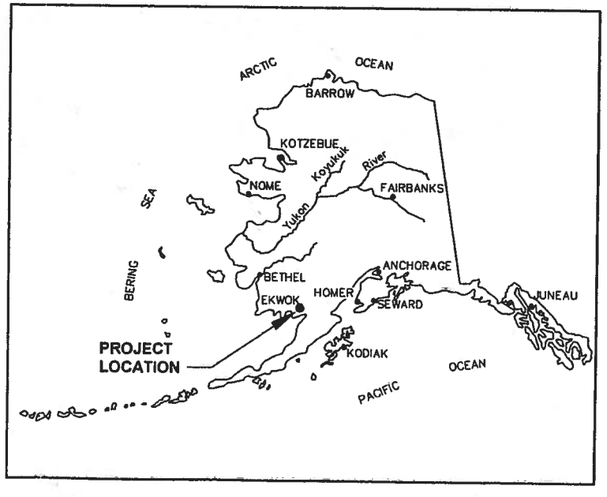
City of Ekwok
Sanitary Sewer
Improvements

2010

65% SUBMITTAL

In Cooperation with the State of Alaska
Department of Environmental Conservation
Village Safe Water Program and
Environmental Protection Agency

SHEET INDEX



Location Map

VILLAGE SAFE WATER

Bristol
ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

CIVIL

EDC, Inc.
225 W. FIREWEED LANE
ANCHORAGE, AK 99503
(907) 276-7855

MECHANICAL/ELECTRICAL

Consultant

Project Number (Consultant) 28060 (VSW) 08EK14

VSW Project Engineer LYNN MARINO, P.E.

Construction Foreman _____

Final Design (Date) _____

ADEC Approval (Date) _____

Construction Period (From) _____ (To) _____

As-Builts (Date) _____

Project Scope

- INSTALLATION OF 2,210 LF OF 8" ARCTIC PIPE GRAVITY SEWER MAIN, 11 SERVICES, AND 10 MANHOLES.
- REPLACE 726 LF OF EXISTING 8" AP GRAVITY SEWER MAIN
- MODIFICATIONS TO THREE EXISTING MANHOLES
- LIFT STATION MODIFICATIONS
  - EXISTING WET WELL TO REMAIN
  - EXISTING SLAB/FOUNDATION TO REMAIN
  - NEW BUILDING
  - NEW ELECTRICAL/CONTROL ROOM
  - NEW ACCESS HATCH, SAFETY GRATE, HOIST W/TROLLY, PUMPS, RAILS/GUIDES AND PIPING
  - NEW LIFT STATION VALVE SUMP

ABBREVIATIONS

AP	ARCTIC PIPE
APPROX	APPROXIMATE
ARV	AIR RELEASE VALVE
AWW	ALL WEATHER WOOD
BGS	BELOW GROUND SURFACE
BH	BORE HOLE
BLDG	BUILDING
BM	BENCH MARK
BTWN	BETWEEN
℄	CENTERLINE
CC	CENTER TO CENTER
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CTRS	CENTERS
CU	COPPER
CY	CUBIC YARD
DET	DETAIL
DI OR DIP	DUCTILE IRON PIPE
DIA	DIAMETER
DWG	DRAWING
DWV	DRAIN WASTE VENT
EA	EACH
ELEV OR EL	ELEVATION
EXIST	EXISTING
EQ	EQUAL
EW	EACH WAY
F	FUEL
FDN	FOUNDATION
FF	FINISH FLOOR
FIPT	FEMALE IRON PIPE THREAD
FPT	FEMALE PIPE THREAD
FL	FLANGE
FM	FORCE MAIN
FT	FOOT OR FEET
FTG	FOOTING
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GCL	GRANULATED CLAY LINER
GIP	GALVANIZED IRON PIPE
GL	GROUND LEVEL (EXIST)
GND	GROUND
GPD	GALLONS PER DAY
HDPE	HIGH DENSITY POLYETHYLENE
HP	HORSE POWER
IE	INVERT ELEVATION
ID	INSIDE DIAMETER
INV	INVERT
LB	POUND
LBS	POUNDS
LF	LINEAR FEET
LR	LONG RADIUS
MIPT	MALE IRON PIPE THREAD
MPT	MALE PIPE THREAD
MNFR	MANUFACTURER
MAX	MAXIMUM
MD	MAXIMUM DENSITY
MDL	MODEL
mg/L	MILLIGRAMS PER LITER
MH	MANHOLE
MIL	MILLIMETER
MIN	MINIMUM
MISC	MISCELLANEOUS
MW	MONITOR WELL
N.I.C.	NOT IN CONTRACT
N	NORTH
NA	NOT APPLICABLE
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OHE	OVERHEAD ELECTRIC
PERF	PERFORATED
℄	PLATE
PI	POINT OF INTERSECTION
PSF	POUND PER SQUARE FOOT
PSI	POUND PER SQUARE INCH
QTY	QUANTITY
R	RADIUS
REF	REFERENCE
REINF	REINFORCEMENT
REQD	REQUIRED
RFCA	RESTRAINED FLANGED COUPLING ADAPTER
RW	RESILIENT WEDGE
S	SLOPE
SCH	SCHEDULE
SDR	STANDARD DIAMETER RATIO
SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SS	STAINLESS STEEL OR SANITARY SEWER
STA	STATION
STD	STANDARD
THD	THREAD
TYP	TYPICAL
TRANS	TRANSITION
VERT	VERTICAL
VPI	VERTICAL POINT OF INTERSECTION
W/	WITH
W/O	WITHOUT
WS	WATER SURFACE
WT	WEIGHT
WWF	WELDED WIRE FABRIC
YD	YARD

LEGEND

EXISTING FEATURES

- RECOVERED BLM MONUMENT
- RECOVERED PRIMARY MONUMENT
- RECOVERED SECONDARY MONUMENT
- SET PRIMARY SURVEY CONTROL POINT
- SET SECONDARY SURVEY CONTROL POINT
- (123) SURVEY POINT NUMBER
- ANTENNA
- BASKETBALL HOOP
- ELECTRIC METER
- FLAG POST
- FUEL TANK
- GATE POST
- GUY WIRE
- JUNK CAR
- PHONE BOOTH
- SEWER ENTRANCE TO HOUSE
- SIGN
- SEPTIC RISER
- +12.3 SPOT ELEVATION
- TEST PIT
- TELEPHONE PEDESTAL
- TREE
- UTILITY POLE
- BUILDING SEPTIC VENT
- WATER ENTRANCE TO HOUSE
- WELL WATER WELL
- 120 CONTOUR MAJOR
- 122 CONTOUR MINOR
- EDGE OF GROUND SURVEY
- FENCE
- TREELINE
- MW MONITORING WELL

- OHE OVERHEAD ELECTRIC
- P UNDERGROUND FUEL LINE
- S UNDERGROUND SANITARY SEWER
- T UNDERGROUND TELEPHONE
- W UNDERGROUND WATER LINE
- SS SANITARY SEWER MANHOLE
- EASEMENT
- EXISTING ACTIVE WATER WELL W/SEPARATION CLASS RADIUS
- EXISTING INACTIVE OR ABANDONED WATER WELL W/SEPARATION CLASS RADIUS
- AREA SUBJECT TO FLOODING

23 SINGLE STORY FRAME HOUSE — BUILDING NO.; SHADING REPRESENTS SERVICE TO BE INSTALLED THIS PROJECT

NEW FEATURES

- SEWER MANHOLE
- SEWER CLEAN OUT
- ISOLATION VALVE
- END CAP
- S SANITARY SEWER MAIN
- SS SANITARY SEWER SERVICE
- EASEMENT

SECTION IDENTIFICATION — A / C1.2 — DRAWING NUMBER WHERE SECTION IS SHOWN (A DASH IS USED IF TAKEN FROM SAME DRAWING OR MULTIPLE DRAWINGS)

SECTION IDENTIFICATION — A / C1.2 SECTION 1"=30' — DRAWING NUMBER WHERE SECTION IS TAKEN (A DASH IS USED IF TAKEN FROM SAME DRAWING OR MULTIPLE DRAWINGS)

DETAIL IDENTIFICATION — 1 / C1.2 DETAIL 1"=30' — DRAWING NUMBER WHERE DETAIL IS TAKEN (A DASH IS USED IF TAKEN FROM SAME DRAWING OR MULTIPLE DRAWINGS)

DETAIL IDENTIFICATION — 1 / C1.2 — DRAWING NUMBER WHERE DETAIL IS SHOWN (A DASH IS USED IF TAKEN FROM SAME DRAWING OR MULTIPLE DRAWINGS)

RECORD DRAWING CERTIFICATE

THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.

NAME _____ DATE _____

VILLAGE SAFE WATER

STATE OF ALASKA — 49TH — STEVE LARSEN PETERSON — No. CE-11250 — REGISTERED PROFESSIONAL ENGINEER

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

GENERAL LEGEND AND ABBREVIATIONS

REVISION	BY	DATE

CAD FILE NAME 28060_G1-2.DWG

Project No. 28060 | Date 02/07/11 | Designed KLP | Drawn SJW | Approved FJV

Sheet No. G1.2 SHEET OF

65% SUBMITTAL

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Drawing: K:\JOBS\28060 EKWOK SEWER SYSTEM\ACAD-DESIGN\DESIGN\DWG\28060_G1-2.DWG - Layout: LAYOUT1
Xrefs: BORDER.DWG - Images: None

I GENERAL PROJECT REQUIREMENTS

1. GENERAL

THE OWNER FOR THIS PROJECT IS THE CITY OF EKWOK. ALL WORK ITEMS REQUIRING DIRECTION OR APPROVAL FROM THE OWNER SHALL BE COORDINATED THROUGH THE MAYOR/ AND CITY ADMINISTRATOR.

LOCAL CONTACTS ARE AS FOLLOWS:

CITY OF EKWOK	ERNIE NELSEN	464-3311
MAYOR	JULIE BRANDON	464-3311
VILLAGE COUNCIL	LUKI AKELKOK	464-3336
BBNC		278-3602
SCHOOL DISTRICT	RICK DALMEN	342-5287
EKWOK POWER PLANT		464-3333
BRISTOL BAY TELEPHONE COOP		246-3403
GCI CABLE		1-800-800-7754

2. LANDS AND RIGHTS OF WAY (ROW)

PUBLIC LAND, SURFACE ESTATE AND RIGHTS OF WAY FOR THIS PROJECT, WITH THE EXCEPTIONS NOTED BELOW, ARE OWNED BY THE CITY OF EKWOK.

PRIVATE LOTS WITHIN THE SURVEYED PORTION OF EKWOK SHALL NOT BE CONSTRUCTED UPON, OR ACCESSED, WITHOUT SIGNED EASEMENTS OR WRITTEN PERMISSION OF THE LAND OWNER AND/OR HIS AGENT. PROPERTY CORNERS SHALL BE RECOVERED OR REESTABLISHED BY A LAND SURVEYOR, REGISTERED IN THE STATE OF ALASKA, FOR ALL LOTS DIRECTLY OR INDIRECTLY AFFECTED BY THIS PROJECT, PRIOR TO COMMENCEMENT OF ANY WORK ON OR NEAR THOSE LOTS.

3. CONSTRUCTION STAGING AREAS

ALL CONSTRUCTION EQUIPMENT AND MATERIALS SHALL BE STORED, STOCKPILED, AND STAGED IN DESIGNATED AREAS AS IDENTIFIED OR APPROVED BY THE CITY OF EKWOK.

4. HAUL ROUTES

HAUL ROUTES FOR ALL CONSTRUCTION MATERIALS AND EQUIPMENT SHALL BE AS DIRECTED BY THE CITY OF EKWOK.

5. EXISTING FACILITIES

PRESERVE AND PROTECT EXISTING FACILITIES ON PRIVATE PROPERTY AND WITHIN THE ROW. THIS INCLUDES, BUT IS NOT LIMITED TO, ELECTRICAL DISTRIBUTION FACILITIES, COMMUNICATIONS FACILITIES, FUEL FACILITIES, PRIVATE DWELLINGS, AND OTHER PRIVATE STRUCTURES AND PROPERTY. MISCELLANEOUS DEBRIS AND UNUSABLE MATERIALS MAY BE DISPOSED OF IN THE SOLID WASTE SITE. UNCLAIMED OR UNIDENTIFIED MATERIALS OR OBJECTS SHALL BE SALVAGED AND STORED AS DIRECTED BY THE CITY OF EKWOK.

USED LUMBER, WHICH HAS BEEN TREATED, SHALL NOT BE BURNED FOR HEATING OR COOKING DUE TO POTENTIAL HAZARDOUS AIRBORNE BYPRODUCTS FROM COMBUSTION. SUCH MATERIAL SHALL BE DISPOSED OF IN THE SOLID WASTE SITE AND COVERED WITH FILL MATERIAL.

6. PERMITS AND AGENCY REQUIREMENTS

THE FOLLOWING PERMITS MAY BE REQUIRED FOR THIS PROJECT. COPIES OF THE REQUIRED FINAL PERMITS OR APPROVALS SHALL BE MAINTAINED AT THE PROJECT SITE.
THE CONSTRUCTOR SHALL BE FAMILIAR WITH AND FOLLOW THE REQUIREMENTS AND CONDITIONS IDENTIFIED IN THESE PERMITS.

STATE OF ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION (ADEC) CERTIFICATE OF REASONABLE ASSURANCE

OFFICE OF THE GOVERNOR, OFFICE OF MANAGEMENT AND BUDGET.

ADEC PLAN REVIEW AND APPROVAL TO CONSTRUCT.

ADEC STORM WATER POLLUTION PREVENTION PLAN

SUBSEQUENT OPERATION OF THE FACILITIES WILL REQUIRE ADDITIONAL PERMITS.

7. QUALIFICATIONS

WORK UNDER THIS PROJECT SHALL BE CARRIED OUT BY PROPERLY TRAINED INDIVIDUALS WORKING UNDER QUALIFIED SUPERVISION. QUALIFIED SUPERVISION SHALL CONSIST OF COMPETENT FOREMEN AND SUPERINTENDENTS EXPERIENCED AND TRAINED IN THE WORK WHICH IS BEING SUPERVISED.

ELECTRICAL WORK SHALL BE PERFORMED BY STATE OF ALASKA LICENSED JOURNEYMEN ELECTRICIANS AND SHALL BE IN ACCORDANCE WITH THE MOST RECENT VERSION OF NFPA 70 ADOPTED BY THE STATE OF ALASKA.

MECHANICAL WORK SHALL BE PERFORMED BY STATE OF ALASKA LICENSED JOURNEYMEN PLUMBERS AND SHALL BE IN ACCORDANCE WITH THE MOST RECENT VERSIONS OF THE UPC

AND UMC ADOPTED BY THE STATE OF ALASKA.

ALL OTHER SPECIALTY WORK SHALL BE UNDERTAKEN BY LICENSED AND QUALIFIED PERSONNEL FOR THAT PARTICULAR TRADE.

ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND FEDERAL LAWS REGARDING LICENSING, QUALIFICATIONS, AND OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) REQUIREMENTS.

8. SUBMITTALS

SUBMITTALS ARE REQUIRED FOR THE FOLLOWING:

- PIPING MATERIALS
- PRECAST CONCRETE MANHOLES
- LIFT STATION PUMPS & APPURTENANCES

SEE APPLICABLE SPECIFICATIONS BELOW AND PLANS.

9. INSPECTIONS

THE ENGINEER AND VSW INSPECTOR SHALL CONDUCT PERIODIC INSPECTIONS OF THE WORK TO ENSURE GENERAL CONFORMANCE OF ALL WORK ELEMENTS TO THE PROJECT PLANS AND SPECIFICATIONS.

THE ENGINEER SHALL ALSO MAKE A FINAL INSPECTION AND NOTED DEFICIENCIES SHALL BE CORRECTED. AFTER CORRECTIONS ARE MADE, FINAL RECORD DRAWINGS SHALL BE PRODUCED AND SENT TO THE APPROPRIATE AGENCIES.

10. RECORD DRAWINGS

THE SUPERINTENDENT SHALL KEEP A DAILY RECORD THAT ACCURATELY SHOWS THE ACTUAL WORK COMPLETED AND ANY DEVIATIONS FROM THE PLANS AND SPECIFICATIONS. A FULL SIZE SET OF PLANS SHALL BE RESERVED AND USED FOR THIS PURPOSE. THIS SET OF "REDLINE" MARK UPS SHALL BE NEATLY DRAWN TO SCALE AND SHALL INCLUDE NOTES, AS REQUIRED, TO FULLY AND ACCURATELY DESCRIBE THE ACTUAL WORK COMPLETED. THE SET OF "REDLINE" RECORD DRAWINGS SHALL BE MADE AVAILABLE TO THE ENGINEER DURING INSPECTIONS. THEY SHALL BE DELIVERED TO THE ENGINEER AT THE COMPLETION OF THE PROJECT FOR CAD FILE RECORD DRAWING PRODUCTION. THE ORIGINAL "REDLINES" AND ELECTRONIC RECORD DRAWINGS WILL BE DELIVERED TO THE OWNER AND VSW.

11. SURVEY CONTROL

SURVEY CONTROL POINTS SHALL BE ESTABLISHED AS PART OF THIS PROJECT. PRIMARY SURVEY CONTROL, RECOVERING OR REESTABLISHING PROPERTY CORNERS, AND SETTING REFERENCE POINTS TO CONTROL THE WORK ON THIS PROJECT SHALL BE UNDERTAKEN BY A LAND SURVEYOR REGISTERED IN THE STATE OF ALASKA.

LINES AND GRADES INDICATED OR SHOWN ON THE DRAWINGS SHALL BE LAID OUT IN THE FIELD BY COMPETENT PERSONNEL USING THESE CONTROL POINTS. WORK CONSTRUCTED SHALL BE IN GENERAL CONFORMANCE TO THE LINES AND GRADES INDICATED OR SHOWN.

FEATURES SHOWN ON THE BASE MAPS ARE TAKEN FROM RECTIFIED AERIAL SURVEY. FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF FEATURES AS REQUIRED.

II EMBANKMENT AND EXCAVATION

1. A SITE SPECIFIC GEOTECHNICAL INVESTIGATION WAS COMPLETED FOR THIS PROJECT IN JULY 2008. HISTORICAL INFORMATION INDICATES SOILS IN THE UPPER 10 FEET GENERALLY CONSIST OF 0.25 TO 1 FEET OF ORGANICS WITH LOWER LAYERS OF SILTS, SANDS, GRAVELS, AND PEAT. HIGH GROUNDWATER IS PREVALENT IN MANY AREAS. FROZEN SOILS WERE NOT IDENTIFIED IN THE PROJECT AREA.

2. MATERIALS

A. UNSUITABLE MATERIALS

UNSUITABLE MATERIALS ARE: ORGANIC MATERIAL; ICE RICH SILTS AND PEAT, SATURATED MATERIAL; MATERIAL WHICH CANNOT BE READILY COMPACTED; ANY MATERIAL CONTAINING DELETERIOUS SUBSTANCES; OR MATERIAL DESIGNATED UNSUITABLE BY THE ENGINEER.

UNSUITABLE MATERIAL GENERATED ON THIS PROJECT SHALL BE USED, TO THE EXTENT POSSIBLE, FOR: TOPSOIL; NON-STRUCTURAL COVER REQUIREMENTS; REPAIR OF DAMAGED SURFACE AREAS; OR APPLIED TO AREAS DEVOID OF VEGETATION.

B. SUITABLE MATERIALS

EXCAVATED OR IMPORTED SUITABLE MATERIALS ARE REQUIRED FOR PIPE BEDDING AND FOUNDATION MATERIAL.

SUITABLE MATERIAL SHALL BE IMPORTED OR REMOVED FROM EXCAVATIONS ON THIS PROJECT, OR FROM THE EXISTING CITY OWNED BORROW PIT, AND SHALL CONTAIN NO MUCK, PEAT, MASSIVE ICE ROOTS, SOD, DELETERIOUS MATTER, OR OTHER CHARACTERISTICS OR PROPERTIES WHICH WOULD CLASSIFY IT AS UNSUITABLE.

SUITABLE MATERIAL SHALL CONSIST OF 3" MINUS NATIVE GRANULAR SOILS OR IMPORTED NFS MATERIAL.

3. BORROW SITES

AVAILABLE BORROW SITE IS LOCATED WEST OF THE EXISTING AIRPORT.

4. DISTURBANCE OF UNAFFECTED AREAS

DISTURBANCE OF VEGETATION OUTSIDE THE LIMITS OF FILL OR EXCAVATION IS TO BE MINIMIZED AS FAR AS POSSIBLE. WHERE THIS CANNOT BE AVOIDED, RE-TOPSOIL WITH UNSUITABLE MATERIAL GENERATED ELSEWHERE ON THE PROJECT AND RESEED. IF THE AREA IS SLOPING, USE EROSION CONTROL MEASURES TO RECLAIM THE DAMAGED AREA.

5. WATER CONTROL

CONSTRUCTION AREA SHALL BE MAINTAINED IN A RELATIVELY DRY CONDITION THROUGHOUT THE CONSTRUCTION OPERATION. TRENCHES SHALL BE KEPT DEWATERED DURING PIPE INSTALLATION, INCLUDING PLACEMENT AND COMPACTION OF BEDDING – SURFACE DRAINAGE AND TRENCH DEWATERING DISCHARGE SHALL BE DIRECTED AWAY FROM THE SITE AND DISPOSED IN AN APPROVED MANNER. APPROPRIATE MEASURES, SUCH AS SETTLING PITS OR STRAW DIKES, SHALL BE USED TO PREVENT HIGHLY TURBID WATERS FROM ENTERING EXISTING WETLANDS OR WATERWAYS. A STORM WATER POLLUTION PREVENTION PLAN SHALL BE PREPARED FOR PROJECT WORK.

6. COMPACTION REQUIREMENTS AND METHODS

PIPE BEDDING AND TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO 85% OF MAXIMUM DENSITY BY HAND OPERATED VIBRATORY OR RECIPROCATING PLATE COMPACTORS.

COMPACTION OF TRAVELED WAY SURFACES SHALL MAY BE PERFORMED BY DRIVING AVAILABLE WHEELED OR TRACKED VEHICLES, OR A STEEL DRUM ROLLER, OVER THE FILL AREAS UNTIL THE FILL IS COMPACTED TO A DENSE AND UNYIELDING SURFACE AND NO RUTTING OR PUMPING OCCURS UNDER VEHICULAR TRAFFIC. HORIZONTAL LIFT HEIGHTS MAY VARY BUT SHALL NOT EXCEED A DEPTH SUCH THAT THE COMPACTION EFFORT AND RESULTS ARE NOT UNIFORM THROUGHOUT THE ENTIRE LIFT HEIGHT AND WIDTH.

FILL FOR THIS PROJECT SHALL BE SPREAD IN HORIZONTAL LIFTS LESS THAN 12 INCHES (LOOSE) IN HEIGHT AND COMPACTED. EACH LIFT SHALL BE COMPACTED UNIFORMLY THROUGHOUT THE LIFT. LIFT HEIGHT SHALL BE REDUCED IF THE REQUIRED COMPACTION IS NOT MET THROUGHOUT THE LIFT HEIGHT. BACKFILL PLACED WITHIN ROADWAYS SHALL BE IN LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS, COMPACED TO A MIN OF 90% OF ITS MAX DENSITY.

ALL AREAS WITHIN 2 FEET OF AN EXISTING STRUCTURE OR PREVIOUSLY COMPLETED PORTION OF A FOUNDATION, OR OTHER INACCESSIBLE AREAS, SHALL BE COMPACTED BY HAND OPERATED VIBRATORY PLATE COMPACTORS OR RECIPROCAL ACTING PLATE COMPACTORS.

FILL SHALL BE CONSTRUCTED USING UNFROZEN MATERIALS. BACKFILL MATERIAL SHALL CONTAIN NO MORE THAN 12% PASSING THE #200 SIEVE.

7. EROSION CONTROL AND RECLAMATION

EROSION CONTROL AND RECLAMATION SHALL BE CONSTRUCTED IN ALL VEGETATED AREAS DISTURBED BY ACTIVITIES CONDUCTED AS PART OF THIS PROJECT. THE EROSION CONTROL AND RECLAMATION DESCRIBED IN THIS SECTION ONLY INCLUDES THOSE EFFORTS TO PROVIDE PERMANENT PROTECTION AND RECLAMATION. TEMPORARY EROSION PROTECTION ACTIVITIES, SUCH AS SILT FENCING, STRAW BALES, ADDITIONAL GRADING, ETC. SHALL BE DISCUSSED IN THE STORM WATER POLLUTION PREVENTION PLAN.

FERTILIZER SHALL BE 20-20-10 (N-P-K) AND SHALL CONFORM TO THE REQUIREMENTS OF ADOT STANDARD SPECIFICATIONS SECTION 725. FERTILIZER SHALL BE APPLIED AT A RATE OF 450 TO 500 LB PER ACRE (OR APPROXIMATELY 10 LB PER 1,000 SF). THE FERTILIZER SHALL BE RAKED INTO THE TOP SEVERAL INCHES OF SOIL AFTER APPLICATION.

SEED SHALL BE PROVIDED IN GENERAL CONFORMANCE WITH APPLICABLE REQUIREMENTS OF ADOT STANDARD SPECIFICATIONS SECTION 724. SEED SHALL CONSIST OF A MIX OF THE FOLLOWING:

'NORCOAST' BERING HAIRGRASS	60%
'ARCTARED' RED FESCUE (DESCHAMPSIA BERINGENSIS 'NORCOAST')	35%
ANNUAL RYE	5%

SEED SHALL BE BROADCAST SPREAD (AFTER APPLICATION OF FERTILIZER) USING A MECHANICAL SPREADER AND APPLIED AT A RATE OF 1 LB PER 1,000 SF. SEED SHALL NOT BE SPREAD AFTER AUGUST 15. EFFORTS SHOULD BE MADE TO RESEED DISTURBED AREAS THE SAME SUMMER THEY ARE DISTURBED. IF THIS CANNOT BE COMPLETED AS DESCRIBED ABOVE, AREAS SHOULD BE RESEEDED THE FOLLOWING SPRING AS SOON AS SNOW HAS MELTED FROM THE AREAS.

TOPSOIL SHALL CONSIST OF A MIXTURE OF NATIVE ORGANIC MATERIAL AND LOCALLY AVAILABLE SILTY MATERIAL. THE MATERIALS SHALL BE THOROUGHLY MIXED. TOPSOIL SHALL BE MOISTENED PRIOR TO APPLICATION. IT IS ANTICIPATED THAT MUCH OF THE UNUSABLE MATERIALS GENERATED AT EXCAVATIONS ON THIS PROJECT WILL BE USED TO PROVIDE TOPSOIL FOR EROSION PROTECTION AND RECLAMATION. TOPSOIL SHALL BE APPLIED AT ALL NON-TRAVELED WAYS DISTURBED BY CONSTRUCTION ACTIVITIES.

MULCH SHALL BE A STRAW MULCH MATERIAL AND SHALL BE APPLIED LIGHTLY TO FORM A 1 INCH THICK LAYER OVER THE ENTIRE AREA TO BE REVEGETATED. MULCH SHALL BE PLACED OVER APPLICABLE AREAS AFTER FERTILIZER AND SEED HAVE BEEN PLACED.

RECORD DRAWING CERTIFICATE
THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.

VILLAGE SAFE WATER

STATE OF ALASKA — 49TH — JULIE LAREN PETERSEN No. 12-17530 — REGISTERED PROFESSIONAL ENGINEER

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION — Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

GENERAL NOTES

REVISION	BY	DATE

CAD FILE NAME 28060-G1-3.DWG

Project No. 28060 | Date 02/07/11 | Designed KLP | Drawn SJW | Approved FJV

Sheet No. G1.3

SHEET OF

65% SUBMITTAL

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Xrefs: BORDER.DWG – Images: None

III PIPING

1. MATERIALS

NEW SEWER MAINS AND SERVICE LINES ARE HIGH DENSITY POLYETHYLENE (HDPE) PIPE INSULATED WITH RIGID POLYURETHANE FOAM AND ENCASED IN A 16 GAUGE CORRUGATED METAL PIPE (CMP) OUTER JACKET. PIPE CONFIGURATIONS ARE SHOWN ON SHEET G1.5.

2. PIPE JOINTS

SEWER MAINS AND SEWER SERVICE CARRIER PIPES SHALL BE JOINED BY PUSH–JOINT COUPLINGS.

PUSH JOINT COUPLINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE JOINT MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES.

ARCTIC PIPE JOINTS ARE COVERED BY PREFABRICATED INSULATION HALF SHELLS. FIELD TRIM INSULATION ON HALF SHELLS FOR CLOSE FIT AT JOINT. A 2 INCH THICK INSULATING WASHER IS PROVIDED ON PUSH–JOINT COUPLINGS. PLACE HEAT SHRINK WRAP AROUND INSULATION AND OVERLAP CMP 6 INCHES MIN AT BOTH ENDS. INSTALL STEEL COUPLING BAND AT EACH JOINT TO PROTECT HEAT SHRINK AND INSULATION HALF SHELLS AND WASHERS.

3. INSTALLATION

SURVEY EQUIPMENT SHALL BE USED BY QUALIFIED PERSONNEL TO TRANSFER GRADES AND HORIZONTAL LOCATIONS FROM CONTROL POINTS. SURVEY NOTES AND RECORD DRAWINGS SHALL BE MAINTAINED FOR ALL PORTIONS OF THE WATER AND SEWER PIPELINES.

THE ALIGNMENT OF THE INSTALLED PIPE SHALL APPEAR STRAIGHT AND TRUE BY LAMPING.

ALL PIPE SHALL BE INSTALLED IN A TRENCH AS SHOWN ON THE DRAWINGS. EACH SECTION OF PIPE SHALL BE FULLY SUPPORTED ALONG ITS ENTIRE LENGTH PROVIDING AN INVERT THAT IS TRUE TO ESTABLISHED LINE AND GRADE.

PIPE SHALL BE INSPECTED AND CLEANED PRIOR TO INSTALLATION. NO TRASH OR DEBRIS SHALL BE ALLOWED TO ENTER THE PIPE. ENDS SHALL REMAIN PLUGGED OR CAPPED AT ALL TIMES WHEN WORK IS NOT IN PROGRESS ON ANY GIVEN PIPE SEGMENT.

4. FLUSHING

ALL SEWER LINES SHALL BE FLUSHED PRIOR TO PLACING IN SERVICE. SUFFICIENT VOLUMES OF CLEAN WATER SHALL BE USED TO PRODUCE A MIN FLOW VELOCITY OF 3 FEET PER SECOND IN THE PIPELINE. FLUSHING SHALL CONTINUE UNTIL WATER EXITING THE PIPE IS CLEAR AND FREE FROM DIRT, SEDIMENT, AND FOREIGN OBJECTS OR DEBRIS.

5. SEWER LINE TESTING

SEWER LINE WILL BE EITHER AIR OR HYDROSTATICALLY TESTED PRIOR TO PUTTING INTO SERVICE.

AIR TEST – USE MIN 4 PSI PRESSURE FOR 30 MINUTES.

FOR HYDROSTATIC TESTING, PLUG ALL OPEN PIPE ENDS AND CONNECTIONS WITH RUBBER STOPPERS, OR TEMPORARY CAPS, FITTED TO THE PIPE WITH NO–HUB COUPLINGS. FILL SEWER LINE WITH WATER TO A POINT 4 FEET ABOVE THE HIGHEST END OF THE LINE. ALLOWABLE LEAKAGE IS IS COMPUTED BY:

$E = 0.000012\ L\ D\ H^{1/2}$

E=ALLOWABLE LEAKAGE IN GPM
L=LENGTH OF LINE TESTED, FT.
D=INSIDE DIA. OF PIPE, IN.
DIFFERENCE IN ELEV BETWEEN WATER SURFACE IN TEST APPARATUS AND LOWEST POINT IN PIPING (OR HIGHEST GROUNDWATER ELEVATION).

ALL TEST RECORDS WILL BE FILED WITH DAILY REPORTS AND FILED ON SITE.

MANHOLE EXFILTRATION TESTING.

IV OTHER PROJECT MATERIALS

1. GEOTEXTILE

GEOTEXTILE MATERIAL SHALL BE SUITABLE FOR USE IN EMBANKMENT, SEPARATION, AND REINFORCEMENT APPLICATIONS AND SHALL BE AMOCO 2002, MIRAFI 500X, OR APPROVED EQUAL.

GEOTEXTILE MAY ALSO BE PLACED, WHERE SHOWN ON THE PLANS, TO MITIGATE ADVERSE LOCAL CONDITIONS OR TO FACILITATE CONSTRUCTION OR SITE ACCESS. ADVERSE LOCAL CONDITIONS MAY INCLUDE, BUT ARE NOT LIMITED TO, WET, SOFT, AND UNSTABLE AREAS, OR OTHER CONDITIONS WHEREBY USE OF A GEOTEXTILE MATERIAL MAY HELP TO MINIMIZE FILL QUANTITIES.

GEOTEXTILES MAY BE INSTALLED WITH SEWN OR OVERLAPPED EDGES. OVERLAPPED JOINTS SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER.

SEWN JOINTS SHALL BE INSTALLED USING THREAD HAVING PHYSICAL, CHEMICAL, AND ULTRAVIOLET–RESISTANCE CHARACTERISTICS SIMILAR TO OR GREATER THAN THE GEOTEXTILE FABRIC. SEAMS, STITCHES AND STITCH SPACING SHALL BE AS RECOMMENDED BY THE GEOTEXTILE MANUFACTURER.

JOINTS AND EDGES MAY BE PINNED TO HOLD FABRIC IN PLACE DURING FILL OR BACKFILL OPERATIONS IF CONDITIONS, SUCH AS HIGH WINDS, WARRANT.

V CONTAMINATED SOILS

IF CONTAMINATED SOILS ARE ENCOUNTERED DURING EXCAVATION, ADEC CONTAMINATED SITES SECTION WILL BE CONTACTED FOR ADDITIONAL INFORMATION AND REQUIREMENTS. THE VSW PROJECT MANAGER WILL ALSO BE NOTIFIED.

VI SEPTIC TANK ABANDONMENT

EXISTING SEPTIC TANKS WILL BE PUMPED AND DRAINED BEFORE ABANDONMENT. THE SEPTIC TANKS WILL BE CRUSHED AND BACKFILLED WITH CLEAN FILL MATERIAL. CUT EXISTING VENT PIPES TO GRADE, BACKFILL, AND ABANDON IN PLACE.

VII WOOD

ALL FRAMING DETAILS NOT SHOWN OTHERWISE SHALL BE CONSTRUCTED TO THE MIN STANDARDS OF THE IBC.

