ALPINE CITY PLANNING COMMISSION MEETING

NOTICE is hereby given that the **PLANNING COMMISSION** of Alpine City, UT will hold a **Regular Meeting at Alpine City Hall,** 20 North Main, Alpine, Utah on **Tuesday, May 7, 2019 at 7:00 pm** as follows:

I. GENERAL BUSINESS

A. Welcome and Roll Call: David Fotheringham
B. Prayer/Opening Comments: John Mackay
C. Pledge of Allegiance: By Invitation

II. PUBLIC COMMENT

Any person wishing to comment on any item not on the agenda may address the Planning Commission at this point by stepping to the microphone and giving his or her name and address for the record.

III. ACTION ITEMS

A. Major Subdivision Final Plat Review – Montdella – Alan Cottle
Planning Commission will review the final plat for the Montdella Subdivision, a 55 plus community within the Senior Housing Overlay, and make a recommendation to the City Council.

B. Public Hearing – Amendment to Development Code – Urban/Wildland Interface Overlay
Planning Commission will hold a public hearing, review changes to the Development Code and the new proposed Wildland-Urban Interface Site Plan/Development Review Guide and make a recommendation to the City Council.

C. Public Hearing – Improvements to Open Space – Trailhead Kiosk in Lambert Park
Planning Commission will hold a public hearing and then consider a trailhead kiosk in Lambert Park and make a recommendation to the City Council. Kiosk would be in an area to discourage shooting in and/or near Lambert Park.

D. Public Hearing – Improvements to Open Space – Planting Trees
Planning Commission will hold a public hearing and review a proposal to plant trees and landscape an area of open space east of Ridge Lane and make a recommendation to City Council.

IV. COMMUNICATIONS

V. APPROVAL OF PLANNING COMMISSION MINUTES: April 16, 2019

ADJOURN

Chairman David Fotheringham
May 7, 2019

THE PUBLIC IS INVITED TO ATTEND ALL PLANNING COMMISSION MEETINGS. If you need a special accommodation to participate in the meeting, please call the City Recorder's Office at 801-756-6347 ext. 5.

CERTIFICATION OF POSTING. The undersigned duly appointed recorder does hereby certify that the above agenda notice was posted at Alpine City Hall, 20 North Main, Alpine, UT. It was also sent by e-mail to The Daily Herald located in Provo, UT a local newspaper circulated in Alpine, UT. This agenda is also available on the City's web site at www.alpinecity.org and on the Utah Public Meeting Notices website at www.utah.gov/pmn/index.html.

PUBLIC MEETING AND PUBLIC HEARING ETIQUETTE

Please remember all public meetings and public hearings are now recorded.

- All comments **must** be recognized by the Chairperson and addressed through the microphone.
- When speaking to the Planning Commission, please stand, speak slowly and clearly into the microphone, and state your name and address for the recorded record.
- Be respectful to others and refrain from disruptions during the meeting. Please refrain from conversation with others in the audience as the microphones are very sensitive and can pick up whispers in the back of the room.
- Keep comments constructive and not disruptive.
- Avoid verbal approval or dissatisfaction of the ongoing discussion (i.e., booing or applauding).
- Exhibits (photos, petitions, etc.) given to the City become the property of the City.
- Please silence all cellular phones, beepers, pagers or other noise making devices.
- Be considerate of others who wish to speak by limiting your comments to a reasonable length, and avoiding repetition of what has already been said. Individuals may be limited to two minutes and group representatives may be limited to five minutes.
- Refrain from congregating near the doors or in the lobby area outside the council room to talk as it can be very noisy and disruptive. If you must carry on conversation in this area, please be as quiet as possible. (The doors must remain open during a public meeting/hearing.)

Public Hearing vs. Public Meeting

If the meeting is a **public hearing**, the public may participate during that time and may present opinions and evidence for the issue for which the hearing is being held. In a public hearing there may be some restrictions on participation such as time limits.

Anyone can observe a **public meeting**, but there is no right to speak or be heard there - the public participates in presenting opinions and evidence at the pleasure of the body conducting the meeting.

ALPINE PLANNING COMMISSION AGENDA

SUBJECT: Major Subdivision Final Plat Review – Montdella

FOR CONSIDERATION ON: 7 May 2019

PETITIONER: Alan Cottle

ACTION REQUESTED BY PETITIONER: Recommend Approval of the Final Plat and Plans

BACKGROUND INFORMATION:
The developer is seeking approval of the final plat and plans for the proposed Montdella Subdivision, a 55+ Community, which consists of 25 dwelling units on 3.94 acres. Dwelling units range in size from approximately 2,400 square feet to 3,500 square feet. The property is located in the Business/Commercial Zone and Senior Housing Overlay.

ALPINE CITY
STAFF REPORT
March 26, 2019

To: Alpine City Planning Commission

From: Staff

Prepared By: Austin Roy, City Planner
Planning & Zoning Department

Jed Muhlestein, City Engineer
Engineering & Public Works Department

Re: **Montdella Subdivision, 55+ Residential Community - FINAL**

Applicant:	Alan Cottle, Cottle Capital Group
Project Location:	242 S. Main Street
Zoning:	Business/Commercial Zone; Senior Housing Overlay
Acreage:	Approximately 3.94 Acres
Lot Size:	Townhomes range in size from approx. 2,400-3,500 sq. ft.
Request:	Recommend and approve preliminary plans

SUMMARY

The developer is seeking Final approval for the Montdella Subdivision, a 55+ Community, which consists of 25 dwelling units on 3.94 acres. Dwelling units range in size from approximately 2,400 square feet to 3,500 square feet. The property is located in the Business/Commercial Zone.

BACKGROUND

On August 28, 2018 a concept plan was brought before City Council seeking approval of a Senior Housing Overlay. The City Council reviewed and approved the request for the Senior Housing Overlay. March 19, 2019 the Planning Commission reviewed and approved the Preliminary application with conditions of correcting a few redlines and addressing the Fire Department's concerns. Staff believes those issues have been corrected on the Final Application.

The developer is now returning seeking approval for final plans. Business/Commercial Zone, Senior Housing Overlay, and Gateway/Historic requirements should all be taken into consideration when reviewing the final plat and plans for approval.

ANALYSIS

Lot Area and Width
A Senior Housing Project shall be at least 2 acres in size, but no more than 6 acres in size. A maximum of 8 dwelling units is allowed per acre, with an overall project cap of 32 units (Article 3.18.070). The proposed plans meet these criteria.

Setbacks
Plat and plans show setbacks of 30 feet off of Main Street, 20 feet on side rear setbacks, and 25 feet from the high water mark of Dry Creek. Dwellings structures are spaced at least 10 feet apart. All proposed setbacks meet the requirements of the underlying zone.

Use
The development is proposed as a 55+ community, with combination of single and attached dwellings. The proposed use is permitted in the Business/Commercial Zone within a Senior Housing Overlay (Article 3.07 and 3.18).

Sensitive Lands (Wildland Urban Interface, etc.)
The property contains a flood plain area. Flood Damage Prevention Overlay requirements will need to be met. See the below Engineering Review for further details.

Trails
The Alpine City Trail Master Plan shows a proposed trail that runs through this property along the northern boundary, from the northeast corner to the southwest corner of the property. This proposed trail is an extension of the existing Dry Creek Corridor Trail. The developer has included this trail in the plans as a proposed 8-foot-wide walking/jogging trail, which will follow the existing creek and connect to Main Street. The trail committee has commented and agrees with the 8-foot wide, asphalt, designation, but this needs shown on the plat as well. Trail is shown on all plans but not clearly on the subdivision plat per the Trail ordinance requirements. The **trail must be shown on the plat as a Class B trail (8' asphalt), called out with bearings and distances, and show a 20-foot wide easement** before it can be recorded. This trail requirement has been included as a minor redline comment for the plat.

Gateway/Historic
The Gateway Historic District Design Guidelines state that new developments should:

a) Mimic details of older buildings
b) Use similar materials
c) Make mundane uses look good
d) Include design features on blank walls

Colored perspectives, architectural renderings, and a materials legend have been submitted for the project. Building materials are shown to be primarily brick and other masonry. The design appears to have taken into consideration the criteria of the Gateway Historic District Design Guidelines and staff has no concerns with the overall design.

General Plan
The plat and plans as proposed are compatible with the General Plan.

REVIEWS

PLANNING AND ZONING DEPARTMENT REVIEW
The analysis section in the body of this report serves as the Planning and Zoning Department review.

ENGINEERING AND PUBLIC WORKS DEPARTMENT REVIEW

Streets
All site plans must adhere to the Off-Street Parking Ordinance (Article 3.24). The applicant has submitted a parking plan which appears to be in compliance with the ordinance. Parking stalls are dimensioned correctly and not located in a setback area, an all-weather surface of asphalt is proposed, a lighting plan was submitted and approved, and it is graded to detain all storm water onsite. Storm drain calculations and plans were submitted and approved for the design of the parking lot.

The application shows a 26-foot wide private street through the development that will connect to an existing parking area to the south. The preliminary design showed a 24-wide private street, the change was due to Fire Code requirements. The private turn-around area was also altered to be wider to allow a fire apparatus easier access to the site. **The 26-foot wide private street is not wide enough to allow for on street parking, thus this must be included as a note on the final plat. Also, staff recommends that "No Parking" signage for the private street be a condition of approval.** The Fire Chief will provide a review and comment on the changes.

Regarding the connection to the south, legal documents must be prepared and signed by the appropriate parties to secure access through the properties to the south via a legal cross agreement. The properties to the south were previously approved with the condition that a legal cross agreement be acquired from all neighboring properties, including the Montdella property. The City has no record that a cross agreement was ever secured between the Montdella property and the property to the south. **Staff recommends that fully signed cross agreement document be a condition of final approval before the plat can be recorded.**

The applicant provided a traffic study with the application. The study shows very low traffic volumes generated from the development; 140 trips per day and only 12 trips during the peak hours of the day. Though volumes were very low, the study recognizes the current traffic problem during peak hour traffic due to the charter school. The study offered ideas for restricting how traffic turns in and out of the development. The two optional ideas would not allow left hand turns coming in or out of the development. Staff does not feel that any restrictions should be imposed on the development in terms of traffic flow due to the following:

1. the overall daily low volume;
2. the low volume expected during peak hours;
3. restricting north-bound, left hand turns would force northbound vehicles more northward

into the areas of congestion already created by the charter school;
4. there is more than one exit within the development, residents will have more than one northbound option if traffic is congested on main street;

The street master plan requires a landscaping plan along arterial and collector roads (of which Main Street is). The applicant has turned in a landscaping plan along with architectural renderings, which was reviewed and approval at the March 19th meeting. Engineering verified the trees proposed closest to the sidewalk met the City's tree guideline and were safe trees to plant near a sidewalk.

Utilities – Reviewed and approved at Preliminary, included here for information only
Culinary water is proposed to "loop" through the development and connect to existing lines on both the Main Street side and west side. There is an existing 8-inch main in Main Street and a 10-inch main on the west side which the plans show connection to. New service laterals are shown for each unit. Horrocks Engineer's reviewed the development; their review shows the development is in compliance with the water master plan and should have plentiful flows for fire flows. There are two existing water service laterals that are shown to be removed and capped at the main, which is the standard for disconnecting services that will no longer be in use. **One extra fire hydrant was added to the plans in response to the Fire Chief's comments at Preliminary.**

Pressurized irrigation will connect to an existing lateral for the development. All common areas will be irrigated via this connection.

A new sewer line will be extended from an existing manhole on the west side of the development to serve the units. New sewer laterals are shown for each unit.

As mentioned in the streets section, a storm drain design was submitted and approved. The storm drain system collects water from the development and stores it in a detention pond on the south west corner of the property. The water is pre-treated through an oil/water/trash separator prior to entering the detention pond. The pond was sized correctly for the 100-yr event and releases water at pre-development flow rates back in to Dry Creek.

Other
A flood plain exists on the property. No homes, structures, or even the proposed trail are in the flood plain. The plan appears to be in compliance with the City's flood plain ordinance (3.12.08).

Retaining walls are shown on the plan. Retaining walls require a separate permit and are regulated during the construction period (Article 3.32).

A Land Disturbance Permit would be required prior to construction which ensures a Storm Water Pollution Prevention Plan (SWPPP) is followed. All disturbed areas of the site are required to be revegetated after construction.

LONE PEAK FIRE DEPARTMENT REVIEW
See the attached review from the Lone Peak Fire Department.

STAFF RECOMMENDATION

Review staff report and findings and make a recommendation to City Council to either approve or deny the proposed subdivision. Findings are outlined below.

Findings for a Positive Motion:

A. Plans follow and meet Planning and Zoning requirements.
B. Plans follow and meet Engineering requirements.

Findings for Negative Motion:

A. None.

MODEL MOTIONS

SAMPLE MOTION TO APPROVE

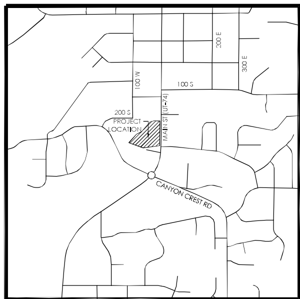
I motion to recommend approval of the proposed Montdella Subdivision Final Plans with the following condition:

- The Developer address the redline comments regarding the trail on the plat.
- The Developer address the redline comments regarding no on-street parking on the plat.
- The 26-foot private street be signed to indicate that no on-street parking is allowed.
- A fully signed cross agreement document with the adjacent properties to the south be submitted to the City prior to recording.

SAMPLE MOTION TO DENY

I motion to recommend that the proposed Montdella Subdivision Final Plans be denied based on the following:

- ***Insert Finding***



VICINITY MAP
N.T.S

Sheet List Table	
Sheet Number	Sheet Title
C1	COVER SHEET
C2	FINAL PLAT
C3	SITE PLAN
C4	GRADING & DRAINAGE PLAN
C5	SEWER & WATER PLAN
L1	LANDSCAPE PLAN
PP01	26' WIDE PRIVATE ROAD
PP02	26' WIDE PRIVATE ROAD
PP03	26' WIDE PRIVATE ROAD
PP04	SEWER OUTFALL
PP05	STORM DRAIN OUTFALL
PP06	EXISTING STORM DRAIN OUTFALL

MONTDELLA

PREPARED FOR:

ALAN COTTLE

LOCATED IN:

ALPINE, UTAH

SITE MAP

N

S

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

CONTACTS

ENGINEER & SURVEYOR
FOCUS ENGINEERING & SURVEYING,LLC
32 WEST CENTER STREET
MIDVALE, UTAH 84047
(801) 352-0075
PROJECT MANAGER: BRANDON PARR
SURVEY MANAGER: SPENCER LLEWELYN

OWNER/DEVELOPER
ALAN COTTLE
COTTLE CAPITAL GROUP, LLC
801 NORTH 500 WEST, SUITE 103
BOUNTIFUL, UTAH 84010
801-617-2100
ACOTTLE@COTTLEHOMES.COM

GENERAL NOTES

1. CONTRACTOR TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION, AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

2. ANY AND ALL DISCREPANCIES IN THESE PLANS ARE TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO COMMENCEMENT OF CONSTRUCTION.

3. ALL CONSTRUCTION SHALL ADHERE TO ALPINE CITY STANDARD PLANS AND SPECIFICATIONS.

4. ALL UTILITIES AND ROAD IMPROVEMENTS SHOWN ON THE PLANS HEREIN SHALL BE CONSTRUCTED USING REFERENCE TO SURVEY CONSTRUCTION STAKES PLACED UNDER THE SUPERVISION OF A PROFESSIONAL LICENSED SURVEYOR WITH A CURRENT LICENSE ISSUED BY THE STATE OF UTAH. ANY IMPROVEMENTS INSTALLED BY ANY OTHER VERTICAL OR HORIZONTAL REFERENCE WILL NOT BE ACCEPTED OR CERTIFIED BY THE ENGINEER OF RECORD.

5. THIS DRAWING SET IS SCALED TO BE PRINTED ON A 24" X 36" SIZE OF PAPER (ARCH. D). IF PRINTED ON A SMALLER PAPER SIZE, THE DRAWING WILL NOT BE TO SCALE AND SHOULD NOT BE USED TO SCALE MEASUREMENTS FROM THE PAPER DRAWING. ALSO USE CAUTION, AS THERE MAY BE TEXT OR DETAIL THAT MAY BE OVERLOOKED DUE TO THE SMALL SIZE OF THE DRAWING.

CALL BEFORE YOU DIG! IT'S THE LAW BLUE STAKES 1-800-662-4111

NOTICE

BEFORE PROCEEDING WITH THIS WORK, THE CONTRACTOR SHALL CAREFULLY CHECK AND VERIFY ALL CONDITIONS, QUANTITIES, DIMENSIONS, AND GRADE ELEVATIONS, AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER.

ENGINEER'S NOTES TO CONTRACTOR

1. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS, TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS. IF UTILITY LINES ARE ENCOUNTERED DURING CONSTRUCTION THAT ARE NOT IDENTIFIED BY THESE PLANS, CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.

2. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE CITY, THE OWNER, AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

3. UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

4. ALL CONTOUR LINES SHOWN ON THE PLANS ARE AN INTERPRETATION BY CAD SOFTWARE OF FIELD SURVEY WORK PERFORMED BY A LICENSED SURVEYOR. DUE TO THE POTENTIAL DIFFERENCES IN INTERPRETATION OF CONTOURS BY VARIOUS TYPES OF GRADING SOFTWARE BY OTHER ENGINEERS OR CONTRACTORS, FOCUS DOES NOT GUARANTEE OR WARRANTY THE ACCURACY OF SUCH LINEWORK. FOR THIS REASON, FOCUS WILL NOT PROVIDE ANY GRADING CONTOURS IN CAD FOR ANY TYPE OF USE BY THE CONTRACTOR. SPOT ELEVATIONS AND PROFILE ELEVATIONS SHOWN IN THE DESIGN DRAWINGS GOVERN ALL DESIGN INFORMATION ILLUSTRATED ON THE APPROVED CONSTRUCTION SET. CONSTRUCTION EXPERTISE AND JUDGMENT BY THE CONTRACTOR IS ANTICIPATED BY THE ENGINEER TO COMPLETE BUILD-OUT OF THE INTENDED IMPROVEMENTS.

FOCUS
ENGINEERING AND SURVEYING, LLC
32 WEST CENTER STREET
MIDVALE, UTAH 84047 PH (801) 352-0075
www.focusutah.com

MONTDELLA
ALPINE, UTAH
COVER SHEET

REVISION BLOCK

#	DATE	DESCRIPTION
1	----	----
2	----	----
3	----	----
4	----	----
5	----	----
6	----	----

COVER SHEET

Scale:	1"=30'	Drawn:	AWS
Date:	4/12/2019	Job #:	18-421
Sheet:	C1		

VICINITY MAP
N.T.S

LEGEND

	PRIVATE OWNERSHIP
	LIMITED COMMONS OWNERSHIP
	COMMON OWNERSHIP

AREA TABULATIONS

OPEN SPACE AREA	2.10 ACRES (91,375 SQ FT)
BUILDING PAD/DRIVEWAY AREA	1.41 ACRES (61,255 SQ FT)
ROW AREA	0.43 ACRES (18,928 SQ FT)
TOTAL AREA	3.94 ACRES (171,558 SQ FT)

FEMA NOTES

- THIS PROPERTY IS ASSOCIATED WITH TWO FEMA FLOOD ZONES. ZONE A, AND ZONE C. THIS INFORMATION COMES FROM COMMUNITY PANEL #490228 0005 A, WITH AN EFFECTIVE DATE OF APRIL 4, 1983, REVISED SEPTEMBER 6, 2016.
- ZONE A IS DEFINED AS: AREAS OF 100-YEAR FLOOD; BASE FLOOD ELEVATIONS AND FLOOD HAZARD FACTORS NOT DETERMINED. THE PROPERTY LOCATED ALONG DRY CREEK IS WITHIN ZONE A.
- ZONE C IS DEFINED AS: AREAS OF MINIMAL FLOODING. THE MAJORITY OF THIS PROPERTY IS WITHIN ZONE C.

GENERAL NOTES

1. THE ROADWAY (ALI COURT) AND ALL COMMON AND LIMITED COMMON AREAS WILL ALSO ACT AS A PUBLIC UTILITY AND DRAINAGE EASEMENT. ALPINE CITY WILL HAVE RIGHTS/ACCESS TO ALL CITY UTILITIES (SEWER/WATER/STORM DRAIN) INCLUDING INDIVIDUAL WATER METERS WHICH ARE LOCATED OUTSIDE OF THE ROADWAY, BUT WITHIN THE COMMON AREA.

ADDRESS BLOCK

UNIT 1 - 250 S. MAIN UNIT 1	UNIT 14 - 250 S. MAIN UNIT 14
UNIT 2 - 250 S. MAIN UNIT 2	UNIT 15 - 250 S. MAIN UNIT 15
UNIT 3 - 250 S. MAIN UNIT 3	UNIT 16 - 250 S. MAIN UNIT 16
UNIT 4 - 250 S. MAIN UNIT 4	UNIT 17 - 250 S. MAIN UNIT 17
UNIT 5 - 250 S. MAIN UNIT 5	UNIT 18 - 250 S. MAIN UNIT 18
UNIT 6 - 250 S. MAIN UNIT 6	UNIT 19 - 250 S. MAIN UNIT 19
UNIT 7 - 250 S. MAIN UNIT 7	UNIT 20 - 250 S. MAIN UNIT 20
UNIT 8 - 250 S. MAIN UNIT 8	UNIT 21 - 250 S. MAIN UNIT 21
UNIT 9 - 250 S. MAIN UNIT 9	UNIT 22 - 250 S. MAIN UNIT 22
UNIT 10 - 250 S. MAIN UNIT 10	UNIT 23 - 250 S. MAIN UNIT 23
UNIT 11 - 250 S. MAIN UNIT 11	UNIT 24 - 250 S. MAIN UNIT 24
UNIT 12 - 250 S. MAIN UNIT 12	UNIT 25 - 250 S. MAIN UNIT 25
UNIT 13 - 250 S. MAIN UNIT 13	

ROCKY MOUNTAIN POWER

1. PURSUANT TO UTAH CODE ANN. 54-3-27 THIS PLAT CONVEYS TO THE OWNER(S) OR OPERATORS OF UTILITY FACILITIES A PUBLIC UTILITY EASEMENT ALONG WITH ALL THE RIGHTS AND DUTIES DESCRIBED THEREIN.
2. PURSUANT TO UTAH CODE ANN. 17-27a-603(4)(c)(ii) ROCKY MOUNTAIN POWER ACCEPTS DELIVERY OF THE PUE AS DESCRIBED IN THIS PLAT AND APPROVES THIS PLAT SOLELY FOR THE PURPOSE OF CONFIRMING THAT THE PLAT CONTAINS PUBLIC UTILITY EASEMENTS AND APPROXIMATES THE LOCATION OF THE PUBLIC UTILITY EASEMENTS, BUT DOES NOT WARRANT THEIR PRECISE LOCATION. ROCKY MOUNTAIN POWER MAY REQUIRE OTHER EASEMENTS IN ORDER TO SERVE THIS DEVELOPMENT. THIS APPROVAL DOES NOT AFFECT ANY RIGHT THAT ROCKY MOUNTAIN POWER HAS UNDER:
   a. A RECORDED EASEMENT OR RIGHT-OF-WAY
   b. THE LAW APPLICABLE TO PRESCRIPTIVE RIGHTS
   c. TITLE 54, CHAPTER 8a, DAMAGE TO UNDERGROUND UTILITY FACILITIES OR
   d. ANY OTHER PROVISION OF LAW

APPROVED THIS _____ DAY OF __________ 20__

ROCKY MOUNTAIN POWER

DOMINION ENERGY UTAH

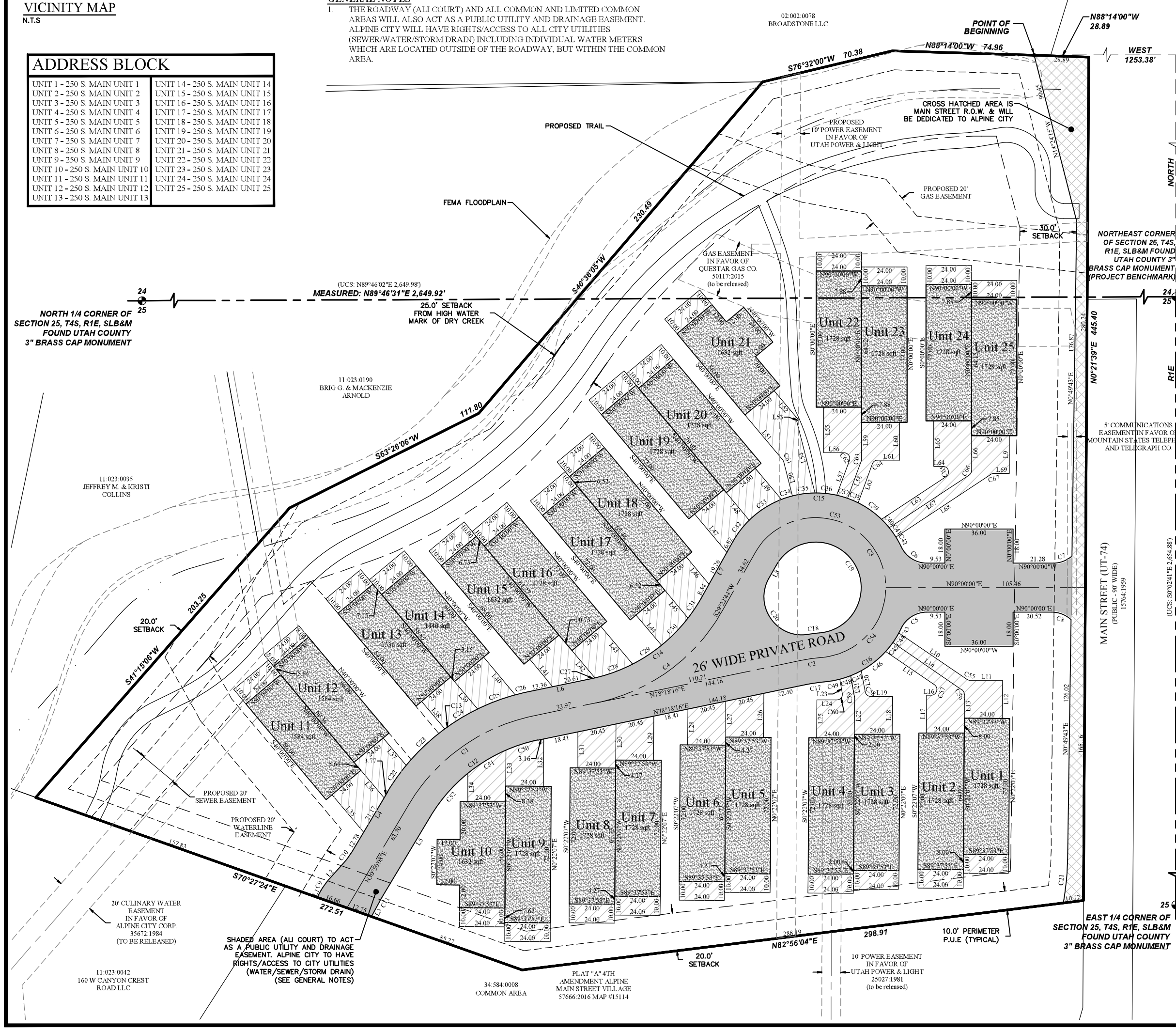
QUESTAR GAS COMPANY DBA DOMINION ENERGY UTAH, HEREBY APPROVES THIS PLAT FOR THE PURPOSES OF APPROXIMATING THE LOCATION, BOUNDARIES, COURSE AND DIMENSIONS OF THE RIGHTS-OF-WAY AND EASEMENT GRANTS AND EXISTING UNDERGROUND FACILITIES. NOTHING HEREIN SHALL BE CONSTRUED TO WARRANT OR VERIFY THE PRECISE LOCATION OF SUCH ITEMS. THE RIGHTS-OF-WAY AND EASEMENTS ARE SUBJECT TO NUMEROUS RESTRICTIONS APPEARING ON THE RECORDED RIGHT-OF-WAY AND EASEMENT GRANT(S). DOMINION ENERGY UTAH ALSO APPROVES THIS PLAT FOR THE PURPOSE OF CONFIRMING THAT THE PLAT CONTAINS PUBLIC UTILITY EASEMENTS; HOWEVER, DOMINION ENERGY UTAH MAY REQUIRE ADDITIONAL EASEMENTS IN ORDER TO SERVE THIS DEVELOPMENT. THE APPROVAL DOES NOT CONSTITUTE ABROGATION OR WAIVER OF ANY OTHER EXISTING RIGHTS, OBLIGATIONS OR LIABILITIES INCLUDING PRESCRIPTIVE RIGHTS AND OTHER RIGHTS, OBLIGATIONS OR LIABILITIES PROVIDED BY LAW OR EQUITY. THIS APPROVAL DOES NOT CONSTITUTE ACCEPTANCE, APPROVAL OR ACKNOWLEDGMENT OF ANY TERMS CONTAINED IN THE PLAT, INCLUDING THOSE SET FORTH IN THE OWNERS DEDICATION OR THE NOTES, AND DOES NOT CONSTITUTE A GUARANTEE OF PARTICULAR TERMS OR CONDITIONS OF NATURAL GAS SERVICE. FOR FURTHER INFORMATION CONTACT DOMINION ENERGY UTAH'S RIGHT-OF-WAY DEPARTMENT AT 801-366-8532.

QUESTAR GAS COMPANY
dba DOMINION ENERGY UTAH

APPROVED THIS _____ DAY OF __________ 20__

BY ____________

TITLE ____________



MONTDELLA

SUBDIVISION
LOCATED IN THE NE1/4 OF SECTION 25 AND
THE SE1/4 OF SECTION 24, T 4 S, R 1 E, SALT LAKE BASE & MERIDIAN
ALPINE CITY, UTAH COUNTY, UTAH

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

LINE	DIRECTION	LENGTH
L1	N28°36'19"E	4.03
L2	N41°41'02"E	12.97
L3	N27°54'52"E	8.49
L4	N30°50'08"E	37.73
L5	N30°50'08"E	50.03
L6	N78°18'16"E	33.97
L7	S29°22'44"W	34.62
L8	S29°22'44"W	7.87
L9	S00°00'00"E	20.00
L10	S55°41'54"E	43.30
L11	S89°37'53"E	17.25
L12	S00°22'07"W	20.00
L13	S00°22'07"W	12.40
L14	S55°41'54"E	44.22
L15	N55°41'54"W	31.14
L16	S89°37'53"E	2.39
L17	N00°22'07"E	20.00
L18	N00°22'07"E	20.00
L19	S89°37'53"E	11.52
L20	S10°18'03"E	11.31
L21	S10°18'03"E	11.20
L22	S00°22'07"W	18.94
L23	S10°18'03"E	7.53
L24	N89°37'53"W	10.54
L25	S00°22'07"W	20.00
L26	N00°22'07"E	23.25
L27	S00°22'07"W	18.98
L28	S00°22'07"W	18.98
L29	N00°22'07"E	23.25
L30	S00°22'07"W	18.98
L31	S00°22'07"W	18.98
L32	N00°22'07"E	25.04
L33	S00°22'07"W	18.91
L34	S00°22'07"W	15.02
L35	S40°00'00"E	25.89
L36	N40°00'00"W	18.94
L37	N40°00'00"W	18.98
L38	S40°00'00"E	19.00
L39	N40°00'00"W	18.97
L40	S40°00'00"E	26.01
L41	S40°00'00"E	18.86
L42	N40°00'00"W	18.88
L43	S40°00'00"E	26.12
L44	S40°00'00"E	20.98
L45	N40°00'00"W	18.98
L46	S40°00'00"E	18.93
L47	S40°00'00"E	26.44
L48	N40°00'00"W	19.00
L49	S40°00'00"E	21.47
L50	N14°20'31"W	18.62
L51	N40°00'00"W	30.73
L52	S40°00'00"E	20.00
L53	S50°00'00"W	1.20
L54	N14°20'31"W	39.19
L55	S00°00'00"E	24.00
L56	N90°00'00"E	10.73
L57	N20°10'39"E	19.63
L58	S20°10'39"W	21.04
L59	S00°00'00"E	19.47
L60	S00°00'00"E	20.00
L61	N90°00'00"W	11.51
L62	S20°10'39"W	21.99
L63	N56°34'13"E	40.91
L64	N90°00'00"E	4.94
L65	S00°00'00"E	24.00
L66	S00°00'00"E	18.39
L67	S56°34'13"W	50.42
L68	S56°34'13"W	59.99
L69	N90°00'00"W	8.21

Line Table

CURVE	RADIUS	DELTA	LENGTH	CHORD DIRECTION	CHORD LENGTH
C1	100.00	47°28'08"	82.85	S54°34'12"W	80.50
C2	100.00	6°37'39"	11.57	S81°37'05"W	11.56
C3	37.00	235°33'11"	152.11	N32°50'41"W	65.47
C4	100.00	48°55'32"	85.39	N53°50'30"E	82.82
C5	15.00	64°29'01"	16.88	S57°45'29"W	16.00
C6	15.00	64°29'01"	16.88	S57°45'29"E	16.00
C7	15.00	40°54'05"	10.71	N69°32'58"E	10.48
C8	15.00	42°19'25"	11.08	N68°50'18"W	10.83
C9	30.00	13°04'43"	6.85	S35°08'40"W	6.83
C10	30.00	10°50'54"	5.68	N36°15'35"E	5.67
C11	49.00	2°55'16"	2.50	S29°22'30"W	2.50
C12	87.00	47°28'08"	72.08	S54°34'12"W	70.03
C13	112.99	47°28'27"	93.62	S54°34'12"W	90.96
C14	87.00	48°55'32"	74.29	N53°50'30"E	72.05
C15	50.00	125°06'17"	109.17	N88°04'08"W	88.74
C16	50.00	59°24'56"	51.85	N55°13'27"E	49.56
C17	87.00	6°37'39"	10.06	S81°37'05"W	10.06
C18	113.00	3°20'25"	6.59	S83°15'42"W	6.59
C19	24.00	235°33'11"	98.67	N32°50'41"W	42.47
C20	20.00	127°47'14"	44.61	S34°30'53"E	35.92
C21	150.00	9°02'52"	23.69	N05°21'09"E	23.66
C22	112.99	8°33'51"	16.89	S35°06'54"W	16.87
C23	112.99	14°15'38"	28.12	S46°35'36"W	28.05
C24	112.99	10°16'42"	20.27	S58°51'46"W	20.24
C25	112.99	10°46'02"	21.23	S69°23'08"W	21.20
C26	112.99	3°32'16"	6.98	S76°32'17"W	6.98
C27	87.00	1°22'40"	2.09	N77°36'56"E	2.09
C28	87.00	14°02'36"	21.32	N69°54'18"E	21.27
C29	87.00	11°58'55"	18.19	N56°53'32"E	18.16
C30	87.00	13°16'02"	20.15	N44°16'03"E	20.10
C31	87.00	8°15'19"	12.53	N33°30'23"E	12.52
C32	50.00	16°02'35"	14.00	S37°24'01"W	13.95
C33	50.00	23°15'07"	20.29	S57°02'53"W	20.15
C34	50.00	6°59'03"	6.09	S72°09'58"W	6.09
C35	50.00	13°53'12"	12.12	S82°36'05"W	12.09
C36	50.00	13°09'20"	11.48	N83°52'40"W	11.46
C37	50.00	6°53'48"	6.02	N73°51'06"W	6.01
C38	50.00	6°53'18"	6.01	N66°57'33"W	6.01
C39	50.00	17°24'42"	15.19	N54°48'33"W	15.14
C40	50.34	6°55'19"	6.08	N42°37'07"W	6.08
C41	54.98	6°15'39"	6.01	N35°41'29"W	6.00
C42	51.14	6°34'56"	5.88	N28°52'58"W	5.87
C43	50.00	3°07'21"	2.72	N27°04'40"E	2.72
C44	50.00	6°53'05"	6.01	N32°04'53"E	6.00
C45	50.00	6°54'09"	6.02	N38°58'30"E	6.02
C46	50.00	18°49'08"	16.42	N51°50'09"E	16.35
C47	50.00	7°07'09"	6.21	N64°48'17"E	6.21
C48	50.00	6°56'42"	6.06	N71°50'12"E	6.06
C49	50.00	9°37'21"	8.40	N80°07'14"E	8.39
C50	87.00	11°43'20"	17.80	S72°26'36"W	17.77
C51	87.00	15°30'04"	23.54	S58°49'54"W	23.47
C52	87.00	20°14'44"	30.74	S40°57'29"W	30.58
C53	37.00	150°37'16"	97.27	N75°18'38"W	71.58
C54	37.00	84°55'55"	54.85	N42°27'57"E	49.96
C55	3.00	33°55'59"	1.78	S72°39'54"E	1.75
C56	3.00	56°04'01"	2.94	N27°39'54"W	2.82
C57	3.00	146°04'01"	7.65	N17°20'06"E	5.74
C58	3.00	79°19'50"	4.15	S49°57'58"E	3.83
C59	5.00	10°40'10"	0.93	N04°57'58"W	0.93
C60	3.00	100°40'10"	5.27	N40°02'02"E	4.62
C61	3.00	25°39'29"	1.34	N27°10'15"W	1.33
C62	3.00	110°10'39"	5.77	N34°54'40"W	4.92
C63	3.00	20°10'39"	1.06	N10°05'20"E	1.05
C64	3.00	69°49'21"	3.66	S55°05'20"W	3.43
C65	3.00	146°34'13"	7.67	N16°42'54"W	5.75
C66	3.00	56°34'13"	2.96	N28°17'06"E	2.84
C67	3.00	33°25'47"	1.75	S73°17'06"W	1.73

Curve Table

FOCUS
ENGINEERING AND SURVEYING, LLC
32 WEST CENTER STREET
MIDVALE, UTAH 84047 PH: (801) 352-0075
www.focusutah.com

SURVEYOR'S CERTIFICATE

I, Evan J. Wood, do hereby certify that I am a Professional Land Surveyor, and that I hold Certificate No. 183395 in accordance with Title 58, Chapter 22 of Utah State Code. I further certify by authority of the owners(s) that I have completed a Survey of the property described on this Plat in accordance with Section 17-23-17 of said Code, and have subdivided said tract of land into lots, streets, and easements, and the same has, or will be correctly surveyed, staked and monumented on the ground as shown on this Plat, and that this Plat is true and correct.

Evan J. Wood
Professional Land Surveyor
Certificate No. 183395

Date

BOUNDARY DESCRIPTION

Located in the NE1/4 of Section 25 and the SE1/4 of Section 24 of Township 4 South, Range 1 East, Salt Lake Base and Meridian. Comprised of three (3) parcels identified by Utah County Tax Id. Numbers 11:023:0029, 11:023:0109 & 11:023:0110, being more particularly described as follows:

BEGINNING AT A POINT NORTH 122.76 FEET AND WEST 1253.38 FEET FROM THE NORTHEAST CORNER OF SECTION 25, TOWNSHIP 4 SOUTH, RANGE 1 EAST, SALT LAKE BASE AND MERIDIAN; THENCE ALONG THE SOUTH BOUNDARY LINE OF THE L. ROSS AND JOANNE C. BECK TITLE LINE (ENTRY 89736:2015) THE FOLLOWING 2 (TWO) COURSES: 1) NORTH 88°14' WEST 74.96 FEET; THENCE 2) SOUTH 76°32' WEST 70.38 FEET; THENCE SOUTH 40°36'05" WEST 230.49 FEET; THENCE SOUTH 63°26'06" WEST 111.80 FEET; THENCE SOUTH 41°15'06" WEST 203.25 FEET; THENCE TO AND ALONG ALPINE MAIN STREET VILLAGE 4TH AMENDED PLAT "A" THE FOLLOWING 2 (TWO) COURSES: 1) SOUTH 70°27'24" EAST 272.51 FEET; THENCE 2) NORTH 82°56'04" EAST 298.91 FEET TO THE WESTERLY RIGHT OF WAY OF MAIN STREET AS ESTABLISHED BY THE WARRANTY DEED TO THE STATE ROAD COMMISSION OF UTAH, (ENTRY 15764:1959); THENCE NORTH 00°21'39" EAST 445.40 FEET ALONG AND BEYOND SAID WARRANTY DEED; THENCE NORTH 88°14'00" WEST 28.89 FEET TO THE POINT OF BEGINNING.

CONTAINS: 171,558 square feet or 3.94 acres+/-
of which 4,142 square feet of 0.01 acres+/-
lies inside the existing right of way of Main Street

OWNER'S DEDICATION

KNOW ALL MEN BY THESE PRESENT THAT WE, ALL OF THE UNDERSIGNED OWNERS OF ALL OF THE PROPERTY DESCRIBED IN THE SURVEYOR'S CERTIFICATE HEREON AND SHOWN ON THIS MAP, HAVE CAUSED THE SAME TO BE SUBDIVIDED INTO LOTS, STREETS AND EASEMENTS AND DO HEREBY DEDICATE ANY PUBLIC STREETS AND OTHER PUBLIC AREAS AS INDICATED HEREON FOR PERPETUAL USE OF THE PUBLIC.

IN WITNESS WHEREOF WE HAVE HEREUNTO SET OUR HANDS THIS ______ DAY OF __________
A.D. 20____

BY: ____________
(PRINTED NAME)

ITS: ____________

LIMITED LIABILITY ACKNOWLEDGMENT

STATE OF UTAH
S.S.
COUNTY OF ________

ON THE ____ DAY OF __________ A.D. 20____ PERSONALLY APPEARED BEFORE ME , THE UNDERSIGNED NOTARY PUBLIC, IN AND FOR THE COUNTY OF __________, IN SAID STATE OF UTAH, __________, WHO AFTER BEING DULY SWORN, ACKNOWLEDGED TO ME THAT HE/SHE IS THE __________ OF __________ L.L.C., A UTAH L.L.C. AND THAT HE/SHE SIGNED THE OWNER'S DEDICATION FREELY AND VOLUNTARILY FOR AND IN BEHALF OF SAID LIMITED LIABILITY COMPANY FOR THE PURPOSES THEREIN MENTIONED.

MY COMMISSION EXPIRES: __________

A NOTARY PUBLIC COMMISSIONED IN
UTAH RESIDING IN __________ COUNTY

MY COMMISSION No. __________

PRINTED FULL NAME OF NOTARY

ACCEPTANCE BY LEGISLATIVE BODY

THE CITY COUNCIL OF ALPINE CITY, COUNTY OF UTAH, APPROVES THIS SUBDIVISION AND HEREBY ACCEPTS THE DEDICATION OF ALL STREETS; EASEMENTS AND OTHER PARCELS OF LAND INTENDED FOR PUBLIC PURPOSES FOR THE PERPETUAL USE OF THE PUBLIC THIS ______ DAY OF __________, A.D. 20____.

APPROVED BY MAYOR

ATTEST: CITY RECORDER

APPROVED BY CITY ENGINEER

PLANNING COMMISSION APPROVAL

APPROVED THIS _____ DAY OF __________, A.D. 20____ BY THE ALPINE CITY PLANNING COMMISSION.

