

C:\Projects\2020\200143 Wil King - Gray Drawings\Working Sets\Engineering Plans\G10 Engineering plan cover sheet.dwg, 11/11/2019, Christopher J. Pfeifer

SUSSEX COUNTY SUBDIVISION # 2022-18

CONDITIONS OF PRELIMINARY APPROVAL PLANNING COMMISSION (AUGUST 24, 2023)

- A. THERE SHALL BE NO MORE THAN 58 LOTS WITHIN THE SUBDIVISION.
- B. THE FINAL SITE PLAN SHALL CONFIRM THAT APPROXIMATELY 44% OF THE SITE REMAINS AS OPEN SPACE.
- C. THE DEVELOPER SHALL ESTABLISH A HOMEOWNER'S ASSOCIATION RESPONSIBLE FOR THE MAINTENANCE OF STREETS, ROADS, BUFFERS, STORMWATER MANAGEMENT FACILITIES, AND OTHER COMMON AREAS.
- D. THE STORMWATER MANAGEMENT SYSTEM SHALL MEET OR EXCEED THE REQUIREMENTS OF THE STATE AND COUNTY. THE FINAL SITE PLAN SHALL CONTAIN THE APPROVAL OF THE SUSSEX CONSERVATION DISTRICT FOR THE DESIGN AND LOCATION OF ALL STORMWATER MANAGEMENT AREA AND EROSION AND SEDIMENTATION CONTROL FACILITIES.
- E. THERE SHALL BE A VEGETATED OR FORESTED BUFFER THAT IS AT LEAST 30-FOOT WIDE INSTALLED ALONG THE PERIMETER OF THIS SUBDIVISION ADJACENT TO LANDS OF OTHER OWNERSHIP. THIS BUFFER SHALL UTILIZE EXISTING FOREST OR SIMILAR VEGETATION IF IT EXISTS IN THE BUFFER AREA, WHERE TREES CURRENTLY EXIST IN THE BUFFER AREA, STUMP REMOVAL OR CONSTRUCTION ACTIVITIES THAT DISTURB THE EXISTING GRADE OF THE AREA WITHIN THE BUFFER SHALL BE PROHIBITED. IF ANY EXISTING TREES OR SIMILAR VEGETATION DIES OR IS REMOVED FROM THE BUFFER AREA FOR ANY REASON, THE TREES OR VEGETATION WILL BE REPLANTED TO MEET THE STANDARDS OF SECTION 99-5 OF THE SUBDIVISION CODE. ALL SILT FENCING SHALL BE LOCATED ALONG THE INTERIOR LIMIT OF THE BUFFER AREA (THE EDGE OF THE BUFFER NEAREST THE INTERIOR DEVELOPMENT) AND THE FINAL SITE PLAN SHALL IDENTIFY "LIMIT OF DISTURBANCE" TO PREVENT DISTURBANCE OF THE BUFFER AREA. THE APPLICANT SHALL INSTALL A SIGN MEASURING 8 INCHES BY 10 INCHES AT THE INTERIOR EDGE OF THE VEGETATED OR FORESTED BUFFER EVERY 300 FEET AS MEASURED LINEARLY ALONG THE EDGE OF THOSE AREAS. THE SIGNS SHALL MAKE IT CLEAR THAT THESE AREAS ARE NOT TO BE DISTURBED, MOWED, OR SPRAYED. THE HOMEOWNER'S ASSOCIATION SHALL BE RESPONSIBLE FOR MAINTAINING, REPAIRING, OR REPLACING THE SIGNS AS NECESSARY. THE DESIGN AND LOCATIONS OF THE SIGNS SHALL BE SHOWN ON THE FINAL SITE PLAN.
- F. AS OFFERED BY THE APPLICANT, THE DEVELOPMENT SHALL PRESERVE APPROXIMATELY 7.80-ACRES OF EXISTING FORESTED AREA. THE FINAL SITE PLAN SHALL DEPICT ALL FORESTED AREAS THAT WILL BE PRESERVED.
- G. THE DEVELOPMENT SHALL COMPLY WITH ALL DELDOT ENTRANCE AND ROADWAY IMPROVEMENT REQUIREMENTS AND TIME PERIODS.
- H. SIDEWALKS SHALL BE INSTALLED ON AT LEAST ONE SIDE OF ALL INTERNAL STREETS WITH A CONNECTION TO THE DELDOT MULTI-MODAL PATH AND TO THE TRAIL NETWORK PLANNED FOR THE COMMUNITY. A SYSTEM OF DOWNWARD SCREENED STREET LIGHTING SHALL ALSO BE PROVIDED.
- I. AMENITIES INCLUDING A WALKING TRAIL, PLAYGROUND AND RECREATION AREA SHALL BE CONSTRUCTED AND OPEN TO USE BY RESIDENTS OF THIS DEVELOPMENT ON OR BEFORE THE ISSUANCE OF THE 20TH BUILDING PERMIT. THE FINAL SITE PLAN SHALL CONTAIN DETAILS AS TO SIZE AND LOCATION OF THESE AMENITIES. THERE SHALL BE NO WALKING TRAIL ALONG LA JOLLA SHORES DRIVE.
- J. THE SUBDIVISION SHALL BE SERVED BY CENTRAL SEWER. THE DEVELOPER SHALL COMPLY WITH ALL SUSSEX COUNTY ENGINEERING DEPARTMENT REQUIREMENTS INCLUDING ANY OFFSITE UPGRADES NECESSARY TO PROVIDE SERVICE TO THE PROJECT.
- K. THE SUBDIVISION SHALL BE SERVED BY PUBLICLY REGULATED CENTRAL WATER SYSTEM PROVIDING DRINKING WATER AND FIRE PROTECTION.
- L. INTERIOR STREET DESIGN SHALL MEET OR EXCEED SUSSEX COUNTY STREET DESIGN STANDARDS.
- M. ROAD NAMING AND ADDRESSING SHALL BE SUBJECT TO THE REVIEW AND APPROVAL OF THE SUSSEX COUNTY GEOGRAPHIC INFORMATION OFFICE.
- N. THERE SHALL BE NO INTERNAL STREET, ROAD, OR VEHICULAR ACCESS CONNECTING THE SUBDIVISION TO LA JOLLA SHORES DRIVE.
- O. A POST RAIL FENCE SHALL BE INSTALLED ADJACENT TO THE BOUNDARY LINES WITH TAX MAP PARCEL NO. 234-6.00-59.01 AND 59.18. THE FENCE SHALL BE MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.
- P. CONSTRUCTION, SITE WORK, AND DELIVERIES SHALL OCCUR ON THE SITE BETWEEN THE HOURS OF 7:00AM THROUGH 5:00PM, MONDAY THROUGH FRIDAY, AND BETWEEN THE HOURS OF 8:00AM AND 2:00PM ON SATURDAYS. THERE SHALL BE NO CONSTRUCTION, SITE WORK, OR DELIVERIES ON SUNDAYS. A 24-INCH BY 36-INCH "NOTICE" SIGN CONFIRMING THESE HOURS IN ENGLISH AND SPANISH SHALL BE PROMINENTLY DISPLAYED AT THE SITE ENTRANCE DURING CONSTRUCTION.
- Q. THE APPLICANT SHALL COORDINATE WITH THE LOCAL SCHOOL DISTRICT REGARDING THE LOCATION OF A SCHOOL BUS STOP WITHIN THE SUBDIVISION. IF REQUIRED BY THE SCHOOL DISTRICT, THE LOCATION OF THE BUS STOP AREA SHALL BE SHOWN ON THE FINAL SITE PLAN.
- R. THE FINAL SITE PLAN AND DECLARATION OF RESTRICTIONS SHALL STATE THAT AGRICULTURAL ACTIVITIES EXIST NEARBY, AND THEY SHALL INCLUDE THE AGRICULTURAL USE PROTECTION NOTICE. IN ADDITION, THERE SHALL BE A NOTICE INCLUDED IN THESE DOCUMENTS STATING THAT NEARBY LANDS MAY BE ACTIVELY HUNTED AND THAT ANYONE TAKING TITLE TO A PROPERTY WITHIN THE SUBDIVISION ACKNOWLEDGES THAT THESE ACTIVITIES OCCUR NEARBY.
- S. THE FINAL SITE PLAN SHALL INCLUDE A LANDSCAPE PLAN DEPICTING ALL LANDSCAPING TO BE PROVIDED OR PRESERVED IN ALL OF THE BUFFER AREAS. THE LANDSCAPE PLAN SHALL ALSO IDENTIFY ALL "LIMITS OF DISTURBANCE" WITHIN THE SITE. IN ADDITION, AS OFFERED BY THE APPLICANT, THERE SHALL BE A CONSERVATION EASEMENT RECORDED WITH THE FINAL SITE PLAN FOR THE UNDISTURBED FOREST AND OPEN SPACE AREAS.
- T. THE FINAL SITE PLAN SHALL INCLUDE A GRADING PLAN FOR THE SITE. NO BUILDING PERMIT SHALL BE ISSUED FOR INDIVIDUAL LOTS UNTIL AN INDIVIDUAL LOT GRADING PLAN HAS BEEN SUPPLIED TO AND APPROVED BY SUSSEX COUNTY. NO CERTIFICATE OF OCCUPANCY SHALL BE ISSUED UNTIL A GRADING CERTIFICATE IS SUBMITTED TO THE BUILDING CODE DEPARTMENT DEMONSTRATING GENERAL CONFORMITY WITH THE INDIVIDUAL SITE GRADING PLAN.
- U. A REVISED PRELIMINARY SITE PLAN EITHER DEPICTING OR NOTING THESE CONDITIONS MUST BE SUBMITTED TO THE OFFICE OF PLANNING AND ZONING.
- V. THE FINAL SITE PLAN SHALL BE SUBJECT TO THE REVIEW AND APPROVAL OF THE PLANNING AND ZONING COMMISSION.

