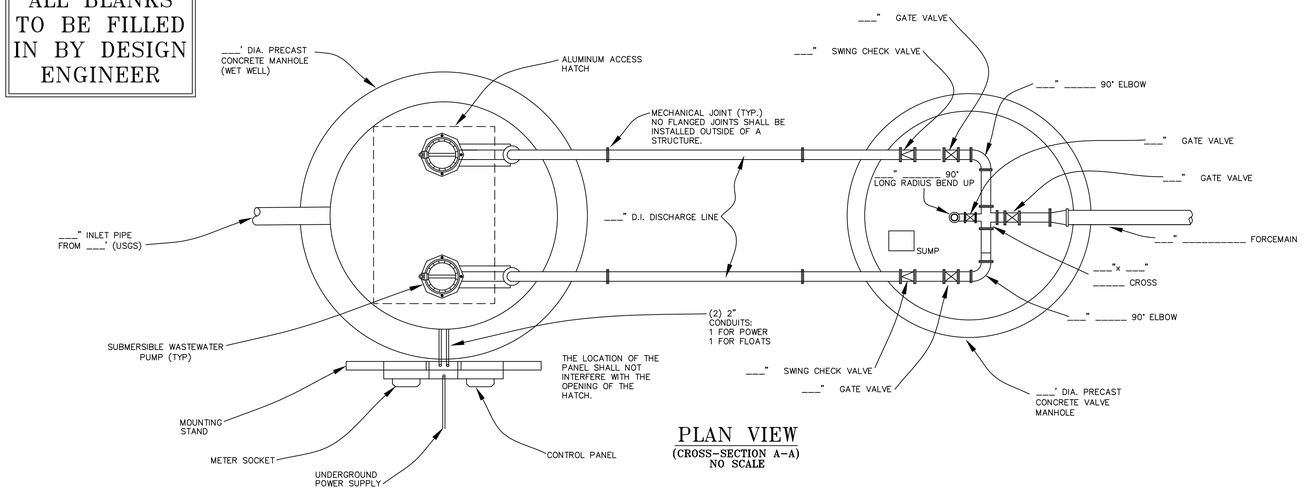
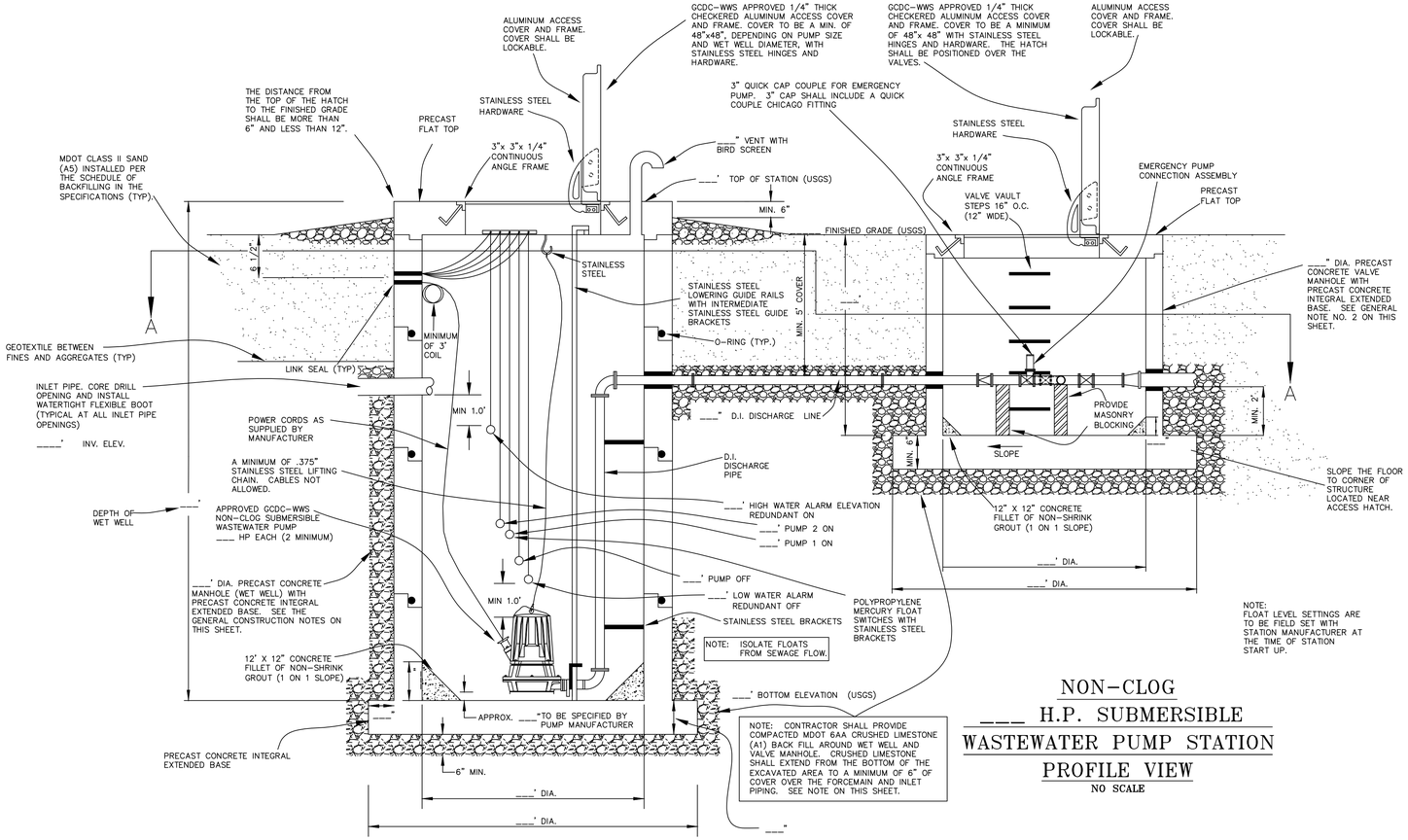
ALL BLANKS TO BE FILLED IN BY DESIGN ENGINEER



