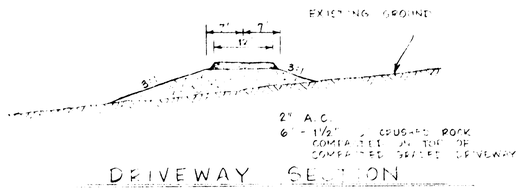
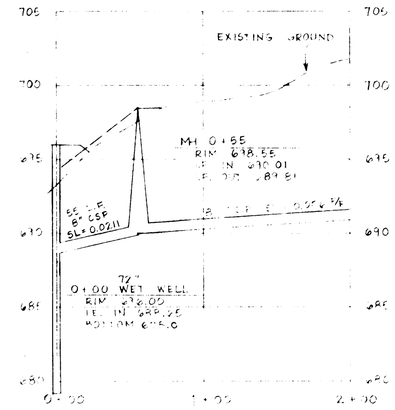
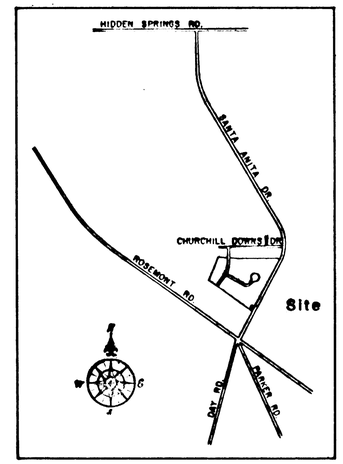
GENERAL NOTES:

*ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE CITY OF WEST LINN PUBLIC WORKS DEPARTMENT, O.S.H.D. AND 1988 APWA OREGON CHAPTER SPECIFICATIONS.
*CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION AND SHALL ARRANGE FOR THE RELOCATION OF ANY IN CONFLICT WITH THE PROPOSED CONSTRUCTION.
*CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS AND LICENSES BEFORE STARTING CONSTRUCTION.
*EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY AND MUST BE VERIFIED BY THE CONTRACTOR. ADDITIONAL UNDERGROUND UTILITIES MAY EXIST.
*THE ENGINEER HAS NOT BEEN RETAINED OR COMPENSATED TO PROVIDE DESIGN AND CONSTRUCTION REVIEW SERVICES RELATING TO THE CONTRACTOR'S SAFETY PRECAUTIONS OR TO MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED FOR THE CONTRACTOR TO PERFORM HIS WORK.
*CONTRACTOR SHALL REMOVE AND DISPOSE OF TREES, STUMPS, BRUSH, ROOTS AND OTHER MATERIAL IN THE ROADWAY AND WHERE INDICATED ON THE PLANS. MATERIALS SHALL BE DISPOSED OF IN SUCH A MANNER AS TO MEET LOCAL REGULATIONS. MATERIAL TO BE DISPOSED OF OFF-SITE. NO ONSITE BURIAL ALLOWED.

