

AGENDA

MATANUSKA-SUSITNA BOROUGH

350 East Dahlia Avenue, Palmer, Alaska 99645 – 907-861-7874

PLATTING OFFICER

Fred Wagner

PLATTING CLERK

Sloan Von Gunten

PLATTING TECHNICIANS

Amy Otto-Buchanan

Kimberly McClure

Matthew Goddard

**PLATTING BOARD**

Pio Cottini, District 1

Emmett Leffel, District 2

John Shadrach, District 3

Dan Bush, District 4

Linn McCabe, District 5

Wilfred Fernandez, District 6

Alan Leonard, District 7

Amanda Salmon, Alternate A

Eric Koan, Alternate B

PLATTING BOARD AGENDA**ASSEMBLY CHAMBERS**

350 EAST DAHLIA AVENUE, PALMER

PLATTING BOARD MEETING

1:00 P.M.

June 2, 2022

Ways you can participate in Platting Board meetings:

IN PERSON OR IN WRITING: You can submit written comments by email to platting@matsugov.us or by mail to Matanuska-Susitna Borough, Platting Division, 350 E. Dahlia Avenue, Palmer, AK 99645

TELEPHONIC TESTIMONY: (Audio only)

Attention: For those using the telephonic system, please be advised that we have had technical difficulties. The preference for public participation is in-person or submission of written comments. Once public comments are closed, all public participation is also closed. To ensure your concerns are heard, it is best to present them in-person.

- Dial 1-855-225-1887; with Conference ID 8573#; You will hear “Joining conference” when you are admitted to the meeting. (If the system is down, you will need to attend the meeting in person to participate)
- You will be automatically muted and able to listen to the meeting.
- When the Chair announces audience participation or a public hearing you would like to speak to, press *3; you will hear “Your hand has been raised.”
- When it is your turn to testify you will hear “Your line has been unmuted.”
- State your name for the record, spell your last name and your mailing address, and provide your testimony.
- If you cannot access the telephonic system please call the Mat-Su Borough Platting’s main phone line for directions. 907-861-7874

1. CALL TO ORDER

- A. Roll Call and Determination of Quorum (by Secretary)
- B. Pledge of Allegiance
- C. Approval of Agenda

2. APPROVAL OF MINUTES

- A. April 21, 2022
- B. May 4, 2022

3. AUDIENCE PARTICIPATION & PRESENTATIONS

- A. **PERSONS TO BE HEARD** (Three minutes per person for Items not scheduled for public hearing)

4. UNFINISHED BUSINESS

- Platting Board Chair to read the Ex-Parte & Interest Memo.

- A. **HATCHER PASS VILLAGE INC:** The request is to modify the Master Plan of Hatcher Pass Village, MSB Case #2017-071 to create 12 lots from Tract A-4, Hatcher Pass Village Phase VI, Plat No. 2021-137 to be known as **HATCHER PASS VILLAGE PHASE VIII**, containing 59.01 acres +/- . Parcel is located east of N. Mountain Trails Drive and north of E. Edgerton-Parks Road (Tax ID # 8195000T00A-5); lying within the NE ¼ Section 33, Township 19 North, Range 01 East, Seward Meridian, Alaska. In the Fishhook Community Council and in Assembly District #6.

5. RECONSIDERATIONS/APPEALS**6. PUBLIC HEARINGS**

- A. **RESOLUTION 2022-025:** A Resolution of the Matanuska-Susitna Borough Platting Board recommending adoption of the Matanuska-Susitna Borough 2022 Official Streets and Highways Plan Update.

- Platting Board Chair to read the Ex-Parte & Interest Memo.

- B. **HANSON LAND SOLUTIONS; 6R DEVELOPMENT GROUP, LLC:** The request is to create 7 lots from Units 1-17, 99 and Tract A, Lakebridge, Plat No. 2021-106, a condominium plat, to be known as **SHADOWRIDGE**, containing 68.61 acres +/- . Parcel is located north of Finger Lake, south of Finger Lake Elementary School and directly west and east of N. Ridgewater Street (Tax ID #9222000T00A/9222000U001-17, & 99); lying within Sections 32 & 33 Township 18 North, Range 01 East, Seward Meridian, Alaska. In the North Lakes Community Council and in Assembly District #3.

- Platting Board Chair to read the Ex-Parte & Interest Memo.

- C. **TRUK SEDERHOLM:** The request is to create three lots from Tract 1, Waiver # 97-5-PWm to be known as **LAKEWOOD WEST END ESTATES**, containing 30.03 acres +/- . The property is located west of E. Endeavor Street, east of S. Mack Drive and north of S. Knik-Goose Bay

Road (Tax ID # 17N01W17B012); within the SW ¼ Section 17, Township 17 North, Range 01 West, Seward Meridian, Alaska. In the City of Wasilla and in Assembly District #4.

- Platting Board Chair to read the Ex-Parte & Interest Memo.

D. **MARIE DRINKHOUSE; ADAM & HOLLI DRINKHOUSE:** The request is to create 14 lots by a three phase Master Plan from Tract C, Drinkhouse Bluffs Phase 2, Plat No. 2018-108 and Tract B-1, Burnett's Place, Plat No. 2021-162, to be known as **DRINKHOUSE BLUFFS 2 MASTER PLAN**, containing 33.4 acres +/- . Petitioner will dedicate and construct interior street and cul-de-sac to Borough street standards. Parcel is located southeast of S. Hayfield Road and northwest of Cottonwood Creek (Tax ID # 7786000T00C/8216000T00B-1); lying within the NW ¼ Section 01, Township 16 North, Range 02 West, Seward Meridian, Alaska. In the Knik-Fairview Community Council and in Assembly District #5.

- Platting Board Chair to read the Ex-Parte & Interest Memo.

E. **DAVE MILLER, NORTAK FARMS LLC:** The request is to create 35 lots by a five phase Master Plan from Tract A-3 and Lot 1, Block 4, Colonial Fields Phase Three, Plat No. 2021-92, to be known as **COLONIAL FIELDS SOUTH MASTER PLAN**, containing 41.4 acres +/- . Petitioner will dedicate and construct interior streets to Borough residential street standards. Petitioner proposes to eliminate a portion of a 15' wide utility easement and also eliminate 30' wide drainage easements. Parcel is located south of S. Bodenbug Loop and north of E. Republican Way (Tax ID # 8165000T00A-3/8165B04L001); lying within the NW ¼ SE ¼ Section 34, Township 17 North, Range 02 East, Seward Meridian, Alaska. In the Butte Community Council and in Assembly District #1.

- Platting Board Chair to read the Ex-Parte & Interest Memo.

F. **TODD ESTEY; JULIE ESTEY:** The request is to create two lots from Parcel #1, MSB Waiver 79-50-PWm, recorded as 79-345w (Tax Parcel A2), to be known as **FRESH START ACRES**, containing 26.48 acres +/- . Petitioner will dedicate a 60' x 90' area as right-of-way, to enable construction of a t-turnaround for access to both lots. Parcel is located south of E. Republican Way and north the Knik River (Tax ID # 16N02E03A002); lying within the W ½ Section 03, Township 16 North, Range 02 East, Seward Meridian, Alaska. In the Butte Community Council and in Assembly District #1.

7. ITEMS OF BUSINESS & MISCELLANEOUS

A. **PRESENTATION: Subdivision Construction Manual Update, Resolution 2022-039:** A Resolution of the Matanuska-Susitna Borough Platting Board recommending adoption of an Ordinance amending MSB 43.05.015 Purpose and Scope, to reference the 2022 Subdivision Construction Manual.

8. PLATTING STAFF & OFFICER COMMENTS

A. Adjudicatory (*if needed*)

- Definition: Law. To hear and settle an issue or a question regarding code.

B. Upcoming Platting Board Agenda Items (*Staff: Fred Wagner & Clerk: Sloan Von Gunten*)

- Introduction for June 16, 2022 Platting Board Hearing (*Informational Only – Subject to change*)
 - Riddleburg Station, Case 2022-042
 - South Blfs, Case 2022-046
 - Equestrian Mdws, Case 2022-044
 - Wolf West MSP, Case 2022-048
 - Beaver Flts MSP, Case 2022-013
 - Chipman Ac & Vac, Case 2022-026/027
 - Utopia Vw, Case 2022-063
 - Glacier Vly, Case 2022-064
 - Resolution 2022-039 SCM Updates

9. BOARD COMMENTS

10. ADJOURNMENT

THE PLATTING BOARD WILL CONVENE AT **1:00 P.M.** on **June 2, 2022** in the **Assembly Chambers** of the **Dorothy Swanda Jones Building**, 350 E. Dahlia Avenue, Palmer, Alaska. To view the agenda or meeting packet please go to the following link: www.matsugov.us/boards/platting.

MINUTES

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES****REGULAR MEETING
APRIL 21, 2022**

The regular meeting of the Matanuska-Susitna Borough Platting Board was held on April 21, 2022, at the Matanuska-Susitna Borough Assembly Chambers, 350 E. Dahlia Avenue, Palmer, Alaska. The Meeting was called to order at 1:00 p.m. by Chair Wilfred Fernandez.

1. CALL TO ORDER**A. ROLL CALL AND DETERMINATION OF QUORUM (by Administrative Specialist)**

Platting Board members present and establishing a quorum:

Mr. Pio Cottini, District Seat #1
Mr. Emmett Leffel, District Seat #2
Mr. John Shadrach, District Seat #3
Mr. Dan Bush, District Seat #4
Mr. Wilfred Fernandez, District Seat #6, Chair
Mr. Alan Leonard, District Seat #7, Vice Chair
Ms. Amanda Salmon, Alternate

Platting Board members absent and excused were:

Ms. Linn McCabe, District Seat #5
Eric Koan, Alternate

Staff in attendance:

Mr. Fred Wagner, Platting Officer
Ms. Sloan Von Gunten, Platting Administrative Specialist
Ms. Kimberly McClure, Platting Technician
Mr. Matthew Goddard, Platting Technician

B. THE PLEDGE OF ALLEGIANCE

The pledge of allegiance was led by Mr. Shadrach.

C. APPROVAL OF THE AGENDA

Chair Fernandez inquired if there were any changes to the agenda.

- Item 6A is reschedule to the June 2, 2022 hearing.

GENERAL CONSENT: The agenda was approved with the changes without objections.

2. APPROVAL OF MINUTES

A. Chair Fernandez inquired if there were any changes to the minutes for March 3, 2022.

GENERAL CONSENT: The minutes for March 3, 2022 were approved without objections.

B. Chair Fernandez inquired if there were any changes to the minutes for March 17, 2022.

GENERAL CONSENT: The minutes for March 17, 2022 were approved without objections.

Platting Member Leffel arrived at the Meeting. (Time: 1:03 p.m.)

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES**

**REGULAR MEETING
APRIL 21, 2022**

3. AUDIENCE PARTICIPATION & PRESENTATIONS (*Three minutes per person, for items not scheduled for public hearing*)

4. UNFINISHED BUSINESS: Quasi-Judicial Matters
(*There is no Unfinished Business*)

5. RECONSIDERATIONS/APPEALS
(*There are no Reconsiderations/Appeals*)

6. PUBLIC HEARINGS: Quasi-Judicial Matters

Platting Board members may not receive or engage in ex-parte contact with the applicant, other parties interested in the application, or members of the public concerning the application or issues presented in the application.

A. RESOLUTION 2022-25: The Official Streets and Highways Plan (OSHP) Revision and Updates.

Moved off the Agenda and will be heard at the June 2, 2022 Platting Board Hearing.

B. MCHONE HEIGHTS MASTER PLAN: The request is to create 46 lots and four tracts by a four phase master plan from Tract A-1, Foxwood Addition #1, Plat No. 79-324 to be known as McHone Heights Master Plan, containing 88 acres +/- . The property is located north and west of W. Wasilla-Fishhook Road, east of N. Soto Road, and south of E. Needham Avenue (Tax ID # 1652000T00A-1); within the SE ¼ Section 18, Township 18 North, Range 01 East, Seward Meridian, Alaska. In the Fishhook Community Council and in Assembly District #6. Continued from the March 17, 2022 Platting Board Hearing.
(*Owner/Petitioner: Teal, LLC; Surveyor: Keystone; Staff: Matthew Goddard*)

Chair Fernandez:

- Read the statement regarding Ex-Parte & Interest on quasi-judicial actions into the record; there was no objection noted by the platting board.

Ms. Von Gunten provided the mailing report:

- Stating that 103 public hearing notices were mailed out on February 23, 2022.

Mr. Matthew Goddard:

- Gave an overview of the case, #2022-012.
- Staff recommends approval of the case with findings of fact and conditions.

Chair Fernandez invited the petitioner and/or the petitioner's representative to give a brief overview.

Ms. Kara Nyquist and Alan Mutone, the petitioner's gave a brief overview.

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES****REGULAR MEETING
APRIL 21, 2022**

Chair Fernandez:

- Opened the public hearing for public testimony.
- There being no one to be heard, the chair closed the public hearing.
- Invited the petitioner or their representative to provide their comments.

Mr. Gary LoRusso, the petitioner's Representative, had no objections. Would like to modify recommendation #4 A & B with additional wordage.

Chair Fernandez moved to the Platting Board for a motion.

MAIN

MOTION: Platting Member Leonard moved to approve the preliminary plat for McHone Heights with 10 recommendations. The motion was seconded by Platting Member Shadrach.

AMENDED

MOTION: Platting Member Leonard moved to amend the motion to modify recommendation #4 A & B. The motion was seconded by Platting Member Shadrach.

RECOMMENDATIONS:

- Modify #4A: "Prior to creating any lots in Block 3, 4 or 5, (excluding tracts), upgrade N. Wildwood Drive to. . ."
- Modify #4B: "Prior to creating any lots in Block 3, 4 or 5, (excluding tracts), upgrade N. Wildwood Drive. . ."

AMENDED

VOTE: The amended motion to modify recommendation #4 A & B passed with all in favor by general consent.

VOTE: The motion passed with all in favor by general consent. There are 9 Findings of Fact.

TIME: 1:27 P.M.

CD: 0:37:33

C. CHIPMAN ACRES & VACATION: The request is to create one lot from Lots 1-4, Block 1 and Lots 1-4, Block 2, Meadowland Park Estates, Plat No. 83-88 and vacate the right-of-way of S. Derby Drive, to be known as Chipman Acres, containing 9.5 acres +/- . The petitioner is dedicating additional right-of-way in the southwest corner to facilitate further construction to the west of E. Republican Way which is currently encumbered by multiple power poles. The property is located directly north of E. Republican Way, east of S. Bodenburg Spur and south of S. Bodenburg Loop (Tax ID #2482B001L001-L004 & 2482B02L001-L004); lying within the SE ¼ Section 34, Township 17 North, Range 02 East, Seward Meridian, Alaska. In the Butte Community Council and in Assembly District #1. (Owner/Petitioner: Laurie Chipman; Surveyor: All Points North; Staff: Kimberly McClure)

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES****REGULAR MEETING
APRIL 21, 2022**

Chair Fernandez:

- Read the statement regarding Ex-Parte & Interest on quasi-judicial actions into the record; there was no objection noted by the platting board.

Ms. Von Gunten provided the mailing report:

- Stating that 17 public hearing notices were mailed out on March 30, 2022.

Ms. Kimberly McClure:

- Gave an overview of the case, #2022-026/027.
- Staff requests a continuance to May 19, 2022 for the petition to post the public notice of the vacation under code procedures.

Chair Fernandez invited the petitioner and/or the petitioner's representative to give a brief overview.

The petitioner and/or the petitioner's representative passed on giving a brief overview.

Chair Fernandez:

- Opened the public hearing for public testimony.
- There being no one to be heard, the chair kept the public hearing open.

Chair Fernandez moved to the Platting Board for a motion.

MOTION: Platting Member Cottini moved to continue the preliminary plat for Chipman Acres and Vacation to May 19, 2022. The motion was seconded by Platting Member Salmon

VOTE: The motion passed with all in favor by general consent.

D. SUNRISE TRAILS PUE: The request is to grant a 50' wide Public Use Easement through the north side of Parcel 2 of MSB 40Acre Exm 2006-216 lying adjacent to a 33' section line easement to be known as Sunrise Trails Public Use Easement, containing 65,650 sf (1.507 acres +/-). The proposed Public Use Easement is located east of S. Old Glenn Highway, west of Burkholder Lake and south of E. Maud Road. (Tax ID # 17N02E14A017); lying within the NE ¼ Section 14, Township 17 North, Range 02 East, Seward Meridian, Alaska. In the Butte Community Council and in Assembly District #1. (*Owner/Petitioner: Monte Goodrich & Georgia Stansell Living Trust; Surveyor:S4 Group; Staff: Kimberly McClure*)

Chair Fernandez:

- Read the statement regarding Ex-Parte & Interest on quasi-judicial actions into the record; there was no objection noted by the platting board.

Ms. Von Gunten provided the mailing report:

- Stating that 14 public hearing notices were mailed out on March 30, 2022.

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES**

**REGULAR MEETING
APRIL 21, 2022**

Ms. Kimberly McClure:

- Gave an overview of the case, #2022-028.
- Staff recommends approval of the case with findings of fact and conditions.

Chair Fernandez invited the petitioner and/or the petitioner's representative to give a brief overview.

Mr. Craig Bennett, the petitioner's representative, gave a brief overview of the case.

Chair Fernandez:

- Opened the public hearing for public testimony.

The following person spoke in regards to their concerns about access and safety to his property that is north of this property: Mr. Mark Savel.

Chair Fernandez:

- There being no one else to be heard, the chair closed the public hearing.
- Invited the petitioner or their representative to provide their comments.

Mr. Craig Bennett and Mark Cottine, the petitioner's representatives, answered questions from the board. They will be working with the state's engineers if any road's will be going in on future projects.

Chair Fernandez moved to the Platting Board for a motion.

MOTION: Platting Member Leonard moved to approve the public use easement for Sunrise Trails with 5 recommendations. The motion was seconded by Platting Member Bush.

VOTE: The motion passed with all in favor by general consent. There are 5 findings of fact.

7. ITEMS OF BUSINESS & MISCELLANEOUS

(There is no Items of Business & Miscellaneous)

8. PLATTING STAFF & OFFICER COMMENTS

- A. Adjudicatory *(if needed)*
- B. Upcoming Platting Board Agenda Items

Mr. Wagner provided a brief update on the Platting Board schedule. The next meeting will be on Wednesday, May 4, 2022.

Ms. Von Gunten updated the board on the change of meeting location for the July 7, 2022 hearing, which will be held at the Animal Shelter. Introduced Ms. Maija DiSalvo, the Planning Admin Specialist, to the platting board.

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES****REGULAR MEETING
APRIL 21, 2022****9. BOARD COMMENTS**

- Platting Member Leffel had no comments.
- Platting Member Bush had no comments.
- Platting Member Shadrach had no comments.
- Platting Member Salmon stated she enjoyed being part of the board as an alternate.
- Platting Member Cottini had no comments.
- Platting Member Leonard had no comments.
- Platting Member Fernandez thanked staff and board members for their work and time.

10. ADJOURNMENT

With no further business to come before the Platting Board, Chair Fernandez adjourned the meeting at 1:53 p.m. (CD: 0:58:38)

WILFRED FERNANDEZ,
Platting Board Chair

ATTEST:

SLOAN VON GUNTEN,
Platting Board Clerk

Minutes approved: _____

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES**

**REGULAR MEETING
MAY 4, 2022**

The regular meeting of the Matanuska-Susitna Borough Platting Board was held on May 4, 2022, at the Matanuska-Susitna Borough Assembly Chambers, 350 E. Dahlia Avenue, Palmer, Alaska. The Meeting was called to order at 1:00 p.m. by Chair Wilfred Fernandez.

1. CALL TO ORDER

A. ROLL CALL AND DETERMINATION OF QUORUM (by Administrative Specialist)

Platting Board members present and establishing a quorum:

Mr. Pio Cottini, District Seat #1
Mr. Emmett Leffel, District Seat #2
Mr. John Shadrach, District Seat #3
Mr. Dan Bush, District Seat #4
Ms. Linn McCabe, District Seat #5
Mr. Wilfred Fernandez, District Seat #6, Chair
Mr. Alan Leonard, District Seat #7, Vice Chair

Platting Board members absent and excused were:

Ms. Amanda Salmon, Alternate
Eric Koan, Alternate

Staff in attendance:

Mr. Fred Wagner, Platting Officer
Ms. Sloan Von Gunten, Platting Administrative Specialist
Ms. Amy Otto-Buchanan, Platting Technician
Mr. Matthew Goddard, Platting Technician

B. THE PLEDGE OF ALLEGIANCE

The pledge of allegiance was led by Mr. Leonard.

C. APPROVAL OF THE AGENDA

Chair Fernandez inquired if there were any changes to the agenda.

GENERAL CONSENT: The agenda was approved without objections.

2. APPROVAL OF MINUTES

(There is no Approval of Minutes)

3. AUDIENCE PARTICIPATION & PRESENTATIONS *(Three minutes per person, for items not scheduled for public hearing)*

4. UNFINISHED BUSINESS: Quasi-Judicial Matters

(There is no Unfinished Business)

5. RECONSIDERATIONS/APPEALS

(There are no Reconsiderations/Appeals)

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES****REGULAR MEETING
MAY 4, 2022****6. PUBLIC HEARINGS: Quasi-Judicial Matters**

Platting Board members may not receive or engage in ex-parte contact with the applicant, other parties interested in the application, or members of the public concerning the application or issues presented in the application.

- A. BEAVER FLATS MASTER PLAN:** The request is to divide Tax Parcels A11 and A12 (Government Lots 1 and 2) into 40 lots, by a three phase Master Plan, to be known as Beaver Flats Master Plan, containing 79.96 acres +/- . Petitioner will construct Borough standard streets within the existing Section Line Easement and the right-of-way of N. Duley Road and within the subdivision. This subdivision will have private roads. Parcel is located north of Big Beaver Lake, north of N. Beaver Lake Road and northwest of W. Hawk Lane (Tax ID # 17N03W04A011/A012); lying within the NE ¼ Section 04, Township 17 North, Range 03 West, Seward Meridian, Alaska. In the Big Lake Community Council and in Assembly District #5. Continued from March 17, 2022 Platting Board Hearing. (Owner/Petitioner: Elaine C. Ridlon; Surveyor: HLS; Staff: Amy Otto-Buchanan)

Chair Fernandez:

- Read the statement regarding Ex-Parte & Interest on quasi-judicial actions into the record; there was no objection noted by the platting board.

Ms. Von Gunten provided the mailing report:

- Stating that 11 public hearing notices were mailed out on February 23, 2022.

Ms. Amy Otto-Buchanan:

- Gave an overview of the case, #2022-013.
- Staff requests a continuance to May 19, 2022 as the petitioner is requesting a vacation on a PUE. (redesign)

Chair Fernandez invited the petitioner and/or the petitioner's representative to give a brief overview.

The petitioner and/or the petitioner's representative passed on giving an overview at this time.

Chair Fernandez:

- Opened the public hearing for public testimony.
- There being no one to be heard, the chair kept the public hearing open.

Chair Fernandez moved to the Platting Board for a motion.

MOTION: Platting Member McCabe moved to continue the preliminary plat for Beaver Flats Master Plan to May 19, 2022. The motion was seconded by Platting Member Leonard.

VOTE: The motion passed with all in favor by general consent.

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES****REGULAR MEETING
MAY 4, 2022**

- B. SAGE ESTATES:** The request is to divide Tax Parcels C4 and C5, Parcels #1 and #2 of MSB Waiver 98-87-PWm, recorded at Book/Page 991/957, into eight lots, to be known as Sage Estates, containing 10 acres +/- . Petitioner will construct a Borough residential standard street, with a temporary cu-de-sac at the end. Parcels are located west of S. Old Glenn Highway and directly north of E. Barwood Avenue (Tax IDs # 17N02E26C004 & C005); lying within the SE ¼ SW ¼ Section 26, Township 17 North, Range 02 East, Seward Meridian, Alaska. In the Butte Community Council and in Assembly District #1.
(Owner/Petitioner: Dirtworks Inc.; Surveyor: Bush; Staff: Amy Otto-Buchanan)

Chair Fernandez:

- Read the statement regarding Ex-Parte & Interest on quasi-judicial actions into the record; there was no objection noted by the platting board.

Platting Member Bush Recused himself from the case as he is the surveyor for the petitioner.

Ms. Von Gunten provided the mailing report:

- Stating that 29 public hearing notices were mailed out on April 13, 2022.

Ms. Amy Otto-Buchanan:

- Gave an overview of the case, #2022-030,
- Staff recommends approval of the case with findings of fact and conditions.

Platting Member Shadrach asked the Platting Technician if there is already a subdivision with the name of Sage Estates. *(After the meeting, the Platting Technician verified that there is already a subdivision with Sage Estates and changed the name to Sagewood Park.)*

Chair Fernandez invited the petitioner and/or the petitioner's representative to give a brief overview.

The petitioner and/or the petitioner's representative was not at the hearing.

Chair Fernandez:

- There being no one to be heard, the chair closed the public hearing.
- Invited the petitioner or their representative to provide their comments.

The petitioner and/or the petitioner's representative was not present at the hearing.

Chair Fernandez moved to the Platting Board for a motion.

MOTION: Platting Member Leonard moved to approve the preliminary plat for Sage Estates with 7 recommendations. The motion was seconded by Platting Member Leffel.

VOTE: The motion passed with all in favor by general consent. There are 6 findings of fact.

Platting Member Bush returned to his seat.

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES****REGULAR MEETING
MAY 4, 2022**

- C. ALASKA RANGE ESTATES MASTER PLAN:** The request is to create five lots from Government Lot 2 and the E1/2 of the NW ¼ Section 19, by a 2 phase master plan to be known as Alaska Range Estates Master Plan, containing 118.38 acres +/- . The property is located south of West Parks Highway, north of W. Hollywood Road and west of S. Johnsons Road (Tax ID # 17N02W19B001); within the NW ¼ Section 19, Township 17 North, Range 02 West, Seward Meridian, Alaska. In the Knik-Fairview Community Council and in Assembly District #5. (*Owner/Petitioner: The Proving Ground, LLC; Surveyor: Farmer; Staff: Matthew Goddard*)

Chair Fernandez:

- Read the statement regarding Ex-Parte & Interest on quasi-judicial actions into the record; there was no objection noted by the platting board.

Ms. Von Gunten provided the mailing report:

- Stating that 104 public hearing notices were mailed out on April 13, 2022.

Mr. Matthew Goddard:

- Gave an overview of the case, #2022-036.
- Staff recommends approval of the case with findings of fact and conditions.

Chair Fernandez invited the petitioner and/or the petitioner's representative to give a brief overview.

Ms. Joy Cypra, the petitioner's representative, gave a brief overview of the case.

Chair Fernandez:

- Opened the public hearing for public testimony.

The following person spoke in regards about their concerns on the wetlands and wildlife on the property that should be protected. Concerned on septic and water issues regarding development to the lots with the wetland on the property: Mr. Christopher Alden.

Chair Fernandez:

- There being no one else to be heard, the chair closed the public hearing.
- Invited the petitioner or their representative to provide their comments.

Ms. Joy Cypra, the petitioner's representative, and Ms. Rachel Psychogios, the petitioner, agrees with all the recommendations and answered questions from the board. Will not be building on the wetlands, just laying down new lot lines on the property.

Chair Fernandez moved to the Platting Board for a motion.

MOTION: Platting Member Shadrach moved to approve the preliminary plat for Alaska Range Estates Master Plan with 9 recommendations. The motion was seconded by Platting Member Cottini.

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES****REGULAR MEETING
MAY 4, 2022**

VOTE: The motion passed with all in favor by general consent. There are 9 findings of fact.

7. ITEMS OF BUSINESS & MISCELLANEOUS

(There is no Items of Business & Miscellaneous)

8. PLATTING STAFF & OFFICER COMMENTS

A. Adjudicatory *(if needed)*

B. Upcoming Platting Board Agenda Items

Mr. Wagner provided a brief update on the Platting Board schedule. The next meeting will be on May 19, 2022. While the platting clerk is out Ms. Karol Riese and Ms. Maija DiSalvo.

Ms. Von Gunten introduced the new alternate for the platting board, Mr. Eric Koan.

9. BOARD COMMENTS

- Platting Member McCabe had no comments.
- Platting Member Leffel had no comments.
- Platting Member Bush had no comments.
- Platting Member Shadrach had no comments.
- Platting Member Cottini had no comments.
- Platting Member Leonard had no comments.
- Platting Member Fernandez thanked staff and board members for their work and time.

10. ADJOURNMENT

With no further business to come before the Platting Board, Chair Fernandez adjourned the meeting at 1:36 p.m. (CD: 0:38:30)

WILFRED FERNANDEZ,
Platting Board Chair

ATTEST:

SLOAN VON GUNTEN,
Platting Board Clerk

Minutes approved: _____

4A

**STAFF REVIEW AND RECOMMENDATIONS
PUBLIC HEARING
JUNE 2, 2022**

PRELIMINARY PLAT: HATCHER PASS VILLAGE PHASE VIII

LEGAL DESCRIPTION: SEC 33, T19N, R01E, SEWARD MERIDIAN AK

PETITIONERS: HATCHER PASS VILLAGE INC

SURVEYOR/ENGINEER: HANSON LAND SOLUTIONS

ACRES: 59.01 ± PARCELS: 12

REVIEWED BY: AMY OTTO-BUCHANAN CASE #: 2022-059

REQUEST: The request is to modify the Master Plan of Hatcher Pass Village, MSB Case #2017-071 to create 12 lots from Tract A-4, Hatcher Pass Village Phase VI, Plat No. 2021-137 to be known as **HATCHER PASS VILLAGE PHASE VIII**, containing 59.01 acres +/- . Parcel is located east of N. Mountain Trails Drive and north of E. Edgerton-Parks Road; lying within the NE ¼ Section 33, Township 19 North, Range 01 East, Seward Meridian, Alaska.

EXHIBITS

Vicinity Map and Aerial Photos
Topographic Mapping and As-Built
Geotechnical Report
Plan and Profile

EXHIBIT A – 4 pgs
EXHIBIT B – 3 pgs
EXHIBIT C – 24 pgs
EXHIBIT D – 4 pgs

AGENCY COMMENTS

Department of Public Works Operations & Maintenance
ADF&G
Utilities

EXHIBIT E – 1 pg
EXHIBIT F – 1 pg
EXHIBIT G – 3 pgs

DISCUSSION: The Master Plan of Hatcher Pass Village was approved by the Platting Board on August 23, 2017. Original approval was for 55 lots in a seven-phase Master Plan. Phase VII originally proposed 14 lots with Lots 33-37 being large lots. Petitioner has submitted Phase VII for approval with the creation of three lots accessing from E. Aslan Circle, with a large tract (Tract A-5) remaining. Phase VIII will be the resubdivision of Tract A-5. Since the proposal is to create more lots and smaller lots, the redesign requires approval of the change from the Platting Board. Petitioner will be constructing a Borough residential standard street and cul-de-sac (E. Dawn Treader Circle) for access to the lots in Phase VIII (see **Recommendation #4**), with the exception of proposed Lot 42, which will access from N. Mountain Trails Drive. Proposed Lot 36B is a flag lot, pursuant to MSB 43.20.300(E)(6), with the required 60' wide flag pole. The recording of Phase VIII will complete the Master Plan of Hatcher Pass Village.

Soils Report: A geotechnical report was submitted (**Exhibit C**), pursuant to MSB 43.20.281(A). Simon Gilliland, PE, Hanson Land Solutions, has provided an updated soils report; four new testholes were excavated. Testhole location map and soils logs are attached. Additional fill will be required for Lots 34,

39, 40 and 41 (see **Recommendation #6**). Mr. Gilliland certifies that all lots have at least 10,000 sf of useable building area and will have 10,000 sf of contiguous useable septic area once the specified fill, regrading and standard septic designs have been provided.

Road Construction: Plan and Profile for proposed E. Dawn Treader Circle is at **Exhibit D**.

Comments: Department of Public Works Operations & Maintenance (**Exhibit E**) notes the testhole map should show where the useable area is and where fill/regrading is planned. There are many areas with less than 8' to groundwater, streams with 100' setbacks and slopes of more than 25% (see **Recommendation #5**). The proposed road is longer than 1,000 linear feet from the intersection point with E. Mountain Trail Drive to the center of the cul-de-sac and therefore needs to meet Residential Subcollector standard. Redesign horizontal and vertical alignment to meet minimum centerline radius and K value requirements for Residential Subcollector or redesign alignment to be 7' shorter (see **Recommendation #4b**). Technically, an Average Daily Traffic (ADT) estimate is required; however, this is simple enough. DPW is working on correcting the classification of E. Mountain Trail Drive to minor collector.

ADF&G (**Exhibit F**) has no objections.

Utilities: (**Exhibit G**) MTA has no comments. GCI has no objections. Enstar has no comments or recommendations. MEA did not respond.

At the time of staff report write-up, there were no responses to the Request for Comments from US Army Corps of Engineers; Community Council Fishhook; Fire Service Area #132 Greater Palmer Consolidated; Road Service Area #16 South Colony; MSB Emergency Services, Community Development, Assessments, Planning, Development Services, or Pre-Design Division; or MEA.

CONCLUSION: The preliminary plat of HATCHER PASS VILLAGE PHASE VIII is consistent with AS 29.40.070 Platting Regulations and MSB 43.15.016 Preliminary Plats. There were no objections from any federal or state agencies, Borough departments, or utilities. There were no objections to the plat from the public in response to the Notice of Public Hearing. Legal and physical access will exist to the proposed lots, consistent with MSB 43.20.100 Access Required, MSB 43.20.120 Legal Access and MSB 43.20.140 Physical Access. Frontage for the subdivision will exist, pursuant to MSB 43.20.320 Frontage and MSB 43.20.300(E) Flag lots. A soils report was submitted, pursuant to MSB 43.20.218(A)(1).

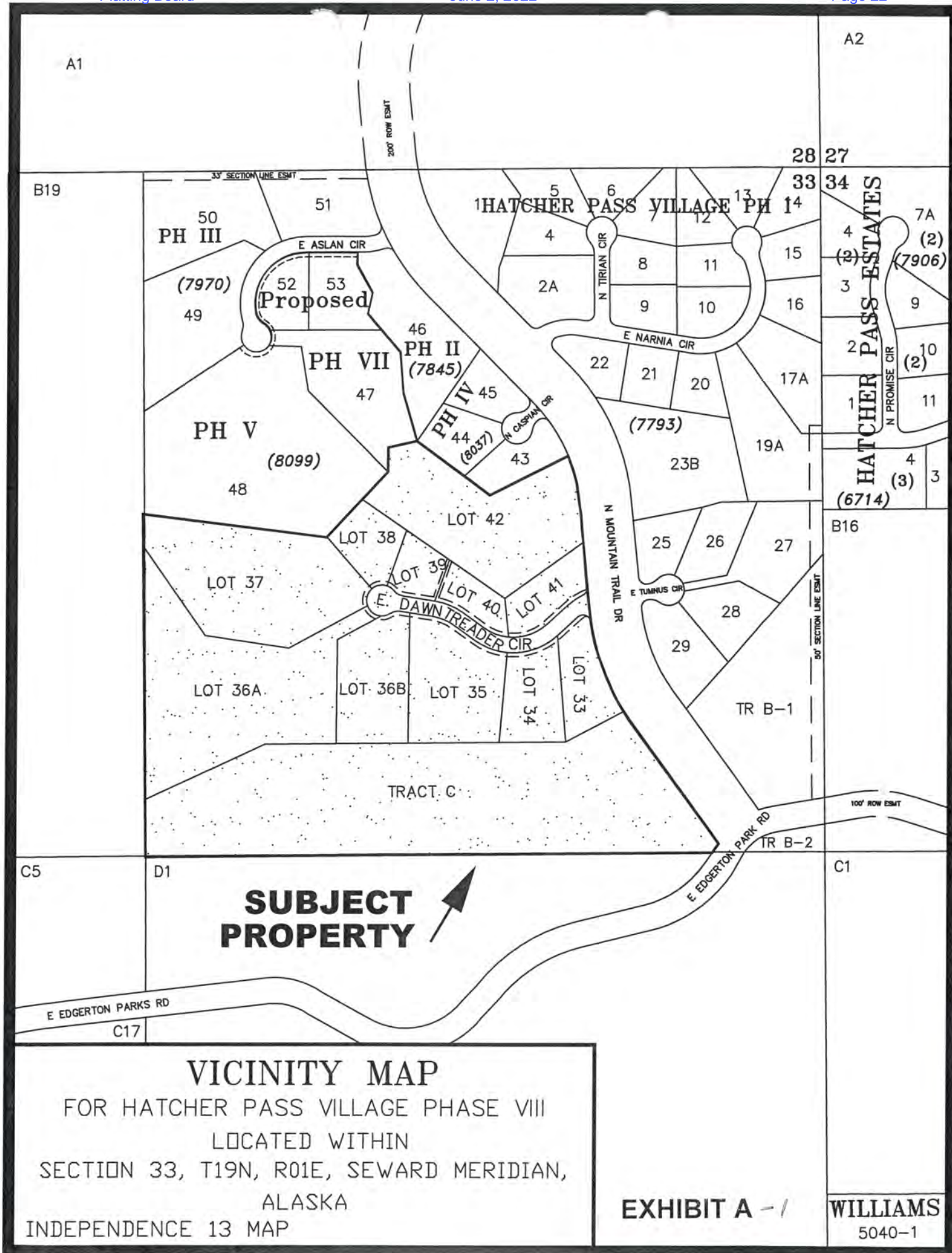
FINDINGS OF FACT

1. The plat of Hatcher Pass Village Phase VIII consistent with AS 29.40.070 Platting Regulations and MSB 43.15.016 Preliminary Plats.
2. A soils report was submitted, pursuant to MSB 43.20.281(A)(1). All lots have the required septic area and building area, with the exception of Lots 34, 39-41, which will require fill and/or regrading.
3. All lots will have the required frontage pursuant to MSB 43.20.320 and MSB 43.20.300(E).
4. At the time of staff report write-up, there were no responses to the Request for Comments from US Army Corps of Engineers; Community Council Fishhook; Fire Service Area #132 Greater Palmer Consolidated; Road Service Area #16 South Colony; MSB Emergency Services, Community Development, Assessments, Planning, Development Services, or Pre-Design Division; or MEA.
5. There were no objections from any federal or state agencies, Borough departments, or utilities.
6. There were no objections from the public in response to the Notice of Public Hearing.

RECOMMENDATIONS OF CONDITIONS OF APPROVAL

Suggested motion: I move to approve the preliminary plat of Hatcher Pass Village Phase VIII, Section 33, Township 19 North, Range 01E, Seward Meridian, Alaska, contingent on staff recommendations:

1. Taxes and special assessments must be paid in full for the year of recording, pursuant to MSB 43.15.053(F) and AS 40.15.020. Pay taxes and special assessments (LIDs), by CERTIFIED FUNDS OR CASH.
2. Provide updated Certificate to Plat executed within seven (7) days of recording of plat and submit Beneficiary Affidavit for any holders of a beneficial interest.
3. Pay postage and advertising fees.
4. Construct interior street and cul-de-sac to MSB street standards:
 - a. Submit cost estimate, arrange a pre-construction meeting with Department of Public Works (DPW), pay inspection fee and obtain a Notice to Proceed from Platting staff. Submit street inspection reports as required by Section F1.4, F1.5 and F1.6 of the Subdivision Construction Manual.
 - b. Construct E. Dawn Treader Circle to Residential Subcollector standards; redesign horizontal and vertical alignment to meet minimum centerline radius and K value requirements. Or redesign alignment of E. Dawn Treader to be 7' shorter to meet residential street standards.
 - c. Provide DPW acceptance of the road to Platting staff.
 - d. Platting staff to approve all road names.
 - e. Provide as-built of streets once construction is complete.
5. Provide updated soils report once fill/regrading has been done for Lots #34, #39-#41. Upgrade the testhole map to show where useable area is located.
6. Show all easements of record on each final phase plat.
7. Submit recording fees, payable to Department of Natural Resources (DNR).
8. Submit final plat in full compliance with Title 43.



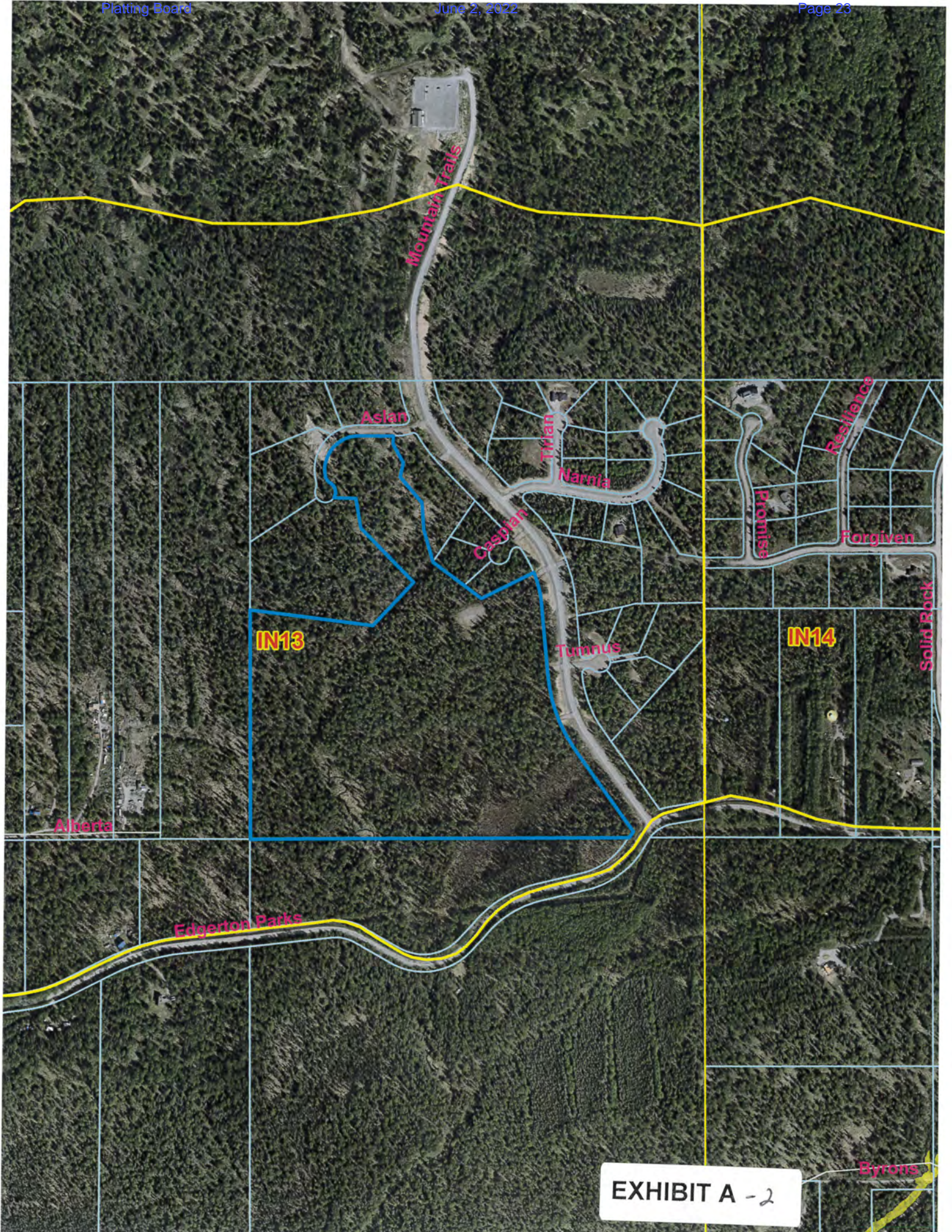


EXHIBIT A -2

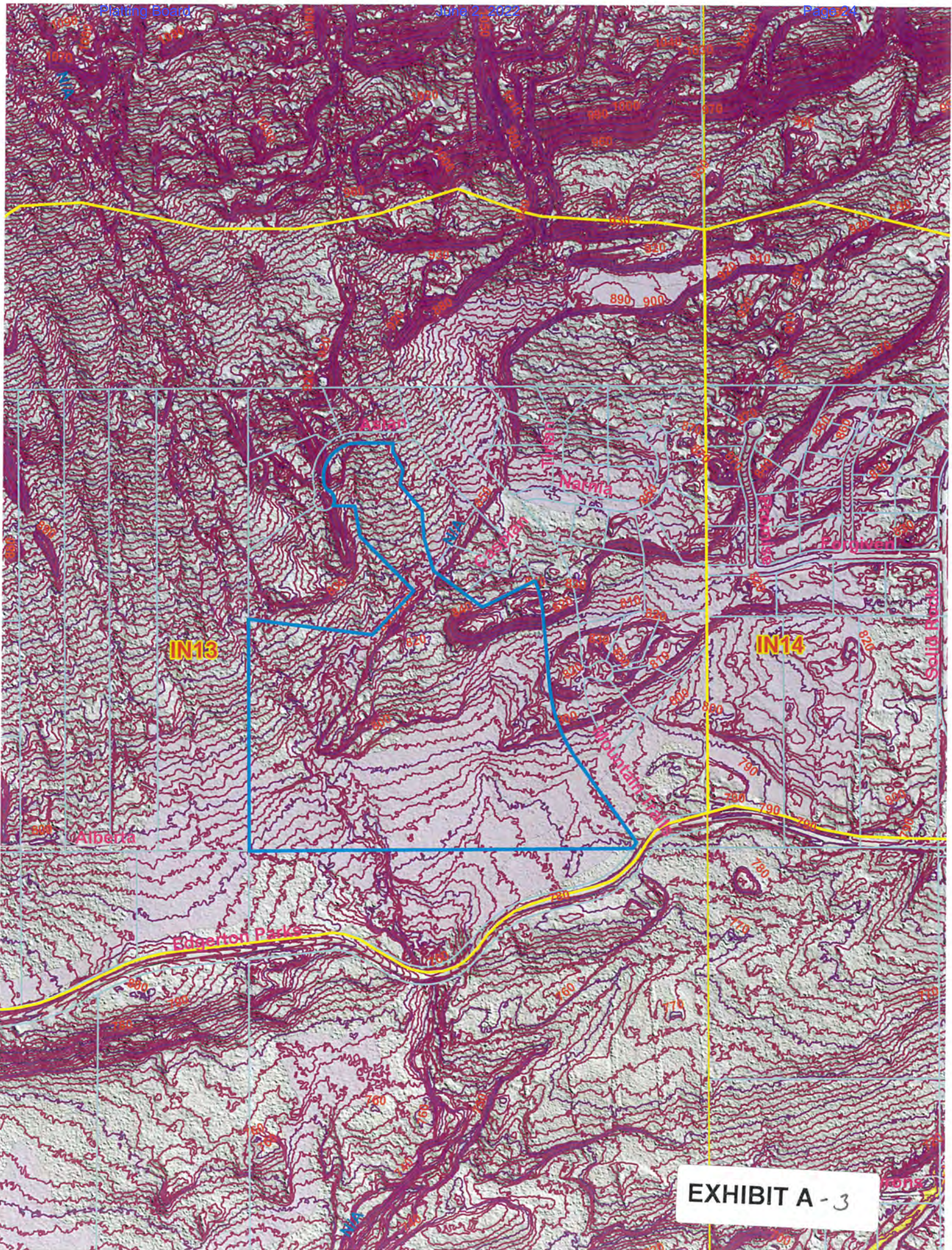
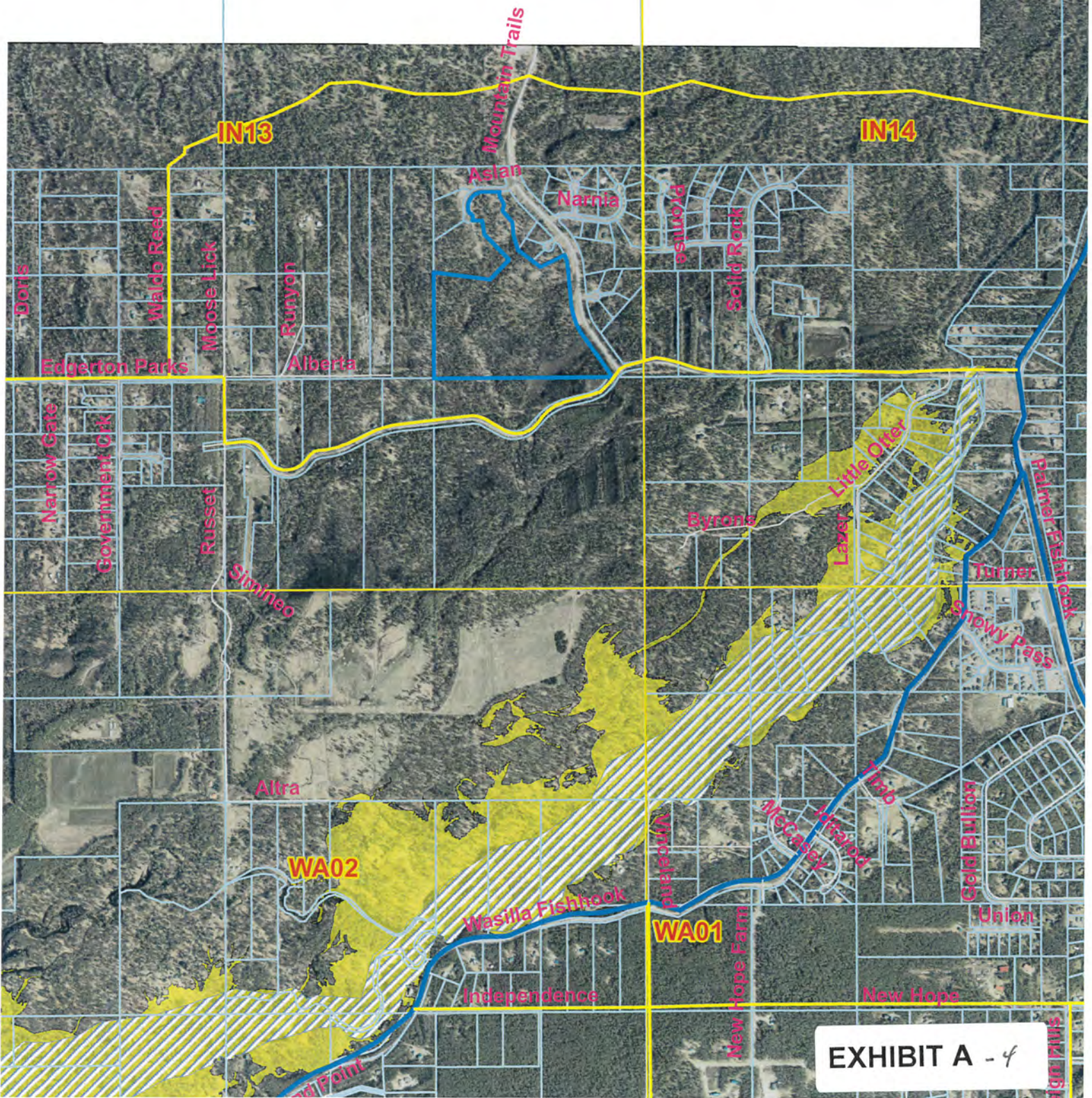


EXHIBIT A - 3





NOTES:
1. THE IMAGE SHOWN HEREIN IS DERIVED FROM AERIAL DATA OF THE HATCHER PASS VILLAGE PH. VIII.
2. THE HATCHER PASS VILLAGE PH. VIII IS SUBJECT TO THE HATCHER PASS VILLAGE PH. VIII.

HATCHER PASS VILLAGE PH. VIII
SITE PLAN - EXISTING CONDITIONS
PROJECT OVERVIEW

DWG.#: 22-112C
DESIGN: CER
DRAWN BY: SON
CHECKED: CER
SCALE: 11x17: 1\"=280\"
22x34: 1\"=140\"
REVISION DATE: 04-18-22

REFERENCE NUMBER:
V-20
SHEET 1 OF 3

EXHIBIT B - 1



HANSON
LAND SOLUTIONS
325 E. FINEWOOD AVE.
PALMER, ALASKA 99645
(907) 746-7778



NOTES:
1. CONTAINS SOME DATA NOT DERIVED FROM THE 1940 DATA OF THE ALASKA SECTION PROJECT
2. THE HORIZONTAL DATUM IS NAD83 (GEOID EPOCH 2011.0)
3. THE VERTICAL DATUM IS MGSN (GEOID 1988)

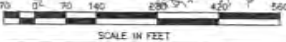
EXHIBIT B-1

PALMER, ALASKA
HATCHER PASS VILLAGE PH. VIII
SITE PLAN - EXISTING CONDITIONS
TOPOGRAPHY

DWG.#: 22-112C
DESIGN: CEH
DRAWN BY: SEM
CHECKED: CEH
SCALE:
11x17: 1"=280'
22x34: 1"=140'
REVISION DATE:
04-18-22

REFERENCE
NUMBER:
V-21
SHEET 2 OF 3

APR 19 2022



PARCEL 4
MSB WAIVER
#79-159-PWd
(79-463W)

MSB WAIVER
#2001-61-PWm
(BK. 1134, P. 154)

TRACT B-1

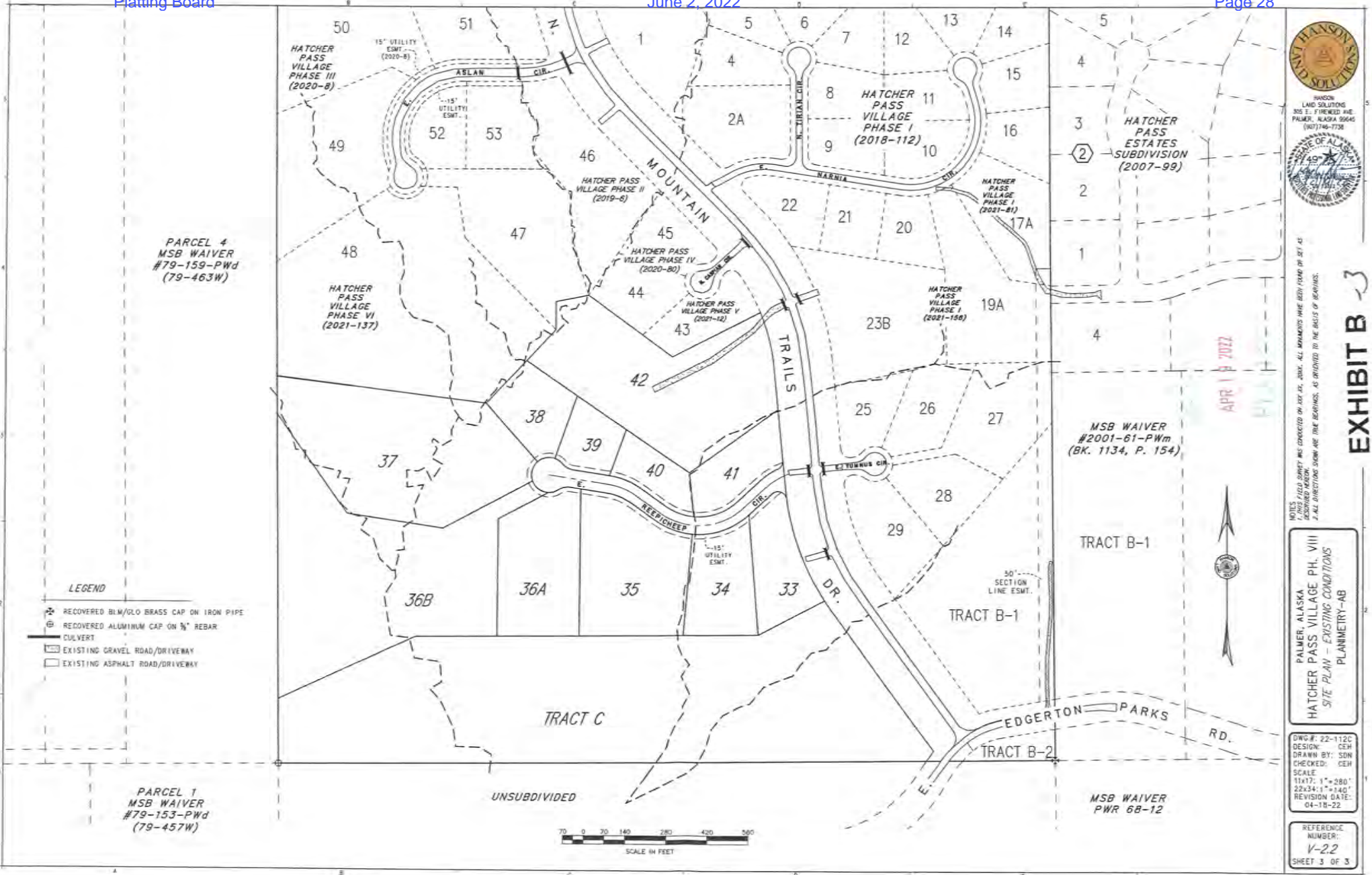
TRACT B-1

TRACT B-2

MSB WAIVER
PWR 68-12

PARCEL 1
MSB WAIVER
#79-153-PWd
(79-457W)





HANSON
LAND SOLUTIONS
300 E. FRECKLE HILL
PALMER, ALASKA 99645
(907) 746-7738



NOTES
1. THIS FIELD SURVEY WAS CONDUCTED ON OCT 24, 2020. ALL MONUMENTS HAVE BEEN FOUND OR SET AS
2. ALL DISTANCES SHOWN ARE THE BEARINGS, AS PROVIDED TO THE BASIS OF BEARINGS.

PALMER, ALASKA
HATCHER PASS VILLAGE PH. VIII
SITE PLAN - EXISTING CONDITIONS
PLANIMETRY-AB

DWG.#: 22-112C
DESIGN: CEH
DRAWN BY: SOW
CHECKED: CEH
SCALE
11x17: 1"=280'
22x34: 1"=140'
REVISION DATE:
04-18-22

REFERENCE
NUMBER:
V-22
SHEET 3 OF 3

EXHIBIT B

HANSON LAND SOLUTIONS
SURVEYING, ENGINEERING & LAND DEVELOPMENT SERVICES
305 E. Fireweed Ave. Palmer, AK 99645



APR 13 2022

PLATTING

USEABLE AREA CERTIFICATION

HATCHER PASS VILLAGE PHASE VIII

A SUBDIVISION OF

Tract A-5 HATCHER PASS VILLAGE PH VI, NE1/4 SEC 33, T19N R1E, SM, AK

INTRODUCTION TO INVESTIGATION

The following report outlines parameters and conclusions of an investigation into the suitability of the proposed subdivision lots for supporting construction and on-site waste-water treatment. Consideration is limited to only those lots containing less than 400,000 square feet of area and the report specifically addresses parameters set forth in Title 43.20.281 of the Matanuska-Susitna Borough Code.

INDIVIDUAL LOTS: MINIMUM SIZES

- ☒ All lots within this proposed subdivision are composed of at least 40,000 square feet in total area.

EXCEPTIONS:

USABLE BUILDING AREAS

CONFLICTING USE CONSIDERATIONS:

- ☒ All land recognized as suitable for Building Area is outside of lands dedicated to Public Use and lands reserved by Mat-Su Borough Improvement Setbacks, including boundary and water/wetland setbacks.

TOPOGRAPHIC/PLANIMETRIC CONSIDERATIONS:

- ☒ All land recognized as suitable for Building Area is characterized by slopes and soils upon which construction is possible.

USABLE SEPTIC AREAS

CONFLICTING USE CONSIDERATIONS:

- ☒ All land recognized as suitable for Useable Septic Area is outside of any land dedicated to Public Use.
- ☒ The Useable Septic Area is not situated within any easement (Utility or otherwise) such that use of said easement would interfere with an on-site septic.

TOPOGRAPHIC/PLANIMETRIC CONSIDERATIONS:

- ☒ The useable area consists entirely of land sloping less than 25% or will be at final certification.
- ☒ The useable area is set back 50' from any slopes exceeding 25% with more than 10' of elevation change or will be at final certification.
- ☒ The useable area is not less than 100' from the mean high water of any body of water, swamp, bog or marsh
- ☒ The useable area is not less than 200' from any public water well, nor less than 100' from any known private water well
- ☒ The useable area is outside of any known debris burial site.

SOILS INVESTIGATION

EXCAVATIONS

- ☒ Test-holes or borings have been made such that the bottom of the excavation is at least 12' deep and "shallow trench" or "bed systems" are anticipated
- ☐ Test-holes or borings have been made such that the bottom of the excavation is at least 16' deep and "deep trench" or "sewage pits" will likely be used
- ☐ Test-holes or borings were made to the depth of permafrost or an impermeable layer. (test holes with permafrost or impermeable layer):

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SOIL CLASSIFICATIONS

- ☒ Soils within the potential absorption system area are expected to have a percolation rate of 15 minutes per inch or faster and have been visually classified under Uniform Soils Classification System as:
- | | |
|----------------------------|---------------------------|
| (GW) TEST HOLES: 205, 208, | (GP) TEST HOLES: 206, 207 |
| (SW) TEST HOLES: 18-20, 23 | (SP) TEST HOLES: 17, 24 |
- ☒ Soils within the potential absorption system area have been shown by mechanical analysis to be classified under the Uniform Soils Classification System as:
- | | |
|------------------|-------------------------|
| (GM) TEST HOLES: | (SM) TEST HOLES: 21, 22 |
|------------------|-------------------------|
- ☐ Soils within the potential absorption system area have been shown by a percolation test, conducted in accordance with Alaska Department of Environmental Conservation (ADEC) regulations to have a percolation rate of 60 minutes per inch or faster. TEST HOLES:
- ☒ Bedrock, Clay, or other impermeable stratum was encountered. TEST HOLES: 205

GROUND WATER INVESTIGATION

- ☐ No groundwater was encountered in any of the Test Holes
- ☒ Groundwater was encountered in some Test Holes and excavation continued at least 2' below encounter depth. Seasonal High Water table level was determined by:
- | | |
|--|--|
| <input checked="" type="checkbox"/> Monitoring Test Holes May through October:
<input type="checkbox"/> Soil Mottling or Staining Analysis: | TEST HOLES: 17-19, 21-23,
TEST HOLES: |
|--|--|
- ☒ Depth to seasonal high water is a min. of 8' TEST HOLES: 205, 17-19, 21-22,
- ☒ Depth to seasonal high water is less than 8'
- ☒ Fill will be required
- ☐ A suitable standard design will be provided

SUMMARY OF REQUIRED FURTHER ACTION

- ☒ Additional Fill required to ensure 8' of coverage above water table Lots: 34, 39, 40, 41, 47
- ☐ The following special considerations preclude the reasonable creation of 8' of water table clearance and a standard septic design will be provided and constructed:
- ☐ Re-Grading will be required to eliminate slopes in excess of 25% Lots:
- ☐ No further action required to establish sufficient usable area.

I have assessed the land of the proposed subdivision in light of Title 43.20.281 of the Matanuska-Susitna Borough Code. The foregoing parameters have directed my investigation. My conclusions for all lots with an area less than 400,000 sq. ft. are as follows: 1. All contain sufficient overall area 2. All have at least 10,000 square feet of "Useable Building Area" 3. All have at least 10,000 square feet of "Contiguous Useable Septic Area" or will once the specified Fill, Re-Grading and Standard Septic Designs have been provided.

Simon Gilliland
Simon Gilliland P.E.

Professional Engineer

4/13/22
Date



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SURVEYING ENGINEERING & LAND DEVELOPMENT SERVICES
305 E. Fireweed Ave. Palmer, AK 99645

GEOTECHNICAL ANALYSIS – SOIL INSPECTION LOG

Parcel:	Tract A-3, NE1/4 SEC 33, T19N R1E, SM, AK	TEST HOLE NO.	Date:	08/09/22
Insp. By:	SIMON GILLILAND	205	Job #	22-112

TEST HOLE EXCAVATION ANALYSIS			TEST HOLE LOCATION MAP																																																																																									
1ft	OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY	See attached																																																																																									
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Insp. By:	SIMON GILLILAND	206	Job #	22-112

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1ft	OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY	See attached																													
2ft	ML	INORGANIC SILTS & VERY FINE SANDS, ROCK FLOUR																														
3ft																																
4ft	GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIX, LITTLE/ FINES	PERCOLATION TEST																													
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12ft	7																															
13ft	8																															
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15ft	10																															
16ft	11																															
17ft	12																															
18ft	SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE/NO FINES					Perc. Hole Diam. (in.):																									
19ft							Test Run Between:																									
20ft							ft and ft Deep																									
																																
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TEST HOLE EXCAVATION ANALYSIS			TEST HOLE LOCATION MAP					
1ft	OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY	See attached					
2ft	GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIX, LITTLE/ FINES						
3ft								
4ft								
5ft								
6ft								
7ft								
8ft								
9ft			SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE/NO FINES	PERCOLATION TEST			
10ft	Reading	Date			Gross Time	Net Time	Depth to Water	Net Drop
11ft	1							
12ft	2							
13ft	3							
14ft	4							
15ft	5							
16ft	6							
17ft	7							
18ft	8							
19ft	9							
20ft	10							
	11							
	12							
			Perc. Hole Diam. (in.):					
			Test Run Between:					
			ft		and	ft Deep		
								
			COMMENTS:					

GEOTECHNICAL ANALYSIS – SOIL INSPECTION LOG

TEST HOLE EXCAVATION ANALYSIS			TEST HOLE LOCATION MAP						
1ft	OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY	See attached						
2ft									
3ft									
4ft									
5ft	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIX, LITTLE/NO FINES.	PERCOLATION TEST						
6ft			Reading	Date	Gross Time	Net Time	Depth to Water	Net Drop	
7ft			1						
8ft			2						
9ft			3						
10ft			4						
11ft			5						
12ft			6						
			7						
			8						
			9						
			10						
			11						
			12						
					Perc. Hole Diam. (in.):				
					Test Run Between:				
			ft	and	ft	Deep			
									
			COMMENTS:						
Depth			WATER LEVEL MONITORING						
12ft	Total Depth of Test Hole		Date	WATER LEVEL					
None	Depths where Seeps encountered								
None	Depths where Ground Water encountered								
None	Depths where Impermeable Soil (Silt / Clay / Bedrock encountered								
No	Monitor Tube Installed?								

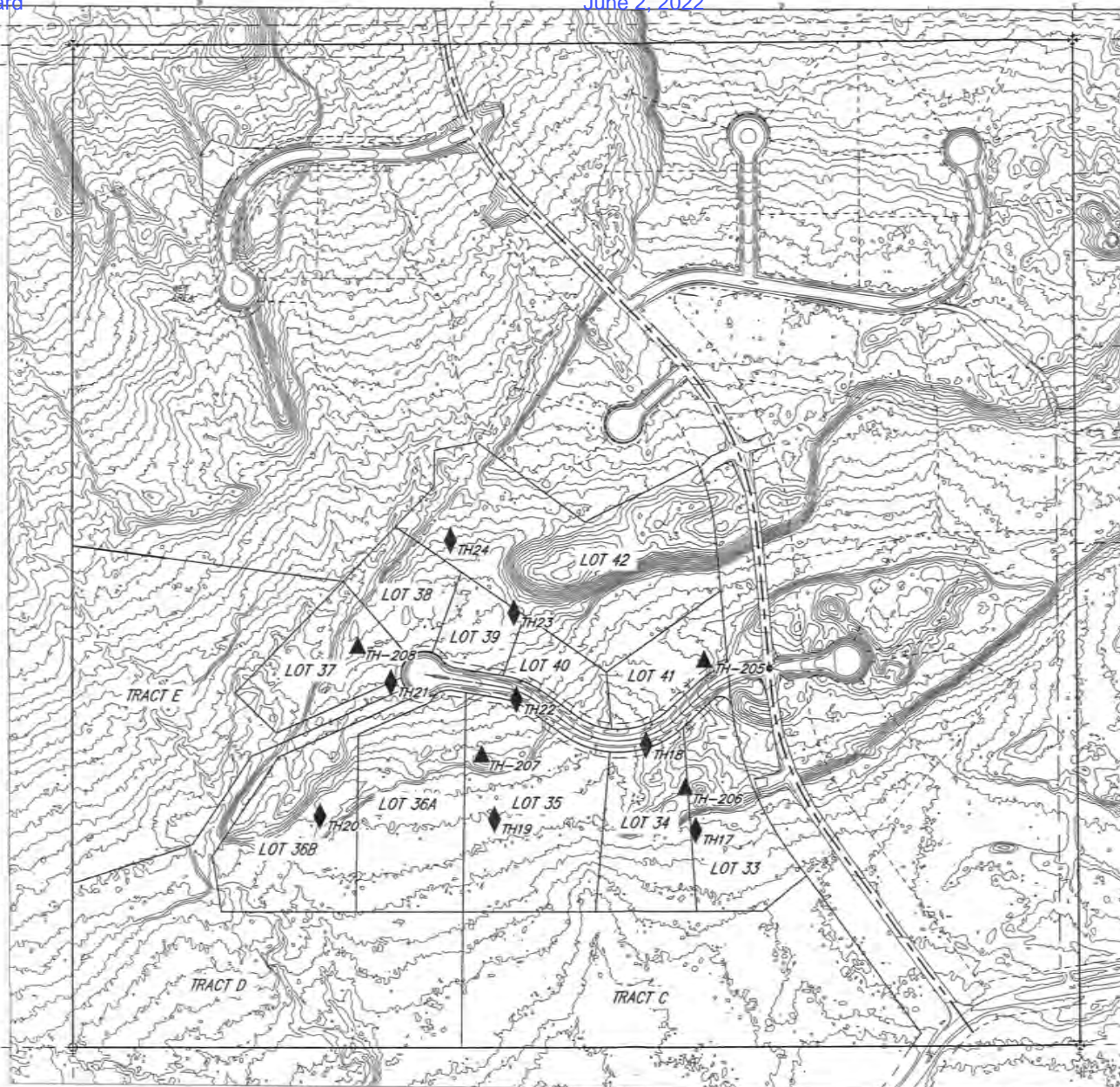


EXHIBIT C-7



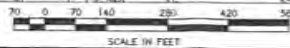
LEGEND

- ◆ THXX
2016 TEST HOLE
- ▲ TH-2XX
2021 TEST HOLE

PALMER, ALASKA
HATCHER PASS VILLAGE PH.8
SITE PLAN - DESIGN
TEST HOLE MAP

DWG.#16-156C
DESIGN: CEH
DRAWN BY: CEH
CHECKED: CEH
SCALE
11x17: 1"=280'
22x34: 1"=140'
REVISION DATE:
04-13-22

REFERENCE
NUMBER:
C-25.2
SHEET 1 OF 1



USEABLE AREA CERTIFICATION

FOX SUBDIVISION
A SUBDIVISION OF
HATCHERS PASS

JUN 23 2017

INTRODUCTION TO INVESTIGATION

The following report outlines parameters and conclusions of an investigation into the suitability of the proposed subdivision lots for supporting construction and on-site waste-water treatment. Consideration is limited to only those lots containing less than 400,000 square feet of area and the report specifically addresses parameters set forth in Title 43.20.281 of the Matanuska-Susitna Borough Code. The location of the Test holes and the anticipated useable areas are depicted on the attached sheets: (C-1.5.1 and C-1.5.2 Geotech/Useable Area)

INDIVIDUAL LOTS: MINIMUM SIZES

- ☒ All lots within this proposed subdivision are composed of at least 40,000 square feet in total area.
Exceptions:

USABLE BUILDING AREAS

CONFLICTING USE CONSIDERATIONS

- ☒ All land recognized as suitable for Building Area is outside of lands dedicated to Public Use and lands reserved by Mat-Su Borough Improvement Setbacks, including boundary and water/wetland setbacks.

TOPOGRAPHIC/PLANIMETRIC CONSIDERATIONS

- ☒ All land recognized as suitable for Building Area is characterized by slopes and soils upon which construction is possible.

USABLE SEPTIC AREAS

CONFLICTING USE CONSIDERATIONS

- ☒ All land recognized as suitable for Useable Septic Area is outside of any land dedicated to Public Use.
☒ The Useable Septic Area is not situated within any easement (Utility or otherwise) such that use of said easement would interfere with an on-site septic.

TOPOGRAPHIC/PLANIMETRIC CONSIDERATIONS

- ☒ The useable area consists entirely of land sloping less than 25% or will be at final certification.
☒ The useable area is set back 50' from any slopes exceeding 25% with more than 10' of elevation change or will be at final certification.
☒ The useable area is not less than 100' from the mean high water of any body of water, swamp, bog or marsh
☒ The useable area is not less than 200' from any public water well, nor less than 100' from any known private water well.
☒ The useable area is outside of any known debris burial site.

USEABLE AREA CERTIFICATION

SOILS INVESTIGATION

EXCAVATION

- ☒ Test-holes or borings have been made such that the bottom of the excavation is at least 12' deep (unless encountering water or impermeable layers) and "shallow trench" or "bed systems" are anticipated
- ☒ Test-holes or borings have been made such that the bottom of the excavation is at least 16' deep (unless encountering water or impermeable layers) and "deep trench" or "sewage pits" will likely be used
- ☒ Test-holes or borings have been made to the depth of permafrost or an impermeable layer.

TH#'s 120, 121, 122

CLASSIFICATION

- ☒ Soils within the potential absorption system area are expected to have a percolation rate of 15 minutes per inch or faster and have been visually classified under Uniform Soils Classification System as:

☐ (GW) TH#'s 101,102,108,112,118,119,135

☐ (GP)TH#'s

☒ (SW) TH#'s 113-115,120,122,123,126-130,136-138

☒ (SP)TH#'s 124,125,132,133,117

- ☒ Soils within the potential absorption system area have been shown by sieve analysis to be classified under the Uniform Soils Classification System as:

☐ (GM) TH#'s 134

☒ (SM)TH#'s 103-107,109-111,116,121,122,131

- ☐ Soils within the potential absorption system area have been shown by a percolation test, conducted in accordance with Alaska Department of Environmental Conservation (ADEC) regulations to have a percolation rate of 60 minutes per inch or faster. TH#'s

- ☒ Bedrock, Clay, or other impermeable stratum was encountered.

TH#'s 120, 121, 122

GROUNDWATER INVESTIGATION

- ☐ No groundwater was encountered in any of the Test Holes

- ☒ Groundwater was encountered in some Test Holes and excavation continued at least 2' below encounter depth
Seasonal High Water table level was determined by:

☒ Monitoring Test Holes May through October: TH#'s 101-103,105,112,116-119,121-124,127,129-138

☐ Soil Mottling or Staining Analysis:

TH#'s

☒ Depth to seasonal high water is a min. of 8' TH#'s 101,102,105,108,123-124,127,135

☒ Depth to seasonal high water is less than 8' TH#'s 103,112,116-119,121,122,129-134,136-138

TEST HOLE SUMMARY

TEST-HOLE #	SOIL CLASS IN POTENTIAL ABSORPTION AREA (UNIFORM SOILS CLASSIFICATION SYSTEM)		STABILIZED DEPTH TO GROUND WATER	DEPTH TO IMPERMEABLE LAYER	DEPTH AT EXCAVATION		
	VISUAL CLASSIFICATION	MECHANICAL CLASSIFICATION			SEEPS	GND WATER	TOTAL
TH-1	-	-	-	-	-	-	-
TH-2	-	-	-	-	-	-	-
TH-3	-	-	SEE ATTACHED SHEET				
TH-4	-	-					
TH-5	-	-	-	-	-	-	-
TH-6	-	-	-	-	-	-	-

SUMMARY OF REQUIRED FURTHER ACTION

- ☒ Additional Fill required to ensure 8' of coverage above water table
 Lots: 2, 3, 24, 31, 32, 34, 49, (Lot 41 may need fill, to be verified prior to plat approval)
- ☐ The following special considerations preclude the reasonable creation of 8' of water table clearance and a standard septic design will be provided
 Considerations: TO BE DETERMINED AT TIME OF PLACEMENT OF FILL
 Lots: (TO BE DETERMINED)
- ☐ Fill required to ensure 6' of coverage above water table in addition to the standard design
 Lots: (TO BE DETERMINED)
- ☒ Re-Grading will be required to eliminate particular slopes in excess of 25%
 Lots: minimal grading will be required for lot 34 to enable septic near slope

I have assessed the land of the proposed subdivision in light of Title 43.20.281 of the Matanuska-Susitna Borough Code. The foregoing parameters have directed my investigation. My conclusions for all lots with an area less than 400,000 sq. ft. are as follows: 1. All contain sufficient overall area 2. All have at least 10,000 square feet of "Useable Building Area" 3. All have at least 10,000 square feet of "Useable Septic Area" or will have once the specified Fill, Re-Grading and Standard Septic Designs have been provided.



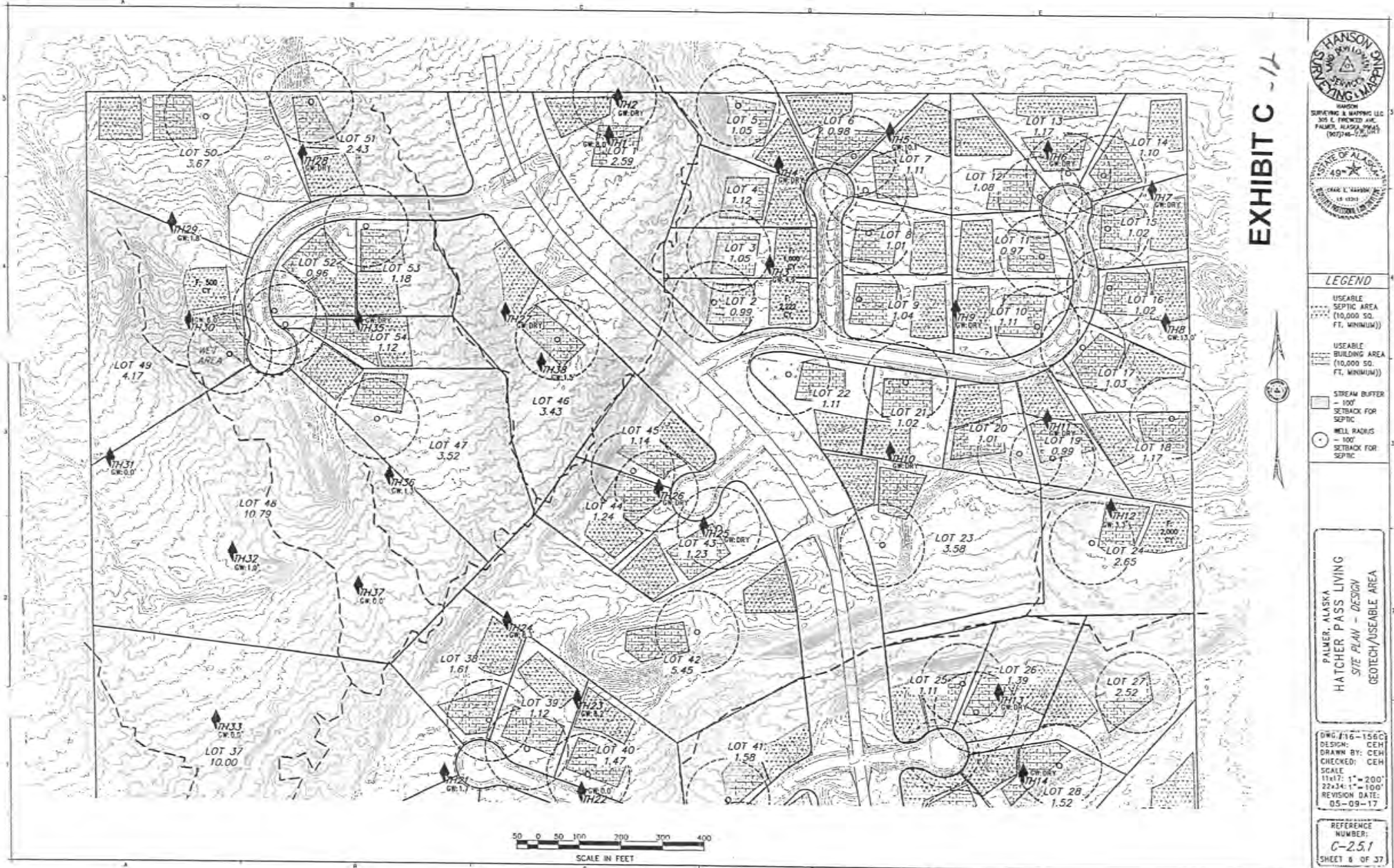
John D. Sommer P.E.
Professional Engineer



ATTACHMENTS: 1: Test Hole Summary; 2: Geotech/Useable Area Mapping (Sheets C-1.5.2 & C-1.5.2)
 3: Test Hole Logs: Field Logs and Mechanical Analysis Results

TEST HOLE SUMMARY

TEST-HOLE #	SOIL CLASS IN POTENTIAL ABSORPTION AREA (UNIFORM SOILS CLASSIFICATION SYSTEM)		STABILIZED DEPTH TO GROUND WATER	DEPTH TO IMPERMEABLE LAYER	DEPTH AT EXCAVATION		
	VISUAL CLASSIFICATION	MECHANICAL CLASSIFICATION			SEEPS	GND WATER	TOTAL
TH-1	GW	NONE	8.0	-	-	8.0	10.0
TH-2	GW	NONE	-	-	-	9.0	11.0
TH-3	-	SM	4.9	-	6'	10.0	12.0
TH-4	-	SM	-	-	-	-	14.0
TH-5	-	SM	10.1	-	14'	14.0	16.0
TH-6	-	SM	-	-	-	-	12.0
TH-7	-	SM	-	-	-	-	14.0
TH-8	GP-GW	NONE	13.0	-	10'	-	14.0
TH-9	-	SM	-	-	-	-	14.0
TH-10	-	SM	-	-	-	-	14.0
TH-11	-	SM	-	-	-	-	14.0
TH-12	GW	NONE	3.3	-	-	8.0	10.0
TH-13	SW/GW	NONE	-	-	-	-	14.0
TH-14	SW/GW	NONE	-	-	-	-	14.0
TH-15	SW/GW	NONE	-	-	9'	-	14.0
TH-16	-	SM	2.3	-	7'	7.0	14.0
TH-17	-	SP	1.3	-	11'	-	14.0
TH-18	GW/SW	NONE	4.8	-	4'	-	10.0
TH-19	GW/SW	NONE	0.8	-	-	8.0	10.0
TH-20	SW	NONE	-	BEDROCK 8.5	8'	-	8.5
TH-21	SP	SM	1.7	BEDROCK 14.0	-	12.0	14.0
TH-22	-	SM	0.0	BEDROCK 7.0	7'	7.0	7.0
TH-23	SW	NONE	8.2	-	11'	11.0	13.0
TH-24	SP	NONE	8.3	-	11'	-	14.0
TH-25	SP/COBBLES	NONE	-	-	-	-	14.0
TH-26	SW	NONE	-	-	-	-	14.0
TH-27	SW	NONE	-	-	-	8.0	12.0
TH-28	SW	NONE	-	-	-	-	14.0
TH-29	SW	NONE	1.8	-	-	4.0	14.0
TH-30	SW	NONE	6.0	-	-	9.0	13.0
TH-31	-	SM	0.0	-	-	11.0	14.0
TH-32	SP	NONE	1.0	-	4'	-	13.0
TH-33	SP	NONE	0.0	-	5'	5.0	13.0
TH-34	-	GP-GM	1.8	-	10'	-	15.0
TH-35	GW	NONE	-	-	-	9.0	12.0
TH-36	SW	NONE	1.3	-	-	4.0	13.0
TH-37	SW	NONE	0.0	-	-	7.5	12.0
TH-38	SW	NONE	1.5	-	-	5.0	12.0



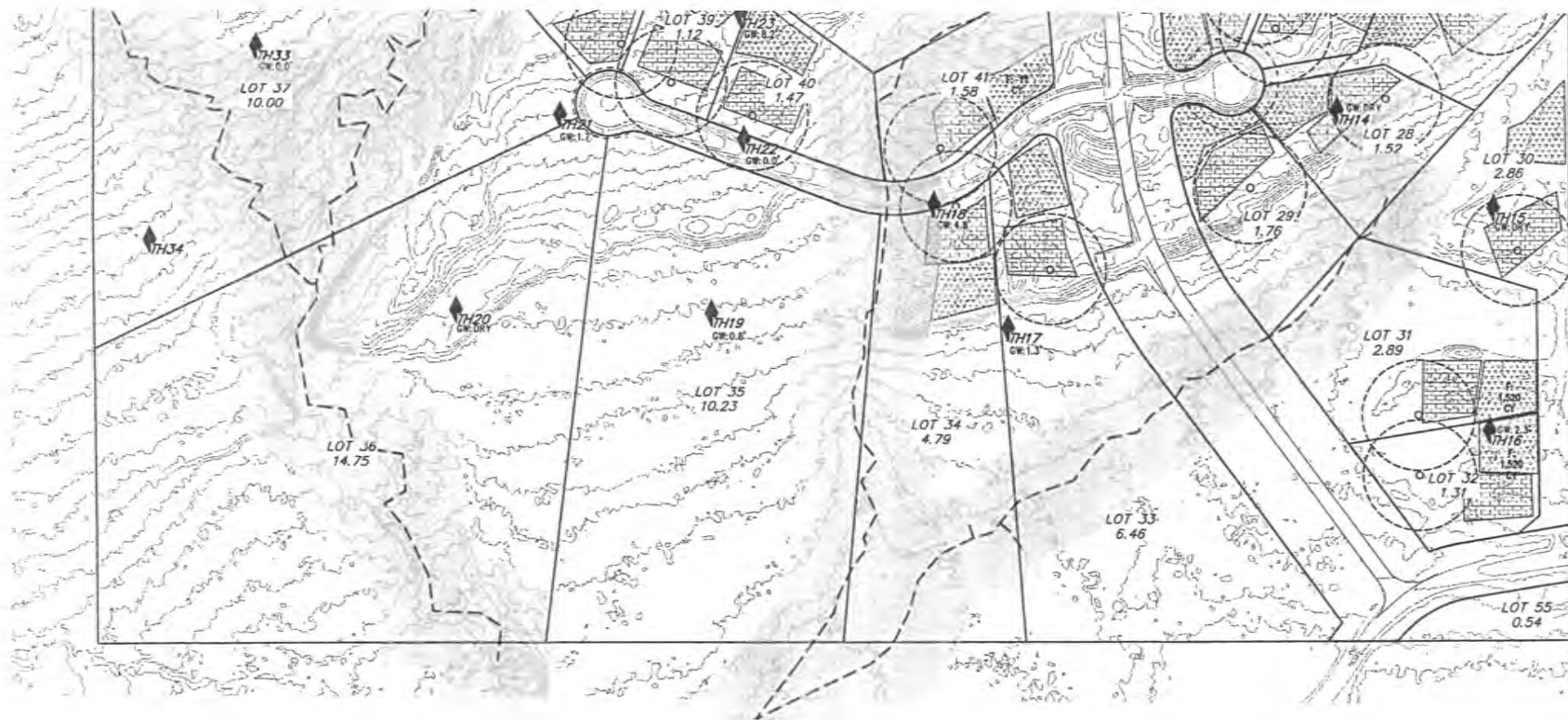


EXHIBIT C-13



LEGEND

- USEABLE SEPTIC AREA (10,000 SQ. FT. MINIMUM)
- USEABLE BUILDING AREA (10,000 SQ. FT. MINIMUM)
- STREAM BUFFER - 100' SETBACK FOR SEPTIC
- WELL RADIUS - 100' SETBACK FOR SEPTIC

PALMER, ALASKA
HATCHER PASS LIVING
SITE PLAN - DESIGN
GEOTECH/USEABLE AREA

DWG. #16-156C
DESIGN: CEH
DRAWN BY: CEH
CHECKED: CEH
SCALE
11x17: 1"=200'
22x34: 1"=100'
REVISION DATE:
05-09-17

REFERENCE
NUMBER:
C-25.2
SHEET 7 OF 37



TESTHOLE LOG

Legal Description: _____

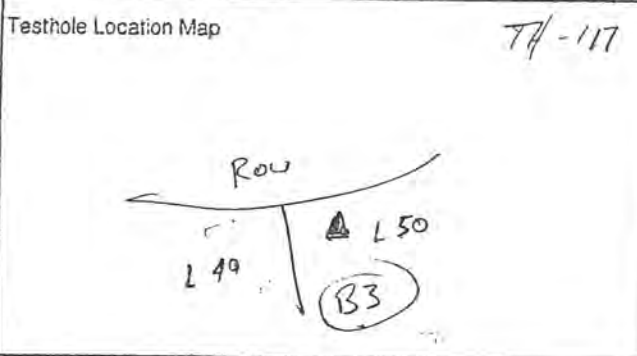
Date: 10/06/16

Inspected By: _____

Ground level

1ft	
2ft	SANDY
3ft	SOIL
4ft	PIPER
5ft	W/ROCKS
6ft	
7ft	Brown
8ft	GRAVEL
9ft	SANDY
10ft	GRAVEL
11ft	
12ft	
13ft	GW
14ft	SW
15ft	
16ft	
17ft	
18ft	
19ft	
20ft	

SAMPLE DEPTH



Comments:

6ft L 50 SW

Total Depth of Testhole 14⁰ ft.

Groundwater/Seeps Encountered? Y / N At 11⁰ ft.

Impermeable Soil (Silt/Clay/Bedrock) Encountered? Y / N At _____ ft.

RETURN VISITS			
DATE	DEPTH	DATE	DEPTH
10/18	15	10/21/16	13
PUMPED TO			54

PIPE 4

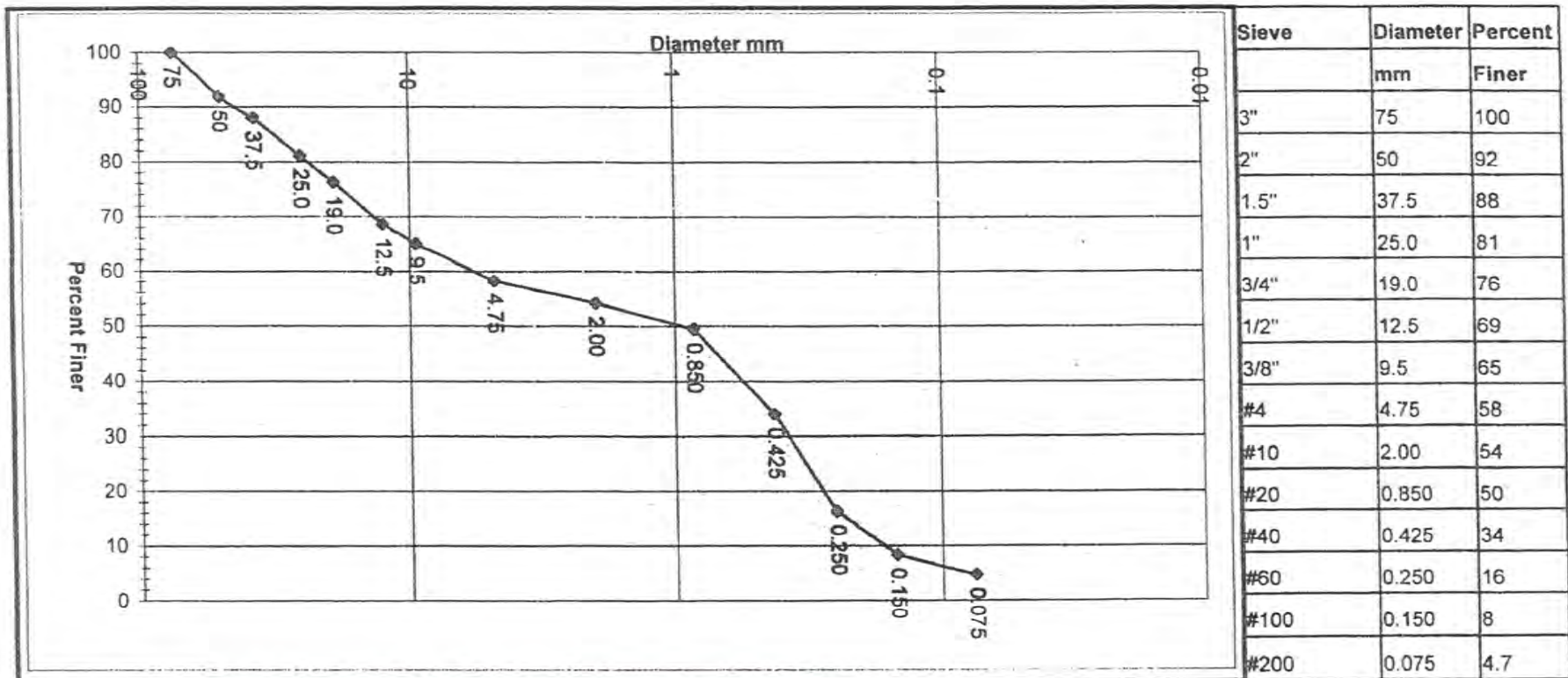
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EXHIBIT C - 14



MARK HANSEN P.E.

CONSULTING ENGINEERS TESTING LABORATORY
2605 N. Old Glenn Hwy, Palmer, AK 99645 Phone: (907) 745-4721
e-mail: mhpe@mtaonline.net



Client: **Craig Hansen**

Soil Description: Poorly Graded Sand with Gravel

Project: Government Peaks / Neil Fox Unified Classification: SP

Sample Location: 117

Date: 10/21/2016

$C_u = 34$ Sample Date: 10/11/2016

$C_c = 0.1$ Proj. no.: 16120

EXHIBIT C - 15

TESTHOLE LOG

Legal Description: _____

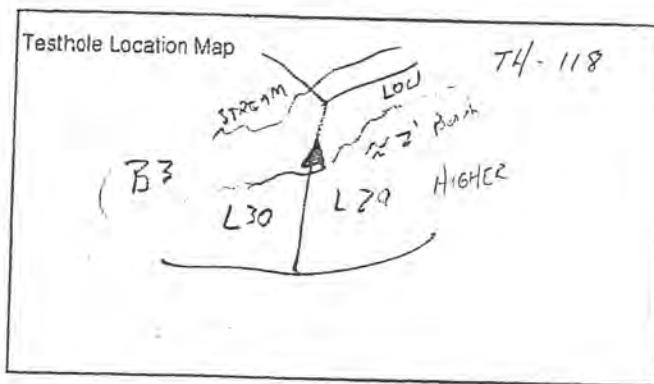
Date: 10/07/16

Inspected By: _____

Ground level _____

1ft	○
2ft	
3ft	SANDY GRAVEL
4ft	
5ft	
6ft	
7ft	GW/SW
8ft	
9ft	
10ft	
11ft	EXCESSIVE HARD PACK GRAVEL
12ft	
13ft	
14ft	
15ft	
16ft	
17ft	
18ft	
19ft	
20ft	

SAMPLE DEPTH



Comments:

~ 6" Thin layer of Block sandy Rock

Total Depth of Testhole 10' ft.

Groundwater/Seeps Encountered? Y N At 4' ft.

Impermeable Soil (Silt/Clay/Bedrock) Encountered? Y/N At _____ ft.

RETURN VISITS			
DATE	DEPTH	DATE	DEPTH
10/18	46	10/21/16	48

Form revised 2/2016

EXHIBIT C - 16

TESTHOLE LOG

Legal Description: _____

Date: 10/07/16

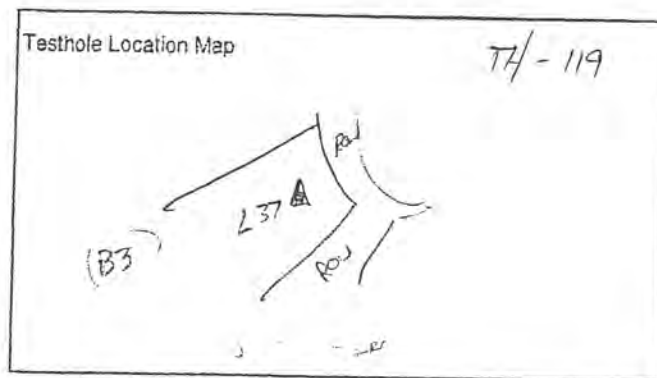
Inspected By: _____

Ground level _____

1ft	
2ft	
3ft	PEAT
4ft	
5ft	
6ft	
7ft	
8ft	
9ft	GW/SW
10ft	
11ft	
12ft	
13ft	
14ft	
15ft	
16ft	
17ft	
18ft	
19ft	
20ft	

Testhole Location Map

TH-119



Comments:

INCLUDES COBBLES - (many)

6' Peat - wet

Gravel below is gray - but good material

Total Depth of Testhole 10⁰ ft.

Groundwater/Seeps Encountered Y/N At 8⁰ ft.

Impermeable Soil (Silt/Clay/Bedrock) Encountered? Y/N At _____ ft.

PIPE Y/N

RETURN VISITS			
DATE	DEPTH	DATE	DEPTH
10/19	0 ³		

Form revised 2/2010

EXHIBIT C -17

TESTHOLE LOG

Legal Description: _____

Date: 10/07/16

Inspected By: _____

Ground level

1ft	TS
2ft	
3ft	
4ft	
5ft	sw w/ Gravel + Cobbles
6ft	
7ft	
8ft	
9ft	BED ROCK
10ft	
11ft	
12ft	
13ft	
14ft	
15ft	
16ft	
17ft	
18ft	
19ft	
20ft	

SAMPLE DEPTH

Testhole Location Map

TH-120

Comments:

small # of cobbles

TH-120 Falls on bench between lower
swampy gnd + low ridge (~ 10' above
swamp / 10' below Ridge) - see contours

Total Depth of Testhole 8⁵ ft.

Groundwater/Seeps Encountered? Y / N At 8⁰ ft.

Impermeable Soil (Silt/Clay/Bedrock) Encountered? Y / N At 8⁵ ft.

