



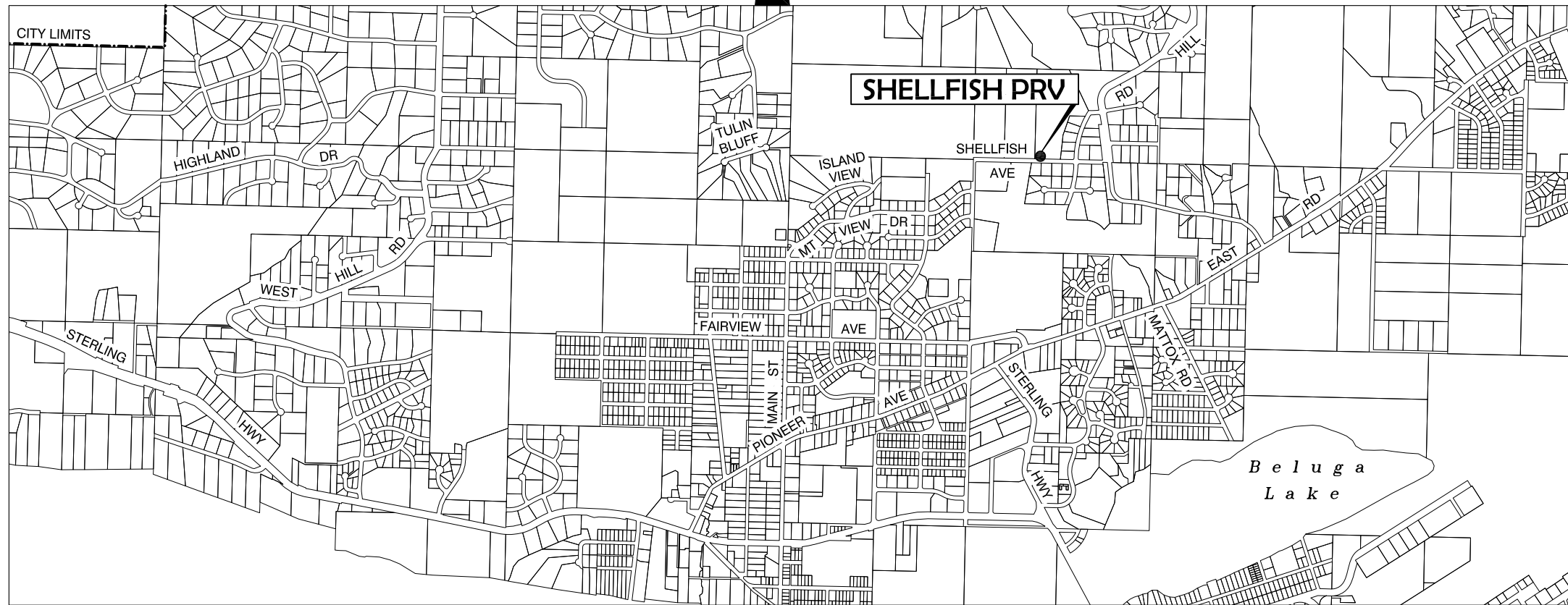
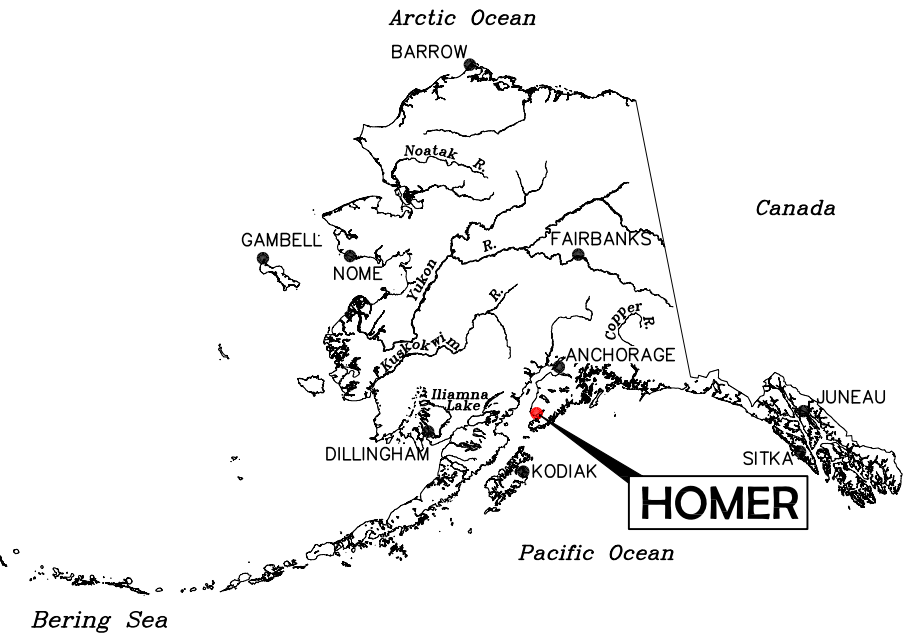
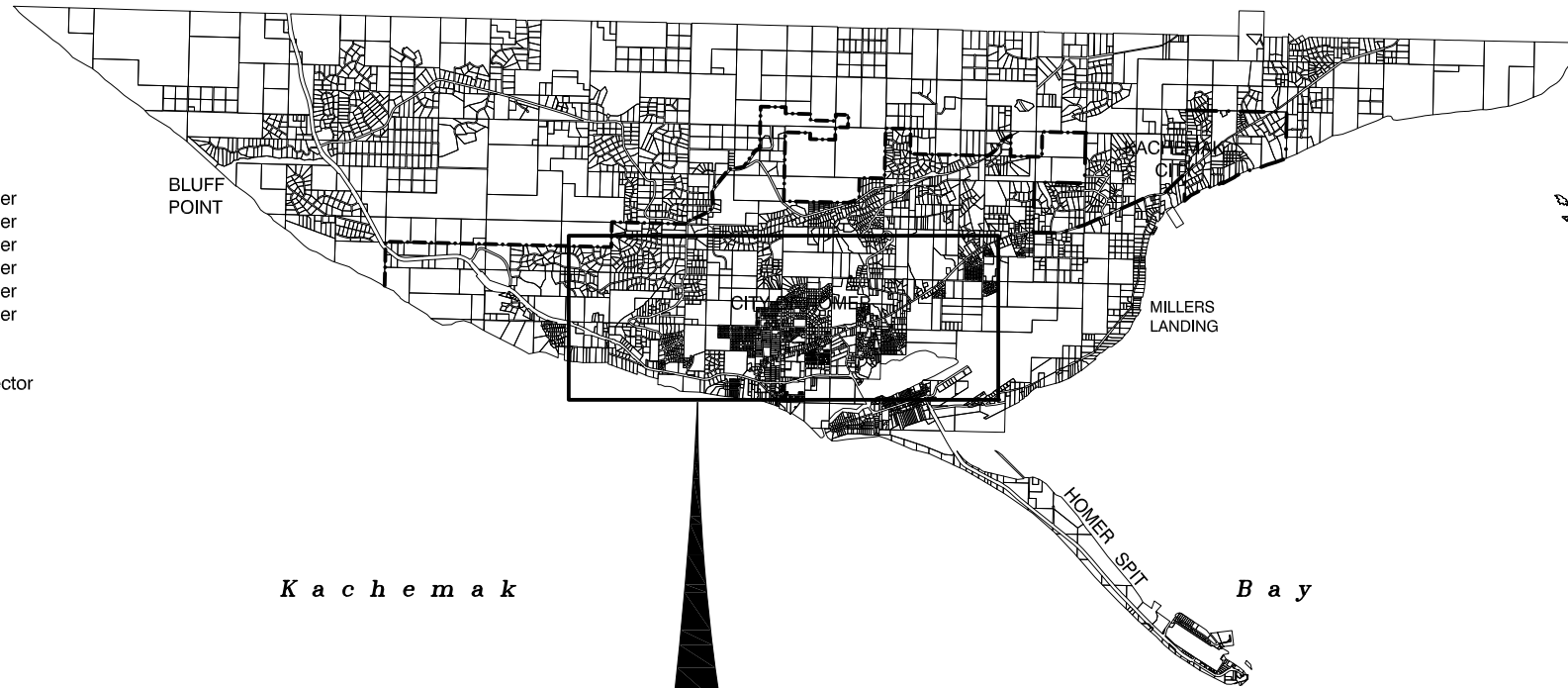
SHELLFISH AVENUE PRV PROJECT

CITY OF HOMER, ALASKA
PUBLIC WORKS DEPARTMENT

Mary E. (Beth) Wythe Mayor

David Lewis Council Member
Francie Roberts Council Member
Barbara Howard Council Member
Bryan Zak Council Member
Beauregard Burgess Council Member
Gus Van Dyke Council Member

Walt Wrede - City Manager
Carey S. Meyer, P.E. - Public Works Director



SHEET INDEX

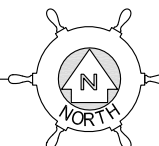
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- G1.0 COVER SHEET, LOCATION MAP, AND SHEET INDEX
- G1.1 GENERAL NOTES, ABBREVIATIONS, AND LEGEND
- C1.1 PRV SITE PLAN, SECTION, KEY, AND NOTES
- C1.2 PRV VAULT PLAN, SECTION, KEY, AND NOTES
- C1.3 PRV VAULT SECTIONS AND DETAILS

ELECTRICAL

- E1 SPECIFICATIONS, LEGEND, AND ABBREVIATIONS
- E2 SITE PLAN
- E1 ELECTRICAL PLAN

LOCATION MAP



User: SWHEAT Sep 25, 2014 7:39am
Drawing: K:\JOBS\32130074 TO#01 WS IMP\ACAD-DESIGN\TO#3 NEW WST\PRV DESIGN\32130074_PRV_COVER.DWG - Layout: LAYOUT1
Xrefs: 25026_KEYMAP.DWG - Images: None

FOR CONSTRUCTION

Bristol

ENGINEERING
SERVICES CORPORATION

Phone (907) 563-0013 Fax (907) 563-6713

Project No. 32130074

User: SWHEAT Sep 25, 2014 - 7:42am
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GENERAL NOTES

