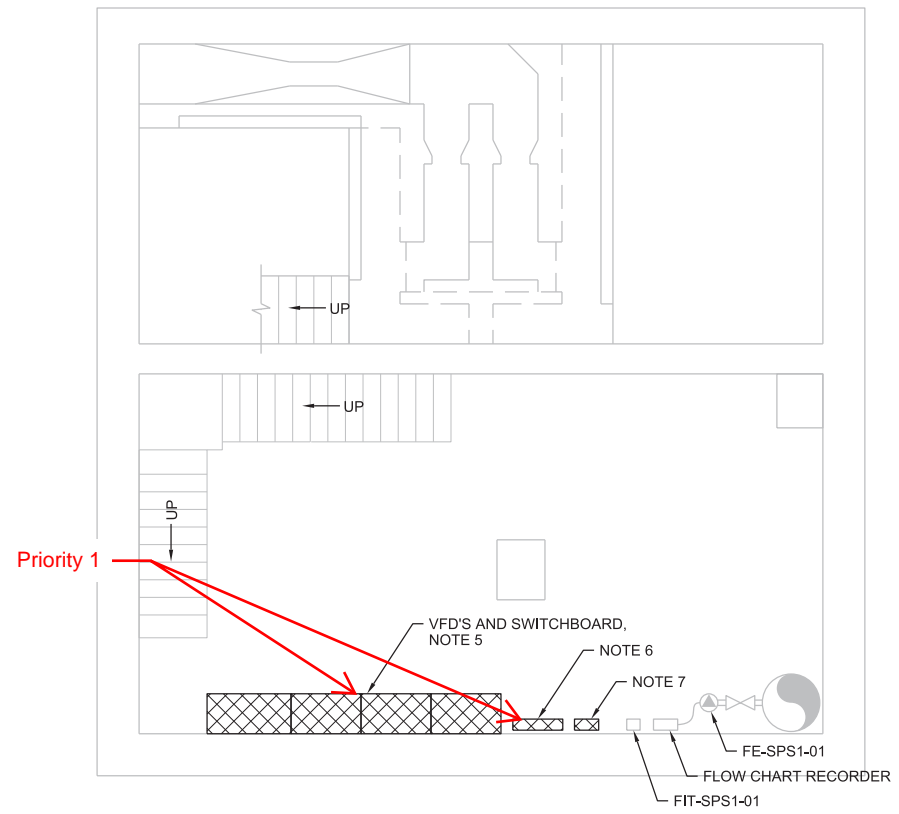
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	AUGUST 2019
PROJ	703648
DWG	D-1002
SHEET	6 OF 19

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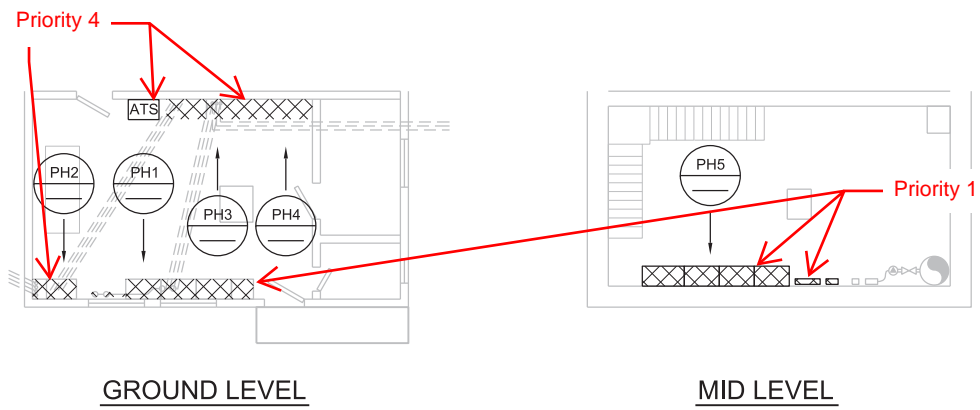
**GROUND LEVEL PLAN**  
1/4"=1'-0"



**LEVEL-1 PLAN**  
1/4"=1'-0"

**NOTES:**

- ~~1. REMOVE AND SALVAGE AUTOMATIC TRANSFER SWITCH FOR RE-USE.~~
- ~~2. DEMOLISH MCC-D. PRESERVE INCOMING GENERATOR CONDUCTORS AND CONDUIT FOR RE-TERMINATION TO NEW MCC SECTION.~~
- ~~3. DEMOLISH MAIN SERVICE AND METERING. PRESERVE SERVICE LATERALS FOR RE-TERMINATION TO NEW MAIN SERVICE.~~
4. DEMOLISH MCC-C.
5. DEMOLISH VFD'S AND SWITCHBOARD.
6. DEMOLISH PLC CABINET.
7. DEMOLISH UNUSED GAUGE PANEL.
8. DEMOLISH CONDUIT AND CONDUCTORS BETWEEN MCC-C AND SWITCHBOARD BELOW.
9. DEMOLISH WINDOW AND SURROUND WOODWORK AND MASONRY SILL. SEE DRAWING E-1002 FOR NOTES AND DETAILS.
10. SALVAGE RTU-SCADA PANEL TO OWNERS.



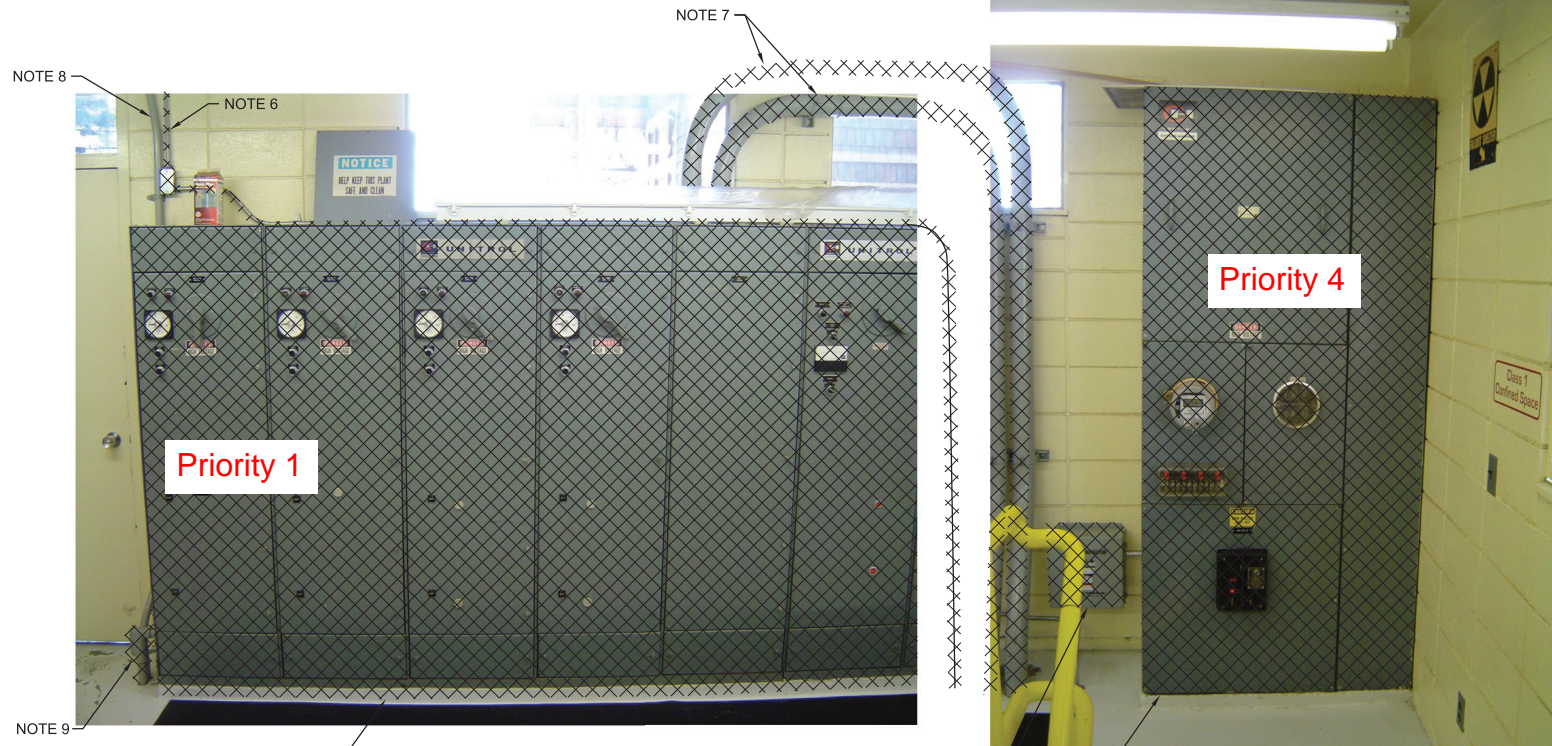
**PARTIAL PLAN**

NTS

**NOTES:**

1. REMOVE AND SALVAGE ATS FOR RE-USE.
2. DEMOLISH MCC-C.
3. PRESERVE AND PROTECT, FOR RE-USE EXISTING SERVICE LATERALS, DEMOLISH MAIN BREAKER AND METERING SECTION.
4. PRESERVE AND PROTECT, FOR RE-USE FEEDER AND BRANCH CIRCUIT CONDUCTORS FROM MCC D BUCKETS, PANEL LL AND PANEL HH. PRESERVE AND PROTECT ALL CONTROL AND SIGNAL CONDUCTORS TO FIELD DEVICES, FOR RE-USE BEFORE DEMOLISHING MCC D.
5. SALVAGE LCP TO OWNER.
6. DEMOLISH CONDUIT AND CONDUCTORS BACK TO LOAD SOURCE.
7. DEMOLISH CONDUIT AND CONDUCTORS. PROVIDE TEMPORARY POWER TO 480V SWITCHBOARD PER SEQUENCING DOCUMENTATION IN SPECIFICATIONS.
8. DETERMINE IF CONDUIT AND CONDUCTORS ARE REQUIRED, RE ROUTE CONDUIT AND CONDUCTORS AS REQUIRED.
9. DEMOLISH CONDUIT AND CONDUCTORS BACK TO LOAD/SOURCE.
10. SALVAGE SURGE PROTECTION DEVICES TO OWNER.
11. DEMOLISH 120V AND 208V EXTRACTOR FAN AND BLOWER MOTOR CONTROLS; DETERMINE WHICH EXTRACTOR FANS AND BLOWERS ARE STILL IN USE AND POWERED FROM PANEL LL. PRESERVE CONDUCTORS FOR RE-TERMINATION TO NEW PANEL LL.

Replace-in-kind if in fault or no longer functional.

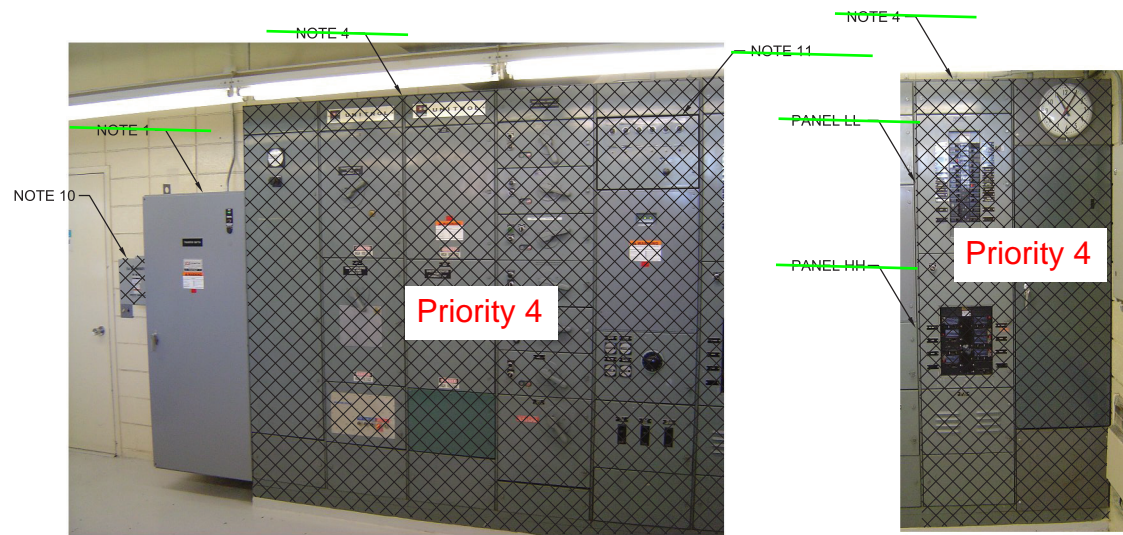


**MCC-C LOOKING SOUTH WEST**

**MAIN LOOKING SOUTH WEST**

**1 PHOTO**  
NTS

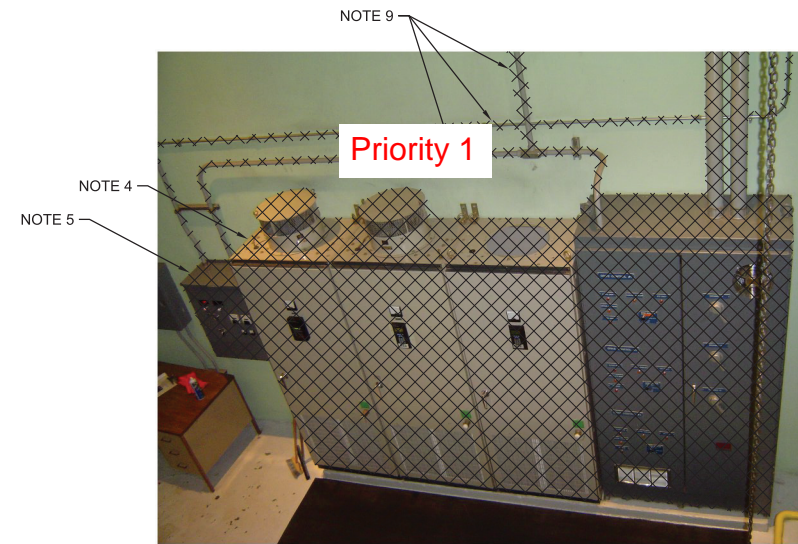
**2 PHOTO**  
NTS



**MCC-D LOOKING NORTH EAST**

**3 PHOTO**  
NTS

**4 PHOTO**  
NTS



**SWITCHBOARD AND VFD'S  
LOOKING SOUTH WEST**

**5 PHOTO**  
NTS

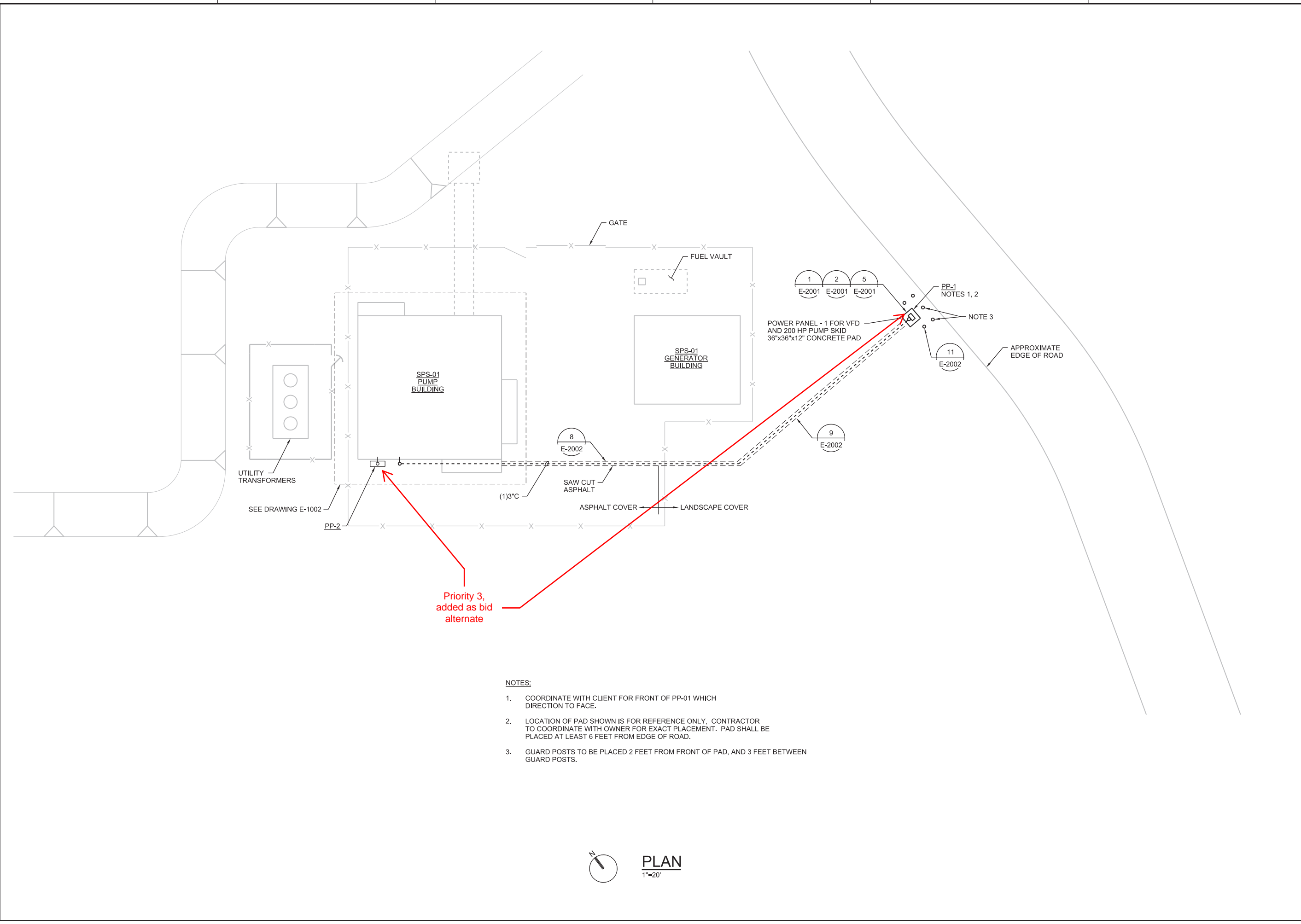


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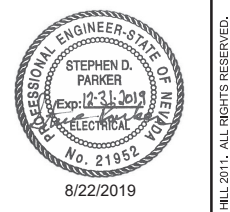
**JACOBS**  
ELECTRICAL  
**PUMP BUILDING  
DEMOLITION PLAN**

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	AUGUST 2019
PROJ	703648
DWG	D-1003
SHEET	7 OF 19



Priority 3,  
added as bid  
alternate

- NOTES:**
- COORDINATE WITH CLIENT FOR FRONT OF PP-01 WHICH DIRECTION TO FACE.
  - LOCATION OF PAD SHOWN IS FOR REFERENCE ONLY. CONTRACTOR TO COORDINATE WITH OWNER FOR EXACT PLACEMENT. PAD SHALL BE PLACED AT LEAST 6 FEET FROM EDGE OF ROAD.
  - GUARD POSTS TO BE PLACED 2 FEET FROM FRONT OF PAD, AND 3 FEET BETWEEN GUARD POSTS.



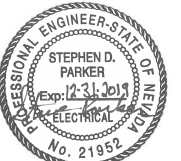
NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD
			T. HILL	K. BISHOP		S. PARKER	APVD
							BY APVD
							BY APVD



**JACOBS**  
ELECTRICAL  
SITE PLAN

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.  
0 1'

DATE	AUGUST 2019
PROJ	703648
DWG	E-1001
SHEET	8 OF 19



8/22/2019

NO.	DATE	DR	CHK	REVISION	BY
		T. HILL	K. BISHOP		B. ISBELL

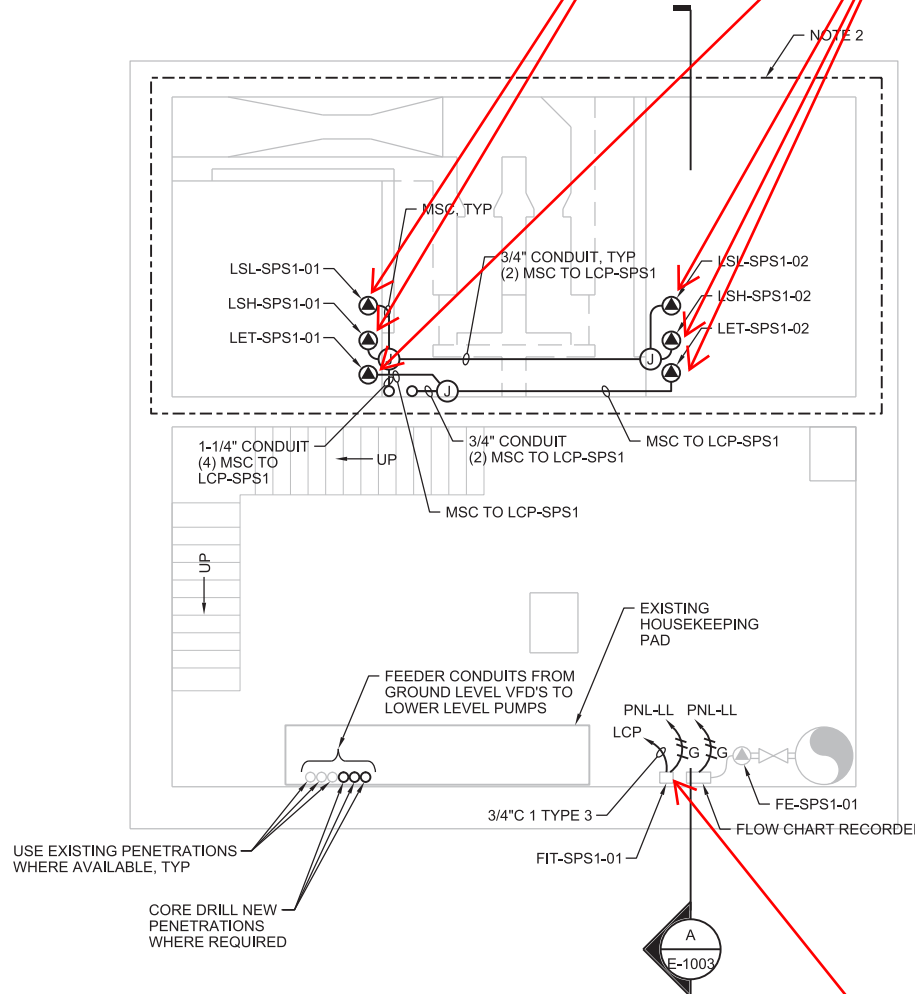
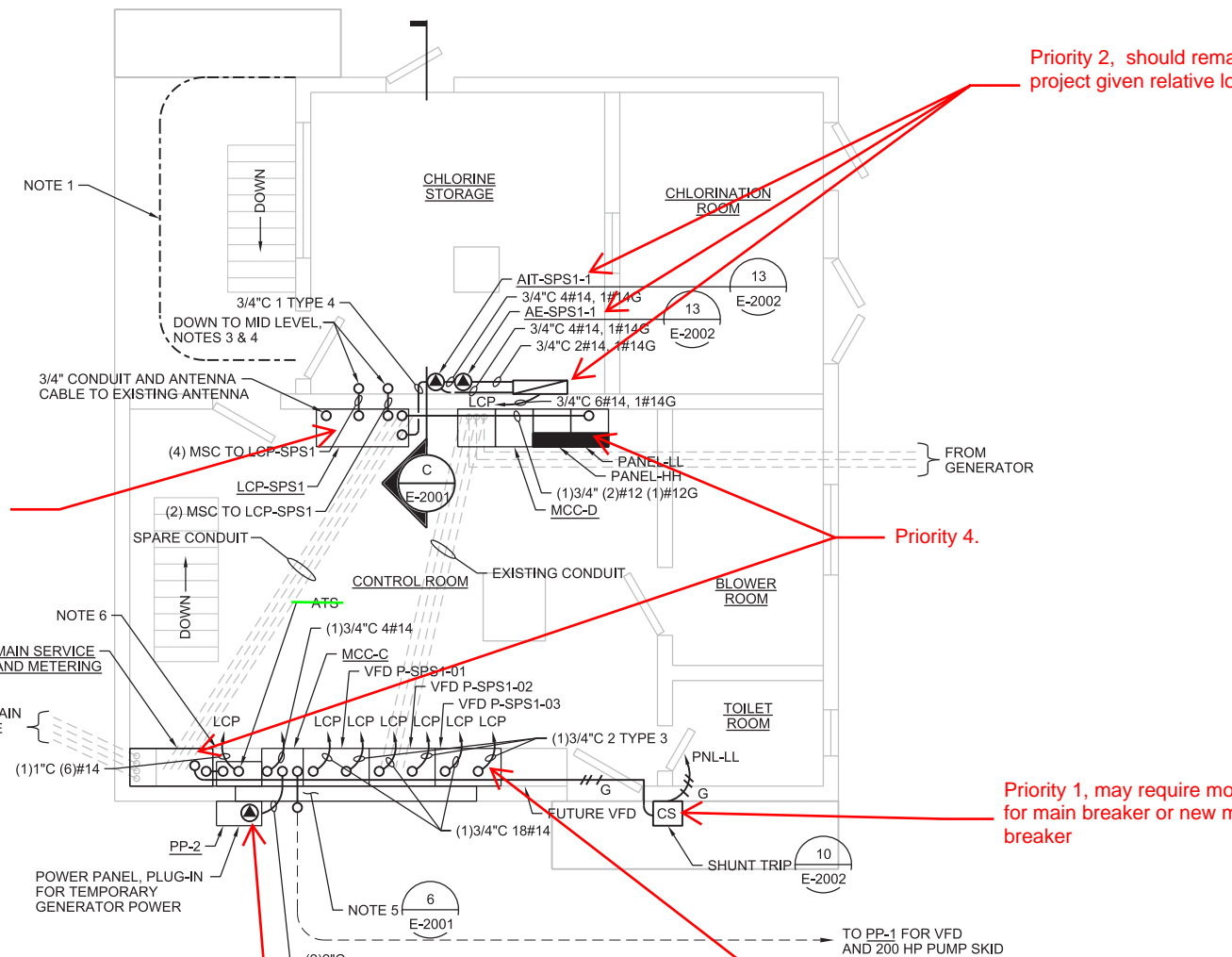


**JACOBS**  
ELECTRICAL/ARCHITECTURAL  
**PUMP BUILDING PLAN**

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	AUGUST 2019
PROJ	703648
DWG	E-1002
SHEET	9 OF 19

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Priority 1, verify can fit if ATS remains.