GENERAL NOTES

1. STORMWATER MANAGEMENT AND STORM DRAINAGE SHALL BE IN ACCORDANCE WITH THE SUSSEX CONSERVATION DISTRICT, AND SUSSEX COUNTY ENGINEERING REQUIREMENTS. THE SITE IS TO BE TREATED BY GREEN TECHNOLOGIES, AND BMP FACILITIES SUCH AS DETENTION PONDS, MAINTENANCE OF THE ON-SITE STORMWATER MANAGEMENT FACILITIES AND STORM DRAINAGE SYSTEM SHALL BE BY THE OWNERS THROUGH A HOMEOWNER'S ASSOCIATION CREATED FOR THAT PURPOSE.
2. ALL OPEN SPACE SHALL BE MAINTAINED BY THE RESIDENTS OF WIL KING STATION THROUGH A HOMEOWNER'S ASSOCIATION CREATED FOR THAT PURPOSE.
3. TOPOGRAPHY AND BOUNDARY SHOWN HEREIN PER SURVEY FROM VISTA DESIGN, DELAWARE STATE PLANE COORDINATE SYSTEM NAD 83/91 AND NAVD88 VERTICAL DATUM.
4. THIS SITE CONTAINS NO FEDERAL OR STATE OF DELAWARE JURISDICTIONAL WETLANDS.
5. THIS SITE IS NOT LOCATED WITHIN A WELLHEAD PROTECTION AREA IN ORDER TO COMPLY WITH CHAPTER 89 "SOURCE WATER PROTECTION".
6. THIS PROPERTY IS LOCATED IN THE VICINITY OF LAND USED PRIMARILY FOR AGRICULTURAL PURPOSES ON WHICH NORMAL AGRICULTURAL USES AND ACTIVITIES HAVE BEEN AFFORDED THE HIGHEST PRIORITY USE STATUS. IT CAN BE ANTICIPATED THAT SUCH AGRICULTURAL USES AND ACTIVITIES MAY NOW OR IN THE FUTURE INVOLVE NOISE, DUST, MANURE AND OTHER ODOORS, THE USE OF AGRICULTURAL CHEMICALS AND NIGHTTIME FARM OPERATIONS. THE USE AND ENJOYMENT OF THIS PROPERTY IS EXPRESSLY CONDITIONED ON ACCEPTANCE OF ANY ANNOYANCE OR INCONVENIENCE WHICH MAY RESULT FROM SUCH NORMAL AGRICULTURAL USES AND ACTIVITIES.
7. NO IMPROVEMENT REQUIRING AN OCCUPANCY APPROVAL FOR A RESIDENTIAL TYPE OF USE SHALL BE CONSTRUCTED WITHIN 50 FEET OF THE BOUNDARY OF LAND USED PRIMARILY FOR AGRICULTURAL PURPOSES.
8. THE PROPERTY IS LOCATED WITHIN THE HENLOPEN TID AND A TID AGREEMENT WILL BE NOTED ON THE FINAL SUBDIVISION PLAN.
9. THE REMOVAL OF HEALTHY, MATURE TREES SHALL BE MINIMIZED. ONLY AREAS REQUIRED FOR SITE WORK WILL BE DISTURBED AS SHOWN ON THE PROPOSED SITE PLAN.

LANDSCAPE ARCHITECT'S CERTIFICATION:

"I, JEFFREY A. CLARK, RLA, HEREBY CERTIFY THAT I AM A REGISTERED LANDSCAPE ARCHITECT IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HERE ON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE."

OWNER, LAND TECH LAND PLANNING, LLC.
JEFFREY A. CLARK, RLA.

DATE

ENGINEER'S CERTIFICATION:

"I, CHRISTOPHER J. PFEIFER, P.E., HEREBY CERTIFY THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HERE ON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE."

CHRISTOPHER J. PFEIFER, P.E.

DATE

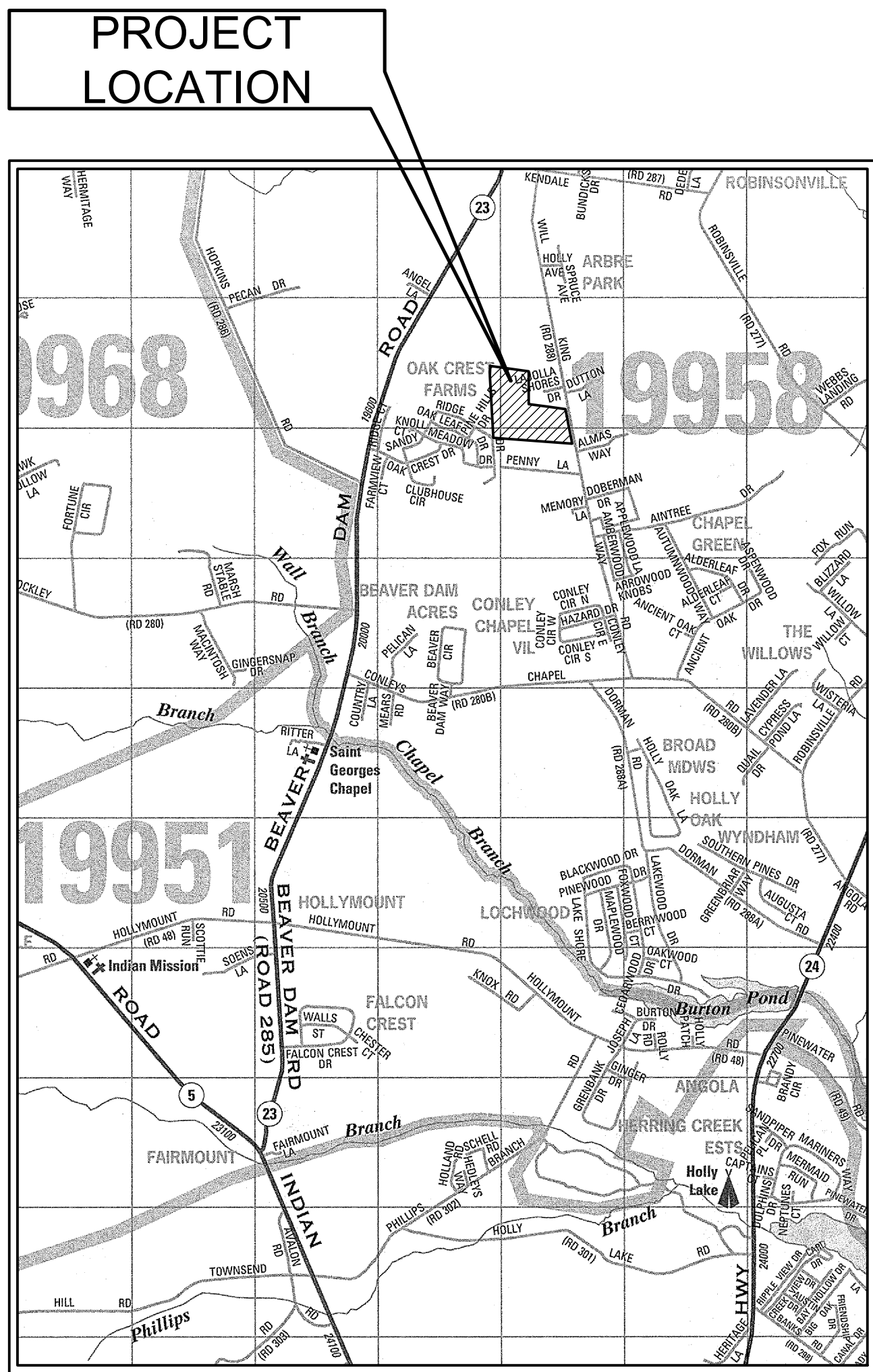
OWNERS CERTIFICATION:

"I, THE UNDERSIGNED, CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION AND DEVELOPMENT SHALL BE DONE PURSUANT TO THE APPROVED PLAN AND THAT RESPONSIBLE PERSONNEL (I.E., BLUE CARD HOLDER) INVOLVED IN THE LAND DISTURBANCE WILL HAVE A CERTIFICATION OF TRAINING PRIOR TO INITIATION OF THE PROJECT, AT A DNREC SPONSORED OR APPROVED TRAINING COURSE FOR THE CONTROL OF EROSION AND SEDIMENT DURING CONSTRUCTION. IN ADDITION, I GRANT THE DNREC SEDIMENT AND STORMWATER PROGRAM AND/OR THE RELEVANT DELEGATED AGENCY THE RIGHT TO CONDUCT ON-SITE REVIEWS, AND I UNDERSTAND MY RESPONSIBILITIES UNDER THE NPDES CONSTRUCTION GENERAL PERMIT, AS REFERENCED ON THIS COVER SHEET."