- 1 THE CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE PROJECT.
- 2 ALL CONSTRUCTION SHALL BE COMPLETED AS OUTLINED IN THE CITY OF HOMER; STANDARD CONSTRUCTION SPECIFICATIONS (2011 EDITION), UNLESS OTHERWISE SHOWN IN THE DRAWINGS OR SPECIAL PROVISIONS.
- 3 ALL CONSTRUCTION WITHIN THE SHELLFISH AVENUE PRISM SHALL BE DONE IN ACCORDANCE WITH THE CITY OF HOMER, STANDARD SPECIFICATIONS FOR RURAL ROAD CONSTRUCTION.
- 4 THE WATER LINE SHALL BE A MINIMUM OF 18 VERTICAL INCHES FROM THE SEWER LINE. HORIZONTAL SEPARATION BETWEEN SANITARY SEWER LINES AND WATER LINES MUST NOT BE LESS THAN 10 FEET UNLESS OTHERWISE NOTED.
- 5 MINIMUM BURY ON WATER MAIN SHALL BE 7 FEET UNLESS OTHERWISE NOTED. ALL WATER LINES BURIED LESS THAN 7 FEET MUST BE INSULATED AS SPECIFIED.
- 6 CONTRACTOR SHALL RESEED ALL DISTURBED AREAS AS REQUESTED BY THE CITY OF HOMER, ALASKA.
- 7 THRUST RESTRAINT MUST BE INSTALLED AT EACH WATER MAIN FITTING UNLESS OTHERWISE NOTED.
- 8 BACKFILL WITHIN ADOT&PF OR COH ROAD RIGHT-OF-WAY SHALL MEET STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES SPECIFICATIONS FOR MATERIALS AND COMPACTION REQUIREMENTS.
- 9 EXCAVATION NEAR UTILITY POLES & UTILITY PEDESTALS SHALL BE COORDINATED WITH HOMER ELECTRIC ASSOCIATION (HEA). THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND SCHEDULING WORK.
- 10 CONTRACTOR SHALL RESTORE ALL PRIVATE DRIVEWAYS TO THEIR ORIGINAL CONDITION.
- 11 CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO VERIFY LOCATIONS BEFORE EXCAVATION.
- 12 UNDERGROUND UTILITY LINES AND SERVICE BOXES SHALL BE PROTECTED AND RELOCATED AS REQUIRED. THE "ALASKA DIG LINE" 1(800)478-3121 WILL PROVIDE TELEPHONE NUMBERS TO SUCH UTILITY COMPANIES AS ACS, GCI, AND HEA.
- 13 CLEARING & GRUBBING: CLEARING LIMITS SHALL NOT EXCEED 10' HORIZONTALLY EITHER SIDE OF VAULT OR NEW WATER PIPE LOCATION OR AS SHOWN ON PLANS, UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER.
- 14 EXISTING SIGNS, MAILBOXES, & FENCING SHALL TEMPORALLY BE RELOCATED DURING CONSTRUCTION. THE CONTRACTOR SHALL RESTORE THESE ITEMS TO THEIR ORIGINAL CONDITION, UPON PROJECT COMPLETION.
- 15 CONTRACTOR SHALL REMOVE & RESTORE EXISTING CULVERTS OBSTRUCTING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING CULVERT(S), IF DAMAGED.
- 16 TRENCH AND EXCAVATION DE-WATERING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND IS INCIDENTAL TO PIPE AND PRV INSTALLATION.
- 17 ALL WATER SYSTEM COMPONENTS IN DIRECT CONTACT WITH THE POTABLE WATER SUPPLY SHALL MEET THE REQUIREMENTS OF NATIONAL SANITATION FOUNDATION (NSF) STANDARD 61.
- 18 WATERLINE DISINFECTING
 CHLORINE FOR DISINFECTION SHALL BE IN THE FORM OF SODIUM HYPOCHLORITE SOLUTION OR CALCIUM HYPOCHLORITE GRANULES OR TABLETS, AND SHALL MEET THE REQUIREMENTS OF ANSI/AWWA B300. WORKERS SHALL USE DUE CARE AND CAUTION TO PREVENT BODILY CONTACT WITH THE CHLORINE MATERIALS OR SOLUTION. FOLLOW ALL SAFETY PRECAUTIONS NOTED IN THE MANUFACTURER'S PRODUCT INFORMATION AND MATERIAL SAFETY DATA SHEET.
- 19 ALL POTABLE WATER PIPELINES, INCLUDING SERVICE LINES, SHALL BE DISINFECTED IN ACCORDANCE WITH THE REQUIREMENTS OF ANSI/AWWA C651.
- 20 ANY PRIVATE OR PUBLIC PROPERTY DISTURBED AS A RESULT OF THIS PROJECT SHALL BE REPLACED TO ORIGINAL CONDITION. EXISTING DRAINAGE PATTERNS SHALL BE RESTORED BY THE CONTRACTOR AFTER CONSTRUCTION OF THE IMPROVEMENTS.

ABBREVIATIONS

AC ASPHALT CEMENT	S SLOPE
AP ARCTIC PIPE	SCH SCHEDULE
AVE AVENUE	SEC SECTION
BF BLIND FLANGE	SHT SHEET
BOH BOTTOM OF HOLE	SS STAINLESS STEEL
BOP BEGINNING OF PROJECT	STA STATION
BV BALL VALVE	SVC SERVICE
	ST STREET
CIP CAST IRON PIPE	TBM TEMPORARY BENCHMARK
CIR CIRCLE	TCE TEMPORARY CONSTRUCTION EASEMENT
CMP CORRUGATED METAL PIPE	TH TEST HOLE
COH CITY OF HOMER	THD THREAD
CONT CONTINUED	TYP TYPICAL
CP CONTROL POINT	VB VALVE BOX
Cu COPPER	VBM VALVE BOX MARKER
DR DRIVE	W/ WITH
DIP DUCTILE IRON PIPE	WST WATER STORAGE TANK
EA EACH	
EL ELEVATION	
ESMNT EASEMENT	
FCA FLANGE COUPLING ADAPTER	
FF FINISH FLOOR	
FH FIRE HYDRANT	
FL FLANGE	
GV GATE VALVE	
HDPE HIGH-DENSITY POLYETHYLENE	
HYD HYDRANT	
INV INVERT	
IP IRON PIPE	
IPS IRON PIPE SIZE	
IV ISOLATION VALVE	
KB KEY BOX	
L LENGTH	
LF LINEAL FEET	
LT LEFT	
MAX MAXIMUM	
MD MAXIMUM DENSITY	
MDD MAXIMUM DRY DENSITY	
MG MILLION GALLON	
MIN MINIMUM	
MNFR MANUFACTURER	
NFS NON FROST SUSCEPTIBLE	
NIC NOT IN CONTRACT	
NTS NOT TO SCALE	
NPT NATIONAL PIPE THREAD	
PE PLAIN END	
PI POINT OF INTERSECTION	
PL PLACE	
P/L PROPERTY LINE	
PRV PRESSURE REDUCING VAULT	
PT POINT OF TANGENCY	
PVC POLYVINYL CHLORIDE	
R RADIUS	
RED REDUCER	
RD ROAD	
ROW RIGHT OF WAY	
RT RIGHT	

LEGEND

PROPOSED	EXISTING	
		VEGETATION
		GAS
		UNDERGROUND ELECTRIC
		PROPERTY LINE
		EASEMENT
		SURVEY MONUMENT OF RECORD
		5/8" REBAR
		TEST HOLE LOCATION
		CULVERT WITH SIZE
		EDGE OF GRAVEL SURFACE
		WATER LINE
		VALVE
		CAP
		HYDRANT
		WATER SERVICE LOCATION (BY OTHERS)
		WATER LINE (BY OTHERS)
		FUTURE WATER LINE
		FLOW DIRECTION
		THRUST BLOCK

REVISIONS				
NO.	DATE	BY	DESCRIPTION	

Project No. 32130074

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STATE OF ALASKA
 49TH
 KYLE LINDEN PETERSEN
 No. CE-11250
 9/26/14
 REGISTERED PROFESSIONAL ENGINEER

FOR CONSTRUCTION

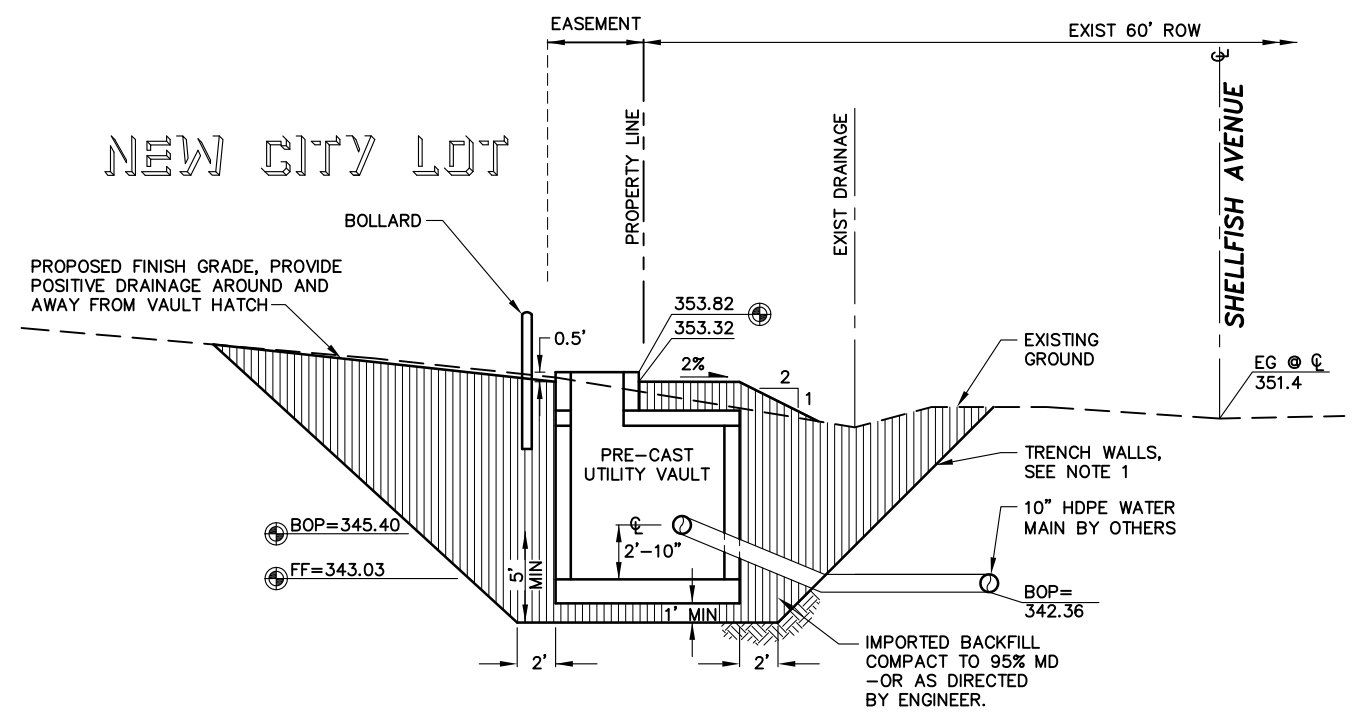
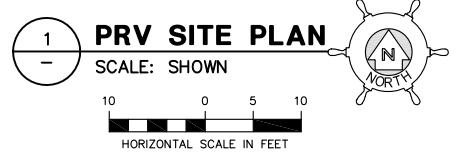
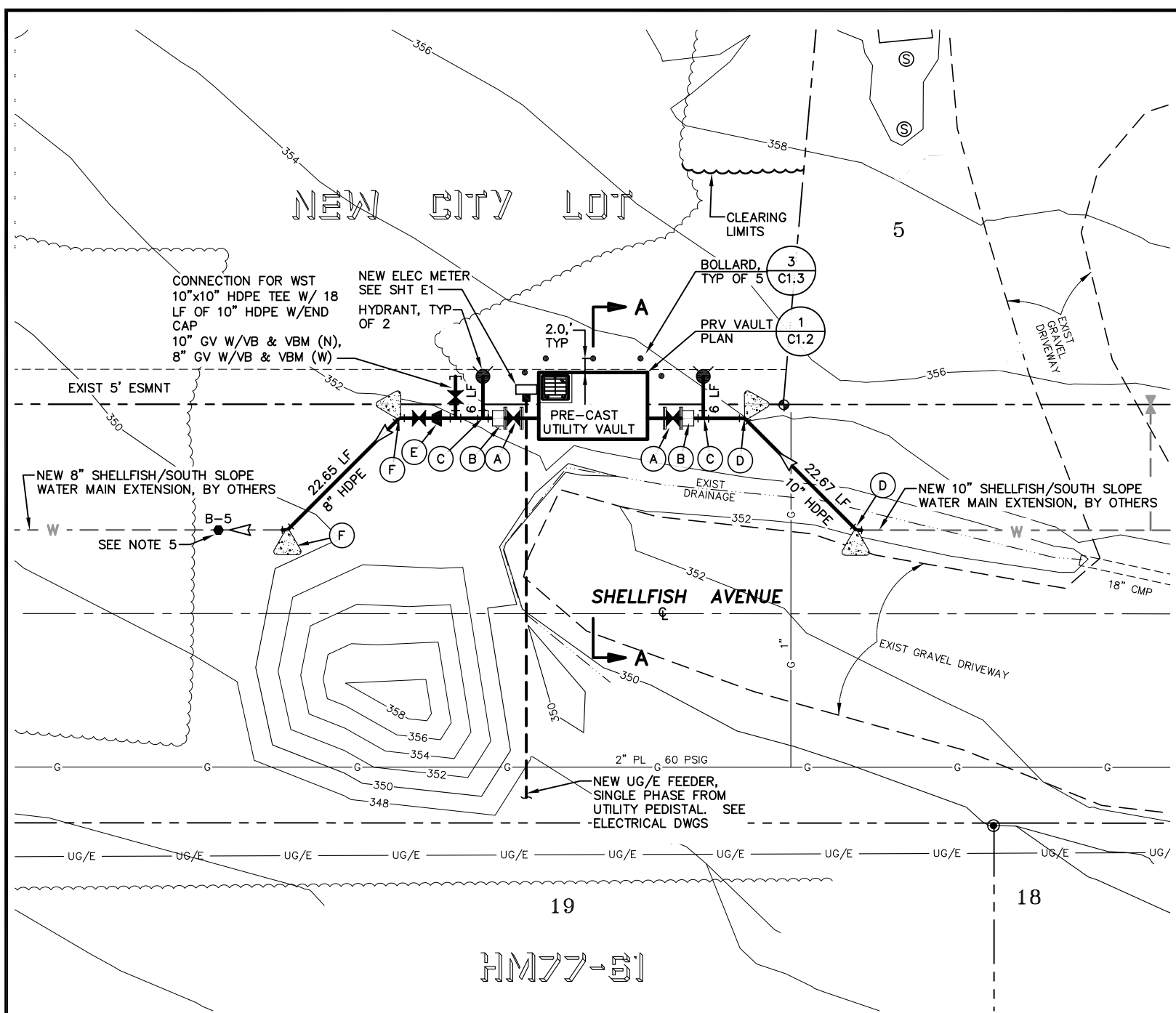
CITY OF HOMER
 NEW SHELLFISH AVENUE PRV

