TOWN OF KEENESBURG
PLANNING COMMISSION MEETING
THURSDAY, SEPTEMBER 3, 2020, 6:00 P.M.
KEENESBURG TOWN MEETING HALL
140 SOUTH MAIN STREET, KEENESBURG, CO 80643

Please join Planning Commission meeting from your computer, tablet or smartphone.
https://global.gotomeeting.com/join/683411325
Link also available at: townofkeenesburg.com, Meeting Agendas
(Toll Free): 1 866 899 4679 - Access Code: 683-411-325#

1. Call to order

2. Pledge of allegiance

3. Roll Call

4. Public Comments

5. Approval of Minutes for August 6, 2020

6. New Business

   a. PUBLIC HEARING: To Consider a preliminary and final plat for the RK Subdivision consisting of 15.06 acres divided into 7 lots.

   b. RESOLUTION PC2020-08 A RESOLUTION RECOMMENDING APPROVAL OF A PRELIMINARY AND FINAL PLAT FOR THE RK SUBDIVISION.

   c. PUBLIC HEARING: To Consider a request for initial zoning of property proposed to be annexed known as the Kaufman Annexation No. 4 and Sketch Plan for CMK-SW Industrial Park.

   d. RESOLUTION PC2020-11 A RESOLUTION RECOMMENDING APPROVAL OF AN INITIAL ZONING AND SITE PLAN REQUEST FOR PROPERTY TO BE ANNEXED TO THE TOWN AND KNOWN AS THE KAUFFMAN ANNEXATION NO. 4 TO THE TOWN OF KEENESBURG

   e. PUBLIC HEARING: To Consider a request for a Use by Special Review to authorize a vehicle towing and recovery business with an operator's residence.

f. RESOLUTION PC2020-10 A RESOLUTION RECOMMENDING APPROVAL OF A USE BY SPECIAL REVIEW PERMIT FOR A RESIDENTIAL STRUCTURE TO BE USED IN CONNECTION WITH A VEHICLE TOWING AND RECOVERY BUSINESS IN THE LIGHT INDUSTRIAL (LI) ZONE DISTRICT

7. Old Business

8. Board Comments / Reports

9. Adjournment

TOWN OF KEENESBURG
PLANNING COMMISSION MEETING MINUTES
THURSDAY, AUGUST 6, 2020, 6:00 P.M.
HELD AT TOWN HALL AT
140 S. MAIN ST., KEENESBURG, CO 80643
AND
HELD ELECTRONICALLY at
https://global.gotomeeting.com/join/508455013

Call to order
The Planning Commission of the Town of Keenesburg met in a regular session, Thursday, August 6, 2020, and electronically at https://global.gotomeeting.com. Chair Howell called the meeting to order at 6:00 p.m.

Pledge of allegiance

Roll Call
Members Present: Chair John Howell; Commissioners Wafel, Gfeller and Finkenbinder
Members Excused: Commissioner Greening
Others Present: Town Planner, Todd Hodges; Jennifer Shagin of Todd Hodges Design and Planning Staff, Teri Smith.

Public Comments
None

Approval of Minutes for July 9, 2020 and July 16, 2020
Commissioner Gfeller makes a motion to approve minutes for July 9, 2020 and July 16, 2020 with a second by Commissioner Wafel. Motion carried 4-0; roll call: Chair Howell, Commissioners Wafel, Gfeller and Finkenbinder, voting yes.

New Business

a. **PUBLIC HEARING: To Consider a preliminary and final plat for the RK Subdivision consisting of 15.06 acres divided into 7 lots.**

Chair Howell announces that the Public Hearing to consider a preliminary and final plat for the RK subdivision has been rescheduled for the Planning Commission Meeting on September 3, 2020.

b. RESOLUTION PC2020-08 A RESOLUTION RECOMMENDING APPROVAL OF A PRELIMINARY AND FINAL PLAT FOR THE RK SUBDIVISION.

Chair Howell announces that the Resolution for the Public Hearing to consider a preliminary and final plat for the RK subdivision has been rescheduled for the Planning Commission Meeting on September 3, 2020.

c. PUBLIC HEARING: To Consider amending Chapters 16 and 17 of the Keenesburg Municipal Code to Integrate the Town of Keenesburg Design Standards and amending Chapter 8 regarding parking on improved surfaces.

Chair Howell opens the public hearing at 6:03 pm and reads from the script, gives instructions and procedures regarding the public hearing. Chair Howell asks if any objections, none. Chair Howell asks for notification. Todd Hodges of Todd Hodges Design on behalf of Debra Chumley provided notification dates. Notification was made on July 15, 2020 in the Greeley Tribune. Chair Howell asks from the Planning Commission if there are any disclosures; none. Todd Hodges present the staff report and Jennifer Shagin who joined electronically states there are just minor items that were changed after taking it to the board. One was the weight limit on page 7 under definitions changed to 25,000 pounds. Other changes made were to tables due to formatting on page 26 and 35 that were missing some wording. Jennifer states she has no additional changes or comments. Todd Hodges asks if there are any other questions; none. Chair Howell opens the public comment portion of the hearing and asks if any- one would like to speak; hearing none. Chair Howell asks if anything further from Town Staff; Todd Hodges states none. Chair Howell closes the public comment portion of the public hearing. Chair asks for any questions for the Planning Commission; none. Chair Howell closes the Public Hearing at 6:10 pm.

d. RESOLUTION PC 2020-09 A RESOLUTION RECOMMENDING APPROVAL OF THE TOWN OF KEENESBURG DESIGN STANDARS AND OF AN ORDINANCE AMENDING CHAPTERS 16 AND 17 OF THE KEENESBURG MUNICIPAL CODE TO INTEGRATE THE TOWN OF KEENESBURG DESIGN STANDARDS

Commissioner Gfeller makes a motion to approve Resolution PC2020-09 with a second by Commissioner Finkenbinder. Motion carried 4-0; Chair Howell, Commissioners Wafel, Gfeller and Finkenbinder, voting yes.

e. **PUBLIC HEARING: To consider a request for initial zoning of property proposed to be annexed to the Town known as the Kaufman Annexation No. 4 and South West Parcel Sketch Plan**

Chair Howell announces that the Public Hearing to consider the initial zoning known as Kaufman Annexation has been reschedule for the Planning Meeting on September 3, 2020.

Old Business
None

Board Comments / Reports
None

Adjournment
Motion was made by Commissioner Gfeller to adjourn the meeting at 6:13 p.m., with a second by Commissioner Finkenbinder. Motion carried 4-0; roll call; Chair Howell, Commissioners Wafel, Gfeller and Finkenbinder, voting yes.

ATTEST:

John Howell Chairperson	Teri Smith Planning Staff

a.

STAFF REPORT

TO: **PLANNING COMMISSION**

FROM: **TODD A. HODGES, PLANNER**

SUBJECT: **RK SUBDIVISION PRELIMINARY AND FINAL PLAT**

PC MEETING DATE: SEPTEMBER 3, 2020

BOARD OF TRUSTEES MEETING DATE: SEPTEMBER 21, 2020

I. Attachments

1. Application submittal
2. Preliminary and Final plat drawings
3. Referral items

II. Project Owners and Representatives:

Owners:

Richard I. Robertson
Heidi D. Robertson
8537 CR 51
Keenesburg, CO 80643

Aaron L. Kaiser
Lori J. Kaiser
30307 CR 8
Keenesburg, CO 80643

Applicant:

Richard I. Robertson
Heidi D. Robertson
8537 CR 51
Keenesburg, CO 80643
pri.rickrobertson@gmail.com

Aaron L. Kaiser
Lori J. Kaiser
30307 CR 8
Keenesburg, CO 80643
aaron@noraaconcrete.com

Project Representative:
Same as above

III. Location

Legal:

PT SW4 19-2-63 LOT B REC EXEMPT RE-4346

III. Project Description

The land use application is a preliminary and final plat for the RK Subdivision. The RK Subdivision is 15.060 acres located along WCR 398, Keenesburg, CO. The final plat is the last step in the subdivision process.

The proposed subdivision was annexed into the Town of Keenesburg in 2018 and zoned Heavy Industrial. The applicant is seeking to subdivide the property into seven

(7) industrial lots with each lot being roughly 2 acres in size. Access to the lots will be provided by a col-du-sac with 60ft dedicated right-of-way (ROW), this road will be dedicated to the Town of Keenesburg. The dedicated road will be paved by the applicant. Drainage is addressed in the submittal and has been reviewed by the Town Engineer.

Surrounding land uses of the property are residential on Agricultural zoning in the County with Highway Commercial to the west and Industrial to the Northeast of the site. The proposed property is currently zoned Heavy Industrial (HI) and the applicant intents to develop all seven (7) lots within the HI zoning designation.

Under section 16-2-150 of the Town of Keenesburg municipal code, heavy industrial is purposed primarily for manufacturing, assembly and distribution of basic goods. In addition, uses that involve resource extraction operations and recycling, storage and disassembly of all types of used products and related support uses are included within this category. The proposed plat describes lots that will provide space consistent with this zone designation. Future development of the lots will be required to go through the appropriate land use process prior to construction and/or a change in use. The sketch plan conditions required addressing the open space, signage, lighting and landscaping for the development. The submittal deferred the items to development of each lot. A condition of approval has been included to address the open space requirement as required per the annexation agreement and also future landscape requirements for development of the lots as well as lighting at the entrance of the development.

Utilities for the site are provided by:
Gas: TBD in conditions
Electric: United Power
Water: Keenesburg
Sewer: Onsite Wastewater Treatment System (OWTS)
Fire: S.E. Weld County Fire

VIII. Findings/Conclusions

After review of the Comprehensive Plan Municipal Code and referral comments, staff finds that:

1. The application is consistent with the Town of Keenesburg Comprehensive Plan

2. The application is consistent with the Town of Keenesburg Zoning Map

3. The application meets all criteria set forth in 17-3-20 and 17-4-20 of the Town of Keenesburg municipal code.

At the time this report was written, there have been no written objections filed with the Town concerning the proposed preliminary or final plat. Referrals were sent to the list attached to this report. Comments were received from the Town Engineer and the Town Attorney. The referrals are attached.

IX. Recommendation

Based upon the findings identified in this report, staff recommends approval of the RK Subdivision Preliminary and Final Plat with the following conditions:

1. Prior to recording the final plat a subdivision improvements agreement shall be reviewed and approved by the Board of Trustees.

2. Prior to recording the final plat the applicant shall submit adequate evidence of gas service to the site.

3. Prior to recording the final plat the applicant shall adequately address the redlines and comments provided by the Town Engineer.

4. Prior to recording the final plat the applicant shall make a cash in lieu payment for 1.8 acres of land that would be the required open space dedication requirement per Section 7 of the annexation agreement.

5. Prior to recording the final plat the following note shall be placed on the plat:

   Landscaping and irrigation will be a requirement for future owners of each lot as part of the development or use of each lot. Prior to development or use of any lot a pre-application meeting will be required to determine the appropriate land use process for the proposed uses.

6. Prior to recording the final plat the applicant shall adequately address the comments from the Town Attorney in the referral response dated July 28, 2020. The items include updating the property info binder, revising the certificate of ownership and dedication and revising the Town Board approval block.

7. A pdf of the revised final plat shall be sent to staff for review and approval prior to submitting the signed mylar.

RK SUBDIVISION PRELIMINARY PLAT APPLICATION CHECKLIST:

The following is a summary of the checklist items:

Item	Concept	Market Street BP
01	All items required for the sketch plan application, to contain all changes and or conditions of approval associated with the sketch plan	NOTED
02	Application form & fee deposits	COMPLETED
03	Must meet all requirements of CRS 38-	
04	A grading and drainage plan and report	COMPLETED
05	Sanitary sewer design	EACH LOT TO PROVIDE OWTS IN FUTURE
06	Street plan and cross sections	COMPLETED
07	Traffic Study -General traffic overview and Analysis	COMPLETED
08	Primary engineer's estimate of cost	COMPLETED
09	Geotechnical Analysis and Report	COMPLETED
10.	Submit two copies of the preliminary plat, as well as an electronic version	COMPLETED

Preliminary Plat Subdivision Application
Application Fee: $500.00
(Plus all developer related review fees incurred by the Town of Keenesburg i.e. legal, engineering, publication, recording fees, etc.)

Applicant Name	**Richard I. Robertson, Heidi D. Robertson, Aaron L. Kaiser, and Lori J. Kaiser**
Address	**Robertson's:- 8537 WCR 51 Keenesburg, CO 8064**
	Kaiser's: 39673 E. 160th Avenue, Keenesburg, CO 80643
Daytime Phone Robertson:	**303-961-3960**
Daytime Phone Kaiser:	**303-994-7947**
Emails:	**pri.rickrobertson@gmail.com**
	aaron@noraaconcrete.com
Subdivision Name	**RK Subdivision**
Address of Proposed Subdivision	WCR 398, Keenesburg, CO 80643

Legal Description: LOT B, RECORDED EXEMPTION NO. 1303-19-3-RE-4346 RECORDED MARCH 28, 2006 AT RECEPTION NO. 3373994, BEEING A PART OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO

Is the Applicant the Owner of the Property? X Yes ___ No

Owner Name (if not Applicant):

Owner Address:

Owner's Phone:

Owner's

email:

Property Owner signature: _____N/A_____ _____**Date:** _____

The Applicant understands that this is an application only, that is must be approved, and that any required building permits must be obtained before the property may be used in accordance with the request. The Applicant further acknowledges that the above information is correct. By signing this Application, the Applicant certifies that he or his consultants have read and understand the pertinent ordinances of the Town of Keenesburg and will prepare application materials consistent with them.

Applicant signature: _____Richard I. Robertson_____ **Date:** 3-19-19

Applicant signature: _____Heidi D. Robertson_____ **Date:** 3-19-19

Applicant signature: _____Aaron L. Kaiser_____ **Date:** 3-19-19

Applicant signature: _____Lori J. Kaiser_____ **Date:** 3-19-19

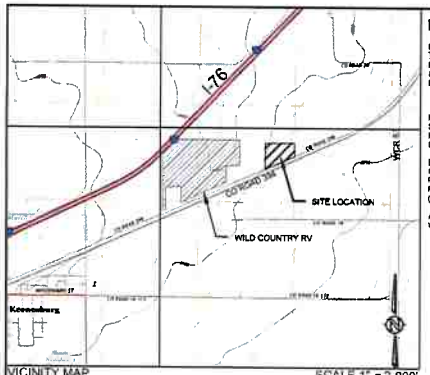
RK SUBDIVISION CIVIL CONST. DWGS.

KEENESBURG, CO 80643

PREPARED FOR:

RICK ROBERTSON
8537 WCR 51
KEENESBURG, CO 80643
(303)961-0031

AARON KAISER
39673 E 160th AVENUE
KEENESBURG, CO 80643
(303)994-7947



VICINITY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN VICINITY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A6, KLUG RANCH 40104-B5 & TAMPA 40104-B4

BASIS of BEARING & BENCHMARK

BASIS OF BEARING: THE NORTH LINE OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., IN WELD COUNTY, COLORADO IS ASSUMED TO BEAR NORTH 89°53'16" EAST, AS MONUMENTED HEREON AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO.

HORIZONTAL COORDINATES ARE BASED UPON THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH ZONE (0501) AND HAVE BEEN MODIFIED TO GROUND BY A FACTOR OF 1.000271114 / 0.99972836.

ELEVATIONS SHOWN HEREON ARE BASED UPON STATIC GPS OBSERVATIONS POST PROCESSED THROUGH THE JAVAD DATA PROCESSING ONLINE SERVICE (DPOS) RESULTING IN CONTROL POINT NO. 1 HAVING AN ELEVATION OF 4893.43 FEET NAVD 88 (GEOID 12B).

ALL CONTOURS SHOWN HEREON ARE AT ONE FOOT INTERVALS WITH INDEX CONTOURS SHOWN AT FIVE FOOT INTERVALS

LEGAL DESCRIPTION

ANNEXATION TABLE TOTAL PERIMETER
3394.58 FEET REQUIRED 1/6 CONTIGUOUS
PERIMETER: 565.77 FEET CONTIGUOUS
BOUNDARY: 1079.05 FEET

ANNEXATION DESCRIPTION: LOT B OF RECORDED EXEMPTION NO. 1303-19-1-RE-4364, BEING A PART OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH PRINCIPAL MERIDIAN, AS RECORDED AS RECEPTION NO. 3373994, MARCH 28, 2006 IN THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER

OWNER'S CERTIFICATE: KNOW ALL MEN BY THESE PRESENTS, THAT RICHARD I. ROBERTSON, HEIDI D. ROBERTSON, AARON L. KAISER, AND LORI J. KAISER, BEING THE SOLE OWNERS AND PROPRIETORS OF THAT PARCEL OF LAND DESCRIBED HEREON, EXCLUDING PUBLIC RIGHTS-OF-WAY, REQUEST THAT THE LAND DESCRIBED HEREON BE ANNEXED UNDER THE NAME OF ROBERTSON-KAISER ANNEXATIONTO THE TOWN OF KEENESBURG.

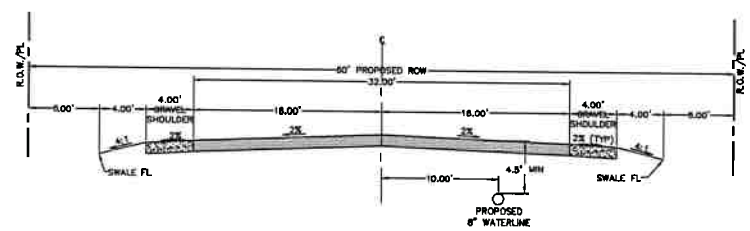
0	1	COVER SHEET
0	1	GENERAL NOTES & SPECIFICATIONS
0	1	EXISTING CONDITIONS W/ AERIAL
0	1	EXISTING CONDITIONS & DEMO PLAN
0	1	SITE PLAN
0	1	UTILITY PLAN
0	1	WATER PLAN & PROFILE
0	1	HYDRANT PLAN & PROFILE
0	1	SEPTIC PLAN
0	1	ROUGH GRADING PLAN
0	1	FINAL GRADING PLAN
0	1	GRADING CROSS SECTIONS
	1	OVERFLOW GRADING DETAILS
	1	WCR 398 DITCH GRADING
0	1	RK DRIVE PLAN AND PROFILE
0	1	KEENESBURG WATER DETAILS
0	1	KEENESBURG WATER DETAILS
0	1	KEENESBURG WATER DETAILS
0	1	HISTORIC DRAINAGE
0	1	DEVELOPED DRAINAGE
0	1	POND "B" PLAN
	1	POND SPILLWAY DETAILS
0	1	INITIAL EROSION CONTROL PLAN
0	1	INTERIM EROSION CONTROL PLAN
0	1	FINAL EROSION CONTROL PLAN
0	1	SWMP/EROSION CONTROL DETAILS
0	1	SWMP/EROSION CONTROL DETAILS
0	1	SWMP/EROSION CONTROL DETAILS
0	1	SCREENING/LANDSCAPE PLAN
0	1	SCREENING/LANDSCAPE DETAILS
	1	PHOTOMETRIC PLAN
	1	PHOTOMETRIC DETAILS

APPROVED BY:

RICK ROBERTSON DATE AARON KAISER DATE

WESTERN ENGINEERING CONSULTANTS, Inc. LLC DATE
CHADWIN F. COX, P.E.

0	INITIAL RELEASE:	MARCH 19, 2019
1	RESUBMITTAL PER 06/02/19 TOWN COMMENTS	MAY 19, 2020



RK DRIVE DRIVE TYPICAL SECTION
SCALE 1" = 5' VIEW IS NORTH

UNCC CALL BEFORE YOU DIG
1-800-922-1987
Utility Notification Center of Colorado
Administrative Office
12391 Table Mountain Parkway
Golden, Colorado 80403
Telephone: (303) 534-1981
Fax: (303) 534-1712
Toll-Free: 1-800-922-1987
CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

PREPARED BY:

WESTERN ENGINEERING CONSULTANTS, Inc. LLC
127 SOUTH DENVER AVENUE, FT. LUPTON, CO 80621
720-685-9951 PH, 720-294-1330 FAX, email@westerneci.com
Western Engineering Consultants, Inc. LLC

OWNER/DEVELOPER	TOWN/CITY	FIRE DISTRICT	UTILITY
ROBERTSON KAISER LAND HOLDINGS LLC CONTACT: RICK ROBERTSON 50531 E. 160th AVENUE BENNETT, CO 80102 (303)961-0031	TOWN OF KEENESBURG CONTACT: TODD HODGES 140 S. MAIN STREET KEENESBURG, CO 80643 PHONE: (303)732-4281	SOUTHEAST WELD FIRE PROTECTION DISTRICT CONTACT: THOMAS BEACH 55 E. GANDY AVENUE KEENESBURG, CO 80643 PHONE: (303) 732-4203	UNITED POWER BRIGHTON HEADQUARTERS OFFICE 500 COOPERATIVE WAY BRIGHTON, CO 80603 (303)637-1300

PROJECT NO: 00-0187.002.00
INITIAL PLAN RELEASE: MARCH 19, 2019
TOTAL SHEETS: 32
SHEET: 1 of 27

Sustainable Traffic Solutions
Joseph L. Henderson PE, PTOE
Traffic Engineer / Principal

July 8, 2019

Mr. Chadwin F. Cox, PE
Western Engineering Consultants
127 South Denver Avenue
Fort Lupton, CO 80735

RE: Trip Generation Estimate for the Robertson-Kaiser Annexation Near Keenesburg

Dear Chad,

This letter contains a trip generation estimate for the Robertson-Kaiser Annexation industrial development that is proposed on the north side of WCR 398 near Keenesburg. Seven industrial lots are proposed to each include a building with a shop and offices. Figure 1 contains a vicinity map that shows the location of the project on the north side of WCR 398. A site plan is contained in Figure 2 that shows the site access on WCR 398 and the configuration of the lots.

The trip generation for the industrial buildings was estimated using rates that are contained in the Institute of Transportation Engineers (ITE) Trip Generation[1] manual. The development is expected to generate approximately 214 trips on an average weekday, 30 trips during the morning peak hour, and 27 trips during the evening peak hour (see Table 1).

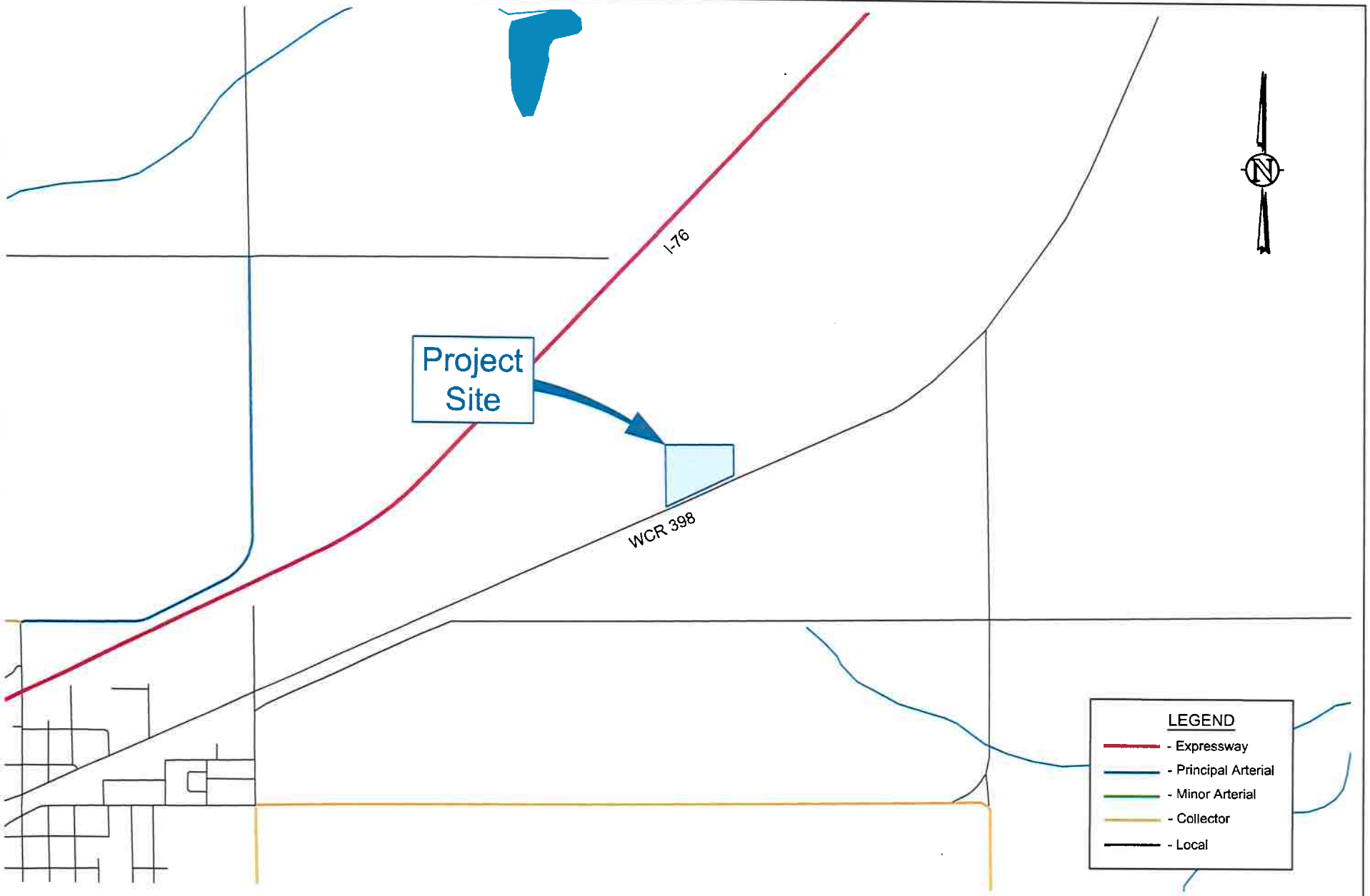
Feel free to contact me to discuss the contents of this report.

Sincerely,

Joseph L. Henderson, PE, PTOE
Project Manager / Principal
RK Annexation Trip Generation Letter

1 Trip Generation, 10th Edition. Institute of Transportation Engineers. September 2017.

823 West 124th Drive Westminster, Colorado 80234 303.589.6875 joe@sustainabletrafficsolutions.com

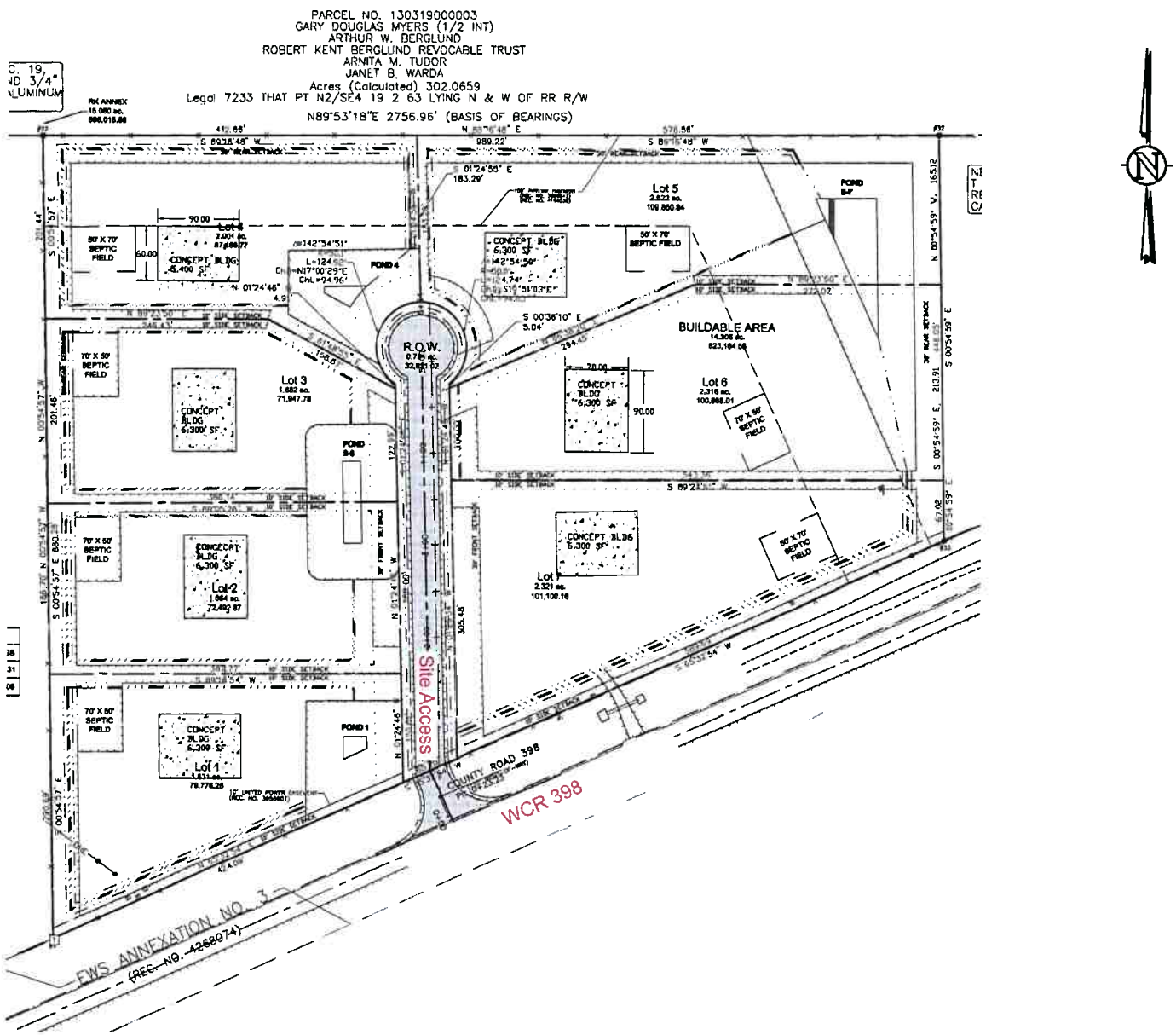


STS

Robertson-Kaiser Annexation Trip Generation Letter

VICINITY MAP

Scale	1" = 1,000'	Date	July 8, 2019	Drawn by	JLH	Job #	Western Engineering	Figure	1



Robertson-Kaiser Annexation Trip Generation Letter

SITE PLAN

Scale	NTS	Date	July 8, 2019	Drawn by	JLH	Job #	Western Engineering	Figure	2

Table 1. Trip Generation Estimate

Land Use [2]	ITE Code [1]	Size	Unit	Average Daily Trips				Morning Peak Hour Trips				Evening Peak Hour Trips			
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
General Light Industrial - Building 1	110	6.3	1,000 ft^2	4.96	31	16	16	0.70	4	4	1	0.63	4	1	3
General Light Industrial - Building 2	110	6.3	1,000 ft^2	4.96	31	16	16	0.70	4	4	1	0.63	4	1	3
General Light Industrial - Building 3	110	6.3	1,000 ft^2	4.96	31	16	16	0.70	4	4	1	0.63	4	1	3
General Light Industrial - Building 4	110	5.4	1,000 ft^2	4.96	27	13	13	0.70	4	3	0	0.63	3	0	3
General Light Industrial - Building 5	110	6.3	1,000 ft^2	4.96	31	16	16	0.70	4	4	1	0.63	4	1	3
General Light Industrial - Building 6	110	6.3	1,000 ft^2	4.96	31	16	16	0.70	4	4	1	0.63	4	1	3
General Light Industrial - Building 7	110	6.3	1,000 ft^2	4.96	31	16	16	0.70	4	4	1	0.63	4	1	3
Total	---	---	---	--	214	107	107	--	30	27	4	--	27	4	24

Notes:

1. Trip generation estimates are based on rates contained in Trip Generation, 10th Edition (Institute of Transportation Engineers, September 2017).

2. The land use was provided by Western Engineering Consultants.

RK SUBDIVISION

ENGINEERS ESTIMATE - CIVIL RELATED PUBLIC IMPROVEMENTS - FULL CIVIL

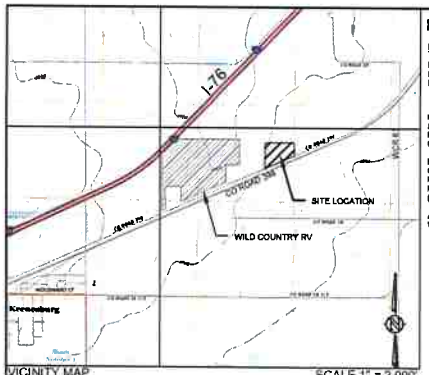
June 3, 2020

	ITEM	UNIT	ESTIMATED QUANTITY	APPROXIMATE UNIT PRICE , $	TOTAL COST, $
0.00	**MOBILIZATION / DEMOLITION**				
0.01	Mobilization	ls	1	10,000	10,000
0.02	Sawcut along County Road 398	lf	132	4	528
	SUBTOTAL				**10,528**
1.00	**EARTHWORK & ROADWAY / SURFACE MATERIALS**				
1.01	Surface to Surface Earthwork Cut and temp stockpile excess	cy	0	1.50	0
1.02	Surface to Surface Earthwork Fill (Assumed 10% shrink)	cy	4,479	3.00	13,437
1.03	Import & Place Structural Fill (Recycled conc ,Class 6, or approved equal) - 11" under asphalt pavin	cy	686	25	17,154
1.04	Finish surface (asphalt) - RK Drive	sy	2,246	45	101,050
	SUBTOTAL				**131,641**
2.00	**EROSION CONTROL**				
2.01	Storm Water Management Plan & Site Erosion Control	ls	1	10,000	10,000
	SUBTOTAL				**10,000**
3.00	**ELECTRIC SYSTEM**				
3.01	Connection to Ex. Electric System	each	1	2,500	2,500
3.02	Electric Transformer	each	1	50,000	50,000
3.03	Electric System	lf	1,202	10	12,020
3.04	Switch Boxes	each	2	1,000	2,000
3.05	Light Poles	each	5	3,000	15,000
	SUBTOTAL				**81,520**
4.00	**WATER SYSTEM**				
4.01	8" PVC (C900) Watermain w/ restraints for each fitting - RK Drive	lf	540	55	29,700
4.02	8"x8" Restrained Tee w/ Thrust Block, 2-8" Gate Valves, and Solid Sleeve Closure Piece	each	1	4,000	4,000
4.03	8" Restrained Plug w/ Thrust Block	each	1	1,500	1,500
4.04	6" DIP Hydrant Runs - each joint and fitting restrained	lf	48	100	4,800
4.05	Hydrant Tee & G.V. (6" GV on FH run, 8" GV on main)	each	2	2,500	5,000
4.06	Fire Hydrants	each	3	5,000	15,000
4.07	8"x6" Reducer	each	1	150	150
4.08	Service line taps	each	7	250	1,750
	SUBTOTAL				**61,900**

RK SUBDIVISION

ENGINEERS ESTIMATE - CIVIL RELATED PUBLIC IMPROVEMENTS - FULL CIVIL
June 3, 2020

	ITEM	UNIT	ESTIMATED QUANTITY	APPROXIMATE UNIT PRICE , $	TOTAL COST, $
5.00	**LANDSCAPE**				
5.01	Seed disturbed areas	acre	4.1	1,500	6,150
5.02	Trees (to be done by individual lots)	each	38	0	0
5.03	Shrubs (to be installed by individual lots)	each	38	0	0
5.04	Stop Signs	each	1	1,000	1,000
	SUBTOTAL				**7,150**
	PROFESSIONAL SERVICES				
	Design Services (assumed as 10% of Civil Construction Costs) [PAID]	ls	1		0
	Traffic Analysis [PAID]	ls	1		0
	Construction Surveying	ls	1	7,500	7,500
	Construction Engineering Services	ls	1	5,000	5,000
	As-Built Engineering Services	ls	1	7,500	6,000
	SUBTOTAL				**18,500**
	TOTAL ESTIMATED COST	(rounded)			**313,000**
	CONTINGENCY	(10%)			**31,300**
	GRAND TOTAL ESTIMATED COST	(rounded)			**344,000**



VICINITY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN VICINITY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A6, KLUG RANCH 40104-B5 & TAMPA 40104-B4

BASIS of BEARING & BENCHMARK

BASIS OF BEARING: THE NORTH LINE OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., IN WELD COUNTY, COLORADO IS ASSUMED TO BEAR NORTH 89°53'18" EAST, AS MONUMENTED HEREON AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO;

HORIZONTAL COORDINATES ARE BASED UPON THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH ZONE (0501) AND HAVE BEEN MODIFIED TO GROUND BY A FACTOR OF 1.000271714 / 0.99972836.

ELEVATIONS SHOWN HEREON ARE BASED UPON STATIC GPS OBSERVATIONS POST PROCESSED THROUGH THE JAVAD DATA PROCESSING ONLINE SERVICE (OPUS) RESULTING IN CONTROL POINT NO. 1 HAVING AN ELEVATION OF 4893.43 FEET NAVD 88 (GEOID 12B).

ALL CONTOURS SHOWN HEREON ARE AT ONE FOOT INTERVALS WITH INDEX CONTOURS SHOWN AT FIVE FOOT INTERVALS

LEGAL DESCRIPTION

ANNEXATION TABLE TOTAL PERIMETER
3364.56 FEET REQUIRED 1/6 CONTIGUOUS
PERIMETER: 565.77 FEET CONTIGUOUS
BOUNDARY: 1078.05 FEET

ANNEXATION DESCRIPTION: LOT B OF RECORDED EXEMPTION NO. 1003-19-3 RE-4354, BEING A PART OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH PRINCIPAL MERIDIAN, AS RECORDED AS RECEPTION NO. 3373994, MARCH 28, 2006 IN THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER

OWNER'S CERTIFICATE: KNOW ALL MEN BY THESE PRESENTS, THAT RICHARD L. ROBERTSON, HEIDI D. ROBERTSON, AARON L. KAISER, AND LORI J. KAISER, BEING THE SOLE OWNERS AND PROPRIETORS OF THAT PARCEL OF LAND DESCRIBED HEREON, EXCLUDING PUBLIC RIGHTS-OF-WAY, REQUEST THAT THE LAND DESCRIBED HEREON BE ANNEXED UNDER THE NAME OF ROBERTSON-KAISER ANNEXATIONTO THE TOWN OF KEENESBURG;

0	1	COVER SHEET
0	1	GENERAL NOTES & SPECIFICATIONS
0	1	EXISTING CONDITIONS W/ AERIAL
0	1	EXISTING CONDITIONS & DEMO PLAN
0	1	SITE PLAN
0	1	UTILITY PLAN
0	1	WATER PLAN & PROFILE
0	1	HYDRANT PLAN & PROFILE
0	1	SEPTIC PLAN
0	1	ROUGH GRADING PLAN
0	1	FINAL GRADING PLAN
0	1	GRADING CROSS SECTIONS
	1	OVERFLOW GRADING DETAILS
	1	WCR 598 DITCH GRADING
0	1	RK DRIVE PLAN AND PROFILE
0	1	KEENESBURG WATER DETAILS
0	1	KEENESBURG WATER DETAILS
0	1	KEENESBURG WATER DETAILS
0	1	HISTORIC DRAINAGE
0	1	DEVELOPED DRAINAGE
0	1	POND "S" PLAN
	1	POND SPILLWAY DETAILS
0	1	INITIAL EROSION CONTROL PLAN
0	1	INTERIM EROSION CONTROL PLAN
0	1	FINAL EROSION CONTROL PLAN
0	1	SWMP/EROSION CONTROL DETAILS
0	1	SWMP/EROSION CONTROL DETAILS
0	1	SWMP/EROSION CONTROL DETAILS
0	1	SCREENING/LANDSCAPE PLAN
0	1	SCREENING/LANDSCAPE DETAILS
	1	PHOTOMETRIC PLAN
	1	PHOTOMETRIC DETAILS

RK PRELIMINARY PLAT

KEENESBURG, CO 80643

PREPARED FOR:

RICK ROBERTSON
8537 WCR 51
KEENESBURG, CO 80643
(303)961-0031

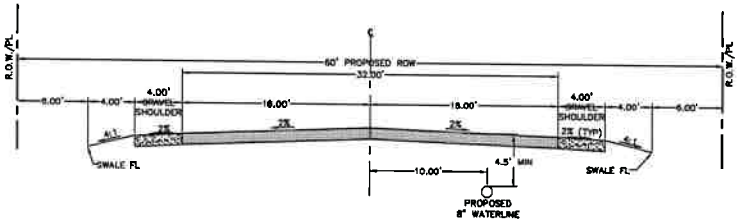
AARON KAISER
39673 E 160th AVENUE
KEENESBURG, CO 80643
(303)994-7947

APPROVED BY:

RICK ROBERTSON DATE AARON KAISER DATE

WESTERN ENGINEERING CONSULTANTS, Inc. LLC DATE
CHADWIN F. COX, P.E.

0	INITIAL RELEASE:	MARCH 19, 2019
1	RESUBMITTAL PER 05/02/19 TOWN COMMENTS	MAY 19, 2020



RK DRIVE DRIVE TYPICAL SECTION
SCALE 1" = 5' VIEW IS NORTH

UNCC CALL BEFORE YOU DIG
1-800-922-1987
Utility Notification Center of Colorado

OWNER/DEVELOPER	TOWN/CITY	FIRE DISTRICT	UTILITY
ROBERTSON KAISER LAND HOLDINGS LLC CONTACT: RICK ROBERTSON 39531 E. 160th AVENUE BENNETT, CO 80102 (303)961-0031	TOWN OF KEENESBURG CONTACT: TODD HODGES 140 S. MAIN STREET KEENESBURG, CO 80643 PHONE: (303)732-4281	SOUTHEAST WELD FIRE PROTECTION DISTRICT CONTACT: THOMAS BEACH 85 E. GANDY AVENUE KEENESBURG, CO 80643 PHONE: (303) 732-4203	UNITED POWER BRIGHTON HEADQUARTERS OFFICE 500 COOPERATIVE WAY BRIGHTON, CO 80603 (303)637-1300

PREPARED BY:

Western Engineering Consultants, Inc. LLC

WESTERN ENGINEERING CONSULTANTS, Inc. LLC
127 SOUTH DENVER AVENUE, FT. LUPTON, CO 80621
720-685-9951 PH, 720-294-1330 FAX, email@westerneci.com

PROJECT NO: 00-0187.002.00
INITIAL PLAN RELEASE: MARCH 19, 2019
TOTAL SHEETS: 32
SHEET: 1 of 27

NOT FOR TOWN REVIEW - FOR CONTRACT DOCUMENTS ONLY

SUPPLEMENTAL CONSTRUCTION NOTES
(TOWN of KEENESBURG NOTES & REQUIREMENTS SHALL GOVERN)

ALL REFERENCES HERE-IN THIS PLAN SET TO "CITY" or "TOWN" SHALL BE INTERPRETED AS MEANING KEENESBURG.

GENERAL CONSTRUCTION NOTES:

1. ALL WORK WITHIN THE PUBLIC RIGHT OF WAY, OR EASEMENT, SHALL CONFORM TO TOWN of KEENESBURG CONSTRUCTION SPECIFICATIONS AND DESIGN STANDARDS. IN THE CASE SUCH STANDARDS ARE NOT PROVIDED, CDOT STANDARDS SHALL APPLY.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS PRIOR TO COMMENCEMENT OF ANY WORK ON THE PROJECT.
3. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY THE OWNER AND THE CITY OF ANY PROBLEMS IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR DURING CONSTRUCTION ACTIVITIES TO RESOLVE CONSTRUCTION PROBLEMS DUE TO CHANGED CONDITIONS OR DESIGN ERRORS ENCOUNTERED BY THE CONTRACTOR DURING THE PROGRESS OF ANY PORTION OF THE PROJECT. IF, IN THE OPINION OF THE OWNER, THE MODIFICATIONS PROPOSED BY THE CONTRACTOR TO THE APPROVED PLANS INVOLVE SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK, OR TO THE FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESUBMITTING THE REVISED PLAN TO THE OWNER FOR APPROVAL PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE PROJECT. ANY IMPROVEMENTS NOT CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS, OR THE APPROVED REVISED PLANS, SHALL BE REMOVED AND RECONSTRUCTED ACCORDING TO THE APPROVED PLANS.
5. THE GRADING PLAN IS FOR ROUGH GRADING ONLY. CHANGES MAY BE NECESSARY TO BRING PLANS INTO CONFORMANCE WITH APPROVED FINAL DRAINAGE PLAN AND SITE PLAN.
6. A WATER TRUCK, IF CALLED BY THE INSPECTOR (OR PUBLIC WORKS DEPARTMENT (PWD)), WILL BE PROVIDED, BY THE CONTRACTOR, TO MAINTAIN DUST CONTROL.
7. ANY SETTLEMENT OR SOIL ACCUMULATION, BEYOND THE PROPERTY LIMITS, DUE TO GRADING OR EROSION, SHALL BE REPAIRED BY THE CONTRACTOR IMMEDIATELY.
8. NO GRADING SHALL TAKE PLACE IN DESIGNATED FLOOD HAZARD AREAS UNTIL THE FINAL DRAINAGE PLAN HAS BEEN APPROVED AND ALL APPROPRIATE PERMITS HAVE BEEN OBTAINED.
9. ANY CONSTRUCTION DEBRIS OR MUD TRACKING ONTO THE PUBLIC RIGHT-OF-WAY, RESULTING FROM THE PROJECT, SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL IMMEDIATELY FIX ANY EXCAVATION OR EXCESSIVE PAVEMENT FAILURE CAUSED BY PROJECT, AND SHALL PROPERLY BARRICADE THE SITE UNTIL CONSTRUCTION IS COMPLETE. FAILURE BY THE CONTRACTOR TO CORRECT ANY OF THE ABOVE WITHIN 48 HOURS OF WRITTEN NOTICE, BY THE TOWN, SHALL CAUSE THE TOWN TO ISSUE A STOP WORK ORDER (RED TAG) AND/OR DO THE WORK AND MAKE A CLAIM AGAINST THE PROJECT'S LETTER OF CREDIT FOR ANY COSTS INCURRED BY THE TOWN.
10. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS AT, AND ADJACENT TO, THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, DURING THE PERFORMANCE OF THE WORK. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY, AND SHALL NOT BE LIMITED TO, NORMAL WORKING HOURS. THE DUTY OF THE TOWN TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
12. ~~[illegible]~~
13. THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS PRIOR TO ADJUSTING ALL CLEANOUTS, MANHOLES, VALVE BOXES, SURVEY MONUMENTS, AND ANY OTHER FIXTURES TO FINISHED GRADE PRIOR TO FINAL PAVING.
14. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGPERSONS, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY, IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
15. THE CONTRACTOR SHALL PROVIDE INGRESS AND EGRESS TO PRIVATE PROPERTY ADJACENT TO THE PROJECT THROUGHOUT THE PERIOD OF CONSTRUCTION. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL OBTAIN A WRITTEN AGREEMENT FROM THE PROPERTY OWNERS IMPACTED BY THIS ACCESS. ~~[illegible]~~
16. PRIOR TO FINAL PLACEMENT OF SURFACE PAVEMENT, ALL UNDERGROUND UTILITY MAINS SHALL BE INSTALLED AND SERVICE CONNECTIONS STUBBED OUT BEYOND CURB LINE, WHEN ALLOWED BY THE UTILITY. SERVICE FROM PUBLIC UTILITIES AND FROM SANITARY SEWERS SHALL BE MADE AVAILABLE FOR EACH LOT IN SUCH A MANNER THAT WILL NOT BE NECESSARY TO DISTURB THE STREET PAVEMENT, CURB, GUTTER, AND SIDEWALK WHEN CONNECTIONS ARE MADE.
17. REPRODUCIBLE COPIES OF "AS BUILT" PLANS SHALL BE SUBMITTED TO THE TOWN PRIOR TO CONSTRUCTION ACCEPTANCE OF THE PUBLIC IMPROVEMENTS (IF ANY PUBLIC IMPROVEMENTS ARE NECESSARY).
18. THE CONTRACTOR SHALL NOTIFY THE TOWN INSPECTOR (OR PWD) AT LEAST 24 HOURS PRIOR TO DESIRED INSPECTION.
19. THE CONTRACTOR SHALL BE RESPONSIBLE TO APPROPRIATELY MARK (BY BAGGING) ALL FIRE HYDRANTS THAT ARE TAKEN OUT OF SERVICE DURING THIS PROJECT. THE CONTRACTOR SHALL NOTIFY THE TOWN FIRE DEPARTMENT AT LEAST 24 HOURS PRIOR TO REMOVING ANY FIRE HYDRANT FROM SERVICE.
20. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE TOWN of KEENESBURG AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.
21. THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE APPROVED PLANS, ONE (1) COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS, AND A COPY OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB, ONSITE AT ALL TIMES.
22. THERE SHALL BE NO SITE CONSTRUCTION ACTIVITIES ON SATURDAYS, UNLESS SPECIFICALLY APPROVED BY THE PUBLIC WORKS INSPECTOR, AND NO SITE CONSTRUCTION ACTIVITIES ON SUNDAYS OR HOLIDAYS, UNLESS THERE IS PRIOR WRITTEN APPROVAL BY THE PUBLIC WORKS DIRECTOR.

WESTERN ENGINEERING CONSULTANTS GENERAL CONSTRUCTION NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN DESIGN & CONSTRUCTION SPECIFICATIONS. IN THE CASE SUCH STANDARDS ARE NOT PROVIDED, A PROPER SPECIFICATION SHALL BE FOLLOWED AS AGREED BETWEEN THE OWNER, ENGINEER, AND CONTRACTOR.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE ELEVATION AND O.D. OF ALL EXISTING LINES AT THE POINT OF CONNECTION TO THE NEW SYSTEM PRIOR TO ORDERING MATERIALS THAT DEPEND ON THIS INFORMATION.
3. WESTERN ENGINEERING CONSULTANTS (WEC) IS NOT A GUARANTOR OF THE CONSTRUCTING CONTRACTORS OBLIGATION AND PERFORMANCE OF WORK.
4. WEC IS NOT RESPONSIBLE FOR SAFETY, IN, ON, OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATIONS THERETO.
5. WEC EXERCISES NO CONTROL OF THE SAFETY OR ADEQUACY OF ANY EQUIPMENT, BUILDING COMPONENTS, SCAFFOLDING, FORMS, OR OTHER WORK AIDS USED IN OR ABOUT THE PROJECT, OR IN THE SUPERVISION OF THE SAME.

ARCHITECTURAL INFORMATION:

1. ~~[illegible]~~
2. ~~[illegible]~~ REVISIONS DESCRIBED AND DATED ON INDIVIDUAL SHEETS IN THIS PLAN SET ARE ENGINEERING REVISIONS ONLY.

UTILITY LOCATION NOTES:

1. COLORADO STATE S.B. 93-153 REQUIRES ANYONE WHO ENGAGES IN ANY TYPE OF EXCAVATION TO PROVIDE ADVANCE NOTICE OF AT LEAST TWO (2) BUSINESS DAYS NOT INCLUDING THE DAY OF ACTUAL NOTICE.

UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) 1-800-922-1987

2. NEW UTILITIES MAY HAVE BEEN INSTALLED SINCE THE LOCATES FOR THIS PROJECT WERE COMPLETED (IF NOT SHOWN ON PLANS). IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ATTAIN NEW LOCATES AS STATED BY LAW.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND COORDINATE ADDITIONAL LOCATES IF THE STATE OR ANOTHER UTILITY ENTITY HAS UTILITIES IN THE AREA WHICH WERE NOT IDENTIFIED BY UNCC.

UTILITY POTHOLE & SURVEY NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO STARTING CONSTRUCTION. LOCATIONS WHERE EXISTING UTILITIES AND PROPOSED CONSTRUCTION CROSS OR POTENTIALLY CONFLICT SHALL BE POTHOLED BY THE CONTRACTOR, ELEVATIONS SURVEYED, AND RESULTS AND CONFLICTS PROVIDED TO WEC. WEC REQUIRES A MINIMUM OF 5 WORKING DAYS FOR REDESIGN OF ANY CONFLICTS DISCOVERED BY THE POTHOLE. SEE ALSO CONTRACTOR'S AS BUILT DRAWING NOTES.
2. THE CONTRACTOR SHALL PROVIDE DRAWINGS OF EXISTING ON-SITE UNDERGROUND UTILITIES AS EXPLAINED WITHIN THE CONTRACTOR'S AS BUILT DRAWING NOTES. THE CONTRACTOR IS REQUIRED TO PLAN AHEAD AND NOTIFY THE OWNER OF ANY CONFLICTS IN A TIMELY MANNER.

CONTRACTOR'S AS-BUILT DRAWINGS NOTES:

1. THE CONTRACTOR SHALL PROVIDE, AT THE COMPLETION OF THE PROJECT OR EACH PHASE OF THE PROJECT, A COMPLETE SET OF "AS BUILT" DRAWINGS TO THE OWNER. THE AS-BUILT DRAWINGS WILL CONSIST OF A MARKED UP SET OF "ISSUED FOR CONSTRUCTION" DRAWINGS VERIFYING THE FOLLOWING:
   - A) ALL LENGTHS, SIZES, AND MATERIALS OF INSTALLED PIPE, MANHOLES, AND ANY OTHER IMPROVEMENT.
   - B) HORIZONTAL LOCATIONS EITHER BY STATION AND OFFSET, OR BY NORTHING AND EASTING COORDINATES OF ALL MANHOLES, BENDS, CLEANOUTS, VALVES, TAPS, WYES, STUBS, PLUGS, TEES, etc.
   - C) INVERT ELEVATION OF EACH CONSTRUCTED PIPE AT STORM SEWER AND SANITARY SEWER MANHOLES, INLETS, OUTLETS, STUB ENDS, etc. TOP OF PIPE ELEVATIONS OF EACH FORE OR PIPE OR UTILITY CROSSING.
   - D) CONSTRUCTED SLOPE OF STORM AND SANITARY PIPES BETWEEN MANHOLES AND STRUCTURES.
   - E) TOP OF PIPE ELEVATION AT REGULAR INTERVALS AND/OR FITTINGS FOR WATER LINES, FIRE PROTECTION LINES, GAS LINES, AND ELECTRIC CONDUITS.
   - F) ELEVATIONS AT FLOWLINE OF CURB AND GUTTER AT DESIGN LOCATIONS AND GRADE BREAKS, ELEVATION OF INLET AND TRENCH DRAIN GRATES. TOP OF CURB AT CURB INLETS.
   - G) ANY OTHER VARIATIONS FROM THE CONSTRUCTION DOCUMENTS MUST BE CLEARLY NOTED AND DETAILED ON THE PLANS.
2. THE CONTRACTOR SHALL VERIFY AND SUBMIT, FOR APPROVAL BY THE OWNER, THE GROUND SURFACE ELEVATIONS AT THE FINAL COMPLETION OF THE PROJECT PRIOR TO THE FINAL ACCEPTANCE.
3. THE FINAL AS-BUILT DRAWING CERTIFICATE SHALL BE SIGNED ON EACH SHEET BY THE CONTRACTOR RESPONSIBLE FOR THE WORK.
4. CONTRACTOR AS BUILT DRAWINGS WILL BE DUE PRIOR TO SUBMITTING THE FINAL PAY REQUEST. NON-CONFORMING AS-BUILT DRAWINGS WILL BE RETURNED TO THE CONTRACTOR FOR REVISIONS AND RESUBMITTAL. FINAL PAYMENT WILL NOT BE APPROVED UNTIL THE OWNER HAS REVIEWED AND APPROVED THE AS BUILT DRAWINGS.
5. ALL AS BUILT SURVEYING SHALL MEET COLORADO STANDARD OF CARE (I.E. HORIZONTAL WITHIN 0.10 FEET AND VERTICAL WITHIN 0.05 FEET). IT IS RECOMMENDED ALL GRAVITY SYSTEMS be DIFFERENTIAL SURVEYED TO MAINTAIN ACCEPTABLE TOLERANCES.

GEOTECHNICAL NOTES:

1. FOR ALL GEOTECHNICAL RELATED ISSUES (PIPE BEDDING, BACKFILL, IMPORTING FILLS, ASPHALT, ETC). REFERENCE THE LOT 1, 2, 3, 4, AND 7 SUBSURFACE INVESTIGATION AND FOUNDATION RECOMMENDATIONS PREPARED BY HIGH PLAINS ENGINEERING AND DESIGN, LLC DATED JANUARY 27 2020 AND FEBRUARY 13, 2020. ALSO SEE TOWN DESIGN & CONSTRUCTION STANDARDS & SPECIFICATIONS.

GEOTECHNICAL TESTING:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL TESTING IN ORDER TO MEET ADJACENT PROPERTY OWNER REQUIREMENTS AND TOWN DESIGN STANDARDS.
2. THE OWNER SHALL PAY FOR TESTING TO MEET THE MINIMUM REQUIRED BY TOWN STANDARDS.
3. ALL COSTS FOR FAILING TESTS WILL BE DEDUCTED FROM THE CONTRACTOR'S PAYMENT REQUEST(S).

CONSTRUCTION WORK LIMITS:

1. NO CONSTRUCTION ACTIVITIES SHALL TAKE PLACE OUTSIDE OF THE SHOWN WORK LIMITS, EXCEPT FOR ACCESS WITHIN EXISTING ACCESS ROUTES.
2. ALL EXISTING FENCE WITHIN THE CONSTRUCTION WORK LIMITS SHALL BE REMOVED, SALVAGED, AND REPLACED AS DIRECTED BY THE OWNER.
3. ANY FENCE DAMAGED DURING REMOVAL SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

BASIS of BEARING & BENCHMARK:

BASIS OF BEARING: THE NORTH LINE OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., IN WELD COUNTY, COLORADO IS ASSUMED TO BEAR NORTH 89°32'18" EAST, AS MONUMENTED HEREON AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO.

BENCH-MARK: ELEVATIONS SHOWN HEREON ARE BASED UPON STATIC GPS OBSERVATIONS POST PROCESSED THROUGH THE JAVAD DATA PROCESSING ONLINE SERVICE (DPOS) RESULTING IN CONTROL POINT NO. 1 HAVING AN ELEVATION OF 4893.43 FEET NAVD 88 (GEOID 12B).

