

PROPOSED SCOPE OF WORK

THIS PLAN SET COVERS THE ATKA WATER STORAGE IMPROVEMENTS PROJECT, WHICH, WHEN FULLY IMPLEMENTED, WILL PROVIDE 130,000 WATER STORAGE TANK FOR THE ENTIRE COMMUNITY OF ATKA, ALASKA. THIS PROJECT WILL INCLUDE THE FOLLOWING COMPONENTS:

- SITE WORK
- 130,300 GALLON BOLTED STEEL WATER STORAGE TANK AND YARD PIPING
- TANK INSULATION PACKAGE



Project No. _____ Date <u>SEPT 2010</u> Designed <u>LAP</u> Drawn <u>LAW</u> Approved <u>LAP</u>	REVISION	BY	DATE

CE₂
ENGINEERS, INC.
PO BOX 222940 ANCHORAGE, AK 99523 PH: 907-348-1010 FAX: 907-348-1015

2010 WATER STORAGE TANK
VICINITY MAP AND PROJECT LOCATIONS
ATKA, ALASKA



CONSTRUCTION RECORD
FIELD BOOK
STAKING
FOREMAN
AS-BUILT
INSPECTOR

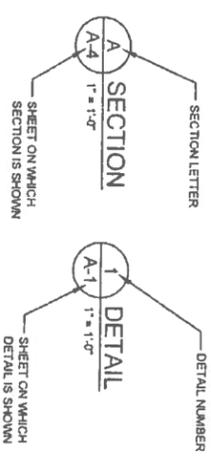
SCALE:
AS SHOWN ON ORIGINAL DRAWING
1" = 100'
IF NOT ONE INCH ON THIS SHEET, ACQUIRE SCALE AND MODEL

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

LEGEND

EXISTING		PROPOSED		DESCRIPTION
PLAN VIEW	PROFILE VIEW	PLAN VIEW	PROFILE VIEW	
				GROUND SURFACE
				CREEK / DRAINAGE
				WATERMAIN GATE VALVE (PROPANT HYDRANT NOT SHOWN IN PROFILE VIEW)
				CULVERT
				BURIED ELECTRICAL LINE
				BURIED FUEL OIL LINE
				BURIED TELEPHONE LINE
				OVERHEAD ELECTRIC
				EASEMENT
				UTILITY MAIN
				FORCE MAIN
				UTILITY POLE (EXISTING LOCATION)
				UTILITY POLE (PROPOSED LOCATION)
				FENCE
				PROPOSED OR FUTURE GRAVEL TRAVELED WAY
				CONTOUR LINE
				R.O.W. (RIGHT-OF-WAY)
				SHORELINE
				TREES AND/OR BRUSH
				STRUCTURE
				NATURAL GROUND OR COMPACTED SOIL
				DIRECTION OF DRAINAGE
				PROPERTY LINE
				SECTION LINE
				ABANDONED VEHICLE
				BENCH MARK
				SPOT ELEVATION
				REBAR - ABILITY SURVEY POINT NO.
				YELLOW PLASTIC CAP (REBAR)
				TRACT NUMBER
				LOT NUMBER
				TELEPHONE PEDESTAL
				HEAT TRACE ACCESS VAULT
				HEAT TRACE POWER SUPPLY
				WATER SERVICE CONNECTION (1 INCH DIAMETER UNLESS OTHERWISE INDICATED) TO THE WATERMAIN. FINAL LOCATION TO BE DETERMINED IN THE FIELD AFTER COORDINATION WITH THE PROPERTY OWNER.
				EXISTING WATER AND SEWER SERVICE LINE TO BE REMOVED FROM THE PUBLIC RIGHT-OF-WAY AND DISPOSED OF IN AN APPROVED MANNER.

SECTION AND DETAIL DESIGNATIONS

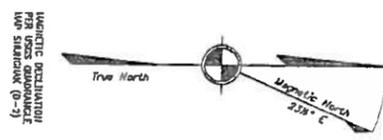


ABBREVIATIONS

ASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	N	NORTH
APPROX	APPROXIMATE	NOM	NOMINAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	NTS	NOT TO SCALE
BH	BORER HOLE	OC	ON CENTER
BLDG	BUILDING	OD	OUTSIDE DIAMETER
BM	BENCH MARK	PC	POINT OF CURVE
BVC	BEGIN VERTICAL CURVE	PERF	PREPARATED
CAV	COMBINATION AIR RELEASE/ VACUUM RELIEF	PI	POINT OF INTERSECTION
CL	CENTERLINE	PLATE	PLATE OR PROPERTY LINE
CL	CLEARING LIMIT	PPM	POUNDS PER MILLION
CC	CENTER TO CENTER	PRV	PRESSURE REDUCING VALVE
CFS	CUBIC FEET PER SECOND	PSI	POUND PER SQUARE INCH
CMP	CORRUGATED METAL PIPE	PT	POINT OF TANGENT
CTRS	CENTERS	PVC	POINT OF VERTICAL CURVE
CU	CUBIC YARD	CP	OR POLYVINYL CHLORIDE
CY	CUBIC YARD	PVT	POINT OF VERTICAL INTERSECTION
DET	DETAIL	QTY	QUANTITY
DI	DUCTILE IRON	R	RADIUS
DL	DIAMETER	REF	REFERENCE
DL	DEADLOAD	REIN	REINFORCEMENT
DMG	DRAWING	RELD	REQUIRED
EA	EACH	RAW	RAW WATER
EVC	END VERTICAL CURVE	R/W	RIGHT-OF-WAY
EL	ELEVATION	S	SOUTH SLOPE
EXST	EXISTING	SCH	SCHEDULE
FFN	FOUNDATION	SECT	SECTION
FF	FINISH FLOOR	SHT	SHEET
FG	FINISH GRADE	SHT	SHEET
FPS	FEET PER SECOND	SMA	SIMILAR
FT	FOOT OR FEET	SS	STAINLESS STEEL OR SANITARY SEWER
FTG	FOOTING	STA	STATION
GA	GAGE	STD	STANDARD
GALV	GALVANIZED	STL	STEEL
GS	GROUND	TW	TREATED WATER
GND	GROUND	TYP	TYPICAL
GPD	GALLONS PER DAY	TP	TEST PIT
GPM	GALLONS PER MINUTE	UG	UNDERGROUND
HDPE	HIGH DENSITY POLYETHYLENE	USGS	UNITED STATES GEOLOGICAL SURVEY
HOR	HORIZONTAL	VC	VERTICAL CURVE
HPM	HIGHWAY PRECONSTRUCTION MANUAL	VER	VERTICAL
IE	INVERT ELEVATION	VPI	VERTICAL POINT OF INTERSECTION
ID	INSIDE DIAMETER	W	WITH
IN	INCH OR INCHES	WHO	WITHOUT
IP	IRON PIPE	WS	WATER SURFACE
LB	POUND	WT	WEIGHT
LBS	POUNDS	WWF	WELDED WIRE FABRIC
LF	LINEAR FEET	XS	EXTRA STRONG
LL	LIVE LOAD	YD	YARD
MAX	MAXIMUM		
M GAL	MILLION GALLONS		
MGL	MILLIGRAMS PER LITER		
MIN	MINIMUM		
MISC	MISCELLANEOUS		
MISC	MISCELLANEOUS		
MPH	MILES PER HOUR		



Project No. _____ Date <u>SEPT 2010</u> Designed <u>LAP</u> Drawn <u>DDR</u> Approved <u>LAP</u>	REVISION BY DATE	 PO BOX 22294 ANCHORAGE, AK 99522 PH: 907-348-1010 FAX: 907-348-1015	2010 WATER STORAGE TANK ABBREVIATIONS AND CALLOUTS ATKA, ALASKA		CONSTRUCTION RECORD FIELD BOOK STAGING FOREMAN AS-BUILT INSPECTOR	SCALE: 1" = 100' 1" = 100' 1" = 100'	RECORD DRAWING CERTIFICATE THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE. NAME _____ DATE _____
	SHEET NO. G1.3		SHEET NO. G1.3				



- LEGEND**
- ROUND BULL OBSS
 - CONCRETE
 - SET IN PAUL
 - BULLDOG
 - WOOD WAKE
 - LEAD POLE
 - CRY ACTION
 - SATELLITE ANTENNA
 - BOLAS
 - RED COLORED
 - UNWIND SURVEYOR
 - VOIT STICK
 - PUBLIC SIGN
 - PERMANENT CABLE TV
 - PERMANENT RECEIVING
 - CLEANING, SEVEN
 - RECORD BOUNDARY
 - RECORD PROPERTY LINE

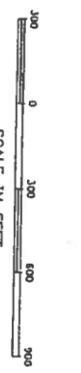
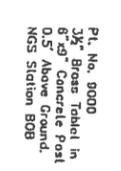
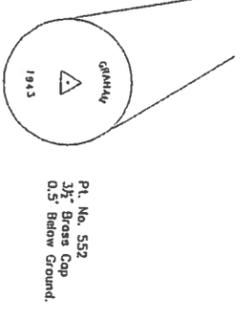
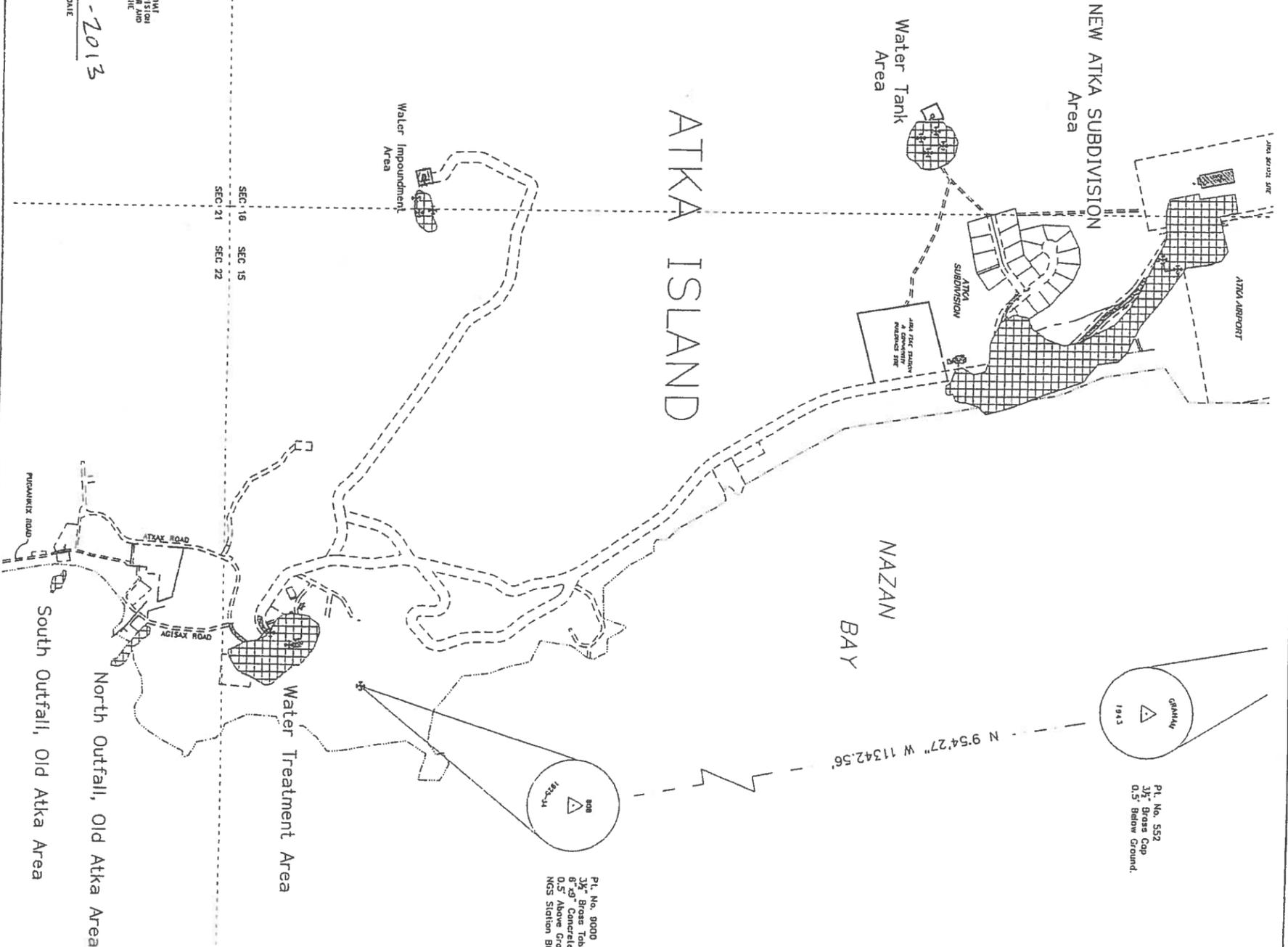


SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE AS A SURVEYOR IN THE STATE OF ALASKA. I HAVE PERSONALLY CONDUCTED THE SURVEY AND THIS DRAWING REPRESENTS A SURVEY MADE UNDER MY SUPERVISION AND CONTROL. I HAVE REVIEWED THE DRAWING AND IT ACCURATELY REPRESENTS THE CONDITIONS SHOWN HEREON. I HEREBY CERTIFY THAT THE CONDITIONS SHOWN HEREON CORRECTLY SHOW THE SURVEY.