GENERAL NOTES, ABBREVIATIONS, AND LEGEND

SCALE: SHOWN DESIGNED: KLP CHECKED: FJV DRAWN: SJW DATE: 9/26/14

SHEET NO.
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SHEET 2 OF 8

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 Xrefs: 32130074_BOARD.DWG - Images: None



- KEY**
- (A) 10" GV, FLxMJ W/ MEGA-LUG
 - (B) 10" HDPE SDR11 FL ADAPTER (SEE NOTE 2)
 - (C) 10"x6" TEE, HDPE SDR11
 - (D) 10" 45° BEND, HDPE SDR11, THRUST BLOCK, PER COH STD DET 600.02
 - (E) 10"x8" RED, HDPE SDR11
 - (F) 8" 45° BEND, HDPE SDR11, THRUST BLOCK, PER COH STD DET 600.02

SECTION A-A
 SCALE: SHOWN
 HORIZONTAL SCALE IN FEET

- NOTES**
- 1 SLOPE TRENCH WALLS AS REQ'D FOR SAFETY OR USE TRENCH BOX PER OSHA REQMNTS.
 - 2 INSTALL 10" HDPE SDR11 FLANGE ADAPTER W/ DUCTILE IRON BACK UP RING AND CARBON STEEL BOLTS, 10" GV, FLxMJ W/MEGA-LUG OR EQUAL.
 - 3 HDPE JOINTS SHALL BE BUTT FUSED UNLESS STATED OTHERWISE.
 - 4 INFORMATION ON TEST HOLE B-5 IS AVAILABLE IN THE SHANNON & WILSON, INC. GEOTECHNICAL ENGINEERING REPORT TITLED SHELLFISH/SOUTH SLOPE WATER MAIN, MAY 2013.
 - 5 CONTRACTOR SHOULD NOTE THE EXISTING GROUNDWATER LEVELS.
 - 6 A COPY OF THE PROJECT GEOTECHNICAL REPORT WILL BE PROVIDED FOR REVIEW UPON REQUEST TO THE CITY. CONCLUSIONS DERIVED FROM THE INFORMATION WITHIN THE REPORT ARE BORN SOLELY BY THE CONTRACTOR AND AT THE CONTRACTOR'S RISK. THE GEOTECHNICAL REPORT IS NOT A PART OF THE CONTRACT DOCUMENTS. CONTRACTOR MAY REQUEST PERMISSION TO CONDUCT THEIR OWN GEOTECHNICAL INVESTIGATION OF THE SITE BY SUBMITTING THAT REQUEST IN WRITING TO THE CITY.

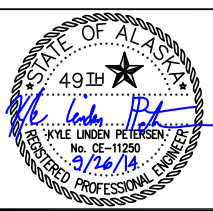
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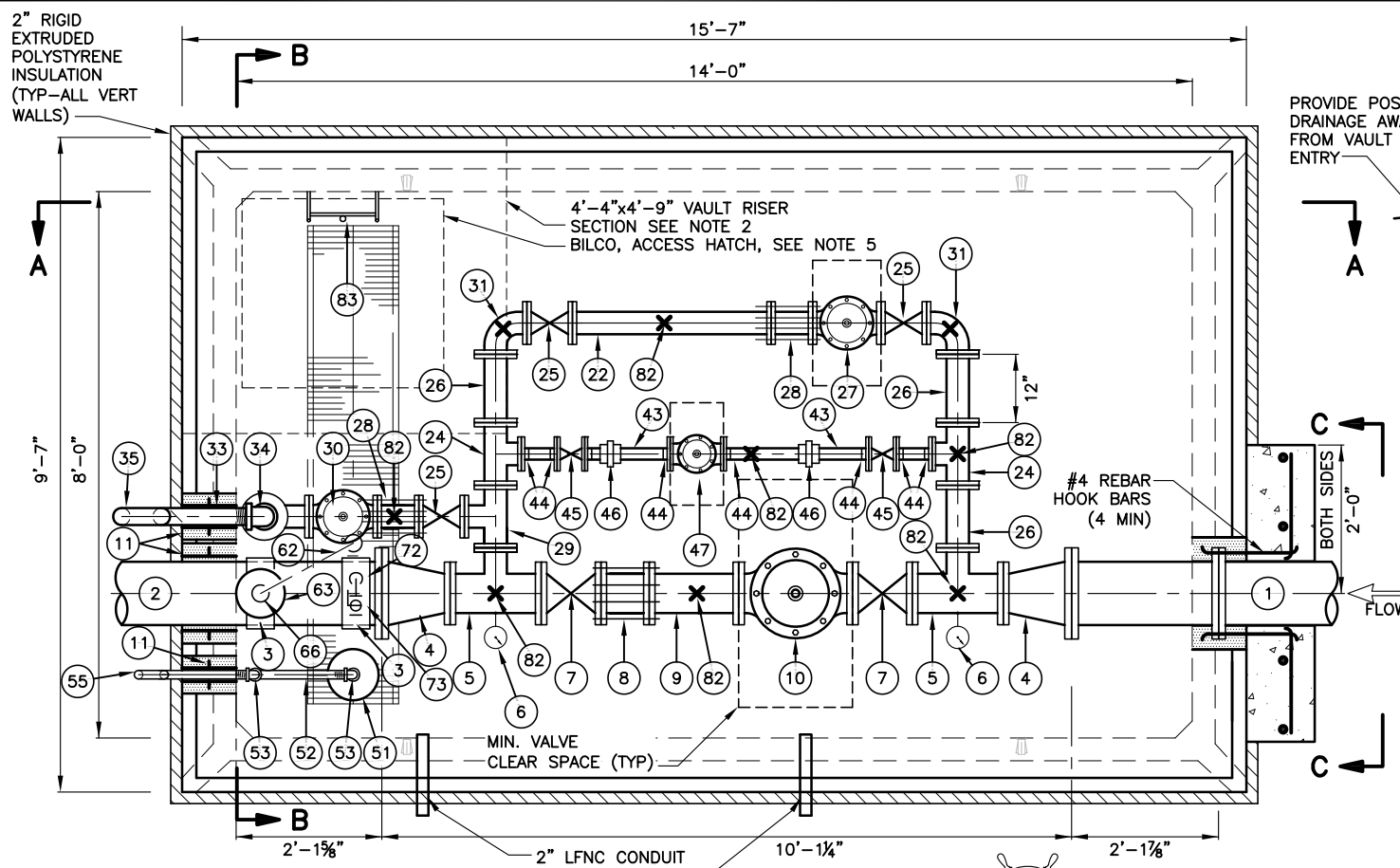


