

# CITY OF BATTLE CREEK, MICHIGAN

## VERONA PUMPING STATION IMPROVEMENTS



MARCH 2018

MARK BEHNKE – MAYOR

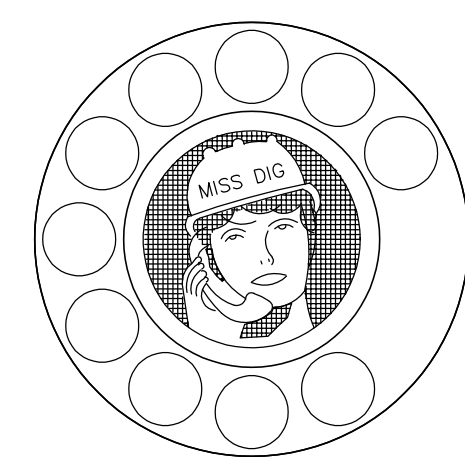
COMMISSION MEMBERS

DAVE WALTERS – VICE MAYOR

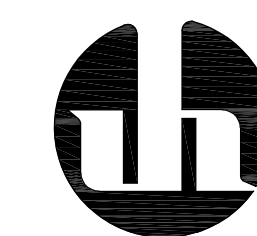
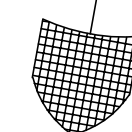
KATE FLORES  
SHERRY SOFIA  
KAYTEE FARIS  
SUSAN BALDWIN

LYNN WARD GRAY  
JOHN GRIFFIN  
CHRISTOPHER SIMMONS

CHRIS DOPP – DIRECTOR OF PUBLIC WORKS  
CARL FEDDERS – CITY ENGINEER  
KURT TRIBBETT – ENGINEERING ADMINISTRATOR  
PERRY HART – UTILITY ADMINISTRATOR

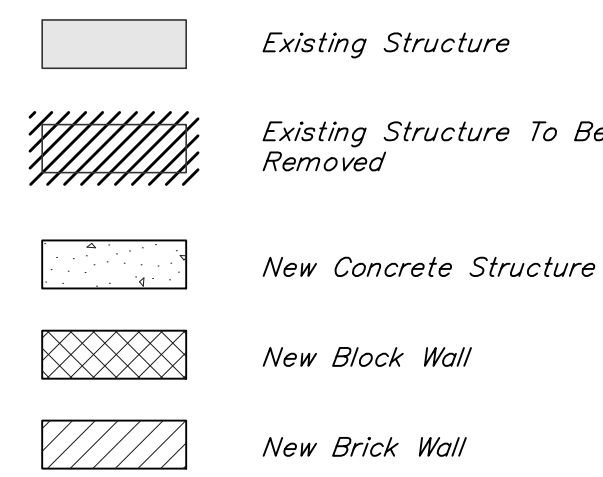


**72 HOURS**  
(3 WORKING DAYS)  
**BEFORE YOU DIG**  
**CALL MISS DIG**  
**800-482-7171**  
(TOLL-FREE)

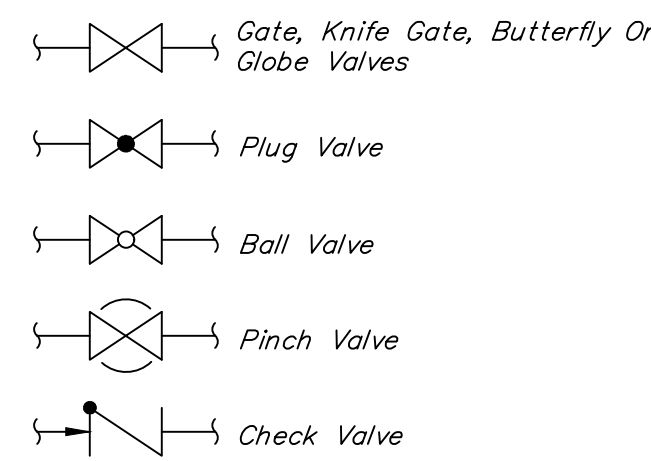


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STRUCTURAL LEGEND



VALVE SYMBOL LEGEND

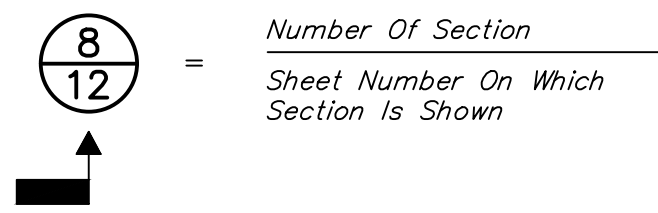
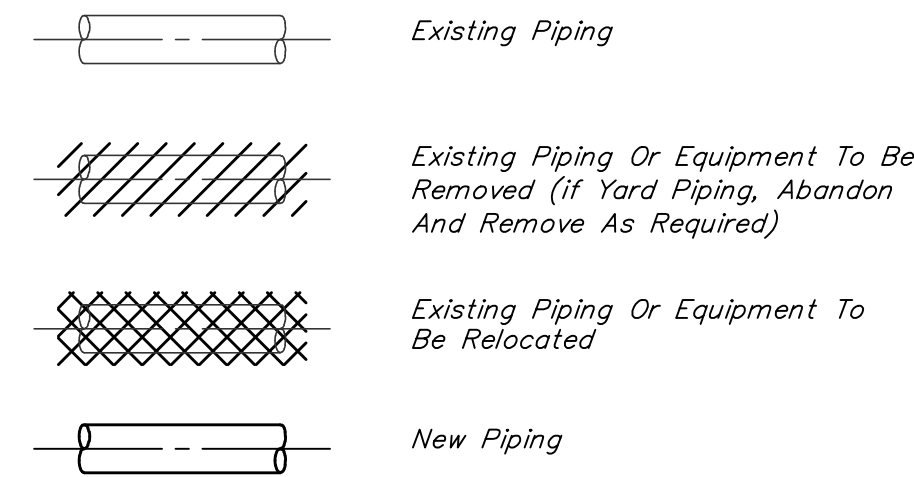


Note: For Symbols Used For Piping Isometric Diagrams, See Sheet No. ...

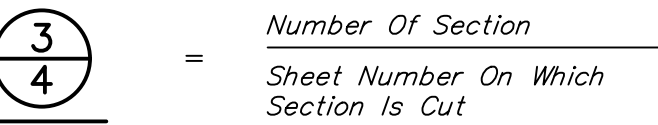
STANDARD ABBREVIATIONS

Table of standard abbreviations including Alum. (Aluminum), Ave. (Avenue), BM (Bench Mark), BF (Blind Flange), Bldg. (Building), c/c (Center To Center), etc.

PIPING AND EQUIPMENT LEGEND



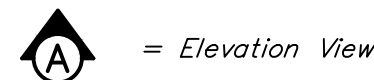
Number Of Section / Sheet Number On Which Section Is Shown



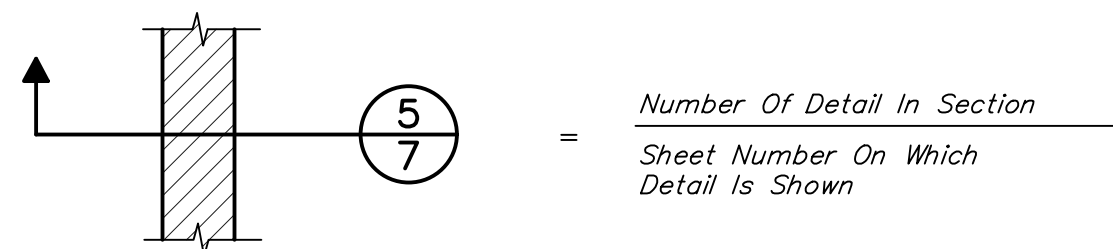
Number Of Section / Sheet Number On Which Section Is Cut

DELINEATION OF SECTIONS

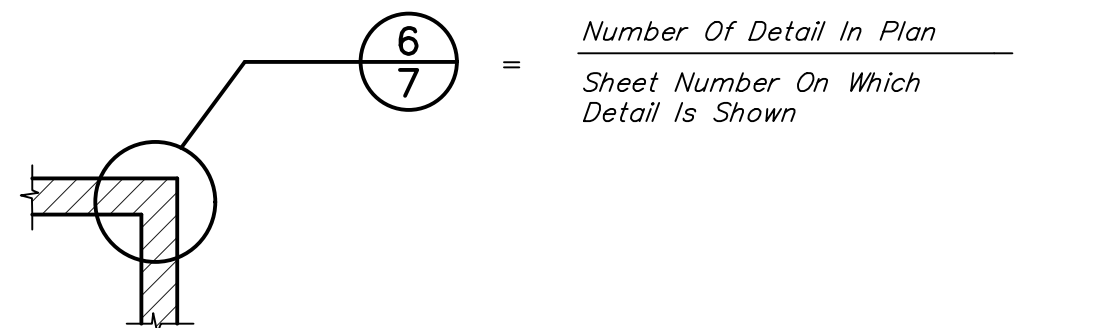
( Sections Lettered Are Shown On Same Sheet )



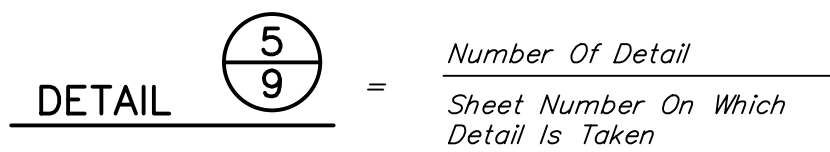
= Elevation View



Number Of Detail In Section / Sheet Number On Which Detail Is Shown



Number Of Detail In Plan / Sheet Number On Which Detail Is Shown



Number Of Detail / Sheet Number On Which Detail Is Taken

DELINEATION OF BLOW - UP DETAILS

( Details Lettered Are Shown On Same Sheet )

PIPING ABBREVIATIONS

Table of piping abbreviations categorized by Material (ABS, ABSC, BSP, etc.) and Service (PS, RAS, WAS, etc.).

YARD PIPING LEGEND

Table of yard piping abbreviations including Utility Lines (AA, AL, C, CA, CL, CO, CW, CLG, DG, DS, DW, EW, E, FC, FD, FE, FO, FU, G, GR, IC, HW, ML, NG, P, PE, PS, PW, RAS, RD, RS, SA, SB, SC, SE, S, SPA, ST, SM, SP, TD, T, TE, TS, WAS, S154, S154) and Large Diameter Lines (Any Type).

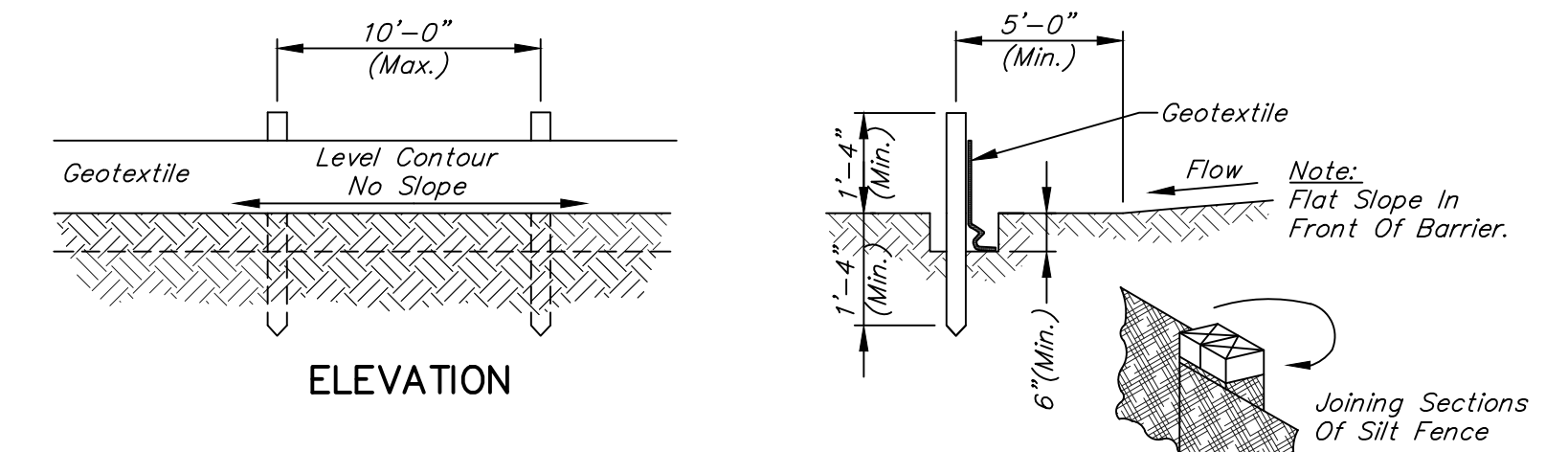
TOPOGRAPHY LEGEND

Table of topography and utility symbols including Center Line, Fence Line, Property Line, Permanent Easement, Construction Easement, Silt Fence, and various Utility Lines (Cable, Combined Sewer, Electrical, Gas, Sanitary Sewer, Signal, Storm Sewer, Telephone, Water).

Alpha Designation Refers To Utility Type, Numerical Designation Refers To Pipe Nominal Diameter. Lines With No Numerical Designation Are Of Unknown Size.

\* Aerial Lines, If Shown, Are Designated With Lower Case Letters

Table of symbols for Manhole, Power Pole, Light Pole, Fire Hydrant, Valve, Clean Out, Iron Pin, Catch Basins, and Soil Boring.



ELEVATION

Notes:

- 1. Silt Fence Shall Be Constructed Before Upslope Land Disturbance Begins.
2. All Silt Fence Shall Be Placed As Close To The Contour As Possible So That Water Will Not Concentrate At Low Points In The Fence...
3. To Prevent Water Ponded By The Silt Fence From Flowing Around The Ends, Each End Shall Be Constructed Upslope So That The Ends Are At A Higher Elevation.
4. Where Possible, Silt Fence Shall Be Placed On The Flattest Area Available.
5. Where Possible, Vegetation Shall Be Preserved For 5 Ft. (Or As Much As Possible) Upslope From The Silt Fence...
6. Soil Stockpiles Or Other Sources Of Sediment Shall Have Silt Fence Protection.
7. The Silt Fence Shall Be Placed In A Trench Cut A Minimum Of 6" Deep. The Trench Shall Be Cut With A Trencher, Cable Laying Machine, Or Other Suitable Device Which Will Ensure An Adequately Uniform Trench Depth.
8. The Silt Fence Shall Be Placed With The Stakes On The Down Slope Side Of The GEOTEXTILE And So That 8" Of Cloth Are Below The Ground Surface. Excess Material Shall Lay On The Bottom Of The 6" Deep Trench. The Trench Shall Be Back Filled And Compacted.
9. Seams Between Sections Of Silt Fence Shall Be Overlapped With The End Stakes Of Each Section Wrapped Together Before Driving Into The Ground.
10. Maintenance-- Silt Fence Shall Allow Runoff To Pass Only As Diffuse Flow Through The GEOTEXTILE. If Runoff Over Tops The Silt Fence, Flows Under Or Around The Ends, Or In Any Other Way Becomes A Concentrated Flow, One Of The Following Shall Be Performed, As Appropriate:
A. The Layout Of The Silt Fence Shall Be Changed.
B. Accumulated Sediment Shall Be Removed.
C. Other Practices Shall Be Installed.