PLAN VIEW
(CROSS-SECTION A-A)
NO SCALE

CONTRACTOR SHALL APPLY TO CONSUMERS ENERGY FOR POWER DROP AND PAY ALL COSTS INCLUDING LINE EXTENSIONS. THREE PHASE, 480 VOLT POWER REQUIRED.



NOTE:
FLOAT LEVEL SETTINGS ARE TO BE FIELD SET WITH STATION MANUFACTURER AT THE TIME OF STATION START UP.

NOTE: CONTRACTOR SHALL PROVIDE COMPACTED MDOT 6AA CRUSHED LIMESTONE (A1) BACK FILL AROUND WET WELL AND VALVE MANHOLE. CRUSHED LIMESTONE SHALL EXTEND FROM THE BOTTOM OF THE EXCAVATED AREA TO A MINIMUM OF 6" OF COVER OVER THE FORCEMAIN AND INLET PIPING. SEE NOTE ON THIS SHEET.

NON-CLOG
___ H.P. SUBMERSIBLE
WASTEWATER PUMP STATION
PROFILE VIEW
NO SCALE

PUMP STATION DATA

1. STATION TYPE: WETWELL/SUBMERSIBLE
2. LOCATION:
3. POWER SUPPLY REQUIRED: MANDATORY 480 VOLTS, THREE PHASE POWER. CONSUMERS ENERGY CONTACT PERSON:
4. NUMBER OF UNITS TO BE SERVED: PROJECT: _____ & FUTURE: _____
5. AVERAGE SEWAGE FLOW:
6. NUMBER OF PUMPS: (ALTERNATING)
7. DESIGN PEAK FLOW:
8. PUMP CONTROLS: MERCURY FLOAT SWITCHES
9. SIZE AND MATERIAL FOR FORCE MAIN:
10. LENGTH OF FORCEMAIN:
11. TOTAL DYNAMIC HEAD:
12. WET WELL WORKING VOLUME:
13. WET WELL FILL TIME:
14. PROPOSED PUMP TO BE USED:
15. WET WELL DRAIN DOWN TIME:
16. WET WELL DIAMETER:
17. FORCEMAIN VELOCITY:
18. BUOYANCY CALCULATIONS:

UPLIFT FORCE ACTION ON PUMP STATION – F(UPLIFT)
F(UPLIFT) = UNIT WEIGHT OF WATER X HEIGHT OF WATER X AREA OF BASE OF STRUCTURE

FORCES RESISTING UPLIFT FORCES – F(RESISTANCE)
F(RESISTANCE) = WEIGHT OF SOIL ACTING ON BASE + WEIGHT OF STRUCTURE

WEIGHT OF SOIL = VOLUME OF SOIL X UNIT WEIGHT OF SOIL

WEIGHT OF STRUCTURE = VOLUME OF CONCRETE X UNIT WEIGHT OF CONCRETE

VOLUME OF CONCRETE = VOLUME OF SECTIONS + VOLUME OF BASE + VOLUME OF TOP

WEIGHT OF STRUCTURE =

F(RESISTANCE) =

SUMMARY:

NOTE:
THE RESISTANCE FORCES DUE TO FRICTION BETWEEN THE WALL OF THE STRUCTURE AND THE GRANULAR BACKFILL WERE NEGLECTED IN ORDER TO SIMPLIFY CALCULATIONS.

