Larson Subdivision Pump Station

PUMP STATION SYSTEM DESIGN DOCUMENT

January 25, 2024

Prepared for:
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TABLE OF CONTENTS

CERTIFICATE OF ENGINEER **3**

SERVICE BASIN INFORMATION: **4**

AVERAGE DAILY FLOW TO PUMP STATION: **4**

PEAKING FACTOR: **5**

PEAKING FLOW: **5**

VELOCITY IN PRESSURE PIPE: **5**

STATIC HEAD: **6**

HAZEN-WILLIAMS ROUGHNESS COEFFICIENT: **6**

FRICTIONAL HEAD LOSSES: **6**

TOTAL PUMP STATION SYSTEM CURVE: **7**

BUOYANCY CALCULATIONS: **7**

EXISTING WET WELL: **7**

APPENDICES **8**

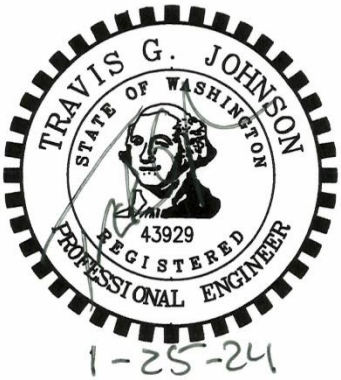
APPENDIX A: 9
SITE PLAN 9

CERTIFICATE OF ENGINEER

Larson Subdivision

Sanitary Sewage Pump Station System
Design Document

The technical information and data contained in this report was prepared under the direction and supervision of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.



Prepared By: _____

Connor Hull, EIT

Service Basin Information:

The existing pump station was originally proposed during the construction of the Riverside Estates subdivision and was designed to provide service for two developments, Riverside Estates and Highland Terrace Subdivision. This pump station is designed to permanent pump station specifications found in the City of La Center Engineering Standards & Sewer Plan.

The purpose of this document is to show how the existing pump station would operate after providing service to Larson Subdivision. Currently the Pump station is being used by 167 single family residential units, 144 apartment units from Riverside Estates and 95 single family residential units from Highland Terrace Subdivision. Outside of the Larsen Subdivision there are no additional parcels that are proposed to be served by the proposed pump station. The Larsen development is proposing 41 single-family homes.

All apartment units are assumed to be 80% of a full equivalent residential unit for calculations.

Average daily flow to pump station:

Interim flows are estimated based on City of La Center General Sewer Plan which assumes the average household size is 2.7 persons per equivalent residential unit (ERU). For design purposes a flow of 110 gallons per person per day has been assumed per table 6.4 of the previously mentioned plan. Therefore, flow is 297 gallons per ERU per day. The following ERU's will be draining to the pump station:

Proposed	No. ERUs
Riverside Estates	167
Riverside Estate Apartments	115
Highland Terrace	95
Larsen Subdivision	41
Total ERU's	**418**

Average daily flow is calculated by multiplying the number of dwelling units to be serviced by the pump station (see basin map in Appendix A) by the daily flow.

418 lots x 297 GPD = 124,146 gal/day

Peaking Factor:

The peaking factor is used to determine the peak daily flow. The peaking factor is found using the following equation (Criteria for Sewage Works Design, Washington Department of Ecology, 2008):

$$\frac{\text{Q peak hourly}}{\text{Q design average}} = \frac{18 + \sqrt{P}}{4 + \sqrt{P}}$$

Q peak hourly = Maximum rate of wastewater flow (peak hourly flow)
Q design average = Design average daily wastewater flow
P = Population in thousands

Based on the above equation the peaking factor for this station is 3.00

Peaking Flow:

Peak daily flow is calculated baed upon the following equation:

$$Q_{peak} = \frac{\text{Average Daily Flow x PF}}{(60\text{mins}/hr)(24hrs/\text{day})}\ \text{gpm}$$

The peak daily flow for this pump station is **258.76 gpm**.

Velocity in Pressure Pipe:

The City of Battle Ground Wastewater Pump Station and Pressure Sewer Design and Construction Standards require a design velocity of between three and eight feet per second in the force main. Class 53 ductile iron pipe is required in the wet well and through all vaults. HPDE pipe will be utilized from the pump station to the outfall within Eaton.

Using the equation Q = VA where V ≥ 3 ft/sec

Flow through the proposed 6" HDPE Pipe:
A = 0.156 sq ft. based on ID = 5.35 in.
Velocity: (260.00 gal/min)/((7.48 gal/cf)(60 sec/min)/(0.156 sq. ft.)) = 3.72 ft./sec.

As shown, the proposed 6" HDPE force main meets the desired self-cleaning velocity requirements.

Static Head:

Static Head is the difference in elevation between the bottom of the working volume and the high point of pressure line. There is a high point centrally located within the force main, these elevations are shown in the attached calculations.

Hazen-Williams Roughness Coefficient:

The Hazen-Williams roughness coefficient "C" value for new HDPE pipe is 160 while it is 150 for the future condition of the pipe.

To avoid oversized pumps which will lead to short run times, frequent starts can lead to overheating and damage to pumps. A roughness coefficient value of 150 was used in design calculations to be more conservative in calculations.

Frictional head losses:

Frictional head losses are calculated using Hazen-Williams equation.

$$hf = \frac{10.44LQ^{1.85}}{C^{1.85}D^{4.8655}}$$

Where:
L = Length of Pipe and Fittings (ft)
Q = Flow (gpm)
D = Diameter of Pipe (in)
C = Hazen-Williams Roughness Coefficient

The equivalent Length of all of the fittings as shown attached with this document is 195'. There is also 2,638' of 6" pipe from vault to the discharge point, however approximately 300' of the end of the force main will have a slope greater than 1% which will result in gravity flow. The total equivalent length of pipe is approximately 2,833 ft.

Total Pump Station System Curve:

The sum of the static head loss and minor losses from the pipes is the total head loss. As flow through the system increases, head loss will also increase. A separate spreadsheet has been included in the appendices showing the calculated losses and the resulting system and pump curves.

Buoyancy Calculations:

The pump station is existing and has been operating without issues since 2019, therefore no buoyancy calculations are needed.

Existing Wet Well:

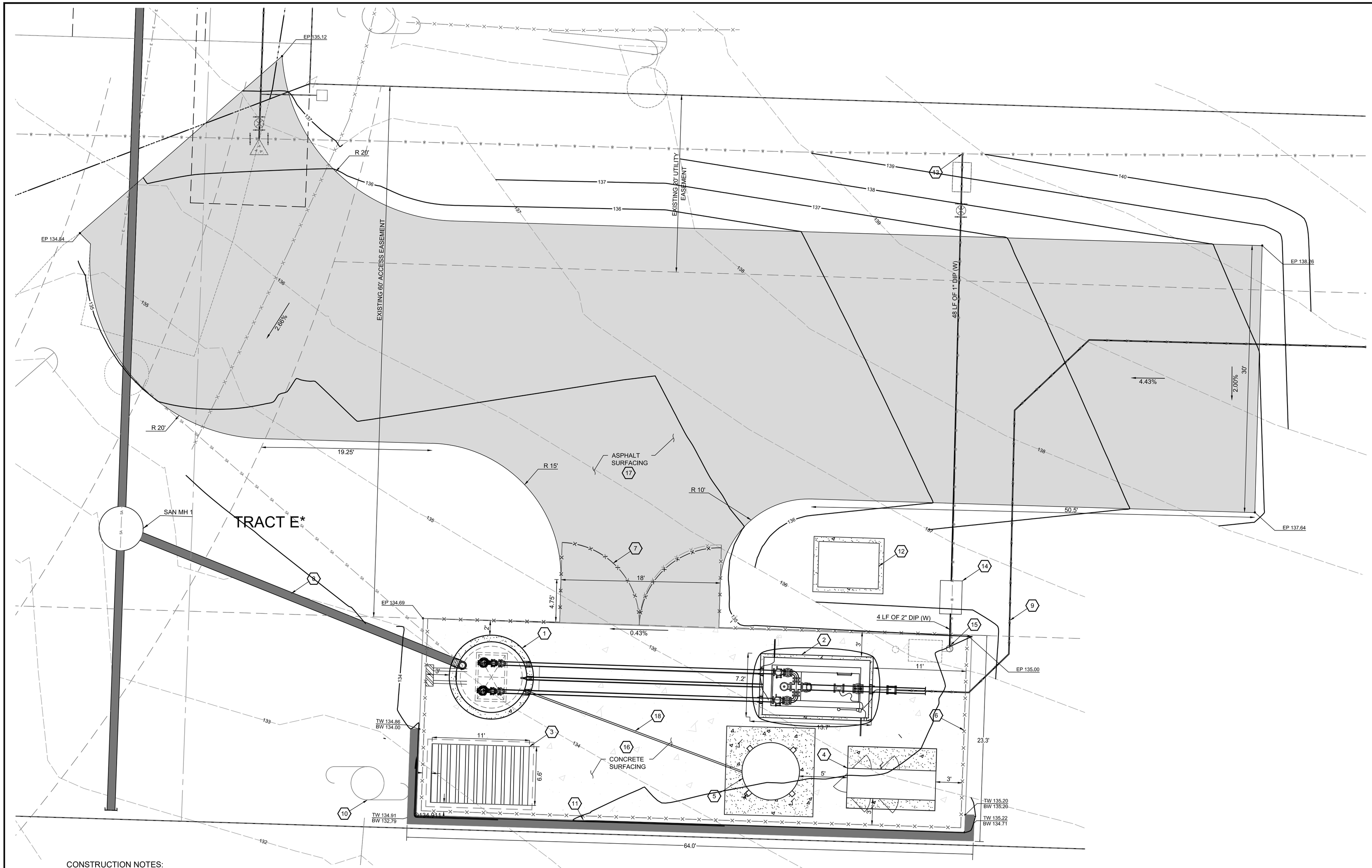
A 96" wet well is the minimum size recommended to contain all parts to a pump station. There are minimum flows coming to this pump therefore the minimum 96" wet well is recommended. Wet well design calculations have been performed and are attached to this document.

The existing pump is a "Flygt" NP 3127 SH 3 – Adapative 249, capable of 260 gallons per minute at 81.3' of dynamic head. The two pumps were proposed to alternate between the primary and secondary pumps controlled by a multilevel probe. Additionally, the probe can electronically be updated to change the elevations for the pump "off", lead pump "on", lag pump "on" and the high-water alarm. As the flows to the existing wet well will increase with the proposed lots the multilevel probe elevations will be updated to accommodate the higher peak flow.

At all times below the peak flow the pump down and refill time will be approximately three minutes, equating to 20 starts per hour, which is well below the specified max of 30 starts per hour. Calculations can be seen attached to this document.

APPENDICES

APPENDIX A:
SITE PLAN



CONSTRUCTION NOTES:

1. INSTALL WET WELL PER DETAIL SHEET 4 AND PER CRWWD DETAIL 34, SHEET 6.
2. INSTALL VALVE VAULT PER DETAIL SHEET 5 AND PER CRWWD DETAIL 36, SHEET 6.
3. INSTALL CONTROL PANEL PER ELECTRICAL DETAILS
4. PERMANENT DEISEL GENERATOR ON CONCRETE PAD. SEE ELECTRICAL DRAWINGS.
5. INSTALL BIOXIDE ODOR CONTROL ON 10' X 10' CONCRETE PAD. SEE DETAIL SHEET 6.
6. INSTALL 6' BLACK TYPE 3 CHAIN LINK FENCE WSDOT STANDARD LAN L- 20.10-03 & STANDARD SPECIFICATION SECTION 9-16 WITH 2 STRANDS OF BARBED WIRE. SEE DETAIL SHEET 5.
7. INSTALL 14' DOUBLE GATE W/SECURITY TOP. SEE WSDOT STANDARD PLAN L-30.10-00 STANDARD SPECIFICATION 9-16.
8. 8" PVC GRAVITY SANITARY SEWER LINE. SEE RIVERSIDE ESTATES SUBDIVISION. COORDINATE CONNECTION TO WET WELL WITH CONTRACTOR.
9. 6" PVC SANITARY SEWER FORCE MAIN. SEE RIVERSIDE ESTATES OFFISITE SEWER FORCE MAIN INSTALLATION. COORDINATE CONNECT TO VALVE VAULT WITH CONTRACTOR.
10. EXISTING POWER POLE WITH GUY. PROTECT IN PLACE.
11. INSTALL KEYSTONE RETAINING WALL.
12. INSTALL TRANSFORMER. COORDINATE WITH CLARK PUD.
13. INSTALL 1" TAP FOR WATER SERVICE AND ¾" WATER SERVICE METER. CONTRACTOR TO COORDINATE WITH CPU FOR SERVICE METER INSTALLATION.
14. INSTALL ¾" REDUCED PRESSURE BACKFLOW ASSEMBLY IN HOT BOX
15. INSTALL FREEZE-PROOF YARD HYDRANT IN BUILDING ENCLOSURE WOODFORD MODEL R34 OR APPROVED EQUAL W/3/4" BRASS HOSE NOZZEL AND 1" GALVANIZED STEEL PIPE EXTENSION.
16. CONCRETE SURFACING PER DETAIL 31 SHEET 5.
17. ASPHALT SURFACING PER STANDARD SPECIFICATION SECTION 5-04. SEE SECTION DETAIL SHEET 5.
18. 2" SCHEDULE 40 PVC CHEMICAL FEED CASING, ROUTE BETWEEN BIOXIDE SYSTEM AND WET WELL AT 2 FOOT DEPTH

* TRACT E SHALL HAVE AN ACCESS AND UTILITY EASEMENT GRANTED TO CITY OF LA CENTER OVER THE ENTIRE TRACT

Scale 1" = 5

5 2.5 0 5

Know what's below. Call before you dig.

Pump Station Site Plan for: Riverside Estates Sanitary Pump Station

Located in La Center, Washington

PLS ENGINEERING
Consulting Engineers & Planners | 604 W Evergreen Blvd, Vancouver, WA 98660 | PH (360) 944-6519 | Fax (360) 944-6539

Revisions

A	
B	
1	
2	
3	
4	

TRAVIS G. JOHNSON
STATE OF WASHINGTON
21613929
REGISTERED
PROFESSIONAL ENGINEER
4-30-19

Project No.	2641
SCALE:	H: 1" = 5' V: N/A
DESIGNED BY:	KMV
DRAFTED BY:	KMV
REVIEWED BY:	TGJ

2

15

APPENDIX B: ON-SITE SYSTEM DESIGN CRITERIA

PROJECTED FLOWS

FORCE MAIN DESCRIPTION

WET WELL DESIGN CALCULATIONS

SYSTEM CURVE CALCULATIONS

PLOT OF SYSTEM CURVES

"FLYGT" PERFORMANCE CURVE

Larson Subdivision Sewer Flow Rate Calculations

Onsite Development:	**GPD**	**GPM**	**GPM PEAK**	**Notes**
Detached/Phase 1 (41 units)	12177	8.46	25.37	110 gal/day & 2.7 person/unit
Total	**12177**	**8.46**	**25.37**	
Offsite Development:				
Riverside Estates PH 1 (117 Units)	34749	24.13	72.39	110 gal/day & 2.7 person/unit
Riverside Estates PH 2 (50 Units)	14850	10.31	30.94	110 gal/day & 2.7 person/unit
Riverside Estates PH 3 (144 Apartment Units)	34214.4	23.76	71.28	All apartment units are assumed to be 80% of a full equivalent residential unit. (ERU)
Highland Terrace Subdivision (95 Units)	28215	19.59	58.78	110 gal/day & 2.7 person/unit
Total	**112028**	**77.8**	**233**	
				Peak Factor = 3
Total (offsite and onsite)	**124205**	**86.25**	**258.8**	

Larsen Subdivision Pump Station
Wet Well Design Calculations

Wet Well Sizing

Pump Model:	NP 3127
Individual Pump Capacity:	260 gpm
Desired Cycle Time Between Pump Starts:	**6.0 min**
Wet Well Inside Diameter:	96 in
Proposed Well Depth Between Pump On & Pump Off =	1.80 ft
Pump Down Time Based on 0 Inflow:	2.60 min
Refill time based on no pumping and 260 gpm peak inflow	2.60 min
Minimum total cycle time between pump starts:	**5.21 min**

Wet well sizing above is based on minimum 3 minute cycle time to accomplish max.
It utilizes worst case assumptions that there will be no inflow during the pump drawdown cycle
and that the peak hourly inflow will occur during the refill cycle between pump off and pump on.

Total Dynamic Head Calculations

IE IN @ Wet Well:	129	
Pump ON Elev:	123.00	
Pump OFF Elev:	121.20	
I.E. @ Discharge:	178.50	
Min Static Head =	55.5 ft	
Max Static Head =	57.3 ft	
Force Main Dia:	**5.35 in**	(Actual I.D.)
Velocity =	3.72 fps	@ 260 gpm

Velocity Performance Range

Velocities @ optimum

Larsen Subdivision Pump Station

System Curve Calculations

Discharge Elev. (ft): 178.50
Pump "On" Elev. (ft): 123.00
Pump "Off" Elev. (ft): 121.20

Head loss due to friction - *Hazen-Williams Eqn.*
h_f= (149*Q/C*D^2.63)^1.85

DESCRIPTION	TOTAL PIPE LENGTH	INSIDE DIAMETER	FRICTION "C"	FLOW "Q"	FLOW AREA "A"	VELOCITY "V"	HEAD LOSS "h_f"	DELTA ELEVATION (ft)	TDH REQUIRED (ft)
Pipe - Pump "**On**"	2833 ft	5.35 in	150	180 gpm	0.16 sf	2.57 ft/s	11.89 ft	55.5	67.39
	2833 ft	5.35 in	150	190 gpm	0.16 sf	2.71 ft/s	13.15 ft	55.5	68.65
	2833 ft	5.35 in	150	200 gpm	0.16 sf	2.85 ft/s	14.45 ft	55.5	69.95
	2833 ft	5.35 in	150	210 gpm	0.16 sf	3.00 ft/s	15.82 ft	55.5	71.32
	2833 ft	5.35 in	150	220 gpm	0.16 sf	3.14 ft/s	17.24 ft	55.5	72.74
	2833 ft	5.35 in	150	230 gpm	0.16 sf	3.28 ft/s	18.72 ft	55.5	74.22
	2833 ft	5.35 in	150	240 gpm	0.16 sf	3.43 ft/s	20.25 ft	55.5	75.75
	2833 ft	5.35 in	150	250 gpm	0.16 sf	3.57 ft/s	21.84 ft	55.5	77.34
	2833 ft	5.35 in	150	260 gpm	0.16 sf	3.71 ft/s	23.49 ft	55.5	78.99
	2833 ft	5.35 in	150	270 gpm	0.16 sf	3.85 ft/s	25.18 ft	55.5	80.68
	2833 ft	5.35 in	150	280 gpm	0.16 sf	4.00 ft/s	26.94 ft	55.5	82.44
Pipe - Pump "**Off**"	2833 ft	5.35 in	150	180 gpm	0.16 sf	2.57 ft/s	11.89 ft	57.3	69.19
	2833 ft	5.35 in	150	190 gpm	0.16 sf	2.71 ft/s	13.15 ft	57.3	70.45
	2833 ft	5.35 in	150	200 gpm	0.16 sf	2.85 ft/s	14.45 ft	57.3	71.75
	2833 ft	5.35 in	150	210 gpm	0.16 sf	3.00 ft/s	15.82 ft	57.3	73.12
	2833 ft	5.35 in	150	220 gpm	0.16 sf	3.14 ft/s	17.24 ft	57.3	74.54
	2833 ft	5.35 in	150	230 gpm	0.16 sf	3.28 ft/s	18.72 ft	57.3	76.02
	2833 ft	5.35 in	150	240 gpm	0.16 sf	3.43 ft/s	20.25 ft	57.3	77.55
	2833 ft	5.35 in	150	250 gpm	0.16 sf	3.57 ft/s	21.84 ft	57.3	79.14
	2833 ft	5.35 in	150	260 gpm	0.16 sf	3.71 ft/s	23.49 ft	57.3	80.79
	2833 ft	5.35 in	150	270 gpm	0.16 sf	3.85 ft/s	25.18 ft	57.3	82.48
	2833 ft	5.35 in	150	280 gpm	0.16 sf	4.00 ft/s	26.94 ft	57.3	84.24

Larsen Subdivision SANITARY SEWER PUMP STATION
Force Main and Fitting Losses
Fittings and Short Pipe Segments at Pump Station to Reducer in Meter Vault

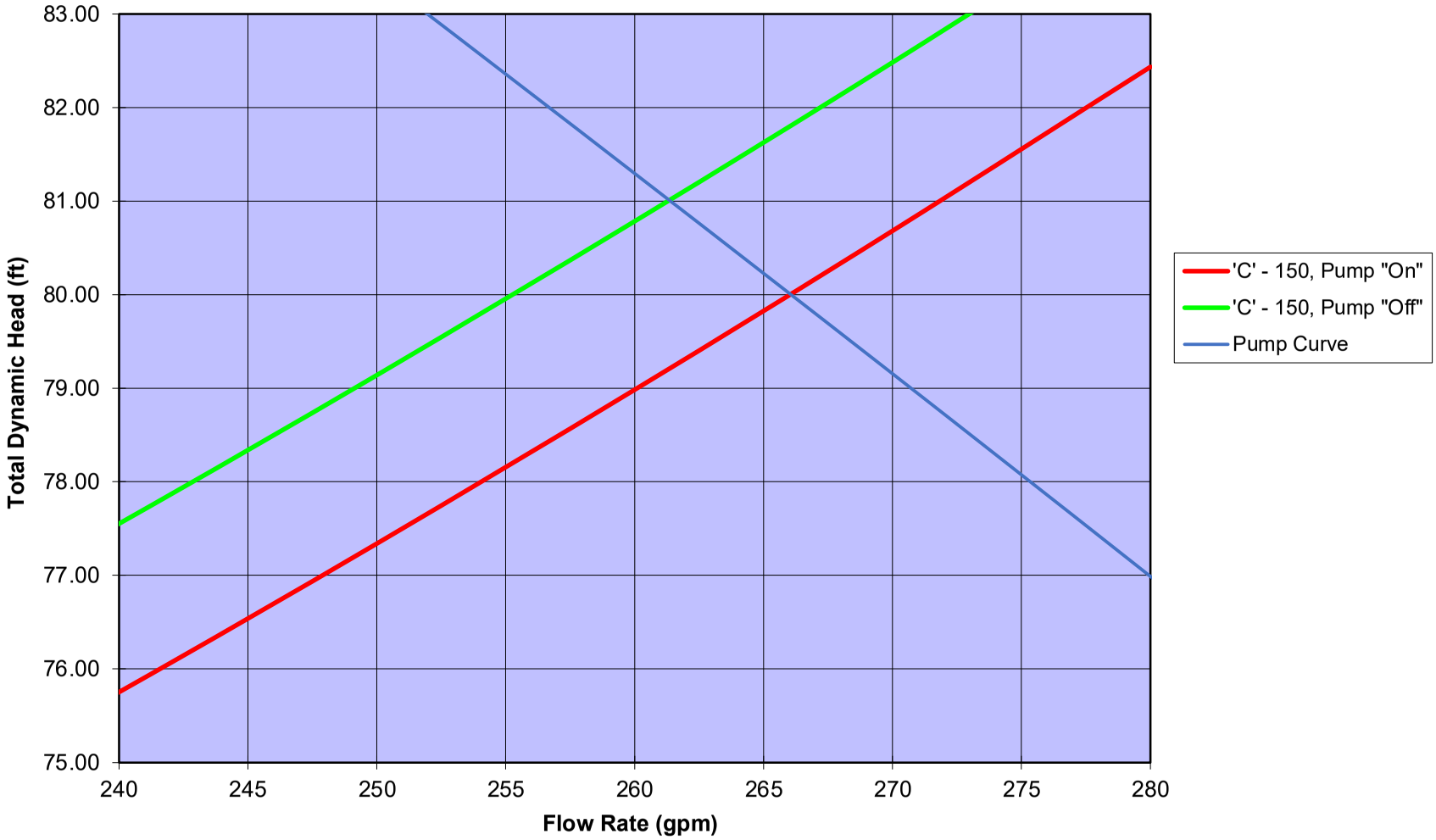
JUNCTION No.	DESCRIPTION	PIPE LENGTH (ft)	MINOR LOSSES EQUIV LENGTH (ft)	TOTAL LENGTH (ft)	NOTES
1	Wet Well/Pump	2638 ft	195 ft	2833 ft	Fittings: shown below
2	Valve Vault / Force Main				
	SUBTOTAL	2638 ft	195 ft	2833 ft	

Misc. fitting friction losses:	Equiv. pipe length (ft)
1) Forcemain	
0 - 90° bends	0.0
14 - 45° bends	107.8
1 - 6" gate valve	3.5
Total equiv. length for wet well & valve vault	**107.8**
2) Losses at Pump Station	
2 - 4" 90° bends	14.0
1 - 2" swing check valve	33.6
2 - 2" gate valve	4.6
1 - flg tee	22.0
1 - magnetic flow meter	1.0
1 - pressure gauge	1.0
1 - 6" gate valve	3.5
1 - 3" 90° bends	7.7
Total equiv. length for flow meter vault to reducer	**87.4**
Grand total of equivalent length for minor losses	**195.2**

	Friction Loss*	
Fitting (6")	(Equiv. Pipe Length)	4" Eq. Len.
CV - Check Valve	40.0 ft	33.6 ft
GV - Gate Valve	3.5 ft	2.3 ft
90º - 90º Bend	15.2 ft	7.0 ft
45º - 45º Bend	7.7 ft	8.0 ft
11¼º - 11¼º Bend	8.0 ft	8.0 ft
6" Wye	8 ft	8 ft
Tee - Tee, Through Flow	5.0 ft	5.0 ft
Tee - Tee, Side Flow	30.3 ft	22.0 ft
Reducer - 4"X6" Reducer	10.1 ft	10.1 ft
Pressure Gauge	1.0 ft	1.0 ft
Flow Meter	40.1 ft	40.1 ft

* "Friction Losses in Pipe Fittings, CAMERON HYDRAULIC DATA"

Larsen Subdivision Pump Station
System Curve for Flygt NP 3127 SH 3 Adaptive 249

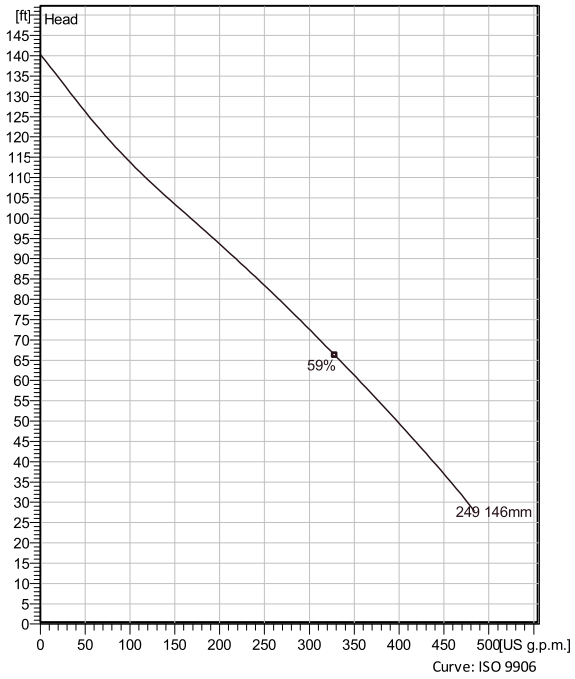


NP 3127 SH 3~ Adaptive 249

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Modular based design with high adaptation grade.