SB WIL KING, LLC
TIM GREEN

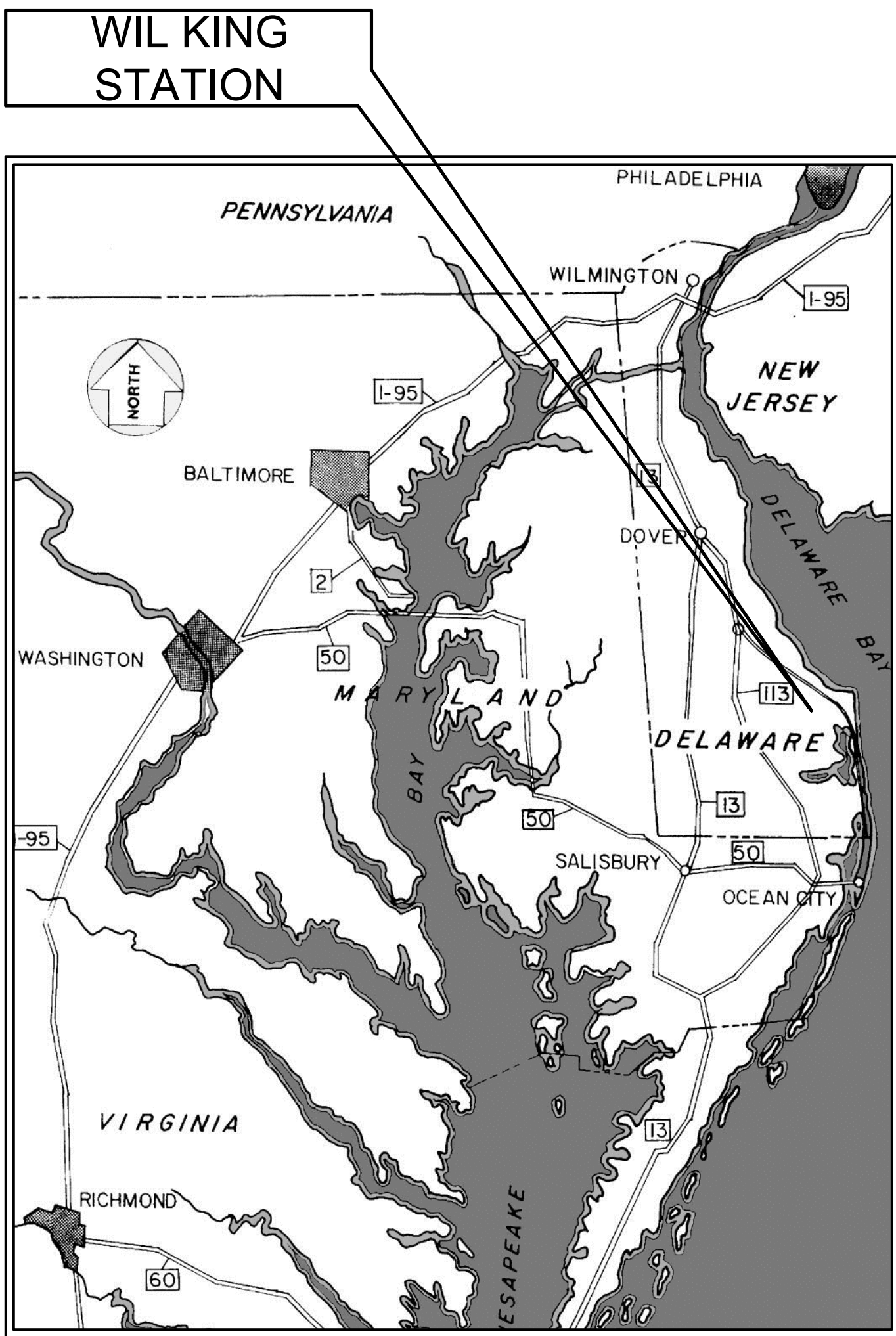
DATE

WIL HAVEN
(F.K.A. WIL KING STATION)
ENGINEERING PLANS
SUSSEX COUNTY SUBDIVISION #2022-18
SUSSEX COUNTY, DELAWARE
GMB FILE NO. 200143



VICINITY MAP

SCALE: 1" = 1 MILE



LOCATION MAP

SCALE: 1" = 20 MILES

LIST OF DRAWINGS

G1.0	ENGINEERING PLAN COVER SHEET
G1.0L	PROJECT LEGEND
G1.3	OVERALL CONSTRUCTION PHASING SHEET
C8.0	ROAD PLAN KEY SHEET
C8.1-C8.2	ROAD PLAN
C8.3-C8.4	ROAD PROFILES
C8.5	INTERSECTION GRADING PLAN
C8.6	GEOMETRY AND SIGNAGE PLAN
C9.1-C9.2	SITE DETAILS
C10.0	STORM DRAIN PLAN KEY SHEET
C10.1-C10.4	STORM DRAIN PLAN
C10.5-C10.7	STORM DRAIN PROFILES
C11.1-C11.3	STORM DRAIN DETAILS
BK-1	BULK GRADING PLAN KEY SHEET
BK-2-BK-3	BULK GRADING PLAN

SITE DATA

OWNER/APPLICANT:	SB WIL KING, LLC 20184 PHILLIPS STREET REHOBOTH BEACH, DE 19971 CONTACT: TIM GREEN PHONE: 302.226.1994
CIVIL ENGINEER:	GEORGE, MILES & BUHR, LLC. 208 WEST MAIN STREET SALISBURY, MD 21801 CONTACT: CHRISTOPHER PFEIFER PHONE: 410.742.3115
TAX MAPS:	234-6.00-26.00 DB (6020/311) 234-6.00-59.19 DB (6020/316)
EXISTING ZONING:	AR-1 AGRICULTURE RESIDENTIAL (23.03 ACRES) GR (6.06 ACRES)
PROPOSED ZONING:	AR-1 CLUSTER SUBDIVISION / GR STANDARD SUBDIVISION LOW DENSITY AND COASTAL AREA
PROPOSED SITE DATA	
TOTAL SITE AREA:	±29.09 AC.
DISTURBED AREA:	±24.43 AC.
AR CLUSTER MINIMUM LOT SIZE:	7,500 SF
GR CLUSTER MINIMUM LOT WIDTH:	60'
GR LOT SIZE:	10,000 SF
GR MINIMUM LOT WIDTH:	80'
TOTAL LOTS PERMITTED:	58
TOTAL LOTS PROPOSED:	58
NET DENSITY PROPOSED:	2 LOTS/ACRE
FEDERAL JURISDICTIONAL WETLANDS:	0 ACRES
STATE JURISDICTIONAL WETLANDS:	0 ACRES
OPEN SPACE REQUIRED:	±8.70 AC (30%)
OPEN SPACE ILLUSTRATED:	±13.02 AC (45%) NOTE: THIS ACREAGE MAY VARY AFTER FINAL SITE ENGINEERING.
OPEN SPACE "A":	± 5.84 AC (STORMWATER MANAGEMENT, WALKING TRAIL, PLAYGROUND, VEGETATIVE BUFFER)
OPEN SPACE "B":	± 0.59 AC (STORMWATER MANAGEMENT)
OPEN SPACE "C":	± 1.05 AC (STORMWATER MANAGEMENT)
OPEN SPACE "D":	± 5.55 AC (VEGETATIVE BUFFER)
EXISTING WOODS:	± 22.4 AC (77% OF SITE AREA)
REMOVED WOODS:	± 14.6 AC (65% OF EXISTING WOODS)
REMAINING WOODS:	± 7.8 AC (35% OF EXISTING WOODS)
PROPOSED IMPERVIOUS AREA:	± 9.76 AC (±34%)
UNIT COUNT	
SINGLE FAMILY LOTS:	58 (NET DENSITY OF 2.0 LOTS PER ACRE)
REQUIRED PARKING:	116
PROVIDED PARKING:	116
BUILDING SETBACKS	
MAX BUILDING HEIGHT:	42'
FRONT AR:	25'
FRONT GR:	30'
SIDE:	10'
SIDE CORNER:	15'
REAR:	10'
PROPOSED AMENITIES:	WALKING TRAIL (±2,200 LF.), PLAYGROUND
FLOOD ZONE:	AREA OF MINIMAL FLOOD HAZARD ZONE X, PER FIRM MAP 10005C0330J DATED JANUARY 6, 2005.
GROUND WATER RECHARGE POTENTIAL:	PARCELS ARE LOCATED WITHIN A 'FAIR' GROUNDWATER RECHARGE AREA
UTILITIES	
CENTRAL WATER:	TIDENATER UTILITIES, INC.
PUBLIC SEWER:	SUSSEX COUNTY
BENCHMARK:	BM#1 (PP) N: 255195.2000 E: 717656.8100 ELEV.=22.77' BM#2 (PP) N: 255722.3600 E: 717554.6000 ELEV.=21.78'
DATUM:	
HORIZONTAL:	DELAWARE STATE PLANE COORDINATE SYSTEM NAD 83/91
VERTICAL:	NAVOD88

APPROVED:

SUSSEX COUNTY ENGINEER
AGREEMENT # 1163

DATE

PRINTS ISSUED FOR:
REVIEW

DATE

REVISIONS

NO.

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WIL HAVEN
(F.K.A. WIL KING STATION)
SUSSEX COUNTY, DELAWARE

ENGINEERING
PLAN COVER
SHEET

SCALE	: AS SHOWN	SHEET NO.
DESIGN BY	: CJP	G1.0
DRAWN BY	: RFT	
CHECKED BY	: TMG	
GMB FILE	: 200143	
DATE	: OCT 2025	

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- 1 FURNISH AND INSTALL PUMP STATION, SEE SHEET C6.1 FOR DETAILS.
- 2 FURNISH AND INSTALL 2-INCH WYE.
- 3 FURNISH AND INSTALL PUMP STATION EMERGENCY BYPASS. SEE DETAIL SHEET C6.2.
- 4 FURNISH AND INSTALL 2-INCH GATE VALVE. SEE DETAIL SHEET C6.2.
- 5 FURNISH AND INSTALL ELECTRICAL CABINET. SEE ELECTRICAL DRAWINGS.
- 6 FURNISH AND INSTALL ELECTRICAL CABINET CONCRETE SLAB. SEE DETAIL SHEET C6.2.
- 7 FURNISH AND INSTALL PAD MOUNTED STAND-BY GENERATOR.
- 8 FURNISH AND INSTALL GENERATOR CONCRETE SLAB. SEE DETAIL SHEET C6.2.
- 9 FURNISH AND INSTALL POLE MOUNTED LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS.
- 10 FURNISH AND INSTALL 2-INCH PVC SDR 21 FORCE MAIN.
- 11 FURNISH AND INSTALL 8-INCH INFLUENT SEWER.
- 12 FURNISH AND INSTALL BITUMINOUS PAVEMENT. SEE DETAIL SHEET C6.2.
- 13 FURNISH AND INSTALL 6-INCH DIAMETER PIPE BOLLARD (TYP.). SEE DETAIL SHEET C6.2.
- 14 MATCH PUMP STATION ACCESS DRIVE WITH EXISTING ROAD GRADE.
- 15 FURNISH AND INSTALL PUMP STATION FALL PROTECTION POST. SEE DETAIL SHEET C6.2.
- 16 FURNISH AND INSTALL FENCE. SEE DETAIL SHEET C6.2.
- 17 FURNISH AND INSTALL SLIDING GATE. SEE DETAIL SHEET C6.2.
- 18 FURNISH AND INSTALL AIR RELEASE MANHOLE. SEE DETAIL SHEET C6.2.
- 19 FURNISH AND INSTALL TONING WIRE BOX. SEE DETAIL SHEET C6.2.
- 20 FURNISH AND INSTALL GRAVEL. SEE DETAIL SHEET C6.2.

