



City of Palmer

Planning and Zoning Commission Packet

April 14, 2016



PLANNING & ZONING COMMISSION
SPECIAL MEETING
7 PM, THURSDAY, APRIL 14, 2016
CITY COUNCIL CHAMBERS
231 W. EVERGREEN AVENUE, PALMER
www.cityofpalmer.org



CHAIRMAN DAN LUCAS
VICE CHAIRMAN DAVID PETTY
COMMISSIONER WILLIAM KERSLAKE, SR.
COMMISSIONER MICHAEL KIRCHER
COMMISSIONER MERRY MAXWELL
COMMISSIONER DOUGLAS CRUTHERS
COMMISSIONER DAVID FULLER

AGENDA

- A. Call to Order
- B. Roll Call
- C. Pledge of Allegiance
- D. Approval of Agenda
- E. Persons to be Heard
- F. Public Hearings
 - 1. Resolution 16-002: A Resolution of the Palmer Planning and Zoning Commission reconsidering three issues remanded to the Commission by the Hearing Officer following an appeal regarding the preliminary approval of a Planned Unit Development application for Tax Parcel C8 in Section 4, Township 17 North, Range 2 East, Seward Meridian, located inside Palmer city limits, initiated by Ron Bateman of Lumen Design, LLC on behalf of the property owner

The three items remanded to the Planning and Zoning Commission:

- a) Drainage – This aspect of the Commission’s decision is reversed and remanded for further consideration;
- b) The PUD must be shown to not overload the street system or result in unsafe access or danger to pedestrians and must be in conformance with the City Traffic Study – This aspect of the Commission’s decision is reversed and remanded for further consideration; and
- c) Consistency with the City Comprehensive Development Plan – This aspect of the Commission’s decision is reversed and remanded for further consideration.

A copy of the Hearing Officer’s Decision is available online under the City Departments/Boards & Commissions/Planning and Zoning Commission/Planning and Zoning Commission Meeting Packets/2016 Planning and Zoning Commission Meeting Packets.

If you wish to comment on this issue, you may do so by attending the public hearing or by providing written comments to the Planning and Zoning Commission by April 8, 2016. Written comments may be mailed to Department of Community Development, 645 E. Cope Industrial Way, Palmer, Alaska, faxed to 745-5443 or emailed to me at: kmcclore@palmerak.org.

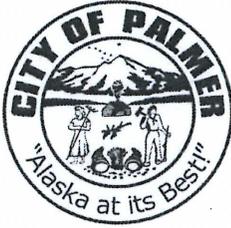
G. Public Comments

H. Commissioner Comments

I. Adjournment



Public Hearings



**CITY OF PALMER
PLANNING & ZONING COMMISSION
INFORMATION MEMORANDUM 16-005**

SUBJECT: Special Meeting to Review the Remanded Items for VOA/VRS Palmer Family Housing Planned Unit Development on Tax Parcel C8 in Section 4, Township 17 North, Range 2 East, Seward Meridian located south of East Cope Industrial Way and adjacent to the MTA Events Center and Palmer Job Corps, located inside Palmer city limits

AGENDA OF: April 14, 2016

ACTION: Conduct public hearing; review additional information regarding the remanded items; and approve, approve with conditions or deny the remanded items for the proposed PUD request

Attachment(s):

- 1) Staff Report with Findings of Facts for Remanded Items
- 2) Resolution No. 16-002
- 3) Hearing Officer's Decision
- 4) VOA/VRS Palmer Family Housing PUD remanded items submittal package
- 5) Public Hearing Notice and Vicinity Map
- 6) Copy of Mailing Address Labels
- 7) Public Comments to Notice

Summary: A public hearing for the formal review of the PUD request for VOA/VRS Palmer Family Housing was held and all twelve findings were approved by the Planning & Zoning Commission on August 20, 2015. The decision was appealed and a public hearing was held on February 11, 2016 by the Hearing Officer in accordance with PMC 17.98, Appeals to Hearing Officer.

The Hearing Officer affirmed nine of the twelve findings and remanded three items back to the Planning and Zoning Commission for further consideration.

Recommendation: Staff recommends approval of the three remanded items for the PUD request for VOA/VRS Palmer Family Housing.



City of Palmer

Community Development

Planned Unit Development Remanded Items

Staff Report to Commission

PART I. GENERAL INFORMATION

Location: Located south of East Cope Industrial Way and is adjacent to the MTA Events Center and Palmer Job Corps Site
Tax Parcel C8 in Section 4, Township 17 North, Range 2 East, Seward Meridian

Permit Request: The request is to approve a Planned Unit Development to permit construction of 88 family rental housing units on this parcel.

Applicant & Owner: Ron Bateman of Lumen Design LLC and Valley Residential Services submitted the application on behalf of the owners, Duaine Arthur Richards and Ardith Eleanor Richards, Co-Trustees of the Richards Family Trust, Sid A. Richards, Brandon J. Blake, James Donald Smith Jr. and Pierre J. Nicolet

On March 18, 2016 Ron Fassett of Valley Residential Services submitted additional information in response to the Hearing Officer's decision.

Public Hearing Date: April 14, 2016

Notification Requirements: On March 28, 2016, 182 public hearing notices were mailed to property owners with 1,200' of the site in accordance with 17.80.030. Notification of the public hearing was published in the Frontiersman on April 8, 2016. A total of ___ written comments were received in response.

PART II. BACKGROUND

Site Information: This parcel was subdivided from its parent parcel on August 23, 2002 into Parcel B1 by Waiver Resolution Serial No. 2002-142-PWm recorded as Reception No. 2002-018272-0. The parcel is accessed by East Cope Industrial Way. This parcel was annexed into the City in 2003 as part of a large annexation. The property is currently undeveloped.

The applicants request the Planned Unit Development to allow for higher residential density for the construction of 88 family rental housing units on this parcel. Nearby properties and uses

include Mountain Rose Estates, MTA Events Center, Job Corps, Terra Sond and an R-4 High Density Residential zoning district containing multi-family housing units.

Parcel Size: 9.30 gross acres

Existing Zoning: R-1 Single-family Residential; property is undeveloped

Surrounding Land Uses:

	Zoning	Land Use for surrounding areas
North	P & BP	Palmer Junior Middle School and Terra Sond
South	R-1 with PUD	Mountain Rose Estates
East	P	Palmer Job Corps
West	P	MTA Events Center

Considerations: The Hearing Officer has affirmed nine of the twelve findings in the Commission’s decision to grant preliminary approval for this Planned Unit Development and remanded three findings back to the Commission for further consideration

PART III. CITY DEPARTMENT COMMENTS

City Manager: Comments appear to address hearing officer remand items in concept. See PW comments.

Public Works Department: This memorandum comments on the supplemental information on traffic and drainage issues provided by the applicant Volunteers of America/Valley Residential Services for a planned unit development (PUD). This review is required by hearing officer Ronald Baird’s decision to remand these traffic and drainage issues to the Palmer Planning Commission for further review and determination regarding an appeal filed in this matter.

These comments address the additional information provided by project engineer Alaska Rim Engineering, Inc. (ARE) dated March 15, 2016.

TRAFFIC

The hearing officer’s decision states that my previous comments on the initial PUD application “...do not state what the traffic impact of the project would be and do not expressly address potential “overloading” of the street system. There is also no discussion of whether there is any applicable “city traffic study.””

The City of Palmer has not adopted traffic impact standards. Alaska Rim Engineering (ARE) uses Alaska Department of

Transportation and Mat-Su Borough traffic standards to reasonably estimate trip generation rates for the proposed development. ARE's analysis shows a traffic impact analysis is not needed because the estimated vehicle trips per day and peak hour vehicle trips are below levels that trigger such analysis. This suggests that the development will not "overload" the street system.

Standard D requires that the PUD must not "result in unsafe access or danger to pedestrians." In my opinion, the Planning Commission's amendment making the main PUD access point at Cope Industrial Way will provide inferior access and safety for pedestrians in comparison to the main PUD access point at S. Chugach St. S. Chugach St. has existing street lights, a paved sidewalk and a greater pavement width than Cope Industrial Way.

Standard D requires that the PUD "must be in conformance with the City Traffic Study." The City of Palmer Traffic Study prepared in 1984 by Datum Engineering & Surveying, Inc. does not specifically address S. Chugach St. and the area of the proposed PUD. In fact, this property was not inside Palmer city limits at that time. The study designates S. Chugach St. and the portion of Cope Industrial Way inside the city limits as collector streets. Although the study is more than thirty years old, the collector designation of these streets is consistent with their function today. The access road for the PUD—whether to S. Chugach St. or Cope Industrial Way—could be designated a residential street because it will only serve this development. It is recommended, however, to add a sidewalk on one side of the road for pedestrian safety.

At the hearing, the Planning Commission approved an amendment changing the principal point of access from an extended Commercial Drive to Cope Industrial Way. This is a significant change to the development plan that my initial comments did not address.

ARE's supplementary materials accurately describe differences between the current configuration of S. Chugach St. and Cope Industrial Way. In my opinion, S. Chugach St. is better able to absorb the traffic generated by the proposed PUD due to wider street width, sidewalks and street lighting. The City's construction of the soccer fields west of the PUD intentionally left the southern sixty feet of that property undeveloped to be available for road access for the PUD property. The extension of water and sewer mains from S. Chugach St. to serve the PUD will facilitate construction of a Commercial Drive extension. That extension should include a sidewalk on the north side of the street, adequate drainage improvements and street lighting.

ARE's supplementary traffic information makes a good case to return the primary PUD access to an extension of Commercial Drive. I agree with their analysis. Having the primary access

for the PUD on Cope Industrial Way will use an inferior street to convey PUD traffic to S. Chugach St., whereas a direct access to S. Chugach St. avoids an intermediate street. Access to Cope Industrial Way will increase traffic at its intersection with S. Chugach St. At certain times of day, this intersection is congested due to traffic generated by Palmer Junior Middle School. Also, Cope Industrial Way does not have street lights, curb and gutter, or convenient access to the pedestrian pathway in this area. These factors decrease pedestrian safety in this area, particularly in winter.

DRAINAGE

The additional information from ARE contains significantly more information on a drainage plan, including a description of the proposed drainage system, hydraulic calculations, a plan view of the drainage system and typical section drawings of rain garden and infiltration trench structures.

In reference to ARE's "Site Plan" drawing, the location and design of the rain gardens at the ends of the hammer-head cul-de-sacs is not accepted. These locations are exactly where the plan identifies snow storage areas. Piling snow atop these structures will introduce sand and silt fines into the structures that will reduce their capacity to accept storm water. Piling snow in these locations will block any meltwater from entering the rain gardens during melting events when snow and ice are present. Such events are common in Palmer during the winter and spring. Drainage structures must remain open and unobstructed during those periods.

The City suggests the design turn the rain gardens ninety degrees to align parallel with the east side of the roadways so they are not in snow storage areas and not subject to soil compaction or damage by snow plow equipment. The City also suggests the design of all rain gardens and infiltration trenches reflect the infiltration basin design shown on the attached "Sherrod Area Water and Street Improvements, Phase 3," sheet C1.04. This design includes graded surface areas that direct water flow to field inlets; geotextile separation for the fill material; steam thaw pipes; a specified fill material and adequate depth to allow the classified fill material to contact the existing sand and gravel at depths below the frost line. ARE should calculate the required size of these structures based on ARE's 3/16/16 estimated storm event flows. The addition of a large dry bed pond and infiltration basin in the southeast corner of the development and ARE's calculations of storm water flows appear to adequately address the plan's ability to contain storm water on site, provided the recommendations above are incorporated.

The proposed design identifies snow storage areas throughout the development. The City does not have specific standards to determine a required size of snow storage areas, but the development's housing unit density and the need to clear the

three narrow streets entirely of snow due to their narrow width and the number of driveways require the developer to be particularly aware of the need for adequate snow storage areas.

Police Department: Concur, no changes necessary.

Building Department: No comments.

Fire Department: Concur, no changes necessary.

PART IV. ITEMS REMANDED BY THE HEARING OFFICER'S DECISION:

Remanded Item #1) The PUD must be integrated with surrounding land uses and minimize any negative impacts on them - Drainage;

Finding: The additional drainage information provided by Alaska Rim Engineering, Inc. shows the design concept to include specifics on rain gardens, infiltration trenches and sub-basins. The information provided contains sufficient information on the drainage plan, including a description of the proposed drainage system, hydraulic calculations, a plan view of the drainage system and typical section drawings of rain garden and infiltration trench structures to show the proposed drainage plan is designed to contain a 100 year – 24 hour event on-site without negative impacts to the adjoining neighbors. The drainage plan combined with the recommendations from Public Works Director will adequately address the plan's ability to contain storm water on site.

Remanded Item #2) The PUD must be shown not to overload the street system or result in unsafe access or danger to pedestrians and must be in conformance with the most recently adopted city traffic study;

Finding: The trip generation report by Alaska Rim Engineering does provide estimates of how many trips would be generated by the proposed PUD. Based on the trip generation information, the estimated daily trips during the peak hour of the day generated by the proposed PUD falls under the threshold guideline that would require a Traffic Impact Study.

At the time the City of Palmer Traffic Study was prepared in 1984, the property of the proposed PUD was not inside city limits. According to the 1984 study, both South Chugach Street and the portion of Cope Industrial Way inside of city limits were designated as collector streets. Based on the information provided by the Public Works Director, the designation of these streets as collector streets continues to be consistent with their function today.

Both Cope Industrial Way or South Chugach street would provide safe access to pedestrians and would be able to absorb the traffic generated by the PUD. Based on the detailed information provided by Alaska Rim Engineering and Public Works Director regarding the larger width of the road, availability of paved sidewalks, existing street lights, curb and gutter since both South Chugach Street and E. Cope Industrial Way function as Collector roads, either is appropriately designed to accommodate the traffic generated by the proposed PUD.

Remanded Item #3) Consistency with the City Comprehensive Development Plan;

Finding: Listed in Chapter 3, of the City of Palmer Comprehensive Plan dealing with Community Vision are broad goals to achieve community vision. One goal states, "Encourage High Quality, Attractive Development with Ready Access to Parks and Green Space" [page 3-3] and mentions the desire to provide ready access to parks, trails and open space and preserve sense of views. The proposed PUD addresses the need to preserve the mountain views and arranges the housing units and positions the primary street on an axis to maximize the views of the surrounding mountains.

The housing units are divided among 21 buildings with varying roof lines to produce an attractive development and promote a neighborhood experience. A characteristic listed under Chapter 6, Land Use, of the Comprehensive Plan in Objective A of Goal 1 [page 6-7] refers to guiding growth so there "Space for new residential neighborhood, primarily around the outer portions of the community, but also within mixed use areas in the downtown core. Residential areas include internal open space, parks and connecting trails." Consistent with the Comprehensive Plan, the proposed PUD will provide approximately 3.8 acres of open outdoor space, pocket parks and playground, and will have trails connecting internally and to existing adjacent sidewalks. Interior trails and walkways will connect the residential units to each other and will connect to existing sidewalks to help ensure Palmer remains a pedestrian friendly town as referred to in the Comprehensive Plan.

Goal 2 of Chapter 6, Land Use, of the Comprehensive Plan states, "Maintain high quality residential neighborhoods; promote development of a range of desirable new places to live in Palmer" [page 6-8] and speaks to the many assets of Palmer that will attract residential development. Water and sewer connections which permit higher density housing are one of those assets listed in Goal 2. Another asset mentioned in Goal 2 is the opportunity to live within walking distance of stores, restaurants and places to work. The proposed PUD will consist of 1, 2 and 3-bedroom multi-level townhouse units, each unit with a garage to produce a neighborhood appearance and environment. The PUD will have onsite office with management and security to ensure standards are maintained to produce a safe, high quality residential environment.

Objective A of Goal 2 of Chapter 6, Land Use, of the Comprehensive Plan states, "Promote a diverse range of quality housing, from attractive higher density housing in or near downtown, to outlying housing in more rural settings." The proposed PUD is consistent with this objective by offering quality high density housing near downtown. The planning concepts presented in the proposed PUD speaks to providing a variety of unit heights so the proposed PUD becomes smaller more residential in appearance, with private garages as opposed to a large parking lot and landscaping throughout the PUD that will be required and maintained. The location of the proposed PUD is within walking or biking distance to the downtown area.

The comprehensive Plan under Objective C under Goal 2 in Chapter 6, Land Use, states "Around the country, a growing body of experience shows that higher density housing can offer very desirable places to live, if this housing is well designed and constructed, and has pedestrian access to amenities like open space, parks, and shopping." [page 6-9] The proposed PUD will consist of 1, 2 and 3-bedroom multi-level townhouse units, each unit with a garage to produce a neighborhood appearance and environment. The PUD will have onsite gardens, open space and walking trails. The PUD will have onsite office with management and security to ensure standards are maintained to produce a

safe, high quality residential environment, and the location of the proposed PUD is within walking or biking distance to the downtown area.

PART V. STAFF RECOMMENDATION

Based on the information reviewed by staff at the time this report was completed, staff finds there is sufficient information to support finding that the criteria for three remanded items have been met and to support Commission's decision to grant preliminary approval of the proposed planned unit development for Tax Parcel C8 in Section 4, Township 17 North, Range 2 East, Seward Meridian, is consistent with and in conformance with the Palmer Comprehensive Plan with the following conditions:

1. All subsequent development shall comply with all State, Federal and local laws, statutes, regulations and ordinances.
2. The applicant shall, within one year of the date of commission approval of the preliminary PUD plan, submit a final PUD plan of the proposed development to the zoning administrator, which must incorporate all the changes and conditions required by the commission.
3. The 12.5' greenbelt easement along the boundary of this parcel and C9 be maintained.
4. Construction must comply with the approved site plan.
5. Construction of primary access to the development must meet City standards for new road construction.
6. The development will be responsible for all street, sidewalk, drainage and street lighting improvements within the development.
7. Consolidate the public gardens on the southern border of the property adjacent to the southwest corner of the PUD.
8. Use Cope Industrial Way as main entrance to the PUD.
9. Once the final PUD is approved, the City shall require an agreement and a bond or surety to guarantee construction of proposed improvements, in accordance with PMC 17.84.090(C).
10. Once approved by the City Council, the Zoning Map will be amended to reflect the granting of the Planned Unit Development status for Tax Parcel C8 in Section 4, Township 17 North, Range 2 East, Seward Meridian.

It is recommended that the Planning Commission adopt the Staff's analysis and findings and approve the requested Planned Unit Development.

PALMER PLANNING AND ZONING COMMISSION

RESOLUTION NO. 16-002

A RESOLUTION OF THE PALMER PLANNING AND ZONING COMMISSION RECONSIDERING THREE ISSUES REMANDED TO THE COMMISSION BY THE HEARING OFFICER FOLLOWING AN APPEAL REGARDING THE PRELIMINARY APPROVAL OF A PLANNED UNIT DEVELOPMENT APPLICATION FOR TAX PARCEL C8 IN SECTION 4, TOWNSHIP 17 NORTH, RANGE 2 EAST, SEWARD MERIDIAN, LOCATED INSIDE PALMER CITY LIMITS, INITIATED BY RON BATEMAN OF LUMEN DESIGN, LLC ON BEHALF OF THE PROPERTY OWNER

WHEREAS, Planned Unit Developments are reviewed by the Planning and Zoning Commission of the City of Palmer in accordance with PMC 17.84; and

WHEREAS, following the hearing of an appeal to the preliminary approval to the Planned Unit Development proposed for Tax Parcel C8, in Section 4, Township 17 North, Range 2 East, Seward Meridian; and

WHEREAS, in his Decision of the Hearing Officer dated February 17, 2016 Ronald L. Baird, the Hearing Officer, affirmed nine of the findings adopted by the Commission following the duly noticed Public Hearing of August 20, 2015 and remanded three remaining findings to the Commission; and

WHEREAS, the following three items were remanded Commission:

1. Drainage – This aspect of the Commission’s decision is reversed and remanded for further consideration;
2. The PUD must be shown to not overload the street system or result in unsafe access or danger to pedestrians and must be in conformance with the City Traffic Study – This aspect of the Commission’s decision is reversed and remanded for further consideration; and
3. Consistency with the City Comprehensive Development Plan – This aspect of the Commission’s decision is reversed and remanded for further consideration; and

WHEREAS, the Commission has considered remanded Item #1) The PUD must be integrated with surrounding land uses and minimize any negative impacts on them – Drainage and makes the following finding;

Finding: The additional drainage information provided by Alaska Rim Engineering, Inc. shows the design concept to include specifics on rain gardens, infiltration trenches and sub-basins. The information provided contains sufficient information on the drainage plan, including a description of the proposed drainage system, hydraulic calculations, a plan view of the drainage system and typical section drawings of rain garden and infiltration trench structures to show the proposed drainage plan is designed to contain a 100 year – 24 hour event on-site without negative impacts to the adjoining neighbors.

The drainage plan combined with the recommendations from Public Works Director will adequately address the plan's ability to contain storm water on site.

WHEREAS, the Commission has considered Remanded Item #2) The PUD must be shown not to overload the street system or result in unsafe access or danger to pedestrians and must be in conformance with the most recently adopted city traffic study and makes the following finding:

Finding: The trip generation report by Alaska Rim Engineering does provide estimates of how many trips would be generated by the proposed PUD. Based on the trip generation information, the estimated daily trips during the peak hour of the day generated by the proposed PUD falls under the threshold guideline that would require a Traffic Impact Study.

At the time the City of Palmer Traffic Study was prepared in 1984, the property of the proposed PUD was not inside city limits. According to the 1984 study, both South Chugach Street and the portion of Cope Industrial Way inside of city limits were designated as collector streets. Based on the information provided by the Public Works Director, the designation of these streets as collector streets continues to be consistent with their function today.

Both Cope Industrial Way or South Chugach street would provide safe access to pedestrians and would be able to absorb the traffic generated by the PUD. Based on the detailed information provided by Alaska Rim Engineering and Public Works Director regarding the larger width of the road, availability of paved sidewalks, existing street lights, curb and gutter since both South Chugach Street and E. Cope Industrial Way function as Collector roads, either is appropriately designed to accommodate the traffic generated by the proposed PUD.

WHEREAS, the Commission has considered Remanded Item #3) Consistency with the City Comprehensive Development Plan and makes the following finding:

Finding: Listed in Chapter 3, of the City of Palmer Comprehensive Plan dealing with Community Vision are broad goals to achieve community vision. One goal states, "Encourage High Quality, Attractive Development with Ready Access to Parks and Green Space" [page 3-3] and mentions the desire to provide ready access to parks, trails and open space and preserve sense of views. The proposed PUD addresses the need to preserve the mountain views and arranges the housing units and positions the primary street on an axis to maximize the views of the surrounding mountains.

The housing units are divided among 21 buildings with varying roof lines to produce an attractive development and promote a neighborhood experience. A characteristic listed under Chapter 6, Land Use, of the Comprehensive Plan in Objective A of Goal 1 [page 6-7] refers to guiding growth so there "Space for new residential neighborhood, primarily around the outer portions of the community, but also within mixed use areas in the downtown core. Residential areas include internal open space, parks and connecting trails." Consistent with the Comprehensive Plan, the proposed PUD will provide

approximately 3.8 acres of open outdoor space, pocket parks and playground, and will have trails connecting internally and to existing adjacent sidewalks. Interior trails and walkways will connect the residential units to each other and will connect to existing sidewalks to help ensure Palmer remains a pedestrian friendly town as referred to in the Comprehensive Plan.

Goal 2 of Chapter 6, Land Use, of the Comprehensive Plan states, "Maintain high quality residential neighborhoods; promote development of a range of desirable new places to live in Palmer" [page 6-8] and speaks to the many assets of Palmer that will attract residential development. Water and sewer connections which permit higher density housing are one of those assets listed in Goal 2. Another asset mentioned in Goal 2 is the opportunity to live within walking distance of stores, restaurants and places to work. The proposed PUD will consist of 1, 2 and 3-bedroom multi-level townhouse units, each unit with a garage to produce a neighborhood appearance and environment. The PUD will have onsite office with management and security to ensure standards are maintained to produce a safe, high quality residential environment.

Objective A of Goal 2 of Chapter 6, Land Use, of the Comprehensive Plan states, "Promote a diverse range of quality housing, from attractive higher density housing in or near downtown, to outlying housing in more rural settings." The proposed PUD is consistent with this objective by offering quality high density housing near downtown. The planning concepts presented in the proposed PUD speaks to providing a variety of unit heights so the proposed PUD becomes smaller more residential in appearance, with private garages as opposed to a large parking lot and landscaping throughout the PUD that will be required and maintained. The location of the proposed PUD is within walking or biking distance to the downtown area.

The comprehensive Plan under Objective C under Goal 2 in Chapter 6, Land Use, states "Around the country, a growing body of experience shows that higher density housing can offer very desirable places to live, if this housing is well designed and constructed, and has pedestrian access to amenities like open space, parks, and shopping." [page 6-9] The proposed PUD will consist of 1, 2 and 3-bedroom multi-level townhouse units, each unit with a garage to produce a neighborhood appearance and environment. The PUD will have onsite gardens, open space and walking trails. The PUD will have onsite office with management and security to ensure standards are maintained to produce a safe, high quality residential environment, and the location of the proposed PUD is within walking or biking distance to the downtown area.

NOW, THEREFORE, BE IT RESOLVED that the Palmer Planning and Zoning Commission finds that following careful reconsideration of the three items remanded to the Commission by the Hearing Officer that there is sufficient information to support the initial preliminary approval of the Planned Unit Development application for Tax Parcel C8 in Section 4, Township 17 North, Range 2 East, Seward Meridian, located inside Palmer city limits, initiated by Ron Bateman of Lumen Design, LLC on behalf of the property owner.

Passed by the Planning and Zoning Commission of the City of Palmer, Alaska, this 14th day of April, 2016.

Dan Lucas, Chairman

Kimberly A. McClure
Planning and Code Compliance Technician



OFFICE OF
RONALD L. BAIRD
ATTORNEY AT LAW

MAILING ADDRESS:
P.O. Box 112070
ANCHORAGE, ALASKA 99511-2070
OFFICE LOCATION:
1000 E. O'MALLEY ROAD, SUITE 202
ANCHORAGE, ALASKA

PHONE NO.: 907-565-8818
FAX NO.: 907-565-8819
WEBSITE: www.rlbaird.com

TO: Janette M. Bower
City Clerk
City of Palmer

FROM: Ronald L. Baird *rlb*

SUBJECT: Appeal of Mountain Rose Estates Condominium Association, Inc.
Planning and Zoning Commission Resolution 15-008(AM)
Our File:

DATE: February 18, 2016

Please find enclosed:

Original Decision of the Hearing Officer dated February 17, 2016

BEFORE THE HEARING OFFICER

CITY OF PALMER

In the Matter of the Appeal of Mountain
Rose Estates Condominium Association Inc.
from the Planning and Zoning Commission's
Decision dated September 18, 2015
Approving a Planned Unit Development,
Resolution No. 15-008AM/Application for
PUD

DECISION OF THE HEARING OFFICER

This is the decision of the Hearing Officer in the matter of the appeal of Mountain Rose Estates Condominium Association Inc., appellant ("Association"), from the decision of the Palmer Planning and Zoning Commission ("Commission") approving a Planned Unit Development ("PUD"), Resolution No. 15-008AM. The appellee is the successful applicant below, Valley Residential Services and Lumen Design, LLC (herein collectively "VRS") as agents for the current property owners. The application¹ was for approval of a development of 22 residential structures containing 88 dwelling units and a community building on a 9.3 acre site described as Parcel B1 of Waiver Resolution Serial No. 2002-142-PWm.² The Association is the association of owners within the Mountain Rose Condominium project, an approved PUD which abuts the site of the proposed development along its entire southerly border ("Mountain Rose").