Criteria For Silt Fence Materials:

- 1. Fence Posts - The Length Shall Be A Minimum Of 32" Long. Wood Post Will Be 2" X 2" Hardwood Of Sound Quality. The Maximum Spacing Between Posts Shall Be 10 Ft.
2. Silt Fence Fabric (See Chart Below):

Table of fabric properties: Grab Tensile Strength (90 Lb. Minimum), Mullen Burst Strength (190 P.S.I. Minimum), Slurry Flow Rate (0.3 Gal./Min./ft.² Max.), Equivalent Opening Size (40-80), Ultraviolet Radiation Stability (90% Minimum).

SILT FENCE (SF) NTS

SHEET INDEX

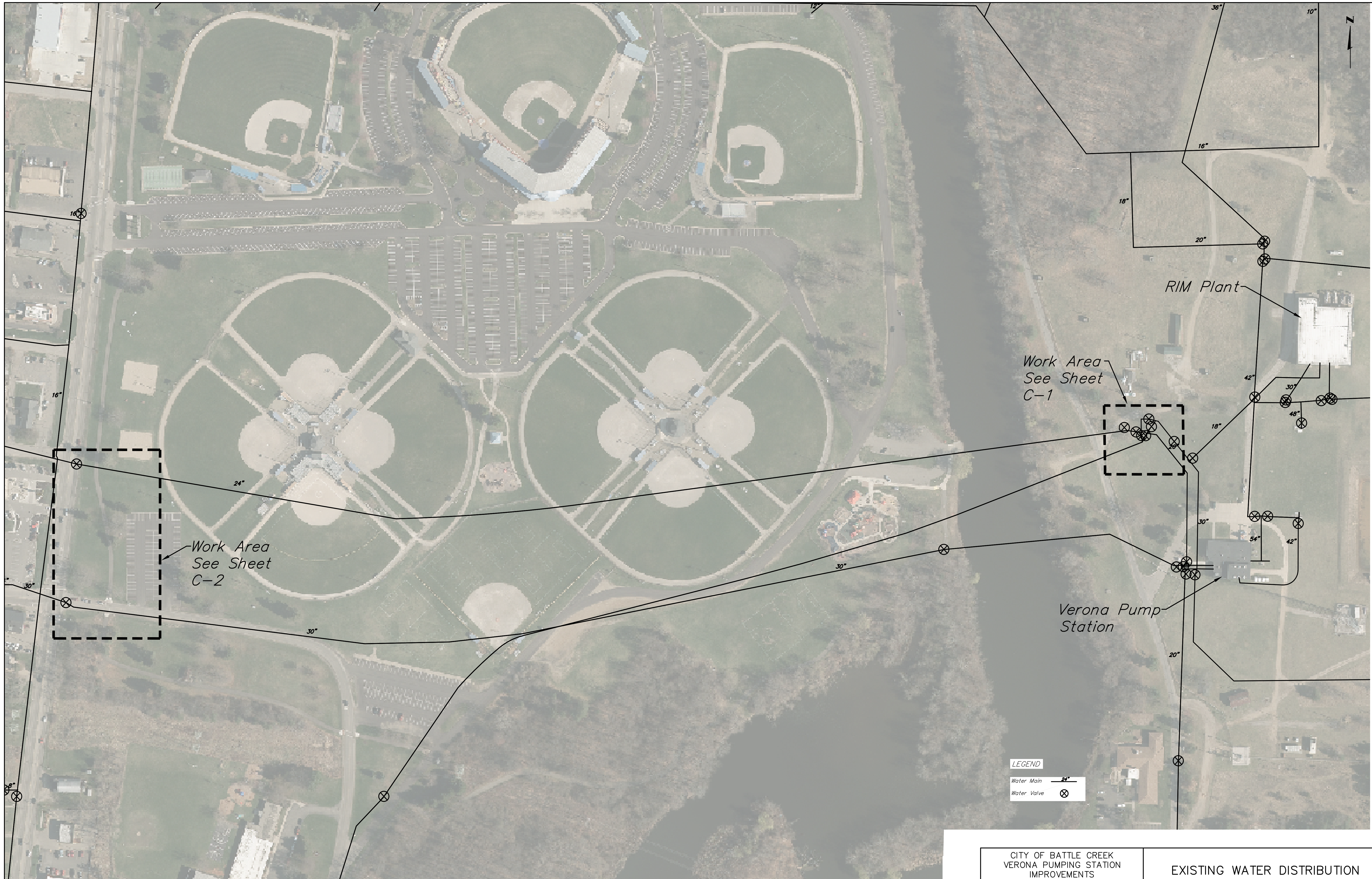
- Number Description
1. G-1 Legends & Index
2. G-2 Existing Site Plan
3. C-1 Verona Yard Piping Plan
4. C-2 Bailey Park Piping Plan
5. PE-1 Operating Floor Plan
6. E-1 Electrical Legends
7. ER-1 Electrical Removals
8. E-2 Electrical Functional One-Line
9. E-3 Electrical Operating Floor Plan
10. E-4 Electrical HSP6 VFD Schematic And Control Riser Diagram
11. D-1 Details

Note: All Notes On The Drawings Bear The Same Importance. Some Notes And Dimensions Are Bold To Aid In Reading The Drawings In Areas Of High Graphic Density.

Project information block including City of Battle Creek, Verona Pumping Station Improvements, Legends & Index, Job No. 008-7351.001, Jones & Henry Engineers, Ltd., and a revision table.

NOTE: ACCURACY OF EXISTING ELEVATIONS AND DIMENSIONS IS NOT GUARANTEED. FIELD VERIFY BEFORE CONSTRUCTION.

THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE



**LEGEND**

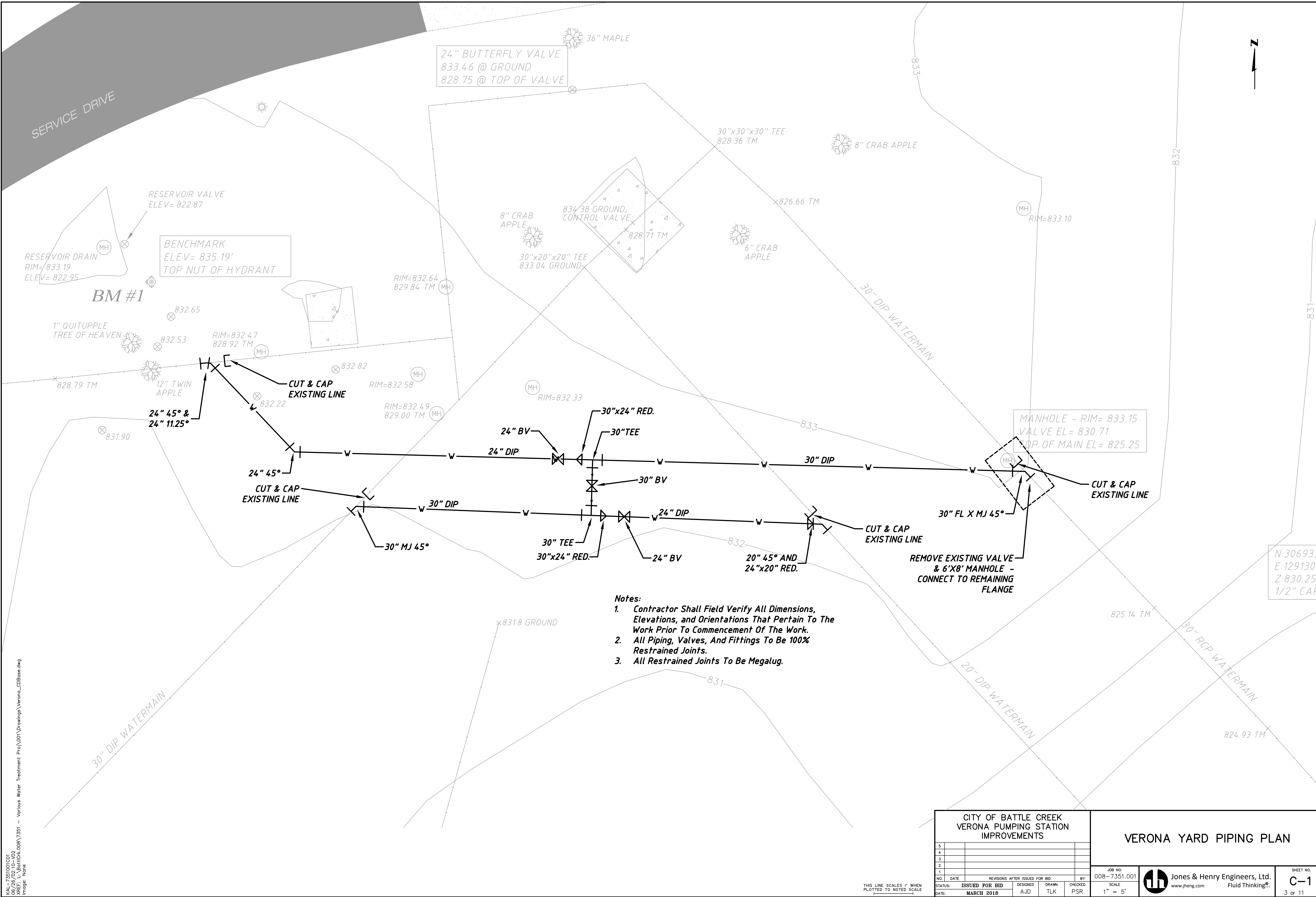
Water Main	— 24"
Water Valve	⊗

CITY OF BATTLE CREEK VERONA PUMPING STATION IMPROVEMENTS					
NO.	DATE	REVISIONS AFTER ISSUED FOR BID	DESIGNED	DRAWN	CHECKED
5					
4					
3					
2					
1					
STATUS:	ISSUED FOR BID	DESIGNED	AJD	TLK	PSR
DATE:	MARCH 2018				

EXISTING WATER DISTRIBUTION SITE PLAN		JOB NO. 008-7351.001	SHEET NO. G-2
		SCALE 1" = 100'	2 of 11

KAL-7351001G2  
03/07/18 10-V02  
Image: None

THIS LINE SCALES 1" WHEN  
PLOTTED TO NOTED SCALE



24" BUTTERFLY VALVE  
 833.46 @ GROUND  
 828.75 @ TOP OF VALVE

BENCHMARK  
 ELEV= 835.19'  
 TOP NUT OF HYDRANT

MANHOLE - RIM= 833.15  
 VALVE EL= 830.71  
 TOP OF MAIN EL= 825.25

- Notes:**
- Contractor Shall Field Verify All Dimensions, Elevations, and Orientations That Pertain To The Work Prior To Commencement Of The Work.
  - All Piping, Valves, And Fittings To Be 100% Restrained Joints.
  - All Restrained Joints To Be Megalug.

N:306933  
 E:1291308  
 Z:830.25  
 1/2" CAP

KAL-7351001C01  
 06/26/02 10-02  
 L:\gettck\008\7351 - Various Water Treatment Proj\001\Drawings\Verona\_CDBase.dwg  
 In:psr Note

THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

CITY OF BATTLE CREEK VERONA PUMPING STATION IMPROVEMENTS				VERONA YARD PIPING PLAN			
5							
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NO.	DATE	REVISIONS AFTER ISSUED FOR BID	DESIGNED	DRAWN	CHECKED	BY	JOB NO.
1			AJD	TLK	PSR		008-7351.001
STATUS: ISSUED FOR BID						SCALE	
DATE: MARCH 2018						1" = 5'	
Jones & Henry Engineers, Ltd. www.jheng.com Fluid Thinking®							SHEET NO. <b>C-1</b> 3 of 11



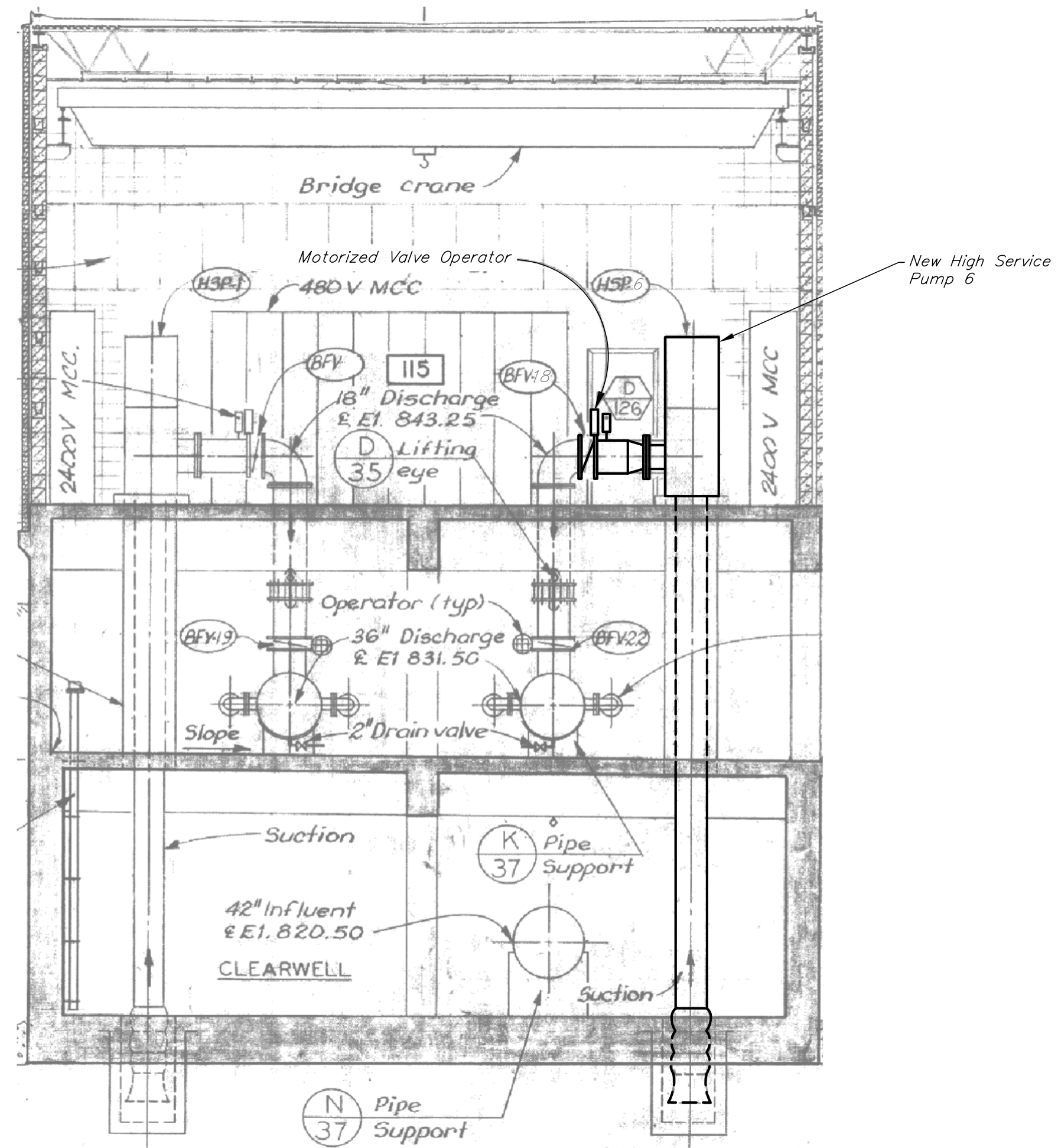
- Notes:**
1. Contractor To Remove And Replace Existing Asphalt As Necessary To Install Fire Hydrant Assembly And Associated Piping.
  2. Contractor to field verify pipe length and asphalt removal/replacement area as necessary to install new fire hydrant assemblies. Approximate scale of the drawing is 1"=30' for estimation purposes only.
  3. All Piping, Valves, And Fittings To Be 100% Restrained Joints.
  4. All Restrained Joints To Be Megalug.