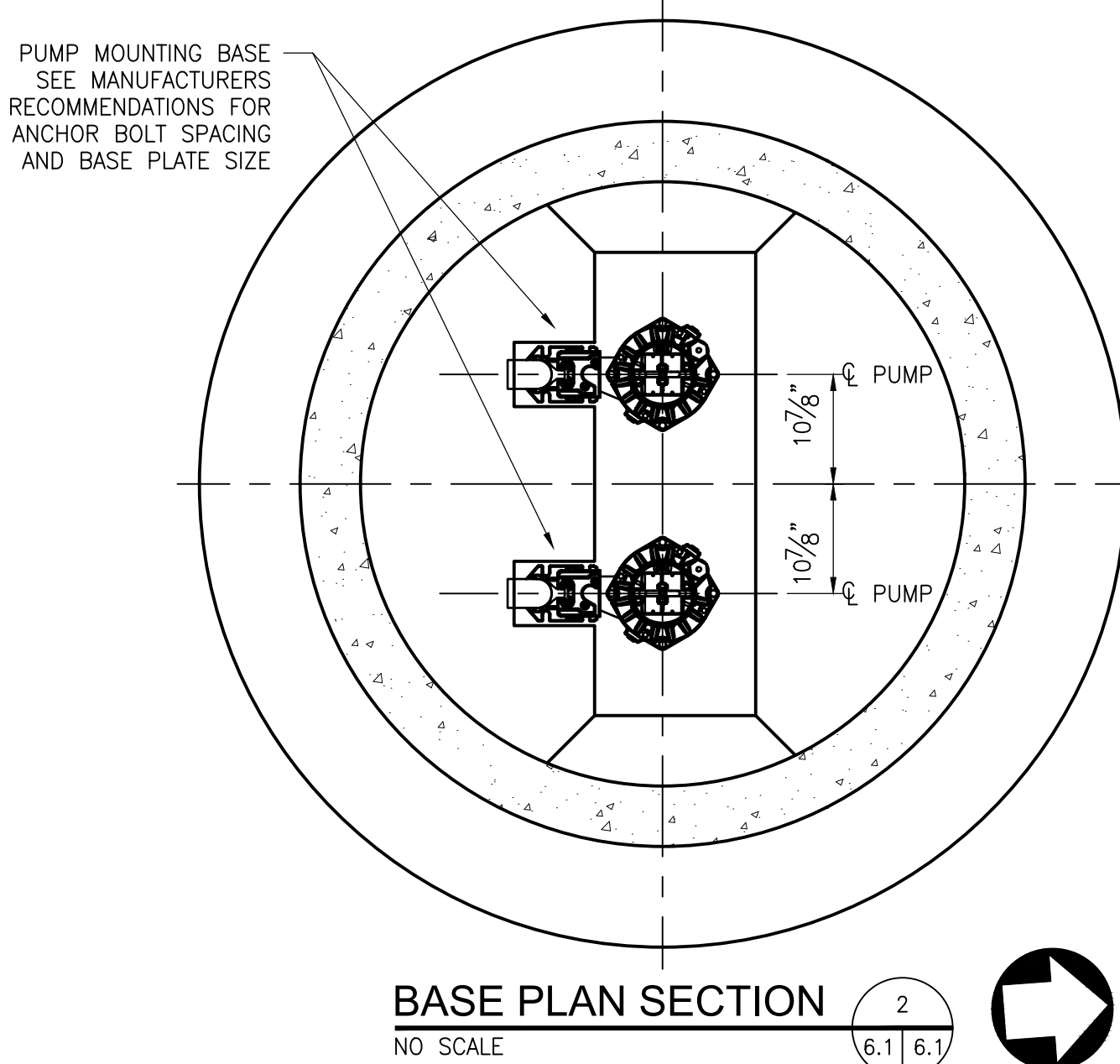
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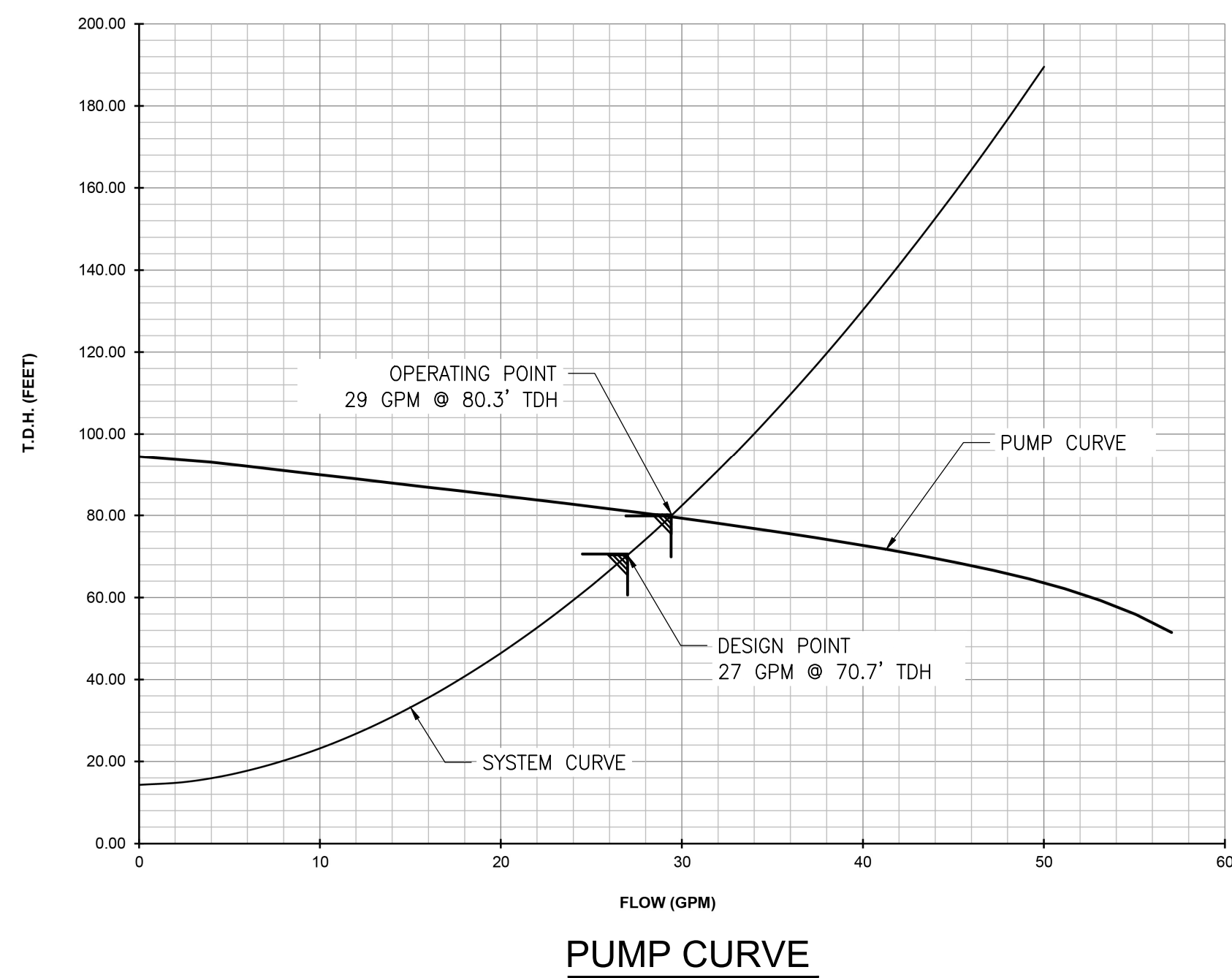
WIL HAVEN
(F.K.A. WIL KING STATION)
SUSSEX COUNTY, DELAWARE

PUMP STATION SITE PLAN

SCALE : AS NOTED	SHEET NO. C6.0
DESIGN BY : ARS	
DRAWN BY : MMD	
CHECKED BY : CBD	
GMB FILE : 200143	
DATE : OCT 2025	



PUMP STATION SCHEDULE		
①	PRECAST CONC. CIRCULAR SECTIONS	5'-0"
	INSIDE DIMENSION	
	MINIMUM WALL THICKNESS	6"
②	TOP OF STATION	27.40
③	FINISHED BOTTOM ELEVATION	5.89
④	TOTAL DEPTH - TOP TO FINISHED BOTTOM ELEV.	21.51
⑤	HATCH (ACCESS CLEAR OPENING DIMENSION)	30"x42"
⑥	INFLUENT PIPE	8"
	PIPE INSIDE DIAMETER	
	INVERT ELEVATION	10.99
⑦	PUMP DISCHARGE PIPE	22.05
	INVERT ELEVATION - OUT	
⑧	FORCE MAIN PIPE DIAMETER (5' MINIMUM COVER WITH DETECTION TAPE)	2"
	CAPACITY (GPM)	29
⑨	SEWAGE PUMPS: DESIGN	80.3
	T.D.H. (FT)	
	H.P.	4
⑩	HIGH/HIGH ALARM/PUMP ON (FLOAT)	9.49
⑪	LAG PUMP "ON"/HIGH WATER ALARM	8.99
⑫	LEAD PUMP "ON"	8.49
⑬	PUMPS "OFF"	7.89
⑭	LOW WATER ALARM	7.53
⑮	LOW/LOW ALARM/PUMP OFF (FLOAT)	6.39
⑯	BASE FLANGE DIMENSION	6"
⑰	BASE MINIMUM THICKNESS	8"



BOUYANCY PROTECTION

LIFT STATION PARAMETERS:

Net well inside diameter	5	feet
Min. wall thickness =	6	inches
Total depth =	21.51	feet (top slab to finish bottom elevation)
Top slab length =	7	feet
Top slab width =	7	feet
Top slab thickness =	12	inches
Height of cylinder =	20.51	feet
Base min. thickness =	8	inches
# / Weight of water =	62.4	# / cf
# / Weight of soil =	110	# / cf
# / Weight of concrete =	150	# / cf

Assume Lip = 6 inches Minimum 6"
(Assume water at ground surface)

UPWARD FORCES:

Top = top slab length * top slab width * top slab thickness * weight water
 Top = 1,293 lbs ↑
 Cylinder = area of cylinder * height of cylinder * weight water
 Cylinder = 36,186 lbs ↑
 Base = area of cylinder + lip * base thickness * weight water
 Base = 1,601 lbs ↑

Total Up = 39,080 lbs ↑

DOWNWARD FORCES:

Top =	((top slab length * top slab width * top slab thickness) - (hatch opening)) * weight concrete
Top =	6,038 lbs
Cylinder =	area of concrete cylinder * height of cylinder * weight concrete
Cylinder =	26,579 lbs
Base =	area of cylinder * lip * base thickness * weight concrete
Base =	3,848 lbs
Soil =	area of soil cylinder above lip * height of cylinder * weight saturated soil
Soil =	23,035 lbs
Total Down =	59,506 lbs

FACTOR OF SAFETY:

Desired Factor of Safety = 1.5
 F.O.S. = Total Down / Total Up
 F.O.S. = 1.5 O.K.
(If F.O.S. is less than desired value, increase the lip.)