Priority 2, should remain in project given relative low cost.

Priority 2, should remain in project given relative low cost.

Priority 4.

Priority 1, may require module for main breaker or new main breaker

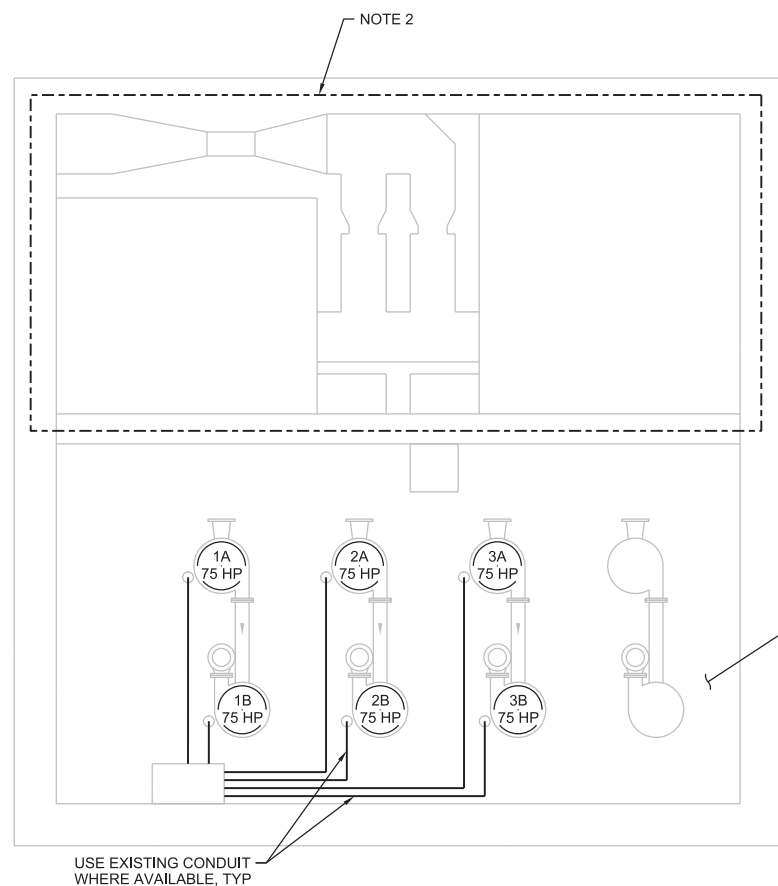
Priority 1, verify can fit if existing Service SWBD remains.

Priority 3, include as bid alternate.

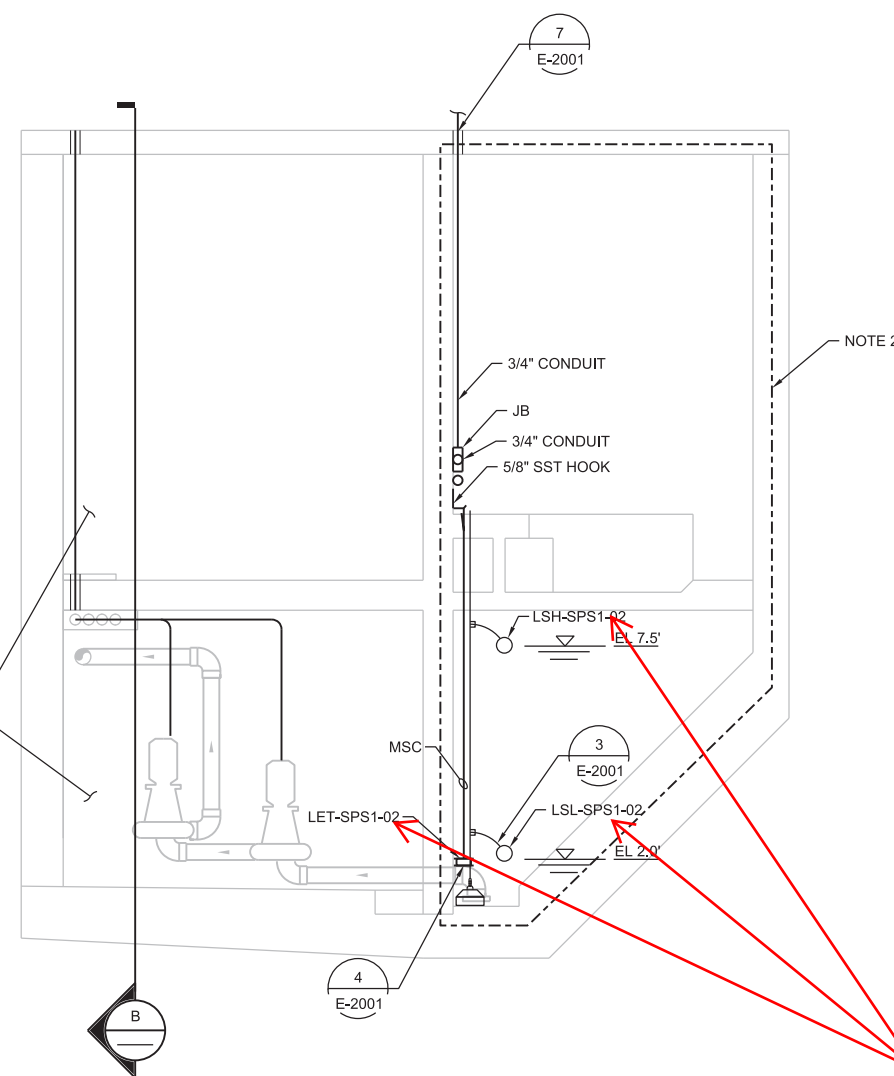
Need further clarification if necessary to add replacement of FIT to project.

**NOTES:**

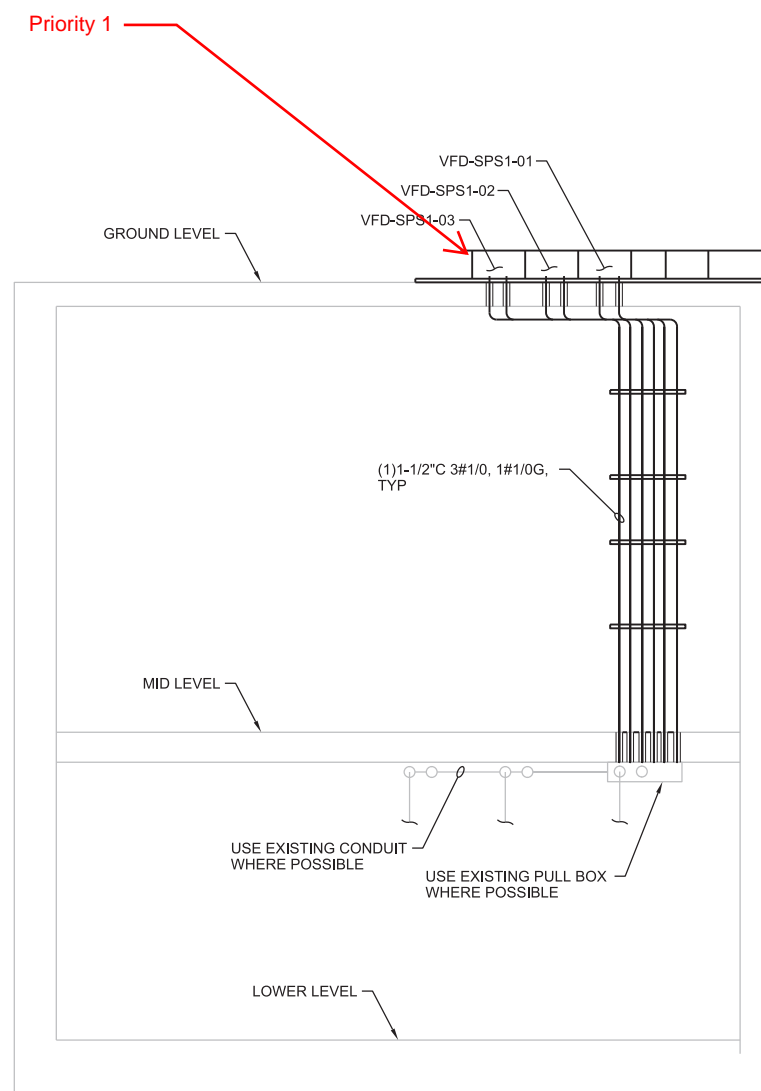
- 1. THE AREA WITHIN 3 FEET OF ANY OPENINGS TO THE WET WELL IS A CLASS I, DIVISION 2 CLASSIFIED HAZARDOUS AREA.
- 2. THIS AREA IS A CLASS I, DIVISION 1 CLASSIFIED HAZARDOUS AREA.
- 3. CORE DRILL PENETRATIONS IN WALLS AND FLOOR SLAB AS REQUIRED.
- 4. PROVIDE GAS TIGHT SEAL PER DETAIL 7 ON SHEET E-2001.
- 5. INFILL EXISTING WINDOW OPENINGS WITH MATCHING CMU, CUT BLOCKS AS REQUIRED. CMU BLOCK AND MORTAR JOINTS TO MATCH EXISTING STACK BOND & SOLID GROUT. MATCH INTERIOR AND EXTERIOR FINISH AND PAINT COLOR.
- 6. EXTEND HOUSEKEEPING PAD AS NEEDED.
- 7. PROVIDE SWITCH BOARD MATTING, INSTALL IN FRONT OF MCC-C AND MCC-D, PER SPECIFICATION.



**LOWER LEVEL PLAN**  
1/4"=1'-0"



**A SECTION**  
1/4"=1'-0"

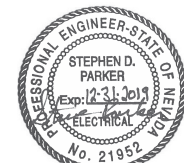


**B SECTION**  
1/4"=1'-0"

Priority 2, should remain in project given relative low cost.

**NOTES:**

- 1. THIS AREA IS A CLASS 1, DIVISION 2 CLASSIFIED HAZARDOUS AREA.
- 2. THIS AREA IS CLASS 1, DIVISION 1 CLASSIFIED HAZARDOUS AREA.



8/22/2019

NO.	DATE	REVISION	CHK	DR	BY

**JACOBS**

ELECTRICAL

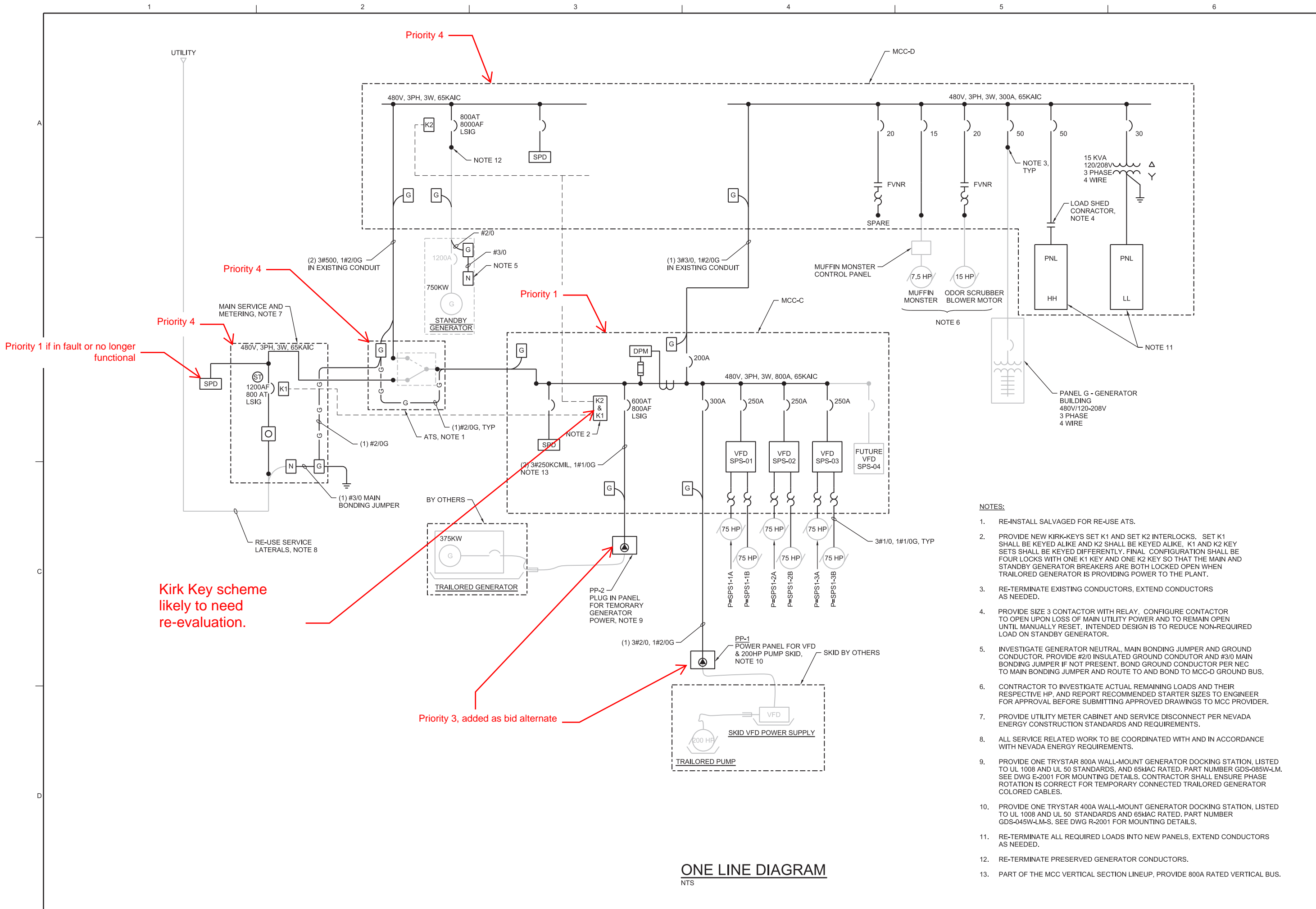
**PUMP BUILDING PLAN AND SECTIONS**

INCLINE VILLAGE  
GENERAL IMPROVEMENT DISTRICT ONE  
DISTRICT ONE TEAM  
SEWAGE PUMP STATION NO. 1  
IMPROVEMENT PROJECT

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	AUGUST 2019
PROJ	703648
DWG	E-1003
SHEET	10 OF 19

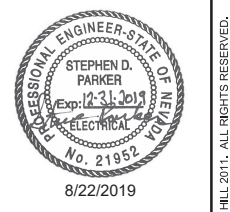
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**ONE LINE DIAGRAM**  
NTS

**NOTES:**

- RE-INSTALL SALVAGED FOR RE-USE ATS.
- PROVIDE NEW KIRK-KEYS SET K1 AND SET K2 INTERLOCKS. SET K1 SHALL BE KEYED ALIKE AND K2 SHALL BE KEYED ALIKE. K1 AND K2 KEY SETS SHALL BE KEYED DIFFERENTLY. FINAL CONFIGURATION SHALL BE FOUR LOCKS WITH ONE K1 KEY AND ONE K2 KEY SO THAT THE MAIN AND STANDBY GENERATOR BREAKERS ARE BOTH LOCKED OPEN WHEN TRAILORED GENERATOR IS PROVIDING POWER TO THE PLANT.
- RE-TERMINATE EXISTING CONDUCTORS, EXTEND CONDUCTORS AS NEEDED.
- PROVIDE SIZE 3 CONTACTOR WITH RELAY. CONFIGURE CONTACTOR TO OPEN UPON LOSS OF MAIN UTILITY POWER AND TO REMAIN OPEN UNTIL MANUALLY RESET. INTENDED DESIGN IS TO REDUCE NON-REQUIRED LOAD ON STANDBY GENERATOR.
- INVESTIGATE GENERATOR NEUTRAL, MAIN BONDING JUMPER AND GROUND CONDUCTOR. PROVIDE #2/0 INSULATED GROUND CONDUCTOR AND #3/0 MAIN BONDING JUMPER IF NOT PRESENT. BOND GROUND CONDUCTOR PER NEC TO MAIN BONDING JUMPER AND ROUTE TO AND BOND TO MCC-D GROUND BUS.
- CONTRACTOR TO INVESTIGATE ACTUAL REMAINING LOADS AND THEIR RESPECTIVE HP. AND REPORT RECOMMENDED STARTER SIZES TO ENGINEER FOR APPROVAL BEFORE SUBMITTING APPROVED DRAWINGS TO MCC PROVIDER.
- PROVIDE UTILITY METER CABINET AND SERVICE DISCONNECT PER NEVADA ENERGY CONSTRUCTION STANDARDS AND REQUIREMENTS.
- ALL SERVICE RELATED WORK TO BE COORDINATED WITH AND IN ACCORDANCE WITH NEVADA ENERGY REQUIREMENTS.
- PROVIDE ONE TRYSTAR 800A WALL-MOUNT GENERATOR DOCKING STATION, LISTED TO UL 1008 AND UL 50 STANDARDS, AND 65KIAI RATED. PART NUMBER GDS-085W-LM. SEE DWG E-2001 FOR MOUNTING DETAILS. CONTRACTOR SHALL ENSURE PHASE ROTATION IS CORRECT FOR TEMPORARY CONNECTED TRAILORED GENERATOR COLORED CABLES.
- PROVIDE ONE TRYSTAR 400A WALL-MOUNT GENERATOR DOCKING STATION, LISTED TO UL 1008 AND UL 50 STANDARDS AND 65KIAI RATED. PART NUMBER GDS-045W-LM-S. SEE DWG R-2001 FOR MOUNTING DETAILS.
- RE-TERMINATE ALL REQUIRED LOADS INTO NEW PANELS, EXTEND CONDUCTORS AS NEEDED.
- RE-TERMINATE PRESERVED GENERATOR CONDUCTORS.
- PART OF THE MCC VERTICAL SECTION LINEUP, PROVIDE 800A RATED VERTICAL BUS.



NO.	DATE	DR	CHK	BY
		T. HILL	K. BISHOP	S. PARKER
DSGN			REVISION	APVD
				B. ISBELL



**JACOBS**  
ELECTRICAL

**ONE LINE DIAGRAM**

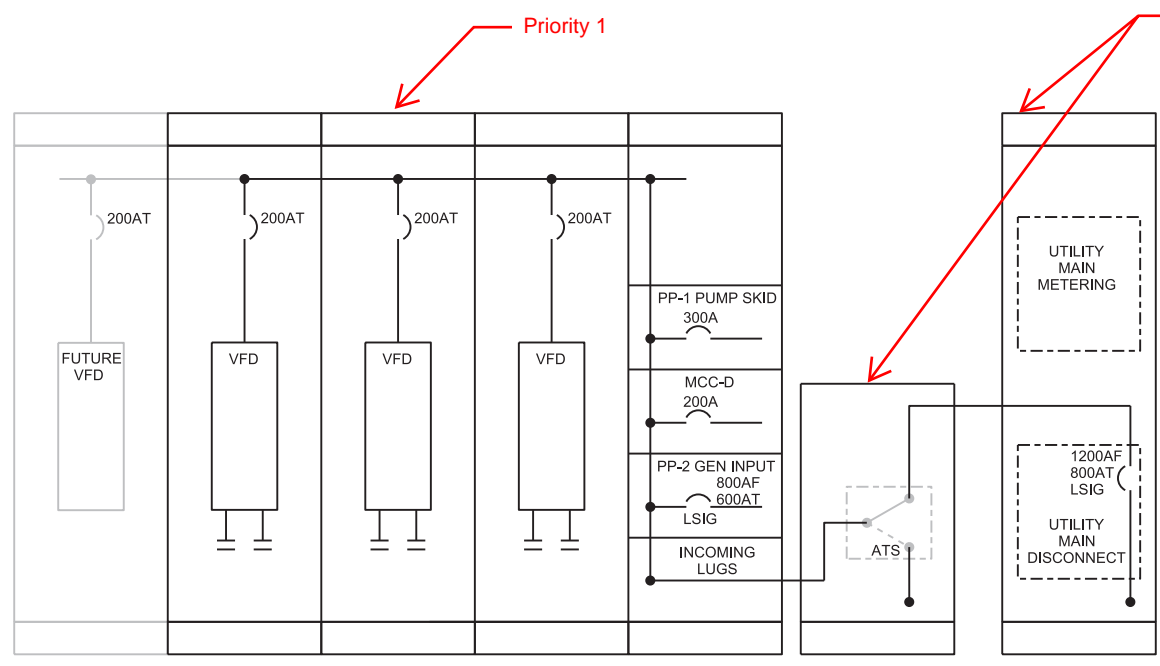
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.  
0 1"

DATE AUGUST 2019  
PROJ 703648  
DWG E-1004  
SHEET 11 OF 19

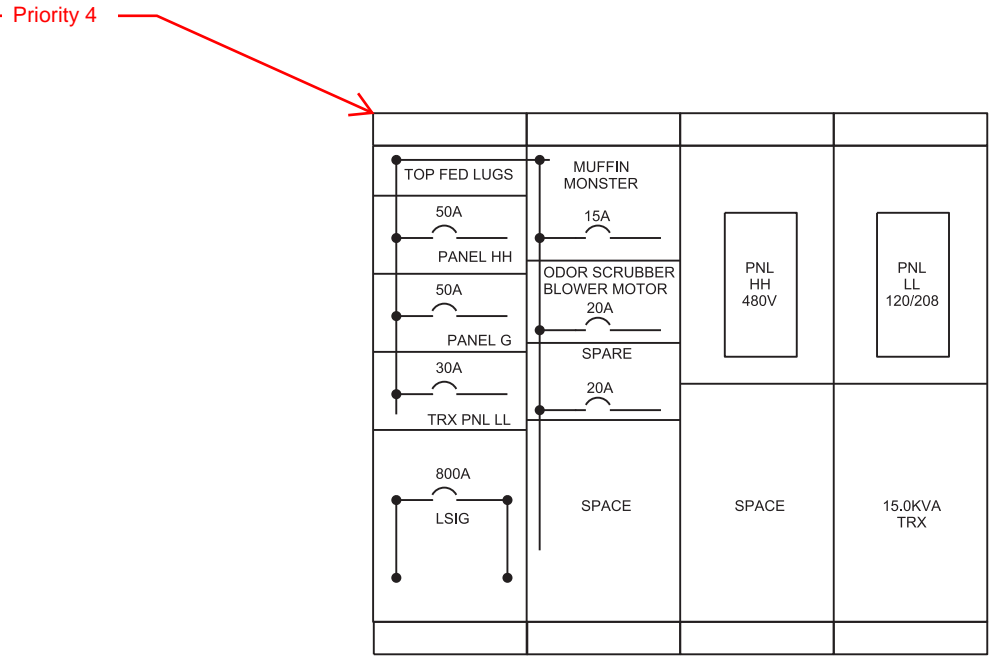




8/22/2019



MCC-C ELEVATION



MCC-D ELEVATION

PNL: HH				LOCATION: SPS-01				WIRE: 3				TYPE: NEMA 1			
SERVICE VOLTAGE: 480V				PHASE: 3				MAIN SIZE: N/A							
TOTAL LOAD KVA: 29.7				BUS SIZE: 100A				MOUNTING: MCC							
REMARKS:				NEUTRAL: N/A											

LOAD IN KVA			CIRCUIT DESCRIPTION	BKR A/P	CKT NO.	BKR A/P	LOAD IN KVA		
A	B	C					A	B	C
3.00			DUCT HEATER	20/3	1	20/3	3.00		
	3.00							3.00	
		3.00							3.00
2.50			HEATER - 1ST FLOOR	20/2	3	20/2	0.75		
	2.50						0.75		
		1.25	HEATER - ODOR SCRUBBER	20/2	5	20/2			1.25
1.25							1.25		
	0.05		SPD	20/3	7	20/3			
		0.05							
6.8	5.6	4.3	TOTAL				5.00	3.75	4.25

PHASE A LOAD (VA) =	10.55
PHASE B LOAD (VA) =	9.80
PHASE C LOAD (VA) =	4.30
TOTAL LOAD (VA) =	24.65

PNL: LL				LOCATION: SPS-01				WIRE: 4				TYPE: NEMA 1			
SERVICE VOLTAGE: 208/120V				PHASE: 3				MAIN SIZE: N/A							
TOTAL LOAD KVA: 14.9				BUS SIZE: 100A				MOUNTING: MCC							
REMARKS:				NEUTRAL: 100A											

LOAD IN KVA			CIRCUIT DESCRIPTION	BKR A/P	CKT NO.	BKR A/P	LOAD IN KVA		
A	B	C					A	B	C
0.30			EXH FAN #1	20/1	1	20/1	0.30		
	0.20		EXH FAN #3	20/1	3	20/1		0.40	
		0.20	EXH FAN #5	20/1	5	20/1			0.20
0.80			SPARE / SPARE	(2) 20/1	7	20/1	0.05		
	0.30		SUMP PUMP	20/1	9	20/1		0.10	
		0.40	RECEPT.	20/1	11	20/1			0.10
1.00			LIGHTS EXT.	20/1	13	20/1	0.90		
	1.00		LIGHTS CONTROL RM.	20/1	15	20/1		1.20	
		0.80	LIGHTS COMMUNOTOR	20/1	17	20/1			1.20
0.80			RECEPTS.	20/1	19	20/1	0.05		
	1.00		RECEPTS.	20/1	21	20/1		0.05	
		1.00	BACKFLOW RECEPT.	20/1	23	15/1			0.05
0.33							0.33		
	0.33		BLOWER #1	15/3	25	20/3		0.33	
0.30			LCP	20/1	27	15/1	0.20		
		0.33						0.33	
3.5	2.8	2.7	TOTAL				1.83	2.08	1.88