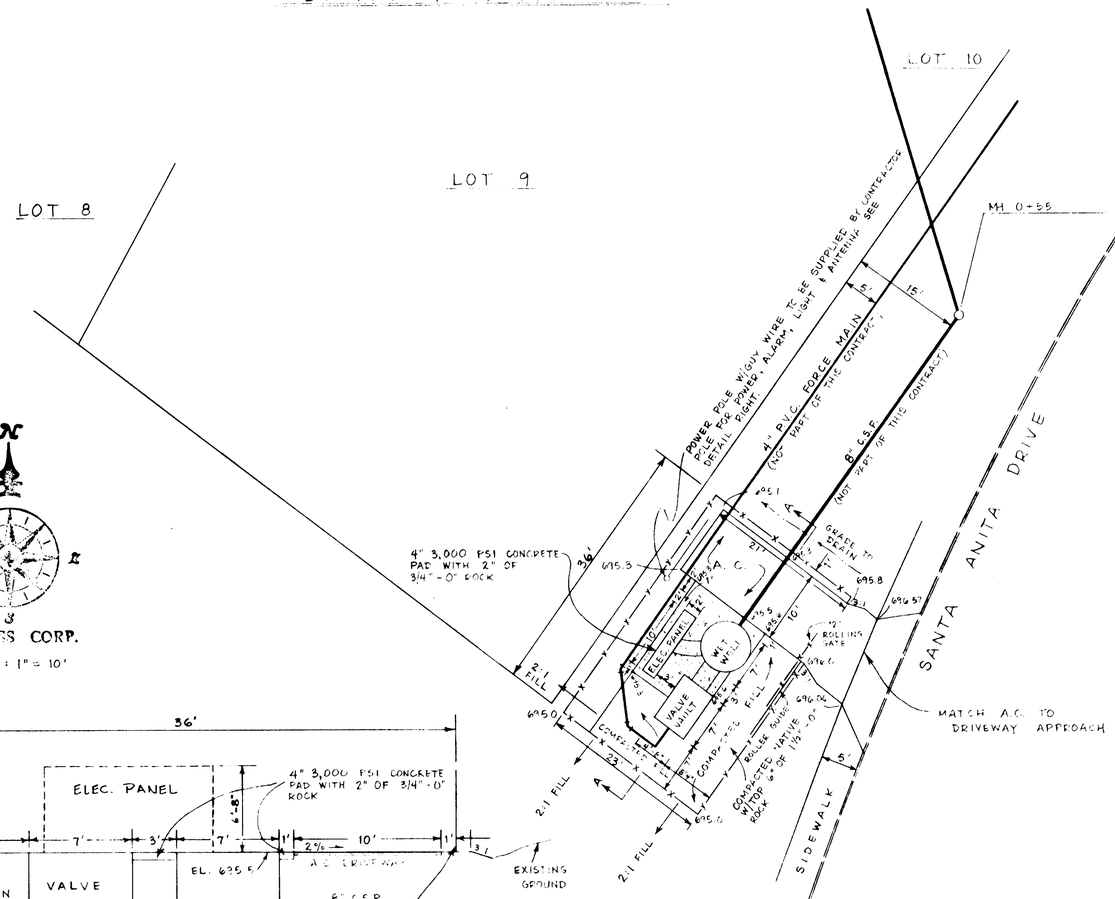


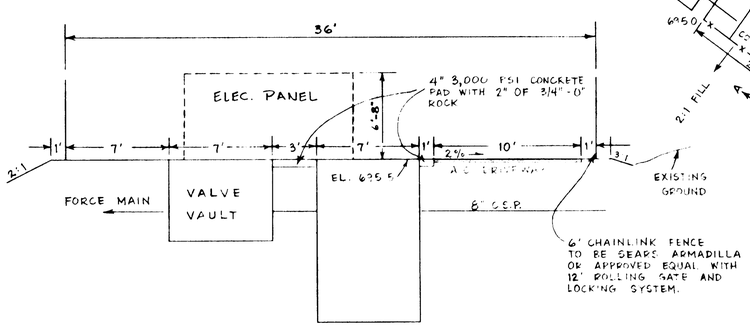




## Vicinity Map

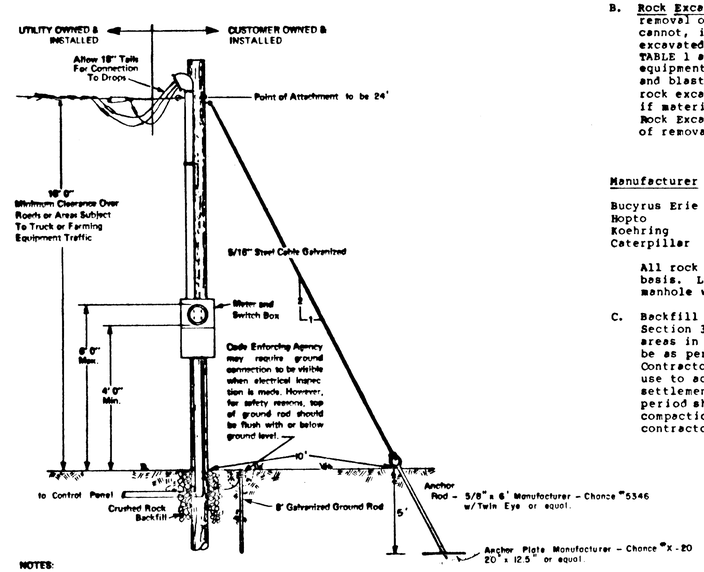
nts




SECTION A-A

N.T.S.




NOTES:

1. Contractor to provide guying if span length exceeds 100 feet or if span crosses traffic or building or if other conditions require guying
2. Pole to be 30'-0" minimum length, Class 5 or better, pressure-treated, set no less than 5'-0" below ground level, with gravel backfill
3. Electrical label or permit must be displayed on service panel or meter base
4. Different types of meter bases may require that the line side conduit and the load side may be reversed
5. For additional information, call local utility office.

EXCAVATION -- Excavation shall be classified as either common or rock excavation as defined below.

A. Common Excavation. Common excavation is defined as the removal of all material which is not classified as rock excavation.

B. Rock Excavation. Rock Excavation is defined as the removal of all material which by actual demonstration cannot, in the Engineer's judgement, be reasonably excavated with equipment comparable to types listed in TABLE 1 and equipped with rippers or similar approved equipment and which is, in fact, systematically drilled and blasted broken by power-operated tools designed for rock excavation. Engineer may waive the demonstration if material encountered is well-defined rock. The term Rock Excavation shall be understood to indicate a method of removal and not a geological formation.

TABLE 1

| Manufacturer | Model | Type of Excavation |
|---|---|---|
| Bucyrus Erie | 28-11 | Trench |
| Hopto | 550 | Trench |
| Koehring | 466 | Trench |
| Caterpillar | D8 | Grading/Structural |

All rock excavation shall be paid on a per cubic yard basis. Limit of payment shall be three feet outside the manhole wall.

C. Backfill shall be class "B" per 1988 APWA Division III, Section 301.204B in all public rights-of-way or paved areas in the project. Trench backfill compaction shall be as per 1988 APWA Division III, Section 301.3.07. Contractor to determine type of equipment and method to use to achieve the required compaction. Subsequent settlement of the finished surface within the warranty period shall be considered to be a result of improper compaction and shall be promptly repaired by the contractor at no expense to the owner.

REGISTERED PROFESSIONAL ENGINEER — OREGON — Lee A. Briggs — JULY 15, 1986 — LEE A. BRIGGS

# HIDDEN HEIGHTS

"AS BUILT"