¹ R. Tab 43E.

² R. Tab 29D.

The Hearing Officer has considered 1) the appeal record prepared by the City Clerk as required by Palmer Municipal Code (“PMC”) 17.98.030 of the materials exchanged with staff and presented to the Commission (“record or “R”), 2) the transcript of the public hearing of the Commission (“Tr.”) and 3) the written briefs submitted pursuant to PMC 17.98.040. The hearing required by PMC 17.98.060 was held.³

1. EXHIBITS OF THE ASSOCIATION

The first issue presented is a procedural one raised by the objection of VRS to the materials attached to the opening brief of the Association. None of the materials are contained within the record. The first three items are essentially statements of individuals prepared specifically for the appeal and the last two are documents. PMC 17.98.070 directs the hearing officer to hear an appeal “solely” on the record and the “testimony” received at the appeal hearing. Though PMC 17.98.040(D) contemplates the attachment of “exhibits” to the briefs, in context this means materials from the record, not new items. The Hearing Officer therefore has not considered the exhibits to the Association’s opening brief.

³ Contrary to the Hearing Officer’s representation at the hearing, not all of the appeal hearing was captured by the recording system and available to him during deliberation. A gap exists beginning part-way through the opening presentation of the Association’s counsel and continuing through the Hearing Officer’s initial questions of VRS’ counsel. The Hearing Officer has relied on his notes and memory for this content.

2. SCOPE OF REVIEW

AS 29.40.050 requires that municipalities that exercise land use regulation authority provide an appeal process from initial land use decisions. The appeal process here is to an attorney serving as a hearing officer.⁴ PMC 17.98.070 defines the standards of review to be applied by the hearing officer. The hearing officer may substitute his or her judgment on legal issues including interpretation or construction of ordinances.⁵ Commission findings of fact are considered true if supported by substantial evidence.⁶ Substantial evidence means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.⁷ Under PMC 17.98.070(C) and (D), the hearing officer shall defer to the judgment of the Commission regarding disputed issues or findings of fact unless a substitution of his or her independent judgment is made. These two subsections are in conflict with each other, offer no express guidance as to when the hearing officer is to either defer or substitute judgment, and are therefore ambiguous.

The Association urges reliance on court decisions relating to judicial review of administrative decisions. This appeal, however, is part of the administrative process, not the judicial one.⁸ Cases discussing judicial review are relevant only by analogy at best.

⁴ PMC 17.98.010.

⁵ PMC 17.98.070(B).

⁶ PMC 17.98.070(C).

⁷ *Id.*

⁸ *Balough v. Fairbanks North Star Borough*, 995 P.2d 245, 256 (Alaska 2000); *State v. Lundgren Pacific Construction Co.*, 603 P.2d 889,992 (Alaska 1979); *Keiner v. City of Anchorage*, 378 P.2d 406, 410 (Alaska 1963).

Related to the ambiguity in PMC 17.98.070 is the Association's argument that the Hearing Officer may hear the matter de novo, that is, he may consider the application completely anew. Unlike the Alaska superior court review of administrative action, however, there is no ordinance equivalent of Alaska Rule of Appellate Procedure 609(b), which expressly authorizes an entirely new process for consideration of the matter. Such a proceeding for the kind of administrative matters for which appeal is allowed under the City's code would result in duplication of work for staff and delay the administrative process. Anyone dissatisfied with a Commission decision would be encouraged to simply seek a second view from the hearing officer. Nothing is achieved by this delay and burden. The notion is also inconsistent with the overall concept of an appeal set out in Chapter 17.98 read as a whole. The Hearing Officer therefore does not address the Commission decision entirely anew and considers only the alleged deficiencies in that decision as raised by the Association's brief. Aspects of the Commission's decision not disputed by the Association are considered resolved.

However, there may be cases where a new finding by the hearing officer can enable a final decision on appeal which either grants or denies a land use entitlement. In such cases, if they exist, substitution of judgment by the hearing officer would actually expedite the administrative process rather than delay it. Under PMC 17.98.070, such substitution would have to be based on substantial evidence in the record.

As more fully explained below, this appeal can be resolved without having the Hearing Officer exercise any discretion he may have to make new findings of fact to

support either denial or approval of the application. Resolution of the ambiguity in PMC 17.98.070 is therefore not necessary to decide this appeal.

3. STANDARDS FOR APPROVAL OF A PUD GENERALLY

PMC 17.84.050 requires that a PUD meet all of the standards for approval of a conditional use permit specified by PMC 17.72.050 and seven additional specific standards. The Commission made written findings on each of these conditions which are in the record.⁹ Before turning to these individually, several comments applicable to them all are necessary.

The City's process for approval of a PUD like that for many other land use entitlements both of the City and other planning agencies has two stages. The first stage requires presentation to the Commission of an application for preliminary approval. Notice of this application is provided to property owners within a certain distance from the property involved and the Commission must hold a public hearing.¹⁰ The Commission may approve the application with conditions.¹¹ The Commission's decision may be appealed to a hearing officer including an appeal by a neighboring property owner.¹² Assuming the project obtains preliminary approval, it is then given a period of time to submit final plans for final approval.¹³ Final approval is by the commission but notice of the final application is not required to be given to nearby property owners and a public

⁹ R. Tab 2(b).

¹⁰ PMC 17.84.070.

¹¹ PMC 17.84.090(C).

¹² PMC 17.84.090(D).

¹³ PMC 17.84.100.

hearing is not required.¹⁴ Final approval is granted only if all conditions of approval provided in the preliminary approval have been met.¹⁵

Determining whether a particular issue related to an entitlement application under this type of scheme is appropriately addressed with finality at the preliminary stage or later by a condition of approval addressed in a final application is not easy. Two standards here which are not at issue, 17.84.050(E) and (G), quite clearly concern post preliminary stage matters to be addressed with the final application. The remaining specific standards of 17.84.050 and all of the conditional use standards cannot be generally characterized. But caution must be used in allowing these factors to be addressed by a condition to approval since to do so removes them from the further attention of parties other than the applicant and potentially circumvents the appeal right of those parties. This difficulty means that, as the VRS put it below, “it was not easy to determine exactly what level of detail is required.”¹⁶ The specific resolution of this difficulty as to the several conditions which are in dispute is addressed below.

In this case, the Hearing Officer’s review of compliance with the standards is hampered by the failure of both VRS in the application and the Association in its briefing to address them on a standard by standard basis. Similarly, staff’s suggestion that, in determining compliance, the Hearing Officer should look beyond specific findings of the

¹⁴ PMC 17.84.100(D).

¹⁵ PMC 17.84.100(B).

¹⁶ R. Tab 33c.

Commission to its decision as a whole, while true, is both burdensome and creates the potential of rewriting the Commission's decision rather than deferring to it.

The Association complains¹⁷ generally that the Commission simply adopted the staff's proposed findings on the standards which were drafted prior to the public hearing.¹⁸ This does raise a reasonable inference that the Commission simply ignored the information received at the public hearing. And the Association is also persuasive that an agency decision which ignores an important factor in its decision acts arbitrarily.¹⁹ However, a corollary to the requirement that the Commission base its findings only substantial evidence is that it is not required to consider factors for which there is not substantial evidence in the record. Reversal or remand is not required when the Commission does not consider factors not supported by substantial evidence.

Finally, VRS points to individual commissioner comments to support the contention that the Commission gave appropriate consideration to one or more items.²⁰ But this is problematic when these comments are not incorporated into a written finding adopted by the whole Commission. Absent this step, the comments cannot with assurance be considered the finding of the Commission.

¹⁷ Opening Brief at 4.

¹⁸ Some planning agencies receive draft staff findings prior to the hearing, make oral revisions after the close of the hearing and vote on the application. Staff is then given the opportunity to prepare revised written findings which are then presented and voted upon at a subsequent meeting. The practice, in the Hearing Officer's experience, is not universal.

¹⁹ *Southeast Alaska Conservation Council, Inc. v. State*, 665 P.2d 544549 (Alaska 1983); *State v. 0.644 Acres, More or Less*, 613 P.2d 829, 833 (Alaska 1980).

²⁰ Appellee Brief at 7, 13, 17.

4. CONDITIONAL USE STANDARDS²¹

A. Preservation Of The Value, Spirit, Character And Integrity Of The Surrounding Area.

The Association argues that “the proposed PUD is incompatible with the existing neighborhood uses.”²² The Association’s brief does not reference a specific standard to which this argument relates but it seems to be most relevant to standard A of the conditional use standards which requires that the use preserve the value, spirit, character and integrity of the surrounding area. The Association cites the “fear that the residents of Mountain Rose Estates have that the PUD will be a home to the unemployed, drug and criminal element of the Valley and elsewhere in its brief argues that the PUD will become a “project or ghetto like development.”²³ The Association asserts that “[r]eason and history indicate that . . . [these] . . . concerns are well taken.”²⁴ The Association asserts that the PUD will “depress land values in the Mountain Rose Estates.”²⁵

The record provides no support for these sweeping generalizations. It is true that numerous oral and written comments of residents of Mountain Rose state these fears.²⁶ But none of them claimed to have personal knowledge of any similar development either in the Valley or elsewhere. The only public comment from someone claiming knowledge of a similar development asserted that that development fitted in well with the surrounding

²¹ PMC 17.72.050 (A), (B), (C), (D), and (E).

²² Appellant’s Opening Brief at 9.

²³ *Id.* at 5, 8.

²⁴ *Id.* at 10.

²⁵ *Id.*

²⁶ R. Tab 10 and Tr. 31

area.²⁷ The Association's argument and the testimony of its members is little more than an appeal to class stereotyping and prejudice. The Commission was not required to consider these concerns.²⁸

The other concern of the Mountain Rose residents related to this standard was that there would be children in the proposed PUD whereas theirs is a 55 year and older community.²⁹ Children are usually regarded as one of a community's most precious resources. They are present in most residential developments except those restricted by private covenant as presumably is the case with the Association's development or assisted living or nursing care facilities. The PUD does not propose to concentrate children in an occupancy like that for a school. VRS provided an occupancy load calculation in its application and there is nothing to support any conclusion that the density of children in the PUD will be any greater than other residential zones. Greater dwelling density is not by itself disqualifying. If that were the case, no PUD could ever meet the standard.

The Commission's finding (Fact 1) notes the mix of land uses in the surrounding areas including apartment buildings. The existence of these uses is undisputed and is substantial evidence of the character of the neighborhood. The Commission's finding that this standard was met is affirmed.

²⁷ Testimony of David Rose, Tr. 26.

²⁸ VRS's responded to these fears by contending that the project would be well-managed and screen applicants based on middle, not low income. These contentions need not be addressed because the fears to which they respond were not supported by substantial evidence.

²⁹ See, e.g. testimony of Keith Morberg, Tr. 19.

B. Fulfillment Of All Other Requirements Of Title 17.

The Association has made no argument concerning this standard and the Commission's finding that this standard was met (Fact 2) is affirmed.

C. The Use Will Not Be Harmful To The Public Health, Safety, Convenience And Comfort.

Much of the Association's argument addressed in section 4A above might also apply to this standard. It is rejected as a basis for reversing the Commission's decision on this standard for the same reasons expressed above.

The Association argues in addition that as a result of the PUD, the residents of Mountain Rose "will become the hunting grounds for the criminal and drug element that often resides in such complexes."³⁰ Again, there is no evidence in the record to support this allegation. It is true that one resident referenced "a recent study out of Indiana that the authors concluded that there seems to be something about high density residential units that is associated with all types of serious violent crime."³¹ But neither the specifics of the study nor the study itself is in the record. And again, no crime information specific to the Valley or even Alaska is in the record. There is not substantial evidence requiring the Commission to consider this claim.

The Association also argues that there might be other sites which better suit the proposed development for this parcel. This standard does not require that the applicant show the proposed site is the best one for the proposed use in the entire community, only

³⁰ Opening Brief at 8.

³¹ Tr. 31.

that it is a suitable one. The concept of selecting the best site for a use is only imposed by standard E for public uses. Similarly, the Association questions whether there is a need for the project. This standard also does not embody that concept.

The Association also raises concerns about the drainage and traffic impact of the PUD on Mountain Rose. While these concerns arguably implicate this standard, they are best addressed under the more specific standards relating to PUDs discussed below.

The Commission's finding (Fact 3) focuses on the interconnection of the proposed development with existing trails and utilities. No harms allegedly flowing from the PUD other than the ones discussed above are raised in the record. The Commission's finding that this standard was met is affirmed.

D. Sufficient Setbacks, Lot Area, Buffers, Or Other Safeguards Are Provided To Meet The Conditions.

Standard D requires that sufficient setbacks and other safeguards be provided to meet the conditions. The conditions, in turn, are to maintain the property in character in keeping with the surrounding area and to ensure the compatibility of the conditional use with other uses in the district.³² The Association makes two objections which implicate this standard not so much by implying that an important factor was overlooked, but rather by disagreeing with the Commission consideration that was provided.

The application proposes a six foot high wood fence at the property line.³³ This type of improvement is typical of what individual property owners might install along their

³² PMC 17.72.060.

³³ R. Tab 30a.

rear lot line if the subject property was developed into single family homes with a tier of lots abutting Mountain Rose. In its brief, the Association objects to the proposed fence not as a sufficient privacy barrier but because it is likely to cause “massive” snow drifting on the Mountain Rose parcel.³⁴ The Mountain Rose property owners who testified, however, sought a higher masonry fence and feared the six foot wood fence would blow down.³⁵ Given the common use of the wood fence proposed, there was substantial evidence for the Commission’s finding (Fact 4) that the fence would be a sufficient sound and visual barrier and would not itself create further harm.³⁶

The second objection of the Association is that because structures in Mountain Rose do not have typical setbacks, the subject property must provide greater ones on its side of the common property line.³⁷ Presumably the setbacks on Mountain Rose were addressed as adequate when that PUD was approved. Even if they were not, Mountain Rose residents cannot expect greater privacy from the adjacent property owner than their development provides to the other property. And further, the finding actually imposes setback requirements as recommended by staff. The Commission’s decision that the setbacks provided were adequate is supported by substantial evidence.

The Commission’s finding (Fact 4) that Standard D was met is affirmed.

³⁴ Opening Brief at 5.

³⁵ *See, e.g.*, Tr. 20

³⁶ As to drifting on the proposed street and as it might affect drainage, these concerns should be addressed under PUD standards C and D as discussed below.

³⁷ Opening Brief at 5, Tr. 20.

E. If The Permit Is For A Public Use, The Proposed Use Is Located In A Manner Which Will Maximize Public Benefits.

Standard E relates to public uses. The Commission's finding (Fact 5) that the proposed use is not a public one is affirmed. This standard therefore does not apply.

5. PUD STANDARDS³⁸

A. The Development Must Provide Space For Private Use And Reasonable Visual And Acoustical Privacy For Dwelling Units On And Off The Site.

Standard A requires space for private use and reasonable visual and acoustical privacy for dwelling units on and off the site. The Association raises no issue as to the applicability of this standard within the proposed PUD. As to compliance with this standard as it relates to the Mountain Rose property, this was addressed in section 4(D) of this decision, above. The Commission's finding (Fact 6) is supported by substantial evidence and is affirmed.

B. The PUD Must Provide Adequate Provisions For Natural Light And Air.

Standard B requires adequate provisions in the PUD for natural light and air. The Association makes no argument that this standard was not met. The Commission's finding (Fact 7) that this standard was met is affirmed.

³⁸ PMC 17.84.050 (A), (B), (C), (D), (E), (F) and (G).

C. The PUD Must Be Integrated With Surrounding Land Uses And Minimize Any Negative Impacts On Them.

1. Integration

Standard C requires that the PUD must be integrated with surrounding land uses and minimize any negative impacts on them. The meaning of the first part of this standard concerning “integration” with the surrounding land uses is a bit obscure.³⁹ At the appeal hearing, however, Community Development Director Sandra Garley persuasively explained that the point of this standard is to prevent insertion of a different use into an otherwise homogenous area: an industrial use within a residential area or vice versa. As noted above, the area surrounding the proposed PUD is not homogeneous but rather is developed with a mixture of uses. The Association’s arguments addressed in 4(A) of this decision, above, arguably implicate this standard. But the same analysis provided there demonstrates that the Commission could find this part of Standard C was met. The Commission’s finding (Fact 8) lists the mixture of uses in the surrounding area. As with standard A of the conditional use standards, the fact of these uses is undisputed and provides substantial evidence to support the finding that the proposed PUD will be integrated with surrounding uses. This part of the finding is therefore affirmed.

³⁹ Both the Association and VRS seem to agree that this standard or perhaps conditional use standard A require that the PUD be “compatible” with surrounding uses. That word, however, appears in neither standard. The dictionary definition of “integrate” does not include compatible. “Integrate” at Dictionary.com. That definition simply defines the word as “to bring together or incorporate (parts) into a whole.”

2. Drainage

The Association argues that the proposed PUD will have inadequate drainage which will adversely impact the Mountain Rose property.⁴⁰ In its application, VRS acknowledged that this was an issue when it stated that “[h]istorically, there has (sic) been some drainage issues with the property to the south.”⁴¹ The application promises to study drainage issues using a particular methodology and to provide a report with the final PUD submittal.⁴² The application contains a drawing which shows some of the surface drainage being captured on site with “rain gardens” but some being directed to the proposed extension of Commercial Drive immediately to the north of the Mountain Rose parcel.⁴³ In reviewing this plan, the City’s Public Works Director, Tom Healy, found that it was “not clear where drainage will occur . . . within the south end of the proposed development.”⁴⁴ He noted that no drainage structures were shown in this area.⁴⁵

Numerous written comments were received prior to the hearing complaining that the PUD would produce drainage problems within Mountain Rose. Several of these claimed to be based on personal observation of existing conditions.⁴⁶ One person testified at the public hearing to the same effect.⁴⁷

⁴⁰ Opening Brief at 8.

⁴¹ R. Tab 43e.

⁴² *Id.*

⁴³ R. Tab 43e, ARE sheets 5 and 6.

⁴⁴ R. Tab 41(e)

⁴⁵ *Id.*

⁴⁶ *See, e.g.*, R. Tab 10(b), 10(c), 10(m), 10(o), 10(p).

⁴⁷ Tr. 23.

Chuck Leet, an engineer for VRS, attempted to respond on this issue at the public hearing:

. . . I am very in tune with drainage in this area. . . . There are two dry wells along the north side of Mountain Rose that have been put in the right-of-way what we are now calling a PUE. Those will be replaced with a better source – a better way of getting rid of the drainage. . . . This project, we have looked at it and we are very aware of the drainage. . . . So we plan on taking care of the drainage onsite, 100-year flood onsite.⁴⁸

Other than the unexplained plan for replacing drywells, this testimony offers only the vaguest of assurances that the drainage issue can be satisfactorily resolved.

In summary, there was substantial evidence that the development of the subject parcel would create drainage problems impacting the Mountain Rose property to the south. The Commission’s finding on this standard (Fact 9), however, is completely silent on the subject. The Commission did have an extended and confusing discussion about moving the “rain gardens” or the “public gardens” to the south end of the project to address drainage.⁴⁹ As reflected in the adopted Resolution, the amendment treated only the public gardens and there is no evidence supporting the notion that this change would solve the drainage issues.

Staff urges that the Hearing Officer consider all of the findings. But the only other arguably relevant finding is in the finding on standard G (Fact 12) which states in part that “[t]he PUD proposes to use rain gardens and infiltration basins for storm water containment.” And it further states that “applicants are working with Public Works to meet

⁴⁸ Tr. 35.

⁴⁹ Tr. 46, 48, and 50.

all City requirements for ... storm drains.” Similarly, Commissioner Michael Kircher expressed a belief that the public works department would address the issue in the final approval stage.⁵⁰ This is a specific application of the argument that some matters can be left to a condition of approval. But the evidence before the Commission raised the possibility that no plan is available which will address the drainage problem at least in a practical way.

The Hearing Officer concludes as a matter of law that on this record, the drainage issue is not addressed by leaving it entirely to the final approval stage. Giving due deference to the Commission, then, the Commission’s treatment of this important issue does not amount to careful consideration of it. In this respect, the Commission failed to consider an important factor in finding standard C was met. Its decision finding that the standard was met was arbitrary. Alternatively, the Commission’s finding, if there was one, that changing the gardens solved the drainage problem, is not supported by substantial evidence. This aspect of the Commission’s decision is reversed and remanded for further consideration as discussed in section 7 of this decision.

At the hearing in the appeal, Norm Gutcher testified concerning the drainage issues. This testimony was credible and somewhat more helpful than Mr. Leet’s at the commission hearing. However, the Hearing Officer declines to rely on this brief explanation to make a finding on drainage saving the application from remand. In addition, there is some unfairness in utilizing Mr. Gutcher’s testimony on appeal to support affirming the decision

⁵⁰ Tr. 50.

while excluding the Association's proffered report of Michael Travis which would support reversal. The testimony of both is better left to the Commission to receive, review and question in the first instance.

D. The PUD Must Be Shown To Not Overload The Street System Or Result In Unsafe Access Or Danger To Pedestrians And Must Be In Conformance With The City Traffic Study.

Standard D requires that the PUD be shown to not "overload" the street system, result in unsafe access or danger to pedestrians, and conform to the latest city traffic study. The Association contends that access to and from the public streets is inadequate and dangerous.⁵¹

The application provides a parking layout, occupancy calculations, and discusses the means of access to be utilized by project residents.⁵² As originally proposed, the principle access to the development was to be via an extended Commercial Drive immediately adjacent to Mountain Rose.⁵³ The application does not provide any qualitative or quantitative estimates of what traffic would be generated by the proposed project. The record is silent concerning any method by which the traffic could be derived from either the number of parking spaces or the occupancy load of the project. The application was sent to Public Works Director Healy for comment. His comments, while generally supportive of the PUD, do not state what the traffic impact of the project would be and do

⁵¹ Opening Brief at 8.

⁵² R. Tab 43(e)(text and Concept Site Plan Page 5), 30(a).

⁵³ R. Tab 43(e) text under "Access."

not expressly address potential “overloading” of the street system.⁵⁴ There is also no discussion of whether there is any applicable “city traffic study.”

Written comments made general complaints about the expected level of traffic⁵⁵ The staff report does offer a calculation of the number of parking spaces provided in the development.⁵⁶ At the public hearing, one Mountain Rose resident not claiming any expertise estimated there would be “say 100-plus, but it would be 150 cars” which would add to a “saturated” traffic corridor.⁵⁷

The Commission took up the matter and approved an amendment changing the principal point of access from an extended Commercial Drive to Cope Industrial Street via a long “flag pole” connecting this street to the main portion of the lot.⁵⁸ This change, while obviously lessening any traffic impact on Mountain Rose, compounds the lack of evidence as to what the traffic impact of the PUD would be since the new principal point of access was not considered at all by the Director Healy.

VRS argued at the appeal hearing that the Hearing Officer should imply from the lack of objection from the public works director that there would be no overloading of the street system. The Hearing Officer may make some factual inferences on review.⁵⁹ But it is equally plausible to infer that the matter was overlooked. And as the Association argued in reply, making the VRS’s suggested leap tends to erode the burden of proof on VRS as

⁵⁴ R. Tab 41(e).

⁵⁵ R. Tab 10(k), 10(l), 10(n), 10(o), 10(u).

⁵⁶ R. Tab 12(b)

⁵⁷ Tr. 41.

⁵⁸ Tr. 51-2.

⁵⁹ PMC 17.98.070(C).

the applicant to demonstrate compliance with all of the standards.⁶⁰ Finally, as noted, Director Healy was commenting on the PUD as originally presented with a different point of access.

The treatment of this issue by the professionals advising VRS and by staff may have been based on the unstated notion that, since the proposed PUD is a residential use with presumably much less traffic impact than say a large retailer, no traffic impact analysis was required. There might also have been an assumption that since the new point of access, Cope Industrial, is a collector street, there would be ample capacity of that street to handle the small impact of a residential project. Such unstated assumptions, if made here, do not constitute substantial evidence.⁶¹

The commission's finding that standard D was met (Fact 9) was not supported by substantial evidence. This aspect of the Commission's decision is reversed and remanded for further consideration as discussed in section 7 of this decision.

E. Compliance With The Requirements Of Chapter 17.64.

Standard E requires that various features of the project comply with PMC Chapter 17.64. As interpreted by the Hearing Officer, these matters are addressed in the final approval stage. The Association makes no argument that this standard cannot be met at that stage. The Commission's finding (Fact 10) concerning this standard is affirmed.

⁶⁰ PMC 17.84.090(A).

⁶¹ The Hearing Officer does not mean to imply that the kind of expensive, detailed TIA based on field investigations which might be required of a major retailer is necessary for the Commission to address this issue here. The necessary analysis here is left to the applicant, staff, and Commission to resolve with opportunity of the public to comment.

F. Attractive Mix Of Features.

Standard F requires that the PUD provide a mix of attractive features. The Association makes no argument that this standard was not met. The Commission's finding (Fact 11) that this standard was met is affirmed.

G. Compliance With Current City Standard Specifications.

Standard G requires that all proposed improvements meet current standard specifications of the City. As interpreted by the Hearing Officer, these matters are addressed in the final approval stage. The Association makes no argument that this standard cannot be met at that stage. The Commission's finding (Fact 12) concerning this standard is affirmed.

6. Consistency with the City Comprehensive Development Plan

The Association argues that the PUD must be denied because it is inconsistent with the City's "Comprehensive Plan."⁶² The Association references but does not quote several goals in the plan which it indicates are not achieved by the PUD. VRS concedes that there must be consistency with the "City of Palmer Comprehensive Plan" which it finds is embodied in standard G of the PUD standards.⁶³ It then analyzes several goals of the "plan" which are summarized and possibly quoted.

Director Garley explained at the appeal hearing that the reference in standard G to "current standard specifications of the city" was not intended to include the City's

⁶² Opening Brief at 11.

⁶³ Appellee Brief at 14.

comprehensive plan. There is no reference in either the conditional use standards or the PUD standards to consistency with any plan. But the PUD application is required to “demonstrate how the PUD conforms to . . . the city comprehensive development plan”⁶⁴ And PMC 17.84.090(C) directs:

After the public hearing, the commission may approve, approve with conditions, or deny a PUD plan according to the plan’s consistency with the city comprehensive development plan and these regulations. (Emphasis added.)

Why this requirement is placed here and not in either the standards for conditional uses or the specific standards for PUDs is not clear.

AS 29.40.030 requires that all municipal governments exercising land use regulatory authority must have a comprehensive plan. AS 29.40.040 requires that land use regulatory ordinances must be in accordance with and implement the plan.⁶⁵ Absent an attack on an ordinance itself, if a particular application complies with the relevant ordinances, it can arguably be presumed to be consistent with the plan. A separate analysis of consistency with the plan would thus be duplicative and unnecessary. The Alaska Supreme Court, however, has never so held and courts in other jurisdictions are divided.⁶⁶

To determine consistency with a plan, a two-step analysis is required. First the plan must be scrutinized to determine which of its provisions, if any, might be relevant to the particular action at issue. Second, those provisions must be analyzed to see how the action

⁶⁴ PMC 17.84.080(B).

⁶⁵ See, also, *Lazy Mountain Land Club v. Matanuska-Susitna Borough Board of Adjustment and Appeals*, 904 P.2d 373, 377-378 (Alaska 1995).

⁶⁶ See cases collected at 1 A. Rathkopf and D. Rathkopf, *The Law of Zoning and Planning*, §14:30 (2015).

affects them. Plan language is aspirational and general. Depending on the length and complexity of the plan, all of this analysis can be tedious and burdensome.