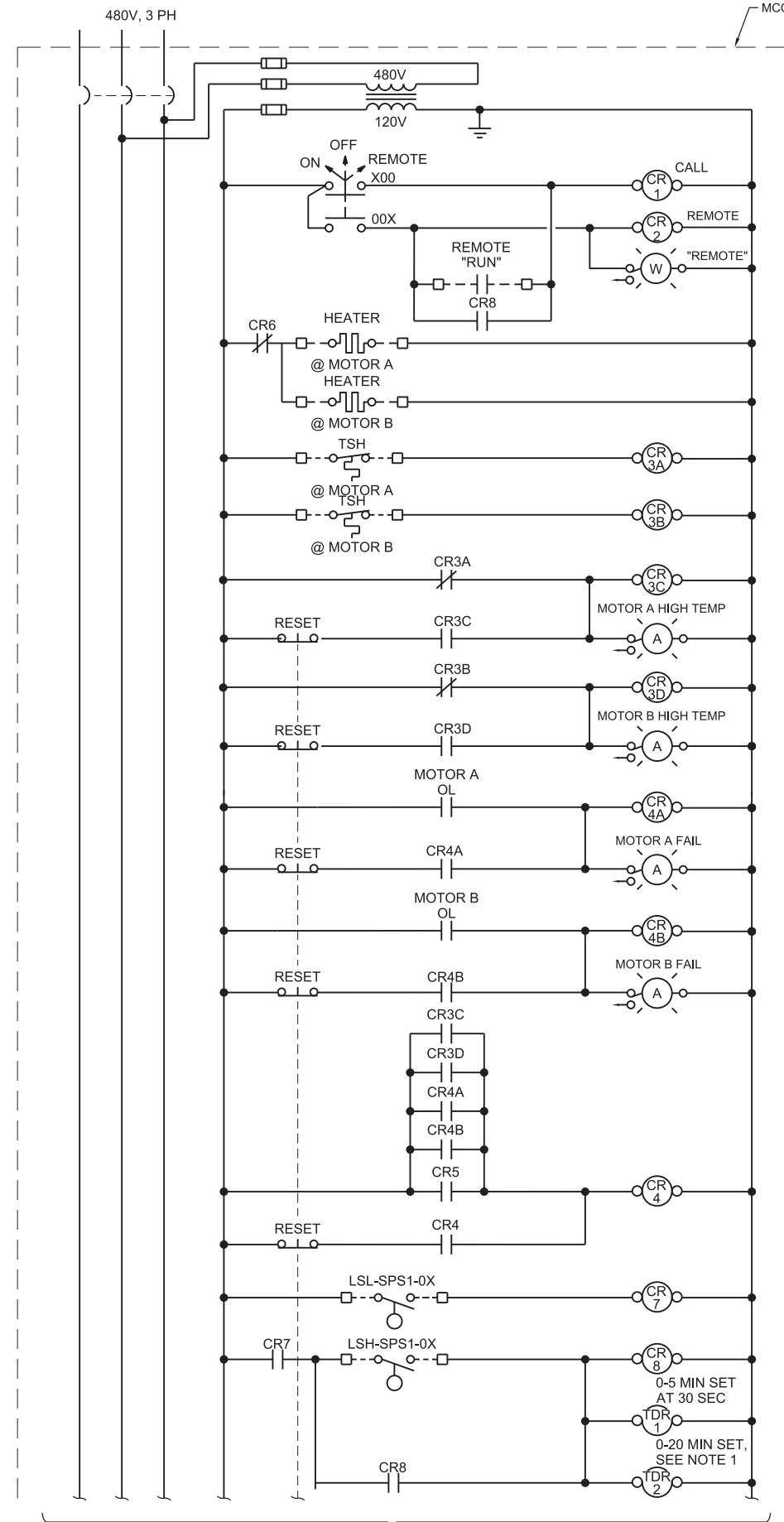
PHASE A LOAD (VA) =	5.36
PHASE B LOAD (VA) =	4.91
PHASE C LOAD (VA) =	4.61
TOTAL LOAD (VA) =	14.88



JACOBS  
ELECTRICAL  
MCC ELEVATIONS  
PANEL SCHEDULE

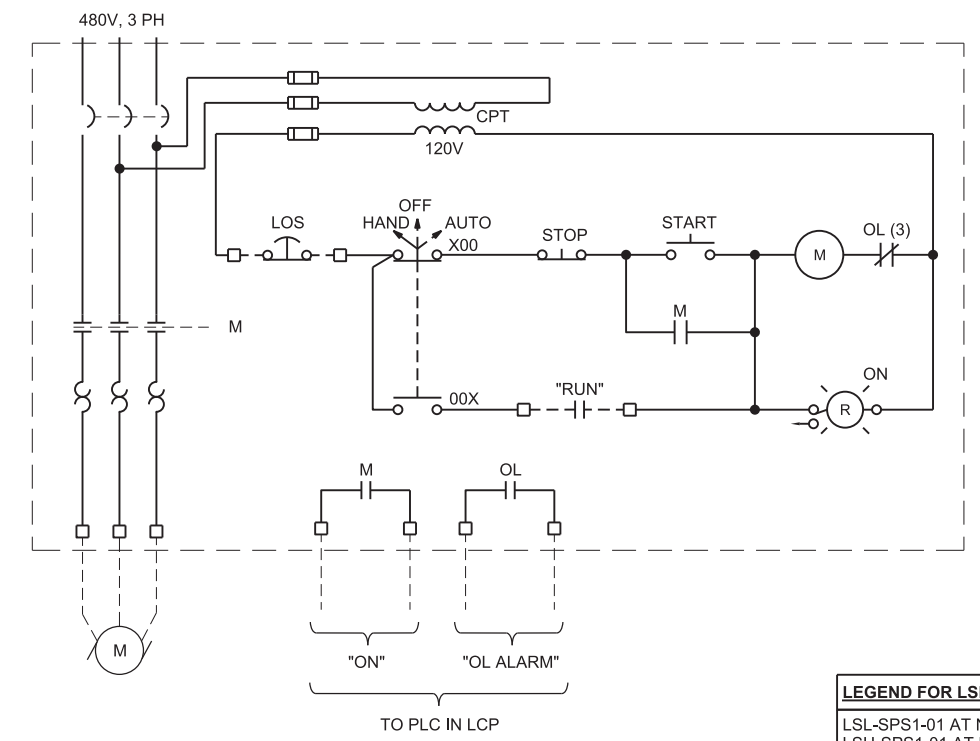
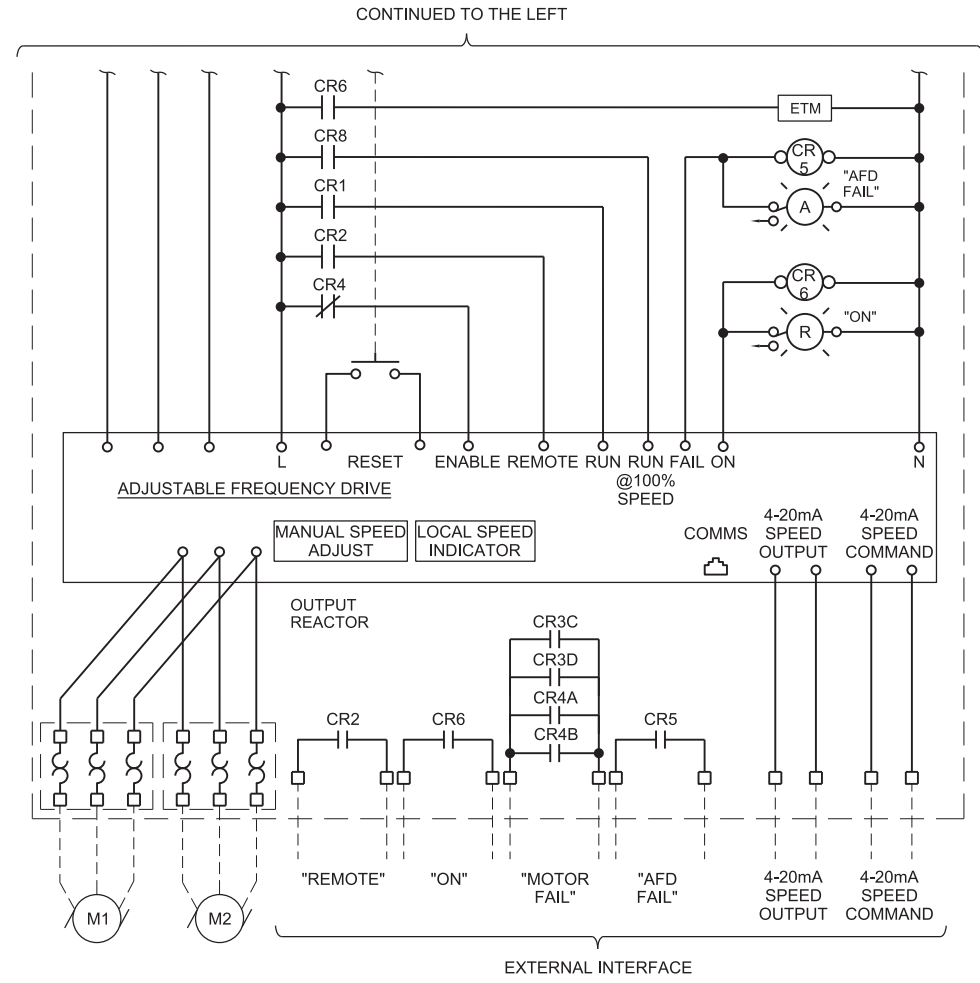
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	AUGUST 2019
PROJ	703648
DWG	E-1005
SHEET	12 OF 19

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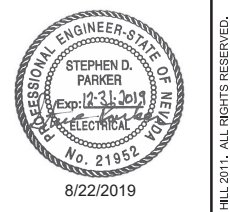
CONTINUED TO THE RIGHT  
**SEWAGE PUMP AFD's**  
 VFD-SPS1-01 AND VFD-SPS1-03

**NOTE:**  
 1. INITIALLY SET TIMER TO 5 MIN. DURING COMMISSIONING, ADJUST TIMER SETPOINT WITH INPUT FROM OPERATIONS STAFF.



**MOTOR CONTROL**

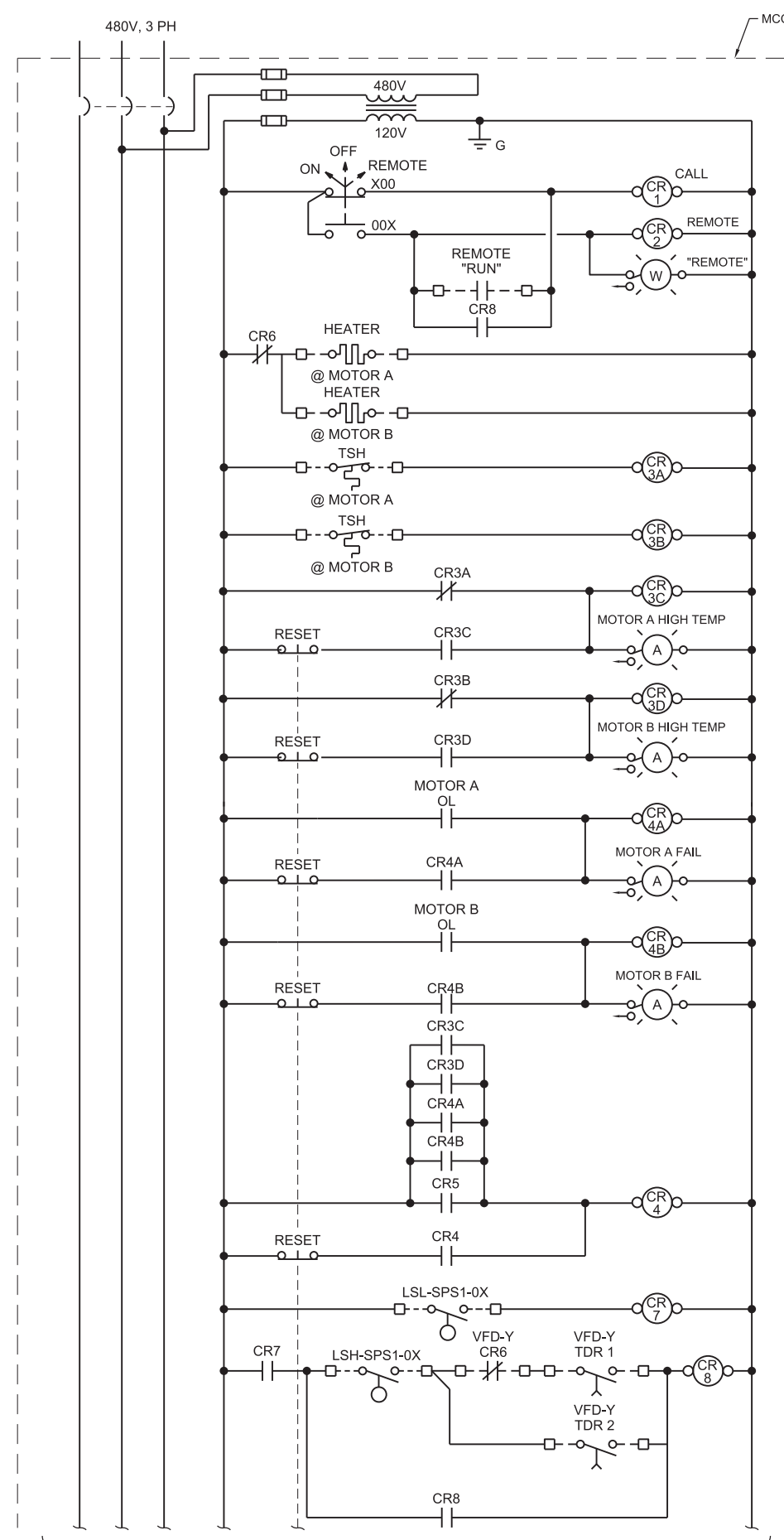
**LEGEND FOR LSL AND LSH-SPS1-0X X=1&2**  
 LSL-SPS1-01 AT NORTH WEST WET WELL  
 LSH-SPS1-01 AT NORTH WEST WET WELL  
 LSL-SPS1-02 AT SOUTH EAST WET WELL  
 LSH-SPS1-02 AT SOUTH EAST WET WELL



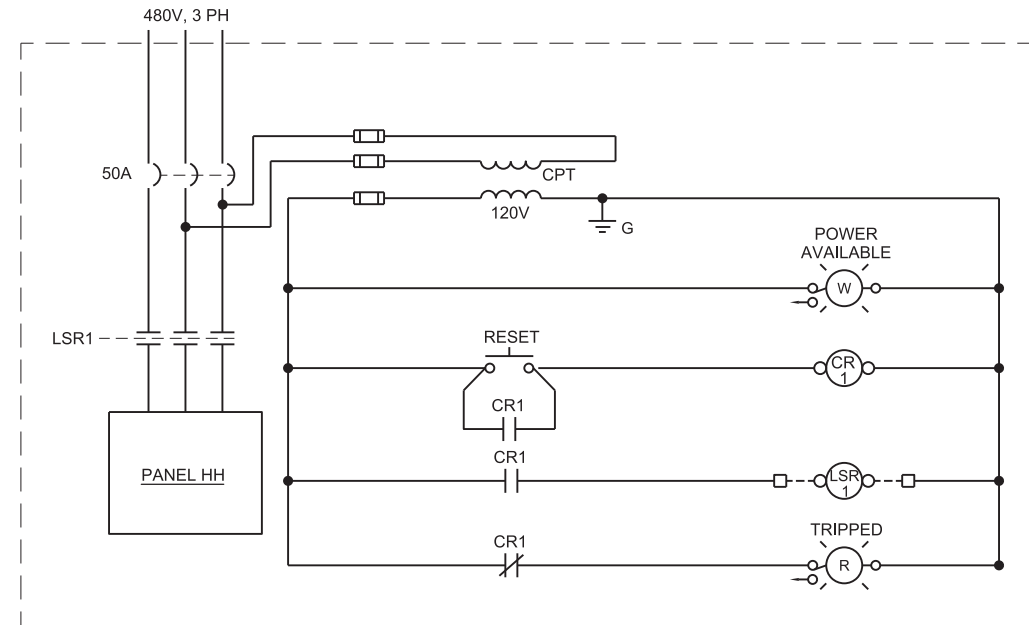
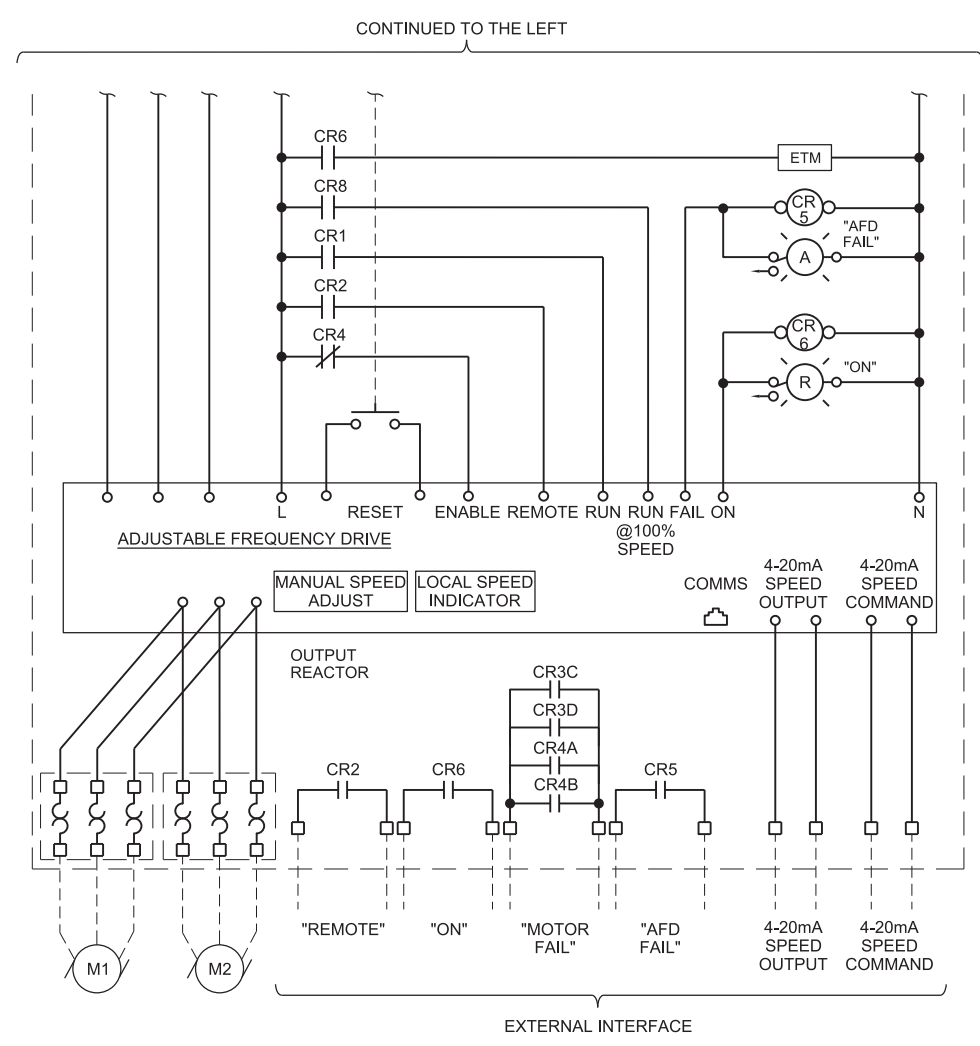
NO.	DATE	DR	CHK	REVISION	BY	APVD
		T. HILL	K. BISHOP		S. PARKER	B. ISBELL



<b>JACOBS</b>	
ELECTRICAL	
<b>CONTROL DIAGRAM - 1</b>	
DATE	AUGUST 2019
PROJ	703648
DWG	E-1006
SHEET	13 OF 19



CONTINUED TO THE RIGHT  
**SEWAGE PUMP AFD's**  
 VFD-SPS1-02 AND (FUTURE VFD-SPS1-04)



**LOAD SHED CONTACTOR CONTROL**

**LEGEND FOR LSL AND LSH-SPS1-0X X=1&2**

LSL-SPS1-01 AT NORTH WEST WET WELL
LSH-SPS1-01 AT NORTH WEST WET WELL
LSL-SPS1-02 AT SOUTH EAST WET WELL
LSH-SPS1-02 AT SOUTH EAST WET WELL

**LEGEND FOR AFD-Y-CR6 & AFD-Y-TDR1 Y= 1 & 3**

AFD-1-CR6 AT AFD 1 ('ON SIGNAL')
AFD-1-TDR1 AT AFD 1 ('30 SEC TIME DELAY')
AFD-1-TDR2 AT AFD 1 ('5 MIN TIME DELAY')
AFD-3-CR6 AT AFD 3 ('ON SIGNAL')
AFD-3-TDR1 AT AFD 3 ('30 SEC TIME DELAY')
AFD-3-TDR2 AT AFD 3 ('5 MIN TIME DELAY')

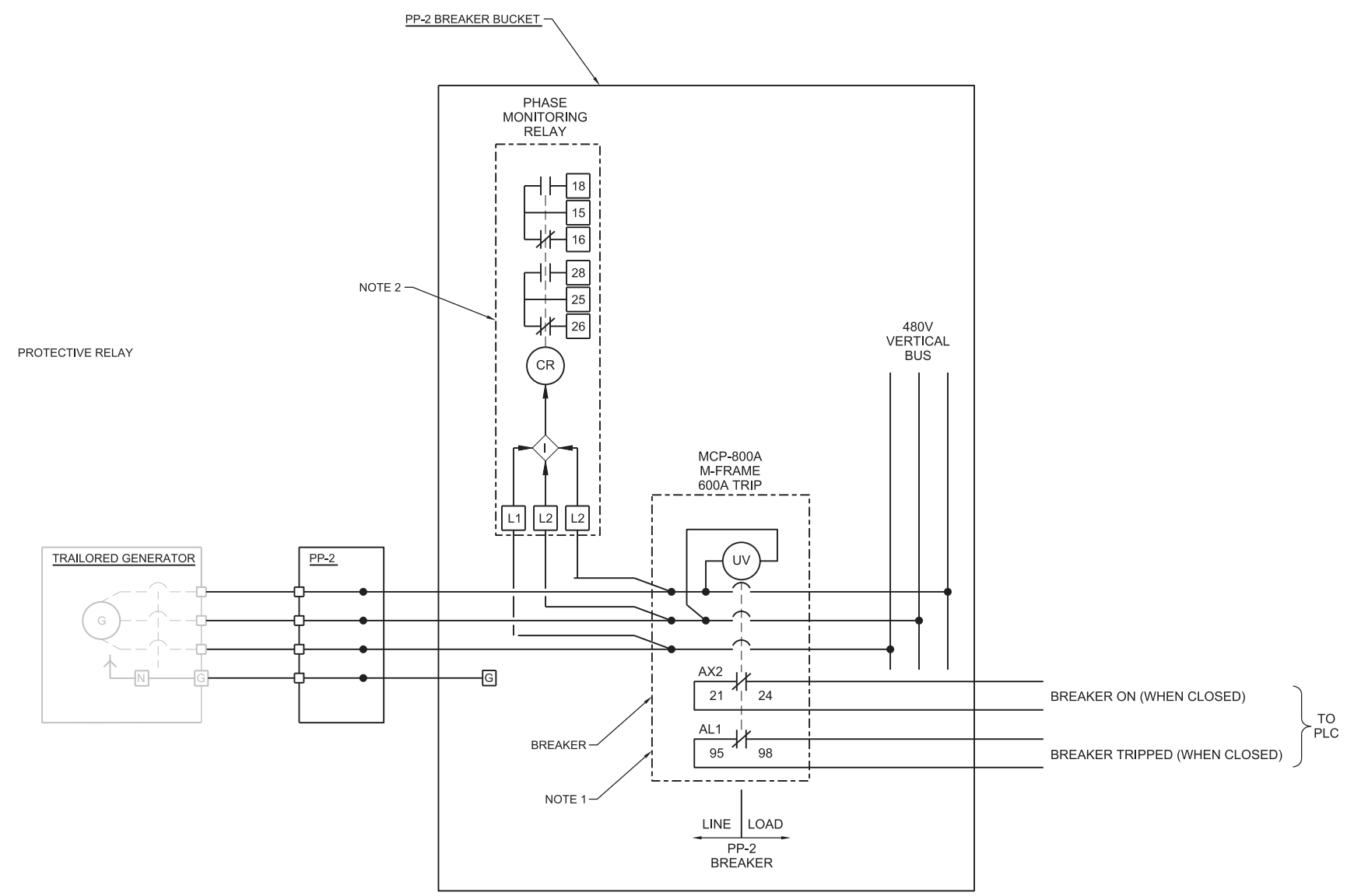


NO.	DATE	DR	CHK	REVISION	BY	APVD

**JACOBS**  
 ELECTRICAL  
**CONTROL DIAGRAM - 2**

**INCLINE VILLAGE**  
 GENERAL IMPROVEMENT DISTRICT  
 ONE DISTRICT - ONE TEAM  
 SEWAGE PUMP STATION NO. 1  
 IMPROVEMENT PROJECT

DATE	AUGUST 2019
PROJ	703648
DWG	E-1007
SHEET	14 OF 19



**PP-2 GENERATOR INPUT BREAKER CONTROL**

1. PROVIDE BREAKER, ORIENTATE LINE AND LOAD SIDE AS SHOWN. PROVIDE ALLEN BRADLEY BULLETIN 140MG - M FRAME MCCB 800A FRAME BREAKER WITH 600 A TRIP UNIT OR EQUIVALENT. SEE BELOW FOR LSIg TRIP SETTINGS AND UNDERVOLTAGE TRIP RELAY

**ALLEN BRADLEY BULLETIN 140MG-M FRAME MCCB BREAKER**  
800A M-FRAME, 600A TRIP

BULLETIN 140G-M 600A SENSOR LSIg TRIP UNIT		
SETTING	CALCULATION	TIME
L - 0.74	0.74x600= 444A	9.00 SECONDS
S - 2.0	2.00x600= 1200A	0.25 SECONDS
I - 4.5	4.50x600= 2700A	—
G - 0.25	0.25x600= 150A	0.20 SECONDS

**UNDER VOLTAGE RELEASE RELAY,**  
MODEL NUMBER 140G-K-UVC.

2. PROVIDE THREE PHASE MONITORING RELAY, MANUFACTURER: ABB, MODEL TYPE CM PVS.41P, ORDER NUMBER 1SVR 740 794 R3300. OR EQUIVALENT. SET UP MONITORING TO OPEN CONTACTS DURING PHASE FAILURE, OR OVER VOLTAGE OR UNDER VOLTAGE SCENARIOS.