SURVEY CONSTRUCTION NOTES:

1. PROJECT HORIZONTAL & VERTICAL CONTROL AND CONTROL NOTES ARE SHOWN ON THE HORIZONTAL BASELINE CONTROL SHEET OF THIS PLAN SET.
2. ALL PROPERTY PINS OR SURVEY MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY A LICENSED SURVEYOR AT THE CONTRACTOR'S EXPENSE. THIS SHALL INCLUDE A SURVEY PLAT IF REQUIRED BY LAW.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIND AND IDENTIFY ALL EXISTING SURVEY MONUMENTS WHICH MAY BE DISTURBED DURING CONSTRUCTION.
4. EXISTING HORIZONTAL AND VERTICAL CONTROL SHALL BE VERIFIED BY A PROFESSIONAL LAND SURVEYOR. THE CONTRACTOR'S SURVEYOR SHALL PROVIDE WRITTEN CONFIRMATION VERIFYING THE CONTROL IS SATISFACTORY PRIOR TO BEGINNING OF CONSTRUCTION.
5. ALL CONSTRUCTION SURVEYING SHALL MEET COLORADO STANDARD OF CARE.
6. THE CONTRACTOR SHALL FIELD SURVEY THE EXISTING GROUND SURFACE ALONG THE PROPOSED ALIGNMENT, COMPARE THE SURFACE TO THE TOPOGRAPHY AS SHOWN ON THESE PLANS AND SUBMIT IN WRITING ANY CONCLUSIONS & DISCREPANCIES BETWEEN THE SURVEYS.
7. ALL FIELD STAKING SHALL BE PERFORMED AND LABELED MATCHING THE STATIONING AND OFFSET BASELINE AS SHOWN IN THIS PLAN SET. ARBITRARY BASELINE OR STATIONING (NOT MATCHING THESE DESIGN PLANS) WILL NOT BE ALLOWED.
8. CUT SHEETS ARE REQUIRED TO BE COPIED TO THE SPECIFIC IMPROVEMENT CONTRACTOR, OWNER AND WEC WITHIN 2 DAYS OF CONSTRUCTION STAKING.
9. ANY MONUMENTS INSTALLED FOR THIS PROJECT (NEW & REVISED) SHALL BE PER CDOT DETAIL (M-629-1).

EXISTING TOPOGRAPHY and CONTOURS:

1. ALL PROFILES (THIS PLAN SET) REPRESENT A DIGITAL TERRAIN MODEL (DTM) CREATED BY WEC BASED ON FIELD SURVEY PROVIDED BY OTHERS.
2. CONTOUR LINES OF EXISTING/ORIGINAL GRADE HAVE A 2 FOOT INTERVAL ACCURACY AND ARE SHOWN FOR ILLUSTRATION ONLY.

GRADING AND COMPACTION NOTES:

1. REFERENCE THE "GEOTECHNICAL SUBSURFACE EXPLORATION REPORT" PREPARED BY SOILOGIC, LLC DATED JANUARY 14, 2014.
2. ALL EXCESS SOIL MATERIALS ARE TO BE STOCKPILED AS DIRECTED BY THE OWNER or REMOVED AT THE CONTRACTOR'S EXPENSE. ALL CONCRETE, ASPHALT, AND OTHER REMOVED IMPROVEMENTS SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
3. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION AS A MINIMUM, UNLESS OTHERWISE NOTED.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL GRADEWORK TO ENSURE POSITIVE DRAINAGE AT ALL TIMES (MATCH ORIGINAL CONDITIONS).
5. ALL BACKFILL SHALL MEET THE TYPICAL TRENCH DETAIL SPECIFICATIONS SHOWN IN THIS PLAN SET, AND PER TOWN CRITERIA.
6. ALL OTHER SOIL PLACEMENT OVER 12-INCHES IN THICKNESS SHALL ALSO MEET THE TYPICAL TRENCH DETAIL COMPACTION SPECIFICATIONS SHOWN IN THIS PLAN SET.
7. STRIP THE TOP 6-INCHES OF ALL AREAS TO BE DISTURBED DURING CONSTRUCTION AND STOCKPILE SEPARATE FROM TRENCH SPOILS IN LOCATION(S) AS APPROVED BY PROPERTY OWNER. REPLACE STRIPPINGS ABOVE COMPLETED PIPELINES MATCHING PRE CONSTRUCTION GRADES WHERE NO PROPOSED GRADING IS SHOWN.
8. THE CONTRACTOR SHALL MEET THE PROJECT SPECIFICATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT AND COORDINATE SCHEDULING THE GEOTECHNICAL TESTING FIRM IN ORDER TO MEET THE PROJECT SPECIFICATIONS AND STANDARDS.
9. FOR GRADING NOT SHOWN HERE IN THESE PLANS, REFER TO LANDSCAPE GRADING BY OTHERS. LANDSCAPE FINAL GRADING TO BE PROVIDED BY OTHERS.
10. ROUGH GRADING VERTICAL TOLERANCES ARE ± 0.10 FT.
11. COMPACTION OF ALL HYDRANT RUN BACKFILL SHALL MEET 100% OF MAXIMUM DENSITY AND WITHIN 3% ± OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY STANDARD PROCTOR ASTM-D-698.
12. CONTRACTOR TO PROVIDE TRAFFIC CONTROL MEASURES AS REQUIRED BY TOWN STANDARDS FOR PUBLIC RIGHT OF WAY.
13. IF NECESSARY TO ACCESS OVER EXISTING IMPROVEMENTS (IE. EXISTING ROADS, SHALLOWS, UTILITIES ETC.) THE CONTRACTOR SHALL COORDINATE WITH THE GEOTECHNICAL CONSULTANT REGARDING PROTECTION AGAINST CONSTRUCTION TRAFFIC LOADS.

EROSION CONTROL & STORM WATER MANAGEMENT PLAN:

1. ALL EROSION CONTROL MEASURES MUST BE INSTALLED PER URBAN DRAINAGE FLOOD CONTROL DISTRICT (UDFCD) REQUIREMENTS (UNLESS OTHERWISE SHOWN HEREIN), AND ALSO STATE SWMP PERMIT REQUIREMENTS.
2. ALL DISTURBED AREAS (i.e. CONSTRUCTION WORK LIMITS) SHALL BE ENCLOSED BY SILT FENCE IF POTENTIAL FOR RUNOFF EXISTS.
3. INSTALL VEHICLE TRACKING CONTROL AT ALL ACCESS ROAD LOCATIONS ADJACENT TO ALL ENTRANCES / EXITS TO & FROM THE SITE.
4. SEE EROSION PROTECTION DETAILS AS SHOWN ON DRAWINGS.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN (IE, SEASONAL SEEDING, MATERIALS, ETC.) ANY AND ALL EROSION PROTECTION NECESSARY UNTIL FINAL ACCEPTANCE OR ONCE SEEDING IS ESTABLISHED, WHICHEVER COMES FIRST.
6. THE CONTRACTOR SHALL PROVIDE SWEEPING AS NECESSARY TO KEEP PRIVATE AND PUBLIC ROADWAYS CLEAN OF DEBRIS.

SEEDING:

1. ALL SEEDING SHALL BE PER TOWN PARKS & RECREATION DESIGN STANDARDS AND AS ACCEPTABLE TO THE PROPERTY OWNER.

ADJACENT DITCH or LATERAL WORK:

1. NO WORK SHALL COMMENCE WITHIN 15-FEET OF ANY DITCH or LATERAL TOP OF BANK EXCEPT AT THOSE CROSSING LOCATIONS AS NOTED ON THE PLANS UNLESS OTHERWISE APPROVED BY THE OWNER AND APPROPRIATE DITCH COMPANY.
2. ALL WORK WITHIN 15 FEET OF ANY DITCH OR LATERAL TOP OF BANK SHALL MEET ALL REQUIREMENTS AND SPECIFICATIONS PER THE DITCH CROSSING PERMIT.
3. CONTACT OWNER/WEC FOR ANY DITCH RELATED ISSUES.

ELECTRIC and COMMUNICATION CONDUIT CONSTRUCTION NOTES:

1. SEE ALSO ELECTRICAL PLANS FOR ELECTRIC AND COMMUNICATION DESIGN AND SPECIFICATIONS - BY OTHERS.

RELOCATION OF EXISTING LIGHT POLES AND EQUIPMENT:

1. SEE ALSO ELECTRICAL PLANS FOR REMOVAL, SALVAGE, AND RE-INSTALLATION OF EXISTING LIGHT POLES AND EXISTING SECURITY IMPROVEMENTS - BY OTHERS.

RAW WATERLINE CONSTRUCTION NOTES:

1. ~~[illegible]~~
2. ~~[illegible]~~
3. ~~[illegible]~~
4. ~~[illegible]~~
5. ~~[illegible]~~

STORM SEWER CONSTRUCTION NOTES:

1. ALL STORM SEWER PIPE TO BE A.S.T.M. C-76, CLASS III REINFORCED CONCRETE PIPE WITH RUBBER GASKETS MEETING AASHTO M-198 REQUIREMENTS, UNLESS OTHERWISE NOTED.
2. STORM SEWER MANHOLES SHALL BE 4 FEET DIAMETER FOR 30 INCH PIPE OR LESS, 5 FEET DIAMETER FOR 36 INCH PIPE. FOR SIZES ABOVE 36 INCH, CONCRETE JUNCTION BOXES, OR PRECAST MANHOLE TEES, WILL BE DETAILED BY THE ENGINEER.
3. ALL ROADWAY STORM SEWER INLETS ARE CDOT TYPE R CURB INLETS, UNLESS OTHERWISE NOTED. THE PROPOSED POND STORM SEWER OUTLET IS CDOT TYPE C.
4. ALL STORM SEWER MANHOLE AND INLET LIDS SHALL BE LABELED PER TOWN STANDARDS ~~[illegible]~~
5. MANHOLE AND INLET LID LOCATION TO BE COORDINATED WITH TOWN INSPECTOR.
6. A MINIMUM OF 2.0 FEET OF COVER OVER THE TOP OF THE STORM SEWER LINES SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.
7. A MINIMUM VERTICAL SEPARATION OF 18" SHALL BE MAINTAINED AT ALL CROSSINGS UNLESS OTHERWISE NOTED.
8. ALL LENGTHS OF STORM SEWER LINES SHOWN ON THE PLANS ARE MEASURED HORIZONTALLY FROM CENTER TO CENTER OF ALL STRUCTURES, MANHOLES, BENDS, TEES, AND INLETS UNLESS OTHERWISE NOTED.
9. STORM SEWER SHALL BE AIR TESTED AT 4 PSIG. CONCRETE MANHOLES SHALL BE TESTED PER MANHOLE LEAKAGE TEST.
10. ALL STORM SEWER PIPE SHALL BE LEFT SMOOTH, CLEAN, AND FREE OF OBSTRUCTIONS THROUGHOUT THE ENTIRE ALIGNMENT.
11. PIPE, BENDS, TEES, AND ALL ACCESSORIES ARE TO BE SUPPLIED BY THE SAME SUPPLIER.
12. EXCAVATION SHALL BE DEWATERED AS NECESSARY TO EXCAVATE AND PLACE PIPE WITHIN DRY TRENCH.
13. ALL INSTALLED STORM PIPING IS REQUIRED TO BE WATER JETTED CLEAN TWO WEEKS PRIOR TO THE FINAL ACCEPTANCE WALK THRU.
14. ALL STORM PIPING THIS PROJECT "PRIVATE" UNLESS OTHERWISE NOTED.

STORM DRAINAGE MAINTENANCE:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM EROSION AND SEDIMENT CONTROL MEASURES (INCLUDING PLANTINGS) AND TO MAINTAIN CONSTRUCTED DRAINAGE FACILITIES THROUGH THE CONSTRUCTION PROCESS IN A MANNER THAT PRESERVES THE INTENDED FUNCTION AND LIFE OF THE FACILITIES.

SANITARY SEWER CONSTRUCTION NOTES:

1. SEWER PIPE SHALL BE RIGID POLYVINYL CHLORIDE (PVC) ASTM D3034 (≤ 15") OR ASTM 679 (≥ 15") WITH WALL THICKNESS SDR 35 (SDR 26 FOR DEPTHS ≥ 20').
2. ALL LENGTHS OF SEWER LINE SHOWN ON THE MASTER UTILITY PLAN ARE FROM THE CENTER OF MANHOLE TO THE CENTER OF MANHOLE.
3. THE CONTRACTOR SHALL INSTALL TEMPORARY PLUGS IN THE MANHOLES AT THE POINTS OF CONNECTION TO THE EXISTING SEWER SYSTEMS. PLUGS SHALL REMAIN IN PLACE UNTIL CONSTRUCTION ACCEPTANCE IS ISSUED, AT WHICH TIME THEY SHALL BE REMOVED BY THE CONTRACTOR.
4. INSTALL MARKER POSTS IN LANDSCAPE AREAS OR PERMANENT SURVEY MONUMENTS IN EXISTING PAVED SURFACES WITHIN 2.0 FEET OF EVERY MANHOLE and STUB LOCATION (ALONG THE PIPE CENTERLINE NOT OFFSET).

STREET CONSTRUCTION NOTES:

1. ALL STREET IMPROVEMENTS TO BE COMPLETED PER CDOT CONSTRUCTION STANDARDS & SPECIFICATIONS.
2. HANDICAP RAMPS ARE TO BE FORMED AT ALL INTERSECTIONS.

ASPHALT NOTES:

1. FULL ASPHALT DESIGN SECTION TO BE PER GEOTECHNICAL REPORT AND CITY STANDARDS (& DETAILS). SEE GEOTECHNICAL NOTES AND TYPICAL ASPHALT AND CONCRETE TRENCH PATCH DETAILS.
2. STANDARD ASPHALT INSTALLATIONS MUST FOLLOW TOWN STANDARDS.

STRIPING NOTES:

1. ALL STANDARD PARKING STALL STRIPING DIMENSIONS ARE 9.0 FEET WIDE BY 18.0 FEET LONG UNLESS OTHERWISE NOTED.
2. ALL STRIPING THIS PROJECT TO BE WHITE UNLESS OTHERWISE NOTED.
3. ALL HANDICAP STALLS TO BE SIGNED & STRIPED FOR ADA SPECIFICATIONS, USE BLUE & WHITE SYMBOLOGY. VAN DENOTES VAN ACCESSIBLE STALLS, STD DENOTES STANDARD ACCESSIBLE STALLS.
4. STRIPING MATERIAL TO BE EPOXY FOR LONG LINES AND PRE-FORMED THERMO PLASTIC FOR ARROW LEGENDS.
5. ALL STRIPING SHALL COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
6. REMOVAL OF EXISTING STRIPING WHICH CONFLICTS WITH THE NEW STRIPING DESIGN WILL BE REQUIRED. PAVEMENT MARKING REMOVAL AND INSTALLATION WILL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR.
7. LAYOUT OF STRIPING IN THE FIELD WILL REQUIRE APPROVAL BY THE TOWN of KEENESBURG PRIOR TO APPLICATION OF FINAL STRIPING.

FIRELINE and WATERLINE CONSTRUCTION NOTES:

1. A MINIMUM OF 4.5 FEET OF COVER OVER THE TOP OF THE WATER LINES IS TO BE MAINTAINED. (5'-0" MINIMUM OF COVER FOR FIRE PROTECTION LINES.)
2. A MINIMUM VERTICAL SEPARATION OF 18" SHALL BE MAINTAINED AT ALL CROSSINGS, UNLESS OTHERWISE NOTED.
3. ALL LENGTHS OF WATER LINE AND FIRE PROTECTION LINES SHOWN ON THE PLANS ARE MEASURED HORIZONTALLY FROM CENTER TO CENTER OF ALL VALVES, FITTINGS, BENDS, TEES, ETC. VERTICAL RISERS ARE MEASURED VERTICALLY.
4. P.V.C. FIRE PROTECTION LINES TO BE AWWA C-900, CLASS 200. D.I.P. FIRE PROTECTION LINES and FITTINGS to BE PRESSURE CLASS 350 and COMPLY WITH AWWA C-110. ALL PIPELINE APPURTENANCES SHALL BE OF SIMILAR METALS (NO DISSIMILAR METALS).
5. TAPPING SADDLES TO BE USED ONLY FOR TEMPORARY BLOW OFFS.
   - A) ALL TEMPORARY BLOW OFF TAPPING SADDLES SHALL BE BRASS.
   - B) ALL TEES SHALL BE SWIVEL TEES.
6. FIRE PROTECTION AND WATER LINES SHALL BE HYDROSTATICALLY TESTED AT 150 psi FOR 2 HOURS.
7. ALL WATER LINES, INCLUDING FIRE LINES, ARE TO BE DISINFECTED AND PRESSURE TESTED PER TOWN STANDARDS.
8. TEMPORARY TAP(S) SHALL BE INSTALLED AS REQUIRED TO FLUSH AND TEST THE LINE. THE TAPPING SADDLE SHALL BE PLUGGED WITH A BRASS PLUG UPON COMPLETION.
9. THE TOWN WATER DEPARTMENT INSPECTOR SHALL BE NOTIFIED PRIOR TO BACK FILLING AND TESTING (DISINFECTION AND HYDROSTATIC).
10. PIPE, FITTINGS, BOLTS, WASHERS, NUTS AND ALL ACCESSORIES ARE TO BE SUPPLIED BY THE SAME MANUFACTURER.
11. EXCAVATION SHALL BE DEWATERED AS NECESSARY TO EXCAVATE AND PLACE PIPE WITHIN DRY TRENCH.
12. ~~[illegible]~~
13. INSTALL MARKER POSTS IN LANDSCAPE AREAS OR PERMANENT SURVEY MONUMENT IN EXISTING PAVED SURFACES ABOVE ALL HORIZONTAL BENDS AND STUB LOCATIONS.
14. ALL NEW HYDRANTS SHALL BE MUELLER.

FIRELINE and WATERLINE RESTRAINT NOTES:

1. BOTH THRUST BLOCKS AND MEGALUG RESTRAINTS (ALL JOINTS AND FITTINGS) ARE REQUIRED WITHIN RESTRAINT ZONES. NEW PIPING AND FITTINGS SHALL BE CONTINUOUSLY CONNECTED WITH MEGALUGS. ALL THRUST RESTRAINT CONCRETE SHALL BE 28 DAY COMPRESSIVE STRENGTH ≥ 3,500 p.s.i.
2. ALL MECHANICAL JOINTS SHALL BE RESTRAINED USING MEGALUG SERIES 2000 PV (NEW JOINTS) OR 2000 SV (SPLIT VERSION) FOR EXISTING JOINTS (TIE INTO EXISTING SYSTEM) OR UNI-FLANGE SERIES UFR 1500 C OR APPROVED EQUAL.
3. ALL PUSH-ON JOINTS SHALL BE RESTRAINED USING MEGALUG SERIES 1600 OR UNI-FLANGE SERIES 1390-C OR APPROVED EQUAL WITHIN RESTRAINT ZONES.
4. CONNECTION TO AN EXISTING SYSTEM WITH A NEW GATE VALVE SHALL BE RESTRAINED ON EACH SIDE.
5. ANY EXISTING UNRESTRAINED FIRE LINE JOINTS FITTINGS EXPOSED DURING CONSTRUCTION SHALL BE RESTRAINED USING THE APPROPRIATE MEGALUG SERIES.
6. TO INSTALL MEGALUG TO EXISTING MECHANICAL JOINT FITTINGS AND VALVES, REMOVE BOLTS AND SLIDE EXISTING RETAINER GLAND AWAY FROM FITTING, INSTALL MEGALUG SERIES 2000 PER MANUFACTURER'S SPECIFICATIONS. DO NOT ATTEMPT TO REMOVE THE EXISTING FOLLOWER GLAND.
7. EXISTING THRUST BLOCKS THAT ARE DISTURBED DURING THE CONSTRUCTION OF THE NEW FIRE PROTECTION LINE SHALL BE REINSTALLED (USING FORMS IF NECESSARY TO CREATE BLOCKING THAT WILL BEAR ON UNDISTURBED SOIL).

SUPPLEMENTAL SPECIAL CONDITIONS:

1. ALL POINTS OF CONNECTION TO ANY EXISTING PIPE AND ALL EXISTING UTILITY CROSSINGS SHALL BE POTHOLED AND THE LOCATION, ELEVATION, PIPE MATERIAL, PIPE DIAMETER, AND ANY OTHER EXISTING INFORMATION SHALL BE NOTED AND FORWARDED TO WEC PRIOR TO ORDERING MATERIALS WHICH DEPEND ON THIS INFORMATION. ALL POTHOLE LOCATIONS ARE SHOWN ON THE PLANS.
2. FOLLOWING SUCCESSFUL PRESSURE TESTING, ALL NEWLY PLACED PIPE SHALL BE LOCATED USING THE TRACING WIRE AND SURVEYED BY THE CONTRACTOR AS ADDITIONAL AS BUILT INFORMATION.
3. WEEKLY PROGRESS MEETINGS WILL BE HELD. PROJECT ENGINEER, CONTRACTOR SUPERINTENDENT (SITE SUPERINTENDENT), SUBCONTRACTORS AND OWNER SHALL ATTEND.
4. ALL ADJACENT PROPERTY OWNER RELATIONS & CORRESPONDENCE MUST BE ROUTED THROUGH AND APPROVED BY THE OWNER.
5. ALL PROPOSED PIPE INSTALLATION SHALL BE WITH FULL LENGTHS OF PIPE. NO SHORT OR CUT PIPE SHALL BE INSTALLED UNLESS OTHERWISE APPROVED AND SHOWN ON THE PLANS (I.E. CLOSURE PIECES, FABRICATED BEND LOCATIONS AND AT MANHOLES).

PERMITS

PERMITS	OBTAINED BY
BUILDING PERMIT	OWNER/SUBCONTRACTOR
STATE STORMWATER MANAGEMENT PLAN PERMIT or WAIVER	OWNER/WEC/CONTRACTOR
STATE GROUNDWATER DISCHARGE PERMIT	CONTRACTOR
~~[illegible]~~	~~[illegible]~~
TOWN OF KEENESBURG GRADING PERMIT	OWNER or CONTRACTOR

REQUIRED SUBMITTALS:

1. ALL CATALOG CUT SHEETS FOR ALL IMPROVEMENTS, GRADATIONS, MIX DESIGNS, PROCTOR TESTS, TACK COATS, ETC. ARE REQUIRED SUBMITTALS AND MUST BE APPROVED BY ENGINEER AND SUBMITTED TO THE TOWN.
2. ALL PROPOSED IMPROVEMENT MATERIALS AS APPROVED BY THE ENGINEER SHALL BE SUBMITTED TO THE TOWN. (MATERIAL SPECIFICATIONS AND PRODUCT DATA SHEETS ONLY).

PROJECT CLOSE OUT:

1. IT IS THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR TO PERFORM EROSION CONTROL MEASURES (INCLUDING PLANTINGS) AND TO MAINTAIN CONSTRUCTION FACILITIES THROUGH THE CONSTRUCTION PROCESS IN A MANNER THAT PRESERVES THE INTENDED FUNCTION AND LIFE OF THE FACILITIES.
2. IT IS THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR TO OBTAIN FINAL ACCEPTANCE FROM THE TOWN AT THE WHICH THE 1-YEAR WARRANTY PERIOD REGARDING ANY PUBLIC IMPROVEMENTS AND RELATED CONSTRUCTION WILL BEGIN.

ADA NOTES:

ALL HANDICAP PARKING STALLS, RAMPS, AND ROUTES SHALL MEET CURRENT ADA STANDARDS.

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Western Engineering Consultants, Inc LLC

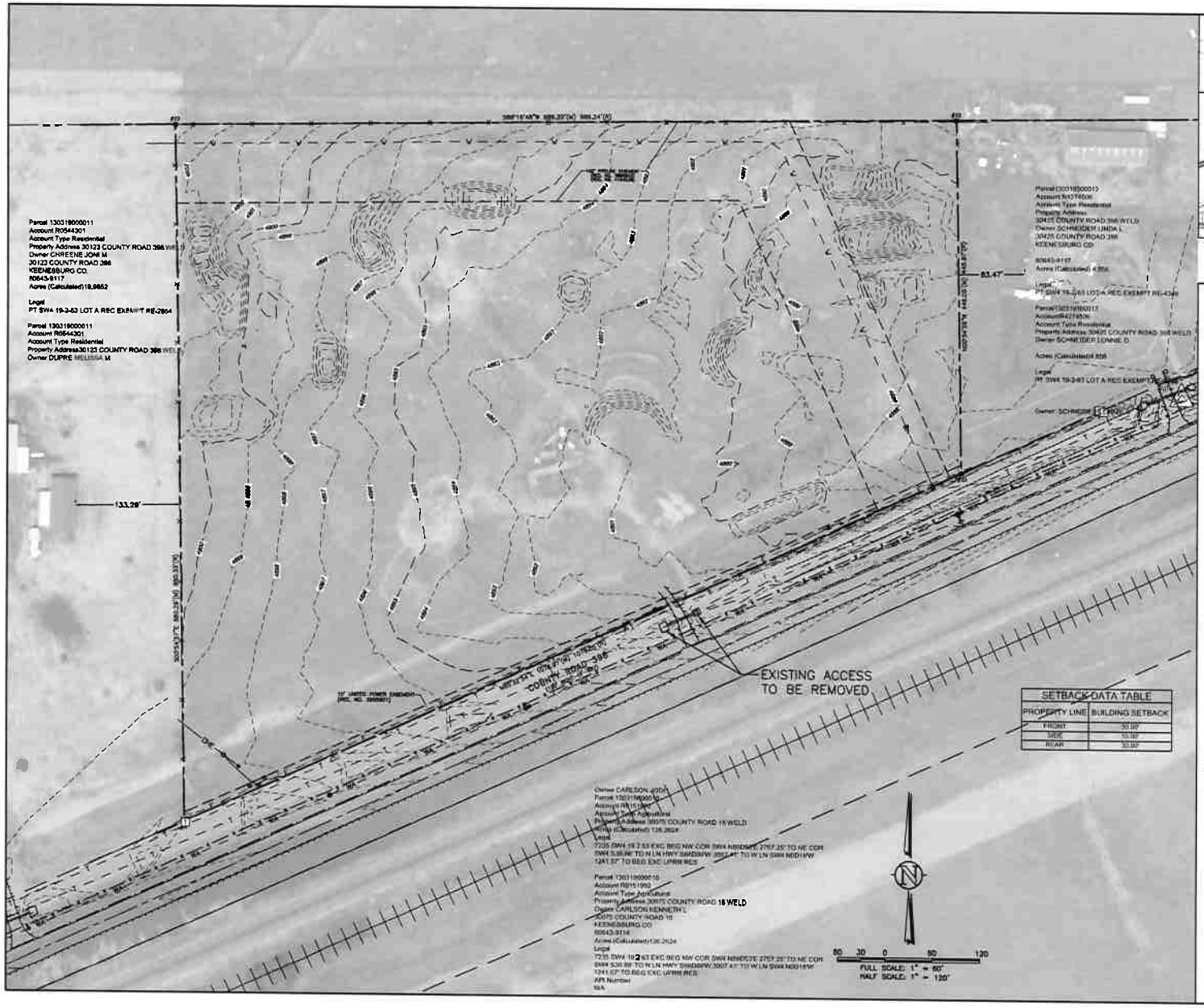
ROBERTSON-KAISER
SUBDIVISION
CONTACT: RICK ROBERTSON
50531 E 160th AVENUE
BENNETT, CO 80102
(303)961-0031

GENERAL NOTES & SPECIFICATIONS
ROBERTSON -KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

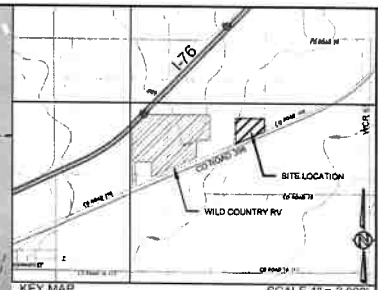
Dig Safely.
CALL UNCC
1-800-922-1987
UTILITY NOTIFICATION CENTER OF COLORADO

FOR REVIEW

INITIAL PLAN RELEASE: 03/18/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0002-NOTES
SHEET 2 OF 27



SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'



KEY MAP — SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE EX CONDITIONS PLAN FOR RK SUBDIVISION

ALL IMPROVEMENTS ARE EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "ROBERTSON-LOWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY DUNKER ENGINEERING CONSULTING, INC.

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NOT ALL UNCC UTILITY LOCATES HAVE BEEN PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES ARE LOCATED AND SURVEY PROVIDED TO THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION DRAWING RELEASE.

SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WS W/S
SWALE
OHE — OHE — EXISTING OVERHEAD ELEC
E — EXISTING ELECTRICAL LINE
EXISTING STORM LINE
S — EXISTING SANITARY LINE
W — EXISTING WATER LINE
G — EXISTING GAS LINE
FIBER — FIBER — EXISTING FIBER OPTIC LINE
T — EXISTING TELEPHONE LINE
SA — SA — PROPOSED SANITARY LINE
SS — SS — PROPOSED SANITARY SERVICE
STM — STM — PROPOSED STORM LINE
WA — WA — PROPOSED WATER LINE
WAS — WAS — PROPOSED WATER SERVICE
GA — GA — PROPOSED GAS LINE
EL — EL — PROPOSED ELECTRIC LINE
PH — PH — PROPOSED TELEPHONE LINE

127 S. DENVER AVENUE
FT. LUPTON, CO 80621
www.westernengineers.com
(720) 985-9951
FAX (720) 294-1330
Western Engineering Consultants, Inc LLC

REVISIONS	
DATE	DESCRIPTION

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
30975 E. 18 WELD COUNTY RD
BENNETT, CO 80102
(303)961-0031

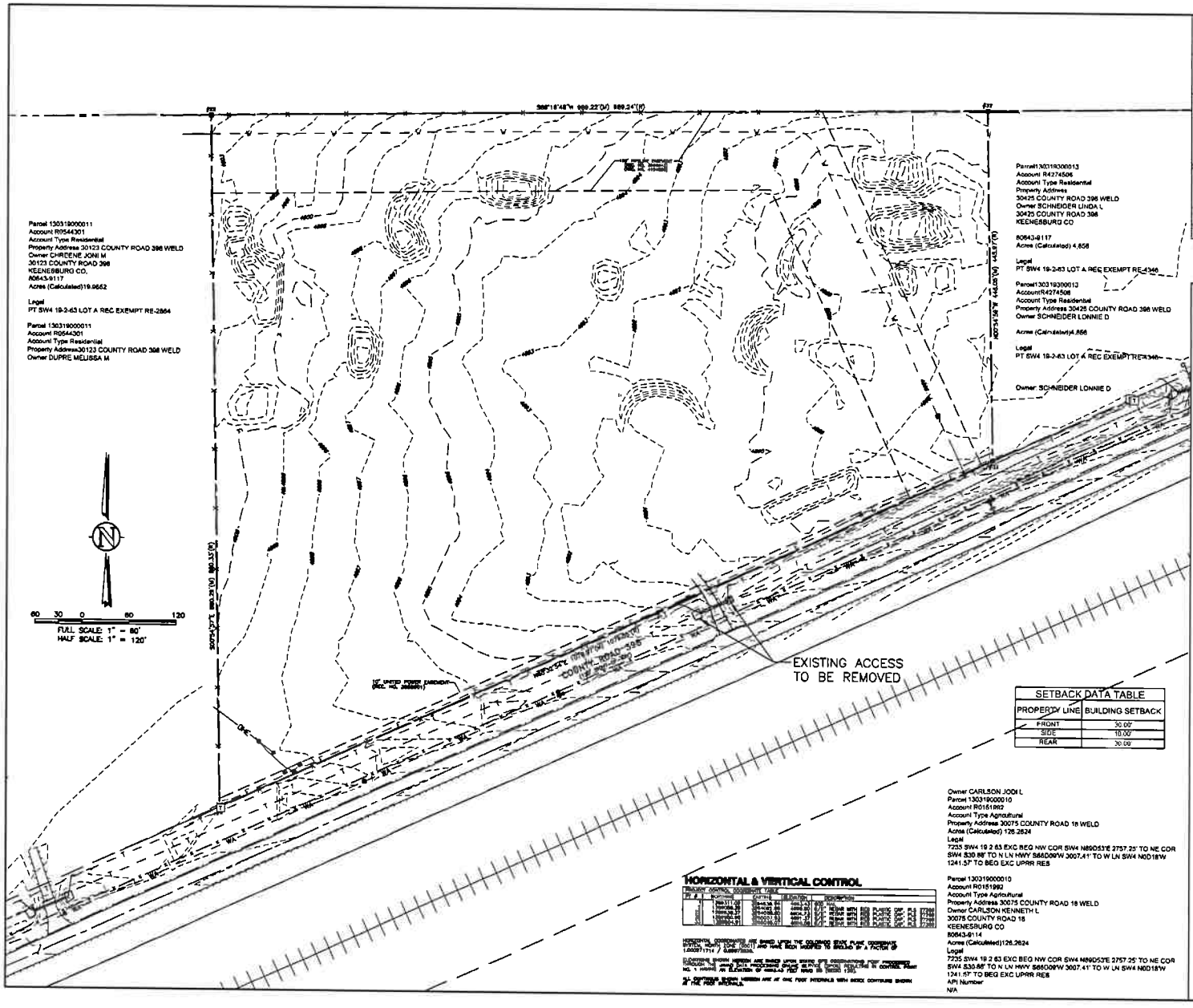
EXISTING CONDITION & DEMO PLAN
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely.
CALL UNCC
1-800-922-1987

FOR REVIEW

INITIAL PLAN RELEASE: 02/28/19
DESIGNED BY: CTC
DRAWN BY: CTC
CHECKED BY: CTC
PROJECT NO. 01-0187.002.00
DOC. CON. # 0003-EXAR
SHEET SAE OF 27



SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'

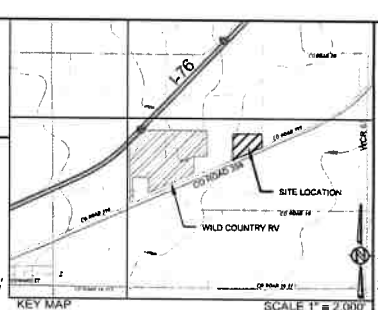
HORIZONTAL & VERTICAL CONTROL

BENCHMARK CONTROL COORDINATE TABLE					
PT #	N-COORD	EASTING	ELEVATION	DESCRIPTION	
1	N99111.00	E4436.34	4660.13	BRASS CAP	
2	N99096.35	E4433.82	4660.00	5/8" REBAR WITH	YELLOW PLASTIC CAP
3	N99096.35	E4433.82	4660.13	5/8" REBAR WITH	YELLOW PLASTIC CAP
4	N99096.35	E4433.82	4660.13	5/8" REBAR WITH	YELLOW PLASTIC CAP
5	N99096.35	E4433.82	4660.13	5/8" REBAR WITH	YELLOW PLASTIC CAP
6	N99096.35	E4433.82	4660.13	5/8" REBAR WITH	YELLOW PLASTIC CAP

HORIZONTAL COORDINATES ARE BASED UPON THE COLORADO STATE PLANE COORDINATE SYSTEM NORTH ZONE (0501) AND HAVE BEEN SCALED TO GROUND BY A FACTOR OF 1.000371111 / (USSF/1000).

ELEVATIONS SHOWN HEREON ARE BASED UPON STATE GPS PROCESSING FOR PROCESSED POINT NO. 1 HAVING AN ELEVATION OF 4660.13 FEET (NAVD 88 (2001 1.00)).

2' CONTOUR SHOWN HEREON ARE AT ONE FOOT INTERVALS WITH INDEX CONTOURS SHOWN AT FIVE FOOT INTERVALS.



KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

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SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND W/O W/S
SWALE
OHE — EXISTING OVERHEAD ELEC
E — EXISTING ELECTRICAL LINE
S — EXISTING STORM LINE
W — EXISTING SANITARY LINE
G — EXISTING WATER LINE
EXISTING GAS LINE
FIBER — EXISTING FIBER OPTIC LINE
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PH — PROPOSED TELEPHONE LINE

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(720) 865-9931
FAX (720) 284-1530
Western Engineering Consultants, Inc LLC

#	DATE	REVISION
1	03/14/14	PRELIMINARY PLAT REVISIONS
2	03/18/14	PRELIMINARY PLAT REVISIONS

SCHEER-VAN-SAKER SURVEYING
CONTACT: RICHARD SCHEER
50531 E. 160th AVENUE
BENNETT, CO 80102
(303) 991-0031

EXISTING CONDITION & DEMO PLAN
ROBERTSON - KAISER ANNEX
PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely.
CALL UNCC
1-800-922-1987

FOR REVIEW

PRELIMINARY PLAT
RELEASE: 02/18/13
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC

PROJECT NO. 01-0187.002.00
DOC CON # 0003-EX COND
SHEET 3 OF 27

LUMINAIRE SCHEDULE						
SYMBOL	QTY	LABEL	LUM. WATTS	LUM. LUMENS	LLF	CATLOG
	6	A	156.5	14652	0.900	LDRL-T2-F06-E

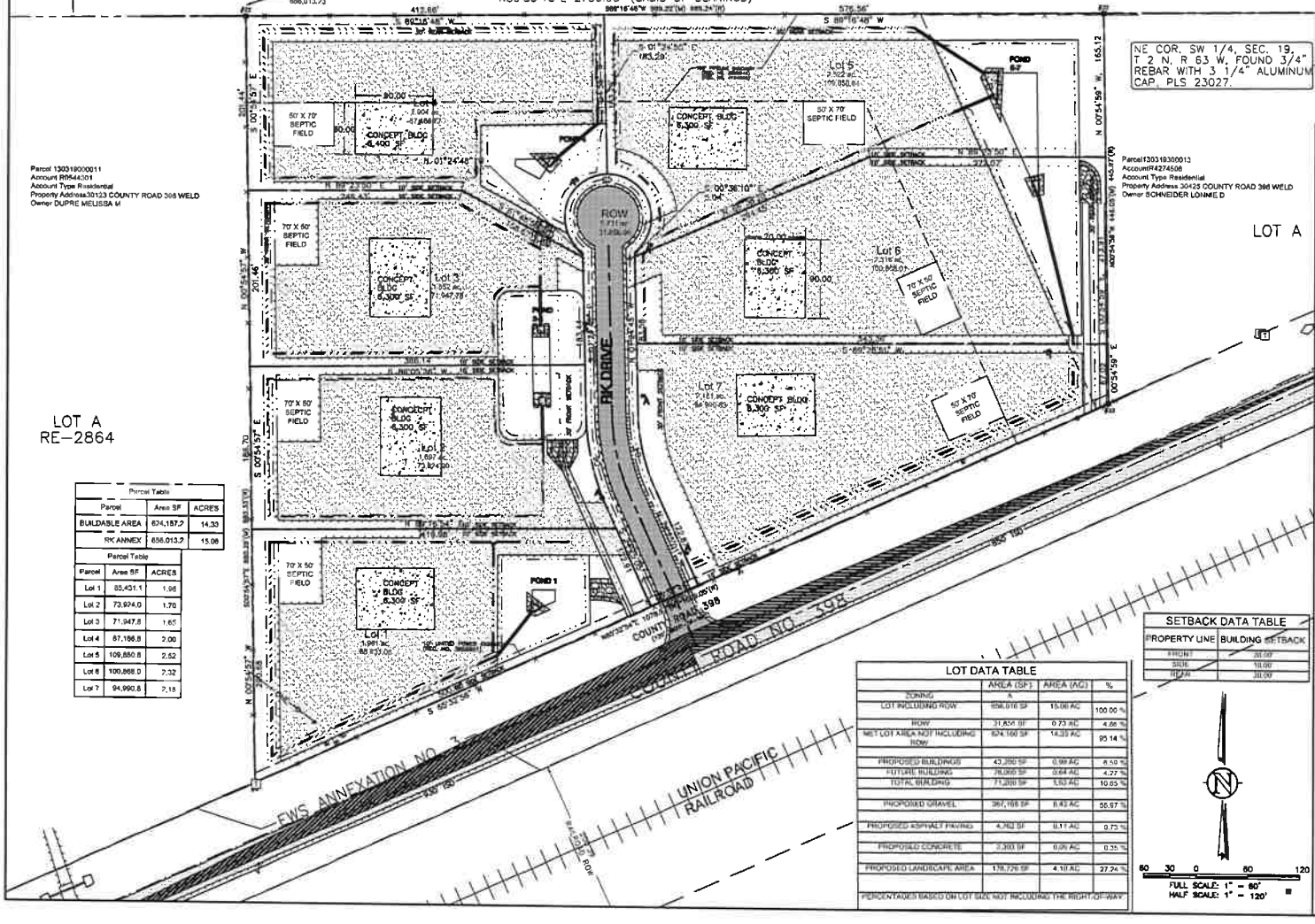
PARCEL NO. 130319000003
GARY DOUGLAS MYERS (1/2 INT)
ARTHUR W. BERGLUND
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W

N89°53'18"E 2756.96' (BASIS OF BEARINGS)

NW COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

INTERSECTION SIGHT TRIANGLES SHOWN PER AASHTO FIGURE 9-15, CASES B1 & B2, DESIGN SPEED = 55 MPH (POSTED SPEED = 45 MPH), USING COMBINATION TRUCK. LEFT TURN ISD = 930', RIGHT TURN ISD = 850'.



Parcel Table		
Parcel	Area SF	ACRES
BUILDABLE AREA	624,157.2	14.33
RK ANNEX	656,013.2	15.06

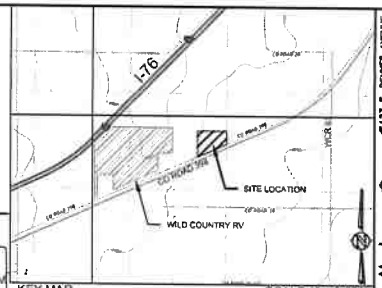
Parcel Table		
Parcel	Area SF	ACRES
Lot 1	85,431.1	1.96
Lot 2	73,924.0	1.70
Lot 3	71,947.8	1.65
Lot 4	87,186.8	2.00
Lot 5	109,850.8	2.52
Lot 6	100,868.0	2.32
Lot 7	94,990.8	2.18

LOT DATA TABLE			
	AREA (SF)	AREA (AC)	%
ZONING	A		
LOT INCLUDING ROW	656,016 SF	15.06 AC	100.00 %
ROW	31,858 SF	0.73 AC	4.86 %
NET LOT AREA NOT INCLUDING ROW	624,158 SF	14.33 AC	95.14 %
PROPOSED BUILDINGS	43,200 SF	0.99 AC	6.59 %
FUTURE BUILDING	28,000 SF	0.64 AC	4.27 %
TOTAL BUILDING	71,200 SF	1.63 AC	10.85 %
PROPOSED GRAVEL	367,168 SF	8.43 AC	55.97 %
PROPOSED ASPHALT PAVING	4,762 SF	0.11 AC	0.73 %
PROPOSED CONCRETE	2,303 SF	0.05 AC	0.35 %
PROPOSED LANDSCAPE AREA	178,726 SF	4.10 AC	27.24 %

PERCENTAGES BASED ON LOT SIZE NOT INCLUDING THE RIGHT-OF-WAY

SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	20.00'
SIDE	10.00'
REAR	20.00'

FULL SCALE: 1" = 60'
HALF SCALE: 1" = 120'



KEY MAP
SCALE 1" = 2,000'
SE 1/4, S24, T2N, R64W, 6th P.M.
SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-R5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE SITE PLAN FOR RK SUBDIVISION

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SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
OHE — EXISTING OVERHEAD ELEC
E — EXISTING ELECTRICAL LINE
EXISTING STORM LINE
S — EXISTING SANITARY LINE
W — EXISTING WATER LINE
G — EXISTING GAS LINE
FIBER — EXISTING FIBER OPTIC LINE
T — EXISTING TELEPHONE LINE
SA — PROPOSED SANITARY LINE
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WAS — PROPOSED WATER SERVICE
GA — PROPOSED GAS LINE
EL — PROPOSED ELECTRIC LINE
PH — PROPOSED TELEPHONE LINE

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FT. LUPTON, CO 80621
(720) 865-9951
FAX (720) 294-1330
Western Engineering Consultants, Inc LLC

REVISIONS		
1	03/19/18	REV PER WELD COMMENTS

ROBERTSON-LEWTON SUBDIVISION
CONTACT: RICK ROBERTSON
30531 E 160th AVENUE
BENNETT, CO 80102
(303)951-0031

SITE PLAN
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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1-800-822-1987

FOR REVIEW

INITIAL PLAN RELEASE: 03/19/18
DESIGNED BY: EFE
DRAWN BY: EFE
CHECKED BY: EFE
PROJECT NO: 01-0187.002.00
DOC CON # 004-SITE
SHEET 4 OF 27

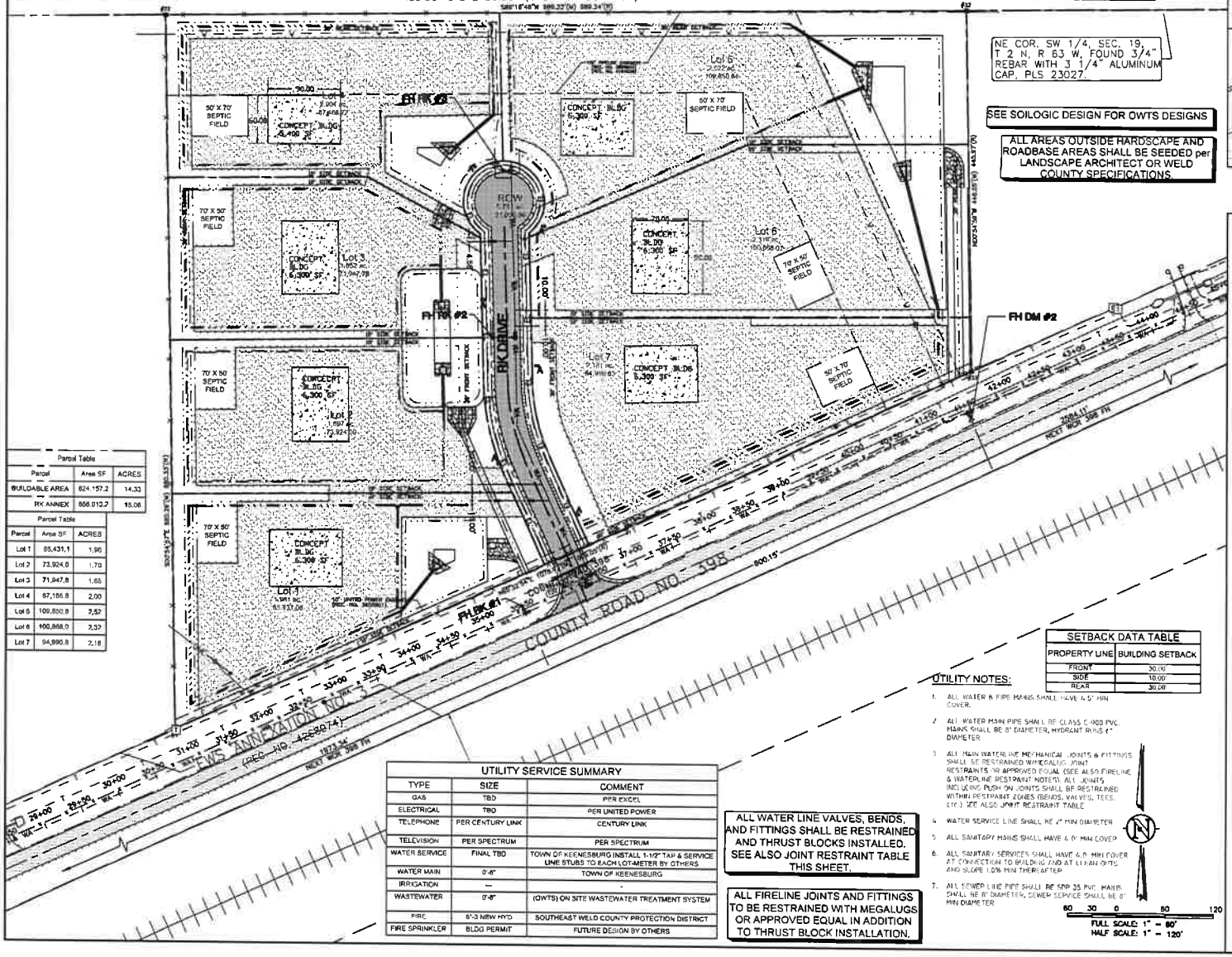
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W
N89°53'18"E 2756.96' (BASIS OF BEARINGS)

NW COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

SEE SOILOGIC DESIGN FOR OWTS DESIGNS

ALL AREAS OUTSIDE HARDSCAPE AND ROADBASE AREAS SHALL BE SEEDED per LANDSCAPE ARCHITECT OR WELD COUNTY SPECIFICATIONS.



LUMINAIRE SCHEDULE						
SYMBOL	QTY	LABEL	LUM. WATTS	LUM. LUMENS	LLF	CATLOG
	6	A	156.5	14852	0.900	LDRL-T2-F06-E

Parcel Table		
Parcel	Area SF	ACRES
BUILDABLE AREA	624,157.2	14.33
RK ANNEX	656,013.2	15.06

Parcel Table		
Parcel	Area SF	ACRES
Lot 1	85,431.1	1.96
Lot 2	73,924.0	1.70
Lot 3	71,947.8	1.65
Lot 4	87,156.8	2.00
Lot 5	109,850.8	2.52
Lot 6	100,868.0	2.32
Lot 7	94,990.8	2.18

SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'

UTILITY SERVICE SUMMARY		
TYPE	SIZE	COMMENT
GAS	TBD	PER EXCEL
ELECTRICAL	TBD	PER UNITED POWER
TELEPHONE	PER CENTURY LINK	CENTURY LINK
TELEVISION	PER SPECTRUM	PER SPECTRUM
WATER SERVICE	FINAL TBD	TOWN OF KEENESBURG INSTALL 1-1/2" TAP & SERVICE LINE STUBS TO EACH LOT-METER BY OTHERS
WATER MAIN	0'-8"	TOWN OF KEENESBURG
IRRIGATION	---	-
WASTEWATER	0'-8"	(OWTS) ON SITE WASTEWATER TREATMENT SYSTEM
FIRE	6"-3 NEW HYD	SOUTHEAST WELD COUNTY PROTECTION DISTRICT
FIRE SPRINKLER	BLDG PERMIT	FUTURE DESIGN BY OTHERS

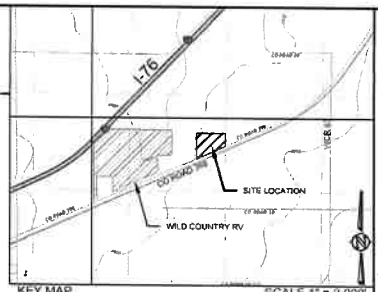
ALL WATER LINE VALVES, BENDS, AND FITTINGS SHALL BE RESTRAINED AND THRUST BLOCKS INSTALLED. SEE ALSO JOINT RESTRAINT TABLE THIS SHEET.

ALL FIRELINE JOINTS AND FITTINGS TO BE RESTRAINED WITH MEGALUGS OR APPROVED EQUAL IN ADDITION TO THRUST BLOCK INSTALLATION.

UTILITY NOTES:

1. ALL WATER & FIRE MAINS SHALL HAVE 6.0' MIN COVER.
2. ALL WATER MAIN PIPE SHALL BE CLASS C-900 PVC. MAINS SHALL BE 8" DIAMETER, HYDRANT RUNS 6" DIAMETER
3. ALL MAIN WATER LINE MECHANICAL JOINTS & FITTINGS SHALL BE RESTRAINED W/MEGALUG JOINT RESTRAINTS OR APPROVED EQUAL (SEE ALSO FIRELINE & WATER LINE RESTRAINT NOTES). ALL JOINTS INCLUDING PUSH ON JOINTS SHALL BE RESTRAINED WITHIN RESTRAINT ZONES (BENDS, VALVES, TEES, ETC.) SEE ALSO JOINT RESTRAINT TABLE
4. WATER SERVICE LINE SHALL BE 4" MIN DIAMETER
5. ALL SANITARY MAINS SHALL HAVE 6.0' MIN COVER
6. ALL SANITARY SERVICES SHALL HAVE 6.0' MIN COVER AT CONNECTION TO BUILDING AND AT CLEAN OUTS AND SLOPE 10% MIN THEREAFTER
7. ALL SEWER LINE PIPE SHALL BE SDR 35 PVC. MAINS SHALL BE 8" DIAMETER, SEWER SERVICE SHALL BE 6" MIN DIAMETER

60 30 0 60 120
FULL SCALE: 1" = 60'
HALF SCALE: 1" = 120'



KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.
SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

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SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
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LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
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FAX (720) 284-1330
Western Engineering Consultants, Inc LLC

ROBERTSON-KAISER SABOWICK
CONTACT: RICK SABOWICK
20531 E 160th AVENUE
BENNETT, CO 80102
(303)981-3031

UTILITY PLAN
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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www.uncc.org
UTILITY NOTIFICATION CENTER OF COLORADO

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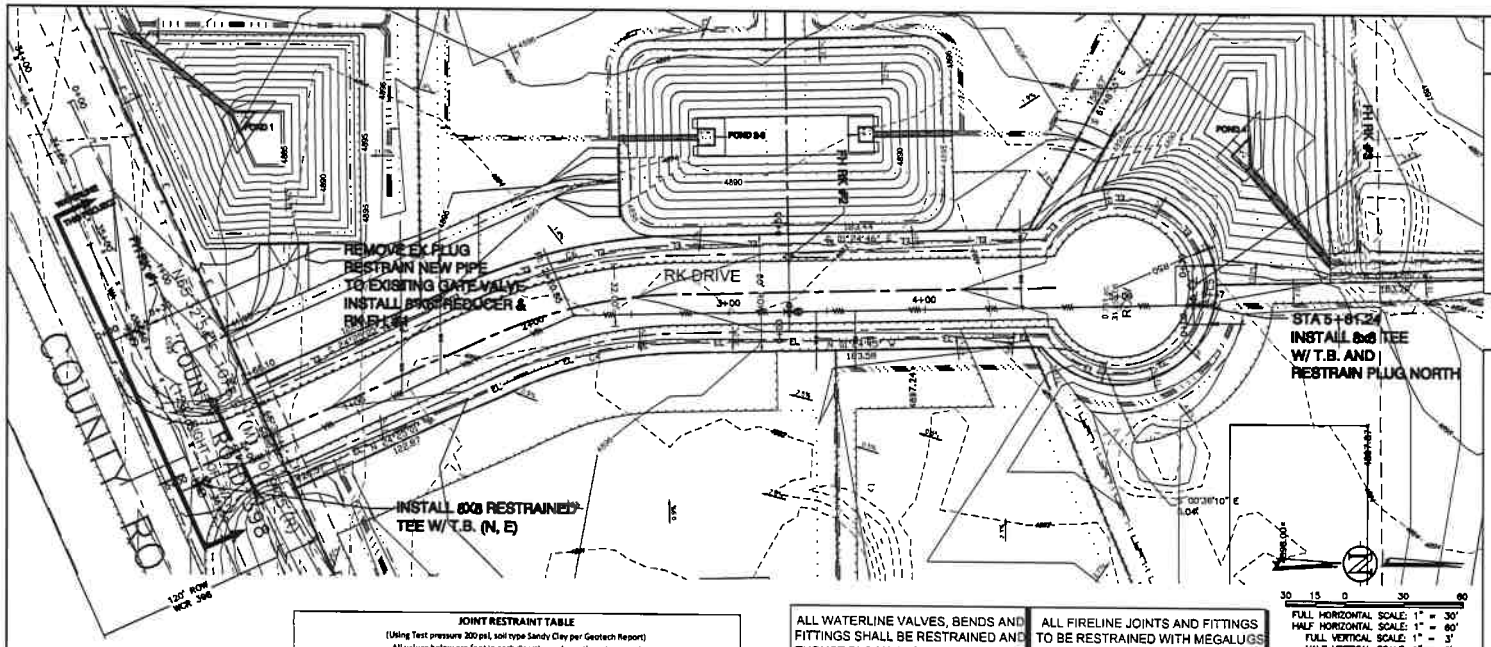
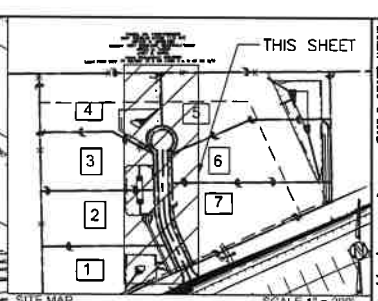
INITIAL PLAN RELEASE: 02/19/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 005-UTL
SHEET 5 OF 27





SITE MAP SCALE 1" = 200'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

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JOINT RESTRAINT TABLE

(Using Test pressure 200 psi, soil type Sandy Clay per Geotech Report)

All values below are feet in each direction unless otherwise noted

22.5	45	90	8"8 Tee	8"6 Tee	45 V bend	22.5 V bend	11.25 V bend	8"8 Reduction	Dead End
9	18	42	14	9	49 up, 12 lower	24 up, 6 lower	12 up, 3 lower	76	94

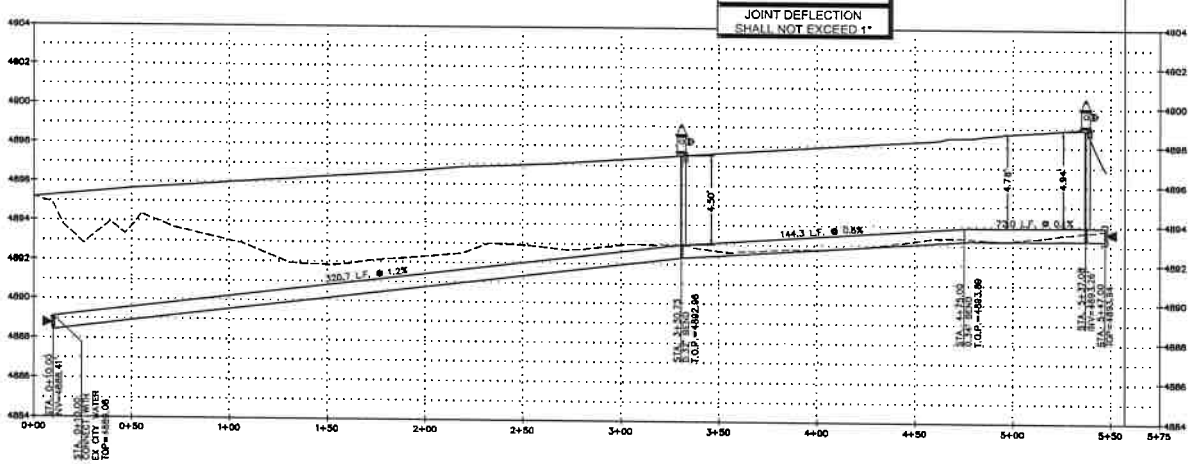
VERT. SCALE: 1" = 1'

ALL WATERLINE VALVES, BENDS AND FITTINGS SHALL BE RESTRAINED AND THRUST BLOCK INSTALLED SEE ALSO JOINT RESTRAINT TABLE THIS SHEET

ALL FIRELINE JOINTS AND FITTINGS TO BE RESTRAINED WITH MEGALUGS OR APPROVED EQUAL IN ADDITION TO THRUST BLOCKS INSTALLATION

4.5' MIN COVER REQUIRED

JOINT DEFLECTION SHALL NOT EXCEED 1°



SYMBOL LEGEND

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22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
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(720) 865-9991
FAX (720) 284-1138
Western Engineering Consultants, Inc LLC

ROBERTSON-KAISER ANNEX
CONTACT: RICK ROBERTSON
5X031 E 160th AVENUE
BENNETT, CO 80102
(303)291-0031

WATER LINE PLAN & PROFILE
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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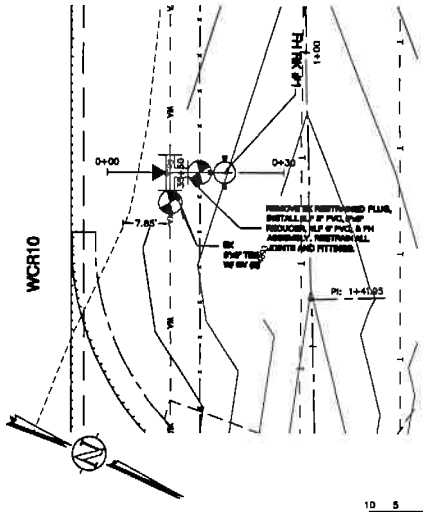
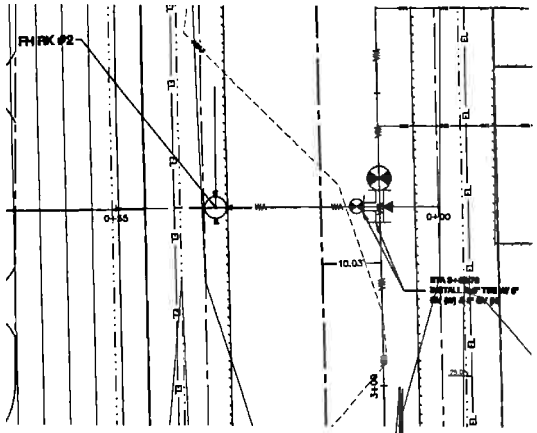
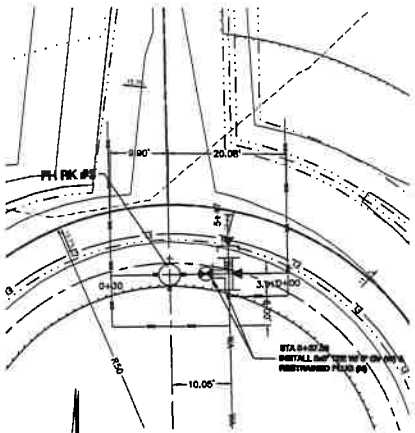
INITIAL PLAN RELEASE: 03/19/13
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.003.00
DOC CON # 006-WTR P&P
SHEET 6 OF 27



RK FH - (1) PROFILE
HORIZ. SCALE: 1" = 10'
VERT. SCALE: 1" = 1'



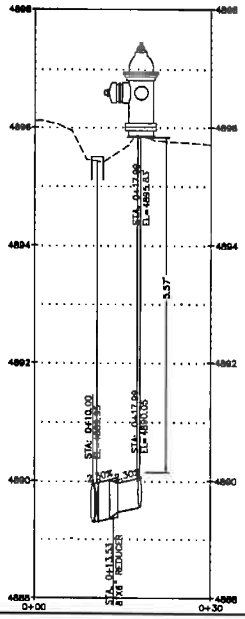
RK FH - (2) PROFILE
HORIZ. SCALE: 1" = 10'
VERT. SCALE: 1" = 1'

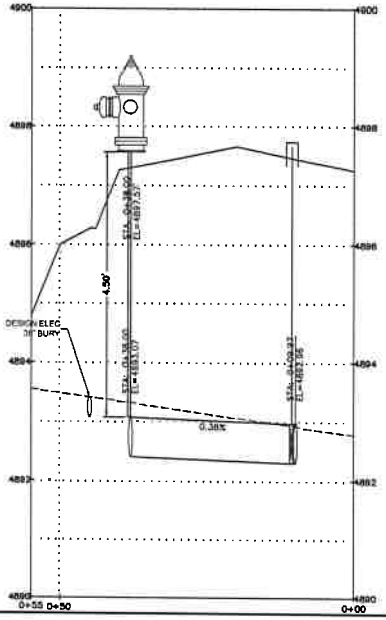


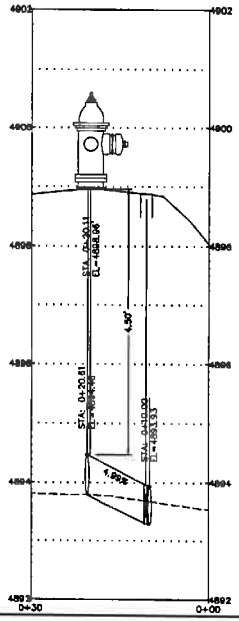
RK FH - (3) PROFILE
HORIZ. SCALE: 1" = 10'
VERT. SCALE: 1" = 1'

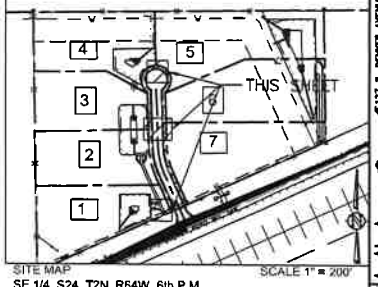
10 5 0 10 20

FULL HORIZONTAL SCALE: 1" = 10'
HALF HORIZONTAL SCALE: 1" = 20'
FULL VERTICAL SCALE: 1" = 1'
HALF VERTICAL SCALE: 1" = 2'









SITE MAP SCALE 1" = 200'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

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SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED WATER VALVE
- PIPE CROSSOVER
- MANHOLE
- EXISTING ASPHALT PAVING
- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE PAVING
- PROPOSED GRAVEL

LINETYPE LEGEND

- LOT / PROPERTY LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WO W/S
- SWALE
- OHE — EXISTING OVERHEAD ELEC
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127 S. DENVER AVENUE
FT. LUPTON, CO 80621
(720) 865-9991
FAX (720) 284-1330
Western Engineering Consultants, Inc. LLC

NO.	REVISION	DATE	BY
1			

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
50531 E 160th AVENUE
BENNETT, CO 80102
(303)991-0031

HYDRANT PLAN & PROFILE
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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1-800-922-1987

FOR REVIEW

INITIAL PLAN RELEASE: 03/28/19
DESIGNED BY: EEL
DRAWN BY: CPC
CHECKED BY: CPC
PROJECT NO. 01-0187.002.00
DOC CON # 007-HYD PLP
SHEET 7 OF 27

CONCEPT DESIGN

(EACH SITE SHALL BE DESIGNED PER INDIVIDUAL APPROVED SITE PLAN)

SHALLOW TRENCH SPECIFICATIONS AND DESIGN CALCULATIONS

TREATMENT UNIT:

1. SEE FINAL DESIGN BY OTHERS FOR TANK CONFIGURATION.
2. ATTENUATION = 1.25 * Qmax (1.25 * 2,257.5 = 2,826 GALLONS MINIMUM).
3. PUMP: SEE NOTES ABOVE.
4. ALARM/CONTROL PANEL LOCATION TO BE DETERMINED BY OWNER.
5. RISERS TO SURFACE FOR EACH ACCESS LID.
6. PRESSURE RELEASE VALVE AT HIGH POINT.
7. DRAINBACK TO SEPTIC TANK AND FIELD.