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 XREF: None  
 Image: L:\Battick\08\7351\001\DRAWINGS\Aerial.PNG

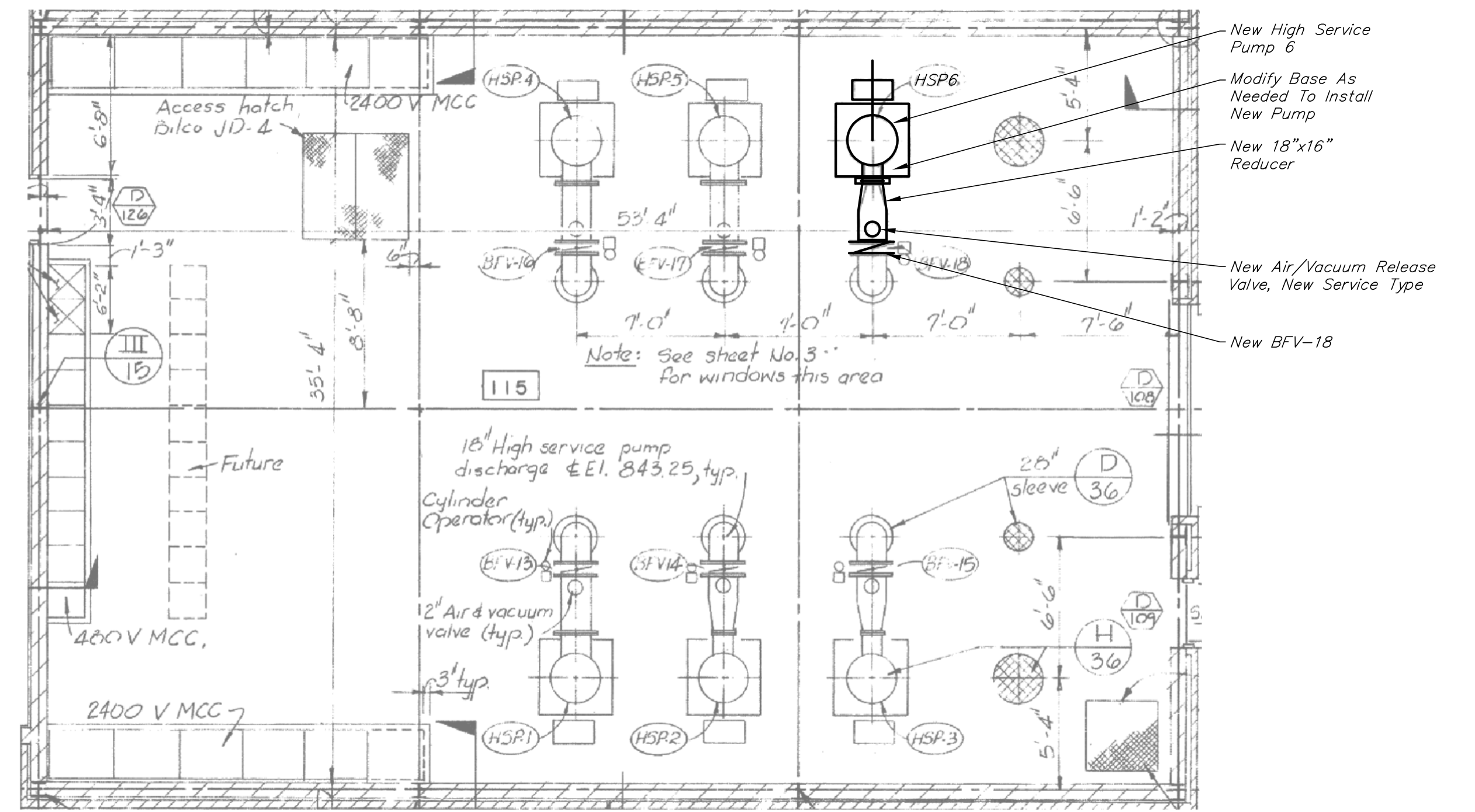
THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

CITY OF BATTLE CREEK VERONA PUMP STATION IMPROVEMENTS			
NO.	DATE	REVISIONS AFTER ISSUED FOR BID	BY
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2			
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STATUS: ISSUED FOR BID		DESIGNED: AJD	DRAWN: TLK
DATE: MARCH 2018		CHECKED: PSR	

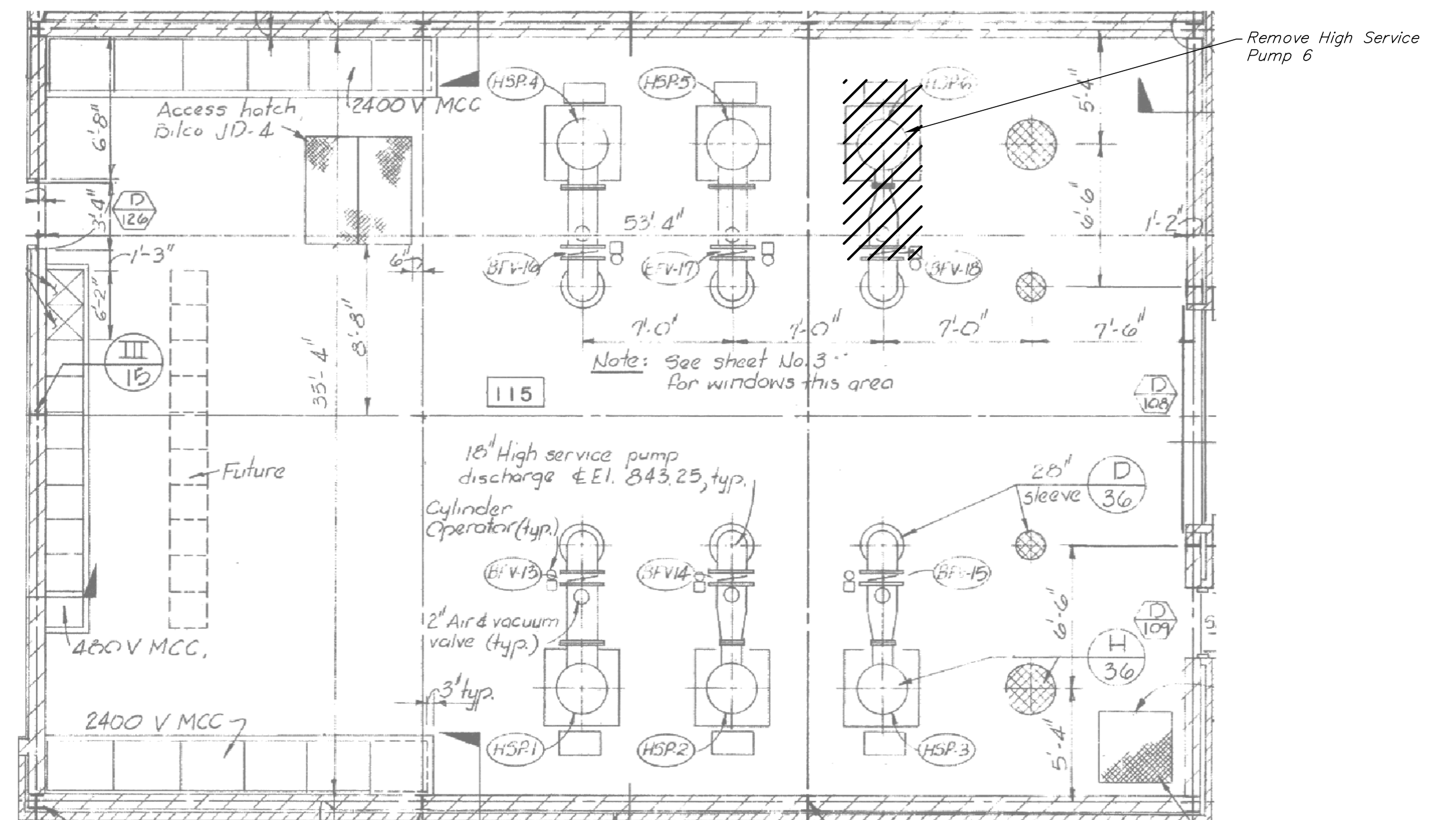
<b>BAILEY PARK PIPING PLAN</b>		JOB NO. 008-7351.001	SHEET NO. <b>C-2</b>
Jones & Henry Engineers, Ltd. Fluid Thinking®		SCALE 1" = 30'	4 of 11



