



CITY OF NORTH POLE
Regular Meeting
January 18, 2022
North Pole Council Chambers
125 Snowman Lane, North Pole, Alaska
www.northpolealaska.com

Tuesday, January 18, 2022
Committee of the Whole: 6:30 PM
Regular City Council Meeting: 7:00 PM

MAYOR

Michael Welch
907-488-8584

CITY CLERK

Melissa Dionne
907-488-8583

COUNCIL MEMBERS

Santa Claus – Mayor Pro Tem	907-388-3836
DeJohn Cromer – Deputy Mayor Pro Tem	907-347-2808
Aino Welch – Alt. Deputy Mayor Pro Tem	907-488-5834
David Skipps	907-750-5106
Anton Keller	907-987-2548

1. Call to Order/Roll Call
2. Pledge of Allegiance
3. Invocation
4. Approval of Agenda (Pgs. 1-2)
5. Approval of the Minutes from 01/03/2022 (Pgs. 3-10)
6. Communications from the Mayor
 - a. Dominique Pride, Alaska Center for Energy & Power, University of Alaska Fairbanks (Pgs. 11-34)
7. Council Members Questions of the Mayor
8. Communications from Department Heads, Borough Representative, and the City Clerk
9. Ongoing Projects Report
10. Citizens Comments (Limited to five (5) minutes per Citizen)
11. **Old Business:**
None

12. New Business:

- a. Resolution 22-05 A Resolution Establishing the City of North Pole's Legislative Priorities for the 32nd Legislature 2022 Regular Session (Pgs. 35-40)
- b. Resolution 22-06 A Resolution of the City of North Pole, Alaska, To Approve the Developer Agreement Between the City and Stepping Stones Builders for the Construction of Water, Sewer, and Road Facilities in Lot B-2 Eagle As a Site for Muti-Family Housing (Pg.41-162)
- c. MOU - DOL and NPPD Regarding Exculpatory Information in Personnel Files (Pgs. 163-201)

13. Council Comments

14. Adjournment

How to Offer Public Testimony at Council Meetings

Written testimony is encouraged. You may submit your comments by calling the Clerk's Office at 907-488-8583 or by sending an email to MDionne@northpolealaska.org prior to 1:00 p.m. the day of the meeting. Please indicate which agenda item you are providing written testimony for. Examples: Ordinance or Resolution number, agenda item#, or description of subject.

To sign-up for **telephonic testimony** call the Clerk's Office at 488-8583 or email MDionne@northpolealaska.org prior to 1:00 p.m. the day of the meeting. Please indicate that you wished to be called, for what item you will provide testimony on, and what number you can be reached at.

Council Meetings are aired **live via audio streaming** from the City's website at <https://www.northpolealaska.com/citycouncil/page/council-meeting-audio-stream>.

Inquiries concerning ADA compliance or accommodations should be directed to the City Clerk.



Committee of the Whole – 6:30 P.M.
Regular City Council Meeting – 7:00 P.M.

A regular meeting of the North Pole City Council was held on Monday, January 3, 2022, via Zoom.

CALL TO ORDER/ROLL CALL

Mayor Welch called the regular City Council meeting of Monday, January 3, 2022, to order at 7:00 p.m.

Present:

Michael Welch – Mayor
Santa Claus - Mayor Pro Tem
DeJohn Cromer - Deputy Mayor Pro Tem
Aino Welch – Alternate Deputy Mayor Pro Tem
Anton Keller
David Skippis

PLEDGE OF ALLEGIANCE TO THE U.S. FLAG

Led by Melissa Dionne

INVOCATION

Given by Ms. Welch

APPROVAL OF AGENDA

Mr. Claus *moved* to approve the agenda of January 3, 2022

Seconded *by* Ms. Welch

Mr. Claus *moved* to amend the agenda of January 3, 2022 to consent the following items:

Old Business:

New Business:

- a. Resolution 22- 01, A Resolution of the City of North Pole, Alaska, to Authorize a Match Agreement Totaling \$56,907 to Install Asphalt Driveway Aprons Throughout the City Funded with American Rescue Plan Act Funds
- b. Resolution 22-02, A Resolution of the City of North Pole, Alaska, to Authorize a Match Agreement Totaling \$175,040 to Install Streetlights in the City Core Paid with American Rescue Plan Act Funds
- c. Resolution 22-03, A Resolution of the City of North Pole City Council Designating City Officials

Authorization to Sign on City of North Pole Accounts

- d. Resolution 22-04, A Resolution of the City of North Pole, Alaska, Establishing the 2022 Committees
- e. Acceptance of the Pollen Environmental LLC's 2022 Wastewater and Water Compliance Monitoring Professional Services Proposal
- f. Tuition Reimbursement Request
- g. Request to Accept the Resignation of Councilman Thomas McGhee

Seconded by Mr. Skipps

On the amendments

DISCUSSION

None

PASSED

Yes: 7 – A. Welch, Claus, Keller, Cromer, Skipps, Welch

No: 0

On the agenda as amended

DISCUSSION

None

PASSED

Yes: 7 – A. Welch, Claus, Keller, Cromer, Skipps, Welch

No: 0

APPROVAL OF MINUTES

Mr. Claus *moved* to approve the minutes from the 12/13/21 and 12/22/21 meetings

Seconded by Ms. Welch

DISCUSSION

None

PASSED

Yes: 7 – A. Welch, Claus, Keller, Cromer, Skipps, Welch

No: 0

COMMUNICATIONS FROM THE MAYOR

- The Mayor is scheduled to have surgery on March 4, 2022, in Wasilla.
- The Mayor was recently in Anchorage meeting with the owners of Three Bears regarding the new store coming to North Pole off Buzby. The announcement should happen soon.
- While in Anchorage the Mayor also went to court over the Williams Alaska appeal with Zane Wilson on the behalf of the City of North Pole. The decision from the Supreme Court should be available in February 2022.
- He also was with another attorney meeting regarding the person that was injured during the fireworks

display during the Christmas in Ice festival a few years ago. He was there as a citizen, not as the Mayor.

- On 12/16/21, he was meeting with the governor's staff and the Bond Bank to talk about the infrastructure in the City.
- He also met with AIDEA and met with them to talk about housing in the NP area. He is hoping that CSG gives him the okay after his next meeting with them on 1/6/22 to move forward with a plan and that there will be a resolution for the project coming soon.
- On the 21st the Mayor hosted Rep. Prax and Senator Meyer, Bernie Karl, Brent Sheets and the Mayor of Nenana in his office where they outlined the cities legislative priorities. The same day he hosted a lunch at Pagoda for his guests and the city employees. Later that night he met with Senators Murkowski and Sullivan and the Secretary of the Air Force at Eielson. Senator Sullivan met with the Mayor and Borough Mayor Ward after and asked them to work on housing in the community to keep the Air Force interested in being in the area.
- The Interior was hit hard after the holidays by snow and ice storms. Many residents were without power during this time and the city has run into issues with where to put all the snow. The city employees worked 8 days straight during this time trying to get snow removal done as quickly as possible.
- There was an impromptu meeting on December 29th, with the borough and EOC and other state entities regarding the weather conditions. We are establishing a warm shelter at the NP library and will be working on that.
- Tomorrow night, the Mayor will again be at Eielson to meet with General Willsbach, the Commander of the Pacific Air Forces, to talk about housing in the area.

COUNCIL MEMBER QUESTIONS OF THE MAYOR

- None

COMMUNICATIONS FROM DEPARTMENT HEADS, BOROUGH REPRESENTATIVE AND THE CITY CLERK

Police Dept., Chief Dutra

- Chief Dutra announced the promotion of Sgt. Rosenbalm and pinned her badge on for the council and guests that joined us for it.
- Chief Dutra also congratulated Officer Knutson on earning his basic certificate.
- Chief Dutra gave a brief update on the stats from this year as compared to last year. He said the numbers remained close to the same and there were no significant changes.
- The new addition to the police department is pretty much complete and tours will be available next week. They are finishing up the check list of small things to complete. The IT equipment, office furniture and work out equipment and the blood drying machine for the expansion has been ordered and should start arriving soon.
- The 2 new police vehicles are here and in use.
- They are also working on a recruitment video and will be filming the last ride along portion of the video,

and it should be ready in the next couple of weeks.

- The damaged police vehicle has been settled with the insurance, we received \$35,350 for it.
- On Wednesday Chief Dutra will be speaking to the Interior Delegation about the need for a range and interior training facility. The business plan for the project has been completed, the plan includes the costs to build and maintain it, along with the pros and cons of the project, lead mitigation and future phase developments of the project.
- Chief Dutra thanks Councilman Keller for coming to the police station and getting a tour and passed on that it was well received by the officers.
- He also thanked the Mayor for the Solstice luncheon that he hosted at the Pagoda.

The Mayor asked how the vehicle accidents reported during the storm were for the PD. Chief responded that there were a few, but that it seems like most people stayed home during this time, so it was manageable for his officers.

The Mayor also passed along a congratulations to Allison Trubacz, admin assistant to the Chief, for her hard work in school and job and with her family. And to Sgt Rosenbalm for her hard work and promotion.

The Mayor also asked if they were going to do anything for the Sgt who recently left. Chief Dutra said that yes, they were, and he would update everyone when there was a plan.

Fire Dept., Chief Heineken

- 2021 was a very busy year for the fire department. There were 4,150 calls for the year, the highest year they have ever seen. He anticipates that 2021 will be even higher. So far in 2022, they are averaging 7 calls a day, over the 4 from the previous year.
- He wanted to thank all of the people who have been maintaining the roads during this storm, as emergency responders it is impossible for them to get out and do their job if they can't actually get there. Some of the back roads have been a struggle, but North Pole's Public Works, the State DOT, the contractors did an amazing job over the last week keeping clear what they could. They did have 1 ambulance get stuck and they had to call a wrecker, but only once considering the roads he felt was pretty good considering how busy they were during this time.
- Chief Heineken shared that one of the biggest problems that they have run into after the storm is that all the fire hydrants are buried now. The crew started unburying them as they could today but said that they will need help from the Public Works Department and the citizens of North Pole as well. If you know where the hydrants are in your neighborhood, please help them out and remove the snow from around them. Fire hydrants are very valuable and if there was a fire in the city right now, they would have a difficult time locating water.
- A new firefighter position was posted today and will be open until 1/22/22. Now that the new wage scale has gone into effect, he feels like it will be easier to fill that position. Chief Heineken thanked everyone on the Council again for getting that Ordinance pushed through.

- Last week they did have a firefighter test positive for COVID, he recovered fairly well and quickly and he was back to work today.
- The final master plan from Design Alaska was received today for the future expansion on the fire station. He extended an invitation to the Council to come out to the fire station and check it out and talk about the expansion project and the need for it. This year the station is 40 years old and long past due for an expansion.

The Mayor asked if the Chief would consider hosting a workshop at the fire station. Chief Heineken said absolutely. The Mayor also asked him to make sure that the Chief gets this project on the upcoming legislative priorities

Director of City Services, Bill Butler

- Has been busy working on a contract with a local builder to get his Resolution and developer agreement up before the council to begin development on B-2 in the Eagle estates. They will be putting in sewer, water and roads as a site for multi family housing. This Resolution will be included January 18th meeting.
- Following up on what everyone else said Mr. Butler wanted to thank the Public Works and Utility crews for the hard work this past week. Public Works was a big help where there were power failures and generators were needed at the lift stations and the plows on the Utility trucks were just not enough for the snow fall to handle.
- Mr. Skipps asked about the possibility of a blower attachment for the Bobcat for the Utility crew. Mr. Butler said that the Bobcat needs to be replaced and that they have discussed the idea of getting a loader for them as the snow fall has been a lot 2 years in a row and they have run into the problem of being unable to handle it themselves. Mr. Butler said that the snowblowers were used a lot because the snowfall was too much for their pickup truck plows to handle.
- Mr. Butler also said that he has been working with the Mayor on the idea of contracting with someone to haul some of the snow out of the city. The snow is starting to be too much in the Stillmeyer and Eagle Estates areas of the city and they need somewhere else to put it. This is the first year that the city will have had to do this.
- Mr. Butler did say that he had a call as well about the standing water in Stillmeyer Estates. Due to the rain that we had the ditches are full and the culverts are blocked, and flooding is a potential hazard.

Mr. Claus thanked Mr. Butler and his crew for doing a good job keeping the sidewalks clear. He walks a lot when he has a chance and that the sidewalks have been nice and clear.

Ms. Welch also thanked the city crews and asked if we could coordinate with DOT to stop the double work that she sees that is being done. The city crews will clear the sidewalks, but then DOT snowplows come along and kick the snow back up onto the sidewalks causing the sidewalks to be a mess again. Mr. Butler shared

that DOT has the roads set up on a priority list and some of the lesser priority roads they won't get to until the later and the city tries to clear off the sidewalks as soon as there is a need.

The Mayor said that he usually mentions this to the Policy Board when they meet.

Mr. Skipps added that DOT coming to plow the roads is dependent on the weather a lot of times too as to when they come plow the roads, if it is too cold, they will not run their equipment, so sometimes that causes a delay as well.

Finance, Tricia Fogarty

- This will be the first payroll on Tyler that will be done. There is also a new timesheet program that has gone into effect.
- She sent financials to the Council before the meeting and wanted to let everyone know that it is a month behind because they have not received the bank statements from December yet.
- Ms. Fogarty thanked the Public Works department for their hard work during the storm. She said that she has worked in the city a long time and feels that we have a great team made up of a lot of hard workers.
- Ms. Fogarty also added that there are some internal money movements that need to be made for 2021 and she will be working on that in the next few weeks.

The Mayor pointed out a few things about the financial statements that the Council received and how the projections from last year were pretty close.

Borough Representative

- Ms. Welch said that the borough meeting will not be till this Thursday when they talk about the redistricting.

City Clerk's Office, Melissa Dionne

- Ms. Dionne also gave a thanks for the snowplowing and city crews and to GVEA electricians who were hard at work restoring the power to the houses affected all over the borough.
- Ms. Dionne said that she has been working with the Mayor on the city personnel hiring. The city is looking for an HR generalist, as well as a Utility Manager, both positions are open until 1/14. She feels like there are some pretty good candidates for the positions. The positions are on the city website as well as Indeed.com.

The Mayor added that we have also asked AML to post the positions on their website.

Mr. Skipps asked about the background of the Utility Manager and why the city did that instead of hiring another of Director of City Services position that will be vacated by Mr. Butler in a few months. The Mayor gave the history from the total compensation committee that was completed and that the city was trying to find away of alleviating so much responsibility on one person and to properly grow in all areas having one

person wearing so many hats was not the way to do that. Mr. Skipps went onto to ask about the public works part of the position. The Mayor responded that that will be the next part of the plan that we will talk about at the meeting on 2/18. Mr. Skipps said that he feels that public works and utilities should be under one umbrella with one person in charge.

Ms. Welch added that what she sees regarding the city is that there are not a lot of backups to some of the positions that we have, positions that we count on. She feels that it is important to have more people involved in the positions, so that the Managers can have supervisors that could step into the position if it was needed.

ON GOING PROJECTS

- The Mayor let the Council know that we are working on the Legislative Priorities and they will be presented at the next meeting.

CITIZENS COMMENTS – (Limited to Five (5) minutes per Citizen)

- None

COUNCIL COMMENTS

- Mr. Skipps reiterated that the roads are bad out there and that DOT is getting to the roads and asked everyone to be patient.
- Ms. Welch thanked everyone who is out there trying to keep us safe. The police and fire and all the city crews out there doing their jobs, she appreciates it. She also asked the public to be patient and to please realize we are all in the same boat and we will survive this.
- Mr. Keller said that he was driving and noticed that the sidewalks in the City of North Pole are cleared and said that that made him happy because he sees that Fairbanks is struggling with this. He feels that this storm was a good preparatory time for everyone, to look at what you have and what you might need if this were to happen again. He asked everyone to be that community for each other and to take care of their neighbors.
- Mr. Claus offered a happy new year to everyone.
- Mr. Cromer also offered a happy new year and thanked public works for their hard work. He said it was nice to take a few days off and to spend time with his family.
- The Mayor said that even though being without power and internet was hard, in some ways it was kind of nice to have a few days without the luxuries we take for granted. He did go out and help a few community members during this storm. He said that the city is going through some growing pains and thanked everyone for the patience during this time.

Mr. Skipps *moved* to adjourn

Seconded by Mr. Keller

The regular meeting of Monday, January 3, 2022 adjourned at 8:18 p.m.

These minutes passed and approved by a duly constituted quorum of the North Pole City Council on Monday,

January 3, 2022.

ATTEST:

Melissa Dionne, City Clerk



Using Electric Thermal Storage Heating to Improve Outdoor Air Quality and Reduce Home Heating Costs

North Pole City Council Meeting

January 18, 2022

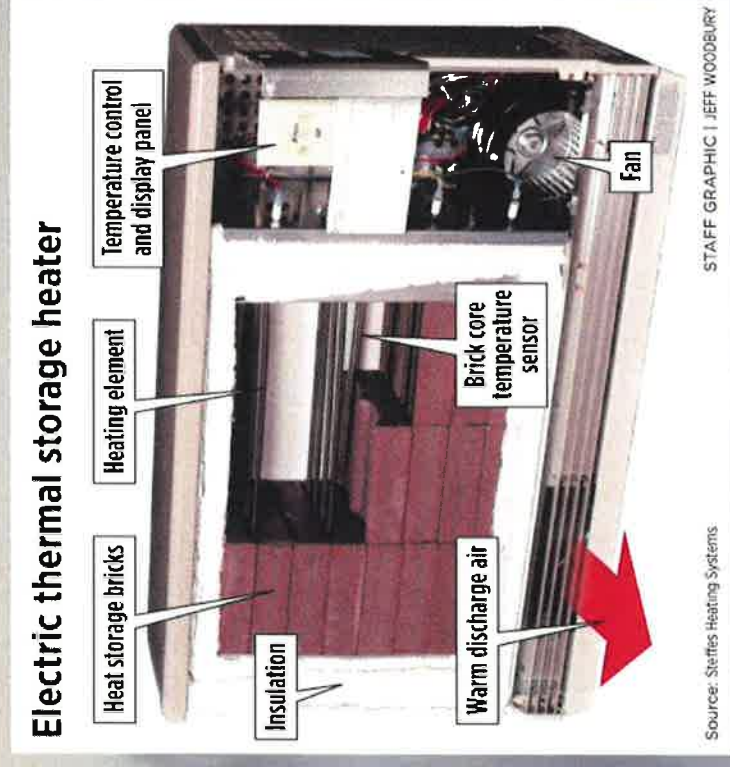
Dominique Pride, Ph.D.

Fairbanks North Star Borough (FNSB) Air Quality

- FNSB is currently not in compliance with air quality standards for fine particulate matter (PM2.5).
- PM2.5 is associated with negative health impacts.
- Wood burning for space heating is the largest source of PM2.5 in the FNSB.
- However, wood is a relatively low-cost heating fuel compared to heating fuel oil.
- This puts many households in the difficult position of choosing between healthy air quality and more affordable home heating.

Electric Thermal Storage Heaters (ETSH)

- ETSH are a supplementary heating appliance.
- An electric resistance heating element is used to heat ceramic bricks enclosed in an insulated box.
- As the bricks heat up, they serve as thermal storage.
- Fans blow air across the hot bricks heating the air, which is then blown into the home.



ETSH in Western Alaska

- ETSH are already in use in several communities in Western Alaska.
- The electric utility sells excess wind-generated electricity to households with ETSH at a discounted rate.
- The ETSH serve as a dispatchable load.
- The ETSH are separately metered from the rest of the home.
- ETSH are displacing a portion of the fuel oil used for heating.
- Anecdotaly, ETSH are saving households up to 50% on heating fuel.

North Pole ETSH Field Study

- The field study will take place over three years in North Pole, Alaska.
- We will collect data on:
 - Outdoor PM2.5 levels
 - Weather
 - ETSH use
 - Fuel use
- This data will allow researchers to determine whether using ETSH helps reduce outdoor PM2.5 levels and home heating costs.

North Pole Study Area

- Two one square mile plots
- One control neighborhood
- One treatment neighborhood
- Located above Hurst Road
- Neither have natural gas distribution lines yet



ETSH Field Study Overview

- Install air quality sensors and weather stations in a treatment and control neighborhood in North Pole.
- Collect baseline data on PM2.5 and weather data (wind speed and direction, air temperature, and relative humidity)
- Conduct annual heating and transportation fuel use survey
- Install ETSH in treatment neighborhood
- Continue to collect PM2.5 and weather data

North Pole ETSH Field Study Goals

- Determine whether using ETSH can help improve outdoor air quality
- Learn about home heating costs
- Identify low-cost home heating options

Field Study Timeline: Year 1

- Up to 100 outdoor air quality sensors will be installed in study area to gather baseline data on PM2.5 before any ETSH are installed.
- Up to 20 weather stations will be installed in the study area to gather weather data.
- A survey will be conducted to gather baseline information on transportation and heating fuel use in the study area.
- Those who complete the survey will be given a \$24 Amazon gift card.

Field Study Timeline: Year 2

- Up to 50 ETSH will be installed in homes that currently use fuel oil and wood for space heating in the treatment neighborhood.
- All study participants will keep all their current heating appliances.
- The electricity used by the ETSH will be subsidized to reduce the cost of heating with electricity.
- Participants will receive a monthly credit on their electric bill.

Field Study Timeline: Year 2 continued

- A follow-up survey will be conducted to gather information on transportation or heating fuel use changes.
- Another \$24 Amazon gift card will be given.
- Data on PM_{2.5} will continue to be collected.
- Weather data will continue to be collected.

Field Study Timeline: Year 3

- A second follow-up survey will be conducted to gather information on transportation or heating fuel use changes.
- Another \$24 Amazon gift card will be given.
- Data on PM2.5 will continue to be collected.
- Weather data will continue to be collected.

At the End of the Field Study...

- Those who install an outdoor air quality sensor will be given the sensor, their data, and \$50 for their participation.
- Those who install a weather station will be given the weather station.
- The ETSH will be removed at no cost and donated to a Western Alaska community that is currently using excess wind for space heating.

Participant Privacy

- Participants' names will NOT be associated with their survey responses.
- Participants' names and addresses will NOT be associated with their air quality sensor data.

Ways to Participate in the Field Study

- Taking the annual fuel use study
- Installing an outdoor air quality sensor
- Installing an outdoor weather station
- Installing an ETSH

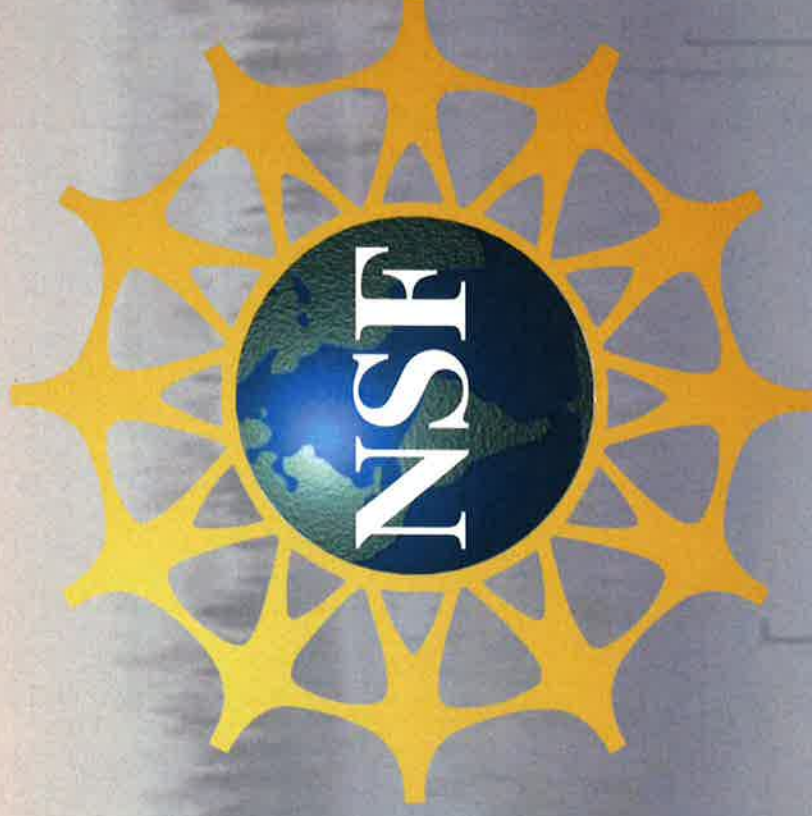
Field Study Participants Must...

- Be at least 18 years old.
- Live in the study area.
- Plan on living in the same home for the length of the study.
- Heat with both fuel oil and wood for an ETSH to be installed in the home.

ETSH Field Study Website

- <https://acep.uaf.edu/etsh>
- The website provides information on the field study.
- There is a screening questionnaire on the website for those interested in participating in the field study.

Questions?



Contact Information

**Dominique Pride
Alaska Center for Energy and Power
University of Alaska Fairbanks
djpride@alaska.edu**



ELECTRIC THERMAL STORAGE HEATING FIELD STUDY



Electric Thermal Storage Heater Study Recruitment Postcard

Researchers at UAF are conducting a study to learn whether using Electric Thermal Storage Heaters (ETSH) can help reduce outdoor levels of fine particulate matter and heating costs in the Fairbanks North Star Borough. ETSHs are a type of low-cost heating appliance.

I am contacting you because you own property in the North Pole field study area. We are recruiting individuals to take part in the study. To learn more about the research and opportunities to participate, please visit <https://acep.uaf.edu/ETSH>

If you have any questions, please feel free to contact me. Thank you for your help!

Sincerely,

Dominique Pride, Ph.D.
Principal Investigator
djpride@alaska.edu
(907) 888-2613

UAF Office of Research Integrity
uaf-irb@alaska.edu
(907) 474-7800
IRB #: 1807583-1

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www.alaska.edu/nondiscrimination/.



NORTH POLE HOME FUEL USE SURVEY



Initial North Pole Home Fuel Use Survey Recruitment Postcard

Dear XXXX,

I am contacting you to ask you to participate in an online survey on home fuel use in North Pole. The purpose of the research is to estimate fuel used for home heating and transportation.

Please go to the web address at the bottom of the card and type in the pin code. The survey should take no more than 20 minutes to complete. Your participation is voluntary. Your name will not be associated with your answers. You will receive a \$24 Amazon gift card for completing the survey.

If you have any questions about the survey or study, please feel free to contact me. Thank you for your participation!

Sincerely,

Dominique Pride, Ph.D.
Principal Investigator
djpride@alaska.edu
(907) 888-2613

UAF Office of Research Integrity
uaf-irb@alaska.edu
(907) 474-7800
IRB #: XX

URL [here](#) and pin code [here](#)

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HOME FUEL USE

We Want to Hear from You!



NORTH POLE HOME FUEL USE SURVEY

UAF's Alaska Center for Energy and Power is conducting research on heating and transportation fuel use in North Pole.



The online survey should take no more than 20 minutes to complete



Postcard invitations are being mailed to North Pole residents



Those who complete the survey will be given a \$24 Amazon gift card

Contact Info

Dominique Pride, Principal Investigator: (907) 888-2613 or djpride@alaska.edu

UAF Office of Research Integrity: (907) 474-7800 or uaf-irb@uaf.edu



ACEP
Alaska Center for Energy and Power

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E-mail: ACEP.info@alaska.edu

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CITY OF NORTH POLE

RESOLUTION 22-05

A RESOLUTION ESTABLISHING THE CITY OF NORTH POLE LEGISLATIVE PRIORITIES FOR THE 32rd
LEGISLATURE 2022 REGULAR SESSION

WHEREAS, the City of North Pole considers resolutions through the year to support legislative and policy actions of the State and other local governments; and

WHEREAS, the City of North Pole is concerned with Statewide and Federal issues that affect the City and its residents; and

WHEREAS, the following list is a list of issues that the City feels are important to residents of the City of North Pole, State of Alaska and Citizens of the United States;

#1 Priority, North Pole Utility Sewer Main Extension.

Cost: \$3,5000,000

The City of North Pole's North Pole Utility serves approximately 550 sewer utility customers within the city limits including the Petro Star Refinery, GVEA Power Plant and Marathon petroleum tank farm and numerous other commercial enterprises. Without the Utility's wastewater treatment plant, the majority of the Utility's customers have no other options for wastewater disposal, including the local industries.

The channel where the North Pole Utility discharges treated wastewater has lost surface water flow on two occasions—in 2012 and 2013. Lower than normal river flows have been observed since 2013. After the loss of surface river flow in 2013, the Alaska Department of Environmental Conservation issued the Utility a Notice of Violation (NOV). The reason for the NOV is without surface water flow, the treated wastewater does not immediately begin to mix with the Tanana River making the Utility in violation of its Alaska Pollutant Discharge Elimination System permit (APDES). The NOV requires the City to resolve the conditions that resulted in the issuance of a NOV.

To resolve the NOV, the Utility is planning to construct a new sewer discharge sewer main that is approximately 7,000 feet to a reliable channel of the Tanana River. The Utility had previously secured a State of Alaska legislative grant to finance most of the engineering and design costs. The engineering and design are completed along with the request to bid package making the project "shovel ready". In January 2020 the Utility started a multi-year channel flow analysis to calculate the mixing zone required for the project.

One reason the cost of the sewer main extension is high is the location where it must be installed—in wetlands and a flood plain. The sewer main construction not only involves installation of a sewer pipe, but also an access road to provide access for maintenance. Having to work in wetlands increases the difficulty of the work increasing the construction costs. Adding to the cost

construction is the climate in Interior Alaska and the length of the sewer main. Local temperatures can drop to as low as 60 degrees below zero. Subzero temperatures are common from November through March. Frozen ground can penetrate to ten feet deep. The ground does not typically completely thaw to depth until June. The Utility uses a passive treatment process—aerated lagoons that use naturally occurring bacteria to treat the sewage. After the water passes through the treatment process, its temperature is only slightly above freezing. Treated wastewater traveling though over a mile of buried pipe, even when the pipe is heavily insulated, can freeze. To prevent freezing, active freeze protection of the sewer main must also be included in the construction cost—a electric heat trace or heat exchangers to add heat to the treated wastewater

Due to the climate in Interior Alaska, the construction season is short, typically May through September. The project can only be bid when the City has 100% of the necessary funding. For construction to begin in one summer construction season, bidding must not occur later than April so all funding must be in place at the time. Also, due to the short construction season, the project is expected to require two construction seasons. The earliest the project could go to construction is late summer 2023. Each year the project is delayed will result in increased costs due to construction cost inflation. Davis-Bacon wage requirements and the mandated use of US produced steel also add to increased cost for the project.

The initial construction cost estimate generated by Stantec Consulting for the Utility in 2015 for the project was \$3.7 million Each year the project is not built, inflation pushes the construction cost higher. The North Pole Utility is requesting a Legislative Award of \$3.5 million dollars for the project. The Utility is committed to contributing \$500,000 of internal cash to the project. Typically, the Utility would apply for a Municipal Matching Grant to fund this type of infrastructure project, but MMGs are not available at this time. The balance of the project costs will be paid with an Alaska Clean Water Fund (ACWF) loan that the Utility has acquired.

Attached is a map of the project location.

#2 Priority, Combined Heat & Power Plant Serving the North Pole Area.:

Cost: \$2,400,000

Combined Heat & Power Plant Serving the North Pole Area

Introduction

This project envisions construction of a coal (and possibly natural gas) gasification plant to manufacture electricity and hot water for district heat. The project will economically address several of the issues faced by the residents of the City of North Pole, while simultaneously addressing some of Alaska's energy problems and development of its precious resources. The City of North Pole seeks \$2.4 million in State funding to pay for integration of the Combined Heat and Power (CHP) plant into the City's infrastructure.

Benefits:

- Primarily, heat from this CHP plant will be used to heat the City of North Pole's City Water expansion, serving 1400 residential customers connected to 51 miles of pipe.
- Build pipelines to deliver hot water to the public facilities such as local schools, municipal swimming pool, library, fire and police departments, and City Hall. Private sector businesses may also decide to purchase district heat.
- The City of North Pole is within the "serious nonattainment area for PM2.5". Consequently, PM2.5 and its precursors will be regulated under the nonattainment New Source Performance Standard. Thus, the CHP design includes technologies for compliance.
 - Once customers convert to district heat (at a price competitive to firewood and heating oil) then there is real benefit for improving air quality.
- Except for the HMI gasifier, current commercial versions of each applicable technology were incorporated into the design. This allows for a reduction in cost, risk, schedule time to engineer and construct, and provides some degree of repeatability for emissions permitting in other jurisdictions.
- Innovation for rural communities.
 - The syngas generated from the gasifier can fuel most diesel engines with minor modifications. This technology can be integrated into the existing diesel generation infrastructure found in most villages.
 - There are 37 villages near known coal resources. Once local coal is utilized, more jobs will be created for the village. Alternatively, coal can be more safely barged into a community and stored than diesel fuel.

Economic Benefits of this project include:

- District heating: Hot water from this plant has been calculated to cost approximately \$15/MMBtu, a substantial discount from the typical cost of heating fuels, which averages around \$28-32/MMBtu. Natural gas is currently between \$24-25/MMBtu.
- Providing GVEA with another generating asset on their system, with the levelized cost of electricity that is competitive with "economy power" purchased and delivered from Anchorage utilities.

Background

This project is estimated to have a Bare Erected Cost of \$ 91 million and a Total Plant Cost of \$115 million. It is anticipated USDOE will pay 80% of the total project cost (\$91 million), and 20% cost share (\$24 million) will be required. The City of North Pole seeks \$2.4 million in State funding to pay for integration of the CHP plant into the City's infrastructure, including placement of pipelines to deliver hot water to the public facilities benefitting from this plant.

To date, approximately \$3 million has been spent on the design, funded through a Cooperative Agreement (DE-FE0031446) with the U.S. Dept. of Energy. The initial design was completed in

March 2019 and is currently being revised to reflect a new site in the City of North Pole. The core of the combined heat and power plant gasifies coal for generating a clean syngas and pyrolysis liquids (oils and tars) for firing in reciprocating engines to produce electricity for sale to GVEA at only \$.10 kilowatt hour, and to produce 180°F hot water for district heating applications, including heating the City's water distribution network.

In addition to demonstrating the technical and economic viability of small-scale gasification technology, another aim is to highly automate the components, so the engines and gasifier can seamlessly operate together. After the technology is successfully demonstrated, then the attention turns toward modularizing the gasifier island along the same lines as the already modularized reciprocating engines. This will enable centralized manufacturing and affordable shipping throughout the world (as opposed to on-site construction). In so doing, manufacturing costs can be lowered so that syngas/engine modular systems can become competitive with similarly sized power generating plants operating with conventional technology, and can be incorporated into the existing reciprocating engine infrastructure, wherever it may exist.

Conclusion

The syngas/engine plant will have several economic benefits:

- A review of heating costs shows the City of North Pole and the FNSB will collectively spend about \$445,000 annually to heat to its facilities after the Moose Creek expansion. A \$2.4 million investment in this project will be paid back in approximately five (5) years; the city's population will more than double during that time.
- Affordable district heat will attract additional businesses and services for a growing community.
- Once the syngas/engine combination is demonstrated for village use, the gasifier component can be manufactured in the City of North Pole for village installation.
- The CHP plant is highly automated and requires only eight full time equivalents to operate it; auxiliary employment may include additional coal mining and coal transportation jobs.

This project has the best possibility of being successful if conducted in the City of North Pole. This area is vital and committed to the community support and mission needs of the U.S. Army Garrison at Fort Wainwright and the U.S. Air Force at Eielson AFB. It has experience to manage and direct utilities to benefit thousands of citizens beyond its borders. As North Pole grows in the upcoming years with the influx of F-35's at the 354th Fighter Wing, this project will demonstrate the scalability to fit the needs of various sized communities across our State, as well as the benefits of having a workforce capable of manufacturing custom made gasifiers to meet their needs. The support of the Alaska State Legislature is critical at this juncture of the project to demonstrate to the U.S. Department of Energy to select this endeavor as one that merits its approval over the competition.

145 For more information, please contact:

146 Brent J Sheets

147 Director, Petroleum Development Lab

148 Institute of Northern Engineering

149 907-750-0650

150 bjsheets2@alaska.edu

151 **#3 Priority, Interior Training Facility (ITF) to assist interior state, federal and local law enforcement,**
152 **fire, and other Public Safety organizations with a training facility for to conduct emergency vehicle**
153 **driver and firearms training.:**

154 **Cost: \$11,000,000**

155 Legislative Priority for Interior Training Facility:

156 The Interior Training Facility will be a multiuse facility for training of federal, state, and local
157 public safety affiliates. The facility will also be used by said organizations to facilitate community
158 outreach programs, education and training. The facility will have space for firearms training as
159 well as a driver's training area, appropriate for modern law enforcement, public safety, fire
160 department, Fish and Game and EMS operations. The training facility will include multi-bay
161 shooting ranges from 25 to 300 yards, with radiused berms, security fencing, secured access,
162 emergency vehicle driver training area, training buildings and lighting. The lighting will be needed
163 for low-light firearms qualifications and emergency vehicle driver training and to permit use
164 during all 12 months of the year. We estimate the cost to complete this facility will be in the
165 range of \$6-\$11 million dollars in a phased construction approach. Price of construction is broad
166 due to land development costs being dependent on land acquired for the facility. Initial funding
167 of \$6 million will be required to build phase 1 construction and land acquisition.

