

working for clean rivers



Schmeer Pump Station Upgrade

Project No. E07448

Council Item #1115



ENVIRONMENTAL SERVICES
CITY OF PORTLAND

NICK FISH, COMMISSIONER
MICHAEL JORDAN, DIRECTOR

Daniel J. Hebert, P.E.

Senior Engineer/Overall PM

Bill Ryan, P.E.

Chief Engineer

October 28, 2015

Project Requirements

Upgrade the PS to:

- Accommodate future projected flows
- Replace obsolete mechanical & electrical equipment

Most existing equipment is original (circa 1974), and sewage pumps are failing

- Improve pump station reliability
- Improve safety and ease of maintenance

Existing equipment is 30' belowgrade and presents access hazards to maintenance personnel

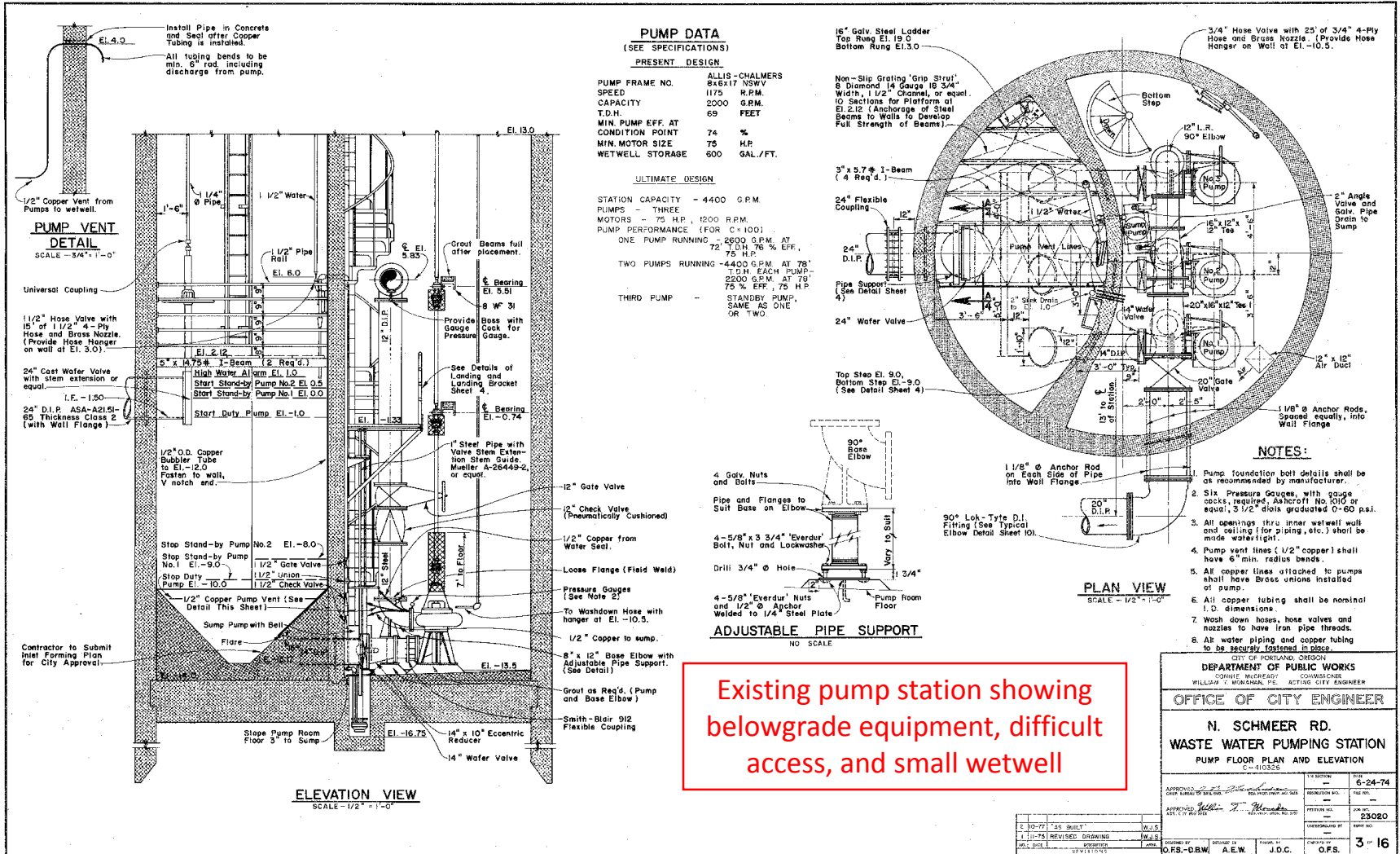


Project Objectives

- Convert entire substructure to submersible pump station:
 - Increases size of wet well to accommodate future flows
 - Submersible pump station eliminates confined space entry requirements for maintenance personnel – safety Issue
 - New and more efficient pumps/motors replaces obsolete equipment
- Construct above grade electrical building and standby generator enclosure, with new equipment and controls:
 - Eliminates electrical equipment in belowgrade structures
 - Standby generator provides back-up power to prevent overflows to slough
 - New electrical equipment and controls replaces obsolete equipment
- Site improvements:
 - Allows for onsite stormwater treatment and odor control, and future expansion
 - Allows for ease of access and maintenance



Project Overview



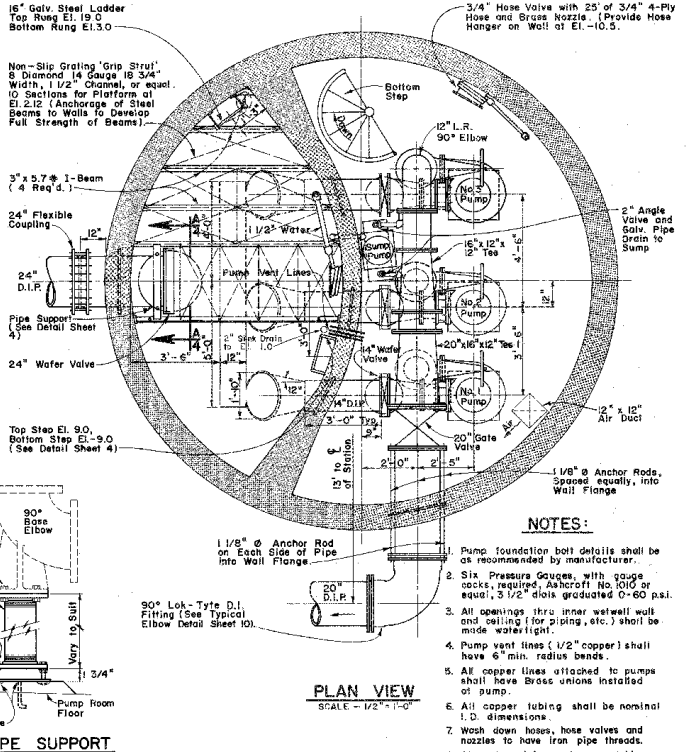
PUMP DATA
(SEE SPECIFICATIONS)

PRESENT DESIGN

PUMP FRAME NO.	ALLIS-CHALMERS 8x6x17 NSWV
SPEED	1175 R.P.M.
CAPACITY	2000 G.P.M.
T.D.H.	69 FEET
MIN. PUMP EFF. AT CONDITION POINT	74 %
MIN. MOTOR SIZE	75 HP
WETWELL STORAGE	600 GAL./FT.

ULTIMATE DESIGN

STATION CAPACITY	- 4400 G.P.M.
PUMPS	- THREE
MOTORS	- 75 HP, 1200 R.P.M.
PUMP PERFORMANCE (FOR C=100)	
ONE PUMP RUNNING	- 2600 G.P.M. AT 72' T.D.H. 76 % EFF., 75 HP
TWO PUMPS RUNNING	- 4400 G.P.M. AT 78' T.D.H. EACH PUMP, 2200 G.P.M. AT 79' 75 % EFF., 75 HP
THIRD PUMP	- STANDBY PUMP, SAME AS ONE OR TWO.



Existing pump station showing belowgrade equipment, difficult access, and small wetwell

