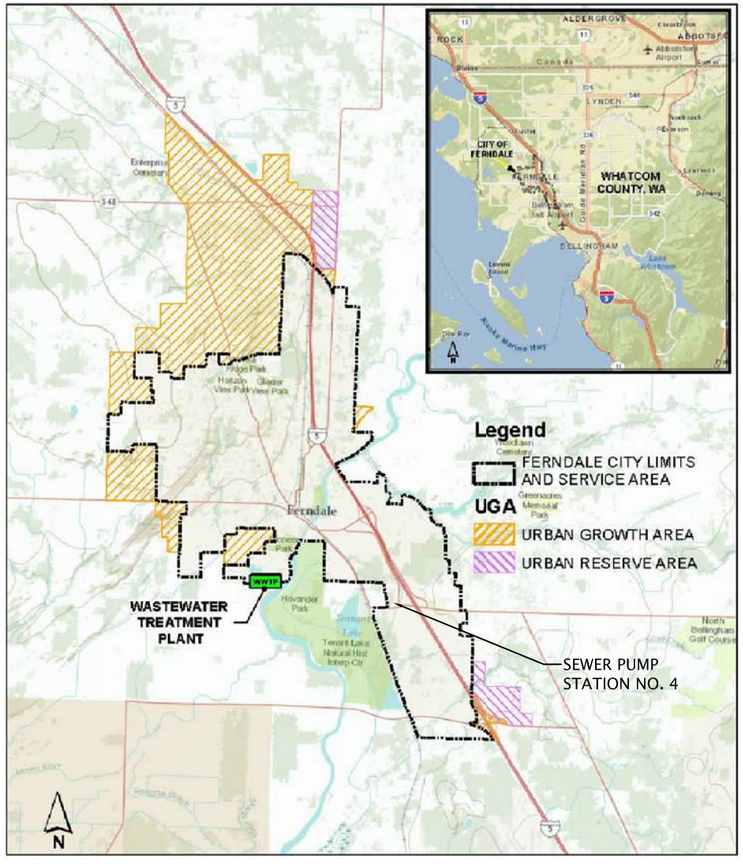
CITY OF FERNDALE, WA

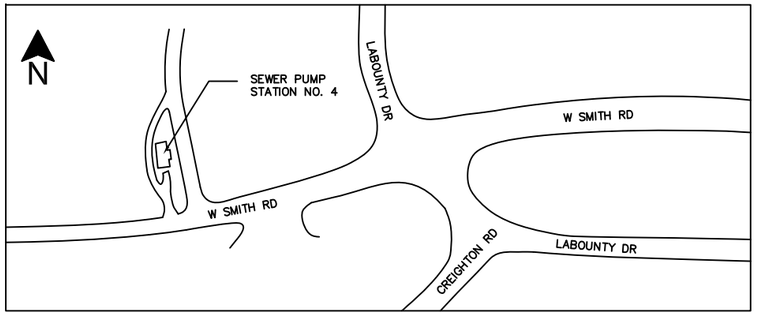
PUMP STATION NO. 4 UPGRADE – CITY PROJECT No. SS2014-05

NO.	REVISIONS	BY	DATE
1	REVISION PER ADDENDA	JGC	6/5/15

VICINITY MAP - NOT TO SCALE



LOCATION MAP - NOT TO SCALE



GENERAL NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF FERNDALE STANDARDS AND THE MOST CURRENT COPY OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (WSDOT/APWA).
2. ALL APPROVALS AND PERMITS REQUIRED BY THE CITY OF FERNDALE SHALL BE OBTAINED PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 1-800-332-2344 A MINIMUM OF 2 BUSINESS DAYS PRIOR TO ANY EXCAVATION.
4. ALL NEW PLASTIC PIPE AND SERVICES SHALL BE INSTALLED WITH CONTINUOUS TRACER TAPE INSTALLED 8" TO 12" UNDER THE PROPOSED FINISHED SUBGRADE. THE MARKER SHALL BE PLASTIC NON-BIODEGRADABLE, METAL CORE OR BACKING MARKED WATER WHICH CAN BE DETECTED BY A STANDARD METAL DETECTOR.
5. EROSION CONTROL MEASURES SHALL BE TAKEN BY THE CONTRACTOR DURING CONSTRUCTION TO PREVENT SILTATION TO EXISTING STORM DRAINAGE FACILITIES AND ROADWAYS.
6. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE A COPY OF THESE APPROVED PLANS ON CONSTRUCTION SITE AT ALL TIMES.
7. ANY CHANGES TO THE DESIGN SHALL FIRST BE REVIEWED AND APPROVED BY THE PROJECT ENGINEER.
8. ALL LINES SHALL BE CLEANED AND PRESSURE TESTED PRIOR TO PAVING IN CONFORMANCE WITH THE ABOVE REFERENCED SPECIFICATIONS. TESTING SHALL TAKE PLACE AFTER ALL UNDERGROUND UTILITIES ARE INSTALLED AND COMPACTION OF THE ROADWAY SUBGRADE IS COMPLETED.
9. PRIOR TO BACKFILL ALL MAINS AND APPURTENANCES SHALL BE INSPECTED AND APPROVED BY THE CITY OF FERNDALE CONSTRUCTION INSPECTOR. APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FOR CORRECTION OF ANY DEFICIENCIES AND/OR FAILURES AS DETERMINED BY SUBSEQUENT TESTING AND INSPECTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE INSPECTOR FOR THE REQUIRED INSPECTIONS.
10. ALL WORK AND MATERIALS SHALL BE GUARANTEED BY THE CONTRACTOR FOR ONE YEAR AFTER FINAL ACCEPTANCE.
11. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND NOT ALL ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO VERIFY AND PROTECT ALL UTILITIES.
12. ALL RESTORATION AND LANDSCAPING WITHIN PUBLIC OR PRIVATE PROPERTY SHALL OCCUR WITHIN THREE WEEKS OF DISTURBANCE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL LAWNS, LANDSCAPING, FENCES, GRAVEL, ASPHALT AND CONCRETE.
13. THE CONTRACTOR SHALL KEEP A RECORD OF AS-BUILT INFORMATION THROUGHOUT THE ENTIRE PROJECT. THIS INFORMATION SHALL INCLUDE ALL DEVIATIONS FROM THE PLANS AND ANY OTHER INFORMATION NOT SHOWN ON THE PLANS AND THE LOCATION OF ALL SIDE SEWER CONNECTIONS TO THE MAIN LINE.
14. THE CONTRACTOR SHALL REPLACE ALL MONUMENTS, RIGHT-OF-WAY MARKERS, PROPERTY STAKES, ETC. THAT ARE DISTURBED DURING CONSTRUCTION. THE CONTRACTOR SHALL USE A SURVEYOR REGISTERED IN THE STATE OF WASHINGTON TO COMPLETE ALL SURVEY WORK.

EROSION AND SEDIMENTATION CONTROL

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PREVENT POLLUTION AND EROSION IN ACCORDANCE WITH WSDOT SECTION 1.07.15. EROSION CONTROL BEST MANAGEMENT PRACTICES SHALL CONFORM TO THE CURRENT WASHINGTON DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL.

EXISTING UTILITIES

1. CONTRACTOR IS ADVISED THAT UNDERGROUND WATER, SEWER, STORM, TELEPHONE, FIBER OPTIC, AND GAS MAY BE LOCATED IN THE VICINITY OF THIS PROJECT. NO ATTEMPT WAS MADE TO SHOW ALL UTILITIES ON THE PLAN. LOCATIONS SHOWN FOR EXISTING UTILITIES ARE APPROXIMATE. OTHER UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE TRUE AND CORRECT LOCATIONS OF EXISTING UTILITIES THAT MAY IMPACT THE WORK. CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO COMMENCING CONSTRUCTION IF MARKED UTILITIES APPEAR TO CONFLICT WITH PROPOSED IMPROVEMENTS. THE COST OF LOCATING, PROTECTING AND ACCOMMODATING EXISTING UTILITIES SHALL BE INCIDENTAL TO THE COST OF THE PROJECT. IF AN ACTUAL CONFLICT REQUIRES RELOCATION OF AN EXISTING UTILITY OR THE REDESIGN OF THE PROPOSED IMPROVEMENT, THE ENGINEER WILL DETERMINE IF EXTRA PAY IS WARRANTED TO ACCOMMODATE THE CHANGED OR UNFORESEEN CONDITION. MINOR HORIZONTAL OR VERTICAL ADJUSTMENTS OF THE PROPOSED IMPROVEMENTS TO AVOID CONFLICTS SHALL NOT ENTITLE THE CONTRACTOR TO EXTRA PAY.

TRAFFIC CONTROL

1. CONTRACTOR IS NOT ALLOWED TO COMPLETELY CLOSE ANY STREET TO TRAFFIC. THE NUMBER OF OPEN LANES OF TRAFFIC TO BE MAINTAINED IN EACH AREA IS ONE LANE. TRAFFIC SHALL BE MAINTAINED ACCORDING TO WSDOT SECTION 1-07.23, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

CONTROL NOTES

1. BASIS OF COORDINATES: FOUND SURFACE MONUMENT "FERN12" IN THE NORTHWEST CORNER OF SMITH ROAD AND LABOUNTY ROAD INTERSECTION 2' EAST OF CURB LINE AT THE SOUTH END OF SIDEWALK.

   NORTHING = 673,760.111 USFT
   EASTING = 1,222,546.506 USFT
   ELEV. = 31.27'

2. BASIS OF BEARINGS: BEARINGS ARE NAD83/91 PER THE CITY OF FERNDALE SURVEY MONUMENT NETWORK OF 2001. HELD DERIVED INVERSE BETWEEN THE ABOVE-MENTIONED CONTROL POINT "FERN12" AND "FERN11" SAID BEARING BEING N 60°49'52" W, A DISTANCE OF 3355.21'. THE FOLLOWING COORDINATES WERE HELD FOR "FERN11":

   NORTHING = 675,395.391 USFT
   EASTING = 1,219,616.779 USFT
   ELEV. = 47.47'

3. BASIS OF ELEVATIONS: ELEVATIONS ARE NGVD29 PER THE CITY OF FERNDALE SURVEY MONUMENT NETWORK OF 2001. HELD PUBLISHED ELEVATION FOR "FERN12" OF

   31.27'.

   SITE BENCHMARK: "FERN12"

4. SITE CONTROL POINTS:

NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
109	673643.2000	1222241.7800	18.29	SET BERNTSEN SPIKE
200	673742.1010	1222494.3148		MON DISTURBED
900	673864.6910	1222551.0011		CASED MONUMENT
901	673760.1111	1222546.5061	31.27	BSM "FERN12"
902	673701.8033	1222610.5694		CASED MONUMENT
903	673697.3295	1222597.2083		CASED MONUMENT
904	673641.2292	1222429.9737		CASED MONUMENT
905	674494.2165	1222306.0238		REBAR / CAP
906	674613.5978	1222568.9920		CASED MONUMENT
907	675395.3910	1219616.7788	47.47	BSM "FERN11"
908	673590.4221	1222062.6952		CASED MONUMENT

INDEX TO DRAWINGS

ADDENDA ITEMS HAVE BEEN POSTED TO THIS SET

CALL TWO BUSINESS DAYS BEFORE YOU DIG 1-800-424-5555 UTILITIES UNDERGROUND LOCATION CENTER

BID SET

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www.wilsonengineering.com

Wilson SURVEY/ENGINEERING

JEFFREY G. CHRISTENSEN — STATE OF WASHINGTON — 35896 — REGISTERED PROFESSIONAL ENGINEER
6-5-2015

DESIGNED BY JGC | DRAWN BY CJP | CHECKED BY AWL

CITY OF FERNDALE
WHATCOM COUNTY WASHINGTON
PUMP STATION NO. 4
COVER SHEET

DATE 4/22/2015 | SCALE AS SHOWN | JOB NUMBER 2013-037

SHEET C1.1 OF 23

W:\2013\2013-037 Ferndale PS No 4 Upgrade\Dwg\C1.1-Cover.dwg, 6/12/2015 9:48:58 AM, cjp

LEGEND & ABBREVIATIONS– SIZE & SCALE MAY VARY

EXISTING HATCH PATTERNS

DESCRIPTION
EXIST. CONCRETE
EXIST. BUILDING
EXIST. EARTH
EXIST. GRAVEL
EXIST. SAND

PROPOSED HATCH PATTERNS

DESCRIPTION
PROP. CONCRETE
PROP. TOP COURSE GRAVEL
PROP. GRAVEL
PROP. SAND
PROP. QUARRY SPALLS

SURFACE FEATURES
EXISTING PLAN LINETYPES

DESCRIPTION
BRIDGE
BUILDING LINE
BUILDING COLUMN
BUILDING OVERHANG
BULKHEAD
CONCRETE EDGE
CREEK EDGE
CROWN OF ROAD
CURB
DITCH CENTERLINE
DECK
DOCK
EDGE OF SAWCUT
EDGE OF PAVEMENT
FENCE
HIGH VISIBILTY FENCE
GATE
GRADE
GRAVEL
GUARDRAIL
JERSEY BARRIER
LAKE/POND WATER EDGE
LIP OF CURB
MISC SURFACE FEATURE
MISC TRAFFIC
PLANTER
PATH
RAILROAD
RAMP (WOOD)
RETAINING WALL
ROAD STRIPING
ROCKERY
RIVERBANK/SHORELINE
THALWAG LINE
TOP OF BANK/SLOPE
TOE OF BANK/SLOPE
VEGETATION/SHRUB LINE
WETLAND/SWAMP PERIMETER
WETLAND BUFFER

SURFACE FEATURES
PROPOSED PLAN LINETYPES

DESCRIPTION
BRIDGE
BUILDING LINE
CONCRETE
CURB
DITCH CENTERLINE
EDGE OF BIKE LANE
EDGE OF PAVEMENT
FENCE
GATE
GRAVEL
GUARDRAIL
JERSEY BARRIER
LIP OF CURB
REBAR
RETAINING WALL
ROCKERY
ROAD STRIPING

UTILITIES
EXISTING PLAN LINETYPES

DESCRIPTION
CABLE TELEVISION (AERIAL)
CABLE TELEVISION (BURIED)
SURVEILLLANCE CAMERA (BURIED
FIBER OPTIC LINE (AERIAL)
FIBER OPTIC LINE (BURIED)
TELEPHONE (AERIAL)
TELEPHONE (BURIED)
TRAFFIC SIGNAL CONDUIT LINE
POWER (AERIAL)
POWER (BURIED)
UTILITY (AERIAL)
UTILITY (BURIED)
POWER DUCT BANK (BURIED)
DRAIN FIELD
SANITARY SEWER
SANITARY SEWER (FORCE MAIN)
STORM DRAINAGE
CULVERT (@ WIDTH)
CULVERT
RECLAIMED WATER
IRRIGATION
WATER
8" WATER
OVERFLOW
STEAM
GAS
GAS TANK/STRUCTURE
OIL
AIR LINE
BURIED UTILITY APPROX. EXTENTS
MISC UTILITY (BURIED)

PROPOSED PLAN UTILITY LINETYPES
WATER

DESCRIPTION
WATER
8" WATER
IRRIGATION
RECLAIMED WATER
POTABLE WATER
WATER SERVICE
WATER STRUCTURE
FIRE DEPARTMENT CONNECTION
FIRE PROTECTION LINE

SANITARY SEWER

DESCRIPTION
SEWER
8" SEWER
FORCE MAIN
DRAIN FIELD
SEWER SERVICE
SEWER STRUCTURE

STORM DRAIN

DESCRIPTION
STORM DRAIN – SUBJECT PIPE
STORM DRAIN – OTHER PIPE
STORM SERVICE
FOOTING DRAIN
STORM STRUCTURE

MISC. UTILITIES

DESCRIPTION
GAS
POWER
TELEPHONE/COMMUNICATIONS

GRADING

DESCRIPTION
GRADE BREAK
SLOPE ARROWS

EROSION CONTROL

DESCRIPTION
EROSION TRIANGULAR SILT DIKE
EROSION CONTROL COMPOST BERM
EROSION CONTROL MINOR CONTOUR
EROSION CONTROL MAJOR CONTOUR
ORANGE BARRIER FENCE
SILT FENCE
STRAW WATTLE
EROSION CONTROL FLOWLINE
STRAW BALE
INLET PROTECTION
CHECK DAM

DEMOLITION

DESCRIPTION
SURFACE FEATURE OR UTILITY TO BE REMOVED
SAWCUT
CLEARING LIMIT
TREE OR BUSH TO BE REMOVED

SURVEY
PLAN LINETYPES

DESCRIPTION
CENTERLINE (EXISTING)
CENTERLINE (CONSTRUCTION)
CENTERLINE (PROPOSED)
CONTOUR (EXISTING MINOR)
CONTOUR (EXISTING INDEX)
HYDRO CONTOUR (EXISTING INDEX)
CONTOUR (PROPOSED INDEX)
CONTOUR (PROPOSED MINOR)
CATCHLINE
CUT LINE
DONATION LAND CLAIM (EXIST.)
EASEMENT (PROPOSED)
EASEMENT (EXISTING)
FILL LINE
MEANDER LINE
ORDINARY HIGH WATER LINE
MEAN LOW LEVEL WATER LINE
OWNERSHIP LINE
PROPERTY LINE (RECORD OR ADJACENT)
PROPERTY LINE
QUARTER SECTION LINE
RANGE/TOWNSHIP LINE
RESERVATION/PARK/FOREST (EX)
RIGHT–OF–WAY ℄ (EXISTING)
RIGHT–OF–WAY (EXISTING)
RIGHT–OF–WAY (EXISTING USED)
RIGHT–OF–WAY (PROPOSED)
RIGHT–OF–WAY (EX. RECORD) (RECORD OR ADJACENT)
RIGHT–OF–WAY (LIMITED ACCESS)
RIGHT–OF–WAY (LIMITED ACCESS)
SECTION LINE
SETBACK LINE (EXISTING)
SIXTEENTH SECTION LINE
STATE/COUNTY/CORPORATE LIMIT
VACATED RIGHT–OF–WAY
EASEMENT (RECORD)
RIGHT–OF–WAY CENTER (RECORD)
DONATION LAND CLAIM (RECORD)
MEANDER LINE (RECORD)
PARK LINE (RECORD)
SECTION LINE (RECORD)
QUARTER SECTION LINE (RECORD)
SIXTEENTH SECTION LINE (RECORD)
STATE LINE (RECORD)
RANGE LINE (RECORD)

PROFILE LINETYPES

DESCRIPTION
PROFILE EX. GRND ℄
PROFILE FINISH GRND ℄
PROFILE GRID
PROFILE VERTICAL GRID
PROFILE EX. GROUND LEFT
PROFILE EXISTING GROUND RIGHT
FIBER OPTIC PROFILE (EXISTING)
GAS PROFILE (EXISTING)
POWER PROFILE (EXISTING)
RAILROAD PROFILE (EXISTING)
SANITARY PROFILE (EXISTING)
SANITARY PROFILE (PROPOSED)
STORM PROFILE (EXISTING)
TELEPHONE PROFILE (EXISTING)
STORM PROFILE (PROPOSED)
TV PROFILE (EXISTING)
UTILITY PROFILE (EXISTING)
WATER PROFILE (EXISTING)
WATER PROFILE (PROPOSED)

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BID SET

MISC. SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		SOIL BORING
		MONITORING WELL
		TEST WELL
		TEST PIT
		EMBANKMENT
		MAIL BOX
		SIGN
		RIP RAP
		BOULDER
		SHRUB
		TREE (Conifer)*
		TREE (Deciduous)*
		STUMP–PLAN VIEW
		YARD LIGHT
		WELL
		PILE
		ROCKERY
		WHEEL STOP
		SPLASH BLOCK
		GAS METER
		GAS VALVE
		PAD MOUNTED TRANSFORMER
		POWER VAULT
		TRANSMISSION TOWER
		POWER METER
		GUY POLE
		UTILITY POLE
		UTILITY POLE ANCHOR
		TELE RISER
		CABLE RISER
		TELEPHONE VAULT
		STEAM MANHOLE
		PARKING METER
		POST

SANITARY SEWER SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		SAN. SEWER CLEAN OUT
		SAN. SEWER MANHOLE

STORM DRAIN SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		STORM DRAIN CB TYPE 1
		STORM DRAIN CB TYPE 2
		STORM DRAIN CB TYPE 2 W/CB LID
		STORM DRAIN WITH OVERFLOW GRATE
		STORM DRAIN CLEAN–OUT

WATER SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		ARV VALVE
		GLOBE VALVE, FL
		BALL CHECK VALVE, FL
		BLOW–OFF VALVE
		SWING CHECK VALVE, FL
		BUTTERFLY VALVE, FL
		HOSE BIB/SPIGOT
		DOUBLE LEAF CHECK VALVE
		PLUG VALVE
		BALL VALVE
		FLOAT VALVE
		PINCH VALVE
		PRESSURE & VACUUM RELIEF VALVE
		VACUUM RELIEF VALVE
		PRESSURE RELIEF VALVE
		PRESSURE REGULATING VALVE (SELF CONTAINED)
		BACK PRESSURE REGULATING VALVE (SELF CONTAINED)
		IN–LINE SPRING LOADED RELIEF VALVE
		CAP/PLUG
		GUARD POST
		THRUST BLOCK
		WATER METER
		FIRE DEPARTMENT CONNECTION
		WATER VALVE
		FIRE HYDRANT
		WATER MANHOLE
		POST INDICATOR VALVE
		11–1/4 BEND, MJ–FL
		22–1/2 BEND, MJ–FL
		45 BEND, MJ–FL
		90 BEND, MJ–FL
		FLXMJ ADAPTER
		COUPLER
		BLIND FLANGE
		GATE VALVE, FLxMJ
		GATE VALVE, MJ
		REDUCER, MJxFL
		REDUCER, MJ
		TEE, FL
		TEE, MJ
		TEE, MJxFL
		TEE, FLxMJ
		CROSS, FL
		CROSS, MJ

SURVEY SYMBOLS

BRASS SURFACE MONUMENT
NAIL IN CONCRETE
REBAR & CAP

SECTION/DETAIL CALL–OUTS

E(A) (C) C22 C22 (B)

E(A) C34 (B)

SECTION CALL OUTS: (A) REPRESENTS THE SECTION LABEL, (B) INDICATES THE SHEET ON WHICH THE SECTION APPEARS, AND (C) INDICATES THE SHEET ON WHICH THE SECTION IS CALLED OUT.

1(A) (C) C22 C22 (B)

1(A) C34 (B)

DETAIL CALL OUTS: (A) REPRESENTS THE DETAIL LABEL, (B) INDICATES THE SHEET ON WHICH THE DETAIL APPEARS, AND (C) INDICATES THE SHEET ON WHICH THE DETAIL IS CALLED OUT.