168 **#4 Priority, Adopt an Equitable and Sustainable cost for Public Employee Retirement System (PERS).**

169 **Cost: \$404,000**

170 The City of North Pole strongly urges the Alaska State Legislature to adopt an equitable and
171 sustainable plan that will reduce by half the **current twenty two percent (22%)** contribution paid on
172 behalf of our employee salaries and wages to the Alaska State mandated Public Employee
173 Retirement System (PERS), **to only an eleven percent (11%)** contribution, leaving the remainder to
174 be paid for by the State. Our current City of North Pole 2022 Budget of **\$7,335,500** appropriates
175 more than **\$807,479 for PERS: *this is more than 11% of our overall annual budget.*** With tax
176 revenues at an all-time high for our City of North Pole, as well as the FNSB, we can no longer tax our
177 citizens to accept the current plan in the State of Alaska to take this unfunded pension liability and
178 continue to push it off to the year 2039. The per capita share per citizen of this liability now exceeds
179 **\$53,000 in 2021, and *any* plans to push that down the road to 2044 or increase the amount even**
180 **higher are just as undesirable as to maintain the PERS at current status quo.**

181
182 **NOW THEREFORE BE IT RESOLVED** that the North Pole City Council requests the 32nd legislature to
183 consider timely and appropriate action on the issues mentioned.
184 **PASSED AND APPROVED** by a duly constituted quorum of the North Pole City Council this 18th day of
185 January, 2021

186
187 _____
Michael W. Welch, Mayor

188

189

190 ATTEST:
191
192 _____
193 Melissa Dionne, North Pole City Clerk

<p>PASSED Yes: No: Absent:</p>
--

**CITY OF NORTH POLE
RESOLUTION NO. 22-06**

**A RESOLUTION OF THE CITY OF NORTH POLE, ALASKA TO APPROVE THE
DEVELOPER AGREEMENT BETWEEN THE CITY AND STEPPING STONE
BUILDERS FOR THE CONSTRUCTION OF WATER, SEWER AND ROAD
IMPROVEMENTS IN LOT B-2 EAGLE AS A SITE FOR MULTIFAMILY HOUSING**

WHEREAS, changes to the public services practices and policies are continually changing requirements; and

WHEREAS, there is need for multifamily housing in the Fairbanks North Star Borough, and

WHEREAS, access to municipal water and sewer support high density housing development, and

WHEREAS, the North Pole Utility has water and sewer infrastructure adjacent to the Eagle Estates Subdivisions, and

WHEREAS, well maintained paved roads linked to minor and major collectors and highways are positive assets for residential development, and

WHEREAS, the City has a network of maintained roads that provide links to minor and major collectors and highways, and

WHEREAS, Stepping Stone Builders wishes to install water, sewer and road improvements in Lot B-2 Eagle Estates to support the construction of multifamily housing.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of North Pole that it approves the Developer Agreement between Stepping Stone Builders and the City where Stepping Stone Builders will install water, sewer and road improvements in Lot B-2 Eagle Estates. (See attached Developer Agreement.)

Section 1. Effective date.

This resolution shall become effective upon Stepping Stone Builders delivering to the City the \$1,000 deposit, \$395,000 performance bond, and acceptable responses to plan review comments.

PASSED by a duly constituted quorum of the North Pole City Council this 18th day of January 2022.

Michael W. Welch, Mayor

ATTEST:

Melissa A. Dionne, North Pole City Clerk

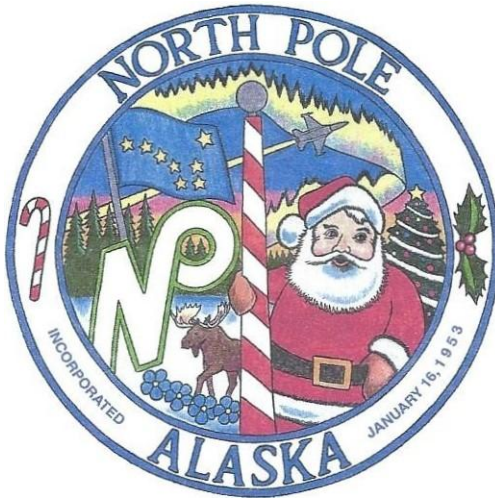
PASSED/FAILED

Yes:

No:

Absent:

DEVELOPMENT AGREEMENT
FOR THE
Golden Eagle Water, Sewer Utility and
Road Improvements



By and Between the
CITY OF NORTH POLE
125 Snowman Lane
North Pole, AK 99705

And
STEPPING STONE BUILDERS, INC.
PO Box 82724
Fairbanks, AK 99708

January 18, 2022

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Section 1: Development Agreement

S1 This Developer Agreement (Agreement), made this 27 of December 2021, between the City of North Pole 125 Snowman Lane, North Pole, AK, 99705, a municipal corporation of the State of Alaska, hereinafter referred to as the "City", and Stepping Stone Builders, Inc. PO Box 82724, Fairbanks, AK 99708 their heirs and assigns, hereinafter referred to as the "Developer".

S2The City and the Developer, in consideration of their mutual covenants herein, make this agreement which solely concerns the public improvements which are to be constructed by the Developer for the City and conveyed to the City and private improvements to be owned and maintained by the Developer, if the Developer complies with this Agreement. The Developer will, in addition, must comply with other City Codes, for example Building and Fire Codes.

Section 2: Developer Responsibilities

2.1 The Developer shall design and install the proposed improvements as herein described, in conformance with the North Pole Code of Ordinances, Chapters 12, Streets Sidewalks and Public Places, and all requirements and specifications of the design and construction guidelines for the City that include, but are not limited to, *Design Guidelines for Streets and Drainage* (Appendix H), and *Utility Standards of Construction* (Appendix I) or approved design as submitted in this agreement and approved by the City. Any variance to City standards shall be clearly identified and provide justification for the variance. The documents identified above are attached to this Agreement, incorporating them as part of the Agreement.

2.2 The Developer shall provide one hundred percent (100%) of the funding for the design and construction of all improvements required by this Agreement.

2.3 In addition, the Developer shall pay the City one hundred percent (100%) for all of the associated expenses incurred by the City including costs for preparation of this developer's agreement, and review, plan check, test, administration, inspection of these improvements and legal fees. City labor and administration costs are estimated to be \$10,000 and are billed as a reimbursable cost through an agreement with an engineering firm of the City's choice and the North Pole City Attorney. See Appendix J for Statement of Services with PDC Engineers for plan review and inspection services of road and utility infrastructure. The effective start date of the billings will be December 27, 2021. All these costs shall be paid promptly within 30 calendar days of the City invoicing the Developer for these expenses.

2.4 The Developer shall be responsible for the maintenance of all improvements covered by this agreement until all inspections are passed and acceptance tests are satisfactorily completed and written approval is given by the City and the Council accepts ownership of the improvements.

2.5 The Developer shall purchase a bond and provide to the City guaranteeing completion of the public improvements to the satisfaction of the City, dedicated for City use to complete the public improvements should the Developer's contractor fail to satisfactorily do so as agreed. The bond amount shall be \$395,000 the estimated total cost of public improvements plus City administration costs as established by the Mayor or Mayor's designee. The City will relinquish its performance bond interest upon satisfactory completion of the improvements and acceptance by Council.

2.6 For the utility extension, the Developer shall submit to the City three (3) copies of the *Application for Utility Extension Permit* (Appendix F) that includes complete copies, that include, but are not limited to, of all engineering reports, plans, specifications, materials lists including design assumptions and calculations and dedicated easements. The Developer shall also submit to the City three (3) copies of all engineering reports, plans, specifications, materials lists including design assumptions and calculations and dedicated easements for the road extension. A deposit of \$1000 shall be paid for by the developer for cost to the City for administering the project that includes, but are not limited to (reviewing, plan checking testing and inspecting) this deposit is not to be construed as an estimate and the Developer will be billed for actual costs associated with this project per Section 2.3. No work shall be permitted to begin until the overall engineering report for all improvements, public and non-public and the final plans and specifications have been reviewed and approved in writing by the Mayor or Mayor's designee.

2.7 The Developer shall submit to the Mayor or Mayor's designee a proposed schedule. All proposed changes to approved engineering reports, plans, specifications and materials lists shall be submitted in a reasonable length of time prior to starting construction of the affected portion of the project. Construction of any changes shall not commence until approval is given in writing. Subsequent to approval, all changes will be incorporated into the design drawings. Submittal of additional materials after commencement of this agreement may incur additional charges that will be billed at the cost of the developer.

2.8 The Developer hereby agrees to grant to the City access to all portions of the property specified in Appendix A or private easement permit area, etc. which is necessary to accomplish any inspections, surveillance, testing, or any other work to be performed by the City. The actual work schedule will be provided to the City by the Developer. Any changes in the schedule require at least forty-eight (48) hours advance notification to the City. A minimum of seven (7) days written notice is required for any connections to the City's existing facilities.

2.9 All necessary permits, licenses and reservations or easements shall be acquired by the Developer. Drainage and Snow Dump reservations or easements will be acquired in the name of the City of North Pole or in a manner that assigns the reservations or easements to the City before acceptance of the improvements by the City. Such reservations or easements shall include permit(s) from appropriate governmental authorities to cover all improvements on government land or within their jurisdiction.

2.10 The Developer shall comply with all applicable statutes, ordinances, rules and regulations of

federal, state and governmental agencies. Copies of all pertinent approval letters, permits, licenses and rights of way shall be transferred to the City upon acceptance of the public improvements by the City.

2.11 The Developer will also provide copies of proposed utility plans. Utility facilities will be located to the satisfaction of the City. Each utility is subject to a City right of way permit.

2.12 Permitting of City water and sewer utilities must satisfy the *Utility Standards of Construction* (Appendix I) or approved design as submitted in this agreement and approved by the City. Any variance to City standards shall be clearly identified and provide justification for the variance with engineering documentation.

2.13 Before acceptance by the City, the Developer shall furnish a one (1) year warranty bond equal to five percent (5%) of the public improvement which the Developer desires the City to accept. The Mayor or Mayor's designee shall not recommend acceptance of the public improvements by the Council until all deficiencies have been corrected to his satisfaction and all outstanding liens or claims of laborers, materials suppliers, subcontractors, or others arising out of the performance of these improvements have been satisfied.

2.14 The Developer shall complete all improvements required by this Agreement within two (2) years from the date of execution of this Agreement. The Mayor or Mayor's designee may at their discretion allow extensions for up to a total maximum of one (1) year. Acts of Nature, inclement weather, governmental regulations, labor disputes, fires, required extra work, or any delay totally beyond the control of the Developer may justify an extension of time. All time extensions requested by the Developer shall be made to the City in writing on or before the tenth day following the day in which the alleged delay is said to have occurred. The City shall not be liable for costs incurred by these delays.

2.15 The Developer shall warranty the design, construction and materials utilized in all improvements outlined in this Agreement for one (1) year from the date of acceptance of the improvements by the City Council. The Developer shall remedy at their own expense any failure or defect in the work or any failure of any improvement to properly function which is due to design deficiencies construction deficiencies, faulty materials, or workmanship.

2.16 Correction of the deficiencies shall be completed to the City's satisfaction within 30 days of written notification by the City. The warranty bond will be released upon satisfactory correction of all deficiencies of the City's year end warranty inspection if any security remains from default to warranty obligations. Emergency repairs may be completed by City forces and the cost shall be borne by the Developer.

2.17 The Developer shall hold the City harmless and defend the City from any and all claims arising out of, or incidental to the design, construction or operation by the Developer contemplated by terms of this Agreement by the Developer. The Developer shall not be liable for acts of the City. This section does not create any third-party rights and any immunity or defense

that the City is entitled to shall be available to the Developer in any suit brought by third parties which in any way involved the Development Agreement.

2.18 The Developer shall retain a qualified engineer, licensed by the State of Alaska, to design and review the construction of said improvements including approving any changes and modifications of the design. Engineered Record Drawings stamped and signed by a professional engineer and professional land surveyor licensed in the State of Alaska will be provided to and approved by the City prior to acceptance. Record Drawings shall be provided in three formats: (1) electronic PDF file, (2) electronic CAD file, and (3) two hard copies with minimum dimensions of 24 inches by 36 inches. It is understood and agreed said engineer and surveyor are agents of and solely responsible to the Developer and are in no sense whatsoever agents of the City.

2.19 The Developer shall coordinate the design and construction with the adjacent and affected property owners. Seven (7) days' notice shall be provided prior to commencement of construction to those impacted by this project.

2.20 The Developer shall convey the ownership of the public improvements, described in Appendix B, to the City upon acceptance. The form of the conveyance shall be as approved by the City Attorney. Only these improvements, if accepted by the City, shall be maintained by the City.

Section 3: City Responsibilities

3.1 The City shall review and approve (when acceptable) the submitted engineering reports, plans, specifications and materials lists prior to construction and inspection of the project. Final approval is required by Mayor or Mayor's designee prior to Notice to Proceed.

3.2 This Agreement does not obligate the City to finance any portion of the public improvements nor accept to operate or maintain any public improvements not constructed or inspected to City standards or design agreed to in this document.

3.3 Upon acceptance of the public improvements by the Council, the City will take over ownership and operation of the public improvements detailed in this Agreement. City maintenance of these improvements will not begin until this time. The final acceptance inspection by the City of the public improvements detailed in this agreement will be conducted by the Mayor or Mayor's designee, and representatives from other government agencies and the City as appropriate.

Section 4: General

4.1 This Agreement shall not diminish the Developer to comply with any requirements of the Fairbanks North Star Borough (FNSB) or non-city, governmental agencies.

4.2 If the Developer should fail to repair property or facilities owned by the City which were damaged by the Developer, or his/her agents, or if the Developer makes changes in construction covered by this Agreement without approval by the City, the City, after three (3) days written notice to the Developer, can make such repairs or remove such changes at the expense of the Developer.

4.3 If the City determines the construction of an improvement does not comply with the plans and specifications as approved by the City, the City shall issue a written notice to the Developer specifying the deficiencies and may stop all further construction involving the work found to be non-complying. This stop work order shall remain in effect until the Developer has made all necessary arrangements to remedy the non-compliance and to provide assurances such non-compliance shall not again occur. All damages, loss, expense incurred by any party as the result of a stop order imposed by the City shall not be the responsibility of the City.

4.4 The Mayor or Mayor's designee may authorize representatives (hereafter referred to as the Representative) to inspect all work done and all materials furnished for all improvements specified in this Agreement. The Representative shall have authority to reject materials or work, but the Mayor or Mayor's designee shall have final authority for deciding if the Developer's work and materials are acceptable. The Representative is not authorized to revoke, alter, enlarge, relax, or release any requirements of the plans and specifications, nor to approve or accept any portion of the work, nor to issue instructions contrary to the Agreement, nor act as supervisor for the Developer. The presence or absence of the Representative does not relieve the Developer from their obligation to perform all contract requirements and work shall not be deemed acceptable just by the reason of the presence of the Representative.

In Witness Whereof, this Agreement made and entered into on the day and year first written above:

Developer: Stepping Stone Builders, Inc.

President

By: _____ Date _____
Rick Watson

State of Alaska)
)ss
Fourth Judicial District)

THIS IS TO CERTIFY that on this _____ day of January 2022, before me, the undersigned, a NOTARY PUBLIC in and for the State of Alaska, duly commissioned and sworn as such, personally appeared Rick Watson known to me to be the person named in and who executed the foregoing instrument, and that he signed the same as the free and voluntary act and deed of Rick Watson with full knowledge of its contents for the uses and purposes therein mentioned.

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

Notary Public in and for the State of Alaska

Commission Expires: _____

Owner: City of North Pole

By: _____
Michael Welch, Mayor

Date _____

State of Alaska)
)ss
Fourth Judicial District)

THIS IS TO CERTIFY that on this _____ day of January 2022, before me, the undersigned, a NOTARY PUBLIC in and for the State of Alaska, duly commissioned and sworn as such, personally appeared Michael Welch known to me to be the person named in and who executed the foregoing instrument, and that he signed the same as the free and voluntary act and deed of Michael Welch with full knowledge of its contents for the uses and purposes therein mentioned.

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

Notary Public in and for the State of Alaska

Commission Expires: _____

Attest, City Clerk

By: _____
Melissa Dionne, City Clerk

Date

State of Alaska)
)ss
Fourth Judicial District)

THIS IS TO CERTIFY that on this _____ day of January 2022, before me, the undersigned, a NOTARY PUBLIC in and for the State of Alaska, duly commissioned and sworn as such, personally appeared Melissa Dionne known to me to be the person named in and who executed the foregoing instrument, and that he signed the same as the free and voluntary act and deed of Melissa Dionne with full knowledge of its contents for the uses and purposes therein mentioned.

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

Notary Public in and for the State of Alaska

Commission Expires: _____

Approved as to form

By: _____
Zane Wilson, North Pole City Attorney

Date

State of Alaska)
)ss
Fourth Judicial District)

THIS IS TO CERTIFY that on this _____ day of January 2022, before me, the undersigned, a NOTARY PUBLIC in and for the State of Alaska, duly commissioned and sworn as such, personally appeared Zane Wilson known to me to be the person named in and who executed the foregoing instrument, and that he signed the same as the free and voluntary act and deed of Zane Wilson with full knowledge of its contents for the uses and purposes therein mentioned.

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

Notary Public in and for the State of Alaska

Commission Expires: _____

Section 5: Appendices

This Agreement shall include all appendices and attachments referenced and such are incorporated herein as though fully set out herein. This Agreement is composed of the Development Agreement, attachment and the following appendices:

Appendix A: Legal Description

Appendix B: Public Improvements to be conveyed to the City

Appendix C: Completion Schedule

Appendix D: Traffic Control Plan

Appendix E: Stormwater Pollution Prevention Plan (SWPPP)

Appendix F: Application for Utility Extension Permit

Appendix G: Engineering and Design Documents

Appendix H: *Design Guidelines for Streets and Drainage*

Appendix I: *Utility Standards of Construction*

Appendix A: Legal Description

The property: The land owned by the Developer which is the subject of this agreement for purposes of this project is described below.

Lot B-2 Eagle Estates Previously assessed as ASLS 84-16 B.

Appendix B: Public Improvements to be conveyed to the City

Public Improvements to be conveyed to the City.

The public improvements to be designed, constructed by the Developer, and conveyed to the City with associated easements necessary to encompass, operate and maintain these improvements are as follows:

Install approximately 377 feet (three hundred seventy-seven) of 8 (eight) inch ductile iron pipe (DIP) sewer lines and 805 (eight hundred five) feet of 8 (eight) inch DIP of water lines. To be included 2 (two) manholes and 1 (one) fire hydrant.

The public street system will be approximately 480 (Four hundred eighty) feet of paved street ending in an 85 (eighty-five) foot wide cul de sac with concrete curb and gutter. The streets will be 2 (two) 11 (eleven) foot driving lanes with 2 percent cross slope across entire road and 2 (two) foot of roll gutter on each side. All surfacing shall consist of 2 (two) inches of asphalt concrete pavement on top of a minimum of 4 (four) inches of D1 base. Street shall drain towards patriot Drive into existing ditch and north side of cul de sac shall drain towards North Pole High School Boulevard.

Appendix C: Completion Schedule

Improvements shall be designed and constructed according to the schedule below. Schedule is subject to change by mutual agreement.

1. Submit design report, plan and specifications to city for approval. (Submitted December 27, 2021.)
2. Get project on Council agenda for January 18, 2022.
3. Government Agency Approval—Fairbanks North Star Borough preliminary approval: January 30, 2022.
4. ADEC Authorization to Construct water system extension: January 30, 2022.
5. ADEC Authorization to Construct sewer system extension: January 30, 2022.
6. Pre-construction conference with developer, contractors, City representatives and Utility representatives: May 2, 2022
7. Notice to Proceed: May 16, 2022
8. Public improvements completion: August 30, 2022
9. Record Drawings: September 26, 2022
10. Final acceptance: October 31, 2022.

Appendix D: Traffic Control Plan

No traffic control plan is expected to be needed for this project.

Appendix E: Storm Water Pollution Prevention Plan (SWPPP)

No Storm Water Pollution Prevention Plan is expected to be needed for this location.

Appendix F: Engineering and Design Documents

Attached are the Developer's engineering and design documents.

Eagle Estates Subdivision 4th Addition

Golden Eagle Court

Design Narrative (12/14/2021)

Site Information and Conditions

Proposed Eagle Estates Subdivision 4th Addition is located on Patriot Drive within the City of North Pole. The subdivision design consists of a short cul-de-sac. The proposed subdivision creates 6 multi-family residential lots and a remainder tract for future development. The existing site is cleared.

A soils investigation was completed by the developer on the property adjacent to this development and the developer has continued to document soils during home and infrastructure construction to the west of this development. The soil strata typically consists of 0-1' of organic material over fine sandy silt to a depth 3-6 feet. Sands and gravels were encountered beneath the silt to the bottom of the test holes. No frozen soils were encountered. Similar soil conditions are expected to be encountered within the current development. These soil conditions are adequate for the proposed construction and no special considerations are warranted. The in-situ soils will be observed by a professional engineer during construction to verify their suitability.

The water table was encountered between 5 and 7 feet below the ground surface during drilling. Based on water table encountered during the construction of Eagle Estates 3rd Addition, approximate water table elevation appears to be 488 Feet (NAVD 88).

As per the ADEC Contaminated Sites GIS, there are no active contaminated sites in the vicinity of this project except for the Flint Hills Sulfolane Plume.

Street Construction

The proposed street construction will be nearly identical to that completed by the City of North Pole with the 2005 Water and Street Improvements project and two prior projects by the developer. The typical section will consist of 11 foot wide drive lanes with roll curb. The proposed typical pavement section consists of 18" of select gravel overlain by 4" of D-1 and 2" of asphalt. The streets drain from a high point at the mid-point of the cul-de-sac in both directions to the existing ditch system and a new detention that equalizes to North Pole High School Blvd.

Sewer

The lots created by this development are proposed to be served by a new 8" DIP sewer main. The main will serve the lots on each side of the cul-de-sac and will tie into an existing manhole on Patriot Drive. The proposed mains are designed as per the City of NP standards. The proposed 8" mains exceed demand for this development (See attached calculations). As per the City of North Pole, the downstream sewer mains and facilities were sized in anticipation of this development and are sufficient.

The minimum design horizontal separation for the proposed sewer and water exceeds the 10 feet required. The design slope for the sewer main is 0.35 and 0.5 which exceeds the City of NP minimum. The minimum ground cover for the proposed sewer main is 5 feet. The proposed sewer should lie mostly above the water table based on the conditions encountered on adjacent projects. The intent of the initial 0.5% section of the sewer is to get out of the water table as quickly as possible. Installation of the mains and appurtenances will be as per the City of NP Standards of Construction and Standard Details.

Water

The lots created by this development are proposed to be served by a new 8" DIP loop. This loop will connect to the existing 8" stubs that were installed as part of the City of North Pole 2005 Water and Street Improvements project in anticipation of this future development loop. The proposed main is designed per City of NP standards. This loop was sized and planned for during the 2005 project and the existing flow calculations have been reviewed and confirmed for this project by the City of NP (via PDC).

A single hydrant will be installed with the loop to meet the coverage required by the IFC. The horizontal separation between the water main and the sewer main exceeds the minimum. Where the water crosses the sewer, construction shall meet the "waiver by rule" requirements. The minimum ground cover for the proposed water main is 5 feet except where the water main crosses the sewer main (18" min separation). An additional 2" of insulation will be applied where the water main bury depth is less than 5 feet as indicated in the plans. Installation of the mains and appurtenances will be as per the City of NP Standards of Construction and Standard Details. Biological sampling points shall be at the hydrant and connection points.

Sewer Stubs

Sewer stubs will be installed during construction and will run to the right-of-way edge or a point 10' more or less from the curb to allow for future service line installation without impacting the street improvements. Individual water services are not included with this project. Sewer stubs will be Type 1 connections as shown in the City of NP Service Line Requirements or connect to the manhole as indicated. Sewer service stubs will be capped at their end point. All materials will be as per the City of NP Service Line Requirements. All stubs will be sufficiently marked and asbuilt to facilitate future connection as the lots are developed.

Attachments

- Eagle Estates 4th Addition Concept Plat
- Stryker Loop Street, Sewer and Water Plans
- Stryker Loop Sewer Main Calculations



Lot 13-2, Eagle Est.

Zoning: MF (2,000 SF/unit)

Demand

$$\begin{aligned} \text{Useable Area} &= 5.5 \text{ Acres (240,000 SF)} \\ &\quad - 24,000 \text{ SF (ROW)} \\ &= 216,000 \text{ SF} \end{aligned}$$

$$\# \text{ Units (max)} = \frac{216,000 \text{ SF}}{2,000 \text{ SF/unit}} = 108$$

$$\# \text{ Persons} = 108 \text{ units} \cdot 3 \text{ person/unit} = 324 \text{ persons}$$

assume 3/unit

$$\text{ADF} = 80 \text{ gal/day/person (City of NP)}$$

$$\begin{aligned} \text{ADF}_{\text{tot}} &= 80 \text{ gal/day/person} \cdot 324 \text{ person} \\ &= 25,920 \text{ gal/day} \cdot \frac{1 \text{ day}}{24 \text{ hr}} \cdot \frac{1 \text{ hr}}{60 \text{ min}} = 18 \text{ gpm} \end{aligned}$$

$$\text{PF} = 5.6 \text{ (City of NP)}$$

$$\text{PDF} = 5.6 \cdot 25,920 \text{ gal/day} = 146,152 \text{ gpd}$$

$$\begin{aligned} \text{I+I} &= 650 \text{ gpd/in. mi} \cdot 8 \text{ in} \cdot \frac{400}{5280} \text{ mile} \\ &= 400 \text{ gpd} \end{aligned}$$

$$\text{PDF}_{\text{TOT}} = 146,600 \text{ gal/day}$$

$$= 146,600 \text{ gal/day} \cdot \frac{1 \text{ day} \cdot 1 \text{ hour}}{24 \text{ hour} \cdot 3600 \text{ s}} \cdot \frac{.13 \text{ cf}}{\text{gal}} = 0.22 \text{ cfs}$$

Design

8" Ø DIP

$$n = 0.012$$

$$S = 0.35\%$$

$$\begin{aligned} Q_{\text{full @ 0.7\phi}} &= 0.65 \text{ cfs} > 0.22 \text{ cfs} \quad \checkmark \\ \text{(Manning Attached)} & \quad \checkmark = 2.5 \text{ ft/s} > 2 \text{ ft/s} \quad \checkmark \end{aligned}$$

MANNING'S EQUATION FOR PIPE FLOW

Project: Eagle Estates 4TH

Location: North Pole AK

By: JDS

Date: 12/14/2021

Chk. By: JDS

Date:

mdo version 12.8.00

Mannings Formula

$$Q = (1.486/n) A R_h^{2/3} S^{1/2}$$

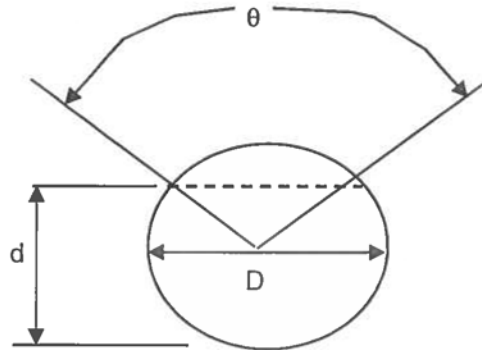
$$R = A/P$$

A=cross sectional area

P=wetted perimeter

S=slope of channel

n=Manning's roughness coefficient



INPUT

D= 8 inches
d= 5.6 inches
n= 0.012 mannings coeff
θ= 132.8 degrees
S= 0.0035 slope in/in

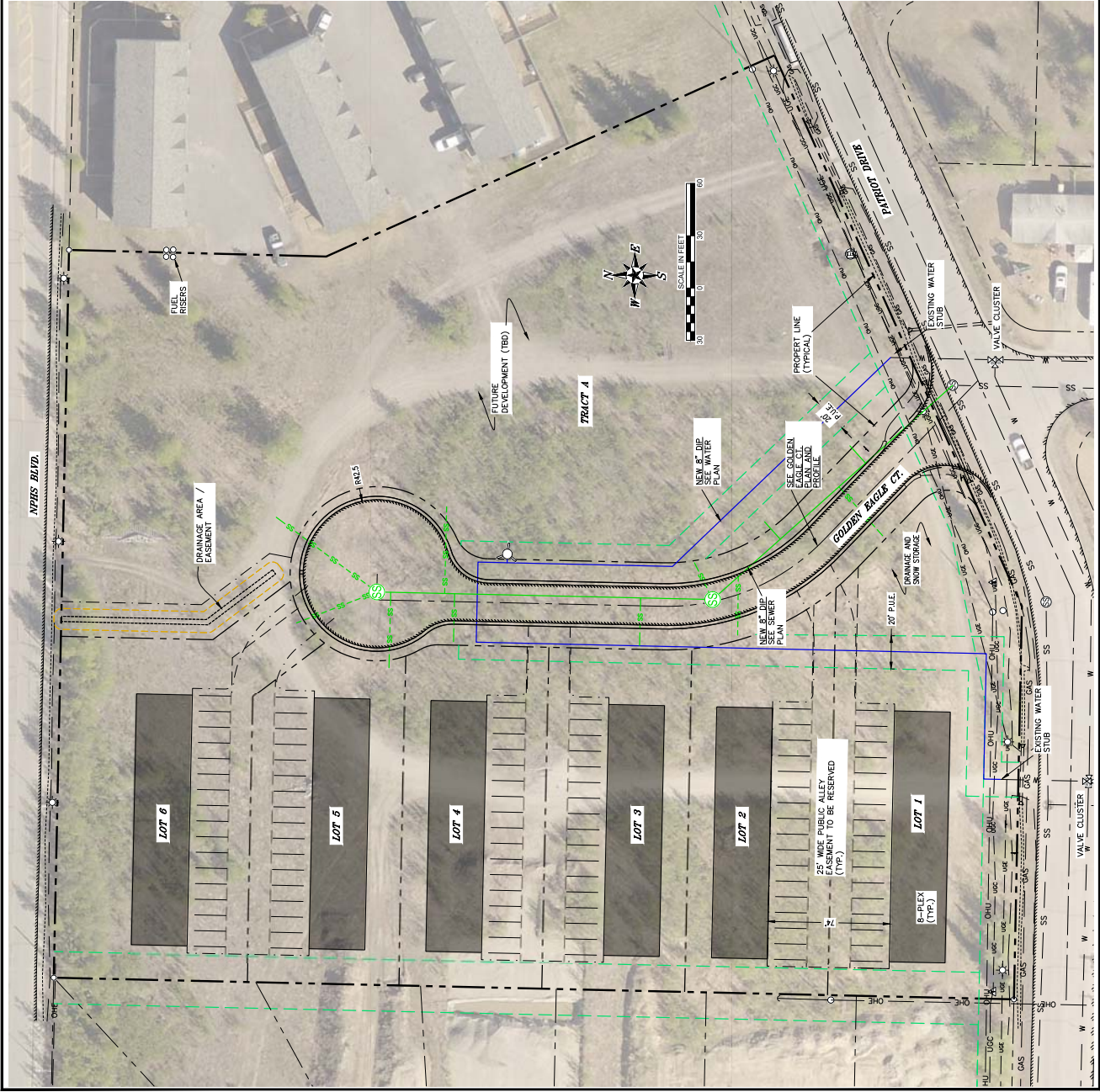
$$V = (1.49/n) R_h^{2/3} S^{1/2}$$

$$Q = V \times A$$

Solution to Mannings Equation					Manning's n-values	
Area, ft ²	Wetted Perimeter, ft	Hydraulic Radius, ft	velocity ft/s	flow, cfs		
0.26	1.32	0.20	2.48	0.65	PVC	0.01
					PE (<9"dia)	0.015
					PE (>12"dia)	0.02
					PE(9-12"dia)	0.017
					CMP	0.025
					ADS N12	0.012
					HCMP	0.023
					Conc	0.013

Golden Eagle Court

Street					
	PAY UNIT	QUANTITY	Engineer Estimate	UNIT PRICE	Engineer Totals
106 (1) Materials Laboratory & Field Testing	Lump Sum	All Required		\$3,000	\$3,000
202 (1) Removal of Structures and Obstructions	Lump Sum	All Required		\$2,000	\$2,000
203 (3) Unclassified Excavation	Cubic Yard	400		\$12	\$4,800
203 (5) Borrow, Select Type A	Cubic Yard	850		\$25	\$21,250
301 (1) Aggregate Base Course, Grading D-1	Ton	330		\$30	\$9,900
401 (19) HMA, Type II; Class B	Ton	175		\$120	\$21,000
609 (2) Curb and Gutter, Type I	Linear Foot	1830		\$30	\$54,900
603 (1) 18 inch CSP	Linear Foot	60		\$75	\$4,500
615 (1) Sign Panel Installation	Square Foot	15		\$200	\$3,000
640 (1) Mobilization and Demobilization	Lump Sum	All Required		\$6,000	\$6,000
641 (3) Temporary Erosion and Pollution Control	Lump Sum	All Required		\$3,000	\$3,000
642 (1) Construction Surveying	Lump Sum	All Required		\$10,000	\$10,000
643 (2) Traffic Maintenance	Lump Sum	All Required		\$3,000	\$3,000
Total Street					\$146,350
Sewer					
8" DIP Sewer Main	LF	377		\$225	\$84,825
Manhole	Each	2		\$10,000	\$20,000
Total Sewer					\$104,825
Water					
8" DIP Water Main	LF	705		\$175	\$123,375
Hydrant	Each	1		\$10,000	\$10,000
Total Water					\$133,375
Total					\$384,550



PROPERTY DEVELOPMENT DATA
TOTAL AREA: 5.516 ACRES
ZONING: MULTIPLE FAMILY / MOBILE HOME
SUBDIVISION (2,000 S.F. (MIN.) PER DWELLING UNIT

SUBDIVISION CONCEPT/PRELIMINARY

C001

DRAWING NO.

CHECKED: KOS

DATE: 12/12/2021

WITZMANN ASSOCIATES, INC.
ENGINEERING
P.O. BOX 71429 FARMAN, AK 99707
(907) 452-4094 (C 627)

SUBDIVISION CONCEPT PLAN

FOR: STEPPING STONE BUILDERS

EAGLE ESTATES 4TH ADDITION
STREET, SEWER AND WATER

EAGLE ESTATES SUBDIVISION 4TH ADDITION

NO. DATE BY DESCRIPTION

The map shows the project area at the intersection of Old Richardson Hwy and North Pole High School Blvd. The project area is highlighted with a hatched pattern. Surrounding streets include Richardson Hwy, Fifth Ave, Eighth Ave, Santa Claus Ln, and various loops (Refinery, Nankin, Eagle, Desert, Shellmenger). A compass rose indicates North, South, East, and West.

SHEET INDEX

- PREPARED FOR:

PREPARED BY:



DATE: 12/17/2021	DRAWN: JDS	CHECKED: JDS	DRAWING NO.
P.O. BOX 71429, FAIRBANKS, AK 99707 9 ADAMS AVENUE, FAIRBANKS, AK 99701 (907) 452-4094 (C 627)			

C1



EAGLE ESTATES
SUBDIVISION
4TH ADD.,
PATRIOT DRIVE,
NORTH POLE,
ALASKA

VICINITY MAP AND
SHEET INDEX

FOR: STEPPING STONE BUILDERS

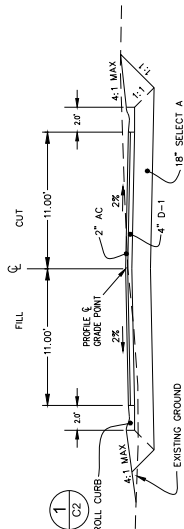


GENERAL NOTES

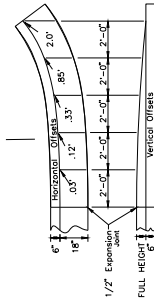
- Existing utilities shown are a compilation of above ground evidence and utility company records. Contractor shall locate all utilities prior to excavation.
- Contractor shall obtain all necessary permits from the City of North Pole prior to construction.
- The vertical datum for this project is the North American Vertical Datum 1988 (NAVD88).
- Survey and project control have been intentionally excluded from the plan sheets. All layout and construction surveying is to be provided by the designer and project Land Surveyor, Stutzmann Engineering.

STREET CONSTRUCTION NOTES

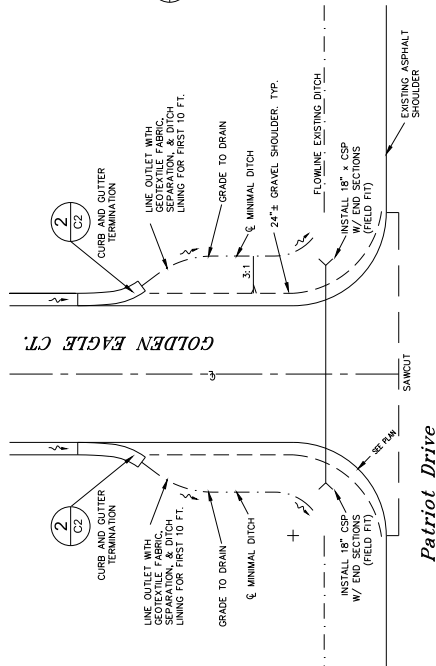
- Material references are as per the State of Alaska Department of Transportation Specifications for Highway Construction (2020).
- Asphalt Concrete shall be PG 58-28. Asphalt Aggregate shall be Type II Class B.
- Grading D-1 Shall be per the Standard Specifications and Aggregate Base Course.
- Install signs per ADOT Standard Drawings.