| DATE | NO. | REVISION |
|---|---|---|
| 2/20/86 | 2 | AS BUILT |
| 10/17/85 | 1 | APPROVED, REMOVED STICKER |

DRAWN M.M.M. DESIGNED L.A.B. CHECKED
SCALE AS SHOWN DATE AUG., 1985
FILE 85-2155-1332

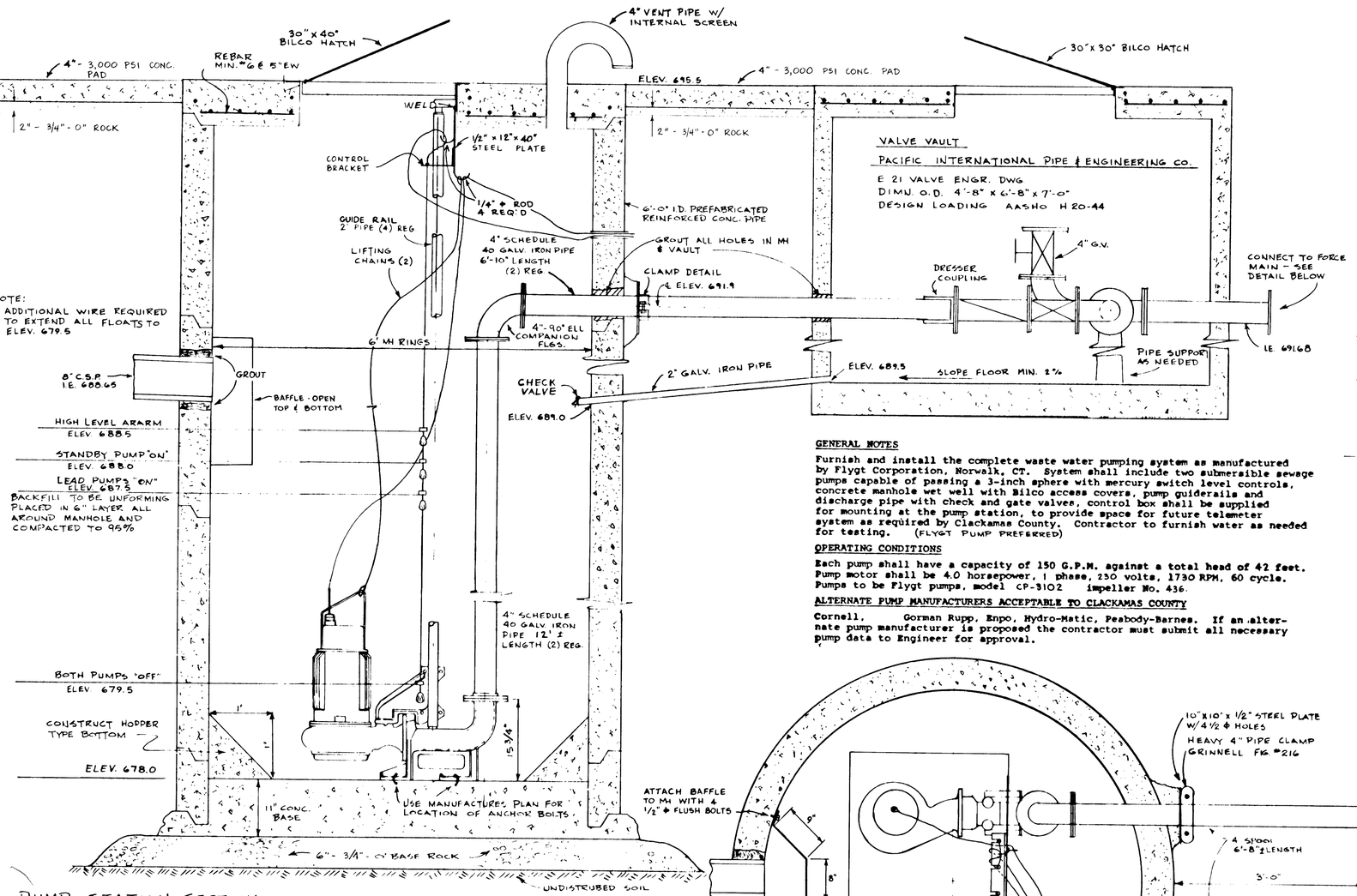

COMPASS CORPORATION
ENGINEERING - SURVEYING - PLANNING
6564 S.E. LAKE ROAD
MILWAUKIE, OREGON 97222
(503) 222-4652
(503) 653-9093


KERRY ANGELOS - ANCOR DEVELOPMENT, INC.
15838 S.E. 114th
Clackamas, Oregon 97015 655-9008

PUMP STATION SITE PLAN



Willamette Print & Blueprint Company P-2695



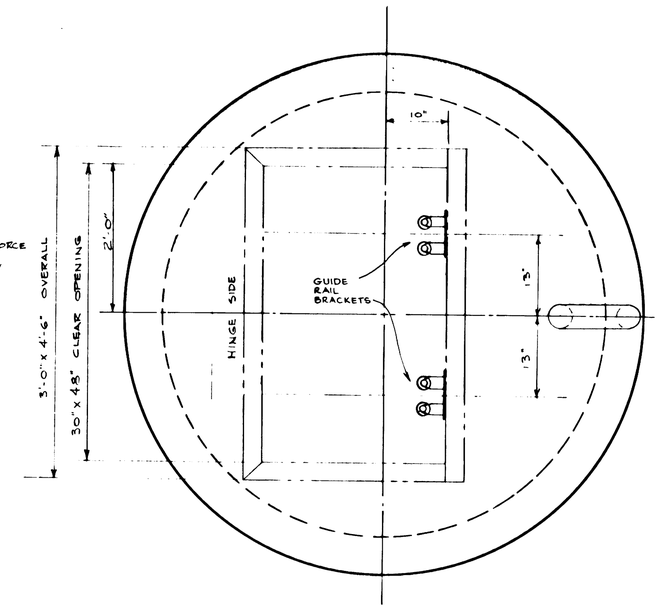

PUMP STATION SECTION

SCALE: 1" = 1' APPROX.

VALVE VAULT

PACIFIC INTERNATIONAL PIPE & ENGINEERING CO.

E 21 VALVE ENGR. DWG
DIMN. O.D. 4'-8" x 6'-8" x 7'-0"
DESIGN LOADING AASHO H 20-44




PUMP STATION TOP

SCALE 1" = 1'

**GENERAL NOTES**

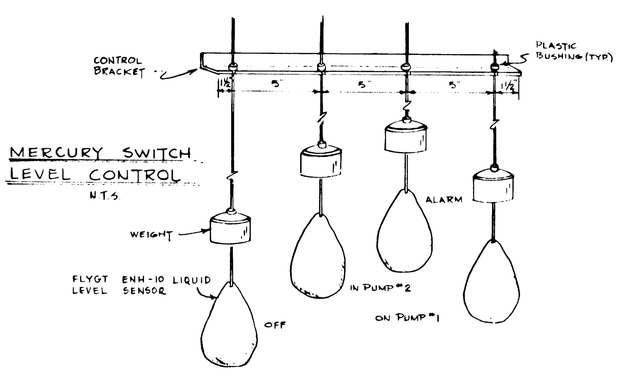
Furnish and install the complete waste water pumping system as manufactured by Flygt Corporation, Norwalk, CT. System shall include two submersible sewage pumps capable of passing a 3-inch sphere with mercury switch level controls, concrete manhole wet well with Bilco access covers, pump guiderails and discharge pipe with check and gate valves, control box shall be supplied for mounting at the pump station, to provide space for future telemeter system as required by Clackamas County. Contractor to furnish water as needed for testing. (FLYGT PUMP PREFERRED)

**OPERATING CONDITIONS**

Each pump shall have a capacity of 150 G.P.M. against a total head of 42 feet. Pump motor shall be 4.0 horsepower, 1 phase, 230 volts, 1730 RPM, 60 cycle. Pumps to be Flygt pumps, model CP-3102 impeller No. 436.