William McClintock
 DATE: 3-1-2013

WILLIAM MCCLINTOCK
 REGISTERED LAND SURVEYOR
 LICENSE NO. 4914
 16319 H. COMB PIKE, L990 RM 204
 EAGLE RIVER, ALASKA 99577
 (907) 694-1499



VICINITY MAP
 Scale: 1" = 1 Mile

Source:
 U.S.G.S. Quadrangle Atka
 1:250,000
 Located within partially
 surveyed 1925, R175W,
 Seward Meridian Alaska,
 Aleutian Islands Recording
 District

SEC. 12	SEC. 13	SEC. 14	SEC. 15	SEC. 16	SEC. 17
SEC. 3	SEC. 4	SEC. 5	SEC. 6	SEC. 7	SEC. 8
SEC. 17	SEC. 18	SEC. 19	SEC. 20	SEC. 21	SEC. 22
SEC. 20	SEC. 21	SEC. 22	SEC. 23	SEC. 24	SEC. 25

Horizontal Control

A local surface plane coordinate system based on a series of least square adjusted static GPS observations performed by McClintock Land Associates in 2001.

NGS Station "908" a 3/4" Brass Table in a 6" x 9" concrete post has a NAD83(CORS96) geoid position of Latitude 52°12'5.0182" North, Longitude 174°11'46.9733" West, determined using multiple static GPS observations over a 10 day period. Local coordinates for station "908" (41 9000), are: N: 41340.44'; E: 152612.54';
 NGS Station "909" a 3/4" Brass Cap bears North 075°42'27" West, 11342.56' and has local coordinates of N: 52513.85; E: 150660.94'.

These points establish the Basis of Bearings. All bearings shown are local bearings on oriented to the Basis of Bearings and the distances shown are local horizontal ground distances.

Vertical Control

The vertical datum is NAVD83, expressed in feet, as established by the post processed GPS position of station "908" as described in the Horizontal Control Statement (NAVD83 elevation of 193.81'); the RTK GPS survey data shown herein contains orthometric heights determined with a geoid model ("GEOID97").

To convert from this datum to the Mean Lower Low Water (MLLW) datum, add 1.0 feet to the NAVD83 elevations. Mean High Water (MHW) is approximately 3.3 feet above MLLW. Survey elevations to MLLW was determined with a series of GPS tidal observations from June 30 through July 2, 2005 and a comparison of these with the published MLLW values for the corresponding shoreline.

Control Note

The control survey from which this drawing was completed by McClintock Land Associates, LLC, in 2005, is in conformance with HDR Alaska, Inc. No additional survey work was done for this 2009 project. Monumentation is described as follows:

RECORD DRAWING CERTIFICATE

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

NAME _____ DATE _____

CONSTRUCTION RECORD

FIELD BOOK	
STAKING	
FOREMAN	
AS-BUILT	
SUPERVISOR	

2009 WATER SYSTEM UPGRADES

SURVEY CONTROL

ATKA, ALASKA



REVISION	BY	DATE

Project No.	
Date	MAY 2010
Designed	LAP
Drawn	DDR
Approved	LAP
Sheet No.	G1.4

DESIGN CRITERIA ATKA WATER TREATMENT PROJECT--ATKA, ALASKA

DESIGN LIFE (N) 20 YEARS
ANNUAL POPULATION GROWTH RATE (I) 2% ANNUALLY

CURRENT 2010 POPULATION (P) 61 PEOPLE (24 HOMES)
DESIGN 2030 POPULATION (F = P*(1+I)^N) 91 PEOPLE (36 HOMES)
DESIGN WATER DEMAND PER CAPITA 100 GPCD
DESIGN DAILY DOMESTIC WATER DEMAND 9,100 GAL/DAY
PROJECTED PEAK COMMERCIAL FLOW RATE 30 GAL/MINUTE
DESIGN DAILY COMMERCIAL WATER DEMAND 28,800 GAL/DAY (30 GPM x 16 HR/DAY)
DESIGN DAILY TOTAL WATER DEMAND 37,900 GAL/DAY
DESIGN PEAK HR. RESIDENTIAL FLOW (AVG Daily x 4.5) 28.5 GAL/MINUTE
DESIGN PEAK TOTAL FLOW (RES. + COM.) 58.5 GAL/MINUTE

PROPOSED VOLUME OF WATER STORAGE TANK 130,300 GAL
PROPOSED DAYS OF STORAGE 3 DAYS
PROPOSED BASE ELEVATION OF WST 177.0 FT ABOVE MLLW
PROPOSED OVERFLOW ELEVATION OF WST 196.0 FT ABOVE MLLW
CURRENT ELEVATION OF HIGHEST HOUSE 63± FT ABOVE MLLW
PROPOSED PRESSURE OF HIGHEST HOUSE 49 PSI
CURRENT ELEVATION OF LOWEST HOUSE 11.5± FT ABOVE MLLW
PROPOSED PRESSURE OF LOWEST HOUSE 80 PSI
PROPOSED ELEVATION OF FINISH FLOOR OF WTP 177.5 FT ABOVE MLLW
DESIGN PRESSURE OF RAW WATER INTO WTP 12 PSI
DESIGN FLOW RATE INTO WTP 42 GPM

FILTRATION, PRIMARY TYPE 2 PRESSURE MULTIMEDIA
FILTER DIAMETER 60" (EACH FILTER)
FILTER AREA 19.63 SQ FT
DESIGN FLOW RATE THROUGH PLANT 42 GPM
HYDRAULIC LOADING ON FILTERS 1.1 GPM/SQ FT
DESIGN FLOW RATE OF BACKWASH WATER (15 GPM/SQ FT) x (19.63 SQ FT) = 295 GPM
FILTER AIR SCOUR LOADING RATE 4 CFM/SQ FT
FILTER AIR SCOUR FLOW RATE 78.5 CFM PER FILTER

FILTER MEDIA
FREEBOARD (30" DEEP)
ANTHRACITE 1.0 to 1.1 MM PARTICLE SIZE (18" DEEP)
SUBANGULAR QUARTZ SAND 0.45 to 0.55 MM PARTICLE SIZE (12" DEEP)
FILTER GARNET #30 to #40 MESH PARTICLE SIZE (2" DEEP)
SUPPORT GARNET #8 to #12 MESH PARTICLE SIZE (2" DEEP)
SUPPORT GRAVEL 1/8 to 1/4 INCH (2" DEEP)
SUPPORT GRAVEL 1/4 to 1/2 INCH (2" DEEP)
SUPPORT GRAVEL 1/2 to 3/4 INCH (2" DEEP)
SUPPORT GRAVEL 3/4 to 1-1/2 INCH (TO TOP OF LATERALS ON UNDERDRAIN)

FILTRATION REMOVAL CREDIT -- ASSUMED 2.0-LOG

CHLORINE DISINFECTION CALCULATIONS

DISINFECTION - CALCIUM HYPOCHLORITE INJECTION
(FREE CHLORINE RESIDUAL)
INJECTION PUMP-LMI OR EQUAL

CT REQUIRED FOR 1.0 INACTIVATION CREDIT
CT FORMULA FROM ADEC 18AAC 80.655(b)
CT(Required) = (LOG INACTIVATION) (5.057) (E^{vA}) (E^{vB}) (E^{vC})
E = 2.72
A = -0.0693 X TEMP (°C)
B = 0.361 X pH
C = 0.113 X CHLORINE CONCENTRATION (MG/L)
CHLORINE CONCENTRATION = 0.4 MG/L (FREE CHLORINE RESIDUAL)
pH = 7.8
TEMPERATURE = 5° C (41° F)
LOG INACTIVATION = 1.0
CT (Required) = 63 MG-MIN/L

ACTUAL CT OF SYSTEM

TANK BAFFLE FACTOR (BF) = 0.10
TANK INLET IS DISCHARGED
and DIFFUSED ON OPPOSITE SIDE OF TANK FROM OUTLET
TANK OUTLET IS OVERSIZED (12"), PROVIDING A REDUCED OUTLET VELOCITY
VOLUME OF TANK = 130,300 GALLONS
ASSUME TANK OPERATING RANGE of 20% (Approx. 4 Feet)
USABLE VOLUME FOR CT (80%) = (130,300 GAL) X 0.80 = 104,240 GAL
DESIGN PEAK HOURLY FLOW RATE = 58.5 GPM

$$CT \text{ (Actual)} = \frac{\text{Usable Volume} \times \text{Flow Rate} \times \text{BF} \times \text{C12 Concentration}}{104,240 \text{ GAL} \times 58.5 \text{ GPM} \times 0.1 \times 0.4 \text{ MG/L}}$$

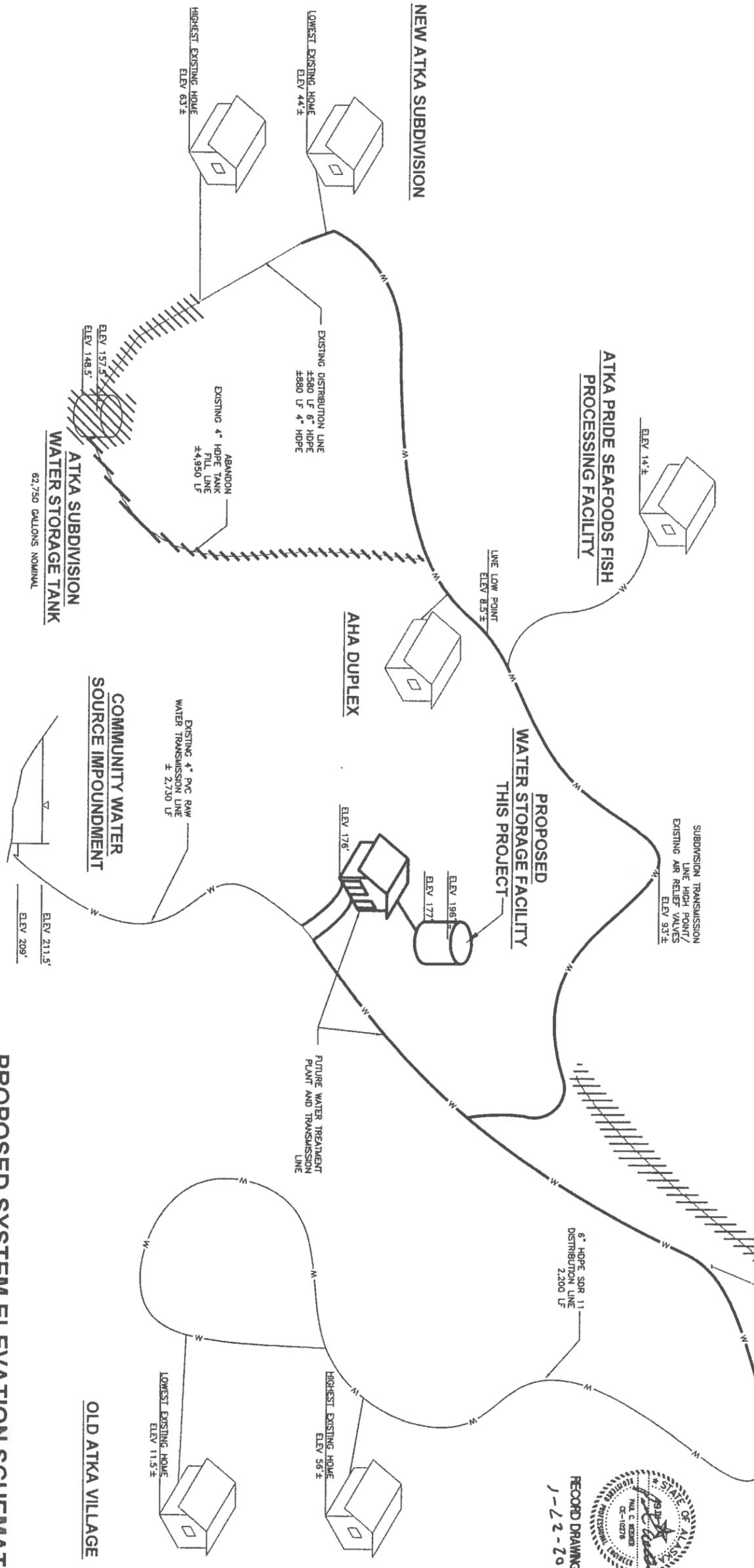
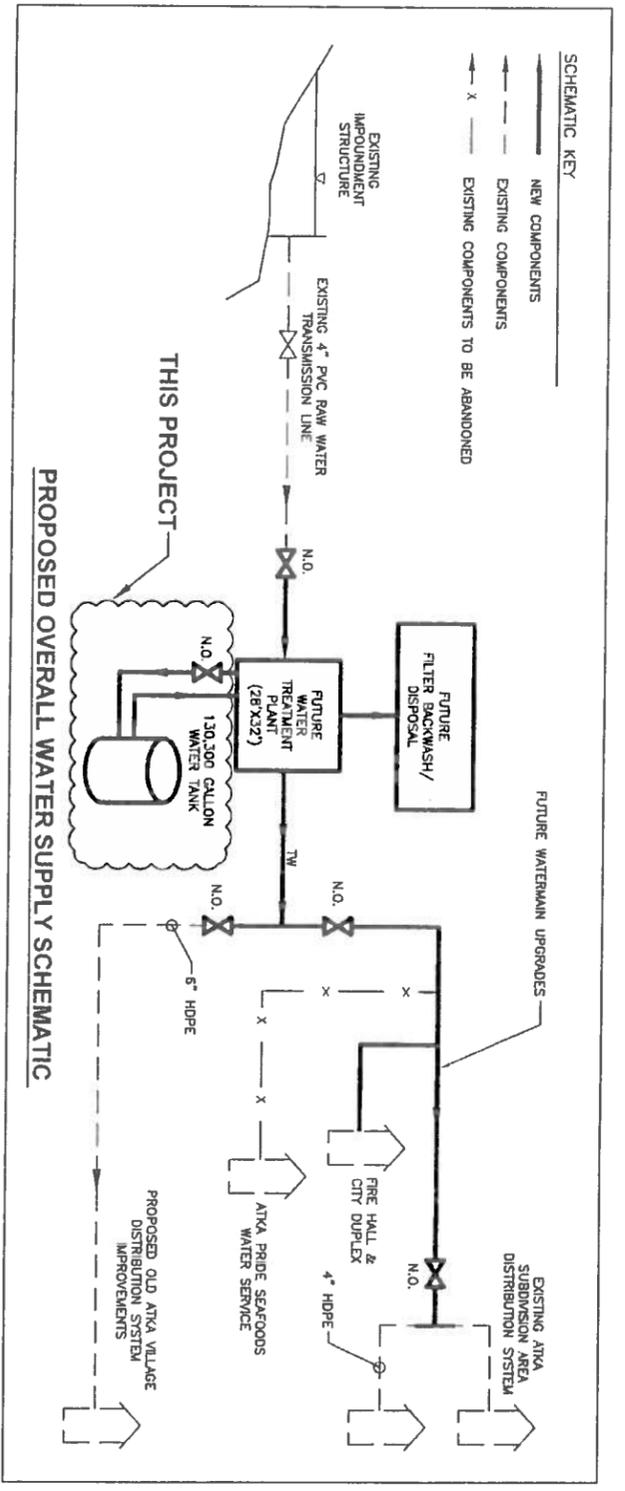
$$= 71 \text{ MG-MIN/L}$$