DIRECTOR - SECRETARY

CHAIRMAN, PLANNING COMMISSION

APPROVAL AS TO FORM

APPROVED AS TO FORM THIS ____ DAY OF __________, A.D 20____

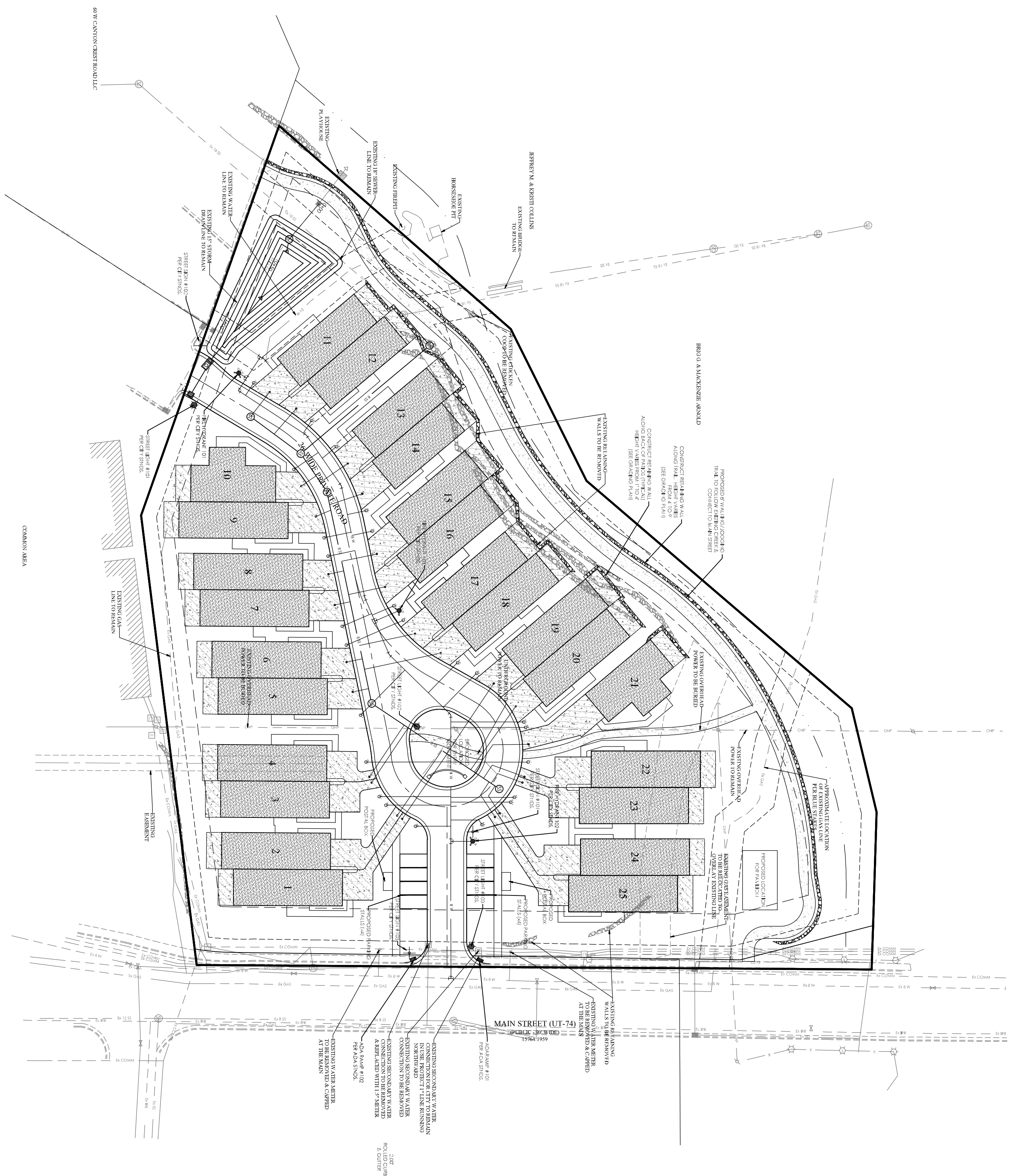
CITY ATTORNEY: ____________

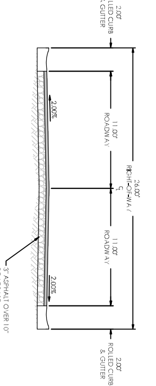
MONTDELLA

SUBDIVISION
LOCATED IN THE NE1/4 OF SECTION 25 AND THE SE1/4 OF SECTION 24, T 4 S, R 1 E,
SALT LAKE BASE & MERIDIAN
ALPINE CITY, UTAH COUNTY, UTAH

SURVEYOR'S SEAL	NOTARY PUBLIC SEAL	ALPLINE CITY ENGINEER SEAL	ALPINE CITY RECORDER SEAL
PROFESSIONAL LAND SURVEYOR No. 183395 EVAN J. WOOD STATE OF UTAH			

Z:_2018\18-421 Alpine Townhome\design 18-421\dwg\sheets\Final\C2 - PRELIMINARY PLAT.dwg





26' PRIVATE ROAD

N.T.S.

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

LEGEND

BOUNDARY
ROW
CENTERLINE
LOT LINE
EASEMENT
15" STORM DRAIN
8" SANITARY SEWER
8" CULINARY WATER
8" SECONDARY WATER
CONTOUR MAJOR
CONTOUR MINOR
EXIST. STORM DRAIN
EXIST. SANITARY SEWER
EXIST. CULINARY WATER
EXIST. FENCE
EXIST. CONTOUR MAJOR
EXIST. CONTOUR MINOR
SIGN
STREET LIGHT
SD MH, INLET, AND COMBO
SEWER MANHOLE
VALVE, TEE & BEND
WATER BLOW-OFF
FIRE HYDRANT
STREET MONUMENT (TO BE SET)
EXIST. STREET MONUMENT
EXIST. SD INLET & MH
EXIST. SEWER MH
EXIST. VALVE, TEE, & BEND
EXIST. FIRE HYDRANT
SPOT ELEVATION

AREA TABULATIONS

OPEN SPACE AREA	2.10 ACRES (91,375 SQ FT)
BUILDING PAD/DRIVEWAY AREA	1.41 ACRES (61,255 SQ FT)
ROW AREA	0.43 ACRES (18,928 SQ FT)
TOTAL AREA	3.94 ACRES (171,558 SQ FT)

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32 WEST CENTER STREET
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MONTDELLA

ALPINE, UTAH

SITE PLAN

REVISION BLOCK

#	DATE	DESCRIPTION
1	----	----
2	----	----
3	----	----
4	----	----
5	----	----
6	----	----

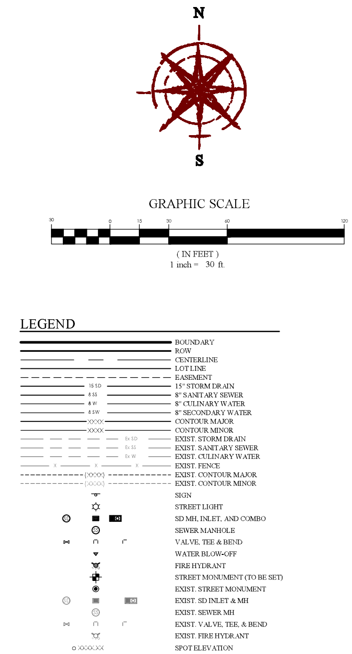
SITE PLAN

Scale:	1"=30'	Drawn:	AWS
Date:	4/12/2019	Job #:	18-421
Sheet:	C3		

Z:_2018\18-421 Alpine Townhome\design 18-421\dwg\sheets\Final\C3 - SITE PLAN.dwg

GENERAL NOTES

1. RETAINING WALLS WILL REQUIRE A SEPARATE BUILDING PERMIT.
2. ANY DISTURBED AREAS NOT IMPROVED WITH STREET, HOMES, OR LANDSCAPING MUST BE RE-SEEDED PERR CITY SEED SPECIFICATIONS.



Detention Pond

FOCUS ENGINEERING & SURVEYING

Project: Alpine Townhomes
Location Alpine, Utah
Date: 2/18/2019
Designer: Alex Stewart

100-Year Detention Sizing

Design Criteria

Intensity Table: Per NOAA Atlas 14
Return Period: 100 year
Allowable Discharge: 0.20 cfs/acre Per Alpine City Standards

Allowable Discharges

Storm Drain Discharge: 0.79 cfs
Other Discharge: 0.00 cfs Source:
Total Discharge: **0.788 cfs**

Weighted "C" Value

Surface Type	*Area (sf)*	*"C" Value*	C*A
Building	43,632	0.85	37,087
Drives	10,400	0.85	8,840
Roadway and Sidewalk	16,021	0.85	13,618
Landscape	101,506	0.15	15,226
Totals	171,558		74,771
Weighted "C" Value		**0.44**	

Drainage Calculations

Duration	Intensity	Runoff C	Area	Rainfall	Accumulated Flow	Allowable Discharge	Discharge	Required Storage
min	*in/hr*		*Ac*	*cfs*	*cf*	*cfs*	*cf*	*cf*
15.0	4.20	0.44	3.94	7.21	6,488	0.79	709	5,779
30.0	2.83	0.44	3.94	4.86	8,744	0.79	1,418	7,326
60.0	1.75	0.44	3.94	3.00	10,814	0.79	2,836	7,978
120.0	0.97	0.44	3.94	1.66	11,976	0.79	5,671	6,304
180.0	0.66	0.44	3.94	1.13	12,254	0.79	8,507	3,747
360.0	0.37	0.44	3.94	0.63	13,533	0.79	17,014	-3,481
720.0	0.22	0.44	3.94	0.38	16,239	0.79	34,028	-17,789
1440.0	0.11	0.44	3.94	0.19	16,462	0.79	68,056	-51,594

Maximum Storage Requirement: **7,978**
Maximum Storage Requirement (ac-ft): 0.18

Detention Basin Design

Storage Requirement: 7,978 cf
Allowable Depth: 5.0 ft
Detention Pond Volume 8,250 cf
Roadway Sump Storage 0 cf

Total Storage **8,250** ***DETENTION ADEQUATE***

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MONTDELLA

ALPINE, UTAH

GRADING & DRAINAGE PLAN

REVISION BLOCK

#	DATE	DESCRIPTION
1	----	----
2	----	----
3	----	----
4	----	----
5	----	----
6	----	----

GRADING & DRAINAGE PLAN

Scale:	1"=30'	Drawn:	AWS
Date:	4/12/2019	Job #:	18-421
Sheet:	C4		

Z:_2018\18-421 Alpine Townhome\design 18-421\dwg\Sheets\Final\C4 - GRADING & DRAINAGE PLAN.dwg

SEWER SERVICE TABLE			
LOT #	STREET NAME	STATION	OFFSET
LOT #1 SS	26' WIDE PRIVATE ROAD	13+35.63	17.00 R
LOT #2 SS	26' WIDE PRIVATE ROAD	13+32.89	17.00 R
LOT #3 SS	26' WIDE PRIVATE ROAD	13+13.84	17.00 R
LOT #4 SS	26' WIDE PRIVATE ROAD	13+11.06	17.00 R
LOT #5 SS	26' WIDE PRIVATE ROAD	12+55.96	17.00 R
LOT #6 SS	26' WIDE PRIVATE ROAD	12+35.98	17.00 R
LOT #7 SS	26' WIDE PRIVATE ROAD	11+97.53	17.00 R
LOT #8 SS	26' WIDE PRIVATE ROAD	11+76.75	17.00 R
LOT #9 SS	26' WIDE PRIVATE ROAD	11+36.01	17.00 R
LOT #10 SS	26' WIDE PRIVATE ROAD	11+08.98	17.00 R
LOT #11 SS	26' WIDE PRIVATE ROAD	10+50.47	17.00 L
LOT #12 SS	26' WIDE PRIVATE ROAD	10+69.93	17.00 L
LOT #13 SS	26' WIDE PRIVATE ROAD	11+12.78	17.00 L
LOT #14 SS	26' WIDE PRIVATE ROAD	11+31.77	17.00 L
LOT #15 SS	26' WIDE PRIVATE ROAD	11+70.11	17.00 L
LOT #16 SS	26' WIDE PRIVATE ROAD	15+59.92	17.00 R
LOT #17 SS	26' WIDE PRIVATE ROAD	15+15.33	17.00 R
LOT #18 SS	26' WIDE PRIVATE ROAD	14+89.80	17.00 R
LOT #19 SS	26' WIDE PRIVATE ROAD	14+50.87	17.00 R
LOT #20 SS	26' WIDE PRIVATE ROAD	14+36.51	17.00 R
LOT #21 SS	26' WIDE PRIVATE ROAD	14+18.12	17.00 R
LOT #22 SS	26' WIDE PRIVATE ROAD	14+03.19	17.00 R
LOT #23 SS	26' WIDE PRIVATE ROAD	14+00.45	17.00 R
LOT #24 SS	26' WIDE PRIVATE ROAD	13+83.07	17.00 R
LOT #25 SS	26' WIDE PRIVATE ROAD	13+80.32	17.00 R

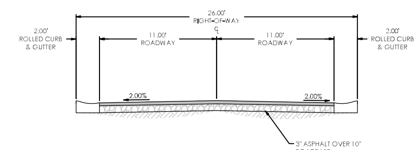
WATER METER TABLE			
LOT #	STREET NAME	STATION	OFFSET
LOT #1 WM	26' WIDE PRIVATE RD.	10+12.85	20.77 R
LOT #2 WM	26' WIDE PRIVATE ROAD	13+25.95	17.00 R
LOT #3 WM	26' WIDE PRIVATE ROAD	13+21.07	17.00 R
LOT #4 WM	26' WIDE PRIVATE ROAD	13+04.18	17.00 R
LOT #5 WM	26' WIDE PRIVATE ROAD	12+72.09	15.05 R
LOT #6 WM	26' WIDE PRIVATE ROAD	12+24.92	14.82 R
LOT #7 WM	26' WIDE PRIVATE ROAD	12+12.26	15.02 R
LOT #8 WM	26' WIDE PRIVATE ROAD	11+65.05	14.79 R
LOT #9 WM	26' WIDE PRIVATE ROAD	11+52.66	14.84 R
LOT #10 WM	26' WIDE PRIVATE ROAD	10+95.19	14.24 R
LOT #11 WM	26' WIDE PRIVATE ROAD	10+38.28	17.00 L
LOT #12 WM	26' WIDE PRIVATE ROAD	10+81.01	17.00 L
LOT #13 WM	26' WIDE PRIVATE ROAD	11+01.34	17.00 L
LOT #14 WM	26' WIDE PRIVATE ROAD	11+41.52	16.08 L
LOT #15 WM	26' WIDE PRIVATE ROAD	11+54.74	17.00 L
LOT #16 WM	26' WIDE PRIVATE ROAD	15+43.30	17.00 R
LOT #17 WM	26' WIDE PRIVATE ROAD	15+29.62	17.00 R
LOT #18 WM	26' WIDE PRIVATE ROAD	14+76.79	17.00 R
LOT #19 WM	26' WIDE PRIVATE ROAD	14+62.41	17.10 R
LOT #20 WM	26' WIDE PRIVATE ROAD	14+28.51	17.00 R
LOT #21 WM	26' WIDE PRIVATE ROAD	14+25.89	17.00 R
LOT #22 WM	26' WIDE PRIVATE ROAD	14+10.11	17.00 R
LOT #23 WM	26' WIDE PRIVATE RD.	9+93.77	44.38 L
LOT #24 WM	26' WIDE PRIVATE RD.	9+96.96	41.98 L
LOT #25 WM	26' WIDE PRIVATE RD.	10+11.83	23.05 L

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

LEGEND

- BOUNDARY
- ROW
- CENTERLINE
- LOT LINE
- EASEMENT
- 15" STORM DRAIN
- 8" SANITARY SEWER
- 8" CULINARY WATER
- 8" SECONDARY WATER
- CONTOUR MAJOR
- CONTOUR MINOR
- EXIST. STORM DRAIN
- EXIST. SANITARY SEWER
- EXIST. CULINARY WATER
- EXIST. FENCE
- EXIST. CONTOUR MAJOR
- EXIST. CONTOUR MINOR
- SIGN
- STREET LIGHT
- SD MH, INLET, AND COMBO
- SEWER MANHOLE
- VALVE, TEE & BEND
- WATER BLOW-OFF
- FIRE HYDRANT
- STREET MONUMENT (TO BE SET)
- EXIST. STREET MONUMENT
- EXIST. SD INLET & MH
- EXIST. SEWER MH
- EXIST. VALVE, TEE, & BEND
- EXIST. FIRE HYDRANT
- SPOT ELEVATION



26' PRIVATE ROAD

N.T.S.

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MONTDELLA

ALPINE, UTAH

SEWER & WATER PLAN

REVISION BLOCK		
#	DATE	DESCRIPTION
1	-----	-----
2	-----	-----
3	-----	-----
4	-----	-----
5	-----	-----
6	-----	-----

SEWER & WATER PLAN

Scale:	1"=30'	Drawn:	AWS
Date:	4/12/2019	Job #:	18-421
Sheet:	C5		

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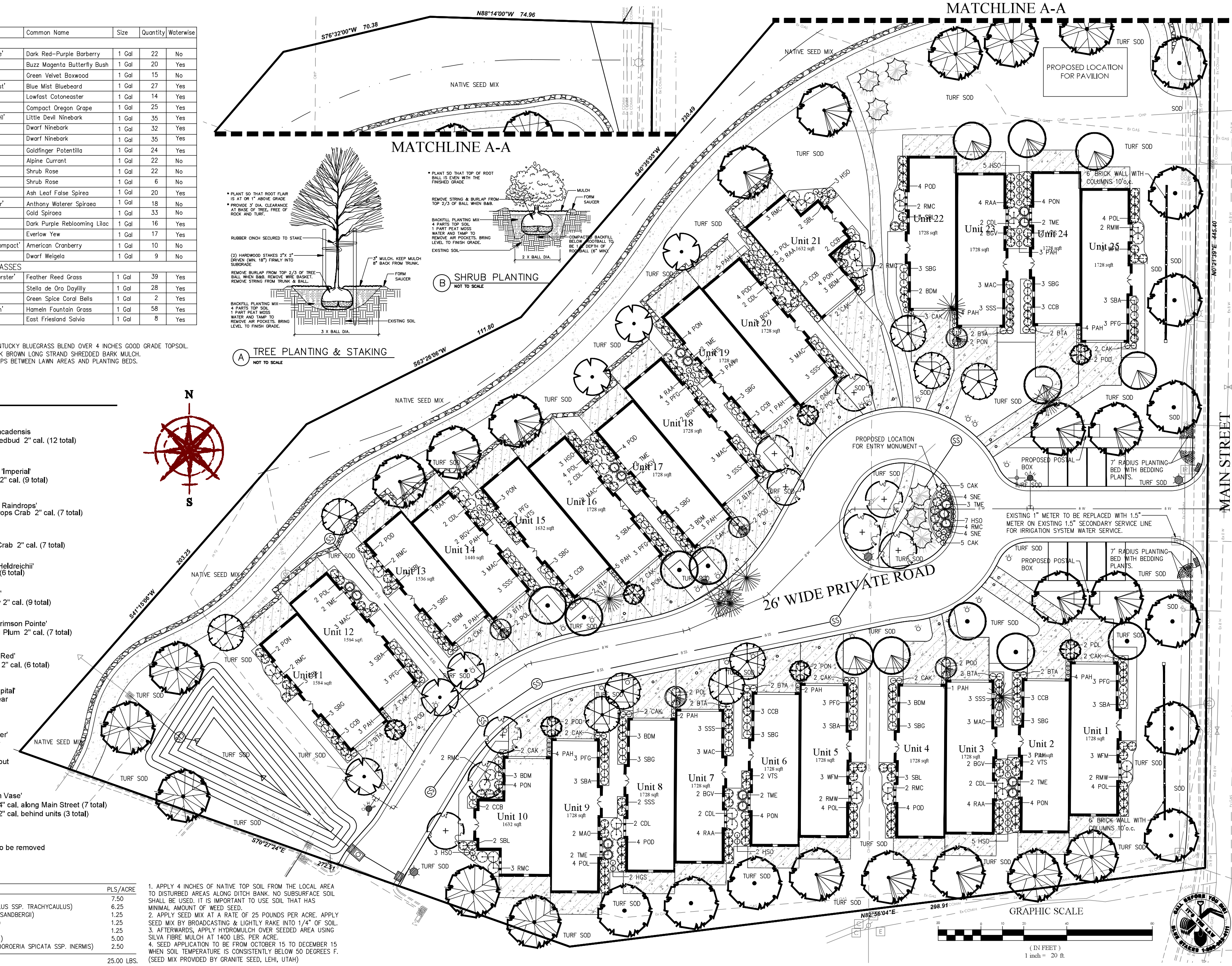
PLANT SCHEDULE

Symbol	Scientific Name	Common Name	Size	Quantity	Waterwise
SHRUBS					
BTA	Berberis thunbergii atro 'Concorde'	Dark Red-Purple Barberry	1 Gal	22	No
BDM	Buddleia davidii 'Buzz Magenta'	Buzz Magenta Butterfly Bush	1 Gal	20	Yes
BGV	Buxus 'Green Velvet'	Green Velvet Boxwood	1 Gal	15	No
CCB	Caryopteris clandonensis 'Blue Mist'	Blue Mist Bluebeard	1 Gal	27	Yes
CDL	Cotoneaster dammeri 'Lowfast'	Lowfast Cotoneaster	1 Gal	14	Yes
MAC	Mahonia aquifolium 'Compacta'	Compact Oregon Grape	1 Gal	25	Yes
POL	Physocarpus opulifolius 'Little Devil'	Little Devil Ninebark	1 Gal	35	Yes
POD	Physocarpus opulifolius 'Nanus'	Dwarf Ninebark	1 Gal	32	Yes
PON	Physocarpus opulifolius 'Nugget'	Dwarf Ninebark	1 Gal	35	Yes
PFG	Potentilla fruiticosa 'Goldfinger'	Goldfinger Potentilla	1 Gal	24	Yes
RAA	Ribes alpinum	Alpine Currant	1 Gal	22	No
RMC	Rosa 'Meidiland Crimson'	Shrub Rose	1 Gal	22	No
RMW	Rosa 'Meidiland White'	Shrub Rose	1 Gal	6	No
SSS	Sorbaria sorbifolia 'Sem'	Ash Leaf False Spirea	1 Gal	20	Yes
SBA	Spiraea bumalda 'Anthony Waterer'	Anthony Waterer Spiraea	1 Gal	18	No
SBG	Spiraea bumalda 'Goldmound'	Gold Spiraea	1 Gal	33	No
SBL	Syringa x SMSFBP7 'Bloomerang'	Dark Purple Reblooming Lilac	1 Gal	16	Yes
TME	Taxus media 'Everlow'	Everlow Yew	1 Gal	17	Yes
VTS	Viburnum trilobum 'Spring Red Compact'	American Cranberry	1 Gal	10	No
WFM	Weigela florida 'Minuet'	Dwarf Weigela	1 Gal	9	No
PERENNIALS & ORNAMENTAL GRASSES					
CAK	Calamagrostis acutiflora 'Karl Foerster'	Feather Reed Grass	1 Gal	39	Yes
HSO	Hemerocallis 'Stella de Oro'	Stella de Oro Daylilly	1 Gal	28	Yes
HGS	Heuchera 'Green Spice'	Green Spice Coral Bells	1 Gal	2	Yes
PAH	Pennisetum alopecuroides 'Hameln'	Hameln Fountain Grass	1 Gal	58	Yes
SNE	Salvia nemorosa 'East Friesland'	East Friesland Salvia	1 Gal	8	Yes

LANDSCAPE NOTES:

1. LAWN AREAS WILL BE SODDED WITH KENTUCKY BLUEGRASS BLEND OVER 4 INCHES GOOD GRADE TOPSOIL.
2. ALL PLANTING BEDS WILL HAVE 3" DARK BROWN LONG STRAND SHREDDED BARK MULCH.
3. INSTALL PLASTIC EDGING FOR MOW STRIPS BETWEEN LAWN AREAS AND PLANTING BEDS.



TREE LEGEND

- Cercis cancadensis — Eastern Redbud 2" cal. (12 total)
- Gleditsia triacanthos i. 'Imperial' — Imperial Honeylocust 2" cal. (9 total)
- Malus 'Royal Raindrops' — Royal Raindrops Crab 2" cal. (7 total)
- Malus 'Spring Snow' — Spring Snow Flowering Crab 2" cal. (7 total)
- Pinus leucodermis 'Heldreichii' — Bosnian Pine 6' ht. (6 total)
- Prunus serrulata 'Kwanzan' — Kwanzan Flowering Cherry 2" cal. (9 total)
- Prunus cerasifera 'Crimson Pointe' — Cripoizam Flowering Plum 2" cal. (7 total)
- Prunus virginiana 'Canada Red' — Canada Red Chokecherry 2" cal. (6 total)
- Pyrus calleryana 'Capital' — Capital Flowering Pear 2" cal. (5 total)
- Pyrus calleryana 'Chanticleer' — Chanticleer Flowering Pear 2" cal. (7 total) 6" cal. (3 total) in Roundabout
- Zelkova serrata 'Green Vase' — Green Vase Zelkova 4" cal. along Main Street (7 total); Green Vase Zelkova 2" cal. behind units (3 total)
- Existing conifer trees to be removed

NATIVE CABIN GRASS BLEND

SPECIES	PLS/ACRE
MOUNTAIN BROME (BROMUS MARGINATUS)	7.50
SLENDER WHEATGRASS (ELYMUS TRACHYCAULUS SSP. TRACHYCAULUS)	6.25
SANDBERG BLUEGRASS (POA SECUNDA SSP. SANDBERGII)	1.25
BIG BLUEGRASS (POA SECUNDA SSP. AMPLA)	1.25
SHEEP FESCUE (FESTUCA OVINA)	1.25
WESTERN WHEATGRASS (PASCOPYRUM SMITHII)	5.00
BEARDLESS BLUEBUNCH WHEATGRASS (PSEUDOROERIA SPICATA SSP. INERMIS)	2.50
TOTAL	25.00 LBS.

1. APPLY 4 INCHES OF NATIVE TOP SOIL FROM THE LOCAL AREA TO DISTURBED AREAS ALONG DITCH BANK. NO SUBSURFACE SOIL SHALL BE USED. IT IS IMPORTANT TO USE SOIL THAT HAS MINIMAL AMOUNT OF WEED SEED.
2. APPLY SEED MIX AT A RATE OF 25 POUNDS PER ACRE. APPLY SEED MIX BY BROADCASTING & LIGHTLY RAKE INTO 1/4" OF SOIL.
3. AFTERWARDS, APPLY HYDROMULCH OVER SEEDED AREA USING SILVA FIBRE MULCH AT 1400 LBS. PER ACRE.
4. SEED APPLICATION TO BE FROM OCTOBER 15 TO DECEMBER 15 WHEN SOIL TEMPERATURE IS CONSISTENTLY BELOW 50 DEGREES F. (SEED MIX PROVIDED BY GRANITE SEED, LEHI, UTAH)

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LICENSED LANDSCAPE ARCHITECT — No. 103994 ALAN K WEAVER — STATE OF UTAH

MONTDELLA
ALPINE, UTAH
LANDSCAPE PLAN

REVISION BLOCK

#	DATE	DESCRIPTION
1		
2		
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4		
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6		

LANDSCAPE PLAN

Scale:	1"=20'	Drawn:	AW
Date:	4/12/2019	Job #:	18-421
Sheet:	L1		

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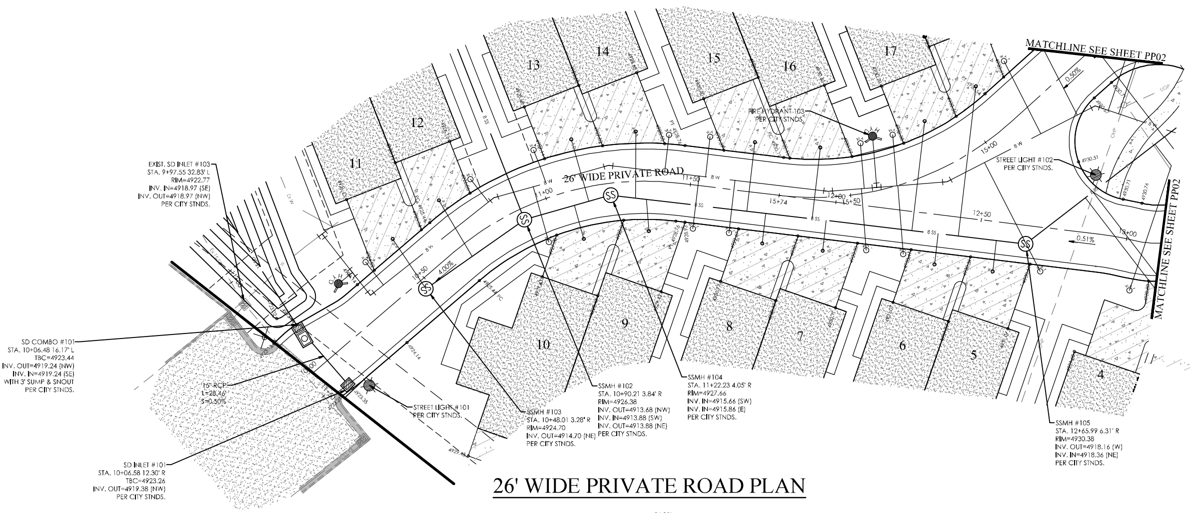
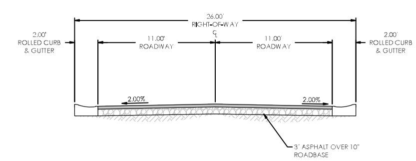
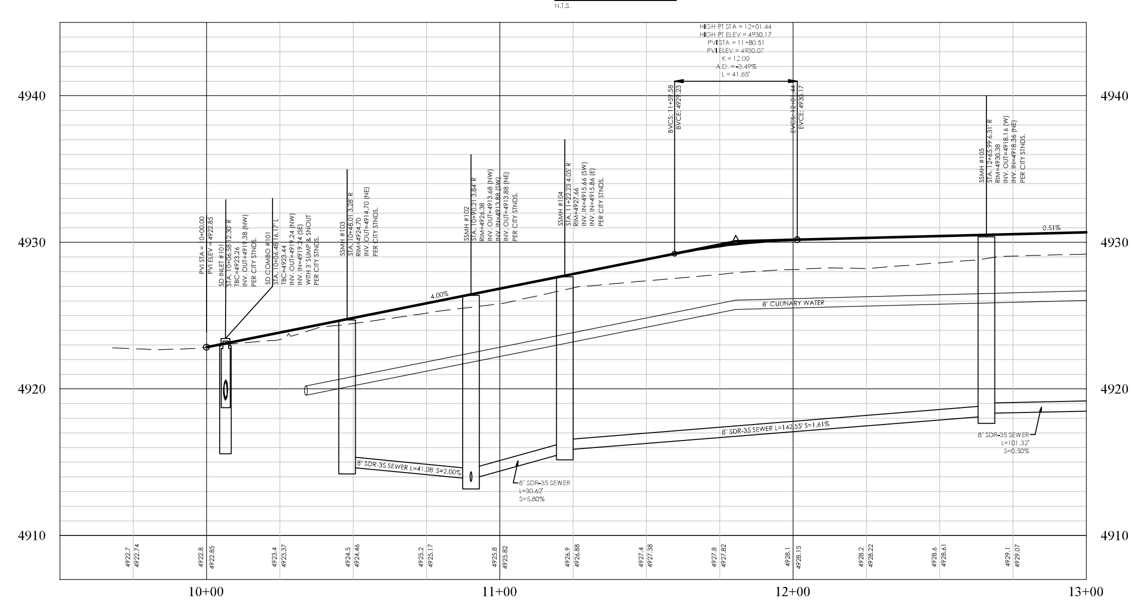


26' WIDE PRIVATE ROAD PLAN



26' PRIVATE ROAD

N.T.S.



26' WIDE PRIVATE ROAD PROFILE

N
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GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

LEGEND

- BOUNDARY
- ROW
- CENTERLINE
- LOT LINE
- EASEMENT
- 15" STORM DRAIN
- 8" SANITARY SEWER
- 8" CULINARY WATER
- 8" SECONDARY WATER
- CONTOUR MAJOR
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- SPOT ELEVATION

BENCHMARK

NE1/4 OF SECTION 25 AND SE1/4 OF SECTION 24
TOWNSHIP 4 S, RANGE 1 E
SALT LAKE BASE AND MERIDIAN
ELEV: 4,946.87
DATUM: NGVD29

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MONTDELLA

ALPINE, UTAH

26' WIDE PRIVATE ROAD

REVISION BLOCK

#	DATE	DESCRIPTION
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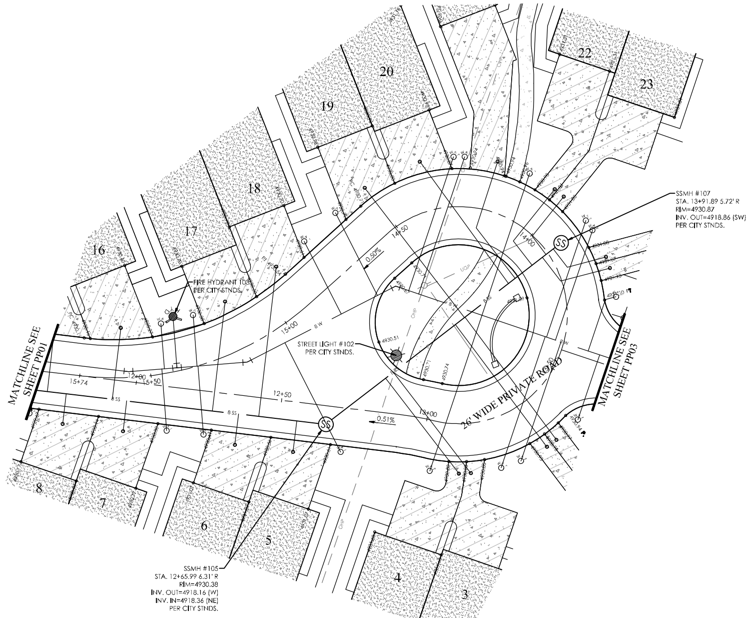
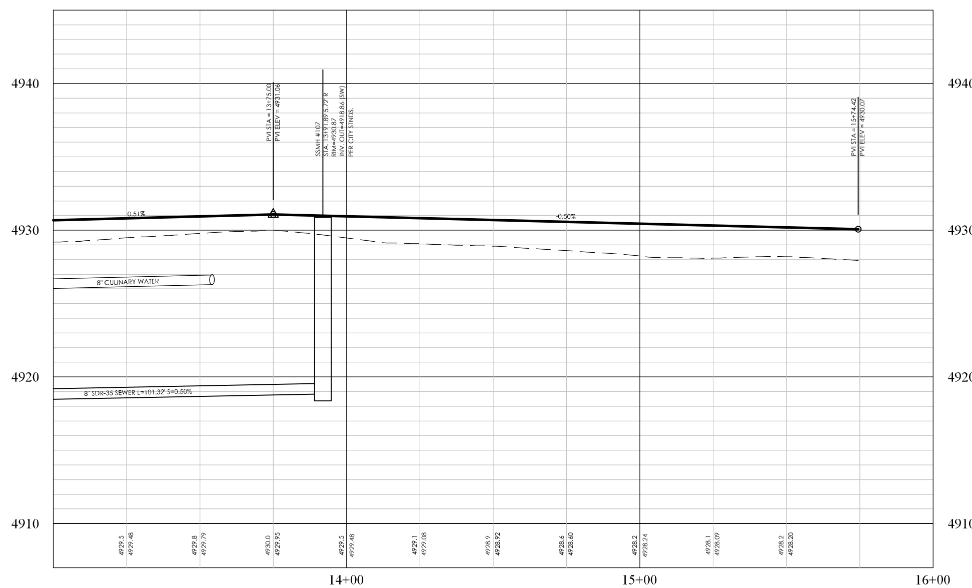
26' WIDE PRIVATE ROAD

Scale:	1"=20'	Drawn:	AWS
Date:	4/12/2019	Job #:	18-421
Sheet:	PP01		

Z:_2018\18-421 Alpine Townhome\design 18-421\dwg\Sheets\Final\PP01 - STREET A.dwg



26' WIDE PRIVATE ROAD PLAN



26' WIDE PRIVATE ROAD PROFILE

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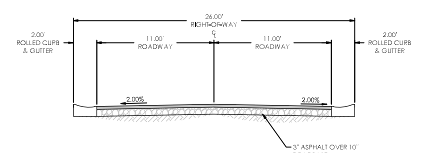

26' PRIVATE ROAD
N.T.S.

BENCHMARK
NE1/4 OF SECTION 25 AND SE1/4 OF SECTION 24
TOWNSHIP 4 S, RANGE 1 E
SALT LAKE BASE AND MERIDIAN
ELEV: 4,946.87
DATUM: NGVD29

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MONTDELLA
ALPINE, UTAH
26' WIDE PRIVATE ROAD

REVISION BLOCK

#	DATE	DESCRIPTION
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26' WIDE PRIVATE ROAD

Scale: 1"=20' Drawn: AWS
Date: 4/12/2019 Job #: 18-421
Sheet: PP02

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MONTDELLA

ALPINE, UTAH

26' WIDE PRIVATE ROAD

GRAPHIC SCALE

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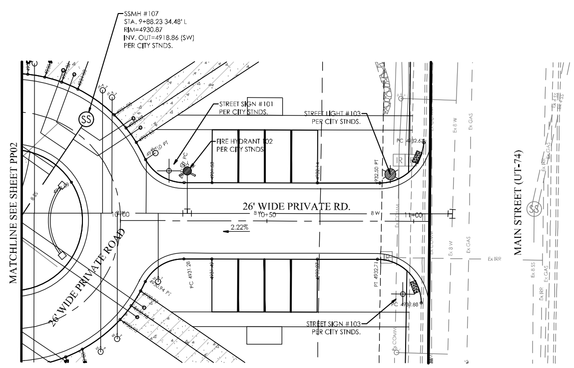
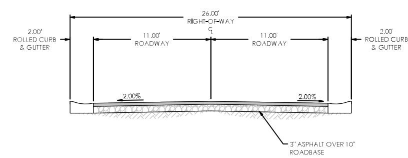
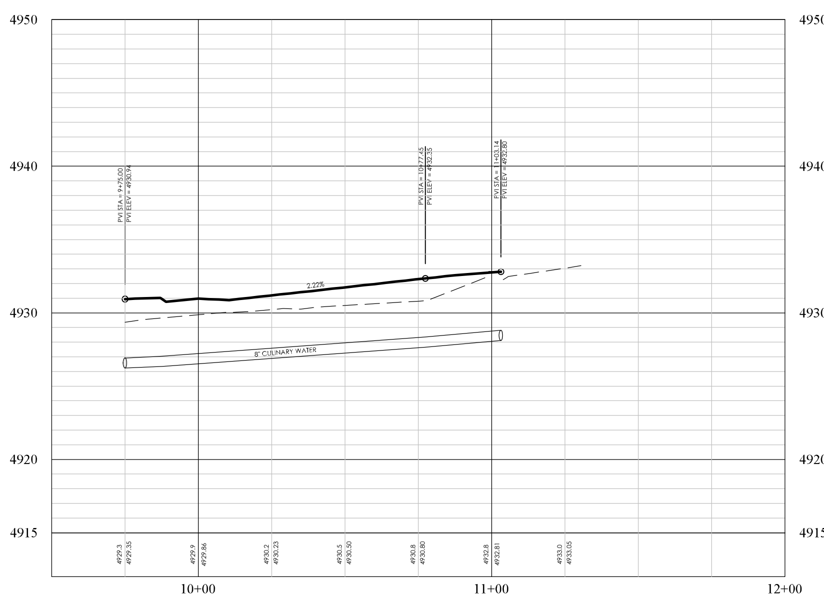


26' WIDE PRIVATE ROAD PLAN

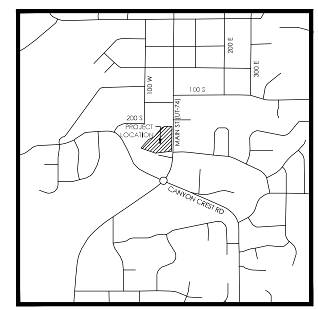


26' PRIVATE ROAD

N.T.S.