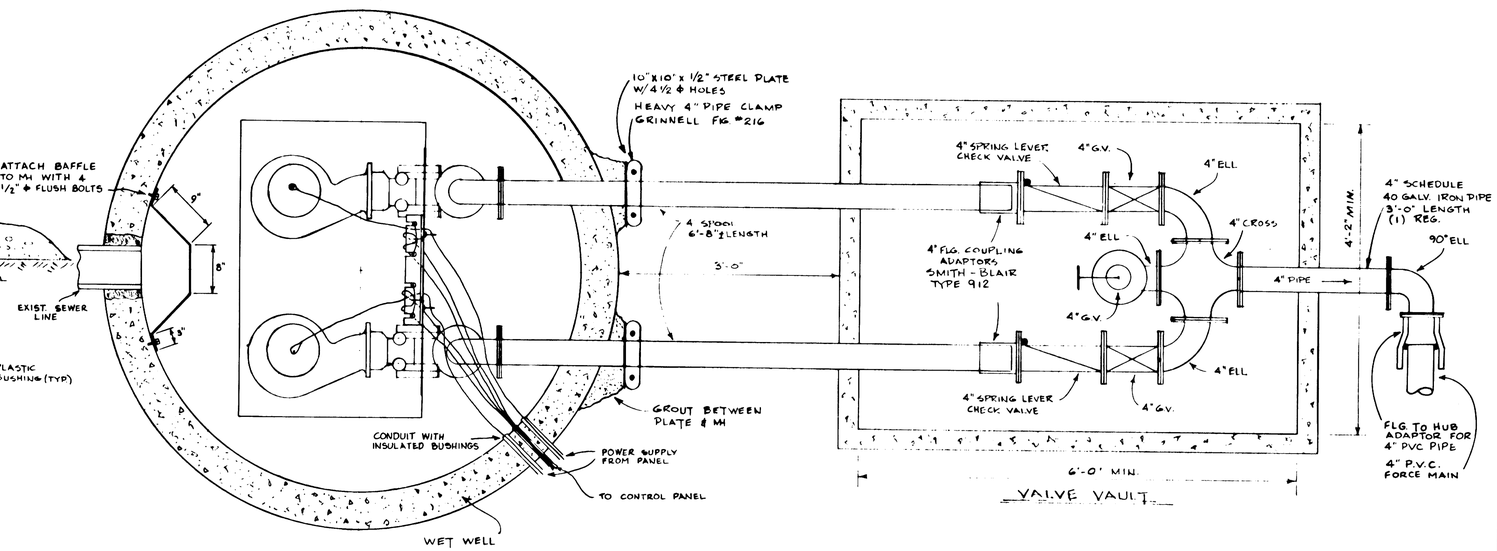
**ALTERNATE PUMP MANUFACTURERS ACCEPTABLE TO CLACKAMAS COUNTY**

Cornell, Gorman Rupp, Enpo, Hydro-Matic, Peabody-Barnes. If an alternate pump manufacturer is proposed the contractor must submit all necessary pump data to Engineer for approval.




MERCURY SWITCH LEVEL CONTROL

N.T.S.




PUMP STATION PLAN

SCALE: 1" = 1'

VALVE VAULT

NOTE:

All float control and power cables to be long enough to reach elevation 679.5. No splicing of the cables is allowed within the wet wall.
Upon completion of the station, Service District personnel shall be notified so that they may energize the station with the District's portable generator. This will ensure that all wiring is compatible with the generator. The contractor's electrician shall be present during these tests.

REGISTERED PROFESSIONAL ENGINEER 12,146 OREGON JULY 15, 1986 LEE A. BRIGGS

**HIDDEN HEIGHTS**
**"AS BUILT"**

| NO | REVISION | |
|---|---|---|
| 2/20/86 | 1 | AS BUILT |

DRAWN B.J.W | DESIGNED L.A.B | CHECKED
SCALE AS SHOWN | DATE AUG., 1985
FILE 85 - 2155 - 1332

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PUMP STATION DETAILS

2/3

Washington Print & Blueprint Company

## EQUIPMENT ELECTRICAL

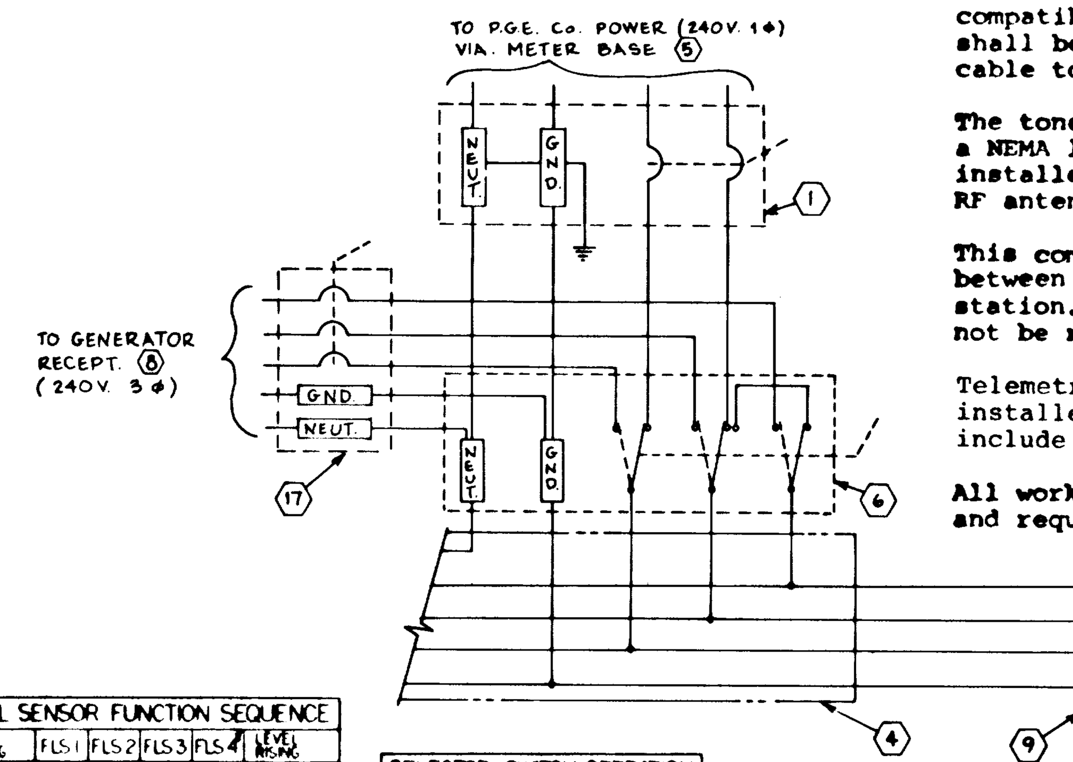
1. 100 amp, 2 pole, 250 volt, 22,000 A.I.C., (symmetric) Minimum rated curcuit breaker in Nema 1 enclosure. Provide neutral bus and ground bus, service equipment rated.
2. 3/4-inch conduit, rigid conduit on pole and P.V.C. below grade, back to station equipment control enclosure: for Owners installation of radio telemetering antenna system.
3. Area light with photocell, 150 WHPS lamp: Hi-Tek type TAA 150 S SP 12 with wood pole mount WW12. 120 V Ballast and SF single fuse. Mount at 15 feet above finish grade or as approved.
4. 4" x 4" NEMA 1 wire gutter with split bolt code taps per one line diagram.
5. Surface mounted meter base, Jaws per PGE Company standards. Bond meter base conduits via ground bushings to enclosure. Use code sized copper bond conductors.
6. Double throw transfer switch, 100 AMP, 600 volt rated, three moving poles, neutral bus, ground bus, U.L. listing required. Provide double lug as indicated.
7. Two door nema 12 enclosure 72-inches x 72-inches x 24-inches w/68-inches x 68-inches panel (confirm size requirement with equipment provided) and free standing with 12-inch floor stands to be anchored to concrete pad. Provide for padlocking handle and screened ouvels (4) for vandel resistant entry. Re: Hoffman Bulletin A-12.
8. Standby power plug to accomodate owners portable emergency power generator. Plug to be male type, Crouse Hinds. Owner will inform contractor which of the following units will be used:

