City of Unalakleet

Foothills Subdivision Master Plan

Unalakleet Alaska

February 1, 2011

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The Foothills Subdivision Master Plan was funded by the Alaska Climate Change Impact Mitigation Program which was established by Alaska's Twenty Fifth Legislature. The preparation of the Foothills Subdivision Master Plan was funded by a grant to the City of Unalakleet from the Alaska Department of Commerce, Community, and Economic Development, Division of Community and Regional Affairs.

TABLE OF CONTENTS

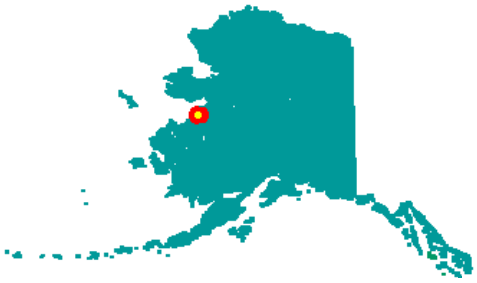
City of Unalakleet

FOOTHILLS SUBDIVISION MASTER PLAN

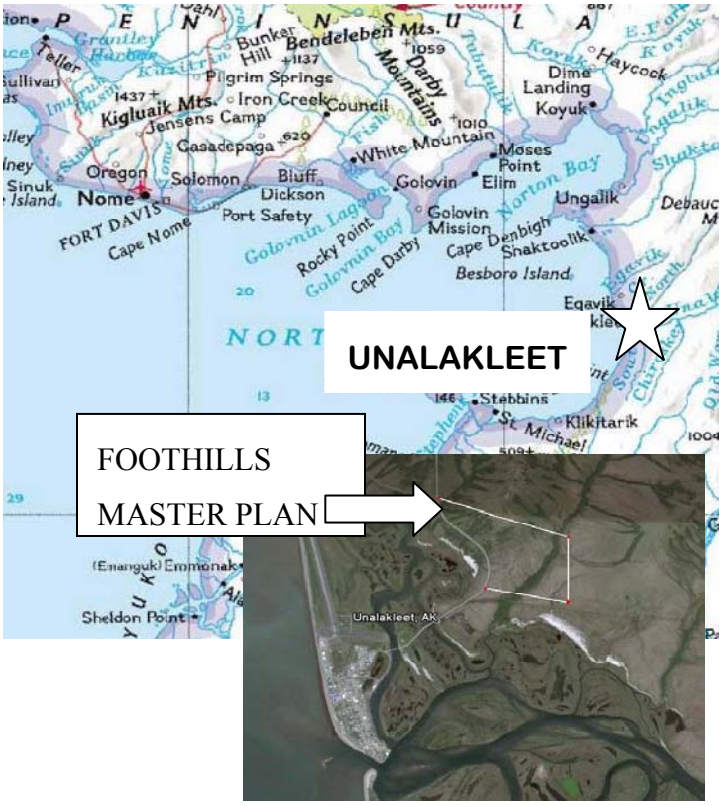
1. INTRODUCTION AND PURPOSE

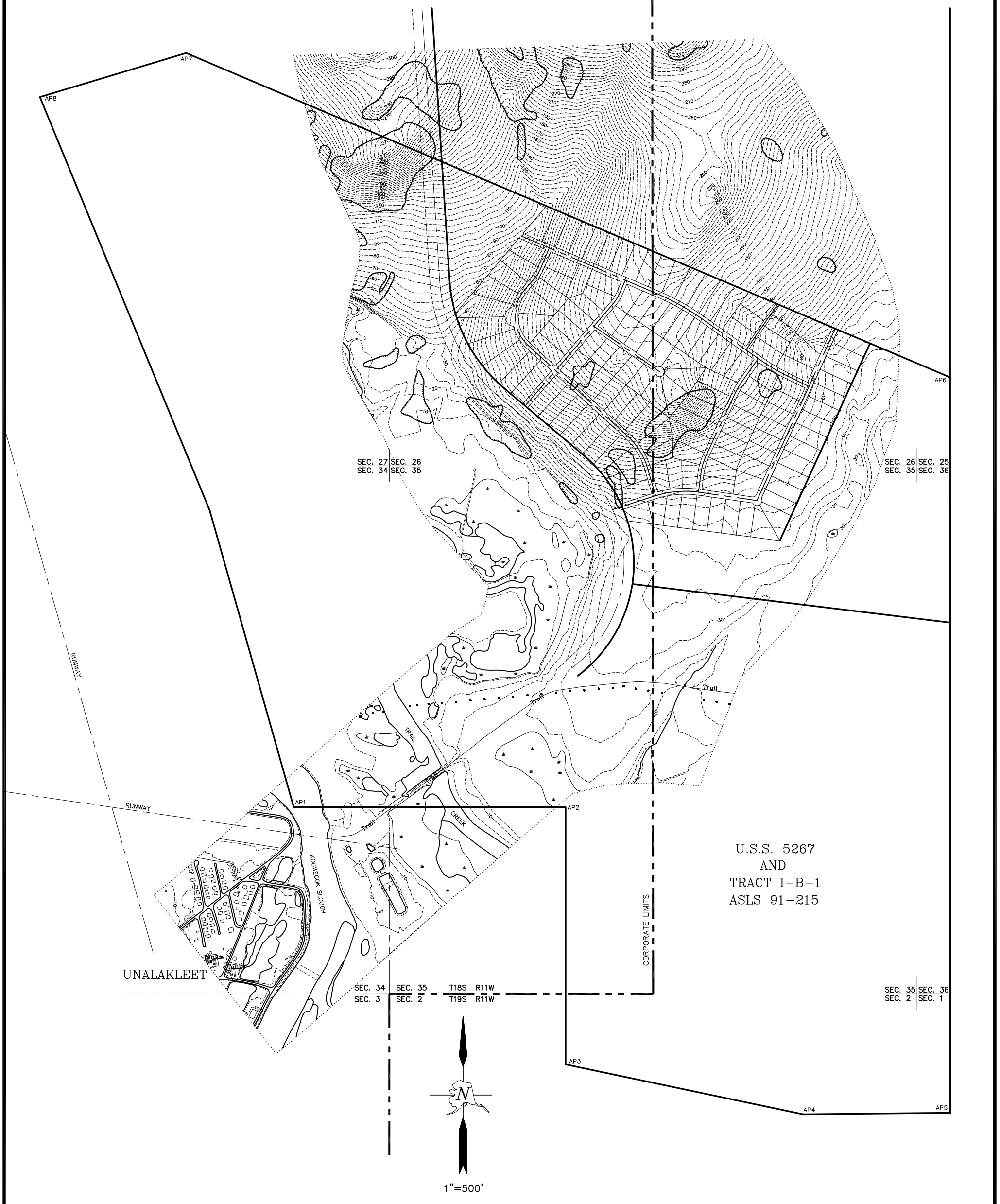
The City of Unalakleet is located on the eastern most shore of Norton Sound, where the Unalakleet River flows into the Norton Sound. Unalakleet is approximately 150 miles southeast of No me and 400 m iles northwest of Anchorage. See Figure 1. Both the community and the airport are located on a sand and gravel spit extending int o Norton Sound. The word Unalakleet means "from the south side". In 1 941, Unalakleet became a reservation under the provisions of the Indian Reorganization Act (IRA) and was granted 870 acres to be held in reserve for the community. The Alaska Native Claims Settlement Act (ANCSA), implemented in 197 1, revoked this allotment.

Figure 1



The City government was incorporated in 1974 as a second-class city. Title 29 of the Alaska State Statutes entitled the Cit y to a 1,280-acre l and allotment. Since the Unalakleet Native Corporation (UNC) selected the land within the corporate li mits, no vacant la nd was available to satisfy the City' s entitlement. Since then, the UNC has convey ed some land to the City. The State of Alaska granted 1,320 acres to the City and UNC, so me of which was part of the airport property. The City and UNC are negotiating the split of this land with the Cit y proposed to obtain about 25 percent. See Figure 2.



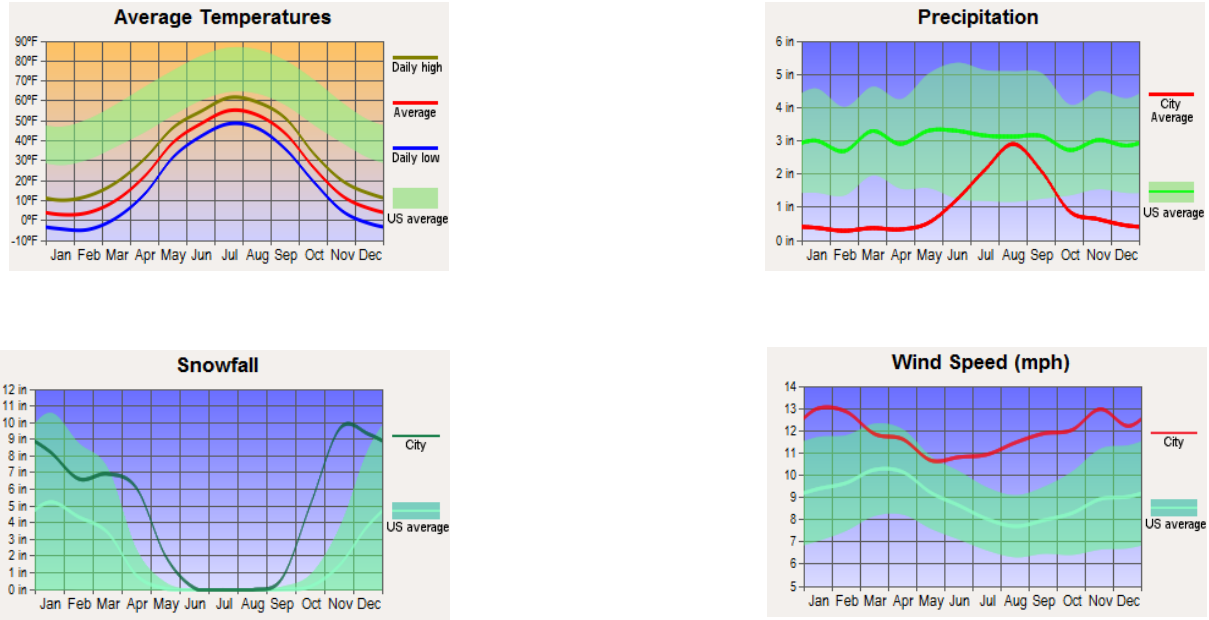


UNC/CITY LAND EXCHANGE
UNALAKLEET, ALASKA

ALASKA RIM ENGINEERING, INC.
ENGINEERS-PLANNERS-SURVEYORS
P.O. BOX 2749 PALMER, ALASKA 99645 (907) 745-0222 FAX (907) 746-0222

Unalakleet has a sub-arctic climate with considerable maritime influence when Norton Sound is ice-free. Unalakleet has cool, moist summers and dry cold winters. Summer temperatures average from 47 to 62 degrees Fahrenheit (F) and average winter temperatures from –4 to 11 degrees F. However, temperatures have been as high as 87 and as low as –50 degrees F. The Unalakleet area has an average annual precipitation of 14 inches with about 40 inches of snow in an average year. The prevailing winds in Unalakleet are mostly easterly at about 16 miles per hour. However, winds in the Unalakleet areas can be strong with gusts as high as 130 miles per hour. These gusty winds occur when large low-pressure areas in the Bering Sea deepen and move north towards the Bering Straits. When this occurs, considerable coastal flooding occurs all along the western coast of Alaska. See Figure 3.