PUMP STATION DESIGN CALCULATIONS

DESIGN DATA

EDU's	58
AVE. DAILY FLOW:	14,500 GPD
$Q_a = \text{EDU} \times 250$	
PEAK FACTOR:	2.64
PEAK DAILY FLOW REQUIRED:	27 GPM
$Q_p = (Q_a \times 2.64)/1440$	
PEAK DAILY FLOW REQUIRED (2.7FPS)	27 GPM
PEAK FLOW (OPERATING CONDITION):	29 GPM

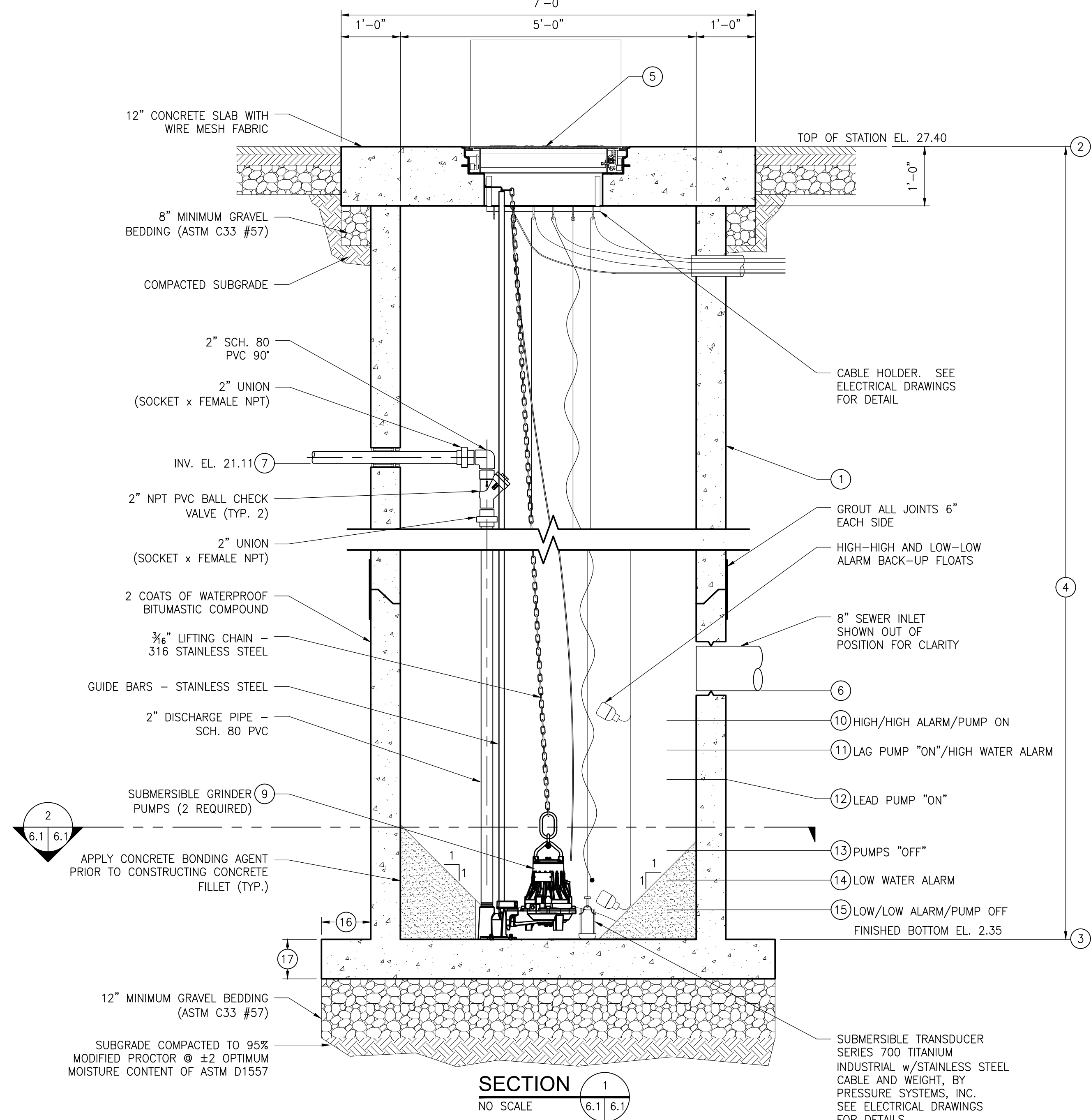
WET WELL VOLUME:

Vmin = (Tmin x Qpump)/4
Tmin = 6

40 GALLONS (@ OPERATING CONDITION, 6 MINUTES)

FORCE MAIN SIZING

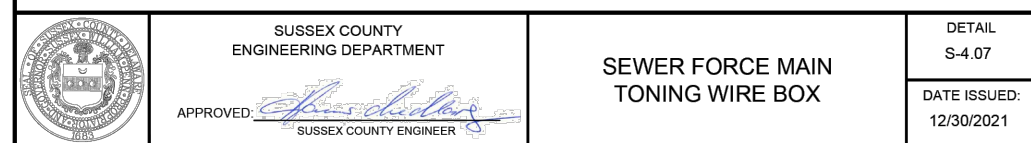
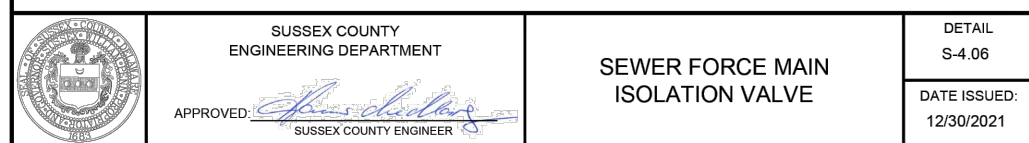
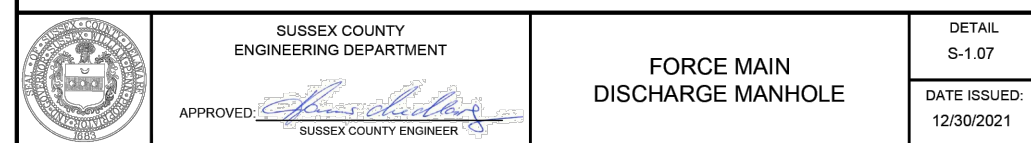
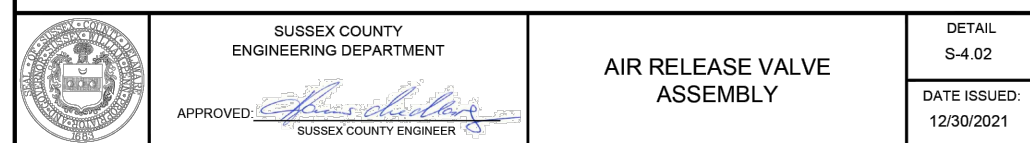
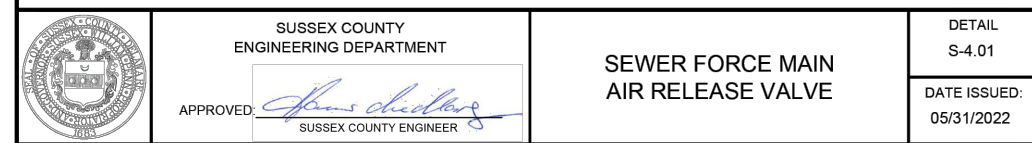
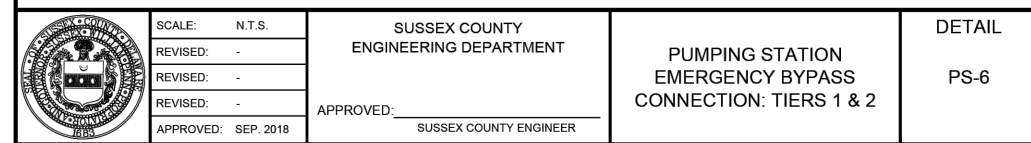
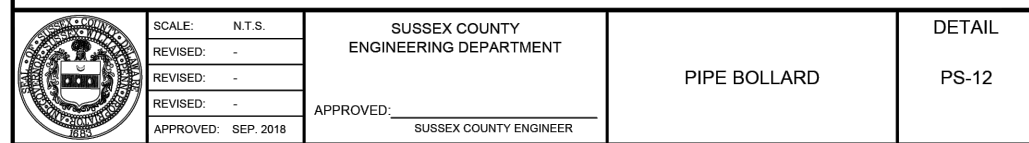
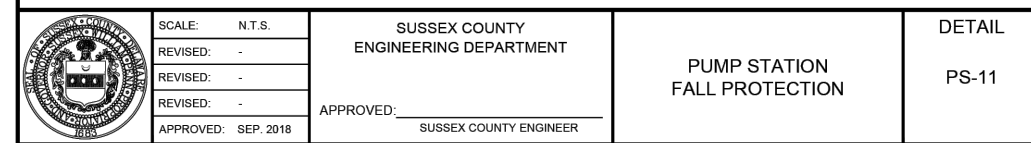
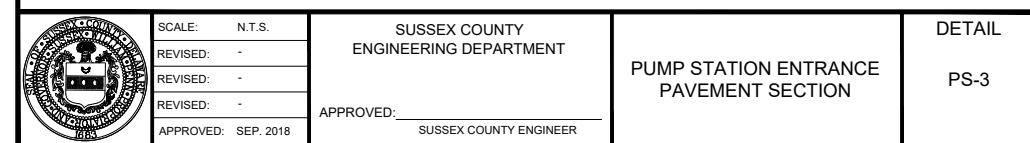
FORCE MAIN SIZE: 2 INCH
 FORCE MAIN VELOCITY: 2.7 FPS
 $V = (Q_p \times 3.2) / \text{AREA}$

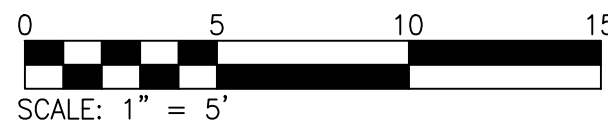
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WIL HAVEN
(F.K.A. WIL KING STATION)
SUSSEX COUNTY, DELAWARE

PUMP STATION PLAN AND SECTION

SCALE : AS NOTED	SHEET NO. C6.1
DESIGN BY : CBD	
DRAWN BY : MMD	
CHECKED BY : CBD	
GMB FILE : 200143	
DATE : OCT 2025	





1. ALL BURIED CONDUIT TO BE SCH 40 PVC. EXCEPTION: PROVIDE PVC SCH 80 CONDUIT FROM THE CONDUIT AIR GAP TO THE WET WELL.
2. ALL CONDUIT RUN INSIDE EQUIPMENT CABINET TO BE RGS CONDUIT.