FRAMING LUMBER GRADE	
STUDS, PLATES / MISC	HEM–FIR #1
JOIST	HEM–FIR STANDARD OR BETTER

FRAMING FASTENING SCHEDULE		
CONNECTION	LOCATION	FASTENING
JOIST TO PLATE	TOENAIL BOTH SIDES	(2) 10D
RAFTER TO PLATE	TOENAIL BOTH SIDES	(2) 16D
DOUBLE STUDS	FACE NAIL	16D @ 24" OC
DOUBLE PLATES	TYPICAL FACE NAIL	16D @ 16" OC
BLOCKING BTWN JOISTS/ RAFTERS TO TOP PLATE	TOENAIL	(3) 8D
BOTTOM PLATE TO STUD	FACE NAIL	(2) 16D
DOUBLE PLATES–LOWER PLATE TO TOP OF STUD	TOENAIL	(2) 10D
*CEILING STRIPPING TO STUDS – 1" LEDGER	FACE NAIL	(2) 8D (1–SLANT)
*CEILING STRIPPING TO STUDS – 2" LEDGER	FACE NAIL	(2) 16D (1–SLANT)

*ENDS OF STRIPPING BOARDS WHERE CEILING IS ⅝" GYPSUM USE ANNULAR RING NAILS (NO SLANT)

PLYWOOD SHEATHING				
THICKNESS	GRADE	LOCATION	EXPOSURE	SPAN RATING (ROOF/FLOOR)
5/8"	CD	ROOF	EXPOSURE 1	40/20
5/8"	T1–11	WALL (EXT)	EXTERIOR	32/16
5/8"	CD	WALL (INT)	INTERIOR	40/20

PLYWOOD FASTENING SCHEDULE			
LOCATION	GRADE	FASTENING	
ROOF	APA	T & G	10D @ 4" OC SEAMS, 10D @ 12" OC FIELD
WALL (EXT)	APA	BLOCK EDGES	10D @ 6" OC SEAMS, 10D @ 12" OC FIELD
WALL (INT)	APA	AWWF	10D @ 6" OC SEAMS, 10D @ 12" OC FIELD

65% SUBMITTAL

RECORD DRAWING CERTIFICATE.
THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.
NAME / DATE

VILLAGE SAFE WATER

STATE OF ALASKA — 49 TH — REGISTERED ENGINEER — JAMES L. JAMES PETERSON — No. CE-11250

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

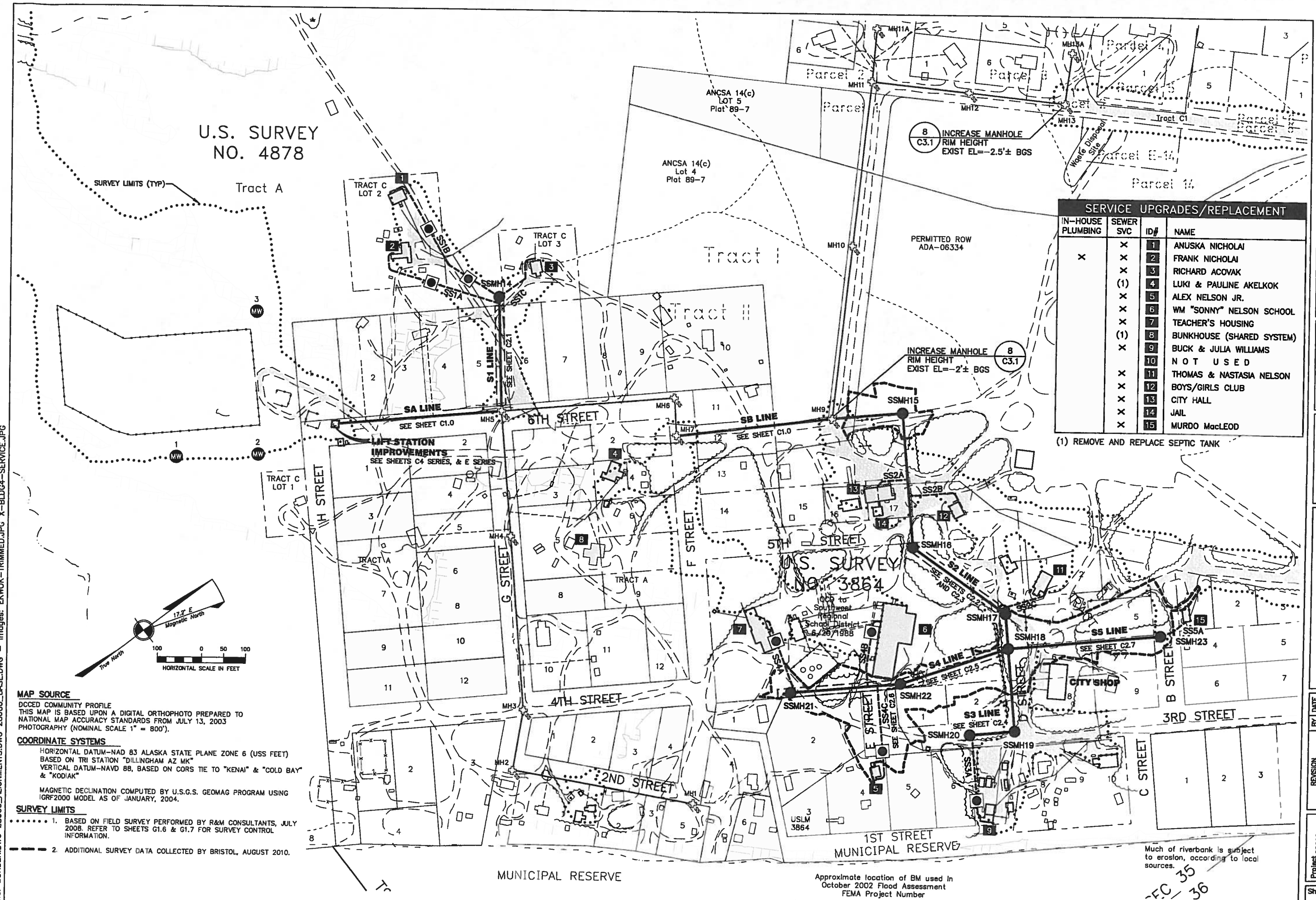
GENERAL NOTES

REVISION	BY	DATE

CAD FILE NAME: 28060-G1-4.DWG

Project No. 28060
Date 02/07/11
Designed KLP
Drawn SJW
Approved FJV

Sheet No. G1.4
SHEET OF



SERVICE UPGRADES/REPLACEMENT

IN-HOUSE PLUMBING	SEWER SVC	ID#	NAME
	×	1	ANUSKA NICHOLAI
×	×	2	FRANK NICHOLAI
	×	3	RICHARD ACOVAK
	(1)	4	LUKI & PAULINE AKELKOK
	×	5	ALEX NELSON JR.
	×	6	WM "SONNY" NELSON SCHOOL
	×	7	TEACHER'S HOUSING
	(1)	8	BUNKHOUSE (SHARED SYSTEM)
	×	9	BUCK & JULIA WILLIAMS
		10	N O T U S E D
	×	11	THOMAS & NASTASIA NELSON
	×	12	BOYS/GIRLS CLUB
	×	13	CITY HALL
	×	14	JAIL
	×	15	MURDO MacLEOD

(1) REMOVE AND REPLACE SEPTIC TANK

MAP SOURCE

DCCED COMMUNITY PROFILE
THIS MAP IS BASED UPON A DIGITAL ORTHOPHOTO PREPARED TO NATIONAL MAP ACCURACY STANDARDS FROM JULY 13, 2003 PHOTOGRAPHY (NOMINAL SCALE 1" = 800').

COORDINATE SYSTEMS

HORIZONTAL DATUM-NAD 83 ALASKA STATE PLANE ZONE 6 (USS FEET) BASED ON TRI STATION "DILLINGHAM AZ MK"
VERTICAL DATUM-NAVD 88, BASED ON CORS TIE TO "KENAI" & "COLD BAY" & "KODIAK"

MAGNETIC DECLINATION COMPUTED BY U.S.G.S. GEOMAG PROGRAM USING IGRF2000 MODEL AS OF JANUARY, 2004.

SURVEY LIMITS

1. BASED ON FIELD SURVEY PERFORMED BY R&M CONSULTANTS, JULY 2008. REFER TO SHEETS G1.6 & G1.7 FOR SURVEY CONTROL INFORMATION.
2. ADDITIONAL SURVEY DATA COLLECTED BY BRISTOL, AUGUST 2010.

Much of riverbank is subject to erosion, according to local sources.

Approximate location of BM used in October 2002 Flood Assessment FEMA Project Number

FC 35
FC 36

65% SUBMITTAL

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DATE

VILLAGE SAFE WATER

STATE OF ALASKA 49TH
KYLE UNION PETERSEN No. CE-11230 REGISTERED PROFESSIONAL ENGINEER

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION
Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
PROJECT MAP

BY	DATE	REVISION

CAD FILE NAME 28060_G1-5.DWG

Project No. 28060	Date 02/07/11	Designed KLP	Drawn SJW	Approved FJV

Sheet No. G1.5
SHEET OF

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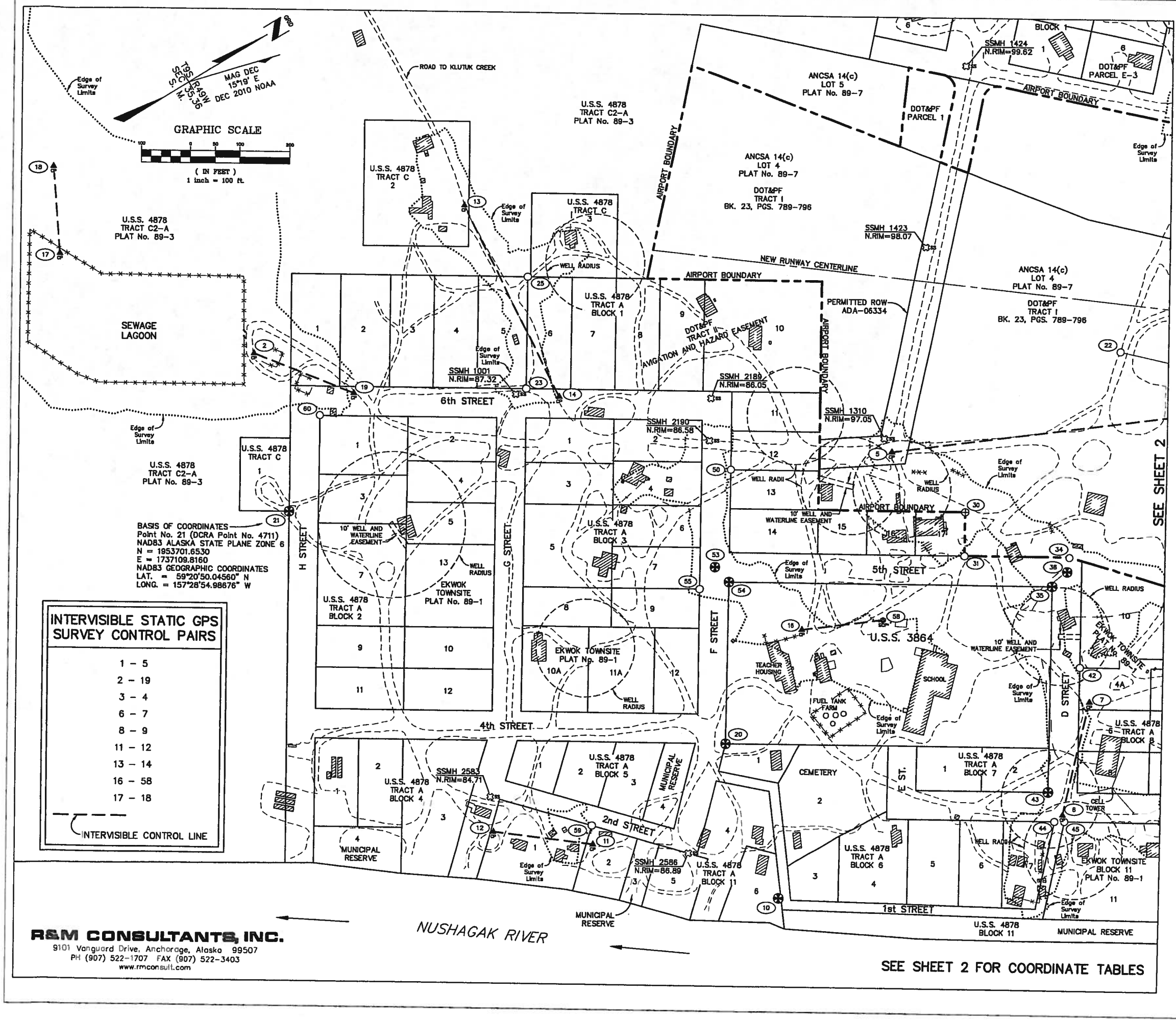
Xrefs: BORDER.DWG 28060_ALIGNMENTS.DWG 28060_BASE.DWG - Images: EKWOK-TRIMMED.JPG X-BLDG4-SERVICE.JPG
X-BLDG4-SERVICE.JPG



SEE SHEET 2 FOR COORDINATE TABLES

SURVEY NOTES

1. The information provided here is based on the field survey performed by R&M Consultants, July 2008.
2. Primary horizontal control was established using Static GPS techniques with Trimble dual frequency receivers. GPS vectors were adjusted using simultaneous least-squares methods.
3. Basis of Coordinates:
   Project coordinates are NAD83 Zone 6 U.S. Survey Feet based on 2003 Ekwok Community Mapping by the Department of Commerce, Community and Economic Development (DCED), Division of Community and Regional Affairs (DCRA). All project coordinates are based on GPS static ties to DCRA Point No. 4711, a BLM aluminum cap monument marking Corner 4, Lot 1, Tract C, U.S. Survey 4878. Project Point No. 21 = DCRA Point No. 4711. Project NAD83 Zone 6 coordinates for Point No. 21 (DCRA Point No. 4711) = N1953701.6530, E1737109.8160.
4. Basis of Bearing:
   Project bearings are NAD83 Zone 6 state plane grid bearings based on GPS adjusted measurements constrained only at Point No. 21 (DCRA Pt. 4711).
5. Basis of Elevations:
   Project elevations are approximate NAVD88 based on Project Point No. 21 (DCRA Pt. No. 4711). Project elevations equal DCRA 2003 Ekwok Community Mapping elevations. Project elevation for Point No. 21 (DCRA Pt. No. 4711) = 86.78. Differential levels were utilized to transfer elevations from Point No. 21 to all primary control except points 11, 12, 17, & 18. GPS measurements and Geoid06 were used to transfer elevations from Point No. 21 to points 11, 12, 17, & 18. Elevations for secondary control and topography were established using an optical instrument and trigonometric methods. Sewer manhole north rim elevations were established by differential levels.
6. Topographic and planimetric data provided by R&M is delineated by borders marked "Edge of Survey Limits". DCRA topography and planimetrics outside the "Survey Limits" has not been reviewed or edited by R&M. Some DCRA mapped property boundaries have been corrected to show plat 89-1 which was not included in the DCRA mapping.
7. Water easements and well radii are digitized from plats 89-1 and 89-2. The restrictive intent of the radii is not explained on the plats.
8. All property corners, either shown or not shown here, must be referenced and reset if they risk being disturbed during construction.
9. Vertical Control will be verified by the Contractor before construction.

MONUMENT LEGEND

- ⊛ RECOVERED BLM MONUMENT
- ⊕ RECOVERED PRIMARY MONUMENT
- ○ RECOVERED SECONDARY MONUMENT
- ▲ SET PRIMARY SURVEY CONTROL POINT
- ▲ SET SECONDARY SURVEY CONTROL POINT
- (123) SURVEY POINT NUMBER

TOPOGRAPHY LEGEND

- SEWER MANHOLE
- GATE POST
- GUY WIRE
- EDGE OF GROUND SURVEY
- FENCE

HATCH LEGEND

- BUILDING/SHED/CONEX

95% SUBMITTAL

R&M CONSULTANTS, INC.
9101 Vanguard Drive, Anchorage, Alaska 99507
PH (907) 522-1707 FAX (907) 522-3403
www.rmconsult.com

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NAME
DATE

VILLAGE SAFE WATER

STATE OF ALASKA 49TH
Ronald H. Brinker LS 8852
Registered Professional

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

SURVEY CONTROL SHEET

REVISION	BY	DATE

CAD FILE NAME
EKWOK_SCS V2008.DWG

Project No. 28060
Date 12/13/10
Designed RHB
Drawn RHB
Approved

Sheet No.
G1.6
SHEET 1 OF 2

Plotted: 12/13/2010 11:33 AM by Hank Brinker
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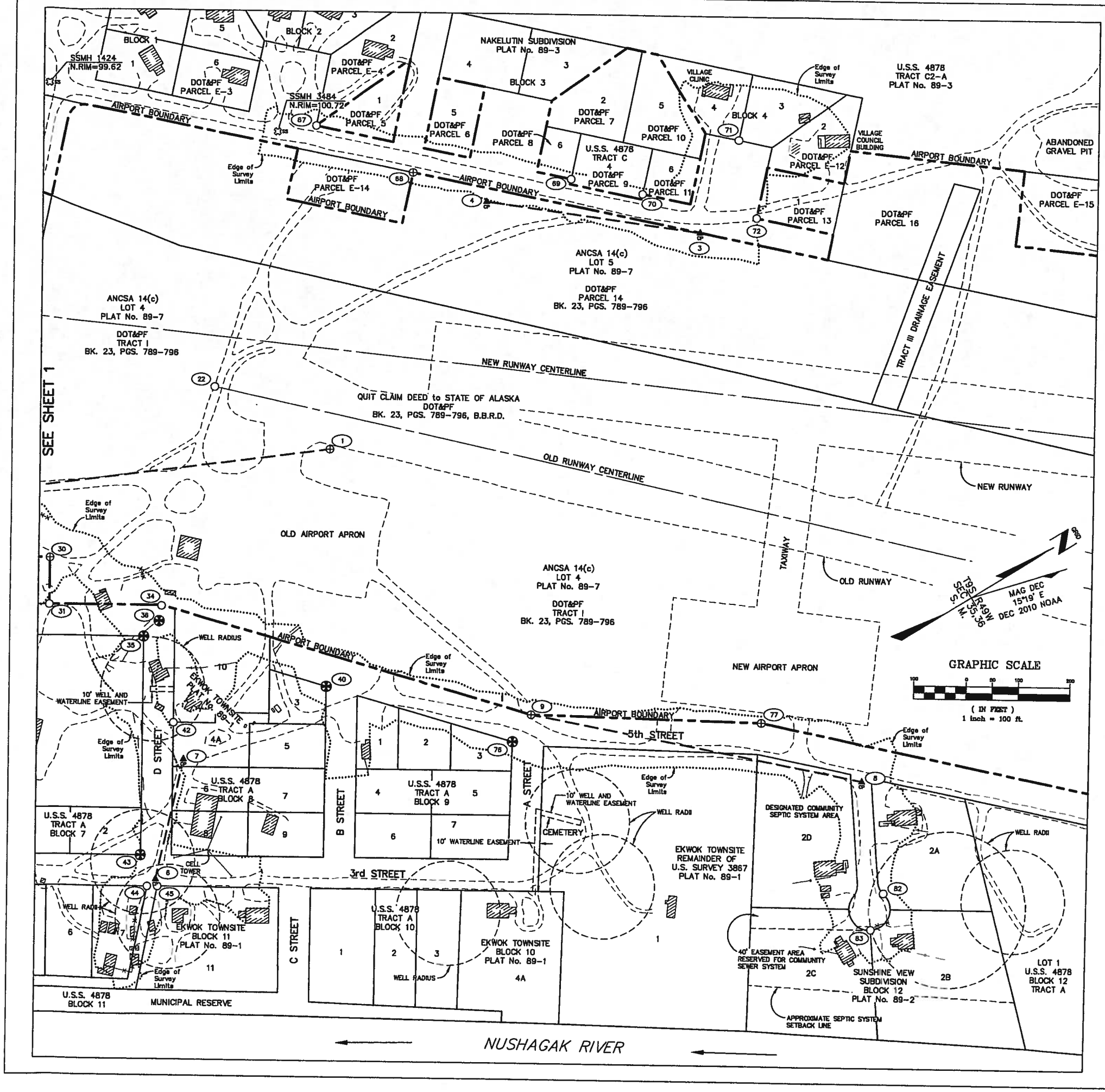

HORIZONTAL CONTROL

POINT	NAD83 AK S.P. ZONE 6 NORTHING	NAD83 AK S.P. ZONE 6 EASTING	DESCRIPTOR	DESCRIPTION
1	1955438.4472	1737935.0049	KEK A	Fnd. 3-1/4" BC, DOT/PF
2	1953810.8908	1736796.2867	CP2	Set 5/8"x30" Rebar w/2" AC, RBM
3	1956259.1015	1737949.4102	CP3	Set 5/8"x30" Rebar w/2" AC, RBM
4	1955943.2709	1737685.1973	CP4	Set 5/8"x30" Rebar w/2" AC, RBM
5	1954811.2659	1737648.9931	CP5	Set 5/8"x30" Rebar w/2" AC, RBM
6	1954723.3988	1738465.3024	CP6	Set 5/8"x30" Rebar w/2" AC, RBM
7	1954889.0702	1738297.1587	CP7	Set 5/8"x30" Rebar w/2" AC, RBM
8	1955974.2621	1739013.8049	CP8	Set 5/8"x30" Rebar w/2" AC, RBM
9	1955499.4367	1738572.4819	ALMON DOT	Fnd. 3-1/4" AC, DOT/PF
11	1953873.0734	1738014.0176	CP11	Set 5/8"x30" Rebar w/2" AC, RBM
12	1953714.0190	1737885.9213	CP12	Set 5/8"x30" Rebar w/2" AC, RBM
13	1954333.8103	1736761.6465	CP13	Set 5/8"x30" Rebar w/2" AC, RBM
14	1954293.1567	1737197.5079	CP14	Set 5/8"x30" Rebar w/2" AC, RBM
16	1954466.8614	1737864.2260	CP16	Set 5/8"x30" Rebar w/2" AC, RBM
17	1953585.0400	1736415.0056	CP17	Set 5/8"x30" Rebar w/2" AC, RBM
18	1953667.5507	1736256.7771	CP18	Set 8" Spike in Spruce Stump
19	1953940.3266	1736971.7308	CP19	Set 5/8"x30" Rebar w/2" AC, RBM
58	1954618.0927	1737933.6955	CP58	Set 8" Spike

VERTICAL CONTROL

POINT	NAD83 AK S.P. ZONE 6 NORTHING	NAD83 AK S.P. ZONE 6 EASTING	NTH. RIM ELEVATION	DESCRIPTOR	DESCRIPTION
1001	1954221.	1737147.	87.32	SSMH	SEWER MANHOLE, NTH. RIM
1310	1954814.	1737618.	97.05	SSMH	SEWER MANHOLE, NTH. RIM
1423	1955090.	1737327.	98.07	SSMH	SEWER MANHOLE, NTH. RIM
1424	1955355.	1737053.	99.62	SSMH	SEWER MANHOLE, NTH. RIM
2189	1954554.	1737362.	86.05	SSMH	SEWER MANHOLE, NTH. RIM
2190	1954506.	1737434.	86.58	SSMH	SEWER MANHOLE, NTH. RIM
2583	1953746.	1737822.	84.71	SSMH	SEWER MANHOLE, NTH. RIM
2586	1954031.	1738132.	86.89	SSMH	SEWER MANHOLE, NTH. RIM
3484	1955674.	1737361.	100.72	SSMH	SEWER MANHOLE, NTH. RIM

RECOVERED PROPERTY CORNERS

POINT	NAD83 AK S.P. ZONE 6 NORTHING	NAD83 AK S.P. ZONE 6 EASTING	DESCRIPTOR	DESCRIPTION
9	1955499.4367	1738572.4819	ALMON DOT	Fnd. 3-1/4" AC, DOT/PF
10	1954139.7843	1738306.4665	BCMON BLM	Fnd. 3-1/4" BC, BLM
20	1954211.9284	1737980.8868	BCMON BLM	Fnd. 3-1/4" BC, BLM, Leaning
21	1953701.6530	1737109.8160	ALMON BLM	Fnd. 3-1/4" AC, BLM
22	1955315.6216	1737717.7809	ALCAP	Fnd. 2" AC, DOT
23	1954244.4641	1737148.3505	YPC	Fnd. 1-1/4" YPC
25	1954367.4610	1736954.3089	ALCAP	Fnd. 1-1/2" AC
30	1954875.3370	1737832.5879	ALMON DOT	Fnd. 3-1/4" AC, DOT/PF
31	1954827.1492	1737908.4375	IP	Fnd. 2-1/2" Iron Pipe
34	1955008.0733	1738023.7029	REBAR	Fnd. 1/2" Rebar
35	1954947.3660	1738055.5192	BCMON BLM	Fnd. 3-1/4" BC, BLM
36	1954988.7655	1738046.2089	BCMON BLM	Fnd. 3-1/4" BC, BLM
40	1955193.7827	1738320.4309	CWELD BLM	Fnd. 2" Copperweld, BLM
42	1954909.6232	1738226.9455	ALCAP	Fnd. 2" AC, LS 6934
43	1954722.6368	1738410.1898	CWELD BLM	Fnd. 2" Copperweld, BLM
44	1954702.2164	1738468.1162	REBAR BENT	Fnd. 1/2" Rebar-bent
45	1954719.5544	1738478.9457	ALCAP BENT	Fnd. 2" AC, Rebar-bent, LS 6934
50	1954513.1256	1737507.7356	ALCAP	Fnd. 2" AC, LS 6934
53	1954380.9410	1737660.7793	BCMON BLM	Fnd. 3-1/4" BC, BLM
54	1954390.1869	1737702.4129	BCMON BLM	Fnd. 3-1/4" BC, BLM
55	1954331.2995	1737683.1564	ALCAP	Fnd. 1-1/2" AC, BLM
59	1953891.5738	1737980.2391	ALCAP	Fnd. 2" AC, LS 7611
60	1953857.7930	1736974.3741	YPC	Fnd. 1-1/4" YPC, Coast Surveyors
67	1955743.0758	1737389.4528	ALCAP	Fnd. 2" AC, LS 6934
68	1955853.2652	1737563.5396	ALMON DOT	Fnd. 3-1/4" AC, DOT/PF
69	1956103.6787	1737732.5796	ALCAP	Fnd. 2" AC
70	1956205.1024	1737828.8807	ALCAP	Fnd. 2" AC, LS 6934
71	1956415.8478	1737835.8068	ALCAP	Fnd. 2" AC, LS 6934
72	1956366.1756	1737981.8740	ALCAP	Fnd. 2" AC, DOT/PF
76	1955441.9068	1738598.0147	CWELD BLM	Fnd. 2" Copperweld, BLM
77	1955866.8528	1738816.5524	ALMON DOT	Fnd. 2-1/2" AC, DOT/PF
82	1955898.1193	1739218.3902	ALCAP	Fnd. 2" AC, LS 6934
83	1955841.2307	1739265.5756	ALCAP	Fnd. 2" AC, LS 6934

See Field Notes for further details of set and found survey monuments..

TYPICAL SET CONTROL STATION

R&M CONSULTANTS
CP 1
LS 8852 2008

(1) SET
2" ALUMINUM CAP ON 5/8" X 30" REBAR

95% SUBMITTAL

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NAME _____ DATE _____

VILLAGE SAFE WATER

STATE OF ALASKA 49TH Randal H. Brinker LS 8852 Registered Professional

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

SURVEY CONTROL SHEET

BY	DATE	REVISION

CAD FILE NAME EKWOK_SCS V2008.DWG

Project No. 28060
Date 12/13/10
Designed RHB
Drawn RHB
Approved

Sheet No.
G1.7

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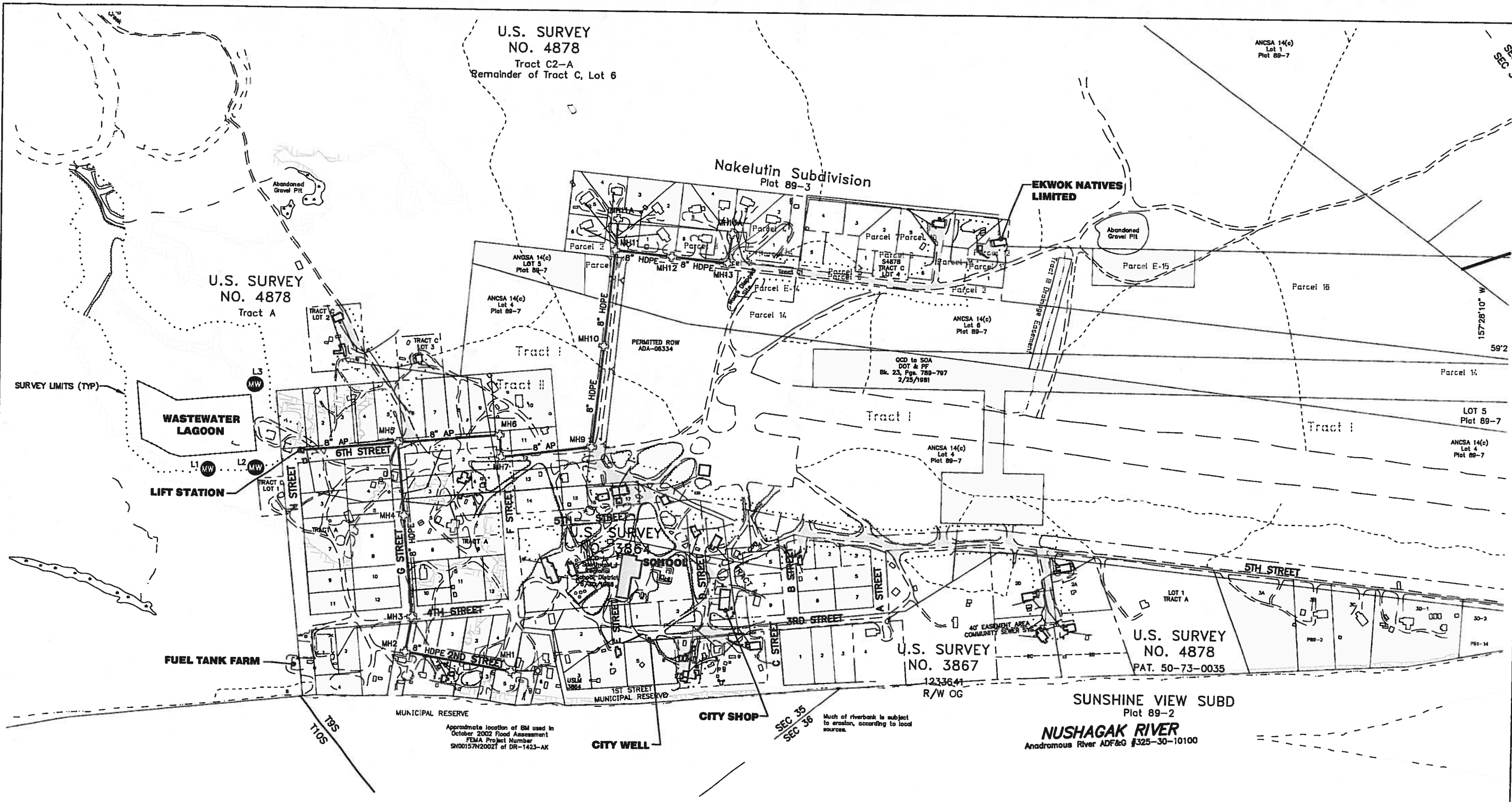

MAP SOURCE

DCCED COMMUNITY PROFILE
THIS MAP IS BASED UPON A DIGITAL ORTHOPHOTO PREPARED TO NATIONAL MAP ACCURACY STANDARDS FROM JULY 13, 2003 PHOTOGRAPHY (NOMINAL SCALE 1" = 800').

COORDINATE SYSTEMS

HORIZONTAL DATUM-NAD 83 ALASKA STATE PLANE ZONE 6 (USS FEET)
BASED ON TRI STATION "DILLINGHAM AZ MK"
VERTICAL DATUM-NAVD 88, BASED ON CORS TIE TO "KENAI" & "COLD BAY" & "KODIAK"

MAGNETIC DECLINATION COMPUTED BY U.S.G.S. GEOMAG PROGRAM USING IGRF2000 MODEL AS OF JANUARY, 2004.

LEGEND

- MH11 — SANITARY SEWER MANHOLE - SURVEY
- SANITARY SEWER CLEANOUT - ASBUILT
- SANITARY SEWER SERVICE - ASBUILT
- SANITARY SEWER MAIN
- L3 MW — MONITORING WELL

65% SUBMITTAL

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VILLAGE SAFE WATER

STATE OF ALASKA — KEITH LINDEN PETERSEN — No. CE-11250 — REGISTERED PROFESSIONAL ENGINEER

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION
Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

EXISTING
SANITARY SEWER SYSTEM

BY	DATE	REVISION

CAD FILE NAME: 28060_G1-7.DWG

Project No. 28060
Date 02/07/11
Designed KLP
Drawn SJW
Approved FJV

Sheet No. G1.8
SHEET OF

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Drawing: K:\JOBS\28060 EKWOK SEWER SYSTEM\ACAD-DESIGN\DESIGN\DWG\28060_G1-6.DWG - Layout: G1.8
Xrefs: BORDER.DWG 28060_ALIGNMENTS.DWG 28060_BASE.DWG - Images: EKWOK-TRIMMED.JPG X-BLDG4-SERVICE.JPG

SURVEY LIMITS

U.S.S. 4878 TRACT C LOT 3

ANCSA 14(c) TRACT B LOT 4 PLAT No. 89-7

SSMH10 N.RIM=98.07 Trough EL.=88.7

Wire EL.=119.2

SURVEY LIMITS

LOT 1 LOT 2 LOT 3 LOT 4 LOT 5 LOT 6 LOT 7 LOT 8 LOT 9 LOT 10

S1 LINE SEE SHT C2.1

U.S.S. 4878 TRACT A BLOCK 1

END SA LINE
STA 203+72.40
CONNECT TO EXIST
SSMH5
N.RIM=87.32
Trough EL.=76.3
NE INV.=79.6

PROPOSED 20' UTILITY ESMNT

PERMITTED ROW ADA-06334

SURVEY LIMITS 8/2010

BEGIN SA LINE
STA 200+00.00

FF=88.2

Wire EL.=103.9'

201+00 202+00 203+00

8" AP

SSMH6
N.RIM=86.05
Trough EL.=82.1

END SB LINE
STA 208+59.40
CONNECT TO EXIST
SSMH9
N.RIM=97.05
Trough EL.=87.0

6th STREET

CAUTION! EXIST POWER POLE SEE NOTE 1

LIFT STATION IMPROVEMENTS SEE C4, M & E SERIES DRAWINGS

GENERATOR BLDG FF=86.8'

Wire EL.=109.1'

INSTALL "CLAMAX "DIAPER" OR EQUAL

206+00 207+00 208+00

18" CMP

S2 LINE SEE SHT C2.