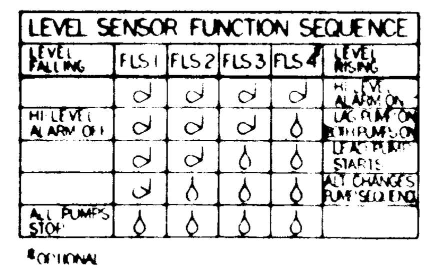
   AR-2041-S22
   MODEL 80-200 AMP

9. Pump motor starting and control enclosure, two (2) combination magentic non-reversing, 240 volt, two (2) pole size 1. Mount in nema 1 enclosure. Circuit breakers to be 250 volt, 2 pole, 22,000 AIC symetric minimum rated. Provide with 24 volt rated coil, hand-off-automatic switch, motor running time meters. Remote control lights to be mounted adjacent to hand-off-automatic switch in contro enclosure door.
10. Surface mounted 120/240 volt single phase branch circuit panel with main breaker, neutral and ground bus. Panel trim to have hinged and latched door with flush handle. Circuit breakers to be 120V, 240 volt, 22,000 A.I.C. symmetric minimum rated, bolted to bus connection. No load center spring connection.
11. Contractor supplied treated wood pole. Mount meter base on pole. Mount area light, alarm light on pole. Future telemetry antenna to be mounted on pole.
12. Seal-off's on rigid conduit to wet-well.
13. Allow 20-inches x 20-inches spaces for Owners telemetering equipment.
14. High and low level alarm light: 120 V AC Hubbell AO series with red globe and guard: 150 watt.
15. Two galvanized ½-inch x 12-inches anchor bolts for each leg.
16. 6-feet x 10-feet x 6-inches deep (except under cab feet) concrete pad: provide with 6-inch square mat reberd or approved.
17. 100 amp, 3 pole, 250 volt, 22,000 A.I.C. symetric minimum rated circuit breaker in nema 1 enclosure. Provide ground bus and neutral bus service equipment rated.
18. Incandescent lamps Hubbell AO series with control switch insde.

TELEMETERING SYSTEM TO BE INSTALLED LATER BY OWNER. DEVELOPER TO PAY OWNER FOR THE COST OF THE SYSTEM.

(OWNER IS WEST LINN )




| SELECTOR SWITCH OPERATION | | |
|---|---|---|
| POSITION | 1SW OR 2SW -1 | -2 |
| HAND | ⊣⊢ | ⊣/⊢ |
| OFF | ⊣⊢ | ⊣⊢ |
| AUTO | ⊣/⊢ | ⊣⊢ |

| TRANSFORMER CONNECTIONS |
|---|
| 230V: H1 H3 H2 H4 |
| 460V: H1 H3 H2 H4 |
| 208V: SINGLE WINDING PRIMARY 208-24 TRANSFORMER SUPPLIED |

NOTES

1. CIRCUIT CONDITIONS: POWER OFF, SELECTOR SWITCH IN "AUTO", LIQUID AT LOWEST LEVEL
2. WIRING SHOWN AS DASHED LINES REPRESENTS CONNECTIONS TO BE MADE BY CUSTOMER
3. REFER TO DWG 11C394 FOR ENCLOSURE DIMENSIONS
4. REFER TO DWG 11C389 FOR OPTIONS
5. REFER TO DWG 11A0413 FOR PUMP ELECTRICAL DATA
6. UNLESS OTHERWISE NOTED: PRIMARY POWER WIRING IS BLACK AND #14AWG. CONTROL WIRE IS #18AWG: RED FOR 120V AND YELLOW FOR 24V.