CITY OF HOMER
 NEW SHELLFISH AVENUE PRV
PRV SITE PLAN, SECTION, KEY, AND NOTES

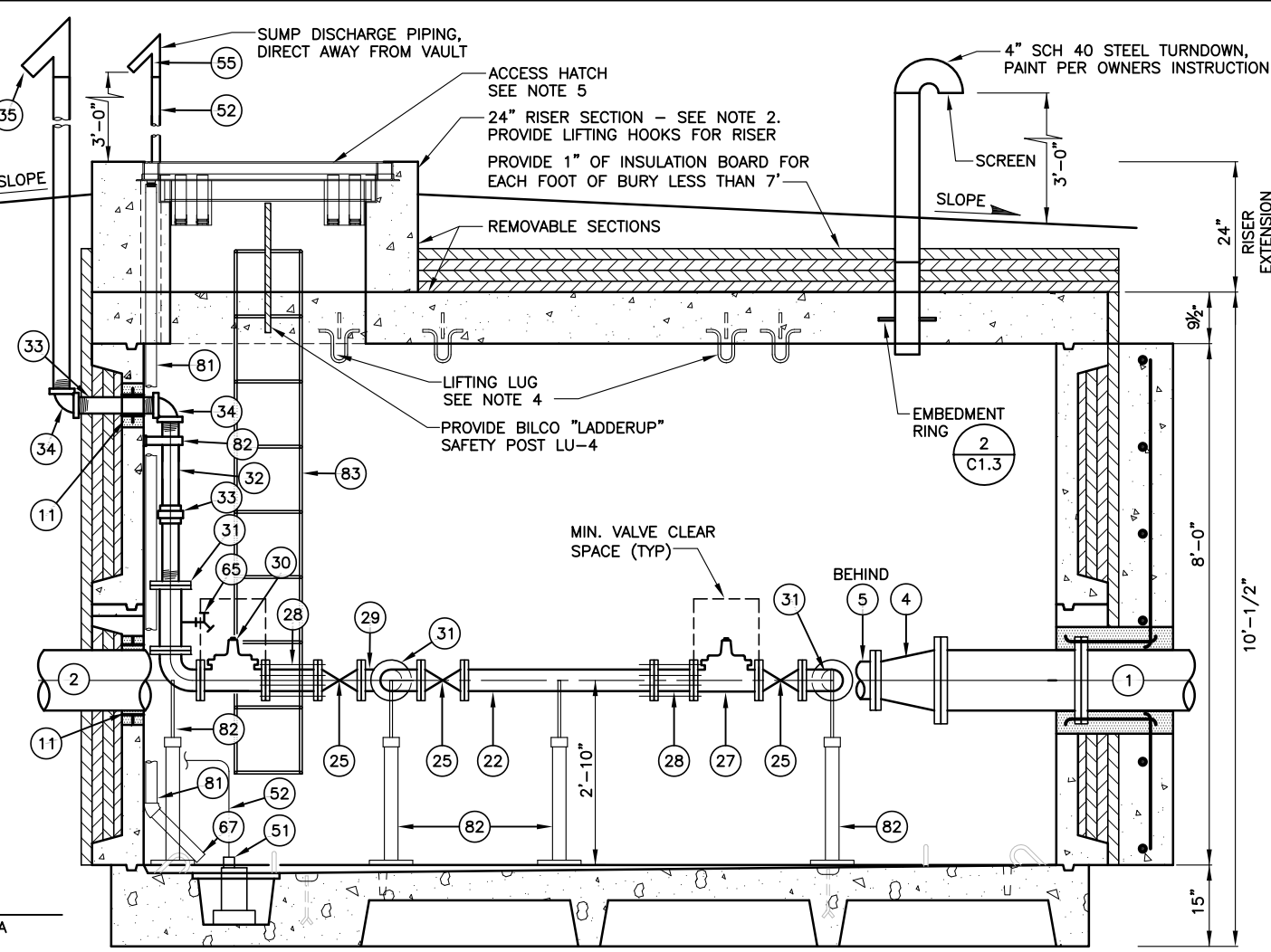
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PLAN VIEW
 SCALE: NTS



SECTION A-A
 SCALE: NTS

NOTES

- 1 ALL COPPER FITTINGS SHALL BE VIEGA PROGRESS SYSTEM W/EPDM SEAL, OR APPROVED EQUAL.
- 2 UTILITY VAULT CO. TO EMBED BILCO HATCH INTO 24" VAULT RISER SECTION AND PROVIDE BLOCK-OUT OR SLEEVE FOR THE 1/2" PVC DRAIN LINE SO IT CAN BE PIPED TO THE FLOOR DRAIN SUMP. PROVIDE SHOP DRAWINGS OF VAULT RISER SECTION WITH BILCO ACCESS HATCH.
- 3 SEAL ALL JOINTS WITH RAMNEK OR EQUAL, WATERPROOF ALL OUTSIDE WALLS.
- 4 INSTALL STAINLESS STEEL LIFTING LUGS, 2000# CAPACITY, LOCATE ABOVE EA LARGE VALVE
- 5 FURNISH & INSTALL BILCO ACCESS HATCH, TYPE J-4ALH20. LOCKABLE W/BILCO PADLOCK LUGS, AND BILCO "LADDERUP" SAFETY POST LU-4.
- 6 REFER TO ELECTRICAL DRAWINGS FOR LIGHTING, AND HEATING.
- 7 ALL MATERIAL, PIPING, AND EQUIPMENT IN CONTACT WITH POTABLE WATER MUST BE APPROVED BY NSF FOR THE SPECIFIC APPLICATION.

KEY

- | | | | | |
|--|--|--|--|--|
| (1) 10" DI SPOOL, PEXFL W/ EMBEDMENT RING OR MEGA-LUG "RING" | (12) → (20) NOT USED | (31) 3" DI 90° BEND, FLxFL | (48) → (50) NOT USED | (67) DIRECT PIPING TO VAULT SUMP |
| (2) 10" DI SPOOL, PEXFL | (21) 3" ROMAC, RFCA-3.96 | (32) NOT USED | (51) SUMP PUMP: HYDRAMATIC SW25 OR EQUAL | (68) → (70) NOT USED |
| (3) ROMAC SVC SADDLE - 101-11.10x1" IP | (22) 3" DI SPOOL, PEXFL | (33) 3" GALV IP, SCH 40 | (52) 2" GALV IP, SCH 40 | (71) 1" BRONZE ADAPTER, CxM NPT |
| (4) 10x6 DI RED, FLxFL | (23) NOT USED | (34) 3" GALV IP, 90° BEND | (53) 2" GALV IP 90° BEND | (72) 1" RIGID TYPE L COPPER |
| (5) 6x3 DI TEE, FL | (24) 3"x2" DI RED TEE, FLxFL | (35) 3" WELDED 45° TURNDOWN W/SCREEN DIRECT AWAY FROM VAULT | (54) 2" GALV IP UNION | (73) 1" BRONZE BALL VALVE, CxC W/ METAL HANDLE (FOR FUTURE TELIMETRY) |
| (6) PRESSURE GAUGE, LIQUID FILLED, SS WIKA OR EQUAL, 200 PSI MIN | (25) 3" GV, FLxFL | (36) → (42) NOT USED | (55) 2" WELDED 45° TURNDOWN W/SCREEN DIRECT AWAY FROM VAULT | (74) 1" BRONZE UNION, CxC |
| (7) 6" GV, FLxFL | (26) 3" DIP SPOOL, FLxFL | (43) 2" RIGID TYPE L COPPER | (56) → (61) NOT USED | (75) → (80) NOT USED |
| (8) 6" FCA, ROMAC FCA501 W/ ANCHOR PINS | (27) "PRV": 3" PRESSURE REDUCING VALVE, CLA-VAL MODEL 90G-01BCSVYKC, DUCTILE IRON BODY, 150# FL, EPOXY LINED & COATED, X101 POSITION INDICATOR, SPRING RANGE 15/75 PSI | (44) 2" BRONZE ADAPTER FLANGE, CxFL | (62) 1" GALV IP, SCH 40, THD | (81) 1 1/2" PVC ACCESS HATCH DRAIN LINE, DIRECT FLOW INTO VAULT SUMP, CAN USE PEX PIPE AS OPTION |
| (9) 6" DI SPOOL, PEXFL | (28) 3" FCA, TYLER SLEEVE, FLxMJ | (45) 2" IRON GATE VALVE W/WHEEL, FLxFL | (63) 1" AIR-VAC VALVE, CLA-VAL OR APCO | (82) PIPE SUPPORT, SEE DETAIL 1/C1.3 |
| (10) "PRV": 6" PRESSURE REDUCING VALVE, CLA-VAL MODEL 90G-01BCSVYKC, DUCTILE IRON BODY, W/KO SS TRIM, 150# FL, EPOXY LINED & COATED, X101 POSITION INDICATOR, SPRING RANGE 15/75 PSI | (29) 3x3 DI TEE, FLxFL | (46) 2" BRONZE UNION, CxC | (64) 1" GALV IP UNION, THD | (83) UTILITY VAULT CO. BOLT ON GALVANIZED LADDER, ALIGN W/ OPENING |
| (11) VAULT PENETRATION: SEAL OPENINGS USING LINK-R-SEAL W/ STEEL WALL SLEEVE | (30) 3" PRESSURE RELIEF VALVE, EPOXY COATED, CLA-VAL MODEL 50-01B, GLOBE 150# FL | (47) "PRV": 2" PRESSURE REDUCING VALVE, CLA-VAL MODEL 90G-01BCSVYKC, DUCTILE IRON BODY, 150# FL, EPOXY LINED & COATED, X101 POSITION INDICATOR, SPRING RANGE 15/75 PSI | (65) 1/4" NSF APPROVED BRASS DRAIN COCK INSTALL 1/4" FPTxPE 45° TURNDOWN | |
| | | | (66) 1" GALV IP 90° BEND, THD | |

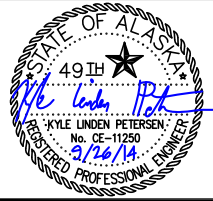
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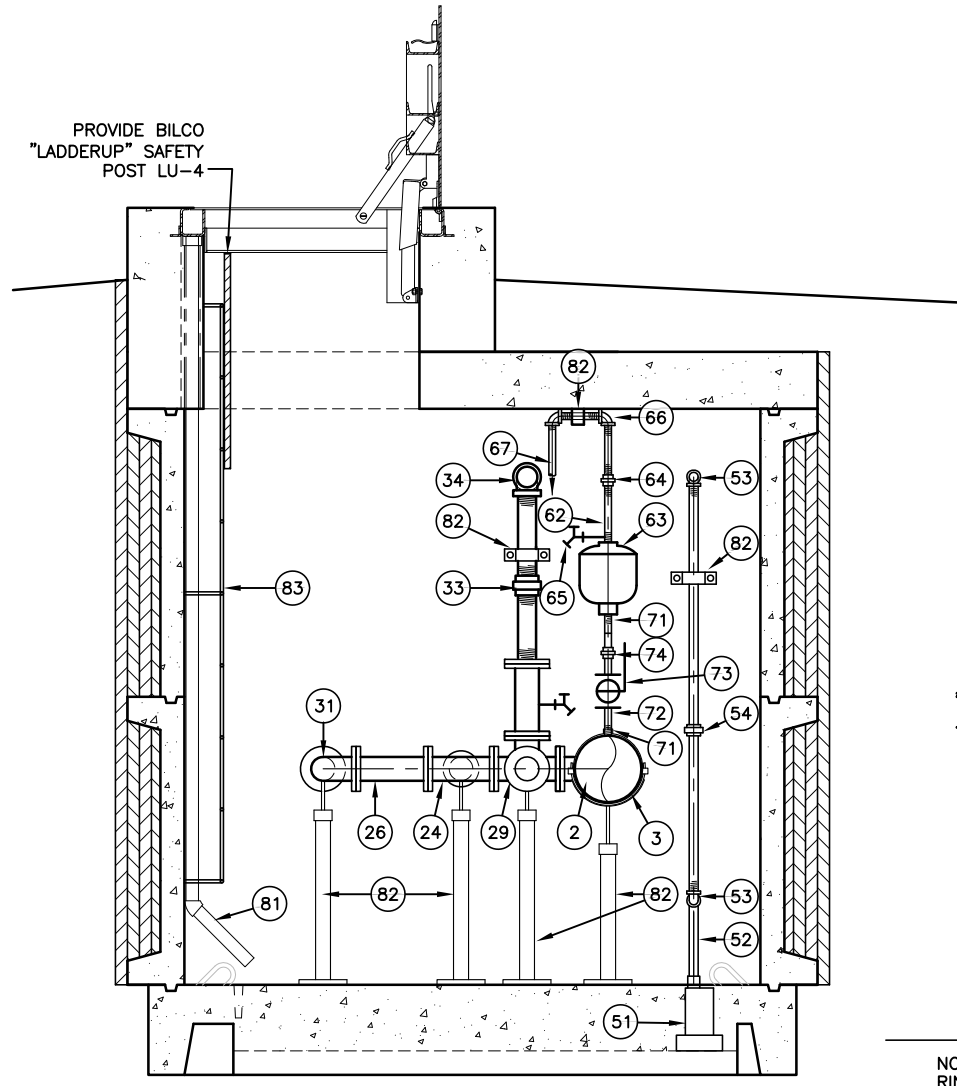