1. ALL WORK SHALL COMPLY WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AND REQUIREMENTS OF THE STATE OF DELAWARE.
2. ALL HARDWARE TO BE STAINLESS STEEL.
3. CONTRACTOR SHALL PROVIDE POWER SYSTEM STUDY. IT SHALL BE PERFORMED BY A DELAWARE PROFESSIONAL ENGINEER AND INCLUDE SHORT-CIRCUIT STUDY, PROTECTIVE DEVICE COORDINATION STUDY, AND AVAILABLE FAULT RISK ASSESSMENT & LABELING FOR ALL EQUIPMENT BEING INSTALLED OR MODIFIED. LABELS SHALL INDICATE HAZARD LEVEL AND PPE REQUIREMENTS AS REQUIRED BY NFPA 70E AND IEEE 1584.

DRAWING NOTES

- (1) COORDINATE INSTALLATION OF CONDUIT WITH UTILITY.
- (2) SERVICE METER SOCKET. MOUNT ON EXTERIOR OF SERVICE EQUIPMENT CABINET. PROVIDE VERTICAL ALUMINUM CHANNEL SUPPORTS (MINIMUM 1½" SQ. x 12GA) SECURED BY STAINLESS STEEL THRU-BOLTS.
- (3) GENERATOR POWER AND CONTROL CONDUITS TO ELECTRICAL EQUIPMENT CABINET. SEE ONE LINE DIAGRAM SHEET E2.1.
- (4) CONDUITS & CABLES FOR PUMP MOTORS AND CONTROL DEVICES. (SEE CABINET DETAIL SHEET E2.1) COORDINATE EXACT PATH IN FIELD. POWER CABLES ARE TO BE FURNISHED WITH THE PUMPS, AND CONTROL CABLES ARE TO BE FURNISHED WITH THE PUMP CONTROL DEVICES.
- (5) MANUAL MOTOR STARTER - NEMA 4X
- (6) VENTILATION FAN, 30 ACH MINIMUM, 392CFM, 0.80 S.P., 0.25 HP, 1725 RPM, 120V/1Ø/60HZ. PROVIDE VENT FAN EQUAL TO GREENHECK MODEL USF-06-2 DIRECT DRIVE FAN WITH WEATHERPROOF HOOD, EPOXY CORROSION RESISTANT PAINT; PAINT INSIDE AND OUTSIDE OF FAN AND HOOD. PROVIDE INLET GUARD SCREEN AND HOOD, ISOLATION, ACCESS DOOR AND DRAIN. PROVIDE FLEXIBLE CONNECTION AND TRANSITION FROM FAN OUTLET TO 6"Ø. SEE DETAIL SHEET E2.3.
- (7) 6"Ø SCH 80 PVC EXHAUST PIPE. SEE DETAIL SHEET E2.3.
- (8) 6"Ø SCH 80 PVC SUPPLY AIR PIPE. SEE DETAIL SHEET E2.3.
- (9) WET WELL HATCH LIMIT SWITCH (SQUARE D CLASS 9007, TYPE C, WEATHER TIGHT, HEAVY DUTY INDUSTRIAL OR EQUAL). SEE DETAIL SHEET E2.2. EXTEND 2 #12 - ¾"C TO STATION CONTROL PANEL FOR FAN CONTROL.
- (10) SITE LIGHT. EXTEND TO DEDICATE BREAKER IN PANEL L. SEE DETAIL SHEET E2.3.
- (11) SITE LIGHT LAY-DOWN AREA.
- (12) GROUND GRID CONSISTING OF THREE (3) DRIVEN GROUND RODS INTERCONNECTED WITH #1/0 BARE COPPER CONDUCTOR. EXTEND TO SERVICE MAIN BREAKER IN 1" COATED RGS.
- (13) EMERGENCY STAND-BY GENERATOR. SEE DETAIL SHEET E2.1.
- (14) EQUIPMENT CABINET
- (15) CONDUIT AIR-GAP SUPPORT. SEE DETAIL SHEET E2.3.

ABBREVIATIONS

M.H.	MOUNTING HEIGHT - TO CENTER OF DISC
	UNLESS OTHERWISE INDICATED.
H.O.A.	HAND OFF AUTOMATIC
G.F.I.	GROUND FAULT INTERRUPTER
GND.	GROUND
WP.	WEATHERPROOF
V.	VOLTS
P.	POLE OR POLES
A.	AMP OR AMPERES
C.	CONDUIT
Ø	PHASE
TYP.	TYPICAL
BRKR.	BREAKER
UG.	UNDERGROUND
K.V.A.	KILOVOLT AMPERES
H.P.S.	HIGH PRESSURE SODIUM
KW.	KILOWATTS
A.F.F.	ABOVE FINISHED FLOOR
PLC	PROGRAMMABLE LOGIC CONTROLLER
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
HP	HORSEPOWER
PVC	POLYVINYL CHLORIDE
ELEV.	ELEVATION
CFM	CUBIC FEET/MINUTE
S.P.	STATIC PRESSURE
RPM	REVOLUTIONS PER MINUTE
HZ	HERTZ
RGS	RIGID GALVANIZED STEEL
ATS	AUTOMATIC TRANSFER SWITCH
S.N.	SOLID NEUTRAL
NFSS	NON-FUSED SAFETY SWITCH

LEGEND

	POLE TOP MOUNTED LED LUMINAIRE
	RECEPTACLE - 20A., 125V. - SIMPLEX, DUPLEX
	JUNCTION BOX, WALL MOUNTED
	MOTOR - NUMBER DENOTES HORSEPOWER
	CONDUIT-EXPOSED
	CONDUIT-IN OR UNDER FLOOR SLAB OR UNDERGROUND
	HOMERUN TO PANEL - NO. OF ARROWS INDICATES NO. OF CIRCUITS AND NO. OF CROSSLINES INDICATES NO. OF CONDUCTORS.
	THERMOSTAT
	THERMAL MANUAL MOTOR STARTER
	GROUND ROD

[illegible]

WILHAVEN
(F.K.A. WIL KING STATION)
SUSSEX COUNTY, DELAWARE

PUMP STATION ELECTRICAL SITE PLAN

SCALE : AS NOTED	SHEET NO. C6.3
DESIGN BY : RAR	
DRAWN BY : TDR	
CHECKED BY : CBD	
GMB FILE : 200143	
DATE : OCT 2025	

- (1) SERVICE MAIN CIRCUIT BREAKER – 240V, 2P, 100A TRIP, NEMA 1. BOND NEUTRAL AND GROUND HERE.
- (2) ELECTRICAL SERVICE METER SOCKET – 200A. PROVIDE PER POWER COMPANY SPECIFICATIONS.
- (3) AUTOMATIC TRANSFER SWITCH – 2P, 125A. SOLID NEUTRAL.
- (4) DIESEL ENGINE GENERATOR SET. 25kW/31.25kVA, 120/240V, 1Ø, 3W.
- (5) 3 #3 – 1¼" C
- (6) GENERATOR ENCLOSED CIRCUIT BREAKER – 2P, 100A. REMOVE BOND BETWEEN NEUTRAL AND GROUND.
- (7) EXTEND (3 SETS) 3 #12 – 1" C (GENERATOR BATTERY CHARGER, BLOCK HEATER AND CONTROL PANEL) TO PANEL L AND 4 #14 – 1" C (CONTROL) TO TRANSFER SWITCH.
- (8) VARIABLE FREQUENCY DRIVE, 240V-1Ø INPUT/240-3Ø OUTPUT.
- (9) SURGE PROTECTION DEVICE (SPD).
- (10) PANEL L – 120/240V, 1Ø, 3-WIRE (SEE SCHEDULE, THIS SHEET)
- (11) MOTOR-RATED RELAY.
- (12) ELECTRICAL SERVICE EQUIPMENT CABINET. SEE DETAILS, THIS SHEET.
- (13) #1/0 GROUND PER NEC.
- (14) 3 #3 AND 1 #8 GRD – 1¼" C
- (15) CONDUIT AIR GAP WITH EXPANDED METAL COVER – SEE DETAIL ON SHEET E2.2.
- (16) MANUAL MOTOR STARTER – NEMA 4 ENCLOSURE.
- (17) 2 #12 AND 1 #12 GRD – ¾" C
- (18) STAINLESS STEEL ANCHOR BOLTS PER CABINET MANUFACTURER'S RECOMMENDATION.
3 #8 AND 1 #10 GRD – ¾" C
- (19) NEMA 4X PULL BOX. SIZED FOR CABLES AND CONDUIT BEING USED. PROVIDE
- (20) POWER DISTRIBUTION BLOCK FOR TERMINATION OF PUMP CABLES.
SPD ENCLOSED CIRCUIT BREAKER – 2P, 60A.
- (21) 2 #8 AND 1 #10 GRD – ¾" C.
- (22) 5% LINE REACTOR.
- (23) CONDUIT SEAL FITTING.
- (24) 3 #6 AND 1 #6 GRD – ¾" C.
- (25) ENCLOSED CIRCUIT BREAKER – 2P, 40A.
- (26) 4 #6 – 1" C
- (27) MANUFACTURER'S TRANSDUCER CABLE AND FLOAT CABLE IN SEPARATE CONDUIT.
- (28) 3P, 30A DISCONNECT SWITCH, NEMA 4X.
- (29)