Technical specification

Curves according to: Water, pure Water, pure [100%], 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft²/s



Curve: ISO 9906

Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Configuration

Motor number
N3127.920 21-11-2AS-W IE3 12hp

Installation type
P - Semi permanent, Wet

Impeller diameter
146 mm

Discharge diameter
3 inch

Pump information

Impeller diameter
146 mm

Discharge diameter
3 inch

Inlet diameter
90 mm

Maximum operating speed
3600 rpm

Number of blades
2

Max. fluid temperature
40 °C

Material

Impeller
Hard-Iron ™

Stator housing material
Grey cast iron

Project	Xylect-21753320	**Created by**	travis johnson		
Block		**Created on**	1/25/2024	**Last update**	1/25/2024

NP 3127 SH 3~ Adaptive 249

Technical specification

Motor - General

Motor number N3127.920 21-11-2AS-W IE3 12hp	**Phases** 3~	**Rated speed** 3600 rpm	**Rated power** 12 hp
ATEX approved No	**Number of poles** 2	**Rated current** 11 A	**Stator variant** 50
Frequency 60 Hz	**Rated voltage** 575 V	**Insulation class** H	**Type of Duty** S1
Version code 920			

Motor - Technical

Power factor - 1/1 Load 0.90	**Motor efficiency - 1/1 Load** 91.3 %	**Total moment of inertia** 0.482 lb ft²	**Starts per hour max.** 30
Power factor - 3/4 Load 0.89	**Motor efficiency - 3/4 Load** 91.3 %	**Starting current, direct starting** 85 A	
Power factor - 1/2 Load 0.84	**Motor efficiency - 1/2 Load** 89.1 %	**Starting current, star-delta** 28.3 A	

Project	Xylect-21753320	**Created by**	travis johnson		
Block		**Created on**	1/25/2024	**Last update**	1/25/2024

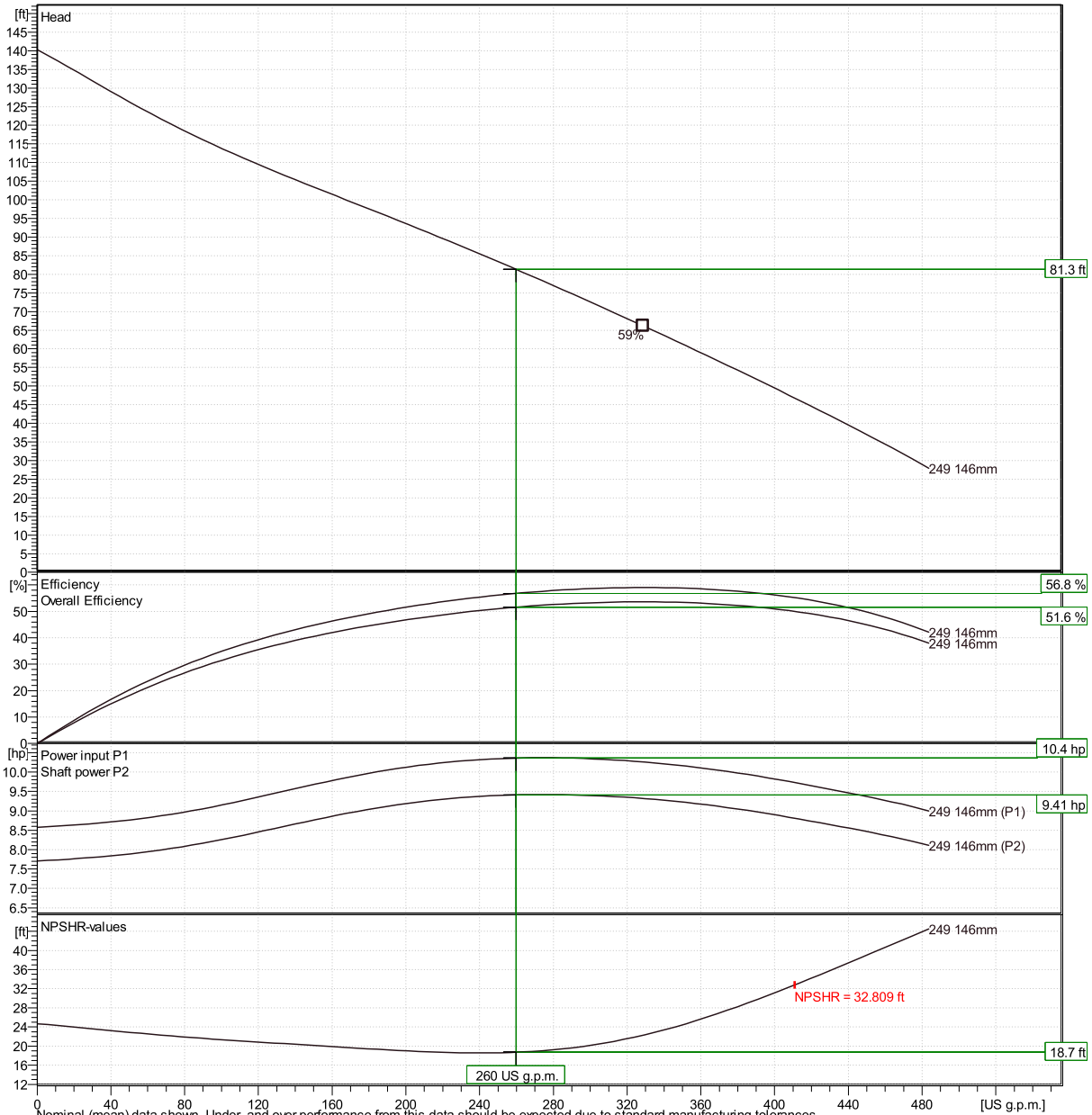
NP 3127 SH 3~ Adaptive 249

Performance curve

Duty point

Flow	Head
260 US g.p.m.	81.3 ft

Curves according to: Water, pure Water, pure [100%],39.2 °F,62.42 lb/ft³,1.6891E-5 ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

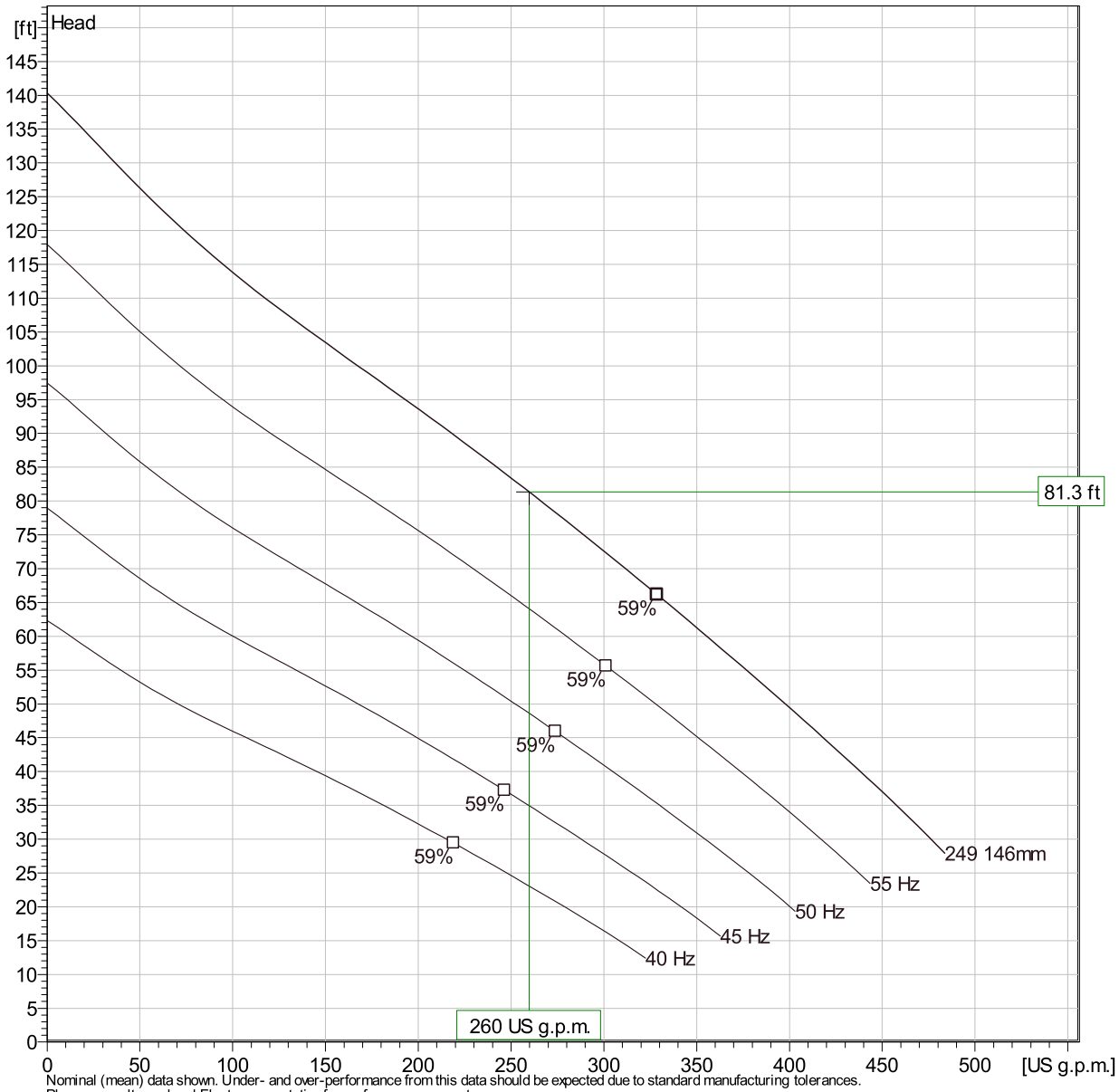
Curve: ISO 9906

Xylect-21753320	travis johnson		
Created on	1/25/2024	**Last update**	1/25/2024

NP 3127 SH 3~ Adaptive 249

Duty Analysis

Curves according to: Water, pure [100%] ; 39.2°F; 62.42lb/ft³; 1.6891E-5ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Operating characteristics

Pumps / Systems	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Spec. Energy	NPSHre
	US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	260	81.3	9.41	260	81.3	9.41	56.8 %	496	18.7

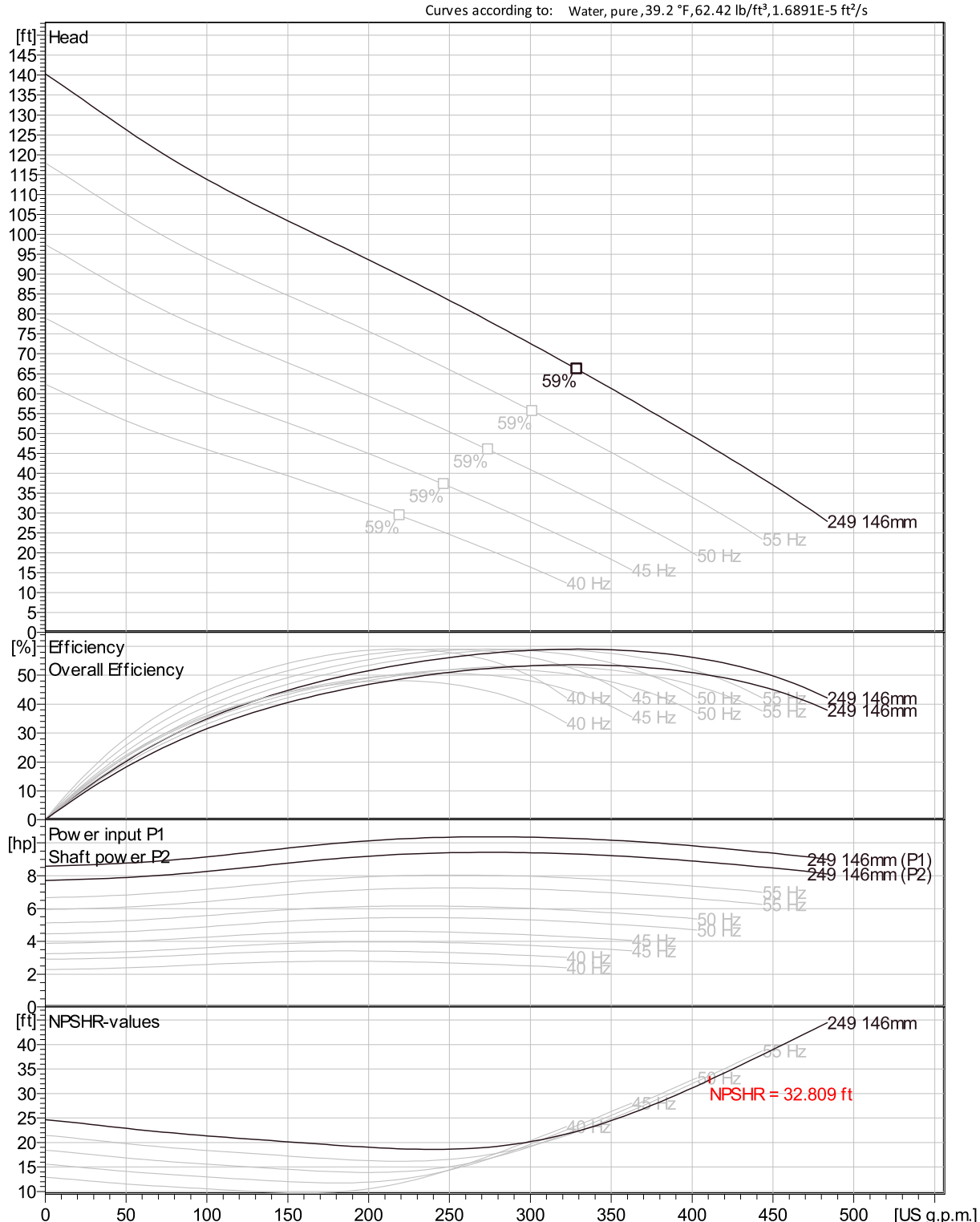
Project		**Created by**	travis johnson		
Block	Xylect-21753320	**Created on**	1/25/2024	**Last update**	1/25/2024

NP 3127 SH 3~ Adaptive 249

VFD Curve

FLYGT
a xylem brand

Curves according to: Water, pure ,39.2 °F,62.42 lb/ft³,1.6891E-5 ft²/s



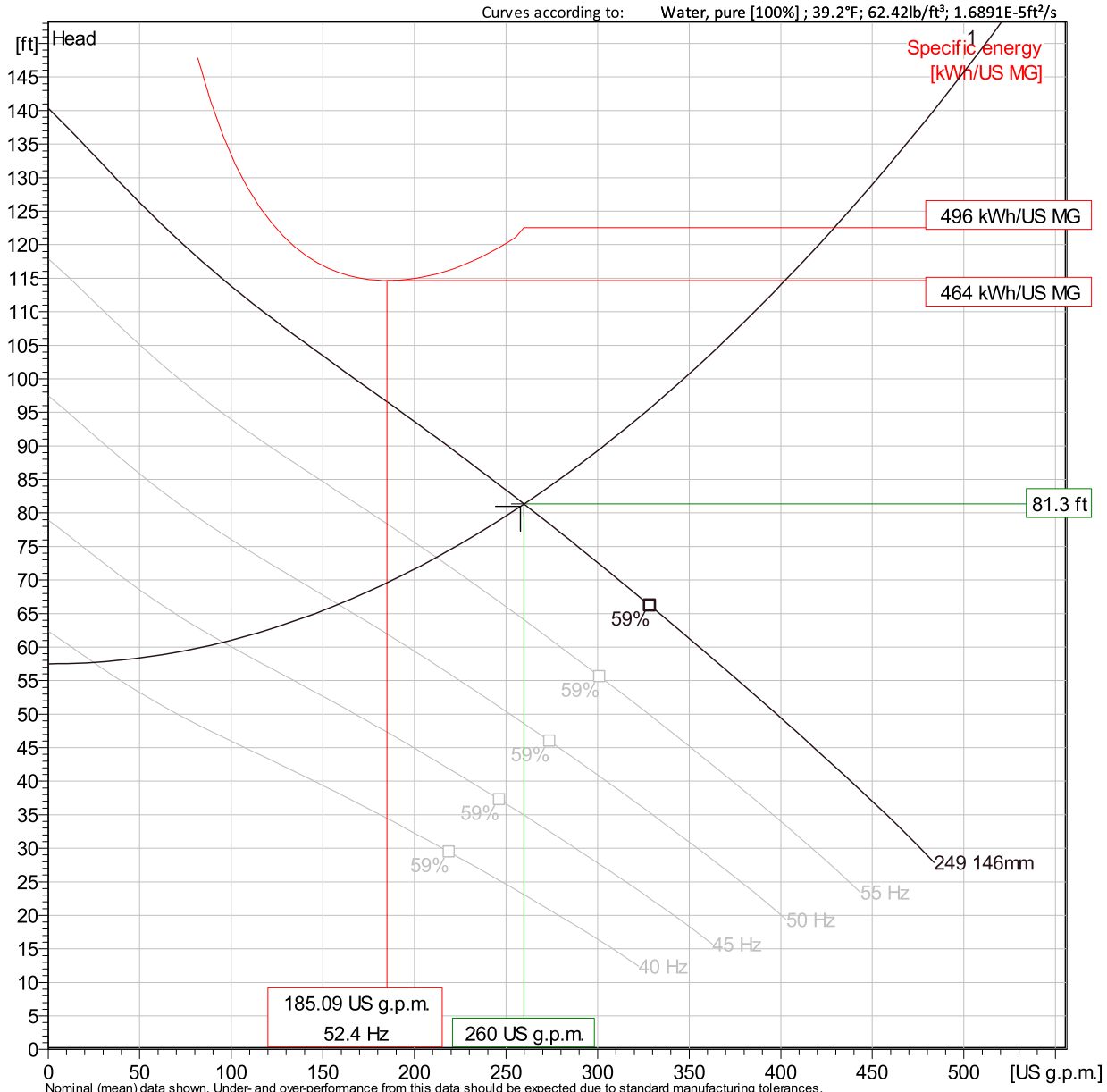
Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Curve: ISO 9906

Project	Xylect-21753320	**Created by**	travis johnson		
Block		**Created on**	1/25/2024	**Last update**	1/25/2024

NP 3127 SH 3~ Adaptive 249

VFD Analysis



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

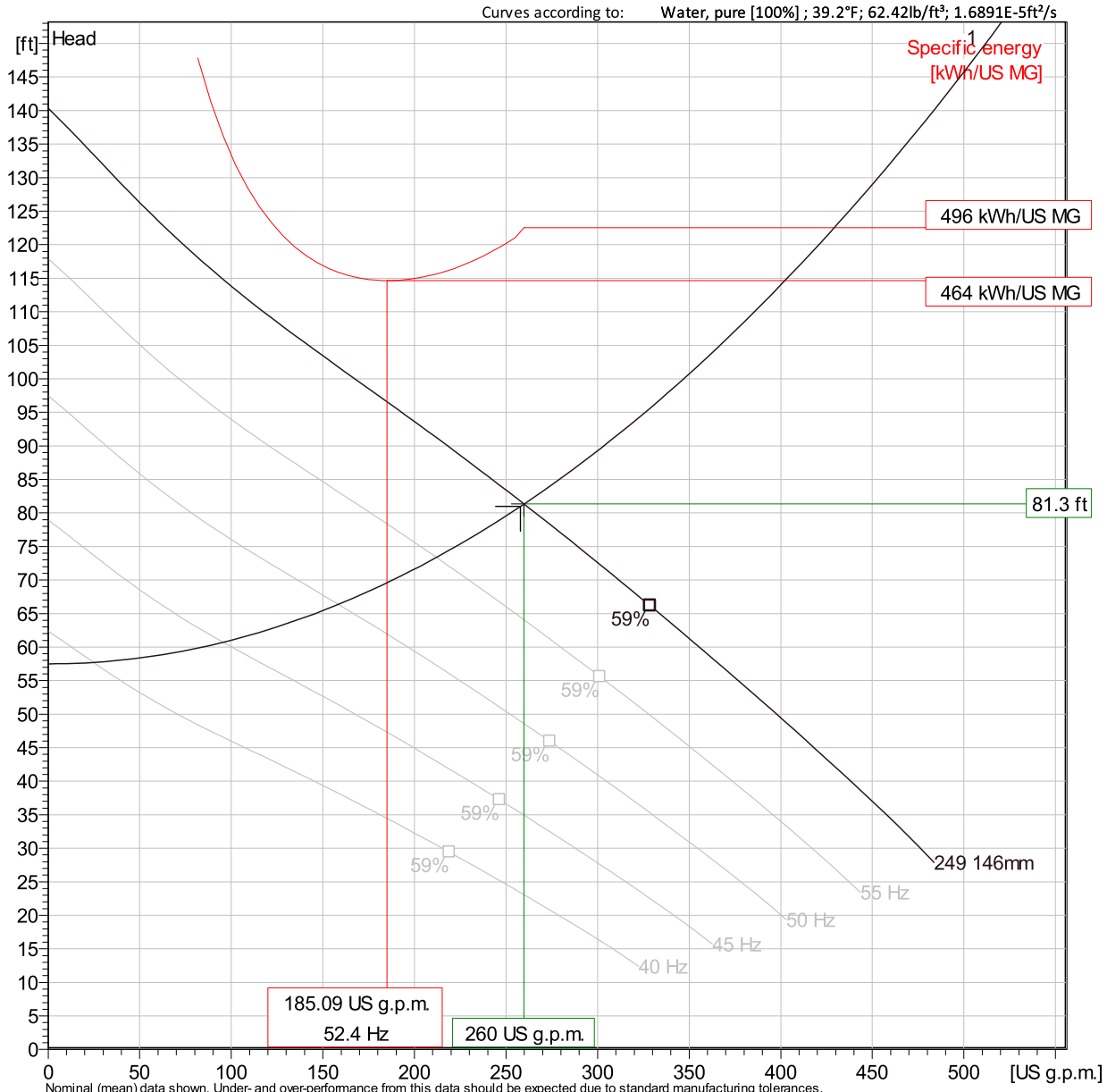
Operating Characteristics

Pumps / Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Specific energy	NPSHre
		US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	60 Hz	260	81.3	9.41	260	81.3	9.41	56.8 %	496	18.7
1	55 Hz	212	73.4	7.2	212	73.4	7.2	54.7 %	468	16.2
1	50 Hz	158	66.4	5.28	158	66.4	5.28	50.4 %	469	14.4
1	45 Hz	95.6	60.7	3.6	95.6	60.7	3.6	40.8 %	551	13

Project	Xylect-21753320	**Created by**	travis johnson		
Block		**Created on**	1/25/2024	**Last update**	1/25/2024