DRAIN FIELD:

1. AVERAGE DAILY LOADING, 20 EMPLOYEES @ 35gal/DAY AVG = Q = 700 GPD
2. Qx = Qmax = 1.5 Q(avg daily) = 1050 GPD
3. PERCOLATION RATE = (T) =46 MPI per ROBERTSON RV PARK FIELD TEST ON JANUARY 14, 2014
4. MIN TRENCH ABSORPTION AREA = ((Qx) X 1.5 X (T^½) / 3.5 = 7884 SF
5. PROPOSED TRENCH ABSORPTION AREA = 3,000 SF (2.5' WIDE x 100' LONG x 12 TRENCHES).
6. TRENCH WIDTH = 30 INCHES.
7. NO GROUND WATER FOUND IN SOIL BORINGS.
8. LANDSCAPING BY OTHERS.

ARTICLE XIII - Operation and Maintenance

Sec. 30-13-10. - Responsibility.

The owner must be responsible for maintenance of an OWTS unless the responsibility has been contractually assigned to a tenant or third party or a public, quasi-public or political subdivision.

(Weld County Code Ordinance 2013-13.)

Sec. 30-13-20. - Service label.

For higher level treatment systems or other components under a service contract, a clearly visible, permanently attached label or plate giving instructions for obtaining service must be placed at a conspicuous location.

(Weld County Code Ordinance 2013-13.)

Sec. 30-13-30. - Monitoring and sampling.

A. For an OWTS for which monitoring of effluent is required, a delegated third party must collect and test effluent samples to ensure compliance with the provisions of this Regulation.

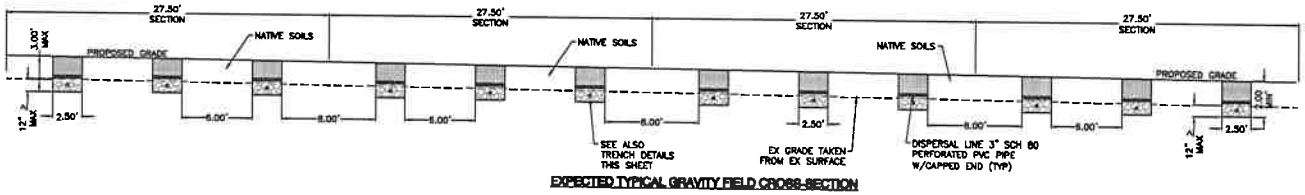
B. Sampling may be required by the Division in conjunction with an enforcement action.

C. Any owner or occupant of property on which an OWTS is located may request the Division to collect and test an effluent sample from the system. The Division may perform such collection and testing services. The owner or occupant must pay for these services.

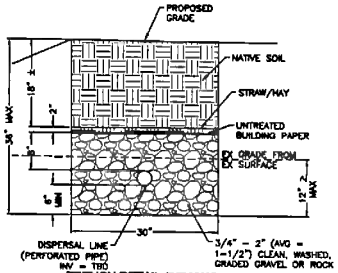
1. If the Division or a delegated third party collects and tests effluent samples, a fee not to exceed that which is allowed by the OWTS Act may be charged for each sample collected and tested. Payment of such charge must be stated in the permit as a condition for its continued use.
2. Conditions when the Division can require routine monitoring, including but not limited to:
   a. Indications of inadequate performance;
   b. Location in sensitive areas; and
   c. Experimental systems.

D. Sampling and analysis must be performed according to American Public Health Association, American Water Works Association and Water Environment Federation; *Standards Methods for the Examination of Water and Wastewater*, 21st edition.

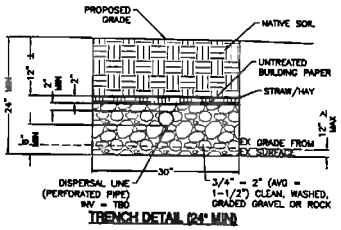
(Weld County Code Ordinance 2013-1; Weld County Code Ordinance 2017-10



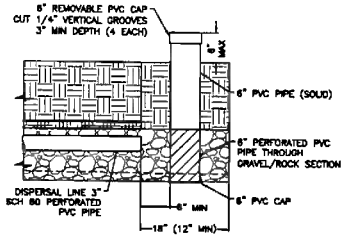
EXPECTED TYPICAL GRAVITY FIELD CROSS-SECTION



TRENCH DETAIL (36" MAX)



TRENCH DETAIL (24" MIN)



INSPECTION/MONITORING PORT DETAIL
SEE ALSO TRENCH DETAILS THIS SHEET

TRENCH DEPTH NOT TO BE MORE THAN 12" BELOW EXISTING GRADE.

PUMP SYSTEM NOTES BY OTHERS

117 S. BOWEN AVENUE
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FAX (720) 834-1305
Western Engineering Consultants, Inc. LLC

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A			

ROBERTSON KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
30631 E. 16th AVENUE
BENNETT, CO 80102
(303)991-0031

SEPTIC PLAN
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DESIGNED BY: CFC
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CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 008-SEPTIC PRP
SHEET 8 OF 27

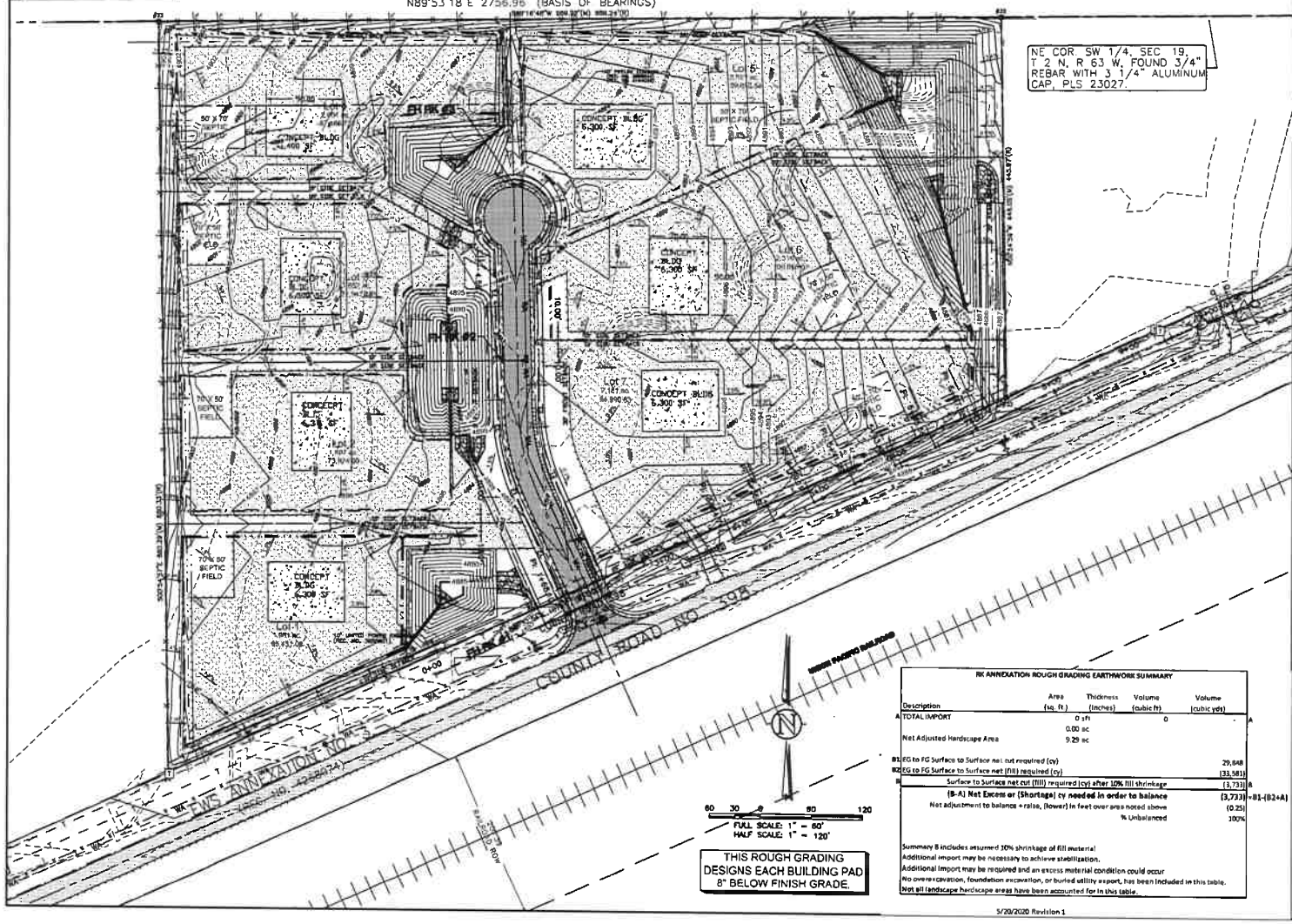
ROUGH GRADING

PARCEL NO. 130319000003
GARY DOUGLAS MYERS (1/2 INT)
ARTHUR W. BERGLUND
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W

N89°53'18"E 2756.96' (BASIS OF BEARINGS)

W COR. SW 1/4, SEC 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

NE COR. SW 1/4, SEC 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.



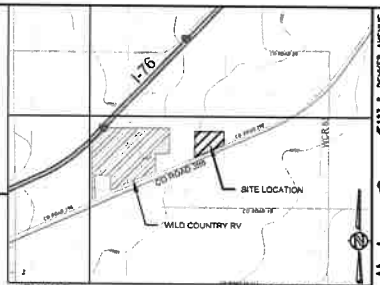
THIS ROUGH GRADING DESIGNS EACH BUILDING PAD 8" BELOW FINISH GRADE.

RK ANNEXATION ROUGH GRADING EARTHWORK SUMMARY

	Description	Area (sq. ft.)	Thickness (inches)	Volume (cubic ft)	Volume (cubic yds)	
A	TOTAL IMPORT	0 sft		0	-	A
		0.00 ac				
	Net Adjusted Hardscape Area	9.29 ac				
B1	EG to FG Surface to Surface net cut required (cy)				29,848	
B2	EG to FG Surface to Surface net (fill) required (cy)				(33,581)	
B	Surface to Surface net cut (fill) required (cy) after 10% fill shrinkage				(3,733)	B
	(B-A) Net Excess or (Shortage) cy needed in order to balance				(3,733)	=B1-(B2+A)
	Net adjustment to balance + raise, (lower) in feet over area noted above				(0.25)	
	% Unbalanced				100%	

Summary B includes assumed 10% shrinkage of fill material
Additional import may be necessary to achieve stabilization.
Additional import may be required and an excess material condition could occur
No over-excavation, foundation excavation, or buried utility export, has been included in this table.
Not all landscape hardscape areas have been accounted for in this table.

5/20/2020 Revision 1



KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.
SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE ROUGH GRADING PLAN FOR RK SUBDIVISION

ALL IMPROVEMENTS ARE EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

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NOT ALL UNCC UTILITY LOCATES HAVE BEEN PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES ARE LOCATED AND SURVEY PROVIDED TO THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION DRAWING RELEASE.

SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
OHE — EXISTING OVERHEAD ELEC
E — EXISTING ELECTRICAL LINE
EXISTING STORM LINE
S — EXISTING SANITARY LINE
W — EXISTING WATER LINE
G — EXISTING GAS LINE
FIBER — EXISTING FIBER OPTIC LINE
T — EXISTING TELEPHONE LINE
SA — PROPOSED SANITARY LINE
SS — PROPOSED SANITARY SERVICE
STM — PROPOSED STORM LINE
WA — PROPOSED WATER LINE
WAS — PROPOSED WATER SERVICE
GA — PROPOSED GAS LINE
EL — PROPOSED ELECTRIC LINE
PH — PROPOSED TELEPHONE LINE

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BENNETT, CO 80102
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ROUGH GRADING PLAN
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TOWN of KEENESBURG, WELD COUNTY, COLORADO

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CHECKED BY: CFC
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DOC CON # 008-GRADE ALL
SHEET 8 OF 27

CONCEPT SUBDIVISION FINAL GRADING

PARCEL NO. 130319000003
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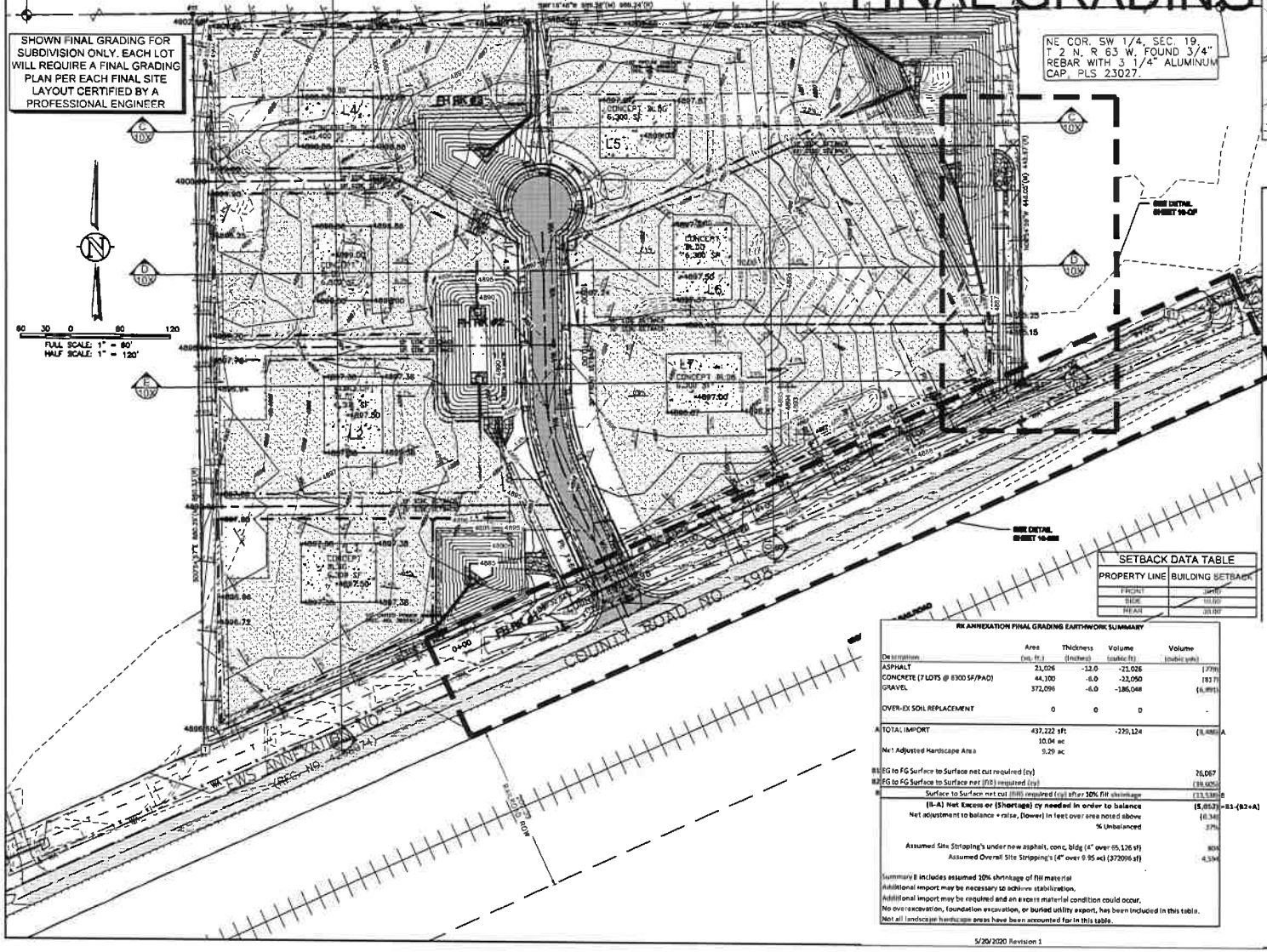
ARTHUR W. BERGLUND
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W
N89°53'18"E 2756.96' (BASIS OF BEARINGS)

NW COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

SHOWN FINAL GRADING FOR SUBDIVISION ONLY. EACH LOT WILL REQUIRE A FINAL GRADING PLAN PER EACH FINAL SITE LAYOUT CERTIFIED BY A PROFESSIONAL ENGINEER

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.



KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUO RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE FINAL GRADING PLAN FOR RK SUBDIVISION

ALL IMPROVEMENTS ARE EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY DUNKER ENGINEERING CONSULTING, INC.

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
OHE — EXISTING OVERHEAD ELEC
E — EXISTING ELECTICAL LINE
EXISTING STORM LINE
S — EXISTING SANITARY LINE
W — EXISTING WATER LINE
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WAS — PROPOSED WATER SERVICE
GA — PROPOSED GAS LINE
EL — PROPOSED ELECTRIC LINE
PH — PROPOSED TELEPHONE LINE

SETBACK DATA TABLE

PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'

RK ANNEXATION FINAL GRADING EARTHWORK SUMMARY

Description	Area (sq. ft.)	Thickness (inches)	Volume (cubic ft)	Volume (cubic yds)
ASPHALT	21,026	-12.0	-21,026	(779)
CONCRETE (7 LOTS @ 6300 SF/PAD)	44,100	-6.0	-22,050	(817)
GRAVEL	372,096	-6.0	-186,048	(6,891)
OVER-EX SOIL REPLACEMENT	0	0	0	-
A TOTAL IMPORT	437,222 sft		-229,124	(8,486) A
	10.04 ac			
Net Adjusted Hardscape Area	9.29 ac			
B1 EG to FG Surface to Surface net cut required (cy)				26,067
B2 EG to FG Surface to Surface net (fill) required (cy)				(39,605)
B Surface to Surface net cut (fill) required (cy) after 30% fill shrinkage				(13,538) B
(B-A) Net Excess or (Shortage) cy needed in order to balance				(5,053) = B1-(B2+A)
Net adjustment to balance + raise, (lower) in feet over area noted above				(0.34)
% Unbalanced				37%
Assumed Site Stripping's under new asphalt, conc, bldg (4" over 65,126 sf)				806
Assumed Overall Site Stripping's (4" over 9.95 ac) (372096 sf)				4,534

Summary B includes assumed 30% shrinkage of fill material
Additional import may be necessary to achieve stabilization.
Additional import may be required and an excess material condition could occur.
No over-excavation, foundation excavation, or buried utility export, has been included in this table.
Not all landscape hardscape areas have been accounted for in this table.

5/20/2020 Revision 1

127 S. DENVER AVENUE
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email@westernengineers.com
(720) 583-9951
FAX (720) 584-1330
Western Engineering Consultants, Inc LLC

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CONTACT: RICK ROBERTSON
30631 E 160th AVENUE
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(303)261-0231

FINAL GRADING PLAN
ROBERTSON-KAISER ANNEX
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TOWN of KEENESBURG, WELD COUNTY, COLORADO

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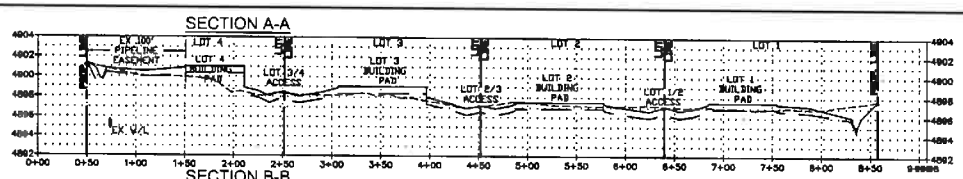
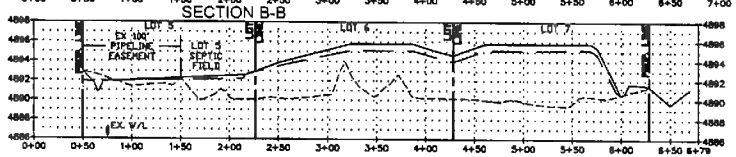
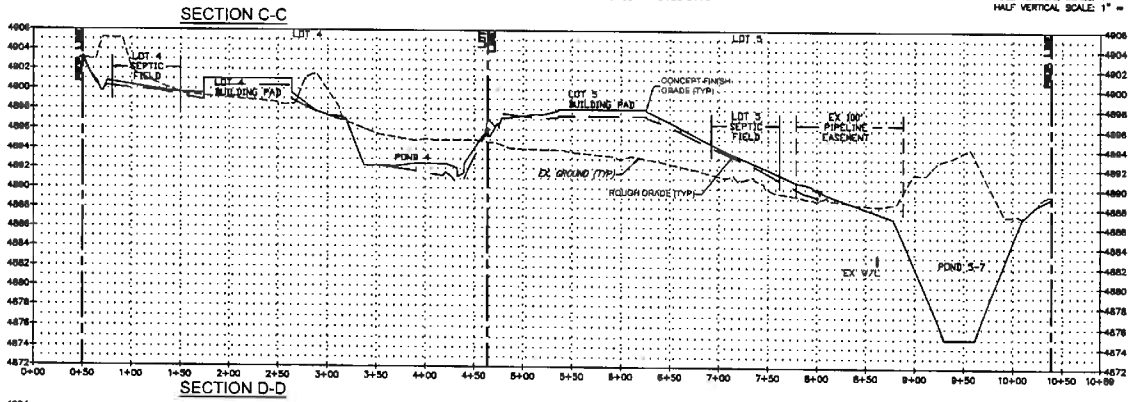
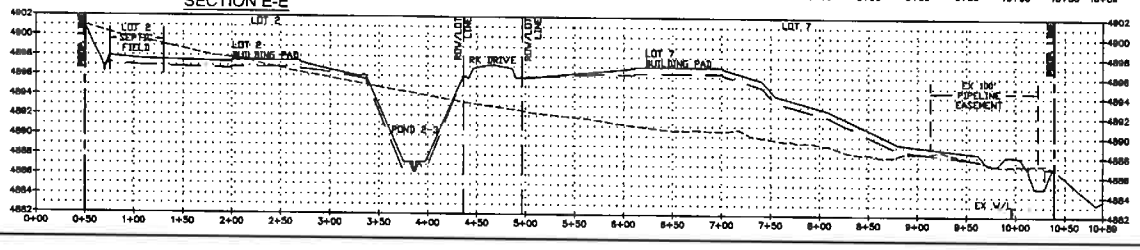
DOC CON # 0010-GRADE
SHEET 10 OF 27

GRADING CROSS-SECTIONS









60 30 0 60 120

FULL HORIZONTAL SCALE: 1" = 60'
HALF HORIZONTAL SCALE: 1" = 120'
FULL VERTICAL SCALE: 1" = 6'
HALF VERTICAL SCALE: 1" = 12'

Western Engineering Consultants, Inc. LLC
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FAX (720) 254-1130

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10						

SUBDIVISION MANAGER
CONTACT: RICK ROBERTSON
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BENNETT, CO 80102
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GRADING CROSS-SECTIONS
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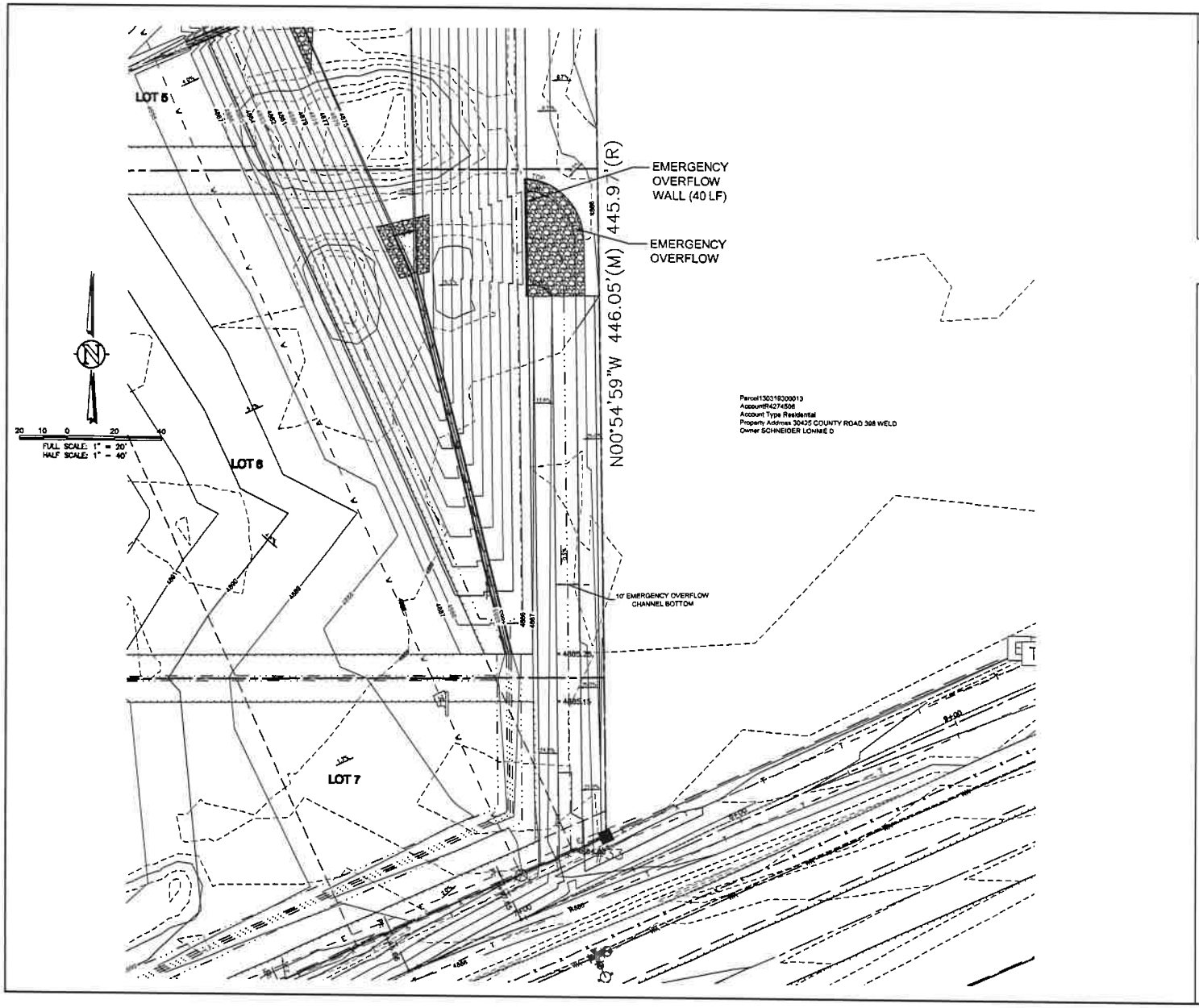
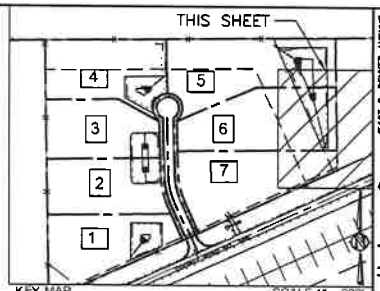
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 010X-GRD-XSEC
SHEET 10X OF 27





KEY MAP SCALE 1" = 200'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE FINAL GRADING PLAN FOR RK SUBDIVISION

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IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "ROBERTSON–LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY – DATED NOVEMBER 04, 2013.

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER ■
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
● PIPE CROSSOVER
● MANHOLE
▭ EXISTING ASPHALT PAVING
▨ PROPOSED ASPHALT PAVING
▨ PROPOSED CONCRETE PAVING
▨ PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
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WIRE FENCE
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OHE — OHE EXISTING OVERHEAD ELEC
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EXISTING STORM LINE
S EXISTING SANITARY LINE
W EXISTING WATER LINE
G EXISTING GAS LINE
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Western Engineering Consultants, Inc LLC

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OVERFLOW GRADING DETAILS
ROBERTSON -KAISER ANNEX PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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FOR REVIEW

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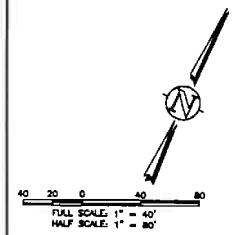
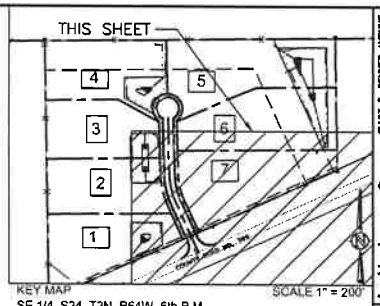
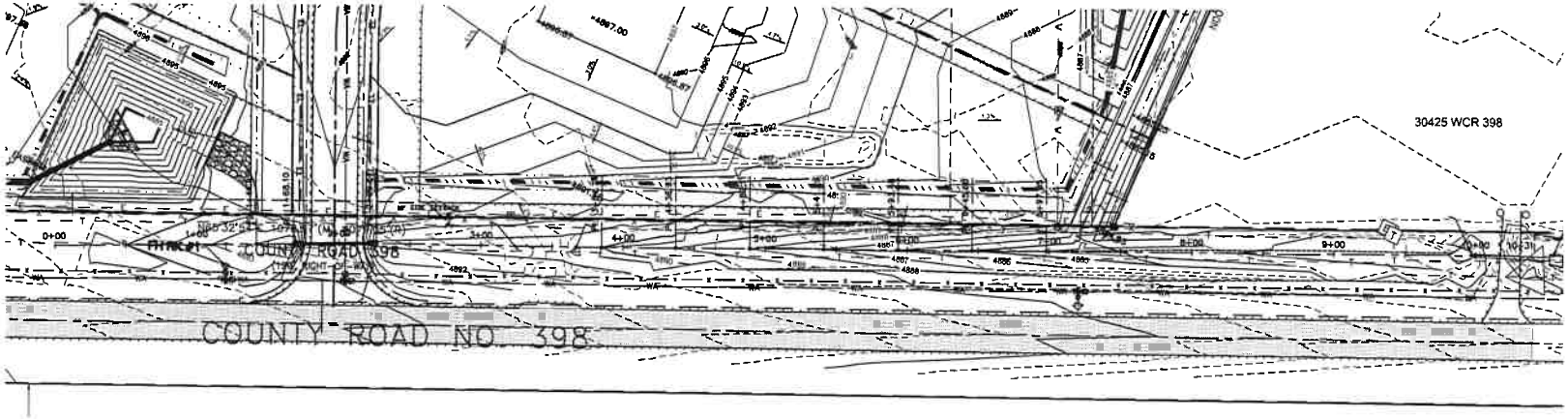
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 100F-GRADE
SHEET 10-OF OF 27

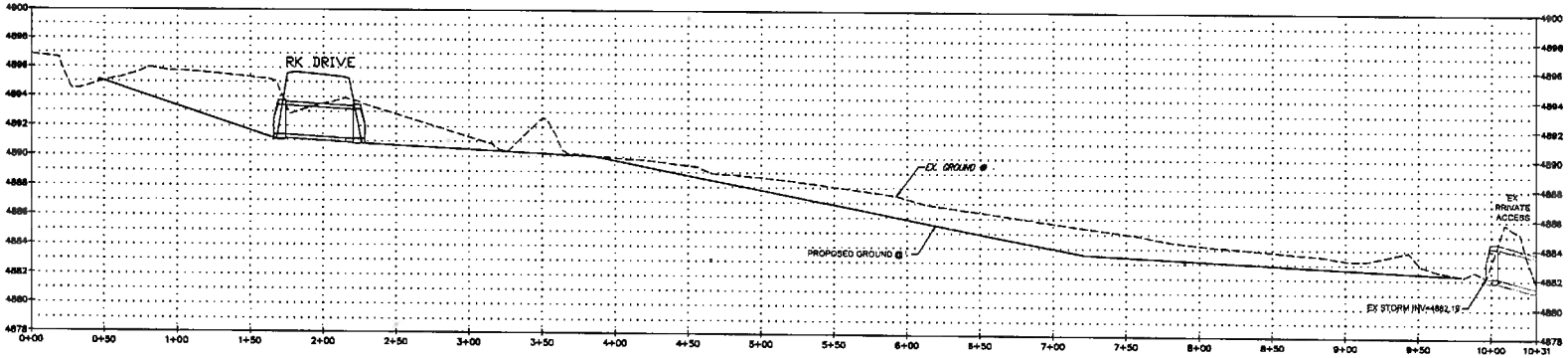




SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4





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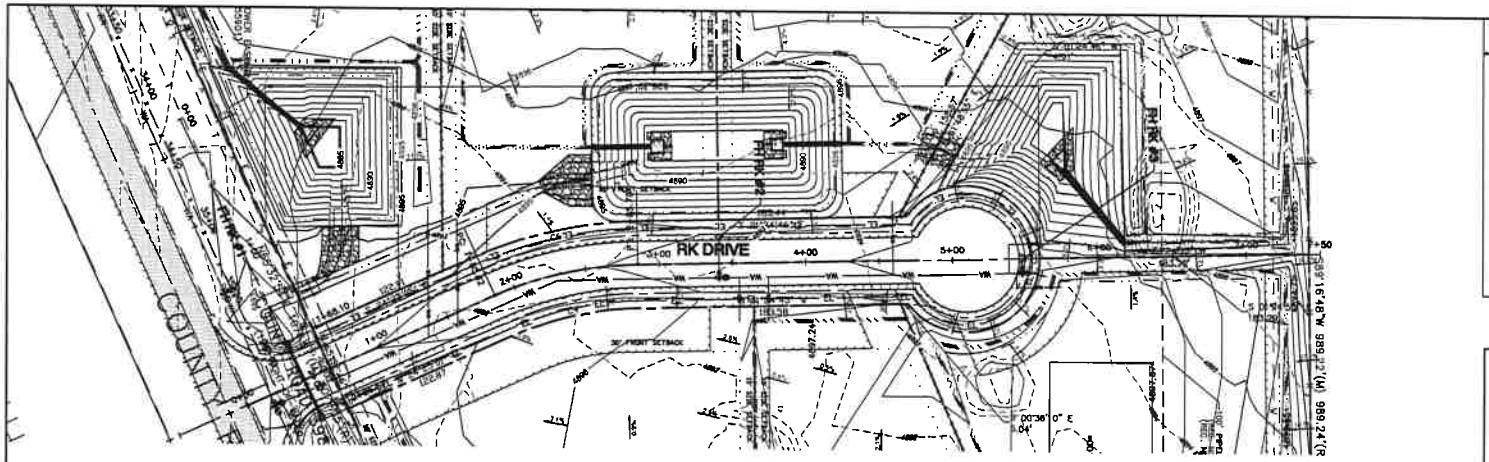
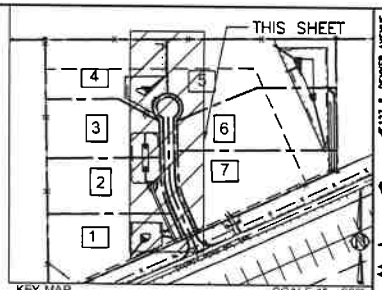
INITIAL PLAN
RELEASE: 05/19/20
DESIGNED BY: CTC
DRAWN BY: CTC
CHECKED BY: CTC
PROJECT NO. 01-0187.002.00
DOC CON # 10398-GRADE
SHEET 10-398 OF 27





KEY MAP SCALE 1" = 200'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE RK ROAD PLAN & PROFILE FOR RK SUBDIVISION

ALL IMPROVEMENTS ARE EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY DUNKER ENGINEERING CONSULTING, INC.

SHOWN PROPOSED LAYOUT PROVIDED BY DUNKER ENGINEERING CONSULTING, INC. DATED DECEMBER 04, 2013. ANY SUBSEQUENT REVISIONS MADE BY DUNKER ENGINEERING CONSULTING, INC. ARE NOT REFLECTED IN THIS PLAN SET. REVISIONS DESCRIBED AND DATED ON INDIVIDUAL SHEETS IN THIS PLAN SET ARE WESTERN ENGINEERING REVISIONS ONLY.

NOT ALL UNCC UTILITY LOCATES HAVE BEEN PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES ARE LOCATED AND SURVEY PROVIDED TO THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION DRAWING RELEASE.

40 20 0 40 80

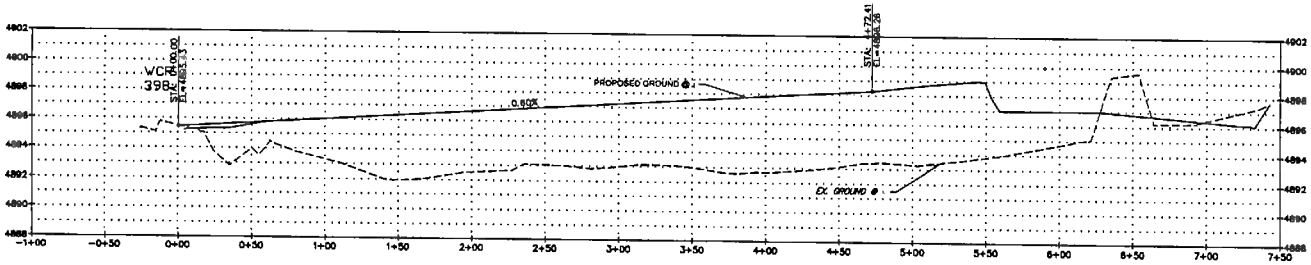
FULL HORIZONTAL SCALE: 1" = 40'
HALF HORIZONTAL SCALE: 1" = 80'
FULL VERTICAL SCALE: 1" = 4'
HALF VERTICAL SCALE: 1" = 8'

SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED WATER VALVE
- PIPE CROSSOVER
- MANHOLE
- EXISTING ASPHALT PAVING
- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE PAVING
- PROPOSED GRAVEL

LINETYPE LEGEND

- LOT / PROPERTY LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WQ W/S
- SWALE
- OHE — EXISTING OVERHEAD ELEC
- E — EXISTING ELECTRICAL LINE
- EXISTING STORM LINE
- S — EXISTING SANITARY LINE
- W — EXISTING WATER LINE
- G — EXISTING GAS LINE
- FIBER — EXISTING FIBER OPTIC LINE
- T — EXISTING TELEPHONE LINE
- SA — PROPOSED SANITARY LINE
- SS — PROPOSED SANITARY SERVICE
- PROPOSED STORM LINE
- WA — PROPOSED WATER LINE
- WAS — PROPOSED WATER SERVICE
- GA — PROPOSED GAS LINE
- EL — PROPOSED ELECTRIC LINE
- PH — PROPOSED TELEPHONE LINE



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R.K. DRIVE PLAN & PROFILE
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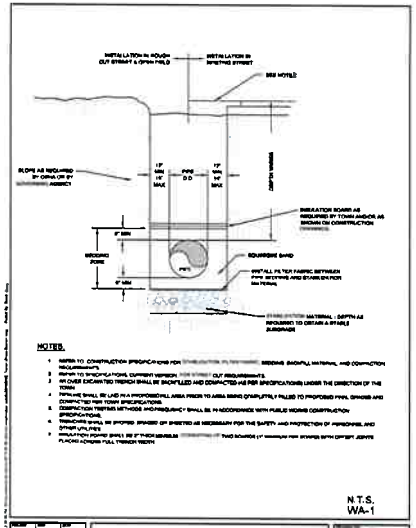
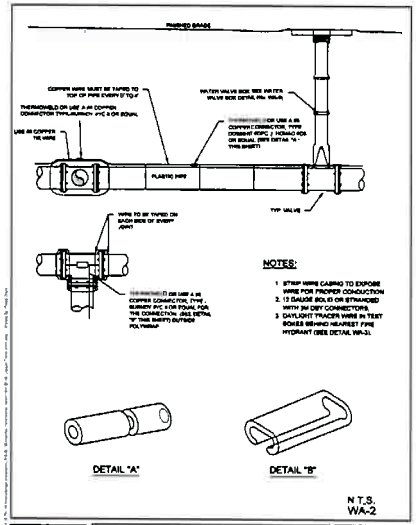
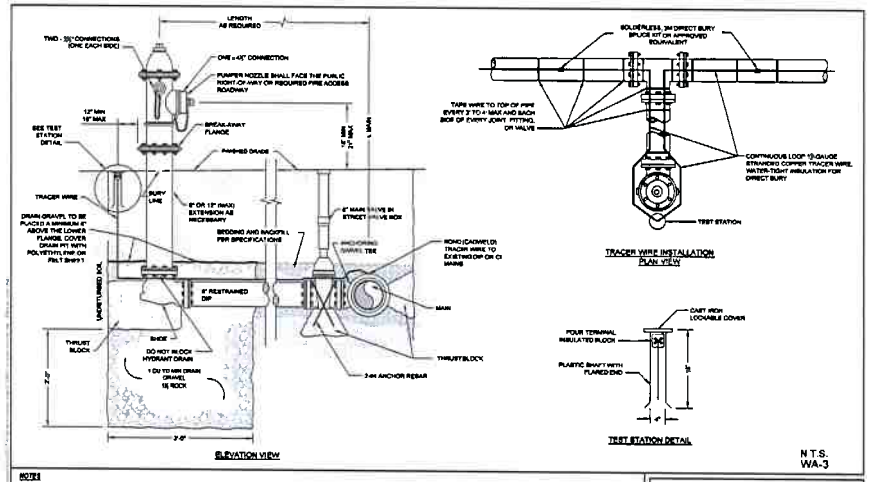
INITIAL PLAN RELEASE: 01/15/15
DESIGNED BY: DCS
DRAWN BY: DTC
CHECKED BY: DTC
PROJECT NO. 01-0187.002.00
DOC CON # 2011-RD40 P&P
SHEET 11 OF 27



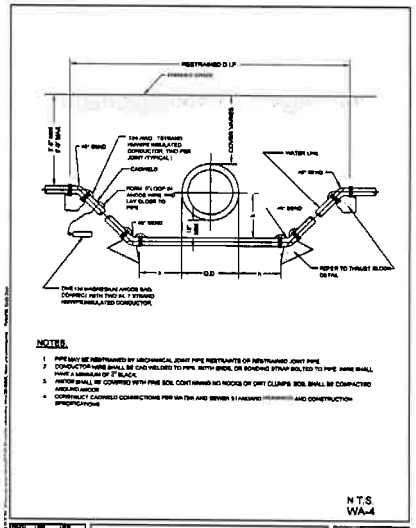
TRENCH CROSS SECTION



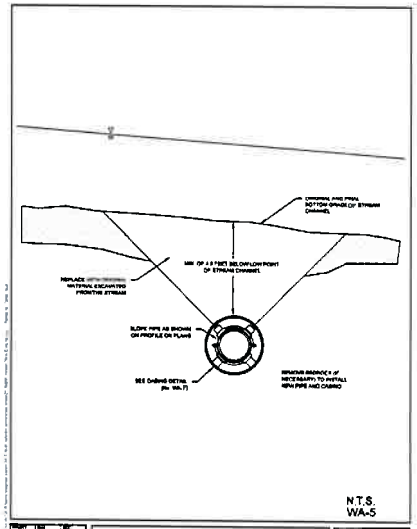
COPPER TRACER WIRE DETAIL ON PVC PIPE



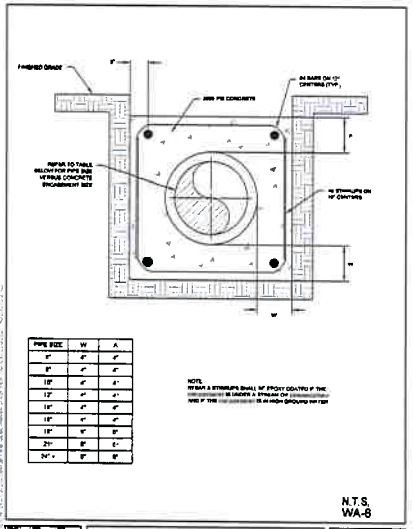
FIRE HYDRANT ASSEMBLY WITH TRACER WIRE INSTALLATION



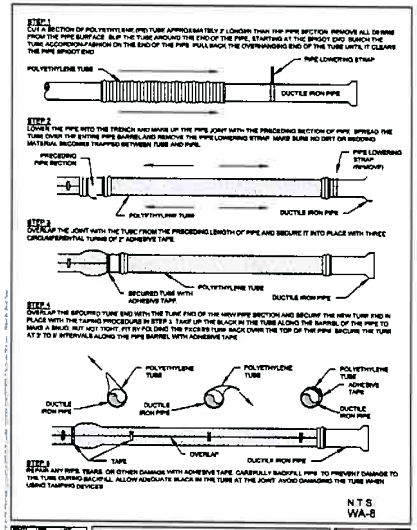
WATER LINE LOWERING



STREAM/DITCH CROSSING



CONCRETE ENCASEMENT



POLYETHYLENE WRAP

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FAX (720) 284-1530
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ROBERTSON'S WATER SERVICE
CONTACT: RICK ROBERTSON
30031 E 190th AVENUE
BENNETT, CO 80102
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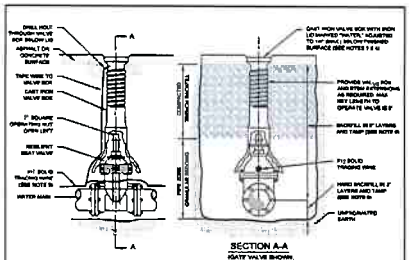
DRAWN BY: CTC
CHECKED BY: CTC
PROJECT NO. 01-0187.002.00
DOC CON # 0012-WTRDTLS
SHEET 12 OF 27

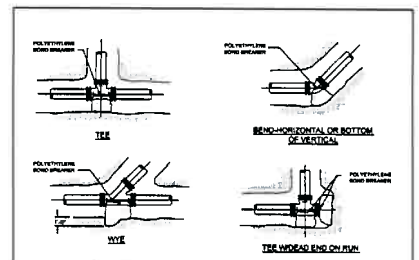


NOTES:

1. ALL VALVES SHALL BE ENCASED IN A MINIMUM 8 MIL POLYETHYLENE WRAP. A 2" WIDE, TEN MIL THICK POLYETHYLENE PRESSURE-SENSITIVE TAPE SHALL BE USED TO CLOSE SEAMS, SECURE TO PIPE OR HOLD OVERLAPS.
2. ALL VALVES BOXES SHALL BE OF CAST IRON CONSTRUCTION. TWO PIECE THREADED ADJUSTABLE DESIGN PER DEPARTMENT STANDARDS. ALL THREAD RODS AND NUTS SHALL BE 316 STAINLESS STEEL.
3. WITHIN OPEN AREAS OR AREAS TO BE DEVELOPED IN THE FUTURE, VALVE BOX LID MAY BE DEPRESSED OR HAVE A CONCRETE PAD. MARK VALVE LOCATION WITH FLEX-IBLE MARKER POST.
4. FOR FIRE SERVICE LINES ONLY: LIDS SHALL BE LOCKING TYPE.
5. TRACER WIRE TO BE TYPICALLY DAYLIGHTED AT FIRE HYDRANT. IF HYDRANT IS NOT AVAILABLE, PROVIDE AT MAINLINE VALVE AS SHOWN ABOVE AND COIL A MINIMUM OF 3' OF TRACER WIRE IN VALVE BOX.
6. SEE SPECIFICATIONS FOR COMPACTION AND TESTING REQUIREMENTS.
7. VALVES TYPICALLY REQUIRED AS SHOWN, UNLESS OTHERWISE APPROVED BY THE DEPARTMENT. SINCE OPERATIONAL CONSIDERATIONS MAY RESULT IN FEWER VALVES BEING REQUIRED TO BE INSTALLED.
8. RESTRAINT FOR VALVES TO A FITTING CAN BE MADE DIRECTLY WITH FOSTER ADAPTORS OR BY MECHANICAL JOINT RESTRAINT. EXAMPLE FOSTER ADAPTOR CONNECTIONS ARE DETAILED BELOW

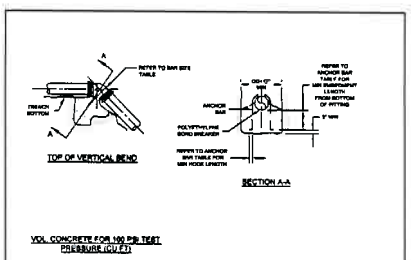
N.T.S.
WA-9

VALVE BOX



N.T.S.
WA-10

THRUST BLOCKS
SHEET 1 OF 3



VOL. CONCRETE FOR 100 PSI TEST PRESSURE (CU.FT)

PIPE SIZE	BENDS		
	45°	22.5°	11.7°
6"	1.8	0.9	4.7
8"	3.2	1.6.5	8.2
12"	6.9.1	34.7	17.5
16"	116.3	60.3	30.3

FOR TEST PRESSURE GREATER THAN 100 PSI, ADJUST CONCRETE VOLUMES BY MULTIPLYING TABLE VALUES BY CORRECTION FACTOR "P"

$P = \frac{\text{TEST PRESSURE}}{100}$

ANCHOR BAR INFORMATION FOR 100 PSI TEST PRESSURE

CONCRETE VOLUME	REBAR SIZE	MIN EMBEDMENT LENGTH	MIN HOOK LENGTH
10 CF	NO. 4	9"	6"
15 CF	NO. 5	12"	12"
17 CF	NO. 6	15"	12"

N.T.S.
WA-10

THRUST BLOCKS
SHEET 2 OF 3

THRUST BLOCK BEARING AREAS (SQ.FT) FOR INTERNAL STATIC PRESSURE OF 100 PSI AND SOIL BEARING CAPACITY OF 1000 PSF

DIAM (IN)	90° BEND	45° BEND	22½° BEND	11½° BEND	DEAD ENDS, VALVES & TEES PLUGGED CROSS BRANCHES
3	1.7	0.9	0.5	0.2	1.2
4	2.6	1.4	0.7	0.4	1.8
6	5.3	2.8	1.5	0.7	3.7
8	9.1	4.9	2.5	1.3	6.4
12	19.4	10.1	5.3	2.7	13.7
16	33.6	18.2	9.3	4.7	23.8

NOTES:

1. POLYETHYLENE BOND BREAKER/VINAL LINE INSTALLED BETWEEN ALL FITTINGS AND CONCRETE.
2. ALL THRUST BLOCKING SHALL BE CAST-IN-PLACE CONCRETE WITH A MINIMUM YIELD 24 DAY STRENGTH OF 3000 P.S.I.
3. THRUST BLOCKING SHALL BE CAST AGAINST UNDISTURBED SOIL. FORMS SHALL BE USED AS REQUIRED TO OBTAIN ADEQUATE BEARING AREA AND TO CONFINE THE CONCRETE. THRUST BLOCKING SHALL BEAR ON THE FITTING OR END CAP ONLY AND MAY NOT BE ALLOWED TO SPILL OVER THE JOINT OR AGAINST THE PIPE.
4. THE CITY MAY REQUIRE LARGER THRUST BLOCKS THAN SPECIFIED IF SOILS ARE DETERMINED TO PROVIDE LESS THAN 1000 PSF BEARING CAPACITY.
5. IN THE ABSENCE OF SOIL BEARING CAPACITY INFORMATION USE 1000 PSF.
6. BEARING AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING THE TABULATED BEARING AREAS BY A CORRECTION FACTOR "P"

$P = \frac{\text{ACTUAL SUBGRADE TEST PRESSURE (PSI)}}{\text{ACTUAL SOIL BEARING CAPACITY (PSF)/1000 PSF}}$

7. EXAMPLE: CALCULATE THE BEARING AREA FOR 8" 90° BEND WITH A STATIC INTERNAL PRESSURE OF 150 PSI AND SOIL BEARING CAPACITY OF 2000 PSF

FROM TABLE BEARING AREA= 3.1 SF

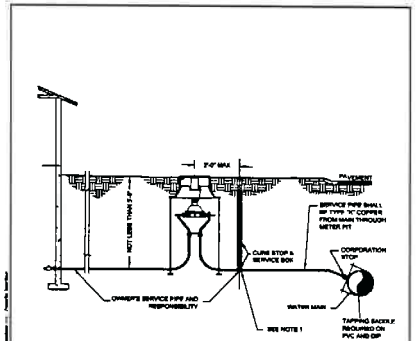
$P = \frac{150 \text{ PSI}}{100 \text{ PSI}} = 1.5$

(ROUND PSI >=100 PSI)

REQUIRED BEARING AREA ON UNDISTURBED SOIL = (3.1 SQ. FT.) / 1.5 = 2.0 SF

N.T.S.
WA-10

THRUST BLOCKS
SHEET 3 OF 3

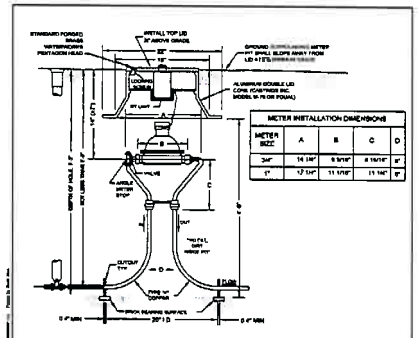


NOTES:

1. PLACEMENT OF CURB STOP BOX MAY VARY FROM A MAXIMUM OF 1 FOOT OUTSIDE THE PROPERTY LINE TO A MINIMUM OF 1 FOOT INSIDE THE PROPERTY LINE. PLACEMENT OF CURB STOP BOX OUTSIDE THE PROPERTY LINE IS PREFERRED.
2. PUBLIC [illegible] RESPONSIBILITY SHALL BE THE WATER MAIN CORPORATION STOP, SERVICE PIPING UP TO THE CURB STOP AND THE TURB NUT ON THE STREET SIDE OF THE CURB STOP. OWNERS RESPONSIBILITY SHALL BE UP TO AND INCLUDING THE CURB STOP AND BOX.
3. SHOULD ANY STUB FOR AREAS OTHER THAN SHOWN CONSIDERING THE DEPTH OR OBSTRUCTION OF SERVICE LINE ON THE PLACEMENT OF THE METER PIT OR STOP BOX, CALL TOWN'S PUBLIC WORKS DEPARTMENT
4. REFER TO WATER AND SEWER STANDARD DRAWINGS AND CONSTRUCTION SPECIFICATIONS FOR METER INSTALLATION REQUIREMENTS
5. SEE DETAIL [illegible] FOR METER SETTING

N.T.S.
WA-11

SERVICE LINE, STOP BOX AND METER



METER INSTALLATION DIMENSIONS

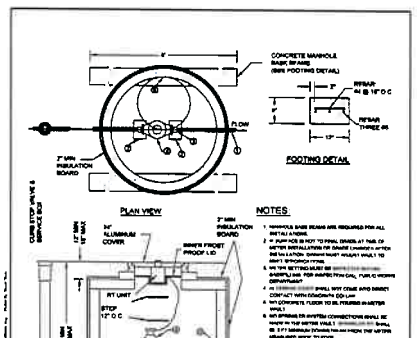
METER SIZE	A	B	C	D
3/4"	14 1/4"	9 3/16"	8 13/16"	9"
1"	17 1/4"	11 1/16"	11 1/4"	9"

NOTES:

1. NOT FOR INSTALLATION IN ROADWAYS OR PARKING AREAS.
2. IF SURFACE IS NOT TO FINAL GRADE AT TIME OF INSTALLATION OF METER, OR GRADE CHANGES AFTER INSTALLATION OWNER MUST ADJUST PIT TO MEET SPECIFICATIONS.
3. METER SETTING MUST BE INSPECTED BEFORE BACKFILLING. FOR INSPECTION CALL TOWN DEPARTMENT OF PUBLIC WORKS. LOCATION OF METER SHALL BE 2 FEET DOWNSTREAM OF THE CURB STOP UNLESS OTHERWISE PLACED BY METER SERVICES.
4. NO CONCRETE FLOOR TO BE POURED IN METER PIT.
5. NO SPRINKLER SYSTEM CONNECTIONS SHALL BE MADE IN THE METER PIT. SPRINKLER PIT SHALL BE MINIMUM 3 FT FROM METER PIT. MEASURED FROM METER PIT.
6. NO MAJOR LANDSCAPING OR STRUCTURES SHALL BE LOCATED WITHIN 4 FT OF THE METER PIT.
7. 3" PRESSURE REDUCING VALVE IS REQUIRED BY PLUMBING CODE. IT SHALL BE INSTALLED INSIDE THE BUILDING IMMEDIATELY FOLLOWING THE MAIN WATER SHUT OFF VALVE.
8. COPPER SHALL BE HOT WELD 3 CRIMPING.
9. REFER TO WATER & SEWER CONSTRUCTION SPECIFICATIONS, CURRENT VERSION, FOR PRODUCT SPECIFICATIONS

N.T.S.
WA-12

SETTING FOR ¾" & 1" METER



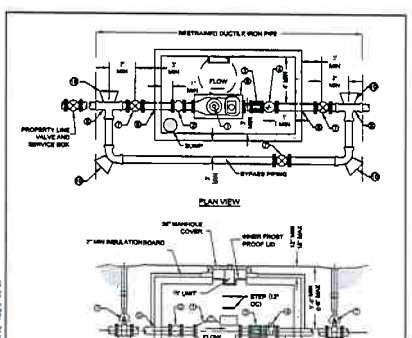
NOTES:

LEGEND

1	TYPE 2 COPPER TUBING
2	METER SETTING BORROW
3	METER SETTER
4	METER
5	METER PIT
6	METER PIT LID
7	METER PIT INSULATION

N.T.S.
WA-13

SETTING FOR 1 ½" & 2" METER



LEGEND

1	TYPE 2 COPPER TUBING
2	METER SETTING BORROW
3	METER SETTER
4	METER
5	METER PIT
6	METER PIT LID
7	METER PIT INSULATION
8	METER PIT LID
9	METER PIT LID
10	METER PIT LID
11	METER PIT LID
12	METER PIT LID
13	METER PIT LID
14	METER PIT LID
15	METER PIT LID

N.T.S.
WA-14

SETTING FOR 3" OR LARGER

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SUBMISSION
CONTACT: RICK ROBERTSON
50031 E. 160th AVENUE
BENNETT, CO 80102
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KEENESBURG WATER DETAILS
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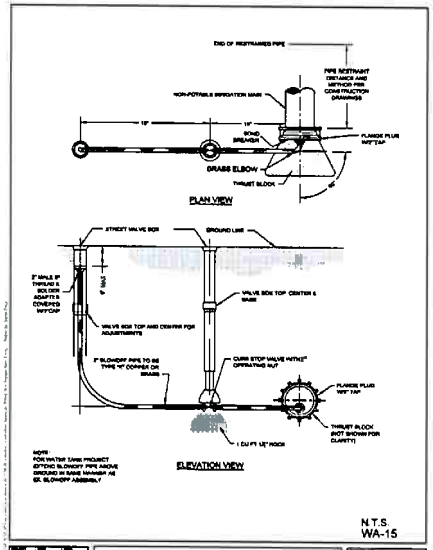
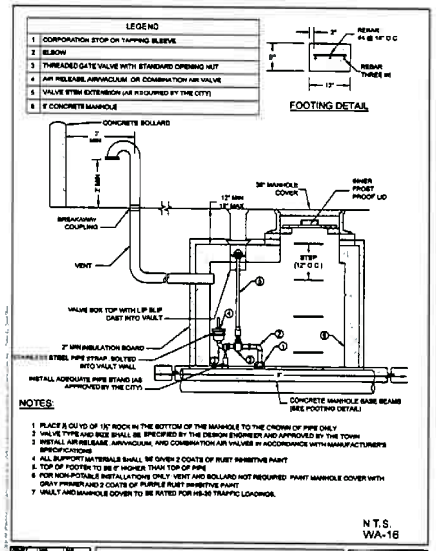
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0013-WTR01-S
SHEET 13 OF 27



TELESTO

BLOWOFF ASSEMBLY
FOR 12" AND SMALLER PIPE



TELESTO

AIR AND VACUUM RELIEF VALVE AND VAULT

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REVISIONS			

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KEENESBURG WATER DETAILS
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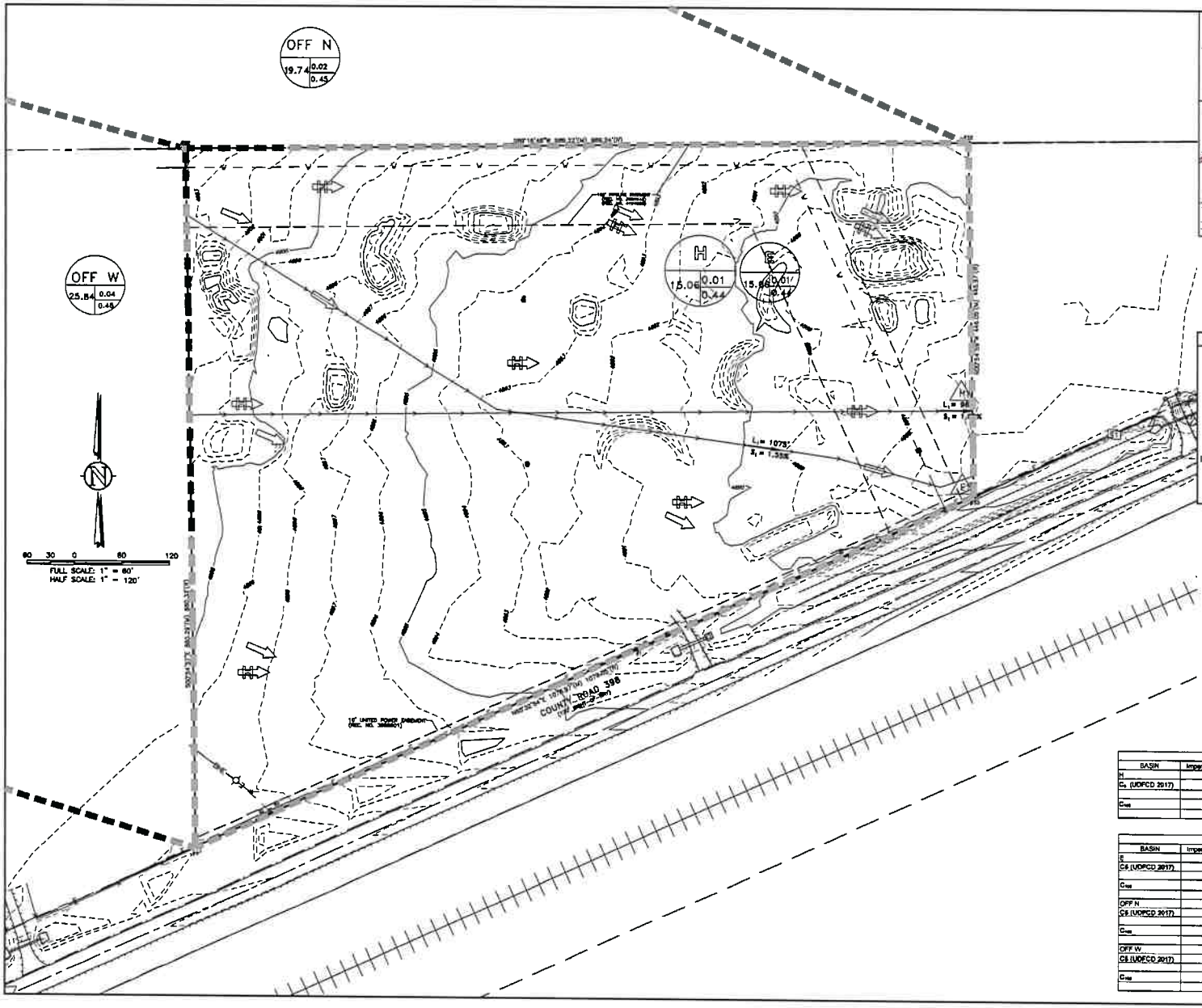
PROJECT NO. 01-0187.002.00
DOC CON # 0014-WTR01.5
SHEET 14 OF 27



SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

HISTORIC & EXISTING DRAINAGE LEGEND

- E — EXISTING SUB-BASIN DESIGNATION; 1.12 AREA IN ACRES; 73 C5; .83 C100
- H — HISTORIC SUB-BASIN DESIGNATION; 1.12 AREA IN ACRES; 73 C5; .83 C100
- EXISTING BASIN
- EXISTING DRAINAGE PATTERN
- HISTORICAL DRAINAGE PATTERN

L_i - INITIAL LENGTH	L_i = 72.5
S_i - INITIAL SLOPE	S_i = 8.0%
L_t - TRAVEL LENGTH	L_t = 180'
S_t - TRAVEL SLOPE	S_t = 0.75%

* AVERAGE SLOPE INCLUDES ROOF SLOPE OF 0.50%

HISTORIC RUNOFF TABLE (RK Annexation)

BASIN	Impervious	C-YR	I	A	C(A)(Y-Pavement)	Flow	DESIGN POINT
H							
C_5 (UDFCD 2017)	2.00	0.01	1.98	15.06	0.29	cfs	HE1
C_{100}	2.00	0.44	4.57	15.06	30.27	cfs	

EXISTING RUNOFF TABLE (RK Annexation)

BASIN	Impervious	C-YR	I	A	C(A)(Y-Existing)	Flow	DESIGN POINT
E							
C_5 (UDFCD 2017)	2.00	0.01	1.98	15.06	0.29	cfs	E1
C_{100}	2.00	0.44	4.57	15.06	30.27	cfs	
OFF N							
C_5 (UDFCD 2017)	3.86	0.02	0.83	19.74	0.39	cfs	Q1
C_{100}	3.86	0.45	1.94	19.74	17.17	cfs	
OFF W							
C_5 (UDFCD 2017)	6.00	0.04	1.06	25.84	1.15	cfs	Q2
C_{100}	6.00	0.45	2.44	25.84	28.93	cfs	

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ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
50531 E 100th AVENUE
BENNETT, CO 80102
(303)261-0031

HISTORIC DRAINAGE PLAN
ROBERTSON-KAISER ANNEX PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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RELEASE: 02/18/19
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DRAWN BY: CFC
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PROJECT NO. 01-0187.003.00
DOC CON # 0015-HEERING
SHEET 15 OF 27

MAINTENANCE OF ALL PRIVATE STORMWATER TREATMENT AND DRAINAGE IMPROVEMENTS IS A CONTINUING OBLIGATION OF THE LAND OWNER, ITS SUCCESSORS, AND ASSIGNS. TO ENSURE THE FACILITIES FUNCTION AS DESIGNED AND CONTINUE SERVING THE INTENDED FUNCTIONS IN PERPETUITY UNLESS THE CITY EXPRESSLY ACCEPTS THE RESPONSIBILITY IN WRITING. A NON-EXCLUSIVE ACCESS AND DRAINAGE EASEMENTS ARE HEREBY GRANTED TO CITY OF BRIGHTON FOR THE PURPOSE OF ACCESSING, INSPECTING, MAINTAINING, AND REPAIRING PRIVATE DRAINAGE FACILITIES IN THE EVENT THE LAND OWNER, ITS SUCCESSORS, AND ASSIGNS FAILS TO SATISFACTORILY MAINTAIN OR REPAIR SAID FACILITIES

L_i - INITIAL LENGTH	L_i = 72.5
S_i - INITIAL SLOPE	S_i = 6.0%
L_t - TRAVEL LENGTH	L_t = 160'
S_t - TRAVEL SLOPE	S_t = 0.75%

* AVERAGE SLOPE INCLUDES ROOF SLOPE OF 0.50%

DEVELOPED DRAINAGE LEGEND

B1 — SUB-BASIN DESIGNATION
3.20 — AREA IN ACRES
58 — C5
88 — C100

EXISTING DRAINAGE PATTERN
DEVELOPED BASIN
PROPOSED DRAINAGE PATTERN
INTERNAL EMERGENCY OVERFLOW
OFFSITE EMERGENCY OVERFLOW

60 30 0 60 120
FULL SCALE: 1" = 60'
HALF SCALE: 1" = 120'

OFF N 19.74 0.02 0.45

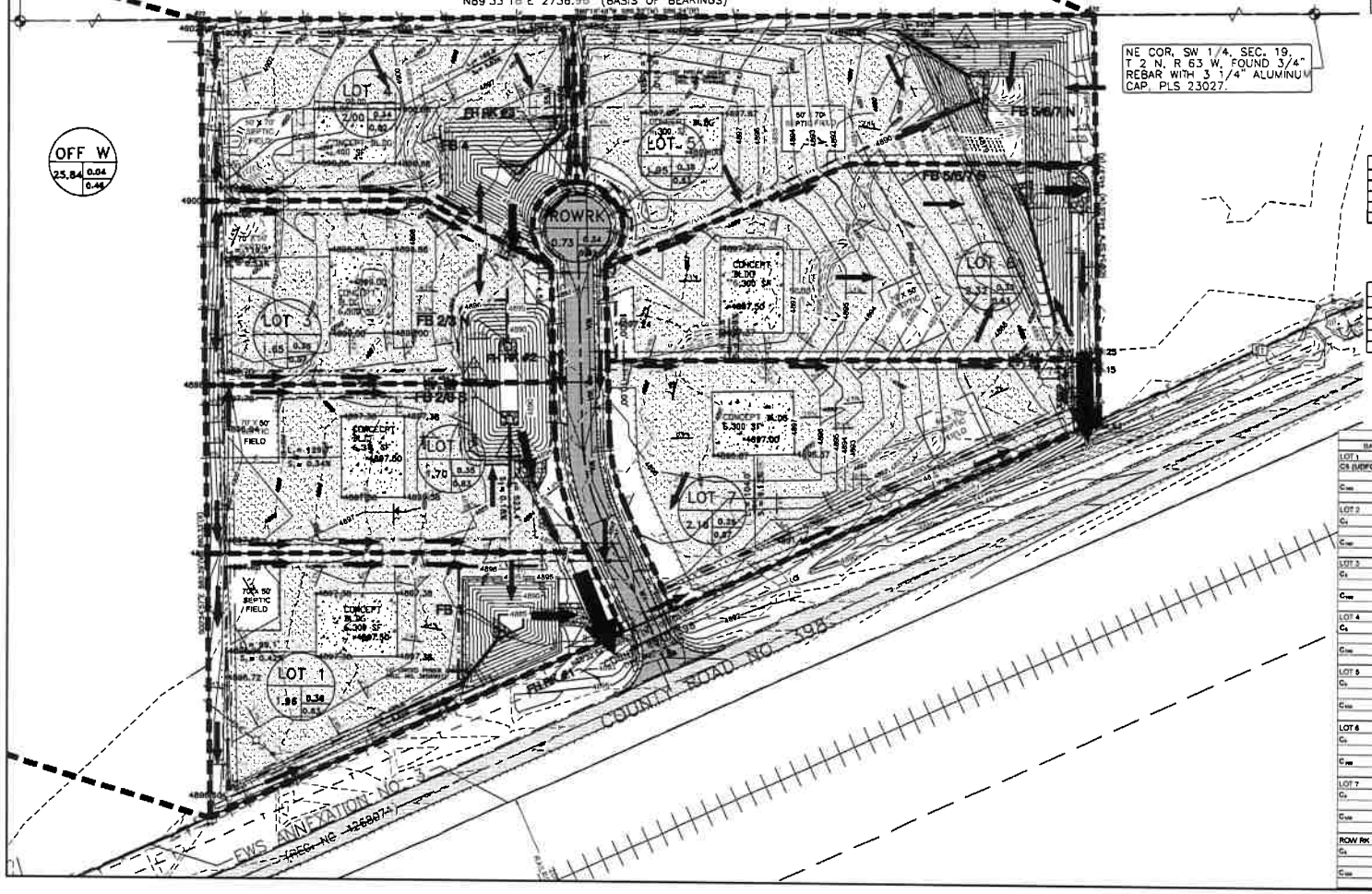
OFF W 25.84 0.04 0.46

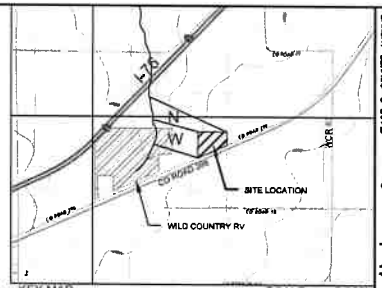
PARCEL NO. 130319000003
GARY DOUGLAS MYERS (1/2 INT)
ARTHUR W. BERGLUND
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W

N89°53'18"E 2756.96' (BASIS OF BEARINGS)

NW COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.





SE 1/4, S24, T2N, R64W, 6th P.M.
SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

INFILTRATION PONDS - 100yr STORM

POND	REQUIRED VOLUME	DESIGN VOLUME	INFILTRATION RATE*
1	34,010	34,611	80.1 HRS
2-3	61,481	86,313	79.6 HRS
4	38,320	38,543	73.4 HRS
5-7	194,867	200,402	99.7 HRS

* USING PERCOLATION RATE FROM ROBERTSON RV PARK DATED JANUARY 14, 2014 PER CRS 37-92-602(8) - 100yr STORM IS REQUIRED TO DRAIN WITHIN 120 HOURS.

INFILTRATION PONDS - 5yr STORM

POND	REQUIRED VOLUME	DESIGN VOLUME	INFILTRATION RATE*
1	5,041	34,611	31.5 HRS
2-3	8,186	86,313	25.1 HRS
4	7,583	38,543	34.8 HRS
5-7	18,302	200,402	22.7 HRS

* USING PERCOLATION RATE FROM ROBERTSON RV PARK DATED JANUARY 14, 2014 PER CRS 37-92-602(8) - 5yr STORM IS REQUIRED TO DRAIN WITHIN 72 HOURS.

DEVELOPED (RK Annexation)

BASIN	Impervious	C,YR	I	A	Q(A)*R-DEVELOPED	cfs	DESIGN POINT
LOT 1							
C5 (MDFCD 2017)	43.65	0.36	2.63	1.65	1.34	cfs	1
C_{100}	43.65	0.63	4.74	1.65	5.45	cfs	1
LOT 2							
C_5	43.03	0.35	3.87	1.66	2.27	cfs	2
C_{100}	43.03	0.63	9.02	1.66	9.39	cfs	2
LOT 3							
C_5	31.37	0.28	1.89	1.65	0.86	cfs	3
						cfs	
C_{100}	31.37	0.57	4.40	1.65	4.16	cfs	3
						cfs	
LOT 4							
C_5	41.34	0.34	2.21	2.00	1.50	cfs	4
						cfs	
C_{100}	41.34	0.62	5.16	2.00	6.38	cfs	4
						cfs	
LOT 5							
C_5	43.65	0.36	2.13	2.52	1.95	cfs	5
						cfs	
C_{100}	43.65	0.63	5.02	2.52	7.96	cfs	5
						cfs	
LOT 6							
C_5	43.03	0.35	2.18	2.32	1.77	cfs	6
C_{100}	43.03	0.63	5.05	2.32	7.31	cfs	6
LOT 7							
C_5	31.37	0.28	1.92	2.32	1.14	cfs	7
C_{100}	31.37	0.57	4.48	2.32	5.96	cfs	7
ROW RK							
C_5	41.34	0.34	2.21	0.75	0.57	cfs	8
C_{100}	41.34	0.62	5.16	0.75	2.40	cfs	8

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ROBERTSON-KAISER SUBMISSION
CONTACT: RICK ROBERTSON
30631 E. FLORO AVENUE
BRIGHTON, CO 80601
(303)991-0031

DEVELOPED DRAINAGE PLAN
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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INITIAL PLAN RELEASE: 02/28/19
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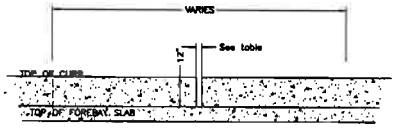
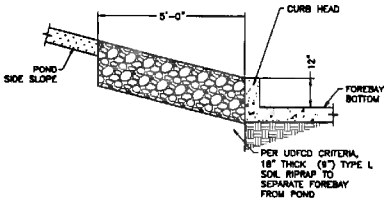
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0016-DEVDRNG
SHEET 16 OF 27

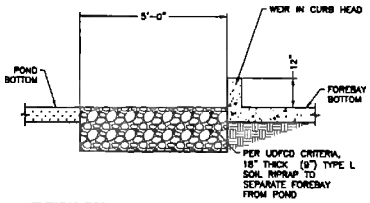


SEE TABLE FOR RELEASE FROM FOREBAY PER UDFCD EQN. SO-13 SEE DRAINAGE REPORT APPENDIX FOR CALCULATIONS

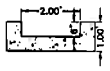
TYPICAL FOREBAY WEIR
SCALE 1" = 2'



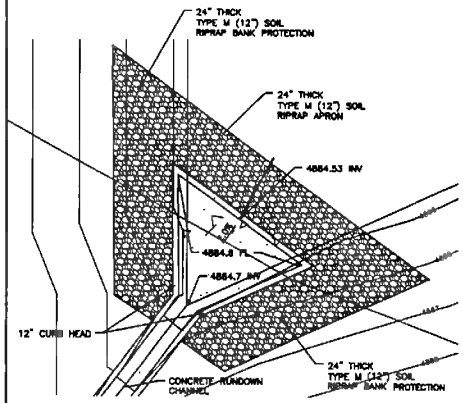
TYPICAL FOREBAY BANK PROTECTION CROSS SECTION
SCALE 1" = 2'



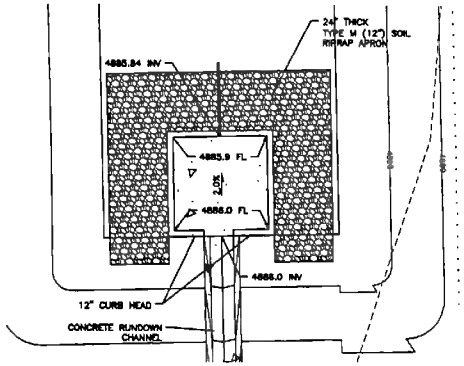
TYPICAL FOREBAY APRON CROSS SECTION
SCALE 1" = 2'



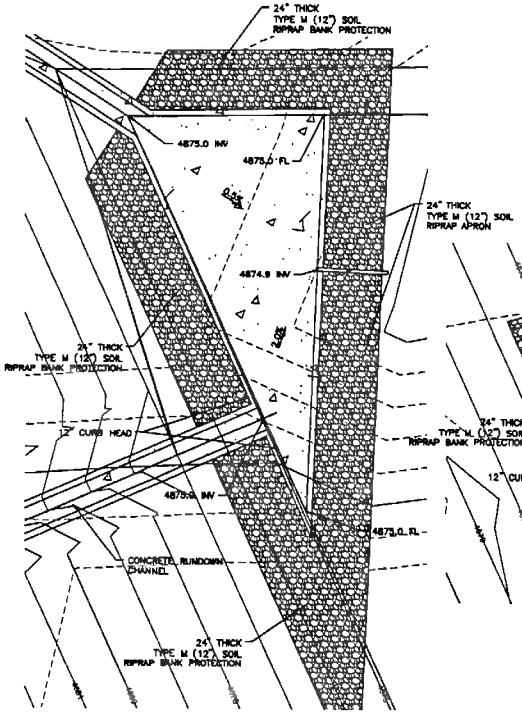
CONC RUNDOWN SECTION
SCALE 1" = 2'



FOREBAY 1 DETAIL
SCALE 1" = 5'

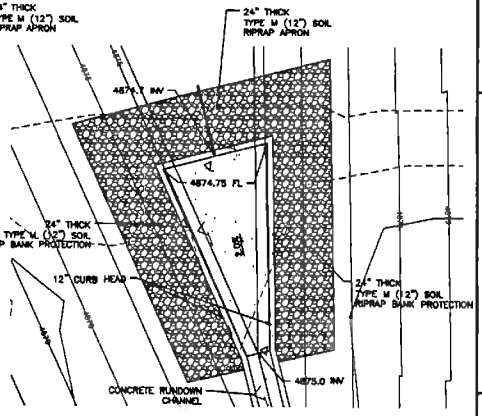


FOREBAY 2/3 S DETAIL
SCALE 1" = 5'

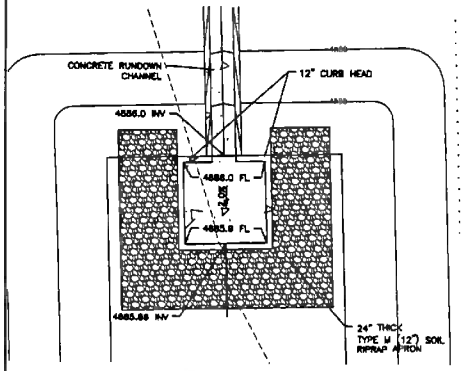


FOREBAY 5/6/7 N DETAIL
SCALE 1" = 5'

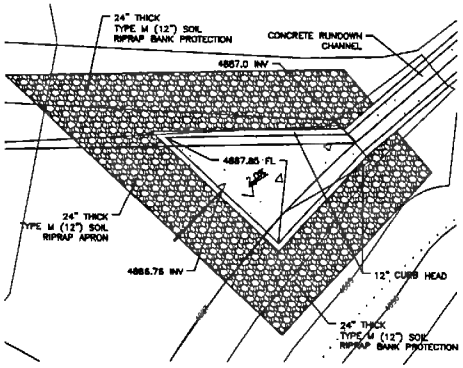
FOREBAY DATA TABLE				
FOREBAY	FOREBAY AREA (SF)	BASINS TREATED	2% RELEASE Q (CFS)	WEIR WIDTH (IN)
1	64	LOT 1	0.11	1.1
2/3 S	64	LOT 2	0.10	2
2/3 N	49	LOT 3	0.08	0.8
4	81	LOT 4	0.13	1.4
5/6/7 N	169	LOTS 5 & 6	0.31	3.3
5/6/7 S	81	LOT 7	0.12	1.3



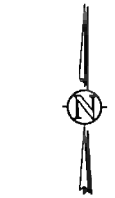
FOREBAY 5/6/7 S DETAIL
SCALE 1" = 5'



FOREBAY 2/3 N DETAIL
SCALE 1" = 5'



FOREBAY 4 DETAIL
SCALE 1" = 5'



5 2.5 0 5 10
FULL SCALE: 1" = 5'
HALF SCALE: 1" = 10'

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FAX (720) 834-1338
Western Engineering Consultants, Inc. LLC

No.	Revision	Date	By
1	INITIAL SUBMITTAL	10/19/01	CFC
2	COMMENTS FOR FINAL SUBMITTAL	12/19/01	CFC

ROBERTSON-KAISER SUBMISSION
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50031 E 160th AVENUE
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POND DETAILS
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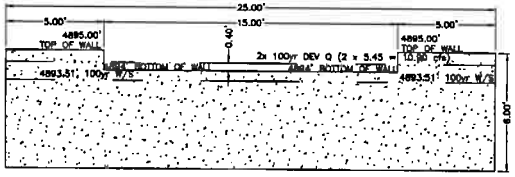
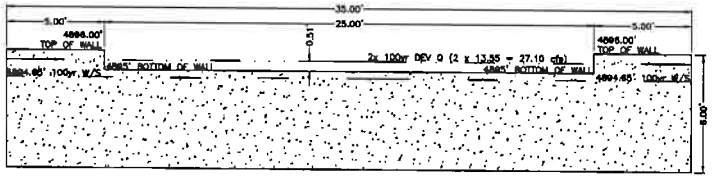
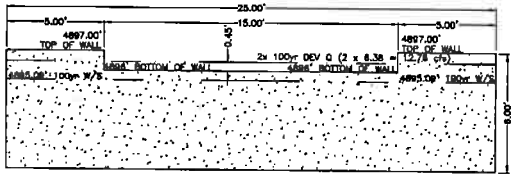
DOC CON # 0017-POND DTL
SHEET 17 OF 27



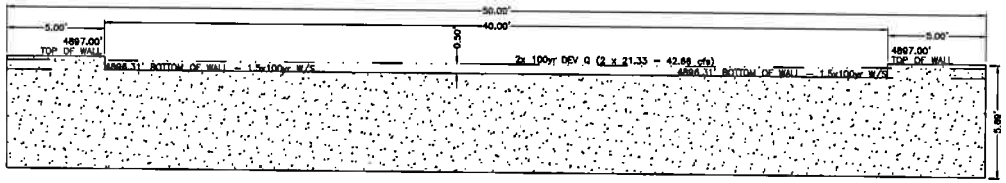
POND '1' EMERGENCY SPILLWAY WALL
SCALE 1" = 3'



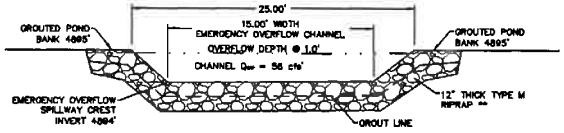
POND 2/3' EMERGENCY SPILLWAY WALL
SCALE 1" = 3'



POND '4' EMERGENCY SPILLWAY WALL
SCALE 1" = 3'

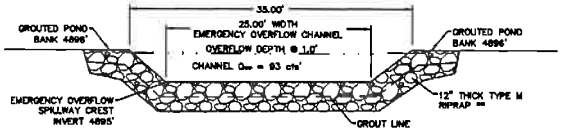


POND '5/6/7' EMERGENCY SPILLWAY WALL
SCALE 1" = 3'



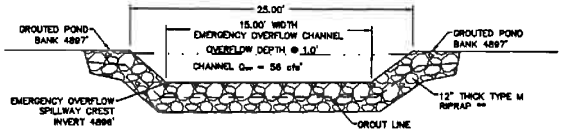
** GROUTED RIPRAP SHALL NOT HAVE GROUT LEVEL ABOVE 1/2 THE TOTAL RIPRAP DEPTH (i.e. 12" OF TYPE M RIPRIP TO HAVE GROUT UP TO 6").

EMERGENCY OVERFLOW CHANNEL • SPILLWAY WALL
SCALE 1" = 2.0'
DETAIL - POND 1



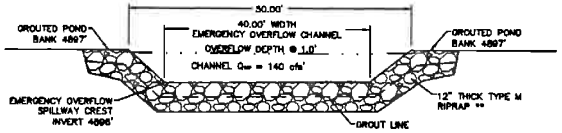
** GROUTED RIPRAP SHALL NOT HAVE GROUT LEVEL ABOVE 1/2 THE TOTAL RIPRAP DEPTH (i.e. 12" OF TYPE M RIPRIP TO HAVE GROUT UP TO 6").

EMERGENCY OVERFLOW CHANNEL • SPILLWAY WALL
SCALE 1" = 2.0'
DETAIL - POND 2/3



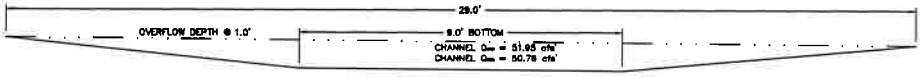
** GROUTED RIPRAP SHALL NOT HAVE GROUT LEVEL ABOVE 1/2 THE TOTAL RIPRAP DEPTH (i.e. 12" OF TYPE M RIPRIP TO HAVE GROUT UP TO 6").

EMERGENCY OVERFLOW CHANNEL • SPILLWAY WALL
SCALE 1" = 2.0'
DETAIL - POND 4

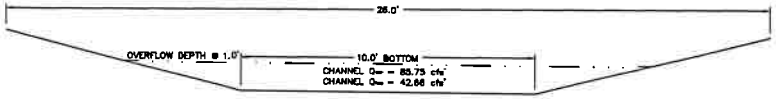


** GROUTED RIPRAP SHALL NOT HAVE GROUT LEVEL ABOVE 1/2 THE TOTAL RIPRAP DEPTH (i.e. 12" OF TYPE M RIPRIP TO HAVE GROUT UP TO 6").

EMERGENCY OVERFLOW CHANNEL • SPILLWAY WALL
SCALE 1" = 2.0'
DETAIL - POND 5/6/7



SPILLWAY CHANNEL DETAIL - PONDS 1, 2/3, 4
SCALE 1" = 2.0'



SPILLWAY CHANNEL DETAIL - POND 5/6/7
SCALE 1" = 2.0'

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ROBERTSON KAISER SUBMISSION
CONTACT: RICK ROBERTSON
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POND SPILLWAY DETAILS
ROBERTSON-KAISER ANNEX
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TOWN of KEENESBURG, WELD COUNTY, COLORADO

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INITIAL PLAN RELEASE: 05/18/20
DESIGNED BY: CFC
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PROJECT NO. 01-0187.002.00
DOC CON # 0173-POND 8TL
SHEET 17D OF 27

INITIAL

PARCEL NO. 130319000003
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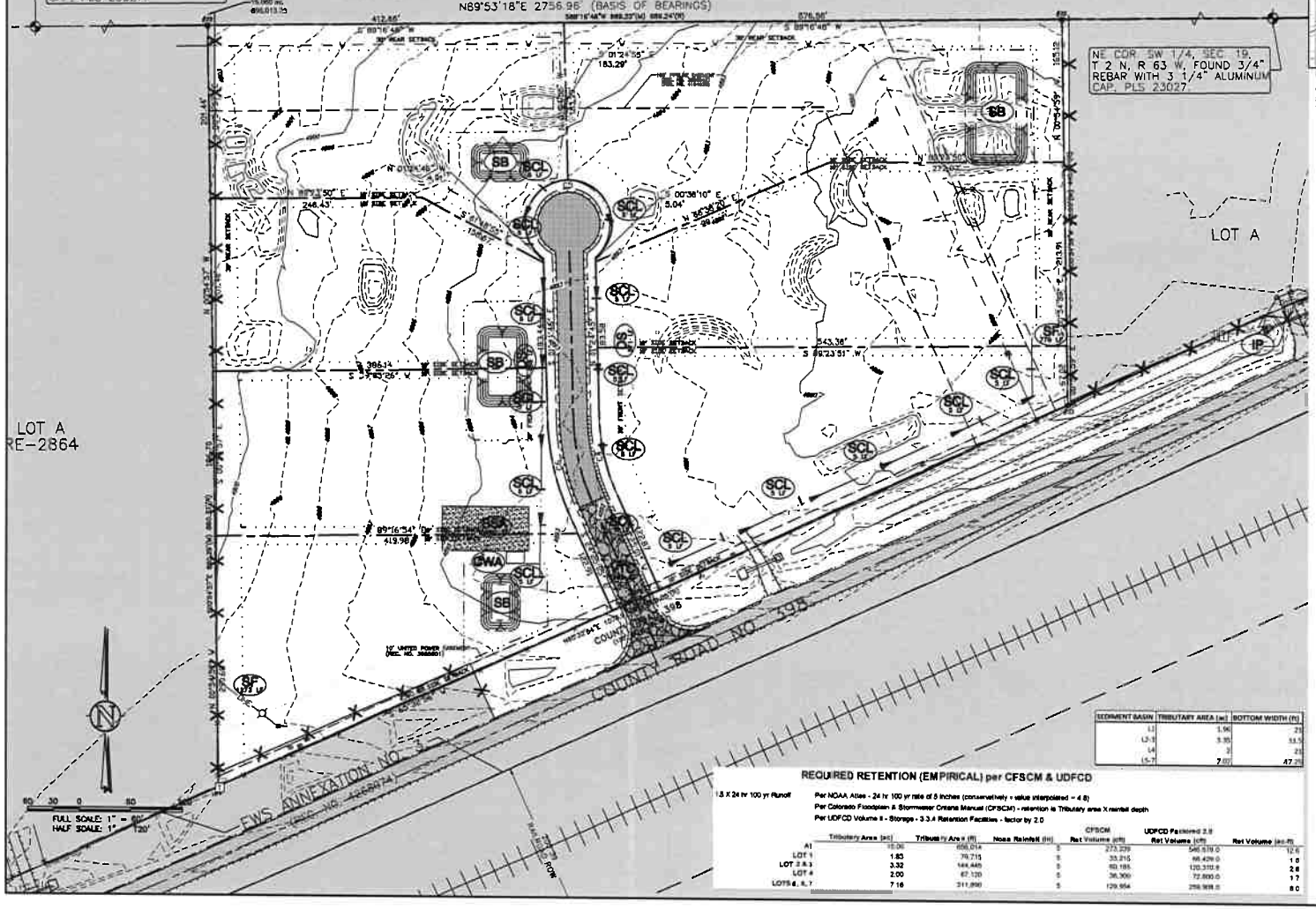
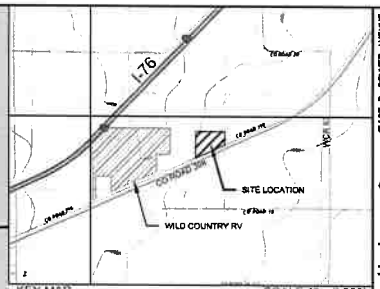
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W

N89°53'18"E 2756.96' (BASIS OF BEARINGS)

NW COR SW 1/4, SEC 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027

NE COR SW 1/4, SEC 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027





KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEYMAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

INFILTRATION PONDS		
POND	REQUIRED VOLUME	DESIGN VOLUME
1	34,010	34,811
2-3	61,461	66,313
4	37,478	38,543
5-7	194,887	200,402

SEDIMENT BASIN	TRIBUTARY AREA (ac)	BOTTOM WIDTH (ft)
L1	1.96	23
L2-3	3.35	33.5
L4	2	23
L5-7	7.02	47.25

REQUIRED RETENTION (EMPIRICAL) per CFSCM & UDFCD

1.5 X 24 hr 100 yr Runoff

Per NOAA Atlas - 24 hr 100 yr rate of 5 inches (conservatively - value interpolated = 4.8)
Per Colorado Floodplain & Stormwater Criteria Manual (CFSCM) - retention is Tributary area X rainfall depth
Per UDFCD Volume II - Storage - 3.3.4 Retention Facilities - factor by 2.0

	Tributary Area (ac)	Tributary Area (ft)	Noaa Rainfall (in)	CFSCM Ret Volume (cft)	UDFCD Factored 2.0 Ret Volume (cft)	Ret Volume (ac-ft)
A1	15.06	656,014	5	273,339	546,678.0	12.6
LOT 1	1.83	79,715	5	33,215	66,429.0	1.5
LOT 2 & 3	3.32	144,445	5	60,185	120,370.0	2.8
LOT 4	2.00	87,120	5	36,300	72,600.0	1.7
LOTS 5, 6, 7	7.16	311,890	5	129,954	259,908.0	6.0

LINETYPE LEGEND

- LOT / PROPERTY LINE
- EASEMENT
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EDGE of ASPHALT/GRAVEL
- EXISTING FENCE

BMP LEGEND

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ROBERTSON-KAISER ANNEX
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FOR REVIEW

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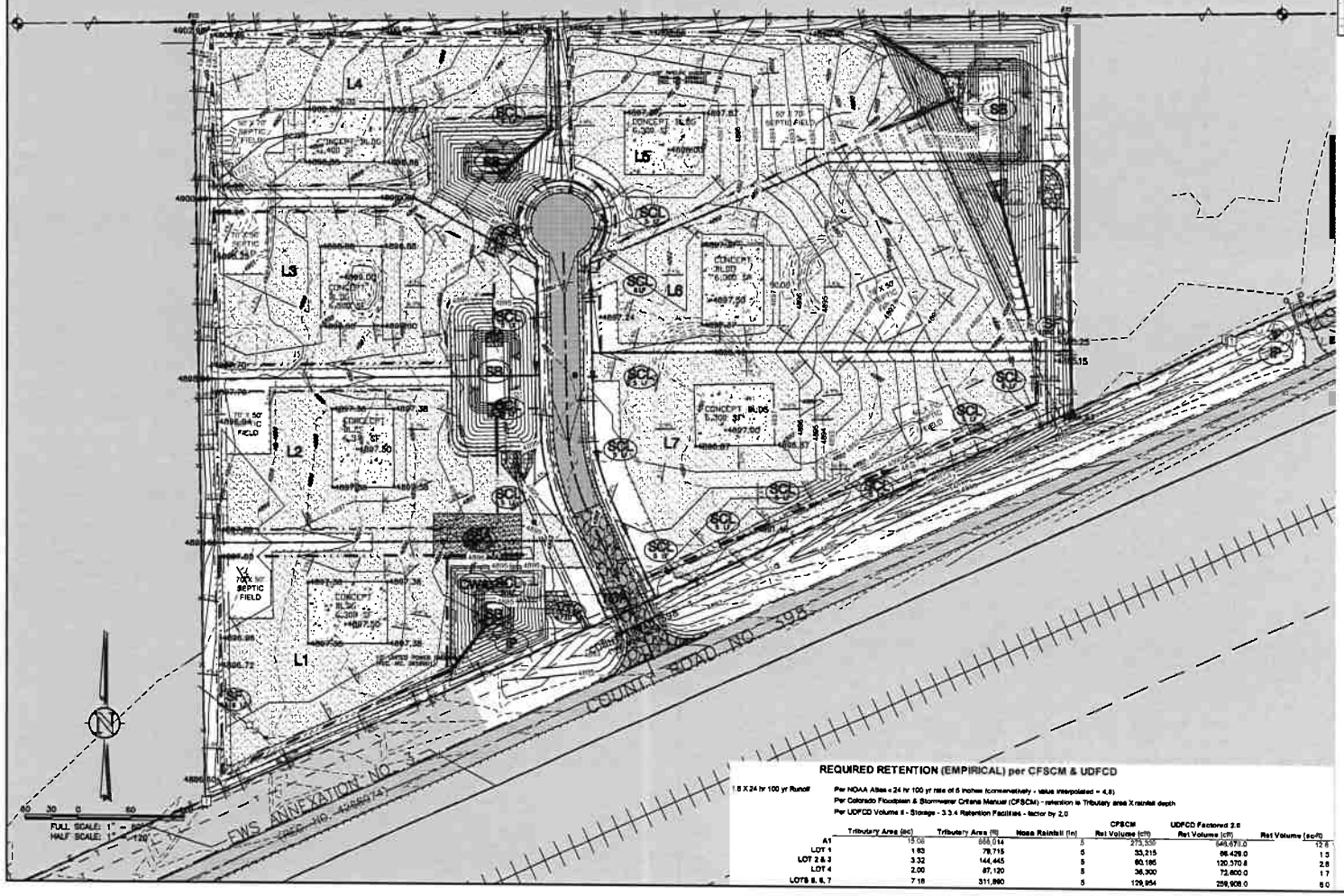
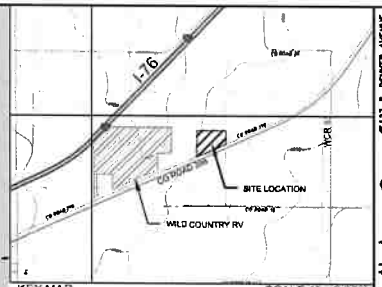
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0018-DESCRB
SHEET 18 OF 27

INTERIM

PARCEL NO. 130319000003
GARY DOUGLAS MYERS (1/2 INT)
ARTHUR W. BERGLUND
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W





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ROBERTSON - KAISER ANNEX
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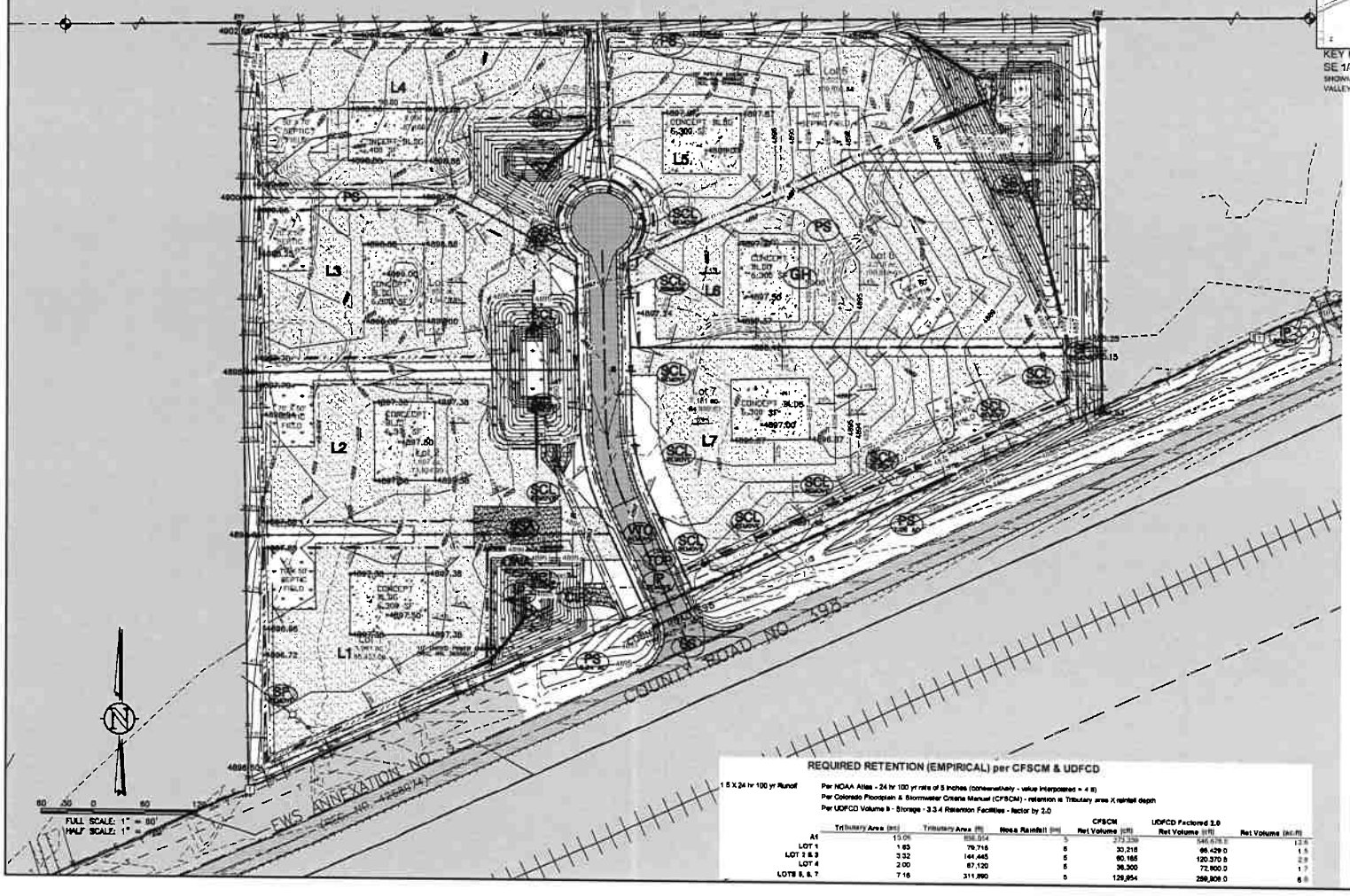

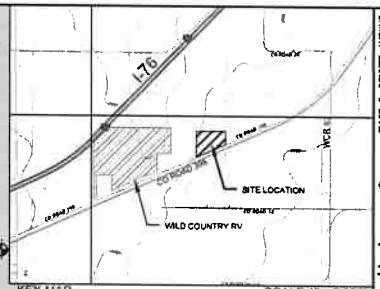

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REVISIONS		

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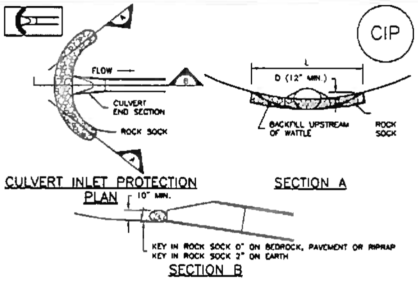


CIP-1. CULVERT INLET PROTECTION

CULVERT INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   - LOCATION OF CULVERT INLET PROTECTION.

2. SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING DETAIL.

CULVERT INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

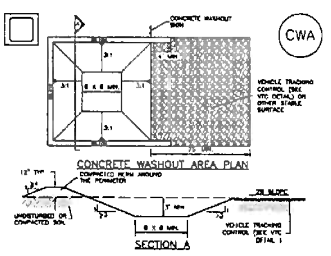
4. SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS ½ THE HEIGHT OF THE ROCK SOCK.

5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Concrete Washout Area (CWA) MM-1



CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - CWA INSTALLATION LOCATION

2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.

3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8'. SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.

5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.

6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

MM-1 Concrete Washout Area (CWA)

CWA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.

5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.

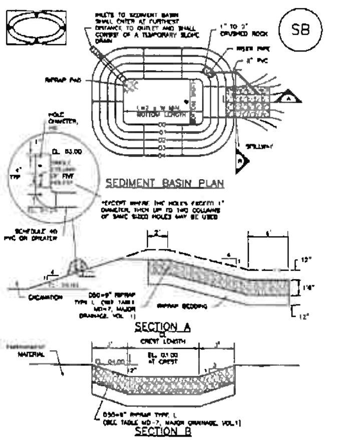
6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.

7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Sediment Basin (SB) SC-7



SB-1. SEDIMENT BASIN

SC-7 Sediment Basin (SB)

SEE SHEET 17 FOR RETENTION VOLUMES

~~TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN~~

~~Upstream Drainage Area (rounded to nearest acre), (ac)~~	~~Basin Bottom Width (W), (ft)~~	~~Spillway Crest Length (CL), (ft)~~	~~Hole Diameter (HD), (in)~~
~~1~~	~~12 ½~~	~~2~~	[illegible]
~~2~~	~~21~~	~~3~~	[illegible]
~~3~~	[illegible]	~~5~~	[illegible]
~~4~~	~~33 ½~~	~~6~~	[illegible]
~~5~~	~~38 ½~~	~~8~~	[illegible]
~~6~~	[illegible]	~~9~~	[illegible]
~~7~~	[illegible]	~~11~~	[illegible]
~~8~~	~~51~~	~~12~~	[illegible]
~~9~~	~~55~~	[illegible]	[illegible]
~~10~~	~~58 ½~~	~~15~~	[illegible]
~~11~~	~~61~~	~~16~~	[illegible]
~~12~~	~~64~~	~~18~~	[illegible]
~~13~~	~~67 ½~~	~~19~~	[illegible]
~~14~~	~~70 ½~~	~~21~~	[illegible]
~~15~~	~~73 ½~~	~~22~~	[illegible]

SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF SEDIMENT BASIN.
   - TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
   - FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
   - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.

2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.

3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS AS A STORMWATER CONTROL.

4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.

5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.

6. PIPE SCH 40 OR GREATER SHALL BE USED.

7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

Sediment Basin (SB) SC-7

SEDIMENT BASIN MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).

5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.

6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO)

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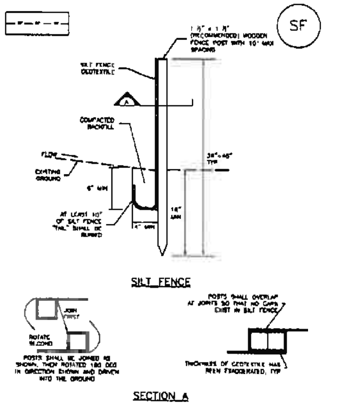
Silt Fence (SF) SC-1



SF-1. SILT FENCE

SC-1 Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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SWMP & EROSION CONTROL DETAILS
ROBERTSON-KAISER ANNEX PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

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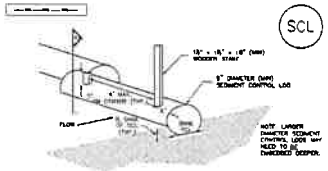
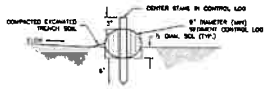
FOR REVIEW

INITIAL PLAN RELEASE 03/19/18
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0021-SWMPDTL
SHEET 21 OF 27

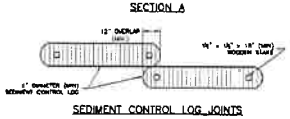
Sediment Control Log (SCL) — SC-2



SEDIMENT CONTROL LOG



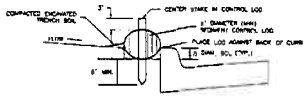
SECTION A



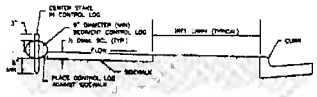
SEDIMENT CONTROL LOG JOINTS

SCL-1 SEDIMENT CONTROL LOG

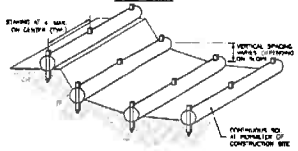
SC-2 — Sediment Control Log (SCL)



SCL-2. SEDIMENT CONTROL LOG AT BACK OF CURB



SCL-3. SEDIMENT CONTROL LOG AT SIDEWALK WITH TREE LAWN



SCL-4. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

Sediment Control Log (SCL) — SC-2

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.

2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.

3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEBRIS INCLUDING RIPS, HOLES AND PARTIALS WEAR.

4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.

5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY ⅓ OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING.

6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL. THIS IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR MECHANIZED LAWN ROLLER.

7. FOLLOW MANUFACTURERS GUIDANCE FOR STAKING. IF MANUFACTURER INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 8" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

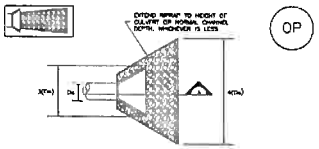
4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.

5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION IF DISTURBED AREAS DRY AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

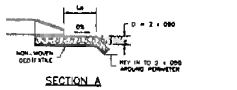
(Without starter from Urban of Denver, Stormwater Quality Manual, Revised, Double Check, Revision, and DFR of Denver, Revised, not available in Aurora)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM LISTED STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

EC-8 — Temporary Outlet Protection (TOP)



TEMPORARY OUTLET PROTECTION PLAN



SECTION A

TABLE OP-1 TEMPORARY OUTLET PROTECTION WITHIN TRENCH

PIPE DIAMETER, D (INCHES)	DISCHARGE, Q (CFS)	APRON LENGTH, Lo (FT)	REPRAP ROCK DIAMETER (INCHES)
8	2.5	5	4
	5	10	6
12	5	10	4
	10	15	6
18	10	10	4
	20	16	6
	30	22	12
	40	26	18
24	20	18	6
	40	24	9
	60	28	12
	80	30	18

OP-1. TEMPORARY OUTLET PROTECTION

Temporary Outlet Protection (TOP) — EC-8

TEMPORARY OUTLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   - LOCATION OF OUTLET PROTECTION.
   - DIMENSIONS OF OUTLET PROTECTION.

2. DETAIL IS INTENDED FOR PIPES WITH SLOPE ≤ 10%. ADDITIONAL EVALUATION OF REPRAP SIZING AND OUTLET PROTECTION DIMENSIONS REQUIRED FOR STEEPER SLOPES.

3. TEMPORARY OUTLET PROTECTION INFORMATION IS FOR OUTLETS INTENDED TO BE UTILIZED LESS THAN 3 YEARS.

TEMPORARY OUTLET PROTECTION INSPECTION AND MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

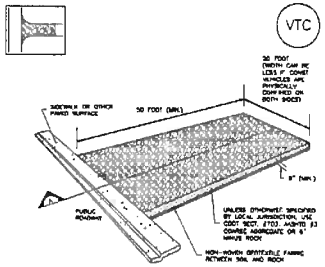
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

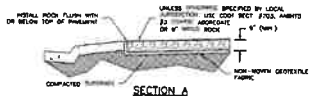
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM LISTED STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(Details adapted from City of Denver, Stormwater, and DFR Denver in Aurora)

Vehicle Tracking Control (VTC) — SM-4





SECTION A

VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

SM-4 — Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   - LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S)
   - TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TIRE).

2. CONSTRUCTION MAT OR FIRM STABILIZED CONSTRUCTION ENTRANCE ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM 1 WEEK TO 1 MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.

3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED PUBLIC ROADWAYS.

4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.

6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. 703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM LISTED STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(Details adapted from City of Denver, Stormwater, and DFR Denver in Aurora)

Good Housekeeping Practices (GH) — MM-3

- Use high-pressure water spray at vehicle washing facilities without detergents. Water alone can remove most dirt adequately.
- Do not conduct other activities, such as vehicle repairs, in the wash area.
- Include the location of the washing facilities and the inspection and maintenance procedures in the SWMP.