CT (Actual) > CT (Required) : 71 MG-MIN/L > 63 MG-MIN/L = OK
CALCULATED MINIMUM TANK LEVEL 92,140 GALLONS OR APPROXIMATELY 70% OF THE TANK VOLUME.



RECORD DRAWING
1-22-2013

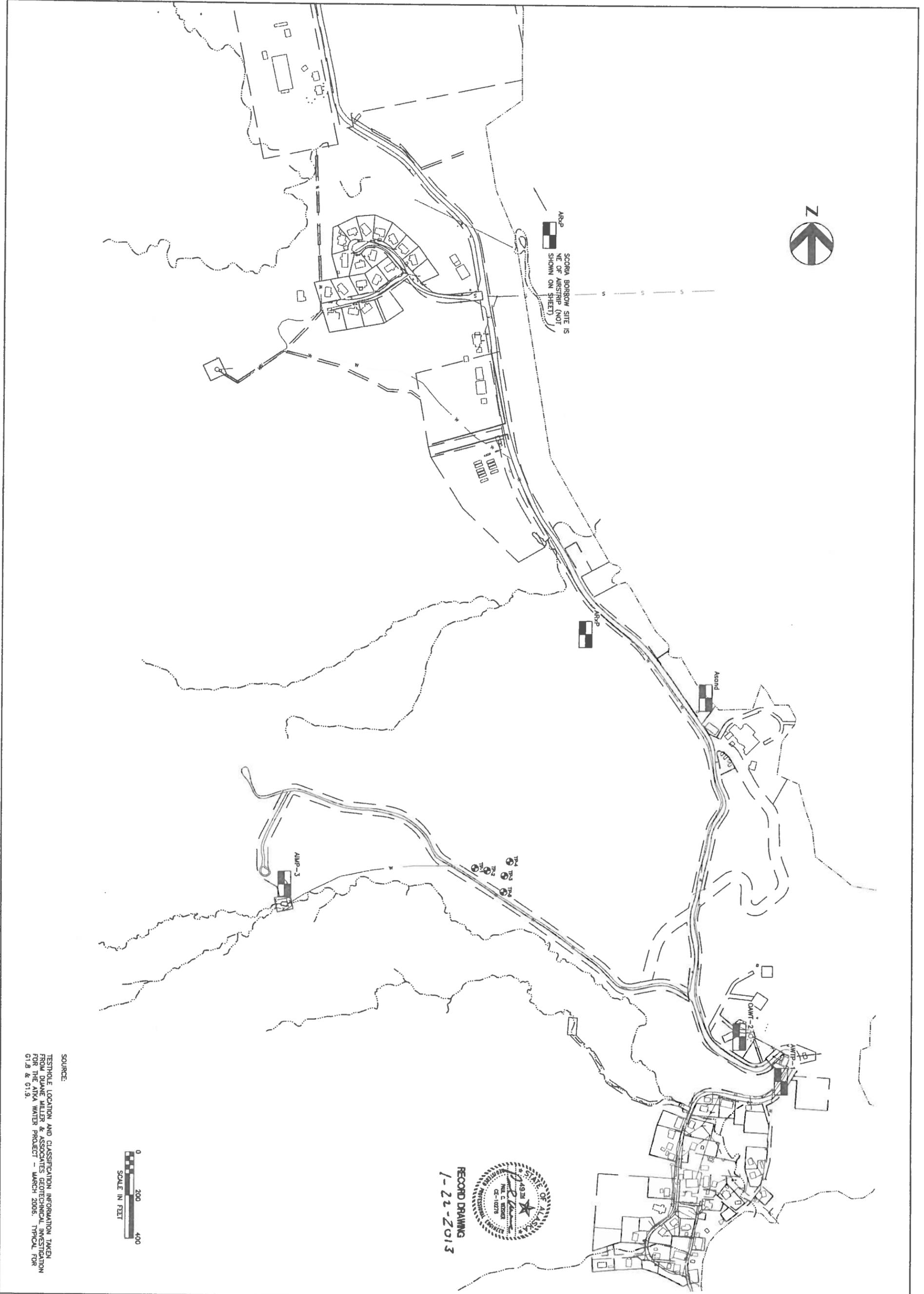
<p>Project No. _____ Date <u>SEPT 2010</u> Designed <u>LAP</u> Drawn <u>LAP</u> Approved <u>LAP</u></p>	 PO BOX 22248 ANCHORAGE, AK 99523 PH 907-348-1810 FAX 907-348-1915	<p>2010 WATER STORAGE TANK</p> <p>PROJECT DESIGN AND CRITERIA</p> <p>ATKA, ALASKA</p>		<p>CONSTRUCTION RECORD</p> <p>FIELD BOOK _____</p> <p>STAKING _____</p> <p>FOREMAN _____</p> <p>AS BUILT _____</p> <p>INSPECTOR _____</p>	<p>SCALE:</p> <p>BAR IS ONE INCH ON TYPICAL DRAWING</p> <p>0 1'</p> <p>IF NOT ONE INCH ON THIS SHEET, READ SCALES ACCORDINGLY</p>	<p>RECORD DRAWING CERTIFICATE</p> <p>THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.</p> <p>NAME _____ DATE _____</p>
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PROPOSED SYSTEM ELEVATION SCHEMATIC

RECORD DRAWING
1-2-2013

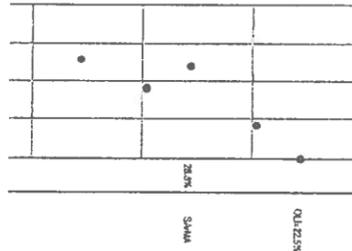
Project No. _____ Date SEPT 2010 Designed LAP Drawn LAW Approved LAP	REVISION BY DATE	 PO BOX 232848 ANCHORAGE, AK 99523 PH: 907-348-1010 FAX: 907-348-1015	2010 WATER STORAGE TANK PROPOSED ELEVATION SCHEMATIC ATKA, ALASKA		CONSTRUCTION RECORD FIELD BOOK STAKING FOREMAN AS-BUILT INSPECTOR	SCALE: BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SIZE ADJUST SCALES ACCORDINGLY	RECORD DRAWING CERTIFICATE THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE NAME _____ DATE _____
	Sheet No. G1.6		Project No. _____ Date SEPT 2010 Designed LAP Drawn LAW Approved LAP		STATE OF ALASKA PAUL C. RESNER LICENSED PROFESSIONAL ENGINEER LICENSE NO. CE-10278 NO CE 8602	CONSTRUCTION RECORD FIELD BOOK STAKING FOREMAN AS-BUILT INSPECTOR	SCALE: BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SIZE ADJUST SCALES ACCORDINGLY



Project No. Date <u>SEPT 2010</u> Designed <u>LAP</u> Drawn <u>DDR</u> Approved <u>LAP</u>	REVISION	BY	DATE	 PO BOX 222948 ANCHORAGE, AK 99523 PH: 907-348-1010 FAX: 907-348-1015	2010 WATER STORAGE TANK GEOTECHNICAL TEST PIT LOCATIONS ATKA, ALASKA		CONSTRUCTION RECORD	SCALE: 1" = 40' (SEE PLAN ON ORIGINAL DRAWING) 0 1 IF NOT CLEAR ENOUGH ON THIS SHEET, ADJUST SCALE AS NECESSARY	RECORD DRAWING CERTIFICATE
	FIELD BOOK	STAKING	FOREMAN				AS-BUILT		INSPECTOR

Sheet No. G1.7

DUANE MILLER ASSOCIATES LLC
 Project: Alka Water & Sewer Project
 DMA Job No.: 4149.035
 Logged By: N. Lutzky
 Moisture Content % (M)
 P.L. & L.L. (-) Saturated (S)
 and Sampling Blow (C)
 0 20 40 60 >80 P200

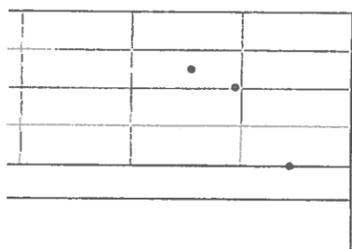


Blow Counts
 Sampler Type
 Depth (Feet)
 Sampling Interval
 Samples
 Graphical Log
 Frozen

Log of HOLE: TP-01
 Date Drilled: June 30, 2008
 Contractor: CE2
 Equipment: Hitachi Z 230 Excavator
 GPS Coord.: 52°12'10.177" N 174°12'10.911" W (WGS 84)
 Elevation: 176.9 feet

Description
 PEAT (P1) Live organic mat, grass roots
 ORGANIC SILT (OL) Brown to orange-brown, moist, with fibrous organic material
 SILTY SAND (SM) Brown, moist, with <15% subangular rock fragments to 2 inches and boulders to 2-foot diameter
 Test pit completed at 13 feet on 6/30/2008

DUANE MILLER ASSOCIATES LLC
 Project: Alka Water & Sewer Project
 DMA Job No.: 4149.035
 Logged By: N. Lutzky
 Moisture Content % (M)
 P.L. & L.L. (-) Saturated (S)
 and Sampling Blow (C)
 0 20 40 60 >80 P200

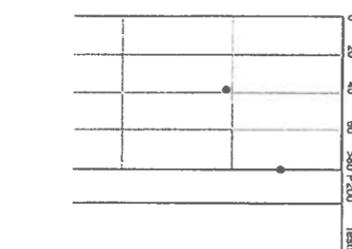


Blow Counts
 Sampler Type
 Depth (Feet)
 Sampling Interval
 Samples
 Graphical Log
 Frozen

Log of HOLE: TP-03
 Date Drilled: June 30, 2008
 Contractor: CE2
 Equipment: Hitachi Z 230 Excavator
 GPS Coord.: 52°12'09.355" N 174°12'08.705" W (WGS 84)
 Elevation: 176.9 feet

Description
 PEAT (P1) Live organic mat, grass roots
 ORGANIC SILT (OL) Brown to orange-brown, moist, with fibrous organic material
 SILTY GRAVELLY SAND (SM) Brown, moist, with subangular rock fragments to 2-foot diameter
 Test pit completed at 8 feet on 6/30/2008