**HIGH SERVICE PUMP 6 SECTION**  
Scale 3/16" = 1'-0"



**HIGH SERVICE PUMP 6 REPLACEMENT PLAN**  
Scale 3/16" = 1'-0"

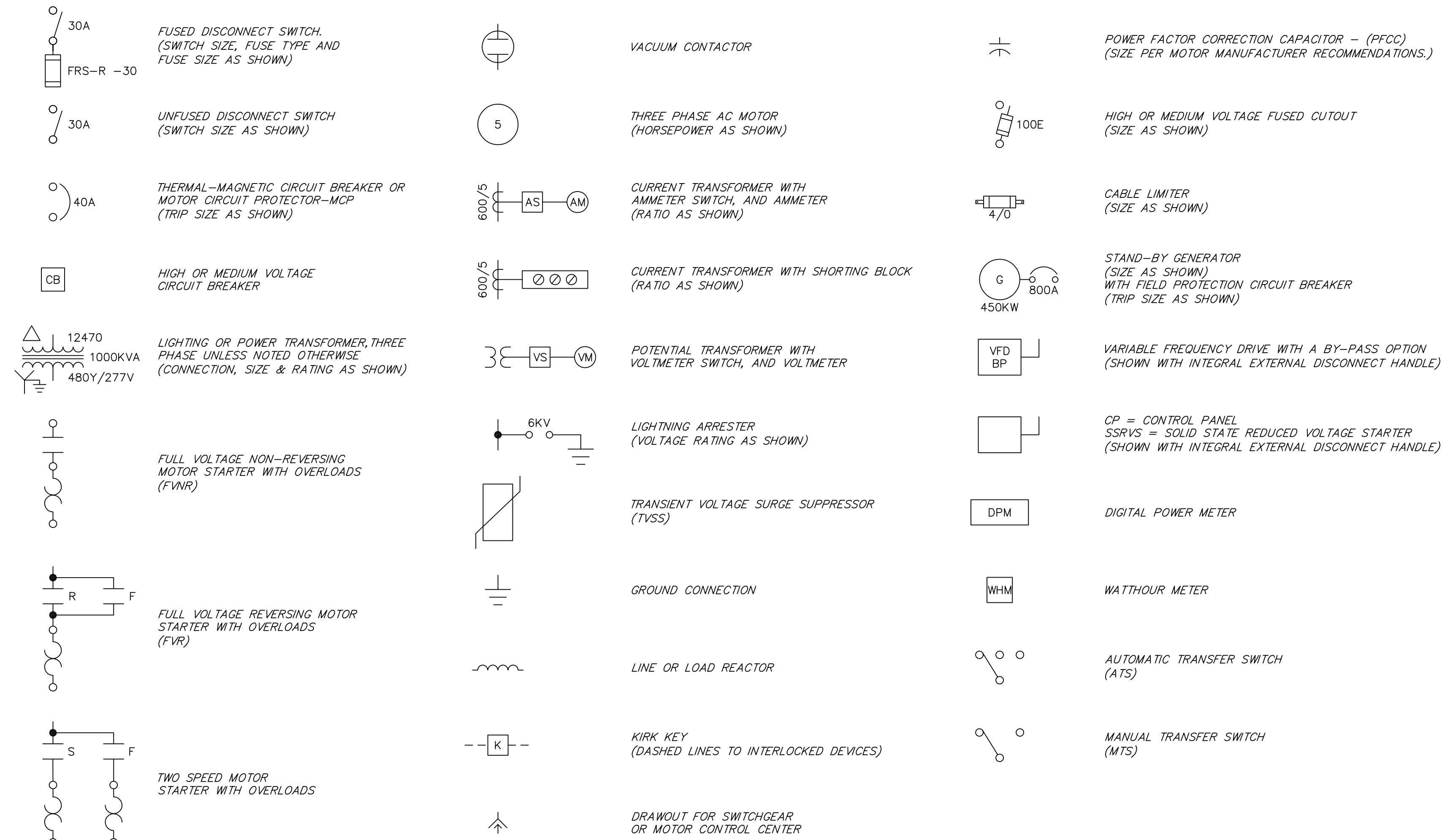


**HIGH SERVICE PUMP 6 REMOVAL PLAN**  
Scale 3/16" = 1'-0"

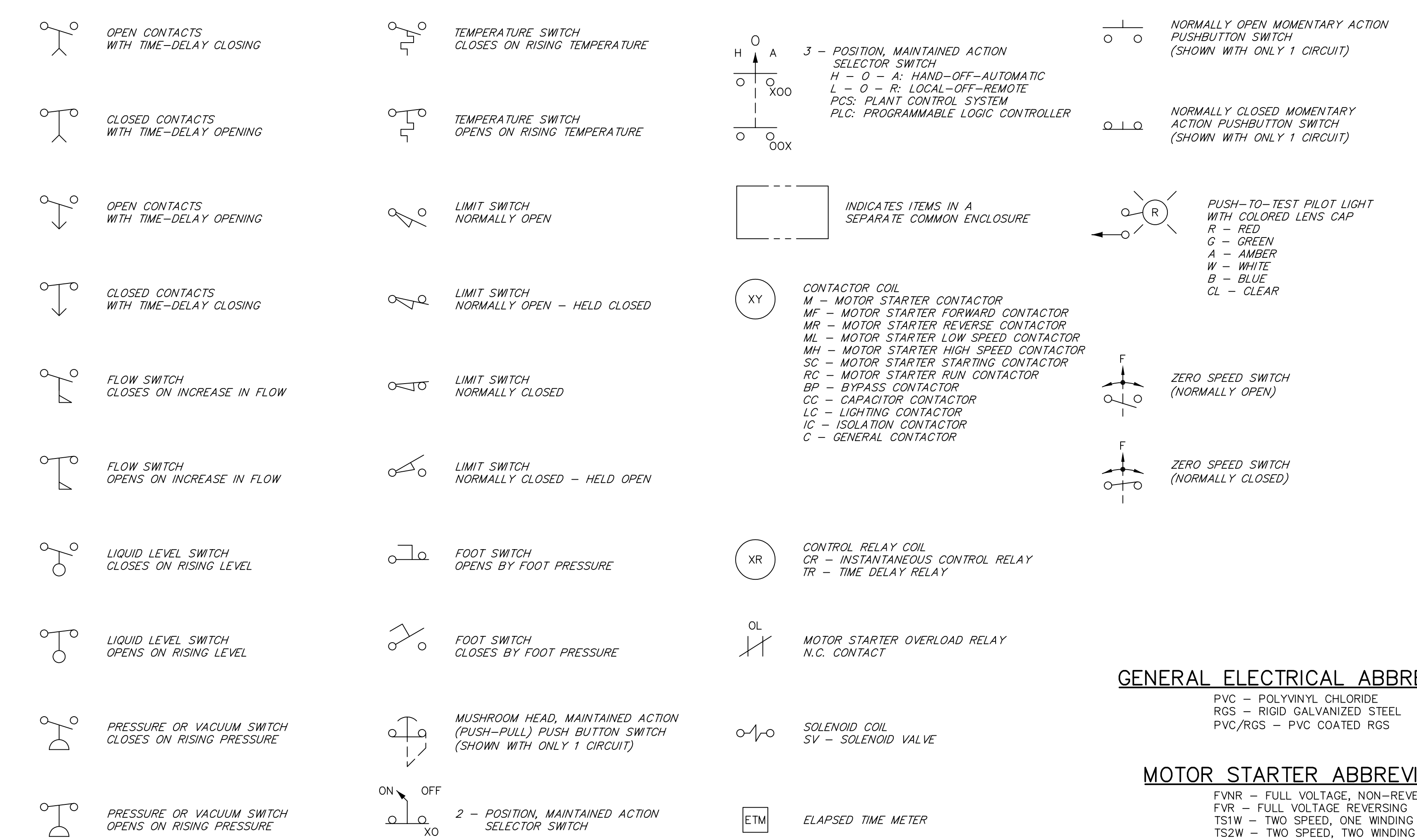
<p>CITY OF BATTLE CREEK VERONA PUMPING STATION IMPROVEMENTS</p>		<p>OPERATING FLOOR PLAN</p>	
<p>NO. DATE REVISIONS AFTER ISSUED FOR BID</p>		<p>JOB NO. 008-7351.001</p>	
<p>STATUS: ISSUED FOR BID</p>		<p>SCALE AS NOTED</p>	
<p>DATE: MARCH 2018</p>		<p>DESIGNED: A.J.D. DRAWN: TLK CHECKED: PSR</p>	
<p>THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE</p>		<p>Jones &amp; Henry Engineers, Ltd. www.jheng.com Fluid Thinking</p>	
		<p>SHEET NO. PE-1 5 of 11</p>	

KAL-7351001PE01  
08/28/2018 10:00 AM  
AREA: None  
PROJECT: None

**SINGLE-LINE DIAGRAM LEGEND**



**SCHEMATIC LEGEND**



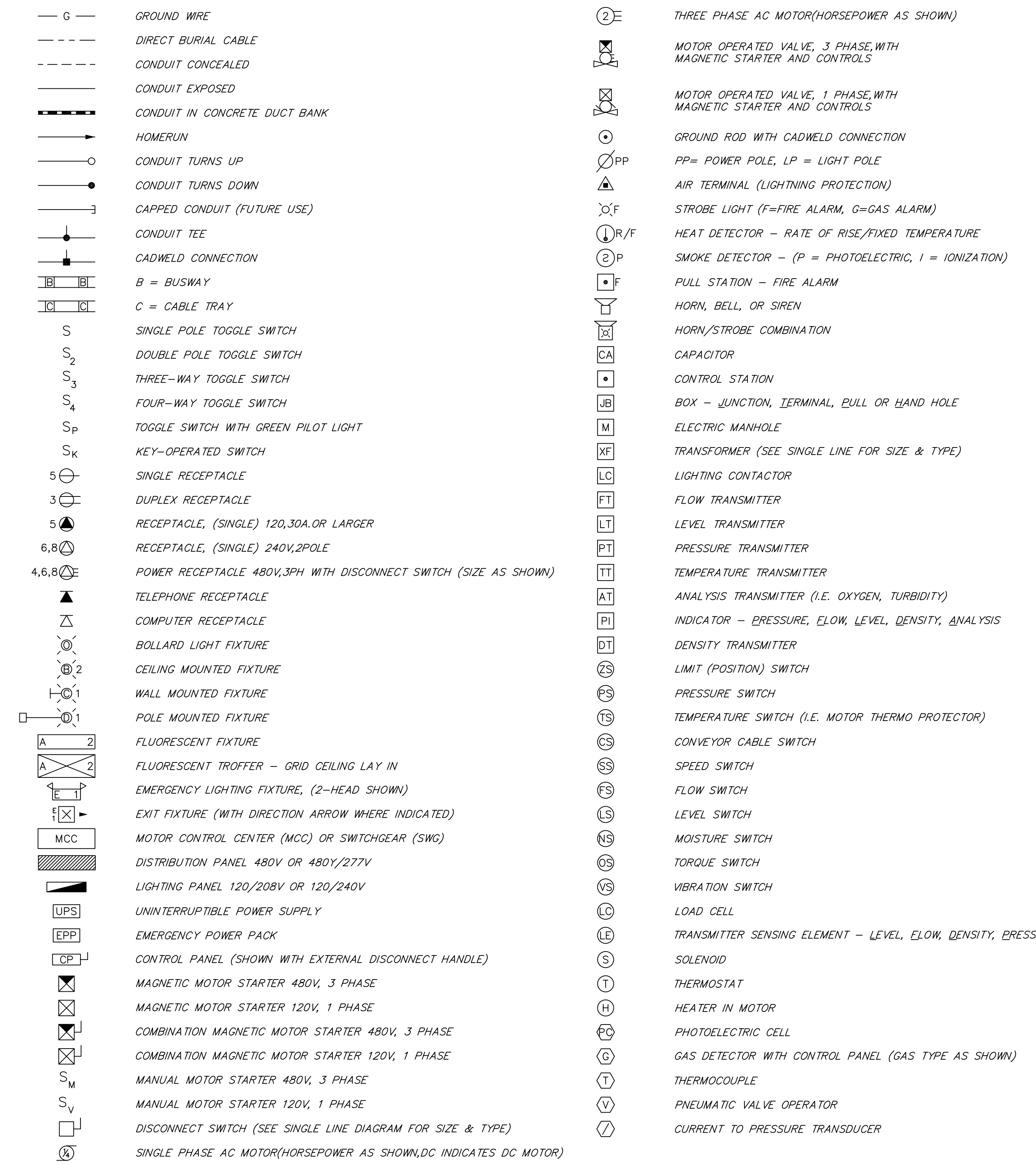
**GENERAL ELECTRICAL ABBREVIATIONS**

PVC - POLYVINYL CHLORIDE  
 RGS - RIGID GALVANIZED STEEL  
 PVC/RGS - PVC COATED RGS

**MOTOR STARTER ABBREVIATIONS**

FVNR - FULL VOLTAGE, NON-REVERSING  
 FVR - FULL VOLTAGE REVERSING  
 TS1W - TWO SPEED, ONE WINDING  
 TS2W - TWO SPEED, TWO WINDING  
 TSR1W - TWO SPEED REVERSING, ONE WINDING  
 TSR2W - TWO SPEED REVERSING, TWO WINDING