- Develop a Spill Prevention and Response Plan. Spill prevention and response procedures must be identified in the SWMP. Representative procedures include identifying ways to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and response. The plan should also specify material handling procedures and storage requirements and ensure that clear and concise spill cleanup procedures are provided and posted for areas in which spills may potentially occur. When developing a spill prevention plan, include the following:
  - Note the locations of chemical storage areas, storm drains, tributary drainage areas, surface waterbodies on or near the site, and resources to stop spills from leaving the site.
  - Provide proper handling and safety procedures for each type of waste. Keep Material Safety Data Sheets (MSDSs) for chemicals used on site with the SWMP.
  - Establish an education program for employees and subcontractors on the potential hazards to humans and the environment from spills and leaks.
  - Specify how to notify appropriate authorities, such as police and fire departments, hospitals, or municipal sewage treatment facilities to request assistance. Emergency procedures and contact numbers should be provided in the SWMP and posted at storage locations.
  - Describe the procedures, equipment and materials for immediate cleanup of spills and proper disposal.
  - Identify personnel responsible for implementing the plan in the event of a spill. Update the spill prevention plan and clean up materials as changes occur to the types of chemicals stored and used at the facility.

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Western Engineering Consultants, Inc. LLC

CORRECTION SUBMITTAL
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30531 E 160th AVENUE
BENNETT, CO 80102
(303)861-0031

SWMP & EROSION CONTROL DETAILS
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DESIGNED BY: CFC
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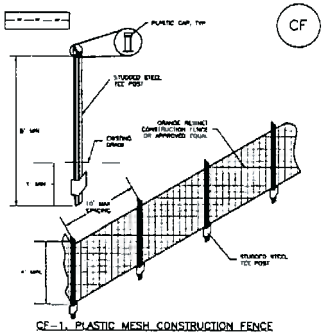
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0022-SWMPDTL
SHEET 22 OF 27

SM-3 Construction Fence (CF)



CF-1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   —LOCATION OF CONSTRUCTION FENCE
2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES
3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY
4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'
5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST

Construction Fence (CF) SM-3

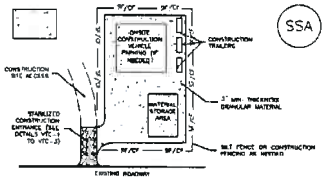
CONSTRUCTION FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION AND PERFORM NECESSARY MAINTENANCE
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE
4. CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION
5. WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONFLICT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED

[illegible]

Stabilized Staging Area (SSA) SM-6



SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   —LOCATION OF STAGING AREA(S).
   —CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION
2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE DURING THE PERIOD IN A LARGER AREA AS STABILIZED FOLLOWING CONSTRUCTION
3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE
4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL
5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. 703.3, AASHTO #3 COARSE AGGREGATE OR 6" (WALKE) ROCK
6. ADDITIONAL INFORMATION BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING

STABILIZED STAGING AREA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED

SM-6 Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS
6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONFLICT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED

[illegible]

Good Housekeeping Practices (GH) MM-3

Description

Implement construction site good housekeeping practices to prevent pollution associated with solid, liquid and hazardous construction-related materials and wastes. Stormwater Management Plans (SWMPs) should clearly specify BMPs including these good housekeeping practices:

- Provide for waste management.
- Establish proper building material staging areas.
- Designate paint and concrete washout areas.
- Establish proper equipment/vehicle fueling and maintenance practices.
- Control equipment/vehicle washing and allowable non-stormwater discharges.
- Develop a spill prevention and response plan.

Photographs GH-1 and GH-2. Proper materials storage and secondary containment for fuel tanks are important good housekeeping practices. Photos courtesy of UDFCD and City of Aurora.

Acknowledgement: This Fact Sheet is based directly on EPA guidance provided in *Developing Your Stormwater Pollution Prevent Plan* (EPA 2007).

Appropriate Uses

Good housekeeping practices are necessary at all construction sites.

Design and Installation

The following principles and actions should be addressed in SWMPs:

- **Provide for Waste Management.** Implement management procedures and practices to prevent or reduce the exposure and transport of pollutants in stormwater from solid, liquid and sanitary wastes that will be generated at the site. Practices such as trash disposal, recycling, proper material handling, and cleanup measures can reduce the potential for stormwater runoff to pick up construction site wastes and discharge them to surface waters. Implement a comprehensive set of waste-management practices for hazardous or toxic materials, such as paints, solvents, petroleum products, pesticides, wood preservatives, acids, roofing tar, and other materials. Practices should include storage, handling, inventory, and cleanup procedures, in case of spills. Specific practices that should be considered include:

Solid or Construction Waste

- Designate trash and bulk waste-collection areas on-site

Good Housekeeping	
Functions	
Erosion Control	No
Sediment Control	No
Site/Material Management	Yes

MM-3 Good Housekeeping Practices (GH)

- Recycle materials whenever possible (e.g., paper, wood, concrete, oil).
- Segregate and provide proper disposal options for hazardous material wastes.
- Clean up litter and debris from the construction site daily.
- Locate waste-collection areas away from streets, gutters, watercourses, and storm drains. Waste-collection areas (dumpsters, and such) are often best located near construction site entrances to minimize traffic on disturbed soils. Consider secondary containment around waste collection areas to minimize the likelihood of contaminated discharges
- Empty waste containers before they are full and overflowing.

Sanitary and Septic Waste

- Provide convenient, well-maintained, and properly located toilet facilities on-site
- Locate toilet facilities away from storm drain inlets and waterways to prevent accidental spills and contamination of stormwater.
- Maintain clean restroom facilities and empty portable toilets regularly.
- Where possible, provide secondary containment pans under portable toilets.
- Provide tie-downs or stake-downs for portable toilets.
- Educate employees, subcontractors, and suppliers on locations of facilities.
- Treat or dispose of sanitary and septic waste in accordance with state or local regulations. Do not discharge or bury wastewater at the construction site.
- Inspect facilities for leaks. If found, repair or replace immediately.
- Special care is necessary during maintenance (pump out) to ensure that waste and/or biosolids are not spilled on the ground

Hazardous Materials and Wastes

- Develop and implement employee and subcontractor education, as needed, on hazardous and toxic waste handling, storage, disposal, and cleanup.
- Designate hazardous waste-collection areas on-site
- Place all hazardous and toxic material wastes in secondary containment.

Photograph GH-3. Locate portable toilet facilities on level surfaces away from waterways and storm drains. Photo courtesy of UDFCD.

Good Housekeeping Practices (GH) MM-3

- Hazardous waste containers should be inspected to ensure that all containers are labeled properly and that no leaks are present.
- **Establish Proper Building Material Handling and Staging Areas.** The SWMP should include comprehensive handling and management procedures for building materials, especially those that are hazardous or toxic. Paints, solvents, pesticides, fuels and oils, other hazardous materials or building materials that have the potential to contaminate stormwater should be stored indoors or under cover whenever possible or in areas with secondary containment. Secondary containment helps prevent a spill from spreading across the site and may include dikes, berms, curbing, or other containment methods. Secondary containment techniques should also ensure the protection of groundwater. Designate staging areas for activities such as fueling vehicles, mixing paints, plaster, mortar, and other potential pollutants. Designated staging areas enable easier monitoring of the use of materials and clean up of spills. Training employees and subcontractors is essential to the success of this pollution prevention principle. Consider the following specific materials handling and staging practices:
  - Train employees and subcontractors in proper handling and storage practices
  - Clearly designate site areas for staging and storage with signs and on construction drawings. Staging areas should be located in areas central to the construction site. Segment the staging area into sub-areas designated for vehicles, equipment, or stockpiles. Construction entrances and exits should be clearly marked so that delivery vehicles enter/exit through stabilized areas with vehicle tracking controls (See Vehicle Tracking Control Fact Sheet).
  - Provide storage in accordance with Spill Protection, Control and Countermeasures (SPCC) requirements and plans and provide cover and impermeable perimeter control, as necessary, for hazardous materials and contaminated soils that must be stored on site.
  - Ensure that storage containers are regularly inspected for leaks, corrosion, support or foundation failure, or other signs of deterioration and tested for soundness.
  - Reuse and recycle construction materials when possible.
- **Designate Concrete Washout Areas.** Concrete contractors should be encouraged to use the washout facilities at their own plants or dispatch facilities when feasible; however, concrete washout commonly occurs on construction sites. If it is necessary to provide for concrete washout areas on-site, designate specific washout areas and design facilities to handle anticipated washout water. Washout areas should also be provided for paint and stucco operations. Designate washout areas can be a source of pollutants from leaks or spills, care must be taken with regard to their placement and proper use. See the Concrete Washout Area Fact Sheet for detailed guidance.

Both self-contained and prefabricated washout containers can fill up quickly when concrete, paint, and stucco work are occurring on large portions of the site. Be sure to check for evidence that contractors are using the washout areas and not dumping materials onto the ground or into drainage facilities. If the washout areas are not being used regularly, consider posting additional signage, relocating the facilities to more convenient locations, or providing training to workers and contractors.

When concrete, paint, or stucco is part of the construction process, consider these practices which will help prevent contamination of stormwater. Include the locations of these areas and the maintenance and inspection procedures in the SWMP.

MM-3 Good Housekeeping Practices (GH)

- Do not washout concrete trucks or equipment into storm drains, streets, gutters, uncontrolled areas, or streams. Only use designated washout areas.
- Establish washout areas and advertise their locations with signs. Ensure that signage remains in good repair
- Provide adequate containment for the amount of wash water that will be used.
- Inspect washout structures daily to detect leaks or tears and to identify when materials need to be removed
- Dispose of materials properly. The preferred method is to allow the water to evaporate and to recycle the hardened concrete. Pell service companies may provide dewatering services and should dispose of wastewater properly. Concrete wash water can be highly polluted. It should not be discharged to any surface water, storm sewer system, or allowed to infiltrate into the ground in the vicinity of waterbodies. Wastewater should not be discharged to a sanitary sewer system without first receiving written permission from the system operator.
- **Establish Proper Equipment/Vehicle Fueling and Maintenance Practices.** Create a clearly designated on-site fueling and maintenance area that is clean and dry. The on-site fueling area should have a spill kit, and staff should know how to use it. If possible, conduct vehicle fueling and maintenance activities in a covered area. Consider the following practices to help prevent the discharge of pollutants in stormwater from equipment/vehicle fueling and maintenance. Include the locations of designated fueling and maintenance areas and inspection and maintenance procedures in the SWMP.
  - Train employees and subcontractors in proper fueling procedures (stay with vehicles during fueling, proper use of pumps, emergency shutoff valves, etc.)
  - Inspect on-site vehicles and equipment regularly for leaks, equipment damage, and other service problems.
  - Clearly designate vehicle/equipment service areas away from drainage facilities and watercourses to prevent stormwater run-on and runoff.
  - Use drip pans, drip cloths, or absorbent pads when replacing spent fluids.
  - Collect all spent fluids, store in appropriate labeled containers in the proper storage areas, and recycle fluids whenever possible.
- **Control Equipment/Vehicle Washing and Allowable Non-Stormwater Discharges.** Implement practices to prevent contamination of surface and groundwater from equipment and vehicle wash water. Representative practices include:
  - Educate employees and subcontractors on proper washing procedures.
  - Use off-site washing facilities, when available.
  - Clearly mark the washing areas and inform workers that all washing must occur in this area.
  - Contain wash water and treat it using BMPs. Infiltrate wastewater when possible, but maintain separation from drainage paths and waterbodies.

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Western Engineering Consultants, Inc LLC

ROBERTSON-KAISER
SUBMISSION
CONTACT: RICK ROBERTSON
50631 E 160th AVENUE
BRIGHTON, CO 80603
(303)981-0031

SWMP & EROSION CONTROL DETAILS
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DOC CON #:	0623-SWMP01
SHEET	23 OF 27

INTERSECTION SIGHT TRIANGLES SHOWN PER AASHTO FIGURE 9-15, CASES B1 & B2. DESIGN SPEED = 55 MPH (POSTED SPEED = 45 MPH), USING COMBINATION TRUCK. LEFT TURN ISD = 930', RIGHT TURN ISD = 850'.

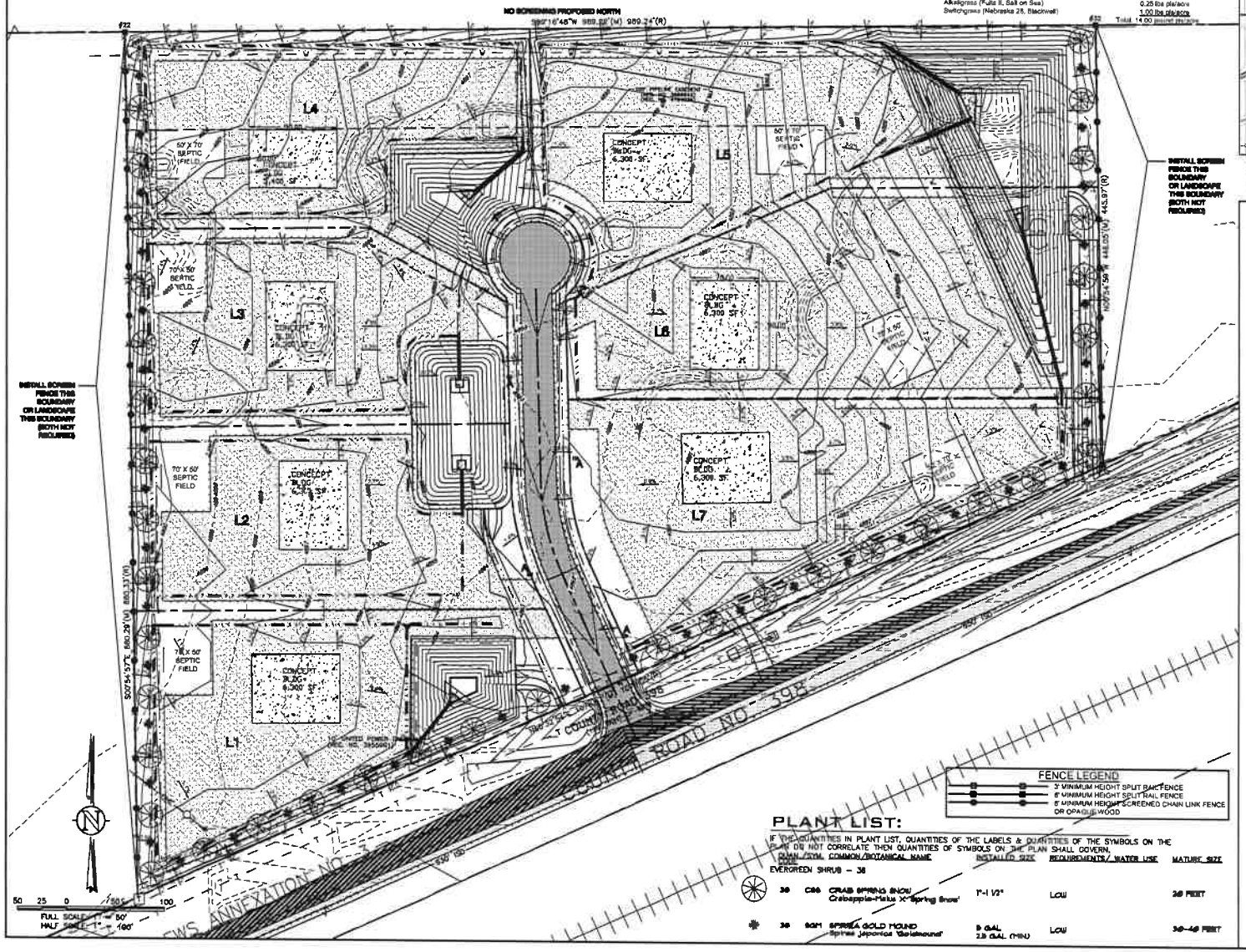
ALL AREAS OUTSIDE HARDSCAPE AND ROADBASE AREAS SHALL BE SEEDED per WELD COUNTY SPECIFICATIONS.

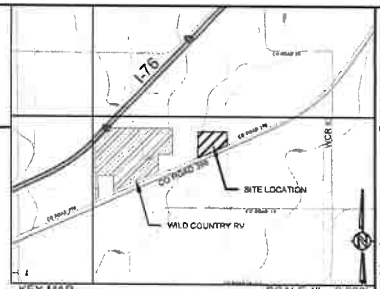
LUMINAIRE SCHEDULE

SYMBOL	QTY	LABEL	LUM. WATTS	LUM. LUMENS	LLF	CATLOG
	6	A	156.5	14852	0.900	LDRL-T2-F06-E

WELD COUNTY SEED MIX:

Western Wheatgrass (Arriba, Barton, Rosana)	2.50 lbs pls/acre
Blue Grama (Hachita, Lovington)	1.50 lbs pls/acre
Sideoats Grama (Vaughn, Butte, Niner, El Reno, Haskell)	2.25 lbs pls/acre
Smooth Brome (Lincoln, Manchar)	2.75 lbs pls/acre
Sand dropseed	0.25 lbs pls/acre
Perennial Ryegrass (Caliform or Gambadi tetraploid)	1.00 lbs pls/acre
Slender Wheatgrass (Pryor, Revenue or San Luis)	2.50 lbs pls/acre
Alkaligrass (Fults II, Salt on Sea)	0.25 lbs pls/acre
Switchgrass (Nebraska 28, Blackwell)	1.00 lbs pls/acre
	Total 14.00 pound pls/acre





KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE SCREENING AND LANDSCAPE PLAN FOR THE RK SUBDIVISION

ALL IMPROVEMENTS ARE EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "ROBERTSON-LENTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY DUNKER ENGINEERING CONSULTING, INC.

SHOWN PROPOSED LAYOUT PROVIDED BY DUNKER ENGINEERING CONSULTING, INC. DATED DECEMBER 06, 2013. ANY SUBSEQUENT REVISIONS MADE BY DUNKER ENGINEERING CONSULTING, INC. ARE NOT REFLECTED IN THIS PLAN SET. REVISIONS DESCRIBED AND DATED ON INDIVIDUAL SHEETS IN THIS PLAN SET ARE WESTERN ENGINEERING REVISIONS ONLY.

NOT ALL UNCC UTILITY LOCATES HAVE BEEN PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES ARE LOCATED AND SURVEY PROVIDED TO THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION DRAWING RELEASE.

SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
EXISTING OVERHEAD ELEC
EXISTING ELECTRICAL LINE
EXISTING STORM LINE
EXISTING SANITARY LINE
EXISTING WATER LINE
EXISTING GAS LINE
EXISTING FIBER OPTIC LINE
EXISTING TELEPHONE LINE
PROPOSED SANITARY LINE
PROPOSED SANITARY SERVICE
PROPOSED STORM LINE
PROPOSED WATER LINE
PROPOSED WATER SERVICE
PROPOSED GAS LINE
PROPOSED ELECTRIC LINE
PROPOSED TELEPHONE LINE

FENCE LEGEND

3' MINIMUM HEIGHT SPLIT RAIL FENCE
6' MINIMUM HEIGHT SPLIT RAIL FENCE
6' MINIMUM HEIGHT SCREENED CHAIN LINK FENCE OR OPAQUE WOOD

PLANT LIST:

IF THE QUANTITIES IN PLANT LIST, QUANTITIES OF THE LABELS & QUANTITIES OF THE SYMBOLS ON THE PLAN DO NOT CORRELATE THEN QUANTITIES OF SYMBOLS ON THE PLAN SHALL GOVERN.

QUAN.	SYM.	COMMON/BOTANICAL NAME	INSTALLED SIZE	REQUIREMENTS/ WATER USE	MATURE SIZE
		EVERGREEN SHRUB - 38			
30	CRS	CRAB SPRING SNOW Crabapple-Malus X 'Spring Snow'	1"-1 1/2"	LOW	20 FEET
38	SGM	SPIREA GOLD MOUND Spirea Japonica 'Goldmound'	5 GAL 2.5 GAL (MIN)	LOW	30-40 FEET

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Western Engineering Consultants, Inc LLC

ROBERTSON-KAISER ANNEX
CONTACT: RICK ROBERTSON
50531 E 10th AVENUE
BRIGHTON, CO 80601
(303) 981-0031

SCREENING AND LANDSCAPE PLAN
ROBERTSON -KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

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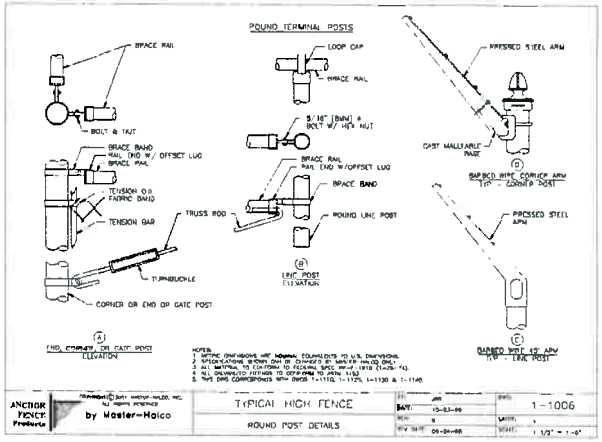
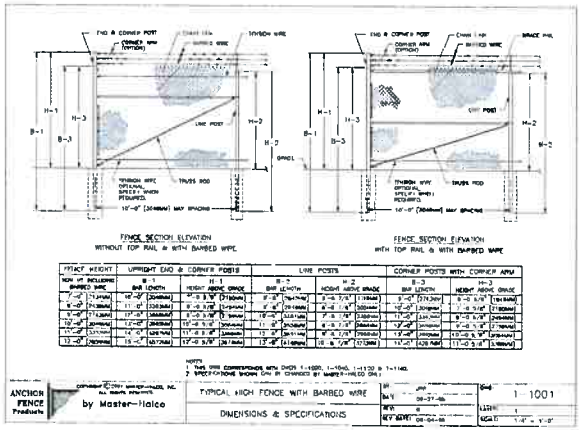




METAL SIDING FENCE DETAIL

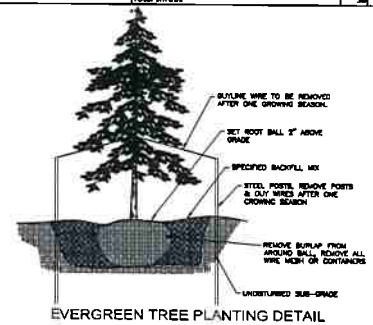
LANDSCAPE NOTES:

1. NATIVE SEEDING- 70% BUFFALO GRASS, 30% BLUE GRAMA-- SOURCE; ARKANSAS VALLEY SEED COMPANY.
2. ALL PLANTING BEDS TO MULCHED WITH 1.5" MINIMUM SIZE MOUNTAIN GRANITE. PARKING ISLAND BEDS TO HAVE 3" OF TAN COLORED BREEZE.
3. INCORPORATE 3 CUBIC YARDS OF ORGANIC COMPOST PER 1000 SQUARE FEET OF VEGETATED AREA
4. IRRIGATION TO BE DESIGN BUILT TO MAXIMIZE EFFICIENCY OF DROUGHT TOLERANT LANDSCAPING. ALL TREES, SHRUBS AND GRASSES WILL BE WATERED BY A DRIP SYSTEM AND ALL NATIVE GRASSES WILL HAVE A SPRINKLER SYSTEM THAT WILL BE USED TO ESTABLISH THE GROWTH AND SUPPLEMENT THE GRASS DURING DROUGHT PERIODS.
5. ALL TREES TO BE PLANTED A MINIMUM OF 5' FROM ALL STORMWATER, WATER AND SEWER LINES.
6. ALL DECIDUOUS TREES SHALL BE STAKED WITH 2 WOOD STAKES.
7. ARTIFICIAL PLANTS MAY NOT BE USED FOR EXTERIOR LANDSCAPING.
8. THE PROPERTY OWNER WILL REMOVE AND REPLACE DEAD OR DISEASED PLANT MATERIALS WITH THE SAME TYPE, SIZE AND QUANTITY OF PLANT MATERIAL AS ORIGINALLY INSTALLED.
9. THE LANDSCAPE XERISCAPE DESIGN IS SUCH THAT ALL AREAS SHALL BE CLASSIFIED AS LOW MAINTENANCE ZONES ONCE. THE VEGETATION IS ESTABLISHED.

RK ANNEXATION PLANT LIST

SYMBOL	NAME	SCIENTIFIC NAME	QTY	SIZE	MATURE SIZE	SPREAD
TREES						
CSS	Crab Spring Snow	Crab apple -Malus x 'Spring Snow'	38	1"-1 1/2"	20'	12'
		Total trees	38			
SHRUBS/Ornamental Grasses						
SGM	Spirea Gold Mound	Spirea gold mound-Spirea japonica 'Goldmound'	38	5gal	2'-3'	3'-4'
		Total shrubs	38			

ALL LANDSCAPE AND SEEDED AREAS WILL BE MAINTAINED. THESE INCLUDE ANY COMBINATION OF LIVING PLANTS, SUCH AS TREES, SHRUBS, VINES, GROUND COVERS, FLOWERS OR TURF, AND MAY INCLUDE NATURAL FEATURES SUCH AS ROCK, STONE AND BARK, AND ARCHITECTURAL FEATURES INCLUDING, BUT NOT LIMITED TO, FOUNTAINS, REFLECTING POOLS, ART WORKS, SCREEN WALLS, FENCES, STREET FURNITURE, WALKS, DECKS AND ORNAMENTAL CONCRETE OR STONEWORK.



EVERGREEN TREE PLANTING DETAIL

WELD COUNTY SEED MIX:

Western Wheatgrass (Arriba, Barton, Rosana)	2.50 lbs pls/acre
Blue Grama (Hachita, Lovington)	1.50 lbs pls/acre
Sideoats Grama (Vaughn, Butte, Niner, El Reno, Haskell)	2.25 lbs pls/acre
Smooth Brome (Lincoln, Manchar)	2.75 lbs pls/acre
Sand dropseed	0.25 lbs pls/acre
Perennial Ryegrass (Caliber or Gambalt Intraplant)	1.00 lbs pls/acre
Slender Wheatgrass (Pryor, Revenue or San Luis)	2.50 lbs pls/acre
Alkalegrass (Futs II, Salt on Sea)	0.25 lbs pls/acre
Switchgrass (Nebraska 28, Blackwell)	1.00 lbs pls/acre
	Total . 14.00 pound pls/acre

SCREENING NOTES:

1. 6' MINIMUM HEIGHT WOOD FENCE TO BE INSTALL ALONG SUBDIVISION WEST AND EAST PROPERTY LINES.
2. INTERNAL FENCING NOT REQUIRED TO BE SCREENED.

PLANT LIST:

IF THE QUANTITIES IN PLANT LIST, QUANTITIES OF THE LABELS & QUANTITIES OF THE SYMBOLS ON THE PLAN DO NOT CORRELATE THEN QUANTITIES OF SYMBOLS ON THE PLAN SHALL GOVERN.

QUAN./SYM.	COMMON/BOTANICAL NAME	INSTALLED SIZE	REQUIREMENTS/ WATER USE	MATURE SIZE
EVERGREEN SHRUB -- 38				
38 CSS	CRAB SPRING SNOW Crabapple-Malus X 'Spring Snow'	1"-1 1/2"	LOW	20 FEET
38 SGM	SPIREA GOLD MOUND Spirea japonica 'Goldmound'	5 GAL 2.5 GAL (MIN)	LOW	2-3 FEET

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email@westernengineering.com
FAX (720) 834-1380
Western Engineering Consultants, Inc. LLC

#	REVISIONS	DATE	BY	CHK
1	REVISIONS PER SITE PLAN REVIEW COMMENTS	03/19/19		

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
50031 E 160th AVENUE
BENNETT, CO 80102
(303)321-0023

SCREENING/LANDSCAPE DETAILS
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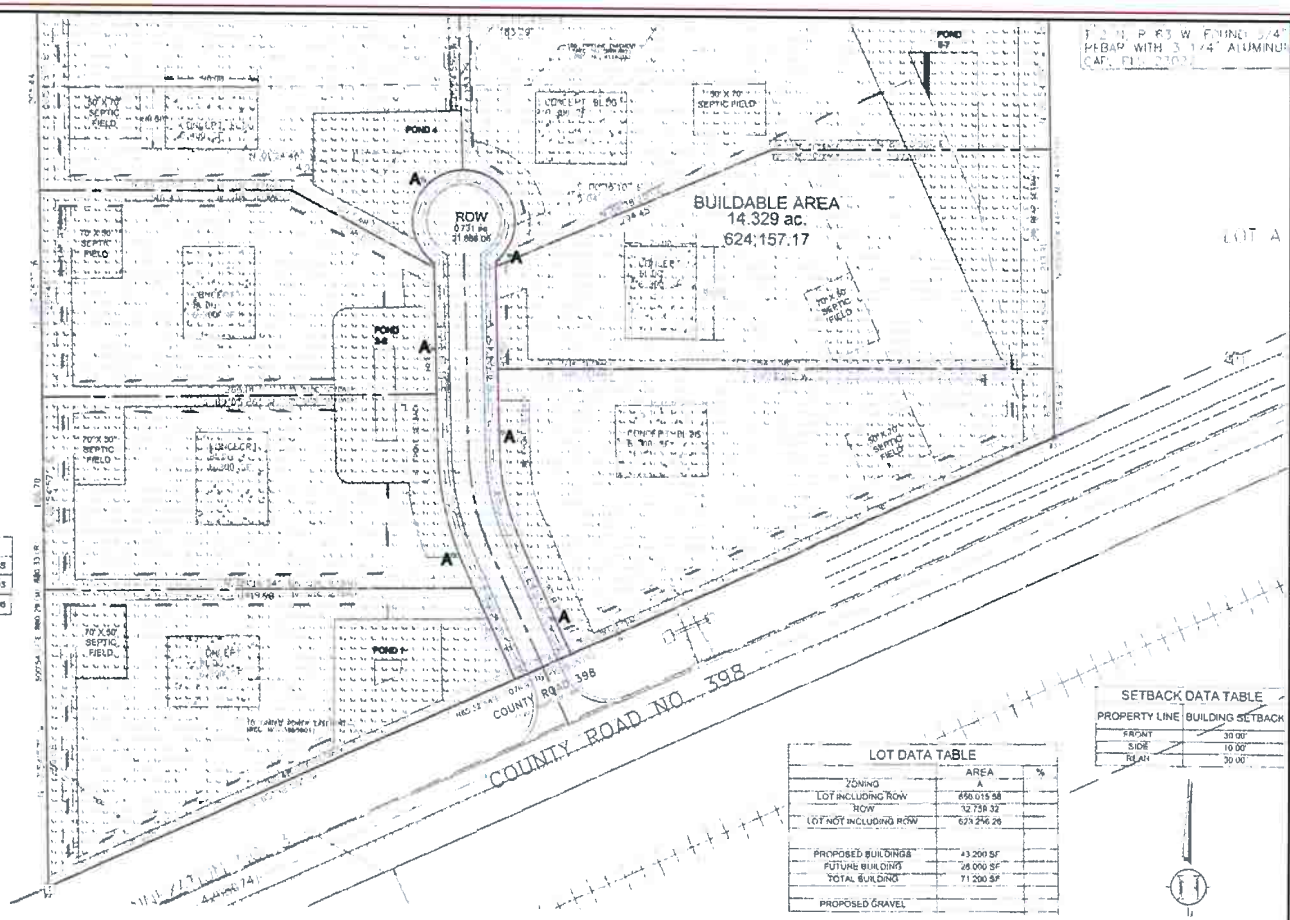

Parcel Table		
Parcel	Area SF	ACRES
BUILDABLE AREA	624,157.2	14.33
RK ANNEX	656,013.2	15.06

Parcel Table		
#	Area SF	ACRES
1	85,431.1	1.96
2	73,924.0	1.70
3	71,947.8	1.65
4	87,166.8	2.00
5	109,850.8	2.52
6	100,858.0	2.32
7	94,990.8	2.18

LOT DATA TABLE

	AREA	%
ZONING	A	
LOT INCLUDING ROW	656,015.58	
ROW	32,759.32	
LOT NOT INCLUDING ROW	623,256.26	
PROPOSED BUILDINGS	43,200 SF	
FUTURE BUILDING	28,000 SF	
TOTAL BUILDING	71,200 SF	
PROPOSED GRAVEL		

SETBACK DATA TABLE

PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'

Luminaire Schedule

Symbol	Qty	Label	Lum. Watts	Lum. Lumens	LLF	Catalog
A ▫	6	A	156.5	14852	0.900	LDRL-T2-F06-E

Calculation Summary

Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Site Area	Fc	0.12	1.8	0.0	N.A.	N.A.
Row	Fc	1.20	1.8	0.3	4.00	6.00

ILLUMINATION SYSTEMS
5 SOUTH KALAMATH STREET
DENVER, CO 80223
PHONE: 303.395.2900
FAX: 303.393.2327
WWW.ILLUMSYS.COM

RK ANNEX
KEENESBURG, CO

DATE:9/4/2019

PHOTOMETRICS ARE NOT TO SCALE

DRAWINGS ARE FOR ESTIMATING PURPOSES ONLY.

FOOT-CANDLE VALUES ARE PREDICTED AT HORIZONTAL CALCULATIONS UNLESS SPECIFIED OTHERWISE. ACTUAL FOOT-CANDLES MAY VARY.

FINAL CONSTRUCTION DRAWINGS & CALCULATIONS ARE THE RESPONSIBILITY OF A LICENSED ARCHITECT OR ENGINEER.

REFLECTANCES:
N/A. DIRECT CALCULATIONS ONLY

MOUNTING HEIGHT:
30' - 0" A.F.G.

CALCULATION SPACING:
10' - 0" x 10' - 0"

FOOTCANDLE CALC HEIGHT:
0' - 0" A.F.G.

ADDITIONAL NOTES:
FIXTURES MAGNIFIED X2

CREATED BY:
KENDYL DOLONIAS

FOR PRICING AND AVAILABILITY, CONTACT ILLUMINATION SYSTEMS AT 303.395.2900

DSC

1

127 S. DENVER AVENUE
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email@westerneol.com
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FAX (720) 294-1330

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PHOTOMETRIC PLAN
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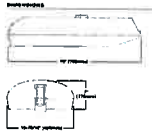

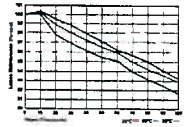

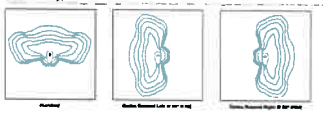

Lumark

LRL-T3-P0S4

RK ANNEX

ILLUMINATION SYSTEMS

A

RL LED ROADWAY LARGE COBRAHEAD

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(720) 685-9951
FAX (720) 294-1330

Western Engineering Consultants, Inc LLC

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CONTACT: RICK ROBERTSON
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BENNETT, CO 80102
(303)561-0031

PHOTOMETRIC DETAILS
ROBERTSON -KAISER ANNEX
PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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SHEET
27 OF 27

RK SUBDIVISION FINAL PLAN APPLICATION CHECKLIST:

The following is a summary of the checklist items:

Item	Concept	Market Street BP
1.	Complete land use application	COMPLETE
2.	Fees and Deposit Agreement	COMPLETE
3.	Detailed description of proposal (Narrative)	COMPLETE
4.	Title commitment	COMPLETE
5.	Copy of any surface use agreement with mineral interest owners of property	REPORT ENCLOSED
6.	List of property owners within 300 feet of property line	ENCLOSED
7.	Copies of any applicable state or federal permits for the purpose use	N/A
8.	Written certification that the notice has been provided (due at hearing)	Before Hearing
9.	Final Plat	COMPLETE SEE CDs
10.	Final Plan CDs	COMPLETED
11.	Draft Subdivision Improvements Agreement (based on Town template)	COMPLETED
12.	Service statements from each utility company or special district	Town Water Exist United Power Exists
13.	Any additional information reasonably required by Town Staff	NOTED

Final Plat Subdivision Application
Application Fee: $500.00
(Plus all developer related review fees incurred by the Town of Keenesburg i.e. legal, engineering, publication, recording fees, etc.)

Applicant Name	Richard I. Robertson, Heidi D. Robertson, Aaron L. Kaiser, and Lori J. Kaiser
Address	Robertson's:- 8537 WCR 51 Keenesburg, CO 8064
	Kaiser's: 39673 E. 160th Avenue, Keenesburg, CO 80643
Daytime Phone Robertson:	303-961-3960
Daytime Phone Kaiser:	303-994-7947
Emails:	pri.rickrobertson@gmail.com
	aaron@noraaconcrete.com
Subdivision Name	RK Subdivision
Address of Proposed Subdivision	WCR 398, Keenesburg, CO 80643

Legal Description: LOT B, RECORDED EXEMPTION NO. 1303-19-3-RE-4346 RECORDED MARCH 28, 2006 AT RECEPTION NO. 3373994, BEEING A PART OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO

Is the Applicant the Owner of the Property? X **Yes** ___ **No**

Owner Name (if not Applicant):

Owner Address:

Owner's Phone:

Owner's

email:

Property Owner signature: _____ **N/A** _____ _____ **Date:** _____

The Applicant understands that this is an application only, that is must be approved, and that any required building permits must be obtained before the property may be used in accordance with the request. The Applicant further acknowledges that the above information is correct. By signing this Application, the Applicant certifies that he or his consultants have read and understand the pertinent ordinances of the Town of Keenesburg and will prepare application materials consistent with them.

Applicant signature: _____ **Richard I. Robertson** _____ **Date:** 3-19-19

Applicant signature: _____ **Heidi D. Robertson** _____ **Date:** 3-19-19

Applicant signature: _____ **Aaron L. Kaiser** _____ **Date:** 3-19-19

Applicant signature: _____ **Lori J. Kaiser** _____ **Date:** 3-19-19

WESTERN ENGINEERING CONSULTANTS, Inc LLC
127 S. Denver Avenue, Ft. Lupton CO 80621
2501 Mill St. Brush, CO 80723
Ph. 303-913-7341, Fax 720-294-1330
Email: chadwin.cox@westerneci.com

June 3, 2020

Town of Keenesburg
140 S. Main St
Keenesburg, CO 80643

RE: RK SUBDIVISION DEVELOPMENT FINAL PLAT SUBMITTAL

Dear Town Staff,

Please find the attached Land Use Application and supporting documents for the RK Subdivision Development Final Plat submittal.

This letter is intended to serve as the Project narrative (Final Plat Item #3).

General Information and Brief Project Description:

RK Subdivision was annexed and zoned as Heavy Industrial in early 2018.

Currently the overall 15.06 acre parcel is proposed to be subdivided into 7 industrial lots. A 60 foot standard Town of Keenesburg right of way will be dedicated with a cul-de-sac for access to each Lot, said public road is named RK Drive in the attached submittal documents.

Zoning is not proposed to be changed, uses shall comply with current Town zoning code. Privately owned property to the west and north and east adjacent to the site are currently Weld County AG-A.

WCR 398 lies to the south.

Owners	Richard I. Robertson Heidi D Robertson 8537 CR 51 Keenesburg, CO 80643 Aaron L. Kaiser Lori J. Kaiser 30307 CR 8 Keenesburg, CO 80643
Civil Engineer:	Western Engineering Consultants 127 South Denver Avenue Ft Lupton, Colorado 80643 303-913-7341 Chadwin Cox PE

Land Surveyor:	American West Land Surveyors 331 South 4th Avenue Brighton, Colorado 80601 303-659-1532 Curtis Hoos PLS
Traffic Engineer:	Sustainable Traffic Solutions 823 West 124th Drive Westminster, Colorado 80234 303-589-6875 Joe Henderson PE PTOE
Geotechnical Engineer:	Soilogic 4350 Highway 66 Longmont, Colorado 80504 970-535-6144 Wolf Von Carlowitz PE, Darrel DiCarlo PE
Electrical Engineer:	To Be Determined
Drainage Engineer:	Western Engineering 127 S. Denver Avenue Ft. Lupton, Colorado 80643 303-913-7341 Chadwin Cox PE
Location of Site:	XXXX WCR398, Keenesburg, CO 80643
Total Site Area:	**15.06 Acres (656,014 sf)**
Total Build-out Area:	

Other Site Features:

- New Public Street
- Roadside open ditch along both sides of new street for rural drainage
- Drainage will be routed, captured, treated, and stored on site (single lot and shared ponds)
- Native Landscaping

COMPREHENSIVE PLAN:
The current Land Use Plan for this area shows the property as Mixed Use. The proposed industrial use will be consistent with the concept for Mixed Use.

ZONING DISTRICT:
The existing Zone District is Heavy Industrial.

DENSITY:
The maximum density will be determined during review.

DIVERSITY:
Industrial lots are in demand. The proposed subdivision will provide additional development opportunities to the Town of Keenesburg.

LAND USES:
To the west and east are rural residences. Farm ground lies to the north.

CONNECTIVITY:
The 7 industrial lots will be directly connected to the proposed public street which connects to WCR 398.

OPEN SPACE:
No open space is proposed.

ROADWAY NETWORK:
The Town has an existing roadway (WCR 398) to the south.

TREATMENTS TO ROADWAYS
Signage is proposed on RK Drive and along WCR 398.

LOT LAYOUT:
7 acreage lots are proposed.

LOT INTERFACE WITH ROADWAYS:
Access will be provided via driveways to each Lot from RK Drive.

LOT SIZE DIVERSITY:
Since this is an industrial subdivision there is no diversity is proposed here-in – however each lot will be individually developed so they will have diversity from each other.

SETBACKS:
The setbacks are 30 feet front and rear and 10 feet each side.

LOT SIZES ENHANCING STREETCAPE:
Lot sizes vary from 1.65 acres to 2.5 acres. No streetscape landscape is proposed.

COMMON AREAS:
Currently none are proposed.

FENCING:
All site fencing is proposed to be handled by each individual lot owner in accordance with Town regulations.

AMENITIES, ENTRIES, CONNECTIVITY, ARCHITECTURAL & LANSCAPE DESIGNS FOR EACH LOT
Due to the size of the property – no additional amenities are proposed. Each industrial lot development home and lot landscaping will be individually designed.

IRRIGATION SYSTEM
Each lot will be required to have its own irrigation system. It is expected each lot will be xeriscaped.

POTABLE WATER:
Potable water currently exists in WCR 398 as it was extended recently by Williams (formerly Discovery Midstream) from the Wild Country RV Park east to the under-construction Keenesburg Gas Plant.

ADEQUATE POTABLE WATER:
Pursuant to the Pre-Application meeting – Town of Keenesburg water is said to not be an issue.

STORM WATER MANAGEMENT:
WEC has investigated that no formal downstream conveyance exists. Currently runoff is routed along the north side of WCR 398 and directed under WCR 398 just east of this property to a low point that has no outfall (i.e it is blocked by the Railroad berm).

Infiltration (retention) storage volumes are designed for shared and single lot configurations in accordance with State of Colorado Statutes and UDFCD criteria.

COMMON AREA LANDSCAPE:
Not applicable. All landscaping is expected to be each private lot's responsibility, including the screening buffers to the west, east, and north.

OFF STREET PARKING:
Based on the lot sizes no on street parking is expected and each lot will have adequate parking.

EXTERIOR LIGHTING:
The applicant is awaiting the Town's direction on lighting of the public rights of way. Any right of way lighting will have to adhere to standard photometric plans.

POTENTIAL IMPACT ON ADJACENT NEIGHBORHOODS:
Actual construction typically negatively effects adjacent properties, however the long term impact of this development is estimated have little effect on the adjacent roadways and adjacent neighbors and have positive economic impacts to the Town.

SMELLS:
No new smells are expected to occur.

EXISTING OR PROPOSED MINERAL DEVELOPMENT – STATE OF OWNERSHIP – CONFLICTS:
See attached summary of mineral rights. Based on the site of the property it is not expected that any limitations will occur. No conflicts are anticipated.

PUBLIC IMPROVEMENTS:
RK Drive is proposed as al 60 foot public right of way with 40 feet of future asphalt pavement (all weather surface for Phase 1).

ACCESS:
Each lot will have its own access to RK Drive per Keenesburg driveway details.

GRADING:
The property has moderate relief – approximately 8 foot drop from west to east. The proposed grading design is intended to follow typical commercial/industrial subdivision lot grading. When possible shared lot line swales are proposed to drain to shared infiltration (retention) ponds but when not possible individual swales are required to drain to individual infiltration (retention) ponds. All infiltration (retention) ponds are sized to store the 24 hour 100 year runoff event for the entire tributary area.

STORM SEWER:
On site conveyance will be via grass swales and concrete pans. Storm culverts are expected at driveway locations. One additional road culvert will occur where RK Drive meets WCR 398.

SANITARY SEWER:
No public sanitary main exists near the property. Each lot is proposed to have an Onsite Wastewater System – designed specific to each lot as it is developed (separate Site Development Plan review).

WATER:
A new 8" diameter waterline is proposed within RK Drive. Three new Fire Hydrants are proposed off of RK Drive in accordance with South East Weld Fire District requirements.

GAS AND ELECTRIC:
It is unclear whether an existing gas line is near the property however electric does exist.

An electric distribution system is proposed to be buried along all the proposed RK Drive to serve each proposed Lot

WILL SERVICE LETTERS:
The Owner has contacted South East Weld County Fire Rescue (SEWCFR) requesting service. A Fire Truck access analysis has been performed using SEWCR Fire Truck template.

Water will be provided by the Town of Keenesburg system. Sewage will be private On-Site Wastewater System (Septic) in accordance with Weld County OWTS criteria. See also the Final Plan Utility & Septic sheets (5 & 8).

Electricity is provided by United Power. Gas may be available – it is unclear if it will be provided by Xcel Energy or Atmos Energy. WEC has requested Will Serve Letters from both. See also the Final Plan Utility Plan sheet (5)

SURVEYS:
The Site topography and boundary survey was provided by American West Land Surveyors in Brighton.

SUBMITTAL & HOPEFUL PROJECT SCHEDULE:

Date:	Time/ location:	Event:	Notes:
June 3, 2020	4:30 p.m.	Submit Preliminary & Final Plat documents	
September1st, 2020	On Site	Begin Site grading and utility construction	

FINAL PLAT APPLICATION CHECKLIST:

The following is a summary of the checklist items:

1. Completed land use application	Enclosed
2. Application fees & fee deposits	Enclosed
3. Written Narrative	this document
4. Proof of Ownership -Title Commitment	Enclosed
5. Copy of any surface use agreement w/ mineral interests	Enclosed
6. List of adjacent property owners (300 feet)	Enclosed
7. Copies of State or Federal permits	N/A
8. Written certification that notice has been provided	Due at hearing
9. Final Plat	Enclosed
10. Final Plan CDs	Enclosed
11. Draft Subdivision Improvements Agreements	Enclosed

Please contact me with any questions or comments you may have on our proposal for this project!

Sincerely,

Western Engineering Consultants inc., LLC
Chadwin F. Cox, P.E.
Senior Project Manager

Encl. Final Plat Application package

Land Title Guarantee Company
CUSTOMER DISTRIBUTION

Date: March 25, 2019

Our Order Number: FCIF25151615

Property Address: GREELEY CO 80634

WESTERN ENGINEERING CONSULTANTS INC
Attn: CHADWIN COX
PO BOX 595
BRIGHTON, CO 80601
chadwin.cox@westerneci.com

If you have any inquiries or require further assistance, please contact Ft. Collins Customer Care

Phone: 970-282-3649

Email Address: customercare@ltgc.com

Property Information Binder

CONDITIONS AND STIPULATIONS

1. Definition of Terms

The following terms when used in this Binder mean:
(a) "Land": The land described, specifically or by reference, in this Binder and improvements affixed thereto which by law constitute real property;
(b) "Public Records"; those records which impart constructive notice of matters relating to said land;
(c) "Date": the effective date;
(d) "the Assured": the party or parties named as the Assured in this Binder, or in a supplemental writing executed by the Company;
(e) "the Company" means Old Republic National Title Insurance Company, a Minnesota stock company.

2. Exclusions from Coverage of this Binder

The company assumes no liability including cost of defense by reason of the following:
(a) Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; taxes and assessments not yet due or payable and special assessments not yet certified to the Treasurer's office.
(b) Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
(c) Title to any property beyond the lines of the Land, or title to streets, roads, avenues, lanes, ways or waterways on which such land abuts, or the right to maintain therein vaults, tunnels, ramps, or any other structure or improvement; or any rights or easements therein unless such property, rights or easements are expressly and specifically set forth in said description.
(d) Mechanic's lien(s), judgment(s) or other lien(s).
(e) Defects, liens, encumbrances, adverse claims or other matters: (a) created, suffered or agreed to by the Assured; (b) not known to the Company, not recorded in the Public Records as of the Date, but known to the Assured as of the Date; or (c) attaching or creating subsequent to the Date.

3. Prosecution of Actions

(a) The Company shall have the right at its own costs to institute and prosecute any action or proceeding or do any other act which in its opinion may be necessary or desirable to establish or confirm the matters herein assured; and the Company may take any appropriate action under the terms of this Binder, whether or not it shall be liable thereunder and shall not thereby concede liability or waive any provision hereof.
(b) In all cases where the Company does not institute and prosecute any action or proceeding, the Assured shall permit the Company to use, at its option, the name of the Assured for this purpose. Whenever requested by the Company, the Assured shall give the Company all reasonable aid in prosecuting such action or proceeding, and the Company shall reimburse the Assured for any expense so incurred.

4. Notice of Loss - Limitation of Action

A statement in writing of any loss or damage for which it is claimed the Company is liable under this Binder shall be furnished to the Company within sixty days after such loss or damage shall have been determined, and no right of action shall accrue to the Assured under this Binder until thirty days after such statement shall have been furnished, and no recovery shall be had by the Assured under this Binder unless action shall be commenced thereon with two years after expiration of the thirty day period. Failure to furnish the statement of loss or damage or to commence the action within the time herinbefore specified, shall be conclusive bar against maintenance by the Assured of any action under this Binder.

5. Option to Pay, Settle or Compromise Claims

The Company shall have the option to pay, settle or compromise for or in the name of the Assured any claim which could result in loss to the Assured within the coverage of this Binder, or to pay the full amount of this Binder. Such payment or tender of payment of the full amount of the Binder shall terminate all liability of the Company hereunder.

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6. Limitation of Liability - Payment of Loss

(a) The liability of the Company under this Binder shall be limited to the amount of actual loss sustained by the Assured because
of reliance upon the assurances herein set forth, but in no event shall the liability exceed the amount of the liability stated on the face page hereof.
(b) The Company will pay all costs imposed upon the Assured in litigation carried on by the Company for the Assured, and all costs and attorneys' fees in litigation carried on by the Assured with the written authorization of the Company.
(c) No claim for loss or damages shall arise or be maintainable under this Binder (1) if the Company after having received notice of any alleged defect, lien or encumbrance not shown as an Exception or excluded herein removes such defect, lien or encumbrance within a reasonable time after receipt of such notice, or (2) for liability voluntarily assumed by the Assured in settling any claim or suit without written consent of the Company.
(d) All payments under this Binder, except for attorney's fees as provided for in paragraph 6(b) thereof, shall reduce the amount of the liability hereunder pro tanto, and no payment shall be made without producing this Binder or an acceptable copy thereof for endorsement of the payment unless the Binder be lost or destroyed, in which case proof of the loss or destruction shall be furnished to the satisfaction of the Company.
(e) When liability has been definitely fixed in accordance with the conditions of this Binder, the loss or damage shall be payable within thirty days thereafter.

7. Subrogation Upon Payment or Settlement

Whenever the Company shall have settled a claim under this Binder, all right of subrogation shall vest in the Company unaffected by any act of the Assured, and it shall be subrogated to and be entitled to all rights and remedies which the Assured would have had against any person or property in respect to the claim had this Binder not been issued. If the payment does not cover the loss of the Assured, the Company shall be subrogated to the rights and remedies in the proportion which the payment bears to the amount of said loss. The Assured, if requested by the Company, shall transfer to the Company all rights and remedies against any person or property necessary in order to perfect the right of subrogation, and shall permit the Company to use the name of the Assured in any transaction or litigation involving the rights or remedies.

8. Binder Entire Contract

Any action or actions or rights of action that the Assured may have or may bring against the Company arising out of the subject matter hereof must be based on the provisions of this Binder. No provision or condition of this Binder can be waived or changed except by a writing endorsed or attached hereto signed by the President, a Vice President, the Secretary, an Assistant Secretary or other validating officer of the Company.

9. Notices. Where Sent

All notices required to be given the Company and any statement in writing required to be furnished the Company shall be addressed to it at 400 Second Avenue South, Minneapolis, Minnesota 55401, (612) 371-1111.

10. Arbitration

Unless prohibited by applicable law, either the Company or the insured may demand arbitration pursuant to the Title Insurance Arbitration Rules of the American Arbitration Association.

ANTI-FRAUD STATEMENT: Pursuant to CRS 10-1-128(6)(a), it is unlawful to knowingly provide false, incomplete or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

This anti-fraud statement is affixed and made a part of this policy.

Issued through the Office of:
LAND TITLE GUARANTEE COMPANY
3033 E 1ST AVE #600
DENVER, CO 80206
303-850-4165

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
a Stock Company
400 Second Avenue South
Minneapolis, Minnesota 55401
612) 371-1111

John E. Freyer, Jr., President

Mark Bilbrey, President

Rande Yeager, Secretary

Land Title Guarantee Company Representing

PROPERTY INFORMATION BINDER

Order Number: FCIF 25151615

Policy Number: PIB25151615.2602523

Liability: $25,000.00

Fee: $0.00

Subject to the exclusions from coverage, the limits of liability and other provisions of the Conditions and Stipulations hereto annexed and made a part of this Binder,

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
a Corporation, herein called the Company,

GUARANTEES

WESTERN ENGINEERING CONSULTANTS INC. LLC

Herein called the Assured, against loss, not exceeding the liability amount stated above, which the assured shall sustain by reason of any incorrectness in the assurance which the Company hereby gives that, according to the public records as of March 19, 2019 at 5:00 P.M.

1. **Title to said estate or interest at the date hereof is vested in:**

   AARON L. KAISER AND LORI J. KAISER AND RICHARD I. ROBERTSON AND HEIDI D. ROBERTSON

2. **The estate or interest in the land hereinafter described or referred to covered by this Binder is:**

   A FEE SIMPLE

3. **The land referred to in this Binder is situated in the State of Colorado, County of Weld, described as follows:**

   LOT B, RECORDED EXEMPTION NO. 1303-19-3-RE-4346 RECORDED MARCH 28, 2006 AT RECEPTION NO. 3373994, BEING A PART OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO

4. **The following documents affect the land:**

   1) RIGHT OF WAY FOR COUNTY ROADS 30 FEET ON EITHER SIDE OF SECTION AND TOWNSHIP LINES, AS ESTABLISHED BY THE BOARD OF COUNTY COMMISSIONERS FOR WELD COUNTY, RECORDED OCTOBER 14, 1889 IN BOOK 86 AT PAGE 273.

   2) RESERVATIONS BY THE UNION PACIFIC RAILROAD COMPANY OF:
   (1) ALL OIL, COAL AND OTHER MINERALS UNDERLYING SUBJECT PROPERTY,
   (2) THE EXCLUSIVE RIGHT TO PROSPECT FOR, MINE AND REMOVE OIL, COAL AND OTHER MINERALS, AND

Land Title Guarantee Company Representing

PROPERTY INFORMATION BINDER

Order Number: FCIF 25151615

Policy Number: PIB25151615.2602523

(3) THE RIGHT OF INGRESS AND EGRESS AND REGRESS TO PROSPECT FOR, MINE AND REMOVE OIL, COAL AND OTHER MINERALS, ALL AS CONTAINED IN DEED RECORDED MARCH 18, 1897, IN BOOK 153 AT PAGE 40.

3) EASEMENT GRANTED TO THE CHICAGO TITLE AND TRUST COMPANY, FOR DITCHES, LATERALS AND WATERWAYS, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED NOVEMBER 09, 1925, UNDER RECEPTION NO. 472600 IN BOOK 779.

4) TERMS, CONDITIONS AND PROVISIONS OF RIGHT OF WAY RECORDED JANUARY 12, 1933 IN BOOK 942 AT PAGE 126.

5) EASEMENT GRANTED TO NATURAL GAS PRODUCTS COMPANY, FOR PIPELINES, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED AUGUST 06, 1956 IN BOOK 1457 AT PAGE 139

6) EASEMENT GRANTED TO WESTERN SLOPE GAS COMPANY, FOR RIGHT OF WAY, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED MARCH 31, 1966, UNDER RECEPTION NO. 1485898.

7) TERMS, CONDITIONS AND PROVISIONS OF INSTRUMENT RECORDED APRIL 05, 1979 AT RECEPTION NO. 1786513 IN BOOK 865.

8) TERMS, CONDITIONS AND PROVISIONS OF PIPELINE RIGHT OF WAY AGREEMENT RECORDED SEPTEMBER 23, 1991 AT RECEPTION NO. 2263846 IN BOOK 1311.

9) TERMS, CONDITIONS AND PROVISIONS OF SURFACE FACILITY GRANT RECORDED SEPTEMBER 23, 1991 AT RECEPTION NO. 2263862 IN BOOK 1311.

10) EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE PLAT OF EXEMPTION RECORDED MARCH 28, 2006 UNDER RECEPTION NO. 3373994.

11) RIGHT OF WAY EASEMENT AS GRANTED TO KERR-MCGEE GATHERING LLC IN INSTRUMENT RECORDED NOVEMBER 07, 2012, UNDER RECEPTION NO. 3886842.

CORRECTION RECORDED APRIL 8, 2016 AT RECEPTION NO. 4194036

12) TERMS, CONDITIONS AND PROVISIONS OF EASEMENT DEED BY COURT ORDER RECORDED MARCH 15, 2013 AT RECEPTION NO. 3917346.

13) RIGHT OF WAY EASEMENT AS GRANTED TO UNITED POWER INC IN INSTRUMENT RECORDED AUGUST 13, 2013, UNDER RECEPTION NO. 3955901.

14) OIL AND GAS LEASE RECORDED FEBRUARY 19, 2014 UNDER RECEPTION NO. 3996868 AND ANY AND ALL ASSIGNMENTS THEREOF, OR INTEREST THEREIN.

Land Title Guarantee Company Representing

PROPERTY INFORMATION BINDER

Order Number: FCIF 25151615

Policy Number: PIB25151615.2602523

15) (ITEM INTENTIONALLY DELETED)

16) EXISTING LEASES OR TENANCIES, IF ANY

17) OIL AND GAS LEASE RECORDED DECEMBER 18, 2017 UNDER RECEPTION NO. 4361001 AND ANY AND ALL ASSIGNMENTS THEREOF, OR INTEREST THEREIN.

18) EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE PLAT OF RK ANNEXATION TO THE TOWN OF KEENESBURG RECORDED JUNE 14, 2018 UNDER RECEPTION NO. 4407039.

19) TERMS, CONDITIONS AND PROVISIONS OF AGREEMENT RECORDED JUNE 14, 2018 AT RECEPTION NO. 4407354.