CITY OF PORTLAND, OREGON
DEPARTMENT OF PUBLIC WORKS
WILLIAM C. MORGAN, P.E. ACTING CITY ENGINEER

OFFICE OF CITY ENGINEER

**N. SCHMEER RD.
WASTE WATER PUMPING STATION**

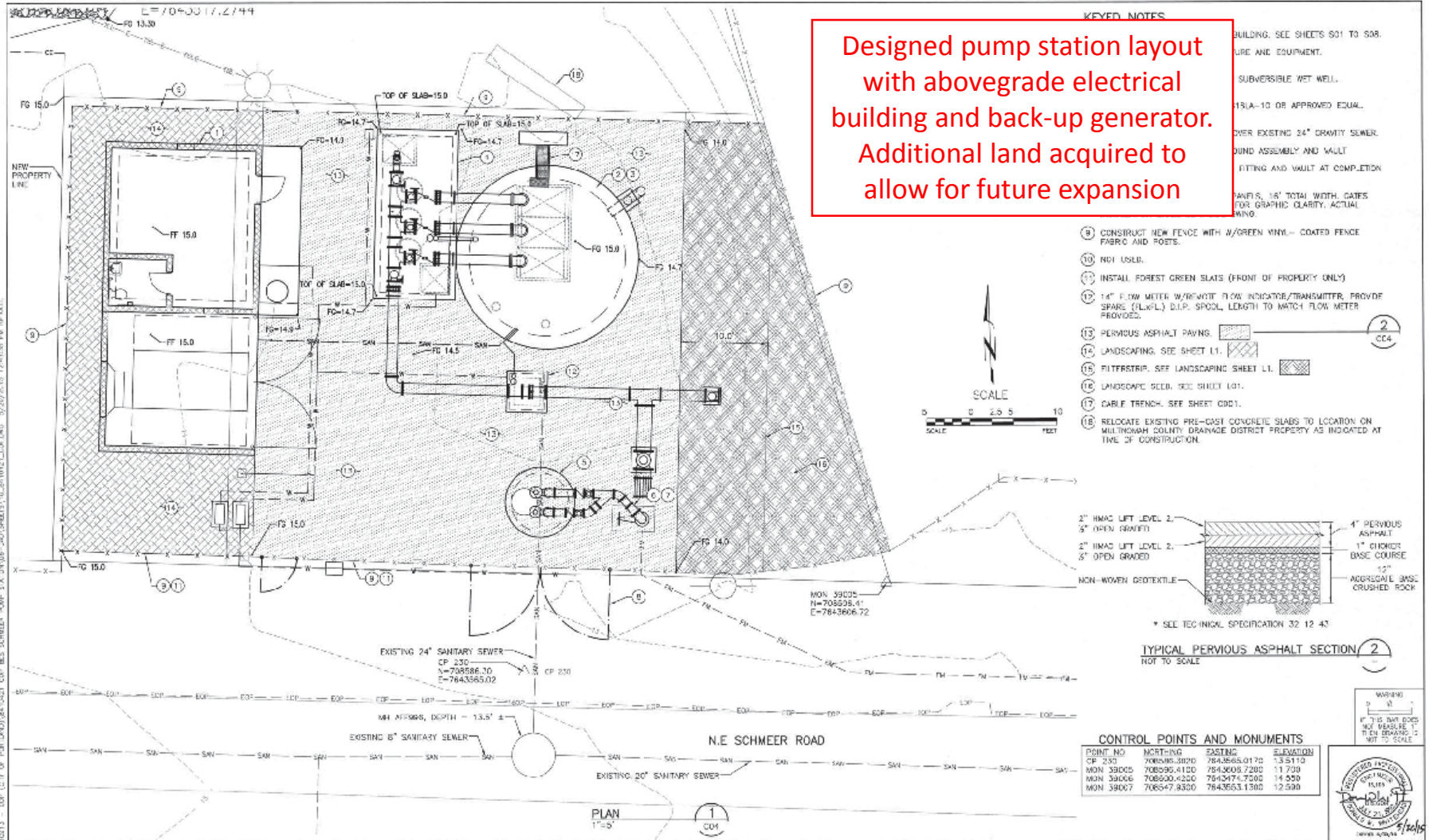
PUMP FLOOR PLAN AND ELEVATION
C-410326

APPROVED BY: [Signature]	DATE: 6-24-74
APPROVED BY: [Signature]	DATE: 23020

DESIGNED BY: O.F.S.-D.W. DRAWN BY: A.E.W. CHECKED BY: J.D.C. CRYSTAL BY: O.F.S.