LOT 11

SURVEY LIMITS

LOT 1 LOT 2 LOT 3 LOT 4

8" HDPE

G STREET

F STREET

BEGIN SB LINE
STA 205+00.00
CONNECT TO EXIST
SSMH7
N.RIM=86.58
Trough EL.=82.6

LOT 12

Wire EL.=111.8'

Wire EL.=118.4'

U.S.S. 4878 TRACT A BLOCK 2

LOT 4

FF=88.3

Outhouse

Shed

Fish Drying Rack

Shed

EKWOK TOWNSITE LOT 13 PLAT No. 89-1

HORIZONTAL SCALE IN FEET
50 0 25 50

VERTICAL SCALE IN FEET
5 0 2.5 5

NOTES

1. TEMPORARILY RELOCATE EXIST POWER POLE AS NECESSARY. COORDINATE WITH UTILITY COMPANY.

CAUTION! OVERHEAD & UNDERGROUND UTILITIES

LIFT STATION FF= 88.2

EXISTING GROUND @ PIPE CENTERLINE

STA SB 203+72.40 CONNECT TO EXIST SSMH5 RIM=87.32± NE INV=79.6± TROUGH EL.=76.3

EXIST 4x15 AP FORCE MAIN TO LAGOON

STA SB 200+00.00 CONNECT TO EXIST LIFT STATION EXIST INV=74.2

EXIST 8x15 AP S=-0.63%

370.40 LF 8x15 AP S=0.57%

REMOVE AND REPLACE EXIST 8x15 AP PIPE BEDDING AND COMPACTION PER DET A/SHT. C3.0

SA LINE

200+00 201+00 202+00 203+00 204+00

STA SB 205+00.00 CONNECT TO EXIST SSMH7 RIM=86.6± TROUGH EL.=82.6

EXISTING GROUND @ PIPE CENTERLINE

STA SB 208+59.40 CONNECT TO EXIST SSMH9 RIM=97.01 TROUGH EL.=87.0

355.40 LF 8x15 AP S=1.24%

STA SB 206+13.29 TO STA SB 208+27.49 INSTALL CLAMAX "DIAPER" OR EQ., SEE 4/C3.0

REMOVE AND REPLACE EXIST 8x15 AP PIPE BEDDING AND COMPACTION PER DET A/SHT. C3.0

SB LINE

205+00 206+00 207+00 208+00 209+00

65% SUBMITTAL

RECORD DRAWING CERTIFICATE
THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.
NAME DATE

VILLAGE SAFE WATER

STATE OF ALASKA 4971B WAYNE LINDEN PETERSEN No. 05-11250 REGISTERED PROFESSIONAL ENGINEER

Bristol ENGINEERING & ENVIRONMENTAL SERVICES CORPORATION

Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
REPLACE EXISTING SEWER MAIN
SA AND SB PLAN & PROFILES

BY	DATE	REVISION

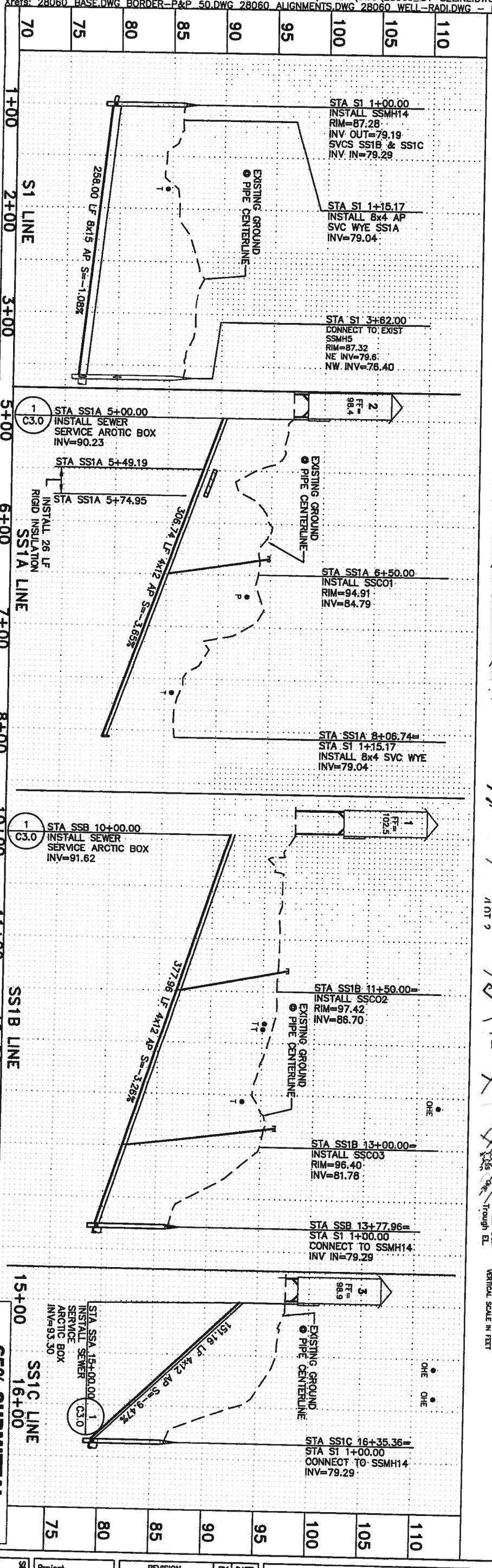
CAD FILE NAME 28060_C1-0.DWG

Project No. 28060
Date 02/07/11
Designed KLP
Drawn SJW
Approved FJV

Sheet No. C1.1
SHEET OF

User: SWHEAT Feb 10, 2011 - 11:54am
Drawing: K:\JOBS\28060 EKWOK SEWER SYSTEM\ACAD-DESIGN\DESIGN\DWG\28060_C1-1.DWG - Layout: C1.1
Xrefs: 28060_BASE.DWG 28060_TIN-PNTS-BNDRYS.DWG BORDER-P&P 50.DWG 28060 ALIGNMENTS.DWG 28060_WELL-RADI.DWG - Images: EKWOK-TRIMMED.JPG X-BLDG4-SERVICE.JPG

User: SWHEAT Feb 11, 2011 - 6:50am
Drawing: K:\JOBS\28060 EKWOK SEWER SYSTEM\ACAD-DESIGN\DESIGN\DWG\28060_S1-S2LINE.DWG - Layout: S1LINE
Xrefs: 28060_BASE.DWG BORDER-P&P 50.DWG 28060_ALIGNMENTS.DWG 28060_WELL-RADI.DWG - Images: EKWOK-TRIMMED.JPG X-BLDG4-SERVICE.JPG



COORDINATE TABLE		
ID No.	NORTH	EAST
SSMH14	1954374.76	1736935.10

Project No.	28060
Date	02/07/11
Designed	KLP
Drawn	SJW
Approved	FJV

REVISION	BY	DATE

CAD FILE NAME
28060_S1-S2LINE.DWG

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

SANITARY SEWER PLAN & PROFILE
S1 MAIN, SS1A, SS1B AND
SS1C SERVICE LINES

Bristol
ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

Project No. 28060

STATE OF ALASKA
49TH
KLYE LINDEN PETERSEN
No. CE-11250
REGISTERED PROFESSIONAL ENGINEER

VILLAGE SAFE WATER

RECORD DRAWING CERTIFICATE

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NAME DATE

SHEET Sheet No. C2.1 OF

User: SWHEAT Feb 11, 2011 - 6:54am
Drawing: K:\JOBS\28060 EKWOK SEWER SYSTEM\ACAD-DESIGN\DESIGN\DWG\28060_S1-S2LINE.DWG - Layout: S2LINE
Xrefs: 28060_BASE.DWG BORDER-P&P_50.DWG 28060_ALIGNMENTS.DWG 28060_WELL-RADI.DWG - Images: EKWOK-TRIMMED.JPG X-BLDG4-SERVICE.JPG

NOTES

1. REMOVE AND REINSTALL 30 LF ± EXISTING FENCE. RESTORE TO PRECONSTRUCTION CONDITION.

STA S2 50+00.00
CONNECT TO EXIST SSMH9
RIM=97.05
TROUGH EL=87.0
NW INV=87.10

EXIST 8" AP
S=1.23%

18"CMP

158.47 LF 8x15 AP S=0.93%

STA S2 51+62.47
INSTALL SSMH15
RIM EL=97.31
INV IN=88.68
INV OUT=88.58

FENCE

305.36 LF 8x15 AP S=1.00%

POWER POLE, 10.5' RT
FLAG POLE, 1.4' RT

STA S2 53+14.94
INSTALL 8x4 AP
SVC WYE SS2A
INV IN=90.19

STA S2 53+53.86
INSTALL 8x4 AP
SVC WYE SS2B
INV IN=90.58

STA S2 54+71.83
INSTALL SSMH16
RIM EL=106.33
INV IN=91.84
INV OUT=91.74

EXISTING GROUND
PIPE CENTERLINE

257.86 LF 8x15 AP S=0.65%

STA S2 57+15.48
INSTALL 8x4 AP
SVC WYE SS2C
INV IN=93.41

STA S2 57+33.69
INSTALL SSMH17
RIM EL=105.54
INV IN=93.81
INV OUT=93.51

76.05 LF 8x15 AP S=0.66%

STA S2 58+13.74
INSTALL SSMH18
RIM EL=103.94
INV IN=94.21
INV OUT=94.11

185.95 LF 8x15 AP S=0.69%

INSTALL CLAMAX "DIAPER" OR EQ., SEE 4/C3.0

STA S2 59+56.31 TO STA S2 60+01.36

EXIST ABAND WELL 1
10.1' RT

STA S2 60+03.69=
STA S3 81+02.96
INSTALL SSMH19
RIM EL=106.25
INV IN=95.59
INV OUT=95.49

S2 LINE

50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00

80 85 90 95 100 105 110 115 120

65% SUBMITTAL

A/C3.2 REMOVE & REPLACE 40 LF ± OF 18" CMP

STA S2 50+04.43
8.9' L

BEGIN S2 LINE
STA S2 50+00.00
SSMH#9
N.RIM=97.05
Trough EL=87.0

SSMH6
N.RIM=86.05
Trough EL=82.1

SSMH7
N.RIM=86.58
Trough EL=82.6

SB LINE
SEE SHT C1.0

EKWOK TOWNSITE
PLAT No. 89-1
LOT 11
LOT 12
LOT 13
LOT 14
LOT 15
LOT 16
LOT 17

STA S2 51+62.47
INSTALL SSMH15

3/C3.1 STA S2 51+62.47 INSTALL SSMH15

50' PROPOSED CLEARING LIMITS (TYP.)

STA S2 50+44.39
7.4' L

SURVEY LIMITS 8/2010

A/C3.0 TYPICAL TRENCH

EXIST FENCE SEE NOTE 1

SS2A (SEE SHT C2.3)

SS2B (SEE SHT C2.3)

ABAND EXIST SEPTIC TANK

100' RADIUS

5th STREET

MAINTAIN EXIST JAIL HSE SVC TIE-IN TO CITY HALL SEWER SCV

20' PROPOSED UTILITY ESMNT

INSTALL CLAMAX "DIAPER" OR EQUAL
STA S2 54+71.83
INSTALL SSMH16

SURVEY LIMITS

Fuel Tank Enclosure

Play Equipment

Deck

Shed

Tent

Trail

Porch

Canopy

Conex

Cell Tower

Approximate underground concrete foundation

STEAM HOUSE

WELL HOUSE

U.S.S. 3864

U.S.S. 4878 TRACT A BLOCK 7

U.S.S. 4878 TRACT A BLOCK 8

LOT 1
LOT 2
LOT 4A
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10

STA S2 57+33.69=
STA S5 148+95.04
INSTALL SSMH17

STA S2 58+13.74=
STA S4 145+00.00
INSTALL SSMH18

S4 LINE
SEE SHT C2.5

20' PROPOSED UTILITY ESMNT

END S2 LINE
STA S2 60+03.69=
STA S3 81+02.96
INSTALL SSMH19

S3 LINE
SEE SHT C2.4

S5 LINE
SEE SHT C2.1

3rd STREET

C STREET

EKWOK TOWNSITE
PLAT No. 89-1
LOT 11
BLOCK 11

SURVEY LIMITS

COORDINATE TABLE		
ID No.	NORTH	EAST
SSMH15	1954951.03	1737704.65
SSMH16	1954785.14	1737965.78
SSMH17	1954863.72	1738215.56
SSMH18	1954820.87	1738283.18
SSMH19	1954719.21	1738443.63

HORIZONTAL SCALE IN FEET
50 0 25 50
VERTICAL SCALE IN FEET
5 0 2.5 5

Project No.	28060
Date	02/07/11
Designed	KLP
Drawn	SJW
Approved	FJV
Sheet No.	C2.2
SHEET OF	

REVISION	BY	DATE

CAD FILE NAME
28060_S1-S2LINE.DWG

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
SANITARY SEWER PLAN & PROFILE
S2 LINE

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION
Project No. 28060

STATE OF ALASKA 49TH
KLYE LINDEN PETERSEN
No. CE-11250
REGISTERED PROFESSIONAL ENGINEER

VILLAGE SAFE WATER

RECORD DRAWING CERTIFICATE

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NAME DATE

User: SWHEAT Feb 10, 2011 - 10:49am
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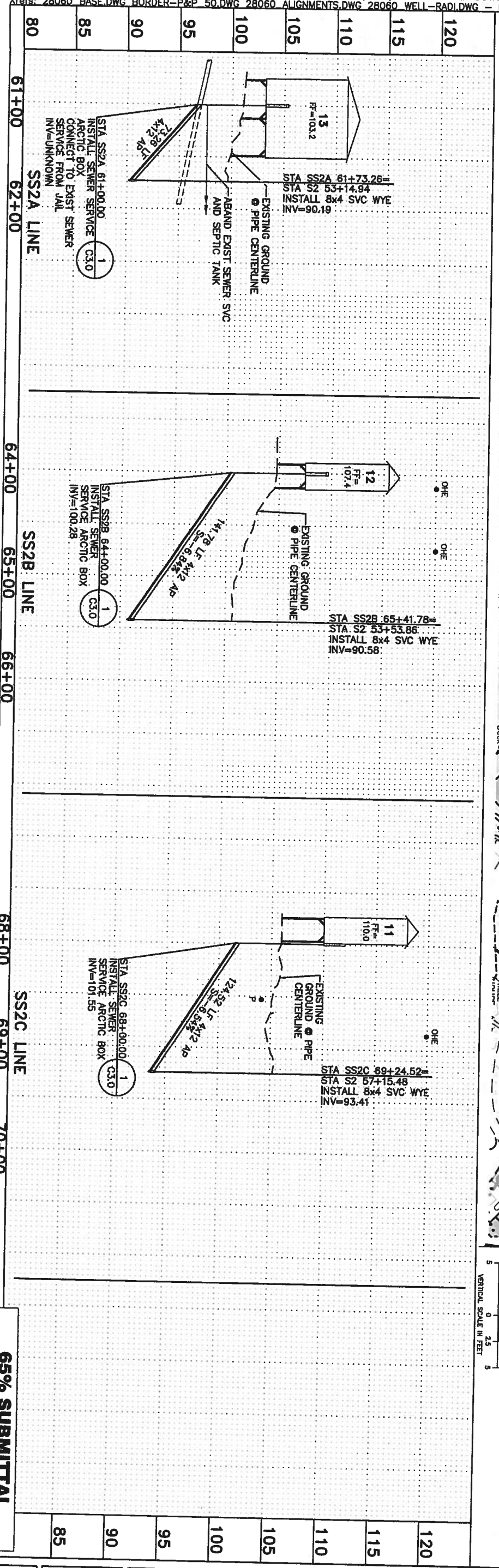
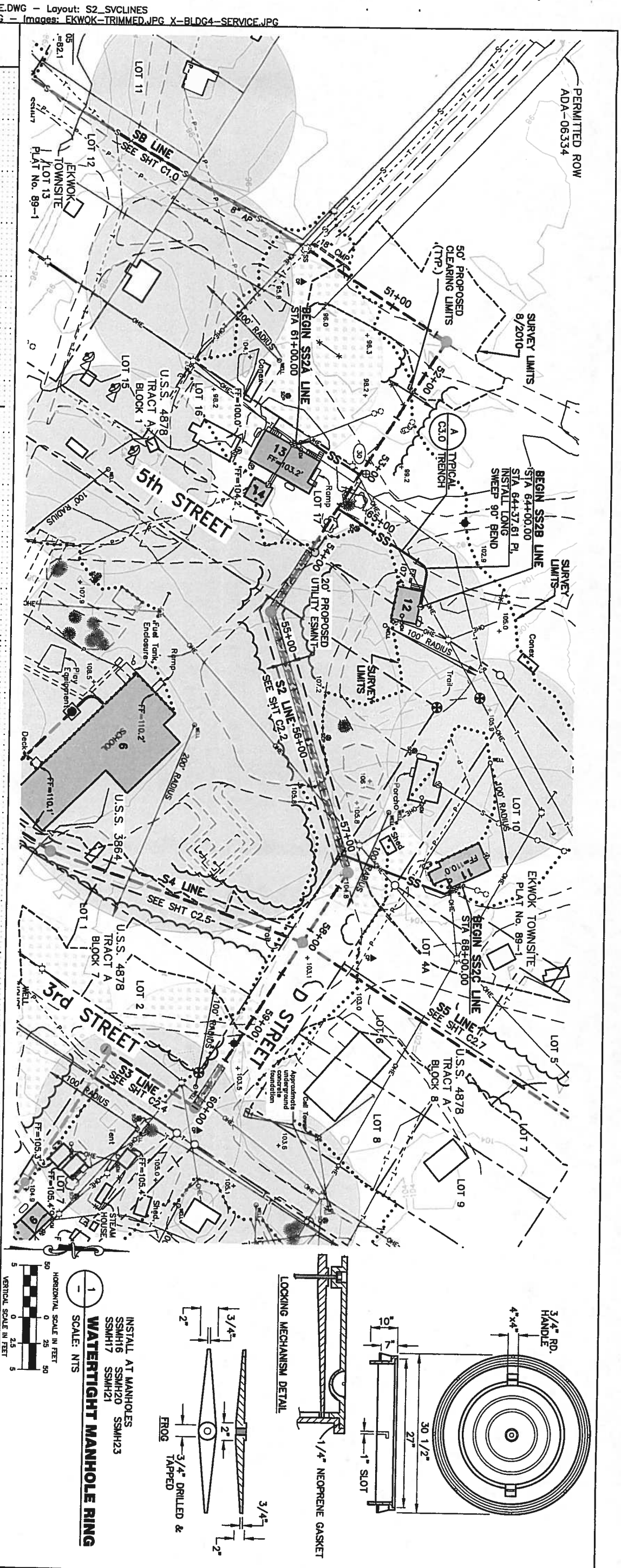
Xrefs: 28060_BASE.DWG BORDER-P&P_50.DWG 28060_ALIGNMENTS.DWG 28060_WELL-RADI.DWG - Images: EKWOK-TRIMMED.JPG X-BLDG4-SERVICE.JPG





Project No. 28060	REVISION	BY	DATE
Date 02/07/11			
Designed KLP			
Drawn SJW			
Approved FJV			
CAD FILE NAME 28060_S1-S2LINE.DWG			

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

SANITARY SEWER PLAN & PROFILE
SS2A, SS2B, AND SS2C
SERVICE LINES

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

Project No. 28060

STATE OF ALASKA 49TH
KLYE LINDEN PETERSEN
No. CE-11250
REGISTERED PROFESSIONAL ENGINEER

VILLAGE SAFE WATER

RECORD DRAWING CERTIFICATE

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NAME DATE

Sheet No. C2.3
SHEET OF

COORDINATE TABLE		
ID No.	NORTH	EAST
SSMH20	1954632.26	1738388.49

50' PROPOSED CLEARING LIMITS, TYP.

15' PROPOSED UTILITY ESMNT

S4 LINE SEE SHT C2.5

S2 LINE SEE SHT C

S5 LINE SEE SHT C2.7

E STREET

B STREET

C STREET

3rd STREET

1st STREET

SURVEY LIMITS

Cemetery

U.S.S. 4878 TRACT A BLOCK 7

U.S.S. 4878 TRACT A BLOCK 8

U.S.S. 4878 TRACT A BLOCK 9

U.S.S. 4878 TRACT A BLOCK 6

U.S.S. 4878 TRACT A BLOCK 10

U.S.S. 4878 MUNCIPAL RESERVE BLOCK 11

LOT 1 LOT 2 LOT 3 LOT 4 LOT 5 LOT 6 LOT 7 LOT 8 LOT 9 LOT 10

EKWOK TOWNSITE LOT 11 BLOCK 11 PLAT No. 89-1

END S3 LINE
STA S3 81+02.96=
STA S2 60+03.69
CONNECT TO SSMH19

A C3.0 TYPICAL TRENCH

INSTALL CLAMAX "DIAPER" OR EQ.

3 C3.1 BEGIN S3 LINE
STA S3 80+00.00
INSTALL SSMH20

5 C3.0 STA SS3A 90+39.09
INSTALL SSCO

BEGIN SS3A LINE
STA 90+00.00

WELL HOUSE

STEAM HOUSE

Approximate concrete underground foundation

Cell Tower

100' RADIUS

FF=110.1' SCHOOL 6

FF=106.2'

FF=105.4'

FF=108.9'

FF=105.3'

FF=107.2'

FF=105.7'

FF=108.9'

NUSHAGAK RIVER

HORIZONTAL SCALE IN FEET
50 0 25 50

VERTICAL SCALE IN FEET
5 0 2.5 5

STA S3 80+00.00
INSTALL SSMH20
RIM EL=106.54
INV OUT=96.23

STA S3 80+05.16
INSTALL 8x4 AP
SVC WYE SS3A
INV=96.21

STA S3 81+02.96=
STA S2 60+03.69
CONNECT TO SSMH19
RIM EL=106.25
INV IN=95.59
INV OUT=95.49

EXISTING GROUND
@ PIPE CENTERLINE

98.96 LF 8x15 AP
S=-0.65%

10 LF 8x15 AP
W/END CAP,
S=0.65%
INV=95.65

STA S3 80+02 TO
STA S3 81+15
INSTALL CLAMAX "DIAPER" OR EQ., SEE 4 C3.0

S3 LINE

80+00 81+00 82+00

STA SS3A 90+39.09
INSTALL SSCO
RIM=105.51
INV=99.72

STA SS3A 91+89.09=
STA S3 80+05.16
INSTALL 8x4 AP
SVC WYE
INV=96.21

9 FF=107.2

STA SS3A 90+00.00
INSTALL SEWER SERVICE ARCTIC BOX
INV=100.64

1 C3.0

EXISTING GROUND
@ PIPE CENTERLINE

39.09 LF

150.00 LF
4x12 AP S=-2.34%

SS3A LINE

90+00 91+00 92+00

65% SUBMITTAL

RECORD DRAWING CERTIFICATE
THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.
NAME DATE

VILLAGE SAFE WATER

STATE OF ALASKA 4918 EDMOND M. PETERSEN JR. No. 12-11259 REGISTERED PROFESSIONAL

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
SANITARY SEWER PLAN & PROFILE
S3 MAIN LINE, SS3A, AND SS3B SERVICE LINES

REVISION	BY	DATE

CAD FILE NAME 28060_S3LINE.DWG

Project No. 28060
Date 02/07/11
Designed KLP
Drawn SJW
Approved FJV

Sheet No. C2.4
SHEET OF

User: SWHEAT Feb 10, 2011 - 10:47am
Drawing: K:\JOBS\28060 EKWOK SEWER SYSTEM\ACAD-DESIGN\DESIGN\DWG\28060_S3LINE.DWG - Layout: S3LINE
Xrefs: 28060_BASE.DWG BORDER_P&P 50.DWG 28060_ALIGNMENTS.DWG 28060_WELL-RAD.DWG - Images: EKWOK-TRIMMED.JPG X-BLDG4-SERVICE.JPG

User: SWHEAT Feb 11, 2011 - 6:56am
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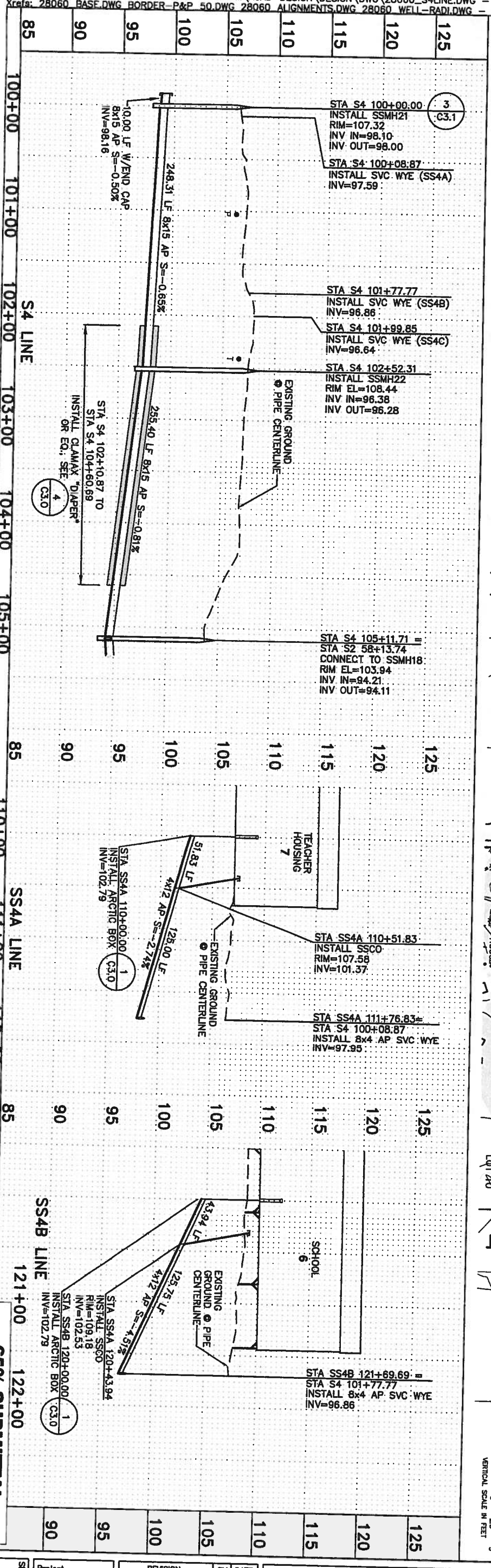
Xrefs: 28060_BASE.DWG BORDER-P&P_50.DWG 28060_ALIGNMENTS.DWG 28060_WELL-RADI.DWG - Images: EKWOK-TRIMMED.JPG X-BLDG4-SERVICE.JPG



COORDINATE TABLE			
ID No.	NORTH	EAST
SSMH21	1954362.27	1738064.12
SSMH22	1954575.53	1738198.97

Project No. 28060	REVISION	BY	DATE
Date 02/07/11			
Designed KLP			
Drawn SJW			
Approved FJV	CAD FILE NAME 28060_S4LINE.DWG		

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

SANITARY SEWER PLAN & PROFILE
S4 MAIN LINE, SS4A AND
SS4B SERVICE LINES

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

Project No. 28060

STATE OF ALASKA 49TH
KLYE LINDEN PETERSEN
No. CE-11250
REGISTERED PROFESSIONAL ENGINEER

VILLAGE SAFE WATER

RECORD DRAWING CERTIFICATE

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NAME DATE

Sheet No. C2.5

User: SWHEAT Feb 10, 2011 - 10:42am
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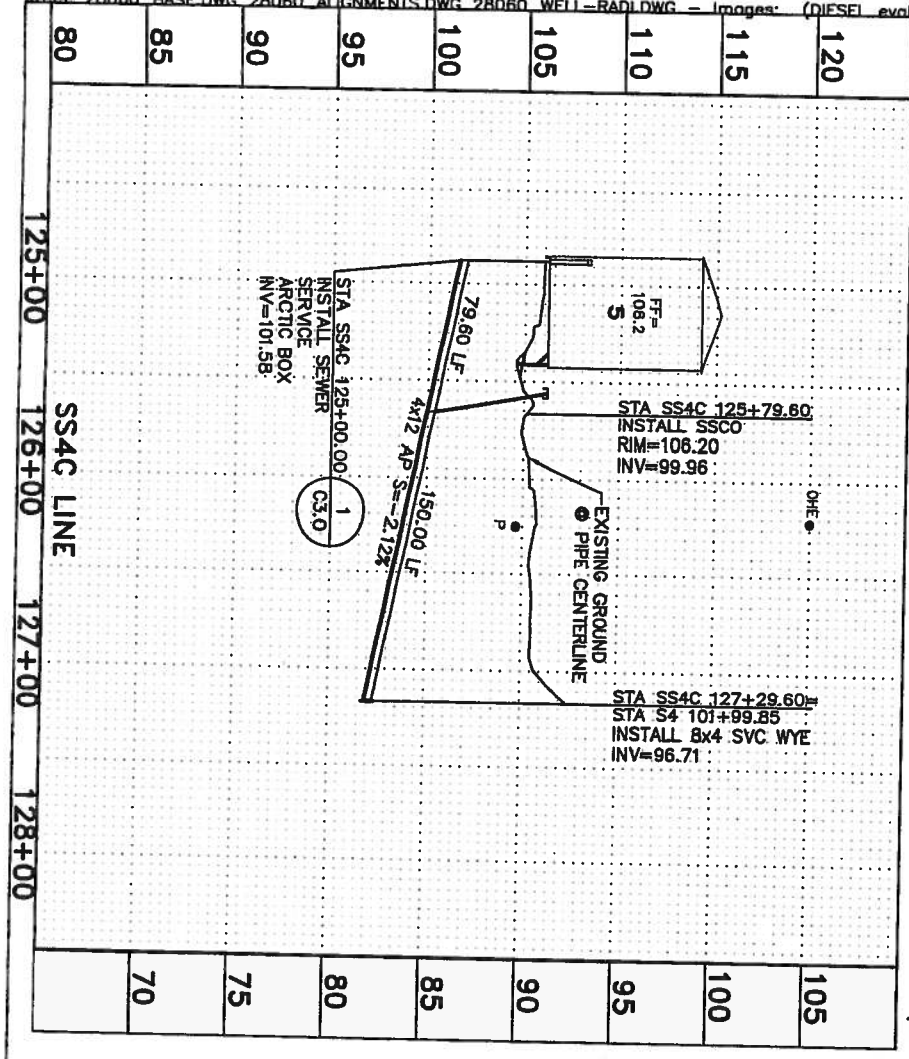
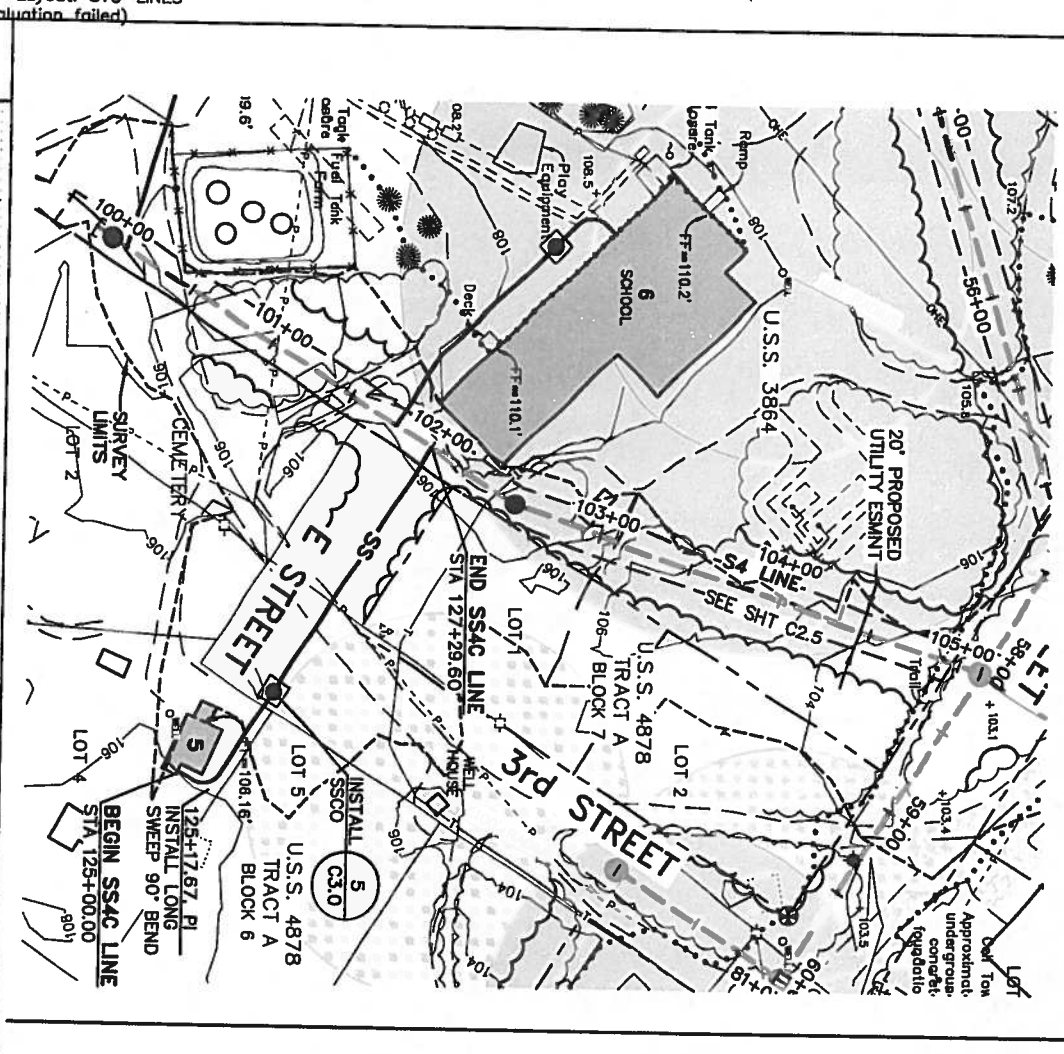
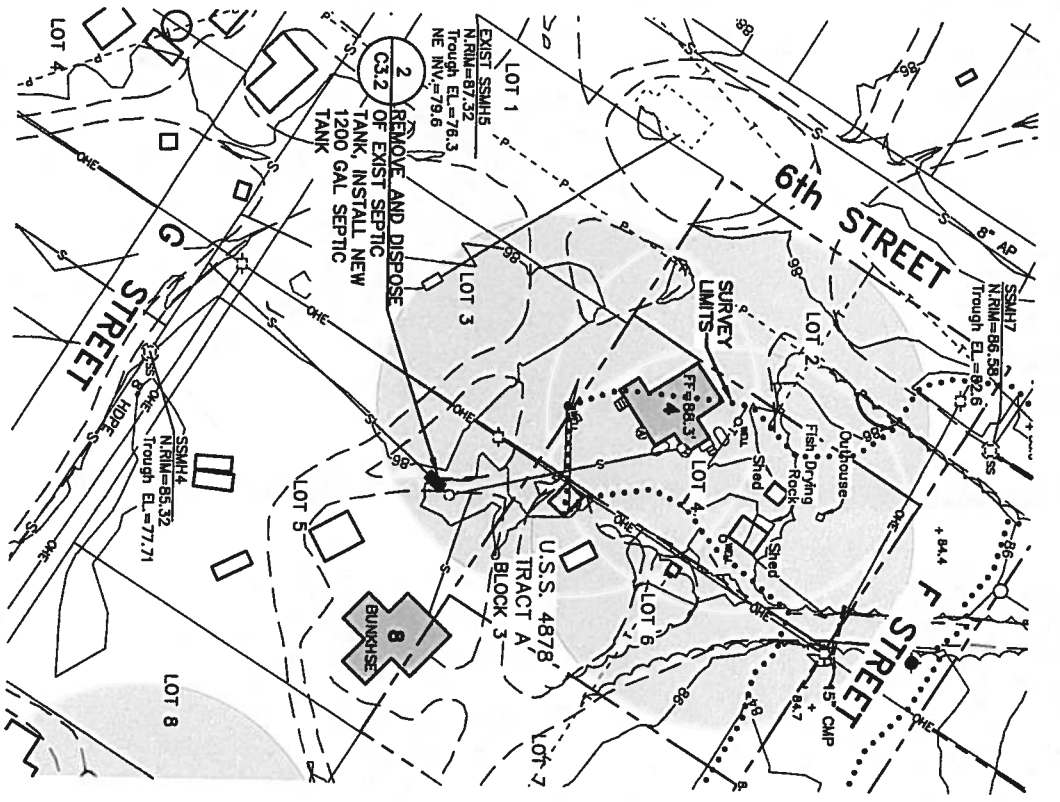
Xrefs: 28060_BASE.DWG 28060_ALIGNMENTS.DWG 28060_WELL-RAD.DWG - Images: (DIESEL evaluation failed)







HORIZONTAL SCALE IN FEET
50 0 25 50
VERTICAL SCALE IN FEET
5 0 2.5 5

95% SUBMITTAL

Sheet No. C2.6

Project No. 28060
Date 02/07/11
Designed KLP
Drawn SJW
Approved FJV

REVISION	BY	DATE

CAD FILE NAME
28060_C2-6.DWG

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
SANITARY SEWER SS4C SERVICE LINE AND HSE 4/BUNKHOUSE SEPTIC TANK REPLACEMENT