Despite all these considerations, the ordinance here expressly commands a determination of consistency with the plan. The Hearing Officer concludes as a matter of law that the applicant for a PUD must demonstrate and the Commission must find based on substantial evidence that the PUD is consistent with the City's "comprehensive development plan."

The application here, like with the discussion of standards, does not contain a specific section containing the two-step analysis of consistency with any plan.⁶⁷ The record contains no document designated as a "comprehensive development plan" or an excerpt from one.⁶⁸ The staff report states only a general conclusion that "[b]ased on the information provided by the applicant, . . . the proposed planned unit development . . . is consistent with and in conformance with the Palmer Comprehensive Plan."⁶⁹ At the hearing below, Director Garley referenced the same general conclusion.⁷⁰ The Commission's discussion after the hearing makes no reference to any comprehensive plan.⁷¹ The Commission's written finding, Resolution 15-008(AM), contains no discussion of any comprehensive development plan not even the general statement from the staff

⁶⁷ R. Tab 43.

⁶⁸ See, *Lazy Mountain Land Club, supra*, discussing which of several documents might constitute the relevant plan in that case.

⁶⁹ R. Tab 12(b).

⁷⁰ Tr. 11.

⁷¹ Tr. 41-56.

report.⁷² Contrary to VRS's assertion⁷³, there is no "Finding of Fact 13" directed at this topic.

The Commission failed to consider the consistency of the PUD with any comprehensive plan which was required by the ordinance and its decision was arbitrary in this respect. There is no substantial evidence in the record supporting any conclusion about consistency with any plan. This aspect of the Commission's decision is reversed and remanded for further consideration as discussed in section 7 of this decision.

7. Decision and Remedy

The Commission's decision to approve the PUD is affirmed in part and reversed and remanded in part.⁷⁴ The decision of the Hearing Officer is based on conclusions of law and no findings of fact by the Hearing Officer are required.⁷⁵ This decision is not a final decision for purposes of judicial review but will become final following the Commission's decision on remand, provided no appeal is again timely filed to the Hearing Officer.⁷⁶ All matters not remanded to the Commission will become final for purposes of judicial review at that time. The parties will have 30 calendar days from the expiration of said time period to appeal to the superior court.⁷⁷

⁷² R. Tab

⁷³ Appellee Brief at 14.

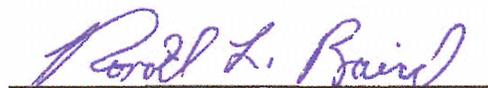
⁷⁴ PMC 17.98.080(B).

⁷⁵ PMC 17.98.080(C).

⁷⁶ PMC 17.98.080(E).

⁷⁷ PMC 17.98.080(F).

On remand, the matters set forth above on which the Commission has been affirmed shall not be reopened or reconsidered. As to the issues on which remand has been ordered discussed in parts 5(C)(2), 5(D) and 6 of this decision, above, there is insufficient evidence in the record on these material issues to the decision of the case.⁷⁸ The applicant shall be allowed a reasonable time to be specified by the Director to supplement and revise its application to address these issues. Staff shall circulate the supplemented and revised application for comment as would be done with a new application. A second public hearing limited to these matters shall be noticed to the public in accordance with PMC 17.80.030. Staff shall prepare a report. The Commission shall hold the hearing and adopt a written decision limited to the specified matters. The Commission shall act on the case in accordance with this decision in the minimum time allowed by the circumstances.⁷⁹ This case shall take precedence over all other matters on the Commission's agenda except other matters on remand from a hearing officer.⁸⁰



Ronald L. Baird
Hearing Officer
February 17, 2016

⁷⁸ PMC 17.98.090 (A).

⁷⁹ PMC 17.98.090(B).

⁸⁰ *Id.*



ALASKA RIM ENGINEERING, INC.
ENGINEERS – PLANNERS – SURVEYORS
9131 E. Frontage Rd.,
Palmer, Alaska 99645
Telephone (907) 745-0222
Fax (907) 746-0222
Online at: www.alaskarim.com

Received

MAR 18 2016

City of Palmer

March 15, 2016

Valley Residential Services
1075 Check Street
Suite 102
Wasilla, AK 99654

Attn: Ron Fassett

Re: Palmer Family Housing
Remand Response
Drainage & Traffic

Dear Mr. Fassett:

Pursuant to your request we have addressed the sections of the PUD Application remanded by the Appeal Hearing Officer in two areas, 1) Traffic Impacts and 2) Drainage. The initial PUD submittal was assembled with a very simple concept with limited design detail in line with other similar projects we have successfully completed in recent years. While the P&Z Commission approved the PUD, some of the neighbors were not pleased and filed an appeal. The appeal hearing officer apparently felt additional information was needed to enable him to complete his evaluation of the development.

The enclosed materials include a summary analysis of the potential for traffic impacts that may result from the project. In simple terms, the development will generate less than 700 vehicle trips per day. Of these, approximately 64 trips are expected to occur during the peak hour for the development. ADOT&PF, in their Preconstruction Manual, provides guidelines relative to when detailed traffic impact analyses may be warranted and references the Institute of Transportation Engineers data for guidance as to how trip generation may vary with land use. ADOT&PF states that a Traffic Impact Analysis may be warranted if a development may be expected to generate ± 100 vehicle trips during the peak hour for the generator. The relatively low level of trip generation by this development is the reason no detailed traffic analysis had been previously done.

The drainage materials include sufficient detail to show that the drainage concept for the development is appropriate and will contain a 100 year – 24 hr. event on site without negative impacts on adjoining properties. This is still a concept level design subject to further modification as the design is finalized and landscaping plans are incorporated.

If additional information is desired, please contact this office.

Sincerely,
ALASKA RIM ENGINEERING, Inc.


Norman K. Gutcher, PE
Director of Engineering

Attachments: Drainage Report; Traffic Report.

MAR 16 2016

**PALMER FAMILY HOUSING
TRAFFIC**

City of Palmer

Palmer Family Housing is a 9+ acre development proposed by Volunteers of America / Valley Residential Services as an 88 unit Planned Unit Development in the Southeast quadrant of Palmer, Alaska. The current zoning on the property is Single Family Residential (R1). The proposed housing is single family housing in the form of "Townhouse" type units.

The project has been proposed as a Planned Unit Development. The Palmer Planning and Zoning Commission approved the PUD approach for this project at their meeting of August 20, 2015. Resolution NO. 15-008(AM) with conditions, dated September 18, 2015..

Subsequent to the action of the P&Z Commission, neighboring property owners filed an appeal which was heard February 11, 2016. The Hearing Officer remanded the PUD Application back to the Applicant for additional information. One of the items for which additional information was requested pertains to the potential impact of traffic generated by the site on the surrounding streets.

The currently established guideline for determining when a Traffic Impact Study should normally be done is defined in the ADOT&PF Preconstruction Manual. Section 1190.4 Subsection 10 advises that when the traffic volume from a proposed development is expected to be 100 vehicles or more during the peak traffic hour for the development a detailed impact analysis should be done by a Registered Engineer. The land use regulations for the City are silent on this essentially leaving the requirement for a TIA to a case by case matter. The Mat-Su Borough Platting Code defers to the MSB Subdivision Construction Manual which defers to the aforementioned ADOT&PF source.

The Uniform Fire Code requires a minimum of two access points when residential developments have more than 30 dwelling units. The Palmer Family Housing project is proposed to have two access points, one to the north via Cope-Industrial Way and one to the west via an extension of Commercial Dr. to Chugach St. The plan as originally proposed used the Commercial Dr. access as the primary with the access to the north being restricted to fire equipment only. In approving the PUD, the City P&Z Commission voted to use access to Cope-Industrial Way as the main entrance to the PUD.

The ADOT&PF Preconstruction Manual includes a table of land uses with trip generation rates associated with the various uses. It also suggests using a trip generation rate of 6 trips per day for single family residences, and refers to Edition 3 of the ITE Trip Generation Tables.

Land Use 270, Residential Planned Unit Development as shown in Edition 7 of the ITE Trip Generation Tables shows an average Weekday Trip Generation Rate of 7.5 trips per DU per day with the Peak Hour being the PM Peak at 0.72 trips per DU per hour. The Edition 7 rates are used in the following analysis as being the higher generation rate.

Trip Generation:

ADOT&PF recommended generation rate would result in an estimated daily trip generation of 6 trips per unit per day = 88 units x 6 trips per unit per day = 528 one way vehicle trips per day.

ITE Trip Generation data shown in Edition 7 yields a Peak Hour trip generation rate of $(63.4 / 660) \times 100 = 9.6\%$ of ADT during the peak hour. There is a long standing “rule of thumb” that says the peak hour is $\pm 10\%$ of ADT. Using 9.6% of ADT and using the ADOT&PF adopted criteria of 6 trips per day per DU, the peak hour would be $528 \times 0.096 = 50.7$ or 51 trips during the peak hour.

Using the more current data taken from ITE Edition 7 the peak hour trip generation is as follows:

Daily - 88 Units x 7.5 trips per unit per day = 660 one way vehicle trips per day.
Peak Hour – 88 Units x 0.72 trips per unit per hr. = 63.4 trips per hour.

Even with using the higher trip generation rate of 7.5 trips per day the Palmer Family Housing project is expected on generate ± 63 trips during the peak hour of the day. This is well below the guideline threshold for a Traffic Impact Study of 100 trips per day recommended by ADOT&PF and is use as a guide line by the MSB.

This analysis strongly suggests that neither MSB or ADOT&PF would be likely to request a detailed Traffic Impact Analysis for this project.

Adjacent Streets are somewhat limited. The access to the west from the southwest corner of the development using an extension of Commercial Dr. would access the City street system at the intersection of Commercial Dr. and Chugach St. ADOT&PF traffic count data shows Chugach St. with an Annual Average Daily Traffic (AADT) of 3,350 vehicles per day (vpd). Chugach St. in this area is a recently reconstructed urban arterial with 2-12' lanes, and 4' shoulders. There is curb and gutter with sidewalk the full length on the east side. On the west side the curb, gutter and sidewalk were dropped south of Commercial Dr. Chugach St., in its current configuration has the capacity to accept the additional traffic from the Palmer Family Housing development without excessive negative impacts.

The access to the north, from the northwest corner of the development using a “flag” type right-of-way would access the City street system via Cope-Industrial Way. Cope-Industrial Way is a ± 20 -foot wide two lane road with little or no shoulder and limited roadside ditches. There is a separated bike path along the north side of Cope-Industrial in the vicinity of the northern access to the development. Bicycle and pedestrian traffic will have to cross the street to get to it. The route extends from an intersection with Chugach St. at Industrial Way on the northwest and extends east and south to connect with Outer Springer Loop on the southeast. The Palmer Junior Middle School is located in the northeast quadrant of the Chugach / Cope-Industrial intersection.

MSB and State data bases do not include traffic volume data for Cope-Industrial. Based on the current land uses it is estimated that Cope-Industrial Way traffic is in the range of 1,000 vpd.

The original access plan for the development project anticipated the use of an extension of Commercial into the southwest corner of the site as the primary access. The combination of factors that led to that plan include but are not limited to the following:

1. The sewer must be routed that way or require a lift station as the sewer in Chugach is a main leading to the waste water treatment plant and the general lay of the land supports a gravity sewer on this route.
2. The water main in Chugach, is larger than that in Cope-Industrial and has the capacity to serve as the primary feed to the development.
3. Because of the utility connections, the route to Chugach will likely be impacted by utility construction.
4. Chugach St. in its current configuration has a higher traffic capacity than Cope-Industrial.
5. With sidewalks on the east side all the way south to Outer Springer Loop, Chugach is much more pedestrian friendly than is Cope-Industrial.

The P&Z has approved the PUD with, among others, the condition that the primary access be to the north to Cope-Industrial Way. With regard to traffic capacity, either access alternate has the capacity to accommodate the traffic generated by the proposed Palmer Family Housing development. However using Cope-Industrial Way as the primary access route puts the vehicular traffic onto the lower capacity facility of the two options available and it is somewhat less convenient for pedestrian / bicycle safety.

Exhibits attached to this document include the following:

- An aerial view of the project area street network
- A street view of Chugach St. from a position just south of Commercial looking north.
- A street view of Cope-Industrial from a position just west of the proposed access point looking east. The access point can be identified by two sections of portable concrete traffic barrier visible in the right-center of the picture.

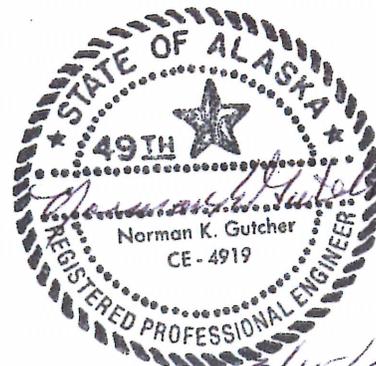
Respectfully Submitted:

ALASKA RIM ENGINEERING, Inc.

Norman K. Gutcher, PE
Director of Engineering

Attachments: 3 photo views as noted above.

Cc: File 15-00267 w/Attach.



Palmer Family Housing

Surrounding streets

Legend



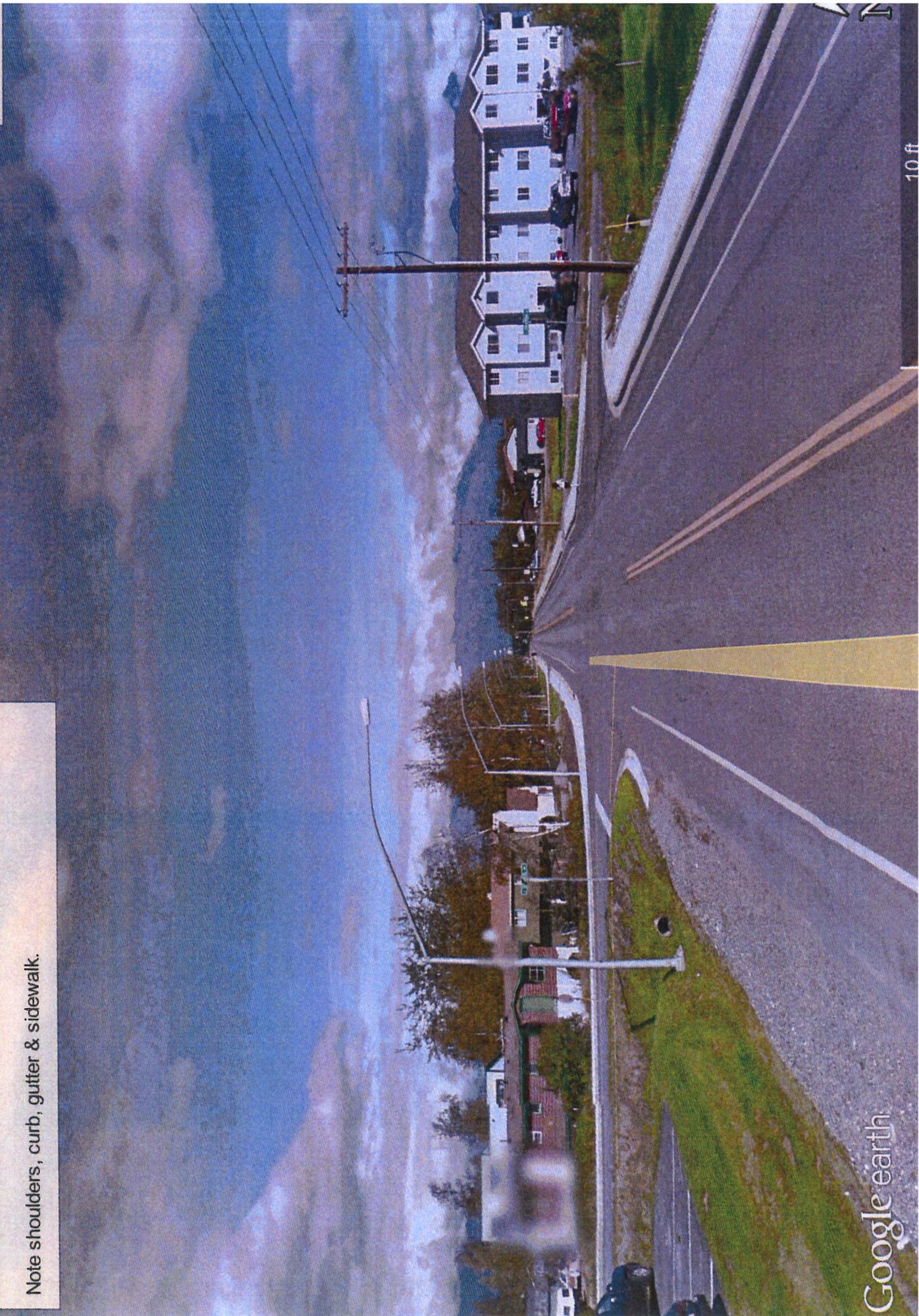
Chugach St.

Looking north with the Commercial Dr. Intersection in the foreground.

Note shoulders, curb, gutter & sidewalk.

Legend

Feature



Cope-Industrial Way

Looking East immediately north of Palmer Ice Arena. Site access from the right in the middle of the view.

Leger



Google earth

10 ft

PALMER FAMILY HOUSING
DRAINAGE
A DESIGN CONCEPT

Received

MAR 18 2016

City of Palmer

Site

This site is in south Palmer, Alaska approximately 1,000 feet southeast of the intersection of Industrial Way and Chugach Street. The existing topography of the site generally slopes to the south and is vegetated with native grasses. There is offsite flow from the lot to the north and approximately half of the lot to the west. The proposed site will consist of roadways and drive lanes with curb and gutter, Multifamily buildings that are attached in blocks, with garages, and landscaping (see attached site plan). The drainage from the roadways will flow to rain gardens situated towards the east end of the parking areas. In the event rain gardens overflow due to failure or a larger storm event than they were sized for, the overflow will be routed towards the east of the site which will be depressed and infiltration trenches located with rock between three and eight-inches in size. The infiltration trenches and rain gardens are estimated to be five to six feet in depth, the bottom consisting of native sandy gravel and the sides anticipated to be native sandy gravel with some silt. The southeast corner is designed to be the low point of the site consisting of an infiltration trench sized to handle the flows from the entire site as well as a detention pond to retain any overflow until it can be infiltrated. This area is depressed up to three feet controlling flow from the site.

Methodology

The site was preliminary roughly graded to establish drainage pattern and directions (see attached preliminary drainage plan). Drainage sub basins were delineated based on the direction of flow and the ultimate deposition of flows into the infiltration trenches. The Rational Method was utilized to calculate the anticipated flows in the basins. The size of each basin was calculated, the 'C' value was determined to be a 0.7 based on a standard value for a Residential Multiunit, attached housing. The 'C' value was multiplied by 1.25 for the 100-year, 24-hour storm as a correction factor. The intensity was obtained from the Municipality of Anchorage IDF curves for each storm event. The flow for each basin was calculated for the 24-hour 100-year, 10-year and 2-year storm events. The 10-year event was used to size the rain gardens and the 100-year event was used to size the infiltration trenches.

The offsite flows were calculated using the same methods as the onsite, and 'C' values were determined dependent on the existing conditions of each area. The offsite flows were routed and included in the sizing of drainage structures for on the site.

Due to all stormwater being retained on-site a pre/post storm analysis was not necessary. The rain gardens were sized using the 10-year, 24-hour flow over the 24-hour storm event. This is consistent with the Municipality of Anchorage Stormwater Manual for "site runoff". The basin flow for most of the sub basins was assume to be evenly divided and the two rain gardens were assumed as one unit, i.e. two 24 by 5 foot gardens were modeled as a single 24 by 10-foot garden which has the same area parameters.

The Infiltration trenches were modeled using the same methodology as the rain gardens except using the larger storm event, the 100-year, 24-hour storm, which is consistent with the Municipality of Anchorage Stormwater Manual for “flood control”.

A tabular hydrograph was utilized to model the flow and volume for the design 24-hour storm event. The storm was divided into 6-minute time intervals and the flow from the storm for the period was calculated as inflow to the drainage structures. The storm was distributed using the “SCS Type I Cumulative 24-hour Rainfall Distribution”. The infiltration rate for the bottom of the infiltration trench, into the native sandy gravel, was assumed and the outflow for the 20-minute time period subtracted from the total inflow. If the inflow was greater than the infiltration rate the stormwater will begin to accumulate in the infiltration trench and infiltration through the side of the trench was factored and as the depth increased more side infiltration took place. The infiltration from the side of the trench was included with the infiltration of the bottom of the trench and subtracted from the inflow. An iterative process was used varying the size the infiltration trench such that the depth of water would not exceed the depth of the trench or the quantity of water would not surpass the effective storage capacity of the trench. This was done for all the infiltration trenches and rain gardens except the southeast infiltration trench, this trench was sized to accept the entire site stormwater flow and allowed to pond.

Results

The rain gardens were each sized to be 24-feet by 5-feet and 6-feet in depth. This resulted in an effective storage capacity of 520 cubic feet of stormwater storage. During the 10-year storm event, in the largest subbasin, the raingardens capacity is exceeded for less than 20-minutes during the peak of the storm. Any over flow during the 10-year event would be conveyed to the infiltration trenches.

Subbasin C which is the southeast basin was sized to handle the flow from the entire site for the 100-year storm event. This infiltration trench was sized to be 200-feet by 12-feet and 6-feet in depth. This resulted in an effective storage capacity of 4,320 cubic feet of stormwater storage. During the 100-year storm event, at the peak, there is approximately 12,400 cubic feet of excess water. This area was design to pond, in the unlikely event of all the rain gardens and other infiltration trenches being ineffective. The ponded stormwater would be present for just over an hour after the peak. The depth of the storage would reach 1.25 feet in a 100-foot by 100-foot pond.

Subbasin A which is the north basin was sized to handle the flow from the sub basin and flows from the site to the north. This infiltration trench was sized to be 160-feet by 7-feet and 6-feet in depth. This resulted in an effective storage capacity of 2,020 cubic feet of stormwater storage. During the 100-year storm event the volume would peak just over 3,000 cubic feet and would slightly pond to a depth of a few inches before being infiltrated.

Subbasin B was sized to handle the flow from the sub basin which is the east central part of the site. This infiltration trench was sized to be 120-feet by 6-feet and 6-feet in depth. This size resulted in an effective storage capacity of 1,300 cubic feet of stormwater storage. During the 100-year storm event the volume would peak just 1,750 cubic feet and would slightly pond to a depth of a few inches before being infiltrated.

Subbasin E was sized to handle the flow from the sub basin which is the west central part of the site. This infiltration trench was sized to be 80-feet by 5-feet and 5-feet in depth. This size resulted in an effective storage capacity of 600 cubic feet of stormwater storage. During the 100-year storm event the volume would peak just 1,050 cubic feet and would slightly pond to a depth of a few inches before being infiltrated.

Subbasin D which is the west basin was sized to handle the flow from the sub basin, flows from the site to the west, and along the access road to the southwest of the site. This infiltration trench was sized to be 190-feet by 6-feet and 6-feet in depth. This size resulted in an effective storage capacity of 2,052 cubic feet of stormwater storage. During the 100-year storm event the volume would peak just about 3,000 cubic feet and would slightly pond to a depth of a few inches in the ditch before being infiltrated.

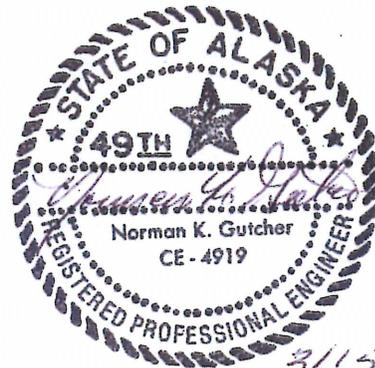
The drainage for the site was designed such that all of the stormwater on the site is to be retained on the site and infiltrated into the soils. The work was done in general accordance with the methods of the Anchorage stormwater manual and standard hydrology practices. The impacts to the areas surrounding the development should be less than current impacts.