26' WIDE PRIVATE RD. PROFILE



VICINITY MAP
N.T.S

BENCHMARK

NE1/4 OF SECTION 25 AND SE1/4 OF SECTION 24
TOWNSHIP 4 S, RANGE 1 E
SALT LAKE BASE AND MERIDIAN
ELEV: 4,946.87
DATUM: NGVD29

REVISION BLOCK

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26' WIDE PRIVATE ROAD

Scale:	1"=20'	Drawn:	AWS
Date:	4/12/2019	Job #:	18-421
Sheet:	PP03		

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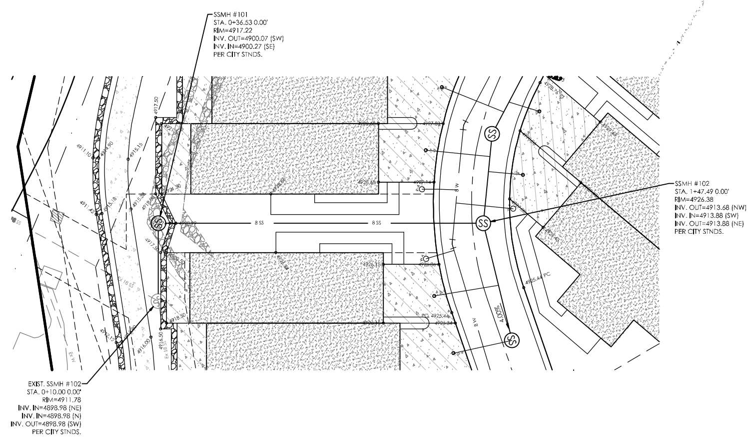
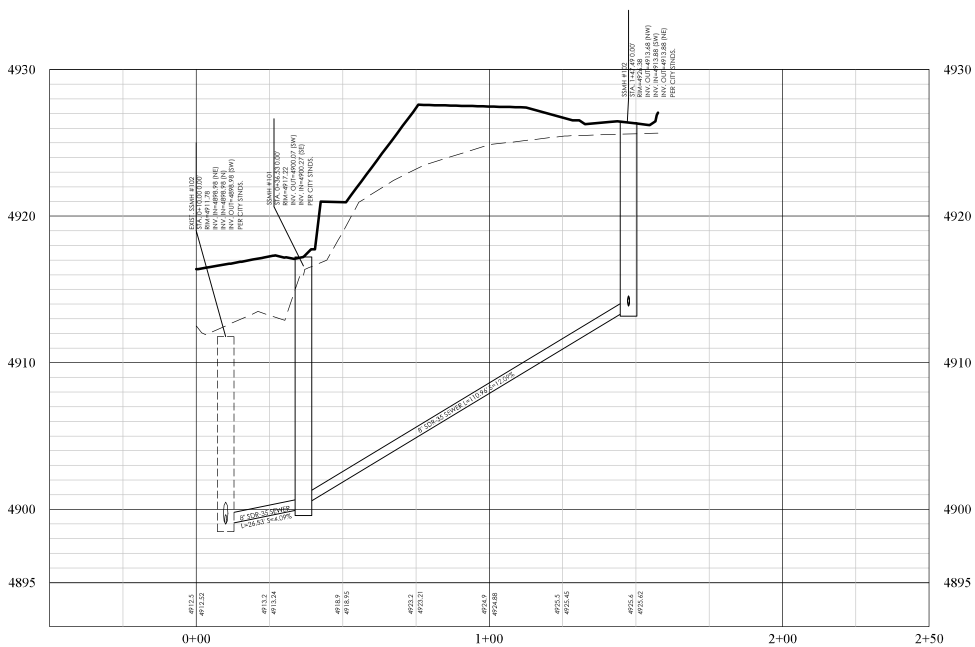


PROPOSED SEWER PLAN



SEWER OUTFALL PROFILE

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GRAPHIC SCALE

(IN FEET)
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- ROW
- CENTERLINE
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BENCHMARK

NE1/4 OF SECTION 25 AND SE1/4 OF SECTION 24
TOWNSHIP 4 S, RANGE 1 E
SALT LAKE BASE AND MERIDIAN
ELEV: 4,946.87
DATUM: NGVD29

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SEWER OUTFALL

REVISION BLOCK

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SEWER OUTFALL

Scale:	1"=20'	Drawn:	AWS
Date:	4/12/2019	Job #:	18-421
Sheet:	PP04		

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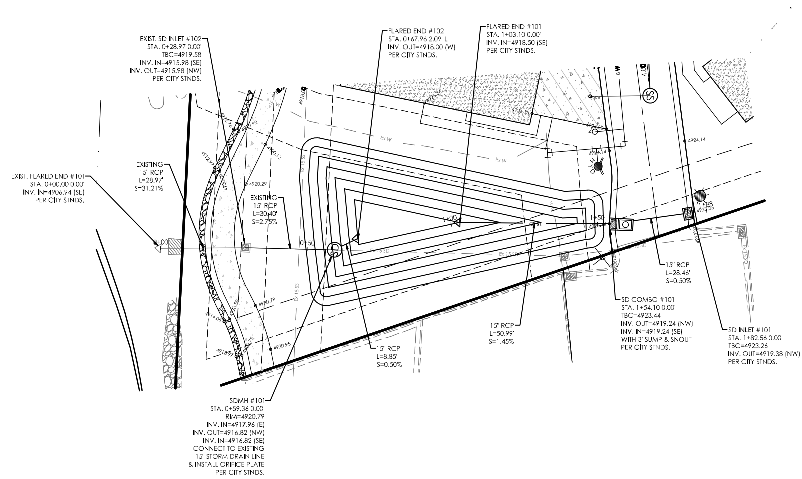
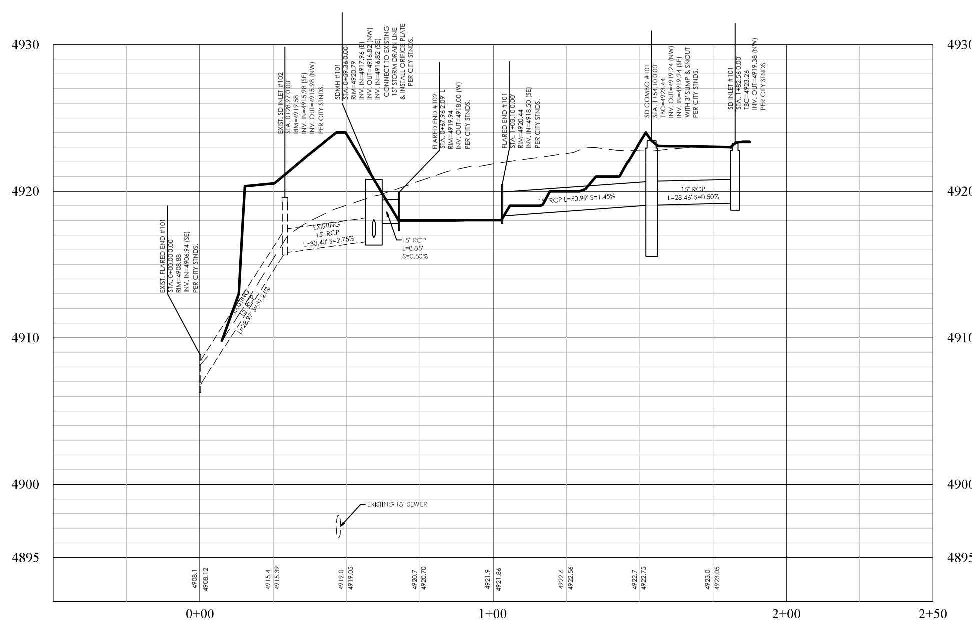


STORM DRAIN OUTFALL PLAN



STORM DRAIN OUTFALL PROFILE

GRAPHIC SCALE

(IN FEET)
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MONTDELLA
ALPINE, UTAH
STORM DRAIN OUTFALL

REVISION BLOCK

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STORM DRAIN OUTFALL

Scale: 1"=20' Drawn: AWS
Date: 4/12/2019 Job #: 18-421
Sheet: PP05

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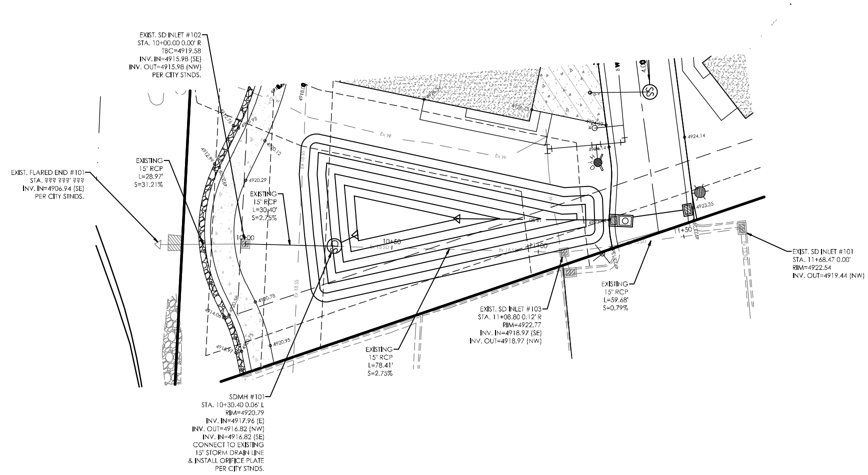
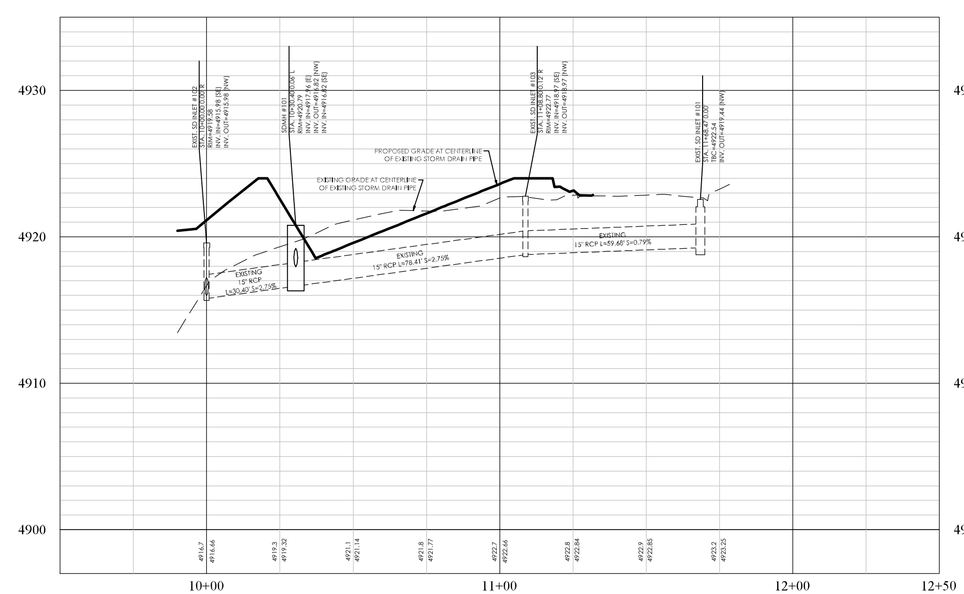


EXISTING STORM DRAIN OUTFALL PLAN



EXISTING STORM DRAIN OUTFALL PROFILE

GRAPHIC SCALE

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ALPINE, UTAH

EXISTING STORM DRAIN OUTFALL

REVISION BLOCK

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EXISTING STORM DRAIN OUTFALL

Scale:	1"=20'	Drawn:	AWS
Date:	4/12/2019	Job #:	18-421
Sheet:	PP06		

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Re: Montdella Development

1 message

Reed Thompson <rthompson@lonepeakfire.com> Wed, Mar 13, 2019 at 6:56 PM
To: Brandon Parr <bparr@focusutah.com>
Cc: Alan Cottle <acottle@cottlecapital.com>, aroy@alpinecity.org

Brandon,

I apologize as I was out of the office yesterday with training, and today I was out sick.

In reviewing the plans I had three comments to be addressed.

1. The road width will need to be 26' to accommodate an aerial fire apparatus. The plans show 24' including the rolled curb.
2. The round about island will need to be reduced to accommodate placement of fire apparatus in that area during a fire and address the turning radius negotiation of apparatus travel.
3. Due to the close proximity of the housing units and the risk of fire exposure spread, at least one additional fire hydrant will be required midway through the private street.
4. Based on limited access to the rear of the structures on the north side, we will likely restrict the use of barbecue grills on floor two rear patios.

Please let me know if you have any questions.

Thanks,

Reed M. Thompson
Fire Chief
Lone Peak Fire District
rthompson@lonepeakfire.com
801-330-4380

On Mar 13, 2019, at 5:10 PM, Brandon Parr <bparr@focusutah.com> wrote:

> Hello Reed,
>
> I am working on the Montdella Development in Alpine with Alan Cottle. He mentioned you had some concerns with the development. I am going to be addressing some minor comments from planning and engineering in the next few days and would love to get any of your comments addressed at the same time. Can you please let me know what your concerns/comments are as soon as possible so that we can get everything addressed at the same time. Feel free to give me a call if you have any questions.
>
> Thanks,
>
> Brandon

BRANDON PARR
PROJECT MANAGER

FOCUS ENGINEERING & SURVEYING, LLC
GRIT

O: 801-352-0075

M: 801-910-2066

BPARR@FOCUSUTAH.COM

FOCUSUTAH.COM

32 W. CENTER STREET
MIDVALE, UT 84047

MEMORANDUM

Date: February 14, 2019

To: Cottle Capital Group

From: Hales Engineering

Subject: Alpine City Alpine Townhomes TGS

UT19-1392

This memorandum discusses the trip generation study completed for the proposed Alpine Townhomes. A vicinity map of the proposed development is shown in Figure 1.

Figure 1: Vicinity map of the proposed development in Alpine, Utah

Background

The proposed Alpine Townhomes are located west of Main Street and just north of the Alpine Main Street Village. The project includes 26 townhomes that are anticipated to be a +55 community. It is anticipated that the project will have one access to Main Street and one that will cut through the Alpine Main Street Village to the south and access Canyon Creek Road. A site plan for the proposed development is included in Appendix A.

The proposed land use for the development has been identified as follows:

- Multifamily Housing (Mid-Rise) - Townhomes 26 units

Trip Generation

Trip generation for the development was calculated using trip generation rates published in the Institute of Transportation Engineers (ITE) *Trip Generation (10th Edition, 2017)*. Trip generation for the proposed project is included in Table 1.

As shown in Table 1, it is anticipated that the proposed townhomes will generate approximately 140 trips on an average weekday, including 10 trips during the morning peak hour, and 12 trips during the evening peak hour.

Table 3
Alpine - Alpine Townhomes TGS
Trip Generation

Weekday Daily Land Use[1]	# of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	**Total Daily Trips**
Multifamily Housing (Mid-Rise) (221)	26	Dwelling Units	140	50%	50%	70	70	**140**
Project Total Daily Trips						**70**	**70**	**140**
Morning Peak Hour Land Use[1]	# of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	**Total a.m. Trips**
Multifamily Housing (Mid-Rise) (221)	26	Dwelling Units	10	26%	74%	3	7	**10**
Project Total a.m. Peak Hour Trips						**3**	**7**	**10**
Evening Peak Hour Land Use[1]	# of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	**Total p.m. Trips**
Multifamily Housing (Mid-Rise) (221)	26	Dwelling Units	12	61%	39%	7	5	**12**
Project Total p.m. Peak Hour Trips						**7**	**5**	**12**

1. Land Use Code from the Institute of Transportation Engineers (ITE) *Trip Generation*, 10th Edition, 2017.

SOURCE: Hales Engineering, February 2019

Trip Assignment

Project traffic is assigned to the roadway network based on the type of trip and the proximity of project access points to major streets, high population densities, and regional trip attractions. Existing travel patterns observed during data collection also provide helpful guidance to establishing the trip assignment. These assumptions were used to assign the morning peak hour trips for the development as shown in Figure 2.

Project Access

The proposed project is planned to have an access out to Main Street and one that heads south through the Alpine Main Street Village. Main Street is a busy roadway with over 10,000 vehicles traveling it a day. During the morning peak hour, the near-by Mountainville Academy bring a lot of traffic into the area. This traffic would make left-turns out of the project access very difficult and dangerous. There are over 1,000 vehicles passing the proposed access during the peak hour.

The northbound traffic during the morning peak hour is expected to have many vehicles heading north towards on the school on Main Street. Turning left into he site will hold up northbound traffic while a gap in the southbound direction becomes available. There are currently 650 vehicles heading north past this access with approximately 550 vehicles heading southbound past the access.

There are three potential options for the Main Street Access with Main Street:

<u>Option 1 - Full-movement access.</u>

Pros

- Allows all movements to use this access
- Reduces the amount of circuitous travel
- Limited number of seniors traveling during peak hours (low volume access)

Cons

- Can cause queueing in the northbound direction as a northbound left-turning vehicle will cause delay for vehicles headed northbound
- Left-turns out of the access may be difficult and dangerous
- Left-turns across travel lanes can be dangerous

Alpine - Alpine Townhomes TGS
Trip Assignment

Morning Peak Hour
Figure 2

Hales Engineering
120 North 500 West Ste 202, Lehi, UT, 84043

801.766.4343
02/12/2019

Option 2 – 3/4-movement access.

- A ¾ access with right-in right-out (RIRO) and an eastbound to northbound left turn out would not be geometrically feasible as a raised median controlling access followed by and acceleration lane and a merge area would impact the school traffic negatively.
- A ¾ access with a RIRO and a northbound to westbound left-turn lane in would be feasible with a small raised island limiting egress movements to right-out only. In this scenario, the left-turn in would need to be initiated from the northbound through travel lane, therefore, vehicles behind the left-turning vehicle would need to wait and incur delay. Although this is not an idea scenario, it is one that would be consistent with the recommendations for the Mountainville Academy traffic study, e.g., providing should storage for parent drop off and pick up.

Option 3 – Right-in, Right-out only access.

Pros

- Allows only right-turns into and out of this access which is more safe than full movement or ¾ accesses
- Left-turns eliminated, reducing conflict points and further increasing safety.
- Northbound left-turn delay is eliminated

Cons

- All left-turn movements will need to be completed at Canyon Creek Road
- There will be a slight increase to traffic on Canyon Creek Road

Each of these alternatives are anticipated to function adequately due to the low volume of traffic expected to be generated by the site, except the ¾ access out of the project site. As the access becomes more restricted, e.g., full to ¾, to RIRO, the access will become safer.

Conclusions

The findings of this study are as follows:

- The proposed development is planned to have a total of 26 townhomes that are anticipated to be a 55+ community.
- It is anticipated that the proposed project will generate approximately 140 trips on an average weekday, including 10 trips during the morning peak hour, and 12 trips during the evening peak hour.
- Four access alternatives have been provided for Main Street
    - Full-movement access
    - ¾ access (RIRO + left out, or RIRO + left in)
    - Right-in, right-out only access (RIRO)

- The City and Developer should meet and discuss the Main Street access and come to an agreement between safety and accessibility for the site.

APPENDIX A

Site Plan

ALPINE TOWNHOMES

PREPARED FOR:
ALAN COTTLE
LOCATED IN:
ALPINE, UT

Sheet List Table	
Sheet Number	Sheet Title
C1	COVER SHEET
C2	PRELIMINARY PLAT
C3	SITE & UTILITY PLAN
C4	GRADING & DRAINAGE PLAN
PP01	STREET A
PP02	STREET A
PP03	STREET B
PP04	PROPOSED SEWER

SITE MAP

GRAPHIC SCALE

(IN FEET)

CONTACTS

ENGINEER & SURVEYOR
FOCUS ENGINEERING & SURVEYING, LLC
32 WEST CENTER STREET
MIDVALE, UTAH 84047
(801) 352-0075
PROJECT MANAGER, BRANDON PARR
SURVEY MANAGER SPENCER LLEWELYN

OWNER/DEVELOPER
ALAN COTTLE
COTTLE CAPITAL GROUP, LLC
561 NORTH 500 WEST, SUITE 101
BOUNTIFUL, UTAH 84010

GENERAL NOTES

1. CONTRACTOR TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

2. ANY AND ALL DISCREPANCIES IN THESE PLANS ARE TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO COMMENCEMENT OF CONSTRUCTION

3. ALL CONSTRUCTION SHALL ADHERE TO ALPINE CITY STANDARD PLANS AND SPECIFICATIONS

4. ALL UTILITIES AND ROAD IMPROVEMENTS SHOWN ON THE PLANS HEREIN SHALL BE CONSTRUCTED USING REFERENCE TO SURVEY CONSTRUCTION STAKES PLACED UNDER THE SUPERVISION OF A PROFESSIONAL LICENSED SURVEYOR WITH A CURRENT LICENSE ISSUED BY THE STATE OF UTAH. ANY IMPROVEMENTS INSTALLED BY ANY OTHER VERTICAL OR HORIZONTAL REFERENCE WILL NOT BE ACCEPTED OR CERTIFIED BY THE ENGINEER OF RECORD

5. THIS DRAWING SET IS SCALED TO BE PRINTED ON A 24" X 36" SIZE OF PAPER (ARCH D) IF PRINTED ON A SMALLER PAPER SIZE, THE DRAWING WILL NOT BE TO SCALE AND SHOULD NOT BE USED TO SCALE MEASUREMENTS FROM THE PAPER DRAWING. ALSO USE CAUTION AS THERE MAY BE TEXT OR DETAIL THAT MAY BE OVERLOOKED DUE TO THE SMALL SIZE OF THE DRAWINGS.

NOTICE

BEFORE PROCEEDING WITH THIS WORK, THE CONTRACTOR SHALL CAREFULLY CHECK AND VERIFY ALL CONDITIONS, QUANTITIES, DIMENSIONS AND GRADE ELEVATIONS, AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER.

ENGINEER'S NOTES TO CONTRACTOR

1. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS. IF UTILITY LINES ARE ENCOUNTERED DURING CONSTRUCTION THAT ARE NOT IDENTIFIED BY THESE PLANS, CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY

2. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE CITY, THE OWNER, AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER

3. UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS

4. ALL CONTOUR LINES SHOWN ON THE PLANS ARE AN INTERPRETATION BY CAD SOFTWARE OF FIELD SURVEY WORK PERFORMED BY A LICENSED SURVEYOR. DUE TO THE POTENTIAL DIFFERENCES IN INTERPRETATION OF CONTOURS BY VARIOUS TYPES OF GRADING SOFTWARE BY OTHER ENGINEERS OR CONTRACTORS, FOCUS DOES NOT GUARANTEE OR WARRANTY THE ACCURACY OF SUCH LOWORK. FOR THIS REASON, FOCUS WILL NOT PROVIDE ANY GRADING CONTOURS IN CAD FOR ANY TYPE OF USE BY THE CONTRACTOR. SPOT ELEVATIONS AND PROFILE ELEVATIONS SHOWN ON THE DESIGN DRAWINGS GOVERN ALL DESIGN INFORMATION ILLUSTRATED ON THE APPROVED CONSTRUCTION SET. CONSTRUCTION EXPERTISE AND JUDGMENT BY THE CONTRACTOR IS ANTICIPATED BY THE ENGINEER TO COMPLETE BUILD-OUT OF THE INTENDED IMPROVEMENTS

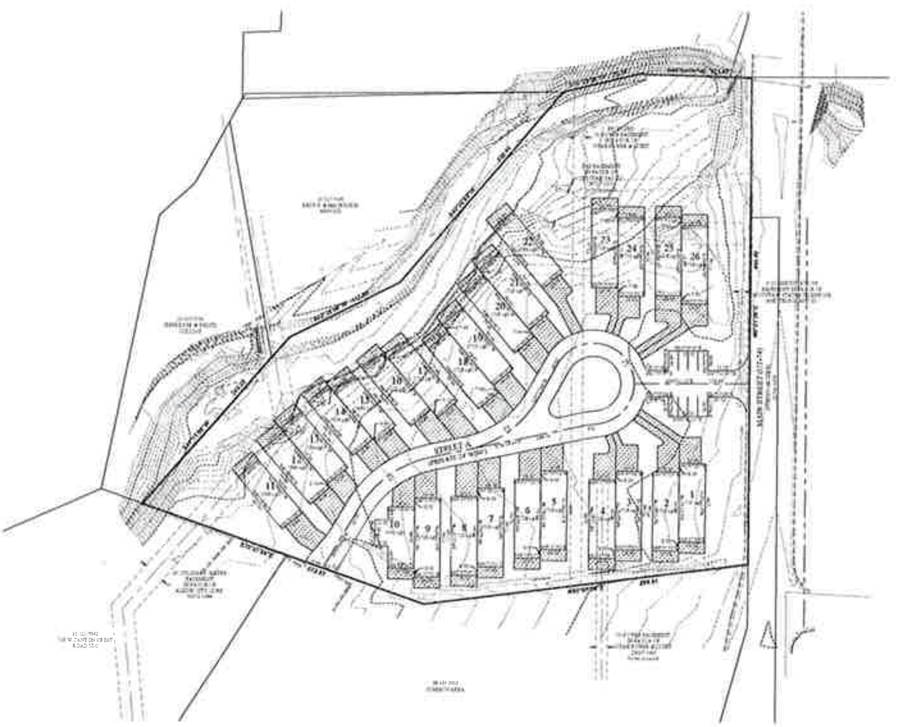
FOCUS
ENGINEERING AND SURVEYING, LLC

ALPINE TOWNHOMES
ALPINE, UT
COVER SHEET

COVER SHEET

C1

VICINITY MAP



GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

LEGEND

PRIVATE OWNERSHIP

LIMITED COMMON OWNERSHIP

COMMON OWNERSHIP

Curve Table					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

AREA TABULATIONS

OPEN SPACE AREA	[illegible]
BUILDING PAD DRIVEWAY AREA	[illegible]
ROW AREA	[illegible]
TOTAL AREA	[illegible]

FEMA NOTES

- THIS PROPERTY IS ASSOCIATED WITH TWO FEMA FLOOD ZONES. ZONE A AND ZONE C. THIS INFORMATION COMES FROM COMMUNITY PANEL #490238 0005 A, WITH AN EFFECTIVE DATE OF APRIL 4, 1983
- ZONE A IS DEFINED AS AREAS OF 100-YEAR FLOOD; BASE FLOOD ELEVATIONS AND FLOOD HAZARD FACTORS NOT DETERMINED. THE PROPERTY LOCATED ALONG DRY CREEK IS WITHIN ZONE A.
- ZONE C IS DEFINED AS AREAS OF MINIMAL FLOODING. THE MAJORITY OF THIS PROPERTY IS WITHIN ZONE C

FOCUS
ENGINEERING AND SURVEYING, LLC

SURVEYOR'S CERTIFICATE

I, Evan Wood, do hereby certify that I am a Professional Land Surveyor, and that I hold Certificate No. 181395 in accordance with Title 58, Chapter 22 of Utah State Code. I further certify by authority of the owner(s) that I have completed a Survey of the property described on this Plat in accordance with Section 17-23-17 of said Code, and have subdivided said tract of land into lots, blocks, streets, and easements, and the same has, or will be correctly surveyed, staked and monumented on the ground as shown on this Plat, and that this Plat is true and correct.

Evan Wood
Professional Land Surveyor
Certificate No. 181395 Date

BOUNDARY DESCRIPTION

Located in the NE1/4 of Section 23 and the SE1/4 of Section 14 of Township 4 South, Range 1 East, Salt Lake Base and Meridian. Comprised of three (3) parcels identified by Utah County Tax Id. Numbers 11:023:0010, 11:023:0109 & 11:023:0110, being more particularly described as follows:

BEGINNING AT A POINT NORTH 132.76 FEET AND WEST 1351.10 FEET FROM THE NORTHEAST CORNER OF SECTION 23, TOWNSHIP 4 SOUTH, RANGE 1 EAST, SALT LAKE BASE AND MERIDIAN; THENCE ALONG THE SOUTH BOUNDARY LINE OF THE L. ROSS AND JOANNE C. BECK TITLE LINE (ENTRY 89336-2015) THE FOLLOWING 2 (TWO) COURSES: 1) NORTH 88°10' WEST 74.06 FEET, THENCE 2) SOUTH 74°32' WEST 70.38 FEET; THENCE SOUTH 40°16'05" WEST 330.49 FEET; THENCE SOUTH 68°56'06" WEST 111.80 FEET; THENCE SOUTH 41°15'06" WEST 203.23 FEET; THENCE TO AND ALONG ALPINE MAIN STREET VILLAGE 4TH AMENDED PLAT "A" THE FOLLOWING 2 (TWO) COURSES: 1) SOUTH 7°02'24" EAST 172.81 FEET; THENCE 2) NORTH 82°56'01" EAST 389.91 FEET TO THE WESTERLY RIGHT OF WAY OF MAIN STREET AS ESTABLISHED BY THE WARRANTY DEED TO THE STATE ROAD COMMISSION OF UTAH (ENTRY 11764-1959); THENCE NORTH 00°21'30" EAST 441.40 FEET ALONG AND BEYOND SAID WARRANTY DEED; THENCE NORTH 58°11'00" WEST 23.89 FEET TO THE POINT OF BEGINNING.

CONTAINS 171,318 square feet or 3.94 acres+/-
of which 1,141 square feet of 0.03 acres+/-
lies inside the existing right of way of Main Street

OWNER'S DEDICATION

KNOW ALL MEN BY THESE PRESENT THAT WE, ALL OF THE UNDERSIGNED OWNERS OF ALL OF THE PROPERTY DESCRIBED IN THE SURVEYOR'S CERTIFICATE HEREON AND SHOWN ON THIS MAP, HAVE CAUSED THE SAME TO BE SUBDIVIDED INTO LOTS, BLOCKS, STREETS AND EASEMENTS AND DO HEREBY DEDICATE ANY PUBLIC STREETS AND OTHER PUBLIC AREAS AS INDICATED HEREON FOR PERPETUAL USE OF THE PUBLIC.

IN WITNESS WHEREOF WE HAVE HEREUNTO SET OUR HANDS THIS ______ DAY OF ______________
A.D. 20___

BY ______________________
(PRINTED NAME)
ITS ______________________

LIMITED LIABILITY ACKNOWLEDGMENT

STATE OF UTAH
S.S.
COUNTY OF ________

ON THE ___ DAY OF ______________ A.D. 20___, PERSONALLY APPEARED BEFORE ME, THE UNDERSIGNED NOTARY PUBLIC, IN AND FOR THE COUNTY OF ______________ IN SAID STATE OF UTAH, ______________ WHO AFTER BEING DULY SWORN, ACKNOWLEDGED TO ME THAT HE/SHE IS THE ______ OF ______ L.L.C., A UTAH L.L.C. AND THAT HE/SHE SIGNED THE OWNER'S DEDICATION FREELY AND VOLUNTARILY FOR AND IN BEHALF OF SAID LIMITED LIABILITY COMPANY FOR THE PURPOSES THEREIN MENTIONED.

MY COMMISSION EXPIRES ____________

A NOTARY PUBLIC COMMISSIONED IN UTAH RESIDING IN ___________ COUNTY

MY COMMISSION No. ______________

PRINTED FULL NAME OF NOTARY

ACCEPTANCE BY LEGISLATIVE BODY

THE CITY COUNCIL OF ALPINE CITY, COUNTY OF UTAH, APPROVES THIS SUBDIVISION AND HEREBY ACCEPTS THE DEDICATION OF ALL STREETS, EASEMENTS AND OTHER PARCELS OF LAND INTENDED FOR PUBLIC PURPOSES FOR THE PERPETUAL USE OF THE PUBLIC THIS ____ DAY OF ____________
A.D. 20___

APPROVED BY MAYOR

ATTEST: CITY RECORDER

APPROVED BY CITY ENGINEER

PLANNING COMMISSION APPROVAL

APPROVED THIS ____ DAY OF ______________ A.D. 20___ BY THE ALPINE CITY PLANNING COMMISSION

DIRECTOR - SECRETARY

CHAIRMAN, PLANNING COMMISSION

APPROVAL AS TO FORM

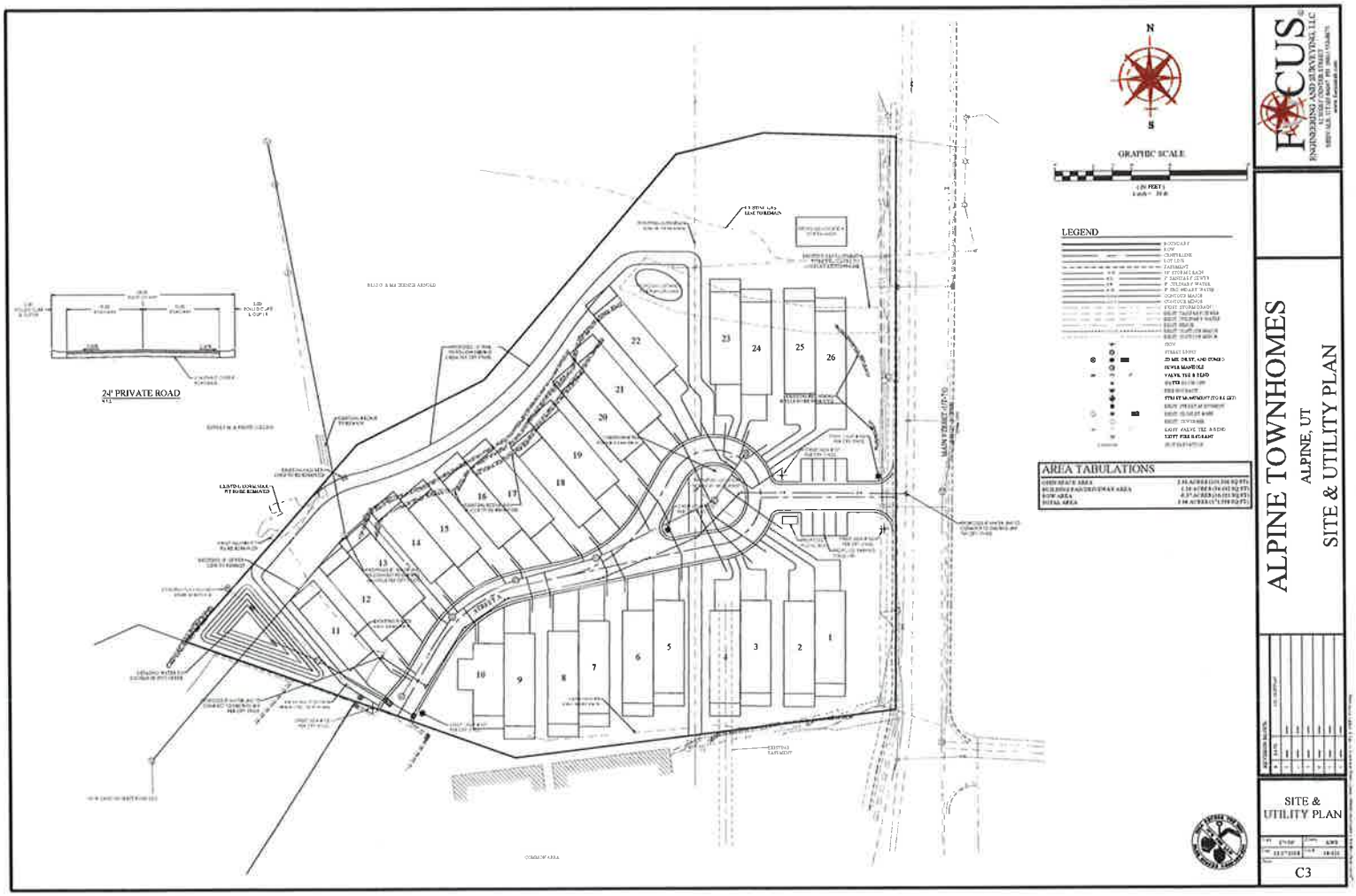
APPROVED AS TO FORM THIS ___ DAY OF ______________ A.D. 20___

CITY ATTORNEY ______________________

PRELIMINARY

ALPINE TOWNHOMES

SUBDIVISION
LOCATED IN THE NE1/4 OF SECTION 23 AND THE SE1/4 OF SECTION 14, T.4 S., R.1 E.
SALT LAKE BASE & MERIDIAN
ALPINE CITY, UTAH COUNTY, UTAH



FOCUS
ENGINEERING AND SURVEYING, LLC

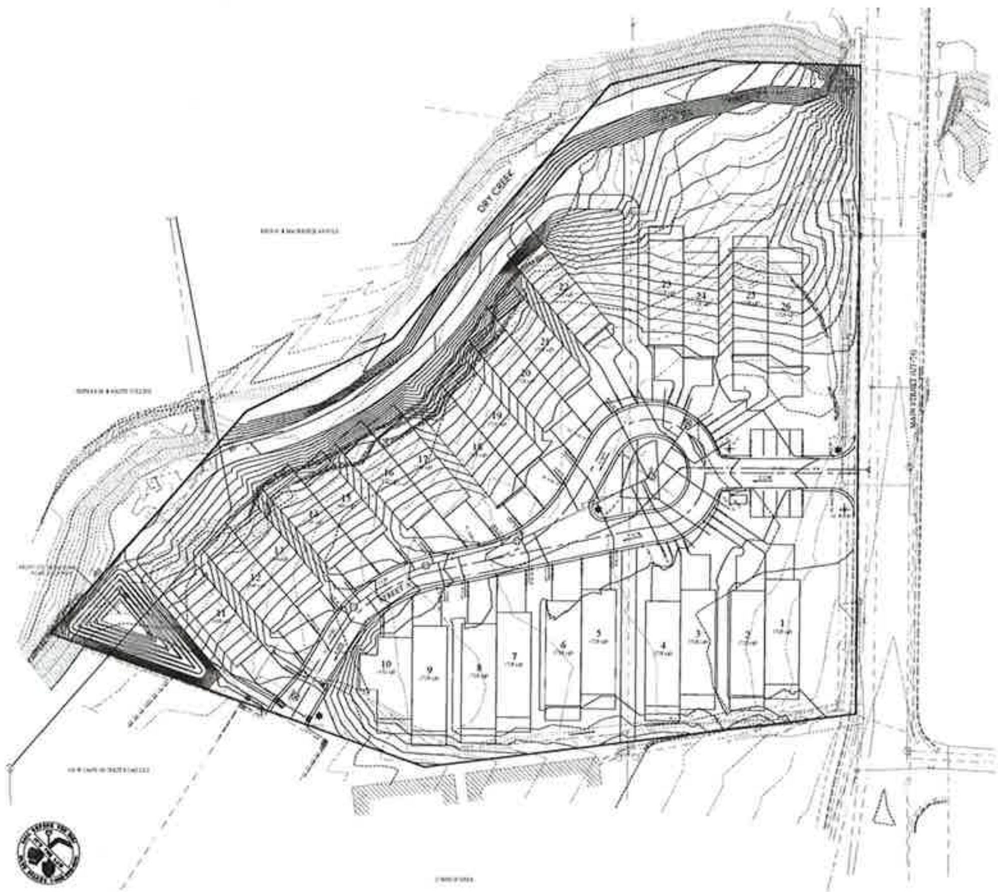
ALPINE TOWNHOMES

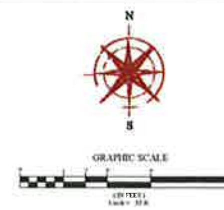
ALPINE, UT

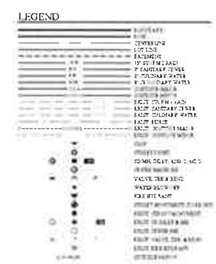
SITE & UTILITY PLAN

SITE & UTILITY PLAN

C3







Detention Pond

Project: Alpine Townhomes
Location: Alpine, Utah
Date: 11/27/2018
Designer: Alex Stewart

F*CUS

100-Year Detention Sizing

Design Criteria

Intensity Table: Per NOAA Atlas 14
Return Period: 100 years
Allowable Discharge: 0.20 cfs/acre Per Eagle Mountain City Standards

Allowable Discharges

Storm Drain Discharge: 0.79 cfs
Other Discharge: 0.00 cfs Sources:
Total Discharge: 0.788 cfs

Weighted "C" Value

Surface Type	Area (sf)	"C" Value	C*A
Building	[illegible]	[illegible]	[illegible]
Drives	[illegible]	[illegible]	[illegible]
Roadway and Sidewalk	16,021	0.85	13,618
Landscape	101,506	0.15	15,226
Totals	171,538		74,771
Weighted "C" Value		**0.44**	

Drainage Calculations

Duration	Intensity	Runoff C	Area	Runoff Flow	Runoff Volume Flow	Allowable Discharge	Discharge	Required Storage
min	in/hr		Ac	cfs	cf	cfs	cf	cf
[illegible]	[illegible]	0.44	3.94	[illegible]	[illegible]	0.79	[illegible]	[illegible]
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Maximum Storage Requirement: 7,978
Maximum Storage Requirement (acft): 0.18

Detention Basin Design

Storage Requirement: 7,978 cf
Allowable Depth: 1.0 ft
Detention Pond Volume: 8,590 cf
Roadway Sump Storage: 0 cf

Total Storage: 8,590 ***DETENTION ADEQUATE***

F*CUS ENGINEERING AND SURVEYING, LLC

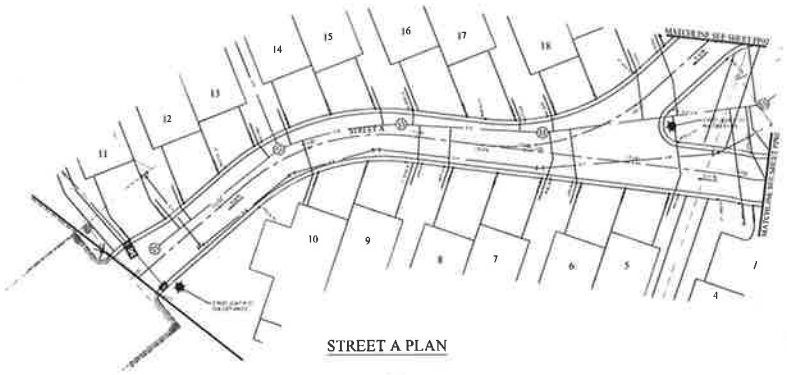
ALPINE TOWNHOMES

ALPINE, UT

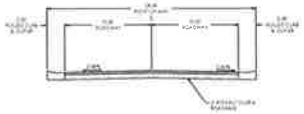
GRADING & DRAINAGE PLAN

GRADING & DRAINAGE PLAN

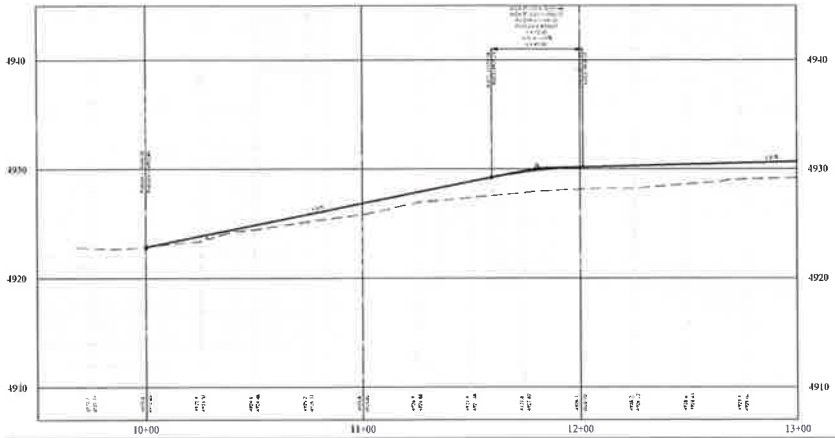
C4



STREET A PLAN



24' PRIVATE ROAD

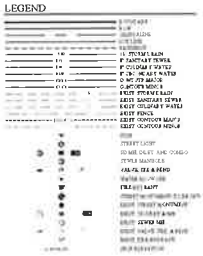


STREET A PROFILE

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft

LEGEND

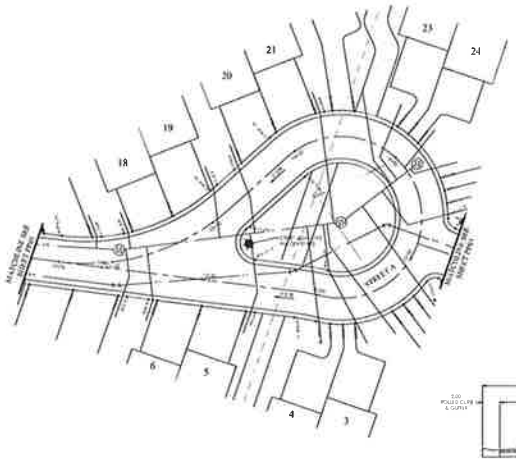


BENCHMARK

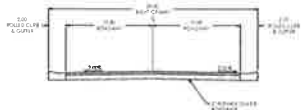
ALPINE TOWNHOMES
ALPINE, UT
STREET A

STREET A

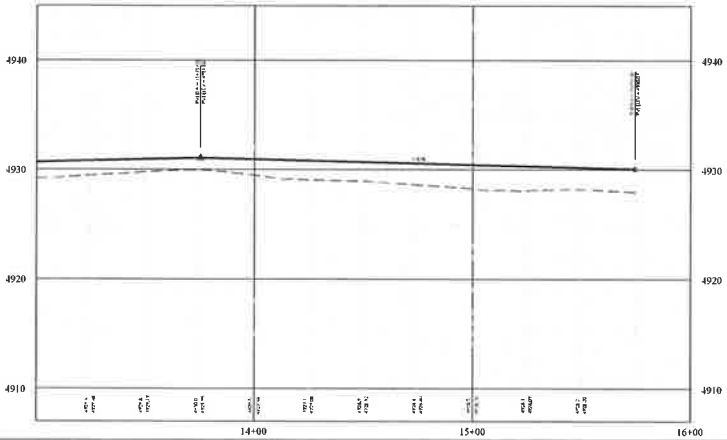
PP01



STREET A PLAN

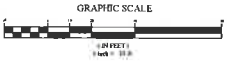


24' PRIVATE ROAD



STREET A PROFILE

GRAPHIC SCALE



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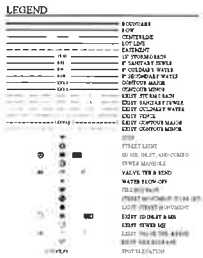


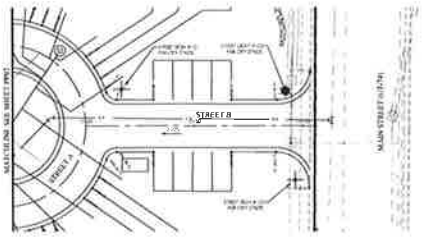
BENCHMARK

FOCUS
ENGINEERING AND SURVEYING, LLC

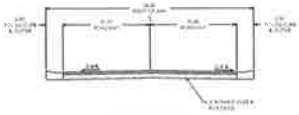
ALPINE TOWNHOMES
ALPINE, UT
STREET A

STREET A

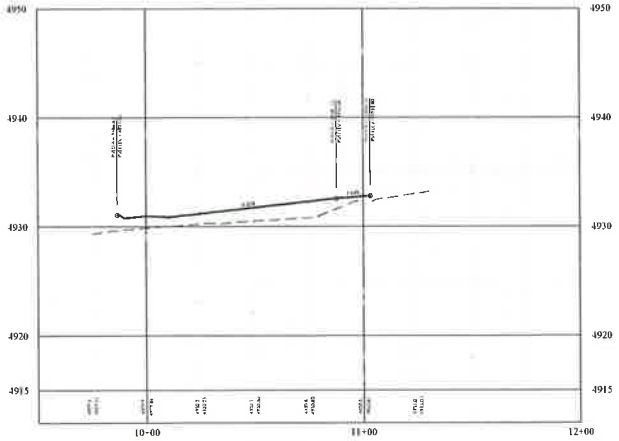
PP02



STREET B PLAN



24' PRIVATE ROAD

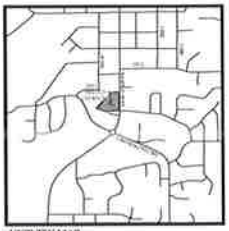


STREET B PROFILE

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft

LEGEND



VICINITY MAP

BENCHMARK

FOCUS
ENGINEERING AND SURVEYING, LLC
MIDVALE UTAH 84047 PH. (801) 352-0075
www.focusutah.com

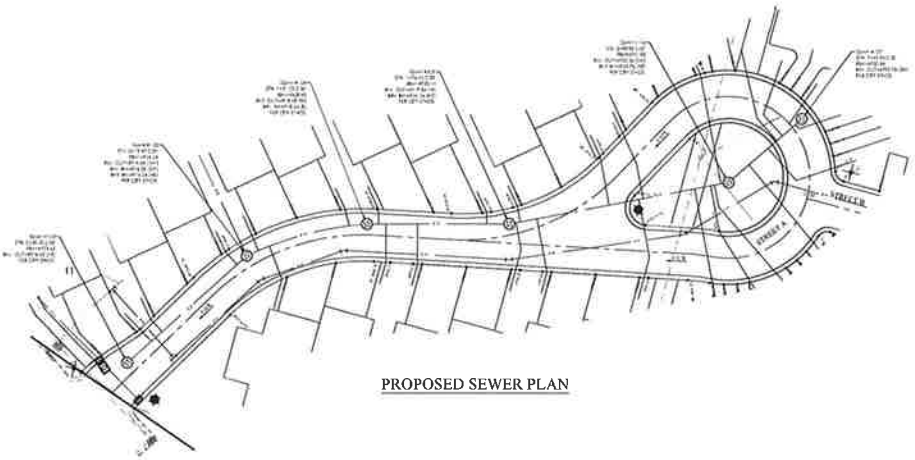
ALPINE TOWNHOMES

ALPINE, UT

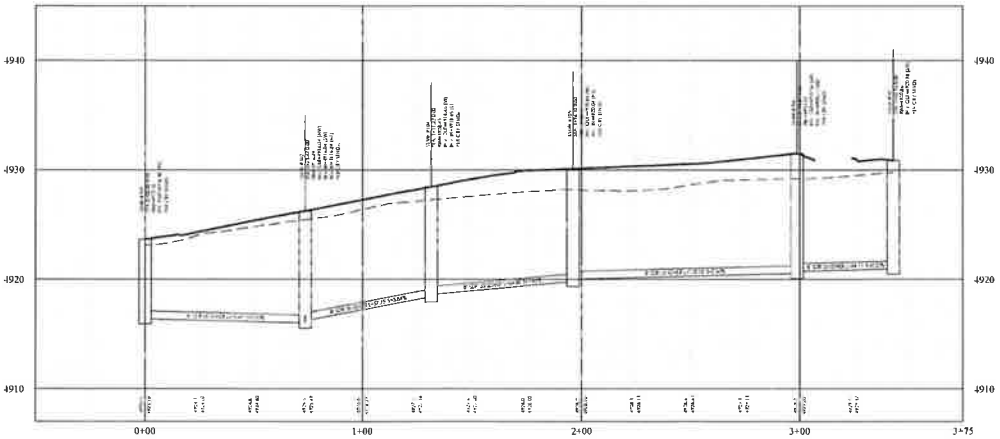
STREET B

STREET B

PP03



PROPOSED SEWER PLAN



PROPOSED SEWER PROFILE

GRAPHIC SCALE

LEGEND

BENCHMARK

PROPOSED SEWER

PP04

ALPINE TOWNHOMES

ALPINE, UT

PROPOSED SEWER

ALPINE TOWNHOMES

2/21/2019

Prepared for: Cottle Homes

Prepared by: Focus Engineering

FOCUS
ENGINEERING & SURVEYING

32 West Center Street
Midvale, UT 84047
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Web: www.focusutah.com

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APPENDICES

Grading and drainage plan
Pond Calculations

INSERT DATE

I. GENERAL LOCATION AND DESCRIPTION

The proposed project is located at 250 South Main Street in Alpine Utah and is 3.94 acres, with approximately 100% being disturbed with construction. The current use is a vacant field and the proposed use will be multi-family residential (townhomes). The property slopes from east to west at 1-5%

Dry Creek runs along the western boundary of the property.