3 of 16

Project Overview



Designed pump station layout with abovegrade electrical building and back-up generator. Additional land acquired to allow for future expansion

NO	DATE	DESCRIPTION	APP'D

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

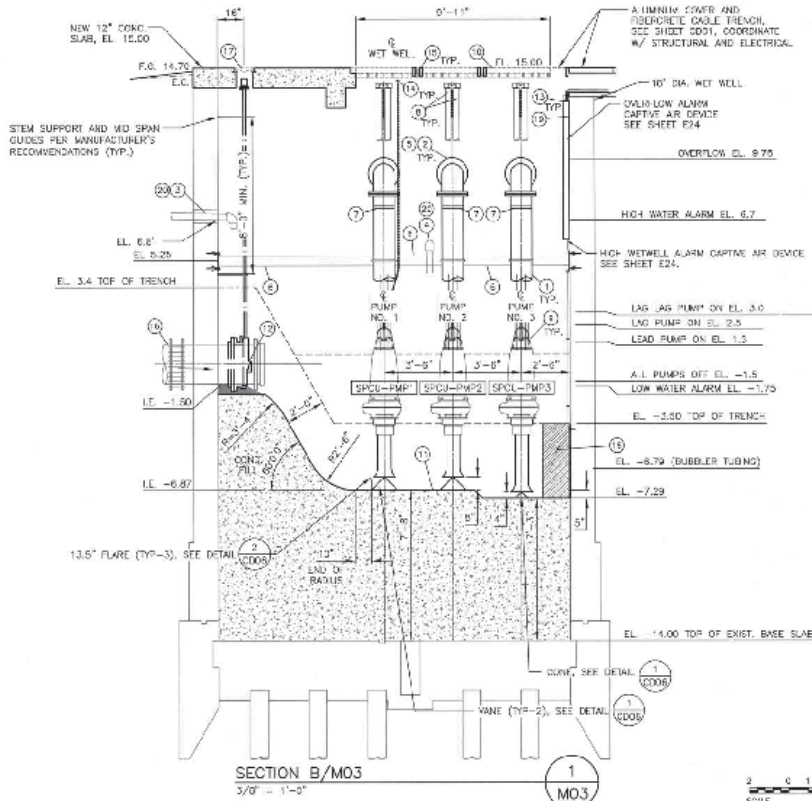
SCHMEER PUMP STATION UPGRADE

SITE IMPROVEMENT AND GRADING PLAN-1

DATE: 08/03/2011
 SHEET NO: 007448
 C04
 10 of 77

Project Overview

Designed submersible pump station with pumps able to be lifted out of wetwell for maintenance at ground level or in the shop.



- ① 10" SUBMERSIBLE SEWAGE PUMP
- ② WET WELL HATCH COVER (3x) CUSTOM 5'-0"x10'-0" FLYGT-A-XV.FM ACCESS HATCH W/ SLAM LOCKS AND SAFE HATCH SYSTEM OR APPROVED EQUAL.
- ③ INLET TRENCH, SEE SHEETS M02 & M10
- ④ 24" CANAL GATE, SEE DETAIL
- ⑤ "SWADLOCK" CLAMPS, SEE SHEET M02 (INSTALLED BY BES)
- ⑥ 3/8 SS HOOKS, CABLES AND CHAINS FOR REMOVAL OF PUMPS
- ⑦ RAILING POSTS FOR REMOVABLE HATCH RAILING, SEE SHEETS C003 & C004
- ⑧ 24" D.I.P. (INFLUENT), SEE SHEET C03
- ⑨ VALVE BOX COVER PER CITY OF PORTLAND STD. PLAN NO. 5-603 2" OPERATING NUT.
- ⑩ ANTI-ROTATION BAFFLE, SEE DETAIL
- ⑪ 1/2" RUBBER TUBING, SFF ELECTRICAL (INSTALLED BY BES)
- ⑫ SAND COLLAR AND GROUT AT ALL PVC 1" WALL PENETRATIONS