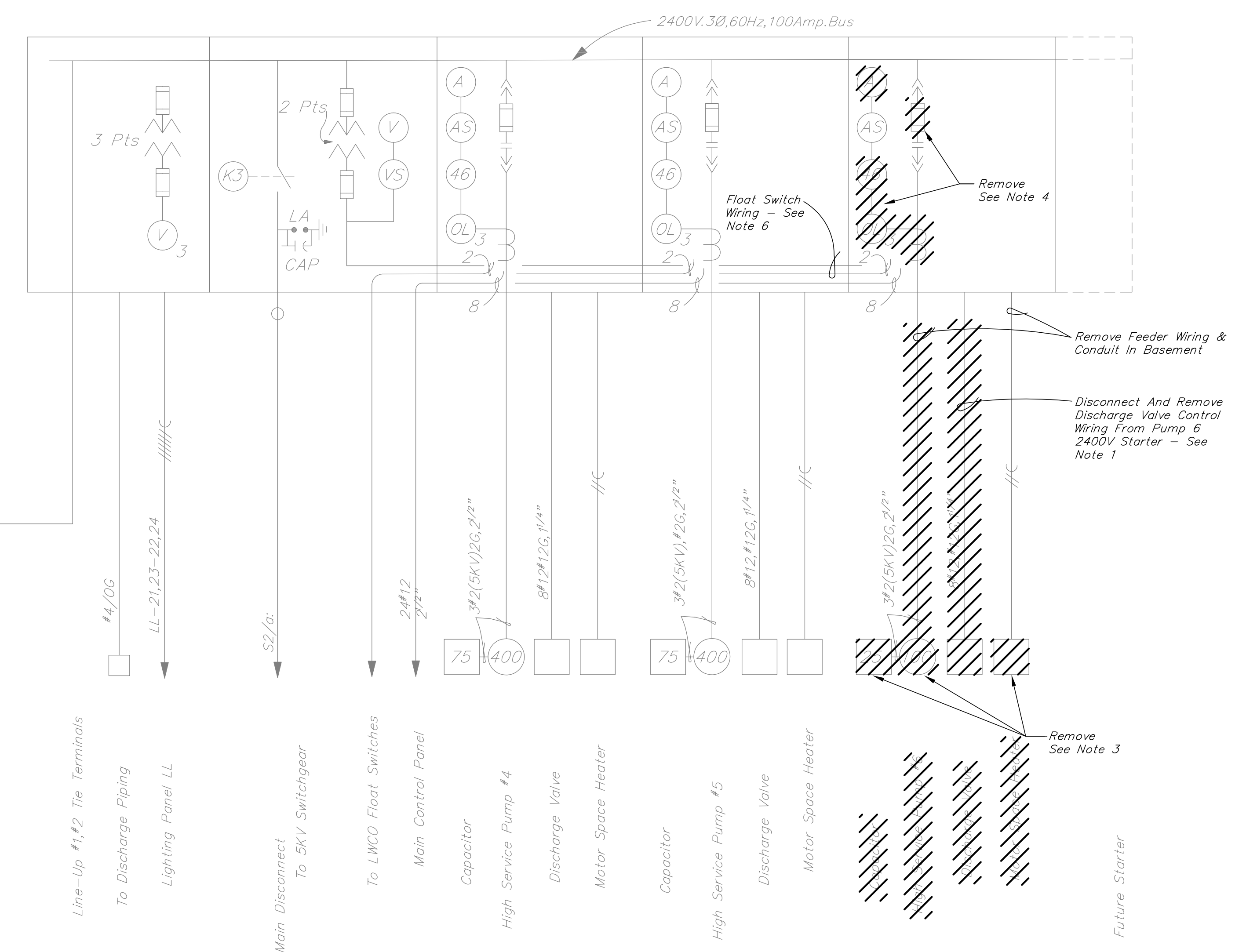
**ELECTRICAL PLAN LEGEND**



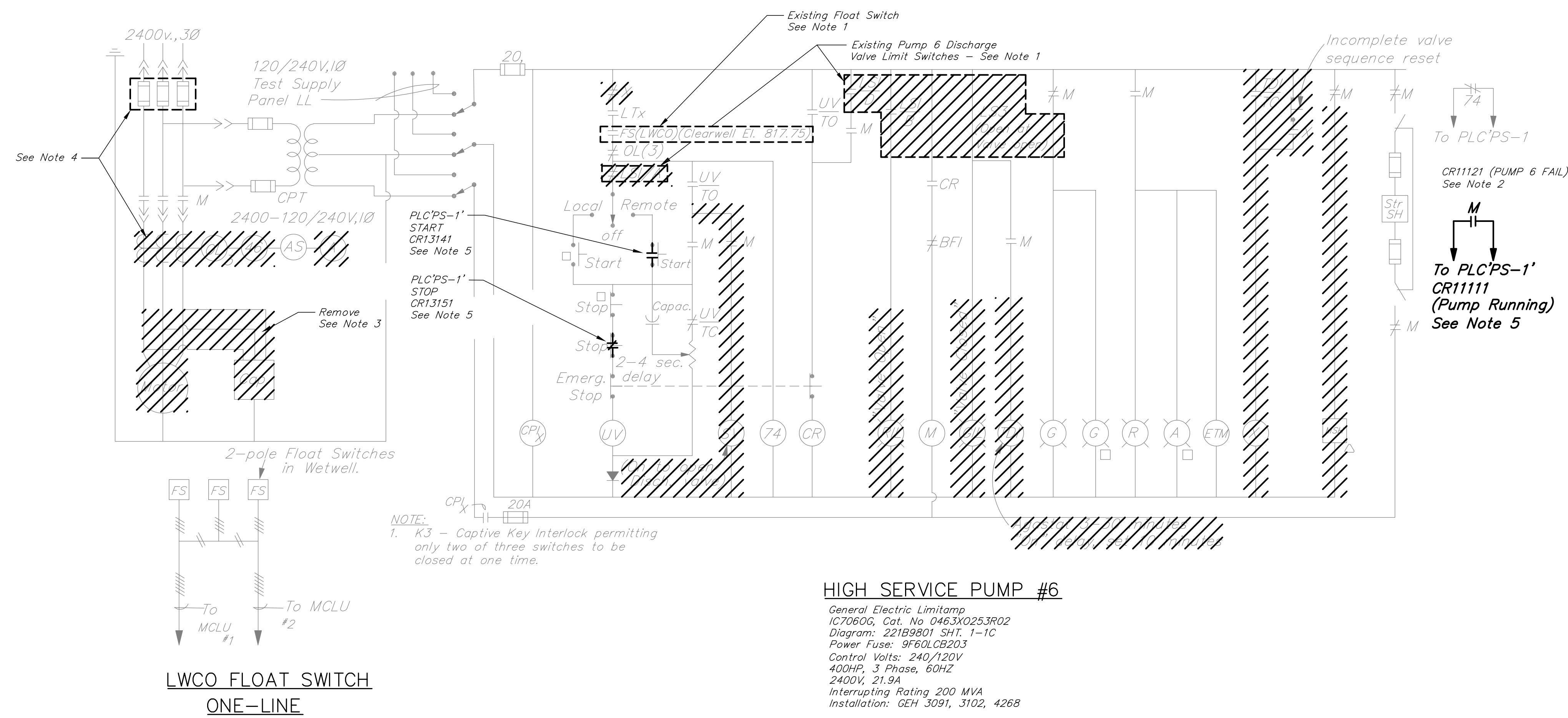
**ELECTRICAL NOTES**

- Structural Materials Are Not Shown On Electrical Drawings. Refer To Architectural And Structural Drawings.
- All Electrical Equipment Elevations Shown Are To Bottom Of Device Or Panel, Unless Otherwise Noted.
- Number Shown (i.e.11735), Indicates A Specification Reference For Items Other Than Division 16. The Electrical Item Under This Reference Is Supplied By Another Part Of The Contract. Unless Otherwise Noted In That Specification, The Contractor Shall Install And Wire The Item Per The Drawings And Division 16 Specifications.
- Control Wiring Shall Conform To All Requirements As Shown On The P & ID Drawings Whether Shown On The Electrical Drawings Or Not.
- Where Lines Are Shown Connecting Electrical Equipment, They Are Not Intended As Conduit Routing. Contractor Shall Route All Conduit Runs (Shown Or Not) Per Division 16 Specifications.
- WP Indicates Waterproof. Letter On Or Next To Light Fixture Indicates Type. Per Section 16310. Number With Light Fixture Or Receptacle Indicates Circuit Number.
- GFCI Indicates A Circuit Breaker Or Receptacle With A 6 mA Ground Fault Circuit Interrupter. GFEPD Indicates A Circuit Breaker Or Receptacle With A 30 mA Ground Fault Equipment Protection Device.
- For Below Grade Conduit Penetrations Through Existing Exterior Concrete Walls, Provide Type A Conduit Sleeve For PVC Conduit, For RGS Or PVC-Coated RGS Conduit, Provide Type B Conduit Sleeve Through Concrete Walls, And Type C Conduit Sleeve Through Existing Concrete Walls.
- For Above Grade Conduit Penetrations Through Exterior Concrete Walls, Provide Type C Conduit Sleeve. For Masonry Walls Provide Type F Conduit Sleeve.
- For Conduit Penetrations Through Existing Concrete Floors And Walls Between Adjacent Non-Classified (Non-Hazardous) Areas, Provide Type C Conduit Sleeves For All Conduit Types. For Similar Penetrations Through Concrete Floors And Walls, Provide Type D Conduit Sleeves For All Conduit Types.
- For Conduit Penetrations Through Concrete Floors And Walls Separating Classified (Hazardous) Areas From Non-Classified (Non-Hazardous) Areas, Provide Type G Conduit Sleeves. For Similar Penetrations Through Masonry Walls, Provide Type H Conduit Sleeve. Follow Mechanical Seal Manufacturer's Recommendations To Meet 3-Hour Fire Resistance Requirements.
- Legends Are For Reference Only And Does Not Mean That All Items Are Used.

<p><b>CITY OF BATTLE CREEK VERONA PUMPING STATION IMPROVEMENTS</b></p>				<p><b>ELECTRICAL LEGENDS</b></p>			
NO.	DATE	REVISIONS AFTER ISSUED FOR BID	DESIGNED	DRAWN	CHECKED	BY	JOB NO.
1							008-7351.001
2							SCALE
3							NONE
4							
5							
<p>STATUS: <b>ISSUED FOR BID</b></p>						<p>DATE: <b>MARCH 2018</b></p>	
<p>RESIGNED</p>				<p>PEM</p>		<p>TLK</p>	
<p>DATE:</p>				<p>AJD</p>		<p>INDEXED</p>	
<p>THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE</p>						<p>Jones &amp; Henry Engineers, Ltd. www.jheng.com Fluid Thinking®</p>	
<p>KAL-7351001ED 07/24/08.10</p>						<p>SHEET NO. <b>E-1</b> 6 of 11</p>	



2400 VOLT MOTOR CONTROL LINE-UP #2



**HIGH SERVICE PUMP #6**  
 General Electric Limitamp  
 IC7060G, Cat. No 0463X0253R02  
 Diagram: 221B9801 SHT. 1-1C  
 Power Fuse: 9F60LCB203  
 Control Volts: 240/120V  
 400HP, 3 Phase, 60HZ  
 2400V, 21.9A  
 Interrupting Rating 200 MVA  
 Installation: GEH 3091, 3102, 4268

**LWCO FLOAT SWITCH ONE-LINE**

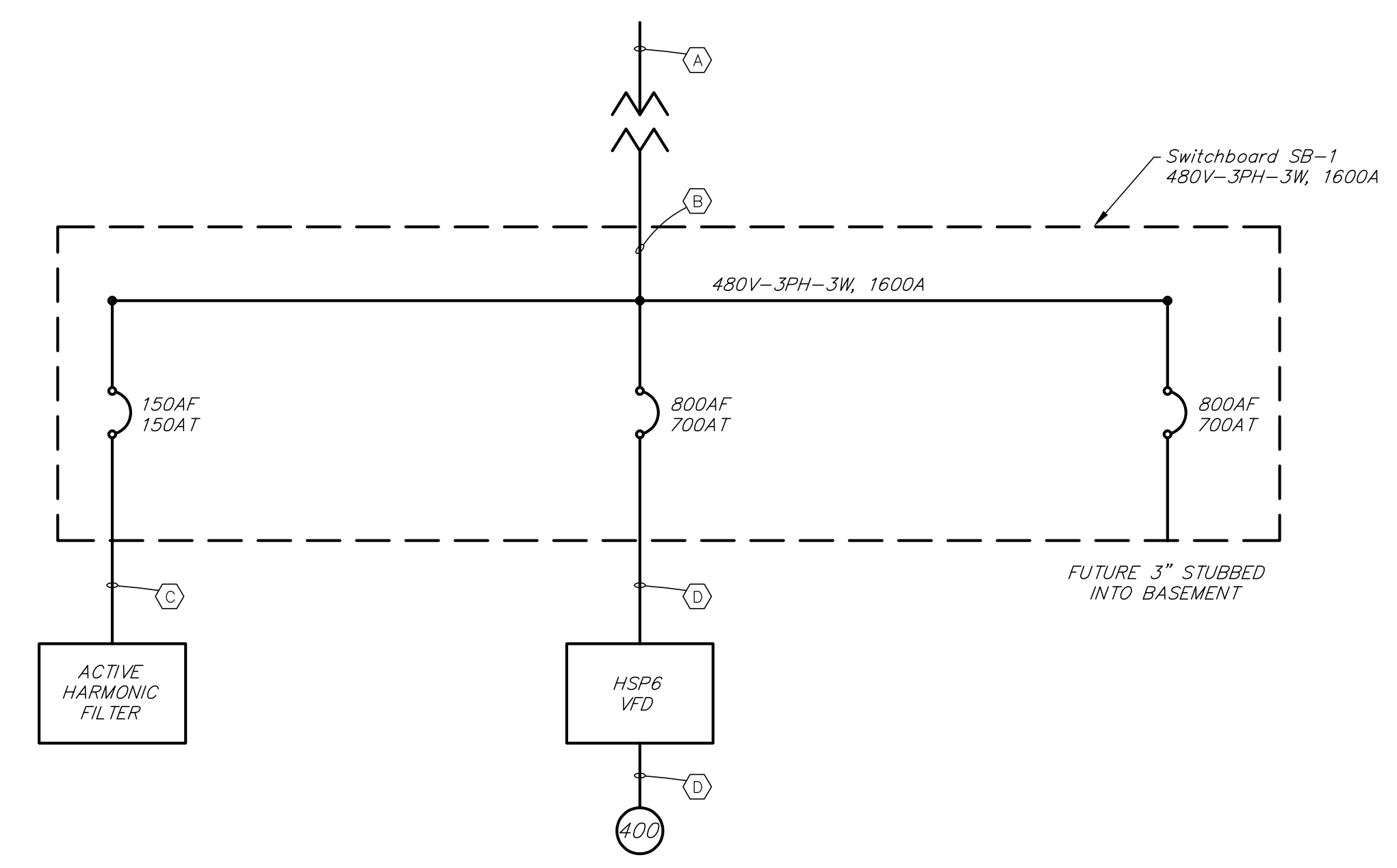
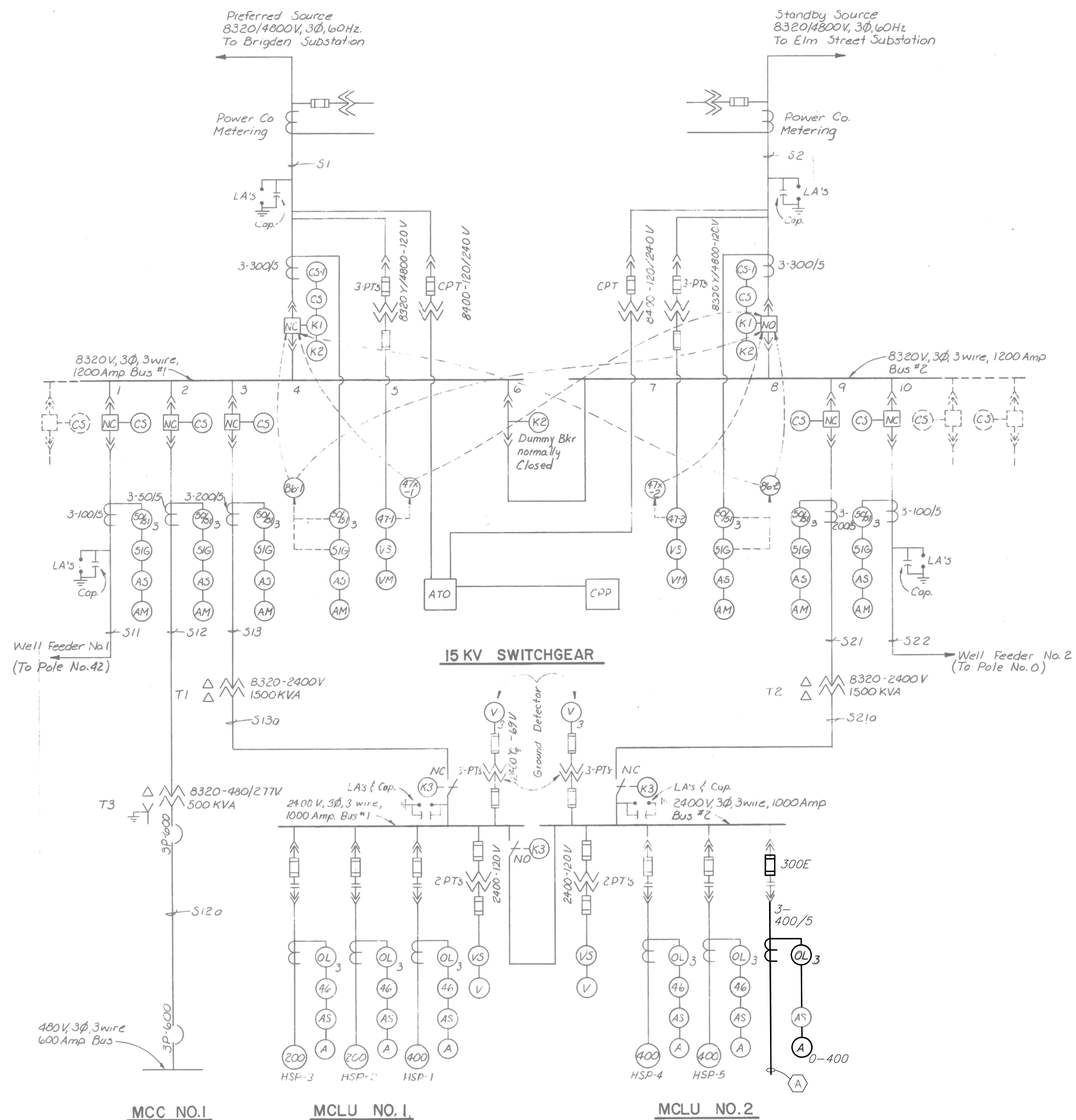
- NOTES:**
1. Disconnect Existing Wiring From Existing High Service Pump 6 2400V Starter And Provide Wiring From New Motorized Valve To 480V High Service Pump 6 VFD. See VFD Schematic And Riser Diagram Sheet E-4.
  2. Existing PLC-PS-1 I/O Wiring Shall Be Disconnected From Existing PLC-PS-1 And Labeled As "Spare From MCLU #2".
  3. Disconnect And Remove Existing 2400V High Service Pump 6 Motor And Associated Power Factor Correction Capacitor, Basement Conduit And Wiring Shall Be Removed Between Floor Penetrations.
  4. Existing 2400V High Service Pump 6 Shall Be Retrofitted To Feed Transformer T4 2400V Primary. Retrofit Shall Include The Following:
    - a) Removal and Replacement Of Existing Fuses With 5 KV 300 E Fuses.
    - b) Removal and Replacement Of Existing 100/5 Current Transformers With 400/5 CTS.
    - c) Removal Of Existing Phase Reversal Relays.
    - d) Removal And Replacement Of Existing Overload Relays.
    - e) Removal And Replacement Of Existing 0-30 Amp Ammeter With A 0-400 Amp Ammeter.
  5. Existing Pump Station PLC PS-1 I/O Shall Be Re-Purposed As Follows:
    - a) Output "HSP6 Start" Changes to "Transformer T4 Energize".
    - b) Output "HSP6 Stop" Changes to "Transformer T4 De-Energize".
    - c) Input "HSP6 Running" Changes to "Transformer T4 Energized".
  6. Disconnect And Extend Existing LWCO Float Switch Wiring From Existing 2400V Starter To New 480V VFD For HSP6. See Schematic Sheet E-4.