NOTE: THIS BINDER DOES NOT REFLECT THE STATUS OF TITLE TO WATER RIGHTS OR REPRESENTATION OF SAID RIGHTS, RECORDED OR NOT.

NOTE: THIS BINDER IS NOT A REPORT OR REPRESENTATION AS TO MINERAL INTERESTS, AND SHOULD NOT BE USED, OR RELIED UPON, IN CONNECTION WITH THE NOTICE REQUIREMENTS THAT ARE SET FORTH IN CRS 24-65.5-103.

NOTE: ADDITIONAL UPDATES TO THE EFFECTIVE DATE OF THE BINDER MAY BE REQUESTED BY THE PROPOSED INSURED. ONE UPDATE IS INCLUDED WITH THIS BINDER AT NO ADDITIONAL COST. ANY ADDITIONAL UPDATES WILL BE ISSUED AT THE COST OF $125 PER UPDATE. FOR EACH UPDATE PROVIDED, A REVISED BINDER WILL BE ISSUED SHOWING A NEW EFFECTIVE DATE AND ANY MATTERS RECORDED SINCE THE EFFECTIVE DATE OF THE PREVIOUS BINDER.

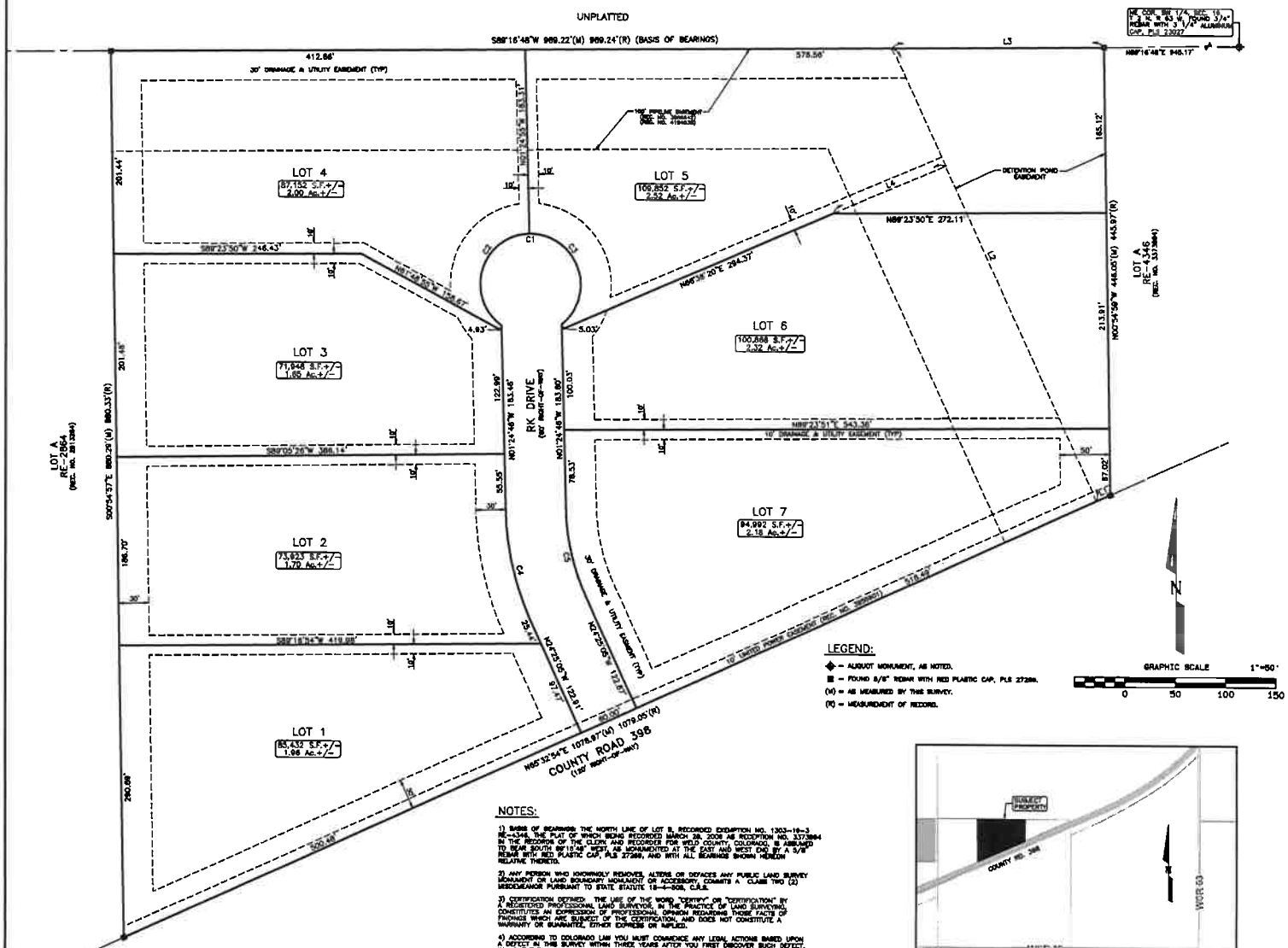
RK SUBDIVISION

Part of the Southwest 1/4 of Section 19,
Township 2 North, Range 63 West of the 6th P.M.,
County of Weld, State of Colorado

Sheet 1 of 1

LINE	BEARING	DISTANCE
L1	N49°32'54"E	15.31'
L2	N24°29'06"W	464.11'
L3	N89°16'48"E	211.91'
L4	N66°38'20"E	121.19'

LINE	RADIUS	ARC	DELTA	CHORD BEARING	CHORD
C1	50.00'	248.81	285°15'33"	N88°27'28"E	60.00'
C2	50.00'	125.12'	143°32'18"	N17°00'50"E	94.93'
C3	50.00'	124.69'	142°53'17"	S18°51'24"E	94.80'
C4	280.00'	112.43'	23°00'18"	N12°54'56"W	111.67'
C5	230.00'	88.33'	22°00'18"	N12°54'56"W	87.74'



LEGEND:

- ◆ – ALIQUOT MONUMENT, AS NOTED.
- ■ – FOUND 5/8" REBAR WITH RED PLASTIC CAP, PLS 27288.
- (M) = AS MEASURED BY THIS SURVEY.
- (R) = MEASUREMENT OF RECORD.

NOTES:

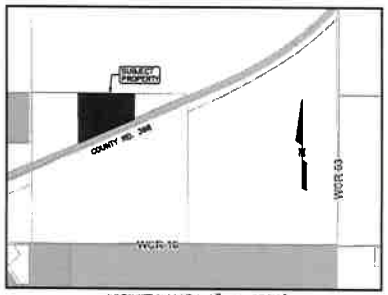
1) BASIS OF BEARINGS: THE NORTH LINE OF LOT B, RECORDED EXEMPTION NO. 1303-19-3 RE-4346, THE PLAT OF WHICH BEING RECORDED MARCH 28, 2006 AS RECEPTION NO. 3373884 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO, IS ASSUMED TO BEAR SOUTH 89°16'48" WEST, AS MONUMENTED AT THE EAST AND WEST END BY A 5/8" REBAR WITH RED PLASTIC CAP, PLS 27288, AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO.

2) ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.

3) CERTIFICATION DEFINED: THE USE OF THE WORD "CERTIFY" OR "CERTIFICATION" BY A REGISTERED PROFESSIONAL LAND SURVEYOR, IN THE PRACTICE OF LAND SURVEYING, CONSTITUTES AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THOSE FACTS OF FINDINGS WHICH ARE SUBJECT OF THE CERTIFICATION, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EITHER EXPRESS OR IMPLIED.

4) ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTIONS BASED UPON A DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT, MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

5) ALL DISTANCES SHOWN HEREON ARE REPORTED IN U.S. SURVEY FEET.



VICINITY MAP: 1" = 1000'

OWNER'S CERTIFICATE AND DEDICATION:

KNOW ALL MEN BY THESE PRESENTS THAT THE UNDERSIGNED BEING THE SOLE OWNERS OF THAT PART OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., TOWN OF KEENESBURG, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

LOT B, RECORDED EXEMPTION NO. 1303-19-3 RE-4346, BEING A PART OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH PRINCIPAL MERIDIAN, WELD COUNTY COLORADO, AS RECORDED AT RECEPTION NO. 3373884, MARCH 28, 2006, IN THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER.

CONTAINING 18.06 ACRES, MORE OR LESS.

HAVE BY THESE PRESENTS, LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS AS SHOWN ON THIS PLAT, UNDER THE NAME AND STYLE OF "RK SUBDIVISION" AND DO HEREBY DEDICATE TO THE PUBLIC ALL WAYS AND OTHER PUBLIC RIGHTS-OF-WAY AND EASEMENTS FOR THE PURPOSES SHOWN HEREON.

EXECUTED THIS_____ DAY OF_____, 20____.

RICHARD L. ROBERTSON

HEIDI D. ROBERTSON

THE FOREGOING CERTIFICATION WAS ACKNOWLEDGED BEFORE ME
BY: RICHARD L. ROBERTSON & HEIDI D. ROBERTSON
THIS_____DAY OF _____ A.D., 20____.

COUNTY OF _____ }
STATE OF _____ } SS

MY COMMISSION EXPIRES:

NOTARY PUBLIC

WITNESS MY HAND AND SEAL

AARON L. KAISER

LORI J. KAISER

THE FOREGOING CERTIFICATION WAS ACKNOWLEDGED BEFORE ME
BY: AARON L. KAISER & LORI J. KAISER
THIS_____DAY OF _____ A.D., 20____.

COUNTY OF _____ }
STATE OF _____ } SS

MY COMMISSION EXPIRES:

NOTARY PUBLIC

WITNESS MY HAND AND SEAL

PLANNING COMMISSION APPROVAL:

THIS PLAT IS APPROVED BY THE TOWN OF KEENESBURG PLANNING COMMISSION
THIS_____DAY OF_____, 20____.

CHAIRPERSON

TOWN BOARD APPROVAL:

APPROVED BY THE TOWN BOARD OF KEENESBURG, COLORADO
THIS_____DAY OF_____, 20____.

MAYOR:

ATTEST: _____ TOWN CLERK

SURVEYOR'S STATEMENT:

I, CURTIS D. HOOS, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAT WAS MADE BY ME OR UNDER MY DIRECT SUPERVISION, AND THIS PLAT ACCURATELY REPRESENTS SAID SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY ME TO DETERMINE OWNERSHIP.

CURTIS D. HOOS, PLS 37671
FOR AND ON BEHALF OF:
AMERICAN WEST LAND SURVEYING CO.
A COLORADO CORPORATION

American West
Land Surveying Co.
A Colorado Corporation
PO Box 139, Brighton, CO 80601 • P:303-659-1333 F:303-659-6675 • amwestls.com

SCALE: 1" = 50'	DRAWN BY: CSH	CHECKED BY: MJH	DATE: JULY 29, 2019
REVISIONS:			
JOB NO: 19-	FILE: Z:\T1-JN\T3N_R63W\S19\JN_SUBDIVISION_REV07192019_S.dwg		

KEENESBURG PLANNING DEPARTMENT

DEVELOPMENT REVIEW REFERRAL

FROM: **TODD HODGES, TOWN PLANNER**

DATE: **JUNE 26, 2020**

PROJECT: **RK Subdivision Preliminary and Final Plan**

INTERNAL DISTRIBUTION:

_x__	City Engineer	_x__	City Attorney	__x__	City Clerk
_x__	Public Works Manager	_x__	Building Inspector		

OUTSIDE DISTRIBUTION:

_x__	SE Weld Fire Protection District	_X__	Weld County Department of Planning Services
_X__	CDOT	___	Army Corp of Engineers
_X__	Atmos Energy	__X_	Postmaster
_x__	United Power	___	Colorado Department of Natural Resources
___	Colorado Division of Wildlife	_X__	Weld County Public Works
_X__	Weld County School District RE-3	_X__	Century Link
___	Division of Water Resources	___	Town of Hudson

If you have comments, please respond by: **July 17, 2020**

Comments may be emailed to toddhodgesdesign@qwestoffice.net or mailed to the address below. A non-response to this referral may be considered a favorable response.

COMMENTS:

_____

_____

_____

THDLLC

From: Kathleen Kelly <kathleen@kellypc.com>
Sent: Tuesday, July 28, 2020 1:24 PM
To: Todd Hodges
Cc: Debra Chumley; Kent Bruxvoort (kent.bruxvoort@pec1.com)
Subject: RK Subdivision -- Review Comments

Follow Up Flag: Follow up
Flag Status: Flagged

Hi, Todd:

We have reviewed the application materials for the preliminary and final plat for the RK Subdivision and have the following comments:

- The sketch plan approval by the Town Board has several conditions of approval, including: "Adequately address open space, signage, lighting, and landscaping for the development."
    - No open space is shown on the plat, and the application narrative indicates no open space is proposed with this application. Section 7 of the Annexation Agreement requires 12% open space or cash in lieu of dedication. We recommend a condition of approval requiring cash in lieu of 1.8 acres of land (12% of 15.06 acres).
    - Regarding landscaping, the application narratives states landscaping and irrigation will be provided by each lot owner as part of the site plan. We recommend a condition of approval requiring a note be added to the plat to inform future lot owners of this deferred obligation.

- The Property Information Binder submitted with the application materials is dated March 25, 2019. An update needs to be provided before recording the plat. If the updated PIB reflects a mortgage or other lien, a lienholder consent will need to be added to the plat.

- The Certificate of Ownership and Dedication should be revised to read as follows, following the legal description:

> Have laid out, subdivided and platted said land as per drawing hereon contained under the name and style of RK Subdivision , a subdivision of a part of the Town of Keenesburg, County of Weld, State of Colorado, and by these presents do hereby dedicate to the Town of Keenesburg the streets, avenues and other public places as shown on the accompanying plat for the public use thereof forever and does further dedicate to the use of the Town of Keenesburg and all serving public utilities those portions of said real property which are so designated as easements as shown.
>
> It is expressly understood and agreed by the undersigned that all expenses and costs involved in constructing and installing sanitary sewer works and lines, water system works and lines, gas service lines, electrical service works and lines, landscaping, curbs, gutters, street pavement, sidewalks, and other such utilities and services shall be guaranteed and paid for by the subdivider or arrangements made by the subdivider thereof which are approved by the Town of Keenesburg, Colorado, and such sums shall not be paid by the Town of Keenesburg, and that any item so constructed or installed when accepted by the Town of Keenesburg shall become the sole property of said Town of Keenesburg, Colorado, except private roadway curbs, gutter and pavement and items owned by municipality franchised utilities,

other serving public entities, and/or CenturyLink, which when constructed or installed shall remain and/or become the property of such municipality franchised utilities, other serving public entities, and/or CenturyLink. and shall not become the property of the Town of Keenesburg, Colorado.

- The Town Board approval block should be revised to read as follows:

  This is to certify that the plat of RK Subdivision was approved by the Board of Trustees of the Town of Keenesburg by Resolution No. _____ , this _____ day of _____ , 20___ , and that the Mayor of the Town of Keenesburg, on behalf of the Town of Keenesburg, hereby acknowledges said plat upon which this certification is endorsed for all purposes indicated hereon.

Please let me know if you have any questions. Thanks.

Kathleen M. Kelly
Kelly PC
999 18th Street, Suite 1450
Denver, CO 80202
P: (303) 298-1601 x215
F: (303) 298-1627

******* CONFIDENTIALITY NOTICE *******
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PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

July 9, 2020

Debra Chumley
Town of Keenesburg Manager
P.O. Box 312
140 S. Main Street
Keenesburg, CO 80643

RE: RK Subdivision, Preliminary and Final Plat
Review of Construction Drawings and Drainage Report

Dear Debra:

Professional Engineering Consultants (PEC) reviewed the Final Plat submitted for the Preliminary and Final Plat application for the proposed RK Subdivision.

These comments should be addressed by letter or by a resubmittal of the documents, as applicable.

1. We have noticed from the Construction Drawings that access to Lots 1 and 4 may be a challenge due to storm drainage ponds and swales that cover the lot frontage. Please coordinate with Western Engineering Consultants to confirm the means of access to these lots. As applicable, access easements may need to be added to the plat.
2. Is a 10-foot easement for drainage and utilities, and perhaps access, needed at the north lot line for Lot 6?
3. Please use the term "drainage easement" rather than "detention pond easement" behind Lots 5 through 7.

Please let me know if you have any questions or comments.

Respectfully Submitted,

PROFESSIONAL ENGINEERING CONSULTANTS, PA

Kent Bruxvoort

Kent Bruxvoort, P.E.
Town Engineer

cc: Todd Hodges, Town Planner

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

July 29, 2020

Debra Chumley
Town of Keenesburg Manager
P.O. Box 312
140 S. Main Street
Keenesburg, CO 80643

RE: RK Subdivision, Preliminary and Final Plat
Review of Construction Drawings and Drainage Report

Dear Debra:

Professional Engineering Consultants (PEC) reviewed the Final Drainage Report and Construction Drawings submitted for the Preliminary and Final Plat application for the proposed RK Subdivision. Redline comments are provided on the documents and the comments below summarize those more detailed comments.

These comments should be addressed with a resubmittal of the documents.

1. As mentioned in our comment letter at Sketch Plan, the Town would prefer that stormwater storage facilities be detention ponds rather than retention ponds. If the applicant were to choose to design with retention ponds, a thorough justification must be provided in the drainage report, and design methods from the Mile High Flood District Storm Drainage Criteria Manual, Volume 2, Chapter 12, Section 6.7 must be used for pond sizing and clearly documented. Also, the applicant would have to document that retained water will infiltrate in accordance with Colorado Revised Statutes §37-92-602(8). Currently, the design does not appear to meet storm drainage criteria based on the documentation in the drainage report.
2. We note and appreciate that the project's access from County Road 398 has been altered to make it a perpendicular intersection. The typical road section should be moved from the cover sheet to Sheet 11.
3. We note that a Trip Generation narrative has been prepared. It is our opinion that auxiliary lanes to the project are not justified by anticipated traffic volumes.
4. The Site Plan, Sheet 4, should depict how access to Lots 1 and 4 will be achieved. Both lots have storm drainage ponds and swales that cover the lot frontage.
5. Through conversation with the Town's Public Works Director, the Town directs the applicant/developer to install 1" taps for each of the seven lots, with 1-1/2" copper service lines extended to the property lines and capped. Future tap and raw water development fees for the individual lot developer will be based on actual meter size. If individual site use demands a larger tap than the 1" tap, then that user can upsize the tap as necessary.
6. We recommend deferring the sanitary sewer service sizing until the Site Plan submittal and individual onsite wastewater treatment system design for each lot.
7. The Town will require that adequate site lighting be provided at the entrance to the subdivision, to be determined through the process of negotiating the Subdivision Improvements Agreement.
8. See redline comments on construction drawings provided with this letter.

Please let me know if you have any questions or comments.

Respectfully Submitted,

PROFESSIONAL ENGINEERING CONSULTANTS, PA

Kent Bruxvoort

Kent Bruxvoort, P.E.
Town Engineer

cc: Todd Hodges, Town Planner

FINAL DRAINAGE REPORT
FOR
RK SUBDIVISION
PART OF THE SW ¼ SEC 19, T2N, R63W
KEENESBURG, COLORADO
WELD COUNTY

CASE NO.

RICHARD ROBERTSON AND AARON KAISER

ROBERTSON'S: 8357 WCR 51

KEENESBURG, CO 80643

KAISER'S: 39673 E. 160TH AVENUE

KEENESBURG, CO 80643

Western Engineering Consultants inc LLC
127 South Denver Avenue
Fort Lupton, CO 80621

Revised:	May 19, 2020
Revised:	October 09, 2019
Original:	March 27, 2019

FINAL DRAINAGE REPORT
FOR
RK SUBDIVISION
PART OF THE SW ¼ SEC 19, T2N, R63W
KEENESBURG, COLORADO

Prepared For:

RICHARD ROBERTSON & AARON KAISER
Contact: Richard Robertson - Owner
8537 County Road 51
Keenesburg, CO 80643
303-961-0031

Contact: Aaron Kaiser - Owner
39673 E 160th Ave
Keenesburg, CO 80643
303-994-7947

Prepared By:

WESTERN ENGINEERING CONSULTANTS inc LLC
127 South Denver Avenue
Fort Lupton, CO 80621
(720) 685-9951
Contact: Chadwin F. Cox, P.E.

Revised: May 19, 2020
Revised: October 09, 2019
Original: March 27, 2019

CERTIFICATIONS

I hereby certify that this report and plan for the drainage design of Town of Keenesburg RK Subdivision was prepared by me, or under my direct supervision, for the owners thereof, in accordance with the provisions of Colorado Floodplain and Stormwater Criteria Manual, and Urban Drainage and Flood Control District Design and Technical Criteria, and approved variances and exceptions hereto. I understand that Town of Keenesburg does not and will not assume liability for drainage facilities designed by others.

_____

Chadwin F. Cox, P.E.
Registered Professional Engineer
State of Colorado No. 33802

Richard Robertson and Aaron Kaiser hereby certify that the drainage facilities for RK Subdivision design shall be constructed according to the design presented in this report. I understand that the Town of Keenesburg does not and will not assume liability for the drainage facilities designed and/or certified by my engineer, and that the Town of Keenesburg reviews drainage plans pursuant to Colorado revised Statutes Title 30, Article 28, but cannot, on behalf of RK Subdivision, guarantee that final drainage design review will absolve RK Subdivision and/or their successors and/or assigns of future liability for improper design. I further understand that approval of the final plat, Final Development Plan, and/or Subdivision Development Plan does not imply approval of my engineer's drainage design.

_____

RK Subdivision
Richard Robertson or Owner's Representative

_____

RK Subdivision
Aaron Kaiser or Owner's Representative

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APPENDIX C

Infiltration Pond Design, and Channel Capacities, etc.

APPENDIX D

Drainage Plan – (full size – 24 x 36)

Not a technical comment, but throughout this report the site is referred to as "bare." I think it would be more accurate to say "native vegetation" or something like that. Or "undeveloped" if that's the point being made.

INTRODUCTION

This study provides the final design for the construction of RK Subdivision. The overall site is an approximate 15.06 acre property as defined by the Final Plat prepared by American West Land Surveying Co. dated July 28, 2019.

The proposed RK Subdivision site is proposed on an undeveloped site. The existing site is predominantly bare except for some piled materials near the middle of the site.

The project shall include approximately seven (7) Commercial Lots. A 60 foot right-of-way is proposed to be constructed from County Road 398 north between the lots.

RK Subdivions lies approximately two miles northeast of the I-76 interchange with Market St. County Road 398 is the south border.

The entire RK Subdivision site and all adjacent and surrounding properties are historically tributary to Lost Creek which lies approximately 2 miles southeast of the site, which ultimately flows into the South Platte River which lies approximately 16 miles northeast of Lost Creek.

Based on the initial coordination with the Town, no Final Drainage Studies for any property north of Interstate 76 including adjacent properties were known to exist.

south

RK Subdivision does not lie within a Master Flood or Drainage Planned Study. The entire subdivision is within Zone X "Area of Minimal Flood Hazard" and not within the 100 year floodplain per FEMA FIRM 08123C2180E – effective January 20, 2016.

I. GENERAL LOCATION AND DESCRIPTION

A. Site Location

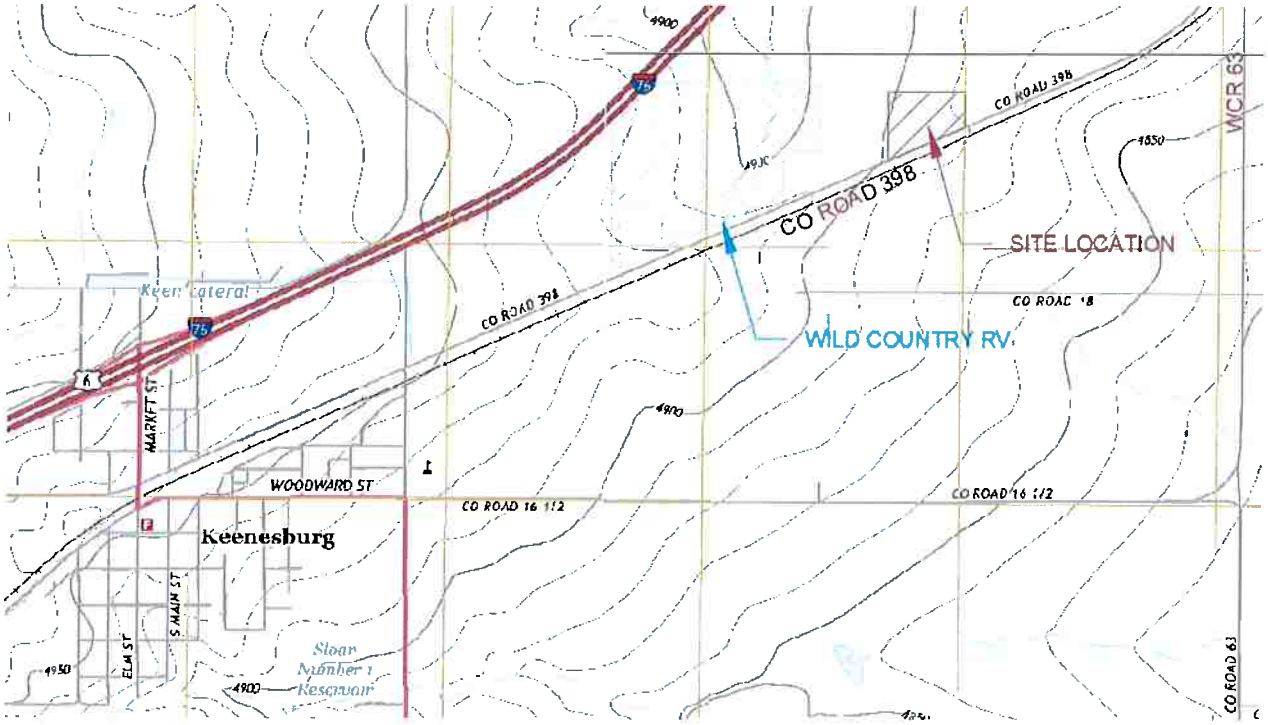
The property lies in the Southwest ¼ of Section 19, Township 2 North, Range 63 West of the 6th P.M.

The overall property nets 15.06 acres +/-. County Road 398 lies along the southern border.

A vicinity and key map of the site are included in Appendix A of this study as well as on the following page.

The scales below are not accurate since the maps included herein are for exhibit purposes only.

The Google Earth Exhibit above shows the site and the adjacent properties and their relationship to I-76 and Weld County Roads in the Town of Keenesburg.



The USGS Exhibit above details historic topography of project site, Interstate 76, Weld County Roads and their proximity to the Town of Keenesburg.

The runoff condition from the site needs to be clarified. It is stated here that the site slopes to the roadside ditch. But design of infiltration ponds was justified by the statement that the site has no formal outfall.

B. Description of Property

The metes and bounds legal description for the property is included in Appendix A.

Currently this parcel has slight to moderate topographical relief – 17 feet from the northwest edge (4904 elevation) to the southeast edge (4887 elevation). Ultimately the site does slope generally in one direction – to the southeast corner of the site to the County Road 398 ditch which runs adjacent to the property. Existing slopes average at 1.55%. The historic slopes appear to be 1.0% based on the USGS Quad from west to east.

The existing grades in general match the historical direction per USGS Quad maps.

The approximate grade at the four corners of the property are as follows – 4904.69 NW corner, 4891.50 NE corner, 4886.85 SE corner, and 4898.70 SW corner of RK Subdivision.

The subdivision is made up of multiple soil types, all NRCS classified B soils. The subdivision consists of 18 (Colby-Adena Loams) and 47 (Olney Fine Sandy Loam).

The adjacent R.O.W. basin to the south as well as the off-site basin to the west are the same NRCS soil types (Type B). The off-site basin to the northwest is a different NRCS soil type (Type C). All soil types are noted as well drained. Soils classifications were taken from Hydrologic Soil Type Map (Appendix A) USDA Soil Survey.

Be consistent, see p. 5

II. DRAINAGE BASINS AND SUB-BASINS

A. Major Drainage Basins

The RK Subdivision Site is solely located in the South Platte River basin and all existing and developed drainage is ultimately tributary to the South Platte River. The historic and existing basins are shown on sheet 04 and 05.

HISTORIC

Basin H (15.06 ac) includes everything but the off-site basins (OFF N, OFF W) to the north and west. As noted above, the historic grades (1.0%) drained off-site to the northeast. As noted previously, the entirety of the site and this basin is (100%) NRCS Soil Type B.

All runoff values presented herein have been prepared with the recently updated method of check for time of concentration – the UDFCD 2017 equation of: $(26-17i) + [L_{travel} / (60*(14i + 9)*(S_o)^{.5})]$. *All values provided in this study are as determined by the 2017 time of concentration check.*

The Historic effective imperviousness value used was 2.0%. The minor (5yr) storm runoff is approximately 0.17 cfs, and the major storm runoff is approx. 17.28 cfs at Design Point H1.

EXISTING

Basin E (15.06 ac) includes everything but the off-site basins (OFF N, OFF W) to the north and west. As noted previously the topography slopes at 1.55% throughout the basin. The entirety of the site and this basin is (100%) NRCS Soil Type B.

The existing effective imperviousness value used was modeled at 2.0% since the overall basin (primarily undeveloped) includes the developed gas station, convenience store, and asphalt parking lot. The minor (5yr) storm runoff is approximately 0.29 cfs, and the major storm runoff is approximately 30.27 cfs at Design Point E1.

OFFSITE BASINS

Basin OFF-N includes part of the existing Parcels 130319000003 and 130524000026 to the north and northwest of the site. The basin is uphill ~~from the site and~~ drains on-site at approximately 1.0%. The Basin is predominantly NRCS Soil Type B. Type C?

The effective imperviousness value used is 3.66% as the basin is bare ground with some existing buildings. The minor (5yr) storm-runoff is approximately 0.39 cfs, and the major storm runoff is approximately 17.17 cfs at Design Point OFF N.

Proposed grading is designed to capture the runoff from this basin and send it to either Pond 4 or Pond 5-7 through swale 4N or swale 5N, respectively.

Basin OFF-W includes part of the existing Parcels 130319000011, 130524400042, and 13052400026 to the west and northwest of the site. The basin is uphill from the site and drains on-site at approximately 1.3%. The Basin is predominantly NRCS Soil Type B.

The effective imperviousness value used is 6.00% as the basin is predominately bare ground with existing asphalt parking and an existing building. The minor (5yr) storm-runoff is approximately 1.15 cfs, and the major storm runoff is approximately 28.93 cfs at Design Point OFF W.

Proposed grading is designed to capture the runoff from this basin and send it to one of the drainage ponds on the west half of the site (Pond 1, 2-3, or 4) through on-site drainage swales.

B. Minor Developed Drainage Basins

The Developed sub-basins related to this project are shown on sheet 07.

This study provides the final developed drainage characteristics for the ~ 15.06 acre site.

The developed basins for the RK Subdivision site are defined as Basins Lot 1, Lot 2, Lot 3, Lot 4, Lot 5, Lot 6, Lot 7, and ROW RK. Basin Lot 1 includes the designed Subdivision Infiltration Pond 1. Basins Lot 2 and Lot 3 share the designed Subdivision Infiltration Pond 2-3. Basin Lot 4 includes the designed Subdivision Infiltration Pond 4. Basins Lot 5, Lot 6, and Lot 7 share the designed Subdivision Infiltration Pond 5-7.

The weighted average imperviousness for the entire site (All Basins without 100 year pond water surfaces is 39.85%).

Each minor storm event referred to below is the 5 year event and each major storm event referred to below is the 100 year event. The 10 year event has also been calculated.

Calculations are carried out to the hundredths for consistency purposes only.

1. Basin Lot 1 (1.96 acres)

Basin Lot 1 is the developed lot in the southwest corner of the site. Although this basin is currently undeveloped bare ground, it has been modeled to receive a 6,300 square foot concrete building pad in the future.

Runoff from Basin Lot 1 begins at the west edge of the building pad and will be directed overland west to Swale 1W then south towards Swale 1S and ultimately east to the proposed concrete rundown to Forebay 1 in Infiltration Pond 1. The release from Basin Lot 1 occurs at Design Point 1 where Swale 1S meets Pond 1.

The developed effective imperviousness value calculated for Basin Lot 1 is 43.65% and the Rational runoff calculations were based on said existing conditions. NRCS Soil Type for this basin is solely Type B. The minor (5yr) storm runoff is approximately 1.34 cfs, and the major storm runoff approximately 5.45 cfs.

2. Basin Lot 2 (1.70 acres)

Basin Lot 2 is one of the center lots on the west half of the site, located directly north of Lot 1. Although this Basin is currently undeveloped bare ground, it has been modeled to receive a 6,300 square foot concrete building pad in the future.

Runoff from Basin Lot 2 begins at the west edge of the building pad and is directed overland west towards Swale 2W then south towards Swale 2S and ultimately east and northeast to the proposed concrete rundown to Forebay 2/3 S in Infiltration Pond 2-3. The release from Basin Lot 2 occurs at Design Point 2 where Swale 2S meets Pond 2-3.

The developed effective imperviousness value calculated for Basin Lot 2 is 43.03%. NRCS Soil Type for this basin is solely Type B. The minor storm runoff is 2.27 cfs, and the major storm runoff is 9.39 cfs. Calculations were carried out to the hundredths for consistency purposes only.

3. Basin Lot 3 (1.65 acres)

Basin Lot 3 is one of the center lots on the west half of the site, located directly north of Lot 2. Although this Basin is currently undeveloped bare ground, it has been modeled to receive a 6,300 square foot concrete building pad in the future.

Runoff from Basin Lot 3 begins in the northeast corner of the building pad and is directed overland west towards Swale 3W then south towards Swale 3S and ultimately east and northeast to the proposed concrete rundown to Forebay 2/3 N in Infiltration Pond 2-3. The release from Basin Lot 3 occurs at Design Point 3 where Swale 3S meets Pond 2-3.

The developed effective imperviousness value calculated for Basin Lot 3 is 31.37%. NRCS Soil Type for this basin is solely Type B. The minor storm runoff is 0.80 cfs, and the major storm runoff is 4.16 cfs. Calculations were carried out to the hundredths for consistency purposes only.

4. Basin Lot 4 (2.00 acres)

Basin Lot 4 is located in the northwest corner of the site. Although this Basin is currently undeveloped bare ground, it has been modeled to receive a 5,400 square foot concrete building pad in the future.

Runoff from Basin Lot 4 begins in the northeast corner of the building pad and is directed overland northeast towards Swale 4N then east towards Swale 4E and ultimately south to the proposed concrete rundown to Forebay 4 in Infiltration Pond 4. The release from Basin Lot 4 occurs at Design Point 4 where Swale 4E meets Pond 4.

The developed effective imperviousness value calculated for Basin Lot 4 is 41.34%. NRCS Soil Type for this basin is solely Type B. The minor storm runoff is 1.50 cfs, and the major storm runoff is 6.38 cfs. Calculations were carried out to the hundredths for consistency purposes only.

5. Basin Lot 5 (1.95 acres)

Basin Lot 5 is located in the northeast corner of the site. Although this Basin is currently undeveloped bare ground, it has been modeled to receive a 6,300 square foot concrete building pad in the future.

Runoff from Basin Lot 5 begins in the northwest corner of the building pad and is directed overland north towards Swale 5N then east and ultimately to the proposed concrete rundown to Forebay 5/6/7 N in Infiltration Pond 5-7. The release from Basin Lot 5 occurs at Design Point 5 where Swale 5N meets Pond 5-7.

The developed effective imperviousness value calculated for Basin Lot 5 is 43.65%. NRCS Soil Type for this basin is solely Type B. The minor storm runoff is 1.95 cfs, and the major storm runoff is 7.96 cfs. Calculations were carried out to the hundredths for consistency purposes only.

6. Basin Lot 6 (2.32 acres)

Basin Lot 6 is the center lot on the east half of the site. Although this Basin is currently undeveloped bare ground, it has been modeled to receive a 6,300 square foot concrete building pad in the future.

Runoff from Basin Lot 6 begins in the southwest corner of the building pad and is directed overland south towards Swale 6-7 then east ultimately to the proposed concrete rundown to Forebay 5/6/7 N in Infiltration Pond 5-7. The release from Basin Lot 6 occurs at Design Point 6 where Swale 6-7 meets Pond 5-7.

The developed effective imperviousness value calculated for Basin Lot 6 is 43.03%. NRCS Soil Type for this basin is solely Type B. The minor storm runoff is 1.77 cfs, and the major storm runoff is 7.31 cfs. Calculations were carried out to the hundredths for consistency purposes only.

7. Basin Lot 7 (2.18 acres)

Basin Lot 7 is located on the southeast corner of the site. Although this Basin is currently undeveloped bare ground, it has been modeled to receive a 6,300 square foot concrete building pad in the future.

Runoff from Basin Lot 7 begins in the south side of the building pad and is directed overland south to Swale 7S then northeast and ultimately to the proposed concrete rundown to Forebay 5/6/7 S in Infiltration Pond 5-7. The release from Basin Lot 7 occurs at Design Point 7 where Swale 7S meets Pond 5-7.

The developed effective imperviousness value calculated for Basin Lot 7 is 31.37%. NRCS Soil Type for this basin is solely Type B. The minor storm runoff is 1.14 cfs, and the major storm runoff is 5.96 cfs. Calculations were carried out to the hundredths for consistency purposes only.

8. Basin ROW RK (0.73 acres)

Basin ROW RK includes the proposed RK Drive to the middle of the site. This basin was mapped from the north end of the proposed cul-de-sac south to the south property line of the site.

The 500 foot length of Road has a low point at the south property line, sloping at 0.5% from the north. The Basin is NRCS Soil Type B.

The effective imperviousness value used is 41.34% and was based on the 32 foot wide asphalt section and four (4) foot gravel shoulder. The minor (5yr) storm runoff is approximately 0.59 cfs, and the major storm runoff is approximately 2.51 cfs at Design Point 8.

Does the runoff from this basin drain to Ponds 1 and 5/6/7, or to the CR398 ROW?

III. DRAINAGE DESIGN CRITERIA

A. Regulations

The calculations provided in this letter report have been prepared in conformance with the Town of Keenesburg Development Standards and Regulations (Ref 1) – per Professional Engineering Consultants direction that the Town has adopted the Colorado Water Conservation Board and Colorado Department of Natural Resources "*Colorado Floodplain and Stormwater Criteria Manual Volumes 1 and 2*" (Ref 3), and "*Urban Drainage Flood Control District (UDFCD) Urban Storm Drainage Criteria Manual, Volumes I thru III*" (Ref 2), latest release unless otherwise noted.

All design elements outlined in this report, and illustrated in the construction plans, are proposed as final conditions (as directed, assumed, or otherwise prepared) in order to complete the development of this Project.

B. Drainage Studies, Outfall Systems Plans, Site Constraints

No apparent Final Drainage Study appears to have been prepared as part of this property in the past. The Town of Keenesburg falls just outside of the Urban Drainage boundary.

Coordination with Town staff confirmed no Final Drainage Report is known to exist for this property or any Town limit property north of Interstate 76.

No significant constraint was identified as part of the design of this project beyond the flat nature of the area and existing encroachment of the Senior Center to the east. ?

C. Hydrology

The rainfall intensity information was obtained from the NOAA Atlas 14 using 1 hour rainfall depths as taken from UDSDC Manual Vol 1 (Ref 2).

Town of Keenesburg adopted the Colorado Water Conservation Board and Colorado Department of Natural Resources "*Colorado Floodplain and Stormwater Criteria Manual Volumes 1 and 2*" (Ref 3), and "*Urban Drainage Flood Control District (UDFCD) Urban Storm Drainage Criteria Manual, Volumes I thru III*" (Ref 2), latest release unless otherwise noted were utilized for confirmation of 100 year and 10 year event storm rainfall data.

Upon review of the aforementioned references, the NOAA Atlas 14 was referenced and data derived for 1 hour rainfall depths at 2, 5, 10, and 100 year events are as follows:

DESIGN STORM	WEC Derived from USDCM NOAA Atlas 14 1-hr Event (inches)
2	0.87
5	1.14
10	1.42
100	2.66

The precipitation depth derived from the NOAA Atlas 14 by WEC for the 1-hour design storm was 2.66 inches rainfall depth for the 100-year storm, 1.42 inches rainfall depth for the 10-year storm, and 1.14 inches rainfall depth for the 5 year storm.

The Rational Method for storm-water runoff calculations, using the Equations as described in the UDFCD (Reference 2) Criteria Manual Chapter 5 Runoff was used to calculate stormwater flows within this study. The run-off coefficient 'C' values were obtained from the UDFCD (Reference 2) Criteria Manual as well based on the predominate NRCS Soil Type.

It appears no on site water quality or detention has been provided or maintained for any of the adjacent or neighboring properties (currently primarily open space).

The use of weighted runoff coefficients is to accurately portray the proposed final conditions of the maximum build out (maximum lot coverage) for this project based on the best available information at this time. Sole use of Table RO-5 is applicable for Master Plan Drainage analysis including projects of this type – however calculation of proposed final conditions using weighted runoff coefficients provides a more thorough and accurate analysis.

The site has been modeled based on the current expected build out conditions. However, should additional paving occur the Swale conveyances have been sized to handle added runoff.

No other offsite basins have been modeled beyond those noted previously (OFF-N, OFF-W, and ROW-398) since the adjacent surveyed topography indicated adjacent runoff is not directed onto this property (nor is runoff directed from this property due to the existing grades being directed off-site to the existing WCR 398 road-side ditch).

It is the expectation of this study that any development or improvements to the property adjacent will require them to provide appropriate stormwater design(s).

This project will not negatively affect the adjacent property and will provide modern stormwater control that does not currently exist. In short, this project will be an enormous improvement to the area.

D. Hydraulics

The conveyance of onsite site stormwater occurs primarily overland across pavements and then through landscape and into swales that will ultimately convey runoff to proposed infiltration ponds. Please see Appendix C for all related swale and pond capacities.

There are no major drainage ways on this site or immediately adjacent. The South Platte River lies approximately 16 miles northeast.

E. Water Quality Enhancement

Water quality will be provided by overland runoff (gravel or vegetated native grasses) and also by the proposed grassed pond bottoms. Additional grass swales may be incorporated by the future Lots.

F. Groundwater

Project Geotechnical Reports have been completed at each proposed pond location by High Plains Engineering & Design, LLC dated January 22, 2020 and can be found in Appendix A.

No groundwater was encountered during the subsurface investigations.

Developed runoff is not anticipated to increase groundwater levels but will be infiltrated into the subsurface soils.

Should groundwater levels surface (above the design bottom) at any time for more than 24 hours the Engineer of Record should be contacted and plans to mitigate said groundwater be undertaken (i.e. cleaning of outlet structure and/or raising of Pond bottom above groundwater).

IV. STORMWATER MANAGEMENT FACILITY DESIGN

A. Stormwater Conveyance Facilities

Runoff analysis for stormwater management has been included and presented in this report.

No Master study exists for this area.

Capacity calculations for the proposed Swales are included in Appendix C.

We would like to see more justification for the design and more clarification on the approach used--the language is confusing. Please state whether the design is for detention with release to the roadside swale or whether it is for retention and infiltration, with provision for spilling extremely large events. It seems the site does have a formal outfall with the CR398 roadside ditch. We'd like to see more justification for the approach than this statement.

B. Stormwater Storage Facilities

Traditional Stormwater storage and attenuation (water quality and infiltration) is currently proposed since this site does not currently have a source of formal outfall. Multiple Infiltration Ponds have been designed to contain the developed runoff from the site.

UDFCD Criteria Volumes (Ref 2) were referenced for determining necessary storage volumes.

This looks like design of a detention facility.

Four independent volumes were calculated – (1) WQCV, (2) Required EURV, (3) required 100 yr, (4) Available volume @ Emergency Overflow. UDFCD UD spreadsheet version 3.07 was utilized to calculate said volumes;

Pond 1: (1) 1,540 cubic feet, (2) 5,042 cubic feet, (3) 34,010 cubic feet, and (4) 34,811 cubic feet.

Pond 2-3: (1) 2,595 cubic feet, (2) 8,186 cubic feet, (3) 61,482 cubic feet, and (4) 66,313 cubic feet.

Pond 4: (1) 2,316 cubic feet, (2) 7,58 cubic feet, (3) 36,320 cubic feet, and (4) 36,543 cubic feet.

Pond 5-7: (1) 5,747 cubic feet, (2) 18,382 cubic feet, (3) 194,887 cubic feet, and (4) 200,402 cubic feet.

This looks like one of the 4 ponds was designed for retention & infiltration.

The current RK Subdivision Pond 1 storage/grading design provides volume for proposed Lot 1 (maximized imperviousness of 43.65%). Pond 2-3 storage/grading design provides volume for the proposed Lots 2 and 3 (maximized imperviousness of 43.03%). Pond 4 storage/design provides volume for proposed Lot 4 (maximized imperviousness of 41.34%). Pond 5-7 storage/design provides volume (1.5x100yr Storm) for proposed Lots 5, 6, and 7 (maximized imperviousness of 43.65%).

Each pond has been designed with an emergency overflow spillway wall that will allow stored water to exit the ponds into the designed spillway channels before overtopping the top of the ponds. Each spillway was designed the carry 2x100yr developed runoff with a flow depth of no more than 6". See Sheet 17D of the Construction Drawings for the spillway wall and channel details.

All calculations are included in Appendix C.

I'm pretty sure the design intent is for retention ponds--I don't see design of outlet control structures and pipes. But we need to see the infiltration calculations documenting that the ponds will infiltrate within the State-mandated time frames, similar to the approach taken with the Altitude Energy pond. And the pond volumes will have to be sized in accordance with MHFD Criteria Manual Volume 2, Chapter 12, Section 6.7.

C. Water Quality BMP's

Overland runoff will provide some water quality. Infiltration Pond Forebays will treat all routed runoff. Additional BMP's in accordance with current UDFCD Volume III criteria (Ref 2) may be added in the future.

D. Floodplain

This project does not lie within a floodplain. The entire subdivision is within Zone X "Area of Minimal Flood Hazard" per FEMA FIRM 08123C2180E – effective January 20, 2016. See also the FIRMETTE map included Appendix A.

E. Groundwater

Typical Lot runoff is expected to moderately infiltrate the seeded grasses and gravel covered site under most minor events. Under multiple minor events or major events runoff is expected to sheet flow to adjacent swales and be routed to the appropriate Subdivision Infiltration Pond as designed. Minimal effect to the groundwater is expected.

F. Additional permitting

No additional permitting is anticipated.

G. Storm System Maintenance

This section defines the maintenance responsibilities for RK Subdivision:

- Swales – including but not limited to mowing, weed control, cleaning and removing debris, removing accumulated sediment, adding erosion control, and replacement of any damaged or failing improvements. Improvements for Swales include the concrete pan and adjacent grades and vegetation.

- Drainage Basins – including but not limited to mowing, weed control, cleaning and removing debris, removing accumulated sediment, adding erosion control, and replacement of any damaged or failing improvements. Improvements for each Basin beyond all Swales include the on-site grading, on site native grass, and proposed concrete curb adjacent to all proposed Buildings, parking, and access.

- Infiltration Ponds – including but not limited to mowing, weed control, cleaning and removing debris, removing accumulated sediment, adding erosion control, and replacement of any damaged or failing improvements. Improvements for the Infiltration Ponds includes 4:1 seeded slopes, forebays, trickle pan, and the pond bottoms.

Frequency of inspections and maintenance are as follows:

- Swales, Basins, and Infiltration Ponds should be inspected monthly or within 24 hours of each measureable precipitation event.
- Any damaged or lost material (riprap) should be replaced immediately
- Mowing should occur monthly or more often depending upon growth.
- Weed control should occur a minimum of two times per spring/summer/fall season
- Cleaning beyond inspections noted above should occur at a minimum of annually

V. CONCLUSIONS

A. Compliance with standards

This Drainage Study for the RK Subdivision site is located in Town limits and was prepared in conformance with the Town of Keenesburg Development Standards and Regulations (Ref 1), the Colorado Water Conservation Board and Colorado Department of Natural Resources "*Colorado Floodplain and Stormwater Criteria Manual Volumes 1 and 2*" (Ref 3), and the Urban Drainage Flood Control District Storm Drainage Design and Technical Criteria (Ref 2).

This drainage design and concept quantifies the requirements to manage stormwater runoff.

This is not in compliance with standards unless WEC documents that the retention ponds are designed in accordance with MHFD Criteria for volume retention and meet State release time frames per CRS Section 37-92-602(8).

B. Variances

No variance is proposed or requested.

C. Drainage concept

The intent of this design is to provide the drainage analysis necessary for capture, routing, and infiltration of the runoff generated by the RK Subdivision property.

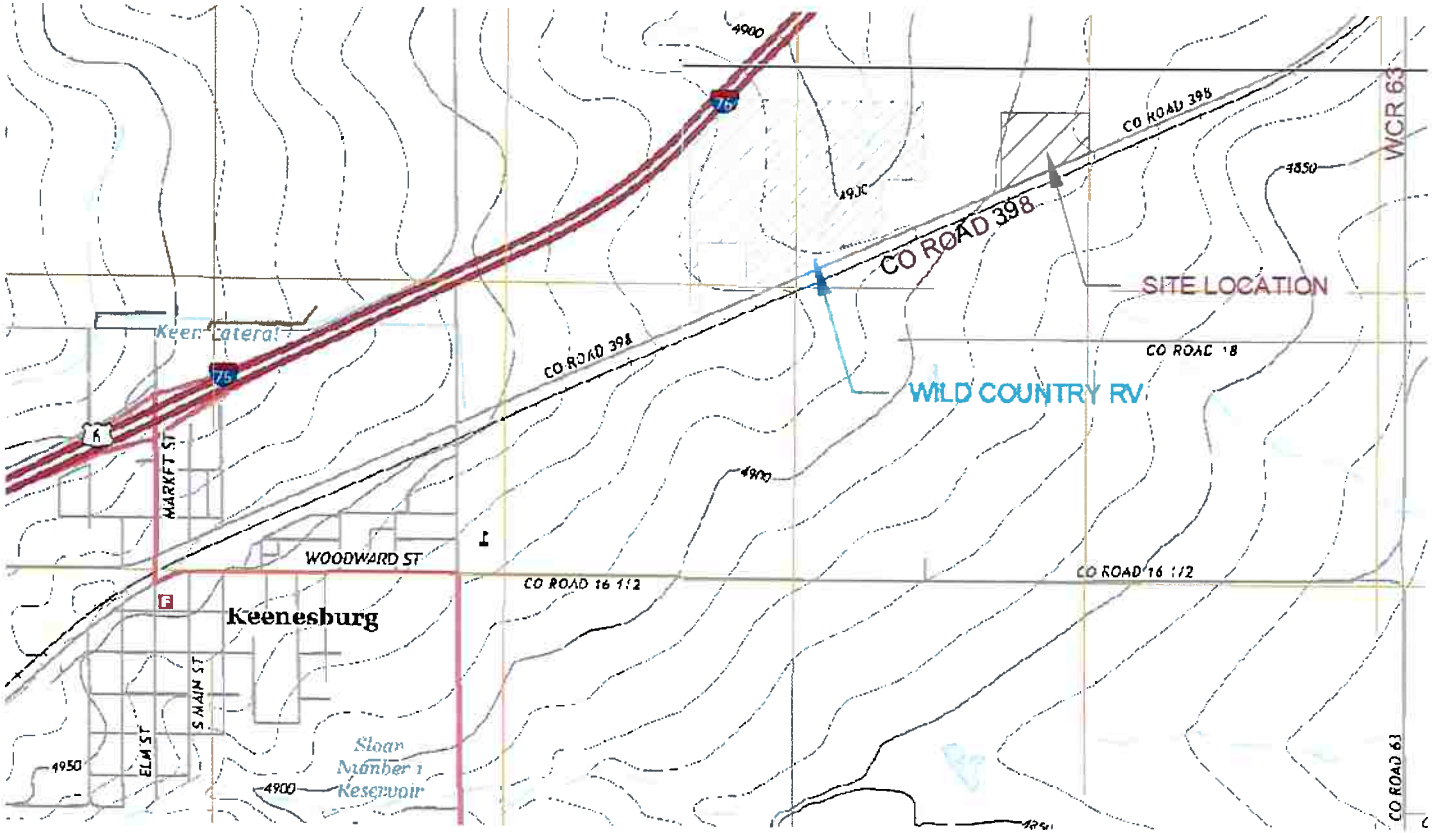
D. Additional Items

No additional items were considered at this time.

APPENDIX A

Vicinity Map (USGS) / Key Map / FEMA Flood Insurance Rate Map (FIRM), Legal Description, Soil Survey Map and Soil Legend, Geotechnical Report


THIS PROJECT
WILD COUNTRY
RV PARK
76
76
398
398
63
18
18
18
18
18


CO ROAD 398
CO ROAD 398
CO ROAD 398
SITE LOCATION
WILD COUNTRY RV
CO ROAD 18
WCR 63
CO ROAD 63
WOODWARD ST
CO ROAD 16 1/2
CO ROAD 16 1/2
Keenesburg
MARKET ST
S MAIN ST
ELM ST
Keen Lateral
Sloan Number 1 Reservoir
4900
4950
4850
75
76
K

National Flood Hazard Layer FIRMette

FEMA

40°7'34.37"N

104°2'8.49.71"W

40°7'6.86"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Area of 1% annual chance flood with average depth less than one foot or with drainag areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 6 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represe an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/27/2019 at 6:57:24 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Weld County, Colorado, Southern Part

RK Subdivision

March 21, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,300 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Weld County, Colorado, Southern Part
Survey Area Data: Version 17, Sep 10, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 17, 2015—Oct 2, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
18	Colby-Adena loams, 3 to 9 percent slopes	1.6	10.1%
47	Olney fine sandy loam, 1 to 3 percent slopes	14.6	89.8%
79	Weld loam, 1 to 3 percent slopes	0.0	0.1%
Totals for Area of Interest		**16.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Weld County, Colorado, Southern Part

18—Colby-Adena loams, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 361t
Elevation: 4,750 to 4,900 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Colby and similar soils: 55 percent
Adena and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colby

Setting

Landform: Ridges, hills, plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous eolian deposits

Typical profile

H1 - 0 to 7 inches: loam
H2 - 7 to 60 inches: silt loam

Properties and qualities

Slope: 5 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: Loamy Slopes (R067BY008CO)
Hydric soil rating: No

Description of Adena

Setting

Landform: Hills, plains, ridges
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Calcareous eolian deposits

Typical profile

H1 - 0 to 6 inches: loam
H2 - 6 to 9 inches: clay loam
H3 - 9 to 60 inches: silt loam

Properties and qualities

Slope: 3 to 7 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: Loamy Plains (R067BY002CO)
Hydric soil rating: No

Minor Components

Kim

Percent of map unit: 5 percent
Hydric soil rating: No

Keith

Percent of map unit: 4 percent
Hydric soil rating: No

Weld

Percent of map unit: 3 percent
Hydric soil rating: No

Wiley

Percent of map unit: 3 percent
Hydric soil rating: No

47—Olney fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 362v
Elevation: 4,600 to 5,200 feet
Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 125 to 175 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Olney and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Olney

Setting

Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed deposit outwash

Typical profile

H1 - 0 to 10 inches: fine sandy loam
H2 - 10 to 20 inches: sandy clay loam
H3 - 20 to 25 inches: sandy clay loam
H4 - 25 to 60 inches: fine sandy loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: Sandy Plains (R067BY024CO)
Hydric soil rating: No

Minor Components

Zigweid

Percent of map unit: 10 percent
Hydric soil rating: No

Vona

Percent of map unit: 5 percent
Hydric soil rating: No

79—Weld loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2x0hw
Elevation: 3,600 to 5,750 feet
Mean annual precipitation: 12 to 17 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 115 to 155 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Weld and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Weld

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous loess

Typical profile

Ap - 0 to 8 inches: loam
Bt1 - 8 to 12 inches: clay
Bt2 - 12 to 15 inches: clay loam
Btk - 15 to 28 inches: loam
Bk - 28 to 60 inches: silt loam
C - 60 to 80 inches: silt loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 14 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: High (about 11.3 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: C
Ecological site: Loamy Plains (R067BY002CO)
Hydric soil rating: No

Minor Components

Adena

Percent of map unit: 8 percent
Landform: Interfluves
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Loamy Plains (R067BY002CO)
Hydric soil rating: No

Colby

Percent of map unit: 7 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Loamy Plains (R067BY002CO)
Hydric soil rating: No

Keith

Percent of map unit: 3 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Loamy Plains (R067BY002CO)
Hydric soil rating: No

Baca

Percent of map unit: 2 percent
Landform: Interfluves
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: Loamy Plains (R067BY002CO)
Hydric soil rating: No

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SUBSURFACE INVESTIGATION AND FOUNDATION RECOMMENDATIONS

Prepared For:
Platte River Investments, Inc.
8537 County Road 51
Keenesburg, CO 80643

Job Site Located At:
Future 1.83 Acre Parcel Currently Located within
Parcel No. 130319300014
Lot 1
A Part of the SW1/4 of Section 19
T2N, R63W of the 6th P.M.
Weld County, CO

January 22, 2020

JOB #19-9433

Todd M. Schroeder P.E. 33548

COLORADO REGISTERED
TODD M. SCHROEDER
33548
1/22/20
PROFESSIONAL ENGINEER

AGREEMENT OF PURPOSE AND DISCLAIMER:

The parties specifically agree and contract that the purpose of the provided subsurface investigation is to test, analyze, and provide geotechnical recommendations for the foundation recommendations. This report presents a description of subsurface conditions encountered at the site, design, and construction criteria influenced by the subsurface conditions. The opinions and recommendations presented in this report are based on the data generated during this field exploration, laboratory testing, and our experience. A foundation design sealed by a Professional Engineer is required to obtain a building permit but is not included in this report.

The parties specifically agree that High Plains Engineering & Design, LLC has not been retained nor will they render an opinion concerning environmental issues, hazardous waste or any other known and or unknown conditions that may be present on the job site, since this is not our area of expertise.

LOCATION AND SITE CONDITIONS:

This report represents the results of the data obtained during the subsoil investigation for the proposed steel building located at Future 1.83 Acre Parcel Currently Located within Parcel No. 130319300014, Lot 1, A Part of the SW1/4 of Section 19, T2N, R63W of the 6th P.M., Weld County, CO.

The proposed building site is a vacant lot. The site is reasonably level with approximate slopes of 1.0% to the East-Northeast. The lot appears to be well drained with no erosion evident.

The depths of the excavation are anticipated to range from two (2) to four (4) feet below grades that existed at the time of this investigation. It is anticipated that final grades may be adjusted to accommodate drainage and construction depths. It is recommended that we review the final grading plan to determine if any revisions to the recommendations presented in this report are necessary.