DUANE MILLER ASSOCIATES LLC
 Project: Alka Water & Sewer Project
 DMA Job No.: 4149.035
 Logged By: N. Lutzky
 Moisture Content % (M)
 P.L. & L.L. (-) Saturated (S)
 and Sampling Blow (C)
 0 20 40 60 >80 P200

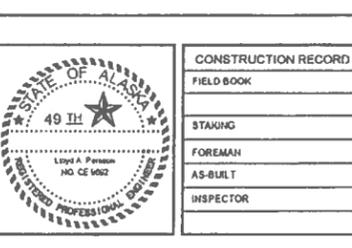


Blow Counts
 Sampler Type
 Depth (Feet)
 Sampling Interval
 Samples
 Graphical Log
 Frozen

Log of HOLE: TP-04
 Date Drilled: June 30, 2008
 Contractor: CE2
 Equipment: Hitachi Z 230 Excavator
 GPS Coord.: 52°12'10.473" N 174°12'08.333" W (WGS 84)
 Elevation: 172.6 feet

Description
 PEAT (P1) Live organic mat, grass roots
 ORGANIC SILT (OL) Brown to orange-brown, moist, with fibrous organic material
 PEAT (P1) Brown, fibrous, with orange-brown organic silt (OL)
 ORGANIC SILT (OL) Brown to orange-brown, moist, with fibrous organic material
 GRAVELLY SILT (ML) Brown to orange-brown, moist, with subangular rock fragments to 1-foot diameter
 Test pit completed at 8 feet on 6/30/2008

DUANE MILLER ASSOCIATES LLC
 Project: Alka Water & Sewer Project
 DMA Job No.: 4149.035
 Logged By: N. Lutzky
 Moisture Content % (M)
 P.L. & L.L. (-) Saturated (S)
 and Sampling Blow (C)
 0 20 40 60 >80 P200



Blow Counts
 Sampler Type
 Depth (Feet)
 Sampling Interval
 Samples
 Graphical Log
 Frozen

Log of HOLE: TP-05
 Date Drilled: June 30, 2008
 Contractor: CE2
 Equipment: Hitachi Z 230 Excavator
 GPS Coord.: 52°12'09.054" N 174°12'08.794" W (WGS 84)
 Elevation: 176.9 feet

Description
 PEAT (P1) Live organic mat, grass roots
 ORGANIC SILT (OL) Brown to orange-brown, moist, with fibrous organic material
 GRAVELLY SILT (ML) Brown to orange-brown, moist, with subangular gravel to 1.5 inches and 5-10% subangular rock fragments to 2-foot diameter
 Test pit completed at 8 feet on 6/30/2008

DUANE MILLER ASSOCIATES LLC
 Project: Alka Water & Sewer Project
 DMA Job No.: 4149.035
 Logged By: N. Lutzky
 Moisture Content % (M)
 P.L. & L.L. (-) Saturated (S)
 and Sampling Blow (C)
 0 20 40 60 >80 P200

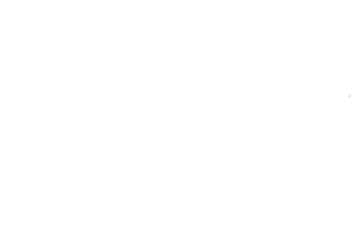


Blow Counts
 Sampler Type
 Depth (Feet)
 Sampling Interval
 Samples
 Graphical Log
 Frozen

Log of HOLE: TP-02
 Date Drilled: June 30, 2008
 Contractor: CE2
 Equipment: Hitachi Z 230 Excavator
 GPS Coord.: 52°12'10.060" N 174°12'10.011" W (WGS 84)
 Elevation: 176.8 feet

Description
 PEAT (P1) Live organic mat, grass roots
 ORGANIC SILT (OL) Brown to orange-brown, moist, with peat (P1) interbeds
 GRAVELLY SILT (ML) Brown to orange-brown, moist, with subangular rock fragments to 1-foot diameter
 Test pit completed at 10 feet on 6/30/2008

DUANE MILLER ASSOCIATES LLC
 Project: Alka Water & Sewer Project
 DMA Job No.: 4149.035
 Logged By: N. Lutzky
 Moisture Content % (M)
 P.L. & L.L. (-) Saturated (S)
 and Sampling Blow (C)
 0 20 40 60 >80 P200



Blow Counts
 Sampler Type
 Depth (Feet)
 Sampling Interval
 Samples
 Graphical Log
 Frozen

Log of HOLE: TP-04
 Date Drilled: June 30, 2008
 Contractor: CE2
 Equipment: Hitachi Z 230 Excavator
 GPS Coord.: 52°12'10.473" N 174°12'08.333" W (WGS 84)
 Elevation: 172.6 feet

Description
 PEAT (P1) Live organic mat, grass roots
 ORGANIC SILT (OL) Brown to orange-brown, moist, with fibrous organic material
 PEAT (P1) Brown, fibrous, with orange-brown organic silt (OL)
 ORGANIC SILT (OL) Brown to orange-brown, moist, with fibrous organic material
 GRAVELLY SILT (ML) Brown to orange-brown, moist, with subangular rock fragments to 1-foot diameter
 Test pit completed at 8 feet on 6/30/2008

DUANE MILLER ASSOCIATES LLC
 Project: Alka Water & Sewer Project
 DMA Job No.: 4149.035
 Logged By: N. Lutzky
 Moisture Content % (M)
 P.L. & L.L. (-) Saturated (S)
 and Sampling Blow (C)
 0 20 40 60 >80 P200



Blow Counts
 Sampler Type
 Depth (Feet)
 Sampling Interval
 Samples
 Graphical Log
 Frozen

Log of HOLE: TP-05
 Date Drilled: June 30, 2008
 Contractor: CE2
 Equipment: Hitachi Z 230 Excavator
 GPS Coord.: 52°12'09.054" N 174°12'08.794" W (WGS 84)
 Elevation: 176.9 feet

Description
 PEAT (P1) Live organic mat, grass roots
 ORGANIC SILT (OL) Brown to orange-brown, moist, with fibrous organic material
 GRAVELLY SILT (ML) Brown to orange-brown, moist, with subangular gravel to 1.5 inches and 5-10% subangular rock fragments to 2-foot diameter
 Test pit completed at 8 feet on 6/30/2008



Project No.	SEPT 2010
Date	
Designed	LAP
Drawn	DDR
Approved	LAP

REVISION	BY	DATE

CE2 ENGINEERS, INC.
 PO BOX 22290 ANCHORAGE, AK 99521 PH: 807-348-1919 FAX: 807-348-1915

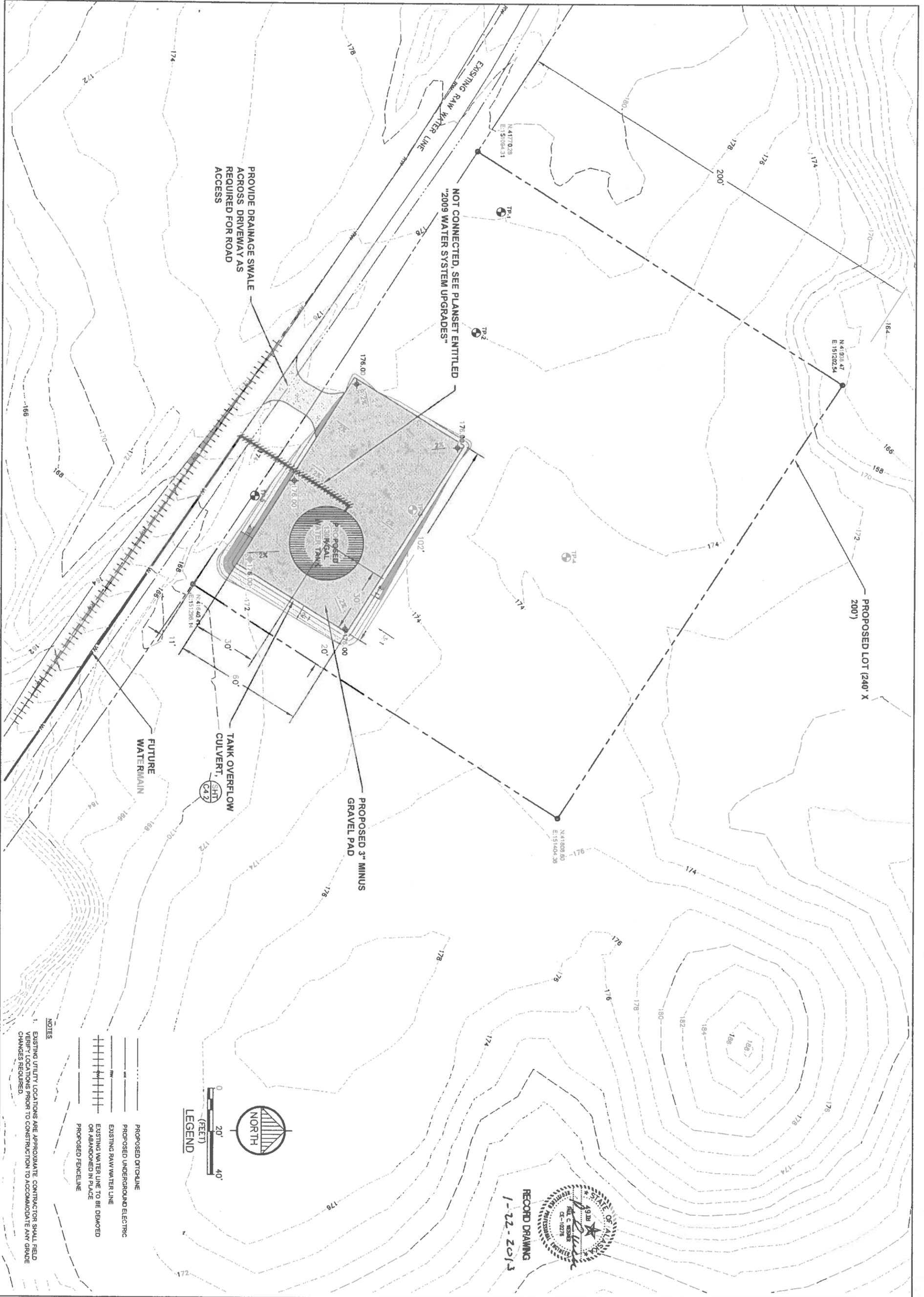
2010 WATER STORAGE TANK
 GEOTECHNICAL INFORMATION
 ATKA, ALASKA



CONSTRUCTION RECORD
FIELD BOOK
STAGING
FOREMAN
AS-BUILT
INSPECTOR

SCALE:
1" = 10'-0" (VERTICAL)
1" = 100'-0" (HORIZONTAL)

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



Project No.	
Date	SEPT 2010
Designed	LAP
Drawn	CM
Approved	LAP

REVISION	BY	DATE

CE₂
ENGINEERS, INC.
 PO BOX 22340 ANCHORAGE, AK 99523 PR: 907-348-1010 FAX: 907-348-1015

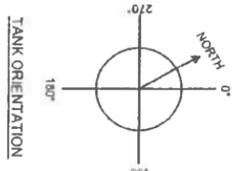
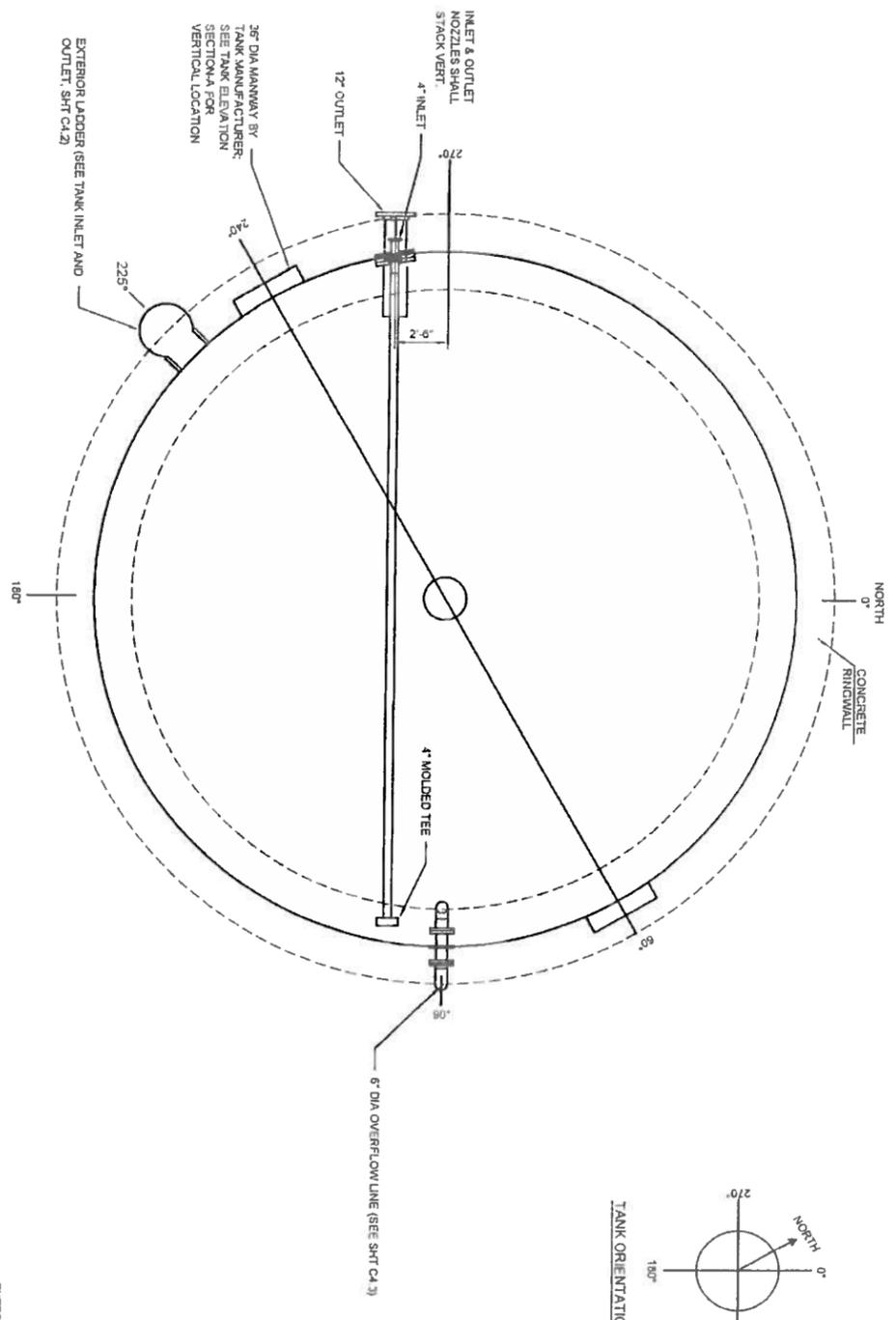
2010 WATER STORAGE TANK
SITE PLAN
WATER TREATMENT SITE
 ATKA, ALASKA