A TYPICAL SECTION
NTS



2 CURB AND GUTTER TERMINATION
NTS

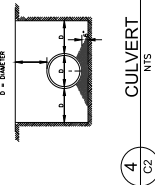
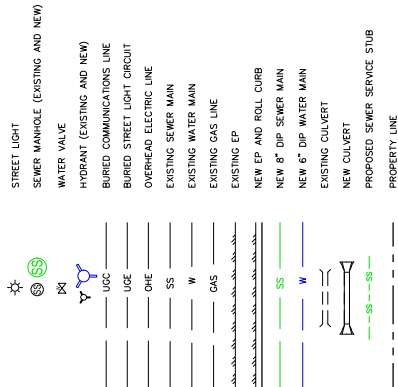


B STREET APPROACH DETAIL
NTS

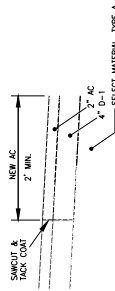
SIGN TABLE			
DESCRIPTION	STATION	OFFSET	SIZE
RT-1 (STOP)	0+16±	LT	30" X 30"
D3-100 (Patriot Dr)	0+16±	LT	8" X VARIES
D3-100 (Golden Eagle Ct)	0+16±	LT	8" X VARIES
W1-2 (No Outlet)	0+50	RT	30" X 30"

3 SIGN DETAIL
NTS

LEGEND



4 CULVERT
NTS



5 SAWCUT
NTS

EAGLE ESTATES 4TH ADD.
PATRIOT DRIVE
NORTH POLE, ALASKA

TYPICAL SECTIONS AND
STREET DETAILS

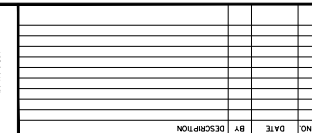
FOR: ST/PPING STONE BUILDERS

STUTZMANN
ENGINEERING
ASSOCIATES, INC.
900 ADAM AVENUE, FARMANVILLE, AK 99701
(907) 452-4094 (C 627)
P.O. BOX 71429, FARMANVILLE, AK 99701

DATE: 12/17/2021
DRAWN: JES
CHECKED: JES
DRAWING NO.

C2

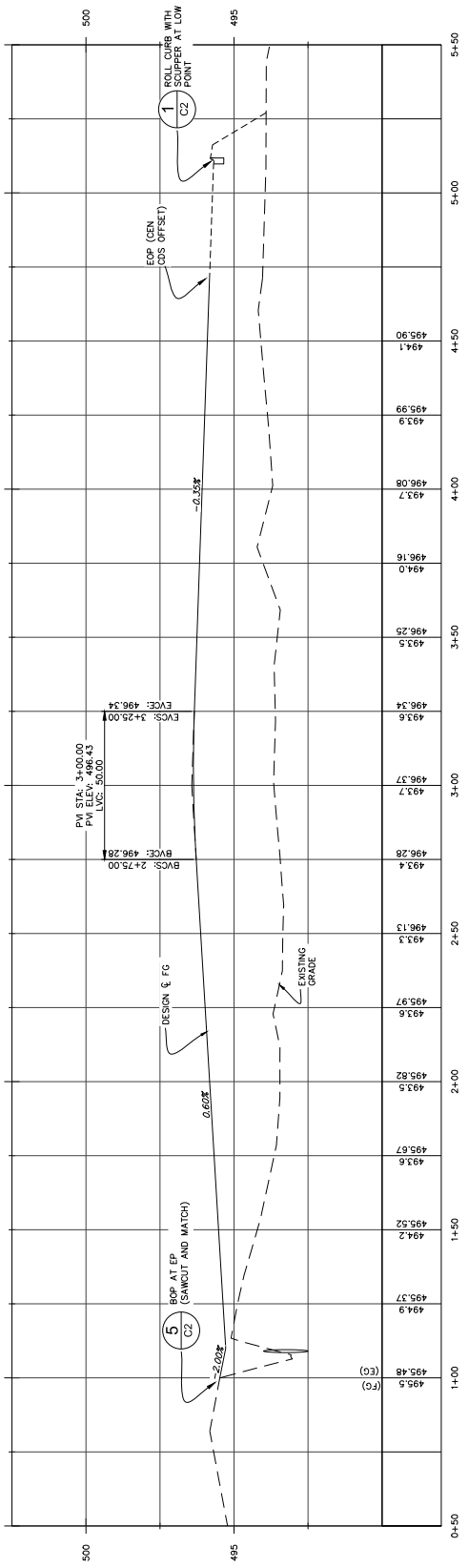
PERMIT REVIEW SET

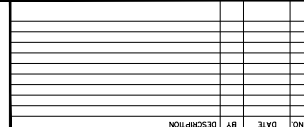


GOLDEN EAGLE CT. PLAN
AND PROFILE

IG NO. C3

GOLDEN EAGLE COURT PROFILE VIEW





GOLDEN EAGLE COURT
SEWER PLAN AND PROFILE

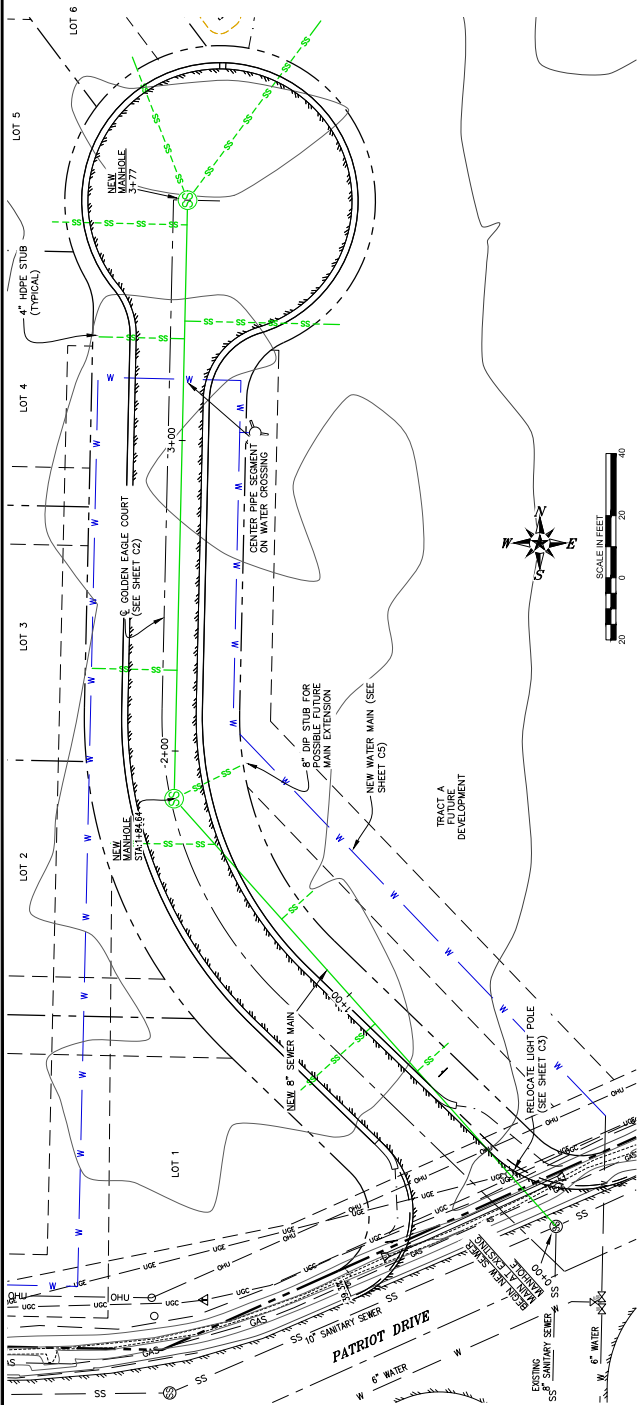
DATE:	12/17/2021
DRAWN:	JOS
CHECKED:	JOS
DRAWING NO.	

C4

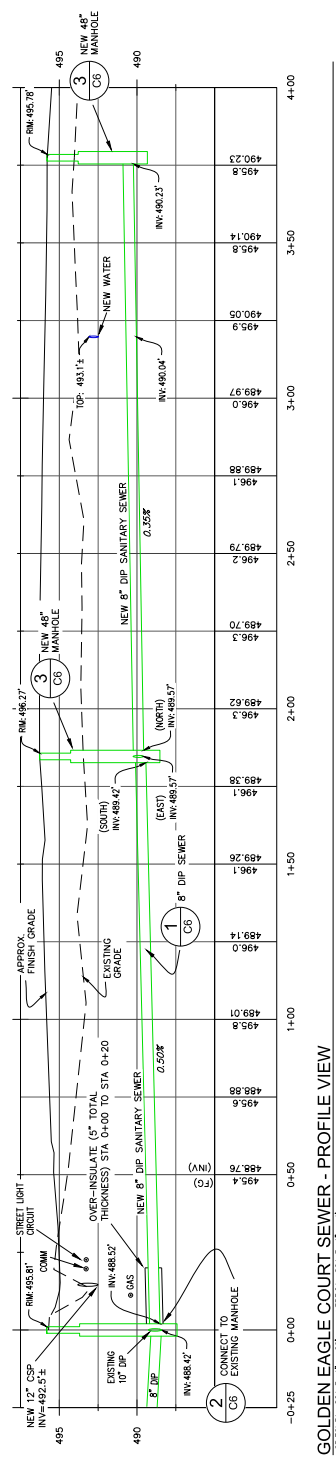
PERMIT REVIEW SET

SEWER

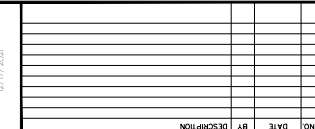
1. All construction shall comply with the City of North Pole Utility Standards of Construction, rev. 2007, 18 AAC 72 and 18 AAC 80.
 2. All materials and construction shall conform to these plans and the City of North Pole standard drawings.
 3. Initial additional thickness of insulation as indicated per City of NP Standards 12.5 where main run proposed roadway culverts.
 4. Sewer service line stubs shall be 4" HDPE and shall comply with City of North Pole Utility Service Line Requirements.
 5. Pressure test as per City of NP Standards and inspect via camera.
- WATER**
1. All construction shall comply with the City of North Pole Utility Standards of Construction, rev. 2007, 18 AAC 72 and 18 AAC 80.
 2. All materials and construction shall conform to these plans and the City of North Pole standard drawings.
 3. All water main joints shall be restrained per City of NP Standards 4.2.3.
 4. All water main pipe and fittings shall be NSF/ANSI 61.
 5. Chlorinate and disinfect water main as per AWWA C651 and pressure test as per AWWA C600. See City of NP Standards.



GOLDEN EAGLE COURT SEWER - PLAN VIEW
SCALE: 1" = 20'



GOLDEN EAGLE COURT SEWER - PROFILE VIEW



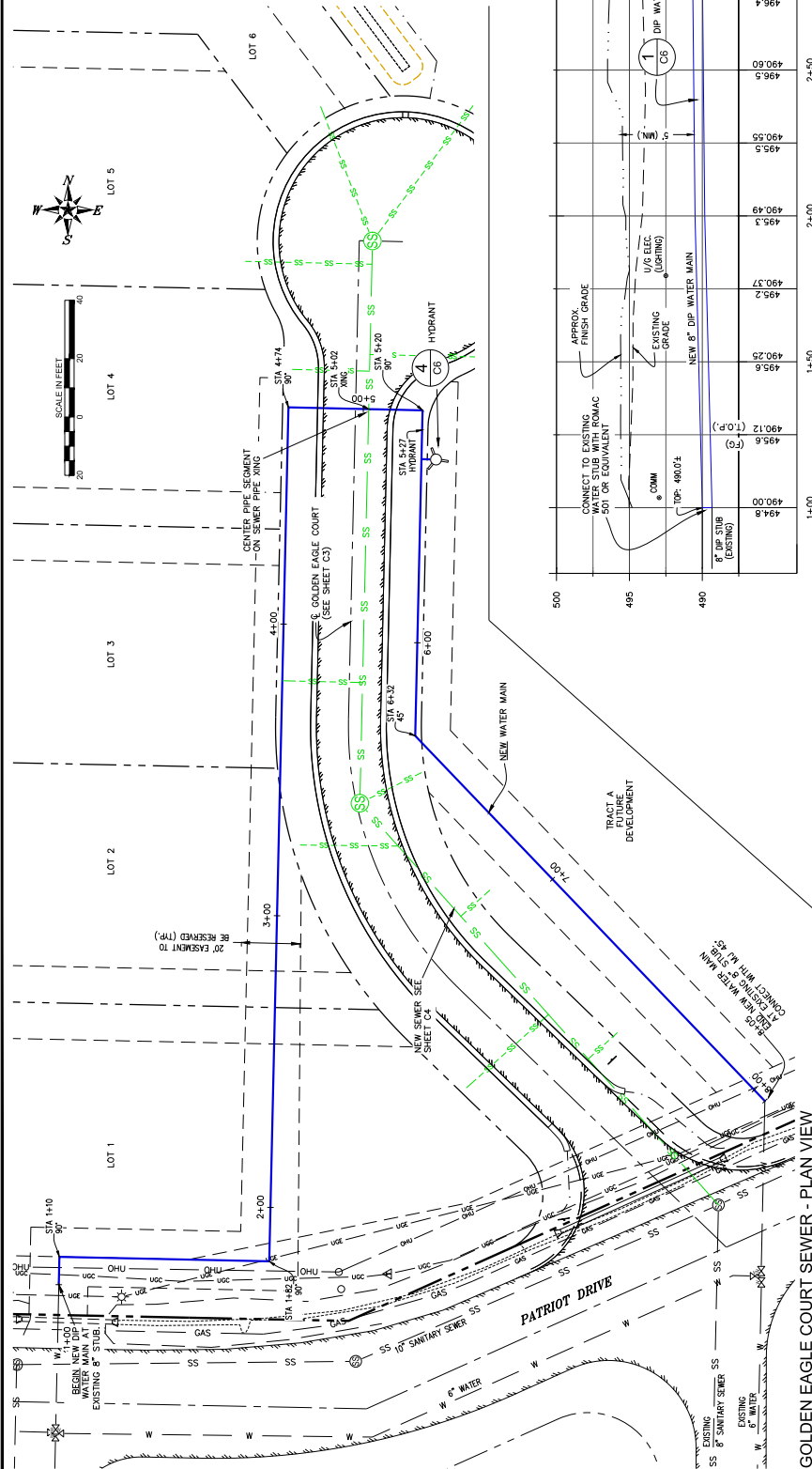
WATER PLAN AND PROFILE

FOR: STEPPING STONE BUILDERS

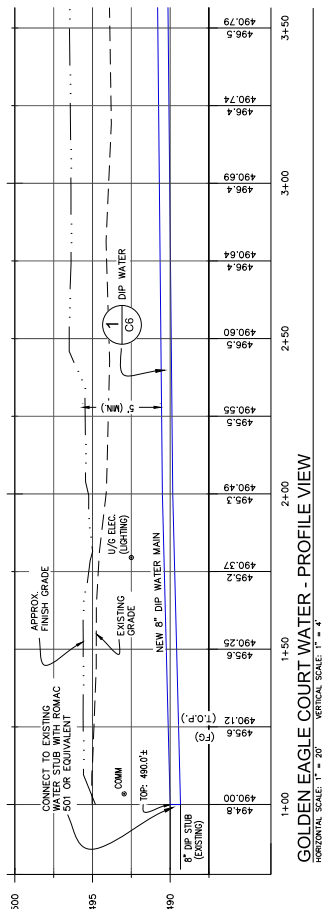
STUTZMANN ENGINEERING ASSOCIATES, INC.
P.O. BOX 71429, FAIRBANKS, AK 99707
9 ADAK AVENUE, FAIRBANKS, AK 99701
(907) 452-4094 (C 627)

DRAWN: JDS
CHECKED: JDS
DRAWING NO. C5

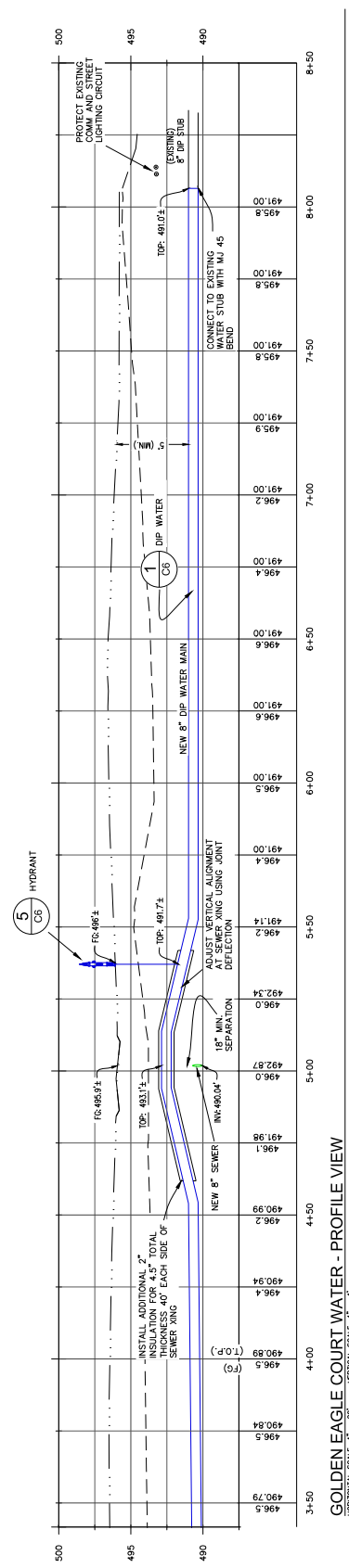
PERMIT REVIEW SET



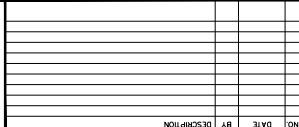
GOLDEN EAGLE COURT SEWER - PLAN VIEW



GOLDEN EAGLE COURT WATER - PROFILE VIEW



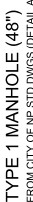
GOLDEN EAGLE COURT WATER - PROFILE VIEW

SEWER AND WATER
DETAILS

TUTTMANN ENGINEERING ASSOCIATES, INC.
P.O. BOX 71429, FAIRBANKS, AK 99701
(907) 452-4094 (C 627)

DATE:	12/17/2021
DRAWN:	JOS
CHECKED:	JOS
DRAWING NO.	
C6	

99



NOT TO SCALE
SEE DETAILS B THROUGH F, CITY OF NP STD DWGS SHEET SS1 FOR ADDITIONAL
MANHOLE DETAILS

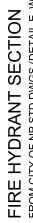


NEW MANHOLE NOTE: CONSTRUCT NEW MANHOLE AS PER CITY OF NORTH POLE STANDARD DRAWING SSI AND CITY OF NORTH POLE UTILITY STANDARDS OF CONSTRUCTION (2007) SEE DETAIL 3

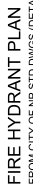


NOTES:

1. OVER-INSULATE WATER AS INDICATED IN THE PLAN SHEETS.
2. BEDDING SHALL BE SUBBASE B OR PEA GRAVEL. USE PEA GRAVEL WHERE PIPE INSTALLATION IS BELOW THE WATER TABLE.



NOT TO SCALE



NOT TO SCALE
SEE DETAILS C THROUGH G, CITY OF NP STD DWGS SHEET W1 FOR ADDITIONAL HYDRANT DETAILS
FROM CITY OF NP STD DWGS (DETAIL D, W1)

Downloaded from <http://www.jstor.org/> on Tue, 20 Jun 2017 12:01:53 UTC

Appendix G: Design Guidelines for Streets and Drainage

Attached are the City's *Guidelines for Streets and Drainage*.

Design Guidelines for Streets and Drainage

City of North Pole

125 Snowman Lane

North Pole, AK 99705

Tel.: 907-488-2281; Fax: 907-488-3002

Part 1. General

1.1 Intent. It is the intent of these guidelines to insure that newly constructed streets in subdivisions within the City of North Pole be built to a standard that will maintain or enhance property values within the neighborhood, and built of such material and in such a way that the City will be able to maintain them with the resources available to it.

The requirements for streets constructed within the City of North Pole are more stringent than for those within the Borough at large or two major reasons. First, the City aspires to eventual paving of all streets in its neighborhoods. Thus, the initial street installation should be a first step toward this goal. Second, City streets are maintained by the City while the Borough roads are maintained at the expense of individuals living in a particular Service Area. Thus, a poorly constructed street in the City will sooner or later be a direct financial liability for all citizens of the City.

These guidelines were drafted to aid in meeting the requirements of the City. No single document can possibly present guidelines for all situations that will be encountered. The City shall have ultimate authority to interpret this document, and may direct modifications for specific situations. Any proposed alternative materials and methods must be approved in writing by the City prior to installation. Substantial variations from these guidelines must be approved by the City Council. Special warranties may be required.

1.2 Procedure. The design of all streets and associated drainage systems which are to become public streets in the City of North Pole (except for State of Alaska highways) shall be submitted to and approved by the City before construction. The design shall be in accordance with these guidelines and with all applicable codes and ordinances. Where requirements differ, the most stringent shall be met.

The Borough requires that Developers furnish preliminary and final plats to the City (and other agencies) for comment before submitting them for Borough review and approval. In order to foster cooperation and to minimize subsequent delays, an informal conference should be arranged between the City and the Developer as early as possible. This will enable the City to answer questions as to the extent to which existing and proposed City facilities may affect the planned development, as well as questions regarding procedural requirements.

The City will then review the plans and specifications for each preliminary plat for compliance with these guidelines and will work with the Developer to correct any deficiencies prior to formal submittal to the Borough. The plans and specifications shall be developed under the supervision of a civil engineer licensed and in good standing with the State of Alaska and shall be sealed thereby.

Once the Developer has submitted an acceptable development package, the City will write a letter of non-objection to the Developer for submittal to the Borough.

1.3 Standards of Construction. The Developer shall incorporate in the plans and specifications all the details of construction necessary to obtain a well constructed, easily maintainable road and drainage system.

As-built plans and specifications shall be stamped by a professional civil engineer or registered land surveyor and shall be submitted to the City within one week of the completion of construction. The engineer or surveyor shall certify that the as-builts are an accurate depiction of what actually exists.

Part 2: Streets

2.1 Intent. The City's goal is to provide good, maintainable streets for the use of its residents. Thus, developers are encouraged to provide paved streets, curb and gutters, and a storm drain system for their subdivisions. The design of the street and drainage system shall be coordinated with all utility system designs to avoid conflicts.

The layout of street patterns should provide adequate and convenient access to all lots within a subdivision. Through traffic should be discouraged in residential subdivisions, but attention must be given to alternative access routes for emergency vehicles. Particular attention should be focused on Fairbanks North Star Borough, Title 17, and *A Policy on Geometric Design of Highways and Streets* by the American Association of State Highway and Transportation Officials. Street layout must consider placement of utilities to keep them inside or adjacent to the right-of-way (rather than along back or side lot line easements) to facilitate maintenance.

2.2 Types of Streets: Title 17 identifies and defines eight road classifications, with minimum standards established for each. The City will approve or direct the classification of proposed roads within the development, based on the following definitions:

Local Road: Local roads provide access to adjacent residential lots. Any road which does not fall into one of the other categories will be designated a local road.

Minor Collector: Minor collectors join one or more local roads to the surrounding road system and may provide access to adjacent lots as well. As a rule, any road or section of road which handles the traffic from more than fifty (50) residential lots itself, or serving one or more local roads with a cumulative total of more than fifty lots, will be designated as a minor collector or better. Any road serving commercial or industrial lots will be designated as a minor collector or better.

Major Collector: Major collectors will be designated by joint agreement between the Developer, the City and the State of Alaska DOT&PF.

Arterial: Arterials will be designated by joint agreement between the Developer, the City and the State of Alaska DOT&PF.

Frontage Road: Frontage roads provide access to lots that otherwise would be landlocked by a limited access arterial or major collector. Frontage road design will require close cooperation between the Developer, the City and the State of Alaska DOT.

Alley: Alleys provide secondary access to back or side lot lines of lots and may be a convenient route for utilities. Under no circumstances may an alley provide the sole access to a lot.

No pioneer access roads will be approved within the City.

2.3 Required Widths: Street widths required within the City are generally greater than those required by the Borough. The following are minimum widths for new developments:

Classification	Minimum Traveled Way	Minimum Shoulder Each Side	Minimum Right-of-Way
Local Road	22 ft.	4 ft.	60 ft.
Minor Collector	24 ft.	4 ft.	80 ft.
Major Collector	24 ft.	6 ft.	100 ft.
Arterial	24 ft.	8 ft.	100 ft.
Frontage Road	24 ft.	8 ft.	80 ft.
Alley	20 ft.	N/A	30 ft.

These are minimum widths. Traffic volumes, heavy turning movements, on-street parking requirements, presence of utilities and other factors may dictate greater widths. Minimum design speed shall be 30 mph for local roads, 40 for minor collectors and determined by the City and DOT/PF for others.

If curb, gutter, and storm drain are constructed, the minimum width of right-of-way may be reduced to fifty (50) feet for local roads and seventy (70) feet for minor collectors.

2.4 Alignment: Acceptable alignments will be based on the design speeds approved by the City for each road to be developed. Deflection angles greater than two degrees (2°) in the alignment of roads require connecting curves. Curves shall be engineered with a radius and super-elevation meeting AASHTO Guidelines.

The intersection of streets shall be as nearly at right angles as possible but not less than seventy-five degrees (75°) without approval of the City. In residential areas, three-way intersections are preferred to four-way intersections for safety. Four-way intersections should be at least two hundred feet (200') apart, when measured centerline to centerline. This distance to a three-way intersection may be reduced to one hundred feet (100'). Intersections should be designed with a

minimum corner radius of fifteen feet (15') on local roads and designed for a WB-50 semi-tractor trailer on all others. Corner lots shall have an appropriate radius corner at the intersection to maintain sufficient right-of-way width to allow for ditches around the turn radius.

Centerline of the constructed street shall be centered in the right-of-way.

2.5 Grades: Maximum grades are as defined in Title 17. Changes in grade shall be connected with vertical curves meeting AASHTO standards for sight distance at the design speed.

2.6 Grading and Surfacing: Asphalt pavement shall be the required surface for all newly developed streets within the City. The following minimum depths of embankment and surfacing are required:

Classification	Minimum Gravel	Minimum Crushed Rock	Minimum Asphalt Pavement
Local Road	12 in.	4 in.	1.5 in.
Minor Collector	18 in.	4 in.	1.5 in.
Major Collector	24 in.	4 in.	2 in.
Arterial	24 in.	4 in.	2 in.
Frontage Road	18 in.	4 in.	2 in.
Alley	12 in.	Not Required	Not Required

If the Developer elects to pave alleys, minimum pavement thickness shall be 1.5 inch.

These are minimum thicknesses. When adverse subsurface conditions, high traffic volumes or heavy anticipated truck traffic warrant, the City will require a pavement design calculation. The design method and design data must be submitted and approved by the City. Special measures may be required at specific locations such as slough crossings. The minimum depths may be reduced by the City when warranted by soils borings.

Except in super-elevated areas, the paved street surface shall slope two percent (2%) from the center crown into a drainage system on either side.

2.7 Materials and Construction: Proposed roads shall be cleared and grubbed to the limits of construction. No waste or clearing debris shall be placed within the roadway, except that a small amount of waste with roots and stumps removed may be placed on slopes and seeded.

Once clearing and grubbing are complete, the underlying material shall be compacted to 85% of maximum density prior to placing gravel.

2.7.1 Gravel. Gravel used in the construction of streets shall meet the requirements of Title 17, and be compacted to 90% or more of maximum density. The City will require the use of a filter-

type geotechnical fabric where necessary to protect the gravel embankment from contamination by underlying silt, such as at old slough crossings.

2.7.2 Crushed Rock. Crushed rock over which pavement is to be placed shall be made of pit run gravel, with specified gradation, hardness and fracture requirements acceptable to the City.

Compaction of crushed rock shall be to 95% of maximum density.

2.7.3 Prime Coat. Prime coat of a suitable type, grade and application rate shall be applied to the crushed gravel before installation of asphalt pavement or surface treatment.

2.7.4 Asphalt Pavement. Asphalt pavement shall be plant mixed and placed with a laydown machine. Asphalt cement grade and content, and aggregate gradation, fracture and hardness, shall be clearly specified by the design engineer and approved by the City. Minimum compaction shall also be specified.

2.7.5 Quality Control. Construction quality control testing by an independent laboratory will be required at the Developer's expense to insure the specifications approved by the City are met. Type and frequency of such tests shall be spelled out in the specifications.

2.8 Traffic and Safety

2.8.1 Signing. Signing shall be in accordance with the *Manual of Uniform Traffic Devices with Alaska Supplement*. Minimum signing shall include intersection control, street names and speed regulation. Warning and informational signs shall be installed as warranted.

Sign post shall be 2 ½" x 2 ½ " perforated steel tubing, with embedded 3" x 3" sleeves, or an acceptable substitute.

2.8.2 Stripping. At a minimum, centerline striping will be required on all paved streets. Shoulder striping will be required on collectors, arterials and frontage roads, and strongly encouraged on local roads. Striping and other traffic markings shall be designed and installed in accordance with the *Manual of Uniform Traffic Devices with Alaska Supplement*.

2.8.3 Sight Distance. Sight distance on horizontal and vertical curves and at intersections shall meet AASHTO standards for the approved design speed. Where additional clearing is required to meet this requirement, the affected area shall be grubbed and seeded with grasses. Easements or additional right-of-way shall be dedicated as required for maintenance of sight distance.

2.9 Miscellaneous Features

2.9.1 Cable Crossing: All buried cable crossings shall be installed either by the affected utility or under its direct supervision. An easement shall be platted for each crossing within the proposed development.

2.9.2 Driveways. Maximum driveway widths shall be twenty feet (20') for single family residences, thirty feet (30') for multiple family residences and commercial, and forty feet (40') for large commercial. Additionally, no driveway entrance shall be closer than fifty feet (50') to a street intersection, measured from shoulder of driveway to shoulder of street. More than one driveway entrance to a lot or greater driveway width may only be allowed with written authorization from the City. Driveways need not be constructed at the time of street construction, but they must be designed to the extent of location, width, profile and culvert size and length.

Driveways connected to streets with ditches for drainage will usually require culverts. A swale system may eliminate the necessity for these culverts. The driveway going across the swale must be properly sloped to avoid "bottoming out" of vehicles. To achieve this, the algebraic sum of the road side slope and the adjacent driveway slope shall not be more than fourteen percent (14%). Thus, at driveways, the backslope would be cut down to a maximum of six percent if the slope of the swale adjacent to the road is the typical eight percent (six inches in six feet). In no case shall driveways impede the flow of a swale or ditch.

Driveways which provide access to a paved street shall themselves be paved for at least 12' from the edge of street pavement.

Part 3. Drainage

3.1 Scope. The City's fundamental concern is that snow melt and rain runoff is drained away from structures and building lots. Runoff shall be conveyed to the ultimate disposal point through storm drains, culverts or ditches, but not over streets, sidewalks, curbs, or other public improvements. If an existing public system is not available or is of insufficient capacity, on-site disposal or retention is required with easements for maintenance access. The design of the drainage system shall comply with all requirements of the City of North Pole NPDES permit for Storm Water Discharge from Small Municipal Separate Storm Sewer Systems. (MS4)

Ideally, curb and gutters will be provided by the developer to immediately enhance property values and to avoid future assessments. However, a well designed drainage system consisting of ditches and culverts, or a swale with associated drainage system is an acceptable substitute.

3.2. Design Criteria.

3.2.1 Recurrence Interval. The minimum acceptable drainage system design shall be based on the five year peak rainfall rate for one hour for North Pole. Where circumstances warrant, the City may designate a longer recurrence interval. The design shall be based on the area being fully developed.

The drainage system design shall identify an ultimate destination for surface runoff compatible with other existing and future development in the area, and one or more routes by which runoff could be carried to that destination. Existing and necessary future easements shall be identified. The City may, at its discretion, waive construction of a portion of the ultimate runoff system provided that the interim drainage pattern is compatible with the ultimate system. Suitable ultimate destinations might include live sloughs or streams, an existing ditch system (provided it

has sufficient capacity and an ultimate destination of its own) or an engineered disposal method. Existing drainage systems shall not be obstructed, and may only be used if they are shown by the Developer to have sufficient capacity for the additional flow.

3.2.2 Snowmelt. Snow removal, including runoff, must be proved for in the drainage design. Snow dump sites with suitable drainage are desirable within the development if existing City sites are not readily available or are not of sufficient size to accommodate the necessary quantity of snow. Ditches should be wide enough for temporary snow storage on arterials, frontage roads and major collectors, and wide enough for the annual snow accumulation on minor collectors and local roads.

3.3 Ditches and Culverts. The minimum slope for ditches and culverts shall be twenty-five hundredths of one percent (0.25%). Drainage for relatively flat areas shall be achieved through roller coasting the ditch line a minimum grade of twenty-five hundredths of one percent (0.25%) and draining the ditch laterally at the low points.

Culverts used shall be corrugated steel pipe, with minimum diameter of twelve inches (12") for driveway crossings and eighteen (18") for street crossings. Culverts shall be covered a minimum depth of twelve inches (12").

The in slope of ditches shall be three to one (horizontal to vertical) or flatter, with maximum one to one acceptable for the back slope of the ditch. Maximum depth of ditch is four feet (4') for industrial and commercial areas and three feet (3') for residential neighborhoods and public areas such as schools and playgrounds.

3.4 Swales. Properly designed swales may be used on the sides of streets for drainage. Swales have much less depth than ditches and may allow the elimination of culverts at driveways. Swales may also require more associated lateral drainage systems than ditches.

The slope of the swale shall correspond to the adjacent street with a minimum slope of four-tenths of one percent (0.4%). The bottom of the swale shall be at least six inches (6") below and six feet (6') away from the road surface shoulder. From its low point, the swale shall slope upward to adjacent property at a maximum steepness of one foot vertical for each four feet horizontal. Slope shall extend into adjacent property as necessary.

3.5 Curb and Gutter. A minimum 0.25% grade should be maintained on paved roads with curbs, gutters and storm drain systems. Where the gutter discharges of a side drain or at a curb return, shoulders and slopes shall be protected against erosion.

3.6 Erosion Control. Wherever culverts, ditches, gutters or storm drains discharge to the slopes of a new or existing street, slope protection shall be provided.

3.7 Miscellaneous Features.

3.7.1 Insulation. Insulation shall be required on storm drains and culverts at locations where their placement reduces the effective depth of burial of water and sewer lines below minimum

required depths (four feet for water and five feet for sewer), increasing the risk of freezing. Storm drains and catch basins within seven feet of sewer main, water mains, and services shall be covered with at least two inches of urethane insulation. Extruded polystyrene may be an acceptable insulation for specific situations if approved by the City. If the Storm drain is within twelve inches of services at least six inches of urethane shall separate them.