PIPE Y

RETURN VISITS			
DATE	DEPTH	DATE	DEPTH

Form revised 2/2/16

EXHIBIT C

-18

TESTHOLE LOG

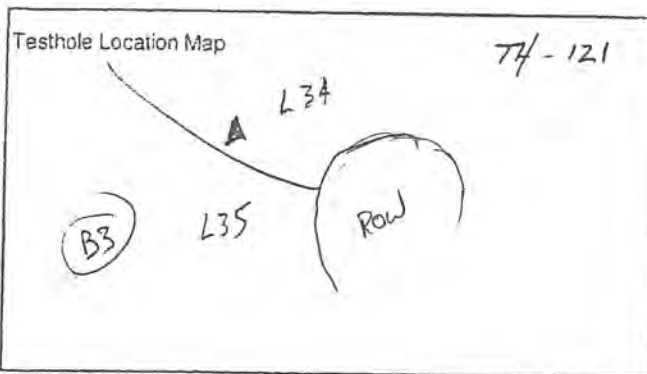
Legal Description: _____

Date: 10/07/16

Inspected By: _____

Ground level _____

1ft	TS
2ft	
3ft	
4ft	
5ft	
6ft	POORLY GRADED
7ft	
8ft	SM?
9ft	
10ft	
11ft	
12ft	
13ft	ROCKY
14ft	
15ft	Red Rock?
16ft	
17ft	
18ft	
19ft	
20ft	



Comments:

Wet - scared to many lines to
classify as SP

Total Depth of Testhole 14⁰ ft.

Groundwater/Seeps Encountered? (Y) N At 12⁰ ft.

Impermeable Soil (Silt/Clay/Bedrock) Encountered? (Y) N At 13^S ft.

PIPE DN

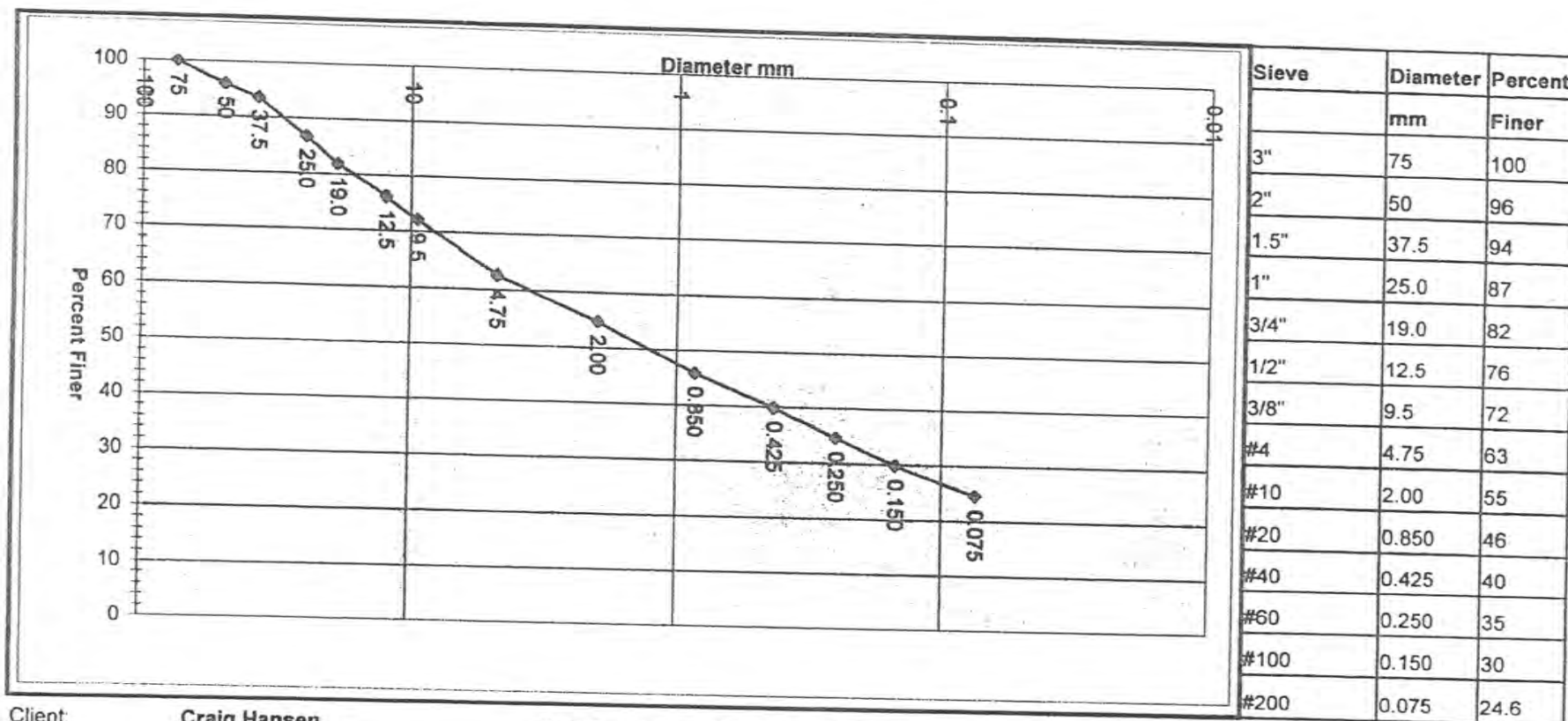
RETURN VISITS			
DATE	DEPTH	DATE	DEPTH
10/18	2 ^I	10/21/16	1 ^I
		PUMPED TO 5 ⁰	

Form revised 2/2016

EXHIBIT C-19



MARK HANSEN P.E.
CONSULTING ENGINEERS TESTING LABORATORY
2605 N. Old Glenn Hwy, Palmer, AK 99645 Phone: (907) 745-4721
e-mail: mhpe@mtaonline.net



Client: **Craig Hansen** Soil Description: Silty Sand with Gravel
Project: Government Peaks / Neil Fox Unified Classification: SM
Sample Location: 121

Date: 10/21/2016
Sample Date: 10/11/2016
Proj no: 16120

EXHIBIT C-20

TESTHOLE LOG

Legal Description: _____

Date: 10/07/16

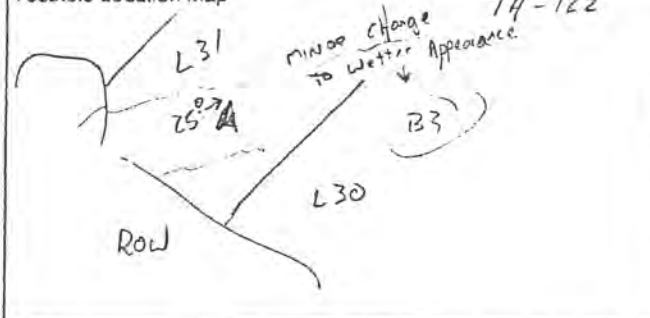
Inspected By: _____

Ground level

1ft	O
2ft	SILT/TS
3ft	
4ft	
5ft	SW
6ft	SM?
7ft	
8ft	BEDROCK
9ft	
10ft	
11ft	
12ft	
13ft	
14ft	
15ft	
16ft	
17ft	
18ft	
19ft	
20ft	

SAMPLE DEPTH

Testhole Location Map



Comments:

Just south of somewhat obvious
vegetation change line that runs a N30E

Total Depth of Testhole 7⁰ ft.

Groundwater (Seeps) Encountered? Y / N At 7⁰ ft.

Impermeable Soil (Silt/Clay/Bedrock) Encountered? Y / N At 7⁰ ft.

PIPE Y / N

RETURN VISITS			
DATE	DEPTH	DATE	DEPTH
10/18	04	10/21/16	0 ⁰
Pumped to: 2 3			

TO WATER

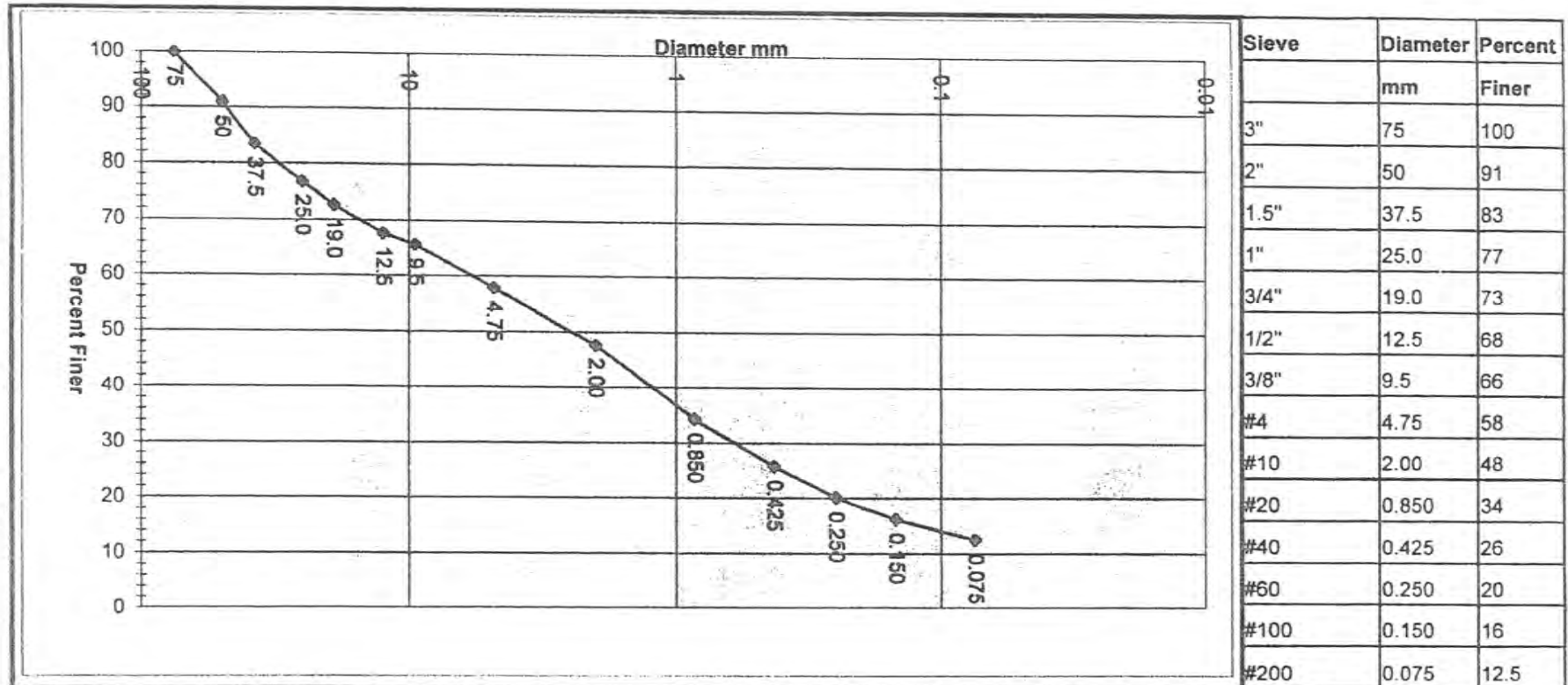
Form revised 2/2010

EXHIBIT C - 21



MARK HANSEN P.E.

CONSULTING ENGINEERS TESTING LABORATORY
2605 N. Old Glenn Hwy, Palmer, AK 99645 Phone: (907) 745-4721
e-mail: mhpe@mtaonline.net



Client: **Craig Hansen** Soil Description: Silty Sand with Gravel

Project: **Government Peaks / Neil Fox** Unified Classification: SM

Sample Location: 122

Date: 10/21/2016

Sample Date: 10/11/2016

Proj. no: 16120

EXHIBIT C-22

TESTHOLE LOG

Legal Description: _____

Date: 10/07/16

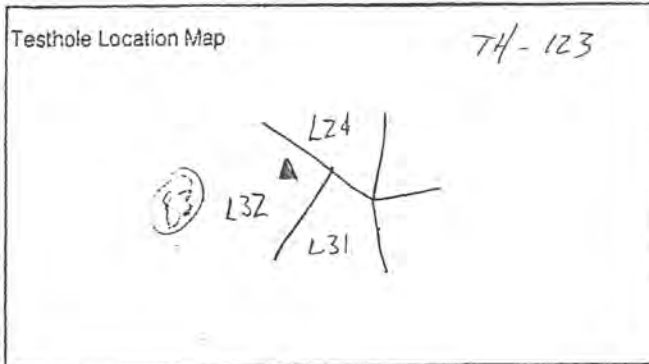
Inspected By: _____

Ground level _____

1ft	TS
2ft	
3ft	
4ft	
5ft	SW
6ft	w/
7ft	Cobbles
8ft	+ A few
9ft	Boulders
10ft	
11ft	
12ft	SW w/
13ft	Boulders
14ft	
15ft	
16ft	
17ft	
18ft	
19ft	
20ft	

A
seeps

SAMPLE DEPTH



74-123

Comments:

Big Boulders in last 2'

Total Depth of Testhole 13' ft.

Groundwater/Seeps Encountered? Y/N At 11' ft.

Impermeable Soil (Silt/Clay/Bedrock) Encountered? Y/N At _____ ft.

Pipe Y/N

RETURN VISITS			
DATE	DEPTH	DATE	DEPTH
10/18	8'		

Form revised 2/2/16

EXHIBIT C - 23

TESTHOLE LOG

Legal Description: _____

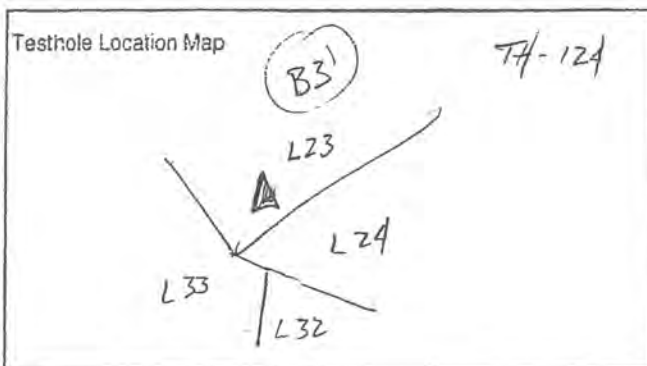
Date: 10/07/16

Inspected By: _____

Ground level

1ft	TS
2ft	
3ft	
4ft	
5ft	
6ft	
7ft	
8ft	
9ft	
10ft	
11ft	SP w/ some Gravel occasional cobble
12ft	
13ft	
14ft	
15ft	
16ft	
17ft	
18ft	
19ft	
20ft	

SAMPLE DEPTH



Comments:

Good Grd on entire bench here

PIPE (Y)/N

Total Depth of Testhole 14' ft.

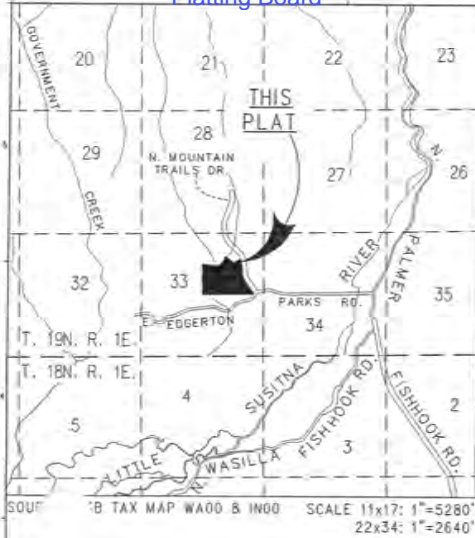
Groundwater Seeps Encountered? (Y) N At 11' ft.

Impermeable Soil (Silt/Clay/Bedrock) Encountered? (N) At _____ ft.

RETURN VISITS			
DATE	DEPTH	DATE	DEPTH
10/18	8' 3"		

Form revised 2/2016

EXHIBIT C - 24



PLAN SET
HATCHER PASS VILLAGE PH. VII
SHEETS

1. C-1.0 COVER SHEET
2. D-1.0 SITE PLAN DESIGN - DRAINAGE PLAN
- 3-4. C-2.1 - C-2.2 PLAN AND PROFILE

42" DIAMETER CULVERT

CULVERT
AND
SEWER

LEGEND

- RECOVERED BLM/OLO BRASS CAP ON IRON PIPE
- RECOVERED ALUMINUM CAP ON 3/4" REBAR
- MEASURED DATA
- CULVERT
- EXISTING GRAVEL ROAD/DRIVEWAY
- EXISTING ASPHALT ROAD/DRIVEWAY
- INFILTRATOR

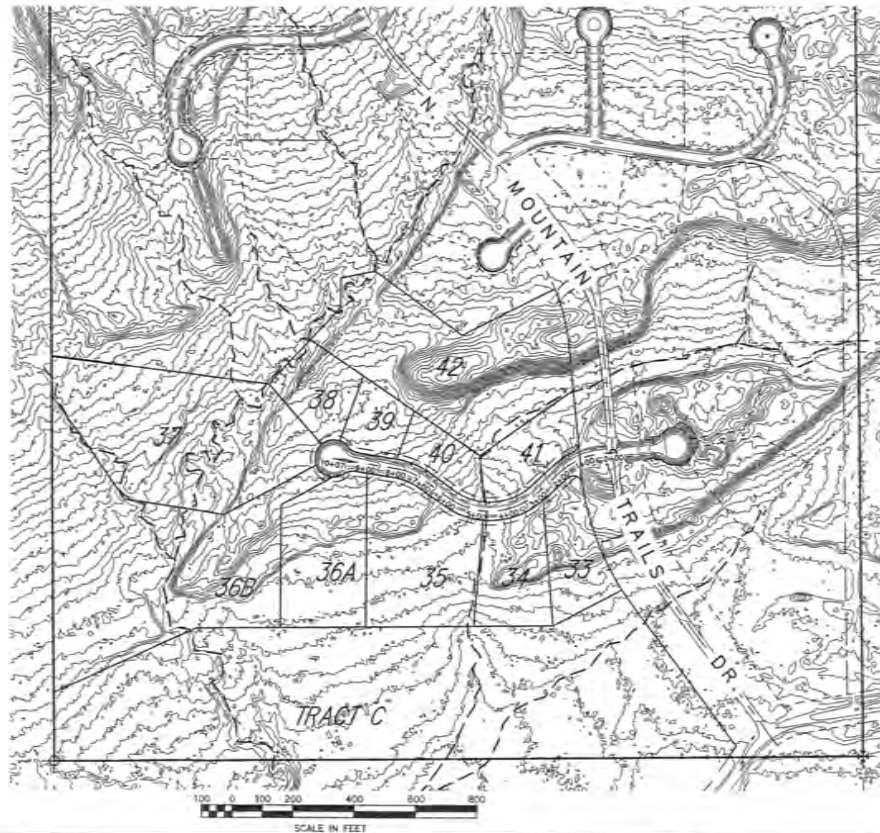
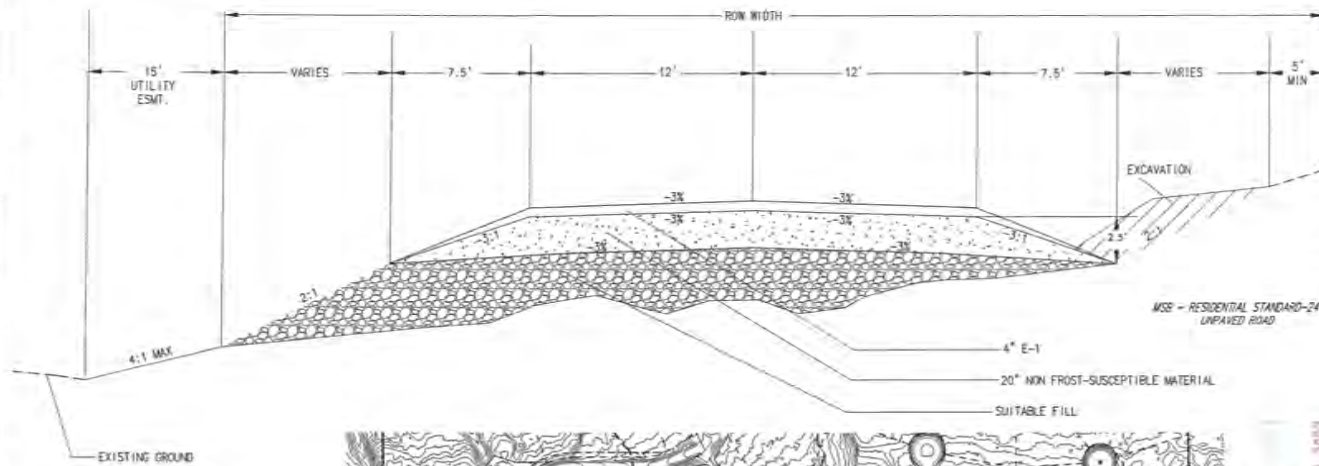


EXHIBIT D - 1

APR 14 2022



HATCHERS
LAND SOLUTIONS
305 E. FIREWALK AVE.
PALMER, ALASKA 99645
(907) 746-7739



NOTES
NO CONSTRUCTION TO FOLLOW UNLESS
SUBJECT TO CONSTRUCTION MANUAL RESIDENTIAL
STANDARDS.

PALMER, ALASKA
HATCHER PASS VILLAGE PH. VII
TYPICAL SECTION/
PROJECT OVERVIEW

DWG. #: 22-112C
DESIGN: CEH
DRAWN BY: SON
CHECKED: CEH
SCALE
11x17: 1"=XXX'
22x34: 1"=XXX'
REVISION DATE:
04-16-22

REFERENCE
NUMBER:
C-1.0
SHEET 1 OF 4



HATCHER PASS ESTATES SUBDIVISION (2007-99)



NOTES:
1. THE SUBDIVISION WITHIN THE BOUNDARY LINES IS SUBDIVIDED AS A 2' INTERVAL AND MEASURED IN
DESIGNED TOP OF THE SURFACE (20' ME) AND THE DITCH BOUNDARIES.
2. THE 2' BOUNDARY, ORIGINAL GROUND, EXISTING AND PROPOSED SHOWN HEREIN ARE DERIVED FROM FIELD DATA OF
THE ALASKA SURVEYING BOARD, LICENSED SURVEYOR, JUNE 1971/2012.
3. PROJECT HORIZONTAL AND VERTICAL CONTROL WAS ESTABLISHED WITH GPS POST-PROCESSING POSITIONING
SYSTEM, STATE OF ALASKA.
4. THE UNDIVIDED, BOUNDARY LINES (2007-99)

ALASKA
HATCHER PASS VILLAGE PH. VIII
SITE PLAN - DESIGN
GRADING-DRAINAGE PLAN

DWG. # 22-112C
DESIGN: CEH
DRAWN BY: 30M
CHECKED: CEH
SCALE
11x17: 1"=280'
22x34: 1"=140'
REVISION DATE:
04-18-22

REFERENCE
NUMBER:
D-1.0
SHEET 2 OF 4

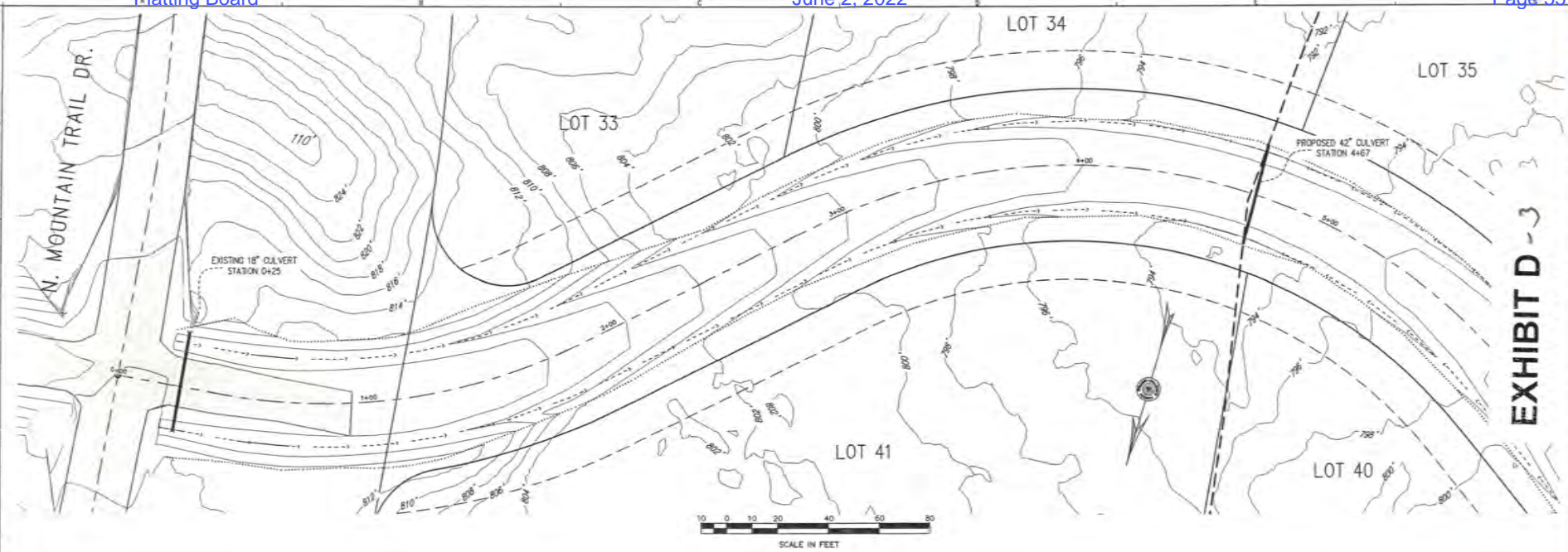
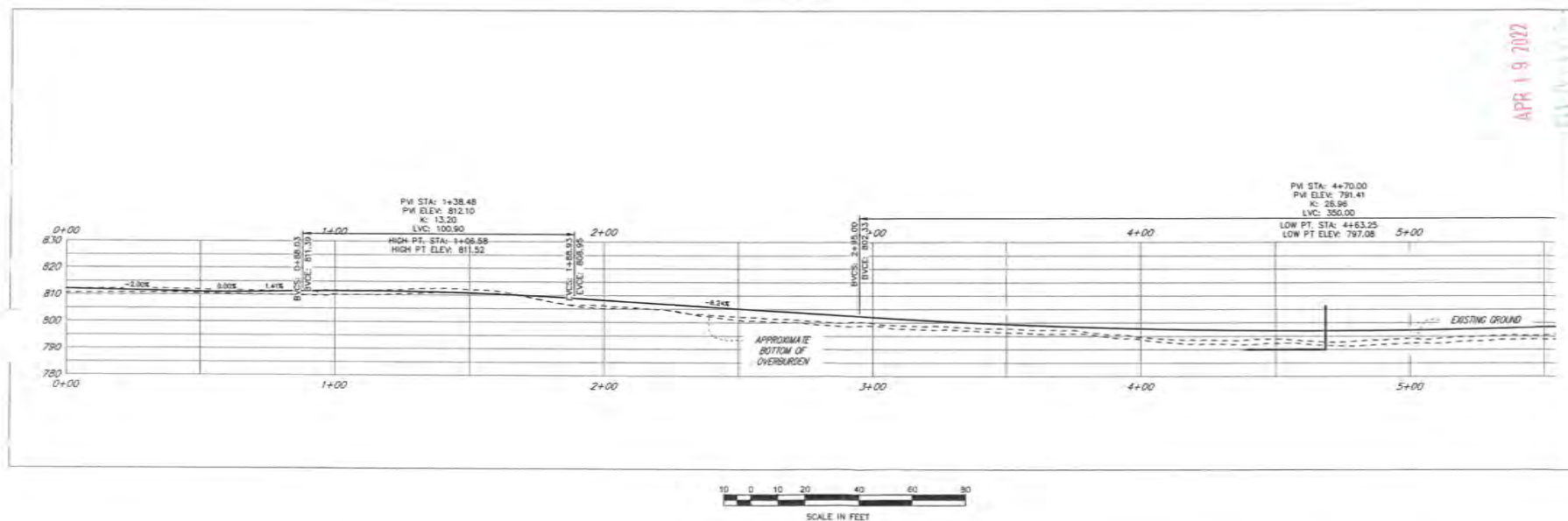


EXHIBIT D - 3



HANSON
LAND SOLUTIONS
335 E. FINEST AVE.
PALMER, ALASKA 99645
(907) 746-7738

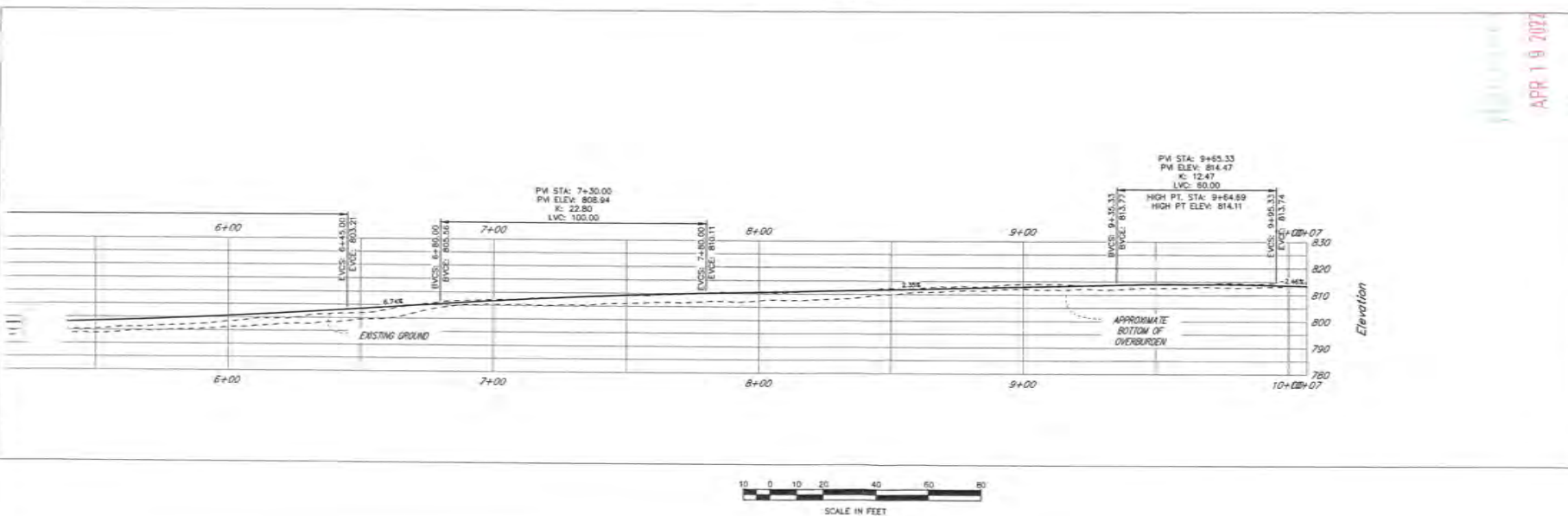
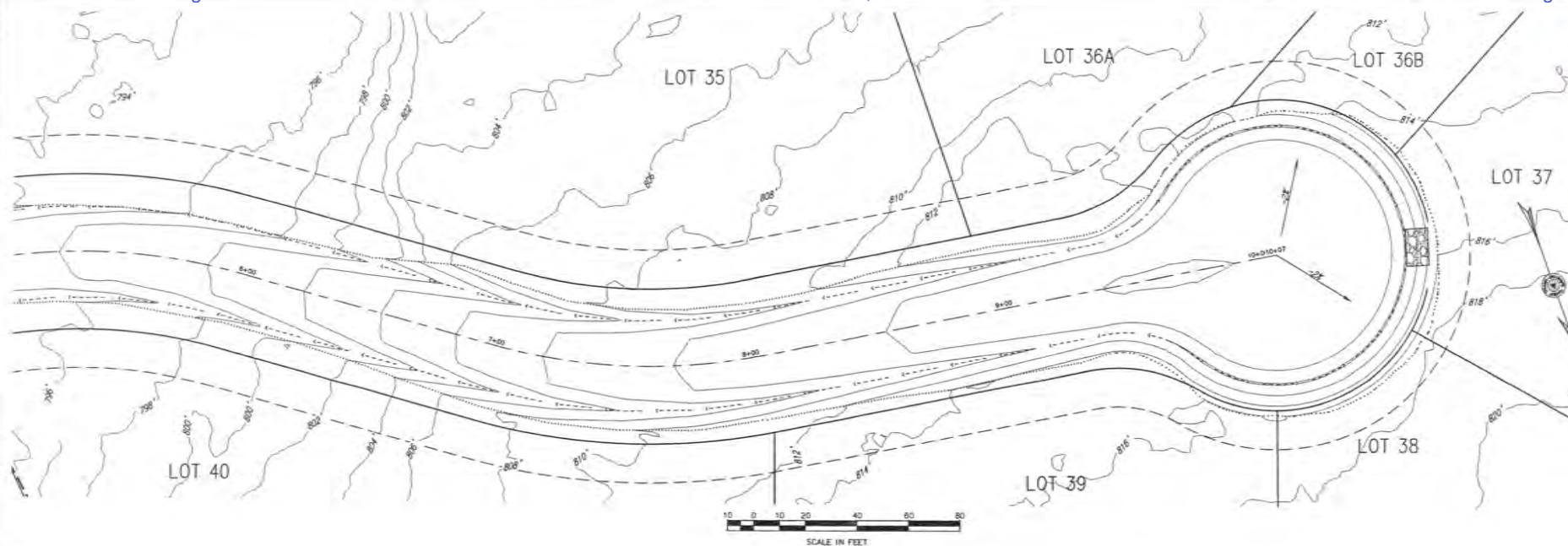


NOTES
1. THE 2" ORIGINAL GROUND CONTOURS SHOWN HEREON ARE DERIVED FROM
PUBLISHED DATA OF THE MATANUSKA-SUSTINA BOROUGH, LIDAR/IMAGERY
COLLECTED OF 2011/2012.
2. DESIGN EXCAVATION/CONSTRUCTION CONTOURS ARE DISPLAYED AT 2"
CONTOUR INTERVAL

PALMER, ALASKA
HATCHER PASS VILLAGE PH. VIII
PLAN AND PROFILE - DESIGN
E. REEPIICHEEP JR.

DWG #: 22-112C
DESIGN: CEH
DRAWN BY: SDH
CHECKED: CEH
SCALE
1"=40'
22x34"=20'
REVISION DATE:
04-14-22

REFERENCE
NUMBER:
C-2.1
SHEET 3 OF 4



NOTES:
1. ORIGINAL GROUND CONTOURS SHOWN HEREON ARE DERIVED FROM PUBLISHED DATA OF THE ALASKA STATE ENGINEERING LIBRARY, PROJECT OF 2011/2012.
2. DESIGN EXCAVATION/CONSTRUCTION CONTIGUES ARE DISPLAYED AT 2' CONTOUR INTERVAL

PALMER, ALASKA
HATCHER PASS VILLAGE PH.VIII
PLAN AND PROFILE - DESIGN
E. REEPCREEP, D.R.

DWG#: 22-112C
DESIGN: CEH
DRAWN BY: SDH
CHECKED: CEH
SCALE
11x17: 1"=40'
22x34: 1"=20'
REVISION DATE:
04-14-22

REFERENCE
NUMBER:
C-2.2
SHEET 4 OF 4

EXHIBIT D - 4

Amy Otto-Buchanan

From: Jamie Taylor
Sent: Monday, May 16, 2022 3:34 PM
To: Amy Otto-Buchanan
Cc: Elaine Flagg
Subject: RE: RFC Hatcher Pass Vlg PH VIII #22-059

Soils: Please show on the test hole map where the useable area is and where fill or regrading is planned. There are a lot of areas with < 8' to ground water, streams with 100' setbacks, > 25% slopes, etc.

Access: The proposed road is longer than 1000 LF from the intersection point with Mountain Trails to the center of the cul-de-sac and therefore needs to meet Residential Subcollector standard. Redesign horizontal and vertical alignment to meet minimum centerline radius and K value requirements for Residential Subcollector OR redesign alignment to be 7 feet shorter.

ADT: Technically an ADT estimate is required, but this one is simple enough. I am working on correcting the classification of Mountain Trails Drive to minor collector.

Jamie Taylor, PE (she/her)
Civil Engineer
Matanuska-Susitna Borough
Department of Public Works
t: 907-861-7765 c: 907-355-9810
jamie.taylor@matsugov.us
<http://www.matsugov.us/>

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Thursday, April 21, 2022 11:18 AM
To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; Jesse Sumner <jessesumnerdistrict6@gmail.com>; pamelaj.melchert@usps.gov; earl.almdale@gmail.com; cobbfam@mtaonline.net; mothers@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <Brad.Sworts@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Hatcher Pass Vlg PH VIII #22-059

The following link contains a Request for Comments for Hatcher Pass Vlg Ph VIII, MSB Case #2022-059. This will be going back to the Platting Board for a revision to Hatcher Pass Village Master Plan. Comments are due by **May 18, 2022**. Please let me know if you have any questions. Thanks, A.

Amy Otto-Buchanan

From: Percy, Colton T (DFG) <colton.percy@alaska.gov>
Sent: Tuesday, May 10, 2022 8:38 AM
To: Amy Otto-Buchanan
Subject: RE: RFC Hatcher Pass Vlg PH VIII #22-059

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Hi Amy,

Alaska Department of Fish and Game has reviewed the proposed platting actions and has no objections. The proposed actions will not adversely affect fish, wildlife, habitat, or public access to public lands and waters. Thank you for the opportunity to review and comment on these platting actions.

As a side note, I love the street names. I am quite the Chronicles of Narnia fan.

Colton T. Percy

Habitat Biologist

Access Defense Program

Alaska Department of Fish and Game

Division of Wildlife Conservation

333 Raspberry Rd

Anchorage, AK 99518

907-267-2118

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Thursday, April 21, 2022 11:18 AM
To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; Jesse Sumner <jessesumnerdistrict6@gmail.com>; pamelaj.melchert@usps.gov; earl.almdale@gmail.com; cobbfam@mtaonline.net; mothers@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <brad.sworts@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Jamie Taylor <jamie.taylor@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanaska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Hatcher Pass Vlg PH VIII #22-059

CAUTION: This email originated from outside the State of Alaska mail system. Do not click links or open attachments unless you recognize the sender and know the content is safe.

The following link contains a Request for Comments for Hatcher Pass Vlg Ph VIII, MSB Case #2022-059. This will be going back to the Platting Board for a revision to Hatcher Pass Village Master Plan. Comments are due by **May 18, 2022**. Please let me know if you have any questions. Thanks, A.

[Hatcher Pass Vlg Ph VIII](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan

From: OSP Design Group <ospdesign@gci.com>
Sent: Wednesday, May 4, 2022 8:46 AM
To: Amy Otto-Buchanan
Cc: OSP Design Group
Subject: RE: RFC Hatcher Pass Vlg PH VIII #22-059
Attachments: RFC Packet.pdf; Agenda Plat.pdf

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Amy,

In review GCI has no comments or objections to the plat, attached is the signed plat for your records.

Thanks,

MIREYA ARMESTO

GCI | Technician II, GIS Mapping

m: 907-744-5166 | w: www.gci.com

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Thursday, April 21, 2022 11:18 AM
To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; Jesse Sumner <jessesumnerdistrict6@gmail.com>; pamelaj.melchert@usps.gov; earl.almdale@gmail.com; cobbfam@mtaonline.net; mothers@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <Brad.Sworts@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Hatcher Pass Vlg PH VIII #22-059

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

The following link contains a Request for Comments for Hatcher Pass Vlg Ph VIII, MSB Case #2022-059. This will be going back to the Platting Board for a revision to Hatcher Pass Village Master Plan. Comments are due by **May 18, 2022**. Please let me know if you have any questions. Thanks, A.

[Hatcher Pass Vlg Ph VIII](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan

Platting Technician

amy.otto-buchanan@matsugov.us

861-7872

EXHIBIT G -1

Amy Otto-Buchanan

From: Holly Sparrow <hsparrow@mtasolutions.com>
Sent: Thursday, April 21, 2022 4:07 PM
To: Amy Otto-Buchanan
Subject: RE: RFC Hatcher Pass Vlg PH VIII #22-059

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Hello,

MTA has revied the plat for Hatcher Pass Village Phase VIII. MTA has no comments.

Thank you for the opportunity to comment.

Holly Sparrow, Right of Way Agent
MTA | 1740 S. Chugach Street | Palmer, AK 99645
Office: 907-761-2599 | www.mtasolutions.com

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Thursday, April 21, 2022 11:18 AM
To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; Jesse Sumner <jessesumnerdistrict6@gmail.com>; pamelaj.melchert@usps.gov; earl.almdale@gmail.com; cobbfam@mtaonline.net; mothers@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <Brad.Sworts@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; Right of Way Dept. <row@mtasolutions.com>; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Hatcher Pass Vlg PH VIII #22-059

The following link contains a Request for Comments for Hatcher Pass Vlg Ph VIII, MSB Case #2022-059. This will be going back to the Platting Board for a revision to Hatcher Pass Village Master Plan. Comments are due by **May 18, 2022**. Please let me know if you have any questions. Thanks, A.

[Hatcher Pass Vlg Ph VIII](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan
Platting Technician
amy.otto-buchanan@matsugov.us
861-7872

EXHIBIT G - 2



ENSTAR Natural Gas Company
A DIVISION OF SEMCO ENERGY
Engineering Department, Right of Way Section
401 E. International Airport Road
P. O. Box 190288
Anchorage, Alaska 99519-0288
(907) 277-5551
FAX (907) 334-7798

April 21, 2022

Matanuska-Susitna Borough, Platting Division
350 East Dahlia Avenue
Palmer, AK 99645-6488

To whom it may concern:

ENSTAR Natural Gas Company has reviewed the following preliminary plat and has no comments or recommendations.

- **HATCHER PASS VILLAGE PHASE VIII**
(MSB Case # 2022-059)

If you have any questions, please feel free to contact me at 334-7944 or by email at james.christopher@enstarnaturalgas.com.

Sincerely,

A handwritten signature in black ink that reads "James Christopher". The signature is written in a cursive, flowing style.

James Christopher
Right of Way & Compliance Technician
ENSTAR Natural Gas Company

SURVEYOR'S CERTIFICATE



I HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF ALASKA, THAT THIS PLAT REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT THE MONUMENTS SHOWN ON THE PLAT ACTUALLY EXIST AS DESCRIBED AND THAT ALL OTHER DETAILS ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

REGISTERED LAND SURVEYOR

PLANNING & LAND USE DIRECTOR'S CERTIFICATE

I CERTIFY THAT THIS SUBDIVISION PLAN HAS BEEN FOUND TO COMPLY WITH THE LAND SUBDIVISION REGULATIONS OF THE MATANUSKA-SUSITNA BOROUGH, AND THAT THE PLAT HAS BEEN APPROVED BY THE PLATTING AUTHORITY BY PLAT RESOLUTION NUMBER _____ DATED _____, 20____, AND THAT THIS PLAT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE RECORDER IN THE PALMER RECORDING DISTRICT, THIRD JUDICIAL DISTRICT, STATE OF ALASKA, IN WHICH THE PLAT IS LOCATED

PLANNING AND LAND USE DIRECTOR

DATE

ATTEST: _____
(PLATTING CLERK)

NOTES

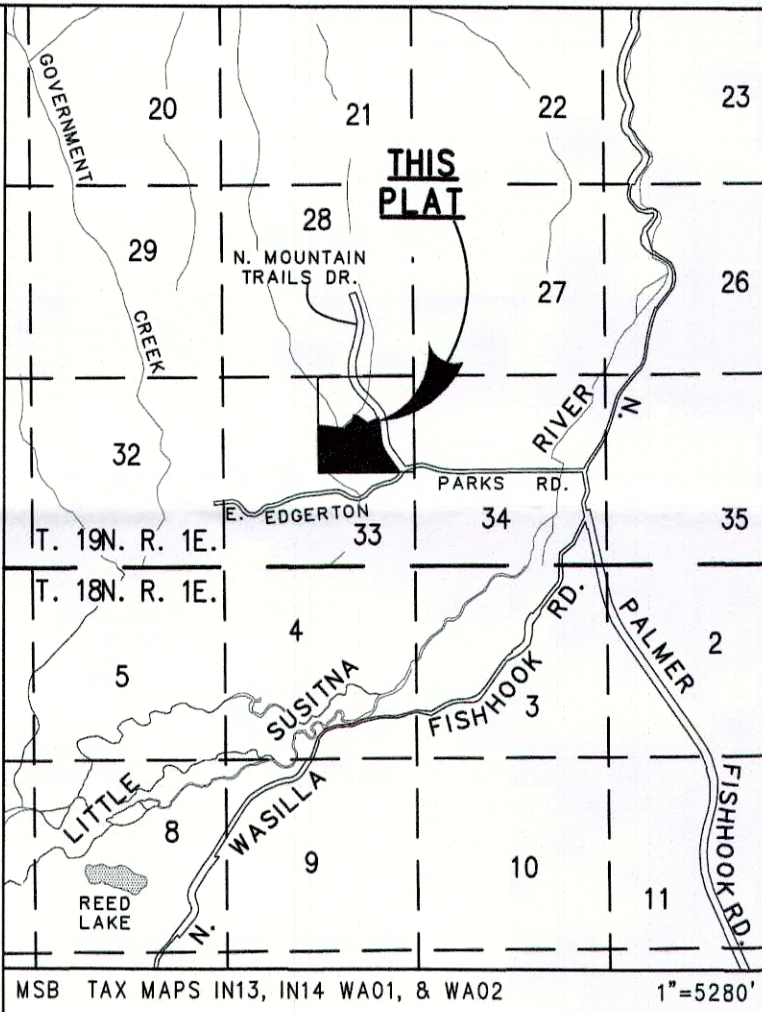
1. NO INDIVIDUAL WATER SUPPLY SYSTEM OR SEWAGE DISPOSAL SYSTEM SHALL BE PERMITTED ON THIS LOT UNLESS THE SYSTEM IS LOCATED, CONSTRUCTED, AND EQUIPPED IN ACCORDANCE WITH THE REQUIREMENTS, STANDARDS, AND RECOMMENDATIONS OF THE ALASKA STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION WHICH GOVERNS THOSE SYSTEMS.
2. THERE MAY BE FEDERAL, STATE, AND LOCAL REQUIREMENTS GOVERNING LAND USE. THE INDIVIDUAL PARCEL OWNER SHALL OBTAIN A DETERMINATION WHETHER THESE REQUIREMENTS APPLY TO THE DEVELOPMENT OF PARCELS SHOWN ON THE PLAT TO BE RECORDED.
3. THIS SUBDIVISION IS SUBJECT TO ENSTAR BLANKET EASEMENTS RECORDED ON AUGUST 29, 2018 IN DOCUMENT #2018-017826-0 AND ON AUGUST 21, 2019 IN DOCUMENT #2019-018046-0.
4. THIS SUBDIVISION IS SUBJECT TO COVENANTS, CONDITIONS, AND RESTRICTIONS ON OCTOBER 26, 2018 IN DOCUMENT #2018-022781-0 AND AMENDED ON JUNE 30, 2020 IN DOCUMENT #2020-014585-0.
5. THIS SUBDIVISION IS SUBJECT M.E.A. BLANKET EASEMENTS RECORDED ON OCTOBER 19, 2021 IN DOCUMENTS #2021-031032-0, #2021-031033-0, #2021-031034-0 & #2021-031035-0.

CERTIFICATE OF PAYMENT OF TAXES

I HEREBY CERTIFY THAT ALL CURRENT TAXES AND SPECIAL ASSESSMENTS, THROUGH _____, 20____, AGAINST THE PROPERTY, INCLUDED IN THE SUBDIVISION OR RESUBDIVISION, HEREON HAVE BEEN PAID.

TAX COLLECTION OFFICIAL
(MATANUSKA-SUSITNA BOROUGH)

DATE



CERTIFICATE OF OWNERSHIP & DEDICATION

WE HEREBY CERTIFY THAT WE ARE THE OWNERS OF THE PROPERTY SHOWN AND DESCRIBED ON THIS PLAN AND THAT WE ADOPT THIS PLAN OF SUBDIVISION BY OUR FREE CONSENT. DEDICATE ALL RIGHTS OF WAY TO THE MATANUSKA-SUSITNA BOROUGH, AND GRANT ALL EASEMENTS TO THE USE SHOWN.

HATCHER PASS VILLAGE, INC. DATE
PRENTICE N. FOX (OWNER, MANAGER)
8260 DUCHESS DR.
PALMER, AK 99645

HATCHER PASS VILLAGE, INC. DATE
DEBORA H. FOX (OWNER, MANAGER)
8260 DUCHESS DR.
PALMER, AK 99645

NOTARY ACKNOWLEDGEMENT

SUBSCRIBED AND SWORN BEFORE ME THIS _____ DAY OF _____, 20____.

FOR _____
FOR _____

NOTARY FOR THE STATE OF ALASKA
MY COMMISSION EXPIRES: _____

RECEIVED

APR 19 2022

PLATTING

Agenda Copy

HATCHER PASS VILLAGE PHASE VIII

A SUBDIVISION OF
TRACT A-6
HATCHER PASS VILLAGE PHASE VII
(PLAT 2022-____)

PALMER RECORDING DISTRICT
THIRD JUDICIAL DISTRICT
STATE OF ALASKA
LOCATED WITHIN
NE¼ SEC. 33, T.19N. R.1E. SM, AK
CONTAINING 59.01 ACRES MORE OR LESS

HANSON

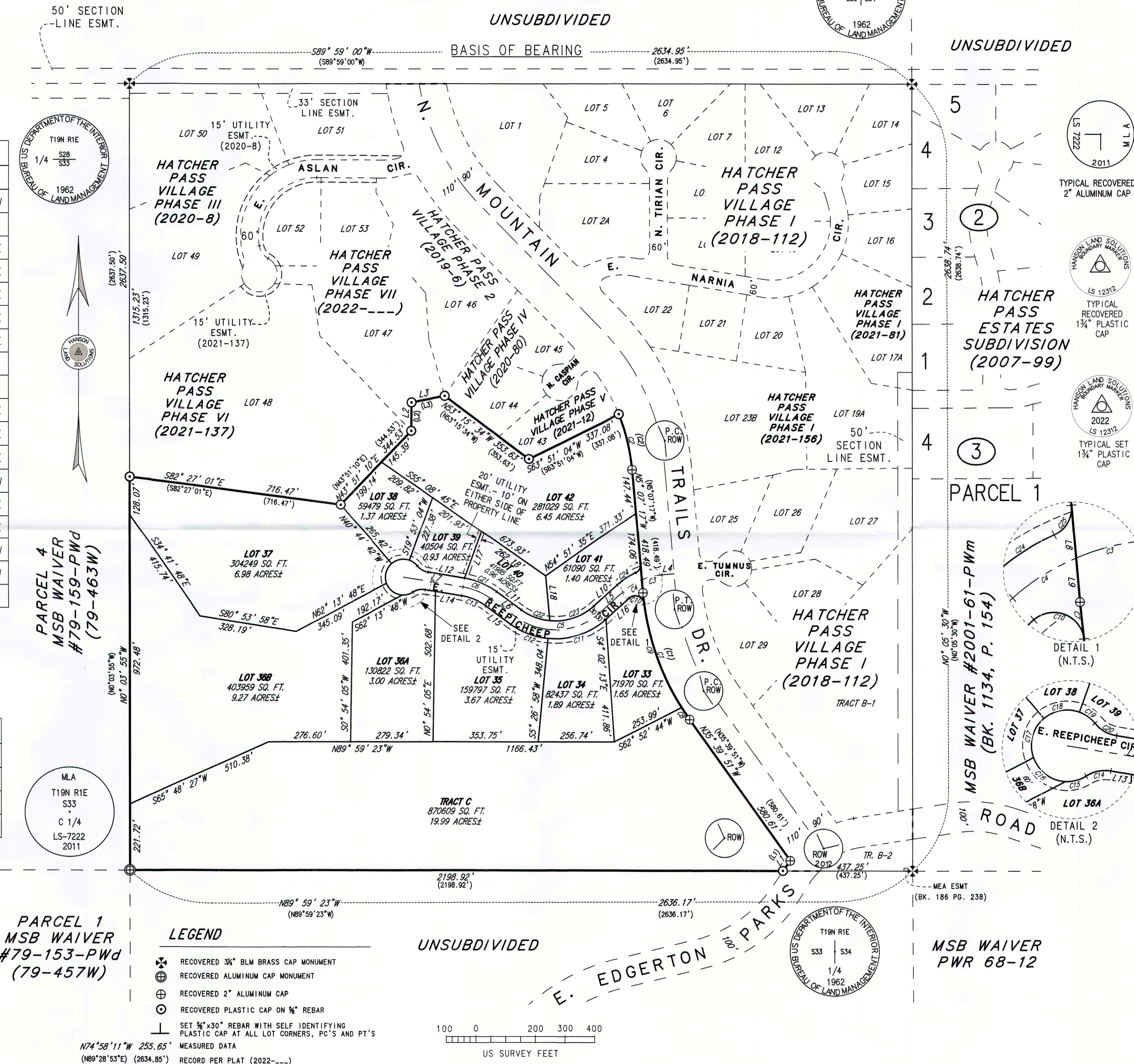
LAND SOLUTIONS
ALASKA BUSINESS LICENSE #1525
305 EAST FIREWEED AVENUE
PALMER, ALASKA, 99645
(907)746-7738

CURVE TABLE					
CURVE #	LENGTH	RADIUS	DELTA	CHORD LENGTH	CHORD BEARING
C1	458.37	858.72	30°35'01"	452.95	S20° 22' 21"E
C2	189.45	639.87	16°57'49"	188.76	S13° 36' 12"E
C3	69.80	225.00	17°46'27"	69.52	S75° 59' 45"W
C4	74.99	225.00	19°05'46"	74.64	S57° 33' 38"W
C5	305.85	225.00	77°53'06"	282.84	N86° 57' 18"E
C6	104.24	225.00	26°32'36"	103.31	S67° 22' 27"E
C7	36.32	858.72	2°25'23"	36.31	S6° 17' 32"E
C8	49.14	858.72	3°16'43"	49.13	N34° 01' 29"W
C9	372.92	858.72	24°52'54"	369.99	N19° 56' 41"W
C10	65.18	30.00	124°29'02"	53.10	N69° 44' 44"W
C11	211.01	255.00	47°24'44"	205.04	S71° 43' 07"W
C12	135.62	255.00	30°28'22"	134.03	S69° 20' 20"E
C13	90.34	195.00	26°32'36"	89.53	S67° 22' 27"E
C14	43.36	60.00	41°24'35"	42.43	S78° 38' 58"W
C15	36.47	60.00	34°49'46"	35.91	S75° 21' 33"W
C16	70.61	60.00	67°25'56"	66.61	S53° 30' 36"E
C17	72.31	60.00	69°02'56"	68.01	N14° 43' 50"E
C18	63.49	60.00	60°37'46"	60.57	S79° 34' 11"W
C19	32.34	60.00	30°52'45"	31.95	S54° 40' 33"E
C20	43.36	60.00	41°24'35"	42.43	S59° 56' 28"E
C21	118.13	255.00	26°32'36"	117.08	S67° 22' 27"E
C22	103.74	195.00	30°28'49"	102.52	S69° 20' 33"E
C23	161.34	195.00	47°24'17"	156.77	N71° 42' 54"E
C24	73.93	255.00	16°36'38"	73.67	N56° 19' 04"E
C25	36.52	30.00	69°44'40"	34.30	N29° 45' 03"E

LINE TABLE		
LINE #	LENGTH	BEARING
L1	42.46	S35° 52' 07"W
L2	95.30	N0° 35' 10"E
L3	113.56	N78° 57' 59"E
L4	41.23	N84° 52' 58"E
L5	104.97	N48° 00' 45"E
L6	102.30	S54° 06' 09"E
L7	203.56	S80° 38' 45"E
L8	53.11	S5° 07' 17"E
L9	43.89	S5° 07' 17"E
L10	104.97	N48° 00' 45"E
L11	102.30	S54° 06' 09"E
L12	124.18	S80° 38' 45"E
L13	35.02	N80° 38' 45"W
L14	89.16	S80° 38' 45"E
L15	102.30	S54° 06' 09"E
L16	106.33	S48° 00' 45"W
L17	168.52	S20° 01' 59"W
L18	150.33	S5° 20' 16"E

RECORD LINE TABLE		
LINE #	LENGTH	BEARING
(L1)	(42.46)	(S35°52'07"W)
(L2)	(95.30)	(S0°35'10"W)
(L3)	(113.56)	(S78°57'59"W)

RECORD CURVE TABLE					
CURVE #	LENGTH	RADIUS	DELTA	CHORD LENGTH	CHORD BEARING
(C1)	(458.37)	(858.72)	(30°35'01")	(452.95)	(N20°22'21"W)
(C2)	(189.45)	(639.87)	(16°57'49")	(188.76)	(N13°36'12"W)



6A

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD RESOLUTION No. 2022-25**

A RESOLUTION OF THE MATANUSKA-SUSITNA BOROUGH PLATTING BOARD RECOMMENDING ADOPTION OF THE MATANUSKA-SUSITNA BOROUGH 2022 OFFICIAL STREETS AND HIGHWAYS PLAN UPDATE.

WHEREAS, the Official Streets and Highways Plan (OSHP) is a transportation planning tool that identifies future road corridors and road upgrades necessary to accommodate the Borough's growing population and its transportation needs; and

WHEREAS, the OSHP is a part of the Borough's Long Range Transportation Plan, is map-based, and focuses on road infrastructure needs; and

WHEREAS, the OSHP provides a thoughtful, proactive, and comprehensive basis for planning, platting, and transportation infrastructure investment decisions; and

WHEREAS, the Borough's Subdivision Construction Manual states that, "Subdivisions shall be designed in a manner that does not conflict with the Long Range Transportation Plan or the Official Streets and Highways Plan"; and

WHEREAS, the OSHP will help the Platting Board preserve future road corridors; reducing right-of-way costs by minimizing building conflicts and addressing road network deficiencies before they happen; and

WHEREAS, subdivisions depend on a functioning road network for access; and

WHEREAS, the OSHP will support subdivision and development by planning and preserving space for a robust collector road network; and

WHEREAS, implementation of the OSHP will enhance road safety, reduce congestion, reduce negative impacts on neighborhoods, and lower transportation costs.

NOW, THEREFORE, BE IT RESOLVED, that the Matanuska-Susitna Borough Platting Board does hereby hereby recommends adoption of the 2022 Matanuska-Susitna Borough Official Streets and Highways Plan Update.

ADOPTED by the Matanuska-Ssitna Borough Platting Board this _____ day of _____, 2022.

Wilfred Fernandez,
Platting Board Chair

ATTEST;

SLOAN VON GUNTEN,
Platting Board Clerk

(SEAL)

CODE ORDINANCE

Sponsored by:
Introduced:
Public Hearing:
Action:

**MATANUSKA-SUSITNA BOROUGH
ORDINANCE SERIAL NO. 22-063**

AN ORDINANCE OF THE MATANUSKA-SUSITNA BOROUGH ASSEMBLY REPEALING MSB 15.30 OFFICIAL STREETS AND HIGHWAYS PLAN MAP, ELIMINATING AN UNUSED DEFINITION WITHIN MSB 17.55, ADDING THE OFFICIAL STREETS AND HIGHWAYS PLAN TO MSB 15.24 ASSEMBLY; ZONING FUNCTIONS, AND ADOPTING THE 2022 OFFICIAL STREETS AND HIGHWAYS PLAN UPDATE.

BE IT ENACTED:

Section 1. Classification. This ordinance is of a general and permanent nature and shall become a part of the Borough Code.

Section 2. Repeal of chapter. MSB 15.30 OFFICIAL STREETS AND HIGHWAYS PLAN MAP is hereby repealed in its entirety.

Section 3. Amendment of Subsection. MSB 17.55.004(A) is hereby amended as follows:

[• "OFFICIAL STREETS AND HIGHWAY PLAN" MEANS A MAP AND ATTENDANT DOCUMENT DEPICTING THE PROPOSED SYSTEM OF FREEWAY, ARTERIAL, AND COLLECTOR STREETS IN THE BOROUGH, AS ADOPTED BY THE PLANNING COMMISSION AND BY THE ASSEMBLY, AND WHICH IS ON FILE IN THE PLANNING DEPARTMENT OFFICE, TOGETHER WITH ALL AMENDMENTS THERETO SUBSEQUENTLY ADOPTED.]

Section 4. Amendment of Subsection. MSB 15.24.030(B) is hereby amended as follows:

(46) Official Streets and Highways Plan, adopted 2022.

Section 5. Effective date. This ordinance shall take effect upon adoption.

ADOPTED by the Matanuska-Susitna Borough Assembly this - day of -, 2022.

EDNA DeVRIES, Borough Mayor

ATTEST:

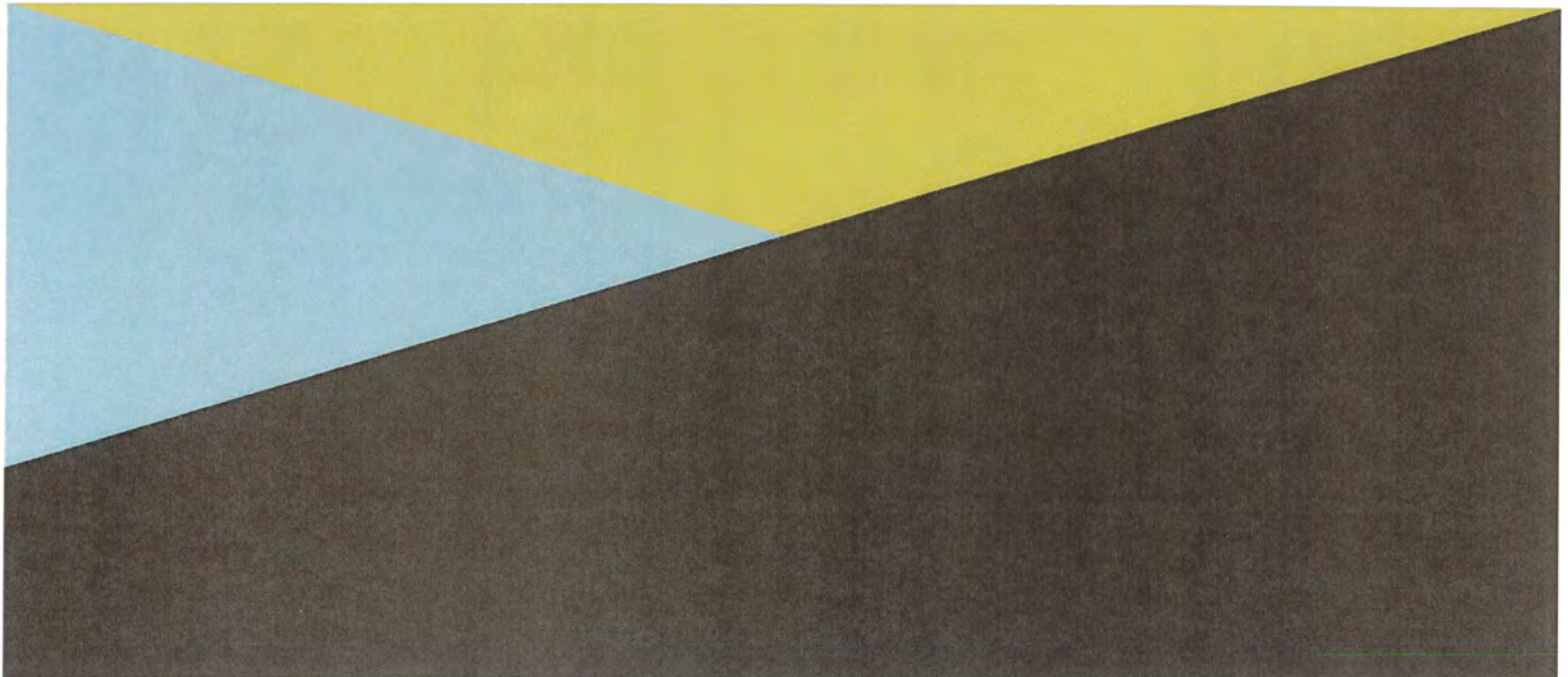
LONNIE R. McKECHNIE, CMC, Borough Clerk

(SEAL)

Matanuska Susitna Borough Official Streets and Highway Plan

Technical Report and Implementation Plan

May 2022



Mat-Su Borough Official Streets and Highway Plan
May 2022

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Abbreviations

AADT	Average Annual Daily Traffic
AMATS	Anchorage Metropolitan Area Transportation Solutions
ATV	All-Terrain Vehicle
CIP	Capital Improvement Project
DOT&PF	Alaska Department of Transportation and Public Facilities
DOWLD	Alaska Department of Labor and Workforce Development
FC	Functional Classification
FHWA	Federal Highway Administration
GIS	Geographic Information System
ISER	Institute of Social and Economic Research
LRTP	Long-Range Transportation Plan
MSB	Matanuska-Susitna Borough
MUTCD	Manual on Uniform Traffic Control Devices
OS&HP	Official Streets and Highway Plan
RIP	Road Improvement Project
ROW	Right-of-Way
SCM	Subdivision Construction Manual (2020)
STIP	Statewide Transportation Improvement Program
TAZ	Traffic Analysis Zone
TDM	Travel Demand Model
TRB	Transportation Research Board

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1 Introduction

The Value of an Efficient Road Network

Roads are an important public resource. They are the conduits through which all commerce, recreation, and industry happen, and they are the foundation on which a community thrives. The design of the road network directly defines the limits to which a community can provide services and allow for growth while continuing to provide a community that people want to live in. If housing and commercial development outpace road network development without properly considering future needs, the community will quickly become constrained by the road network and community development will stop. Often, road infrastructure needs will only become apparent after they are affecting the community and solutions will become reactionary with options limited by the surrounding development. The Official Streets and Highway Plan (OS&HP) is a planning tool for the Matanuska-Susitna Borough (MSB) that helps decision makers reserve future road corridors and identify possible road network improvements so that when the need arises, reasonable options are still available.

The Nature of Road Development

Roads take a very long time to develop compared to other community development projects. Therefore, it is common in quickly growing areas for adequate road infrastructure to lag behind in the order of development, with housing and commercial development happening first and the necessary road development to support that growth happening later. This is the case for the Mat-Su Borough, where population growth since the 80s has been upwards of 6% a year. These are growth rates usually seen in dense urban areas¹ with multimodal transportation programs and road powers, etc. Much of this growth in the Mat-Su Borough has been allowed to occur in such a way that road network issues have recently become glaringly apparent, and the road solutions with the lowest impact and cost are no longer available due to adjacent development.

Growth and Roads

Population growth is expected to continue in the Mat-Su Borough through at least 2045 at the same 6% rate, assuming employment opportunities, housing, and services are made available. As population and traffic volumes grow, road congestion and safety issues on the existing road network will become exponentially worse if improvements are not made. It is essential that the MSB seriously consider action steps to prioritize road development that meets community demand. Routes identified in the OS&HP may have impacts

OS&HP Goals

- Link Planning to Engineering Design and Construction
- Provide a Plan for the Development of an Appropriate Road Network
- Guide Future Land Use
- Preserve Safe & Efficient Travel
- Promote Economic Development
- Produce Lower Cost Projects
- Extend Project Design Lives
- Improve Quality of Life

¹ Pew Research Group Report: What Unites and Divides Urban, Suburban and Rural Communities; May 22, 2018

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and involve compromises and careful planning, but if they are not reserved, other far less beneficial projects will be needed at a higher cost. The goal of the OS&HP is not to hinder or control housing and commercial development, but to increase the capacity of the MSB to respond to community infrastructure needs due to population growth.

A detailed discussion of the growth analysis used to develop the OS&HP is included in Appendix A on page 38.

An Overview of the OS&HP

The OS&HP is a map-based transportation infrastructure plan developed by the MSB Planning Division, with support from Kinney Engineering and a steering committee consisting of members of MSB Public Works, MSB Platting, MSB GIS (Geographic Information System), the City of Palmer, and the City of Wasilla, as well as the input and coordination of the Alaska Department of Transportation (DOT&PF). The Plan was developed with a robust effort of modeling, analysis, and planning-level engineering with group workshops to select and include the most favorable road alignments and intersection locations in the Plan.

The primary component of the Plan is a map, included in Appendix B on page 45. The map shows the existing road network, possible future road alignments, and primary intersection locations. Each road segment is identified by a functional classification, which is a planning-level method of indicating the design parameters of the road. Functional classifications are tied to design manuals where the classification is translated into such design aspects as ROW width requirements or design speeds.

What is Functional Classification?

Functional Classification is a method of identifying the primary use of a road segment in the overall network. This communicates the context of the road between agencies, designers, and the public, and decides the design parameters of the road.

The road network displayed in the OS&HP represents the various routes and classifications needed to provide safe and efficient travel for existing and anticipated development. Since the timing and location of growth and development are dynamic, the road network presented in the OS&HP is not tied to a set horizon year, but serves as a guide to plan for growth and future travel demand. The purpose of the OS&HP is to highlight where roads are needed and to guide development and the subdivision of lands so the corridors are available for future road projects. The Platting Division implements the OS&HP. During the platting process, every subdivision development is assessed for compatibility with the OS&HP. If there is a conflict with the design, MSB Staff will work with the applicant to find a solution that allows for the proposed development and also preserves the OS&HP corridor.

Importance of the OS&HP

The road network outlined in the OS&HP emphasizes the following components:

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- **Connectivity.** The Alaska road network has historically been very reliant on the interstate highway system and this has led many communities, including the MSB, to develop without proper connectivity in their secondary road network. The road network is very reliant on the interstate highway system. A majority of trips, regardless of their distance or purpose, are routed onto the highway at some point in their travel. This leads to major congestion along the interstate through the urban core. The OS&HP is designed to provide tools to recover that missing connectivity, leading to higher mobility and efficiency of travel.
- **Safety.** The role of functional classifications in a road network is to identify drivers' expectations at different places in the network. Mixing drivers with a wide range of expectations can greatly decrease safety. For instance, drivers on neighborhood roads expect a high number of turning vehicles, low speeds, and pedestrians on the road and shoulders. However, a deficient road network may push high mobility traffic onto the neighborhood road, causing "cut-through traffic." The mixing of drivers with different needs on the same road creates an obvious safety issue. Simply installing speed bumps and traffic calming may reduce the safety impacts, but it does not address the greater cause, which is a road network that is failing to provide all users with appropriate roads to serve their needs. The OS&HP shows a road network that, if fully built, would provide optimal routes for all users using the space currently available.
- **Cost-effectiveness.** A primary goal of the OS&HP is to reduce the financial and societal costs of road projects in the future. A study of the future community growth showed locations where issues will exist in the network if reasonable expectations about growth occur. Therefore, solutions to these issues will someday become urgent to the community, and decision-makers will need to have answers available to meet these needs. The most favorable solution in each case is included on the OS&HP map. If the MSB does not preserve these routes, then secondary, less favorable options will need to be explored. This will result in a slower road development process resulting in higher-cost solutions that provide less improvement to the road network.

The OS&HP is a part of the MSB process for designing and constructing road infrastructure. Decision makers will use the OS&HP to choose road projects for further study and design and the construction of infrastructure. The OS&HP works in tandem with the MSB Long-Range Transportation Plan (LRTP), the MSB Subdivision Construction Manual (SCM 2020), and other road-related policies and plans.

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2 The Planning Process and the Role of the OS&HP

The OS&HP in the MSB Planning Process

The recommendation of a planned road network in the OS&HP is the first step in road infrastructure development. The connections shown are based on current development data and existing socioeconomic projections for the MSB. The exact corridor alignments and road network layout may change as projects are studied in more detail. The 2022 iteration of the OS&HP is now designed to be a "living document," which will be updated by MSB Planning Division as growth and development forecasts change.

Figure 1, below, presents the general planning and road design process in the MSB. Studies and road plans will generally follow a form of this process on their way to construction.

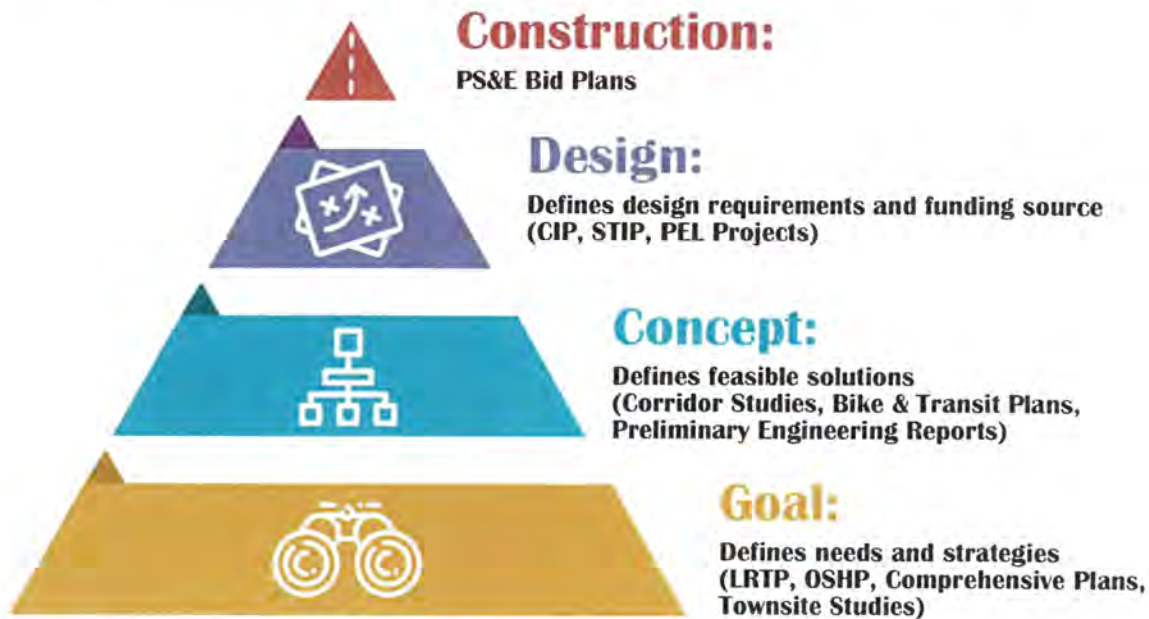


Figure 1. Road Development Pyramid

Goal Planning

At the foundational level of the pyramid are studies that identify infrastructure needs in the community and present solutions in the form of goals and strategies. For example, the community comprehensive plans identify needs in a community for road connections or transit services and explore possible solutions for further study. The LRTP is a key element at this stage of planning as it brings together a broad view of community transportation needs and prioritizes those needs using basic feasibility measurements with a constrained budget and defined horizon year.

Concept Planning

The second level of road planning involves studies that take broad-level goal-based strategies and transition them to more feasible engineering solutions. There are often many possible ways to

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fulfill a single identified need in the community. Studies at this level typically determine the optimal solution through more detailed traffic engineering analysis, cost-benefit techniques, and public involvement.

Design Planning

On the "Design" level are projects which have an established alignment and design concept that has been vetted by feasibility analysis and environmental processes. They have more involved engineering design requirements, and their scope and layout are well defined. Another key element at this stage is establishing a funding source.

Construction and the Nature of Project Development

The final step of project development is the construction of the road. This step takes the feasible solutions and turns them into shovel-ready projects that may go out to bid for construction.

Depending on the size and scope of the project, a road may not pass through every step of this process before going to final design and construction, and no step of the process, including final design, guarantees the construction of a road project. This is to say, a road shown on the OS&HP maps is not a committed road but rather an indication of a possible future need. The alignment proposed in the OS&HP is likely to be the least impactful and most cost-effective solution for that future need. However, further discussion and study will take place before a road is built.

The Relationship between the OS&HP and the LRTP

The OS&HP is a long-term planning document that is an extension of the LRTP, and a part of the LRTP's implementation strategy. The LRTP is a fiscally constrained study that looks at all modes and transportation needs in the MSB and develops a plan with a set horizon year and limited budget forecast. The most recent MSB LRTP studied a horizon year of 2035 and recommended Short-term, Mid-term, and Long-term projects. The OS&HP includes the recommendations of the LRTP but also looks beyond 2035 to an undefined horizon year to predict, on a planning level, additional projects that may be included in future LRTPs and future Statewide Transportation Improvement Programs (STIP). The OS&HP's role in road planning is to forecast the connectivity and road function needs of the Borough and to reserve these corridors for future projects. The OS&HP helps fulfill Federal Highway Administration (FHWA) requirements for a planning process that leads to a STIP.

The OS&HP bridges the gap between the "Goal" level and the "Concept" level of road development, and it works in tandem with the LRTP as the basis for future road projects. Table 1, on page 9, compares the differences between the scope and purpose of the LRTP and the OS&HP.

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Table 1. Key Goals and Purposes of LRTP vs OS&HP

LRTP	OS&HP
<ul style="list-style-type: none"> • Broad Transportation Focus • Performance-Based through 2035 • Developed Goals and Strategies • Recommended Fiscally Constrained Improvements • Models High-Volume Road Congestion in a Model that Primarily Provides Higher Function Road Solutions 	<ul style="list-style-type: none"> • Road Network Access and Connectivity Focus • Protects Options for Projects Beyond 2035 • Part of the LRTP's Implementation Strategy • Not Fiscally Constrained • Defines Functional Classes and Patterns Network Design with Planning-Level Road Alignments • Designs Secondary Road Network Needed to Support Arterial-Level LRTP Solutions

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3 Key Elements of the OS&HP

The OS&HP is a map designed in GIS software and updated by the MSB Planning Department. A current version of the map is included as figures in Appendix B of this report. The OS&HP highlights three main features.

1. Existing and Possible Future Road Alignments
2. Functional Classification of Road Segments
3. Primary Intersections along Arterial Road Corridors

3.1 Existing and Possible Future Road Alignments

Existing road alignments are based on MSB GIS data. The MSB GIS data used includes land features, land ownership, land development, road characteristics, public facilities, parcels, structures, and (Right-of-way) ROW. The main source of data was the MSB GIS Department's online data portal. Data was downloaded in September of 2020.

Important Data Referenced in the Study:

MSB GIS Data
2007 OS&HP (readopted in 2017)
2020 DOT&PF Functional Classes
2020 Capital Improvement Project (CIP) list
2017 Long Range Transportation Plan (LRTP)
2020 Subdivision Construction Manual (SCM)
2015 MSB Build-Out Study
Community Council Area Comprehensive Plans
Alaska Moose Crash Location Database

Future road alignments were determined based on SCM and FHWA guidance design criteria regarding road networks. Road connections included in previous plans were considered first, and then additions were made using an iterative process of considerations, agency input, and steering committee workshop discussions.

The study also referenced the following Assembly Adopted plans:

- Area Comprehensive Plans currently available on the MSB website
- Alsop Townsite Plan, 2013
- Southwest MSB 2060 Futures Project, 2014
- Fish Creek Townsite Study
- Current design plans
 - Parks Highway, Lucus to Big Lake expansion project
 - Knik-Goose Bay Road expansion project
 - Seldon Road Extension to Pittman Road.

The Importance of Connectivity

One of the primary goals of the OS&HP was to provide better connectivity within the secondary road network. Connectivity provides intraregional access between different major destinations in

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the community. Figure 2, below, shows an example of connectivity in a street network, comparing a typical cul-de-sac subdivision design to a street design with more connectivity.

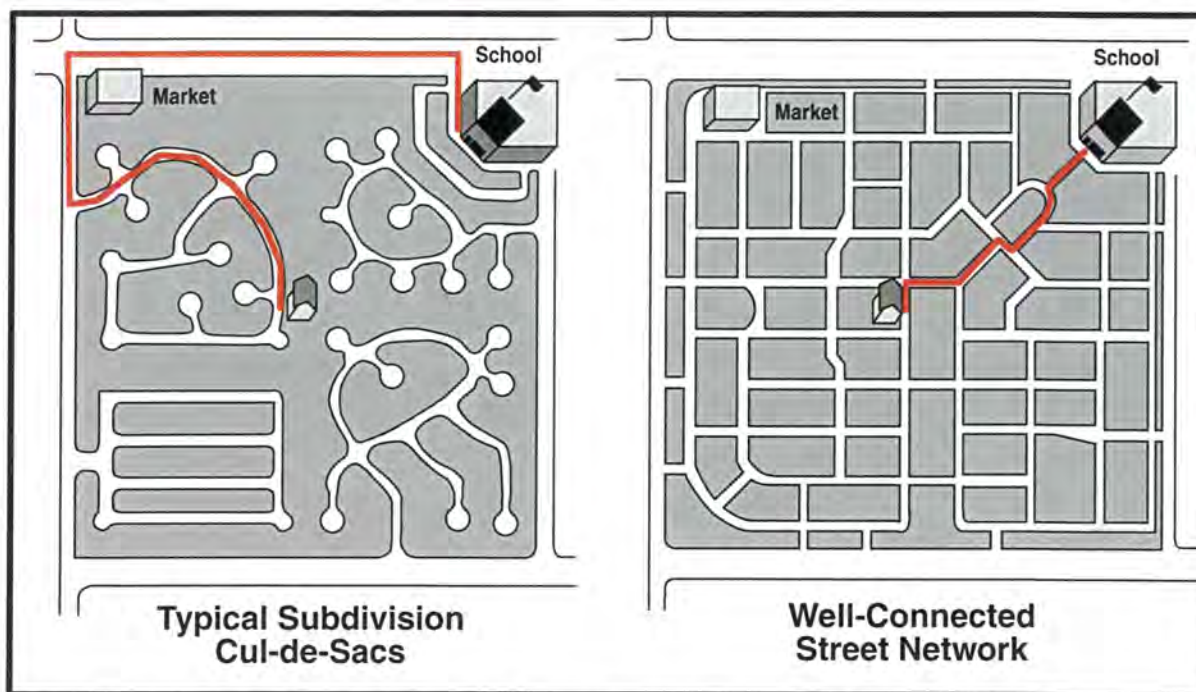


Figure 2. Example of Street Network Connectivity

Notice that trips between the subdivision and the school in the cul-de-sac design are forced onto the major road network. In the more connected street network example, however, the same trip has several possible routes to choose from, some of which can avoid the major road network entirely. Poor connectivity in the road network has a rippling effect throughout the community as it exasperates issues at overloaded intersections, increases safety risks due to more frequent turning on high mobility roads, and increases cumulative travel miles. The lost time to road users in the community can become extremely high. Note that the road network shown in Figure 2 is not entirely ideal and is merely shown as an example. It is unclear from the cartoon what the trip generation rates of the properties are and how these volumes would be distributed in the secondary road network. A well connected network for the MSB will need an appropriate design that better controls the routing of internal traffic since high volume through traffic on a residential street is not favorable.

Because of a disconnect between Platting and Land Use, the MSB has not effectively connected the secondary road network. Numerous subdivisions and commercial generators have been constructed in the past 20 years, resulting in secondary road network that forces all trips generated in the subdivision to take longer routes that must use the arterial road, regardless of their destination. One example of this disconnected development style is the Fishhook Triangle, the region contained within Palmer and Wasilla Fishhook Road, Bogard Road, and the north end of Trunk Road. Figure 3 , below, shows the road network in this region.

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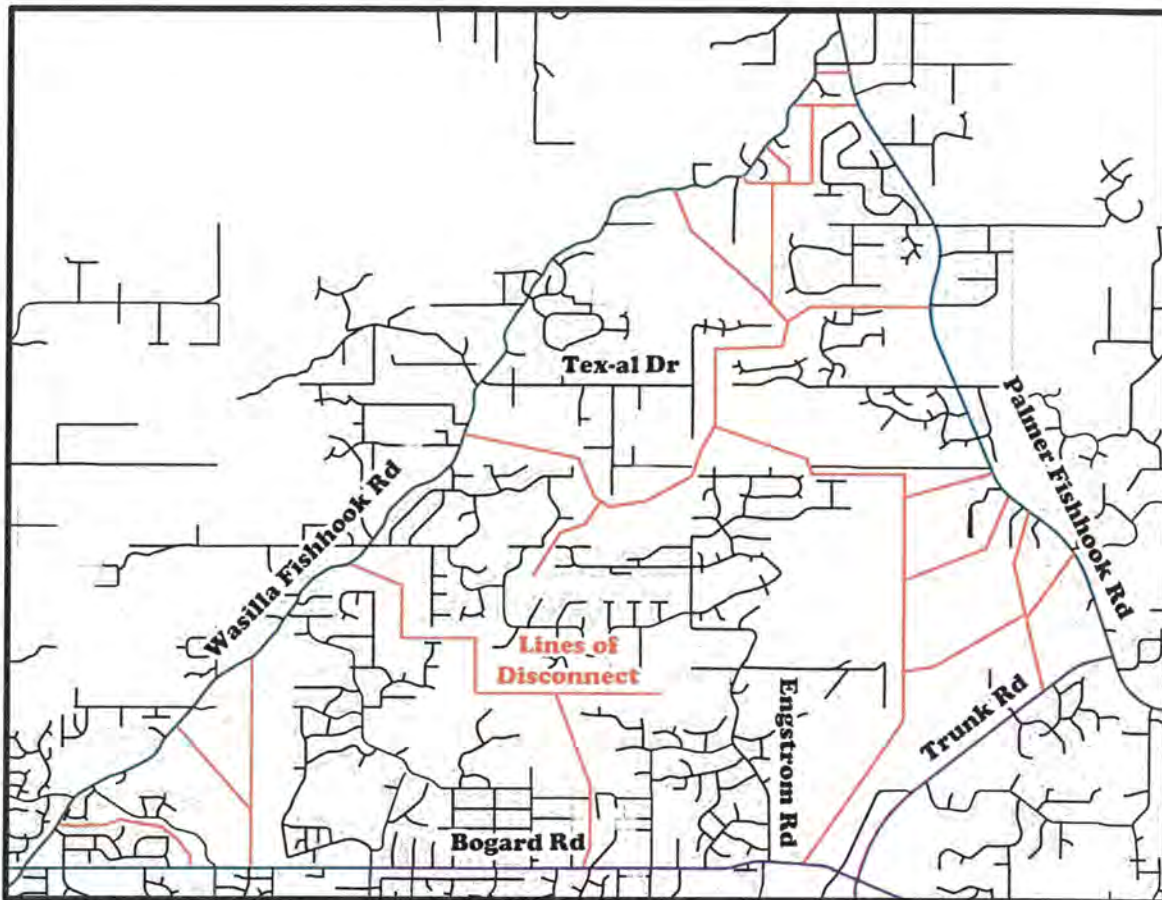


Figure 3. Lines of Disconnect in the Fishhook Triangle

Note the red lines are the lines of disconnect that roads do not cross. Any trip generated within these regions must be routed to the arterial road network, even if they are making a local trip. This prematurely overloads the arterial road network and creates a cascade of issues throughout the area. Notice Engstrom Road. The traffic congestion and safety issues at the intersection of Engstrom Rd and Bogard Rd are a prime example of internal connectivity creating problems in a different part of the road network. Connectivity in the secondary road network within the Fishhook triangle was a concern as far back as the 2007 OS&HP. Solutions for connectivity in this region were included in the 2007 OS&HP; however, they were not built and issues have continued to compound. The current OS&HP is proposing road connections that would solve some of the network issues like those identified in Figure 3. To develop a more efficient road network, it is vital that corridors shown on the OS&HP are protected.

Appropriate connectivity provides mobility, which greatly benefits the community by decreasing travel times, increasing route options, and allowing for more direct travel between regions of the MSB. This, in turn, increases economic viability, opens up new areas for development, increases public safety, creates smaller intersections with less frequent need for traffic signals, diversifies the negative aspects of roads, increases the available pedestrian routes, moves bicyclists off of

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major roadways, reduces the peak hour congestion on high mobility roads, and provides alternative routes to accommodate road closures or emergency service access.

3.2 Functional Classifications

A second core feature of the OS&HP is the functional classification of the road segments in the network. Functional classes is a road planning tool that helps define the road's design needs by identifying the expectations of the drivers on the road segment. The OS&HP establishes the functional classification of the road, new and existing, which is key to linking design criteria to functional needs. The MSB OS&HP applies a functional classification system recommended by FHWA and is consistent with existing MSB policy and design guidance and that of the DOT&PF.

The FHWA functional classification system used in the MSB OS&HP identifies roads in the following categories:

- Interstate Highway
- Major/Minor Arterial Roads
- Major/Minor Collector Roads
- Local Roads

Each of these classes fulfills a specific role in the road network.

Note that roads are identified for their future use, and not necessarily their current design. Many existing roads will need to be upgraded to adapt to the OS&HP network.

What are Access and Mobility?

Access is the ability for a road to provide access safely and efficiently to and from destinations adjacent to a roadway. High access roads would likely be designed to allow frequent turns through conflicting vehicle paths.

Mobility is the ability for a road to allow travel safely and efficiently through an area at a relatively high rate of speed with limited disturbance due to conflicting traffic or road capacity constraints.

Functional Classifications: Access vs Mobility

The basic principle of functional classification is to identify the expectation of drivers at different points along a trip, so that the road section can be designed in a way that best suits that need. For example, when pulling in or out of a driveway, drivers may expect relatively low traffic volumes traveling at lower speeds so that they can safely and comfortably access the road network; however, later in that trip, the same driver may expect to travel at a much higher more consistent rates of speed, with greater separation between themselves and other high-speed traffic, without the conflict of turning vehicles. Functional classification assists in the design of roads that meet the driver's dominant expectation on the road and provides a well-connected network that will help separate drivers with different expectations onto different road segments, increasing the efficiency and safety of all roads.

In general, there are two functions of a road: Access and Mobility. These road functions are each crucial to the operation of the road network; however, the two functions often are in opposition to one another. Access degrades the mobility function of a roadway as the unpredictable movement

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of turning traffic and the acceleration/deceleration of cars tend to slow the progress of through traffic. For this reason, roads should be planned into the network in such a way that they can provide the needed function when and where it is required.

Figure 4, below, shows the relationship between access and mobility as it pertains to the functional classifications.

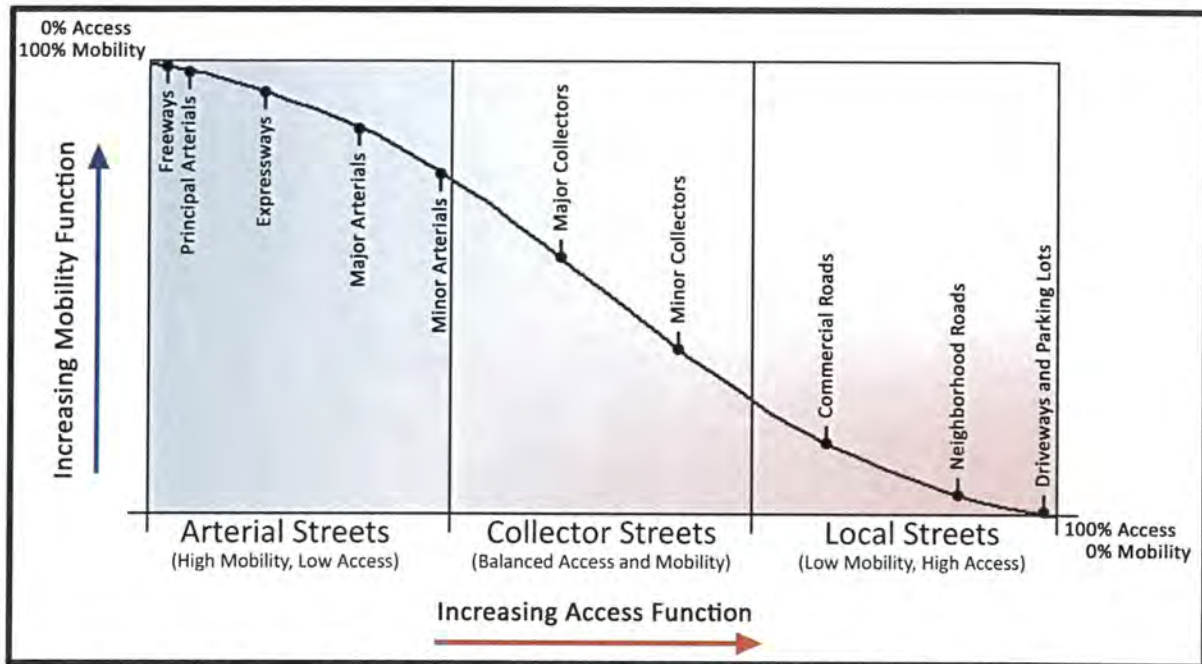


Figure 4. The Relationship of Access and Mobility in Functional Classifications

Of particular interest to the OS&HP are the Collector Streets which serve as transition routes between local roads (as described in the SCM) and arterials. The design and location of these routes are of special importance since they are the routes where the driver expectations will be especially mixed, meaning they will require special study, planning, and design. Also, these are the routes that are more likely to be Borough-owned and maintained.

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Functional Classifications: Assignment Goals

Functional classifications definitions are crucial to the road network. Road links that are inadequately designed will not properly serve the necessary role in the community. The collector roads in the MSB OS&HP are assigned based on **three main goals**:

1. **Access** – Design for access to existing and future residential developments
2. **Connectivity** – Produce connectivity in the proposed road network
3. **Diversity** – Create a network with an appropriately balanced assignment of road functions

Goal #1 – Access

The first goal was to provide proper access to existing and planned residential areas following the SCM Average Annual Daily Traffic (AADT) guidance. The SCM recommends road classification based on forecasted AADT levels. Higher AADTs on residential roads result in higher function design criteria as a way to preserve access function on lower volume roads.

Goal #2 - Connectivity

The second goal was to provide connectivity in the network. This goal is independent of projected volumes and provides for such things as secondary access to isolated communities and higher mobility roads between sub communities.

Goal #3 – Functional Class Diversity

The third goal was to ensure that the planned road network provides an appropriate amount of each functional class. This was used as a metric to measure how well the network was being planned and distributed.

What is Average Annual Daily Traffic?

Average Annual Daily Traffic is the average number of cars that are on a road every day over the course of a year. This is an indication of how frequently the road is being used, and is a key value when determining the design of the road.

However, many other factors play a part in the design of a road and AADT is not always the most reliable. For example a road may have an AADT of 1,000 vehicles per day, and a very high percentage of those vehicles may be heavy trucks. A different road may have the same 1,000 AADT, but with very directional commuter trips of single-person vehicles passing one way in the morning and the opposite in the evening. These examples would both have the same AADT, but require very different designs.

Functional Classifications: Access

The goal of providing "Access" in the network reflects the need for people to have adequate roads in front of houses and businesses where access-related maneuvers take place. Some access-related maneuvers are turning, walking, backing up, and often making distracted decisions. These maneuvers are high risk, and therefore, are safest when performed on low-volume, low-speed roads.

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The SCM provides guidance for the design of roads that serve residential areas, and part of the SCM is an AADT limit requirement that encourages subdivisions to be designed with low-volume roads. If a subdivision is forecast to produce volumes higher than the specific AADT limit, the SCM requires a higher speed design. The SCM AADT limits were used in the OS&HP study to determine where collector roads should be considered based on future growth projected in the Growth Study (see Appendix A on page 38).

Table 2. Functional Class AADT Limits (per SCM)

SCM Classification	OS&HP Classification	AADT Limit	Approximate Limit of Households	Upper
Residential Street	Local Road	< 400	~ 50	
Residential Sub-Collector	Local Road	400 – 1,000	~ 150	
Residential Collector	Minor Collector	1,000 – 3,000	~ 300	
Major Collector	Major Collector	> 3,000	Undefined	

Table 2, above, shows the AADT limits for the various classifications specified in the SCM, the equivalent OS&HP functional class, and the approximate upper limit of households in a region that would suggest higher function designs may be required.

As shown in the table, based on trip generation rates in the SCM, a minor collector road would be needed for any development with more than 150 households, and a major collector would be needed for a development serving more than 300 households.

These volume limits were compared to the forecasted population growth to identify areas where the traffic volumes generated in a region would warrant a collector road. Figure 5, below, shows the regions that the study indicated would likely generate traffic volumes higher than the SCM AADT limits. Consideration was given to how drivers get to high mobility roadways since several regions in combination may also generate traffic volumes that are over the volume limits.

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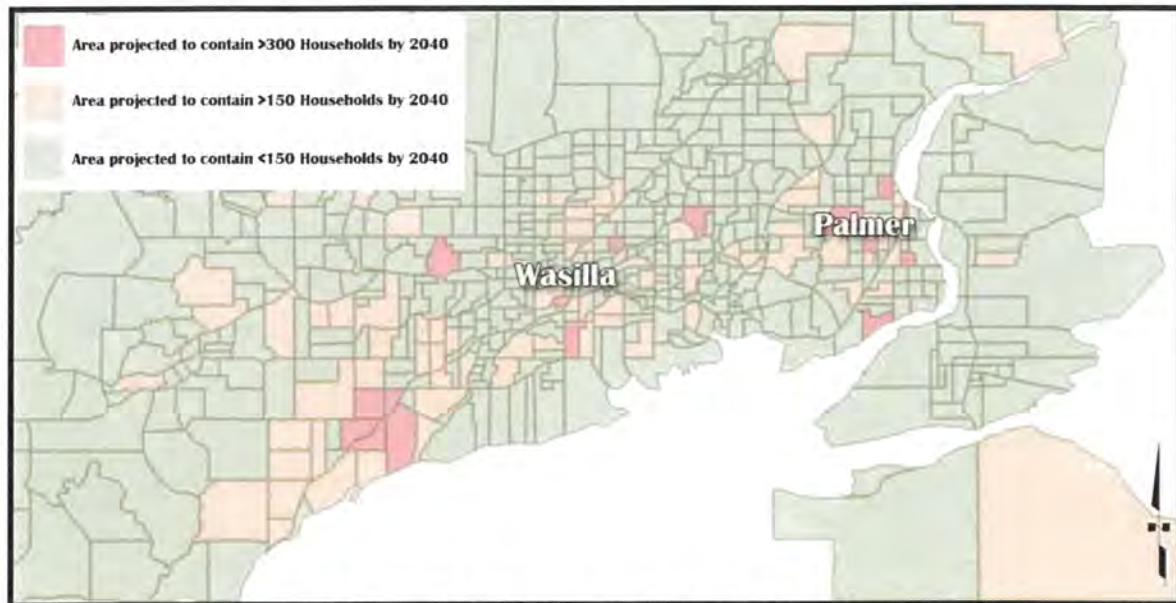


Figure 5. 2040 Household Density Map (Based on SCM AADT Thresholds)

Notice that relatively few regions are projected to warrant a major collector road (red) or even a minor collector road (orange) based on the SCM AADT limits which have been adopted into the MSB code.

The FHWA provides guidance on functional classifications in their 2013 publication “Highway Functional Classification Concepts Criteria and Procedures.” This guidance provides suggested AADT limits for collector roads. Table 3, below, presents the AADT limits that are suggested by the FHWA as compared to what is currently required by the Borough's SCM.