NON-CLOG PUMP SPECIFICATIONS

1. 2 EACH – SUBMERSIBLE WASTEWATER PUMP APPROVED BY GCDC-WWS.

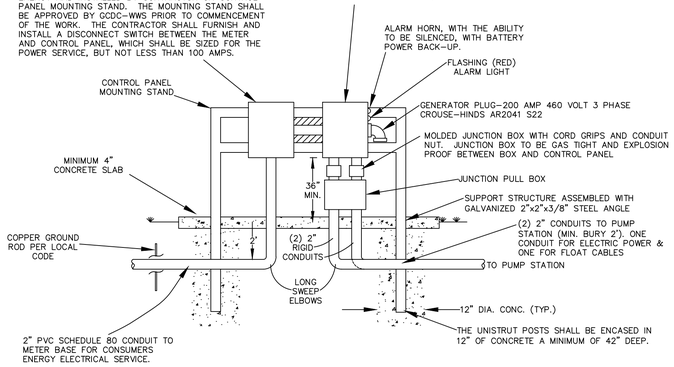
   THE FURNISHED PUMPS SHALL BE EQUIPPED WITH THE MINIMUM FOLLOWING FEATURES:

   A. EXPLOSION PROOF
   B. HEAT SENSORS AND SEAL FAILURE PROBE
   C. CAPABILITY OF RUNNING UNSUBMERGED
   D. EQUIPPED WITH REDUNDANT PUMP OFF/LOW WATER CONTROL
   E. ALTERNATING LEAD ON/LAG ON PROVISION

2. CAPACITY:
3. PUMP MOTOR:

A CONSUMERS ENERGY 480 VOLT THREE PHASE 4 WIRE SERVICE METER TO BE PROVIDED BY CONSUMERS ENERGY AND INSTALLED BY CONTRACTOR ON CONTROL PANEL MOUNTING STAND. THE MOUNTING STAND SHALL BE APPROVED BY GCDC-WWS PRIOR TO COMMENCEMENT OF THE WORK. THE CONTRACTOR SHALL FURNISH AND INSTALL A DISCONNECT SWITCH BETWEEN THE METER AND CONTROL PANEL, WHICH SHALL BE SIZED FOR THE POWER SERVICE, BUT NOT LESS THAN 100 AMPS.

HEATED CONTROL PANEL IN GASKETED NEMA 4X DOOR ENCLOSURE, COMPLETE FOR OPERATION. CONTROL PANEL SHALL HAVE AS A MINIMUM: MOTOR PROTECTION WITH OVERLOAD PROTECTION; MOTOR STARTERS; MAGNETIC CONTACTORS; HAND-OFF AUTOMATIC SELECTOR SWITCH PER PUMP; ELAPSED RUNNING TIME METER FOR EACH PUMP; AUTOMATIC ELECTRICAL ALTERNATOR; SEAL FAILURE LIGHT MOUNTED ON INNER DOOR; RUNNING LIGHTS; CONTROL CIRCUIT TRANSFORMER FOR 110V; TIME DELAY RELAY FOR LAG PUMP STARTUP; FLOAT SYSTEM CONTROL AND 120 VOLT POWER RECEPTACLE. THE CONTRACTOR SHALL LEAVE A SPACE FOR A 2000 DATA LOGGER SENSAPHONE WITH A BATTERY POWER BACK-UP. THE CONTROL PANEL SHALL ALSO BE WIRED TO THE SENSAPHONE IN A 3/4" GALVANIZED STEEL CONDUIT.



RISER DIAGRAM, 480 VOLT, THREE PHASE
NO SCALE

SUBMERSIBLE WASTEWATER GENERAL NOTES

1. SHOP DRAWINGS AND PUMP CURVES (INCLUDING THE NPSH-A AND NPSH-R CURVES) SHALL BE SUBMITTED BY THE CONTRACTOR AND APPROVED BY GCDC-WWS PRIOR TO COMMENCEMENT OF THE WORK.