NP 3127 SH 3~ Adaptive 249

VFD Analysis



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

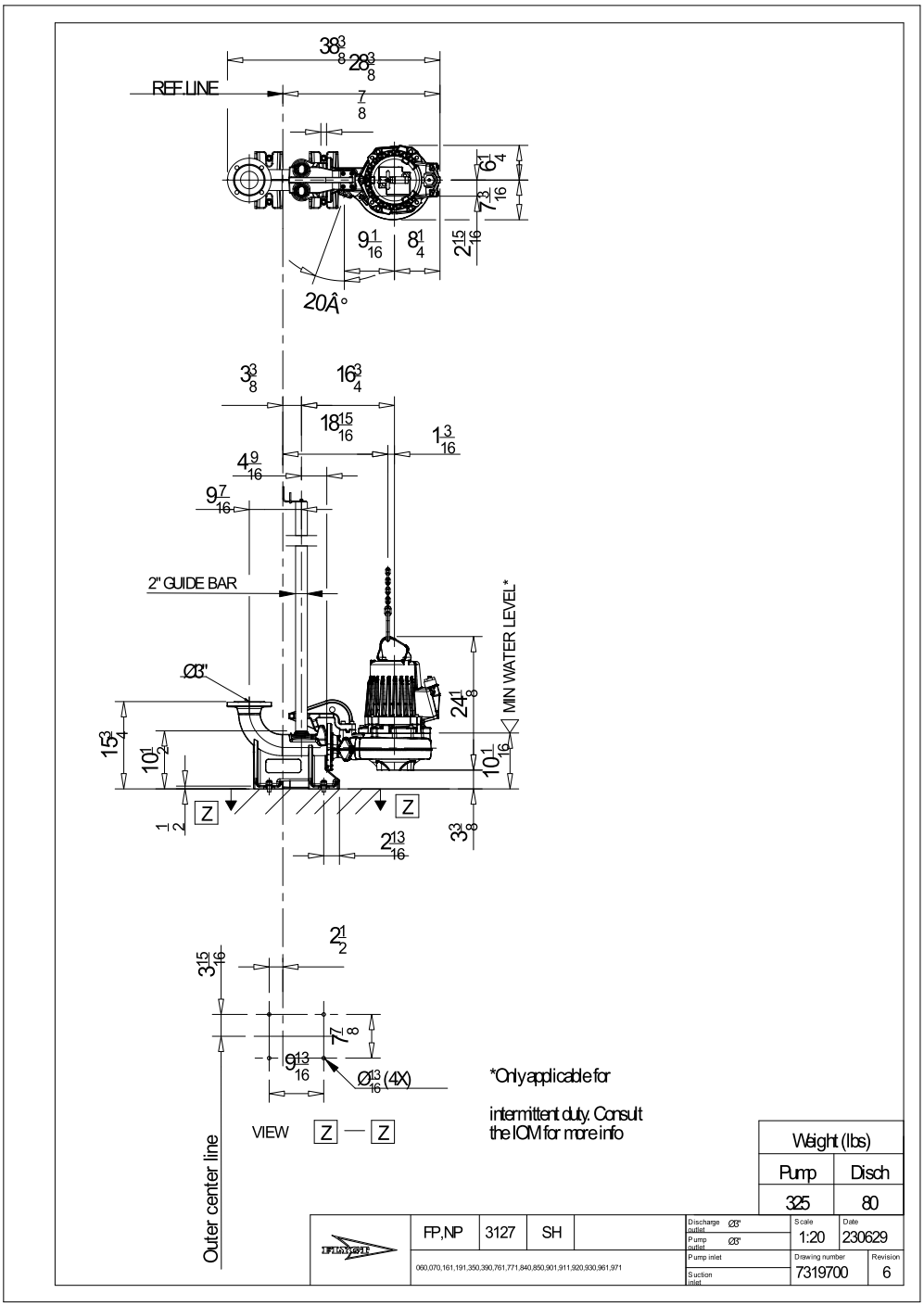
Operating Characteristics

Pumps / Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Specific energy	NPSHre
		US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	40 Hz	24.8	57.7	2.32	24.8	57.7	2.32	15.6 %	1480	12.2

Project	Xylect-21753320	**Created by**	travis johnson		
Block		**Created on**	1/25/2024	**Last update**	1/25/2024

NP 3127 SH 3~ Adaptive 249

Dimensional drawing



Project	Xylect-21753320	**Created by**	travis johnson		
Block		**Created on**	1/25/2024	**Last update**	1/25/2024

Riverside Estates Sanitary Pump Station

Located in the SE ¼ of Section 33, T5N, R1E and
the NE ¼ of Section 4, T4N, R1E, W.M.
La Center, Washington

GENERAL NOTES

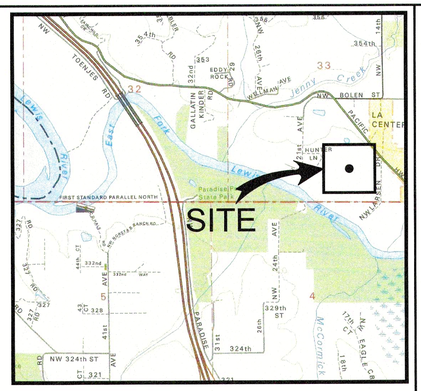
DEVELOPER:
ECM Riverside, LLC
340 Oswego Pointe Drive, Suite 208
Lake Oswego, OR 97034
Office (503) 568-1907

CIVIL ENGINEER:
PLS Engineering
Contact: Travis Johnson, PE
2008 C Street
Vancouver, WA 98660
PH: (360) 944-6519
travis@plsengineering.com

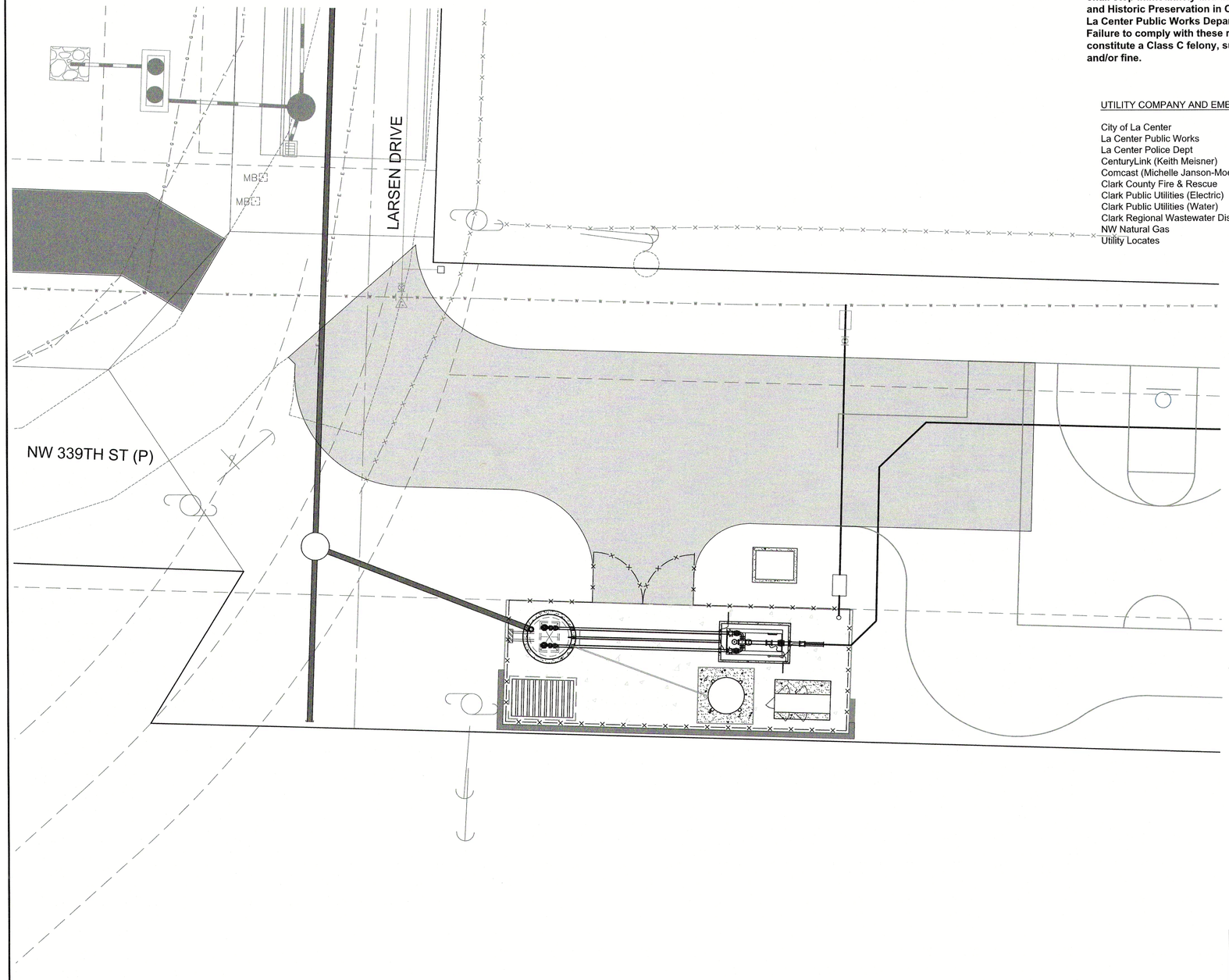
SITE ADDRESS:
Parcel # 986028-830
1514 NW 339TH ST
La Center, WA 98629

Scale 1" = 10'

10 05 0 10



VICINITY MAP
NOT TO SCALE



If any cultural resources are discovered in the course of undertaking a development activity, construction shall stop immediately and the Office of Archeology and Historic Preservation in Olympia and the City of La Center Public Works Department shall be notified. Failure to comply with these requirements may constitute a Class C felony, subject to imprisonment and/or fine.

UTILITY COMPANY AND EMERGENCY CONTACTS:

City of La Center	(360) 263-2782
La Center Public Works	(360) 263-2745
La Center Police Dept	(360) 263-7665
CenturyLink (Keith Meisner)	(360) 699-3720
Comcast (Michelle Janson-Moe)	(360) 316-1051
Clark County Fire & Rescue	(360) 887-4609
Clark Public Utilities (Electric)	(360) 992-8558
Clark Public Utilities (Water)	(360) 992-8022
Clark Regional Wastewater District	(360) 993-8810
NW Natural Gas	(360) 571-5465
Utility Locates	(800) 424-5555

Sheet Index

1. *Cover Sheet*
2. *Pump Station Site Plan*
3. *Wet Well Plan and Section*
4. *Meter Vault Plan and Section*
5. *Details*
6. *Details*

E-1. Electrical One-Line Diagram and Site Plan
E-2. Electrical Area Plan and Circuit Schedule
E-3. Wet Well and Valve Vault Electrical Plans
E-4. Electrical Equipment Elevation Detail
E-5. Electrical Control Panel Enclosure
E-6. Electrical Control Interior Layout
E-7. Electrical Control Panel Wiring Diagram
E-8. Electrical Control Wiring and I/O Diagram
E-9. Electrical Pump Disconnect Panel

City of La Center

Anthony Lee Cooper 5/8/19
~~La Center Public Works Director~~ City Engineer Date

Know what's below. Call before you dig.

Submitted for 3rd Review

Riverside Estates Sanitary Pump Station

Located in La Center, Washington

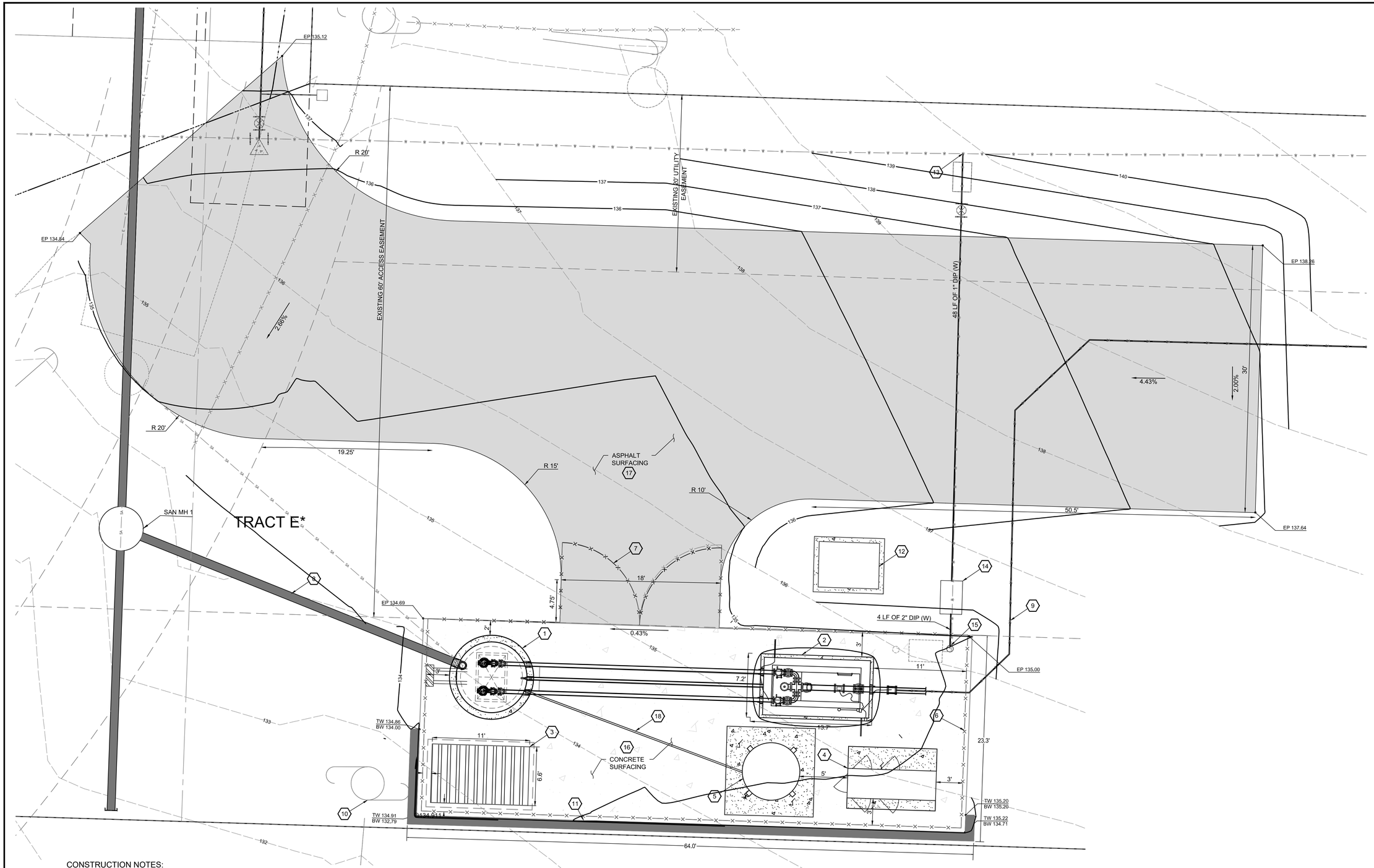
PLS ENGINEERING
Consulting Engineers & Planners | 604 W Evergreen Blvd, Vancouver, WA 98660 | PH (360) 944-6519 | Fax (360) 944-6539

Revisions

A	1/2019	Submitted For First Review	KMV
B	5/2019	Submitted for 3rd Review	
1			
2			
3			
4			

TRAVIS G. JOHNSON — STATE OF WASHINGTON — 23929 — REGISTERED PROFESSIONAL ENGINEER
4-30-19

Project No.	2641
SCALE:	H: 1" = 10' V: N/A
DESIGNED BY:	KMV
DRAFTED BY:	KMV
REVIEWED BY:	TGJ



CONSTRUCTION NOTES:

1. INSTALL WET WELL PER DETAIL SHEET 4 AND PER CRWWD DETAIL 34, SHEET 6.
2. INSTALL VALVE VAULT PER DETAIL SHEET 5 AND PER CRWWD DETAIL 36, SHEET 6.
3. INSTALL CONTROL PANEL PER ELECTRICAL DETAILS
4. PERMANENT DEISEL GENERATOR ON CONCRETE PAD. SEE ELECTRICAL DRAWINGS.
5. INSTALL BIOXIDE ODOR CONTROL ON 10' X 10' CONCRETE PAD. SEE DETAIL SHEET 6.
6. INSTALL 6' BLACK TYPE 3 CHAIN LINK FENCE WSDOT STANDARD LAN L- 20.10-03 & STANDARD SPECIFICATION SECTION 9-16 WITH 2 STRANDS OF BARBED WIRE. SEE DETAIL SHEET 5.
7. INSTALL 14' DOUBLE GATE W/SECURITY TOP. SEE WSDOT STANDARD PLAN L-30.10-00 STANDARD SPECIFICATION 9-16.
8. 8" PVC GRAVITY SANITARY SEWER LINE. SEE RIVERSIDE ESTATES SUBDIVISION. COORDINATE CONNECTION TO WET WELL WITH CONTRACTOR.
9. 6" PVC SANITARY SEWER FORCE MAIN. SEE RIVERSIDE ESTATES OFFISITE SEWER FORCE MAIN INSTALLATION. COORDINATE CONNECT TO VALVE VAULT WITH CONTRACTOR.
10. EXISTING POWER POLE WITH GUY. PROTECT IN PLACE.
11. INSTALL KEYSTONE RETAINING WALL.
12. INSTALL TRANSFORMER. COORDINATE WITH CLARK PUD.
13. INSTALL 1" TAP FOR WATER SERVICE AND ¾" WATER SERVICE METER. CONTRACTOR TO COORDINATE WITH CPU FOR SERVICE METER INSTALLATION.
14. INSTALL ¾" REDUCED PRESSURE BACKFLOW ASSEMBLY IN HOT BOX
15. INSTALL FREEZE-PROOF YARD HYDRANT IN BUILDING ENCLOSURE WOODFORD MODEL R34 OR APPROVED EQUAL W/3/4" BRASS HOSE NOZZEL AND 1" GALVANIZED STEEL PIPE EXTENSION.
16. CONCRETE SURFACING PER DETAIL 31 SHEET 5.
17. ASPHALT SURFACING PER STANDARD SPECIFICATION SECTION 5-04. SEE SECTION DETAIL SHEET 5.
18. 2" SCHEDULE 40 PVC CHEMICAL FEED CASING, ROUTE BETWEEN BIOXIDE SYSTEM AND WET WELL AT 2 FOOT DEPTH

* TRACT E SHALL HAVE AN ACCESS AND UTILITY EASEMENT GRANTED TO CITY OF LA CENTER OVER THE ENTIRE TRACT

Scale 1" = 5

5 2.5 0 5

Know what's below. Call before you dig.

Riverside Estates Sanitary Pump Station

Pump Station Site Plan for:

Located in La Center, Washington

PLS ENGINEERING
Consulting Engineers & Planners | 604 W Evergreen Blvd, Vancouver, WA 98660 | PH (360) 944-6519 | Fax (360) 944-6539

Revisions

A	
B	
1	
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TRAVIS G. JOHNSON
STATE OF WASHINGTON
21613929
REGISTERED
PROFESSIONAL ENGINEER
4-30-19

Project No.	2641
SCALE:	H: 1" = 5' V: N/A
DESIGNED BY:	KMV
DRAFTED BY:	KMV
REVIEWED BY:	TGJ

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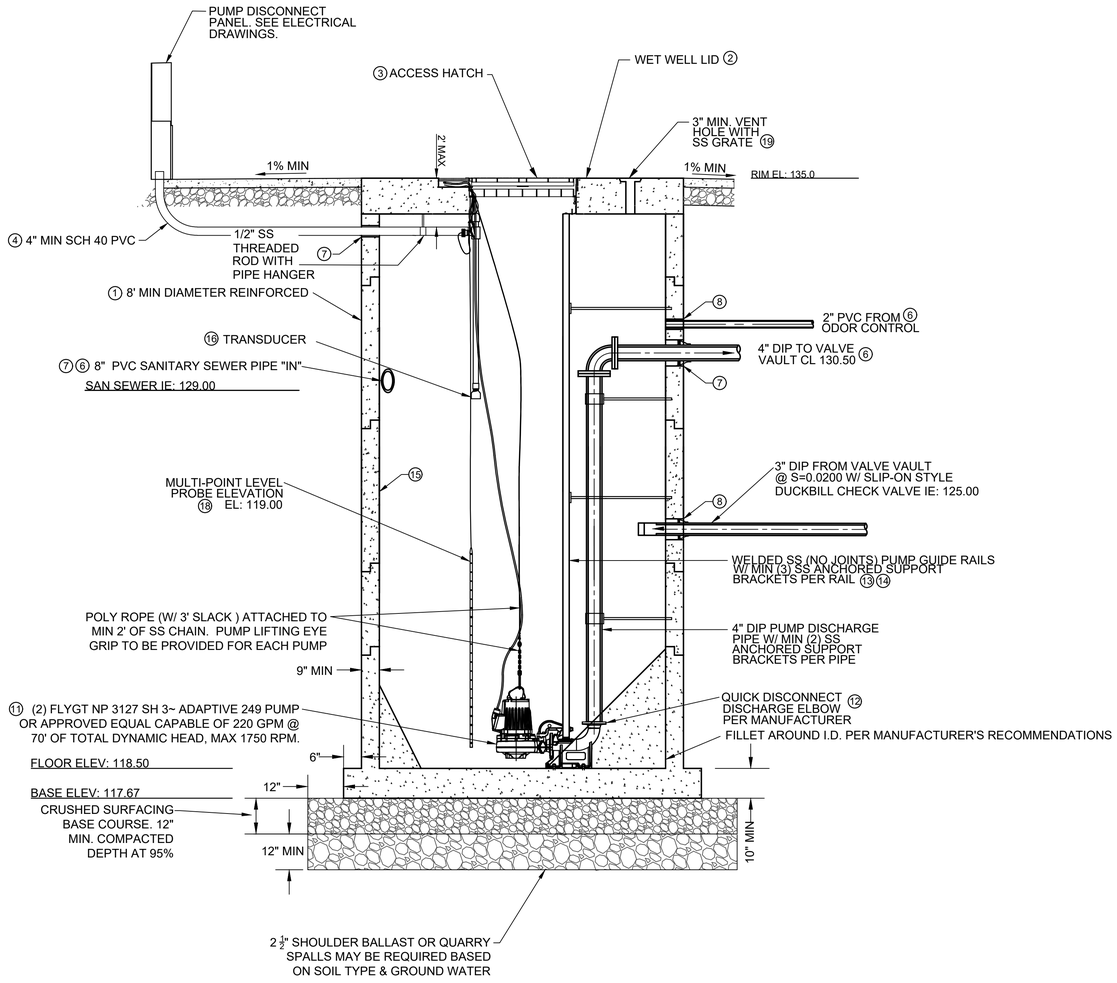
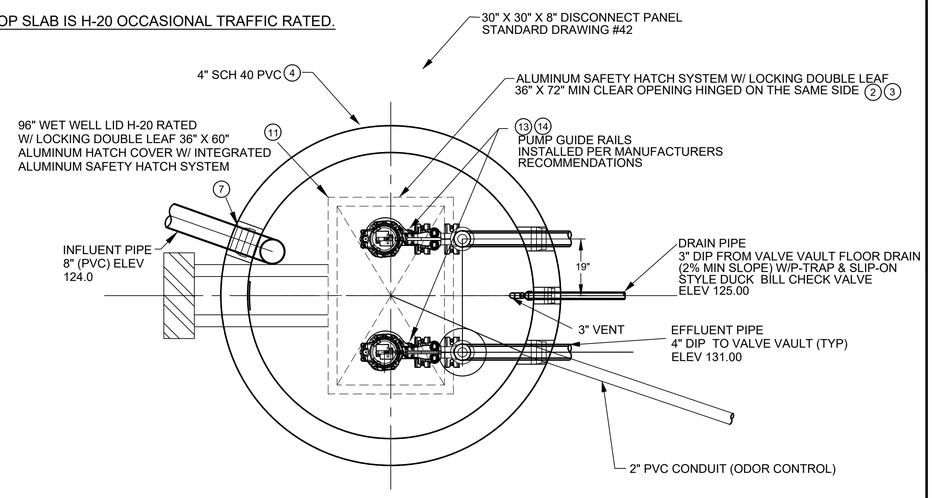


WET WELL SECTION VIEW

8' DIAMETER WETWELL

SCALE: 1/2" = 1'-0"

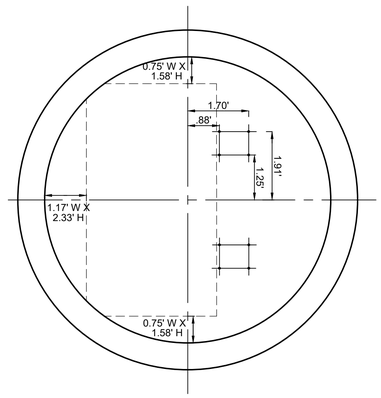
NOTE: WETWELL TOP SLAB IS H-20 OCCASIONAL TRAFFIC RATED.