PREPARED BY

REVIEWED BY



Thad Hunter
Civil Engineer



Norman Gutcher, P.E.
Engineering Manager

ONSITE Hydrology by Subbasin

C=	0.7	rock infiltration rate=	0.5 min/inch	Side infiltration rate=	2 min/inch
$I_{100/24}$ =	0.102313 in/hr	$I_{100/6}$ =	0.212814 in/hr	$I_{100/1}$ =	0.5484 in/hr
$I_{10/24}$ =	0.073665 in/hr	$I_{10/6}$ =	0.150926 in/hr	$I_{10/1}$ =	0.3814 in/hr
$I_{2/24}$ =	0.0527 in/hr	$I_{2/6}$ =	0.105547 in/hr	$I_{2/1}$ =	0.259 in/hr

Area A (North)	Area Length Width 315 200 63000 1.446281	Q_{100} = 0.129477 cfs Q_{10} = 0.074578 cfs Q_2 = 0.053354 cfs	$V_{100/24}$ = 11,187 cf $V_{10/24}$ = 6,444 cf
Area B (Center east)	Area Length Width 400 215 86000 1.974288	Q_{100} = 0.176746 cfs Q_{10} = 0.101805 cfs Q_2 = 0.072832 cfs	$V_{100/24}$ = 15,271 cf $V_{10/24}$ = 8,796 cf
Area C (south east)	Area Length Width 320 350 112000 2.571166	Q_{100} = 0.230181 cfs Q_{10} = 0.132583 cfs Q_2 = 0.094851 cfs	$V_{100/24}$ = 19,888 cf $V_{10/24}$ = 11,455 cf
Area D (Southwest)	Area Length Width 280 145 40600 0.932048 170 230 39100 0.897612 79700 1.82966	Q_{100} = 0.163799 cfs Q_{10} = 0.094347 cfs Q_2 = 0.067497 cfs	$V_{100/24}$ = 14,152 cf $V_{10/24}$ = 8,152 cf
Area E (Northwest)	Area Length Width 190 200 38000 0.87236 110 150 16500 0.378788 54500 1.251148	Q_{100} = 0.112008 cfs Q_{10} = 0.080645 cfs Q_2 = 0.057694 cfs	$V_{100/24}$ = 9,677 cf $V_{10/24}$ = 6,968 cf

OFFSITE Hydrology by Subbasin

$I_{100/24} = 0.102313$ 9.072544
 $I_{10/24} = 0.073665$
 $I_{2/24} = 0.0527$

Area OA (West of Prop)	C= 0.08 (low slope Lawn) Area Length Width 800 150 120000 2.754821	$Q_{100} = 0.028185$ cfs $Q_{10} = 0.016235$ cfs $Q_2 = 0.011614$ cfs	$V_{100/24} = 2,435$ cf $V_{10/24} = 1,403$ cf
Area OB (North half of North Prop)	C= 0.4 (Residential Business) Area (triangular) Length Height 550 420 115500 2.651515	$Q_{100} = 0.135643$ cfs $Q_{10} = 0.078129$ cfs $Q_2 = 0.055894$ cfs	$V_{100/24} = 11,720$ cf $V_{10/24} = 6,750$ cf
Area OC (South half of North Prop)	C= 0.14 (Unimproved) Area (triangular) Length Height 350 400 70000 1.606979	$Q_{100} = 0.028773$ cfs $Q_{10} = 0.016573$ cfs $Q_2 = 0.011856$ cfs	$V_{100/24} = 2,486$ cf $V_{10/24} = 1,432$ cf
Area OD (South west access Road)	C= 0.418571 (Unimproved plus road) Area (triangular) Length Height C % $C_{composite}$ 230 200 23000 0.528007 0.08 0.279635 0.022371 790 75 59250 1.360193 0.55 0.720365 0.396201 1.8882	$Q_{100} = 0.101079$ cfs $Q_{10} = 0.058221$ cfs $Q_2 = 0.041652$ cfs	$V_{100/24} = 8,733$ cf $V_{10/24} = 5,030$ cf

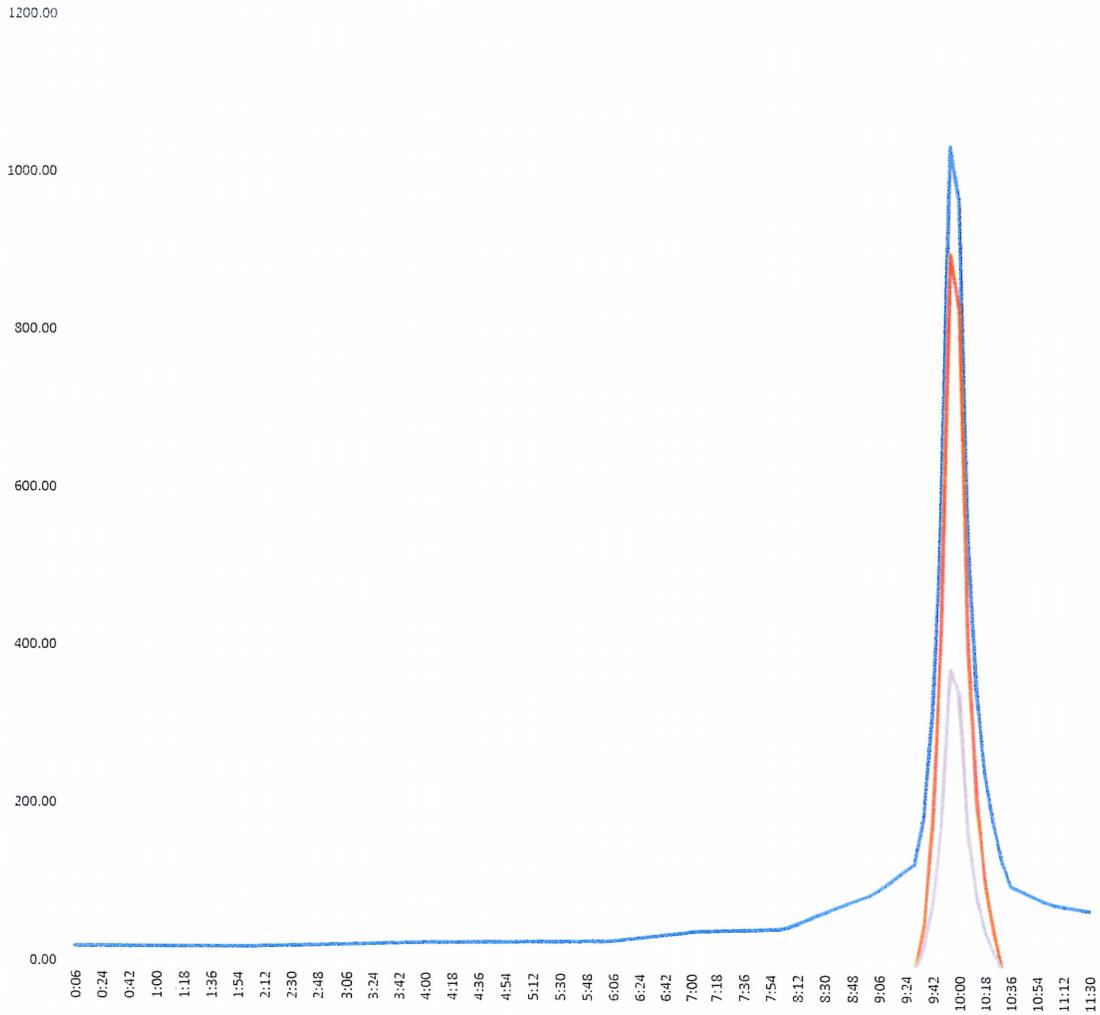
total trench quantities

Rain Gardens		Trenches	
Total L	168 ft	Total L	670
Total W	30 ft	Total W	31
Total D	36 ft	Total D	24
Total V	181440 cf	Total V	498480 cf
	6720 cy		18462.22 cy

Basin C 24 hour 10 year Tabular hydrograph									
rainfield									
Length	24								
Width	12								
Depth	6								
Ret. Vol	518.4	assumed 30% Voids	Peak volume	347.24	Net Volume	-171.16			
Time (min)	Flow Distribution	cum (cf)	Infilt btm (cf)	cumm/net	depth (ft)	side area (sf)	Infilt side (cf)	Net	
0:06	19.93	19.93	136.91803	-116.99	0.00	0.00	0.00000	-116.99	
0:12	19.93	19.93	136.91803	-116.99	0.00	0.00	0.00000	-116.99	
0:18	19.93	19.93	136.91803	-116.99	0.00	0.00	0.00000	-116.99	
0:24	20.05	20.05	136.91803	-116.87	0.00	0.00	0.00000	-116.87	
0:30	19.93	19.93	136.91803	-116.99	0.00	0.00	0.00000	-116.99	
0:36	20.05	20.05	136.91803	-116.87	0.00	0.00	0.00000	-116.87	
0:42	19.93	19.93	136.91803	-116.99	0.00	0.00	0.00000	-116.99	
0:48	20.05	20.05	136.91803	-116.87	0.00	0.00	0.00000	-116.87	
0:54	20.05	20.05	136.91803	-116.87	0.00	0.00	0.00000	-116.87	
1:00	20.05	20.05	136.91803	-116.87	0.00	0.00	0.00000	-116.87	
1:06	20.05	20.05	136.91803	-116.87	0.00	0.00	0.00000	-116.87	
1:12	20.05	20.05	136.91803	-116.87	0.00	0.00	0.00000	-116.87	
1:18	20.05	20.05	136.91803	-116.87	0.00	0.00	0.00000	-116.87	
1:24	20.16	20.16	136.91803	-116.76	0.00	0.00	0.00000	-116.76	
1:30	20.05	20.05	136.91803	-116.87	0.00	0.00	0.00000	-116.87	
1:36	20.16	20.16	136.91803	-116.76	0.00	0.00	0.00000	-116.76	
1:42	20.05	20.05	136.91803	-116.87	0.00	0.00	0.00000	-116.87	
1:48	20.16	20.16	136.91803	-116.76	0.00	0.00	0.00000	-116.76	
1:54	20.16	20.16	136.91803	-116.76	0.00	0.00	0.00000	-116.76	
2:00	20.16	20.16	136.91803	-116.76	0.00	0.00	0.00000	-116.76	
2:06	20.28	20.28	136.91803	-116.64	0.00	0.00	0.00000	-116.64	
2:12	20.73	20.73	136.91803	-116.18	0.00	0.00	0.00000	-116.18	
2:18	20.96	20.96	136.91803	-115.96	0.00	0.00	0.00000	-115.96	
2:24	21.31	21.31	136.91803	-115.61	0.00	0.00	0.00000	-115.61	
2:30	21.65	21.65	136.91803	-115.27	0.00	0.00	0.00000	-115.27	
2:36	21.99	21.99	136.91803	-114.92	0.00	0.00	0.00000	-114.92	
2:42	22.34	22.34	136.91803	-114.58	0.00	0.00	0.00000	-114.58	
2:48	22.68	22.68	136.91803	-114.24	0.00	0.00	0.00000	-114.24	
2:54	22.91	22.91	136.91803	-114.01	0.00	0.00	0.00000	-114.01	
3:00	23.37	23.37	136.91803	-113.55	0.00	0.00	0.00000	-113.55	
3:06	23.60	23.60	136.91803	-113.32	0.00	0.00	0.00000	-113.32	
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3:42	25.66	25.66	136.91803	-111.26	0.00	0.00	0.00000	-111.26	
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3:54	26.23	26.23	136.91803	-110.69	0.00	0.00	0.00000	-110.69	
4:00	26.69	26.69	136.91803	-110.23	0.00	0.00	0.00000	-110.23	

4:06	26.92	26.92	136.91803	-110.00	0.00	0.00	0.00000	-110.00
4:12	26.92	26.92	136.91803	-110.00	0.00	0.00	0.00000	-110.00
4:18	27.15	27.15	136.91803	-109.77	0.00	0.00	0.00000	-109.77
4:24	27.26	27.26	136.91803	-109.65	0.00	0.00	0.00000	-109.65
4:30	27.38	27.38	136.91803	-109.54	0.00	0.00	0.00000	-109.54
4:36	27.49	27.49	136.91803	-109.43	0.00	0.00	0.00000	-109.43
4:42	27.61	27.61	136.91803	-109.31	0.00	0.00	0.00000	-109.31
4:48	27.72	27.72	136.91803	-109.20	0.00	0.00	0.00000	-109.20
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5:00	27.95	27.95	136.91803	-108.97	0.00	0.00	0.00000	-108.97
5:06	28.18	28.18	136.91803	-108.74	0.00	0.00	0.00000	-108.74
5:12	28.18	28.18	136.91803	-108.74	0.00	0.00	0.00000	-108.74
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5:24	28.52	28.52	136.91803	-108.39	0.00	0.00	0.00000	-108.39
5:30	28.64	28.64	136.91803	-108.28	0.00	0.00	0.00000	-108.28
5:36	28.75	28.75	136.91803	-108.17	0.00	0.00	0.00000	-108.17
5:42	28.87	28.87	136.91803	-108.05	0.00	0.00	0.00000	-108.05
5:48	28.98	28.98	136.91803	-107.94	0.00	0.00	0.00000	-107.94
5:54	29.21	29.21	136.91803	-107.71	0.00	0.00	0.00000	-107.71
6:00	29.21	29.21	136.91803	-107.71	0.00	0.00	0.00000	-107.71
6:06	29.90	29.90	136.91803	-107.02	0.00	0.00	0.00000	-107.02
6:12	31.27	31.27	136.91803	-105.65	0.00	0.00	0.00000	-105.65
6:18	32.42	32.42	136.91803	-104.50	0.00	0.00	0.00000	-104.50
6:24	33.56	33.56	136.91803	-103.35	0.00	0.00	0.00000	-103.35
6:30	34.94	34.94	136.91803	-101.98	0.00	0.00	0.00000	-101.98
6:36	36.08	36.08	136.91803	-100.83	0.00	0.00	0.00000	-100.83
6:42	37.46	37.46	136.91803	-99.46	0.00	0.00	0.00000	-99.46
6:48	38.60	38.60	136.91803	-98.31	0.00	0.00	0.00000	-98.31
6:54	39.75	39.75	136.91803	-97.17	0.00	0.00	0.00000	-97.17
7:00	41.12	41.12	136.91803	-95.79	0.00	0.00	0.00000	-95.79
7:06	41.93	41.93	136.91803	-94.99	0.00	0.00	0.00000	-94.99
7:12	42.16	42.16	136.91803	-94.76	0.00	0.00	0.00000	-94.76
7:18	42.61	42.61	136.91803	-94.30	0.00	0.00	0.00000	-94.30
7:24	43.07	43.07	136.91803	-93.85	0.00	0.00	0.00000	-93.85
7:30	43.30	43.30	136.91803	-93.62	0.00	0.00	0.00000	-93.62
7:36	43.76	43.76	136.91803	-93.16	0.00	0.00	0.00000	-93.16
7:42	43.99	43.99	136.91803	-92.93	0.00	0.00	0.00000	-92.93
7:48	44.45	44.45	136.91803	-92.47	0.00	0.00	0.00000	-92.47
7:54	44.90	44.90	136.91803	-92.01	0.00	0.00	0.00000	-92.01
8:00	45.13	45.13	136.91803	-91.78	0.00	0.00	0.00000	-91.78
8:06	47.77	47.77	136.91803	-89.15	0.00	0.00	0.00000	-89.15
8:12	52.46	52.46	136.91803	-84.45	0.00	0.00	0.00000	-84.45
8:18	57.28	57.28	136.91803	-79.64	0.00	0.00	0.00000	-79.64
8:24	62.09	62.09	136.91803	-74.83	0.00	0.00	0.00000	-74.83
8:30	66.78	66.78	136.91803	-70.13	0.00	0.00	0.00000	-70.13
8:36	71.37	71.37	136.91803	-65.55	0.00	0.00	0.00000	-65.55
8:42	75.83	75.83	136.91803	-61.08	0.00	0.00	0.00000	-61.08
8:48	80.19	80.19	136.91803	-56.73	0.00	0.00	0.00000	-56.73
8:54	84.54	84.54	136.91803	-52.38	0.00	0.00	0.00000	-52.38
9:00	89.01	89.01	136.91803	-47.91	0.00	0.00	0.00000	-47.91
9:06	95.42	95.42	136.91803	-41.50	0.00	0.00	0.00000	-41.50
9:12	103.78	103.78	136.91803	-33.13	0.00	0.00	0.00000	-33.13
9:18	112.26	112.26	136.91803	-24.66	0.00	0.00	0.00000	-24.66
9:24	120.74	120.74	136.91803	-16.18	0.00	0.00	0.00000	-16.18
9:30	129.10	129.10	136.91803	-7.82	0.00	0.00	0.00000	-7.82
9:36	188.09	188.09	136.91803	51.18	0.59	251.14	29.84865	21.33
9:42	297.83	319.16	136.91803	182.24	2.11	894.34	106.29480	75.95
9:48	485.93	561.88	136.91803	424.96	4.92	2085.45	247.86027	177.10
9:54	862.80	1039.90	136.91803	902.98	10.45	4431.31	526.67172	376.31
10:00	593.84	970.15	136.91803	833.23	9.64	4089.00	485.98716	347.24
10:06	197.03	544.27	136.91803	407.35	4.71	1999.05	237.59160	169.76
10:12	176.41	346.17	136.91803	209.25	2.42	1026.89	122.04824	87.20
10:18	155.79	242.99	136.91803	106.08	1.23	520.56	61.87005	44.21
10:24	135.17	179.38	136.91803	42.46	0.49	208.37	24.76488	17.69
10:30	114.55	132.25	136.91803	-4.67	0.00	0.00	0.00000	-4.67
10:36	101.72	101.72	136.91803	-35.20	0.00	0.00	0.00000	-35.20
10:42	96.68	96.68	136.91803	-40.24	0.00	0.00	0.00000	-40.24

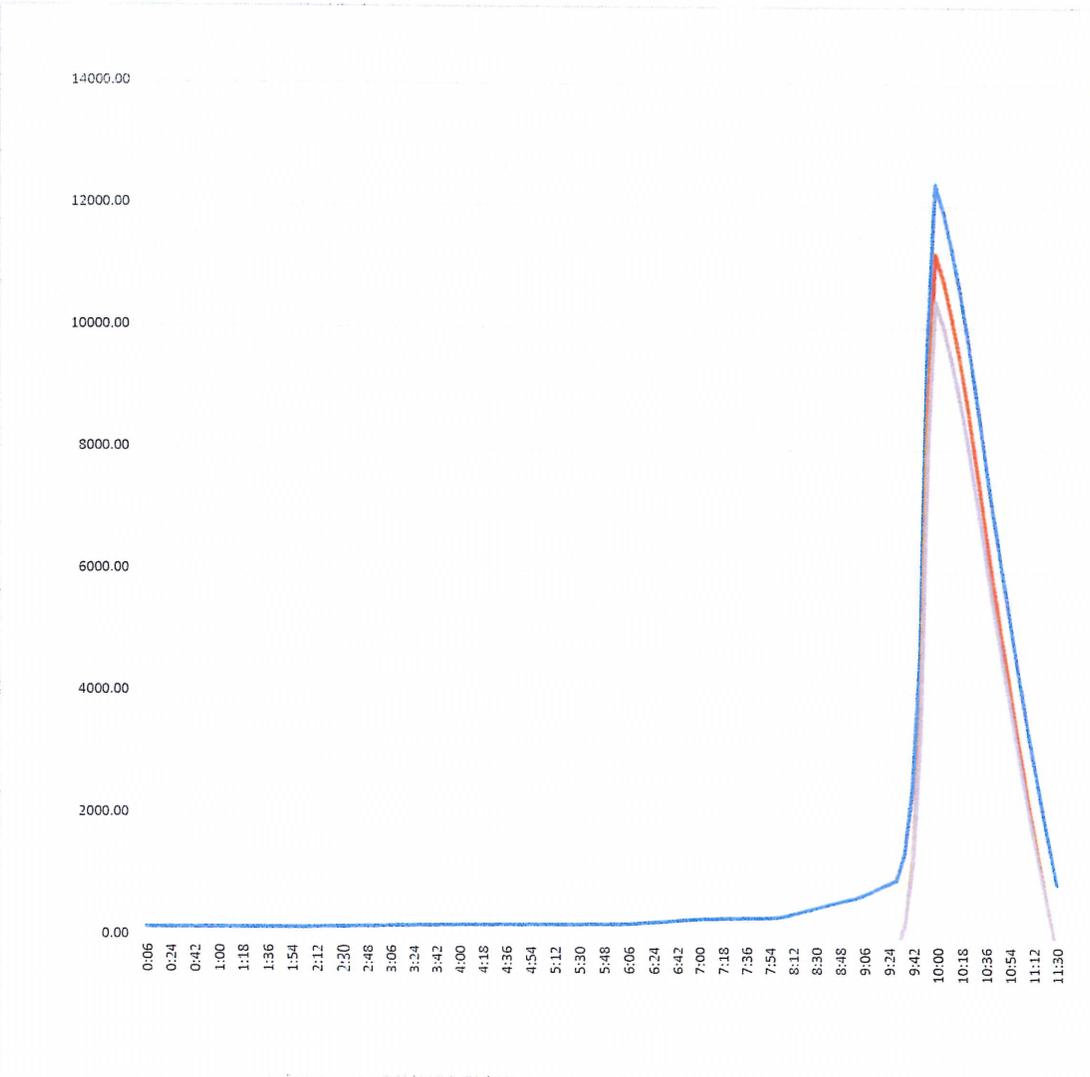
10:48	91.64	91.64	136.91803	-45.28	0.00	0.00	0.00000	-45.28
10:54	86.60	86.60	136.91803	-50.32	0.00	0.00	0.00000	-50.32
11:00	81.56	81.56	136.91803	-55.36	0.00	0.00	0.00000	-55.36
11:06	78.12	78.12	136.91803	-58.79	0.00	0.00	0.00000	-58.79
11:12	76.29	76.29	136.91803	-60.63	0.00	0.00	0.00000	-60.63
11:18	74.46	74.46	136.91803	-62.46	0.00	0.00	0.00000	-62.46
11:24	72.63	72.63	136.91803	-64.29	0.00	0.00	0.00000	-64.29
11:30	70.79	70.79	136.91803	-66.13	0.00	0.00	0.00000	-66.13



Basin C 24 hour 100 year Tabular hydrograph								
Basin C Trench								
Length	200							
Width	12	x For all basins <input type="text" value="x"/> 84,380.52						
Depth	6							
Ret. Vol	4320	assumed 30% Voids in rock	Peak volume	10436.39	Net Volume	6116.39		
Time (min)	Flow (cf/20min)	cum (cf)	btm Inf (cf/20min)	net vol (cf)	depth (ft)	side area (sf)	Inf side (cf/20min)	Net (cf)
0:06	146.82	146.82	1140.98361	-994.16	0.00	0.00	0.00000	-994.16
0:12	146.82	146.82	1140.98361	-994.16	0.00	0.00	0.00000	-994.16
0:18	146.82	146.82	1140.98361	-994.16	0.00	0.00	0.00000	-994.16
0:24	147.67	147.67	1140.98361	-993.32	0.00	0.00	0.00000	-993.32
0:30	146.82	146.82	1140.98361	-994.16	0.00	0.00	0.00000	-994.16
0:36	147.67	147.67	1140.98361	-993.32	0.00	0.00	0.00000	-993.32
0:42	146.82	146.82	1140.98361	-994.16	0.00	0.00	0.00000	-994.16
0:48	147.67	147.67	1140.98361	-993.32	0.00	0.00	0.00000	-993.32
0:54	147.67	147.67	1140.98361	-993.32	0.00	0.00	0.00000	-993.32
1:00	147.67	147.67	1140.98361	-993.32	0.00	0.00	0.00000	-993.32
1:06	147.67	147.67	1140.98361	-993.32	0.00	0.00	0.00000	-993.32
1:12	147.67	147.67	1140.98361	-993.32	0.00	0.00	0.00000	-993.32
1:18	147.67	147.67	1140.98361	-993.32	0.00	0.00	0.00000	-993.32
1:24	148.51	148.51	1140.98361	-992.47	0.00	0.00	0.00000	-992.47
1:30	147.67	147.67	1140.98361	-993.32	0.00	0.00	0.00000	-993.32
1:36	148.51	148.51	1140.98361	-992.47	0.00	0.00	0.00000	-992.47
1:42	147.67	147.67	1140.98361	-993.32	0.00	0.00	0.00000	-993.32
1:48	148.51	148.51	1140.98361	-992.47	0.00	0.00	0.00000	-992.47
1:54	148.51	148.51	1140.98361	-992.47	0.00	0.00	0.00000	-992.47
2:00	148.51	148.51	1140.98361	-992.47	0.00	0.00	0.00000	-992.47
2:06	149.35	149.35	1140.98361	-991.63	0.00	0.00	0.00000	-991.63
2:12	152.73	152.73	1140.98361	-988.25	0.00	0.00	0.00000	-988.25
2:18	154.42	154.42	1140.98361	-986.57	0.00	0.00	0.00000	-986.57
2:24	156.95	156.95	1140.98361	-984.04	0.00	0.00	0.00000	-984.04
2:30	159.48	159.48	1140.98361	-981.50	0.00	0.00	0.00000	-981.50
2:36	162.01	162.01	1140.98361	-978.97	0.00	0.00	0.00000	-978.97
2:42	164.54	164.54	1140.98361	-976.44	0.00	0.00	0.00000	-976.44
2:48	167.07	167.07	1140.98361	-973.91	0.00	0.00	0.00000	-973.91
2:54	168.76	168.76	1140.98361	-972.22	0.00	0.00	0.00000	-972.22
3:00	172.14	172.14	1140.98361	-968.85	0.00	0.00	0.00000	-968.85
3:06	173.82	173.82	1140.98361	-967.16	0.00	0.00	0.00000	-967.16
3:12	177.20	177.20	1140.98361	-963.78	0.00	0.00	0.00000	-963.78
3:18	178.89	178.89	1140.98361	-962.10	0.00	0.00	0.00000	-962.10
3:24	181.42	181.42	1140.98361	-959.57	0.00	0.00	0.00000	-959.57
3:30	183.95	183.95	1140.98361	-957.03	0.00	0.00	0.00000	-957.03
3:36	186.48	186.48	1140.98361	-954.50	0.00	0.00	0.00000	-954.50
3:42	189.01	189.01	1140.98361	-951.97	0.00	0.00	0.00000	-951.97
3:48	191.54	191.54	1140.98361	-949.44	0.00	0.00	0.00000	-949.44
3:54	193.23	193.23	1140.98361	-947.75	0.00	0.00	0.00000	-947.75
4:00	196.61	196.61	1140.98361	-944.38	0.00	0.00	0.00000	-944.38

4:06	198.29	198.29	1140.98361	-942.69	0.00	0.00	0.00000	-942.69
4:12	198.29	198.29	1140.98361	-942.69	0.00	0.00	0.00000	-942.69
4:18	199.98	199.98	1140.98361	-941.00	0.00	0.00	0.00000	-941.00
4:24	200.83	200.83	1140.98361	-940.16	0.00	0.00	0.00000	-940.16
4:30	201.67	201.67	1140.98361	-939.31	0.00	0.00	0.00000	-939.31
4:36	202.51	202.51	1140.98361	-938.47	0.00	0.00	0.00000	-938.47
4:42	203.36	203.36	1140.98361	-937.63	0.00	0.00	0.00000	-937.63
4:48	204.20	204.20	1140.98361	-936.78	0.00	0.00	0.00000	-936.78
4:54	205.89	205.89	1140.98361	-935.10	0.00	0.00	0.00000	-935.10
5:00	205.89	205.89	1140.98361	-935.10	0.00	0.00	0.00000	-935.10
5:06	207.58	207.58	1140.98361	-933.41	0.00	0.00	0.00000	-933.41
5:12	207.58	207.58	1140.98361	-933.41	0.00	0.00	0.00000	-933.41
5:18	209.26	209.26	1140.98361	-931.72	0.00	0.00	0.00000	-931.72
5:24	210.11	210.11	1140.98361	-930.88	0.00	0.00	0.00000	-930.88
5:30	210.95	210.95	1140.98361	-930.03	0.00	0.00	0.00000	-930.03
5:36	211.80	211.80	1140.98361	-929.19	0.00	0.00	0.00000	-929.19
5:42	212.64	212.64	1140.98361	-928.34	0.00	0.00	0.00000	-928.34
5:48	213.48	213.48	1140.98361	-927.50	0.00	0.00	0.00000	-927.50
5:54	215.17	215.17	1140.98361	-925.81	0.00	0.00	0.00000	-925.81
6:00	215.17	215.17	1140.98361	-925.81	0.00	0.00	0.00000	-925.81
6:06	220.23	220.23	1140.98361	-920.75	0.00	0.00	0.00000	-920.75
6:12	230.36	230.36	1140.98361	-910.62	0.00	0.00	0.00000	-910.62
6:18	238.80	238.80	1140.98361	-902.19	0.00	0.00	0.00000	-902.19
6:24	247.23	247.23	1140.98361	-893.75	0.00	0.00	0.00000	-893.75
6:30	257.36	257.36	1140.98361	-883.62	0.00	0.00	0.00000	-883.62
6:36	265.80	265.80	1140.98361	-875.18	0.00	0.00	0.00000	-875.18
6:42	275.92	275.92	1140.98361	-865.06	0.00	0.00	0.00000	-865.06
6:48	284.36	284.36	1140.98361	-856.62	0.00	0.00	0.00000	-856.62
6:54	292.80	292.80	1140.98361	-848.18	0.00	0.00	0.00000	-848.18
7:00	302.93	302.93	1140.98361	-838.06	0.00	0.00	0.00000	-838.06
7:06	308.83	308.83	1140.98361	-832.15	0.00	0.00	0.00000	-832.15
7:12	310.52	310.52	1140.98361	-830.46	0.00	0.00	0.00000	-830.46
7:18	313.90	313.90	1140.98361	-827.09	0.00	0.00	0.00000	-827.09
7:24	317.27	317.27	1140.98361	-823.71	0.00	0.00	0.00000	-823.71
7:30	318.96	318.96	1140.98361	-822.03	0.00	0.00	0.00000	-822.03
7:36	322.33	322.33	1140.98361	-818.65	0.00	0.00	0.00000	-818.65
7:42	324.02	324.02	1140.98361	-816.96	0.00	0.00	0.00000	-816.96
7:48	327.40	327.40	1140.98361	-813.59	0.00	0.00	0.00000	-813.59
7:54	330.77	330.77	1140.98361	-810.21	0.00	0.00	0.00000	-810.21
8:00	332.46	332.46	1140.98361	-808.52	0.00	0.00	0.00000	-808.52
8:06	351.87	351.87	1140.98361	-789.12	0.00	0.00	0.00000	-789.12
8:12	386.46	386.46	1140.98361	-754.52	0.00	0.00	0.00000	-754.52
8:18	421.90	421.90	1140.98361	-719.08	0.00	0.00	0.00000	-719.08
8:24	457.34	457.34	1140.98361	-683.64	0.00	0.00	0.00000	-683.64
8:30	491.94	491.94	1140.98361	-649.05	0.00	0.00	0.00000	-649.05
8:36	525.69	525.69	1140.98361	-615.29	0.00	0.00	0.00000	-615.29
8:42	558.60	558.60	1140.98361	-582.38	0.00	0.00	0.00000	-582.38
8:48	590.66	590.66	1140.98361	-550.32	0.00	0.00	0.00000	-550.32
8:54	622.73	622.73	1140.98361	-518.26	0.00	0.00	0.00000	-518.26
9:00	655.64	655.64	1140.98361	-485.35	0.00	0.00	0.00000	-485.35
9:06	702.89	702.89	1140.98361	-438.09	0.00	0.00	0.00000	-438.09
9:12	764.49	764.49	1140.98361	-376.50	0.00	0.00	0.00000	-376.50
9:18	826.93	826.93	1140.98361	-314.05	0.00	0.00	0.00000	-314.05
9:24	889.37	889.37	1140.98361	-251.61	0.00	0.00	0.00000	-251.61
9:30	950.97	950.97	1140.98361	-190.02	0.00	0.00	0.00000	-190.02
9:36	1385.53	1385.53	1140.98361	244.54	0.34	144.01	17.11589	227.43
9:42	2193.89	2421.32	1140.98361	1280.34	1.78	753.98	89.61204	1190.73
9:48	3579.42	4770.15	1140.98361	3629.16	5.04	2137.17	254.00847	3375.16
9:54	6355.54	9730.70	1140.98361	8589.71	11.93	5058.39	601.20171	7988.51
10:00	4374.29	12362.80	1140.98361	11221.81	15.59	6608.40	785.42480	10436.39
10:06	1451.34	11887.73	1140.98361	10746.75	14.93	6328.64	752.17469	9994.58
10:12	1299.46	11294.04	1140.98361	10153.05	14.10	5979.02	710.62122	9442.43
10:18	1147.58	10590.01	1140.98361	9449.02	13.12	5564.42	661.34555	8787.68
10:24	995.69	9783.37	1140.98361	8642.38	12.00	5089.40	604.88816	8037.50
10:30	843.81	8881.30	1140.98361	7740.32	10.75	4558.19	541.75172	7198.57
10:36	749.30	7947.86	1140.98361	6806.88	9.45	4008.50	476.41968	6330.46
10:42	712.17	7042.63	1140.98361	5901.65	8.20	3475.42	413.06171	5488.59