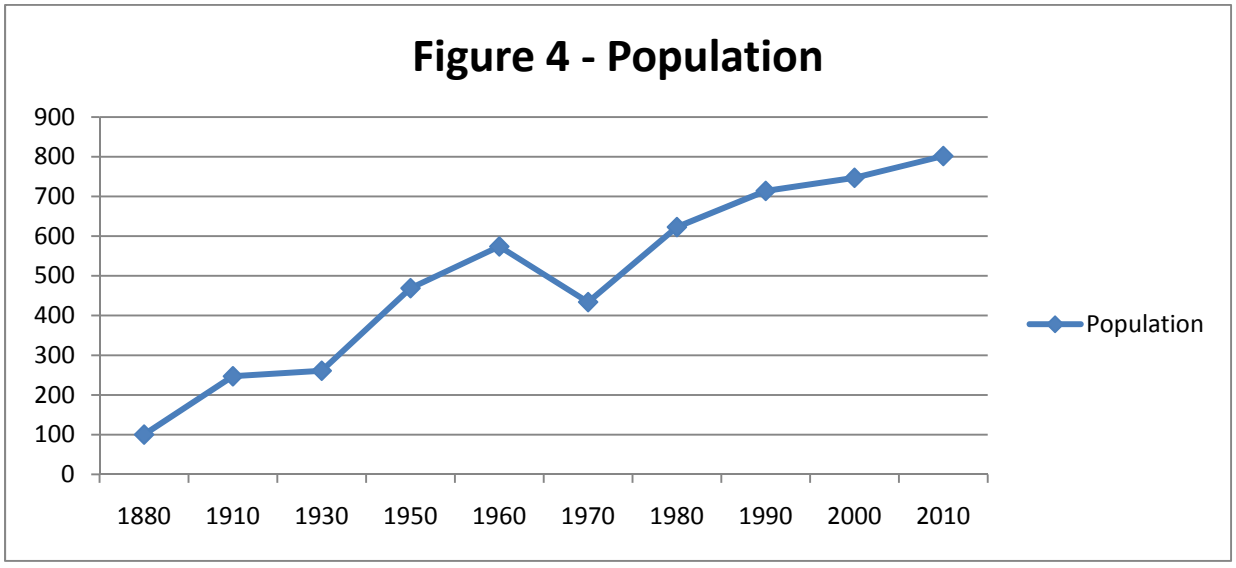
Figure 3: Average climate in Unalakleet, Alaska



Based on data reported by over 4,000 weather stations

Unalakleet is located along the base of the Nulato Hills on a spit, mostly surrounded by water. Once on the mainland, numerous small lakes, ponds, wetlands, creeks and waterways occur. The Nulato Hills has ridgelines running northeast to southwest with round crests and gentle slopes. Permafrost is widespread in the area, but in the immediate Unalakleet area, discontinuous permafrost is encountered. It appears ground water can be found at 12 to 15 feet below ground level. The Unalakleet spit has sandy well-drained soils. However, the lowland areas are composed of silty and gravelly sediments and sedimentary lagoon deposits. The slopes of the Nulato Hills are alpine tundra and thin cobbly soil with some sand and gravel over fractured bedrock, with occasional bedrock outcroppings.

The current population of Unalakleet is 802 people and growing. The community is fast becoming a sub regional hub for the Norton Sound area for aviation and health care. While commercial fishing and subsistence activities are important to the Unalakleet economy, there are considerable City, State, Federal and private enterprise jobs, which provide a relatively stable cash flow into the community. As of 2000, the public sector employed 161 residents. See Figure 4.



Unfortunately, the sustainability of jobs and increasing population are causing a housing problem. Only a few private sub-standard sized lots that are accessible to utilities are available for development.

There is no more room for future growth due to the airport being on the north end of the community, the ocean on the south and west sides, and the Kouwegok Slough on the east side. More importantly, the Spit is prone to erosion and flooding. The Spit continues to erode where the Unalakleet River flows into Norton Sound. Due to the Spit's low elevation, fall storms and high tides have caused severe flooding in recent years.

The Alaska Army Corps of Engineers (ACOE) have determined that the flood in 1965, caused by a coastal storm, was approximately 18 feet Mean Sea Level (MSL) and has determined this to be the 100-year flood level. ACOE recommends a building elevation of at least 19 feet MSL for Unalakleet. See figure 5.

Figure 5

Unalakleet | City Office: (907) 624-3531 | Revised:

STATUS	**2nd class city**	**LAST FLOOD EVENT**	**1974**
POPULATION	**805**	**FLOOD CAUSE**	**coastal storm**
BUILDINGS		**ELEVATION**	**15 MSL**
RIVER SYSTEM	**Unalakleet River**	**FLOOD OF RECORD**	**1965**
COASTAL AREA	**Norton Sound**	**FLOOD CAUSE**	**coastal storm**
		ELEVATION	**18 MSL**
NFIP STATUS	**not participating**	**WORST FLOOD EVENT**	
FLOODPLAIN REPORT	**yes**	**FLOOD CAUSE**	
FLOOD INSURANCE STUDY	**no**	**FLOOD GAUGE**	**no**

Comments:

1984 flood level	**18.0 ft MSL**
Recommended building elevation	**19.0 ft MSL**

The flood of record (November 1965) reached an elevation of approximately 18 ft MSL. This is estimated to represent the 100-year flood elevation. The November 1974 flood was the next highest flood, which was about 3 ft lower than the 1965 flood.

Floodplain Manager (907) 753-2610

A study by the Natural Resource Conservation Service indicates that 109 of the 263 structures in the community would be impacted by a 100-year Base Flood event. See Figure 6.

The City Administration in 2003 began to examine the prospects of relocating the community to higher ground. This Subdivision Master Plan outlines the proposed development. The purpose of this Plan is to work with the Unalakleet City Council to create a long-term vision for the Foothills Subdivision that will manage and focus its development.

Community Map
UNALAKLEET

63° 52' 56" N 160° 47' 07" W (NAD 83)
Approximate Elevation: 28'
Townships 18 & 19 South, Range 11 West, K.R.M., AK
U.S.G.S. Quadrangle "UNALAKLEET D-4," Alaska
CAPE NOME RECORDING DISTRICT

LEGEND

- Residential Building
- Commercial Building
- Public Building
- Erosion Areas
- Flood Areas
- Edge of Water
- Cultural Site

0 100 200
SCALE IN FEET

SCALE: 1"=100'
Date of Photography: June, 2004
Magnetic Declination computed by U.S.G.S. Geomag Program using AK-2000.COF model as of August 15, 2004

SHEET 1 of 4

UNALAKLEET COMMUNITY MAP SHEET 1 1"=100' (2004 PHOTOGRAPHY)

AREA MAP INSET 1"=2640'

0 2640 5280 SCALE IN FEET

USS No. 9363 Lot 1
USS No.5267 Lot 7
USS No. 5267 Lot 6A
SEC. 23 UNC
SEC. UNC
USS No. 9363 Lot 2
SEC. 2 UNC
USS No. 5285 Lot 13
UNALAKLEET CITY BOUNDARY
USS No. 5285 Lot 15
SEC. 22 UNC
SHEET 3
ASLS No. 91-215
USS No. 5285 Lot 14
UNALAKLEET AIRPORT BOUNDARY

APPROXIMATE LOCATION
25' Access Trail Easement
EIN 1
(Winter Use Only)

Fishing
Tom Cod
Smelts

20' OUTFALL ESMT.
Bk.358, Pgs.954-980
10-19-2000

Gabion Dike Subject to Active Erosion

UNALAKLEET RIVER

50' PUBLIC ACCESS EASEMENT PLAT 87-11

Salmon and Blackberry Picking
Bird Hunting
Duck Eggs
Berry Picking
Greens-(Sourdock)

SEC. 3
Pat. No 50-2004-0462
UNALAKLEET NATIVE CORPORATION

18 1/2° E Magnetic North
True North

New UVEC Power Plant Pipeline
New Gas Barge Off-Loading Pipeline
New Diesel Barge Off-loading Pipeline

KOUWEGOKI SLOUGH

JOHNSON LAKE
Plat No. 88-08
Plat No. Stefano Tanks
UNC Tanks Plant
Plat No. 95-5
Plat No. 95-08
Plat No. 2002-7
Plat No. 98-11
RIVER ROAD
POND ROAD
BEACH ROAD EAST

50' PUBLIC ACCESS EASEMENT PLAT 87-11
Boat Landing Area
Plat No. 2001-17
Plat No. 94-1
Plat No. 2002-3
Plat No. 87-11
Boat Landing Area
Plat No. 2001-16
Plat No. 94-6
3' PUBLIC ACCESS ESMT.

Plat No. 95-10
Plat No. 2004-16
US Survey No. 3553
Plat No. 2004-18
Pat. No. 1208904929
20' UTIL. ESMT.
BEACH ROAD EXT.
Tr C USS No.800 Amended

RIVER RD. 20' UTIL. ESMT.
MAIN STREET
20' UTIL. ESMT.
12.5' PUB. ACC. & UTIL. (TYP)
5' PUB. ACC. & UTIL. ESMT. (TYP)
SECOND STREET
20' UTIL. ESMT.
4' PUBLIC RD. ACCESS & UTIL. ESMT. (TYP)

Subject to Active Erosion

PHS CLINIC
Plat No. 2003-20

NORTON SOUND BAY

Plat No. 2000-05

ROW
12.5 Ft. UTIL. ESMT. (TYP)

Plat No. 2001-15
MAIN STREET
Old Shaft Site
FIRST STREET
Plat No. 2002-6
BEACH ROAD WEST
SCHOOL ROAD
Playground
Basketball Court
Plat No. 91-8
Plat No. 2003-29
AIRPORT DRIVE
BEACH DRIVE
Fuel Storage
NICKEL ALLEY
BEACH ROAD WEST
Plat No. 2002-5
Plat No. 94-6
Subject to Active Erosion
50' PUBLIC ACCESS EASEMENT PLAT 87-11
Buluga, Seal
Oogruk
Salmon
Dog Salmon
Fishing
BEACH WEST ROAD
PUB. ACC. & UTIL. (TYP)
Native Historical Grave Site
Beach Greens
Plat No. 2002-4
Subject to Active Erosion
NORTON SOUND

Area is subject to the following RS 2477 Trails:
1. RST 218 Unalakleet-St. Michael Trail
2. RST 299 Kaltag-Topkok-Solomon-Nome Trail
3. RST 456 Unalakleet-Beeseon Slough Trail
Contact Dept. of Natural Resources for more info.