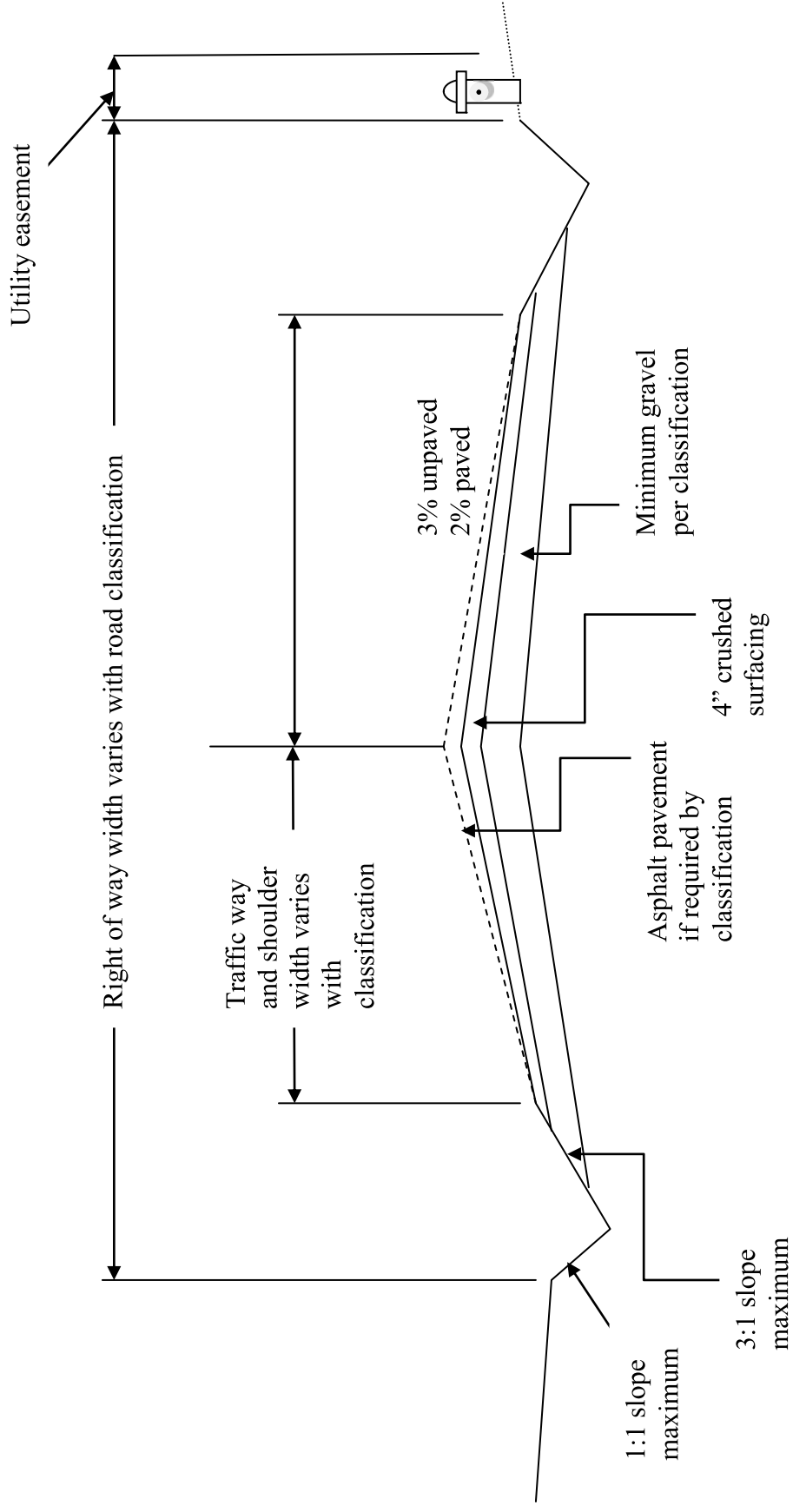
Proposed ditch crossings of existing and proposed water and sewer mains and services shall be checked for minimum burial depths, and insulated if necessary.

Part 4. Attachments

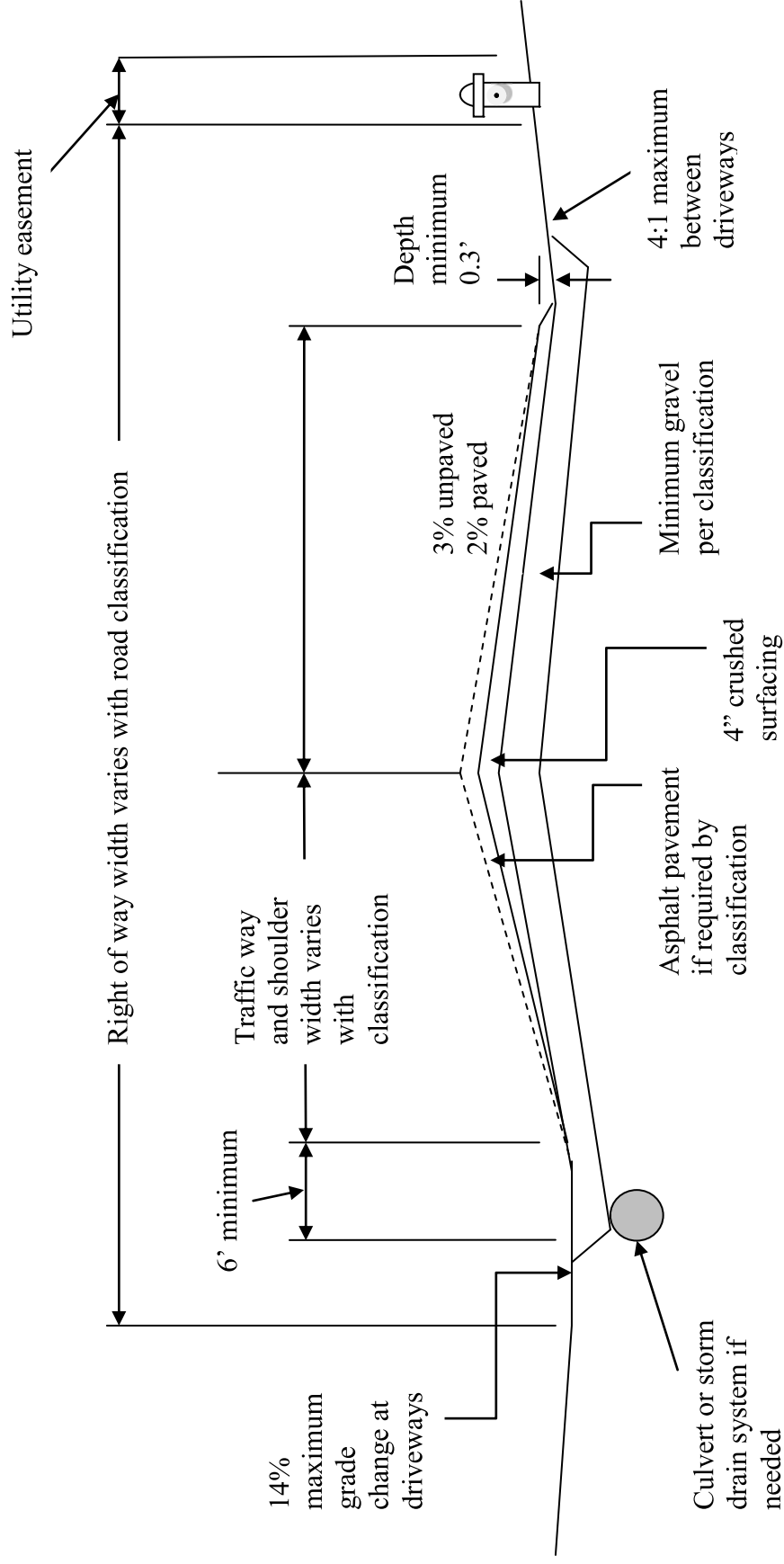
4.1 TYPICAL STREET SECTION.

4.2 TYPICAL STREET SECTION WITH SWALE ALTERNATIVE

4.1 Typical Street Section, City of North Pole Alaska



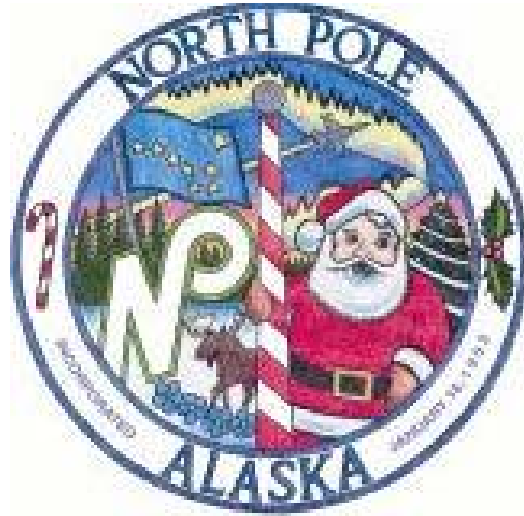
4.2 Typical Street Section with Swale Alternative



Appendix H: Utility Standards for Construction

Attached are the City's *Utility Standards of Construction*.

CITY OF NORTH POLE



UTILITY STANDARDS OF CONSTRUCTION

Revised: June 2007



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**CITY OF NORTH POLE
UTILITY STANDARDS OF CONSTRUCTION**

Revised: June 2007

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SS2 Wastewater Details

LS1 Lift Station Details

WATER SYSTEM STANDARD DRAWINGS

W1 Water Details

W2 Thrust Block Details

SECTION 1 - WASTEWATER COLLECTION SYSTEM DESIGN GUIDELINES

1.1 - GENERAL

The design of a wastewater collection system within the City of North Pole, hereinafter referred to as the Utility, service areas that connect to the Utility system, shall be submitted to and approved in writing by the ADEC and the Utility prior to construction. The design shall be in accordance with State Regulations (specifically 18 AAC 72), Utility standard details, the current Uniform Plumbing Code, other Utility planning schemes, and the guidelines herein and shall be consistent with the Construction Guidelines for the Utility wastewater collection system. Final design shall be certified by a professional engineer registered in the State of Alaska. It is suggested that a preliminary concept of the wastewater collection system be submitted for review by the Utility prior to the preparation of the required final design report, construction plans, specifications, and submission to the ADEC. The purpose of the preliminary submittal is to present the concept, factual data, (including soil boring) controlling assumptions and considerations used for the functional planning of the proposed system.

The proposed final plat or metes and bounds description of the improvement area or other similar data must be submitted with each wastewater collection design. Permanent easements with fifteen (15) feet minimum on either side of the wastewater collection pipe and appurtenances) are required for wastewater systems constructed on private property for maintenance access. A copy of all recorded easements within the improvement area must be submitted with the plans, if not shown on an approved plat. All pertinent non-objections and/or permits from affected utilities and/or government agencies shall be secured prior to final approval.

Any addition to the Utility wastewater collection system shall be consistent with the Utility's standards of design, quality of materials, and construction. Special emphasis shall be given to reduce future operation and maintenance costs due to conditions peculiar to North Pole.

This document compliments the Design and Construction Guidelines for Water Distribution Systems and both should be used together, as appropriate, to eliminate conflicts.

This document is designed to aid in meeting the requirements of the Utility. It must be emphasized that no single document can possibly present guidelines for all situations that will be encountered. The Utility shall have the ultimate authority to interpret this document and may direct modifications for specific situations. Any regulation or code that conflicts with these standards shall be brought to the attention of the City of North Pole's Director of Public Works.

1.2 - DESIGN CRITERIA

1.2.1 GENERAL

For the purpose of reviewing plans for a wastewater collection system, the design criteria contained in the Alaska Administrative Code (18 AAC 72) shall be utilized and supplemented by manufacturer's recommendations and provisions contained herein. Fundamentally, sewage must be transported in a sanitary manner to and through the Utility wastewater collection system with an absolute minimum of infiltration of groundwater and in-flow of storm run off. No storm drain or roof drains shall be allowed to connect to the wastewater collection system (18 AAC 72.040).

1.2.2 PARAMETERS

Attention shall be given to design details which will minimize potential freeze up problems within the wastewater collection system. Special consideration should be given to cold temperatures, permafrost, and high water tables; conditions common in North Pole. The reports, plans, and specifications for the wastewater collection system shall be certified by an engineer currently registered in the State of Alaska. Allowances for future extensions will be made in the design of all additions. The Utility's standard castings, pumps, and pipe shall be used in the design and construction of these improvements.

Basic design capacity shall be based on expected peak hourly flow from residents and other structures plus infiltration and inflow. For typical domestic situations, an average per capita production of wastewater in North Pole is seventy (80) gallons per day. Peak hourly flow factors are inversely proportional to total average daily flow within a pipe. The following are values currently accepted by the Utility for residential areas:

PEAKING FACTOR FOR PEAK HOUR FLOW

<u>TOTAL AVERAGE FLOW IN PIPE</u>	<u>PEAKING FACTOR</u>
10 gpm	5.6
100 gpm	3.4
1,000 gpm	2.5

Factors for total average flows other than these can be extrapolated. Industrial and commercial area flows should be determined on an individual basis.

Infiltration and inflow are variable factors but, a minimum of 650 gpd/in-mi shall be assumed in design calculations. A peaking factor of 1.8 should be used with these flows to get GPM. In any case, wastewater gravity mains shall be no less than eight (8) inches diameter, and force mains shall be no less than four (4) inches diameter.

Slopes of wastewater mains are critical to convey the materials suspended in the wastewater. Slopes shall be uniform between manholes and shall, unless specifically authorized, be such to maintain a minimum velocity of two (2) feet per second when flowing full. Wastewater mains shall be located in, or adjacent to, streets (rather than on rear or side lot lines) to facilitate maintenance.

1.2.3 REPORTS, PLANS, AND SPECIFICATIONS

A design report shall be submitted to the Utility and shall include assumptions used in the design, (including expected occupancy of lots) expected population density and constants used for flow calculations. This report shall prove that existing downstream facilities have sufficient capacity and ability to accept the additional loads from the proposed development. The design report, plans, and specifications will be reviewed and approved by the Alaska Department of Environmental Conservation and the Utility. Final plans shall include both plan and profile details showing the relationship between the proposed wastewater improvement and all other existing or proposed utilities and improvements. The plans shall show the exact location of proposed improvements from designated survey control points and shall specify required elevations including pipe and manhole depth. "As-built" plans shall be submitted on reproducible mylar and AutoCAD. All manholes, flush wells and service connections shall be located in their "as-built" positions.

Elevation datum shall be NAVD '88 and noted on the plans. A note must also be included on the plans specifying that construction will be in accordance with these Standards of Construction. Tolerances for survey control and location of improvements are provided in the Construction Guidelines.

1.2.4 MISCELLANEOUS

Pretreatment may be required for industrial wastes as specified in the Utility's Ordinance, approved by the North Pole City Council. A monitoring station may be required to assure compliance with these regulations.

Flow measurement stations may be required for private systems. Equipment shall be of the same type as already used in the Utility system to facilitate maintenance. Meter accuracy is expected to be the actual flow, plus or minus one (1) percent.

Wastewater collection mains shall typically be constructed on the westerly or northerly side of the road or on the opposite side of the water main. The offset from the water main must meet ADEC requirements, and the offset from the right of way must be adequate to allow access to the sewer main for future repairs or replacement. If adequate separation from the right of way cannot be met, easements will be required.

Wastewater collection mains beneath State of Alaska highways, other selected streets, or the Alaska Railroad, shall be placed in casings as necessary according to their specific utility permit requirements. Pipe for river or slough crossings, or other adverse conditions, requires a ball joint connection system with minimum deflection of fifteen (15) degrees with full restraints.

1.2.5 INSULATION

To help prevent freezing, all wastewater pipe, fittings, and manholes shall be completely insulated to a thickness as shown on Standard Drawings. Waterproof coating shall be used over the foam insulation where pipes are within one (1) foot of the natural groundwater table to help protect the insulation that will be submerged on an annual basis. Polyethylene encasement shall be used over foam insulation where waterproof coating is not used to protect ductile iron from corrosive soils. All wastewater mains shall be installed with a minimum of five (5) feet of cover.

All wastewater mains to be installed within seven (7) feet of existing storm drains, telephone duct banks, etc will require extra insulation. The thickness of the insulation shall be relative to the separation from storm drains. Typically, one (1) additional inch of insulation shall be provided for each foot of separation less than seven (7) feet. In cases where the storm drain or conduit is installed after the wastewater main, the insulation can be applied to the storm drain or conduit pipe rather than exposing and adding insulation to the wastewater pipe. The thickness and extents of the insulation shall be the same on storm drain or conduit pipe as stated for the wastewater main.

Wastewater mains installed in casings shall have insulation spacers, twenty-four (24) inches long, with an outer diameter of two (2) inches less than the casing inner diameter, with tapered ends, and spaced at ten (10) feet on center. All the insulation, on the pipe to be installed through casings, shall be coated with waterproof surface coating.

1.2.6 MANHOLES

All intersections of gravity flow pipe shall be in manholes which shall be designed to minimize deposition, aid maintenance and inspection, and where possible, maintain hydraulic grade lines. When pipes of different sizes join, this can best be accomplished by matching their 0.8 depth points. The matching of crowns is also an acceptable technique. Where matching is not possible, inflow pipes shall have transitional grading in flow channels to minimize the effects of drops. A drop manhole shall be required for drops greater than those specified on Standard Drawings.

Normally, the grade of a manhole channel shall be the same as the pipes entering and exiting, and a section of pipe with appropriate cut-out will pass completely through the manhole. Where there is a change of horizontal angle less than forty-five (45) degrees, there will be an incremental increase of slope up to 0.05 feet drop across the manhole. For a change of direction from forty-five (45) degrees to ninety (90) degrees, the drop shall be 0.10 feet. For changes in direction greater than ninety (90) degrees, the drop shall incrementally increase to 0.2 feet across the manhole. No service connections shall be allowed to manholes or interceptors but shall be accomplished with saddles placed on collection mains.

Manhole placement shall typically be within the street intersections. Distances between manholes shall not exceed three hundred (300) feet. The manhole inside diameter shall be a minimum of forty-eight (48) inches. A manhole shall be placed adjacent to lift stations, where necessary, to offset the lift station from underneath the roadway driving surface and to facilitate bypassing operations. All dead end mains shall have an access at the end in the form of a cleanout/flush well. The diameter of the mainline cleanout/flush well shall be the same diameter as the mainline.

1.2.7 LIFT STATIONS

The combination of flat topography, deep frost penetration, high water table, and high construction costs for excavation often makes wastewater lift stations necessary in the Utility wastewater collection system. Since lift stations are expensive to construct and to operate, they shall be utilized only as absolutely necessary, and be consistent with Utility planning.

Wastewater lift stations shall be designed with a steel receiving well and furnished with at least two (2) 3-phase, Flgyt N-series, submersible, non-clog wastewater pumps. The system will be completely automatic and electrical controls and accessories shall be completely compatible with the pumps. Each lift station shall be vented. The lift station site shall be readily accessible but outside of street driving surfaces. Permanent easements shall be obtained for a radius of seventy-five (75) feet out from lift station that would allow excavating to the base of the lift station with safe slopes. Safety shall be a primary concern in designing access within the lift station, and all electrical equipment within the lift station shall be explosion proof or intrinsically safe as specified in Section 2, Wastewater Collection System Construction Guidelines.

Capacity of the lift station shall be based on the peak hourly flow (which is the expected average daily flows multiplied by the wastewater peak flow factor). Duplex pumps shall be provided, each one identical, with each having the capacity to handle peak flows. The controls shall be designed to alternate lead pumps, to maximize time between start-ups of each pump, and to equalize wear. The lag pump shall automatically start when water level rises above the lead pump on level.

The minimum size of a lift station receiving well shall be six (6) feet in diameter. The depth of the receiving well, which is defined as the distance from the inlet invert to the bottom of the pump, shall be a minimum of five (5) feet and shall be designed to both minimize detention time within the lift station and minimize the running time and start-ups of the pumps.

Included in this document is the Lift Station Details (LS1). This and Section 2, 2.29 Standard Detail for Lift Stations shall be consulted for more design details.

The design report shall include flows, pump curves, anticipated power consumption, operations and maintenance information, recommended spare parts, and other appropriate information.

1.2.8 SEPARATION DISTANCE

Horizontal and vertical separation shall be in accordance with the latest ADEC Regulations 18 AAC 72.020. Water and sewer mains (including manholes) shall be separated by a minimum of ten (10) feet horizontally, and eighteen (18) inches vertically at crossings, measured edge to edge. Where it is not practical to maintain this separation, the ADEC may allow deviation on a case by case basis, if a waiver request is submitted to ADEC and is properly supported by data from the design engineer. Waiver requests must identify the reason for lesser separation and show:

- A. The lines are located in separate trenches and the top of the sewer main, where crossing is at the maximum depth possible below the bottom of the water main until existing appurtenances' elevations or depths of cover requirements prohibit such installation, and;
- B. The sewer line is designed and constructed in a manner equivalent to the requirements for a potable water pipe and is pressure tested to ensure water tightness, or;
- C. The sewer line is enclosed in a water-tight carrier pipe of similar strength, i.e., casing.

At locations where water and sewer mains must **cross**, a waiver is **not** required if:

- Water line is above the sewer line;
- Sewer line is bedded per Type 4 or 5 (AWWA Standard C600-05);
- Water line joints are at least nine (9) feet from the sewer line **and**;
- Water line is at least eighteen (18) inches vertically from the sewer line.

If the above conditions can not be met for sewer and water crossings, a waiver request (similar to horizontal separation) must be submitted to ADEC.

Any design that fails to meet the ten (10) foot horizontal or eighteen (18) inch vertical separation distance shall require a waiver from ADEC.

SECTION 2 - WASTEWATER COLLECTION SYSTEM CONSTRUCTION GUIDELINES

2.1 - GENERAL

2.1.1 GUIDELINES

The design of a wastewater collection system which ultimately connects to the Utility collection system shall be submitted to and approved in writing by the Utility prior to construction. The design shall be in accordance with state regulations, the Utility Master Plan or other Utility planning schemes, and all aspects of this document. Final design will be submitted to and approved by the Alaska Department of Environmental Conservation and must be certified by a professional engineer registered in the State of Alaska (18 AAC 72) prior to beginning construction. In addition to basic design, the engineer shall look at such things as flow velocities, quantities in the proposed wastewater system, and any changes in the existing Utility system caused by the proposed addition.

This document is designed to aid in meeting the requirements of the Utility. It must be emphasized that no single document can possibly present guidelines for all situations that will be encountered. The Utility shall have ultimate authority to interpret this document and shall direct modifications for specific situations.

2.1.2 WORK INCLUDED

This section covers the installation of all wastewater pipe and appurtenances for the wastewater collection system.

Materials, operations or methods herein or indicated on the drawings as being required for the project shall be provided by the Developer/Contractor. The Developer/Contractor shall provide all the necessary labor, equipment, material and the incidentals necessary to complete the system as shown on the plans.

2.1.3 CODES AND REGULATIONS

In addition to complying with all pertinent codes and regulations, the Developer/Contractor must comply with all requirements of the most recent Uniform Plumbing Code, as adopted by the Utility, and this standard.

Where provisions of pertinent codes and standards conflict with this document, the more stringent provisions shall apply.

2.1.4 CONSULTING ENGINEER

The consulting engineer shall be a registered engineer in the State of Alaska retained by the Developer/Contractor to design and coordinate the installation of the wastewater system.

- A. The consulting engineer shall furnish drawings and specifications which, as far as practical, completely represent the requirements of the work to be performed under the contract.
- B. The consulting engineer shall be responsible for the design of any construction changes required during the course of construction.
- C. The consulting engineer shall submit signed drawings and specifications to ADEC along with the associated application for construction approval. After construction is complete, they must submit the application for interim and final approval to operate.
- D. The consulting engineer shall be responsible for submission of stamped as-built drawings to the Utility upon completion of the project. As-built drawings shall show all changes made during construction as well as a minimum of three (3) swing ties to all manholes, cleanouts, and service saddles.
- E. The consulting engineer will provide the Utility with advance notice of the work schedule and report to the Utility as to the progress of the work and manner in which it is being performed.
- F. The consulting engineer is not authorized to revoke, alter, enlarge, relax, or release any requirements of the City and ADEC approved plans and specifications without concurrence, or to approve or accept any portion of the work or to issue instructions contrary to this document.

2.1.5 INSPECTION OF WORK BY UTILITY

- A. The Utility shall perform inspections of the work and material to ensure compliance with the plans, specifications, and these Standards of Construction. Such inspections may extend to any part of the work including the preparation, fabrication, or manufacture of the materials used. The Utility's authorized representative will decide: all questions which may arise as to the quality and acceptability of materials furnished and work performed; all questions as to the degree of completion of the work; all questions which may arise as to interpretation of the plans and specifications, and all questions as to the acceptable fulfillment of the contract on the part of the Developer/Contractor.

- B. The Utility's authorized representative shall have the authority to reject any work or materials that do not meet Utility standards.
- C. The presence or absence of the Utility's authorized representative does not relieve the Developer/Contractor from his obligation to fully perform all requirements of this document, nor does it give rise to any right of action or suit by the Developer/Contractor, or third persons against the Utility.

2.2 - MATERIALS

2.2.1 GENERAL

All materials shall be new, of current manufacture, and conform to the specifications contained herein. The Developer/Contractor shall submit manufacturer's literature and affidavit of compliance with specified standards of the Utility for review and approval prior to procuring materials.

2.2.2 PIPING

- A. Gravity wastewater mains shall be ductile iron pipe with cement mortar lining in accordance with AWWA C-104
- B. Force mains shall be ductile iron pipe lined with 40 mils ceramic epoxy, Protecto 401 or equal. Ceramic epoxy must meet the following requirements:

Permeability:	0.00 perms per ASTM E 96 (Method A)
Salt Spray:	0 mm per ASTM B117
Cathodic Disbondment:	<0.5 mm per ASTM G95 (1.5 volts at 97 deg F, 30 days)
Immersion Testing	Per ASTM D 714
20% Sulfuric Acid	No effect after two (2) years
140 deg F 25% Sodium Hydroxide	No effect after two (2) years
150 deg F Distilled Water (scribed panel)	No effect after two (2) years
120 deg F Tap Water (scribed panel)	0.0 undercutting after two (2) years with no effect

- C. Pipe used for trenchless rehabilitation of wastewater mains will be approved on a case-by-case basis.
- D. Ductile iron pipe shall conform to AWWA C-151. Ductile iron pipe shall be cement mortar lined and shall be minimum thickness as shown on Standard Drawings.
- E. Insulated wastewater pipe installed in sleeves or near groundwater shall be coated with waterproof surface coating.

2.2.3 PIPE JOINTS

- A. Joints for ductile iron pipe shall be rubber gasketed push-on joint (U.S. Pipe Tyton or equal) or mechanical joint conforming to AWWA C-111.
- B. At stream crossings, pipe joints must be restrained with mechanical joint fittings along with gripper glands and field lok gaskets. Restrained joint pipe and fittings shall be designed for a maximum working pressure of 250 psi.

2.2.4 PIPE FITTINGS

Fittings for ductile iron pipe shall be mechanical joint and shall conform to AWWA C-110. The fittings shall have a minimum rating of 150 psi working pressure but be capable of withstanding three times the rated water working pressure as per AWWA C-110. Fittings shall be ductile iron. Interior of fittings for gravity mains shall be cement mortar lined per AWWA C-104. Fittings for force main pipe shall be lined with ceramic epoxy as described in 2.2.2.B. Fittings with joint restraint shall be ductile iron and shall conform to ANSI A 21.10.

2.2.5 INSULATION

Urethane spray foam insulation shall be rigid closed cell, two component urethane foam with the following properties:

K Factor:	0.15 (Btu - in/FT ² - Hr - °F) per ASTM C 518
Compressive Strength:	45 psi per ASTM D 1621
Nominal Density:	3.0 pcf per ASTM D 1622
Tensile Strength:	70 psi per ASTM D 1623
Shear Strength:	45 psi per ASTM C 273
Water Absorption:	0.017 gm/cc per ASTM D 2842
Water Vapor Permeability:	1.9 perm per ASTM C 355
Closed Cell Content (min):	90% per ASTM D 1940

Insulation material shall be Resin Technology 2035. Applicator shall demonstrate prior experience of at least two (2) years, and the Utility shall be the sole judge of the qualifications of system, application method, and applicator.

2.2.6 POLYETHYLENE ENCASEMENT

Polyethylene encasement shall conform to ANSI/AWWA C105/A21.5 "Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids." Provide 8-mil polyethylene film tube or sheet.

2.2.7 WATERPROOF SURFACE COATINGS

Coating shall be a two-component, one hundred (100) percent solids, sprayable polyurea coating with the following properties:

Hardness:	90±5 (ASTM D-2240 Shore A)
Hardness:	50±5 (ASTM D-2240 Shore D)
Freeze/Thaw:	No disbonding or distortion (ASTM D-2126, 5 cycles)
Tensile Strength:	2500 psi (ASTM D-412, ASTM D-638)
Elongation:	265% (ASTM D-412, ASTM D-638)
Permeability (MVT@30 mils):	0.024 perm (ASTM E-96, Procedure B)
Weathering:	3,000 hrs without threatening signs of deterioration (ASTM G-26, ASTM G-53)
Tear Resistance:	430±50 pli (ASTM D-624)

Coating shall be polyurea elastomer, "Permax 700-HP" by Resin Technologies; "Polyshield SS-100" by Specialty Products, Inc.; or approved equivalent. Applicator shall demonstrate prior experience of at least two (2) years, and the Utility shall be the sole judge of the qualifications of system, application method, and applicator.

2.2.8 MANHOLES

- A. The manholes shall be completely watertight. Materials used in construction shall conform to the requirements of ASTM Specification Designation C-478 and approved details.
- B. Manhole bases and cones shall be formed of 3000 psi concrete. They shall have wire mesh and rebar as shown on the standard details.
- C. Each precast concrete manhole section shall be set and sealed by use of a gasket type seal such as Ram-Nec or equal.
- D. Manhole covers and rings shall be fabricated from cast iron per ASTM A-48, Class 35B.

The traffic cover shall have a diameter of twenty-four and three quarter (24¾) inches with a clear inside diameter of twenty-three (23) inches. Overall depth shall be ten (10) inches with a seven (7) inch height from the flange.

The word "SEWER" shall be cast into the manhole cover. Manhole cover shall be solid except for a maximum of two lifting holes and a maximum of one side pick slot. Manhole rings and covers shall be machine ground on seating surfaces so as to assure a non-rocking fit in any position and interchangeability.

Manhole rings and covers shall be East Jordan Iron Works IFCO 741 or Olympic Foundry Inc. MH26A or equal. The Utility reserves the right to determine the suitability of the manhole covers and rings based upon its proposed location and projected traffic patterns.

2.2.9 CLEANOUTS

Force main and gravity cleanouts shall be as shown on the standard detail drawings.

Flushwell cleanouts shall be constructed with a forty-five (45) degree elbow, ductile iron pipe to surface. An acceptable product for 8-inch cleanout is East Jordan Iron Works IFCO 221 cleanout cover assembly.

2.2.10 LIFT STATIONS

2.2.10.1 Wet Well

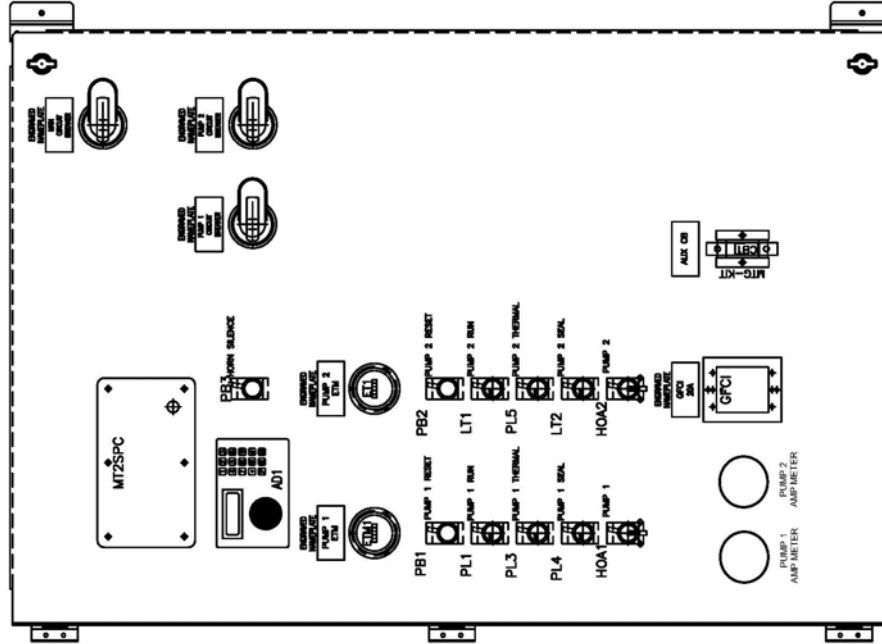
- A. Fabrication: The wet well shall be constructed of structural steel plate, with all seams welded in accordance with standard AWS practices, with proper fillet section and continuity to assure a sound, watertight structure. The barrel shall be rolled into the diameter shown on the plans. A steel channel hatch frame shall be welded to the top as shown on the plans. The frame opening size and location shall be coordinated with the pump manufacturer. Penetration sleeves shall be provided as shown on the plans for all pipes, conduits, and vents. A piping and slide rail brace shall be provided as shown on the Standard Drawings. Six (6) hold down clips, two (2) lifting lugs and one (1) grounding lug shall be welded to the barrel as shown on the Standard Drawings. At the Contractor's option, the wet well may be attached to the wet well base, insulated and coated, prior to lowering into position.
- B. Ballast: The concrete bottom for the lift station was designed to provide a minimum factor of safety of two against uplift when the lift station is completely backfilled and the exterior water level is at the top of the lift station. The Contractor is responsible for providing additional ballast, if installation conditions warrant, during installation to prevent uplift.
- C. Protective Coating: All mill scale, rust, weld flux or other foreign matter shall be removed from all steel surfaces by sandblasting to SSPC-SP-10 specifications for near white blast cleaning. Surface irregularities shall be removed by grinding and filling. All surfaces shall be coated with 16 mils (dry) of Coal Tar Epoxy per the coating manufacturer's recommendation. Carboline Bitumastic 300 M or Sherwin- Williams Hi-Mil Sher-Tar Epoxy are acceptable products.

- D. Cathodic Protection: Protection shall be provided by two (2) 17-lb. magnesium anode packs with #8 stranded, insulated, copper leads for connection to the lifting lugs.

2.2.10.2 Control Panel

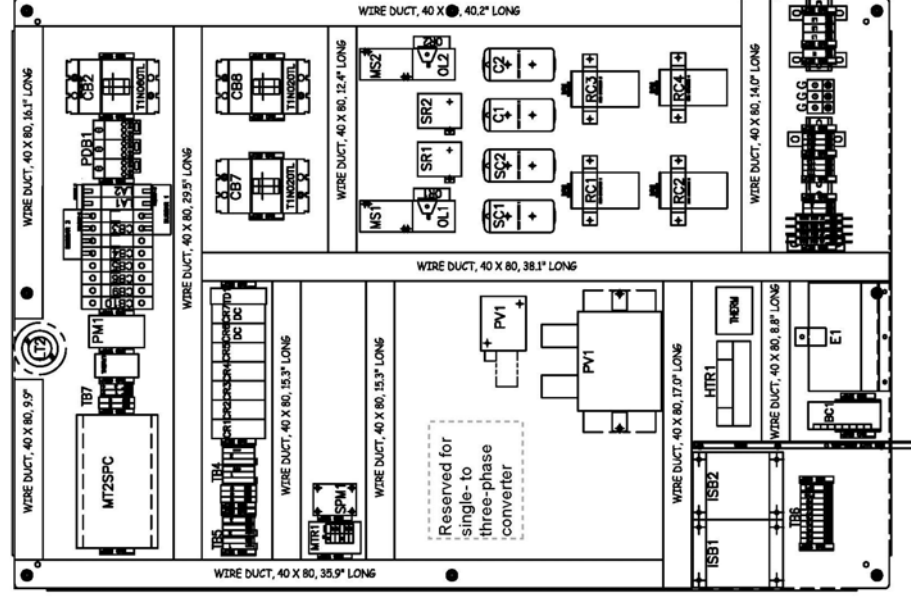
The Control Panel: An automatic pump control center shall be mounted in a NEMA 4, insulated, dead front, outdoor enclosure for operation at the required voltage.

- A. Manufacturer: The control panel shall be manufactured by Flygt and organized as shown on the diagram.
- B. Control System: Include a 120V maximum control circuit transformer with disconnect and overload protection, with an automatic electrical alternator provided for these duplex stations. Control wiring entering wet well shall utilize intrinsically safe power sources and barrier relays with energy level incapable of igniting combustible gases within the wet well.



FRONT VIEW

SWIN PANEL 33"x49"



FRONT VIEW

SUBPANEL 33"x49"

NOTE: Panel size may be modified if a phase converter is not needed or as required to fit components.

- C. Three-Phase Power Monitor: Provide a monitor for protection of the motors in case of low voltage, single phasing, or phase reversal. Upon any fault detection the control shall shut the pumps off.
- D. Motor/Control Coordination: Prefabricate panel to match motor and control characteristics.
- E. Meters/Lights: Provide with elapsed time meters, running lights and seal failure warning lights for each pump. Warning lights mounted in the pump control panel shall also be provided to indicate if any of the sewage pump motors have tripped from overload conditions. The panel shall include a momentary contact test switch for testing the lights.
- F. Wet Well Level Alarm: An "ALARM" sensor located in the wet well shall be incorporated into the control panel which will energize an alarm light and bell. This shall have the capability of being activated by both the sensor probe and a sensor float. Power for running these alarm lights shall be provided by the control panel. The panel shall include a momentary contact test switch for testing the alarm light, and an alarm silencing switch.
- G. Heating/Ventilation:
 - 1. Provide a thermostatically controlled heater with a circulating fan to maintain the panel interior ambient temperature between 40°F and 100°F for an exterior temperature range of -60°F to 100°F. The heating/ ventilation shall have a separate overcurrent protective device. Hoffman DAH4001B or approved equal.
 - 2. Provide a 6-inch thermostatically controlled vent fan. Provide a stainless steel intake louver with filter near the bottom of the cabinet and a stainless steel outlet louver near the top. The louvers shall have 8- by 8-inch external shielding covers. The thermostat shall cause the fan to operate on temperature rise. Hoffman A-TEMNO thermostat, Hoffman A-6AXFN fan, Hoffman A-VK66SS6 louvers, Hoffman A-FLT66 filter, or approved equal.
 - 3. The Heating/Ventilation equipment shall have a separate overcurrent protective device.
- H. Receptacle Outlet: Provide a 125-volt, single-phase, 20-ampere-rated receptacle outlet. The receptacle shall be connected to the line side of the equipment disconnecting means. The receptacle shall have a separate overcurrent protective device. The receptacle outlet shall be provided with ground-fault circuit interrupter (GFCI) protection for personnel.