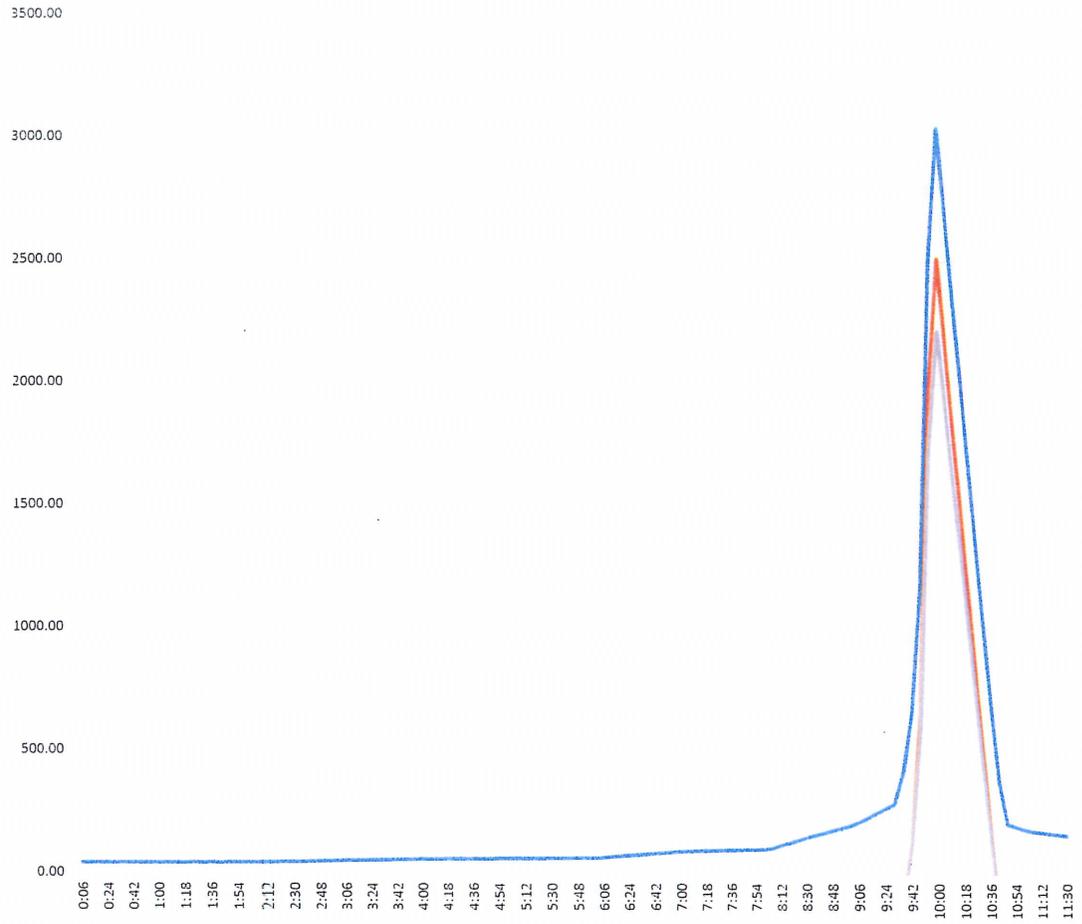
10:48	675.04	6163.63	1140.98361	5022.65	6.98	2957.78	351.53963	4671.11
10:54	637.92	5309.03	1140.98361	4168.04	5.79	2454.51	291.72496	3876.32
11:00	600.79	<u>4477.11</u>	1140.98361	3336.12	4.63	1964.61	233.49819	3102.62
11:06	575.48	<u>3678.10</u>	1140.98361	2537.12	3.52	1494.08	177.57500	2359.54
11:12	561.97	2921.52	1140.98361	1780.53	2.47	1048.54	124.62099	1655.91
11:18	548.47	2204.38	1140.98361	1063.40	1.48	626.22	74.42833	988.97
11:24	534.97	1523.94	1140.98361	382.96	0.53	225.52	26.80377	356.16
11:30	521.47	877.63	1140.98361	-263.35	0.00	0.00	0.00000	-263.35



Basin A 24 hour 100 year tabular hydrograph								
Basin A Trench + OB + OC								
Length	160							
Width	7							
Depth	6							
Ret. Vol	2016	assumed 30% Voids	Peak volume	2215.31	Net Volume	199.31		
Time (min)	Flow (cf/20min)	cum (cf)	btm Inf (cf/20min)	net volume	depth (ft)	side area (sf)	Inf side (cf/20min)	Net vol
0:06	44.18	44.18	532.45902	-488.28	0.00	0.00	0.00000	-488.28
0:12	44.18	44.18	532.45902	-488.28	0.00	0.00	0.00000	-488.28
0:18	44.18	44.18	532.45902	-488.28	0.00	0.00	0.00000	-488.28
0:24	44.44	44.44	532.45902	-488.02	0.00	0.00	0.00000	-488.02
0:30	44.18	44.18	532.45902	-488.28	0.00	0.00	0.00000	-488.28
0:36	44.44	44.44	532.45902	-488.02	0.00	0.00	0.00000	-488.02
0:42	44.18	44.18	532.45902	-488.28	0.00	0.00	0.00000	-488.28
0:48	44.44	44.44	532.45902	-488.02	0.00	0.00	0.00000	-488.02
0:54	44.44	44.44	532.45902	-488.02	0.00	0.00	0.00000	-488.02
1:00	44.44	44.44	532.45902	-488.02	0.00	0.00	0.00000	-488.02
1:06	44.44	44.44	532.45902	-488.02	0.00	0.00	0.00000	-488.02
1:12	44.44	44.44	532.45902	-488.02	0.00	0.00	0.00000	-488.02
1:18	44.44	44.44	532.45902	-488.02	0.00	0.00	0.00000	-488.02
1:24	44.69	44.69	532.45902	-487.77	0.00	0.00	0.00000	-487.77
1:30	44.44	44.44	532.45902	-488.02	0.00	0.00	0.00000	-488.02
1:36	44.69	44.69	532.45902	-487.77	0.00	0.00	0.00000	-487.77
1:42	44.44	44.44	532.45902	-488.02	0.00	0.00	0.00000	-488.02
1:48	44.69	44.69	532.45902	-487.77	0.00	0.00	0.00000	-487.77
1:54	44.69	44.69	532.45902	-487.77	0.00	0.00	0.00000	-487.77
2:00	44.69	44.69	532.45902	-487.77	0.00	0.00	0.00000	-487.77
2:06	44.94	44.94	532.45902	-487.51	0.00	0.00	0.00000	-487.51
2:12	45.96	45.96	532.45902	-486.50	0.00	0.00	0.00000	-486.50
2:18	46.47	46.47	532.45902	-485.99	0.00	0.00	0.00000	-485.99
2:24	47.23	47.23	532.45902	-485.23	0.00	0.00	0.00000	-485.23
2:30	47.99	47.99	532.45902	-484.47	0.00	0.00	0.00000	-484.47
2:36	48.75	48.75	532.45902	-483.71	0.00	0.00	0.00000	-483.71
2:42	49.51	49.51	532.45902	-482.94	0.00	0.00	0.00000	-482.94
2:48	50.28	50.28	532.45902	-482.18	0.00	0.00	0.00000	-482.18
2:54	50.78	50.78	532.45902	-481.67	0.00	0.00	0.00000	-481.67
3:00	51.80	51.80	532.45902	-480.66	0.00	0.00	0.00000	-480.66
3:06	52.31	52.31	532.45902	-480.15	0.00	0.00	0.00000	-480.15
3:12	53.32	53.32	532.45902	-479.14	0.00	0.00	0.00000	-479.14
3:18	53.83	53.83	532.45902	-478.63	0.00	0.00	0.00000	-478.63
3:24	54.59	54.59	532.45902	-477.87	0.00	0.00	0.00000	-477.87
3:30	55.36	55.36	532.45902	-477.10	0.00	0.00	0.00000	-477.10
3:36	56.12	56.12	532.45902	-476.34	0.00	0.00	0.00000	-476.34
3:42	56.88	56.88	532.45902	-475.58	0.00	0.00	0.00000	-475.58
3:48	57.64	57.64	532.45902	-474.82	0.00	0.00	0.00000	-474.82
3:54	58.15	58.15	532.45902	-474.31	0.00	0.00	0.00000	-474.31
4:00	59.16	59.16	532.45902	-473.29	0.00	0.00	0.00000	-473.29

4:06	59.67	59.67	532.45902	-472.79	0.00	0.00	0.00000	-472.79
4:12	59.67	59.67	532.45902	-472.79	0.00	0.00	0.00000	-472.79
4:18	60.18	60.18	532.45902	-472.28	0.00	0.00	0.00000	-472.28
4:24	60.43	60.43	532.45902	-472.03	0.00	0.00	0.00000	-472.03
4:30	60.69	60.69	532.45902	-471.77	0.00	0.00	0.00000	-471.77
4:36	60.94	60.94	532.45902	-471.52	0.00	0.00	0.00000	-471.52
4:42	61.20	61.20	532.45902	-471.26	0.00	0.00	0.00000	-471.26
4:48	61.45	61.45	532.45902	-471.01	0.00	0.00	0.00000	-471.01
4:54	61.96	61.96	532.45902	-470.50	0.00	0.00	0.00000	-470.50
5:00	61.96	61.96	532.45902	-470.50	0.00	0.00	0.00000	-470.50
5:06	62.47	62.47	532.45902	-469.99	0.00	0.00	0.00000	-469.99
5:12	62.47	62.47	532.45902	-469.99	0.00	0.00	0.00000	-469.99
5:18	62.97	62.97	532.45902	-469.49	0.00	0.00	0.00000	-469.49
5:24	63.23	63.23	532.45902	-469.23	0.00	0.00	0.00000	-469.23
5:30	63.48	63.48	532.45902	-468.98	0.00	0.00	0.00000	-468.98
5:36	63.73	63.73	532.45902	-468.72	0.00	0.00	0.00000	-468.72
5:42	63.99	63.99	532.45902	-468.47	0.00	0.00	0.00000	-468.47
5:48	64.24	64.24	532.45902	-468.22	0.00	0.00	0.00000	-468.22
5:54	64.75	64.75	532.45902	-467.71	0.00	0.00	0.00000	-467.71
6:00	64.75	64.75	532.45902	-467.71	0.00	0.00	0.00000	-467.71
6:06	66.27	66.27	532.45902	-466.19	0.00	0.00	0.00000	-466.19
6:12	69.32	69.32	532.45902	-463.14	0.00	0.00	0.00000	-463.14
6:18	71.86	71.86	532.45902	-460.60	0.00	0.00	0.00000	-460.60
6:24	74.40	74.40	532.45902	-458.06	0.00	0.00	0.00000	-458.06
6:30	77.45	77.45	532.45902	-455.01	0.00	0.00	0.00000	-455.01
6:36	79.99	79.99	532.45902	-452.47	0.00	0.00	0.00000	-452.47
6:42	83.03	83.03	532.45902	-449.43	0.00	0.00	0.00000	-449.43
6:48	85.57	85.57	532.45902	-446.89	0.00	0.00	0.00000	-446.89
6:54	88.11	88.11	532.45902	-444.35	0.00	0.00	0.00000	-444.35
7:00	91.16	91.16	532.45902	-441.30	0.00	0.00	0.00000	-441.30
7:06	92.94	92.94	532.45902	-439.52	0.00	0.00	0.00000	-439.52
7:12	93.44	93.44	532.45902	-439.02	0.00	0.00	0.00000	-439.02
7:18	94.46	94.46	532.45902	-438.00	0.00	0.00	0.00000	-438.00
7:24	95.47	95.47	532.45902	-436.98	0.00	0.00	0.00000	-436.98
7:30	95.98	95.98	532.45902	-436.48	0.00	0.00	0.00000	-436.48
7:36	97.00	97.00	532.45902	-435.46	0.00	0.00	0.00000	-435.46
7:42	97.51	97.51	532.45902	-434.95	0.00	0.00	0.00000	-434.95
7:48	98.52	98.52	532.45902	-433.94	0.00	0.00	0.00000	-433.94
7:54	99.54	99.54	532.45902	-432.92	0.00	0.00	0.00000	-432.92
8:00	100.05	100.05	532.45902	-432.41	0.00	0.00	0.00000	-432.41
8:06	105.89	105.89	532.45902	-426.57	0.00	0.00	0.00000	-426.57
8:12	116.30	116.30	532.45902	-416.16	0.00	0.00	0.00000	-416.16
8:18	126.96	126.96	532.45902	-405.50	0.00	0.00	0.00000	-405.50
8:24	137.63	137.63	532.45902	-394.83	0.00	0.00	0.00000	-394.83
8:30	148.04	148.04	532.45902	-384.42	0.00	0.00	0.00000	-384.42
8:36	158.19	158.19	532.45902	-374.27	0.00	0.00	0.00000	-374.27
8:42	168.10	168.10	532.45902	-364.36	0.00	0.00	0.00000	-364.36
8:48	177.75	177.75	532.45902	-354.71	0.00	0.00	0.00000	-354.71
8:54	187.40	187.40	532.45902	-345.06	0.00	0.00	0.00000	-345.06
9:00	197.30	197.30	532.45902	-335.16	0.00	0.00	0.00000	-335.16
9:06	211.52	211.52	532.45902	-320.94	0.00	0.00	0.00000	-320.94
9:12	230.05	230.05	532.45902	-302.40	0.00	0.00	0.00000	-302.40
9:18	248.84	248.84	532.45902	-283.61	0.00	0.00	0.00000	-283.61
9:24	267.63	267.63	532.45902	-264.82	0.00	0.00	0.00000	-264.82
9:30	286.17	286.17	532.45902	-246.29	0.00	0.00	0.00000	-246.29
9:36	416.94	416.94	532.45902	-115.52	0.00	0.00	0.00000	-115.52
9:42	660.20	660.20	532.45902	127.74	0.38	126.98	15.09189	112.65
9:48	1077.14	1189.79	532.45902	657.33	1.96	653.42	77.66029	579.67
9:54	1912.55	2492.22	532.45902	1959.76	5.83	1948.09	231.53562	1728.22
10:00	1316.34	3044.56	532.45902	2512.10	7.48	2497.15	296.79201	2215.31
10:06	436.75	2652.05	532.45902	2119.60	6.31	2106.98	250.41966	1869.18
10:12	391.04	2260.22	532.45902	1727.76	5.14	1717.47	204.12602	1523.63
10:18	345.34	1868.97	532.45902	1336.51	3.98	1328.55	157.90179	1178.61
10:24	299.63	1478.24	532.45902	945.78	2.81	940.15	111.73878	834.04
10:30	253.92	1087.96	532.45902	555.50	1.65	552.20	65.62975	489.87
10:36	225.48	715.36	532.45902	182.90	0.54	181.81	21.60830	161.29
10:42	214.31	375.60	532.45902	-156.86	0.00	0.00	0.00000	-156.86

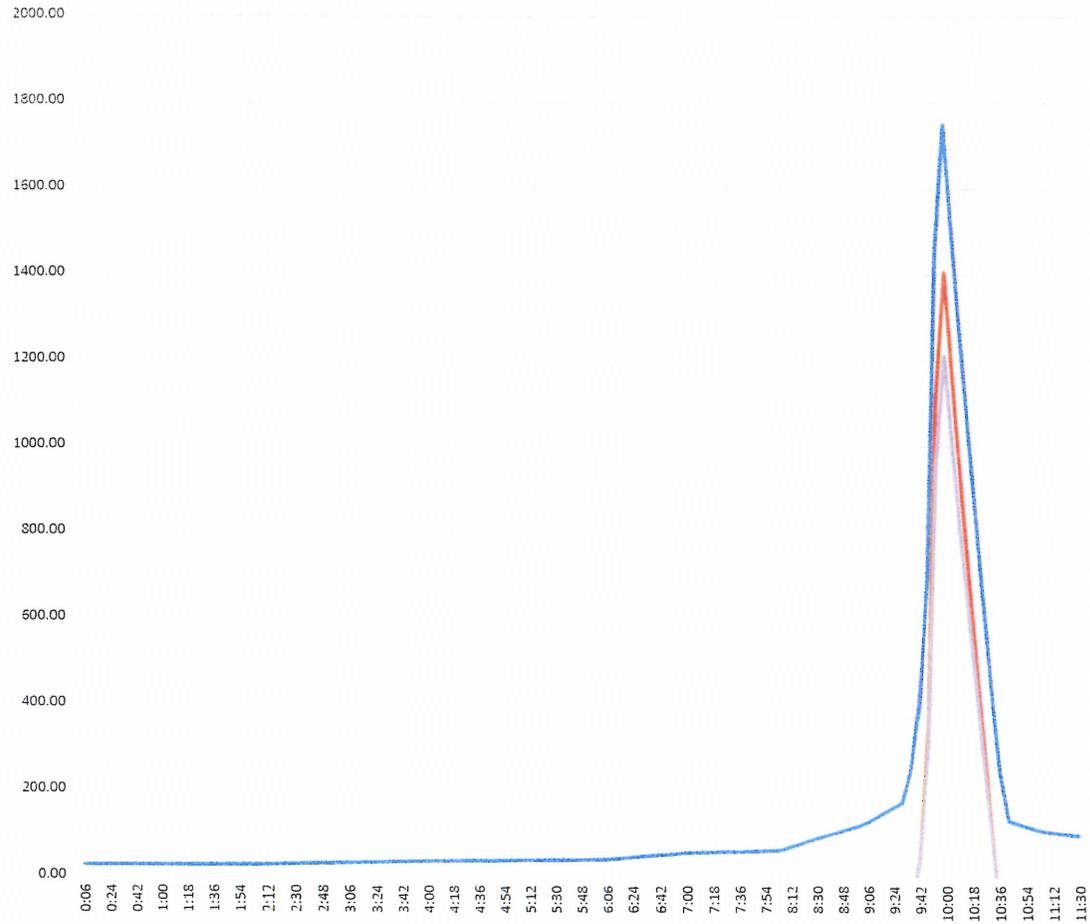
10:48	203.14	203.14	532.45902	-329.32	0.00	0.00	0.00000	-329.32
10:54	191.97	191.97	532.45902	-340.49	0.00	0.00	0.00000	-340.49
11:00	180.79	180.79	532.45902	-351.67	0.00	0.00	0.00000	-351.67
11:06	173.18	173.18	532.45902	-359.28	0.00	0.00	0.00000	-359.28
11:12	169.11	169.11	532.45902	-363.35	0.00	0.00	0.00000	-363.35
11:18	165.05	165.05	532.45902	-367.41	0.00	0.00	0.00000	-367.41
11:24	160.99	160.99	532.45902	-371.47	0.00	0.00	0.00000	-371.47
11:30	156.92	156.92	532.45902	-375.53	0.00	0.00	0.00000	-375.53



Basin B 24 hour 100 year tabular hydrograph								
Basin B Trench								
Length	120							
Width	6							
Depth	6							
Ret. Vol	1296	assumed 30% Voids		Peak volume	1211.79	Net Volume		-84.21
Time (min)	Flow (cf/20min)	cum (cf)	btm Inf (cf/20min)	net volume	depth (ft)	side area (sf)	Inf side (cf/20min)	Net
0:06	26.57	26.57	342.29508	-315.72	0.00	0.00	0.00000	-315.72
0:12	26.57	26.57	342.29508	-315.72	0.00	0.00	0.00000	-315.72
0:18	26.57	26.57	342.29508	-315.72	0.00	0.00	0.00000	-315.72
0:24	26.72	26.72	342.29508	-315.57	0.00	0.00	0.00000	-315.57
0:30	26.57	26.57	342.29508	-315.72	0.00	0.00	0.00000	-315.72
0:36	26.72	26.72	342.29508	-315.57	0.00	0.00	0.00000	-315.57
0:42	26.57	26.57	342.29508	-315.72	0.00	0.00	0.00000	-315.72
0:48	26.72	26.72	342.29508	-315.57	0.00	0.00	0.00000	-315.57
0:54	26.72	26.72	342.29508	-315.57	0.00	0.00	0.00000	-315.57
1:00	26.72	26.72	342.29508	-315.57	0.00	0.00	0.00000	-315.57
1:06	26.72	26.72	342.29508	-315.57	0.00	0.00	0.00000	-315.57
1:12	26.72	26.72	342.29508	-315.57	0.00	0.00	0.00000	-315.57
1:18	26.72	26.72	342.29508	-315.57	0.00	0.00	0.00000	-315.57
1:24	26.88	26.88	342.29508	-315.42	0.00	0.00	0.00000	-315.42
1:30	26.72	26.72	342.29508	-315.57	0.00	0.00	0.00000	-315.57
1:36	26.88	26.88	342.29508	-315.42	0.00	0.00	0.00000	-315.42
1:42	26.72	26.72	342.29508	-315.57	0.00	0.00	0.00000	-315.57
1:48	26.88	26.88	342.29508	-315.42	0.00	0.00	0.00000	-315.42
1:54	26.88	26.88	342.29508	-315.42	0.00	0.00	0.00000	-315.42
2:00	26.88	26.88	342.29508	-315.42	0.00	0.00	0.00000	-315.42
2:06	27.03	27.03	342.29508	-315.27	0.00	0.00	0.00000	-315.27
2:12	27.64	27.64	342.29508	-314.65	0.00	0.00	0.00000	-314.65
2:18	27.95	27.95	342.29508	-314.35	0.00	0.00	0.00000	-314.35
2:24	28.40	28.40	342.29508	-313.89	0.00	0.00	0.00000	-313.89
2:30	28.86	28.86	342.29508	-313.43	0.00	0.00	0.00000	-313.43
2:36	29.32	29.32	342.29508	-312.97	0.00	0.00	0.00000	-312.97
2:42	29.78	29.78	342.29508	-312.52	0.00	0.00	0.00000	-312.52
2:48	30.24	30.24	342.29508	-312.06	0.00	0.00	0.00000	-312.06
2:54	30.54	30.54	342.29508	-311.75	0.00	0.00	0.00000	-311.75
3:00	31.15	31.15	342.29508	-311.14	0.00	0.00	0.00000	-311.14
3:06	31.46	31.46	342.29508	-310.84	0.00	0.00	0.00000	-310.84
3:12	32.07	32.07	342.29508	-310.23	0.00	0.00	0.00000	-310.23
3:18	32.37	32.37	342.29508	-309.92	0.00	0.00	0.00000	-309.92
3:24	32.83	32.83	342.29508	-309.46	0.00	0.00	0.00000	-309.46
3:30	33.29	33.29	342.29508	-309.00	0.00	0.00	0.00000	-309.00
3:36	33.75	33.75	342.29508	-308.55	0.00	0.00	0.00000	-308.55
3:42	34.21	34.21	342.29508	-308.09	0.00	0.00	0.00000	-308.09
3:48	34.66	34.66	342.29508	-307.63	0.00	0.00	0.00000	-307.63
3:54	34.97	34.97	342.29508	-307.32	0.00	0.00	0.00000	-307.32
4:00	35.58	35.58	342.29508	-306.71	0.00	0.00	0.00000	-306.71