ARE
Engineers : Planners : Surveyors
ALASKA RIM ENGINEERING, INC.
P.O. Box 2749 PALMER, AK 99645
9131 E. FRONTAGE ROAD, SUITE 1
PH: (907)745-0222 : FAX: (907)746-0222
EMAIL: akrim@alaskarim.com : WEB: www.alaskarim.com

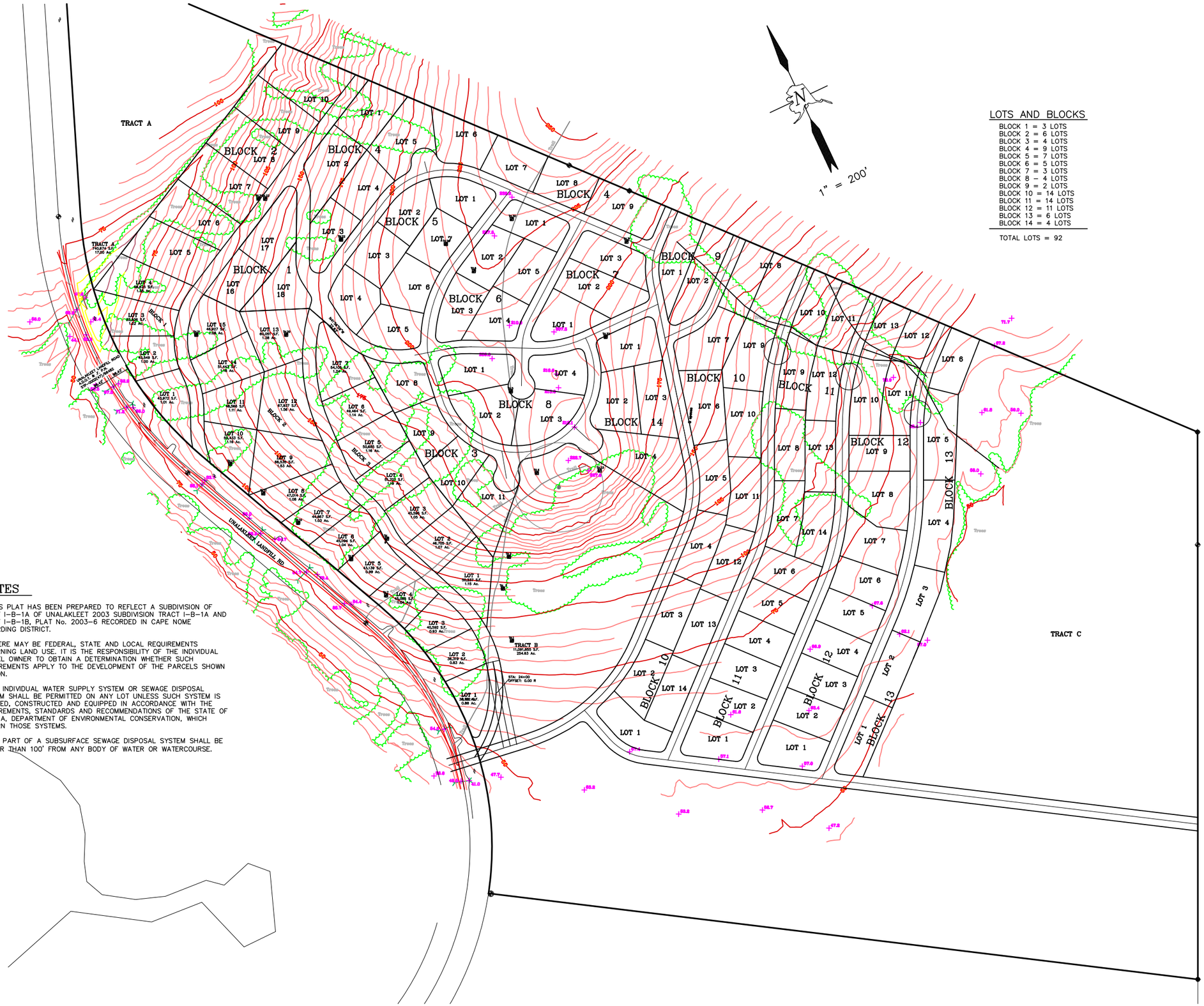
2. BACKGROUND

The City of Unalakleet (City), Alaska experiences both coastal and river flooding. This flooding causes shoreline erosion on both sides of the Spit. The erosion creates an access problem at the harbor as well as a loss of land and public and private property. Approximately 25-35 percent of the Spit would be under water. Figure 6 shows the portion of the Spit that would be under water during a 100-year flood event. Due to its geographical location, there is neither room for expansion nor room to move such buildings. City Leaders started to look for viable option to migrate the town's population to high ground in 2003.

The City determined that the most favorable area for public and residential expansion would be in an area along the BIA (Bureau of Indian Affairs) Road and the Landfill Access Road. These areas are above the flood level, outside the airport clear zone, and shielded from most of the easterly winds. Unfortunately, the initial cost of extending utilities to such development hinders progress.

A number of funding agencies could provide funds to the development. However, it is difficult to get such funding for new development, without some local effort to start the process. The City has started that process by a City resolution and obtaining funding to prepare a master plan for the Foothills Subdivision development. ADEC (Alaska Department of Environmental Conservation) Village Safe Water (VSW) has funded water and wastewater utilities in the current City. They could fund a water and wastewater project, once there is an actual need to provide such service to existing or planned dwellings. The Alaska Native Tribal Health Consortium, US Department of Agriculture, Rural Utilities Development, and other State and Federal agencies could assist in the funding. Bureau of Indian Affairs, HUD (Department of Housing and Urban Development) funding to the Unalakleet Native Village Housing Authority, could assist with the housing construction. But, until properties with utility services are available or present and locations to build are available for building, little or no funding for capital cost of water and/or sanitary facilities and roads will be forthcoming.

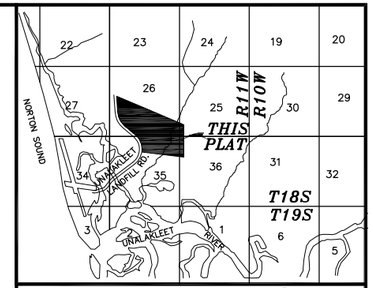
Foothills Subdivision Master Plan (Foothills), Figure 7, will allow the City of Unalakleet to systematically plan, develop, and manage the future growth of their City as economics dictates. Foothills goes beyond the typical subdivision master plan and provides the residents of Unalakleet a proposed community by design, by allowing the city to develop Foothills as the needs dictate. 1-acre lots have been provided in phase one. The master plan also allows for future development of 1-acre lots, which are required for onsite well, and septic systems. Once community water or sewer is available Foothills master plan has a second design, which contains ½ acre lots. See Figure 8. Once both city water and city sewer are provided then the 3rd design of ¼ acre lots is available. See Figure 9.



LOTS AND BLOCKS

BLOCK 1 = 3 LOTS
BLOCK 2 = 6 LOTS
BLOCK 3 = 4 LOTS
BLOCK 4 = 9 LOTS
BLOCK 5 = 7 LOTS
BLOCK 6 = 5 LOTS
BLOCK 7 = 3 LOTS
BLOCK 8 = 4 LOTS
BLOCK 9 = 2 LOTS
BLOCK 10 = 14 LOTS
BLOCK 11 = 14 LOTS
BLOCK 12 = 11 LOTS
BLOCK 13 = 6 LOTS
BLOCK 14 = 4 LOTS

TOTAL LOTS = 92



VICINITY MAP — SCALE: 1" = 1 MILE
CITY OF UNALAKLEET

CERTIFICATE OF OWNERSHIP

I, THE UNDERSIGNED, HEREBY CERTIFY THAT I HOLD THE HEREIN SPECIFIED PROPERTY INTEREST IN THE PROPERTY DESCRIBED HEREON. I HEREBY AGREE TO THIS MASTER PLAN AND PLEDGE TO DEDICATE TO THE CITY OF UNALAKLEET ALL PROPOSED AREAS DEPICTED FOR USE AS PUBLIC UTILITY EASEMENTS, STREETS, ALLEYS, THOROUGHFARES, PARKS, AND OTHER PUBLIC AREAS SHOWN HEREON IN EACH PHASE AS EACH PHASE IS RECORDED WITH THE CITY OF UNALAKLEET. ANY COVENANTS OR RESTRICTIONS APPEARING HEREON IN EACH PHASE SHALL BE BINDING AND ENFORCEABLE AGAINST PRESENT AND SUCCESSIVE OWNERS OF THIS PROPERTY AS EACH PHASE IS SUBDIVIDED AND RECORDED WITH THE CITY OF UNALAKLEET.

_____ _____
WILLIAM JOHNSON, MAYOR — DATE
CITY OF UNALAKLEET
P.O. BOX 28
UNALAKLEET AK. 99684

NOTARY'S ACKNOWLEDGEMENT

SUBSCRIBED AND SWORN TO BEFORE ME THIS ____DAY OF _____, 20 __FOR _____

_____

_____

NOTARY FOR THE STATE OF ALASKA
MY COMMISSION EXPIRES _____

PLANNING & LAND USE DIRECTOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE MASTER PLAN SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE LAND SUBDIVISION REGULATIONS OF THE CITY OF UNALAKLEET.

_____ _____
CITY OF UNALAKLEET — DATE

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR AND THAT THIS MASTER PLAN OF SUBDIVISION HAS BEEN DESIGNED BY ME OR UNDER MY DIRECT SUPERVISION. THE DATA SHOWN HEREON IS A MASTER PLAN FOR SUBDIVISION DEVELOPMENT ONLY. NO MONUMENTATION HAS BEEN SET.

_____ _____
REGISTERED LAND SURVEYOR — DATE

STATE OF ALASKA
49TH
GARY D. DRASKY
2234-S
REGISTERED PROFESSIONAL LAND SURVEYOR

NOTES

1. THIS PLAT HAS BEEN PREPARED TO REFLECT A SUBDIVISION OF TRACT I–B–1A OF UNALAKLEET 2003 SUBDIVISION TRACT I–B–1A AND TRACT I–B–1B, PLAT No. 2003–6 RECORDED IN CAPE NOME RECORDING DISTRICT.

2. THERE MAY BE FEDERAL, STATE AND LOCAL REQUIREMENTS GOVERNING LAND USE. IT IS THE RESPONSIBILITY OF THE INDIVIDUAL PARCEL OWNER TO OBTAIN A DETERMINATION WHETHER SUCH REQUIREMENTS APPLY TO THE DEVELOPMENT OF THE PARCELS SHOWN HEREON.