- I. Hand-Off-Auto Switch: Each sewage pump shall have an individual oil-tight hand-off-auto switch mounted on the control panel which allows the following pump operational modes:
 - 1. Hand Mode: Each pump is individually energized to operate independent of the liquid level in the wet well.
 - 2. Off Mode: Each pump is de-energized until another operation mode is selected.
 - 3. Auto Mode: Each pump is controlled by the liquid level controls which energize the pumps according to wet well liquid level.
- J. Sequence of Operations: At the "lead pump on" liquid level, the controls shall energize one of the pumps identified as the lead pump for that cycle. As the liquid level falls to the "pump off" level, the lead pump shall be de-energized by the pump controls. As the level again rises to the "pump on" level the control panel shall energize the other pump not used in the first pumping cycle so as to alternate the operation of the pumps on successive pump cycles. If the lead pump is not able to lower the wet well's liquid level and the level rises to the "lag pump on" level, the second pump (identified as the lag pump for the pump cycle) shall be energized by the pump controls and run with the lead pump until the liquid level drops to the "pump off" level at which point both pumps are de-energized.
- K. Automatic Restart after Power Outage: The control circuitry shall provide for automatic restart of the lead pump upon restoration of electrical power after an outage. Start of the lag pump shall be delayed for 5 minutes to avoid flooding of the downstream sewers and electrical overloads.
- L. Provide a rust protection capsule inside the cabinet. Zerust VCC-1-1 or approved equal.
- M. Electrical wiring and components must be in compliance with all applicable codes. Wiring must be capable of flexing at temperatures of -60 deg F.
- N. Spare Parts: The following spare parts shall be provided for each control panel:
 - 1. One fuse of each type and ampacity used.
 - 2. One spare contactor.
 - 3. Two spare bulbs for the indicator lights.
 - 4. One control transformer.
- O. Control Panel Backboard: Provide 1-5/8- by 1-5/8-inch 12-gauge galvanized unistrut support channels to mount the 1-inch plywood backboard to the 4-inch galvanized steel pipe for the lift station control panel. The plywood shall be pressure treated, APA rated C-C plugged, Group 2 exterior. Apply two coats of industrial gray enamel paint to plywood before mounting.

Fasteners in contact with the plywood shall be rated for use with pressure-treated wood.

- P. Control and Monitoring: Control panel shall be equipped with a configurable duplex pump controller with a SCADA Remote Telemetry Unit with the capability to communicate via a RS232 port, Flygt MultiTrobe MT2SPC or approved equal. The controller shall be equipped with the following minimum I/O:
 - 1. 24 configurable digital inputs.
 - 2. Six configurable digital outputs.
 - 3. One analog output.
 - 4. Two analog inputs.
- Q. Amp Meters: The control panel shall be equipped with analog type amp meters that display the amperage drawn by the pumps while they are operating.
- R. Sensitive Controls Protection: Provide lightning arrestors and surge arrestors to protect equipment in control panel.
- S. Phase Converters: Provide where three phase power is not available. The converter shall allow a single phase input voltage to serve three-phase pumps. Converter shall meet the following requirements:
 - 1. Provide 150 percent starting torque minimum
 - 2. Not affected by cycling rate
 - 3. Configured to comply with specific pump models
 - 4. UL-Listed
 - 5. Three-year warranty

2.2.10.3 Level Regulators

Provide both a probe regulator and a float sensor.

- A. The Level Regulators shall be Flygt MultiTrobe, Stick level sensors. Sensors shall be Avesta 254 SMO High Grade Stainless Steel Alloy. Probe Casting shall be uPVC Premium Quality Extruded Tube. Cable shall be PVC/PVC Multi-Core.
- B. The Alarm Sensor Float shall be Anchor Scientific Mini Float SM30N0 (normally open with 30-foot cable), or approved equal. Float shall be suitable for intrinsically safe circuits.

2.2.10.4 Valves

Valves shall conform to the following:

- A. Gate Valves: Gate valves 3 inches and larger for wastewater shall be resilient seated gate valves conforming to ANSI/AWWA C509. Valves to be operated by a cast iron handwheel mounted on a rising stem rotated counter-clockwise to open. The direction of opening shall be indicated on the handwheel. Valve ends to be flanged conforming to ANSI B16.1, Class 125.
- B. Ball Check Valves:
 - 1. Ball check valves shall be non-clog, fully automatic, maintenance-free, and specifically suited for operation in sewage and storm water where solids, fibers, grit, or highly viscous materials are encountered.
 - 2. Ball check valves will have one moving part, the ball, which automatically rolls out of the path of flow, thus providing an unobstructed and "full flow" equal to nominal size. Upon discontinuation of flow, the ball automatically rolls back to the closed position, thus providing a positive seal against back pressure or backflow.
 - 3. The ball shall have an exterior coating of vulcanized nitrile rubber resistant to grease, petroleum products, animal and vegetable fats, dilute concentrations of acids and alkalies, tearing, and abrasion. The body and cover shall be nodular cast iron type GGG 40/ASTM 65-45-12/SAE 4512. Ball check valves are designed to be maintenance-free and suited for installation in the vertical position. The valve shall be so constructed that by unbolting and lifting off the cover, the ball may be removed and replaced without removing the valve from the line.
 - 4. Ball check valves shall have a sinking ball.
 - 5. Valve shall be rated for 175 psi working pressure for cold water service, and 350 psi hydrostatic test limit pressure. Valve shall have no more than 0.6 feet of headloss at design flow. Valve shall have flanged ends per ANSI B16.1 Class 125. Markings shall include manufacturer, valve size, working pressure, and direction of flow all cast into the body of the valve.

2.2.10.5 Pumps, 3-phase

- A. The pumps shall be submersible type with a minimum 4-inch discharge capable of handling raw, unscreened sewage. They shall each be capable of 15 starts per hour and be capable of running dry without damage. All parts which will come in contact with the sewage will be of gray cast iron, ASTM A 48, Class 35B. All exposed bolts and nuts will be of stainless steel construction. All metal surfaces coming into contact with the pumpage, other

than stainless steel or brass, shall be protected by a factory-applied spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish on the exterior of the pump.

- B. The pumps shall be mounted on a slide rail system with breakaway connection to the discharge piping. The design shall be such that the pump unit will be automatically and firmly connected to the discharge piping when lowered into place on the matching discharge connection permanently installed in the wet well. The pump shall be easily removable for inspection or service, requiring no bolts, or fastenings to be disconnected. Pump removal shall not require personnel to enter the wet well. Each pump shall be fitted with a stainless steel chain of adequate strength and length to permit raising and lowering the pump for inspection and removal. The working load of the lifting system shall be 50 percent greater than the pump unit weight. The pump, with its appurtenances and cables, shall be capable of continuous submergence under water without loss of watertight integrity.
- C. Specific Pump Requirements:
 - 1. Open Impellers with Cutting Edge: The impeller shall be of gray cast iron, ASTM A48 Class 35B, dynamically balanced, semi-open, multi-vane, back-swept, non-clog design. The impeller vane leading edges shall be mechanically self-cleaned upon each rotation as they pass across a spiral groove located on the volute suction which shall keep them clear of debris, maintaining an unobstructed leading edge. The impeller vanes shall have screw-shaped leading edges that are hardened to Rc 45 and shall be capable of handling solids, fibrous materials, heavy sludge, and other matter found in wastewater. The screw shape of the impeller inlet shall provide an inducing effect for the handling of sludge and rag-laden wastewater. Impellers shall be locked to the shaft, held by an impeller bolt, and treated with a corrosion inhibitor.
 - 2. Explosion Proof Motors: All pumps shall be explosion proof and equipped with thermal sensors embedded in the stator windings.
 - 3. Cables: Power cables shall be UL-approved for an explosive environment. They shall be intrinsically safe, made of a water resistant material, non-susceptible to the sewage acids, and flexible enough to move with the pumps when they are raised. Cables shall run continuously from the pumps into the surface-mounted NEMA 3R Wet Well junction box.
 - 4. Controls supplied and installed with these pumps shall include circuits for motor pilot thermal sensors and intrinsically-safe control components for liquid level sensors.
 - 5. Performance: The pump shall be capable of delivering the current flow at the Total Dynamic Head shown. Pump manufacturer to be Flygt, Hydromatic, PACO, or approved equal.

6. Spare Parts: Parts shall be packed in a watertight steel box labeled as to pump manufacturer, size, model and date of issue. The following spare parts shall be supplied for each pump (including spare):
 - a. One complete set gaskets.
 - b. One complete set seals.
 - c. One wear ring.
 - d. One complete set bearings.
 7. Pump Warranty: The pumps will be warranted for a period of five years from Owner acceptance. A copy of the proposed warranty shall be furnished in writing by the Contractor at time of shop drawing submittal and shall certify that the pumps are free of defects in design, material or workmanship. A factory approved service representative, having a permanent place of business in Alaska shall be available to effect pump repairs.
- D. Spare Pump: One new, spare pump shall be provided, for each lift station, complete with motor, pump sealing flange, slide rail guides, power cable and signal cable. This unit shall be complete so that it can be installed with no salvage of components from the existing pump it would replace.

2.2.10.6 Access Hatch:

- A. The access frame and hatch shall be a standard product manufactured for lift stations, meeting the following requirements:
1. Single door cover with insulation fastened mechanically to the underside of the cover.
 2. Channel style frame construction.
 3. All aluminum construction.
 4. Stainless steel hardware, with a minimum of three (2) hinges per door.
 5. Load rating of 300 lbs. per square foot.
 6. Flush drop handle.
 7. Automatic hold-open arm.
 8. Recessed, tamper-resistant padlock assembly.
 9. Stainless steel horizontal compression spring used as lift assist, located so as not to interfere with opening of safety grate.
 10. 10-year warranty.
 11. Provide grate(s) covering the opening, providing fall-through protection per OSHA 1910.23, and control confined-space entry per OSHA 1910.146.
 12. Doors cannot close unless the fall-through protection has been put back in place.
 13. Grate must allow visual inspections and limited maintenance and float adjustment while safety grate is in place.
 14. Open grates must create a physical barrier around the pit.

15. Color of grates shall be safety orange.
16. Grates shall provide pump platform for minor maintenance.

2.2.10.7 Miscellaneous Materials

- A. Miscellaneous Metals: Bolts, nuts, washers and anchors necessary for the installation of equipment shall be stainless steel. All supports necessary for the installation of equipment shall be galvanized steel in conformance with ASTM A153.
- B. Modular Seal: Link Seal Model S-316 or approved equal. The modular seal shall have an operational temperature range of minus 40 to plus 250 deg F.
 1. Seal Element: The seal element shall be EPDM rubber.
 2. Bolts & Nuts: The bolts and nuts shall be ANSI type 316 Stainless Steel having an average tensile strength of 85,000 psi.
- C. Vent Pipe: High Density Polyethylene, 4-inch diameter, SDR 17. Buried pipe shall be insulated with minimum 2-inches polyurethane.

2.3 - EXECUTION

2.3.1 HANDLING

- A. Use all means necessary to protect materials before, during, and after installation.
- B. In the event of damage, immediately make all repairs and replacements necessary to keep materials in a "like new" condition. These repairs or replacements must be approved by the Utility and made at no cost to the Utility.
- C. All material shall be handled and installed in accordance with manufacturer's recommended handling and installation instructions.
- D. If, in the judgment of the Utility, materials and/or installed work are not being protected or handled as noted in these specifications, or in accordance with manufacturer's handling/installation recommendations, they shall be rejected and removed from the job site and shall not be used on any other work, either present or future for the Utility.

2.3.2 LAYING PIPE

- A. The pipe and fittings shall be inspected for defects before installation.

- B. All pipe shall be laid and maintained to the required lines and grades with fittings, manholes, cleanouts and appurtenances at the required locations as shown on the design plans.
- C. Wastewater mains shall be laid so as to have a minimum of five (5) feet of backfill over the top of the pipe.
- D. Pipe interiors shall be thoroughly cleaned of all foreign matter before being lowered into the trench. At all times when work is not in progress, all open ends of pipe and fittings shall be securely closed so that no water, earth, rodents, or other substances may enter. Each length of pipe shall be examined during assembly in the trench for debris. Any debris found will be removed immediately.
- E. Trenches shall be kept sufficiently dry so that no pipe will be laid in water. Water shall be kept out of the portions of the trench in which uninsulated joints are located while the joints are insulated and otherwise readied for backfill.
- F. Cutting of pipe for closure or other reasons shall be done by methods which will not damage the pipe and which will ensure tight joints.
- G. Pipe shall be inspected for defects before lowering into the trench. All defective, damaged, or unsound pipe shall be replaced and removed from the site. Any section of pipe that is already laid out and found to be damaged or defective shall be replaced with new pipe at no cost to the Utility.
- H. Pipe bedding shall be as noted in Section 7 Trenching, Backfilling, and Compaction. Bedding shall be placed so as to ensure that the pipe is given a uniform bearing for its full length.
- I. Deflections from a straight line or grade shall not exceed the limits recommended by the manufacturer, minus 2-degrees. If the specified or desired alignment requires deflections in excess of such limits, the Developer/Contractor shall either provide special bends or a sufficient number of shorter lengths of pipe to provide angular deflection within such limits.
- J. Standard lengths of pipe shall be used except where short lengths are required for fittings, or wherever pipe passes through a rigid structure.
- K. Pipe ends for future connections shall be plugged or capped as shown on the design plans.

- L. Final accuracy of all gravity main installations shall be within 0.01 feet vertically and 0.50 feet horizontally of the exact location taken from the project design plans. In addition, no single section of pipe shall vary by more than ten (10) percent from the grade shown on the project design plans. In no case will a reverse or flat grade be allowed. Pipe which exceeds the above limits of variation shall be adjusted immediately and no further pipe shall be laid until so authorized by the Utility. All costs incurred for adjusting grades of lines shall be the responsibility of the Developer/Contractor.
- M. Lubrication for push-on joints of ductile iron pipe shall be water soluble as recommended by the manufacturer.
- N. Any pipe or structure having its alignment or grade changed by floating in a flooded trench shall be re-laid.

2.3.3 MANHOLES AND CLEANOUTS

- A. Generally, the manhole rings and covers shall be brought to the grades shown on the design plans. The minimum and maximum number of grade rings is shown on the Standard Drawings. However, the Developer/Contractor shall coordinate final grade with the engineer to ensure final grade "fits" as found conditions.
- B. All portions of precast manholes must be approved by the Utility prior to installation. This approval does not relieve the Developer/Contractor of the responsibility for protection of manholes against damage during handling and installation.
- C. Manholes and cleanouts shall be installed at the locations shown on the design plans such that primary leads enter radially at the invert elevations specified. The base section shall be set plumb on the prepared surface.
- D. Where indicated on design plans, a stub shall be provided for future connections to the manhole. The end of the stub shall be stopped with a push-on cap or other device designed by pipe manufacturer to prevent substances and water from entering the pipe.

2.3.4 INSULATION

- A. The Developer/Contractor shall furnish labor, materials, equipment, and services necessary for, and incidental to, field application of sprayed urethane foam insulation.
- B. Wastewater mains and manholes shall have a minimum thickness as shown on Standard Drawings on all outside surfaces unless it can be demonstrated to the satisfaction of the Utility that the main will not freeze.

- C. Manholes shall receive polyethylene sheeting over the insulation to protect from frost jacking. The number of wraps is shown on Standard Drawings.
- D. Foam shall be applied to wastewater main pipe above ground in a local yard. Pipe may not be sprayed in the ditch except under special circumstances, which must be approved by the Utility.
- E. Pre-insulated pipe that has damaged insulation due to transportation shall be reinsulated to the satisfaction of the Utility. Backfill shall not take place until all insulation has been inspected.
- F. Backfill shall be placed so that pipe insulation will not be damaged.

2.3.5 CONNECTIONS TO EXISTING SYSTEM

- A. Connections to existing Utility wastewater mains shall be made by a licensed and bonded Contractor.
- B. Materials for these connections shall be furnished by the Developer/Contractor.
- C. The Developer/Contractor shall give the Utility at least forty-eight (48) hours advance notice prior to making a connection.
- D. The Utility reserves the right to schedule shutdowns to minimize possible conflicts.

2.3.6 PRESSURE AND LEAKAGE TESTING

The Developer/Contractor shall test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects in the following manner:

- A. Do not enclose, cover, or put into service before inspection and approval.
- B. Test completed piping systems according to requirements of authorities having jurisdiction.
- C. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
- D. Submit separate report for each test.

- E. Hydrostatic Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction and the following:
 - 1. Allowable leakage is maximum of 50 gal./inch of nominal pipe size per mile of pipe, during 24-hour period.
 - 2. Close openings in system and fill with water.
 - 3. Purge air and refill with water.
 - 4. Disconnect water supply.
 - 5. Test and inspect joints for leaks.
 - 6. Option: Test ductile-iron piping according to AWWA C600, "Hydrostatic Testing" Section. Use test pressure of at least 10 psig (69 kPa).
- F. Force mains shall be hydrostatically tested at one hundred (100) psi for a period of two (2) hours. The maximum allowable leakage is no more than 0.59 gallons per hour per one thousand (1,000) feet of pipe for four (4) inch pipe and 0.89 gallons per hour for a six (6) inch pipe. Any pipe that has leakage greater than the allowed rates shall be repaired by the Developer/Contractor.
- G. Manholes: Perform hydraulic test according to ASTM C 969. Leaks and loss in test pressure constitute defects that must be repaired and retested.
- H. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

2.3.7 TEST FOR DAMAGED OR DEFECTIVE PIPE

After the pipe has been installed and tested, the Contractor must arrange for the pipe to be inspected with a video camera system of a type and size approved by the Utility. One approved contractor is College Utilities Corporation. All video work shall be done in the presence of the consulting engineer and shall constitute tests for alignment, grade, damage, defective pipe, or other type of faulty installation. If this inspection indicates any faulty installation of pipe, the Developer/Contractor shall repair or replace the pipe as directed by the Utility.

SECTION 3 - WATER DISTRIBUTION SYSTEM DESIGN GUIDELINES

3.1 - GENERAL

The design of a water distribution system addition within the City of North Pole service areas that connects to the Utility system shall be submitted to and approved in writing by the ADEC and the Utility prior to construction. The design shall be in accordance with State regulations, the Water Master Plan or other Utility planning schemes, and shall be consistent with the construction guidelines of the Utility water distribution system. Final design will be submitted to and approved by the Alaska Department of Environmental Conservation and thus must be certified by a professional engineer registered in the State of Alaska (18 AAC 80). It is suggested that a preliminary concept, layout of the water mains, soils investigation report, etc., be submitted for review by the Utility prior to the preparation of the required final design report, plans and specifications. The purpose of the preliminary submittal is to present the concept, factual data and controlling assumptions and considerations used for the functional planning of the proposed site. A final design report, plans, and specifications shall be submitted to, and approved by the ADEC and the Utility. The design report shall primarily focus on flow velocities and fire flows in the proposed water system and any changes in the existing water system caused by the addition.

The proposed final plat or metes and bounds description of the improvement area or other similar data must be submitted with each water system design. Permanent easements with ten (10) feet minimum on either side of the pipe are required for water distribution systems constructed on private property for maintenance access. A copy of all recorded easements within the improvement area must be submitted with the design plans, if not shown on an approved plat. All pertinent non-objections and/or permits from affected utilities and/or government agencies shall be secured prior to final approval.

Any addition to the Utility water distribution system shall be consistent with Utility standards of design, quality of materials and construction. Special emphasis shall be given to reduce future operation and maintenance costs due to conditions peculiar to North Pole.

This document compliments the Design and Construction Guidelines for Wastewater Collection Systems and both should be used together to diminish conflicts.

This document is designed to aid in meeting the requirements of the Utility. It must be emphasized that no single document can possibly present guidelines for all situations that will be encountered. The Utility shall have the ultimate authority to interpret this document and may direct modifications for specific situations.

3.2 - DESIGN CRITERIA

3.2.1 GENERAL

For the purpose of reviewing plans for a water distribution system, the design criteria contained in the Alaska Administrative Code (18 AAC 80), the latest adopted edition of the Uniform Fire Code and the Standards of ANSI, AWWA, ASTM, and ASME shall be utilized and supplemented by manufacturer's recommendations and provisions included herein.

It is important that the quality of water within the system be maintained. In addition, the design must consider cold temperatures, permafrost, and other factors which contribute to freeze up problems. In addition, other maintenance and operations concerns and anticipated conflicts with other utilities must be satisfied and resolved.

3.2.2 PARAMETERS

Design shall facilitate required testing and must include cleanliness, quality, disinfection, and pressure.

Service connection design and construction requirements shall follow the Utility's Hookup Standards book available at City Hall.

The Utility water distribution system is designed to minimize the risk of freezing. Water lines are insulated with urethane foam and are circulated by pump stations to prevent freezing. The distribution network is laid out in hydraulically balanced loops, and there are no dead ends in the system. Research has shown that a velocity of approximately 1.75 feet per second is required in the mains to circulate the customer's service line and keep them from freezing. New additions to the system must be designed for this minimum flow velocity and must not interfere with the balance of the existing distribution system. Additionally, new additions must supply sufficient flow to provide for both consumption and fire protection.

Basic design capacity shall provide for peak demand or fire protection requirement, whichever is larger. Design water consumption for the Utility shall be ninety (90) gallons per capita per day. Peak hourly demand for residential areas shall generally be at least four and one-half (4½) times the yearly average daily water demand. Capacity for commercial and industrial use will usually be based on the fire protection requirement. Actual fire protection requirements are based on ISO requirements and will be determined in conjunction with ISO to optimize the insurance rating for the entire service territory.

Normal operating pressure of the North Pole water system is 100 psi and the nominal maximum system design pressure is 200 psi.

The connection of a fire booster pump to the utility water system is prohibited without advance written approval from the Utility.

These guidelines shall also apply to water transmission lines except that system velocities may be reduced and service connections may be restricted.

3.2.3 REPORTS, PLANS, AND SPECIFICATIONS

The design report will include assumptions used in the design including expected occupancy of lots, expected population density, expected water consumption per capita, expected fire protection requirements, constants used for flow calculations, pump sizing calculations and initial set points for pump station controls. The design report, plans and specifications must be reviewed and approved by the Alaska Department of Environmental Conservation, the Utility and the appropriate Fire Department. "As-built" plans shall be submitted on reproducible Mylar and AutoCAD.

The City will perform the flow analysis and shall be reimbursed by the Developer/Contractor for this work. This analysis will include size of pipe, flow direction, calculated velocities, pressure losses, fire flow availability, peak demand requirements and temperature drop in the new water distribution system as well as detailing exactly how the existing system will be affected by the addition/changes.

Final plans will include both plan and profile details showing the relationship between the proposed water improvement and all other existing or proposed utilities and improvements. The plans shall show exact location of proposed improvements from designated survey control points and shall specify required elevations including pipe depth and fire hydrant top flange height. "As-built" plans must be certified by a Professional Engineer registered in the State of Alaska. All valves, hydrants, and service connections shall be located in their "as-built" positions. A minimum of three (3) swing ties shall be recorded to each valve and service connection. "As-built" plans must be submitted on reproducible Mylar and AutoCAD.

Elevation datum shall be NAVD '88 and noted on the design plans. A note shall be included on the plans specifying that construction will be in accordance with these construction guidelines. Tolerances for survey control and location of improvements are provided in Section 5.23, Construction Surveying.

Operation and maintenance (O&M) information shall detail the specific operational parameters and new components added to the existing water system. O&M manuals will include computer flow analysis, schematized flow pattern and a detailed narrative of the new system's operation, changes in the old system, and the method of operations set-up. Performance curves, equipment, "as-built" data sheets, test data, flow diagrams, "as-built" shop drawings, and narrative description on O&M

procedures shall be included. Spare parts information shall include parts lists accompanied with drawings, which identify parts by number.

3.2.4 MATERIALS AND OTHER SPECIFICS

All pipe and material shall meet the requirements of the National Sanitation Foundation (NSF) 61. Water mains shall be constructed of ductile iron pipe (DIP) of minimum Class shown on Standard Drawings. Water mains shall be fully restrained. Mains shall not be less than six (6) inches in diameter, except for service connections.

All water mains (including fittings) shall be completely insulated with foam to a thickness shown on Standard Drawings.

All water piping requires extra insulation where it is installed within seven (7) feet of existing storm drains, telephone duct banks, etc. The thickness of the insulation shall be relative to the separation. Typically, one (1) additional inch of insulation shall be provided for each foot of separation less than seven (7) feet. In cases where the storm drain or other conduit is installed after the water main, the insulation can be applied to the storm drain or conduit pipe rather than exposing and adding insulation to the water pipe. The thickness and extents of the insulation shall be the same on storm drain or conduit pipe as stated for the water main.

Water mains installed in casings shall have insulation spacers, twenty-four (24) inches long, with an outer diameter of two (2) inches less than the casing inner diameter, with tapered ends, and spaced at ten (10) feet on center. All the insulation, on the pipe to be installed through casings, shall be coated with waterproof surface coating.

Main line valving shall be provided at a maximum distance of every one thousand (1,000) feet and shall be adjacent to fire hydrants, where possible, to facilitate access to the valve. Resilient seat gate valves shall be used. Valves shall not be used for flow control.

Water mains beneath State of Alaska highways, other selected streets or the Alaska Railroad, shall be placed in casing as necessary according to their specific utility permit requirement. Pipe for river or slough crossing or other adverse conditions require a ball joint connection system with minimum deflection of fifteen (15) degrees with full restraints.

Fire hydrants are typically required at every intersection and in typical residential areas at spacings of less than five hundred (500) feet. ISO requirements for hydrants per area with district definition and the hose laying method shall be utilized to obtain zero deficiencies for ISO Class 3 for hydrant layout and spacing.

The water main typically will be located at an offset eight (8) feet from the center line of the road on the easterly or southerly side or on the opposite side of the sewer main. Valve boxes shall not be located in ditches or low spots in streets, thus minimizing drainage into them and avoiding disruption or maintenance problems. Fire hydrants typically will be located seven and one-half (7.5) feet behind the top back of the curb.

Soil borings shall be required as necessary to specify the bedding material and determine the water table. Pipe bedding shall be detailed on the design plans. Backfill shall be a minimum of five (5) feet over the pipes. Dewatering shall be required as necessary to allow installation without necessary interference from groundwater.

Pump stations, if required, shall be duplex electric motor driven pump assemblies. Pump stations shall be equipped with temperature and pressure measuring devices and flow meters. Flow control, bypass, pressure control, make-up heat and pump control devices will be provided as necessary. Heating and plumbing system must provide enough redundancy so that one component can be out of commission for maintenance while the other components provide full load. For example, if two boilers are provided, each must be capable of handling the full heat capacity. Upon completion, Developer/Contractor shall provide operator training, operation and maintenance manuals, and complete documentation of all products installed and spare parts provided.

3.2.5 SEPARATION DISTANCE

Horizontal and vertical separation shall be in accordance with the latest ADEC Regulations 18 AAC 80.020. Water and sewer mains (including manholes) shall be separated by a minimum of ten (10) feet horizontally, and by eighteen (18) inches vertically at crossings, measured edge to edge. A water line shall not be installed directly above or below a septic tank or leach field (at any vertical distance) or within ten (10) feet horizontally. Where it is not practical to maintain this separation, the ADEC may allow deviation on a case by case basis, if a waiver request is submitted to ADEC and is properly supported by data from the design engineer. Waiver requests must identify the reason for lesser separation and show:

- A. The lines are located in separate trenches and the top of the sewer main, where crossing, is at the maximum depth possible below the bottom of the water main until existing appurtenances elevations or depths of cover requirements prohibit such installation, and;
- B. The sewer line is designed and constructed in a manner equivalent to the requirements for a potable water pipe and is pressure tested to ensure water tightness or:

- C. The sewer line is enclosed in a water-tight carrier pipe of similar strength, i.e. casing.

At locations where water and sewer mains must cross, a waiver is not required if:

- Water line is above the sewer line;
- Sewer line is bedded per Type 4 or 5 (AWWA Standard C600-05);
- Water line joints are at least nine (9) feet from the sewer line and;
- Water line is at least eighteen (18) inches vertically from the sewer line.

If the above conditions can not be met for sewer and water crossings; a waiver request (similar to horizontal separation) must be submitted to ADEC.

Any design that fails to meet the ten (10) foot horizontal or eighteen (18) inch vertical separation distance shall require a waiver from ADEC.

SECTION 4 - WATER DISTRIBUTION SYSTEM CONSTRUCTION

4.1 - GENERAL

4.1.1 WORK INCLUDED

This section covers the installation of all water pipe, fittings, and appurtenances for the water distribution system.

Materials, operations or methods herein or indicated on the drawings as being required for the project, shall be provided by the Developer/Contractor. The Developer/ Contractor shall provide all the necessary labor, equipment, material, and the incidentals necessary to complete the system as shown on the design plans.

4.1.2 CODES AND REGULATIONS

- A. In addition to complying with all pertinent codes and regulations, the Developer/Contractor must comply with all pertinent requirements contained in the most recent Uniform Plumbing Code as adopted by the Utility, the most recent standards of the AWWA as specified, ADEC Regulations, and the most recent standards of the Utility.
- B. Where provisions of pertinent codes and standards conflict with this document, the more stringent provision shall apply.

4.1.3 CONSULTING ENGINEER

The consulting engineer shall be a registered engineer in the State of Alaska retained by the Developer/Contractor to design and coordinate the installation of the water distribution system.

- A. The consulting engineer shall furnish drawings and specifications which, as far as practical, completely represent the requirements of the work to be performed under the contract.
- B. The consulting engineer shall be responsible for the design of any construction changes required during the course of construction.
- C. The consulting engineer shall submit signed drawings and specifications to ADEC along with the associated application for construction approval. After construction is complete they must submit the application for interim and final approval to operate.

- D. The consulting engineer shall be responsible for submission of stamped as-built drawings to the Utility upon completion of the project. As-built drawings shall show all changes made during construction as well as a minimum of three (3) swing ties to all valves and service connections.
- E. The consulting engineer will provide the Utility with advance notice of the work schedule and report to the Utility as to the progress of the work and manner in which it is being performed.
- F. The consulting engineer is not authorized to revoke, alter, enlarge, relax, or release any requirements of the City and ADEC approved plans and specifications without concurrence, or to approve or accept any portion of the work or to issue instructions contrary to this document.

4.1.4 INSPECTION OF WORK BY THE UTILITY

The Utility shall perform inspections of the work and material to ensure compliance with the plans, specifications, and these Standards of Construction. Such inspections may extend to any part of the work including the preparation, fabrication, or manufacture of the materials used.

- A. The Utility's authorized representative will decide: all questions which may arise as to the quality and acceptability of materials furnished and work performed; all questions as to the degree of completion of the work; all questions which may arise as to interpretation of the design plans and specifications, and all questions as to the acceptable fulfillment of the contract on the part of the Developer/Contractor.
- B. The Utility's authorized representative shall have the authority to reject any work or materials that do not meet Utility standards.
- C. The presence or absence of the Utility's authorized representative does not relieve the Developer/Contractor from his obligation to fully perform all requirements of this document, nor does it give rise to any right of action or suit by the Developer/Contractor, or third persons against the Utility.

4.2 - MATERIALS

4.2.1 GENERAL

All materials shall be new, of current manufacture and conform to the specifications contained herein. Submit manufacturer's literature and affidavit of compliance with specified standards of the Utility for review and approval prior to procuring materials. All material shall meet the requirements of the National Sanitation Foundation (NSF) 61.

4.2.2 PIPING

- A. Water mains shall be ductile iron pipe, thickness class as shown on Standard Drawings, push on joint, cement lined. Pipe shall conform to AWWA C151. Cement lining shall conform to AWWA C104.

4.2.3 PIPE JOINTS

- A. Joints for ductile iron pipe and fittings shall be furnished with Field Lok® gasketed push-on joint (US Pipe Tyton or equal) or mechanical joint, both conforming to AWWA C111.
- B. All fittings shall have restrained joints. Restrained joint pipe and fittings pressure rating shall 350 psi.

4.2.4 PIPE FITTINGS

- A. Fittings for ductile iron pipe shall be mechanical joint and shall conform to AWWA C110 for 12-inch mains, or C153 for others. The fittings shall have a minimum pressure rating of 350 psi. Only ductile iron fittings are acceptable. Interior of fittings shall be epoxy lined per AWWA C116.

4.2.5 GATE VALVES

Gate valves shall conform to AWWA C-509 Resilient Seat Gate Valves. They shall be epoxy coated and lined in accordance with AWWA C 550. Valves shall be non-rising stem with o-ring seals. Valves shall have high strength cast iron bodies and be designed to withstand working pressures of 200 psi or more. Valves shall open by turning the operating stem in a counter-clockwise direction. Valves shall come equipped with name or symbol, the size of the valve, the year of manufacture and the working water pressure cast on the body of the valve. Valves shall be furnished with ends as specified on the Standard Drawings. Gate valves shall be equipped with a two (2) inch square operating nut.

4.2.6 FIRE HYDRANT ASSEMBLY

- A. Fire hydrants shall be Mueller Super Centurion 250. Each hydrant shall be equipped with two (2) two and a half (2-1/2) inch nozzles and one (1) four and a half (4-1/2) inch pumper nozzle. Nozzle threads shall be National Standard Fire Hose thread.
- B. Fire hydrant assemblies shall include fire hydrant, six (6) inch flange by mechanical joint gate valve, US Pipe "swivel" hydrant tee, and valve box.

- C. Fire hydrants shall be painted with two (2) coats of alkyd-gloss enamel paint after installation. Color shall be white.
- D. Gate valves shall conform with paragraph 4.2.5 of this section.
- E. Tee fittings shall conform to paragraph 4.2.4 of this section and shall be US Pipe Trim-Tyte ductile iron mechanical joint valve and hydrant tee, or equal.
- F. Valve box shall conform to paragraph 4.2.7 of this section.
- G. Insulation shall conform to paragraph 4.2.8 of this section.
- H. Bollards shall be schedule 40 steel, filled with concrete. They shall be installed at designated hydrants vulnerable to traffic damage. Bollards shall be installed per Standard Drawing W1. Bollards are to be painted white with two (2) coats of alkyd-gloss enamel paint with 3-inch red stripes at 45 degree angle spaced at 6 inches on center.

4.2.7 VALVE BOXES

All buried gate valves shall be furnished with cast iron valve boxes. Valve boxes shall be two (2) piece extension type with a cast iron cover. Valve boxes shall have walls not less than three sixteenth (3/16) inch thick and an internal diameter of not less than five (5) inches. Valve box covers shall have the word "water" cast into them.

Valve boxes shall be slip type with lower flanged top section and a deep well bottom section. Cast iron valve boxes shall be East Jordan Iron Works IFCO 2060 top and IFCO 2056 bottom. Valve box top sections shall be installed five (5) inches above the last extension piece to allow room for a plastic dust or grit cup installed by the Utility. Screw type valve boxes are specifically prohibited.

Valve boxes shall be installed in a manner that will minimize the amount of run off water that will enter the valve box, and provisions shall be made so that water will drain out of the valve box. Valve boxes outside of roadway or sidewalks shall stick up approximately two to three (2-3) inches above ground level for ease in locating.

4.2.8 INSULATION

Urethane spray foam insulation shall be rigid closed cell, two component urethane foam with the following properties:

K Factor:	0.15 (Btu - in/FT ² - Hr - °F) per ASTM C 518
Compressive Strength:	45 psi per ASTM D 1621
Nominal Density:	3.0 pcf per ASTM D 1622
Tensile Strength:	70 psi per ASTM D 1623
Shear Strength:	45 psi per ASTM C 273
Water Absorption:	0.017 gm/cc per ASTM D 2842
Water Vapor Permeability:	1.9 perm per ASTM C 355
Closed Cell Content (min)	90% per ASTM D 1940

Insulation material shall be Resin Technology 2035. Applicator shall demonstrate prior experience of at least two (2) years, and the Utility shall be the sole judge of the qualifications of application method and applicator.

4.2.9 POLYETHYLENE ENCASEMENT

Polyethylene encasement shall conform to ANSI/AWWA C105/A21.5 "Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids." Provide 8-mil polyethylene film tube or sheet.

4.2.10 WATERPROOF SURFACE COATING

Coating shall be a two-component, one hundred (100) percent solids, sprayable polyurea coating with the following properties:

Hardness:	90±5 (ASTM D-2240 Shore A)
Hardness:	50±5 (ASTM D-2240 Shore D)
Freeze/Thaw:	No disbonding or distortion (ASTM D-2126, 5 cycles)
Tensile Strength:	2500 psi (ASTM D-412, ASTM D-638)
Elongation:	265% (ASTM D-412, ASTM D-638)
Permeability (MVT@30 mils)	0.024 perm (ASTM E-96, Procedure B)
Weathering	3,000 hrs without threatening signs of deterioration (ASTM G-26, ASTM G-53)
Tear Resistance	430±50 pli (ASTM D-624)

Coating shall be polyurea elastomer, "Permax 700-HP" by Resin Technologies; "Polyshield SS-100" by Specialty Products, Inc.; or approved equivalent. Applicator shall demonstrate prior experience of at least two (2) years, and the Utility shall be the sole judge of the qualifications of system, application method, and applicator.