2. THE PRECAST SUBMERSIBLE WASTEWATER PUMP STATION WET WELL AND THE VALVE MANHOLE SHALL BE PRECAST CONCRETE (WITH XYPEX OR GCDC-WWS APPROVED ALTERNATE) MANHOLES WITH INTEGRAL BASE UNITS. THE VALVE MANHOLE SHALL BE A MINIMUM OF 6" THICK. PRECAST CONCRETE MANHOLES SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM STANDARDS AND SPECIFICATIONS.

3. THE CONTRACTOR SHALL INSTALL MDOT 6A CRUSHED LIMESTONE AROUND THE WET WELL AND VALVE MANHOLE IN THE AREA OF THE FORCEMAIN AND INLET PIPING. THE CRUSHED LIMESTONE SHALL EXTEND FROM THE BOTTOM OF THE EXCAVATED AREA TO A MINIMUM OF 6" OF COVER OVER THE FORCEMAIN AND INLET PIPING. ALL OTHER AREAS SURROUNDING THE WET WELL AND VALVE MANHOLE SHALL BE BACKFILLED WITH COMPACTED SAND BACKFILL.

4. ELECTRIC SERVICE TO THE METER SHALL BE INSTALLED BY CONSUMERS ENERGY AT THE CONTRACTOR'S SOLE EXPENSE. THE CONTRACTOR IS ALSO RESPONSIBLE FOR OBTAINING THE STATE ELECTRICAL PERMIT.

5. THE LOCATION OF THE METER PEDESTAL SHALL BE DETERMINED IN THE FIELD WITH GCDC-WWS AND ENGINEER.

6. THE CONTRACTOR IS RESPONSIBLE FOR THE TOTAL COST OF BRINGING THE THREE PHASE, 480 VOLT ELECTRIC SERVICE TO THE PUMP STATION.

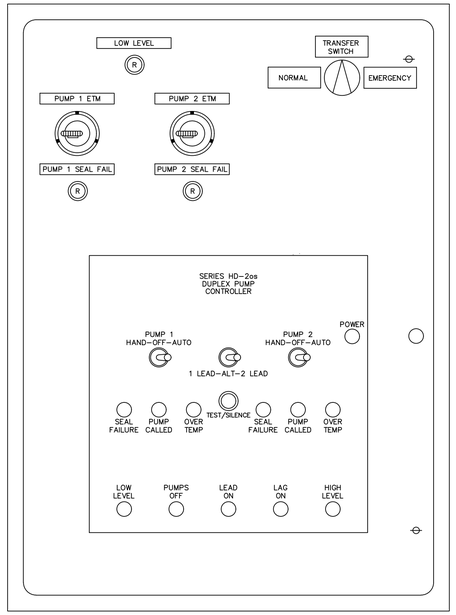
7. ALL ELECTRIC EQUIPMENT SHALL BE APPROVED BY THE LOCAL UTILITY AND AUTHORITIES HAVING LAWFUL JURISDICTION FOR CODES AND RULES.

8. GATE VALVES & CHECK VALVES SHALL BE APPROVED BY GCDC-WWS.

9. THREE COMPLETE SETS OF O & M MANUALS SHALL BE SUBMITTED TO GCDC-WWS PRIOR TO PUMP STATION START UP.

10. 12' WIDE SERVICE DRIVE WITH 12" COMPACTED 23A LIMESTONE WITH GEOTEXTILE MAT, SHALL BE CONSTRUCTED LEADING TO THE PUMP STATION.

11. CONTRACTOR SHALL SUPPLY ALL MANUFACTURER'S RECOMMENDED SPARE PARTS AS PER OPERATION AND MAINTENANCE MANUALS.



42" X 36" X 12" (TYPICAL)
(BATTERY BACK-UP WITH CHARGER REQUIRED)

TYPICAL CONTROL PANEL INNER DOOR DETAIL
NO SCALE
(MINIMUM REQUIREMENTS)

NO.	DATE	DESCRIPTION
1	2020	EIGHTH EDITION

DIVISION OF
WATER & WASTE SERVICES

PUBLIC PUMP STATION

STANDARD DETAILS

For the Construction of Sanitary Sewers & Watermain in Genesee County

GENESEE COUNTY
WWS
DRAIN COMMISSIONER