LEGEND

- SW - SELECTOR SWITCH (3 POS)
- CL - CIRCUIT BREAKER/OVERLOADS WITH HYDRAULIC/MAGNETIC TRIP ELEMENTS
- CO - ACROSS THE LINE MAGNETIC CONTACTORS
- CB - CIRCUIT BREAKER
- TR - CONTROL TRANSFORMER
- ALT - SOLID STATE ALTERNATOR
- FLS - FLYGT LEVEL SENSOR

## TELEMETERING SYSTEM

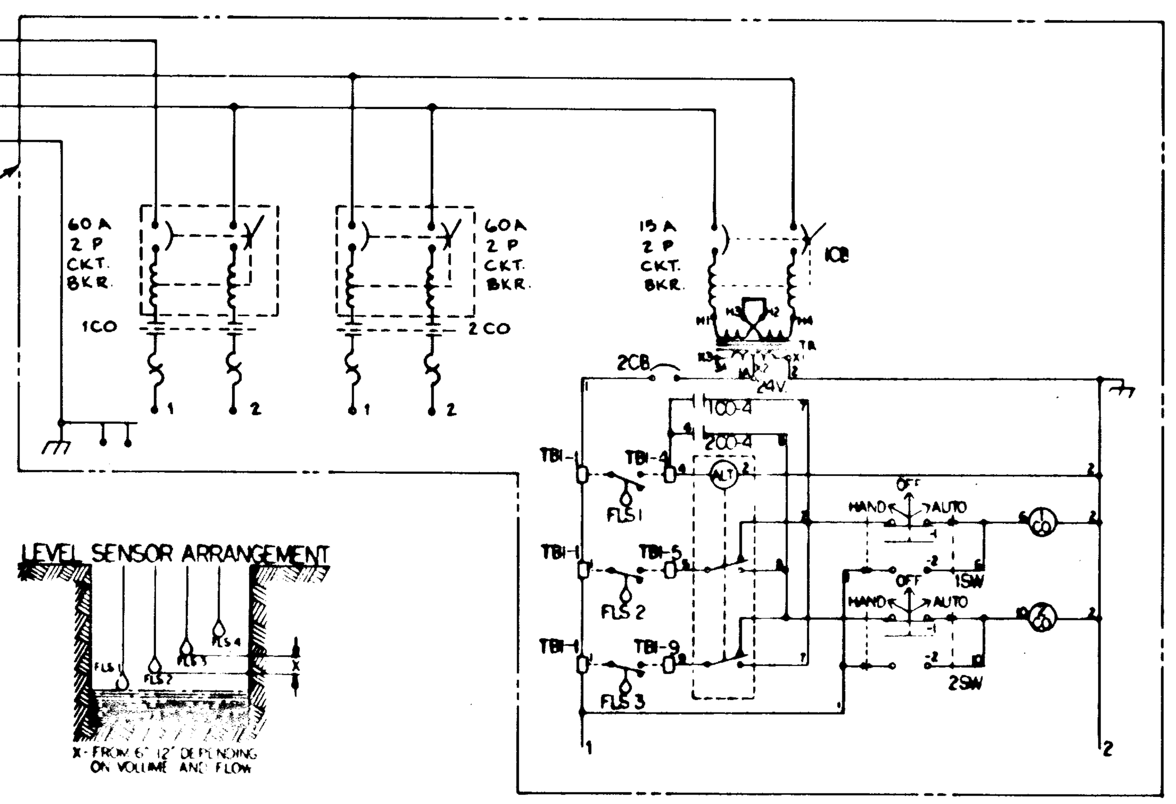
Furnish and install equipment compatible with the existing radio frequency repeater and link to the Tri City Service facility. The equipment shall interface with three alarm contacts (high level alarm, low level alarm, and loss of power alarm). The alarms shall be converted to audio tones compatible with but not used in the existing telemeter link. The tones shall be transmitted by a radio frequency transmitter through coaxial cable to an RF antenna aligned with the Oregon City repeater station.

The tone equipment and the radio frequency transmitter shall be located in a NEMA 1 box and mounted within the enclosure. The coaxial cable shall be installed under this section in conduit provided on the light pole. The RF antenna shall be installed under this section on the conduit.

This complete alarm telemeter link shall be furnished, installed, and tested between the contact inputs to the contact outputs at the Tri City Service station. The radio frequency receiver at the Tri City Service station will not be required, but the audio frequency tone equipment will be required.

Telemetry system to be compatible with the new systems being installed into all other stations within the District, it must include 1st and 2nd pump failure alarm.

All work shall be in conformance with applicable radio frequency techniques and requirements.




## START-UP

A factory representative shall inspect the pump station prior to the start-up test, and shall make the necessary adjustments to the equipment for satisfactory operation. The representative shall also be responsible for instructing the owner's personnel in the operation and maintenance of the station. He shall also provide 3 copies of a complete operating and maintenance manual. One copy shall be placed in water-proof container in pump station, one copy shall be given to the County Engineer, and one to Compass Corporation.

## WARRANTY

The manufacturer of the sewage pumping station equipment shall warrant for one year from date of shipment that the pumping station equipment will be free from defects in material and factory workmanship.

If the event a component fails to perform as specified or is proven defective in service during the warranty period, excluding items of supply normally expended during operation, the manufacturer shall provide a replacement part without cost and the contractor shall complete the replacement, all without cost to the owner.

This warranty shall be valid only if the project is properly serviced and operating under normal conditions and in accordance with the manfacturer's instructions.