3. NO INDIVIDUAL WATER SUPPLY SYSTEM OR SEWAGE DISPOSAL SYSTEM SHALL BE PERMITTED ON ANY LOT UNLESS SUCH SYSTEM IS LOCATED, CONSTRUCTED AND EQUIPPED IN ACCORDANCE WITH THE REQUIREMENTS, STANDARDS AND RECOMMENDATIONS OF THE STATE OF ALASKA, DEPARTMENT OF ENVIRONMENTAL CONSERVATION, WHICH GOVERN THOSE SYSTEMS.

4. NO PART OF A SUBSURFACE SEWAGE DISPOSAL SYSTEM SHALL BE CLOSER THAN 100' FROM ANY BODY OF WATER OR WATERCOURSE.

A MASTER PLAN OF THE

FOOTHILLS SUBDIVISION 1 ACRE PARCELS

A SUBDIVISION OF

UNALAKLEET 2003 SUBDIVISION TRACT I–B–1A AND TRACT I–B–1B CAPE NOME RECORDING DISTRICT

LOCATED WITHIN PROTRACTED SECTIONS 25, 26, 35 & 36, T18S, R11W
KATEEL RIVER MERIDIAN, ALASKA
CONTAINING 305.20± ACRES

ALASKA RIM ENGINEERING, INC.
P.O. Box 2749, PALMER, AK 99645
9131 E. FRONTAGE ROAD, SUITE 1
PH: (907)745-0222 : FAX: (907)746-0222
EMAIL: akrim@alaskarim.com : WEB: www.alaskarim.com
Engineers : Planners : Surveyors

W.O. 0900153	DATE: JAN, 2011
DRAWN BY: JMC	SCALE: 1"=200'
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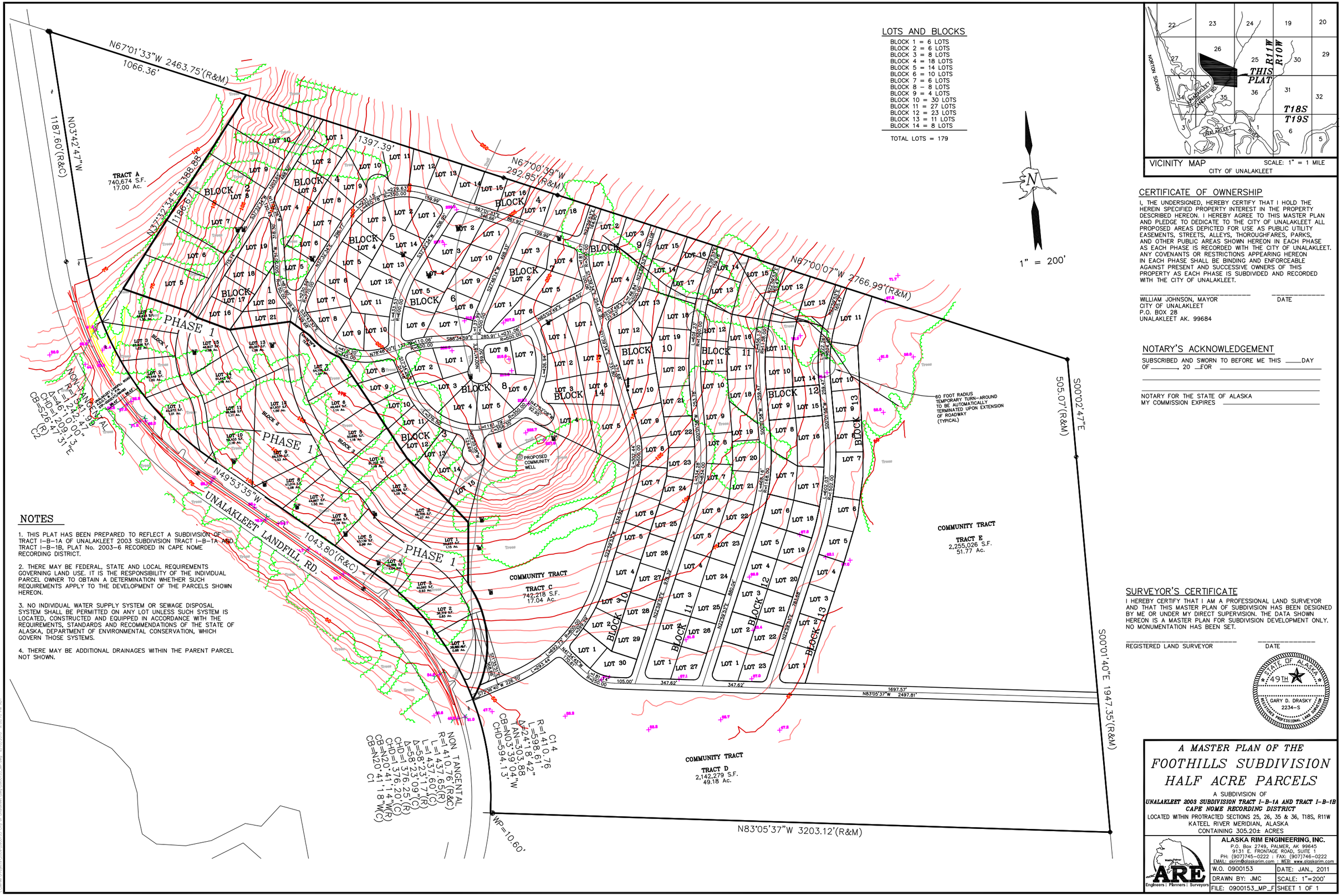

LOTS AND BLOCKS

BLOCK 1 = 6 LOTS
BLOCK 2 = 6 LOTS
BLOCK 3 = 8 LOTS
BLOCK 4 = 18 LOTS
BLOCK 5 = 14 LOTS
BLOCK 6 = 10 LOTS
BLOCK 7 = 6 LOTS
BLOCK 8 = 8 LOTS
BLOCK 9 = 4 LOTS
BLOCK 10 = 30 LOTS
BLOCK 11 = 27 LOTS
BLOCK 12 = 23 LOTS
BLOCK 13 = 11 LOTS
BLOCK 14 = 8 LOTS

TOTAL LOTS = 179

VICINITY MAP — SCALE: 1" = 1 MILE
CITY OF UNALAKLEET

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4. THERE MAY BE ADDITIONAL DRAINAGES WITHIN THE PARENT PARCEL NOT SHOWN.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR AND THAT THIS MASTER PLAN OF SUBDIVISION HAS BEEN DESIGNED BY ME OR UNDER MY DIRECT SUPERVISION. THE DATA SHOWN HEREON IS A MASTER PLAN FOR SUBDIVISION DEVELOPMENT ONLY. NO MONUMENTATION HAS BEEN SET.

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2234-S
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A MASTER PLAN OF THE
FOOTHILLS SUBDIVISION HALF ACRE PARCELS

A SUBDIVISION OF
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CAPE NOME RECORDING DISTRICT
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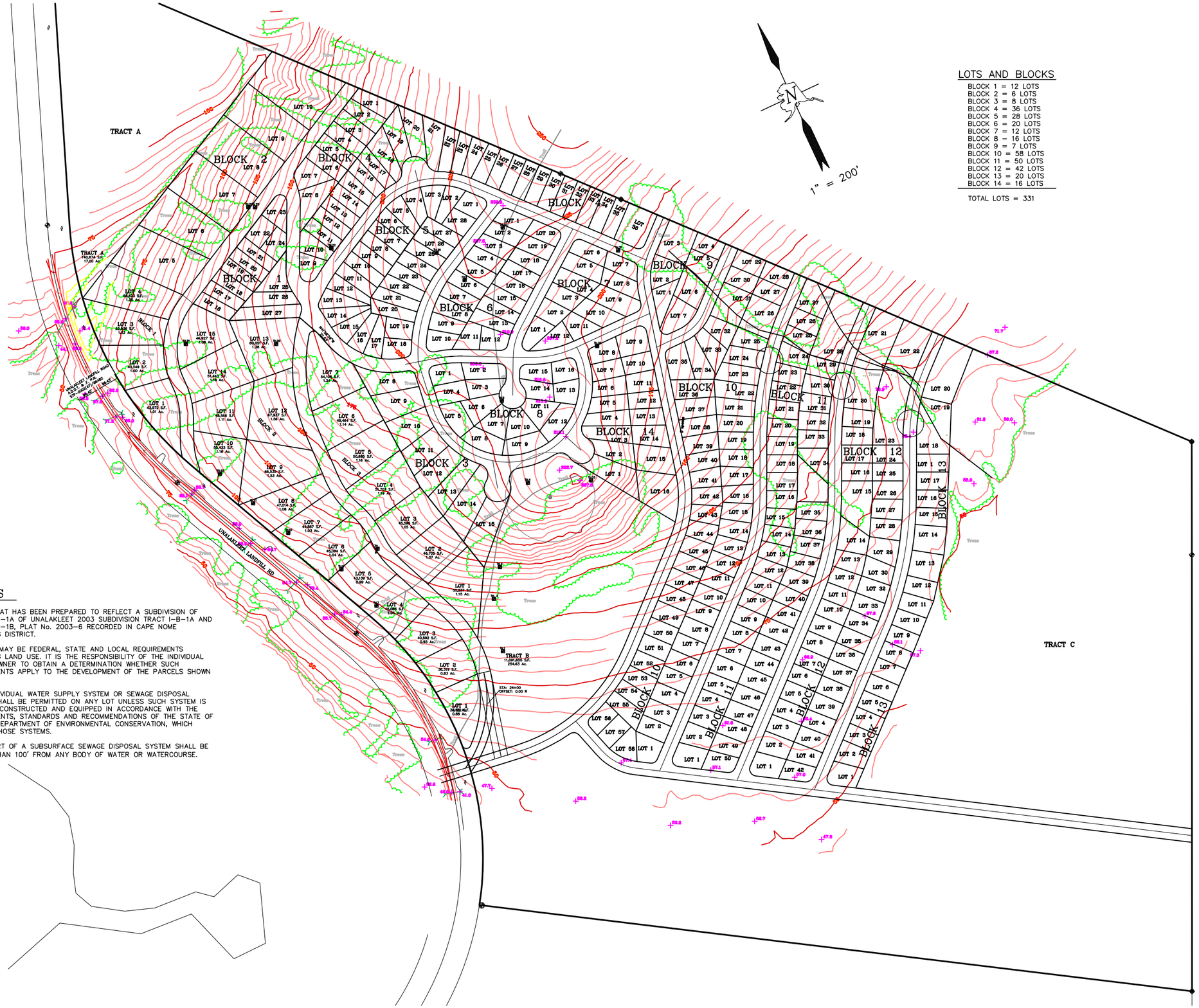

LOTS AND BLOCKS

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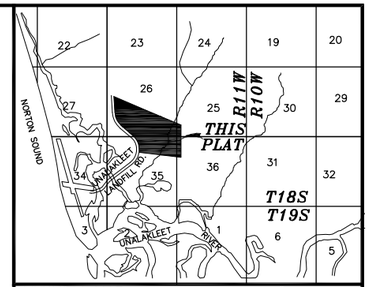
BLOCK 2 =	6 LOTS
BLOCK 3 =	8 LOTS
BLOCK 4 =	36 LOTS
BLOCK 5 =	28 LOTS
BLOCK 6 =	20 LOTS
BLOCK 7 =	12 LOTS
BLOCK 8 =	16 LOTS
BLOCK 9 =	7 LOTS
BLOCK 10 =	58 LOTS
BLOCK 11 =	50 LOTS
BLOCK 12 =	42 LOTS
BLOCK 13 =	20 LOTS
BLOCK 14 =	16 LOTS

TOTAL LOTS = 331



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MY COMMISSION EXPIRES _____

PLANNING & LAND USE DIRECTOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE MASTER PLAN SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE LAND SUBDIVISION REGULATIONS OF THE CITY OF UNALAKLEET.