PLAN

8' DIAMETER WETWELL

SCALE: 1/2" = 1'-0"



BOLT PATTERN & FILLET DIMENSIONS

LEVEL ELEVATON	DISTANCE-BETWEEN-POINTS	SET POINT DESCRIPTION
129.00		SEWER INVERT IN
125.00		HIGH LEVEL ALARM
	0.30	SENSOR SPACING
123.5		LAG PUMP START
	0.50	SENSOR SPACING
123.00		LEAD PUMP START
	0.50	SPACING
121.20		PUMP STOP
	2.70	DISTANCE
118.50		FLOOR ELEVATION

NOTE:
1. WET WELL SHALL BE 96" DIA MIN
2. WET WELL SHALL BE H-20 RATED
3. ACCESS HATCH SHALL BE SYRACUSE CASTING, USF FABRICATION, OR EQUAL WITH HEAVY DUTY (H-20) DOUBLE LEAF SAFE HATCH W/ ANGLE STYLE FRAME WITH CABLE RACE, RECESSED PADLOCK CLIP, SLAMLOCK, SAFETY GRATES & SAFETY CHAINS OR APPROVED EQUAL. COORDINATE HATCH CLEAR OPENING DIMENSIONS AND PLACEMENT WITH PUMP LAYOUT
4. COORDINATE CONDUIT SIZE WITH PUMP PLUGS NAD PROVIDE LONG SWEEP ELBOWS INTO DISCONNECT PANEL.
5. HATCH COVERS SHALL HAVE NON-SLIP COATING MEETING ADA / OSHA REQUIREMENTS FOR COEFFICIENT OF FRICTION (COF)
6. ALL PENETRATIONS SHALL BE CORE DRILLED.
7. ALL PENETRATIONS 4" & LARGER SHALL BE BOOTED USING KOR-N-SEAL CONNECTORS W/ SS WEDGE & PIPE CLAMPS PER STANDARD SPECIFICATION SECTION # 11-01.3(2).
8. ALL PENETRATIONS SMALLER THAN 4" SHALL BE SEALED USING LINK SEAL MODEL S-316 MODULAR SEAL.
9. ALL PIPES AND FITTING SHALL BE FLANGED CEMENT LINED CLASS 52 DIP EXCEPT WHERE SPECIFIED
10. ALL WET WELL HARDWARE SHALL BE 316 SS.
11. PUMPS SHALL BE FLYGT PUMPS W/ "N" IMPELLERS OR APPROVED EQUAL PER STANDARD SPECIFICATION SECTION 9-36.
12. PUMP DISCHARGE ELBOW SHALL BE PER PUMP MANUFACTURER
13. PUMP GUIDE RAIL BRACKETS SHALL BE SS PER PUMP MANUFACTURER
14. PUMP GUIDE RAILS SHALL BE 304 SS W/ WELDED JOINTS
15. WET WELL SHALL BE COATED W/ 80 MILS THICKNESS RAVEN 405 OR APPROVED EQUAL PER STANDARD SPECIFICATION SECTION #7-05.3(6).
16. ULTRASONIC LEVEL MEASUREMENT TRANSDUCER PER STANDARD SPECIFICATION SECTION 9-36.4 (2)A. SEE ELECTRICAL DRAWINGS.
17. MULTI-POINT LEVEL PROBE PER STANDARD SPECIFICATION SECTION 9-36.4 (2)B. SEE ELECTRICAL DRAWINGS.
18. 3" MINIMUM VENT WITH STAINLESS STEEL GRATE SHALL BE CAST INTO FLAT TOP.

Wet Well Plan & Section For: Riverside Estates Sanitary Pump Station

Located in La Center, Washington

PLS ENGINEERING
Consulting Engineers & Planners
604 W Evergreen Blvd, Vancouver, WA 98660 | PH (360) 944-6519 | Fax (360) 944-6539

Revisions

A	
B	
1	
2	
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4	

TRAVIS G. JOHNSON — STATE OF WASHINGTON — 23929 — REGISTERED PROFESSIONAL ENGINEER
4-30-19

Project No. 2641

SCALE:	H: 1/2" = 1' V: N/A
DESIGNED BY:	KMV
DRAFTED BY:	KMV
REVIEWED BY:	TGJ

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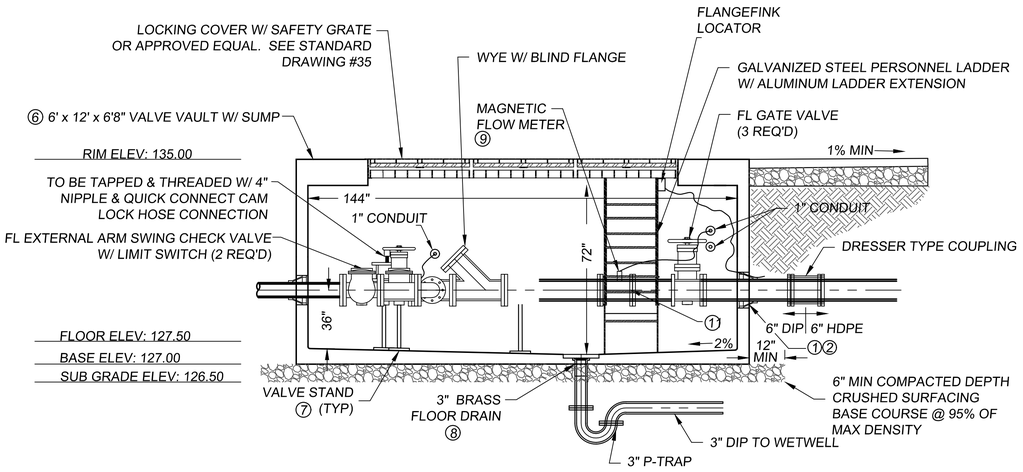
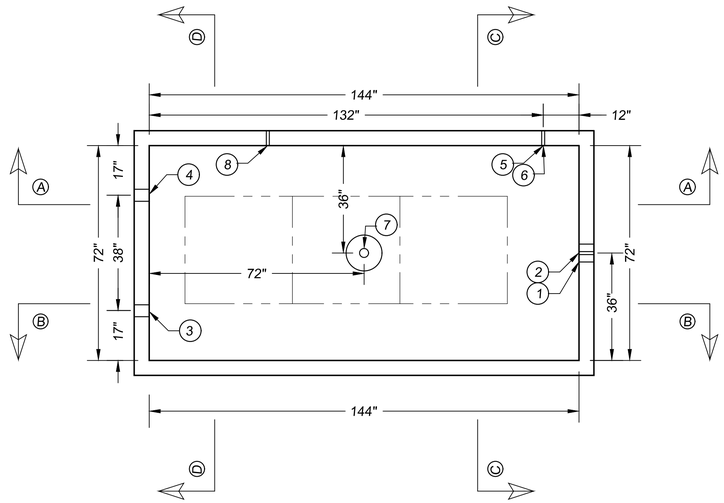


VALVE VAULT ELEVATION

SIDE OUTLET



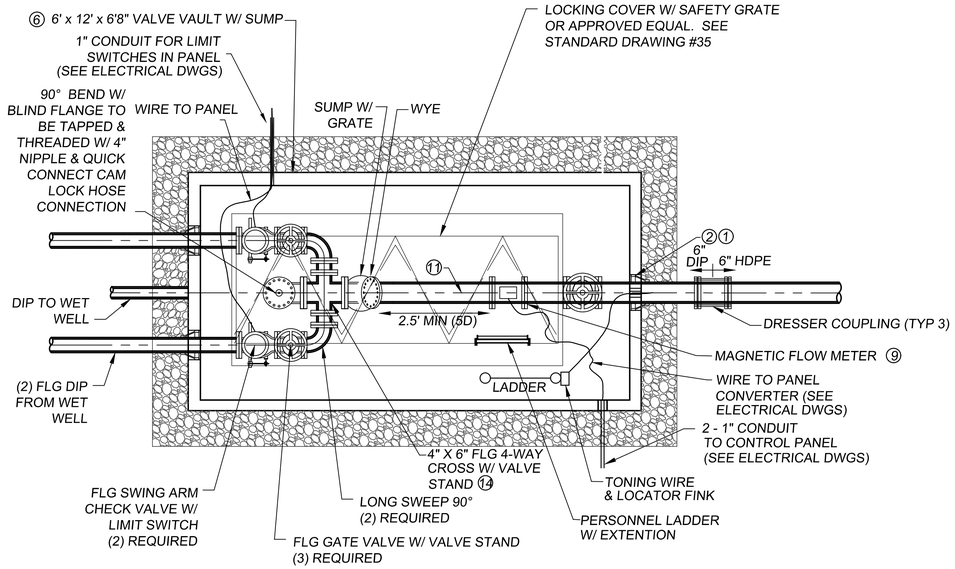
VALVE VAULT CORING PLAN VIEW

NTS

CORE REFERENCE TABLE

1. CORE FOR BOOTED 6" DIP - TO FM
2. 1" CONDUIT SLEEVE CAST IN PLACE
3. CORE FOR BOOTED 4" DIP - FROM WET WELL
4. CORE FOR BOOTED 4" DIP - FROM WET WELL
5. CORE FOR LINK SEALED 1" CONDUIT - TO PANEL
6. CORE FOR LINK SEALED 1" CONDUIT - TO PANEL
7. CORE FOR BOOTED 3" DIP - TO WET WELL
8. CORE FOR LINK SEALED 1" CONDUIT - TO PANEL

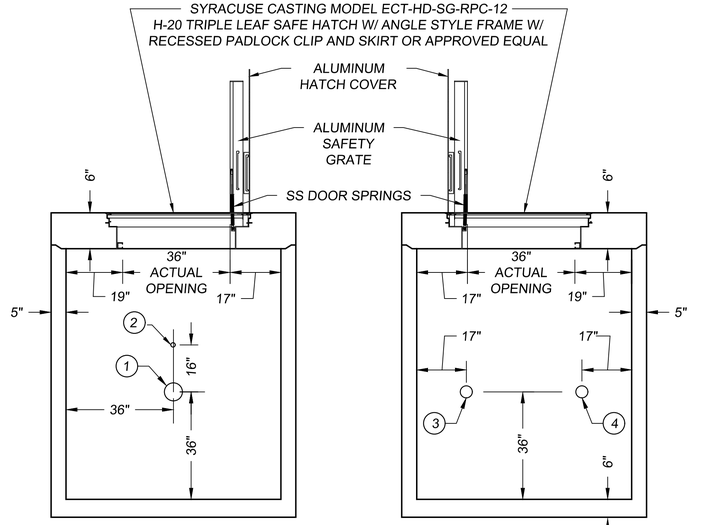
NOTE:
a - END INLET VAULT LAYOUT (PREFERRED)



VALVE VAULT LAYOUT PLAN VIEW

UNLESS OTHERWISE NOTED:

- VALVE VAULT HATCH OPENING SHALL BE SYRACUSE CASTING MODEL UV 612-TL-3-332P HEAVY DUTY (H-20) TRIPLE LEAF SAFE HATCH W/ ANGLE STYLE FRAME, STAINLESS STEEL DOOR SPRINGS, RECESSED PADLOCK CLIP, SLAMLOCK SKIRT, SAFETY GRATES OR APPROVED EQUAL
- HATCH COVERS SHALL HAVE NON-SLIP COATING MEETING ADA / OSHA REQUIREMENTS FOR COEFFICIENT OF FRICTION (COF)
- ALL PENETRATIONS SHALL BE CORE DRILLED.
- ALL PENETRATIONS 4" & LARGER SHALL BE SEALED USING KOR-N-SEAL BOOTS W/ SS WEDGE & PIPE CLAMPS
- ALL PENETRATIONS SMALLER THAN 4" SHALL BE SEALED USING LINK SEAL MODEL S-316 MODULAR SEAL.



CROSS SECTION C-C

NTS

CROSS SECTION D-D

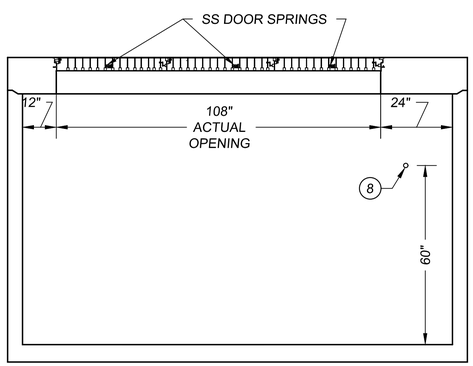
NTS

VALVE VAULT

SCALE: 1/2" = 1'-0"

NOTE:
UNLESS OTHERWISE NOTED:

1. ALL PENETRATIONS SHALL BE CORE DRILLED.
2. ALL PENETRATIONS 4" & LARGER SHALL BE SEALED USING KOR-N-SEAL BOOTS W/ SS WEDGE & PIPE CLAMPS OR APPROVED EQUAL.
3. ALL PENETRATIONS SMALLER THAN 4" SHALL BE SEALED USING LINK SEAL MODEL S-316 MODULAR SEAL OR APPROVED EQUAL.
4. ALL PIPES AND FITTING SHALL BE FLANGED CEMENT LINED CLASS 52 DIP EXCEPT WHERE SPECIFIED
5. ALL HARDWARE SHALL BE 316 SS
6. VALVE VAULT SHALL BE 6' X 12' X 6'8" (UV NO. 612-LA OR APPROVED EQUAL). VAULT SHALL BE MONOLITHICALLY CAST WITH TOP SLAB SECTION ONLY.
7. VALVE STANDS SHALL BE ADJUSTABLE
8. VALVE VAULT FLOOR SHALL BE SLOPED @ MIN. 2% TO SUMP DRAIN w/ 3" BRASS FLOOR DRAIN
9. MAGMETER SHALL BE PER SECTION 9-36.3
10. GENERIC PIPE SIZING SHOWN - ACTUAL PIPE SIZE TO BE SPECIFIED ON PLAN.
11. PRESSURE GAUGE PER STANDARD DRAWING # 29
12. FLANGE FINK (FIVE LEAD) LOCATOR STATION MANUFACTURED BY COTT MANUFACTURING OR APPROVED EQUAL.
13. FLANGE ADAPTER, EBAA IRON
14. FLG 4-WAY CROSS REDUC ING ON BOTH OUTLETS (THROUGH SIZED TO FORCE MAIN; INLETS SIZED TO PUMP DISCHARGE)

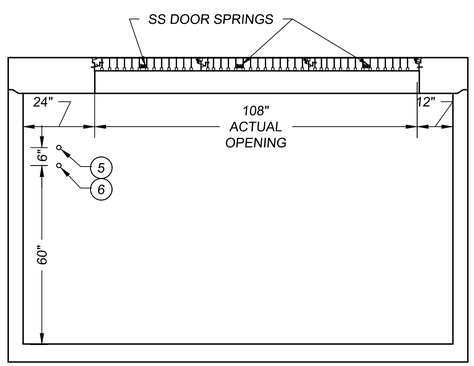


CROSS SECTION B-B

NTS

VALVE VAULT CORING DETAILS

SCALE: 1/2" = 1'-0"



CROSS SECTION A-A

NTS

Wet Well Plan & Section For:

Riverside Estates Sanitary Pump Station

Located in La Center, Washington

PLS ENGINEERING
Consulting Engineers & Planners | 604 W Evergreen Blvd, Vancouver, WA 98660 | PH (360) 944-6519 | Fax (360) 944-6539

Revisions

	A	B	1	3	5	4

TRAVIS G. JOHNSON
STATE OF WASHINGTON
16439
REGISTERED
PROFESSIONAL ENGINEER
4-30-19

Project No.	2641
SCALE:	H: 1/2" = 1' V: N/A
DESIGNED BY:	KMV
DRAFTED BY:	KMV
REVIEWED BY:	TGJ

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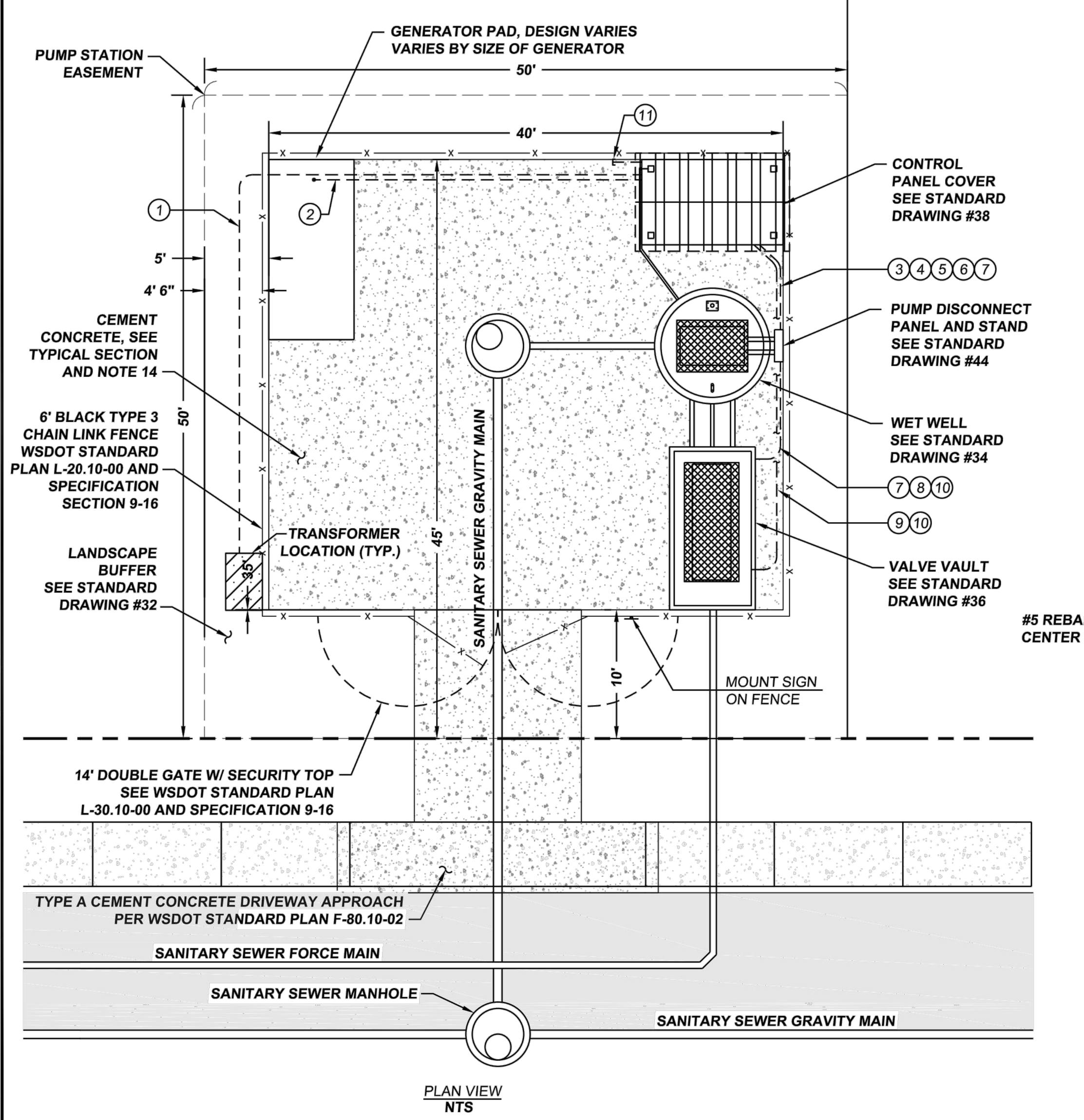
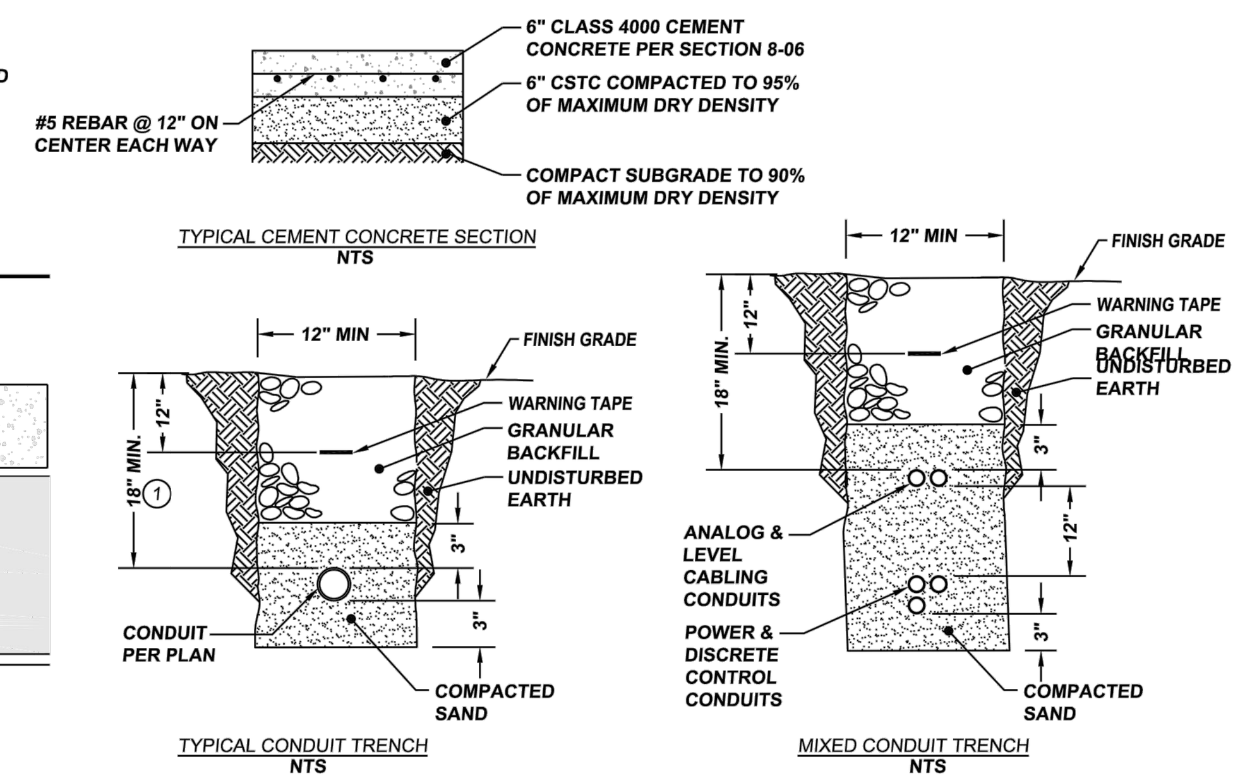


NOTE:

1. 2" SERVICE CONDUIT FROM TRANSFORMER TO METERBASE. VERIFY TRENCH DEPTH AND COVERING FOR INCOMING SERVICE CONDUIT WITH LOCAL UTILITY.
2. (1) 2" POWER CONDUIT, (1) 1" CONTROL CONDUIT FROM AUTOMATIC TRANSFER SWITCH TO GENERATOR. VERIFY STUB-UP LOCATIONS WITH MANUFACTURER OF GENERATOR SET BEING SUPPLIED. SEE TYPICAL CONDUIT TRENCH DETAIL; THIS SHEET. IF PROJECT DOES NOT INCLUDE GENERATOR, STUB AND CAP AT EDGE OF PAD FOR FUTURE CONNECTION.
3. (2) 1" PUMP POWER CONDUITS FROM CONTROL PANEL TO PUMP DISCONNECT PANEL. SEE STANDARD DRAWINGS #41, #42, #44 AND COMBINED CONDUIT TRENCH DETAIL; THIS SHEET.
4. (1) 1" [120V] CONTROL CONDUIT FROM CONTROL PANEL TO PUMP DISCONNECT PANEL. SEE STANDARD DRAWINGS #41, #42, #44 AND COMBINED CONDUIT TRENCH DETAIL; THIS SHEET.
5. (1) 1" [DC] CONTROL CONDUIT FROM CONTROL PANEL TO PUMP DISCONNECT PANEL. SEE STANDARD DRAWINGS #41, #42, #44 AND COMBINED CONDUIT TRENCH DETAIL, THIS SHEET.
6. (1) 1" LEVEL TRANSDUCER CONDUIT FROM CONTROL PANEL TO PUMP DISCONNECT PANEL. SEE STANDARD DRAWINGS #41, #42, #44 AND COMBINED CONDUIT TRENCH DETAIL; THIS SHEET.
7. CONDUITS TO PUMP DISCONNECT PANEL SHALL BE CONTINUOUS SECTION OF RGS CONDUIT FROM TRANSITION UNDERGROUND TO PUMP DISCONNECT PANEL. REFERENCE NEC ARTICLE 501.15 (B2) EXCEPTION NO 1.
8. (1) 1" CONTROL CONDUIT FROM VALVE VAULT TO PUMP DISCONNECT PANEL. SEE STANDARD DRAWINGS #36, #44, AND TYPICAL CONDUIT TRENCH DETAIL; THIS SHEET.
9. (2) 1" FLOWMETER CONDUITS FROM VALVE VAULT TO CONTROL PANEL. SEE STANDARD DRAWINGS #36, #41, #42, AND TYPICAL TRENCH DETAIL; THIS SHEET.
10. CONDUITS ENTERING VALVE VAULT SHALL BE CONTINUOUS RGS FROM OUTSIDE VAULT TO A SEAL-OFF LOCATED INSIDE VAULT. WRAP RGS CONDUIT WITH CORROSION RESISTANT TAPE FROM PVC TRANSITION TO SEAL-OFF CONNECTION INSIDE VAULT. REFERENCE NEC ARTICLE 501.15 (B). ROUTE RGS ALONG PIPING AND USE NM FLEXIBLE CONDUIT FOR FINAL CONNECTIONS TO EQUIPMENT.
11. STUB AND CAP (2) 1" CONDUITS 36" AWAY FROM KIOSK AND 6" ABOVE GRADE FOR CONNECTION TO FUTURE CHEMICAL FEED UNIT.
12. ALL CONDUITS TRANSITIONING FROM PVC UNDERGROUND TO RGS ABOVE GRADE ARE TO BE WRAPPED WITH CORROSION RESISTANT TAPE FROM TRANSITION TO A MINIMUM 6" ABOVE GRADE.
13. SEE STANDARD DRAWING #59, ONE-LINE DIAGRAMS FOR ADDITIONAL INFORMATION.
14. PROVIDE POSITIVE DRAINAGE AWAY FROM STRUCTURES. PLACE ELASTOMERIC EXPANSION JOINT SEALS PER 9-04.1(4) OF THE STANDARD SPECIFICATIONS AROUND THE VALVE VAULT, KIOSK FOUNDATION, WETWELL, AND GENERATOR FOUNDATION. PLACE CONTRACTION JOINTS ALONG GRADE BREAKS AND FLOW LINES. FILL IN FLOW LINES WITH GRAY POURED RUBBER JOINT SEALER PER 9-04.2(2) OF THE STANDARD SPECIFICATIONS. SUBMIT SITE SPECIFIC GRADING PLAN NOTING JOINT LOCATIONS FOR APPROVAL BY THE DISTRICT ENGINEER.