SYMBOLS

°	=DEGREES
±	=PLUS/MINUS
ø	=DIAMETER
Δ	=DELTA
℄	=CENTERLINE
℻	=FLOWLINE
℘	=PROPERTY LINE

SPOT ELEVATIONS

190.00 ① TBC ②

① = ELEVATION
② = DESCRIPTION– SEE DEFINED ABBREVIATIONS ABOVE

DIRECTIONAL ABBREVIATIONS

N	=NORTH
NE	=NORTHEAST
E	=EAST
SE	=SOUTHEAST
S	=SOUTH
SW	=SOUTHWEST
W	=WEST
NW	=NORTHWEST

ABBREVIATIONS

AL	=ALIGNMENT
ANC	=UTILITY POLE ANCHOR
APPROX	=APPROXIMATE
ASPH or AC	=ASPHALT
ASS'Y	=ASSEMBLY
ASTM	=AMERICAN SOCIETY FOR TESTING & MATERIALS
BLDG	=BUILDING
BMP	=BEST MANAGEMENT PRACTICE
BVCS	=BEGIN VERTICAL CURVE STATION
BVCE	=BEGIN VERTICAL CURVE ELEVATION
CB	=CATCH BASIN
CK	=CHECK VALVE
C/L, ℄	=CENTERLINE
CESCL	=CERTIFIED EROSION SEDIMENT CONTROL LEAD
COL	=COLUMN
CMP	=CORRUGATED METAL PIPE
C.O.	=CLEAN OUT
CONC, C	=CONCRETE
COR	=CORNER
CPP	=CORRUGATED POLYETHYLENE PIPE
CSTC	=CRUSHED SURFACING TOP COURSE
DDCVA	=DOUBLE DETECTOR CHECK VALVE ASSEMBLY
DF	=DRAIN FIELD
DI	=DUCTILE IRON
DO	=DISSOLVED OXYGEN
DR	=DIAMETER RATIO
DS	=DOWNSPOUT
EB	=EXPLORATION BORING
EFFL	=EFFLUENT
EG	=EXISTING GRADE
ELEV, EL	=ELEVATION
EOG	=EDGE OF GRAVEL
EOP	=EDGE OF PAVEMENT
EP	=EXPLORATION PIT
EXIST, EX	=EXISTING
EVCS	=END VERTICAL CURVE STATION
EVCE	=END VERTICAL CURVE ELEVATION
FDC	=FIRE DEPARTMENT CONNECTION
FF	=FINISH FLOOR
FG	=FINISH GRADE
FL	=FLOWLINE OR FLANGE (CONNECTION)
℄	=FLOWLINE
FLC	=FLOWLINE OF CURB
FNC	=FENCE
GB	=GRADE BREAK
GMET	=GAS METER
GP	=GUY POLE
GPM	=GALLONS PER MINUTE
GRVL, G	=GRAVEL
GUTT	=GUTTER
GV	=GATE VALVE
HB	=HOSE BIB
HDG	=HOT–DIP GALVANIZED
HDPE	=HIGH DENSITY POLYETHYLENE
H:V	=HORIZONTAL:VERTICAL
HWL	=HIGH WATER LEVEL
HYD	=HYDRANT
IE	=INVERT ELEVATION
INV	=INVERT
LF	=LINEAR FEET
LUM	=LUMINAIRE
LT	=LEFT
MAX	=MAXIMUM
MB	=MAIL BOX
MBR	=MEMBRANE BIO–REACTOR
MC	=MAINTENANCE CLEANING
MFEM	=MEMBRANE FILTRATION EQUIPMENT MANUFACTURER
MFR	=MANUFACTURER
MH	=MANHOLE
MIN	=MINIMUM
MISC	=MISCELLANEOUS
MJ	=MECHANICAL JOINT
MLSS	=MIXED LIQUOR SUSPENDED SOLIDS
MW	=MONITORING WELL
NPDES	=NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
O.C.	=ON CENTER
O.C.E.W	=ON CENTER EACH WAY
OD	=OUTSIDE DIAMETER
OHP	=OVERHEAD POWER
OHT	=OVERHEAD TELEPHONE
OSHA	=OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PC	=POINT OF CURVATURE
PCC	=POINT OF CONTINUING CURVATURE
PIV	=POST INDICATOR VALVE
P/L, ℘	=PROPERTY LINE
PLC	=PROGRAMMABLE LOGIC CONTROLLER
PLTR	=PLANTER
POL	=POINT ON LINE
PROP	=PROPOSED
PS	=PUMP STATION
PSI	=POUNDS PER SQUARE INCH
PT	=POINT OF TANGENCY
PVC	=POLYVINYL CHLORIDE
PVI	=POINT OF VERTICAL INTERSECTION
PW	=POTABLE WATER
R	=RADIUS
RCK	=ROCK/BOULDER
RET	=RETAINING
REC	=RECORD
REQ'D	=REQUIRED
RI	=RAPID INFILTRATION
RPBA	=REUSE PRESSURE BACKFLOW ASSEMBLY
RR	=RAILROAD
RT	=RIGHT
R/W or ROW	=RIGHT–OF–WAY
RW	=REUSE WATER
SCADA	=SUPERVISORY CONTROL AND DATA ACQUISITION
SCH	=SCHEDULE
SDCB	=STORM DRAIN CATCH BASIN
SD	=STORM DRAIN
SDMH	=STORM DRAIN MANHOLE
SFH	=SINGLE FAMILY HOUSING
SH	=SHRUB/BUSH
SN	=SIGN
SPD	=STANDARD PROCTOR DENSITY
SPK	=SPIKE
SS	=SANITARY SEWER
SSCO	=SANITARY SEWER CLEAN–OUT
SSMH	=SANITARY SEWER MANHOLE
STA	=STATION
STEP	=SEPTIC TANK EFFLUENT PUMP
S/W	=SIDEWALK
TBC	=TOP BACK OF CURB
TBD	=TO BE DETERMINED
TBM	=TEMPORARY BENCH MARK
T.O.W.	=TOP OF WALL
TYP	=TYPICAL
UP	=UTILITY POLE
VAC	=VACATED
VC	=VERTICAL CURVE
VCI	=VOLATILE CORROSION INHIBITOR
VEG	=VEGETATION
VFD	=VARIABLE FREQUENCY DRIVE
WAS	=WASTE ACTIVATED SLUDGE
WL	=WATERLINE
WM	=WATER METER
WS	=WATER SURFACE
WSDOT	=WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
WV	=WATER VALVE
WWTP	=WASTE WATER TREATMENT PLANT
YD	=YARD DRAIN
YL	=YARD LIGHT

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6-5-2015

DESIGNED BY	DRAWN BY	CHECKED BY
JGC	CJP	AWL

CITY OF FERNDALE
WHATCOM COUNTY
WASHINGTON

PUMP STATION NO. 4
LEGEND & ABBREVIATIONS

DATE	SCALE	JOB NUMBER
4/22/2015	AS SHOWN	2013-037

SHEET C1.2 OF 23

W:\2013\2013-037 Ferndale PS No 4 Upgrade\Dwg\C1.2 Legend & Abbreviations.dwg, 6/12/2015 9:53:06 AM, cjp

~GRASSY FIELD~

UTILITY EASEMENT BOUNDARY

~GRAVEL~

~ASPHALT~

N

SCALE 5 0 5 10 FEET
HORIZONTAL SCALE

SSMH 2117

12" GRAVITY SEWER

INV= 15.83

ELECTRICAL PANELS

12" GRAVITY SEWER

FUEL VENT PIPE

DIESEL TANK

12" WATER MAIN

~CONC~

SWITCH BOX

~ASPHALT~

RIGHT-OF-WAY

12" CMP CULVERT

ACCESS GATE

~CONC~

CONDUIT

GENERATOR

WELL "A"

8" FORCE MAIN

C/L FENCE

BOLLARD (TYP)

BOLLARD (TYP)

POTABLE WATER TEST STATION

INV= 15.56

UTILITY EASEMENT BOUNDARY

~GRAVEL~

WELL "B"

~GRASSY FIELD~

~GRASSY FIELD~

WELL "A"
RIM=23.1
12" INLET (NE) IE=7.4
FM #1 TOP=12.1
FM #2 TOP=12.1
SUMP=2.3

WELL "B"
RIM=23.0
FM #1 TOP=12.1
FM #2 TOP=12.1
TOP OF GATE VALVES=13.6
SUMP=10.1

SS MH 2117
RIM=19.0
8" PVC (N) IE=7.95
12" (S) IE=7.6
12" (W) IE=7.5

REMOVE EXISTING 110 GALLON (26"ø x 48"L) BURIED FUEL TANK AND DISPOSE OF TANK, 2" FUEL LINE, FUEL VENT PIPING, DAY TANK, FUEL PUMP AND MISCELLANEOUS ACCESSORIES AT AN APPROVED DISPOSAL SITE. DRAIN AND LAWFULLY DISPOSE OF EXISTING FUEL. REQUIRES OBSERVATION AND COORDINATION WITH DEPARTMENT OF ECOLOGY. CONTRACTOR IS TO PREPARE AND SUBMIT AN INTENT TO CLOSE UNDERGROUND STORAGE TANK 30-DAY NOTICE (FORM: ECY 020-95) TO THE DEPARTMENT OF ECOLOGY. IN addition, CONTRACTOR IS TO PERFORM AN UNDERGROUND STORAGE TANK SITE ASSESSMENT. SITE ASSESSMENT IS TO INCLUDE FIELD SCREENING AND COLLECTION OF SOIL SAMPLE ANALYTICAL RESULTS, AND PREPARATION/SUBMITTAL OF A UST SITE ASSESSMENT REPORT WITH DOE's UST SITE CHECK/SITE ASSESSMENT CHECKLIST.

BID SET

WILSON ENGINEERING, LLC
805 DUPONT STREET
BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
www.wilsonengineering.com
Wilson SURVEY/ENGINEERING

JEFFREY G. CHRISTIAN
STATE OF WASHINGTON
35896
REGISTERED
PROFESSIONAL ENGINEER
6-5-2015

DESIGNED BY	DRAWN BY	CHECKED BY
JGC	CJP	AWL

CITY OF FERNDALE
WHATCOM COUNTY WASHINGTON

PUMP STATION NO. 4
EXISTING SITE PLAN
& FUEL TANK DEMOLITION INFORMATION

DATE	SCALE	JOB NUMBER
4/22/2015	AS SHOWN	2013-037

SHEET C2.1 OF 23

W:\2013\2013-037 Ferndale PS No 4 Upgrade\Dwg\C2.1 EXISTING SITE PLAN.dwg, 6/12/2015 9:55:59 AM, cjp

NO.	REVISIONS	BY	DATE
1	REVISION PER ADDENDA	JGC	6/5/15

CONSTRUCTION SCHEDULE:

1. REMOVE BURIED FUEL TANK (AS NOTES ON C2.1) AND PROVIDE EXISTING GENERATOR TO CITY.
2. INSTALL PROPOSED 12" WATER MAIN, 8" FORCEMAIN CLEAN OUT/BYPASS VAULT, AND 8' DIAMETER WET WELL AND RELATED PUMP EQUIPMENT. FOR CLEAN OUT/BYPASS VAULT INSTALLATION, SEE REQUIREMENTS IN SECTION 01010 1.01 C.6.
3. ONCE WORK AROUND EXISTING PUMP WET WELL AND VALVE VAULT IS COMPLETE, COORDINATE BYPASS PUMPING. USE CONNECTION AT NEW CLEAN OUT/BYPASS VAULT WITH TEMPORARY PUMP EQUIPMENT. MINIMIZE BYPASS PUMPING AS MUCH AS POSSIBLE. SEE REQUIREMENTS IN SECTION 01010 1.01 B.7

SCALE 5 0 5 10 HORIZONTAL SCALE FEET

SEAL EXTERNAL MANHOLE AND WET WELL JOINTS WITH MASTIC SEAL. IN ADDITION, PROVIDE EXTERIOR WATERPROOF COATING PER 09900 SERVICE CONDITION C.

ADJUST RIM ELEVATION TO 0.1' ABOVE FINISH GRADE.

SITE BENCHMARK "FERN12"

PROPOSED 4' DIA. MANHOLE. SET MANHOLE ON TOP OF EXISTING 12" SEWER. POUR CONCRETE BASE. SEAL ALL VOIDS. CONCRETE BASE TO BE 12" THICK. REINFORCEMENT DESIGN BY CONTRACTOR, AND SUBJECT TO SUBMITTAL REVIEW.
RIM = 0.1' ABOVE FINISH GRADE
12" PVC (E) IE=7.45 (EX.)
15" PVC (SW) IE=7.35 (PROP)

REMOVE CLOUDED PORTION OF 12" SEWER AND PLUG DOWNSTREAM SIDE WITH CEMENT PLUG. PLUG TO BE 24" DEEP (MIN.) SEAL ALL VOIDS.

EXISTING CLOUDED 12" WATER MAIN TO BE REMOVED AND ROUTED AROUND PROPOSED PUMP STATION

PROPOSED 15" GRAVITY SEWER PIPE SLOPE = 0.8% LENGTH = 12'

REVERSE THRUST BLOCK. CONTRACTOR TO SUBMIT SKETCHES AND PLANS OF PROPOSED CONNECTION FOR REVIEW, COMMENT AND APPROVAL

EXISTING 5'x8' CONCRETE SLAB TO BE REMOVED AND DISPOSED OF

CONNECT NEW 12" D.I. WATER MAIN TO EXISTING 12" WATER MAIN. PROVIDE FITTINGS AS NEEDED.

45° BEND, RESTRAINED JOINT & THRUST BLOCK. 9 SQFT BEARING AREA MIN.

EXISTING CLOUDED 12" WATER MAIN TO BE REMOVED AND DISPOSED OF

WYE THRUST BLOCKS. 5 SQFT BEARING AREA EACH DIRECTION MIN.

RAISE PANELS, AS NEEDED, SO THAT BOTTOM ELEVATION = 23.50 (MIN.)

PROPOSED 8' DIA. WET WELL "B" RIM = 24.50 15" PVC (NE) IE=7.25

12% SLOPE (MAX)

1~ 12" 22.5° BEND, RESTRAINED JOINTS, & THRUST BLOCK W/ 5 SQFT MIN. BEARING AREA

1~ 12" 11.25° BEND, RESTRAINED JOINT & THRUST BLOCK W/ 3 SQFT MIN. BEARING AREA

DIESEL TANK

SWITCH BOX

PROPOSED GENERATOR

TOC = 23.50

CONDUIT

GENERATOR

PROPOSED 12" D.I. WATER MAIN

ENSURE 18" CLEARANCE BETWEEN WATER MAIN AND FORCE MAIN. WATERLINE TO BE ABOVE SEWER MAIN.

10% SLOPE (MAX)

CONNECT NEW 8" D.I. FORCE MAIN TO EXISTING 8" D.I. FORCE MAIN. PROVIDE FITTINGS AS NEEDED.

CLEANOUT / BYPASS VAULT. TOC TO BE 0.1' ABOVE FINISHED GRADE

PROVIDE FITTINGS AND BENDS AS NEEDED TO MATCH EXISTING 8" D.I. FORCE MAIN ALIGNMENT. FOR 45° THRUST BLOCK, PROVIDE 4 SQFT MIN. BEARING AREA.

EXISTING WELL "A" ADJUST RIM TOC TO BE 24.50

PLUG EXISTING 12" INLET (FROM SSMH 2117) WITH CEMENT.

EXISTING WELL "B" ADJUST RIM TOC TO BE 24.50

12' MIN ACCESS ROAD

PROPOSED 12" WATER MAIN

45° THRUST BLOCK. 9 SQFT BEARING AREA MIN.

22.5° THRUST BLOCK. 5 SQFT BEARING AREA MIN.

CONNECT NEW 12" D.I. WATER MAIN TO EXISTING 12" WATER MAIN. PROVIDE FITTINGS AS NEEDED.

REVERSE THRUST BLOCK. CONTRACTOR TO SUBMIT SKETCHES AND PLANS OF PROPOSED CONNECTION FOR REVIEW, COMMENT, AND APPROVAL. MOVE BOLLARD IF NEEDED.

N 06°40'37" W 25.00'

R = 925.00'

R = 950.00'

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JEFFREY G. CHRISTIAN STATE OF WASHINGTON 35898 REGISTERED PROFESSIONAL ENGINEER
6-5-2015

DESIGNED BY	DRAWN BY	CHECKED BY
JGC	CJP	AWL

CITY OF FERNDALE
WASHINGTON
WHATCOM COUNTY

PUMP STATION NO. 4
PROPOSED PIPING SITE PLAN

DATE	SCALE	JOB NUMBER
4/22/2015	AS SHOWN	2013-037

SHEET C2.2 OF 23

W:\2013\2013-037 Ferndale PS No 4 Upgrade\Dwg\C2.2-C2.3 PROPOSED SITE PLANS.dwg, 6/12/2015 9:31:52 AM, cjp

ADJUST RIM ELEVATION TO 0.1' ABOVE FINISH GRADE.

PROPOSED 4' DIA. MANHOLE. SET MANHOLE ON TOP OF EXISTING 12" SEWER. POUR CONCRETE BASE. SEAL ALL VOIDS. CONCRETE BASE TO BE 12" THICK. REINFORCEMENT DESIGN BY CONTRACTOR, AND SUBJECT TO SUBMITTAL REVIEW.

RIM = 0.1' ABOVE FINISH GRADE
12" PVC (E) IE=7.45 (EX.)
15" PVC (SW) IE=7.35 (PROP)

PROPOSED 7.5' X 14.5' CONCRETE PAD FOR GENERATOR

PROPOSED SECURITY FENCE PER SECTION 02830

CLOUDED ITEMS ARE TO BE REMOVED DURING CONSTRUCTION. SEE SECTION 02050-DEMOLITION

RAISE GUY WIRE SUPPORT ANCHOR TO MATCH PROPOSED GRADE

SUPPORT POWER POLE DURING CONSTRUCTION

PROPOSED 6 LF KEYSTONE WALL TW = 21.00

PROPOSED 12' WIDE DOUBLE LEAF GATE.

RAISE PANELS, AS NEEDED, SO THAT BOTTOM ELEVATION = 23.50 (MIN.)

REMOVE EXIST CONCRETE AND AC WITHIN PROPOSED FENCE PERIMETER AND REPLACE WITH MIN 6" DEPTH OF BASE COURSE PER WSDOT 9-03.9(3) TO FINISHED GRADE.

PROPOSED 12' WIDE DOUBLE LEAF GATE.

SAW CUT AC

PROPOSED 8' DIA. WET WELL "B" RIM = 24.50 15" PVC (NE) IE=7.25

12% SLOPE (MAX)

10% SLOPE (MAX)

PROPOSED GENERATOR TOC = 23.50

CLEANOUT / BYPASS VAULT. TOC TO BE 0.1' ABOVE FINISHED GRADE

EXISTING WELL "A" ADJUST RIM TOC TO BE 24.50

EXISTING WELL "B" ADJUST RIM TOC TO BE 24.50

PROPOSED 10 LF KEYSTONE WALL TW = 23.50

REMOVE EXISTING AC PAVEMENT

RESTORE 12' WIDE GRAVEL ACCESS RD IN KIND AS REQUIRED.

GRAVEL SECTION TO MATCH EXISTING GRAVEL ACCESS RD AS REQUIRED TO ENSURE 12' WIDE ACCESS.

~GRASSY FIELD~ ~GRAVEL~ ~ASPHALT~ ~CONC~ EXISTING 8" SEWER EXISTING 12" SEWER EXISTING 12" GRAVITY SEWER EXISTING 12" WATER MAIN DIESEL TANK SWITCH BOX GENERATOR CONDUIT GUY SSMH 2 12" CMP CULVERT INV= 15.83 INV= 15.56 SCALE HORIZONTAL SCALE FEET

PROPOSED SURFACING ELEVATIONS

× ①	23.25
× ②	23.25
× ③	23.40
× ④	23.25
× ⑤	23.50
× ⑥	23.50
× ⑦	23.60
× ⑧	23.50
× ⑨	23.60
× ⑩	23.50
× ⑪	23.75
× ⑫	23.65
× ⑬	23.75
× ⑭	23.50
× ⑮	23.25
× ⑯	23.50

PROPOSED SURFACING LEGEND

= PROPOSED ASPHALT PAVEMENT PER DETAIL A ON SHEET C4.2

= PROPOSED CRUSHED SURFACING PER DETAIL B ON SHEET C4.2

= EXISTING CRUSHED SURFACING RESTORE TO ORIGINAL CONDITION AFTER CONSTRUCTION COMPLETION

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6-5-2015

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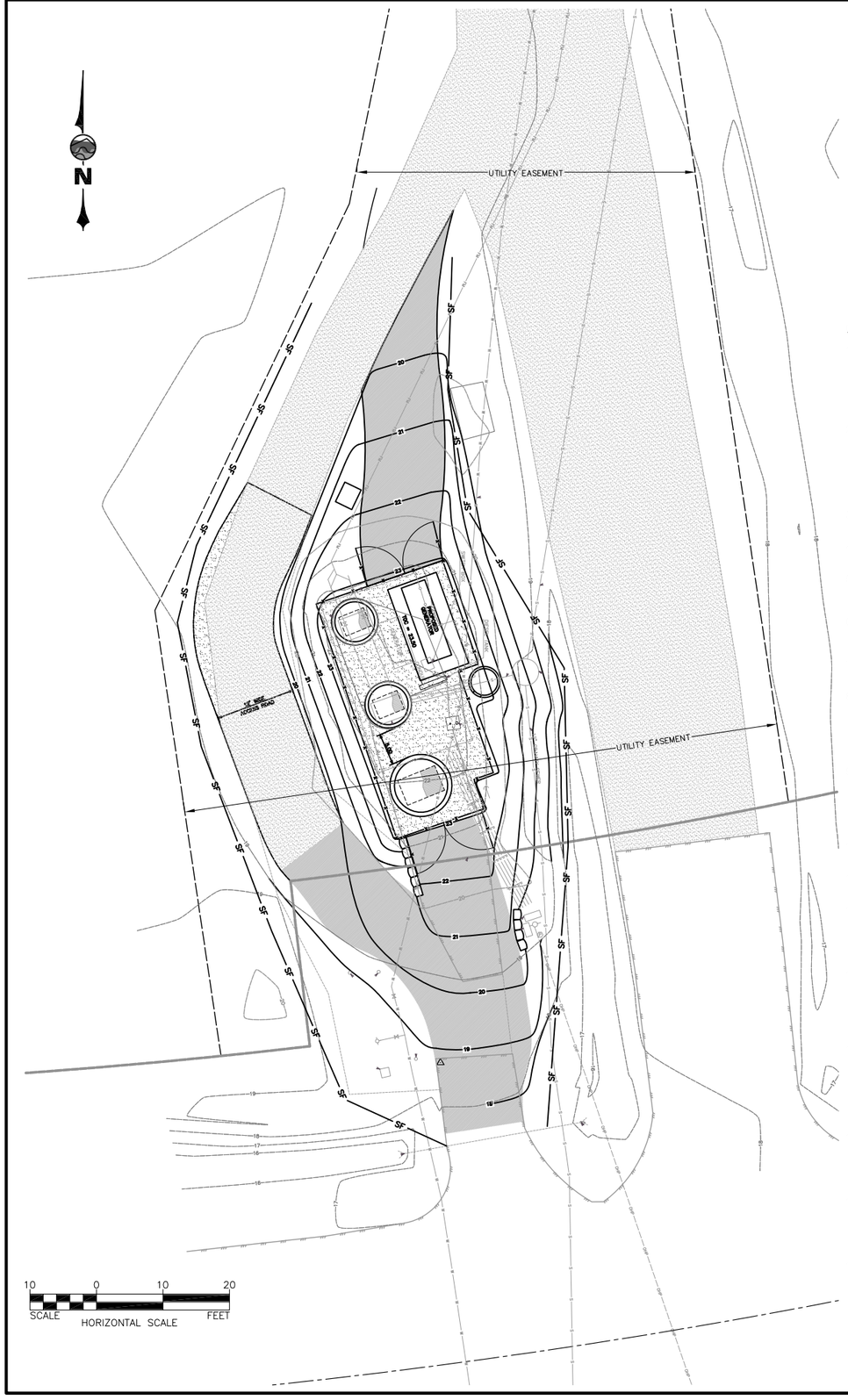
CITY OF FERNDALE
WHATCOM COUNTY WASHINGTON
PUMP STATION NO. 4
PROPOSED SITE GRADING AND DRAINAGE

DATE	SCALE	JOB NUMBER
4/22/2015	AS SHOWN	2013-037

SHEET C2.3 OF 23

W:\2013\2013-037 Ferndale PS No 4 Upgrade\Dwg\C2.2-C2.3 PROPOSED SITE PLANS.dwg, 6/12/2015 11:29:55 AM, cjp



TESC PLAN

NARRATIVE

EROSION AND SEDIMENT CONTROL BMPS: ANTICIPATED BMPS THAT WILL BE UTILIZED INCLUDE: MINIMIZING VEGETATION REMOVAL, TEMPORARY COVER MEASURES, PERMANENT SEEDING & PLANTING, SURFACE ROUGHING, AND FILTER FENCING. OTHER BMPS MAY BE UTILIZED TO MINIMIZE EROSION AND SEDIMENT TRANSPORT AS CONSTRUCTION SCHEDULES AND WEATHER CONDITIONS DICTATE.

TEMPORARY STABILIZATION: ALL DISTURBED AREAS SHALL BE STABILIZED IF IN THE EVENT OF RAIN. ALL DISTURBED AREAS SHALL BE STABILIZED IF UNWORKED FOR SEVEN DAYS.

PERMANENT STABILIZATION: ALL DISTURBED AREAS OUTSIDE OF ROADWAY SHOULDERS AND PARKING AREAS WILL BE PERMANENTLY LANDSCAPED OR SEEDED AND RESTORED TO THEIR EXISTING CONDITIONS.