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION
Project No. 28060

STATE OF ALASKA
49TH
KLYE LINDEN PETERSEN
No. CE-11250
REGISTERED PROFESSIONAL ENGINEER

VILLAGE SAFE WATER

RECORD DRAWING CERTIFICATE
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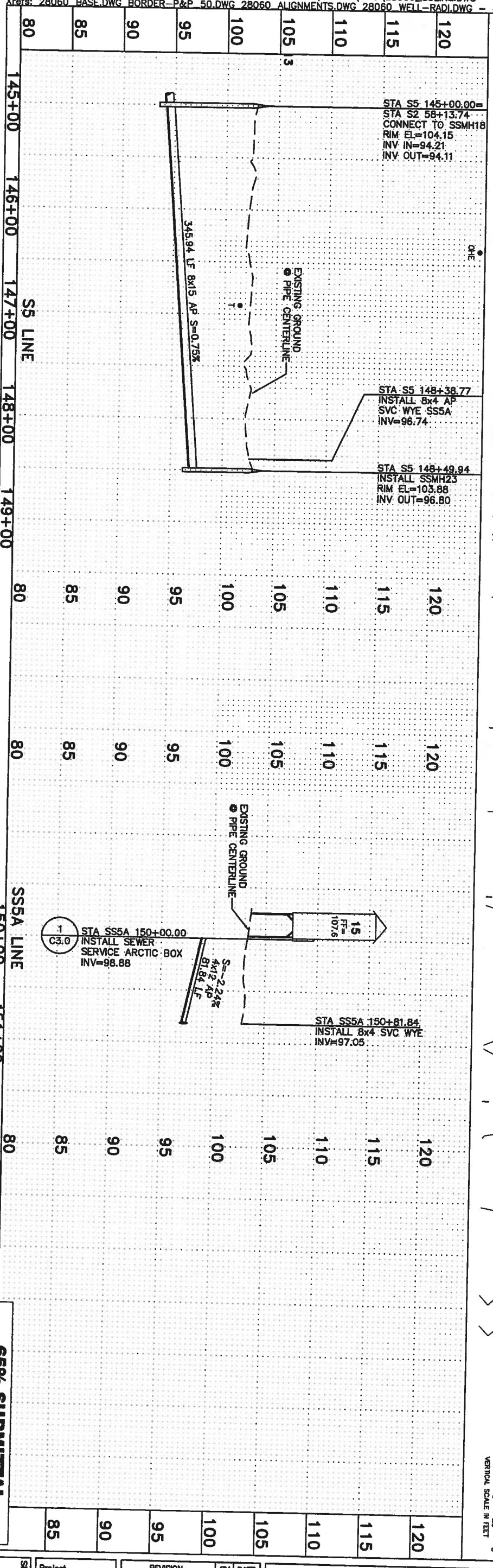
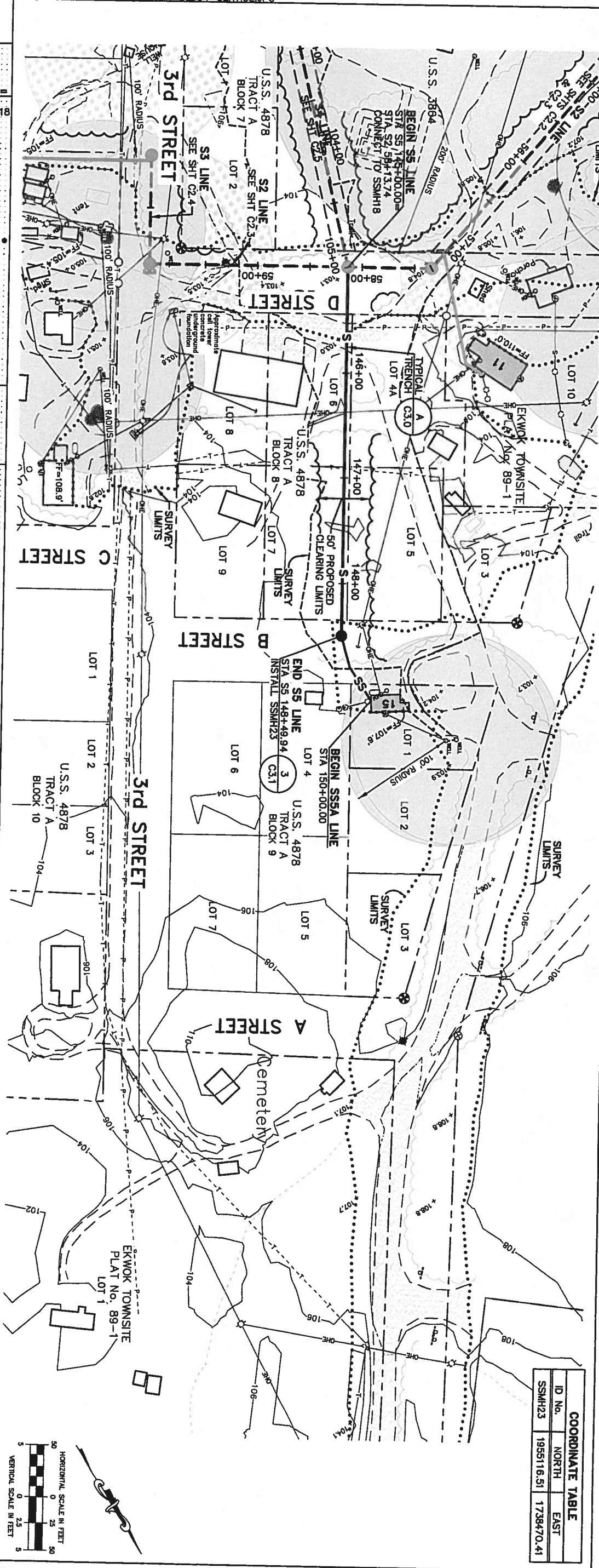
NAME DATE

User: SWHEAT Feb 10, 2011 - 10:52am
Drawing: K:\JOBS\28060 EKWOK SEWER SYSTEM\ACAD-DESIGN\DESIGN\DWG\28060_S5LINE.DWG - Layout: S5LINE
Xrefs: 28060_BASE.DWG BORDER-P&P_50.DWG 28060_ALIGNMENTS.DWG 28060_WELL-RADI.DWG - Images: EKWOK-TRIMMED.JPG X-BLDG4-SERVICE.JPG





COORDINATE TABLE		
ID No.	NORTH	EAST
SSMH23	1955116.51	1738470.41

65% SUBMITTAL

Sheet No. C2.7

Project No.	28060
Date	02/07/11
Designed	KLP
Drawn	SJW
Approved	FJV

REVISION	BY	DATE

CAD FILE NAME
28060_S5LINE.DWG

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

SANITARY SEWER PLAN & PROFILE
S5 MAIN LINE AND
SS5A SERVICE LINE

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

Project No. 28060

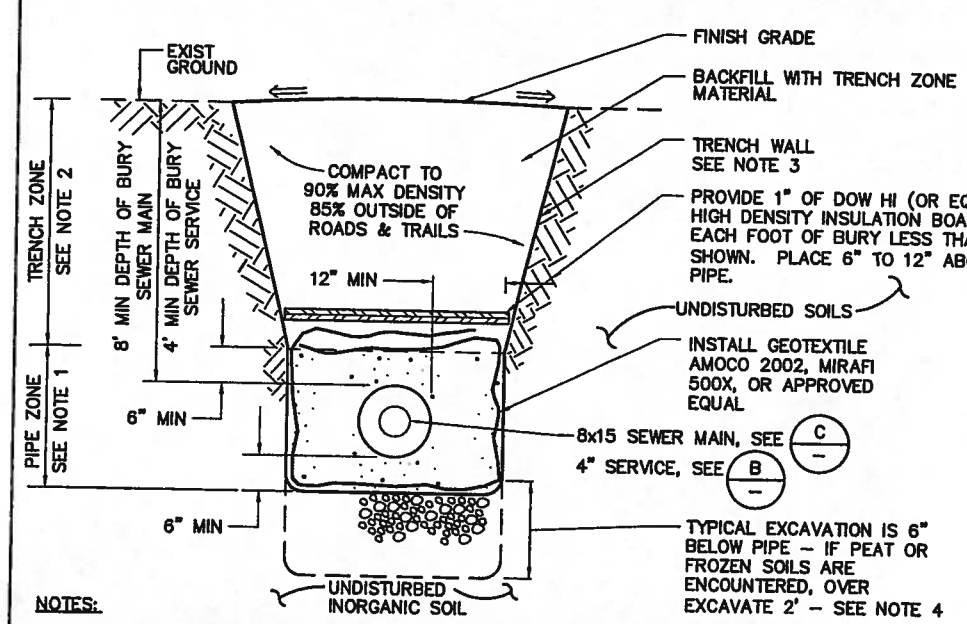
STATE OF ALASKA
49TH
KLYE LINDEN PETERSEN
No. CE-11250
REGISTERED PROFESSIONAL ENGINEER

VILLAGE SAFE WATER

RECORD DRAWING CERTIFICATE

THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.

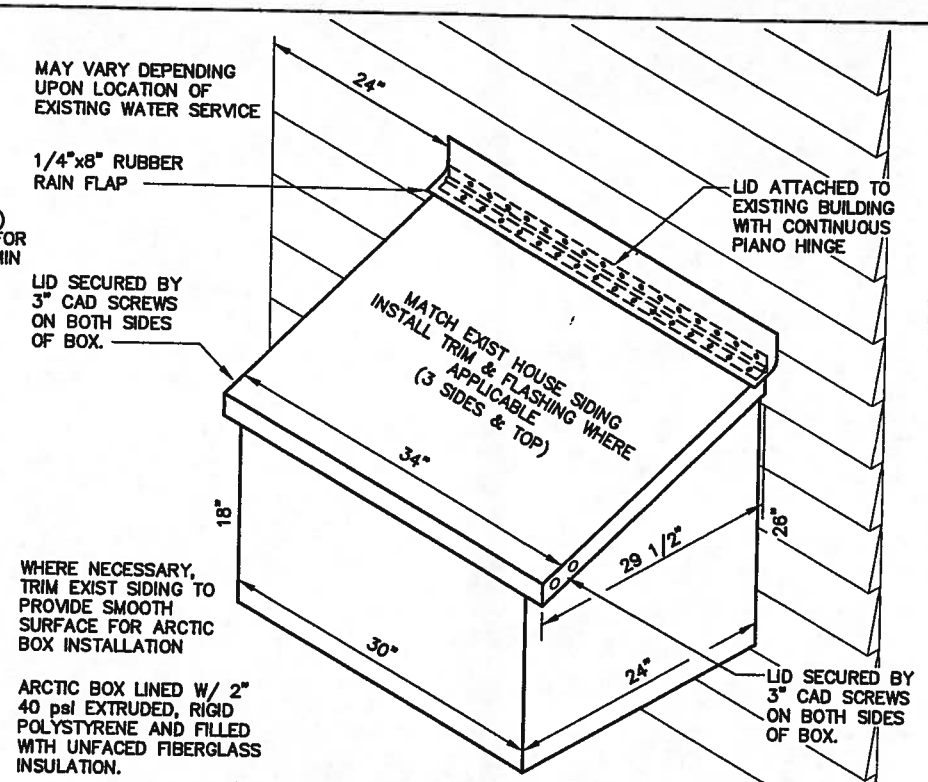
NAME DATE



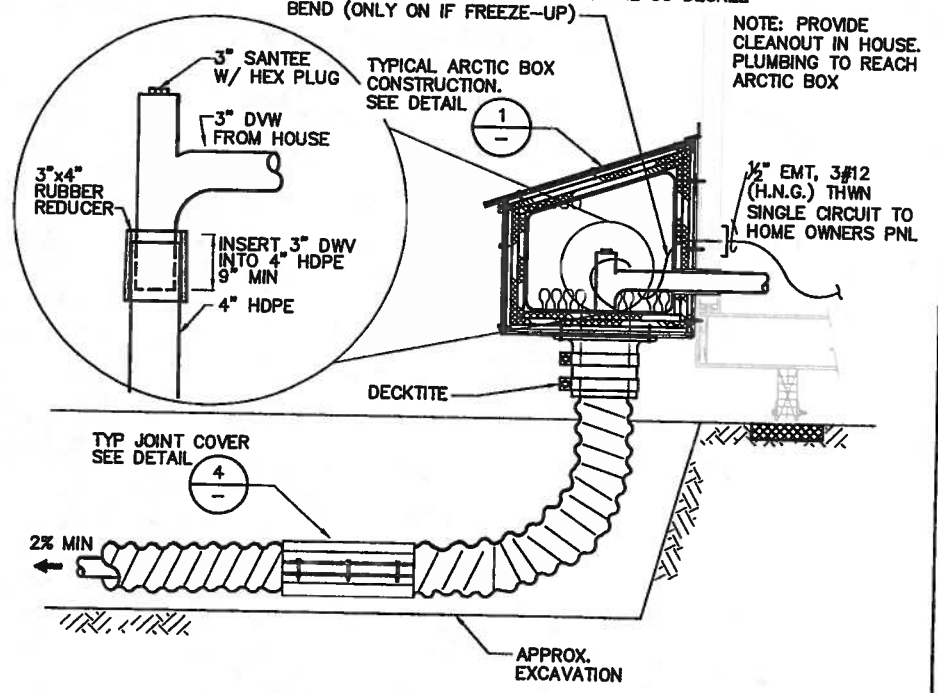
NOTES:

1. PIPE ZONE MATERIAL SHALL BE GRANULAR, WELL GRADED BACKFILL, COMPACT TO 90% MAX DENSITY WITHIN TRAILS & ROADWAYS. 85% OUTSIDE OF ROADWAYS.
2. TRENCH ZONE MATERIAL SHALL CONTAIN NO MORE THAN 12% PASSING THE #200 SIEVE.
3. TRENCH WALL SHALL BE SLOPED OR SHORED IN CONFORMANCE WITH ALL APPLICABLE SAFETY STANDARDS.
4. OVER EXCAVATE AND FILL W/ GRANULAR WELL GRADED BACKFILL IN AREAS OF FROZEN SOILS OR PEAT, COMPACT TO 90% MAX DENSITY.

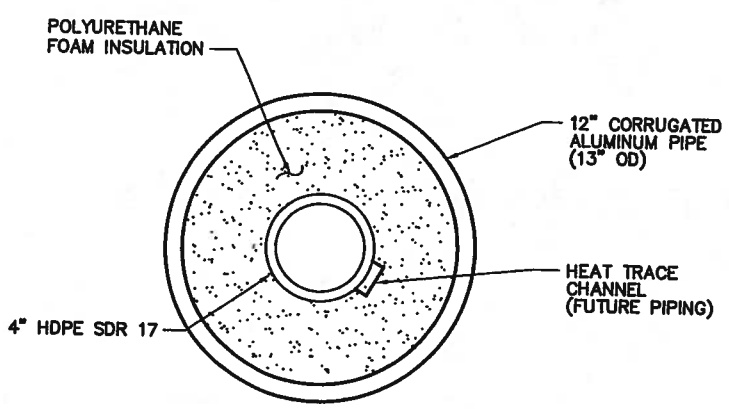
A – **TYPICAL SEWER TRENCH SECTION**
SCALE: NTS



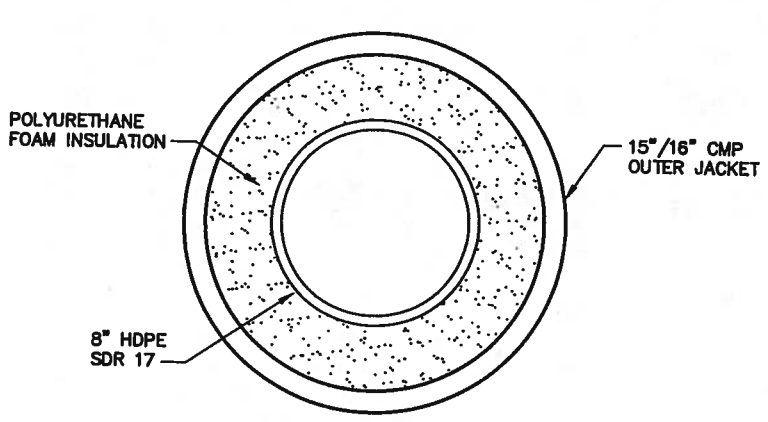
1 – **TYPICAL ARCTIC BOX FOR WATER OR SEWER HOUSE CONNECTION**
SCALE: NTS



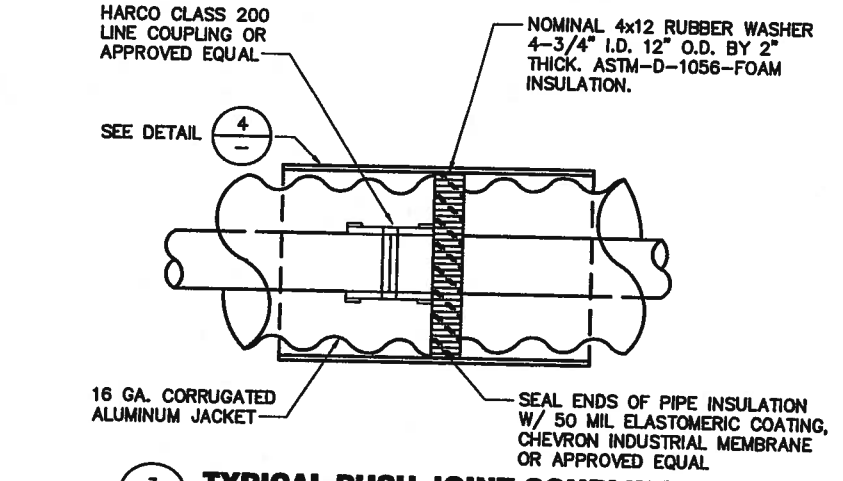
2 – **TYPICAL HOUSE SEWER CONNECTION**
SCALE: NTS



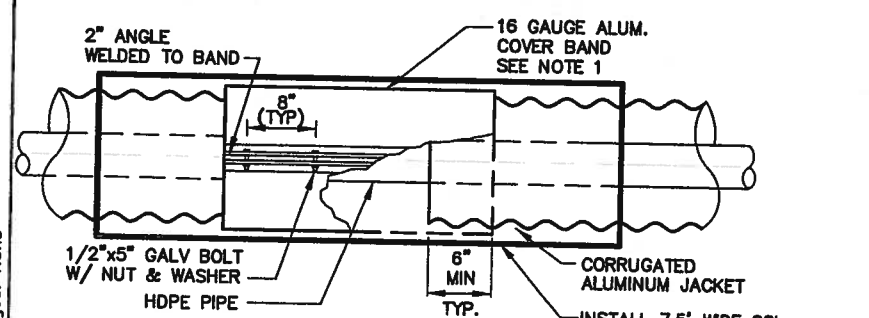
B – **4" SEWER SERVICE LINE (HOUSES)**
SCALE: NTS



C – **8" SEWER MAIN**
SCALE: NTS



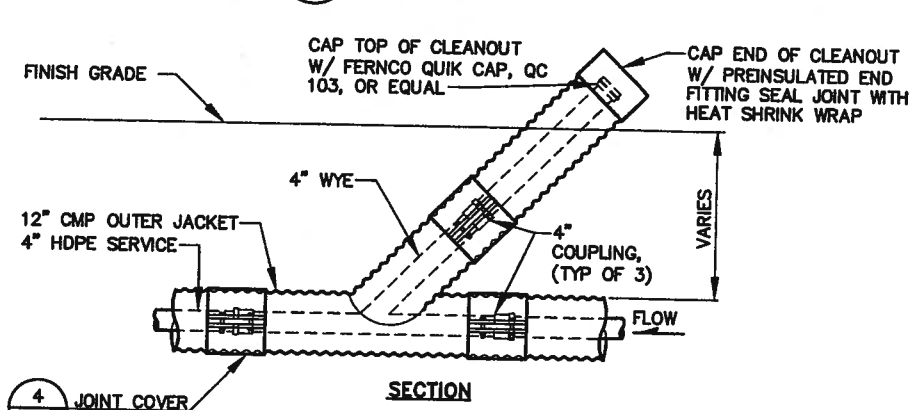
3 – **TYPICAL PUSH JOINT COUPLING DETAIL**
SCALE: NTS



SIDE VIEW

NOTE
1. 12" PIPE BAND IS 12"
15" PIPE BAND IS 24"

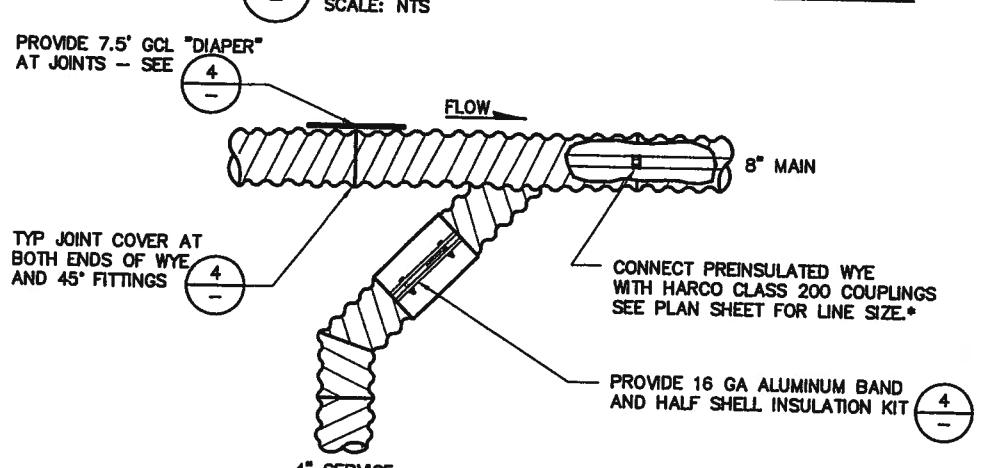
4 – **TYPICAL JOINT COVER KIT DETAIL**
SCALE: NTS



SECTION

NOTE:
BUTT FUSION JOINTS SHALL BE INSTALLED AT LOCATIONS WHERE VARIANCES ARE REQUIRED. SEE PLANS FOR LOCATIONS.

5 – **CLEANOUT DETAIL**
SCALE: NTS



*USE ROMAC 511 COUPLING FOR PVC SERVICE CONNECTS

6 – **SEWER MAIN SERVICE CONNECTION**
SCALE: NTS

65% SUBMITTAL

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VILLAGE SAFE WATER

STATE OF ALASKA – 49TH – REGISTERED ENGINEER – JOHN V. VOLKMAR – No. CE-11253 – REGISTERED PROFESSIONAL

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION
Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

SANITARY SEWER DETAILS

REVISION	BY	DATE

CAD FILE NAME 28060_C3-0.DWG

Project No. 28060 | Date 02/07/11 | Designed KLP | Drawn SJW | Approved FJV

Sheet No. C3.0

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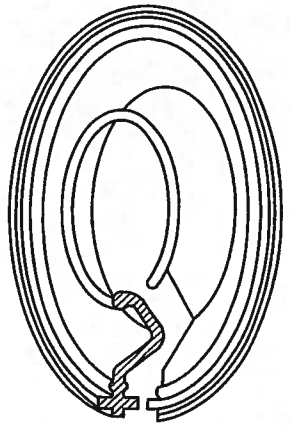
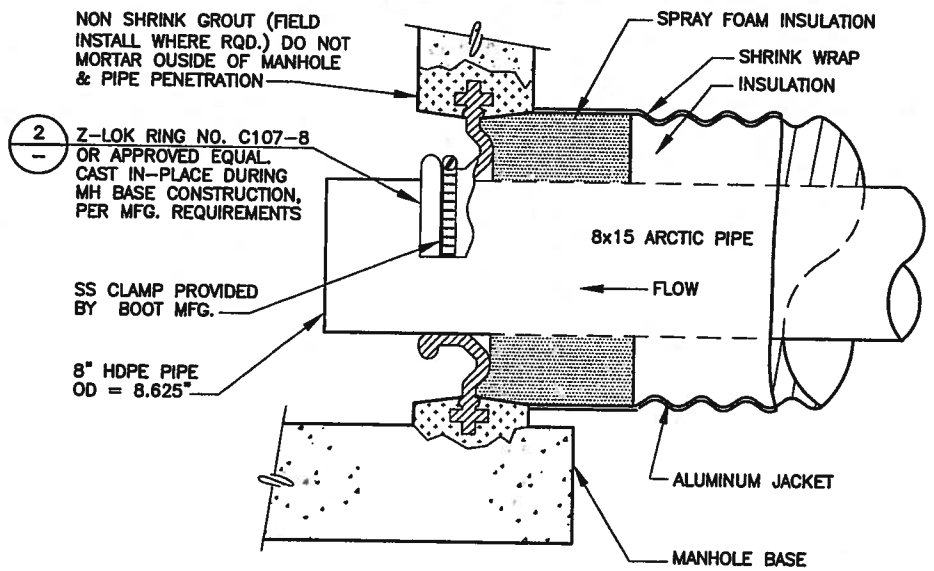
Xrefs: BORDER.DWG – Images: None

MANHOLE NUMBER	RIM HEIGHT ABOVE INVERT OUT	INVERT IN (1.2 INCHES ABOVE INVERT OUT)	ANGLE (CW FROM INVERT OUT)	INVERT OUT ELEVATION
SSMH14	8.09'	1	124° 236°	79.19
SSMH15	8.73'	1	270°	88.58
SSMH16	14.59'	1	130°	91.74
SSMH17	12.03'	1	230°	93.51
SSMH18	9.83'	1	90° 180° 257°	94.11
SSMH19	10.76'	1	270°	95.49
SSMH20	10.31'	N/A	N/A	96.23
SSMH21	9.32'	1	180°	98.00
SSMH22	12.16'	1	193°	96.28
SSMH23	7.08'	N/A	N/A	96.80

1 – SEWER MANHOLE SCHEDULE
SCALE: NTS

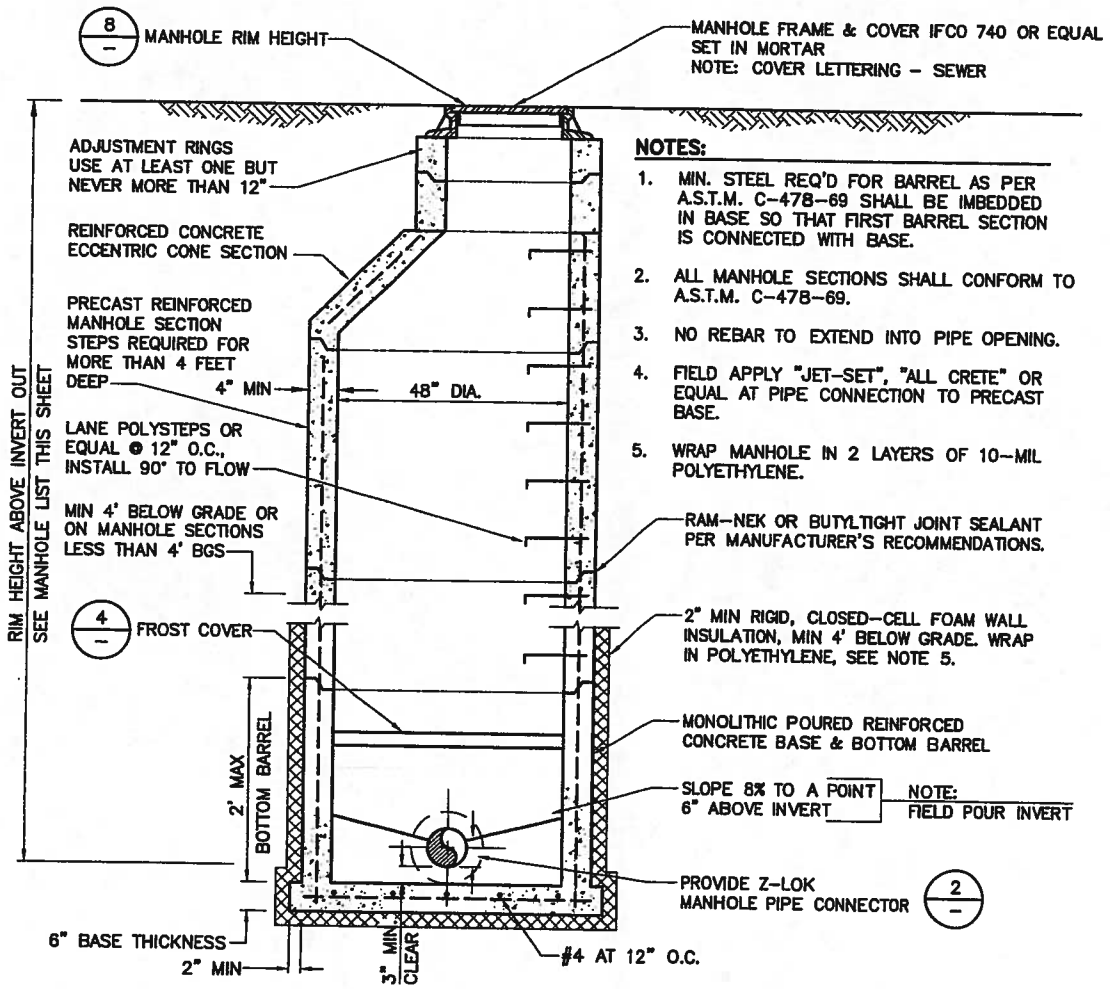


2 – Z-LOK RING DETAIL
SCALE: NTS



NOTE:
MANHOLE PIPE CONNECTION TO PROVIDE A MIN PIPE DEFLECTION OF 25 DEGREES IN ANY DIRECTION & 3/4" OF VERTICAL OR HORIZONTAL MOVEMENT WITHOUT A LOSS OF SEAL.

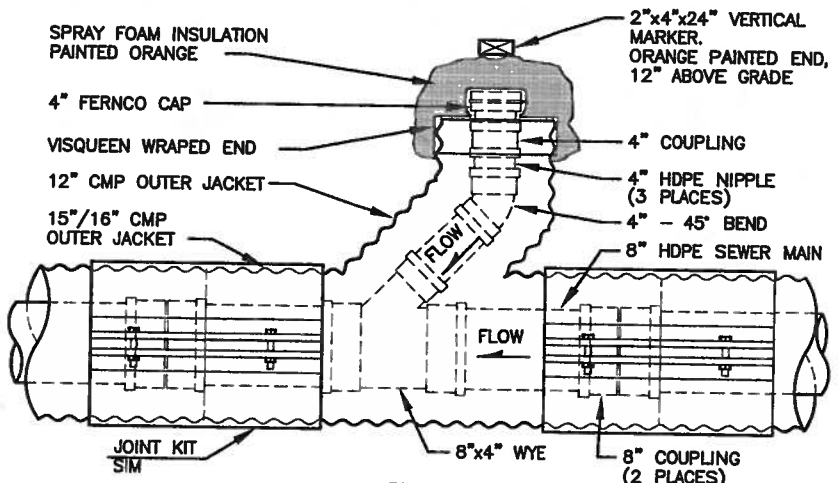
5 – MANHOLE PIPE CONNECTION
SCALE: NTS



NOTES:

1. MIN. STEEL REQ'D FOR BARREL AS PER A.S.T.M. C-478-69 SHALL BE IMBEDDED IN BASE SO THAT FIRST BARREL SECTION IS CONNECTED WITH BASE.
2. ALL MANHOLE SECTIONS SHALL CONFORM TO A.S.T.M. C-478-69.
3. NO REBAR TO EXTEND INTO PIPE OPENING.
4. FIELD APPLY "JET-SET", "ALL CRETE" OR EQUAL AT PIPE CONNECTION TO PRECAST BASE.
5. WRAP MANHOLE IN 2 LAYERS OF 10-MIL POLYETHYLENE.

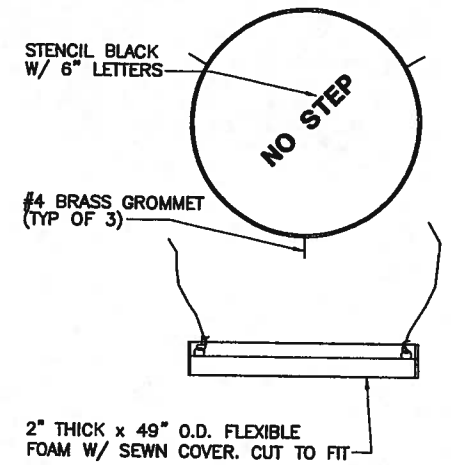
3 – SANITARY SEWER - STANDARD MANHOLE
SCALE: NTS

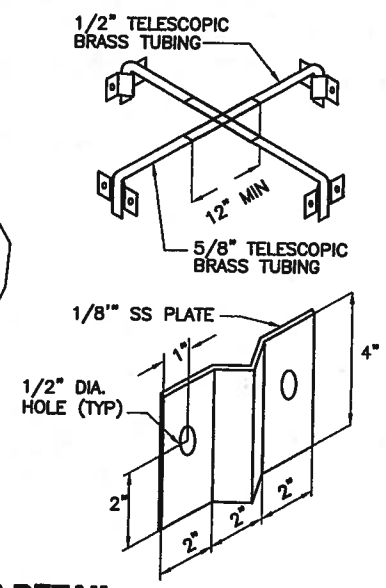


PLAN

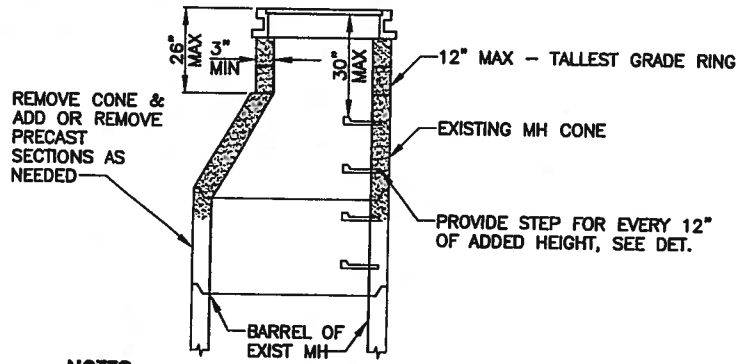
NOTE:
BUTT FUSION JOINTS SHALL BE INSTALLED AT LOCATIONS WHERE VARIANCES ARE REQUIRED. SEE PLANS FOR LOCATIONS.

6 – SANITARY SEWER SERVICE BLIND WYE DETAIL
SCALE: NTS





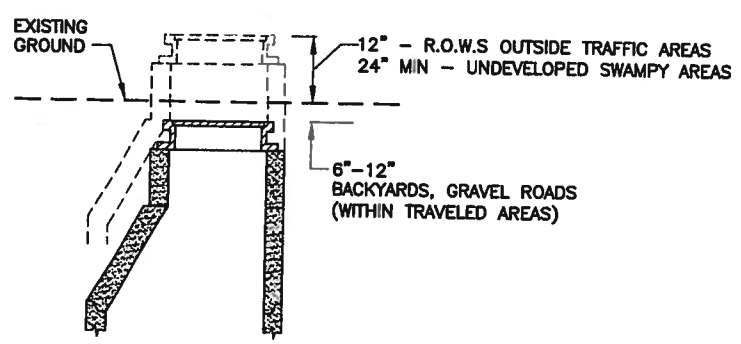
4 – FROST COVER DETAIL
SCALE: NTS



NOTES

1. WHEN AN ADJUSTMENT OF GREATER THAN 18" IN GRADE RINGS IS REQUIRED, ADJUST CONE RATHER THAN GRADE RINGS.
2. RESET CONCRETE GRADE RING IN FULL BED OF MORTAR.
3. REFER TO ASTM DESIGNATION C-478 FOR DESIGN AND STRENGTH REQUIREMENTS.
4. RESET CONE IN RAM-NEK OR EQUAL.
5. ADJUST FRAME TO ELEVATION SHOWN IN PLANS.