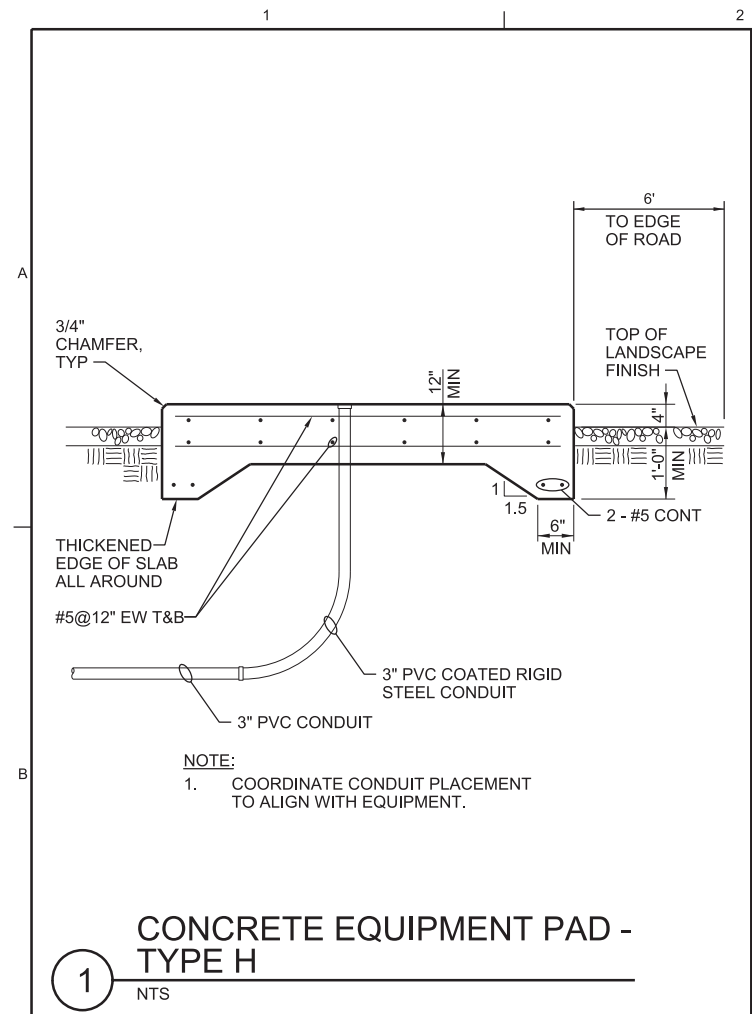


NO.	DATE	DR	CHK	REVISION	BY	APVD
		T. HILL	K. BISHOP		S. PARKER	B. ISBELL

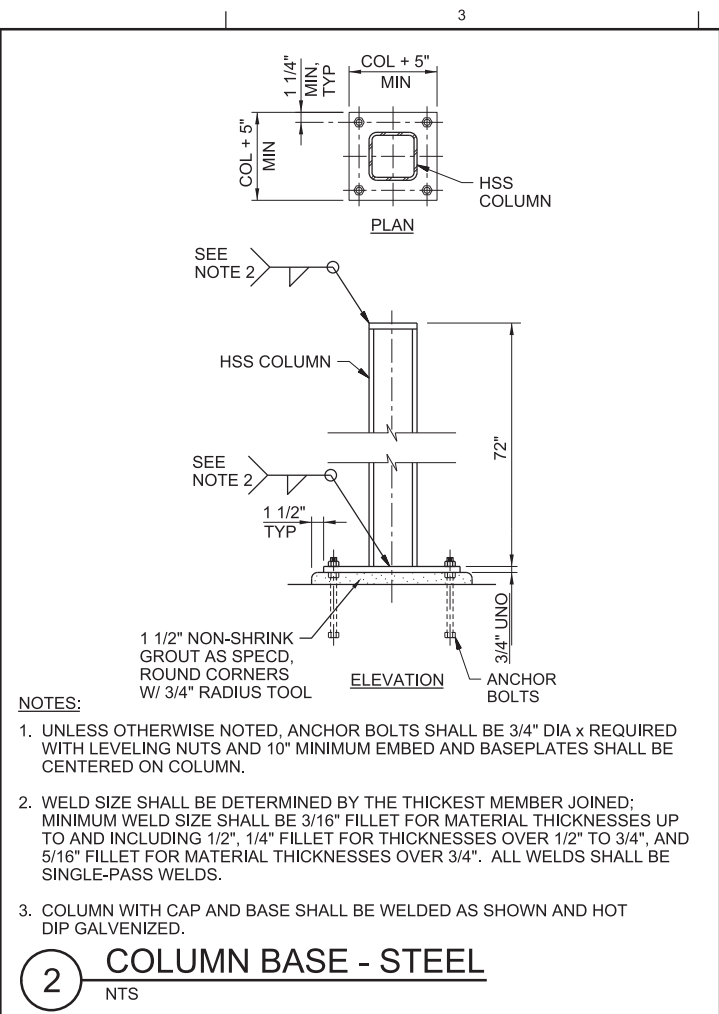


**JACOBS**  
ELECTRICAL  
**CONTROL DIAGRAM - 3**

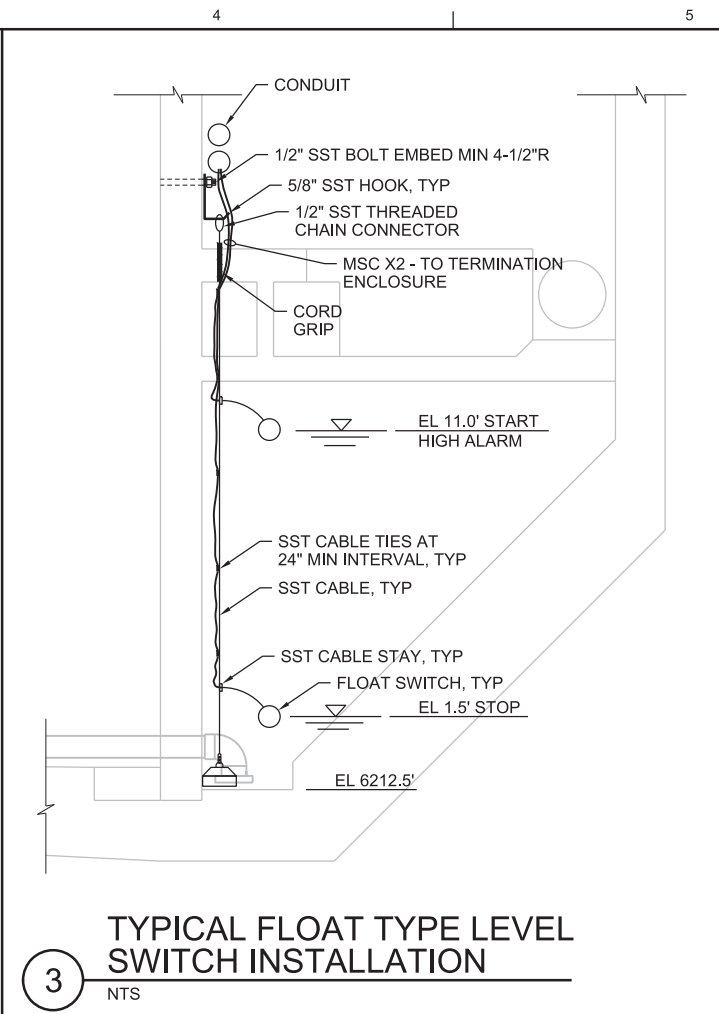
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DATE	AUGUST 2019
PROJ	703648
DWG	E-1008
SHEET	15 OF 19



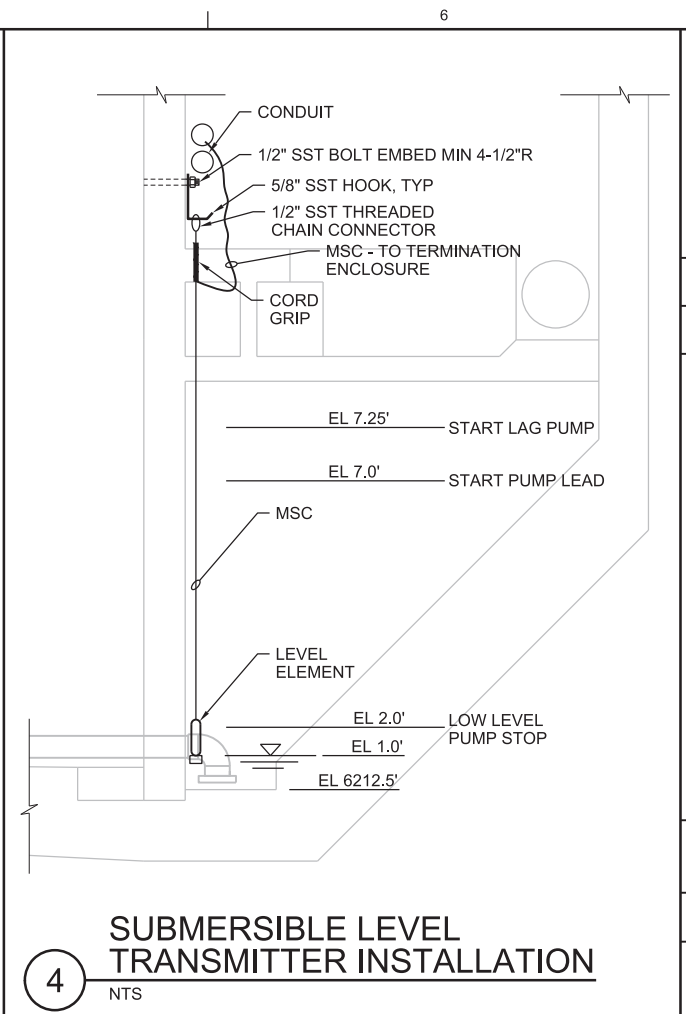
**1 CONCRETE EQUIPMENT PAD - TYPE H**  
NTS



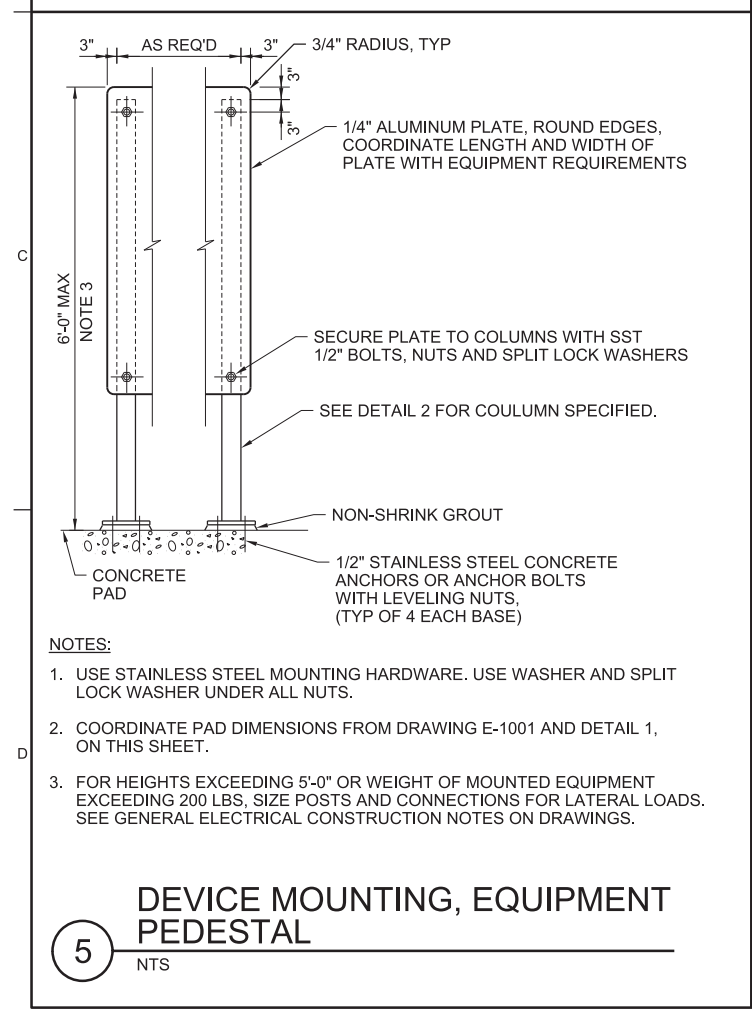
**2 COLUMN BASE - STEEL**  
NTS



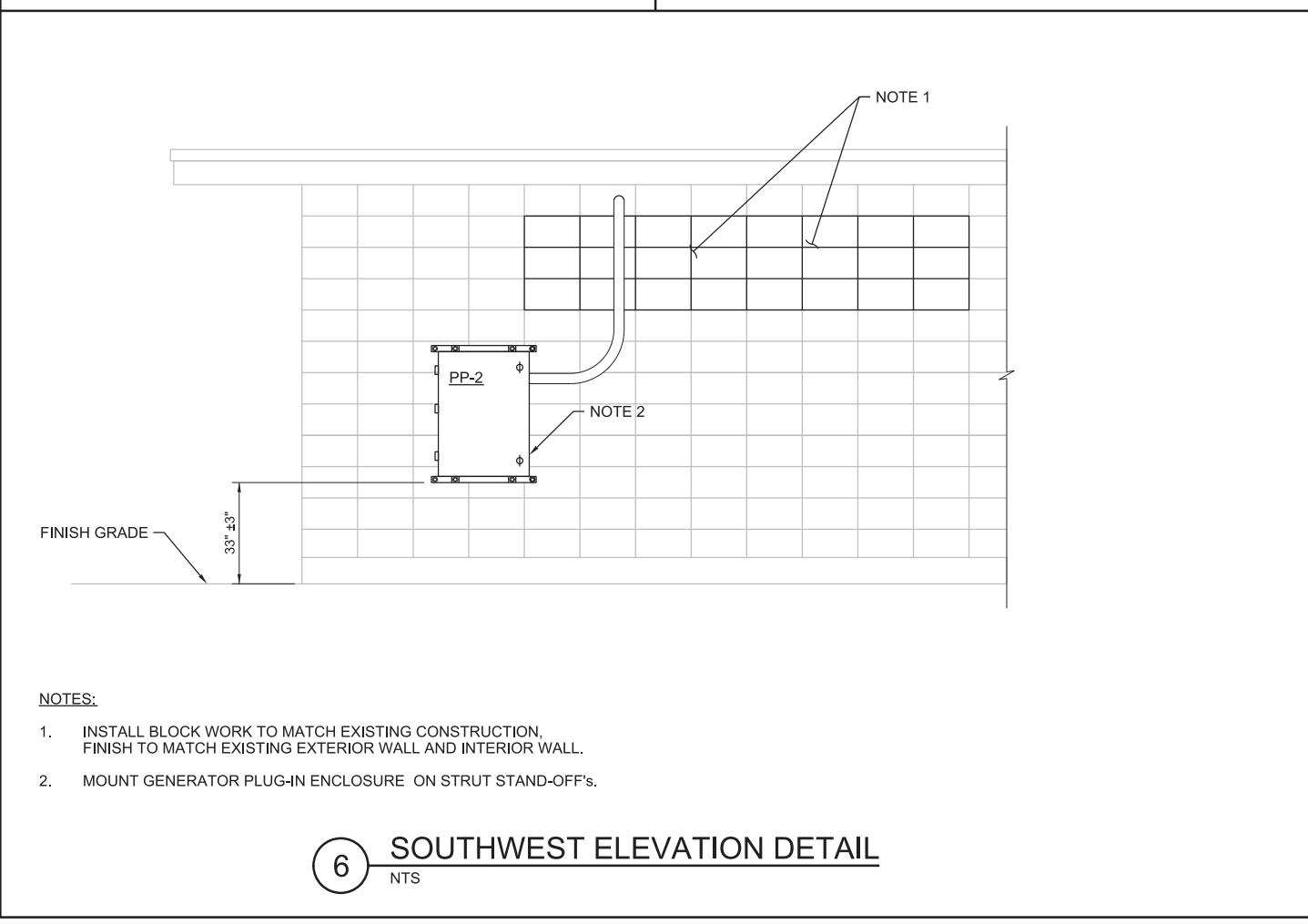
**3 TYPICAL FLOAT TYPE LEVEL SWITCH INSTALLATION**  
NTS



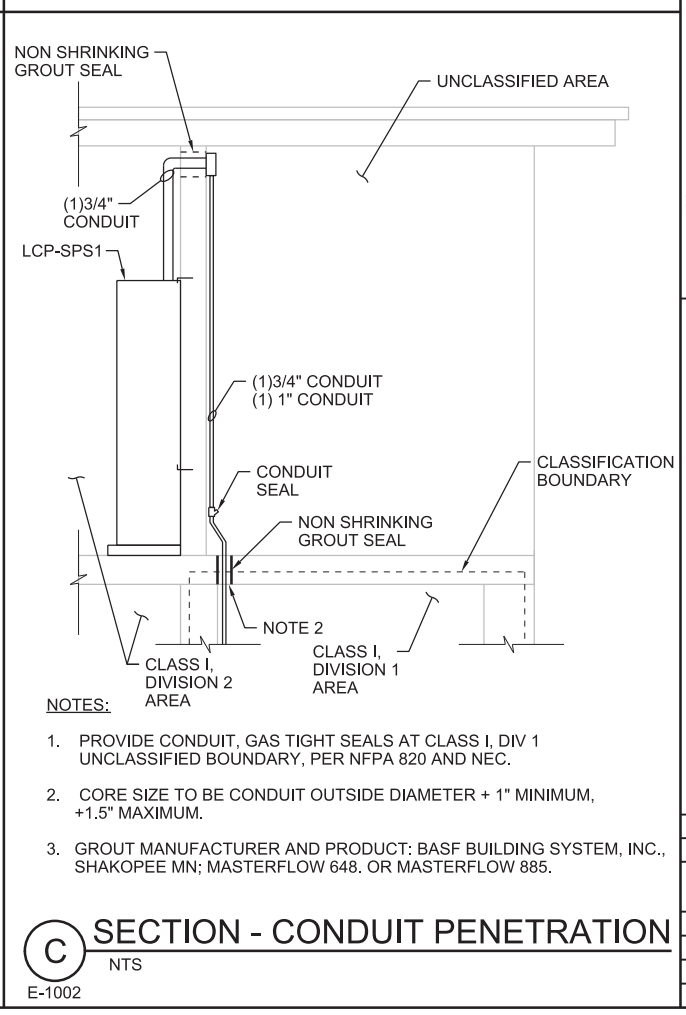
**4 SUBMERSIBLE LEVEL TRANSMITTER INSTALLATION**  
NTS



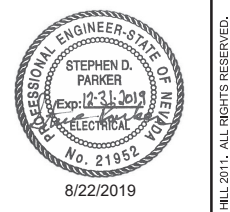
**5 DEVICE MOUNTING, EQUIPMENT PEDESTAL**  
NTS



**6 SOUTHWEST ELEVATION DETAIL**  
NTS



**C SECTION - CONDUIT PENETRATION**  
NTS



NO.	DATE	DR	CHK	REVISION	APVD	BY	APVD
		T. HILL	K. BISHOP	S. PARKER		B. ISBELL	

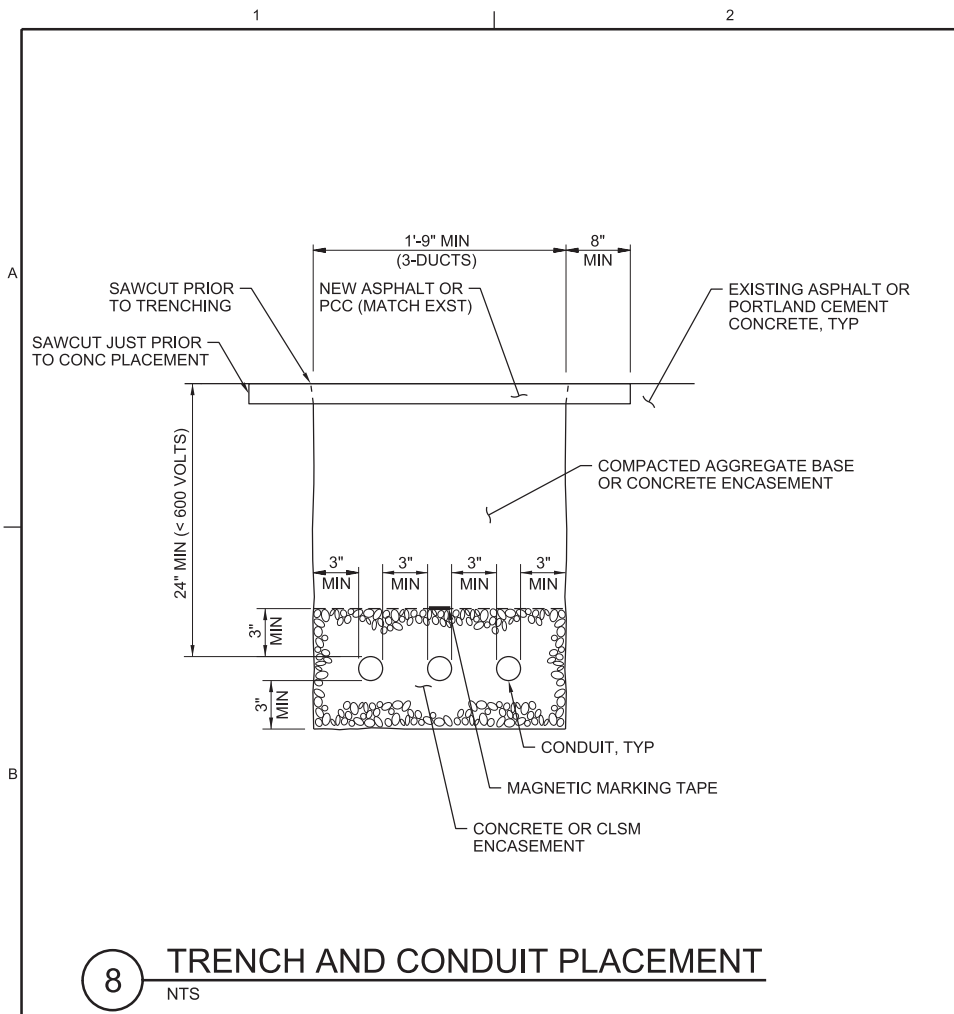


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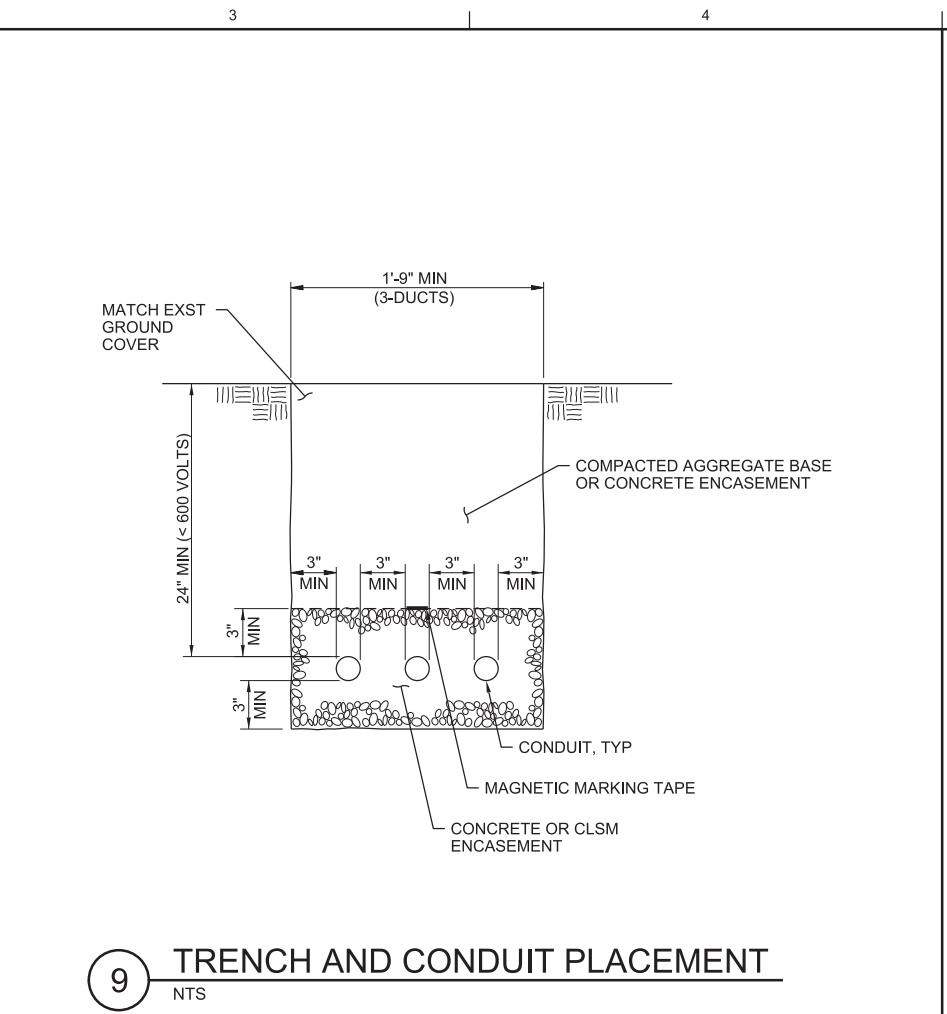
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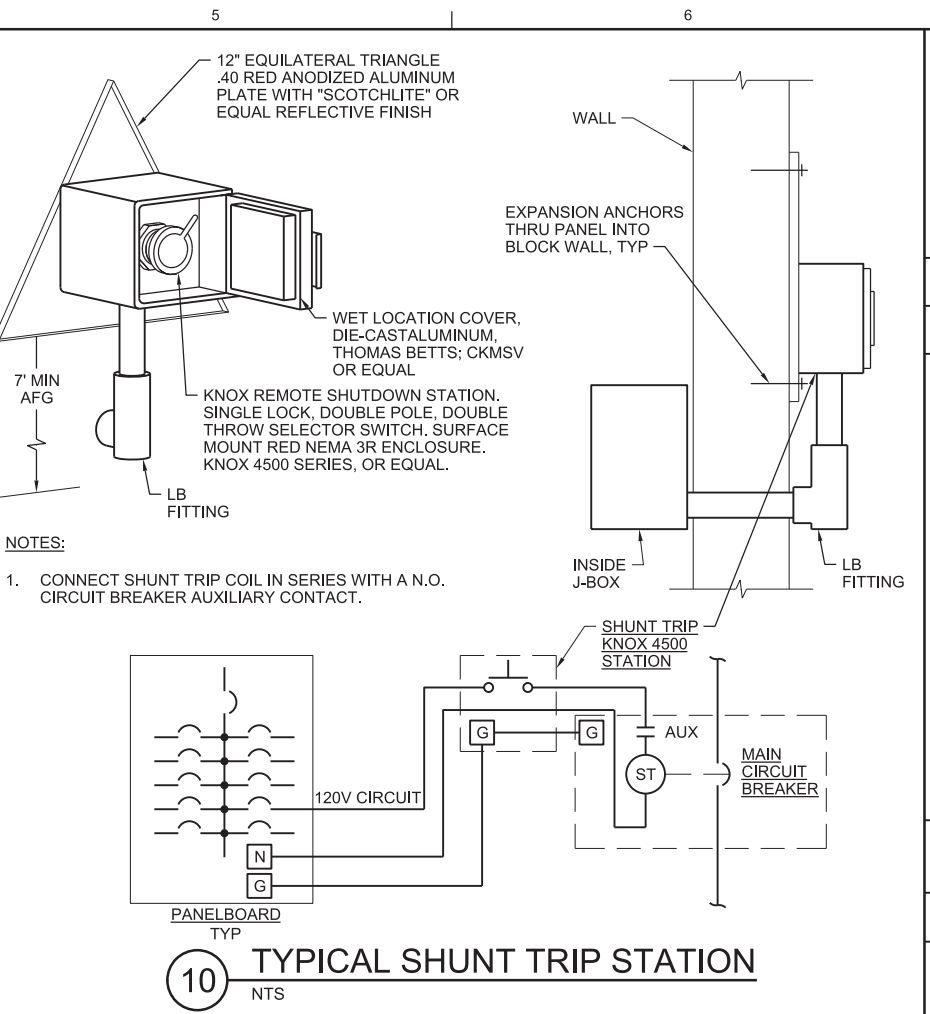
DATE: AUGUST 2019  
PROJ: 703648  
DWG: E-2001  
SHEET: 16 OF 19