CONVEYANCE BYPASS: PROVISION FOR BYPASS OF STORMWATER CONVEYANCE SHALL BE PROVIDED. BYPASS SHALL BE INSTALLED FOR THE DURATION OF THE WORK. MATERIALS FOR BYPASS NEED NOT BE INSTALLED WHILE WORK IS IN PROGRESS AT A PARTICULAR LOCATION, BUT MATERIALS AND EQUIPMENT FOR IMMEDIATE INSTALLATION SHALL BE ON HAND. BYPASS SHALL BE IN PLACE WHILE SITE IS UNATTENDED FOR GREATER THAN 12 HOURS. A TRENCH MAY BE DUG FOR THE BYPASS PRIOR TO INSTALLATION OF BYPASS IF NECESSARY AND FEASIBLE. ANY PIPING USED FOR BYPASS SHALL BE OF A DIAMETER AT LEAST ⅔ OF THE EXISTING PIPE/CULVERT DIAMETER.

MAINTENANCE: THE BMPS SHALL BE INSPECTED AS NEEDED (MINIMUM OF ONCE EVERY THREE DAYS) AND DURING/AFTER RAINFALL EVENTS. THE BMPS WILL BE MAINTAINED UNTIL THE RISK OF EROSION HAS PASSED AND THE AREA IS PERMANENTLY STABILIZED.

GENERAL NOTES

1. BMPS: BEST MANAGEMENT PRACTICES (BMPS) REFERRED TO ON THIS PLAN AND IN THESE NOTES SHALL BE CONSTRUCTED AND MAINTAINED AS DESCRIBED IN DEPARTMENT OF ECOLOGY'S STORMWATER MANAGEMENT MANUAL FOR THE PUGET SOUND BASIN, CHAPTER II–5, "STANDARDS AND SPECIFICATIONS FOR BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL."
2. EXTENT: THE EXTENT OF EROSION AND SEDIMENTATION CONTROL MEASURES IS DEPENDENT ON WEATHER CONDITIONS, SITE SLOPES, LENGTH OF TIME GROUND IS LEFT EXPOSED, AND THE AREA OF EXPOSED GROUND. THE CONTRACTOR SHALL AT ALL TIMES MINIMIZE THE RISK OF SITE EROSION BY CAREFUL SCHEDULING AND BY IMPLEMENTING AND MAINTAINING BMPS UNTIL THE SITE IS PERMANENTLY STABILIZED.
3. UNWORKED SOILS: ALL EXPOSED AND UNWORKED SOILS SHALL BE STABILIZED BY SUITABLE AND TIMELY APPLICATION OF BMPS.
4. VEGETATION: EXISTING VEGETATION SHALL BE PRESERVED WHERE ATTAINABLE.
5. SLOPES: CUT AND FILL SLOPES SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES SHALL BE STABILIZED AS SOON AS POSSIBLE.
6. OUTLETS: STABILIZATION ADEQUATE TO PREVENT EROSION OF OUTLETS AND ADJACENT STREAM BANKS SHALL BE PROVIDED AT THE OUTLETS OF ALL CONVEYANCE SYSTEMS.
7. INLETS: ALL EXISTING AND PROPOSED STORM DRAIN INLETS SHALL BE PROPERLY MAINTAINED AND PROTECTED FROM SILTATION.
8. ENTRANCES: PROVISION SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SOIL ONTO THE PAVED ROAD. IF SOIL IS TRANSPORTED ONTO A ROAD SURFACE, THE ROADS ADJACENT TO THE CONSTRUCTION SITE SHALL BE CLEANED ON A WEEKLY BASIS. STREET WASHING SHALL BE ALLOWED ONLY IF WASHWATER IS INFILTRATED IN THE RIGHT OF WAY.
9. TEMPORARY CONSTRUCTION ENTRANCE: IN PLACE OF A CONSTRUCTED CONSTRUCTION ENTRANCE, CONTRACTOR SHALL PROVIDE ADEQUATE PROVISIONS TO ENSURE THAT NO SEDIMENT IS TRACKED OFF THE CONSTRUCTION SITE. IN THE EVENT THAT SEDIMENT TRACKING OCCURS, CONTRACTOR SHALL REMOVE ALL TRACKED SEDIMENT IMMEDIATELY.
10. SITE RUNOFF: PRIOR TO FLOWING OFF THE SITE, STORMWATER RUNOFF SHALL PASS THROUGH A SILT FENCE OR EQUAL BMP.
11. ADJACENT PROPERTIES: PROPERTIES ADJACENT TO THE PROJECT SHALL BE PROTECTED FROM SEDIMENT DEPOSITION.
12. DOWNSTREAM WATERWAYS & PROPERTY: PROPERTIES AND WATERWAYS DOWNSTREAM FROM THE CONSTRUCTION SITE SHALL BE PROTECTED FROM EROSION DUE TO ANY TEMPORARY CHANGES IN VOLUME, VELOCITY, AND PEAK FLOW OF STORMWATER RUNOFF FROM THE PROJECT SITE.
13. REMOVAL OF BMPS: ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON–SITE. DISTURBED SOIL AREAS RESULTING FROM REMOVAL SHALL BE PERMANENTLY STABILIZED.
14. INSPECTIONS: ALL BMPS SHALL BE INSPECTED, MAINTAINED, AND REPAIRED BY THE CONTRACTOR AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. ALL ON–SITE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED REGULARLY AS NEEDED (AT LEAST ONCE EVERY SEVEN DAYS) AND DURING/WITHIN 24 HOURS AFTER ANY STORM EVENT OF GREATER THAT 0.5–INCHES OF RAIN PER 24–HOUR PERIOD.
15. REPORTS: THE CONTRACTOR SHALL PREPARE AND MAINTAIN REPORTS SUMMARIZING THE SCOPE OF INSPECTIONS, THE PERSONNEL CONDUCTING THE INSPECTION, THE DATES OF THE INSPECTION, MAJOR OBSERVATIONS ACTIONS TAKEN AS A RESULT OF THESE INSPECTIONS.
16. OTHER REQUIREMENTS: THE ENGINEER, OWNER, CITY OF FERNDALE, DEPARTMENT OF ECOLOGY, OR OTHER AGENCIES MAY REQUIRE BMPS IN ADDITION TO WHAT IS SHOWN ON THIS PLAN IF NECESSARY TO PREVENT VIOLATIONS OF SURFACE WATER QUALITY. THE CONTRACTOR SHALL IMPLEMENT THE BMPS AS REQUIRED.
17. IF AREA OF DISTURBANCE WILL EXCEED 1.0 ACRES, CONTRACTOR SHALL COMPLY WITH NPDES CONSTRUCTION GENERAL PERMIT REQUIREMENTS INCLUDING, BUT NOT LIMITED TO: FILING OF N.O.I. PUBLIC NOTICE, PREPARATION AND MAINTENANCE OF A SWPPP, MONITORING, REPORTING AND FILING OF A N.O.T.

LEGEND

SF = SILT FENCE BMP C–233

PROJECT WIDE BMPS

THE FOLLOWING BMPS SHALL BE IMPLEMENTED THROUGHOUT THE ENTIRE PROJECT TO THE MAXIMUM EXTENT POSSIBLE:

BMP C101 PRESERVING NATURAL VEGETATION. CONTRACTOR SHALL CLEAR AND DISTURB ONLY AREAS REQUIRED TO CONSTRUCT IMPROVEMENTS AND SHALL DILIGENTLY MINIMIZE DISTURBED AREA.

BMP C102 BUFFER ZONES. CONTRACTOR SHALL MARK CLEARING LIMITS AND KEEP ALL EQUIPMENT AND CONSTRUCTION DEBRIS OUT OF NATURAL AREAS.

BMP C120 PERMANENT SEEDING & PLANTING. CONTRACTOR SHALL COMPLETE REQUIRED LANDSCAPING AS RAPIDLY AS POSSIBLE. ALL OTHER DISTURBED AREAS OUTSIDE OF PAVED AREAS SHALL BE HYDROSEEDED AS RAPIDLY AS POSSIBLE WITH SUITABLE SEED–MULCH–FERTILIZER MIX FOR LOCAL CLIMATE.

BMP C121 MULCHING . CONTRACTOR SHALL MULCH ALL LANDSCAPED AREAS AS RAPIDLY AS POSSIBLE.

BMP C130 SURFACE ROUGHENING. CONTRACTOR SHALL ROUGHEN DISTURBED AREAS PRIOR TO PERMANENT SEEDING AND PLANTING.

BMP C140 DUST CONTROL. CONTRACTOR SHALL KEEP DUST FROM CONSTRUCTION ACTIVITIES AND EXPOSED SOILS TO A MINIMUM.

BMP C160 CERTIFIED EROSION CONTROL LEAD (MUST BE EMPLOYED BY GENERAL CONTRACTOR AND ON SITE DURING CONSTRUCTION.)

AREA SPECIFIC BMPs

THE FOLLOWING BMPs SHALL BE USED IN LOCATIONS IDENTIFIED ON THE SITE PLAN:

BMP C233 SILT FENCE. CONTRACTOR SHALL INSTALL SILT FENCE AT LOCATIONS NOTED ON PLANS.

BMP C233 – SILT (FILTER FABRIC) FENCE

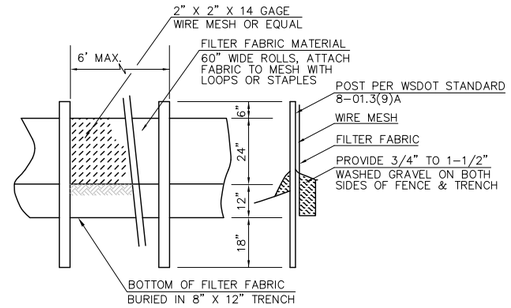
PURPOSE: USE OF A SILT FENCE REDUCES THE TRANSPORT OF COARSE SEDIMENT FROM A CONSTRUCTION SITE BY PROVIDING A TEMPORARY PHYSICAL BARRIER TO SEDIMENT AND REDUCING THE RUNOFF VELOCITIES OF OVERLAND FLOW.

INSTALLATION: USE DOWN SLOPE OF DISTURBED AREAS AS SHOWN ON THE PLAN AND AS NEEDED TO RESPOND TO SITE SPECIFIC CONDITIONS. GEOTEXTILE SHALL MEET THE FOLLOWING STANDARDS: POLYMETRIC MESH AOS (ASTM D4751) = 0.60 MM MAXIMUM FOR SLIT FILM WOVENS, 0.30 MM MAXIMUM FOR ALL OTHER GEOTEXTILES TYPES, AND 0.15 MM FOR ALL FABRIC TYPES, WATER PERMITTIVITY (ASTM D4491) = 0.2 SEC(–1) MINIMUM, GRAB TENSILE STRENGTH (ASTM D4632) = 180 POUNDS MINIMUM FOR EXTRA STRENGTH FABRIC, 100 POUNDS MINIMUM FOR STANDARD STRENGTH FABRIC, GRAB TENSILE ELONGATION (ASTM D4632) = 30% MAXIMUM, ULTRAVIOLET RESISTANCE (ASTM D4355) = 70% MINIMUM.

STANDARD STRENGTH FABRICS SHALL BE SUPPORTED WITH WIRE MESH, CHICKEN WIRE, 2–INCH X 2–INCH WIRE, SAFETY FENCE, OR JUTE MESH TO INCREASE THE STRENGTH OF THE FABRIC. SILT FENCE MATERIALS ARE AVAILABLE THAT HAVE SYNTHETIC MESH BACKING ATTACHED.

THE MINIMUM HEIGHT OF THE TOP OF THE SILT FENCE SHALL BE 2 FEET AND THE MAXIMUM HEIGHT SHALL BE 2.5 FEET.

MAINTENANCE: INSPECT THE FENCE AFTER RAINFALL EVENTS FOR SEDIMENT DEPOSITS UPSTREAM OF THE FENCE. REMOVE SEDIMENT DEPOSITS WHEN THEY REACH A DEPTH OF APPROXIMATELY 8 INCHES DEEP. REPLACE FILTER FABRIC FENCES DAMAGED BY CONSTRUCTION EQUIPMENT OR ULTRAVIOLET BREAKDOWN.



BMP C–233
SILT FENCE
NOT TO SCALE

IN PLACE OF A CONSTRUCTED CONSTRUCTION ENTRANCE, CONTRACTOR SHALL PROVIDE ADEQUATE PROVISIONS TO ENSURE THAT NO SEDIMENT IS TRACKED OFF THE CONSTRUCTION SITE. IN THE EVENT THAT SEDIMENT TRACKING OCCURS, CONTRACTOR SHALL REMOVE ALL TRACKED SEDIMENT IMMEDIATELY.

BID SET

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JEFFREY G. CHRISTIAN — STATE OF WASHINGTON — 35896 — REGISTERED PROFESSIONAL ENGINEER
6-5-2015

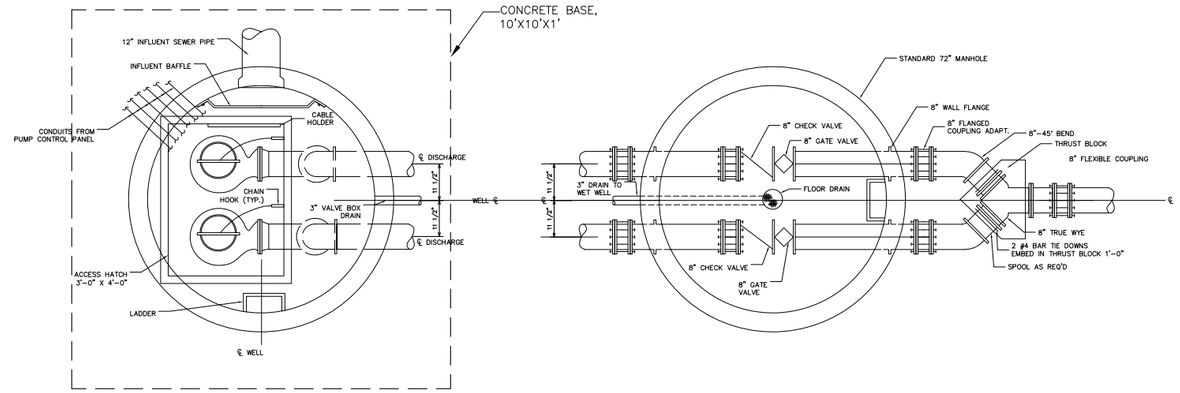
DESIGNED BY	DRAWN BY	CHECKED BY
JGC	CJP	AWL

CITY OF FERNDALE
WHATCOM COUNTY WASHINGTON
PUMP STATION NO. 4
TESC PLAN, DETAILS & NOTES

DATE	SCALE	JOB NUMBER
4/22/2015	AS SHOWN	2013-037

SHEET C2.4 OF 23

W:\2013\2013-037 Ferndale PS No 4 Upgrade\Dwg\C2.4 TESC.dwg, 6/12/2015 10:43:43 AM, cjp

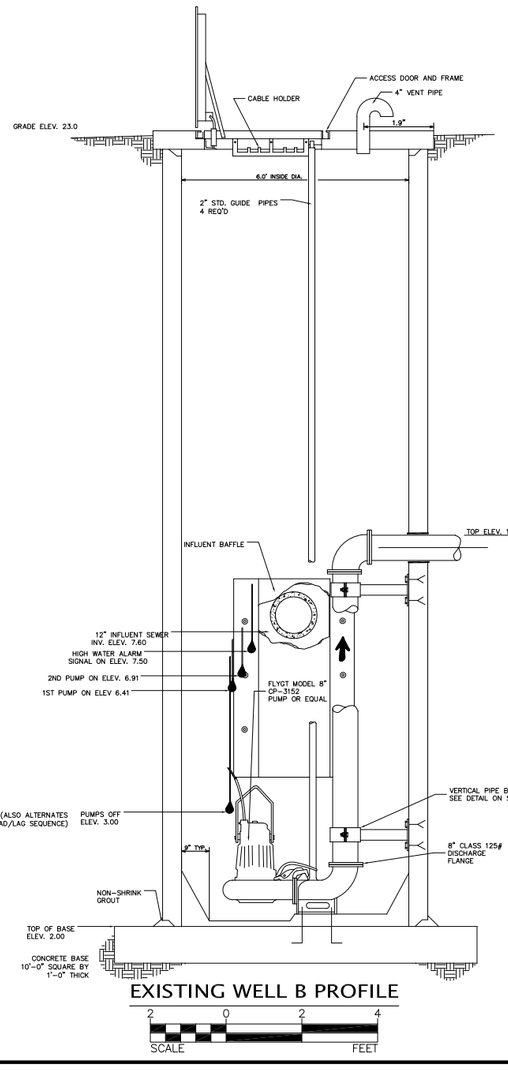


EXISTING WELL B PLAN

2 0 2 4
SCALE FEET

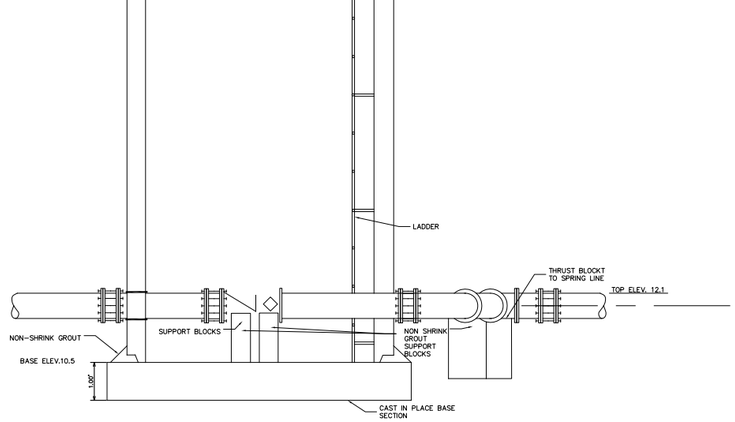
EXISTING WELL A PLAN

2 0 2 4
SCALE FEET



EXISTING WELL B PROFILE

2 0 2 4
SCALE FEET



EXISTING WELL A PROFILE

2 0 2 4
SCALE FEET

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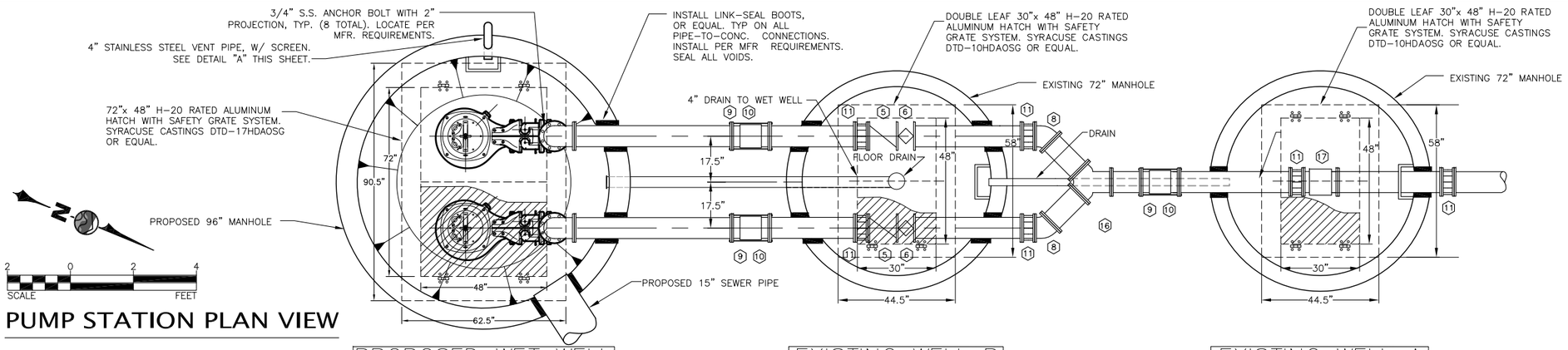
JEFFREY G. CHRISTIAN STATE OF WASHINGTON 35896 REGISTERED PROFESSIONAL ENGINEER
6-5-2015

DESIGNED BY	DRAWN BY	CHECKED BY
JGC	CJP	AWL

CITY OF FERNDALE
WHATCOM COUNTY WASHINGTON
PUMP STATION NO. 4
EXISTING PLAN AND PROFILE LAYOUT

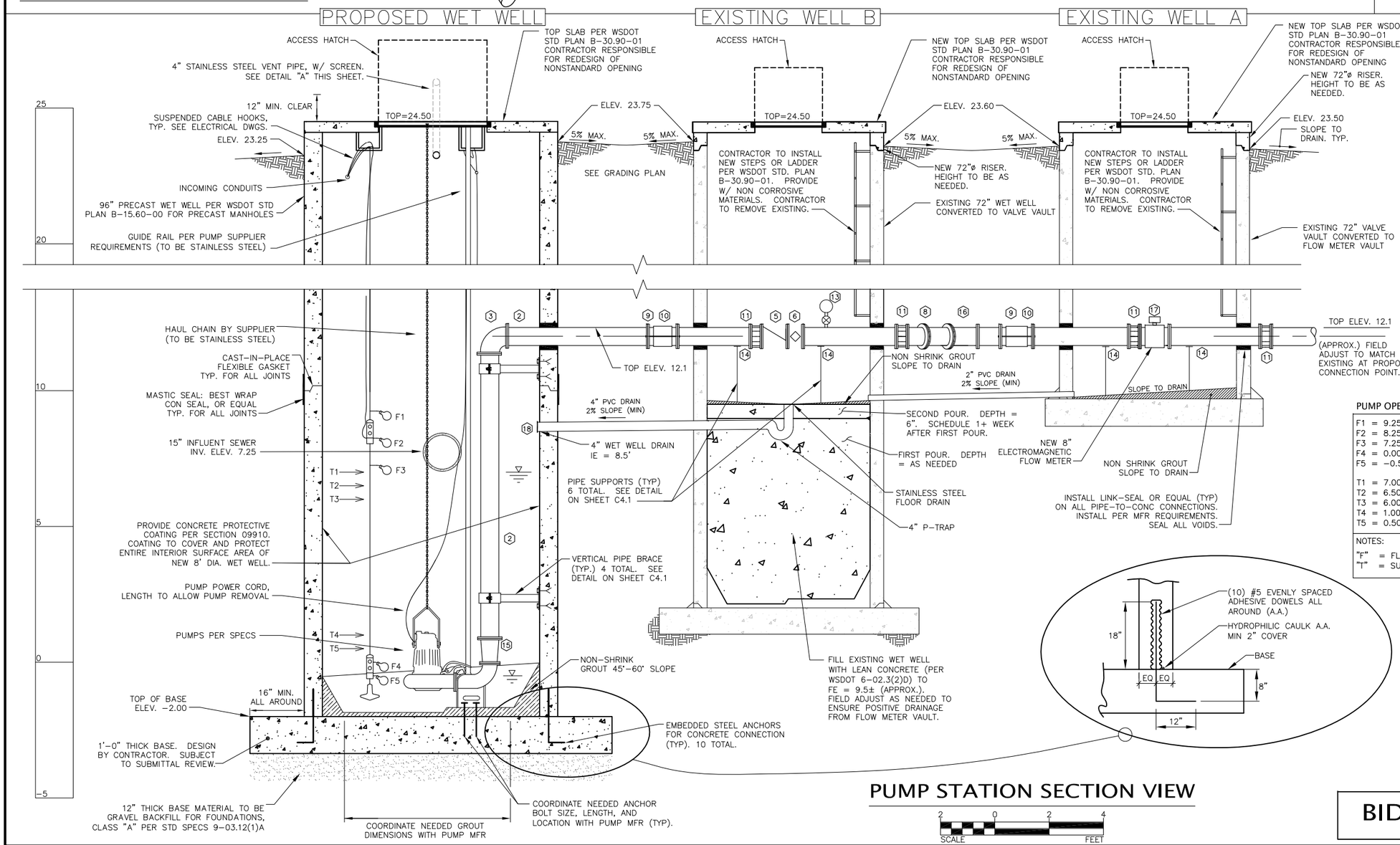
DATE	SCALE	JOB NUMBER
4/22/2015	AS SHOWN	2013-037

SHEET C3.1 OF 23



PUMP STATION PLAN VIEW

1. 8" D.I. SPOOL, FxMJ
2. 8" D.I. SPOOL, FxF
3. 8" D.I. 90° BEND, FxF
4. NOT USED
5. 8" CHECK VALVE, FxF
6. 8" GATE VALVE, FxF
7. 8" D.I. 22½ ° BEND, FLxFL
8. 8" D.I. 45° BEND, FLxFL
9. 8" BOLTED FLEX COUPLING, ROMAC STYLE "501" OR EQUAL.
10. 8" ROMAC STYLE "611" PIPE RESTRAINING SYSTEM OR EQUAL (200 PSI MINIMUM RESTRAINT)
11. 8" FLANGED COUPLING ADAPTOR (RESTRAINED)
12. 8" D.I. PIPE, FORCE MAIN, MJ
13. PRESSURE GAGE, ISOLATOR, & SHUTOFF VALVE
14. ADJUSTABLE PIPE SUPPORTS (6 TOTAL)
15. 8"x6" D.I. REDUCER (NOMINAL) FOR PUMP DISCHARGE, FxF. CONFIRM SIZE WITH PUMP MFR.
16. 8" TRUE WYE
17. 8" ELECTROMAGNETIC FLOW METER
18. 4" FLAP GATE FOR DRAIN PIPE.