4.2.11 COMMERCIAL FACILITY CIRCULATION PUMPS

In the event that a customer owned circulation pump is to be the sole source of circulation for a Utility water main; the specifications, pump curves, etc., for this pump must be approved by the Utility prior to purchase of said pump. A typical installation of this type would be a commercial facility that is supplied with an eight (8) inch main and a four (4) inch return. At some point near the building, these mains become the hookup and property of the commercial facility which also owns the circulation pump. As the Utility mains are dead ended and can only be circulated by the customer's pump, it is necessary that the Utility approve the design and capacity of the pump.

The pump shall be sized to provide a minimum of one-tenth (1/10) foot per second in the largest Utility main circulated and change the water in the main a minimum of once every six (6) hours, (i.e. 4 times per day). In the example given above this would mean one-tenth (1/10) foot per second in the eight (8) inch main which could be up to one thousand five hundred sixty (1,560) feet long, to change each six (6) hours. The pump should pump fifteen (15) gallons per minute. The pump's operating point shall be determined by calculation of head loss of the service loop.

4.2.12 PUMP HOUSE

Building shall be concrete masonry with a metal roof sized to provide adequate space for all mechanical and electrical equipment in accordance with building codes and adequate space for maintenance applications as determined by the Utility.

4.2.12.1 Domestic Water System

A. Pumps:

1. Manufacturer: Paco or equal
2. Furnish and install a double suction horizontal split case centrifugal pump suitable for potable water service.
3. Casing: Casings shall be designed for 150 psi working pressure and shall be hydrostatically tested at 150 percent of the maximum working pressure under which the pump could operate at design speed. Pumps shall have the casing divided on the horizontal centerline. The casing halves shall be accurately machined, bolted and doweled together with a non-asbestos type gasket. Removal of the upper casing half and bearing housings shall permit removal of the complete rotating assembly without disturbing piping connections. Pumps shall be provided with removable bearing housings which will permit inspection and/or replacement of the mechanical seals, shaft sleeves, and bearings without removing the rotating assembly or top casing half. Pumps with 4 inch or larger discharge flanges shall be of the double volute design. Suction and discharge flanges shall be drilled to

ANSI Standards and be machined flat face. Pumps shall be fitted with lead-free bronze renewable case wear rings indexed with a dowel pin for fixed positioning.

4. Impeller: The lead-free bronze impeller shall be an enclosed Francis vane type, double suction design, hydraulically and dynamically balanced. The impeller is to be securely mounted on the pump shaft, and attached with a steel key. The impeller shall be locked in position by threaded shaft sleeves. The impeller shall be trimmed to meet the specific hydraulic requirements. Impeller trim must be equal to or less than 90 percent of maximum diameter which will fit into the pump casing.
5. Shaft: The pump shaft shall be made of high tensile 300 series stainless steel, precision ground to provide a true running rotating element.
6. Bearings: The pump shaft shall be adequately supported by the pump bearings to limit the shaft deflection to 0.002 inches. Bearings shall be ball type, grease lubricated and locked to the shaft with positive locks of ample size to withstand any axial thrust loads. Each bearing housing shall be bolted to the upper and lower casing halves for a full 360-degree support registered fit to insure positive alignment. Bearing shall provide a minimum life of 10 years when calculated at 50 percent of Best-Efficiency-Point for the scheduled pump.
7. Shaft Seals: The pump manufacturer shall recommend the proper mechanical seal based on the pressure, temperature and liquid outlined on the equipment schedule. Mechanical seals, at a minimum, shall have ceramic stationary seats, carbon rotating seats, and Buna elastomers.
8. Shaft Sleeves: Lead-free bronze shaft sleeves shall be firmly attached to the pump shaft through threading and locking means. Shaft sleeve design shall prevent corrosion and wear to the shaft.
9. Base, Coupling, and Guard: The pumps shall be mounted on a steel base with drip pan and directly connected through a heavy-duty flexible coupling to a horizontal motor as outlined in these specifications. The pump manufacturer shall provide an OSHA coupling guard, which shall be mounted between the pump and motor and attached firmly to the base.
10. Motors: The motor shall be sized to operate continuously without exceeding the horsepower rating regardless of the flow and head throughout the operating range of the "System Curve." Motors shall meet EPAC standards for premium high efficiency as a minimum. Close coupled, base-mounted, end suction, centrifugal pump with all bronze construction suitable for domestic potable water use.

- B. Control of Water Distribution Circulation Pumps:
1. The freshener pump shall be manually controlled (on/off).
 2. One of the pair of large circulation pumps shall run continuously. Each pump shall be monitored for proof of flow. If proof of flow is not established, the lead pump shall be shut off, and the lag (stand-by) pump shall be activated.
 3. Local control panel shall be provided that includes the water main temperature (as it leaves the building), lead/lag green pilot light for pump status. Panel shall have lead/lag pump selector switches and an alarm for lead pump failure.

4.2.12.2 Heating System

Heating System shall use propylene glycol and double walled heat exchangers with atmospheric vents. Provide a minimum of two (2) boilers, hydronic circulation pumps, and heat exchangers sized so that one component may be out of operation while the others provide the full heating or circulation capacity.

- A. Control of Heating System:
1. The boilers shall operate continuously as required to maintain a 180 degree F. glycol heating water supply temperature. The boilers shall activate whenever the outside air temperature is below a set temperature (adjustable). Whenever the outside air temperature is 5 degrees above the set temperature the boilers shall be off.
 2. The main hydronic circulation pumps shall activate whenever the outside air temperature is below a set temperature (adjustable). The hydronic circulation pumps shall be off whenever the outside air temperature is 5 degrees above the set temperature. One pump shall be set to run continuously when activated and the other pump(s) shall serve as the auxiliary pump in case the main pump fails.
 3. The glycol make-up system shall provide 50/50 glycol solution to the hydronic system as required by the system pressure sensor and make-up control valve. On a sensed pressure the glycol make-up pump shall activate and the system control valve shall open allowing the pump to fill the system as required. When the system pressure reaches the set pressure (adjustable), the glycol make-up pump shall deactivate and the system make-up control valve shall close.
 4. The heat exchangers shall modulate as required to maintain a domestic water supply temperature (entire circulated flow) of 42 degrees F. (adjustable). Each heat exchanger shall be manually valved as main and stand-by units.
 5. Provide outside air, glycol heating supply temperature indicators on the face of a hydronic system local control panel. Panel shall have green operation indicator pilot lights for the main and stand-by hydronic circulation pumps. Provide alarms for main hydronic pump failure.

4.2.12.3 Sensors and Alarms:

- A. General: System shall consist of a central panel or module with the necessary electronics to monitor local and remote conditions via sensors, and then to dial out to pre-programmed phone numbers to provide notification of abnormal conditions. Basis of design: Phonetics Sensaphone model 1104.
- B. Central Panel or Module: Factory fabricated console with input keypad, battery backup, RJ-11 telephone jack and cord, 120V plug power connection, tested for compliance with UL 1459. Shall have 4 user-selectable inputs, A/C power loss sensing, battery condition monitor, clock, and shall dial programmed numbers in sequence (on alarm condition) until acknowledged. System shall intelligently detect ringing or busy signal and shall be able to call pagers or beepers. Unit shall have programmable security code access.
- C. Monitoring: Shall monitor local space temperature with adjustable alarm at 50 degrees F, distributed water temperature with adjustable alarm set at 35 degrees F, and pump flow with alarm condition initiated when no flow occurs (adjustable setpoint). All sensors shall be compatible with central module.
 - 1. Indoor Temperature Sensor: 2.8 k ohm thermistor with 20 to 150 degrees F range.
 - 2. Water Temperature Sensor: Immersion thermistor sensor with range 10 to 230 degrees F, with stainless steel well. Basis of design: Kele model ST-W.
 - 3. Flow Sensor: NEMA 3R enclosure, adjustable differential pressure switch, materials compatible with potable water systems. Basis of design: Kele model F61KD.

4.3 - EXECUTION

4.3.1 HANDLING

- A. Use all means necessary to protect materials before, during, and after installation.
- B. In the event of damage, immediately make all repairs and replacements necessary to keep materials in a "like new" condition. These repairs or replacements must be approved by the Utility and made at no cost to the Utility.
- C. All material shall be handled and installed in accordance with manufacturer's recommended handling and installation instructions.

- D. If, in the judgment of the Utility, materials and/or installed work are not being protected or handled as noted in these specifications, or in accordance with the manufacturer's handling/installation recommendations, they shall be rejected and removed from the job site and shall not be used on any other work, either present or future for the Utility.

4.3.2 LAYING PIPE

- A. The pipe and fittings shall be inspected for defects before installation.
- B. All pipe shall be laid and maintained to the required lines and grades with fittings and appurtenances at the required locations as shown on the design plans.
- C. Water mains shall be laid with a minimum of five (5) feet of backfill over the top of pipe.
- D. Pipe interiors shall be thoroughly cleaned of all foreign matter before being lowered into the trench. At all times when work is not in progress, all open ends of pipe and fittings shall be securely closed so that no water, earth, rodents or other substances may enter. Each length of pipe shall be examined during assembly in the trench for debris. Any debris found will be removed immediately.
- E. Trenches shall be kept sufficiently dry so that no pipe will be laid in water. Water shall be kept out of the portions of the trench in which un-insulated joints are located while the joints are insulated and otherwise readied for backfill.
- F. Ductile Iron piping shall be laid inside polyethylene encasement tubing. The seams between tubing sleeves shall be taped.
- G. Cutting of pipe for closure or other reasons shall be done by methods which will not damage the pipe and which will insure tight joints.
- H. Pipe shall be inspected for defects before lowering into the trench. All defective, damaged or unsound pipes shall be replaced and removed from the site. Any section of pipe already laid but found to be damaged or defective shall be replaced with new pipe, at no cost to the Utility.
- I. Pipe bedding shall be as noted in Section 7 Trenching, Backfill, and Compaction. Bedding shall be placed to ensure that the pipe is given a uniform bearing for its full length.

- J. Deflections from a straight line or grade shall not exceed the limits recommended by the manufacturer, minus 2-degrees. If the specified or desired alignment requires deflections in excess of such limits, the Developer/Contractor shall either provide special bends or a sufficient number of shorter lengths of pipe to provide angular deflection within such limits.
- K. Standard lengths of pipe shall be used except where short lengths are required for fittings, or wherever pipe passes through a rigid structure.
- L. Pipe ends for future connections shall be valved, plugged or capped and shall be provided with restraints.
- M. Lubrication for push-on of ductile iron pipe shall be water soluble as recommended by the manufacturer.
- N. Any pipe or structure having its alignment or grade changed by floating in a flooded trench shall be re-laid.
- O. To counteract the unbalanced thrust at horizontal and vertical angle points, bends and other special fittings, the Developer/Contractor shall provide Mechanical Joint fittings with Megalugs® and all push-on joints shall have Field Lok® Gaskets.
- P. At tie-in locations to piping that was installed with unrestrained joints, thrust blocks are required. Thrust blocks shall be constructed as shown on Standard Drawings.

4.3.3 FITTING AND VALVE INSTALLATION

- A. Fittings and valves shall be installed at the locations shown on the design plans.
- B. Valve installation shall be in accordance with Standard Drawings.

4.3.4 FIRE HYDRANT INSTALLATION

- A. Fire hydrants shall be installed at the locations shown on the design plans.
- B. Fire hydrant installation shall be in accordance with the Standard Drawings. Fire hydrants shall be inspected, installed, and tested according to the most recent publication of AWWA M-17.

4.3.5 INSULATION

- A. The Developer/Contractor shall furnish labor, materials, equipment and services necessary for, and incidental to, field application of spray urethane foam.

- B. Water mains and fittings shall have a minimum thickness of urethane foam insulation shown on Standard Drawings.
- C. Insulation shall be applied to water mains above ground in a local yard. Pipe may not be insulated in the ditch except under special circumstances, which must be approved by the Utility.
- D. Hydrants shall be insulated as shown on the standard detail drawings. The drain holes must not be covered.
- E. Buried valves shall be insulated with urethane foam, thickness shown on Standard Drawings, up to the packing gland.
- F. Pre-insulated pipe that has damaged insulation due to transportation shall be reinsulated to the satisfaction of the Utility. Backfill shall not take place until all insulation has been inspected.
- G. Backfill shall be placed so that pipe insulation will not be damaged.

4.3.6 CONNECTIONS TO EXISTING SYSTEM

- A. Connections to existing water mains shall be made by Utility personnel only, at the expense of the Developer/Contractor.
- B. Materials for these connections shall be furnished by the Developer/Contractor.
- C. The Developer/Contractor shall give the Utility at least forty-eight (48) hours advance notice when requesting a connection.
- D. The Utility reserves the right to schedule shutdowns to minimize possible conflicts and inconvenience to its existing customers.

4.3.7 PRESSURE TESTING

The Developer/Contractor shall perform a pressure test on the installed pipeline; in accordance with the latest revision of AWWA 600. All mechanical joints shall be left exposed until completion of the pressure test. All portions of the pipeline shall be adequately restrained or backfilled to counteract thrust forces introduced by the pressure test. All pitorifice assemblies, service tees and hydrants shall be installed prior to the pressure test. All air shall be properly vented from the pipe during charging. Water for pressure testing and flushing will be provided by the Utility. Once the line has been filled and all air removed, the utility main connection shall be isolated from the new section of piping under test. The Contractor shall provide potable make-up water and test pump to pressurize the line to **150 psig**. The make-up water and pump shall be disconnected during the test period. Only approved

pressure gauges with 5 psi increments shall be used, provided by the Contractor. While under this pressure, all joints shall be visually examined. Any evidence of leakage shall be repaired and the line retested until meeting these requirements.

After there is no evidence of leakage, the pipe section shall be held under pressure for **2 hours**, with an initial pressure of 150 psig. At the end of the 2 hours, the make-up water and pump shall be reconnected and the line re-pressurized to 150 psig. The make-up water shall then be bled off into a graduated container until the pressure equals the pressure indicated at the end of the test.

The allowable leakage shall be determined by the following formula:

$$(1) \quad L = \frac{S D \sqrt{P}}{148,000}$$

L = allowable leakage (make-up water), in gallons per hour

S = length of pipeline tested (feet)

D = nominal diameter of the pipe (inch)

P = average test pressure during the test (psi)

No pipe section will be accepted if the leakage is greater than allowable. Service reconnections and final connections to the existing main shall be visually inspected at main line pressure.

4.3.8 DISINFECTION AND FLUSHING

- A. Mains shall be disinfected in accordance with the latest revisions of AWWA C651. The Developer/Contractor shall furnish all material, labor, equipment, and services required for disinfection of the pipeline. Mains shall be chlorinated using calcium hypochlorite granules or tablets.

The main shall be filled slowly so as not to wash the chlorine to the end of the test section.

The chlorinated water will have a minimum contact time of 24 hours. A minimum chlorine residual of 25 mg/L is required at the end of the 24 hour period. The maximum value shall not be more than 50 mg/L to minimize damage to copper service lines. Mains shall be thoroughly flushed following disinfection.

- B. If initial chlorine concentrations are not uniform, circulate water until uniform.
- C. All new lines shall be full bore flushed. Flushing through hydrants shall not be permitted.

- D. Disposal of the flushing water shall be the responsibility of the Developer/Contractor. Removal of this water shall not cause damage to property or inhibit the flow of vehicular traffic in or around the work area.
- E. The disinfection shall be supervised by a State certified laboratory. This laboratory shall certify that the initial, residual, and flushed chlorine concentrations meet the standards. A biological purity test shall be taken and a State certified laboratory shall provide a drinking water analysis report for total coliform bacteria for each sample taken. Absolutely no service connections will be made until these test results have met Utility standards and have been approved by the Utility and ADEC has granted Interim Approval to Operate.

SECTION 5 - CONSTRUCTION SURVEYING

5.1 - GENERAL

5.1.1 SCOPE OF WORK

The Developer/Contractor shall perform all surveying and staking essential for the completion of the project in conformance with the design plans and specifications and shall perform all necessary calculations required to accomplish this work. Monumentation shall be in accordance with State of Alaska Standard Drawings.

5.1.2 QUALITY ASSURANCE

- A. In addition to complying with all pertinent codes and regulations, all staking, surveying computations and calculations shall be accomplished in accordance with standard surveying practices and instructions issued by the Utility.
- B. Where provisions of pertinent codes and standards conflict with this specification, the more stringent provisions shall control.
- C. The Developer/Contractor shall use competent personnel and suitable equipment for the layout work required and shall furnish all stakes, templates, straight edges and other devices necessary for checking and maintaining point, lines and grades.
- D. Upon the Utility's request, the Developer/Contractor shall provide evidence acceptable to the Utility that the individual who is proposed to perform the construction staking has a minimum of three (3) years experience in similar construction staking work in the State of Alaska, is knowledgeable in the operation of required staking instruments and is capable of reading, understanding and accomplishing the construction survey work described herein.
- E. All surveying work requiring the setting/resetting of monuments, property corners and all permanent survey monuments shall be accomplished under the direct supervision of a Registered Land Surveyor, licensed in the State of Alaska.
- F. The contractor shall maintain a red line "mark-up" set of plans which shall be revised by the contractor as the work progresses to reflect current conditions. The revisions are to be indicated in a neat, well organized manner and are to include all changes to the original plan as well as the elevation and plan location of any utilities, structures etc. encountered or installed. Field notes shall be kept in standard bound notebooks in a clear, orderly, and neat

manner consistent with standard engineering practices. Field books shall be available for inspection by Utility personnel at any time. Copies of all field notes shall become the property of the Utility prior to final acceptance of the project. A minimum of three (3) swing ties shall be recorded to all valve boxes, manholes, flushwells, and service connections.

5.1.3 DISCREPANCIES

In the event that a discrepancy or error is discovered in the Utility Standards or design plans, immediately notify the Utility in writing. Do not proceed with installation in the areas of discrepancy until all such discrepancies have been fully resolved.

5.2 - CONSTRUCTION REQUIREMENTS

5.2.1 GENERAL

- A. The Developer/Contractor shall be responsible for the supervision of the construction surveying personnel. Any errors resulting from the preparations of said personnel shall be corrected at the expense of the Developer/Contractor, at no cost to the Utility.
- B. All lot corners adjacent to, or within the area of the construction project that are destroyed or disturbed by the Developer/Contractor, shall be replaced at the expense of the Developer/Contractor.
- C. If field measurements or construction work is necessary to determine quantities or verify proper installation, that work shall be performed by the Developer/Contractor's survey crew under the supervision of the Utility.
- D. The Developer/Contractor shall be responsible for recording the locations of all installed pipes and appurtenances to the accuracy stated in subsections 5.1.2(A), 5.2.3(A) and 5.2.3(B).

5.2.2 SURVEY CONTROL

All control, alignment, or grades necessary for construction shall be the responsibility of the Developer/Contractor. All alignment and grades shall be set in such a manner that they can be checked by the Utility.

5.2.3 FINAL ACCURACY

- A. A water system shall be installed within six (6) inches horizontally and six (6) inches vertically to the exact location taken from the design plans. However, the minimum of five (5) feet of cover shall always apply.
- B. Sanitary wastewater collection systems shall be installed within six (6) inches horizontally and one-hundredths ($1/100$) of a foot vertically of the exact location taken from the design plans. In addition, any section of pipe shall not vary by more than ten (10) percent of the gradient shown on the design plans.

SECTION 6 - TRAFFIC CONTROL

6.1 - GENERAL

The Developer/Contractor shall perform actions necessary to protect and maintain traffic during the life of the contract, including the furnishing of such personnel, equipment and devices as may be required to insure the safety of the traveling public. The street excavation permit will include signing requirements, which shall be followed by the Developer/Contractor.

6.1.1 PUBLIC NOTIFICATION

In the event that the planned construction will effect the public, the Developer/Contractor shall post a notice to the public in a local daily newspaper advising the public of the project boundaries including a scale map showing the project area and suggested detour routes, the project time limits, the general contractor's name, and the need to be alert for construction signs and traffic control. The notice, dimensioned 3- by 5-inch minimum, shall appear once fourteen (14) days prior to the start of work and continuously for seven (7) days beginning five (5) days before the start of work.

6.1.2 TRAFFIC CONTROL SIGNAGE

All traffic control devices used by the Developer/Contractor shall be placed and maintained in accordance with the requirements as specified in the Manual on Uniform Traffic Control Devices with Alaska Supplement. No construction operation will be allowed to commence until the Developer/Contractor has obtained the proper signs and placed them as required by MUTCD. Hastily made hand painted signs and barricades will not be permitted.

6.1.3 ACCESS

The Developer/Contractor will be required to: maintain pedestrian access to all residences and businesses in the construction zone; maintain vehicle access for emergency vehicles, fire trucks, ambulances and police vehicles; provide barricades and flagging personnel as necessary while working all areas and in particular busy intersections on the project. Ditch openings which isolate businesses and other areas as specified by the engineer shall be provided with an approved bridge system capable of withstanding traffic loads to those areas. No road or business driveway may be closed without the approval of the engineer unless the Developer/Contractor has received written authorization from the owner affected.

6.1.4 OPEN WORK

At no time will the Developer/Contractor have more than one thousand (1,000) feet of trench open, nor more than two (2) existing intersections closed to vehicular traffic. Pedestrian access crossings suitably equipped with handrails shall be provided. The cost of such crossings, if required, shall be the responsibility of the Developer/Contractor.

6.1.5 BARRICADE WARNING LIGHTS

Barricade warning lights shall be provided and maintained at all barricades and at all other points where directed by the engineer and shall be kept continuously functioning from one (1) hour before sunset until one (1) hour after sunrise.

6.1.6 AGENCY NOTIFICATION

The Developer/Contractor is required to notify the following agencies at least twenty-four (24) hours prior to starting any work which might inconvenience or endanger vehicular traffic. Information on project area, duration and detour routes should be provided.

City of North Pole Fire Department	488-2232
City of North Pole Police Department	488-6902
City of North Pole Public Works	488-2281
Alaska State Troopers	451-5100
FNSB - Transit	459-1002
FNSB - School Bus	452-2000 x351 or 352
(If during school year)	

6.1.7 PERMITS

The Owner/Developer or his Developer/Contractor shall be responsible for obtaining all necessary federal, state, borough or city permits. The permit(s) shall describe all work to take place on Federal, State, Borough, or City owned lands, right-of-way(s), or accesses to include tie-in(s) to existing utilities.

SECTION 7 - TRENCHING, BACKFILLING AND COMPACTION

7.1 - GENERAL

7.1.1 WORK INCLUDED

The work covered by this section includes providing all labor, equipment, supplies, and materials required for excavation, backfill, and compaction for pipelines and related utility structures.

7.1.2 DEFINITIONS

Backfill	Material placed in an excavated area.
Bedding	Material in which utility pipelines or utility related structures are placed.
Classified Backfill	Material other than native material to be used for backfilling trenches or bedding.
Compaction	Tamping soils by hand or machine to achieve a specific in-place density.
Disposal Site	Specific site where construction wastes are deposited.
Drainage Rock	Course or washed granular material supporting structures.
Engineer	Utility engineer or authorized representative responsible for engineering supervision of the construction and contract.
Excavation	The removal of material from an area to provide a suitable base for improvement and/or to reach a specified grade or depth of bury. The improvement may be the replacement of unsuitable material with other material, the removal of existing utility pipelines and related structures, the installation of new utility pipelines or related structures, or other work shown on the design plans.
Embankment	Material placed above the original ground line.
Spoil	Material that has been removed from an excavation.
Over Excavation	Excavation beyond the depth required for setting a utility pipeline or related utility structure in the natural soil.

Spring Line	Horizontal line coincidental with the centerline of a buried pipeline.
Pipe Zone	Interval of backfill around a buried pipe extending from the bottom of the pipe to a level of one (1) foot over the top of the pipe.
Structures	Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below ground.
Subgrade	The uppermost surface of an excavation of the top surface of a fill or backfill immediately below subbase, drainage rock, or topsoil materials.
Trench	Any excavation for a pipeline, pipeline appurtenance, or related utility structure.
Unsuitable Material	Material which in the opinion of the Engineer is inadequate for use in the proposed project.
Utilities	On-site underground pipes, conduits, ducts, and cables.

7.1.3 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

Before any excavation is started, the Developer/Contractor shall contact all other utility companies to determine the exact locations of underground utilities in the field. The Developer/Contractor shall be responsible for any and all costs incurred in protecting existing utilities during construction.

7.2 - MATERIALS

7.2.1 CLASSIFIED BACKFILL (SELECT GRAVEL)

Classified backfill material shall be well-graded, select, alluvial gravel and shall consist of hard, durable particles or fragments of granular aggregates naturally blended with fine sand, clay, silt or other similar binding or filler material from approved sources. The material shall be free of organic matter, lumps or excessive amounts of clay or silt and objectionable or foreign substances. It shall have a plasticity index not greater than six (6) as determined as AASHTO T-90. Select gravel shall meet the following gradation requirements as determined by Alaska T-7.

GRADING REQUIREMENTS FOR SELECT GRAVEL

Percent Passing by Weight	
<u>Sieve Designation</u>	<u>Grading (% Passing)</u>
3 inch	100
2 inch	85-100
No. 4	30-70
No. 60	35 Max.
No. 200	5 Max.

7.2.2 BACKFILL MATERIAL

Backfill material shall be thawed material obtained during excavation, which is free from organic or frozen material, stumps, roots, trash, high water content, and any other material that in the opinion of the Engineer is unsuitable. Material deemed unsuitable for backfilling shall be removed from the site and replaced with suitable material.

7.2.3 PIPE BEDDING

Bedding material shall be river run, screened, and well-graded, free of organic material or debris.

<u>Sieve Designation</u>	<u>Percent Passing by Weight Grading</u>
½ inch	100
No. 40	Less than 40
No. 200	Less than 5

Or bedding material could consist of uniformly graded pea gravel with a minimum size of 1/4-inch and maximum size of 1/2-inch if wet conditions are encountered. If pea gravel is used for bedding silt zones shall be installed at every valve and every hydrant for 10 feet each side to prevent trench drainage.

7.2.4 FILTER FABRIC

Meet AASHTO M 288 for separation (Class 3). Fabric must be nonwoven and meet the following requirements: AMOCO 4547 or equal,

Grab Tensile Strength:	Minimum 112 pounds as determined by ASTM D 4632.
Puncture Strength:	Minimum 40 pounds as determined by ASTM D 4833.
Elongation:	Minimum 50 percent as determined by ASTM D 4632.

7.2.5 DRAINAGE ROCK

Washed, uniformly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing a four (4) inch sieve and not more than five (5) percent passing a one (1) inch sieve.

7.2.6 ACCESSORIES

- A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
 - 1. Tape Colors: Provide tape colors for utilities as follows:
 - Blue: potable water
 - Green: sewers and drain lines
 - Yellow: gas, oil, or steam
 - Red: electric power lines, cables, conduit and lighting cables
 - Orange: communications lines, alarm or signal lines, cables or conduit
- B. Electronic Marker shall contain a passive-tuned antenna, molded inside a plastic disk. Shell of marker must be impervious to minerals, chemicals and temperature extremes. 3M Scotchmark 1403-XR, Electronic Ball Marker for water utilities and 1404-XR for wastewater utilities, or equal, compatible with utilities 3M marker locator.

7.3 - EXCAVATION

7.3.1 GENERAL

Trench and structure excavation shall be by open cut unless otherwise noted on the design plans.

The Developer/Contractor shall perform all excavation of the depth and alignment shown on the design plans unless otherwise directed by the consulting engineer in writing. Materials to be used for backfilling shall be piled a sufficient distance from the excavation to avoid overloading that could cause slides or cave-ins.

The Developer/Contractor shall be responsible for preventing standing water in any excavation prior to placement of compacted backfill. Any grading necessary to prevent surface water from draining into excavation shall be done. Any water standing in open excavation shall be promptly removed. Any pipe or structure having its alignment or grade changed by floating in a flooded trench shall be re-laid.

Equipment with tracks that is used on pavement shall be equipped with suitable pads to prevent damage to pavement. The Developer/Contractor shall be responsible for any damage to pavement.

Disposal of surplus or unsuitable material: Excavated material not required for fill or backfill and/or unsuitable excavated material shall be removed to a disposal site by the Developer/Contractor.

Excavation in Roadways and Paved Areas:

Pavement, sidewalk, curb and gutter, driveway, bike paths, etc. shall be cut vertically along the lines forming the trench in such a manner as not to damage the adjoining pavement. Pavement cuts shall be twelve (12) inches wider than the trench on each side. Pavement shall be cut just prior to the commencement of paving operations.

Concrete pavement, sidewalk, curb and gutter, or driveway to be removed shall be sawed or cut by equipment approved by the Engineer, along straight lines designated by the Engineer, or shall be broken back to the nearest construction joint or sawed crack.

7.3.2 TRENCH EXCAVATION

- A. Trench Depth: The depth of the trench excavation shall be such that the pipe can be laid on bedding in the bottom of the trench at the invert grade or pipe bury shown on the design plans. The bedding shall be finish graded by hand to provide a uniform bearing for the pipe on undisturbed earth between joints.
- B. If the trench is overexcavated, bedding material shall be used to bring up to grade.
- C. Frozen Material: Where frozen material is encountered during trench excavation, the Developer/Contractor shall excavate the trench to approximately six (6) inches below required trench grade and replace the excavated frozen material with thawed material from the trench excavation, or from other sources, as bedding for the pipe.
- D. Over-Excavation: When, in the opinion of the Engineer, material is encountered at the bottom of the trench, which is unsuitable for pipe bearing, the Developer/Contractor shall over-excavate at least one and one-half (1½) feet and replace the unsuitable material with bedding material. If any ice lenses are present, they must be completely excavated and removed to the satisfaction of the Engineer.

- E. Trench Configuration: Trench width shall be adequate for proper laying and joining of the pipe and for compaction of backfill around the pipe, but not so wide that excess loads on the pipe will result.
- F. Trench walls shall be vertical to the top of bedding to prevent sloughing of trench walls, the trench walls shall be sloped so as to meet Alaska Department of Labor Safety Codes, OSHA, and other applicable codes.
- G. Bracing and Sheeting: Where required to protect adjacent structures or property and safeguard employees, the trench shall be properly sheeted and braced as prescribed in the construction safety code of the Alaska Department of Labor, OSHA, and other applicable codes. The Developer/Contractor shall be responsible for all costs incurred for any shoring or bracing needed to protect employees and/or adjacent structures, property, and utilities.
- H. Open Trenches: The Developer/Contractor shall have on hand all material and equipment for the completion of work prior to commencing any excavation. Unless specified in writing by the Engineer, the Developer/Contractor shall not expose more than one thousand (1,000) linear feet of open trench at any one time. In trenches adjacent to and in traveled streets, the Developer/Contractor shall not expose any more trench than can be properly backfilled by 6:00 PM of the day that the trench is excavated, unless a written variance is obtained from the City. In no case shall trenches for driveway or street crossings be left open past 5:00 PM on the day they were excavated.
- I. Mailboxes and Street Signs: During trenching operations, temporary relocation of mailboxes and street signs is required. They shall be set firmly at locations approved by the Engineer. After completion of the trenching operation, the mailboxes and street signs shall be reset in their original location and condition.
- J. Damage or Disruption to Property: At his expense, the Developer/Contractor shall replace all fences, mailboxes, animal pens, and other private or public improvements, which are damaged or disturbed as a result of his activity. Where gardens, lawns, or landscaping are encountered along the route of the excavation, the existing topsoil shall be removed and stockpiled for replacement in original condition after the trench is backfilled.

7.3.3 BACKFILLING AND COMPACTION

- A. Bedding beneath Pipe: Utility pipelines and related structures shall be bedded as indicated on Standard Drawings. Pipe bedding shall be shaped to fit the lower third of the pipe. Whenever the trench bottom does not afford a sufficiently solid and stable base to support the pipe or appurtenances, the Developer/Contractor shall over-excavate to a depth of at least one and one-half (1½) feet and backfill with bedding material to the specified grade. The Engineer may require a layer of filter fabric to be placed between the subgrade and the bedding material. The bedding shall support the full length of the pipe. Compaction of the subgrade may be required.
- B. Bedding around Pipe: Backfill to the spring line shall be placed by hand in maximum layers of three (3) inches and thoroughly compacted by tamping. Special care shall be taken to assure complete compaction under that portion of the pipe between the spring line and the bottom of the pipe. Backfill material shall be placed in the trench for its full width on each side uniformly.

Material shall have sufficient moisture to permit thorough compaction under and on both sides of the pipe to provide full support free from voids.

From the spring line of the pipe to a depth of one (1) foot above the top of the pipe, the backfill shall be placed in eight (8) inch maximum layers and compacted by tamping.

Compaction of bedding from the bottom of the trench to one (1) foot over the pipe shall be not less than ninety-two (92) percent of the maximum density as determined by ASTM D1557.

All backfilling shall be done progressively. As soon as sections of pipe are laid to proper grade and line, backfilling may proceed.

- C. Backfill Above Pipe: Backfill in this zone may be placed by any method approved by the Utility, providing such method shall not impose excessive concentrated or unbalanced loads which will transmit shock or impact to the buried pipe. All trenches shall be backfilled in uniform layers not exceeding six (6) inches loose depth and compacted to obtain ninety-two (92) percent of maximum density. Under traveled ways, and within street right-of-ways, material shall be compacted to ninety-five (95) percent of ASTM D1557 density. Water settling will not be allowed.

No rocks or stones exceeding six (6) inches in the largest dimension shall be placed within one (1) foot of the top of the trench.

After backfilling and prior to performing surface restoration, the Developer/Contractor shall grade all trenches and maintain them during the period of construction to provide safe travel by the public, free of settlement, mud holes, ruts, and high centers.

- D. Backfill or Trenches Across or Along Borough, City, or State Roadways: Backfill of a trench in borough, city or state right-of-way must comply fully with the conditions of the permit(s) issued by the appropriate agency.
- E. Compaction testing: Field density tests of compacted backfill may be run at all stages of backfill. These tests will be performed by the Engineer at the expense of the Developer/Contractor to insure that the specified density is being obtained.

The test area shall not exceed one thousand (1,000) feet of trench. Test areas that are not acceptable shall be brought in compliance by additional compaction or removing and reworking the backfill at the Developer/Contractor's expense.

7.3.4 DEWATERING

- A. General: The Developer/Contractor may devise his own method of dewatering excavations. Whatever method is chosen must be approved by the Engineer in writing prior to implementation. The dewatering operation must be conducted so as to dispose of water in the excavation without damage to property, inconvenience to property owners, inconvenience to the public, or impairment of traffic.
- B. Disposal of Water: The disposal of water removed from excavations shall be done in accordance with state regulations, including those of the Department of Environmental Conservation and the Department of Fish and Game. The Developer/Contractor shall be responsible for applying for and securing whatever permits are required for his proposed plan and for complying with the conditions of those permits.
- C. Liability for Damage: The Developer/Contractor shall assume liability for flooding or related water damage to private or public property as a result of dewatering.

- D. Coordination with Utilities: In the event the Developer/Contractor uses a system of well points, he shall, prior to work, coordinate with local utilities to field determine the location of all buried utilities which could be damaged by driving or otherwise setting well points. The Developer/Contractor shall assume liability for damage to any buried utility, which occurs as a result of his work.
- E. Developer/Contractor shall provide water if a private well is affected by dewatering, and rehabilitate well/pump as required, if well does not deliver similar amount of water after construction as it did before.