_____ _____
CITY OF UNALAKLEET — DATE

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR AND THAT THIS MASTER PLAN OF SUBDIVISION HAS BEEN DESIGNED BY ME OR UNDER MY DIRECT SUPERVISION. THE DATA SHOWN HEREON IS A MASTER PLAN FOR SUBDIVISION DEVELOPMENT ONLY. NO MONUMENTATION HAS BEEN SET.

_____ _____
REGISTERED LAND SURVEYOR — DATE

STATE OF ALASKA 49TH
GARY D. DRASKY
2234-S
REGISTERED PROFESSIONAL LAND SURVEYOR

NOTES

1. THIS PLAT HAS BEEN PREPARED TO REFLECT A SUBDIVISION OF TRACT I-B-1A OF UNALAKLEET 2003 SUBDIVISION TRACT I-B-1A AND TRACT I-B-1B, PLAT No. 2003-6 RECORDED IN CAPE NOME RECORDING DISTRICT.

2. THERE MAY BE FEDERAL, STATE AND LOCAL REQUIREMENTS GOVERNING LAND USE. IT IS THE RESPONSIBILITY OF THE INDIVIDUAL PARCEL OWNER TO OBTAIN A DETERMINATION WHETHER SUCH REQUIREMENTS APPLY TO THE DEVELOPMENT OF THE PARCELS SHOWN HEREON.

3. NO INDIVIDUAL WATER SUPPLY SYSTEM OR SEWAGE DISPOSAL SYSTEM SHALL BE PERMITTED ON ANY LOT UNLESS SUCH SYSTEM IS LOCATED, CONSTRUCTED AND EQUIPPED IN ACCORDANCE WITH THE REQUIREMENTS, STANDARDS AND RECOMMENDATIONS OF THE STATE OF ALASKA, DEPARTMENT OF ENVIRONMENTAL CONSERVATION, WHICH GOVERN THOSE SYSTEMS.

4. NO PART OF A SUBSURFACE SEWAGE DISPOSAL SYSTEM SHALL BE CLOSER THAN 100' FROM ANY BODY OF WATER OR WATERCOURSE.

A MASTER PLAN OF THE

FOOTHILLS SUBDIVISION QUARTER ACRE PARCELS

A SUBDIVISION OF

UNALAKLEET 2003 SUBDIVISION TRACT I-B-1A AND TRACT I-B-1B
CAPE NOME RECORDING DISTRICT

LOCATED WITHIN PROTRACTED SECTIONS 25, 26, 35 & 36, T18S, R11W
KATEEL RIVER MERIDIAN, ALASKA
CONTAINING 305.20± ACRES

ALASKA RIM ENGINEERING, INC.
P.O. Box 2749, PALMER, AK 99645
9131 E. FRONTAGE ROAD, SUITE 1
PH: (907)745-0222 : FAX: (907)746-0222
EMAIL: akrim@alaskarim.com : WEB: www.alaskarim.com
Engineers: Planners: Surveyors

W.O. 0900153	DATE: JAN., 2011
DRAWN BY: JMC	SCALE: 1"=200'
FILE: 0900153_MP2cl	SHEET 1 OF 1

3. COMMUNITY VISION

The City Administration in 2003 began to examine the prospects of relocating the community to higher ground. Recently, the City of Unalakleet obtained 307 acres of land from the State of Alaska as part of their ANSCA Sec 14c(3) reconveyance. This land is located approximately 1-1/2 miles northeast of Unalakleet. It can be accessed from the Unalakleet Landfill Road, which borders the southwestern edge of the Nulato Hills – well above the Base Flood Elevation. The goal is to develop this land to accommodate community growth by, providing alternate housing sites located outside the boundary of the Base Flood Event, and thereby allowing Unalakleet to relocate to higher ground.

The subdivision master plan has a total of 8 phases. Each phase was designed around onsite water and wastewater disposal. The initial phase of this project is to provide 38 lots in the subdivision. The long-term goal is to provide an additional 141 lots by the implementation of additional phases in the subdivision. Phase 1 lots will be a minimum of 1 acre with the following eight phases having smaller lots. However, the lots in the remaining seven phases can be combined, if necessary to facilitate the use of on-site water and wastewater disposal systems. See Figure 7. Further, each lot in Phase I was intentionally designed to be have a wide frontage to facilitate dividing each lot in half to accommodate more housing as the need arises, if and when public water and wastewater service is available to later phases.

The purpose of this Plan is to assist the Unalakleet City Council to create a better long-term vision for the Foothills Subdivision that will manage and focus its development to:

- Adequately provide additional lots for affordable single family and multi-familyhousing on higher ground for community expansion.
- Help to establish a plan for future phases for development to adequately plan for future funding and development needs.
- Create phases for future development to accommodate the communities' growth needs.

The plan will also:

- Help create a mood for the future community.
- Maintain Unalakleet's position as a growing hub for outlying communities, elders and community health care needs within this West Coast City.

- Enhance community quality of life and recreational opportunities.

4. Land Use

Currently the area known as The Foothills is located at the foothill of the Nulato Hills. The site is undeveloped. It is used for recreation and subsistence activities.

4.1 Geology and Soil Characteristics

The property is fairly flat rising up 200 feet to a ridge. Most of the soils at lower elevation are of a peaty character, with small hummocky tussocks supporting lichen, cotton grass, sedges, and shrubs. The Nulato Hills are typically covered with alpine tundra and spotty groups of alders in thin cobbly soils over fractured rockbedrock, approximately 5 feet below the ground surface. A limited soils investigation was conducted to determine the soils ability to accept wastewater effluent. The soils logs are provided in Appendix A. Based upon this limited soils investigation, it appears the soils will be acceptable for the disposal of wastewater effluent.

4.2 Cultural Uses

The proposed subdivision site has been the source of subsistence activities in the past. Berry picking occurs during the summer along the eastern low lands. There are also some hunting opportunities for ptarmigan and other small game available in the area. Sledding along the southern hillside is the major use during the winter.

This master plan will maintain these social and recreation land uses.

5. Parks & Recreation

The Foothills area has long been an area where local children have gone to sled and families have gone to pick berries. Foothills' Master Plan Subdivision has kept these social activities. The Foothills subdivision has dedicated a green space around the snow sledding hill and berry patches. There are also areas for additional recreation and roads for access to these areas.

5.1 Parks

There are two parks proposed for recreation, in this development. Tract "S" is approximately 9 acres located in the center of the property on the south side of the ridge. This hill has been set apart for the purposes of sledding, as

XREFs/IMAGES USED FOR THIS DWG:

PLOTTED:
TIME:

LAYER MGR: *.lay
STB FILE: *.stb

DRAWING NAME:

SLEDDING AREA

HUNTING AND BERRY PICKING AREA

TRAIL

Trail

Trees

GRAPHIC SCALE

HORIZ: 150 0 75 150 300 600
VERT: 0
(IN FEET)

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EMAIL: akrim@alaskarim.com • WEB: www.alaskarim.com

FIELD BOOKS
DESIGN: –
STAKING: –
AS-BUILT: –
GRID: –

No.	DATE:	REVISIONS:	DESCRIPTION:

VERTICAL DATUM:

CITY OF UNALAKLEET

TRAILS, HUNTING AND SLEDDING AREAS

PROJECT No:	0900153
DATE:	1-26-11
DESIGNED:	–
DRAWN BY:	–
CHECKED BY:	–
CAD DWG FILE:	0900153_PL

SCALE:
HORIZONTAL: –
VERTICAL: –

SHEET 1 OF 1

shown, on the project control. The much larger park requested by the City is in the low land where historical residents of Unalakleet have harvested berries. This Tract "B" is approximately 96 acres.

5.2 TRAILS

There are existing trails in the area. The Foothills' Master Plan Subdivision proposes to use them where possible and to relocate existing ones as necessary to provide community access to an existing sledding and recreational area located to the middle of the subdivision. Many of the trails have been upgraded to subdivision roads. Trails have been provided to assist local foot traffic and provide a potential access for municipal water and sewer system. See Figure 10.

6. TRANSPORTATION – ROAD ACCESS

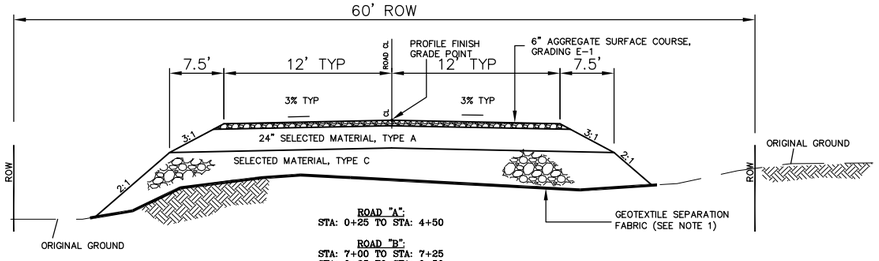
The subdivision roads were designed to the extent that they could be constructed to reasonable grades and provide safe stopping and sight distances. Additional design effort will need to be completed to have a fully designed plan set, available for funding and construction. This design was beyond the scope of this project. Typical road cross-sections are provided. However, no special cross-sections were developed for the roads in the proposed subdivision. During the future design of the roads, additional cross-sections will be developed. See Figure 11 for the typical section used to determine cross sectional alignments

6.1 ACCESS ROADS

Access to the subdivision is off the Unalakleet Landfill Road also known as the "K" road. The K road is a two-lane gravel road designed and maintained by the DOT. This main access road traverses the Nulato Hills from Unalakleet to the City landfill. There are two access points from the Unalakleet Landfill Road to the subdivision. The first access into Phase 1 will need to be redesigned as the later phases are developed. Therefore, Lot 1 Block 1, Foothills Subdivision Phase I should be held by the City to accommodate the second access road.

6.2 INTERIOR SUBDIVISION ROADS

Each interior subdivision road was designed to meet typical minimum road standards for subdivisions. In addition, every attempt was made to minimize steep grades. However, there are some portions of the roads where grades steeper than 10 percent are required.