CITY OF HOMER
 NEW SHELLFISH AVENUE PRV
PRV VAULT PLAN, SECTION, KEY AND NOTES

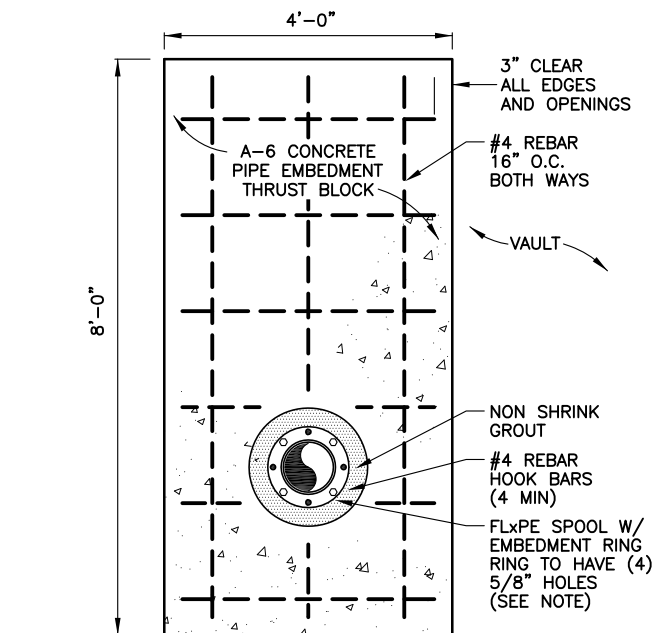
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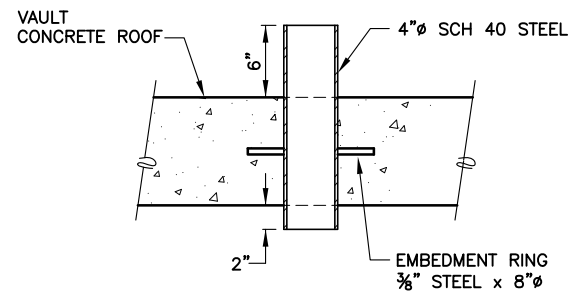
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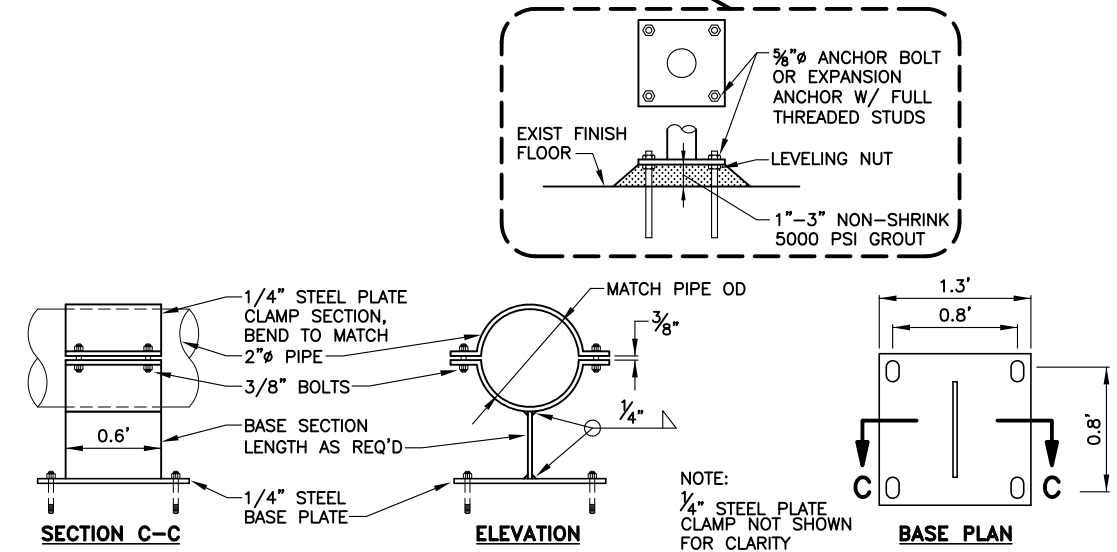
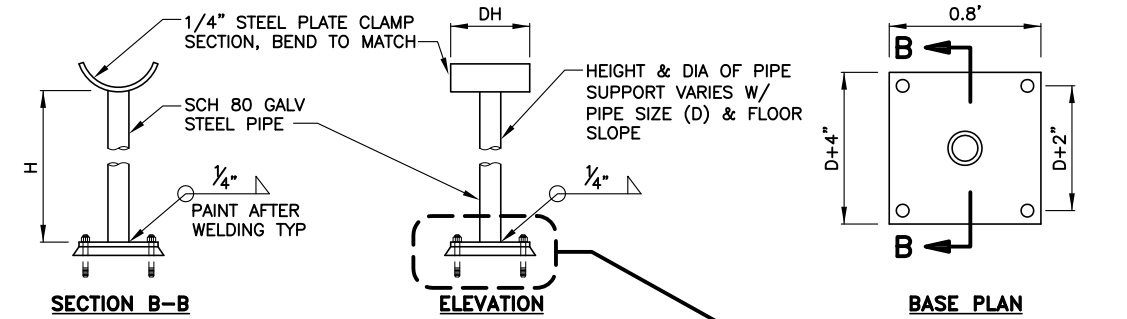
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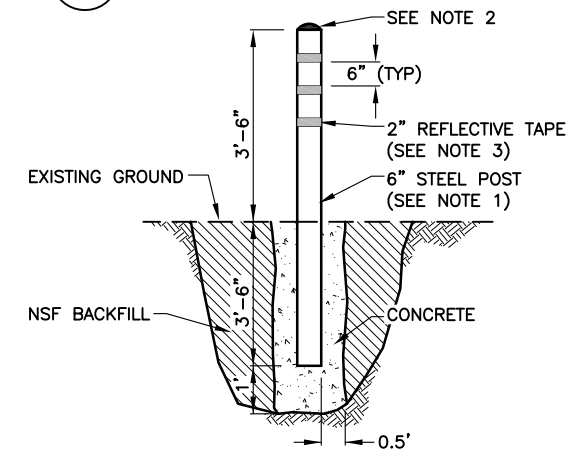
NOTE: RING - EBBA IRON OR ROMAC SPLIT RING RJ PIECE WITH WEDGES.
SECTION C-C
 SCALE: NTS (SEE SHT C1.3 FOR PLAN VIEW)



2 EMBEDMENT RING DETAIL
 SCALE: NTS



1 PIPE SUPPORT DETAILS
 SCALE: NTS



- 1 PROVIDE 6" STEEL, SCH 40 PIPE, FILL WITH CONCRETE.
- 2 ROUND CONCRETE AT TOP OF POST SMOOTH AND PAINT YELLOW.
- 3 INSTALL 3 - 2" BANDS OF YELLOW REFLECTIVE TAPE AS SHOWN.

3 BOLLARD DETAIL
 SCALE: NTS

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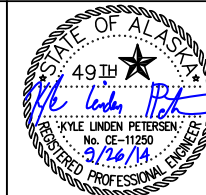
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
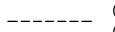
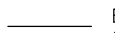

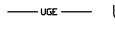
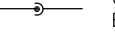










CITY OF HOMER NEW SHELLFISH AVENUE PRV PRV VAULT SECTIONS AND DETAILS				
SCALE: SHOWN	DESIGNED: KLP	CHECKED: FJV	DRAWN: SJW	DATE: 9/26/14

SHEET NO.
C1.3
SHEET 5 OF 8

User: OKA Sep 18, 2014 - 10:46am
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 Xrefs: XBRISTOL ENVIRON SHELLFISH BORDER.DWG - Images: None

ELECTRICAL LEGEND

-  JUNCTION BOX
-  GROUND ROD
-  CONDUIT RUN UNDERGROUND OR IN CONCRETE
-  EXPOSED CONDUIT, GRC UNLESS OTHERWISE SHOWN
-  (E) UNDERGROUND ELECTRIC UTILITY
-  UNDERGROUND ELECTRIC UTILITY
-  CONDUIT RUN - CHANGE IN ELEVATION
-  LIQUID-TIGHT FLEXIBLE CONDUIT
-  DISCONNECT SWITCH
-  CONTROL PANEL OR CONTROLLER
-  PANELBOARD
-  120V DUPLEX GROUND FAULT INTERRUPTING RECEPTACLE, NEMA CONFIGURATION 5-15R
-  KILOWATT-HOUR METER
-  MOLDED CASE CIRCUIT BREAKER, X = AMPERE RATING, Y = NO. OF POLES, * = GFI PROTECTED
-  HEATER

ABBREVIATIONS

- AFG ABOVE FINISH GRADE
- BCU BARE COPPER
- C CONDUIT
- CP CONTROL PANEL
- CU COPPER
- E EMERGENCY
- (E) EXISTING
- FLA FULL LOAD AMPERES
- G GROUND CONDUCTOR
- GFI GROUND FAULT INTERRUPTING
- GRC GALVANIZED RIGID (STEEL) CONDUIT
- GRD GROUND
- HEA HOMER ELECTRIC ASSOCIATION
- HDPE HIGH DENSITY POLYETHYLENE CONDUIT
- KVA KILO-VOLT-AMPERES
- LTF LIQUID TIGHT FLEXIBLE CONDUIT (METALLIC)
- (N) NEW
- NC NORMALLY CLOSED
- NO NORMALLY OPEN, NUMBER
- PH PHASE
- POE POWER OVER ETHERNET
- PR PAIR
- SCADA SUPERVISORY CONTROL AND DATA ACQUISITION
- SIG SIGNAL
- TWSH TWISTED WIRE SHIELDED
- TYP TYPICAL
- UON UNLESS OTHERWISE NOTED
- V VOLTS
- W WATTS
- WP WEATHERPROOF
- XFMR TRANSFORMER

CIRCUIT AND DEVICE LEGEND

- A1,a GROUP OR EQUIPMENT IDENTIFICATION.
"A" DENOTES PANEL NAME
"1" DENOTES CIRCUIT NUMBER
"a" DENOTES SWITCH LEG AS INDICATED.
- 3,a SWITCH IDENTIFICATION.
"3" DENOTES SWITCH CONFIGURATION
"a" DENOTES SWITCH LEG AS INDICATED.