<b>CITY OF BATTLE CREEK</b> <b>VERONA PUMPING STATION</b> <b>IMPROVEMENTS</b>			<b>ELECTRICAL REMOVALS</b>		
JOB NO. 008-7351.001			SCALE NONE		
STATUS: ISSUED FOR BID DATE: MARCH 2018			DESIGNED: PEM DRAWN: TLK CHECKED: AJD		
REVISIONS AFTER ISSUED FOR BID			BY:		
1.			NONE		
Jones & Henry Engineers, Ltd. www.jheng.com			Fluid Thinking®		
SHEET NO. ER-1			7 of 11		

KAL-7351001ER01  
 06/26/02 10-V02  
 Image: None

THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE





HSP6 PARTIAL SINGLE LINE DIAGRAM

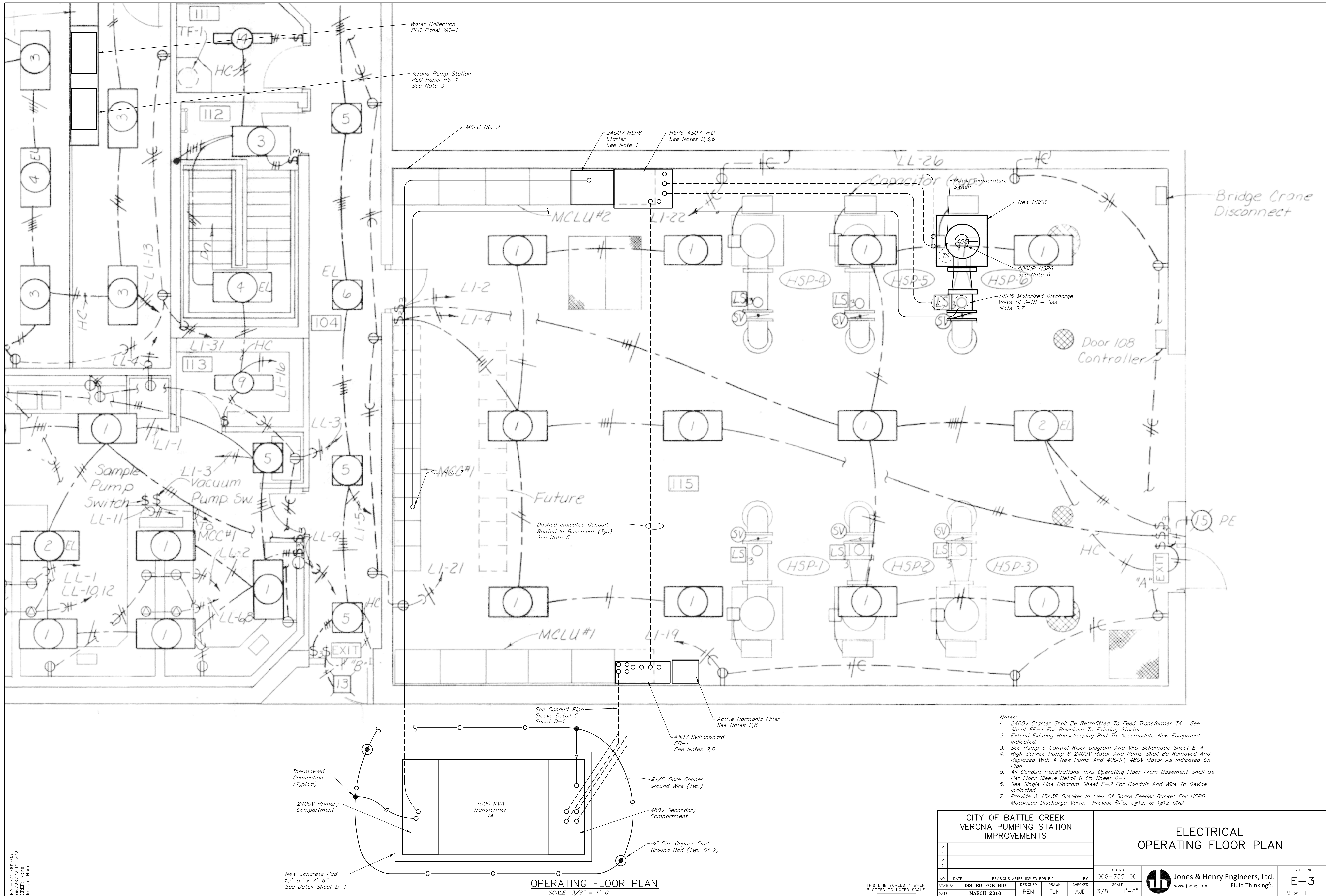
FEEDER SCHEDULE

- (A) 3" C, 3 #4/0 (5KV, 133%) & 1 #4/0 GND.
- (B) (4) 3" C, 3 #500 KCML & 1 #4/0 GND.
- (C) 1 1/2" C, 3 #1/0 & 1 #6 GND.
- (D) (2) 3" C, 3 #500 KCML & 1 #1/0 GND.

KAL-7351001E02  
06/26/02 10-V02  
XREF: None  
Imager: None

THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

CITY OF BATTLE CREEK VERONA PUMPING STATION IMPROVEMENTS		ELECTRICAL FUNCTIONAL ONE-LINE	
NO.	DATE	REVISIONS AFTER ISSUED FOR BID	BY
1			
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5			
STATUS: ISSUED FOR BID		DESIGNED: PEM	DRAWN: TLK
DATE: MARCH 2018		CHECKED: AJD	SCALE: NONE
JOB NO. 008-7351.001		SHEET NO. E-2	
www.jheng.com		Fluid Thinking <sup>®</sup>	
8 of 11			



- Notes:
- 2400V Starter Shall Be Retrofitted To Feed Transformer T4. See Sheet ER-1 For Revisions To Existing Starter.
  - Extend Existing Housekeeping Pad To Accommodate New Equipment Indicated.
  - See Pump 6 Control Riser Diagram And VFD Schematic Sheet E-4.
  - High Service Pump 6 2400V Motor And Pump Shall Be Removed And Replaced With A New Pump And 400HP, 480V Motor As Indicated On Plan.
  - All Conduit Penetrations Thru Operating Floor From Basement Shall Be Per Floor Sleeve Detail G On Sheet D-1.
  - See Single Line Diagram Sheet E-2 For Conduit And Wire To Device Indicated.
  - Provide A 15A3P Breaker In Lieu Of Spare Feeder Bucket For HSP6 Motorized Discharge Valve. Provide 1/4", 3#12, & 1#12 GND.

CITY OF BATTLE CREEK VERONA PUMPING STATION IMPROVEMENTS			
NO.	DATE	REVISIONS AFTER ISSUED FOR BID	BY
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STATUS:	ISSUED FOR BID	DESIGNED	DRAWN
DATE:	MARCH 2016	PEM	TLK
		CHECKED	AJD

**ELECTRICAL  
OPERATING FLOOR PLAN**

JOB NO. 008-7351.001  
SCALE 3/8" = 1'-0"

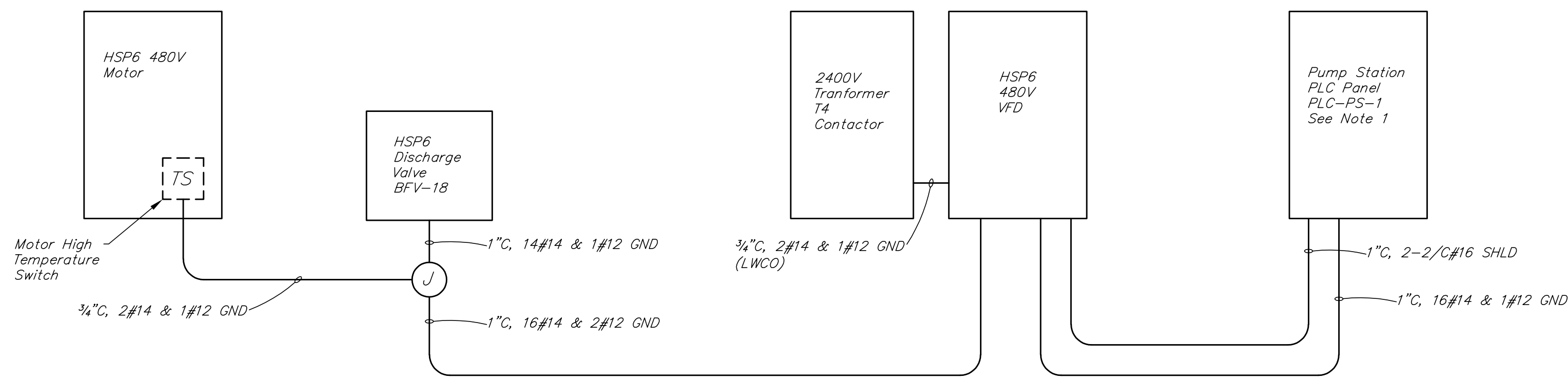
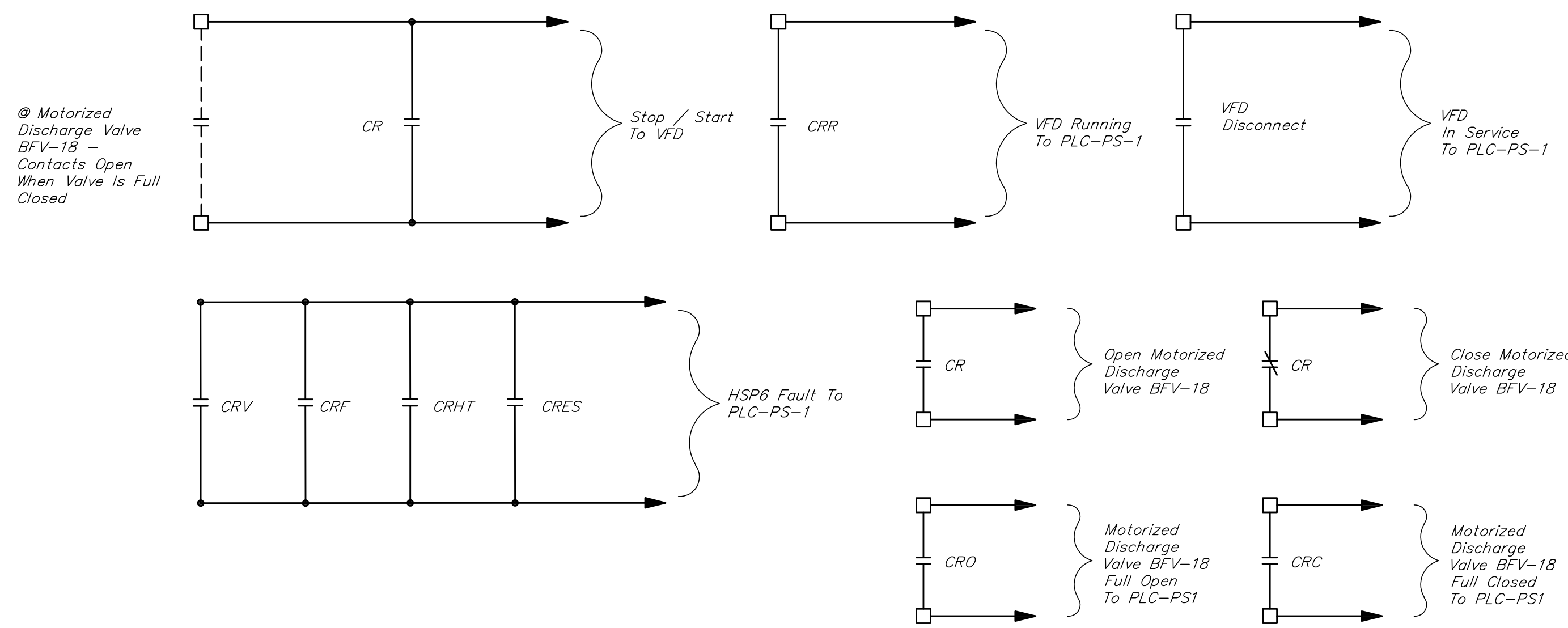
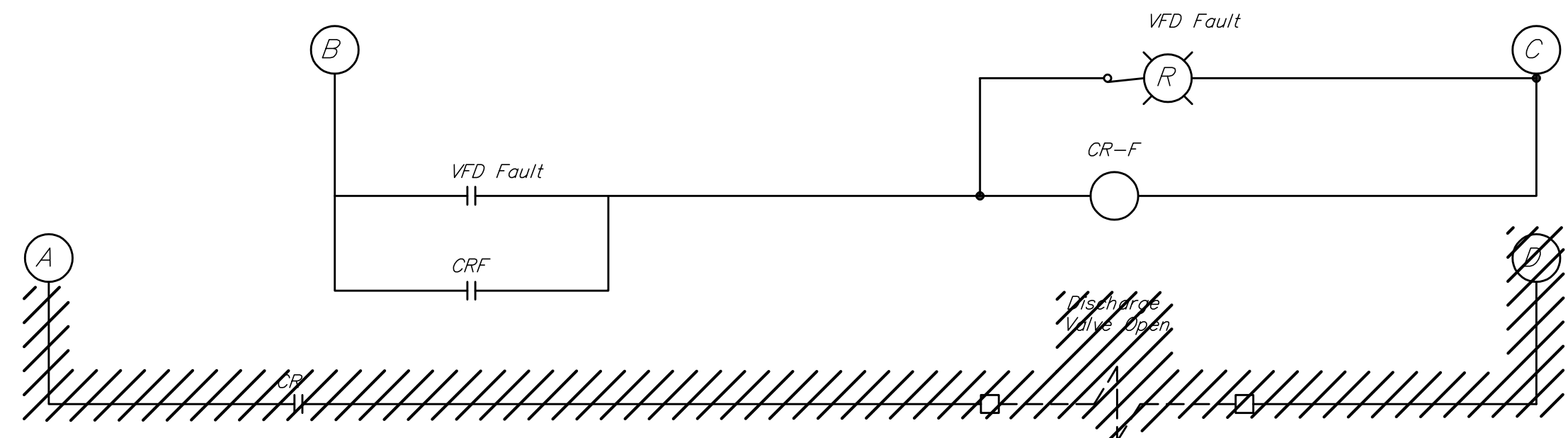
**Jones & Henry Engineers, Ltd.**  
www.jheng.com Fluid Thinking®

SHEET NO. E-3  
9 of 11

KAL-7351001E03  
DATE: 03-10-16  
XREF: None  
Image: None

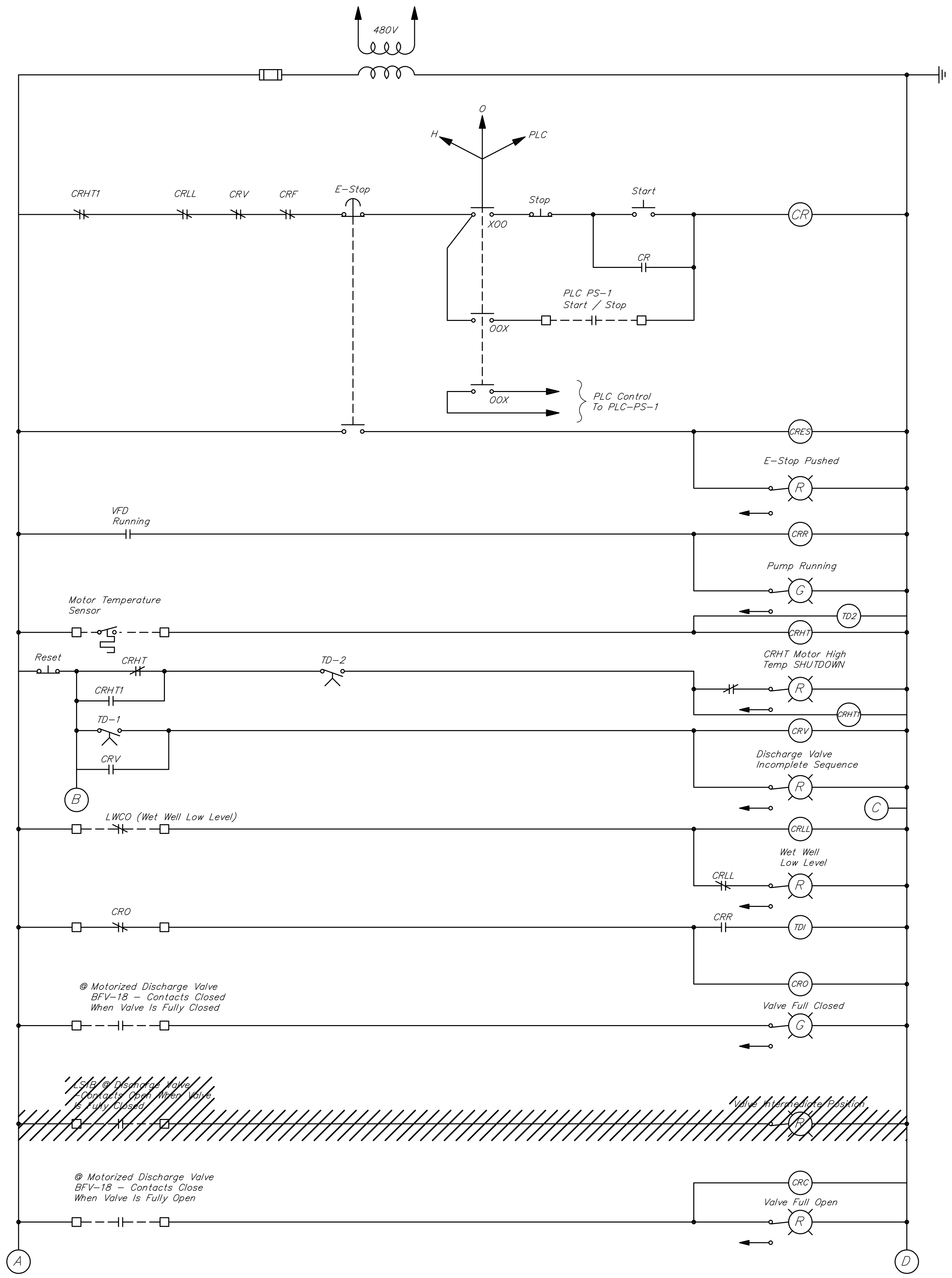
THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