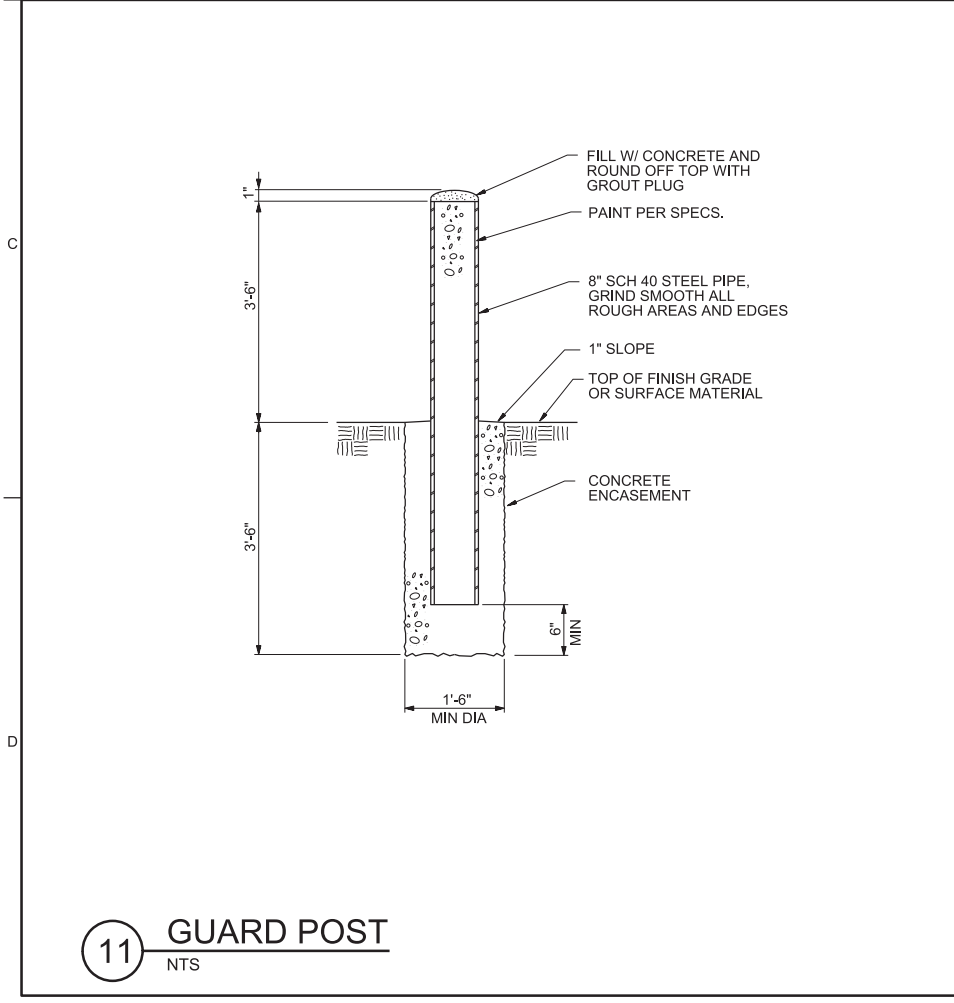
**8 TRENCH AND CONDUIT PLACEMENT**  
NTS



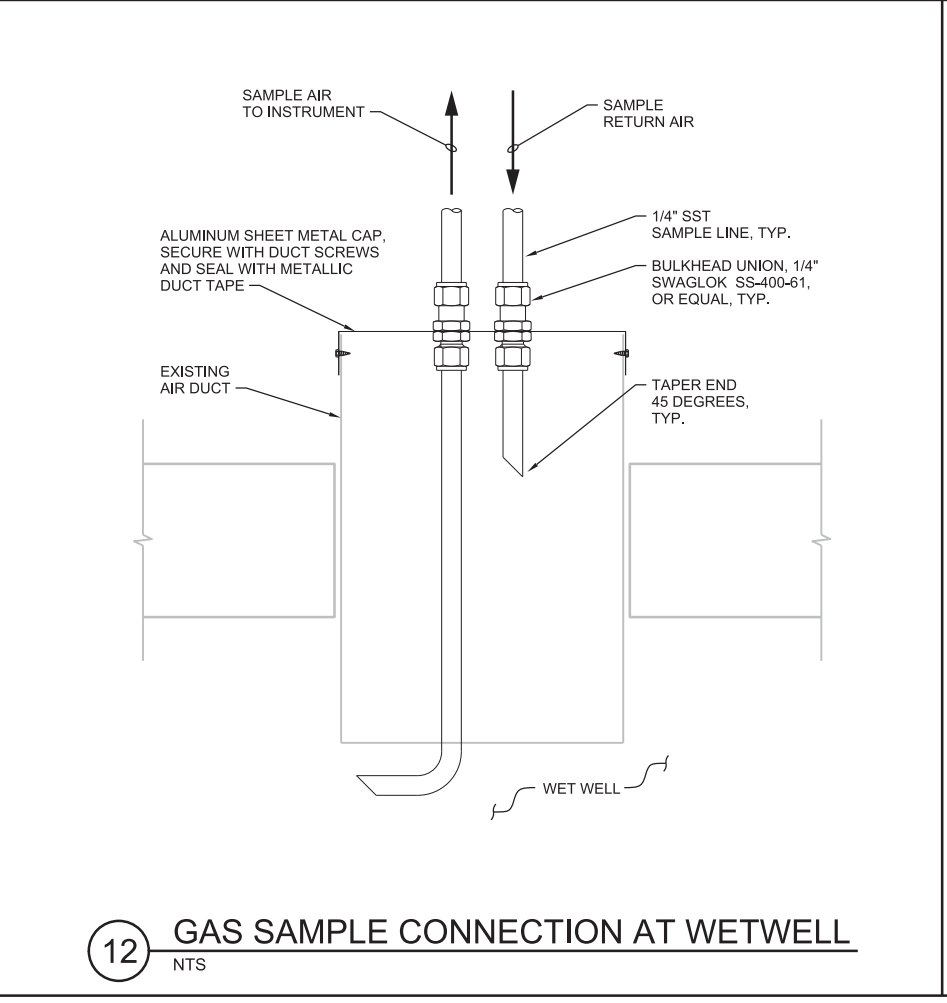
**9 TRENCH AND CONDUIT PLACEMENT**  
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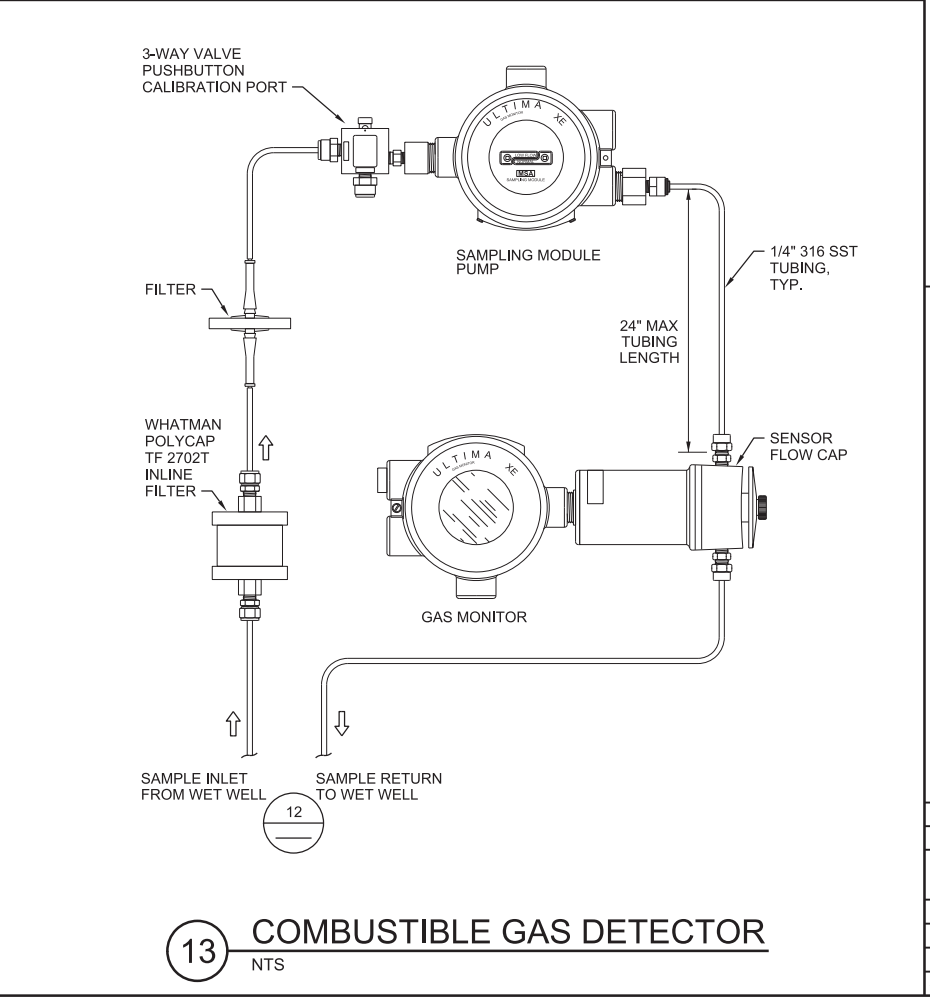
**10 TYPICAL SHUNT TRIP STATION**  
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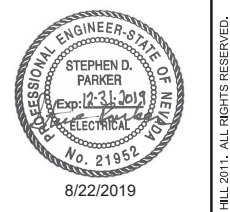
**11 GUARD POST**  
NTS



**12 GAS SAMPLE CONNECTION AT WETWELL**  
NTS



**13 COMBUSTIBLE GAS DETECTOR**  
NTS



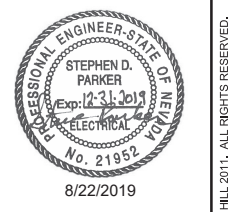
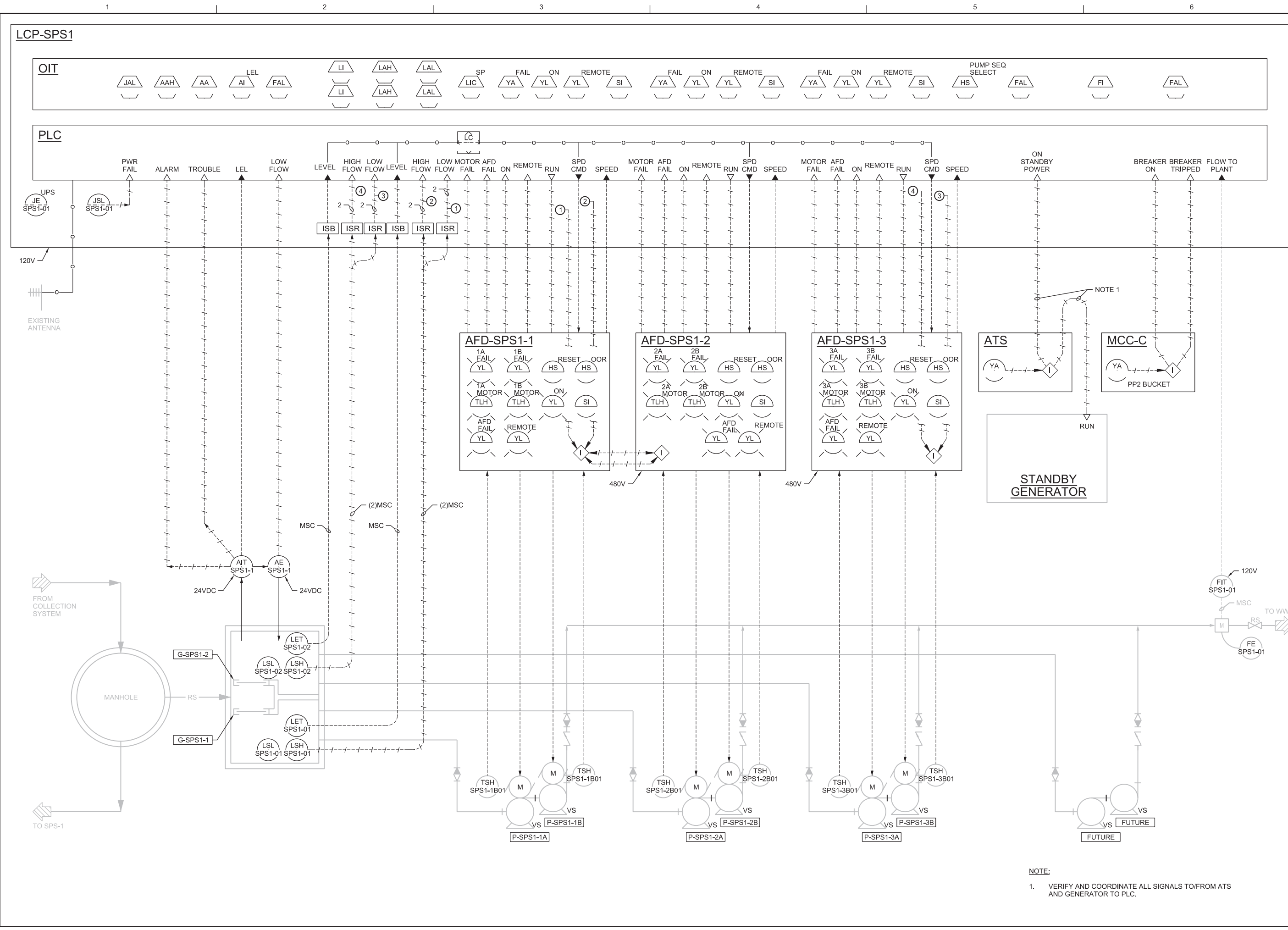
NO.	DATE	DR	CHK	REVISION	BY	APVD
		T. HILL	K. BISHOP		S. PARKER	B. ISBELL
		DSGN			APVD	



**JACOBS**  
ELECTRICAL  
**DETAILS - 2**

VERIFY SCALE  
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DATE	AUGUST 2019
PROJ	703648
DWG	E-2002
SHEET	17 OF 19



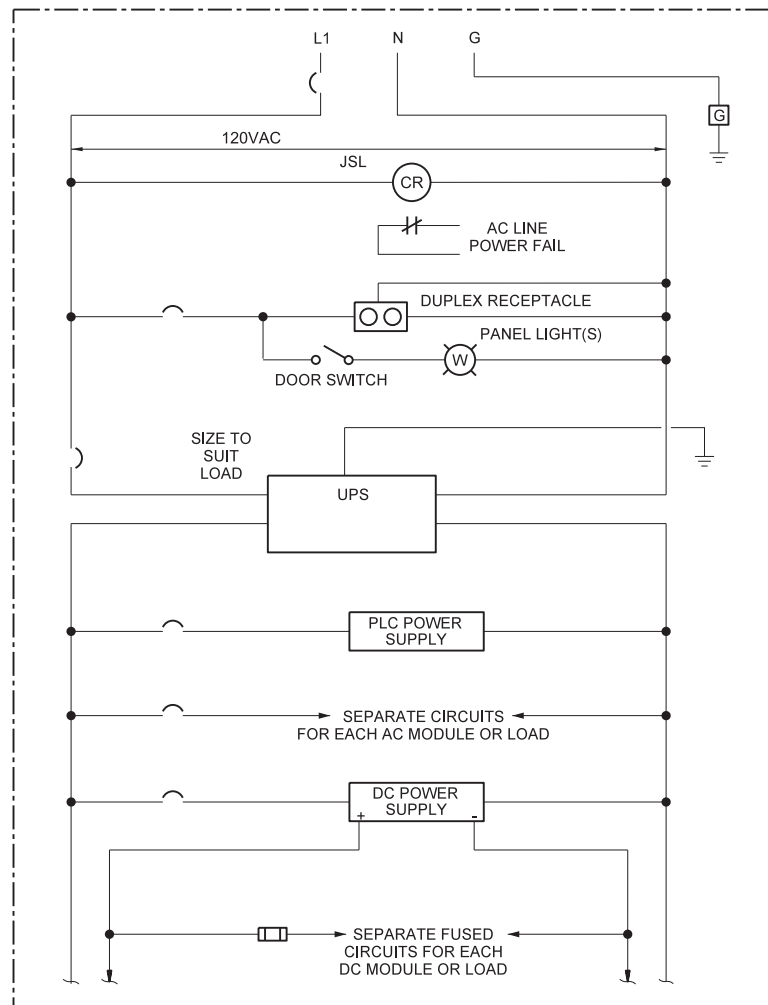
NO.	DATE	DR	CHK	REVISION	BY	APVD



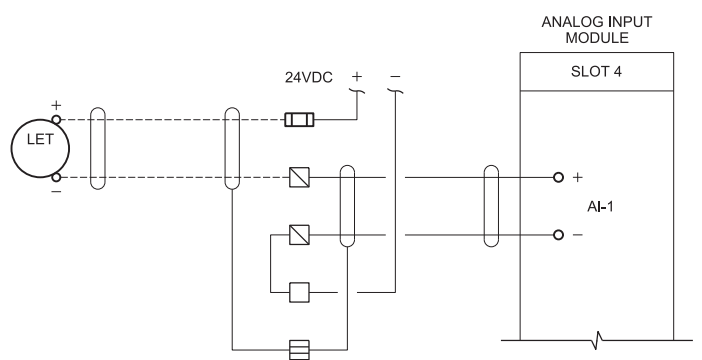
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ELECTRICAL  
PUMP STATION P&ID

DATE	AUGUST 2019
PROJ	703648
DWG	N-1001
SHEET	18 OF 19

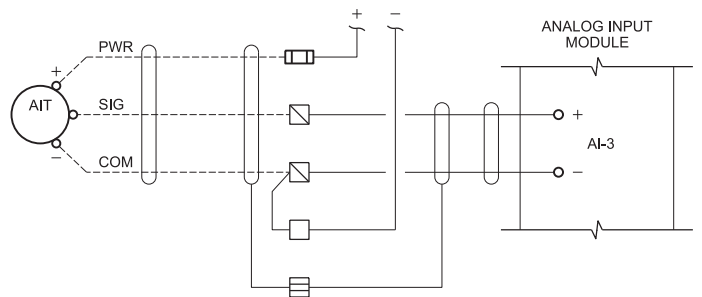
NOTE:  
1. VERIFY AND COORDINATE ALL SIGNALS TO/FROM ATS AND GENERATOR TO PLC.



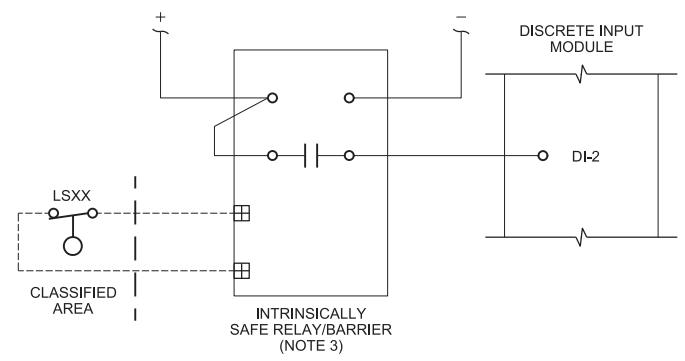
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POWER DISTRIBUTION**



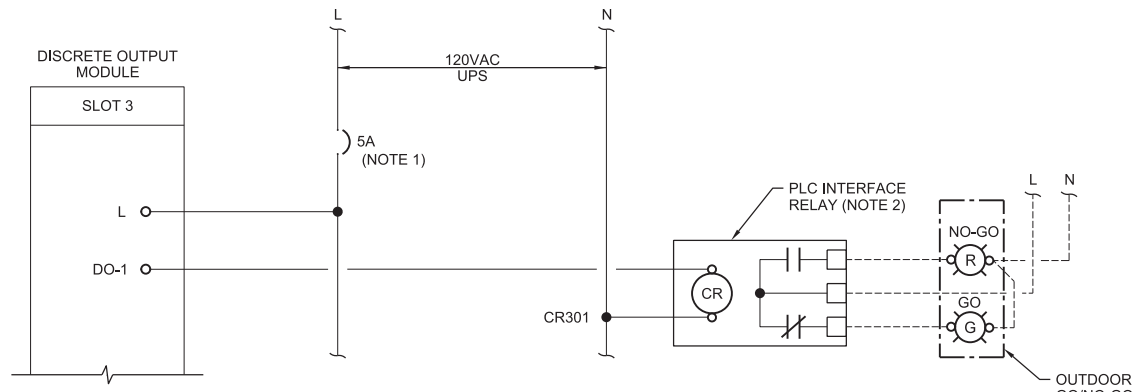
**2-WIRE CIRCUITS  
SPARE AI SIMILAR**



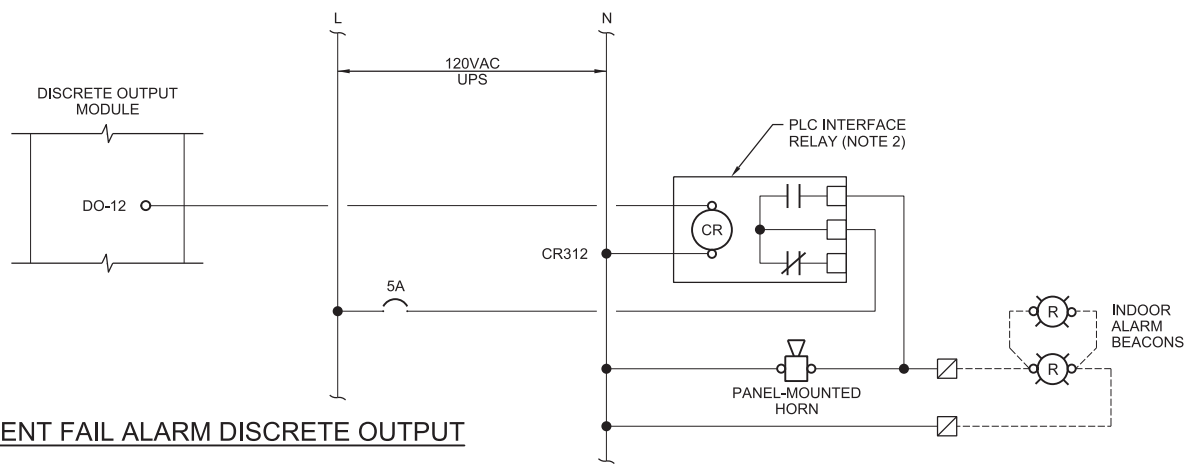
**3-WIRE CIRCUITS**



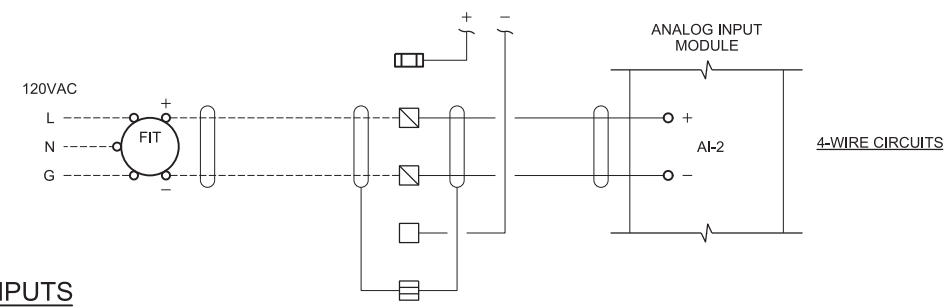
**INTRINSICALLY-SAFE CIRCUITS**



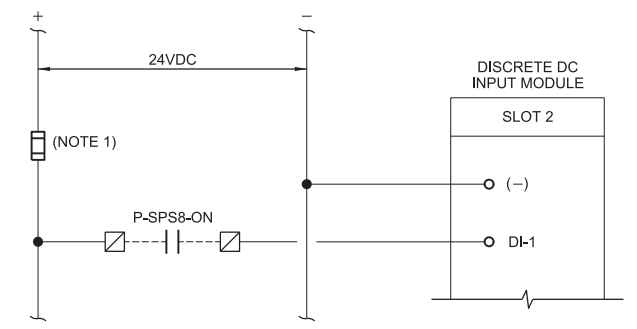
**DISCRETE OUTPUTS**



**VENT FAIL ALARM DISCRETE OUTPUT**



**ANALOG INPUTS**



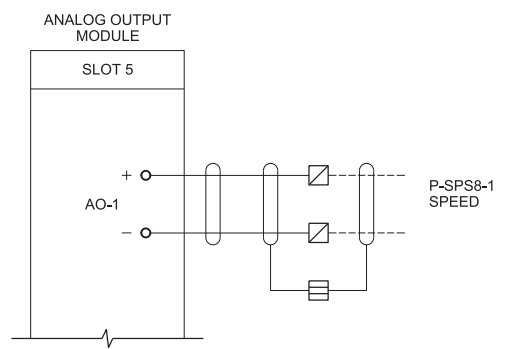
**24VDC DISCRETE INPUTS**

**GENERAL NOTES:**  
 A. TYPICAL WIRING DIAGRAMS SHOW GENERAL REQUIREMENTS, BUT DO NOT SHOW ALL DETAILS REQUIRED FOR SHOP DRAWINGS AND PANEL CONSTRUCTION. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

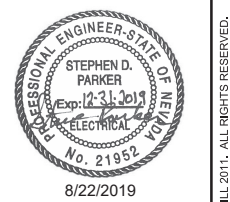
**NOTES:**  
 1. PROVIDE A FUSE OR CIRCUIT BREAKER ON DISCRETE I/O CIRCUITS, ONE FOR EACH DISCRETE I/O MODULE.  
 2. USE PLC INTERFACE RELAY FOR DISCRETE OUTPUTS, INCLUDING SPARES. PROVIDE UNIQUE NUMBER FOR EACH RELAY. SCHEME SHOWN USES OUTPUT MODULE SLOT NUMBER AND POINT NUMBER.  
 3. INTRINSICALLY-SAFE RELAY/BARRIER INSTALLATION AND WIRING ACCORDING TO NATIONAL ELECTRICAL CODE AND MANUFACTURER'S INSTRUCTIONS.