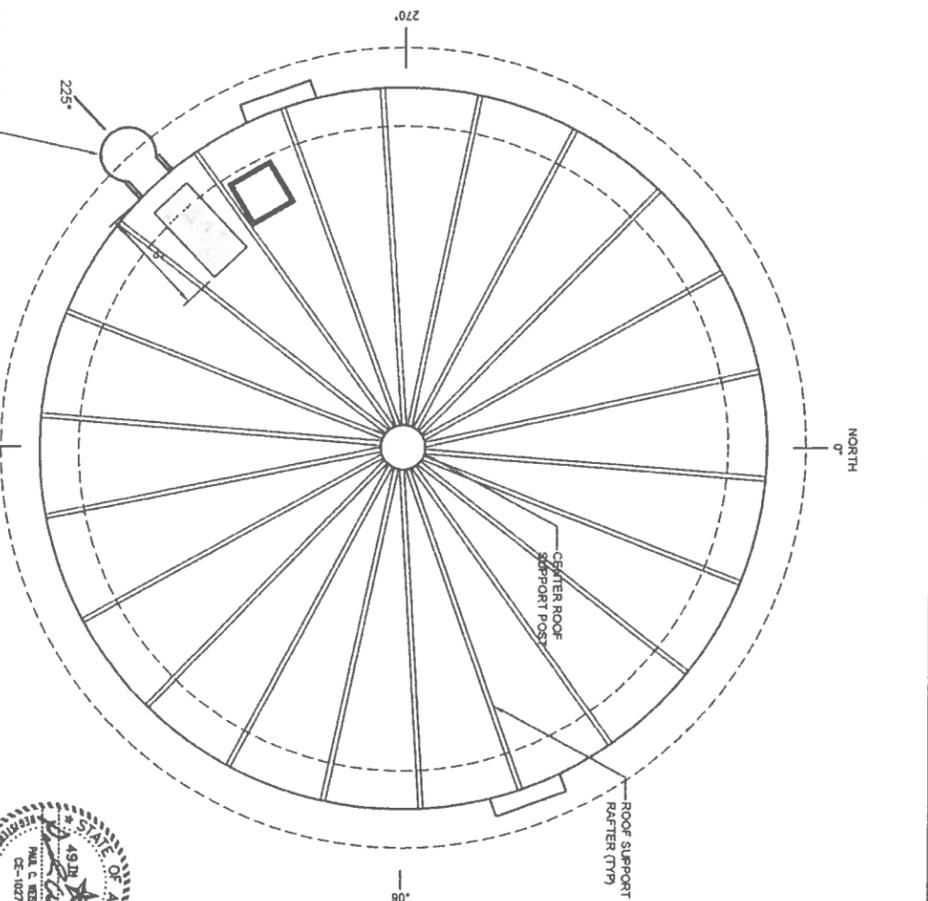
CONSTRUCTION RECORD	FIELD BOOK
STAKING	
FOREMAN	
AS-BUILT	
INSPECTOR	

SCALE:
 1" = 40'
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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

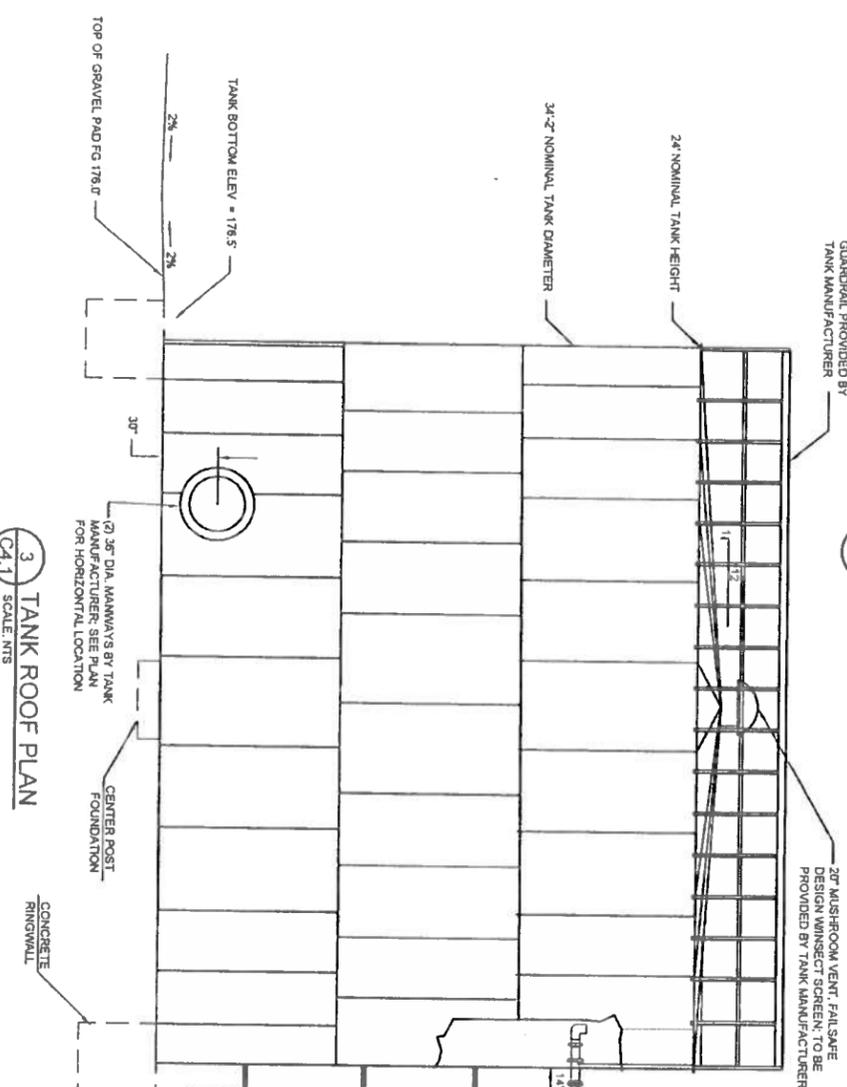


1 TANK SECTION
C4.1 SCALE: NTS



2 TANK ROOF PLAN
C4.1 SCALE: NTS

RECORD DRAWING
1-22-2015



3 TANK ROOF PLAN
C4.1 SCALE: NTS

- NOTES:
1. CONSTRUCT TANK IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED ERECTION PROCEDURES AND APPROVED ERECTION DRAWINGS.
 2. REFER TO MANUFACTURER'S ERECTION DRAWINGS FOR DIMENSIONS AND DETAILS NOT SHOWN IN THIS DRAWING SET
 3. TANK INSULATION THICKNESS 4" (NOT SHOWN FOR CLARITY).
 4. INSULATION ON TOP WILL REQUIRE SECOND DECK ABOVE.
 5. TANK MANUFACTURER SHALL PROVIDE INTERIOR AND EXTERIOR PIPE SPOOLS AT TANK NOZZLES AND PIPE SUPPORTS. ALL OTHER PIPING IS BY OTHERS.

WATER STORAGE TANK DESIGN CRITERIA	
SPECIFICATION	AWWA D100-09 BOLTED STEEL TANKS FOR PORTABLE WATER STORAGE
SIZE	130,300 GALLON NET CAPACITY WITH ALLOWANCE FOR SEISMIC SLOSHING (463,000 NOMINAL) 34'-2" DIAMETER, 24'-1 1/2" SHELL HEIGHT
CATHODIC PROTECTION	NONE
INSULATION	4" TOTAL THICKNESS, DESIGNED AND SUPPLIED BY TANK MANUFACTURER. SEE SPECIFICATIONS AND DRAWINGS FOR PIPE AND FOUNDATION INSULATION.
COATING SYSTEM	TANK SHELL - INSIDE AND OUTSIDE, NF-9 61 APPROVED POWDER COAT COLUMBIA TECH TANK TRICO-9000 EP OR EQUAL OUTSIDE ONLY. POLY URETHANE TOP COAT TANK ROOF: SHALL BE GALVANIZED PER ASTM
DESIGN LOADS	SEE NOTE 1 SHEET S1.0
FOUNDATION	SEE SPECIFICATIONS, FOUNDATIONS SUBJECT TO INTERNAL & EXTERNAL LOADS. FOR SOIL CONDITIONS SEE "GEO-TECHNICAL EXPLORATION, ATKA WATER PROJECT, ATKA, ALASKA, DATED JULY 1, 2008, BY DUANE L. MILLER, PE.