**OPERATING FLOOR PLAN**  
SCALE: 3/8" = 1'-0"



HIGH SERVICE PUMP #6 CONTROL RISER DIAGRAM

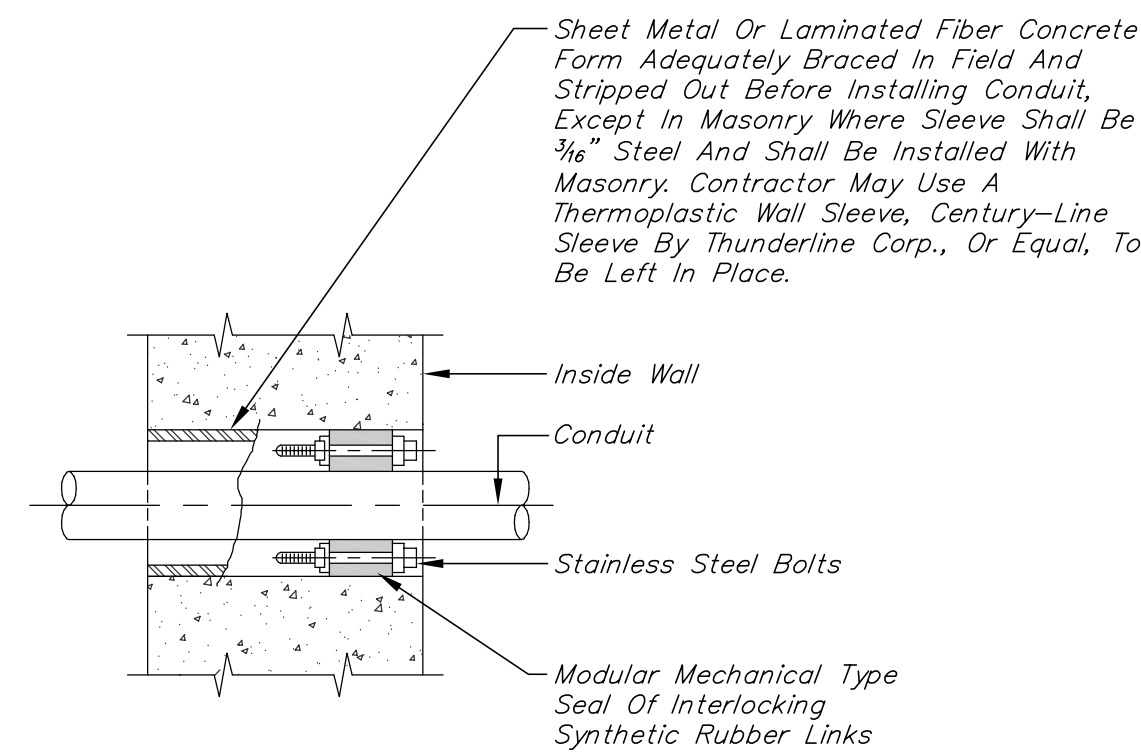
- Notes:
- Connect To Spare I/O Points For The Following:
    - Digital Inputs - PLC Control, VFD Running, VFD In Service, VFD Fault, Valve Open, Valve Closed.
    - Digital Output - HSP6 Start/Stop.
    - 4-20ma Analog Input - HSP6 Speed Feedback.
    - 4-20ma Analog Output - HSP6 Speed Setpoint.



CITY OF BATTLE CREEK VERONA PUMPING STATION IMPROVEMENTS		HSP6 VFD SCHEMATIC AND CONTROL RISER DIAGRAM	
NO.	DATE	DESIGNED	DRAWN
1		PEM	TLK
2			
3			
4			
5			
STATUS: ISSUED FOR BID		DATE: MARCH 2018	CHECKED: AJD
JOB NO. 008-7351.001		SCALE NONE	
JONES & HENRY ENGINEERS, LTD. www.jheng.com		Fluid Thinking <sup>SM</sup>	
SHEET NO. E-4		10 of 11	

KAL-7351001E4  
06/26/02 10-V02  
XREF: None  
Image: None

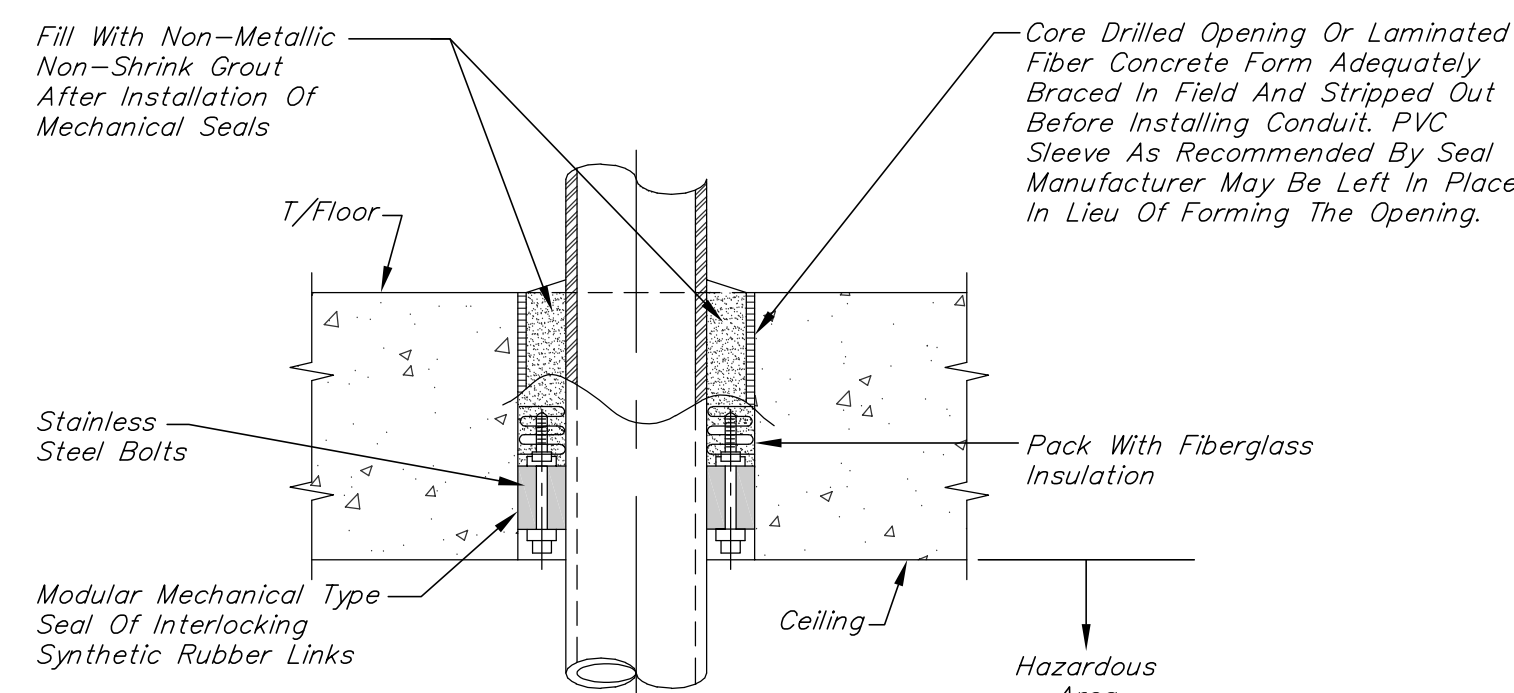
THIS LINE SCALES 1" WHEN  
PLOTTED TO NOTED SCALE



TYPE C

- Notes:**
- Existing Walls Shall Be Core Drilled.
  - Concrete Shall Be Worked In And Vibrated To Eliminate All Voids In Concrete - If Voids Do Remain, Fill With Grout Before Installing Conduit And Rubber Seals.
  - Unless Otherwise Shown On The Drawings All Interior Wall Penetrations Shall Use Type C Conduit Sleeve.

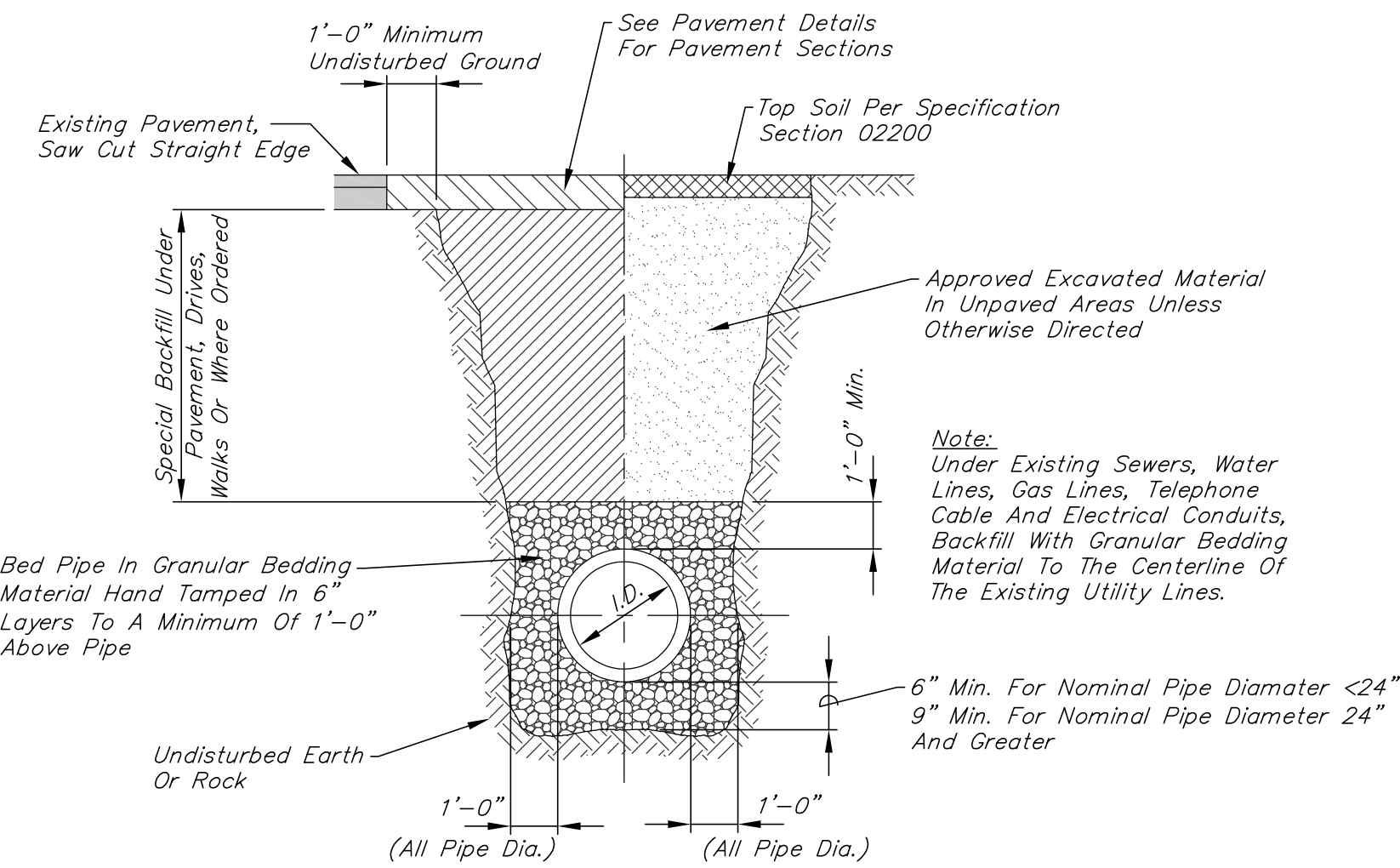
CONDUIT PIPE SLEEVE  
NTS



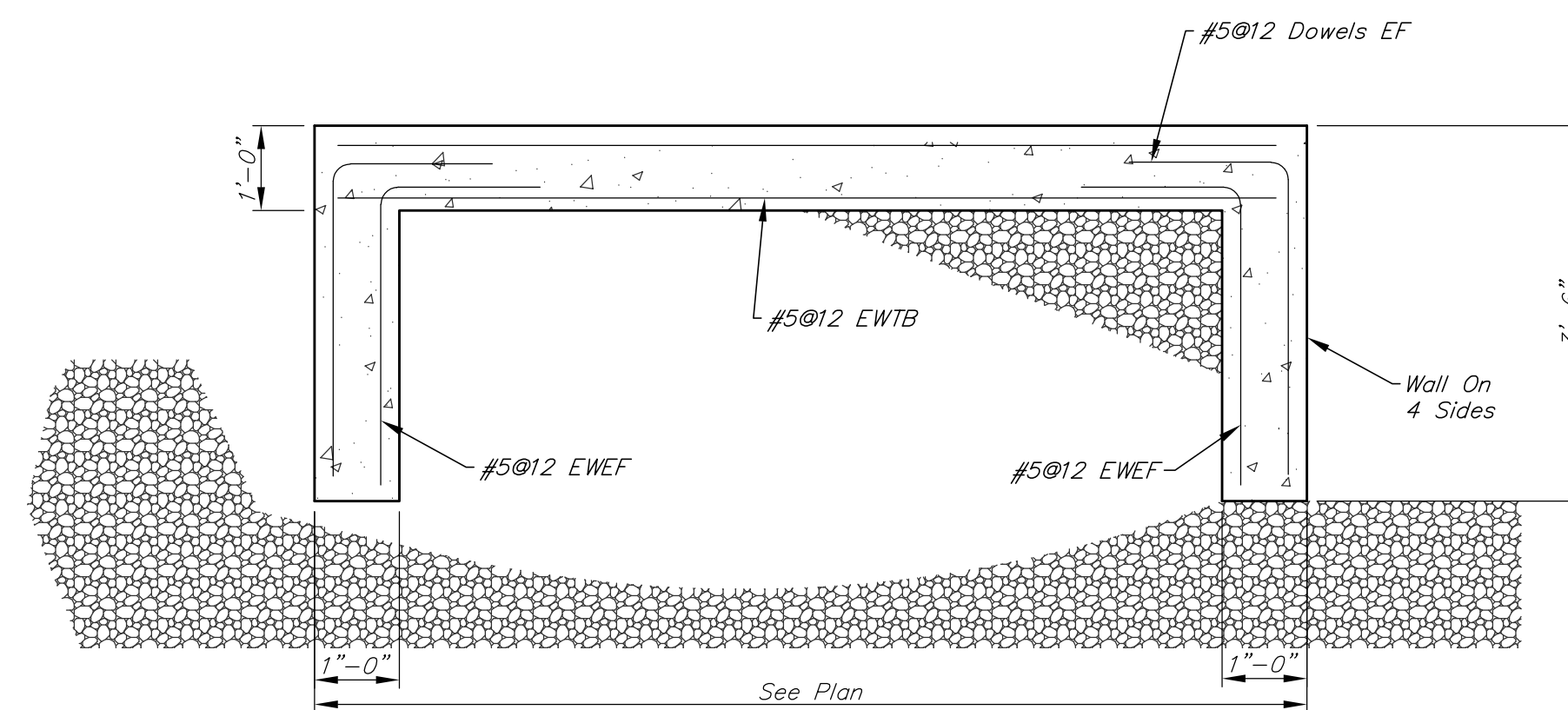
TYPE G (GAS TIGHT)

- Notes:**
- Concrete Shall Be Worked In And Vibrated To Eliminate All Voids In Concrete - If Voids Do Remain, Fill With Grout Before Installing Conduit And Rubber Seals.
  - For Penetrations From Hazardous (Classified) Areas To Non-Hazardous Areas.