**LEGEND**

- DEVICE TERMINAL
- TERMINAL FOR FIELD CONNECTION
- ▣ TERMINAL WITH DISCONNECT
- ⊞ GROUNDED TERMINAL
- ▤ FUSED DISCONNECT TERMINAL
- ⊞ INTRINSICALLY-SAFE CIRCUIT TERMINAL
- PANEL WIRING
- - - FIELD WIRING
- ▭ SHIELDED CABLE



**ANALOG OUTPUTS**



NO.	DATE	DR	CHK	REVISION	BY	APVD
DSGN		T. HILL			S. PARKER	B. ISBELL



**JACOBS**  
 ELECTRICAL  
**CONTROL PANEL  
TYPICAL WIRING DIAGRAMS**

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	AUGUST 2019
PROJ	703648
DWG	N-1002
SHEET	19 OF 19



# **Attachment 2**

## **Conceptual Design Report**

2525 Airpark Drive  
Redding, California 96001  
United States  
T +1.530.243.5831

www.jacobs.com

---

**Subject** Sewage Pump Station No. 1 Electrical Improvements  
Project Definition and Preliminary Design Report

**Project Name** Incline Village General Improvement District

**Attention** Joe Pomroy/Incline Village General Improvement District (IVGID)  
Charley Miller/IVGID  
Keith Rudd/IVGID

**From** Timothy Hill/Jacobs  
Steve Parker/Jacobs  
Brett Isbell/Jacobs

**Date** January 23, 2019

**Copies to** 393670

---

## 1. Overview

Sewage Pump Station No. 1 (SPS-1) conveys wastewater from IVGID's collection system to IVGID's water resource recovery facility. SPS-1, IVGID's largest sewage lift station, is a critical component of IVGID's wastewater conveyance and advanced treatment system; reliable operation and performance of SPS-1 is essential. This technical memorandum presents the conceptual design, approach, and construction cost estimate for electrical system and pumping improvements at SPS-1, including removing and replacing pump variable frequency drives (VFDs) and modernizing pump controls. Additionally, an external power connection for a skid-mounted backup pump will be provided for increased reliability.

SPS-1 was originally constructed in 1962 and has been modified since original construction. The pump configuration comprises three sets of two pumps in series, which were originally controlled by a Unitrol motor control center (MCC). Approximately 20 years ago the original Unitrol MCC was decommissioned and a new switchboard and VFDs were installed for pumping control. These existing VFDs are currently operable, but unserviceable, and must be replaced to mitigate the risk of component failure and to improve pumping reliability.

The preliminary design presented herein and shown on the preliminary design drawings (Attachment 1) defines the electrical components that will be upgraded and outlines an approach for replacing existing equipment without having SPS-1 inoperable for extended durations. Also, a conceptual-level construction cost estimate is presented for budgetary planning.

## 2. Design Development

A summary of project components that will be included in the final design drawings and specifications for construction by a qualified electrical contractor follows:

- Existing Unitrol MCC (labeled "Old Motor Controller" on drawings), switchboard, and drive controls will be demolished. The existing motor controller is located on the Main Level, and the existing

switchboard and three VFDs are located on Level 2. The extent of demolition is conceptually shown on the demolition drawings (Attachment 1).

- A new MCC (MCC-02) will be fitted and installed on the Main Level and will include a programmable logic controller (PLC) panel with an operator interface terminal, three VFDs, space for power and lighting panels, and a plug-in for temporary power will be fitted and installed on the Main Level. Feeders from the emergency power panel (powered by a diesel generator) will also be connected to the MCC.
- A new PLC will be connected to IVGID’s supervisory control and data acquisition system (SCADA) and will provide pump control and data logging. Pumping controls will be similar to Sewage Pump Station No. 8. New wet well level instruments will be installed and connected to the new PLC and SCADA system.
- Electrical plugs compatible with a 1,200-amp diesel generator will be provided.
- Additionally, the contractor will provide and install a power panel for a 200-horsepower skid-mounted pump. The power panel will be located near the access road and will include new conduits and conductors to the SPS-1 pump building. This is conceptually shown on the site plan drawing (Attachment 1).

Preliminary engineering drawings are provided in Attachment 1.

**2.1 Construction Considerations, Temporary Power, and Sequencing**

It is critical that the SPS-1 remain in operation during construction. Temporary power for switchgear and VFDs will be needed and will require a brief (approximately 2 hours) shutdown of the electrical supply to connect temporary power. Temporary power will be supplied through the existing system to the existing switchboard and VFDs allowing pumps to operate while select existing equipment is demolished and new equipment is installed. It will be necessary and mandatory for the contractor to adhere to the following construction sequencing:

- 1) Provide Temporary Power to Existing VFD Switchboard
- 2) Demolish Existing Motor Controller
- 3) Install New MCC-02
- 4) Connect New Conductors to New MCC-02 and Energize
- 5) Route Conduit and Conductors from New VFDs, located in MCC-02, to Pump Motors
- 6) Cut-over Power One Pump Set at a Time; Commission and Test
- 7) Disconnect Temporary Power
- 8) Demolish Old Switchboard and VFDs

**2.2 Future Improvements**

Mechanical improvements such as pump replacement, pipe header replacement and reconfiguration, and wet well modifications are not included in this contract. The new MCC includes capacity for power and lighting panels and additional motor control, to be designed and constructed in a future contract.

**3. Delivery and Implementation Schedule**

Final design development will be based on the concepts discussed with IVGID and defined in this technical memorandum. Bid documents will include signed and sealed drawings and specifications in preparation for public bid advertisement. Project implementation includes the following milestones:

- Draft bid documents submitted to IVGID                      March 21, 2019
- Bid documents submitted to IVGID                              May 17, 2019
- Bid advertisement (approximate)                                June 6, 2019
- Contractor Notice to Proceed                                    August 7, 2019
- Construction phase    August 2019–February 2020
- Substantial completion     January 2020

### 3.1 Estimated Construction Cost

Table 1 presents planning-level construction costs based on preliminary design information. Note that line item subtotals include contractor markup and profit. A construction cost contingency of approximately 10 percent is included.

**Table 1. Planning-level Construction Costs**

Construction Activity	Cost
Temporary Power to Existing VFD Switchboard	\$10,000
Demolish Existing Unitrol MCC	\$5,000
Procure and Install a New MCC-02 (includes three new VFDs, MCC components, and breakers)	\$120,000
Connect New Conductors to New MCC-02 and Energize	\$10,000
Route Conduit and Conductors from New VFDs to Motors	\$10,000
Change Over One Pump Set at a Time to New VFD	\$5,000
Disconnect Temporary Power; Demolish Old Switchboard and VFDs	\$10,000
Trench and Install Conduit and Conductors, Backfill and Restore	\$30,000
Install Plug-in Panel for Skids and Terminals Trailered VFD and Pump	\$15,000
Install Plug-in Terminals for Trailered Generator	\$10,000
Construction Contingency (10%)	\$25,000
<b>TOTAL</b>	<b>\$250,000</b>

Attachment 1  
Preliminary Engineering Drawings

# INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT SEWAGE PUMPING STATION NO. 1 IMPROVEMENTS PROJECT

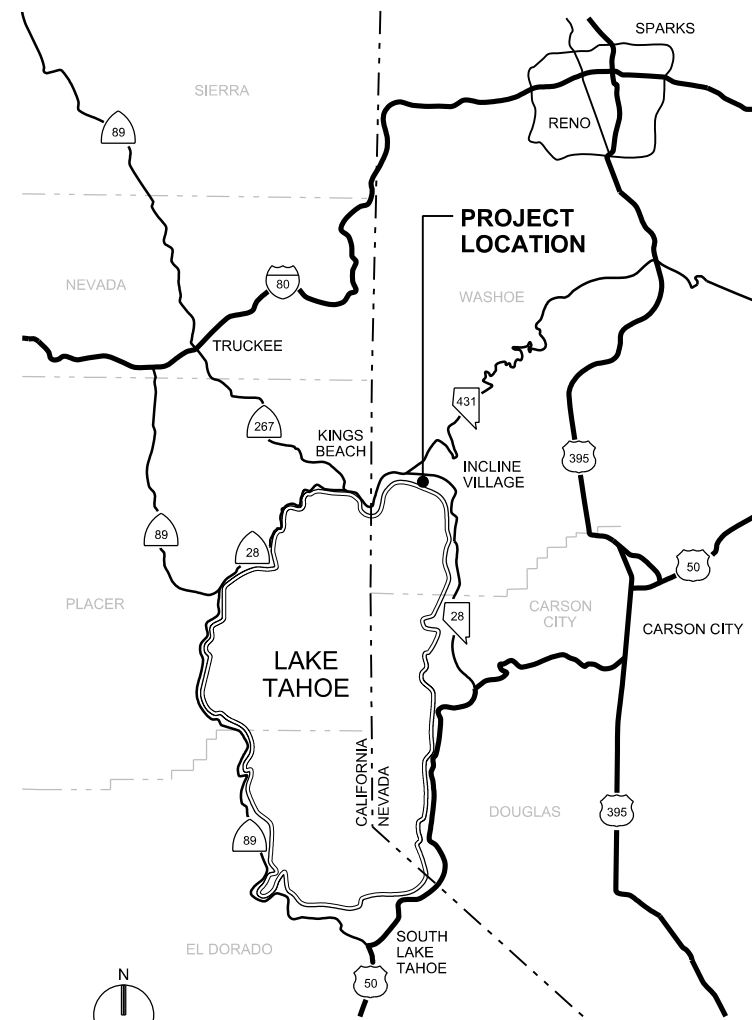
**INCLINE VILLAGE    WASHOE COUNTY    NEVADA**  
**IVGID PROJECT NO.:**

**NOVEMBER 2018**



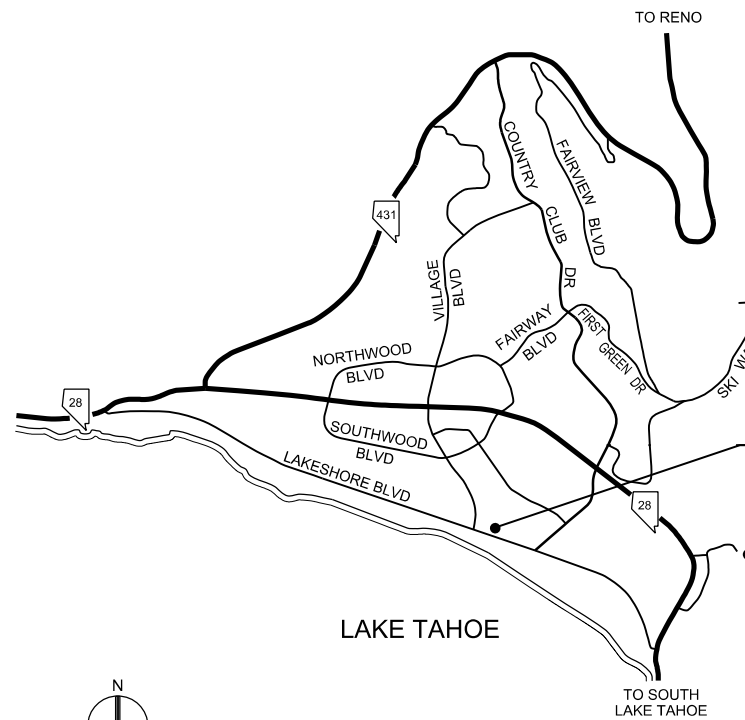
## INDEX TO DRAWINGS

SHEET NO.	DRAWING NO.	TECHNOLOGY	TITLE
1	G-1	GENERAL	COVER SHEET AND DRAWING INDEX



5 MILES

**LOCATION MAP**



1/2 MILE

**VICINITY MAP**

**SEWAGE PUMP STATION NO. 1**  
**TAHOE BLVD**  
**INCLINE VILLAGE, NV 89451**  
**COORDINATES: 39.240837, -119.947111**  
**INCLINE VILLAGE WWTP**  
**1250 SWEETWATER ROAD**  
**INCLINE VILLAGE, NV 89451**

**INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT  
BOARD OF TRUSTEES:**

- |                       |                      |
|-----------------------|----------------------|
| <b>KENDRA WONG</b>    | <b>CHAIRWOMAN</b>    |
| <b>PHILIP HORAN</b>   | <b>VICE CHAIRMAN</b> |
| <b>MATTHEW DENT</b>   | <b>TREASURER</b>     |
| <b>TIM CALLICRATE</b> | <b>SECRETARY</b>     |
| <b>PETER MORRIS</b>   | <b>TRUSTEE</b>       |



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**INCLINE VILLAGE**  
**GENERAL IMPROVEMENT DISTRICT**  
**ONE DISTRICT ~ ONE TEAM**  
**SEWAGE PUMPING STATION NO. 1**  
**IMPROVEMENTS PROJECT**

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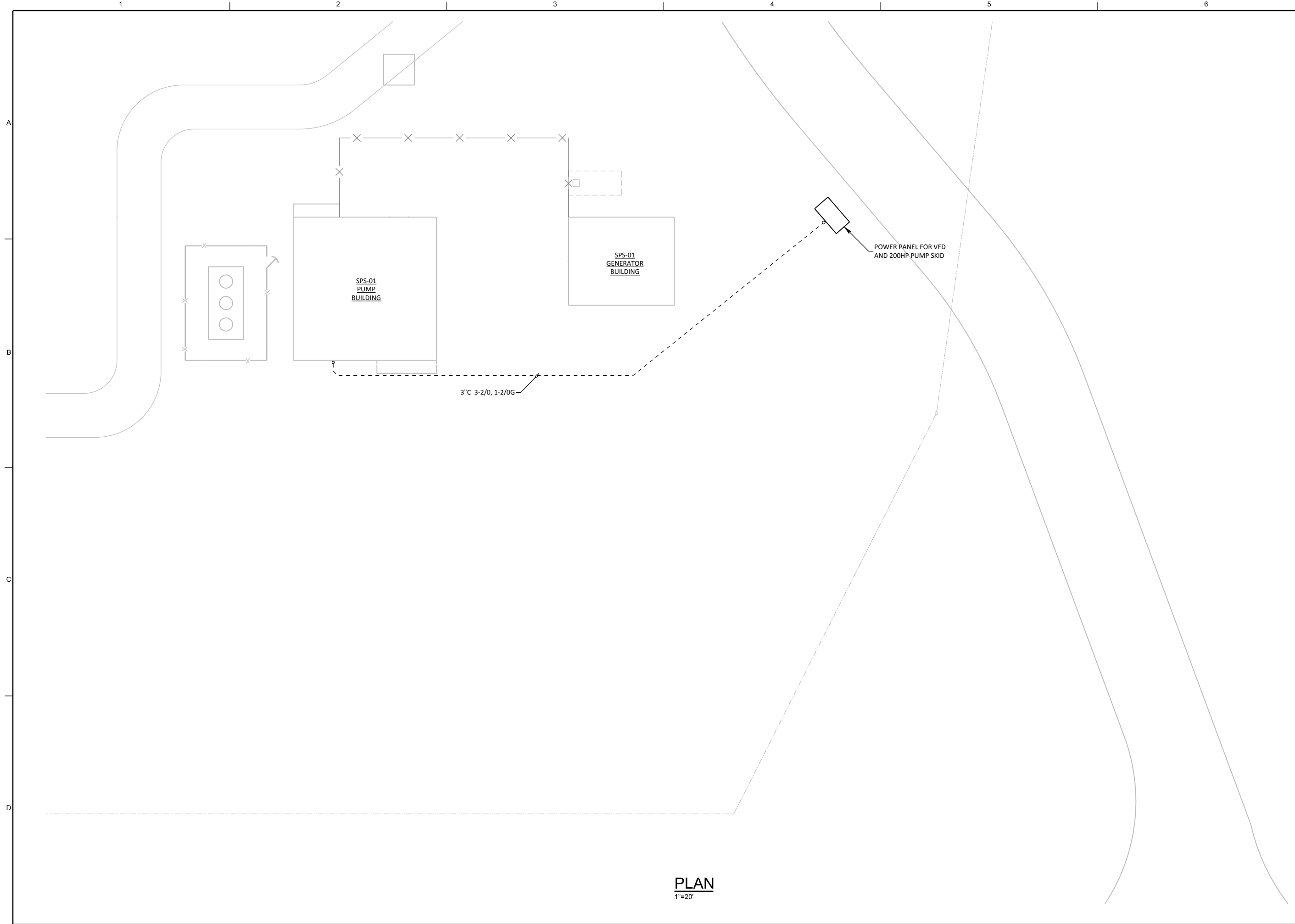
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PROJ	393670.S8
DWG	G-1
SHEET	1 OF 15

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W MISSLIN  
CHK APVD  
J MINOR  
DR APVD  
K MARTINEZ  
DGN



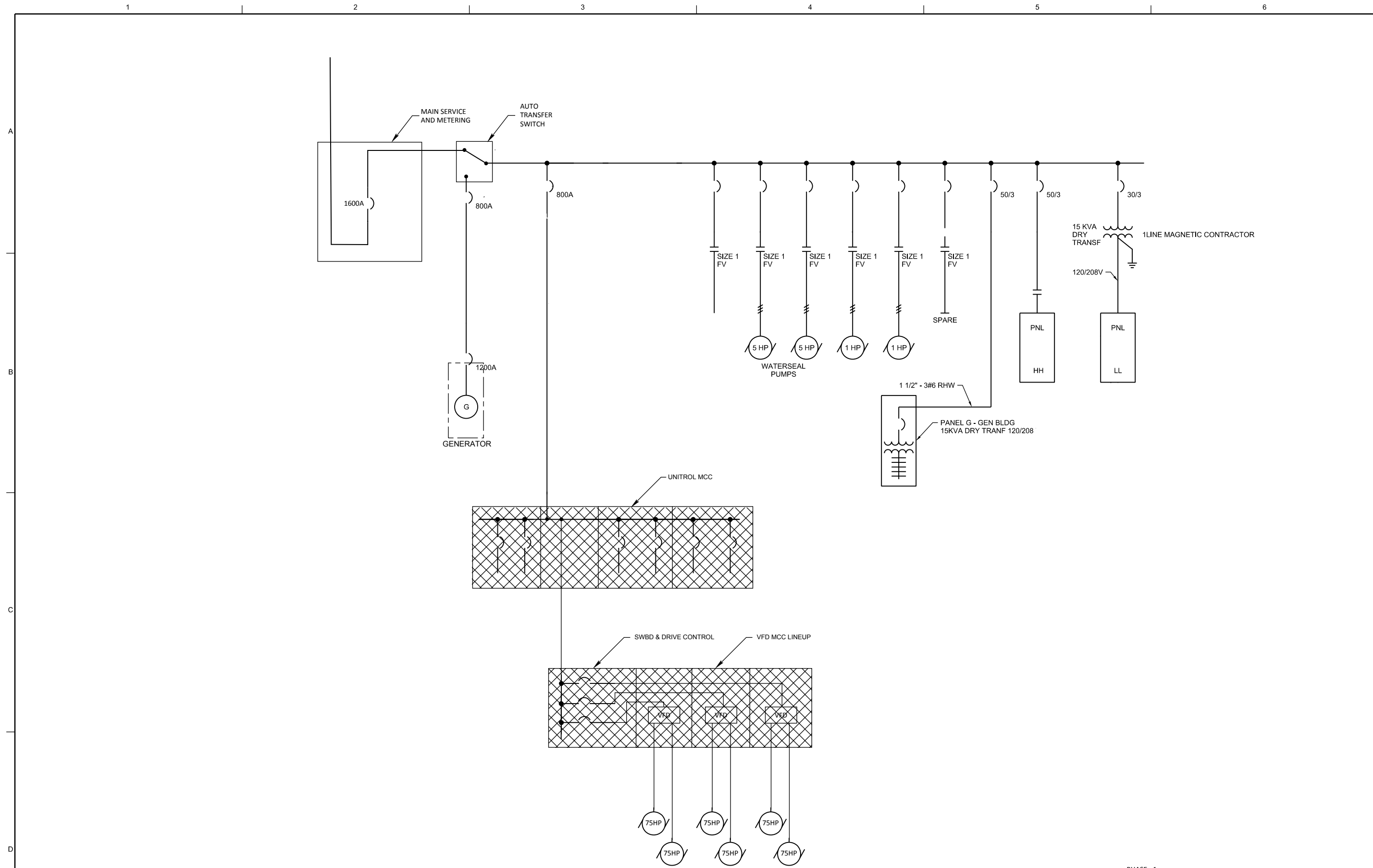
**PLAN**  
1"=20'



**ch2m**  
ELECTRICAL  
SITE PLAN

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DATE	JULY 2018
PROJ	393670.EI.ES
DWG	DRAWING-NO
SHEET	ShtNum of XX

NO.	DATE	DR	CHK	BY	APVD



**ONE LINE DIAGRAM**  
NTS

- PHASE - 1
- 1 - PROVIDE TEMPORARY POWER TO EXISTING VFD SWITCHBOARD.
  - 2 - DEMOLISH OLD MOTOR CONTROLLER
  - 3 - INSTALL NEW MCC-02
  - 4 - CONNECT NEW CONDUCTORS TO NEW MCC-02 AND ENERGIZE
  - 5 - ROUTE CONDUIT AND CONDUCTORS FROM NEW VFD'S TO MOTORS
  - 6 - CHANGE OVER ONE PUMP SET AT A TIME TO NEW VFD
  - 7 - DISCONNECT TEMPORARY POWER.
  - 8- DEMOLISH OLD SWITCHBOARD AND VFD'S