Project No.	
Date	SEPT 2010
Designed	LAP
Drawn	DDR
Approved	LAP

REVISION	BY	DATE

CE2
ENGINEERS, INC.
PO BOX 23294 ANCHORAGE, AK 99523 PH: 807-349-1010 FAX: 807-349-1015

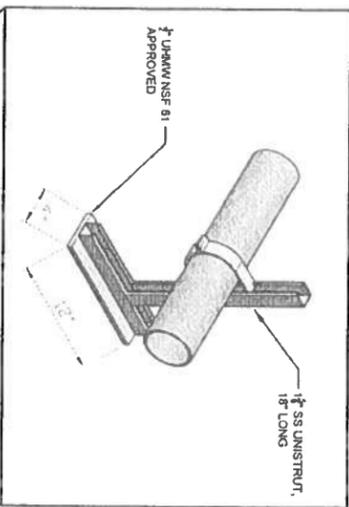
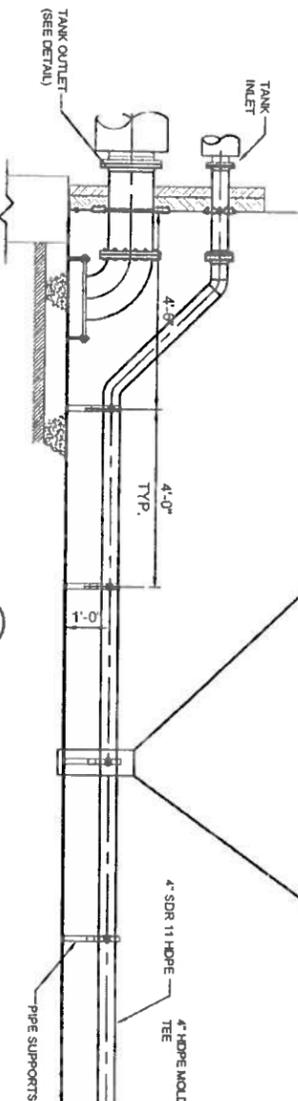
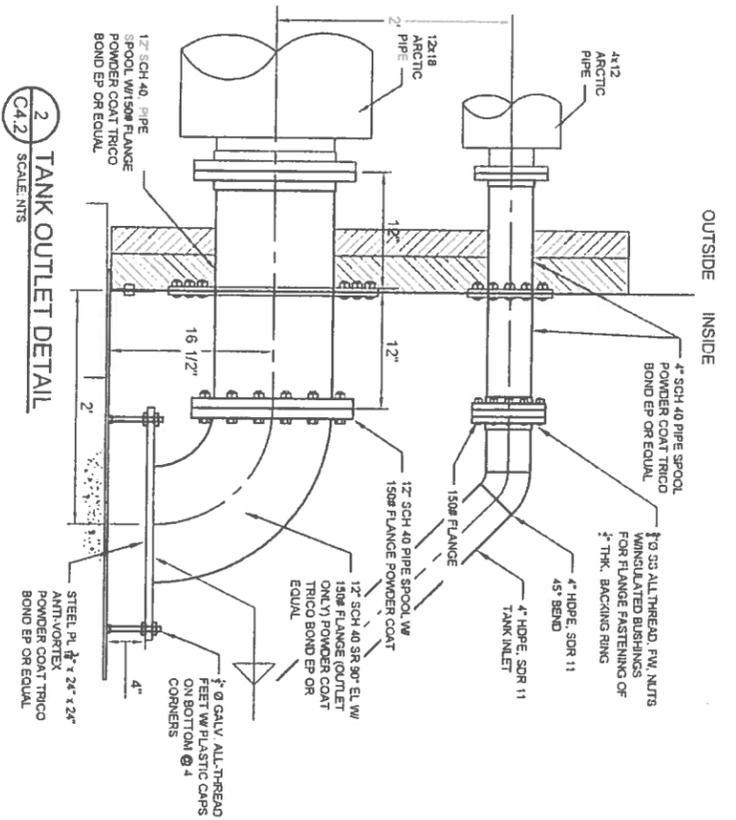
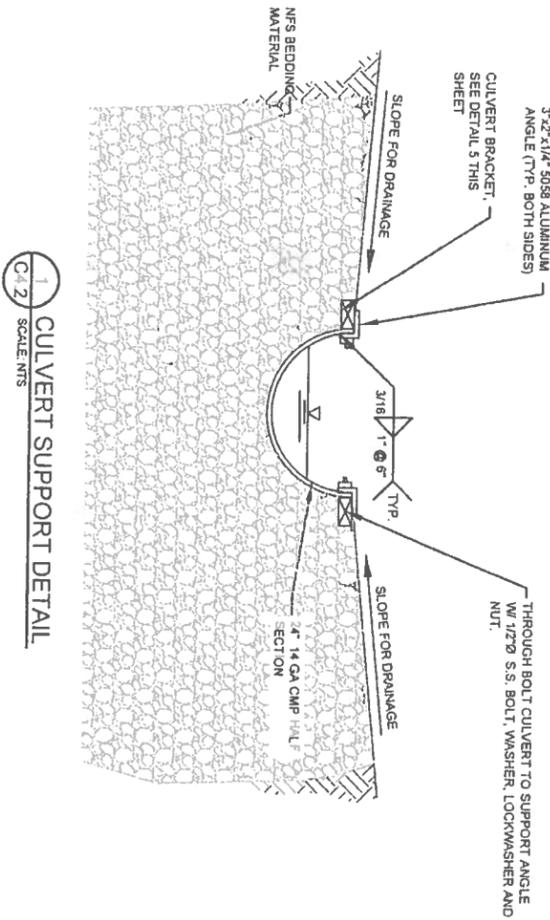
2010 WATER STORAGE TANK
WATER STORAGE TANK
PLAN AND ELEVATIONS
ATKA ALASKA



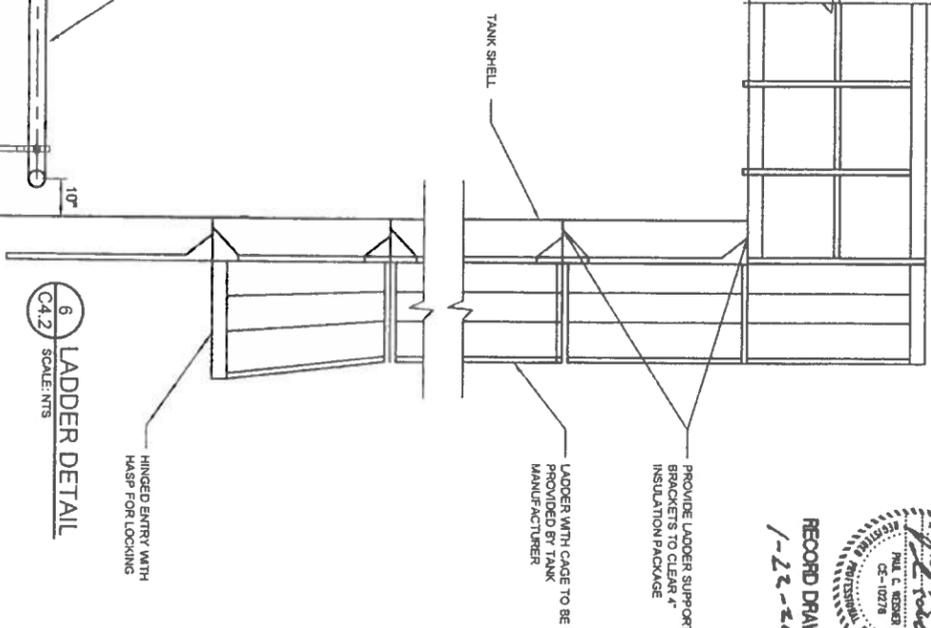
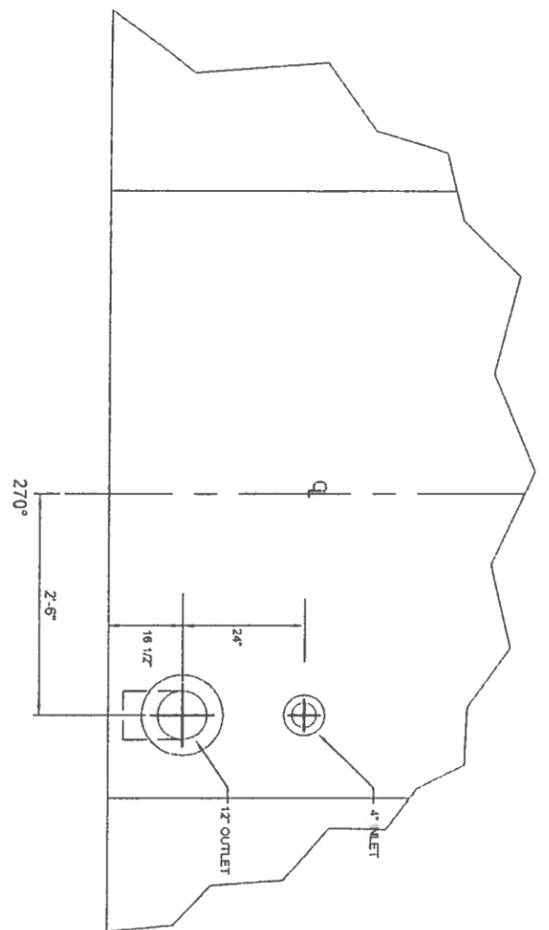
CONSTRUCTION RECORD	FIELD BOOK
STAKING	
FOREMAN	
AS-BUILT	
INSPECTOR	

SCALE:
1" = 10'-0"
1/4" = 3'-0"

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



3 PARTIAL ELEV. SHOWING TANK NOZZLES. Scale: NTS.



RECORD DRAWING
1-22-2013

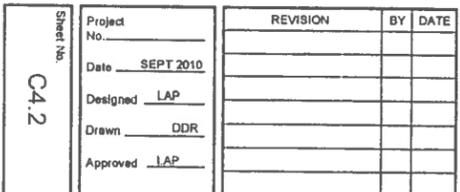


REVISION	BY	DATE

Project No.	
Date	SEPT 2010
Designed	LAP
Drawn	DDR
Approved	LAP

CE₂ ENGINEERS, INC.
PO BOX 222946 ANCHORAGE, AK 99523 PH: 907-348-1310 FAX: 907-348-1015

2010 WATER STORAGE TANK
WATER STORAGE TANK DETAILS
ATKA, ALASKA

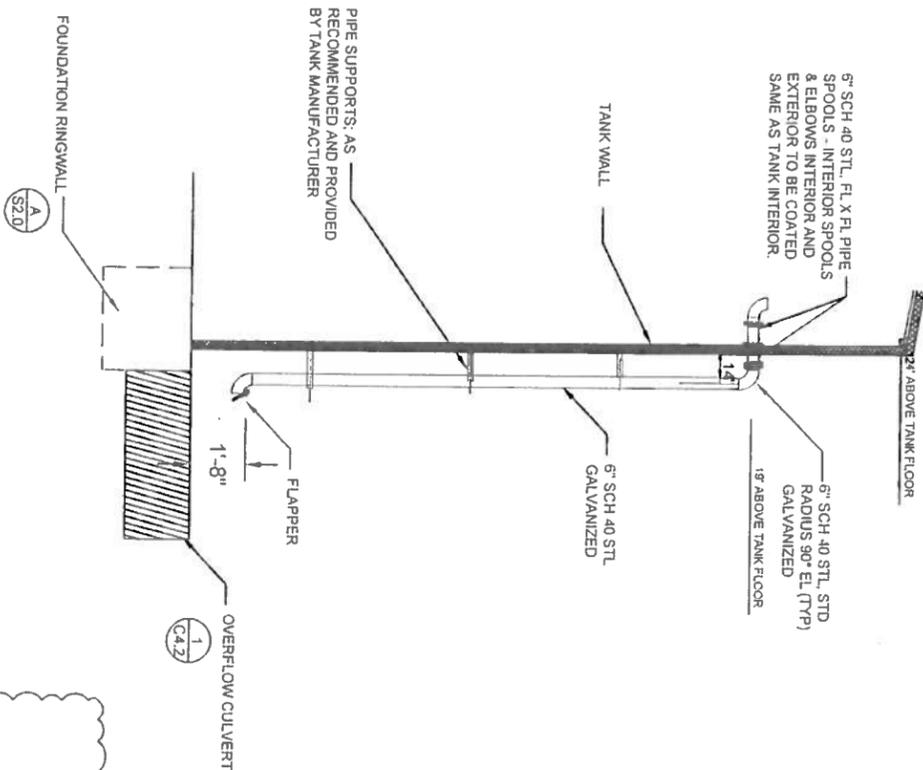


CONSTRUCTION RECORD
FIELD BOOK
STAKING
FOREMAN
AS-BUILT
INSPECTOR

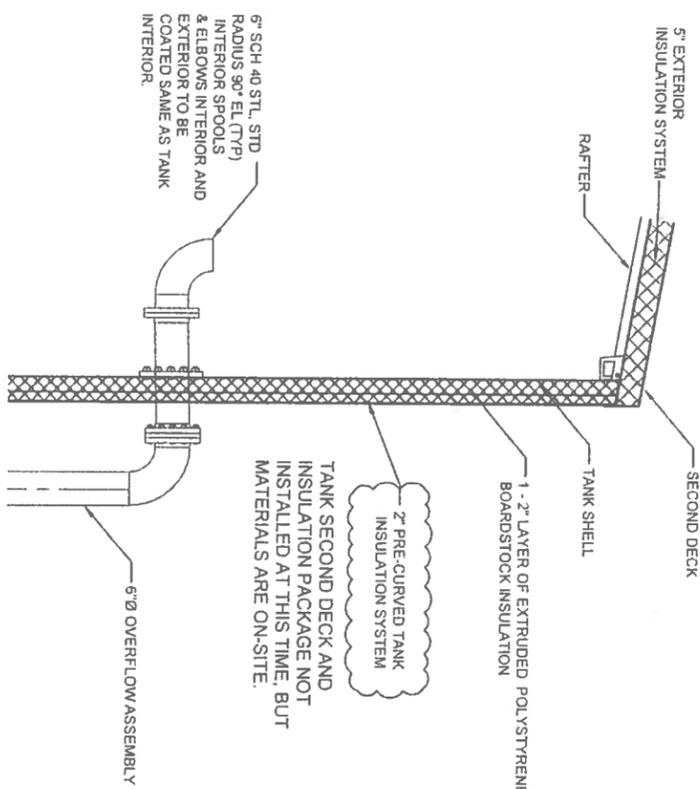
SCALE:	
BAR IS ONE INCH ON ORIGINAL DRAWING	
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE ACCORDINGLY	