Table 3. Functional Class AADT Limit Comparison SCM vs FHWA

Functional Classification	SCM Minimum AADT Limit	FHWA Recommended AADT Range	
		Rural	Urban
Local Road	0 – 1,000	0 – 400	0 – 700
Minor Collector	1,000 – 3,000	150 – 1,100	1,100 – 6,300
Major Collector	> 3,000	300 – 2,600	1,100 – 6,300

Note that the SCM AADT limits are much higher than the FHWA AADT limits on rural roads. This means that subdivisions in the MSB built according to the SCM guidelines are likely being under-designed compared to national standards.

Table 3 includes the FHWA AADT limits for rural and urban roads. MSB SCM AADT limits are more similar to the urban limits. The MSB does not qualify as an urban area, outside the dense commercial confines of the Core Area. An urban area is allowed to have higher volume collector

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roads because urban density tends to slow traffic and increase their expectation for delays with transit systems and high numbers of pedestrians. Without these natural traffic calming elements, a network of under-designed roads will be less safe, less efficient, and less supportive of growth. This is the trend that is currently being seen in the MSB as vital links in the road network are being built for too low of a functional class. Then, when issues arise because of the inappropriate design, there are no low-cost, low-impact solutions to repair the network.

Figure 6, below, shows what the household growth study would look like using FHWA guidance to determine the AADT values.

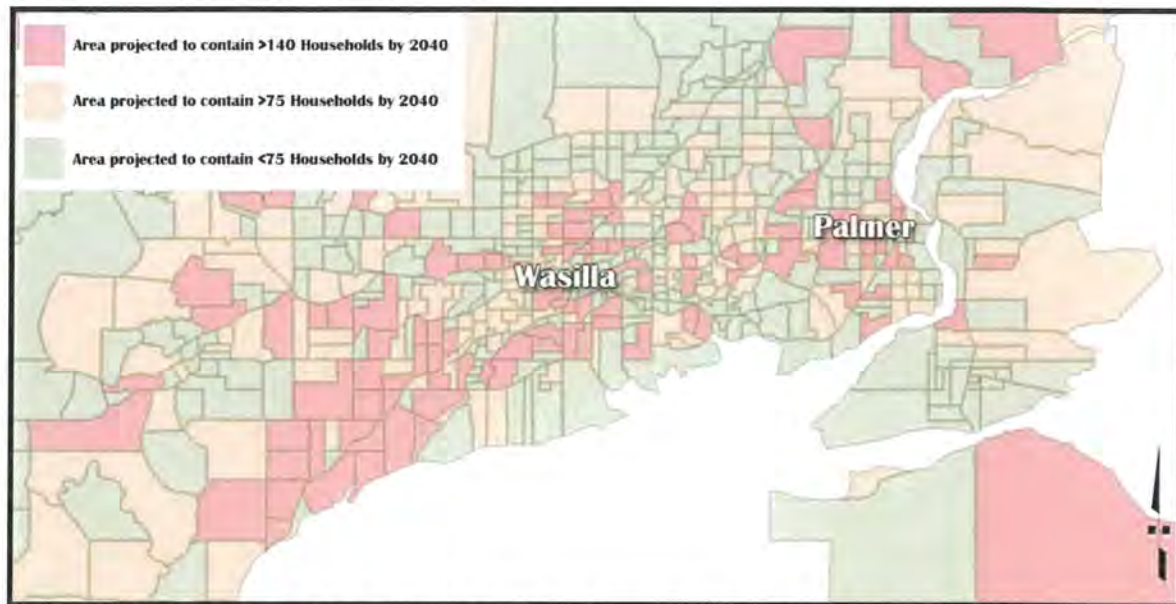


Figure 6. 2040 Household Density Map (Based on FHWA AADT Thresholds)

Application of the FHWA limits would clearly result in more residential collector roads.

The SCM AADT limits were used to identify collector roads in the OS&HP since those are the limits that are currently adopted into MSB code and will be the standards applied when new developments are constructed. But, it is highly recommended that the SCM volume limits be re-evaluated as discussed in the implementation plan in section 4 on page 27.

Functional Classifications: Connectivity

In addition to the "Access" goal, which is purely AADT based, functional classifications were also assigned based on "Connectivity" which does not depend on AADTs. Connectivity was discussed earlier in Section 2 as it pertains to links in the road network. However, connectivity also is important to consider when assigning functional classes. Suppose the network is well connected, but all the roads are designed as local roads. In that case, the network will actually operate worse than a network without connectivity because the local road connectivity will promote cut-through travel. To prevent this, proper connectivity must exist in the collector network to allow drivers to get through an area more efficiently and at a higher rate of speed on a road that is appropriately

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designed for this behavior. In short, connectivity must exist in the local road network, and if it is designed into the local road network, it absolutely must also exist in the collector road network as well.

The OS&HP, therefore, assigns functional classes to new and existing roads in the proposed network in such a way that properly connects sub-communities with major and minor collector road corridors, which are intended to move high mobility traffic from local roads.

Functional Classifications: Functional Class Diversity

One final goal of the functional classification assignment is to produce a network in which all functions are provided in balance.

FHWA guidance recommends a proportion of each functional class that should exist in a well-built network. The total road miles in each class should fall within a certain range, otherwise, it would indicate that the network may be deficient. The FHWA recommended distribution was compared to the OS&HP proposed distribution of classes to measure whether the MSB network is adequate. Functional classes were adjusted to better fit this recommended diversity.

Note that the FHWA guidance specifically states that the functional class proportions do not always apply in Alaska as it is predominantly rural and so much of the Alaska road mileage consists of the interstate highway system. However, the guidance *is* applicable in the core area of the MSB where road density is typical to other urban communities and a true network should exist, especially in the future with moderate build-out. A region of the core area roads was isolated and compared to the FHWA guidance. Table 4, below, presents the results of this study.

Table 4. Percent of Total Mileage in Functional Class System

Classification	FHWA Guidance	2022 OS&HP	2022 OS&HP (with +30% more Local Roads)
Interstate	1 – 3%	4%	4%
Major Arterial	2 – 6%	4%	4%
Minor Arterial	2 – 6%	4%	4%
Major Collector	8 – 19%	10%	7%
Minor Collector	3 – 15%	20%	13%
Local Road	62 – 74%	58%	68%

The proposed OS&HP road network closely matches the FHWA guidance. The numbers show a high average number of arterial road miles, which is to be expected in such a large region as the core of the MSB. In terms of collector roads, the percentages show an overabundance of minor collectors and a relatively low number of major collector roads. This is a result of the SCM AADT

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limits making it difficult to justify major collectors based on volumes. The major collector roads included in the Plan are recommended based on the connectivity of sub-communities and not access. The percentage of local roads in the planned network is lower than recommended. This is because unplatted local roads are not included in the OS&HP. Therefore, they are not showing up in the total road miles. The table includes a column showing what the approximate distribution would be with 300 more local road miles (30% increase in local roads than the current network) to approximate the actual distribution after the network has been constructed. Notice that after this adjustment is made the percentage of major collectors in the network is 7% which is below the 8% recommended by FHWA guidelines. It is, therefore, most important for the MSB to preserve and construct the major collector road network.

3.3 Primary Intersections

The third key element of the OS&HP is the Primary Intersection locations. The Primary Intersection Study analyzed all roads classified in the OS&HP as a Minor Arterial or higher mobility functional class. The term "Primary Intersections" is used in the OS&HP to describe locations where future side street connections should be prioritized for consolidation of access and the potential access control options in the future.

As traffic volumes grow in the community, designers often seek to preserve the mobility function of arterial roads by limiting access to side streets and driveways via medians or approach road closures, or by installing traffic control devices such as traffic lights or roundabouts. For example, the recent upgrades of the Parks Highway (from Lucus to Big Lake), and Knik-Goose Bay Road (from Centaur to Vine) designed depressed medians that prevent left turns in and out of side streets. This led to the inclusion of frontage roads and secondary connections to move access to the most desirable locations.

The purpose of the Primary Intersections Study is to apply the access control principles used in the previous arterial road studies to other arterial roads, well in advance of them being possibly upgraded to include access control. This will assist decision-makers to design access to the arterials at intersection locations that are most desirable to the arterial road network. This tool is expected to be used when new connections to arterials are designed either for residential side streets or borough collector roads. Consideration should be given to consolidating roads at these primary intersection locations and aligning access on either side of the arterial to avoid offset intersections.

Example: The Engstrom Road and Bogard Road intersection mentioned previously is an example of an intersection location where a primary intersection designation could have saved the community from issues. There are obvious problems at this intersection that could have been avoided if it had been planned as a primary intersection. The offset alignment of Engstrom Road and Green Forest

What are "Primary Intersections"?

The term "Primary Intersections" was coined by the 2022 OS&HP as a way to identify preferred intersections locations along arterial roads where future road connections should be prioritized.

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Drive creates major turning conflicts and makes upgrades costly and difficult. The inconsistent design function of Engstrom as a major collector, and Green Forest as a local road, weakens the road network and promotes cut-through traffic on Green Forest Drive since there is an obvious demand for connectivity that is not being provided. The approach grades and sight distances are not favorable for the amount of uncontrolled activity the intersection experiences during peak hours. This has created a major bottleneck that has degraded the public's trust in the Borough's ability to protect and design the road network as a resource. The primary intersections shown in the OS&HP all have the potential to create similar problems as those at Engstrom Road if their importance in the network is disregarded or if the road network connections are not preserved.

The locations of the primary intersection points were determined based on a planning level analysis of the corridors. The analysis considered existing intersection locations, adjacent topography, current and projected land development, property ownership, planned road corridors, and intersection spacing.

One parameter of the primary intersection study was a desire to keep major intersections properly spaced. The DOT&PF recommendations are for major intersections to be no closer than ¼ mile apart. This guidance is similar to Manual on Uniform Traffic Control Devices (MUTCD), which warrants 6 concerning coordinated signal systems. The goal of this guidance is to provide satisfactory signal progression through a signal network along a controlled-access highway.

Signal spacing of less than ¼-mile is not desirable because of progression considerations. A spacing of ½-mile is preferred because there would be less need for interconnection or offset timing. The Transportation Research Board (TRB) Access Management Manual indicates that signal spacing of less than ¼-mile will result in progression speeds of less than 15 mph, and that signal spacing of ¼-mile can maintain progression speeds up to 30 mph (depending upon cycle length).

Signal spacing of ½-mile will allow for progression speeds of around 40 to 60 mph for typical cycle lengths on an arterial corridor with low volume side street approaches. Half-mile spacing is the DOT&PF's goal for at-grade access and signal spacing on a Major Arterial.

This study was conducted with cooperation from MSB staff and reviewed by the DOT&PF. The locations agree with all DOT&PF access management studies on DOT&PF corridors. However, it should be noted that the primary intersection locations included in this study represent the planning level preference for where major intersections may be desired in the future. A primary intersection in the OS&HP does not guarantee access in future designs.

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The primary intersection locations are shown on the OS&HP maps starting on page 45.

3.4 Other Plans and Considerations

The OS&HP includes all roads and corridors that are required to create a road network that will support a reasonable expectation of future growth in the Borough. This growth has been studied and forecasted using the best possible data currently available, and recommendations have been made with the agreement of a multi-departmental steering committee. However, changes to growth projections or development patterns could, in turn, change the infrastructure needs targeted in this OS&HP. For

Key Question for OS&HP Updates

- Are growth forecasts still applicable?
- Does the plan still provide appropriate access and connectivity?
- Is any part of the plan no longer feasible or are options limited?
- Are there any regulatory changes that need to be updated?

this reason, the 2022 OS&HP is designed to be a "Living Document". This means that the OS&HP is expected to be updated on a regular basis, ideally on a 3-to-5-year cycle. The GIS files used to create the Functional Class Maps and the Primary Intersection locations are being collected by the MSB to include in the Borough GIS databases. These databases can be adjusted as situations arise, such as arterial and interstate road statuses change, or development that progresses differently from forecasts.

Future Projects

The OS&HP is focused on designing a road network where every piece works in concert with the adjacent roads. Major changes to the arterial network or other major community developments will have a ripple effect throughout the Plan. For this reason, several major projects are not included in the OS&HP because of the uncertainty of their alignment, design, or construction and the impact they would have on the OS&HP in the short term.

Some of these projects are the following:

- Parks Highway Alternative Corridor
- Knik-Arm Bridge
- West Susitna Parkway
- Willow Bypass
- Big Lake Bypass
- Houston Bypass
- Natural Gas Project on Ayrshire

These projects are currently being studied, and alignments and designs are being determined. They would have an extreme impact on the road network. Due to the uncertainty of both their construction schedule and their exact locations, they are not currently included in the OS&HP. As soon as a settled alignment is available, and/or funding and schedule are secured, the OS&HP should be updated to prepare for these projects.

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For example, the Parks Highway Alternative Corridor (PHAC), is currently being studied as part of a Planning and Environment Linkage Study (PEL). The nature of a PEL is that it will include a broad array of alignment, design, and intersection options. The beginning and endpoints of the PHAC may change as a result of the PEL as well as the crossing locations and designs. For instance, the location and treatment of the Knik-Goose Bay Road crossing are still undetermined.

Figure 7 shows the area that is most likely to be impacted by the new bypass road.

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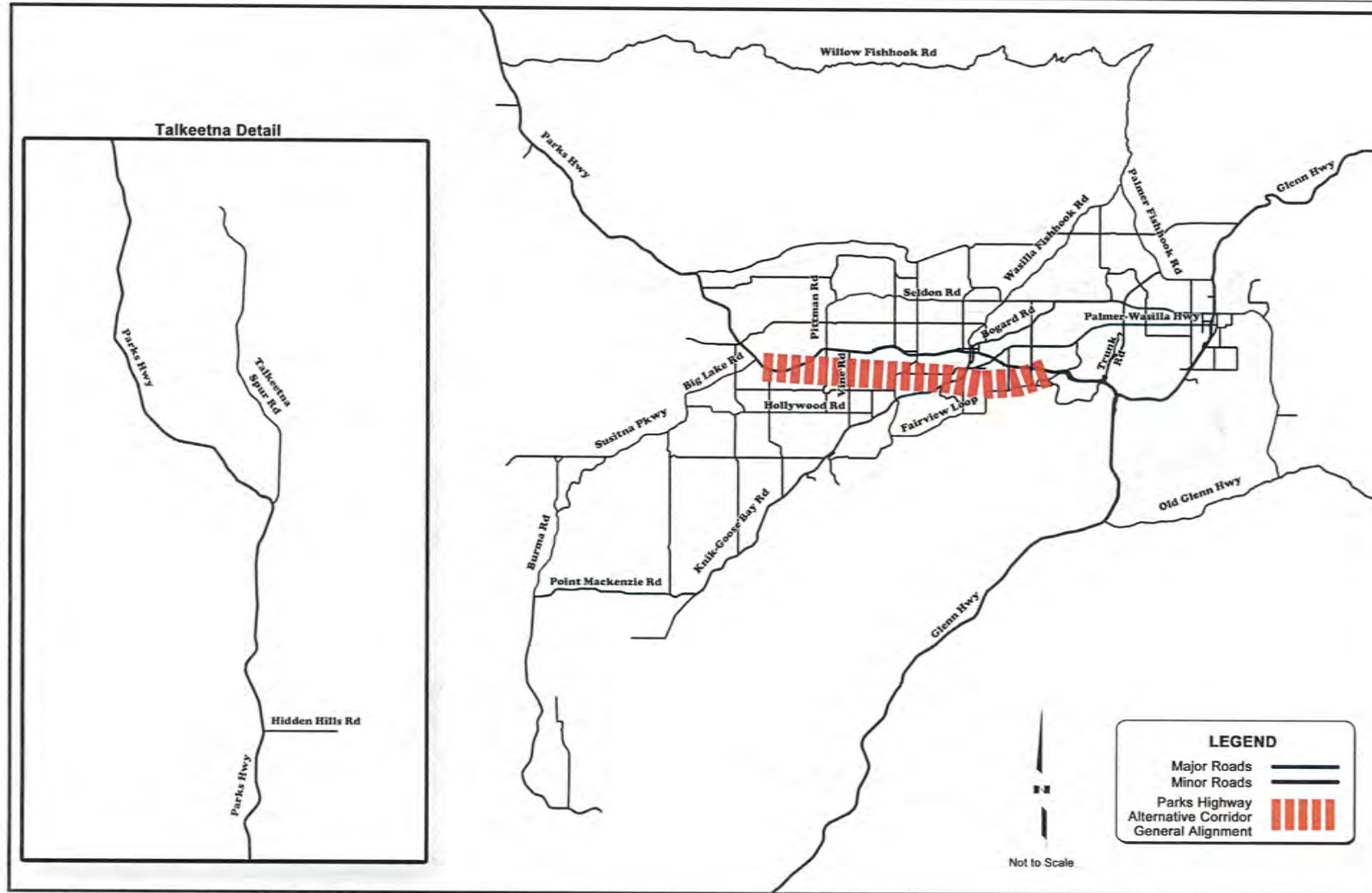


Figure 7. Parks Highway Alternative Corridor, General Alignment

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The PHAC would be classified as an interstate highway and would need supporting arterial road connections and secondary collector roads designed in harmony with the high mobility design. Therefore, once the highway alignment is determined, the OS&HP will need to be updated respectively.

Several other DOT&PF bypass and realignment projects would possibly require the use of MSB property adjacent to the Parks Highway. This is a special case where these alignments are still not determined, but the use of these MSB properties should be carefully considered and the DOT&PF should be consulted if the development of this land is pursued by the MSB.

The MSB parcels in question are shown in Figure 8.

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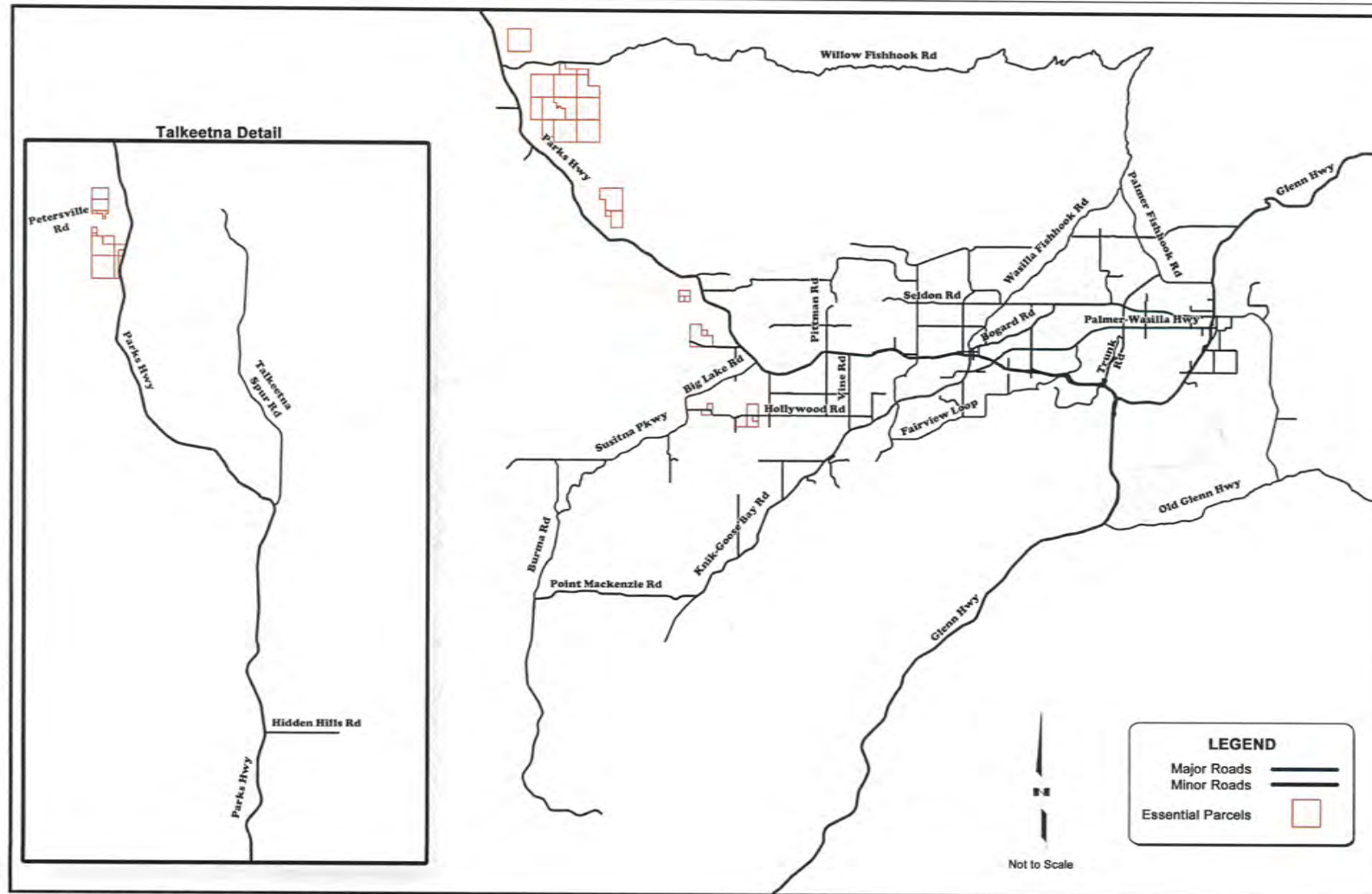


Figure 8. MSB Parcels Essential for DOT&PF Road Planning

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4 Implementation Plan

Once the OS&HP is adopted into Borough Code, it guides Platting actions and works to preserve road network connections and corridors and helps prioritize Public Works improvement projects. If implemented fully, the OS&HP will assist with managing traffic growth and travel demands, help to minimize traffic congestion, reduce safety issues, and limit high-cost maintenance issues in the future. Implementation of the OS&HP map is step one, but there are other actions the MSB can take to further enhance the development of a safe and efficient road network.

4.1 Implementation Plan Overview

The following section outlines some of the additional tools and policies that would further enhance the OS&HP:

Adopt OS&HP

- Pursue acceptance of the OS&HP plan by public and decision making bodies and advisory groups: RSA Board, TAB, Assembly, Planning Commission, DOT&PF, Cities of Palmer and Wasilla, and MSB Departments
- Adopt the OS&HP into Borough Code

Apply Plan using Current Tools

- Educate and train MSB staff on the role and purpose of the OS&HP
- Agree on responsibilities as outlined in Table 5 on page 29
- Include projects in Road Improvement Program (RIP) list
- Include new OS&HP roads in the LRTP update
- Incorporate OS&HP functional classifications into MSB GIS layering
- Publish OS&HP GIS Maps of roads, functional classes, and primary intersections

Adapt Policy to Provide New Tools

- Develop policy stating that OS&HP routes and recommendations be incorporated into all aspects of planning, design, project development, and construction within the MSB
- Revise the SCM to better align with the OS&HP and FHWA AADT thresholds
- Adopt ROW standards for each functional classification for use in plat reviews, setback requirements, and road network development
- Draft or revise MSB code to require all streets to conform to the OS&HP
- Require Developers to identify the intended use of the property to better plan for trip generation
- Require developments to document how traffic will impact the surrounding road network
- Require developments with impacts that result in a change of functional class to the immediately adjacent road network as outlined in the OS&HP, change of intersection location, and/or change in OS&HP present a plan for bringing impacted road to the applicable functional classification

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- Develop policy and plans for access management
- Develop a timeline or triggers for implementing zoning and/or adopting road powers

Update Planning Documents to Conform to OS&HP

- Review and update supporting plans on a regular schedule:
 - LRTP
 - Area Comprehensive Plans
 - Bike and Pedestrian Plans
 - Transit Plans
 - Hub Community Plans

Develop Design Criteria to Define Functional Classifications

- Develop and adopt a Design Criteria Manual (DCM), which includes standard criteria for the design and construction of each functional class of roads in the OS&HP
- Survey existing road designs and compare them with standards in DCM
- Determine locations where road upgrades are needed to conform to standards
- Prioritize projects to upgrade existing roads to meet the OS&HP recommendations

Conduct Further Studies and Projects to Reinforce the OS&HP

- Updated population build-out study
- Employment growth study
- Corridor management studies
- Commercial and industrial hub studies
- Potential funding source identification

Update OS&HP to Keep Current with New Trends and Policies

- Review and update the OSHP every 3 to 5 years
- Develop policies and processes to guide how revisions and updates are incorporated into the OS&HP
- Keep OS&HP GIS maps up to date and published online

4.2 Adoption Process

The first step of implementation is the adoption of the OS&HP into the Borough code.

The Plan was developed by a steering committee of MSB department heads and decision-makers, as well as members of DOT&PF Planning, and the City of Palmer and Wasilla Planning. The Plan was then presented to the Road Service Area (RSA) Board, Transportation Advisory Board (TAB), MSB Platting Board, Planning Commission, and the MSB Assembly, along with a public hearing and comment period. Documents and maps were online and available for comment throughout this period.

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4.3 Decision-maker Responsibilities

Through the planning process, key responsibilities for MSB departments, agency partners and the public were outlined to better clarify how the OS&HP is intended to be used. Table 5, below, summarizes the responsibilities.

Table 5. User and Agency Responsibilities

User or Agency	Responsibility
MSB Planning	<ul style="list-style-type: none"> • Own and maintain the OS&HP • Maintain the connection between LRTP and OS&HP by regularly revisiting OS&HP and updating with the newest developments and road changes • Assist in preserving ROW and maintaining access control • Coordinate among various plans • Advance and prioritize OS&HP projects for inclusion in the RIP and Capital Projects lists • Identify potential funding sources • Follow and manage the implementation process • Execute conceptual level planning studies • Coordinate agency and department cooperation • Recommend code changes that allow the OS&HP to function effectively • Develop access management plans for key areas • Preserve land highlighted by DOT&PF as "Essential for DOT&PF Road Planning" (see Figure 8 on page 26)
MSB Platting	<ul style="list-style-type: none"> • Preserve ROW and/or the future corridors during Platting actions • Encourage subdivision roads to connect at Primary Intersections locations • Ensure subdivision roads are built to appropriate standards • Notify MSB Planning if any changes make features of the OS&HP less favorable • Educate the public about the OS&HP purpose and function
MSB Public Works	<ul style="list-style-type: none"> • Manage and maintain Borough ROWs • Ensure design conformance to functional classifications • Manage, upgrade, and build process for MSB projects • Create a Memorandum of Understanding (MOU) with DOT&PF to adhere to plans
MSB GIS	<ul style="list-style-type: none"> • Maintain current OS&HP database • Assist planning in OS&HP map updates

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MSB Assembly	<ul style="list-style-type: none"> • Help secure funding for road studies, designs, and construction projects shown in OS&HP • Approve updates to the OS&HP with consideration of OS&HP's goal-oriented scope • Fund road projects • Approve code changes to assist with implementation
DOT&PF	<ul style="list-style-type: none"> • Coordinate new road planning studies and projects with MSB to maintain functional classifications and primary intersections in MSB OS&HP • Nominate projects to the STIP that are consistent with the OS&HP
Developers	<ul style="list-style-type: none"> • Produce designs that fulfill both development and OS&HP community goals
Designers	<ul style="list-style-type: none"> • Design road sections to the assigned functional classes in the OS&HP or design in a way that does not preclude future upgrades
Advisory Boards	<ul style="list-style-type: none"> • Advise Borough on issues related to OS&HP
Cities	<ul style="list-style-type: none"> • Create or Update City OS&HPs to incorporate Borough plan • Notify MSB planning when the City plan conflicts with MSB OS&HP

4.4 Preservation of Right-of-Way

One of the main purposes of the OS&HP is the preservation of ROW for future road corridors. To preserve ROW, decision-makers in the MSB are expected to use the OS&HP maps as a reference when directing road projects. Road projects pursued for construction, including DOT&PF arterial roads, secondary MSB roads, and private roads platted through the MSB, should agree with the OS&HP plan, or trigger an update of the OS&HP if no feasible agreement can be made.

Roads designed as part of residential developments are required to apply standards specified by the *MSB Subdivision Construction Manual 2020*. The SCM says the following regarding its connection to the OS&HP:

"Subdivisions shall be designed in a manner that does not conflict with the Long-Range Transportation Plan or the Official Streets and Highways Plan. Subdivisions containing future road corridors identified in the LRTP or OS&HP are encouraged to include the future road corridor as part of the road layout of the subdivision."

To not conflict with the OS&HP, a subdivision must be built such that roads and connections shown in the OS&HP are either built along with the subdivision or built in the future with allowable ROW width for the future alignment. This ROW width would be clear of all features that would prevent the construction of a road that fulfills the desired

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function of the road in the OS&HP. The SCM provides minimum ROW widths per road functional class which can be expected to be reserved for this purpose as shown in Table 6, below.

Table 6. Minimum ROW Width per Functional Class (From SCM)

	Local Road	Minor Collector	Major Collector	Minor Arterial	Major Arterial	Interstate
Minimum Right-of-Way Width	60'	60'	80'	100'	100'	200'

Note that the ROW widths shown in the SCM are defined as the "minimum" requirements. In many cases, the design needs of the road will greatly increase the amount of ROW needed. Requiring developers to identify land use would help Platting ensure enough ROW is being reserved.

Care should be taken in preserving ROW in areas with:

- Significant vertical topography since the design may require wide cut and fill slope limits that will need to be within the limits of the ROW.
- Roads that are part of a future pathway may need additional ROW to accommodate the path with proper separation.
- Roads adjacent to commercial properties or roads that have many side streets will require additional ROW for turn lanes or median treatments, especially at intersections with major collectors or arterial roads where roundabouts or traffic signals may be required.

For reference, Table 7 on page 322 includes a list of the design features that might change the ROW requirements for each functional classification.

Note that the OS&HP is not a design manual. The actual features included in a road's design should be selected based on the context of the roadway, engineering judgment, and the applicable design standards if available. The features shown below are simply a general idea of what roads of various classifications typically include.

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Table 7. Expected Design Features per Functional Class

Classification	Local Road	Minor Collector	Major Collector	Minor Arterial	Major Arterial	Interstate
ROW	60 feet	60 feet	80 feet	100 feet	100 feet	200 feet
Design Speed	25 – 30 mph	35 mph	35-45 mph	35-45 mph	55 mph	55-70 mph (As defined by DOT&PF)
Road Surface	Possibly unpaved, 2-lanes, 10-foot lanes	Possibly unpaved, 2-lanes, 10-foot lanes	Paved, 2 lanes, 12-foot lanes	2-4 lanes, 12-foot lanes	2-4 lanes, 12-foot lanes	4-6 lanes, 12-foot lanes
Access	Encouraged (Residential and Commercial)	Encouraged (Residential and Commercial)	Restricted, Commercial access with possible traffic lights	Restricted, Commercial access with traffic lights, Frontage and backage roads	Restricted, Commercial access with traffic lights, Frontage and backage roads	Driveway access strongly discouraged, Access directed to specific intersections or ramps
Intersection Treatments	Stop control, No traffic signals expected	Stop control, No traffic signals expected	Stop Control, Traffic signals or roundabouts at arterial or major collector crossings	Traffic lights and roundabouts	Traffic signals with dual left-turn lanes, Double-lane roundabouts, Separated grade interchanges	Signalized intersections very probable, Separated grade interchanges, Roundabouts very unlikely
Median Treatments	No turn lanes, No medians except for traffic calming	Turn lanes at intersections with higher function roads, No medians except for traffic calming	Turn lanes, No medians, No traffic calming, Center-two-way-left-turn lanes	Turn lanes for left turns off Arterial, No medians, Center-two-way-left-turn lanes	Divided medians	Divided medians, Disconnected alignments per direction of travel
Shoulder Treatments	2' gravel shoulder	2' gravel shoulder	4' paved shoulders Sidewalks, Pedestrians discouraged from using the roadway but possible bikes and bike lanes	4-8 foot paved shoulders, Bike Lanes No pedestrians in roadway	4-8 foot shoulders, Bike lanes No pedestrians in roadway	12-foot paved, Bikes on the shoulder No pedestrians in roadway
Pedestrian Treatments	Urban sidewalks, Expectation for pedestrians in the roadway	Possible urban sidewalks expectation for pedestrians in the roadway	Separated pathways likely Possible Crosswalks at planned locations	Separated pathways likely, crosswalks likely	Separated pathways likely, crosswalks	Separated pathways likely, possible separated grade pedestrian crossings
Other Expectations	Possible Speed bumps, Transit stops, Mailbox pullouts, Cul-de-sacs, Mini-roundabouts	No Cul-de-sacs Possible speed bumps, Transit stops, Mailbox pullouts, Mini-roundabouts	On-street features such as mailbox pullouts are discouraged	Mobility design, but without passing lanes or interchange features	Possible freeway design, Possible passing lanes or slow vehicle turnouts, Designed for heavy vehicle use	Possible freeway design with passing lanes and slow vehicle turnouts, Designed for heavy vehicle use

NOTE: **Bold** text indicates features that are different from lower mobility function roads (Moving from left to right).

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4.5 Design Criteria Manual

The MSB does not currently have a Design Criteria Manual for roads. The absence of a DCM means there are no standards for road design based on functional classes other than the minimal requirements of the SCM. Having a DCM would define the design goals for the functional classes assigned in the OS&HP and the DCM would define ROW standards.

Once an MSB DCM is available, a survey should be conducted to compare the existing design of roads to determine what functional class they are actually built to. This study should then reference back to the OS&HP to identify routes that need to be upgraded. Evaluation of available ROW can be made to determine the cost and impacts of upgrades. This data should be used to prioritize road upgrade projects.

Design manuals used for roads within the MSB

- MSB SCM, for Residential Streets
- DOT&PF Highway Preconstruction Manual
- Municipality of Anchorage Design Criteria Manual, as guidance, particularly for urban streets
- City of Palmer Development Standards, 1985
- Geometric Design of Highways and Streets (Also known as “The Green Book”), published by the American Association of State Highway and Transportation Officials
- Highway Capacity Manual, published by the TRB

4.6 Miles of Unconstructed Road

If ROW is being preserved for road projects, then funding for the design and construction of those roads must be prioritized.

Table 8, below, shows the total number of unconstructed road miles in the 2022 OS&HP road network. A total of 164 miles of road are required to fully construct the OS&HP. The OS&HP does not have a horizon year and the planned road segments are therefore assumed to be built as they are needed and as funding is available. The number of planned road miles suggests an approximate rate of one mile of collector road constructed for every two miles of local road constructed in the Borough.

Table 8. Total Mileage of Unconstructed Roadway in Secondary Road Network

Functional Classification	Unconstructed Road Miles in 2022 OS&HP
Major Collector	59
Minor Collector	105
Total	164

Figure 9, on page 34, shows the location of the unconstructed road miles within the Core Area of the MSB.

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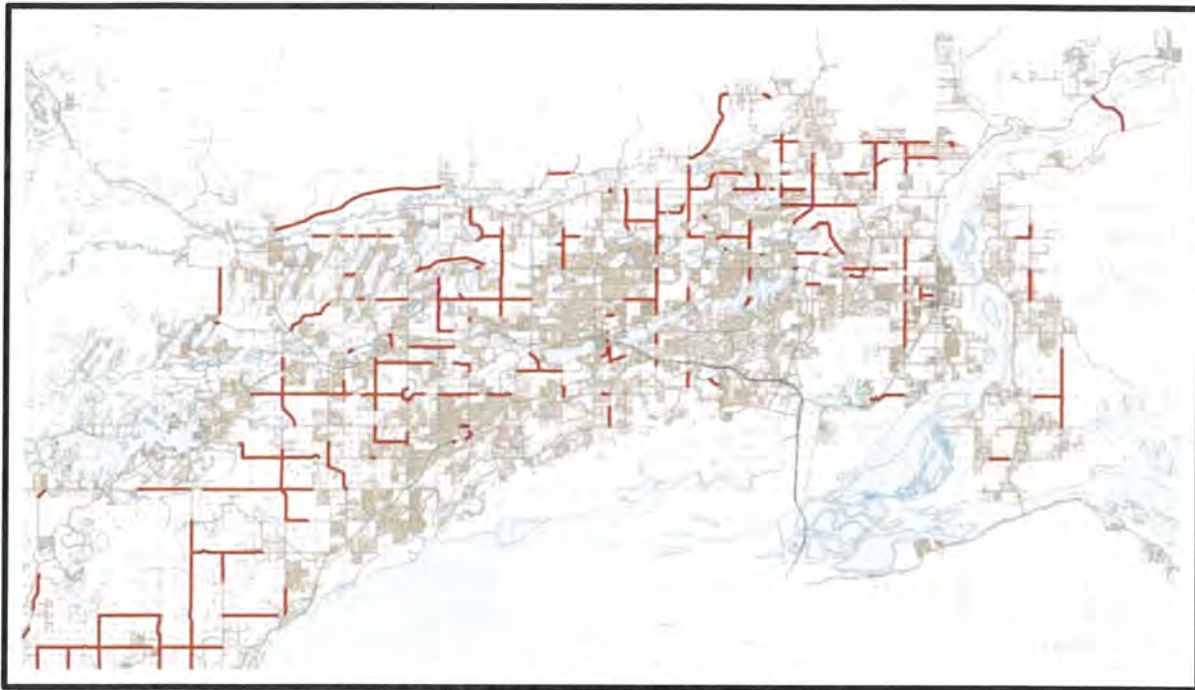


Figure 9. Unconstructed Secondary Road Network in Core Area

Note that future studies, such as a possible update of the LRTP, or arterial road corridor plans, would be needed to prioritize projects for promotion to design.

Once these projects have final alignments, and funding sources and are moving into detailed design, the OS&HP will be updated to include them and make the needed changes to the surrounding secondary road network to fully integrate them into the system.

Note this section does not include existing roads that will require upgrades to higher mobility function design standards.

4.7 Additional Studies

Throughout the process of the OS&HP development, numerous studies or projects were discussed which would either be informed by the OS&HP or would be triggered by its publication. Table 9, on page 35, includes a summary of some of the projects and studies that would require some level of integration with the OS&HP once adopted or would be recommended as follow up studies:

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Table 9. Studies Impacted by the OS&HP

<i>Study</i>	<i>Description of Possible Impacts</i>
Agency Interaction	The OS&HP for the MSB designs a secondary road network that is meant to support the residential road network and the arterial road network. To bridge this gap properly, communication between agencies will be crucial to make sure that the OS&HP plan keeps up with any changes in the networks it is designed to bridge.
Comprehensive Plan Updates	Comprehensive plans for smaller communities, as well as for the MSB as a whole, will need to be updated to include the road connections and intersection locations shown in the OS&HP.
Corridor Studies	A DOT&PF study of arterial road corridors in the MSB should study how improvements to the MSB secondary road network, as shown in the OS&HP, will enhance or improve the arterial roads without having to focus all upgrades on the arterial roads themselves.
Reinstate the Land Use Permit	Reinstating the land use permit will support the implementation of OS&HP goals by identifying land use to better plan for traffic generated.
Future Metropolitan Planning Organization (MPO) policy	The future MPO designation will require several federally required planning policies to be used in the MSB. Once the MPO is formed the MSB will work with the MPO to ensure the OS&HP is a tool that both organizations can use.
LRTP Update	The existing LRTP has a horizon year of 2035 and was created in 2017. The LRTP considered arterial level congestion and suggested arterial level solutions. As a result of the DOT&PF corridor studies and the OS&HP, an update to the LRTP could extend the horizon year and include MSB projects that may support the arterial road network with less impact and cost.
MSB GIS Cartegraph Databases	The MSB uses an asset management system known as Cartegraph, a GIS-based system that includes data about each road segment. Currently, this data includes functional classification data that will need to be updated to reflect the OS&HP assigned designations.
Bike and Pedestrian Plan	A Bike and Pedestrian Plan for the MSB should consider the functional class designation of roads and the location of future road connections so that pathways can best utilize the relationship between roads and pathways.
Potential Funding Source Identification	The OS&HP should be referenced when seeking funding for future projects. Having an OS&HP may open up new opportunities for grants or bond packages. The designation of roads is often linked to federal funding sources.
Project Prioritization	Studies will need to be made to identify which roads in the OS&HP need to be upgraded based on OS&HP functional class designations, and what the estimated cost would be to design and build new road connections. The benefits of the road connections should be measured and estimated so that projects can be prioritized on a basis of a comparison of benefit vs cost to optimize road funds in the MSB.

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Transit Plan	A transit plan in the MSB should consider how the OS&HP plans for traffic to circulate within the MSB based on the road connections and functional class designations.
Moose Crossing Study	Moose-related crashes are a significant issue in the MSB and the interaction between moose and cars will likely increase as the MSB population continues to grow, traffic volumes rise, and intraregional travel speeds are increased. A study of high moose crash areas may be needed to address moose hotspots in the MSB with possible road design features, such as fencing or animal crossings.
Revisit of SCM Chapter B	The Subdivision Construction Manual was revised in 2020 and adopted in January of 2021. Chapter B of the SCM discusses general design standards for major road corridors, including the minimum ROW width requirements for each functional class and the frontage road conditions and setback requirements. This section of the SCM would need to be updated as the MSB becomes an MPO and adopts more detailed design policies and manuals.
Rail Crossing Study	The OS&HP includes several planned roads that would require crossings of the Alaska Railroad. Additionally, there are several crossings of the rail extension south of Houston that are currently not being used by the borough road network. A study of these existing and future rail crossings should be conducted to properly preserve and utilize rail crossings as a resource and determine the feasibility of new connections early on in the road planning process.
Road Use Study (Residential, Commercial, Industrial)	In support of the OS&HP and a future MSB Design Criteria Manual, a study should be conducted which identifies the road use of the various segments in the OS&HP. Currently, the OS&HP classifies roads by their functional class which is focused on the relationship between access and mobility; however, the use of the road as, for example, a residential, commercial, or industrial street may change the design criteria that would be applied for roads.

4.8 OS&HP Update Process

The 2022 OS&HP is designed to exist within the MSB as a "Living Document," which will need to be updated periodically based on a planned schedule and updated methodology defined by MSB planning.

It is recommended that the OS&HP be updated every 3 to 5 years, or as major developments or changes trigger changes in the network. The OS&HP alignments, functional classes, and primary intersection locations are all subject to adjustments.

However, it is highly recommended that policies be codified, which establish thresholds for when changes can be made. It is also recommended to determine who, at a minimum, should be involved; establish timelines for comments; and determine when changes are appropriate (for example, sufficient community comment/support, alternative planning, changes to comprehensive plans,

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major road corridor changes, scheduled updates, etc.). These recommendations are to prevent cases where changes are made unilaterally without proper cause.

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Appendix A Growth Study

A major part of the OS&HP study was a growth forecast for the MSB. The growth study created GIS maps of the MSB showing areas where population and employment development has recently happened, where it is predicted to occur in the next 20 years, and where it is projected to occur by full build-out. The goal of the study was to create a vision of growth, with approximate traffic volume projections so that the infrastructure can be planned in advance of land development.

Demographic Projections

Population projections from the Alaska Department of Labor and Workforce Development (DOLWD) and projections from the Institute of Social and Economic Research (ISER) agree on an approximate growth rate of around 5.8% annually within the MSB through 2045.

In this study, the population growth for the region was distributed to various sub-regions in a GIS mapping environment. These GIS regions are known as Traffic Analysis Zones (TAZs) and are used by the AMATS Travel Demand Model (TDM) to predict traffic volumes. The TAZs for the AMATS TDM were used as a basis for this study. The AMATS TDM TAZs were subdivided into smaller regions to better isolate the traffic volumes on neighborhood streets where small differences in volumes can determine the difference between various functional classifications.

What is a Traffic Analysis Zone (TAZ)?

A Traffic Analysis Zone is a region used in travel demand modeling. The regions are defined by GIS polygons. The Mat-Su Borough is divided into TAZs of various shapes and sizes. Within the GIS databases for the TAZs is information about the region, such as population rates, average income levels, and employment numbers in different industries.

Figure 10, on page 39, shows an example of the TAZ region divisions.

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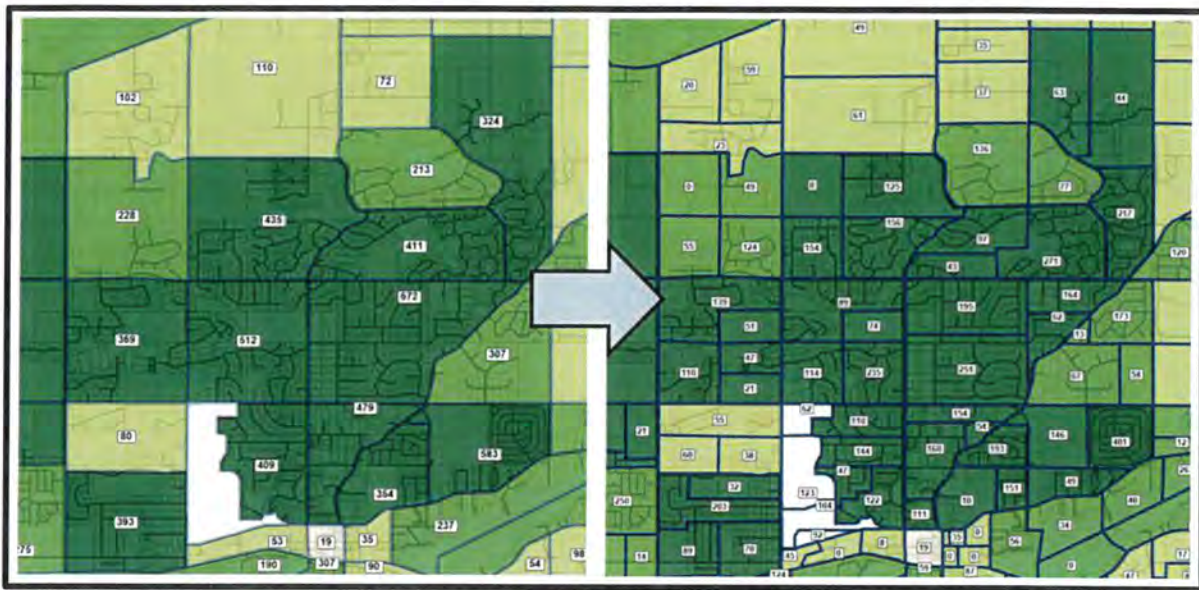


Figure 10. Example Conversion of TAZ Region Refinement

The growth study uses the new TAZ regions as containers for estimating the location of existing and future population and employment. Future growth is located based on projections from the AMATS Travel Demand Model (TDM) and the MSB Build-out Study. Both of these studies distributed data into larger TAZ regions. This growth study further divided the data among the smaller regions based on the availability of developable land. "Developable land" is land with favorable topography, wetlands designations, water and septic suitability, access availability, land ownership, lake setbacks, and many other considerations determined from available GIS mapping data.

AMATS Travel Demand Model (TDM)

The AMATS TDM is a traffic forecasting model produced by AMATS, with the cooperation of DOT&PF. The model covers an area from Talkeetna to Girdwood. The basis for the model is a 2013 household and employment GIS layer that divides the model area into zones known as Traffic Analysis Zones (TAZs). Each TAZ contains values identifying how many households and employees live and work in the region in 2013 and 2040. The model generates vehicle trips using these values and distributes them onto the roadway to forecasts traffic volumes and capacity problems.

MSB Build-out Study

The MSB Build-out Study was produced between 2011 and 2015. The goal of the study was to forecast the maximum possible density in the MSB at an undetermined future year beyond 100 years from now (based on moderate growth trend calculations). The Build-out Study assumes extreme redevelopment and heavy densification. It also imagines new urban areas in the vicinity of Settler's Bay, Meadow Lakes, Point MacKenzie, and Willow.

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Note that, given the very long-term horizon of the Build-out Study data, the OS&HP never uses the outcomes of the Build-out Study as the sole justification for a road functional class upgrade or a new road connection. The build-out data was used as a reference to support decisions made based on other collected data.

Also note, that the MSB Build-out Study does not include employment projections, therefore, the OS&HP growth study only predicted employment development through 2040 using the AMATS TDM forecasts.

Growth Study Conclusions

The results of the population analysis for the Growth Study are shown in Figure 11 through Figure 13, starting on page 41, and the employment analysis results are shown in Figure 14 and Figure 15, starting on page 43. These figures are intensity maps, where the regions with the brightest color intensity indicate regions with the highest relative growth between the years.

The population study showed that available land for development is quickly disappearing, especially in the core area of the MSB. **To keep up with the projected population demand, growth will continue to move west, into Meadow Lakes, Houston, Settlers Bay, Point MacKenzie, and also up into Willow and Talkeetna.** Growth in these areas will be further encouraged by the road expansion projects along the Parks Highway and Knik-Goose Bay Road, which makes land in these directions closer to the borough core area, by travel time.

Additionally, to achieve the growth rates projected by the DOLWD and ISER, the core area will need to start increasing the density of both residential and commercial developments, which implies an increase in utilities and services, such as municipal water and sewer. This makes preparing for future road upgrades even more critical. Additionally, the increasing density within the core area will likely bring a culture change, with a population that is more urban-minded and open to transit and walking paths. Around 2040, when developable land becomes more limited, growth in the core area can be expected to slow.

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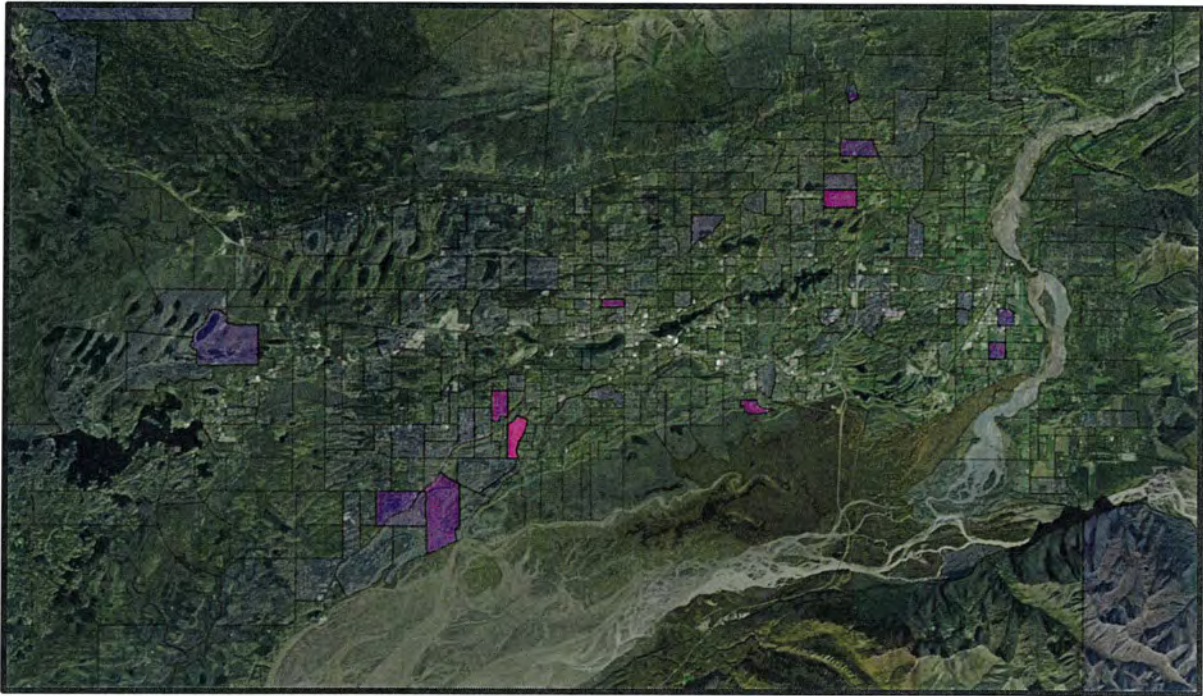


Figure 11. Population Growth 2013 to 2020 (Based on Observation of Existing Data)



Figure 12. Population Growth 2020 to 2040 (Based on AMATS TDM Forecasts)

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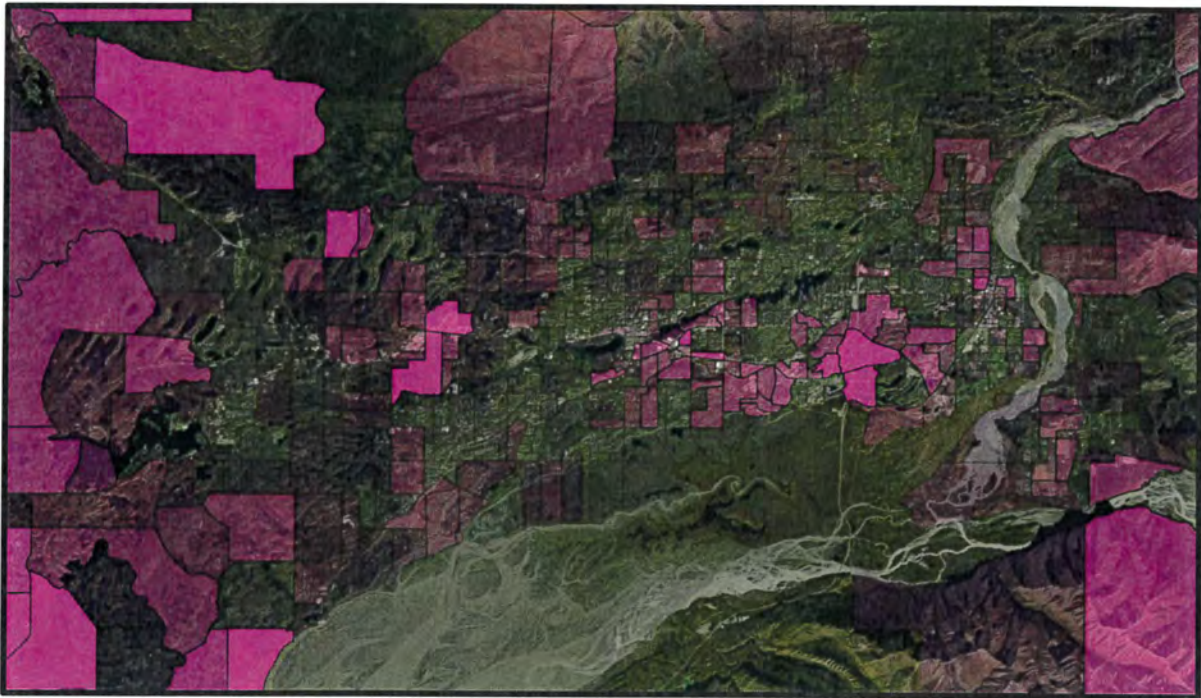


Figure 13. Population Growth 2040 to Full Build-out (Based on MSB Build-out Study)

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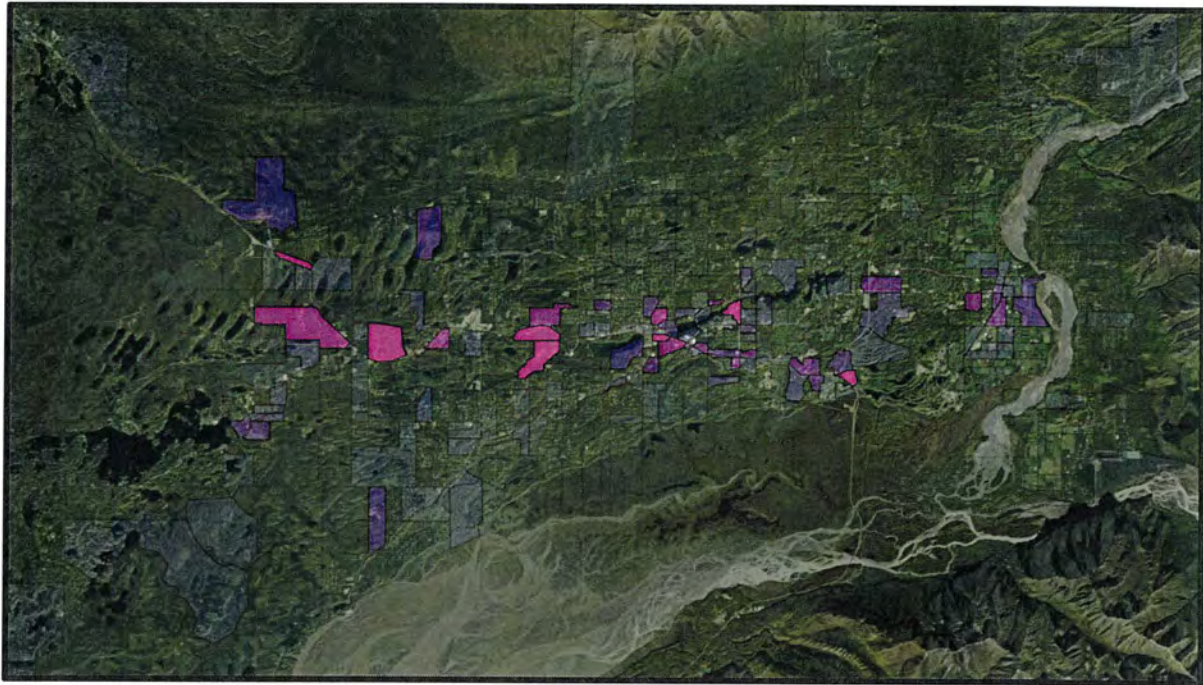


Figure 14. Employment Growth 2013 to 2020 (Based on Observation of Existing Data)

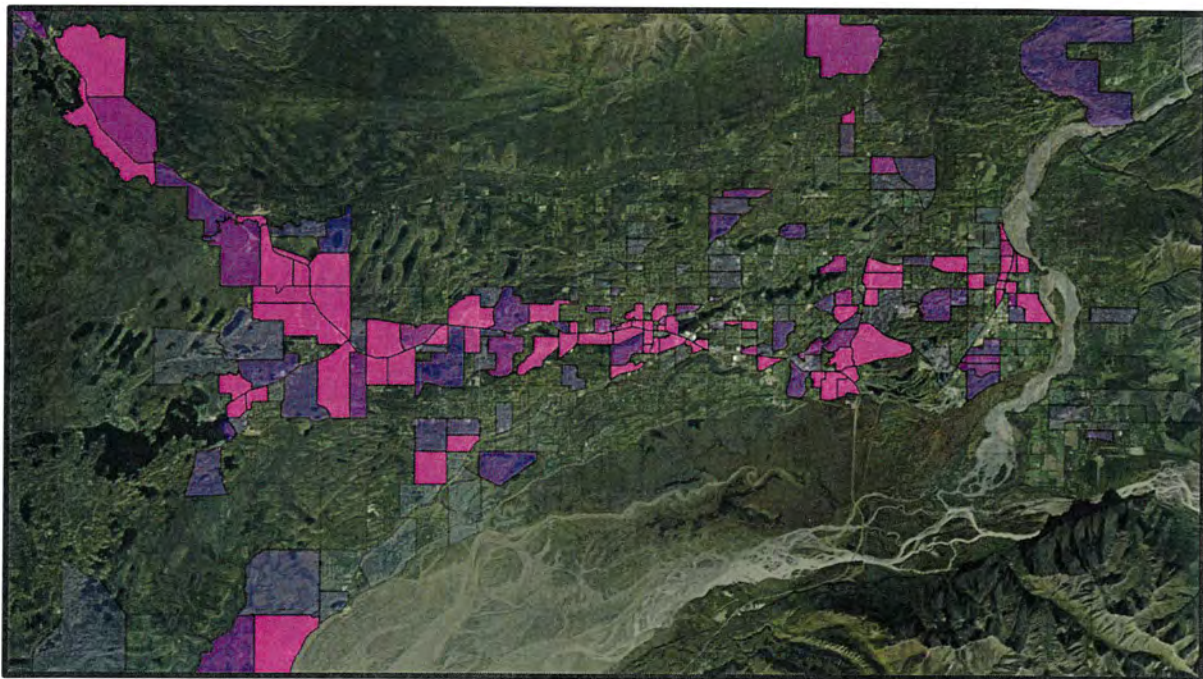


Figure 15. Employment Growth 2020 to 2040 (Based on AMATS TDM Forecasts)

Notice in the previous figures that population growth from 2013 to 2020 was able to stay primarily in the urban core. The study from 2020 to 2040 shows higher population growth to the southwest towards Point MacKenzie and in the area of Big Lake. This is due in part to the urban core reaching capacity, with all of the easily developed land having already been used. Also, major road projects

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like the Parks Hwy upgrade from Lucus to Big Lake, and the Knik-Goose Bay Road upgrade to Settlers Bay, will effectively make regions serviced by these roads closer to the urban core, based on shorter travel times and reduced traffic congestion. This will increase the desirability of these areas for housing development. Note that this also points out the key relationship between suitable road networks and economic development.

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Appendix B OS&HP Maps

The following maps present the 2022 Official Streets and Highway Plan for the Matanuska-Susitna Borough including planned roads, road functional classifications, and primary intersection points.

Figure 16. OS&HP Vicinity Map



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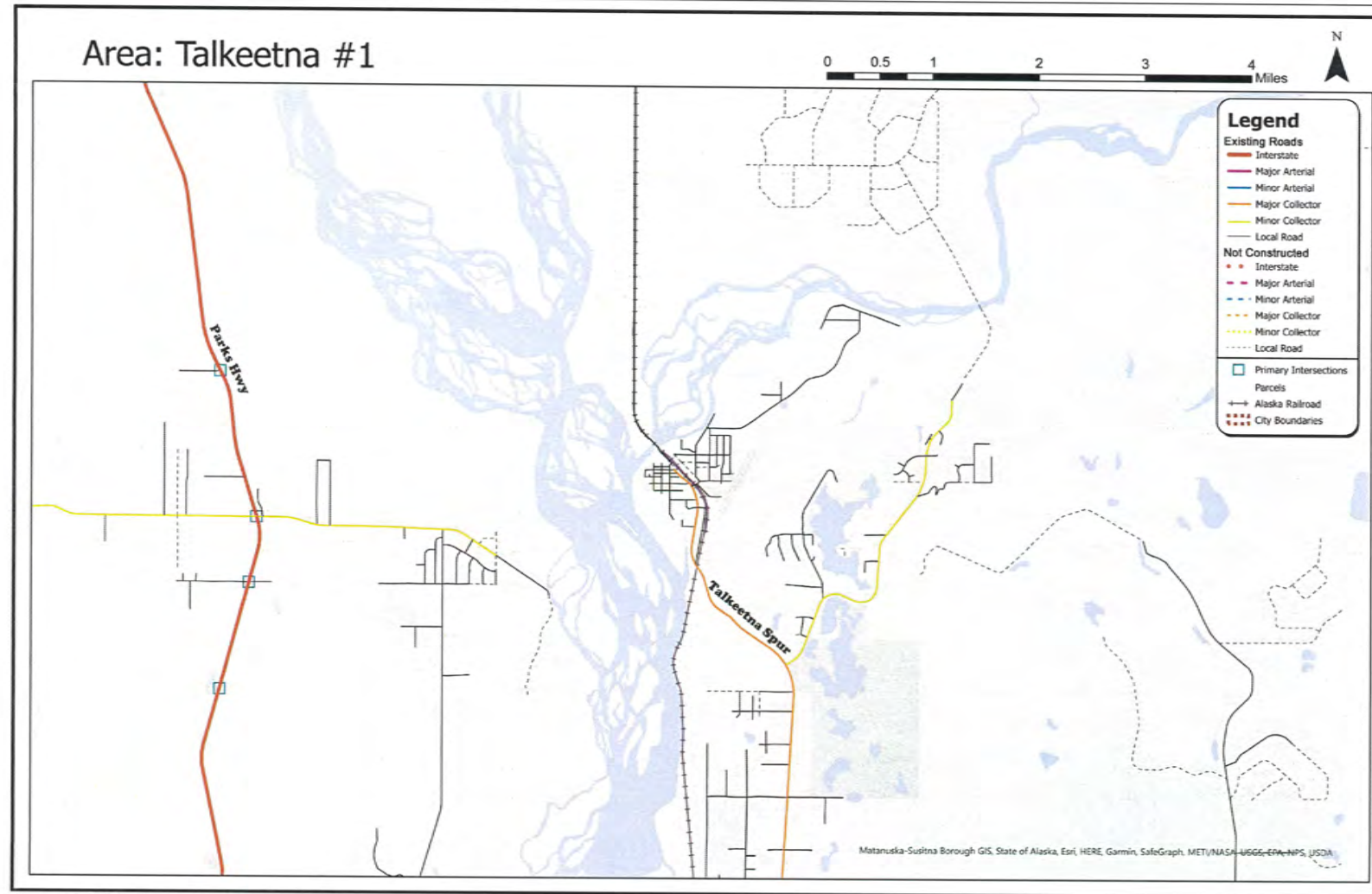


Figure 17. OS&HP Map 1 – Talkeetna North

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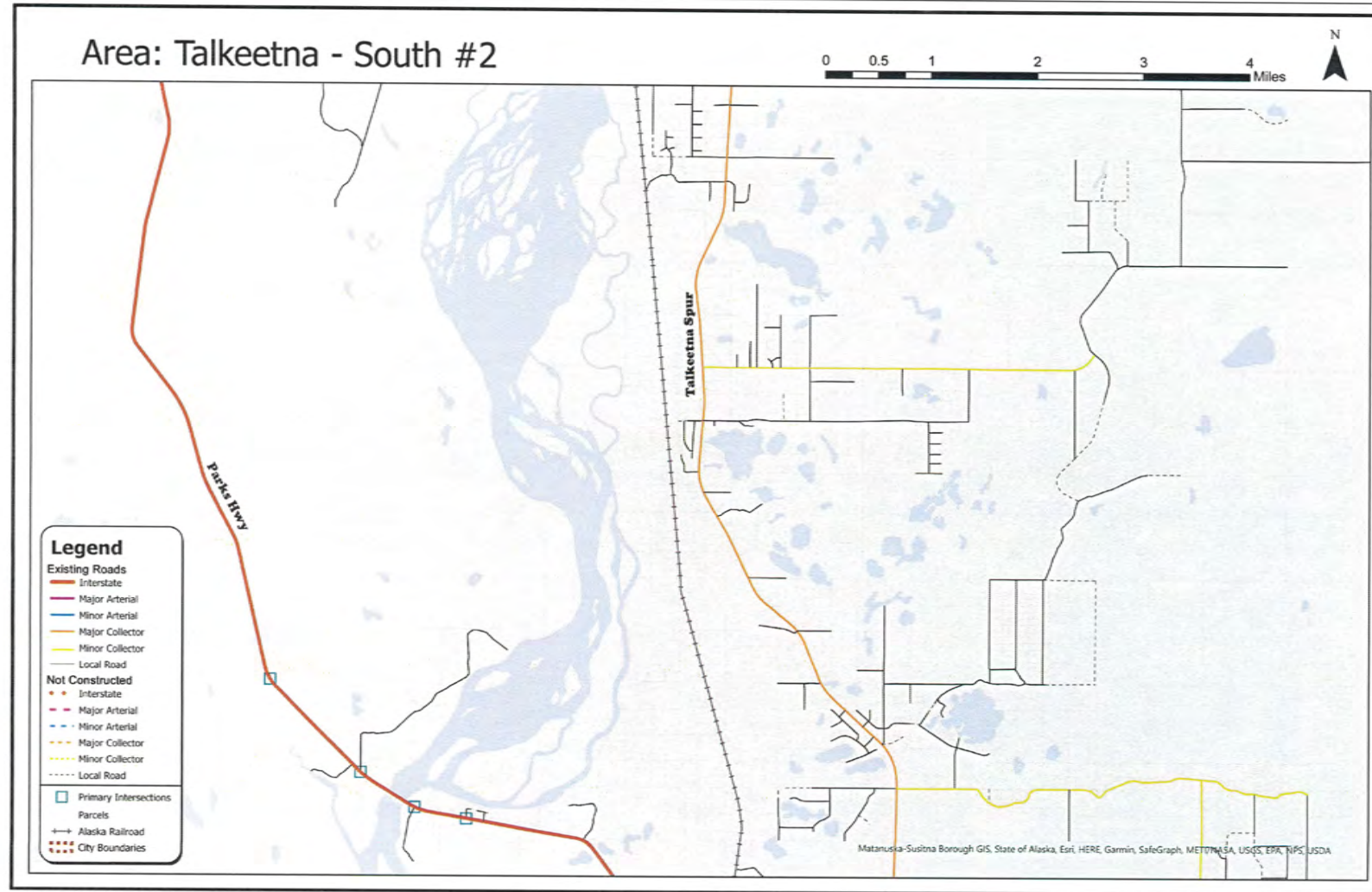


Figure 18. OS&HP Map 2 – Talkeetna South

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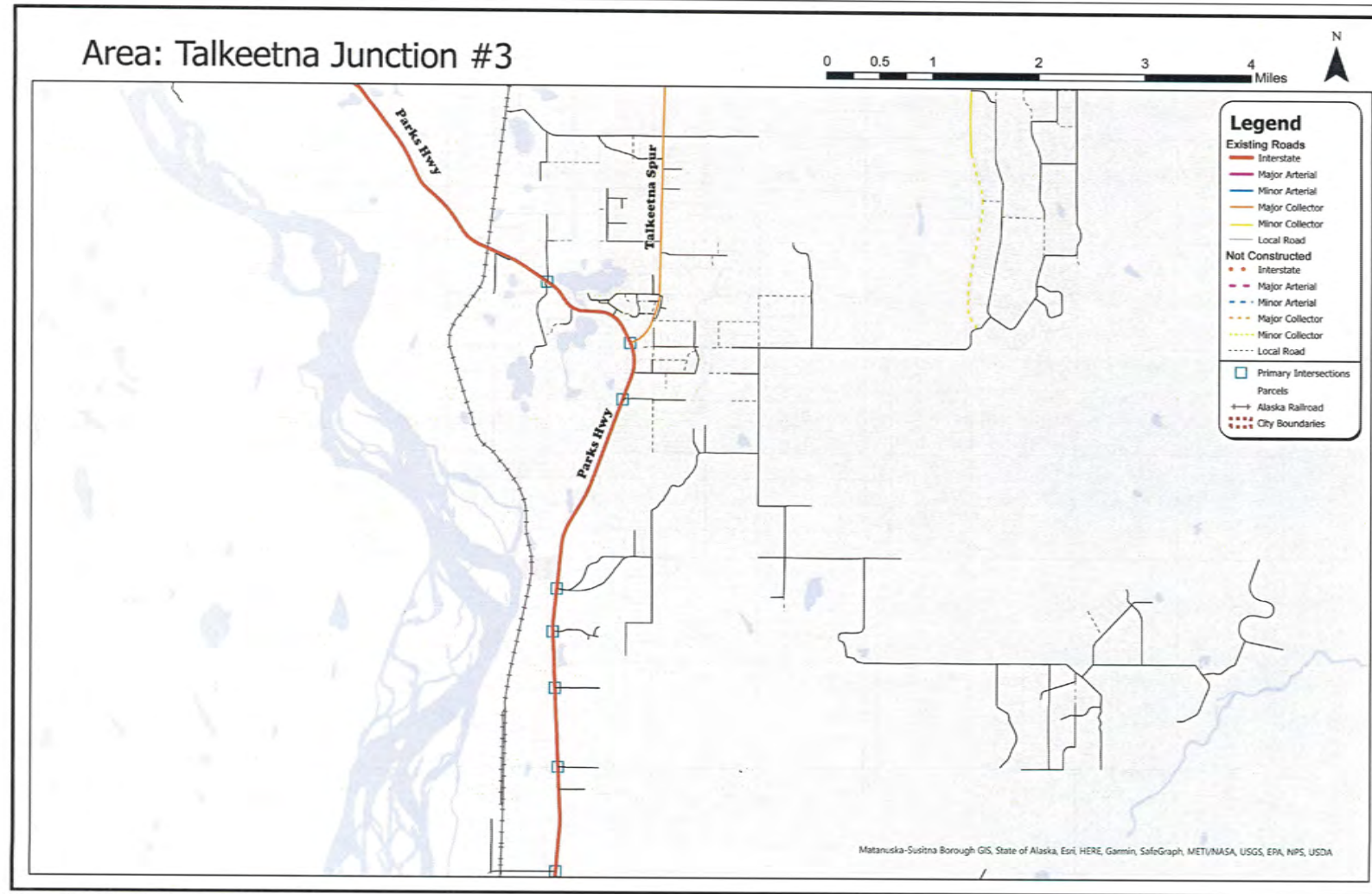


Figure 19. OS&HP Map 3 – Talkeetna Junction

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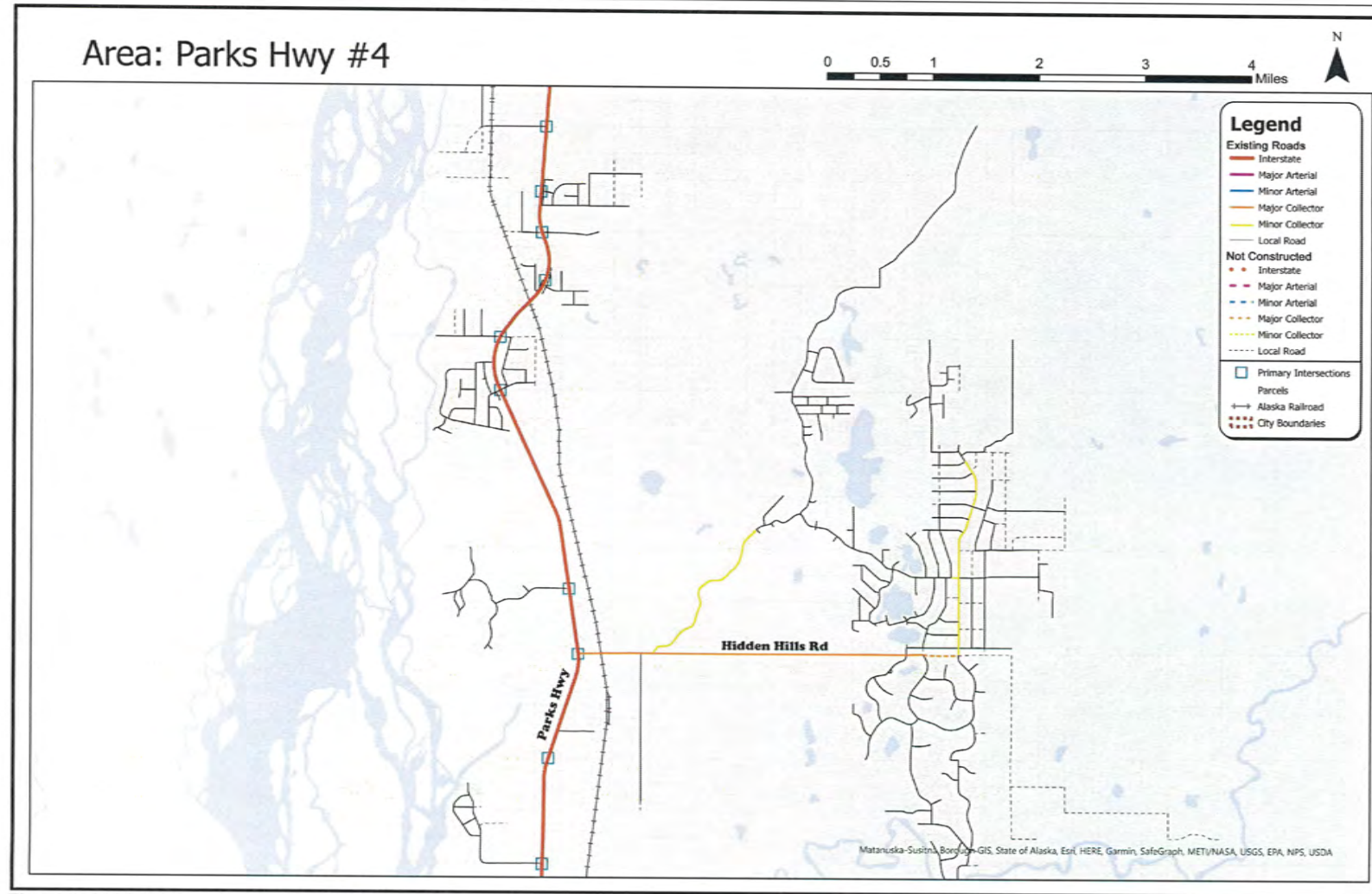


Figure 20. OS&HP Map 4 – Parks Hwy (Hidden Hills Rd)

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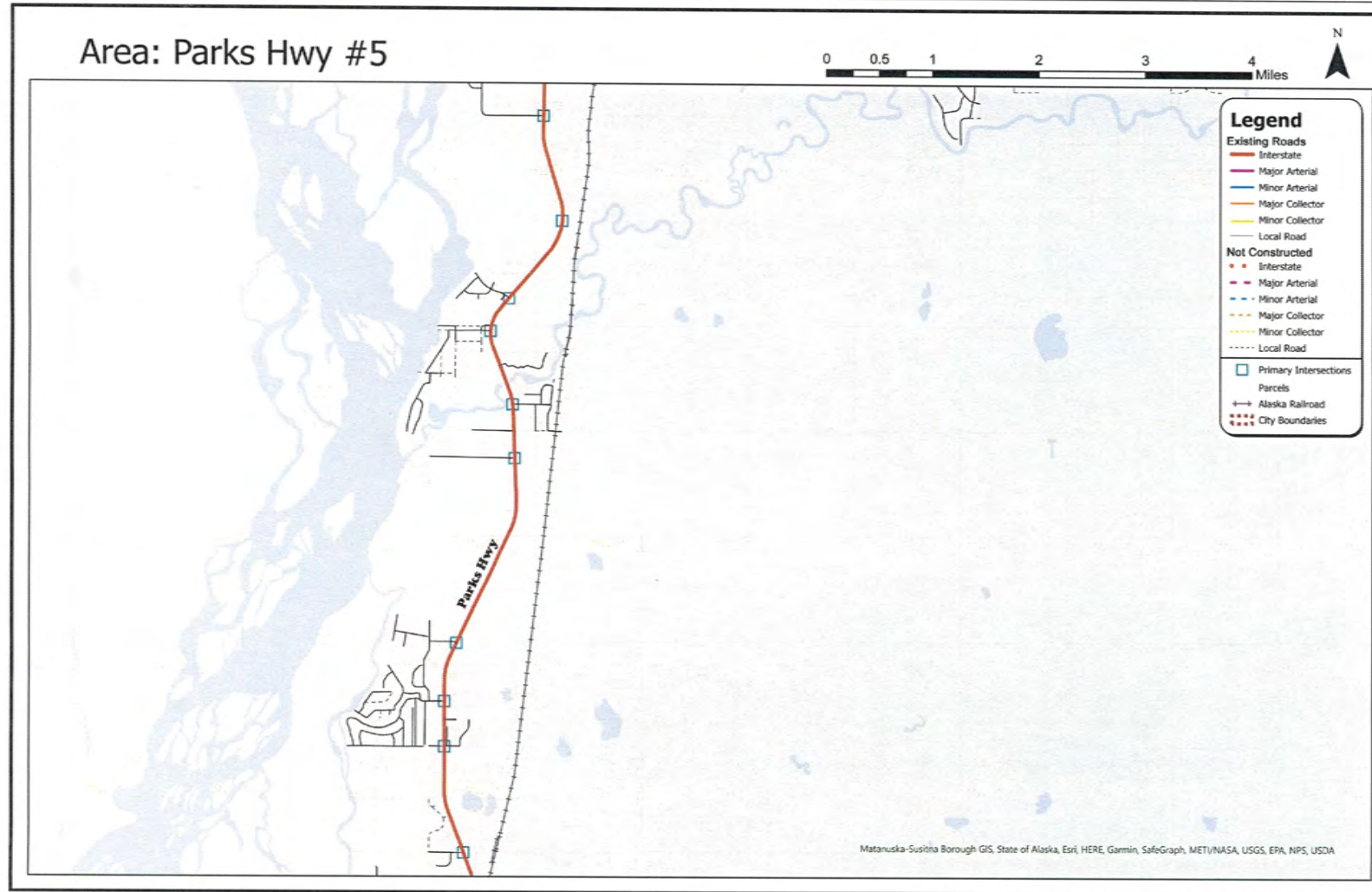


Figure 21. OS&HP Map 5 – Parks Hwy (Yancey Dr)

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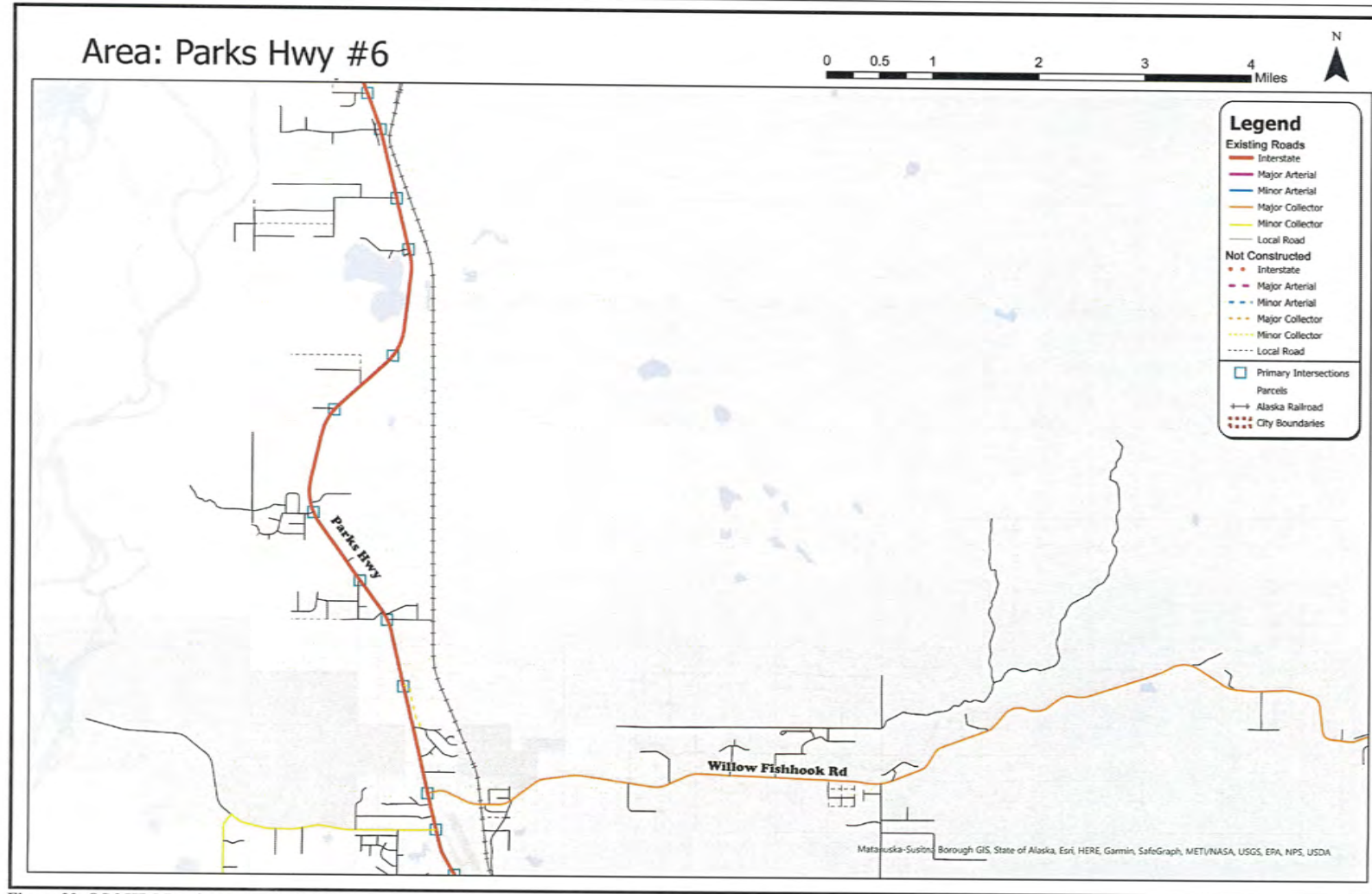


Figure 22. OS&HP Map 6 – Parks Hwy (Willow Fishhook Rd)

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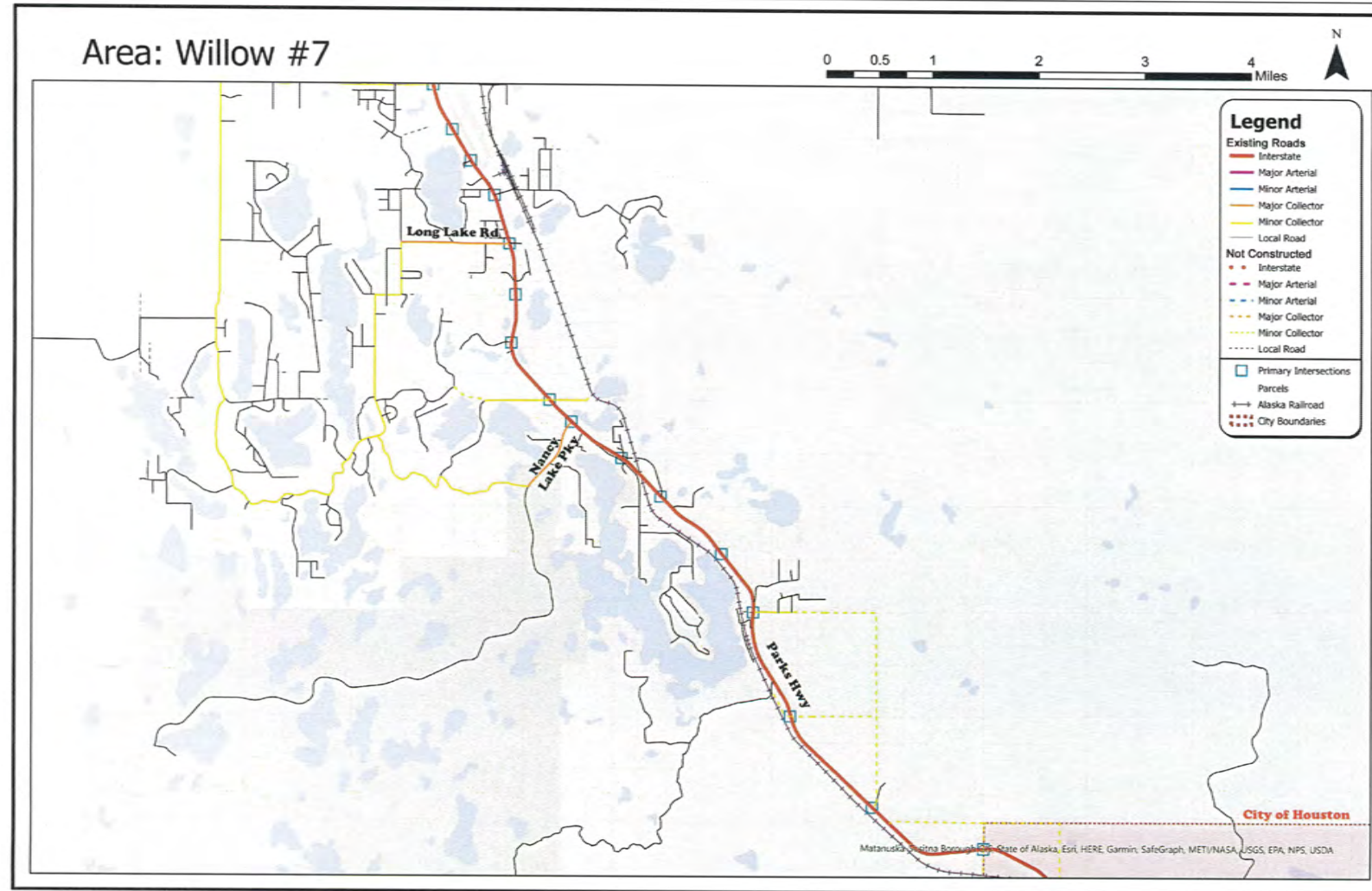


Figure 23. OS&HP Map 7 – Parks Hwy (Long Lake Rd)

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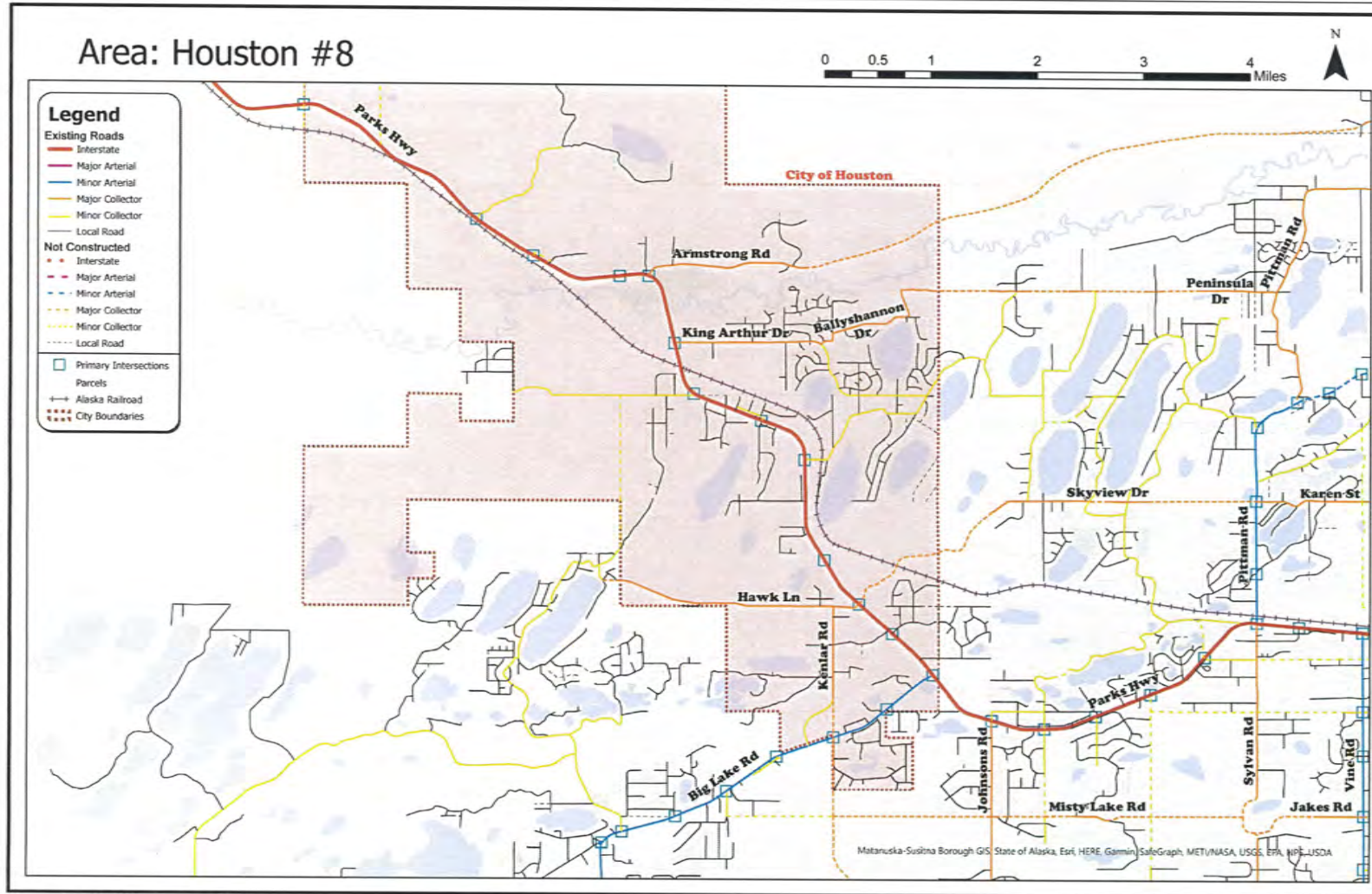


Figure 24. OS&HP Map 8 – Houston

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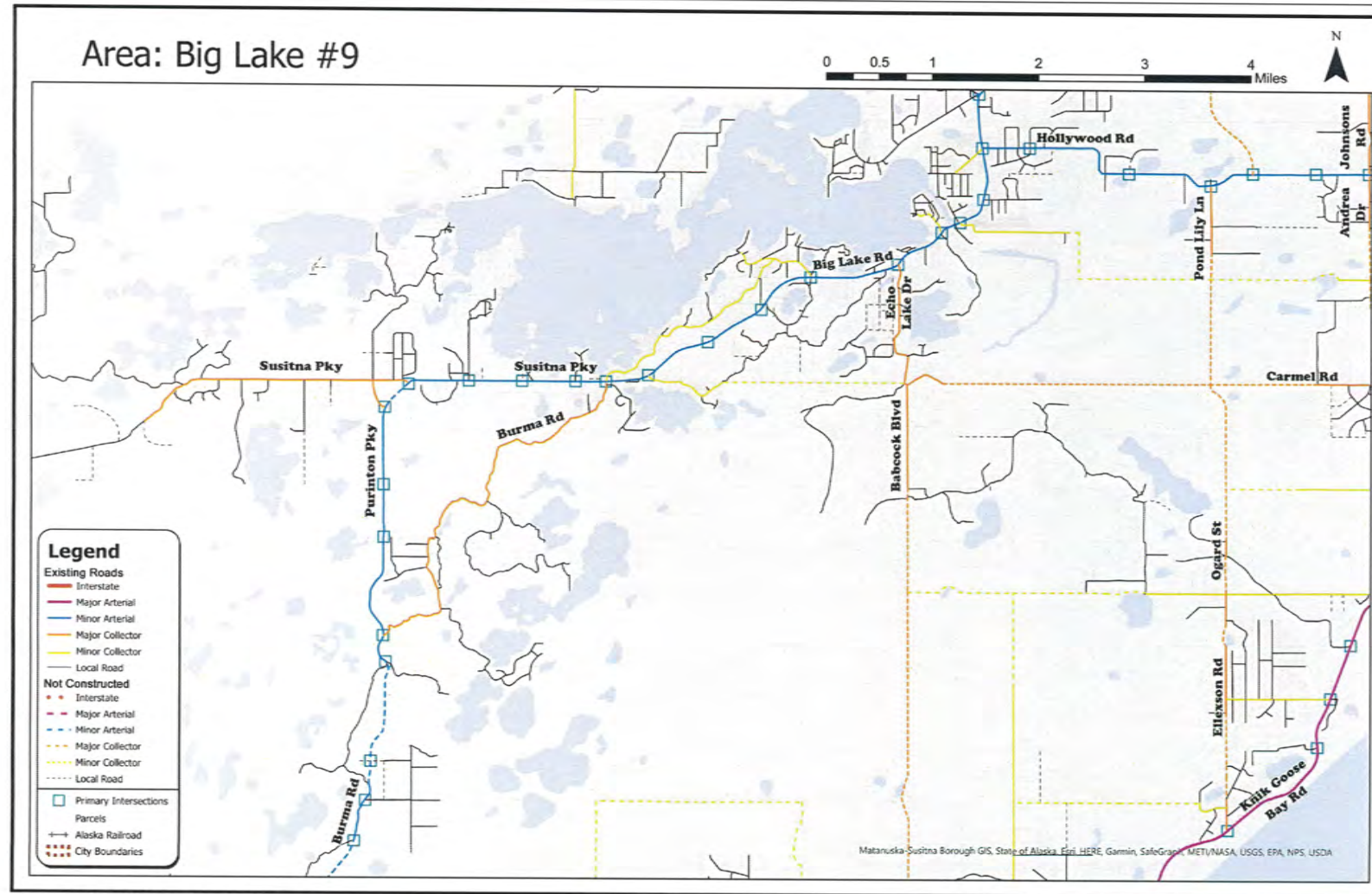


Figure 25. OS&HP Map 9 – Big Lake

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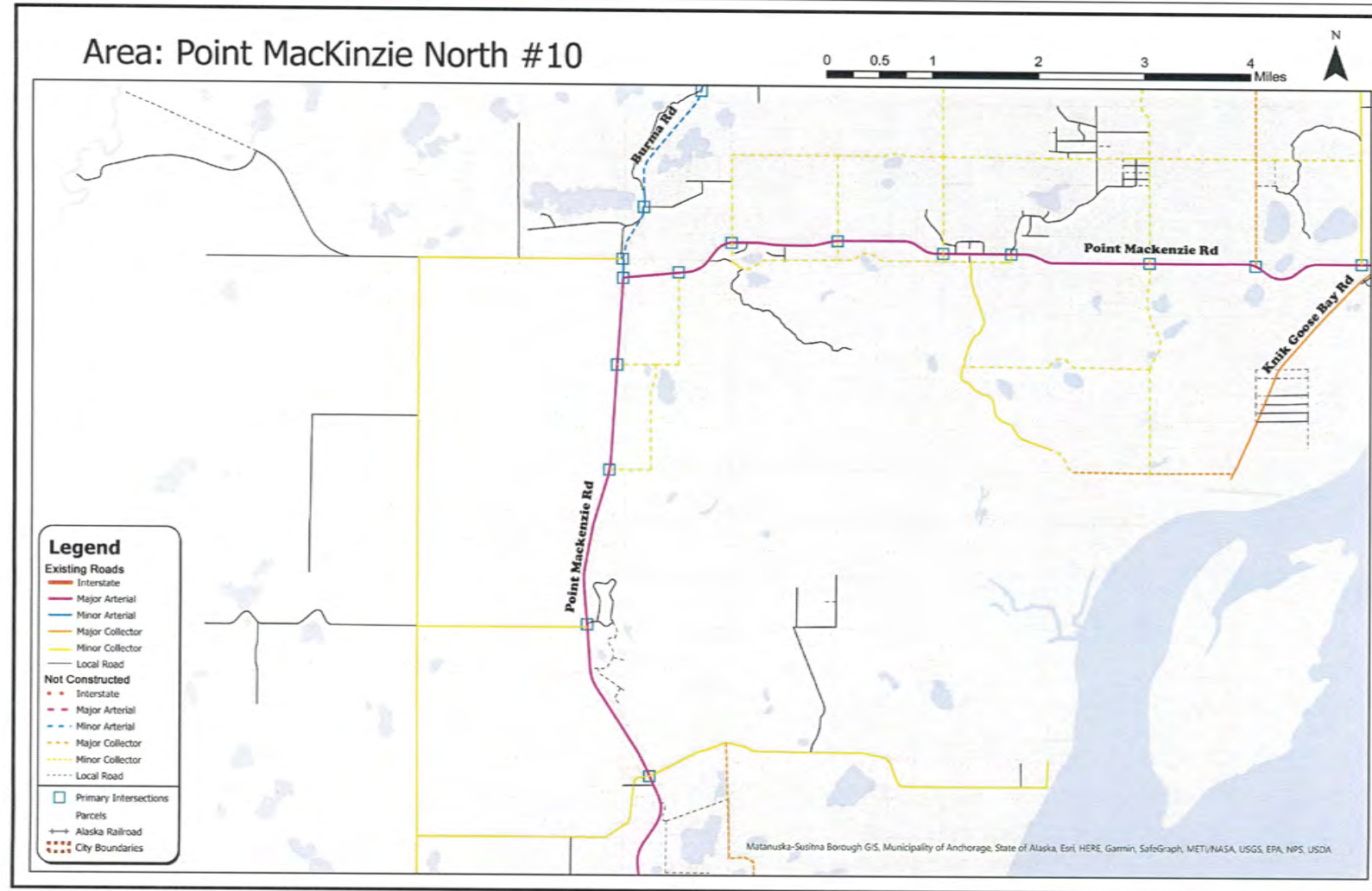