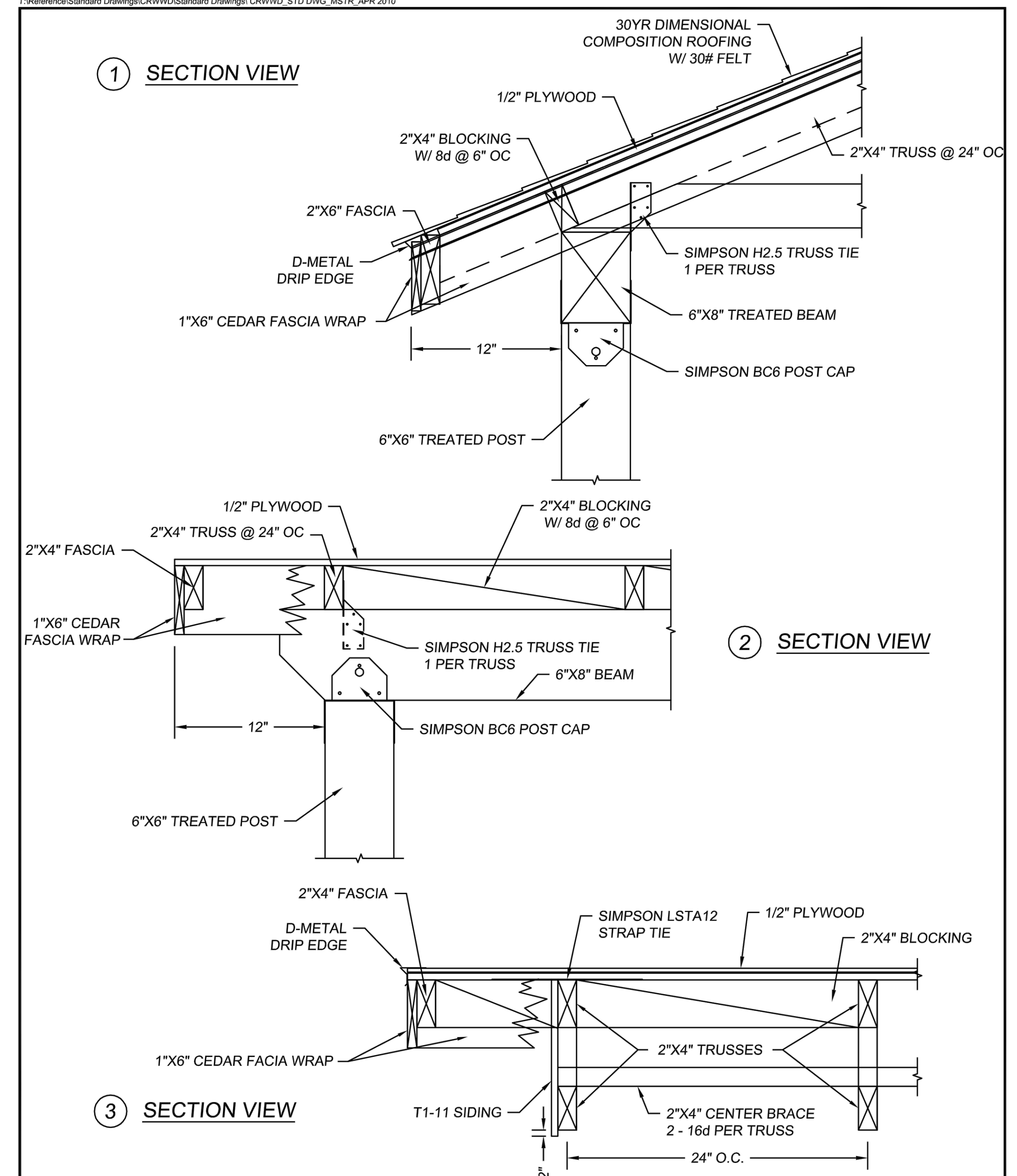
CLARK REGIONAL WASTEWATER DISTRICT — PUMP STATION

TYPICAL PUMP STATION SITE PLAN

STANDARD DRAWING

31

APPROVED: PENDING



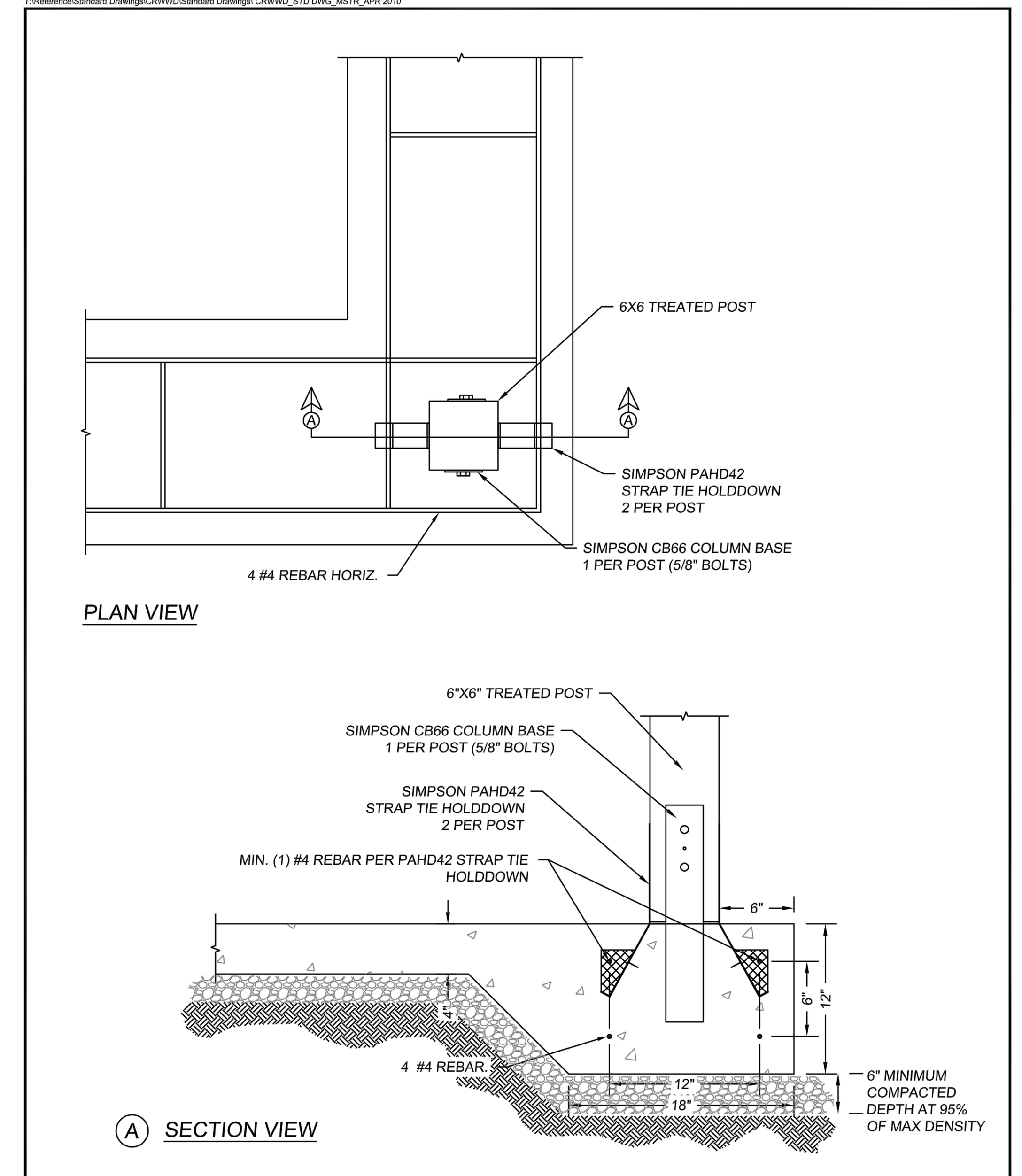
CLARK REGIONAL WASTEWATER DISTRICT — PUMP STATION

CONTROL PANEL COVER CROSS SECTIONS

STANDARD DRAWING

39

APPROVED: APR 2010



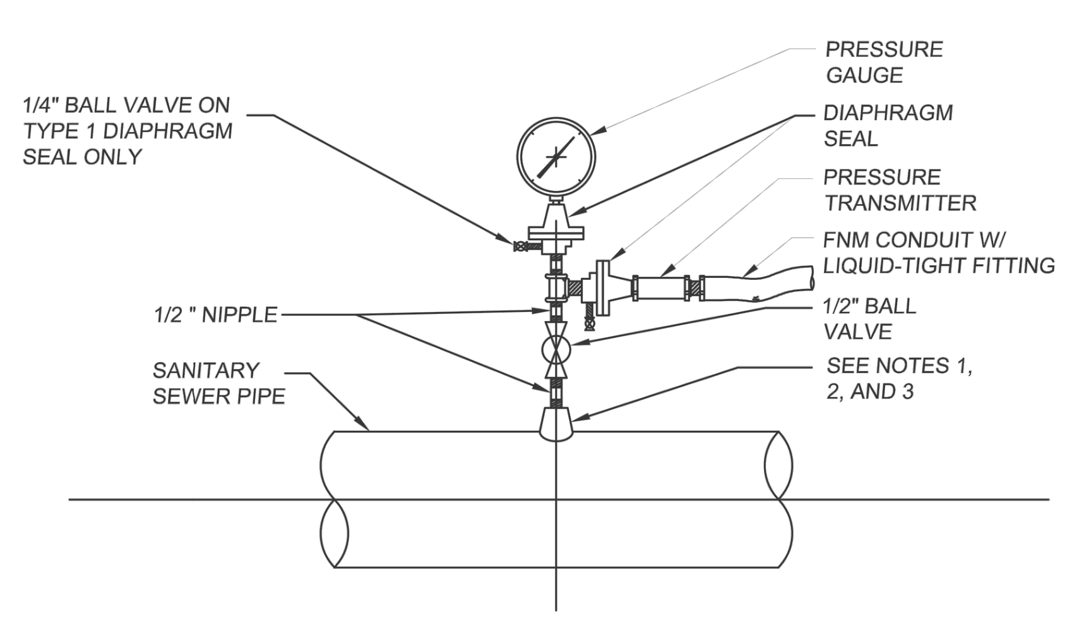
CLARK REGIONAL WASTEWATER DISTRICT — PUMP STATION

CONTROL PANEL COVER FOOTING / POST CONNECTION

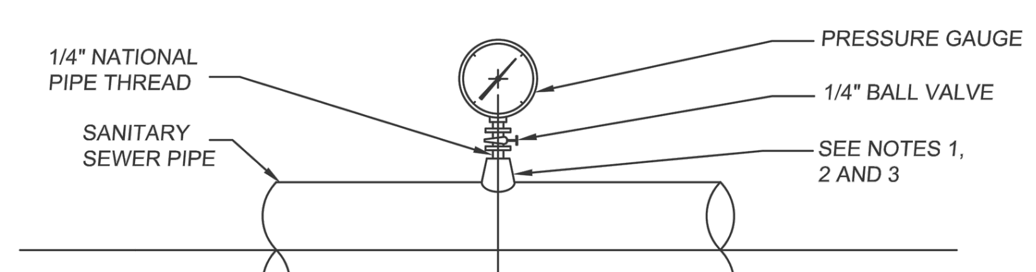
STANDARD DRAWING

40

APPROVED: APR 2010



DIAPHRAGM PRESSURE GAUGE
NTS



PRESSURE GAUGE
NTS

NOTES

1. FOR STEEL, GALVANIZED STEEL, AND PVC 2 1/2" AND SMALLER USE A BUSHING IN A TEE.
2. FOR DUCTILE IRON AND FIBERGLAS REINFORCED PLASTIC PIPE, ALL SIZES, USE PIPE SADDLE WITH BUSHING.
3. PRESSURE VESSELS, USE THRED-O-LET AS SHOWN.

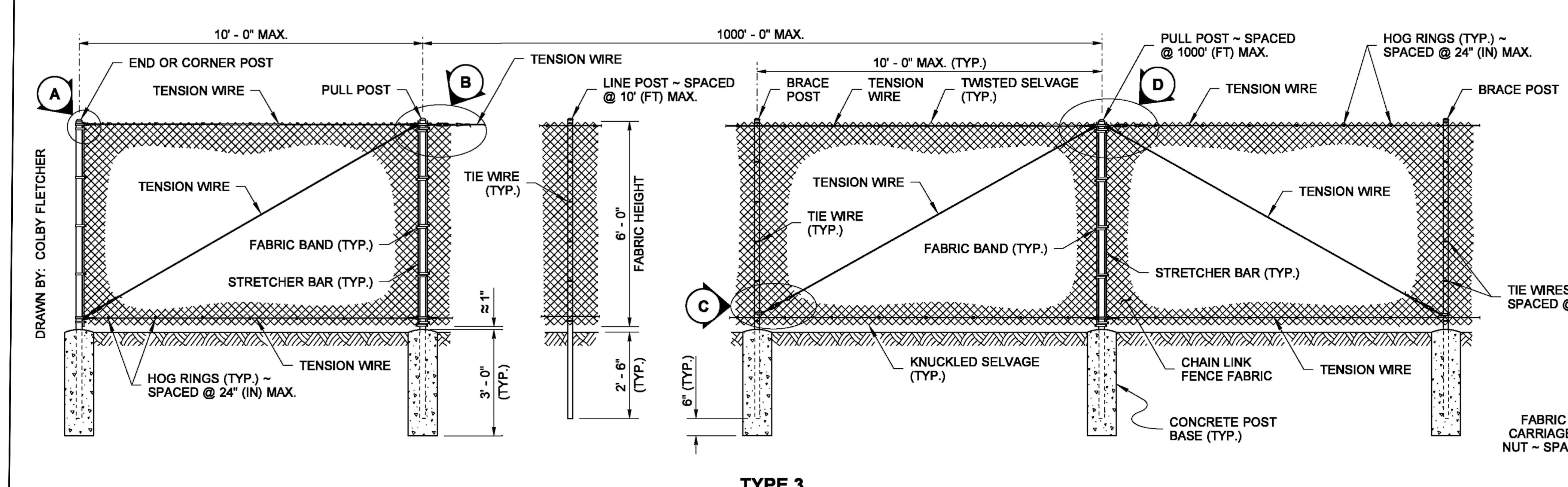
CLARK REGIONAL WASTEWATER DISTRICT — PUMP STATION

PRESSURE GAUGE

STANDARD DRAWING

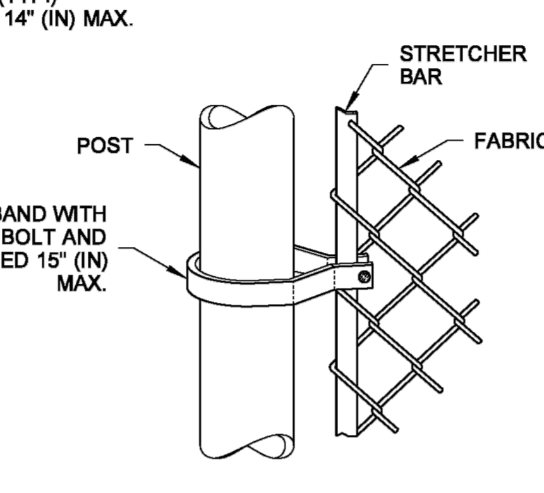
29

APPROVED: APR 2010



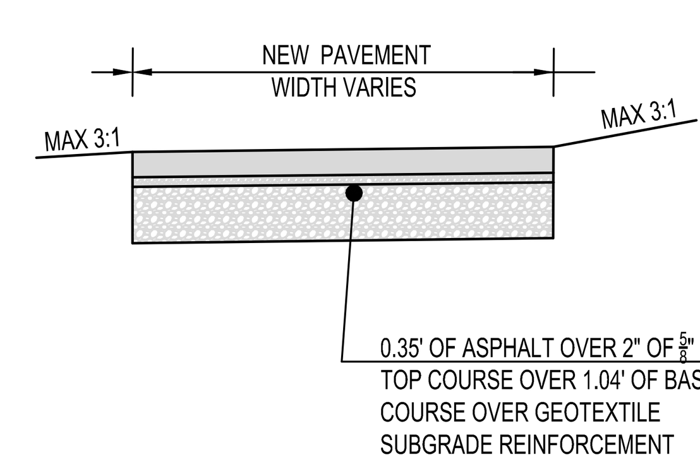
NOTES

1. All concrete post bases shall be 10" (in) minimum diameter.
2. Along the top and bottom, using Hog Rings, fasten the Chain Link Fence Fabric to the Tension Wire within the limits of the first full fabric weave.
3. Details are illustrative and shall not limit hardware design or post selection of any particular fence type.
4. Fencing shall be used for security and boundary delineation only.
5. CONTRACTOR- SHALL ADD AN ADDITIONAL 2 STRANDS OF BARBED WIRE PER WSDOT SPECIFICATION 9-16.2(1)E



METHOD OF FASTENING STRETCHER BAR TO POST

FENCE DETAIL
NTS PER WSDOT DETAIL L.20.10-03



PAVED ACCESS ROAD DETAIL

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Details For:
Riverside Estates Sanitary Pump Station
Located in La Center, Washington

Revisions

A	
B	
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4	

TRAVIS G. JOHNSON — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 4-30-19

Project No. 2641

SCALE:	H: 1/2" = 1' V: N/A
DESIGNED BY:	KMV
DRAFTED BY:	KMV
REVIEWED BY:	TGJ

5

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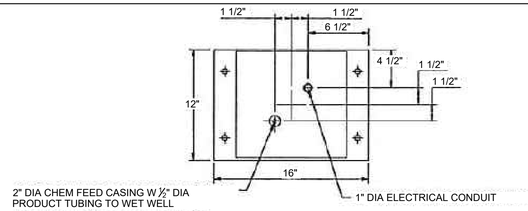
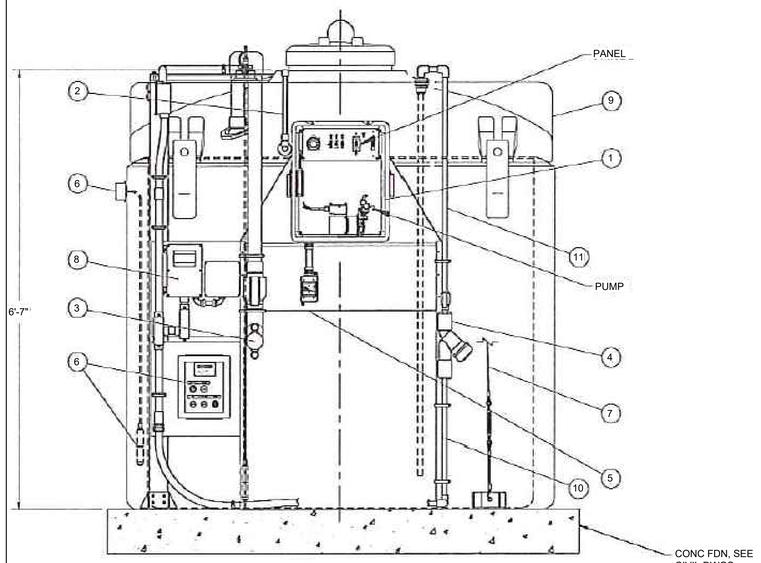


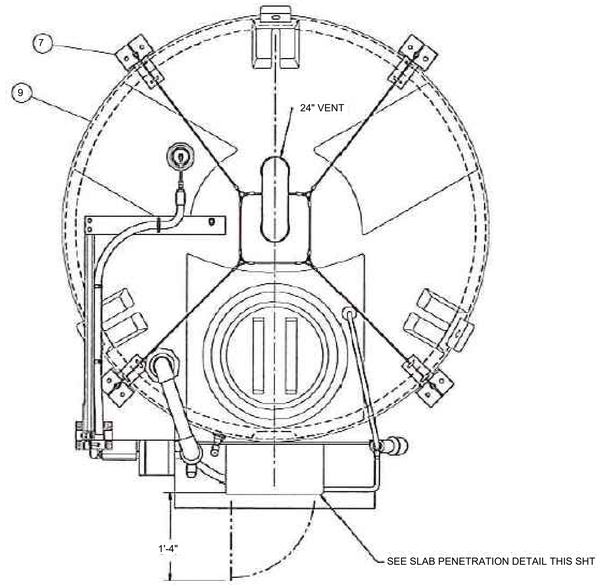
SLAB PENETRATION DETAIL

KEY NOTES

1. SIMPLEX CONTROL PANEL AND PUMP ASSEMBLY
2. 1/2" DIA OVERFILL LEVEL ASSEMBLY
3. 2" DIA FILL PIPING ASSEMBLY
4. 1/2" DIA SUCTION PIPING ASSEMBLY
5. SIMPLEX SYSTEM AND PIPE STAND
6. LEAK DETECTION SYSTEM
7. TANK RESTRAINT SYSTEM TO BE DESIGNED BY TANK MFR
8. PRESSURE LEVEL INDICATOR ASSEMBLY
9. 1,000 GALLON DOUBLE WALL TANK W/ LEAK DETECTION. 6'-6" MAX DIA. CONTRACTOR TO SUPPLY WATER FOR TESTING. DISTRICT WILL FILL TANK WITH CHEMICAL AFTER STARTUP.
10. 36"X24"X49" SST TANK PIPE/UTILITY STAND
11. 1/2" DIA RETURN PIPING ASSEMBLY



ELEVATION VIEW

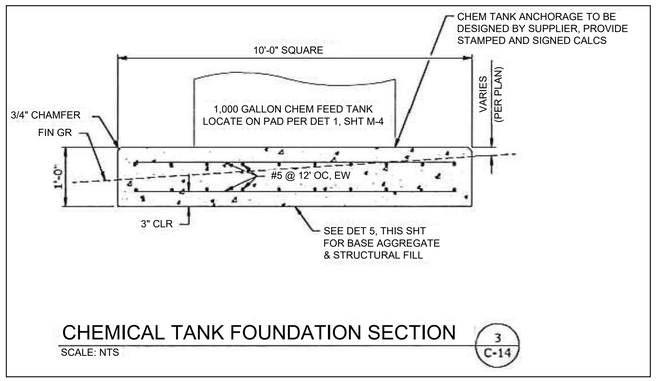


PLAN VIEW

CHEMICAL FEED TANK PLAN AND ELEVATION

SCALE: NTS

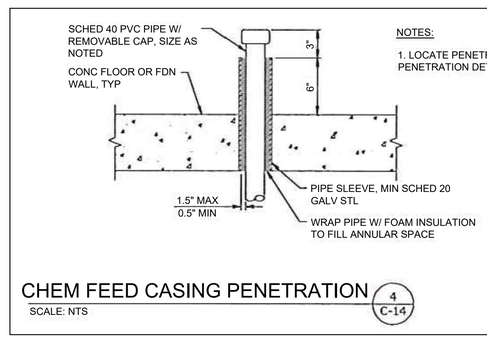
1 / C-2



CHEMICAL TANK FOUNDATION SECTION

SCALE: NTS

3 / C-14



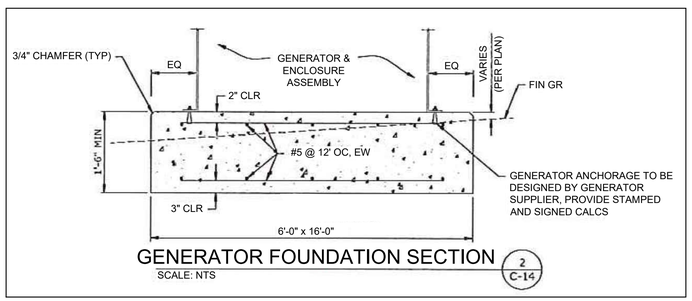
NOTES:

1. LOCATE PENETRATION PER SLAB PENETRATION DETAIL THIS SHEET.

CHEM FEED CASING PENETRATION

SCALE: NTS

4 / C-14



GENERATOR FOUNDATION SECTION

SCALE: NTS

2 / C-14

Details For:

Riverside Estates Sanitary Pump Station

Located in La Center, Washington

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Revisions

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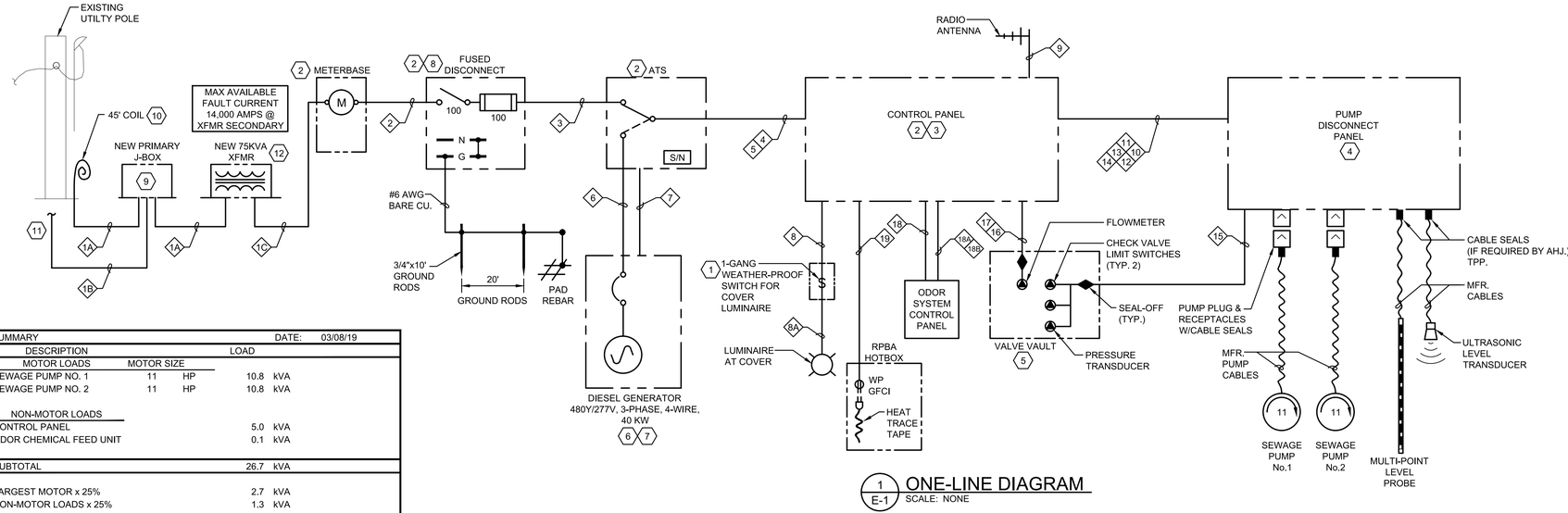
TRAVIS G. JOHNSON
REGISTERED PROFESSIONAL ENGINEER
STATE OF WASHINGTON
23929
4-30-19

Project No.	2641
SCALE:	H: 1/2" = 1' V: N/A
DESIGNED BY:	KMV
DRAFTED BY:	KMV
REVIEWED BY:	TGJ

6 / 15



LOAD SUMMARY				DATE: 03/08/19
QTY.	DESCRIPTION	LOAD		
	MOTOR LOADS	MOTOR SIZE		
1	SEWAGE PUMP NO. 1	11 HP	10.8 kVA	
1	SEWAGE PUMP NO. 2	11 HP	10.8 kVA	
	NON-MOTOR LOADS			
	CONTROL PANEL		5.0 kVA	
	ODOR CHEMICAL FEED UNIT		0.1 kVA	
	SUBTOTAL		26.7 kVA	
	LARGEST MOTOR x 25%		2.7 kVA	
	NON-MOTOR LOADS x 25%		1.3 kVA	
	SPARE CAPACITY (20%)		6.1 kVA	
	TOTAL:		36.8 kVA	44.3 AMPS
	SERVICE SIZE @ 480V, 3-PH:			100 AMPS

1 E-1 ONE-LINE DIAGRAM
SCALE: NONE

GENERAL NOTES

A. ELECTRICAL SERVICE CONTRACTOR MUST BE ON CPU'S LIST OF ELECTRICAL SYSTEM INSTALLATION CONTRACTORS AND SERVICE TO BE INSTALLED ACCORDING TO CPU'S FINAL DESIGN PRINT.