A preliminary soils letter has been provided by Earthtec Engineering dated December 5, 2018 and the soil consists of clay, sand, and gravel below the fill material that has been placed on the site.

II. DRAINAGE BASIN

Existing storm water flows predominantly from east to west across the property and is collected naturally in Dry Creek, located on the western boundary of the property.

The property resides within two flood zones, Zone A and Zone C, per FEMA Community panel number 490228 0005 A, with an effective date of April 4, 1983. Zone A is defined as: Areas of 100-year flood; base flood elevations and flood hazard factors not determined. The property within Dry Creek and immediately adjacent to the creek are contained in Zone A. Zone C is defined as: Areas of minimal flooding. The majority of this property in contained within Zone C.

III. PROPOSED DRAINAGE PLAN

A drainage plan has been developed per Alpine City standards. The onsite system will consist of buried pipes, curb inlets, manholes, potential underground storage (if needed), and a detention pond. Roof drainage will be directed toward the front of the units and into the streets. Non-point sources of discharge include the rear landscaped areas of the units along Dry Creek. This runoff will be cleaned by the landscaping before naturally discharging into Dry Creek. Pipes have been sized to hold the 10-year storm event, and the detention pond has been sized to hold the 100-year storm event. The point source of discharge is the detention pond. After

leaving the detention pond the storm drain will outfall into Dry Creek at the required detained rate.

The rational method, using NOAA Atlas 14 data was used to design the drainage system for the development. A storage volume of 7,978 cubic feet is required for the development. A detention pond will be constructed at the northwest edge of the development, and sized to hold the required volume for the site.

An orifice of 4 inches will be employed at the storm drain discharge point of the project to control the discharge rate to the city standard 0.2 cfs/acre. The discharge rate for this project will be 0.788 cfs. Calculations for the pond and orifice can be found in the appendix of this report.

IV. STORMWATER QUALITY

A storm water pollution prevention plan will be developed for the construction of the project and submitted for review.

A snout and sump will be installed prior to entering the pond to clean the storm water before it is released into Dry Creek. The detention pond will be grass lined to contribute to the cleaning of the water before it enters the outlet structure.

V. ANALYSIS

Hydrology

The design storm required is the 100-year event for detention. The rainfall intensity information was obtained from the NOAA Atlas 14 website for the state of Utah. The post development storm water runoff discharge cannot exceed that of 0.2 cfs/acre. This is accomplished though the use of an orifice plate on the exit pipe of the detention system.

*The rational method (Q=CIA) was used to determine storm drain runoff flows. A weighted "C" value of 0.44, a variable rainfall intensity (from NOAA Atlas 14 data), and the project area of 3.94 acres, along with the discharge rate of 0.788 cfs, were used to size the detention pond. The runoff calculations resulted in a maximum detention volume of 7,978 cubic feet. See the appendix for detention pond sizing calculations.

The detention pond will be a grass lined pond sized to hold the required volume for the development. Once complete, the pond will be owned and maintained by the development's home owner's association (HOA).

Hydraulics:

The design storm required is the 10-year event for pipe capacity. The pipes were sized using Manning's equation for uniform flow $Q = VA = \left(\frac{1.49}{n}\right) AR^{\frac{2}{3}}S^{\frac{1}{2}}$ with a Manning's n value of 0.013.

Storm drain inlets have been placed at all low points in the road, and as needed to minimize the amount of storm water runoff that bypasses catch basins. Inlets have also been spaced no more than 400 feet apart for ease of maintenance.

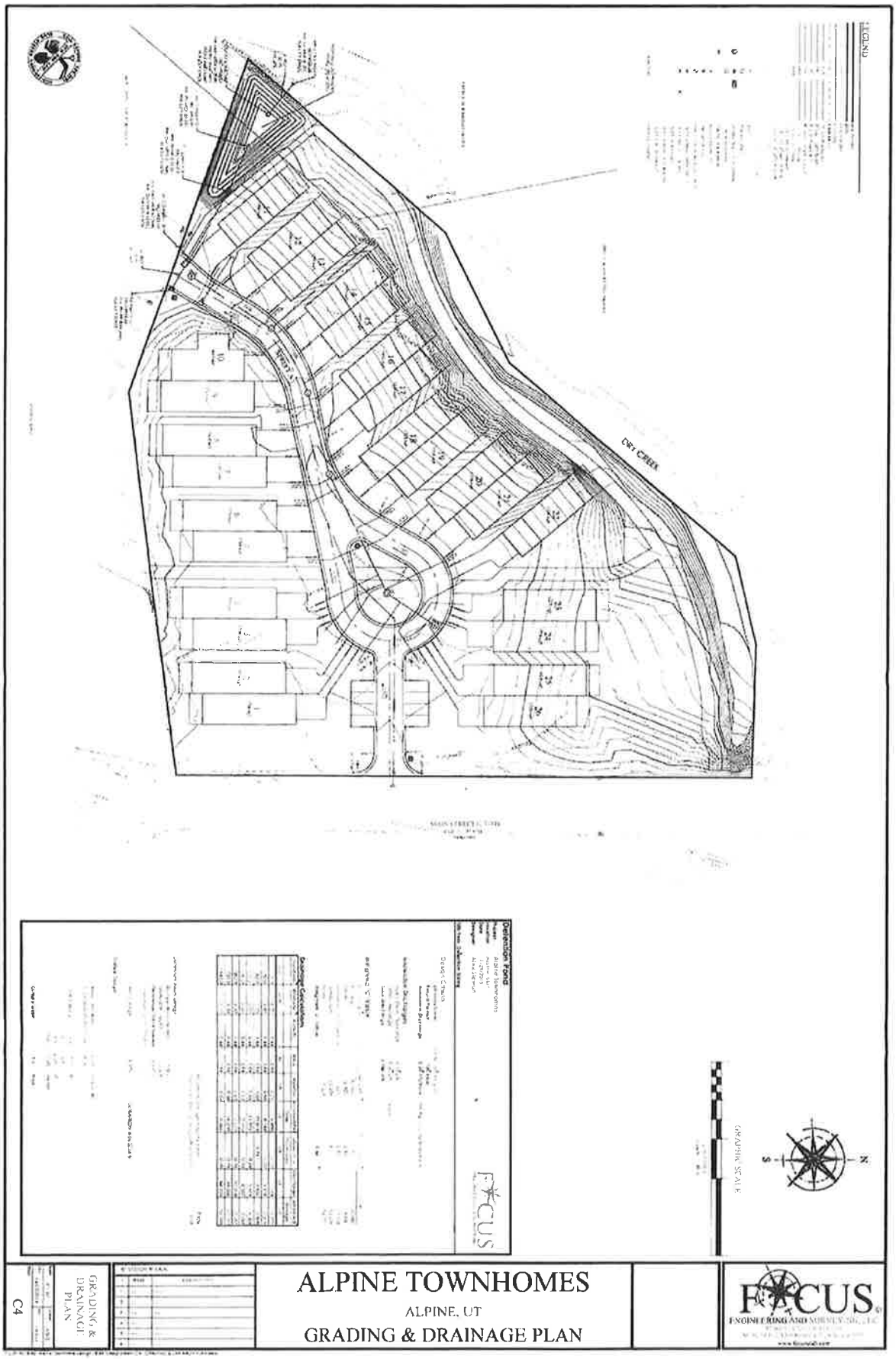
The 100-year storm overflow path directs flows to the streets, and not onto adjacent properties.

VI. CONCLUSION

It is concluded that the project is in compliance with city standards and design guidelines.

Sincerely,

Thomas Romney, P.E.
Production Manager
FOCUS Engineering & Surveying



C4

GRADING & DRAINAGE PLAN

ALPINE TOWNHOMES

ALPINE, UT

GRADING & DRAINAGE PLAN

FOCUS

ENGINEERING AND SURVEYING, LLC

Detention Pond

Project: Alpine Townhomes
Location Alpine, Utah
Date: 11/29/2018
Designer: Alex Stewart

FOCUS ENGINEERING & SURVEYING

100-Year Detention Sizing

Design Criteria

Intensity Table:	Per NOAA Atlas 14	
Return Period:	**100 year**	
Allowable Discharge:	**0.20 cfs/acre**	Per Alpine City Standards

Allowable Discharges

Storm Drain Discharge:	0.79 cfs	
Other Discharge:	0.00 cfs	Source:
Total Discharge:	**0.788 cfs**	

Weighted "C" Value

Surface Type	*Area (sf)*	*"C" Value*	*C*A*
Building	43,632	0.85	37,087
Drives	10,400	0.85	8,840
Roadway and Sidewalk	16,021	0.85	13,618
Landscape	101,506	0.15	15,226
Totals	171,558		74,771
Weighted "C" Value		**0.44**	

Drainage Calculations

Duration	Intensity	Runoff C	Area	Rainfall	Accumulated Flow	Allowable Discharge	Discharge	Required Storage
min	*in/hr*		*Ac*	*cfs*	*cf*	*cfs*	*cf*	*cf*
15.0	4.20	0.44	3.94	7.21	6,488	0.79	709	5,779
30.0	2.83	0.44	3.94	4.86	8,744	0.79	1,418	7,326
60.0	1.75	0.44	3.94	3.00	10,814	0.79	2,836	7,978
120.0	0.97	0.44	3.94	1.66	11,976	0.79	5,671	6,304
180.0	0.66	0.44	3.94	1.13	12,254	0.79	8,507	3,747
360.0	0.37	0.44	3.94	0.63	13,533	0.79	17,014	-3,481
720.0	0.22	0.44	3.94	0.38	16,239	0.79	34,028	-17,789
1440.0	0.11	0.44	3.94	0.19	16,462	0.79	68,056	-51,594

Maximum Storage Requirement: ***7,978***
Maximum Storage Requirement (ac-ft): 0.18

Detention Basin Design

Storage Requirement:	7,978 *cf*	
Allowable Depth:	5.0 *ft*	
Detention Pond Volume:	8,590 *cf*	
Roadway Sump Storage	0 *cf*	
Total Storage	**8,590**	***DETENTION ADEQUATE***

Orifice Design

Restriction Rate		0.20	CFS/ACRE
Allowable Outfall Rate Q (c		0.79	
Orifice Sizing:	h =	3.5	ft
	C =	0.6	
	A =	0.087	sf
	dia. =	4.00	inches
Orifice Size=		**4.0**	**inch**

Common Area Maintenance and Management Plan

MONTDELLA TOWNHOMES

COTTLE CAPITAL GROUP

Alan Cottle, Manager
COTTLE CAPITAL GROUP, LLC
801 North 500 West, #103
Bountiful, UT 84010
Ph. 801-617-2100 Fx. 801-683-8570
acottle@cottlecapital.com

PURPOSE AND RESPONSIBILTY

As required by the Clean Water Act and resultant local regulations, including the Alpine City ordinances, those who develop land are required to build and maintain systems to minimize litter and contaminants in stormwater runoff that pollute waters of the State.

This Common Area Maintenance and Management Plan ("Plan") describes the systems, operations and the minimum standard operating procedures (SOPs) necessary to manage pollutants originating from or generated on this property. Any activities or site operations at this property that contaminate water entering the City's stormwater system and generate loose litter must be prohibited, unless SOPs are written to manage those activities or operations, and amended into this Plan.

SECTION 1: SITE DESCRIPTION, USE AND IMPACT

The site infrastructure and operations described in this Section are limited at controlling and containing pollutants and if managed improperly can contaminate the environment. The Plan includes standard operations procedures (SOP)s that are intended to compensate for the limitations of the site infrastructure.

The property manager must use good judgment and conduct operations appropriately, doing as much as possible indoors and responsibly managing operations that must be performed outdoors.

Impervious Areas, Parking, Sidewalk and Patio

The impervious infrastructure will consist of concrete drives, asphalt paved road surfaces, walkways to the home, small rear patios, curb and gutter. The road surfaces and curb and gutter are designed to funnel and collect contaminants and debris in locations as per the approved engineered construction drawings. The home owners association (the "HOA") will incorporate into its maintenance duties an SOP that such drains will be regularly inspected and cleaned by contracted maintenance or landscape maintenance company.

Storm Drain System

The storm water system will be constructed as per approved engineered construction drawings. Its presence and maintenance will positively impact water quality. HOA will use Alpine City's BMP guidelines for Storm Drain System Best Management Practices after the construction phase, such as: during snowy weather, inlet protection should be marked with a candle marker or some other effective device to warn storm plows to avoid the inlet. Storm inlet should be inspected after any snow plowing to be sure it is installed correctly.

Landscaping

The developer will have designed and installed landscaping that is sensitive to water consumption. Automatic sprinkling systems will be installed to minimize secondary water consumption. All excess water crossing landscaping will be contained within the storm drain system. HOA will adhere to BPM for landscape maintenance, which will include weekly maintenance and cleanup; all debris removed from the site by the landscape contractor. This will limit any debris flowing toward a storm drain system.

Waste Management

The HOA will contract with a qualified, licensed, insured and bonded waste management contractor for weekly off-haul of waste. Each household in the development will have an individual trash receptible for weekly off-haul. Such containment and weekly off-haul of trash will improve water quality as it will remain free of debris and pollution.

Utility System

The utility system should have little or no impact on the storm drain system. All utilities will be installed underground and maintained by the municipalities or providers to which they are dedicated. The landscape maintenance contractor will look to keep the trees maintained in size and scope so as not to interfere with utility lines.

Snow and Ice Removal Management

Snow and ice removal will be contracted with a qualified snow/ice removal management company. Snow and ice will be removed to limit debris flowing toward the storm drains.

Equipment / Outside Storage

No outside storage structures or equipment are contemplated in the development project.

Outdoor Functions; Yard Sale Events, Fund Raisers...

All such outdoor functions, such as yard sale events, fund raise5rs, etc. much comply with Alpine City ordinances. The HOA will not allow these events to generate trash or, if they do, they must be contained in receptacles that are part of the scheduled waste management program. This will help maintain good water quality and keep the storm drain systems free of debris.

Add infrastructure or operations that are unique to this site

There are no infrastructure operations unique to this site.

SECTION 2: TRAINING

The HOA will ensure that all employees and maintenance contractors know and understand the SOPs specifically written to manage and maintain the property. Maintenance contractors must use the stronger of their Company and the Plan's SOPs. File all training records in Appendix A.

SECTION 3: RECORDKEEPING

The HOA will maintain records of operation and maintenance activities in accordance with SOPs.

APPENDIX A – PLAN RECORDKEEPING DOCUMENTS

Annual SOP Training Log per Section 2

SOP	Trainer	Employee Name / Maintenance Contractor Co	Date

MAINTENANCE/INSPECTION SCHEDULE

Frequency	Site Infrastructure.
S	Snow/ice removal
W	Landscape maintenance, debris removal, storm drain inspection
W	Waste management, debris removal

Inspection Frequency Key: A=annual, Q=Quarterly, M=monthly, W=weekly, S=following appreciable storm event, U=Unique infrastructure specific (specify)

RECORD INSPECTIONS IN THE MAINTENANCE LOG

Inspection Means: Either; Traditional walk through, Awareness/Observation, and during regular maintenance operations while noting efficiencies/inefficiencies/concerns found, etc.

MAINTENANCE LOG

Date	Maintenance Performed/Spill Events. Perform Maintenance per SOPs	Observation Notes, including but not limited to; Inspection results, Observations, System Performance (effectiveness/inefficiencies), SOP Usefulness, Concerns, Necessary Changes…	Initials

Annual Summary of Plan effectiveness, inefficiencies, problems, necessary changes etc.

1497 West 40 South
Lindon, Utah - 84042
Phone (801) 225-5711

840 West 1700 South #10
Salt Lake City, Utah - 84104
Phone (801) 787-9138

1596 W. 2650 S. #108
Ogden, Utah - 84401
Phone (801) 399-9516

Geotechnical Study
Alpine Townhomes
300 South Main Street
Alpine, Utah

Project No. 189260

December 14, 2018

Prepared For:

Cottle Capital Group, LLC
Attention: Ms. Sherry Fenn
801 North 500 West
Bountiful, UT 84010

Prepared By:

EARTHTEC ENGINEERING
Lindon Office

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TABLES

ATTACHED FIGURES

APPENDIX A

1.0 EXECUTIVE SUMMARY

This entire report presents the results of Earthtec Engineering's completed geotechnical study for the Alpine Townhomes in Alpine, Utah. This executive summary provides a general synopsis of our recommendations and findings. Details of our findings, conclusions, and recommendations are provided within the body of this report.

- The subject property is approximately 3.94 acres and is proposed to be developed with the construction of new townhomes. The proposed structures will consist of conventionally framed, one- to two-story, buildings with basements. We anticipate foundation loads for the proposed structures will not exceed 4,000 pounds per linear foot for bearing wall, 30,000 pounds for column loads, and 100 pounds per square foot for floor slabs. (see Section 3)
- Our field exploration included the excavation of five (5) test pits to depths of 10 to 12 feet below the existing ground surface. Groundwater was not encountered within the excavations at the depths explored. (see Section 5)
- The native silt soils have a moderate potential for collapse (settlement) and a moderate potential for compressibility under increased moisture contents and anticipated load conditions. (see Section 6)
- The subsurface soils encountered generally consisted of fill overlying near-surface medium stiff silt, and medium dense to dense sand and gravel. All fill encountered appears to be undocumented. Fill and topsoil should be removed beneath the entire building footprints, exterior flatwork, and pavements prior to construction. (see Section 7)
- Conventional strip and spread footings may be used to support the structure, with foundations placed entirely on firm, undisturbed, uniform gravel soils that extend a minimum of 24 inches below footings, or entirely on a minimum of 18 inches of properly placed, compacted, and tested structural fill extending to undisturbed native soils. (see Section 10)
- Minimum roadway section consists of 3 inches of asphalt overlying 10 inches of road-base. Areas that are soft or deflect under construction traffic should be removed and replaced with granular material or structural fill. (see Section 13)

Based on the results of our field exploration, laboratory testing, and engineering analyses, it is our opinion that the subject site may be suitable for the proposed development, provided the recommendations presented in this report are followed and implemented during design and construction.

Failure to consult with Earthtec Engineering (Earthtec) regarding any changes made during design and/or construction of the project from those discussed herein relieves Earthtec from any liability arising from changed conditions at the site. We also strongly recommend that Earthtec observes the building excavations to verify the adequacy of our recommendations presented herein, and that Earthtec performs materials testing and special inspections for this project to

provide continuity during construction.

2.0 INTRODUCTION

The project is located at approximately 300 South Main Street in Alpine, Utah. The general location of the site is shown on Figure No. 1, *Vicinity Map* and Figure No. 2, *Aerial Photograph Showing Location of Test Pits*, at the end of this report. The purposes of this study are to:

- Evaluate the subsurface soil conditions at the site,
- Assess the engineering characteristics of the subsurface soils, and
- Provide geotechnical recommendations for general site grading and the design and construction of foundations, concrete floor slabs, miscellaneous concrete flatwork, and asphalt paved parking and drive areas.

The scope of work completed for this study included field reconnaissance, subsurface exploration, field and laboratory soil testing, geotechnical engineering analysis, and the preparation of this report.

3.0 PROPOSED CONSTRUCTION

We understand that the proposed project, as described to us by Ms. Sherry Fenn with Cottle Capital Group, consists of developing the approximately 3.94-acre existing parcel with the construction of new townhomes. The proposed structures will consist of conventionally framed, one- to two-story, buildings with basements. We have based our recommendations in this report that anticipated foundation loads for the proposed structures will not exceed 4,000 pounds per linear foot for bearing wall, 30,000 pounds for column loads, and 100 pounds per square foot for floor slabs. If structural loads will be greater Earthtec should be notified so that we may review our recommendations and make modifications, if necessary.

In addition to the construction described above, we anticipate that

- Utilities will be installed to service the proposed buildings,
- Exterior concrete flatwork will be placed in the form of curb, gutter, and sidewalks, and
- Asphalt paved parking and drive areas will be constructed.

4.0 GENERAL SITE DESCRIPTION

4.1 Site Description

At the time of our subsurface exploration the site was a developed lot vegetated with grass, weeds and trees. A two- to three- tier rock wall exists along the northern side of the property

and is approximately 8 to 12 feet in exposed height. Below the rock wall to the north is a stream bed. Earthtec Engineering was not involved in the design, construction, or evaluation of the constructed rock walls. We recommend that the rock walls and slope be evaluated if any structure is placed within 20 feet of the rock walls. The ground surface appears to be relatively flat, we anticipate less than 3 feet of cut and fill may be required for site grading. The lot was bounded on the north and west by Dry Creek, on the east by South Main Street, on the south by commercial properties.

4.2 Geologic Setting

The subject property is located in the central portion of Utah Valley near the eastern shore of Utah Lake. Utah Valley is a deep, sediment-filled basin that is part of the Basin and Range Physiographic Province. The valley was formed by extensional tectonic processes during the Tertiary and Quaternary geologic time periods. The valley is bordered by the Wasatch Mountain Range on the east and the Lake Mountains on the west. Much of northwestern Utah, including Utah Valley, was previously covered by the Pleistocene age Lake Bonneville. Utah Lake, which currently covers much of the western portion of the valley, is a remnant of this ancient fresh water lake. The surficial geology of much of the eastern margin of the valley has been mapped by Constenius, 2011[1]. The surficial geology at the location of the subject site and adjacent properties is mapped as "Fine-grained lacustrine deposits" (Map Unit Qlf) dated to upper Pleistocene. These soil or deposits are generally described in the referenced mapping as "silt and clay with some fine grained sand."

5.0 SUBSURFACE EXPLORATION

5.1 Soil Exploration

Under the direction of a qualified member of our geotechnical staff, subsurface explorations were conducted at the site on November 30, 2018 by the excavation of five (5) test pits to depths of 10 to 12 feet below the existing ground surface using a a track-mounted mini excavator. The approximate locations of the test pits are shown on Figure No. 2, *Aerial Photograph Showing Location of Test Pits*. Graphical representations and detailed descriptions of the soils encountered are shown on Figure Nos. 3 through 7, *Test Pit Log* at the end of this report. The stratification lines shown on the logs represent the approximate boundary between soil units; the actual transition may be gradual. Due to potential natural variations inherent in soil deposits, care should be taken in interpolating between and extrapolating beyond exploration points. A key to the symbols and terms on the logs is presented on Figure No. 8, *Legend*.

Disturbed bag samples and relatively undisturbed block samples were collected at various

[1] Constenius, K.N., Clark, D.L., King, J.K., Ehler, J.B., 2011, Interim Geologic Map of the Provo Quadrangle, *Utah, Wasatch and Salt Lake Counties, Utah*; U.S. Geological Survey, Open-File 586DM, Scale 1: 62,500.

depths in each test pit. The soil samples collected were classified by visual examination in the field following the guidelines of the Unified Soil Classification System (USCS). The samples were transported to our Lindon, Utah laboratory where they will be retained for 30 days following the date of this report and then discarded, unless a written request for additional holding time is received prior to the 30-day limit.

6.0 LABORATORY TESTING

Representative soil samples collected during our field exploration were tested in the laboratory to assess pertinent engineering properties and to aid in refining field classifications, if needed. Tests performed included natural moisture content, dry density tests, liquid and plastic limits determinations, mechanical (partial) gradation analyses, and one-dimensional consolidation tests. The table below summarizes the laboratory test results, which are also included on the attached *Test Pit Logs* at the respective sample depths, and on Figure Nos. 9 through 11, *Consolidation-Swell Test.*

Table 1: Laboratory Test Results

Test Pit No.	Depth (ft.)	Natural Moisture (%)	Natural Dry Density (pcf)	Atterberg Limits		Grain Size Distribution (%)			Soil Type
				Liquid Limit	Plasticity Index	Gravel (+ #4)	Sand	Silt/Clay (- #200)	
TP-1	9	16	108	21	NP*	0	26	74	ML
TP-1	11½	16	93	23	3	1	24	75	ML
TP-3	10	11	89	22	NP*	1	19	80	ML
TP-4	5	2	---	---	---	60	37	3	GP

NP* = Non-Plastic

As part of the consolidation test procedure, water was added to the samples to assess moisture sensitivity when the samples were loaded to an equivalent pressure of approximately 1,000 psf. The native silt soils have a moderate potential for collapse (settlement) and a moderate potential for compressibility under increased moisture contents and anticipated load conditions.

A water-soluble sulfate test was performed on a representative sample obtained during our field exploration which indicated a value of less than 12 parts per million. Based on this result, the risk of sulfate attack to concrete appears to be "negligible" according to American Concrete Institute standards. Therefore, any type of Portland cement may be used for concrete in contact with on-site soils. The results can be found in Appendix A.

7.0 SUBSURFACE CONDITIONS

7.1 Soil Types

On the surface of the site, we encountered fill and topsoil which is estimated to extend 12 feet or deeper at the test pit locations. Below the fill we encountered layers of silt, sand and gravel

extending to depths of 10 to 12 feet below the existing ground surface. Graphical representations and detailed descriptions of the soils encountered are shown on Figure Nos. 3 through 7, *Test Pit Log* at the end of this report. Based on our experience and observations during field exploration, the silt soils visually were medium stiff in consistency and the sand and gravel soils visually had a relative density varying from medium dense to dense.

7.2 Groundwater Conditions

Groundwater was not encountered within the excavations at the depths explored. Note that groundwater levels will fluctuate in response to the season, precipitation, snow melt, irrigation, and other on and off-site influences. Quantifying these fluctuations would require long term monitoring, which is beyond the scope of this study. The contractor should be prepared to dewater excavations as needed.

8.0 SITE GRADING

8.1 General Site Grading

All surface vegetation and unsuitable soils (such as topsoil, organic soils, undocumented fill, soft, loose, or disturbed native soils, and any other inapt materials) should be removed from below foundations, floor slabs, exterior concrete flatwork, and pavement areas. We encountered fill and topsoil on the surface of the site. The fill encountered on the site is considered undocumented (untested). The fill and topsoil (including soil with roots larger than about ¼ inch in diameter) should be completely removed, even if found to extend deeper, along with any other unsuitable soils that may be encountered. Over-excavations below footings and slabs also may be needed, as discussed in Section 10.0.

Fill placed over large areas, even if only a few feet in depth, can cause consolidation in the underlying native soils resulting in settlement of the fill. Because the site is relatively flat, we anticipate that less than 3 feet of grading fill will be placed. If more than 3 feet of grading fill will be placed above the existing surface (to raise site grades), Earthtec should be notified so that we may provide additional recommendations, if required. Such recommendations will likely include placing the fill several weeks (or possibly more) prior to construction to allow settlement to occur.

8.2 Temporary Excavations

Temporary excavations that are less than 4 feet in depth and above groundwater should have side slopes no steeper than ½H:1V (Horizontal:Vertical). Temporary excavations where water is encountered in the upper 4 feet or that extend deeper than 4 feet below site grades should be sloped or braced in accordance with OSHA[2] requirements for Type C soils.

[2] OSHA Health And Safety Standards, Final Rule, CFR 29, part 1926.

8.3 Fill Material Composition

The existing fill and native fine-grained soils are not suitable for use as placed and compacted structural fill. Excavated soils, including silt, may be stockpiled for use as fill in landscape areas.

Structural fill is defined as fill material that will ultimately be subjected to any kind of structural loading, such as those imposed by footings, floor slabs, pavements, etc. We recommend that a professional engineer or geologist verify that the structural fill to be used on this project meets the requirements, stated below. We recommend that structural fill consist of imported sandy/gravelly soils meeting the following requirements in the table below:

Table 2: Structural Fill Recommendations

Sieve Size/Other	Percent Passing (by weight)
4 inches	100
3/4 inches	70 – 100
No. 4	40 – 80
No. 40	15 – 50
No. 200	0 – 20
Liquid Limit	35 maximum
Plasticity Index	15 maximum

In some situations, particles larger than 4 inches and/or more than 30 percent coarse gravel may be acceptable but would likely make compaction more difficult and/or significantly reduce the possibility of successful compaction testing. Consequently, stricter quality control measures than normally used may be required, such as using thinner lifts and increased or full-time observation of fill placement.

We recommend that utility trenches below any structural load be backfilled using structural fill. Note that most local governments and utility companies require Type A-1-a or A-1-b (AASHTO classification) soils (which overall is stricter than our recommendations for structural fill) be used as backfill above utilities in certain areas. In other areas or situations, utility trenches may be backfilled with the native soil, but the contractor should be aware that native silt soils (as observed in the explorations) may be time consuming to compact due to potential difficulties in controlling the moisture content needed to obtain optimum compaction. All backfill soil should have a maximum particle size of 4 inches, a maximum Liquid Limit of 35 and a maximum Plasticity Index of 15.

If required (i.e. fill in submerged areas), we recommend that free draining granular material (clean sand and/or gravel) meet the following requirements in the table below:

Table 3: Free-Draining Fill Recommendations

Sieve Size/Other	Percent Passing (by weight)
3 inches	100
No. 10	0 – 25
No. 40	0 – 15
No. 200	0 – 5
Plasticity Index	Non-plastic

Three inch minus washed rock (sometimes called river rock or drain rock) and pea gravel materials usually meet these requirements and may be used as free draining fill. If free draining fill will be placed adjacent to soil containing a significant amount of sand or silt/clay, precautions should be taken to prevent the migration of fine soil into the free draining fill. Such precautions should include either placing a filter fabric between the free draining fill and the adjacent soil material, or using a well-graded, clean filtering material approved by the geotechnical engineer.

8.4 Fill Placement and Compaction

Fill should be placed on level, horizontal surfaces. Where fill will be placed on slopes steeper than 5H:1V, the existing ground should be benched prior to placing fill. We recommend bench heights of 1 to 4 feet, with the lowest bench being a minimum 3 feet below adjacent grade and at least 10 feet wide.

The thickness of each lift should be appropriate for the compaction equipment that is used. We recommend a maximum lift thickness prior to compaction of 4 inches for hand operated equipment, 6 inches for most "trench compactors" and 8 inches for larger rollers, unless it can be demonstrated by in-place density tests that the required compaction can be obtained throughout a thicker lift. The full thickness of each lift of structural fill placed should be compacted to at least the following percentages of the maximum dry density, as determined by ASTM D-1557:

- In landscape and other areas not below structurally loaded areas: 90%
- Less than 5 feet of fill below structurally loaded areas: 95%
- Greater than 5 feet of fill below structurally loaded areas: 98%

Generally, placing and compacting fill at moisture contents within ±2 percent of the optimum moisture content, as determined by ASTM D-1557, will facilitate compaction. Typically, the further the moisture content deviates from optimum the more difficult it will be to achieve the required compaction.

Fill should be tested frequently during placement and we recommend early testing to demonstrate that placement and compaction methods are achieving the required compaction. The contractor is responsible to ensure that fill materials and compaction efforts are consistent so that tested areas are representative of the entire fill.

8.5 Stabilization Recommendations

Near surface soils may rut and pump during grading and construction. The likelihood of rutting and/or pumping, and the depth of disturbance, is proportional to the moisture content in the soil, the load applied to the ground surface, and the frequency of the load. Consequently, rutting and pumping can be minimized by avoiding concentrated traffic, minimizing the load applied to the ground surface by using lighter equipment, partially loaded equipment, tracked equipment, by working in dry times of the year, and/or by providing a working surface for equipment.

During grading the soil in any obvious soft spots should be removed and replaced with granular material. If rutting or pumping occurs traffic should be stopped in the area of concern. The soil in rutted areas should be removed and replaced with granular material. In areas where pumping occurs the soil should either be allowed to sit until pore pressures dissipate (several hours to several days) and the soil firms up or be removed and replaced with granular material. Typically, we recommend removal to a minimum depth of 24 inches.

For granular material, we recommend using angular well-graded gravel, such as pit run, or crushed rock with a maximum particle size of four inches. We suggest that the initial lift be approximately 12 inches thick and be compacted with a static roller-type compactor. A finer granular material such as sand, gravelly sand, sandy gravel or road base may also be used. Materials which are more angular and coarse may require thinner lifts in order to achieve compaction. We recommend that the fines content (percent passing the No. 200 sieve) be less than 15%, the liquid limit be less than 35, and the plasticity index be less than 15.

Using a geosynthetic fabric, such as Mirafi 600X or equivalent, may also reduce the amount of material required and avoid mixing of the granular material and the subgrade. If a fabric is used, following removal of disturbed soils and water, the fabric should be placed over the bottom and up the sides of the excavation a minimum of 24 inches. The fabric should be placed in accordance with the manufacturer's recommendations, including proper overlaps. The granular material should then be placed over the fabric in compacted lifts. Again, we suggest that the initial lift be approximately 12 inches thick and be compacted with a static roller-type compactor.

9.0 SEISMIC AND GEOLOGIC CONSIDERATIONS

9.1 Seismic Design

The State of Utah has adopted the 2015 International Building Code (IBC) for seismic design and the structure should be designed in accordance with Chapter 16 of the IBC. The Site Class definitions in the IBC are based upon the soil properties in the upper 100 feet of the soil profile, according to Chapter 20 in ASCE 7. These properties are determined from sampler blow counts, undrained shear strength values, and/or shear velocity measurements. The code states, "When the soil properties are not known in sufficient detail to determine the site class, Site Class D shall be used unless the building official or geotechnical data determines that Site

Class E or F soil is likely to be present at the site." Considering our experience in the vicinity of the site and based on the results of our field exploration, we recommend using Site Class D.

The site is located at approximately 40.450 degrees latitude and -111.779 degrees longitude. Using Site Class D, the design spectral response acceleration parameters are given below.

Table 4: Design Accelerations

S_S	F_a	S_{MS}	S_{DS}
1.237 g	1.005	1.243 g	0.829 g
S_1	**F_v**	**S_{M1}**	**S_{D1}**
0.454 g	1.546	0.702 g	0.468 g

S_S = Mapped spectral acceleration for short periods
S_1 = Mapped spectral acceleration for 1-second period
$S_{DS} = \frac{2}{3}S_{MS} = \frac{2}{3}(F_a \cdot S_s)$ = 5% damped design spectral response acceleration for short periods
$S_{D1} = \frac{2}{3}S_{MS} = \frac{2}{3}(F_v \cdot S_1)$ = 5% damped design spectral response acceleration for 1-second period

9.2 Faulting

The subject property is located within the Intermountain Seismic Belt where the potential for active faulting and related earthquakes is present. Based upon published geologic maps[3], no active faults traverse through or immediately adjacent to the site and the site is not located within local fault study zones. The nearest mapped fault trace is the Wasatch Fault located about one mile south of the site.

9.3 Liquefaction Potential

According to current liquefaction maps[4] for Utah County, the site is located within an area designated as "Very Low" in liquefaction potential. Liquefaction can occur when saturated subsurface soils below groundwater lose their inter-granular strength due to an increase in soil pore water pressures during a dynamic event such as an earthquake.

Loose, saturated sands are most susceptible to liquefaction, but some loose, saturated gravels and relatively sensitive silt to low-plasticity silty clay soils can also liquefy during a seismic event. Subsurface soils were composed of silt, sand and gravel soils. The soils encountered at this project do not appear liquefiable, but the liquefaction susceptibility of underlying soils (deeper than our explorations) is not known and would require deeper explorations to quantify.

10.0 FOUNDATIONS

10.1 General

The foundation recommendations presented in this report are based on the soil conditions encountered during our field exploration, the results of laboratory testing of samples of the

[3] U.S. Geological Survey, Quaternary Fault and Fold Database of the United States, November 3, 2010
[4] Utah Geological Survey, Liquefaction-Potential Map for a Part of Utah County, Utah, Public Information Series 28, August 1994.

native soils, the site grading recommendations presented in this report, and the foundation loading conditions presented in Section 3.0, *Proposed Construction*, of this report. If loading conditions and assumptions related to foundations are significantly different, Earthtec should be notified so that we can re-evaluate our design parameters and estimates (higher loads may cause more settlement), and to provide additional recommendations if necessary.

Conventional strip and spread footings may be used to support the proposed structures after appropriate removals as outlined in Section 8.1. Foundations should not be installed on topsoil, undocumented fill, debris, combination soils, organic soils, frozen soil, or in ponded water. If foundation soils become disturbed during construction, they should be removed or compacted.

10.2 Strip/Spread Footings

We recommend that conventional strip and spread foundations be constructed entirely on firm, undisturbed, uniform gravel soils that extend a minimum of 24 inches below footings, or entirely on a minimum of 18 inches of properly placed, compacted, and tested structural fill extending to undisturbed native soils. For foundation design we recommend the following:

- Footings founded on native gravel or a minimum of 24 inches of structural fill may be designed using a maximum allowable bearing capacity of 2,000 pounds per square foot. The values for vertical foundation pressure can be increased by one-third for wind and seismic conditions per Section 1806.1 when used with the Alternative Basic Load Combinations found in Section 1605.3.2 of the 2015 International Building Code.
- Continuous and spot footings should be uniformly loaded and should have a minimum width of 20 and 30 inches, respectively.
- Exterior footings should be placed below frost depth which is determined by local building codes. In general, 30 inches of cover is adequate for most sites; however local code should be verified by the end design professional. Interior footings, not subject to frost (heated structures), should extend at least 18 inches below the lowest adjacent grade.
- Foundation walls and footings should be properly reinforced to resist all vertical and lateral loads and differential settlement.
- The bottom of footing excavations should be compacted with at least 4 passes of an approved non-vibratory roller prior to erection of forms or placement of structural fill to densify soils that may have been loosened during excavation and to identify soft spots. If soft areas are encountered, they should be stabilized as recommended in Section 8.5.
- Footing excavations should be observed by the geotechnical engineer prior to beginning footing construction to evaluate whether suitable bearing soils have been exposed and whether excavation bottoms are free of loose or disturbed soils.
- Structural fill used below foundations should extend laterally a minimum of 6 inches for every 12 vertical inches of structural fill placed. For example, if 18 inches of structural fill is required to bring the excavation to footing grade, the structural fill should extend laterally a

minimum of 9 inches beyond the edge of the footings on both sides.

10.3 Estimated Settlements

If the proposed foundations are properly designed and constructed using the parameters provided above, we estimate that total settlements should not exceed one inch and differential settlements should be one-half of the total settlement over a 25-foot length of continuous foundation, for non-earthquake conditions. Additional settlement could occur during a seismic event due to ground shaking, if more than 3 feet of grading fill is placed above the existing ground surface, if loading conditions are greater than anticipated in Section 3, and/or if foundation soils are allowed to become wetted.

10.4 Lateral Earth Pressures

Below grade walls act as soil retaining structures and should be designed to resist pressures induced by the backfill soils. The lateral pressures imposed on a retaining structure are dependent on the rigidity of the structure and its ability to resist rotation. Most retaining walls that can rotate or move slightly will develop an active lateral earth pressure condition. Structures that are not allowed to rotate or move laterally, such as subgrade basement walls, will develop an at-rest lateral earth pressure condition. Lateral pressures applied to structures may be computed by multiplying the vertical depth of backfill material by the appropriate equivalent fluid density. Any surcharge loads in excess of the soil weight applied to the backfill should be multiplied by the appropriate lateral pressure coefficient and added to the soil pressure. For static conditions the resultant forces are applied at about one-third the wall height (measured from bottom of wall). For seismic conditions, the resultant forces are applied at about two-third times the height of the wall both measured from the bottom of the wall. The lateral pressures presented in the table below are based on drained, horizontally placed native soils as backfill material using a 28° friction angle and a dry unit weight of 120 pcf.