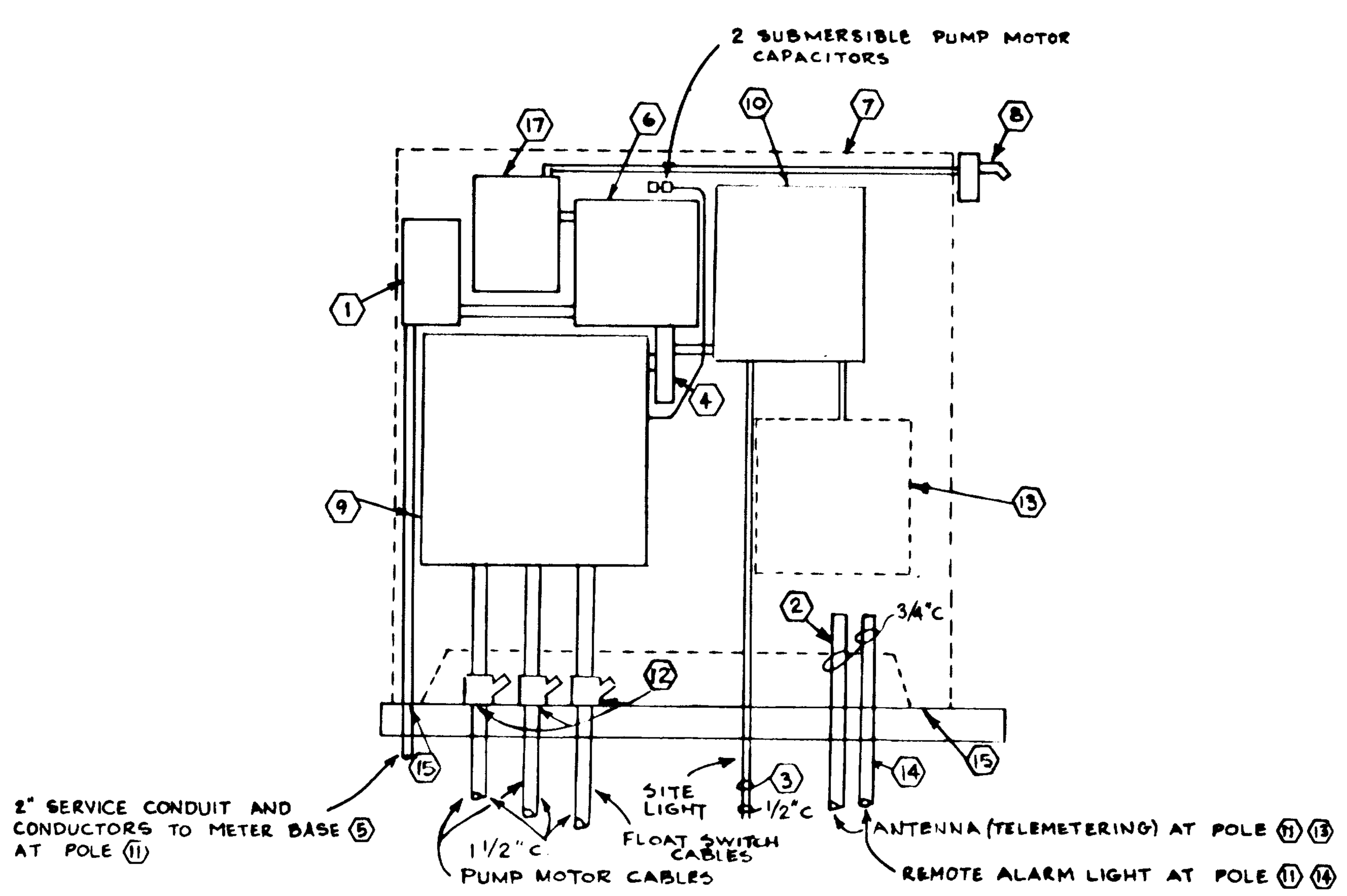
## CONTROLS

All controls shall be mounted in the Nema 12 enclosure with magnetic motor starters, with 3rd leg overload protection, oil tight indication lights and H.O.A. selector switches. All terminals shall be numbered. Elapsed time meters shall be installed for recording by maintenance personnel. An electric alternator shall also be provided to change the sequence of operation on the completion of each pump cycle. Provide for the pumps to operate in parallel if the level in the wet well rises above the "Two Pumps and Alarm" level. The control panel shall be designed for 3 phases, 480 volt, 4 wire, 60 Hertz service connection with 110 volts to the sensors in the wet well. Liquid level sensors to be as supplied by Flygt, to be switches that automatically operate the duplex lift station and are suspended at positions as shown on the plan. Controls also to be connected to telemetering system as per Clackamas County requirements.