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NO.	DATE	DESCRIPTION	BY

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

DESIGNED BY	DATE
CHECKED BY	DATE

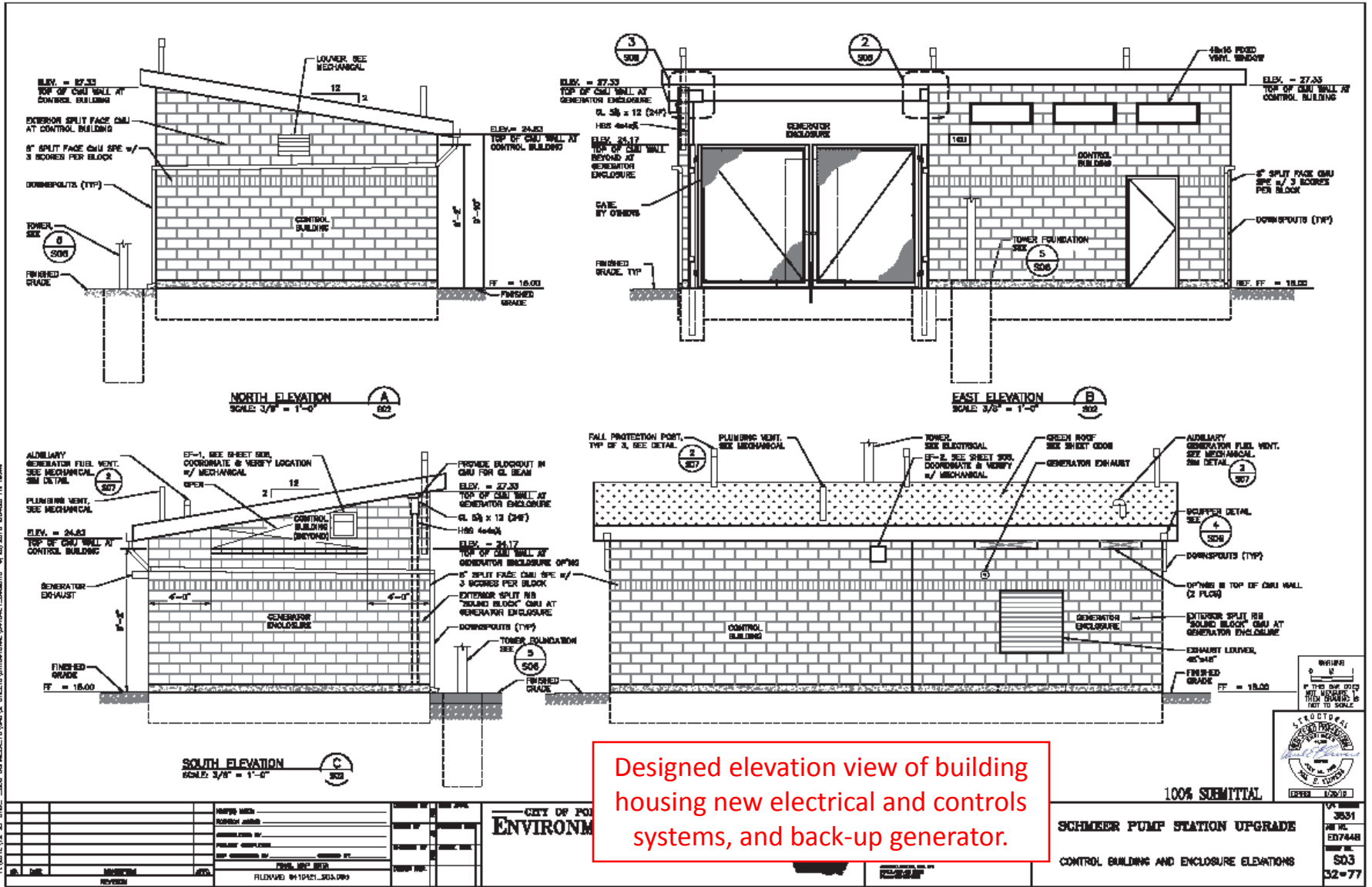
SCHMEER PUMP STATION UPGRADE

 MECHANICAL
 WFT WELL SECTION

WASHINGTON
 C O I
 REGISTERED ENGINEER
 IN THE STATE OF
 WASHINGTON
 NO. 12345
 JAMES A. [Name]
 1988

PROJECT NO.	174-20008
SHEET NO.	3831
DATE	ED7448
PROJECT NO.	M03
SHEET NO.	22 of 77

Project Overview



05/20/18 12-37.DWG - SEE SHEET 008 FOR 60" DIA. RISES IN STRUCTURE. SEE SHEET 008 FOR 120" DIA. RISES IN STRUCTURE.

Project Budget and Schedule

- The estimated construction contract cost is \$1,800,000.
- Confidence in the estimate is optimal.
- Project costs through 9/22/2015 for predesign, design, and permitting are \$522,000.
- Total project cost is estimated at \$2,512,000.
- Proposed Project Schedule:
 - Advertise for Bid 12/01/2015
 - Bid Opening 12/22/2015
 - Award and Notice to Proceed 03/01/2016
 - Complete Construction 03/31/2017



Questions

Thank you