PUMP STATION SECTION VIEW

SCALE 2 0 2 4 FEET

PUMP OPERATION LEVELS

F1 = 9.25'	HWL ALARM AND REDUNDANT BOTH PUMPS ON
F2 = 8.25'	LAG PUMP ON
F3 = 7.25'	LEAD PUMP ON
F4 = 0.00'	PUMP(S) OFF
F5 = -0.50	LWL ALARM AND REDUNDANT PUMP(S) OFF
T1 = 7.00'	HWL ALARM AND REDUNDANT BOTH PUMPS ON
T2 = 6.50'	PUMPS ON
T3 = 6.00'	LEAD PUMP ON
T4 = 1.00'	PUMP(S) OFF
T5 = 0.50'	LWL ALARM AND REDUNDANT PUMP(S) OFF

NOTES:
"F" = FLOAT CONTROL
"T" = SUBMERSIBLE TRANSDUCER CONTROL (PLC CONTROL)

SINGLE PUMP DESIGN FLOWS

LWL:	1090 GPM
HWL:	1210 GPM
AVG. FLOW CAPACITY:	1150 GPM

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805 DUPONT STREET
BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
www.wilsonengineering.com
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JEFFREY G. CHRISTIAN — STATE OF WASHINGTON — 35896 — REGISTERED PROFESSIONAL ENGINEER
6-5-2015

DESIGNED BY	DRAWN BY	CHECKED BY
JGC	CJP	CJP

CITY OF FERNDALE
WHATCOM COUNTY WASHINGTON
PUMP STATION NO. 4
PROPOSED PLAN AND PROFILE LAYOUT

DATE	SCALE	JOB NUMBER
4/22/2015	AS SHOWN	2013-037

SHEET C3.2 OF 23

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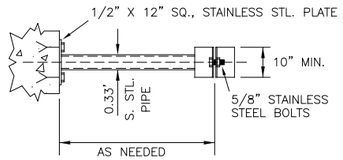
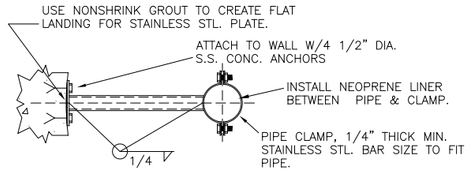
NO.	REVISIONS	BY	DATE
1	REVISION PER ADDENDA	JGC	6/5/15



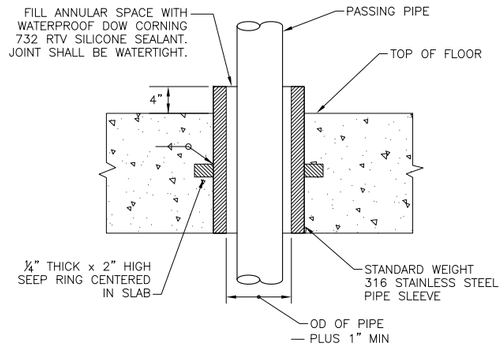
ELEVATION



PLAN VIEW

A — VERTICAL PIPE BRACE

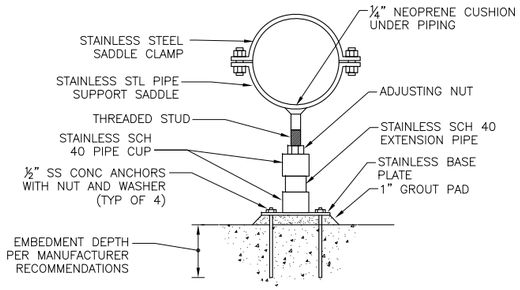
NOT TO SCALE



B — FLOOR/WALL SLEEVE DETAIL

NOT TO SCALE

NOT USED



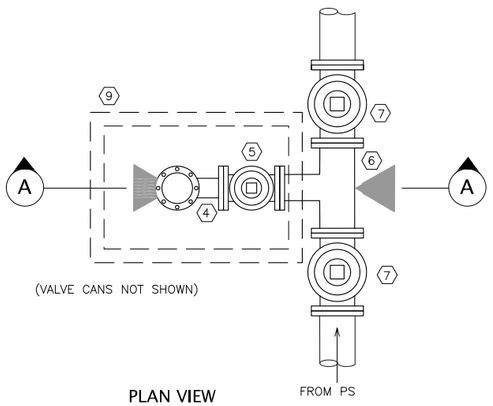
SADDLE SIZE	½"x2"
THREADED STUD	1"x6"
CUP ID	2½"
¼" BASE PLAT	6"x6"
EXTENSION PIPE DIA	2"

NOTES:

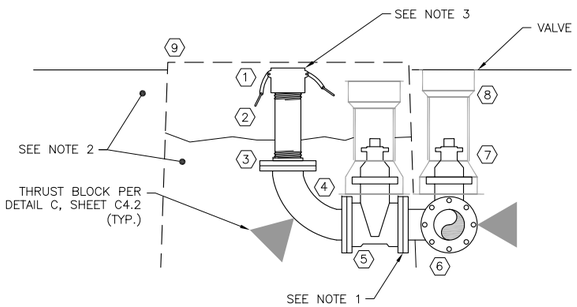
1. TO INSURE PROPER SUPPORT AND STABILITY, AFTER FINAL HEIGHT ADJUSTMENT IS ATTAINED, APPLY TACK WELDS TO BOTH SUPPORT CUPS AND EXTENSION PIPE. USE E70XX ELECTRODE FOR WELDS.
2. ALL PARTS TO BE STAINLESS STEEL.
3. FIELD PAINT AS SPECIFIED. PER 09900

C — PIPE SUPPORT DETAIL

1. 6–IN. STAINLESS STEEL FEMALE CAM & GROOVE BY 6–IN. FNPT ADAPTER
2. 6–IN. STAINLESS STEEL NPT NIPPLE (MIN. 8" LONG)
3. 6–IN. D.I. FLANGE TO 6–IN. FNPT ADAPTER (COMPANION FLANGE)
4. 6–IN. D.I. LONG RADIUS BEND (FL)
5. 6–IN. GATE VALVE (FL)
6. D.I. TEE (FL) – SEE NOTE 4
7. 8–IN. GATE VALVE (FLXMJ) – SEE NOTE 4
8. CAST IRON VALVE BOX
9. H20 LOADING CONCRETE METER BOX WITH CAST ITON LID. LID TO BE LOCKABLE WITH PAD LOCK



PLAN VIEW



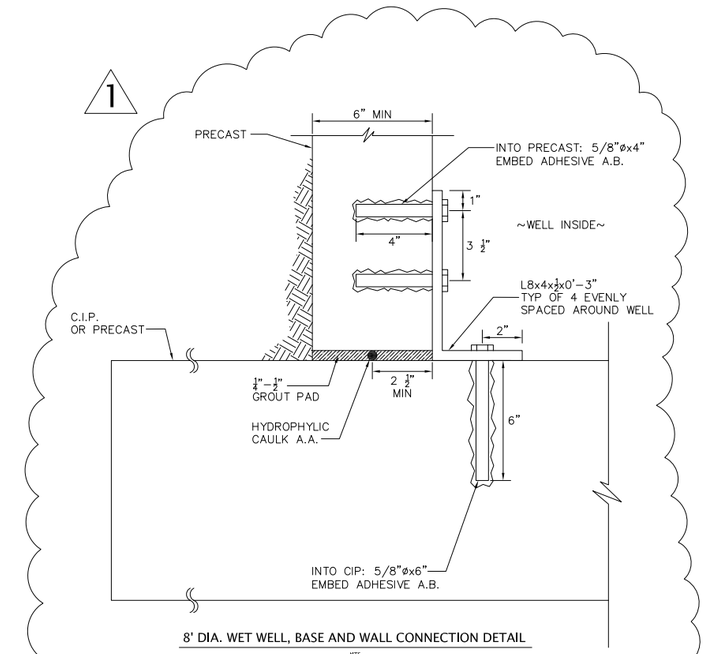
SECTION A–A

NOTES:

1. INSTALL ADDITIONAL PIPING BETWEEN TEE AND PUMPING PORT VALVE AS REQUIRED TO INSTALL PORT IN LOCATION APPROVED BY ENGINEER.
2. BACKFILL IN AND AROUND METER BOX SHALL BE CRUSHED SURFACING TOP COURSE PER WSDOT 9–03.9(3). INSTALL MINIMUM 1 FOOT WIDE GRAVEL 'COLLAR' AROUND BOX.
3. ALLOW 4–IN. SPACE BETWEEN THE TOP OF THE CAM & GROOVE FITTING AND THE INSIDE OF THE METER BOX LID.
4. FORCE MAIN IS 8–IN. D.I. SNORKEL WILL REQUIRE AN 8x6 TEE AND TWO 8–IN. GATE VALVES (FLxMJ).

D — BYPASS PUMPING PORT ASSEMBLY

NOT TO SCALE



8' DIA. WET WELL, BASE AND WALL CONNECTION DETAIL

INTS

E — OPTIONAL 8' DIA. WET WELL, BASE AND WALL CONNECTION DETAIL

NOT TO SCALE

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805 DUPONT STREET
BELLINGHAM, WA 98225
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6-5-2015

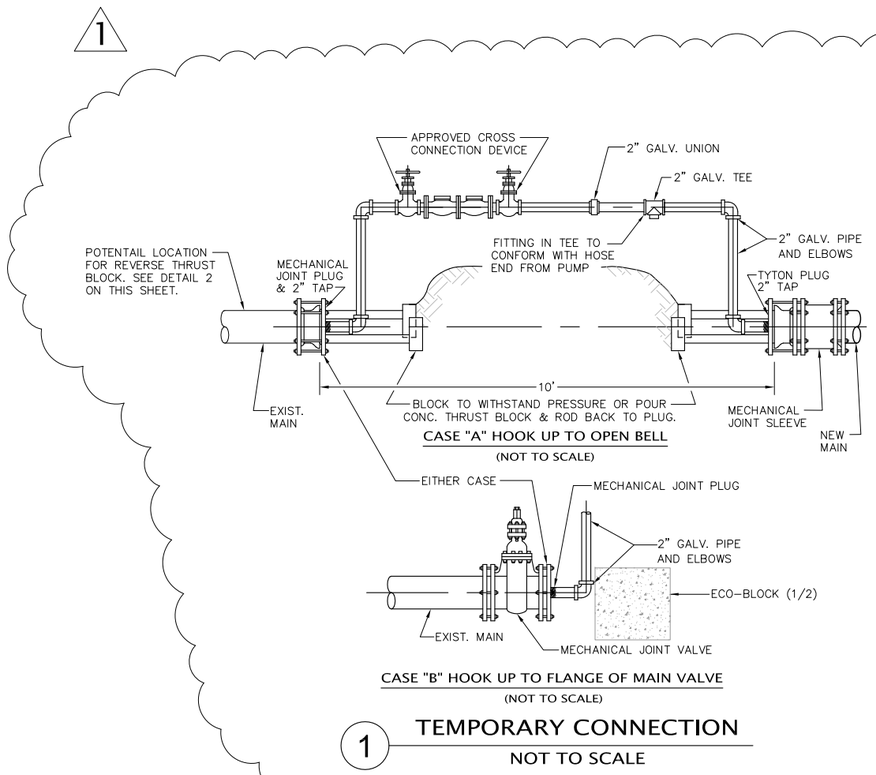
DESIGNED BY	DRAWN BY	CHECKED BY
JGC	CJP	AWL

CITY OF FERNDALE
WHATCOM COUNTY WASHINGTON
PUMP STATION NO. 4
DETAILS

DATE	SCALE	JOB NUMBER
4/22/2015	AS SHOWN	2013-037

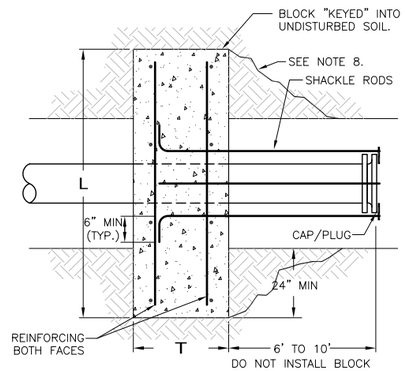
SHEET C4.1 OF 23

NO.	REVISIONS	BY	DATE
1	REVISION PER ADDENDA	JGC	6/5/15

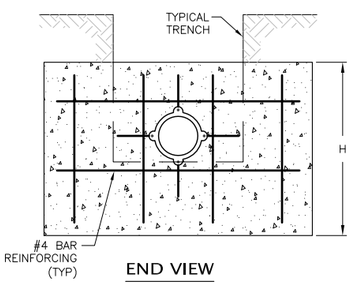


1 TEMPORARY CONNECTION

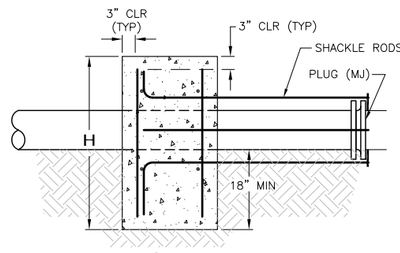
NOT TO SCALE



PLAN VIEW



END VIEW



PROFILE

NOTES

1. THIS STANDARD DETAIL IS FOR DEADMAN BLOCKING ONLY.
2. CONCRETE BLOCK SHALL BE PER APWA SPECIFICATION 7-11.3(13), CURRENT EDITION.
3. MAINTAIN 18" MINIMUM COVER OVER THE TOP OF BLOCK.
4. BOTTOM OF BLOCK IS TO BE ON UNDISTURBED SOIL.
5. TRENCH TO BE BACKFILLED WITH CRUSHED ROCK COMPACTED TO FIRM AND UNYIELDING CONDITION ON ALL SIDES OF BLOCK AND A DISTANCE OF 4' MIN. IN FRONT OF BLOCK TO FULL DEPTH OF BLOCK.
6. UPON EXTENSION OF WATER MAIN, SHACKLE RODS ARE TO BE CUT, REMOVE PLUG. CONCRETE BLOCK TO REMAIN IN PLACE.
7. FOR SOIL CONDITIONS NOT SHOWN, BLOCK IS TO BE DESIGNED BY ENGINEER.
8. IF BLOCK CANNOT BE KEYED INTO UNDISTURBED SOIL TO THE SATISFACTION OF THE DISTRICT ENGINEER, a) THE BLOCK LENGTH SHALL BE EXTENDED TO PROVIDE AN ADEQUATE KEY OR b) CDF SHALL BE USED TO FILL BACK TO NATIVE SOIL OR c) THE TRENCH SHALL BE BACKFILLED AND COMPACTED TO FIRM AND UNYIELDING CONDITION A MINIMUM DISTANCE OF 15 FEET IN FRONT OF THE BLOCK TO THE SATISFACTION OF THE DISTRICT ENGINEER.
9. SEE STANDARD DETAIL W-07 FOR ADDITIONAL SHACKLE ROD INFORMATION.

SIZING TABLE

PIPE DIA	T (min)	H (min)	SHACKLE RODS	REINFORCING
6"	18"	36"	(4) 5/8" dia	#4 @ 10" OC EW
8"	18"	42"	(4) 3/4" dia	#4 @ 12" OC EW
10"	24"	52"	(6) 3/4" dia	#4 @ 12" OC EW
12"	24"	54"	(6) 7/8" or (8) 3/4" dia	#4 @ 8" OC EW
14"	24"	56"	(8) 7/8" or (10) 3/4" dia	#4 @ 6" OC EW
16"	30"	58"	(10) 7/8" dia	#4 @ 5" OC EW

BLOCK SIZES GOOD TO MAXIMUM 300psi TEST PRESSURE

MIN. BLOCK LENGTH (L)

	SOIL CONDITION					
PIPE ø	SOFT CLAY	SILT	SANDY SILT	SAND	SANDY CLAY	HARD CLAY
6"	84"	72"	72"	72"	72"	72"
8"	108"	84"	75"	75"	75"	75"
10"	132"	104"	77"	77"	77"	77"
12"	180"	138"	82"	80"	80"	80"
14"	228"	174"	102"	82"	82"	82"
16"	288"	216"	126"	100"	84"	84"

2 REVERSE THRUST BLOCK DETAIL

NOT TO SCALE

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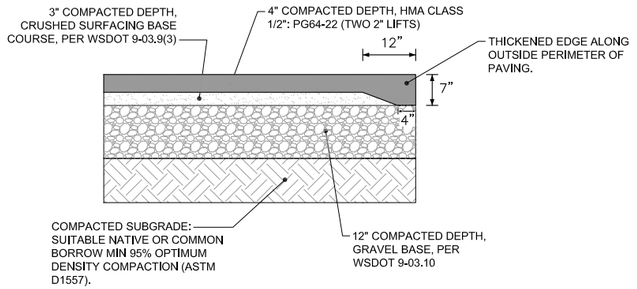
6-5-2015

DESIGNED BY	DRAWN BY	CHECKED BY
JGC	CJP	CJP

CITY OF FERNDALE
WHATCOM COUNTY WASHINGTON
PUMP STATION NO. 4 ADDENDUM No.1
WATER MAIN CONNECTION DETAILS

DATE	SCALE	JOB NUMBER
4/22/2015	AS SHOWN	2013-037

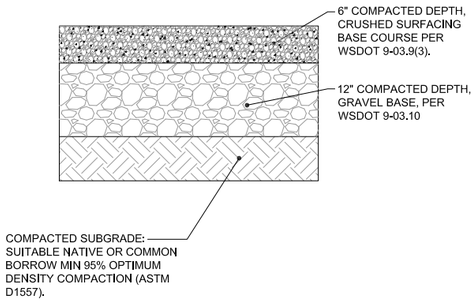
SHEET C4.1A OF 23



STANDARD ASPHALT SECTION

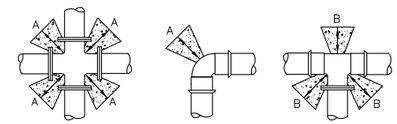
A TYPICAL ASPHALT CONCRETE PAVEMENT SECTION

* NOT TO SCALE



B TYPICAL GRAVEL ACCESS SECTION

* NOT TO SCALE

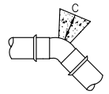


CROSS

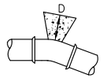
90° BEND

TEE

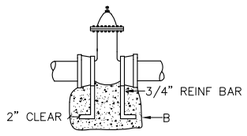
CAP or PLUG



45° BEND

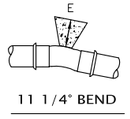


22 1/2° BEND



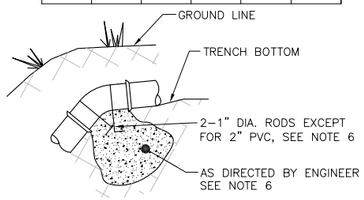
IN-LINE GATE VALVE

(PARTIAL RESTRAINT MUST BE PROVIDED BY PIPELINE BEYOND VALVE)



11 1/4° BEND

THRUST BLOCK TABLE					
MINIMUM BEARING AREA AGAINST UNDISTURBED SOIL IN SQUARE FEET					
PIPE SIZE	A	B	C	D	E
4"	2	2	2	2	2
6"	4	3	2	2	2
8"	7	5	4	2	2
10"	11	8	6	3	2
12"	16	12	9	5	3
16"	29	20	16	8	4
20"	45	32	24	13	6



VERTICAL BEND

NOTES

1. SQUARE FEET OF CONCRETE THRUST BLOCK AREA IS BASED ON 200 P.S.I. INTERNAL PRESSURE, A SOIL SAFE BEARING OF 3000 POUNDS PER SQUARE FOOT AND A FACTOR OF SAFETY OF 1.5.

2. BEARING AREA MUST BE ADJUSTED FOR INTERNAL PRESSURES AND LOWER SOIL BEARING VALUES.

3. CONCRETE BLOCKING SHALL BE CAST IN PLACE AND HAVE A MINIMUM OF 1/4 SQUARE FOOT BEARING AGAINST THE FITTING.

4. BLOCK SHALL BEAR AGAINST FITTINGS ONLY AND SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP OR DISMANTLING JOINT.

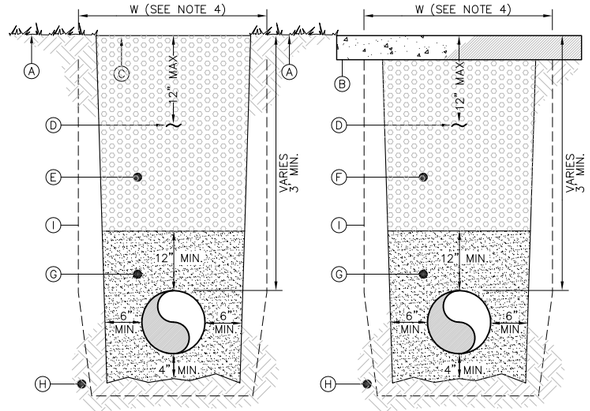
5. THE CONTRACTOR SHALL INSTALL BLOCKING WHICH IS ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.

6. STAINLESS STEEL BANDING SHALL BE USED AT 2" PVC VERTICAL BENDS INSTEAD OF 1" RODS. CONTACT ENGINEER FOR SIZING OF THRUST BLOCK AND DETAILS.

7. ALL BENDS, TEES & CROSSES SHALL INCLUDE RESTRAINED JOINTS (ROMAC GRIPPER) AS WELL AS THRUST BLOCKING.

C WATERLINE AND FORCEMAIN THRUST BLOCKING SCHEDULE

* NOT TO SCALE



UNPAVED AREAS

PAVED AREAS

TRENCH NOTES:

A. HYDROSEED EXPOSED AREAS.

B. NEW SIDEWALK OR PAVEMENT

C. NEW LANDSCAPED SURFACE.

D. 2" METALLIC DETECTOR TAPE 8" TO 12" BELOW FINISH GRADE.

E. BANK RUN GRAVEL BACKFILL PER WSDOT 9-03.19 COMPACTED TO 90% MAX. DENSITY INSIDE RIGHT-OF-WAY.

NATIVE BACKFILL MATERIAL (8" MAX.) COMPACTED TO 90% MAX. DENSITY PERMITTED OUTSIDE OF RIGHT-OF-WAY.

F. BANK RUN GRAVEL BACKFILL PER WSDOT 9-03.19 COMPACTED TO 95% MAX. DENSITY

G. PIPE ZONE GRAVEL BEDDING PER WSDOT 9-03.12(3) COMPACTED TO 95% MAX. DENSITY

H. UNDISTURBED NATIVE MATERIAL

I. ROCK EXCAVATION PAY LIMITS PER WSDOT STANDARD SPECIFICATIONS.

FLEXIBLE PIPE NOTES:

1) PROVIDE UNIFORM SUPPORT UNDER BARRELS.

2) HAND TAMP UNDER HAUNCHES.

3) COMPACT BEDDING MATERIAL TO 95% MAX. DENSITY; DIRECTLY OVER PIPE, HAND TAMP ONLY.

4) SEE "EXCAVATION AND PREPARATION OF TRENCH" IN SANITARY SEWERS SECTION OF THE STANDARD WSDOT/APWA SPECIFICATIONS FOR TRENCH WIDTH "W" AND TRENCHING OPTIONS. THE PIPE ZONE WILL BE THE ACTUAL TRENCH WIDTH. THE MINIMUM CONCRETE WIDTH SHALL BE 1-1/2 I.D. + 18".

5) ROCKS OR LUMPS LARGER THAN 1" PER FOOT OF PIPE DIAMETER SHALL NOT BE USED IN THE BACKFILL MATERIAL.

6) SEE "BEDDING MATERIAL FOR FLEXIBLE PIPE" IN AGGREGATES SECTION OF THE WSDOT/APWA STANDARD SPECIFICATIONS FOR THE MATERIAL SPECIFICATIONS.