Figure 26. OS&HP Map 10 – Point MacKenzie North

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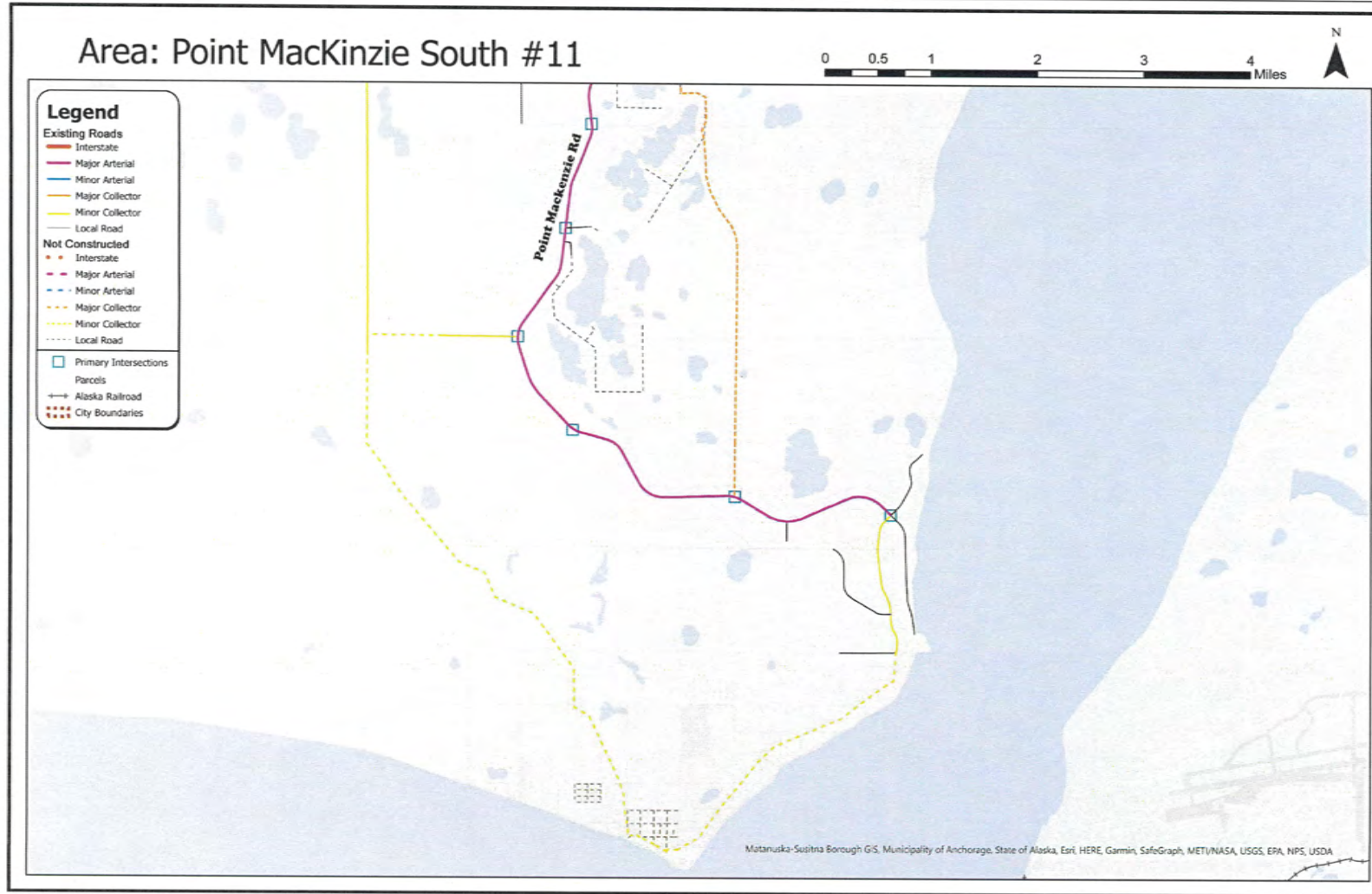


Figure 27. OS&HP Map 11 – Point MacKenzie South

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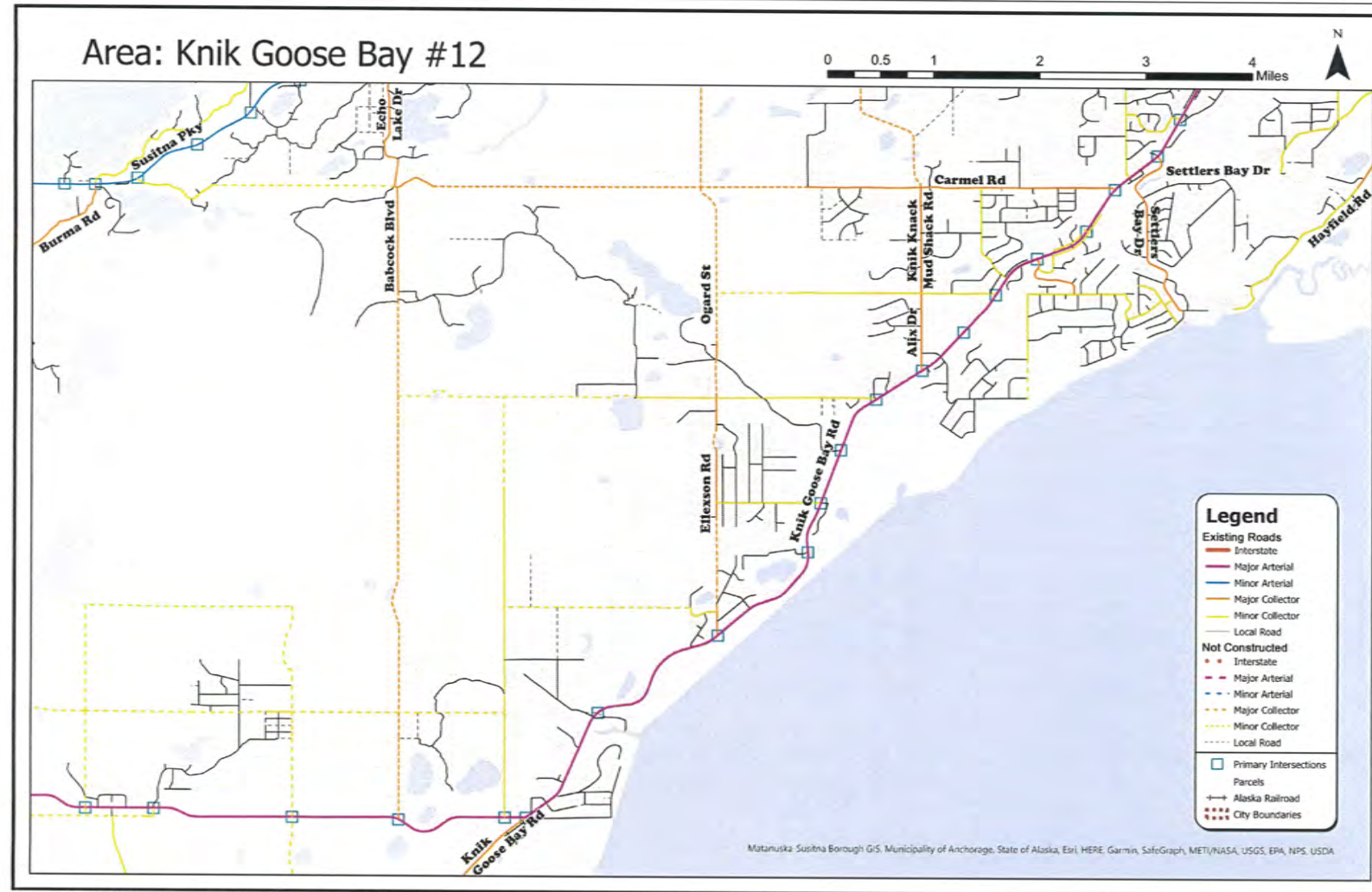


Figure 28. OS&HP Map 12 – Knik-Goose Bay Rd South

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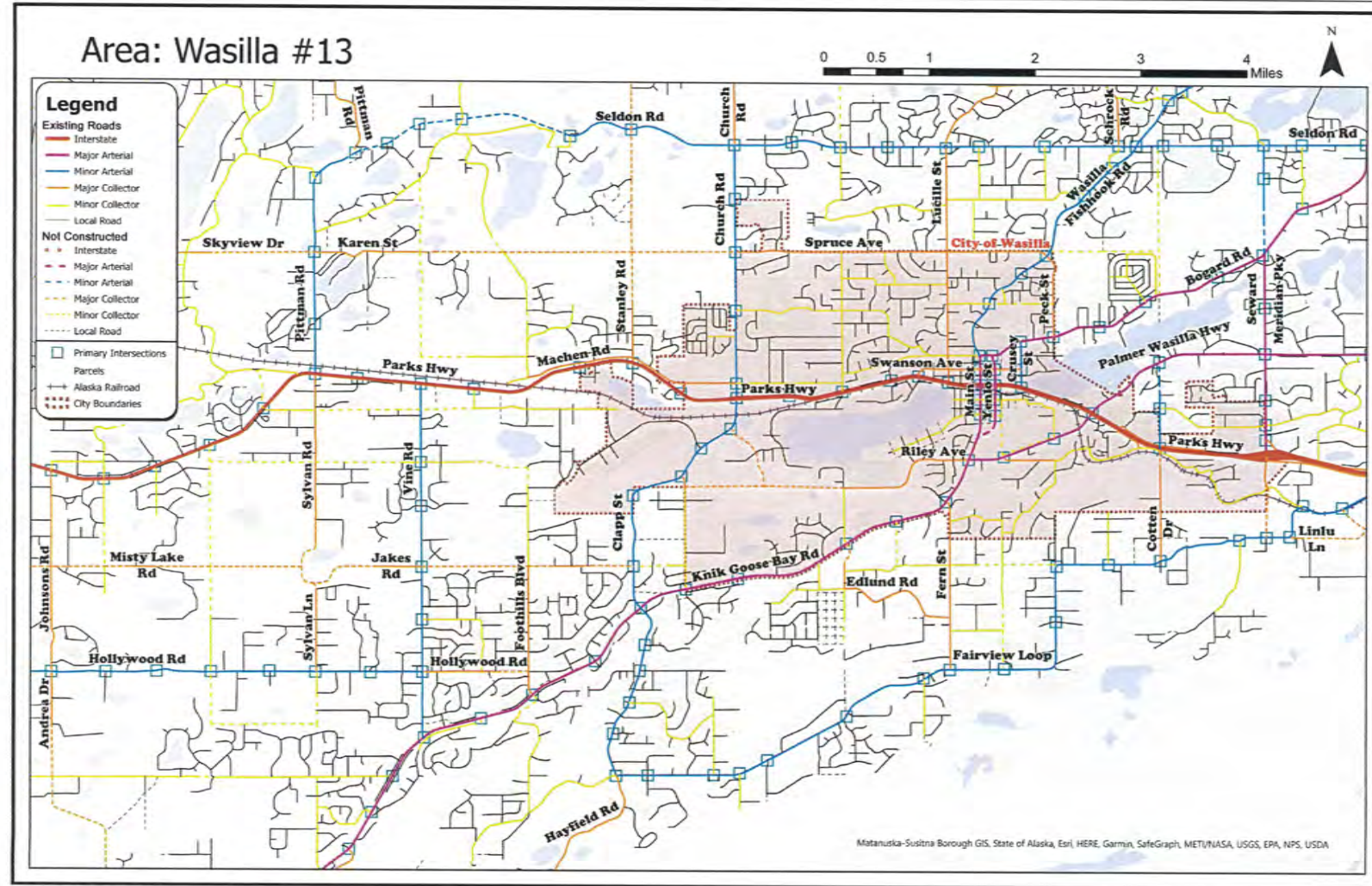


Figure 29. OS&HP Map 13 – Wasilla

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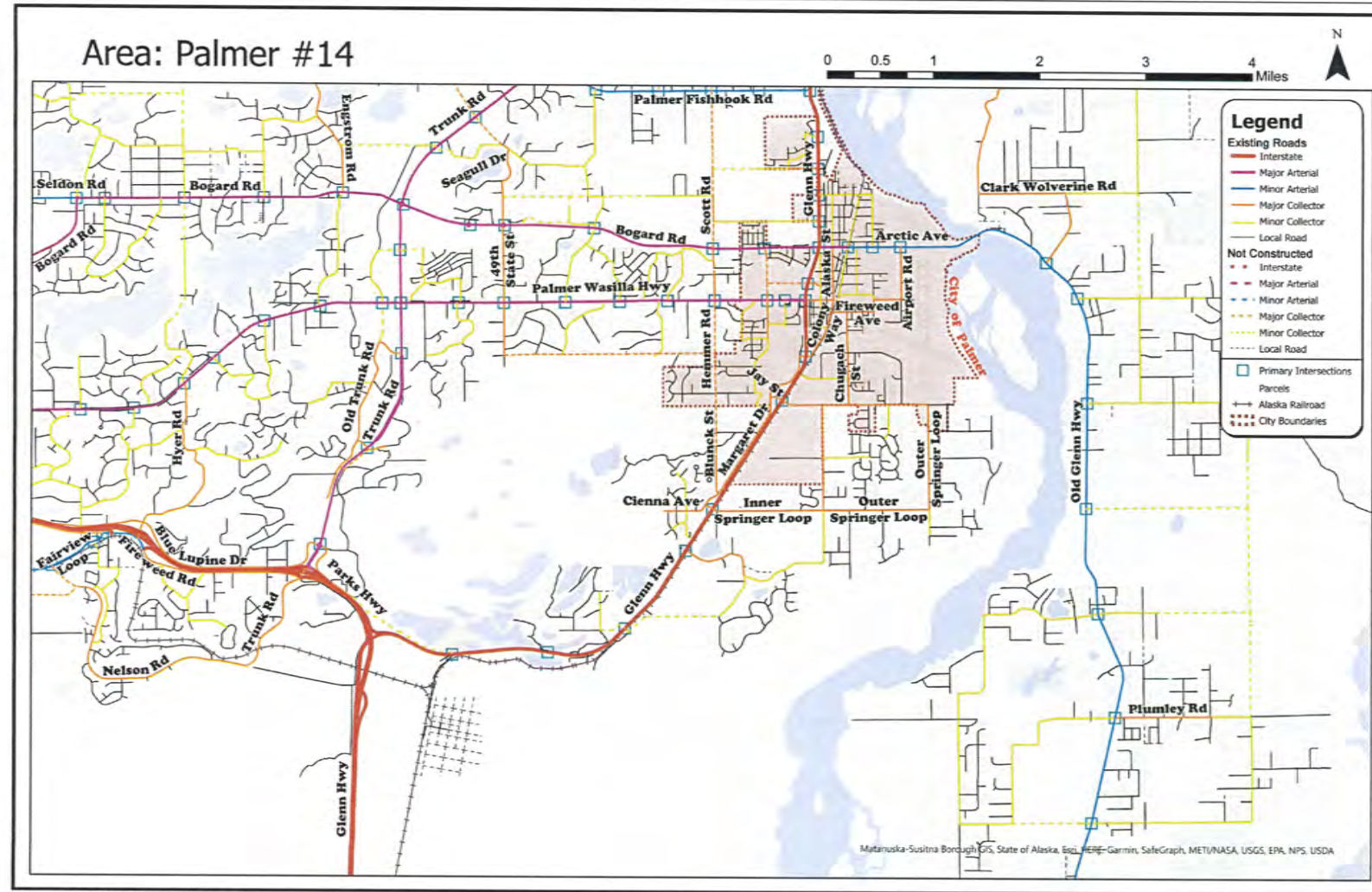


Figure 30. OS&HP Map 14 – Palmer

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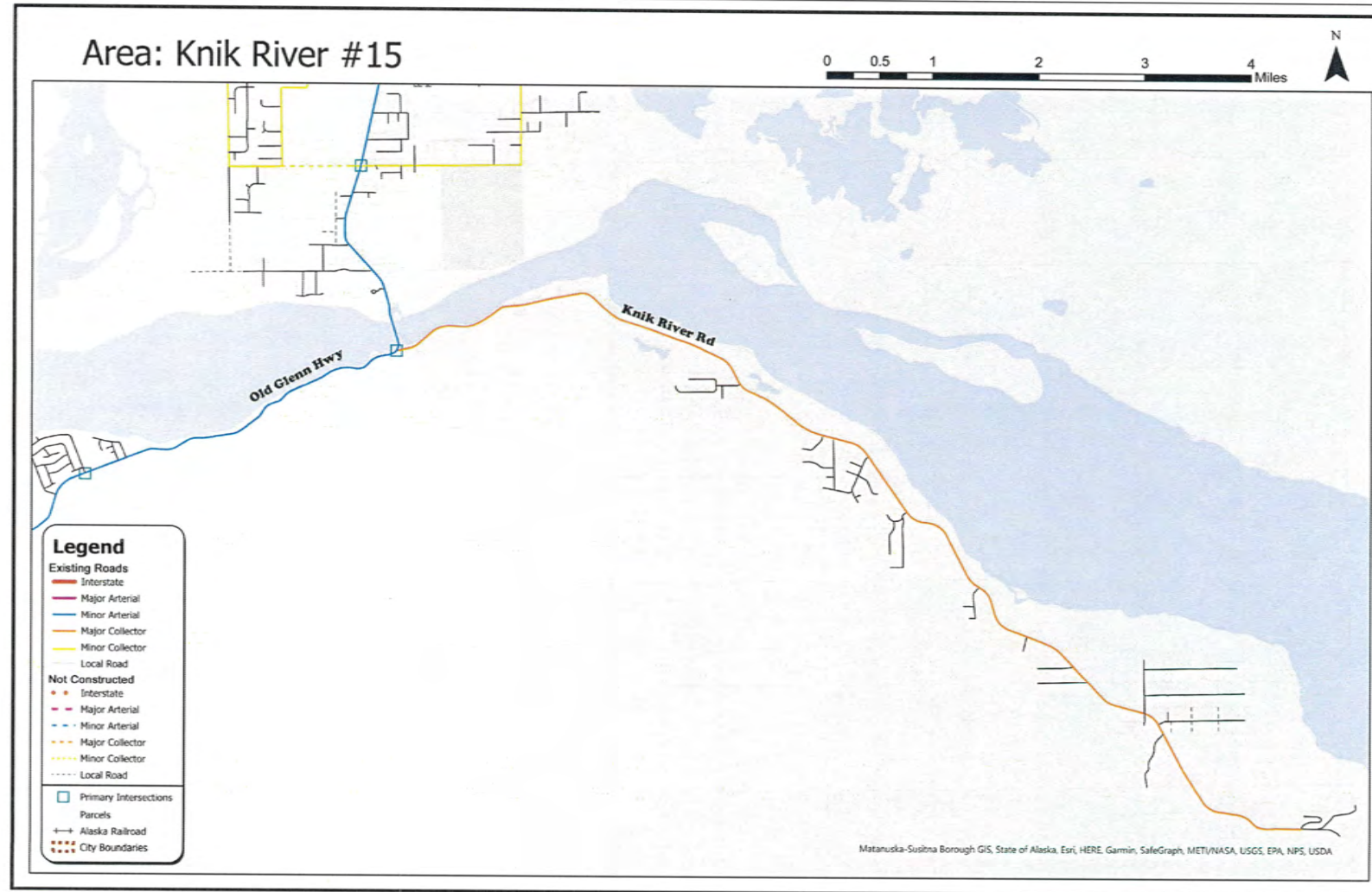


Figure 31. OS&HP Map 15 – Knik River Rd

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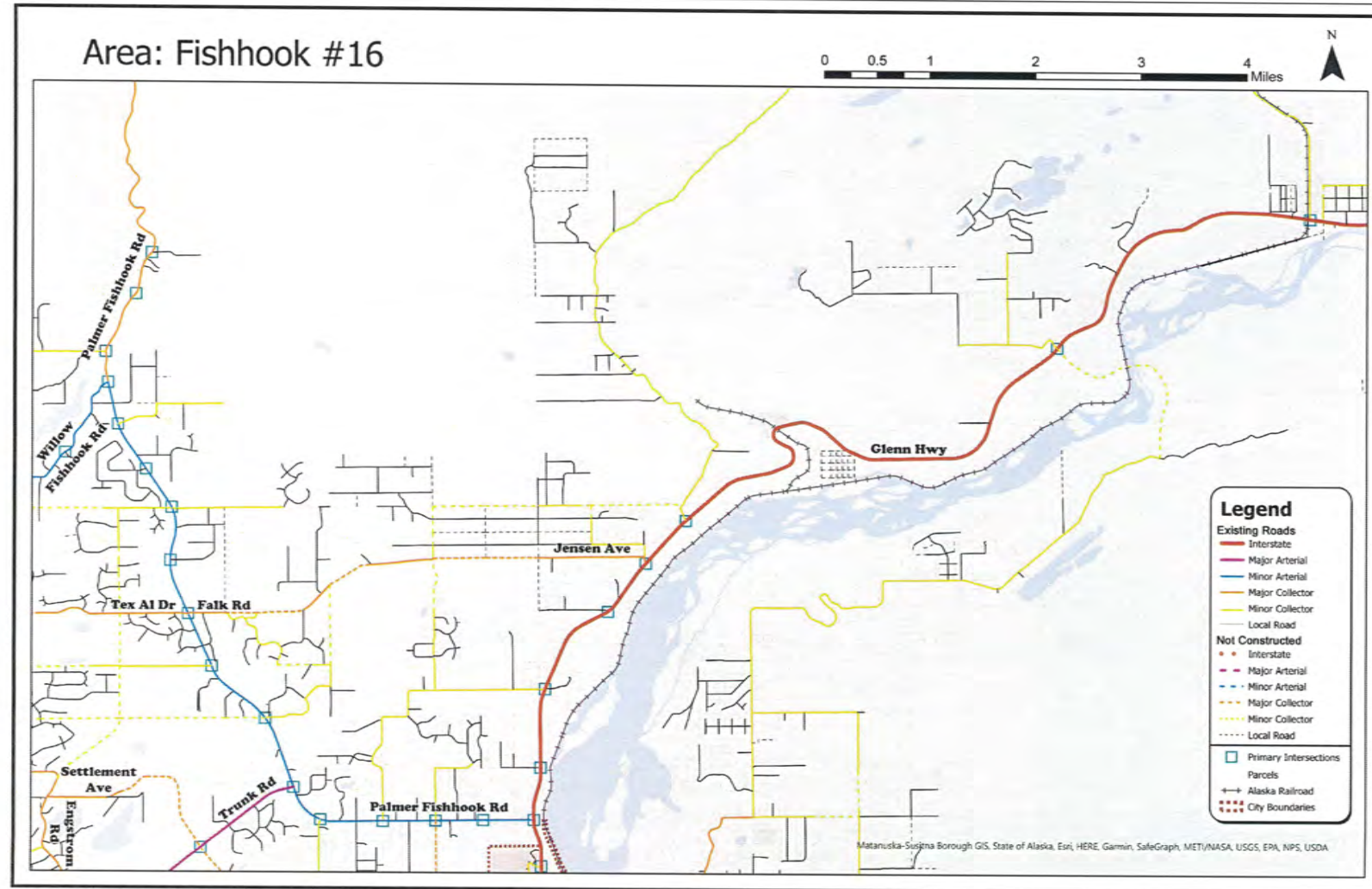


Figure 32. OS&HP Map 16 – Palmer Fishhook Rd

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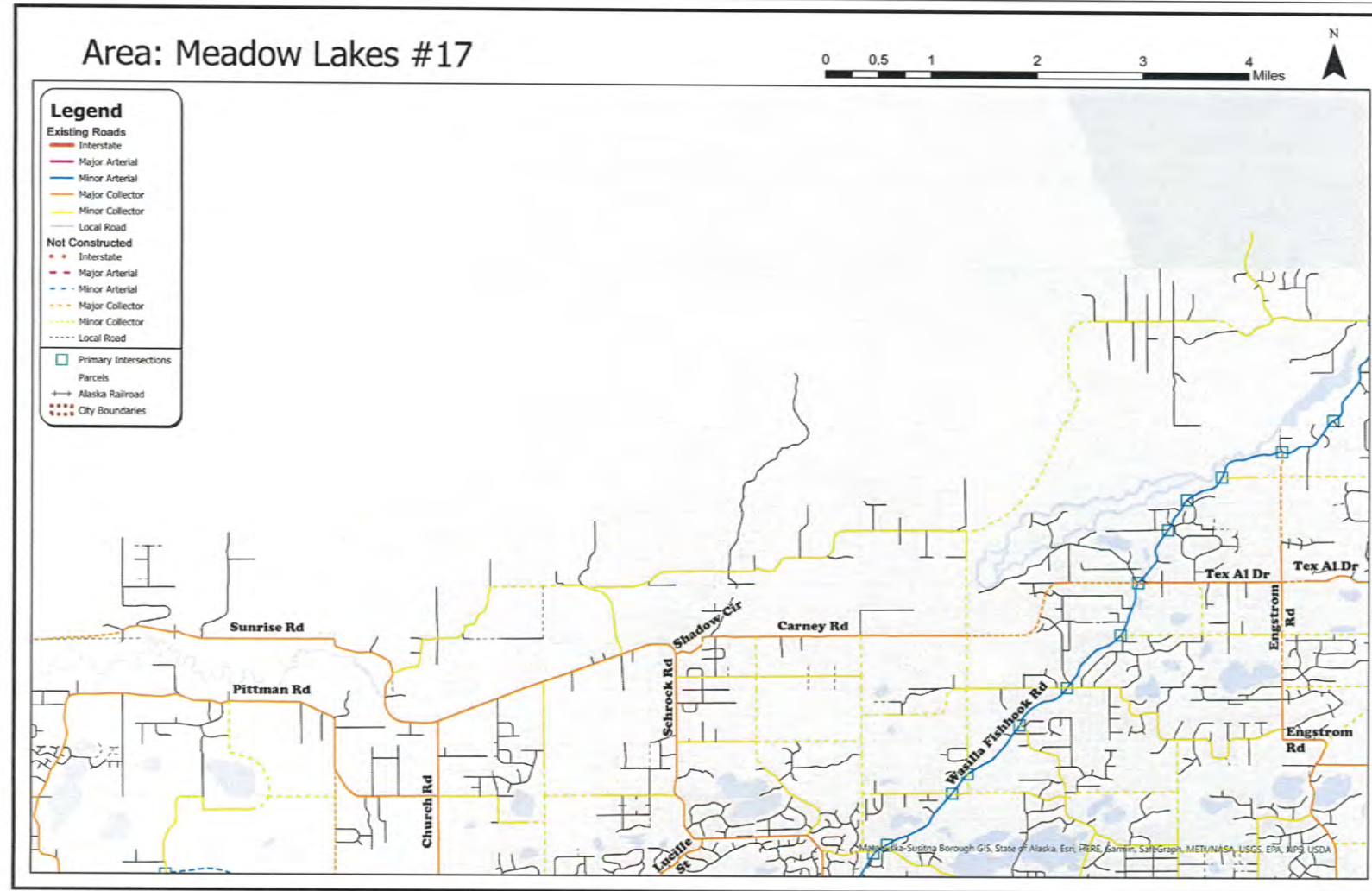


Figure 33. OS&HP Map 17 – Wasilla Fishhook Rd

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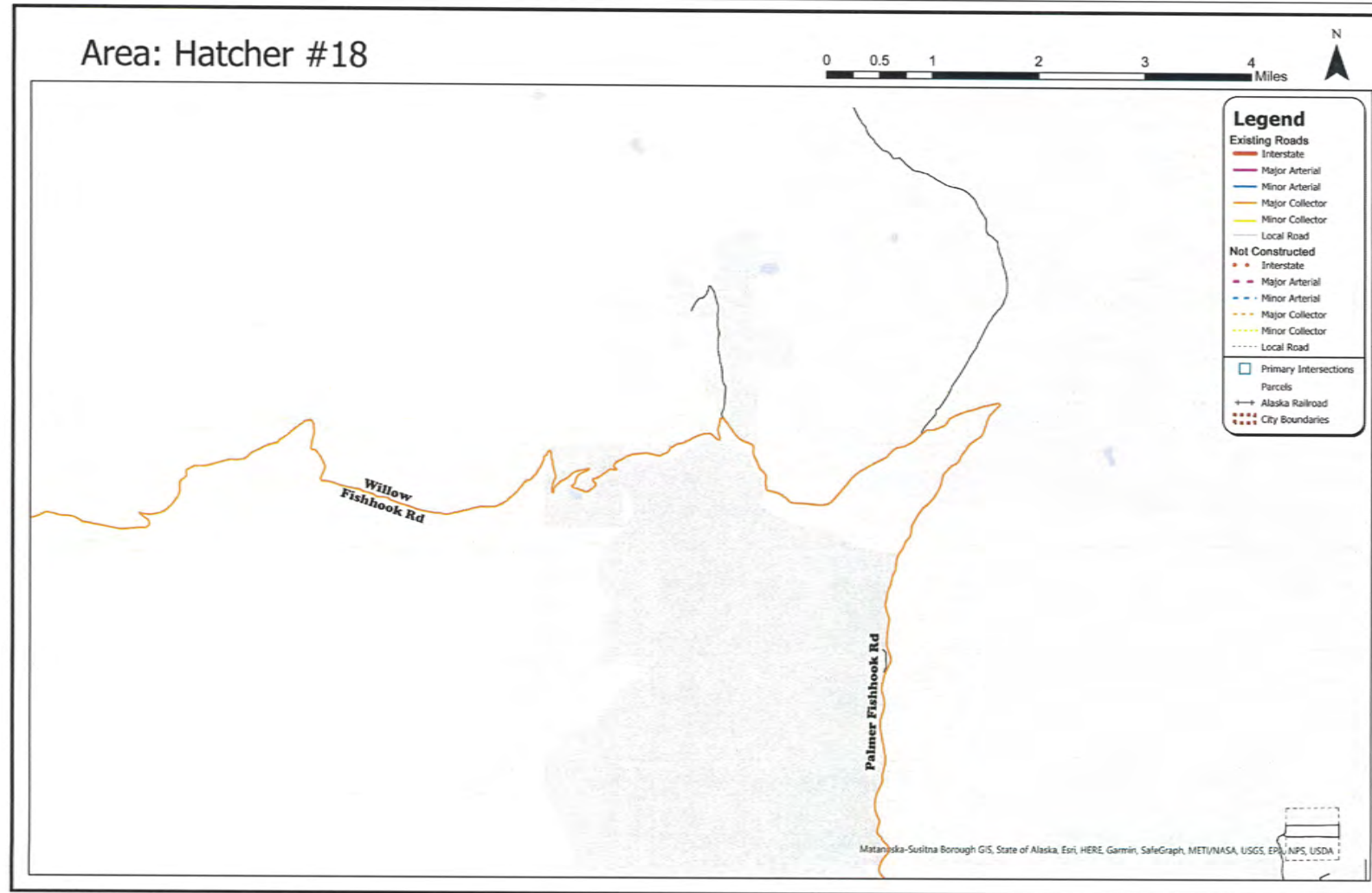


Figure 34. OS&HP Map 18 – Hatcher Pass

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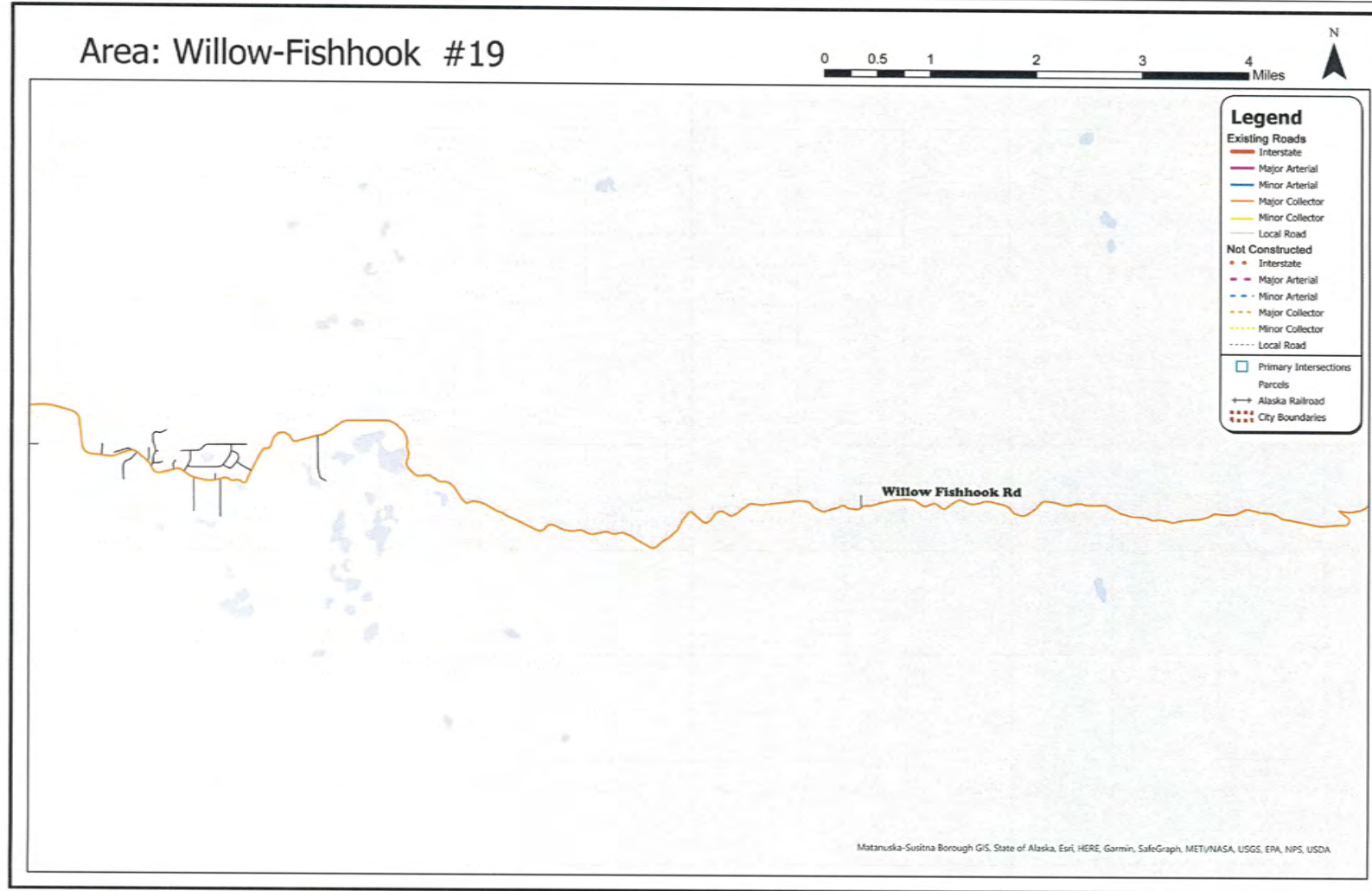


Figure 35. OS&HP Map 19 – Willow Fishhook Rd

6B

STAFF REVIEW AND RECOMMENDATIONS
PUBLIC HEARING
JUNE 2, 2022

PRELIMINARY PLAT: SHADOWRIDGE

LEGAL DESCRIPTION: SEC 32 & 33, T20N, R04W, SEWARD MERIDIAN AK

PETITIONERS/OWNER: HANSON LAND SOLUTIONS/6R DEVELOPMENT GROUP LLC

SURVEYOR: HANSON LAND SOLUTIONS

ACRES: 68.61 ± PARCELS: 7

REVIEWED BY: KIMBERLY MCCLURE CASE #: 2022-052

REQUEST: The request is to create 7 lots from Units 1-17, 19 and Tract A, Lakebridge, Plat No. 2021-106, a condominium plat, to be known as **SHADOWRIDGE**, containing 68.61 acres +/- . The plat is located north of Finger Lake, south of Finger Lake Elementary School and directly west and east of N. Ridgewater Street; within Sections 32 & 33, Township 18 North, Range 01 East, Seward Meridian, Alaska. Petitioner is applying for a variance from MSB 43.20.140(A)(1), as N. Ridgewater Street does not have the 100 foot tangent between curves specified in the Subdivision Construction Manual.

Staff requests continuation to the June 16, 2022 Platting Board to allow petitioner adequate time to provide additional required information.

EXHIBITS

Vicinity Map
Public Comments

EXHIBIT A – 1 pg
EXHIBIT B – 1 pg



Kimberly McClure

From: Adam Imperato <a_imperato@icloud.com>
Sent: Friday, May 13, 2022 10:08 AM
To: MSB Platting
Subject: Shadow ridge

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

To whom it may concern,

I have an objection to the shadow ridge subdivision. As a person who lives in Ridgewater coves I can't see the bridge or road being able to take all this traffic. If you didn't know the road isn't borough maintained so the expenses for the road will go way up. Also the bridge is already starting to have some wear and tear from the other subdivision that went in. The road isn't wide enough for the construction traffic, it's near impossible to get past them even just walking past. My other concern is the impact on the wildlife especially with cottonwood creek being a salmon spawning creek. Since the new subdivision went in there have been more moose walking around fingerlake elementary.

Speaking of the elementary school there is a big berm that is near the stop sign at Ridgewater rd and Eek that make it impossible to see traffic inc coming from earl and kids walking to school. I have watched people almost hit kids in the morning because they couldn't see them.

Fingerlake is already stuffed with boats and this will make it even worse specially since this will be built on the last unoccupied cove on the lake.

Also this isn't going to be a condominium plat as defined by the borough it's going to be regular subdivision just looking to skirt taxes.

I hope these points have made you realize how bad this subdivision going in will be for the area and environment.

Thanks

Adam Imperato
1897 N Lakeridge cir
Wasilla, AK 99654

Sent from my iPhone

6C

**STAFF REVIEW AND RECOMMENDATIONS
PUBLIC HEARING
JUNE 2, 2022**

PRELIMINARY PLAT: LAKEWOOD WEST END ESTATES

LEGAL DESCRIPTION: SEC 17, T17N, R01W, SEWARD MERIDIAN AK

PETITIONERS: TRUK SEDERHOLM

SURVEYOR/ENGINEER: SOUTHWEST ALASKA SURVEYING

ACRES: 30.03 ± PARCELS: 3

REVIEWED BY: MATTHEW GODDARD CASE #: 2022-049

REQUEST: The request is to create three lots from Tract 1, Waiver # 97-5-PWm to be known as **LAKEWOOD WEST END ESTATES**, containing 30.03 acres +/- . The property is located west of E. Endeavor Street, east of S. Mack Drive and north of S. Knik-Goose Bay Road; within the SW ¼ Section 17, Township 17 North, Range 01 West, Seward Meridian, Alaska. In the City of Wasilla and in Assembly District #4.

EXHIBITS

Vicinity Map and Aerial Photos	EXHIBIT A – 6 pgs
Drainage Plan	EXHIBIT B – 1 pg
Average Daily Traffic (ADT) Calculations	EXHIBIT C – 1 pg

AGENCY COMMENTS

ADOT&PF	EXHIBIT D – 2 pgs
MSB Department of Public Works Operations & Maintenance	EXHIBIT E – 1 pg
MSB Assessments Department	EXHIBIT F – 1 pg
Utilities	EXHIBIT G – 7 pgs

DISCUSSION: The proposed subdivision is located north of S. Knik-Goose Bay Road and west of S. Lakewood Drive within the City of Wasilla. This subdivision will be creating three lots as well as dedicating and constructing a cul-de-sac to either Borough Residential Street Standards or City of Wasilla street standards, whichever is greater, at the end of S. Lakewood Drive. Lots 2 and 3 will be flag lots.

Access: Legal and physical access to the proposed lots are required pursuant to MSB 43.20.100 Access Required, MSB 43.20.120 Legal Access and MSB 43.20.140 Physical Access. Access requirements will be met once the proposed cul-de-sac is dedicated and constructed.

Soils Report: A geotechnical report not required pursuant to MSB 43.20.281(A)(1)(i)(i) as all proposed lots are greater than 400,000 square feet.

Comments:

ADOT&PF (**Exhibit D**) has no comments.

Department of Public Works Operations & Maintenance (**Exhibit E**) has no comment.

Assessments (**Exhibit F**) notes that there are two owners listed on the title.

Platting staff notes that all owners will be represented on the final Plat (see recommendation # 8).

Utilities: (**Exhibit G**) ENSTAR has no comments or recommendations. GCI has no comments or objections. MEA has submitted a newly recorded easement for the property. *Platting staff notes that all easements of record will be shown on the final Plat (see recommendation # 6).* MTA has no comments.

At the time of staff report write-up, there were no responses to the Request for Comments from AK Department of Fish & Game; US Army Corps of Engineers; City of Wasilla; Fire Service Area #130 Central Mat-Su; MSB Emergency Services, Community Development, Assessments, Planning, Pre-Design Division or Development Services.

CONCLUSION: The preliminary plat of Lakewood West End Estates is consistent with AS 29.40.070 Platting Regulations and MSB 43.15.016 Preliminary Plats. There were no objections from any federal or state agencies, Borough departments, or utilities. There were no objections to the plat from the public in response to the Notice of Public Hearing. Legal and physical access will exist to the proposed lots, consistent with MSB 43.20.100 Access Required, MSB 43.20.120 Legal Access and MSB 43.20.140 Physical Access. Frontage for the subdivision will exist, pursuant to MSB 43.20.320 Frontage. A soils report was not required pursuant to MSB 43.20.281(A)(1)(i)(i).

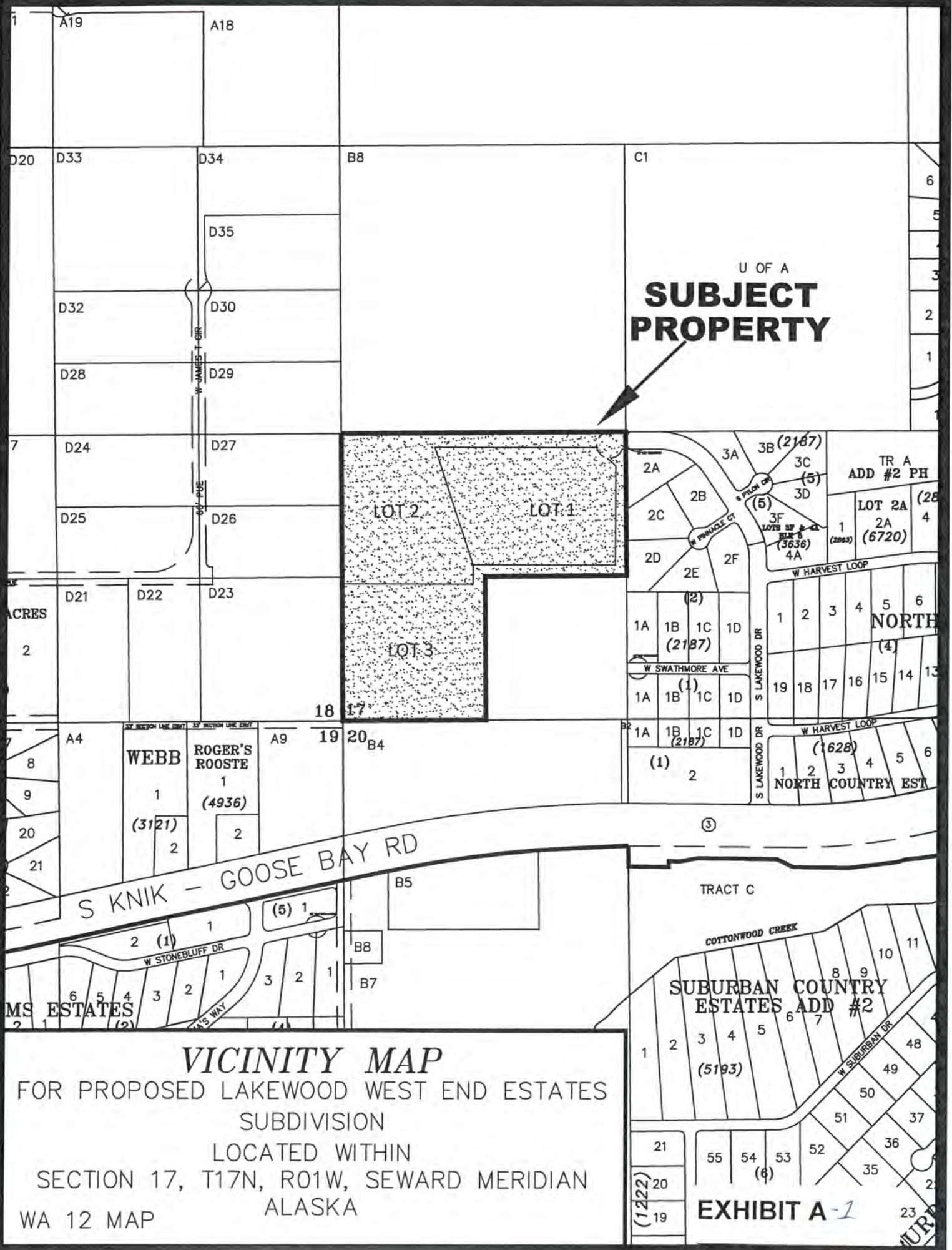
FINDINGS OF FACT

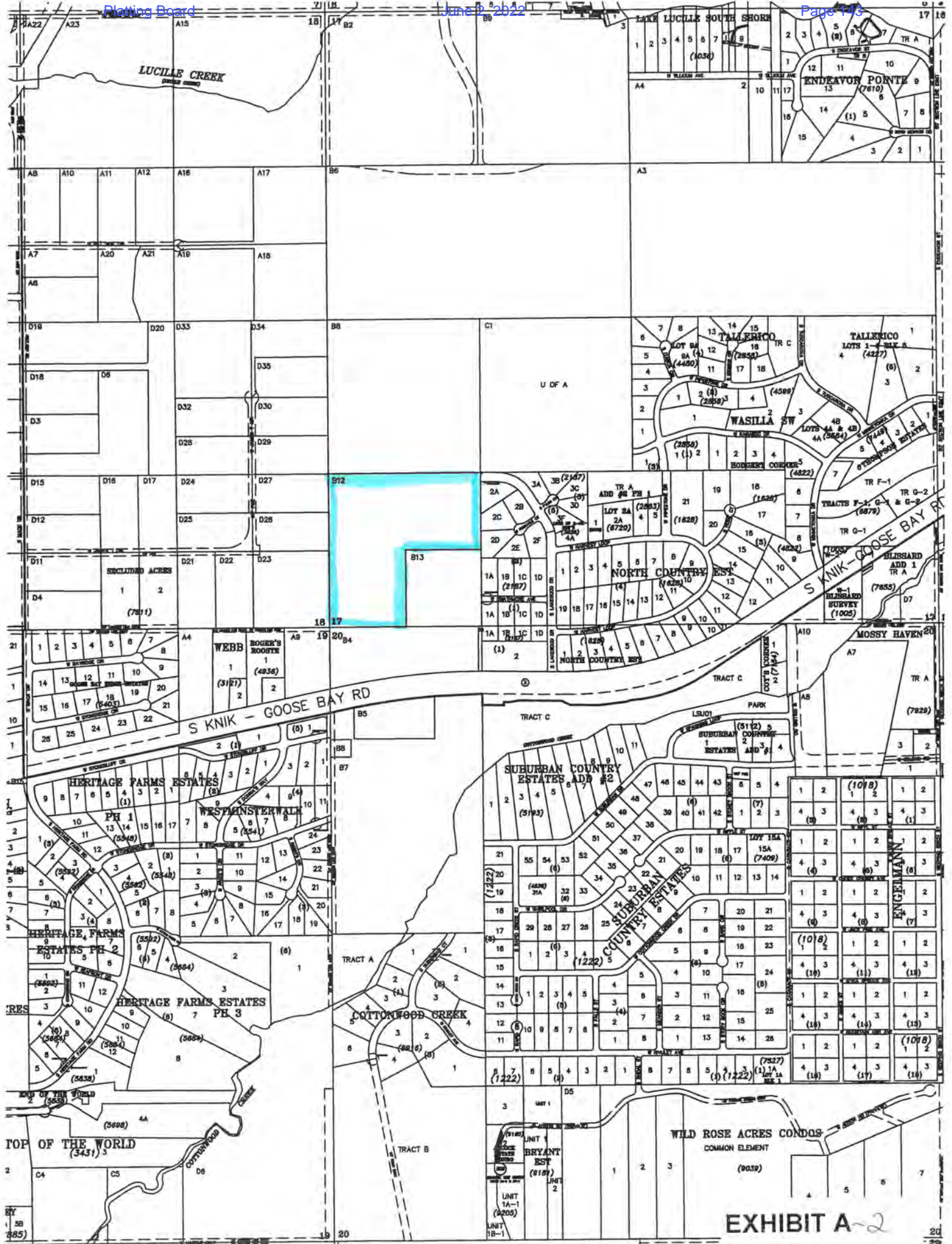
1. The plat of Lakewood West End Estates is consistent with AS 29.40.070 Platting Regulations and MSB 43.15.016 Preliminary Plats.
2. A soils report was not required pursuant to MSB 43.20.281(A)(1)(i)(i).
3. All lots will have the required frontage pursuant to MSB 43.20.320 Frontage.
4. All lots will have the required legal and physical access pursuant to MSB 43.20.120 Legal Access and MSB 43.20.140 Physical Access.
5. At the time of staff report write-up, there were no responses to the Request for Comments from AK Department of Fish & Game; US Army Corps of Engineers; City of Wasilla; Fire Service Area #130 Central Mat-Su; MSB Emergency Services, Community Development, Assessments, Planning, Pre-Design Division or Development Services.
6. At the time of staff report write-up there were no objections from any federal or state agencies, Borough departments, or utilities.
7. At the time of staff report write-up there were no objections from the public in response to the Notice of Public Hearing.

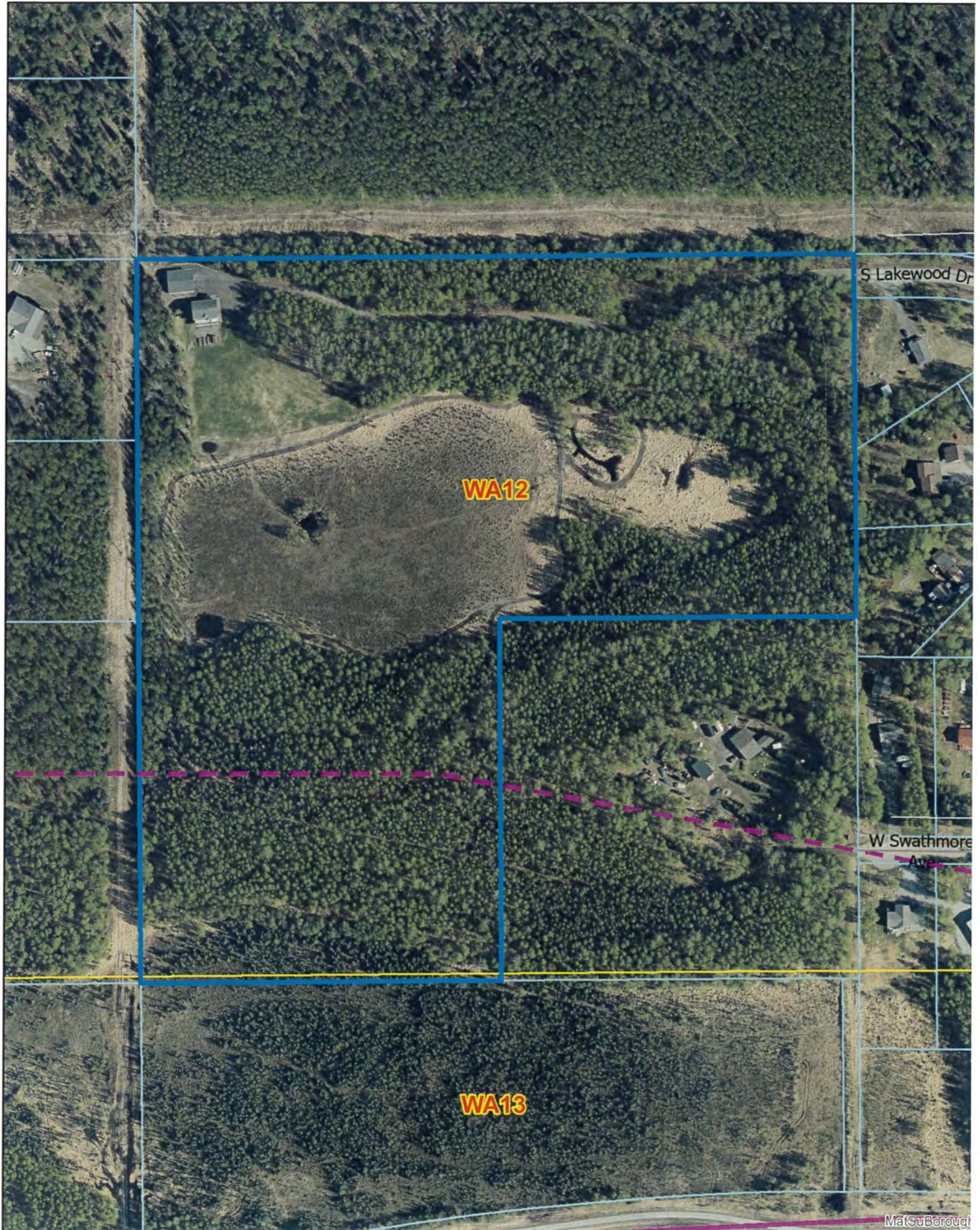
RECOMMENDATIONS OF CONDITIONS OF APPROVAL

Suggested motion: I move to approve the preliminary plat of Lakewood West End Estates, Section 17, Township 17 North, Range 01 West, Seward Meridian, Alaska, contingent on staff recommendations

1. Taxes and special assessments must be paid in full for the year of recording, pursuant to MSB 43.15.053(F) and AS 40.15.020. Pay taxes and special assessments (LIDs), by CERTIFIED FUNDS OR CASH.
2. Provide updated Certificate to Plat executed within seven (7) days of recording of plat and submit Beneficiary Affidavit for any holders of a beneficial interest.
3. Pay postage and advertising fees.
4. Obtain a Land Use Permit for Subdivision from City of Wasilla.
5. Construct interior cul-de-sac to MSB residential street standards or City of Wasilla street standards, whichever is greater. Obtain City of Wasilla Public Works Department road sign off.
6. Show all easements of record on final plat.
7. Submit recording fees, payable to Department of Natural Resources (DNR).
8. Submit plat in full compliance with Title 43.



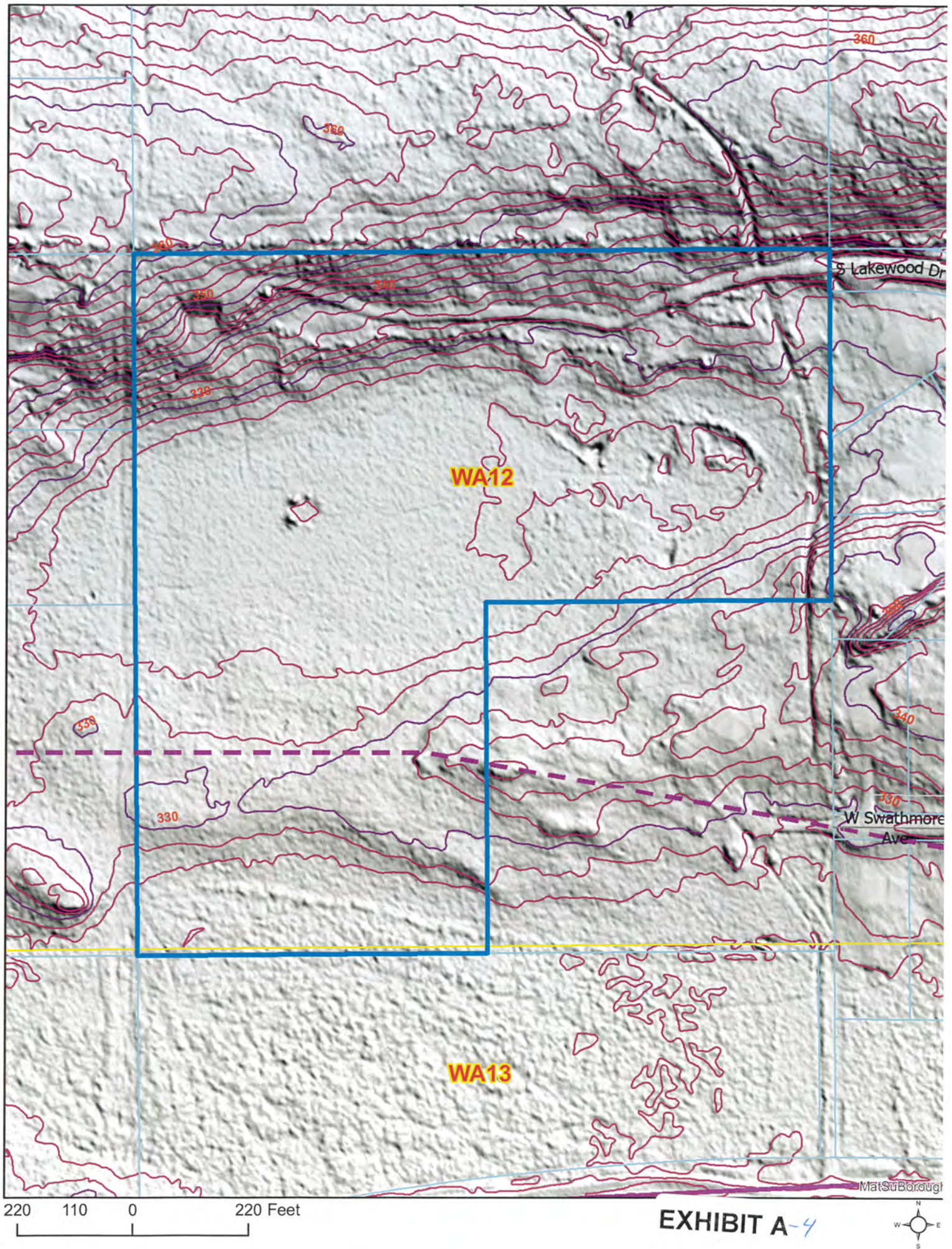


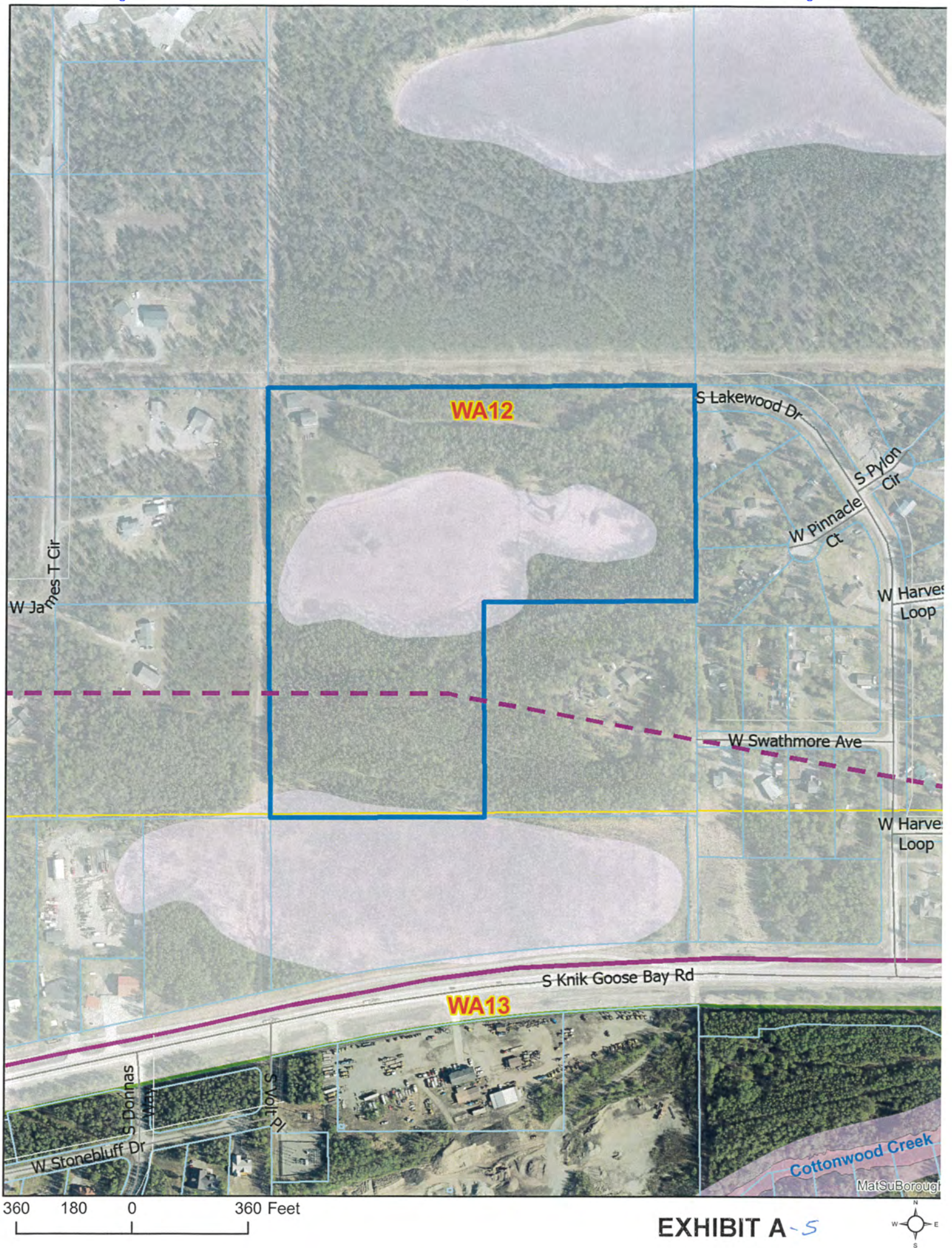


220 110 0 220 Feet

EXHIBIT A-3











L 2A

S LAKEWOOD
80' ROW

50'R TEMP
ROW expiring

UTILITY BOX
15' UTIL ESMT

15' UTIL ESMT

Drain ESMT

1. Base drawing/topography provided by surveyor. Spot elevations approx. relative info only, no BM
2. Arrows denote apparent drainage patterns.

RECEIVED
APR 01 2022
PLATTING

APR 01 2022

PLATTING



HOLLER ENGINEERING

3175 N. Sarno Dr., Wasilla, Alaska 99684

Year = 22015

Scale: 1" = 30'

3/28/2022



Residential street = <40 lots or <400 ADT
Res subcollector = 40-100 lots or 400-1000 ADT
Res collector = 100-300 lots or 1000-3000 ADT

3-29-22



THE STATE
of **ALASKA**
GOVERNOR MICHAEL J. DUNLEAVY

Department of Transportation and Public Facilities

Program Development and Statewide Planning
Anchorage Field Office

4111 Aviation Avenue
P.O. Box 196900
Anchorage, AK 99519-6900
Main number: 907-269-0520
Fax number: 907-269-0521
Webster: dot.state.ak.us

May 5, 2022

Fred Wagner, Platting Officer
Matanuska-Susitna Borough
350 East Dahlia Avenue
Palmer, Alaska 99645

Re: Plat Review

Dear Mr. Wagner:

The Alaska Department of Transportation and Public Facilities (DOT&PF) has reviewed the following plats and has no comment:

- **Lakewood West End Estates**
- **Trapper Creek Fellowship**

The Alaska Department of Transportation and Public Facilities (DOT&PF) has reviewed the following plats and has the following comments:

- **Pre-App Gibb**
 - No direct access to East Outer Springer Loop Road from Lot 1. Access to be from Thuma Street.
- **Nolan Addition #1**
 - Request Lots 2A and 3A to have shared access to Big Lake Road
- **Church First Addition**
 - Request NDA to KGB Road from Lot 1.
 - Suggest drawings be adjusted to reflect latest acquisitions from active DOT&PF KGB project. Please see the attached detailed section drawing produced by the KGB Reconstruction project for more information.
 - Oppose vacation of Church Street right-of-way. KGB project design anticipates using the right-of-way to accommodate drainage from the road corridor.
- **Putnam – Treasure Island**
 - No Direct Access to Pittman Road
- **Adalilly Central**
 - Request NDA from Lot 1 and Lot 2 to Old Glenn Highway
 - Lots 1 and 6 to access Smith Road from proposed cul-de-sac.

"Keep Alaska Moving through never-ending change."

EXHIBIT D-1

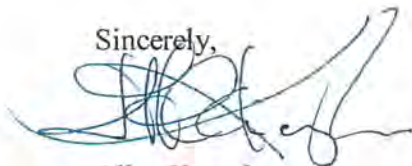
All properties accessing DOT&PF roads must apply to Right of Way for a driveway permit, subject to provisions listed in 17 AAC 10.020. Any previously issued driveway permits become invalid once the property undergoes a platting action and must be reissued.

We recommend the petitioner verify all section line easements and DOT&PF road rights-of-way adjacent to their property. For assistance, the petitioner may contact the Engineering group within the Right of Way section in DOT&PF at (907) 269-0700. The petitioner is liable to remove any improvements within the easements and rights-of-way that impede the operation and maintenance of those facilities even if they are not shown on the plat, so it is in the petitioner's best interest to identify the exact locations and widths of any such easements or rights-of-way before they improve the property.

If any section line easements or road rights-of-way exist within the bounds of their plat, we recommend the petitioner dedicate them. If there is an existing right-of-way or easement, the petitioner is unable to develop that portion of the property yet continues to pay property taxes on it; dedicating will remove that cost to the petitioner.

If there are any questions regarding these comments please feel free to contact me at (907) 269-0513 or allen.kemplen@alaska.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Allen Kemplen', with a stylized flourish at the end.

Allen Kemplen
Mat-Su Core Area Planner

cc: Scott Thomas, P.E., Regional Traffic Engineer, Traffic Safety and Utilities
Brad Sworts, MSB Transportation Manager
Sean Baski, Chief, Highway Design
Danika Simpson, Property Management Supervisor, Right of Way
Tom Schmid, Highway Design Project Manager

Matthew Goddard

From: Jamie Taylor
Sent: Tuesday, May 3, 2022 9:33 AM
To: Matthew Goddard
Subject: RE: RFC Lakewood West End Estates (MG)

No comment.

Jamie Taylor, PE (she/her)
Civil Engineer
Matanuska-Susitna Borough
Department of Public Works
 t: 907-861-7765 c: 907-355-9810
jamie.taylor@matsugov.us
<http://www.matsugov.us/>

From: Matthew Goddard <Matthew.Goddard@matsugov.us>
Sent: Wednesday, April 13, 2022 3:36 PM
To: allen.kemplen@alaska.gov; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; Planning <Planning@ci.wasilla.ak.us>; publicworks@ci.wasilla.ak.us; davemtp@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Debbie Bakic <Debbie.Bakic@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Jacque Malette <jacque.malette@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whsenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; mearow@matanuska.com; row@enstarnaturalgas.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; ospdesign@gci.com; msb.hpc@gmail.com
Subject: RFC Lakewood West End Estates (MG)

Hello,
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https://matsugovus-my.sharepoint.com/:f/g/personal/matthew_goddard_matsugov_us/EiBMB_MPi_BBg2weQas39aMBSkEtfQTziegSY3d_93VD6g?e=qYmZDs

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Thank you,
 Matthew Goddard
 Platting Technician

Matthew Goddard

From: Jacque Malette
Sent: Thursday, April 14, 2022 9:54 AM
To: Matthew Goddard
Subject: RE: RFC Lakewood West End Estates (MG)

Good Morning Matthew

It looks like we have 2 in title on this property

CERTIFICATE OF OWNERSHIP
 I, THE UNDERSIGNED, HEREBY CERTIFY THAT
 AS SHOWN AND DESCRIBED
 I HEREBY ADOPT THIS PLAN OF SUBDIVISION
 3D
 TRUK A. SEDERHOLM
 P.O. BOX 879578
 WASILLA, AK 99687-9578

(s) **Truk A. Sederholm and You Sederholm, husband**
 whose address is **P. O. Box 879578, Wasilla Alaska**

here convey All interest which the Center has, if any, in

From: Matthew Goddard <Matthew.Goddard@matsugov.us>
Sent: Wednesday, April 13, 2022 3:36 PM
To: allen.kempen@alaska.gov; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; Planning
 <Planning@ci.wasilla.ak.us>; publicworks@ci.wasilla.ak.us; davemtp@mtaonline.net; Fire Code
 <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; Elaine Flagg
 <Elaine.Flagg@matsugov.us>; Debbie Bakic <Debbie.Bakic@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>;
 Jamie Taylor <Jamie.Taylor@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Jacque Malette
 <jacque.malette@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>;
 Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center
 <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whsenhunt@matsugov.us>; Theresa Taranto
 <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; John Aschenbrenner
 <John.Aschenbrenner@matsugov.us>; mearow@matanuska.com; row@enstarnaturalgas.com; row@mtasolutions.com;
 andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>;
 ospdesign@gci.com; msb.hpc@gmail.com
Subject: RFC Lakewood West End Estates (MG)

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https://matsugovus-my.sharepoint.com/:f/g/personal/matthew_goddard_matsugov_us/EiBMB_MPi_BBg2weQas39aMBSkEtfQTziegSY3d_93VD6g?e=qYmZDs



ENSTAR Natural Gas Company
A DIVISION OF SEMCO ENERGY
 Engineering Department, Right of Way Section
 401 E. International Airport Road
 P. O. Box 190288
 Anchorage, Alaska 99519-0288
 (907) 277-5551
 FAX (907) 334-7798

April 13, 2022

Matanuska-Susitna Borough, Platting Division
 350 East Dahlia Avenue
 Palmer, AK 99645-6488

To whom it may concern:

ENSTAR Natural Gas Company has reviewed the following preliminary plat and has no comments or recommendations.

- **LAKEEOD WEST END ESTATES**
(MSB Case # 2022-049)

If you have any questions, please feel free to contact me at 334-7944 or by email at james.christopher@enstarnaturalgas.com.

Sincerely,

James Christopher

James Christopher
 Right of Way & Compliance Technician
 ENSTAR Natural Gas Company

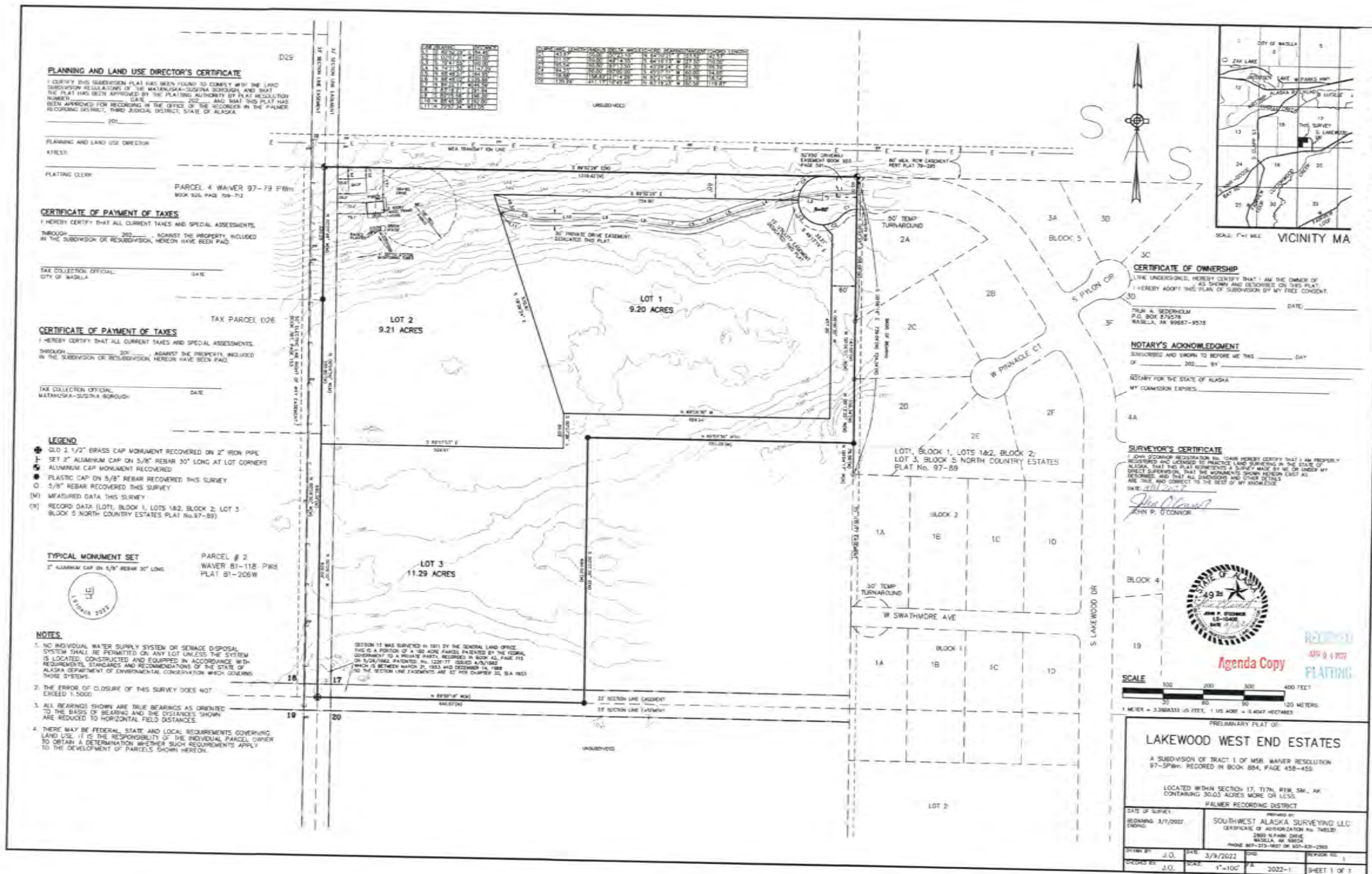


EXHIBIT G-2

Matthew Goddard

From: OSP Design Group <ospdesign@gci.com>
Sent: Wednesday, April 27, 2022 10:48 AM
To: Matthew Goddard
Cc: OSP Design Group
Subject: RE: RFC Lakewood West End Estates (MG)
Attachments: RFC Packet.pdf; Agenda Plat.pdf

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Matthew,

In review GCI has no comments or objections to the plat, attached is the signed plat for your records.

Thanks,

MIREYA ARMESTO

GCI | Technician II, GIS Mapping

m: 907-744-5166 | w: www.gci.com

From: Matthew Goddard <Matthew.Goddard@matsugov.us>

Sent: Wednesday, April 13, 2022 3:36 PM

To: allen.kempen@alaska.gov; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; Planning <Planning@ci.wasilla.ak.us>; publicworks@ci.wasilla.ak.us; davemtp@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Debbie Bakic <Debbie.Bakic@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Jacque Malette <jacque.malette@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whsenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; mearow@matanuska.com; row@enstarnaturalgas.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; OSP Design Group <ospdesign@gci.com>; msb.hpc@gmail.com
Subject: RFC Lakewood West End Estates (MG)

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

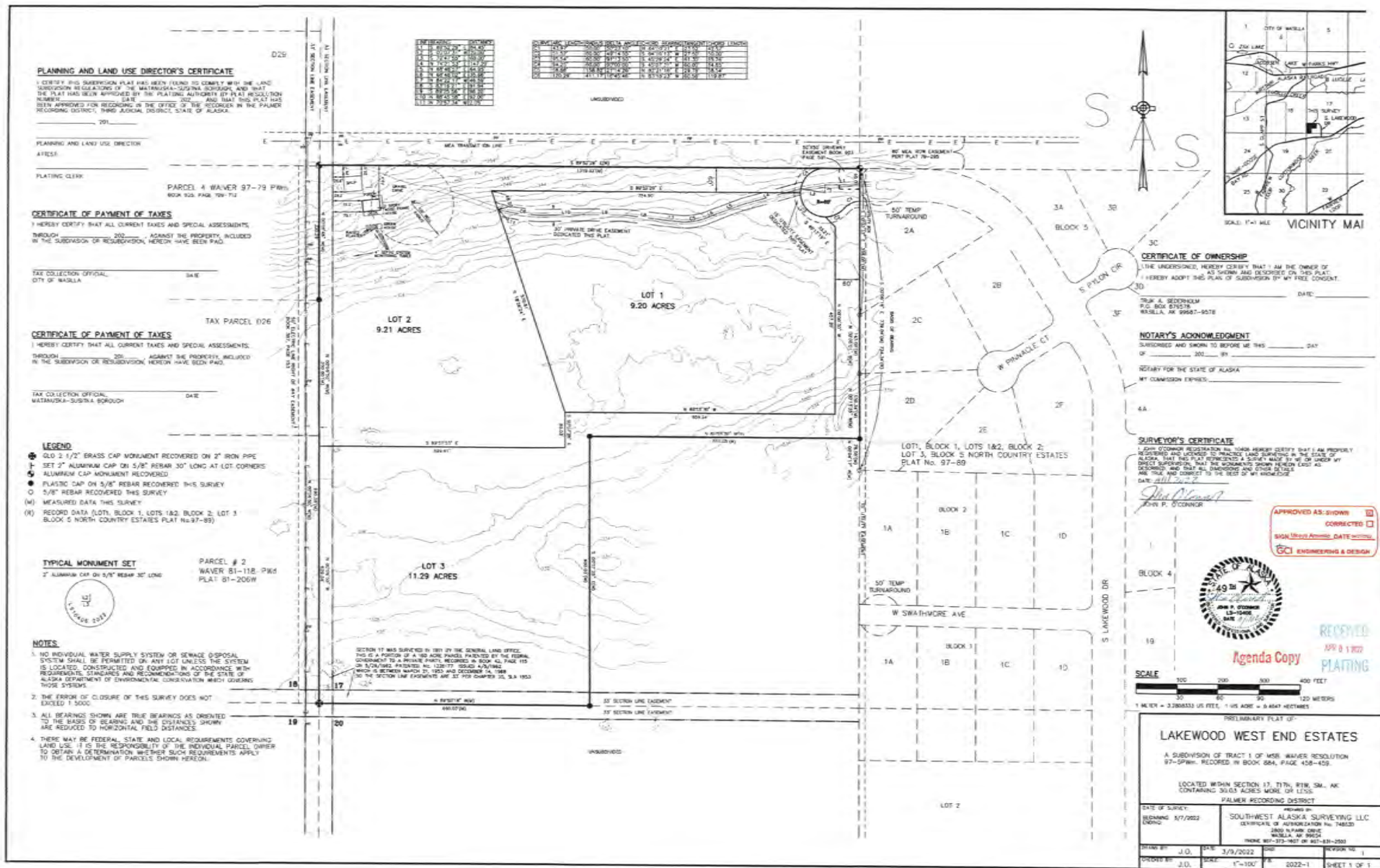
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https://matsugovus-my.sharepoint.com/:f/g/personal/matthew_goddard_matsugov_us/EiBMB_MPi_BBg2weQas39aMBSkEtfQTziegSY3d_93VD6g?e=qYmZDs

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Thank you,
Matthew Goddard



Matthew Goddard

From: Sarah A. Brandt <Sarah.Brandt@mea.coop>
Sent: Monday, May 9, 2022 10:10 AM
To: Matthew Goddard
Cc: Manny M. Lopez
Subject: RE: RFC Lakewood West End Estates (MG)
Attachments: sharpscan@mea.coop_20220509_100618.pdf

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Mr. Goddard,

I have attached an easement that we have to service Government lot B12, which is also known as Tract 1, Waiver 97-5-PWm. I will be taking this to the recorder's office today or tomorrow. This easement is to service the existing buildings on the northwest side of the proposed subdivision. Please let me know if you would like the updated document numbers when I record them. Thank you for the notification.

Sarah Brandt

Right of Way Supervisor

Office: 907-761-9265

Cell: 907-715-8049

Sarah.Brandt@mea.coop



From: Matthew Goddard <Matthew.Goddard@matsugov.us>

Sent: Wednesday, April 13, 2022 3:36 PM

To: allen.kempen@alaska.gov; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; Planning <Planning@ci.wasilla.ak.us>; publicworks@ci.wasilla.ak.us; davemtp@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Debbie Bakic <Debbie.Bakic@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Jacque Malette <jacque.malette@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whsenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; MEA_ROW <MEAROW@mea.coop>; row@enstarnaturalgas.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; ospdesign@gci.com; msb.hpc@gmail.com
Subject: RFC Lakewood West End Estates (MG)

CAUTION: This email originated from outside of the MEA.coop organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,

The following Link is a Request for Comments for the proposed Lakewood West End Estates Subdivision. Comments are due by **May 9, 2022**. If you have any questions feel free to contact me.

MATANUSKA ELECTRIC ASSOCIATION, INC.
RIGHT OF WAY EASEMENT

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned (whether one or more),

Truk A Sederholm
whose address is 2441 W. 69th CT Anch. 99502

for a good valuable consideration, the receipt whereof is hereby acknowledged, do hereby grant unto MATANUSKA ELECTRIC ASSOCIATION, INC., a cooperative corporation (hereinafter called the "Grantee") whose post office address is Box 2929 Palmer, Alaska 99645, and to its successors or assigns, the right to enter upon the lands of the undersigned, situated in the Palmer Recording District, State of Alaska, and more particularly described as follows:

T17N RIW S17 L B12

being in Section 17, Township 17N, Range 1W S.M., and to construct, reconstruct, rephase, repair, operate and maintain on, over or under the above described lands and/or in, upon or under all streets, roads or highways abutting said lands, an electric (or telecommunication) transmission and/or distribution line or system; to inspect and make such repairs, changes, alterations, improvements, removals from, substitutions and additions to its facilities as the Grantee may from time to time deem advisable, including, by way of example and not by the way of limitation: the right to increase or decrease the number of conduits, wires, cables, hand holes, manholes, connection boxes, pedestals, transformer enclosures; to cut, trim and control the growth by machinery or otherwise of trees and shrubbery located within 15 feet of the center line of said line or system, or that may interfere with or threaten to endanger the operation and maintenance of said line or system (including any control of the growth of other vegetation in the right of way which may incidentally and necessarily result from the means of control employed); to keep the easement clear of all buildings, structures or other obstructions; and to license, permit or otherwise agree to the joint use or occupancy of the easement, lines, or system by any other person, association or corporation for electric or telecommunications purposes.

The undersigned agree that all poles, wires and other facilities including any main service entrance equipment, installed in, upon or under the above described lands at the Grantee's expense shall remain the property of the Grantee, removable at the option of the Grantee.

The Grantee, its successors or assigns, is hereby expressly given and granted the right to assign said right-of-way and easement herein granted and conveyed, or any part thereof, or interest therein.

TO HAVE AND TO HOLD unto the GRANTEE, its successors or assigns, together with the right of ingress to and egress from the premises for the purpose herein granted.

The undersigned covenant that they are the owners of the above described lands, and that the said lands are free and clear of encumbrances and liens of whatsoever character except as may appear of record as of the date set forth below, and those held by the following persons:

IN WITNESS WHEREOF, the undersigned have set their hands and seals this 7 day of July, 2004

Truk A Sederholm Grantor _____ Grantor

STATE OF ALASKA)SS-

THIS IS TO CERTIFY that on this 7 day of July, 2004 before me, the undersigned, a Notary Public in and for the State of Alaska, duly commissioned and sworn as such, personally appeared

Truk Sederholm adl
Known to me and to me known to be the individual(s) named in and who executed the foregoing instrument and acknowledged to me that he/she/they signed and sealed the same as a voluntary act and deed for the uses and purposes therein mentioned.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal the day and year first above written

Lisa Hefner SEAL
Notary Public in and of Alaska My commission expires 04/05/06

W/O <u>83299/1</u>	Subd <u>7000051</u>	Plat _____
P/S <u>S</u>	Misc _____	Map <u>17.84</u>
Pole <u>K51-TN</u>	Easement <u>100401536</u>	Quad _____

Return to: MEA, PO Box 2929, Palmer, AK 99645

State of Alaska
NOTARY PUBLIC
Lisa Hefner
My Commission Expires 04/05/06

EXHIBIT G-6

Matthew Goddard

From: Holly Sparrow <hsparrow@mtasolutions.com>
Sent: Thursday, April 28, 2022 12:08 PM
To: Matthew Goddard
Subject: RE: RFC Lakewood West End Estates (MG)

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Hello,

MTA has revied the plat for Lakewood West End Estates. MTA has no comments.

Thank you for the opportunity to comment.

Holly Sparrow, Right of Way Agent

1740 S. Chugach St., Palmer, Alaska 99645
 Office: (907) 761-2599 | www.mtasolutions.com



From: Matthew Goddard <Matthew.Goddard@matsugov.us>
Sent: Wednesday, April 13, 2022 3:36 PM
To: allen.kemplen@alaska.gov; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; Planning <Planning@ci.wasilla.ak.us>; publicworks@ci.wasilla.ak.us; davemtp@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Debbie Bakic <Debbie.Bakic@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Jacque Malette <jacque.malette@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; mearow@matanuska.com; row@enstarnaturalgas.com; Right of Way Dept. <row@mtasolutions.com>; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; ospdesign@gci.com; msb.hpc@gmail.com
Subject: RFC Lakewood West End Estates (MG)

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PLANNING AND LAND USE DIRECTOR'S CERTIFICATE

I CERTIFY THIS SUBDIVISION PLAT HAS BEEN FOUND TO COMPLY WITH THE LAND SUBDIVISION REGULATIONS OF THE MATANUSKA-SUSITNA BOROUGH, AND THAT THE PLAT HAS BEEN APPROVED BY THE PLATTING AUTHORITY BY PLAT RESOLUTION NUMBER _____ DATE _____ 202_____, AND THAT THIS PLAT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE RECORDER IN THE PALMER RECORDING DISTRICT, THIRD JUDICIAL DISTRICT, STATE OF ALASKA.

_____, 201_____,

PLANNING AND LAND USE DIRECTOR

ATTEST:

PLATTING CLERK

PARCEL 4 WAIVER 97-79 PWm
BOOK 925, PAGE 709-712

CERTIFICATE OF PAYMENT OF TAXES

I HEREBY CERTIFY THAT ALL CURRENT TAXES AND SPECIAL ASSESSMENTS, THROUGH _____, 202_____, AGAINST THE PROPERTY, INCLUDED IN THE SUBDIVISION OR RESUBDIVISION, HEREON HAVE BEEN PAID.

TAX COLLECTION OFFICIAL,
CITY OF WASILLA

DATE

CERTIFICATE OF PAYMENT OF TAXES

I HEREBY CERTIFY THAT ALL CURRENT TAXES AND SPECIAL ASSESSMENTS, THROUGH _____, 201_____, AGAINST THE PROPERTY, INCLUDED IN THE SUBDIVISION OR RESUBDIVISION, HEREON HAVE BEEN PAID.

TAX COLLECTION OFFICIAL,
MATANUSKA-SUSITNA BOROUGH

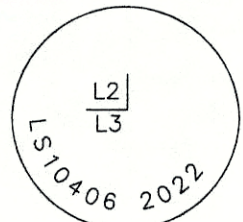
DATE

LEGEND

- ✕ GLO 2 1/2" BRASS CAP MONUMENT RECOVERED ON 2" IRON PIPE
- ⊥ SET 2" ALUMINUM CAP ON 5/8" REBAR 30" LONG AT LOT CORNERS
- ALUMINUM CAP MONUMENT RECOVERED
- PLASTIC CAP ON 5/8" REBAR RECOVERED THIS SURVEY
- 5/8" REBAR RECOVERED THIS SURVEY
- (M) MEASURED DATA THIS SURVEY
- (R) RECORD DATA (LOT1, BLOCK 1, LOTS 1&2, BLOCK 2; LOT 3 BLOCK 5 NORTH COUNTRY ESTATES PLAT No.97-89)

TYPICAL MONUMENT SET

2" ALUMINUM CAP ON 5/8" REBAR 30" LONG



PARCEL # 2
WAIVER 81-118-PWD
PLAT 81-206W

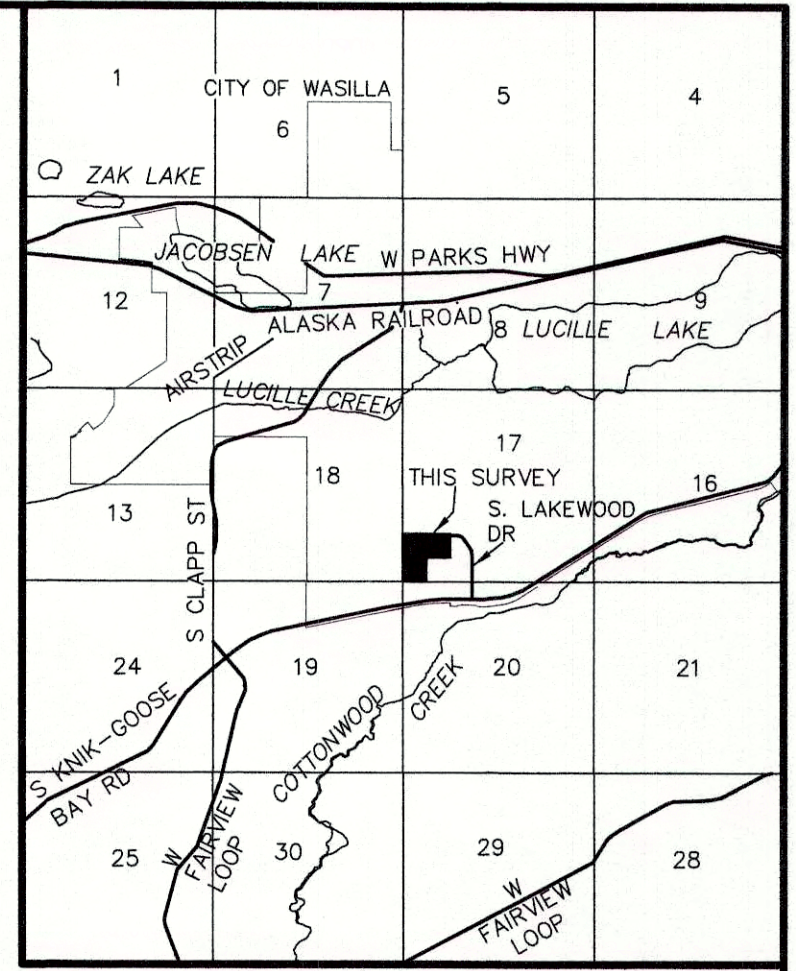
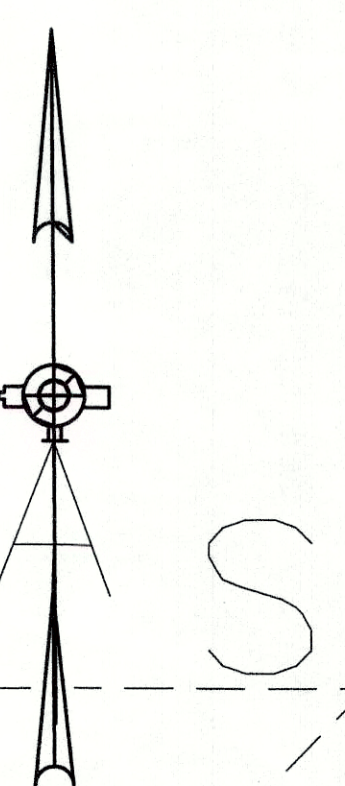
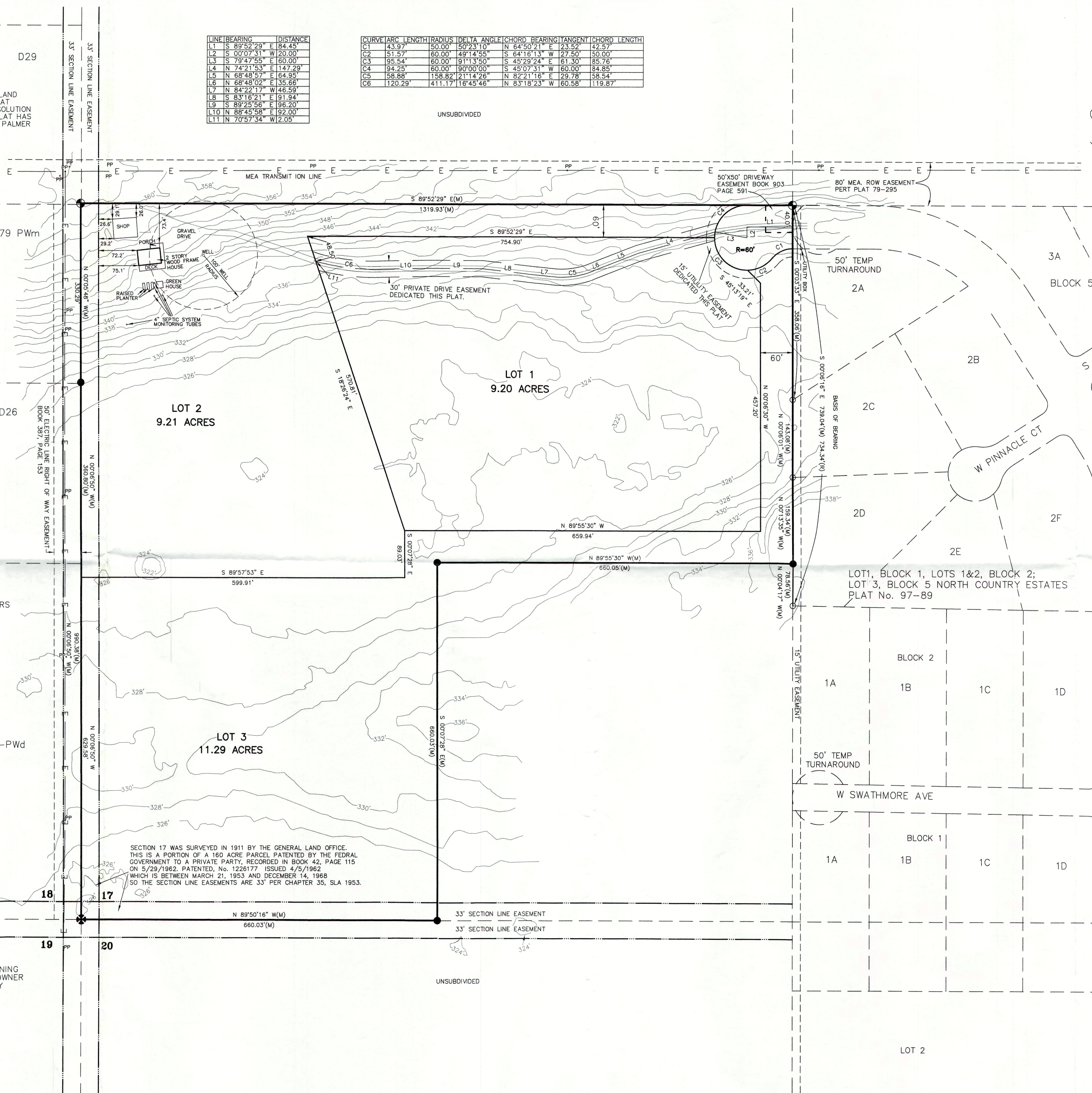
NOTES

- NO INDIVIDUAL WATER SUPPLY SYSTEM OR SEWAGE DISPOSAL SYSTEM SHALL BE PERMITTED ON ANY LOT UNLESS THE SYSTEM IS LOCATED, CONSTRUCTED AND EQUIPPED IN ACCORDANCE WITH REQUIREMENTS, STANDARDS AND RECOMMENDATIONS OF THE STATE OF ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION WHICH GOVERNS THOSE SYSTEMS.
- THE ERROR OF CLOSURE OF THIS SURVEY DOES NOT EXCEED 1:5000.
- ALL BEARINGS SHOWN ARE TRUE BEARINGS AS ORIENTED TO THE BASIS OF BEARING AND THE DISTANCES SHOWN ARE REDUCED TO HORIZONTAL FIELD DISTANCES.
- 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 PARCELS SHOWN HEREON.

LINE	BEARING	DISTANCE
L1	S 89°52'29" E	84.45
L2	S 00°07'31" W	20.00
L3	S 79°47'55" E	60.00
L4	N 74°21'53" E	147.29
L5	N 68°48'57" E	64.95
L6	N 68°48'02" E	35.66
L7	N 64°22'17" W	46.59
L8	S 83°16'21" E	91.94
L9	S 89°25'56" E	96.20
L10	N 68°48'58" E	92.00
L11	N 70°57'34" W	2.05

CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	TANGENT	CHORD LENGTH
C1	43.97	50.00	50°23'10"	N 64°50'21" E	23.52	42.57
C2	51.57	60.00	49°14'55"	S 64°16'13" W	27.50	50.00
C3	95.54	60.00	91°13'50"	S 45°29'24" E	61.30	85.76
C4	94.25	60.00	90°00'00"	S 45°07'31" W	60.00	84.85
C5	58.88	158.82	21°14'26"	N 82°21'16" E	29.78	58.54
C6	120.29	411.17	18°48'46"	N 83°18'23" W	60.58	119.87

UNSUBDIVIDED



SCALE: 1"=1 MILE

VICINITY MAP

CERTIFICATE OF OWNERSHIP

I, THE UNDERSIGNED, HEREBY CERTIFY THAT I AM THE OWNER OF _____ AS SHOWN AND DESCRIBED ON THIS PLAT. I HEREBY ADOPT THIS PLAN OF SUBDIVISION BY MY FREE CONSENT.