Table 5: Lateral Earth Pressures (Static and Dynamic)

Condition	Case	Lateral Pressure Coefficient	Equivalent Fluid Pressure (pcf)
Active	Static	0.36	43
	Seismic	0.56	68
At-Rest	Static	0.53	64
	Seismic	0.75	91
Passive	Static	2.77	332
	Seismic	3.27	393

*Seismic values combine the static and dynamic values

These pressure values do not include any surcharge and are based on a relatively level ground surface at the top of the wall and drained conditions behind the wall. It is important that water is not allowed to build up (hydrostatic pressures) behind retaining structures. Retaining walls should incorporate drainage behind the walls as appropriate, and surface water should be directed away from the top and bottom of the walls.

Lateral loads are typically resisted by friction between the underlying soil and footing bottoms. Resistance to sliding may incorporate the friction acting along the base of foundations, which may be computed using a coefficient of friction of soils against concrete of 0.55 for native gravels or structural fill meeting the recommendations presented herein. For allowable stress design, the lateral resistance may be computed using Section 1807 of the 2015 International Building Code and all sections referenced therein. Retaining wall lateral resistance design should further reference Section 1807.2.3 for reference of Safety Factors. Retaining systems are assumed to be founded upon and backfilled with granular structural fill. If backfilling with clay or silt, it is required to contact Earthtec prior to construction for further review and recommendations. The values for lateral foundation pressure can be increased by one-third for wind and seismic conditions per Section 1806.1 when used with the Alternative Basic Load Combinations found in Section 1605.3.2 of the 2015 International Building Code.

The pressure and coefficient values presented above are ultimate; therefore, an appropriate factor of safety may need to be applied to these values for design purposes. The appropriate factor of safety will depend on the design condition and should be determined by the project structural engineer.

11.0 FLOOR SLABS AND FLATWORK

Concrete floor slabs and exterior flatwork may be supported on native gravel soils or 12 inches of properly placed and compacted structural fill after appropriate removals and grading as outlined in Section 8.1 are completed. We recommend placing a minimum 4 inches of free-draining fill material (see Section 8.3) beneath floor slabs to facilitate construction, act as a capillary break, and aid in distributing floor loads. For exterior flatwork, we recommend placing a minimum 4 inches of road-base material. Prior to placing the free-draining fill or road-base materials, the native sub-grade should be proof-rolled to identify soft spots, which should be stabilized as discussed above in Section 8.5.

For slab design, we recommend using a modulus of sub-grade reaction of 120 pounds per cubic inch. The thickness of slabs supported directly on the ground shall not be less than 3½ inches. A 6-mil polyethylene vapor retarder with joints lapped not less than 6 inches shall be placed between the ground surface and the concrete, as per Section 1907.1 of the 2015 International Building Code.

To help control normal shrinkage and stress cracking, we recommend that floor slabs have adequate reinforcement for the anticipated floor loads with the reinforcement continuous through interior floor joints, frequent crack control joints, and non-rigid attachment of the slabs to foundation and bearing walls. Special precautions should be taken during placement and curing of all concrete slabs and flatwork. Excessive slump (high water-cement ratios) of the concrete and/or improper finishing and curing procedures used during hot or cold weather conditions may lead to excessive shrinkage, cracking, spalling, or curling of slabs. We recommend all concrete placement and curing operations be performed in accordance with American Concrete Institute

(ACI) codes and practices.

12.0 DRAINAGE

12.1 Surface Drainage

As part of good construction practice, precautions should be taken during and after construction to reduce the potential for water to collect near foundation walls. Accordingly, we recommend the following:

- The contractor should take precautions to prevent significant wetting of the soil at the base of the excavation. Such precautions may include: grading to prevent runoff from entering the excavation, excavating during normally dry times of the year, covering the base of the excavation if significant rain or snow is forecast, backfill at the earliest possible date, frame floors and/or the roof at the earliest possible date, other precautions that might become evident during construction.
- Adequate compaction of foundation wall backfill should be provided i.e. a minimum of 90% of ASTM D-1557. Water consolidation methods should not be used.
- The ground surface should be graded to drain away from the building in all directions. We recommend a minimum fall of 8 inches in the first 10 feet.
- Roof runoff should be collected in rain gutters with down spouts designed to discharge well outside of the backfill limits, or at least 10 feet from foundations, whichever is greater.
- Sprinkler nozzles should be aimed away, and all sprinkler components kept at least 5 feet, from foundation walls. A drip irrigation system must be utilized in landscaping areas within 10 feet of foundation walls to minimize water intrusion at foundation backfill. Also, sprinklers should not be placed at the top or on the face of slopes. Sprinkler systems should be designed with proper drainage and well maintained. Over-watering should be avoided.
- Any additional precautions which may become evident during construction.

12.2 Subsurface Drainage

Walls or portions thereof that retain earth and enclose interior spaces and floors below grade shall conform to Section 1805 of the 2015 International Building Code for damp proofing and water proofing.

13.0 PAVEMENT RECOMMENDATIONS

We understand that asphalt paved parking and drive areas will be constructed as part of the project. The native soils encountered beneath the fill and topsoil during our field exploration

were predominantly composed of clay. We estimate that a California Bearing Ratio (CBR) value of 3 is appropriate for these soils. If the fill material and topsoil is left beneath concrete flatwork and pavement areas, increased maintenance costs over time should be anticipated.

We anticipate that the traffic volume will be about 500 vehicles a day or less for the parking and drive areas, consisting of mostly cars and pickup trucks, with a daily delivery truck and a weekly garbage truck. Based on these traffic parameters, the estimated CBR given above, and the procedures and typical design inputs outlined in the UDOT Pavement Design Manual (1998), we recommend the minimum asphalt pavement section presented below.

Table 6: Pavement Section Recommendations

Asphalt Thickness (in)	Compacted Roadbase Thickness (in)	Compacted Subbase Thickness (in)
3	10*	0
3	6	6*

* Stabilization may be required

If the pavement will be required to support construction traffic, more than an occasional semi-tractor or fire truck, or more traffic than listed above, our office should be notified so that we can re-evaluate the pavement section recommendations. The following also apply:

- The subgrade should be prepared by proof rolling to a firm, non-yielding surface, with any identified soft areas stabilized as discussed above in Section 8.5.
- Site grading fills below the pavements should meet structural fill composition and placement recommendations per Sections 8.3 and 8.4 herein.
- Asphaltic concrete, aggregate base and sub-base material composition should meet local, APWA or UDOT requirements.
- Aggregate base and sub-base is compacted to local, APWA, or UDOT requirements, or to at least 95 percent of maximum dry density (ASTM D 1557).
- Asphaltic concrete is compacted to local or UDOT requirements, or to at least 96 percent of the laboratory Marshall density (ASTM D 6927).

Due to high static loads imposed by at dumpster locations, we recommend that a rigid pavement section for this area of a minimum of six (6) inches of Portland Cement Concrete (PCC) over a minimum of six (6) inches of aggregate base material. The aggregate base material should meet local, APWA or UDOT requirements and should be compacted to local, APWA, or UDOT requirements, or to at least 95 percent of maximum dry density (ASTM D1557).

14.0 GENERAL CONDITIONS

The exploratory data presented in this report was collected to provide geotechnical design recommendations for this project. The explorations may not be indicative of subsurface conditions outside the study area or between points explored and thus have a limited value in depicting subsurface conditions for contractor bidding. Variations from the conditions portrayed in the explorations may occur and which may be sufficient to require modifications in the design. If during construction, conditions are different than presented in this report, Earthtec should be advised immediately so that the appropriate modifications can be made.

Earthtec Engineering was not involved in the design, construction, or evaluation of the constructed rock walls. We recommend that the rock walls and slope be evaluated if any structure is placed within 20 feet of the rock walls.

The findings and recommendations presented in this geotechnical report were prepared in accordance with generally accepted geotechnical engineering principles and practice in this area of Utah at this time. No warranty or representation is intended in our proposals, contracts, letters, or reports.

This geotechnical report is based on relatively limited subsurface explorations and laboratory testing. Subsurface conditions may differ in some locations of the site from those described herein, which may require additional analyses and possibly modified recommendations. Thus, we strongly recommend consulting with Earthtec regarding any changes made during design and construction of the project from those discussed herein. Failure to consult with Earthtec regarding any such changes relieves Earthtec from any liability arising from changed conditions at the site.

To maintain continuity, Earthtec should also perform materials testing and special inspections for this project. The recommendations presented herein are based on the assumption that an adequate program of tests and observations will be followed during construction to verify compliance with our recommendations. We also assume that we will review the project plans and specifications to verify that our conclusions and recommendations are incorporated and remain appropriate (based on the actual design). Earthtec should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Earthtec also should be retained to provide observation and testing services during grading, excavation, foundation construction, and other earth-related construction phases of the project.

We appreciate the opportunity of providing our services on this project. If we can answer questions or be of further service, please contact Earthtec at your convenience.

Respectfully;

EARTHTEC ENGINEERING

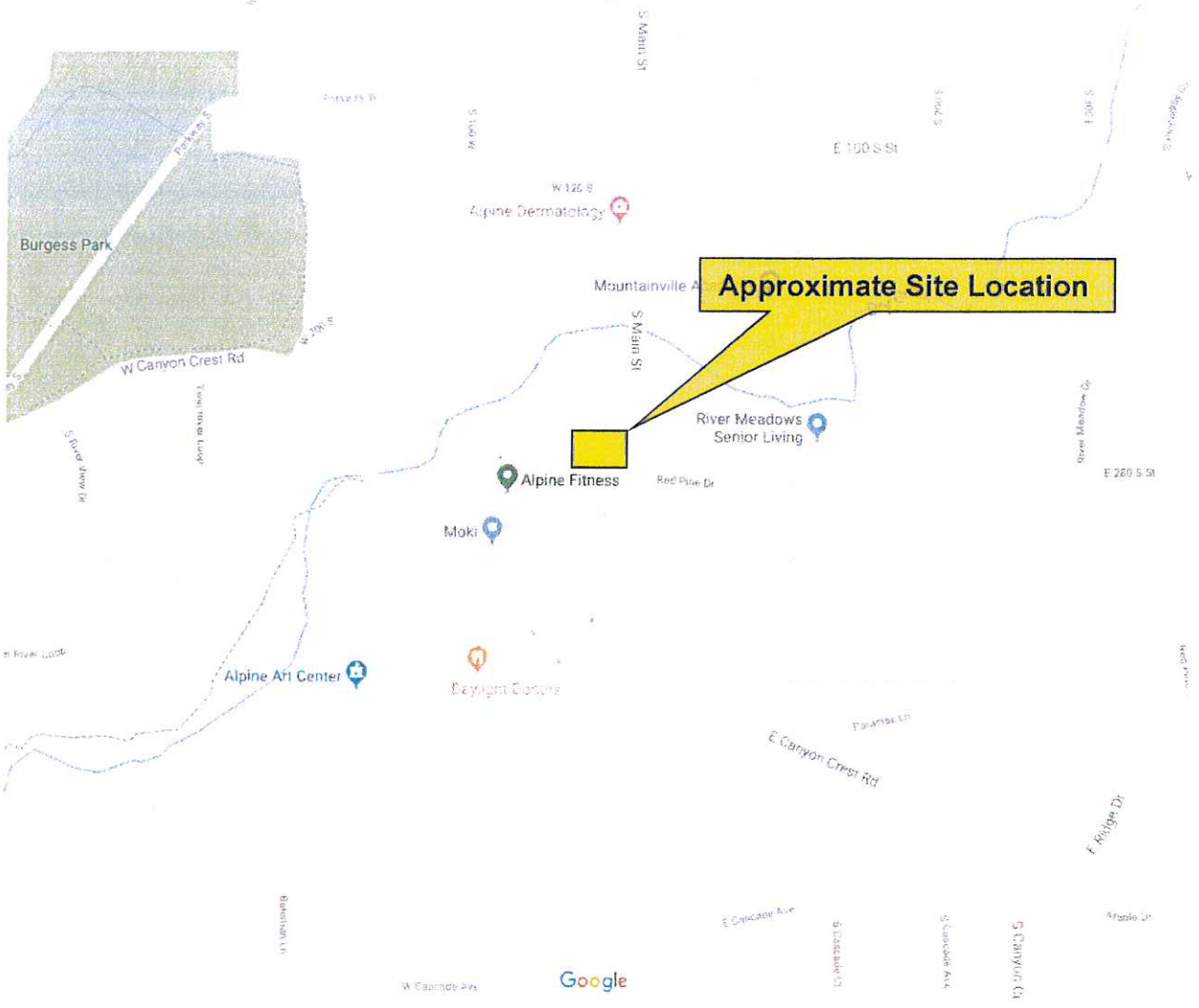
Jeremy A. Balleck, E.I.T.
Staff Engineer

PROFESSIONAL ENGINEER
No. 5567049-2202
TIMOTHY ALLAN MITCHELL
12/14/2018
STATE OF UTAH

Timothy A. Mitchell, P.E.
Geotechnical Engineer

VICINITY MAP

ALPINE TOWNHOMES
300 SOUTH MAIN STREET
ALPINE, UTAH



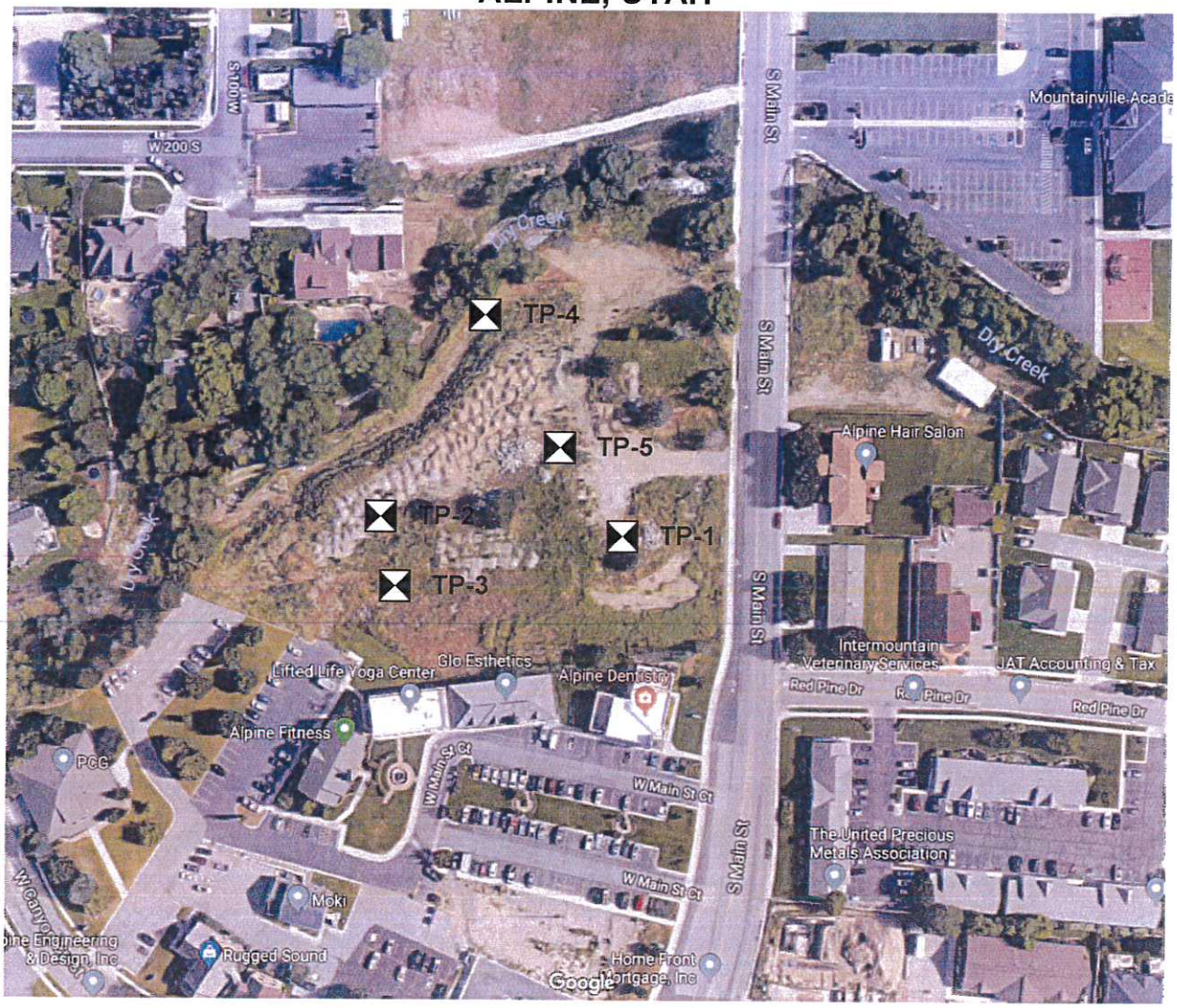
N

Not to Scale

PROJECT NO.: 189260	EARTHTEC ENGINEERING	FIGURE NO.: 1

AERIAL PHOTOGRAPH SHOWING LOCATION OF TEST PITS

ALPINE TOWNHOMES
300 SOUTH MAIN STREET
ALPINE, UTAH



Approximate Test Pit Locations

N

Not to Scale

PROJECT NO.: 189260	EARTHTEC ENGINEERING INC	FIGURE NO.: 2

TEST PIT LOG
NO.: TP-1

PROJECT: Alpine Townhomes
CLIENT: Cottle Capital Group, LLC
LOCATION: See Figure 2
OPERATOR: JSI
EQUIPMENT: Mini Excavator
DEPTH TO WATER; INITIAL ▽ :

PROJECT NO.: 189260
DATE: 11/30/18
ELEVATION: Not Measured
LOGGED BY: J. Balleck
AT COMPLETION ▼ :

Depth (Ft.)	Graphic Log	USCS	Description	Samples	TEST RESULTS: Water Cont. (%)	Dry Dens. (pcf)	LL	PI	Gravel (%)	Sand (%)	Fines (%)	Other Tests
0			TOPSOIL, lean clay, moist, brown									
1												
2		CL	Lean CLAY, medium stiff (estimated), moist, brown, blocky, roots									
3												
4		GM	Silty GRAVEL with sand, medium dense (estimated), moist, brown, occasional cobbles									
5												
6		GP-GM	Poorly Graded GRAVEL with silt and sand, medium dense to dense (estimated), moist, gray, occasional cobbles									
7												
8												
9												
10		ML	SILT with sand, medium stiff (estimated), moist, brown, slightly porous		16	108	21	NP	0	26	74	C
11												
12					16	93	23	3	1	24	75	C
13			Maximum depth explored approximately 12 feet									
14												
15												

Notes: No groundwater encountered.

Tests Key
CBR = California Bearing Ratio
C = Consolidation
R = Resistivity
DS = Direct Shear
SS = Soluble Sulfates
B = Burnoff

PROJECT NO.: 189260

EARTHTEC ENGINEERING

FIGURE NO.: 3

LOG OF TESTPIT 189260 LOGS.GPJ EARTHTEC.GDT 12/13/18

TEST PIT LOG
NO.: TP-2

PROJECT: Alpine Townhomes
CLIENT: Cottle Capital Group, LLC
LOCATION: See Figure 2
OPERATOR: JSI
EQUIPMENT: Mini Excavator
DEPTH TO WATER; INITIAL ▽ :

PROJECT NO.: 189260
DATE: 11/30/18
ELEVATION: Not Measured
LOGGED BY: J. Balleck
AT COMPLETION ▼ :

Depth (Ft.)	Graphic Log	USCS	Description	Samples	TEST RESULTS: Water Cont. (%)	Dry Dens. (pcf)	LL	PI	Gravel (%)	Sand (%)	Fines (%)	Other Tests
0			FILL, silty gravel, moist, brown, debris, trash									
1												
2												
3												
4												
5												
6												
7												
8												
9												
10			Maximum depth explored approximately 10 feet									
11												
12												
13												
14												
15												

Notes: No groundwater encountered.

Tests Key
CBR = California Bearing Ratio
C = Consolidation
R = Resistivity
DS = Direct Shear
SS = Soluble Sulfates
B = Burnoff

PROJECT NO.: 189260

EARTHTEC ENGINEERING

FIGURE NO.: 4

LOG OF TESTPIT 189260 LOGS.GPJ EARTHTEC.GDT 12/13/18

TEST PIT LOG
NO.: TP-3

PROJECT: Alpine Townhomes
CLIENT: Cottle Capital Group, LLC
LOCATION: See Figure 2
OPERATOR: JSI
EQUIPMENT: Mini Excavator
DEPTH TO WATER; INITIAL ▽ :

PROJECT NO.: 189260
DATE: 11/30/18
ELEVATION: Not Measured
LOGGED BY: J. Balleck
AT COMPLETION ▼ :

Depth (Ft.)	Graphic Log	USCS	Description	Samples	TEST RESULTS: Water Cont. (%)	Dry Dens. (pcf)	LL	PI	Gravel (%)	Sand (%)	Fines (%)	Other Tests
0			FILL, silty gravel, moist, brown, debris, trash									
1												
2												
3												
4												
5												
6												
7												
8		SM	Silty SAND, medium dense (estimated), moist, light brown, slightly porous									
9												
10												
11		ML	SILT with sand, medium stiff (estimated), moist, brown, oxide stains, slightly porous		11	89	22	NP	1	19	80	C
12												
13			Maximum depth explored approximately 12 feet									
14												
15												

Notes: No groundwater encountered.

Tests Key
CBR = California Bearing Ratio
C = Consolidation
R = Resistivity
DS = Direct Shear
SS = Soluble Sulfates
B = Burnoff

PROJECT NO.: 189260

EARTHTEC ENGINEERING

FIGURE NO.: 5

LOG OF TESTPIT 189260 LOGS.GPJ EARTHTEC.GDT 12/13/18

TEST PIT LOG
NO.: TP-4

PROJECT: Alpine Townhomes
CLIENT: Cottle Capital Group, LLC
LOCATION: See Figure 2
OPERATOR: JSI
EQUIPMENT: Mini Excavator
DEPTH TO WATER; INITIAL ▽ :

PROJECT NO.: 189260
DATE: 11/30/18
ELEVATION: Not Measured
LOGGED BY: J. Balleck
AT COMPLETION ▼ :

Depth (Ft.)	Graphic Log	USCS	Description	Samples	TEST RESULTS: Water Cont. (%)	Dry Dens. (pcf)	LL	PI	Gravel (%)	Sand (%)	Fines (%)	Other Tests
0			TOPSOIL, silty sand, moist, brown									
1–11		GP	Poorly Graded GRAVEL with sand, medium dense to dense (estimated), moist, gray, some cobbles	X	2				60	37	3	
11			Maximum depth explored approximately 11 feet									
12												
13												
14												
15												

Notes: No groundwater encountered.

Tests Key
CBR = California Bearing Ratio
C = Consolidation
R = Resistivity
DS = Direct Shear
SS = Soluble Sulfates
B = Burnoff

PROJECT NO.: 189260

EARTHTEC ENGINEERING

FIGURE NO.: 6

LOG OF TESTPIT 189260 LOGS.GPJ EARTHTEC.GDT 12/13/18

TEST PIT LOG
NO.: TP-5

PROJECT: Alpine Townhomes
CLIENT: Cottle Capital Group, LLC
LOCATION: See Figure 2
OPERATOR: JSI
EQUIPMENT: Mini Excavator
DEPTH TO WATER; INITIAL ▽ :

PROJECT NO.: 189260
DATE: 11/30/18
ELEVATION: Not Measured
LOGGED BY: J. Balleck
AT COMPLETION ▼ :

Depth (Ft.)	Graphic Log	USCS	Description	Samples	TEST RESULTS: Water Cont. (%)	Dry Dens. (pcf)	LL	PI	Gravel (%)	Sand (%)	Fines (%)	Other Tests
0			FILL, silty gravel, moist, brown, debris, trash									
7		GM	Silty GRAVEL with sand, medium dense (estimated), moist, brown, occasional cobbles									
10			Maximum depth explored approximately 10 feet									
15												

Notes: No groundwater encountered.

Tests Key
CBR = California Bearing Ratio
C = Consolidation
R = Resistivity
DS = Direct Shear
SS = Soluble Sulfates
B = Burnoff

PROJECT NO.: 189260

EARTHTEC ENGINEERING

FIGURE NO.: 7

LOG OF TESTPIT 189260 LOGS.GPJ EARTHTEC.GDT 12/13/18

LEGEND

PROJECT: Alpine Townhomes
CLIENT: Cottle Capital Group, LLC
DATE: 11/30/18
LOGGED BY: J. Balleck

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR SOIL DIVISIONS			USCS SYMBOL	TYPICAL SOIL DESCRIPTIONS
COARSE GRAINED SOILS (More than 50% retaining on No. 200 Sieve)	GRAVELS (More than 50% of coarse fraction retained on No. 4 Sieve)	CLEAN GRAVELS (Less than 5% fines)	GW	Well Graded Gravel, May Contain Sand, Very Little Fines
			GP	Poorly Graded Gravel, May Contain Sand, Very Little Fines
		GRAVELS WITH FINES (More than 12% fines)	GM	Silty Gravel, May Contain Sand
			GC	Clayey Gravel, May Contain Sand
	SANDS (50% or more of coarse fraction passes No. 4 Sieve)	CLEAN SANDS (Less than 5% fines)	SW	Well Graded Sand, May Contain Gravel, Very Little Fines
			SP	Poorly Graded Sand, May Contain Gravel, Very Little Fines
		SANDS WITH FINES (More than 12% fines)	SM	Silty Sand, May Contain Gravel
			SC	Clayey Sand, May Contain Gravel
FINE GRAINED SOILS (More than 50% passing No. 200 Sieve)	SILTS AND CLAYS (Liquid Limit less than 50)		CL	Lean Clay, Inorganic, May Contain Gravel and/or Sand
			ML	Silt, Inorganic, May Contain Gravel and/or Sand
			OL	Organic Silt or Clay, May Contain Gravel and/or Sand
	SILTS AND CLAYS (Liquid Limit Greater than 50)		CH	Fat Clay, Inorganic, May Contain Gravel and/or Sand
			MH	Elastic Silt, Inorganic, May Contain Gravel and/or Sand
			OH	Organic Clay or Silt, May Contain Gravel and/or Sand
HIGHLY ORGANIC SOILS			PT	Peat, Primarily Organic Matter

SAMPLER DESCRIPTIONS

- SPLIT SPOON SAMPLER (1 3/8 inch inside diameter)
- MODIFIED CALIFORNIA SAMPLER (2 inch outside diameter)
- SHELBY TUBE (3 inch outside diameter)
- BLOCK SAMPLE
- BAG/BULK SAMPLE

WATER SYMBOLS

- Water level encountered during field exploration
- Water level encountered at completion of field exploration

NOTES:
1. The logs are subject to the limitations, conclusions, and recommendations in this report.
2. Results of tests conducted on samples recovered are reported on the logs and any applicable graphs.
3. Strata lines on the logs represent approximate boundaries only. Actual transitions may be gradual.
4. In general, USCS symbols shown on the logs are based on visual methods only: actual designations (based on laboratory tests) may vary.

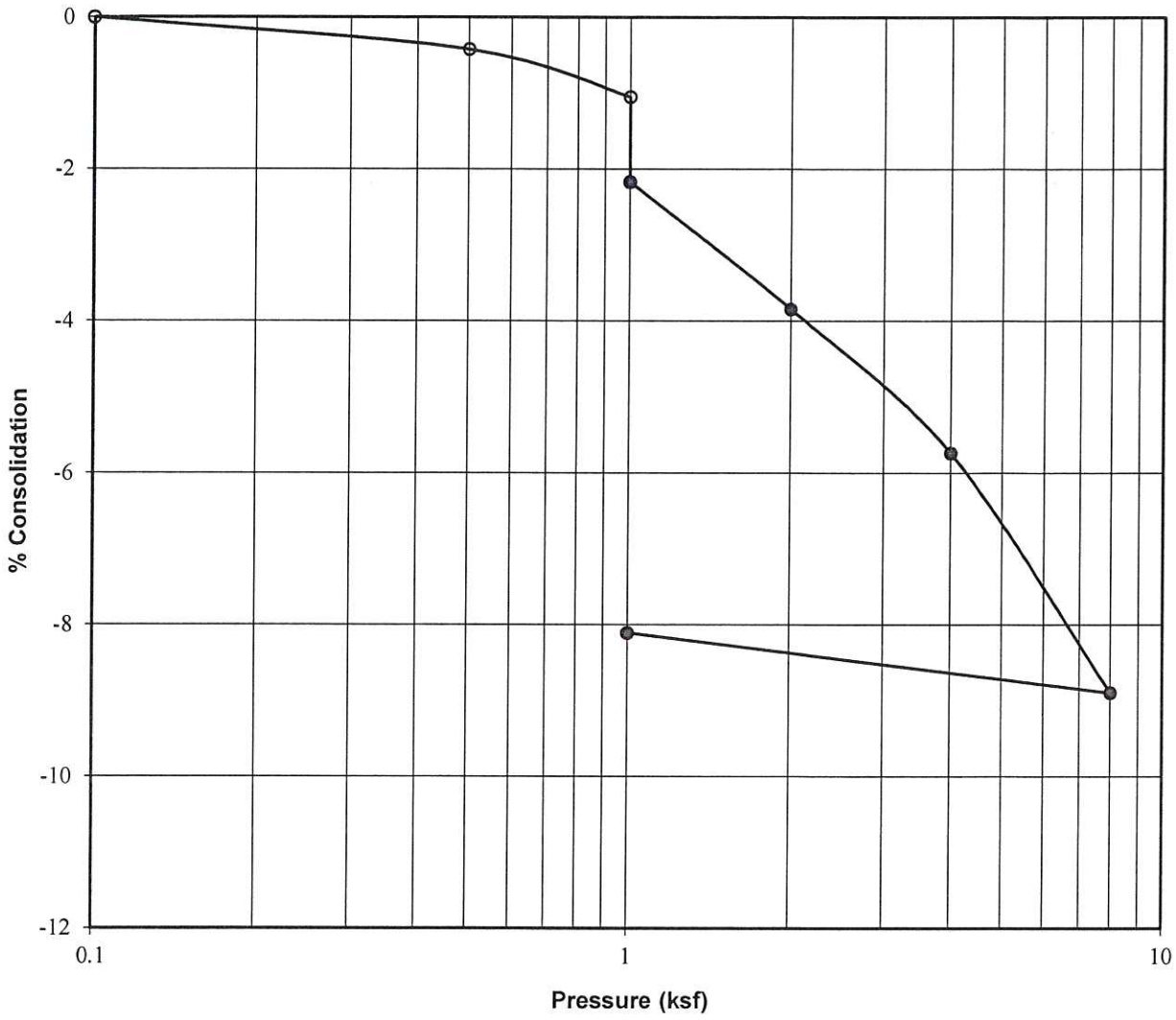
PROJECT NO.: 189260

EARTHTEC ENGINEERING

FIGURE NO.: 8

LEGEND 189260 LOGS.GPJ EARTHTEC.GDT 12/13/18

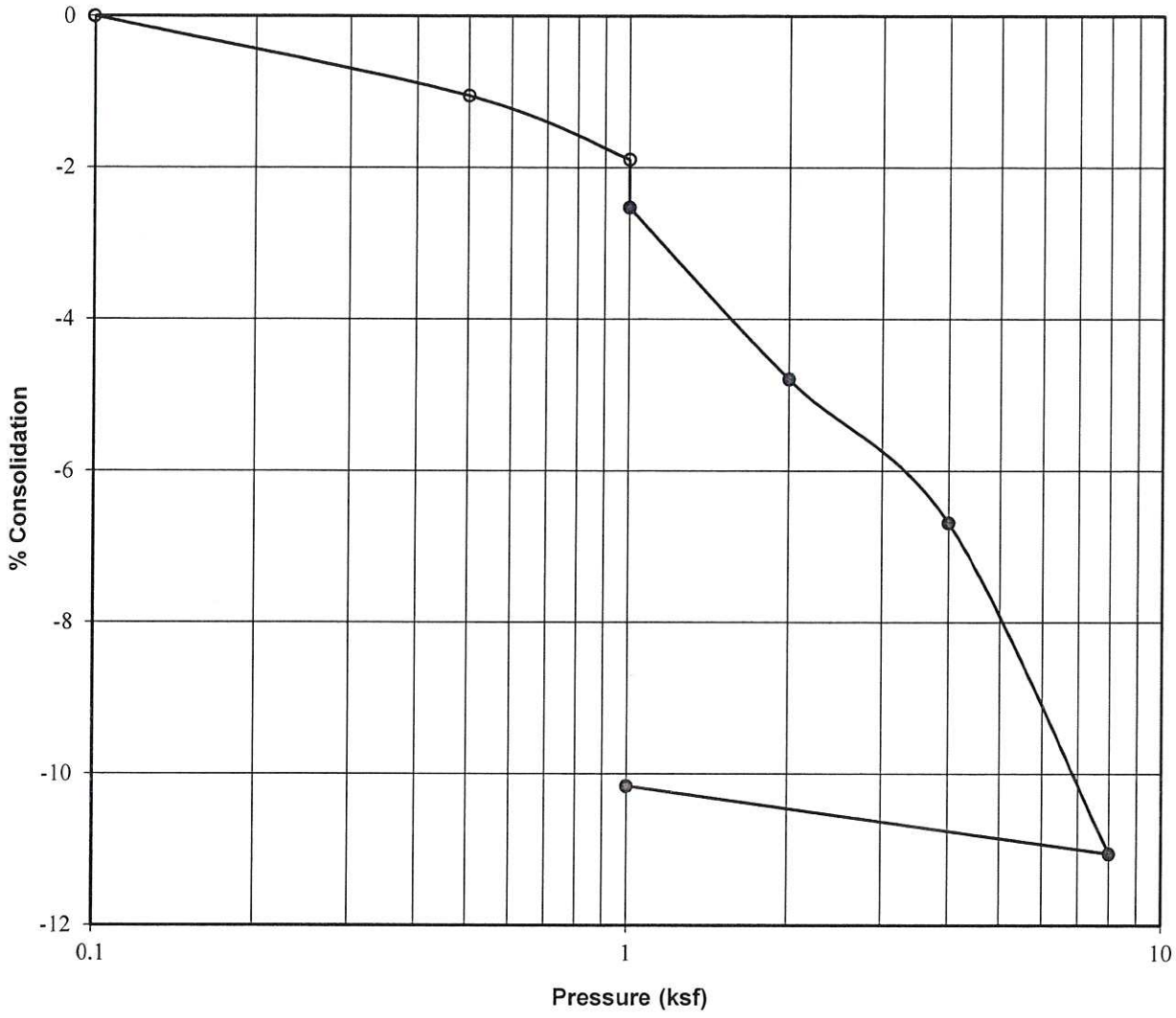
CONSOLIDATION - SWELL TEST



Project:	Alpine Townhomes
Location:	TP-1
Sample Depth, ft:	9
Description:	Block
Soil Type:	SILT with sand (ML)
Natural Moisture, %:	16
Dry Density, pcf:	108
Liquid Limit:	21
Plasticity Index:	NP
Water Added at:	1 ksf
Percent Collapse:	1.1

PROJECT NO.: 189260		**FIGURE NO.:** 9

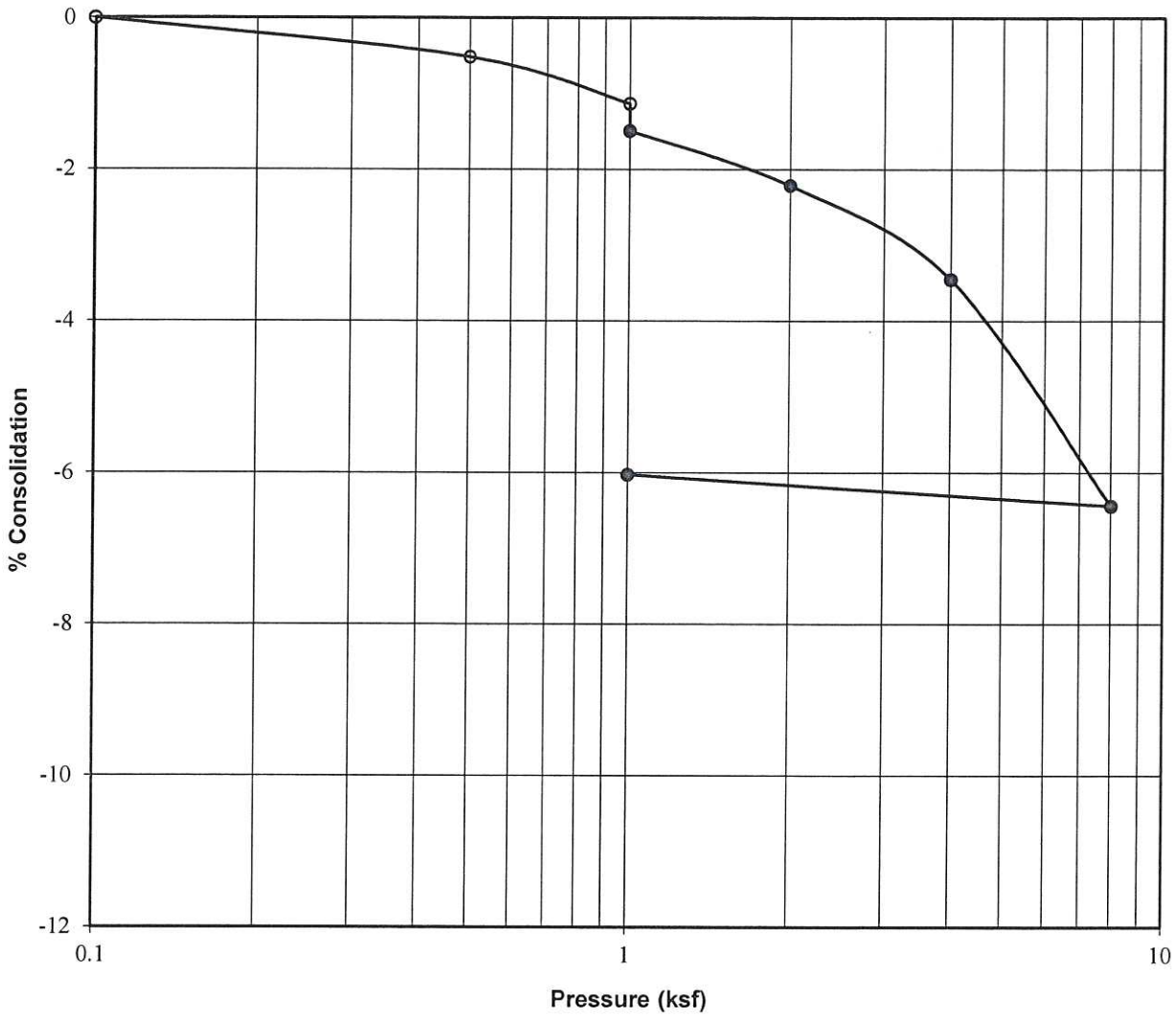
CONSOLIDATION - SWELL TEST



Project:	Alpine Townhomes
Location:	TP-1
Sample Depth, ft:	11½
Description:	Block
Soil Type:	SILT with sand (ML)
Natural Moisture, %:	16
Dry Density, pcf:	93
Liquid Limit:	23
Plasticity Index:	3
Water Added at:	1 ksf
Percent Collapse:	0.6

PROJECT NO.: 189260		**FIGURE NO.:** 10

CONSOLIDATION - SWELL TEST



Project:	Alpine Townhomes
Location:	TP-3
Sample Depth, ft:	10
Description:	Block
Soil Type:	SILT with sand (ML)
Natural Moisture, %:	11
Dry Density, pcf:	89
Liquid Limit:	22
Plasticity Index:	NP
Water Added at:	1 ksf
Percent Collapse:	0.4

PROJECT NO.: 189260		**FIGURE NO.:** 11

APPENDIX A

Timpview Analytical Laboratories

A Chemtech-Ford, Inc. Affiliate
1384 West 130 South Orem, UT 84058 (801) 229-2282

Certificate of Analysis

Earthtec Testing & Engineering
Caleb Allred
1497 W 40 S
Lindon, UT 84042
DW System # :

Work Order #: 18L0336
PO# / Project Name: 189260
Receipt: 12/6/18 12:55
Batch Temp °C: 9.1
Date Reported: 12/14/2018

Sample Name: **189260 TP-1 @ 4.5**

Collected: 11/30/18 11:00 **Matrix:** Solid **Collected By:** Client

Parameter	Lab ID #	Method	Analysis Date / Time	Result	Units	MRL	Flags
Sulfate, Soluble (IC)	18L0336-01	EPA 300.0	12/14/18	12	mg/kg dry	10	
Total Solids	18L0336-01	SM 2540G	12/10/18	98.4	%	0.1	

Comment:

Reviewed by: Joyce Applegate

Joyce Applegate, Project Manager

Analyses presented in this report were performed in accordance with the National Environmental Laboratory Accreditation Program by a Chemtech-Ford affiliate company, except where otherwise noted.

HORROCKS ENGINEERS

To: **Jed Muhlestein**
Alpine City

From: **John E. Schiess, P.E.**

Date: Jan 26, 2019 **Memorandum**

Subject: **Alpine Townhomes Hydraulic Modeling Results and Recommendations**

The proposed development consists of 26 townhomes located on Main Street just south of Dry Creek.

The development proposes 26 culinary ERC's, 2.33 irrigated acres, and 26 sanitary sewer ERU's. The current master plan anticipated 20.4 culinary ERC's, 0.6 irrigated acres, and 20.4 sanitary sewer ERU's. Proposed connections are slightly higher than anticipated for this area.

The proposed culinary water improvements have been modeled in both the current and buildout models. The proposed improvements fit well within the City's culinary water master plan and modeling shows them to be adequate. The following comments and recommendations are noted for the proposed culinary water system.

The proposed pressurized irrigation improvements have been modeled in both the current and buildout models under both wet and dry year supply conditions. The proposed demands are more than the City's pressurized irrigation master plan but modeling shows them to be adequate. The following comments and recommendations are noted for the proposed pressurized irrigation system.

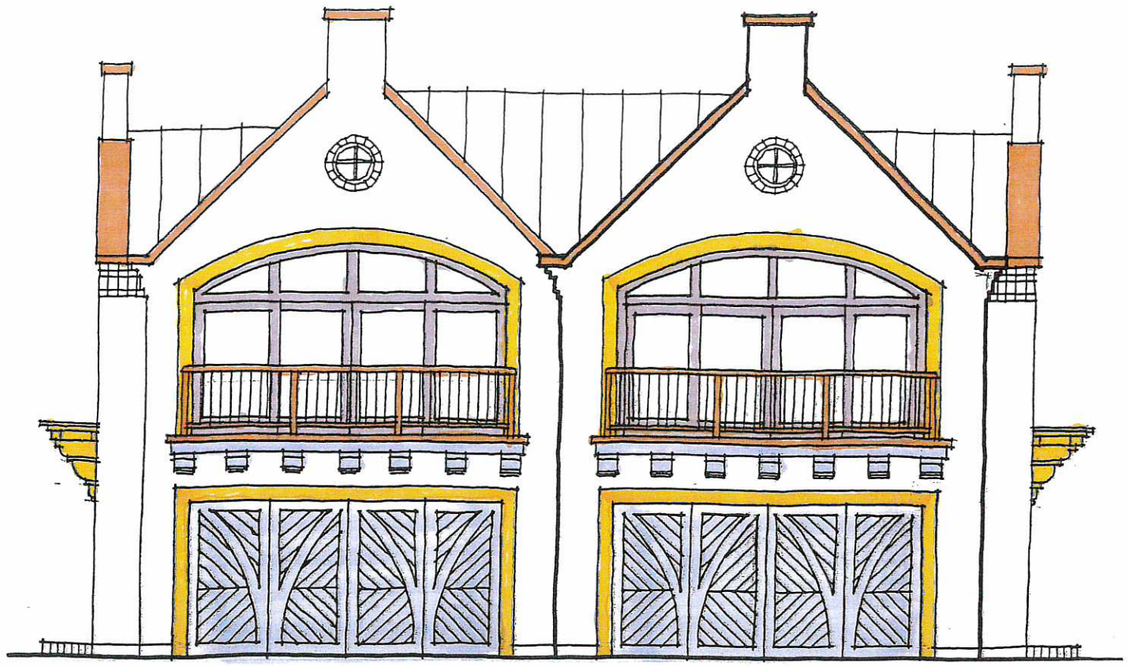
The proposed sanitary sewer improvements have been modeled in both the current and buildout models. The proposed improvements fit well within the City's sanitary sewer master plan and modeling shows them to be adequate. The following comments and recommendations are noted for the proposed sanitary sewer system.