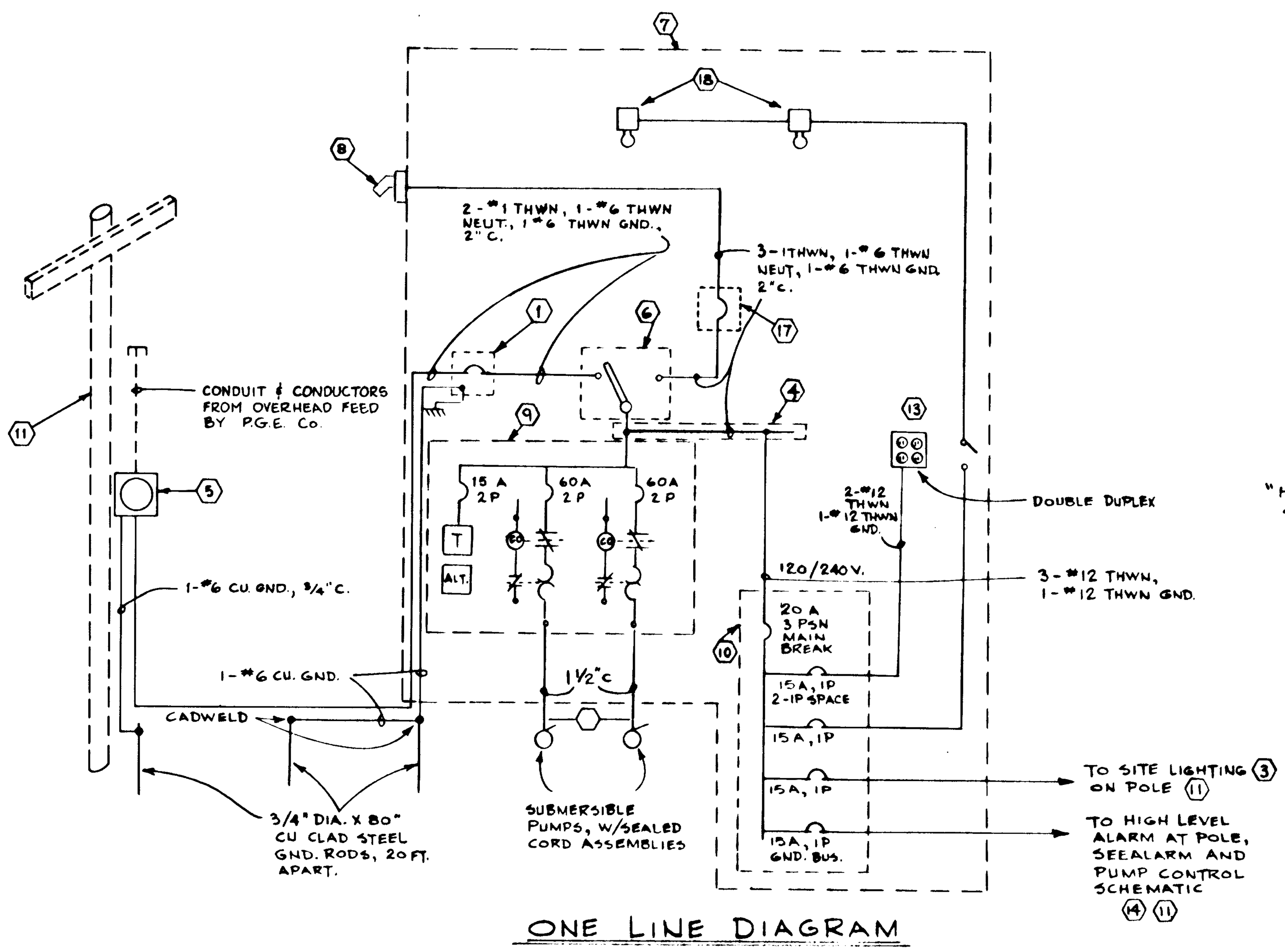
## WIRING

All wiring and electrical materials shall be according to National Electrical Code requirements. Wiring outside the pump station shall be run in rigid galvanized steel conduit.

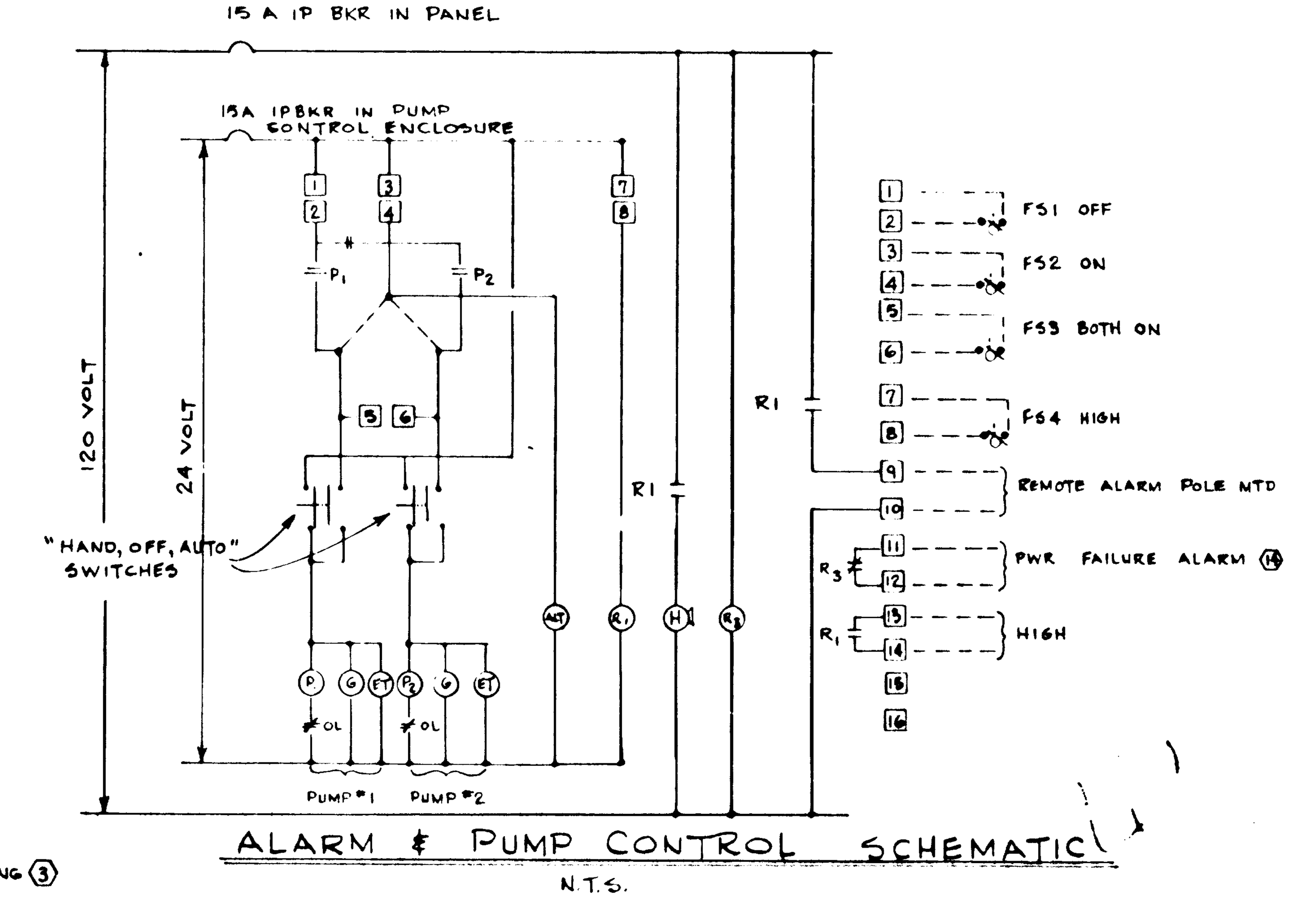
It shall be the responsibility of the contractor to furnish and install correctly sized service wires from the service pole to the control cabinet. No splices shall be permitted in the service wires. It shall also be the responsibility of the contractor to furnish and install all required disconnects, switching mechanisms, alarm or control conduit and wiring.




CONTROL CABINET ELEV.
N.T.S.




ONE LINE DIAGRAM
N.T.S.
120/240 V, 1φ, SINGLE PHASE P.G.E. SERVICE
120/240 V, 3φ, 4 WIRE GND.ED, DELTA GENERATOR POWER
APPROX. TOTAL CONNECTED LOAD: 8 HP MOTORS, 1.5 KVA ELECTRONICS.




ALARM & PUMP CONTROL SCHEMATIC
N.T.S.

# HIDDEN HEIGHTS
"AS BUILT"

| DATE | NO. | REVISION |
|---|---|---|
| 2/20/86 | 2 | AS BUILT |
| 2/20/86 | 1 | STANDBY POWER PLUG MOVED & CAPACITORS ADDED |

DRAWN B.J.W. DESIGNED B.K. CHECKED
SCALE AS SHOWN DATE AUG., 1985
FILE 85 - 2155 - 1332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ELECTRICAL



Willamette Print & Blueprint Company N3AE7