DATE: _____

TRUK A. SEDERHOLM
P.O. BOX 879578
WASILLA, AK 99687-9578

NOTARY'S ACKNOWLEDGMENT

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF _____, 202_____, BY _____

NOTARY FOR THE STATE OF ALASKA

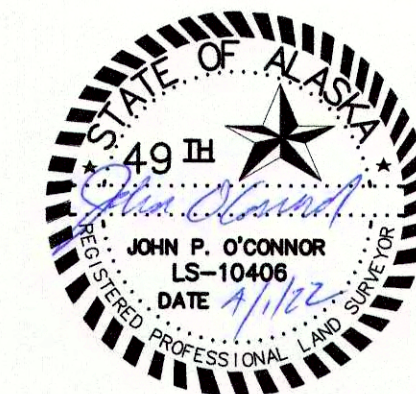
MY COMMISSION EXPIRES: _____

SURVEYOR'S CERTIFICATE

I, JOHN O'CONNOR REGISTRATION No. 10406 HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA. THAT THIS PLAT REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION, THAT THE MONUMENTS SHOWN HEREON EXIST AS DESCRIBED, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

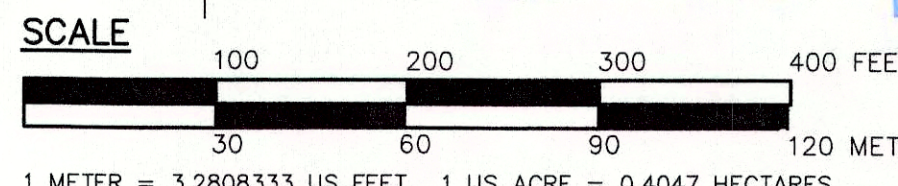
DATE: 4/11/2022

John P. O'Connor
JOHN P. O'CONNOR



RECEIVED
APR 01 2022
PLATTING

Agenda Copy



PRELIMINARY PLAT OF:

LAKEWOOD WEST END ESTATES

A SUBDIVISION OF TRACT 1 OF MSB. WAIVER RESOLUTION 97-5PWm. RECORDED IN BOOK 884, PAGE 458-459.

LOCATED WITHIN SECTION 17, T17N, R1W, SM., AK CONTAINING 30.03 ACRES MORE OR LESS.

PALMER RECORDING DISTRICT

DATE OF SURVEY: BEGINNING: 3/7/2022 ENDING:	PREPARED BY: SOUTHWEST ALASKA SURVEYING LLC CERTIFICATE OF AUTHORIZATION No. 74853D 2800 N PARK DRIVE WASILLA, AK 99654 PHONE 907-373-1607 OR 907-631-2503
DRAWN BY: J.O. CHECKED BY: J.O.	DATE: 3/9/2022 SCALE: 1"=100'
GRID:	REVISION NO. 1
F.B.:	SHEET 1 OF 1

6D

STAFF REVIEW AND RECOMMENDATIONS
PUBLIC HEARING
JUNE 2, 2022

PRELIMINARY PLAT: DRINKHOUSE BLUFFS 2 MASTER PLAN

LEGAL DESCRIPTION: SEC 01, T16N, R02W, SEWARD MERIDIAN AK

PETITIONERS: MARIE DRINKHOUSE, ADAM & HOLLI DRINKHOUSE

SURVEYOR/ENGINEER: KEYSTONE SURVEYING/HOLLER ENGINEERING

ACRES: 33.4 ± PARCELS: 14

REVIEWED BY: AMY OTTO-BUCHANAN CASE #: 2022-053

REQUEST: The request is to create 14 lots by a three phase Master Plan from Tract C, Drinkhouse Bluffs Phase 2, Plat No. 2018-108 and Tract B-1, Burnett's Place, Plat No. 2021-162, to be known as **DRINKHOUSE BLUFFS 2 MASTER PLAN**, containing 33.4 acres +/- . Petitioner will dedicate and construct interior street and cul-de-sac to Borough street standards. Parcel is located southeast of S. Hayfield Road and northwest of Cottonwood Creek, lying within the NW ¼ Section 01, Township 16 North, Range 02 West, Seward Meridian, Alaska.

EXHIBITS

Vicinity Map and Aerial Photos

EXHIBIT A – 4 pgs

Geotechnical Report

EXHIBIT B – 9 pgs

AGENCY COMMENTS

Department of Public Works Operations & Maintenance

EXHIBIT C – 1 pg

Development Services

EXHIBIT D – 1 pg

ADF&G

EXHIBIT E – 1 pg

Utilities

EXHIBIT F – 3 pgs

Site Visit Report w/Photos, dated 03/02/2022

EXHIBIT G – 10 pgs

Planning

EXHIBIT H – 1 pg

Sketch of changes to Phase 1 and Phase 2

EXHIBIT I – 1 pg

DISCUSSION: The proposed subdivision is southeast of S. Hayfield Road and northwest of Cottonwood Creek. Petitioner is creating 14 lots by a three-phase Master Plan. Access will be from W. Sedlar Circle, S. Ridgefield Drive and W. Drinkhouse Drive. Lot 12, Block 3, and Lots 8 & 9, Block 2 are flag lots, pursuant to MSB 43.20.300(E). A common access easement will be granted on the plat for access to Lots 8-10, Block 2. Petitioner will be constructing a Borough standard interior street and cul-de-sac to MSB residential street standard (see **Recommendation #4**). Petitioner to deadfile the original Drinkhouse Bluffs Master Plan prior to recording of Phase 1 of this Master Plan (see **Recommendation #6**).

Soils Report: A geotechnical report was submitted (**Exhibit B**), pursuant to MSB 43.20.281(A). Curt Holler, PE, Holler Engineering, notes five new testholes were excavated. Testhole location map and soils

logs are attached. The parent parcel has very gently rolling hills and valleys with some areas nearly level. A large, steep bluff forms the southeast property boundary, with a drop of approximately 90' down to lower mud flats of Knik Arm. Drainage generally runs away from the edge of the bluff, to local interior low areas, some of which pond seasonally. Elevation differential is approximately 110'. Large portions of the parcel were previously cleared for use as hayfield and one site was developed with a home and several outbuildings. The remaining area has native vegetation. Undeveloped areas are wooded with moderate density mature birch spruce, with a few willow. Soils logged consistently had a 1' to 2.5' layer of soft loess silt topsoils under a thin organic layer at the surface. Base materials were all relatively clean sands and gravels. Groundwater was not encountered. Based on the available soils and water table information, topography, MSB code and observations on site, each of the 13 lots will contain over 10,000 sf of contiguous useable septic area and an additional 10,000 sf of useable building area. Tract B-2 is over 400,000 and does not require verification as a detailed topography is described and the surveyor provide topographic mapping, pursuant to MSB 43.20.281(A)(1)(i)(i).

Drainage Plan: Drainage arrows are provided on the attached map to show drainage along the proposed roads and general drainage patterns in the area. Proposed culverts and infiltration points are also shown. Drainage report has been prepared with runoff directed to existing low areas. Two potential drainage easements are shown on the drawing. Due to regrading for road construction, the plan is subject to minor field modification and improvement during construction. Road construction should not negatively impact drainage for adjacent properties and no concentrated runoff is expected to leave the site.

Road Construction: The proposal will require construction of about 1,050' of residential street, one new permanent cul-de-sac and one intersection. The road can be constructed with a maximum grade of well under 6%. Average Daily Traffic (ADT) calculations are at **Exhibit B-4**.

Comments: Department of Public Works Operations & Maintenance (**Exhibit C**) notes a temporary cul-de-sac will be needed on W. Sedlar Circle for Phase 1. *Staff notes the surveyor has decided to create Lot 1, Block 3 and Lot 12, Block 1 and Tract B-2 in Phase 1. W. Sedlar Circle and Lot 2, Block 3 will be created in Phase 2, thereby negating the need for a temporary cul-de-sac on W. Sedlar Circle in Phase 1. Please see **Exhibit I** for the new design of Phase 1 and Phase 2.*

Development Services (Exhibit D**)** notes the parcel has a driveway onto S. Hayfield Road that is not permitted. Petitioner will need to apply for a driveway permit (see **Recommendation #7**).

Planning: (Exhibit H**)** Review of the subject property finds there are multiple known recorded historic sites on the parcel or directly adjacent. These include the Cottonwood Roadhouse site and the Cottonwood Creek Village site (adjacent). This conclusion was derived through research of the documented sites on file in the Cultural Resources Division of the MSB and sites documented in Alaska Heritage Resource files at the State Office of History and Archaeology. We advise a cultural resources survey for this parcel because of its location and topography and due to the identification of sites on the property. The survey will not affect ownership of sites or artifacts located within the property, nor does it obstruct or delay the application process. Petitioner should contact the Cultural Resources Division at 907-861-8608 for a list of professionals that can conduct the survey, if petitioner chooses to do this.

ADF&G (**Exhibit E**) has no objections.

Utilities: (Exhibit F) MTA has no comments. GCI has no objections. Enstar has no comments or recommendations. MEA did not respond.

At the time of staff report write-up, there were no responses to the Request for Comments from US Army Corps of Engineers; Community Council Knik-Fairview; Fire Service Area #130 Central Mat-Su; Road Service Area #14 Fairview; MSB Emergency Services, Community Development, Assessments, or Pre-Design Division; or MEA.

CONCLUSION: The preliminary plat of DRINKHOUSE BLUFFS 2 MASTER PLAN is consistent with AS 29.40.070 Platting Regulations and MSB 43.15.016 Preliminary Plats. There were no objections from any federal or state agencies, Borough departments, or utilities. There were no objections to the plat from the public in response to the Notice of Public Hearing. Legal and physical access will exist to the proposed lots, consistent with MSB 43.20.100 Access Required, MSB 43.20.120 Legal Access and MSB 43.20.140 Physical Access. Frontage for the subdivision will exist, pursuant to MSB 43.20.320 Frontage and MSB 43.20.300(E) Flag lots. A soils report was submitted, pursuant to MSB 43.20.218(A)(1).

FINDINGS OF FACT

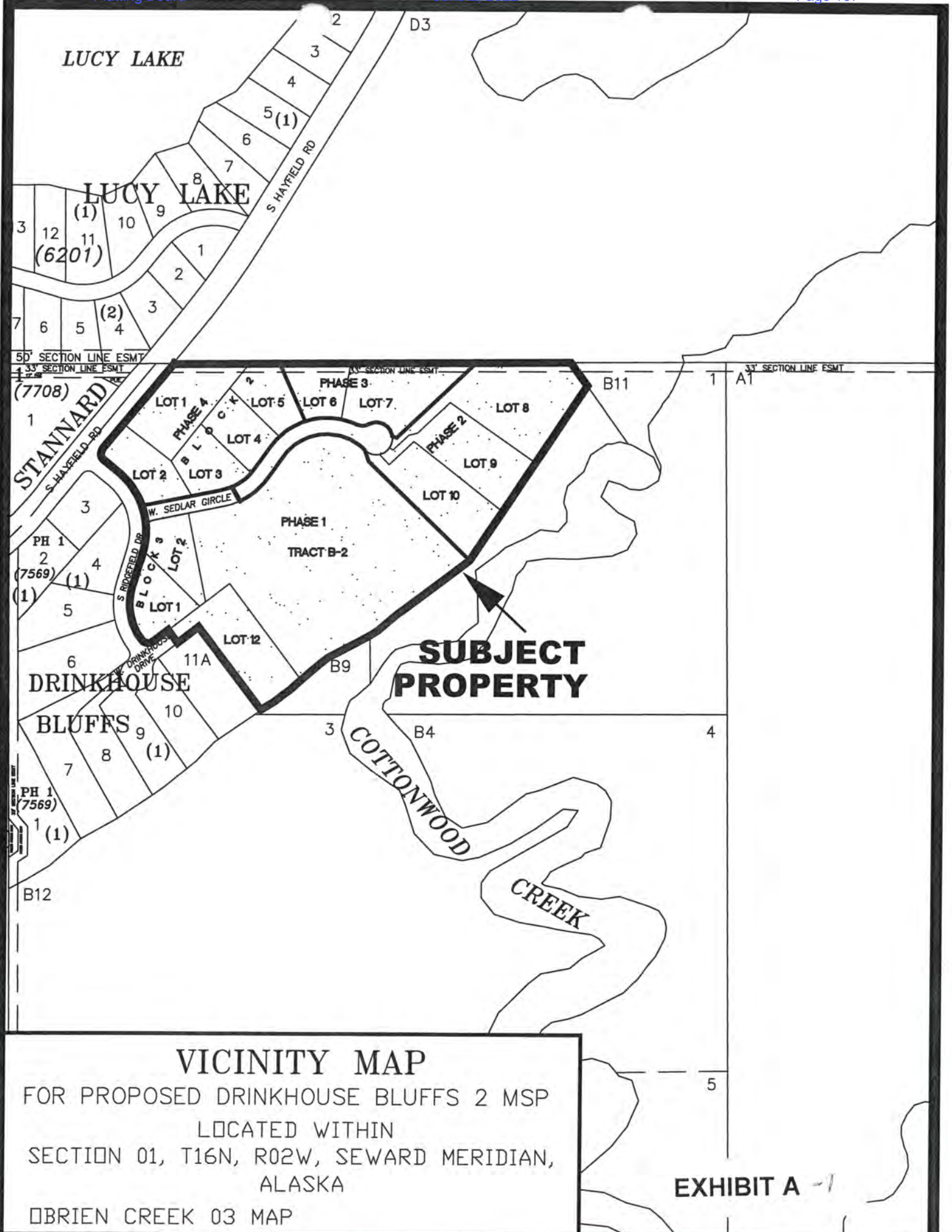
1. The plat of Drinkhouse Bluffs 2 Master Plans consistent with AS 29.40.070 Platting Regulations and MSB 43.15.016 Preliminary Plats.
2. A soils report was submitted, pursuant to MSB 43.20.281(A)(1).
3. Proposed Tract B-2 does not require soils verification as a detailed topographic narrative was supplied by the engineer and topographic mapping was supplied by the surveyor, pursuant to MSB 43.20.281(A)(1)(i).
4. All lots will have the required frontage pursuant to MSB 43.20.320 and MSB 43.20.300(E) Flag lots.
5. At the time of staff report write-up, there were no responses to the Request for Comments from US Army Corps of Engineers; Community Council Knik-Fairview; Fire Service Area #130 Central Mat-Su; Road Service Area #14 Fairview; MSB Emergency Services, Community Development, Assessments, or Pre-Design Division; or MEA.
6. There were no objections from any federal or state agencies, Borough departments, or utilities.
7. There were no objections from the public in response to the Notice of Public Hearing.

RECOMMENDATIONS OF CONDITIONS OF APPROVAL

Suggested motion: I move to approve the preliminary plat of Drinkhouse Bluffs 2 Master Plan, Section 01, Township 16 North, Range 02W, Seward Meridian, Alaska, contingent on staff recommendations

1. Taxes and special assessments must be paid in full for the year of recording, pursuant to MSB 43.15.053(F) and AS 40.15.020. For each phase plat, pay taxes and special assessments (LIDs), by CERTIFIED FUNDS OR CASH.
2. Provide updated Certificate to Plat executed within seven (7) days of recording of plat and submit Beneficiary Affidavit for any holders of a beneficial interest for each phase plat.
3. Pay postage and advertising fees.
4. Construct interior street and cul-de-sac to MSB residential street standards:
 - a. Submit cost estimate, arrange a pre-construction meeting with Department of Public Works (DPW), pay inspection fee and obtain a Notice to Proceed from Platting staff. Submit street inspection reports as required by Section F1.4, F1.5 and F1.6 of the Subdivision Construction Manual.
 - b. Provide DPW acceptance of the road to Platting staff.

- c. Platting staff to approve all road names.
- d. Provide as-built of streets once construction is complete.
- 5. Show all easements of record on each final phase plat.
- 6. The original Drinkhouse Bluffs Master Plan will need to be deadfiled, prior to recording Phase 1.
- 7. Apply for a driveway permit for access onto S. Hayfield Road and provide copy of application to platting staff.
- 8. Submit recording fees, payable to Department of Natural Resources (DNR), for each phase plat.
- 9. Submit final phase plat in full compliance with Title 43.



**SUBJECT
PROPERTY**

VICINITY MAP

FOR PROPOSED DRINKHOUSE BLUFFS 2 MSP
LOCATED WITHIN
SECTION 01, T16N, R02W, SEWARD MERIDIAN,
ALASKA

O'BRIEN CREEK 03 MAP

EXHIBIT A -1



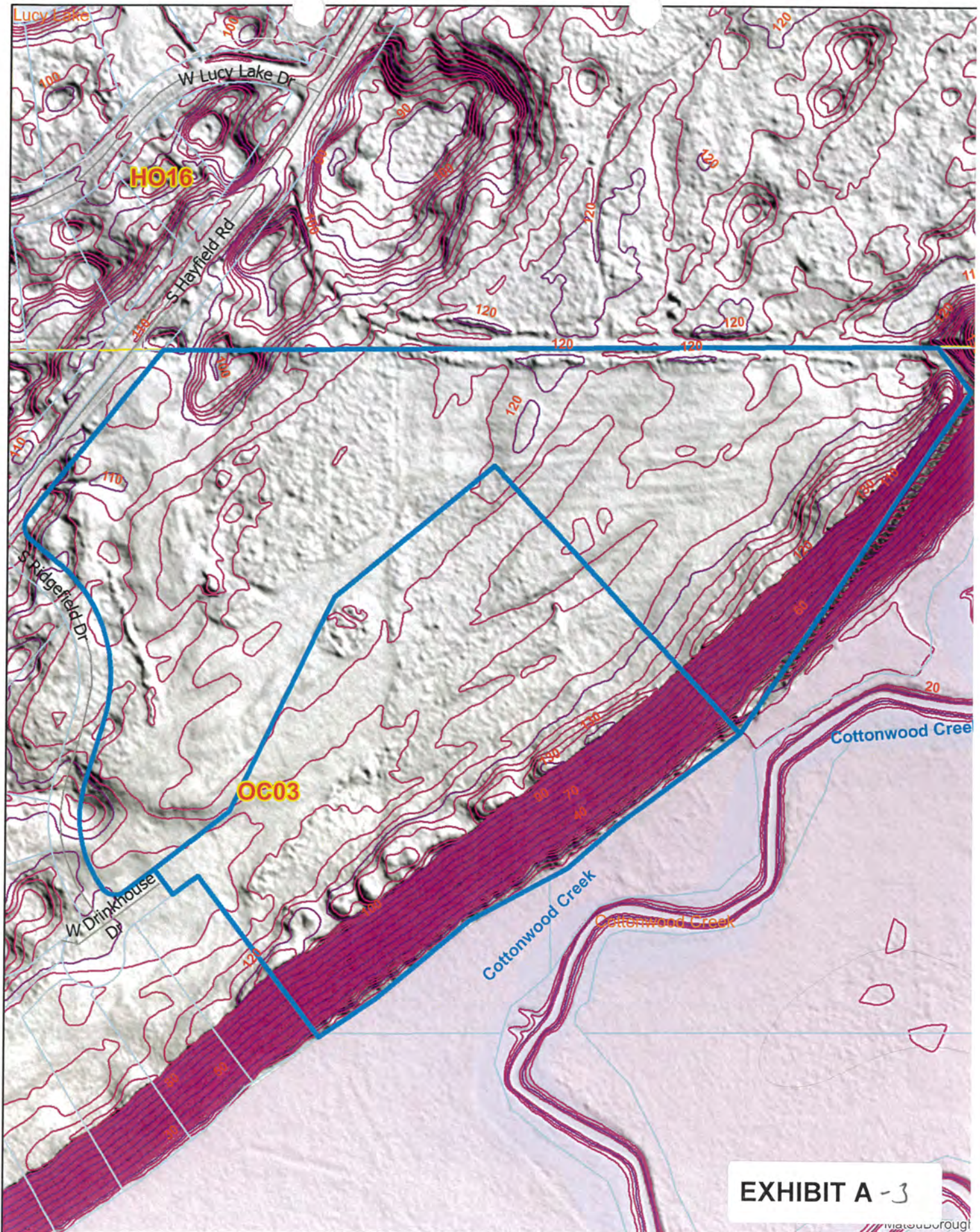


EXHIBIT A-3





HOLLER ENGINEERING

Water, Wastewater & Soils Consulting

3375 N Sams Dr. Wasilla, Alaska 99654 • 376-0410

April 7, 2022

Fred Wagner
Platting Officer
Matanuska-Susitna Borough
350 East Dahlia Avenue
Palmer, Alaska 99645

APR 13 2022

Re: ***Drinkhouse Bluffs Master Plan 2022; Useable Areas, Roads and Drainage***
HE# 16013

Dear Mr. Wagner:

At the request of the project owner, we have performed a soils investigation and related preliminary design work for the referenced proposed subdivision. The master plan project will ultimately create 13 new lots and 1 remainder tract from 2 existing parcels with a total area of 33.8 acres. The new lots will have areas of 1.0 to 3.0 acres; the remainder tract is over 400,000 ft² and will not require soils/useable area verification. Our soils evaluation included logging soil conditions in 5 new testholes, review of existing proximate testholes, review of the provided topography information and our other observations at the site. See the attached testhole location, drainage and topography map for details.

Topography. The parent parcel typically has very gently rolling hills and valleys, with some areas being nearly level. A large, steep bluff forms the southeast property boundary with a drop of approximately 90' down to lower mud flats of the Knik Arm. Several minor steep areas exist in other areas and are delineated on the attached sketch. Drainage generally runs away from the edge of the bluff, to local interior low areas, some of which pond seasonally. The elevation differential on the provided topographical map is approximately 110'.

Soils & Vegetation. Large portions of the parcel were previously cleared for use as hayfield, and one site was developed with a home and several outbuildings, as well as a driveway. Two large areas have been cleared and used for hay fields, with the remaining area having native vegetation. The steep bluff remains forested with the exception of a steep one lane gravel road running down to the Cottonwood Creek access. Undeveloped areas are wooded with moderate density mature birch and spruce trees, with a few willow trees. Soils logged in the 5 testholes consistently had a 1' to 2.5' layer of soft loess silt topsoil under a thin organic layer at the surface. Base materials were all relatively clean sands and gravels. The soils encountered are consistent with our prior experiences in this area, including the adjacent subdivision, extensive cut areas along the beach access road and a 12' hole near the existing garage on Lot 1 Block 2 which our staff observed many

years ago. Copies of the soil logs and a location/topography/useable area map are attached.

Groundwater. Groundwater was not encountered in any of the new or previously logged testholes to 12', even adjacent to a minor spring pond area. Groundwater is not expected to be a limiting factor for the new lots.

Useable Areas. The proposed lots have a few limitations on areas defined by MSB code as *useable septic area* or *useable building area*. Useable septic areas will be limited by lotlines, steep areas and related setbacks, and setbacks to water wells. For building areas, lotlines, utility easements and ROW/PUE setbacks will be limiting factors. The lots will each contain adequate unencumbered area to meet the useable area requirements. Based on the available soils & water table information, topography, MSB Title 43 Code definitions, and our observations at the site, ***each of the 13 proposed lots will contain over 10,000 square feet of contiguous useable septic area, and an additional 10,000 square feet of useable building area. Tract B-2 is over 400,000 ft² and does not require area verification.***

Preliminary Drainage Plan. Drainage arrows were provided on the attached map to show drainage along the proposed roads and general drainage patterns in the area. Proposed culverts and infiltration points are also shown. A drainage report has been prepared with runoff directed to existing low areas, and the attached plan uses the same flow patterns and culverts. Two potential drainage easements are shown on the drawing. Due to the re-grading which will be undertaken for road construction, the drainage plan is subject to some minor field modification and improvement during construction. Rock-filled infiltration points along the roads are planned. Coupled with the open soil types these infiltration points will provide mitigation to address runoff within the property. Road construction should not negatively impact drainage for adjacent properties, and no concentrated runoff is expected to leave the site.

Road Construction. The proposed plat will require construction of about 1050' of *residential* street, 1 new permanent cul-de-sac, and 1 intersection. Existing NSF base soils will serve well for a road base, and the property has ample material which could be mined if needed. Road topping materials will need to be screened onsite or imported during road construction. Based on our initial assessment, the road can be constructed with a maximum grade of well under 6% with no significant cut or fill areas. Construction details in all areas will meet shape requirements in the SCM/NELB for *residential* streets and cul-de-sac bulbs. Each lot will have a reasonable access point.

Thank you for your assistance, and please feel free to call with any questions you may have.

Sincerely,

Curtis Holler, PE

c: M. & A. Drinkhouse, w/attachments







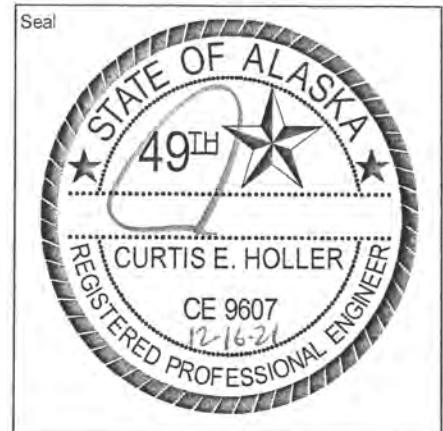

HOLLER ENGINEERING

3375 N Sams Dr. Wasilla, Alaska 99654 376-0410

SOILS LOG / PERCOLATION TEST

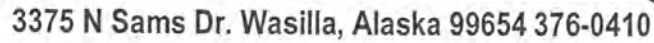
TEST HOLE # 1 of 5

Performed For: Marie Drinkhouse

Legal Description: Drinkhouse Bluffs PH III


Depth, feet	Soil Type	Slope	Site Plan																																																																		
1	OL		<p>See attached testhole & topo map.</p> <p style="text-align: center;">N</p>																																																																		
2	ML, light brown																																																																				
3	SP-GP, olive gray, medium-																																																																				
4	coarse sands, rock to 3",																																																																				
5	few 6"+, sloughs																																																																				
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12				<p>WAS GROUNDWATER ENCOUNTERED?</p> <p>- <u>No</u></p> <p>IF YES, AT WHAT DEPTH?</p> <p>- <u>N/A</u></p> <p>DEPTH AFTER MONITORING?</p> <p>- <u>N/A</u></p>																																																																	
13		<p style="text-align: center;">PERCOLATION TEST</p> <table border="1"> <thead> <tr> <th>Reading</th> <th>Date</th> <th>Gross Time</th> <th>Net Time</th> <th>Depth to Water</th> <th>Net Drop</th> </tr> </thead> <tbody> <tr> <td colspan="6">N/A visual analysis only</td> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		Reading	Date	Gross Time	Net Time	Depth to Water	Net Drop	N/A visual analysis only																																																											
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N/A visual analysis only																																																																					
14		<p>PERCOLATION RATE <u> </u> (min/inch) PERC HOLE DIAMETER <u> </u></p> <p>TEST RUN BETWEEN <u> </u> FT AND <u> </u> FT DEPTH</p> <p>COMMENTS: <u>Testhole for subdivision only, for any other use contact Holler Engineering</u></p> <p>PERFORMED BY: <u>J. Wilkins</u> DATE: <u>5/07/21</u></p>																																																																			
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EXHIBIT B - 5



Seal of the State of Alaska, Registered Professional Engineer. The seal is circular with a rope-like border. The outer ring contains the text "STATE OF ALASKA" at the top and "REGISTERED PROFESSIONAL ENGINEER" at the bottom, separated by two stars. The center features a five-pointed star and the text "49TH" above a stylized signature. Below the signature, the name "CURTIS E. HOLLER" and the number "CE 9607" are printed. A handwritten date "12-16-21" is visible below the printed name.

Legal Description: Drinkhouse Bluffs PH III

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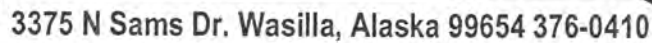
See attached testhole & topo map.

Slope

[illegible]

DATE: 5/07/21

EXHIBIT B - 6



Legal Description: Drinkhouse Bluffs PH III

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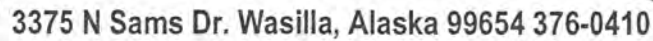
See attached testhole & topo map.

Slope

[illegible]

DATE: 5/07/21

EXHIBIT B - 7



Legal Description: Drinkhouse Bluffs PH III

THLOGsubdnew-h2o-no.xlsx 12/14/2021



Legal Description: Drinkhouse Bluffs PH III

Soil Type

OL

ML, light brown

SP-GP, olive gray, -
varies to SP with gravel,
medium coarse sands, -
sloughs

Slope

Site Plan

See attached testhole & topo map.

↑
N
I

WAS GROUNDWATER ENCOUNTERED?

No

IF YES, AT WHAT DEPTH?

N/A

DEPTH AFTER MONITORING?

N/A

Slope

PERCOLATION TEST

[illegible]

- PERCOLATION RATE _____ (min/inch) PERC HOLE DIAMETER _____

- TEST RUN BETWEEN ↓ FT AND FT DEPTH

- COMMENTS: Testhole for subdivision only, for any other use contact Holler Engineering

- PERFORMED BY: J. Wilkins

DATE: 5/07/21

EXHIBIT B - 9

Amy Otto-Buchanan

From: Jamie Taylor
Sent: Wednesday, May 11, 2022 11:14 AM
To: Amy Otto-Buchanan
Cc: Elaine Flagg
Subject: RE: RFC Drinkhouse Blfs 2 MSP #22-053

Will need a temporary turnaround on Sedlar Circle for Phase 1.

Jamie Taylor, PE (she/her)
Civil Engineer
Matanuska-Susitna Borough
Department of Public Works
t: 907-861-7765 c: 907-355-9810
jamie.taylor@matsugov.us
<http://www.matsugov.us/>

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Friday, April 15, 2022 11:56 AM
To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; mokietew@gmail.com; billydoc56@hotmail.com; pcook@alaskan.com; dmelliott@mtaonline.net; davemtp@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; Brad Sworts <Brad.Sworts@matsugov.us>; msb.hpc@gmail.com; Elaine Flagg <Elaine.Flagg@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Drinkhouse Blfs 2 MSP #22-053

The following link contains a Request for Comments for Drinkhouse Blfs 2 MSP, #2022-053 to subdivide 57786000T00C and 58216000T00B-1. Comments are due by **May 18, 2022**. Please let me know if you have any questions. Thanks, A.

[Drinkhouse Blfs 2 MSP](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan
Platting Technician
amy.otto-buchanan@matsugov.us
861-7872

Amy Otto-Buchanan

From: Permit Center
Sent: Monday, April 18, 2022 9:32 AM
To: Amy Otto-Buchanan
Subject: RE: RFC Drinkhouse Blfs 2 MSP #22-053

Good Morning,

The parcel has a driveway without a permit. Please have your applicant apply for their driveway permit onto Hayfield Rd.

Thank you,

*Jennifer Monnin, CFM
MSB Permit Technician
350 E Dahlia Ave
Palmer, AK 99645
907-861-7822
Jennifer.monnin@matsugov.us*

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Friday, April 15, 2022 11:56 AM
To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; mokietew@gmail.com; billydoc56@hotmail.com; pcook@alaskan.com; dmelliott@mtaonline.net; davemtp@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; Brad Sworts <Brad.Sworts@matsugov.us>; msb.hpc@gmail.com; Elaine Flagg <Elaine.Flagg@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Drinkhouse Blfs 2 MSP #22-053

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[Drinkhouse Blfs 2 MSP](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan
Platting Technician
amy.otto-buchanan@matsugov.us
861-7872

Amy Otto-Buchanan

From: Percy, Colton T (DFG) <colton.percy@alaska.gov>
Sent: Wednesday, April 20, 2022 2:43 PM
To: Amy Otto-Buchanan
Subject: RE: RFC Drinkhouse Blfs 2 MSP #22-053

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Hi Amy,

Alaska Department of Fish and Game has reviewed the proposed platting actions and has no objections. The proposed platting actions will not affect public access to public lands and waters. Thanks you for the opportunity to review and comment.

Colton T. Percy

Habitat Biologist
Access Defense Program
 Alaska Department of Fish and Game
 Division of Wildlife Conservation
 333 Raspberry Rd
 Anchorage, AK 99518
 907-267-2118

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Friday, April 15, 2022 11:56 AM
To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; mokietew@gmail.com; billydoc56@hotmail.com; pcook@alaskan.com; dmelliott@mtaonline.net; davemtp@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; Brad Sworts <brad.sworts@matsugov.us>; msb.hpc@gmail.com; Elaine Flagg <Elaine.Flagg@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Jamie Taylor <jamie.taylor@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Drinkhouse Blfs 2 MSP #22-053

CAUTION: This email originated from outside the State of Alaska mail system. Do not click links or open attachments unless you recognize the sender and know the content is safe.

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[Drinkhouse Blfs 2 MSP](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan
 Platting Technician

EXHIBIT E

Amy Otto-Buchanan

From: OSP Design Group <ospdesign@gci.com>
Sent: Wednesday, April 27, 2022 3:01 PM
To: Amy Otto-Buchanan
Cc: OSP Design Group
Subject: RE: RFC Drinkhouse Blfs 2 MSP #22-053
Attachments: RFC Packet.pdf; Agenda Plat.pdf

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Amy,

In review GCI has no comments or objections to the plat, attached is the signed plat for your records.

Thanks,

MIREYA ARMESTO

GCI | Technician II, GIS Mapping

m: 907-744-5166 | w: www.gci.com

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Friday, April 15, 2022 11:56 AM
To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; mokietew@gmail.com; billydoc56@hotmail.com; pcook@alaskan.com; dmelliott@mtaonline.net; davemtp@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; Brad Sworts <Brad.Sworts@matsugov.us>; msb.hpc@gmail.com; Elaine Flagg <Elaine.Flagg@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Drinkhouse Blfs 2 MSP #22-053

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

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[Drinkhouse Blfs 2 MSP](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan

Platting Technician

amy.otto-buchanan@matsugov.us

861-7872

Amy Otto-Buchanan

From: Holly Sparrow <hsparrow@mtasolutions.com>
Sent: Wednesday, April 20, 2022 11:40 AM
To: Amy Otto-Buchanan
Subject: RE: RFC Drinkhouse Blfs 2 MSP #22-053

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Hi Amy,

MTA has reviewed the plat for Drinkhouse Bluffs. MTA has no comments.

Thank you for the opportunity to comment.

Holly Sparrow, Right of Way Agent

1740 S. Chugach St., Palmer, Alaska 99645

Office: (907) 761-2599 | www.mtasolutions.com



From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Friday, April 15, 2022 11:56 AM
To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; mokietew@gmail.com; billydoc56@hotmail.com; pcook@alaskan.com; dmelliott@mtaonline.net; davemtp@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; Brad Sworts <Brad.Sworts@matsugov.us>; msb.hpc@gmail.com; Elaine Flagg <Elaine.Flagg@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanaska.com; Right of Way Dept. <row@mtasolutions.com>; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Drinkhouse Blfs 2 MSP #22-053

The following link contains a Request for Comments for Drinkhouse Blfs 2 MSP, #2022-053 to subdivide 57786000T00C and 58216000T00B-1. Comments are due by **May 18, 2022**. Please let me know if you have any questions. Thanks, A.

[Drinkhouse Blfs 2 MSP](#)

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Amy Otto-Buchanan



ENSTAR Natural Gas Company
A DIVISION OF SEMCO ENERGY
Engineering Department, Right of Way Section
401 E. International Airport Road
P. O. Box 190288
Anchorage, Alaska 99519-0288
(907) 277-5551
FAX (907) 334-7798

April 15, 2022

Matanuska-Susitna Borough, Platting Division
350 East Dahlia Avenue
Palmer, AK 99645-6488

To whom it may concern:

ENSTAR Natural Gas Company has reviewed the following preliminary plat and has no comments or recommendations.

- **DRINKHOUSE BLUFFS MASTER PLAN**
(MSB Case # 2022-053)

If you have any questions, please feel free to contact me at 334-7944 or by email at james.christopher@enstarnaturalgas.com.

Sincerely,

James Christopher

James Christopher
Right of Way & Compliance Technician
ENSTAR Natural Gas Company

SITE VISIT REPORT

Case Name: Drinkhouse Bluffs	Date: 03/02/2022 Time: 1:00 pm
Owner: Marie Drinkhouse	Case Number: Preapp PA20220017
Surveyor/Engineer: NA	Tax ID #: 57786000T00C 58216000T00B-1
Subdivision: Drinkhouse Bluffs	Regarding: Proposed Subdivision of Tract C and Tract B, Drinkhouse Bluffs

SITE CONDITIONS

Weather: Clear, Sunny	Temperature: 34°
Wind: Light, variable	
General Site Condition: Unconstructed	

Personnel on site: Amy A. Otto-Buchanan, Kimberly McClure, Matthew Goddard - Platting Technicians

Equipment in use: Camera

Current phase of work: Preapp status – creating a new master plan of Drinkhouse Bluffs, Tract C and Tract B

Reason for Visit/Remarks: (See attached photos)
Wanted a visual on how far the stub road of W. Drinkhouse Drive was constructed – had not been able to visit prior to the previous two phases being recorded.

Signed By: Amy Otto-Buchanan

Date: 03/02/2022

EXHIBIT G - 1

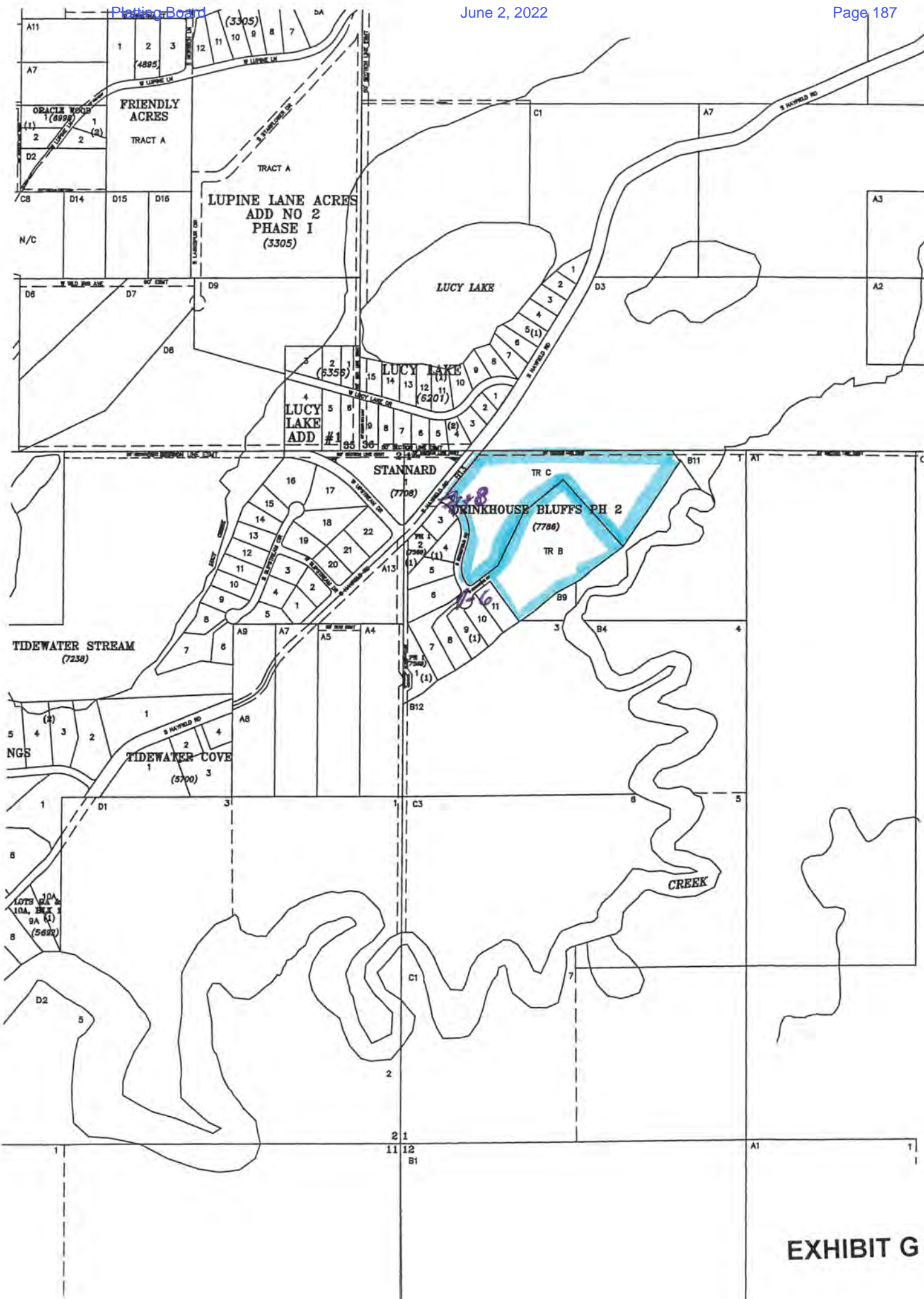




EXHIBIT G - 3

1. Facing southeast from the cul-de-sac of S. Ridgefield Drive.

03.02.2022



EXHIBIT G - 4

2. Facing east from the cul-de-sac of S. Ridgefield Drive.

03.02.2022

EXHIBIT G - 5

3. Facing northeast from the cul-de-sac of S. Ridgefield Drive.

03.02.2022





EXHIBIT G - 6

4. Facing northeast at the intersection of S. Ridgefield Drive and W. Drinkhouse Drive, showing the stub of W. Drinkhouse Drive.

03.02.2022



EXHIBIT G - 4

5. Facing north at the intersection of S. Ridgefield Drive and W. Drinkhouse Drive, showing Tract C.

03.02.2022



EXHIBIT G - 88

6. Facing north from S. Ridgefield Drive showing the intersection of W. Drinkhouse Drive and S. Ridgefield Drive, showing Tract C.

03.02.2022

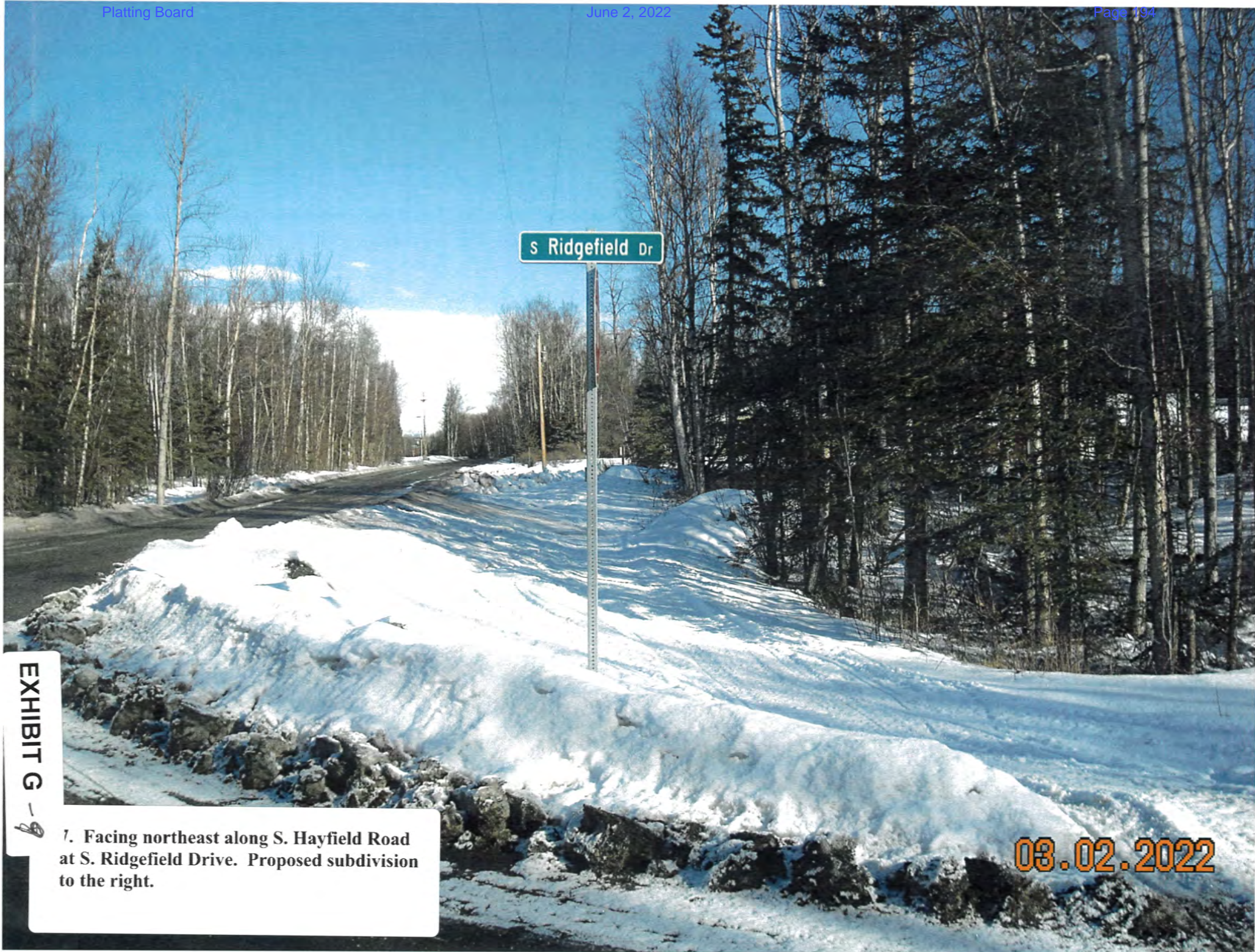


EXHIBIT G - 9

7. Facing northeast along S. Hayfield Road at S. Ridgefield Drive. Proposed subdivision to the right.

03.02.2022



EXHIBIT G-10

8. Facing southeast at the intersection of S. Hayfield Road and S. Ridgefield Drive. Proposed subdivision on the left.

03.02.2022

Amy Otto-Buchanan

From: Adam Bradway
Sent: Monday, May 16, 2022 1:41 PM
To: Amy Otto-Buchanan
Subject: RE: RFC Drinkhouse Blfs 2 MSP #22-053

Comments:

SPECIAL NOTE: CULTURAL RESOURCES

MSB Cultural Resources staff has reviewed the above application and finds that there are multiple known recorded historic sites on said property or directly adjacent. These include the Cottonwood Roadhouse site and the Cottonwood Creek Village site (adjacent) This conclusion was derived through research of the documented sites on file in the Cultural Resources Division of the Matanuska-Susitna Borough and sites documented in Alaska Heritage Resource files at the State Office of History and Archaeology.

While we have no objection to the proposed action, we advise a cultural resources survey for this parcel because of its location and topography, and due to the identification of sites on the property. The purpose of the survey is to locate, document and photograph any additional cultural resources for a confidential inventory of reported historic and prehistoric sites within the Borough. This helps archaeologists understand and interpret settlement patterns and life-ways of our area for current and future generations.

The survey will not affect ownership of sites or artifacts located within the property (they belong to the property owner) nor will it obstruct or delay the application process. Please ask the property owner to contact our office at (907) 861-8608 for a list of professionals that can conduct the survey. We appreciate your assistance in helping us document our borough's past.

NOTE §A.S.11.46.482 (a) of the Alaska Statutes states that

(a) A person commits the crime of criminal mischief in the third degree if, having not right to do so or any reasonable ground to believe the person has such a right ...

(3) If a person knowingly

(A) defaces, damages or desecrates a cemetery or the contents of a cemetery or a tomb, grave, or memorial regardless of whether the tomb, grave, or memorial is in a cemetery or whether the cemetery, tomb, grave, or memorial appears to be abandoned, lost, or neglected; (B) removes human remains or associated burial artifacts from a cemetery, tomb, grave, or memorial regardless of whether the cemetery, tomb, grave, or memorial appears to be abandoned, lost or neglected.

Adam Bradway

Matanuska-Susitna Borough: Planner II
 350 E Dahlia Ave, Palmer, Alaska
 (907) 861-8608

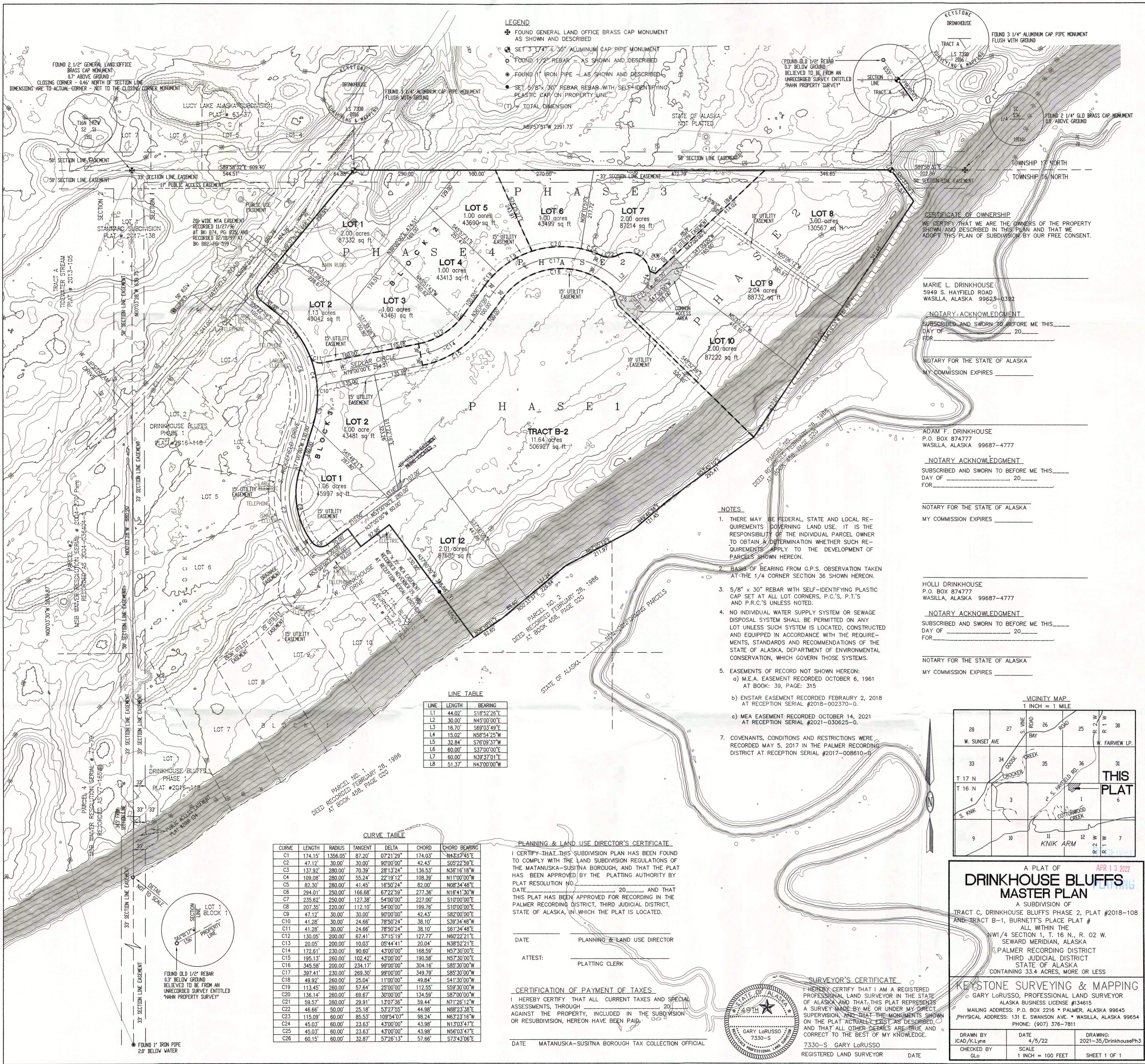
From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>

Sent: Friday, April 15, 2022 11:56 AM

To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; mokietew@gmail.com; billydoc56@hotmail.com; pcook@alaskan.com; dmelliott@mtaonline.net; davemtp@mtaonline.net; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; Brad Sworts <Brad.Sworts@matsugov.us>; msb.hpc@gmail.com; Elaine Flagg <Elaine.Flagg@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Jamie Taylor

EXHIBIT I





6E

**STAFF REVIEW AND RECOMMENDATIONS
PUBLIC HEARING
JUNE 2, 2022**

PRELIMINARY PLAT: COLONIAL FIELDS SOUTH MASTER PLAN

LEGAL DESCRIPTION: SEC 34, T17N, R02E, SEWARD MERIDIAN AK

PETITIONERS: NORTAK FARMS LLC, DAVE MILLER

SURVEYOR/ENGINEER: KEYSTONE SURVEYING/HOLLER ENGINEERING

ACRES: 41.4 ± PARCELS: 35

REVIEWED BY: AMY OTTO-BUCHANAN CASE #: 2022-054

REQUEST: The request is to create 35 lots by a five phase Master Plan from Tract A-3 and Lot 1, Block 4, Colonial Fields Phase Three, Plat No. 2021-92, to be known as **COLONIAL FIELDS SOUTH MASTER PLAN**, containing 41.4 acres +/- . Petitioner will dedicate and construct interior streets, one permanent cul-de-sac at the end of S. Revere Street and two temporary cul-de-sacs to Borough residential street standards. Petitioner proposes to eliminate a portion of a 15' wide utility easement and also eliminate 30' wide drainage easements. Parcel is located south of S. Bodenburg Loop and north of E. Republican Way; lying within the NW ¼ SE ¼ Section 34, Township 17 North, Range 02 East, Seward Meridian, Alaska.

EXHIBITS

Vicinity Map and Aerial Photos

Geotechnical Report

Petition to Modify Utility and Drainage Easement

AGENCY COMMENTS

Department of Public Works Operations & Maintenance

Planning

ADF&G

Utilities

Public Comment

Site Visit Report, 04/27/2022

EXHIBIT A – 4 pgs

EXHIBIT B – 14 pgs

EXHIBIT C – 3 pgs

EXHIBIT D – 1 pg

EXHIBIT E – 1 pg

EXHIBIT F – 1 pg

EXHIBIT G – 3 pgs

EXHIBIT H – 1 pg

EXHIBIT I – 11 pgs

DISCUSSION: The proposed subdivision is south of S. Bodenburg Loop and north of E. Republican Way. Petitioner is creating 35 lots by a five-phase Master Plan. Access will be from S. Minuteman Drive, E. Saratoga Avenue, and E. Yorktown Trail and S. Revere Street for Lot 1A, Block 4. Petitioner will be constructing Borough standard streets (see **Recommendation #5**). Petitioner is dedicating right-of-way of S. Gates Street in the southeast portion for interconnectivity to the parcel to the south. Petitioner proposes to vacate a portion of the 15' wide utility easement east adjacent to S. Reverse Street and replace it with a 15' wide utility easement around the bulb of the permanent cul-de-sac. Petitioner also proposes to vacate three 30' wide drainage easements: one on the western boundary of the parcel; a portion of the 30' wide

east-to-west drainage easement south of the proposed new permanent cul-de-sac and a portion of the same 30' wide east-to-west drainage easement on the western side.

Soils Report: A geotechnical report was submitted (**Exhibit B**), pursuant to MSB 43.20.281(A). Curt Holler, PE, Holler Engineering, notes three new testholes were excavated. Testhole location map and soils logs are attached. The parent parcel is relatively flat and nearly square in shape, having been cleared long ago to function as farmland. There are very shallow valleys formed within the west and east halves of the parcel, which run to the south. Total elevation differential is approximately 8'; average grade is under 0.5%. Attached map shows general drainage patterns. The parent parcel is maintained hayfield turf with little to no native vegetation. Near surface soils included a layer of silty topsoils varying from 1' to 3' deep. Receiving soils are relatively clean sands and gravels. Groundwater was encountered in three of the ten holes dug at levels at 11' and 12' and 12'. Based on the available soils and water table information, topography, MSB code and observations on site, each of the 13 lots will contain over 10,000 sf of contiguous useable septic area and an additional 10,000 sf of useable building area.

Drainage Plan: The attached map shows the approximate pre- and post-construction drainage patterns and proposed drainage structures. No concentrated runoff will leave the road area. Project includes drainage easements and swales for conveyance of overflow and may require retention basins. As always, the drainage plan presented is subject to field modification and improvement during construction.

Road Construction: The phases of the project will collectively require construction of about 3,110' of new residential or residential subcollector standard streets, one new permanent cul-de-sac, two internal intersections and two temporary cul-de-sacs. Average Daily Traffic (ADT) calculations are at **Exhibit B-4**.

Comments: Department of Public Works Operations & Maintenance (**Exhibit D**) notes S. Colonist Drive is classified as Residential Subcollector. Due to direct residential access and an average access point spacing of 175', S. Colonist Drive cannot be upgraded to Residential Collector standards. Development of the proposed subdivision should be limited to 21 lots until such a time that another access to the subdivision exists. *Staff notes that the Subdivision Construction Manual states the average access point spacing shall not decrease due to the subdivision (SCM B.04(b)).*

Planning Division (**Exhibit E**) notes an air quality concern for the Greater Butte Air Quality District. Any future development should consider providing natural gas connections where feasible. ADF&G (**Exhibit F**) has no objections.

Utilities: (**Exhibit G**) MTA has no comments. GCI has no objections. Enstar has no comments or recommendations. MEA did not respond.

Public Comment: (**Exhibit H**) Andy Bickford, owner of Lot 13, Block 1, Colonial Fields Phase I, has no objection.

At the time of staff report write-up, there were no responses to the Request for Comments from US Army Corps of Engineers; Community Council Butte; Fire Service Area #2 Butte; Road Service Area #26 Greater Butte; MSB Emergency Services, Community Development, Assessments, Development Services, or Pre-Design Division; or MEA.

CONCLUSION: The preliminary plat of COLONIAL BLUFFS SOUTH MASTER PLAN is consistent with AS 29.40.070 Platting Regulations and MSB 43.15.016 Preliminary Plats. The vacations of the utility easement and drainage easements are pursuant to MSB 43.15.032. There were no objections from any federal or state agencies, Borough departments, or utilities. There were no objections to the plat from the public in response to the Notice of Public Hearing; one non-objection was received. Legal and physical access will exist to the proposed lots, consistent with MSB 43.20.100 Access Required, MSB 43.20.120 Legal Access and MSB 43.20.140 Physical Access. Frontage for the subdivision will exist, pursuant to MSB 43.20.320 Frontage Flag lots. A soils report was submitted, pursuant to MSB 43.20.218(A)(1).

FINDINGS OF FACT

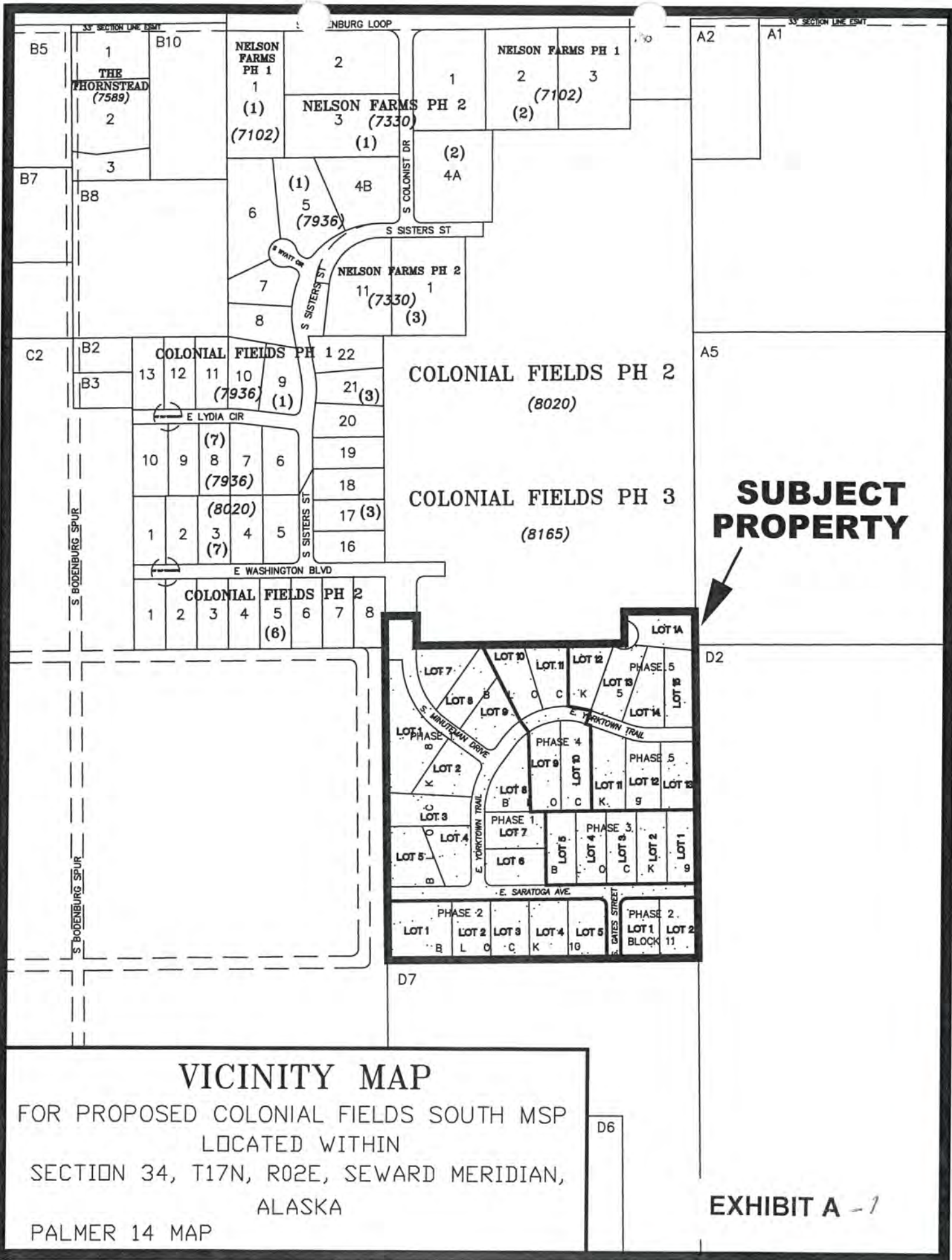
1. The plat of Colonial Fields South Master Plan is consistent with AS 29.40.070 Platting Regulations and MSB 43.15.016 Preliminary Plats.
2. The vacation of the utility easement and the drainage easements are pursuant to MSB 43.15.032.
3. A soils report was submitted, pursuant to MSB 43.20.281(A)(1). All lots have the required septic area and building area.
4. All lots will have the required frontage pursuant to MSB 43.20.320.
5. At the time of staff report write-up, there were no responses to the Request for Comments from US Army Corps of Engineers; Community Council Butte; Fire Service Area #2 Butte; Road Service Area #26 Greater Butte; MSB Emergency Services, Community Development, Assessments, Development Services, or Pre-Design Division; or MEA.
6. There were no objections from any federal or state agencies, Borough departments, or utilities.
7. There were no objections from the public in response to the Notice of Public Hearing; one non-objection was received.
8. Determined by an upgraded Average Daily Traffic (ADT) analysis, E. Republican Way may need to be upgraded to Residential Subcollector standard.

RECOMMENDATIONS OF CONDITIONS OF APPROVAL

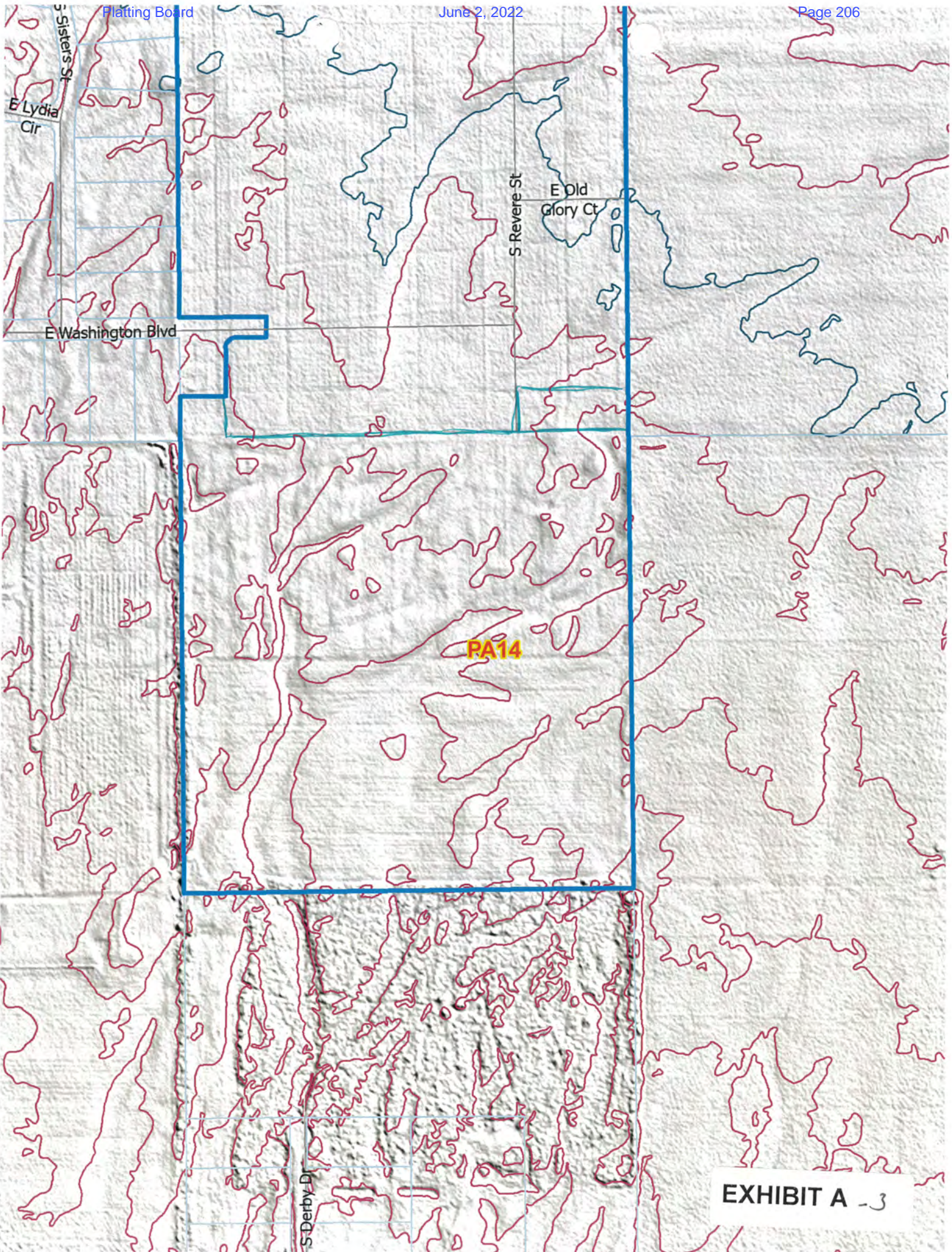
Suggested motion: I move to approve the preliminary plat of Colonial Fields South Master Plan, Section 34, Township 17 North, Range 02E, Seward Meridian, Alaska, contingent on staff recommendations:

1. Obtain Assembly approval of the utility easement elimination and the vacation of the two drainage easements.
2. Taxes and special assessments must be paid in full for the year of recording, pursuant to MSB 43.15.053(F) and AS 40.15.020. For each phase plat, pay taxes and special assessments (LIDs), by CERTIFIED FUNDS OR CASH.
3. Provide updated Certificate to Plat executed within seven (7) days of recording of plat and submit Beneficiary Affidavit for any holders of a beneficial interest for each phase plat.
4. Pay postage and advertising fees.
5. Construct interior streets and cul-de-sacs to MSB residential/residential subcollector street standards:
 - a. Submit cost estimate, arrange a pre-construction meeting with Department of Public Works (DPW), pay inspection fee and obtain a Notice to Proceed from Platting staff. Submit street inspection reports as required by Section F1.4, F1.5 and F1.6 of the Subdivision Construction Manual.
 - b. Upgrade S. Colonist Drive to Residential Collector, if necessary.
 - c. Provide DPW acceptance of the road to Platting staff.
 - d. Platting staff to approve all road names.
 - e. Provide as-built of streets once construction is complete.

6. Show all easements of record on each final phase plat.
7. Submit recording fees, payable to Department of Natural Resources (DNR), for each phase plat.
8. Submit final phase plat in full compliance with Title 43.









390 195 0 390 Feet

EXHIBIT A - 4





HOLLER ENGINEERING

Water, Wastewater & Soils Consulting

3375 N Sarns Dr. Wasilla, Alaska 99654 • 376-0410

April 13, 2022

Fred Wagner
MSB Platting Officer
350 East Dahlia Avenue
Palmer, Alaska 99645

APR 13 2022
PLATTING

Re: *Colonial South Subdivision; Useable Areas, Roads & Drainage.* HE #22015

Dear Mr. Wagner:

At the request of Dave Miller, we have performed a soils review and related preliminary design work for the referenced proposed subdivision. The phased project will ultimately create 35 building lots from one existing lot and a large parcel with a total area of 41.4 acres. Our soils evaluation included review of our extensive earlier soil testing information, logging three new testholes, review of the provided topography information, review of satellite imagery, and our other observations at the site. See the attached testhole location and topography map for details.

Topography. The parent parcel is relatively flat and nearly square in shape, having been cleared long ago to function as farmland. There are very shallow valleys formed within the west and east halves of the parcel, which run off to the south. The total elevation differential indicated from the provided topographical map is approximately 8'. Average grade is just under 0.5%, with the lowest areas to the south or southwest. See the attached map for general drainage patterns.

Soils & Vegetation. The parent parcel is maintained hayfield turf with little to no native vegetation remaining. Near surface soils included a layer of silty topsoils varying from 1' to 3' deep. Receiving soils encountered under the topsoils were consistent, all being relatively clean sands and gravels. Copies of the testhole logs and the location/topography map are attached.

Groundwater. Groundwater was encountered in 3 of the 10 holes dug on this 40 acre site, at levels of 11', 12' and 12'. Groundwater is not expected to be a significant limiting factor for development of the proposed building lots.

Useable Areas. The proposed lots have a few limitations on areas defined by MSB code as *useable septic area* or *useable building area*. Useable septic areas will primarily be limited by lotlines. For useable building area, lotlines, utility easements, and ROW/PUE setbacks will be limiting factors. In each case, adequate unencumbered area exists to easily meet the code requirements. Based on the available soils and water table

information, topography, MSB Title 43 Code definitions, and our observations at the site, ***each of the proposed lots will contain over 10,000 square feet of contiguous useable septic area, and an additional 10,000 square feet of useable building area.***

Road Construction. The phases of the project will collectively require the construction of approximately 3,110' of new *residential* or *residential subcollector* standard roads, 2 temporary cul-de-sac roads and 2 internal intersections. Adequate sand and gravel road base materials exist on the project site, which can be mined from shallow continuous ditch excavations and drainage basins. Topping materials would need to be imported, or may be waived in lieu of paving as with earlier sections of the project. All of the proposed lots will have reasonable access points and private drives can be readily constructed.

Drainage Plan. The attached map shows the approximate pre- and post-construction drainage patterns and proposed drainage structures. Roads are to be served by traditional ditches and multiple internal rock filled infiltration points. New drainage patterns are similar to existing patterns, and will not change significantly due to the road project. No concentrated runoff will leave the road area for the project except as overflow in existing obvious terrain features. The project will include drainage easements and swales for conveyance of overflow, and may require retention basins. Culverts were conservatively sized based on watershed areas. As always, the drainage plan presented is subject to field modifications and improvements, and a full drainage report is planned. See the attached preliminary drainage plan map for details.

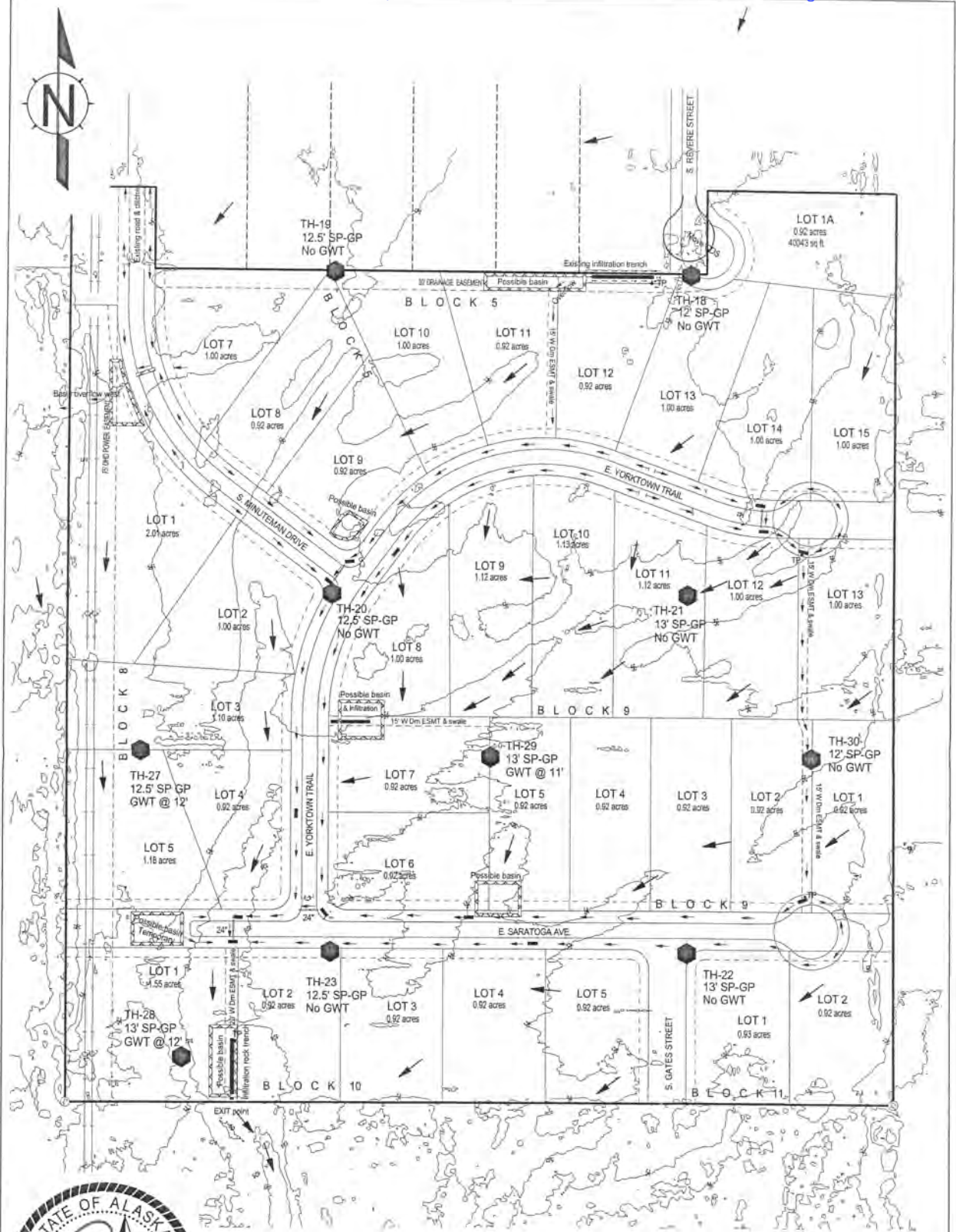
Please do not hesitate to call with any other questions you may have.

Sincerely,

Curtis Holler, PE

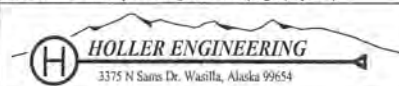
c; D. Miller, w/attachments





4/12/22

Colonial Fields Subdivision
Roads, Preliminary Drainage, and Topography Map



Job # 22015

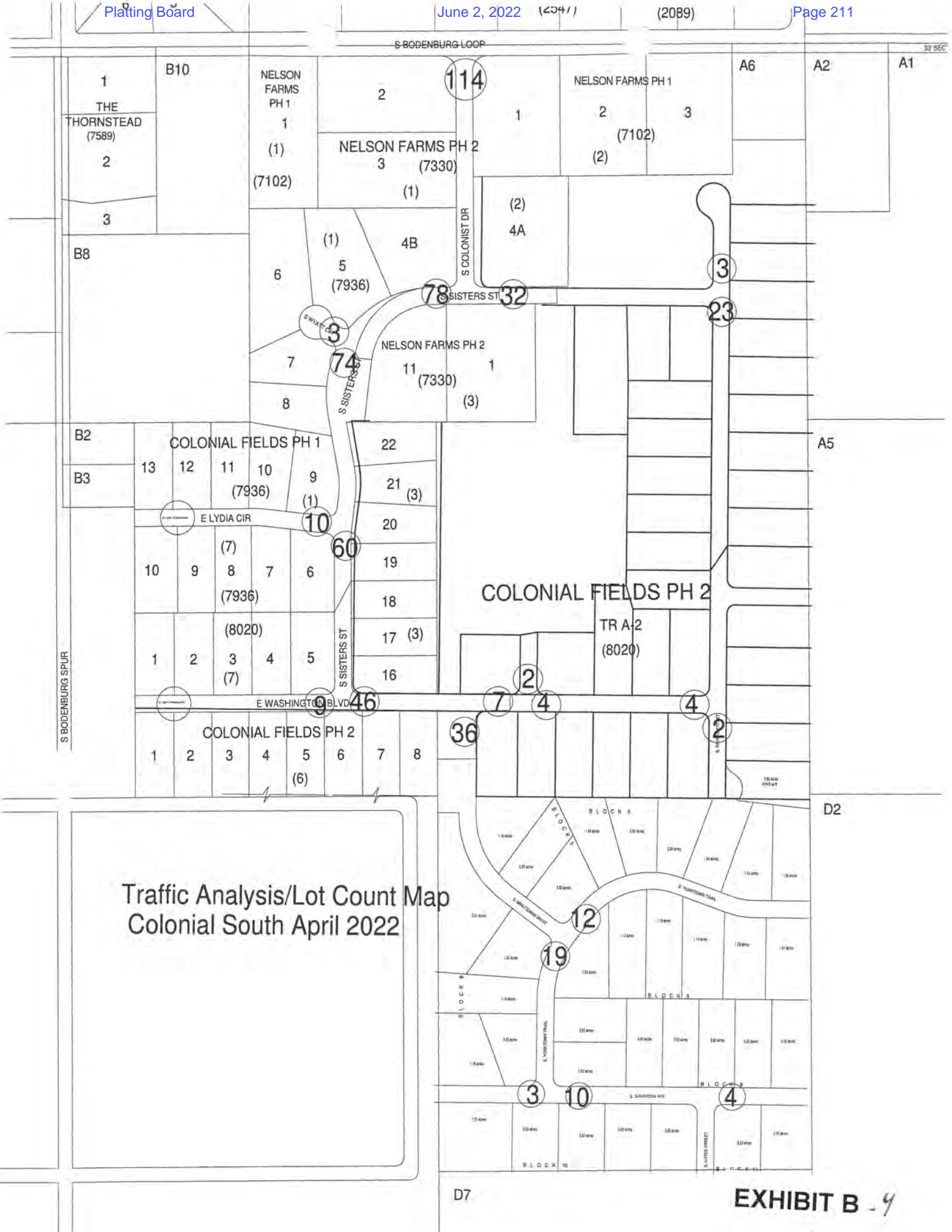
Scale: 1"=150'

Date: 4/12/22

Notes:

1. Arrows denote apparent drainage patterns.
2. Topography approximate, provided by others.
3. Preliminary drainage plan shown:
shallow drainage basin =
rock infiltration trench =
4. Culverts are 18" diameter unless otherwise specified.

EXHIBIT B




HOLLER ENGINEERING

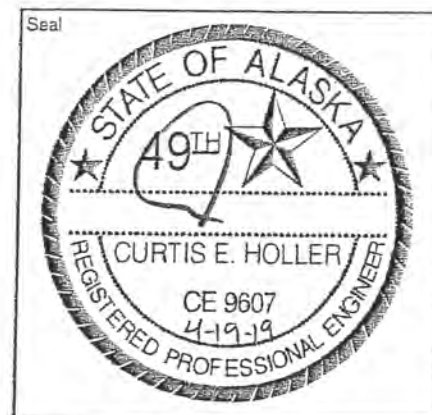
3375 N Sams Dr. Wasilla, Alaska (907) 376-0410

SOILS LOG / PERCOLATION TEST

TEST HOLE # 1B of 23

Performed For: Janice Swartzbacker

Legal Description: TP A8 S34 T17N R2E SM



Depth, feet	Soil Type	Slope	Site Plan																																																											
1	ML BROWN		See testhole location & topo map ↑ N ↓																																																											
2	SP-GP + 50%, BAND SP. SW @ 5'-6', OLIVE-GRAY, ROCK TO 5", CLEAN TO TRACE SILT																																																													
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- PERCOLATION RATE _____ (min/inch) PERC HOLE DIAMETER _____
 - TEST RUN BETWEEN _____ FT AND _____ FT DEPTH
 - Comments: Testhole is for subdivision purpose only; contact Holler Engineering for any other use

PERFORMED BY: C. HOLLER

DATE: 11-17-10

EXHIBIT B - 5


HOLLER ENGINEERING

3375 N Sams Dr. Wasilla, Alaska (907) 376-0410

SOILS LOG / PERCOLATION TEST

TEST HOLE # 19 of 23

Performed For: Janice Swartzbacker

Legal Description: TP A8 S34 T17N R2E SM

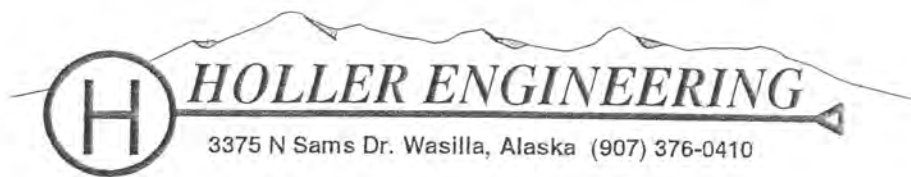


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PERFORMED BY: C. HOLLER

DATE: 11-17-10

EXHIBIT B - 6



SOILS LOG / PERCOLATION TEST

TEST HOLE # 20 of 23

Performed For: Janice Swartzbacker

Legal Description: TP A8 S34 T17N R2E SM



Depth, feet	Soil Type	Slope	Site Plan																																																														
1	ML, BROWN		<p>See testhole location & topo map</p> <p>↑ N ↓</p>																																																														
2	SP w/GP, w/GRAVEL, SP-SW, VARIES TO SP-GP, ROCK TO 3"																																																																
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8	SP w/GP, SMALL GRAVELS, ROCK TO 2" CLEAN, MEDIUM-COARSE SANDS, OLIVES			<p>WAS GROUNDWATER ENCOUNTERED? <u>No</u></p> <p>IF YES, AT WHAT DEPTH? <u>N/A</u></p> <p>DEPTH AFTER MONITORING? <u>N/A</u></p>																																																													
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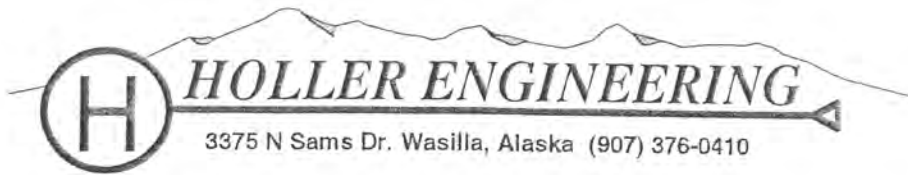
PERCOLATION RATE _____ (min/inch) PERC HOLE DIAMETER _____

TEST RUN BETWEEN _____ FT AND _____ FT DEPTH

Comments: Testhole is for subdivision purpose only; contact Holler Engineering for any other use

PERFORMED BY: C. HOLLER DATE: 11-17-10

EXHIBIT B - 7



SOILS LOG / PERCOLATION TEST

TEST HOLE # 21 of 23

Performed For: Janice Swartzbacker

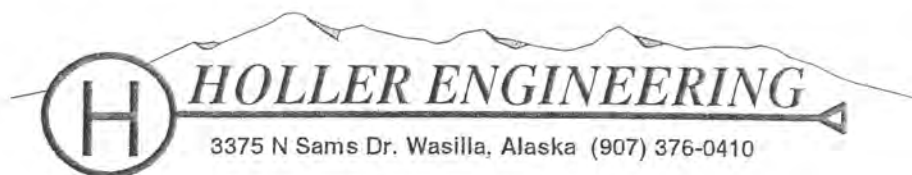
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PERFORMED BY: C. HOLLER

DATE: 11-17-10

EXHIBIT B - 8



SOILS LOG / PERCOLATION TEST



TEST HOLE # 22 of 23

Performed For: Janice Swartzbacker

Legal Description: TP A8 S34 T17N R2E SM

Depth, feet	Soil Type	Slope	Site Plan																																																																		
1	ML, BROWN OL		<p>See testhole location & topo map</p> <p style="text-align: center;">↑ N ↓</p>																																																																		
2	VARRIES SP w/ SMALL GRAVEL TO SP-MEDIUM TO FINE, OLIVE-GRAY																																																																				
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EXHIBIT B - 9



SOILS LOG / PERCOLATION TEST

TEST HOLE # 23 of 23

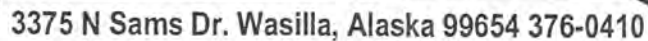
Performed For: Janice Swartzbacker

Legal Description: TP A8 S34 T17N R2E SM



Depth, feet	Soil Type	Slope	Site Plan																																																												
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13	NO GROUND WATER NO SEEPS	WAS GROUNDWATER ENCOUNTERED? <u>No</u> IF YES, AT WHAT DEPTH? <u>N/A</u> DEPTH AFTER MONITORING? <u>N/A</u>																																																													
14		PERCOLATION TEST <table border="1"> <thead> <tr> <th>Reading</th> <th>Date</th> <th>Gross Time</th> <th>Net Time</th> <th>Depth to Water</th> <th>Net Drop</th> </tr> </thead> <tbody> <tr> <td colspan="6">N/A visual analysis only</td> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		Reading	Date	Gross Time	Net Time	Depth to Water	Net Drop	N/A visual analysis only																																																					
Reading		Date	Gross Time	Net Time	Depth to Water	Net Drop																																																									
N/A visual analysis only																																																															
15	PERCOLATION RATE _____ (min/inch) PERC HOLE DIAMETER _____ TEST RUN BETWEEN _____ FT AND _____ FT DEPTH Comments: <u>Testhole is for subdivision purpose only; contact Holler Engineering for any other use</u>																																																														
16	PERFORMED BY: C. HOLLER DATE: 11-17-10																																																														
17																																																															
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EXHIBIT B - 10



Legal Description: Colonial South

Soil Type

Slope

$$\begin{array}{c} \uparrow \\ N \\ | \end{array}$$

See attached testhole & topo map.

Yes

Fast@12.0'

N/A

Slope

[illegible]

DATE: 3-24-2022

THLOGsubdnew-h2o-no.xlsx 3/31/2022


HOLLER ENGINEERING

3375 N Sams Dr. Wasilla, Alaska 99654 376-0410

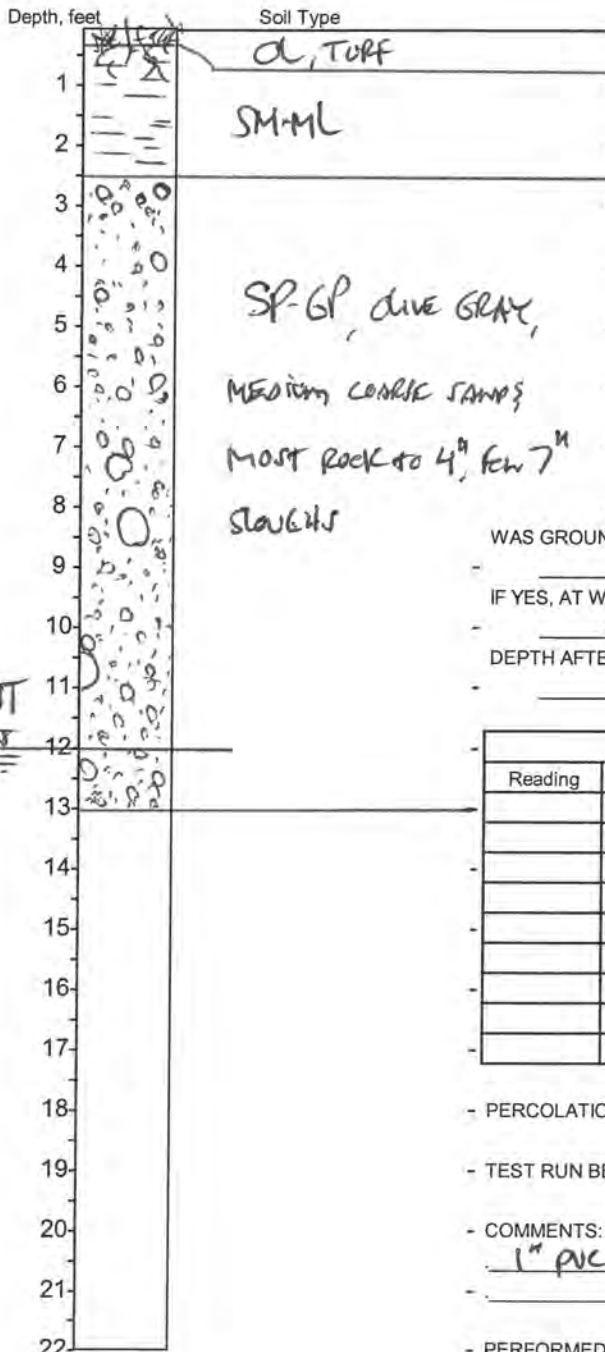
SOILS LOG / PERCOLATION TEST

 TEST HOLE # 28 of 30

 Performed For: Dave Miller

 Legal Description: Colonial South

Seal



Slope

Site Plan

See attached testhole & topo map.

 ↑
N
↓

WAS GROUNDWATER ENCOUNTERED?

 - Yes

IF YES, AT WHAT DEPTH?

 - 12.0' FAST

DEPTH AFTER MONITORING?

 - N/A

Slope

PERCOLATION TEST

Reading	Date	Gross Time	Net Time	Depth to Water	Net Drop
N/A visual analysis only					

 - PERCOLATION RATE (min/inch) PERC HOLE DIAMETER

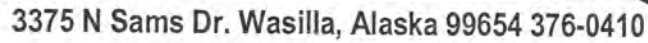
 - TEST RUN BETWEEN FT AND FT DEPTH

 - COMMENTS: Testhole for subdivision only, for any other use contact Holler Engineering

 - 1" PVC MONITOR PROVIDED TO 12.5' LEVEL

 - PERFORMED BY: J. Wilkins

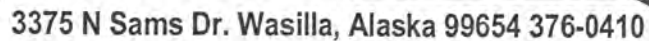
 DATE: 3-24-2022
EXHIBIT B - 12



Legal Description: Colonial South

↑
N
I

EXHIBIT B - 13



Legal Description: Colonial South

DATE: 3-24-2022

THLOGsubdnew-h2o-no.xlsx 3/31/2022

Matanuska-Susitna Borough
Telephone (907) 861-7874

350 East Dahlia Avenue
Palmer, Alaska 99645-6488

PETITION FOR ELIMINATION OR MODIFICATION OF UTILITY, DRAINAGE, SANITATION, AND SCREENING EASEMENTS

Comes now the undersigned, Nortak Farms, LLC, and petitions the Matanuska-Susitna Borough to eliminate or modify the utility, slope, snow storage, drainage, sanitation, buffers or screening easement(s) lying within the following described property, to-wit:

TRACT A-3 { LOT 1, BLOCK 4, Colonial Fields Phase 3

Said easement(s) being more fully described as:

SEE ATTACHED DRAWINGS

NOTE: Utility easement eliminations may require non-objection letters from the service area utility companies as a condition of approval, see MSB 43.15.032.

Submitted herewith are the following:

1. A copy of the as-built showing the easement(s) to be vacated/modified (if due to encroachment)
2. \$500.00 Public Hearing Fee (no fee if submitted with Regular Plat)

The action sought by this petition is for the following reasons: (ATTACH PAGES, IF NEEDED)

Re-configuring road(s) Revere { subdividing TRACT A

APPLICANT	Name: <u>Nortak Farms LLC</u>	Email: <u>dmiller@summitbuildersak.com</u>
OR	Mailing Address: <u>4942 S. Colonist Dr.</u>	Zip: <u>99645</u>
OWNER	Contact Person: <u>Dave Miller</u>	Phone: <u>795-5194</u>
SURVEYOR	Name (FIRM): <u>Keystone Surveying</u>	Email: <u>gary@mtaonline.net</u>
	Mailing Address: <u>P.O. Box 2216</u>	Zip: <u>99645</u>
	Contact Person: <u>Gary</u>	Phone: <u>376-7811</u>

Matanuska-Susitna Borough
Telephone (907) 861-7874

350 East Dahlia Avenue
Palmer, Alaska 99645-6488

SIGNATURES OF PETITIONER(S):

 Gayle Russo 04/25/22



THIS AREA TO BE COMPLETED BY THE MATANUSKA-SUSITNA BOROUGH

THE APPLICATION HAS BEEN REVIEWED AND FOUND TO MEET SUBMITTAL STANDARDS AS NOTED ABOVE.

DATE

PLATTING DIVISION REPRESENTATIVE

SCHEDULED FOR PUBLIC HEARING ON: _____

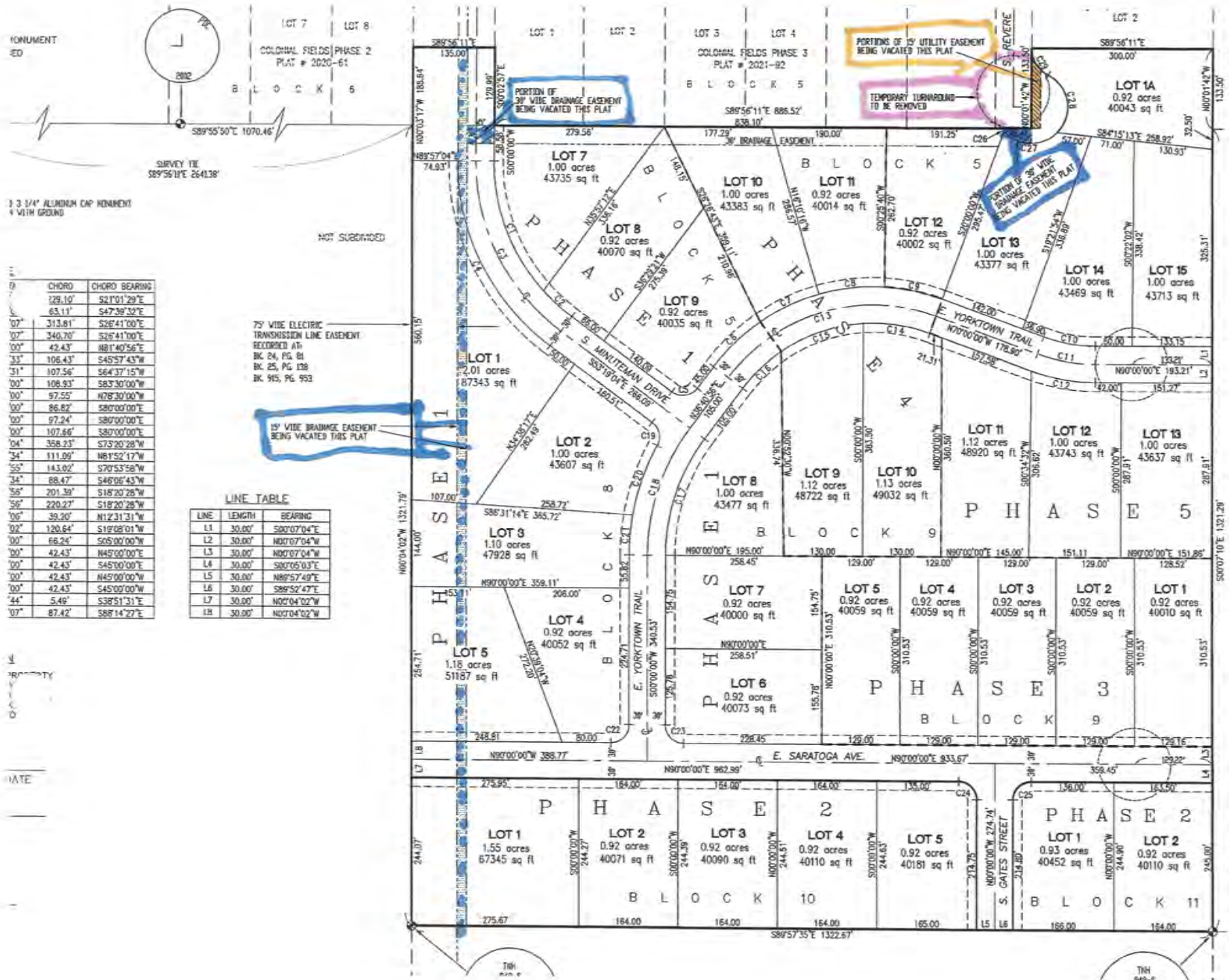


EXHIBIT C

NOTES

1. THERE IS NO REQUIREMENT FOR THE DEVELOPER TO BE RESPONSIBLE FOR THE DEVELOPMENT OF THE PARCEL.
2. BASIS OF PLAT #
3. 5/8" x CAP SE P.R.C.'S
4. NO INDIAN DISPOSITIONS, STATE OR FEDERAL, ARE KNOWN TO AFFECT THIS PLAT.
5. EASEMENTS: a) b)
6. COVENANTS: JULY 10 AND AM NO. 201

COL
COL

Amy Otto-Buchanan

From: Jamie Taylor
Sent: Friday, May 13, 2022 1:38 PM
To: Amy Otto-Buchanan
Cc: Elaine Flagg
Subject: RE: RFC Colonial Flds S MSP #22-054

Colonist Drive is classified as Residential Subcollector. Due to direct residential access and an average access point spacing of ~175 feet, Colonist Drive cannot be upgraded to Residential Collector standard. Development of the proposed subdivision should be limited to 21 lots until such a time that another access to the subdivision exists.

Jamie Taylor, PE (she/her)
Civil Engineer
Matanuska-Susitna Borough
Department of Public Works
t: 907-861-7765 c: 907-355-9810
jamie.taylor@matsugov.us
<http://www.matsugov.us/>

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Wednesday, April 20, 2022 11:05 AM
To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; timhaledistrict1@gmail.com; butteakcc@gmail.com; Mike and Elaine Shields <meshie@mtaonline.net>; snowshark1@hotmail.com; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <Brad.Sworts@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Colonial Flds S MSP #22-054

The following link contains a Request for Comments for Colonial Fields South Master Plan to subdivide 58165000T00A-3 and 58165B04L001. Comments are due by **May 18, 2022**. Please let me know if you have questions. Thanks, A.