Recommendations:

1. None.

Comments:

2. Fire flow available in the area surrounding the proposed improvements should be over 3000 gallons per minute at 20 psi for the proposed lines.



Typical Garage Elevation

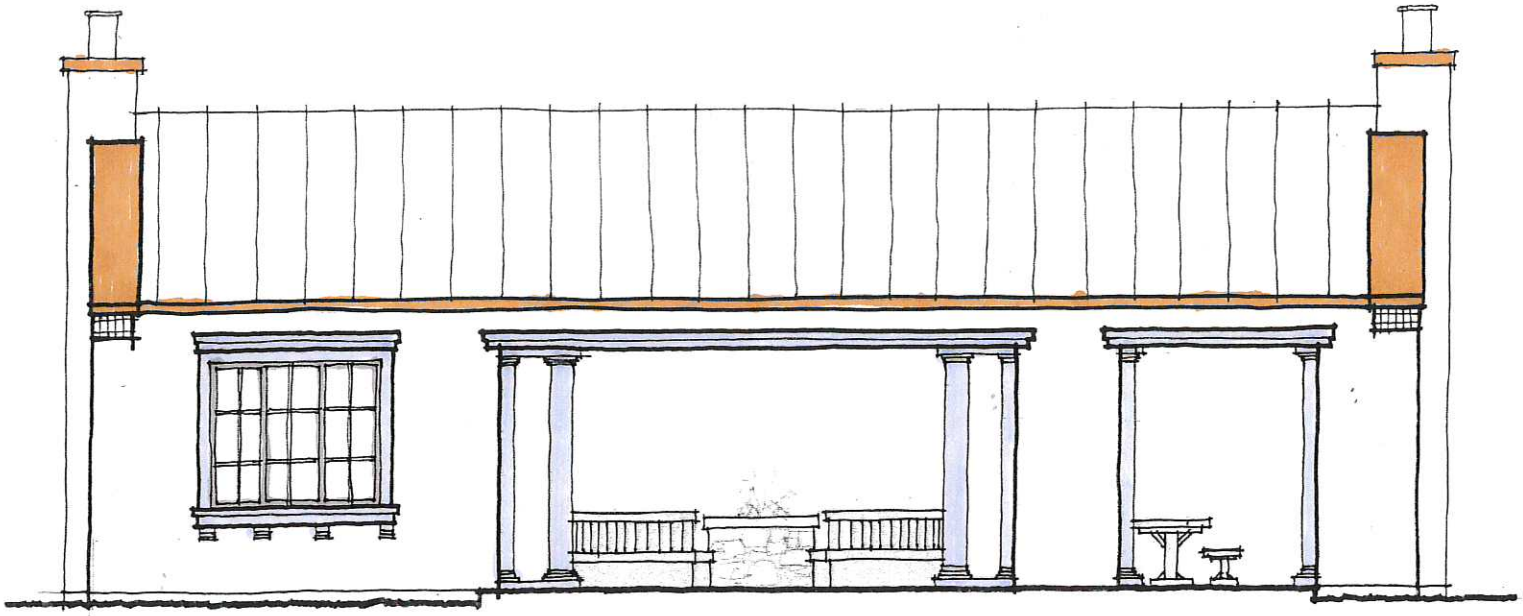
Typical End Elevation

Typical Front Elevation

Material legend.

- Metal Roof
- Brick Coinage
- Brick
- Painted Metal
- Painted Hardi Board
- Precast
- Aluminum & Glass

Typical all units



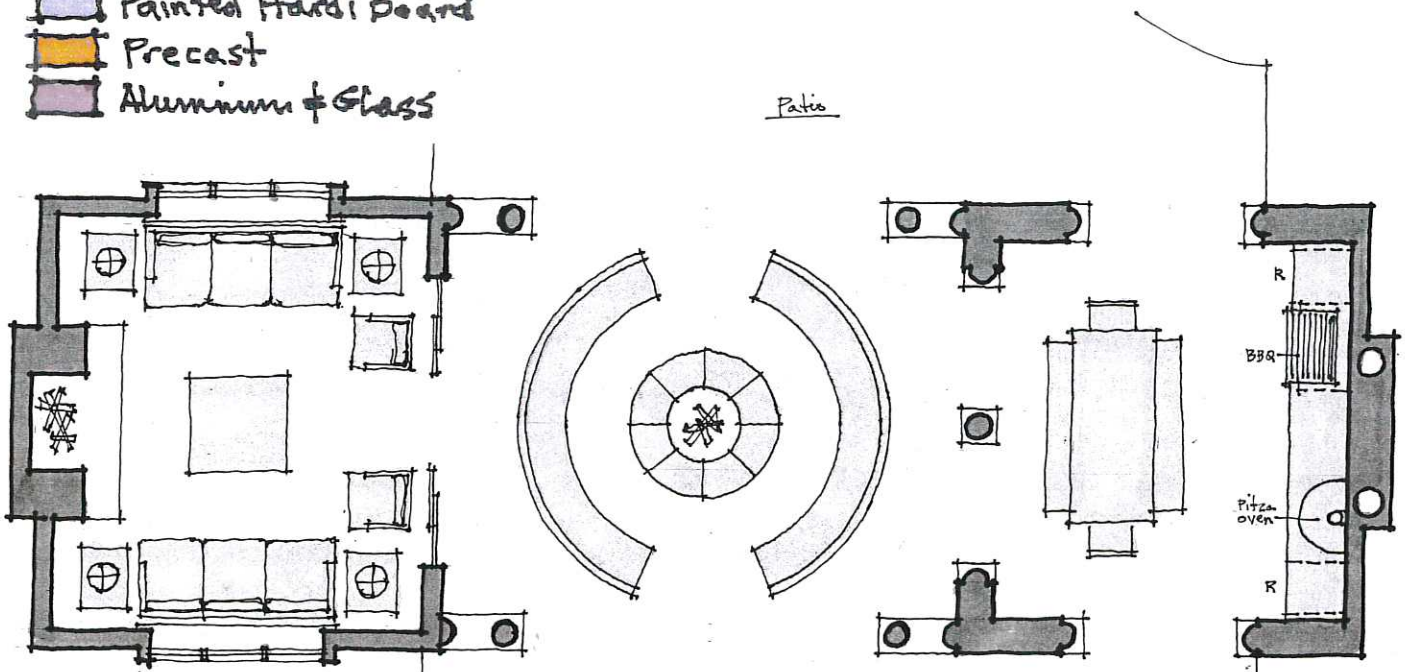
Material legend.

- Metal Roof
- Brick Coinage
- Brick
- Painted Metal
- Painted Hardi Board
- Precast
- Aluminum & Glass

Pavillion · CFE #1

0 1 2 4

12 Feb. 2019



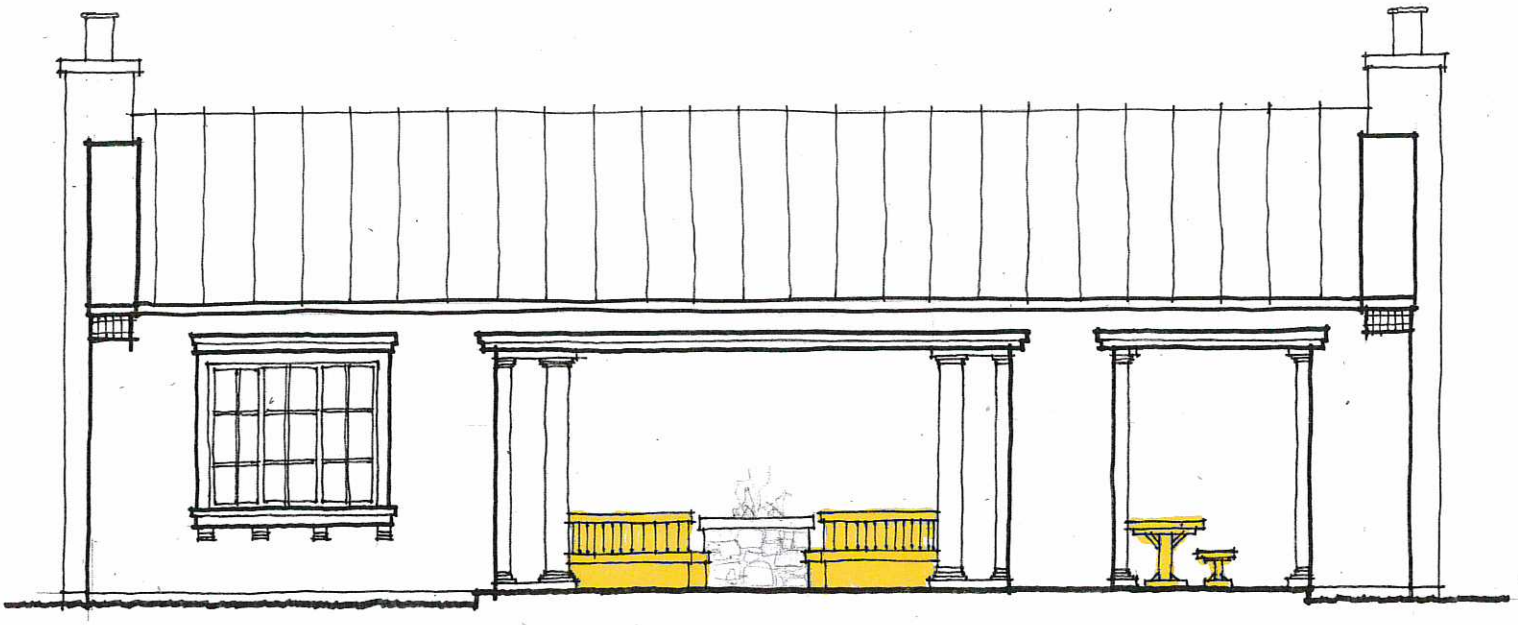
Pavillion · CP #1

0 1 2 4

12 Feb. 2019


N88°14'00"W 28.89
N88°14'00"W 74.96
S76°32'00"W 70.38
S63°26'06"W 111.80
S41°15'06"W 203.25
S70°27'24"E 272.51
N82°56'04"E 298.91
N0°21'39"E 445.40
PROPOSED LOCATION FOR PAVILION
MAIN STREET
ALI COURT
(PRIVATE 24' WIDE)
1 1728 sqft
2 1728 sqft
3 1728 sqft
4 1728 sqft
5 1728 sqft
6 1728 sqft
7 1728 sqft
8 1728 sqft
9 1728 sqft
10 1632 sqft
11 1584 sqft
12 1584 sqft
13 1536 sqft
14 1440 sqft
15 1632 sqft
16 1728 sqft
17 1728 sqft
18 1728 sqft
19 1728 sqft
20 1728 sqft
21 1632 sqft
22 1728 sqft
23 1728 sqft
24 1728 sqft
25 1728 sqft

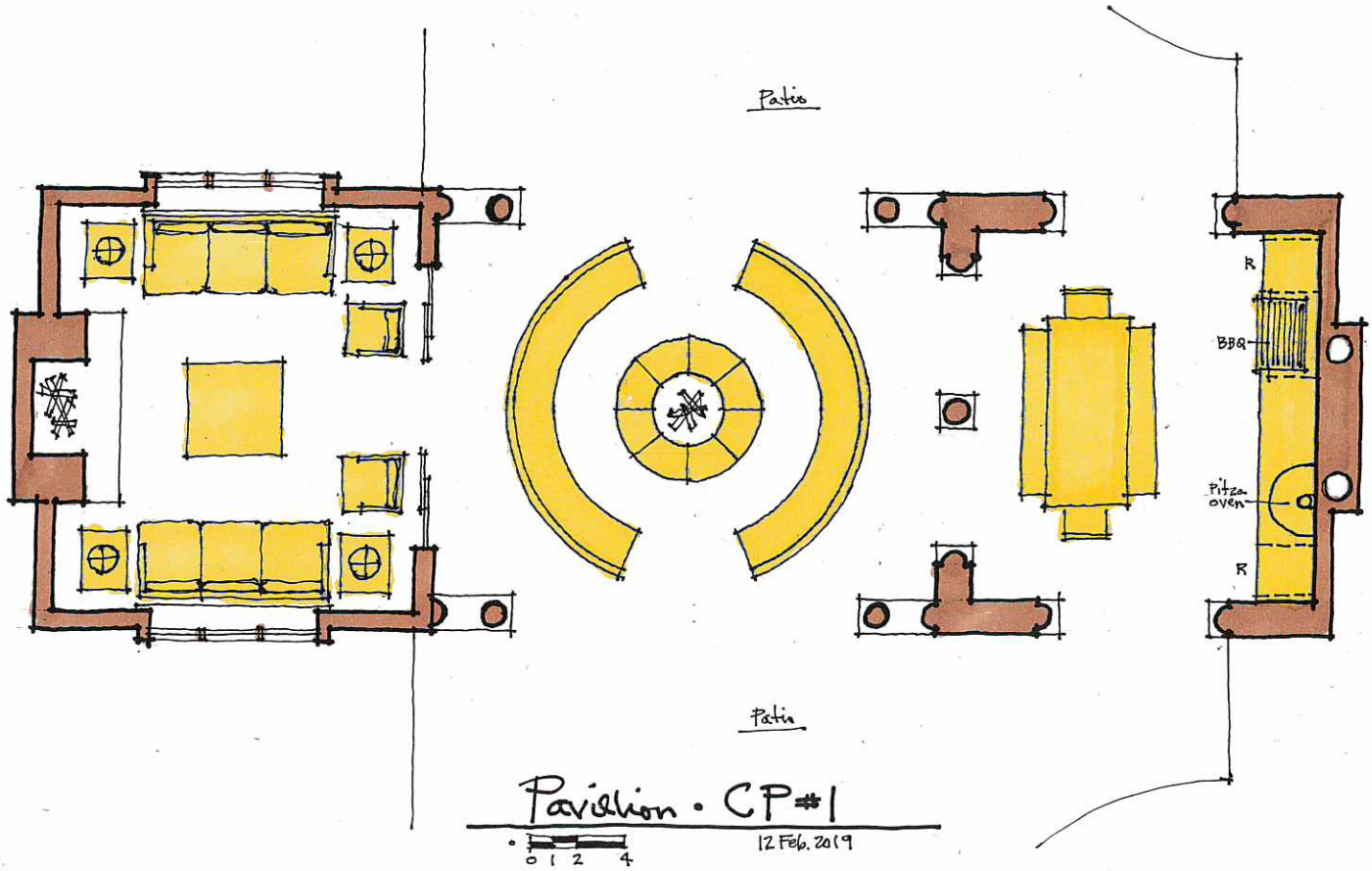

MONTDELLA



Pavillion · CFE #1

0 1 2 4

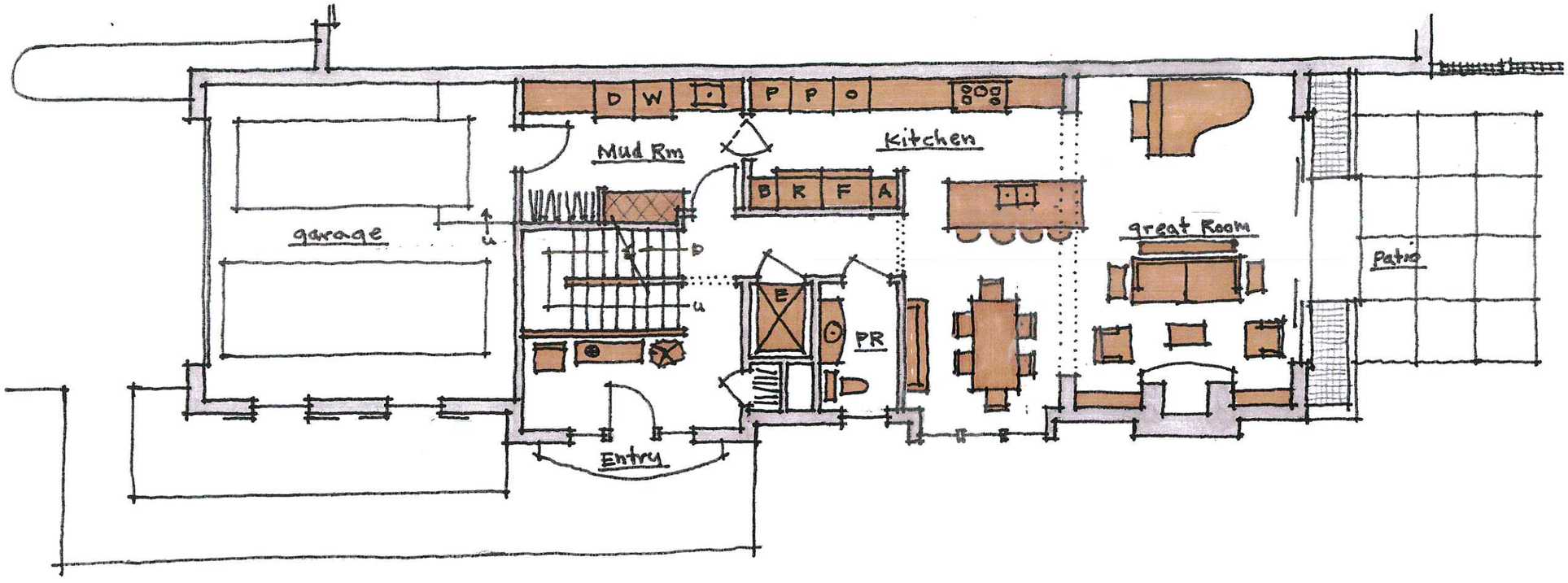
12 Feb. 2019



Pavillion · CP #1

0 1 2 4

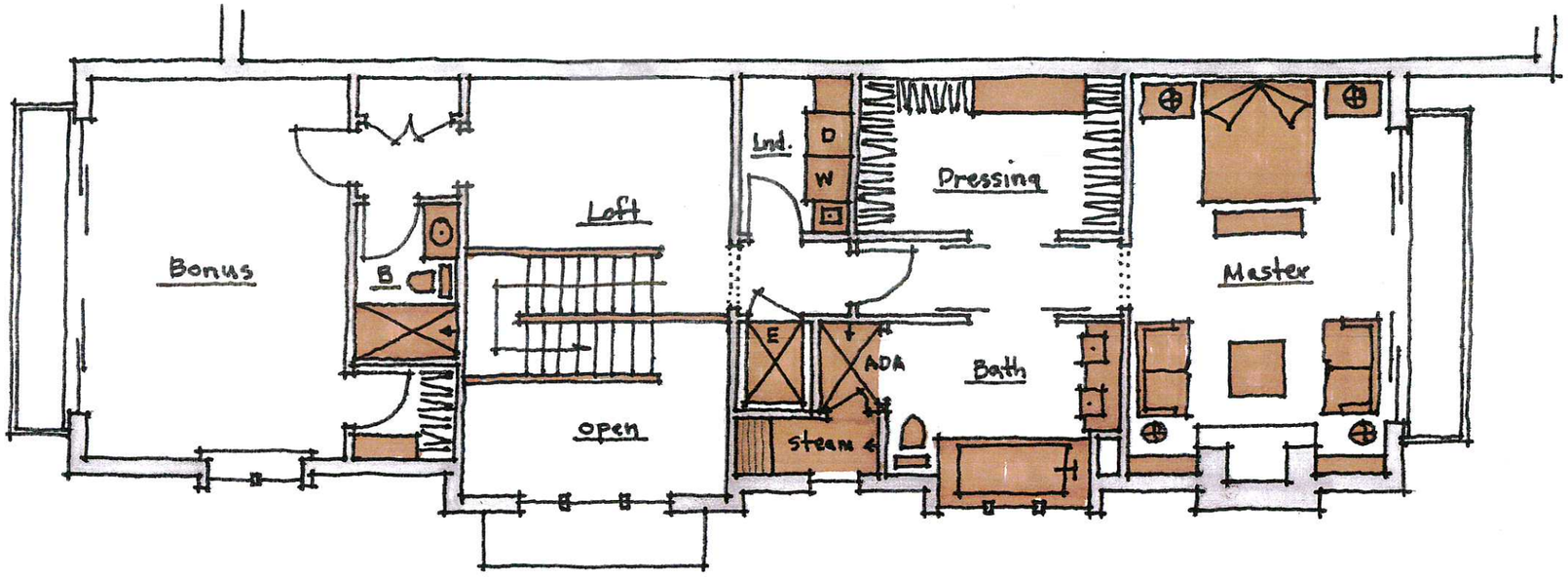
12 Feb. 2019



Main Floor Plan

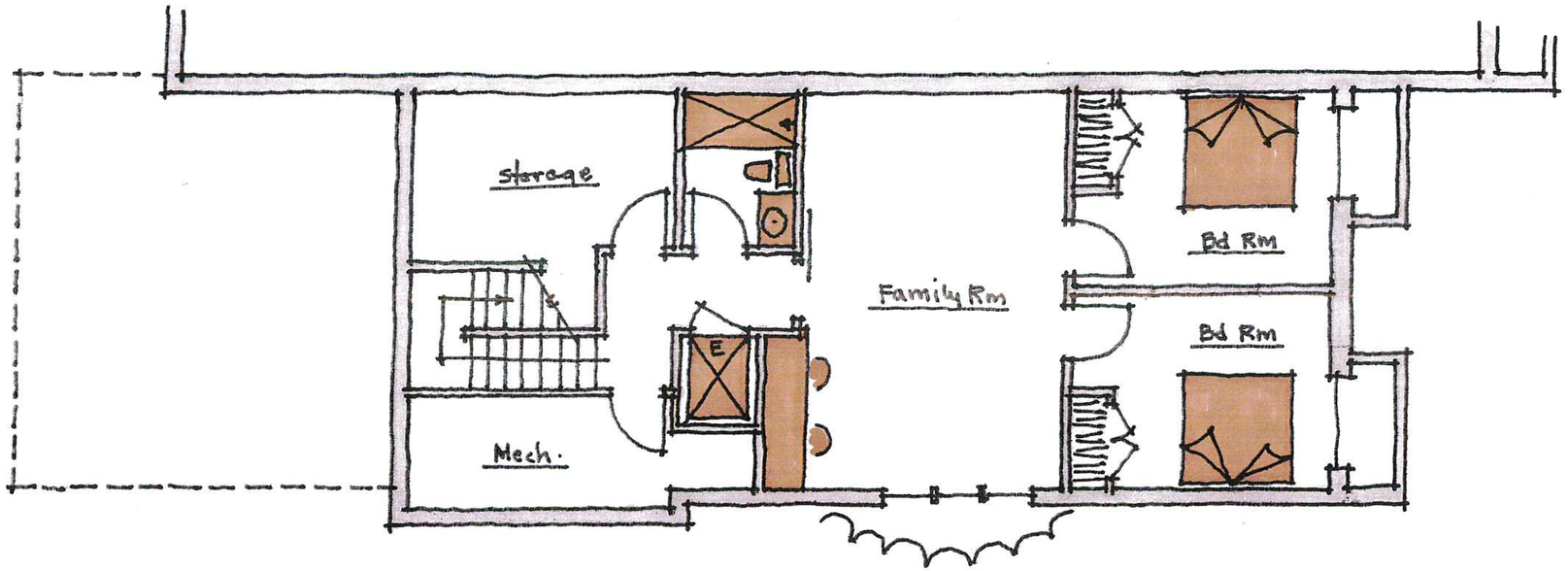
MF = 1200 SF
UF = 1652 SF
LF = 1200 SF
T = 4052 SF

garage 451 SF



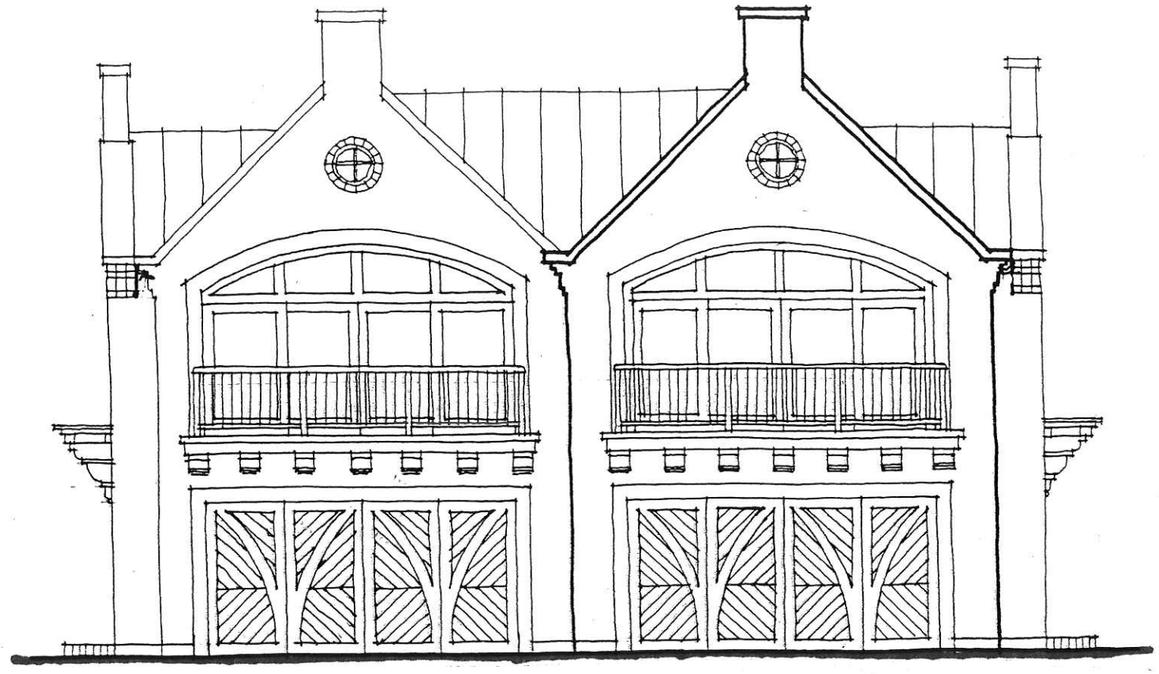
Upper Floor Plan

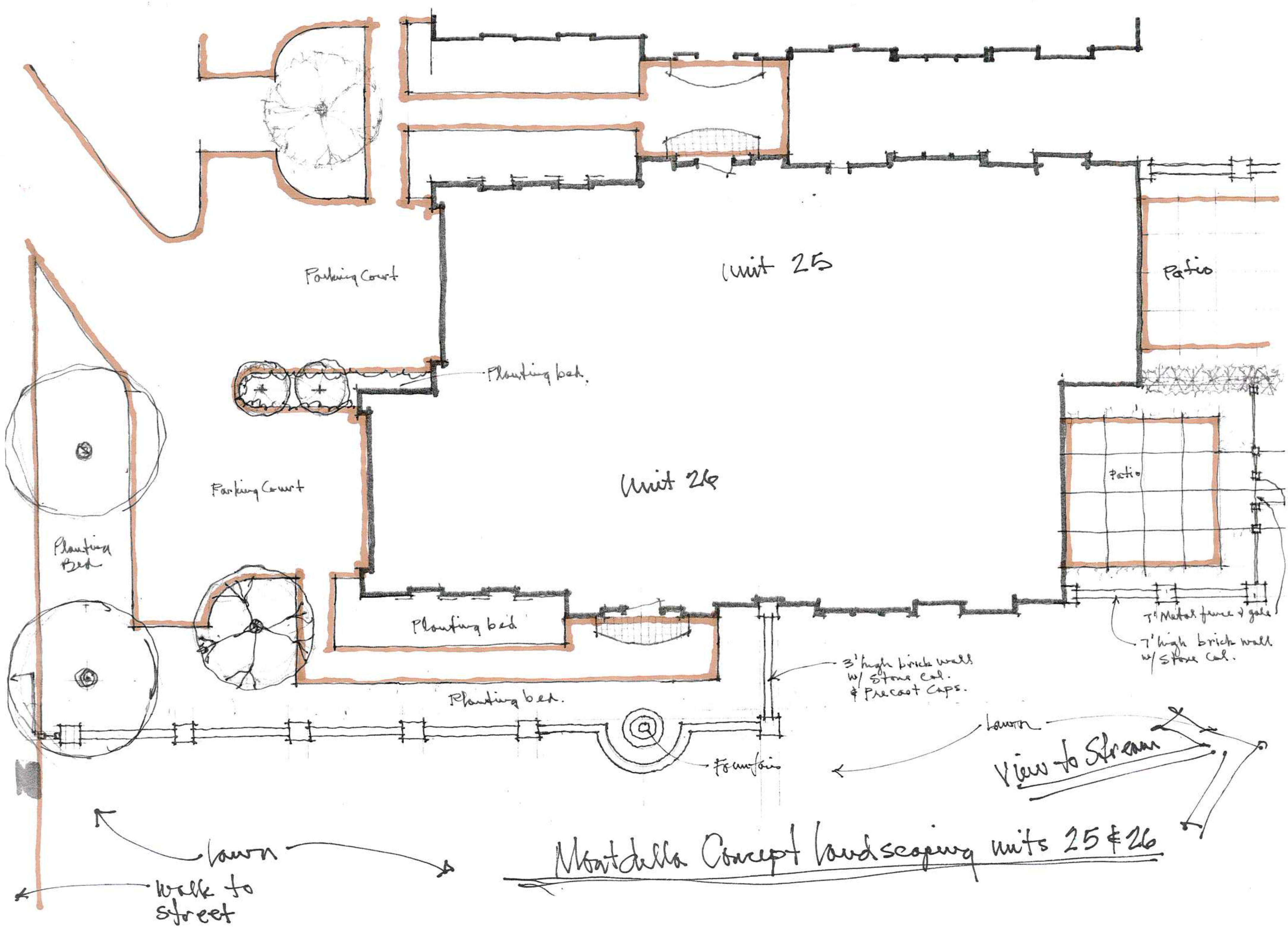
UF 1,652 SF



Lower Floor Plan

LF 1200 SF




Montdella Concept Landscaping Units 25 & 26
Unit 25
Unit 26
Parking Court
Parking Court
Planting Bed
Planting bed.
Planting bed
Planting bed.
Patio
Patio
7' Metal fence & gate
7' high brick wall w/ Stone Col.
3' high brick wall w/ Stone Col. & Precast Caps.
Fountain
Lawn
Lawn
View to Stream
Walk to street

ALPINE PLANNING COMMISSION AGENDA

SUBJECT: Public Hearing – Amendment to Development Code – Urban/Wildland Interface Overlay

FOR CONSIDERATION ON: 7 May 2019

PETITIONER: Staff

ACTION REQUESTED BY PETITIONER: Receive public comments and recommend approval of proposed amendments Development Code and reference guide.

BACKGROUND INFORMATION:

Staff have reviewed the Development Code and have recommended changes for Article 3.12.070. Changes include repealing most of the code and referring to a new reference guide prepared by the Lone Peak Fire Department. The new guide, titled the Wildland-Urban Interface Site Plan/Development Review Guide, outlines a new rating system for determining fire safety hazards in Wildland Interface areas.

STAFF RECOMMENDATION:

Receive public comment and and recommend approval of amendments to Article 3.12.070 of the Development Code and recommend approval of the Wildland-Urban Interface Site Plan/Development Review Guide.

ALPINE CITY
ORDINANCE 2019-10

NOW THEREFORE, be it ordained by the Council of Alpine City, in the State of Utah, as follows:

SECTION 1: **AMENDMENT** "3.12.070 Urban/Wildland Interface Overlay" of the Alpine City Municipal Code is hereby *amended* as follows:

BEFORE AMENDMENT

3.12.070 Urban/Wildland Interface Overlay

1. **PUPROSE**. To establish standards for development and fire prevention in areas bordering on wildlands.
2. **DEFINITIONS**

Urban/Wildland Interface. Whenever the term "Urban/Wildland Interface" is used it shall be held to mean any area where development and heavily forested or brush land remaining in a relatively natural state meet. Specifically, the land that meets this criteria is identified in the overlay map in the Alpine City Hazard Maps of this Chapter.

Development. The term "Development" shall be construed to include any man-made change to improved or unimproved real estate, including but not limited to paving, excavation, drilling operations, storage of equipment or materials, or landscaping.

Classification of Roof Coverings. Whenever the term "Classification of Roof Covering" is used it shall be held to refer to the classification of a covering established by the International Building Code (hereinafter "IBC"). The two classifications of roof coverings allowed in the Urban/Wildland Interface are as follows:

a. Class A. These roof coverings are effective against severe fire exposures. Under such exposures, roof coverings of this class are not readily flammable, afford a fairly high degree of fire protection to the roof deck, do not slip from position and pose no flying brand hazard.
b. Class B. These roof coverings are effective against moderate fire exposures. Under such exposures, roof coverings of this class are not readily flammable, afford a moderate degree of fire protection to the roof deck, do not slip from position and pose no flying brand hazard.

Construction. For use in this section, "Construction" means the erection, building, enlargement, alteration, repairing or moving of a structure. This term also applies to the wiring, piping, heating, cooling, ventilation, refrigeration, sanitation or transportation of fixtures and equipment therein, as well as to the excavation, filling or paving of land.

Defensible Space. Whenever the term Defensible Space is used it will refer to an area denoted by a thinning of native vegetation, removal of dead plant material and/or the replacing of highly flammable vegetation with fire resistant plants and/or irrigated areas as indicated in this ordinance.

3. **PERMITS**
    a. Requirement. Consistent with Section 68-27-109(5)(a) of the Utah Code Annotated 1953 as amended, which provides for the issuance of permits, no new building or structure shall commence construction nor be occupied until a Fire Safety Permit therefore has been issued by the Fire Chief stating the conditions under which the building has been approved in accordance with the provisions of this ordinance. This requirement shall not apply to dwellings outside of the Urban/Wildland Interface area identified in Alpine City Hazard Maps.
    b. Fire Safety Permit. All requests or applications for a building permit within the Urban/Wildland Interface area shall be deemed to be a concurrent request for a Fire Safety Permit providing certification by the Fire Chief that the provisions of this ordinance are being met.
    c. Conditions. No building permit for sites within the Urban/Wildland Interface area shall be issued until a Fire Safety Permit is approved and issued by the Fire Chief. All construction and use of the premises shall be in accord with such conditions as may be attached to the Fire Safety Permit.
4. **ROADS**
    a. Access. All developments in the Urban/Wildland Interface area shall have more than one access route which provides simultaneous access for emergency equipment and civilian evacuation. The design of access routes shall take into consideration traffic circulation and provide for looping of roads as required to ensure at least two access points. Looped roads with a single access are not allowed.
    b. Exceptions. Where terrain features or other physical obstacles make provision of a second access impractical, a single access may be approved by the City Council after obtaining the recommendation of the Fire Chief and the Planning Commission.
    c. Specifications. All secondary access roads shall have a minimum paved width of not less than 20 feet and an unobstructed vertical clearance of not less than 13 feet 6 inches to permit two-way traffic. These provisions will apply in lieu of those provided in Article 9.02-2-1 of the Uniform Fire Code.
5. **ADDRESSES**
    a. Specifications. Notwithstanding Section 9.01-4-4 of the Uniform Fire Code, each premise must have approved numbers or addresses, a minimum of 5 inches in size, placed in such a position as to be plainly visible and legible from the road fronting the property. Numbers shall contrast with their background and their positions shall be suited for visibility in all seasons.
6. **FIRE HYDRANTS**

a. Standards. Notwithstanding Appendix III-B of the Uniform Fire Code, each fire hydrant shall be installed in accordance with the recommendations of the City Engineer, Fire Chief and Table No. A-III, B-1 of the Uniform Fire Code.
b. Requirement. No combustible materials may be installed, framed or assembled within the Urban/Wildland Interface area unless within 250 feet of a usable fire hydrant connected to the city water supply.

7. **CHIMNEYS AND FLUES**

a. Spark Arresters. Notwithstanding Appendix II-P Section 7 of the Uniform Fire Code, every chimney, flue or vent shall be provided with an approved spark arresting device consisting of 12 gauge welded or woven wire mesh with openings not exceeding 1/2 inch.
b. Clearance. In accordance with Appendix I-A of the Uniform Fire Code, chimney outlets shall be constructed with at least a 15-foot clearance from all vegetation and obstructions.

8. **STRUCTURAL DESIGN AND CONSTRUCTION**

a. Roof Coverings. Non-combustible roof coverings are required on all new structures within the Urban/Wildland Interface area. Roof coverings shall be constructed of UL listed Class A or B materials in accordance with Chapter 32 of the UBC. No wood roof coverings are permitted in the Urban/Wildland Interface. Homes previously constructed in the Urban/Wildland Interface, which do not comply with this Part will be brought into compliance when one-half or more of the existing roof covering is replaced. The Fire Chief will provide notice of this requirement to any homeowners who may be affected upon passage of this ordinance.
b. Sprinkler Protection. All new homes in the Urban/Wildland Interface area shall be provided with automatic sprinkler protection in accordance with the National Fire Protection Association (NFPA) Standard 13 R, modified as follows:
    i. Decks and Walks. Decks and walkways greater than 4 feet wide shall have quick response sprinkler heads placed ten feet on center if an exposure hazard is present. Eaves of the structure will also be provided with sprinkler heads 10 feet on center and attic vents shall be similarly protected if an exposure hazard is present. For the purposes of this Part, an exposure hazard is defined as the presence of any of the following at the time of construction or evidence of such in the construction plans provided:
        (1) Shrubs within 20 feet of the structure, unless in islands of no more than five shrubs separated from other vegetation by at least 50 feet.
        (2) Trees within 30 feet of the structure, unless separated from other trees by at least 30 feet measured at the base.
        (3) Native brush, including oak, within 100 feet of the structure, unless in islands not to exceed 30 feet on their longest axis, separated from other vegetation by at least 50 feet and at least 30 feet from the structure.

ii. Flows. The system calculations shall be based on a minimum of four flowing quick-response sprinklers hydraulically calculated to provide flows in accordance with manufacturer's specifications for sprinklers. Calculations shall be based on 90% of the available flow at the base of the riser.
iii. Loop Systems. The use of anti-freeze loop systems is allowed when an acceptable back-flow prevention assembly is provided. Anti-freeze loops shall be relieved by using either an approved expansion tank or relief valve. Drilled clapper valves are not permitted.
iv. Inspection. An inspector's test valve is required upstream of the anti-freeze loop check valve.
v. Control Valves. Automatic sprinkler systems shall be provided with an indicating control valve accessible to the fire department.
vi. Certification. Approval of any system shall be based on final inspection and receipt of hydrostatic and flushing certificates provided by the installer.
vii. Notwithstanding Article 10 Section 1.001.5.2 of the Uniform Fire Code, automatic sprinkler protection, where installed, shall be inspected annually at the owner's expense by a licensed sprinkler contractor. A copy of the inspection shall be submitted to the Fire Chief by December 31st of each year.

c. Other Construction Features. Other construction features, vents, overhangs and stilt construction shall meet the following standards:
i. Vents. All vents shall be screened with a corrosion resistant, non-combustible wire mesh with nominal openings not to exceed 1/4 inch.
ii. Projections. Combustible projections of 10 inches or more and wood decks shall be protected as follows:
(1) Materials specified in Section 7.d above shall be applied to the underside of the exposed edge or, in the case of a deck, a wall shall be constructed around its perimeter using the aforementioned materials; or
(2) The use of heavy timber in compliance with the provisions of the code; or
(3) An approved outside sprinkler system shall be provided on the underside of the projection or deck.

d. Construction Materials. Exterior vertical walls shall be constructed of concrete masonry, brick veneer not less than 3 inches in thickness, cement plaster in compliance with the exterior finish requirements of the UBC, or any other non-combustible material (including some types of siding) meeting the intent of this code if such material is approved by the building official.
e. Windows. Glazed openings having three or more trees or shrubs within 30 feet shall be provided with double pane or safety glass. Double pane or safety glass shall be utilized in all windows on the down slope side of a dwelling.

9. **VEGETATIVE CLEARANCE**

a. Notification. Applications for building permits shall contain a site plan with sufficient detail to allow for evaluation of clearances between vegetative fuels and structures.
b. Defensible Space. The following minimum clearances shall be maintained, notwithstanding Appendix II-A, Section 16 of the Uniform Fire Code:
    i. Dead Material. All dead vegetative material shall be removed and maintained clear at least 100 feet from dwellings and 50 feet from non-inhabited structures.
    ii. Defensible Space. Each defensible space shall meet the following specifications:
        (1) Grasses and Spreading Plants. Grasses, spreading plants and ground cover within 50 feet of dwellings must be of types that are identified as fire resistant. The Fire Chief will make information on fire resistant species available to property owners.
        (2) Shrubs. Shrubs may be used for ornamental plantings against the walls or foundations of dwellings if such shrubs are served by an automated sprinkler or other irrigation system approved by the building inspection official.
        (3) Trees. Trees must be at least 30 feet at the base from dwellings or at least 30 feet from other trees, non-deciduous shrubs and native brush, except that up to five trees may be grouped together if a clearance of at least 50 feet is maintained to any dwelling or to other trees, non- deciduous shrubs and native brush.
        (4) Native Brush. Native species, such as scrub oak and other indigenous vegetation, may not be within 50 feet of dwellings unless such vegetation is grouped into islands not more than 30 feet on their longest axis. Such islands must be kept free of any dead vegetative material in accordance with Part 8,b,i and must be at least 30 feet from other trees, shrubs or brush unless protected by an automated sprinkler system. Islands must be at least 30 feet from dwellings or 10 feet if served by an automatic sprinkler system approved by the building inspection official. Native grasses must be removed, replaced with fire resistant species or maintained at a height not to exceed 6 inches unless protected by an automatic sprinkler system.
    iii. Public Lands. Defensible Space on property adjacent to public lands, whether controlled by Alpine City, the State of Utah, the United States Government or any other governmental entity, shall meet the same fuel break requirements as any other cluster not so located.
c. Disposal of Vegetation. Disposal of flammable vegetation shall be completed prior to final building inspection. Such vegetation may be disposed of by chipping, burying or removal to an approved landfill. Burning of such materials is prohibited.

d. Fuel Tanks. Propane or fuel tanks shall have no ground vegetation more than 4 Inches in height within a 10 foot radius, notwithstanding Section 82.109 of the Uniform Fire Code. Trees and brush shall be trimmed so as to maintain a clearance of at least 3 feet from the sides and top of the tank.
e. Fire Hydrants. Vegetation and other obstructions shall be maintained at no more than 4 inches in height around a fire hydrant, notwithstanding Section 01-7-2 of the Uniform Fire Code. Clearance shall be provided for three feet on all sides of the hydrant and must extend to the roadway.
f. Recreational Fires. Open recreational fires shall be located a minimum of 25 feet from a structure or combustible material unless contained in an approved barbecue pit located a minimum of 10 feet from combustible foliage, walls or roofs. An opening in any overhead vegetative canopy shall be provided to prevent pyrolysis of the foliage.
    i. Fuel Pile Limitation. Fuel piles for recreational fires shall be no larger than 3 feet in diameter and 2 feet high.
    ii. Extinguishing Devices. A garden hose connected to a water supply or other approved fire extinguishing device shall be readily available for use at recreational fires. A person knowledgeable in the use of such fire extinguishing devices shall supervise the burning material until the fire has been extinguished.