ELECTRICAL SPECIFICATIONS

PART 1- GENERAL

- 1.1 SYSTEM DESCRIPTION:
 - A. SCOPE OF WORK: FURNISH, INSTALL, TEST AND PLACE INTO SATISFACTORY AND SUCCESSFUL OPERATION ALL MATERIALS, EQUIPMENT, DEVICES AND NECESSARY APPURTENANCES TO PROVIDE COMPLETE SYSTEM POWER, LIGHTING AND CONTROLS AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS.
 - B. ALL COMPONENTS FOR THE PROJECT SHALL BE LISTED OR LABELED BY UL (UNDERWRITERS LABORATORIES), FM (FACTORY MUTUAL) OR OTHER AGENCIES RECOGNIZED BY THE STATE OF ALASKA MECHANICAL INSPECTIONS DIVISION. WORK SHALL COMPLY WITH ALL LISTED AND APPLICABLE INDUSTRY STANDARDS, CODES, LOCAL ORDINANCES AND MANUFACTURER'S INSTRUCTIONS.
 - C. SYSTEM SHALL BE COMPLETE AND SHALL INCLUDE ALL TERMINATIONS AND SPLICES TO PROVIDE A FUNCTIONAL SYSTEM.
 - D. PROJECT CONDITIONS: CONTRACTOR SHALL VERIFY IN THE FIELD THAT DIMENSIONS, ROUTING AND CONNECTION LOCATIONS SHOWN ON THE DRAWINGS ARE REASONABLY ACCURRATE.
- 1.2 STANDARDS AND CODES:
 - A. NFPA 70 - NATIONAL ELECTRIC CODE, LATEST ADOPTED ADDITION.
 - B. IBC - INTERNATIONAL BUILDING CODE, LATEST ADOPTED ADDITION.
 - C. IFC - INTERNATIONAL FIRE CODE, LATEST ADOPTED ADDITION.
 - D. LOCAL CODES AND AMENDMENTS.
- 1.3 SUBMITTALS:
 - A. GENERAL: PROVIDE SUBMITTALS OF ALL MATERIAL AND EQUIPMENT. INCLUDE CATALOG NUMBERS, PERFORMANCE DATA, WIRING DIAGRAMS, AND ROUGH-IN DIMENSIONS.
 - B. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INCLUDE INSTRUCTIONS FOR STORAGE, HANDLING, PROTECTION, EXAMINATION, PREPARATION AND INSTALLATION OF PRODUCTS.
- 1.4 OPERATION AND MAINTENANCE DATA:
 - A. PROVIDE ALL MANUFACTURER'S RELEVANT MAINTENANCE AND OPERATING INSTRUCTIONS INCLUDING PROCEDURES NECESSARY FOR SYSTEM START-UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN.
 - B. MANUAL SHALL BE INDEXED, LABELED AND SHALL INCLUDE MAINTENANCE INSTRUCTIONS, PRODUCT DATA, SHOP DRAWINGS AND STEP BY STEP PROCEDURES FOR INSPECTION, REPAIR, CLEANING AND CALIBRATION.

ELECTRICAL SPECIFICATIONS

PART 2 - PRODUCTS

- 2.1 IDENTIFICATION:
 - A. PROVIDE ENGRAVED LAMINATED PLASTIC NAMEPLATES WITH BLACK LETTERS ON A WHITE BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT, AND LOADS SERVED AS NOTED ON THE DRAWINGS.
 - B. LETTER HEIGHTS SHALL BE 1/8 INCH FOR INDIVIDUAL SWITCHES, MOTOR STARTERS AND 1/2 INCH ON PANELBOARDS AND CONTROL PANELS. SECURE NAMEPLATES TO EQUIPMENT FRONTS USING SCREWS OR RIVETS.
 - C. PROVIDE WIRE MARKERS FOR ALL POWER AND CONTROL CIRCUITS IDENTIFYING BRANCH OR FEEDER CIRCUIT AND WIRE NUMBER INDICATED ON CONTROL SYSTEM SHOP DRAWINGS.
 - D. PROVIDE ARC FLASH WARNING LABELS, EQUIPMENT SHORT CIRCUIT CURRENT RATING LABELS, AND AVAILABLE FAULT CURRENT LABELS IN ACCORDANCE WITH ARTICLE 110 OF THE NEC.
- 2.2 CONDUCTORS :
 - A. ALL WIRING SHALL BE COPPER WITH TYPE XHHW-2 INSULATION UNLESS OTHERWISE NOTED. TYPE SIS OR MTW INSULATION SHALL BE ACCEPTABLE FOR CONTROL PANEL WIRING ONLY.
 - B. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE #12 AWG. MINIMUM CONTROL CIRCUIT SIZE SHALL BE #18 AWG. MULTI-PAIR CONTROL CABLES SHALL BE RATED FOR DIRECT BURIAL.
 - C. COLOR CODING SHALL BE AS FOLLOWS AND CONSISTENT THROUGHOUT THE ENTIRE INSTALLATION.
 - 1. 120/240 V, 1PH, 3W:
PHASE A - BLACK, PHASE B - RED,
NEUTRAL - WHITE.
 - D. USE PROPERLY SIZED INSULATED WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AND LARGER WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS AND INSULATE WITH PROPERLY SIZED 600 VOLT RATED HEAT SHRINK TUBING AND ELECTRICAL TAPE.
- 2.3 CONDUIT:
 - A. ALL WIRING SHALL BE INSTALLED IN GALVANIZED RIGID METALLIC CONDUIT (GRC) UNLESS OTHERWISE NOTED. ALL FITTINGS, CONNECTORS, BOXES, ETC. SHALL BE APPROVED FOR USE AS GROUNDING MEANS.
 - B. UTILIZE SHORT EXTENSIONS (36 INCH MINIMUM) OF FLEXIBLE, LOW TEMPERATURE LIQUIDTIGHT CONDUIT FOR CONNECTIONS OF ALL MOTORS AND OTHER EQUIPMENT SUBJECT TO VIBRATION IN NON-HAZARDOUS AREAS. USE EXPLOSION-PROOF FLEXIBLE COUPLINGS FOR CONNECTION IN HAZARDOUS AREAS AND AS SHOWN.
 - C. COMPLETELY AND THOROUGHLY CLEAN AND SWAB RACEWAY SYSTEM BEFORE INSTALLING CONDUCTORS.
 - D. ALL UNDERGROUND CONDUIT SHALL BE BURIED A MINIMUM OF 18 INCHES AND IN ACCORDANCE WITH NEC.
- 2.4 JUNCTION BOXES:
 - A. NON-HAZARDOUS LOCATIONS: PROVIDE CAST STEEL BOXES WITH THREADED HUBS AND GASKETED COVERS.
 - B. HAZARDOUS LOCATIONS: PROVIDE BOXES RATED FOR THE LOCATION AND USE.
- 2.5 WIRING DEVICES:
 - A. SWITCHES: NEMA WD 1, HEAVY DUTY, SPEC GRADE, 20A, 120VAC GENERAL-USE.
 - B. RECEPTACLES: NEMA WD 1, HEAVY DUTY, SPEC GRADE, 20A, 120VAC DUPLEX.

ELECTRICAL SPECIFICATIONS

- 2.6 DISCONNECT SWITCHES:
 - A. MANUFACTURER
 - 1. SQUARE D OR APPROVED EQUAL
 - B. PROVIDE UL LISTED, HEAVY DUTY, NON-FUSIBLE, QUICK-MAKE/BREAK, LOAD INTERRUPTER ENCLOSED KNIFE SWITCHES WITH EXTERNALLY OPERABLE HANDLE INTERLOCKED TO PREVENT OPENING FRONT COVER IN THE "ON" POSITION, HANDLE LOCKABLE IN THE "OFF" POSITION.
 - C. NEMA KS 1, INTERIOR: NEMA TYPE 1 (NON-HAZARDOUS), EXTERIOR: NEMA TYPE 3R (NON-HAZARDOUS).
- 2.7 PANELBOARDS AND CIRCUIT BREAKERS:
 - A. MANUFACTURER
 - 1. SQUARE D OR APPROVED EQUAL
 - B. NEMA KS1, PANEL 'A'; PANELBOARD SHALL BE ENCLOSED, DEAD-FRONT CONSTRUCTION WITH COPPER BUSSES, NEMA TYPE 3R ENCLOSURE.
 - C. DISTRIBUTION CIRCUIT BREAKERS: NEMA AB1, MOLDED CASE, INTEGRAL THERMAL AND ADJUSTABLE INSTANTANEOUS MAGNETIC TRIP FOR EACH POLE.
 - D. BRANCH CIRCUIT BREAKERS: NEMA AB1, MOLDED CASE, BOLT-ON THERMAL MAGNETIC TRIP WITH COMMON TRIP HANDLE FOR ALL POLES.
- 2.8 LIGHTING:
 - A. PROVIDE ALL LIGHTING EQUIPMENT OR APPROVED EQUAL AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE FIXTURE SCHEDULE.
 - B. PROVIDE LIGHTING EQUIPMENT COMPLETE, WIRED, ASSEMBLED WITH PROPER FLANGES, MOUNTING SUPPORTS, HARDWARE, ETC.
 - C. PROVIDE HIGH POWER FACTOR, REGULATING OR CONSTANT WATTAGE TYPE BALLASTS FOR HID FIXTURES.
- 2.9 GROUNDING AND BONDING:
 - A. ALL GROUNDING AND BONDING SHALL COMPLY WITH NEC, STANDARDS AND CODES LISTED IN PART 1, MANUFACTURER'S RECOMMENDATIONS AND LOCAL CODES.
 - B. ALL RACEWAYS SHALL INCLUDE A GREEN EQUIPMENT GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH TABLE 250.122 OF THE NEC.
- 2.11 EQUIPMENT CONNECTIONS:
 - A. PROVIDE WIRING AND CONNECTION TO EQUIPMENT REQUIRING ELECTRICAL POWER BUT SPECIFIED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS. REVIEW SUBMITTALS PRIOR TO INSTALLATION AND ROUGH-IN. VERIFY SIZE, AND TYPE OF CONNECTIONS.
- 2.12 PENETRATIONS:
 - A. ALL ELECTRICAL PENETRATIONS THROUGH BELOW GRADE CONCRETE STRUCTURES SHALL BE GROUTED AND SEALED WATERTIGHT BOTH INSIDE AND OUTSIDE THE CONDUITS IN ACCORDANCE WITH NEC AND THE MANUFACTURERS INSTRUCTIONS. MATERIALS SHALL BE SUITABLE FOR BELOW GRADE WET LOCATIONS.