[Colonial Flds S MSP](#)

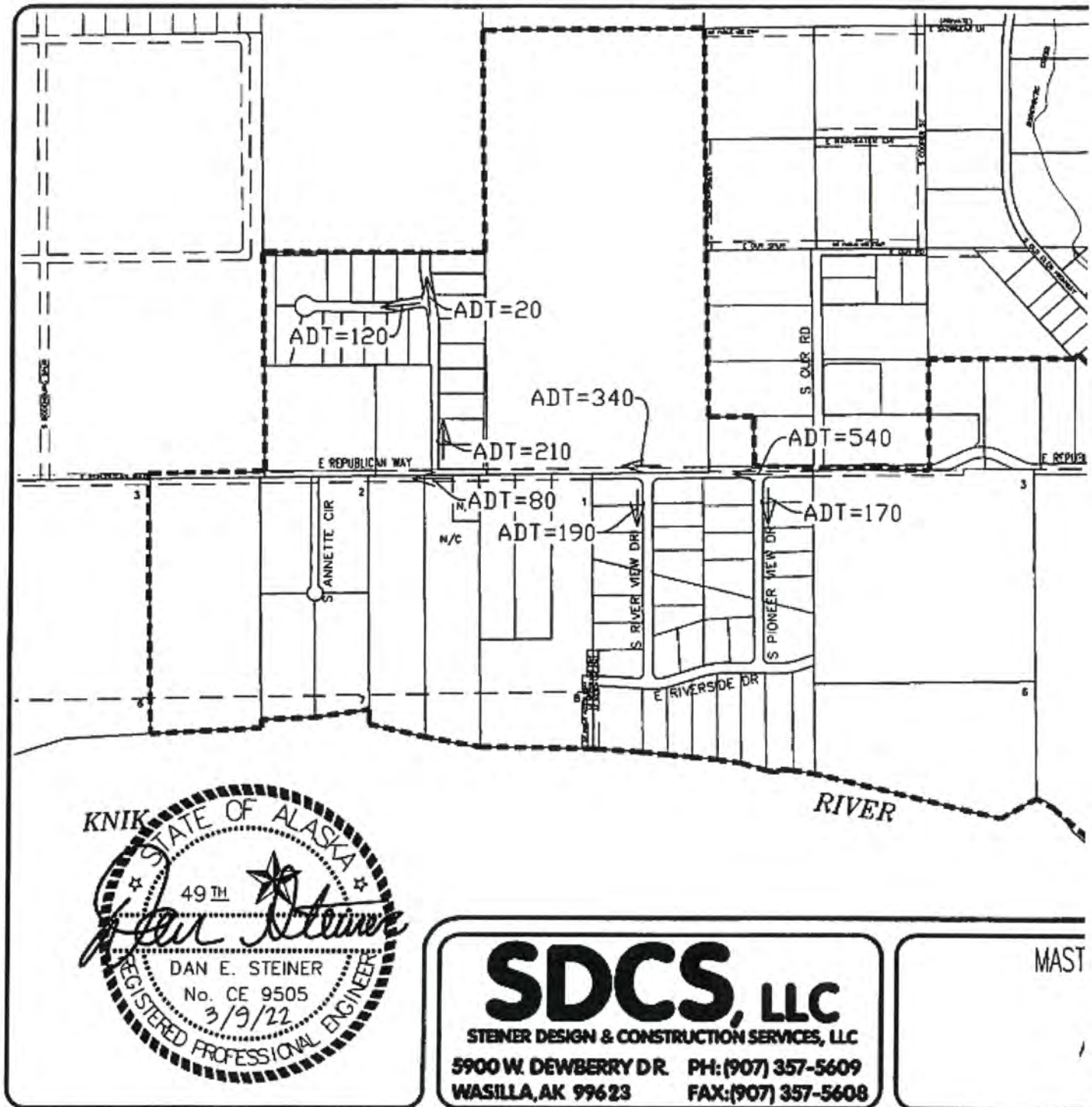
Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan
Platting Technician
amy.otto-buchanan@matsugov.us

Amy Otto-Buchanan

From: Jamie Taylor
Sent: Tuesday, May 17, 2022 10:49 AM
To: Amy Otto-Buchanan
Cc: Elaine Flagg
Subject: RE: RFC Colonial Flds S MSP #22-054

After reviewing Glacier Valley's ADT estimate, it seems likely that the additional traffic from Colonial Fields South will put the traffic on Republican Way over 1000 ADT. A new ADT estimate should be provided showing the projected traffic split. Republican Way will need to be upgraded to Residential Collector standard if the estimated ADT is over 1000.



Jamie Taylor, PE (she/her)
 Civil Engineer
 Matanuska-Susitna Borough
 Department of Public Works
 t: 907-861-7765 c: 907-355-9810
jamie.taylor@matsugov.us
<http://www.matsugov.us/>

Amy Otto-Buchanan

From: Adam Bradway
Sent: Thursday, May 12, 2022 9:31 AM
To: Amy Otto-Buchanan
Cc: Rick Antonio; Gerrit Verbeek
Subject: RE: RFC Colonial Flds S MSP #22-054

Comments

Air Quality:

Environmental Concern – Air Quality:

- a. This parcel is located in an air quality area of concern (Greater Butte Air Quality District = the Butte Community Council boundaries).
 - i. **The Butte area has known air quality issues** associated with wood smoke accumulation on cold, calm days in the winter months. Any future development should consider providing natural gas connections where feasible.
 - ii. Ordinance 19-032 prohibits outdoor burning in the Greater Butte Air Quality District on a days when an air quality advisory has been issued based on unhealthy readings at the Butte air quality monitor for fine particulate matter (PM2.5). These bad air advisories typically occur between 0-8 days each year, typically during cold air inversions during the months of November through February (average = 5).
 - iii. More info:
 - a. <https://www.matsugov.us/airquality>
 - b. MSB Code 8.75

Adam Bradway

Matanuska-Susitna Borough: Planner II
 350 E Dahlia Ave, Palmer, Alaska
 (907) 861-8608

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>

Sent: Wednesday, April 20, 2022 11:05 AM

To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; timhaldedistrict1@gmail.com; butteakcc@gmail.com; Mike and Elaine Shields <meshie@mtaonline.net>; snowshark1@hotmail.com; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <Brad.Sworts@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>

Subject: RFC Colonial Flds S MSP #22-054

Amy Otto-Buchanan

From: Percy, Colton T (DFG) <colton.percy@alaska.gov>
Sent: Tuesday, May 10, 2022 8:36 AM
To: Amy Otto-Buchanan
Subject: RE: RFC Colonial Flds S MSP #22-054

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Hi Amy,

Alaska Department of Fish and Game has reviewed the proposed platting actions and has no objections. The proposed actions will not adversely affect fish, wildlife, habitat, or public access to public lands and waters. Thank you for the opportunity to review and comment on these platting actions.

Colton T. Percy

Habitat Biologist

Access Defense Program

Alaska Department of Fish and Game

Division of Wildlife Conservation

333 Raspberry Rd

Anchorage, AK 99518

907-267-2118

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>

Sent: Wednesday, April 20, 2022 11:05 AM

To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; timhaldedistrict1@gmail.com; butteakcc@gmail.com; Mike and Elaine Shields <meshie@mtaonline.net>; snowshark1@hotmail.com; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <brad.sworts@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Jamie Taylor <jamie.taylor@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>

Subject: RFC Colonial Flds S MSP #22-054

CAUTION: This email originated from outside the State of Alaska mail system. Do not click links or open attachments unless you recognize the sender and know the content is safe.

The following link contains a Request for Comments for Colonial Fields South Master Plan to subdivide 58165000T00A-3 and 58165B04L001. Comments are due by **May 18, 2022**. Please let me know if you have questions. Thanks, A.

[Colonial Flds S MSP](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan
Platting Technician

EXHIBIT F

Amy Otto-Buchanan

From: OSP Design Group <ospdesign@gci.com>
Sent: Thursday, April 28, 2022 4:11 PM
To: Amy Otto-Buchanan
Cc: OSP Design Group
Subject: RE: RFC Colonial Flds S MSP #22-054
Attachments: RFC Packet.pdf; Agenda Plat.pdf

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Amy,

In review GCI has no comments or objections to the plat, attached is the signed plat for your records.

Thanks,

MIREYA ARMESTO

GCI | Technician II, GIS Mapping

m: 907-744-5166 | w: www.gci.com

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Wednesday, April 20, 2022 11:05 AM
To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; pamela.j.melchert@usps.gov; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; timhaledistrict1@gmail.com; butteakcc@gmail.com; Mike and Elaine Shields <meshie@mtaonline.net>; snowshark1@hotmail.com; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <Brad.Sworts@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Colonial Flds S MSP #22-054

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[Colonial Flds S MSP](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan

Platting Technician

amy.otto-buchanan@matsugov.us

861-7872

Amy Otto-Buchanan

From: Holly Sparrow <hsparrow@mtasolutions.com>
Sent: Thursday, April 28, 2022 1:04 PM
To: Amy Otto-Buchanan
Subject: RE: RFC Colonial Flds S MSP #22-054

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Hi,

MTA has reviewed the plat for Colonial Fields. MTA has no comments.

Thank you for the opportunity to comment.

Holly Sparrow, Right of Way Agent

1740 S. Chugach St., Palmer, Alaska 99645

Office: (907) 761-2599 | www.mtasolutions.com



Life. Technology. Together.

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Wednesday, April 20, 2022 11:05 AM
To: Percy, Colton T (DFG) <colton.percy@alaska.gov>; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; timhaledistrict1@gmail.com; butteakcc@gmail.com; Mike and Elaine Shields <meshie@mtaonline.net>; snowshark1@hotmail.com; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <Brad.Sworts@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; Right of Way Dept. <row@mtasolutions.com>; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Colonial Flds S MSP #22-054

The following link contains a Request for Comments for Colonial Fields South Master Plan to subdivide 58165000T00A-3 and 58165B04L001. Comments are due by **May 18, 2022**. Please let me know if you have questions. Thanks, A.

[Colonial Flds S MSP](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan

EXHIBIT G



ENSTAR Natural Gas Company
A DIVISION OF SEMCO ENERGY
 Engineering Department, Right of Way Section
 401 E. International Airport Road
 P. O. Box 190288
 Anchorage, Alaska 99519-0288
 (907) 277-5551
 FAX (907) 334-7798

April 20, 2022

Matanuska-Susitna Borough, Platting Division
 350 East Dahlia Avenue
 Palmer, AK 99645-6488

To whom it may concern:

ENSTAR Natural Gas Company has reviewed the following preliminary plat and has no comments or recommendations.

- **COLONIAL FIELDS SOUTH**
(MSB Case # 2022-054)

If you have any questions, please feel free to contact me at 334-7944 or by email at james.christopher@enstarnaturalgas.com.

Sincerely,

James Christopher

James Christopher
 Right of Way & Compliance Technician
 ENSTAR Natural Gas Company

MATANUSKA-SUSITNA BOROUGH
PLATTING DIVISION
 350 EAST DAHLIA AVENUE
 PALMER, ALASKA 99645



57936B01L013 8
 BICKFORD ANDY & LARA
 14775 E LYDIA CIR
 PALMER AK 99645-9704

FIRST CLASS



NOTIFICATION OF PUBLIC HEARING

The Matanuska-Susitna Borough **Platting Board** will consider the following:

PETITIONER/OWNER: DAVE MILLER, NORTAK FARMS LLC

REQUEST: The request is to create 35 lots by a five phase Master Plan from Tract A-3 and Lot 1, Block 4, Colonial Fields Phase Three, Plat No. 2021-92, to be known as **COLONIAL FIELDS SOUTH MASTER PLAN**, containing 41.4 acres +/- . Petitioner will dedicate and construct interior streets to Borough residential street standards. Petitioner proposes to eliminate a portion of a 15' wide utility easement and also eliminate 30' wide drainage easements. Parcel is located south of S. Bodenburg Loop and north of E. Republican Way (Tax ID # 8165000T00A-3/8165B04L001); lying within the NW ¼ SE ¼ Section 34, Township 17 North, Range 02 East, Seward Meridian, Alaska. In the Butte Community Council and in Assembly District #1.

The Matanuska-Susitna Borough **Platting Board** will hold a public hearing in the **Assembly Chambers** at the **Dorothy Swanda Jones Building**, 350 E. Dahlia Avenue, Palmer, Alaska on the proposed **Subdivision**. The public hearing is scheduled for **June 2, 2022**, starting at 1:00 p.m. We are sending you this notice as required by State Law and Borough Ordinances.

For comments regarding the proposed action, this form may be used for your convenience by filling in the information below and mail this notice to the MSB Platting Division, 350 E. Dahlia Avenue, Palmer, Alaska 99645 or e-mail: plattting@matsugov.us. Comments received from the public after the platting board packet has been written and sent to the Board will be given to the Platting Board in a "Hand-Out" the day of the meeting. Please do not send comments or questions directly to Platting Board members. Board members may not receive or engage in ex-parte contact with the applicant, other parties interested in the application, or members of the public concerning the application or issues presented in the application. **All public comments are due one (1) day prior, by 12:00 p.m.** To request additional information please contact the Platting Technician, **Amv Otto-Buchanan** at (907) 861-7872.

To view the agenda or meeting packet please go to the following link: www.matsugov.us/boards/platting.

☒ No Objection [] Objection [] Concern

Name: ANDY BICKFORD Address: 14775 E. LYDIA CIRCLE

Comments: PALMER

SITE VISIT REPORT

Case Name: Colonial Fields South MSP	Date: 04/27/2022 Time: 9:30AM
Owner: Nortak Farms LLC	Case Number: 2022-054
Surveyor/Engineer: Keystone/Holler	Tax ID #:
Subdivision:	Regarding:

SITE CONDITIONS


Weather: Warm	Temperature: 60 F
Wind: None	
General Site Condition: Unconstructed	

Personnel on site: Amy Otto-Buchanan and Matthew Goddard, Platting Technicians

Equipment in use: Camera

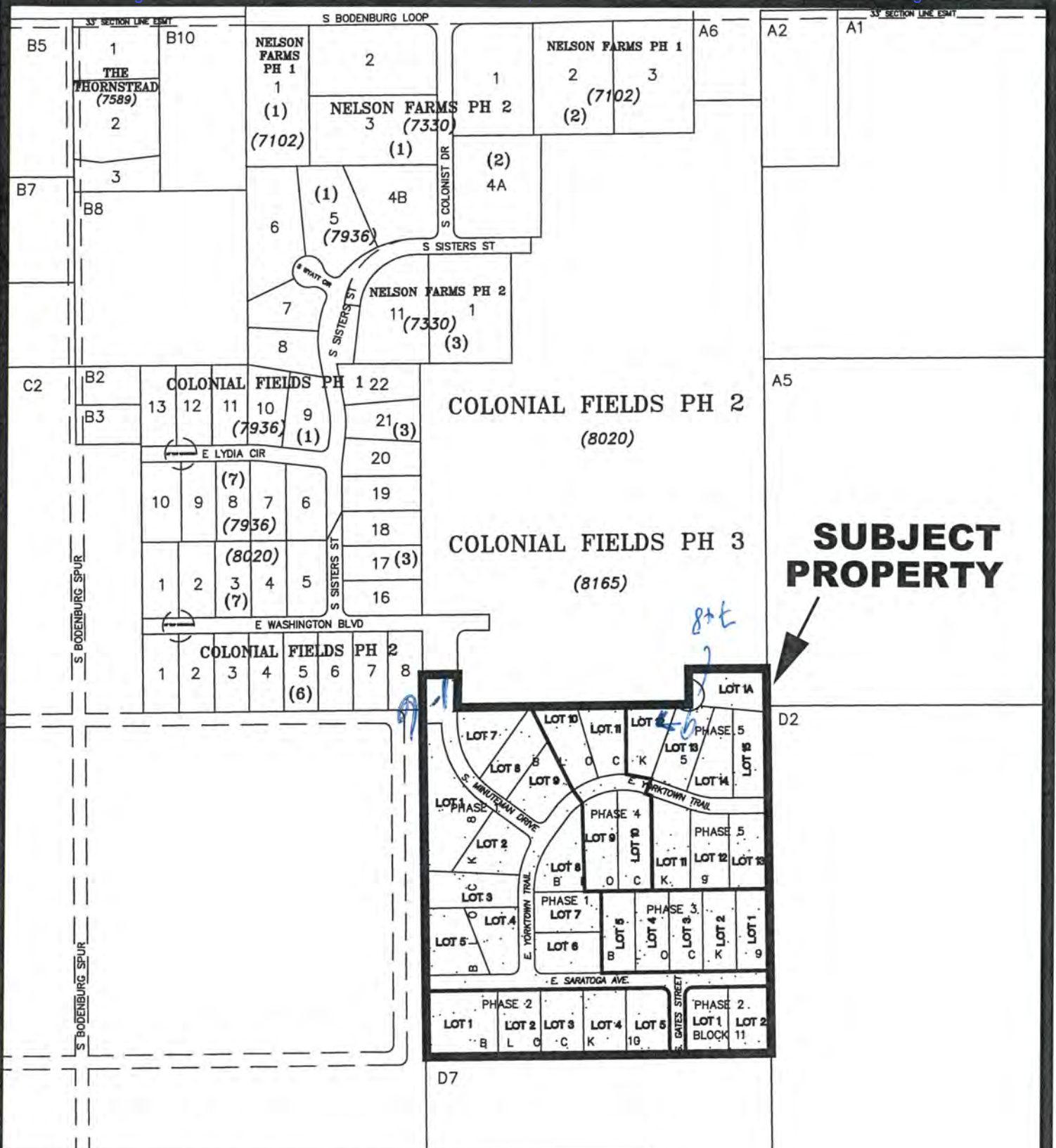
Current phase of work: Scheduled for Platting Board 06/02/2022

[illegible]

Signed By: Amy Otto-Buchanan 

Date: 04/28/2022

EXHIBIT I - 1



**SUBJECT
PROPERTY**

VICINITY MAP

FOR PROPOSED COLONIAL FIELDS SOUTH MSP
LOCATED WITHIN
SECTION 34, T17N, R02E, SEWARD MERIDIAN,
ALASKA
PALMER 14 MAP

EXHIBIT I - 2

EXHIBIT I - 3



1. Facing north at W. Washington Blvd.

04.27.2022

EXHIBIT I - 4

2. Facing southeast at W. Washington
Blvd, showing subject parcel.

04.27.2022



EXHIBIT I - 5

3. Facing southeast at W. Washington Blvd, showing subject parcel.

04.27.2022

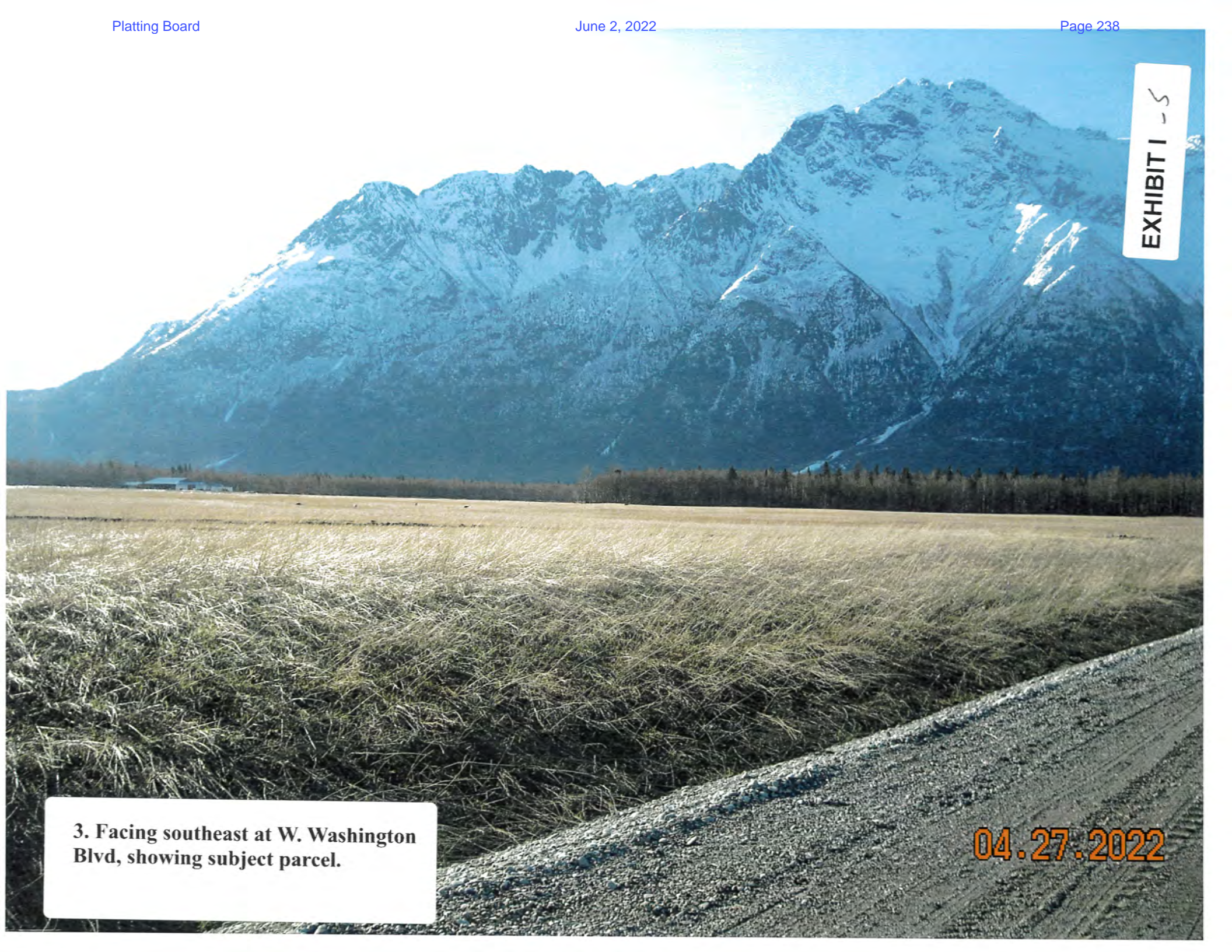


EXHIBIT I - 6

4. Facing south at W. Washington Blvd, showing subject parcel.

04.27.2022



EXHIBIT I - 7

5. Facing south at W. Washington Blvd, showing subject parcel.

04.27.2022



6. Facing south at W. Washington Blvd, showing subject parcel.

04.27.2022



EXHIBIT I - 9

7. Facing south at the cul-de-sac of S. Revere Street, showing the cul-de-sac that will be moved east.

04.27.2022

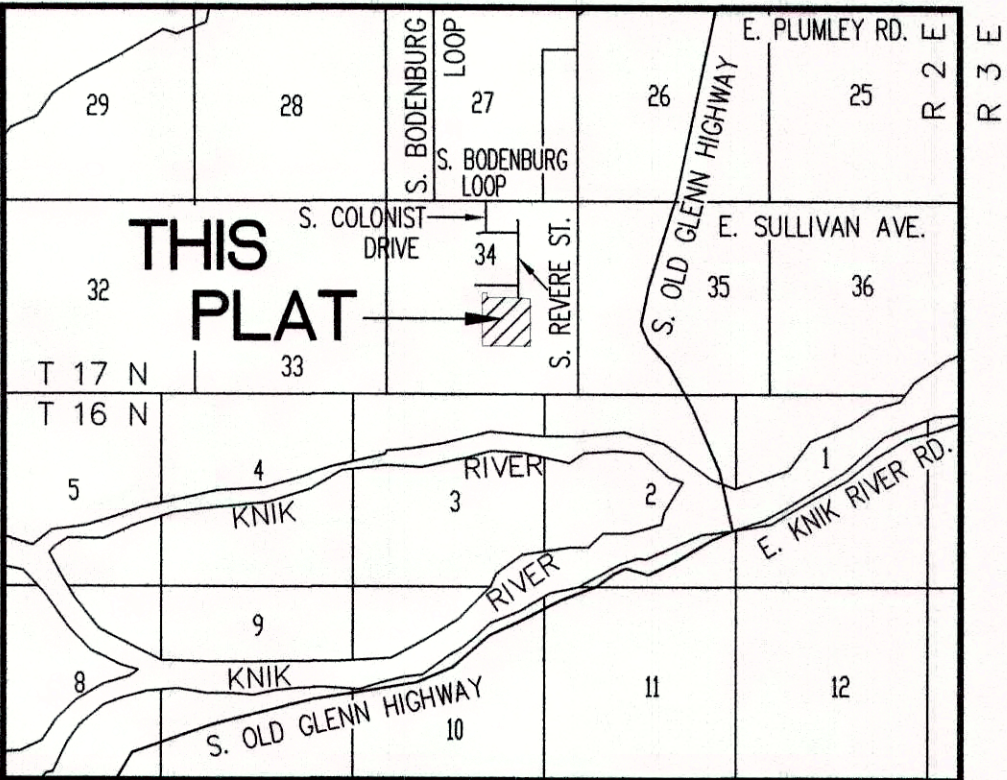
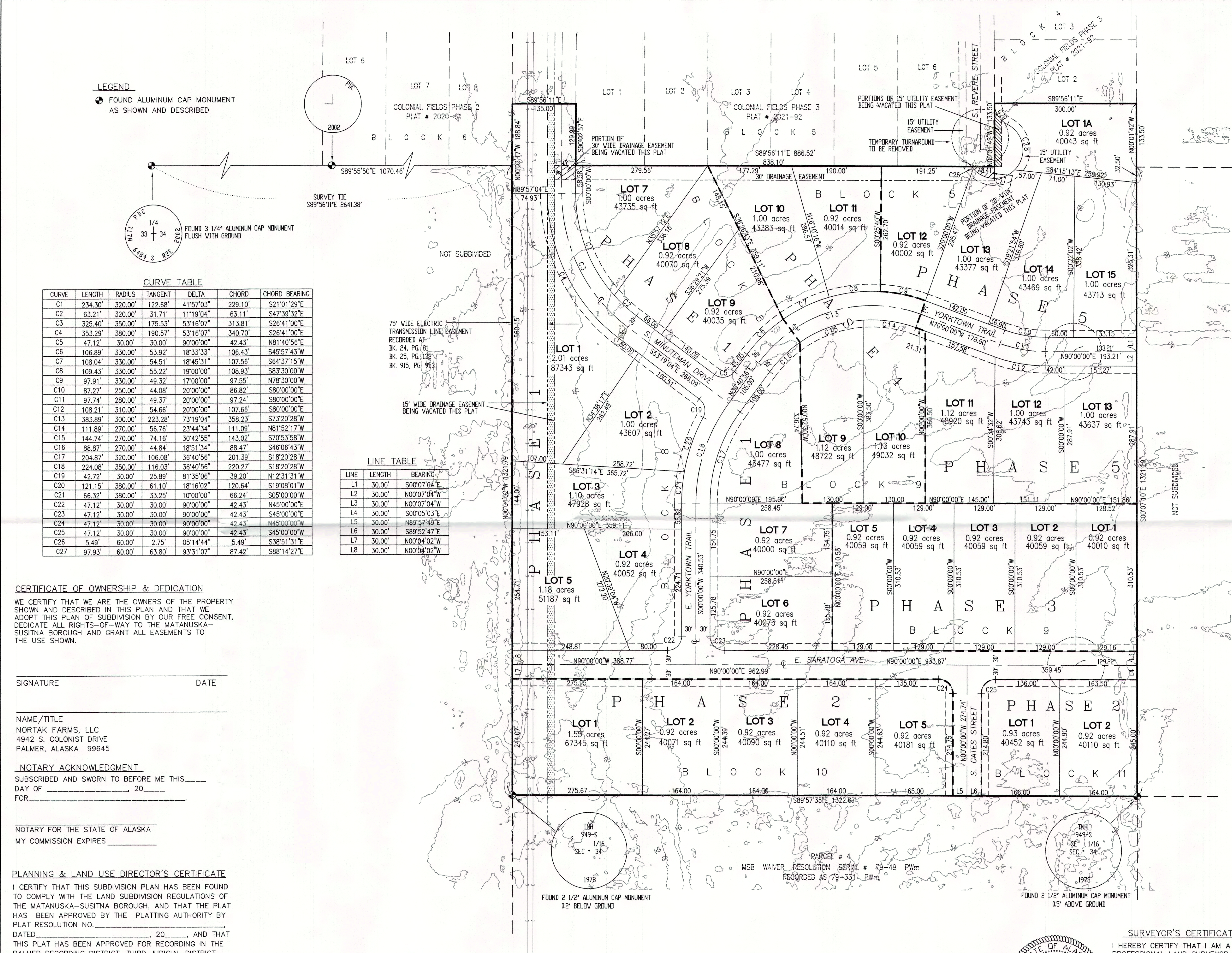
8. Facing south at the cul-de-sac
of S. Revere Street, on the south side
of the cul-de-sac.

04.27.2022

9. Facing west on the south side
the cul-de-sac of S. Revere Street,
showing a portion of the drainage
easement.

04.27.2022





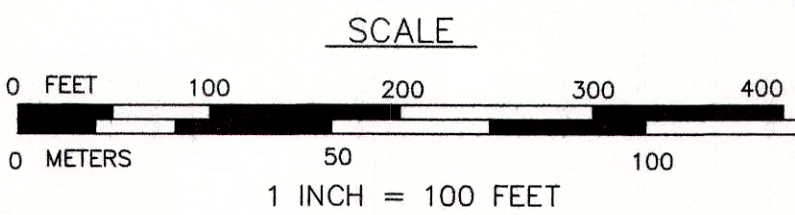
VICINITY MAP
SCALE 1" = 1 MILE

NOTES

1. THERE MAY BE FEDERAL, STATE OR LOCAL REQUIREMENTS GOVERNING LAND USE. THE INDIVIDUAL PARCEL OWNER SHALL OBTAIN A DETERMINATION WHETHER THESE REQUIREMENTS APPLY TO THE DEVELOPMENT OF PARCELS SHOWN ON THE PLAT TO BE RECORDED.
2. BASIS OF BEARING FROM COLONIAL FIELDS PHASE 3, PLAT #2021-92.
3. 5/8" x 30" REBAR WITH SELF-IDENTIFYING PLASTIC CAP SET AT ALL LOT CORNERS, P.C.'S, P.T.'S AND P.R.C.'S UNLESS NOTED.
4. NO INDIVIDUAL WATER SUPPLY SYSTEM OR SEWAGE DISPOSAL SYSTEM SHALL BE PERMITTED ON ANY LOT UNLESS THE SYSTEM IS LOCATED, CONSTRUCTED AND EQUIPPED IN ACCORDANCE WITH THE REQUIREMENTS, STANDARDS AND RECOMMENDATIONS OF THE STATE OF ALASKA, DEPARTMENT OF ENVIRONMENTAL CONSERVATION, WHICH GOVERNS THOSE SYSTEMS.
5. EASEMENTS OF RECORD NOT SHOWN HEREON:
 - a) MEA EASEMENT RECORDED OCTOBER 6, 1961 AT BOOK: 39, PAGE: 254.
 - b) MEA EASEMENT RECORDED OCTOBER 11, 2013 AT RECEPTION SERIAL #2013-022325-0.
 - c) MEA EASEMENT RECORDED SEPTEMBER 8, 2015 AT RECEPTION SERIAL #2015-019106-0.
 - d) MEA EASEMENT RECORDED SEPTEMBER 8, 2015 AT RECEPTION SERIAL #2015-019109-0.
 - e) ENSTAR EASEMENT RECORDED JUNE 17, 2020 AT RECEPTION SERIAL #2020-013272-0.
 - f) ENSTAR EASEMENT RECORDED APRIL 14, 2021 AT RECEPTION SERIAL #2021-010175-0.
 - g) MEA EASEMENT RECORDED MAY 20, 2021 AT RECEPTION SERIAL #2021-025923-0.

RECEIVED
APR 13 2022
PLATTING

Agenda Copy



A MASTER PLAN OF
COLONIAL FIELDS SOUTH

A SUBDIVISION OF TRACT A-3,
COLONIAL FIELDS PHASE 3, PLAT #2021-92
LOCATED WITHIN
SECTION 34, T. 17 N., R. 02 E.,
SEWARD MERIDIAN, ALASKA
PALMER RECORDING DISTRICT
THIRD JUDICIAL DISTRICT
STATE OF ALASKA
CONTAINING 414 ACRES, MORE OR LESS

KEYSTONE SURVEYING & MAPPING

GARY LoRUSSO, PROFESSIONAL LAND SURVEYOR
ALASKA BUSINESS LICENSE #134615
MAILING ADDRESS: P.O. BOX 2216 * PALMER, ALASKA 99645
PHYSICAL ADDRESS: 3635 N. VISTA CIRCLE * PALMER, ALASKA 99645
PHONE: (907) 376-7811

DRAWN BY ICAD/K.Lyne	DATE 3/21/22	DWG: 2022-3/ColonialFieldsSouth
CHECKED BY GLO	SCALE 1 INCH = 100 FEET	SHEET 1 OF 1

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF ALASKA AND THAT THIS PLAT REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT THE MONUMENTS SHOWN ON THE PLAT ACTUALLY EXIST AS DESCRIBED, AND THAT ALL DIMENSIONAL AND OTHER DETAILS ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

7330-S GARY LoRUSSO

REGISTERED LAND SURVEYOR

DATE



CERTIFICATION OF PAYMENT OF TAXES

I HEREBY CERTIFY THAT ALL CURRENT TAXES AND SPECIAL ASSESSMENTS, THROUGH 20_____, AGAINST THE PROPERTY, INCLUDED IN THE SUBDIVISION OR RESUBDIVISION, HEREON HAVE BEEN PAID.

DATE

BOROUGH TAX COLLECTION OFFICIAL

CERTIFICATE OF OWNERSHIP & DEDICATION

WE CERTIFY THAT WE ARE THE OWNERS OF THE PROPERTY SHOWN AND DESCRIBED IN THIS PLAN AND THAT WE ADOPT THIS PLAN OF SUBDIVISION BY OUR FREE CONSENT, DEDICATE ALL RIGHTS-OF-WAY TO THE MATANUSKA-SUSITNA BOROUGH AND GRANT ALL EASEMENTS TO THE USE SHOWN.

SIGNATURE _____ DATE _____

NAME/TITLE
NORTAK FARMS, LLC
4942 S. COLONIST DRIVE
PALMER, ALASKA 99645

NOTARY ACKNOWLEDGMENT

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 CERTIFY THAT THIS SUBDIVISION PLAN HAS BEEN FOUND TO COMPLY WITH THE LAND SUBDIVISION REGULATIONS OF THE MATANUSKA-SUSITNA BOROUGH, AND THAT THE PLAT HAS BEEN APPROVED BY THE PLATTING AUTHORITY BY PLAT RESOLUTION NO. _____ DATED _____, 20_____, AND THAT THIS PLAT HAS BEEN APPROVED FOR RECORDING IN THE PALMER RECORDING DISTRICT, THIRD JUDICIAL DISTRICT, STATE OF ALASKA, IN WHICH THE PLAT IS LOCATED.

DATE _____ PLANNING & LAND USE DIRECTOR _____

ATTEST: _____
PLATTING CLERK

6F

STAFF REVIEW AND RECOMMENDATIONS
PUBLIC HEARING
JUNE 2, 2022

PRELIMINARY PLAT: FRESH START ACRES

LEGAL DESCRIPTION: SEC 03, T16N, R02E, SEWARD MERIDIAN AK

PETITIONERS: TODD ESTEY; JULIE ESTEY

SURVEYOR/ENGINEER: ALL POINTS NORTH

ACRES: 26.48 ± PARCELS: 2

REVIEWED BY: AMY OTTO-BUCHANAN CASE #: 2022-057

REQUEST: The request is to create two lots from Parcel #1, MSB Waiver 79-50-PWm, recorded as 79-345w, (Tax Parcel A2), to be known as **FRESH START ACRES**, containing 26.48 acres +/- . Petitioner will dedicate a 60' x 90' area as right-of-way, to enable construction of a t-turnaround for access to both lots. Parcel is located south of E. Republican Way and north the Knik River; lying within the W ½ Section 03, Township 16 North, Range 02 East, Seward Meridian, Alaska.

EXHIBITS

Vicinity Map and Aerial Photos
Geotechnical Report
Plan and Profile

EXHIBIT A – 5 pgs
EXHIBIT B – 15 pgs
EXHIBIT C – 1 pg

AGENCY COMMENTS

Department of Public Works Operations & Maintenance
Development Services
ADF&G
Utilities
Public Comment

EXHIBIT D – 1 pg
EXHIBIT E – 1 pg
EXHIBIT F – 1 pg
EXHIBIT G – 3 pgs
EXHIBIT H – 1 pg

DISCUSSION: The proposed subdivision is south of E. Republican Way, at the end of the constructed street. Petitioner is a 60' X 90' (approximately) are of right-of-way, to allow for the construction of a T-turnaround for access for the two lots. Petitioner will also be required to construct newly created right-of-way, to be dedicated by proposed Chipman Acres Subdivision (see **Recommendation #4**). The purpose of this additional right-of-way is to allow access around the utility poles that currently encumber the existing Section Line Easement, therefore, blocking the ability to construct a Borough standard road within the Section Line Easement. Chipman Acres required to be recorded, creating the additional right-of-way, before this plat can proceed (see **Recommendation #4d**).

A large portion of the parcel is within a Flood Hazard Area (FHA). Surveyor has shown the FHA on the plat. However, a Special Flood Hazard Development Permit will be required for all structures within the

FHA. The permit will be required before the plat can record (see **Recommendation #5**). Contact MSB Development Services to begin the process for the permit.

Soils Report: A geotechnical report was submitted (**Exhibit B**), pursuant to MSB 43.20.281(A). Max Schillinger, PE, All Points North, notes one new testhole was excavated to 12' in October 2020. Majority of soil was comprised of sand, with some small diameter gravel, with little fines (silt and clay). Groundwater levels were absent. Soils logs is included in the narrative. The location of the testhole is shown on Exhibit B-4. The parent parcel includes mostly spruce. Site is level with slight overall grade southerly toward the Knik River. No standing water on the subject parcel beside the river and a low area bisecting the parent parcel in the east-west direction. Each lot will have a minimum of 10,000 sf of contiguous useable septic area and 10,000 sf of useable building area. Proposed Lot 2 is greater than 400,000 sf and does not require soils, pursuant to MSB 43.20.281(A)(1)(i)(i), as the surveyor provided a detailed topographic narrative. Preliminary drainage plan is at **Exhibit B-4**. Access documentation at **Exhibit B-14 and B-15**. Plan and Profile at **Exhibit C**.

Comments: Department of Public Works Operations & Maintenance (**Exhibit D**) asks if the existing driveway will be demoed as part of the road construction? *Staff notes the driveway in question also provide access to Tax Parcel A6.* The drainage report is satisfactory since impervious area not being increased due to the subdivision. Schedule a preconstruction meeting after plat approval and prior to any work done in the right-of-way (see **Recommendation #4a**).

Development Services (**Exhibit E**) notes a Special Flood Hazard Development area is identified; development in this area must meet the standards of MSB 17.20. Development in this area, specifically, two yurts, an outhouse, a shop and a shed have not been permitted. Development under MSB 17.29 Flood Damage Prevention Code states: "Development" means any manmade change to improved or unimproved real estate, including but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials located within the area of special flood hazard." This needs to be corrected in accordance with the code enforced at the time of development (see **Recommendation #5**).

ADF&G (**Exhibit F**) has no objections.

Utilities: (**Exhibit G**) MTA has no comments. GCI has no objections. Enstar has no comments or recommendations. MEA did not respond.

Public: (**Exhibit H**) Martin Klee, owners of Tax Parcel A15, to the east, has no objections.

At the time of staff report write-up, there were no responses to the Request for Comments from US Army Corps of Engineers; Community Council Butte; Fire Service Area #2 Butte; Road Service Area #26 Greater Butte; MSB Emergency Services, Community Development, Assessments, Planning, or Pre-Design Division; or MEA.

CONCLUSION: The preliminary plat of FRESH START ACRES is consistent with AS 29.40.070 Platting Regulations and MSB 43.15.016 Preliminary Plats. There were no objections from any federal or state agencies, Borough departments, or utilities. There were no objections to the plat from the public in response to the Notice of Public Hearing; one non-objection was received. Legal and physical access will exist to

the proposed lots, consistent with MSB 43.20.100 Access Required, MSB 43.20.120 Legal Access and MSB 43.20.140 Physical Access. Frontage for the subdivision will exist, pursuant to MSB 43.20.320 Frontage Flag lots. A soils report was submitted, pursuant to MSB 43.20.218(A)(1).

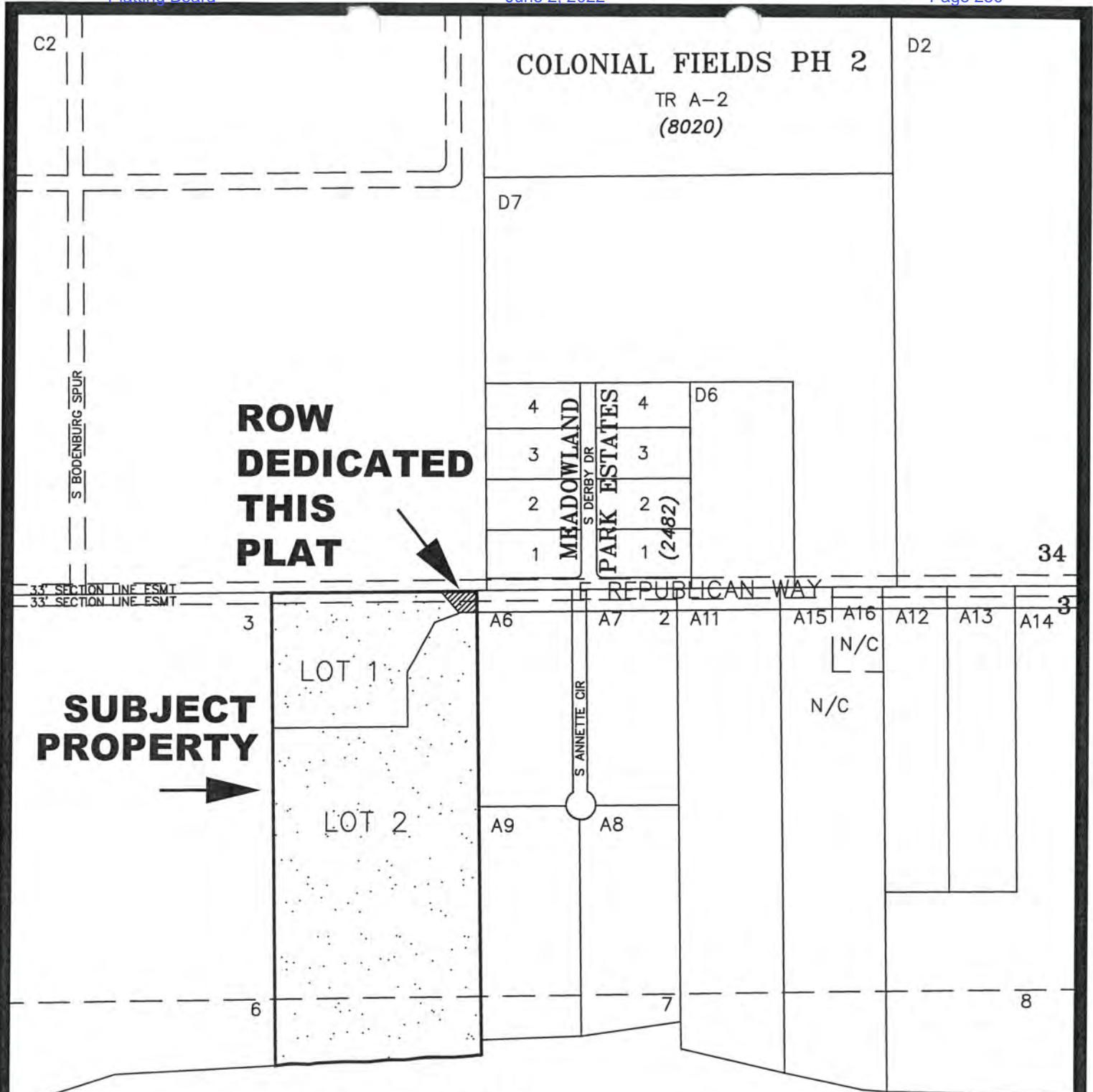
FINDINGS OF FACT

1. The plat of Fresh Start Acres consistent with AS 29.40.070 Platting Regulations and MSB 43.15.016 Preliminary Plats.
2. A soils report was submitted, pursuant to MSB 43.20.281(A)(1). All lots have the required septic area and building area.
3. All lots will have the required frontage pursuant to MSB 43.20.320.
4. At the time of staff report write-up, there were no responses to the Request for Comments from US Army Corps of Engineers; Community Council Butte; Fire Service Area #2 Butte; Road Service Area #26 Greater Butte; MSB Emergency Services, Community Development, Assessments, Planning, or Pre-Design Division; or MEA.
5. There were no objections from any federal or state agencies, Borough departments, or utilities.
6. There were no objections from the public in response to the Notice of Public Hearing; one non-objection was received.
7. A Flood Hazard Development Permit is required.

RECOMMENDATIONS OF CONDITIONS OF APPROVAL

Suggested motion: I move to approve the preliminary plat of Fresh Start Acres, Section 03, Township 16 North, Range 02E, Seward Meridian, Alaska, contingent on staff recommendations:

1. Taxes and special assessments must be paid in full for the year of recording, pursuant to MSB 43.15.053(F) and AS 40.15.020. Pay taxes and special assessments (LIDs), by CERTIFIED FUNDS OR CASH.
2. Provide updated Certificate to Plat executed within seven (7) days of recording of plat and submit Beneficiary Affidavit for any holders of a beneficial interest.
3. Pay postage and advertising fees.
4. Construct street and t-turnaround to MSB residential street standards:
 - a. Submit cost estimate, arrange a pre-construction meeting with Department of Public Works (DPW), pay inspection fee and obtain a Notice to Proceed from Platting staff. Submit street inspection reports as required by Section F1.4, F1.5 and F1.6 of the Subdivision Construction Manual.
 - b. Provide DPW acceptance of the road to Platting staff
 - c. Provide as-built of streets once construction is complete.
 - d. Chipman Acres required to record, prior to construction of the extension of E. Republican Way.
5. Obtain a Special Flood Hazard Development Permit for all structures within the Flood Hazard Area and for any road construction within the Flood Hazard Area.
6. Show all easements of record on each final phase plat.
7. Submit recording fees, payable to Department of Natural Resources (DNR).
8. Submit final plat in full compliance with Title 43.



VICINITY MAP
 FOR PROPOSED FRESH START ACRES
 LOCATED WITHIN
 SECTION 03, T16N, R02E, SEWARD MERIDIAN
 ALASKA
 GOAT CREEK 01 MAP

EXHIBIT A - 1

PA14

BODENBURG

REPUBLICAN

DERBY

ANNETTE

GC01

PA14

BODENBURG

REPUBLICAN

DERBY

ANDRETTA

GC01

EXHIBIT A - 3

PA13

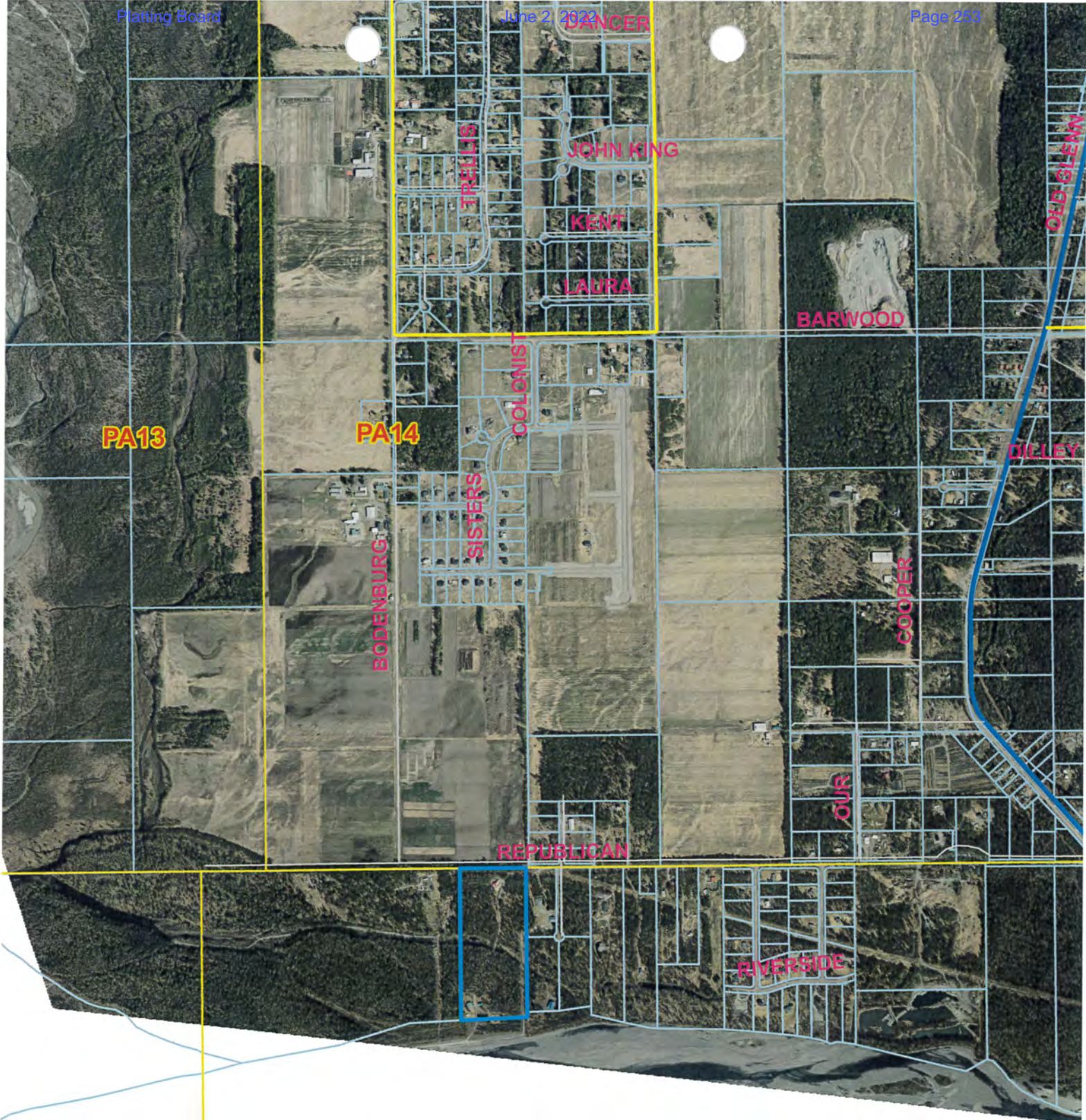
PA14

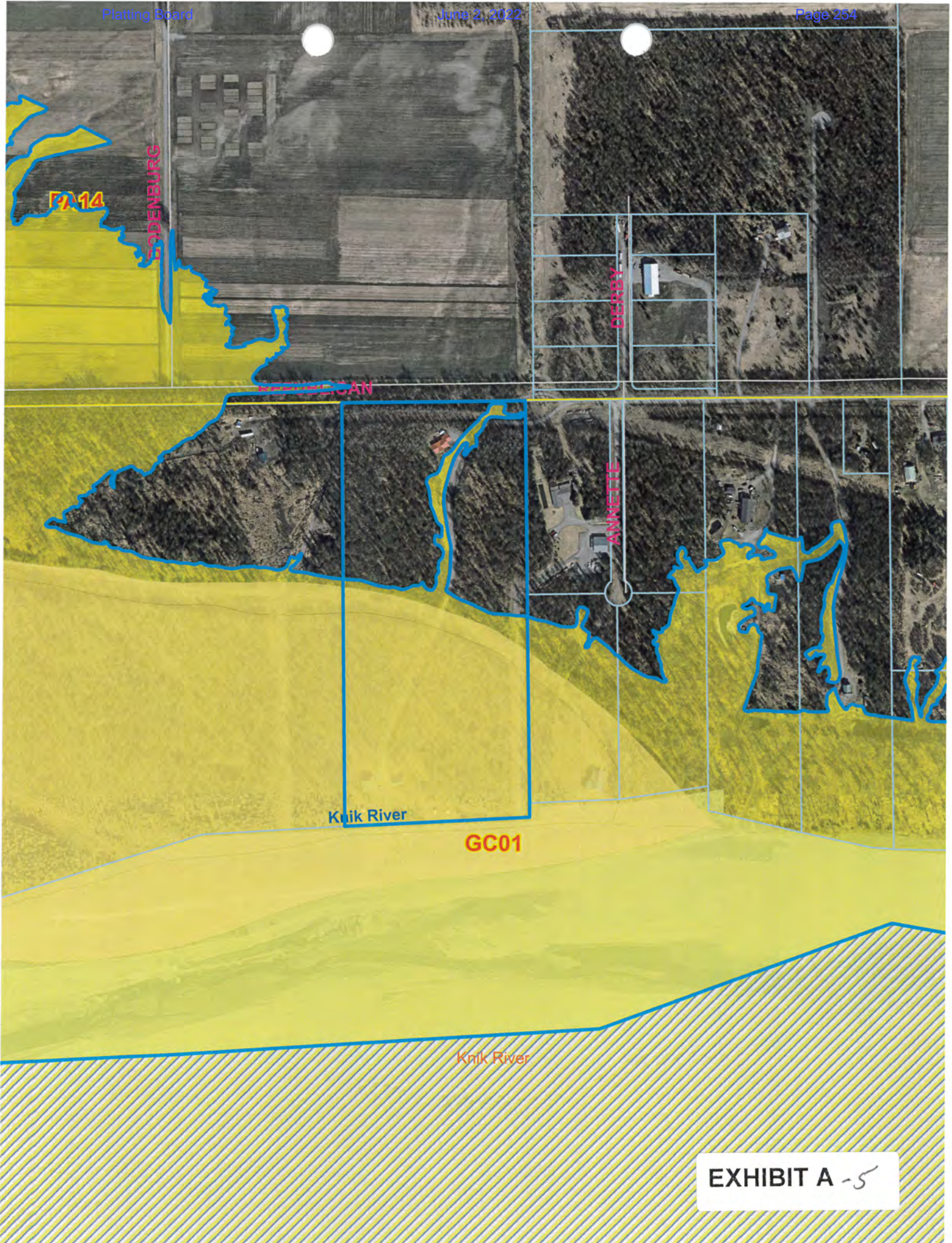
GC02

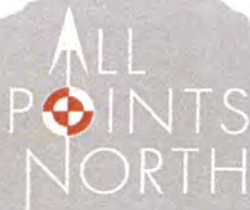
GC01

EXHIBIT A - 4

GLENN





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RECEIVED

MAR 15 2022

PLATTING

P: 907-746-4185 | F: 907-746-4186

To: Matanuska Susitna Borough
Platting Division
350 E. Dahlia Avenue
Palmer, Alaska, 99645

Date: 3-2-2021

Job: 18-17 ESTEY

Subject: M.S.B. Title 43 Geotechnical Investigation, FRESH START ACRES

INTRODUCTION

Project Location

At the request of the Matanuska Susitna Borough, we have performed a soils and usable area investigation for the proposed Fresh Start Acres Subdivision. The subject parcel is located at 15006 E Republican Way. The M.S.B. Tax Identification Number is 16N002E03A002. The geographic location is approximately latitude N61°30'44", longitude W149°04'28".

Project Description and Overview Map

Fresh Start Acres is a subdivision of one approximately 26 acre into two lots, the larger being over 21 acres and the smaller being approximately 5 acres. As the larger parcel is over 400,000 s.f. (9.18 acres), it is exempt from the MSB test hole requirement. Thus one hole was dug on the smaller lot shown below, annotated "TH". Furthermore both lots have existing and functioning septic systems installed by DEC certified installers, on file in the DEC "SEPTS" database.





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Scope of Investigation

M.S.B. Title 43 includes definitions and regulations regarding septic and building usable areas. Title 43 requires that all lots have a minimum of 40,000 square feet, of which a minimum 10,000 feet shall be building area and a minimum 10,000 feet shall be contiguous septic field area. Title 43 requires soil borings or test holes be dug under the direction of an Alaska registered civil engineer, and that a report of the findings be written. This investigation chose one hole shown on previous page

RESULTS

Vegetation, Topography, and Bedrock

Proposed Fresh Start Acres includes mostly spruce. Site is level with slight overall grade southerly towards the Knik River. No standing water on the subject parcel besides the Knik River and a low area bisecting the parent parcel in the east-west direction. No bedrock is visible on the parcel.

Soil Investigation

One test hole was dug to 12 feet deep in October 2020. The majority of the soil was comprised of sand, with some small diameter gravel, with little fines (silt and clay). Groundwater levels were absent at the time of exploration. Gravel is defined as particles greater than no.4 sieve, or size greater than 4.75mm. Sand is defined as particles smaller than no.4 sieve but larger than no. 200 sieve, or 0.075mm-4.75mm. Silt and clay are particles finer than no. 200 sieve, or smaller than 0.075mm.

HOLE #1

<u>Depth</u>	<u>Description (Unified Soil Classification)</u>
0'-1'	Topsoil/Loam
1'-12'	Well Graded Gravelly Sand (SW)
(Note: No groundwater encountered)	





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CONCLUSION

The proposed Fresh Start Acres has adequate soils and topography such that each ***lot will have a minimum 10,000 square feet contiguous septic area and 10,000 square feet building area.*** The investigation identified the soil types to be suitable for conventional bed and trench systems. Bed systems are installed in the DEC documents of construction onsite.

Please contact me should you have any questions about this usable area certification.

Max Schillinger, P.E.



March 2, 2022

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MAR 15 2022
PLATTING

P: 907-746-4185 | F: 907-746-4186

To: **Matanuska Susitna Borough**
Platting Division
350 E. Dahlia Avenue
Palmer, Alaska, 99645

Date: **3-2-2021**Job: **18-17 ESTEY**Subject: **M.S.B. Title 43 Drainage Report, FRESH START ACRES**

INTRODUCTION

Project Location

At the request of the Matanuska Susitna Borough (MSB) we have performed a drainage report for the proposed Fresh Start Acres Subdivision. The subject parcel is located at 15006 E Republican Way. The M.S.B. Tax Identification Number is 16N002E03A002. The geographic location is approximately latitude N61°30'44", longitude W149°04'28".

Project Description and Overview Map

Fresh Start Acres is a subdivision of one approximately 26 acre into two lots, the larger being over 21 acres and the smaller being approximately 5 acres. To obtain legal and physical access onto a borough access road, approximately 500 feet of road improvements are needed to E. Republican Way, as shown below and on the attached drainage plan.



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Scope of Investigation

Responsible stormwater management is the treatment, retention, detention, infiltration, and conveyance of stormwater and other surface waters without adversely impacting adjoining, nearby, or downstream properties and receiving waters. This is a requirement outlined in the MSB 2020 Subdivision Construction Manual, and MSB Code 43.05.015. A drainage plan is required when road construction is needed that disturb 10,000 square feet of land or more. As this project will disturb approximately 11,000 s.f., this drainage report and plan is required by MSB.



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DRAINAGE REPORT

(1) Pre-development and post-development areas

The scope of this subdivision improvements is to update and widen an existing driveway area at the end of E Republican Way, to a MSB "Residential" road standard. The pre-development conditions are a gravel road and driveway. The post-development conditions are a wider MSB Residential Standard gravel road. Thus the Pre-development and Post-Development areas are substantially similar, involving a ¼ acre footprint in updating approximately 500 linear feet of existing road.

(2) Existing Drainage

There is little existing drainage in direction of the road. E Republican Way is a generally level road. Locations and timing of peak flow on the site is during spring thaw, perpendicular to the road direction, at a low spot shown in the existing driveway near the proposed culverts. This low spot is a point of observed seasonal drainage crossing, approximately 12 feet wide, 3" deep.

(3) Rainfall data

The local precipitation data is provided in the MSB Subdivision Construction Manual. This data originates from the Palmer Airport weather station, which is within 10 miles of the project site.

Table D-2: Recurrence Interval Hyetographs [in/hr] for the Metenusk-Susitna Borough

Time (hr)	1 Year	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
1	0.01	0.02	0.02	0.02	0.02	0.02	0.02
2	0.02	0.02	0.02	0.02	0.02	0.02	0.02
3	0.02	0.02	0.02	0.02	0.02	0.02	0.03
4	0.02	0.02	0.02	0.02	0.02	0.03	0.03
5	0.02	0.02	0.02	0.02	0.03	0.03	0.03
6	0.02	0.02	0.02	0.03	0.03	0.03	0.03
7	0.02	0.02	0.03	0.03	0.03	0.03	0.04
8	0.03	0.03	0.03	0.03	0.04	0.04	0.04
9	0.03	0.03	0.04	0.04	0.04	0.05	0.05
10	0.04	0.04	0.04	0.05	0.05	0.06	0.06
11	0.05	0.05	0.06	0.06	0.07	0.08	0.08
12	0.06	0.07	0.07	0.08	0.09	0.10	0.10
13	0.26	0.31	0.38	0.44	0.51	0.56	0.62
14	0.08	0.09	0.10	0.12	0.13	0.14	0.15
15	0.04	0.04	0.05	0.05	0.06	0.06	0.07
16	0.03	0.04	0.04	0.04	0.05	0.05	0.05
17	0.03	0.03	0.03	0.04	0.04	0.04	0.04
18	0.02	0.03	0.03	0.03	0.03	0.04	0.04
19	0.02	0.02	0.03	0.03	0.03	0.03	0.03
20	0.02	0.02	0.02	0.02	0.03	0.03	0.03
21	0.02	0.02	0.02	0.02	0.03	0.03	0.03
22	0.02	0.02	0.02	0.02	0.02	0.02	0.03
23	0.02	0.02	0.02	0.02	0.02	0.02	0.02
24	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Total	0.90	1.01	1.16	1.28	1.43	1.55	1.67

Note: Total values of rainfall calculated by adding un-rounded average rainfall intensities for each time step.
Source: Palmer Municipal Airport, 1999 to 2008, Stantec - 2009



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P: 907-746-4185 | F: 907-746-4186

(4) Land Cover

Assumed post-development land cover conditions adjacent to the gravel roads will be unchanged. There existing land adjacent to roads is grasslands or spruce forest. The State of Alaska land lying north of the site is cleared agriculture land.

(5) Soil conditions

The pre-development soil conditions onsite are free draining gravel (Well graded gravelly sand, Unified Classification SW). No visible standing water occurs on the roadway areas for nearly all of the year. Peak flows occur not by rainfall at this site, but when spring snow melts in a single event with the upstream field (agriculture land) being impervious with frost.

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)		
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	
	 GW	Well-graded gravels, gravel-sand mixtures, little or no fines
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	 GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Clean Sands (Less than 5% fines)	
	 SW	Well-graded sands, gravelly sands, little or no fines
	 SP	Poorly graded sands, gravelly sands, little or no fines

(6) Fish Passage

Fish passage is not applicable. There are no free-flowing streams onsite.

(7) Preserving Existing Drainage Patterns

The existing natural drainage patterns are largely preserved with the attached proposed road design. The only change to the existing drainage pattern is improvement, namely the neighbor to the west of the subject property shouldn't receive the seasonal driveway flooding that they currently experience. That flooding will be conveyed within the specified culverts.

(8) Onsite Development

The sites are fully developed with two houses, and the gravel road is already onsite, but does not meet msb standards. Thus the subdivision process does not significantly increase runoff. The goal of this subdivision is to make two lots (one per existing residence). No paving nor additional buildings will be created in this subdivision process.



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P: 907-746-4185 | F: 907-746-4186

(9) Utility easements

MSB requires that utility easements are not used to retain nor detain water in this development. This project proposes no detention, and the development avoids existing utilities.

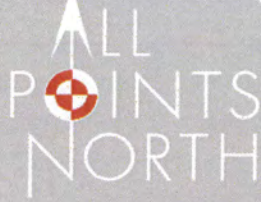
(10) Peak Existing Observed Flow

Spring snow from adjacent field has generated a regular seasonally observed 12 feet wide, 3" deep open channel melt event. This event crosses the driveway at republican way. This event flows 6.7 cfs event as calculated by Mannings Equation below.

TRAPAZOIDAL CHANNEL INPUTS			
bottom width=	12	feet	
side slope left=	2	to 1vert	ratio
side slope right=	2	to 1vert	ratio
flow depth=	0.25	feet	
Manning N=	0.03	(unitless)	
Slope in direction of flow=	0.0125	decimal of percent	
OUTPUTS			
Area (A)	3.125	square ft	
Wetted Perimeter (P)	13.11803	ft	
Hydraulic Radius (R)	0.238222	ft	
Manning equation-----> $Q = 1.49/N * A * (R^{.66}) * (S^{.5})$			

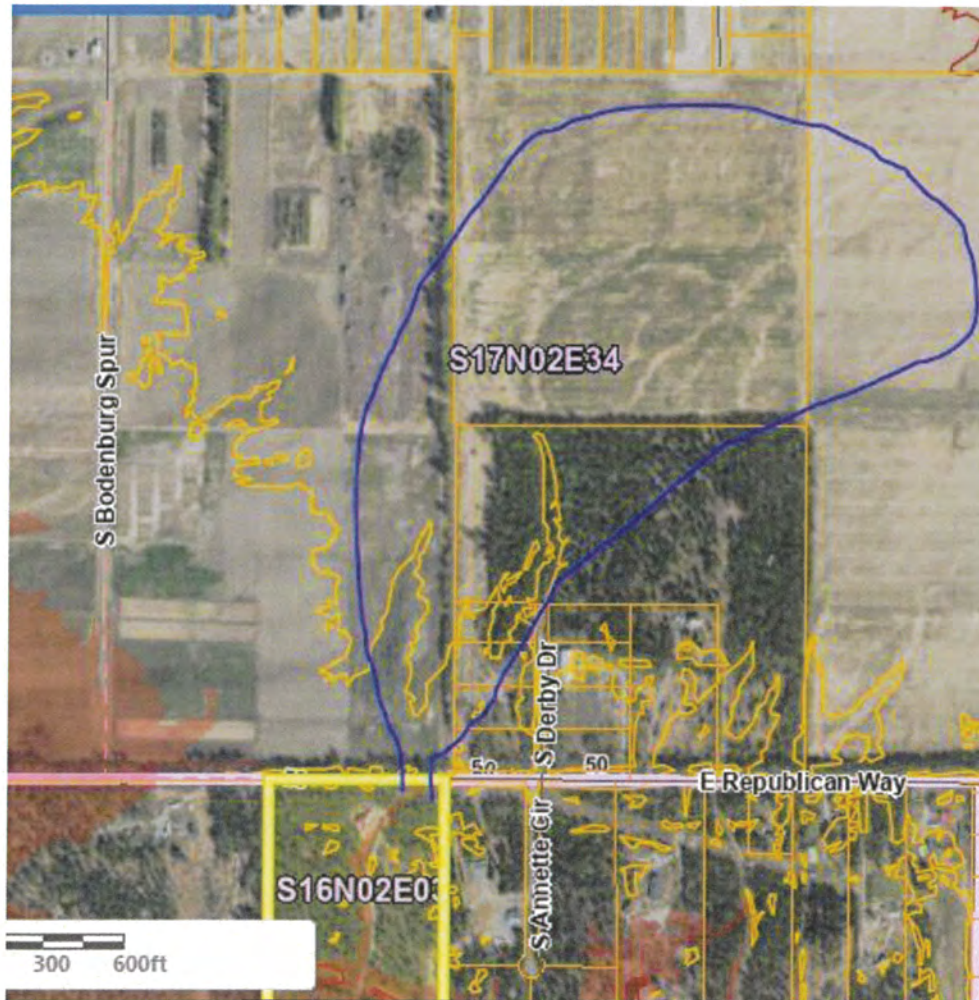
Q= 6.669 cfs
Velocity = 2.134105

- **To be conservative, peak design of 10cfs is selected.** This amounts to 864,000 cubic feet per 24 hour event.
- Drainage ditches and culverts are to pass the 10-year, 24-hour Palmer Alaska rain event of 1.28 inches.
- A 10 year 24 rain event would generate 1.28 inches (0.107 feet) of rain. To yield 864,000 cubic feet assuming frozen impervious conditions, drainage basin of $864,000 \text{ c.f.} / 0.107 \text{ ft} = 8 \text{ million s.f.}$, $8 \text{ million s.f.} / 43560 \text{ s.f./acre} = 184 \text{ acres}$. This acreage corresponds to a tributary area shown on the following page.



LAND SURVEYING &
CIVIL ENGINEERING

P: 907-746-4185 | F: 907-746-4186



Approximately 180 acre tributary area that appears to contribute to seasonal melt crossing the Republican Way driveway, north of the subject parcel.



LAND SURVEYING &
CIVIL ENGINEERING

P: 907-746-4185 | F: 907-746-4186

(11) Peak Flow Provided by Drainage Ditches

Given ditches 2 feet deep minimum, 3:1 foreslope, 2:1 backslope, the capacity is 33 cfs provided

TRAPAZOIDAL CHANNEL

INPUTS

bottom width=	0	feet
side slope left=	3	to 1vert ratio
side slope right=	2	to 1vert ratio
flow depth=	2	feet
Manning N=	0.03	(unitless)
Slope in direction of flow=	0.005	decimal of percent

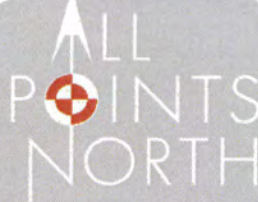
OUTPUTS

Area (A)	10	square ft
Wetted Perimeter (P)	10.79669	ft
Hydraulic Radius (R)	0.92621	ft
Manning equation-----> Q =	1.49/N	*A* (R ^{.66}) * (S ^{.5})

$$Q = 33.37 \text{ cfs}$$

$$\text{Velocity} = 3.337017$$

→ All ditches can carry well beyond the calculated 10cfs.



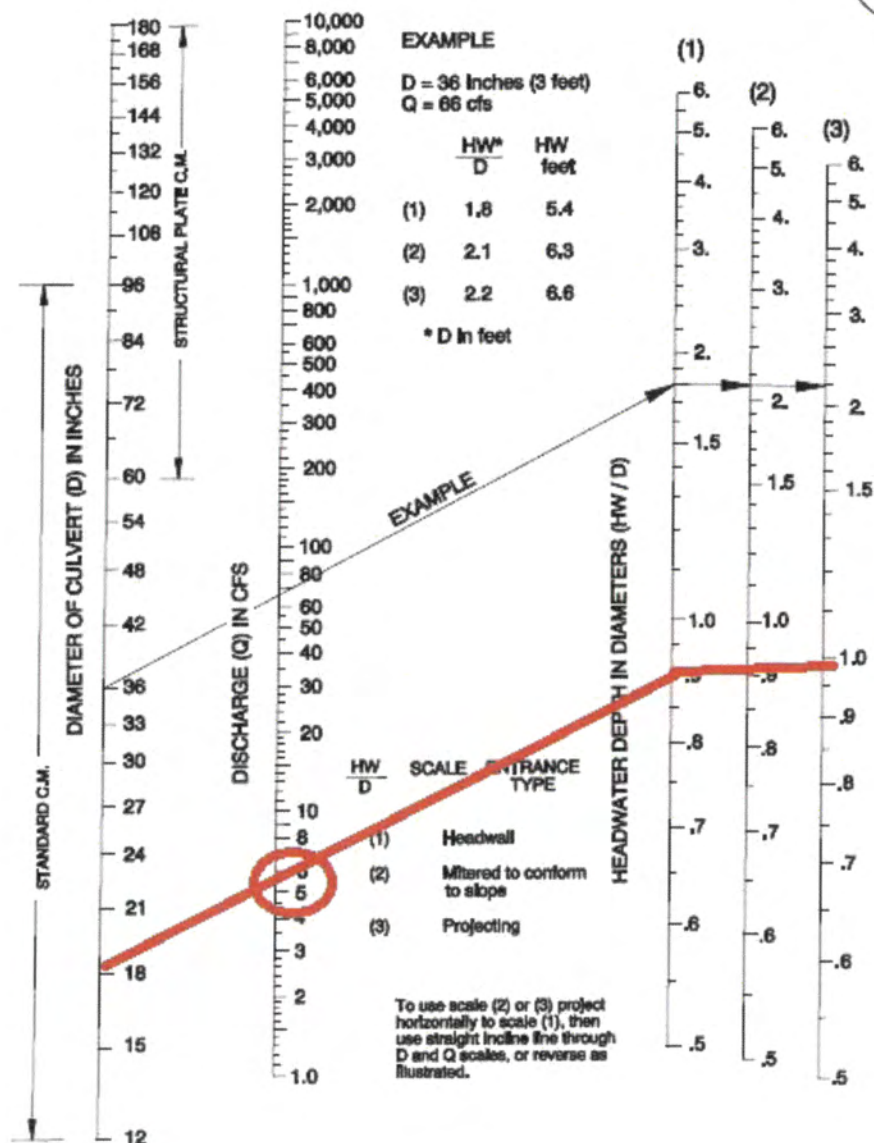
LAND SURVEYING &
CIVIL ENGINEERING

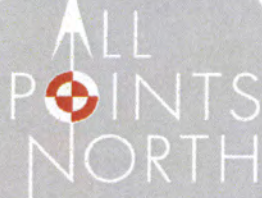
P: 907-746-4185 | F: 907-746-4186

(12) Peak Flow Provided by Drainage Crossing Culverts

Assuming 18" culverts, flowing full, two culverts needed for 10 cfs.

C.M. CULVERTS WITH INLET CONTROL





LAND SURVEYING &
CIVIL ENGINEERING

P: 907-746-4185 | F: 907-746-4186

CONCLUSION

The proposed drainage improvements for Fresh Start Acres adequately provide conveyance of stormwater and other surface waters without adversely impacting adjoining, nearby, or downstream properties and receiving waters.

Max Schillinger, P.E.



March 2, 2022

EXHIBIT B - 12

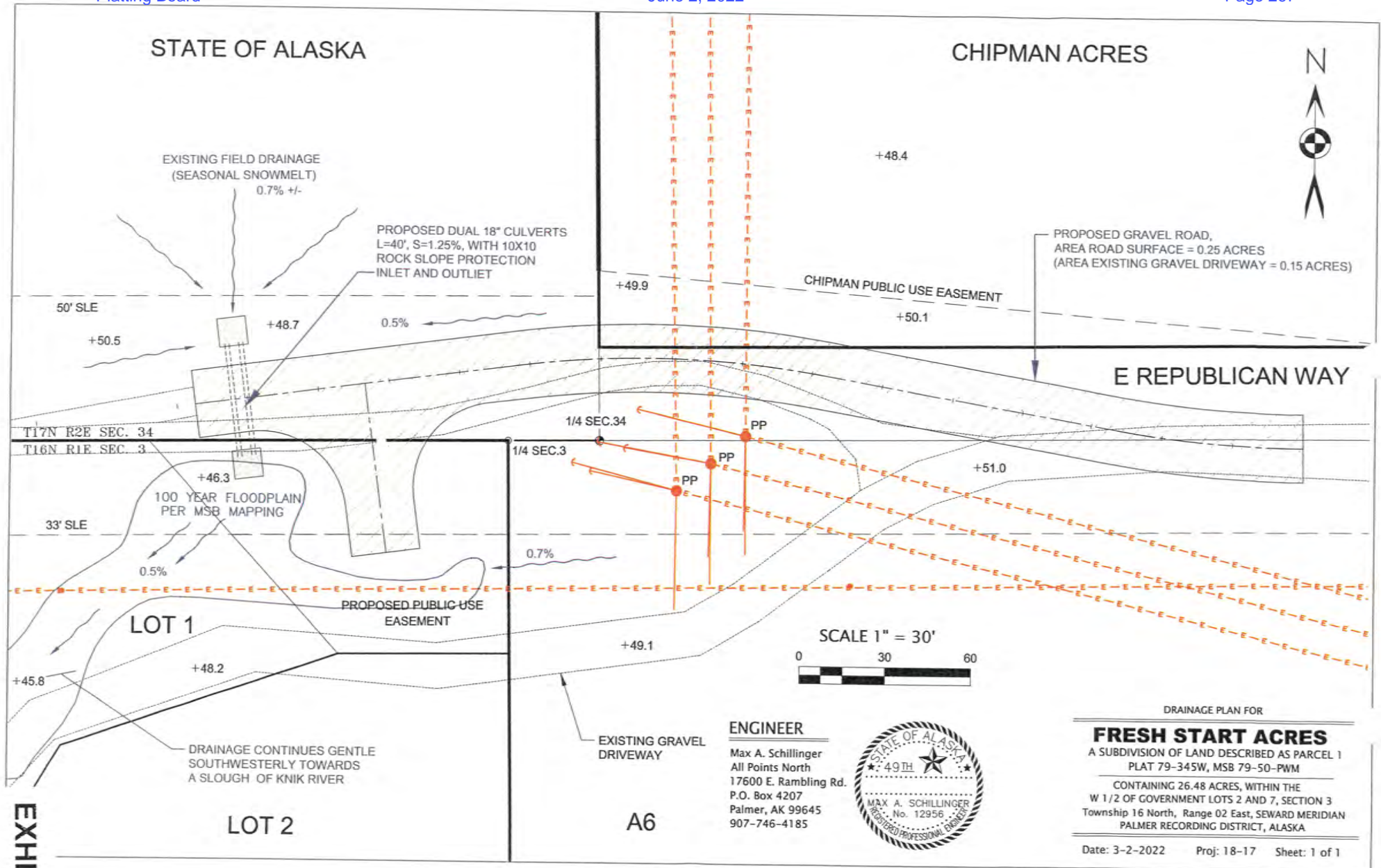


EXHIBIT B - 13



LAND SURVEYING &
CIVIL ENGINEERING

RECEIVED
MAR 15 2022
PLATTING

P: 907-746-4185 | F: 907-746-4186

To: **Matanuska Susitna Borough**
Platting Division
350 E. Dahlia Avenue
Palmer, Alaska, 99645

Date: **3-2-2021**

Job: **18-17 ESTEY**

Subject: **M.S.B. Title 43 Section Line Easement Research, FRESH START ACRES**

ACCESS INFORMATION

Project Location

At the request of the Matanuska Susitna Borough, we have performed access research for the proposed Fresh Start Acres Subdivision. The subject parcel is located at 15006 E Republican Way, which is an established borough road up to the subject parcels east property line. The M.S.B. Tax Identification Number is 16N002E03A002. The geographic location is approximately latitude N61°30'44", longitude W149°04'28". See Vicinity Map on attached page.



Easement over Township 16N Range 2E Section 3

Fresh Start Acres is the west half of Government Lots 3 and 7.

- The date of Survey Plat Approval is July 7, 1948
- The date of Entry for Patent #1190687, is April 2, 1952.
 - ➔ As such, the section line easement is 33'.
 - ➔ Current MSB GIS accurately shows this fact.

Easement over Township 17N Range 2E Section 34 W 1/2

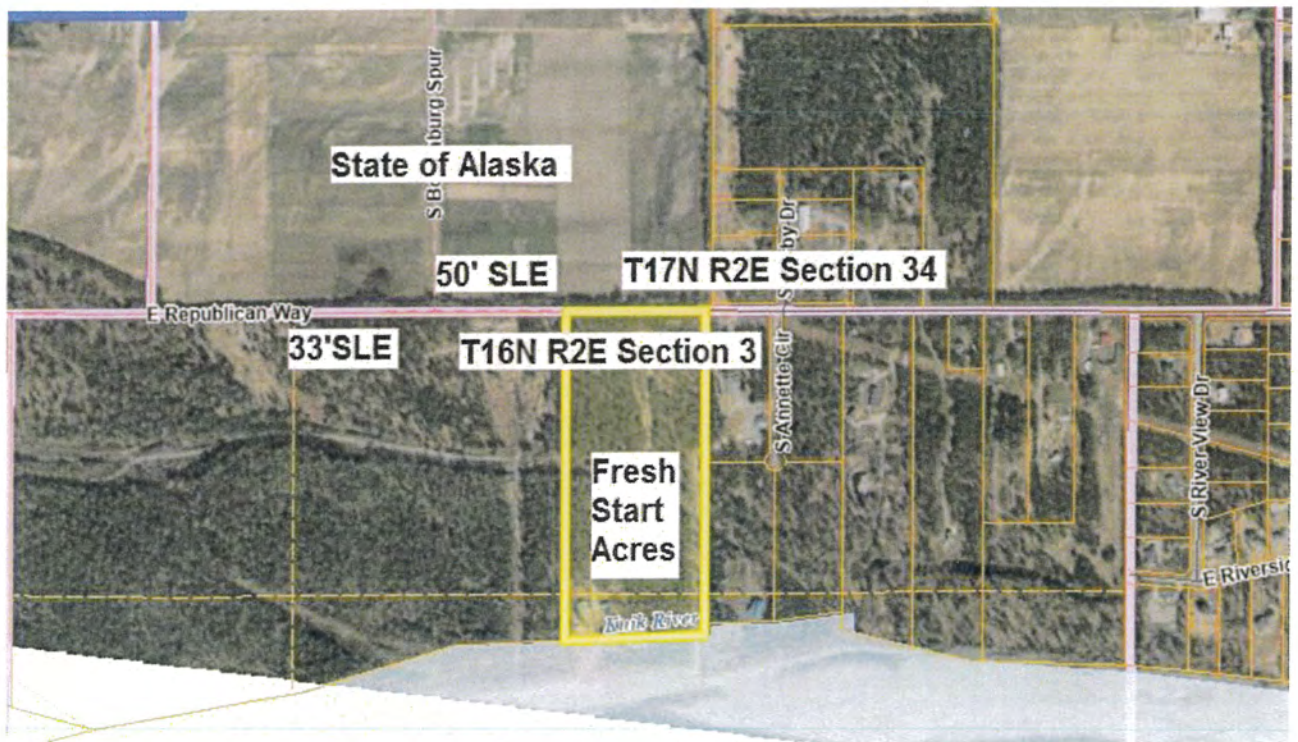
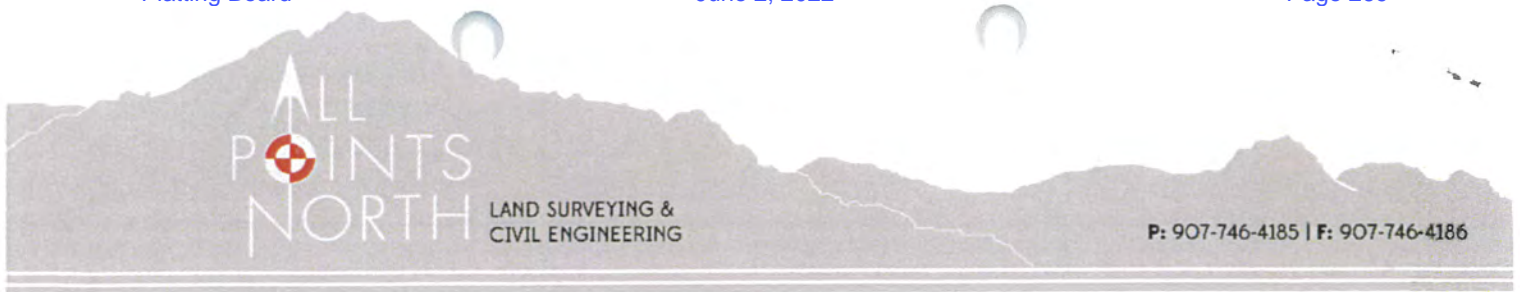
The State of Alaska owns the land lying north of Fresh Start Acres.

- The date of Survey Plat Approval is August 10, 1916.
- The land is currently in State Ownership, and was patented the Territory on May 27, 1946 as Patent #1120981.
 - ➔ The Section line easement is 50', as verified by email from the Alaska Department of Transportation. (Note MSB Current tax maps incorrectly shows this at 33').

Please contact me should you have any questions about this easement research.

Max Schillinger

Max Schillinger, P.L.S.



Vicinity Map, nts



Amy Otto-Buchanan

From: Jamie Taylor
Sent: Friday, May 13, 2022 1:26 PM
To: Amy Otto-Buchanan
Cc: Elaine Flagg
Subject: RE: RFC Fresh Start Acres #22-057

Will the existing driveway be demo'd as part of the road construction?

The drainage report appears satisfactory since impervious area not being increased due to the subdivision.

Please schedule a preconstruction conference after preliminary plat approval and prior to any work within ROW.

Jamie Taylor, PE (she/her)
Civil Engineer
Matanuska-Susitna Borough
Department of Public Works
t: 907-861-7765 c: 907-355-9810
jamie.taylor@matsugov.us
<http://www.matsugov.us/>

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Monday, April 18, 2022 4:57 PM
To: butteakcc@gmail.com; Mike and Elaine Shields <meshie@mtaonline.net>; snowshark1@hotmail.com; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; timhaledistrict1@gmail.com; Horton, George C (DNR) <george.horton@alaska.gov>; Percy, Colton T (DFG) <colton.percy@alaska.gov>; pamelaj.melchert@usps.gov; regpagemaster@usace.army.mil; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <Brad.Sworts@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Fresh Start Acres #22-057

The following link contains a Request for Comments for Fresh Start Acres, MSB Case #2022-057, to subdivide 116N02E03A002 into two lots. Comments are due **May 18, 2022**. Please let me know if you have any questions. Thanks, A.

[Fresh Start Acres](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan

From: Taunnie Boothby
Sent: Thursday, May 12, 2022 5:06 PM
To: Amy Otto-Buchanan
Cc: Karol Riese; Adam Bradway; Rick Antonio; Kendra Johnson
Subject: RE: RFC Fresh Start Acres #22-057 116N02E03A002 Due: May 18, 2022

Amy,
The documents state the Special Flood Hazard Development Area identified. Development in this area must meet the standards in MSB 17.29.

Currently based on the 2021 aerial imagery and the plan set dated 4/9/2022 shows development that has not been permitted. Specifically, 2 yurts, an outhouse, a shop, and a shed.

Development under MSB 17.29 Flood damage prevention code states, "Development" means any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials located within the area of special flood hazard.

This needs to be corrected in accordance with the code enforce at the time of development.
Please feel free to call me with any questions.

Taunnie L. Boothby, CFM, Planner II
Matanuska-Susitna Borough
Planning Department – Northern Office/Willow Library
(907) 861-8526
taunnie.boothby@matsugov.us

-----Original Appointment-----

From: Karol Riese <Karol.Riese@matsugov.us>
Sent: Wednesday, April 20, 2022 10:43 AM
To: Karol Riese; Adam Bradway; Taunnie Boothby; Rick Antonio
Subject: RFC Fresh Start Acres #22-057 116N02E03A002 Due: May 18, 2022
When: Monday, May 16, 2022 12:00 AM to Tuesday, May 17, 2022 12:00 AM (UTC-09:00) Alaska.
Where:

Amy Otto-Buchanan

From: Percy, Colton T (DFG) <colton.percy@alaska.gov>
Sent: Tuesday, May 10, 2022 8:32 AM
To: Amy Otto-Buchanan
Subject: RE: RFC Fresh Start Acres #22-057

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Hi Amy,

Alaska Department of Fish and Game has reviewed the proposed platting actions and has no objections. The proposed actions will not adversely affect fish, wildlife, habitat, or public access to public lands and waters. Thank you for the opportunity to review and comment on these platting actions.

Colton T. Percy

Habitat Biologist
Access Defense Program
 Alaska Department of Fish and Game
 Division of Wildlife Conservation
 333 Raspberry Rd
 Anchorage, AK 99518
 907-267-2118

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Monday, April 18, 2022 4:57 PM
To: butteakcc@gmail.com; Mike and Elaine Shields <meshie@mtaonline.net>; snowshark1@hotmail.com; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; timhaledistrict1@gmail.com; Horton, George C (DNR) <george.horton@alaska.gov>; Percy, Colton T (DFG) <colton.percy@alaska.gov>; pamelaj.melchert@usps.gov; regpagemaster@usace.army.mil; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <brad.sworts@matsugov.us>; Jamie Taylor <jamie.taylor@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanaska.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Fresh Start Acres #22-057

CAUTION: This email originated from outside the State of Alaska mail system. Do not click links or open attachments unless you recognize the sender and know the content is safe.

The following link contains a Request for Comments for Fresh Start Acres, MSB Case #2022-057, to subdivide 116N02E03A002 into two lots. Comments are due **May 18, 2022**. Please let me know if you have any questions. Thanks, A.

[Fresh Start Acres](#)

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ENSTAR Natural Gas Company
 A DIVISION OF SEMCO ENERGY
 Engineering Department, Right of Way Section
 401 E. International Airport Road
 P. O. Box 190288
 Anchorage, Alaska 99519-0288
 (907) 277-5551
 FAX (907) 334-7798

April 20, 2022

Matanuska-Susitna Borough, Platting Division
 350 East Dahlia Avenue
 Palmer, AK 99645-6488

To whom it may concern:

ENSTAR Natural Gas Company has reviewed the following preliminary plat and has no comments or recommendations.

- **FRESH START ACRES**
(MSB Case # 2022-057)

If you have any questions, please feel free to contact me at 334-7944 or by email at james.christopher@enstarnaturalgas.com.

Sincerely,

James Christopher

James Christopher
 Right of Way & Compliance Technician
 ENSTAR Natural Gas Company

Amy Otto-Buchanan

From: Holly Sparrow <hsparrow@mtasolutions.com>
Sent: Thursday, April 28, 2022 12:49 PM
To: Amy Otto-Buchanan
Subject: RE: RFC Fresh Start Acres #22-057

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Hello,

MTA has reviewed the plat for Fresh Start Acres. MTA has no comments.

Thank you for the opportunity to comment.

Holly Sparrow, Right of Way Agent

1740 S. Chugach St., Palmer, Alaska 99645

Office: (907) 761-2599 | www.mtasolutions.com



Life. Technology. Together.

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Monday, April 18, 2022 4:57 PM
To: butteakcc@gmail.com; Mike and Elaine Shields <meshie@mtaonline.net>; snowshark1@hotmail.com; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; timhaledistrict1@gmail.com; Horton, George C (DNR) <george.horton@alaska.gov>; Percy, Colton T (DFG) <colton.percy@alaska.gov>; pamelaj.melchert@usps.gov; regpagemaster@usace.army.mil; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <Brad.Sworts@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanuska.com; Right of Way Dept. <row@mtasolutions.com>; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Fresh Start Acres #22-057

The following link contains a Request for Comments for Fresh Start Acres, MSB Case #2022-057, to subdivide 116N02E03A002 into two lots. Comments are due **May 18, 2022**. Please let me know if you have any questions. Thanks, A.

[Fresh Start Acres](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan

From: OSP Design Group <ospdesign@gci.com>
Sent: Thursday, April 28, 2022 12:49 PM
To: Amy Otto-Buchanan
Cc: OSP Design Group
Subject: RE: RFC Fresh Start Acres #22-057
Attachments: RFC Packet.pdf; Agenda Plat.pdf

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Amy,

In review GCI has no comments or objections to the plat, attached is the signed plat for your records.

Thanks,

MIREYA ARMESTO

GCI | Technician II, GIS Mapping

m: 907-744-5166 | w: www.gci.com

From: Amy Otto-Buchanan <Amy.Otto-Buchanan@matsugov.us>
Sent: Monday, April 18, 2022 4:57 PM
To: butteakcc@gmail.com; Mike and Elaine Shields <meshie@mtaonline.net>; snowshark1@hotmail.com; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; timhaledistrict1@gmail.com; Horton, George C (DNR) <george.horton@alaska.gov>; Percy, Colton T (DFG) <colton.percy@alaska.gov>; pamela.j.melchert@usps.gov; regpagemaster@usace.army.mil; Fire Code <Fire.Code@matsugov.us>; Jill Irsik <Jill.Irsik@matsugov.us>; Eric Phillips <Eric.Phillips@matsugov.us>; msb.hpc@gmail.com; Brad Sworts <Brad.Sworts@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Terry Dolan <Terry.Dolan@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Mark Whisenhunt <Mark.Whisenhunt@matsugov.us>; Theresa Taranto <Theresa.Taranto@matsugov.us>; Andy Dean <Andy.Dean@matsugov.us>; mearow@matanуска.com; row@mtasolutions.com; andrew.fraiser@enstarnaturalgas.com; James Christopher <James.Christopher@enstarnaturalgas.com>; row@enstarnaturalgas.com; OSP Design Group <ospdesign@gci.com>
Subject: RFC Fresh Start Acres #22-057

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The following link contains a Request for Comments for Fresh Start Acres, MSB Case #2022-057, to subdivide 116N02E03A002 into two lots. Comments are due **May 18, 2022**. Please let me know if you have any questions. Thanks, A.

[Fresh Start Acres](#)

Please open in Chrome or copy & paste. Opening in Microsoft Edge creates viewing issues.

Amy Otto-Buchanan

Platting Technician

amy.otto-buchanan@matsugov.us

861-7872



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0000368428 MAY 11 2022

MATANUSKA-SUSITNA BOROUGH
PLATTING DIVISION
50 EAST DAHLIA AVENUE
PALMER, ALASKA 99645

RECEIVED


MAY 16 2022

PLATTING

116N02E03A015 5
KLEE MARTIN D
PO BOX 2354
PALMER, AK 99645-2354

FIRST CLASS

NOTIFICATION OF PUBLIC HEARING

The Matanuska-Susitna  **Platting Board** will consider the following:

PETITIONER/OWNER: TODD ESTEY; JULIE ESTEY

REQUEST: The request is to create two lots from Parcel #1, MSB Waiver 79-50-PWm, recorded as 79-345w (Tax Parcel A2), to be known as **FRESH START ACRES**, containing 26.48 acres +/- . Petitioner will dedicate a 60' x 90' area as right-of-way, to enable construction of a t-turnaround for access to both lots. Parcel is located south of E. Republican Way and north the Knik River (Tax ID # 16N02E03A002); lying within the W ½ Section 03, Township 16 North, Range 02 East, Seward Meridian, Alaska. In the Butte Community Council and in Assembly District #1.

The Matanuska-Susitna Borough **Platting Board** will hold a public hearing in the **Assembly Chambers** at the **Dorothy Swanda Jones Building**, 350 E. Dahlia Avenue, Palmer, Alaska on the proposed **Subdivision**. The public hearing is scheduled for **June 2, 2022**, starting at 1:00 p.m. We are sending you this notice as required by State Law and Borough Ordinances.

For comments regarding the proposed action, this form may be used for your convenience by filling in the information below and return this notice to the MSB Platting Division, 350 E. Dahlia Avenue, Palmer, Alaska 99645 or e-mail: platting@matsugov.us. Comments received from the public after the platting board packet has been written and sent to the Board will be given to the Platting Board on "Hand-Out" the day of the meeting. Please do not send comments or questions directly to Platting Board members. Board members may not receive or engage in ex-parte contact with the applicant, other parties interested in the application, or members of the public concerning the application or issues presented in the application. **All public comments are due one (1) day prior, by 12:00 p.m.** To request additional information please contact the Platting Technician, **Amy Otto-Buchanan** at (907) 861-7872. To view the agenda or meeting packet please go to the following link: www.matsugov.us/boards/platting.

☒ No Objection [] Objection [] Concern

Name: MARTIN KLEE Address: 15278 REPUBLICAN WAY

Comments: _____

CERTIFICATE OF PAYMENT OF TAXES

I hereby certify that all current taxes and special assessments, through _____ against the property included in the subdivision hereon, have been paid.

Borough Tax Collection Official: _____

Dated: _____

PLANNING AND LAND USE DIRECTOR'S CERTIFICATE

I certify that this subdivision plat has been found to comply with the land subdivision regulations of the Matanuska-Susitna Borough, and that the plat has been approved by the platting authority by:

Plat Resolution Number: _____ Dated: _____

And that this plat has been approved for recording in the office of the recorder in the Anchorage Recording District, Third Judicial District, State of Alaska, in which the plat is located.

Planning and Land Use Director _____ Dated: _____

Attest: Platting Clerk _____

OWNERSHIP CERTIFICATE

We, the undersigned, hereby certify that we are the owners of the real property shown and described hereon, that we hereby adopt this plan of subdivision, and by our own free consent dedicate all Rights of Ways to the Matanuska-Susitna Borough, and grant all easements to the use shown.