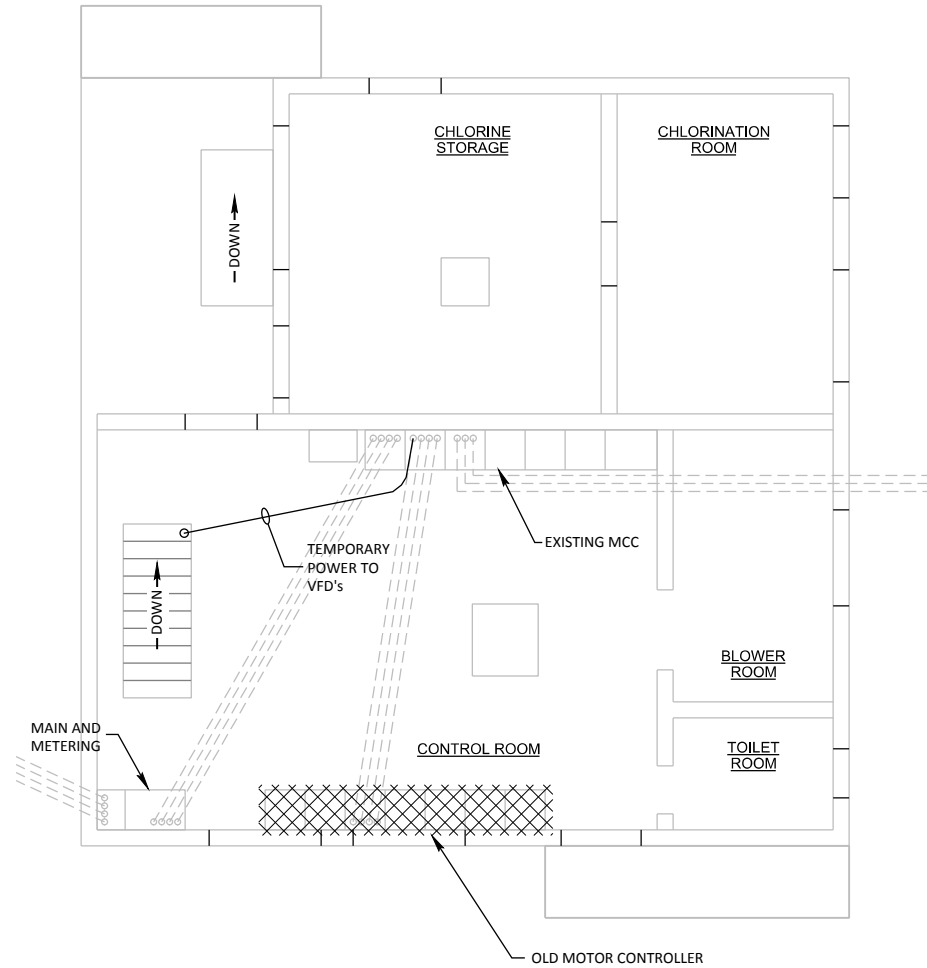
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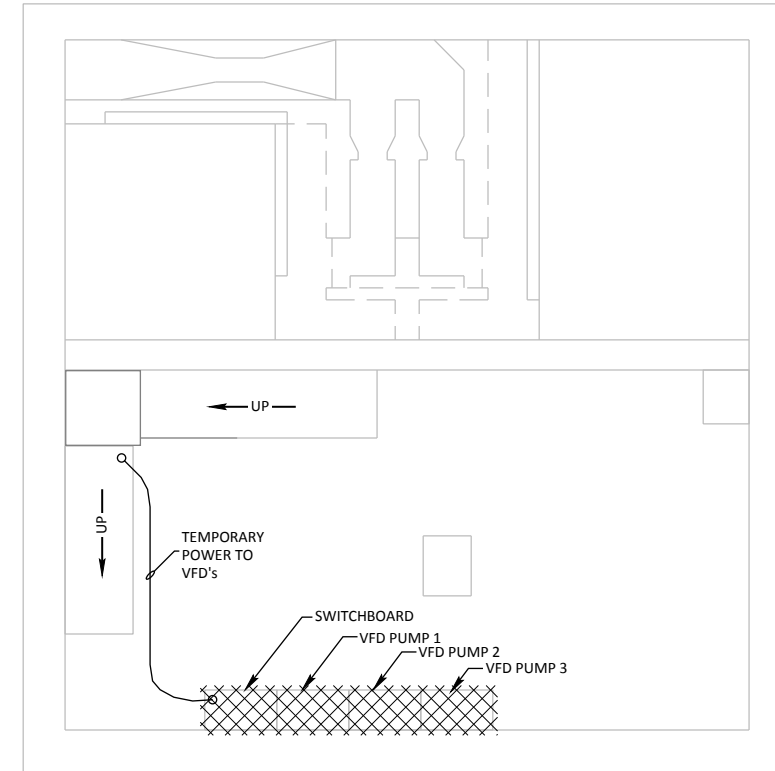
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ELECTRICAL  
PLAN

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DATE	
PROJ	393670.EI.ES
DWG	
SHEET	





**MAIN LEVEL PLAN**  
1/4"=1'-0"



**LEVEL 2 PLAN**  
1/4"=1'-0"

- PHASE - 1
- 1 - PROVIDE TEMPORARY POWER TO EXISTING VFD SWITCHBOARD.
  - 2 - DEMOLISH OLD MOTOR CONTROLLER
  - 3 - INSTALL NEW MCC-02
  - 4 - CONNECT NEW CONDUCTORS TO NEW MCC-02 AND ENERGIZE
  - 5 - ROUTE CONDUIT AND CONDUCTORS FROM NEW VFD's TO MOTORS
  - 6 - CHANGE OVER ONE PUMP SET AT A TIME TO NEW VFD
  - 7 - DISCONNECT TEMPORARY POWER.
  - 8 - DEMOLISH OLD SWITCHBOARD AND VFD's



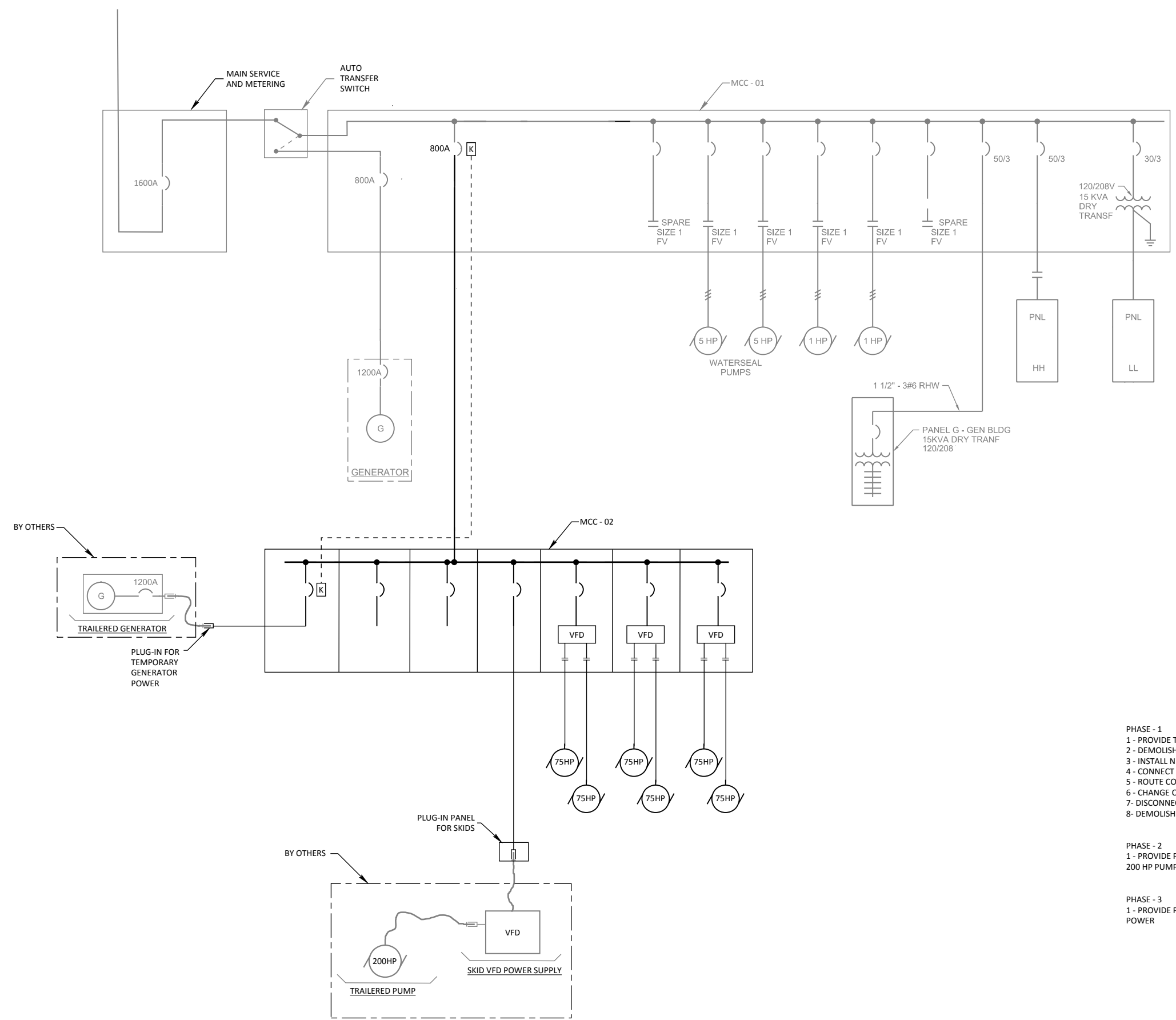
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PUMPING PLANT  
DEMOLITION PLAN

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DWG	
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30% DOCUMENT

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NO.	DATE	DR	CHK	BY
		T. HILL	J. MINOR	APVD
				APVD



**ONE LINE DIAGRAM**  
NTS

- PHASE - 1**
- 1 - PROVIDE TEMPORARY POWER TO EXISTING VFD SWITCHBOARD.
  - 2 - DEMOLISH OLD MOTOR CONTROLLER
  - 3 - INSTALL NEW MCC-02
  - 4 - CONNECT NEW CONDUCTORS TO NEW MCC-02 AND ENERGIZE
  - 5 - ROUTE CONDUIT AND CONDUCTORS FROM NEW VFD'S TO MOTORS
  - 6 - CHANGE OVER ONE PUMP SET AT A TIME TO NEW VFD
  - 7 - DISCONNECT TEMPORARY POWER.
  - 8 - DEMOLISH OLD SWITCHBOARD AND VFD'S
- PHASE - 2**
- 1 - PROVIDE PERMANENT INSTALLATION FOR EMERGENCY POWER TO VFD AND 200 HP PUMP SKID
- PHASE - 3**
- 1 - PROVIDE PERMANENT INSTALLATION FOR PLUG-IN TEMPORARY GENERATOR POWER



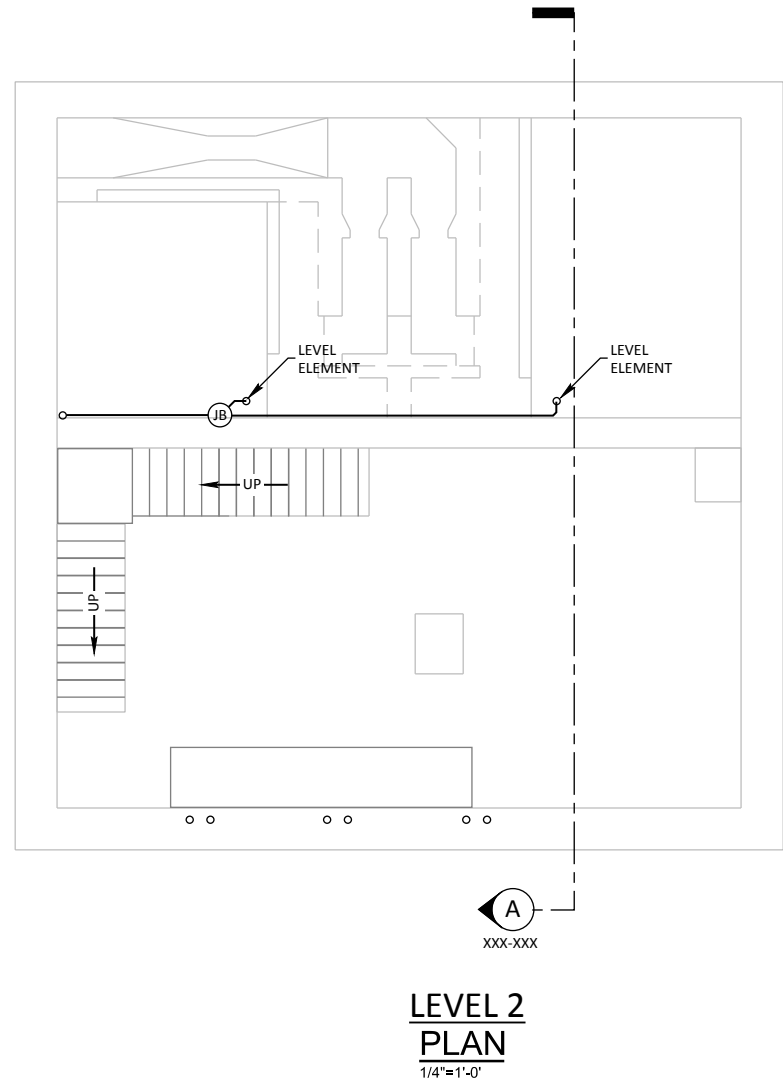
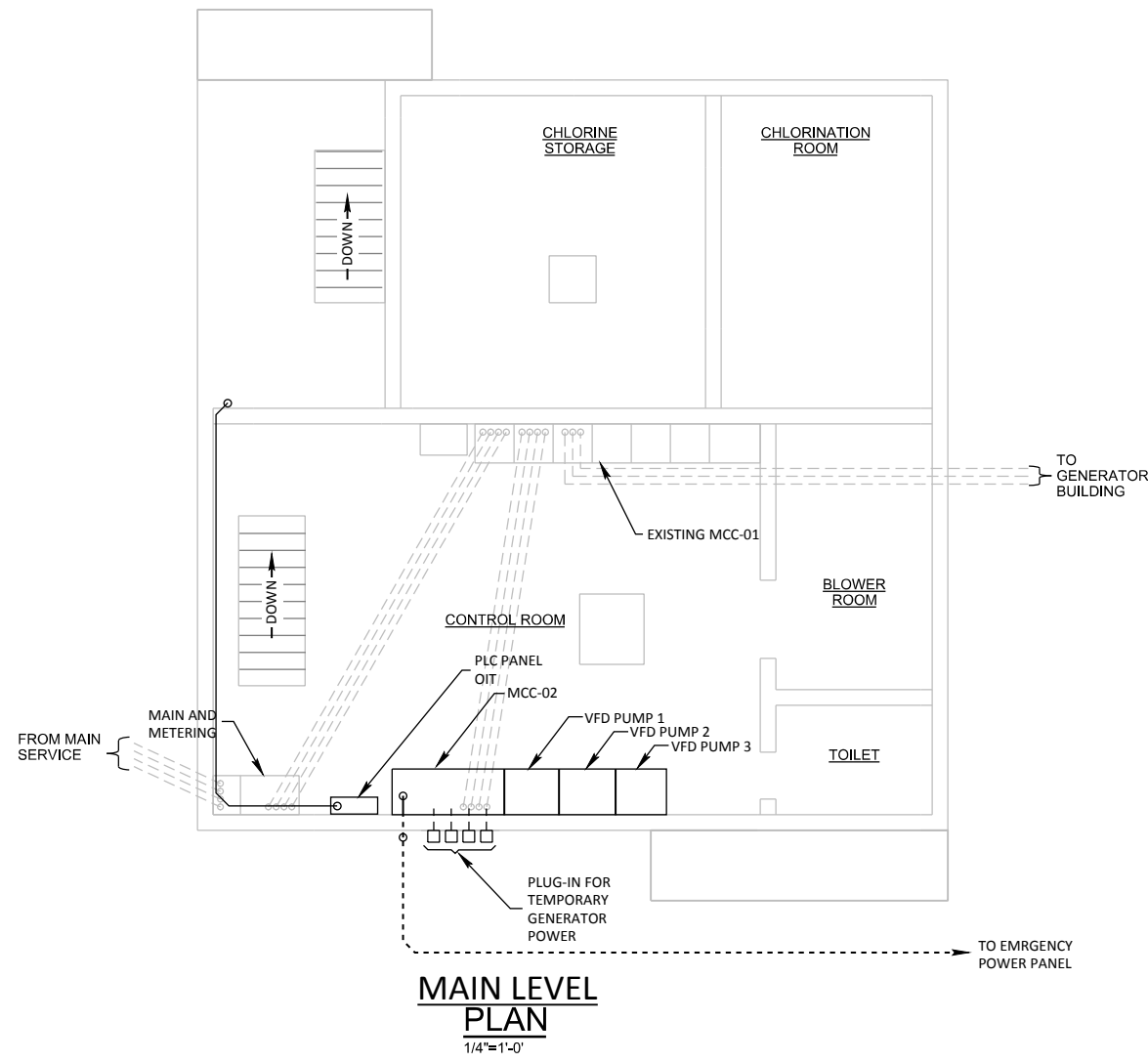
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NO.	DATE	DR	REVISION	BY
		T HILL	CHK	APVD
		J MINOR	CHK	APVD



- PHASE - 1**
- 1 - PROVIDE TEMPORARY POWER TO EXISTING VFD SWITCHBOARD.
  - 2 - DEMOLISH OLD MOTOR CONTROLLER
  - 3 - INSTALL NEW MCC-02
  - 4 - CONNECT NEW CONDUCTORS TO NEW MCC-02 AND ENERGIZE
  - 5 - ROUTE CONDUIT AND CONDUCTORS FROM NEW VFD'S TO MOTORS
  - 6 - CHANGE OVER ONE PUMP SET AT A TIME TO NEW VFD
  - 7 - DISCONNECT TEMPORARY POWER.
  - 8 - DEMOLISH OLD SWITCHBOARD AND VFD'S

- PHASE - 2**
- 1 - PROVIDE PERMANENT INSTALLATION FOR EMERGENCY POWER PANEL FOR VFD AND 200 HP PUMP SKID

- PHASE - 3**
- 1 - PROVIDE PERMANENT INSTALLATION FOR PLUG-IN TEMPORARY GENERATOR POWER



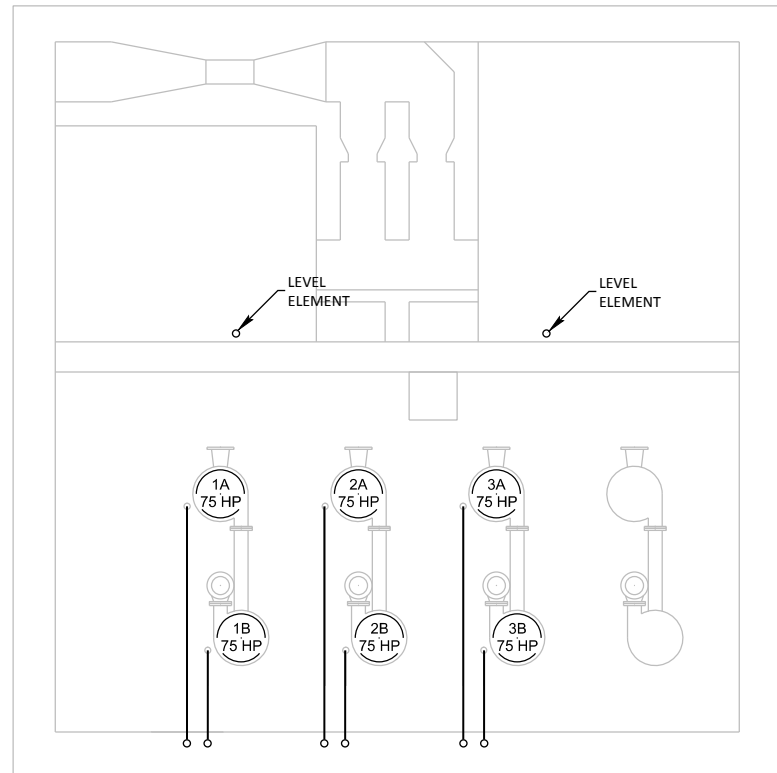
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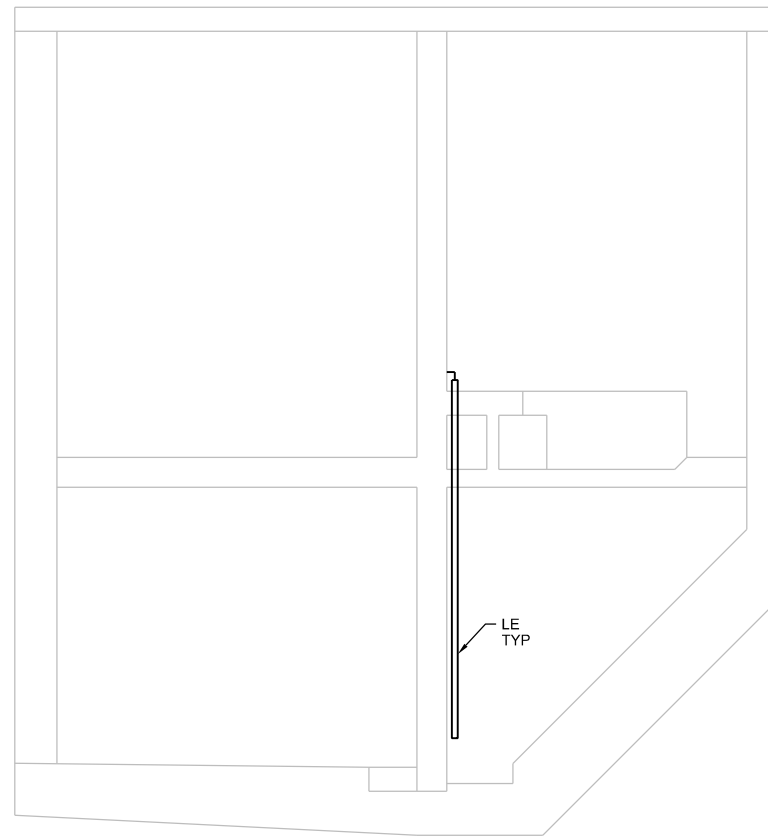
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		T. HILL	CHK	APVD
		J. MINOR	CHK	APVD
				APVD

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**LEVEL 3  
PLAN**  
1/4"=1'-0"



**A SECTION**  
1/4"=1'-0"  
x



**ch2m**  
ELECTRICAL  
PUMPING PLANT  
PLAN AND SECTION

VERIFY SCALE	
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NO.	DATE	DR	CHK	BY
		T. HILL	J. MINOR	APVD
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## INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT PROFESSIONAL SERVICES AGREEMENT

### 1. PARTIES AND DATE.

This Agreement is made and entered into as of \_\_\_\_\_, 2023 by and between the Incline Village General Improvement District, a Nevada general improvement district (“District”) and **DOWL, LLC, a Delaware Limited Liability Corporation**, with its principal place of business at 5442 Longley Lane, Suite A, Reno, Nevada (“Consultant”). The District and Consultant are sometimes individually referred to as “Party” and collectively as “Parties.”

### 2. RECITALS.

- 2.1 District. District is a general improvement district organized under the laws of the State of Nevada, with power to contract for services necessary to achieve its purpose.
- 2.2 Consultant. Consultant desires to perform and assume responsibility for the provision of certain professional engineering services required by the District on the terms and conditions set forth in this Agreement. Consultant represents that it is experienced in providing surveying services to public clients, is licensed in the State of Nevada, and is familiar with the plans of the District.
- 2.3 Project. District desires to engage Consultant to render modeling services for the District’s upcoming Sewer Pump Station #1 Improvements (“Project.”)

### 3. TERMS.

#### 3.1 Scope of Services and Term.

- 3.1.1 General Scope of Services. Consultant promises and agrees to furnish to the District, all labor, materials, tools, equipment, services, and incidental and customary work necessary to fully and adequately supply services consisting of developing Bid Set Documents for replacing aging electrical infrastructure within the existing Sewer Pump Station #1 facility. A consultant had previously prepared plans and specifications for this project, however IVGID would like to break the project up into four priority levels of upgrades to the facility. The consultant shall review the prior design and develop bidding documents that include the Base Bid - Priorities #1 and #2, Bid Alternate A - Priority #3 and Bid Alternate B – Priority #4. (the “Services.”) The Services to be provided are further described in Exhibit A, Consultant’s Scope of Work, attached hereto and incorporated herein by reference. All Services shall be subject to, and performed in accordance with, this Agreement, the exhibits attached hereto and incorporated herein by reference, and all applicable local, state and federal laws, rules and regulations. As described in Section 3.3, the District shall pay for such services in accordance with the Schedule of Charges set forth in Exhibit B, Consultant’s fee schedule.
- 3.1.2 Term. The term of this Agreement shall be from June 29, 2023 to June 29, 2024, unless earlier terminated as provided herein. The Parties may, by mutual, written consent, extend the term of this Agreement if necessary to complete the Project.

## 3.2 Responsibilities of Consultant.

- 3.2.1 Control and Payment of Subordinates; Independent Contractor. The Services shall be performed by Consultant or under its supervision. Consultant will determine the means, methods and details of performing the Services subject to the requirements of this Agreement and such directions and amendments from District as herein provided. The District retains Consultant on an independent contractor basis and not as an employee. No employee or agent of Consultant shall become an employee of District. Any additional personnel performing the Services under this Agreement on behalf of Consultant shall also not be employees of the District and shall at all times be under Consultant's exclusive direction and control. Consultant shall pay all wages, salaries, and other amounts due such personnel in connection with their performance of Services under this Agreement and as required by law. Consultant shall be responsible for all reports and obligations respecting such additional personnel, including, but not limited to: social security taxes, income tax withholding, unemployment insurance, disability insurance, and workers' compensation insurance.
- 3.2.2 Schedule of Services. Consultant shall perform its services in a prompt and timely manner and shall commence performance upon receipt of written notice from the District to proceed ("Notice to Proceed"). Consultant shall complete the services required hereunder by July 25, 2023.
- 3.2.3 Conformance to Applicable Requirements. All work prepared by Consultant shall be subject to the District's approval.
- 3.2.4 Substitution of Key Personnel. Consultant has represented to the District that certain key personnel will perform and coordinate the Services under this Agreement. Should one or more of such personnel become unavailable, Consultant may substitute other personnel of at least equal competence subject to the District's written approval. In the event that the District and Consultant cannot agree as to the substitution of key personnel, the District shall be entitled to terminate this Agreement for cause. As discussed below, any personnel who fail or refuse to perform the Services in a manner acceptable to the District, or who are determined by the District to be uncooperative, incompetent, a threat to the adequate or timely completion of the Project or a threat to the safety of persons or property, shall be promptly removed from the Project by the Consultant at the request of the District. The key personnel for performance of this Agreement are as follows: [David Oto](#).
- 3.2.5 District's Representative. The District hereby designates [Engineering Manager Kate Nelson](#) or her designee, to act as its representative for the performance of this Agreement ("District's Representative"). The District's Representative shall have the power to act on behalf of the District for all purposes under this Contract. Consultant shall not accept direction or orders from any person other than the District's Representative or her designee.
- 3.2.6 Consultant's Representative. Consultant hereby designates [Matt Van Dyne](#) or his designee, to act as its representative for the performance of this Agreement ("Consultant's Representative"). Consultant's Representative shall have full authority to represent and act on behalf of the Consultant for all purposes under this Agreement. The Consultant's Representative shall supervise and direct the Services, using his best skill and attention, and shall be responsible for all means, methods, techniques, sequences and procedures and for the satisfactory coordination of all portions of the Services under this Agreement.