4:06	35.89	35.89	342.29508	-306.41	0.00	0.00	0.00000	-306.41
4:12	35.89	35.89	342.29508	-306.41	0.00	0.00	0.00000	-306.41
4:18	36.19	36.19	342.29508	-306.10	0.00	0.00	0.00000	-306.10
4:24	36.34	36.34	342.29508	-305.95	0.00	0.00	0.00000	-305.95
4:30	36.50	36.50	342.29508	-305.80	0.00	0.00	0.00000	-305.80
4:36	36.65	36.65	342.29508	-305.64	0.00	0.00	0.00000	-305.64
4:42	36.80	36.80	342.29508	-305.49	0.00	0.00	0.00000	-305.49
4:48	36.96	36.96	342.29508	-305.34	0.00	0.00	0.00000	-305.34
4:54	37.26	37.26	342.29508	-305.03	0.00	0.00	0.00000	-305.03
5:00	37.26	37.26	342.29508	-305.03	0.00	0.00	0.00000	-305.03
5:06	37.57	37.57	342.29508	-304.73	0.00	0.00	0.00000	-304.73
5:12	37.57	37.57	342.29508	-304.73	0.00	0.00	0.00000	-304.73
5:18	37.87	37.87	342.29508	-304.42	0.00	0.00	0.00000	-304.42
5:24	38.02	38.02	342.29508	-304.27	0.00	0.00	0.00000	-304.27
5:30	38.18	38.18	342.29508	-304.12	0.00	0.00	0.00000	-304.12
5:36	38.33	38.33	342.29508	-303.97	0.00	0.00	0.00000	-303.97
5:42	38.48	38.48	342.29508	-303.81	0.00	0.00	0.00000	-303.81
5:48	38.64	38.64	342.29508	-303.66	0.00	0.00	0.00000	-303.66
5:54	38.94	38.94	342.29508	-303.35	0.00	0.00	0.00000	-303.35
6:00	38.94	38.94	342.29508	-303.35	0.00	0.00	0.00000	-303.35
6:06	39.86	39.86	342.29508	-302.44	0.00	0.00	0.00000	-302.44
6:12	41.69	41.69	342.29508	-300.61	0.00	0.00	0.00000	-300.61
6:18	43.22	43.22	342.29508	-299.08	0.00	0.00	0.00000	-299.08
6:24	44.74	44.74	342.29508	-297.55	0.00	0.00	0.00000	-297.55
6:30	46.58	46.58	342.29508	-295.72	0.00	0.00	0.00000	-295.72
6:36	48.10	48.10	342.29508	-294.19	0.00	0.00	0.00000	-294.19
6:42	49.94	49.94	342.29508	-292.36	0.00	0.00	0.00000	-292.36
6:48	51.46	51.46	342.29508	-290.83	0.00	0.00	0.00000	-290.83
6:54	52.99	52.99	342.29508	-289.31	0.00	0.00	0.00000	-289.31
7:00	54.82	54.82	342.29508	-287.47	0.00	0.00	0.00000	-287.47
7:06	55.89	55.89	342.29508	-286.40	0.00	0.00	0.00000	-286.40
7:12	56.20	56.20	342.29508	-286.10	0.00	0.00	0.00000	-286.10
7:18	56.81	56.81	342.29508	-285.49	0.00	0.00	0.00000	-285.49
7:24	57.42	57.42	342.29508	-284.88	0.00	0.00	0.00000	-284.88
7:30	57.72	57.72	342.29508	-284.57	0.00	0.00	0.00000	-284.57
7:36	58.33	58.33	342.29508	-283.96	0.00	0.00	0.00000	-283.96
7:42	58.64	58.64	342.29508	-283.65	0.00	0.00	0.00000	-283.65
7:48	59.25	59.25	342.29508	-283.04	0.00	0.00	0.00000	-283.04
7:54	59.86	59.86	342.29508	-282.43	0.00	0.00	0.00000	-282.43
8:00	60.17	60.17	342.29508	-282.13	0.00	0.00	0.00000	-282.13
8:06	63.68	63.68	342.29508	-278.62	0.00	0.00	0.00000	-278.62
8:12	69.94	69.94	342.29508	-272.35	0.00	0.00	0.00000	-272.35
8:18	76.35	76.35	342.29508	-265.94	0.00	0.00	0.00000	-265.94
8:24	82.77	82.77	342.29508	-259.53	0.00	0.00	0.00000	-259.53
8:30	89.03	89.03	342.29508	-253.27	0.00	0.00	0.00000	-253.27
8:36	95.14	95.14	342.29508	-247.16	0.00	0.00	0.00000	-247.16
8:42	101.09	101.09	342.29508	-241.20	0.00	0.00	0.00000	-241.20
8:48	106.90	106.90	342.29508	-235.40	0.00	0.00	0.00000	-235.40
8:54	112.70	112.70	342.29508	-229.60	0.00	0.00	0.00000	-229.60
9:00	118.65	118.65	342.29508	-223.64	0.00	0.00	0.00000	-223.64
9:06	127.21	127.21	342.29508	-215.09	0.00	0.00	0.00000	-215.09
9:12	138.35	138.35	342.29508	-203.94	0.00	0.00	0.00000	-203.94
9:18	149.65	149.65	342.29508	-192.64	0.00	0.00	0.00000	-192.64
9:24	160.96	160.96	342.29508	-181.34	0.00	0.00	0.00000	-181.34
9:30	172.10	172.10	342.29508	-170.19	0.00	0.00	0.00000	-170.19
9:36	250.75	250.75	342.29508	-91.55	0.00	0.00	0.00000	-91.55
9:42	397.04	397.04	342.29508	54.75	0.25	63.87	7.59142	47.16
9:48	647.79	694.95	342.29508	352.65	1.63	411.43	48.89921	303.75
9:54	1150.20	1453.96	342.29508	1111.66	5.15	1296.94	154.14428	957.52
10:00	791.64	1749.16	342.29508	1406.86	6.51	1641.34	195.07753	1211.79
10:06	262.66	1474.45	342.29508	1132.15	5.24	1320.84	156.98544	975.17
10:12	235.17	1210.34	342.29508	868.04	4.02	1012.72	120.36379	747.68
10:18	207.68	955.36	342.29508	613.07	2.84	715.25	85.00867	528.06
10:24	180.20	708.26	342.29508	365.96	1.69	426.95	50.74448	315.22
10:30	152.71	467.92	342.29508	125.63	0.58	146.57	17.41993	108.21
10:36	135.61	243.81	342.29508	-98.48	0.00	0.00	0.00000	-98.48
10:42	128.89	128.89	342.29508	-213.41	0.00	0.00	0.00000	-213.41

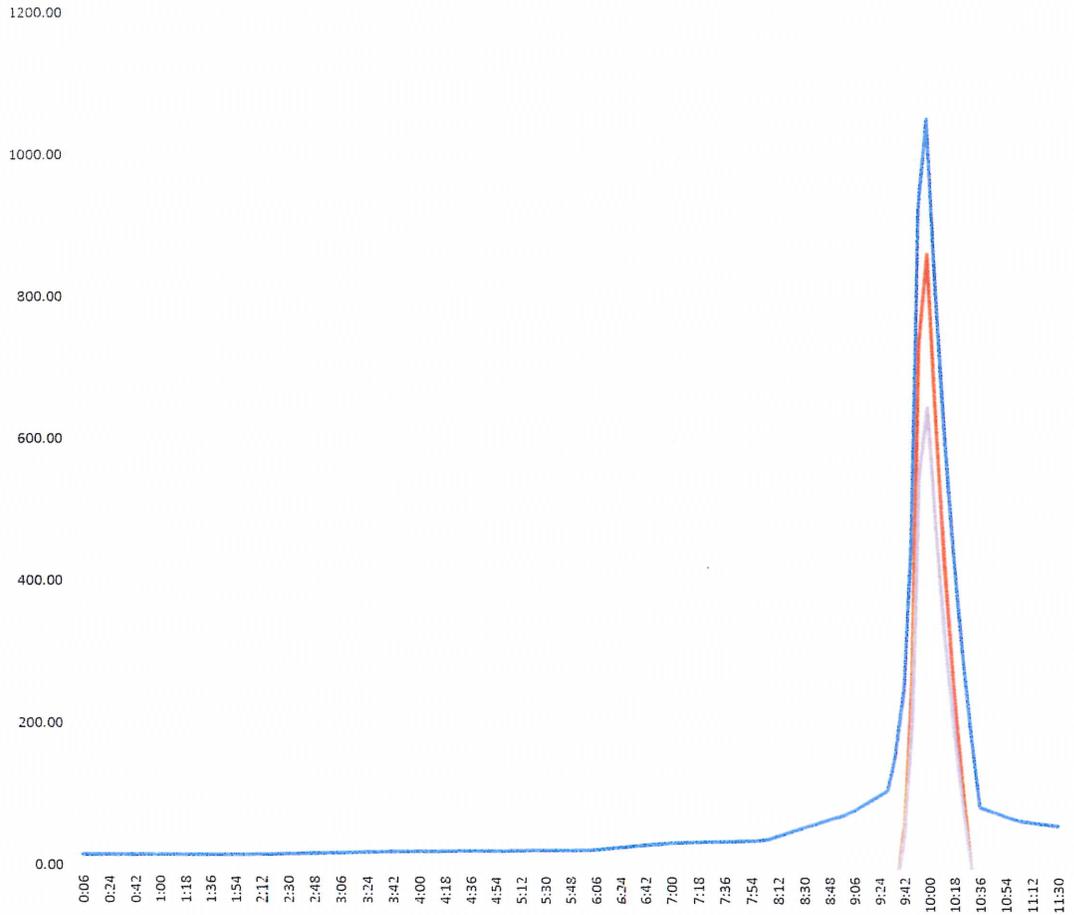
10:48	122.17	122.17	342.29508	-220.13	0.00	0.00	0.00000	-220.13
10:54	115.45	115.45	342.29508	-226.85	0.00	0.00	0.00000	-226.85
11:00	108.73	108.73	342.29508	-233.57	0.00	0.00	0.00000	-233.57
11:06	104.15	104.15	342.29508	-238.15	0.00	0.00	0.00000	-238.15
11:12	101.70	101.70	342.29508	-240.59	0.00	0.00	0.00000	-240.59
11:18	99.26	99.26	342.29508	-243.03	0.00	0.00	0.00000	-243.03
11:24	96.82	96.82	342.29508	-245.48	0.00	0.00	0.00000	-245.48
11:30	94.37	94.37	342.29508	-247.92	0.00	0.00	0.00000	-247.92



Basin E 24 hour 100 year tabular hydrograph								
Basin E Trench								
Length	80							
Width	5							
Depth	5							
Ret. Vol	600	assumed 30% Voids		Peak volume	649.74	Net Volume	49.74	
Time (min)	Flow (cf/20min)	cum (cf)	btm Inf (cf/20min)	net volume	depth (ft)	side area (sf)	Inf side (cf/20min)	Net
0:06	16.84	16.84	190.16393	-173.33	0.00	0.00	0.00000	-173.33
0:12	16.84	16.84	190.16393	-173.33	0.00	0.00	0.00000	-173.33
0:18	16.84	16.84	190.16393	-173.33	0.00	0.00	0.00000	-173.33
0:24	16.94	16.94	190.16393	-173.23	0.00	0.00	0.00000	-173.23
0:30	16.84	16.84	190.16393	-173.33	0.00	0.00	0.00000	-173.33
0:36	16.94	16.94	190.16393	-173.23	0.00	0.00	0.00000	-173.23
0:42	16.84	16.84	190.16393	-173.33	0.00	0.00	0.00000	-173.33
0:48	16.94	16.94	190.16393	-173.23	0.00	0.00	0.00000	-173.23
0:54	16.94	16.94	190.16393	-173.23	0.00	0.00	0.00000	-173.23
1:00	16.94	16.94	190.16393	-173.23	0.00	0.00	0.00000	-173.23
1:06	16.94	16.94	190.16393	-173.23	0.00	0.00	0.00000	-173.23
1:12	16.94	16.94	190.16393	-173.23	0.00	0.00	0.00000	-173.23
1:18	16.94	16.94	190.16393	-173.23	0.00	0.00	0.00000	-173.23
1:24	17.03	17.03	190.16393	-173.13	0.00	0.00	0.00000	-173.13
1:30	16.94	16.94	190.16393	-173.23	0.00	0.00	0.00000	-173.23
1:36	17.03	17.03	190.16393	-173.13	0.00	0.00	0.00000	-173.13
1:42	16.94	16.94	190.16393	-173.23	0.00	0.00	0.00000	-173.23
1:48	17.03	17.03	190.16393	-173.13	0.00	0.00	0.00000	-173.13
1:54	17.03	17.03	190.16393	-173.13	0.00	0.00	0.00000	-173.13
2:00	17.03	17.03	190.16393	-173.13	0.00	0.00	0.00000	-173.13
2:06	17.13	17.13	190.16393	-173.03	0.00	0.00	0.00000	-173.03
2:12	17.52	17.52	190.16393	-172.65	0.00	0.00	0.00000	-172.65
2:18	17.71	17.71	190.16393	-172.45	0.00	0.00	0.00000	-172.45
2:24	18.00	18.00	190.16393	-172.16	0.00	0.00	0.00000	-172.16
2:30	18.29	18.29	190.16393	-171.87	0.00	0.00	0.00000	-171.87
2:36	18.58	18.58	190.16393	-171.58	0.00	0.00	0.00000	-171.58
2:42	18.87	18.87	190.16393	-171.29	0.00	0.00	0.00000	-171.29
2:48	19.16	19.16	190.16393	-171.00	0.00	0.00	0.00000	-171.00
2:54	19.35	19.35	190.16393	-170.81	0.00	0.00	0.00000	-170.81
3:00	19.74	19.74	190.16393	-170.42	0.00	0.00	0.00000	-170.42
3:06	19.94	19.94	190.16393	-170.23	0.00	0.00	0.00000	-170.23
3:12	20.32	20.32	190.16393	-169.84	0.00	0.00	0.00000	-169.84
3:18	20.52	20.52	190.16393	-169.65	0.00	0.00	0.00000	-169.65
3:24	20.81	20.81	190.16393	-169.36	0.00	0.00	0.00000	-169.36
3:30	21.10	21.10	190.16393	-169.07	0.00	0.00	0.00000	-169.07
3:36	21.39	21.39	190.16393	-168.78	0.00	0.00	0.00000	-168.78
3:42	21.68	21.68	190.16393	-168.49	0.00	0.00	0.00000	-168.49
3:48	21.97	21.97	190.16393	-168.20	0.00	0.00	0.00000	-168.20
3:54	22.16	22.16	190.16393	-168.00	0.00	0.00	0.00000	-168.00
4:00	22.55	22.55	190.16393	-167.62	0.00	0.00	0.00000	-167.62

4:06	22.74	22.74	190.16393	-167.42	0.00	0.00	0.00000	-167.42
4:12	22.74	22.74	190.16393	-167.42	0.00	0.00	0.00000	-167.42
4:18	22.94	22.94	190.16393	-167.23	0.00	0.00	0.00000	-167.23
4:24	23.03	23.03	190.16393	-167.13	0.00	0.00	0.00000	-167.13
4:30	23.13	23.13	190.16393	-167.03	0.00	0.00	0.00000	-167.03
4:36	23.23	23.23	190.16393	-166.94	0.00	0.00	0.00000	-166.94
4:42	23.32	23.32	190.16393	-166.84	0.00	0.00	0.00000	-166.84
4:48	23.42	23.42	190.16393	-166.74	0.00	0.00	0.00000	-166.74
4:54	23.61	23.61	190.16393	-166.55	0.00	0.00	0.00000	-166.55
5:00	23.61	23.61	190.16393	-166.55	0.00	0.00	0.00000	-166.55
5:06	23.81	23.81	190.16393	-166.36	0.00	0.00	0.00000	-166.36
5:12	23.81	23.81	190.16393	-166.36	0.00	0.00	0.00000	-166.36
5:18	24.00	24.00	190.16393	-166.16	0.00	0.00	0.00000	-166.16
5:24	24.10	24.10	190.16393	-166.07	0.00	0.00	0.00000	-166.07
5:30	24.19	24.19	190.16393	-165.97	0.00	0.00	0.00000	-165.97
5:36	24.29	24.29	190.16393	-165.87	0.00	0.00	0.00000	-165.87
5:42	24.39	24.39	190.16393	-165.78	0.00	0.00	0.00000	-165.78
5:48	24.48	24.48	190.16393	-165.68	0.00	0.00	0.00000	-165.68
5:54	24.68	24.68	190.16393	-165.49	0.00	0.00	0.00000	-165.49
6:00	24.68	24.68	190.16393	-165.49	0.00	0.00	0.00000	-165.49
6:06	25.26	25.26	190.16393	-164.91	0.00	0.00	0.00000	-164.91
6:12	26.42	26.42	190.16393	-163.74	0.00	0.00	0.00000	-163.74
6:18	27.39	27.39	190.16393	-162.78	0.00	0.00	0.00000	-162.78
6:24	28.36	28.36	190.16393	-161.81	0.00	0.00	0.00000	-161.81
6:30	29.52	29.52	190.16393	-160.65	0.00	0.00	0.00000	-160.65
6:36	30.48	30.48	190.16393	-159.68	0.00	0.00	0.00000	-159.68
6:42	31.65	31.65	190.16393	-158.52	0.00	0.00	0.00000	-158.52
6:48	32.61	32.61	190.16393	-157.55	0.00	0.00	0.00000	-157.55
6:54	33.58	33.58	190.16393	-156.58	0.00	0.00	0.00000	-156.58
7:00	34.74	34.74	190.16393	-155.42	0.00	0.00	0.00000	-155.42
7:06	35.42	35.42	190.16393	-154.74	0.00	0.00	0.00000	-154.74
7:12	35.61	35.61	190.16393	-154.55	0.00	0.00	0.00000	-154.55
7:18	36.00	36.00	190.16393	-154.16	0.00	0.00	0.00000	-154.16
7:24	36.39	36.39	190.16393	-153.78	0.00	0.00	0.00000	-153.78
7:30	36.58	36.58	190.16393	-153.58	0.00	0.00	0.00000	-153.58
7:36	36.97	36.97	190.16393	-153.20	0.00	0.00	0.00000	-153.20
7:42	37.16	37.16	190.16393	-153.00	0.00	0.00	0.00000	-153.00
7:48	37.55	37.55	190.16393	-152.62	0.00	0.00	0.00000	-152.62
7:54	37.94	37.94	190.16393	-152.23	0.00	0.00	0.00000	-152.23
8:00	38.13	38.13	190.16393	-152.03	0.00	0.00	0.00000	-152.03
8:06	40.36	40.36	190.16393	-149.81	0.00	0.00	0.00000	-149.81
8:12	44.32	44.32	190.16393	-145.84	0.00	0.00	0.00000	-145.84
8:18	48.39	48.39	190.16393	-141.78	0.00	0.00	0.00000	-141.78
8:24	52.45	52.45	190.16393	-137.71	0.00	0.00	0.00000	-137.71
8:30	56.42	56.42	190.16393	-133.74	0.00	0.00	0.00000	-133.74
8:36	60.29	60.29	190.16393	-129.87	0.00	0.00	0.00000	-129.87
8:42	64.06	64.06	190.16393	-126.10	0.00	0.00	0.00000	-126.10
8:48	67.74	67.74	190.16393	-122.42	0.00	0.00	0.00000	-122.42
8:54	71.42	71.42	190.16393	-118.74	0.00	0.00	0.00000	-118.74
9:00	75.19	75.19	190.16393	-114.97	0.00	0.00	0.00000	-114.97
9:06	80.61	80.61	190.16393	-109.55	0.00	0.00	0.00000	-109.55
9:12	87.68	87.68	190.16393	-102.49	0.00	0.00	0.00000	-102.49
9:18	94.84	94.84	190.16393	-95.32	0.00	0.00	0.00000	-95.32
9:24	102.00	102.00	190.16393	-88.16	0.00	0.00	0.00000	-88.16
9:30	109.07	109.07	190.16393	-81.10	0.00	0.00	0.00000	-81.10
9:36	158.90	158.90	190.16393	-31.26	0.00	0.00	0.00000	-31.26
9:42	251.61	251.61	190.16393	61.45	0.51	129.05	15.33745	46.11
9:48	410.52	456.63	190.16393	266.47	2.22	559.58	66.50775	199.96
9:54	728.91	928.87	190.16393	738.70	6.16	1551.28	184.37324	554.33
10:00	501.68	1056.01	190.16393	865.85	7.22	1818.28	216.10697	649.74
10:06	166.45	816.19	190.16393	626.03	5.22	1314.66	156.25070	469.78
10:12	149.03	618.81	190.16393	428.65	3.57	900.16	106.98623	321.66
10:18	131.61	453.28	190.16393	263.11	2.19	552.53	65.66996	197.44
10:24	114.19	311.64	190.16393	121.47	1.01	255.09	30.31810	91.15
10:30	96.77	187.93	190.16393	-2.24	0.00	0.00	0.00000	-2.24
10:36	85.94	85.94	190.16393	-104.23	0.00	0.00	0.00000	-104.23
10:42	81.68	81.68	190.16393	-108.49	0.00	0.00	0.00000	-108.49

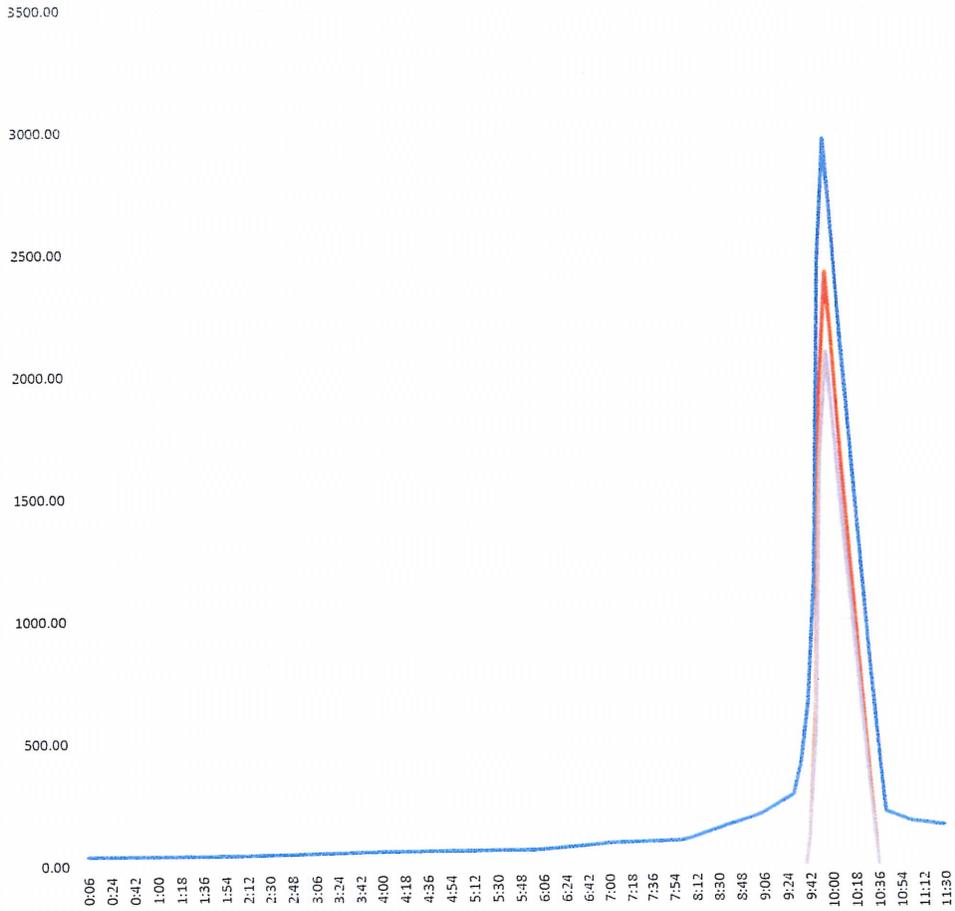
10:48	77.42	77.42	190.16393	-112.74	0.00	0.00	0.00000	-112.74
10:54	73.16	73.16	190.16393	-117.00	0.00	0.00	0.00000	-117.00
11:00	68.90	68.90	190.16393	-121.26	0.00	0.00	0.00000	-121.26
11:06	66.00	66.00	190.16393	-124.16	0.00	0.00	0.00000	-124.16
11:12	64.45	64.45	190.16393	-125.71	0.00	0.00	0.00000	-125.71
11:18	62.90	62.90	190.16393	-127.26	0.00	0.00	0.00000	-127.26
11:24	61.36	61.36	190.16393	-128.81	0.00	0.00	0.00000	-128.81
11:30	59.81	59.81	190.16393	-130.36	0.00	0.00	0.00000	-130.36



Basin D/OA/OD 24 hour 100 year tabular hydrograph								
Basin D/OA/OD Trench								
Length	190							
Width	6							
Depth	6							
Ret. Vol	2052	assumed 30% Voids	Peak volume	2091.95	Net Volume	39.95		
Time (min)	Flow (cf/20min)	cum (cf)	m Inf (cf/20m)	net volume	depth (ft)	side area (sf)	Inf side (cf/20min)	Net
0:06	44.06	44.06	541.96721	-497.91	0.00	0.00	0.00000	-497.91
0:12	44.06	44.06	541.96721	-497.91	0.00	0.00	0.00000	-497.91
0:18	44.06	44.06	541.96721	-497.91	0.00	0.00	0.00000	-497.91
0:24	44.31	44.31	541.96721	-497.66	0.00	0.00	0.00000	-497.66
0:30	44.06	44.06	541.96721	-497.91	0.00	0.00	0.00000	-497.91
0:36	44.31	44.31	541.96721	-497.66	0.00	0.00	0.00000	-497.66
0:42	44.06	44.06	541.96721	-497.91	0.00	0.00	0.00000	-497.91
0:48	44.31	44.31	541.96721	-497.66	0.00	0.00	0.00000	-497.66
0:54	44.31	44.31	541.96721	-497.66	0.00	0.00	0.00000	-497.66
1:00	44.31	44.31	541.96721	-497.66	0.00	0.00	0.00000	-497.66
1:06	44.31	44.31	541.96721	-497.66	0.00	0.00	0.00000	-497.66
1:12	44.31	44.31	541.96721	-497.66	0.00	0.00	0.00000	-497.66
1:18	44.31	44.31	541.96721	-497.66	0.00	0.00	0.00000	-497.66
1:24	44.56	44.56	541.96721	-497.40	0.00	0.00	0.00000	-497.40
1:30	44.31	44.31	541.96721	-497.66	0.00	0.00	0.00000	-497.66
1:36	44.56	44.56	541.96721	-497.40	0.00	0.00	0.00000	-497.40
1:42	44.31	44.31	541.96721	-497.66	0.00	0.00	0.00000	-497.66
1:48	44.56	44.56	541.96721	-497.40	0.00	0.00	0.00000	-497.40
1:54	44.56	44.56	541.96721	-497.40	0.00	0.00	0.00000	-497.40
2:00	44.56	44.56	541.96721	-497.40	0.00	0.00	0.00000	-497.40
2:06	44.82	44.82	541.96721	-497.15	0.00	0.00	0.00000	-497.15
2:12	45.83	45.83	541.96721	-496.14	0.00	0.00	0.00000	-496.14
2:18	46.34	46.34	541.96721	-495.63	0.00	0.00	0.00000	-495.63
2:24	47.10	47.10	541.96721	-494.87	0.00	0.00	0.00000	-494.87
2:30	47.86	47.86	541.96721	-494.11	0.00	0.00	0.00000	-494.11
2:36	48.62	48.62	541.96721	-493.35	0.00	0.00	0.00000	-493.35
2:42	49.38	49.38	541.96721	-492.59	0.00	0.00	0.00000	-492.59
2:48	50.13	50.13	541.96721	-491.83	0.00	0.00	0.00000	-491.83
2:54	50.64	50.64	541.96721	-491.33	0.00	0.00	0.00000	-491.33
3:00	51.65	51.65	541.96721	-490.31	0.00	0.00	0.00000	-490.31
3:06	52.16	52.16	541.96721	-489.81	0.00	0.00	0.00000	-489.81
3:12	53.17	53.17	541.96721	-488.79	0.00	0.00	0.00000	-488.79
3:18	53.68	53.68	541.96721	-488.29	0.00	0.00	0.00000	-488.29
3:24	54.44	54.44	541.96721	-487.53	0.00	0.00	0.00000	-487.53
3:30	55.20	55.20	541.96721	-486.77	0.00	0.00	0.00000	-486.77
3:36	55.96	55.96	541.96721	-486.01	0.00	0.00	0.00000	-486.01
3:42	56.72	56.72	541.96721	-485.25	0.00	0.00	0.00000	-485.25
3:48	57.48	57.48	541.96721	-484.49	0.00	0.00	0.00000	-484.49
3:54	57.98	57.98	541.96721	-483.98	0.00	0.00	0.00000	-483.98
4:00	59.00	59.00	541.96721	-482.97	0.00	0.00	0.00000	-482.97