D TYPICAL PIPE TRENCHING & BACKFILL

* NOT TO SCALE

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805 DUPONT STREET
BELLINGHAM, WA 98225
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DESIGNED BY	DRAWN BY	CHECKED BY
JGC	CJP	AWL

CITY OF FERNDALE
WHATCOM COUNTY
WASHINGTON
PUMP STATION NO. 4
DETAILS

DATE	SCALE	JOB NUMBER
4/22/2015	AS SHOWN	2013-037

SHEET C4.2 OF 23

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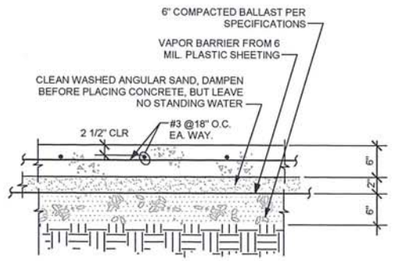

NOTES:
1. PLACE SLAB ON FIRM BEARING MATERIAL.
2. OMIT VAPOR BARRIER AT SIMILAR OUTDOOR SLABS.

A / S4.0 **Concrete Pad for Generator**

Scale: N.T.S.

STRUCTURAL NOTES

BUILDING CODE CRITERIA

1 All construction is to be in accordance with the minimum provisions of the 2009 International Building Code (IBC). Where these plans and specifications do not state specifically otherwise the provisions of the UBC shall apply.
2 These drawings show the design of a foundation for a pre-manufactured metal building, as well as basic design criteria for which the metal building shall be designed. Wilson Engineering is not responsible for the design of the metal building. The manufacturer shall have on staff or retain a Professional Engineer for the design of the building itself. The design shall be based on the loads given below.
3 Design Roof (Snow) Load: 25 PSF
4 Lateral Loads:

Seismic Loading		Wind Loading (3 s gust)		
Site Class	D	Basic Wind Speed	90	MPH
S ds	1.14	Exposure	C	
S d1	0.33	Kzt (ASCE 7-10)	1.1	
Importance Factor		1.5		

5 Special Inspections
No Special Inspections are required for this project. Footing concrete requires f'c ≤ 2500 psi for structure; higher strengths have been specified for other reasons. Special inspection is not required.
6 Structural Observation
The Structural Engineer of record will perform Structural Observations as defined by the IBC, if required.

01000 GENERAL

1 Employ good standards of workmanship throughout. Provide all materials and perform all construction as indicated. Secure architect's approval for substitutions.
2 See specifications for detailed material and methods. In case of conflict between applicable codes, these notes, and the drawings, the more stringent will govern.
3 Verify all dimensions in the field, and upon discovery of any discrepancies between the drawings and/or field conditions notify Wilson Engineering.
4 Use these drawings in conjunction with the architectural and other drawings. They are not to stand alone. These drawings and the designs herein are copyrighted by Wilson Engineering, and are for use on this project only. They may not be copied or used for any other project or purpose other than as originally intended without written approval from Wilson Engineering.
5 Do not scale drawings.
6 Use typical details and schedules wherever applicable.
7 The drawings do not indicate the method of construction. The contractor is solely responsible for design and supply of all erection bracing and shoring, and for safety programs, methods, and procedures of operation for the construction of the design shown on these drawings.

02220 FOUNDATIONS & EARTHWORK

1 Spread footings are designed for a maximum total pressure of 1500 PSF.
2 Remove all topsoil and organic material from building area, including exterior slabs and walks attached to building.
3 Place footings against firm, undisturbed bearing soil or approved fill, as identified in soils report prepared by GeoTest Services Inc., June 19, 2013.

03150 CONCRETE ACCESSORIES & HARDWARE

1 Adhesive-installed anchor bolts shall be steel of a grade appropriate to the application, with epoxy or polymer resin adhesive of consistency appropriate to the application. Anchors shall have a current ICC-ES report stating that they are approved for use in cracked concrete.
Accepted products include:
A. Simpson Strong-Tie IXP anchor with Set-XP adhesive
B. Hilti HAS threaded rods with Hilti HIT-RE 500-SD system adhesive
2 Expansion anchor-bolts shall be steel wedge-type bolts, with hold diameter equal to bolt diameter. Dry location bolts shall be cad-plated; bolts in exterior locations and wet locations shall be stainless steel. Anchors shall have a current ICC-ES report stating that they are approved for use in cracked concrete. Accepted products include:
A. Simpson "Strong-Bolt"
B. Hilti "HSL-3"
C. ITW Red Head "Tru-Bolt+" Seismic Wedge
4 Expansion or epoxy anchor bolts shall have minimum embedment of 12 bolt diameters, unless noted otherwise on drawings. The hole diameter and preparation shall be per manufacturer's instructions; thoroughly clean holes before installing bolts.
5 Cast-in-place anchor bolts set in concrete or masonry shall conform to ASTM F1554-07 Grade 36, with Supplement S1 and shall be either headed steel bolts with rolled or cut threads and a standard washer, or threaded steel rod with a standard nut and washer at the embedded end. Do not use "J" bolts without nuts and washer at the embedded end.
6 Embedment (to the closest face of the washer) for cast-in-place anchors shall not be less than 7 inches.
7 For further information regarding anchors at building column base plates, consult the metal building manufacturer.

03300 REINFORCED CONCRETE

1 Reinforcing shall be ASTM A615, Gr. 60, except that #3 bars may be Gr. 40.
Welded Wire Fabric: Do not use WWF in slabs, use rebar per details
2 Bar detailing not shown otherwise, and support of reinforcing bars shall conform to the CRSI Manual of Standard Practice. Reinforcing which is marked "continuous" shall extend as far as possible in the concrete and terminate in a 12-diameter bend or per typical corner details, as appropriate. Shop fabricate all bends. Lap all continuous bars 48 dia., wire tie all lap splices. Welding of reinforcing is not permitted.
3 Concrete Materials:
Stone aggregate per ASTM C33, ASTM C150 Type Type I or II Cement
Use ASTM C260 air entraining admixture for outdoor exposure conditions
Water-reducing ASTM C494 Type A is permitted
All concrete shall be ready-mix. Comply with requirements of ASTM C 94.
Concrete 28 day strengths and other properties shall be as follows:

Applications	f'c (max)	w/c (max)	aggregate Content	Air (psi)
Slabs and Footings	3500	0.45	3/4"	6.0 % ± 1.5 %

4 Hold all bolts, anchors, dowels, reinforcing bars and metal inserts firmly and accurately in place before concrete is poured; do not insert ("stab") after pouring concrete.
5 See architectural drawings for all slab finish details, exact location of depressed slab areas, threshold requirements, floor drains, and slopes.
Walkways and sidewalks are not shown on the structural drawings; see architectural drawings for locations, dimensions, finishes, and elevations. Reinforce per typical details, these drawings.

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WILSON ENGINEERING, LLC
805 DUPONT STREET
BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
www.wilsonengineering.com
Wilson SURVEY/ENGINEERING

CHARLES B. WAUGH — STATE OF WASHINGTON — 18628 — REGISTERED PROFESSIONAL ENGINEER — 4/22/2015

DESIGNED BY	DRAWN BY	CHECKED BY
CBW	SJW	JGC

CITY OF FERNDALE
WASHINGTON
WHATCOM COUNTY

PUMP STATION NO. 4
TYPICAL DETAILS

DATE	SCALE	JOB NUMBER
4/22/2015	AS SHOWN	2013-037

SHEET S1.1 OF 22

W:\2013\2013-037 Ferndale PS No 4 Upgrade\Dwg\S4.0 TYPICAL DETAILS.dwg, 4/22/2015 9:09:35 AM, JGS

RACEWAYS AND CONDUCTORS

- MANUFACTURERS CORD/CABLE
- HEAT TAPE ON PIPING
- FLEXIBLE CONDUIT
- TWISTED SHIELDED PAIR
- S — SEWER LINE
- OE — OVERHEAD ELECTRICAL
- EE — EXISTING CONDUIT UNDERGROUND
- CONDUIT EXPOSED
- CONDUIT BELOW GRADE OR CONCEALED
- CONDUIT CAPPED
- CONDUIT BENT UP OR TOWARD
- CONDUIT BENT DOWN OR AWAY
- GROUNDING CAD WELD CONNECTION
- CONDUCTORS NOT CONNECTED
- CONDUCTORS CONNECTED
- CONDUIT SEALS CLASS 1, DIV. 1 EXPLOSION PROOF
- NEW EQUIPMENT (STANDARD LINEWEIGHT)
- EXISTING EQUIPMENT (E) (LIGHT LINEWEIGHT)
- EQUIPMENT TO BE REMOVED

LIGHTING AND RECEPTACLES

- a / F1 — FLUORESCENT LIGHTING FIXTURE. FIXTURE IDENTIFIER AND SWITCHED CIRCUIT INDICATED. REFER TO LIGHTING SCHEDULE FOR FIXTURE AND LAMP TYPE.
- a / F1 — FLUORESCENT LIGHTING FIXTURE WITH EMERGENCY BATTERY PACK
- LIGHTING FIXTURE, EMERGENCY DUAL HEAD WITH INTEGRAL BATTERY PACK. EXIT SIGN WHERE INDICATED.
- LED EXIT SIGN
- INCANDESCENT, COMPACT FLUORESCENT OR H.I.D. LIGHTING FIXTURE, CEILING MOUNTED
- PHOTOELECTRIC CONTROL UNIT. WALL MOUNTED
- LIGHTING FIXTURE, POLE MOUNT
- LIGHTING FIXTURE, WALL MOUNT
- 3 — DUPLEX RECEPTACLE, NUMBER INDICATES CIRCUIT. GFCI WHERE INDICATED
- 3 — FOURPLEX RECEPTACLE, NUMBER INDICATES CIRCUIT.
- 3 — DUPLEX RECEPTACLE MOUNTED 6" ABOVE COUNTER NUMBER INDICATES CIRCUIT.
- 3 — DUPLEX RECEPTACLE FLOOR MOUNTED, NUMBER INDICATES CIRCUIT.
- SPECIAL PURPOSE RECEPTACLE OR DEDICATED EQUIPMENT CONNECTION, AS NOTED.
- TELEPHONE OUTLET
- DATA OUTLET
- SPLIT TELEPHONE DATA OUTLET
- IC — INTERCOM
- 3a — SWITCH, NUMBERS REFER TO SWITCH TYPE AND SWITCHED CIRCUIT.
- J — JUNCTION BOX
- J XP — JUNCTION BOX, EXPLOSION PROOF
- T — THERMOSTAT

CALLOUTS AND DESIGNATIONS

- A — CONDUIT CALLOUT
- A — TRENCH CALLOUT
- EF-1 — EQUIPMENT CALLOUT
- F1 — LIGHTING FIXTURE CALLOUT: SEE SCHEDULE
- X — DRAWING KEY NOTE CALLOUT
- X / XX — DETAIL NUMBER / DETAIL IDENTIFIER / REFERENCE DRAWING NUMBER
- LPA-1,3 — PANEL AND CIRCUIT (EXAMPLE: PANEL LPA, CIRCUITS 1 AND 3)
- PHASE/SWITCHLEG CONDUCTOR
- HOMERUN/CONDUIT
- GROUND CONDUCTOR
- NEUTRAL CONDUCTOR

ELECTRICAL AND POWER DISTRIBUTION

- PANELBOARD 208Y/120V OR 120/240V
- PANELBOARD 480Y/277V
- UTILITY METER
- 5 — MOTOR CONNECTION NUMBER INDICATES HORSEPOWER
- O.L. — THERMAL OVERLOAD RELAY
- 2 — FULL VOLTAGE NON REVERSING MOTOR STARTER NUMBER INDICATES NEMA SIZE
- REDUCED VOLTAGE SOLID STATE STARTER
- VARIABLE FREQUENCY DRIVE
- LINE REACTOR
- G — BUS CONNECTION (N=NEUTRAL, G=GROUND)
- 75KW — HEATER, NUMBER INDICATES KW
- 50 — DISCONNECT SWITCH - HP RATED, AS INDICATED
- 50 — DISCONNECT SWITCH (FUSED)
- TRANSFORMER
- CARTRIDGE FUSE AND FUSEHOLDER
- ATS - AUTOMATIC TRANSFER SWITCH MTS - MANUAL TRANSFER SWITCH
- 200/3 — THERMAL MAG CIRCUIT BREAKER, RATING/NO. POLES
- 200/3 MCP — MOTOR CIRCUIT PROTECTOR, RATING/NO. POLES
- GROUND ROD AND WELL
- GROUNDING ELECTRODE
- PULL OUT PLUG-RECEPTACLE/MCC CONNECTION
- BATTERY
- SIDEWALK SNOWMELT
- CT - CURRENT TRANSFORMER

CONTROLS AND INSTRUMENTATION

NORMALLY CLOSED	NORMALLY OPEN	
		TEMPERATURE SWITCH - TS
		LEVEL SWITCH - LS
		PRESSURE SWITCH - PS
		LIMIT SWITCH - LS
		CONTACT - CR = CONTROL RELAY, MS-MOTOR STARTER, OR AS INDICATED
		TIME DELAY CONTACT - TR = TIME DELAY RELAY
		SWITCH - SW
		FLOW SWITCH - FS
PB	PB	PUSHBUTTON - PB

- HAND / OFF / AUTO — SELECTOR SWITCH. HAND-OFF-AUTO SHOWN. X'S INDICATE CONTACT SWITCHING CONVENTION.
- AM — AMMETER
- VM — VOLTMETER
- GEN — GENERATOR
- MS — MOTOR STARTER
- PFR — PHASE FAIL RELAY
- ETM — ELAPSED TIME METER
- SCT — STARTS COUNTER
- CR — CONTROL RELAY
- TDR — TIME DELAY RELAY
- SV-SOLENOID VALVE
- PT — INSTRUMENT (L=LEVEL, F=FLOW P=PRESSURE)
- R — INDICATING LIGHT, LETTER INDICATES: R-RED, G-GREEN, A-AMBER, W-WHITE, B-BLUE
- D.C. TERMINAL
- A.C. TERMINAL
- FIELD INSTRUMENT
- HORN
- SPEED POTENTIOMETER

STANDARD ABBREVIATIONS

A, AMP	AMPERE
AC	AIR COMPRESSOR
AFF	ABOVE FINISHED FLOOR
AI	ANALOG INPUT POINT (PLC)
AIC	AMPERES INTERRUPTING CAPACITY
AL	ALARM
ALT	ALTERNATOR
AO	ANALOG OUTPUT POINT (PLC)
ATS	AUTOMATIC TRANSFER SWITCH
BAT	BATTERY
BC	BATTERY CHARGER
BH	BLOCK HEATER
BP	BYPASS CONTACTOR
C	CONDUIT (RGS)
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CNT	COUNTER
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CT	CURRENT TRANSFORMER
CV	CHECK VALVE
DEM	DEMAND
DI	DIGITAL INPUT POINT (PLC)
DO	DIGITAL OUTPUT POINT (PLC)
DWG	DRAWING
E OR (E)	EXISTING DEVICE
EF	EXHAUST FAN
FE	FLOW ELEMENT
FS	FLOW SWITCH
FT	FLOW TRANSMITTER
FU	FUSED
FVNR	FULL VOLTAGE NON-REVERSING
G, GND	GROUND
GEN	GENERATOR
GFCI/GFI	GROUND FAULT CIRCUIT INTERRUPTER
H	HOT, HIGH
HH	HAND HOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HTR	HEATER
IC	ISOLATION CONTACTOR
IS	INTRINSICALLY SAFE
ISR	INTRINSICALLY SAFE RELAY
KW	KILOWATT
KWH	KILOWATT HOUR
KWD	KILOWATT DEMAND
LC	LIGHTING CONTACTOR
LCP	LOCAL CONTROL PANEL
LE	LEVEL ELEMENT
LS	LIMIT SWITCH
LT	LEVEL TRANSMITTER
LTG	LIGHTING
M	METER
MCC	MOTOR CONTROL CENTER
MCP	MAIN CONTROL PANEL
MFR	MANUFACTURER
MOV	MOTOR OPERATED VALVE
MS	MOTOR STARTER
MTS	MANUAL TRANSFER SWITCH
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OI	OPERATOR INTERFACE
OIT	OPERATOR IN TROUBLE
OL	OVERLOAD RELAY
OT	OVER TEMP
P	POWER
PB	PUSH BUTTON
PE	PHOTO ELECTRIC RELAY
PFR	PHASE FAILURE RELAY
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
POT	POTENTIOMETER
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLY VINYL CHLORIDE (CONDUIT)
RGS	RIGID GAVLANIZED STEEL (CONDUIT)
RTM	RUN TIME METER
RV	REDUCED VOLTAGE
S	SIGNAL
SA	SURGE ARRESTOR
SE	SERVICE ENTRANCE
SHT	SHEET
SS	STAINLESS STEEL
SSS	SOLID STATE STARTER
SV	SOLENOID VALVE
T	THERMOSTAT
TC	TIME CLOCK
TDR	TIME DELAY
TST	TWISTED SHIELDED THREE CONDUCTOR (TRIAD)
TYP	TYPICAL
UH	UNIT HEATER
UPS	UNINTERUPTABLE POWER SUPPLY
VS	VIBRATION SWITCH
VT	VIBRATION TRANSMITTER
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE
W	WATT
WHM	WATT HOUR METER
WP	WEATHER PROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
XMTR	TRANSMITTER
ZS	LIMIT SWITCH

NO.		BY	DATE

PROJECT GENERAL NOTES:

1. THE ELECTRICAL DRAWINGS AND SCHEDULES ARE FUNCTIONAL IN NATURE AND DO NOT SPECIFY EXACT LOCATIONS OF EQUIPMENT OR EQUIPMENT TERMINATIONS. IT IS THE INTENT OF THESE DRAWINGS TO DESCRIBE AND PROVIDE FOR THE FURNISHING, INSTALLING, TESTING AND PLACING IN FULLY OPERATIONAL CONDITION ALL EQUIPMENT, MATERIALS, DEVICES AND NECESSARY APPURTENANCES TO PROVIDE A COMPLETE ELECTRICAL SYSTEM, TOGETHER WITH SUCH OTHER MISCELLANEOUS INSTALLATIONS AND EQUIPMENT SHOWN ON THE DRAWINGS. THE WORK SHALL INCLUDE ALL MATERIALS, APPLIANCES AND APPARATUS NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE DRAWINGS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE, FULLY OPERATIONAL INSTALLATION OF ALL ELECTRICAL SYSTEMS SHOWN ON THE DRAWINGS.
2. THIS PROJECT INCLUDES THE INSTALLATION OF PACKAGED EQUIPMENT SYSTEM(S) OR SUB-SYSTEM(S) THAT WILL REQUIRE COORDINATION BETWEEN THE CONTRACTOR AND THE MANUFACTURER TO DETERMINE THE DETAILED INSTALLATION REQUIREMENTS. THE ENGINEER HAS SHOWN GENERAL INSTALLATION INFORMATION FOR THESE SYSTEMS BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF DESIGN. WHERE INDICATED ON THE DRAWINGS TO 'PROVIDE A COMPLETE AND OPERATIONAL SYSTEM' THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, INSTALLATION, AND COORDINATION WITH THE MANUFACTURER REQUIRED SO THE EQUIPMENT IS INSTALLED AND OPERATES IN A SATISFACTORY MANNER. MINOR CHANGES IN EQUIPMENT LOCATIONS, QUANTITY OF TERMINATIONS OR WIRES, JUNCTION BOXES, CONDUIT, ETC SHALL BE INCLUDED IN THE CONTRACT PRICE.
3. CONTRACTOR SHALL COORDINATE WITH OWNER FOR REMOVAL OF EXISTING EQUIPMENT AND ANY REQUIRED PHASING TO MAINTAIN FACILITY OPERATIONS .
4. DISPOSE OF ALL DEMO MATERIALS NOT WANTED BY OWNER.
5. THE NUMBER OF CONDUCTORS AND CONDUIT ROUTING WILL VARY BASED ON HOW THE CONTRACTOR ELECTS TO ROUTE AND COMBINE CIRCUITING. THE CONTRACTOR SHALL PROVIDE DETAILED REDLINE MARKUPS ON A DEDICATED SET OF CONSTRUCTION DRAWINGS TO THE ENGINEER UPON COMPLETION OF THE PROJECT FOR PREPARATION OF RECORD DRAWINGS. THIS INCLUDES ACTUAL RACEWAY ROUTING, CONDUCTOR QUANTITIES, PANEL SCHEDULES, RECEPTACLE CONFIGURATIONS AND MOUNTING ELEVATIONS, ETC.
6. ALL MATERIALS SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE ARTICLE 110-14C. WIRING AND CIRCUIT BREAKERS ON THIS PROJECT ARE DESIGNED FOR 75 DEG C OPERATION ABOVE 100 AMPERES; 60 DEG C FOR 100 AMPERES AND BELOW. ALL PRODUCTS FURNISHED ON THIS PROJECT SHALL HAVE ELECTRICAL TERMINATIONS RATED FOR 60 DEG C FOR AMPACITIES OF 100 AMPERES AND BELOW, AND RATED FOR 75 DEG C FOR AMPACITIES ABOVE 100 AMPERES. ALL CONDUCTORS SHALL BE COPPER.

BID SET

Z engineers
Z Engineers, PLLC
One Fifth Street, Ste 150
Wenatchee, WA 98801
Tel: 509.888.9364
Fax: 509.888.9365
www.z-engineers.com

WILSON ENGINEERING, LLC
805 DUPONT STREET
BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
www.wilsonengineering.com
Wilson SURVEY/ENGINEERING

BRIAN L. ZIESMER — STATE OF WASHINGTON — 37463 — REGISTERED PROFESSIONAL ENGINEER
4-20-2015

DESIGNED BY	DRAWN BY	CHECKED BY
BZ	CH	BZ

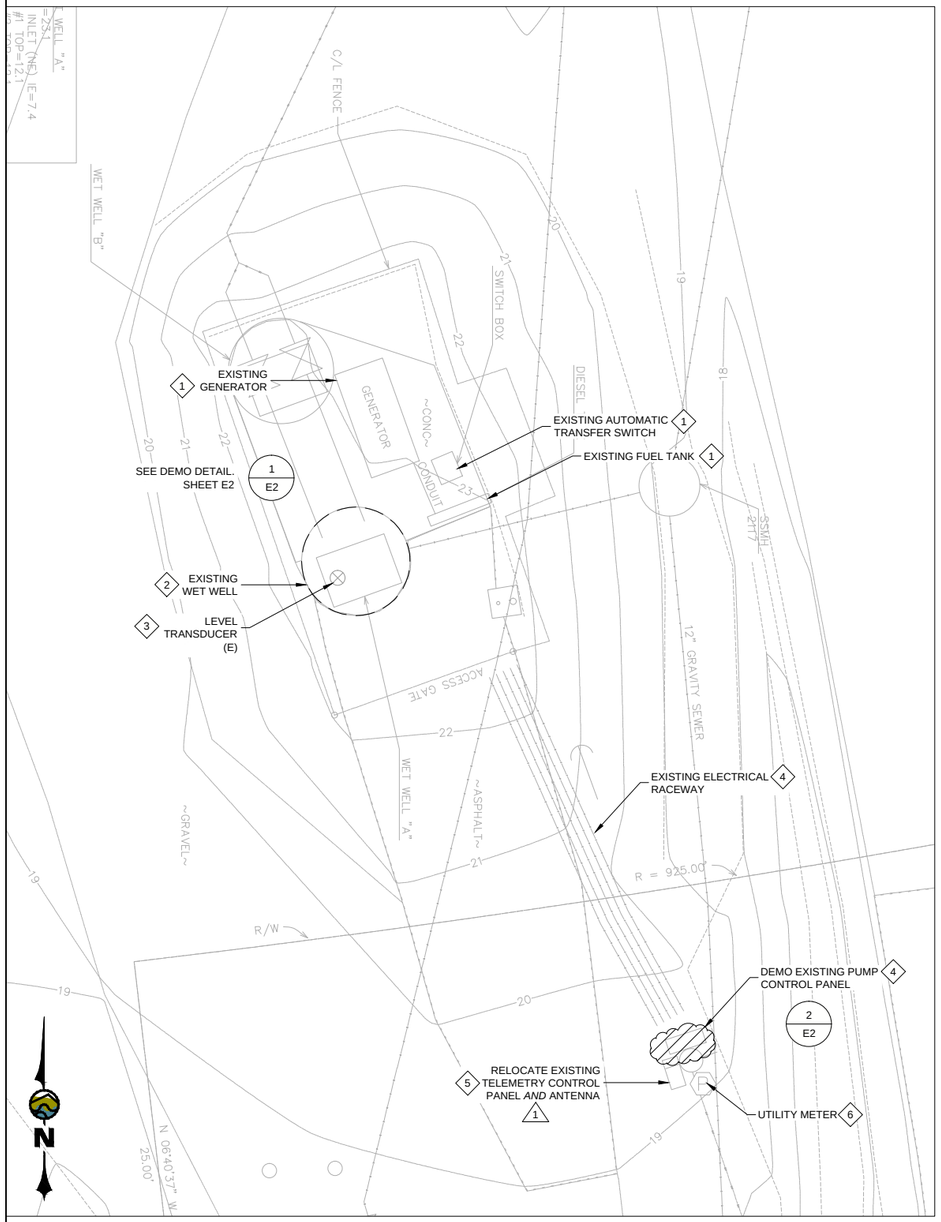
CITY OF FERNDALE, WA
WHATCOM COUNTY WASHINGTON
PUMP STATION No. 4
ELECTRICAL SYMBOLS AND ABBREVIATIONS

DATE	SCALE	JOB NUMBER
4/20/2015	AS SHOWN	2013-037

SHEET E1 OF E11

ELECTRICAL DEMOLITION NOTES:

1. PROVIDE COMPLETE DEMOLITION OF ALL EXISTING EQUIPMENT INCLUDING WET WELL PUMPING SYSTEM, PUMP CONTROL PANEL, INSTRUMENTATION, CONDUIT AND WIRING.
2. RETURN ALL DEMO EQUIPMENT TO OWNER. LEGALLY DISPOSE OF ALL DEMO MATERIALS NOT WANTED BY OWNER.
3. COORDINATE WITH OWNER TO MAINTAIN OPERATIONS DURING CONSTRUCTION PERIOD. SEE CIVIL SPECIFICATIONS.