7 – MANHOLE CONE/RING ADJUSTMENT
SCALE: NTS



8 – MANHOLE RIM HEIGHT
SCALE: NTS

65% SUBMITTAL

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NAME
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VILLAGE SAFE WATER

STATE OF ALASKA 4916 JULIE LINDEN PETERSEN REGISTERED PROFESSIONAL ENGINEER No. CE-11250

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION
Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
SANITARY SEWER DETAILS

REVISION	BY	DATE

CAD FILE NAME 28060_C3-1.DWG

Project No. 28060
Date 02/07/11
Designed KLP
Drawn SJW
Approved FJV

Sheet No.
C3.1
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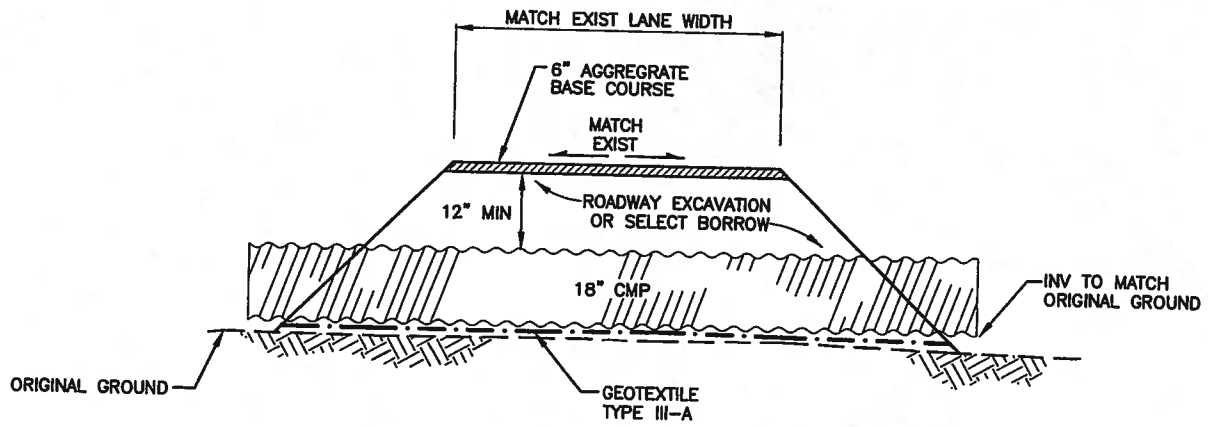
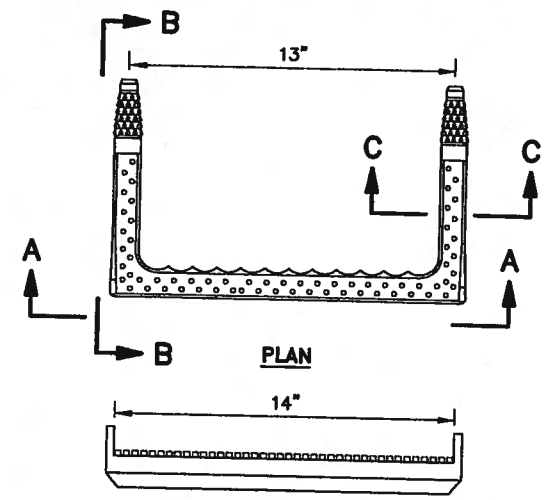


EXISTING ROADWAY RECONSTRUCTION SHALL MEET OR EXCEED ORIGINAL CONDITION.

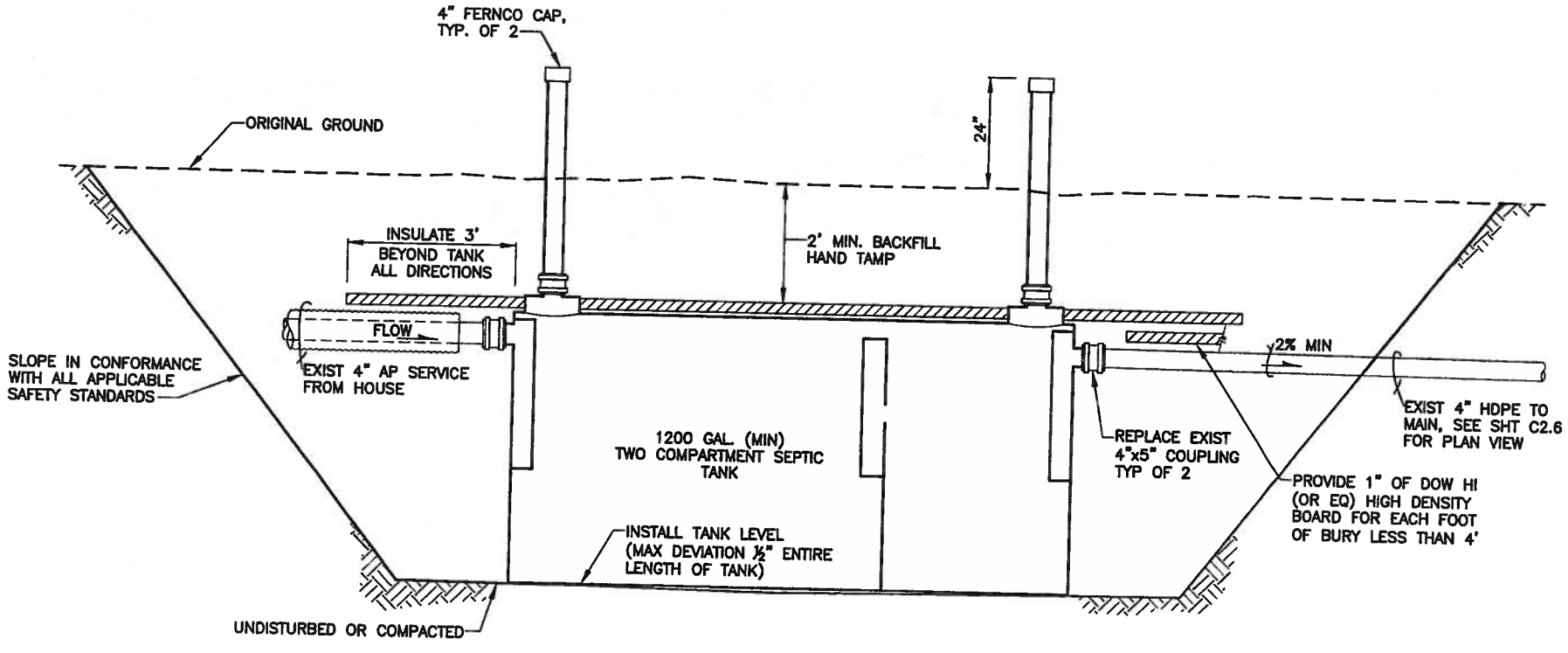
A/– **CULVERT REPLACEMENT SECTION**
SCALE: NTS



NOTES

1. DRIVE RUNG INTO PREFORMED OR DRILLED HOLES WITH A 6 TO 10 LB. SLEDGE HAMMER, AFTER CONCRETE IS CURED TO 3000 PSI MIN.
2. THE INSTALLED STEP SHALL RESIST A PULLOUT FORCE OF 1500 LBS.

1/– **MANHOLE STEP DETAIL**
SCALE: NTS



2/– **SEPTIC TANK DETAIL**
SCALE: NTS

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VILLAGE SAFE WATER

STATE OF ALASKA 4919 JULIE LINDEN PETERSEN No. CE-11259 REGISTERED PROFESSIONAL ENGINEER

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION
Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

SANITARY SEWER DETAILS

BY	DATE	REVISION

CAD FILE NAME 28060_C3-1.DWG

Project No. 28060
Date 02/07/11
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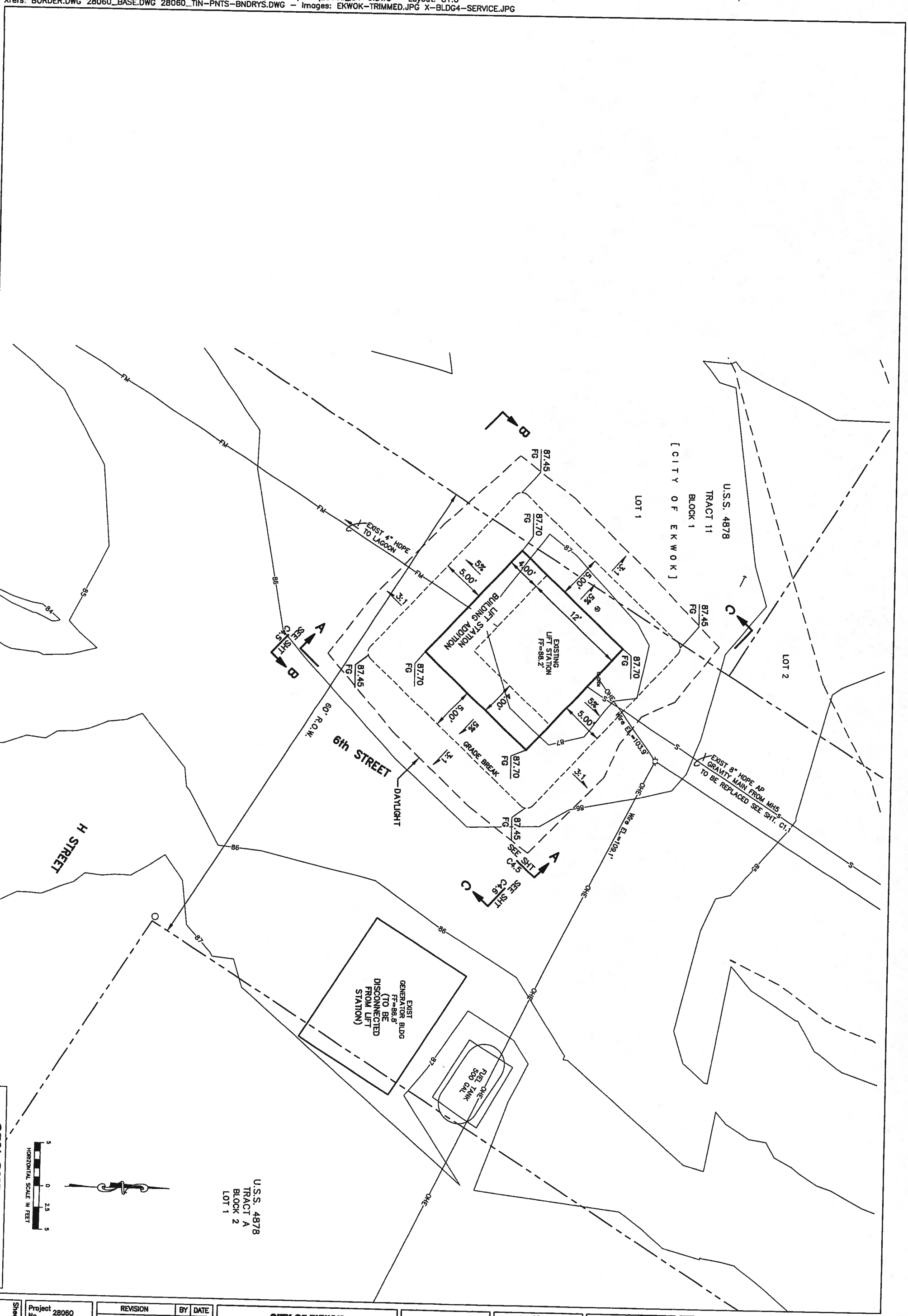

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Project No. 28060
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REVISION	BY	DATE

CAD FILE NAME
28060_C1-0.DWG

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
LIFT STATION IMPROVEMENTS
SITE GRADING PLAN

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

Project No. 28060

STATE OF ALASKA 49TH
KLYE LINDEN PETERSEN No. CE-11250
REGISTERED PROFESSIONAL ENGINEER

VILLAGE SAFE WATER

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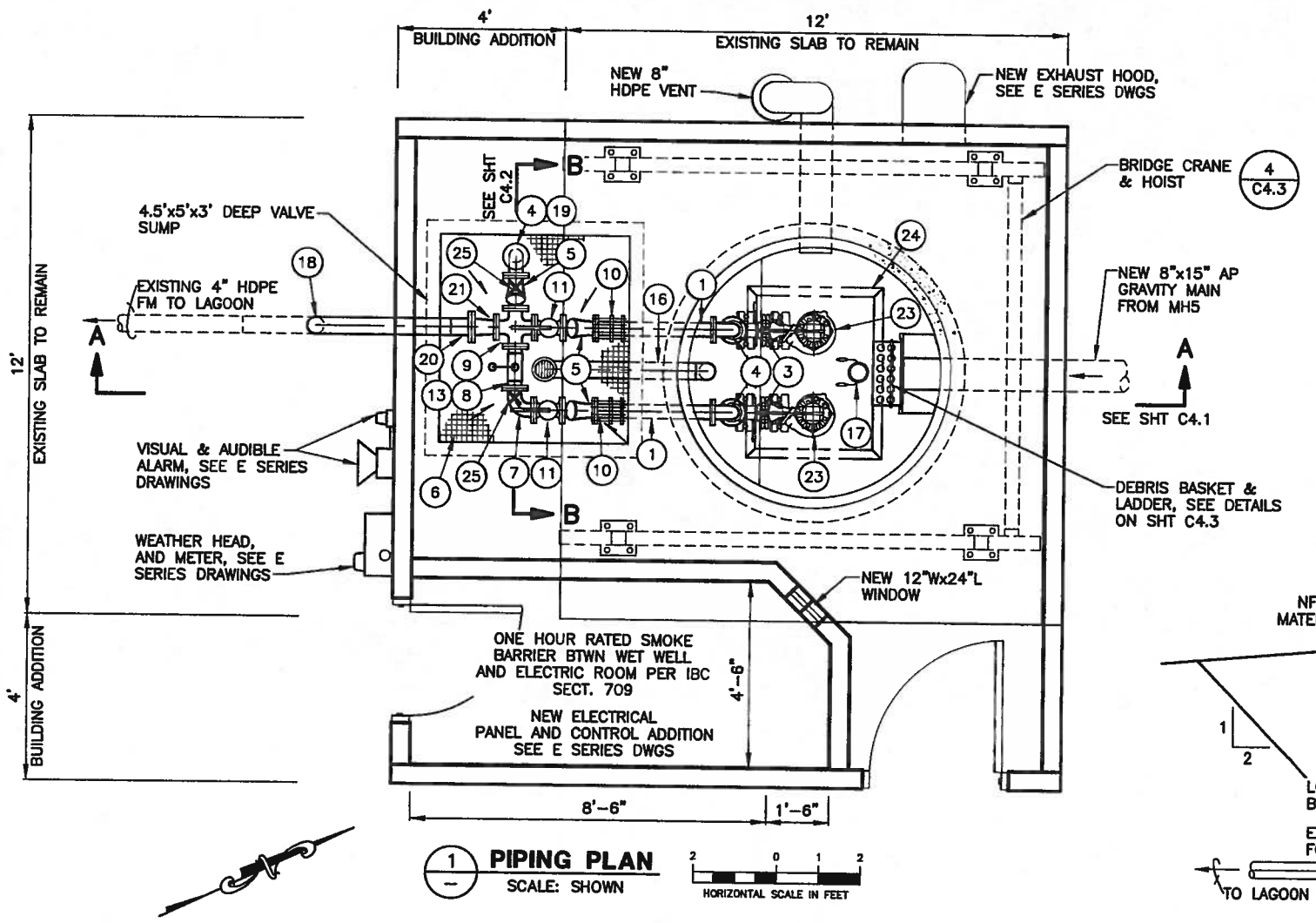
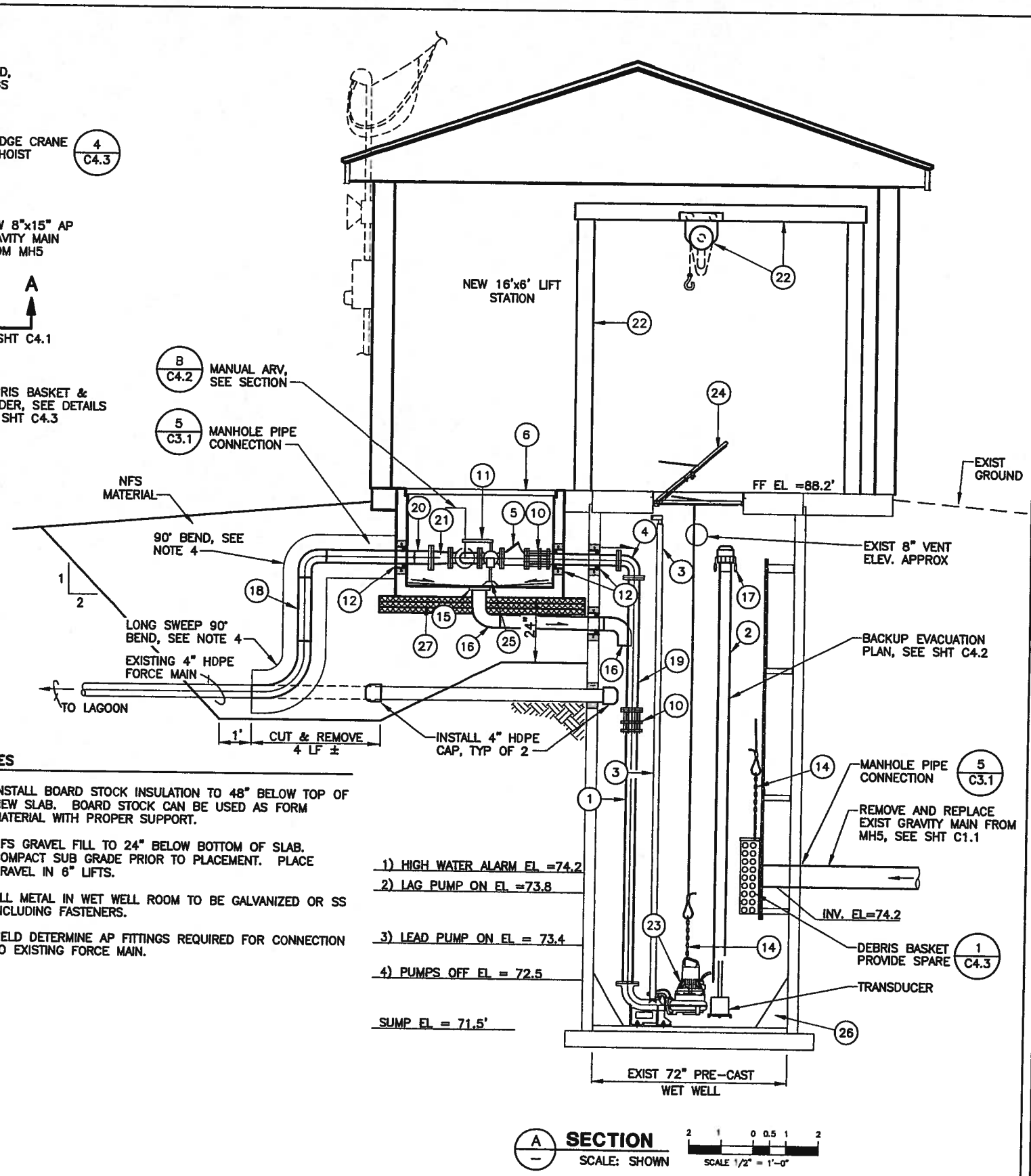
NAME DATE



1/— **PIPING PLAN**
SCALE: SHOWN

HORIZONTAL SCALE IN FEET



A/— **SECTION**
SCALE: SHOWN

SCALE 1/2" = 1'-0"

KEY

1. 3" DIP, FLxPE
2. 3" HDPE, SDR 17
3. STAINLESS STEEL GUIDE RAILS PER PUMP MNFR.
4. 3" DIP 90° BEND, FL
5. 3" BALL CHECK VALVE, FL
6. 1 1/2" FIBERGLASS GRATING, NON-SKID SURFACE, 4.5'x5'
7. 3" DIP, LR, 90° BEND, FL
8. 3" DIP SPOOL, FLxFL, 1-0' LONG
9. 3" DIP CROSS, FLxFL
10. 3" RFCA-3.96, ROMAC OR EQ.
11. 3" BALL VALVE, FL
12. LINK-SEAL WALL SLEEVE MODEL
13. MANUAL WASTEWATER ARV, SEE SEC. B, SHT C4.2
14. 316L SS LIFTING CHAIN PER MNFR, AND NYLON ROPE
15. FLOOR DRAIN, JR SMITH, EXT. ADPTR, 8½"ø, MED. DUTY, OR EQ.
16. 4" DWV PIPE
17. 3" CAMLOCK/HDPE FEMALE TRANS, S.S., W/ CAP & CHAIN, POLY-CAM SERIES 643 OR EQ. LOCATE FOR ACCESS FROM LIFT STATION FINISH FLOOR
18. 4x12 ARCTIC PIPE
19. 3" S.S. FL ADAPTER W/CAM-LOCK FEMALE ADAPTER W/CAP & CHAIN.
20. 4" FL ADAPTER, W/SS BACKER RING
21. 4x3 DIP REDUCER, FLxFL
22. BRIDGE CRANE & HOIST - SEE DETS/SHT C4.3
23. DUPLEX WASTEWATER PUMPS, 3 PHASE, FLYGT MODEL NP3085.190, ABS MODEL XFP 80C VX, OR APPVD EQ., SEE SHT C4.2
24. RETRO ACCESS DOOR, HALLIDAY PRODUCTS OR EQ, STAINLESS STEEL HARDWARE. AND RETRO SAFETY GRATE.
25. PIPE SUPPORT, SEE DET 1/C4.2
26. GROUT EXIST SURFACE TO PROVIDE POSITIVE DRAINAGE TO PUMP(S) INLET(S)
27. 6" HIGH DENSITY INSULATION BOARD, EXTEND 6" BEYOND BASE OF VALVE SUMP

NOTES

1. INSTALL BOARD STOCK INSULATION TO 48" BELOW TOP OF NEW SLAB. BOARD STOCK CAN BE USED AS FORM MATERIAL WITH PROPER SUPPORT.
2. NFS GRAVEL FILL TO 24" BELOW BOTTOM OF SLAB. COMPACT SUB GRADE PRIOR TO PLACEMENT. PLACE GRAVEL IN 6" LIFTS.
3. ALL METAL IN WET WELL ROOM TO BE GALVANIZED OR SS INCLUDING FASTENERS.
4. FIELD DETERMINE AP FITTINGS REQUIRED FOR CONNECTION TO EXISTING FORCE MAIN.

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VILLAGE SAFE WATER

STATE OF ALASKA — DUANE MIKEN PETERSEN — No. CE-11250 — REGISTERED PROFESSIONAL ENGINEER

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION
Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

LIFT STATION IMPROVEMENTS
PIPING PLAN, SECTION, AND NOTES

REVISION	BY	DATE

CAD FILE NAME 28060_C4-0.DWG

Project No. 28060
Date 02/07/11
Designed KLP/SJW
Drawn SJW
Approved KLP

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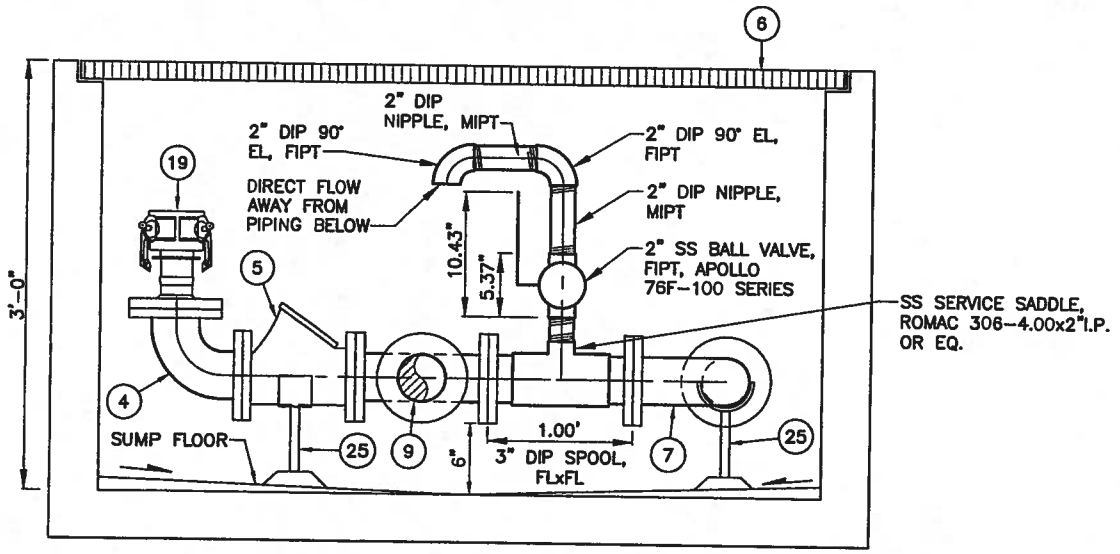

NOTES

1. REFER TO SHT C4.1 FOR PIPING KEY.

B — **SECTION**
SCALE: NTS

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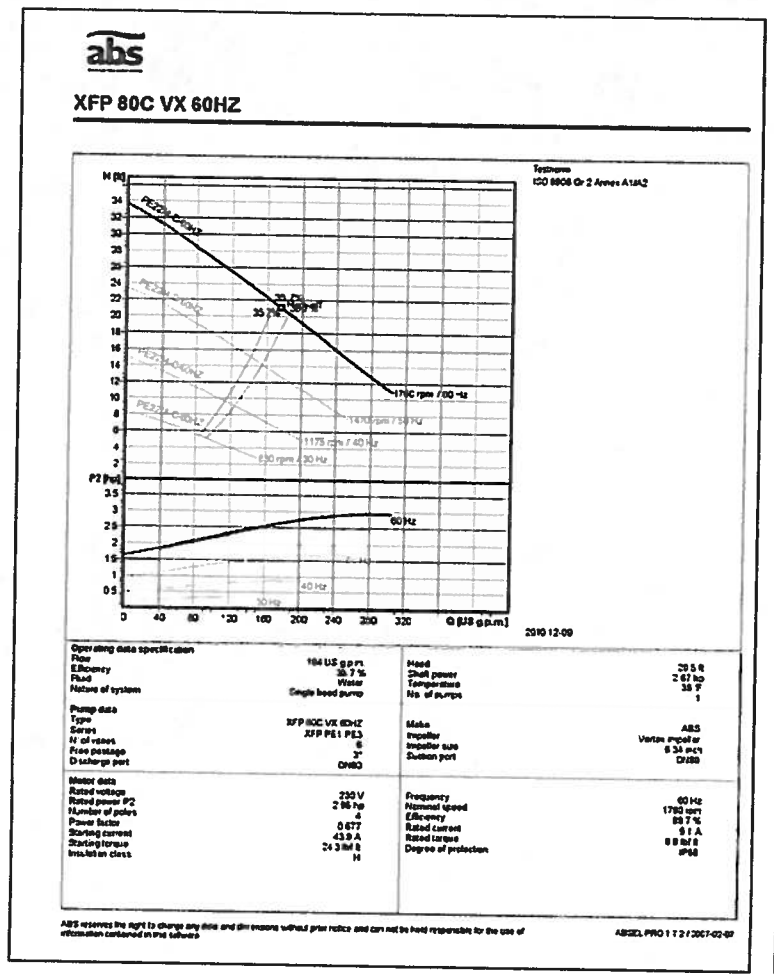
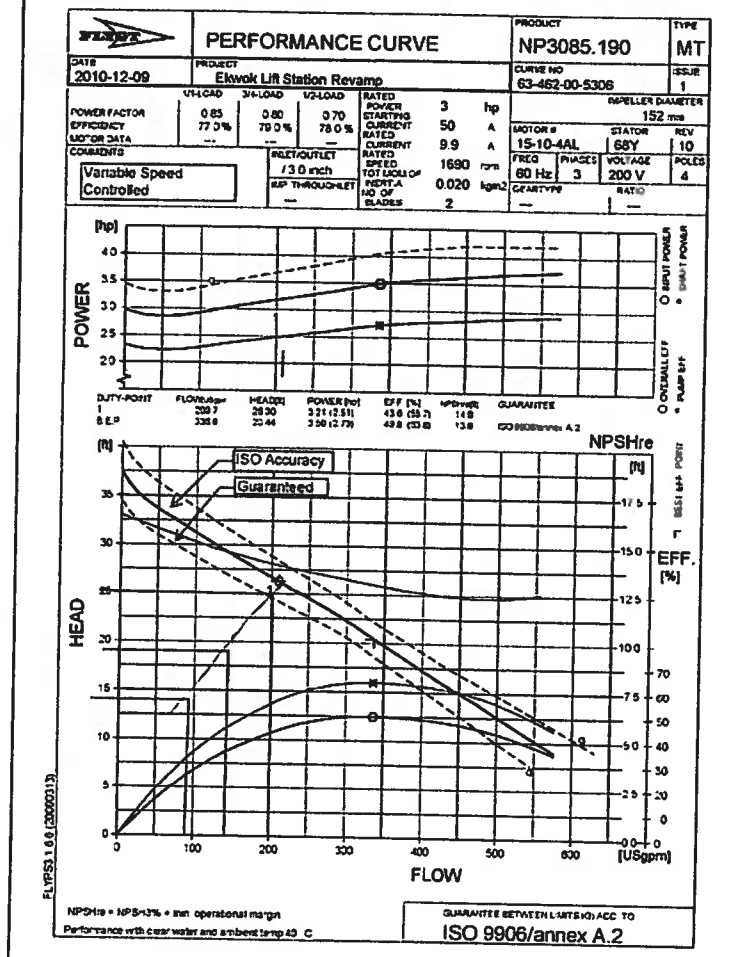
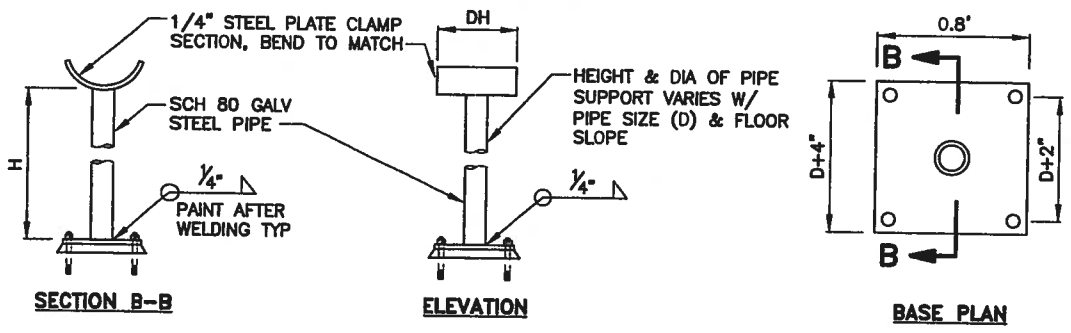
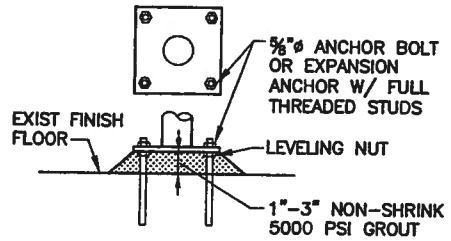
SCALE 1½" = 1'-0"









1 — **PIPE SUPPORT DETAIL**
SCALE: NTS

BACKUP EVACUATION PLAN

ALL ELECTRIC POWER TO THE PERMANENT PUMPS WILL BE SHUT OFF AT THE CONTROL PANEL. THE BALL VALVES, (SEE ITEM (11) ON FLOOR PLAN, SHT. C4.1) TO BOTH PERMANENT PUMPS WILL BE CLOSED, THE HATCH TO THE WET WELL WILL BE OPENED AND THE SUCTION SIDE OF THE TEMPORARY PUMP WILL BE CONNECTED TO THE CAM-LOCK FITTING (SEE ITEM (17) ON FLOOR PLAN, SHT. C4.1) IN THE WET WELL. THE PUMP DISCHARGE WILL BE CONNECTED TO THE CAM-LOCK (SEE ITEM (19) ON FLOOR PLAN, SHT. C4.1) IN THE VALVE VAULT. THE PUMP WILL BE CONNECTED TO AN ELECTRICAL OUTLET AND THE WET WELL ROOM DOOR WILL REMAIN OPEN DURING ITS OPERATION.