4:06	59.50	59.50	541.96721	-482.46	0.00	0.00	0.00000	-482.46
4:12	59.50	59.50	541.96721	-482.46	0.00	0.00	0.00000	-482.46
4:18	60.01	60.01	541.96721	-481.96	0.00	0.00	0.00000	-481.96
4:24	60.26	60.26	541.96721	-481.70	0.00	0.00	0.00000	-481.70
4:30	60.52	60.52	541.96721	-481.45	0.00	0.00	0.00000	-481.45
4:36	60.77	60.77	541.96721	-481.20	0.00	0.00	0.00000	-481.20
4:42	61.02	61.02	541.96721	-480.94	0.00	0.00	0.00000	-480.94
4:48	61.28	61.28	541.96721	-480.69	0.00	0.00	0.00000	-480.69
4:54	61.78	61.78	541.96721	-480.18	0.00	0.00	0.00000	-480.18
5:00	61.78	61.78	541.96721	-480.18	0.00	0.00	0.00000	-480.18
5:06	62.29	62.29	541.96721	-479.68	0.00	0.00	0.00000	-479.68
5:12	62.29	62.29	541.96721	-479.68	0.00	0.00	0.00000	-479.68
5:18	62.80	62.80	541.96721	-479.17	0.00	0.00	0.00000	-479.17
5:24	63.05	63.05	541.96721	-478.92	0.00	0.00	0.00000	-478.92
5:30	63.30	63.30	541.96721	-478.67	0.00	0.00	0.00000	-478.67
5:36	63.55	63.55	541.96721	-478.41	0.00	0.00	0.00000	-478.41
5:42	63.81	63.81	541.96721	-478.16	0.00	0.00	0.00000	-478.16
5:48	64.06	64.06	541.96721	-477.91	0.00	0.00	0.00000	-477.91
5:54	64.57	64.57	541.96721	-477.40	0.00	0.00	0.00000	-477.40
6:00	64.57	64.57	541.96721	-477.40	0.00	0.00	0.00000	-477.40
6:06	66.09	66.09	541.96721	-475.88	0.00	0.00	0.00000	-475.88
6:12	69.13	69.13	541.96721	-472.84	0.00	0.00	0.00000	-472.84
6:18	71.66	71.66	541.96721	-470.31	0.00	0.00	0.00000	-470.31
6:24	74.19	74.19	541.96721	-467.78	0.00	0.00	0.00000	-467.78
6:30	77.23	77.23	541.96721	-464.74	0.00	0.00	0.00000	-464.74
6:36	79.76	79.76	541.96721	-462.21	0.00	0.00	0.00000	-462.21
6:42	82.80	82.80	541.96721	-459.17	0.00	0.00	0.00000	-459.17
6:48	85.33	85.33	541.96721	-456.64	0.00	0.00	0.00000	-456.64
6:54	87.86	87.86	541.96721	-454.10	0.00	0.00	0.00000	-454.10
7:00	90.90	90.90	541.96721	-451.07	0.00	0.00	0.00000	-451.07
7:06	92.67	92.67	541.96721	-449.29	0.00	0.00	0.00000	-449.29
7:12	93.18	93.18	541.96721	-448.79	0.00	0.00	0.00000	-448.79
7:18	94.19	94.19	541.96721	-447.77	0.00	0.00	0.00000	-447.77
7:24	95.21	95.21	541.96721	-446.76	0.00	0.00	0.00000	-446.76
7:30	95.71	95.71	541.96721	-446.26	0.00	0.00	0.00000	-446.26
7:36	96.72	96.72	541.96721	-445.24	0.00	0.00	0.00000	-445.24
7:42	97.23	97.23	541.96721	-444.74	0.00	0.00	0.00000	-444.74
7:48	98.24	98.24	541.96721	-443.72	0.00	0.00	0.00000	-443.72
7:54	99.26	99.26	541.96721	-442.71	0.00	0.00	0.00000	-442.71
8:00	99.76	99.76	541.96721	-442.20	0.00	0.00	0.00000	-442.20
8:06	105.59	105.59	541.96721	-436.38	0.00	0.00	0.00000	-436.38
8:12	115.97	115.97	541.96721	-426.00	0.00	0.00	0.00000	-426.00
8:18	126.60	126.60	541.96721	-415.36	0.00	0.00	0.00000	-415.36
8:24	137.24	137.24	541.96721	-404.73	0.00	0.00	0.00000	-404.73
8:30	147.62	147.62	541.96721	-394.35	0.00	0.00	0.00000	-394.35
8:36	157.75	157.75	541.96721	-384.22	0.00	0.00	0.00000	-384.22
8:42	167.62	167.62	541.96721	-374.34	0.00	0.00	0.00000	-374.34
8:48	177.24	177.24	541.96721	-364.72	0.00	0.00	0.00000	-364.72
8:54	186.87	186.87	541.96721	-355.10	0.00	0.00	0.00000	-355.10
9:00	196.74	196.74	541.96721	-345.23	0.00	0.00	0.00000	-345.23
9:06	210.92	210.92	541.96721	-331.05	0.00	0.00	0.00000	-331.05
9:12	229.40	229.40	541.96721	-312.56	0.00	0.00	0.00000	-312.56
9:18	248.14	248.14	541.96721	-293.83	0.00	0.00	0.00000	-293.83
9:24	266.88	266.88	541.96721	-275.09	0.00	0.00	0.00000	-275.09
9:30	285.36	285.36	541.96721	-256.60	0.00	0.00	0.00000	-256.60
9:36	415.76	415.76	541.96721	-126.20	0.00	0.00	0.00000	-126.20
9:42	658.34	658.34	541.96721	116.37	0.34	133.38	15.85278	100.52
9:48	1074.10	1174.62	541.96721	632.65	1.85	725.14	86.18498	546.46
9:54	1907.15	2453.61	541.96721	1911.65	5.59	2191.13	260.42093	1651.23
10:00	1312.62	2963.85	541.96721	2421.88	7.08	2775.96	329.92924	2091.95
10:06	435.51	2527.47	541.96721	1985.50	5.81	2275.78	270.48159	1715.02
10:12	389.94	2104.95	541.96721	1562.99	4.57	1791.49	212.92351	1350.06
10:18	344.36	1694.42	541.96721	1152.46	3.37	1320.95	156.99757	995.46
10:24	298.78	1294.24	541.96721	752.28	2.20	862.26	102.48144	649.79
10:30	253.21	903.00	541.96721	361.03	1.06	413.82	49.18305	311.85
10:36	224.85	536.70	541.96721	-5.27	0.00	0.00	0.00000	-5.27
10:42	213.71	213.71	541.96721	-328.26	0.00	0.00	0.00000	-328.26

10:48	202.56	202.56	541.96721	-339.40	0.00	0.00	0.00000	-339.40
10:54	191.42	191.42	541.96721	-350.54	0.00	0.00	0.00000	-350.54
11:00	180.28	180.28	541.96721	-361.68	0.00	0.00	0.00000	-361.68
11:06	172.69	172.69	541.96721	-369.28	0.00	0.00	0.00000	-369.28
11:12	168.64	168.64	541.96721	-373.33	0.00	0.00	0.00000	-373.33
11:18	164.58	164.58	541.96721	-377.38	0.00	0.00	0.00000	-377.38
11:24	160.53	160.53	541.96721	-381.43	0.00	0.00	0.00000	-381.43
11:30	156.48	156.48	541.96721	-385.49	0.00	0.00	0.00000	-385.49



LUMEN design llc

5201 east northern lights blvd suite 1S anchorage, alaska 99508

March 16, 2016

Sandra Garley
Department of Community Development
645 East Cope Industrial Way
Palmer, Alaska 99645

Received

MAR 18 2016

City of Palmer

Dear Sandra,

This letter is being written in response to a decision by Ronald L. Baird, the hearing officer for the appeal of the Mountain Rose Condominium Association to Palmer Planning and Zoning Commission Resolution 15-008(AM). In his decision, the hearing officer contends that while the planning staff report implies that the proposed PUD meets the spirit of the Palmer Comprehensive Plan, the issue is not addressed with adequate specificity in the application.

Community planning documents are by nature aspirational. They describe in general terms community problems and possible solutions. They attempt to paint a picture of how local leaders hope their community will look in the future. Because such documents are necessarily broad in scope or view, it can be difficult to develop an acceptable check list that proves that all or some sufficient number of the goals stated in the comprehensive plan are being met by a single project. Many, perhaps most, of the issues discussed in the Palmer Comprehensive Plan address issues entirely unrelated to this PUD application.

An overview of the Palmer Comprehensive Plan is found in the Executive Summary. This seems a good place to begin. Text from the Palmer plan is italicized. Paragraphs and bullet points have been numbered for easier reference.

COMMUNITY VISION (Chapter 3)

The overall vision for the community is to:

"Keep Palmer a vital community, a place that seeks opportunities for growth, and retains what is best about Palmer's history and traditions."

Specific priorities include:

- 1. Keep focused on City fundamental responsibilities: roads, police and fire, water and sewer.*
- 2. Facilitate the expansion of the local economy and local business, so residents of Palmer and surrounding areas can find more of the goods, services and jobs they need in Palmer.*
- 3. Strengthen downtown Palmer – "the heart of community public life."*
- 4. Promote and enhance what is unique about Palmer to benefit residents and attract visitors.*
- 5. Encourage high quality, attractive development, with ready access to parks and green space.*
- 6. Improve connections within and out of town, by road, trail and transit.*
- 7. Accept and encourage growth, but guide development to benefit the community and maintain what is special about Palmer.*

Comments

Items 1, 2, 3 and 7 appear to address issues immaterial to a review of the proposed PUD. Goals described in items 4, 5, and 6 can be applied to a review of the project. The site design and the building design do refer to and enhance what's unique about Palmer, do provide attractive design elements, additional green space and additional trail connections. This will be discussed in detail at the land use section, chapter 6.

PUBLIC SERVICES, FACILITIES & INFRASTRUCTURE (Chapter 4)

Cities like Palmer provide a wide range of services. The services addressed under this chapter, including police, fire, water and sewer, along with the local road system, are the core of the City's responsibilities. The City of Palmer provides a high level of public services and facilities, including an airport; community water, sewer and stormwater service; and fire, police and emergency services. The City needs to continue to efficiently maintain and expand these services as population and community boundaries grow.

Particular challenges for the future include:

- 1. Overall – Continue to strengthen the City's infrastructure, to meet the needs of a growing community.*
- 2. Coordination - Work cooperatively with the Matanuska Susitna Borough to coordinate expansion of infrastructure, roads, and new development within the City of Palmer Sewer Service District.*
- 3. Sewer – The City's sewer system has the capacity to meet expected growth over the next 5-10 years. Further out, the community will have to invest \$20-30 million to expand the plant's capacity and reduce time required for treatment.*
- 4. Water – The City has sufficient well capacity to meet future needs, but in the next 5-10 years will need to construct several major water mains to serve predicted growth. Two specific needs are a main in the Inner Springer Loop area (approximately \$5 million), and service to the area north of the new regional hospital (approximately \$10 million).*
- 5. Stormwater – More development and impervious surfaces will require more effort to manage stormwater flows. The plan supports increasing open space in future developments to promote on-site infiltration, reduce public storm water management costs, and as a side benefit, provide open space for recreation.*
- 6. Fire and Police – Work to maintain quality service to new developments within current City boundaries and in outlying areas. For fire, one priority is to improve fire protection downtown, where the concentration of structures creates higher risks. In the longer term, the community will have to confront the challenge of providing quality fire service outside the existing town boundaries. In these areas, providing fire service will cost more than within the existing town, due to lower densities and the need to build new water mains.*

Comments

Items 1, 2, 3 and 6 appear to address issues immaterial to a review of the proposed PUD.

Item 4. Water

The proposed PUD creates a mainline extension through the site from a 12 inch waterline at Commercial Drive to a 6 inch line on Cope Industrial Way. This provides addition water supply to the line on Cope Industrial Way. It also creates a loop which will give the water utility additional options. This is work done at the owner's expense.

Item 5. Stormwater

It is not practical to fully design any portion of a development project at the PUD application stage. It is possible to describe intent. The intention is to maintain all runoff on the PUD site. All VOA/VRS

projects we've been associated with provide underground and above ground runoff capture. Some people call them rain gardens. Some people call them infiltration galleries. The intention is to solve any existing problems. The development team does not expect to receive a building permit until all final engineered plans have been reviewed and approved. At that point we will have made a significant contribution to storm and surface drainage issues on and around the site.

TRANSPORTATION (Chapter 5)

Plan policies, summarized below, will improve the range and quality of Palmer transportation options, to better serve current needs and respond to projected growth.

Shape the Character and Use of the Glenn Highway - The Glenn Highway carries steadily increasing traffic, but little of this traffic continues past the community. Consequently, the challenge is to disperse traffic within the community, rather than move traffic through Palmer. Plan actions to improve the Glenn Highway are listed below.

- 1. Create an arterial-level street on the north-south section line that is currently partially occupied by Hemmer Rd., Blunck St., and North Werner Rd. This route will connect the Glenn Highway with development along the Palmer-Wasilla Highway and Bogard Road and avoid the congested intersection of the Glenn and Palmer-Wasilla Highways.*
- 2. Change the character of the Glenn Highway in Palmer. Establish a limited access, boulevard style road with a landscaped median and right-of-way, and with improved pedestrian and vehicular links between the east and west sides of the highway.*
- 3. Provide access to development with perpendicular access roads rather than direct driveway access or frontage roads.*

Improve the Palmer Road System to Meet Anticipated Growth.

The plan proposes two new east-west collector level streets:

- 1. Extend Bogard Road east to connect with the Glenn Highway and continue into the greater downtown area.*
- 2. Connect Dogwood Avenue to the east over the Alaska Railroad and connecting to the west across the Glenn Highway to an extended Felton Street.*
- 3. Work with the State of Alaska and the Matanuska Susitna Borough to reserve land for other key transportation-related improvements, including reserving routes for collector streets on approximately a ½ mile grid, and reserving or acquiring land for expansion of key intersections.*
- 4. Maintain and Improve Community Sidewalks and Trails – A good trail system is an increasingly valued element of successful communities, supporting quality of life, economic and circulation goals. The plan identifies needed new and improved trails and sidewalks. Two priorities are upgrades and better maintenance of downtown sidewalks and a trail along the railroad right-of-way from the State Fairgrounds through the City and north to Sutton.*
- 5. Work on a Regional Basis to Expand and Improve Transit Service – Increasing housing densities and climbing gas prices will increase the feasibility and desirability of transit improvements. The plan recommends continued support of these services.*

Comments

The items in this chapter appear to address issues immaterial to a review of the proposed PUD with the exception of item 4. A careful review of the project site plan reveals careful thought about pedestrian movement. Streets have sidewalks. In addition, there is a set of interior sidewalks that allow people to move through the site away from vehicle traffic, and a connection to an existing trail along the north property boundary.

LAND USE (Chapter 6)

The Land Use Chapter includes ten goals to guide growth to make Palmer an increasingly attractive and successful place to live, work, invest and visit. The first goal of this chapter sets out the desired, overall pattern of community land use; the remainder of the chapter goes into more detail on the specific goals for individual land uses. Highlights of the chapter include:

- 1. Maintain the quality of existing neighborhoods, and provide space for diversity of new residential uses, including housing for the upper end of the housing market, higher density housing in around downtown, and housing for seniors.*
- 2. Ensure Palmer remains the institutional center of the Borough. Work proactively to help institutions find space for needed expansion, for example, offices of the Matanuska Susitna Borough and the State Court, so Palmer remains the Borough's institutional hub.*
- 3. Encourage expansion of commercial uses, primarily in downtown and along the Palmer Wasilla Highway and along the Glenn Highway.*
- 4. Work with the planned Business Improvement District, to help maintain and enhance downtown as a compact, walkable, dynamic, mixed use center.*
- 5. Encourage expansion of industrial uses while guiding this type of use to reasonably mitigate impacts on surrounding uses.*
- 6. Coordinate planning for transportation and land use, so residents and businesses have convenient access to places of work, commercial services, schools and other public facilities, by vehicle, sidewalk and trail.*
- 7. Maintain and improve a high quality system of trails, parks, and open space and other recreation amenities.*
- 8. Maintain a clear sense of town entry, with open space and/or less developed areas separating Palmer from surrounding communities.*
- 9. Support Palmer's agricultural heritage and history and work so it continues to be visible.*
- 10. Guide development so there is the right balance of residential and commercial uses, to ensure the City maintains its fiscal health.*

The Comprehensive Plan calls for an active, phased approach to annexation, focused on provision of high quality services, and advance land use and infrastructure planning, including cooperative planning with the Borough. Ultimately, the City of Palmer is expected to expand to the existing sewer service area boundary, which extends 6-7 miles west and south of the existing City limits.

General Comments on Land Use Planning

For some time, the prevailing development strategy in our part of the world can be described with the following sentence. "Let's see how many duplexes we can jam onto an acre of land." If the project is for more affluent buyers, the duplexes are a little bigger and a little further apart. The buildings are all the same. The result is plain and utterly predictable.

This PUD proposes something completely different. The primary street is deliberately laid out on axis with a spectacular view of Pioneer Peak. The side streets are on axis with Matanuska Peak. These are your views as you move through the property. Streets also create view corridors for the residences. Every effort is made to take advantage of the spectacular Palmer setting.

The buildings themselves are not at all predictable. There are a variety of unit types and sizes. The units are assembled in different ways to also produce a variety of building sizes. The intent is to avoid large building blocks or repetitive small buildings. Roof lines are high and low within the same buildings.

The idea is to keep the scale of the pieces small so that the scale of the project feels appropriate to Palmer. The changing roof lines and building types helps create village atmosphere.

The spaces between the buildings are connected by an interior path system. This allows a series of pocket parks scattered across the site. There are community gardens, a playground, recreational areas, and a community center with full time property management. All VOA/VRS properties have a significant landscape design budget, as evidenced in the concept drawings.

The site itself is an infill site, ideally suited to its purpose. It is adjacent to municipal recreation facilities. It is within walking distance to schools and senior centers. The site entrance on Cope Industrial Way is 9/10s of a mile from downtown Palmer. The proposed roads are built to municipal standards, with curb and gutter, sidewalks, and storm drainage provision. All units have garages, which helps keep the site clean.

With respect to Land Use Planning Specific Items

Items 2, 3, 4, 5, 8, 9, and 10 appear to address issues immaterial to a review of the proposed PUD..

Item 1.

It seems obvious that this project maintains or exceeds the quality of adjacent properties. The site design contains amenities that exceed anything nearby, perhaps any other housing development in Palmer.

Items 6 and 7.

Interior pedestrian routes support the goal of easy pedestrian movement through town, and could be incorporated into a larger town path network in future years.

ECONOMIC VITALITY (Chapter 7)

Palmer benefits from a diverse economy. This includes institutional and office uses, local-serving retail and service businesses, and modest contributions from tourism and agriculture. While the private sector drives the community's economy, the City can play a role in keeping the economy strong and diverse. Strategies to reach this goal capitalize on the community's history and small town character, and encourage high standards for development.

- 1. Strengthen Palmer's competitiveness as the region's institutional center - Work with institutions to understand and meet their needs, including, where possible, help secure land needed for growth. Develop and implement specific strategies with key institutions.*
- 2. Encourage expansion of high-tech and research-related economic sectors and other well-paid professional jobs --*
- 3. Encourage growth in these sectors, by maintaining and improving Palmer's high quality of life, and ensuring space is available for forms of economic development that provide good jobs that fit well with community character. In particular, encourage research-related economic activity linked to University of Alaska facilities located in the Palmer area.*
- 4. Strengthen Palmer's role as a place to shop for Palmer residents and visitors - Zone sufficient land for commercial growth, and support continued public investments in infrastructure in commercial areas.*
- 5. Strengthen Palmer as a tourism destination - Palmer has solid potential to attract travelers and more could be done to take advantage of this potential. Over time, the community could become both a destination in its own right and a "gateway community" providing a base for Hatcher Pass skiing, and trips into the spectacular backcountry that surrounds Palmer. Downtown and trail improvements are the keys to this transformation.*

6. *Do more to market Palmer's Attractions - Palmer's distinct character is a real economic asset, derived from the community's unique natural setting, buildings, views, history, people, and stories. The City should actively support efforts by the Greater Palmer Chamber of Commerce, the Matanuska-Susitna Convention and Visitors Bureau and others to better bring out and promote this character.*
7. *The community should distill and promote the "Palmer brand" in signage, downtown attractions, the community website, and all marketing material. Palmer can increase the benefits of its historic character by further marketing and improving the City's designated National Historic District and the Glenn Highway National Scenic Byway. One additional, longer term possibility would be to establish Palmer as the centerpiece of a National Heritage Area, which would provide recognition and more funding for promotion.*

Comments

The items in this chapter appear to address issues immaterial to a review of the proposed PUD.

PARKS, RECREATION & CULTURE (Chapter 8)

The plan identifies the need to maintain and improve public parks and open spaces throughout the community. As the amount and intensity of development increases, this strategy will help keep Palmer a desirable place to live and work. Specific goals include:

1. *Establish, improve, and maintain city-wide parks and recreation facilities and programs - Palmer already has an excellent system of park and recreation facilities. Two identified unmet needs are a skateboard park and additional fields for sports like soccer. Palmer will also need to increase park maintenance as the park system expands and promote programs to increase volunteer maintenance of parks. The City also supports creation of a youth council and eventually a youth center.*
2. *Obtain funding for and complete the urban revitalization project in downtown - Establish, improve, and maintain a range of downtown open spaces, sidewalks and parks.*
3. *Enhance area-wide recreational trail systems - Improve sidewalk and trail connections between residential areas, downtown, schools, institutional areas, recreational areas.*
4. *Continue to improve local arts and cultural opportunities - In the same way that the southern Borough increasingly supports new scales of commercial uses, the area can begin to support a new level of quality of cultural facilities. Palmer should work to be the region's cultural center, including working towards development of a multipurpose arts center.*

Comments

The items in this chapter appear to address issues immaterial to a review of the proposed PUD with the exception of item 2, which is discussed in Land Use Chapter 6 above.

SUMMARY

After a careful review of the 2006 Palmer Comprehensive Plan, we can find no instance where this project is at odds with the goals of the planning document.

Ron Bateman, Principal
Lumen Design



Sandra Garley
Director

David Meneses
Building Inspector

Beth Skow
Library Director

Mail: 231 W. Evergreen Ave.
Location: 645 E. Cope Industrial Way
Palmer, AK 99645-6748
Phone: 907-745-3709
Fax: 907-745-5443
www.cityofpalmer.org

March 28, 2016

Dear Property Owner:

The Palmer Planning and Zoning Commission will convene a Special Meeting on Thursday, April 14, 2016 at 7:00 p.m., in the City Council Chambers located at 231 West Evergreen Avenue, Palmer, Alaska to review three issues remanded to the Commission for consideration by the Hearing Officer following an appeal regarding the preliminary approval of the Planned Unit Development application for Tax Parcel C8 in Section 4, Township 17 North, Range 2 East, Seward Meridian, initiated by Ron Bateman of Lumen Design, LLC on behalf of the property owner.

The property in question is generally located south of E. Cope Industrial Way and is adjacent to the MTA Events Center and Palmer Job Corps site in Palmer, Alaska. This property is currently zoned R-1, Single-family Residential. The PUD would permit the construction of 88 family rental housing units on this 9.3 acre parcel. The map attached to this notice indicates the location of the subject parcel. For additional information on the PUD, Planned Unit Development, please refer to Palmer Municipal Code Chapter 17.84 – Planned Unit Development (PUD), located online at: www.cityofpalmer.org.

During the Special Meeting of April 14, 2016 the Commission will hold a Public Hearing to consider the three remanded issues and to allow for public comments on the remanded issues. Set forth below are excerpts from the Hearing Officer's Decision on the three items remanded to the Planning and Zoning Commission:

1. "Drainage – This aspect of the Commission's decision is reversed and remanded for further consideration as discussed in section 7 of this decision (enclosed);
2. The PUD must be shown to not overload the street system or result in unsafe access or danger to pedestrians and must be in conformance with the City Traffic Study – This aspect of the Commission's decision is reversed and remanded for further consideration as discussed in section 7 of this decision; and
3. Consistency with the City Comprehensive Development Plan – This aspect of the Commission's decision is reversed and remanded for further consideration as discussed in section 7 of this decision."

A copy of the Hearing Officer's Decision is available online under the City Departments/Boards & Commissions/Planning and Zoning Commission/Planning and Zoning Commission Meeting Packets/2016 Planning and Zoning Commission Meeting Packets.

If you wish to comment on this issue, you may do so by attending the public hearing or by providing written comments to the Planning and Zoning Commission by April 8, 2016. Written comments may be mailed to Department of Community Development, 645 E. Cope Industrial Way, Palmer, Alaska, faxed to 745-5443 or emailed to me at: kmclure@palmerak.org.

Sincerely,

Kimberly A. McClure

Kimberly McClure,
Planning & Code Compliance Technician

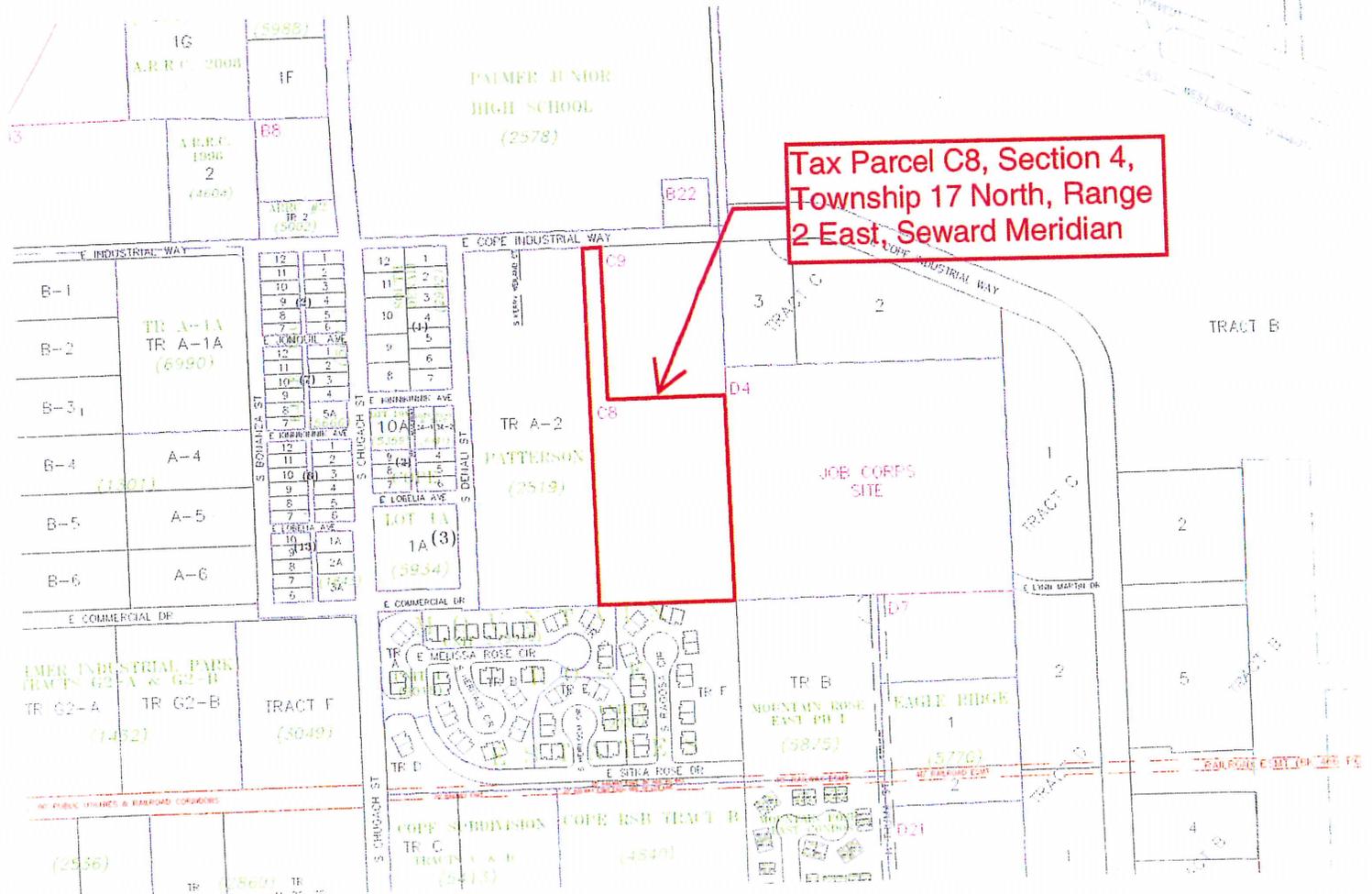


Comments on remanded issues:

Name: _____

Address: _____

VICINITY MAP



report.⁷² Contrary to VRS's assertion⁷³, there is no "Finding of Fact 13" directed at this topic.