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

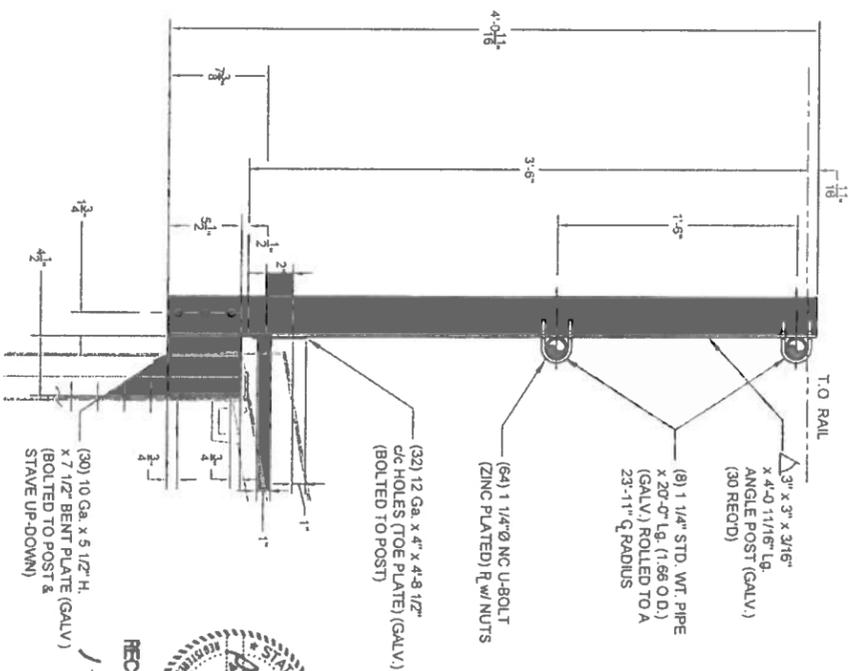
1 TANK OVERFLOW DETAIL
SCALE: NTS



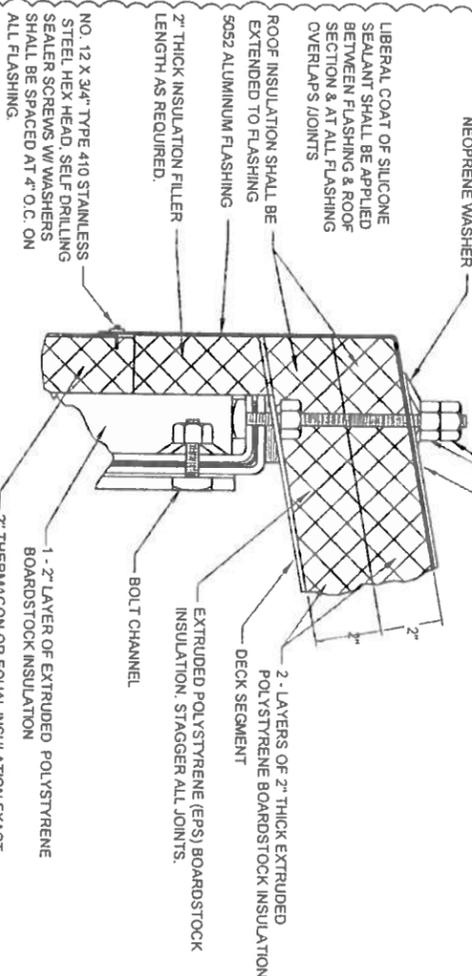
2 OVERFLOW PENETRATION DETAIL
SCALE: NTS



3 ROOF HANDRAIL POST DETAIL
SCALE: NTS
ASTY TO BE HOT DIPPED GALV. AFTER FABRICATION.



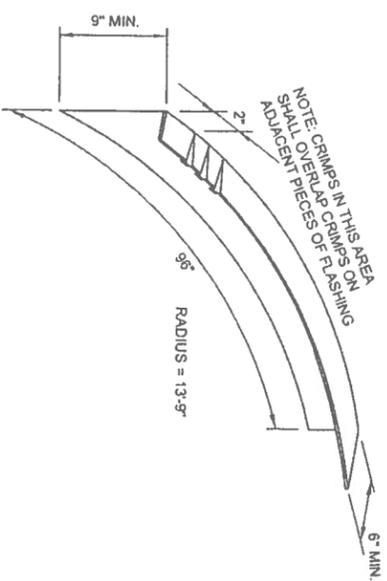
RECORD DRAWING
J-22-2013



1. DOUBLE ROOF DECK
2. UPPER ROOF PLATES SHALL BE TRIMMED AROUND MANWAY NECK & ROOF VENT NECK TO ALLOW REQUIRED FT. ALL SEAMS JOINT AROUND NECKS SHALL BE CAULKED.
3. 1/2" GALVANIZED ALL THREAD EXTENSION ASSEMBLY AROUND MANWAY AT 8" ON CENTER.
4. 1/2" COUPLING NUT (REPLACES STANDARD DECK NUT) WITH LOCK WASHER TO ATTACH TO SECOND DECK

4 BOLTED TANK ROOF INSULATION DETAIL
SCALE: NTS

5 FLASHING DETAIL
SCALE: NTS



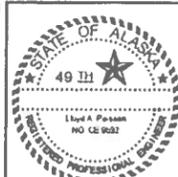
TANK SECOND DECK AND INSULATION PACKAGE NOT INSTALLED AT THIS TIME, BUT MATERIALS ARE ON-SITE.

Project No.	SEPT 2010
Date	
Designed	LAP
Drawn	DDR
Approved	LAP

REVISION	BY	DATE



2010 WATER STORAGE TANK
WATER STORAGE TANK AND OVERFLOW DETAILS
ATKA, ALASKA



CONSTRUCTION RECORD	
FIELD BOOK	
STAKING	
FOREMAN	
AS-BUILT	
INSPECTOR	

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

RECORD DRAWING CERTIFICATE	
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NAME	DATE

GENERAL STRUCTURAL NOTES

THE FOLLOWING NOTES APPLY IF RELEVANT:

CODE: 2008 INTERNATIONAL BUILDING CODE (IBC) UNLESS NOTED OTHERWISE

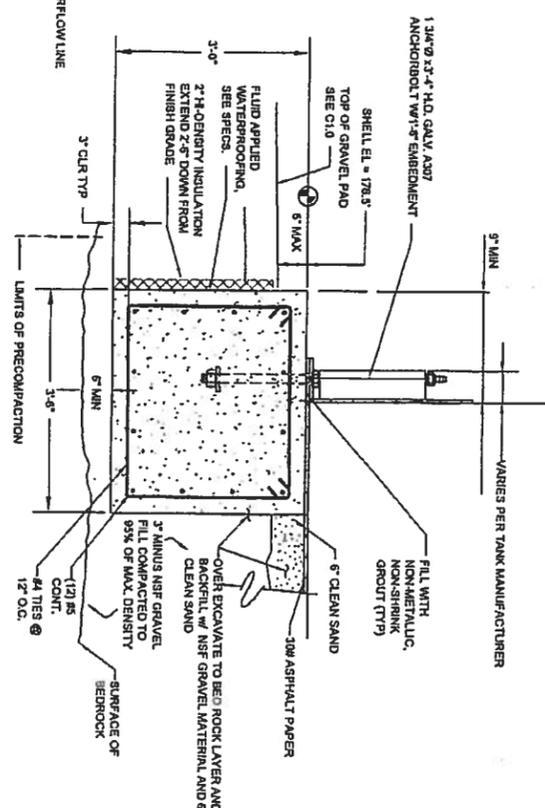
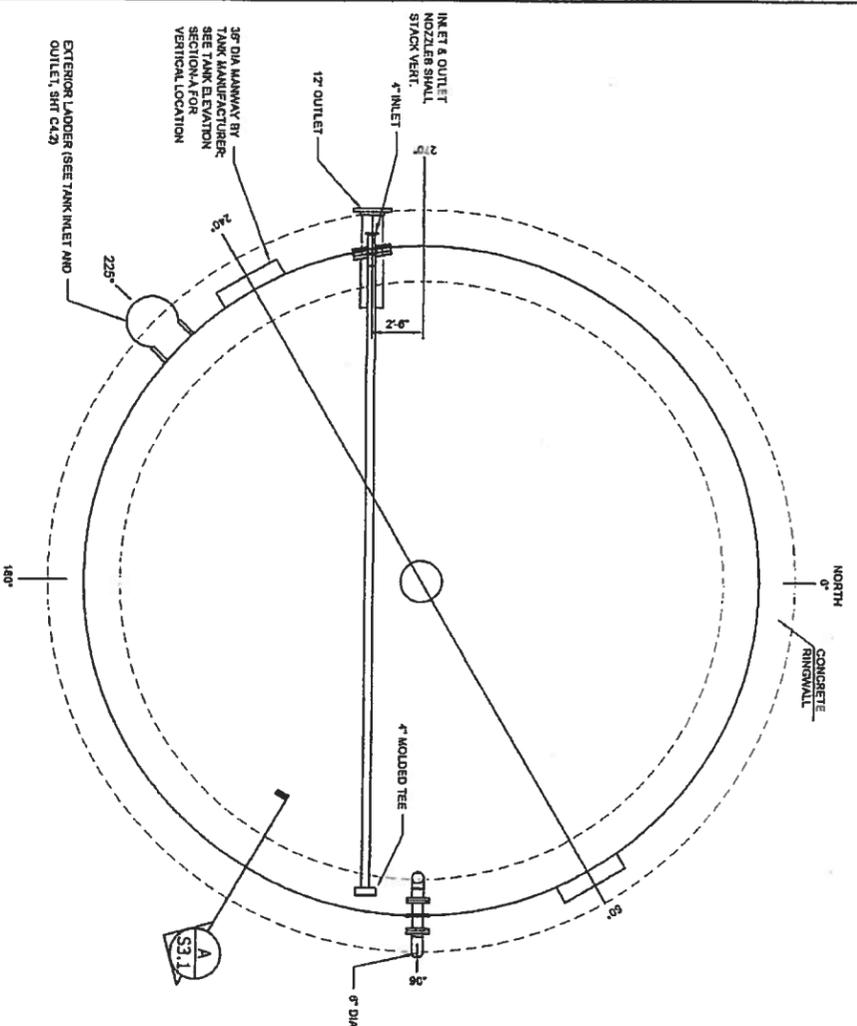
1. LOADS
GROUND SNOW LOAD = 30 PSF
FLAT ROOF SNOW, $P_f = 30$ PSF
SNOW LOAD IMPORTANCE FACTOR, $I = 1.0$
THERMAL FACTOR, $C_t = 1.0$
WIND = 130 MPH, EXPOSURE D
IMPORTANCE FACTOR, $I = 1.00$, BUILDING CATEGORY II
SEISMIC DESIGN CATEGORY D
 $S_s = 1.75$ SITE CLASS D $S_1 = 0.75$
 $I = 1.0$ $S_{DS} = 1.17$
2. CONTRACTOR TO INSPECT THE EXISTING SITE PRIOR TO BIDDING. ALL DEVIATIONS FROM CONTRACT INFORMATION THAT ARE EXPOSED TO VIEW ARE ASSUMED ACCEPTABLE AT THE TIME OF THE BID.
3. ALL DIMENSIONS MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO START OF ANY WORK.
4. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK BETWEEN SOILS TESTING LAB AND FOUNDATION CONTRACTOR.
5. FOUNDATION ALLOWABLE SOIL PRESSURE IS 3000 PSF. SEE GEOTECHNICAL REPORT FROM BY DUANNE MILLER ASSOCIATES LLC, DATED NOVEMBER 30, 2009.
THE ORGANIC SOILS, PEAT AND ORGANIC SILT SHOULD BE REMOVED FROM THE BUILDING AREA AND BE REPLACED WITH PROPERLY COMPACTED, INORGANIC FILL MATERIAL. THE REMOVAL OF WEAK SOILS SHOULD EXTEND HORIZONTALLY AT LEAST FIVE FEET BEYOND PERIMETER OF THE BUILDING. THE BOTTOM OF THE OVER-EXCAVATION SHOULD EXPOSE THE SILT WITH ROCK FRAGMENTS. THE DEPTH OF EXCAVATION SHOULD BE AT LEAST FIVE FEET. THE BOTTOM OF THE EXCAVATION SHOULD BE PROOF-ROLLED AND IF SOFT SPOTS ARE FOUND, THE EXCAVATION SHOULD BE DEEPENED.
THE MATERIAL USED TO BACKFILL THE EXCAVATION SHOULD BE A MIXTURE OF SAND AND GRAVEL. THE MATERIAL SHOULD BE PLACED IN THIN LIFTS, AND EACH LIFT SHOULD BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DENSITY OF THE MATERIAL AS DETERMINED BY THE ASTM D1557 TEST PROCEDURE.
6. CONCRETE
 $f_c = 4000$ PSI FOR FOOTINGS, SLABS AND FOUNDATION WALLS. ULTIMATE STRENGTH DESIGN METHOD USED. MIXING AND PLACING OF ALL CONCRETE AND SELECTION OF MATERIALS SHALL BE IN ACCORDANCE WITH THE IBC AND ACI CODE 318-02.
MINIMUM MIX DESIGN FOR AIR-ENTRAINED CONCRETE
SLUMP = 3-IN. TO 4-IN.
WATER CEMENT RATIO = 0.50
MAXIMUM SIZE OF AGGREGATE = 1 1/2"
AIR CONTENT = 5% ±1%
WATER = 265 LB. PER CU.YD. OF CONCRETE
CEMENT = 530 LB. PER CU.YD. OF CONCRETE
FINE SAND, FINENESS MODULUS = 2.50
FINE AGGREGATE:
= 32% OF TOTAL AGGREGATE
= 980 LB. PER CU.YD. OF CONCRETE
COARSE AGGREGATE = 2110 LB. PER CU.YD. OF CONCRETE
PROVIDE 1/2" CHAMFER TO ALL EXPOSED CONCRETE EDGES.
KEYED CONSTRUCTION JOINTS SHALL BE USED IN ALL CASES. ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED AND ALL LANTJANCE SHALL BE REMOVED. ALL VERTICAL JOINTS SHALL BE THOROUGHLY WETTED AND SLUSHED WITH A COAT OF NEAT CEMENT. USE DOWELED EXPANSION/CONTROL JOINTS PER TYPICAL DETAILS.
ANCHOR BOLTS, DOWELS AND OTHER EMBEDDED ITEMS SHALL BE SECURELY TIED IN PLACE BEFORE CONCRETE IS POURED.
NO HEATING SHALL BE ALLOWED FOR BENDING OF REINFORCING STEEL UNLESS APPROVED BY ENGINEER.
7. FIELD GROUTING
GROUT IS TO BE NON-METALLIC MASTER BUILDERS MASTERFLOW 713 NON-SHRINK GROUT OR ENGINEER APPROVED EQUIV. $f_c = 6,000$ PSI.
8. REINFORCING STEEL
ALL CONCRETE REINFORCING STEEL SHALL BE EPOXY COATED BARS A775 GRADE 60 ($f_y = 60,000$ PSI), EXCEPT ALL #4 SLAB REINFORCEMENT AND DOWELS SHALL BE GRADE 40 ($f_y = 40,000$ PSI). LAP CONTINUOUS REINFORCING BARS 40 BAR DIAMETERS 24" MIN. UNLESS INDICATED OTHERWISE. CORNER BARS (24" BEND) WILL BE PROVIDED FOR ALL HORIZONTAL REINFORCEMENT. LAPS SHALL BE WELL STAGGERED. DETAIL STEEL IN ACCORDANCE WITH ACI "MANUAL OF STANDARD PRACTICE OF DETAILING CONCRETE STRUCTURES". WELDED WIRE FABRIC (WWF) TO CONFORM WITH ASTM A185. REINFORCING HOOKS TO COMPLY WITH ACI STANDARD MINIMUM COVER TO MAIN REINFORCEMENT SHALL BE:
BOTTOM OF FOOTINGS.....3"
FORMED SURFACES--EXPOSED TO WEATHER, EARTH OR CORROSIVE ENVIRONMENT.....5"
#8 AND LARGER.....2"
#5 AND SMALLER.....1-1/2"
LAP WELDED WIRE FABRIC 2 SPACES PLUS 2 INCHES OR 12" MINIMUM.