B. ELECTRICAL SYSTEM INSTALLATION CONTRACTOR MUST NOTIFY CPU DESIGN CONTACT A MINIMUM OF 2 WEEKS PRIOR TO BEGINNING THE INSTALLATION OF FACILITIES.

C. ALL CONSTRUCTION TO MEET CPU'S STANDARDS AND SPECIFICATIONS. ALL MATERIALS TO BE OWNED BY CPU AND MUST BE FROM APPROVED MATERIALS LIST AND SUPPLIED BY APPROVED DISTRIBUTORS.

D. THE INSTALLATION OF THE ELECTRICAL SERVICE MUST BE INSPECTED AND APPROVED BY CPU PERSONNEL. ARRANGEMENTS FOR INSPECTIONS MUST BE MADE BY THE ELECTRICAL SYSTEM INSTALLATION CONTRACTOR A MINIMUM OF 24 HRS. IN ADVANCE BY CALLING CPU EXPEDITING AT (360) 992-8839 AND REFERRING TO WORK REQUEST ORDER #540763-1.

E. COORDINATE ALL INSPECTIONS INCLUDING BUT NOT LIMITED TO TRENCH, CONDUIT, AND FINAL WITH CPU.

F. ALL PRIMARY CONDUIT RUNS TO BE SCHEDULE 40 PVC AND HAVE 90° X 36"R ELBOWS ON EACH END UNLESS OTHERWISE STATED.

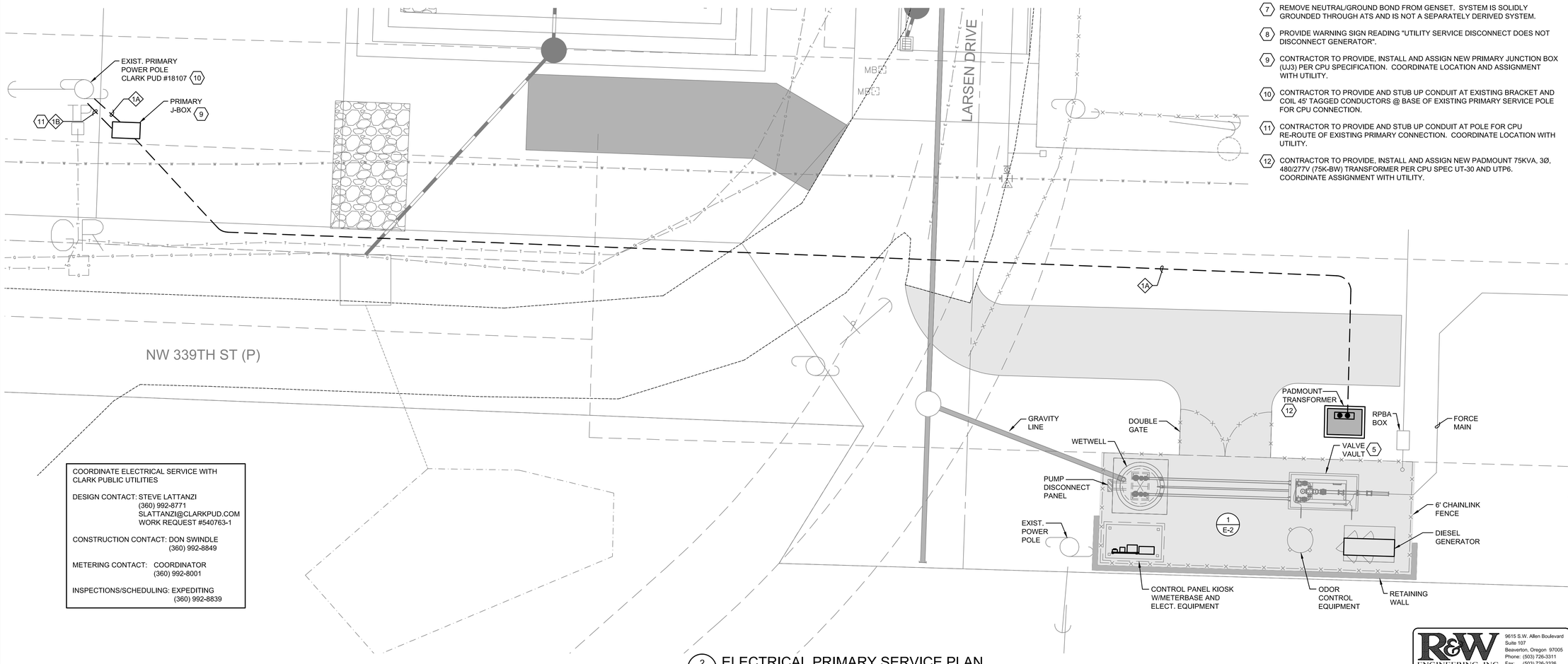
G. TRENCH DEPTHS FOR CPU OWNED CONDUCTORS ARE 42"-48" (PRIMARY), 24"-36" (SECONDARY).

H. ALL METERING TO COMPLY WITH CPU METERING SPECS. SEE CPU SPEC M FOR DETAILS.

I. WORK WITHIN THE RIGHT-OF-WAY TO COMPLY WITH THE RIGHT-OF-WAY PERMIT ISSUED FOR THE PROJECT.

NOTES THIS SHEET

1. PROVIDE NAMEPLATE AT SWITCH LABELED "OVERHEAD".
2. SEE SHEET E-4 FOR ELEVATION DETAIL OF EQUIPMENT FOR MOUNTING INFORMATION.
3. SEE DRAWINGS E-5 AND E-6 FOR CONTROL PANEL INFORMATION.
4. SEE DRAWING E-9 FOR PUMP DISCONNECT PANEL INFORMATION.
5. SEE CIVIL/MECHANICAL PLANS SHEET 4 FOR VALVE VAULT INFORMATION.
6. PROVIDE CIRCUIT BREAKER WITH SOLID-STATE ELECTRONIC TRIP. ELECTRONIC TRIP SHALL HAVE L, S, AND I ADJUSTMENTS.
7. REMOVE NEUTRAL/GROUND BOND FROM GENSET. SYSTEM IS SOLIDLY GROUNDED THROUGH ATS AND IS NOT A SEPARATELY DERIVED SYSTEM.
8. PROVIDE WARNING SIGN READING "UTILITY SERVICE DISCONNECT DOES NOT DISCONNECT GENERATOR".
9. CONTRACTOR TO PROVIDE, INSTALL AND ASSIGN NEW PRIMARY JUNCTION BOX (UJ3) PER CPU SPECIFICATION. COORDINATE LOCATION AND ASSIGNMENT WITH UTILITY.
10. CONTRACTOR TO PROVIDE AND STUB UP CONDUIT AT EXISTING BRACKET AND COIL 45' TAGGED CONDUCTORS @ BASE OF EXISTING PRIMARY SERVICE POLE FOR CPU CONNECTION.
11. CONTRACTOR TO PROVIDE AND STUB UP CONDUIT AT POLE FOR CPU RE-ROUTE OF EXISTING PRIMARY CONNECTION. COORDINATE LOCATION WITH UTILITY.
12. CONTRACTOR TO PROVIDE, INSTALL AND ASSIGN NEW PADMOUNT 75KVA, 3Ø, 480/277V (75K-BW) TRANSFORMER PER CPU SPEC UT-30 AND UTP6. COORDINATE ASSIGNMENT WITH UTILITY.



COORDINATE ELECTRICAL SERVICE WITH CLARK PUBLIC UTILITIES

DESIGN CONTACT: STEVE LATTANZI
(360) 992-8771
SLATTANZI@CLARKPUD.COM
WORK REQUEST #540763-1

CONSTRUCTION CONTACT: DON SWINDLE
(360) 992-8849

METERING CONTACT: COORDINATOR
(360) 992-8001

INSPECTIONS/SCHEDULING: EXPEDITING
(360) 992-8839

2 E-1 ELECTRICAL PRIMARY SERVICE PLAN
SCALE: 1" = 10'-0"

Riverside Estates Sanitary Pump Station

Electrical One-Line Diagram and Site Plan

Located in La Center, Washington

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JEFFREY L. HOWARD — STATE OF WASHINGTON — 842171 — REGISTERED PROFESSIONAL ENGINEER

2019.03.28 15:09:07-07'00'

Project No. 2641	
SCALE:	H: N/A V: N/A
DESIGNED BY:	RSC
DRAFTED BY:	RSC
REVIEWED BY:	JLH

E-1

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R&W ENGINEERING, INC. "Engineering Integrated Solutions"

9615 S.W. Allen Boulevard
Suite 107
Beaverton, Oregon 97005
Phone: (503) 726-3311
Fax: (503) 726-3326
E-mail: jhoward@rweng.com

Project No.: 1577.001.001 Contact: Jeff Howard

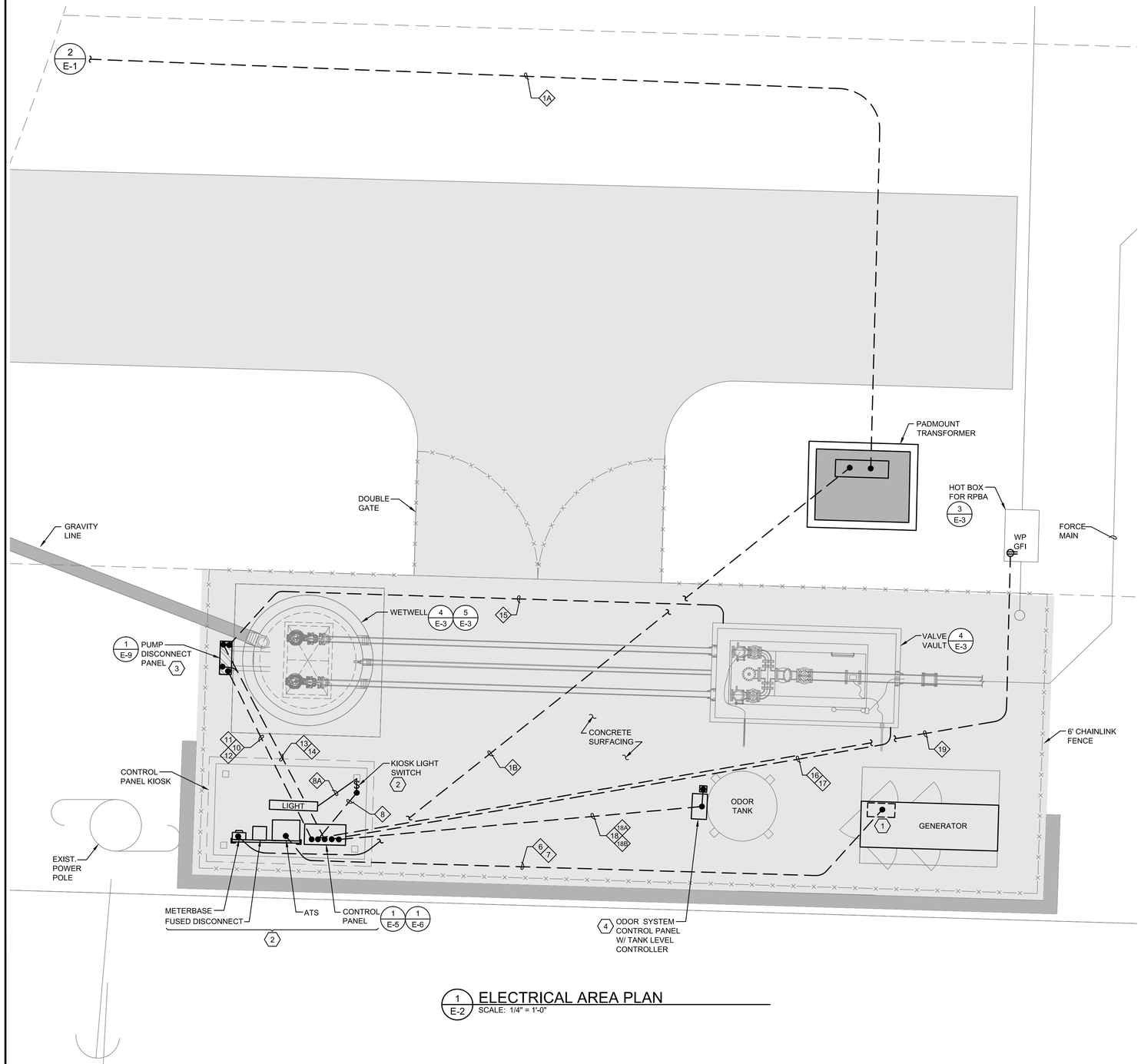
NOTES THIS SHEET

1. COORDINATE GENERATOR STUB-UP LOCATION WITH MANUFACTURER.
2. SEE SHEET E-4 FOR ELEVATION DETAIL OF EQUIPMENT FOR MOUNTING INFORMATION.
3. INSTALL CIRCUITS TO EQUIPMENT/ENCLOSURES AT THIS LOCATION USING CONTINUOUS SECTION OF RGS CONDUIT FROM TRANSITION UNDERGROUND AT CONDUIT BURIAL DEPTH AS SHOWN.
4. ODOR CONTROL SYSTEM CONTROL PANEL W/LEVEL ELECTRONICS MOUNTED ADJACENT. COORDINATE STUB-UP LOCATIONS WITH MANUFACTURER.
5. VERIFY TRENCH DEPTH AND COVERING FOR INCOMING SERVICE CONDUIT WITH LOCAL UTILITY AND CIVIL DISCIPLINE FOR INTERSECTING PIPES.

GENERAL NOTES

A. SEE ELECTRICAL SPECIFICATIONS FOR EQUIPMENT PART NUMBERS AND METHODS FOR INSTALLATION.

B. SEE DRAWING E-1 FOR TRANSFORMER INSTALLATION AND 480V SERVICE INFORMATION

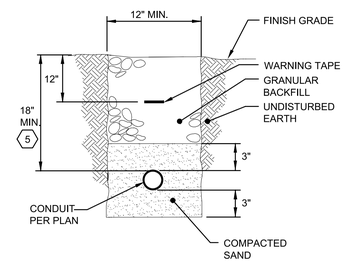


1 E-2 ELECTRICAL AREA PLAN
SCALE: 1/4" = 1'-0"

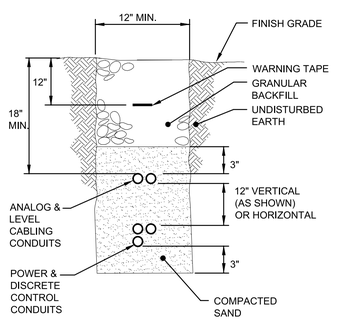
ALL CIRCUITS ARE IDENTIFIED ON THE PLANS WITH THE DIAMOND SYMBOL. CONDUCTOR SIZES ARE BASED ON COPPER CONDUCTORS. CONDUIT SIZES ARE SHOWN FOR CASES WHEN CIRCUIT CONDUCTORS ARE RUN WITHOUT OTHER CIRCUITS. MULTIPLE CIRCUITS RUN IN COMMON CONDUITS ARE SHOWN ON PLANS AND SUPERSEDE THE BASIC CONDUIT SIZE SHOWN.

RACEWAY SIZES ARE IN INCHES WITH QUANTITIES IN EXCESS OF (1) SHOWN IN ADJACENT PARENTHESIS. CONDUCTOR CONFIGURATIONS ARE CODED AS FOLLOWS: P- FOR POWER CONDUCTORS, G - FOR GROUND CONDUCTORS, N - FOR NEUTRAL CONDUCTORS, C - FOR CONTROL CONDUCTORS, TSP - FOR TWISTED SHIELDED PAIR, AND SP - FOR SPARE CONDUCTORS.

CIRCUIT NUMBER	FROM	TO	CONDUCTORS	RACEWAY	NOTES
1A	EXISTING UTILITY POWER POLE	NEW UTILITY TRANSFORMER	(3) 1/O AL 175 MIL EPR W/ JACKETED NEUTRAL	4	VIA PRIMARY J-BOX VERIFY WITH LOCAL PUD
1B	EXISTING UTILITY POWER POLE	NEW PRIMARY J-BOX	PULL CORD	2	COORDINATE WITH CPU. FOR RE-ROUTE OF EXIST PRIMARY FEED.
1C	NEW UTILITY TRANSFORMER	METERBASE	(3) 2 AWG, P (1) 2 AWG, N	2	
2	METERBASE	FUSED DISCONNECT	(3) 2 AWG, P (1) 2 AWG, N (1) 8 AWG, G	2	
3	FUSED DISCONNECT	AUTOMATIC TRANSFER SWITCH	(3) 2 AWG, P (1) 2 AWG, N (1) 8 AWG, G	2	
4	AUTOMATIC TRANSFER SWITCH	CONTROL PANEL	(3) 2 AWG, P (1) 8 AWG, G (2) 12 AWG, P (2) 12 AWG, N (1) 12 AWG, G	2	POWER BLK HTR, BATT CHGR TO GENSET (PASSTHROUGH)
5	AUTOMATIC TRANSFER SWITCH	CONTROL PANEL	(4) 14 AWG, C (2) 14 AWG, SP (1) 12 AWG, G	1	GEN ALARM, ATS IN EMERG
6	AUTOMATIC TRANSFER SWITCH	GENERATOR	(3) 2 AWG, P (1) 2 AWG, N (1) 8 AWG, G (2) 12 AWG, P (2) 12 AWG, N (1) 12 AWG, G	2	POWER BLK HTR, BATT CHGR TO GENSET (PASSTHROUGH CKT 4)
7	AUTOMATIC TRANSFER SWITCH	GENERATOR	(6) 14 AWG, C (2) 14 AWG, SP (1) 12 AWG, G	1	START SIGNAL, GEN ALARM (PASS-THRU CKT 5) GEN RUN STATUS (PASS-THRU CKT 5)
8	CONTROL PANEL	LIGHT SWITCH (EQUIP COVER)	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4	
8A	LIGHT SWITCH (EQUIP COVER)	LUMINAIRE (EQUIP COVER)	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4	
9	CONTROL PANEL	RADIO ANTENNA	COAX ANTENNA CABLE	1.5	SEE SPECIFICATION FOR CABLING
10	CONTROL PANEL	PUMP DISCONNECT PANEL	(3) 10 AWG, P (1) 10 AWG, G	1	PUMP #1 POWER
11	CONTROL PANEL	PUMP DISCONNECT PANEL	(3) 10 AWG, P (1) 10 AWG, G	1	PUMP #2 POWER
12	CONTROL PANEL	PUMP DISCONNECT PANEL	(2) 12 AWG, P (2) 12 AWG, N (1) 12 AWG, G (8) 14 AWG, C (4) 14 AWG, SP	1	CONTROLS & PDP HEATER POWER MOIST,OVERTMP, CVLS AND HIGH LVL CKTS
13	CONTROL PANEL	PUMP DISCONNECT PANEL	MFR'S CABLE	1	ULTRASONIC LEVEL SENSOR CABLE
14	CONTROL PANEL	PUMP DISCONNECT PANEL	(1) 18 AWG, TSP (2) 14 AWG, C (2) 14 AWG, SP (1) 12 AWG, G	1	SYS DISCH PSI DC CONTROL
15	PUMP DISCONNECT PANEL	VALVE VAULT	(1) 18 AWG, TSP (4) 14 AWG, C (2) 14 AWG, SP (1) 12 AWG, G	1	SYS DISCH PSI CVLS SIGNALS "T" INSIDE VAULT AS NEEDED
16	CONTROL PANEL	FLOWMETER	MFR'S CABLE	1	SIGNAL CABLE
17	CONTROL PANEL	FLOWMETER	MFR'S CABLE	1	ELECTRODE CABLE
18	CONTROL PANEL	ODOR CONTROL PANEL	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	1	UNIT POWER
18A	CONTROL PANEL	ODOR CONTROL PANEL	(6) 14 AWG, C (2) 14 AWG, SP (1) 12 AWG, G	1	SYSTEM CALL, LEAK AND RUNNING STATUS
18B	CONTROL PANEL	ODOR CONTROL PANEL	(2) 18 AWG, TSP (1) 12 AWG, G	1	TANK LEVEL, FLOW PACE CONTROL
19	CONTROL PANEL	HOTBOX RECEPTACLE	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	1	HEAT TRACE FOR RPBA



2 E-2 TYPICAL CONDUIT TRENCH
SCALE: NONE



3 E-2 MIXED CONDUIT TRENCH
SCALE: NONE

Riverside Estates Sanitary Pump Station

Located in La Center, Washington

Electrical Area Plan and Circuit Schedule

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Revisions

A	B	1	2	3	4

JEFFREY L. HOWARD — STATE OF WASHINGTON — #42371 — REGISTERED PROFESSIONAL ENGINEER

2019.03.28 15:08:43-07'00'

Project No.	2641
SCALE:	H: N/A V: N/A
DESIGNED BY:	RSC
DRAFTED BY:	RSC
REVIEWED BY:	JLH

E-2

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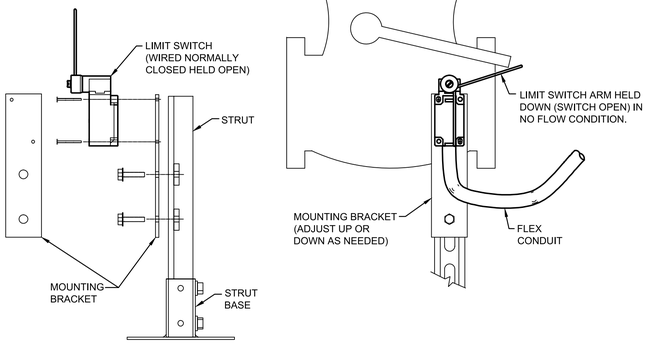
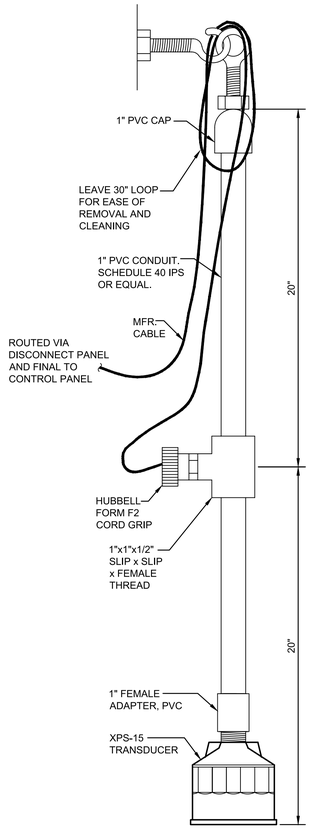
R&W ENGINEERING, INC. "Engineering Integrated Solutions"
9615 S.W. Allen Boulevard Suite 107 Beaverton, Oregon 97005
Phone: (503) 726-3311 Fax: (503) 726-3326 E-mail: jhoward@rweng.com
Project No.: 1577.001.001 Contact: Jeff Howard



1 E-3 CHECK VALVE LIMIT SWITCH DETAIL
SCALE: NONE

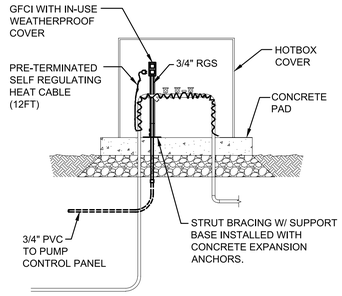


2 E-3 ULTRASONIC TRANSDUCER DETAIL
SCALE: NONE

GENERAL NOTES

A. SEE ELECTRICAL SPECIFICATIONS FOR EQUIPMENT PART NUMBERS AND METHODS FOR INSTALLATION.

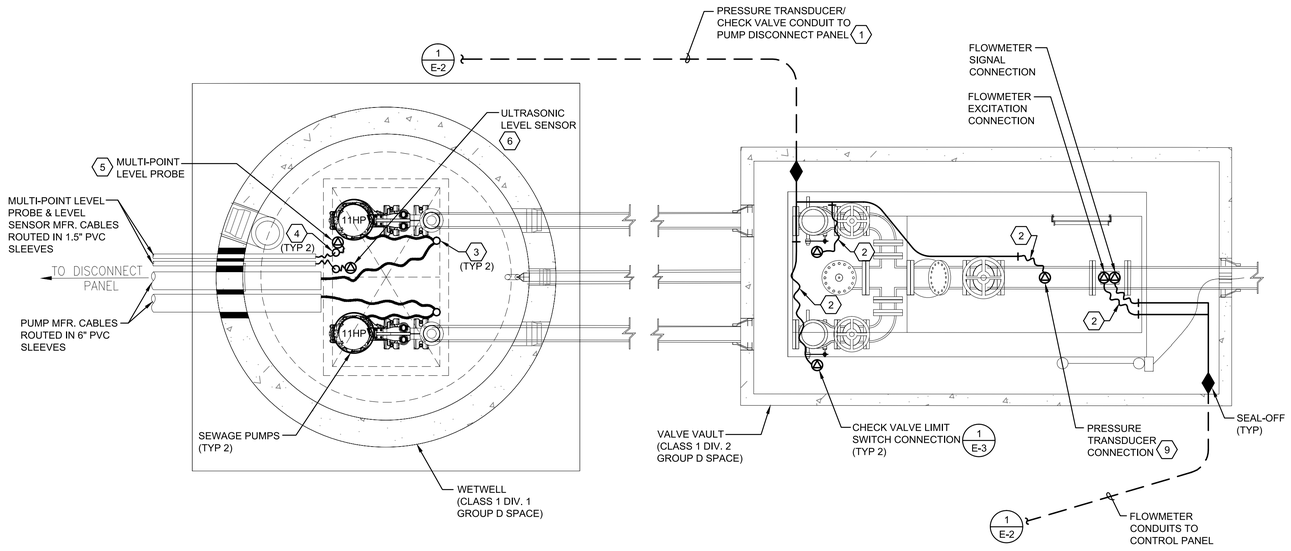
B. PROVIDE STRAIN RELIEF (KELLUMS DELUXE CORD GRIP) FOR ALL CABLING.