SANITARY SEWER SYSTEM STANDARD DRAWINGS

SS1 - Wastewater Details

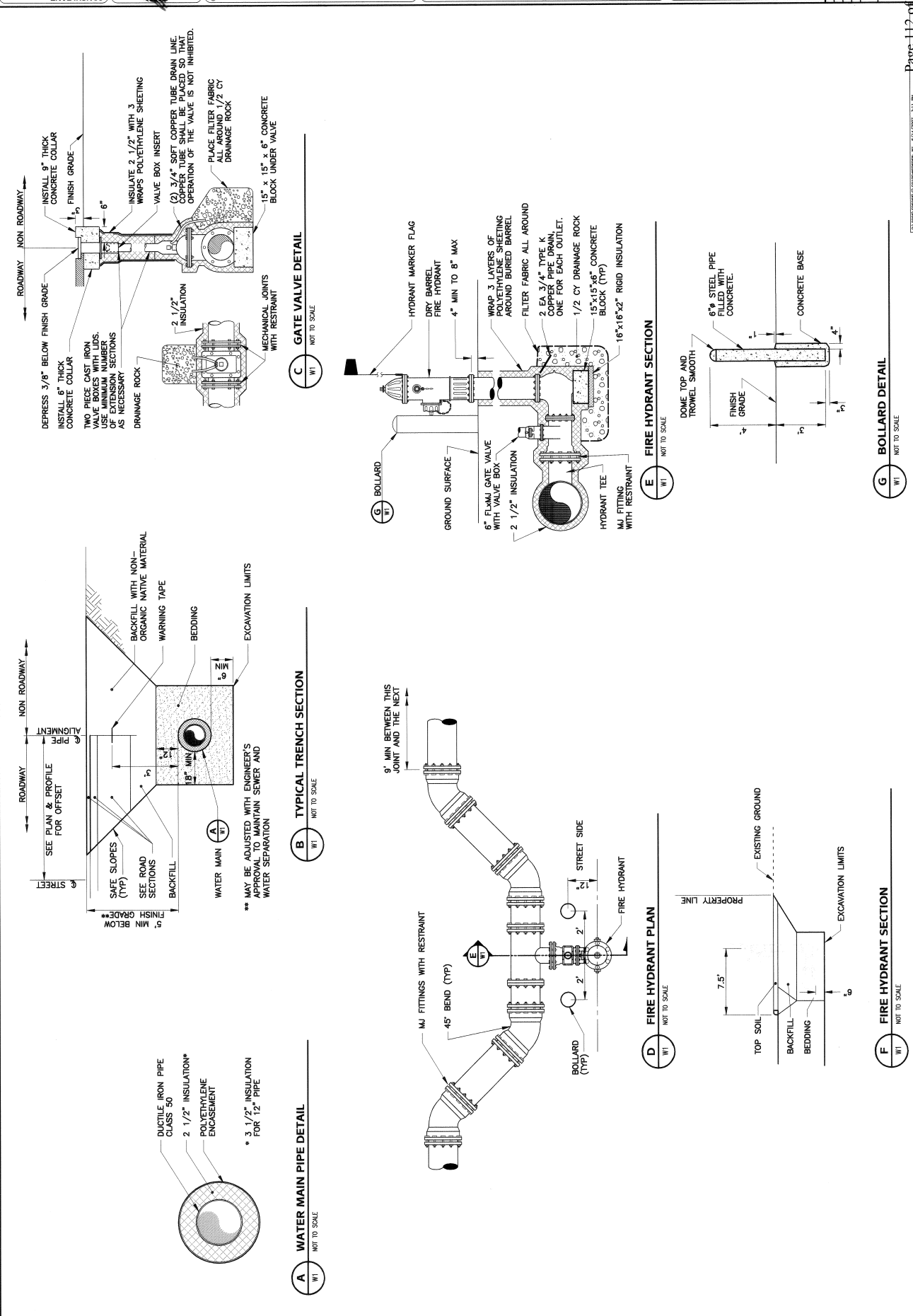
SS2 - Wastewater Details

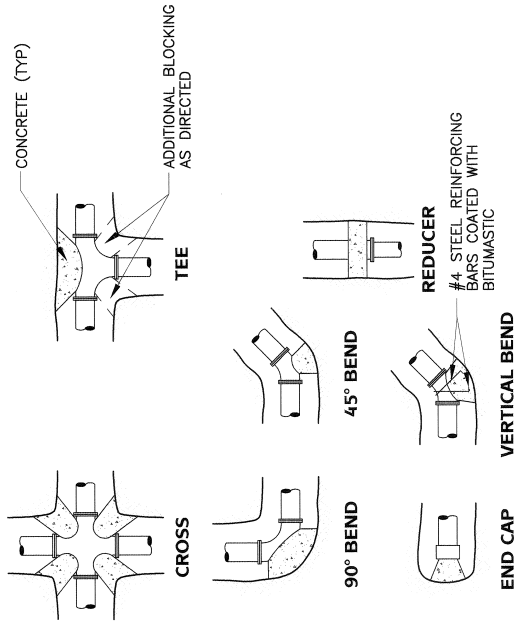
LS1 - Lift Station Details

WATER SYSTEM STANDARD DRAWINGS

W1 - Water Details

W2 - Thrust Block Details





PIPE Ø	DEAD END TEE	HORIZONTAL TO END MINIMUM BEARING AREA, SF				VERTICAL BEND MIN VOL, CY	
		90°	45°	22 1/2°	CROSS EACH WAY	90°	45°
6"	5	7	4	2	5	2	2.6
8"	8.5	12	6.5	3.5	8.5	3	4.5
10"	13	18	10	5	13	5	6.8
12"	18	26	14	7	18	7	9.6
							5.2
							2.6

THRUST BLOCK NOTES:

1. BASED ON PRESSURE OF 200 psi, MIN COVER OF 3' AND SOIL BEARING OF 1500 psf.
2. FOR SOIL BEARING
 - = 3000 psf, USE 0.5 AREA SHOWN
 - = 1000 psf, USE 1.5 AREA SHOWN
 - = 500 psf, USE 3.0 AREA SHOWN
3. ALL ANCHORS AND THRUST BLOCKS SHALL BE PLACED AGAINST UNDISTURBED SOIL OR COMPACTED BEDDING.
4. THRUST BLOCKS ON CROSSES SHALL BE USED WHENEVER PIPE DIAMETERS DIFFER OR WHEN ONE OR MORE OPENINGS ARE PLUGGED.
5. FORM THRUST BLOCKS SO THAT BOLTS ARE NOT COVERED WITH CONCRETE AND ARE READILY ACCESSIBLE.
6. ALL THRUST BLOCKS SHALL CONSIST OF A MINIMUM OF 0.5 CY CONCRETE.
7. WRAP PIPE AND JOINTS WITH 6 mil POLYETHYLENE SHEETING.



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Appendix I: PDC Engineers Statement of Work

Attached is PDC Engineer's Statement of Work for plan review and inspection services as the City's representative.

City of North Pole – Eagle Estates 4th Addition
Patriot Drive, North Pole

The City of North Pole (CITY) requests a Plan Review of the utilities and site design for Eagle Estates, 4th Addition, located off Patriot Drive and adjacent to the Stillmeyer Subdivision. Plan Review to include analysis of the street design, site drainage, and water and sewer systems. PDC will review the submitted plans with respect to the City's current standards for construction, as well as with respect to the Record Drawings for what was installed in Stillmeyer Subdivision.

This Statement of Services details the scope to be provided by PDC Engineers, a division of RESPEC Company, LLC (ENGINEER).

ENGINEER REQUIREMENTS

Upon this Agreement becoming effective, the ENGINEER shall perform the following tasks:

Design Review

1. Review of current City of North Pole Standards to determine design criteria.
2. Verify current operating conditions and water circulation rate in Stillmeyer Pumphouse.
3. Review City water model and perform hydraulic analysis with proposed water mains.
4. Analyze current circulation pump data and provide recommended changes, if any. This may include impeller trim and modifications to the control valve.
5. Verify drainage design and perform a stormwater analysis.
6. Review road design to verify City Standards of Construction are met.
7. Summarize comments in a Technical Memo.
8. Coordinate with the City to address any review comments or questions.
9. Develop a list of inspections/tests needed to verify construction meets City and ADEC requirements.

Construction Administration/Inspection:

1. Review submittals.
2. Provide site inspections and witness testing.
3. Review test results for compaction, water sampling, and pressure testing of water and sewer.

4. Review Record Drawings.
5. Respond to changes.
6. Provide Project Closeout Memo.

CITY RESPONSIBILITIES

The CITY will provide:

1. All criteria and full information as to CITY's requirements for the Project.

SCHEDULE

The schedule for the project is as follows:

- | | |
|--------------------------------------|---------------------------------|
| 1. Notice to Proceed: | December 31, 2021 |
| 2. Design Review Tech Memo: | Two weeks after plan submittal |
| 3. List of needed Inspections/Tests: | One week after Tech Memo |
| 4. Submittal Reviews: | Two weeks after submission |
| 5. Closeout Memo: | Two weeks after last Inspection |

METHOD OF PAYMENT

The Consultant will perform the design and construction phase services on a lump sum basis for \$9,094.

END OF STATEMENT OF SERVICES

Attachment:

1. PDC fee spreadsheet.

12/15/2021

PDC Summary Sheet

#	PHASE	MECH	CIVIL	Total
38	Design Review Services	\$ 700	\$ 3,855	\$ 4,555
	Reimbursable	\$ -	\$ -	\$ -
	Phase Total	\$ 700	\$ 3,855	\$ 4,555
80	Construction Services	\$ -	\$ 4,435	\$ 4,435
	Reimbursable	\$ -	\$ 104	\$ 104
	Phase Total	\$ -	\$ 4,539	\$ 4,539
	Subtotal	\$ 700	\$ 8,394	\$ 9,094
	Estimated Sales Tax			\$ -
	Grand Total			\$ 9,094

12/15/2021

CIVIL ENGINEERING

#	TASK	Principal Civil Engineer		Staff Civil Engineer	
		Billing Rate (\$/hr)	\$250.00	\$135.00	
38	Design Review Services			Hourly Subtotal	Subtotal Cost
	Review of City Design Criteria		4	4	\$ 540
	Verify Water System Current Operating Conditions	1	4	5	\$ 790
	Confirm Water & Sewer Design		2	2	\$ 270
	Analyze Grading and Stormwater		4	4	\$ 540
	Confirm Road Design Meets CONP/ADOT Requirements		2	2	\$ 270
	Summarize Comments in Memo	1	4	5	\$ 790
	Coordinate with City	1	2	3	\$ 520
	Develop list of Inspections/Tests needed		1	1	\$ 135
	Hourly Subtotal	3	23	26	
	Cost	\$ 750	\$ 3,105		\$ 3,855
80	Construction Services			Hourly Subtotal	Subtotal Cost
	Attend Pre-Construction Meeting		2	2	\$ 270
	Review Submittals		4	4	\$ 540
	Site Inspections and Test Witnessing (5)		15	15	\$ 2,025
	Review Test Results		2	2	\$ 270
	Review Record Drawings	1	2	3	\$ 520
	Respond to Changes		4	4	\$ 540
	Provide Project Closeout Memo		2	2	\$ 270
	Hourly Subtotal	1	31	32	
	Cost	\$ 250	\$ 4,185		\$ 4,435
	Discipline Totals	4	54	58	
	Design Services	\$ 1,000	\$ 7,290		\$ 8,290

12/15/2021

MECHANICAL ENGINEERING

#	TASK	Senior Mechanical Engineer	Staff Mechanical Engineer		
	Billing Rate (\$/hr)	\$180.00	\$130.00		
38	Design Review Services			Hourly Subtotal	Subtotal Cost
	Analyze Circulation Pump Data		2	2	\$ 260
	Provide Pump Curve Analysis and Recommendation	1	2	3	\$ 440
	Hourly Subtotal	1	4	5	
	Cost	\$ 180	\$ 520		\$ 700
80	Construction Services			Hourly Subtotal	Subtotal Cost
	Hourly Subtotal	0	0	0	
	Cost	\$ -	\$ -		\$ -
	Discipline Totals	1	4	5	
	Design Services	\$ 180	\$ 520		\$ 700



North Pole Police Department

125 Snowman Ln.
North Pole, AK 99705
907-488-6902
Northpolepolice.org



December 14, 2021

To: North Pole City Council

Re: Approval of MOU from Attorney General:
Brady disclosure for LEO

Dear Council Members,

I am reluctantly writing this letter to request that the North Pole City Council authorize the mayor to sign the attached MOU from the Alaska Attorney General regarding disclosure of Brady issues for active law enforcement officers employed by the City of North Pole.

The city attorney has reviewed the attached documents and related MOU and agrees we do not have any other options but to comply with the request. Any refusal on our part would result in the denial of prosecution of our cases referred to the District Attorneys office. Not only is it unfortunate that we have been placed in this situation, it is none the less a result of a SOA vs. Stacy opinion.

I will assume the responsibility of making sure this information is disclosed according to the protocol lined out in the MOU. This will add an additional workload to my plate, and I do this with significant hesitation because of the privacy intrusion and likely weaponization of our employee's personnel files.

Thank you for your consideration.

Chief Steve Dutra

Memorandum of Agreement
Regarding Exculpatory Information in Personnel Files

Whereas, both the State of Alaska's Department of Law (DOL or the State) and the undersigned Law Enforcement Agency (LEA) have the shared goal of protecting public safety through the fair and just administration of the criminal laws of the State of Alaska, within the bounds of the constitutions of the State of Alaska and the United States of America; and

Whereas, in any criminal prosecution, the State has an obligation to provide to the defendant exculpatory information as described in *Brady v. Maryland*, 373 U.S. 83 (1963) and *Giglio v. United States*, 405 U.S. 150 (1972) (*Brady/Giglio* Information); and

Whereas, this obligation extends to exculpatory information contained in confidential LEA personnel files; and

Whereas, the Alaska Court of Appeals has held in *Stacy v. State* (A-12668 issued November 5, 2021) that a system must be in place through which individual prosecutors can learn of exculpatory information contained in officer personnel files; and

Whereas, it would be impractical for all prosecutors working for the State to undertake independent examinations of officer personnel files; and

Whereas, a designated attorney within the DOL's Criminal Division Central Office (CDCO) can efficiently coordinate examination and appropriate dissemination of exculpatory information in officer personnel files; and

Whereas, it is imperative that DOL and the undersigned LEA have a formal, signed agreement certifying that the system described below for providing *Brady/Giglio* material will be followed;

It is therefore agreed by the undersigned parties that:

1. If exculpatory information or material is contained in a personnel file held by the undersigned law enforcement agency, that agency will provide that information or material to the attorney designated by CDCO to act as DOL's *Brady/Giglio* attorney.
2. If the information provided qualifies as material exculpatory evidence the assigned *Brady/Giglio* attorney will create an "alert" in the Criminal Division's case management system (Prosecutor by Karpel—PBK) associated with the officer's profile in that system. The *Brady/Giglio* attorney in CDCO and the

assigned line prosecutor will then receive an alert whenever that officer is listed as a witness in case.

3. When an alert is received, the assigned CDCO attorney will coordinate providing the potentially exculpatory information to the relevant trial court for *in camera* review and potential disclosure. Under this process, the absence of an alert from CDCO will allow the assigned prosecutor to comply with the requirement in *Stacy*.

For the Law Enforcement Agency:

Name: _____

Title: _____

Date

For the Department of Law:

John Skidmore
Deputy Attorney General

Date



THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

Department of Law
Criminal Division Central Office

1031 W. 4th Avenue, Suite 200
Anchorage, AK 99501
Main: 907-269-6389
Fax: 907-276-3697

December 1, 2021

VIA EMAIL

To: All Chiefs and Commanders of Law Enforcement Agencies in Alaska
Re: *Brady/Giglio* Information in Personnel Files

Dear Chiefs and Commanders:

This letter serves to advise you of a recent (November 5, 2021) opinion handed down by the Alaska Court of Appeals, *Stacy v. State*¹, and its impact on the prosecution of cases from each of your agencies. This case requires Alaskan prosecutors to inquire of law enforcement agencies (LEAs) about any *Brady/Giglio* information contained in agency personnel files for each testifying officer for each and every case prosecuted. A prosecutor's failure to provide such information could result in the case being overturned or dismissed.

Legal Background

The Supreme Court of the United States held in *Brady v. Maryland* that the prosecution in a criminal case is required to provide to the defendant any and all exculpatory information in its possession.² That holding was expanded in *Giglio v. U.S.* to require the prosecution to also provide any relevant impeachment material in its possession for any testifying witness.³ *Brady/Giglio* material can include information contained in LEA personnel files such as sustained findings of dishonesty, and pending investigations against any testifying officer.⁴ Such information may be used to impeach a witness's credibility. Failure to provide known information in a case could lead to the

¹ Court of Appeals No. A-12668 issued November 5, 2021. Slip opinion available at <https://appellate-records.courts.alaska.gov/CMSPublic/Home/AppellateOpinions>

² 373 U.S. 83 (1963).

³ 405 U.S. 150 (1972).

⁴ See *Booth v. State*, 251 P.3d 369 (Alaska App. 2011).

Re: *Brady/Giglio* Information in Personnel Files

case being dismissed by either the court or the prosecution, a conviction being overturned, and potential administrative (or in extreme instances of a willful refusal, criminal sanctions for deprivation of constitutional rights) against the involved law enforcement and prosecution personnel. The sanctions are determined on a case-by-case basis depending on the facts/circumstances of the information not provided.

LEA personnel records are confidential by statute,⁵ but certain parts may be subject to discovery in some legal cases.⁶ As a result, the Department of Law (LAW) has not had access to personnel records absent a court order or other legally binding agreement. Since 2014, LAW has sought to establish Memoranda of Agreement (MOAs) with various LEAs about relevant information contained in their personnel files for cases prosecuted by LAW.⁷ This process has allowed LAW to be proactive in gathering this potential *Brady/Giglio* material in the majority of the cases LAW prosecutes.⁸ In the past, when the command staff or human resources department at a LEA knew that *Brady/Giglio* information was contained in an officer's personnel file, the fact that some potential Brady material was in the file was conveyed to LAW's designated representative in the Criminal Division Central Office (CDCO). That representative would have the officer's profile in the Criminal Division's case management system updated so that the representative would receive an alert when the officer was listed or subpoenaed as a witness in any criminal case. The attorney in CDCO would review the specific facts of the charged case and consult with the assigned prosecutor to determine whether the officer was a material witness and if the limited information available to LAW should be provided to the assigned judge to request the personnel file for *in camera* review and potential disclosure to the parties. This procedure complies with the requirement to provide *Brady/Giglio* information. Under this process, the assigned prosecutor in a case relied upon the LEA and assigned attorney in CDCO to engage in this process, and that individual prosecutor did not have actual knowledge as to whether *Brady/Giglio* material existed.

⁵ AS 40.25.120(4) and AS 39.25.080

⁶ *Jones v. Jennings*, 788 P.2d 732 (Alaska 1990)(records of excessive use of force discoverable in complaint about excessive use of force, but home address, family members, and financial information was not discoverable.)

⁷ See *Booth v. State*, 251 P.3d 369, 374 (Alaska App. 2011) ("If the defendant identifies a type of information that would be relevant to the defendant's guilt or innocence (in light of the facts of the case, the State's theory of prosecution, and the defendant's theory of defense), and if this type of information is the kind of information that would be recorded in a police officer's personnel file, then the defendant is entitled to have the trial judge review the personnel file *in camera* to see if the file contains the specified type of information.").

⁸ MOAs have been established with the Department of Public Safety, Anchorage Police Department, Kodiak Police Department, Palmer Police Department, and Soldotna Police Department.

However, the Alaska Court of Appeals recently held in *Stacy v. State*, that “a system must be in place through which individual prosecutors can learn of *Brady* material in the personnel files of law enforcement officers and other state agents who will be material witnesses in a given case.”⁹ The prosecutor is required to ensure that “reasonable steps have been taken to discover and disclose any favorable material evidence contained in those files.”¹⁰ In order to comply, LAW will slightly alter our system for reporting exculpatory or impeachment evidence in officer personnel files as described below.

System for Reporting *Brady/Giglio* Information

When a LEA knows of *Brady/Giglio* information contained in an officer’s personnel file, it will notify the assigned attorney in CDCO of potential *Brady/Giglio* information in the file. If the information provided qualifies as material exculpatory evidence the assigned attorney will create an “alert” in the Criminal Division’s case management system (Prosecutor by Karpel—PBK) associated with the officer’s profile in that system. The attorney in CDCO and *now the assigned line prosecutor will also* then receive an alert whenever that officer is listed as a witness in case. The line prosecutor will not know what sort of information is in the officer’s personnel file, but that attorney will be prompted to consult with the CDCO attorney to review the matter. The assigned CDCO attorney will then coordinate providing the potentially exculpatory information to the trial court for *in camera* review and potential disclosure when appropriate. Under this process, the absence of an alert from CDCO will allow the assigned prosecutor to comply with the requirement in *Stacy*.

In order for LAW to ensure that all agencies from which it accepts referred criminal cases comply with this procedure, the LEAs are requested to execute the attached Memorandum of Agreement (MOA) stating that the agency will alert the assigned attorney in CDCO when *Brady/Giglio* information exists in an officer’s personnel file. Following the holding in *Stacy*, LAW will not be able to prosecute cases referred by agencies that have not entered into the attached MOA, absent seeking an *in camera* review for each officer intended to be called by the prosecution as a witness in each case.

Conclusion

The system for reporting information described above is necessary for prosecutors to comply with their obligation to provide material exculpatory evidence to a defendant as set out in *Brady*, *Giglio*, and *Stacy*. This system is not a significant departure from

⁹ *Stacy* Slip Opinion at *31.

¹⁰ *Id.*

December 1, 2021
Page 4 of 4

Re: *Brady/Giglio* Information in Personnel Files

LAW's past practice, however it creates a requirement for a formalized agreement in the form of the attached MOA between your agency and LAW for prosecution of most the cases referred. The only other option, *in camera* review in each case for every officer testifying, is simply not workable. The signed MOA allows LAW to document and provide evidence of your agency's agreement to follow the system described herein. This will ensure that individual prosecutors can certify to the court that reasonable steps have been taken to alert the prosecution to any exculpatory information contained in your agency's personnel files.

Sincerely,

TREG R. TAYLOR
ATTORNEY GENERAL

By: *John Skidmore*
John Skidmore
Deputy Attorney General

CC:

Chief Justice Daniel Winfree, Alaska Supreme Court
Chief Judge Marjorie Allard, Alaska Court of Appeals
Judge Amy Mead, Judge Paul Roetman, Judge William Morse, Judge Terence Haas,
Presiding Superior Court Judges
Samantha Cherot, Public Defender Agency
James Stinson, Office of Public Advocacy

NOTICE

The text of this opinion can be corrected before the opinion is published in the Pacific Reporter. Readers are encouraged to bring typographical or other formal errors to the attention of the Clerk of the Appellate Courts:

303 K Street, Anchorage, Alaska 99501

Fax: (907) 264-0878

E-mail: corrections@akcourts.gov

IN THE COURT OF APPEALS OF THE STATE OF ALASKA

CHRISTOPHER R. STACY,

Appellant,

v.

STATE OF ALASKA,

Appellee.

Court of Appeals No. A-12668
Trial Court No. 1KE-13-00753 CR

OPINION

No. 2714 — November 5, 2021

Appeal from the Superior Court, First Judicial District,
Ketchikan, William B. Carey, Judge.

Appearances: Emily L. Jura, Assistant Public Defender, and
Quinlan Steiner, Public Defender, Anchorage, for the Appellant.
Eric A. Ringsmuth, Assistant Attorney General, Office of
Criminal Appeals, Anchorage, and Jahna Lindemuth, Attorney
General, Juneau, for the Appellee.

Before: Allard, Chief Judge, Harbison, Judge, and Clark,
District Court Judge.*

Judge ALLARD.

* Sitting by assignment made pursuant to Article IV, Section 16 of the Alaska Constitution and Administrative Rule 24(d).

Christopher R. Stacy was convicted, following a jury trial, of second-degree misconduct involving a controlled substance (possession of heroin with the intent to deliver).¹ Stacy raises four claims on appeal.

First, he argues that the trial court erred when it failed to instruct the jury on accomplice liability as it related to the lesser included offense of fourth-degree misconduct involving a controlled substance (possession of heroin). For the reasons explained here, we conclude that any error was harmless because Stacy's constructive possession of the heroin was not in dispute at trial.

Second, he argues that the trial court erred in allowing the investigating officer to testify to his personal opinion that Stacy intended to sell some of the heroin. We agree with Stacy that this opinion testimony was improper, but we conclude that it was harmless in the larger context of the case and the other proper hybrid testimony offered by the officer.

Third, Stacy argues that there was insufficient evidence presented at trial that he intended to deliver any of the two ounces of heroin that he possessed. Viewing the evidence in the light most favorable to upholding the verdict, as we are required to do on appeal, we conclude that there was sufficient evidence to support Stacy's conviction for possession of heroin with the intent to deliver.

Lastly, Stacy raises an important question of constitutional law. He argues that his due process rights under *Brady v. Maryland* and the Alaska Constitution were violated when the trial court denied his motion to compel the prosecutor to disclose any *Brady* impeachment material that was in the personnel files of the law enforcement

¹ Former AS 11.71.020(a)(1) (pre-July 2016 version).

officers who testified at his trial.² The prosecutor took the position that the State had no duty to learn of any *Brady* material in the personnel files of the law enforcement officers because he personally had no access to their otherwise confidential personnel files.

For the reasons explained in this opinion, we conclude that the confidentiality of these files does not, standing alone, absolve a prosecutor of their duty under *Brady v. Maryland*³ and *Kyles v. Whitley*⁴ to take reasonable steps to learn of favorable material evidence in the possession of the prosecution team, including personnel files. Because the prosecutor in this case made no effort to comply with the mandate of *Brady*, we remand this case to the trial court for further proceedings to determine if a *Brady* violation occurred.

Background facts and prior proceedings

On January 6, 2013, Alaska State Troopers made contact with Christopher R. Stacy and Jonathan Oaksmith as they disembarked from the ferry in Ketchikan, Alaska. The two men were returning from Washington, and the troopers had received a tip that they were carrying drugs. The troopers separated the two men, and both men consented to the troopers searching their belongings.

² *Brady v. Maryland*, 373 U.S. 83 (1963).

³ *Id.* at 87 (holding that “the suppression by the prosecution of evidence favorable to an accused upon request violates due process where the evidence is material either to guilt or to punishment”); *see also United States v. Bagley*, 473 U.S. 667, 682 (1985) (holding that evidence is “material” only if there is a “reasonable probability” that it would alter the trial result); *Giglio v. United States*, 405 U.S. 150 (1972) (extending *Brady* to impeachment material).

⁴ *Kyles v. Whitley*, 514 U.S. 419, 437 (1995) (holding that prosecutor has a “duty to learn” of *Brady* material known to members of the prosecution team, including law enforcement).

In Oaksmith's belongings, the troopers discovered two ounces (56.7 grams) of black tar heroin hidden inside a jar of peanut butter. There were two large pieces of heroin and one smaller portion of approximately six grams.

Oaksmith initially denied that any of the heroin belonged to him. However, he would later testify that Stacy had purchased the heroin and offered him six grams to transport the heroin for Stacy.

In exchange for his testimony against Stacy at trial, Oaksmith was allowed to plead to fourth-degree misconduct involving a controlled substance (possession of heroin). The State indicted Stacy on one count of second-degree misconduct involving a controlled substance (possession of heroin with intent to deliver).

At trial, Oaksmith testified that, in October 2012, he had accompanied Stacy and another man to Seattle, where Stacy had purchased about half an ounce of heroin. Oaksmith further testified that, in December 2012, Stacy talked with him about going back to Seattle to obtain more heroin. Oaksmith agreed to accompany Stacy and act as his "mule" in exchange for six or seven grams of heroin. Stacy financed the trip completely, selling a four-wheeler and liquidating several thousand dollars from his military disability funds to pay for the trip and the heroin.

Text messages between Oaksmith and his girlfriend corroborated Oaksmith's testimony. In the messages, Oaksmith told his girlfriend that he was "running heroin from Seattle to Ketchikan" for Stacy. He also informed her of his plans to sell some of the heroin he would receive for being the "mule."

Prior to returning to Ketchikan with the heroin, Stacy contacted a friend and asked her to watch for undercover law enforcement at the Ketchikan ferry terminal when he and Oaksmith arrived. However, the friend failed to show.

Investigator Dur'an, one of the troopers involved in the investigation, testified that the price of heroin in Ketchikan is exponentially higher than the price of

heroin in Seattle, and that significant money can be made by purchasing heroin in Seattle and then selling it in Ketchikan. In Dur'an's experience, most heroin addicts are struggling to get by and cannot afford the cost of traveling to Seattle to purchase heroin at cheaper rates. The price disparities between Seattle and Ketchikan also create a "huge financial incentive" to purchase large quantities in Seattle and then resell portions at a higher rate in Ketchikan.

At the close of trial, the jury found Stacy guilty of second-degree misconduct involving a controlled substance (possession of heroin with the intent to deliver).

This appeal followed.

Stacy's argument that the trial court committed reversible error when it failed to instruct the jury on accomplice liability in relation to the lesser included offense of fourth-degree misconduct involving a controlled substance

Stacy's defense at trial was that he was a serious heroin addict and that he had purchased this large amount of heroin solely for his personal use and not for delivery to anyone else. In accordance with this defense, Stacy's attorney requested that the jury be instructed on the lesser included offense of fourth-degree misconduct involving a controlled substance (possession of heroin).

The trial court granted this request, and the court instructed the jury on the elements of both second-degree misconduct involving a controlled substance and the lesser included offense of fourth-degree misconduct involving a controlled substance. Because Stacy was charged with acting either as a principal or as an accomplice with regard to the second-degree misconduct involving a controlled substance (possession with intent to deliver), the jury was instructed on accomplice liability as to that charge. However, the jury was not instructed on accomplice liability with regard to the lesser

included offense of fourth-degree misconduct involving a controlled substance (simple possession). Neither party noticed this omission or objected to the lesser included offense instruction as incomplete.

On appeal, however, Stacy now argues that the omission of an accomplice liability instruction for the lesser included charge requires reversal of his conviction. Stacy argues that without an accomplice liability instruction on the lesser included offense, the jury might not have understood that it could convict him of the lesser included offense under an accomplice theory. Thus, according to Stacy, the jury may have improperly voted to convict him of the higher offense because it felt it did not have the option of convicting him of the lesser included.

We find no merit to this argument given the manner in which this case was litigated. At trial, the State presented evidence that Stacy had purchased the heroin and that Stacy had hired Oaksmith as a “mule” to transport the heroin in exchange for a small portion. For the most part, Stacy did not contest this evidence. That is, he did not contest that he “possessed” the vast majority of the heroin found in Oaksmith’s bag; instead his defense was that the heroin was for his own personal use. Moreover, the jury would have understood that Stacy “possessed” the heroin even though it was in Oaksmith’s bag because the jury was directly instructed on the concept of constructive possession — *i.e.*, that a person can “possess” an item in the legal sense of the word even if it is not in their immediate physical control.⁵

In other words, contrary to the argument Stacy makes on appeal, the jury could have found Stacy “possessed” — *i.e.*, exercised dominion or control over — the

⁵ AS 11.81.900(a)(50) (“‘possess’ means having physical possession or the exercise of dominion or control over property”); *see also Dirks v. State*, 386 P.3d 1269, 1270 (Alaska App. 2017) (“‘Constructive possession’ refers to a person’s authority to exercise dominion or control over property even though it is not in their immediate physical possession.”).

heroin found in Oaksmith's bag as a principal without resorting to an accomplice theory. Because the facts as presented by both parties supported a guilty verdict on the lesser included offense, there is no reason to believe that the conviction on the greater offense was a "compromise verdict" based on a perceived inability to convict Stacy as an accomplice on the lesser included offense.

In any event, because Stacy did not object at trial to the omission of an accomplice liability instruction with regard to the lesser included offense, he must now show plain error on appeal.⁶ "In the context of jury instructions, plain error will be found only when the erroneous instruction (or the lack of an instruction) 'creates a high likelihood that the jury followed an erroneous theory[,] resulting in a miscarriage of justice.'"⁷

Here, given how this case was litigated and argued, we conclude that the absence of an accomplice liability instruction with regard to the lesser included offense did not confuse or mislead the jury. Accordingly, we find no plain error.

Stacy's argument that Investigator Dur'an's opinion testimony was improper

Before trial, the prosecutor notified Stacy and the trial court that he intended to offer Investigator Dur'an as a hybrid witness who would testify both to his investigative acts in the case as well as to his expert opinion that the amount of heroin

⁶ *Heaps v. State*, 30 P.3d 109, 114 (Alaska App. 2001) ("If a litigant fails to make a specific and timely objection to a jury instruction or the failure to give a jury instruction, an appellate court's consideration of the asserted error is limited to plain error review.").

⁷ *Id.* at 114 (quoting *Holiday Inns of America, Inc. v. Peck*, 520 P.2d 87, 91 (Alaska 1974)).

possessed by Stacy indicated an intent to distribute or deliver the substance. Stacy's attorney made no objection to this proposed testimony.

At trial, Investigator Dur'an testified that he had been an Alaska State Trooper for eight years, four of which were as a drug investigator. He also testified that he had special training for drug-related offenses and that he was familiar with the illicit drug trade in Ketchikan and southeast Alaska generally.

Dur'an corroborated Oaksmith's testimony concerning the various pricing of heroin in Ketchikan and Seattle. Dur'an stated that heroin in Ketchikan was normally purchased on the street in quantities of one gram or one-tenth of a gram, and that the price was generally around \$500 per gram. He also confirmed that heroin could be bought much more cheaply in Seattle.

Dur'an then testified to his involvement in the investigation, which included logging the evidence, reviewing the records of Stacy's payments for the trip, speaking with Oaksmith, reviewing the limited text messages on Stacy's phone, and reviewing the extensive text messages on Oaksmith's phone. The prosecutor then asked Investigator Dur'an if he had reached "some conclusions about whether or not this heroin was being imported for delivery." Stacy's attorney objected to this testimony as "speculation" without any further explanation. The objection was overruled.

Investigator Dur'an then testified that his investigation led him to the conclusion that Stacy had financed the trip and purchased the two ounces of heroin, that Oaksmith was the person who smuggled the heroin, and that the arrangement upon their return to Ketchikan was that Oaksmith would receive around six grams as payment. Dur'an also stated that, based on these facts, he had concluded that the intent behind the Seattle purchase was both "personal use and commercial distribution of the heroin."

Dur'an went on to explain that, in his experience, heroin users typically did not have the financial means to acquire such a large amount of heroin. Instead, "given

the traveling cost, the lodging cost, the cost of just entertaining themselves while they're there, it's more consistent with an individual that's going to take [that] substance and make a profit on it." Investigator Dur'an also testified that the amount of heroin in question suggested that Stacy and Oaksmith had an intent to distribute. Though he clarified: "I want to be clear, it's not that it's impossible for a person to have both the financial means to buy a bulk quantity of heroin for personal use, it's just not consistent [with] what I see." Instead, "[w]hat I see consistently is the people who bring in an ounce or two ounces are the people that are possessing it with the intent to resell that heroin here in town because . . . there's a huge financial incentive to bring it in in those quantities and resell it[.]" Investigator Dur'an testified that an individual selling two ounces of heroin in Ketchikan could potentially make "tens of thousands of dollars." But he testified that "I don't believe, based on . . . the totality of talking with everyone involved, [that] the intent was for them to distribute all of the heroin that was being possessed. I think there's no dispute that they intended to both use, at least use some." There were no objections to any of this testimony.

On appeal, however, Stacy argues that the trial court erred in allowing Investigator Dur'an to testify to his opinion that Stacy intended to distribute at least some of the heroin he purchased. Stacy asserts that this testimony was "more prejudicial than probative," as it "amounted to an opinion that Stacy was guilty" and because it "profil[ed]" Stacy as a "drug dealer." Thus, according to Stacy, this opinion testimony should not have been admitted under Alaska Evidence Rule 403.⁸

⁸ Alaska R. Evid. 403 ("Although relevant, evidence may be excluded if its probative value is outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence.").

Stacy's arguments on appeal arise from the peculiar nature of "hybrid" witnesses in criminal trials. The Alaska Supreme Court first discussed the concept of hybrid witnesses in *Miller v. Phillips*, a medical malpractice case.⁹ There, the supreme court noted that the line between a "fact" witness and an "expert" witness "inevitably becomes blurred" when treating physicians testify in medical malpractice cases.¹⁰ The court subsequently expanded the use of hybrid witnesses to include investigating law enforcement officers in *Getchell v. Lodge*, a personal injury civil negligence case.¹¹ There, the court ruled that it was not an abuse of discretion to allow a state trooper to testify both to his observations as the investigating officer and to his conclusions (based on his knowledge and experience) regarding the cause of the accident and the fault of the parties.¹² The court recognized, however, that there "is a danger that a police investigator's conclusion will be given undue weight by a jury."¹³

The danger that a police investigator's expert conclusion may be given undue weight by a jury is particularly acute in a criminal case. As we have previously recognized, the danger is that jurors "may surmise that the police are privy to more facts than have been presented in court, or they may be improperly swayed by the opinion of a witness who is presented as an experienced criminal investigator."¹⁴

⁹ *Miller v. Phillips*, 959 P.2d 1247 (Alaska 1998).

¹⁰ *Id.* at 1250; *see also Andrews v. State*, 286 P.3d 780, 783 (Alaska App. 2012) (holding that hybrid lay and expert testimony of nurse who performed sexual assault examination of victim was admissible in prosecution for second-degree sexual assault).

¹¹ *Getchell v. Lodge*, 65 P.3d 50, 56-57 (Alaska 2003).

¹² *Id.*

¹³ *Id.* at 57.

¹⁴ *Sakeagak v. State*, 952 P.2d 278, 282 (Alaska App. 1998) (citing *Flynn v. State*, 847 (continued...)

As a general matter, Alaska Evidence Rule 704 permits expert witnesses to testify to the “ultimate issue” to be resolved by the trier of fact.¹⁵ But the commentary to the rule expressly warns that “an opinion of any person that a criminal defendant is guilty or innocent would not be admissible [under this rule].”¹⁶ We have applied this rule in numerous cases and have previously admonished courts against allowing witnesses to give their personal opinion of a defendant’s guilt or innocence.¹⁷

On appeal, the State asserts that Investigator Dur’an’s statements never strayed outside the boundaries of permissible expert testimony. According to the State, Investigator Dur’an “educated the jury based on his training and experience, on the facts and circumstances often attendant in drug trafficking cases, and highlighted the evidence that was consistent with Stacy being engaged in drug trafficking[.]” The State maintains

¹⁴ (...continued)
P.2d 1073, 1075-76 (Alaska App. 1993)).

¹⁵ Alaska R. Evid. 704.

¹⁶ Alaska R. Evid. 704 cmt. para. 6; *see also* Fed. R. Evid. 704(b) (barring an expert from testifying that the defendant had “a mental state or condition that constitutes an element of the crime charged”); Fed. R. Evid. 704 cmt. para. 4 (noting that, notwithstanding the fact that experts may now testify to the “ultimate issue,” Evidence Rules 403, 701, and 702 should still be used to exclude expert opinions “which would merely tell the jury what result to reach”); *United States v. Lockett*, 919 F.2d 585, 590 (9th Cir. 1990) (prohibiting expert from giving a direct opinion on defendant’s guilt or innocence).