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VILLAGE SAFE WATER

STATE OF ALASKA — JAMES LINDEN PETERSEN — No. CC-11250 — REGISTERED PROFESSIONAL ENGINEER

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION
Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
LIFT STATION IMPROVEMENTS
SECTION, DETAIL, PUMP CURVES, AND BACKUP EVACUATION PLAN

REVISION	BY	DATE

CAD FILE NAME 28060_C4-0.DWG

Project No. 28060
Date 02/07/11
Designed KLP/SJW
Drawn SJW
Approved KLP

Sheet No. C4.2
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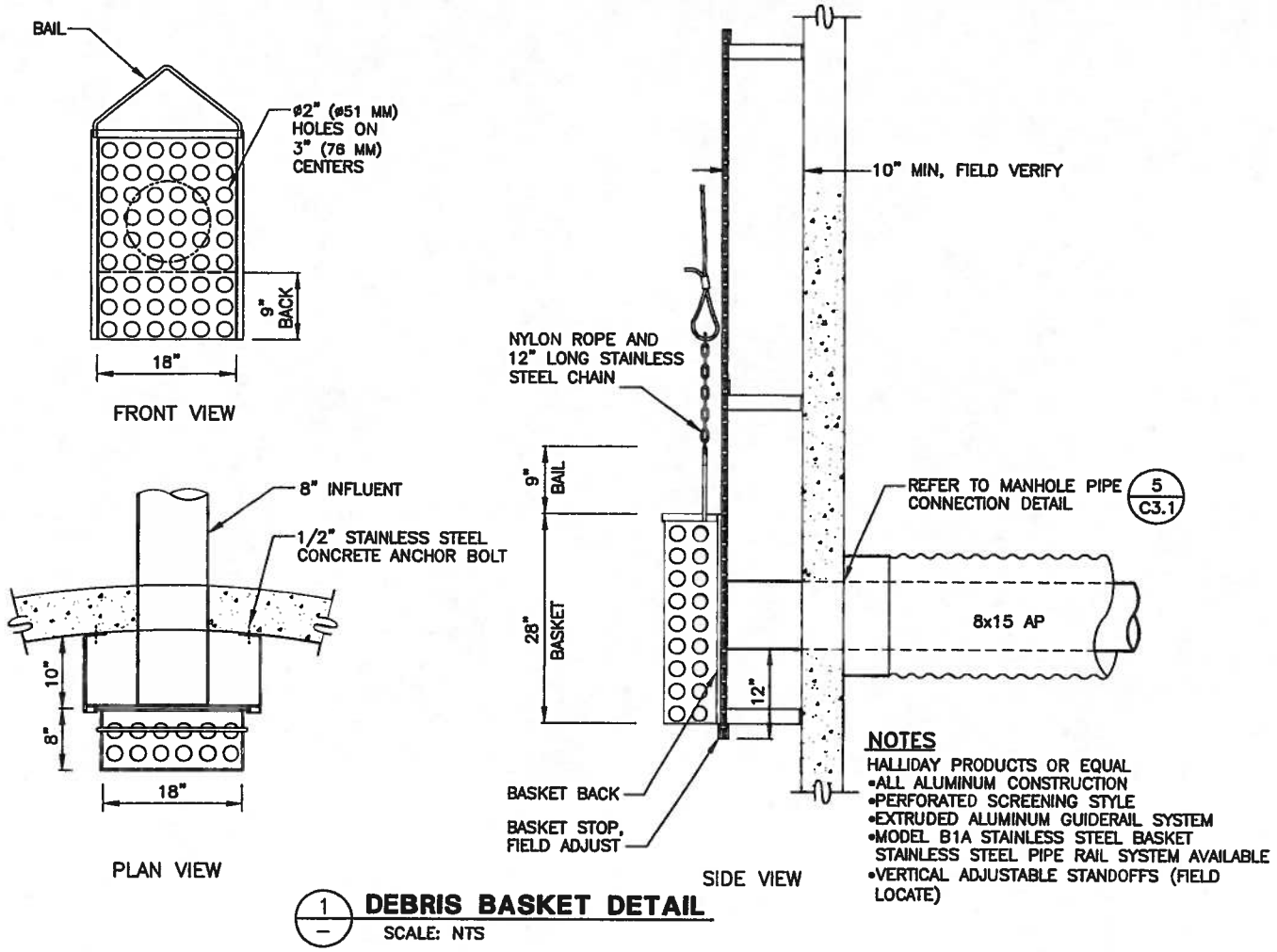
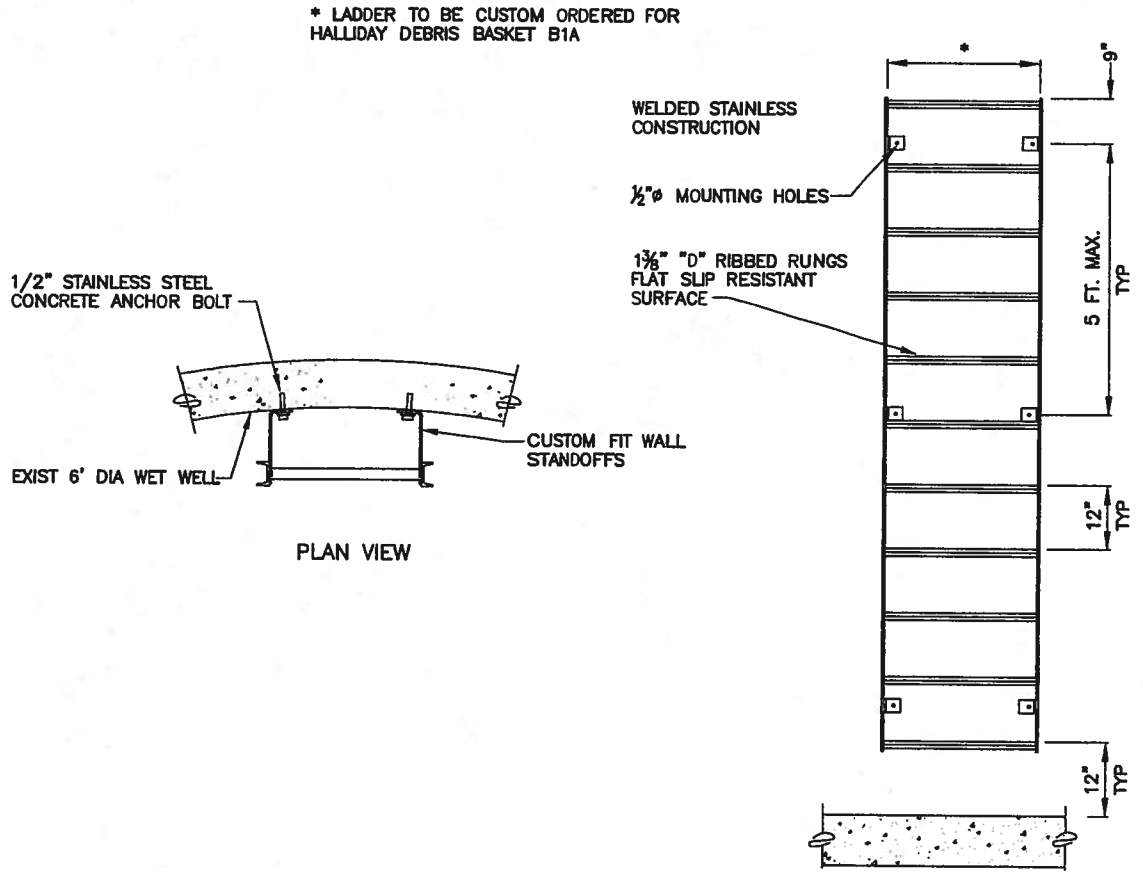


1 — **DEBRIS BASKET DETAIL**
SCALE: NTS



2 — **LADDER SUPPORT DETAIL**
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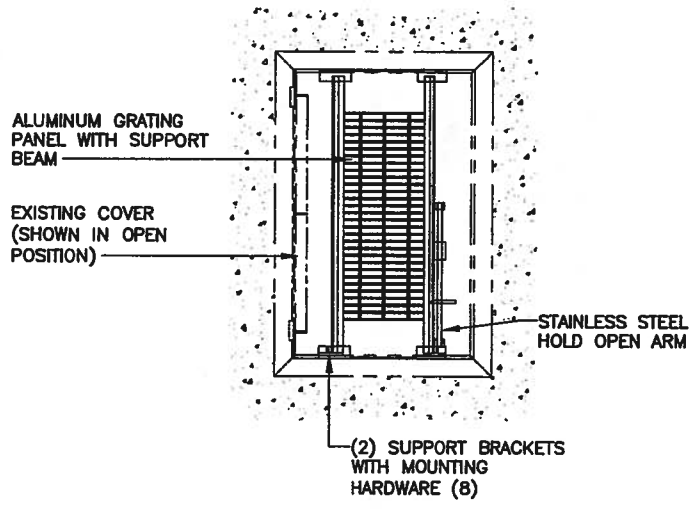
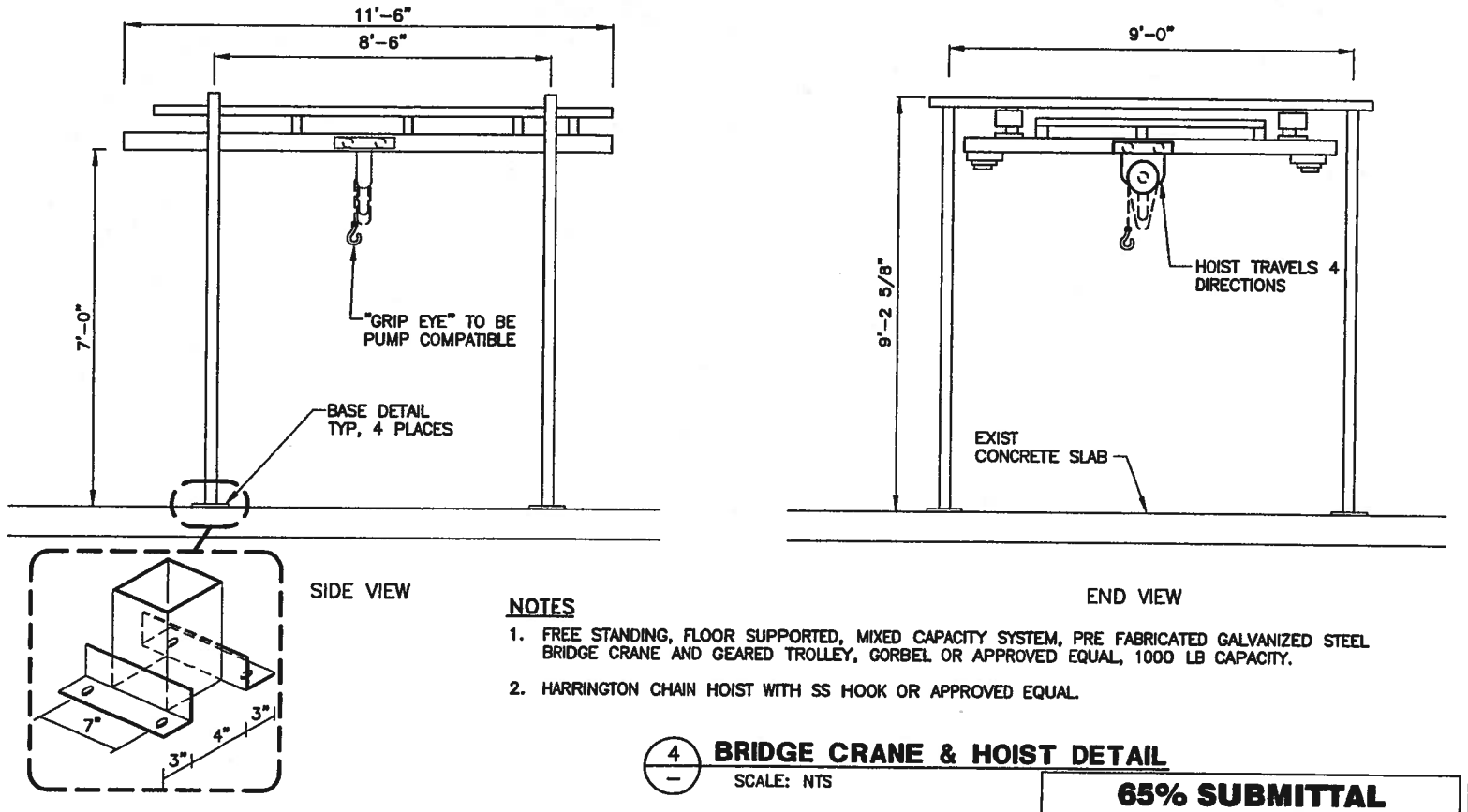


3 — **RETO-SAFETY GRATE**
SCALE: NTS



NOTES

1. FREE STANDING, FLOOR SUPPORTED, MIXED CAPACITY SYSTEM, PRE FABRICATED GALVANIZED STEEL BRIDGE CRANE AND GEARED TROLLEY, GORBEL OR APPROVED EQUAL, 1000 LB CAPACITY.
2. HARRINGTON CHAIN HOIST WITH SS HOOK OR APPROVED EQUAL.

4 — **BRIDGE CRANE & HOIST DETAIL**
SCALE: NTS

65% SUBMITTAL

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NAME _____ DATE _____

VILLAGE SAFE WATER

STATE OF ALASKA — 49TH — JULIE LAMON PETERSEN — No. CE-11250 — REGISTERED PROFESSIONAL ENGINEER

Bristol ENVIRONMENTAL ENGINEERING SERVICES CORPORATION — Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

LIFT STATION IMPROVEMENTS
DETAILS AND NOTES

BY	DATE	REVISION

CAD FILE NAME: 28060_C4-0.DWG

Project No.	28060
Date	02/07/11
Designed	KLP/SJW
Drawn	SJW
Approved	KLP

Sheet No. **C4.3**
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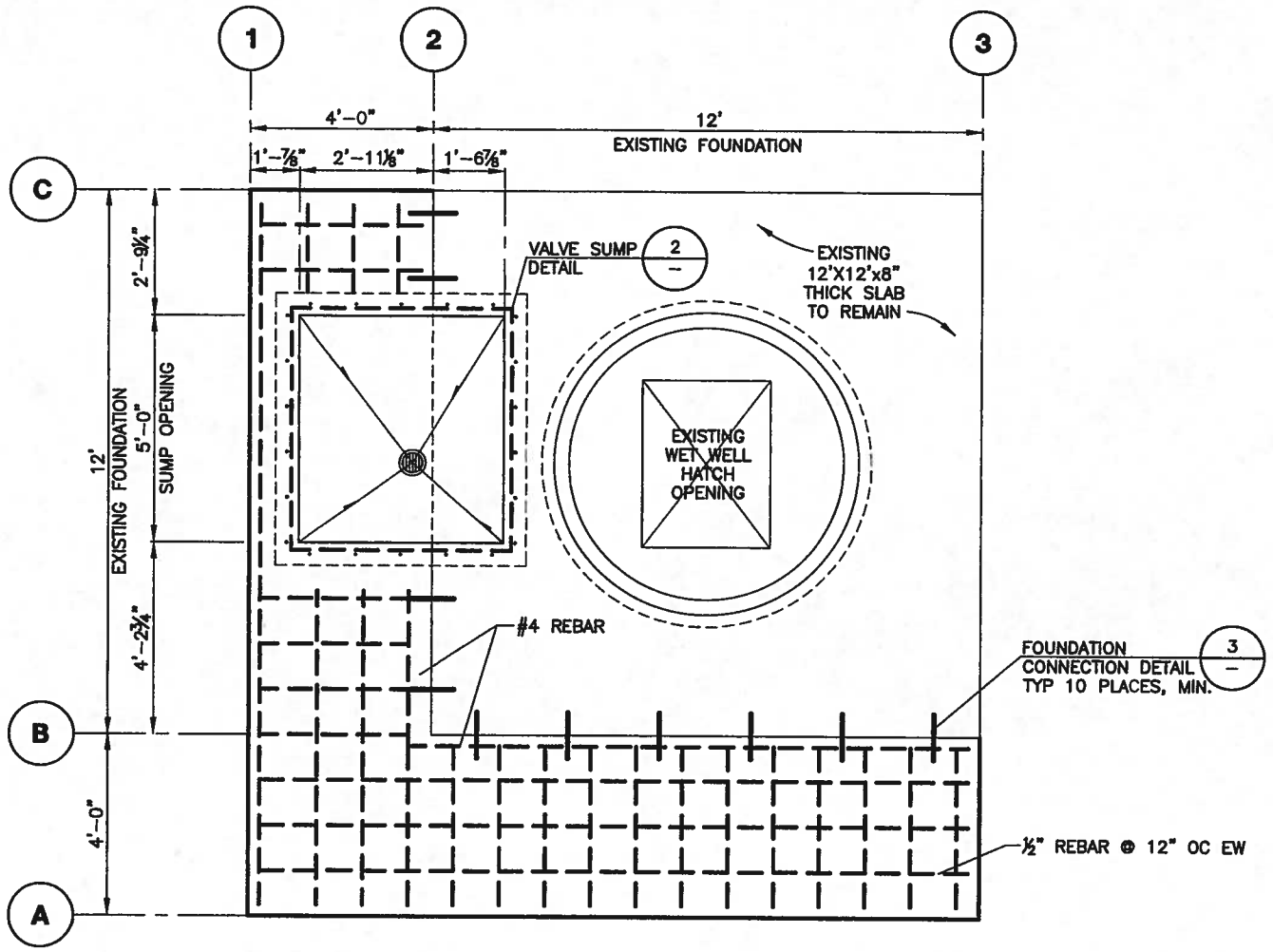
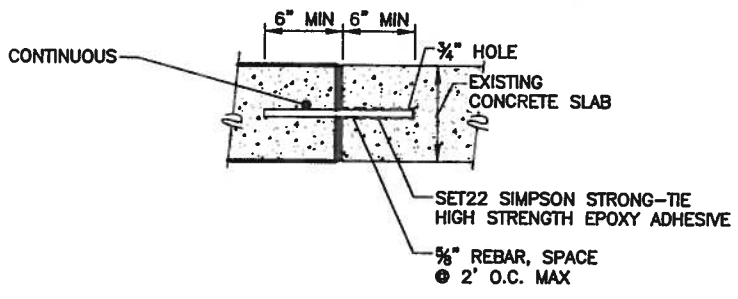


1/– **FOUNDATION PLAN**
SCALE: SHOWN

2 0 1 2
HORIZONTAL SCALE IN FEET

NOTES

1. NFS GRAVEL FILL TO 24" BELOW BOTTOM OF SLAB. COMPACT SUB GRADE PRIOR TO PLACEMENT. PLACE GRAVEL IN 6" LIFTS.
2. CAST–IN–PLACE CONCRETE MUST HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS. EACH YARD OF CONCRETE MUST CONTAIN NOT LESS THAN 5 ½ SACKS OF CEMENT AND NOT MORE THAN 5.5 GALLONS OF WATER PER SACK OF CEMENT.
3. DEFORMED REINFORCING MUST CONFORM TO ASTM SPECIFICATION A615 AND HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. LAP BARS MUST BE A MINIMUM OF 30 DIAMETERS. REINFORCING STEEL LAYOUT AND PLACING WILL CONFORM TO THE STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318–83).
4. WELDED WIRE FABRIC FOR ENTRY SLAB WILL CONFORM TO ASTM A18. LAPS TO BE ON CROSSWISE SPACING PLUS 1½".
5. CONCRETE COVER FOR REINFORCING STEEL MUST BE 3 INCHES FOR THE FOOTINGS AND 2 INCHES FOR WALLS AND SLAB.
6. ELEVATE REBAR OFF GRAVEL BASE APPROX. 3" BEFORE CONCRETE IS POURED.



3/– **FOUNDATION CONNECTION DETAIL**
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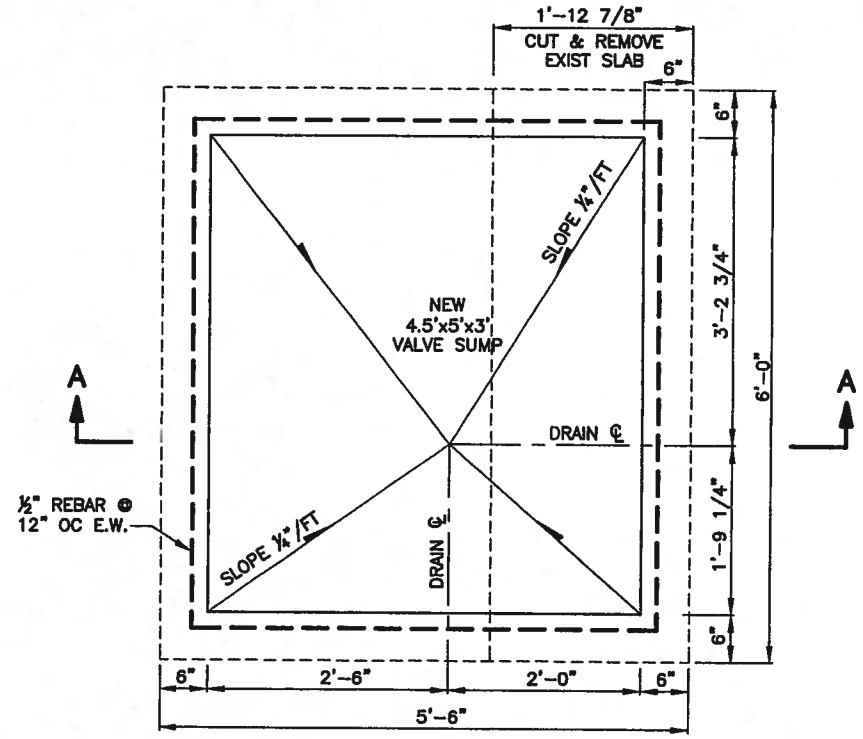
SCALE 1½" = 1'–0"



2/– **VALVE SUMP DETAIL**
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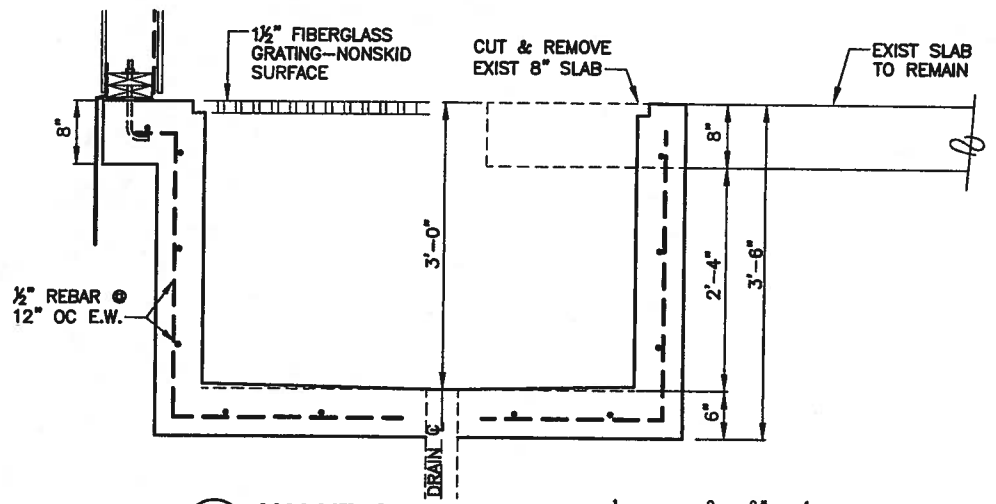
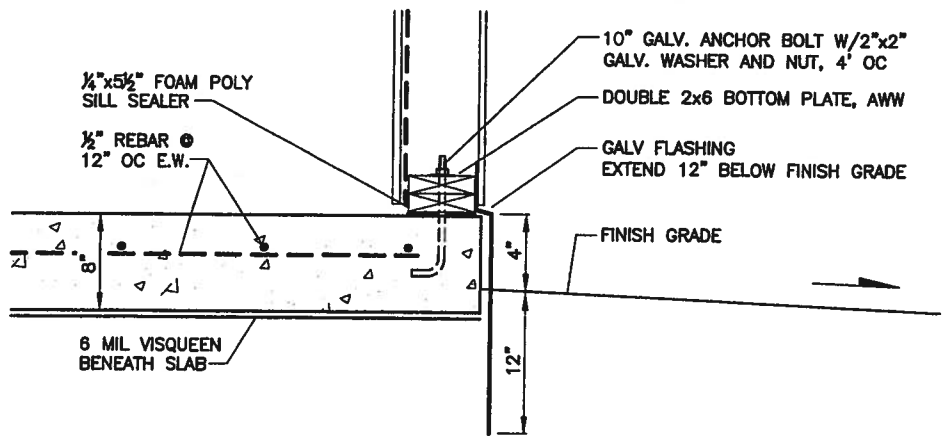
HORIZONTAL SCALE IN FEET



A/– **VALVE SUMP SECTION**
SCALE: SHOWN

1 0 0.5 1
HORIZONTAL SCALE IN FEET



4/– **FOUNDATION DETAIL**
SCALE: SHOWN

0.5 0 0.5 1
SCALE 1½" = 1'–0"

65% SUBMITTAL

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NAME: DATE:

VILLAGE SAFE WATER

STATE OF ALASKA 49TH — JULIE LIMDEN PETERSEN — No. CE–11250 — REGISTERED PROFESSIONAL ENGINEER

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION — Project No. 28080

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
LIFT STATION IMPROVEMENTS
FOUNDATION PLAN, DETAILS, VALVE SUMP DETAIL, SECTION AND NOTES

REVISION	BY	DATE

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Drawn SJW
Approved KLP

Sheet No. C4.4
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User: SWHEAT Feb 10, 2011 – 11:04am
Drawing: K:\JOBS\28060 EKWOK SEWER SYSTEM\ACAD–DESIGN\DESIGN\DWG\28060_C4–4.DWG – Layout: C4.4
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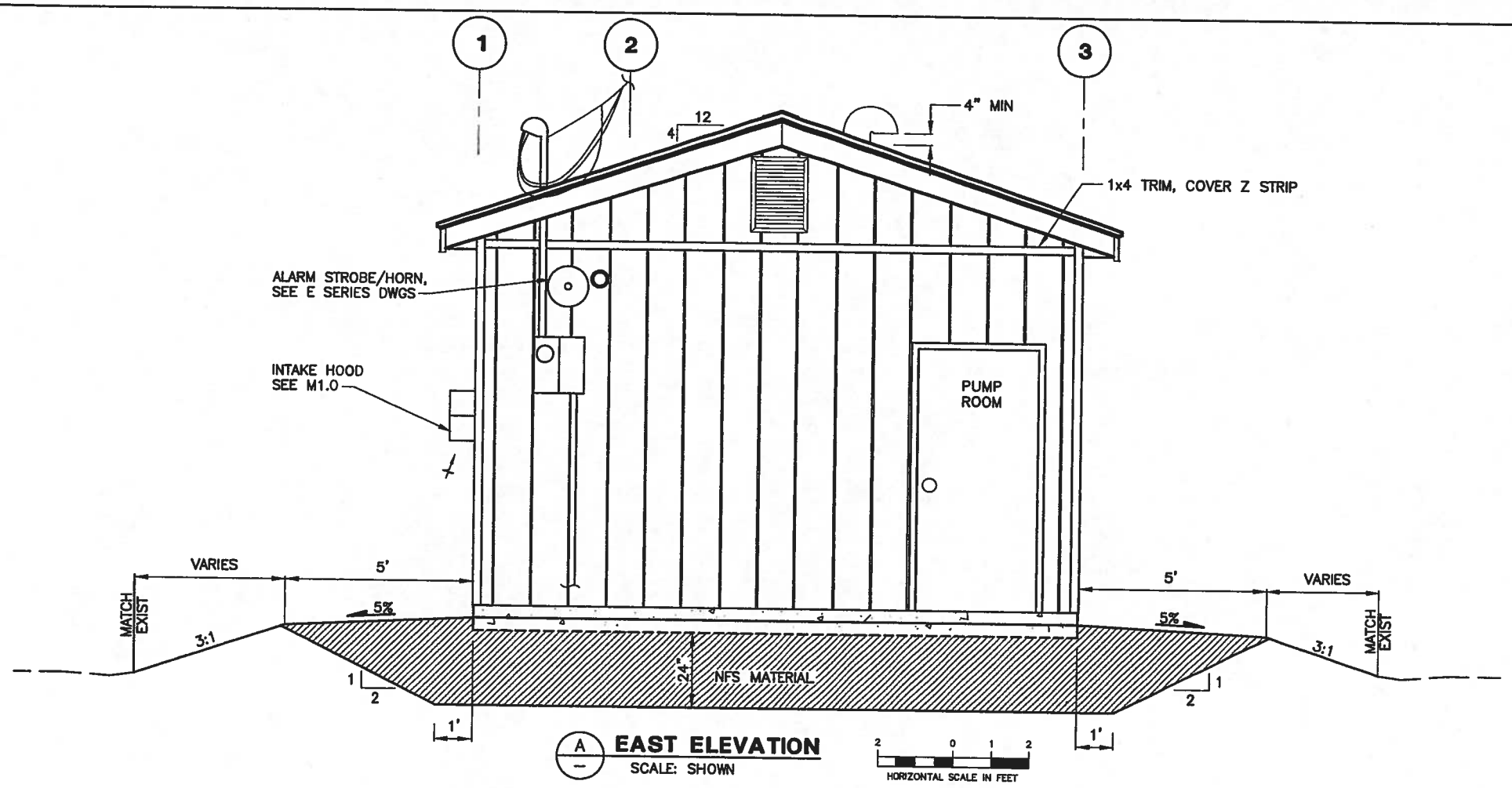

A **EAST ELEVATION**
SCALE: SHOWN

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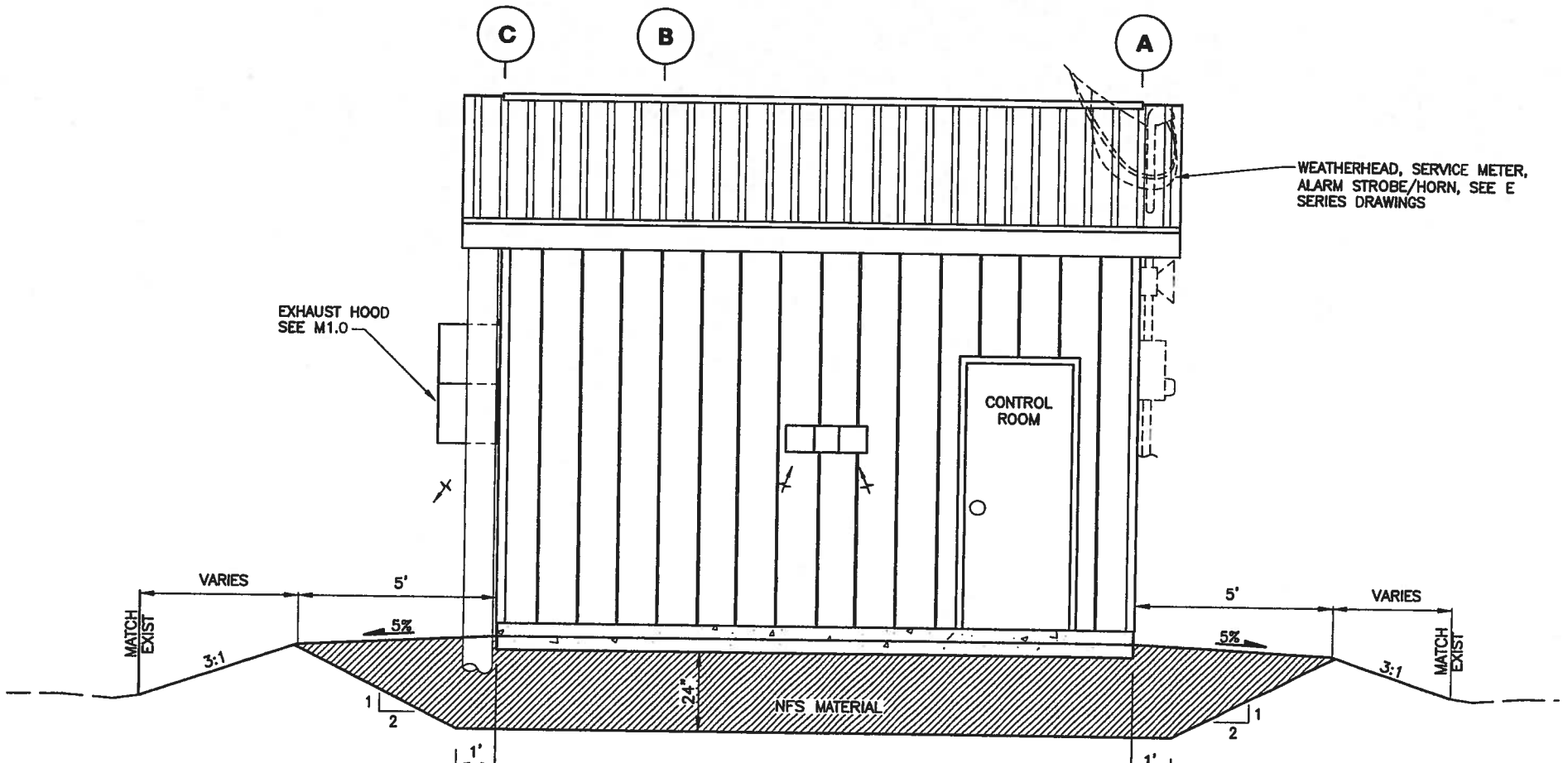
HORIZONTAL SCALE IN FEET



B **SOUTH ELEVATION**
SCALE: SHOWN

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HORIZONTAL SCALE IN FEET

65% SUBMITTAL

RECORD DRAWING CERTIFICATE

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NAME DATE

VILLAGE SAFE WATER

STATE OF ALASKA 49TH
KYLE LARSEN PETERSEN
No. CE-11250
REGISTERED PROFESSIONAL ENGINEER

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

LIFT STATION IMPROVEMENTS
BUILDING ELEVATIONS

REVISION	BY	DATE

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Project No.	28060
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Approved	KLP

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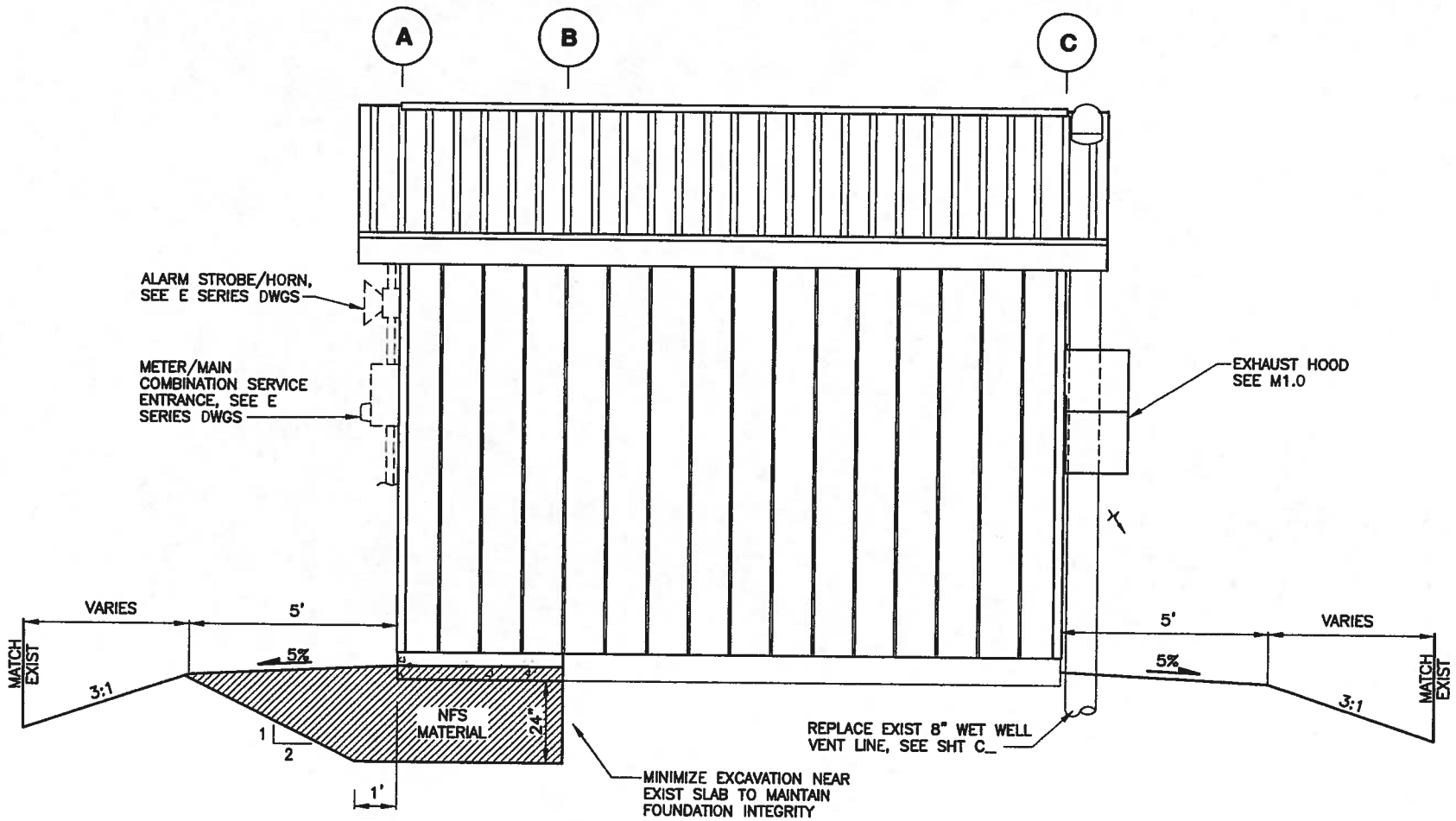
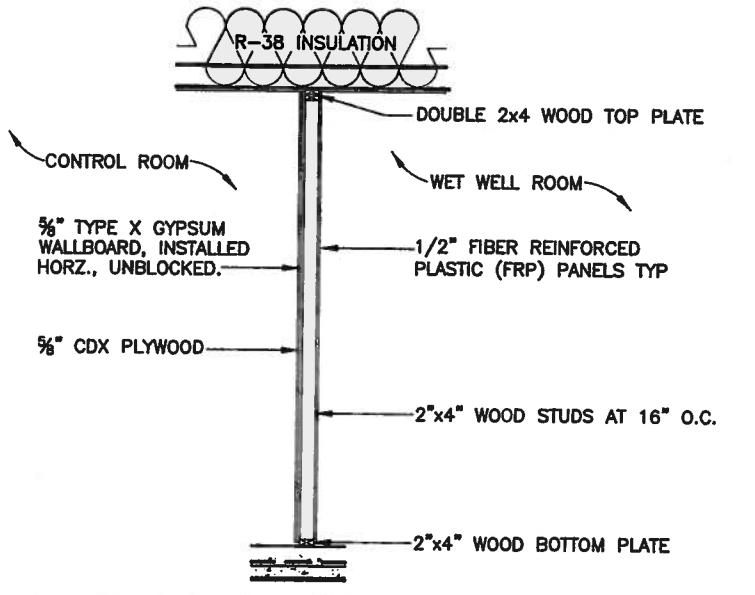


C — **NORTH ELEVATION**
SCALE: SHOWN

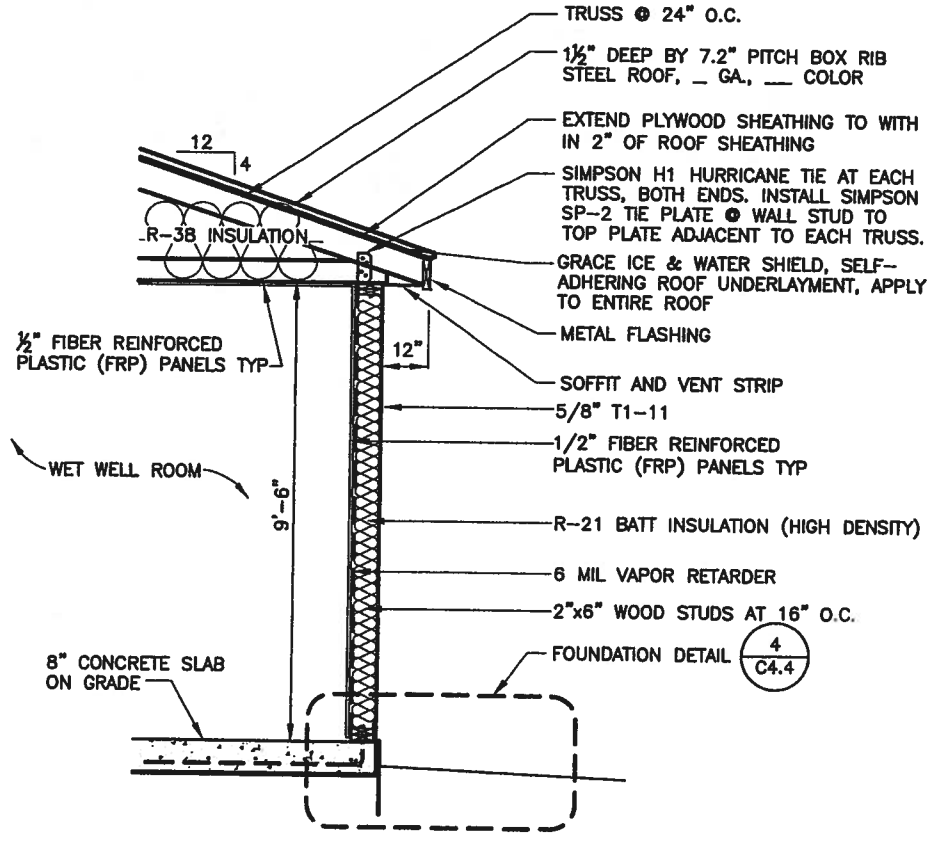
2 0 1 2
HORIZONTAL SCALE IN FEET



NOTE: WALL BOARD JOINTS COVERED W/PAPER TAPE AND JOINT COMPOUND. FASTENER HEADS COVERED W/JOINT COMPOUND.