SUBSOIL CONDITIONS:

Two, four-inch-diameter holes were drilled up to a depth of fifteen feet at the project site on January 7, 2020, as shown on the attached site map. Soil samples were analyzed in the field and laboratory to determine the characteristics of the soil (per Unified Soil Classification System) for identification and foundation design recommendations. In general, the soil profiles in test-holes #1 & #2 indicated Clay with Low Plasticity (CL) to a depth of 4 feet, underlain by Clay with Medium Plasticity (CL) to a final depth of 15 feet.

The Standard Penetration Test per ASTM D1586 for test-hole #1 showed 19 blows for a 12-inch penetration at a depth of 2 feet, 17 blows for a 12-inch penetration at a depth of 4 feet, and 35 blows for a 12-inch penetration at a depth of 9 feet. Please note that actual subsurface soil conditions may vary between samples and locations tested.

One-dimensional swell/consolidation tests were performed on selected samples to evaluate the expansive, compressive and collapsing nature of the soils and/or bedrock strata. These tests indicated an expansion potential of 2.7% at a depth of 2 feet, an expansion potential of 2.5% at a depth of 4 feet and an expansion potential of 1.5% at a depth of 9 feet. The soils in this report were classified using the American Society of Testing Materials (ASTM) procedures.

The geotechnical practice in the State of Colorado utilizes a relative scale to evaluate swelling (expansion) potentials. When a sample is wetted under a surcharge pressure of 500 pounds per square foot (psf), the measured swell is classified as low, moderate, high, or very high. The following table represents the relative classification criteria. Please note that the measured swell is not the only criteria for slab-on-grade recommendations and additional factors are considered by the engineer when evaluating the risk for slab-on-grade construction.

TABLE 1	
SLAB PERFORMANCE RISK CATEGORY	REPRESENTATIVE PERCENT SWELL (500 PSF SURCHARGE)
LOW	0 TO <3
MODERATE	3 TO <5
HIGH	5 TO <8
VERY HIGH	≥8

Source: Colorado Association of Geotechnical Engineers, Guideline for Slab Performance Risk Evaluation and Residential Basement Floor System Recommendations (Denver Metropolitan Area), 1996

GROUNDWATER:

Groundwater levels were not recorded at the time of our field investigation; however, it may be possible for groundwater to exist at construction depths at a later date. The groundwater can be expected to fluctuate throughout the year depending on variations in precipitation, surface drainage and irrigation on the site. The possible presence of shallow bedrock/dense clays beneath the surface is favorable for the formation of "perched" groundwater. We recommend that the bottom of the basement or crawlspace excavations be maintained at least 4 feet above the free groundwater level.

The ground water levels recorded represent the free, static water levels after equalization of hydrostatic pressures in the test-hole borings. It is possible that the groundwater levels recorded in the test-hole borings may not be present at those levels in the foundation excavations. Flow rates, seepage paths, hydrostatic pressures, seasonal groundwater fluctuations, water quality and other factors were not determined in this investigation. A program, which may include special well construction, test procedures, long-term monitoring, and analysis, would be necessary to determine these factors.

FOUNDATION RECOMMENDATIONS:

The Clay with Low Plasticity (CL) and Clay with Medium Plasticity (CL) material has a bearing strength of 2000 pounds per square foot (psf) and an equivalent liquid pressure of 55 pcf. We recommend the use of a continuous spread footing, due to the low expansion-consolidation potential of the analyzed soils. **The foundation must be constructed at the location in which soils investigation was performed.**

All rebar must be fully contained within the footing/foundation and shall not have any contact with the native soils due to the known risks of soluble sulfates contained in area soils.

All loose and disturbed soil shall be removed before placing of the concrete for the foundation. The bottom of the foundation shall be a minimum of 30" below final grade (or that required by local jurisdiction; whichever is greater) for frost protection.

Soil settlement resulting from the assumed structural loads is estimated to be one inch or less. Soil expansion at this site may be up to one inch in some areas. No foundation wall is to exceed twenty-five feet in length without utilizing buttresses or counterforts unless otherwise designed by the foundation engineer.

Engineered steel reinforcements shall be required in the footings and foundation walls. This will give walls or footing beams the strength to span or bridge over any loose or soft pockets of soil that may develop during construction.

Owners shall be made aware of all contents of this report, and the fact that *water accumulation around foundation elements is the primary cause of distressed foundations.*

To help prevent secondary damage that could be caused by slab movement, the following construction techniques are additional recommendations for the foundation construction.

SLAB ON GRADE CONSTRUCTION:

Steel Building/Shop and Exterior Slab-on-grade Concrete: The soil encountered at or below anticipated slab elevations has a low swell potential. If removal and replacement of soil below slabs is required, use a non-expansive granular soil with Plasticity Index less than 15 and Liquid Limit less than 30 and compacted to a minimum of 95% ASTM D698 (Standard Proctor Density), within 2% of the optimum moisture content.

The slabs should be constructed as "floating" slabs, which are free to move in the vertical direction. The slabs should not be attached to interior or exterior bearing members. The following design and construction details for slab-on-grade construction are recommended.

1. Floor slabs placed above potentially expansive soils will be expected to heave and crack to some degree. It is impossible to predict with certainty how much slab movement will actually occur. **When the owners cannot tolerate slab movement, we recommend to install a structural slab in place of the conventional slab on grade for floor construction.**

2. Where steel building/shop slabs and exterior slabs-on-grade are chosen, and the owners understand and accepts all the risks associated with slab movement, the following recommendations should be followed with the amount of over-excavation and replacement with imported fill determined by the owner/builder.

   a. Positive separations and/or isolation joints should be provided between slabs and all foundation walls, bearing members (columns), plumbing and utility lines. Isolation may be achieved with ½ inch expansion material or by sleeving. Vertical movement of the slabs should not be restricted. A minimum void of 3 inches should be provided with all non-bearing partition walls to allow movement without damaging the structure. Provide a minimum ½ inch space at the bottom of all doorjambs. It is the owner's responsibility to maintain these void spaces. Mechanical equipment set on the slab will require an expandable/collapsible connection to ductwork, etc.

   b. Eliminate plumbing under slabs where feasible. Where such plumbing is unavoidable, it should be thoroughly pressure tested during construction.

   c. A vapor retarder is required per IRC R506.2.3 except use 15-mil minimum thickness, located per ACI guidelines and installed per ASTM specifications. Floor slabs and footings should not be constructed on frozen subgrade. Slabs should be reinforced with rebar or wire mesh to help control crack separation.

3. Provide frequent scoring of the slabs in square dimensions (non- rectangular) to provide joints for controlled cracking of the slab. Control joints should be placed at distances equal to 24 to 30 times the slab thickness and the depth of sawed control joints should be ¼ of the slab thickness. Joints should be sawed as soon as the concrete will withstand the energy of sawing without raveling the edges of the joint. For most concrete mixtures, sawing should be completed within 6 to 18 hours after pouring, but never more than 24 hours. Install a good quality sealant (pliable/non-hardening) in these joints to prevent surface discharges of liquid from penetrating slab sub-grades.

4. The soils that will support the concrete slabs should be kept moist during construction by occasional sprinkling of water. The soils should be moistened to +/- 2 % optimum moisture within 24 hours of pouring the slabs. This procedure will help maintain the moisture content of the underlying soil. **Heavy watering or pooling of any kind next to the foundation or within the backfilled area is not recommended.**

BACKFILL:

The foundation and retaining walls must be well cured and well braced prior to backfilling.

Any soil disturbed adjacent to bearing foundation components are to be **re-compacted to a minimum of 95% Standard Proctor Density (ASTM D698).** Backfill that bears concrete slabs shall be compacted to 95% Standard Proctor Density (ASTM D698). Mechanical compaction methods shall be utilized, (water-flooding techniques are strictly prohibited). See Compaction Section for more information regarding compaction requirements and techniques.

Proper drainage away from the foundation walls shall be provided. The owners are advised to immediately fill any settled areas to eliminate water accumulation near the foundation. A minimum slope of 12 inches in the first 10 feet from the perimeter of the building is recommended. Roof downspouts and sill cocks should discharge into long concrete splash blocks (5 feet long min.) or into gutter extensions to deposit runoff water beyond the limits of the backfill soil near the foundation walls. Plastic membranes should not be used to cover the ground surface immediately surrounding the structure; geotextile fabric should be utilized for weed control. Any drainage water from uphill shall be diverted around the structure.

Sprinkling systems should not be installed or direct water to be within 10 feet of the foundation. The owner/builder is also advised that irrigation lines can leak and/or break, resulting in release of excessive amounts of water near the foundation. This can cause damage to slabs and foundation walls. **WATER ACCUMULATION AROUND FOUNDATION ELEMENTS IS THE MAIN CAUSE OF DISTRESSED FOUNDATIONS.**

COMPACTION:

Placing Fill: No brush, sod, frozen material, perishable material, unsuitable material, or stones of four inches or greater in maximum dimension shall be placed in the fill. The distribution of the material on the fill shall be such as to avoid the formation of layers of materials differing substantially in characteristics from the surrounding materials.

The materials are to be delivered to the backfill surface at a uniform rate, and in such quantity as to permit a satisfactory construction procedure. Unnecessary concentration of backfill machinery travel tending to cause ruts and other hollows more than six inches in depth, are to be re-graded and compacted. After dumping of fill material on the backfill surface, the material is to be spread by approved methods in approximately 6 inches compacted thickness.

Moisture Control: The material in each layer shall be compacted by rolling and shall contain the optimum moisture required for maximum compaction, as nearly practicable and as determined by the soils engineer. The moisture content shall be uniform throughout all layers. If in the opinion of the soils engineer it is not possible to obtain moisture content by adding water on the fill surface, the contractor may be required to add the necessary moisture to backfill material in the borrow area.

Compaction: When the moisture condition and content of each spread layer is satisfactory, it shall be compacted by a method approved by the soils engineer to **95% ASTM D698 (Standard Proctor Density) for slab areas, and 98% ASTM D698 for footing and/or pad areas.** A Standard Proctor test is to be performed for each typical fill material and frequent tests of the density of the fill must be taken.

In general, to compact cohesion-less free-draining materials, *the above guidelines also apply.*

When compacting cohesion-less free-draining materials such as gravel and sand, the materials shall be deposited in layers and compacted by treads of a crawler type tractor, surface of internal vibrators, pneumatic or smooth rollers, power or hand tampers, or by any other means approved by the soils engineer. The thickness of the horizontal layers after compaction is not to exceed 6 inches compacted thickness if compaction is performed by tractor treads, surface vibrators or similar equipment, or not more than penetrating length of the vibrator head if compaction is performed by internal vibrators. When the moisture content and condition of each spread layer is satisfactory, it shall be compacted by a method approved by the soils engineer **to 91% ASTM D1557 (Modified Proctor Density) for slab areas, and 94% ASTM D1557 for footing and/or pad areas.**

CONSTRUCTION DETAILS – GENERAL COMMENTS:

In any soil investigation, it is necessary to assume that the subsurface soil conditions do not vary greatly from the conditions encountered in the field and laboratory testing. The accompanying design is presented using best professional judgment based on the limits of the extent of testing commissioned by the client. Our experience has been that at times, soil conditions do change and variations do occur. These may become first apparent at the time of excavation for the foundation system.

If soils conditions are encountered which appear different from the test borings as presented in this report, it is required that this office be called to make an observation of <u>the open excavation prior to placing the footings.</u> The cost of this observation is not part of this report.

This project should be constructed by a qualified contractor with experience in similar projects. The owner/builder is advised to observe and document the construction process to ensure the construction is performed in accordance with the design drawings and technical specifications. **The foundation and retaining walls must be well cured and well braced prior to backfilling**.

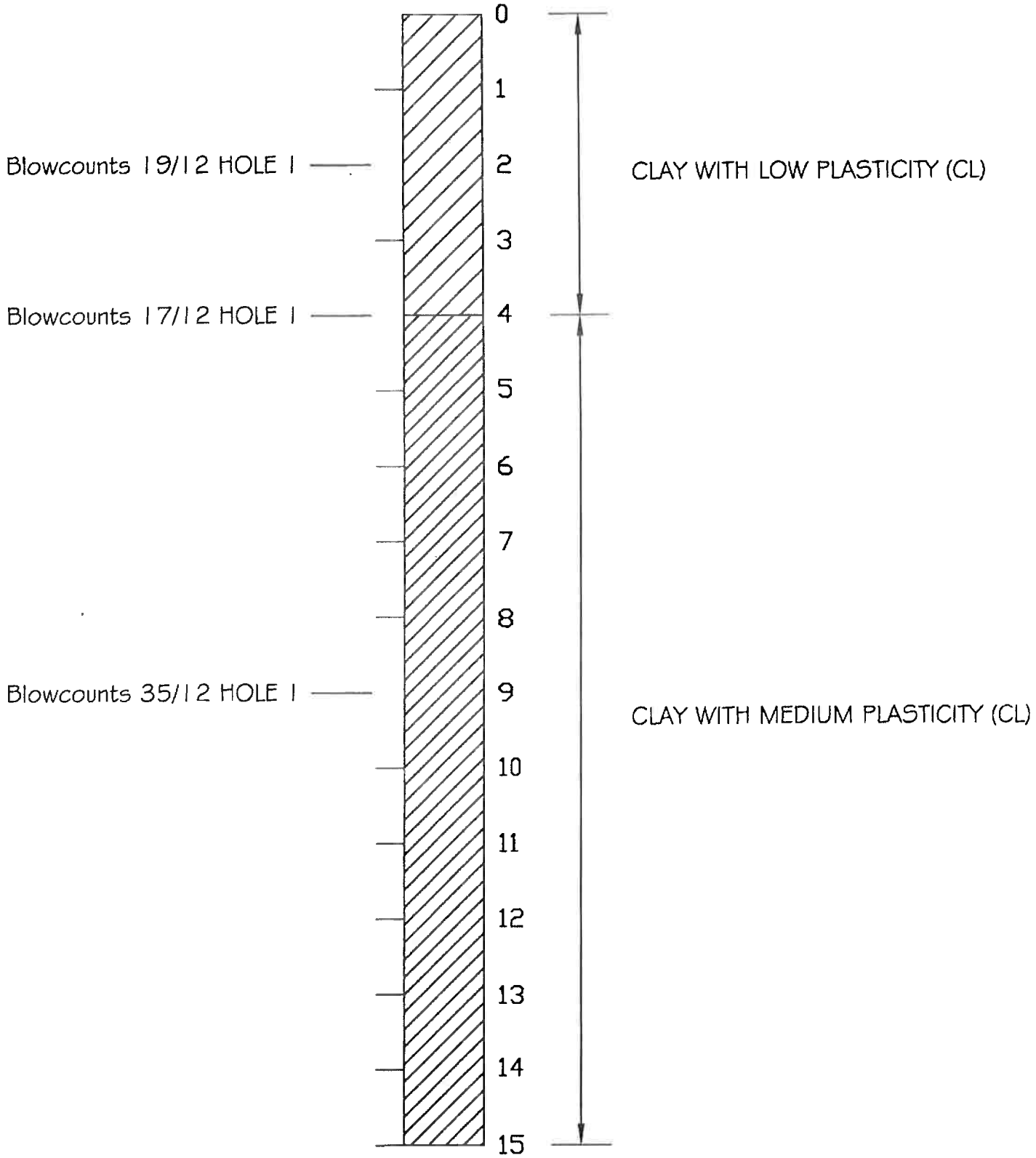
This report does not address general hillside stability, landslide potential, and/or other natural hazards. Several areas in the Colorado Front Range have known geologic hazards associated with them. We recommend that readers of this report educate themselves further as to the existence of geologic hazards on or around their specific property of interest. The Colorado Geologic Survey {www.geosurvey.state.co.us or 303-866-2611} is a good source for publications (maps, reports, etc.) dealing with specific geologic issues and/or issues related to specific geographic areas.

DISCLAIMER:

We do not guarantee the performance of the project in any respect, but only that our engineering work and judgments rendered meet the standard care of our profession. The presence of underground workings (e.g. coal mines) and subsidence potential from any workings was not part of this investigation. The owner should contact the State and County agencies to determine if mining has been conducted in the area and if any precautions are recommended.

THE PARTIES SPECIFICALLY AGREE THAT *HIGH PLAINS ENGINEERING & DESIGN, LLC.* HAS NOT BEEN RETAINED NOR WILL THEY RENDER AN OPINION CONCERNING ANY ENVIRONMENTAL ISSUES, HAZARDOUS WASTE OR ANY OTHER KNOWN OR UNKNOWN CONDITIONS THAT MAY BE PRESENT ON SITE.

DUE TO CHANGING TECHNOLOGY, BUILDING CODES AND CITY/COUNTY REQUIREMENTS, THIS SOIL REPORT MUST BE USED WITHIN ONE YEAR OF THE DATE ON THE FRONT OF THE REPORT OR MUST BE REVISED.



TEST HOLE(S) 1 & 2

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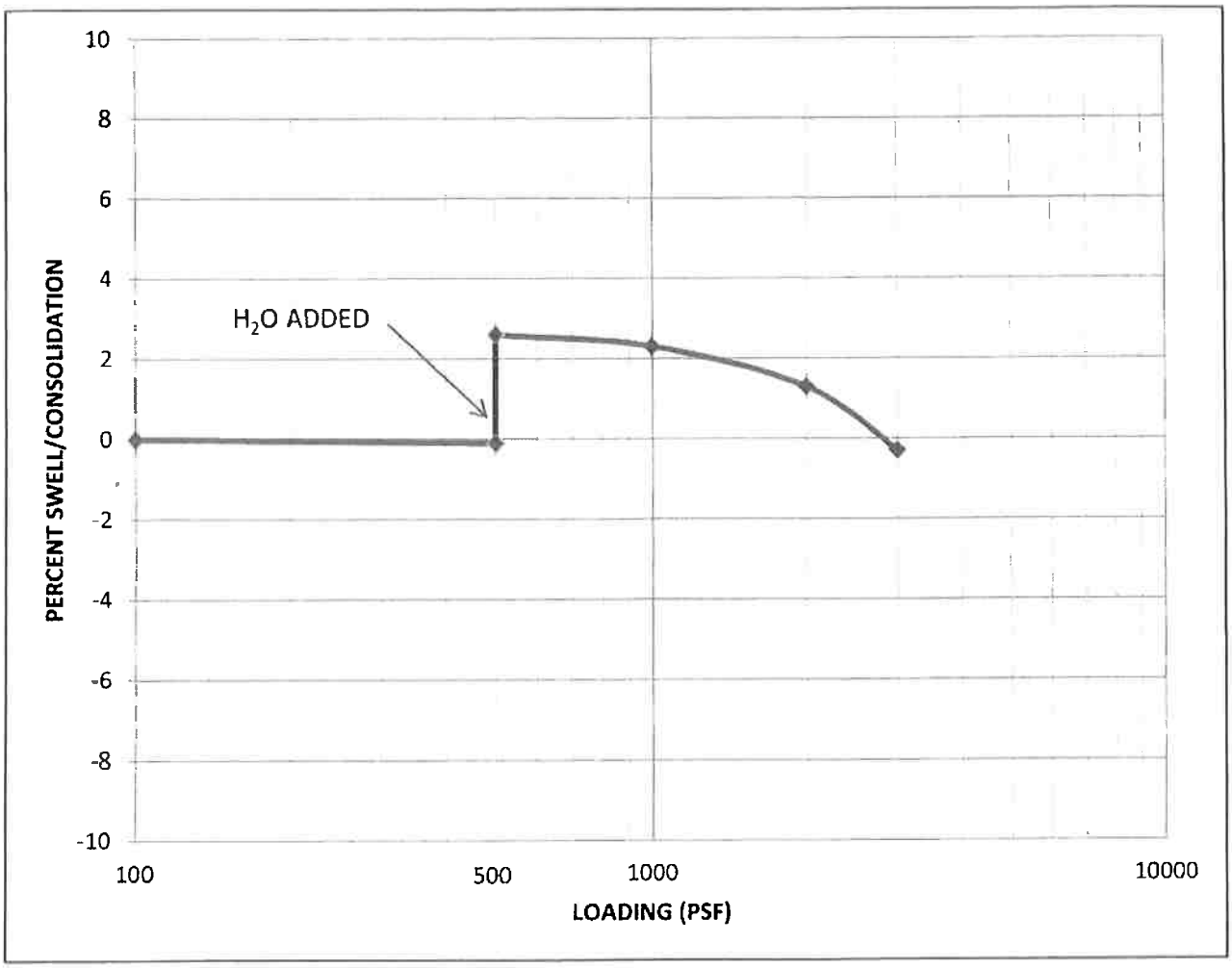
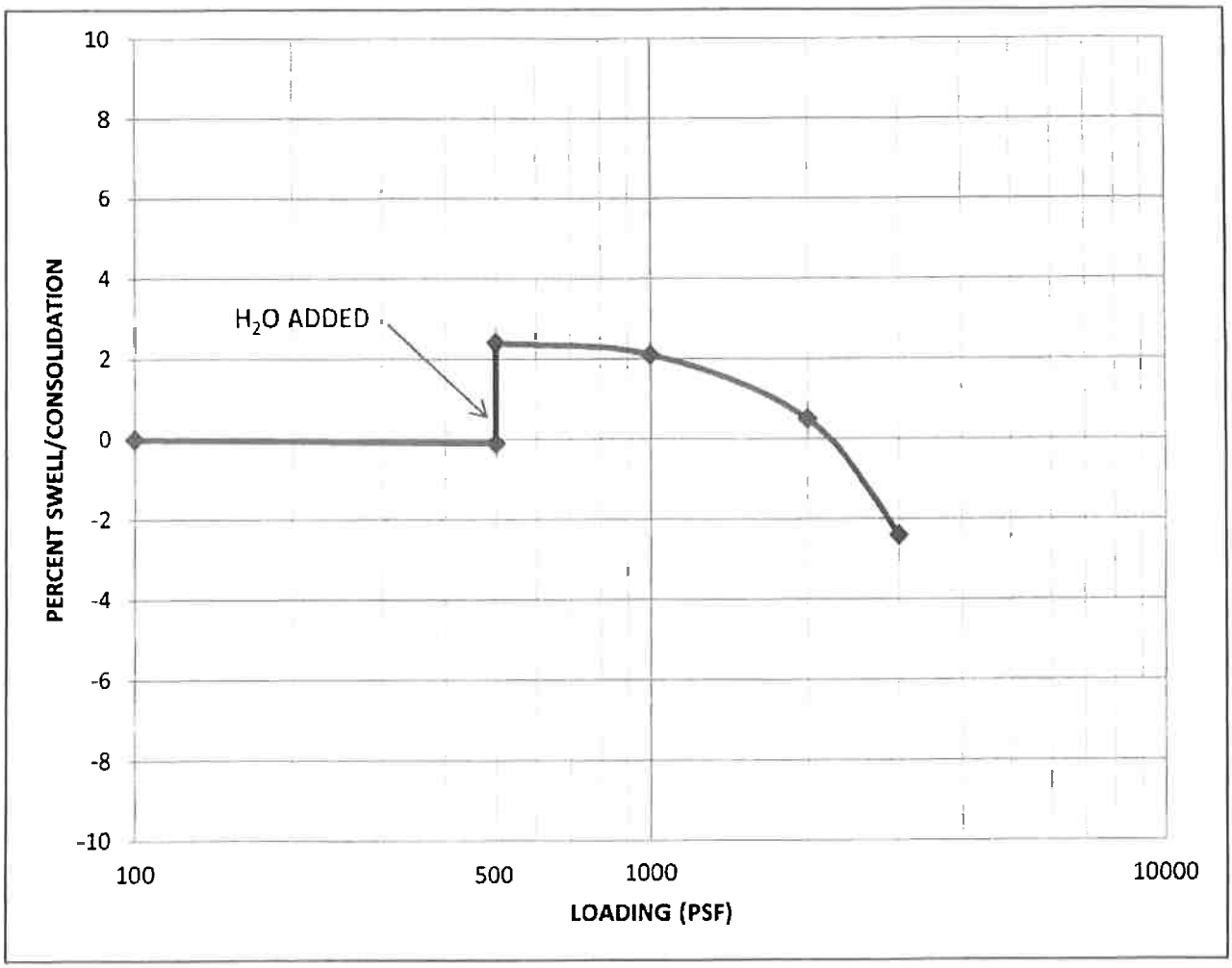


HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	2' BC	35.33	22.25	13.09	2.7		9.96

SOIL TYPE:	CLAY WITH LOW PLASTICITY (CL)

JOB NO:	19-9433	**JOB LOCATION:**
DATE:	1/22/20	FUTURE 1.83 ACRE PARCEL LOCATED WITHIN PARCEL 130319300014
DRAWN:	KELSEY	LOT 1, A PART OF THE SW1/4 OF SEC. 19, T2N, R63W OF THE 6TH P.M.
CHECKED:	TMS	WELD COUNTY, CO

HIGH PLAINS ENGINEERING & DESIGN, LLC
555 MAIN STREET, P.O. BOX 1077, HUDSON, CO 80642 • PHONE: 303-857-9280 • FAX: 303-857-9238



HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	4' BC	37.95	21.95	16.00	2.5		9.5

SOIL TYPE:	CLAY WITH MEDIUM PLASTICITY (CL)

JOB NO:	19-9433	**JOB LOCATION:**
DATE:	1/22/20	FUTURE 1.83 ACRE PARCEL LOCATED WITHIN PARCEL 130319300014
DRAWN:	KELSEY	LOT 1, A PART OF THE SW1/4 OF SEC. 19, T2N, R63W OF THE 6TH P.M.
CHECKED:	TMS	WELD COUNTY, CO

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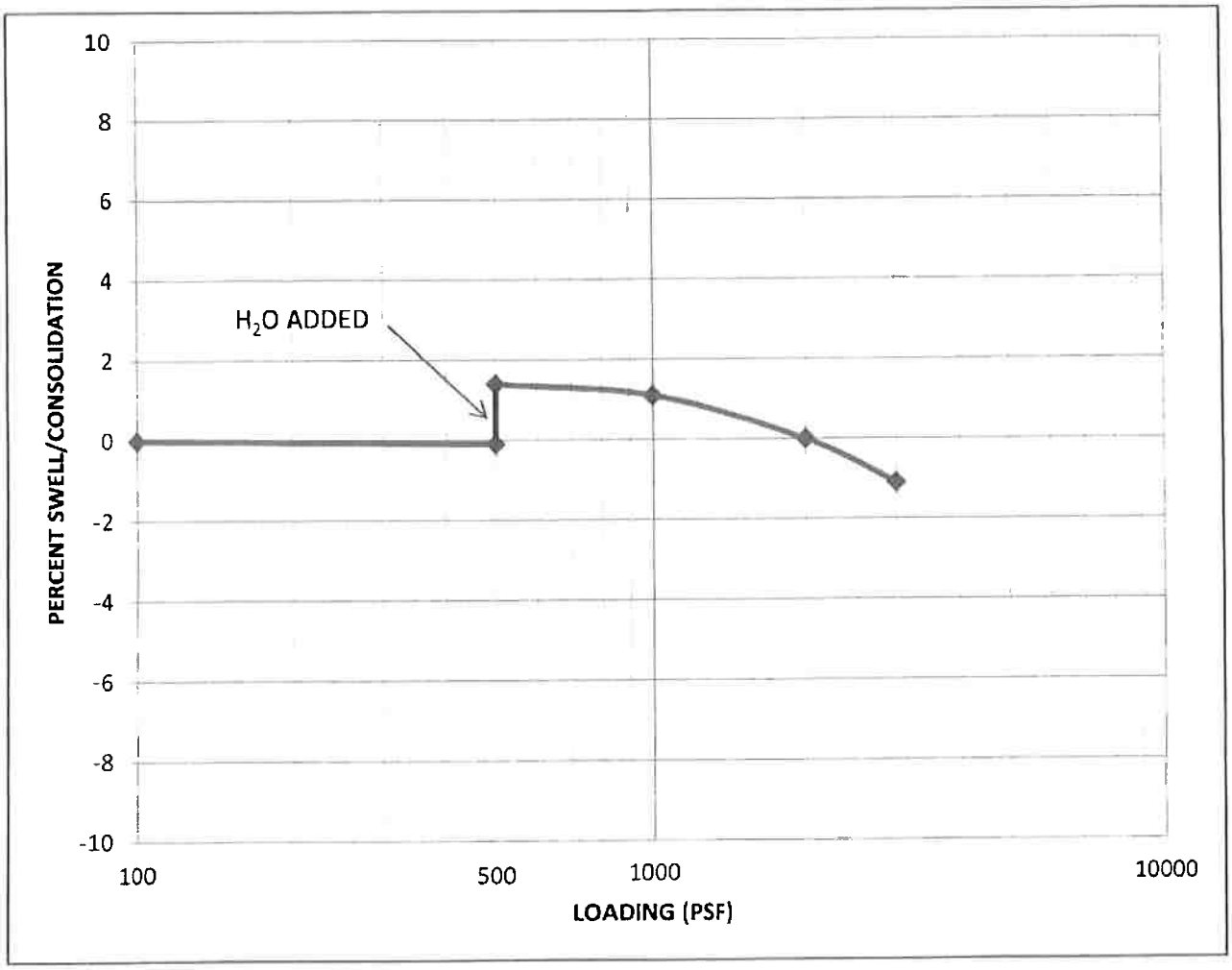


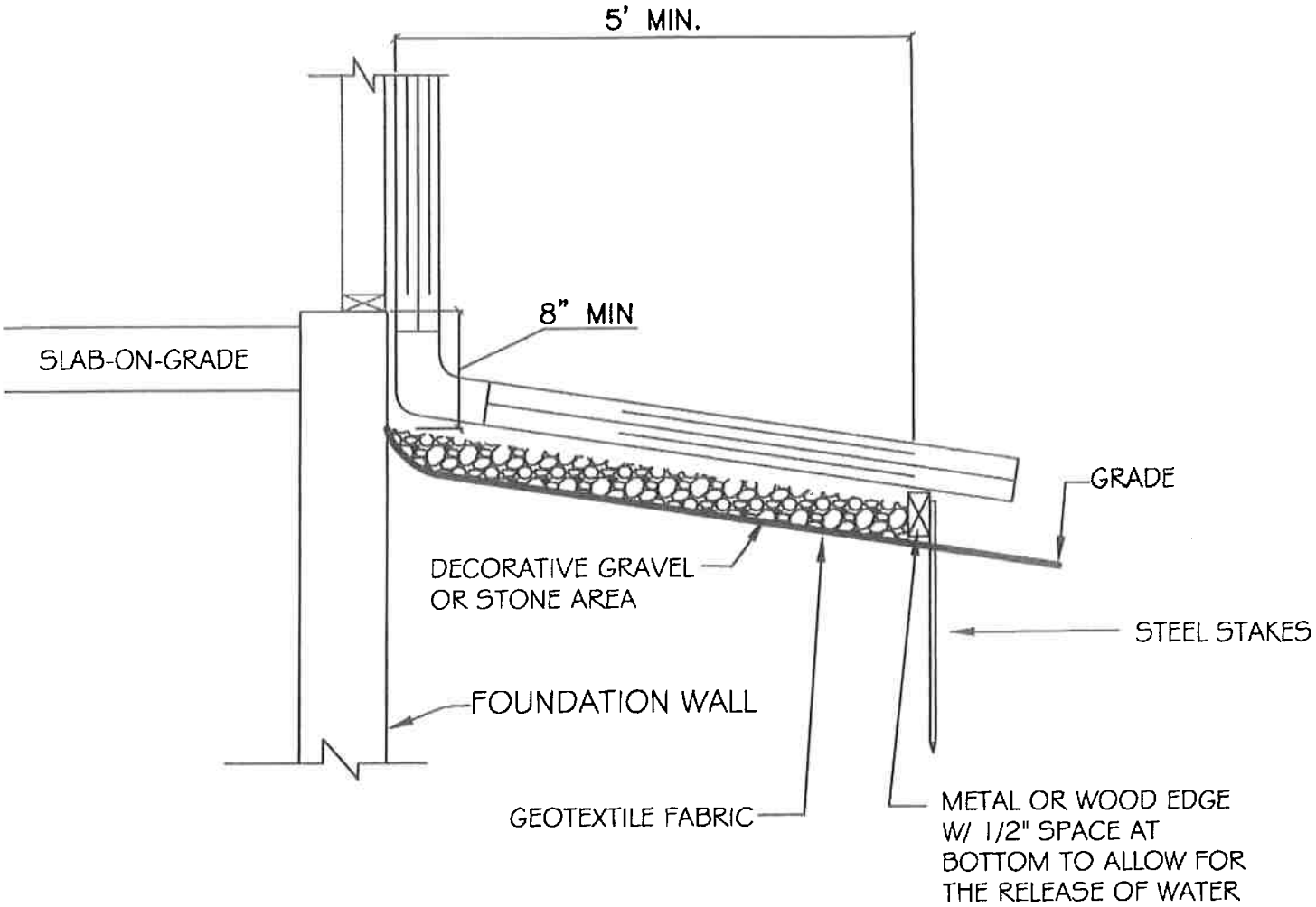
HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	9' BC	42.63	22.62	20.01	1.5		13.43

SOIL TYPE:	CLAY WITH MEDIUM PLASTICITY (CL)

JOB NO:	19-9433	**JOB LOCATION:**
DATE:	1/22/20	FUTURE 1.83 ACRE PARCEL LOCATED WITHIN PARCEL 130319300014
DRAWN:	KELSEY	LOT 1, A PART OF THE SW1/4 OF SEC. 19, T2N, R63W OF THE 6TH P.M.
CHECKED:	TMS	WELD COUNTY, CO

HIGH PLAINS ENGINEERING & DESIGN, LLC
555 MAIN STREET, P.O. BOX 1077, HUDSON, CO 806420 PHONE (303) 857-9280 FAX (303) 857-923

FOUNDATION GRADING DETAIL

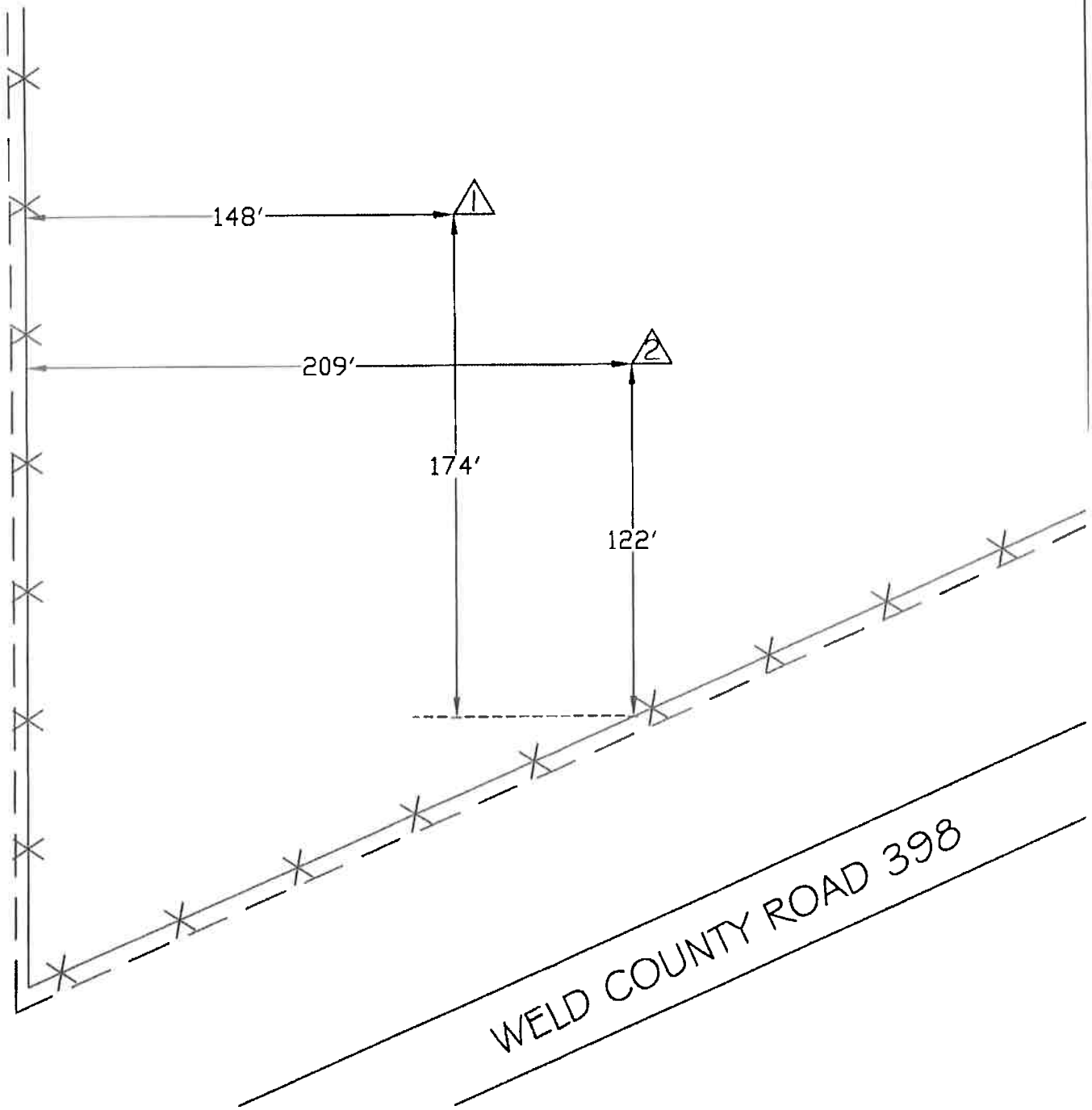


NOTE

1. PROVIDE A MINIMUM SLOPE OF 12" IN THE FIRST 10'-0" FROM FOUNDATION (10%)
2. DOWNSPOUTS AND EXTENSIONS SHOULD EXTEND BEYOND THE GRAVEL OR STONE AREA
3. HARDSCAPING NEXT TO FOUNDATION SHOULD SLOPE AWAY AT 2% SLOPE

SITE MAP

FUTURE 1.83 ACRE PARCEL CURRENTLY LOCATED WITHIN PARCEL 1303193000014
LOT 1 A PART OF THE SW1/4 OF SECTION 19, T2N, R63W OF THE 6TH P.M.
WELD COUNTY, CO



LEGEND

o - Percolation Test Hole

X - Percolation Profile Hole

△ - Soil Profile Hole

✕✕ - Fence

☆ - Bench Mark

▯ - Soil Pit

All locations shown above are based on specific information furnished by others or estimates made in the field by High Plains Engineering & Design personnel. The locations, distances, directions, etc. are not the result of a property survey but are approximations and are not warranted to be exact. It is the owner/builder's responsibility to define property - boundaries and ensure all onsite improvements are located within the platted site and out of inappropriate easements. All distances are to be verified prior to excavation.

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SUBSURFACE INVESTIGATION AND FOUNDATION RECOMMENDATIONS

Prepared For:
Platte River Investments, Inc.
8537 County Road 51
Keenesburg, CO 80643

Job Site Located At:
Future 1.66 Acre Parcel Currently Located within
Parcel No. 130319300014
Lot 2
A Part of the SW1/4 of Section 19
T2N, R63W of the 6th P.M.
Weld County, CO

January 22, 2020

JOB #19-9434

COLORADO REGISTERED
TODD M. SCHROEDER
33548
1/22/20
PROFESSIONAL ENGINEER

Todd M. Schroeder P.E. 33548

AGREEMENT OF PURPOSE AND DISCLAIMER:

The parties specifically agree and contract that the purpose of the provided subsurface investigation is to test, analyze, and provide geotechnical recommendations for the foundation recommendations. This report presents a description of subsurface conditions encountered at the site, design, and construction criteria influenced by the subsurface conditions. The opinions and recommendations presented in this report are based on the data generated during this field exploration, laboratory testing, and our experience. A foundation design sealed by a Professional Engineer is required to obtain a building permit but is not included in this report.

The parties specifically agree that High Plains Engineering & Design, LLC has not been retained nor will they render an opinion concerning environmental issues, hazardous waste or any other known and or unknown conditions that may be present on the job site, since this is not our area of expertise.

LOCATION AND SITE CONDITIONS:

This report represents the results of the data obtained during the subsoil investigation for the proposed steel building located at the Future 1.66 Acre Parcel currently located within Parcel No. 130319300014, Lot 2, A Part of the SW1/4 of Section 19, T2N, R63W of the 6th P.M., Weld County, CO.

The proposed building site is a vacant lot. The site is reasonably level with approximate slopes of 1.5% to the East. The lot appears to be well drained with no erosion evident.

The depths of the excavation are anticipated to range from two (2) to four (4) feet below grades that existed at the time of this investigation. It is anticipated that final grades may be adjusted to accommodate drainage and construction depths. It is recommended that we review the final grading plan to determine if any revisions to the recommendations presented in this report are necessary.

SUBSOIL CONDITIONS:

Two, four-inch-diameter holes were drilled up to a depth of fifteen feet at the project site on January 7, 2020, as shown on the attached site map. Soil samples were analyzed in the field and laboratory to determine the characteristics of the soil (per Unified Soil Classification System) for identification and foundation design recommendations. In general, the soil profiles in test-holes #1 & #2 indicated Clay with Medium Plasticity (CL) to a final depth of 15 feet.

The Standard Penetration Test per ASTM D1586 showed 25 blows for a 12-inch penetration at a depth of 2 feet, 18 blows for a 12-inch penetration at a depth of 4 feet, and 25 blows for a 12-inch penetration at a depth of 7 feet. Please note that actual subsurface soil conditions may vary between samples and locations tested.

One-dimensional swell/consolidation tests were performed on selected samples to evaluate the expansive, compressive and collapsing nature of the soils and/or bedrock strata. These tests indicated an expansion potential of 1.5% at a depth of 2 feet, an expansion potential of 2.8% at a depth of 4 feet and an expansion potential of 4.3% at a depth of 7 feet. The soils in this report were classified using the American Society of Testing Materials (ASTM) procedures.

The geotechnical practice in the State of Colorado utilizes a relative scale to evaluate swelling (expansion) potentials. When a sample is wetted under a surcharge pressure of 500 pounds per square foot (psf), the measured swell is classified as low, moderate, high, or very high. The following table represents the relative classification criteria. Please note that the measured swell is not the only criteria for slab-on-grade recommendations and additional factors are considered by the engineer when evaluating the risk for slab-on-grade construction.

TABLE 1	
SLAB PERFORMANCE RISK CATEGORY	REPRESENTATIVE PERCENT SWELL (500 PSF SURCHARGE)
LOW	0 TO <3
MODERATE	3 TO <5
HIGH	5 TO <8
VERY HIGH	≥8

Source: Colorado Association of Geotechnical Engineers, Guideline for Slab Performance Risk Evaluation and Residential Basement Floor System Recommendations (Denver Metropolitan Area), 1996

GROUNDWATER:

Groundwater levels were not recorded at the time of our field investigation; however, it may be possible for groundwater to exist at construction depths at a later date. The groundwater can be expected to fluctuate throughout the year depending on variations in precipitation, surface drainage and irrigation on the site. The possible presence of shallow bedrock/dense clays beneath the surface is favorable for the formation of "perched" groundwater. We recommend that the bottom of the basement or crawlspace excavations be maintained at least 4 feet above the free groundwater level.

The ground water levels recorded represent the free, static water levels after equalization of hydrostatic pressures in the test-hole borings. It is possible that the groundwater levels recorded in the test-hole borings may not be present at those levels in the foundation excavations. Flow rates, seepage paths, hydrostatic pressures, seasonal groundwater fluctuations, water quality and other factors were not determined in this investigation. A program, which may include special well construction, test procedures, long-term monitoring, and analysis, would be necessary to determine these factors.

FOUNDATION RECOMMENDATIONS:

The Clay with Low Plasticity (CL) material has a bearing strength of 2000 pounds per square foot (psf) and an equivalent liquid pressure of 55 pcf. We recommend the use of a continuous spread footing, due to the low expansion-consolidation potential of the analyzed soils. **The foundation must be constructed at the location in which soils investigation was performed.**

All rebar must be fully contained within the footing/foundation and shall not have any contact with the native soils due to the known risks of soluble sulfates contained in area soils.

Unmonitored moisture content in foundation excavations over an extended period of time can create foundation stress and potential damage after backfilling operations are complete. Foundation excavations left open for a period greater than 7 days will require moisture monitoring and/or moisture augmentation. High Plains Engineering & Design, LLC cannot be held responsible for foundation damage as a result of the failure to monitor moisture content after a period of 7 days. If it's anticipated that the foundation excavation will be left open for an extended period of time, the general contractor/owner shall contact High Plains Engineering & Design, LLC for further recommendations.

All loose and disturbed soil shall be removed before placing of the concrete for the foundation. The bottom of the foundation shall be a minimum of 30" below final grade (or that required by local jurisdiction; whichever is greater) for frost protection.

Soil settlement resulting from the assumed structural loads is estimated to be one inch or less. Soil expansion at this site may be up to one inch in some areas. No foundation wall is to exceed twenty-five feet in length without utilizing buttresses or counterforts unless otherwise designed by the foundation engineer.

Engineered steel reinforcements shall be required in the footings and foundation walls. This will give walls or footing beams the strength to span or bridge over any loose or soft pockets of soil that may develop during construction.

Owners shall be made aware of all contents of this report, and the fact that *water accumulation around foundation elements is the primary cause of distressed foundations.*

To help prevent secondary damage that could be caused by slab movement, the following construction techniques are additional recommendations for the foundation construction.

SLAB ON GRADE CONSTRUCTION:

Steel Building/Shop and Exterior Slab-on-grade Concrete: The soil encountered at or below anticipated slab elevations has a low/moderate swell potential. If removal and replacement of soil below slabs is required, use a non-expansive granular soil with Plasticity Index less than 15 and Liquid Limit less than 30 and compacted to a minimum of 95% ASTM D698 (Standard Proctor Density), within 2% of the optimum moisture content.

The slabs should be constructed as "floating" slabs, which are free to move in the vertical direction. The slabs should not be attached to interior or exterior bearing members. The following design and construction details for slab-on-grade construction are recommended.

1. Floor slabs placed above potentially expansive soils will be expected to heave and crack to some degree. It is impossible to predict with certainty how much slab movement will actually occur. **When the owners cannot tolerate slab movement, we recommend to install a structural slab in place of the conventional slab on grade for floor construction.**

2. Where steel building/shop slabs and exterior slabs-on-grade are chosen, and the owners understand and accepts all the risks associated with slab movement, the following recommendations should be followed with the amount of over-excavation and replacement with imported fill determined by the owner/builder.

   a. Positive separations and/or isolation joints should be provided between slabs and all foundation walls, bearing members (columns), plumbing and utility lines. Isolation may be achieved with ½ inch expansion material or by sleeving. Vertical movement of the slabs should not be restricted. A minimum void of 3 inches should be provided with all non-bearing partition walls to allow movement without damaging the structure. Provide a minimum ½ inch space at the bottom of all doorjambs. It is the owner's responsibility to maintain these void spaces. Mechanical equipment set on the slab will require an expandable/collapsible connection to ductwork, etc.

   b. Eliminate plumbing under slabs where feasible. Where such plumbing is unavoidable, it should be thoroughly pressure tested during construction.

   c. A vapor retarder is required per IRC R506.2.3 except use 15-mil minimum thickness, located per ACI guidelines and installed per ASTM specifications. Floor slabs and footings should not be constructed on frozen subgrade. Slabs should be reinforced with rebar or wire mesh to help control crack separation.

3. Provide frequent scoring of the slabs in square dimensions (non- rectangular) to provide joints for controlled cracking of the slab. Control joints should be placed at distances equal to 24 to 30 times the slab thickness and the depth of sawed control joints should be ¼ of the slab thickness. Joints should be sawed as soon as the concrete will withstand the energy of sawing without raveling the edges of the joint. For most concrete mixtures, sawing should be completed within 6 to 18 hours after pouring, but never more than 24 hours. Install a good quality sealant (pliable/non-hardening) in these joints to prevent surface discharges of liquid from penetrating slab sub-grades.

4. The soils that will support the concrete slabs should be kept moist during construction by occasional sprinkling of water. The soils should be moistened to +/- 2 % optimum moisture within 24 hours of pouring the slabs. This procedure will help maintain the moisture content of the underlying soil. **Heavy watering or pooling of any kind next to the foundation or within the backfilled area is not recommended.**

BACKFILL:

The foundation and retaining walls must be well cured and well braced prior to backfilling.

Any soil disturbed adjacent to bearing foundation components are to be **re-compacted to a minimum of 95% Standard Proctor Density (ASTM D698)**. Backfill that bears concrete slabs shall be compacted to 95% Standard Proctor Density (ASTM D698). Mechanical compaction methods shall be utilized, (water-flooding techniques are strictly prohibited). See Compaction Section for more information regarding compaction requirements and techniques.

Proper drainage away from the foundation walls shall be provided. The owners are advised to immediately fill any settled areas to eliminate water accumulation near the foundation. A minimum slope of 12 inches in the first 10 feet from the perimeter of the building is recommended. Roof downspouts and sill cocks should discharge into long concrete splash blocks (5 feet long min.) or into gutter extensions to deposit runoff water beyond the limits of the backfill soil near the foundation walls. Plastic membranes should not be used to cover the ground surface immediately surrounding the structure; geotextile fabric should be utilized for weed control. Any drainage water from uphill shall be diverted around the structure.

Sprinkling systems should not be installed or direct water to be within 10 feet of the foundation. The owner/builder is also advised that irrigation lines can leak and/or break, resulting in release of excessive amounts of water near the foundation. This can cause damage to slabs and foundation walls. **WATER ACCUMULATION AROUND FOUNDATION ELEMENTS IS THE MAIN CAUSE OF DISTRESSED FOUNDATIONS.**

COMPACTION:

Placing Fill: No brush, sod, frozen material, perishable material, unsuitable material, or stones of four inches or greater in maximum dimension shall be placed in the fill. The distribution of the material on the fill shall be such as to avoid the formation of layers of materials differing substantially in characteristics from the surrounding materials.

The materials are to be delivered to the backfill surface at a uniform rate, and in such quantity as to permit a satisfactory construction procedure. Unnecessary concentration of backfill machinery travel tending to cause ruts and other hollows more than six inches in depth, are to be re-graded and compacted. After dumping of fill material on the backfill surface, the material is to be spread by approved methods in approximately 6 inches compacted thickness.

Moisture Control: The material in each layer shall be compacted by rolling and shall contain the optimum moisture required for maximum compaction, as nearly practicable and as determined by the soils engineer. The moisture content shall be uniform throughout all layers. If in the opinion of the soils engineer it is not possible to obtain moisture content by adding water on the fill surface, the contractor may be required to add the necessary moisture to backfill material in the borrow area.

Compaction: When the moisture condition and content of each spread layer is satisfactory, it shall be compacted by a method approved by the soils engineer to **95% ASTM D698 (Standard Proctor Density) for slab areas, and 98% ASTM D698 for footing and/or pad areas.** A Standard Proctor test is to be performed for each typical fill material and frequent tests of the density of the fill must be taken.

In general, to compact cohesion-less free-draining materials, *the above guidelines also apply.*

When compacting cohesion-less free-draining materials such as gravel and sand, the materials shall be deposited in layers and compacted by treads of a crawler type tractor, surface of internal vibrators, pneumatic or smooth rollers, power or hand tampers, or by any other means approved by the soils engineer. The thickness of the horizontal layers after compaction is not to exceed 6 inches compacted thickness if compaction is performed by tractor treads, surface vibrators or similar equipment, or not more than penetrating length of the vibrator head if compaction is performed by internal vibrators. When the moisture content and condition of each spread layer is satisfactory, it shall be compacted by a method approved by the soils engineer **to 91% ASTM D1557 (Modified Proctor Density) for slab areas, and 94% ASTM D1557 for footing and/or pad areas.**

CONSTRUCTION DETAILS – GENERAL COMMENTS:

In any soil investigation, it is necessary to assume that the subsurface soil conditions do not vary greatly from the conditions encountered in the field and laboratory testing. The accompanying design is presented using best professional judgment based on the limits of the extent of testing commissioned by the client. Our experience has been that at times, soil conditions do change and variations do occur. These may become first apparent at the time of excavation for the foundation system.

If soils conditions are encountered which appear different from the test borings as presented in this report, it is required that this office be called to make an observation of the open excavation prior to placing the footings. The cost of this observation is not part of this report.

This project should be constructed by a qualified contractor with experience in similar projects. The owner/builder is advised to observe and document the construction process to ensure the construction is performed in accordance with the design drawings and technical specifications. **The foundation and retaining walls must be well cured and well braced prior to backfilling**.

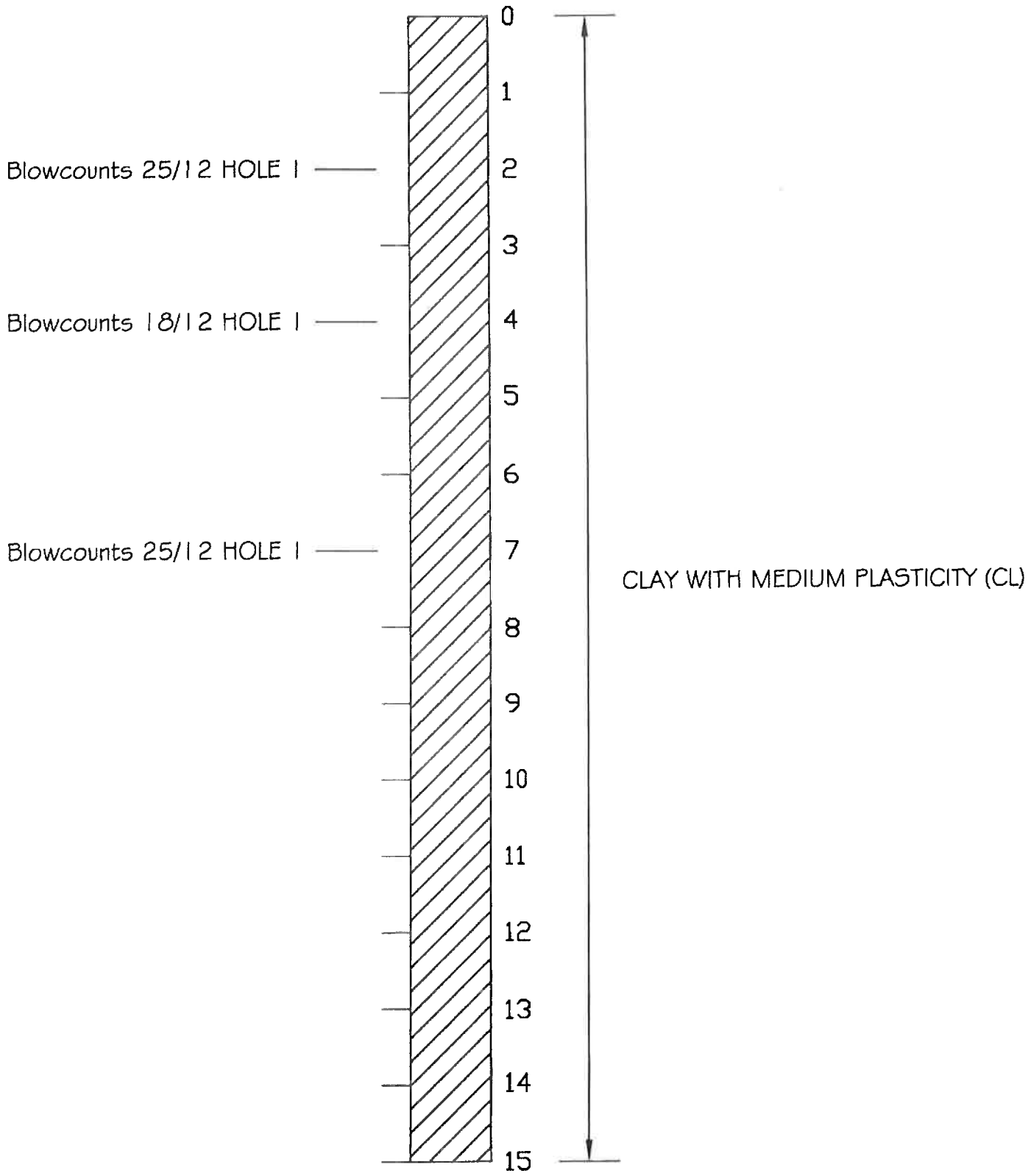
This report does not address general hillside stability, landslide potential, and/or other natural hazards. Several areas in the Colorado Front Range have known geologic hazards associated with them. We recommend that readers of this report educate themselves further as to the existence of geologic hazards on or around their specific property of interest. The Colorado Geologic Survey {www.geosurvey.state.co.us or 303-866-2611} is a good source for publications (maps, reports, etc.) dealing with specific geologic issues and/or issues related to specific geographic areas.

DISCLAIMER:

We do not guarantee the performance of the project in any respect, but only that our engineering work and judgments rendered meet the standard care of our profession. The presence of underground workings (e.g. coal mines) and subsidence potential from any workings was not part of this investigation. The owner should contact the State and County agencies to determine if mining has been conducted in the area and if any precautions are recommended.

THE PARTIES SPECIFICALLY AGREE THAT *HIGH PLAINS ENGINEERING & DESIGN, LLC.* HAS NOT BEEN RETAINED NOR WILL THEY RENDER AN OPINION CONCERNING ANY ENVIRONMENTAL ISSUES, HAZARDOUS WASTE OR ANY OTHER KNOWN OR UNKNOWN CONDITIONS THAT MAY BE PRESENT ON SITE.

DUE TO CHANGING TECHNOLOGY, BUILDING CODES AND CITY/COUNTY REQUIREMENTS, THIS SOIL REPORT MUST BE USED WITHIN ONE YEAR OF THE DATE ON THE FRONT OF THE REPORT OR MUST BE REVISED.