Owners: _____ Dated: _____
Todd Estey, 15006 E Republican Way, Palmer AK 99645

Owners: _____ Dated: _____
Julie D. Estey, 3902 S Cheechako Dv, Palmer AK 99645

NOTARY'S ACKNOWLEDGEMENT

Subscribed and sworn before me this ____ day of _____, 2022,

For: _____

My commission expires: _____

Notary Public: _____

NOTARY'S ACKNOWLEDGEMENT

Subscribed and sworn before me this ____ day of _____, 2022,

For: _____

My commission expires: _____

Notary Public: _____

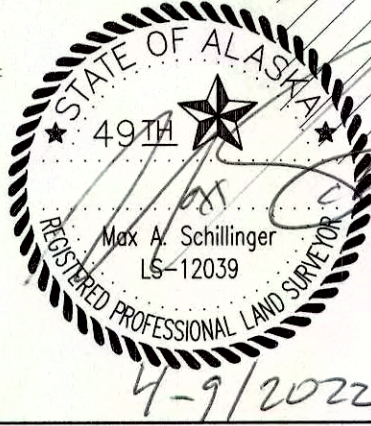
SURVEYOR

Max A. Schillinger
All Points North
P.O. Box 4207,
17600 E. Rambling Rd.
Palmer, AK. 99645
907-746-4185

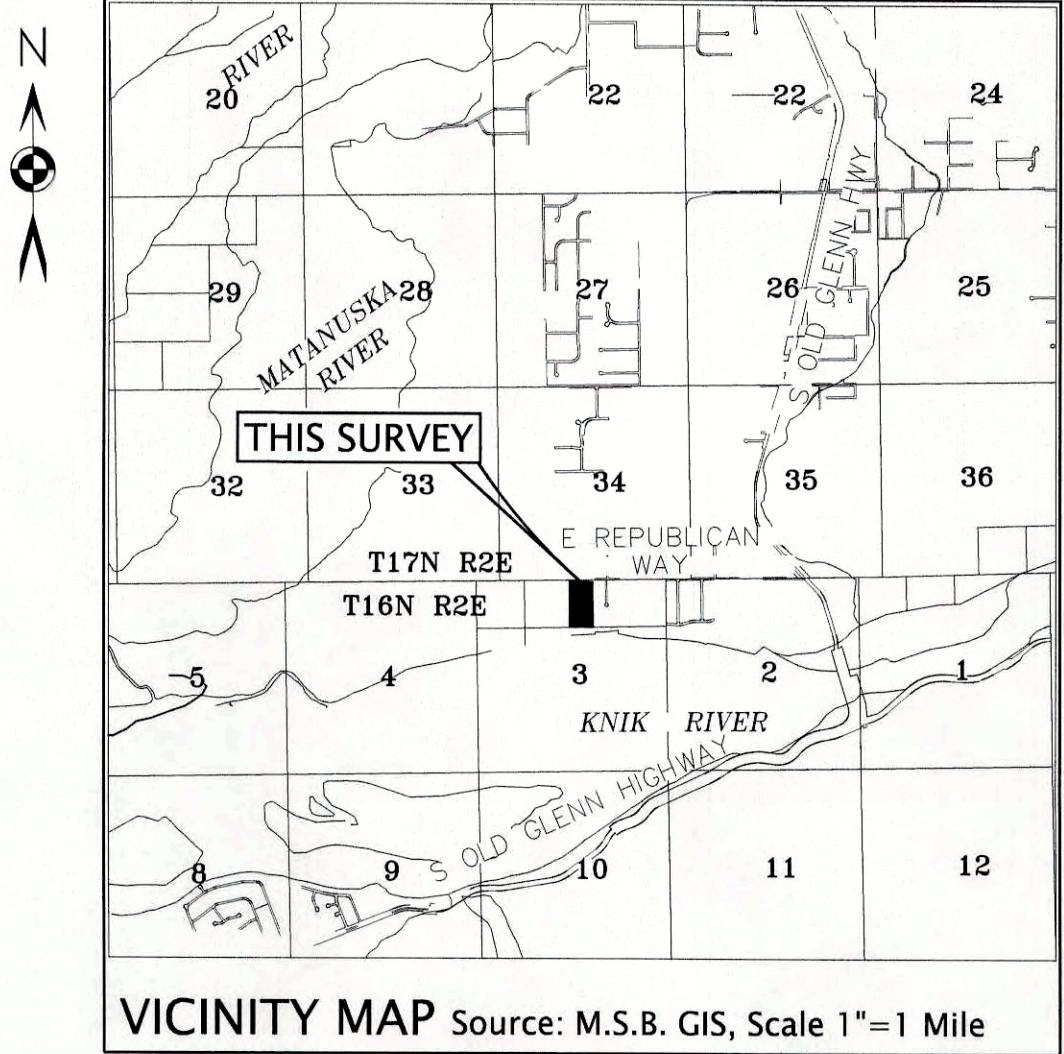
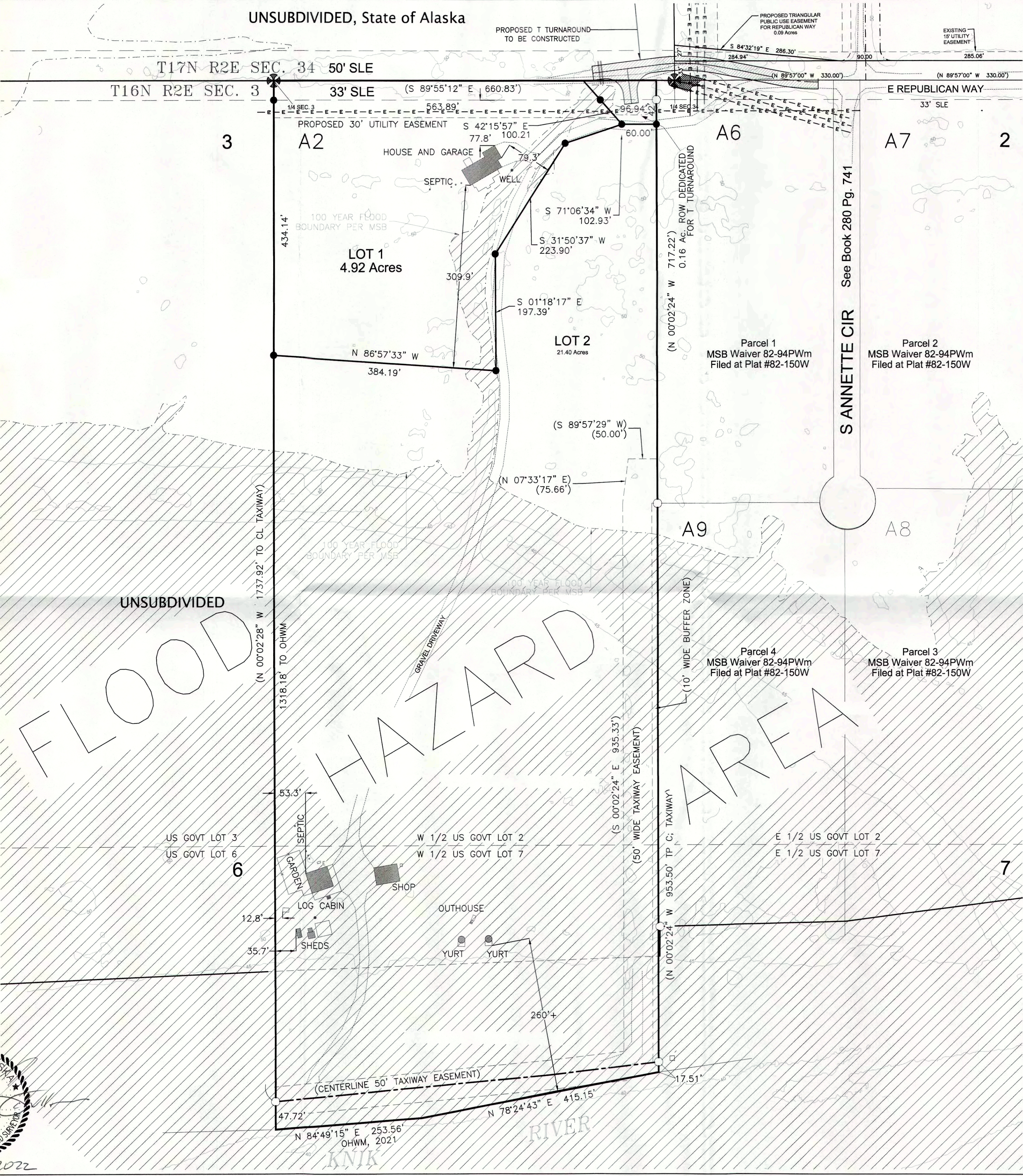
SURVEYORS STATEMENT

I hereby certify that I am a Professional Land Surveyor registered in the State of Alaska, that this plat represents a survey made by me or under my direct supervision, and the monuments shown hereon actually exist as described, and that all dimensions and other details are correct.

Date: _____



FOR MSB TOPO PURPOSES



LEGEND

- Found B.L.M. or G.L.O. monument as described in corner notes.
- Found 5/8" rebars with no caps unless otherwise described.
- Monument searched for and not found.
- Set 5/8" rebar, 30" long, with plastic cap marked "SCHILLINGER LS 12039"

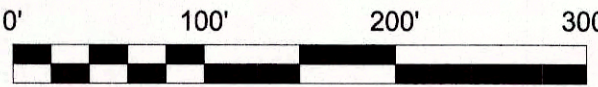
SURVEY NOTE

1) Measured dimensions are Alaska State Plane Zone 4 grid bearings and distances, utilizing the NAD83 (2011) horizontal datum.

Agenda Copy

RECEIVED
APR 14 2022
PLATTING

SCALE: 1" = 100 Feet



PLAT OF

FRESH START ACRES

A SUBDIVISION OF LAND DESCRIBED AS PARCEL 1
PLAT 79-345W, MSB 79-50-PWM

CONTAINING 26.48 ACRES, WITHIN THE
W 1/2 OF GOVERNMENT LOTS 2 AND 7, SECTION 3
Township 16 North, Range 02 East, SEWARD MERIDIAN
PALMER RECORDING DISTRICT, ALASKA

Date: 4-9-2022 Proj: 18-17 Sheet: 1 of 1

(signed for topo copy)

7A



MATANUSKA-SUSITNA BOROUGH

Planning and Land Use Department

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STAFF REPORT

DATE: May 23, 2022

SUBJECT: 2022 Subdivision Construction Manual Update

RESOLUTION NO.: Platting Board Resolution 22-039

STAFF: Alex Strawn, Planning & Land Use Director 

SUMMARY STATEMENT

In August 2020 the Matanuska-Susitna Borough Assembly adopted a major revision to the Subdivision Construction Manual. After working with the new manual for a construction season, both staff and the development community identified modifications that will clarify requirements of the manual. The modifications consist of general cleanup, modification of standards, and clarification of acceptable engineering techniques. Specifically, the changes can be summarized as follows:

1. General cleanup and clarification
2. Removed the number of lot and length restriction on residential streets before it becomes a residential Subcollector
3. Modified standards for turnarounds and paved aprons
4. Clarified compaction standards and added requirements for testing methods
5. Require the use of NOAA rainfall data for all locations and added standards how to use the data
6. Allow developers to put drainage facilities within utility easements while providing protections for future and existing utility facilities
7. Modified standards for water quality associated with treatment of runoff
8. Modified downstream evaluation and mitigation criteria for flood hazards
9. Added requirements to the flood bypass design requirements

10. Added standards for ditch stabilization
11. Added minimum freeboard for all ditches
12. Added culvert gauge standards
13. Added energy dissipation requirements at culvert outlets
14. Added soil infiltration facility standards
15. Added pre-approved runoff calculation methods
16. Modified warranty timeframes to work better for both DPW and developers
17. Added inspection deadline for Subdivision Agreements
18. Removed appendices for example construction plan and paving special provision

Staff Recommendations

Staff respectfully recommends considering adoption of this legislation.

By: A. Strawn
 Introduced: June 2, 2022
 Public Hearing: June 16, 2022
 Action:

**MATANUSKA-SUSITNA BOROUGH
 PLATTING BOARD RESOLUTION NO. 22-039**

A RESOLUTION OF THE MATANUSKA-SUSITNA BOROUGH PLATTING BOARD RECOMMENDING ADOPTION OF AN ORDINANCE AMENDING MSB 43.05.015 PURPOSE AND SCOPE, TO REFERENCE THE 2022 SUBDIVISION CONSTRUCTION MANUAL.

WHEREAS, in August 2020, the Matanuska-Susitna Borough Assembly adopted a major revision to the Subdivision Construction Manual; and

WHEREAS, after working with the new manual for a construction season, both staff and the development community identified modifications that will clarify requirements of the manual; and

WHEREAS, the modifications consist of general cleanup, modification of standards, and clarification of acceptable engineering techniques.

NOW, THEREFORE, BE IT RESOLVED, that the Matanuska-Susitna Borough Planning Commission hereby recommends Assembly amending MSB 43.05.015 Purpose and Scope, to reference the 2022 Subdivision Construction Manual.

ADOPTED by the Matanuska-Susitna Borough Planning Commission
this -- day of --, 2022.

WILFRED FERNANDEZ, Chair

ATTEST

SLOAN VANGUNTEN
Platting Board Clerk

(SEAL)

YES:

NO:

2022 Subdivision Construction
Manual - Clean Copy

DRAFT

Matanuska-Susitna Borough Public Works Department

2022

Subdivision Construction Manual

(Roads, Drainage, and Utilities)

Adopted June 21, 2022

Effective June 21, 2022

DRAFT

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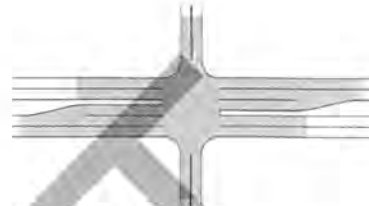
Acronyms & Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADFG	Alaska Department of Fish and Game
ADT	Average Daily Traffic
ADOT&PF	Alaska Department of Transportation and Public Facilities
ATM	Alaska Test Method
cfs	cubic feet per second
CMP	Corrugated metal pipe
DPW	Department of Public Works of the Matanuska-Susitna Borough
FHWA	Federal Highway Administration
ft	feet
h:v	horizontal to vertical
IDF	Intensity-Duration-Frequency
IFC	International Fire Code
in	inches
ITE	Institute of Transportation Engineers
LEW	Low Erosivity Waiver
LRTP	Long Range Transportation Plan
mph	miles per hour
MSB	Matanuska-Susitna Borough
N/A	not applicable
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NTP	notice to proceed
OHWM	ordinary high water mark
OSHP	Official Streets and Highways Plan
PUE	public use easement
ROW	right-of-way
SCS	Soil Conservation Service
VPD	vehicles per day

Definitions

Access Point	The location along a road at which a driveway or road intersects.
Arterial	A road that provides a high level of mobility within the transportation network. Arterials have managed access with a minimal number of intersections or interchanges.
Average Daily Traffic	The total number of vehicle trips during a given time period (in whole days greater than one day and less than one year) divided by the number of days in that time period.
Backslope	On a roadway section in a cut, the portion of the roadside that slopes up from the roadside ditch and away from the roadway to the top of the cut, see Figure A-3.
Catchment Area	The total area contributing stormwater runoff to a particular point, site, or structure.
Collector	A road that links local roads with arterials and performs some duties of each. Collectors have managed access with a moderate number of intersections and driveways.
Curve Return	The curve located at the corner of an intersection, connecting the roadway edge of one road to the roadway edge of an intersecting road or driveway.
Detention	The temporary storage of runoff, for later controlled release.
Drainage Pattern	The configuration of a drainage system including manmade and natural features within a catchment area.
Driveway	A vehicular access way between a road and a parking area within a lot or property.
Embankment	Earthen material that is placed and compacted for the purpose of raising the grade of a roadway.
Engineer	An individual who is registered as a Professional Civil Engineer in the State of Alaska.

Feasible	Reasonable and capable of being done or carried out.
Foreslope	On a roadway section, the portion of the roadside that slopes down and away from the roadway, see Figure A-3.
Functional Area	The physical area of an intersection and the area extending both upstream and downstream which includes perception reaction distance, maneuver distance, and storage length.
Intersection	The general area where two or more roads join or cross.
Local Road	A road that provides access to abutting property, rather than to serve through traffic. Local roads are not access controlled and can have frequent intersections and driveways.
Lot Frontage	A property line that abuts the right-of-way that provides access to the lot.
Ordinary High Water Mark	The elevation marking the highest water level which has been maintained for a sufficient time to leave evidence upon the landscape. Generally, it is the point where the natural vegetation changes from predominately aquatic to upland species.
Positive Drainage	Clear, unobstructed flow of water away from structures and roadways without localized ponding.
Public Use Easement	Provides the rights for ingress, egress, roadways, right-of-way, public utilities, and slopes for cuts and fills. The rights are to the public in general, and public utilities governed by permits required under federal, state, and local laws and regulations. May also be known as a public access easement or right-of-way.
Regulated Stream	Any watercourse along which the flood hazard areas have been mapped and approved by the Federal Emergency Management Agency; any stream which harbors fish, as determined by the Alaska Department of Fish and Game; or any stream designated as regulated by MSB.
Retention	The prevention of runoff. Stormwater, which is retained, remains indefinitely, with the exception of the volume lost to evaporation, plant uptake, or infiltration.



Right-of-way	A strip of land reserved, used, or to be used for a street, alley, walkway, airport, railroad, or other public or private purpose.
Road	A general term denoting a public thoroughfare used, or intended to be used, for passage or travel.
Road Prism	The foundation that supports the roadway; see Figure A-3.
Roadway	The portion of a road that includes driving lanes and shoulders, see Figure A-3.
Segment	A portion of road between two significant intersections or an intersection and its terminus.
Shoulder	The portion of a roadway contiguous to any traveled way for lateral support of surface courses, see Figure A-3.
Street	A general term usually denoting an urban or suburban road.
Stub	A right-of-way or road segment that is planned to be extended, typically short in length, which terminates at the boundary of a subdivision or masterplan phase.
T-intersection	A three leg intersection in the form of a "T".
Through Street	A road given preferential right of way; roads which intersect a through street are controlled, such as with a stop sign or yield sign.
Water Body	A permanent or temporary area of standing or flowing water. Water depth is such that water, and not air, is the principal medium in which organisms live. Water bodies include, but are not limited to: lakes, ponds, streams, rivers, sloughs, and all salt water bodies.

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Introduction

This manual is intended to accomplish the following goals:

- (1) To establish standards for the design and construction of transportation networks throughout the Matanuska-Susitna Borough.
- (2) To provide information and guidelines for the design, construction, and upgrade of roads, drainage facilities, and utilities within rights-of-way.
- (3) To develop and maintain a safer and more efficient transportation system.
- (4) To minimize operation & maintenance efforts.

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Section A. Street Design

A01 General

These provisions establish appropriate standards for the design of roads. The purpose of these provisions is to:

- (1) promote the safety and convenience of motorized and non-motorized traffic;
- (2) promote the safety of neighborhood residents;
- (3) minimize the long term costs for maintenance and repair;
- (4) protect the residential qualities of neighborhoods by limiting traffic volume, speed, noise, and air pollution;
- (5) encourage the efficient use of land; and
- (6) minimize the cost of road construction and thereby restrain the rise in housing costs.

A02 Applicability

These standards apply to the design and construction of all subdivision improvements within the Matanuska-Susitna Borough (MSB), with the exception of those streets within cities that exercise road powers by ordinance.

A03 Street Classifications

Roads within the MSB fall within one of the following functional classifications, in accordance with the Long Range Transportation Plan (LRTP): Interstate, Principal Arterial, Minor Arterial, Major Collector, Minor Collector, and Local Road. Functional classification of a road is based on its function, design, and current potential use. The applicant may request review of the functional classification of existing roads abutting or affecting the design of a subdivision or land development during the preapplication process.

This section provides design guidance for roads falling under local road and minor collector functional classifications.

A03.1 Residential Street

Residential streets are local roads intended to carry the least amount of traffic at the lowest speed. The Residential street will provide the safest and most desirable environment for a residential neighborhood. Developments should be designed so that all, or the maximum number possible, of the homes will front on this class of street.

A03.2 Residential Subcollector Street

Residential Subcollector streets are local roads that carry more traffic than Residential streets.

A03.3 Residential Collector Street

Residential Collector streets are the highest order of residential streets and are a type of minor collector. In large residential developments, this class of street may be necessary to carry traffic from

one neighborhood to another or from the neighborhood to other areas in the community. Residential Collector streets should provide the fewest direct accesses as possible.

A03.4 Mountain Access Road

Mountain Access Roads may be used in areas where the average cross slope exceeds 15 percent or to traverse terrain features in excess of 25 percent. Maintenance of Mountain Access Roads will be at the discretion of Department of Public Works (DPW). School bus access should be considered as school bus routes require all grades less than 10 percent. Mountain Access Road standards allow for steeper grades and switchbacks, but should otherwise be designed to Residential, Residential Subcollector, or Residential Collector standard as required by this section.

A03.5 Pioneer Road

Pioneer Roads may only be used where allowed by MSB or other applicable code. This classification establishes minimum requirements for roads providing physical access, but should otherwise be designed to Residential, Residential Subcollector, or Residential Collector standard as required by this section. No MSB maintenance will be provided for Pioneer Roads. Pioneer roads may be constructed offset from the centerline of the right-of-way (ROW) to facilitate future expansion of the road.

A03.6 Alleys

Alleys are permitted provided legal and physical access conforms to MSB or other applicable code. No MSB maintenance will be provided for Alleys.

A03.7 Other Street Types

The above classifications may be further typed as one of the following streets. These other street types should be designed to Residential, Residential Subcollector, or Residential Collector standard as required by this section.

- (a) Frontage Street – streets parallel and adjacent to a major road corridor which provides access to abutting properties and separation from through traffic. See Section B for additional design standards.
- (b) Backage Street – streets that provide access to lots located between the Backage Street and a major road corridor. See Section B for additional design standards.
- (c) Connector Street – the portion of a street that connects a frontage or backage street to a major road corridor. See Section B for additional design standards.
- (d) Divided Street – streets may be divided for the purpose of accommodating environmental features or avoiding excessive grading. In such a case, the design standards shall be applied to the appropriate street classification and a single lane width with a shoulder on each side.

A04 Access Criteria

A04.1 Residential Street

- (a) A Residential street provides access to abutting properties.
- (b) The anticipated average daily traffic (ADT) volume on Residential streets shall not exceed 400. A loop street shall be designed such that the anticipated ADT at each terminus of the loop street does not exceed 400, see Figure A-1.
- (c) Residential streets may intersect or take access from an equal or higher classification street. Both ends of a loop Residential street are encouraged to intersect the same collecting street and be designed to discourage through traffic.

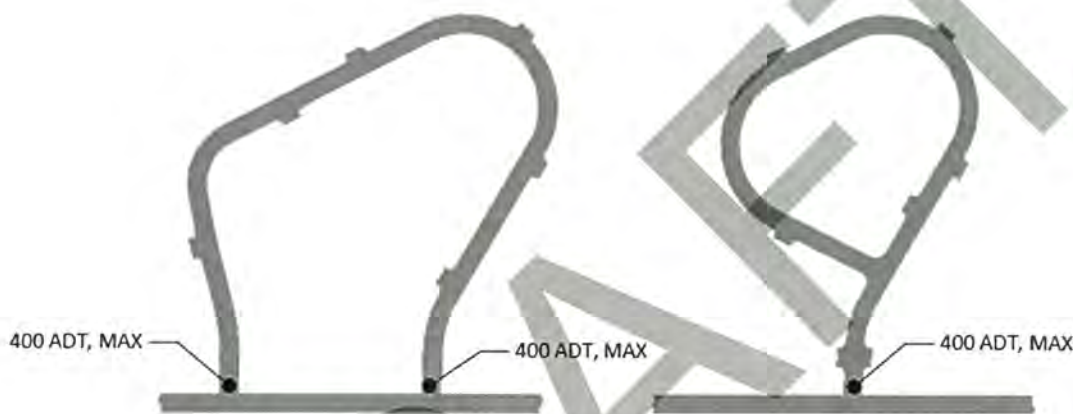


Figure A-1: Loop Residential Streets

A04.2 Residential Subcollector Street

- (a) A Residential Subcollector street provides access to abutting properties and may also move traffic from Residential streets that intersect it. Residential Subcollector streets are required when the ADT anticipated on the street will exceed the limits for Residential.
- (b) The anticipated ADT on Residential Subcollector streets shall not exceed 1000. A loop street shall be designed such that the anticipated ADT at each terminus of the loop street does not exceed 1000, see Figure A-2.
- (c) Residential Subcollector streets shall be designed to exclude all external through traffic that has neither origin nor destination on the Residential Subcollector or its tributary Residential streets. Adjacent parcels may acquire access if proven landlocked by legal or terrain features or if such Residential Subcollector access can be demonstrated to be beneficial to the public.
- (d) Residential Subcollector streets shall take access from a street of equal or higher classification.
- (e) Traffic calming elements should be considered for the design of Residential Subcollectors, such as avoiding long, straight segments and reducing the length of roadway from farthest lot to a collector.

- (f) Residential Subcollector streets shall be provided with two continuous moving lanes within which no parking is permitted.

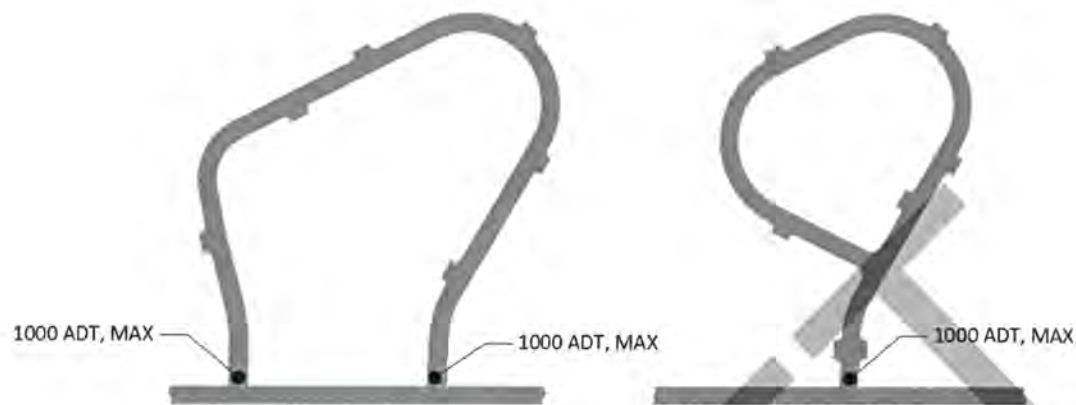


Figure A-2: Loop Residential Subcollector Streets

A04.3 Residential Collector Street

- (a) A Residential Collector street carries residential neighborhood traffic, but restricts or limits direct residential access. Residential Collector streets are required when the ADT anticipated on the street will exceed the limits for Residential Subcollectors.
- (b) Residential Collector streets should be designed to have as few residential lots directly fronting them as possible. When efficient subdivision design or physical constraints make this not possible, the average access point spacing shall be a minimum of 250 feet. Average access point spacing is calculated per segment and is equal to the segment length divided by the number of potential access points on both sides of the street. Undeveloped lots with only access to Residential Collector streets are counted as having at least one access point. When the average access point spacing on a segment of an existing Residential Collector street is less than 250 feet, the average access point spacing shall not decrease due to the subdivision.
- (c) Space shall be provided on these lots for turnaround so that vehicles will not have to back out onto Residential Collector streets.
- (d) Proposed access points on Residential Collector streets shall be shown on the preliminary plat.
- (e) Residential Collector streets shall be laid out to encourage connectivity within the transportation network.
- (f) If the anticipated ADT will exceed 3000, the street shall be classified at a higher level than Residential Collector by DPW.
- (g) Every Residential Collector shall be provided with no fewer than two access intersections to streets of equal or higher classification. If it is shown by the applicant that two accesses are not feasible, Residential Collector streets shall be provided with access to one street of equal or higher classification and be designed to accommodate a future second connection to a street of equal or higher classification, or otherwise be approved by DPW.
- (h) All Residential Collector streets shall be provided with two continuous moving lanes within which no parking shall be permitted.

A04.4 Access through Existing Streets

The anticipated ADT on existing Residential streets used to access a proposed subdivision may exceed 400, but shall not exceed 800, if:

- (a) alternate road corridors are not available or feasible;
- (b) horizontal geometry or access density prohibits upgrade to a higher standard road; and
- (c) the traffic impacts are mitigated.

A04.5 Traffic Impact Mitigation for Access through Existing Streets

Traffic impact mitigation on existing residential streets can include but is not limited to:

- (a) Traffic control devices (signage, striping) on segments where potential ADT exceeds 440;
- (b) LED street lighting, speed feedback signs, widened shoulders, inside corner widening for offtracking, or all-way stop intersections on segments where potential ADT exceeds 600.

A04.6 Commercial Uses on Residential and Residential Subcollector Streets

Exceptions to the ADT limits on Residential and Residential Subcollector streets, as set forth in A04.1 and A04.2, respectively, may be allowed for commercial uses that access the first 600 feet of such streets that intersect a Collector standard road or higher classification, as measured from the intersection point. The affected portion of the street and intersection shall be constructed to a higher standard as needed to accommodate the anticipated commercial traffic.

A05 Design Criteria

The design criteria for Residential, Residential Subcollector, and Residential Collector streets and Mountain Access and Pioneer roads are set forth in Table A-1. Any unspecified design criteria shall meet or exceed the design criteria for the roadway design speed in the latest edition of *A Policy on Geometric Design of Highways and Streets* (AASHTO).

Table A-1: Design Criteria

	Unit	Residential	Residential Subcollector	Residential Collector	Mountain Access ¹	Pioneer ¹
Average Daily Traffic	VPD	≤400	401 – 1000	1001 – 3000	–	–
Typical Section						
ROW Width ²	ft	60	60	60	60	60
Lane Width	ft	10	10	11	10	10
Standard Gravel Shoulder Width	ft	2	2	2	0 ³	0 ³
Shared Paved Shoulder Width ⁴	ft	4	4	6	–	–
Roadway Width	ft	24	24	26	20 ³	20
Foreslope ⁵	h:v	3:1	3:1	4:1	2:1	3:1
Backslope ⁶	h:v	2:1	2:1	2:1	2:1 ⁷	2:1
Crown, gravel	%	3	3	3	3	3
Crown, pavement	%	2	2	2	2	–
Engineering Criteria						
Design Speed	mph	25	30	35	–	–
Posted Speed	mph	20	25	30	–	–
Stopping Sight Distance	ft	155	200	250	–	–
Horizontal Alignment						
Minimum Centerline Radius	ft	225	350	550	– ⁸	–
with DPW Approval	ft	190	275	400	–	–
Minimum Tangent Between Curves	ft	100	100	100	100	100
Maximum superelevation	%	N/A	N/A	4	N/A	N/A

¹ Where a value is not given, Mountain Access and Pioneer Roads shall meet the criteria of the anticipated street classification.

² Minimum ROW required for new dedications; width of existing ROW may vary.

³ Where grades exceed 7 percent, the shoulder width shall be 2 feet for a total roadway width of 24 feet.

⁴ An optional paved shoulder may be provided on one or both sides of paved streets for non-motorized shared use.

⁵ Slope for the first 7.5 feet from the shoulder; may be steepened to 2:1 thereafter. Install guardrail when required by the latest edition of the *Roadside Design Guide* (AASHTO).

⁶ 2:1 Back slopes may be steepened to 1.5:1 if cuts exceed 5 feet and appropriate slope stabilization, as determined by the design engineer, is used. Retaining walls may be used to replace or augment backslopes.

⁷ Or backslope recommended by the design engineer based on actual conditions.

⁸ Switch backs are allowed provided cul-de-sac criteria is met or turning radius is 40 feet with a 2% grade.

	Unit	Residential	Residential Subcollector	Residential Collector	Mountain Access ¹	Pioneer ¹
Vertical Alignment						
Maximum Centerline Grade	%	10	10	10	15 ⁹	10
Minimum Rate of Vertical Curvature ¹⁰ ; Crest		12	19	29	—	—
Minimum Rate of Vertical Curvature ¹⁰ ; Sag		26	37	49	—	—
Minimum Flow Line Grades	%	0.5	0.5	0.5	1.0	0.5
Intersections						
Minimum ROW Corner Radius	ft	30	30	30	30	30
Minimum Curve Return Radius ¹¹	ft	20	25	30	—	—
Maximum Grade on through street within 50 feet of intersection	%	7	7	4	9	7

A06 Typical Section

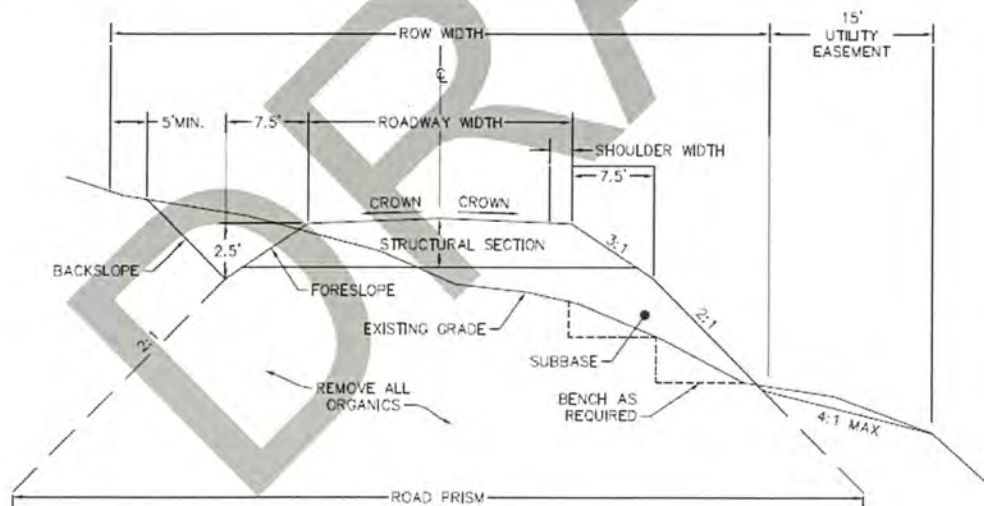


Figure A-3: Typical Section

⁹ Up to 15% grade with no more than 200 linear feet of over 10% grade with a minimum of 100 linear feet of less than 10% grade for runout between steeper sections. Maximum grade in a horizontal curve is 10%.

¹⁰ Rate of vertical curvature (K) is the length of curve (L) in feet per percent algebraic difference in intersecting grades (A); $K = L / A$

¹¹ 40-foot minimum curve return radius at intersections with higher order streets.

A07 Turnarounds

Streets with only one inlet shall terminate with a constructed turnaround, unless otherwise provided by A08.2.

A07.1 Cul-de-sac Turnarounds

- A cul-de-sac turnaround with a drivable surface diameter (shoulder to shoulder) of 85 feet centered in a ROW diameter of 120 feet shall be provided at the terminus of Residential and Residential Subcollector streets.
- Cul-de-sac turnarounds shall meet the configuration and dimensions shown in Figure A-4.
- The grade throughout the surface of a cul-de-sac, as depicted in the shaded portion of Figure A-4, shall not exceed 4 percent.

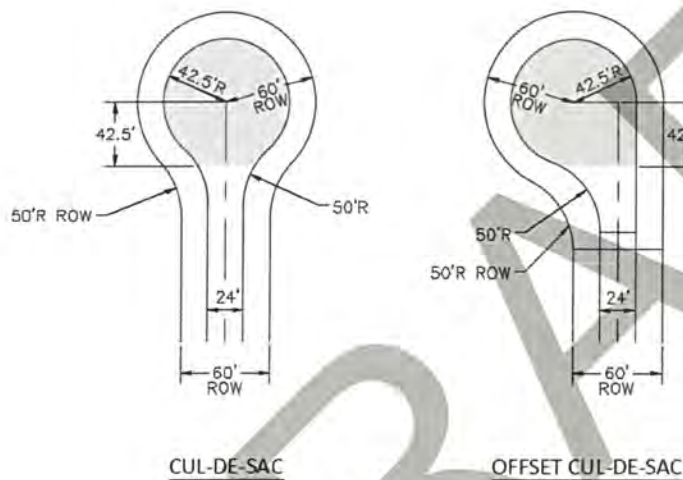


Figure A-4: Cul-de-sac Options

A07.2 Alternate Turnarounds

- DPW may permit a street to terminate with an alternative turnaround that meets fire code when such a design is required by extreme environmental or topographical conditions, unusual or irregularly shaped tract boundaries, or when the location of the turnaround is intended to become an intersection.
- Alternate turnarounds shall meet the configuration and dimensions shown in Figure A-5.
- The grade throughout the turnaround surface, as depicted in the shaded portion of Figure A-5, shall not exceed 4 percent.

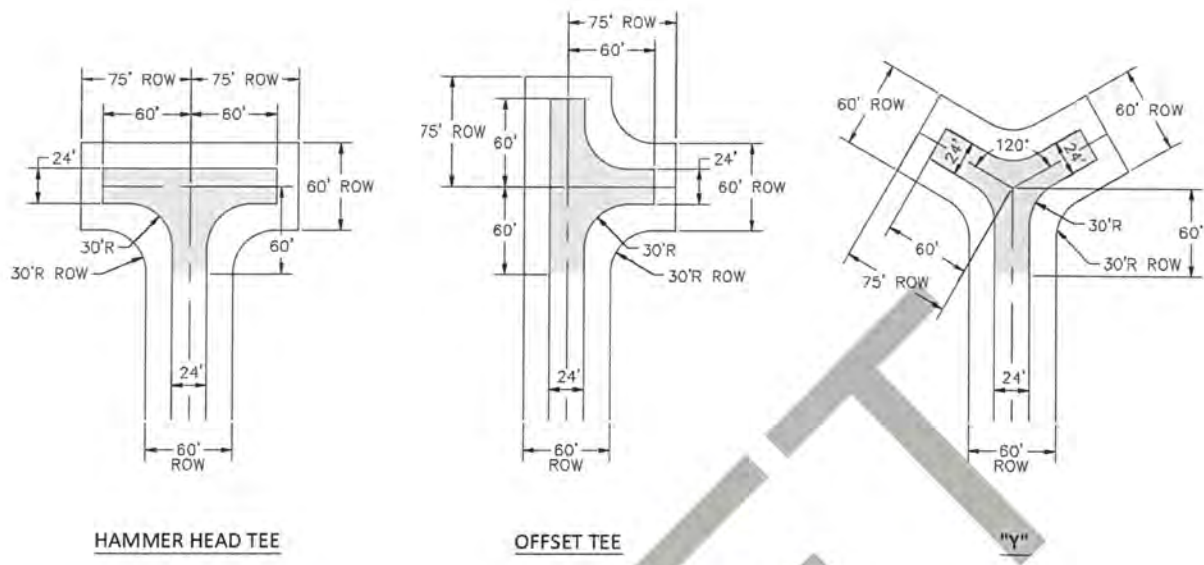


Figure A-5: Alternate Turnarounds

A08 Stub Streets

A08.1 Stub Street Construction

No construction is required if physical access is provided to all lots by adjoining streets as required by MSB or other applicable code.

A08.2 Temporary Turnarounds

Stub streets requiring construction that exceed 200 feet in length (measured from the intersection point to the end of required construction) will meet the requirements of A07.1 or A07.2. A temporary easement will be provided for the turnaround, which will automatically terminate upon extension of the street and physical removal of the turnaround. The centerline grade on stub streets without turnarounds shall not exceed 4%.

A09 Intersections

A09.1 Intersection Sight Distance

- Whenever a proposed street intersects an existing or proposed street of higher order, the street of lower order shall be made a stop controlled street, unless alternate intersection control is used as allowed by this subsection.
- Stop controlled streets shall be designed to provide intersection sight distance as specified in this subsection, Table A-2, and Figure A-6.
- The entire area of the intersection sight triangles shown in Figure A-6 shall be designed to provide a clear view from point A at 3.5 feet above the roadway to all points 3.5 feet above the roadway along the lane centerlines from point B to point C and point D to point E.

- (d) Sight distances less than the recommended shall only be used when there are topographical or other physical constraints outside of the applicant's control.
- (e) The minimum sight distances listed in Table A-2 are for a passenger car to turn onto a two-lane undivided street and minor road approach grades of 3 percent or less. For other conditions, the minimum sight distance should be calculated by the applicant's engineer according to *A Policy on Geometric Design of Highways and Streets* (AASHTO).
- (f) Sight distances less than the minimum, where no other options exist, will require alternate intersection control or warning signs as determined by the applicant's engineer and approved by DPW.
- (g) Intersection sight triangles shall be located in their entirety within ROW or a sight distance maintenance easement.
- (h) Yield controlled intersections shall conform to sight distance requirements according to *A Policy on Geometric Design of Highways and Streets* (AASHTO).
- (i) Intersections with state or other municipal ROW are subject to their respective requirements and review.

Table A-2: Recommended and Minimum Intersection Sight Distance

Design Speed or Posted Speed Limit (whichever is greater)	S_d Recommended	S_d Minimum
MPH	ft	ft
25	370	280
30	450	335
35	580	390
40	750	445
45	950	500
50	1180	555
55	1450	610
60	1750	665
65	2100	720

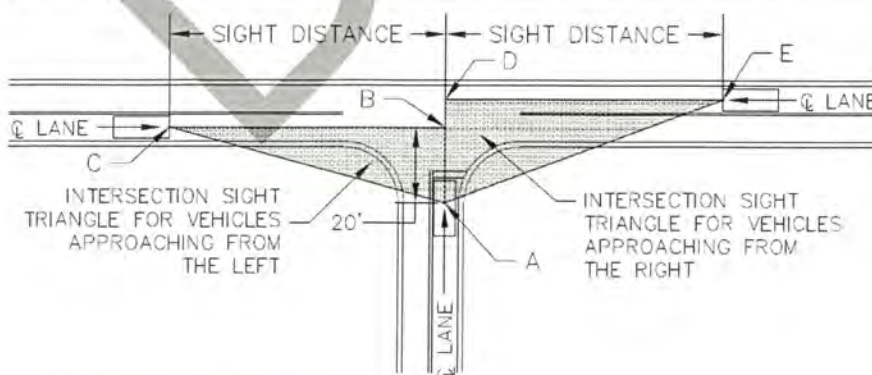


Figure A-6: Intersection Sight Distance

A09.2 Intersection Spacing

- (a) Minimum centerline to centerline distance between intersections on the same side or opposing sides of the through street shall be:
 - (1) 155 feet on Residential streets;
 - (2) 200 feet on Residential Subcollector streets;
 - (3) 300 feet on Residential Collectors and Minor Collectors; or
 - (4) 650 feet on higher order streets where other access standards do not exist.
- (b) If the above spacing along the through street cannot be met, intersections shall be aligned directly across from each other. Intersections on opposing sides of the through street may be offset up to 30 feet, with a preference for a left-right offset, as shown in Figure A-7.
- (c) Where pre-existing conditions do not allow for the above spacing and no other legal access exists, alternate spacing or offset most closely meeting (a) or (b) above may be allowed.
- (d) Additional intersections should be avoided within the functional area of major intersections with turning bays and approach tapers. Exceptions require DPW approval based upon constraints and no other feasible alternatives.

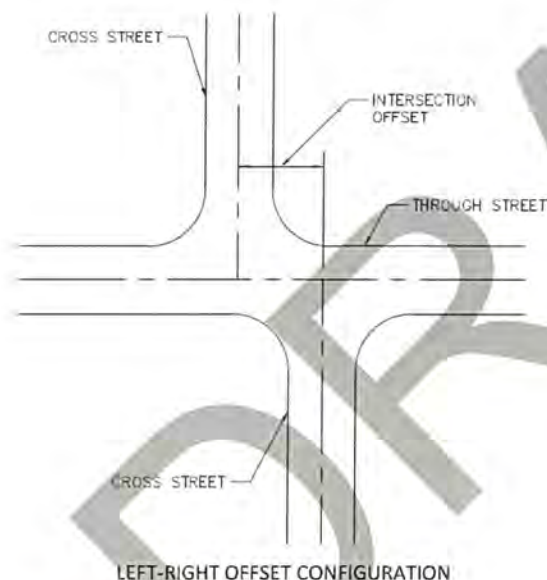


Figure A-7: Intersection Offset

A09.3 Minimum Intersection Angle

Streets should intersect with a straight segment at an angle as close to 90° as possible, but no less than 70°, for a minimum of 75 feet from the intersection point, as shown in Figure A-8.

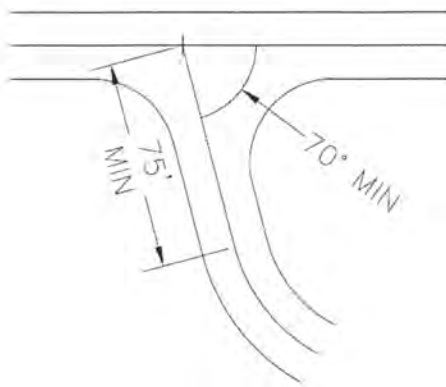


Figure A-8: Intersection Angle

A09.4 Landing

Controlled streets shall be provided with a typical 30-foot landing, conforming to Figure A-9, at its approach to a through street. The landing shall be sloped to match the crown of the through street. Vertical curves shall not be located in the landing to the extent feasible. Where a negative slope away from the through street is not feasible due to topographical constraints, the road shall be constructed in a manner that prevents water from flowing onto the through street.

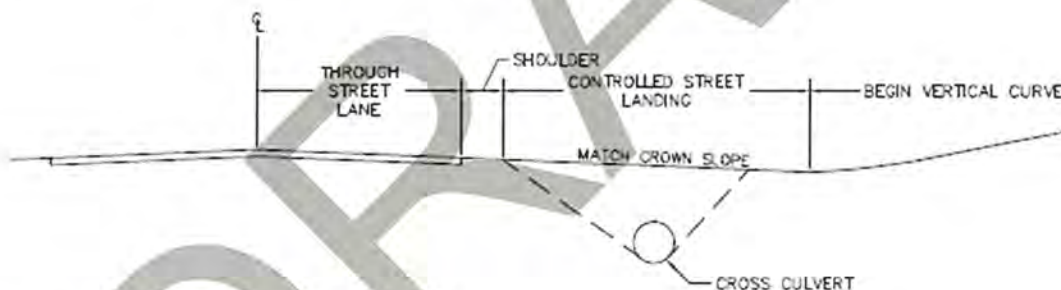


Figure A-9: Controlled Street Landing Profile

A09.5 Paved Apron

A proposed street which intersects an existing paved street shall be provided with a paved apron 40 feet from the edge of the existing pavement.

A10 Driveways

Driveways are not usually required to be constructed within the ROW at time of road construction. However, if an applicant chooses to construct driveways, driveway permits are required. The applicant may permit all driveways with one application. A driveway permit application can be obtained from the MSB Permit Center. Driveways onto state or other municipal ROW are subject to their respective requirements and review.

A11 Trailhead

Trailhead parking lot layout shall conform to applicable local, state, and federal requirements.

A12 Bicycle and Pedestrian Paths

Bicycle and pedestrian paths constructed within public ROW shall conform to the current edition of *Guide for the Development of Bicycle Facilities* (AASHTO), and any other applicable local, state, and federal requirements.

A13 Signage

Signs shall be provided and installed by the applicant in conformance with the latest edition of the *Alaska Traffic Manual* (ADOT&PF) and the *Alaska Sign Design Specifications* (ADOT&PF) prior to plat recordation.

- (a) Each street within a subdivision shall be identified and signed at its point of egress and ingress. Cul-de-sac streets will be signed and identified at their point of ingress
- (b) Intersection control signs shall be provided at designated intersections within the confines of the subdivision and at the intersection with the access road, if applicable.
- (c) Intersection control signs shall be located such that they are visible to approaching traffic and near corresponding stop or yield bars.
- (d) Speed limit signs shall be provided at entrances to the subdivision, where the speed limit changes, and at a minimum of one-mile intervals throughout the subdivision.
- (e) If a constructed stub street provides access to two or fewer lots and has no turnarounds a sign indicating a dead-end street shall be posted.
- (f) If a dedicated stub street is not constructed, no signs are required.
- (g) Install signs according to the criteria in Figure A-10, Figure A-11, and Figure A-12.
- (h) Signs within state or other municipal ROW are subject to their respective requirements and review.

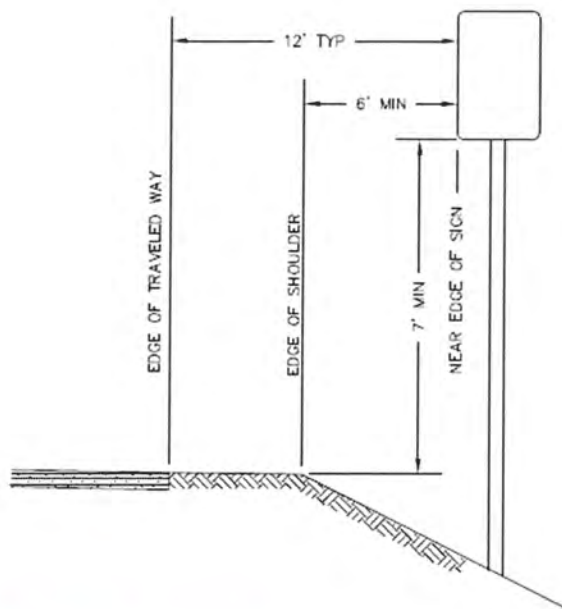


Figure A-10: Sign Placement

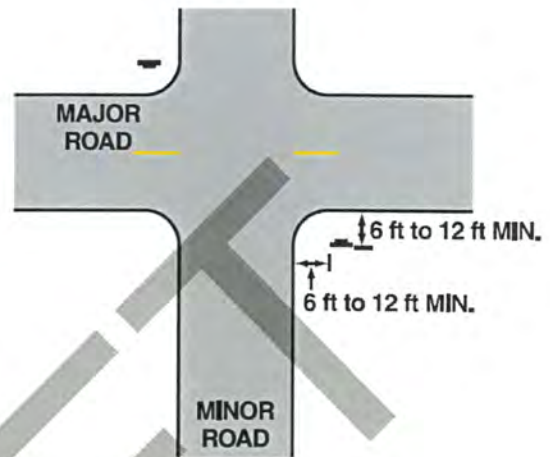
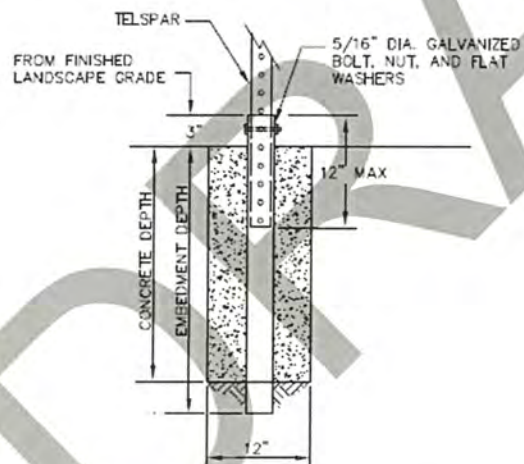


Figure A-11: Stop Sign Location



PERFORATED STEEL TUBES (P.S.T.) (12ga. - .105" Wall Thickness)			
SIGN SURFACE AREA SQ. FT.	POST SIZE	EMBEDMENT DEPTH	CONCRETE DEPTH
7' OR LESS	2" X 2"	27"	24"
GREATER THAN 7'	2 1/2" X 2 1/2"	33"	30"

Figure A-12: Concrete Foundation for Sign Post

A14 Railroad Crossings

All access requiring a crossing of the Alaska Railroad shall be subject to the *Alaska Policy on Railroad/Highway Crossings* (Alaska Railroad).

A15 Average Daily Traffic

- (a) The following formula shall be used to determine the required classification of streets:
ADT = Number of lots x 10 for single-family residential use.
- (b) See Section G for other land uses.
- (c) For subdivisions of five or more lots, submit potential ADT calculations for the following locations with the preliminary plat:
 - (1) at each intersection within the subdivision,
 - (2) at each intersection en route to an existing Residential Collector street or higher classification, and
 - (3) at an existing Residential Collector street or higher classification.

A16 Design Deviations

Design deviations will be considered to address extenuating circumstances including but not limited to: existing substandard ROW, environmental conditions, or existing utilities or other structures. Design deviation requests shall be in writing and contain supporting information, justification, and suggested solutions. Design deviations may be allowed by DPW only for matters that do not fall under the jurisdiction of a Board or Commission. In no circumstances will a roadway width less than 20 feet or foreslopes steeper than 2:1 be allowed. Residential Collector streets shall be no less than 24 feet wide.

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Section B. Major Road Corridors

B01 General

Major road corridors include major collectors, arterials, and interstates. This section provides references to and guidelines for the design and construction of major road corridors within the MSB.

B02 Right-of-way and Surface Widths

Table B-1: ROW and Surface Widths

Classification	Minimum ROW Width (ft)	Standard Lane Width (ft)	Number of Lanes	Shoulder Width (ft)
Major Collector	80	12	2 – 3	4
Arterial	100	12	3 – 4	4 – 8
Interstate	200	12	4 – 6	12

B03 Frontage, Backage, and Connector Street Standards

Subdivisions adjacent to planned or existing major road corridors shall plan for future frontage or backage streets when any of the following conditions apply, unless it is shown by the applicant to be not necessary or feasible for future development and public safety with no written objection from the road authority.

- Subdivisions accessing roads that are classified by ADOT&PF as Interstates.
- Subdivisions accessing roads that are or are projected to grow above 20,000 vehicles per day (VPD).
- Subdivisions accessing roads that are or are projected to have four or more lanes or median control per the LRTP or Official Streets and Highways Plan (OSHP).
- Subdivisions that require a second access route.
- To gain access to an existing or planned signal.
- Where access to a minor arterial or collector as a connector road is feasible.
- When there are existing or platted frontage or backage routes adjacent to the property.

B03.1 Separation Distances

Minimum ROW to ROW separation distance between major corridors and frontage or backage streets shall be:

- 0 feet for locations with no connector street to the major road corridor;
- 100 feet for locations with a connector street to the major road corridor that lie between section lines and planned or existing intersections with other major road corridors;
- 300 feet for locations where the connector street to the major road corridor is on a section line or planned or existing major road corridor.

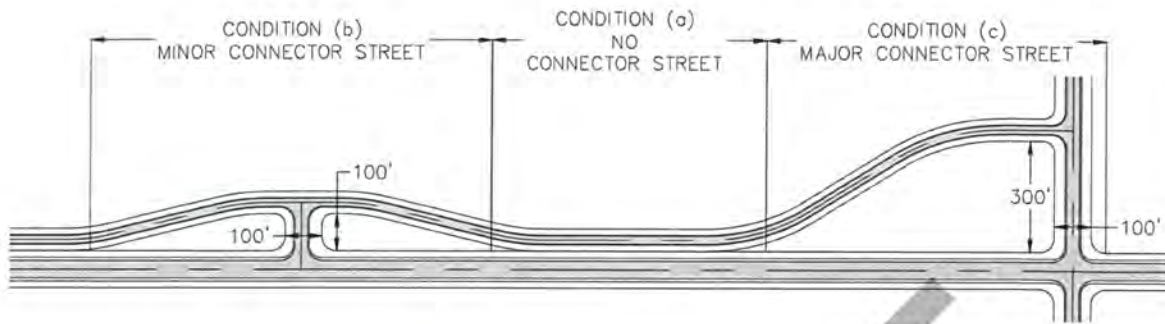


Figure B-1: Frontage Street Configurations

B03.2 Design Standards

- (a) Frontage streets
 - (1) Minimum centerline radii may be reduced near intersections with through connector streets.
- (b) Connector streets
 - (1) 100-foot ROW width desirable.
 - (2) Minimum 40-foot radius curve returns at the major road corridor.
 - (3) Minimum 4-foot wide shoulders for 100 feet from the edge of roadway of the major road corridor.
 - (4) Minimal direct access.

B03.3 Dedication and Setbacks

Dedicate ROW or additional building setbacks to allow for the frontage, backage, and connector street standards in this manual. The applicant shall submit design information sufficient to demonstrate that frontage, backage, and connector street dedications or building setbacks are in a practical location where road construction is feasible in accordance with this manual. The applicant shall be required to submit plan, profile, and cross-sections for the sections of road where existing grades along the proposed route exceed 10 percent, existing cross slopes exceed 15 percent, or if existing utilities or other physical features appear to create impediments to a road design meeting standards of this manual. Road plan and profile shall extend at least 300 linear feet on either side of the subject sections or to intersecting or adjacent ROW within 500 linear feet.

B04 Access Standards

- (a) The average access point spacing on major road corridors, where other access standards do not exist, shall not exceed the minimums listed in Table B-2, based on the posted speed limit. Average access point spacing is calculated per segment and is equal to the segment length divided by the number of access points on both sides of the street. Undeveloped lots with only access to the major road corridor are counted as having at least one access point.

- (b) When the average access point spacing on a segment of an existing major road corridor is less than the minimum listed in Table B-2, the average access point spacing shall not decrease due to the subdivision.

Table B-2: Average Access Point Spacing

Posted Speed Limit (mph)	Minimum Average Access Point Spacing (feet)
30	250
35	300
40	360
45	425
50	495
55	570

B05 Future Corridors

Subdivisions shall be designed in a manner that does not conflict with the LRTP or the OSHP.

Subdivisions containing future road corridors identified in the LRTP or OSHP are encouraged to include the future road corridor as part of the road layout of the subdivision.

Building setbacks prohibiting the location of any permanent structure within the future corridor may be voluntarily designated on the final plat. The area within the future road corridor shall be excluded from usable septic area calculations. The area within the future road corridor and building setbacks shall be excluded from usable building calculations.

B06 References

The following publications shall be used for design and construction standards of these classes of streets that are not otherwise established herein:

- A Policy on Geometric Design of Highways and Streets*, AASHTO (current edition).
- Standard Specifications for Highway Construction*, ADOT&PF (current edition);
- Standard Modifications to the ADOT&PF Standard Specifications for Highway Construction*, MSB (latest revision)
- Alaska Highway Preconstruction Manual*, ADOT&PF (latest revision)

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Section C. Construction Requirements

C01 General

This section establishes minimum construction requirements. Prior to any ground disturbing activities, call the Alaska Dig Line for utility locates in accordance with AS 42.30.400.

C02 Road Construction

C02.1 Clearing

Cut and dispose of all trees, down timber, stumps, brush, bushes, and debris. Cut trees and brush to a height of not more than 6 inches above the surrounding ground. Clear the ROW, slope easements, and sight distance triangles. Where ROW exceeds 60 feet, clear a minimum of 60 feet. Clear utility easements, if used, for utilities constructed with the development.

C02.2 Grubbing

Remove and dispose of all stumps, roots, moss, grass, turf, debris, or other deleterious material within the fill and cut catch limits of the road plus 5 feet on each side, within the ROW, and cleared utility easements for underground utilities.

C02.3 Disposal

Dispose of clearing and grubbing debris in an area designated by the applicant outside of all ROW, platted utility easements, and platted private road corridors. Organic debris 3 inches in diameter by 8 inches long, or smaller, may be left in place, outside of the road prism.

C02.4 Slit Trenches

Slit trenches are not allowed in the ROW. Utility easements may be used as a borrow source above a 2:1 extension of the road prism, as shown in Figure A-3. Topsoil or other organic non-deleterious material may be disposed within the utility easement. Compact the disposal area with heavy equipment and grade the surface with positive drainage no steeper than 4:1 and no lower than the ditch line. Submit an as-built drawing showing the horizontal locations of borrow extraction along the road corridor with the Final Report.

C02.5 Embankment Construction

- (a) Construct the road with the required structural section, see Figure C-1, and dimensions, see Table A-1 and Figure A-3, as determined by its classification.
- (b) Prepare the subgrade. Remove all organics from the area below the road prism and dispose in locations where embankment is not proposed. Bench existing slopes that are steeper than 4:1, measured at a right angle to the roadway, where roadway embankment is to be placed.
- (c) Place material meeting, or verify in-situ material meets, the requirements for Subbase specified in subsection C07 to a minimum depth of 20 inches with the upper 6 inches having no material with

a diameter larger than 6 inches. Place embankment in horizontal layers, as directed by the engineer, for the full width of the embankment and compact as specified before the next lift is placed.

- (d) Place 4 inches of Surface Course meeting the requirements specified in subsection C07. Finish with a 3 percent crown, and compact as specified.
- (e) For Residential and Residential Subcollector standard roads, compact all embankment to not less than 90 percent of the maximum dry density at the optimum moisture content and the top 24 inches to not less than 95 percent of the maximum dry density at the optimum moisture content. For Residential Collector standard roads, compact all embankment to not less than 95 percent of the maximum dry density at the optimum moisture content.
- (f) Optimum moisture and maximum dry density will be determined by Alaska Test Method (ATM) 207 and ATM 212 or alternative methods approved by DPW.
- (g) In-place density shall be determined by ATM 213 or alternative method approved by DPW. Compaction tests on the Subbase layer shall be taken at representative locations along the roadways as follows:
 - (1) a minimum of three;
 - (2) at least one per segment;
 - (3) one additional test per 1000 linear feet, or portion thereof, when the combined length of roadway exceeds 1000 linear feet;
 - (4) at least one out of every three within three feet of the shoulder, and the remainder in the center of a driving lane.
- (h) For paved roadways, substitute Surface Course with a minimum of 2 inches of Base Course and 2 inches of HMA Type II, Class B, for Residential and Residential Subcollector streets, and a minimum of 3 inches of Base Course and 3 inches of HMA Type II, Class B, for Residential Collector Streets. Pavement shall meet MSB Special Provision Section 401 Hot Mix Asphalt Pavement. The width of the pavement shall be equal to two lane widths plus the shared paved shoulder width, if used, and finished with a 2 percent crown. Pavement edges shall be backed with additional Base Course graded and compacted flush with the pavement surface and tapered to the edge of the roadway. The pavement shall be washed or swept immediately following shouldering work.
- (i) Remove all loose material exceeding 6 inches in diameter from the ditches and foreslopes. Where slopes are 3:1 or steeper and longer than 10 feet measured along the slope face, trackwalk perpendicular to the slope, or the equivalent, to form 1-inch wide grooves parallel to the road no more than 12 inches apart.
- (j) Permanently stabilize backslopes 3:1 or steeper. Stabilization can be part of a subdivision agreement. Stabilization may be allowed to establish during the warranty period.

C02.6 Unsuitable Subgrades

When structurally unsuitable material such as peat, saturated material, or permafrost are present within the ROW, provide an appropriate structural design for approval by DPW, according to Section F, prior to construction. Place embankment to a depth that will produce a stable road surface with a final grade 18 inches above the surrounding ground.

C03 Roads Outside of a Road Service Area

Roads outside of a Road Service Area are not subject to the requirement for Surface Course.

C04 Pioneer Road Construction Requirements

Pioneer roads, whether proposed or existing, shall meet the requirements of Figure C-1, Table A-1, and Figure A-3. Place material meeting, or verify in-situ material meets, the requirements for Subbase specified in subsection C07 to a minimum depth of 12 inches. Additional road embankment may be required to provide a stable road surface. Surface Course is not required. Pioneer roads may be constructed offset from the centerline of the ROW to facilitate future expansion of the road. Cross drainage culverts, minimum 18 inch diameter, will be installed where determined necessary and 24 inch ditches will be provided for drainage.

C05 Winter Construction

Winter construction may be allowed. DPW will not accept any roads until all ground has thawed and any settlement areas corrected.

C06 Alternate Methods and Materials

Use of alternate materials and road construction methods that will more appropriately fit the conditions of the specific road locations, following general engineering practices, may be proposed by the applicant or their engineer in writing. Final acceptance of such plans must be approved by DPW.

C07 Materials

C07.1 Subbase

- (a) Is aggregate containing no muck, frozen material, roots, sod, or other deleterious matter;
- (b) has a plasticity index not greater than 6 as tested by ATM 204 and ATM 205; and
- (c) meets the requirements of Table C-2, as determined by ATM 304.

C07.2 Base Course

- (a) Crushed stone or crushed gravel, consisting of sound, rough, durable pebbles or rock fragments of uniform quality;
- (b) free from clay balls, vegetable matter, or other deleterious matters;
- (c) meets the requirements of Table C-1; and
- (d) meets the requirements of Table C-2, as determined by ATM 304.

C07.3 Surface Course

- (a) Is a screened or crushed gravel, consisting of sound, rough, durable pebbles or rock fragments of uniform quality;
- (b) free from clay balls, vegetable matter, or other deleterious matters; and
- (c) meets the requirements of Table C-2, as determined by ATM 304.

Table C-1: Aggregate Quality Properties for Base Course

Property	Test Method	Base Course
L.A. Wear, %	AASHTO T 96	50, max
Degradation Value	ATM 313	45, min
Fracture, %	ATM 305	70, min
Plastic Index	ATM 205	6, max
Sodium Sulfate Loss, %	AASHTO T 104	9, max (5 cycles)

Table C-2: Aggregate Gradations

Sieve Designation	Subbase	Base Course	Surface Course
1 1/2 inch			100
1 inch		100	
3/4 inch		70 to 100	70 to 100
3/8 inch		50 to 80	50 to 85
No. 4	20 to 60	35 to 65	35 to 75
No. 8		20 to 50	20 to 60
No. 50		6 to 30	15 to 30
No. 200	0 to 10	0 to 6	7 to 13

(Percent Passing By Weight)

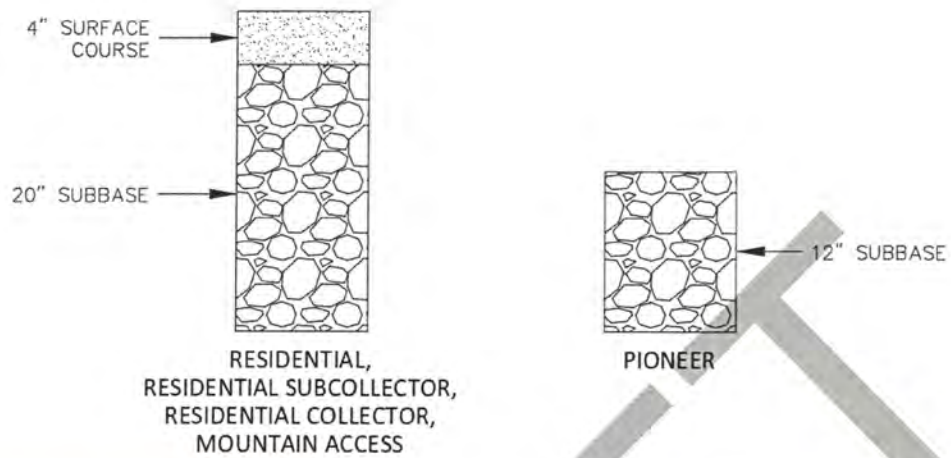


Figure C-1: Structural Sections for Gravel Roads

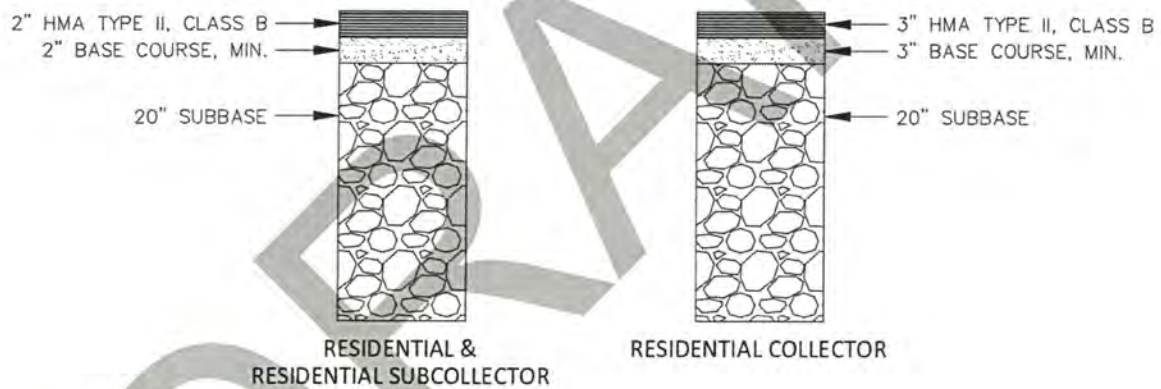


Figure C-2: Structural Sections for Paved Roads

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Section D. Drainage

D01 General

The purpose of this section is to ensure that stormwater management is provided with land development activities. Responsible stormwater management is the treatment, retention, detention, infiltration, and conveyance of stormwater and other surface waters without adversely impacting adjoining, nearby, or downstream properties and receiving waters.

D02 Requirements

A preliminary drainage plan is required when road construction or disturbing land to create useable area for a subdivision is proposed. A drainage report is required for projects that include road construction, disturb 10,000 square feet of land or more, fill in wetlands, disturb land within 100 feet of the ordinary high water mark (OHWM) of a water body, disturb land within a mapped flood hazard area, or change the location, direction, quantity, or type of runoff leaving a site. See subsection D06 for specific requirements regarding fish passage culverts. It is the applicant's responsibility to comply with all other applicable federal, state, and local codes and regulations.

D02.1 Preliminary Drainage Plan

Submit a preliminary drainage plan, prepared by an engineer or other qualified professional registered in the State of Alaska, with the preliminary plat or ROW construction permit application. The preliminary drainage plan shall show the project site at a legible scale plottable on 11" by 17" paper or larger and depict the following:

- (a) Existing and proposed property lines, plottable easements disclosed in the title report, the OHWM of water bodies with 100-foot upland offset, and existing mapped flood hazard areas.
- (b) Existing topography with horizontal and vertical accuracy meeting US National Map Accuracy standards, with 5-foot contour intervals if the ground slope is less than 10 percent and 10-foot contour intervals if the ground slope is greater than 10 percent.
- (c) Existing features that convey or retain drainage, including but not limited to: water bodies, wetlands, natural valleys, swales, ditches, check dams, culverts, and pipe systems.
- (d) Proposed drainage pattern and features, both constructed and natural, on site. Identify conveyance types, flow directions, and any drainage changes that may affect adjacent property.
- (e) Proposed stream crossings and anticipated culvert sizes. Identify fish-bearing streams.

D02.2 Drainage Report

Submit a drainage report, prepared by an engineer or other qualified professional registered in the State of Alaska, as part of the construction plan submittal in subsection F01.2. The drainage report shall include the following:

- (a) The drainage plan as specified in D02.1 (may be shown on two plans for clarity), updated to include:

- (1) Pre-development and post-development catchment area boundaries determined using 2-foot contour intervals; and
- (2) Locations of peak flow, peak velocity, and where runoff leaves the project site.
- (b) Description of methods, assumptions, and data sources used or made, including but not limited to:
 - (1) Rainfall data from the NOAA-14 Precipitation Frequency Data Server.
 - (2) Assumed post-development land cover conditions.
 - (3) Method used to determine runoff quantities, time of concentration, peak flows, etc.
- (c) Catchment area maps used or created to evaluate down-gradient conditions.
- (d) Identify design elements, with supporting runoff calculations, necessary to show compliance with the drainage design criteria set forth in D03.
- (e) Fish passage culvert plans, if applicable.

D03 Drainage Design Criteria

- (a) Design a drainage system for the project site to meet the criteria listed in Table D-1.
- (b) Retain natural drainage patterns to the extent possible.
- (c) Changes to drainage patterns must not adversely affect adjacent property or ROW.
- (d) Base the size and capacity of the drainage system on runoff volumes and flow rates assuming full development of the subdivision and a 10 percent increase to runoff from the catchment area.
- (e) Drainage easements are required where the ROW is not sufficient to accommodate drainage needs. See subsection E01.2.
- (f) Where drainage easements overlap utility easements:
 - (1) Above ground drainage facilities, such as retention and detention basins, may be located in new utility easements only in a manner that will not interfere with utilities. See subsection H02.
 - (2) Above ground drainage facilities located within existing utility easements require a letter of non-objection from affected utilities.
 - (3) Culverts crossing utility easements require a letter of non-objection from affected utilities.
 - (4) Underground drainage facilities such as infiltration trenches and vertical inlets shall not be located in utility easements.
- (g) Drainage to state or other municipal ROW are subject to their respective requirements and review.

Table D-1: Drainage Sizing and Analysis Criteria

Design Requirement	Purpose	Criteria
Conveyance	Size conveyances to pass design peak flows.	Drainage ditches: 10-year, 24-hour Non-regulated streams: 10-year, 24-hour Regulated streams: 100-year, 24-hour
Wetlands	Retain function of original wetlands	Preserve the pre-development function of wetlands. For jurisdictional wetland areas, comply with United States Army Corps of Engineers wetlands development retention requirements.
Water Quality	Treat first flush pollutant loading	Treat runoff generated by 0.50 inch of rainfall in a 24-hour period.
Erosion and Sedimentation Control	Ensure channel stability for all project conveyances	Control flows in conveyance channels so that transport of particles sized D50 and greater will not occur for the post-development peak flow.
Extended Detention	Protect streams and channels from damage from smaller, more frequent storm flows	Provide 12 to 24 hours of detention for the post-development project runoff in excess of pre-development runoff volume for the 1-year, 24-hour storm.
Flood Hazard	Control peak flow to minimize downstream impacts	Option 1 Maintain the post-development project runoff peak flows from the 10-year, 24-hour storm to less than or equal to pre-development runoff peak flow at all project discharge points. Option 2 Maintain the post-development project runoff peak flows to less than 1.10 times pre-development runoff peak flow at all project discharge points. Evaluate downstream until the project site area is less than 10% of the total upstream basin area and mitigate adverse impacts.
Flood Bypass	Prevent an increased risk of flood damage from large storm events.	Compute post-development peak flow and delineate an unobstructed, overland flow path for runoff to overtop or bypass project conveyance routes for the post-development 100-year, 24-hour storm.

D04 Drainage Ditches

Stabilize ditches with gravel, turf, or rock riprap. See Table D-2 and Table D-3 for most common conditions and acceptable ditch lining materials. Evaluate channel stability for compliance with the Erosion and Sedimentation Control design requirement in Table D-1 for other conditions.

Normal ditch depth shall be 30 inches and according to the typical section shown in subsection A06. The design peak flow required by Conveyance Design in Table D-1 shall be conveyed within ditches with a minimum freeboard of 12 inches.

The ditch depth may be reduced at local high points of the ditch, provided the flow line offset is maintained and with DPW concurrence. Alternate ditch design along Residential and Residential Subcollector streets may be considered, if evidence is provided that the following conditions exist:

- Ditches are a minimum of 18" deep;
- The design peak flow required by Table D-1 is demonstrated to be conveyed within ditches with a minimum freeboard of 12 inches;
- Adequate drainage routes are provided and constructed within the ROW or designated drainage easements;
- Flow lines are established at least 8 feet from the edge of roadway.
- Ditches are deepened to provide cross drainage through 24" corrugated metal culverts (18" with DPW approval).
- Cross sectional area of ditch is at least 15 square feet.

Table D-2: Ditch Stabilization

Flow (cfs)	Ditch Slope (ft/ft)										
	0.005	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10
2.0	A	A	A	A	A	A	A	A	A	A	A
4.0	A	A	A	A	A	A	A	A	B	B	B
6.0	A	A	A	A	A	A	B	B	B	B	B
8.0	A	A	A	A	A	B	B	B	B	B	B
10.0	A	A	A	A	B	B	B	B	B	B	C
20.0	A	A	A	B	B	B	C	C	C	C	C
30.0	A	A	A	B	B	C	C	C	D	D	D
40.0	A	A	B	B	C	C	C	D	D	D	E
50.0	A	A	B	B	C	C	D	D	D	E	E
60.0	A	A	B	C	C	D	D	D	E	E	E
70.0	A	A	B	C	C	D	D	E	E	E	E
80.0	A	B	C	C	C	D	E	E	E	E	E
90.0	A	B	C	C	D	D	E	E	E	E	F
100.0	A	B	C	C	D	D	E	E	E	F	F

Table D-3: Ditch Lining Materials

Type	Material	D50 (in)	Dmax (in)	Dmin (in)	Thickness (in)
A	Native Grass, Turf, or Gravel with < 6% fines				
B	Riprap or Bone Rock	3.0	4.5	1.5	6.0
C	Riprap or Bone Rock	6.0	9.0	3.0	12.0
D	Riprap or Bone Rock	9.0	13.5	4.5	18.0
E	Riprap or Bone Rock	12.0	18.0	6.0	24.0

D05 Culverts

D05.1 General Culvert Design Criteria

The following criteria apply to all cross road culverts for runoff or seasonal drainage:

- (a) The minimum culvert slope is 0.5 percent.
- (b) Culverts longer than 100 feet require appropriate maintenance access and DPW approval
- (c) Cross road culverts shall have a minimum diameter of 18 inches.
- (d) Culverts shall be sized to convey the design peak flow required by Table D-1, based on the larger of the two computed sizes using inlet control and outlet control.
- (e) Culverts shall be corrugated metal pipe (CMP) and minimum:
 - (1) 16 gauge galvanized steel on Residential and Residential Subcollector streets;
 - (2) 12 gauge galvanized steel on Residential Collector and Minor Collector streets; or
 - (3) 16 gauge aluminum or aluminized if needed due to soil or water conditions.
- (f) Design and install energy dissipation rock aprons at culvert outlets in accordance with Hydraulic Engineering Circular No. 14 (FHWA).
- (g) Install culverts in accordance with the manufacturer's recommendations for the anticipated traffic loads.

D05.2 Stream Crossing Culvert Criteria

The following criteria apply to all stream crossing culverts:

- (a) Prior to preliminary plat submittal, contact the Alaska Department of Fish and Game (ADFG), Division of Habitat to determine if a stream reach harbors fish. If so, stream crossing culverts shall be designed, constructed, and maintained according to D06.
- (b) Stream crossing culverts shall be placed as close to the pre-existing channel alignment as possible. Avoid placing culverts at pools and stream bends.
- (c) Road alignment shall be as close to perpendicular to the stream channel as possible.
- (d) Culvert slope shall be within 25 percent of the natural stream slope. For example, if the natural stream slope is 1.0 percent, the minimum design slope of the culvert would be 0.75 percent and the maximum design slope would be 1.25 percent.
- (e) Culvert outlet and inlet protection shall be used as necessary to reduce the risk of scour and perching.

- (f) Stream crossings shall be composed of a single pipe or arch for the main stream channel.
- (g) Overflow culverts may be used but should be placed at a higher elevation so that flows up to the OHWM pass through the primary culvert.
- (h) Stream crossings shall maintain the connectivity of wetlands adjacent to stream channels and shall accommodate sheet flow within such wetlands.
- (i) Stream crossing culverts shall not interfere with the functioning of floodplains and shall be designed to convey the design peak flow required by Table D-1. If the stream crossing culvert is not designed to accommodate the 100-year flow, a route must be established to safely convey flows exceeding the design peak flow without causing damage to property, endangering human life or public health, or causing significant environmental damage.
- (j) In cases of crossings within high entrenchment ratio environments, the ratio of the flood prone width to the OHWM width is greater than 2.2, floodplain overflow culverts may be beneficial to floodplain connectivity and can be used to pass the design flow. Minimum width requirements for the primary culvert still apply.
- (k) Stream crossing culverts shall have a minimum diameter of three feet.
- (l) Stream crossing culvert pipes and arches shall be metal.
- (m) Culverts longer than 100 feet require appropriate maintenance access and DPW approval
- (n) Install culverts in accordance with the manufacturer's recommendations for the anticipated traffic loads.

D06 Fish Passage Culverts

These criteria provide general design guidance for road crossings of fish-bearing streams to maintain the full hydrologic functioning of the water body they are crossing. Site-specific conditions, such as multi-thread channels, may require alternate design approaches.

D06.1 Pre-design Conference

Schedule a fish passage pre-design conference with DPW prior to permit submittals. The pre-design conference is to:

- (a) determine required permits;
- (b) coordinate interagency requirements;
- (c) determine any site-specific design requirements; and
- (d) establish a plan review process.

D06.2 Stream Simulation Method

Stream simulation methodologies shall be used for the design of all fish-bearing stream crossings. The stream simulation method uses reference data from a representative section, or reference reach, of the specific water body crossed. This method attempts to replicate the natural stream channel conditions found upstream and downstream of the crossing. Sediment transport, flood and debris conveyance, and fish passage are designed to function as they do in the natural channel.

Reference Reach

- (a) Select a reference reach on the water body being crossed that is outside any anthropogenic influence, such as an existing culvert. In most cases of new crossings, the reference reach can be at the crossing location.
- (b) The length of the reference reach should be a minimum of 20 times the reference bankfull width and no less than 200 feet.
- (c) If there is not a suitable reference reach on the water body being crossed, a reference reach may be chosen from another water body with similar geomorphic and hydrologic characteristics. The reference reach characteristics should meet the following criteria in comparison to the water body being crossed:
 - (1) The reference reach bankfull width should be at least one half and no more than two times that of the water body being crossed;
 - (2) The reference reach bankfull discharge should be at least one half and no more than one and one half times the bankfull discharge of the water body being crossed; and
 - (3) The stream order of the reference reach should be within one stream order of the water body being crossed.
- (d) For a reference reach from another water body, the geomorphic characteristics of the crossing shall be scaled using ratios of the bankfull conditions.
- (e) The reference reach bankfull dimensions should be determined in the field by surveying a detailed cross section at the upper 1/3 of a representative riffle.
- (f) Reference data shall include, at a minimum:
 - (1) channel width at the OHWM,
 - (2) bankfull width,
 - (3) bankfull cross-sectional area,
 - (4) bankfull slope based on the longitudinal profile,
 - (5) substrate, and
 - (6) potential for floating debris.

Culvert Size, Slope, and Substrate

In addition to D05.2, the following criteria apply to fish passage culverts:

- (a) Under normal flow conditions, the channel within or under the fish passage culvert shall not differ from the reference reach condition in regards to the channel width at the OHWM, cross-sectional area, slope, substrate, and ability to pass floating debris.
- (b) The width of fish passage culverts shall not be less than the greater of 1.2 times the channel width at the OHWM and 1.0 times the bankfull width.
- (c) Fish passage culverts shall have a minimum diameter of five feet.
- (d) The use of smooth wall culverts is prohibited.
- (e) The use of trash racks or debris interceptors is prohibited
- (f) Round culvert pipes shall have a minimum invert burial depth of 40 percent of the culvert diameter into the substrate. Arch or box culverts shall have a minimum invert burial depth of 20

percent of the culvert's rise into the substrate, unless scour analysis shows less fill is acceptable. The minimum invert burial depth is 1 foot.

- (g) The gradation of the substrate material within a fish passage culvert shall be designed to be a dense, well-graded mixture with adequate fines to ensure that the majority of the stream flows on the surface and the minimum water depth is maintained.
- (h) Substrate material within or under the fish passage culvert shall remain dynamically stable at all flood discharges up to and including a 50-year flood. Dynamic stability means that substrate material mobilized at higher flows will be replaced by bed material from the natural channel upstream of the crossing. For crossings without an adequate upstream sediment supply, the substrate material within the crossing shall be designed to resist the predicted critical shear forces up to the 100-year flood. For culverts with a slope of 6 percent or greater, substrate retention sills may be required to allow the bed load to continuously recruit within the culvert.
- (i) Substrate material within or under the fish passage culvert shall incorporate a low flow channel. The low flow channel should mimic the reference reach where possible. If the low flow channel dimensions are not discernable from the reference reach, the low flow channel should have a cross sectional area of 15 to 30 percent of the bankfull cross sectional area and a minimum depth of 4 inches for juvenile fish and 12 inches for adult fish. The low flow channel should be defined by rock features that will resist critical shear forces up to the 100-year flood.
- (j) Constructed streambanks are recommended inside fish passage culverts to protect the culvert from abrasion, provide resting areas for fish, and provide for small mammal crossing. If streambanks are constructed through a crossing, the streambanks shall be constructed of rock substrate designed to be stable at the 100-year flood. The streambank width should be a minimum of 1.5 times the maximum sieve size of the streambed material (D100). The crossing width shall be increased to allow for the channel width plus the streambanks.
- (k) If substrate retention sills are used, they shall have a maximum weir height of one half of the culvert invert burial depth. Substrate retention sills shall be spaced so that the maximum drop between weirs is 4 inches. The use of sills without substrate is not allowed.
- (l) Other state and federal requirements may apply.

D06.3 Hydraulic Method

Hydraulically designed culverts are discouraged for fish-bearing stream crossings, though may be approved by DPW and ADFG in circumstances where stream simulation is not practical. In addition to D05.2, the following criteria apply to hydraulically designed culverts:

- (a) The hydraulic method uses the swimming capability and migration timing of target design species and sizes of fish to create favorable hydraulic conditions throughout the culvert crossing. Information and design software for this methodology is available from ADFG, Division of Sport Fisheries (Fishpass) and the US Forest Service (FishXing).
- (b) The design fish shall be a 55-milimeter (2.16-inch) juvenile coho salmon for anadromous streams and a 55-milimeter (2.16-inch) Dolly Varden char for non-anadromous streams. These criteria may change based on ongoing research by federal and state agencies.

- (c) Fish passage high flow design discharge will not exceed the 5 percent annual exceedance flow or 0.4 times the 2-year peak flow, whichever is lower and has the most supporting hydrologic data.
- (d) Fish passage low-flow design discharge shall ensure a minimum 6-inch water depth or natural low flow and depth within the reach the crossing occurs. In cases where local conditions preclude natural low flow characteristics, backwatering or in-culvert structures should be considered.
- (e) In cases where flared end sections with aprons are necessary and fish passage is required, water depths and velocities that satisfy fish passage criteria must be demonstrated across the apron in addition to within the culvert.
- (f) Fish passage criteria for culverts crossing tidally-influenced streams must be satisfied 90 percent of the time. Tidally-influenced streams may sometimes be impassable due to insufficient depth at low flow and low tide. If the tidal area immediately downstream of a culvert is impassable for fish at low tide, the exceedance criterion shall apply only to the time during which fish can swim to the culvert.
- (g) Other state and federal requirements may apply.

D07 Soil Infiltration Facilities

Soil infiltration may be used to reduce stormwater flow and volume with the following criteria:

- (a) Soil infiltration facilities within Borough ROW or drainage easements should be designed such that they are not considered Class V injection wells. See Appendix A for the EPA's memorandum addressing the subject in June 2008.
 - (1) Private drainage facilities that are considered Class V injection wells require conformance with EPA regulations.

D08 Rainfall Data

D08.1 Rainfall Distribution

Intensity-Duration-Frequency (IDF) and 24-hour rainfall data are furnished by NOAA Atlas 14 Point Precipitation Frequency Estimates. Use SCS Type-I Rainfall Distribution and 24-hour rainfall depth to compute runoff.

D08.2 Runoff Transformation

Use the Rational Method for estimating peak flows in drainage basins less than 200 acres and with times of concentration less than 20 minutes for design of conveyances. Use NRCS (SCS) Unit Hydrograph Method for estimating runoff volumes and peak flows for other conditions and applications. Other methods more appropriate for site conditions may be utilized upon DPW approval.

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Section E. Easements

E01 General

E01.1 Common Access Easements

When a shared driveway is required for two or more lots, a common access easement shall be granted for the exclusive use of the subject lots, unless otherwise accommodated. The common access easement shall be sized to reasonably accommodate separation of the shared driveway to the individual lots.

E01.2 Drainage Easements

Drainage easements are required where the ROW is not sufficient to accommodate drainage needs. Drainage easements can overlap with other platted easements and shall begin or terminate at the ROW. Drainage easements shall be a minimum width of 20 feet, and a minimum average length of 20 feet outside of any overlapping easements or of sufficient size and area shown to facilitate construction and maintenance.

E01.3 Slope Easements

Slope easements are required to contain all cut and fill slopes steeper than 2.5:1 that extend outside of the ROW, plus at least 5 feet outside the cut or fill catches.

E01.4 Sight Distance Maintenance Easements

Sight distance maintenance easements are required where intersection sight triangles extend outside of the ROW.

E01.5 Snow Storage Easements

Snow storage easements are required where the ROW is not sufficient to accommodate anticipated snow removal needs. Snow storage easements shall be located where the storage of snow would not impede sight distance.

E01.6 Utility Easements

Unless lots are otherwise served by alternate utility easements or agreements, at least one 15-foot utility easement adjacent to the ROW is required to allow for utility installation and maintenance. Additional utility easements may be required as deemed reasonably necessary by utility companies to serve the subdivision or protect existing facilities. The applicant is responsible for satisfying any conflicts that may occur in the request for easements from any utility company during the platting process.

Platted utility easements are to be clear of wells, septic systems, structures, or encroachments, as defined by MSB or other applicable code; unless the applicant has obtained an encroachment permit from the MSB and a "Non-Objection to Easement Encroachment" from each utility.

Utility easements are to be fully useable for utility installation where installation equipment can safely work. Whenever possible, utility easements should not be placed in swamps, steep slopes, or other unusable areas.

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Section F. Development Implementation

F01 General

This section describes the procedure that is to be followed before constructing any improvements required for recording a subdivision plat. The applicant's engineer shall be the primary point of contact throughout this process.

It is the applicant's responsibility to determine, acquire, and follow permits required by other agencies. Approval from MSB does not supersede other agencies' permit requirements.

F01.1 Preliminary Plat Submittal

The preliminary plat submittal is to be accompanied by:

- (a) ADT calculations per A15;
- (b) Preliminary drainage plan per D02.1;
- (c) Road plan and profile for sections of road where proposed grades exceed 6 percent where cuts and fills exceed 5 feet in height measured from the centerline, or where slope easements will be required, and cross sections at the maximum cut and fill sections. Road plan and profile shall include the vertical curves or grade breaks on either side of the subject sections;
- (d) Road plan, profile, and cross-sections if required by B03.3; and
- (e) Intersection sight distance evaluation, if requested, according to A09.1.

F01.2 Construction Plans

Submit construction plans to DPW at least seven calendar days before the preconstruction conference. All plan drawing submittals shall be at a scale of 1 inch = 50 feet or more detailed, plottable on 11" by 17" paper. Construction plans shall include the following:

- (a) Drainage Report, according to D02.2;
- (b) Plan & Profile of proposed roads (if required by F01.1);
 - (1) Existing topography with horizontal and vertical accuracy meeting US National Map Accuracy standards, two-foot contour intervals within the proposed road corridors.
- (c) Asbuilt survey of visible improvements and above ground utilities within and adjacent to the subdivision;
- (d) Copy of agency accepted permit applications required for the improvements prior to construction, including but not limited to ADOT&PF Approach Road Permit, DNR Section Line Easement authorization, MSB Flood Hazard Development permit, and USACE wetland fill permit; and
- (e) Plans for any proposed improvements within the ROW that are outside of the scope of this manual (e.g. retaining walls or guard rail) or do not conform to the standards set forth herein, conforming to ADOT&PF design criteria and standards.

F01.3 Preconstruction Conference

The preconstruction conference is for the purpose of reviewing and approving the Subdivision Construction Plan for the required improvements. The engineer may request scheduling of a preconstruction conference with DPW after the preliminary plat has been approved by the Platting Board, the Platting Board Action Letter has been received, and the construction plans have been submitted. Scheduling of preconstruction conference requests may be delayed during the month of October. The applicant, or designated representative, and the engineer must attend the preconstruction conference. In addition to the construction plans, the following items will be provided at or prior to the preconstruction conference:

- (a) Cost estimate of required improvements for the determination of the inspection fee according to the most recently adopted Schedule of Rates and Fees;
- (b) Proof of compliance with the Alaska Pollutant Discharge Elimination System Program;
 - (1) Acceptable proof includes a Notice of Intent (NOI), a Low Erosivity Waiver (LEW), or a determination by a qualified person that neither is needed.
- (c) Rough plan and time line for construction;
- (d) Copy of any issued permits required for the improvements prior to construction;
- (e) Off-site material source and quantities; and
- (f) On-site clearing, grubbing, and topsoil disposal plan, location map.

The Subdivision Construction Plan must be signed by the applicant, or designated representative, and the engineer. Upon acceptance of the Subdivision Construction Plan by DPW and payment of the inspection fee, the Platting Division will issue a Notice to Proceed (NTP).

Some construction plans or permit approvals may take longer to develop or obtain, such as fish passage culvert plans and associated permits. Those finalized plans and issued permits may be submitted later but must be received and reviewed by DPW before construction begins within the respective areas.

F01.4 Interim Inspections

The applicant's engineer shall supervise all phases of construction. Notify DPW of changes to the Subdivision Construction Plan, such as adding or deleting a cross culvert, changes in culvert size, adding or deleting a drainage facility, grade changes of more than 1 percent or that would result in grades of over 6 percent or cuts or fills of over 5 feet in height measured from the centerline, or changes to foreslopes or backslopes. The changes should be approved by DPW prior to completion of construction. Periodic interim inspections may be conducted by DPW. Interim inspections may be requested by the engineer.

F01.5 Subdivision Agreements

If a developer wishes to enter into a Subdivision Agreement and the requirements of MSB 43.55.010(A) are met, the engineer shall submit a request to DPW no later than October 15th for an Interim Inspection. The Interim Inspection shall be attended by the engineer and DPW, and a list of remaining improvements and work items will be developed. The engineer shall then submit a request for a

Subdivision Agreement containing the scope of work, quantity estimates, and cost estimate in accordance with MSB 43.55 to Platting and for approval by DPW. DPW will only approve the request for a Subdivision Agreement if all of the minimum required improvements have been inspected by October 31st or before winter conditions prohibit inspection, whichever comes first.

F01.6 Pre-Final Inspection

When the engineer has determined that construction of the improvements will be substantially complete according to the Subdivision Construction Plan, the engineer will request a Pre-Final Inspection. The Pre-Final Inspection request must be received by September 30th and shall include a description of work yet to be completed. The Pre-Final Inspection will be scheduled to occur within 14 calendar days of the request and shall be attended by the engineer and DPW. A punch list will be developed, if any work items remain, at the Pre-Final Inspection.

F01.7 Final Inspection

When construction of the improvements and punch list items are complete according to the Subdivision Construction Plan, the engineer will request a Final Inspection of the improvements. The Final Inspection request must be received by October 15th. Final Inspections will cease October 31st, or when winter conditions prohibit inspection, whichever comes first. The Final Inspection will be scheduled to occur within 14 calendar days of the request and shall be attended by the engineer and DPW.

F01.8 Final Report

Upon DPW approval of the Final Inspection, the engineer shall submit a written Final Report to the Platting Division. The Final Report shall include:

- (a) Stamped and signed narrative describing at a minimum:
 - (1) road construction process and equipment used,
 - (2) material source and disposal areas,
 - (3) road embankment and subbase used,
 - (4) road topping or pavement used,
 - (5) compactive effort,
 - (6) road dimensions and shaping (length, roadway width, material thicknesses, pavement width, crown, cul-de-sac or t-turnaround dimensions and slope, foreslope, backslope, maximum centerline grade, etc.) for each road constructed,
 - (7) drainage, ditch depth, location of drainage easements, and
 - (8) road standard certification (Pioneer Road, Residential Street, etc.) for each road constructed;
- (b) Stamped and signed final drainage plan, (minimum 11"x17");
- (c) As-built drawing showing the horizontal locations of borrow extraction along the road corridor;
- (d) Documentation verifying Surface Course thickness such as photos and descriptions of test pits, scale tickets, asbuilt surveys, or alternative methods approved by DPW;
- (e) Compaction test reports;
- (f) Gradation tests, if required; and

(g) Photos of each stage of construction.

DPW will review the report and provide comments, if necessary, within 14 calendar days.

F01.9 Construction Acceptance

Upon approval of the Final Report, DPW will issue a Certificate of Construction Acceptance.

F01.10 Warranty

All improvements are to be guaranteed until October 31st of the calendar year following DPW approval of the Final Inspection. Roads within a Road Service Area may be accepted for maintenance at the end of the warranty. Pioneer Roads are not eligible for maintenance. Maintenance of Mountain Access Roads is at the discretion of DPW.

During the warranty period, the applicant is responsible for any road maintenance including, but not limited to: snow removal, maintaining a smooth road surface and crown, maintaining stabilized foreslopes and backslopes, and maintaining positive drainage. If any deficiencies arise during the warranty, DPW will issue a punch list to the applicant by September 1st to allow time for completion of repairs. The applicant must notify DPW of completion of repairs by October 15th for the roads to be eligible for maintenance on November 1st.

The warranty period for improvements following completion of a subdivision agreement may be lessened to one calendar year. The applicant shall request a punch list from DPW no more than one month before the end of the one-year warranty.

If the subdivision plat has not recorded by April 30th or if warranty repairs are not completed by October 15th, the warranty will be extended an additional year and the warranty process will be repeated.

Maintenance may be denied and the Certificate of Construction Acceptance revoked if deficiencies are not corrected to the satisfaction of DPW. A notice may be recorded indicating to the public that the MSB is not responsible for road upkeep and maintenance until such a time that the deficiencies are corrected.

Section G. Commercial and Industrial Subdivisions

G01 General

Commercial and Industrial subdivisions shall be designed using trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual, and to meet the standards of AASHTO, International Fire Code (IFC), and any other applicable standards or code.

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Section H. Utilities

H01 General

These standards apply to the design and construction of utility facilities within the MSB. All utility installation within existing or proposed ROW or utility easements must comply with the provisions of MSB or other applicable code, or as otherwise approved by the permitting authority.

H02 Utility Location Guidelines

H02.1 Underground Utility Facilities:

- (a) The location of utility facilities placed within the ROW shall be coordinated with the permitting authority.
- (b) Backslopes or foreslopes which extend into a utility easement should not exceed 4:1. These limits are necessary for construction equipment for utility installation.
- (c) Utility facilities paralleling the road shall not be located within 10 feet of the roadway, unless otherwise approved by the permitting authority.
- (d) Underground road crossings shall be buried a minimum of 48 inches below finished grade. Backfill shall be compacted according to the requirements of Section C, or as otherwise approved by the permitting authority.
- (e) Conduit road crossings, if used, shall be installed in accordance with each utility company's standards and applicable code.
- (f) Standard burial depth of longitudinal utilities is 36 inches below grade. The applicant should delineate areas, such as where driveways and drainage easements are planned, where deeper burial may be needed.

H02.2 Above Ground Utility Facilities:

- (a) Above ground pedestals, poles, and utility facilities shall not be located within 10 feet of the roadway, unless an alternate design meets clear zone requirements.
- (b) Above ground pedestals, poles, and utility facilities shall not be located such that they substantially block intersection or driveway sight triangles.
- (c) Unless otherwise authorized by the permitting authority, above ground pedestals, poles, and utility facilities shall not be located within the ROW nearer than 40 feet from the point of intersection of the extension of the property lines at any existing or proposed intersection on Residential Collector streets or higher classification.
- (d) Above ground pedestals, poles, and utility facilities shall not be located within a common access easement or drainage easement, within 20 feet of a common access point, or within 10 feet of a roadway cross culvert.
- (e) Permanent 5-foot high snow marker poles, grey with white retroreflective sheeting or yellow, shall be installed on all pedestals and vaults.
- (f) All guy wires installed within the ROW or utility easements adjacent to, or near to a roadway shall have a minimum 8-foot long yellow delineator installed above the anchor.

- (g) Pedestals located within the ROW shall be located within the outer 1 foot of the ROW.

H02.3 Separation of Utilities:

- (a) Recommend 5-foot horizontal separation between power poles and buried utilities.
- (b) Recommend minimum 1-foot physical separation between all underground utilities.
- (c) Separation of storm, sewer, and water utilities shall meet the requirements of the Alaska Department of Environmental Conservation.