ELECTRICAL SPECIFICATIONS

PART 3 - EXECUTION

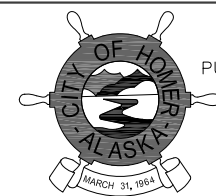
- 3.1 GENERAL:
 - A. INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ALL COMPONENT PARTS ARE INSTALLED AND FUNCTION AS A COMPLETE, WORKABLE SYSTEM.
 - B. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE (NEC), NECA 1, AND THE STANDARDS AND CODES LISTED IN PART 1. WHERE QUESTIONS ARISE REGARDING WHICH REQUIREMENTS AND STANDARDS APPLY, THE MORE STRINGENT SHALL PREVAIL.
 - C. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS AND RECOMMENDATIONS OF THE PRODUCT MANUFACTURER.
 - D. REPLACE AND/OR REPAIR TO ORIGINAL (OR BETTER) CONDITION ANY EXISTING STRUCTURES, MATERIALS, EQUIPMENT, ETC. INADVERTENTLY DAMAGED OR DEMOLISHED DURING THE COURSE OF CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
 - E. ALL BELOW GRADE DEVICES SHALL BE SERVED FROM BELOW SO AS TO AVOID WATER INTRUSION THROUGH THE RACEWAY SYSTEM. DRILL WEEP HOLES IN LOW POINTS OF RACEWAY SYSTEM TO ALLOW WATER TO DRAIN.
- 3.2 TESTING
 - A. TEST ALL SERVICE FEEDERS AND POWER CONDUCTORS PRIOR TO TERMINATION WITH A MEGOHM METER PER THE MANUFACTURER'S RECOMMENDATIONS. REPLACE ALL CONDUCTORS EXHIBITING LESS THAN 10 MEGOHM IMPEDENCE. REPEAT TESTING AS REQUIRED TO VERIFY COMPLIANCE.

FOR CONSTRUCTION

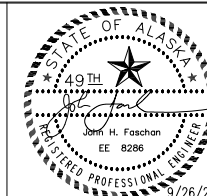
REVISIONS			
NO.	DATE	BY	DESCRIPTION



Project No. 32130074



CITY OF HOMER, ALASKA
 PUBLIC WORKS DEPARTMENT
 3575 HEATH STREET
 HOMER, ALASKA 99603
 PHONE: (907) 235-3170
 FAX: (907) 235-3145



CITY OF HOMER NEW SHELLFISH AVENUE PRV SPECIFICATIONS, LEGEND, AND ABBREVIATIONS						SHEET NO.
E1						E1
SCALE: SHOWN	DESIGNED: CW	CHECKED: JF	DRAWN: OM	DATE: 9/26/2014	SHEET 6 OF 8	

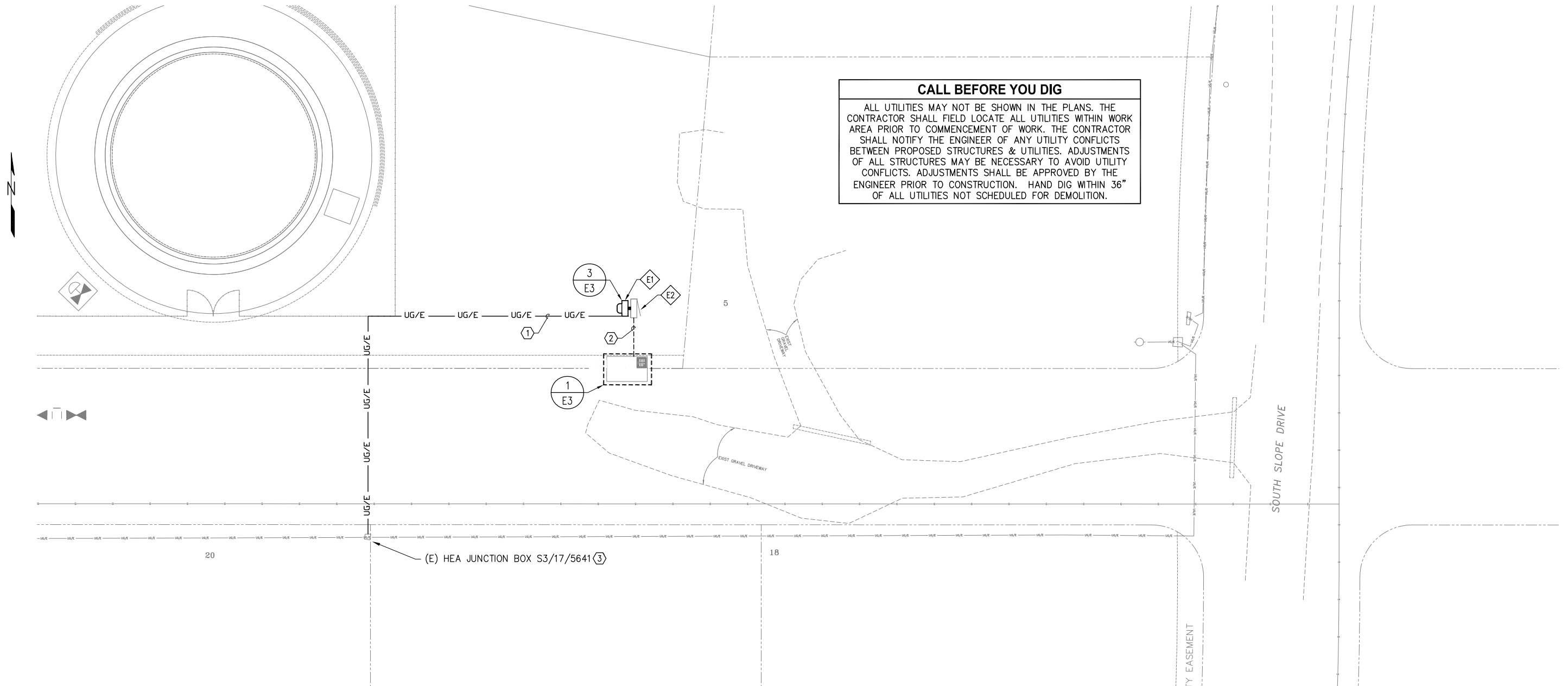
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SHEET NOTES

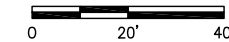
- ① 1ø, 120/240 SERVICE LATERALS BY HEA.
- ② (2)1"C, (1) SPARE. SEE ONE-LINE SHEET E3.
- ③ NEW PAD-MOUNT TRANSFORMER FOR PRV VAULT SERVICE TO BE INSTALLED BY HEA AT JUNCTION BOX LOCATION. CITY OF HOMER TO PAY FOR ALL NEW SERVICE FEES. PROVIDE COORDINATION AS NECESSARY.
- ◆ SEE SHEET E3 FOR COMPONENT SCHEDULE

CALL BEFORE YOU DIG

ALL UTILITIES MAY NOT BE SHOWN IN THE PLANS. THE CONTRACTOR SHALL FIELD LOCATE ALL UTILITIES WITHIN WORK AREA PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY UTILITY CONFLICTS BETWEEN PROPOSED STRUCTURES & UTILITIES. ADJUSTMENTS OF ALL STRUCTURES MAY BE NECESSARY TO AVOID UTILITY CONFLICTS. ADJUSTMENTS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. HAND DIG WITHIN 36" OF ALL UTILITIES NOT SCHEDULED FOR DEMOLITION.



1 SITE PLAN
 E2 SCALE: 1"=20'-0"



FOR CONSTRUCTION

REVISIONS			
NO.	DATE	BY	DESCRIPTION



Project No. 32130074

Bristol

ENGINEERING SERVICES CORPORATION
 Phone (907) 563-0013 Fax (907) 563-6713

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 PUBLIC WORKS DEPARTMENT
 3575 HEATH STREET
 HOMER, ALASKA 99603
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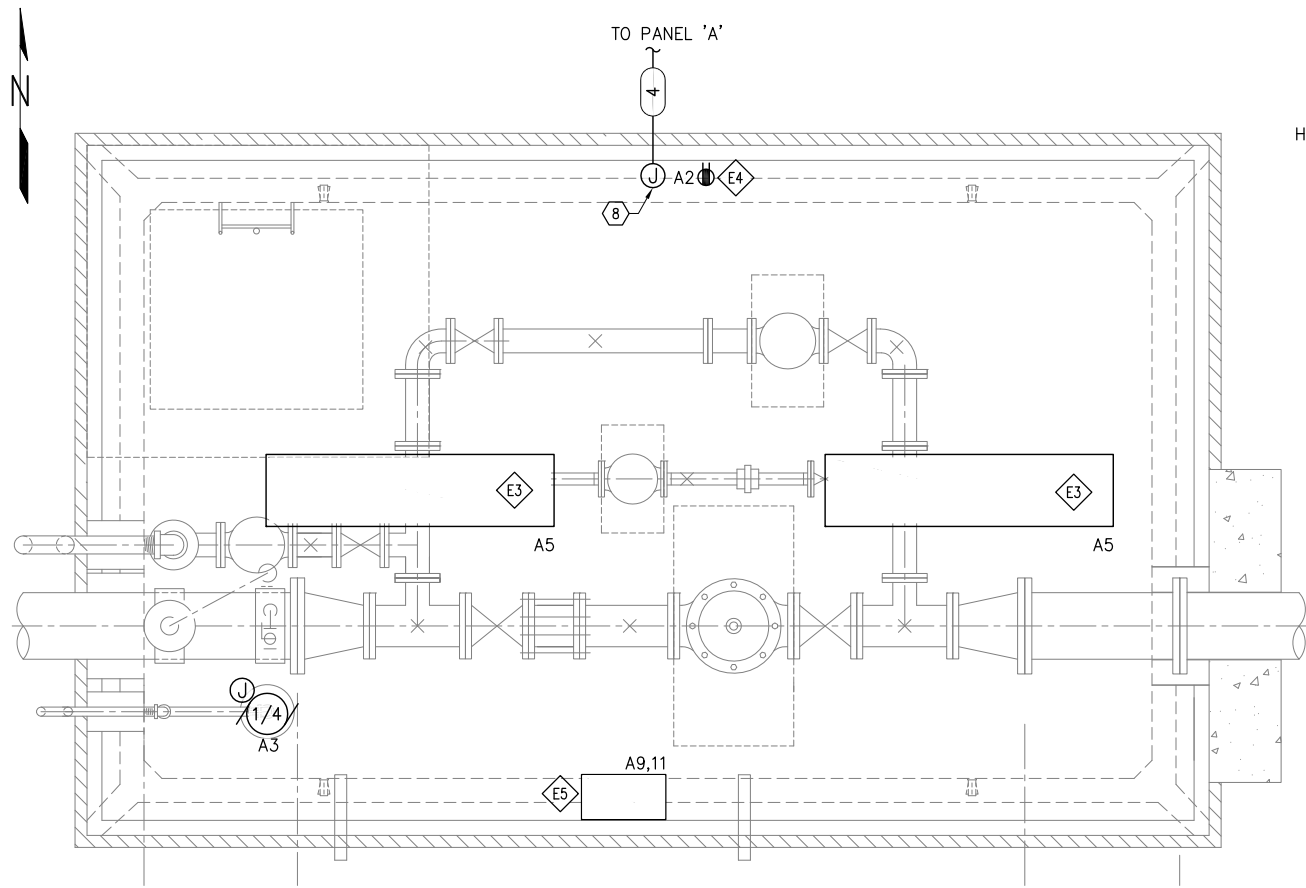
CITY OF HOMER
 NEW SHELLFISH AVENUE PRV