ELECTRICAL DEMO PLAN

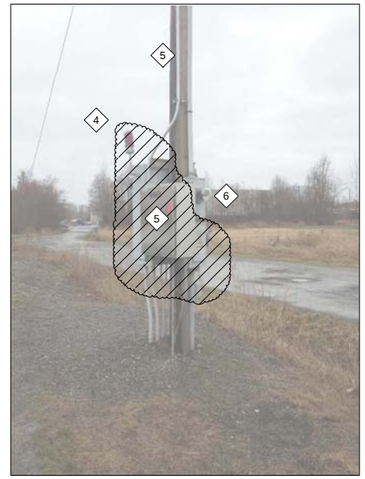
SCALE: 1" = 5' AT FULL SCALE

5 0 5 10
SCALE HORIZONTAL SCALE FEET

DEMO NOTES:

1. PROVIDE COMPLETE ELECTRICAL DEMOLITION OF EXISTING GENERATOR, DIESEL FUEL TANK, AND AUTOMATIC TRANSFER SWITCH.
2. PROVIDE COMPLETE DEMOLITION OF EXISTING WET WELL PUMPS AND INSTRUMENTATION.
3. REMOVE EXISTING LEVEL TRANSDUCER. MAINTAIN AND PROTECT, RETURN TO OWNER FOR FUTURE USE.

1 / E2 ELECTRICAL EQUIPMENT DEMO DETAIL
SCALE: NONE



DEMO NOTES:

4. PROVIDE COMPLETE ELECTRICAL DEMOLITION OF EXISTING PUMP CONTROL PANEL AND ELECTRICAL RACEWAY.
5. RELOCATE EXISTING TELEMETRY PANEL TO NEW EQUIPMENT ENCLOSURE. ~~*MAINTAIN*~~ *PROVIDE NEW TELEMETRY ANTENNA MOUNTING PER DETAIL ON SHEET E5.* ~~*ON EXISTING POLE.*~~ PROVIDE NEW ANTENNA CABLE AND RACEWAY, ROUTE TO NEW TELEMETRY PANEL LOCATION.
6. DEMO EXISTING METER BASE AND 100 AMP SERVICE DISCONNECT. PROVIDE NEW METER BASE, *FUSED DISCONNECT AHEAD OF METER BASE,* AND POLE RISER PER PSE REQUIREMENTS. PROVIDE NEW UNDERGROUND SERVICE RACEWAY FROM NEW METER BASE ON POLE TO NEW SERVICE DISCONNECT IN EQUIPMENT ENCLOSURE; SEE SHEETS E3, E5. COORDINATE WITH PUGET SOUND ENERGY FOR ELECTRICAL SERVICE UPGRADE.

1

2 / E2 POWER POLE DEMO DETAIL
SCALE: NONE

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Z engineers
Z Engineers, PLLC
One Fifth Street, Ste 150
Wenatchee, WA 98801
Tel: 509.888.9364
Fax: 509.888.9365
www.z-engineers.com

NO.		BY	DATE
1	BID REVISIONS AS INDICATED	BZ	5/01/15

WILSON ENGINEERING, LLC
805 DUPONT STREET
BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
www.wilsonengineering.com
Wilson SURVEY/ENGINEERING

BRIAN L. ZIESMER
STATE OF WASHINGTON
17463
REGISTERED PROFESSIONAL ENGINEER
4-20-2015

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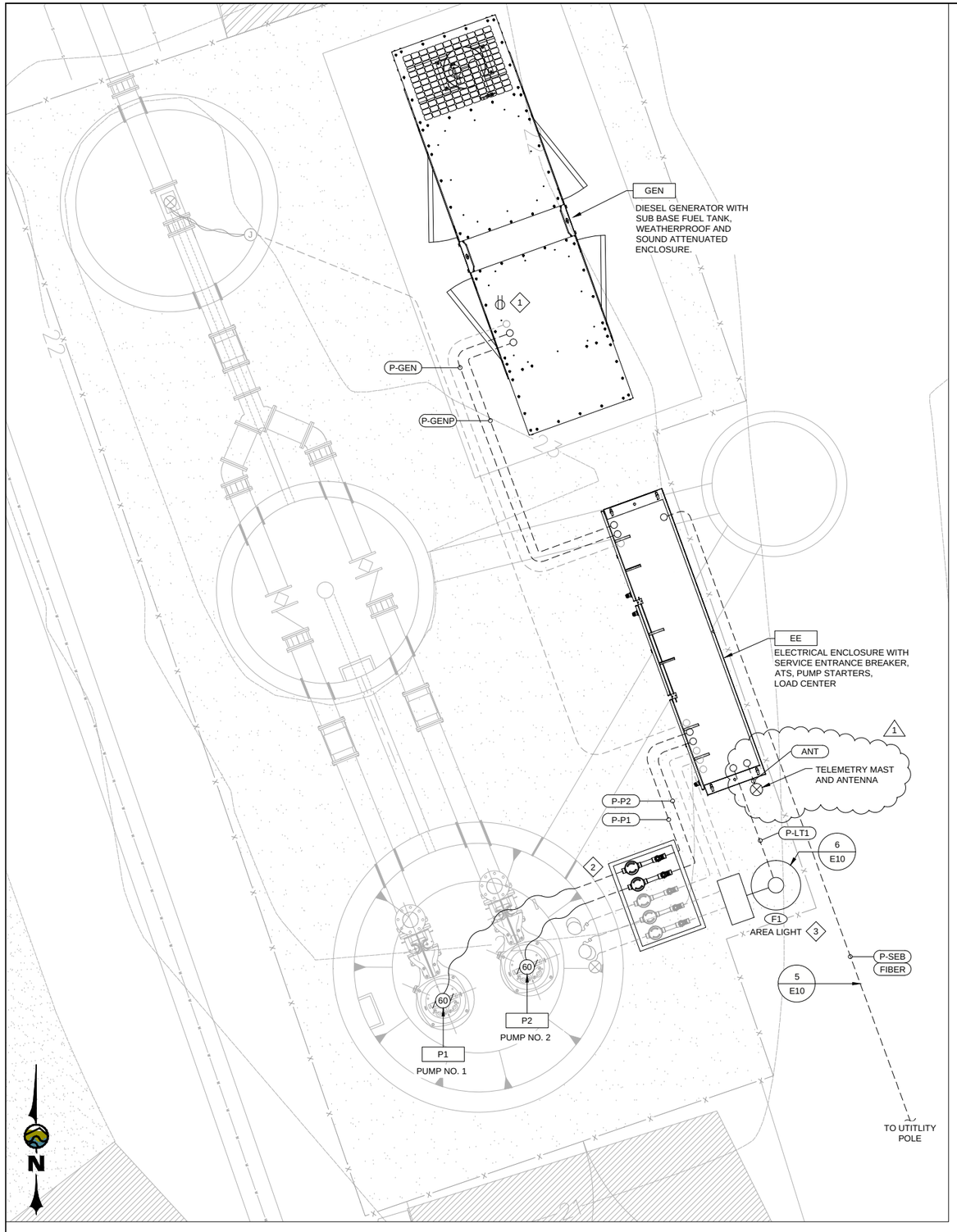
CITY OF FERNDALE, WA
WHATCOM COUNTY WASHINGTON
PUMP STATION No. 4
ELECTRICAL DEMOLITION

DATE	SCALE	JOB NUMBER
4/20/2015	AS SHOWN	2013-037

SHEET E2 OF E11



ELECTRICAL POWER PLAN
SCALE: 1" = 2' AT FULL SCALE

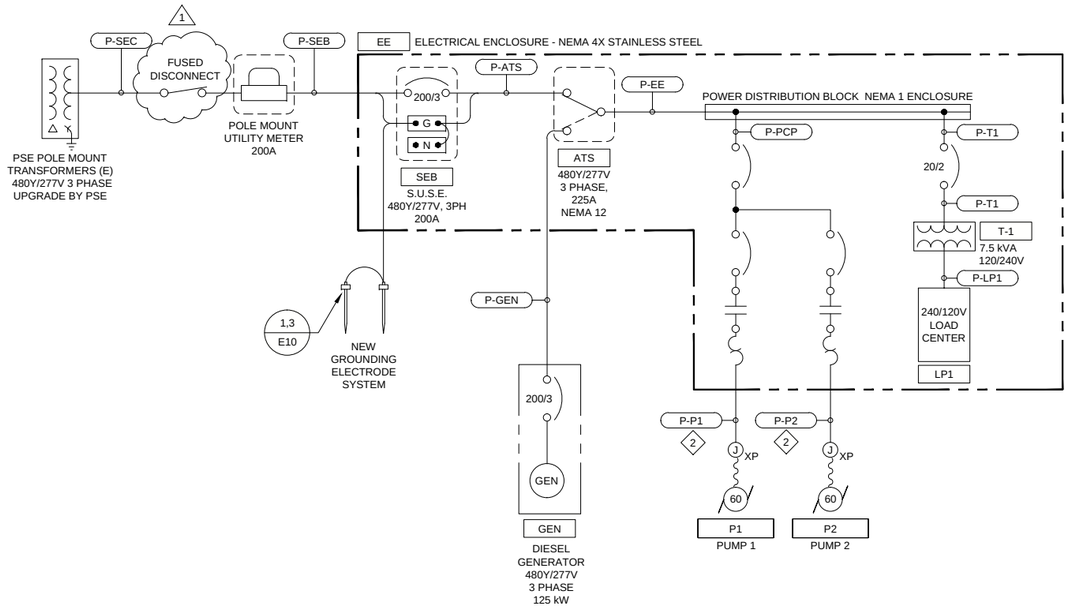
NO.		BY	DATE
1	BID REVISIONS AS INDICATED	BZ	5/01/15

GENERAL NOTES:

1. ALL CONDUIT ROUTING IS NOT SHOWN. ELECTRICAL CONTRACTOR SHALL DETERMINE THE BEST ROUTING PATH AND CIRCUIT COMBINATIONS BASED ON FIELD CONDITIONS AND ELECTRICAL CODES.
2. CONDUCTOR AND CONDUIT SIZING SHALL BE AS REQUIRED BY NEC.
3. EQUIPMENT LOCATIONS AND ARRANGEMENT ARE SCHEMATIC. CONTRACTOR SHALL COORDINATE WITH EQUIPMENT MANUFACTURER FOR DETAILED CONNECTION REQUIREMENTS AND PROVIDE MATERIALS AND INSTALLATION FOR A COMPLETE AND OPERATIONAL SYSTEM.

KEY NOTES:

1. PROVIDE RECEPTACLE IN GENERATOR ENCLOSURE FOR BATTERY CHARGER AND BLOCK HEATER.
2. OVERSIZE CONDUITS TO WET WELL FOR PUMP CABLES.
3. COORDINATE FINAL LOCATION OF AREA LIGHT FIXTURE DURING CONSTRUCTION.



ONE LINE DIAGRAM
SCALE: NONE

LOAD CALCULATION - 480 VAC, 3 PHASE

EQUIPMENT NO.	DESCRIPTION			DEMAND FACTOR	DEMAND LOAD AMPS	DEMAND FACTOR	GENERATOR LOAD AMPS
		KVA/HP	AMPS				
P1	PUMP 1 - FLYGT MODEL NP 3202 HT	60 HP	69.0	1.25	86.3	1.25	86.3
P2	PUMP 2 - FLYGT MODEL NP 3202 HT	60 HP	69.0	1.00	69.0	1.00	69.0
LP1	LOAD CENTER	7.5 KVA	15.6	0.65	10.1	0.65	10.1
TOTAL			153.6		165.4		165.4

LOAD CALCULATION
SCALE: NONE

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Z Engineers, PLC
One Fifth Street, Ste 150
Wenatchee, WA 98801
Tel: 509.888.9364
Fax: 509.888.9365
www.z-engineers.com

WILSON ENGINEERING, LLC
805 DUPONT STREET
BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
www.wilsonengineering.com
Wilson SURVEY/ENGINEERING

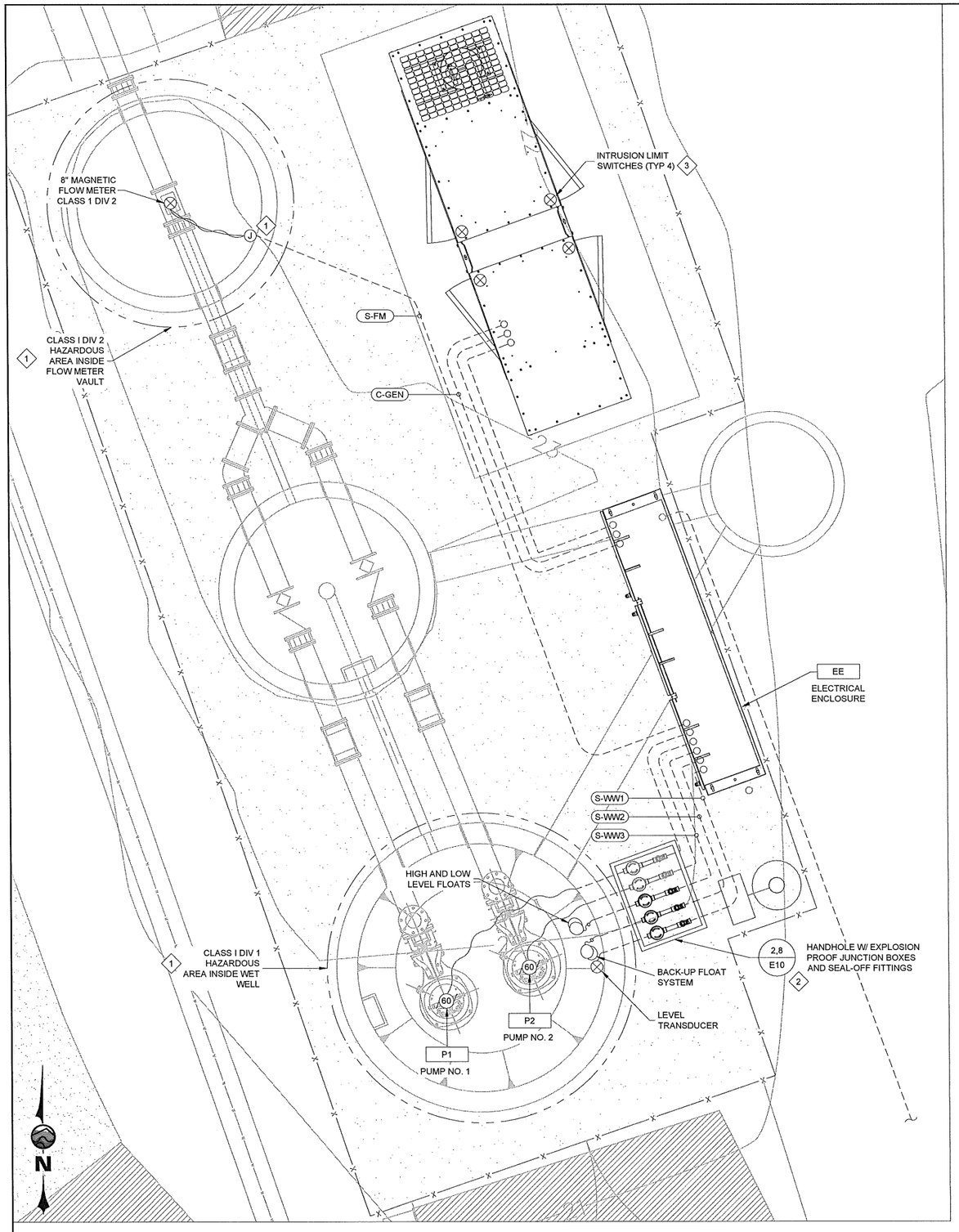
BRIAN L. ZIESMER — STATE OF WASHINGTON — 17451 — REGISTERED PROFESSIONAL ENGINEER
4-20-2015

DESIGNED BY: BZ | DRAWN BY: CH | CHECKED BY: BZ

CITY OF FERNDALE, WA
WHATCOM COUNTY, WASHINGTON
PUMP STATION No. 4
POWER PLAN AND SCHEDULES

DATE: 4/20/2015 | SCALE: AS SHOWN | JOB NUMBER: 2013-037

SHEET E3 OF E11



INSTRUMENTATION & CONTROL PLAN

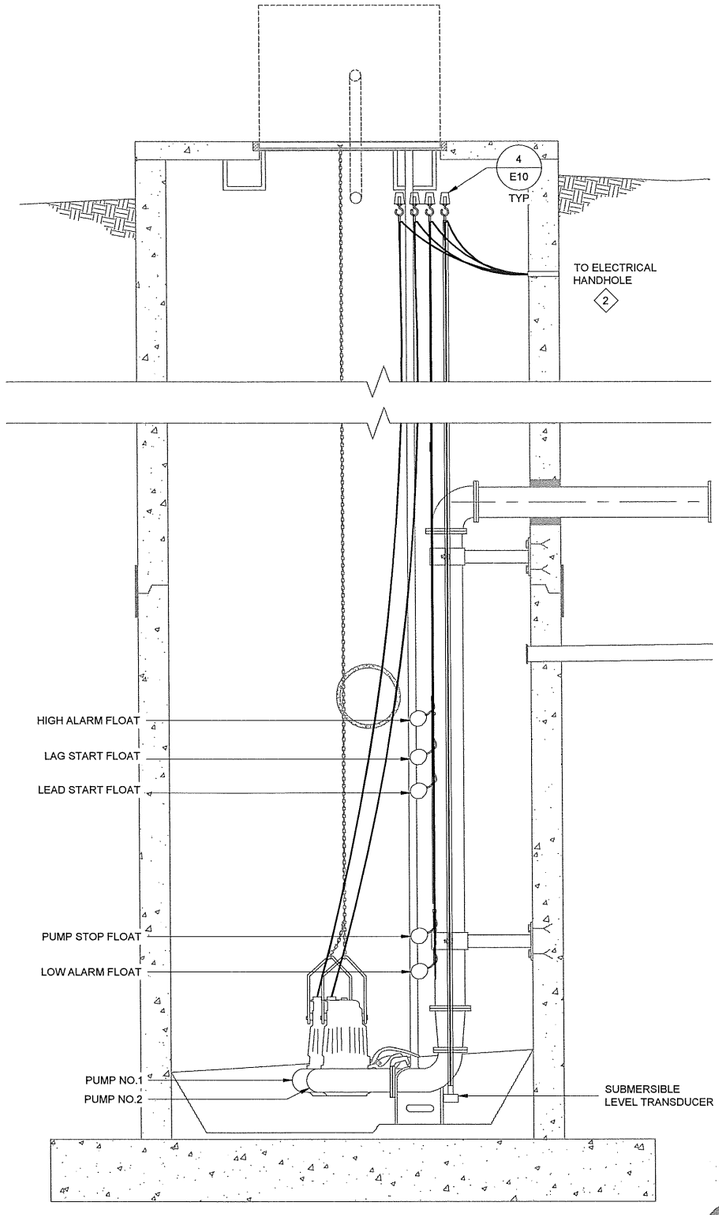
SCALE: 1" = 2' AT FULL SCALE

KEY NOTES:

1. HAZARDOUS LOCATIONS - WET WELL IS CLASS I, DIV 1 PER NFPA 820, TABLE 4.2, ROW16a. FLOW METER VAULT IS CLASS I, DIV 2 PER NFPA 820, TABLE 4.2, ROW 31a. ALL INSTRUMENTATION, ELECTRICAL EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH NEC ARTICLE 500.
2. FIELD COORDINATE HAND HOLE LOCATION. HANDHOLE SHALL BE TRAFFIC RATED AND SIZED PER NEC. SIZE CONDUITS PER NEC TO ACCOMMODATE PUMP AND INSTRUMENTATION CABLES.
3. PROVIDE LIMIT SWITCHES FOR EACH GENERATOR DOOR. WIRE LIMIT SWITCHES IN SERIES TO PROVIDE ONE INTRUSION STATUS TO THE TELEMETRY PANEL PLC.

GENERAL NOTES:

1. ALL CONDUIT ROUTING IS NOT SHOWN. ELECTRICAL CONTRACTOR SHALL DETERMINE THE BEST ROUTING PATH AND CIRCUIT COMBINATIONS BASED ON FIELD CONDITIONS AND ELECTRICAL CODES.
2. EQUIPMENT LOCATIONS AND ARRANGEMENT ARE SCHEMATIC. CONTRACTOR SHALL COORDINATE WITH EQUIPMENT MANUFACTURER FOR DETAILED CONNECTION REQUIREMENTS AND PROVIDE MATERIALS AND INSTALLATION FOR A COMPLETE AND OPERATIONAL SYSTEM.