1 — **INTERIOR BUILDING SECTION**
SCALE: SHOWN

2 0 1 2
HORIZONTAL SCALE IN FEET



2 — **BUILDING SECTION**
SCALE: SHOWN

2 0 1 2
HORIZONTAL SCALE IN FEET

65% SUBMITTAL

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NAME
DATE

VILLAGE SAFE WATER

STATE OF ALASKA
No. 4910
REGISTERED PROFESSIONAL ENGINEER
R.K.E. LARSEN PETERSON
No. CE-11320

Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION
Project No. 28060

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
LIFT STATION IMPROVEMENTS
BUILDING ELEVATION AND BUILDING SECTIONS

REVISION	BY	DATE

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Project No. 28060
Date 02/07/11
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Drawn SJW
Approved KLP

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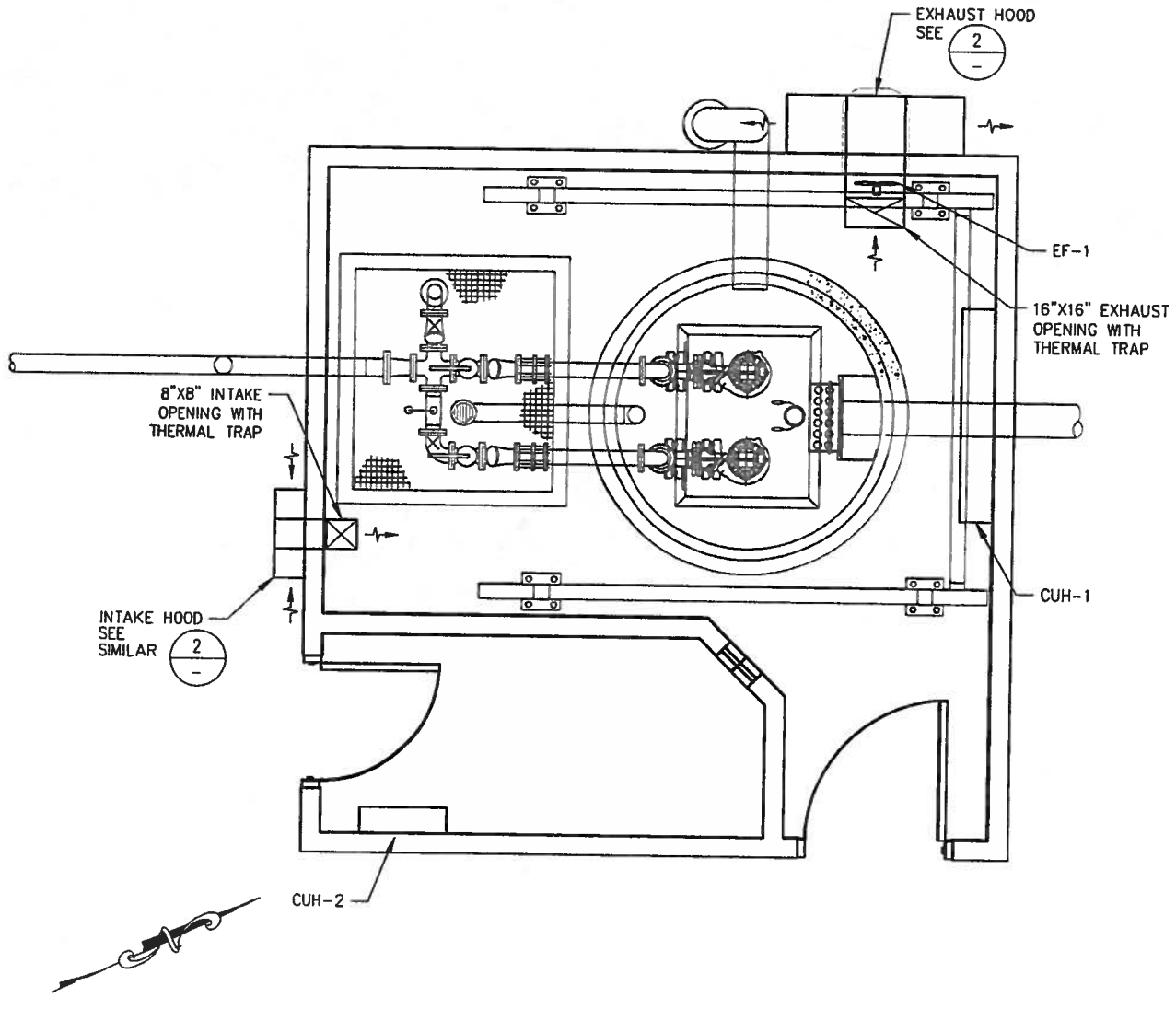
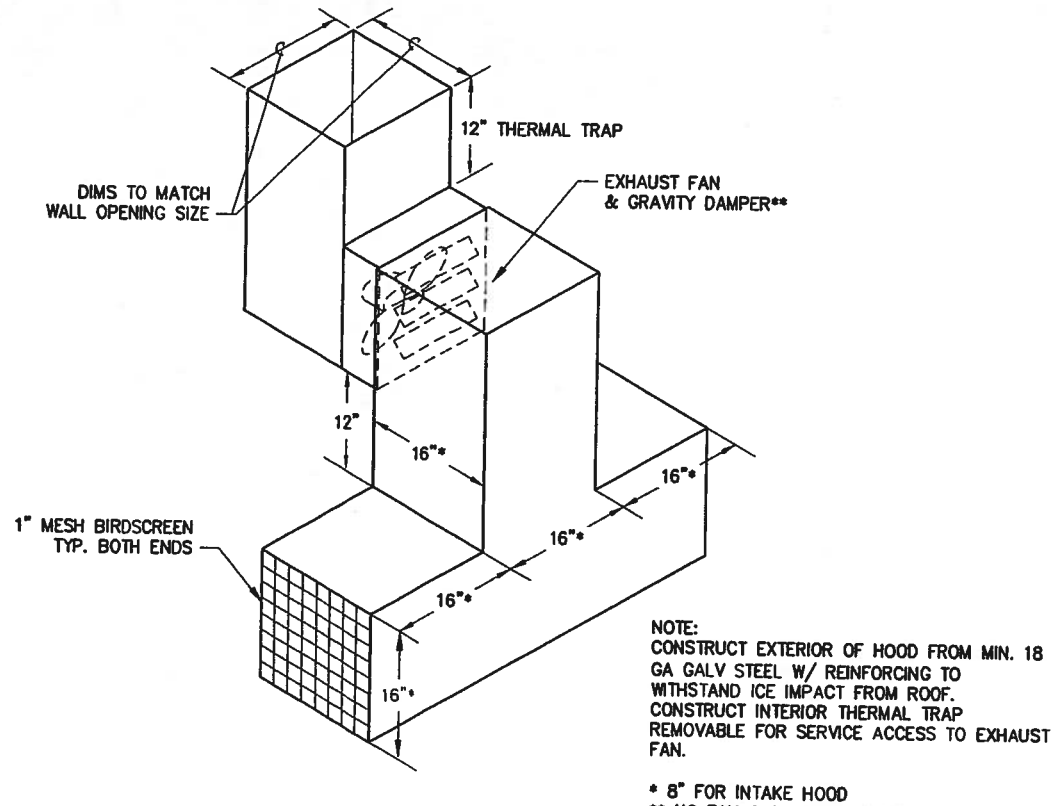
FANS						
TAG NO.	MANUFACTURER/MODEL	CAPACITY (CFM)	STATIC PRESSURE (IN. H2O)	MOTOR (HP)	VOLTAGE & PHASE	NOTES
EF-1	PENN / BX12Q	175	3/8	1/6 HP	120V, 1 PH	EXPLOSION PROOF MOTOR, INSTALL STOP ON DAMPER TO LIMIT FAN DISCHARGE VOLUME TO 175 CFM. NON-SPARKING CONSTRUCTION.

UNIT HEATERS				
TAG NO.	MANUFACTURER/MODEL	CAPACITY (KW)	VOLTAGE AND PHASE	NOTES
CUH-1	CHROMALOX MOOEL CVEP-76-81-00-00	7.6	208V, 1 PH	EXPLOSION-PROOF, WITH THERMOSTAT
CUH-2	CHROMALOX MODEL HCH-101	1	208V, 1 PH	MOUNT WITH 12" VERTICAL CLEARANCE WITH THERMOSTAT.



1/- FLOOR PLAN
SCALE: 1/2"=1'-0"



NOTE:
CONSTRUCT EXTERIOR OF HOOD FROM MIN. 18 GA GALV STEEL W/ REINFORCING TO WITHSTAND ICE IMPACT FROM ROOF. CONSTRUCT INTERIOR THERMAL TRAP REMOVABLE FOR SERVICE ACCESS TO EXHAUST FAN.

* 8" FOR INTAKE HOOD
** NO FAN & DAMPER FOR INTAKE HOOD

2/- SNOW HOOD
SCALE: NONE

65% SUBMITTAL

RECORD DRAWING CERTIFICATE
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NAME _____ DATE _____

VILLAGE SAFE WATER

EDC, INC.
213 W. FIREWEED LANE
ANCHORAGE, AK 99503
(907) 276-7933

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

MECHANICAL PLAN

REVISION	BY	DATE

CAD FILE NAME M1.DWG

Project No. 28060
Date 2/9/11
Designed JP
Drawn PC
Approved JP

Sheet No.
M1.0
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Date: Aug 20, 2010 - 9:32am
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Xrefs: None - Images: None

ELECTRICAL LEGEND

- LIGHT FIXTURES
- EXPOSED CONDUIT, GRC UNLESS OTHERWISE SHOWN
- CONDUIT RUN UNDERGROUND OR IN CONCRETE
- CONDUIT RUN – CHANGE IN ELEVATION
- FLEXIBLE CORD/CABLE
- MOTOR, 3 PHASE
- MOTOR, SINGLE PHASE
- JUNCTION BOX OR FITTING
- SEAL–OFF FITTING
- $ 120V, 20A, SINGLE POLE SWITCH.
- $_3$ 120V, 20A, 3–WAY SWITCH.
- 120V GROUND FAULT INTERRUPTING (GFI) DUPLEX RECEPTACLE, NEMA CONFIGURATION 5–20R. UP 18" AFF UON
- SPECIAL RECEPTACLE
- METERBASE
- KILOWATT–HOUR METER
- MOLDED CASE CIRCUIT BREAKER, X = AMPERE RATING, Y = NO. OF POLES
- MOTOR OVERLOAD
- LEVEL FLOAT
- TRANSDUCER
- GROUND ROD
- OISCONNECT SWITCH
- PANELBOARD

CIRCUIT AND DEVICE LEGEND

A–1,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.

FIXTURE SCHEDULE

TYPE	LAMP SIZE	MOUNTING	DESCRIPTION
I1	200W INCAND.	CEILING/WALL MOUNTED	INCANO. EXPLOSION PROOF LIGHT CROUSE–HINDS #EVCX21D.
F1	54W FLUOR.	CEILING MOUNTED	DAMP LOCATION INDUST. FLUOR. FIXTURE. LITHONIA #OM–2–54–ARDP–120–GEB10RS.
S1	70 HPS	WALL MOUNT @ 10'	70W, HIGH PRESSURE SODIUM, WALL PACK LITHONIA #TWH–70S–120.

ABBREVIATIONS

ø	ELECTRICAL PHASE
A	AMPERE
AFF	ABOVE FINISH FLOOR
AWG	AMERICAN WIRE GAUGE
BCU	BARE COPPER
C	CONDUIT
CP	CONTROL PANEL
CU	COPPER
DWG	DRAWING
(E)	EXISTING
EXP	EXPLOSION–PROOF
G	GROUND CONDUCTOR
GFI	GROUND FAULT INTERRUPTING
GRC	GALVANIZED RIGID (STEEL) CONDUIT
H	HOT CONDUCTOR
HOA	HAND OFF AUTO
HL	HIGH LEVEL
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
IMC	INTERMEDIATE METALLIC CONDUIT
KVA	KILO–VOLT–AMPERES
LTF	LIQUID TIGHT FLEXIBLE CONDUIT (METALLIC)
LS	LIFT STATION
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
N	NEUTRAL CONDUCTOR
NEC	NATIONAL ELECTRICAL CODE
SIG	SIGNAL CONDUCTOR
SS	STAINLESS STEEL
TEMP	TEMPORARY
TWSH	TWISTED WIRE SHIELDED CONOUCTOR
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLTS
W	WATTS
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF, CLASS 1, DIVISION 1

SPECIFICATIONS

PART 1– GENERAL
1.1 SYSTEM DESCRIPTION:
A.SCOPE OF WORK: FURNISH, INSTALL, TEST AND PLACE INTO SATISFACTORY AND SUCCESSFUL OPERATIDN ALL MATERIALS, EQUIPMENT, DEVICES AND NECESSARY APPURTENANCES TO PROVIDE COMPLETE LIFT STATION 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 ANOTHER AGENCY RECOGNIZED BY INDUSTRY STANDARDS. 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 ANO 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 ACCURATE.

1.2 STANDARDS AND CODES:
A.NFPA 7D – NATIONAL ELECTRIC CODE, LATEST PUBLISHED ADDITION.
B.IBC – INTERNATIONAL BUILDING CODE, LATEST PUBLISHED ADDITION.
C.IFC – INTERNATIONAL FIRE CODE, LATEST PUBLISHED ADOITION.
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 PROCEOURES NECESSARY FOR SYSTEM START–UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN.
B.MANUAL SHALL BE INDEXED, LABELED AND SHALL INCLUDE MAINTENANCE INSTRUCTIONS, PRODUCT DATA, SHOP ORAWINGS AND STEP BY STEP PROCEDURES FOR INSPECTION, REPAIR, CLEANING AND CALIBRATION.

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 LOAOS SERVED AS NOTED ON THE DRAWINGS.
B.LETTER HEIGHTS SHALL BE 1/8 INCH FOR INDIVIDUAL SWITCHES, MOTOR STARTERS AND 1/2 INCH ON PANELBOAROS 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.

2.2 CONOUCTORS :
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.
120/208 V, 3PH, 4W:
1.PHASE A – BLACK, PHASE B – RED, PHASE C – BLUE, NEUTRAL–WHITE
D.USE PROPERLY SIZED INSULATEO 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) OR INTERMEDIATE METALLIC CONDUIT (IMC) 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.
C.EXTERIOR RECEPTACLES: METALLIC, WEATHERPROOF WHILE–IN–USE COVERS.

2.6 OISCONNECT SWITCHES:
A.MANUFACTURER
1.SQUARE D OR APPROVED EQUAL
B.NEMA KS 1, INTERIOR: NEMA TYPE 1(NON–HAZARDOUS), EXTERIOR: NEMA TYPE 3R (NON–HAZARDOUS).

2.7 STARTERS/CONTACTORS :
A.MANUFACTURER
1.SQUARE D OR APPROVED EQUAL.
B.COMBINATION STARTERS: NEMA ICS, FULL VOLTAGE, NON–REVERSING, MAGNETIC TYPE, NEMA RATED FOR MOTOR SERVED. STARTERS SHALL INCLUDE EXTERNAL MANUAL RESET AND SOLID STATE THERMAL OVERLOAD RELAY UNITS W/ PHASE LOSS, PHASE REVERSAL AND UNDER/OVERVOLTAGE PROTECTION. PROVIDE ADDITIONAL AUXILIARY AND OVERLOAD CONTACTS AS REQUIREO. STARTERS SHALL INCLUOE CIRCUIT BREAKER DISCONNECTS AND BE CONFIGURED TO ACCOMMODATE ALL REQUIRED EQUIPMENT AS INDICATED ON THE DRAWINGS.
C.MANUAL MOTOR STARTERS: NEMA ICS 2, AC GENERAL PURPOSE, FULL–VOLTAGE CONTROLLER WITH THERMAL OVERLOAD UNIT.
D.CONTACTORS: NEMA ICS 2, MECHANICALLY HELD, HAND–OFF–AUTO CONTROLS AND AUXILIARY CONTACTS. NUMBER OF POLES AS REQUIRED PLUS TWO SPARES.

2.8 PANELBOARDS AND CIRCUIT BREAKERS:
A.MANUFACTURER
1.SQUARE D OR APPROVED EQUAL
B.NEMA KS1, PB1: PANELBOARD SHALL BE ENCLOSED, OEAD–FRONT CONSTRUCTION WITH COPPER BUSSES, NEMA TYPE 1 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.

2.9 LIGHTING:
A.PROVIDE ALL LIGHTING EQUIPMENT OR APPROVED EQUAL AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE
B.PROVIDE LIGHTING EQUIPMENT COMPLETE, FACTORY ASSEMBLED WITH PROPER FLANGES, MOUNTING SUPPORTS, HARDWARE, ETC.
C.PROVIDE HIGH POWER FACTOR, REGULATING OR CONSTANT WATTAGE TYPE BALLASTS FOR HID FIXTURES.

2.10 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.PROVIDE EQUIPMENT GROUNOING CONDUCTOR TO ALL MOTORS.

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.
B.INTRINSICALLY SAFE WIRING: WIRING SHALL NOT BE INSTALLED IN RACEWAY WITH CONDUCTORS OF NON–INTRINSICALLY SAFE CIRCUITS PER NEC 504.
C.RACEWAYS WITH INTRINSICALLY SAFE WIRING SHALL BE IDENTIFIEO AS SUCH PER NEC 504.

2.12 PENETRATIONS:
A.ALL ELECTRICAL PENETRATIONS THROUGH FIRE RATED BARRIERS SHALL BE SEALEO IN ACCORDANCE WITH NEC AND THE MANUFACTURER'S INSTRUCTIONS. MATERIALS SHALL BE SUITABLE FOR THE FIRE STOPPING OF PENETRATIONS AND CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES IN COMPLIANCE WITH THE REQUIREMENTS OF ASTM, UL AND OTHER INDUSTRY STANDARDS.
B.THE RATING OF THE FIRE STOPS SHALL BE THE SAME AS THE RATED FLOOR, WALL OR CEILING ASSEMBLY.

2.13 HAZARDOUS LOCATIONS:
A.ALL EQUIPMENT AND WIRING IN CLASS 1, DIV 1 AND 2 HAZARDOUS LOCATIONS SHALL BE INSTALLED AND RATED ACCORDINGLY OR SHALL BE INTRINSICALLY SAFE. ALL WIRING METHODS IN HAZARDOUS LOCATIONS SHALL MEET THE REQUIREMENTS OF NEC.

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, WDRKABLE 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 WDRK 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.

3.2 TESTING
A.TEST ALL SERVICE FEEDERS AND POWER CONDUCTORS PRIDR TO TERMINATION WITH A MEGOHM METER PER THE MANUFACTURER'S RECOMMENDATIONS. REPLACE ALL CONDUCTORS EXHIBITING LESS THAN 1D MEGOHM IMPEDANCE. REPEAT TESTING AS REQUIRED TO VERIFY COMPLIANCE.

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VILLAGE SAFE WATER

EDC, INC.
213 W. FIREWEED LANE
ANCHORAGE, AK 99503
(907) 276-7933

CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
ABBREVIATIONS, LEGEND, AND SPECIFICATIONS

REVISION	BY	DATE

CAD FILE NAME E1.0.DWG

Project No 28060
Date 2/9/11
Designed JP
Drawn PC
Approved JP

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E1.0

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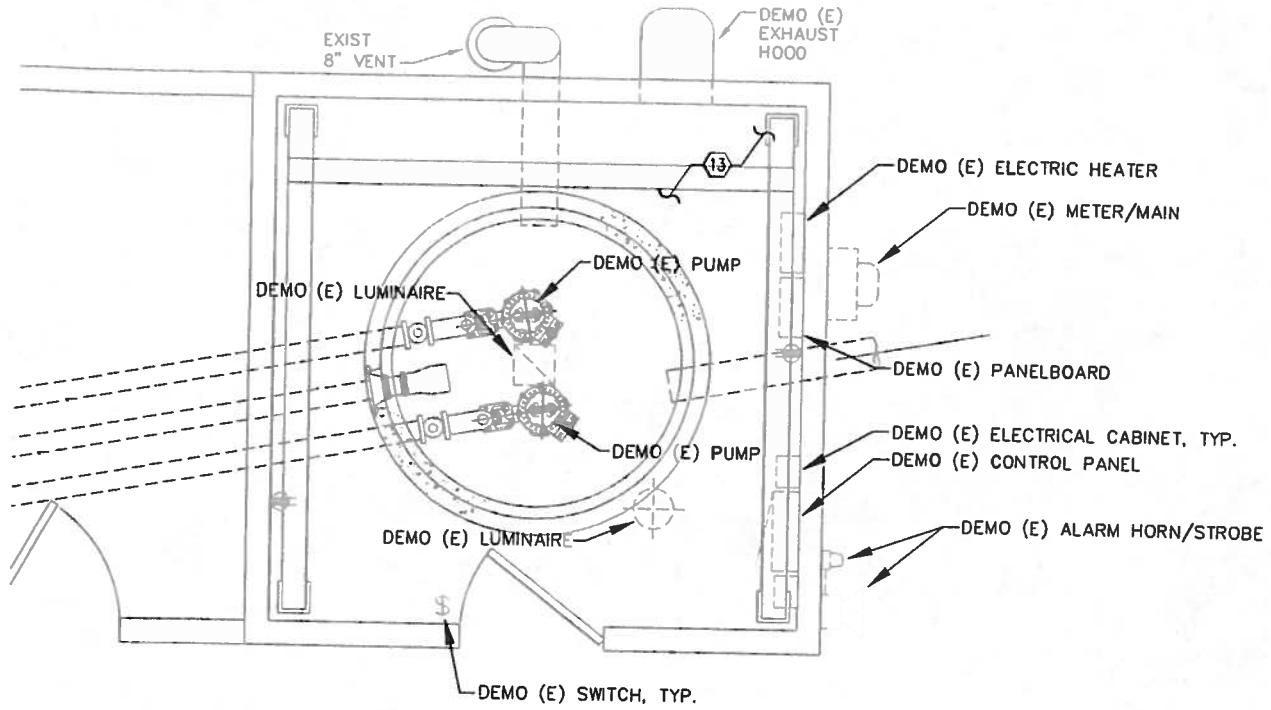
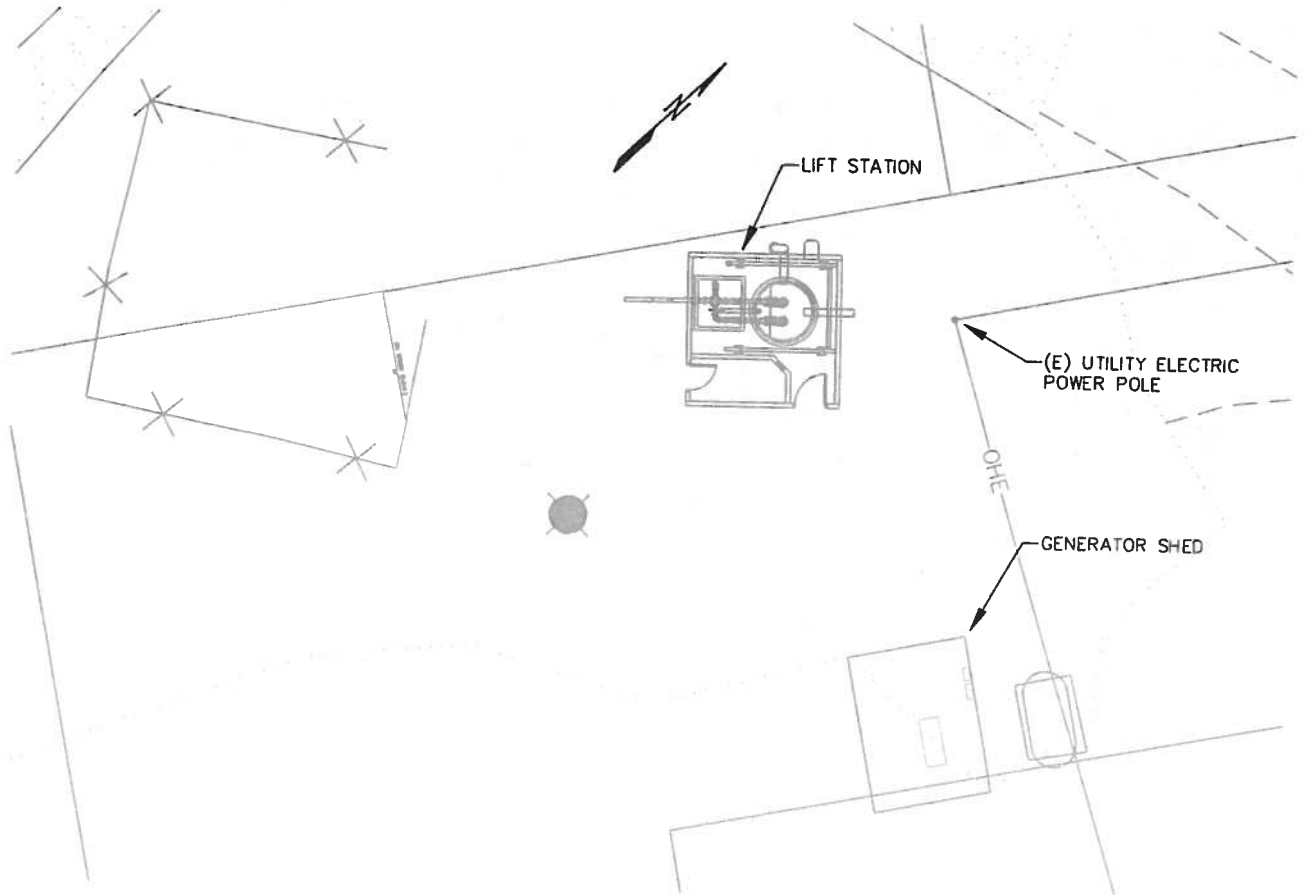


1 / – LIFT STATION DEMO PLAN
SCALE: 1"=2'-0"

0 2' 4'



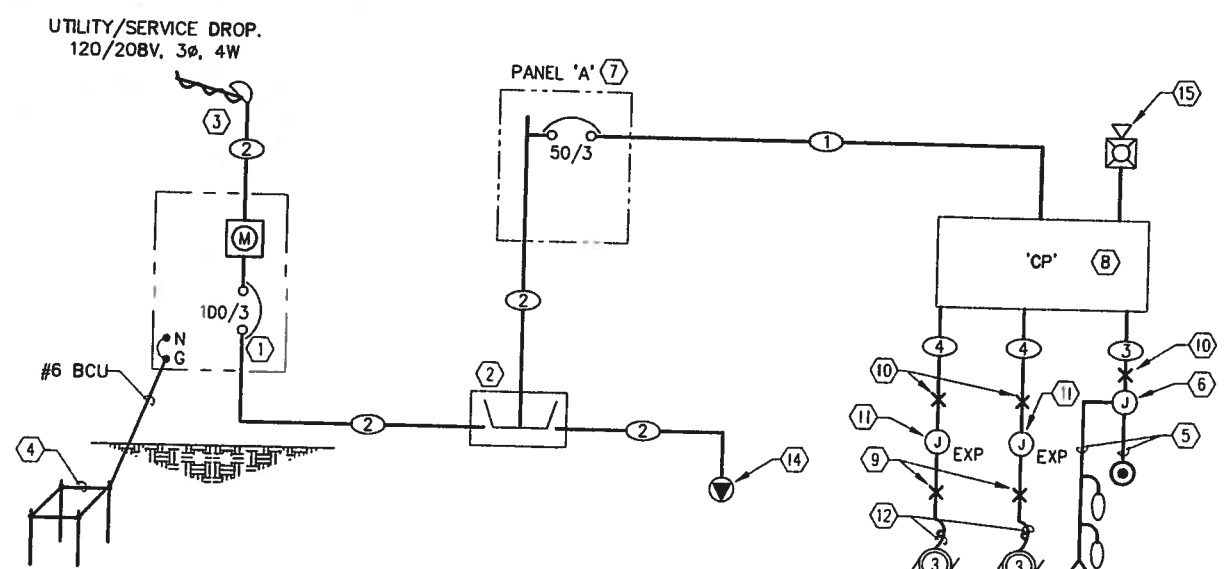
2 / – SITE PLAN
SCALE: 1"=10'-0"

0 10' 20'

SHEET NOTES:

1. 100A, METER/MAIN COMBINATION SERVICE ENTRANCE. SEE COMPONENT SCHEDULE ON E3.0 FOR DETAILS.
2. MANUAL TRANSFER SWITCH. SEE COMPONENT SCHEDULE ON E3.0 FOR DETAILS.
3. PROVIDE APPROXIMATELY 20' OF 4#2 SERVICE ENTRANCE CONDUCTORS FOR CONNECTION TO SERVICE DROP BY UTILITY.
4. GROUNDING ELECTRODE SYSTEM (GES). 4 EA, 3/4"X10' CU CLAD GROUND RODS, LOCATED AROUND BLDG PERIMETER AND CONNECTED BY #2/0 BCU (BURIED NOT LESS THAN 30"). CONNECT TO BUILDING FOUNDATION AND TO MAIN DISCONNECT WITH #6 BCU.
5. INSTRUMENT CABLES SUPPLIED WITH EQUIPMENT.
6. NEMA 4X JUNCTION BOX. SEE E7.0 AND COMPONENT SCHEDULE ON E3.0 FOR DETAILS.
7. PANEL 'A'. SEE COMPONENT SCHEDULE ON E3.0 FOR DETAILS.
8. CONTROL PANEL 'CP'. SEE COMPONENT SCHEDULE ON E3.0 FOR DETAILS.
9. SEAL-OFF FITTING W/ CORD GRIP.
10. ELBOW SEAL-OFF FITTING CROUSE-HINDS TYPE EYS29. SEAL AROUND CONDUIT TO MAINTAIN VAPOR TIGHT BARRIER BETWEEN HAZARDOUS & NON-HAZARDOUS LOCATIONS.
11. EXPLOSION PROOF GUA TYPE JUNCTION BOX. FOR TRANSITIONING FROM SOW CORD TO INDIVIDUAL CONDUCTORS. SEE E7.0 AND COMPONENT SCHEDULE ON E3.0 FOR DETAILS. WALL MOUNT J-BOX AT 18" AFF.
12. HEAVY DUTY USAGE CABLE, SUPPLIED WITH PUMP.
13. DEMO ALL EXISTING ELECTRICAL CONDUIT AND EQUIPMENT.
14. GENERATOR RECEPTACLE.
15. ALARM/STROBE. SEE COMPONENT SCHEDULE ON E3.0 FOR DETAILS.

FEEDER SCHEDULE	
TAG	DESCRIPTION
1	1"C, (4)#8, (1)#10 GND.
2	2"C, (4)#2, (1)#8 GND.
3	3/4"C, (4)#14 (FLOAT SIGNAL), (3)#18 TWSH (LEVEL TRANSOUCER). LABEL CONDUIT "INTRINSICALLY SAFE".
4	1"C, (4)#12 (MOTOR, GND), AND 2#14 (SEAL FAIL/OVERTEMP).



3 / – POWER ONE-LINE
SCALE: NONE

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CITY OF ENKWOK
SANITARY SEWER IMPROVEMENTS

DEMO PLAN, SITE PLAN, AND ONE-LINE DIAGRAM

REVISION	BY	DATE

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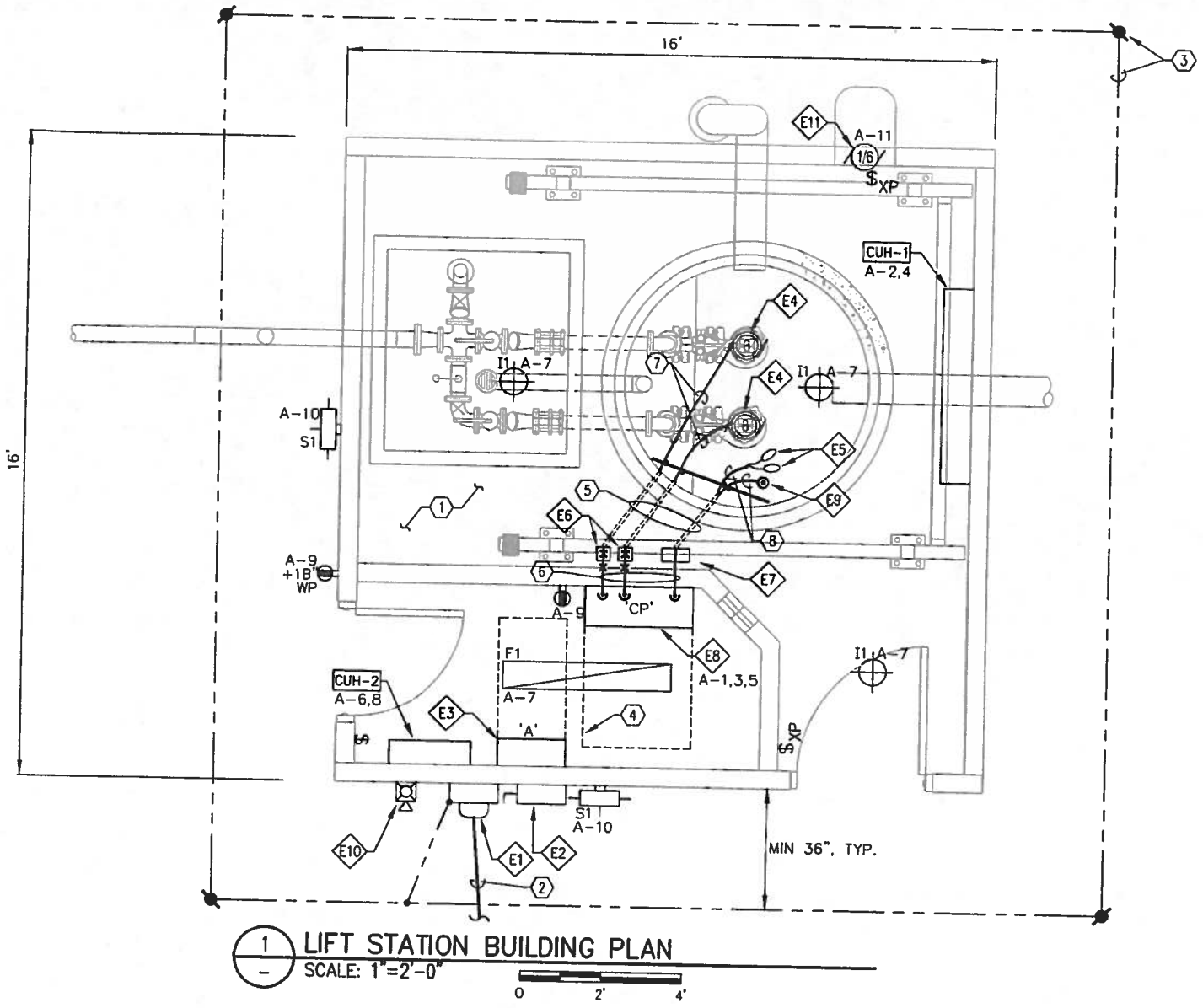

1 LIFT STATION BUILDING PLAN
SCALE: 1"=2'-0"
0 2' 4'

SHEET NOTES

1. A CLASS 1, DIVISION 1 HAZARDOUS LOCATION EXISTS WITHIN THE ENTIRE WET WELL ROOM AND WITHIN 3' IN ANY DIRECTION OF THE VENT AND DOOR OPENINGS. ALL WIRING AND EQUIPMENT IN THESE AREAS SHALL BE IN ACCORDANCE WITH NEC.
2. UTILITY SERVICE CONNECTION, 120/208V, 3 PHASE, 4 WIRE.
3. GROUNDING ELECTRODE SYSTEM (GES).
4. MAINTAIN A MINIMUM OF 36" X 30" WIDE OF CLEAR SPACE IN FRONT OF PANELS PER NEC.
5. 2" GRC CHASE UNDER SLAB. PROVIDE GROUND BUSHING AT BOTH ENDS. EXTEND TO 6" BEHIND HATCH OPENING IN WETWELL. SLOPE TO DRAIN TOWARD WET WELL. SEE DETAIL 4, SHEET E7.0.
6. SEAL AROUND CONDUIT TO MAINTAIN VAPORTIGHT BARRIER BETWEEN HAZARDOUS AND NON-HAZARDOUS LOCATIONS.
7. HEAVY DUTY USAGE CABLE, SUPPLIED WITH PUMPS.
8. INSTRUMENT CABLES, SUPPLIED WITH EQUIPMENT.