¹⁷ *See, e.g., Sakeagak v. State*, 952 P.2d 278, 282 (Alaska App. 1998); *Flynn v. State*, 847 P.2d 1073, 1075-76 (Alaska App. 1993) (reversing conviction where police officer acted akin to a human polygraph with regard to the truthfulness of the defendant’s confession); *Thompson v. State*, 769 P.2d 997, 1003-04 (Alaska App. 1989) (reversing conviction based, in part, on witness vouching for victim’s credibility); *cf. Kodiak v. Samaniego*, 83 P.3d 1077, 1088-89 (Alaska 2004) (noting that an expert should not be allowed to state their own conclusions on points that jurors are equally capable of determining for themselves) (citing *Spenard Action Comm. v. Lot 3*, 902 P.2d 766, 780-81 (Alaska 1995)).

that Investigator Dur'an simply "pointed out that while the amounts of money and heroin at issue were indicative of an intent to distribute, it was also possible Stacy was possessing the heroin for personal use."

We agree that if Investigator Dur'an had limited his testimony in this manner, it would have been unobjectionable.¹⁸ But the record shows that Dur'an's testimony sometimes went beyond these boundaries and ultimately resulted in Dur'an testifying to his personal opinion about Stacy's guilt on the critical issue before the jury — *i.e.*, his opinion that Stacy intended to distribute at least some of the heroin he had purchased. This was objectionable opinion testimony that should generally not be permitted in a criminal trial. However, there was no objection to Dur'an's testimony — or at least no objection on the grounds now raised on appeal. The sole objection to Dur'an's opinion testimony was the defense attorney's objection of "speculation."¹⁹ We agree with the State that this was insufficient to preserve the arguments that Stacy now

¹⁸ See Alaska R. Evid. 702(a) (permitting witness to give opinion testimony if the witness is qualified "by knowledge, skill, experience, training or education" and if "scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue").

¹⁹ The defense attorney did not provide further information about what he considered was "speculation." On appeal, Stacy argues that Dur'an's testimony was impermissibly speculative because it was based, in part, on what Stacy asserts was an erroneous assumption that the costs associated with traveling to Seattle to buy heroin in bulk for personal use would "probably" amount to the same total expense as simply buying the same amount of heroin in Ketchikan. Stacy also includes a footnote allegedly demonstrating that Dur'an's calculations were wrong. But Stacy was given an opportunity to challenge Dur'an's calculations on cross-examination, and his failure to do so does not render Dur'an's testimony speculative or inadmissible.

raises on appeal. Accordingly, to prevail on appeal, Stacy must establish plain error — *i.e.*, obvious error undermining the fundamental fairness of the trial.²⁰

While we disapprove of some aspects of Dur'an's testimony, we do not find plain error. The majority of Dur'an's testimony was, as the State claims, unobjectionable and permissible hybrid testimony. Moreover, as the State points out, Dur'an expressed a number of caveats in his testimony. Thus, the evidentiary basis for Dur'an's opinion and the possible lack of evidence to support that opinion were both before the jury.²¹ The record also shows that the jury was properly instructed that they were the ultimate deciders of fact in this case. Given these circumstances and our review of the record as a whole, we conclude that Stacy received a fundamentally fair trial, and reversal of his conviction is not required under the plain error doctrine.

Stacy's argument that there is insufficient evidence to support his conviction

To convict Stacy of second-degree misconduct involving a controlled substance, the State was required to prove beyond a reasonable doubt that Stacy

²⁰ *Adams v. State*, 261 P.3d 758, 764 (Alaska 2011) (recognizing that plain error “involv[es] such egregious conduct as to ‘undermine the fundamental fairness of the trial and contribute to a miscarriage of justice’” and requires a reviewing court to find that the error “(1) was not the result of intelligent waiver or a tactical decision not to object; (2) was obvious; (3) affected substantial rights; and (4) was prejudicial” (quoting *Raphael v. State*, 994 P.2d 1004, 1015 (Alaska 2000))).

²¹ *Cf. Sakeagak*, 952 P.2d at 282-83 (finding police officer's testimony that he adopted an adversarial tone with the defendant because he believed the defendant killed his wife was not overly prejudicial because the officer's statement “added nothing of substance to an inference the jury could easily draw for themselves” and “the basis for [the officer's] conclusion and the possible lack of evidence to support that conclusion [were] before the jury”).

possessed “any amount of a schedule IA controlled substance with intent to . . . deliver.”²²

At trial, there was no dispute that heroin is a schedule IA controlled substance.²³ And there was no dispute that Stacy “possessed” heroin in the sense that he exercised dominion or control over the majority of the heroin found in the peanut butter jar. Instead, the dispute at trial centered on whether Stacy possessed the heroin with the intent to deliver.

Under AS 11.71.900(7), “deliver” means “the actual, constructive, or attempted transfer from one person to another of a controlled substance whether or not there is an agency relationship.” Notably, the State did not need to prove that Stacy intended to deliver *all* of the heroin that he possessed, or even a significant amount of the heroin; instead the State was only required to prove that Stacy intended to deliver “any” amount of heroin, even if the vast majority of it was intended for personal use.²⁴

After the close of evidence at trial, Stacy’s attorney moved for a judgment of acquittal, arguing that there was insufficient evidence to convict Stacy of possession of heroin with the intent to deliver. The trial court denied the motion, concluding that there was sufficient circumstantial evidence of an intent to deliver based on the large amount of drugs and “the intricacy of the plan and the effort that went into going down to get the stuff and bring it back.”

On appeal, Stacy renews his argument that the evidence at trial was legally insufficient to convict him of possession with intent to deliver.

²² Former AS 11.71.020(a)(1) (pre-July 2016 version).

²³ See AS 11.71.140(d)(11) (listing heroin as a Schedule IA controlled substance).

²⁴ Former AS 11.71.020(a)(1) (pre-July 2016 version).

Whether the evidence presented at trial is legally sufficient to support the defendant's conviction is a question of law that we review *de novo*.²⁵ When we review a claim of insufficiency, we are required to view all evidence — and all reasonable inferences from that evidence — in the light most favorable to upholding the jury's verdict.²⁶ Viewing the evidence in this light, we will uphold the verdict if a fair-minded juror could reasonably find that the State had proven the elements of the offense beyond a reasonable doubt.²⁷

Here, we agree with Stacy that the evidence of intent to deliver was not overwhelming. Unlike Oaksmith, Stacy did not admit to any intent to deliver. Nor did the troopers find any “tools” indicative of drug distribution — such as ledgers, baggies, or scales. Instead, the primary evidence tending to indicate an intent to deliver was the large quantity of drugs that was purchased.

Under both Alaska and federal law, a jury can infer an intent to deliver from possession of a large quantity of drugs, provided that the amount at issue is larger than for personal use.²⁸

²⁵ *Phornsavanh v. State*, 481 P.3d 1145, 1156 (Alaska App. 2021) (citing *Des Jardins v. State*, 551 P.2d 181, 184 (Alaska 1976)).

²⁶ *Id.* at 1156 (citing *Johnson v. State*, 188 P.3d 700, 702 (Alaska App. 2008) and *Jackson v. Virginia*, 443 U.S. 307, 319 (1979)); *Bochkovsky v. State*, 356 P.3d 302, 308-09 (Alaska App. 2015) (citing *Hoekzema v. State*, 193 P.3d 765, 767 (Alaska App. 2008)).

²⁷ *Jackson*, 443 U.S. at 319; *Phornsavanh*, 481 P.3d at 1156; *Johnson*, 188 P.3d at 702.

²⁸ *See Bochkovsky*, 356 P.3d at 310 (“It is well established that possession of a large quantity of drugs is evidence of intent to deliver.”); *see also United States v. Johnson*, 357 F.3d 980, 984 (9th Cir. 2004) (“A jury can infer intent to distribute from possession of a large quantity of drugs.”); *United States v. Jackson*, 55 F.3d 1219, 1226 (6th Cir. 1995) (“Intent to distribute can be inferred from the possession of a large quantity of drugs, too large for personal use alone.”); *United States v. Howard*, 966 F.2d 1362, 1365 (10th Cir. 1992);
(continued...)

On appeal, Stacy argues that this inference should not apply to his case because there was evidence that he was a heavy user of heroin. But the evidence at trial was that a heavy user of heroin consumes approximately half of a gram of heroin a day. The amount at issue here — 56.7 grams — was more than 100 times that amount. It was also twice as much heroin as has been recognized as indicative of an intent to deliver in other cases.²⁹ It is certainly possible that Stacy was buying in bulk for the next four to five months — as his lawyer claimed at trial — but a fair-minded juror could reasonably reject such an explanation.

In any case, Stacy’s conviction does not rest on the amount of heroin alone. As the trial court noted when it denied Stacy’s motion for a judgment of acquittal, a juror could also reasonably infer, based on “the intricacy of the plan and the effort that went into going down to get the stuff and bring it back,” that this large amount of heroin was being purchased for more than just personal use. The evidence at trial showed that Stacy had traveled relatively recently to Seattle to purchase a lesser amount of heroin and that he was now returning to buy an even greater amount. The evidence also showed that Stacy had liquidated most of his assets for this trip and that he had taken steps to enlist Oaksmith as a “mule” (in exchange for a payment of six grams of heroin) and made efforts to have another person checking for undercover officers in Ketchikan. Added to

²⁸ (...continued)
United States v. Samad, 754 F.2d 1091, 1096 n.12 (4th Cir. 1984).

²⁹ See *Nelson v. State*, 2012 WL 399239, at *3 (Alaska App. Feb. 1, 2012) (unpublished) (holding that the jury could reasonably conclude defendant intended to distribute heroin based on police officer’s testimony that heroin users generally use no more than 0.2 grams at a time, and possession of even half of the twenty-five grams found in defendant’s case would be enough to suggest that the owner was involved in distribution); see also *Samad*, 754 F.2d at 1094-96 (twenty-two grams sufficient to support inference of intent to distribute); *United States v. Blake*, 484 F.2d 50, 57-58 (8th Cir. 1973) (fifteen grams of heroin sufficient to support inference of intent to distribute).

this evidence was the testimony by both Oaksmith and Investigator Dur'an of the extreme price differential between Seattle and Ketchikan and the tremendous financial incentive that existed to sell even a small amount of heroin in Ketchikan.

Thus, given the totality of the evidence presented at trial and viewing that evidence in the light most favorable to the verdict as we are required to do, we conclude that the evidence was legally sufficient to convict Stacy of possession with intent to deliver.

Stacy's argument that the State has a duty to learn of Brady material that may be contained in the personnel files of law enforcement officers who are part of the prosecution team

Before trial, Stacy's attorney requested, among other things, confirmation from the prosecutor that he had complied with his duties under *Brady v. Maryland*.³⁰ In particular, Stacy requested that the prosecutor examine the personnel files of the police officers and other state agents who would be testifying and disclose any material impeachment evidence contained in those files. The prosecutor opposed this request, asserting that he had no ability to examine these records because they were confidential under Alaska law. The defense attorney then moderated his request, asking that the prosecutor be required to contact the law enforcement agency that possessed the personnel records and to inquire as to whether they contained *Brady* material. The defense attorney also requested that, at the very least, the prosecutor be required to ask the witnesses themselves if any such material existed.

The prosecutor again opposed this request. According to the prosecutor, the only way for the defense to obtain any information about *Brady* material that might be contained in these files was by filing a motion for *in camera* review under *Booth v.*

³⁰ *Brady v. Maryland*, 373 U.S. 83 (1963).

State.³¹ In other words, the State took the position that the prosecution has no independent duty to learn of *Brady* material that might be contained in a police officer's personnel file. The trial court agreed and denied the defense attorney's request.

On appeal, Stacy argues that the trial court's ruling violated his federal and state due process rights, and that his case should be remanded for an *in camera* review of the relevant personnel files to determine if they contain *Brady* material that should have been disclosed. In support of this argument, Stacy cites to Ninth Circuit case law, which has held that a prosecutor has a duty to learn of *Brady* material contained in law enforcement personnel files.³²

In response, the State argues that this Court has previously rejected the Ninth Circuit case law that Stacy relies on.³³ The State also argues that the prosecutor has no duty to learn of *Brady* or *Giglio* material contained in a law enforcement officer's

³¹ *Booth v. State*, 251 P.3d 369, 375 (Alaska App. 2011) (defendant entitled to *in camera* review if defendant shows "that *if* the requested personnel files contain the sort of information described in the defendant's motion, this information would be relevant to the defendant's guilt or innocence" given facts and case theories); *see also March v. State*, 859 P.2d 714, 718 (Alaska App. 1993) ("As long as the party seeking discovery has a good faith basis for asserting that the materials in question may lead to the disclosure of favorable evidence, the trial court should conduct an *in camera* review before ruling on a request for discovery."); *Dana v. State*, 623 P.2d 348, 355 (Alaska App. 1981) (defendant must make a "sufficient showing to require the trial court to locate the personnel file in the middle of trial, review it *in camera*, and determine if any information had relevance").

³² *United States v. Henthorn*, 931 F.2d 29, 31 (9th Cir. 1991); *see also Milke v. Ryan*, 711 F.3d 998, 1016 (9th Cir. 2013).

³³ *See, e.g., Martin v. State*, 297 P.3d 896, 901 (Alaska App. 2013) (holding that trial court's refusal to grant an *in camera* production of personnel files was not plain error because whether defendant had to make an initial showing of materiality was reasonably debatable given federal circuit split on issue).

confidential personnel file. The State asserts that recognizing such a duty would impose “unacceptable burdens on prosecutors and the police.”

Resolving the question of what duty, if any, a prosecutor has to learn of *Brady* material in a law enforcement officer’s otherwise confidential personnel file is an issue of first impression for this Court. Our prior case law has not directly addressed whether such a duty exists, independent from the mechanisms through which a defense attorney can obtain *in camera* review of personnel files.

We begin our analysis with a brief overview of a prosecutor’s general duty to disclose favorable material evidence under *Brady* and subsequent case law.

In 1963, in the seminal case *Brady v. Maryland*, the United States Supreme Court held that “the suppression by the prosecution of evidence favorable to an accused upon request violates due process where the evidence is material either to guilt or to punishment, irrespective of the good faith or bad faith of the prosecution.”³⁴ The Supreme Court subsequently clarified that a prosecutor’s duty to disclose *Brady* material exists even when there has been no request from the defense.³⁵ The Supreme Court also expanded the duty to include impeachment evidence as well as exculpatory evidence.³⁶ Evidence is “material” for purposes of *Brady* “if there is a reasonable probability that, had the evidence been disclosed to the defense, the result of the proceeding would have been different.”³⁷

³⁴ *Brady*, 373 U.S. at 87.

³⁵ *United States v. Agurs*, 427 U.S. 97, 107 (1976).

³⁶ *United States v. Bagley*, 473 U.S. 667, 676 (1985); *Giglio v. United States*, 405 U.S. 150, 154 (1972).

³⁷ *Bagley*, 473 U.S. at 682; see *Kyles v. Whitley*, 514 U.S. 419, 433-34 (1995) (explaining that under *Bagley*’s “reasonable probability” standard, “[t]he question is not
(continued...)

The United States Supreme Court has also extended a prosecutor's duty to disclose *Brady* material beyond what is personally known to the prosecutor. Thus, in *Giglio v. United States*, the Supreme Court held that knowledge of a promise made to a witness by one prosecutor in the office was imputed to the trial prosecutor, even though the first prosecutor had never disclosed this impeachment information to the trial prosecutor nor to his superiors.³⁸ As the Court held, "[t]he prosecutor's office is an entity" and "[a] promise made by one attorney must be attributed, for these purposes, to the Government."³⁹ The Supreme Court recognized that this would likely place a burden on large prosecution offices, but it concluded that "procedures and regulations can be established to carry that burden and to [e]nsure communication of all relevant information on each case to every lawyer who deals with it."⁴⁰

In *Kyles v. Whitley*, the Supreme Court held that the prosecutor's duty under *Brady* also extended to information outside the prosecutor's office, and included a "duty to learn of any favorable evidence known to the others acting on the government's behalf in the case, including the police."⁴¹ As in *Giglio*, the Court expressed confidence that

³⁷ (...continued)
whether the defendant would more likely than not have received a different verdict with the evidence, but whether in its absence he received a fair trial, understood as a trial resulting in a verdict worthy of confidence").

³⁸ *Giglio*, 405 U.S. at 154.

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Kyles*, 514 U.S. at 437.

“procedures and regulations” could be established to ensure that prosecutors learn of favorable material evidence that should be disclosed to the defense.⁴²

In response to *Brady* and its progeny, prosecutorial offices across the country have instituted procedures and regulations to ensure compliance with their constitutional duty to learn and disclose favorable material evidence to the defense.⁴³ In some instances, these procedures have included reviews of police personnel files for *Brady* impeachment material, which can include disciplinary actions related to a police officer’s credibility and bias.⁴⁴

For example, Maricopa County in Arizona requires law enforcement departments to provide prosecutors with police disciplinary files concerning “a law

⁴² *Id.* at 438 (quoting *Giglio*, 405 U.S. at 154).

⁴³ See Jonathan Abel, *Brady’s Blind Spot: Impeachment Evidence in Police Personnel Files and the Battle Splitting the Prosecution Team*, 67 Stan. L. Rev. 743, 762-79 (2015) (reviewing a variety of state practices and approaches to implementing *Brady*); see also, e.g., 2021 Wash. Sess. Laws, ch. 322 (requiring “[e]ach county prosecutor” to “develop and adopt a written protocol addressing potential impeachment disclosures pursuant to *Brady*”).

⁴⁴ See, e.g., Franklin County District Attorney, *Press Release: Deeds Not Words* (Dec. 2, 2020), https://franklincountypa.gov/ckeditorfiles/files/District%20Attorney/Press%20Release,%20Deeds%20Not%20Words,%2012_2_20.pdf (discussing policy requiring prosecutors “to promptly report any police misconduct they observe” and “*Giglio* Protocol” which “implements a local process for disclosure of police prior misconduct to defense counsel” and requires “ongoing maintenance of a list of such officers”); The Institute for Innovation in Prosecution at John Jay College of Criminal Justice, *The Prosecutor’s Role in Addressing Officer-Involved Fatalities and Critical Incidents* 24-27 (2019), <http://johnjay.jjay.cuny.edu/documents/Officer-Involved-Fatalities-Toolkit.PDF> (providing example “*Brady* Policy” from Ramsey County, Minnesota that creates a *Brady* committee consisting of prosecutors, police officers, and others to disclose and track potential *Brady* material from the St. Paul Police Department on a monthly basis).

enforcement employee's truthfulness, bias, or moral turpitude."⁴⁵ Two counties in North Carolina similarly require "all police agencies to search officers' personnel records for credibility issues going back ten years."⁴⁶

At the federal level, in 1991, the Department of Justice adopted an internal procedure to ensure that the personnel files of federal agents are reviewed for potential *Brady* material.⁴⁷ Under this system, each investigative agency within the Department's control is required to search agents' files for *Brady* material and to notify the prosecutor of anything that might require disclosure.⁴⁸

These procedures were adopted by the federal government in response to a Ninth Circuit case, *United States v. Henthorn*.⁴⁹ In *Henthorn*, the Ninth Circuit held that "the government has a duty to examine personnel files upon a defendant's request for their production," and the "government must 'disclose information favorable to the defense that meets the appropriate standard of materiality.'"⁵⁰ The Ninth Circuit further held that "[i]f the prosecution is uncertain about the materiality of information within its possession, it may submit the information to the trial court for an *in camera* inspection

⁴⁵ Abel, *supra* note 43, at 772-73 (internal citations omitted).

⁴⁶ *Id.* at 774 (internal citations omitted).

⁴⁷ *See id.* at 759.

⁴⁸ *Id.*; *see also* United States Department of Justice, *Justice Manual* § 9-5.001(B) (2018) (requiring "federal prosecutors, in preparing for trial, to seek all exculpatory and impeachment information from all the members of the prosecution team," which includes "federal, state, and local law enforcement officers and other government officials participating in the investigation and prosecution").

⁴⁹ *United States v. Henthorn*, 931 F.2d 29 (9th Cir. 1991); *see* Abel, *supra* note 43, at 759.

⁵⁰ *Henthorn*, 931 F.2d at 30-31 (quoting *United States v. Cadet*, 727 F.2d 1453, 1467-68 (9th Cir. 1984)).

and evaluation.”⁵¹ Because the government had failed to examine the personnel files in *Henthorn*, the Ninth Circuit ordered the government to submit the files to the federal district court for *in camera* review.⁵²

On appeal, Stacy argues that this Court should adopt *Henthorn*’s holding and require the State, upon defense request, to examine the personnel files of state agents, including the police, and disclose any *Brady* material found. The State responds that the majority of federal circuits have rejected the *Henthorn* examination requirement and that this Court has likewise rejected this approach.

But the legal landscape is more complicated than the State acknowledges. A year after *Henthorn* was decided, the Ninth Circuit grappled with the question of what “the duty to examine” actually meant. In *United States v. Jennings*, the trial court interpreted *Henthorn* as requiring the prosecutor assigned to the case to *personally* review law enforcement officer personnel files.⁵³ The trial court therefore issued an order requiring this personal review. The government informed the court that it would decline to follow this order and would appeal. In response, the court granted the defense request to suppress the testimony of the law enforcement officers.

On appeal, the Ninth Circuit reaffirmed the *Henthorn* holding that the government has a duty to examine law enforcement personnel files and to disclose any *Brady* material.⁵⁴ The court held, however, that this duty could be met without requiring

⁵¹ *Id.*

⁵² *Id.* at 31.

⁵³ *United States v. Jennings*, 960 F.2d 1488, 1489-90 (9th Cir. 1992).

⁵⁴ *Id.*

the assigned prosecutor to personally review the relevant files.⁵⁵ The court noted that the Department of Justice had recently implemented a policy in response to *Henthorn* to ensure that *Brady* material contained in law enforcement personnel files was properly disclosed to the defense. The *Jennings* Court explained that, under this system,

the files of law enforcement officers are to be examined by the appropriate agency's attorney or his staff. The agency legal staff will notify the federal prosecutor assigned to the case if any potential *Brady* material is found, and the AUSA will then determine whether the information should be disclosed or whether an in camera review by the district court is appropriate.^[56]

The Ninth Circuit concluded that “[a]dherence to this procedure would indicate that the AUSA is fulfilling his responsibility for ensuring government compliance with *Brady*.”⁵⁷ The court further concluded that the trial court had overstepped its authority in ordering the prosecutor to personally conduct a review because “the presumption is that official duty will be done” in accordance with the Department of Justice’s internal policy.⁵⁸ The court therefore reversed the trial court’s orders and remanded the case for further proceedings.

In our view, the Ninth Circuit’s holding in *Jennings* strikes the appropriate balance between ensuring that the State complies with its duties under *Brady* while also granting the State the discretion to determine how best to comply. This approach has

⁵⁵ *Id.* at 1491-92.

⁵⁶ *Id.* at 1492 n.3.

⁵⁷ *Id.* at 1492.

⁵⁸ *Id.*

also been approved by other federal circuit courts — even courts that assert that they are rejecting *Henthorn*.⁵⁹

In *United States v. Quinn*, for example, the Eleventh Circuit “decline[d] to follow *Henthorn*,” but its actual holding reaffirmed one of the underlying principles of *Henthorn* — which is that the government has a duty to learn of *Brady* material that may be in a law enforcement officer’s personnel file.⁶⁰ In *Quinn*, the defendant filed a pretrial motion requesting that the trial court order the government to disclose the personnel files of the testifying officers for impeachment purposes.⁶¹ The trial court denied the motion, but nevertheless emphasized that the government had a duty to comply with its obligations under *Brady* and *Giglio*. As the trial court stated:

As far as [personnel] records go, the government has to see if they’re . . . *Brady* or *Giglio* Everybody knows that. . . . And I’m not going to tell the government what it has to do. One thing to clarify my position is that the government should be reviewing those records to determine whether this is *Brady* material at sight, not just to necessarily hand them over.^[62]

⁵⁹ See, e.g., *United States v. Dent*, 149 F.3d 180, 191 (3d Cir. 1998) (holding that, to satisfy *Brady*, prosecution “need only direct the custodian of the [personnel] files to inspect them for exculpatory evidence and inform the prosecution of the results of that inspection, or, alternatively, submit the files to the trial court for *in camera* review” (citing *Jennings*, 960 F.2d at 1492)); *United States v. Quinn*, 123 F.3d 1415, 1421-22 (11th Cir. 1997) (claiming to reject *Henthorn*, but concluding that the district court did not err by refusing to order *in camera* review of personnel records where district court had required the government “to review the personnel files to determine whether they contained *Brady* or *Giglio* material”).

⁶⁰ *Quinn*, 123 F.3d at 1422.

⁶¹ *Id.* at 1423.

⁶² *Id.* at 1421.

The defendant later appealed the denial of his motion to compel, arguing that the trial court should have either ordered the government to directly disclose the contents of the personnel files to the defense or, at the very least, ordered the government to produce the files to the court for *in camera* review.⁶³ The Eleventh Circuit rejected this claim of error, concluding that the trial court had acted properly. As the Eleventh Circuit noted, “Here, the district judge required the government to comply with *Brady* and *Giglio*, and stated that the government was required to review the personnel files to determine whether they contained *Brady* or *Giglio* material.”⁶⁴ Given this, the Eleventh Circuit concluded that the trial court had not erred in denying the defense request for production of those files absent an adequate showing of materiality.⁶⁵

As the Eleventh Circuit’s decision in *Quinn* demonstrates, there is a distinction between recognizing the prosecutor’s duty to learn of *Brady* material in law enforcement personnel files and requiring the prosecutor to *produce* those files to the defense or to the court. However, this distinction is often lost in discussions of *Henthorn*, as is true in our prior discussion in *Martin v. State*.⁶⁶

In *Martin*, the defendant filed a pretrial motion requesting that the trial court conduct an *in camera* review of the personnel files of all testifying officers.⁶⁷ In support of this motion, the defendant accused some of the officers of committing serious police misconduct in other cases. But he provided no support for these accusations. The trial court denied the motion, concluding that the defendant had failed to meet his burden of

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ *Id.* at 1421-22.

⁶⁶ *Martin v. State*, 297 P.3d 896, 901 (Alaska App. 2013).

⁶⁷ *Id.* at 900.

establishing “a good faith basis for asserting that the materials in question may lead to the disclosure of favorable evidence.”⁶⁸

On appeal, the defendant argued that the trial court’s refusal to order *in camera* review of the personnel files violated his due process rights under *Brady*. Specifically, the defendant argued that “it is unreasonable to require a defendant to provide a good-faith basis for seeking disclosure of personnel files when the defendant does not have access to those files and does not know their contents.”⁶⁹ The defendant had not made this argument in the trial court, and he was therefore obligated to establish plain error on appeal. In addressing the plain error argument, this Court cited to *Henthorn* and its progeny. But this Court also noted that “other federal circuits have rejected *Henthorn*,”⁷⁰ and we concluded that “the fact that the federal circuits are split on this question means that Martin has failed to show plain error.”⁷¹

In the current appeal, the State relies on this language in *Martin* to argue that we have previously rejected *Henthorn* and that Alaska law therefore does not recognize any prosecutorial duty to learn about *Brady* material contained in law enforcement personnel files. But, as already established, there is a difference between a defendant’s burden to justify production of otherwise confidential personnel files for an *in camera* review and the State’s independent duty to disclose *Brady* material that may be in those personnel files. The State’s duty to disclose *Brady* material was not at

⁶⁸ *Id.* (quoting *March v. State*, 859 P.2d 714, 718 (Alaska App. 1993)).

⁶⁹ *Id.* at 901.

⁷⁰ *Id.*

⁷¹ *Id.*

issue in *Martin*, nor was it at issue in many of the cases cited in our opinion as rejecting *Henthorn*.⁷²

Here, however, the State's independent duty is at issue. In the current case, the prosecutor took the position that because state personnel files are confidential under Alaska law, he had no ability to review them and no duty to learn about *Brady* material they may contain. But, as the Ninth Circuit explained, there are multiple ways that the State can comply with its obligations under *Brady* without having individual prosecutors personally review personnel files.⁷³ One approach is to adopt the federal system through which the affected agency conducts the internal review and then reports to the prosecutor's office.

⁷² See *id.*; see also *United States v. Quinn*, 123 F.3d 1415, 1422 (11th Cir. 1997) (affirming denial of request to order production of personnel records but noting that district court properly required the government to examine those records for *Brady* or *Giglio* material); *United States v. Driscoll*, 970 F.2d 1472, 1482 (6th Cir. 1992) (acknowledging *Brady*'s general obligation upon the government to disclose favorable evidence but noting that "the government typically is the sole judge of what evidence in its possession is subject to disclosure" and affirming denial of request for production of personnel records without a showing of materiality (internal citations omitted)); *United States v. Andrus*, 775 F.2d 825, 843 (7th Cir. 1985) (concluding that *Brady* does not require the government disclose or produce the contents of personnel files for review based only upon "speculative assertion[s] that impeaching material may be in a government file"); cf. *United States v. Kiszewski*, 877 F.2d 210, 216 (2d Cir. 1989) (remanding case for *in camera* examination of personnel files after prosecution reviewed the files of testifying officers and found potential impeachment material but did not disclose the files); *United States v. Muse*, 708 F.2d 513, 517 (10th Cir. 1983) (acknowledging that the "government must supply evidence useful to the defendant simply for impeachment purposes . . . whether such evidence was contained in personnel files or elsewhere" but denying disclosure of witnesses' personnel records where defendant had been granted disclosure of other impeachment material).

⁷³ *United States v. Jennings*, 960 F.2d 1488, 1490 (9th Cir. 1992) (noting that the government's duty to disclose *Brady* material "cannot be evaded by claiming lack of control over the files or procedures of other executive branch agencies").

Indeed, it appears that the Department of Law has adopted such a procedure with regard to the Anchorage Police Department. The Department of Law described this process in a trial court filing from an unrelated case, dated November 2016:

The Anchorage Police Department (APD) and the Department of Law (DOL) have agreed to an on-going process by which the APD will advise one representative of the Department of Law of its substantiation of an officer's or employee's misconduct involving untruthfulness or bias. The APD gives the DOL representative limited detail about the misconduct, but does not give the DOL representative any written or recorded report of the investigation of the misconduct, such a report being part of a confidential personnel record. The APD furnishes the DOL representative with sufficient detail to show a judge assigned a criminal case in which the officer or employee may be a material witness that there is good cause to order production of the written or recorded report for *in camera* review. The process is intended to facilitate compliance with the duty of police and prosecutors under *Giglio* while respecting the officer's or employee's privacy interest in the confidential personnel records.^[74]

Stacy referred to this policy in his briefing to this Court. The State, however, did not acknowledge or address it in its brief. But the apparent existence of such a policy undermines the State's claim that recognizing a duty to learn of *Brady* material in personnel files would impose "unacceptable burdens on prosecutors and the police."

Accordingly, we now hold that, under Alaska law, prosecutors have a duty to learn of *Brady* material that may be in the personnel files of law enforcement officers or other members of the prosecution team. We note that this duty extends not only to

⁷⁴ Motion for *In Camera* Review at 1-2, *State v. Beier*, No. 3AN-15-09578 CR (Alaska Super. Ct. Nov. 29, 2016).

police agencies of the same government bringing the prosecution, but it may also extend to officers from cross-jurisdictional agencies who have a “close working relationship” with the prosecution.⁷⁵ And the duty may include other governmental offices and actors who are “closely aligned with the prosecution” or acting on the government’s behalf.⁷⁶

⁷⁵ See *United States v. Brooks*, 966 F.2d 1500, 1503-04 (D.C. Cir. 1992) (holding federal prosecutor had duty to review personnel file of police officer who had been a key witness “[g]iven the close working relationship between the Washington metropolitan police and the U.S. Attorney”); *United States v. Antone*, 603 F.2d 566, 568-70 (5th Cir. 1979) (finding state investigators part of federal prosecution team because of “extensive cooperation” and formation of a “joint investigative task force” with federal agents).

⁷⁶ See United States Department of Justice, *Justice Manual* § 9-5.001(B)(2) (2018) (“prosecution team” includes “federal, state, and local law enforcement officers and other government officials participating in the investigation and prosecution of the criminal case against the defendant”); *McCormick v. Parker*, 821 F.3d 1240, 1247 (10th Cir. 2016) (sexual assault nurse who examined alleged victim “at the behest of” law enforcement was part of the prosecution team); *United States v. Santiago*, 46 F.3d 885, 894 (9th Cir. 1995) (finding Bureau of Prisons files to be within the prosecution’s *Brady* obligation); *United States ex rel. Smith v. Fairman*, 769 F.2d 386, 391 (7th Cir. 1985) (noting that prosecutor’s ignorance of existence of favorable material does not justify the State’s failure to produce it, particularly when the “withheld evidence is under the control of a state instrumentality closely aligned with the prosecution”); *United States v. Deutsch*, 475 F.2d 55, 57-58 (5th Cir. 1973) *overruled on other grounds by United States v. Henry*, 749 F.2d 203 (5th Cir. 1984) (holding that the government must produce personnel files of government agents if they contained impeachment material even if employee was employed by a different branch of the government — here, the personnel file of a post office employee who was the government’s principal witness); *In re C.J.*, 652 N.E.2d 315, 318 (Ill. 1995) (observing that case worker from social service agency could be considered part of the prosecution team when the worker “acts at the behest of and in tandem with the [prosecutor], with the intent and purpose of assisting in the prosecutorial effort”).

But see United States v. Rivera-Rodríguez, 617 F.3d 581, 595 (1st Cir. 2010) (finding probation officer was not part of prosecution team when officer was preparing a presentence report for co-defendant and there was no evidence that prosecution had the information in the report prior to or during trial); *United States v. Pelullo*, 399 F.3d 197, 218 (3d Cir. 2005) (continued...)

How the State chooses to comply with this duty is left to its discretion. But a system must be in place through which individual prosecutors can learn of *Brady* material in the personnel files of law enforcement officers and other state agents who will be material witnesses in a given case. Thus, when a defense attorney requests confirmation that the prosecutor has complied with their duty to learn of *Brady* material in a law enforcement officer's personnel file, the prosecutor must confirm that reasonable steps have been taken to discover and disclose any favorable material evidence contained in those files. This includes (but is not limited to) prior instances of police misconduct involving untruthfulness or bias.

The question we now face is how to remedy what has occurred in this case. Stacy argues that we should remand the case for an *in camera* review of all relevant personnel files and the trial court should then “disclose any relevant impeachment material it finds and determine if a new trial is warranted in light of any newly disclosed material.” But this remedy ignores the distinction that Stacy has otherwise emphasized in his briefing before this Court — *i.e.*, the distinction between recognizing the prosecutor's duty to learn of, and disclose, *Brady* material in the personnel records of its agents, and actually requiring the personnel records to be subjected to an *in camera* review. We note that Stacy had the opportunity to request such a review in the proceedings below, and he failed to make a sufficient showing of materiality to warrant an *in camera* review. It is therefore not clear why he should be entitled to this relief on

⁷⁶ (...continued)
(finding Pension and Welfare Benefits Administration records outside prosecutor's constructive knowledge because agency had no working relationship with prosecution team); *United States v. Velte*, 331 F.3d 673, 680 (9th Cir. 2003) (no *Brady* violation despite failure to disclose report held by government weather station when no connection between prosecutor and weather station such that it was not “acting on the government's behalf”).

remand. We also believe that it was *Henthorn*'s adoption of this type of remedy that led to the later misreading of that decision by other courts.

We conclude that the appropriate remedy is to remand this case to the superior court so that the prosecutor can properly fulfill their duty under *Brady*. On remand, the prosecutor shall ensure that the relevant personnel files have been reviewed for any impeachment evidence that is significant enough that it could be material in Stacy's case.⁷⁷ The prosecutor may also request the court to conduct some form of *in camera* review.

If impeachment evidence that could reasonably be viewed as material is discovered during the review, the evidence must be disclosed to the defense. The parties should then be given the opportunity to litigate whether a new trial is warranted in light of the newly disclosed evidence.

Conclusion

We REMAND this case for further proceedings as outlined above. We retain jurisdiction.

⁷⁷ Evidence is material "if there is a reasonable probability that, had the evidence been disclosed to the defense, the result of the proceeding would have been different." *United States v. Bagley*, 473 U.S. 667, 682 (1985). A "reasonable probability" of a different result is one in which the withheld evidence "could reasonably be taken to put the whole case in such a different light as to undermine confidence in the verdict." *Kyles v. Whitley*, 514 U.S. 419, 435 (1995); accord *Cone v. Bell*, 556 U.S. 449, 469-70 (2009); *Banks v. Dretke*, 540 U.S. 668, 698-99 (2004); *Strickler v. Greene*, 527 U.S. 263, 290 (1999). A "showing of materiality does not require demonstration by a preponderance that disclosure of the suppressed evidence would have resulted ultimately in the defendant's acquittal," and it is "not a sufficiency of the evidence test." *Kyles*, 514 U.S. at 434. Courts consider the evidence "collectively, not item by item," and materiality "turns on the cumulative effect of all such evidence suppressed by the government." *Id.* at 421, 436.