The Commission failed to consider the consistency of the PUD with any comprehensive plan which was required by the ordinance and its decision was arbitrary in this respect. There is no substantial evidence in the record supporting any conclusion about consistency with any plan. This aspect of the Commission's decision is reversed and remanded for further consideration as discussed in section 7 of this decision.

7. Decision and Remedy

The Commission's decision to approve the PUD is affirmed in part and reversed and remanded in part.⁷⁴ The decision of the Hearing Officer is based on conclusions of law and no findings of fact by the Hearing Officer are required.⁷⁵ This decision is not a final decision for purposes of judicial review but will become final following the Commission's decision on remand, provided no appeal is again timely filed to the Hearing Officer.⁷⁶ All matters not remanded to the Commission will become final for purposes of judicial review at that time. The parties will have 30 calendar days from the expiration of said time period to appeal to the superior court.⁷⁷

⁷² R. Tab

⁷³ Appellee Brief at 14.

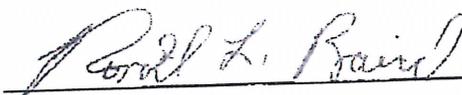
⁷⁴ PMC 17.98.080(B).

⁷⁵ PMC 17.98.080(C).

⁷⁶ PMC 17.98.080(E).

⁷⁷ PMC 17.98.080(F).

On remand, the matters set forth above on which the Commission has been affirmed shall not be reopened or reconsidered. As to the issues on which remand has been ordered discussed in parts 5(C)(2), 5(D) and 6 of this decision, above, there is insufficient evidence in the record on these material issues to the decision of the case.⁷⁸ The applicant shall be allowed a reasonable time to be specified by the Director to supplement and revise its application to address these issues. Staff shall circulate the supplemented and revised application for comment as would be done with a new application. A second public hearing limited to these matters shall be noticed to the public in accordance with PMC 17.80.030. Staff shall prepare a report. The Commission shall hold the hearing and adopt a written decision limited to the specified matters. The Commission shall act on the case in accordance with this decision in the minimum time allowed by the circumstances.⁷⁹ This case shall take precedence over all other matters on the Commission's agenda except other matters on remand from a hearing officer.⁸⁰



Ronald L. Baird
Hearing Officer
February 17, 2016

⁷⁸ PMC 17.98.090 (A).

⁷⁹ PMC 17.98.090(B).

⁸⁰ *Id.*

- ✓ RICHMOND GORDON E & CYNTH
PO BOX 3104
PALMER, AK 99645-3104
- ✓ BENSON DONALD J & SHARON
JOHNSON DEANA J
2503 WINTERCREST CIR
ANCHORAGE, AK 99516-1996
- ✓ ILIFF CHAS H & DORIS B
315 E MELISSA ROSE CIR
PALMER, AK 99645-6780
- ✓ KUHN LEON J
BRUNNHÖELZL-KUHN BARBARA
430A E MELISSA ROSE CIR
PALMER, AK 99645-6782
- ✓ EHMANN JOSEPHINE E
PO BOX 2048
PALMER, AK 99645-2048
- ✓ KRAUSE RICHARD J & BETTY
360A MELISSA ROSE CIR
PALMER, AK 99645-6779
- ✓ LINN FAMILY TRUST
PO BOX 276
PALMER, AK 99645-0276
- ✓ WILLIAMS PHYLLIS
1735A S HERITAGE CIR
PALMER, AK 99645
- ✓ ELIZARDE TIIU K
1735B S HERITAGE CIR
PALMER, AK 99645
- ✓ WOODINGS HELEN D
1745A S HERITAGE CIR
PALMER, AK 99645
- ✓ BROWN JAMES E & SHERRILL
901 S GUNNYSACK RD
PALMER, AK 99645-9020
- ✓ IMLACH REV TRUST
IMLACH WILLIAM E & CAROL
PO BOX 872526
WASILLA, AK 99687-2526
- ✓ SUMMERS DARRELL N & JESSI
1750 S HERITAGE CIR
PALMER, AK 99645-6783
- ✓ ANDERSON MARY ANN
1740A S HERITAGE CIR
PALMER, AK 99645
- ✓ NILSEN ROBERT A & JOAN TR
NILSEN FAMILY TR
1740 S HERITAGE CIR
PALMER, AK 99645-6783
- ✓ HAYDEN JOHN L & ROSE MARIE
1730A S HERITAGE CIR
PALMER, AK 99645
- ✓ KEYPORT PHYLLIS M
1730 B S HERITAGE CIR
PALMER, AK 99645-6783
- ✓ JENSEN ANTHONY M
PO BOX 931
PALMER, AK 99645-0931
- ✓ MCRAE MARILYN LVG TR TRE
1720B S HERITAGE CIR
PALMER, AK 99645
- ✓ MCDANIEL JAY & TRACY
PO BOX 3947
PALMER, AK 99645
- ✓ YOULD ERIC PHILIP & P K
PO BOX 3415
PALMER, AK 99645-3415
- ✓ HEMMER AVE G
335A E MELISSA ROSE CIR
PALMER, AK 99645
- ✓ HAMMOND JANE H
335 E MELISSA ROSE CIR
PALMER, AK 99645
- ✓ FIELDS BURTON & BETTY FAM
FIELDS BURTON C & BETTY J
355A MELISSA ROSE CIR
PALMER, AK 99645-6780
- ✓ MARTIN CHARLES E
CLARK-MARTIN SHARON R
14800 BUFFALO ST
ANCHORAGE, AK 99516-4210
- ✓ MIELKE EVELYN TRUST
375A E MELISSA ROSE CIR
PALMER, AK 99645-6780
- ✓ CRAIG EILEEN M
375B E MELISSA ROSE CIR
PALMER, AK 99645
- ✓ RUCAS LARRY & EVELYN LVG
415A E MELISSA ROSE CIR
PALMER, AK 99645-6782
- ✓ FAUS GERALDINE D
415 E MELISSA ROSE CIR
PALMER, AK 99645
- ✓ FOSTER MARY SUE
FOSTER WM R EST
445A E MELISSA ROSE CIR
PALMER, AK 99645

✓ MOORMAN CAROL
445 E MELISSA ROSE CIR
PALMER, AK 99645

✓ TABOR VIRGINIA S
475A E MELISSA ROSE CIR
PALMER, AK 99645

✓ COLLIER PATRICIA A
475B MELISSA ROSE CIR
PALMER, AK 99645

✓ TEIGEN BURTON C & ROSANN A
470A E MELISSA ROSE CIR
PALMER, AK 99645

✓ LECKWOLD WELDON & PHYLLIS
PO BOX 1008
PALMER, AK 99645-1008

✓ MORBERG KEITH R
PO BOX 220588
ANCHORAGE, AK 99522-0588

✓ SOULAK CHRISTINE WOODS
320 E SITKA ROSE DR
PALMER, AK 99645-6787

✓ MITCHELL WILLIAM W
PO BOX 137
PALMER, AK 99645-0137

✓ STROUSE CAROL M
PO BOX 354
PALMER, AK 99645-0354

✓ LITTLE GLEN H & NANCY L
1765A S HEIRLOOM CIR
PALMER, AK 99645

✓ LITTLE THOS G & BONNIE E
1765B S HEIRLOOM CIR
PALMER, AK 99645

✓ RUSSELL LINDA C
1745 S HEIRLOOM CIR
PALMER, AK 99645-6789

✓ RUPPERT DELBERT LEE
1745 S HEIRLOOM CIR
PALMER, AK 99645-6789

✓ TUCKER EARL J & JUDY R
1740A S HEIRLOOM CIR
PALMER, AK 99645

✓ BROWN RICHARD W FAM TR
1740B S HEIRLOOM CIR
PALMER, AK 99645-6789

✓ GOODRICH ELINOR R DEC TRU
GOODRICH ELINOR R TRE
1760A S HEIRLOOM CIR
PALMER, AK 99645

✓ BAUER BONNIE R
1760B S HEIRLOOM CIRCLE
PALMER, AK 99645

✓ LICHT PHILLIP D SR & DIAN
445 SITKA ROSE CIR
PALMER, AK 99645-6788

✓ DODDS DONALD S & THELMA L
445B E SITKA DR
PALMER, AK 99645

✓ SCHNEIDER D S & COHEN D L
1785 S RAGOSA CIR
PALMER, AK 99645-6786

✓ JOHNSON GRACE O
1785B S RAGOSA CIR
PALMER, AK 99645-6786

✓ WARDMAN R JAS
1765A S RAGOSA CIR
PALMER, AK 99645

✓ DEVILBISS WM P TRUST
2300 N AURORA LN
PALMER, AK 99645

✓ CALL JAMES M
3705 ARCTIC BLVD
ANCHORAGE, AK 99503

✓ BERGET LINDA
1745 S RAGOSA CIR
PALMER, AK 99645-6786

✓ PETRIE CATHRYN
PO BOX 298856
WASILLA, AK 99629-8856

✓ DOGGETT BETTY J
PO BOX 2567
PALMER, AK 99645-2567

✓ LISENBY JOS G & MARYANN M
1715A S RAGOSA CIR
PALMER, AK 99645

✓ TRUESDELL LEE G & ANTONIA
1715 S RAGOSA CIR
PALMER, AK 99645

✓ WILSON H & A LVG TR
WILSON HAROLD L & AGNES L
1710A S RAGOSA CIR
PALMER, AK 99645-6786

✓ WILSON H & A LVG TR
WILSON HAROLD L & AGNES L
1710A S RAGOSA CIR
PALMER, AK 99645-6786

✓ GRIFFIN JANE R TR/TRE
1720A S RAGOSA CIR
PALMER, AK 99645-6786

✓ MOORE WM N & SUSAN I
PO BOX 4336
PALMER, AK 99645-4336

✓ ROBERTSON DIVINYI TR
DIVINYI CARL A & DIVINYI
1740 S RAGOSA CIR
PALMER, AK 99645-6786

✓ CHATTERTON SANDRA
1740 S RAGOSA CIR
PALMER, AK 99645-6786

✓ ORMOND SARA
1760A S RAGOSA CIR
PALMER, AK 99645-6786

✓ RIBELIN FAMILY TR
RIBELIN ROBT F TRE RIBELI
1760B S RAGOSA CIR
PALMER, AK 99645

✓ KEOGH WARREN J & SALLY A
PO BOX 1166
CHICKALOON, AK 99674-1166

✓ MOUNTAIN ROSE EST CONDO
ASSN INC
1780B S RAGOSA CIR
PALMER, AK 99645

✓ PICALLO ROSEMARY
681 E PRIMROSE CIR
PALMER, AK 99645

✓ BROWN LESLIE & PAULA
690 E PRIMROSE CIR
PALMER, AK 99645

✓ FOLEY HAROLD C JR
1150 S COLONY WAY
PALMER, AK 99645-6967

✓ STROBLE CALVIN L & CONNIE
1150 S COLONY WAY STE 3
PALMER, AK 99645-6967

✓ FOSTER L & M REV LIV TR
TRUSTEES
1150 S COLONY WAY
PALMER, AK 99645-6967

✓ SCHOMMER 1994 TRUST
SCHOMMER JOHN G TRE
PO BOX 417
PALMER, AK 99645-0417

✓ ALLEE SALLY G
691B E PRIMROSE CIR
PALMER, AK 99645-6825

✓ TRIBBLE SAMUEL D & GILLIA
691 E PRIMROSE CIR
PALMER, AK 99645

✓ CHAPMAN JEAN M
620 E PRIMROSE CIR
PALMER, AK 99645

✓ PRICE KENNETH WAYNE
PRICE MICHELE MARY
681 E PRIMROSE CIR
PALMER, AK 99645-6825

✓ BOSTROM EDWIN & AGNES
610 E PRIMROSE CIR
PALMER, AK 99645-6825

✓ PETERS LINDA K
610 E PRIMROSE CIR
PALMER, AK 99645

✓ BRUBAKER JOHN D & LOUISE
602 E PRIMROSE CIR
PALMER, AK 99645

✓ GARTRELL WM S & SHARON K
PO BOX 1053
PALMER, AK 99645-1053

✓ KOTZIAN LAWRENCE O
KOTZIAN MERRILEE D
680 E PRIMROSE CIR
PALMER, AK 99645

✓ KOSTLIN MARGOT
680 E PRIMROSE CIR
PALMER, AK 99645

✓ SIMMONS WAYNE & JOYCE LVG
640 E PRIMROSE CIR
PALMER, AK 99645

✓ STADEM LOUIS M & KATHLEEN
PO BOX 3762
PALMER, AK 99645-3762

✓ BISCHOFF HERBERT G
SCHAKEL JACQUELINE A
630 E PRIMROSE CIR
PALMER, AK 99645-6825

✓ SHAW ROBERT & SUSAN A
650 E PRIMROSE CIR
PALMER, AK 99645

✓ INGALLS DAVID & SANDRA
PO BOX 645
PALMER, AK 99645-0645

✓ EDWARDS JOHN & JAUNA
660A E PRIMROSE CIR
PALMER, AK 99645-6825

✓ MARTINELLI MICHAEL
DESNOYERS JANE
PO BOX 2161
PALMER, AK 99645-2161

✓ GLEASON JAMES F & LORNA
671 E PRIMROSE CIR
PALMER, AK 99645-6825

✓ MATHEWS DAVID L
621 E PRIMROSE CIR
PALMER, AK 99645

✓ BURKHART ROY J
189 E NELSON AVE
WASILLA, AK 99654

✓ HOUCK MARY JO
601A E PRIMROSE CIR
PALMER, AK 99645-6825

✓ HERRMAN GEORGE M & DARLEN
601 E PRIMROSE CIR
PALMER, AK 99645-6825

✓ WISE JOANN C
670 E PRIMROSE CIR
PALMER, AK 99645

✓ PETERSEN RONALD & NELLY
670 E PRIMROSE CIR
PALMER, AK 99645

✓ GOODRICH MONTE LVG TR
STANSELL GEORGIA LVG TR
1226 S CHUGACH ST
PALMER, AK 99645

✓ EKLUTNA PURCHASERS
HC 04 BOX 7785
PALMER, AK 99645

✓ SCHERIEBLE JAS M & CHERI
PO BOX 52
PALMER, AK 99645-0052

✓ RICHARDS FAMILY TR RICHAR
BLAKE B J SMITH J D JR NI
14630 E GUNNYSACK RD
PALMER, AK 99645-9075

✓ NEWMAN THOMAS S & JAN K
15556 E TEELING CIR
PALMER, AK 99645-8681

✓ MATANUSKA-SUSITNA BOROUGH
SCHOOL/JOB CORP
350 E DAHLIA AVE
PALMER, AK 99645-6488

✓ MCSORLEY LUCILLE M
1725 N THUMA ST
PALMER, AK 99645

✓ LEWIS BRADLEY D
PO BOX 1225
PALMER, AK 99645-1225

✓ VERSATUBE CORP
4755 ROCHESTER RD
TROY, MI 48085

✓ ENSTAR NATURAL GAS
SEMCO ENERGY INC
PO BOX 190288
ANCHORAGE, AK 99519-0288

✓ ENSTAR NATURAL GAS
SEMCO ENERGY INC
PO BOX 190288
ANCHORAGE, AK 99519-0288

✓ SEVILLA SUSAN W
644 8TH ST
SPRINGFIELD, OR 97477-4727

✓ TAYLOR KELSEY M
CRITZER MEGAN C
1612 S CHUGACH ST
PALMER, AK 99645-6781

✓ MCSORLEY LUCILLE M
1725 N THUMA ST
PALMER, AK 99645-6771

✓ HERMON CAMILLE MARIE
461 E REMPEL AVE
PALMER, AK 99645-6634

✓ PALMER CITY OF
231 W EVERGREEN AVE
PALMER, AK 99645

✓ PALMER CITY OF
231 W EVERGREEN AVE
PALMER, AK 99645

✓ PALMER CITY OF
231 W EVERGREEN AVE
PALMER, AK 99645

✓ PALMER CITY OF
231 W EVERGREEN AVE
PALMER, AK 99645

✓ KEPHART JACKIE JAN TR TRE
225 AURORA DR
FAIRBANKS, AK 99709-4160

✓ BAKER BRUCE L & IRENE
PO BOX 732
COOPER LANDING, AK 99572-0732

✓ BERGERON CHRISTOPHER
PO BOX 1713
VALDEZ, AK 99686-1713

✓ GIESE JASON A
406 E REMPEL AVE
PALMER, AK 99645

✓ RUTHERFORD LINDA J
432 E REMPEL AVE
PALMER, AK 99645-6634

✓ LANDECK JASON & SEBRINA
442 E REMPEL AVE
PALMER, AK 99645-6634

✓ BROWN BRUCE L
446 E REMPEL AVE
PALMER, AK 99645

✓ DAY MATTHEW J & ANDREA M
460 E REMPEL AVE
PALMER, AK 99645-6634

✓ MUNSON ROBERT J
470 E REMPEL AVE
PALMER, AK 99645-6634

✓ ST MICHAEL'S PARISH CORP
ARCHDIOCESE OF ANCH
432 E FIREWEED AVE
PALMER, AK 99645

✓ DELANEY LESLIE E DEC OF T
DELANEY LESLIE E TRE
490 E REMPEL AVE
PALMER, AK 99645

✓ PALMER CITY OF
231 W EVERGREEN AVE
PALMER, AK 99645

✓ MATANUSKA-SUSITNA BOROUGH
SCHOOL/PALMER MIDDLE
350 E DAHLIA AVE
PALMER, AK 99645-6488

✓ CPD ALASKA LLC
201 ARCTIC SLOPE AVE
ANCHORAGE, AK 99518-3033

✓ WOODS NOEL & ANITA JEAN H
PO BOX 827
PALMER, AK 99645-0827

✓ WOODS NOEL & ANITA JEAN H
PO BOX 827
PALMER, AK 99645-0827

✓ WOODS NOEL & ANITA JEAN H
PO BOX 827
PALMER, AK 99645-0827

✓ KNAPP JOHN C & CYNTHIA L
PO BOX 96
WEST YELLOWSTONE, MT 59758

✓ WOODS NOEL & ANITA JEAN H
PO BOX 827
PALMER, AK 99645-0827

✓ WOODS NOEL & ANITA JEAN H
PO BOX 827
PALMER, AK 99645-0827

✓ LEWIS HAROLD W SR & V M
1438 S DENALI ST
PALMER, AK 99645

✓ MILLER GERALD R & FAYE M
1439 S CHUGACH ST
PALMER, AK 99645

✓ NIEBRUGGE R & G LVG TR
NIEBRUGGE GAIL E TRE
2528 N POINTE CIR
WASILLA, AK 99654

✓ ROTZ LYNN
4934 STEELHEAD ST
JUNEAU, AK 99801-8728

✓ WOODS NOEL & ANITA JEAN H
PO BOX 827
PALMER, AK 99645-0827

✓ WOODS NOEL & ANITA JEAN H
PO BOX 827
PALMER, AK 99645-0827

✓ MATANUSKA TELEPHONE ASSN
PO BOX 3550
PALMER, AK 99645-3550

✓ VALLEY RESIDENTIAL SERVIC
1075 CHECK STREET
WASILLA, AK 99654-8067

✓ ALASKA STATE OF
DEPT OF NATURAL RESOURCES
550 W 7TH AVE
ANCHORAGE, AK 99501

✓ GOODRICH MONTE LVG TR
STANSELL GEORGIA LVG TR
1226 S CHUGACH ST
PALMER, AK 99645-6610

✓ PALMER CITY OF
231 W EVERGREEN AVE
PALMER, AK 99645-6952

✓ PALMER CITY OF
231 W EVERGREEN AVE
PALMER, AK 99645-6952

~~PALMER CITY OF
231 W EVERGREEN AVE
PALMER, AK 99645-6952~~

✓ ROW SARAH D
1531 S CHUGACH ST
PALMER, AK 99645-6729

✓ CLEMENTS LEITHI T
11581 E CRIMSONVIEW DR
PALMER, AK 99645-9307

~~NORDBY MARI
1511 S CHUGACH ST
PALMER, AK 99645~~

✓ GROVER GARTH R & JOLENE D
PO BOX 2034
PALMER, AK 99645-2034

✓ JENSEN MICHAEL A & INGRID
PO BOX 478
WILLOW, AK 99688-0478

~~DREGELID OLAV
PAULIS-DREGELID MARY
220 STOREY ST
SANTA CRUZ, CA 95060~~

✓ ~~DREGELID OLAV
PAULIS-DREGELID MARY
220 STOREY ST
SANTA CRUZ, CA 95060~~

✓ HUPPERT PAUL G
1345 S BONANZA ST
PALMER, AK 99645-6717

~~BUEHNER CHRISTIANA MARIE
960 E MULCHATNA DR
WASILLA, AK 99654-3903~~

✓ BURKE DAVID K
1329 S BONANZA ST
PALMER, AK 99645-6717

✓ PATTERSON JAS M & JESSIE M
1321 S BONANZA ST
PALMER, AK 99645-6717

~~PATTERSON JAS M & J M
1321 S BONANZA ST
PALMER, AK 99645-6717~~

✓ LARSEN BRUCE L
1402 S CHUGACH ST
PALMER, AK 99645-6726

✓ MITCHELL DEBORAH
1418 S CHUGACH ST
PALMER, AK 99645-6726

~~SWANSON LESLI
PO BOX 4127
PALMER, AK 99645-4127~~

✓ PHILLIPS CHAD L & BREANNE
1451 S BONANZA ST
PALMER, AK 99645-9719

✓ WAYCHOFF MEGAN C
PO BOX 4688
PALMER, AK 99645-4688

~~WOUK ELI S & KRISTIN J
PO BOX 3880
PALMER, AK 99645-3880~~

✓ RICE LAURA L
1421 S BONANZA ST
PALMER, AK 99645-6719

✓ CHRISTENSEN CRAIG ALAN
1411 S BONANZA ST
PALMER, AK 99645

~~CORDERO ERICK & KAREN R
1150 S COLONY WAY STE 3
PALMER, AK 99645-6967~~

✓ GRIFFITH KEVIN & CHRISTINA
1504 S CHUGACH ST
PALMER, AK 99645

✓ ~~GRIFFITH KEVIN & CHRISTINA
1504 S CHUGACH ST
PALMER, AK 99645~~

~~MCSORLEY LUCILLE M
1725 N THUMA ST
PALMER, AK 99645-6771~~

✓ ~~MCSORLEY LUCILLE M
1725 N THUMA ST
PALMER, AK 99645-6771~~

✓ ALEXANDER-GREEN JONE
1532 S CHUGACH ST
PALMER, AK 99645-6728

~~PETERSON CODY E
PETERSON MICHELLE L
PO BOX 353
PALMER, AK 99645-0353~~

✓ AMBROSIA ALEX CHAS JR
1551 S BONANZA ST
PALMER, AK 99645

✓ JOHNSON JEFFREY LANE
PO BOX 2527
PALMER, AK 99645-2527

✓ GRAHAM COLT R
GRAHAM AMANDA A
1531 S BONANZA ST
PALMER, AK 99645-6721

✓ PENDERGRASS HIRAM E
1521 S BONANZA ST
PALMER, AK 99645

✓ VAN NICE JAMIE
1511 S BONANZA ST
PALMER, AK 99645-6721

✓ MURPHY SPENCER W
1501 S BONANZA ST
PALMER, AK 99645-6721

✓ STICKMAN LUCILLE
1651 S BONANZA ST
PALMER, AK 99645-6723

✓ TZOU JACK L & TRACY H
PO BOX 181
PALMER, AK 99645-0181

✓ BENSON CHARLES ERIC & WIN
1350 S BADGER RD
PALMER, AK 99645

✓ STUART JOHN J III
PO BOX 2291
PALMER, AK 99645-2291

✓ ~~BENSON CHARLES ERIC & WIN
1350 S BADGER RD
PALMER, AK 99645~~

✓ HAGERDON PAUL
PO BOX 3378
PALMER, AK 99645-3378

✓ ALASKA FAMILY SERVICES IN
1825 S CHUGACH ST
PALMER, AK 99645

✓ ~~PALMER CITY OF
231 W EVERGREEN AVE
PALMER, AK 99645~~

✓ OHMAN LIV TR
RICHARDS SID A & DEBRA J
1200 S JEWEL ST
PALMER, AK 99645

✓ EAGLE RIDGE OF PALMER
LTD PRTNRSHIP
PO BOX 188
BENSON, MN 56215-0188

✓ VANN CONNIE
PO BOX 561
KASILOF, AK 99610-0561

✓ PALMER CITY OF
AIRPORT/LEASE
231 W EVERGREEN AVE
PALMER, AK 99645-6952

Airport

✓ ~~PALMER CITY OF
AIRPORT/LEASE
231 W EVERGREEN AVE
PALMER, AK 99645-6952~~

✓ PALMER CITY OF
SCHOOL/NUTRITION CTR & WA
231 W EVERGREEN AVE
PALMER, AK 99645

Nutrition Center

✓ ~~PALMER CITY OF
AIRPORT/LEASE
231 W EVERGREEN AVE
PALMER, AK 99645-6952~~

✓ ~~PALMER CITY OF
231 W EVERGREEN AVE
PALMER, AK 99645-6952~~

✓ PCFI GROUP HOLDINGS LLC
222 E 7TH AVE
ANCHORAGE, AK 99501-3655

✓ PALMER SENIOR CITIZEN CTR
1132 S CHUGACH ST
PALMER, AK 99645-6608

✓ ~~PALMER SENIOR CITIZEN CTR
1132 S CHUGACH ST
PALMER, AK 99645-6608~~

✓ ~~PALMER CITY OF
231 W EVERGREEN AVE
PALMER, AK 99645-6952~~

✓ CAMPBELL THOMAS F & PATRI
406 KINNIKINNIK AVE
PALMER, AK 99645-6826

✓ ADNEY CASEY D & VANESSA M
432 E KINNIKINNIK AVE
PALMER, AK 99645-6826

LUMEN DESIGN LLC
5201 E NORTHERN LTS BLVD APT 1S
ANCHORAGE, AK 99508-4779

✓ALASKA RIM ENGINEERING
9131 E FRONTAGE ROAD SUITE 1
PALMER, AK 99645

✓STATE OF ALASKA DEPARTMENT OF
TRANSPORTATION & PUBLIC FACILITIES
ATTN: ALLEN KEMPLEN
PO BOX 196900
ANCHORAGE, AK 99519-6900

ALASKA JOB CORPS CENTER
ATTN: BCL
800 E. LYNN MARTIN DRIVE
PALMER, AK 99645

✓MATANUSKA SUSITNA BOROUGH
SCHOOL DISTRICT NUTRITION SERVICES
690 E. COPE INDUSTRIAL WAY
PALMER, AK 99645

✓KUZNICKI JOSHUA A & KATHERINE E
1322 S CHUGACH ST
PALMER, AK 99645-6724

BRANDON BLAKE
1230 JEWEL STREET
PALMER, AK 99645

✓VALLEY RESIDENTIAL SERVICES
1075 CHECK STREET SUITE 102
WASILLA, AK 99654-8067

Total = 182