- 3.2.7 Coordination of Services. Consultant agrees to work closely with the District staff in the performance of Services and shall be available to the District's staff, consultants and other staff at all reasonable times.
- 3.2.8 Standard of Care; Performance of Employees. Consultant shall perform all Services under this Agreement in a skillful and competent manner, consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of Nevada. Consultant represents and maintains that it is skilled in the professional calling necessary to perform the Services. Consultant warrants that all employees and subcontractors shall have sufficient skill and experience to perform the Services assigned to them. Finally, Consultant represents that it, its employees and subcontractors have all licenses, permits, qualifications and approvals of whatever nature that are legally required to perform the Services, including a Washoe County Business License, and that such licenses and approvals shall be maintained throughout the term of this Agreement. As provided for in the indemnification provisions of this Agreement, Consultant shall perform, at its own cost and expense and without reimbursement from the District, any services necessary to correct errors or omissions which are caused by the Consultant's failure to comply with the standard of care provided for herein. Any employee of the Consultant or its sub-consultants who is determined by the District to be uncooperative, incompetent, a threat to the adequate or timely completion of the Project, a threat to the safety of persons or property, or any employee who fails or refuses to perform the Services in a manner acceptable to the District, shall be promptly removed from the Project by the Consultant and shall not be re-employed to perform any of the Services or to work on the Project.
- 3.2.9 Laws and Regulations. Consultant shall keep itself fully informed of and in compliance with all local, state and federal laws, rules and regulations in any manner affecting the performance of the Project or the Services, and shall give all notices required by law. If required, Consultant shall assist District, as requested, in obtaining and maintaining all permits required of Consultant by federal, state and local regulatory agencies. Consultant shall be liable for all violations of local, state and federal laws, rules and regulations in connection with the Project and the Services. If the Consultant performs any work knowing it to be contrary to such laws, rules and regulations and without giving written notice to the District, Consultant shall be solely responsible for all costs arising therefrom. Consultant shall defend, indemnify and hold the District, its officials, directors, officers, employees and agents free and harmless, pursuant to the indemnification provisions of this Agreement, from any claim or liability arising out of any failure or alleged failure to comply with such laws, rules or regulations.
- 3.2.10 Insurance.
- 3.2.10.1 Time for Compliance. Consultant shall not commence the Services under this Agreement until it has provided evidence satisfactory to the District that it has secured all insurance required under this section. In addition, Consultant shall not allow any subcontractor to commence work on any subcontract until it has provided evidence satisfactory to the District that the subcontractor has secured all insurance required under this section.
- 3.2.10.2 Minimum Requirements. Consultant shall, at its expense, procure and maintain for the duration of the Agreement insurance meeting the requirements set forth herein. Consultant shall also require all of its subcontractors to procure and maintain the same insurance for the duration of the Agreement. Such insurance shall meet at least the following minimum levels of coverage:

- (A) Minimum Limits of Insurance. Consultant shall maintain limits no less than: (1) *General Liability:* A minimum of \$2,000,000 per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with general aggregate limit is used, either the general aggregate limit shall apply separately to this Agreement/location or the general aggregate limit shall be twice the required occurrence limit; (2) *Automobile Liability:* A minimum of \$1,000,000 combined single limit (each accident) for bodily injury and property damage; and (3) *Industrial Insurance:* Workers' Compensation limits as required by the Labor Code of the State of Nevada. Employer's Liability limits of \$1,000,000 per accident for bodily injury or disease; and (4) *Professional Liability/Errors and Omissions:* Consultant shall procure and maintain, and require its sub-consultants to procure and maintain, for a period of five (5) years following completion of the Services, professional liability/errors and omissions liability insurance appropriate to their profession. Such insurance shall be in an amount not less than \$1,000,000 per claim, and shall be endorsed to include contractual liability. "Covered Professional Services" as designated in the Professional Liability/Errors and Omissions policy must specifically include work performed under this Agreement.

Requirements of specific coverage or limits contained in this section are not intended as a limitation on coverage, limits, or other requirement, or a waiver of any coverage normally provided by any insurance. Any available coverage shall be provided to the parties required to be named as additional insured pursuant to this Agreement. Defense costs shall be payable in addition to the limits.

3.2.10.3 Insurance Endorsements. The insurance policies shall contain the following provisions, or Consultant shall provide endorsements on forms supplied or approved by the District to add the following provisions to the insurance policies:

- (A) Commercial General Liability. The commercial general liability policy shall be endorsed to provide the following: (1) the District, its directors, officials, officers, employees, agents and volunteers shall be covered as additional insureds; (2) the insurance coverage shall be primary insurance as respects the District, its directors, officials, officers, employees, agents and volunteers, or if excess, shall stand in an unbroken chain of coverage excess of the Consultant's scheduled underlying coverage. Any insurance or self-insurance maintained by the District, its directors, officials, officers, employees, agents and volunteers shall be excess of the Consultant's insurance and shall not be called upon to contribute with it in any way; and (3) the insurance coverage shall contain or be endorsed to provide waiver of subrogation in favor of the District, its directors, officials, officers, employees, agents and volunteers or shall specifically allow Consultant to waive its right of recovery prior to a loss. Consultant hereby waives its own right of recovery against District, and shall require similar written express waivers and insurance clauses from each of its subconsultants.
- (B) Automobile Liability. The automobile liability policy shall be endorsed to provide the following: (1) the District, its directors, officials, officers, employees, agents and volunteers shall be covered as additional insureds with respect to the ownership, operation, maintenance, use, loading or unloading of any auto owned, leased, hired or borrowed by the Consultant or for which the Consultant is responsible; (2) the insurance coverage shall be primary insurance as respects the District, its directors, officials, officers, employees, agents and volunteers, or if excess, shall



stand in an unbroken chain of coverage excess of the Consultant's scheduled underlying coverage. Any insurance or self-insurance maintained by the District, its directors, officials, officers, employees, agents and volunteers shall be excess of the Consultant's insurance and shall not be called upon to contribute with it in any way; and (3) the insurance coverage shall contain or be endorsed to provide waiver of subrogation in favor of the District, its directors, officials, officers, employees, agents and volunteers or shall specifically allow Consultant to waive its right of recovery prior to a loss. Consultant hereby waives its own right of recovery against District, and shall require similar written express waivers and insurance clauses from each of its subconsultants.

- (C) Industrial (Workers' Compensation and Employers Liability) Insurance. The insurer shall agree to waive all rights of subrogation against the District, its directors, officials, officers, employees, agents and volunteers for losses paid under the terms of the insurance policy which arise from work performed by the Consultant.
- (D) All Coverages. Each insurance policy required by this Agreement shall be endorsed to state that: (A) coverage shall not be suspended, voided, reduced or canceled except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the District; and (B) any failure to comply with reporting or other provisions of the policies, including breaches of warranties, shall not affect coverage provided to the District, its directors, officials, officers, employees, agents and volunteers.

3.2.10.4 Separation of Insureds; No Special Limitations. All insurance required by this Section shall contain standard separation of insureds provisions. In addition, such insurance shall not contain any special limitations on the scope of protection afforded to the District, its directors, officials, officers, employees, agents and volunteers.

3.2.10.5 Deductibles and Self-Insurance Retentions. Any deductibles or self-insured retentions must be declared to and approved by the District. Consultant shall guarantee that, at the option of the District, either: (1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the District, its directors, officials, officers, employees, agents and volunteers; or (2) the Consultant shall procure a bond guaranteeing payment of losses and related investigation costs, claims and administrative and defense expenses.

3.2.10.6 Acceptability of Insurers. Insurance is to be placed with insurers duly licensed or authorized to do business in the state of Nevada and with an "A.M. Best" rating of not less than A-VII. The District in no way warrants that the above-required minimum insurer rating is sufficient to protect the Consultant from potential insurer insolvency.

3.2.10.7 Verification of Coverage. Consultant shall furnish the District with original certificates of insurance and endorsements effecting coverage required by this Agreement on forms satisfactory to the District. The certificates and endorsements for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf, and shall be on forms provided by the District if requested. All certificates and endorsements must be received and approved by the District before work commences. The District reserves the right to require complete, certified copies of all required insurance policies, at any time.

- 3.2.10.8 Subconsultants. Consultant shall not allow any subcontractors or subconsultants to commence work on any subcontract until they have provided evidence satisfactory to the District that they have secured all insurance required under this section. Policies of commercial general liability insurance provided by such subcontractors or subconsultants shall be endorsed to name the District as an additional insured using ISO form CG 20 38 04 13 or an endorsement providing the exact same coverage. If requested by Consultant, District may approve different scopes or minimum limits of insurance for particular subcontractors or subconsultants.
- 3.2.10.9 Compliance with Coverage Requirements. If at any time during the life of the Agreement, any policy of insurance required under this Agreement does not comply with these specifications or is canceled and not replaced, District has the right but not the duty to obtain the insurance it deems necessary and any premium paid by District will be promptly reimbursed by Consultant or District will withhold amounts sufficient to pay premium from Consultant payments. In the alternative, District may terminate this Agreement for cause.
- 3.2.11 Safety. Consultant shall execute and maintain its work so as to avoid injury or damage to any person or property. In carrying out its Services, the Consultant shall at all times be in compliance with all applicable local, state and federal laws, rules and regulations, and shall exercise all necessary precautions for the safety of employees appropriate to the nature of the work and the conditions under which the work is to be performed.

### **3.3 Fees and Payments.**

- 3.3.1 Compensation. Consultant shall receive compensation, including authorized reimbursements, for all Services rendered under this Agreement in accordance with the Schedule of Charges set forth in Exhibit B, attached hereto and incorporated herein by reference. The total compensation to be provided under this Agreement shall not exceed **Thirty Three Thousand Eight Hundred Thirty Three (\$33,833.00)** without written approval of District's Engineering Manager. Extra Work may be authorized, as described below; and if authorized, said Extra Work will be compensated at the rates and manner set forth in this Agreement.
- 3.3.2 Payment of Compensation. Consultant shall submit to District a monthly itemized invoice which indicates work completed and hours of Services rendered by Consultant. The invoice shall describe the amount of Services and supplies provided since the initial commencement date of Services under this Agreement, and since the start of the subsequent billing periods, through the date of the invoice. Invoices shall be sent to [invoices@ivgid.org](mailto:invoices@ivgid.org), with a copy to [rlr@ivgid.org](mailto:rlr@ivgid.org). Consultant shall include a Project Task Tracking Sheet with each invoice submitted. District shall, within thirty (30) days of receiving such invoice and Project Task Tracking Sheet, review the invoice and pay all approved charges thereon.
- 3.3.3 Reimbursement for Expenses. Consultant shall not be reimbursed for any expenses unless authorized under Exhibit A, or otherwise in writing by the District.
- 3.3.4 Extra Work. At any time during the term of this Agreement, the District may request that Consultant perform Extra Work. As used herein, "Extra Work" means any work which is determined by the District to be necessary for the proper completion of the Project, but which the Parties did not reasonably anticipate would be necessary at the execution of this Agreement. Consultant shall not perform, nor be compensated for, Extra Work without written authorization from the District's Representative. Where Extra Work is deemed

merited by the District, an amendment to the Agreement shall be prepared by the District and executed by both Parties before performance of such Extra Work, or the District will not be required to pay for the changes in the scope of work. Such amendment shall include the change in fee and/or time schedule associated with the Extra Work. Amendments for Extra Work shall not render ineffective or invalidate unaffected portions of this Agreement.

### **3.4 Accounting Records.**

3.4.1 Maintenance and Inspection. Consultant shall maintain accurate and complete books, documents, accounting records and other records pertaining to the Services for six (6) years (or longer as required by applicable law) from the date of final payment under this Agreement. Consultant shall make such records available to the District for inspection, audit, examination, reproduction, and copying at Consultant's offices at all reasonable times. However, if requested, Consultant shall furnish copies of said records at its expense to the District, within seven (7) business days of the request.

### **3.5 General Provisions.**

#### **3.5.1 Termination of Agreement.**

3.5.1.1 Grounds for Termination. The District may, by written notice to Consultant, terminate the whole or any part of this Agreement at any time and without cause by giving written notice to Consultant of such termination, and specifying the effective date thereof, at least seven (7) days before the effective date of such termination. Upon termination, Consultant shall be compensated only for those services which have been adequately rendered to the District, and Consultant shall be entitled to no further compensation. Consultant may not terminate this Agreement except for cause. Consultant shall not be entitled to payment for unperformed Services, and shall not be entitled to damages or compensation for termination of this Agreement by District except for the amounts authorized herein.

3.5.1.2 Effect of Termination. If this Agreement is terminated as provided herein, the District may require Consultant to provide all finished or unfinished Documents and Data (defined below) and other information of any kind prepared by Consultant in connection with the performance of Services under this Agreement. Consultant shall be required to provide such documents and other information within fifteen (15) days of the request.

3.5.1.3 Additional Services. In the event this Agreement is terminated in whole or in part as provided herein, the District may procure, upon such terms and in such manner as it may determine appropriate, services similar to those terminated.

3.5.2 Delivery of Notices. All notices permitted or required under this Agreement shall be given to the respective Parties at the following address, or at such other address as the respective parties may provide in writing for this purpose:

**District**

Incline Village General Improvement District  
893 Southwood Blvd.  
Incline Village, NV 89451  
Attn: Kate Nelson

**Consultant**

DOWL, LLC  
5442 Longley Lane, Suite A  
Reno, Nevada 89511  
Attn: Matt Van Dyne

Such notice shall be deemed made when personally delivered or when mailed, forty-eight (48) hours after deposit in the U.S. Mail, first class postage prepaid and addressed to the Party at its applicable address. Actual notice shall be deemed adequate notice on the date actual notice occurred, regardless of the method of service.

### 3.5.3 Ownership of Materials and Confidentiality.

3.5.3.1 Documents & Data. All source code, reports, programs, manuals, disks, tapes, and any other material prepared by or worked upon by Consultant for the Services shall be the exclusive property of the District, and the District shall have the right to obtain from Consultant and to hold in District's name copyrights, trademark registrations, patents, or whatever protection Consultant may appropriate to the subject matter. Consultant shall provide District with all assistance reasonably required to perfect the rights in this subsection.

3.5.3.2 Confidentiality. All ideas, memoranda, specifications, plans, procedures, drawings, descriptions, computer program data, input record data, written information, and other Documents and Data either created by or provided to Consultant in connection with the performance of this Agreement shall be held confidential by Consultant. Such materials shall not, without the prior written consent of the District, be used by Consultant for any purposes other than the performance of the Services. Nor shall such materials be disclosed to any person or entity not connected with the performance of the Services or the Project. Nothing furnished to Consultant which is otherwise known to Consultant or is generally known, or has become known, to the related industry shall be deemed confidential. Consultant shall not use the District's name or insignia, photographs of the Project, or any publicity pertaining to the Services or the Project in any magazine, trade paper, newspaper, television or radio production or other similar medium without the prior written consent of the District.

3.5.4 Cooperation; Further Acts. The Parties shall fully cooperate with one another, and shall take any additional acts or sign any additional documents as may be necessary, appropriate or convenient to attain the purposes of this Agreement.

3.5.5 Attorney's Fees. If either Party commences an action against the other Party, either legal, administrative or otherwise, arising out of or in connection with this Agreement, the prevailing party in such litigation shall be entitled to have and recover from the losing party reasonable attorney's fees and all other costs of such action.

3.5.6 Indemnification. To the fullest extent permitted by law, Consultant shall defend, indemnify and hold the District, its officials, officers, employees, volunteers, and agents free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage or injury, in law or equity, to property or persons, including wrongful death, in any manner arising out of, pertaining to, or relating to any negligence or willful misconduct of Consultant, its officials, officers, employees, agents, consultants, and contractors arising out of or in connection with the performance of the Services, the Project, or this Agreement, including without limitation the payment of all consequential damages, expert witness fees, and attorney's fees and other related costs and expenses. Consultant shall defend, at Consultant's own cost, expense and risk, any and all such aforesaid suits, actions or other legal proceedings of every kind that may be brought or instituted against District, its directors, officials, officers, employees, agents, or volunteers. Consultant shall pay and satisfy any judgment, award or decree that may be rendered against District or its directors, officials, officers, employees, agents, or volunteers, in any

such suit, action or other legal proceeding. Consultant shall reimburse District and its directors, officials, officers, employees, agents, and/or volunteers, for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided, including correction of errors and omissions. Consultant's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by the District, its directors, officials, officers, employees, agents or volunteers.

- 3.5.6.1 Design Professional. To the extent required by NRS 338.155, Consultant's obligation to defend, indemnify, and hold District, its officials, officers, employees, volunteers, and agents free and harmless shall not include any liability, damage, loss, claim, action or proceeding caused by the negligence, errors, omissions, recklessness or intentional misconduct of the employees, officers or agents of the District. Moreover, Consultant's obligation to defend, indemnify, and hold District, its officials, officers, employees, volunteers, and agents free and harmless from any liability, damage, loss, claim, action or proceeding caused by the negligence, errors, omissions, recklessness or intentional misconduct of the Consultant or the employees or agents of the Consultant which are based upon or arising out of the professional services of the Consultant. If the Consultant is adjudicated to be liable by a trier of fact, the trier of fact shall award reasonable attorney's fees and costs to be paid to the District, as reimbursement for the attorney's fees and costs incurred by the District in defending the action, by the Consultant in an amount which is proportionate to the liability of the Consultant. This Section shall only apply to the extent required by NRS 338.155 and shall not otherwise limit Consultant's obligation to defend, indemnify and hold the District harmless as required under Section 3.5.6.
- 3.5.7 Entire Agreement. This Agreement contains the entire Agreement of the Parties with respect to the subject matter hereof, and supersedes all prior negotiations, understandings or agreements. This Agreement may only be modified by a writing signed by both Parties.
- 3.5.8 Governing Law. This Agreement shall be governed by the laws of the State of Nevada. Venue shall be in Washoe County.
- 3.5.9 Time of Essence. Time is of the essence for each and every provision of this Agreement.
- 3.5.10 District's Right to Employ Other Consultants. The District reserves right to employ other consultants in connection with this Project.
- 3.5.11 Successors and Assigns. This Agreement shall be binding on and shall inure to the benefit of the successors in interest, executors, administrators and assigns of each Party.
- 3.5.12 Assignment or Transfer. Consultant shall not assign, hypothecate, or transfer, either directly or by operation of law, this Agreement or any interest herein without the prior written consent of the District. Any attempt to do so shall be null and void, and any assignees, hypothecates or transferees shall acquire no right or interest by reason of such attempted assignment, hypothecation or transfer.
- 3.5.13 Subcontracting. Consultant shall not subcontract any portion of the work required by this Agreement, except as expressly stated herein, without prior written approval of District. Subcontracts, if any, shall contain a provision making them subject to all provisions stipulated in this Agreement.

- 3.5.14 Construction; References; Captions. Since the Parties or their agents have participated fully in the preparation of this Agreement, the language of this Agreement shall be construed simply, according to its fair meaning, and not strictly for or against any Party. Any term referencing time, days or period for performance shall be deemed calendar days and not work days. All references to Consultant include all personnel, employees, agents, and subcontractors of Consultant, except as otherwise specified in this Agreement. All references to the District include its officials, officers, employees, agents, and volunteers except as otherwise specified in this Agreement. The captions of the various articles and paragraphs are for convenience and ease of reference only, and do not define, limit, augment, or describe the scope, content, or intent of this Agreement.
- 3.5.15 Amendment; Modification. No supplement, modification, or amendment of this Agreement shall be binding unless executed in writing and signed by both Parties.
- 3.5.16 Waiver. No waiver of any default shall constitute a waiver of any other default or breach, whether of the same or other covenant or condition. No waiver, benefit, privilege, or service voluntarily given or performed by a Party shall give the other Party any contractual rights by custom, estoppel, or otherwise.
- 3.5.17 No Third Party Beneficiaries. There are no intended third party beneficiaries of any right or obligation assumed by the Parties.
- 3.5.18 Invalidity; Severability. If any portion of this Agreement is declared invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, the remaining provisions shall continue in full force and effect.
- 3.5.22 Authority to Enter Agreement. Consultant has all requisite power and authority to conduct its business and to execute, deliver, and perform the Agreement. Each Party warrants that the individuals who have signed this Agreement have the legal power, right, and authority to make this Agreement and bind each respective Party.
- 3.5.23 Counterparts. This Agreement may be signed in counterparts, each of which shall constitute an original.
- 3.5.24 Limitation of Liability. The District does not and will not waive and expressly reserves all available defenses and limitations contained in Chapter 41 of the Nevada Revised Statutes. Contract liability of both parties shall not be subject to punitive damages.
- 3.5.25 Non-Appropriations. The District may terminate this Agreement, effective immediately upon receipt of written notice on any date specified if for any reason the District's funding source is not appropriated or is withdrawn, limited, or impaired.
- 3.5.26 Compliance with Laws. Consultant shall keep itself fully informed of and in compliance with all local, state and federal laws, rules and regulations in any manner affecting the performance of the Project or the Services. Consultant shall not discriminate against any person on the grounds of race, color, creed, religion, sex, sexual orientation, gender identity or gender expression, age, disability, national origin or any other status protected under any applicable law. Consultant is not currently engaged in, and during the duration of the Agreement shall not engage in, a Boycott of Israel. The term "Boycott of Israel" has the meaning ascribed to that term in NRS 332.065. Consultant shall be responsible for all fines, penalties, and repayment of any State of Nevada or federal funds (including those


that the District pays, becomes liable to pay, or becomes liable to repay) that may arise as a direct result of the Consultant's non-compliance with this subsection.

3.5.27 Prohibited Interests. Consultant maintains and warrants that it has not employed nor retained any company or person, other than a bona fide employee working solely for Consultant, to solicit or secure this Agreement. Further, Consultant warrants that it has not paid nor has it agreed to pay any company or person, other than a bona fide employee working solely for Consultant, any fee, commission, percentage, brokerage fee, gift or other consideration contingent upon or resulting from the award or making of this Agreement. For breach or violation of this warranty, District shall have the right to rescind this Agreement without liability. For the term of this Agreement, no member, officer or employee of District, during the term of his or her service with District, shall have any direct interest in this Agreement, or obtain any present or anticipated material benefit arising therefrom.

**OWNER:**  
**INCLINE VILLAGE G. I. D.**  
**Agreed to:**

**CONTRACTOR:**  
**DOWL, LLC**  
**Agreed to:**

By: \_\_\_\_\_  
Brad B. Underwood, P. E.  
Director of Public Works

By:  David Oto  
\_\_\_\_\_  
*Signature of Authorized Agent*  
David Oto, P.E., Project Manager  
\_\_\_\_\_  
*Print or Type Name and Title*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
June 19, 2023  
*Date*

**Reviewed as to Form:**

\_\_\_\_\_  
Joshua Nelson  
District General Counsel

If Contractor is a corporation,  
attach evidence of authority to  
sign.

\_\_\_\_\_  
*Date*

**Exhibit A**  
**Consultant's Scope of Work**



## EXHIBIT A

### CONSULTANT'S SCOPE OF WORK

Consultant will provide IVGID with the following services:

1. Review of Constructability and Existing Design Materials.
  - 1.1. Investigate the possibility of removing MCC-D entirely in an effort to save cost and make the system more intuitive to IVGID and maintenance personnel.
  - 1.2. Explore alternate design material avenues given current extended lead time for procuring major electrical equipment.
  - 1.3. Review and potentially revise construction phasing information in accordance with market conditions and IVGID's needs. Suggested phasing is as follows:
    - 1.3.1. Provide temporary power to (E) VFD SWBD directly from (E) MCC-D, allowing removal of (E) MCC-C and installation of (N) MCC-C.
    - 1.3.2. Hook up a pump to (N) VFD within (N) MCC-C while keeping other two (E) pumps connected to (E) MCC-D.
    - 1.3.3. At this point either use IVGID's mobile pump, VFD, and generator to provide bypass pumping or connect the sites 750kW generator directly to MCC-D. It is critical that the ATS is locked out to prevent paralleling sources.
    - 1.3.4. Verify both pumps are able to run on the 750kW generator.
    - 1.3.5. Disconnect ATS from (E) MCC-D and connect to (N) MCC-C. Verify (N) MCC-C and (N) VFD are operational on utility power. Fire up the one pump connected to MCC C and verify operation.
    - 1.3.6. Shut down 750kW generator and start cutting over the remaining two pumps one at a time to MCC-C.
    - 1.3.7. Connect 750kW generator back to ATS.
    - 1.3.8. Remove part of all of MCC-D depending on if bid alternates are being performed.
    - 1.3.9. Once the system is running off MCC-C, last step would be to phase the installation of the Service SWBD with utility. Could use bypass pump skid system or 750kW generator while waiting for utility to set the meter in the new SWBD.

2. Anticipated Deliverables and Schedule.

2.1. Consultant will complete its work in accordance with the following schedule, subject to reliance on IVGID for questions that may come up during the design phase.

Description	Date
Notice to Proceed	June 29, 2023
90% Design Document Submission for Review	July 21, 2023
90% Design Document Review Meeting	Week of July 24
90% Design Documents Comments Received	July 28, 2023
Bid Set Documents	August 10, 2023

3. Project Manager and Key Project Personnel.

3.1. David Oto, PE will serve as the project manager. His primary role will be to monitor the schedule and budget, and provide QA/QC for the electrical design.

3.2. Other key personnel include Matt Bodge, PE, Dakota Dreyer, and Tommy Garate.

**Exhibit B**  
**Consultant's Fee Schedule**

**EXHIBIT B**  
**CONSULTANT'S FEE SCHEDULE**

Category	Fee
Design Review	\$1,120
Design Development of Bidding Documents	\$30,643
Bidding Services	\$2,070
<del>Construction Administration Services</del>	<del>\$8,470</del>
<b>Total</b>	<del><b>\$42,303</b></del> <b>\$33,833</b>