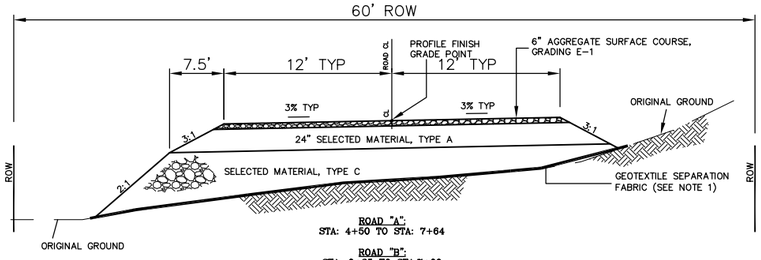
ROAD "A":
STA: 0+25 TO STA: 4+50

ROAD "B":
STA: 7+00 TO STA: 7+25
STA: 9+25 TO STA: 9+50

TYPICAL GRAVEL ROAD
SECTION 1
SCALE: NTS

NOTE:

1. REMOVE ALL BRUSH AND ANY SHARP PROTRUSIONS. DO NOT DISTURB THE ORIGINAL GROUND. INSTALL GEOTEXTILE FABRIC FIRST OVER THE ORIGINAL GRADE.

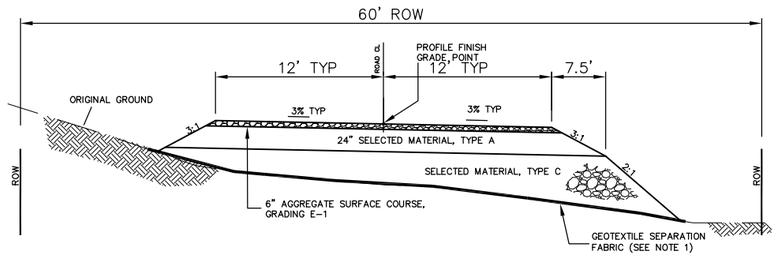


ROAD "A":
STA: 4+50 TO STA: 7+64

ROAD "B":
STA: 0+25 TO STA:7+00
STA: 9+50 TO STA: 9+92

ROAD "C":
STA: 0+30 TO STA: 5+15

TYPICAL GRAVEL ROAD
SECTION 2
SCALE: NTS



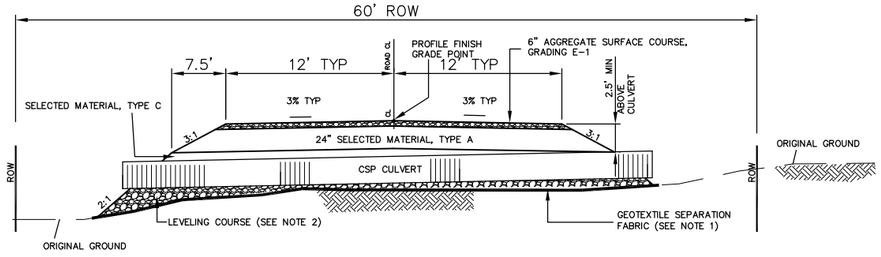
ROAD B:
STA: 7+25 TO STA: 9+25

TYPICAL GRAVEL ROAD
SECTION 3
SCALE: NTS

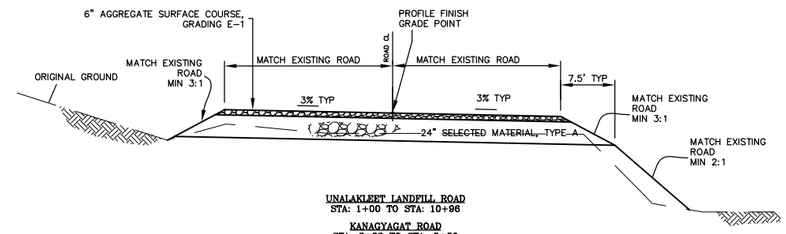
NOTE:

1. REMOVE ALL BRUSH AND ANY SHARP PROTRUSIONS. DO NOT DISTURB THE ORIGINAL GROUND. INSTALL GEOTEXTILE FABRIC FIRST OVER THE ORIGINAL GRADE.

2. FOR LEVELING COURSE USE FREE DRAINING GRANULAR MATERIAL WITH A MAXIMUM SIZE OF ¾" . DEPTH AS NEEDED.



TYPICAL CULVERT INSTALLATION
SECTION 4
SCALE: NTS



UNALAKLEET LANDFILL ROAD
STA: 1+00 TO STA: 10+86

KANAGYAGAT ROAD
STA: 2+82 TO STA: 8+50

TYPICAL GRAVEL ROAD
SECTION 5
SCALE: NTS

STATE OF ALASKA 49TH
WILLIAM S. KLEREKOPER
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REGISTERED PROFESSIONAL ENGINEER

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EMAIL: akrim@alaskarim.com ; WEB: www.alaskarim.com

FIELD BOOKS
DESIGN: –
DRAWING: –
AS-BUILT: –
GRID: –

No.	DATE:	DESCRIPTION:
		REVISIONS:
		VERTICAL DATUM:

CITY OF UNALAKLEET NATIVE CORPORATION SUBDIVISION 1 TYPICAL SECTIONS

PROJECT No:	0900336
DATE:	AUGUST 2010
DESIGNED:	BK
DRAWN BY:	VP
CHECKED BY:	BK
CAD DWG FILE:	0900336_PP.dwg
SCALE:	
HORIZONTAL:	NTS
VERTICAL:	NTS

SHEET B1 OF B3

\\Server\projects\2009\0900153 City of Unalaklee\Documentation\Master Plan\0900336_PP.dwg 1/25/2011 2:18:19 PM AST

7. Public Service and Infrastructure

This section of the Foothills Subdivision Master Plan relates to those utilities either onsite or off site that need to be provided. These systems include:

Water Supply

Wastewater Collection

Electrical Power System

Communications and Cable TV

The discussion is not intended to be an extensive analysis and design, but a rather brief summary of the types of systems considered during the subdivision development.

7.1 Water Supply

The Foothills area does not currently have economical access to the municipal water supply. The closest municipal water supply water main is over 10,000 feet away. The City once obtained water from a source located near the eastern boundary of Foothills subdivision. That local source, known as the Trail Creek Water Infiltration Gallery, is approximately 1200 feet away, however, the Unalakleet Water and Sewer Master Plan, MWH Update (Sept. 2004), indicated the Trail Creek source was not sustainable as a water source for the entire community. While this source may not fulfill the whole City's needs it is an economical alternative for this subdivision only. Another source considered is a new well, to be drilled in or near the subdivision. No wells were installed for this contract. However, M&W. Drilling who recently drilled water wells for private individuals north of the proposed subdivision was contacted. One well reportedly produces 75 gpm. This well indicates there is a good potential for private and community water wells for the subdivision.

For Phase 1, on-site wells are proposed to provide the water needs of each individual lot. However, the Trail Creek water source operating as a fill-draw system has a potential to support the water needs for the subdivision and should be considered and further investigated.

7.2 Wastewater Collection

The City of Unalakleet wastewater system sewer main is 4,600 feet away from the subdivision. Therefore, until the City has funds to extend the sewer main to the subdivision, or when additional phases to the subdivision are implemented, the subdivision will need to have on-site wastewater disposal systems. See Figure 12.

Phase 1 lot development is based on usable areas for on-site wastewater disposal. Soils test holes indicate that permafrost was present in areas where there were no trees. Where the trees were growing, there was an absence of permafrost.

M.W. Drilling's installation of private wells, outside but above the subdivision, provides some insight to the elevation of bedrock. It seems that large cobbles and boulders exist in the fractured rock, which can give a false indication of bedrock. ADEC requires a separation distance of six feet between bedrock and the bottom of the on-site wastewater disposal field. Thus having the actual bedrock deeper, the disposal field can be placed deeper to provide additional frost protection.

Since the soils investigation for this project was limited, there may be some lots that will not support on-site wastewater systems. In this case, the slopes of the lots will allow the installation of septic tanks on each lot. The actual wastewater disposal can be designed to transfer the wastewater to areas where on-site disposal can be accomplished. This may require wastewater from several lots to be fed to a combined wastewater disposal field, on lots where the soils will allow on-site disposal. See Figure 13.

The combination of multiple lots into a single wastewater disposal field unit increases the size needed to install the soils absorption fields. The absorbtion field can be one large field or multiple smaller fields. The determination of which to use is made based upon the size of the area availible on the disposal lot. Normally multiple small fields are the best choice because if one fails, the others are not affected. If a single large field fails, it effects all dwellings which use it for a disposal field.

Advanced wastewater treatment systems can be used to allow a substantial decrease in the required size of the disposal. Further, some advanced wastewater treatment type systems provide sufficient treatment that surface discharge is an option. These types of disposal systems can be used where bed rock or permafrost prevent the use of a leach field. Normally such surface discharge can be accomplished into a wetlands or a percolation lagoon.

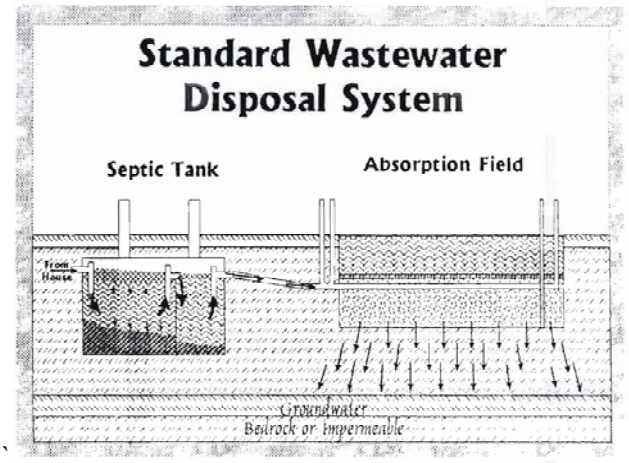
In a conventional on-site wastewater disposal system, the wastewater is collected from the home and drains into a septic tank. The septic tank is sized so that once full and operational, a gallon of wastewater goes into the tank and a gallon of anaerobic treated wastewater comes out the tank. This effluent is transferred to a wastewater disposal field, which is either a flat bed or a trench. Both the septic tank and disposal fields are buried underground, and insulated. The combination of depth of burial, insulation, and use of the system, keeps the system from freezing. See Figure 12(a).