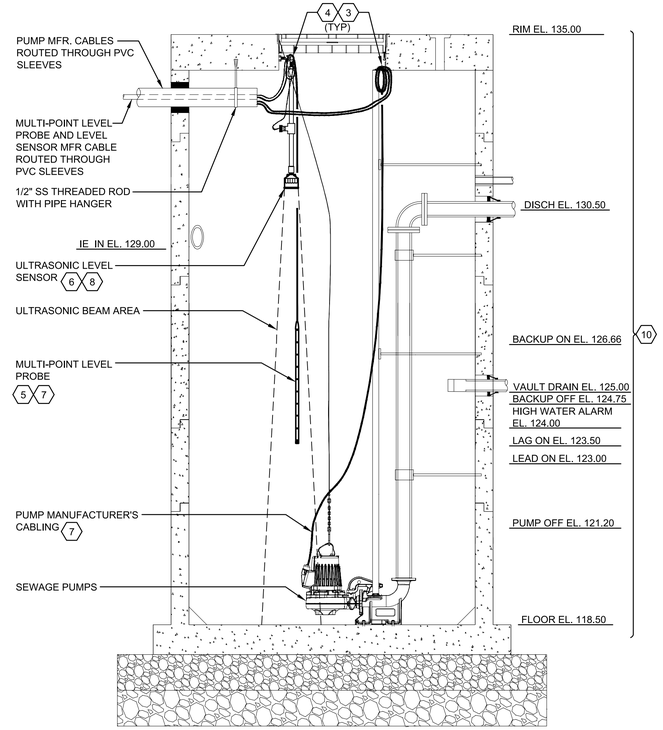
3 E-3 HOTBOX GFCI DETAIL
SCALE: NONE

NOTES THIS SHEET

1. CONDUITS ARE ENTERING A CLASS 1 DIV 2 AREA AND ARE REQUIRED TO BE CONTINUOUS RGS FROM VAULT PENETRATION TO SEAL OFF. PROVIDE TRANSITION 12" OUTSIDE VAULT FROM PVC TO RGS TO MAINTAIN CONTINUOUS CONDUITS TO SEAL OFFS.
2. FLEX FROM CONDULET TO FINAL CONNECTION AT EQUIPMENT. ROUTE ALONG WALL AND PIPING FOR CLEAN APPEARANCE.
3. PROVIDE 304 SS EYE HOOKS WITH CONCRETE EXPANSION ANCHORS FOR SUSPENSION OF MFR. PUMP CABLES NEAR HATCH AREA IF NOT PROVIDED BY PUMP MANUFACTURER.
4. PROVIDE 304 SS EYE HOOKS WITH CONCRETE EXPANSION ANCHORS FOR SUSPENSION OF MULTI-POINT LEVEL PROBE AND LEVEL TRANSMITTER CABLING NEAR HATCH AREA.
5. COORDINATE ELEVATION LOCATION OF MULTI-POINT LEVEL PROBE WITH CIVIL DISCIPLINE.
6. ULTRASONIC LEVEL SENSOR. SEE DETAIL 2 THIS SHEET. HANG FROM HOOK AT HATCH LOCATION.
7. MANUFACTURER'S CABLING TO BE LONG ENOUGH TO ROUTE TO PUMP DISCONNECT PANEL WITHOUT SPLICING. ROUTE CABLES BEHIND LIFTING RAILS LEAVING 30" LOOP. THE ADDITIONAL CABLING TO BE LOOPED UNDER THE PUMP DISCONNECT PANEL.
8. MANUFACTURER'S CABLING TO BE LONG ENOUGH TO ROUTE THROUGH DISCONNECT PANEL AND TO CONTROL PANEL WITHOUT SPLICING.
9. DISCHARGE PRESSURE TRANSDUCER. PROVIDE "T" BETWEEN DIAPHRAGM SEAL AND PRESSURE GAUGE AND STEM OUT TO MANUAL SHUT-OFF VALVE AND TRANSDUCER.
10. VERIFY ELEVATION INFORMATION WITH CIVIL DISCIPLINE.



4 E-3 WETWELL AND VALVE VAULT PLAN
SCALE: 1/2" = 1'-0"



5 E-3 WETWELL ELEVATION
SCALE: 1/2" = 1'-0"

Riverside Estates Sanitary Pump Station

Wetwell and Valve Vault Electrical Plans

Located in La Center, Washington

Consulting Engineers & Planners | 604 W Evergreen Blvd, Vancouver, WA 98660 | PH (360) 944-6519 | Fax (360) 944-6539

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JEFFREY L. HOWARD
STATE OF WASHINGTON
#42171
REGISTERED
PROFESSIONAL ENGINEER

2019.03.28 15:08:24-07'00'

Project No.	2641
SCALE:	H: N/A V: N/A
DESIGNED BY:	RSC
DRAFTED BY:	RSC
REVIEWED BY:	JLH

E-3

15

R&W ENGINEERING, INC.
"Engineering Integrated Solutions"
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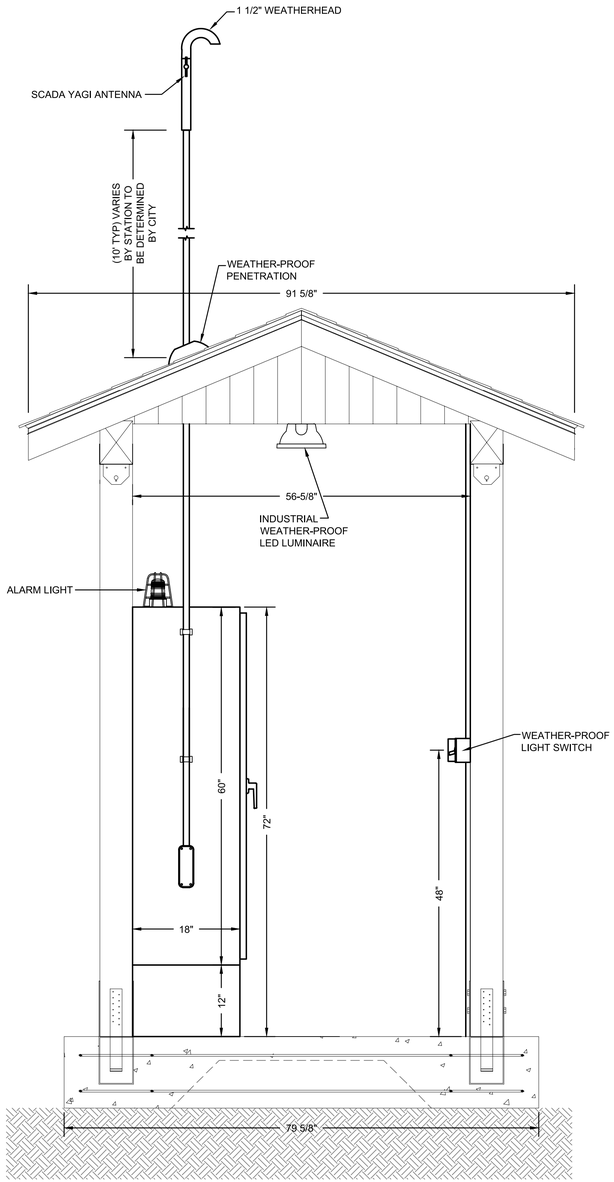
Fax: (503) 726-3326
E-mail: jhoward@rweng.com
Project No.: 1577.001.001 Contact: Jeff Howard

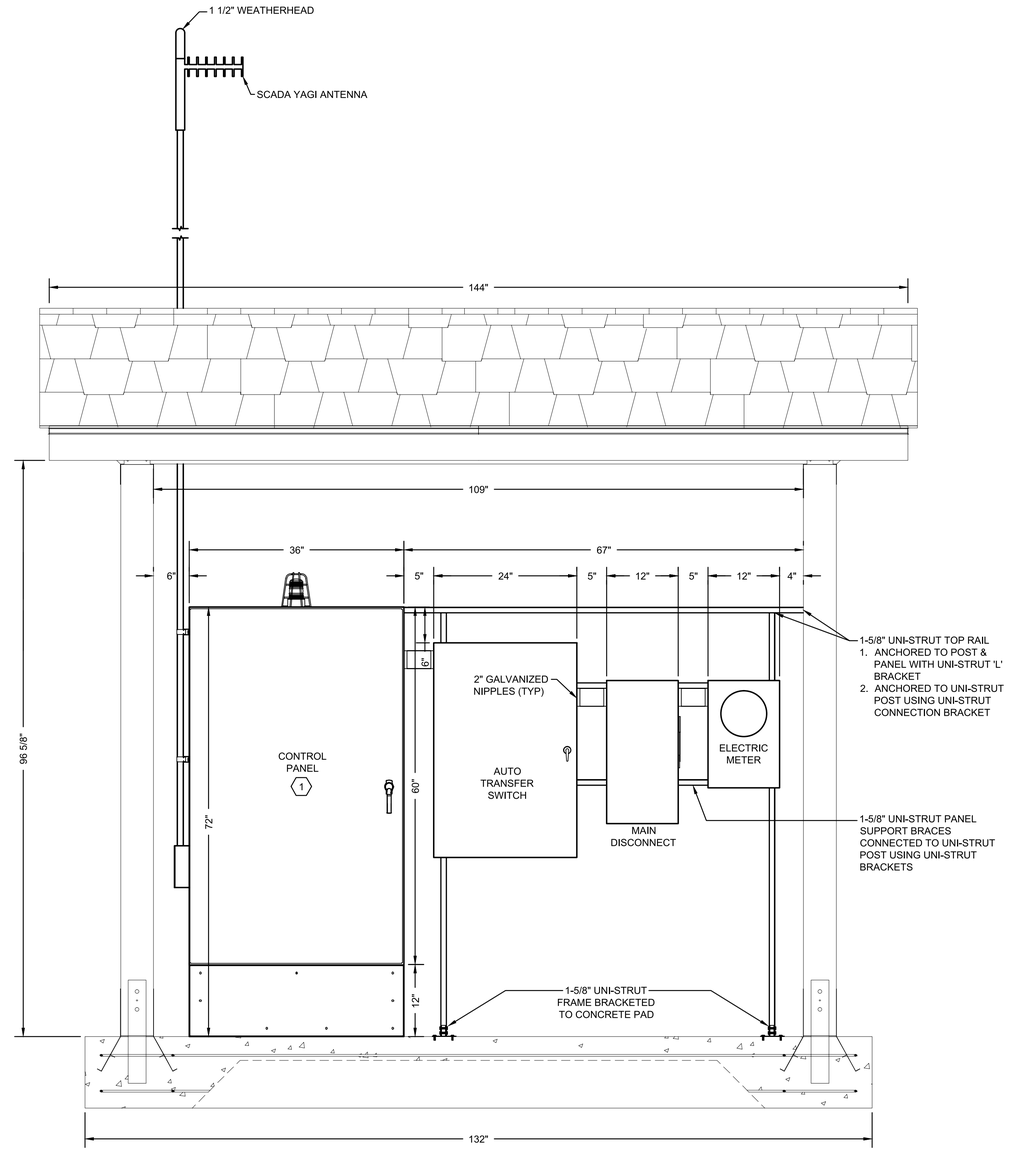
GENERAL NOTES

A. SEE ELECTRICAL SPECIFICATIONS FOR EQUIPMENT PART NUMBERS AND METHODS FOR INSTALLATION.

NOTES THIS SHEET

1. SEE DRAWINGS E-5 THROUGH E-8.





Riverside Estates Sanitary Pump Station

Located in La Center, Washington

Electrical Equipment Elevation Detail

ENGINEERING | PLS

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Revisions

A	
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JEFFREY L. HOWARD — STATE OF WASHINGTON — #42371 — REGISTERED PROFESSIONAL ENGINEER

2019.03.28 15:08:02-07'00'

Project No. 2641	
SCALE:	H: N/A V: N/A
DESIGNED BY:	RSC
DRAFTED BY:	RSC
REVIEWED BY:	JLH

E-4

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GENERAL NOTES

A. PANEL ENCLOSURE SHALL BE MIN 60"H X 36"W X 16"D HOFFMAN NEMA 4 ENCLOSURE MODEL #A60H3616FLP3PT OR APPROVED EQUAL.

B. PANEL SHALL HAVE LIGHT WITH MANUAL SWITCH HOFFMAN LF120V18 OR APPROVED EQUAL.

C. PANEL OUTER DOOR TO HAVE ONE 1/4 TURN HANDLE THAT CAN BE PADLOCKED.

D. PANEL OUTER DOOR SHALL HAVE A DOCUMENT SLEEVE ON THE INSIDE.

E. PANEL SHALL BE DELIVERED W/ WIRING SCHEMATIC & DIAGRAM IN DOCUMENT SLEEVE.

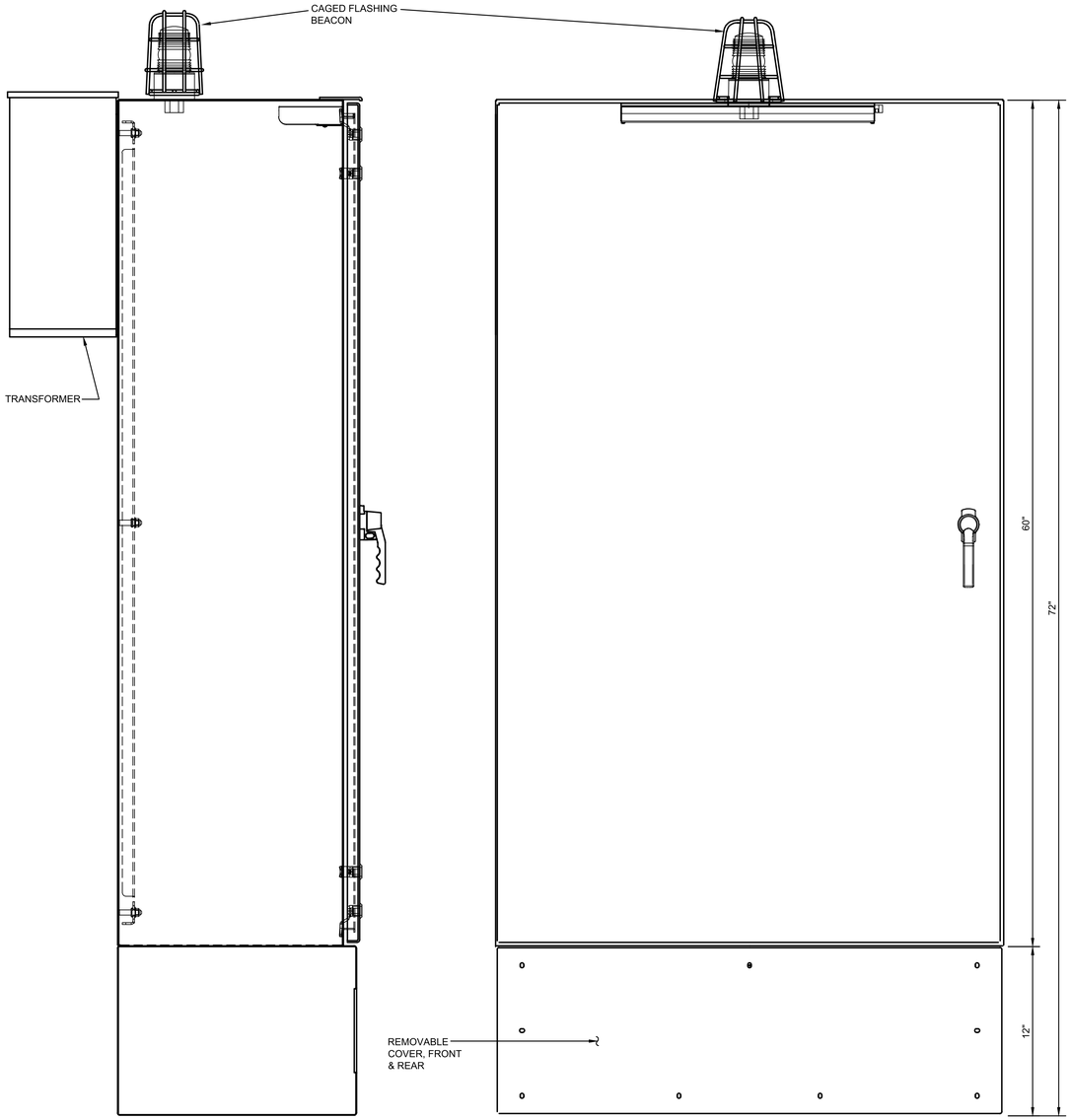
F. WIRING SCHEMATIC & DIAGRAM SHALL BE LAMINATED FOR WEATHER RESISTANCE.

G. WIRING SCHEMATIC & DIAGRAM SHALL ALSO BE PROVIDED TO THE CITY IN AN ELECTRONIC .DWG FILE FORMAT.

H. ALL COPIES PROVIDED OF THE WIRING SCHEMATIC & DIAGRAM SHALL BECOME PROPERTY OF THE CITY.

I. COMPLETE PLC DOCUMENTATION REQUIRED IN BOTH PAPER & ELECTRONIC FORMAT. ALL COPIES SUBMITTED BECOME PROPERTY OF THE CITY.

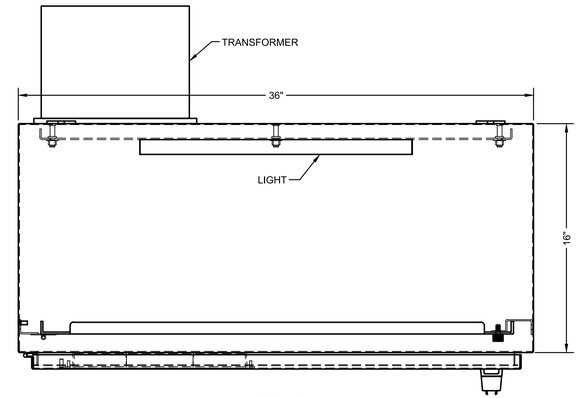
J. SEE DRAWINGS E-6, E-7, AND E-8 FOR CONTROL PANEL LAYOUT AND WIRING.