10. **ENFORCEMENT**

a. Responsibility. The conditions outlined in the urban/wildland overlay shall be maintained by the property owner and/or the applicable homeowners' association as a condition of maintaining "adequate fire protection" in accordance with Section 11-7-1 of the Utah Code Annotated and protective agreements, if any, made with Alpine City at the time of annexation.
b. Non-Exclusive Nature. The provisions of the urban/wildland overlay represent minimum standards. each owner of property in the Urban/Wildland Interface area is expected to use reasonable care in mitigating potential fire hazards, whether or not the potential hazard is enumerated in this section.
c. Pre-Existing Conditions. Property not in compliance with the vegetative clearance section of the urban/wildland overlay at the time of passage shall have one year in which to conform to its provisions, except that retrofitting of sprinklers will not be required.
d. Enforcement Official. Provisions of the urban/wildland overlay shall be enforced by the Alpine City Fire Chief or his appointed designees. The Fire Chief is authorized to recommend alternatives to any of the provisions of this code upon application in writing by the owner, lessee or a duly authorized representative where there are practical difficulties that prevent carrying out the such provisions, provided that the spirit and intent of the code shall be maintained, public safety furthered and substantial justice done. The particulars of such modifications and decision of the Fire chief shall be submitted to the City Council.

i. Inspections. The Fire Chief or his designee shall conduct inspections to determine compliance with the urban/wildland requirements at the time of building permit inspections and at least once a year or at any other reasonable time. The Fire Chief or designee shall also conduct inspections based on the request of any other property owner, lessee, City official or employee who has reasonable cause to believe that a potential fire hazard exists in violation of the provisions of this ordinance.

ii. Notice. The Fire Chief or his designee will annually publish and as needed periodic notices to remind residents of the provisions of the urban/wildland and will make available information on the provisions of the ordinance, as well as guidance on fire-resistant vegetation and suitable landscaping.

e. Recourse. Any person adversely affected by any decision made in the exercise of the provision of this section may pursue administrative and legal remedies in accordance with the following provisions:

i. Procedure. No person may challenge Alpine City's land use decisions under this section in district court until all administrative remedies have been exhausted.

ii. Judicial Review. Any person having exhausted all possible administrative remedies may file a petition for review of the decision with the district court within 30 days after the local decision is rendered.

iii. Validity of Ordinance. The courts shall presume that land use decisions and regulations are valid and determine only whether or not the decision is arbitrary, capricious or illegal.

f. Remedies. Alpine City, its officers and employees, the city attorney or any owner of real estate within Alpine City may, in addition to other remedies provided by law, institute proceedings to secure injunction, mandamus, abatement or any other remedies provided by law, including prevention, enjoinment or removal.

g. Injunction. Alpine City need only establish the violation in order to secure injunction.

h. Building Permits. Alpine City, its officers and employees, may enforce this ordinance by withholding building permits and it shall be unlawful to erect, construct, alter or change the use of any building or other structure within Alpine City without approval of such building permit.

i. Failure to Obtain Permit. Any architect, lending agency, builder, contractor or other person doing or performing such work as described in DCA 3.13.100 Part 6,b shall be deemed guilty of violating this ordinance at least to the same extent or manner as the owner of the premises, or the person for whom the use is established or for whom such buildings are erected or altered, and shall be subject to the penalties herein prescribed for a violation.

ii. Compliance. The City may not issue a building permit unless the plans of and for the proposed erection, construction, reconstruction, alteration or use fully conform to all ordinances then in effect.

i. Violation. Any violation of the provisions of the urban/wildland overlay is punishable as a Class C misdemeanor upon conviction. Each person, firm or corporation found guilty of such violation shall be deemed guilty of a separate offense for every day during which any violation is committed, continued or permitted by such person, persons, firm or corporation, and shall be punished as provided in this ordinance.

j. Nothing in this ordinance may be construed to prevent enforcement under the provisions of the current edition of the Uniform Fire Code as adopted by the State of Utah and the City of Alpine.

11. **Warning and Disclaimer**. The degree of wildfire protection required by urban/wildland interface overlay is considered reasonable regulatory purposes and is based on fire safety considerations. This section does not imply that land outside the areas of urban/wildland overlay zone or uses permitted within such areas will be free from damages from wildfires. This ordinance shall not create liability on the part of Alpine City, Utah, any officer or employee thereof, or the city's fire agency for any wildfire damages that result from reliance an this ordinance or any administrative decision lawfully made thereunder.

(Original Ordinance No. 94-11. Amended by Ord. 2001-05. Incorporated into Sensitive Lands Ordinance by Ord. No. 2005-03, 1/25/05)

AFTER AMENDMENT

3.12.070 Urban/Wildland Interface Overlay

1. **PUPROSE**. To establish standards for development and fire prevention in areas bordering on wildlands. In addition to this section of the Development Code, areas bordering on wildlands shall be subject to the Wildland-Urban Interface Site Plan/Development Review Guide (supplemental document).
2. ~~**DEFINITIONS**~~

~~Urban/Wildland Interface. Whenever the term "Urban/Wildland Interface" is used it shall be held to mean any area where development and heavily forested or brush land remaining in a relatively natural state meet. Specifically, the land that meets this criteria is identified in the overlay map in the Alpine City Hazard Maps of this Chapter.~~

~~Development. The term "Development" shall be construed to include any man-made change to improved or unimproved real estate, including but not limited to paving, excavation, drilling operations, storage of equipment or materials, or landscaping.~~

~~Classification of Roof Coverings. Whenever the term "Classification of Roof Covering" is used it shall be held to refer to the classification of a covering established by the International Building Code (hereinafter "IBC"). The two classifications of roof coverings allowed in the Urban/Wildland Interface are as follows:~~

a. ~~Class A. These roof coverings are effective against severe fire exposures. Under such exposures, roof coverings of this class are not readily flammable, afford a fairly high degree of fire protection to the roof deck, do not slip from position and pose no flying brand hazard.~~
b. ~~Class B. These roof coverings are effective against moderate fire exposures. Under such exposures, roof coverings of this class are not readily flammable, afford a moderate degree of fire protection to the roof deck, do not slip from position and pose no flying brand hazard.~~

~~Construction. For use in this section, "Construction" means the erection, building, enlargement, alteration, repairing or moving of a structure. This term also applies to the wiring, piping, heating, cooling, ventilation, refrigeration, sanitation or transportation of fixtures and equipment therein, as well as to the excavation, filling or paving of land.~~

~~Defensible Space. Whenever the term Defensible Space is used it will refer to an area denoted by a thinning of native vegetation, removal of dead plant material and/or the replacing of highly flammable vegetation with fire resistant plants and/or irrigated areas as indicated in this ordinance.~~

3. ~~**PERMITS**~~

~~Requirement. Consistent with Section 68-27-109(5)(a) of the Utah Code Annotated 1953 as amended, which provides for the issuance of permits, no new building or structure shall commence construction nor be occupied until a Fire Safety Permit therefore has been issued by the Fire Chief stating the conditions under which the building has been approved in accordance with the provisions of this ordinance. This requirement shall not apply to dwellings outside of the Urban/Wildland Interface area identified in Alpine City Hazard Maps.Fire Safety Permit. All requests or applications for a building permit within the Urban/Wildland Interface area shall be deemed to be a concurrent request for a Fire Safety Permit providing certification by the Fire Chief that the provisions of this ordinance are being met.Conditions. No building permit for sites within the Urban/Wildland Interface area shall be issued until a Fire Safety Permit is approved and issued by the Fire Chief. All construction and use of the premises shall be in accord with such conditions as may be attached to the Fire Safety Permit.~~

4. ~~**ROADS**~~

~~Access. All developments in the Urban/Wildland Interface area shall have more than one access route which provides simultaneous access for emergency equipment and civilian evacuation. The design of access routes shall take into consideration traffic circulation and provide for looping of roads as required to ensure at least two access points. Looped roads with a single access are not allowed.Exceptions. Where terrain features or other physical obstacles make provision of a second access impractical, a single access may be approved by the City Council after obtaining the recommendation of the Fire Chief and the Planning Commission.Specifications. All secondary access roads shall have a minimum paved width of not less than 20 feet and an unobstructed vertical clearance of not less than 13 feet 6 inches to permit two-way traffic. These provisions will apply in lieu of those provided in Article 9.02-2-1 of the Uniform Fire Code.~~

5. **ADDRESSES**

a. Specifications. Notwithstanding Section 9.01-4-4 of the Uniform Fire Code, each premise must have approved numbers or addresses, a minimum of 5 inches in size, placed in such a position as to be plainly visible and legible from the road fronting the property. Numbers shall contrast with their background and their positions shall be suited for visibility in all seasons.

6. ~~**FIRE HYDRANTS**~~

~~Standards. Notwithstanding Appendix III-B of the Uniform Fire Code, each fire hydrant shall be installed in accordance with the recommendations of the City Engineer, Fire Chief and Table No. A-III, B-1 of the Uniform Fire Code.Requirement. No combustible materials may be installed, framed or assembled within the Urban/Wildland Interface area unless within 250 feet of a usable fire hydrant connected to the city water supply.~~

7. ~~**CHIMNEYS AND FLUES**~~

~~Spark Arresters. Notwithstanding Appendix II-P Section 7 of the Uniform Fire Code, every chimney, flue or vent shall be provided with an approved spark arresting device consisting of 12 gauge welded or woven wire mesh with openings not exceeding 1/2 inch.Clearance. In accordance with Appendix I-A of the Uniform Fire Code, chimney outlets shall be constructed with at least a 15-foot clearance from all vegetation and obstructions.~~

8. **STRUCTURAL DESIGN AND CONSTRUCTION**

a. ~~Roof Coverings. Non-combustible roof coverings are required on all new structures within the Urban/Wildland Interface area. Roof coverings shall be constructed of UL listed Class A or B materials in accordance with Chapter 32 of the UBC. No wood roof coverings are permitted in the Urban/Wildland Interface. Homes previously constructed in the Urban/Wildland Interface, which do not comply with this Part will be brought into compliance when one-half or more of the existing roof covering is replaced. The Fire Chief will provide notice of this requirement to any homeowners who may be affected upon passage of this ordinance.~~

b. Sprinkler Protection. ~~All new homes in the Urban/Wildland Interface area shall be~~For structures receiving a HIGH HAZARD or EXTREME HAZARD rating on the Fire Hazard Severity Form, found in the WIldland-Urban Interface Site Plan/Development Review Guide, shall be provided with automatic sprinkler protection in accordance with the National Fire Protection Association (NFPA) Standard 13 R, modified as follows:

i. Decks and Walks. Decks and walkways greater than 4 feet wide shall have quick response sprinkler heads placed ten feet on center if an exposure hazard is present. Eaves of the structure will also be provided with sprinkler heads 10 feet on center and attic vents shall be similarly protected if an exposure hazard is present. For the purposes of this Part, an exposure hazard is defined as the presence of any of the following at the time of construction or evidence of such in the construction plans provided:

(1) ~~Shrubs within 20 feet of the structure, unless in islands of no more than five shrubs separated from other vegetation by at least 50 feet.Trees within 30 feet of the structure, unless separated from other trees by at least 30 feet measured at the base.Native brush, including oak, within 100 feet of the structure, unless in islands not to exceed 30 feet on their longest axis, separated from other vegetation by at least 50 feet and at least 30 feet from the structure.~~

ii. Flows. The system calculations shall be based on a minimum of four flowing quick-response sprinklers hydraulically calculated to provide flows in accordance with manufacturer's specifications for sprinklers. Calculations shall be based on 90% of the available flow at the base of the riser.

iii. Loop Systems. The use of anti-freeze loop systems is allowed when an acceptable back-flow prevention assembly is provided. Anti-freeze loops shall be relieved by using either an approved expansion tank or relief valve. Drilled clapper valves are not permitted.

iv. Inspection. An inspector's test valve is required upstream of the anti-freeze loop check valve.

v. Control Valves. Automatic sprinkler systems shall be provided with an indicating control valve accessible to the fire department.

vi. Certification. Approval of any system shall be based on final inspection and receipt of hydrostatic and flushing certificates provided by the installer.

vii. Notwithstanding Article 10 Section 1.001.5.2 of the Uniform Fire Code, automatic sprinkler protection, where installed, shall be inspected annually at the owner's expense by a licensed sprinkler contractor. A copy of the inspection shall be submitted to the Fire Chief by December 31st of each year.

c. ~~Other Construction Features. Other construction features, vents, overhangs and stilt construction shall meet the following standards:~~

i. ~~Projections. Combustible projections of 10 inches or more and wood decks shall be protected as follows:~~

~~Vents. All vents shall be screened with a corrosion resistant, non-combustible wire mesh with nominal openings not to exceed 1/4 inch.Materials specified in Section 7.d above shall be applied to the underside of the exposed edge or, in the case of a deck, a wall shall be constructed around its perimeter using the aforementioned materials; orThe use of heavy timber in compliance with the provisions of the code; orAn approved outside sprinkler system shall be provided on the underside of the projection or deck.~~

d. ~~Construction Materials. Exterior vertical walls shall be constructed of concrete masonry, brick veneer not less than 3 inches in thickness, cement plaster in compliance with the exterior finish requirements of the UBC, or any other non-combustible material (including some types of siding) meeting the intent of this code if such material is approved by the building official.~~

e. ~~Windows. Glazed openings having three or more trees or shrubs within 30 feet shall be provided with double pane or safety glass. Double pane or safety glass shall be utilized in all windows on the down slope side of a dwelling.~~

9. ~~**VEGETATIVE CLEARANCE**~~

a. ~~Defensible Space. The following minimum clearances shall be maintained, notwithstanding Appendix II-A, Section 16 of the Uniform Fire Code:~~

i. ~~Defensible Space. Each defensible space shall meet the following specifications:~~

ii. ~~Public Lands. Defensible Space on property adjacent to public lands, whether controlled by Alpine City, the State of Utah, the United States Government or any other governmental entity, shall meet the same fuel break requirements as any other cluster not so located.~~

b. ~~Disposal of Vegetation. Disposal of flammable vegetation shall be completed prior to final building inspection. Such vegetation may be disposed of by chipping, burying or removal to an approved landfill. Burning of such materials is prohibited.~~

c. ~~Fuel Tanks. Propane or fuel tanks shall have no ground vegetation more than 4 Inches in height within a 10 foot radius, notwithstanding Section 82.109 of the Uniform Fire Code. Trees and brush shall be trimmed so as to maintain a clearance of at least 3 feet from the sides and top of the tank.~~

d. ~~Fire Hydrants. Vegetation and other obstructions shall be maintained at no more than 4 inches in height around a fire hydrant, notwithstanding Section 01-7-2 of the Uniform Fire Code. Clearance shall be provided for three feet on all sides of the hydrant and must extend to the roadway.~~

e. ~~Recreational Fires. Open recreational fires shall be located a minimum of 25 feet from a structure or combustible material unless contained in an approved barbecue pit located a minimum of 10 feet from combustible foliage, walls or roofs. An opening in any overhead vegetative canopy shall be provided to prevent pyrolysis of the foliage.~~

~~Fuel Pile Limitation. Fuel piles for recreational fires shall be no larger than 3 feet in diameter and 2 feet high.Extinguishing Devices. A garden hose connected to a water supply or other approved fire extinguishing device shall be readily available for use at recreational fires. A person knowledgeable in the use of such fire extinguishing devices shall supervise the burning material until the fire has been extinguished.~~

~~Notification. Applications for building permits shall contain a site plan with sufficient detail to allow for evaluation of clearances between vegetative fuels and structures.Dead Material. All dead vegetative material shall be removed and maintained clear at least 100 feet from dwellings and 50 feet from non- inhabited structures.Grasses and Spreading Plants. Grasses, spreading plants and ground cover within 50 feet of dwellings must be of types that are identified as fire resistant. The Fire Chief will make information on fire resistant species available to property owners.Shrubs. Shrubs may be used for ornamental plantings against the walls or foundations of dwellings if such shrubs are served by an automated sprinkler or other irrigation system approved by the building inspection official.Trees. Trees must be at least 30 feet at the base from dwellings or at~~

~~least 30 feet from other trees, non-deciduous shrubs and native brush, except that up to five trees may be grouped together if a clearance of at least 50 feet is maintained to any dwelling or to other trees, non- deciduous shrubs and native brush.Native Brush. Native species, such as scrub oak and other indigenous vegetation, may not be within 50 feet of dwellings unless such vegetation is grouped into islands not more than 30 feet on their longest axis. Such islands must be kept free of any dead vegetative material in accordance with Part 8,b,i and must be at least 30 feet from other trees, shrubs or brush unless protected by an automated sprinkler system. Islands must be at least 30 feet from dwellings or 10 feet if served by an automatic sprinkler system approved by the building inspection official. Native grasses must be removed, replaced with fire resistant species or maintained at a height not to exceed 6 inches unless protected by an automatic sprinkler system.~~

10. **ENFORCEMENT**
    a. Responsibility. The conditions outlined in the urban/wildland overlay shall be maintained by the property owner and/or the applicable homeowners' association as a condition of maintaining "adequate fire protection" in accordance with Section 11-7-1 of the Utah Code Annotated and protective agreements, if any, made with Alpine City at the time of annexation.
    b. Non-Exclusive Nature. The provisions of the urban/wildland overlay represent minimum standards. each owner of property in the Urban/Wildland Interface area is expected to use reasonable care in mitigating potential fire hazards, whether or not the potential hazard is enumerated in this section.
    c. Pre-Existing Conditions. Property not in compliance with the vegetative clearance section of the urban/wildland overlay at the time of passage shall have one year in which to conform to its provisions, except that retrofitting of sprinklers will not be required.
    d. Enforcement Official. Provisions of the urban/wildland overlay shall be enforced by the Alpine City Fire Chief or his appointed designees. The Fire Chief is authorized to recommend alternatives to any of the provisions of this code upon application in writing by the owner, lessee or a duly authorized representative where there are practical difficulties that prevent carrying out the such provisions, provided that the spirit and intent of the code shall be maintained, public safety furthered and substantial justice done. The particulars of such modifications and decision of the Fire chief shall be submitted to the City Council.
        i. Inspections. The Fire Chief or his designee shall conduct inspections to determine compliance with the urban/wildland requirements at the time of building permit inspections and at least once a year or at any other reasonable time. The Fire Chief or designee shall also conduct inspections based on the request of any other property owner, lessee, City official or employee who has reasonable cause to believe that a potential fire hazard exists in violation of the provisions of this ordinance.

ii. Notice. The Fire Chief or his designee will annually publish and as needed periodic notices to remind residents of the provisions of the urban/wildland and will make available information on the provisions of the ordinance, as well as guidance on fire-resistant vegetation and suitable landscaping.

e. Recourse. Any person adversely affected by any decision made in the exercise of the provision of this section may pursue administrative and legal remedies in accordance with the following provisions:
    i. Procedure. No person may challenge Alpine City's land use decisions under this section in district court until all administrative remedies have been exhausted.
    ii. Judicial Review. Any person having exhausted all possible administrative remedies may file a petition for review of the decision with the district court within 30 days after the local decision is rendered.
    iii. Validity of Ordinance. The courts shall presume that land use decisions and regulations are valid and determine only whether or not the decision is arbitrary, capricious or illegal.
f. Remedies. Alpine City, its officers and employees, the city attorney or any owner of real estate within Alpine City may, in addition to other remedies provided by law, institute proceedings to secure injunction, mandamus, abatement or any other remedies provided by law, including prevention, enjoinment or removal.
g. Injunction. Alpine City need only establish the violation in order to secure injunction.
h. Building Permits. Alpine City, its officers and employees, may enforce this ordinance by withholding building permits and it shall be unlawful to erect, construct, alter or change the use of any building or other structure within Alpine City without approval of such building permit.
    i. Failure to Obtain Permit. Any architect, lending agency, builder, contractor or other person doing or performing such work as described in DCA 3.13.100 Part 6,b shall be deemed guilty of violating this ordinance at least to the same extent or manner as the owner of the premises, or the person for whom the use is established or for whom such buildings are erected or altered, and shall be subject to the penalties herein prescribed for a violation.
    ii. Compliance. The City may not issue a building permit unless the plans of and for the proposed erection, construction, reconstruction, alteration or use fully conform to all ordinances then in effect.
i. Violation. Any violation of the provisions of the urban/wildland overlay is punishable as a Class C misdemeanor upon conviction. Each person, firm or corporation found guilty of such violation shall be deemed guilty of a separate offense for every day during which any violation is committed, continued or permitted by such person, persons, firm or corporation, and shall be punished as provided in this ordinance.

j. Nothing in this ordinance may be construed to prevent enforcement under the provisions of the current edition of the Uniform Fire Code as adopted by the State of Utah and the City of Alpine.

11. **Warning and Disclaimer**. The degree of wildfire protection required by urban/wildland interface overlay is considered reasonable regulatory purposes and is based on fire safety considerations. This section does not imply that land outside the areas of urban/wildland overlay zone or uses permitted within such areas will be free from damages from wildfires. This ordinance shall not create liability on the part of Alpine City, Utah, any officer or employee thereof, or the city's fire agency for any wildfire damages that result from reliance an this ordinance or any administrative decision lawfully made thereunder.

(Original Ordinance No. 94-11. Amended by Ord. 2001-05. Incorporated into Sensitive Lands Ordinance by Ord. No. 2005-03, 1/25/05)

PASSED AND ADOPTED BY THE ALPINE CITY COUNCIL
_____.

	AYE	**NAY**	**ABSENT**	**ABSTAIN**
Lon Lott	_____	_____	_____	_____
Kimberly Bryant	_____	_____	_____	_____
Carla Merrill	_____	_____	_____	_____
Ramon Beck	_____	_____	_____	_____
Jason Thelin	_____	_____	_____	_____

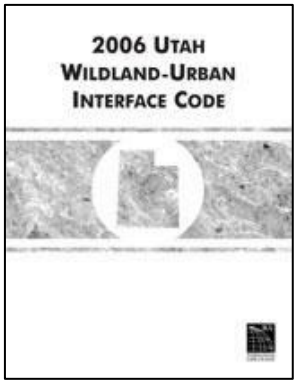
Presiding Officer

Attest

_____
Troy Stout, Mayor, Alpine City

_____
Charmayne G. Warnock, City Recorder Alpine City

Wildland-Urban Interface Site Plan/Development Review Guide



This document is a graphic representation of the major provisions of the Utah Wildland-Urban Interface Code and amendments adopted by the Lone Peak Fire District.

This material is designed to be used as code interpretation for code authorities, architects, contractors, engineers and individual property owners. Questions pertaining to this document can be obtained by calling the Lone Peak Fire District at 801-763-5365.

Table of Contents

Submittal Requirements:

☐ Completed Fire Severity Hazard Form

☐ Site Plan detailing the following:

- topography
- width and percent of grade of access roads
- landscape and vegetation details
- locations of structures or building envelopes
- existing or proposed overhead utilities
- existing or proposed above or below ground propane tanks
- structures and their appendages
- defensible space envelope

☐ Fire Protection Plan

- The plan shall be based upon a site-specific wildfire risk assessment that includes considerations of location, topography, aspect, flammable vegetation, climatic conditions and fire history. The plan shall address water supply, access, building ignition and fire-resistance factors, fire protection systems and equipment, *defensible space* and vegetation management.

☐ Vegetation Management Plan

- Vegetation management plans shall describe all actions that will be taken to prevent a fire from being carried toward or away from the building. A vegetation management plan shall include at least the following information:
  1. A copy of the site plan.
  2. Methods and timetables for controlling, changing or modifying areas on the property. Elements of the plan shall include removal of slash, snags, vegetation that may grow into overhead electrical lines, other ground fuels, ladder fuels and dead trees, and the thinning of live trees.
  3. A plan for maintaining the proposed fuel-reduction measures.

☐ Vicinity Plan

- Plan shall include details regarding the vicinity within 300' of property lines, including other structures, slope, vegetation, fuel breaks, water supply systems and access roads. (This may be incorporated into the site plan.)

Procedure:

1. Complete the Fire Severity Hazard Form. Consult the following table for defensible space requirement.

TABLE 603.2
REQUIRED DEFENSIBLE SPACE

WILDLAND-URBAN INTERFACE AREA	FUEL MODIFICATION DISTANCE (feet)[a]
Moderate hazard	30
High hazard	50
Extreme hazard	100

For SI: 1 foot = 304.8 mm.

a. Distances are allowed to be increased due to site-specific analysis based on local conditions and the fire protection plan.

2. Obtain water supply information.
   - Available Fire-flow
   - Water Tank Capacity
   - Location of nearest fire hydrants
3. Develop site plan. Site plan must include the items listed on page 3.
4. Submit application to municipality. Review cannot be completed without all of the items listed on page 3.

Upon receipt of a complete application the Fire Chief or Designer will conduct a site visit. The following table will be used to determine the level of exterior fire rated construction.

TABLE 503.1
IGNITION-RESISTANT CONSTRUCTION[a]

	FIRE HAZARD SEVERITY					
	Moderate Hazard		High Hazard		Extreme Hazard	
	Water Supply[b]		Water Supply[b]		Water Supply[b]	
DEFENSIBLE SPACE[c]	Conforming[d]	Nonconforming[e]	Conforming[d]	Nonconforming[e]	Conforming[d]	Nonconforming[e]
Nonconforming	IR 2	IR 1	IR 1	IR 1 N.C.	IR 1 N.C.	Not Permitted
Conforming	IR 3	IR 2	IR 2	IR 1	IR 1	IR 1 N.C.
1.5 × Conforming	Not Required	IR 3	IR 3	IR 2	IR 2	IR 1

a. Access shall be in accordance with Section 402.
b. Subdivisions shall have a conforming water supply in accordance with Section 402.1.

IR 1 = Ignition-resistant construction in accordance with Section 504.
IR 2 = Ignition-resistant construction in accordance with Section 505.
IR 3 = Ignition-resistant construction in accordance with Section 506.
N.C. = Exterior walls shall have a fire-resistance rating of not less than 1-hour and the exterior surfaces of such walls shall be *noncombustible*. Usage of log wall construction is allowed.

c. Conformance based on Section 603.
d. Conformance based on Section 404.
e. A nonconforming water supply is any water system or source that does not comply with Section 404, including situations where there is no water supply for structure protection or fire suppression.

Fire Department Access Requirements:

Restricted access. Where emergency vehicle access is restricted because of secured access roads or driveways or where immediate access is necessary for life-saving or fire-fighting purposes, the code official is authorized to require a key box to be installed in an accessible location. The key box shall be of a type *approved* by the code official and shall contain keys to gain necessary access as required by the code official**. [UWUIC 403.1]**

Building and Facilities: Fire apparatus access roads must be provided such that no portion of the facility or any portion of an exterior wall of the first story of the building is located more than 150-feet from fire apparatus access as measured by an approved route around the exterior of the building or facility. **[IFC 503.1.1]**

Specifications: Fire Department Access must be of an all-weather surface, a minimum clear width of 20-feet and a minimum vertical clear height of 13-feet 6-inches (13'-6"). **[IFC 503.2.1]**

Surface: Fire apparatus access roads must be designed and maintained to support the imposed loads of 75,000 lbs for fire apparatus. **[IFC 503.2.3 & D102.1]**

Turning Radius: The turning radius of 28-feet must be provided for the fire apparatus access road. **[IFC 503.2.4]**

Dead Ends: Dead-end fire apparatus access roads in excess of 150-feet in length must be provided with approved provisions for the turning around of fire apparatus. **[IFC 503.2.5]**

Bridges and Elevated Surfaces: When a bridge or an elevated surface is part of a fire apparatus access road, it must be constructed and maintained in accordance with AASHTO Standard Specification for Highway Bridges and must be designed for a live loading sufficient to carry the imposed loads of fire apparatus. **[IFC 503.2.6]**

Grade: The gradient for a fire apparatus access road must not exceed 10%, unless approved by the Fire Code Official. **[IFC 503.2.7]**

Access Road Identification: Approved signs must be provided and maintained for fire apparatus access roads to identify the road and prohibit the obstruction thereof or both. **[IFC 503.3]**

> All road identification signs and supports shall be of noncombustible materials. Signs shall have minimum 4-inch-high (102 mm) reflective letters with 1/2 inch (12.7 mm) stroke on a contrasting 6-inch-high (152 mm) sign. Road identification signage shall be mounted at a height of 7 feet (2134 mm) from the road surface to the bottom of the sign. **[UWUIC 403.4]**

Water Supply Requirements:

Required water supply. An *approved* water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction. **[IFC 507.1]**

Required fire flow will be based upon building construction type as defined in the IBC as well as gross square footage of the proposed structure. For the purpose of determining fire flow the gross square footage shall include all areas within the exterior walls, beneath the roof line, finished and unfinished habitable space.

Fire hydrant systems. [IFC 507.5]

Where required. Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet (122 m) from a hydrant on a fire apparatus access road, as measured by an *approved* route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the *fire code official*.

Exceptions:

1. For Group R-3 and Group U occupancies, the distance requirement shall be 600 feet (183 m).
2. For buildings equipped throughout with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the distance requirement shall be 600 feet (183 m).

Code Modification:

Practical difficulties. When there are practical difficulties involved in carrying out the provisions of this code, the code official is authorized to grant modifications for individual cases on application in writing by the owner or a duly authorized representative. The code official shall first find that a special individual reason makes enforcement of the strict letter of this code impractical, the modification is in conformance to the intent and purpose of this code, and the modification does not lessen any fire protection requirements or any degree of structural integrity. The details of any action granting modifications shall be recorded and entered into the files of the code enforcement agency.

If the code official determines that difficult terrain, danger of erosion or other unusual circumstances make strict compliance with the vegetation control provisions of the code detrimental to safety or impractical, enforcement thereof may be suspended, provided that reasonable alternative measures are taken. **[UWUIC 105.1]**

Definitions:

ACCESSORY STRUCTURE. A building or structure used to shelter or support any material, equipment, chattel or occupancy other than a habitable building.

DEFENSIBLE SPACE. An area either natural or man-made, where material capable of allowing a fire to spread unchecked has been treated, cleared or modified to slow the rate and intensity of an advancing wildfire and to create an area for fire suppression operations to occur. **FIRE PROTECTION PLAN.** A document prepared for a specific project or development proposed for the *wildland-urban interface area*. It describes ways to minimize and mitigate the fire problems created by the project or development, with the purpose of reducing impact on the community's fire protection delivery system.

FIRE-RESISTANCE-RATED CONSTRUCTION. The use of materials and systems in the design and construction of a building or structure to safeguard against the spread of fire within a building or structure and the spread of fire to or from buildings or structures to the *wildland-urban interface area*.

FLAME SPREAD INDEX. A comparative measure, expressed as a dimensionless number, derived from visual measurements of the spread of flame versus time for a material tested in accordance with ASTM E 84.

FUEL BREAK. An area, strategically located for fighting anticipated fires, where the native vegetation has been permanently modified or replaced so that fires burning into it can be more easily controlled. Fuel breaks divide fire-prone areas into smaller areas for easier fire control and to provide access for fire fighting.

FUEL MODIFICATION. A method of modifying fuel load by reducing the amount of nonfireresistive vegetation or altering the type of vegetation to reduce the fuel load.

IGNITION-RESISTANT BUILDING MATERIAL. A type of building material that resists ignition or sustained flaming combustion sufficiently so as to reduce losses from wildland-urban interface conflagrations under worst-case weather and fuel conditions with wildfire exposure of burning embers and small flames, as prescribed in Section 503.

IGNITION-RESISTANT CONSTRUCTION, CLASS 1. A schedule of additional requirements for construction in wildland-urban interface areas based on extreme fire hazard.

IGNITION-RESISTANT CONSTRUCTION, CLASS 2. A schedule of additional requirements for construction in wildland-urban interface areas based on high fire hazard.

IGNITION-RESISTANT CONSTRUCTION, CLASS 3. A schedule of additional requirements for construction in wildland-urban interface areas based on moderate fire hazard.

LOG WALL CONSTRUCTION. A type of construction in which exterior walls are constructed of solid wood members and where the smallest horizontal dimension of each solid wood member is at least 6 inches (152 mm).

NONCOMBUSTIBLE. As applied to building construction material means a material that, in the form in which it is used, is either one of the following:

1. Material of which no part will ignite and burn when subjected to fire. Any material conforming to ASTM E 136 shall be considered noncombustible within the meaning of this section.

2. Material having a structural base of *noncombustible* material as defined in Item 1 above, with a surfacing material not over 1/8 inch (3.2 mm) thick, which has a flame spread index of 50 or less. Flame spread index as used herein refers to a flame spread index obtained according to tests conducted as specified in ASTM E 84 or UL 723. "Noncombustible" does not apply to surface finish materials. Material required to be noncombustible for reduced clearances to flues, heating appliances or other sources of high temperature shall refer to material conforming to Item 1. No material shall be classified as noncombustible that is subject to increase in combustibility or flame spread index, beyond the limits herein established, through the effects of age, moisture or other atmospheric condition.

NONCOMBUSTIBLE ROOF COVERING. One of the following:

1. Cement shingles or sheets.
2. Exposed concrete slab roof.
3. Ferrous or copper shingles or sheets.
4. Slate shingles.
5. Clay or concrete roofing tile.
6. *Approved* roof covering of *noncombustible* material.

TREE CROWN. The primary and secondary branches growing out from the main stem, together with twigs and foliage.

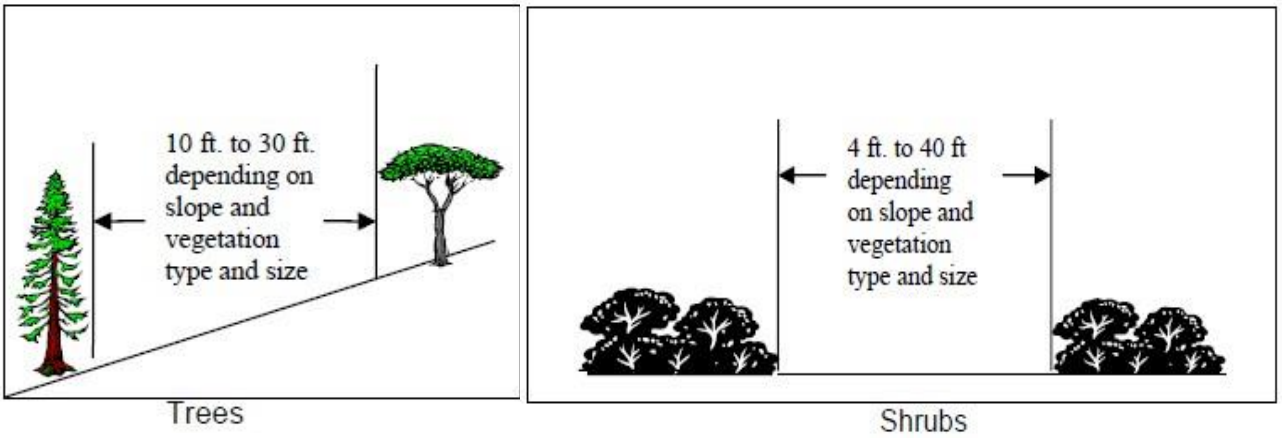
UNENCLOSED ACCESSORY STRUCTURE. An accessory structure without a complete exterior wall system enclosing the area under roof or floor above.

WILDLAND-URBAN INTERFACE AREA. The line, area or zone where structures or other human development (including critical infrastructure that if destroyed would result in hardship to communities) meet or intermingle with undeveloped wildland or vegetative fuel.

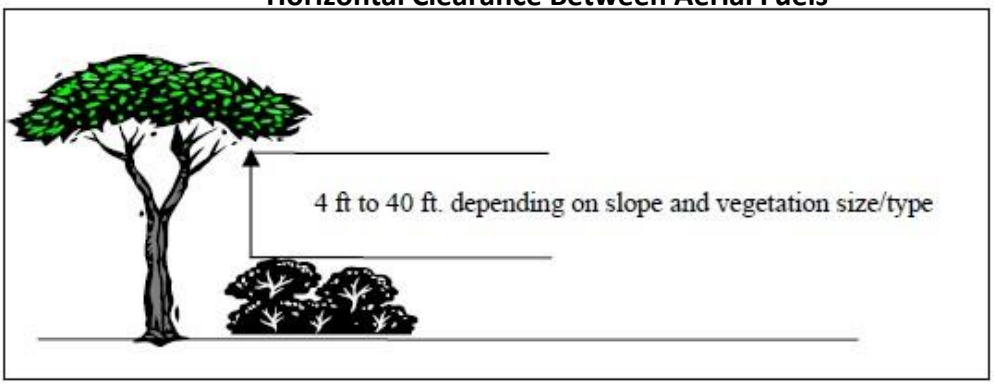
Supplemental Information:

Vegetation Clearance Guidelines:

Plant Spacing Guidelines		
Guidelines are designed to break the continuity of fuels and be used as a "rule of thumb"		
Trees	**Minimum horizontal space from edge of one tree canopy to the edge of the next**	
	Slope	Spacing
	0% to 20 %	10 feet
	20% to 40%	20 feet
	Greater than 40%	30 feet
Shrubs	**Minimum horizontal space between edges of shrub**	
	Slope	Spacing
	0% to 20 %	2 times the height of the shrub
	20% to 40%	4 times the height of the shrub
	Greater than 40%	6 times the height of the shrub
Vertical Space	**Minimum vertical space between top of shrub and bottom of lower tree branches:** 3 times the height of the shrub	



Horizontal Clearance Between Aerial Fuels



Vertical Clearance Between Aerial Fuels

2006 UTAH WILDLAND-URBAN INTERFACE CODE™

SECTION 405

Fire Protection Plan:

405.1 Purpose. The plan is to provide a basis to determine overall compliance with this code, for determination of Ignition Resistant Construction (IRC) (See Table 503.1) and for determining the need for alternative materials and methods.

405.2 General. When required by the code official, a fire protection plan shall be prepared.

405.3 Content. The plan shall be based upon a site-specific wildfire risk assessment that includes considerations of location, topography, aspect, flammable vegetation, climatic conditions and fire history. The plan shall address water supply, access, building ignition and fire-resistance factors, fire protection systems and equipment, *defensible space* and vegetation management.

405.4 Cost. The cost of fire protection plan preparation and review shall be the responsibility of the applicant.

405.5 Plan retention. The fire protection plan shall be retained by the code official.

SECTION 504

Class 1- Ignition-resistant Construction:

504.1 General. Class 1 ignition-resistant construction shall be in accordance with Sections 504.2 through 504.11

504.2 Roof covering. Roofs shall have a Class A roof covering or a Class A roof assembly. For roof coverings where the profile allows a space between the roof covering and roof decking, the space at the eave ends shall be fire-stopped to preclude entry of flames or embers.

504.3 Protection of eaves. Eaves and soffits shall be protected on the exposed underside by materials approved for a minimum of 1-hour fire-resistance-rated construction, 2-inch (51 mm) nominal dimension lumber, or 1-inch (25.4 mm) nominal fire-retardant-treated lumber or ¾inch (19 mm) nominal fire-retardant-treated plywood, identified for exterior use and meeting the requirements of Section 2303.2 of the International Building Code. Fascias are required and shall be protected on the backside by materials approved for a minimum of 1-hour fireresistance-rated construction or 2-inch (51 mm) nominal dimension lumber.

504.4 Gutters and downspouts. Gutters and downspouts shall be constructed of noncombustible material.

504.5 Exterior walls. Exterior walls of buildings or structures shall be constructed with materials approved for a minimum of 1-hour fire-resistance-rated construction on the exterior side or constructed with approved noncombustible materials.

> **Exception:** Heavy timber or log wall construction. Such material shall extend from the top of the foundation to the underside of the roof sheathing.

504.6 Unenclosed under-floor protection. Buildings or structures shall have all under-floor areas enclosed to the ground with exterior walls in accordance with Section 504.5.

> **Exception:** Complete enclosure may be omitted where the underside of all exposed floors and all exposed structural columns, beams and supporting walls are protected as required for exterior 1-hour fire-resistance-rated construction or heavy timber construction.

504.7 Appendages and projections. Unenclosed accessory structures attached to buildings with habitable spaces and projections, such as decks, shall be a minimum of 1-hour fireresistance-rated construction, heavy timber construction or constructed of approved noncombustible materials or fire-retardant-treated wood identified for exterior use and meeting the requirements of Section 2303.2 of the International Building Code.

When the attached structure is located and constructed so that the structure or any portion thereof projects over a descending slope surface greater than 10 percent, the area below the

structure shall have all under-floor areas enclosed to within 6 inches (152 mm) of the ground, with exterior wall construction in accordance with Section 504.5.

504.8 Exterior glazing. Exterior windows, window walls and glazed doors, windows within exterior doors, and skylights shall be tempered glass, multilayered glazed panels, glass block or have a fire protection rating of not less than 20 minutes.

504.9 Exterior doors. Exterior doors shall be approved noncombustible construction, solid core wood not less than 1¾ inches thick (45 mm), or have a fire protection rating of not less than 20 minutes. Windows within doors and glazed doors shall be in accordance with Section 504.8.

> **Exception:** Vehicle access doors.

504.10 Vents. Attic ventilation openings, foundation or under-floor vents, or other ventilation openings in vertical exterior walls and vents through roofs shall not exceed 144 square inches (0.0929 m2) each. Such vents shall be covered with noncombustible corrosion-resistant mesh with openings not to exceed ¼ inch (6.4 mm), or shall be designed and approved to prevent flame or ember penetration into the structure.

Attic ventilation openings shall not be located in soffits, in eave overhangs, between rafters at eaves, or in other overhang areas. Gable end and dormer vents shall be located at least 10 feet (3048 mm) from property lines. Under-floor ventilation openings shall be located as close to grade as practical.

504.11 Detached accessory structures. Detached accessory structures located less than 50 feet (15 240 mm) from a building containing habitable space shall have exterior walls constructed with materials approved for a minimum of 1-hour fire-resistance-rated construction, heavy timber, log wall construction or constructed with approved noncombustible materials on the exterior side.

When the detached structure is located and constructed so that the structure or any portion thereof projects over a descending slope surface greater than 10 percent, the area below the structure shall have all under-floor areas enclosed to within 6 inches (152 mm) of the ground, with exterior wall construction in accordance with Section 504.5 or under-floor protection in accordance with Section 504.6.

> **Exception:** The enclosure may be omitted where the underside of all exposed floors and all exposed structural columns, beams and supporting walls are protected as required for exterior 1-hour fire-resistance-rated construction or heavy-timber construction.

See Section 504.2 for roof requirements.

SECTION 505

Class 2 - Ignition-resistant Construction:

505.1 General. Class 2 ignition-resistant construction shall be in accordance with Section 505.

505.2 Roof covering. Roofs shall have at least a Class A roof covering, Class B roof assembly or an *approved noncombustible* roof covering. For roof coverings where the profile allows a space between the roof covering and roof decking, the space at the eave ends shall be fire-stopped to preclude entry of flames or embers.

505.3 Protection of eaves. Combustible eaves, fascias and soffits shall be enclosed with solid materials with a minimum thickness of 3/4 inch (19 mm). No exposed rafter tails shall be permitted unless constructed of heavy timber materials.

505.4 Gutters and downspouts. Gutters and downspouts shall be constructed of *noncombustible* material.

505.5 Exterior walls. Exterior walls of buildings or structures shall be constructed with materials approved for a minimum of 1-hour fire-resistance-rated construction on the exterior side or constructed with noncombustible materials.

Exception: Heavy timber or log wall construction. Such material shall extend from the top of the foundation to the underside of the roof sheathing.

505.6 Unenclosed under floor protection. Buildings or structures shall have all under floor areas enclosed to the ground, with exterior walls in accordance with Section 505.5.

> **Exception:** Complete enclosure shall not be required where the underside of all exposed floors and all exposed structural columns, beams and supporting walls are protected as required for exterior 1-hour fire-resistance-rated construction or heavy timber construction.

505.7 Appendages and projections. *Unenclosed accessory structures* attached to buildings with habitable spaces and projections, such as decks, shall be a minimum of 1-hour fire resistancerated construction, heavy timber construction or constructed of non- combustible materials.