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References

- American Association of State Highway and Transportation Officials. (2018). *A Policy on Geometric Design of Highways and Streets* (7th ed.). Washington, DC.
- American Association of State Highway and Transportation Officials. (2011). *Roadside Design Guide* (4th ed.). Washington, DC.
- American Association of State Highway and Transportation Officials. (2017). *Guide for the Development of Bicycle Facilities* (4th ed.). Washington, DC.
- Alaska Department of Transportation & Public Facilities. (2019). *Alaska Highway Preconstruction Manual*. Juneau, AK.
- Alaska Department of Transportation & Public Facilities. (2017). *Alaska Standard Specifications for Highway Construction* (2017 ed.). Juneau, AK.
- Alaska Department of Transportation & Public Facilities. (2015). *Alaska Sign Design Specifications*. Juneau, AK.
- Alaska Department of Transportation & Public Facilities. (2007). *Alaska Test Methods Manual*. Juneau, AK.
- Alaska Department of Transportation & Public Facilities. (2016). *Alaska Traffic Manual*. Juneau, AK.
- Alaska Railroad. (1988). *Alaska Policy on Railroad/Highway Crossings*. Anchorage, AK.
- Alaska Society of Professional Land Surveyors. (2013). *Standards of Practice Manual*. (4th ed.). Anchorage, AK.
- Institute of Transportation Engineers. (2017). *Trip Generation Manual*. (10th ed.). Washington, DC.
- Matanuska-Susitna Borough. (2017). *Matanuska-Susitna Borough Long Range Transportation Plan*. Palmer, AK.
- Matanuska-Susitna Borough. (2007). *Matanuska-Susitna Borough Official Streets and Highway Plan*. Palmer, AK.
- Matanuska-Susitna Borough. (2019). *Matanuska-Susitna Borough Standard Modifications to State of Alaska Standard Specification for Highway Construction* (2017 ed.). Palmer, AK.
- U.S. Department of Transportation Federal Highway Administration. (2012). *Manual of Uniform Traffic Control Devices for Streets and Highways* (2009 ed. with 2012 revisions). Washington, DC.

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Appendix A

Environmental Protection Agency Memorandum - Class V Injection Wells

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 13 2008

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Clarification on which stormwater infiltration practices/technologies have the potential to be regulated as "Class V" wells by the Underground Injection Control Program

TO: Water Division Directors, Regions 1-10

FROM: Linda Boornazian, Director
Water Permits Division (MC 4203M)

Steve Heare, Director
Drinking Water Protection Division (MC 4606M)

Over the past several years stormwater infiltration has become an increasingly effective tool in the management of stormwater runoff. Although primary stormwater management responsibilities within EPA fall under the Clean Water Act (CWA), the infiltration of stormwater is, in some cases, regulated under the Safe Drinking Water Act (SDWA) with the goal of protecting underground sources of drinking water (USDWs). Surface and ground water protection requires effective integration between the overlapping programs. This memorandum is a step forward in that effort and is meant to provide clarification on stormwater implementation and green infrastructure, in particular under the CWA, which is consistent with the requirements of the SDWA's Underground Injection Control (UIC) Program.

In April 2007, EPA entered into a collaborative partnership with four national groups (the Association of State and Interstate Water Pollution Control Administrators, the Low Impact Development Center, the National Association of Clean Water Agencies, and the Natural Resources Defense Council) to promote green infrastructure as a cost-effective, sustainable, and environmentally friendly approach to stormwater management. The primary goals of this collaborative effort are to reduce runoff volumes and sewer overflow events through the use of green infrastructure wet weather management practices.

Within the context of this collaborative partnership, green infrastructure includes a suite of management practices that use soils and vegetation for infiltration, treatment, and evapotranspiration of stormwater. Rain gardens, vegetated swales, riparian buffers and porous pavements are all common examples of green infrastructure techniques that capture and treat stormwater runoff close to its source. Green infrastructure management practices typically do not include commercially manufactured or proprietary infiltration

devices or other infiltration practices such as simple drywells, which do not provide for pre-treatment prior to infiltration.

The partnership is promoting green infrastructure as an effective approach to stormwater management because these practices are associated with a number of environmental benefits. In addition to reducing and delaying runoff volumes, green infrastructure approaches can also reduce pollutant levels in stormwater, enhance ground water recharge, protect surface water from stormwater runoff, increase carbon sequestration, mitigate urban heat islands, and increase wildlife habitat.

Given the multiple benefits that green infrastructure can provide, EPA and its partners have increased efforts to incorporate green infrastructure techniques into stormwater management strategies nationwide. In recent years, public support for these practices has gradually increased. For more information on green infrastructure, please visit www.epa.gov/npdes/greeninfrastructure.

There are cases where stormwater infiltration practices are regulated as Class V wells under the UIC program, and State and local stormwater managers report that some developers are hesitant to incorporate green infrastructure practices because they fear regulatory approvals will slow the process and increase costs. EPA believes those fears are unfounded and notes that most green infrastructure practices do not meet the Class V well definition and can be installed without regulatory oversight by the UIC Program. However, EPA remains committed to the protection of USDWs and emphasizes the need for UIC program compliance (per 40 CFR 144).

To provide clarification on which stormwater infiltration techniques meet EPA's UIC Class V well definition, EPA's Office of Water has developed the attached "Class V Well Identification Guide." State or Regional stormwater and nonpoint source control programs, developers, and other interested parties are requested to contact the State or Regional UIC Program Director with primary authority for the UIC Class V program when considering the use of practices that have been identified, or potentially identified, as Class V wells. UIC program managers should consider the proximity to sensitive ground water areas when looking at the suitability of stormwater infiltration practices. Depending on local conditions, infiltration without pretreatment may not be appropriate in areas where ground waters are a source of drinking water or other areas identified by federal, state, or local governments as sensitive ground water areas, such as aquifers overlain with thin, porous soils.

Please share this memo and the attached guide with your State and Regional stormwater, nonpoint source control, UIC and other ground water managers, as well as with appropriate green infrastructure contacts. These programs are encouraged to coordinate on stormwater management efforts when sensitive ground water issues arise.

Attachment

Underground Injection Control (UIC) Program Class V Well Identification Guide

This reference guide can be used to determine which stormwater infiltration practices/technologies have the potential to be regulated as “Class V” wells. Class V wells are wells that are not included in Classes I through IV. Typically, Class V wells are shallow wells used to place a variety of fluids directly below the land surface. By definition, a well is “any bored, drilled, driven shaft, or dug hole that is deeper than its widest surface dimension, or an improved sinkhole, or a subsurface fluid distribution system” and an “injection well” is a “well” into which “fluids” are being injected (40 CFR §144.3). Federal regulations (40 CFR §144.83) require all owners/operators of Class V wells to submit information to the appropriate regulatory authorities including the following:

1. Facility name and location
2. Name and address of legal contact
3. Ownership of property
4. Nature and type of injection well(s)
5. Operating status of injection well(s)

For more information on Class V well requirements, please visit http://www.epa.gov/safewater/uic/class5/comply_minrequirements.html. For more information on green infrastructure, please visit <http://www.epa.gov/npdes/greeninfrastructure>.

The stormwater infiltration practices/technologies in rows A through I below are generally not considered to be wells as defined in 40 CFR §144.3 because typically they are not subsurface fluid distribution systems or holes deeper than their widest surface dimensions. If these practices/technologies are designed in an atypical manner to include subsurface fluid distribution systems and/or holes deeper than their widest surface dimensions, then they may be subject to the Class V UIC regulations. The stormwater infiltration practices/technologies in rows J through K however, depending upon their design and construction probably would be subject to UIC regulations.

	Infiltration Practice/Technology	Description	Is this Practice/Technology Generally Considered a Class V Well?
A	Rain Gardens & Bioretention Areas	Rain gardens and bioretention areas are landscaping features adapted to provide on-site infiltration and treatment of stormwater runoff using soils and vegetation. They are commonly located within small pockets of residential land where surface runoff is directed into shallow, landscaped depressions; or in landscaped areas around buildings; or, in more urbanized settings, to parking lot islands and green street applications.	No.
B	Vegetated Swales	Swales (e.g., grassed channels, dry swales, wet swales, or bioswales) are vegetated, open-channel management practices designed specifically to treat and attenuate stormwater runoff. As stormwater runoff flows along these channels, vegetation slows the water to allow sedimentation, filtering through a subsoil matrix, and/or infiltration into the underlying soils.	No.
C	Pocket Wetlands & Stormwater Wetlands	Pocket/Stormwater wetlands are structural practices similar to wet ponds that incorporate wetland plants into the design. As stormwater runoff flows through the wetland, pollutant removal is achieved through settling and biological uptake. Several design variations of the stormwater wetland exist, each design differing in the relative amounts of shallow and deep water, and dry storage above the wetland.	No.
D	Vegetated Landscaping	Self-Explanatory.	No.
E	Vegetated Buffers	Vegetated buffers are areas of natural or established vegetation maintained to protect the water quality of neighboring areas. Buffer zones slow stormwater runoff, provide an area where runoff can infiltrate the soil, contribute to ground water recharge, and filter sediment. Slowing runoff also helps to prevent soil and stream bank erosion.	No

	Infiltration Practice/Technology	Description	Is this Practice/Technology Generally Considered a Class V Well?
F	Tree Boxes & Planter Boxes	Tree boxes and planter boxes are generally found in the right-of-ways alongside city streets. These areas provide permeable areas where stormwater can infiltrate. The sizes of these boxes can vary considerably.	No.
G	Permeable Pavement	Permeable pavement is a porous or pervious pavement surface, often built with an underlying stone reservoir that temporarily stores surface runoff before it infiltrates into the subsoil. Permeable pavement is an environmentally preferable alternative to traditional pavement that allows stormwater to infiltrate into the subsoil. There are various types of permeable surfaces, including permeable asphalt, permeable concrete and even grass or permeable pavers.	No.
H	Reforestation	Reforestation can be used throughout a community to reestablish forested cover on a cleared site, establish a forested buffer to filter pollutants and reduce flood hazards along stream corridors, provide shade and improve aesthetics in neighborhoods or parks, and improve the appearance and pedestrian comfort along roadsides and in parking lots.	No.
I	Downspout Disconnection	A practice where downspouts are redirected from sewer inlets to permeable surfaces where runoff can infiltrate.	In certain circumstances, for example, when downspout runoff is directed towards vegetated/pervious areas or is captured in cisterns or rain-barrels for reuse, these practices generally would not be considered Class V wells.
J	Infiltration Trenches	An infiltration trench is a rock-filled trench designed to receive and infiltrate stormwater runoff. Runoff may or may not pass through one or more pretreatment measures, such as a swale, prior to entering the trench. Within the trench, runoff is stored in the void space between the stones and gradually infiltrates into the soil matrix. There are a number of different design variations.	In certain circumstances, for example, if an infiltration trench is “deeper than its widest surface dimension,” or includes an assemblage of perforated pipes, drain tiles, or other similar mechanisms intended to distribute fluids below the surface of the ground, it would probably be considered a Class V injection well.

	Infiltration Practice/Technology	Description	Is this Practice/Technology Generally Considered a Class V Well?
K	Commercially Manufactured Stormwater Infiltration Devices	Includes a variety of pre-cast or pre-built proprietary subsurface detention vaults, chambers or other devices designed to capture and infiltrate stormwater runoff.	These devices are generally considered Class V wells since their designs often meet the Class V definition of subsurface fluid distribution system.
L	Drywells, Seepage Pits, Improved Sinkholes.	Includes any bored, drilled, driven, or dug shaft or naturally occurring hole where stormwater is infiltrated.	These devices are generally considered Class V wells if stormwater is directed to any bored, drilled, driven shaft, or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system.

2022 Subdivision Construction
Manual - Track Change Copy

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Matanuska-Susitna Borough Public Works Department

2022 Subdivision Construction Manual

(Roads, Drainage, and Utilities)

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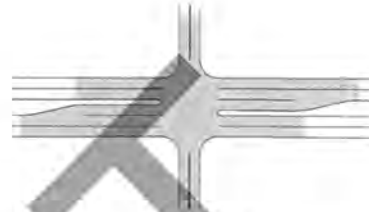
Acronyms & Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADFG	Alaska Department of Fish and Game
ADT	Average Daily Traffic
ADOT&PF	Alaska Department of Transportation and Public Facilities
ATM	Alaska Test Method
<u>cfs</u>	<u>cubic feet per second</u>
<u>CMP</u>	<u>Corrugated metal pipe</u>
DPW	Department of Public Works of the Matanuska-Susitna Borough
<u>FHWA</u>	<u>Federal Highway Administration</u>
<u>ft</u>	<u>feet</u>
<u>h:v</u>	<u>horizontal to vertical</u>
<u>IDF</u>	<u>Intensity-Duration-Frequency</u>
IFC	International Fire Code
<u>in</u>	<u>inches</u>
ITE	Institute of Transportation Engineers
<u>LEW</u>	<u>Low Erosivity Waiver</u>
L RTP	Long Range Transportation Plan
<u>mph</u>	<u>miles per hour</u>
MSB	Matanuska-Susitna Borough
N/A	not applicable
<u>NOAA</u>	<u>National Oceanic and Atmospheric Administration</u>
<u>NRCS</u>	<u>Natural Resources Conservation Service</u>
NTP	notice to proceed
OHWM	ordinary high water mark
OSHP	Official Streets and Highways Plan
PUE	public use easement
ROW	right-of-way
<u>SCS</u>	<u>Soil Conservation Service</u>
VPD	vehicles per day

Definitions

Access Point	The location along a road at which a driveway or road intersects.
Arterial	A road that provides a high level of mobility within the transportation network. Arterials have managed access with a minimal number of intersections or interchanges.
Average Daily Traffic	The total number of vehicle trips during a given time period (in whole days greater than one day and less than one year) divided by the number of days in that time period.
Backslope	On a roadway section in a cut, the portion of the roadside that slopes up from the roadside ditch and away from the roadway to the top of the cut, see Figure A-3.
Catchment Area	The total area contributing stormwater runoff to a particular point, site, or structure.
Collector	A road that links local roads with arterials and performs some duties of each. Collectors have managed access with a moderate number of intersections and driveways.
Curve Return	The curve located at the corner of an intersection, connecting the roadway edge of one road to the roadway edge of an intersecting road or driveway.
Detention	The temporary storage of runoff, for later controlled release.
Drainage Pattern	The configuration of a drainage system including manmade and natural features within a catchment area.
Driveway	A vehicular access way between a road and a parking area within a lot or property.
Embankment	Earthen material that is placed and compacted for the purpose of raising the grade of a roadway.
Engineer	An individual who is registered as a Professional Civil Engineer in the State of Alaska.

Feasible	Reasonable and capable of being done or carried out.
Foreslope	On a roadway section, the portion of the roadside that slopes down and away from the roadway, see Figure A-3.
Functional Area	The physical area of an intersection and the area extending both upstream and downstream which includes perception reaction distance, maneuver distance, and storage length.
Intersection	The general area where two or more roads join or cross.
Local Road	A road that provides access to abutting property, rather than to serve through traffic. Local roads are not access controlled and can have frequent intersections and driveways.
Lot Frontage	A property line that abuts the right-of-way that provides access to the lot.
Ordinary High Water Mark	The elevation marking the highest water level which has been maintained for a sufficient time to leave evidence upon the landscape. Generally, it is the point where the natural vegetation changes from predominately aquatic to upland species.
Positive Drainage	Clear, unobstructed flow of water away from structures and roadways without localized ponding.
Public Use Easement	Provides the rights for ingress, egress, roadways, right-of-way, public utilities, and slopes for cuts and fills. The rights are to the public in general, and public utilities governed by permits required under federal, state, and local laws and regulations. May also be known as a public access easement or right-of-way.
Regulated Stream	Any watercourse along which the flood hazard areas have been mapped and approved by the Federal Emergency Management Agency; any stream which harbors fish, as determined by the Alaska Department of Fish and Game; or any stream designated as regulated by MSB.
Retention	The prevention of runoff. Stormwater, which is retained, remains indefinitely, with the exception of the volume lost to evaporation, plant uptake, or infiltration.



Right-of-way	A strip of land reserved, used, or to be used for a street, alley, walkway, airport, railroad, or other public or private purpose.
Road	A general term denoting a public thoroughfare used, or intended to be used, for passage or travel.
Road Prism	The foundation that supports the roadway; see Figure A-3.
Roadway	The portion of a road that includes driving lanes and shoulders, see Figure A-3.
Segment	A portion of road between two significant intersections or an intersection and its terminus.
Shoulder	The portion of a roadway contiguous to any traveled way for lateral support of surface courses, see Figure A-3.
Street	A general term usually denoting an urban or suburban road.
Stub Road	A <u>right-of-way or road segment, that is planned to be extended,</u> typically short in length, which terminates at the boundary of a subdivision <u>or masterplan phase, or site plan, the purpose of which is to ultimately connect to abutting property when it is developed.</u>
T-intersection	A three leg intersection in the form of a "T".
Through Street	A road given preferential right of way; roads which intersect a through street are controlled, such as with a stop sign or yield sign.
Water Body	A permanent or temporary area of standing or flowing water. Water depth is such that water, and not air, is the principal medium in which organisms live. Water bodies include, but are not limited to: lakes, ponds, streams, rivers, sloughs, and all salt water bodies.

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Introduction

This manual is intended to accomplish the following goals:

- (1) To establish standards for the design and construction of transportation networks throughout the Matanuska-Susitna Borough.
- (2) To provide information and guidelines for the design, construction, and upgrade of roads, drainage facilities, and utilities within rights-of-way.
- (3) To develop and maintain a safer and more efficient transportation system.
- (4) To minimize operation & maintenance efforts.

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Section A. Street Design

A01 General

These provisions establish appropriate standards for the design of roads. The purpose of these provisions is to:

- (1) promote the safety and convenience of motorized and non-motorized traffic;
- (2) promote the safety of neighborhood residents;
- (3) minimize the long term costs for maintenance and repair;
- (4) protect the residential qualities of neighborhoods by limiting traffic volume, speed, noise, and air pollution;
- (5) encourage the efficient use of land; and
- (6) minimize the cost of road construction and thereby restrain the rise in housing costs.

A02 Applicability

These standards apply to the design and construction of all subdivision improvements within the Matanuska-Susitna Borough (MSB), with the exception of those streets within cities that exercise road powers by ordinance.

A03 Street Classifications

Roads within the MSB fall within one of the following functional classifications, in accordance with the Long Range Transportation Plan (LRTP): Interstate, Principal Arterial, Minor Arterial, Major Collector, Minor Collector, and Local Road. Functional classification of a road is based on its function, design, and current potential use. The applicant may request review of the functional classification of existing roads abutting or affecting the design of a subdivision or land development during the preapplication process.

This section provides design guidance for roads falling under local road and minor collector functional classifications.

A03.1 Residential Street

Residential streets are local roads intended to carry the least amount of traffic at the lowest speed. The Residential street will provide the safest and most desirable environment for a residential neighborhood. Developments should be designed so that all, or the maximum number possible, of the homes will front on this class of street.

A03.2 Residential Subcollector Street

Residential Subcollector streets are local roads that carry more traffic than Residential streets.

A03.3 Residential Collector Street

Residential Collector streets are the highest order of residential streets and are a type of minor collector. In large residential developments, this class of street may be necessary to carry traffic from

one neighborhood to another or from the neighborhood to other areas in the community. Residential Collector streets should provide the fewest direct accesses as possible.

A03.4 Mountain Access Road

Mountain Access Roads may be used in areas where the average cross slope exceeds 15 percent or to traverse terrain features in excess of 25 percent. Maintenance of Mountain Access Roads will be at the discretion of Department of Public Works (DPW). School bus access should be considered as school bus routes require all grades less than 10 percent. Mountain Access Road standards allow for steeper grades and switchbacks, but should otherwise be designed to Residential, Residential Subcollector, or Residential Collector standard as required by this section.

A03.5 Pioneer Road

Pioneer Roads may only be used where allowed by MSB or other applicable code. This classification establishes minimum requirements for roads providing physical access, but should otherwise be designed to Residential, Residential Subcollector, or Residential Collector standard as required by this section. No MSB maintenance will be provided for Pioneer Roads. Pioneer roads may be constructed offset from the centerline of the right-of-way (ROW) to facilitate future expansion of the road.

A03.6 Alleys

Alleys are permitted provided legal and physical access conforms to MSB or other applicable code. No MSB maintenance will be provided for Alleys.

A03.7 Other Street Types

The above classifications may be further typed as one of the following streets. These other street types should be designed to Residential, Residential Subcollector, or Residential Collector standard as required by this section.

- (a) Frontage Street – streets parallel and adjacent to a major road corridor which provides access to abutting properties and separation from through traffic. See Section B for additional design standards.
- (b) Backage Street – streets that provide access to lots located between the Backage Street and a major road corridor. See Section B for additional design standards.
- (c) Connector Street – the portion of a street that connects a frontage or backage street to a major road corridor. See Section B for additional design standards.
- (d) Divided Street – streets may be divided for the purpose of accommodating environmental features or avoiding excessive grading. In such a case, the design standards shall be applied to the appropriate street classification and a single lane width with a shoulder on each side.

A04 Access Criteria

A04.1 Residential Street

- (a) A Residential street provides access to abutting properties.
- (b) The anticipated average daily traffic (ADT) volume on Residential streets shall not exceed 400. A loop street shall be designed such that the anticipated ADT at each terminus of the loop street does not exceed 400, see [Figure A-1](#).
- (c) Residential streets may intersect or take access from an equal or higher classification street. Both ends of a loop Residential street are encouraged to intersect the same collecting street and be designed to discourage through traffic.
- ~~(d) Residential streets with only one inlet/outlet shall provide access to no more than 20 lots and not exceed 1000 feet in length (measured from the intersection point to the center point of the turnaround).~~

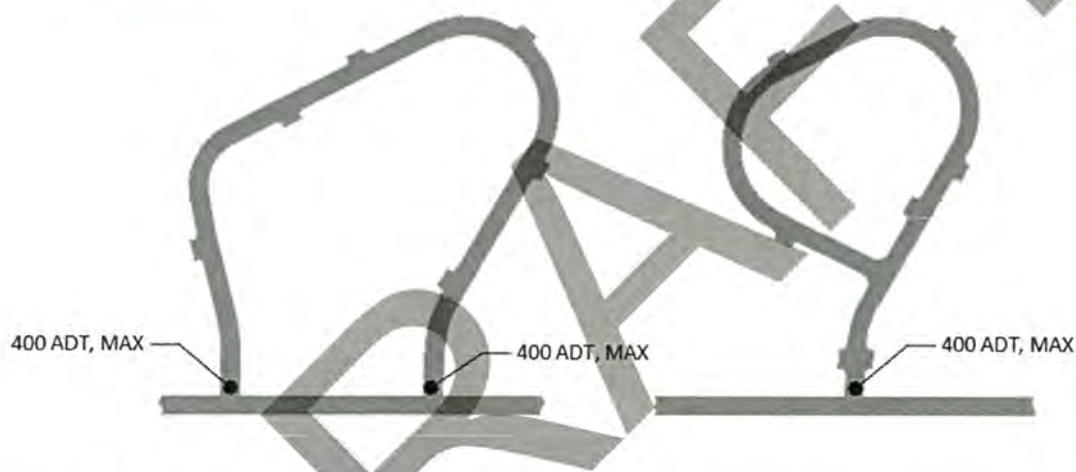


Figure A-1: Loop Residential Streets

A04.2 Residential Subcollector Street

- (a) A Residential Subcollector street provides access to abutting properties and may also move traffic from Residential streets that intersect it. Residential Subcollector streets are required when the ADT anticipated on the street will exceed the limits for Residential ~~or when a street with only one inlet/outlet provides access to more than 20 lots or exceeds 1000 feet in length.~~
- (b) The anticipated ADT on Residential Subcollector streets shall not exceed 1000. A loop street shall be designed such that the anticipated ADT at each terminus of the loop street does not exceed 1000, see Figure A-2.
- (c) Residential Subcollector streets shall be designed to exclude all external through traffic that has neither origin nor destination on the Residential Subcollector or its tributary Residential streets. Adjacent parcels may acquire access if proven landlocked by legal or terrain features or if such Residential Subcollector access can be demonstrated to be beneficial to the public.
- (d) Residential Subcollector streets shall take access from a street of equal or higher classification.

- (e) Traffic calming elements should be considered for the design of Residential Subcollectors, such as avoiding long, straight segments and reducing the length of roadway from farthest lot to a collector.
- (f) Residential Subcollector streets shall be provided with two continuous moving lanes within which no parking is permitted.

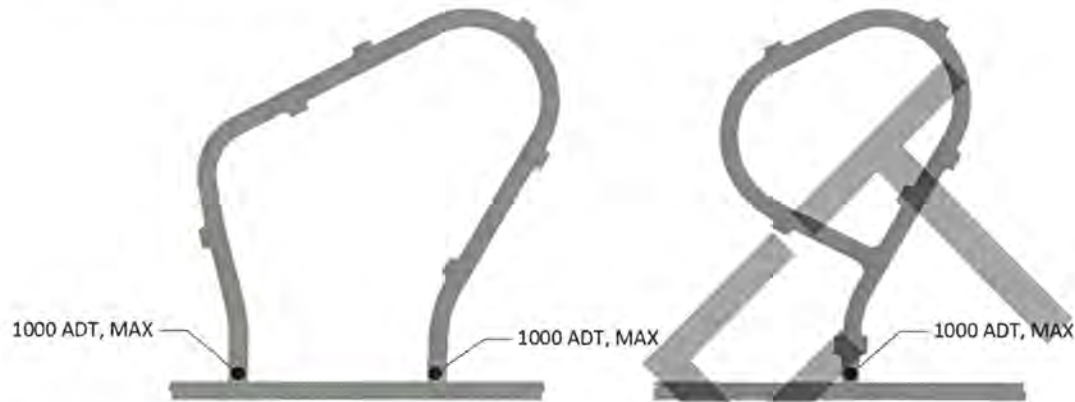


Figure A-2: Loop Residential Subcollector Streets

A04.3 Residential Collector Street

- (a) A Residential Collector street carries residential neighborhood traffic, but restricts or limits direct residential access. Residential Collector streets are required when the ADT anticipated on the street will exceed the limits for Residential Subcollectors.
- (b) Residential Collector streets should be designed to have as few residential lots directly fronting them as possible. When efficient subdivision design or physical constraints make this not possible, the average access point spacing shall be a minimum of 250 feet. Average access point spacing is calculated per segment and is equal to the segment length divided by the number of potential access points on both sides of the street. Undeveloped lots with only access to Residential Collector streets are counted as having at least one access point. When the average access point spacing on a segment of an existing Residential Collector street is less than 250 feet, the average access point spacing shall not decrease due to the subdivision.
- (c) Space shall be provided on these lots for turnaround so that vehicles will not have to back out onto Residential Collector streets.
- (d) Proposed access points on Residential Collector streets shall be shown on the preliminary plat.
- (e) Residential Collector streets shall be laid out to encourage connectivity within the transportation network.
- (f) If the anticipated ADT will exceed 3000, the street shall be classified at a higher level than Residential Collector by DPW.
- (g) Every Residential Collector shall be provided with no fewer than two access intersections to streets of equal or higher classification. If it is shown by the applicant that two accesses are not feasible, Residential Collector streets shall be provided with access to one street of equal or higher

classification and be designed to accommodate a future second connection to a street of equal or higher classification, or otherwise be approved by DPW.

- (h) All Residential Collector streets shall be provided with two continuous moving lanes within which no parking shall be permitted.

A04.4 Access through Existing Streets

The anticipated ADT on existing Residential streets used to access a proposed subdivision may exceed 400, but shall not exceed 800, if:

- (a) alternate road corridors are not available or feasible;
- (b) horizontal geometry or access density prohibits upgrade to a higher standard road; and
- (c) the traffic impacts are mitigated.

A04.5 Traffic Impact Mitigation for Access through Existing Streets

Traffic impact mitigation on existing residential streets can include but is not limited to:

- (a) Traffic control devices (signage, striping) on segments where potential ADT exceeds 440;
- (b) LED street lighting, speed feedback signs, widened shoulders, inside corner widening for offtracking, or all-way stop intersections on segments where potential ADT exceeds 600.

A04.6 Commercial Uses on Residential and Residential Subcollector Streets

Exceptions to the ADT limits on Residential and Residential Subcollector streets, as set forth in A04.1 and A04.2, respectively, may be allowed for commercial uses that access the first 600 feet of such streets that intersect a Collector standard road or higher classification, as measured from the intersection point. The affected portion of the street and intersection shall be constructed to a higher standard as needed to accommodate the anticipated commercial traffic.

A05 Design Criteria

The design criteria for Residential, Residential Subcollector, and Residential Collector streets and Mountain Access and Pioneer roads are set forth in [Table A-1](#). Any unspecified design criteria shall meet or exceed the design criteria for the roadway design speed in the latest edition of *A Policy on Geometric Design of Highways and Streets* (AASHTO).

Table A-1: Design Criteria

	Unit	Residential	Residential Subcollector	Residential Collector	Mountain Access ¹	Pioneer ¹
Average Daily Traffic	VPD	≤400	401 – 1000	1001 – 3000	–	–
Typical Section						
ROW Width ²	ft	60	60	60	60	60
Lane Width	ft	10	10	11	10	10
Standard Gravel Shoulder Width	ft	2	2	2	0 ³	0 ³
Shared Paved Shoulder Width ⁴	ft	4	4	6	–	–
Roadway Width	ft	24	24	26	20 ³	20
Foreslope ⁵	h:v	3:1	3:1	4:1	2:1	3:1
Backslope ⁶	h:v	2:1	2:1	2:1	2:1 ⁷	2:1
Crown, gravel	%	3	3	3	3	3
Crown, pavement	%	2	2	2	2	–
Engineering Criteria						
Design Speed	mph	25	30	35	–	–
Posted Speed	mph	20	25	30	–	–
Stopping Sight Distance	ft	155	200	250	–	–
Horizontal Alignment						
Minimum Centerline Radius	ft	225	350	550	– ⁸	–
with DPW Approval	ft	190	275	400	–	–
Minimum Tangent Between Curves	ft	100	100	100	100	100
Maximum superelevation	%	N/A	N/A	4	N/A	N/A

¹ Where a value is not given, Mountain Access and Pioneer Roads shall meet the criteria of the anticipated street classification.

² Minimum ROW required for new dedications; width of existing ROW may vary.

³ Where grades exceed 7 percent, the shoulder width shall be 2 feet for a total roadway width of 24 feet.

⁴ An optional paved shoulder may be provided on one or both sides of paved streets for non-motorized shared use.

⁵ Slope for the first 7.5 feet from the shoulder; may be steepened to 2:1 thereafter. Install guardrail when required by the latest edition of the *Roadside Design Guide* (AASHTO).

⁶ 2:1 Back slopes may be steepened to 1.5:1 if cuts exceed 5 feet and appropriate slope stabilization, as determined by the design engineer, is used. Retaining walls may be used to replace or augment backslopes.

⁷ Or backslope recommended by the design engineer based on actual conditions.

⁸ Switch backs are allowed provided cul-de-sac criteria is met or turning radius is 40 feet with a 2% grade.

	Unit	Residential	Residential Subcollector	Residential Collector	Mountain Access ¹	Pioneer ¹
Vertical Alignment						
Maximum Centerline Grade	%	10	10	10	15 ⁹	10
Minimum Rate of Vertical Curvature ¹⁰ ; Crest		12	19	29	—	—
Minimum Rate of Vertical Curvature ¹⁰ ; Sag		26	37	49	—	—
Minimum Flow Line Grades	%	0.5	0.5	0.5	1.0	0.5
Intersections						
Minimum ROW Corner Radius	ft	30	30	30	30	30
Minimum Curve Return Radius ¹¹	ft	20	25	30	—	—
Maximum Grade on through street within 50 feet of intersection	%	7	7	4	9	7

A06 Typical Section

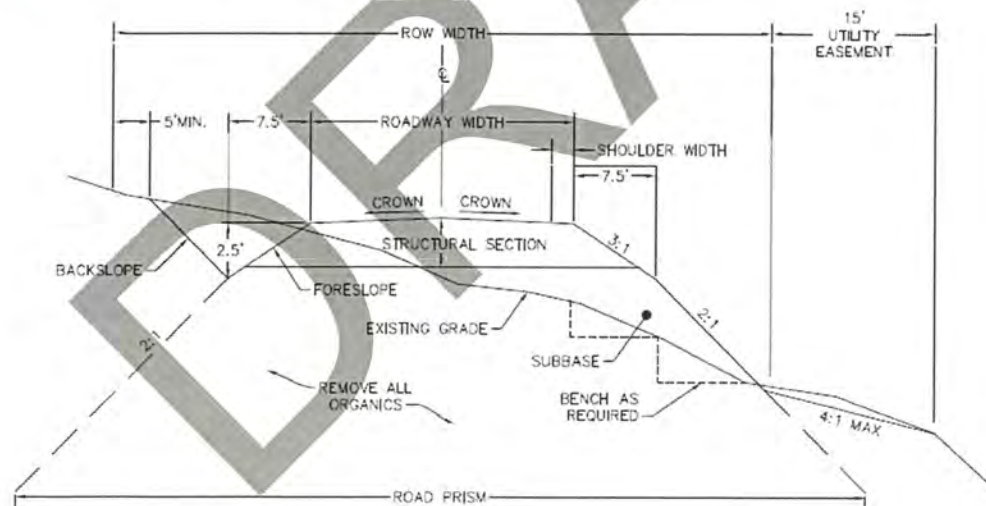


Figure A-3: Typical Section

⁹ Up to 15% grade with no more than 200 linear feet of over 10% grade with a minimum of 100 linear feet of less than 10% grade for runout between steeper sections. Maximum grade in a horizontal curve is 10%.

¹⁰ Rate of vertical curvature (K) is the length of curve (L) in feet per percent algebraic difference in intersecting grades (A); $K = L / A$

¹¹ 40-foot minimum curve return radius at intersections with higher order streets.

A07 Turnarounds

Streets with only one inlet that exceed 200 feet in length (measured from the intersection point to the end of required construction) shall terminate with a constructed turnaround, unless otherwise provided by A08.2.

A07.1 Cul-de-sac Turnarounds

- A cul-de-sac turnaround with a drivable surface diameter (shoulder to shoulder) of 85 feet centered in a ROW diameter of 120 feet shall be provided at the terminus of Residential and Residential Subcollector streets.
- Cul-de-sac turnarounds shall meet the configuration and dimensions shown in Figure A-4.
- The grade throughout the surface of a cul-de-sac, as depicted in the shaded portion of Figure A-4, shall not exceed 4 percent.

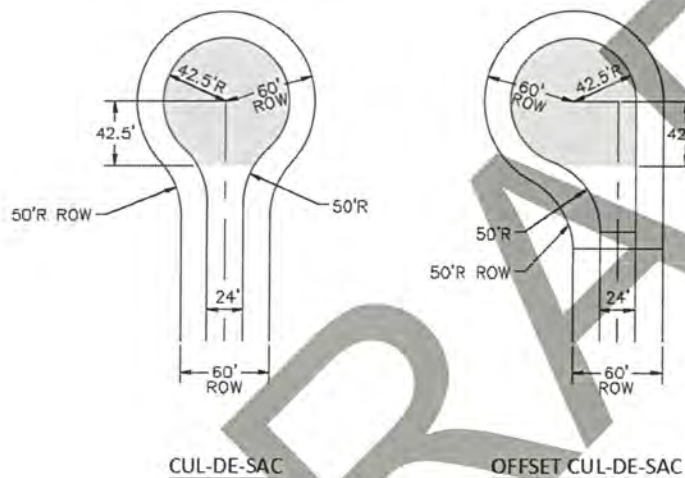


Figure A-4: Cul-de-sac Options

A07.2 Alternate Turnarounds

- DPW may permit a street to terminate with an alternative turnaround that meets fire code when such a design is required by extreme environmental or topographical conditions, unusual or irregularly shaped tract boundaries, or when the location of the turnaround is intended to become an intersection.
- Alternate turnarounds shall meet the configuration and dimensions shown in Figure A-5.
- The grade throughout the turnaround surface, as depicted in the shaded portion of Figure A-5, shall not exceed 4 percent.

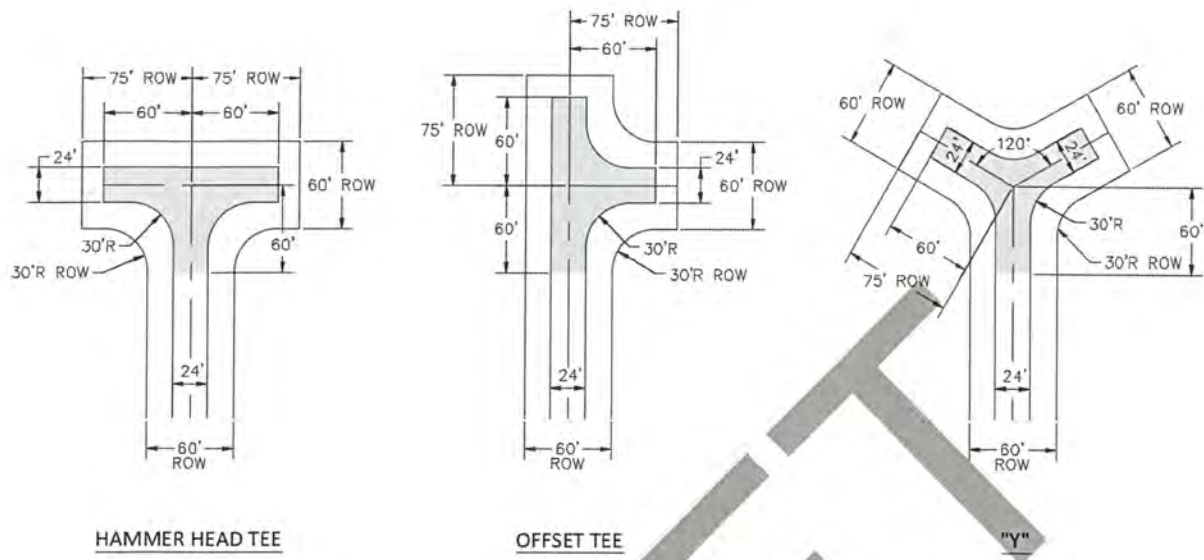


Figure A-5: Alternate Turnarounds

A08 Stub Streets

A08.1 Stub Street Construction

No construction is required if physical access is provided to all lots by adjoining streets as required by MSB or other applicable code.

A08.2 Temporary Turnarounds

All stub streets requiring construction that exceed 200 feet in length (measured from the intersection point to the end of required construction) will meet the requirements of A07A07.1 or A07.2. A temporary easement will be provided for the turnaround, which will automatically terminate upon extension of the street and physical removal of the turnaround. The centerline grade on stub streets without turnarounds shall not exceed 4%.

A09 Intersections

A09.1 Intersection Sight Distance

- Whenever a proposed street intersects an existing or proposed street of higher order, the street of lower order shall be made a stop controlled street, unless alternate intersection control is used as allowed by this subsection.
- Stop controlled streets shall be designed to provide intersection sight distance as specified in this subsection, Table A-2Table A-2, and Figure A-6Figure A-6.
- The entire area of the intersection sight triangles shown in Figure A-6Figure A-6 shall be designed to provide a clear view from point A at 3.5 feet above the roadway to all points 3.5 feet above the roadway along the lane centerlines from point B to point C and point D to point E.

- (d) Sight distances less than the recommended shall only be used when there are topographical or other physical constraints outside of the applicant's control.
- (e) The minimum sight distances listed in [Table A-2](#) are for a passenger car to turn onto a two-lane undivided street and minor road approach grades of 3 percent or less. For other conditions, the minimum sight distance should be calculated by the applicant's engineer according to *A Policy on Geometric Design of Highways and Streets* (AASHTO).
- (f) Sight distances less than the minimum, where no other options exist, will require alternate intersection control or warning signs as determined by the applicant's engineer and approved by DPW.
- (g) Intersection sight triangles shall be located in their entirety within ROW or a sight distance maintenance easement.
- (h) Yield controlled intersections shall conform to sight distance requirements according to *A Policy on Geometric Design of Highways and Streets* (AASHTO).
- (i) Intersections with state or other municipal ROW are subject to their respective requirements and review.

Table A-2: Recommended and Minimum Intersection Sight Distance

Design Speed or Posted Speed Limit (whichever is greater)	S_d Recommended	S_d Minimum
MPH	ft	ft
25	370	280
30	450	335
35	580	390
40	750	445
45	950	500
50	1180	555
55	1450	610
60	1750	665
65	2100	720

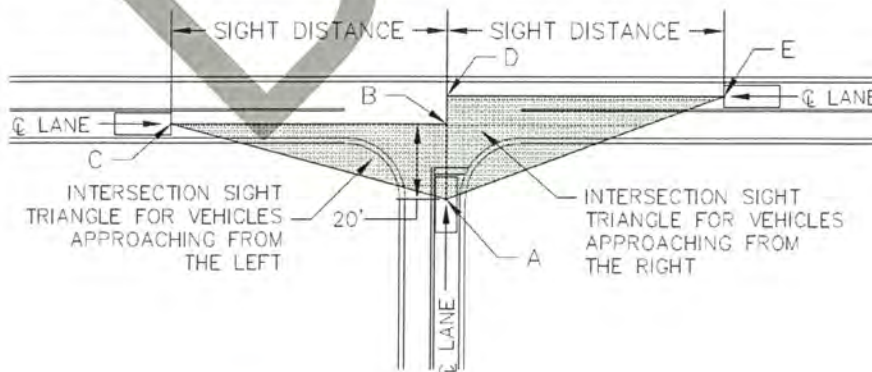


Figure A-6: Intersection Sight Distance

A09.2 Intersection Spacing

- (a) Minimum centerline to centerline distance between intersections on the same side or opposing sides of the through street shall be:
 - (1) 155 feet on Residential streets;
 - (2) 200 feet on Residential Subcollector streets;
 - (3) 300 feet on Residential Collectors and Minor Collectors; or
 - (4) 650 feet on higher order streets where other access standards do not exist.
- (b) If the above spacing along the through street cannot be met, intersections shall be aligned directly across from each other. Intersections on opposing sides of the through street may be offset up to 30 feet, with a preference for a left-right offset, as shown in Figure A-7.
- (c) Where pre-existing conditions do not allow for the above spacing and no other legal access exists, alternate spacing or offset most closely meeting (a) or (b) above may be allowed.
- (d) Additional intersections should be avoided within the functional area of major intersections with turning bays and approach tapers. Exceptions require DPW approval based upon constraints and no other feasible alternatives.

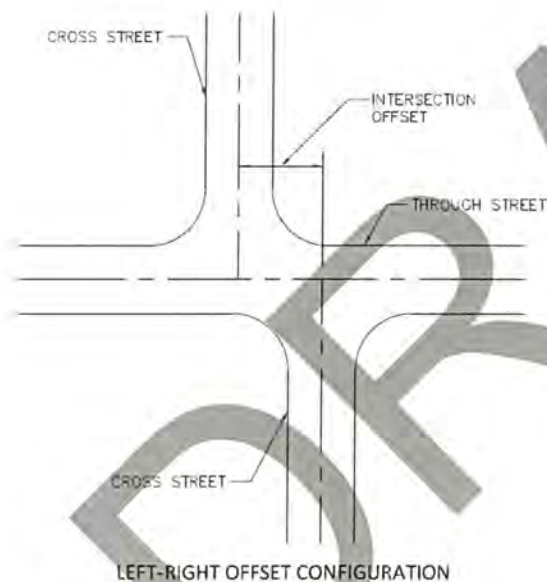


Figure A-7: Intersection Offset

A09.3 Minimum Intersection Angle

Streets should intersect with a straight segment at an angle as close to 90° as possible, but no less than 70°, for a minimum of 75 feet from the intersection point, as shown in Figure A-8.

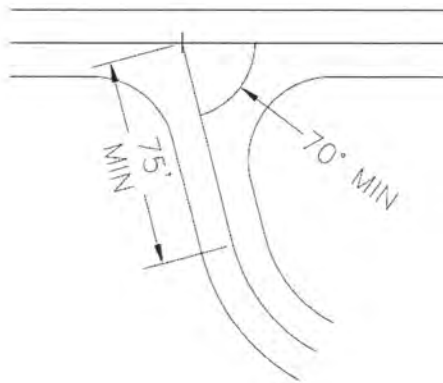


Figure A-8: Intersection Angle

A09.4 Landing

Controlled streets shall be provided with a typical 30-foot landing, conforming to Figure A-9, at its approach to a through street. The landing shall be sloped to match the crown of the through street. Vertical curves shall not be located in the landing to the extent feasible. Where a negative slope away from the through street is not feasible due to topographical constraints, the road shall be constructed in a manner that prevents water from flowing onto the through street.

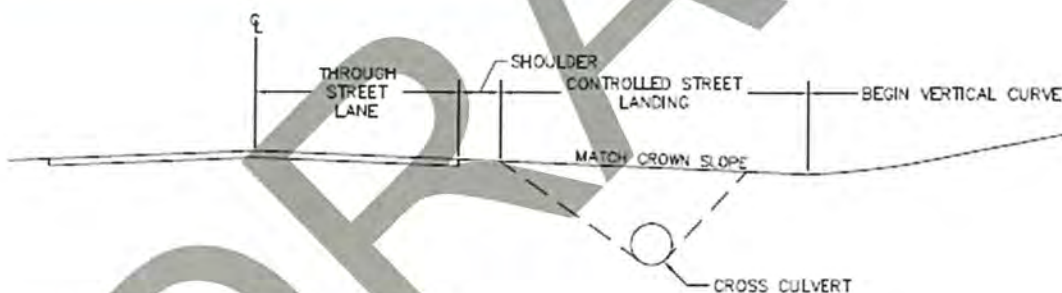


Figure A-9: Controlled Street Landing Profile

A09.5 Paved Apron

A proposed street which intersects an existing paved street shall be provided with a paved apron 40 feet from the edge of the existing pavement.

A proposed street which intersects an existing paved street shall be provided with a paved apron from the edge of the existing pavement to the end of the curve return plus 10 feet.

A10 Driveways

Driveways are not usually required to be constructed within the ROW at time of road construction. However, if an applicant chooses to construct driveways, driveway permits are required. The applicant may permit all driveways with one application. A driveway permit application can be obtained from the

MSB Permit Center. Driveways onto state or other municipal ROW are subject to their respective requirements and review.

A11 Trailhead

Trailhead parking lot layout shall conform to applicable local, state, and federal requirements.

A12 Bicycle and Pedestrian Paths

Bicycle and pedestrian paths constructed within public ROW shall conform to the current edition of *Guide for the Development of Bicycle Facilities* (AASHTO), and any other applicable local, state, and federal requirements.

A13 Signage

Signs shall be provided and installed by the applicant in conformance with the latest edition of the *Alaska Traffic Manual* (ADOT&PF) and the *Alaska Sign Design Specifications* (ADOT&PF) prior to plat recordation.

- (a) Each street within a subdivision shall be identified and signed at its point of egress and ingress. Cul-de-sac streets will be signed and identified at their point of ingress
- (b) Intersection control signs shall be provided at designated intersections within the confines of the subdivision and at the intersection with the access road, if applicable.
- (c) Intersection control signs shall be located such that they are visible to approaching traffic and near corresponding stop or yield bars.
- (d) Speed limit signs shall be provided at entrances to the subdivision, where the speed limit changes, and at a minimum of one-mile intervals throughout the subdivision.
- (e) If a constructed stub street provides access to two or fewer lots and has no turnarounds a sign indicating a dead-end street shall be posted.
- (f) If a dedicated stub street is not constructed, no signs are required.
- (g) Install signs according to the criteria in Figure A-10, Figure A-11, and Figure A-12.
- (h) Signs within state or other municipal ROW are subject to their respective requirements and review.

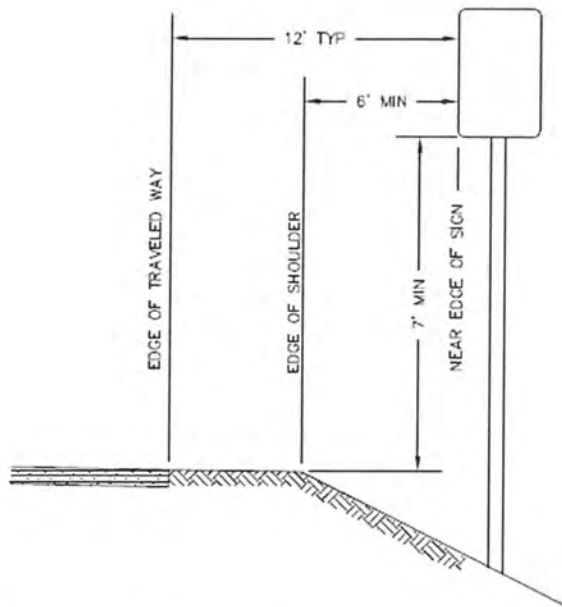


Figure A-10: Sign Placement

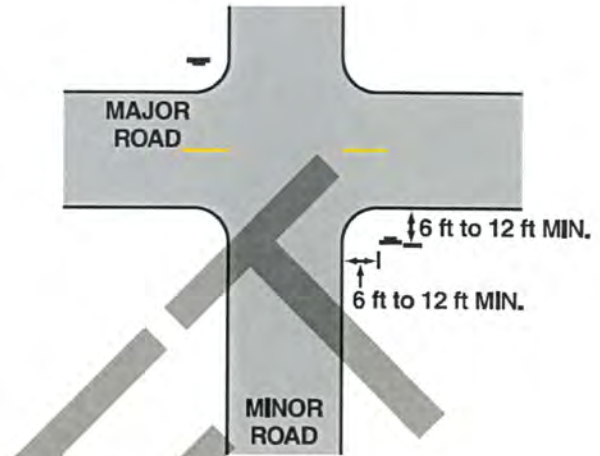


Figure A-11: Stop Sign Location

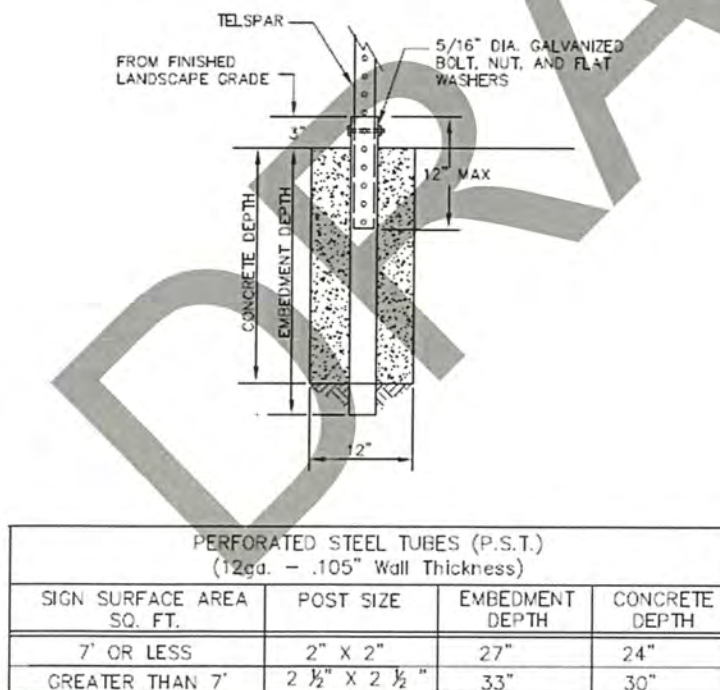


Figure A-12: Concrete Foundation for Sign Post

A14 Railroad Crossings

All access requiring a crossing of the Alaska Railroad shall be subject to the *Alaska Policy on Railroad/Highway Crossings* (Alaska Railroad).

A15 Average Daily Traffic

- (a) The following formula shall be used to determine the required classification of streets:
ADT = Number of lots x 10 for single-family residential use.
- (b) See Section G for other land uses.
- (c) For subdivisions of five or more lots, submit potential ADT calculations for the following locations with the preliminary plat:
 - (1) at each intersection within the subdivision,
 - (2) at each intersection en route to an existing Residential Collector street or higher classification, and
 - (3) at an existing Residential Collector street or higher classification.

A16 Design Deviations

Design deviations will be considered to address extenuating circumstances including but not limited to: existing substandard ROW, environmental conditions, or existing utilities or other structures. Design deviation requests shall be in writing and contain supporting information, justification, and suggested solutions. Design deviations may be allowed by DPW only for matters that do not fall under the jurisdiction of a Board or Commission. In no circumstances will a roadway width less than 20 feet or foreslopes steeper than 2:1 be allowed. Residential Collector streets shall be no less than 24 feet wide.

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Section B. Major Road Corridors

B01 General

Major road corridors include major collectors, arterials, and interstates. This section provides references to and guidelines for the design and construction of major road corridors within the MSB.

B02 Right-of-way and Surface Widths

Table B-1: ROW and Surface Widths

Classification	Minimum ROW Width (ft)	Standard Lane Width (ft)	Number of Lanes	Shoulder Width (ft)
Major Collector	80	12	2 – 3	4
Arterial	100	12	3 – 4	4 – 8
Interstate	200	12	4 – 6	12

B03 Frontage, Backage, and Connector Street Standards

Subdivisions adjacent to planned or existing major road corridors shall plan for future frontage or backage streets when any of the following conditions apply, unless it is shown by the applicant to be not necessary or feasible for future development and public safety with ~~non objection~~ no written objection from the road authority.

- Subdivisions accessing roads that are classified by ADOT&PF as Interstates.
- Subdivisions accessing roads that are or are projected to grow above 20,000 vehicles per day (VPD).
- Subdivisions accessing roads that are or are projected to have four or more lanes or median control per the LRTP or Official Streets and Highways Plan (OSHP).
- Subdivisions that require a second access route.
- To gain access to an existing or planned signal.
- Where access to a minor arterial or collector as a connector road is feasible.
- When there are existing or platted frontage or backage routes adjacent to the property.

B03.1 Separation Distances

Minimum ROW to ROW separation distance between major corridors and frontage or backage streets shall be:

- 0 feet for locations with no connector street to the major road corridor;
- 100 feet for locations with a connector street to the major road corridor that lie between section lines and planned or existing intersections with other major road corridors;
- 300 feet for locations where the connector street to the major road corridor is on a section line or planned or existing major road corridor.

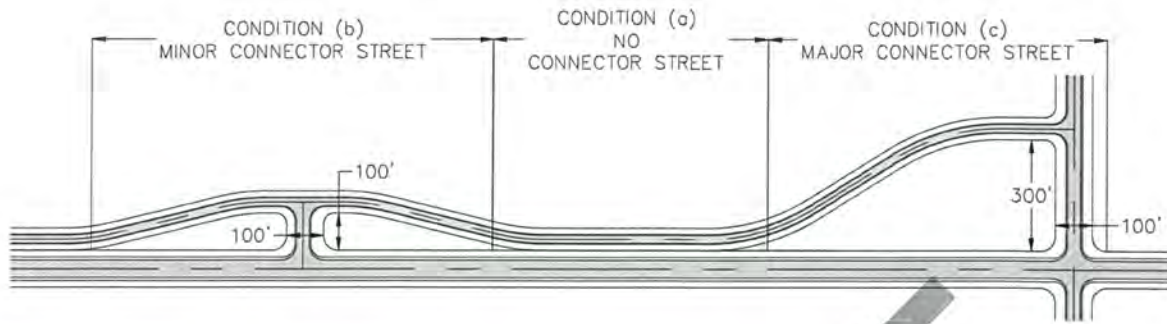


Figure B-1: Frontage Street Configurations

B03.2 Design Standards

- (a) Frontage streets
 - (1) Minimum centerline radii may be reduced near intersections with through connector streets.
- (b) Connector streets
 - (1) 100-foot ROW width desirable.
 - (2) Minimum 40-foot radius curve returns at the major road corridor.
 - (3) Minimum 4-foot wide shoulders for 100 feet from the edge of roadway of the major road corridor.
 - (4) Minimal direct access.

B03.3 Dedication and Setbacks

Dedicate ROW or additional building setbacks to allow for the frontage, backage, and connector street standards in this manual. The applicant shall submit design information sufficient to demonstrate ~~prove~~ that frontage, backage, and connector street dedications or building setbacks are in a practical location where road construction is feasible in accordance with this manual. The applicant shall be required to submit plan, profile, and cross-sections for the sections of road where ~~if~~ existing grades along the proposed route exceed 10 percent, existing cross slopes exceed 15 percent, or if existing utilities or other physical features appear to create impediments to a road design meeting standards of this manual. Road plan and profile shall extend at least 300 linear feet on either side of the subject sections or to intersecting or adjacent ROW within 500 linear feet.

B04 Access Standards

- (a) The average access point spacing on major road corridors, where other access standards do not exist, shall not exceed the minimums listed in Table B-2 ~~Table B-1~~, based on the posted speed limit. Average access point spacing is calculated per segment and is equal to the segment length divided by the number of access points on both sides of the street. Undeveloped lots with only access to the major road corridor are counted as having at least one access point.

- (b) When the average access point spacing on a segment of an existing major road corridor is less than the minimum listed in ~~Table B-2~~Table B-1, the average access point spacing shall not decrease due to the subdivision.

Table B-2B-1: Average Access Point Spacing

Posted Speed Limit (mph)	Minimum Average Access Point Spacing (feet)
30	250
35	300
40	360
45	425
50	495
55	570

B05 Future Corridors

Subdivisions shall be designed in a manner that does not conflict with the ~~Long Range Transportation Plan~~LRTP or the ~~Official Streets and Highways Plan~~OSHP. Subdivisions containing future road corridors identified in the LRTP or OSHP are encouraged to include the future road corridor as part of the road layout of the subdivision.

Building setbacks prohibiting the location of any permanent structure within the future corridor may be voluntarily designated on the final plat. The area within the future road corridor shall be excluded from usable septic area calculations. The area within the future road corridor and building setbacks shall be excluded from usable building calculations.

B06 References

The following publications shall be used for design and construction standards of these classes of streets that are not otherwise established herein:

- A Policy on Geometric Design of Highways and Streets*, AASHTO (current edition).
- Standard Specifications for Highway Construction*, ADOT&PF (current edition);
- Standard Modifications to the ADOT&PF Standard Specifications for Highway Construction*, MSB (latest revision)
- Alaska Highway Preconstruction Manual*, ADOT&PF (latest revision)

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Section C. Construction Requirements

C01 General

This section establishes minimum construction requirements. Prior to any ground disturbing activities, call the Alaska Dig Line for utility locates in accordance with AS 42.30.400.

C02 Road Construction

C02.1 Clearing

Cut and dispose of all trees, down timber, stumps, brush, bushes, and debris. Cut trees and brush to a height of not more than 6 inches above the surrounding ground. Clear the ROW, slope easements, and sight distance triangles. Where ROW exceeds 60 feet, clear a minimum of 60 feet. Clear utility easements, if used, for utilities constructed with the development.

C02.2 Grubbing

Remove and dispose of all stumps, roots, moss, grass, turf, debris, or other deleterious material within the fill and cut catch limits of the road plus 5 feet on each side, within the ROW, and cleared utility easements for underground utilities.

C02.3 Disposal

Dispose of clearing and grubbing debris in an area designated by the applicant outside of all ROW, platted utility easements, and platted private road corridors. Organic debris 3 inches in diameter by 8 inches long, or smaller, may be left in place, outside of the road prism.

C02.4 Slit Trenches

Slit trenches are not allowed in the ROW. Utility easements may be used as a borrow source above a 2:1 extension of the road prism, as shown in Figure A-3. Topsoil or other organic non-deleterious material may be disposed within the utility easement. Compact the disposal area with heavy equipment and grade the surface with positive drainage no steeper than 4:1 and no lower than the ditch line. Submit an as-built drawing showing the horizontal locations of borrow extraction along the road corridor with the Final Report.

C02.5 Embankment Construction

- (a) Construct the road with the required structural section, see Figure C-1, and dimensions, see [Table A-1](#) and Figure A-3, as determined by its classification.
- (b) Prepare the subgrade. Remove all organics from the area below the road prism and dispose in locations where embankment is not proposed. Bench existing slopes that are steeper than 4:1, measured at a right angle to the roadway, where roadway embankment is to be placed.
- (c) Place material meeting, or verify in-situ material meets, the requirements for Subbase specified in subsection C07 to a minimum depth of 20 inches with the upper 6 inches having no material with

a diameter larger than 6 inches. Place embankment in horizontal layers, as directed by the engineer, for the full width of the embankment and compact as specified before the next lift is placed.

- (d) Place 4 inches of Surface Course meeting the requirements specified in subsection C07. Finish with a 3 percent crown, and compact as specified.

(e) For Residential and Residential Subcollector standard roads, compact all embankment to not less than 90 percent of the maximum dry density at the optimum moisture content and the top 24 inches to not less than 95 percent of the maximum dry density at the optimum moisture content. For Residential Collector standard roads, compact all embankment to not less than 95 percent of the maximum dry density at the optimum moisture content.

(f) Optimum moisture and maximum dry density will be determined by Alaska Test Method (ATM) 207 and ATM 212 or alternative methods approved by DPW.

(e)(g) In-place density shall be determined by ATM 213 or alternative method approved by DPW.

Compaction tests on the subbase-Subbase layer shall be taken at representative locations along the roadways as follows:

- (1) a minimum of three;
- (2) at least one per segment;
- (3) one additional test per 1000 linear feet, or portion thereof, when the combined length of roadway exceeds 1000 linear feet;
- (4) at least one out of every three within three feet of the shoulder, and the remainder in the center of a driving lane.

(f)(h) For paved roadways, substitute Surface Course with a minimum of 2 inches of Base Course and 2 inches of HMA Type II, Class B, for Residential and Residential Subcollector streets, and a minimum of 3 inches of Base Course and 3 inches of HMA Type II, Class B, for Residential Collector Streets, in accordance with Appendix A. Pavement shall meet MSB Special Provision Section 401 Hot Mix Asphalt Pavement. The width of the pavement shall be equal to two lane widths plus the shared paved shoulder width, if used, and finished with a 2 percent crown. Pavement edges shall be backed with additional Base Course graded and compacted flush with the pavement surface and tapered to the edge of the roadway. The pavement shall be washed or swept immediately following shouldering work.

(g)(i) Remove all loose material exceeding 6 inches in diameter from the ditches and foreslopes. Where slopes are 3:1 or steeper and longer than 10 feet measured along the slope face, trackwalk perpendicular to the slope, or the equivalent, to form 1-inch wide grooves parallel to the road no more than 12 inches apart.

(h)(i) Permanently stabilize backslopes 3:1 or steeper. Stabilization can be part of a subdivision agreement. Stabilization may be allowed to establish during the warranty period.

C02.6 Unsuitable Subgrades

When structurally unsuitable material such as peat, saturated material, or permafrost are present within the ROW, provide an appropriate structural design for approval by DPW, according to Section F, prior to

construction. Place embankment to a depth that will produce a stable road surface with a final grade 18 inches above the surrounding ground.

C03 Roads Outside of a Road Service Area

Roads outside of a Road Service Area are not subject to the requirement for Surface Course.

C04 Pioneer Road Construction Requirements

Pioneer roads, whether proposed or existing, shall meet the requirements of Figure C-1, Table A-1~~Table A-1~~, and Figure A-3. Place material meeting, or verify in-situ material meets, the requirements for Subbase specified in subsection C07 to a minimum depth of 12 inches. Additional road embankment may be required to provide a stable road surface. Surface Course is not required. Pioneer roads may be constructed offset from the centerline of the ROW to facilitate future expansion of the road. Cross drainage culverts, minimum 18 inch diameter, will be installed where determined necessary and 24 inch ditches will be provided for drainage.

C05 Winter Construction

Winter construction may be allowed. DPW will not accept any roads until all ground has thawed and any settlement areas corrected.

C06 Alternate Methods and Materials

Use of alternate materials and road construction methods that will more appropriately fit the conditions of the specific road locations, following general engineering practices, may be proposed by the applicant or their engineer in writing. Final acceptance of such plans must be approved by DPW.

C07 Materials

C07.1 Subbase

- (a) Is aggregate containing no muck, frozen material, roots, sod, or other deleterious matter;
- (b) has a plasticity index not greater than 6 as tested by ~~Alaska Test Method (ATM)~~ 204 and ATM 205; and
- (c) meets the requirements of Table C-2, as determined by ATM 304.

C07.2 Base Course

- (a) Crushed stone or crushed gravel, consisting of sound, rough, durable pebbles or rock fragments of uniform quality;
- (b) free from clay balls, vegetable matter, or other deleterious matters;
- (c) meets the requirements of Table C-1; and
- (d) meets the requirements of Table C-2, as determined by ATM 304.

C07.3 Surface Course

- (a) Is a screened or crushed gravel, consisting of sound, rough, durable pebbles or rock fragments of uniform quality;
- (b) free from clay balls, vegetable matter, or other deleterious matters; and
- (c) meets the requirements of Table C-2, as determined by ATM 304.

Table C-1: Aggregate Quality Properties for Base Course

Property	Test Method	Base Course
L.A. Wear, %	AASHTO T 96	50, max
Degradation Value	ATM 313	45, min
Fracture, %	ATM 305	70, min
Plastic Index	ATM 205	6, max
Sodium Sulfate Loss, %	AASHTO T 104	9, max (5 cycles)

Table C-2: Aggregate Gradations

Sieve Designation	Subbase	Base Course	Surface Course
1 1/2 inch			100
1 inch		100	
3/4 inch		70 to 100	70 to 100
3/8 inch		50 to 80	50 to 85
No. 4	20 to 60	35 to 65	35 to 75
No. 8		20 to 50	20 to 60
No. 50		6 to 30	15 to 30
No. 200	0 to 10	0 to 6	7 to 13

(Percent Passing By Weight)

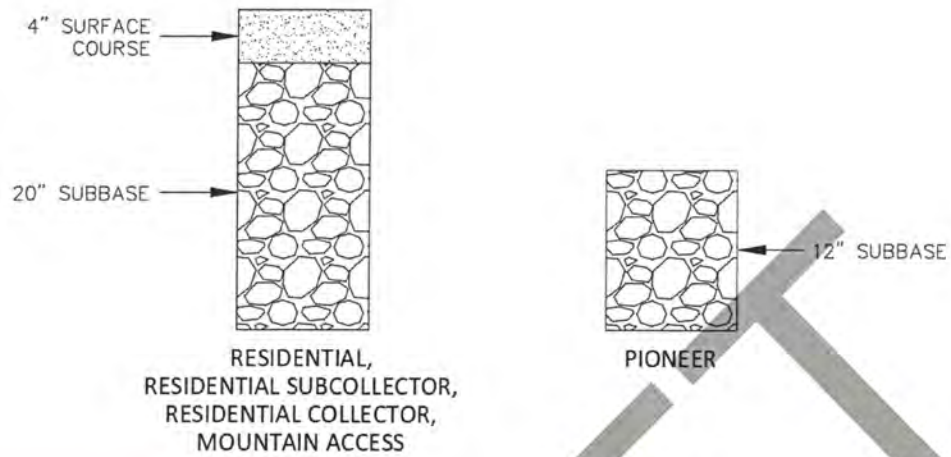


Figure C-1: Structural Sections for Gravel Roads

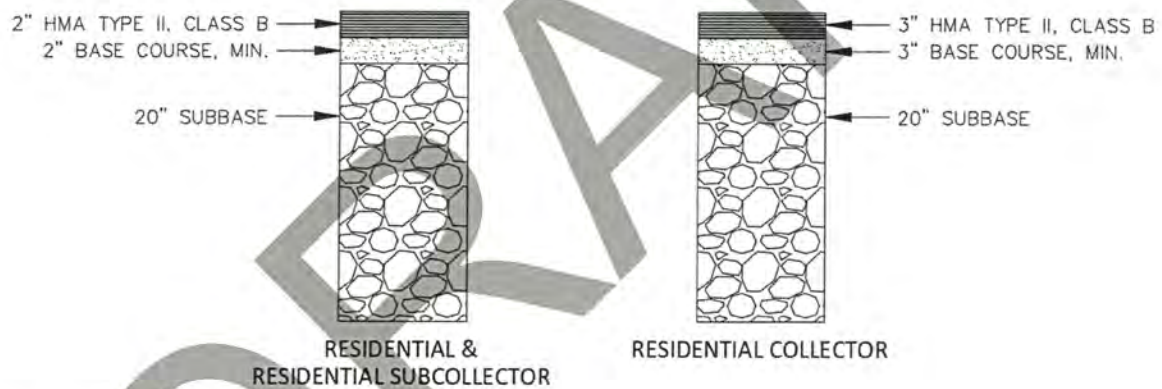


Figure C-2: Structural Sections for Paved Roads

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Section D. Drainage

D01 General

The purpose of this section is to ensure that stormwater management is provided with land development activities. Responsible stormwater management is the treatment, retention, detention, infiltration, and conveyance of stormwater and other surface waters without adversely impacting adjoining, nearby, or downstream properties and receiving waters.

D02 Requirements

A preliminary drainage plan is required when road construction or disturbing land to create useable area for a subdivision is proposed. A drainage report is required for projects that include road construction, disturb 10,000 square feet of land or more, fill in wetlands, disturb land within 100 feet of the ordinary high water mark (OHWM) of a water body, disturb land within a mapped flood hazard area, or change the location, direction, quantity, or type of runoff leaving a site. See subsection D06 for specific requirements regarding fish passage culverts. It is the applicant's responsibility to comply with all other applicable federal, state, and local codes and regulations.

D02.1 Preliminary Drainage Plan

Submit a preliminary drainage plan, prepared by an engineer or other qualified professional registered in the State of Alaska, with the preliminary plat or ROW construction permit application. The preliminary drainage plan shall show the project site at a legible scale plottable on 11" by 17" paper or larger and depict the following:

- (a) Existing and proposed property lines, plottable easements disclosed in the title report, the OHWM of water bodies with 100-foot upland offset, and existing mapped flood hazard areas.
- (b) Existing topography with horizontal and vertical accuracy meeting US National Map Accuracy standards, with 5-foot contour intervals if the ground slope is less than 10 percent and 10-foot contour intervals if the ground slope is greater than 10 percent.
- (c) Existing features that convey or retain drainage, including but not limited to: water bodies, wetlands, natural valleys, swales, ditches, check dams, culverts, and pipe systems.
- (d) Proposed drainage pattern and features, both constructed and natural, on site. Identify conveyance types, flow directions, and any drainage changes that may affect adjacent property.
- (e) Proposed stream crossings and anticipated culvert sizes. Identify fish-bearing streams.

D02.2 Drainage Report

Submit a drainage report, prepared by an engineer or other qualified professional registered in the State of Alaska, as part of the construction plan submittal in subsection F01.2. The drainage report shall include the following:

- (a) The drainage plan as specified in D02.1 (may be shown on two plans for clarity), updated to include:

- (1) Pre-development and post-development catchment area boundaries determined using 2-foot contour intervals; and
- (2) Locations of peak flow, peak velocity, and where runoff leaves the project site.
- (b) Description of methods, assumptions, and data sources used or made, including but not limited to:
 - (1) Rainfall data ~~used (from the NOAA-14's Precipitation Frequency Data Server or the Palmer Airport IDF curves in Figure D-1, whichever is more appropriate for the local conditions).~~
 - (2) Assumed post-development land cover conditions.
 - (3) Method used to determine runoff quantities, time of concentration, peak flows, etc.
- (c) Catchment area maps used or created to evaluate down-gradient conditions.
- (d) Identify design elements, with supporting runoff calculations, necessary to show compliance with the drainage design criteria set forth in D03.
- (e) Fish passage culvert plans, if applicable.

D03 Drainage Design Criteria

- (a) Design a drainage system for the project site to meet the criteria listed in Table D-1.
- (b) Retain natural drainage patterns to the extent possible.
- (c) Changes to drainage patterns must not adversely affect adjacent property or ROW.
- (d) Base the size and capacity of the drainage system on runoff volumes and flow rates assuming full development of the subdivision and a 10 percent increase to runoff from the catchment area.
- ~~(e) Utility easements may be crossed by drainage features, but cannot be used to retain or detain water.~~ Drainage easements are required where the ROW is not sufficient to accommodate drainage needs. See subsection E01.2.
- ~~(f) Where drainage easements overlap utility easements:~~
 - ~~(1) Above ground drainage facilities, such as retention and detention basins, may be located in new utility easements only in a manner that will not interfere with utilities. See subsection H02.~~
 - ~~(2) Above ground drainage facilities located within existing utility easements require a letter of non-objection from affected utilities.~~
 - ~~(3) Culverts crossing utility easements require a letter of non-objection from affected utilities.~~
 - ~~(4) Underground drainage facilities such as infiltration trenches and vertical inlets shall not be located in utility easements.~~
- ~~(e)(g)~~ Drainage to state or other municipal ROW are subject to their respective requirements and review.

Table D-1: Drainage Sizing and Analysis Criteria

Design Requirement	Purpose	Criteria
Conveyance Design	Size conveyances to pass design peak flows.	Drainage ditches: 10-year, 24-hour Non-regulated streams: 10-year, 24-hour Regulated streams: 100-year, 24-hour
Wetlands Retention	Retain function of original wetlands	In areas where wetlands are disturbed, drainage must be designed to p Preserve the pre-development function of the remaining wetlands. For jurisdictional wetland areas, comply with United States Army Corps of Engineers wetlands development retention requirements.
Water Quality Protection	Treat first flush pollutant loading Ensure channel stability for all project conveyances	Treat runoff generated by 0.50 inch of rainfall in a 24-hour period. Treat the initial 0.25 inch of post-developed runoff for each storm event. Control flows in conveyance channels so that transport of particles sized D50 and greater will not occur for the post-development 10-year, 24-hour storm.
Erosion and Sedimentation Control	<u>Ensure channel stability for all project conveyances</u>	<u>Control flows in conveyance channels so that transport of particles sized D50 and greater will not occur for the post-development peak flow.</u>
Extended Detention	Protect streams and channels from damage from smaller, more frequent storm flows	Provide 12 to 24 hours of detention for the post-development project runoff in excess of pre-development runoff volume for the 1-year, 24-hour storm.
Flood Hazard Protection	Control project peak flow to minimize downstream impacts	<u>Option 1</u> Maintain the post-development project runoff peak flows from the 10-year, 24-hour storm to less than 1.10 times or equal to pre-development runoff peak flow at all project discharge points. <u>Option 2</u> Maintain the post-development project runoff peak flows to less than 1.10 times pre-development runoff peak flow at all project discharge points. Evaluate <u>downstream until the project site area is less than 10% of the total upstream basin area and mitigate adverse impacts. If post-development discharge is greater than pre-development discharge, evaluate down-gradient conditions for and mitigate adverse impacts for a</u>

		distance of 1 mile downstream from the project as measured along the flow path or to the receiving water body, whichever is less,
Project Flood Bypass	Prevent an increased risk of flood damage from large storm events.	<u>Compute post-development peak flow and delineate</u> Design or identify an unobstructed, overland flow path for runoff to overtop or bypass project conveyance routes for the post-development 100-year, 24-hour storm.

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D04 Drainage Ditches

Stabilize ditches with gravel, turf, or rock riprap. See Table D-2 and Table D-3 for most common conditions and acceptable ditch lining materials. Evaluate channel stability for compliance with the Erosion and Sedimentation Control design requirement in Table D-1 for other conditions.

Normal ditch depth shall be 30 inches and according to the typical section shown in subsection A06. The design peak flow required by Conveyance Design in Table D-1 shall be conveyed within ditches with a minimum freeboard of 12 inches.

The ditch depth may be reduced at local high points of the ditch, provided the flow line offset is maintained and with DPW concurrence. Alternate ditch design along Residential and Residential Subcollector streets may be considered, if evidence is provided that the following conditions exist:

- Ditches are a minimum of 18" deep;
- The design peak flow required by Table D-1 is demonstrated to be conveyed within ditches with a minimum freeboard of 12 inches;
- Adequate drainage routes are provided and constructed within the ROW or designated drainage easements;
- Flow lines are established at least 8 feet from the edge of roadway.
- Ditches are deepened to provide cross drainage through 24" corrugated metal culverts (18" with DPW approval).
- Cross sectional area of ditch is at least 15 square feet.

Table D-2: Ditch Stabilization

Flow (cfs)	Ditch Slope (ft/ft)										
	0.005	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10
2.0	A	A	A	A	A	A	A	A	A	A	A
4.0	A	A	A	A	A	A	A	A	B	B	B
6.0	A	A	A	A	A	A	B	B	B	B	B
8.0	A	A	A	A	A	B	B	B	B	B	B
10.0	A	A	A	A	B	B	B	B	B	B	C
20.0	A	A	A	B	B	B	C	C	C	C	C
30.0	A	A	A	B	B	C	C	C	D	D	D
40.0	A	A	B	B	C	C	C	D	D	D	E
50.0	A	A	B	B	C	C	D	D	D	E	E
60.0	A	A	B	C	C	D	D	D	E	E	E
70.0	A	A	B	C	C	D	D	E	E	E	E
80.0	A	B	C	C	C	D	E	E	E	E	E
90.0	A	B	C	C	D	D	E	E	E	E	F
100.0	A	B	C	C	D	D	E	E	E	F	F

Table D-3: Ditch Lining Materials

Type	Material	D50 (in)	Dmax (in)	Dmin (in)	Thickness (in)
A	Native Grass, Turf, or Gravel with < 6% fines				
B	Riprap or Bone Rock	3.0	4.5	1.5	6.0
C	Riprap or Bone Rock	6.0	9.0	3.0	12.0
D	Riprap or Bone Rock	9.0	13.5	4.5	18.0
E	Riprap or Bone Rock	12.0	18.0	6.0	24.0

D05 Culverts

D05.1 General Culvert Design Criteria

The following criteria apply to all cross road culverts for runoff or seasonal drainage:

- (a) The minimum culvert slope is 0.5 percent.
- (b) Culverts longer than 100 feet require appropriate maintenance access and DPW approval
- (c) Cross road culverts shall have a minimum diameter of 18 inches.
- (d) Culverts shall be sized to convey the design peak flow required by Table D-1, based on the larger of the two computed sizes using inlet control and outlet control.
- (e) Culverts shall be corrugated metal pipe (CMP) and minimum:
 - (1) 16 gauge galvanized steel on Residential and Residential Subcollector streets;
 - (2) 12 gauge galvanized steel on Residential Collector and Minor Collector streets; or
 - (3) 16 gauge aluminum or aluminized if needed due to soil or water conditions.
- (f) Design and install energy dissipation rock aprons at culvert outlets in accordance with Hydraulic Engineering Circular No. 14 (FHWA).
- (e)(g) Install culverts in accordance with the manufacturer's recommendations for the anticipated traffic loads.

D05.2 Stream Crossing Culvert Criteria

The following criteria apply to all stream crossing culverts:

- (a) Prior to preliminary plat submittal, contact the Alaska Department of Fish and Game (ADFG), Division of Habitat to determine if a stream reach harbors fish. If so, stream crossing culverts shall be designed, constructed, and maintained according to D06.
- (b) Stream crossing culverts shall be placed as close to the pre-existing channel alignment as possible. Avoid placing culverts at pools and stream bends.
- (c) Road alignment shall be as close to perpendicular to the stream channel as possible.
- (d) Culvert slope shall be within 25 percent of the natural stream slope. For example, if the natural stream slope is 1.0 percent, the minimum design slope of the culvert would be 0.75 percent and the maximum design slope would be 1.25 percent.
- (e) Culvert outlet and inlet protection shall be used as necessary to reduce the risk of scour and perching.

- (f) Stream crossings shall be composed of a single pipe or arch for the main stream channel.
- (g) Overflow culverts may be used but should be placed at a higher elevation so that flows up to the OHWM pass through the primary culvert.
- (h) Stream crossings shall maintain the connectivity of wetlands adjacent to stream channels and shall accommodate sheet flow within such wetlands.
- (i) Stream crossing culverts shall not interfere with the functioning of floodplains and shall be designed to convey the design peak flow required by Table D-1. If the stream crossing culvert is not designed to accommodate the 100-year flow, a route must be established to safely convey flows exceeding the design peak flow without causing damage to property, endangering human life or public health, or causing significant environmental damage.
- (j) In cases of crossings within high entrenchment ratio environments, the ratio of the flood prone width to the OHWM width is greater than 2.2, floodplain overflow culverts may be beneficial to floodplain connectivity and can be used to pass the design flow. Minimum width requirements for the primary culvert still apply.
- (k) Stream crossing culverts shall have a minimum diameter of three feet.
- (l) Stream crossing culvert pipes and arches shall be metal.
- (m) Culverts longer than 100 feet require appropriate maintenance access and DPW approval
- (n) Install culverts in accordance with the manufacturer's recommendations for the anticipated traffic loads.

D06 Fish Passage Culverts

These criteria provide general design guidance for road crossings of fish-bearing streams to maintain the full hydrologic functioning of the water body they are crossing. Site-specific conditions, such as multi-thread channels, may require alternate design approaches.

D06.1 Pre-design Conference

Schedule a fish passage pre-design conference with DPW prior to permit submittals. The pre-design conference is to:

- (a) determine required permits;
- (b) coordinate interagency requirements;
- (c) determine any site-specific design requirements; and
- (d) establish a plan review process.

D06.2 Stream Simulation Method

Stream simulation methodologies shall be used for the design of all fish-bearing stream crossings. The stream simulation method uses reference data from a representative section, or reference reach, of the specific water body crossed. This method attempts to replicate the natural stream channel conditions found upstream and downstream of the crossing. Sediment transport, flood and debris conveyance, and fish passage are designed to function as they do in the natural channel.

Reference Reach

- (a) Select a reference reach on the water body being crossed that is outside any anthropogenic influence, such as an existing culvert. In most cases of new crossings, the reference reach can be at the crossing location.
- (b) The length of the reference reach should be a minimum of 20 times the reference bankfull width and no less than 200 feet.
- (c) If there is not a suitable reference reach on the water body being crossed, a reference reach may be chosen from another water body with similar geomorphic and hydrologic characteristics. The reference reach characteristics should meet the following criteria in comparison to the water body being crossed:
 - (1) The reference reach bankfull width should be at least one half and no more than two times that of the water body being crossed;
 - (2) The reference reach bankfull discharge should be at least one half and no more than one and one half times the bankfull discharge of the water body being crossed; and
 - (3) The stream order of the reference reach should be within one stream order of the water body being crossed.
- (d) For a reference reach from another water body, the geomorphic characteristics of the crossing shall be scaled using ratios of the bankfull conditions.
- (e) The reference reach bankfull dimensions should be determined in the field by surveying a detailed cross section at the upper 1/3 of a representative riffle.
- (f) Reference data shall include, at a minimum:
 - (1) channel width at the OHWM,
 - (2) bankfull width,
 - (3) bankfull cross-sectional area,
 - (4) bankfull slope based on the longitudinal profile,
 - (5) substrate, and
 - (6) potential for floating debris.

Culvert Size, Slope, and Substrate

In addition to D05.2, the following criteria apply to fish passage culverts:

- (a) Under normal flow conditions, the channel within or under the fish passage culvert shall not differ from the reference reach condition in regards to the channel width at the OHWM, cross-sectional area, slope, substrate, and ability to pass floating debris.
- (b) The width of fish passage culverts shall not be less than the greater of 1.2 times the channel width at the OHWM and 1.0 times the bankfull width.
- (c) Fish passage culverts shall have a minimum diameter of five feet.
- (d) The use of smooth wall culverts is prohibited.
- (e) The use of trash racks or debris interceptors is prohibited
- (f) Round culvert pipes shall have a minimum invert burial depth of 40 percent of the culvert diameter into the substrate. Arch or box culverts shall have a minimum invert burial depth of 20

percent of the culvert's rise into the substrate, unless scour analysis shows less fill is acceptable. The minimum invert burial depth is 1 foot.

- (g) The gradation of the substrate material within a fish passage culvert shall be designed to be a dense, well-graded mixture with adequate fines to ensure that the majority of the stream flows on the surface and the minimum water depth is maintained.
- (h) Substrate material within or under the fish passage culvert shall remain dynamically stable at all flood discharges up to and including a 50-year flood. Dynamic stability means that substrate material mobilized at higher flows will be replaced by bed material from the natural channel upstream of the crossing. For crossings without an adequate upstream sediment supply, the substrate material within the crossing shall be designed to resist the predicted critical shear forces up to the 100-year flood. For culverts with a slope of 6 percent or greater, substrate retention sills may be required to allow the bed load to continuously recruit within the culvert.
- (i) Substrate material within or under the fish passage culvert shall incorporate a low flow channel. The low flow channel should mimic the reference reach where possible. If the low flow channel dimensions are not discernable from the reference reach, the low flow channel should have a cross sectional area of 15 to 30 percent of the bankfull cross sectional area and a minimum depth of 4 inches for juvenile fish and 12 inches for adult fish. The low flow channel should be defined by rock features that will resist critical shear forces up to the 100-year flood.
- (j) Constructed streambanks are recommended inside fish passage culverts to protect the culvert from abrasion, provide resting areas for fish, and provide for small mammal crossing. If streambanks are constructed through a crossing, the streambanks shall be constructed of rock substrate designed to be stable at the 100-year flood. The streambank width should be a minimum of 1.5 times the maximum sieve size of the streambed material (D100). The crossing width shall be increased to allow for the channel width plus the streambanks.
- (k) If substrate retention sills are used, they shall have a maximum weir height of one half of the culvert invert burial depth. Substrate retention sills shall be spaced so that the maximum drop between weirs is 4 inches. The use of sills without substrate is not allowed.
- (l) Other state and federal requirements may apply.

D06.3 Hydraulic Method

Hydraulically designed culverts are discouraged for fish-bearing stream crossings, though may be approved by DPW and ADFG in circumstances where stream simulation is not practical. In addition to D05.2, the following criteria apply to hydraulically designed culverts:

- (a) The hydraulic method uses the swimming capability and migration timing of target design species and sizes of fish to create favorable hydraulic conditions throughout the culvert crossing. Information and design software for this methodology is available from ADFG, Division of Sport Fisheries (Fishpass) and the US Forest Service (FishXing).
- (b) The design fish shall be a 55-milimeter (2.16-inch) juvenile coho salmon for anadromous streams and a 55-milimeter (2.16-inch) Dolly Varden char for non-anadromous streams. These criteria may change based on ongoing research by federal and state agencies.

- (c) Fish passage high flow design discharge will not exceed the 5 percent annual exceedance flow or 0.4 times the 2-year peak flow, whichever is lower and has the most supporting hydrologic data.
- (d) Fish passage low-flow design discharge shall ensure a minimum 6-inch water depth or natural low flow and depth within the reach the crossing occurs. In cases where local conditions preclude natural low flow characteristics, backwatering or in-culvert structures should be considered.
- (e) In cases where flared end sections with aprons are necessary and fish passage is required, water depths and velocities that satisfy fish passage criteria must be demonstrated across the apron in addition to within the culvert.
- (f) Fish passage criteria for culverts crossing tidally-influenced streams must be satisfied 90 percent of the time. Tidally-influenced streams may sometimes be impassable due to insufficient depth at low flow and low tide. If the tidal area immediately downstream of a culvert is impassable for fish at low tide, the exceedance criterion shall apply only to the time during which fish can swim to the culvert.
- (g) Other state and federal requirements may apply.

D07 Soil Infiltration Facilities

Soil infiltration may be used to reduce stormwater flow and volume with the following criteria:

- (a) Soil infiltration facilities within Borough ROW or drainage easements should be designed such that they are not considered Class V injection wells. See Appendix A for the EPA's memorandum addressing the subject in June 2008.
 - (1) Private drainage facilities that are considered Class V injection wells require conformance with EPA regulations.

D07D08 Rainfall Data

D07.1D08.1 Rainfall Distribution

Intensity-Duration-Frequency (IDF) and 24-hour rainfall data are furnished by NOAA Atlas 14 Point Precipitation Frequency Estimates. Use SCS Type-I Rainfall Distribution and 24-hour rainfall depth to compute runoff.

D08.2 Runoff Transformation

Use the Rational Method for estimating peak flows in drainage basins less than 200 acres and with times of concentration less than 20 minutes for design of conveyances. Use NRCS (SCS) Unit Hydrograph Method for estimating runoff volumes and peak flows for other conditions and applications. Other methods more appropriate for site conditions may be utilized upon DPW approval.

The following IDF curves and hyetograph, derived from data measured at the Palmer airport, may be used for runoff calculations.

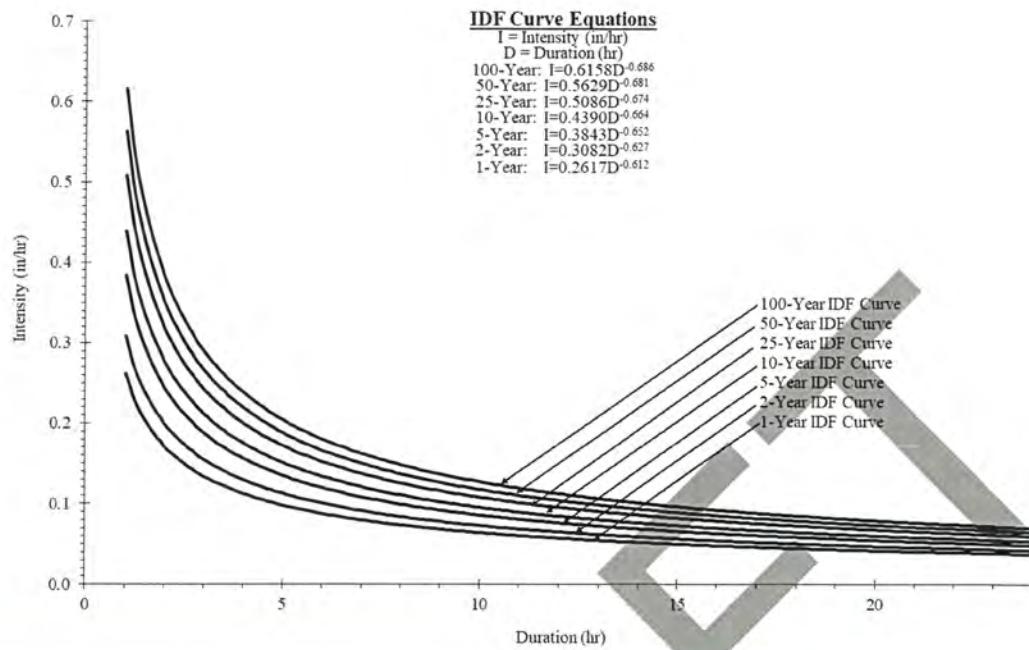


Figure D-1: Intensity-Duration-Frequency Relationships for the Matanuska-Susitna Borough
 Source: Palmer Municipal Airport, 1999 to 2008, Stantec—2009

Table D-2: Recurrence Interval Hyetographs (in/hr) for the Matanuska-Susitna Borough

Time (hr)	1-Year	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
1	0.01	0.02	0.02	0.02	0.02	0.02	0.02
2	0.02	0.02	0.02	0.02	0.02	0.02	0.02
3	0.02	0.02	0.02	0.02	0.02	0.02	0.03
4	0.02	0.02	0.02	0.02	0.02	0.03	0.03
5	0.02	0.02	0.02	0.02	0.03	0.03	0.03
6	0.02	0.02	0.02	0.03	0.03	0.03	0.03
7	0.02	0.02	0.03	0.03	0.03	0.03	0.04
8	0.03	0.03	0.03	0.03	0.04	0.04	0.04
9	0.03	0.03	0.04	0.04	0.04	0.05	0.05
10	0.04	0.04	0.04	0.05	0.05	0.06	0.06
11	0.05	0.05	0.06	0.06	0.07	0.08	0.08
12	0.06	0.07	0.07	0.08	0.09	0.10	0.10
13	0.26	0.31	0.38	0.44	0.51	0.56	0.62
14	0.08	0.09	0.10	0.12	0.13	0.14	0.15
15	0.04	0.04	0.05	0.05	0.06	0.06	0.07
16	0.03	0.04	0.04	0.04	0.05	0.05	0.05
17	0.03	0.03	0.03	0.04	0.04	0.04	0.04
18	0.02	0.03	0.03	0.03	0.03	0.04	0.04
19	0.02	0.02	0.03	0.03	0.03	0.03	0.03
20	0.02	0.02	0.02	0.02	0.03	0.03	0.03
21	0.02	0.02	0.02	0.02	0.03	0.03	0.03
22	0.02	0.02	0.02	0.02	0.02	0.02	0.03
23	0.02	0.02	0.02	0.02	0.02	0.02	0.02
24	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Total	0.90	1.01	1.16	1.28	1.43	1.55	1.67

Note: Total values of rainfall calculated by adding un-rounded average rainfall intensities for each time step.
Source: Palmer Municipal Airport, 1999 to 2008, Stantec—2009

Section E. Easements

E01 General

E01.1 Common Access Easements

When a shared driveway is required for two or more lots, a common access easement shall be ~~dedicated~~ **granted** for the exclusive use of the subject lots, unless otherwise accommodated. ~~The MSB is the permitting authority within common access easements.~~ The common access easement shall be sized to reasonably accommodate separation of the shared driveway to the individual lots.

E01.2 Drainage Easements

Drainage easements are required where the ROW is not sufficient to accommodate drainage needs. Drainage easements can overlap with other platted easements and shall begin or terminate at the ROW. Drainage easements shall be a minimum width of 20 feet, and a minimum average length of 20 feet outside of any overlapping easements or of sufficient size and area shown to facilitate construction and maintenance.

E01.3 Slope Easements

Slope easements are required to contain all cut and fill slopes steeper than 2.5:1 that extend outside of the ROW, plus at least 5 feet outside the cut or fill catches.

E01.4 Sight Distance Maintenance Easements

Sight distance maintenance easements are required where intersection sight triangles extend outside of the ROW.

E01.5 Snow Storage Easements

Snow storage easements are required where the ROW is not sufficient to accommodate anticipated snow removal needs. Snow storage easements shall be located where the storage of snow would not impede sight distance.

E01.6 Utility Easements

Unless lots are otherwise served by alternate utility easements or agreements, at least one 15-foot utility easement adjacent to the ROW is required to allow for utility installation and maintenance. Additional utility easements may be required as deemed reasonably necessary by utility companies to serve the subdivision or protect existing facilities. The applicant is responsible for satisfying any conflicts that may occur in the request for easements from any utility company during the platting process.

Platted utility easements are to be clear of wells, septic systems, structures, or encroachments, as defined by MSB or other applicable code; unless the applicant has obtained an encroachment permit from the MSB and a "Non-Objection to Easement Encroachment" from each utility.

Utility easements are to be fully useable for utility installation where installation equipment can safely work. Whenever possible, utility easements should not be placed in swamps, steep slopes, or other unusable areas.

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Section F. Development Implementation

F01 General

This section describes the procedure that is to be followed before constructing any improvements required for recording a subdivision plat. The applicant's engineer shall be the primary point of contact throughout this process.

It is the applicant's responsibility to determine, acquire, and follow permits required by other agencies. Approval from MSB does not supersede other agencies' permit requirements.

F01.1 Preliminary Plat Submittal

The preliminary plat submittal is to be accompanied by:

- (a) ADT calculations per A15;
- (b) Preliminary drainage plan per D02.1;
- (c) Road plan and profile for sections of road where proposed grades exceed 6 percent where cuts and fills exceed 5 feet in height measured from the centerline, or where slope easements will be required, and cross sections at the maximum cut and fill sections. Road plan and profile shall include the vertical curves or grade breaks on either side of the subject sections;
- (d) Road plan, profile, and cross-sections if required by B03.3; and
- (e) Intersection sight distance evaluation, if requested, according to A09.1.

F01.2 Construction Plans

Submit construction plans to DPW at least seven calendar days before the preconstruction conference. All plan drawing submittals shall be at a scale of 1 inch = 50 feet or more detailed, plottable on 11" by 17" paper. Construction plans shall include the following:

- (a) Drainage Report, according to D02.2;
- (b) Plan & Profile of proposed roads (if required by F01.1);
 - (1) Existing topography with horizontal and vertical accuracy meeting US National Map Accuracy standards, two-foot contour intervals within the proposed road corridors.
- (c) Asbuilt survey of visible improvements and above ground utilities within and adjacent to the subdivision;
- (d) Copy of agency accepted permit applications required for the improvements prior to construction, including but not limited to ADOT&PF Approach Road Permit, DNR Section Line Easement authorization, MSB Flood Hazard Development permit, and USACE wetland fill permit; and
- (e) Plans for any proposed improvements within the ROW that are outside of the scope of this manual (e.g. retaining walls or guard rail) or do not conform to the standards set forth herein, conforming to ADOT&PF design criteria and standards.

F01.3 Preconstruction Conference

The preconstruction conference is for the purpose of reviewing and approving the Subdivision Construction Plan for the required improvements. The engineer may request scheduling of a preconstruction conference with DPW after the preliminary plat has been approved by the Platting Board, the ~~Notification of Action (NOA)~~ Platting Board Action Letter has been received, and the construction plans have been submitted. Scheduling of preconstruction conference requests may be delayed during the month of October. The applicant, or designated representative, and the engineer must attend the preconstruction conference. In addition to the construction plans, the following items will be provided at or prior to the preconstruction conference:

- (a) Cost estimate of required improvements for the determination of the inspection fee according to the most recently adopted Schedule of Rates and Fees;
- (b) Proof of compliance with the Alaska Pollutant Discharge Elimination System Program;
 - (1) Acceptable proof includes a Notice of Intent (NOI), a Low Erosivity Waiver (LEW), or a determination by a qualified person that neither is needed.
- (c) Rough plan and time line for construction;
- (d) Copy of any issued permits required for the improvements prior to construction;
- (e) Off-site material source and quantities; and
- (f) On-site clearing, grubbing, and topsoil disposal plan, location map.

The Subdivision Construction Plan must be signed by the applicant, or designated representative, and the engineer. Upon acceptance of the Subdivision Construction Plan by DPW and payment of the inspection fee, the Platting Division will issue a Notice to Proceed (NTP). ~~See Appendix B for an example of the Subdivision Construction Plan.~~

Some construction plans or permit approvals may take longer to develop or obtain, such as fish passage culvert plans and associated permits. Those finalized plans and issued permits may be submitted later but must be received and reviewed by DPW before construction begins within the respective areas.

F01.4 Interim Inspections

The applicant's engineer shall supervise all phases of construction. Notify DPW of changes to the Subdivision Construction Plan, such as adding or deleting a cross culvert, changes in culvert size, adding or deleting a drainage facility, grade changes of more than 1 percent or that would result in grades of over 6 percent or cuts or fills of over 5 feet in height measured from the centerline, or changes to foreslopes or backslopes. The changes should be approved by DPW prior to completion of construction. Periodic interim inspections may be conducted by DPW. Interim inspections may be requested by the engineer.

F01.5 Subdivision Agreements

If a developer wishes to enter into a Subdivision Agreement and the requirements of MSB 43.55.010(A) are met, the engineer shall submit a request to DPW no later than October 15th for an Interim Inspection. The Interim Inspection shall be attended by the engineer and DPW, and a list of remaining