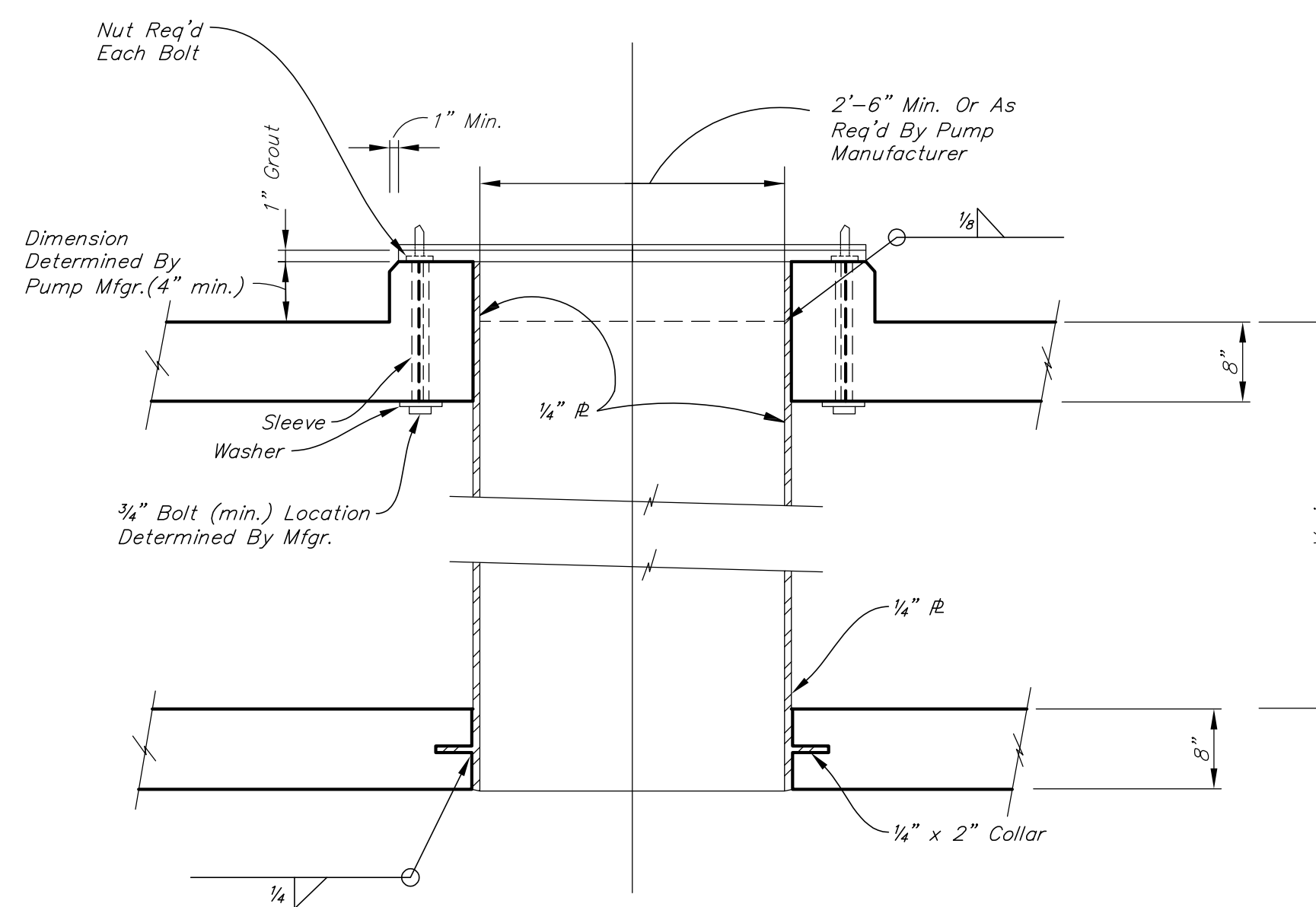
FLOOR SLEEVE  
NTS



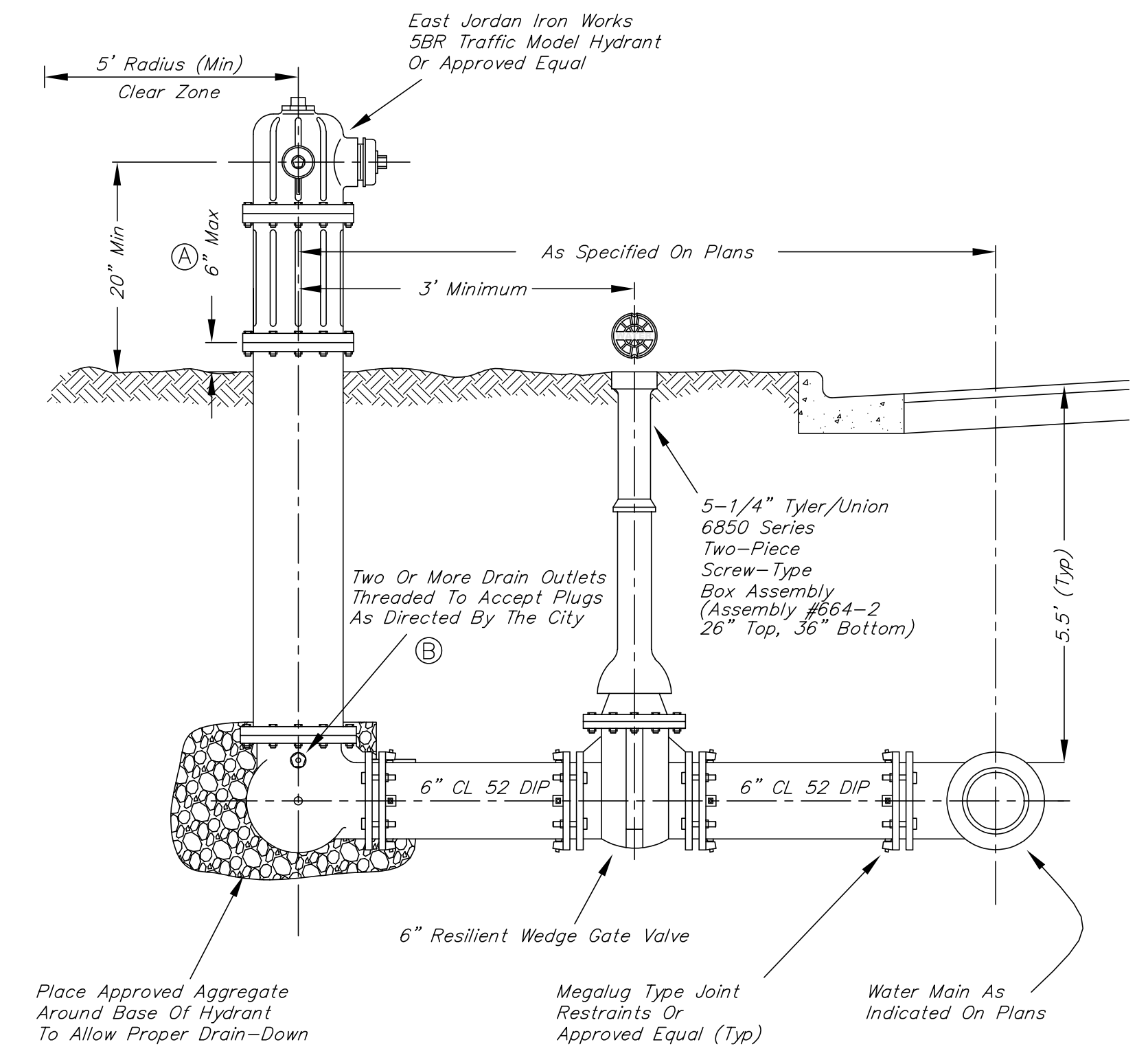
TRENCH DETAIL FOR RIGID PIPE (DIP)  
NTS



TRANSFORMER PAD DETAIL  
NTS



PUMP SLEEVE DETAIL  
NTS



NOTES:  
ALL MATERIALS MUST MEET THE CITY OF BATTLE CREEK WATER DIVISION STANDARDS.

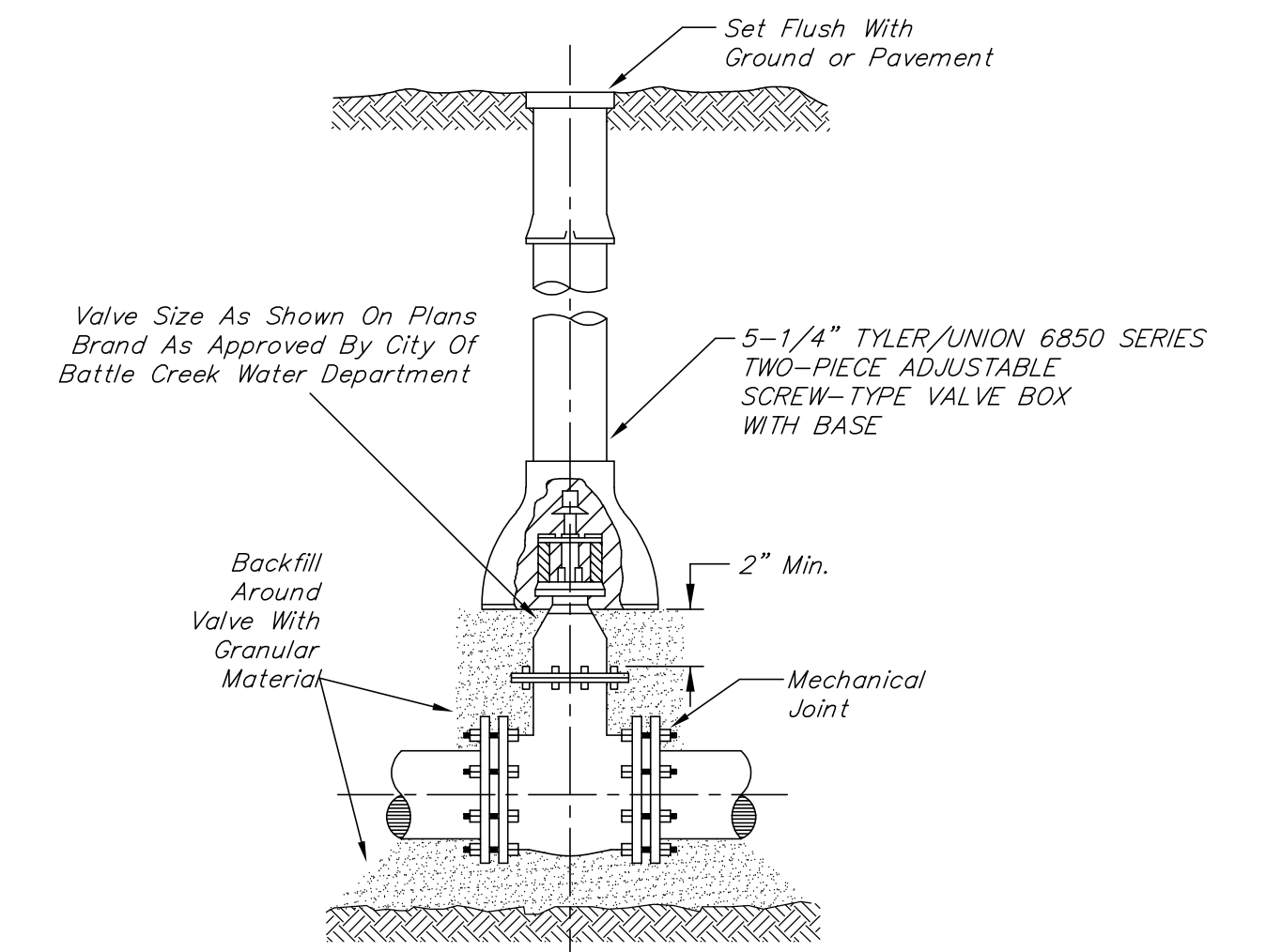
IF THE HYDRANT ASSEMBLY IS LOCATED WITHIN A PRIVATE ROAD, A PUBLIC UTILITY EASEMENT MUST COMPLETELY ENCOMPASS THE HYDRANT ASSEMBLY.

FIRE HYDRANT ASSEMBLY INCLUDES TEE, 6\"/>

Ⓐ 6\"/>

Ⓑ DRAIN PLUGS MUST BE REMOVED UNLESS OTHERWISE DIRECTED BY THE CITY.

TYPICAL HYDRANT AND VALVE DETAIL  
NTS



TYPICAL VALVE BOX DETAIL  
NTS

CITY OF BATTLE CREEK VERONA PUMPING STATION IMPROVEMENTS				DETAILS								
NO.	DATE	REVISIONS AFTER ISSUED FOR BID	DESIGNED	DRAWN	CHECKED	BY	JOB NO. 008-7351.001					
5							SCALE					
4							NONE					
3												
2												
1												
STATUS: ISSUED FOR BID							DATE: MARCH 2018	DESIGNED: AJD	DRAWN: TLK	CHECKED: PSR	 Jones & Henry Engineers, Ltd. Fluid Thinking®	SHEET NO. <b>D-1</b> 11 of 11