When the attached structure is located and constructed so that the structure or any portion thereof projects over a descending slope surface greater than 10 percent, the area below the structure shall have all under floor areas enclosed to within 6 inches (152 mm) of the ground, with exterior wall construction in accordance with Section 505.5.

505.8 Exterior glazing. Exterior windows, window walls and glazed doors, windows within exterior doors, and skylights shall be tempered glass, multilayered glazed panels, glass block or have a fire-protection rating of not less than 20 minutes.

505.9 Exterior doors. Exterior doors shall be *approved noncombustible* construction, solid core wood not less than 13/4-inches thick (45 mm), or have a fire protection rating of not less than 20 minutes. Windows within doors and glazed doors shall be in accordance with Section 505.8.

> **Exception:** Vehicle access doors.

505.10 Vents. Attic ventilation openings, foundation or under-floor vents or other ventilation openings in vertical exterior walls and vents through roofs shall not exceed 144 square inches (0.0929 m2) each. Such vents shall be covered with *noncombustible* corrosion-resistant mesh with openings not to exceed 1/4 inch (6.4 mm) or shall be designed and *approved* to prevent flame or ember penetration into the structure.

Attic ventilation openings shall not be located in soffits, in eave overhangs, between rafters at eaves, or in other overhang areas. Gable end and dormer vents shall be located at least 10 feet (3048 mm) from property lines. Under floor ventilation openings shall be located as close to grade as practical.

505.11 Detached accessory structures. Detached accessory structures located less than 50 feet (15 240 mm) from a building containing habitable space shall have exterior walls constructed with materials *approved* for a minimum of 1-hour fire resistance-rated construction, heavy timber, log wall construction, or constructed with *approved noncombustible* materials.

When the detached structure is located and constructed so that the structure or any portion thereof projects over a descending slope surface greater than 10 percent, the area below the structure shall have all under floor areas enclosed to within 6 inches (152 mm) of the ground, with exterior wall construction in accordance with Section 505.5 or under floor protection in accordance with Section 505.6.

> **Exception:** The enclosure shall not be required where the underside of all exposed floors and all exposed structural columns, beams and supporting walls are protected as required for exterior 1-hour fire-resistance-rated construction or heavy-timber construction or fire-retardant treated wood on the exterior side. The fire-retardant treated wood shall be labeled for exterior use and meet the requirements of Section 2303.2 of the *International Building Code*.

SECTION 506

Class 3 - Ignition-resistant Construction:

506.1 General. Class 3 ignition-resistant construction shall be in accordance with Sections 506.

506.2 Roof covering. Roofs shall have at least a Class A covering, Class C roof assembly or an *approved noncombustible* roof covering. For roof coverings where the profile allows a space between the roof covering and roof decking, the space at the eave ends shall be fire-stopped to preclude entry of flames or embers.

506.3 Unenclosed under-floor protection. Buildings or structures shall have all under-floor areas enclosed to the ground with exterior walls.

> **Exception:** Complete enclosure may be omitted where the underside of all exposed floors and all exposed structural columns, beams and supporting walls are protected as required for exterior 1-hour fire-resistance-rated construction or heavy timber construction.

506.4 Vents. Attic ventilation openings, soffit vents, foundation or under-floor vents or other ventilation openings in vertical exterior walls and vents through roofs shall not exceed 144 square inches each. Such vents shall be covered with noncombustible corrosion resistant mesh with openings not to exceed ¼ inch.

SECTION 507

Replacement or Repair of Roof Coverings:

The roof covering on buildings or structures in existence prior to the adoption of this code that are replaced or have 25 percent or more replaced in a 12-month period shall be replaced with a roof covering required for new construction based on the type of ignition-resistant construction specified in accordance with Section 503.

2006 UTAH WILDLAND-URBAN INTERFACE CODE™

SECTION 603

Defensible Space:

603.1 Objective. Provisions of this section are intended to modify the fuel load in areas adjacent to structures to create a *defensible space*.

603.2 Fuel modification. In order to qualify as a conforming defensible space for individual buildings or structures on a property, fuel modification shall be provided within a distance from buildings or structures as specified in Table 603.2. For all other purposes the *fuel modification* distance shall not be less than 30 feet (9144 mm) or to the property line, whichever is less. Distances specified in Table 603.2 shall be measured on a horizontal plane from the perimeter or projection of the building or structure as shown in Figure 603.2. Distances specified in Table 603.2 are allowed to be increased by the code official because of a site-specific analysis based on local conditions and the fire protection plan.

Persons owning, leasing, controlling, operating or maintaining buildings or structures requiring defensible spaces are responsible for modifying or removing non fire-resistive vegetation on the property owned, leased or controlled by said person.

Trees are allowed within the *defensible space*, provided the horizontal distance between crowns of adjacent trees and crowns of trees and structures, overhead electrical facilities or unmodified fuel is not less than 10 feet (3048 mm). Deadwood and litter shall be regularly removed from trees.

Where ornamental vegetative fuels or cultivated ground cover, such as green grass, ivy, succulents or similar plants are used as ground cover, they are allowed to be within the designated *defensible space*, provided they do not form a means of transmitting fire from the native growth to any structure.

TABLE 603.2

REQUIRED DEFENSIBLE SPACE

Wildland-Urban Interface Area	Fuel Modification Distance (feet)
Moderate Hazard	30
High Hazard	50
Extreme Hazard	100

SECTION 604

Maintenance of Defensible Space:

604.1 General. Defensible spaces required by Section 603 shall be maintained in accordance with Section 604.

604.2 Modified area. Non fire-resistive vegetation or growth shall be kept clear of buildings or structures, in accordance with Section 603, in such a manner as to provide a clear area for fire suppression operations.

604.3 Responsibility. Persons owning, leasing, controlling, operating or maintaining buildings or structures are responsible for maintenance of *defensible spaces*. Maintenance of the *defensible space* shall include modifying or removing non fire-resistive vegetation and keeping leaves, needles and other dead vegetative material regularly removed from roofs of buildings and structures.

604.4 Trees. Tree crowns extending to within 10 feet (3048mm) of any structure shall be pruned to maintain a minimum horizontal clearance of 10 feet (3048 mm). Tree crowns within the *defensible space* shall be pruned to remove limbs located less than 6 feet (1829 mm) above the ground surface adjacent to the trees.

Portions of tree crowns that extend within 10 feet of the outlet of a chimney shall be pruned to maintain a minimum horizontal clearance of 10 feet.

Deadwood and litter shall be regularly removed from trees.

SECTION 605

Spark Arrestors:

Chimneys serving fireplaces, barbecues, incinerators or decorative heating appliances in which solid or liquid fuel is used, shall be provided with a spark arrester. Spark arresters shall be constructed of woven or welded wire screening of 12 USA standard gage wire (0.1046 inch) (2.66 mm) having openings not exceeding 1/2 inch (12.7 mm).

The net free area of the spark arrester shall not be less than four times the net free area of the outlet of the chimney.

SECTION 606

Liquefied Petroleum Gas Installations:

606.1 General. The storage of liquefied petroleum gas (LP gas) and the installation and maintenance of pertinent equipment shall be in accordance with the *International Fire Code* or, in the absence thereof, recognized standards.

606.2 Location of containers or tanks. LP-gas containers or tanks shall be located within the *defensible space* in accordance with the *International Fire Code*.

(See Figures 1 and 2 on Page 20)

SECTION 607

Storage of Firewood and Combustible Materials:

607.1 General. Firewood and combustible material shall not be stored in unenclosed spaces beneath buildings or structures, or on decks or under eaves, canopies or other projections or overhangs. When required by the code official, storage of firewood and combustible material stored in the *defensible space* shall be located a minimum of 20 feet (6096 mm) from structures and separated from the crown of trees by a minimum horizontal distance of 15 feet (4572 mm).

607.2 Storage for off-site use. Firewood and combustible materials not for consumption on the premises shall be stored so as to not pose a hazard.

Utah Fire Resistive Species

Adapted from "Utah Forest Facts: Firewise Plants for Utah Landscapes"
Utah State University Extension, 2002

Grasses:

Agropyron cristatum (Crested Wheatgrass)
Agropyron smithii (Western Wheatgrass)
Huchloe dactyloides (Buffalograss)
Dactylis glomerata (Orchardgrass)
Festuea cinerea and other species (Blue Fescue)
Lolium species (Rye Grass)
Poa pratensis (Kentucky Bluegrass)
Poa secunda (Sandberg Bluegrass)

Herbaceous Perennials

Achillea clavennae (Silvery Yarrow)
Achillea jilipendulina (FemleafYarrow)
Achillea - other species & hybrids (Yarrow)*
Aquilegia - species & hybrids (Columbine)
Armeria maritime (Sea Pink, Sea Thrift)
Artemisia stelleriana (Beach Wonnwood, Dusty Miller)
Artemisia - other species & hybrids (Various names)*
Bergenia ..... species & hybrids (Bergenia)
Geranium species (Geranium)
Hemerocallis species (Daylily)
Heuchera sanguinea (Coral Bells, Alum Root)
Iberis sempervirens (Evergreen Candy tuft)
Iris species & hybrids (Iris)
Kniphofia species & hybrids (Red-hot Poker)
Lavandula species (Lavender)
Leucanthemum X superbum (Shasta Daisy)
Limonium latijolium (Sea-lavender, Statice)
Linum species (Flax)
Liriope spicata (Lily-turf)
Lupinus species & hybrids (Lupine)*
Medicago sativus (Alfillfa)
Oenothera species (Primrose)
Papaver species (Poppy)
Penstemon species & hybrids (Penstemon)
Perovskia atriplici/olia (Russian Sage, Azure Sage)
Potentilla nepalensis (Nepal Cinquefoil)
Potentilla tridentata (Wineleaf Cinquefoil)
Centranthus rubber (Red Valerian, Jupiter's Beard)
Cerastium tomentosum (Snow-in-summer)
Potentilla verna (tabernaemontani) (Spring Cinquefoil; Creeping Potentilla)
Coreopsis auriculata var. *Nana* (Dwarf Mouse Ear Coreopsis)
(Qreopsis .. ~ other perennial species (Coreopsis)
Potentilla .. other non-shrubby species & hybrids (Cinquefoil, Potentilla)*
Delosperma nubigenum (Hardy Ice Plant)
Dianthus plumarius & others (Pinks)
Erigeron hybrids (Fleabane)*
Gaillardia X grandi/lora (Blanket Flower)
Geranium cinereum (Hardy Geranium)
Geranium sanguineum (Bloody Cranesbill, Bloodred Geranium)
Salvia species & hybrids (Salvia, Sage)*
Sedum species (Stonecrop, Sedum)
Sempervivum tectorum (Hen and Chicks)
Stachys byzantina (Lamb's Ear)
Yuccafilamentosa (Yucca)

Shrubs and Woody Vines

Atriplex species (Saltbush)
Ceanothus americanus (New Jersey Tea)
Ceanothus ovatus & others (Ceanothus)
Cistus species (Rock-rose)
Cotoneaster dammeri (Bearberry Cotoneaster)
Cotoneaster horizontalis (Rockspray or Rock Cotoneaster)
Cotoneaster - other compact species (Cotoneaster)
Hedera helix (English Ivy)
Lonicera species & hybrids (Honeysuckle)
Mahonia repens (Creeping Oregon Grape)
Parthenocissus quinquefalia (Virginia Creeper)
Prunus besseyi (Sand Cherry)
Purshia tridentata (Bitterbrush, Antelope Bitterbrush)
Pyracantha species (Firethorn, Pyracantha)
Rhamnus species (Buckthorn)
Rhus trilobata (Skunkbush Sumac)
Rhus -- other species (Sumac)
Ribes species (Currant, Gooseberry)
Rosa rugosa & other hedge roses (Rugosa Rose)
Shepherdia canadensis (Russet Buffaloberry)
Syringa vulgare (Lilac)
Vinca major (Large Periwinkle)
Vinca minor (Dwarf Periwinkle, Common Periwinkle)

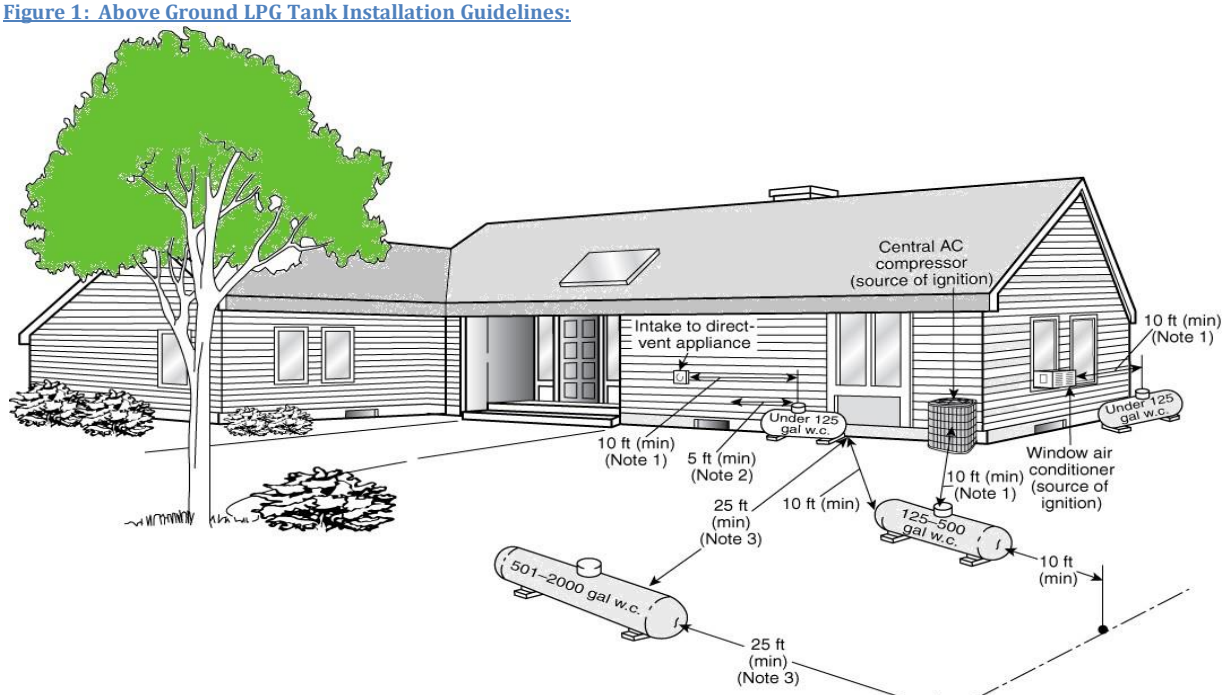
Trees

Acer species (Maple)
Betula species (Birch)
Cercis canadensis (Eastern Redbud)
Populus tremuloides (Quaking Aspen)
Populus - other species (Poplar, Cottonwood)
Salix species (Willow)

**** Plants or groups of plants marked with an asterisk (*) can become weedy in certain circumstances, and may even be noxious weeds with legal restrictions against their planting and cultivation. Check with your local Extension office or State Department of Agriculture for information on noxious weeds in your area.***

Note: Some of the listed plants may not be considered "water-wise" or drought-tolerant for arid climate

Figure 1: Above Ground LPG Tank Installation Guidelines:

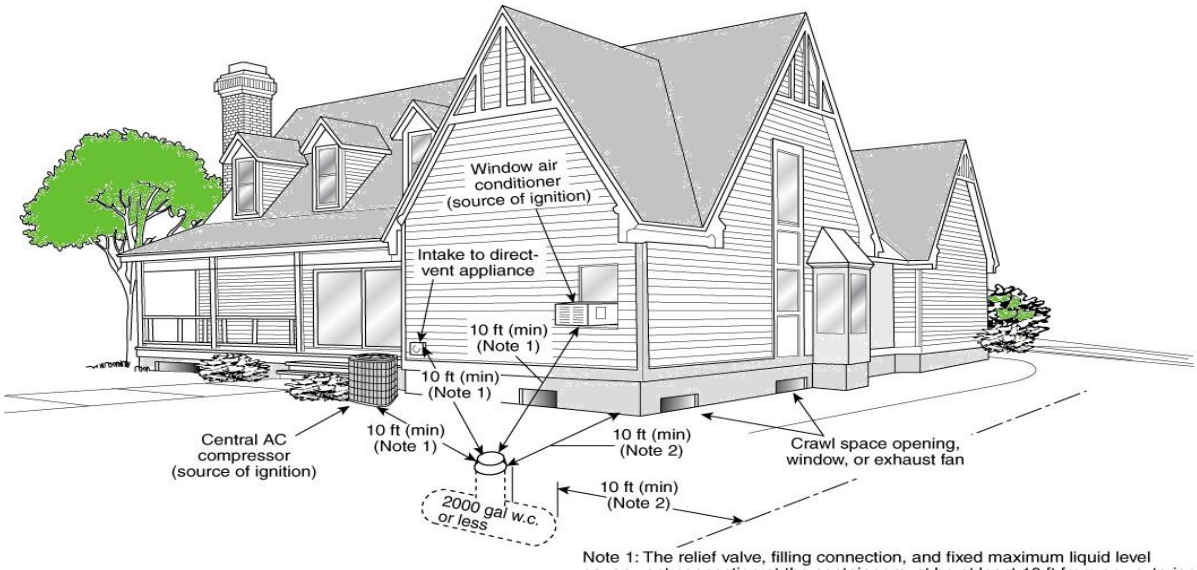


Note 1: Regardless of its size, any ASME container filled on site must be located so that the filling connection and fixed maximum liquid level gauge are at least 10 ft from any external source of ignition (e.g., open flame, window AC, compressor), intake to direct-vented gas appliance, or intake to a mechanical ventilation system. Refer to 6.3.9.

Note 2: Refer to 6.3.8.

Note 3: This distance can be reduced to no less than 10 ft for a single container of 1200 gal (4.5 m^3) water capacity or less, provided such container is at least 25 ft from any other LP-Gas container of more than 125 gal (0.5 m^3) water capacity. Refer to 6.3.3.

Figure 2: Underground LPG Tank Installation Guidelines:



For SI units, 1 ft = 0.3048 m

Note 1: The relief valve, filling connection, and fixed maximum liquid level gauge vent connection at the container must be at least 10 ft from any exterior source of ignition, openings into direct-vent appliances, or mechanical ventilation air intakes. Refer to 6.3.9.

Note 2: No part of an underground container can be less than 10 ft from an important building or line of adjoining property that can be built upon. Refer to 6.3.4.2.

Fire Hazard Severity Assessment Form:

APPENDIX C

FIRE HAZARD SEVERITY FORM

A. Subdivision Design	Points
1. Ingress/Egress	
Two or more primary roads	1___
One road	10___
One-lane road in, one-lane road out	15___
2. Width of Primary Road	
20 feet or more	1___
Less than 20 feet	5___
3. Accessibility	
Road grade 5% or less	1___
Road grade 5-10%	5___
Road grade greater than 10%	10___
4. Secondary Road Terminus	
Loop roads, cul-de-sacs with an outside turning radius of 45 feet or greater	1___
Cul-de-sac turnaround	5___
Dead-end roads 200 feet or less in length	8___
Dead-end roads greater than 200 feet in length	10___
5. Street Signs	
Present but unapproved	3___
Not present	5___

B. Vegetation (IUWIC Definitions)	
1. Fuel Types	
Surface	
Lawn/noncombustible	1___
Grass/short brush	5___
Scattered dead/down woody material	10___
Abundant dead/down woody material	15___
Overstory	
Deciduous trees (except tall brush)	3___
Mixed deciduous trees and tall brush	10___
Clumped/scattered conifers and/or tall brush	15___
Contiguous conifer and/or tall brush	20___
2. Defensible space	
70% or more of lots completed	1___
30% to 70% of lots completed	10___
Less than 30% of lots completed	20___

	Points
C. Topography	
Located on flat, base of hill, or setback at crest of hill	1___
On slope with 0-20% grade	5___
On slope with 21-30% grade	10___
On slope with 31% grade or greater	15___
At crest of hill with unmitigated vegetation below	20___
D. Roofing Material	
Class A Fire Rated	1___
Class B Fire Rated	5___
Class C Fire Rated	10___
Nonrated	20___
E. Fire Protection—Water Source	
500 GPM hydrant within 1,000 feet	1___
Hydrant farther than 1,000 feet or draft site	5___
Water source 20 min. or less, round trip	10___
Water source farther than 20 min., and 45 min. or less round trip.	15___
Water source farther than 45 min., round trip	20___
F. Siding and Decking	
Noncombustible siding/deck	1___
Combustible siding/no deck	5___
Noncombustible siding/combustible deck	10___
Combustible siding and deck	15___
G. Utilities (gas and/or electric)	
All underground utilities	1___
One underground, one aboveground	3___
All aboveground	5___
TOTAL FOR SUBDIVISION:	_____

FIRE HAZARD SEVERITY	
MODERATE HAZARD	50-75
HIGH HAZARD	76-100
EXTREME HAZARD	101 +

2006 UTAH WILDLAND-URBAN INTERFACE CODE

Project Information:
Project Number:_____
Project Address:_____
Applicant:_____

Note:
5-20 points will be added based on fire apparatus travel time.

ALPINE PLANNING COMMISSION AGENDA

SUBJECT: **Public Hearing – Improvements to Open Space – Trailhead Kiosk in Lambert Park**

FOR CONSIDERATION ON: **7 May 2019**

PETITIONER: **Staff**

ACTION REQUESTED BY PETITIONER: **Receive public comments and recommend approval of proposed structure.**

BACKGROUND INFORMATION:

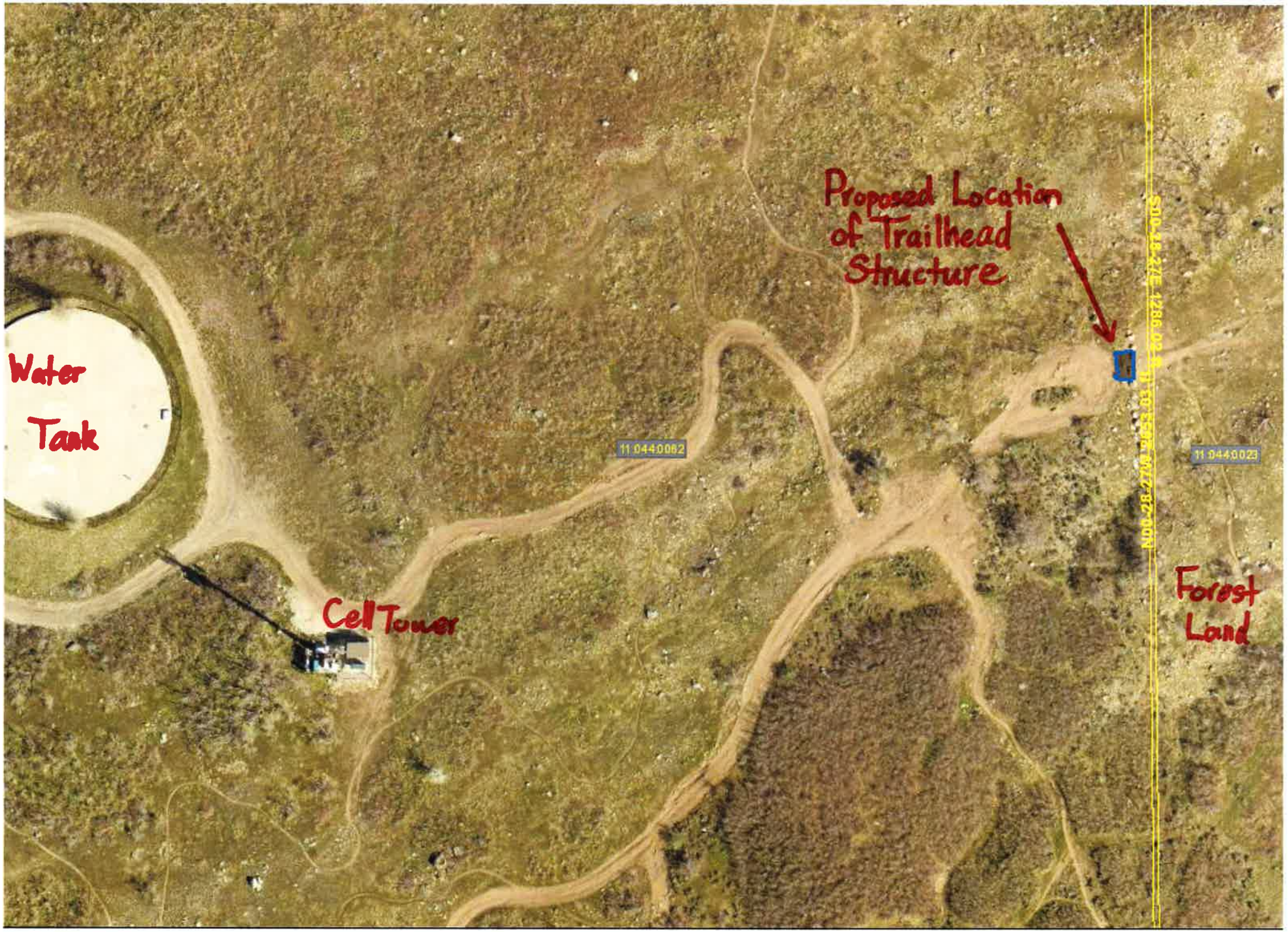
It is proposed that a trailhead kiosk structure be built on the eastern most boundary of Lambert Park, above the water tank, which would identify trails in the area. The structure would be intended to raise awareness of trails in the area and serve as a reminder to people shooting in the area. It is illegal to shoot within 150 yards of a structure.

STAFF RECOMMENDATION:

Receive public comment and recommend approval of a trailhead kiosk structure in Lambert Park.


Barre City "Cow Pasture


GOLDEN POND



Utah County Parcel Map

No Shooting Trailhead Kiosk

This cadastral map is generated from Utah County Recorder data. It is for reference only and no liability is assumed for any inaccuracies, incorect data or variations with an actual survey

Date: 4/26/2019

N

ALPINE PLANNING COMMISSION AGENDA

SUBJECT: **Public Hearing – Improvements to Open Space – Planting Trees in Public Open Space**

FOR CONSIDERATION ON: **7 May 2019**

PETITIONER: **Scott Hardy**

ACTION REQUESTED BY PETITIONER: **Receive public comments and recommend approval of improvements to open space.**

BACKGROUND INFORMATION:

The City has received a proposal from a resident who would like to make improvements to an area of open space east of Ridge Lane. The proposal includes planting trees and how they would be watered. See residents letter for further details.

STAFF RECOMMENDATION:

Receive public comment and consider recommending approval of proposed plan to plant trees in Public Open Space.

Dave.

Thanks for presenting this to the committee.

Below are ideas for the green space behind 539 Ridge Lane house to help with the national look and feel of Alpine and Utah.

Trees

I don't believe very many are needed but if possible, we would like to put in some of the following

1. Pine Trees
2. Bigtooth maple or similar – this is native to Utah and will give a wonderful fall red look
3. Scrub Oak

All of these are hardy trees and once established will not require watering

Flowers

I know this may be a tall ask but it possible, would the committee allow:

1. Poppy Flowers

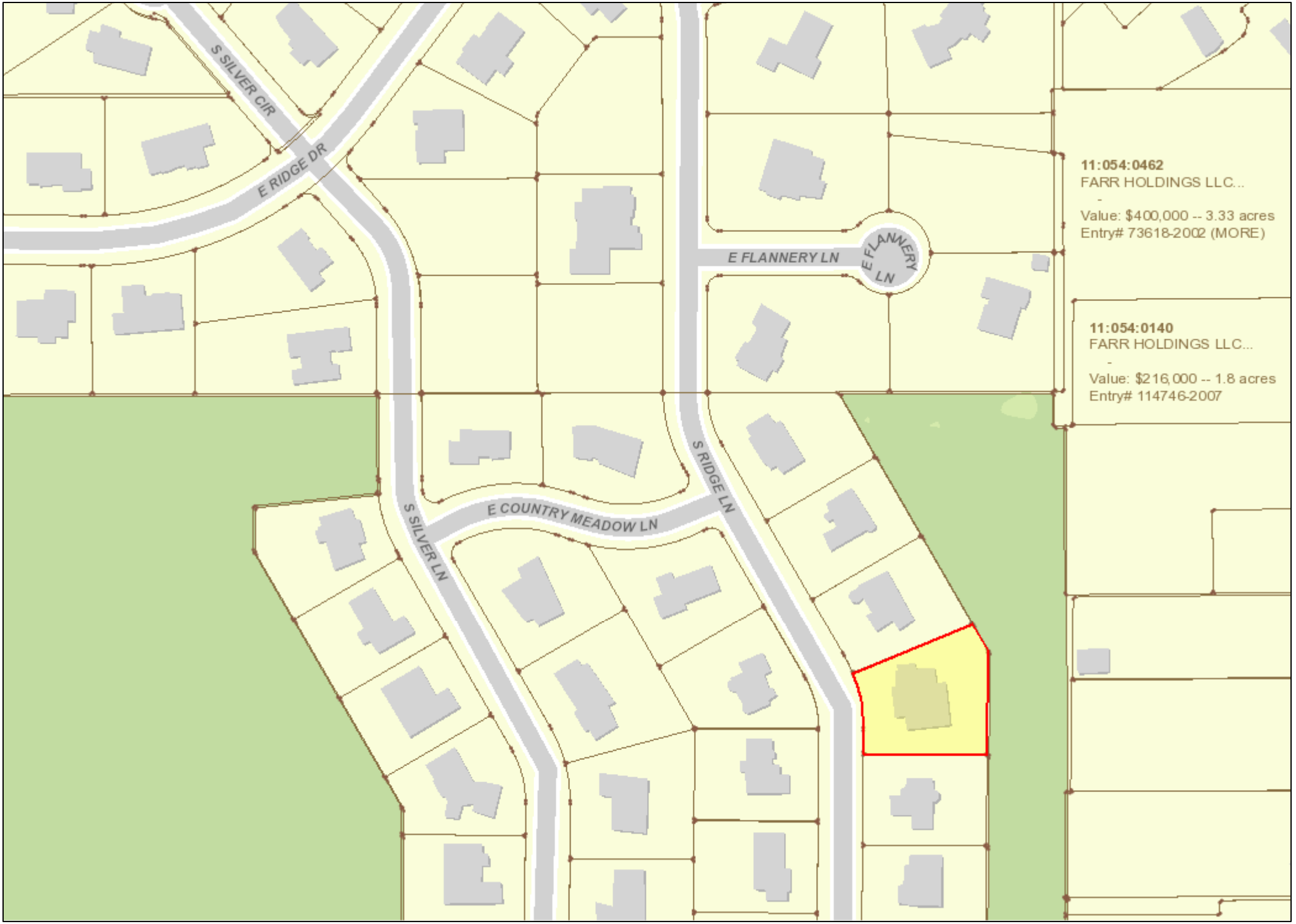
I think it may really look to the look and feel to the legacy of Lambert Park Poppy fields

Watering

I currently have a hose connection to my main line in the sprinkler system in the back of yard and will run a hose – 3 times a week – and water the trees. Or is the committee would allow I would run a temporary line from my sprinklers to water the trees. I estimate it will take 3-5 years for the trees to develop their root systems where I will no longer need to water.

Thanks Dave and the committee for your consideration.

Scott Hardy



Utah County Parcel Map

Ridge Lane Trees Map

This cadastral map is generated from Utah County Recorder data. It is for reference only and no liability is assumed for any inaccuracies, incorect data or variations with an actual survey

Date: 5/3/2019

N

Utah County Parcel Map

Ridge Lane Trees Map

This cadastral map is generated from Utah County Recorder data. It is for reference only and no liability is assumed for any inaccuracies, incorect data or variations with an actual survey

Date: 5/3/2019

N

ALPINE PLANNING COMMISSION AGENDA

SUBJECT: Planning Commission Minutes April 16, 2019

FOR CONSIDERATION ON: 7 May 2019

PETITIONER: Staff

ACTION REQUESTED BY PETITIONER: Approve Minutes

BACKGROUND INFORMATION:

Minutes from the April 16, 2019 Planning Commission Meeting.

STAFF RECOMMENDATION:

Review and approve the Planning Commission Minutes.

ALPINE CITY PLANNING COMMISSION MEETING
Alpine City Hall, 20 North Main, Alpine, UT
April 16, 2019

I. GENERAL BUSINESS

A. Welcome and Roll Call: The meeting was called to order at 7:00 pm by Chairman David Fotheringham. The following were present and constituted a quorum:

Chairman: David Fotheringham
Commission Members: Bryce Higbee, Alan MacDonald, John MacKay, Sylvia Christiansen
Staff: Austin Roy, Marla Fox, Jed Muhlestein
Others: Gail Rudolph, Will Jones
Excused: Jane Griener, John Gubler

B. Prayer/Opening Comments: John Mackay
C. Pledge of Allegiance: Gail Rudolph

II. PUBLIC COMMENT

Austin Roy reported that at the Draper City meeting, they were reviewing its Street Master Plan and ended up sending it out to all of the nearby cities. He stated that the report did not show a connection to Alpine.

III. ACTION ITEMS

A. Public Hearing – Amendment to Development Code – Infrastructure Protection Bonds

Austin Roy noted that Items A and B were related to the adoption of a new administrative code. He said Staff had reviewed the Development Code and recommended changes for Article 4.12. In the past, the ordinance had been a Legislative process and the City hadn't been able to fine people for breaking the development codes. If there was an issue, Staff had to send them to a prosecutor. The new ordinance would allow the City to impose fines for offences and provide a way for the public to appeal.

The Planning Commission then reviewed a redlined copy of the ordinance that showed all of the proposed changes. When asked if anything in the development code would come before the Planning Commission, Austin Roy answered in the affirmative. He also noted that per the ordinance, the administrative law judge should be someone with a background either in law or planning. The administrative law judge could also be selected on a case-by-case basis, and could be interchangeable between different municipalities.

David Fotheringham opened the Public Hearing. There were no comments and the hearing was closed.

MOTION: Alan MacDonald moved to recommend approval of Amendments to Development Code – Infrastructure Protection Bonds. Sylvia Christiansen seconded the motion. There were 5 Ayes and 0 Nays (recorded below). The motion passed.

Ayes:	**Nays:**
Bryce Higbee	None
Alan MacDonald	
John MacKay	
David Fotheringham	
Sylvia Christiansen	

B. Public Hearing – Amendment to Development Code – Open Space Bonds

In response to a question from the Commission, Austin Roy explained what cash bonds were and how they worked. He stated that moving forward, as Staff handled these situations administratively they felt cash bonds would be the best option for levying a fee, in the event that a particular project did not get finished. Cash bonds provided more liquidity with the City's money.

David Fotheringham opened the Public Hearing. There were no comments and the hearing was closed.

MOTION: Bryce Higbee moved to recommend approval of the Amendment to Development Code – Open Space Bonds. John MacKay seconded the motion. There were 5 Ayes and 0 Nays (recorded below). The motion passed.

Ayes:	**Nays:**
Bryce Higbee	None
Alan MacDonald	
John MacKay	
David Fotheringham	
Sylvia Christiansen	

C. Public Hearing – Amendment to Development Code – Building Material Samples

Austin Roy said Staff reviewed the Development Code and recommended changes for Article 3.11. He said this topic had been discussed by both the Planning Commission and City Council. It was the responsibility of the Planning Commission to make sure the buildings in the Commercial Zone complied with the Gateway Historic requirements. As such, it had previously been discussed that it would be important to see physical examples of the materials, so that the City better understood how final products would look. The proposed amendments allowed the Planning Commission to ask for those materials from developers in instances where the Commissioners felt the request was necessary.

David Fotheringham opened the Public Hearing.

Gail Rudolf said the Alpine Fitness billboard on Main Street had been discussed by some of her neighbors on several different occasions. She wanted to know if billboards were even allowed

on Main Street. Austin Roy said this issue would fall under the sign ordinance and not the Gateway Historic. He further discussed the particulars of the billboard in question.

David Fotheringham closed the Public Hearing.

MOTION: John MacKay moved to recommend approval of the Amendment to Development Code – Building Material Samples. Alan MacDonald seconded the motion. There were 5 Ayes and 0 Nays (recorded below). The motion passed.

Ayes:	**Nays:**
Bryce Higbee	None
Alan MacDonald	
John MacKay	
David Fotheringham	
Sylvia Christiansen	

D. Amendment to Development Code – Dwelling Clusters

Austin Roy said this item was returning to Planning Commission, as the group had discussed it in the past. When reviewed by the City Council, its members asked for changes to the language being proposed. The Planning Commission would review the new proposed language and subsequently make another recommendation to City Council.

Austin Roy said all instances of development clusters would be replaced with dwelling clusters. Language of buildable areas would be used to help clarify what was meant. He explained that the language for a Dwelling Cluster was: *A group of three (3) or more single unit detached dwellings whose respective buildable areas are located no more than 400 feet from one building area to the next closest buildable area as measured from the midpoint of each buildable area.*

Austin Roy stated that the following language would also be added to an existing definition for a lot: *Lots shall be rectangular in nature and shall have no more than five sides without an exception being recommended by the Planning Commission and approved by the City Council; the front of a property, located at the front right of way, does not count against this requirement.*

The Planning Commission discussed the language in the definition and wanted to add the word "generally" before "rectangular in nature."

Will Jones expressed concerns about limiting the sides to just five. He said there were certain exceptions in the City where this would not work, like along a stream or a foothill. He wanted to make sure the City considered these instances. Jed Muhlestein said Staff realized that it would not be possible to hold to the five sides all the time and that's why there would be exceptions.

Bryce Higbee said he did not think the ordinance would have any value if all the exceptions were added into in the language. Austin Roy acknowledged that in some situations it was impossible to have straight lot lines because of the topography of the land. He said if people were trying to meet the intent of the law, then an exception could be granted.

MOTION: Bryce Higbee moved to recommend approval of the Amendment to Development Code – Dwelling Clusters. Alan MacDonald seconded the motion. No vote was taken and a motion to amend was made.

In response to a question from David Fotheringham, Austin Roy clarified that dwelling clusters only applied to PRDs. David Fotheringham posed the question that if someone wanted to put their home further back on a larger lot (five-plus acres, for example), would this ordinance prohibit them from doing so. Austin Roy explained that it would not, if adjacent lots were also further back and within 400 feet of each other.

Sylvia Christiansen asked if there was language stating "buildings" not just "dwellings." Austin Roy explained that the buildable area is the only area where a home or detached garage can be built. Furthermore, he stated that a future development should not have the buildable area so large that a detached garage would be significantly far away from everything else.

It was noted that the code specifically stated that a person could not built any structure outside of the buildable area. There was subsequent deliberation regarding an appropriate motion to make on this item.

MOTION: Sylvia Christiansen moved to recommend amending the motion to add the word "generally" before "rectangle in nature" in the definition. John MacKay seconded the motion. There were 5 Ayes and 0 Nays (recorded below). The motion passed.

Ayes:	**Nays:**
Bryce Higbee	None
Alan MacDonald	
John MacKay	
David Fotheringham	
Sylvia Christiansen	

MOTION: Bryce Higbee moved to approve the amended motion. Sylvia Christiansen seconded the motion. There were 5 Ayes and 0 Nays (recorded below). The motion passed.

Ayes:	**Nays:**
Bryce Higbee	None
Alan MacDonald	
John MacKay	
David Fotheringham	
Sylvia Christiansen	

E. Amendment to Development Code – Flag Lots

Austin Roy said this item built off of Item D. It was previously reviewed by the Planning Commission, but was returned by the City Council with several additional requests. The Planning Commission would review the new proposed language and make a recommendation to City Council. The new verbiage to the Lot Width stated: *Lot width shall be maintained in the area located between the front lot line and the buildable area of the lot.*

MOTION: Alan MacDonald moved to recommend approval of the Amendment to Development – Flag Lots**.** John MacKay seconded the motion. No vote was taken and a motion to amend was made.

MOTION: Bryce Higbee moved to amend the motion to include an exception process. Sylvia Christiansen seconded the motion. There were 5 Ayes and 0 Nays (recorded below). The motion passed.

Ayes:	**Nays:**
Bryce Higbee	None
Alan MacDonald	
John MacKay	
David Fotheringham	
Sylvia Christiansen	

MOTION: Alan MacDonald moved to recommend approval of the Amendment to Development – Flag Lots. John MacKay seconded the motion.

Sylvia Christiansen stated that she voted "Nay" on this item the last time it was discussed. There was subsequent deliberation on an appropriate motion to make on this item.

There were 4 Ayes and 1 Nay (recorded below). The motion passed.

Ayes:	**Nays:**
Bryce Higbee	Sylvia Christiansen
Alan MacDonald	
John MacKay	
David Fotheringham	

F. Rules of Order Draft

Austin Roy explained that the Planning Commission needed a systematic way of doing business. The Rules of Order was drafted from similar rules set forth for the City Council, and outlined rules of procedure to provide for the orderly conduct of City business by the Planning Commission, with the objective of providing for full, open, and comprehensive debate of issues brought before the Planning Commission for action in a forum open to the public, and which encouraged citizens' awareness of Planning Commission activities.

The following may be referred to as the Alpine City's Rules of Order. Each Rule was followed by a recommended Procedure and Purpose to explain the Rule, and to guide the Chair and Commission members in its intended application.

Staff and Planning Commissioners reviewed and discussed the following rules:

Rule No. 1: The meeting is governed by the agenda and the agenda constitutes the Planning Commission's agreed-upon roadmap for the meeting.

Rule No. 2: Any matter that requires a Planning Commission decision shall be brought before the Planning Commission by motion.

Rule No. 3: One question at a time and one speaker at a time.

Rule No. 4: The Chair may use General Consent (also known as Unanimous Consent) with all Motions except those Motions where the votes are used for purposes of the meeting minutes and require a roll call of the Planning Commission.

Rule No. 5: There are only three basic forms of motions allowed: Initial Motions, Motions to Amend, and Substitute Motions.

Rule No. 6: There can be up to three motions on the floor at the same time and no more than three. The Chair can reject a fourth motion until the Chair has dealt with the three that are on the floor and has resolved them.

Rule No. 7: The debate can continue as long as members of the Planning Commission wish to discuss an item, subject to the Chair determining it is time to move on and take action by using General Consent to limit debate or by a proper motion by a Planning Commission member to limit the debate. The following motions are not debatable –a motion to adjourn; a motion to recess; a motion to fix a time to adjourn; a motion to table; and a motion to limit debate.

Rule No. 8: The Chair and Planning Commission members shall adhere to the code of Conduct.

There was also a section titled: Residents' Right To Be Heard. It was recognized that residents may from time to time believe it necessary to speak with the Planning Commission on matters of concern. The Planning Commission expected any person presenting to the Planning Commission to speak in a civil manner, with due respect for the decorum of the meeting, and with due respect for all persons attending.

IV. Communications

David Fotheringham asked if sports teams were allowed at Creekside Park, noting that he had seen several younger kids teams there using the equipment. Austin Roy said typically the park was not supposed to be used for sports teams; however, peewee sports were allowed to practice there.

John MacKay inquired about the lighting controls for the tennis courts at Burgess Park, noting that they were on throughout the night and early in the morning. Austin Roy recalled that the lights were on a timer and were supposed to go off at 10:00 pm. He said he would follow up on the matter.

David Fotheringham mentioned that the City Council approved putting in pickleball lines on the basketball courts at Creekside Park. There was subsequent discussion on the matter.

Will Jones said there were over 110 kids from Skyridge High School planting 300 trees at Lambert Park in the pouring rain today.

V. APPROVAL OF PLANNING COMMISSION MINUTES: March 19, 2019

MOTION: Sylvia Christiansen moved to approve the minutes for March 19, 2019, as written. Alan MacDonald seconded the motion. There were 5 Ayes and 0 Nays (recorded below). The motion passed.

Ayes:	**Nays:**
Bryce Higbee	None
Alan MacDonald	
John MacKay	
David Fotheringham	
Sylvia Christiansen	

The meeting was adjourned at 8:55 pm.