COMPONENT SCHEDULE

ITEM NO.	DESCRIPTION	MANUFACTURER OR EQUAL
E1	100A, 120/208V, 3ϕ, 4 WIRE METER/MAIN COMBINATION SERVICE ENTRANCE, NEMA 3R.	
E2	MANUAL TRANSFER SWITCH	
E3	100A, 120/208V, 3ϕ, 4 WIRE, 24 SPACE, NEMA 1 PANELBOARD 'A'	
E4	SUBMERSIBLE PUMP, 3 HP, 208V, 3ϕ	FLYGT #NP3085.190
E5	HIGH AND LOW LEVEL ALARM FLOATS WITH 65' CABLE	
E6	CLASS 1, DIV 1 RATED GUA JUNCTION BOX.	CROUSE-HINOS EJB
E7	NEMA 4X JUNCTION BOX. SEE E7.0 FOR DETAILS.	
E8	CONTROL PANEL.	
E9	LEVEL TRANSDUCER, 0-15 PSIG WITH 60' CABLE.	
E10	ALARM STROBE/HORN	
E11	EXHAUST FAN. 1/6 HP, 120V, 1ϕ.	

PANEL SCHEDULE

PANEL NAME: A			208Y120V					3Ø, 4 Wire	100 MAINS	
LOCATION: LIFT STATION ELECTRICAL ROOM			MLO					NEMA 1	10,000 AIC	
POLE	AMP TRIP	LOAD DESCRIPTION	POLE kVA	A Ø	B Ø	C Ø	POLE kVA	LOAD DESCRIPTION	AMP TRIP	POLE
1			3.3	7.5			4.2	CABINET UNIT HEATER (CUH-1)	50/2	2
3	50/3	CONTROL PANEL 'CP'	3.3		7.5		4.2			4
5			3.3			3.9	0.6	CABINET UNIT HEATER (CUH-2)	20/2	6
7	20/1	INTERIOR LIGHTING	0.8	1.3			0.6			8
9	20/1	RECEPTACLES	0.5		0.7		0.2	EXTERIOR LIGHTING	20/1	10
11	20/1	EXHAUST FAN	0.7			0.7				12
13				0.0						14
15					0.0					16
17						0.0				18
19				0.0						20
21					0.0					22
23						0.0				24
				8.9	8.3	4.5				

TOTAL kVA = 21.6
AMPS = 60.1

EQUIPMENT CONNECTION SCHEDULE

TAG ID	LOAD					CIRCUIT SIZE	NOTES
	KVA	HP	FLA	V	PH		
CUH-1			36.5	208	1	(2)#8, (1)#10 GND, 1/2"C	
CUH-2			4.8	208	1	(2)#12, (1)#12 GND, 3/4"C	

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CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

LIFT STATION PLAN

REVISION	BY	DATE

CAD FILE NAME E3.0.DWG

Project No. 28060 | Date 2/9/11 | Designed JP | Drawn PC | Approved JP

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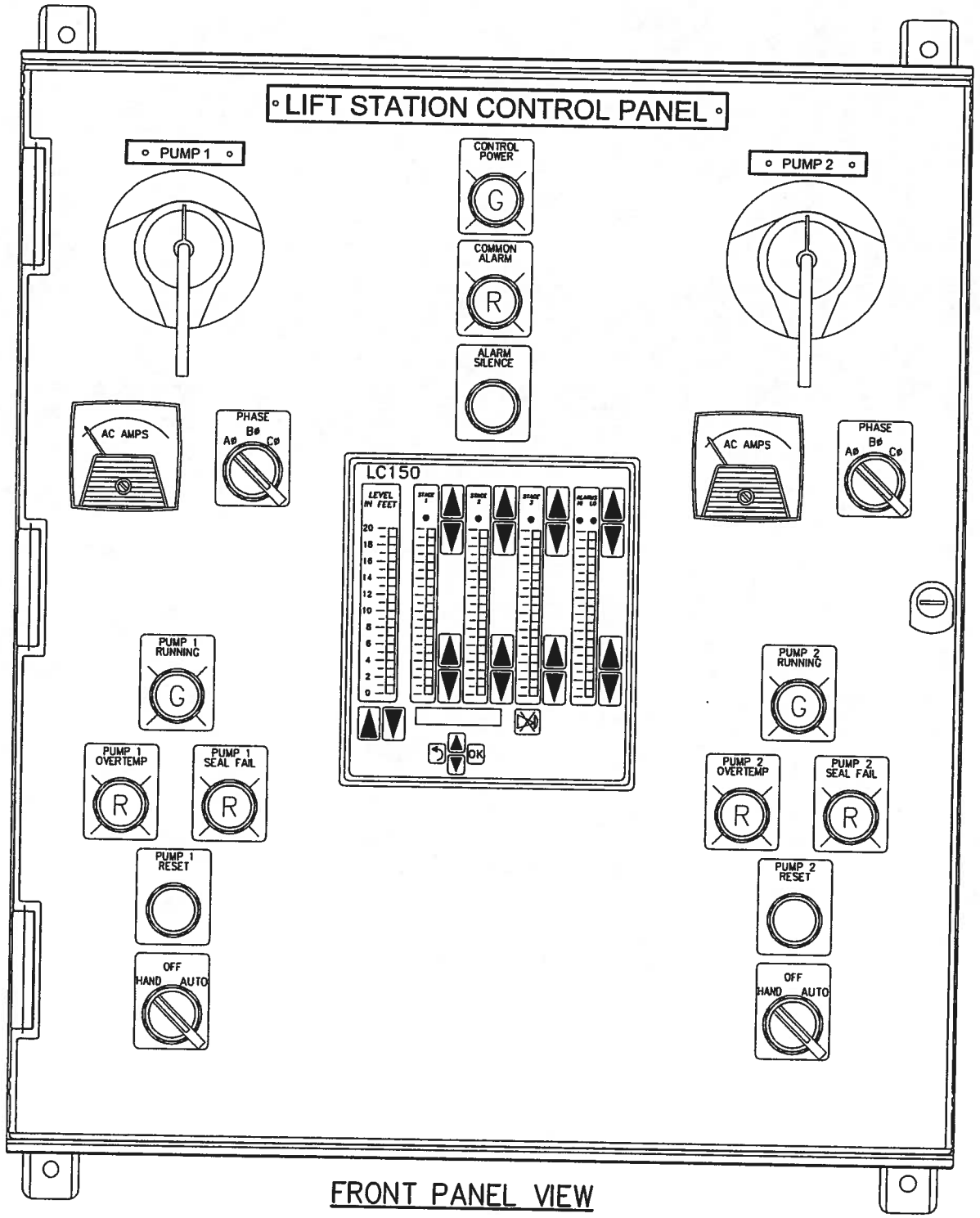

FRONT PANEL VIEW

CONTROL PANEL FUNCTIONAL DESCRIPTION

CONTROL PANEL FEATURES:

THE PANEL IS A DUPLEX SUBMERSIBLE PUMP CONTROL PANEL CONTROLLING 3ø SUBMERSIBLE PUMPS. THE CONTROLS INCLUDE 'COMMON ALARM' AND 'CONTROL POWER' PILOT LIGHTS, AND AN 'ALARM SILENCE' PUSHBUTTON. EACH PUMP HAS A HOA SWITCH; 'RUNNING', 'SEAL FAIL' AND 'OVERTEMP' PILOT LIGHTS, AMMETER WITH PHASE SELECTOR SWITCH AND A 'PUMP RESET' PUSHBUTTON. THE HEART OF THE CONTROLS IS A PUMP CONTROLLER WITH THE FOLLOWING FEATURES:

1. 'VIEW-AT-A-GLANCE' DISPLAY OF WET WELL LEVEL, LEAD AND LAG PUMP SETPOINTS, AND HIGH AND LOW LEVEL ALARM SETPOINTS.
2. LED LIGHTS TO INDICATE 'CALL FOR LEAD PUMP', 'CALL FOR LAG PUMP', 'HIGH LEVEL ALARM' AND 'LOW LEVEL ALARM'.
3. SIMPLE PUSHBUTTON ADJUSTMENT OF PUMP ON/OFF AND LEVEL ALARM SETPOINTS.
4. SIMPLE PUSHBUTTON LEVEL SIMULATION ADJUSTMENT FOR TESTING AND TROUBLESHOOTING.
5. AUTO-ALTERNATION OR LEAD PUMP SELECT OPTIONS.
6. RUN-TIME METER AND CYCLE COUNTER.

THE PANEL HAS A VOLTAGE MONITOR WHICH WILL DISABLE THE OPERATION OF BOTH PUMPS IN ALL MODES OF OPERATION DURING A HIGH/LOW VOLTAGE, PHASE LOSS OR PHASE IMBALANCE CONDITION. IF THIS OCCURS, THE 'CONTROL POWER' PILOT LIGHT WILL NO LONGER BE ENERGIZED. IN ADDITION TO THE VOLTAGE MONITOR, EACH PUMP HAS A MOTOR STARTER WITH SOLID STATE OVERLOAD, PHASE LOSS, PHASE REVERSAL AND PHASE IMBALANCE PROTECTION. IF ANY OF THESE CONDITIONS OCCURS THE PUMP WILL BE DISABLED. THE FAULT MUST BE MANUALLY CLEARED BY PRESSING THE 'PUMP RESET' PUSHBUTTON.

OPERATING MODES:

- HAND – IN HAND MODE THE PUMP WILL RUN CONTINUOUSLY UNLESS AN OVERLOAD OR VOLTAGE MONITOR FAULT OCCURS. A PUMP OVERTEMPERATURE CONDITION WILL CREATE AN ALARM, BUT THE PUMP WILL REMAIN RUNNING.
- OFF – IN THE OFF MODE THE PUMP WILL BE DISABLED.
- AUTO – IN THE AUTO MODE THE NORMAL PUMPING OPERATION WILL BE IN A LEAD/LAG CONFIGURATION WITH BOTH PUMP SELECTOR SWITCHES IN 'AUTO' AND THE CONTROL SET TO AUTO-ALTERNATE SO THAT THE LEAD AND LAG PUMPS ALTERNATE AUTOMATICALLY ON EACH PUMPING CYCLE. WHEN A PUMP IS CALLED TO RUN IT WILL RUN UNLESS AN OVERLOAD, OVERTEMPERATURE OR VOLTAGE MONITOR FAULT OCCURS. A SEAL FAIL CONDITION WILL CREATE AN ALARM, BUT WILL NOT SHUT DOWN THE PUMP.

  THE LEAD PUMP IS ENERGIZED WHEN WASTEWATER IN THE WET WELL RISES TO AN ELEVATION ABOVE THE 'CALL FOR LEAD PUMP' LEVEL (SEE CIVIL SHEETS FOR SETPOINT ELEVATIONS).

  IF THE LEAD PUMP DOES NOT ENERGIZE OR IF THE WASTEWATER RISES IN THE WET WELL FASTER THAN THE LEAD PUMP CAN REMOVE IT, THE LAG PUMP IS ENERGIZED WHEN THE WASTEWATER RISES ABOVE THE ELEVATION OF THE 'CALL FOR LAG PUMP' SETPOINT.

  IF NEITHER THE LEAD PUMP NOR THE LAG PUMP IS ENERGIZED OR IF THE WASTEWATER RISES IN THE PUMP STATION FASTER THAN THE LEAD AND LAG PUMPS CAN REMOVE IT, THE 'HIGH LEVEL' ALARM IS ACTIVATED AND THE EXTERNAL AUDIBLE/VISUAL ALARMS ARE ENERGIZED WHEN THE INFLUENT REACHES A LEVEL ABOVE THE 'HIGH LEVEL' SETPOINT. THE EXTERNAL AUDIBLE AND VISIBLE (STROBE) ALARMS CAN BE DE-ENERGIZED BY PRESSING THE SILENCE BUTTON. THE INTERNAL (PANEL MOUNTED) ALARM LIGHTS WILL REMAIN ON AS LONG AS THE ALARM CONDITION EXISTS. ONCE SILENCED, THE EXTERNAL ALARMS WILL RESPOND TO SUBSEQUENT ALARMS EVEN IF EXISTING ALARMS ARE STILL ACTIVE.

  BOTH PUMPS ARE DE-ENERGIZED WHEN WASTEWATER IN THE WET WELL FALLS BELOW THE ELEVATION OF THE 'PUMPS OFF' SETPOINT. IF THE LEVEL IN THE WET WELL CONTINUES TO FALL BELOW THE ELEVATION OF THE 'LOW LEVEL' SETPOINT, THE 'LOW LEVEL' ALARM IS ACTIVATED AND THE AUDIBLE/VISUAL ALARMS ARE ENERGIZED.

CONTROL PANEL I/O:

THE PANEL HAS THE FOLLOWING INPUTS:

120/208V, THREE-PHASE, SUPPLY POWER
4-20mA WET WELL LEVEL TRANSDUCER SIGNAL
1 N.C. CONTACT, WET WELL REDUNDANT HIGH LEVEL FLOAT SWITCH
1 N.O. CONTACT, WET WELL REDUNDANT LOW LEVEL FLOAT SWITCH
(2 EA.) SEAL FAIL AND HIGH TEMPERATURE SENSORS

THE PANEL HAS THE FOLLOWING OUTPUTS:

120 VAC, ALARM HORN AND STROBE

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CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
LIFT STATION CONTROL PANEL
LAYOUT AND FUNCTIONAL
NARRATIVE

REVISION	BY	DATE

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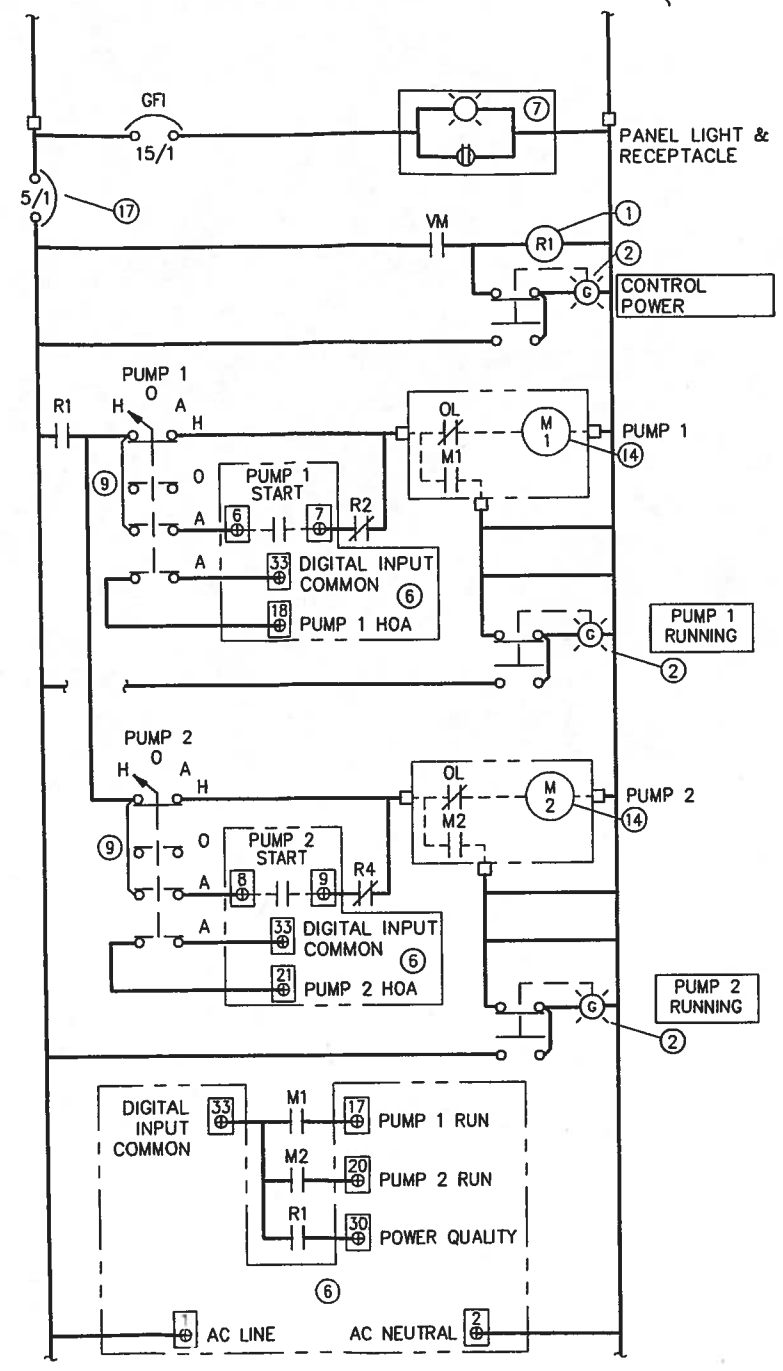

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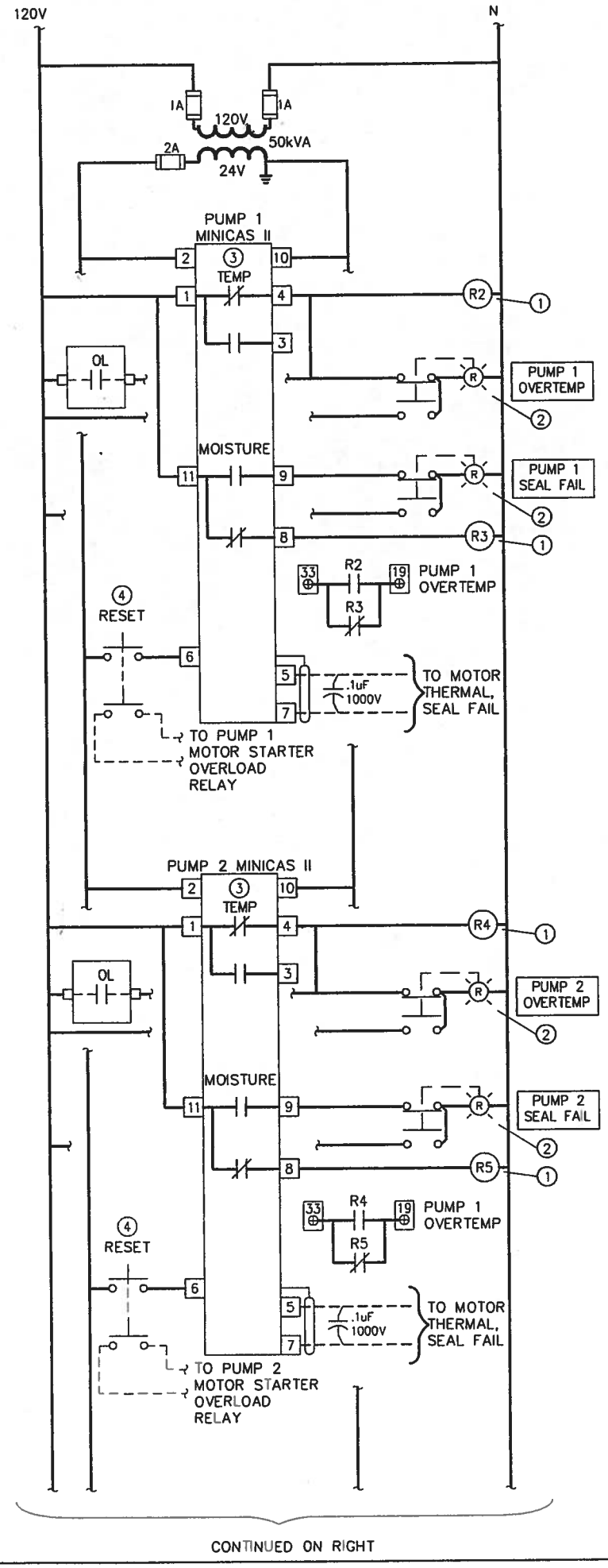

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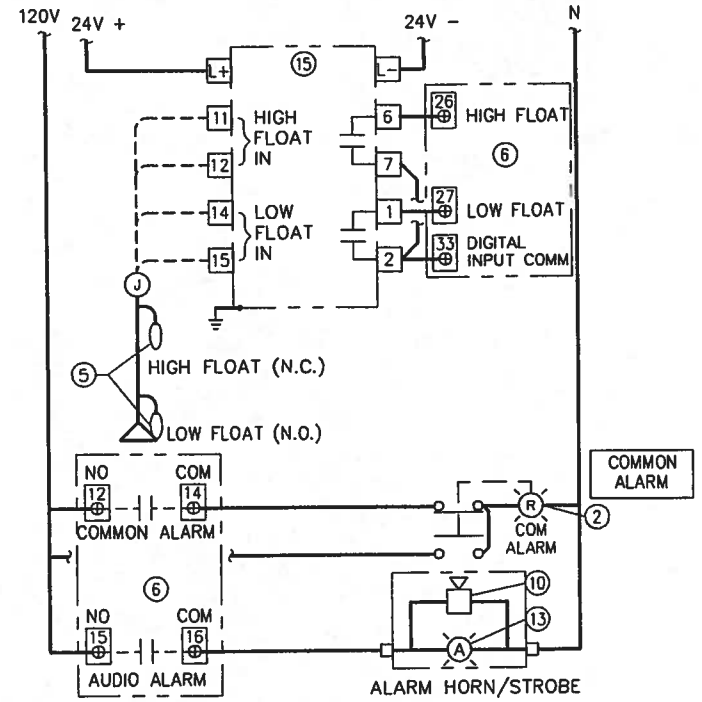

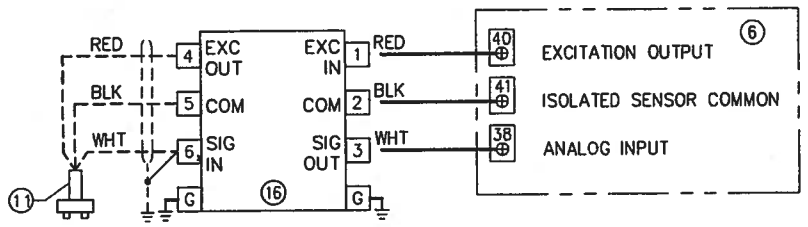

LEGEND

- PANEL WIRING
- FIELD WIRING OR WIRING INTERNAL TO LC150 CONTROLLER
- TERMINAL ON LC150 CONTROLLER (COMPONENT SCHEDULE ITEM 6) XX = TERMINAL NUMBER
- CONTROL PANEL TERMINAL FOR FIELD WIRING
- FIELD MOUNTED DEVICE
- CONTROL PANEL MOUNTED DEVICE
- (#) COMPONENT ITEM #, SEE SHEET E5.0 FOR DESCRIPTION

LC150 CONTROLLER TERMINAL ASSIGNMENTS

LC150 ⑥

1	AC LINE		
2	AC NEUTRAL		
3	BATTERY/DC+		
4,5	BATTERY/DC–		
	AUXILIARY POWER		
9	PUMP 1 B		
7	PUMP 1 A		
8	PUMP 2 B		
6	PUMP 2 A		
10	PUMP 3 B		
11	PUMP 3 A		
12	COM ALARM NO		
13	COM ALARM NC		
14	COM ALARM COM		
15	AUDIO ALARM NO		
16	AUDIO ALARM COM		
17	PUMP 1 RUN		
18	PUMP 1 HOA		
19	PUMP 1 TEMP		
20	PUMP 2 RUN		
21	PUMP 2 HOA		
22	PUMP 2 TEMP		
23	PUMP 3 RUN		
24	PUMP 3 HOA		
25	PUMP 3 TEMP		
26	HIGH FLOAT		
27	LOW FLOAT	ISOLATED SENSOR COMMON	40
28	ALARM SILENCE	EXCITATION OUTPUT	39
29	PUMP INHIBIT	ANALOG INPUT	38
30	PWR QUALITY	LOW ALARM	37
31	DOOR SWITCH	HIGH ALARM	36
32	DOOR ACK	COMMON	35
33	DIGITAL INPUT COMMON	ANALOG OUTPUT	34

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CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS
DOWNTOWN LIFT STATION
CONTROL PANEL SCHEMATIC

REVISION	BY	DATE

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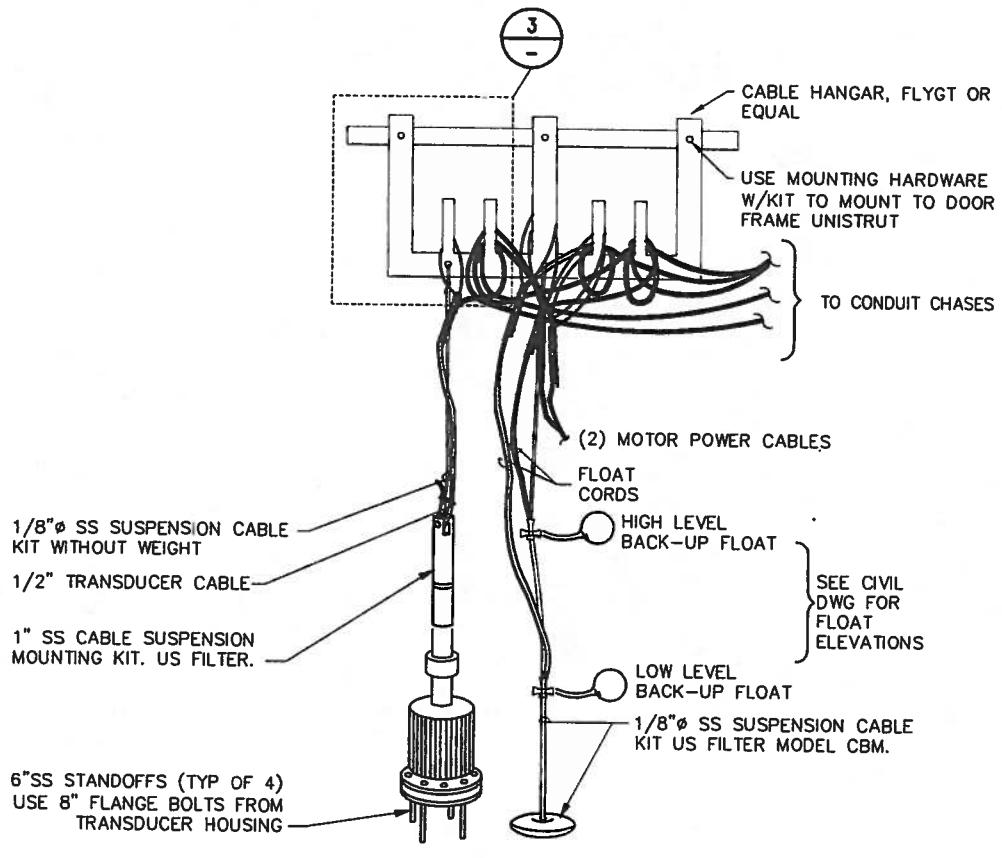
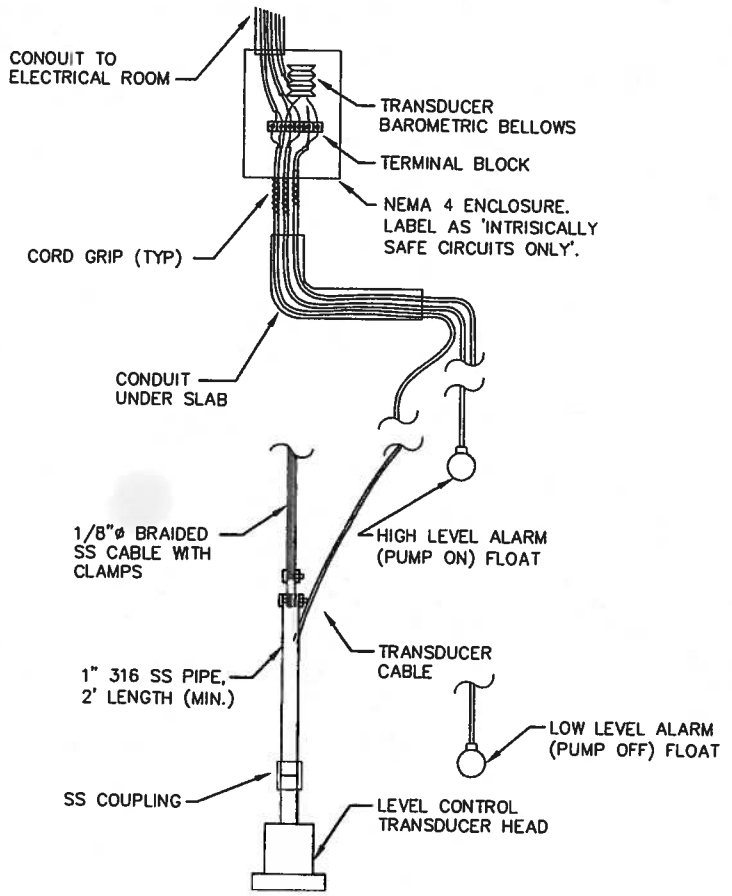
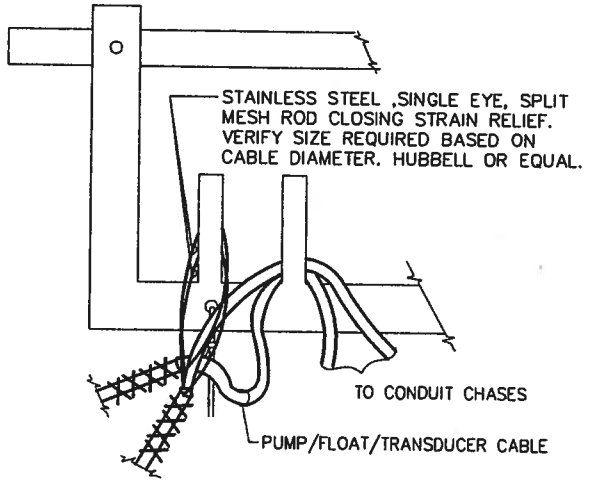


1 — CABLE SUPPORT DETAIL
NO SCALE



2 — TRANSDUCER/FLOAT DETAIL
NO SCALE



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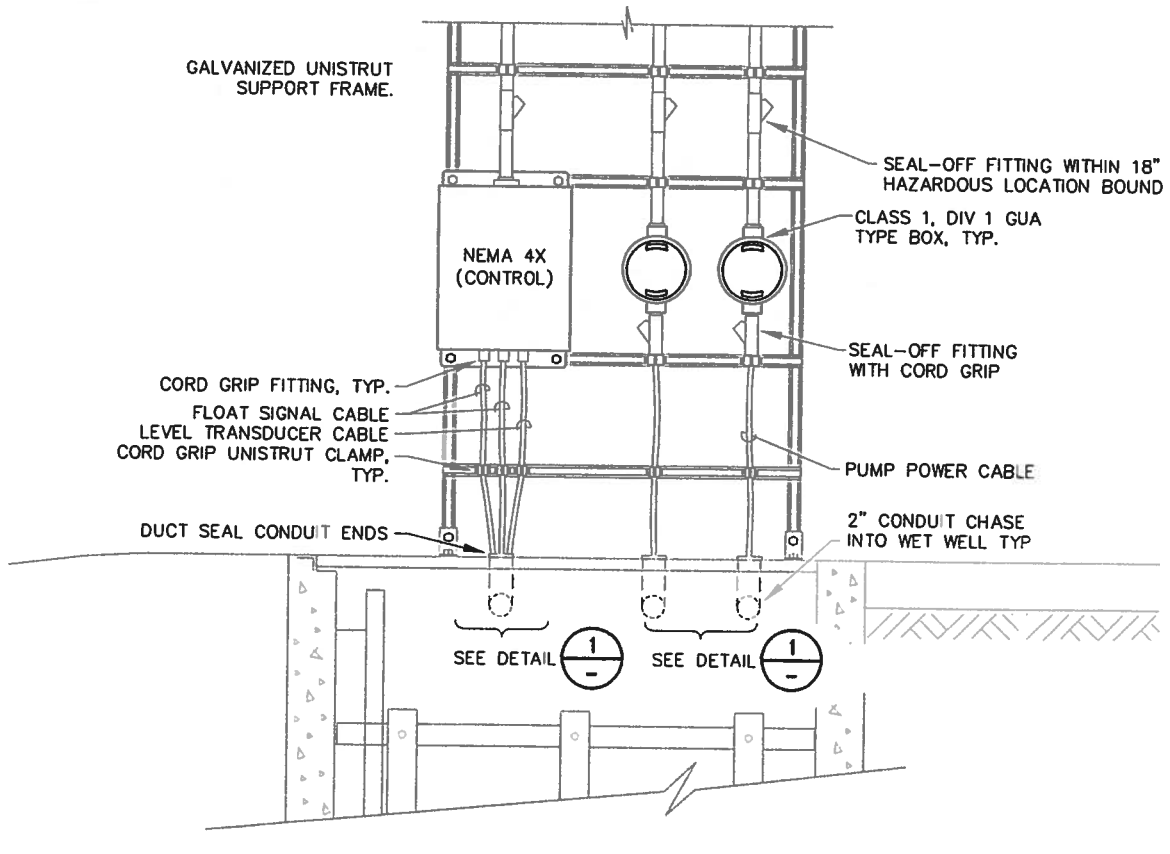

4 — WETWELL CONDUIT CHASE DETAIL
NO SCALE

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CITY OF EKWOK
SANITARY SEWER IMPROVEMENTS

ELECTRICAL DETAILS

REVISION	BY	DATE

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