9. SPECIAL CONDITIONS
CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD AND SHALL PROVIDE ADEQUATE SHORING AND BRACING OF ALL STRUCTURAL MEMBERS DURING CONSTRUCTION IN ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL SAFETY ORDINANCE. ANY DEVIATION MUST BE SHALL NOTIFY ENGINEER OF ALL FIELD CHANGES PRIOR TO INSTALLATION.
INSPECTION, TESTING, AND OBSERVATION SPECIAL INSPECTION AND TESTING REQUIRED PER IBC CHAPTER 17 AND BY AN INDEPENDENT TESTING LAB OR QUALIFIED LICENSED ENGINEER FOR THE FOLLOWING:
FOUNDATIONS: REINFORCEMENT VERIFY THAT ALL REINFORCING IS PLACED IN ACCORDANCE WITH APPROVED PLANS. CHECK FOR REQUIRED COVER, SIZE AND GRADE. ANCHOR BOLTS LOCATION, EMBEDMENT, SIZE, TYPE.
CONCRETE: REINFORCEMENT PLACEMENT PRIOR TO CONCRETE DELIVERY. DURING TAKING OF SPECIMENS: PRIOR TO CASTING, STRESSED SKIN PANEL ANCHORS AND THE DOWN ANCHORS AND HOLDOWN INSTALLATION; INSPECT DIAMETER, EMBEDMENT, LOCATION, NUT/PLATE ON EMBEDDED END.
10. ABBREVIATIONS:

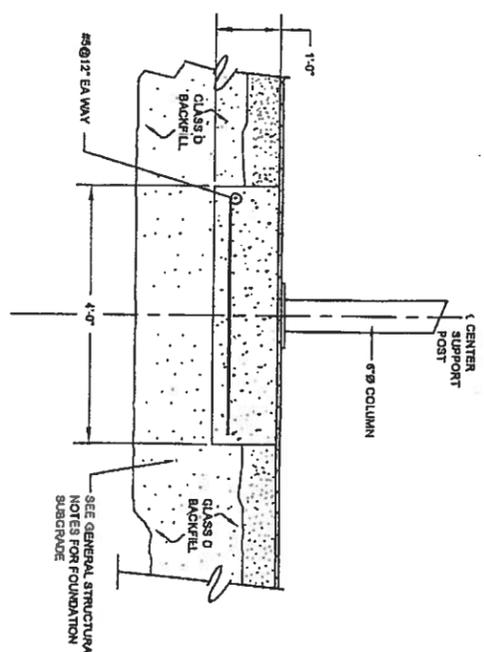
AT	PLATE
F	FEET
EA	EACH
OC	ON CENTER
TYP	TYPICAL
W/	WITH
DWG	DRAWING
UNO	UNLESS NOTED OTHERWISE
PT	PRESSURE TREATED
THK	THICK

BEBINS CONSULTING ENGINEERS, INC.
1725 J. L. BERRY BLVD., SUITE 100
ANCHORAGE, ALASKA 99503
PHONE (907) 272-1884
FAX (907) 272-1885
www.bebins.com

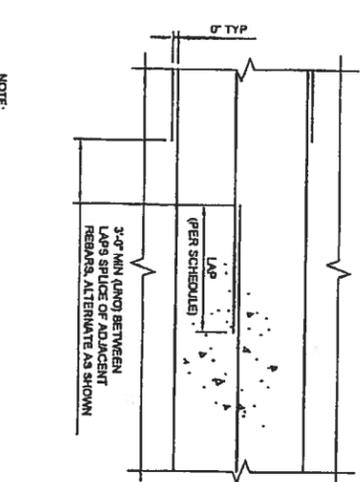
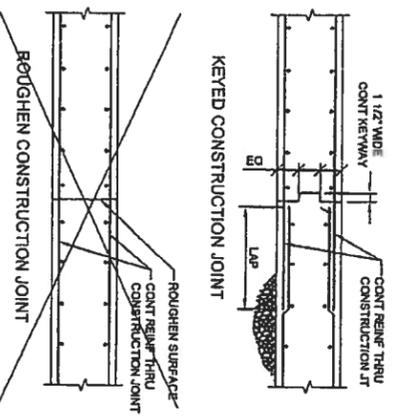
<p>Project No. _____ Date: JAN. 2013 Designed: LAP Drawn: MCB Approved: LAP</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REVISION</th> <th>BY</th> <th>DATE</th> </tr> <tr> <td>#1-TANK DESIGN ONLY</td> <td>MCB</td> <td>09/09/10</td> </tr> </table>	REVISION	BY	DATE	#1-TANK DESIGN ONLY	MCB	09/09/10	<p>CE2 ENGINEERS, INC. PO BOX 22266 ANCHORAGE, AK 99522 PH: 907-343-1010 FAX: 907-343-1015</p>	<p>2010 WATER STORAGE TANK</p> <p>GENERAL STRUCTURAL NOTES</p> <p>ATKA, ALASKA</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">CONSTRUCTION RECORD</th> </tr> <tr> <td>FIELD BOOK</td> <td> </td> </tr> <tr> <td>STAKING</td> <td> </td> </tr> <tr> <td>FOREMAN</td> <td> </td> </tr> <tr> <td>AS-BUILT</td> <td> </td> </tr> <tr> <td>INSPECTOR</td> <td> </td> </tr> </table>	CONSTRUCTION RECORD		FIELD BOOK		STAKING		FOREMAN		AS-BUILT		INSPECTOR		<p>SCALE: 1" = 10'-0"</p> <p>RECORD DRAWING CERTIFICATE THESE RECORD DRAWINGS REFLECT INFORMATION AS CONSTRUCTED, AND ARE BASED ON PERIODIC FIELD OBSERVATIONS BY CE2 ENGINEERS, WHO PROVIDED THE INFORMATION TO BCE, INC.</p> <p>NAME: <i>[Signature]</i> DATE: 1-14-13</p>
REVISION	BY	DATE																						
#1-TANK DESIGN ONLY	MCB	09/09/10																						
CONSTRUCTION RECORD																								
FIELD BOOK																								
STAKING																								
FOREMAN																								
AS-BUILT																								
INSPECTOR																								



A TANK FOUNDATION SECTION
 NOTES:
 1. REFER TO APPROVED MANUFACTURER'S SUBMITTALS FOR ADDITIONAL FOUNDATION REQUIREMENTS.
 2. TANK MANUFACTURER MUST SUBMIT RECOMMENDED TANK ANCHOR BOLTS TO STRUCTURAL ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
 3. GENERAL STRUCTURAL NOTES FOR FOUNDATION SUBGRADE.

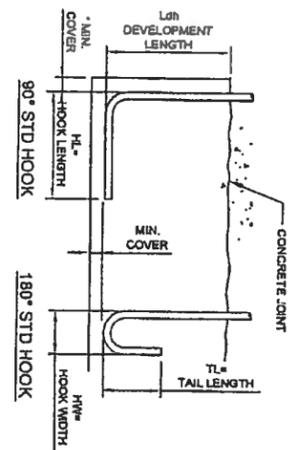


CENTER POST FOUNDATION
 NOTES:
 1. PROVIDE MINIMUM LAP SPICE LENGTHS AND EMBEDMENTS PER TABLE UNLESS NOTED OTHERWISE. EMBEDMENT LENGTH EQUALS THE LAP SPICE LENGTH UNLESS OTHERWISE NOTED.
 2. BAR SPACING AT LAP SPICE IS THE MINIMUM CLEAR DISTANCE BETWEEN LAPPED BARS PLUS ONE BAR DIAMETER.
 3. ALL SPICES TO BE CONTACT SPICES AND WELDED TOGETHER UNLESS OTHERWISE APPROVED BY ENGINEER.



CONSTRUCTION JOINT (CJ)
 NOTES:
 1. FINISH CONSTRUCTION JOINTS SHOWN HERE AT ALL WALL VERTICAL AND SLAB CONSTRUCTION JOINTS.
 2. SEE SPECIFICATION FOR REQUIREMENT TO THE WATERSTOP IN PLACE TO PREVENT MOVEMENT OR FLOWING OVER.

REINFORCING SPLICE WHEN NOT AT CJ
 NOTE:
 1. APPLIES TO SLABS AND WALLS (BOTH HORIZONTAL AND VERTICAL)



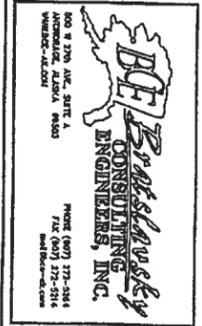
BAR SIZE	LDH *	HL	HW	TL
#3	5"	6"	3"	3"
#4	6"	8"	4"	4 1/2"
#5	10"	10"	5"	5"
#6	14"	14"	6"	6"
#7	18"	18"	7"	7"
#8	24"	24"	8"	8"
#9	30"	30"	11 3/4"	10 1/2"
#10	36"	36"	14 1/4"	11 1/2"
#11	42"	42"	17 1/4"	14 1/2"

* COMPLIANT WITH MINIMUM COVER REQUIREMENTS OF ACI 318, 12.5.3.2. OTHERWISE LDH MUST BE RE-CALCULATED.

BAR	BAR SPACED GREATER THAN 4"	BAR SPACED LESS THAN OR EQUAL TO 4"
#3	17"	30"
#4	22"	32"
#5	26"	40"
#6	30"	48"
#7	36"	62"
#8	42"	87"
#9	50"	107"
#10	60"	135"

REINFORCING HOOK SCHEDULE
 NTS

REINFORCING LAP AND EMBEDMENT SCHEDULE
 NTS



CE2 ENGINEERS, INC. PO BOX 22288 ANCHORAGE, AK 99521 PH: 907-348-1010 FAX: 907-348-1015	2010 WATER STORAGE TANK WST FOUNDATION PLAN AND DETAILS ATKA, ALASKA	STATE OF ALASKA PROFESSIONAL ENGINEER License No. 22-5370 1/24/13	CONSTRUCTION RECORD FIELD BOOK STAGING FOREMAN AS-BUILT INSPECTOR	SCALE: BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	RECORD DRAWING CERTIFICATE THESE RECORD DRAWINGS REFLECT INFORMATION AS CONSTRUCTED, AND ARE BASED ON PERIODIC FIELD OBSERVATIONS BY CE2 ENGINEERS, WHO PROVIDED THE INFORMATION TO BCE, INC. NAME: [Signature] DATE: 1-14-13
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Project No.	JAN 2013
Designed	LAP
Drawn	MCB
Approved	LAP
Sheet No.	S2.0

REVISION	BY	DATE
R1-TANK DESIGN ON Y	MCB	09/09/10