SITE PLAN

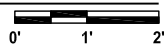
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SHEET NO.	E2
SHEET	7 OF 8

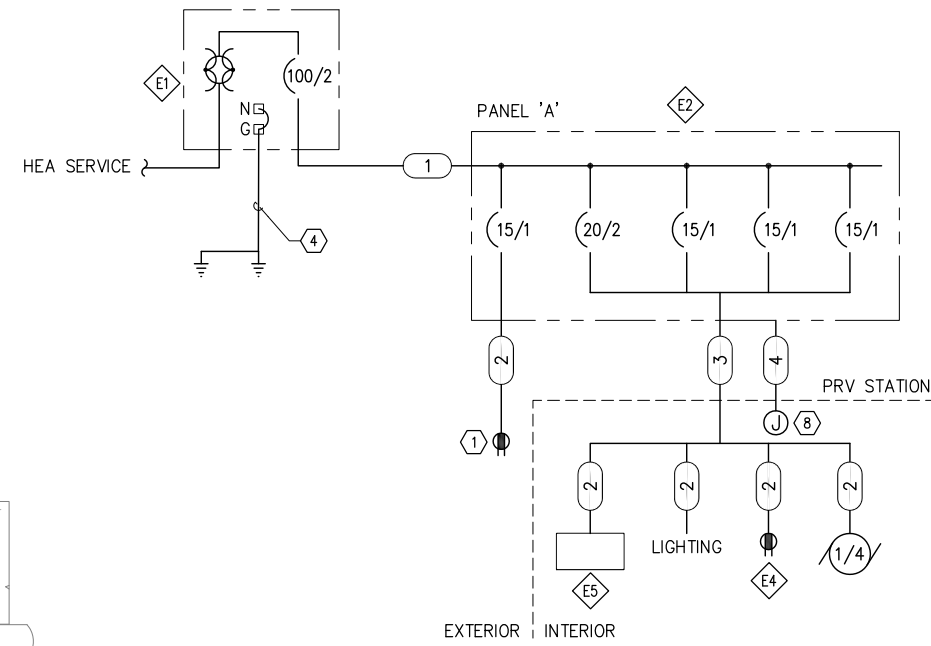
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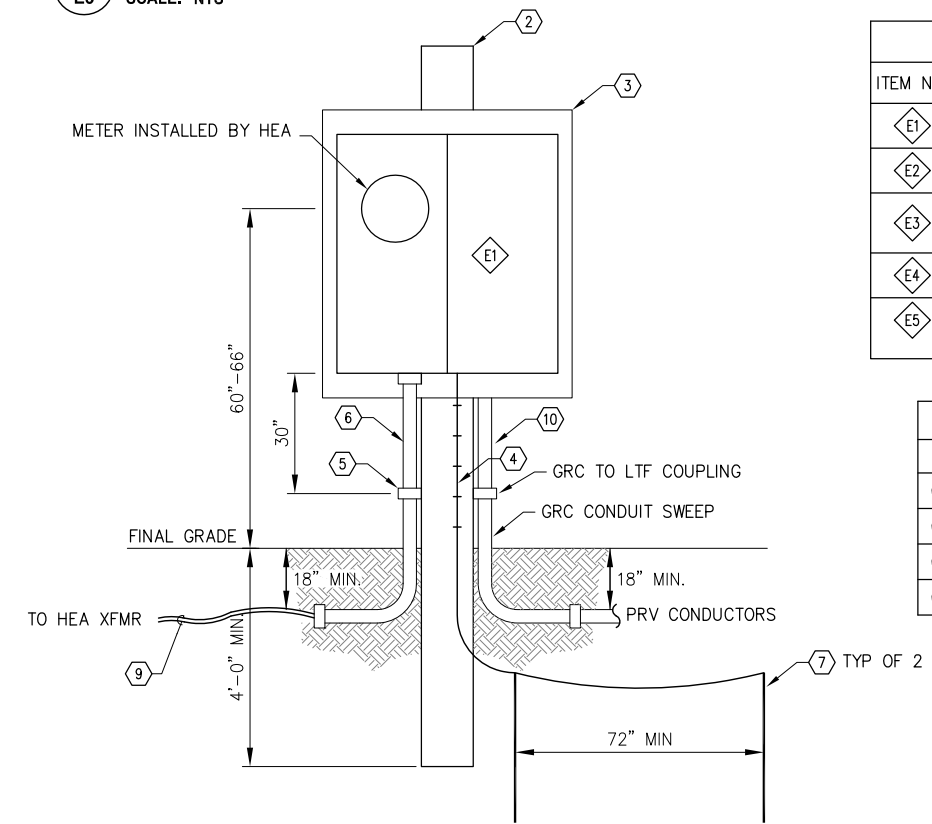
1 ELECTRICAL PLAN
 E3 SCALE: 3/4" = 1'-0"



PANEL 'A' SCHEDULE											
VOLT: 240/120		MIN. A.I.C. RATING: 10,000							ENCLOSURE: NEMA 3R		
BUS: 100		LOCATION: WEST OF VAULT							MOUNTING: SURFACE		
MAIN: MLO											
CKT	TRIP	LOAD DESCRIPTION	KVA	LOAD	A	B	LOAD	KVA	LOAD DESCRIPTION	AMP TRIP	CKT
1	15/1	EXTERIOR RECEPTACLE	0.2	R	0.4		R	0.2	INTERIOR RECEPTACLE	15/1	2
3	15/1	SUMP PUMP	1.1	M		2.6	C	1.5	UNIT HEATER	20/2	4
5	15/1	LIGHTING	0.3	L	1.8		C	1.5			6
7		SPACE				0.0			SPACE		8
9		SPACE				0.0			SPACE		10
11		SPACE				0.0			SPACE		12
13		SPACE				0.0			SPACE		14
15		SPACE				0.0			SPACE		16
17		SPACE				0.0			SPACE		18
			2.2			2.6			TOTAL KVA: 4.8		
									AMPS: 20.0		
SUMMARY BY LOAD TYPE		CONNECTED KVA		TOTAL KVA	NEC%	NEC TOTAL	NOTES:				
L	LIGHTING	0.3	0.0	0.3	1.25	0.4					
R	RECEPTACLES	0.4	0.0	0.4	10K+50%	0.5					
M	MOTORS	0.0	1.1	1.1	1.00	1.4					
LM	LARGEST MOTOR	0.0	0.0	0.0	1.25	0.0					
C	CONTINUOUS	1.5	1.5	3.0	1.25	3.8					
N	NON-CONTINUOUS	0.0	0.0	0.0	1.00	0.0					
S	SPARE	0.0	0.0	0.0	1.00	0.0					
X	NON-COINCIDENT	0.0	0.0	0.0	0.00	0.0					
O	OTHER	0.0	0.0	0.0	1.00	0.0					
F	FEEDER	0.0	0.0								
TOTAL KVA (PHASE)		2.2	2.6			6.0					
TOTAL AMPERES		18.3	21.7			7.2					
PHASE BALANCE, AB		A-B	B-A								
PERCENT		46	54								



2 SHELLFISH PRV ONE-LINE
 E3 SCALE: NTS



3 METER/MAIN AND PANELBOARD DETAIL
 E3 SCALE: NTS

- SHEET NOTES:**
- GFI RECEPTACLE. PROVIDE WHILE-IN-USE COVER, HUBBELL CAT#RW57300 OR APPROVED EQUAL. MOUNT BELOW PANELBOARD 'A'.
 - 6"x6"x10' COMMERCIAL TREATED POST.
 - 3/4" COMMERCIAL TREATED PLYWOOD. SECURELY FASTEN METER/MAIN TO PLYWOOD. SECURELY FASTEN PANEL 'A' TO PLYWOOD BACK TO BACK WITH METER/MAIN.
 - #6 AWG CU WIRE STAPLED EVERY 6". CONNECT TO GROUND RODS USING THE EXOTHERMIC WELD METHOD. TERMINATE GROUND WIRE IN PANEL.
 - CONDUIT CLAMP
 - PROVIDE 10' LENGTH OF 2" FLEXIBLE NON-METALLIC CONDUIT.
 - 3/4"x10' COPPER CLAD STEEL GROUND ROD MIN OF 12" BELOW GRADE.
 - JUNCTION BOX FOR FUTURE SCADA
 - SERVICE LATERAL BY HEA. HEA TO TERMINATE AT METERBASE TERMINALS
 - PROVIDE SECTION OF LTF TO ALLOW FOR MOVEMENT.

GENERAL NOTES:
 CONDUIT ENTRIES SHALL BE MADE FROM THE BOTTOM OF EQUIPMENT.

COMPONENT SCHEDULE		
ITEM NO.	DESCRIPTION	MANUFACTURER OR EQUAL
E1	POST MOUNT METER/MAIN, COORDINATE WITH HEA.	SQUARE D CAT#EMT1225CB
E2	100A, 240/120V, 1Ø NEMA 3R PANELBOARD	SQUARE D CAT#NQ18L1C
E3	WET LOCATION FLUORESCENT LUMINAIRE	LITHONIA CAT#DMW 3 32 120 GEB10IS
E4	120V GFI RECEPTACLE W/ NEMA 3R CAST BOX	
E5	240V, 3KW HEATER. PROVIDE LINE VOLTAGE THERMOSTAT FOR HEATER	QMARK CAT#MUH0321

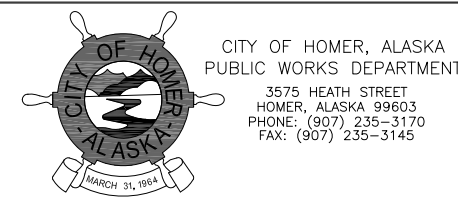
CIRCUIT SCHEDULE	
TAG	DESCRIPTION
1	1 1/4"C, (3)#2 & (1)#6 GND
2	1/2"C, (2)#12 & (1)#12 GND
3	1"C, (8)#12 & (1)#12 GND
4	1"C, SPARE FOR FUTURE SCADA

FOR CONSTRUCTION

REVISIONS			
NO.	DATE	BY	DESCRIPTION



Project No. 32130074



CITY OF HOMER NEW SHELLFISH AVENUE PRV		SHEET NO.	
ELECTRICAL PLAN		E3	
SCALE: SHOWN	DESIGNED: CW	CHECKED: JF	DRAWN: OM
DATE: 9/26/2014	SHEET 8 OF 8		