WET WELL ELEVATION

SCALE: NONE

BID SET

NO.		BY	DATE

WILSON ENGINEERING, LLC
805 DUPONT STREET
BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
www.wilsonengineering.com

Wilson SURVEY/ENGINEERING

BRIAN L. ZIESMER — STATE OF WASHINGTON — 37463 — REGISTERED PROFESSIONAL ENGINEER

4-20-2015

DESIGNED BY	DRAWN BY	CHECKED BY
BZ	CH	BZ

CITY OF FERNDALE, WA

WHATCOM COUNTY WASHINGTON

PUMP STATION No. 4

INSTRUMENTATION AND CONTROL PLAN

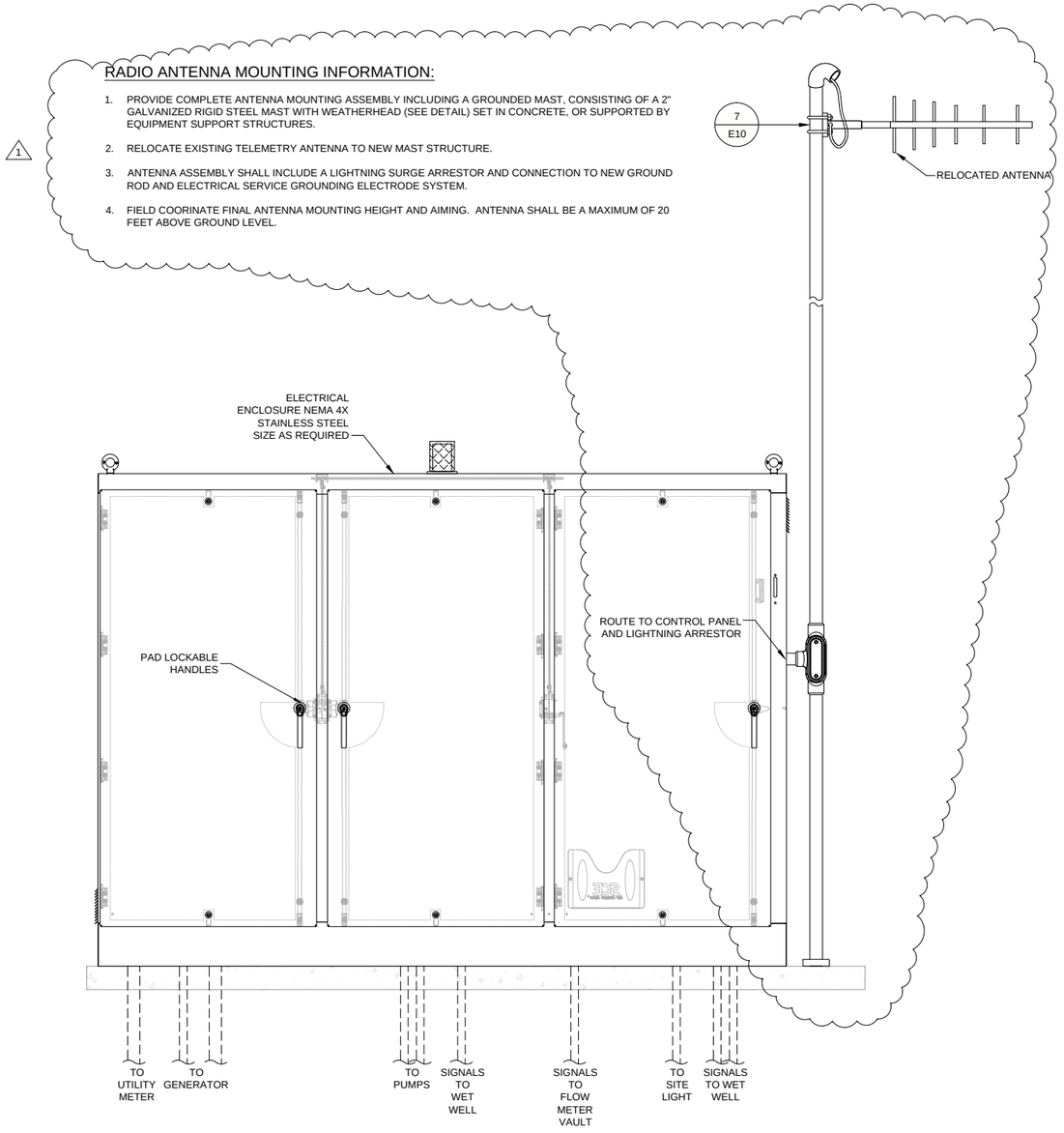
DATE	SCALE	JOB NUMBER
4/20/2015	AS SHOWN	2013-037

SHEET E4 OF E11

Z engineers
Z Engineers, PLLC — Tel: 509.888.9364
One Fifth Street, Ste 150 — Fax: 509.888.9365
Wenatchee, WA 98801 — www.z-engineers.com

RADIO ANTENNA MOUNTING INFORMATION:

1. PROVIDE COMPLETE ANTENNA MOUNTING ASSEMBLY INCLUDING A GROUNDED MAST, CONSISTING OF A 2" GALVANIZED RIGID STEEL MAST WITH WEATHERHEAD (SEE DETAIL) SET IN CONCRETE, OR SUPPORTED BY EQUIPMENT SUPPORT STRUCTURES.
2. RELOCATE EXISTING TELEMETRY ANTENNA TO NEW MAST STRUCTURE.
3. ANTENNA ASSEMBLY SHALL INCLUDE A LIGHTNING SURGE ARRESTOR AND CONNECTION TO NEW GROUND ROD AND ELECTRICAL SERVICE GROUNDING ELECTRODE SYSTEM.
4. FIELD COORINATE FINAL ANTENNA MOUNTING HEIGHT AND AIMING. ANTENNA SHALL BE A MAXIMUM OF 20 FEET ABOVE GROUND LEVEL.



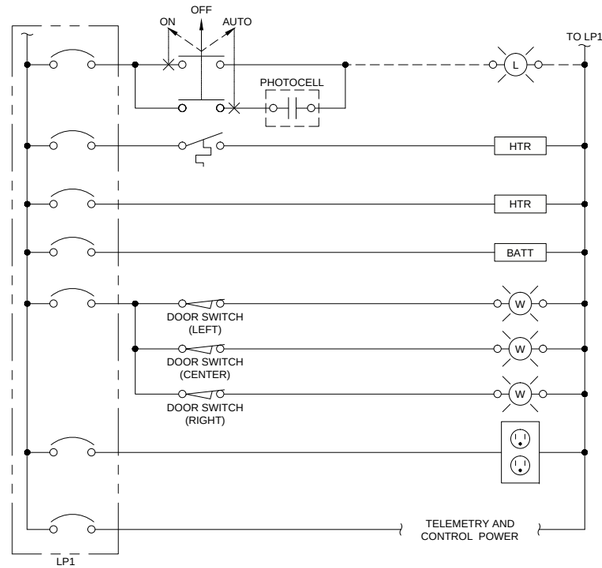
ELECTRICAL ENCLOSURE - EXTERIOR ELEVATION

SCALE: NONE

NO.		BY	DATE
1	BID REVISIONS AS INDICATED	BZ	5/01/15

GENERAL NOTES:

1. THESE DRAWINGS SHOW ONLY FUNCTIONAL REQUIREMENTS OF THE ELECTRICAL ENCLOSURE. DETAILED WIRING DIAGRAMS, PANEL SIZING AND LAYOUT SHALL BE PROVIDED BY THE CONTROL PANEL SUPPLIER FOR A COMPLETE AND OPERATIONAL SYSTEM.



ELECTRICAL ENCLOSURE - WIRING DIAGRAM

SCALE: NONE

BID SET

Z Engineers, PLLC
One Fifth Street, Ste 150
Wenatchee, WA 98801
Tel: 509.888.9364
Fax: 509.888.9365
www.z-engineers.com

WILSON ENGINEERING, LLC
805 DUPONT STREET
BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
www.wilsonengineering.com
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BRIAN L. ZIESMER — STATE OF WASHINGTON — 37451 — REGISTERED PROFESSIONAL ENGINEER

4-20-2015

DESIGNED BY	DRAWN BY	CHECKED BY
BZ	CH	BZ

CITY OF FERNDALE, WA

WHATCOM COUNTY WASHINGTON

PUMP STATION No. 4

ELECTRICAL ENCLOSURE ELEVATION

DATE	SCALE	JOB NUMBER
4/20/2015	AS SHOWN	2013-037

SHEET E5 OF E11

NO.		BY	DATE

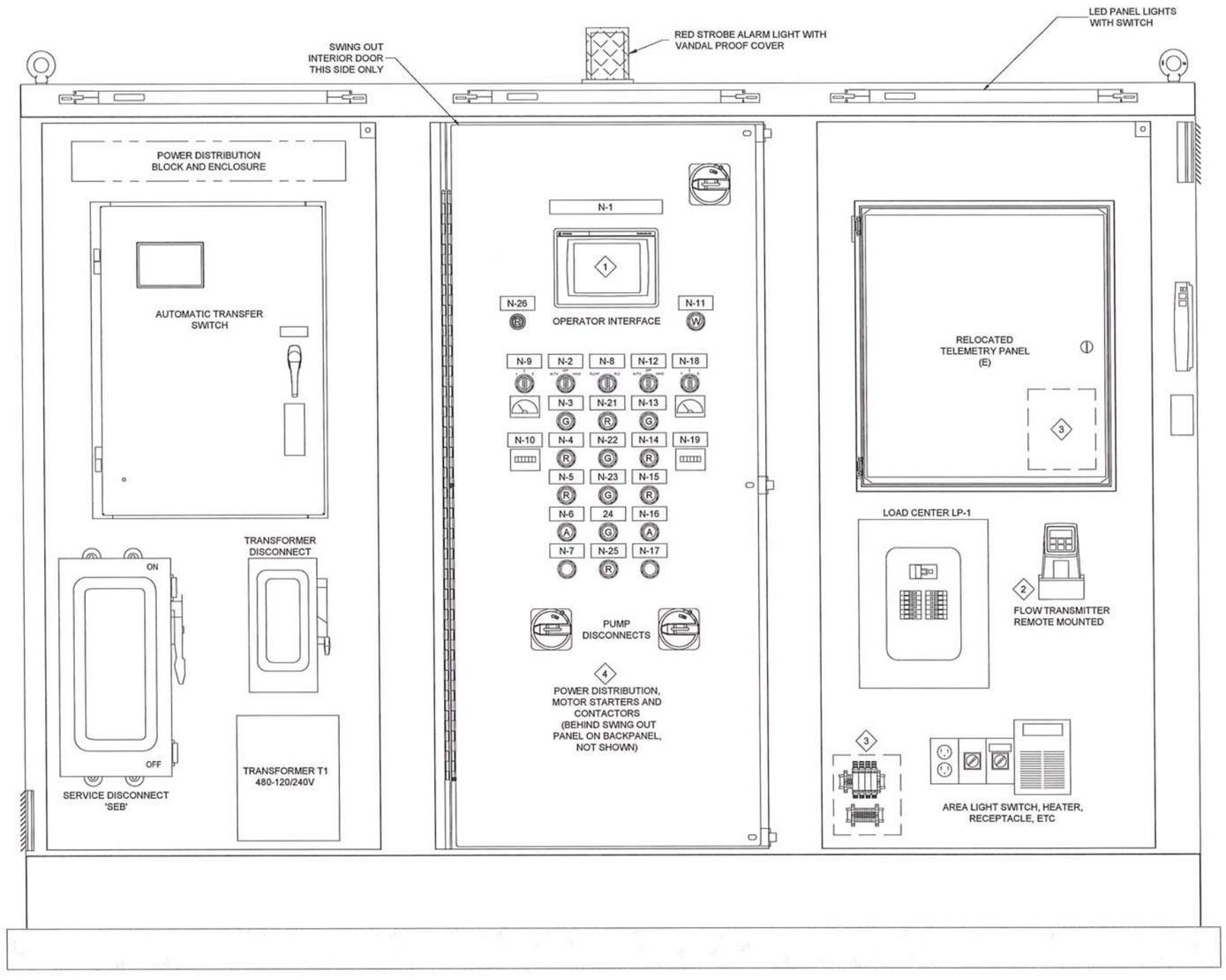
PANEL NAMEPLATE SCHEDULE					
LABEL	ENGRAVING TEXT	LABEL	ENGRAVING TEXT	LABEL	ENGRAVING TEXT
N-1	CITY OF FERNDALE PUMP STATION NO.4	N-11	POWER STATUS (WHITE)	N-21	HIGH LEVEL FLOAT (RED)
N-2	PUMP NO.1 HAND OFF AUTO	N-12	PUMP NO.2 HAND OFF AUTO	N-22	LAG START FLOAR (GREEN)
N-3	PUMP NO.1 RUNNING (GREEN)	N-13	PUMP NO.2 RUNNING (GREEN)	N-23	LEAD START FLOAT (GREEN)
N-4	PUMP NO.1 FAIL (RED)	N-14	PUMP NO.2 FAIL (RED)	N-24	PUMP STOP FLOAT (GREEN)
N-5	PUMP NO.1 OVERTEMP (RED)	N-15	PUMP NO.2 OVERTEMP (RED)	N-25	LOW LEVEL FLOAT (RED)
N-6	PUMP NO.1 SEAL FAIL (AMBER)	N-16	PUMP NO.2 SEAL FAIL (AMBER)	N-26	OPERATOR IN TROUBLE (RED)
N-7	PUMP NO.1 RESET	N-17	PUMP NO.2 RESET		
N-8	PUMP CONTROL / FLOAT - PLC	N-18	PUMP NO.2 AMMETER/SELECTOR		
N-9	PUMP NO.1 AMMETER/SELECTOR	N-19	PUMP NO.2 ETM		
N-10	PUMP NO.1 ETM	N-20	---		

KEY NOTES:

1. ALLEN BRADLEY PANELVIEW PLUS 6 700. OPERATOR INTERFACE PROGRAMMING WILL BE PROVIDED BY CITY'S PROGRAMMER, L2 SYSTEMS, UNDER FORCE ACCOUNT. SEE SPECIFICATIONS.
2. FLOW METER FM APPROVED FOR CLASS I, DIV 2 HAZARDOUS AREA.
3. WIRE ALL NEW INSTRUMENTATION TO INTRINSICALLY SAFE AREA IN ELECTRICAL ENCLOSURE AND TO TELEMETRY CONTROL PANEL.
4. PROVIDE POWER DISTRIBUTION, STARTERS FOR DUPLEX PUMP CONTROL SYSTEM. PANEL BUILDER SHALL PROVIDE DETAILED DESIGN BASED ON FUNCTIONAL WIRING DIAGRAMS FOR A COMPLETE AND OPERATIONAL SYSTEM.

GENERAL NOTES:

1. THESE DRAWINGS SHOW ONLY FUNCTIONAL REQUIREMENTS OF THE ELECTRICAL ENCLOSURE. DETAILED WIRING DIAGRAMS, PANEL SIZING AND LAYOUT SHALL BE PROVIDED BY THE CONTROL PANEL SUPPLIER FOR A COMPLETE AND OPERATIONAL SYSTEM.



ELECTRICAL ENCLOSURE - ELEVATION
SCALE: NONE

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Z Engineers, PLLC
One Fifth Street, Ste 150
Wenatchee, WA 98801
Tel: 509.888.9364
Fax: 509.888.9365
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BELLINGHAM, WA 98225
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BRIAN L. ZIESMER — STATE OF WASHINGTON — 37463 — REGISTERED PROFESSIONAL ENGINEER
4-20-2015

DESIGNED BY	DRAWN BY	CHECKED BY
BZ	GH	BZ

CITY OF FERNDALE, WA
WHATCOM COUNTY WASHINGTON
PUMP STATION No. 4
ELECTRICAL ENCLOSURE ELEVATION

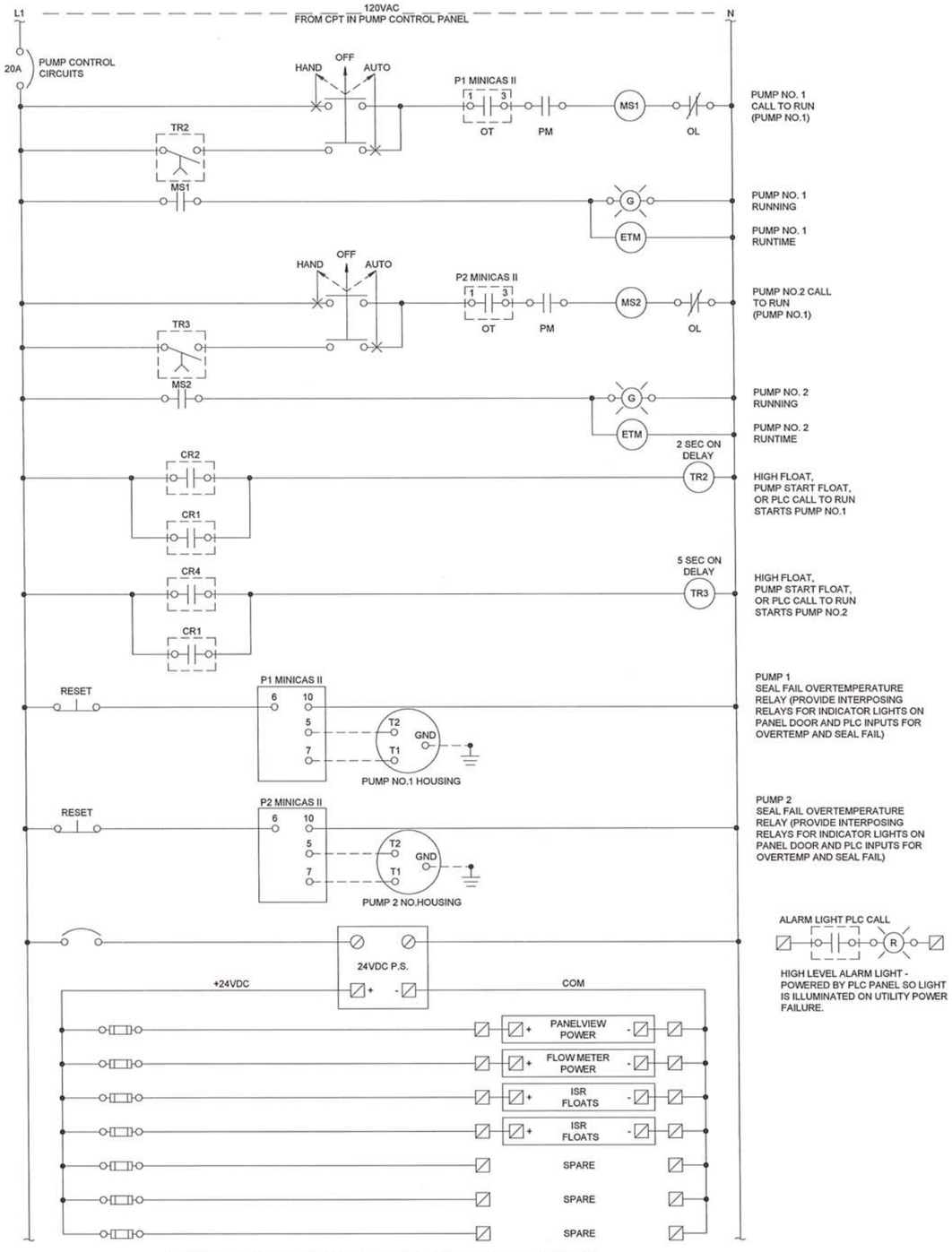
DATE	SCALE	JOB NUMBER
4/20/2015	AS SHOWN	2013-037

SHEET E6 OF E11

NO.		BY	DATE

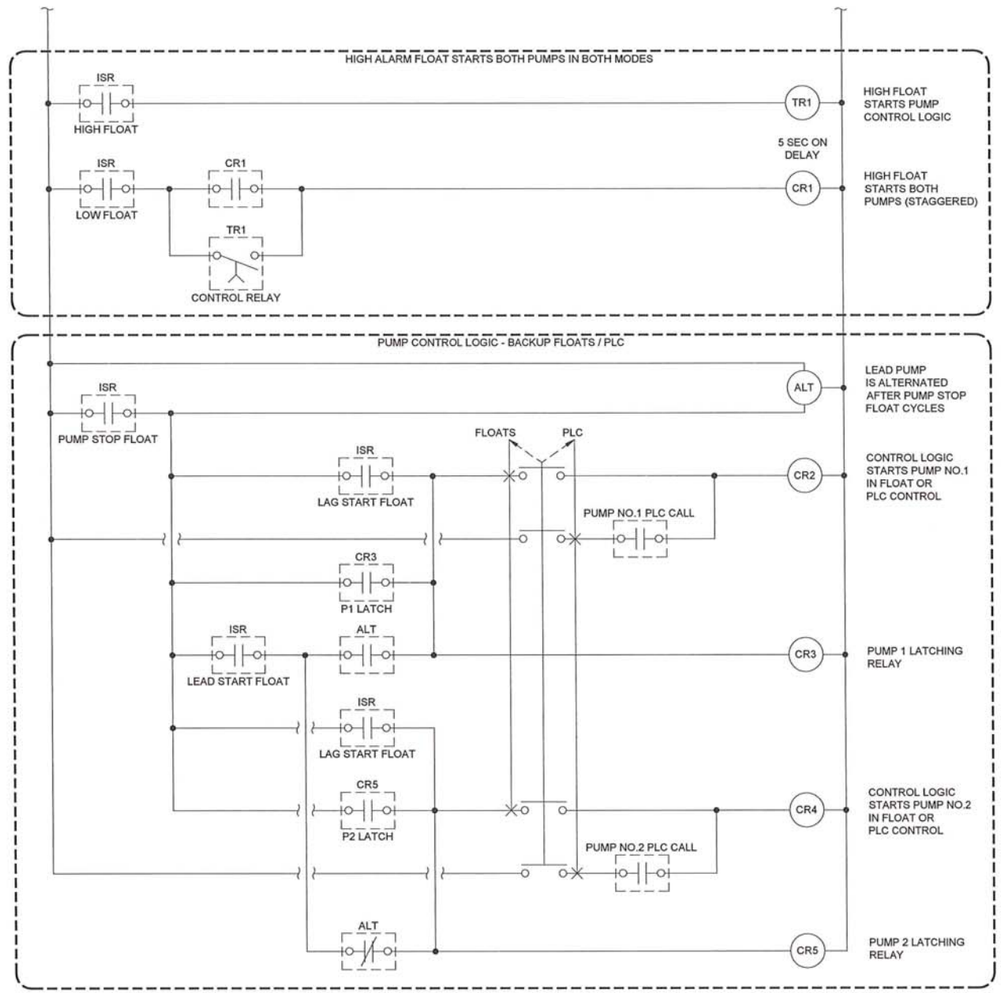
GENERAL NOTES:

1. THESE SCHEMATICS SHOW ONLY FUNCTIONAL REQUIREMENTS OF THE PUMP CONTROL SECTION. DETAILED WIRING DIAGRAMS, PANEL SIZING AND LAYOUT SHALL BE PROVIDED BY THE CONTROL PANEL SUPPLIER FOR A COMPLETE AND OPERATIONAL SYSTEM.
2. ALL INDICATOR LIGHTS ARE NOT SHOWN. PROVIDE WIRING, INTERPOSING RELAYS AS REQUIRED FOR STATUS INDICATOR LIGHTS FOR ALL SIGNALS SHOWN ON SHEET E6.



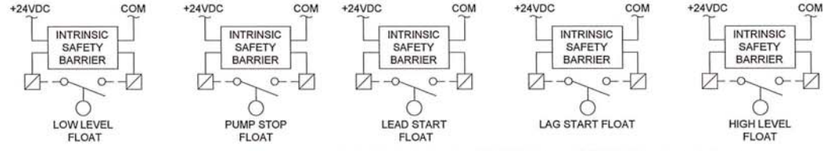
PUMP CONTROL CIRCUITS - WIRING DIAGRAM

SCALE: NONE



PUMP CONTROL - WIRING DIAGRAM

SCALE: NONE



INTRINSICALLY SAFE FLOAT SWITCHES - WIRING DIAGRAM

SCALE: NONE

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Z Engineers, PLLC
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Wenatchee, WA 98801
Tel: 509.888.9364
Fax: 509.888.9365
www.z-engineers.com

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BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
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BRIAN L. ZIESMER — STATE OF WASHINGTON — 37463 — REGISTERED PROFESSIONAL ENGINEER

4-20-2015

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CITY OF FERNDALE, WA — WHATCOM COUNTY — WASHINGTON

PUMP STATION No. 4

PUMP CONTROL WIRING DIAGRAMS

DATE	SCALE	JOB NUMBER
4/20/2015	AS SHOWN	2013-037

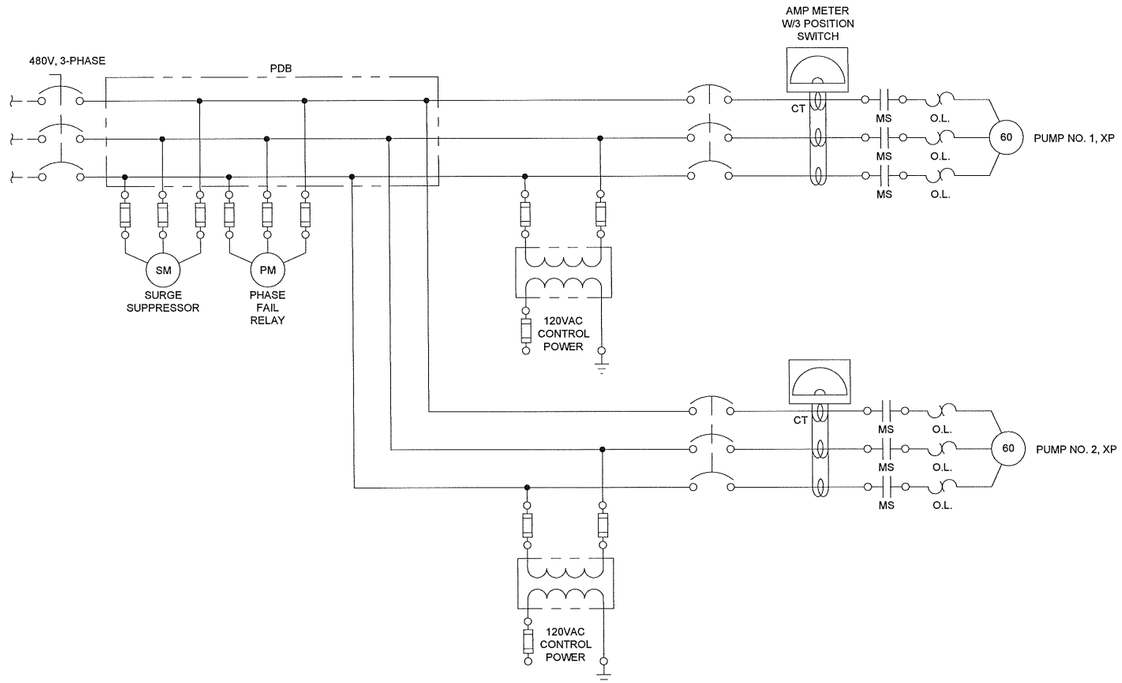
SHEET E7 OF E11

NO.		BY	DATE

GENERAL NOTES:

1. THESE SCHEMATICS SHOW ONLY FUNCTIONAL REQUIREMENTS OF THE ELECTRICAL ENCLOSURE. DETAILED WIRING DIAGRAMS, PANEL SIZING AND LAYOUT SHALL BE PROVIDED BY THE CONTROL PANEL SUPPLIER FOR A COMPLETE AND OPERATIONAL SYSTEM.