LOAD	CONN.	%	DEM'D	NOTES:
LIGHTS	0.2	100	0.2	A = (kVAx1000)/V 45.8 AMPS DEM
RECEPTACLES	0.4	100	0.4	MAIN BREAKER: 60A, 2P
MOTORS	1.0	80	0.8	ENCLOSURE TYPE: NEMA 4X
SPARES	3.0	50	1.5	ENCLOSURE LOCATION: ELECTRICAL EQUIPMENT CABINET
MISCELLANEOUS	6.4	100	6.4	*-INDICATES GFI BREAKER
				FED FROM ATS
TOTAL	11.0		9.3	MINIMUM SHORT CIRCUIT INTERRUPTION RATING: 10,000 AIC

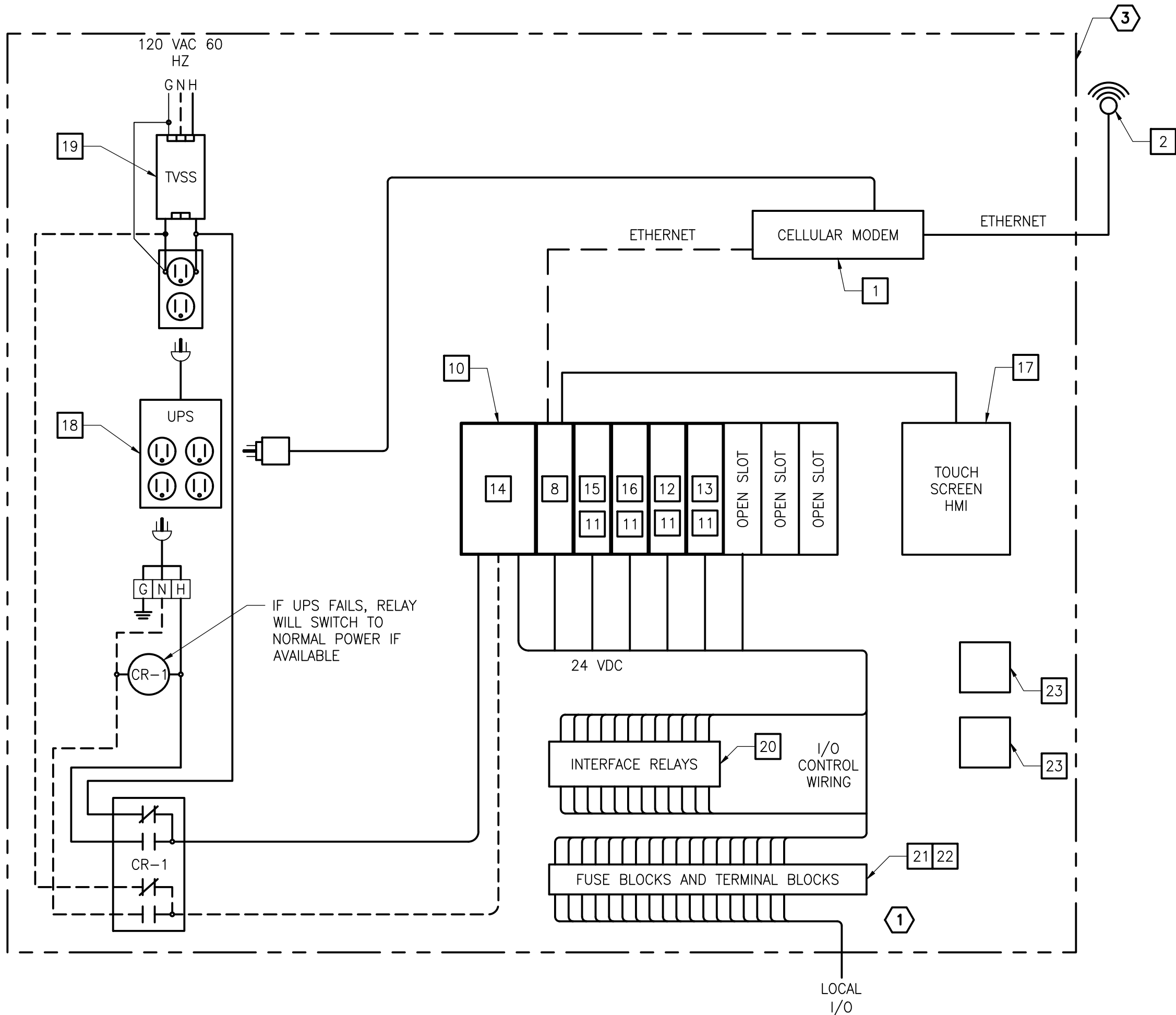


EQUIPMENT CABINET ELEVATIONS

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ELECTRICAL CABINET AND ONE-LINE DIAGRAM

SCALE : AS NOTED	SHEET NO. C6.4
DESIGN BY : RAR	
DRAWN BY : TDR	
CHECKED BY : CBD	
GMB FILE : 200143	
DATE : OCT 2025	



REMOTE STATION AND MODICON CONTROLLER DIAGRAM

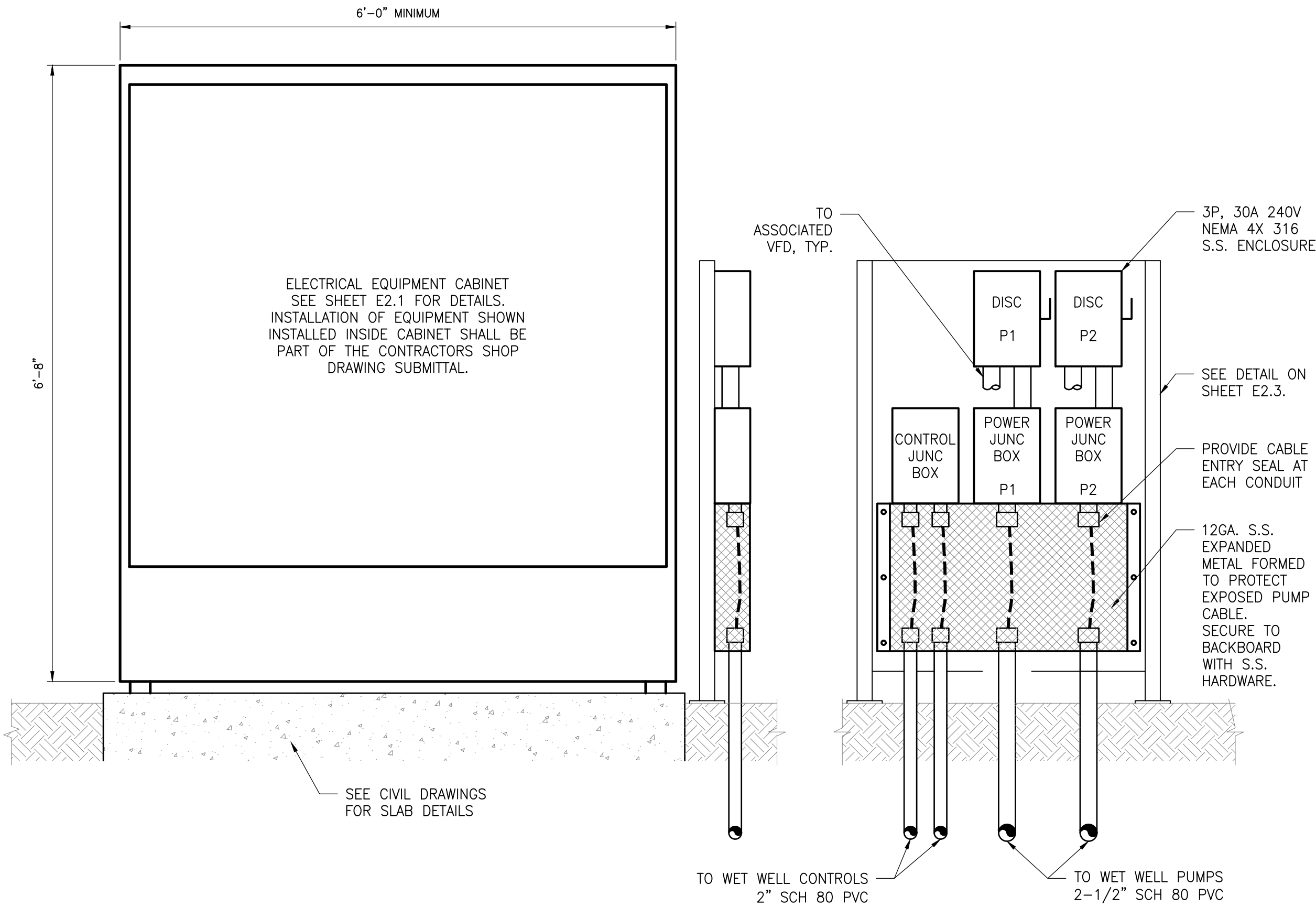
SCALE: NO SCALE

NOTES

- 1 ALL CONTROL WIRING ENTERING OR EXITING THE CONTROL PANEL SHALL DO SO VIA THE TERMINAL STRIP.
- 2 PROVIDE INTRINSICALLY SAFE BARRIERS FOR TRANSDUCER AND FLOAT CABLES.
- 3 SCADA SYSTEM SHALL BE INCLUDED AS AN INTEGRAL PART OF THE PUMP STATION CONTROL PANEL. SEE SPECIFICATION SECTIONS 13318, 13320 & 13440.