There are a number of advanced wastewater treatment systems. Most take the effluent from the septic tank and provide additional treatment by introducing an aerobic process to the normal anaerobic treatment, which occurs in a septic tank. Aerobic means "with oxygen", and anaerobic means "the absence of oxygen". This change in

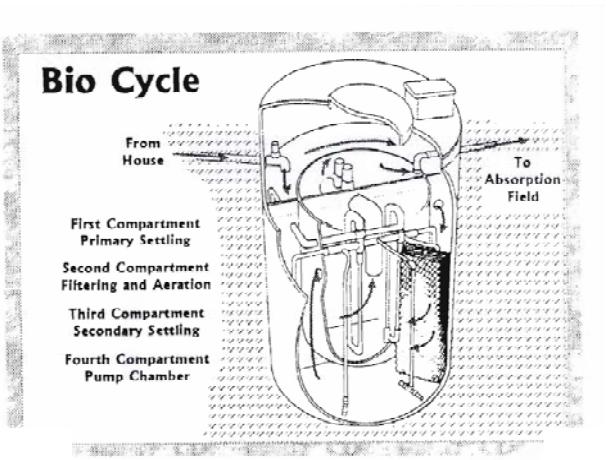
process uses various types of filtration and re-circul ation. One uses an oversized septic tank and circulates the effluent from the septic tank through a filter media and back into the septic tank. See Figure 12(b) The effluent is then pumped through a filter sy stem and then to the wastew ater absorption. See Another pum ps from the septic tank into a sand filter. The sand filt er then drain s into a normal absorption field. Figure 12(c).The most complicated is a combination of the sand filter and BioCy cle systems. This recirculated the effluent in the septic tank, then pumps the effluent from the tank to a upflow filter. The top of the upflow filter then drains the effluent into the absorption field. See Figure 12(d)

It appears that on-site wast ewater systems for Phase 1 will provide the least ex pensive wastewater solution for the development.

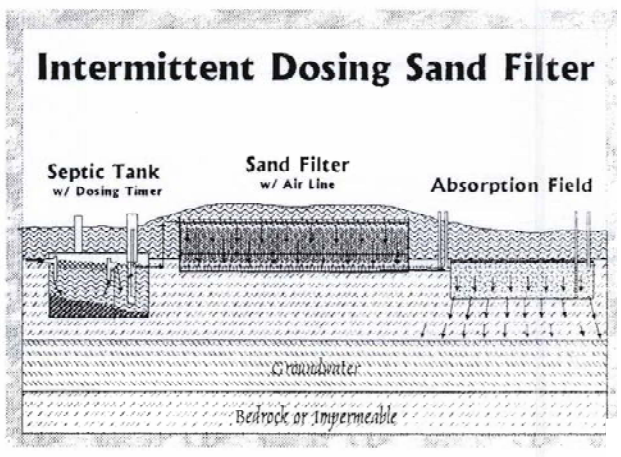
Figure 12



(a)



(b)



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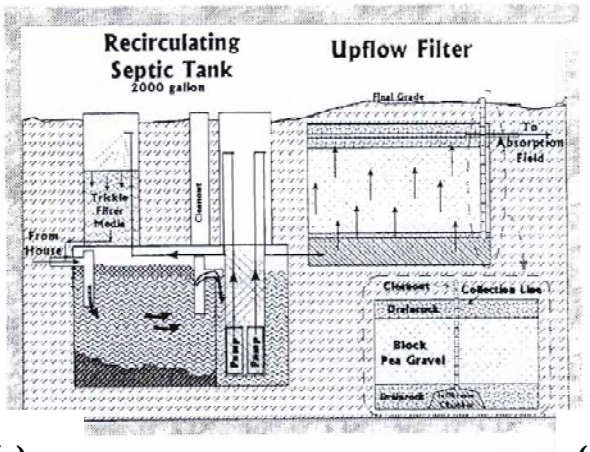
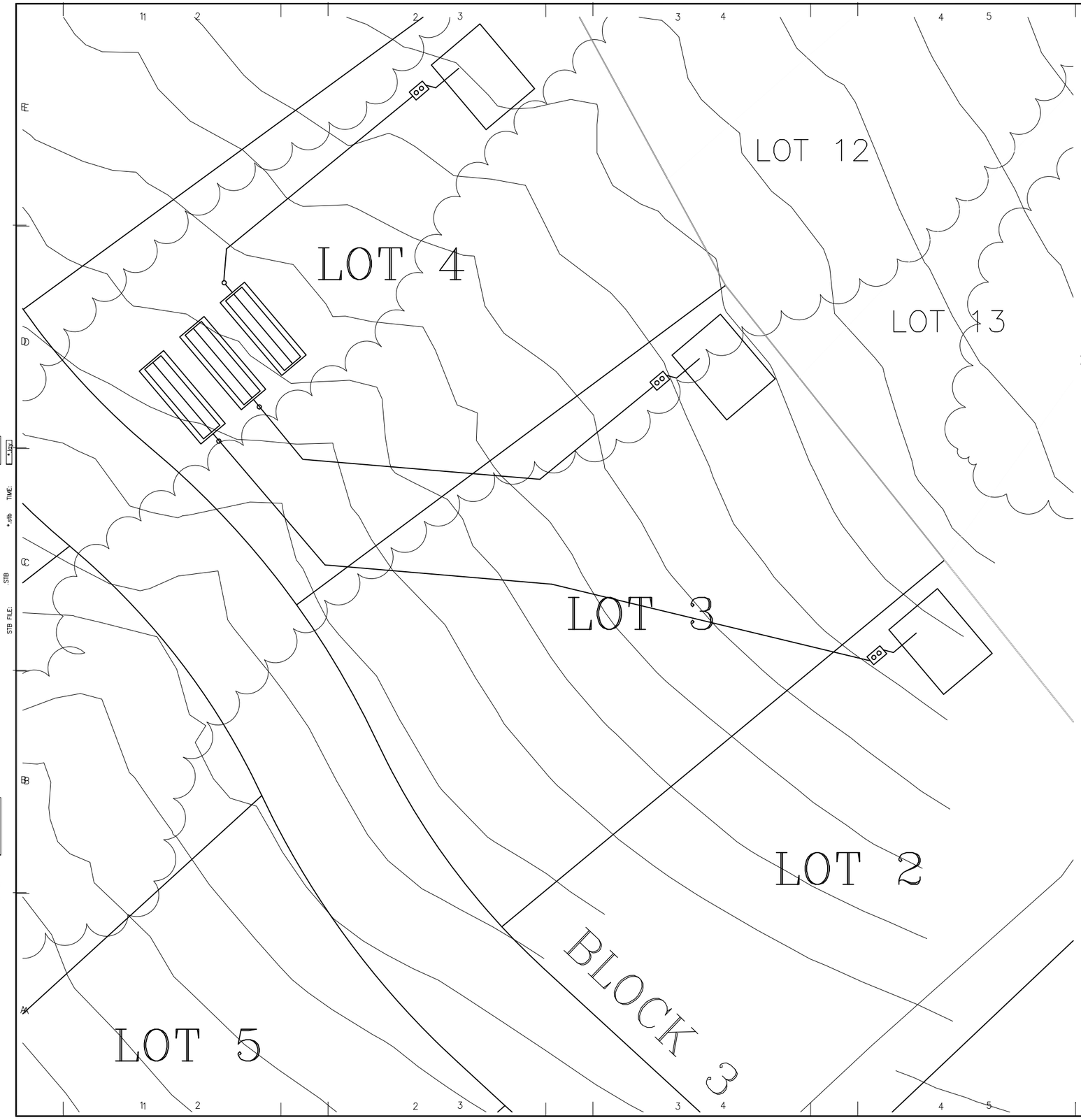
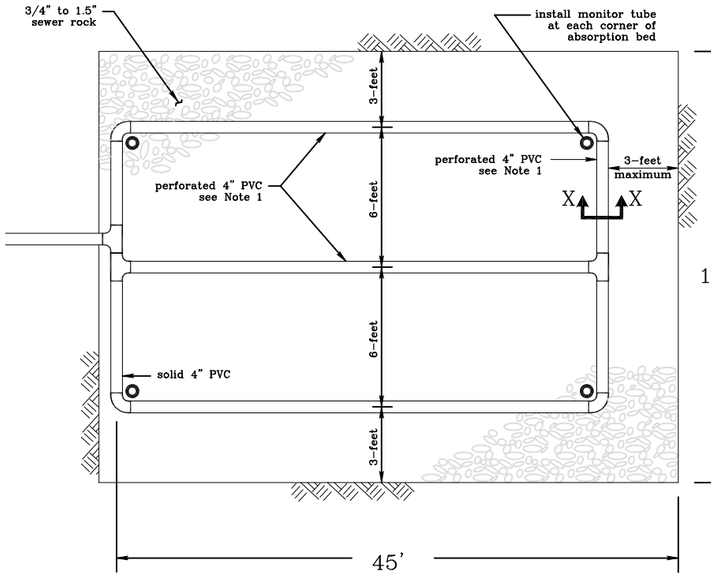


(d)



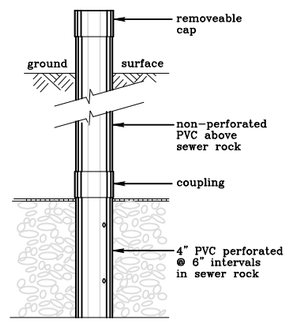


Install all perforated PVC level (within 0.01 foot of same elevation)

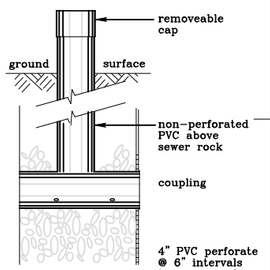
ABSORPTION BED PLAN VIEW

perforated PVC hole orientation (holes down)

SECTION X–X



MONITOR TUBE DETAIL



CLEANOUT DETAIL

XREF's/IMAGES USED FOR THIS DWG:

PLOTTED: TIME:

LAYER MGR: .LAY
STB FILE: .STB

DRAWING NAME: *.stb

STATE OF ALASKA
Charles A. Leet
CE 10480
REGISTERED PROFESSIONAL ENGINEER
49TH

ALASKA RIM ENGINEERING, INC.
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FIELD BOOKS

DESIGN: –
DRAWING: –
AS-BUILT: –
CHKD: –

No.	DATE:	REVISIONS: DESCRIPTION:

VERTICAL DATUM:

CITY OF UNALAKLEET

MULTI-LOT SEPTIC SYSTEM

PROJECT No:	0900153
DATE:	–
DESIGNED:	–
DRAWN BY:	–
CHECKED BY:	–
CAD DWG FILE:	0900153_TH

SCALE:
HORIZONTAL: –
VERTICAL: –

SHEET 1 OF 1

7.3 Electrical Power Systems

The City operates a non-profit electric utility (co-op), Unalakleet Valley Electric Cooperative (UVEC). The source of UVEC power is six-wind turbines and two online diesel generators. There is an existing transmission line that is approximately 2,000 feet south of the proposed subdivision. A transmission line is proposed from this source to follow along the outer edge of the Unalakleet Landfill road past the northern edge of the proposed subdivision.

Fifteen-foot utility easements have been provided along the rights-of way for the power company to extend service to Foothills subdivision

7.4 Communications and Cable TV

Telecommunications are served by GCI typically by cellular telephone. There is no Cable network system in the area at this time.

8. Renewable Energy Options

Currently this site has the potential for some small-scale wind generation. However, there are no longterm plans for any type of renewable energy options proposed in this development.