2. ALL INDICATOR LIGHTS ARE NOT SHOWN. PROVIDE WIRING, INTERPOSING RELAYS AS REQUIRED FOR STATUS INDICATOR LIGHTS FOR ALL SIGNALS SHOWN ON SHEET E6.



PUMP POWER WIRING DIAGRAM

SCALE: NONE

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Z engineers
Z Engineers, PLLC
One Fifth Street, Ste 150
Wenatchee, WA 98801
Tel: 509.888.9364
Fax: 509.888.9365
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805 DUPONT STREET
BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
www.wilsonengineering.com
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BRIAN L. ZIESEMER
STATE OF WASHINGTON
37463
REGISTERED
PROFESSIONAL ENGINEER
4-20-2015

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CITY OF FERNDALE, WA
WHATCOM COUNTY WASHINGTON
PUMP STATION No. 4
PUMP WIRING DIAGRAM

DATE	SCALE	JOB NUMBER
4/20/2015	AS SHOWN	2013-037

SHEET E8 OF E11

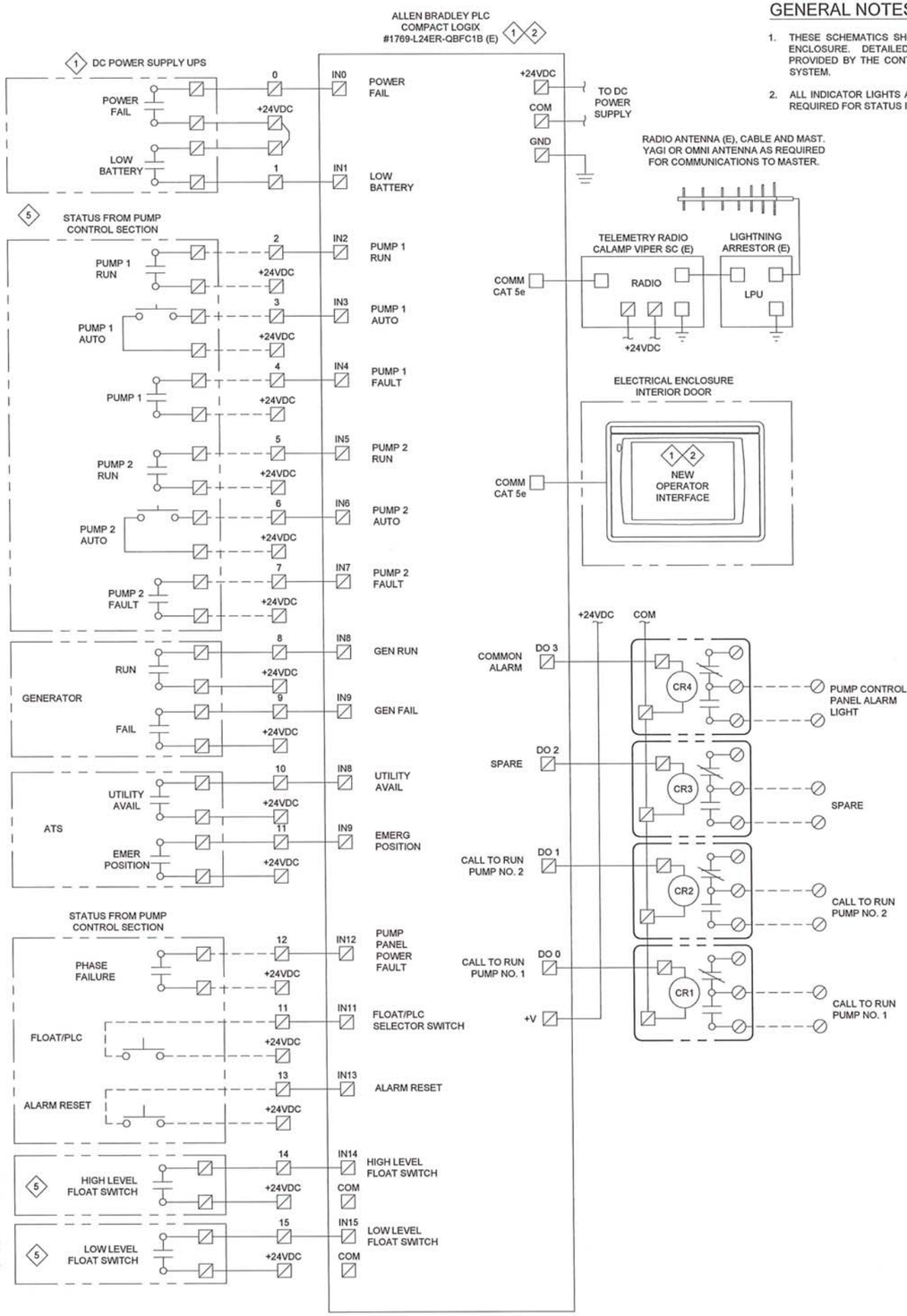
GENERAL NOTES:

1. THESE SCHEMATICS SHOW ONLY FUNCTIONAL REQUIREMENTS OF THE ELECTRICAL ENCLOSURE. DETAILED WIRING DIAGRAMS, PANEL SIZING AND LAYOUT SHALL BE PROVIDED BY THE CONTROL PANEL SUPPLIER FOR A COMPLETE AND OPERATIONAL SYSTEM.
2. ALL INDICATOR LIGHTS ARE NOT SHOWN. PROVIDE WIRING, INTERPOSING RELAYS AS REQUIRED FOR STATUS INDICATOR LIGHTS FOR ALL SIGNALS SHOWN ON SHEET E6.

KEY NOTES:

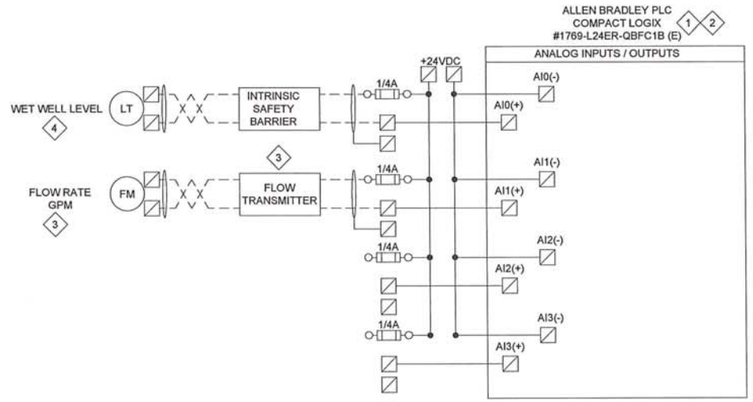
1. EXISTING TELEMETRY CONTROL PANEL AND RADIO SYSTEM. RELOCATE TO NEW EQUIPMENT ENCLOSURE. CONNECT ALL NEW INSTRUMENTATION AND SIGNALS TO TELEMETRY CONTROL PANEL PER WIRING DIAGRAMS AND ELECTRICAL PLANS. NEW OPERATOR INTERFACE. PROGRAM PLC AND OPERATOR INTERFACE FOR AUTOMATIC CONTROL OF PUMP STATION.
2. PLC AND OPERATOR INTERFACE PROGRAMMING WILL BE PROVIDED BY CITY'S PROGRAMMER, L2 SYSTEMS, UNDER FORCE ACCOUNT. SEE SPECIFICATIONS.
3. FLOW METER SYSTEM FM APPROVED FOR CLASS I, DIV 2 HAZARDOUS AREA.
4. LEVEL TRANSDUCER FM APPROVED FOR CLASS I, DIV 1 HAZARDOUS AREA.
5. PROVIDE INTERPOSING RELAYS TO CONNECT AS SIGNALS SHOWN TO PLC, AS REQUIRED.
6. PROVIDE 16 POINT DIGITAL INPUT WIRING EXPANSION MODULE AND INSTALL IN EXISTING PANEL. COORDINATE WITH PROGRAMMER FOR INSTALLATION.

NO.		BY	DATE



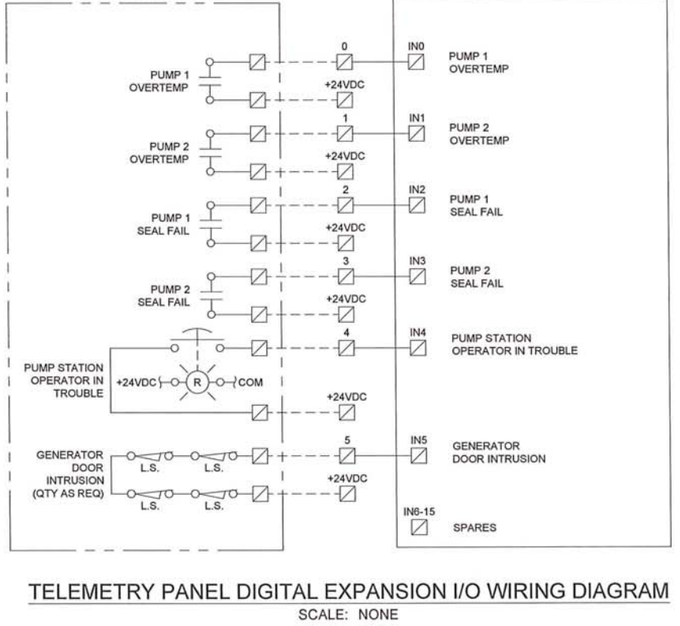
TELEMETRY PANEL DIGITAL I/O WIRING DIAGRAM

SCALE: NONE



TELEMETRY PANEL ANALOG I/O WIRING DIAGRAM

SCALE: NONE



TELEMETRY PANEL DIGITAL EXPANSION I/O WIRING DIAGRAM

SCALE: NONE

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Z Engineers, PLLC
One Fifth Street, Ste 150
Wenatchee, WA 98801
Tel: 509.888.9364
Fax: 509.888.9365
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WILSON ENGINEERING, LLC
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BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
www.wilsonengineering.com

BRIAN L. ZIESMER
STATE OF WASHINGTON
37463
REGISTERED
PROFESSIONAL ENGINEER
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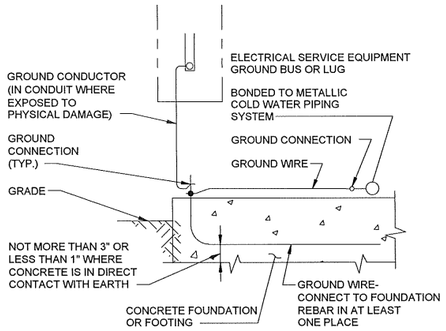
CITY OF FERNDALE, WASHINGTON
WHATCOM COUNTY

PUMP STATION No. 4
TELEMETRY PANEL WIRING DIAGRAMS

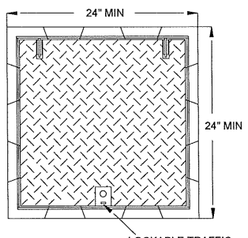
DATE	SCALE	JOB NUMBER
4/20/2015	AS SHOWN	2013-037

SHEET E9 OF E11

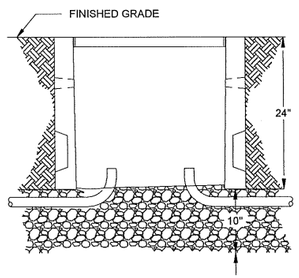


GENERAL NOTE: CONTRACTOR SHALL PROVIDE ALL REQUIRED GROUNDING AND BONDING TO MEET REQUIREMENTS OF NEC ARTICLE 250.

1 GROUNDING SYSTEM DETAIL
SCALE: NONE

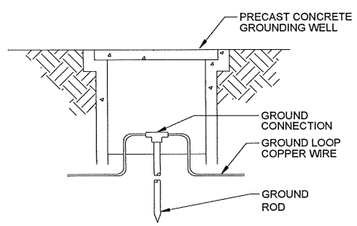


TYPICAL HANDHOLE PLAN
SCALE: NONE

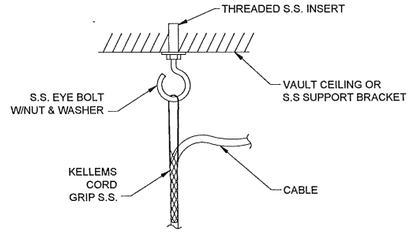


TYPICAL HANDHOLE ELEVATION
SCALE: NONE

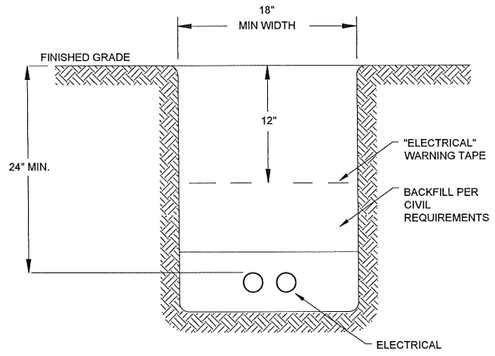
2 ELECTRICAL HANDHOLE DETAIL
SCALE: NONE



3 GROUND ROD DETAIL
SCALE: NONE



4 STRAIN RELIEF DETAIL
SCALE: NONE

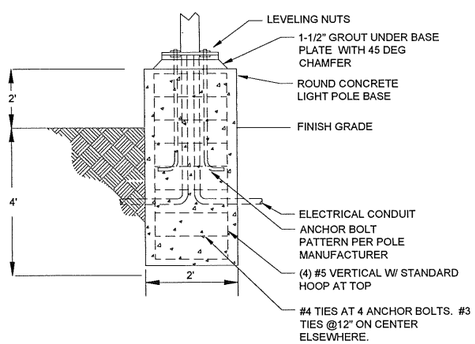


SECONDARY AND FEEDER RACEWAY
SCALE: NONE

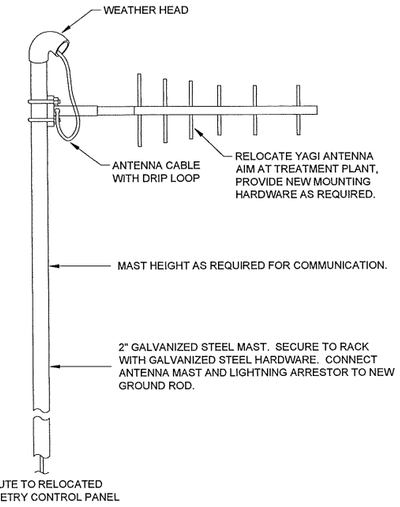
GENERAL NOTES:

1. MAINTAIN 12" MIN. SEPARATION BETWEEN WATER UTILITIES.
2. PROVIDE 2" SEPARATION BETWEEN MULTIPLE CONDUITS AND NEAREST SIDEWALL.
3. TRENCH WIDTH TO ACCOMMODATE ALL CONDUITS AND SERVICES. MINIMUM WIDTH 18".
4. BACKFILL IN ACCORDANCE WITH UTILITY AND CIVIL STANDARDS.
5. CONDUIT SHALL BE BEDDED W/SAND (3" BASE & 3" COVER MIN).

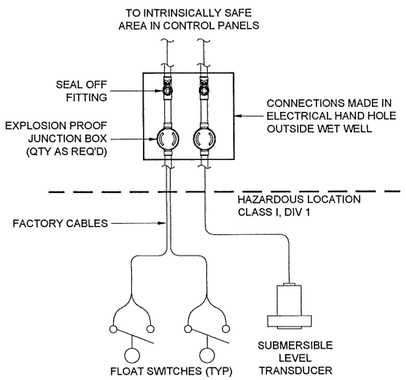
5 ELECTRICAL RACEWAY AND TRENCHING DETAILS
SCALE: NONE



6 LIGHT POLE BASE DETAIL
SCALE: NONE



7 TELEMETRY ANTENNA MOUNTING DETAIL
SCALE: NONE



8 INTRINSICALLY SAFE RELAY CONNECTION DETAIL
SCALE: NONE

BID SET

Z engineers
Z Engineers, PLLC
One Fifth Street, Ste 150
Wenatchee, WA 98801
Tel: 509.888.9364
Fax: 509.888.9365
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Wilson SURVEY/ENGINEERING

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REGISTERED PROFESSIONAL ENGINEER
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CITY OF FERNDALE, WA
WHATCOM COUNTY
WASHINGTON
ELECTPUMP STATION No. 4
ELECTRICAL DETAILS

DATE	SCALE	JOB NUMBER
4/20/2015	AS SHOWN	2013-037

SHEET E10 OF E11

NO.		BY	DATE

ID	VOLTAGE	CONDUIT	WIRE QTY	SIZE	DESCRIPTION
P-SEB	480/277V	3"	4	#3/0 AWG	SECONDARY - METER BASE TO SERVICE DISCONNECT
P-GEN	480/277V	2"	4	#3/0 AWG	GENERATOR TO AUTOMATIC TRANSFER SWITCH
P-ATS	480/277V	2"	4	#3/0 AWG	SERVICE ENTRANCE BREAKER TO AUTOTRANSFER SWITCH
P-EE	480V	2"	3	#3/0 AWG	ELECTRICAL ENCLOSURE POWER
P-PCP	480V	2"	3	#3/0 AWG	PUMP CONTROL POWER
P-P1	480V	1-1/2"	3	#3 AWG	PUMP NO. 1 MOTOR LEADS
P-P2	480V	1-1/2"	3	#3 AWG	PUMP NO. 2 MOTOR LEADS
P-T1	480V	1/2"	2	#12 AWG	TRANSFORMER T1 POWER
P-GENP	120/240V	1"	4	#12 AWG	GENERATOR BLOCK HEATER/BATTERY CHARGER POWER
P-LT1	120/240V	1"	2	#12 AWG	AREA LIGHT POWER
P-LP1	120/240V	1"	3	#8 AWG	LIGHTING PANEL LP1 POWER
P-TEL	120/240V	1/2"	2	#12 AWG	TELEMETRY PANEL POWER
P-FM	24VDC	1/2"	2	#14 AWG	FLOW METER - REMOTE MOUNT POWER
C-ATS	24VDC	1"	8	#14 AWG	AUTOMATIC TRANSFER SWITCH/GENERATOR STATUS
C-GEN	24VDC	1"	10	#14 AWG	GENERATOR - RUNNING FAIL STATUS, GEN CONTROL, INTRUSION
C-TEL	24VDC	1"	AS REQ'D	#14 AWG	PUMP STATION DIGITAL I/O
S-FM	24VDC	1"	2	FC	FLOW METER - ELECTRODE AND COIL FACTORY CABLE
S-TEL	24VDC	1"	AS REQ'D	#18 TSP	PUMP STATION ANALOG I/O
S-WW1	24VDC	1"	1	#18 TSP	WET WELL LEVEL TRANSDUCER
S-WW2	24VDC	1"	6	#14 AWG	WET WELL FLOATS (BCKUP FLOAT CONTROL)
S-WW3	24VDC	1"	4	#14 AWG	WET WELL FLOATS (HIGH AND LOW LEVEL ALARM)
ANT	---	2"	1	COAX	TELEMETRY RADIO ANTENNA CABLE
ETH	---	1/2"	1	CAT 6	PANELVIEW COMMUNICATION CABLE
FIBER	---	2"	---	---	SPARE - (FUTURE FIBER)

*NOTE: PROVIDE EQUIPMENT GROUNDING PER NEC 250.

CONDUIT SCHEDULE

SCALE: NONE

LIGHTING SCHEDULE							
ID	DESCRIPTION	MOUNTING	LAMPS	VOLTAGE	LUMENS	WATTS	MANUFACTURER
F1	AREA LIGHT, POLE MOUNT	10' POLE	60 LED	120	14,461	134	LITHONIA CSX1 LED, OR EQUAL.

LIGHTING SCHEDULE

SCALE: NONE

PANEL: LP1					PANEL SCHEDULE						PROJECT: City Of Ferndale Pump Station No.4	
120/240V, 1Ph, 3W.					100A Bus			40A M.C.B.			SURFACE MOUNTED	
CKT NO	DESCRIPTION / LOCATION	LOAD (VA)	LOAD TYPE	C.B. AMP	C.B. POLE	PHASE	C.B. POLE	C.B. AMP	LOAD TYPE	LOAD (VA)	DESCRIPTION / LOCATION	CKT NO
1	RECEPTACLE - PANEL MOUNT	180	R	20	1	A	1	20	H	1,000	GENERATOR - BATTERY CHARGER	2
3	PANEL HEATER	250	H	20	1	B	1	20	G	1,500	GENERATOR - COOLANT HEATER	4
5	PANEL LIGHTING	64	L	20	1	A	1	20	L	500	SITE LIGHTING	6
7	PUMP CONTROL	1,000	C	20	1	B	1	20			SPARE	8
9	SPARE			20	1	A	1	20			SPARE	10
11	SPARE			20	1	B					SPACE	12
13	SPACE					A					SPACE	14
15	SPACE					B					SPACE	16

TOTAL CONNECTED LOAD: PH A 1,744 VA 14.5 AMPS — DATE: April 16, 2015

TOTAL CONNECTED LOAD: PH B 2,750 VA 22.9 AMPS

MAX PHASE CONNECTED LOAD: PH B 2,750 VA — PANEL RATING: 10,000 AIC

TOTAL CONNECTED LOAD (2 x MAX): 5.5 kVA 22.9 AMPS — TOTAL DEMAND LOAD: 4.9 kVA 20.4 AMPS

		CONNECTED LOADS	SUBFED LOADS [S]	TOTAL LOADS	DEMAND FACTOR	DEMAND LOAD
G	GENERAL (NON-CONTINUOUS)	1,500 VA	0 VA	1,500 VA	100%	1,500 VA
L	LIGHTING	564 VA	0 VA	564 VA	125%	705 VA
R	RECEPTACLES - UP TO 10 kVA	180 VA	0 VA	180 VA	100%	180 VA
	OVER 10 kVA		0 VA	0 VA	50%	0 VA
K	KITCHEN	0 VA	0 VA	0 VA	100%	0 VA
H	HEATING	1,250 VA	0 VA	1,250 VA	100%	1,250 VA
M	MOTORS	0 VA	0 VA	0 VA	100%	0 VA
LM	LARGEST MOTOR	0 VA	0 VA	0 VA	125%	0 VA
WH	WATER HEATER	0 VA	0 VA	0 VA	100%	0 VA
C	CONTINUOUS (GENERAL LOAD)	1,000 VA	0 VA	1,000 VA	125%	1,250 VA
N	NON-COINCIDENT	0 VA	0 VA	0 VA	0%	0 VA
	TOTAL:	4,494 VA	0 VA	4,494 VA		4,885 VA

LIGHTING PANEL SCHEDULE

SCALE: NONE

BID SET

Z Engineers, PLLC
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Wenatchee, WA 98801
Tel: 509.888.9364
Fax: 509.888.9365
www.z-engineers.com

WILSON ENGINEERING, LLC
805 DUPONT STREET
BELLINGHAM, WA 98225
(360) 733-6100 • FAX (360) 647-9061
www.wilsonengineering.com

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CITY OF FERNDALE, WA
WHATCOM COUNTY WASHINGTON
ELECTPUMP STATION No. 4
ELECTRICAL SCHEDULES

DATE	SCALE	JOB NUMBER
4/20/2015	AS SHOWN	2013-037

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