LIST OF MATERIALS

ITEM	PART NUMBER	DESCRIPTION	MANUFACTURER	QUANTITY
1	IBR650C	CELLULAR MODEM	CRADLEPOINT	1
2	LPAM-BC3G-26-3SP	LTE ANTENNA	PANORAMA	1
3	NOT USED	NOT USED	NOT USED	NOT USED
4	NOT USED	NOT USED	NOT USED	NOT USED
5	NOT USED	NOT USED	NOT USED	NOT USED
6	NOT USED	NOT USED	NOT USED	NOT USED
7	NOT USED	NOT USED	NOT USED	NOT USED
8	BMXP342020	CPU340-20	MODICON	1
9	-	-	-	-
10	BMXXBP0800	M340 BACKPLANE	MODICON	1
11	BMXFTB2010	SCREW TERMINAL BLOCKS	MODICON	4
12	BMXDDI1602	M340 DISCRETE DC INPUT	MODICON	1
13	BMXDDO1602	M340 DISCRETE DC OUTPUT	MODICON	1
14	BMXCPS2000	M340 POWER SUPPLY	MODICON	1
15	BMXAMI0410	M340 ANALOG INPUT MODULE	MODICON	1
16	BMXAMO0410	M340 ANALOG OUTPUT MODULE	MODICON	1
17	XBTGT2310	TOUCH SCREEN HMI	MAGELIS	1
18	ES8T	UPS POWER PANEL 15 MINUTE BACKUP	MGE	1
19	51020-WM	FILTER TRANSIENT VOLTAGE SURGE SUPPRESSOR	LEVITON	1
20	-	RELAY SPDT WITH BASE	-	A/R
21	-	TERMINAL BLOCKS WITH ACCESSORIES	-	A/R
22	-	FUSED TERMINAL BLOCKS WITH ACCESSORIES	-	A/R
23	-	SEAL FAIL/OVERTEMP MONITOR	FLYGT	2

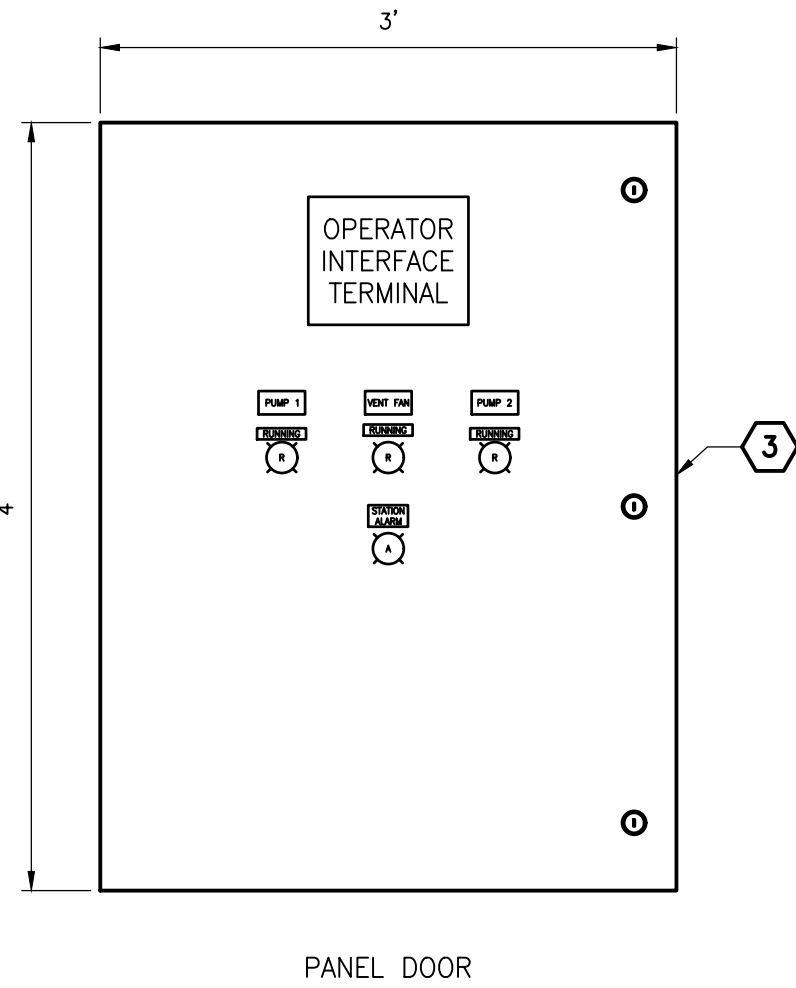


SIDE ELEVATION

END VIEW

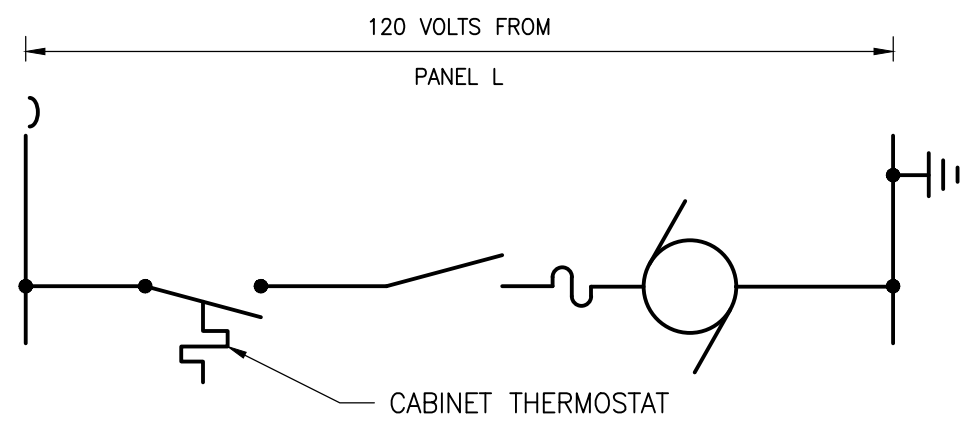
ELECTRICAL CABINET ARRANGEMENT DETAIL

SCALE: NO SCALE



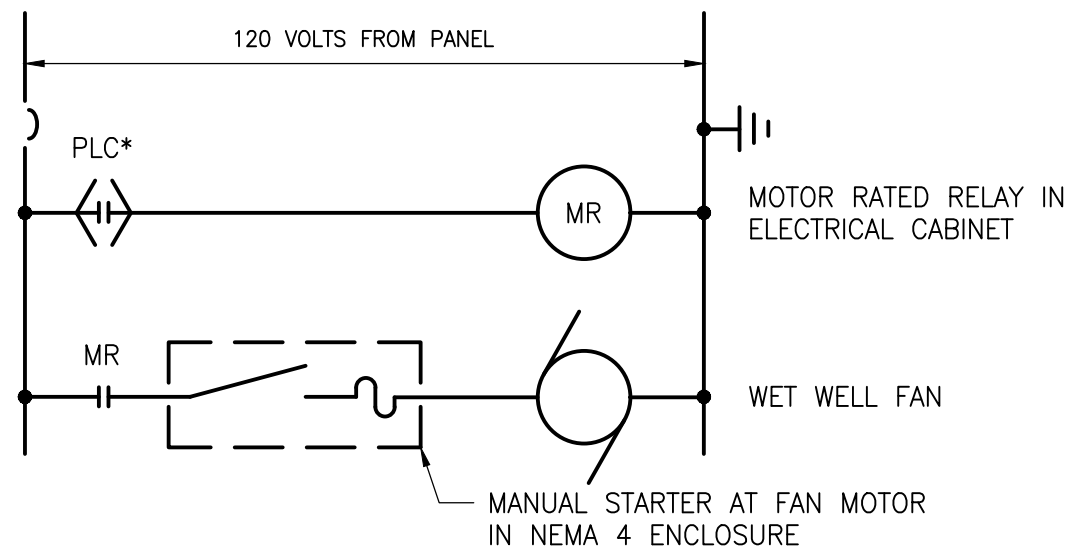
STATION CONTROL PANEL (SCP)

SCALE: NO SCALE



CABINET SUPPLY FAN CONTROL DIAGRAM

SCALE: NO SCALE



* PLC CONTACT INITIATED BY PLC TIMER AND PROXIMITY SWITCH ON WET WELL HATCH FAN TO RUN WHEN HATCH OPEN.

WET WELL SUPPLY FAN CONTROL DIAGRAM

SCALE: NO SCALE

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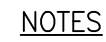
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CABINET AND
SCADA DIAGRAM

SCALE	: AS NOTED	SHEET NO.
DESIGN BY	: RAR	C6.5
DRAWN BY	: TDR	
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DATE	: OCT 2025	

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1. INSTALL SEALS ON BOTH SIDES OF SLAB WHEN THICKNESS EXCEEDS 15 INCHES.
2. GROUT/CAST STEEL FRAME WITH COMPRESSIBLE, ELASTOTHERMIC SECTIONS INTO FLOOR WHERE MORE THAN THREE (3) CONDUITS PENETRATE THE SLAB. CROUSE-HINDS "THRU-WALL-BARRIER OR EQUAL.

CONDUIT PENETRATION THRU CONCRETE SLAB

SCALE: NO SCALE



1. POLE SHALL BE ALUMINUM ROUND TAPERED, BLACK FINISH, 12' HEIGHT, 3" PIPE FITTER, WITH ANCHOR BOLTED BASE.
2. LIGHT TO BE LOCATED TO PROVIDE DIRECT ILLUMINANCE OF WET WELL AREA.
3. LIGHT FIXTURE TO BE RATED TO PROVIDE A MIN OF 10,000 LUMENS AT 5,000 K.
4. ORIENTATION OF HINGE SHALL BE COORDINATED WITH LOCATION OF OTHER ABOVE GROUND FEATURES WITHIN PUMP STATION SITE.



DETAIL
E-2

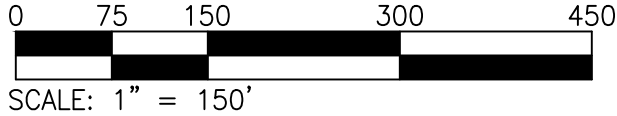
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WIL HAVEN
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ELECTRICAL DETAILS

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PROFILE OF FORCE MAIN (3)
VERTICAL SCALE: 1"=5'
HORIZONTAL SCALE: 1"=50'

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WIL HAVEN
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FORCE MAIN PLAN AND PROFILE

SCALE	: 1" = 50'
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SHEET NO.

C7.3

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