9. Economic Vitality

To view these lots in terms of their economic viability, one must consider the on-going maintenance cost of river flooding and continued bank erosion from the sea. Further, the economic viability and growth of Unalakleet depends upon the availability of land to build additional housing. The funding agencies, which provide housing, require unencumbered property suitable for the dwellings and the availability of utilities to serve them. Since only a limited number of small substandard lots are currently available, the building of new homes will be the limiting factor to growth. It also provides a beginning of the eventual move of the city to higher ground and longterm sustainability.

10. IMPLEMENTATION

This section allows the designer to discuss their recommendations on how to develop Foothills Subdivision.

The subdivision master plan is located within a 305.20-acre parcel on the hillside north of the existing city town site. The primary purpose of the plat has been to provide residential housing.

It has multiple phases with the first phase being designed around lots to be served by onsite well and septic systems. Phase 1 lots are tradition commercial development and are off the Unalakleet Land fill Road. This will allow for lots to be created and put on to the market with minimal infrastructure needs.

The lots in the future phases are designed have community water and/or sewer. The future phase lots have also been designed with wide frontages to facilitate dividing each lot in half to increase the number of lots if both community water and sewer is provided.

11. BIBLIOGRAPHY

MWH City of Unalakleet Water and Sewer Master Plan Update 2004.

Unalakleet Local Economic Development Plan 2009-2013, Kawerak, Inc. June 2, 2009

Appendix 1

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 1

AK Rim File No. 09-00153

Depth (feet)	Description
1	Over Burden w/ organics Sand, Gravel, Cobbles (SW) Little Fines
2	Glacial Till / Fracture Rock/ Little Fines
3	
4	
5	Bottom of Test Hole
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	

TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

Alaska Rim Engineering, Inc.
PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 2

AK Rim File No. 09-00153

Depth (feet)	Description
1	Over Burden w/ organics
2	4" Minus, Fairly graded fines, Dry
3	
4	
5	2"-4" minus, lots of fines, moist
6	Bottom of Test Hole
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	

TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of co nstructing an onsite wast ewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use ot her than wastewater absorption field development shall do so at his or her own risk.

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PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 3

AK Rim File No. 09-00153

Depth (feet)	Description
1	Overburden & Vegetation
2	Thawed, silt/clay
3	Ice & frozen, rich
4	Bottom of Test Hole
5	
6	
7	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

Alaska Rim Engineering, Inc.
PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 4

AK Rim File No. 09-00153

Depth (feet)	Description
1	10" Overburden & Vegetation
2	2" minus, dry, fines
3	6" minus w/ fines, poorly graded, dry
4	4" minus, less fines, dry
5	
6	
7	Bottom of Test Hole
8	
9	
10	
11	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

Alaska Rim Engineering, Inc.
PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 5

AK Rim File No. 09-00153

Depth (feet)	Description
1	Overburden & Vegetation
2	2" minus, wet, silt/clay
3	
4	Ice, rich, silt
5	Frozen
6	
7	
8	
9	
10	
11	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

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PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 6

AK Rim File No. 09-00153

Depth (feet)	Description
1	Over Burden w/ organics
2	Sand, Gravel (SP) w/ gravels Dry- fines
3	
4	
5	
6	
7	
8	Bottom of Test Hole
9	
10	
11	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of co nstructing an onsite wast ewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use ot her than wastewater absorption field development shall do so at his or her own risk.

Alaska Rim Engineering, Inc.
PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 7

AK Rim File No. 09-00153

Depth (feet)	Description
1	Over Burden w/ organics
2	Sand, Gravel, Cobbles (SP)
3	Dry-Little Fines
4	
5	
6	
7	
8	
9	
10	Bottom of Test Hole
11	Frozen
12	
13	
14	
15	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

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PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 8

AK Rim File No. 09-00153

Depth (feet)	Description
1	Over Burden w/ organics
2	Clay/Silt (CL)
3	Bottom of Test Hole
4	Frozen
5	
6	
7	
8	
9	
10	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

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PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 9

AK Rim File No. 09-00153

Depth (feet)	Description
1	Over Burden w/ organics
2	Sand, Gravel (SP) w/ gravels Dry- little fines
3	
4	
5	
6	Bottom of Test Hole
7	
8	
9	
10	
11	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of co nstructing an onsite wast ewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use ot her than wastewater absorption field development shall do so at his or her own risk.

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PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 10

AK Rim File No. 09-00153

Depth (feet)	Description
1	6" Overburden & moss 2" minus, dry, fines
2	
3	
4	
5	6" Minus, dry
6	Bottom of Test Hole
7	
8	
9	
10	
11	
12	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of co nstructing an onsite wast ewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use ot her than wastewater absorption field development shall do so at his or her own risk.

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SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 11

AK Rim File No. 09-00153

Depth (feet)	Description
1	Overburden
2	Fractured rock, little fines, Rock fractures
3	
4	
5	
6	Top Fractured bed rock
7	
8	
9	
10	
11	
12	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of co nstructing an onsite wast ewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use ot her than wastewater absorption field development shall do so at his or her own risk.

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SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 12

AK Rim File No. 09-00153

Depth (feet)	Description
1	Overburden
2	Silt/clay grey
3	Frozen Solid, no ice
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

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PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 13

AK Rim File No. 09-00153

Depth (feet)	Description
1	6" Overburden, moss
2	4" minus, dry, fractured
3	
4	6"-14" Fractured rock
5	
6	Top fractured bedrock Bottom of Test Hole
7	
8	
9	
10	
11	
12	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

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SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 14

AK Rim File No. 09-00153

Depth (feet)	Description
1	Over Burden w/ organics Clay/Silt (CL)
2	Bottom of Test Hole
3	Frozen
4	
5	
6	
7	
8	
9	
10	
11	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

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PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 15

AK Rim File No. 09-00153

Depth (feet)	Description
1	Overburden, organics
2	Silt, clay, wet
3	
4	Wet/ somewhat frozen, silt, fractured rock Very plastic
5	
6	
7	Bottom of Test Hole
8	
9	
10	
11	
12	
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14	
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16	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

Different hole, not normal

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

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PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 16

AK Rim File No. 09-00153

Depth (feet)	Description
1	Over Burden w/ organics Sand, Gravel, Cobbles (SW) Little Fines
2	Glacial Till / Fracture Rock/ Little Fines
3	
4	
5	Bottom of Test Hole
6	
7	
8	
9	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:
No water or bedrock layer were encountered.

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

Alaska Rim Engineering, Inc.
PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 17

AK Rim File No. 09-00153

Depth (feet)	Description
1	10" Overburden, vegetation
2	Sand,fines, fracture @ 4" minus, dry
3	6" minus, dry, some fines
4	
5	Bottom of Test Hole
6	
7	
8	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of co nstructing an onsite wast ewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use ot her than wastewater absorption field development shall do so at his or her own risk.

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PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 18

AK Rim File No. 09-00153

Depth (feet)	Description
1	6" Overburden & vegetation 6" minus, fractured bed rock
2	Sand,fines, fracture @ 4" minus, dry
3	
4	
5	
6	
7	Bed rock or hard pan
8	
9	
10	
11	
12	
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14	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:

This soil log was prepared for the sole purpose of determining the feasibility of co nstructing an onsite wast ewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use ot her than wastewater absorption field development shall do so at his or her own risk.

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SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 19

AK Rim File No. 09-00153

Depth (feet)	Description
1	Over Burden w/ organics Clay/Silt (CL)
2	Bottom of Test Hole
3	Frozen
4	
5	
6	
7	
8	
9	
10	
11	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:
No water or bedrock layer were encountered.

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

Alaska Rim Engineering, Inc.
PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 20

AK Rim File No. 09-00153

Depth (feet)	Description
1	Over Burden w/ organics Sand, Gravel, Cobbles (SP) Moist
2	Clay/Silt (CL)
3	Bottom of Test Hole
4	Frozen
5	
6	
7	
8	
9	
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11	
12	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:
No water or bedrock layer were encountered.

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

Alaska Rim Engineering, Inc.
PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 21

AK Rim File No. 09-00153

Depth (feet)	Description
1	Over Burden w/ organics
2	Clay/Silt (CL)
3	Sand, Gravel (SP) Moist
4	
5	
6	
7	
8	
9	Bottom of Test Hole
10	
11	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:
No water or bedrock layer were encountered.

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

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PO Box 2749, Palmer, AK 99645

SOIL LOG

Project: **City of Unalakleet**

Date: **9/29/09** Logged By: **P. Stragier**

TEST HOLE NO. 22

AK Rim File No. 09-00153

Depth (feet)	Description
1	Sand, Gravel, Cobbles (SP)
2	
3	
4	
5	Water
6	Bottom of Test Hole
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
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TEST HOLE LOCATION:
See Test Hole Location Map

COMMENTS:
No water or bedrock layer were encountered.

This soil log was prepared for the sole purpose of determining the feasibility of constructing an onsite wastewater disposal system at the location of the test hole. Soil type ratings are based on visual observation and have not been verified with laboratory analyses. These soils have not been analyzed for structural properties, structural stability, and seismic stability or for any purpose other than wastewater absorption field construction. Anyone relying on the information in this log for any use other than wastewater absorption field development shall do so at his or her own risk.

Alaska Rim Engineering, Inc.
PO Box 2749, Palmer, AK 99645

TH 7 TH 8 TH 14 TH 19 TH 20 TH 21 TH 18 TH 6 TH 9 TH 22 TH 17 TH 5 TH 4 TH 3 TH 10 TH 2 TH 13 TH 15 TH 16 TH 1 TH 12 TH 11

Trees

Trail

232.8 227.5 210.9 207.5 209.0 216.6 213.0 218.1 222.7 227.8 83.4 88.1 86.0 88.9 84.7 84.7 79.4 84.4 85.7

225 200 175 150 125 100 75 50

XREF's/IMAGES USED FOR THIS DWG:

PLOTTED: –
TIME: –
LAYER MGR: .LAY
STB FILE: *.stb
DRAWING NAME: .STB

STATE OF ALASKA
Charles A. Leet
CE 10480
49TH
REGISTERED PROFESSIONAL ENGINEER

ALASKA RIM ENGINEERING, INC.
Engineers, Planners & Surveyors
P.O. Box 2749, PALMER, AK 99645
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PH: (907) 745-0222 FAX: (907) 746-0222
EMAIL: akrim@alaskarim.com WEB: www.alaskarim.com

FIELD BOOKS
DESIGN: –
DRAWING: –
AS-BUILT: –
CHKD: –

No.	DATE:	REVISIONS:	DESCRIPTION:

VERTICAL DATUM:

CITY OF UNALAKLEET

TEST HOLE LOCATIONS

PROJECT No:	0900153
DATE:	–
DESIGNED:	–
DRAWN BY:	–
CHECKED BY:	–
CAD DWG FILE:	0900153_TH

SCALE:
HORIZONTAL: –
VERTICAL: –

SHEET 1 OF

Appendix 2