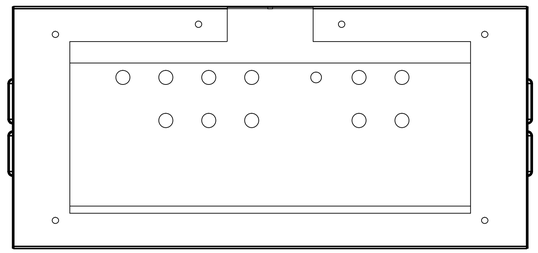
LEFT SIDE
SCALE: NONE

ELEVATION
SCALE: NONE

RIGHT SIDE
SCALE: NONE



TOP VIEW
SCALE: NONE



BOTTOM VIEW
SCALE: NONE

Riverside Estates Sanitary Pump Station

Electrical Control Panel Enclosure

Located in La Center, Washington

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Revisions

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JEFFREY L. HOWARD
STATE OF WASHINGTON
842171
REGISTERED
PROFESSIONAL ENGINEER

2019.03.28 15:07:37-07'00'

Project No. 2641	
SCALE:	H: N/A V: N/A
DESIGNED BY:	RSC
DRAFTED BY:	RSC
REVIEWED BY:	JLH

E-5

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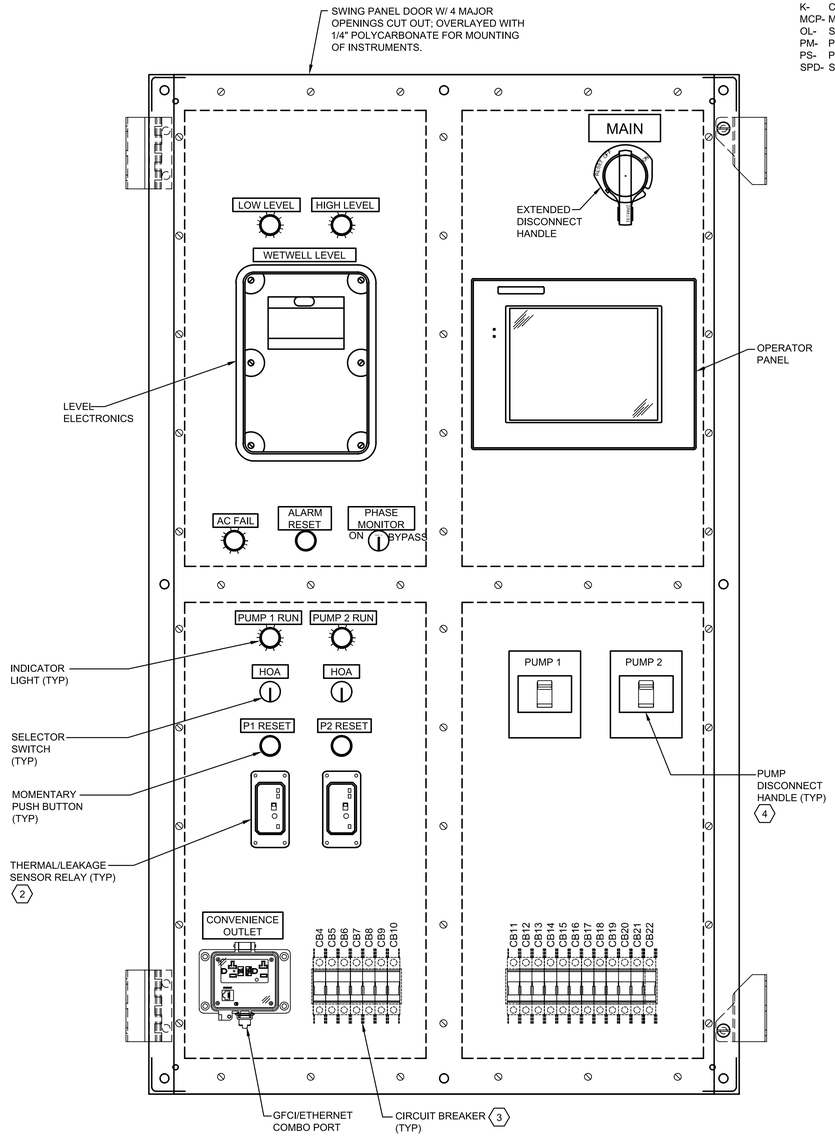
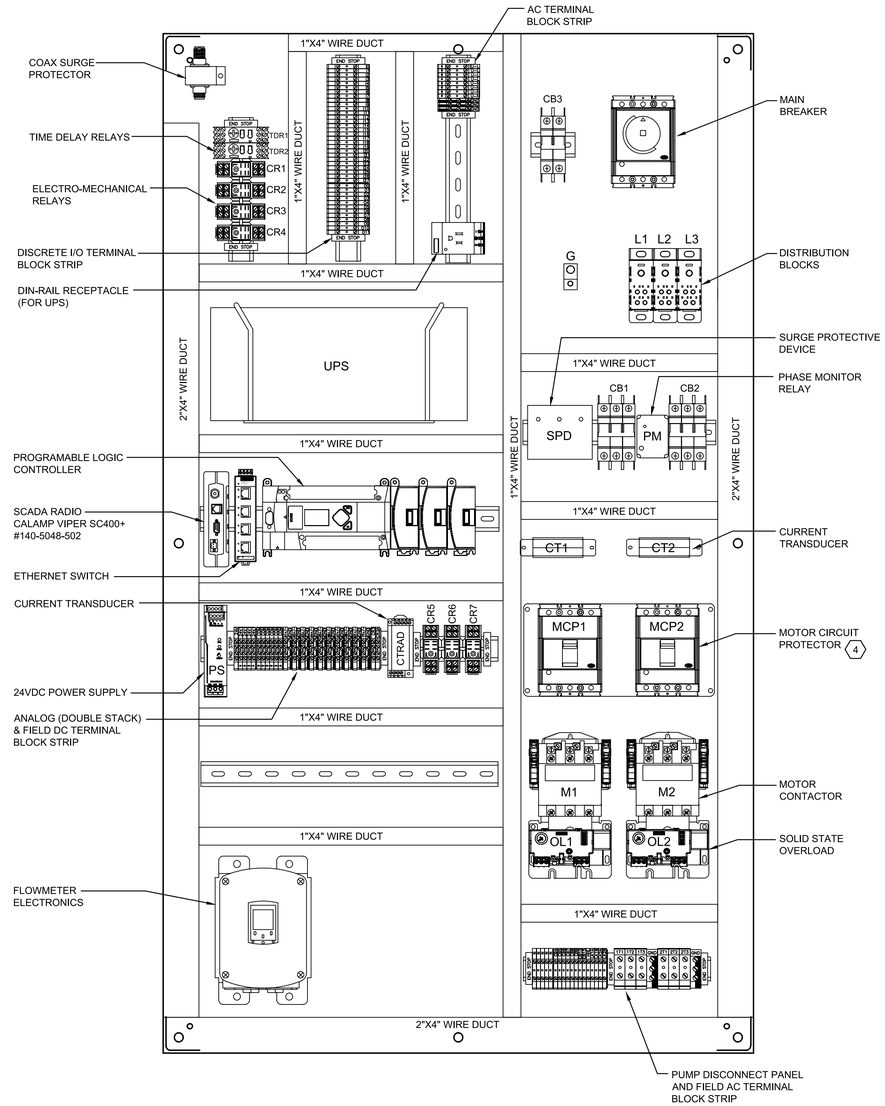
NOTES THIS SHEET

1. SEE DRAWINGS E-7 AND E-8 FOR CONTROL PANEL WIRING.
2. THERMAL/LEAKAGE SENSOR FOR FLYGT PUMPS.
3. INSTALL CIRCUIT BREAKERS FROM REAR OF POLYCARBONATE "FINGER-SAFE"; ONLY ALLOWING ACCESS TO HANDLE.
4. MOUNT PUMP DISCONNECTS OFF THE BACKPAN SO THAT THE HANDLES ARE "FINGER-SAFE", ONLY ALLOWING ACCESS TO HANDLE.

LEGEND
CB- CIRCUIT BREAKER
CR- CONTROL RELAY
CT- CURRENT TRANSDUCER
K- CONTACTOR
MCP- MOTOR CIRCUIT PROTECTOR
OL- SOLID STATE OVERLOAD
PM- PHASE MONITOR
PS- POWER SUPPLY
SPD- SURGE PROTECTOR



SWING PANEL FRONT VIEW 1
SCALE: NONE



SUB-PANEL FRONT VIEW 1
SCALE: NONE

Electrical Control Interior Layout

Riverside Estates Sanitary Pump Station

Located in La Center, Washington

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Revisions

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JEFFREY L. HOWARD
STATE OF WASHINGTON
22171
REGISTERED PROFESSIONAL ENGINEER

2019.03.28 15:07:15-07'00'

Project No. 2641	
SCALE:	H: N/A V: N/A
DESIGNED BY:	RSC
DRAFTED BY:	RSC
REVIEWED BY:	JLH

E-6
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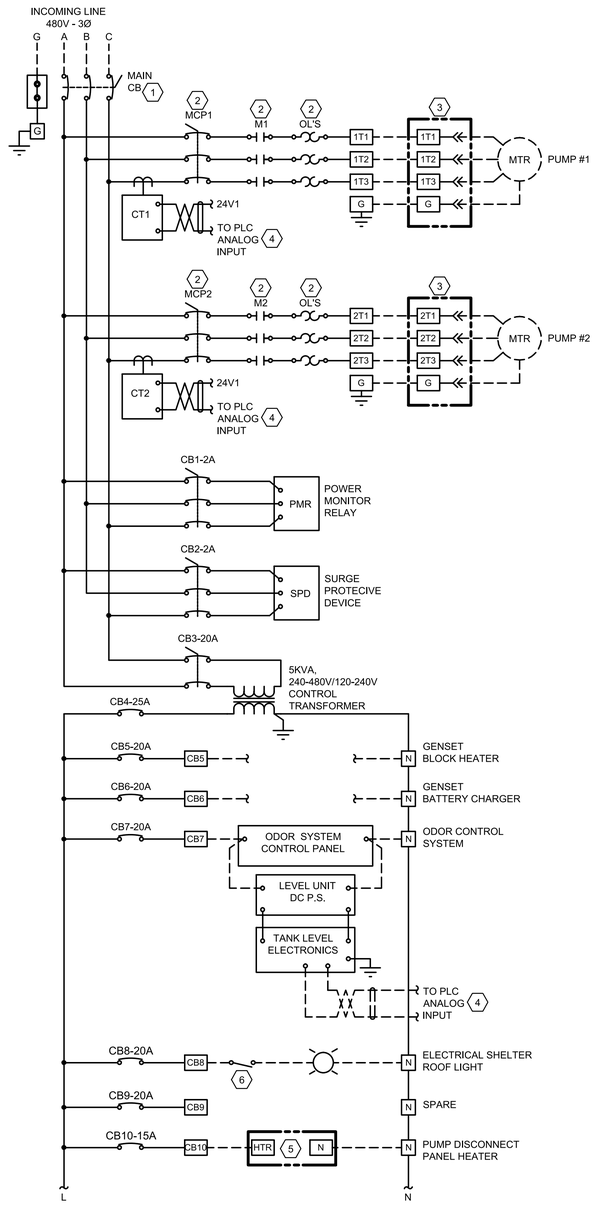
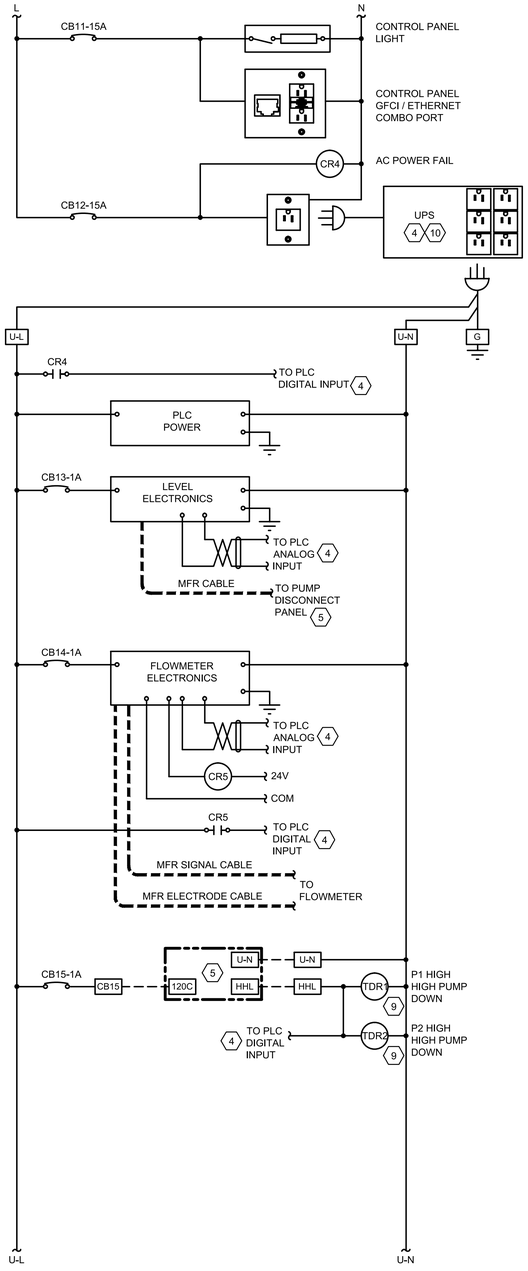
GENERAL NOTES

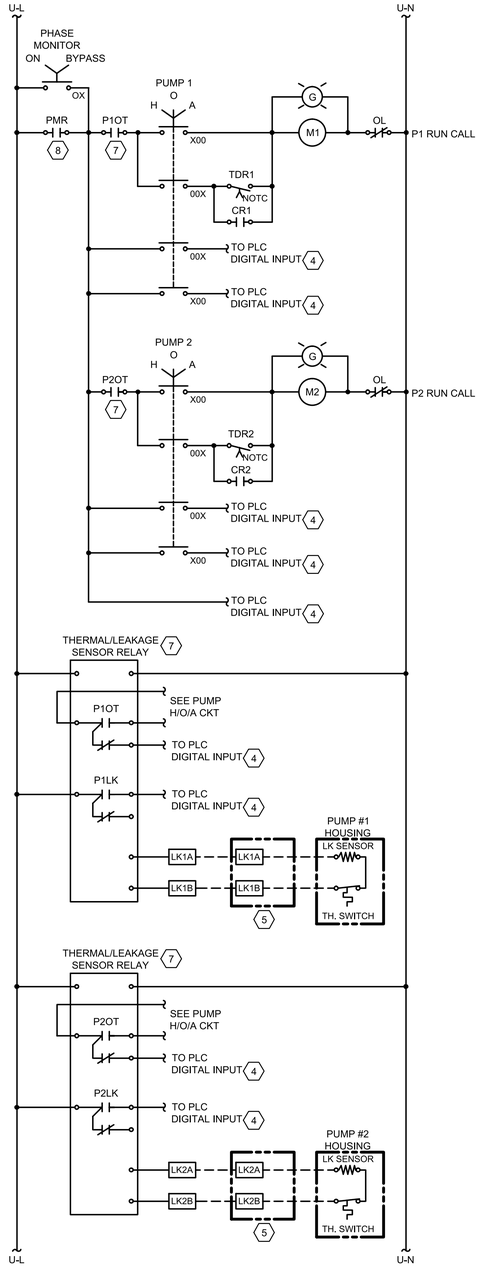
A. SEE DRAWING E-6 FOR CONTROL PANEL LAYOUT.

NOTES THIS SHEET

1. MAIN BREAKER TO BE SIZED PER NEC BASED ON PROJECT PUMP SIZES AND MISCELLANEOUS POWER LOADS.
2. SIZE MOTOR CIRCUIT PROTECTOR, MOTOR STARTER AND SOLID STATE OVERLOADS ON 'FLA' OF PROJECT PUMPS.
3. PUMP MOTOR PLUGS, RECEPTACLES AND TERMINAL BLOCKS LOCATED AT PUMP DISCONNECT PANEL. SEE DRAWING E-9.
4. SEE DRAWING E-8 FOR PLC I/O CONNECTIONS.
5. SEE DRAWING E-9 FOR CONNECTION AT PUMP DISCONNECT PANEL.
6. LIGHT SWITCH UNDER ELECTRICAL EQUIPMENT ROOF STRUCTURE. SEE E-4 FOR LOCATION.
7. THERMAL/LEAKAGE SENSOR CONNECTION FOR FLYGT PUMPS. THERMAL CONTACT CLOSED IN "NORMAL CONDITION, OPENING ON FAULT. LEAK CONTACT OPEN IN "NORMAL" CONDITION.
8. PMR CONTACT IS CLOSED IN "NORMAL" CONDITION, OPENING ON FAULT.
9. TDR'S TO BE SET 5 SECONDS APART TO STAGGER PUMP STARTS ON HIGH HIGH LEVEL (BACK-UP MODE) PUMP DOWN.
10. INSTALL DRY CONTACT I/O CARD IN THE UPS TO PROVIDE "UPS FAULT" AND "UPS ON BATTERY" SIGNALS.







Revisions

	A	B	—	2	3	4

Electrical Control Panel Wiring Diagram

Riverside Estates Sanitary Pump Station

Located in La Center, Washington

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2019.03.28 15:06:52-07'00'

Project No. 2641	
SCALE:	H: N/A V: N/A
DESIGNED BY:	RSC
DRAFTED BY:	RSC
REVIEWED BY:	JLH

E-7

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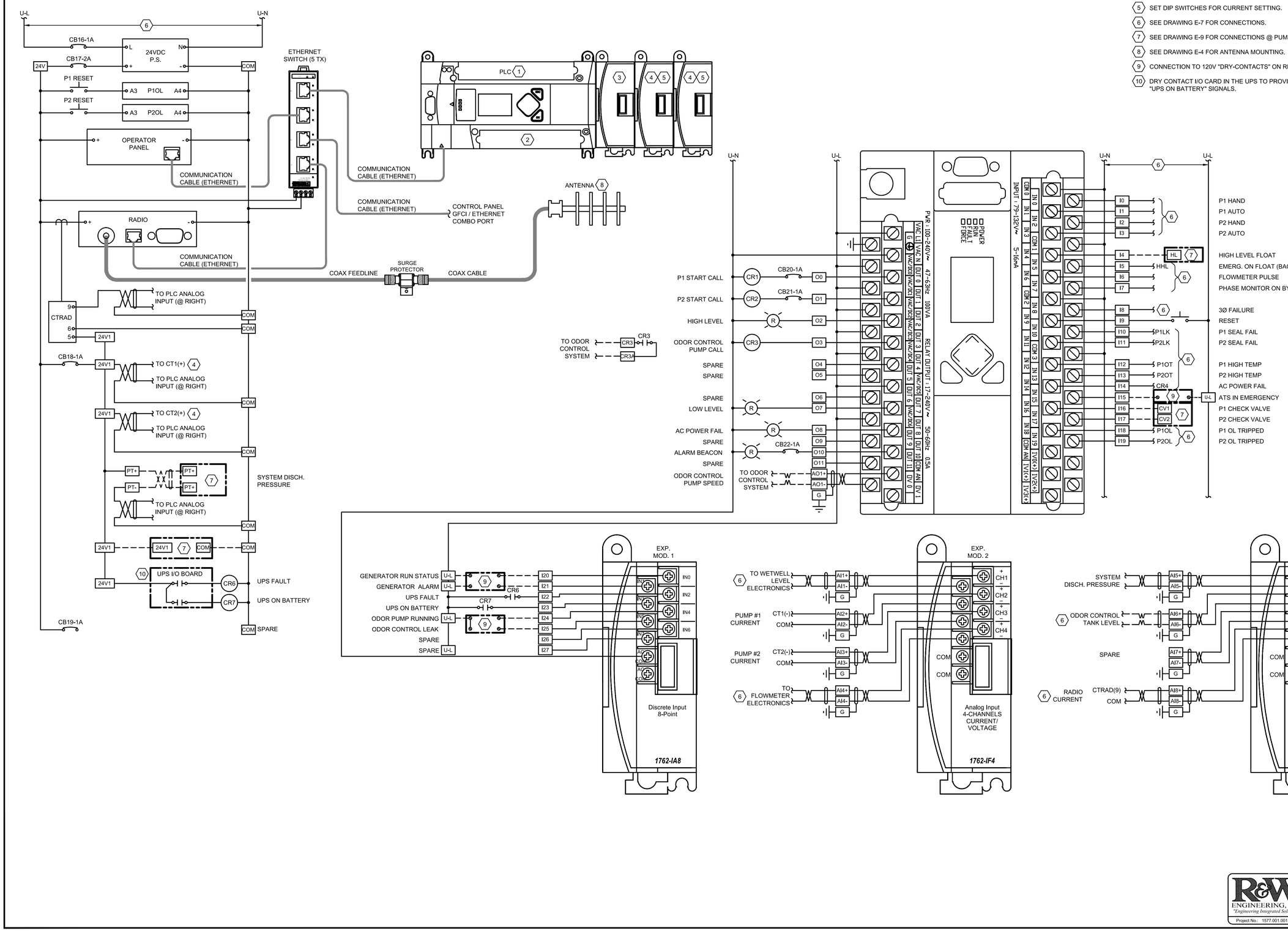
NOTES THIS SHEET

1. DISCRETE INPUTS, SEE WIRING BELOW.
2. DISCRETE OUTPUTS, SEE WIRING BELOW.
3. EXPANSION INPUT MODULE, SEE WIRING BELOW.
4. EXPANSION ANALOG MODULES, SEE WIRING BELOW.
5. SET DIP SWITCHES FOR CURRENT SETTING.
6. SEE DRAWING E-7 FOR CONNECTIONS.
7. SEE DRAWING E-9 FOR CONNECTIONS @ PUMP DISCONNECT PANEL.
8. SEE DRAWING E-4 FOR ANTENNA MOUNTING.
9. CONNECTION TO 120V "DRY-CONTACTS" ON REMOTE EQUIPMENT.
10. DRY CONTACT I/O CARD IN THE UPS TO PROVIDE "UPS FAULT" AND "UPS ON BATTERY" SIGNALS.



Riverside Estates Sanitary Pump Station

Electrical Control Panel Wiring and I/O Diagrams

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2019.03.28 15:06:32-07'00'

Project No. 2641	
SCALE:	H: N/A V: N/A
DESIGNED BY:	RSC
DRAFTED BY:	RSC
REVIEWED BY:	JLH

E-8

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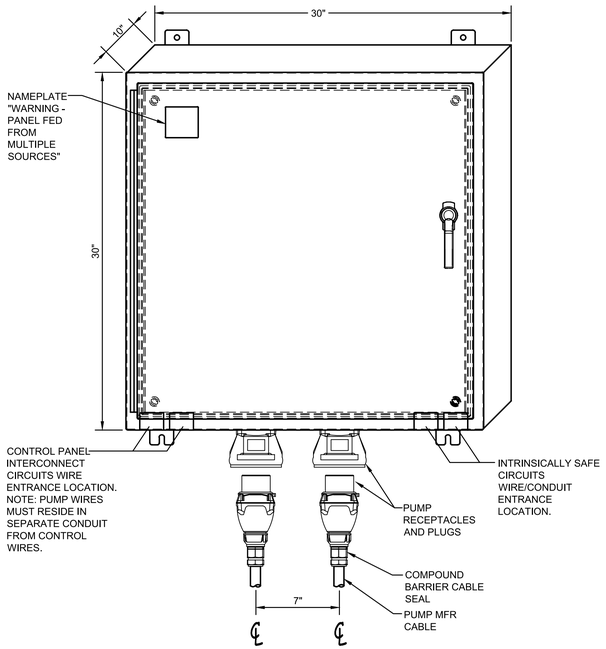
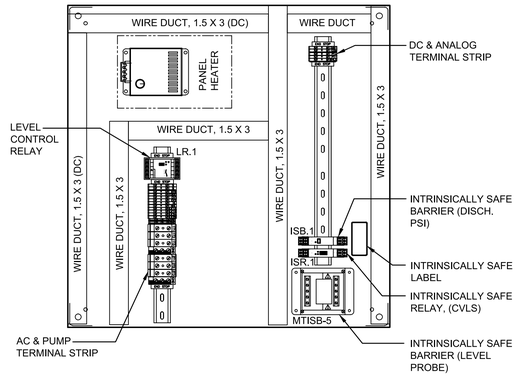
Project No.: 1577.001.001 Contact: Jeff Howard

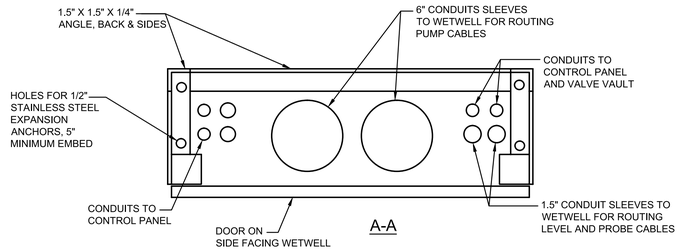
NOTES THIS SHEET

1. CHECK VALVE LIMIT SWITCH TO BE WIRED TO THE N.C. CONTACT.

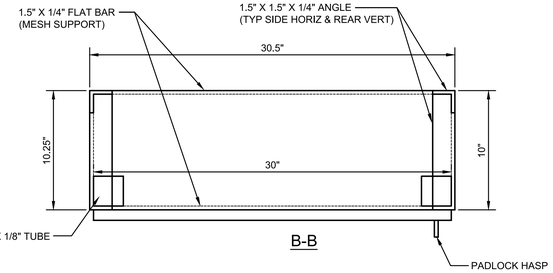


FRONT VIEW
SCALE: NONE

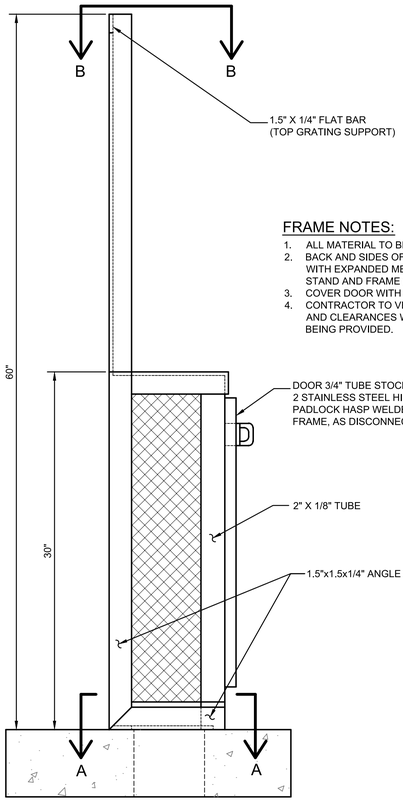




A-A



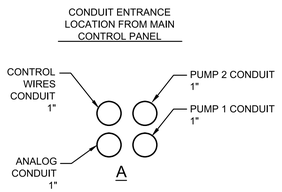
B-B

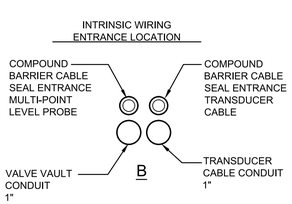


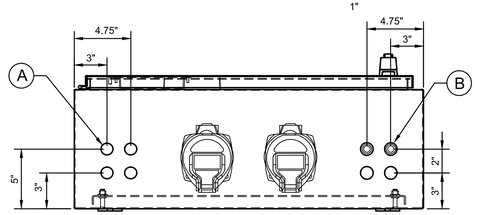
FRAME NOTES:

1. ALL MATERIAL TO BE STAINLESS STEEL.
2. BACK AND SIDES OF STAND TO BE ENCASED WITH EXPANDED METAL MESH, WELDED TO STAND AND FRAME (1/2"X13MM).
3. COVER DOOR WITH SAME MESH AS STAND.
4. CONTRACTOR TO VERIFY ALL DIMENSIONS AND CLEARANCES WITH ACTUAL PANEL BEING PROVIDED.

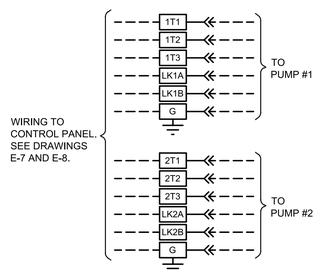
NOTE: ALL CONDUITS MUST BE CONTINUOUS RGS FROM BELOW GRADE TO CONTROL PANEL. REFERENCE NEC ARTICLE 501.15 (B2) EXCEPTION NO 1.







BOTTOM VIEW
SCALE: NONE



WIRING TO CONTROL PANEL. SEE DRAWINGS E-7 AND E-8.

WIRING TO CONTROL PANEL. SEE DRAWINGS E-7 AND E-8.

Riverside Estates Sanitary Pump Station

Located in La Center, Washington

Electrical Pump Disconnect Panel

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JEFFREY L. HOWARD
STATE OF WASHINGTON
22171
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Project No. 2641	
SCALE:	H: N/A V: N/A
DESIGNED BY:	RSC
DRAFTED BY:	RSC
REVIEWED BY:	JLH

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