TEST HOLE(S) 1 & 2

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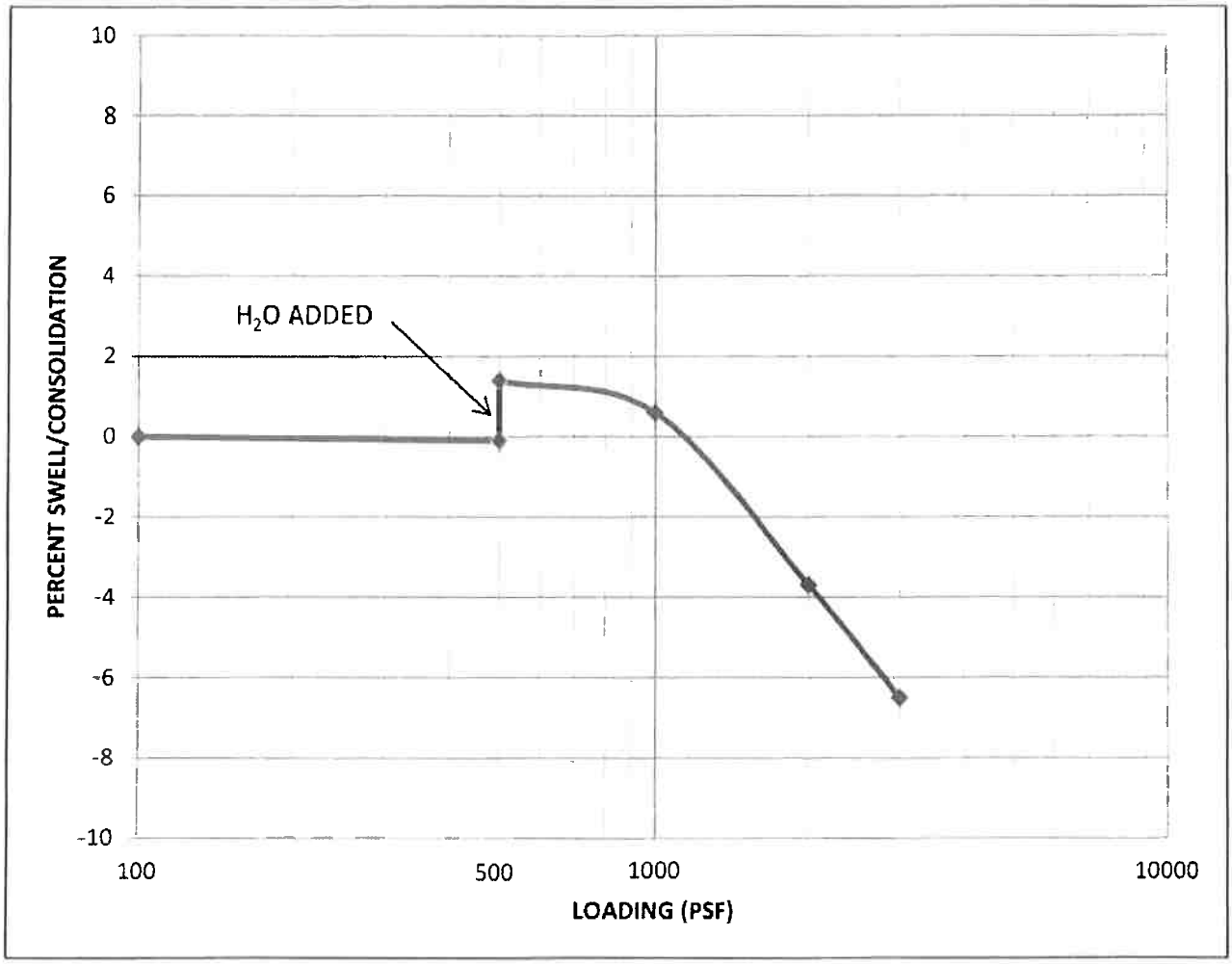

HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	2' BC	35.99	20.58	15.41	1.5		8.81

SOIL TYPE:	CLAY WITH MEDIUM PLASTICITY (CL)

JOB NO:	19-9434	**JOB LOCATION:**
DATE:	1/22/20	FUTURE 1.66 ACRE PARCEL LOCATED WITHIN PARCEL 13031900014
DRAWN:	KELSEY	LOT 2, A PART OF THE SW1/4 OF SEC. 19, T2N, R63W OF THE 6TH P.M.
CHECKED:	TMS	WELD COUNTY, CO

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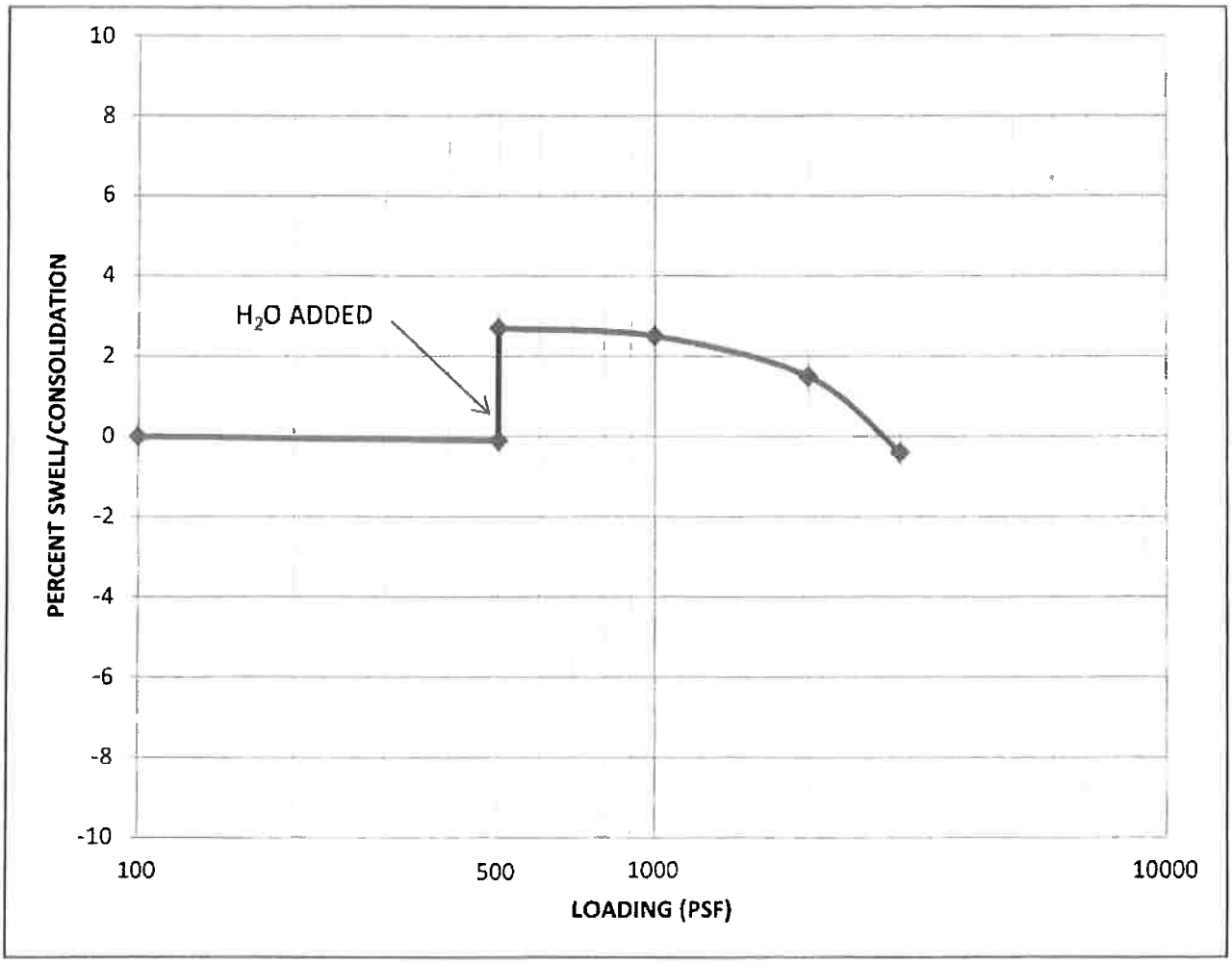

HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	4' BC	39.86	22.12	17.74	2.8		8.76

SOIL TYPE:	CLAY WITH MEDIUM PLASTICITY (CL)

JOB NO:	19-9434	**JOB LOCATION:**
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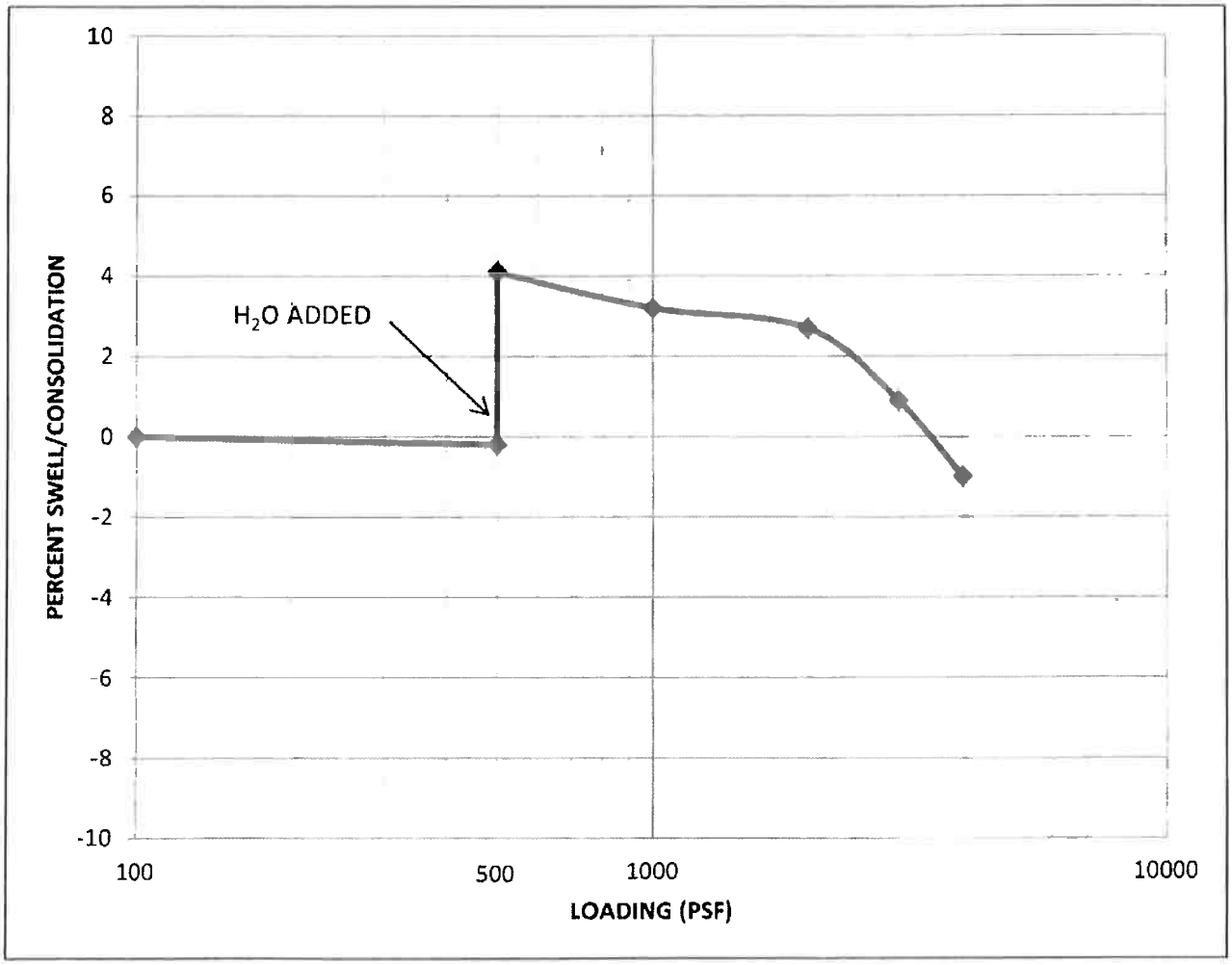

HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	7' BC	43.00	23.51	19.49	4.3		13.73

SOIL TYPE:	CLAY WITH MEDIUM PLASTICITY (CL)

JOB NO:	19-9434	**JOB LOCATION:**
DATE:	1/22/20	FUTURE 1.66 ACRE PARCEL LOCATED WITHIN PARCEL 13031900014
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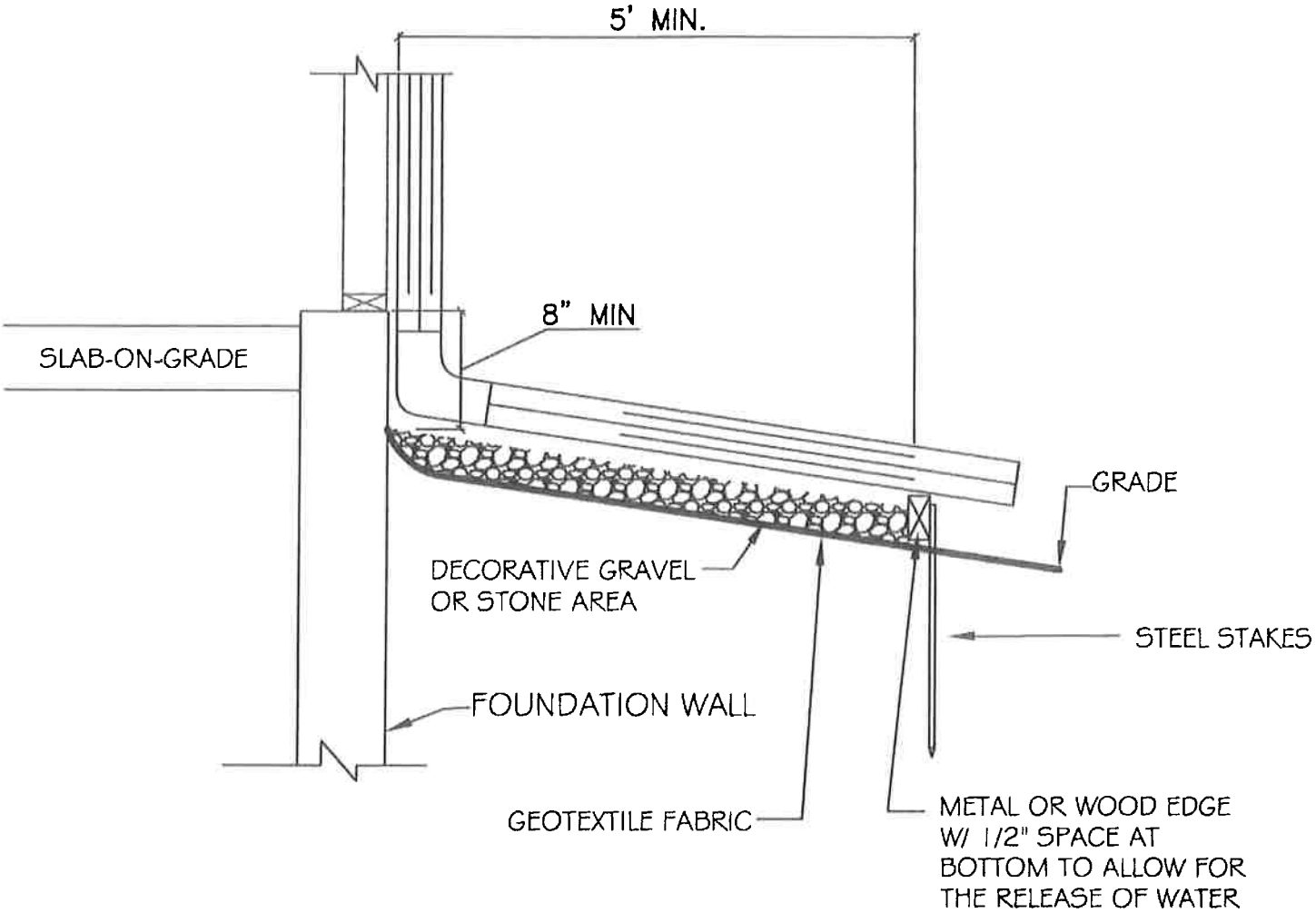

NOTE

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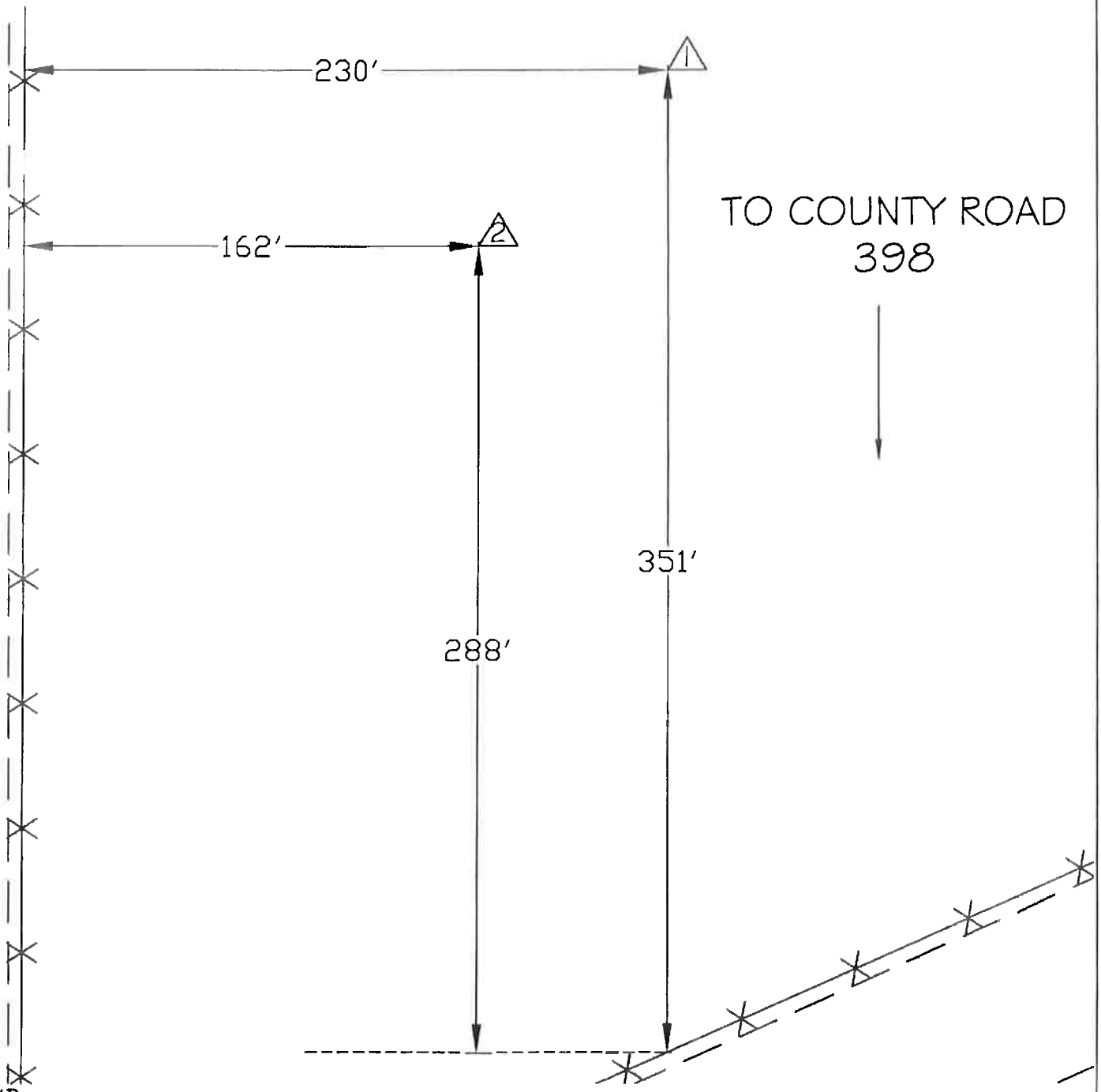
SITE MAP

FUTURE 1.66 ACRE PARCEL CURRENTLY LOCATED WITHIN PARCEL 130319300014
LOT 2, A PART OF THE SW1/4 OF SECTION 19, T2N, R63W OF THE 6TH P.M.
WELD COUNTY, CO



LEGEND

- o - Percolation Test Hole
- X - Percolation Profile Hole
- △ - Soil Profile Hole
- ✳✳ - Fence
- ☆ - Bench Mark
- ▯ - Soil Pit

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SUBSURFACE INVESTIGATION AND FOUNDATION RECOMMENDATIONS

Prepared For:
Platte River Investments, Inc.
8537 County Road 51
Keenesburg, CO 80643

Job Site Located At:
Future 1.65 Acre Parcel Currently Located within
Parcel No. 130319300014
Lot 3
A Part of the SW1/4 of Section 19
T2N, R63W of the 6th P.M.
Weld County, CO

January 22, 2020

JOB #19-9435

Todd M. Schroeder P.E. 33548

COLORADO REGISTERED
TODD M. SCHROEDER
33548
1/22/20
PROFESSIONAL ENGINEER

AGREEMENT OF PURPOSE AND DISCLAIMER:

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The parties specifically agree that High Plains Engineering & Design, LLC has not been retained nor will they render an opinion concerning environmental issues, hazardous waste or any other known and or unknown conditions that may be present on the job site, since this is not our area of expertise.

LOCATION AND SITE CONDITIONS:

This report represents the results of the data obtained during the subsoil investigation for the proposed steel building located at the Future 1.65 Acre Parcel currently located within Parcel No. 130319300014, Lot 3, A Part of the SW1/4 of Section 19, T2N, R63W of the 6th P.M., Weld County, CO.

The proposed building site is a vacant lot. The site is reasonably level with approximate slopes of 1.5% to the East-Southeast. The lot appears to be well drained with no erosion evident.

The depths of the excavation are anticipated to range from two (2) to four (4) feet below grades that existed at the time of this investigation. It is anticipated that final grades may be adjusted to accommodate drainage and construction depths. It is recommended that we review the final grading plan to determine if any revisions to the recommendations presented in this report are necessary.

SUBSOIL CONDITIONS:

Two, four-inch-diameter holes were drilled up to a depth of fifteen feet at the project site on January 7, 2020, as shown on the attached site map. Soil samples were analyzed in the field and laboratory to determine the characteristics of the soil (per Unified Soil Classification System) for identification and foundation design recommendations. In general, the soil profiles in test-holes #1 & #2 indicated Clay with Low Plasticity (CL) to a depth of 4 feet, underlain by Clay with Medium Plasticity (CL) to a final depth of 15 feet.

The Standard Penetration Test per ASTM D1586 showed 15 blows for a 12-inch penetration at a depth of 2 feet, 17 blows for a 12-inch penetration at a depth of 4 feet, and 21 blows for a 12-inch penetration at a depth of 7 feet. Please note that actual subsurface soil conditions may vary between samples and locations tested.

One-dimensional swell/consolidation tests were performed on selected samples to evaluate the expansive, compressive and collapsing nature of the soils and/or bedrock strata. These tests indicated an expansion potential of 1.9 % at a depth of 2 feet, an expansion potential of 3.1% at a depth of 4 feet and an expansion potential of 3.9% at a depth of 7 feet. The soils in this report were classified using the American Society of Testing Materials (ASTM) procedures.

The geotechnical practice in the State of Colorado utilizes a relative scale to evaluate swelling (expansion) potentials. When a sample is wetted under a surcharge pressure of 500 pounds per square foot (psf), the measured swell is classified as low, moderate, high, or very high. The following table represents the relative classification criteria. Please note that the measured swell is not the only criteria for slab-on-grade recommendations and additional factors are considered by the engineer when evaluating the risk for slab-on-grade construction.

TABLE 1	
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Source: Colorado Association of Geotechnical Engineers, Guideline for Slab Performance Risk Evaluation and Residential Basement Floor System Recommendations (Denver Metropolitan Area), 1996

GROUNDWATER:

Groundwater levels were not recorded at the time of our field investigation; however, it may be possible for groundwater to exist at construction depths at a later date. The groundwater can be expected to fluctuate throughout the year depending on variations in precipitation, surface drainage and irrigation on the site. The possible presence of shallow bedrock/dense clays beneath the surface is favorable for the formation of "perched" groundwater. We recommend that the bottom of the basement or crawlspace excavations be maintained at least 4 feet above the free groundwater level.

The ground water levels recorded represent the free, static water levels after equalization of hydrostatic pressures in the test-hole borings. It is possible that the groundwater levels recorded in the test-hole borings may not be present at those levels in the foundation excavations. Flow rates, seepage paths, hydrostatic pressures, seasonal groundwater fluctuations, water quality and other factors were not determined in this investigation. A program, which may include special well construction, test procedures, long-term monitoring, and analysis, would be necessary to determine these factors.

FOUNDATION RECOMMENDATIONS:

The Clay with Low Plasticity (CL) and Clay with Medium Plasticity (CL) material has a bearing strength of 2000 pounds per square foot (psf) and an equivalent liquid pressure of 55 pcf. We recommend the use of a continuous spread footing, due to the low/moderate expansion-consolidation potential of the analyzed soils. **The foundation must be constructed at the location in which soils investigation was performed.**

All rebar must be fully contained within the footing/foundation and shall not have any contact with the native soils due to the known risks of soluble sulfates contained in area soils.

Unmonitored moisture content in foundation excavations over an extended period of time can create foundation stress and potential damage after backfilling operations are complete. Foundation excavations left open for a period greater than 7 days will require moisture monitoring and/or moisture augmentation. High Plains Engineering & Design, LLC cannot be held responsible for foundation damage as a result of the failure to monitor moisture content after a period of 7 days. If it's anticipated that the foundation excavation will be left open for an extended period of time, the general contractor/owner shall contact High Plains Engineering & Design, LLC for further recommendations.

All loose and disturbed soil shall be removed before placing of the concrete for the foundation. The bottom of the foundation shall be a minimum of 30" below final grade (or that required by local jurisdiction; whichever is greater) for frost protection.

Soil settlement resulting from the assumed structural loads is estimated to be one inch or less. Soil expansion at this site may be up to one inch in some areas. No foundation wall is to exceed twenty-five feet in length without utilizing buttresses or counterforts unless otherwise designed by the foundation engineer.

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To help prevent secondary damage that could be caused by slab movement, the following construction techniques are additional recommendations for the foundation construction.

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Steel Building/Shop and Exterior Slab-on-grade Concrete: The soil encountered at or below anticipated slab elevations has a low/moderate swell potential. If removal and replacement of soil below slabs is required, use a non-expansive granular soil with Plasticity Index less than 15 and Liquid Limit less than 30 and compacted to a minimum of 95% ASTM D698 (Standard Proctor Density), within 2% of the optimum moisture content.

The slabs should be constructed as "floating" slabs, which are free to move in the vertical direction. The slabs should not be attached to interior or exterior bearing members. The following design and construction details for slab-on-grade construction are recommended.

1. Floor slabs placed above potentially expansive soils will be expected to heave and crack to some degree. It is impossible to predict with certainty how much slab movement will actually occur. **When the owners cannot tolerate slab movement, we recommend to install a structural slab in place of the conventional slab on grade for floor construction.**

2. Where steel building/shop slabs and exterior slabs-on-grade are chosen, and the owners understand and accepts all the risks associated with slab movement, the following recommendations should be followed with the amount of over-excavation and replacement with imported fill determined by the owner/builder.

   a. Positive separations and/or isolation joints should be provided between slabs and all foundation walls, bearing members (columns), plumbing and utility lines. Isolation may be achieved with ½ inch expansion material or by sleeving. Vertical movement of the slabs should not be restricted. A minimum void of 3 inches should be provided with all non-bearing partition walls to allow movement without damaging the structure. Provide a minimum ½ inch space at the bottom of all doorjambs. It is the owner's responsibility to maintain these void spaces. Mechanical equipment set on the slab will require an expandable/collapsible connection to ductwork, etc.

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3. Provide frequent scoring of the slabs in square dimensions (non- rectangular) to provide joints for controlled cracking of the slab. Control joints should be placed at distances equal to 24 to 30 times the slab thickness and the depth of sawed control joints should be ¼ of the slab thickness. Joints should be sawed as soon as the concrete will withstand the energy of sawing without raveling the edges of the joint. For most concrete mixtures, sawing should be completed within 6 to 18 hours after pouring, but never more than 24 hours. Install a good quality sealant (pliable/non-hardening) in these joints to prevent surface discharges of liquid from penetrating slab sub-grades.

4. The soils that will support the concrete slabs should be kept moist during construction by occasional sprinkling of water. The soils should be moistened to +/- 2 % optimum moisture within 24 hours of pouring the slabs. This procedure will help maintain the moisture content of the underlying soil. **Heavy watering or pooling of any kind next to the foundation or within the backfilled area is not recommended.**

BACKFILL:

The foundation and retaining walls must be well cured and well braced prior to backfilling.

Any soil disturbed adjacent to bearing foundation components are to be **re-compacted to a minimum of 95% Standard Proctor Density (ASTM D698).** Backfill that bears concrete slabs shall be compacted to 95% Standard Proctor Density (ASTM D698). Mechanical compaction methods shall be utilized, (water-flooding techniques are strictly prohibited). See Compaction Section for more information regarding compaction requirements and techniques.

Proper drainage away from the foundation walls shall be provided. The owners are advised to immediately fill any settled areas to eliminate water accumulation near the foundation. A minimum slope of 12 inches in the first 10 feet from the perimeter of the building is recommended. Roof downspouts and sill cocks should discharge into long concrete splash blocks (5 feet long min.) or into gutter extensions to deposit runoff water beyond the limits of the backfill soil near the foundation walls. Plastic membranes should not be used to cover the ground surface immediately surrounding the structure; geotextile fabric should be utilized for weed control. Any drainage water from uphill shall be diverted around the structure.

Sprinkling systems should not be installed or direct water to be within 10 feet of the foundation. The owner/builder is also advised that irrigation lines can leak and/or break, resulting in release of excessive amounts of water near the foundation. This can cause damage to slabs and foundation walls. **WATER ACCUMULATION AROUND FOUNDATION ELEMENTS IS THE MAIN CAUSE OF DISTRESSED FOUNDATIONS.**

COMPACTION:

Placing Fill: No brush, sod, frozen material, perishable material, unsuitable material, or stones of four inches or greater in maximum dimension shall be placed in the fill. The distribution of the material on the fill shall be such as to avoid the formation of layers of materials differing substantially in characteristics from the surrounding materials.

The materials are to be delivered to the backfill surface at a uniform rate, and in such quantity as to permit a satisfactory construction procedure. Unnecessary concentration of backfill machinery travel tending to cause ruts and other hollows more than six inches in depth, are to be re-graded and compacted. After dumping of fill material on the backfill surface, the material is to be spread by approved methods in approximately 6 inches compacted thickness.

Moisture Control: The material in each layer shall be compacted by rolling and shall contain the optimum moisture required for maximum compaction, as nearly practicable and as determined by the soils engineer. The moisture content shall be uniform throughout all layers. If in the opinion of the soils engineer it is not possible to obtain moisture content by adding water on the fill surface, the contractor may be required to add the necessary moisture to backfill material in the borrow area.

Compaction: When the moisture condition and content of each spread layer is satisfactory, it shall be compacted by a method approved by the soils engineer to **95% ASTM D698 (Standard Proctor Density) for slab areas, and 98% ASTM D698 for footing and/or pad areas.** A Standard Proctor test is to be performed for each typical fill material and frequent tests of the density of the fill must be taken.

In general, to compact cohesion-less free-draining materials, *the above guidelines also apply.*

When compacting cohesion-less free-draining materials such as gravel and sand, the materials shall be deposited in layers and compacted by treads of a crawler type tractor, surface of internal vibrators, pneumatic or smooth rollers, power or hand tampers, or by any other means approved by the soils engineer. The thickness of the horizontal layers after compaction is not to exceed 6 inches compacted thickness if compaction is performed by tractor treads, surface vibrators or similar equipment, or not more than penetrating length of the vibrator head if compaction is performed by internal vibrators. When the moisture content and condition of each spread layer is satisfactory, it shall be compacted by a method approved by the soils engineer **to 91% ASTM D1557 (Modified Proctor Density) for slab areas, and 94% ASTM D1557 for footing and/or pad areas.**

CONSTRUCTION DETAILS – GENERAL COMMENTS:

In any soil investigation, it is necessary to assume that the subsurface soil conditions do not vary greatly from the conditions encountered in the field and laboratory testing. The accompanying design is presented using best professional judgment based on the limits of the extent of testing commissioned by the client. Our experience has been that at times, soil conditions do change and variations do occur. These may become first apparent at the time of excavation for the foundation system.

If soils conditions are encountered which appear different from the test borings as presented in this report, it is required that this office be called to make an observation of the open excavation prior to placing the footings. The cost of this observation is not part of this report.

This project should be constructed by a qualified contractor with experience in similar projects. The owner/builder is advised to observe and document the construction process to ensure the construction is performed in accordance with the design drawings and technical specifications. **The foundation and retaining walls must be well cured and well braced prior to backfilling**.

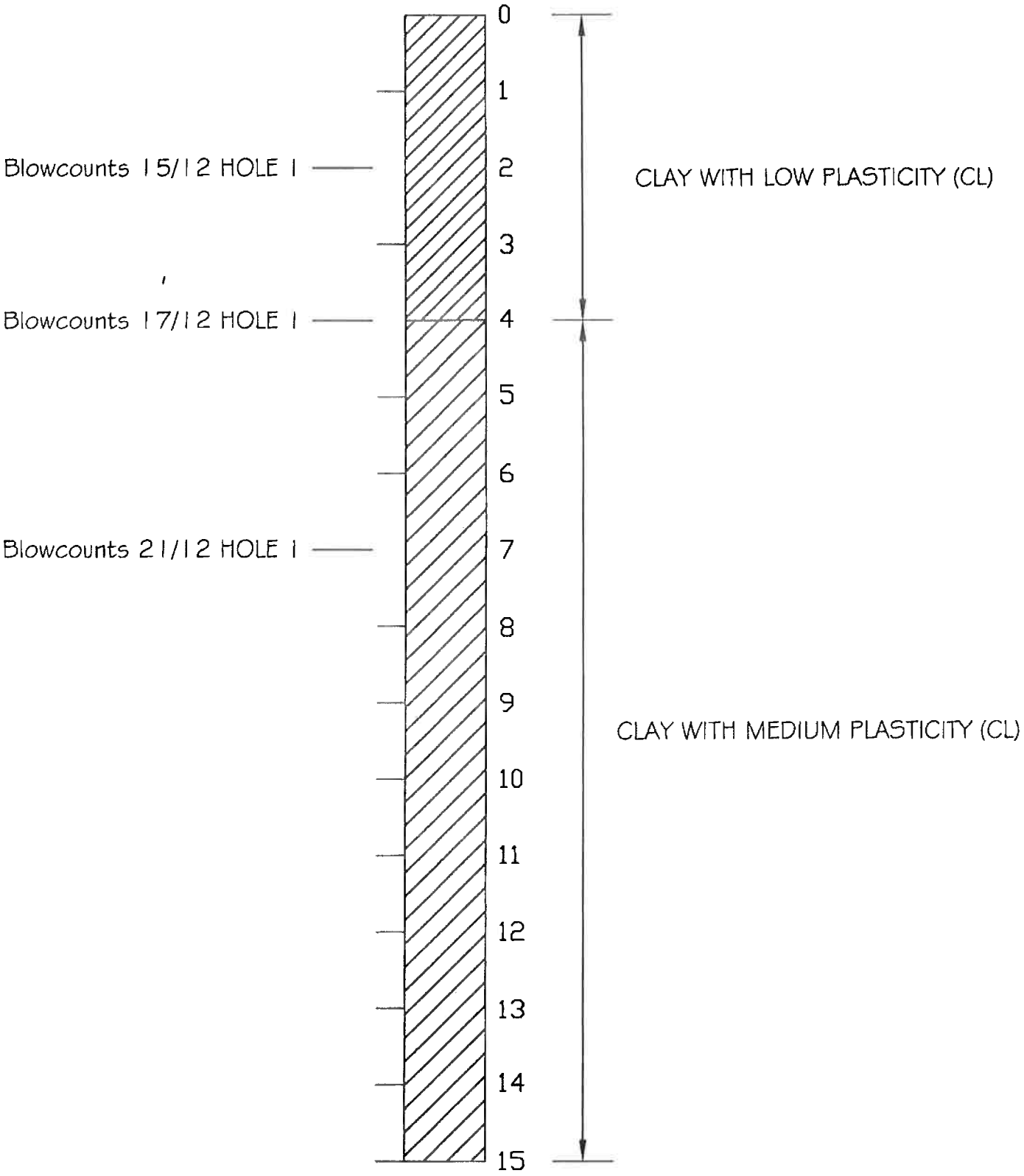
This report does not address general hillside stability, landslide potential, and/or other natural hazards. Several areas in the Colorado Front Range have known geologic hazards associated with them. We recommend that readers of this report educate themselves further as to the existence of geologic hazards on or around their specific property of interest. The Colorado Geologic Survey {www.geosurvey.state.co.us or 303-866-2611} is a good source for publications (maps, reports, etc.) dealing with specific geologic issues and/or issues related to specific geographic areas.

DISCLAIMER:

We do not guarantee the performance of the project in any respect, but only that our engineering work and judgments rendered meet the standard care of our profession. The presence of underground workings (e.g. coal mines) and subsidence potential from any workings was not part of this investigation. The owner should contact the State and County agencies to determine if mining has been conducted in the area and if any precautions are recommended.

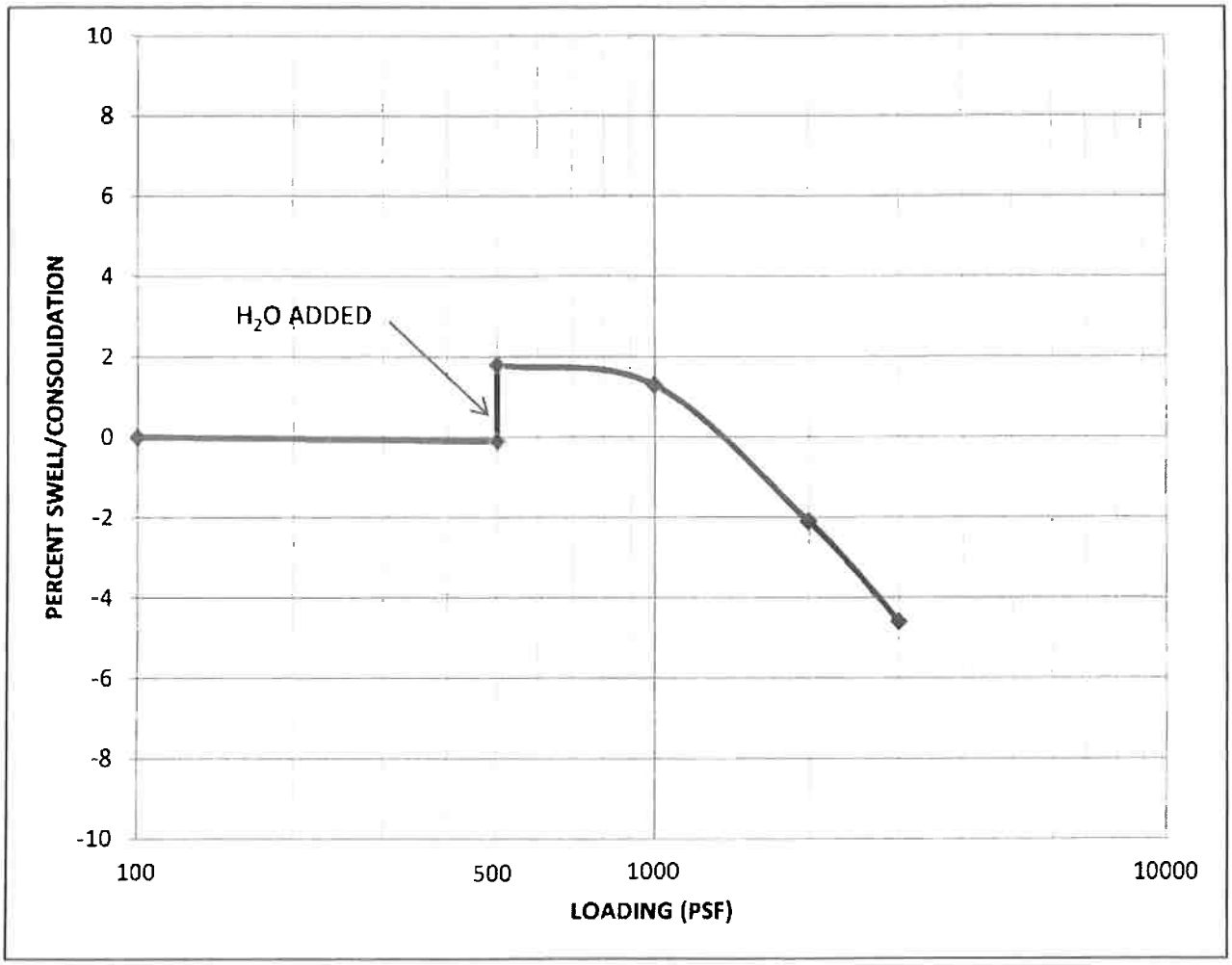
THE PARTIES SPECIFICALLY AGREE THAT *HIGH PLAINS ENGINEERING & DESIGN, LLC*. HAS NOT BEEN RETAINED NOR WILL THEY RENDER AN OPINION CONCERNING ANY ENVIRONMENTAL ISSUES, HAZARDOUS WASTE OR ANY OTHER KNOWN OR UNKNOWN CONDITIONS THAT MAY BE PRESENT ON SITE.

DUE TO CHANGING TECHNOLOGY, BUILDING CODES AND CITY/COUNTY REQUIREMENTS, THIS SOIL REPORT MUST BE USED WITHIN ONE YEAR OF THE DATE ON THE FRONT OF THE REPORT OR MUST BE REVISED.



TEST HOLE(S) 1 & 2

HIGH PLAINS ENGINEERING & DESIGN, LLC
555 MAIN STREET, P.O. BOX 1077, HUDSON, CO 80642 • PHONE: 303-857-9280 • FAX: 303-857-9238



HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	2' BC	36.48	21.92	14.57	1.9		9.65

SOIL TYPE:	CLAY WITH LOW PLASTICITY (CL)

JOB NO:	19-9435	**JOB LOCATION:**
DATE:	1/22/20	FUTURE 1.65 ACRE PARCEL LOCATED WITHIN PARCEL 130319300014
DRAWN:	KELSEY	LOT 3, A PART OF THE SW1/4 OF SEC. 19, T2N, R63W OF THE 6TH P.M.
CHECKED:	TMS	WELD COUNTY, CO

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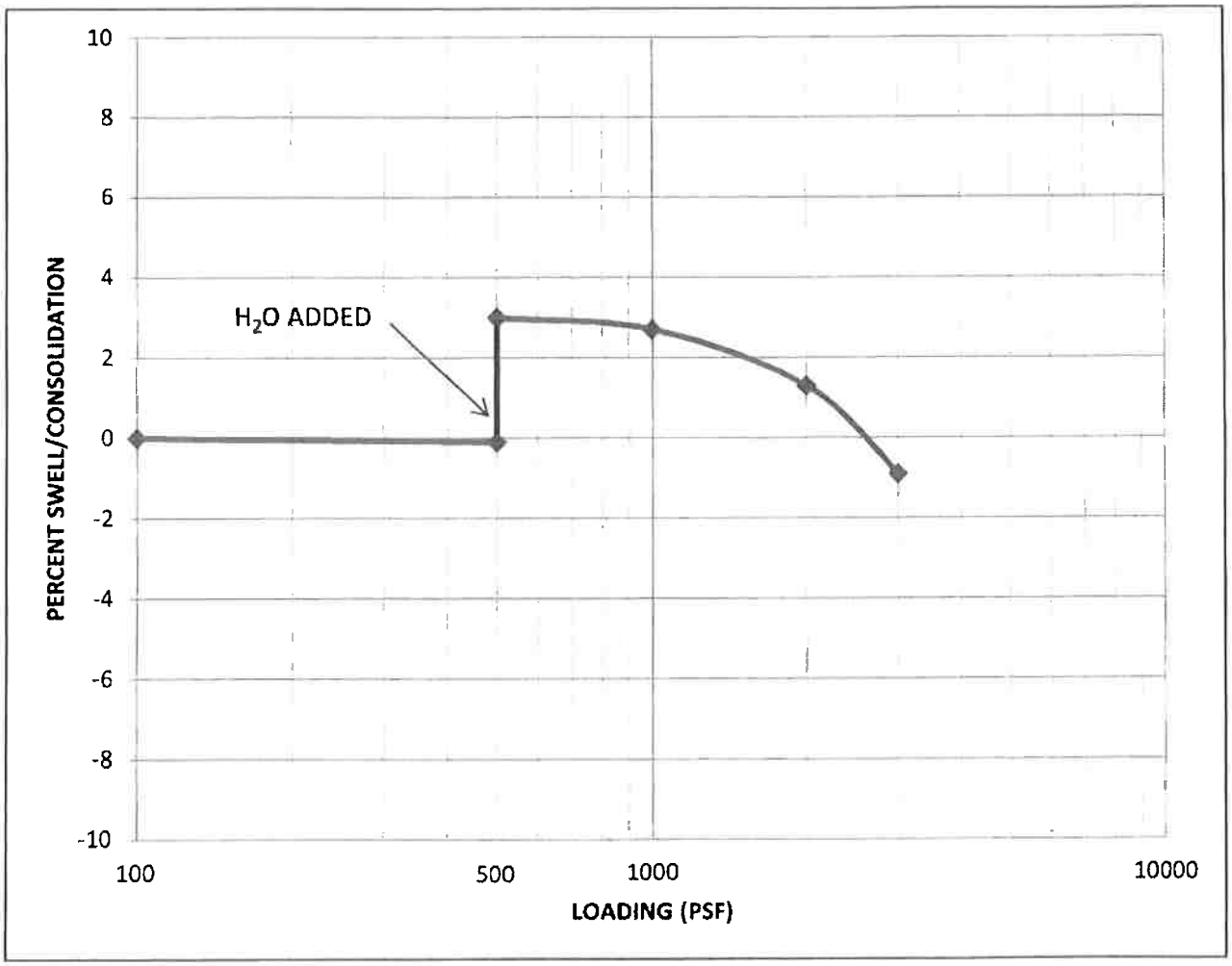

HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	4' BC	38.66	21.34	17.32	3.1		9.46

SOIL TYPE:	CLAY WITH MEDIUM PLASTICITY (CL)

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DRAWN:	KELSEY	LOT 3, A PART OF THE SW1/4 OF SEC. 19, T2N, R63W OF THE 6TH P.M.
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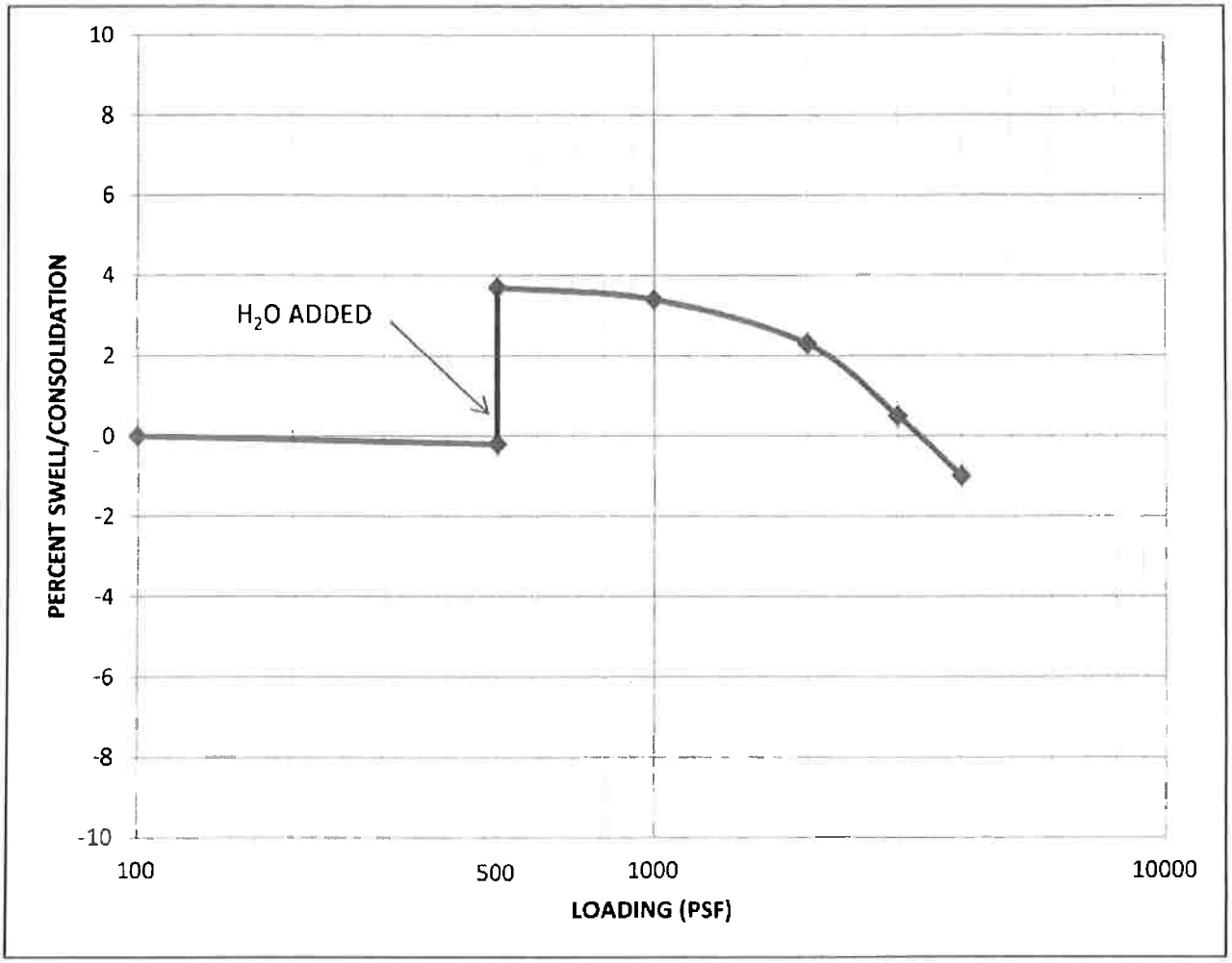

HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	7' BC	39.82	22.22	17.60	3.9		11.41

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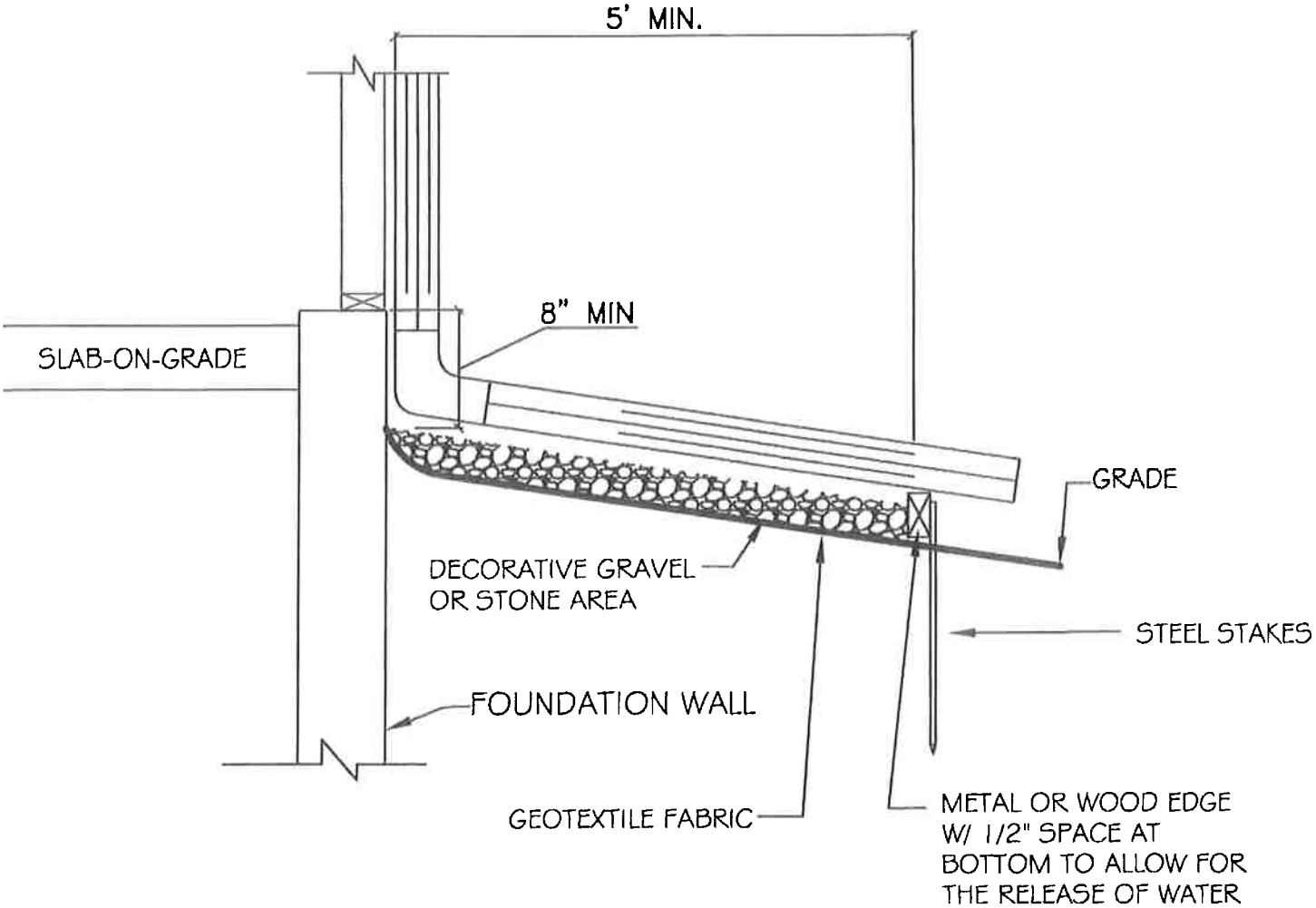
FOUNDATION GRADING DETAIL

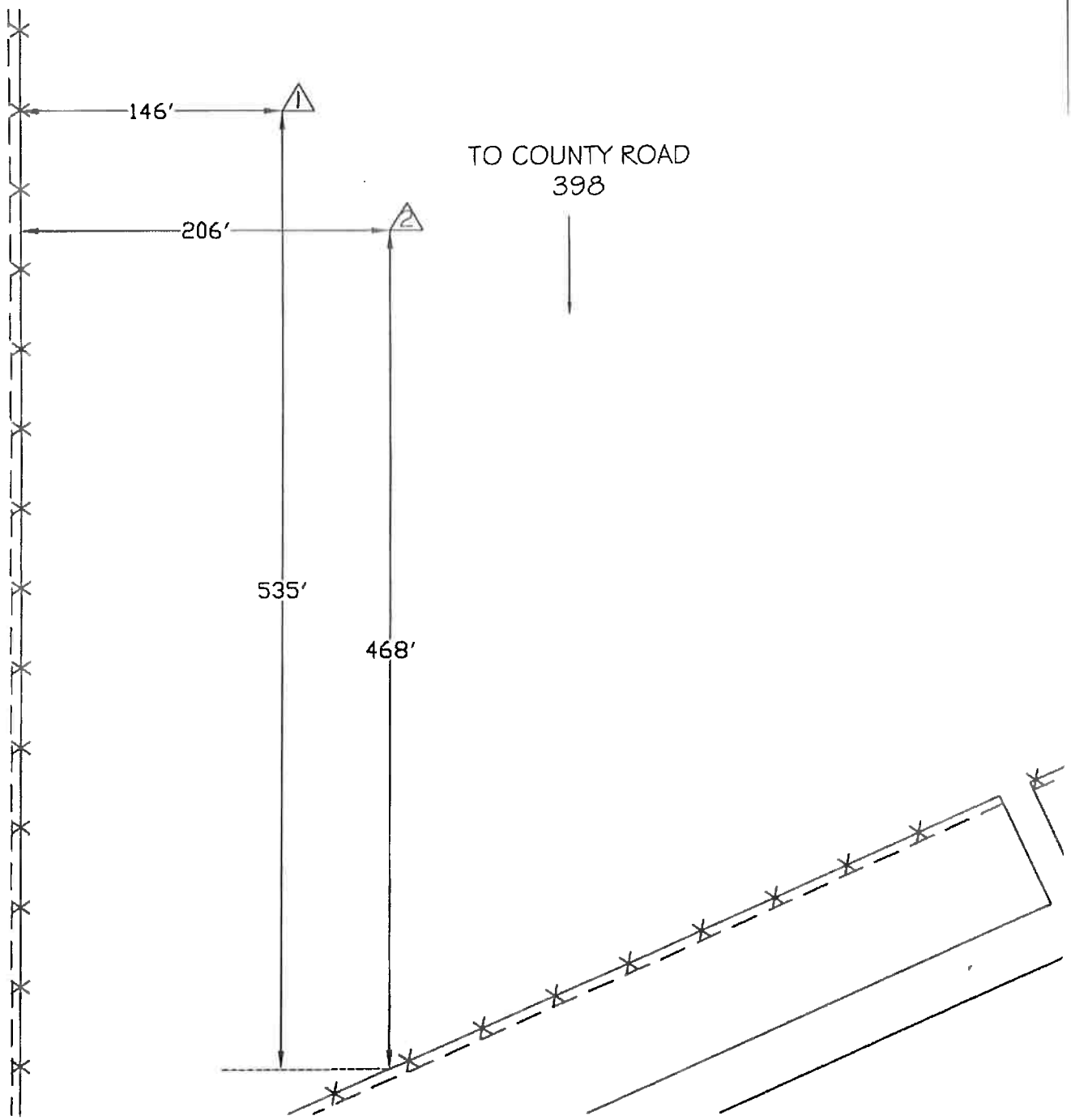


NOTE

1. PROVIDE A MINIMUM SLOPE OF 12" IN THE FIRST 10'-0" FROM FOUNDATION (10%)
2. DOWNSPOUTS AND EXTENSIONS SHOULD EXTEND BEYOND THE GRAVEL OR STONE AREA
3. HARDSCAPING NEXT TO FOUNDATION SHOULD SLOPE AWAY AT 2% SLOPE

SITE MAP

FUTURE 1.65 ACRE PARCEL CURRENTLY LOCATED WITHIN PARCEL 130319300014
LOT 3, A PART OF THE SW1/4 OF SECTION 19, T2N, R63W OF THE 6TH P.M.
WELD COUNTY, CO



LEGEND

- o - Percolation Test Hole
- X - Percolation Profile Hole
- △ - Soil Profile Hole
- ✕✕ - Fence
- ☆ - Bench Mark
- ▯ - Soil Pit

All locations shown above are based on specific information furnished by others or estimates made in the field by High Plains Engineering & Design personnel. The locations, distances, directions, etc. are not the result of a property survey but are approximations and are not warranted to be exact. It is the owner/builder's responsibility to define property - boundaries and ensure all onsite improvements are located within the platted site and out of inappropriate easements. All distances are to be verified prior to excavation.

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SUBSURFACE INVESTIGATION AND FOUNDATION RECOMMENDATIONS

Prepared For:
Platte River Investments, Inc.
8537 County Road 51
Keenesburg, CO 80643

Job Site Located At:
Future 2.00 Acre Parcel Currently Located within
Parcel No. 130319300014
Lot 4
A Part of the SW1/4 of Section 19
T2N, R63W of the 6th P.M.
Weld County, CO

January 22, 2020

JOB #19-9436

Todd M. Schroeder P.E. 33548

COLORADO REGISTERED
TODD M. SCHROEDER
33548
1/22/20
PROFESSIONAL ENGINEER

AGREEMENT OF PURPOSE AND DISCLAIMER:

The parties specifically agree and contract that the purpose of the provided subsurface investigation is to test, analyze, and provide geotechnical recommendations for the foundation recommendations. This report presents a description of subsurface conditions encountered at the site, design, and construction criteria influenced by the subsurface conditions. The opinions and recommendations presented in this report are based on the data generated during this field exploration, laboratory testing, and our experience. A foundation design sealed by a Professional Engineer is required to obtain a building permit but is not included in this report.

The parties specifically agree that High Plains Engineering & Design, LLC has not been retained nor will they render an opinion concerning environmental issues, hazardous waste or any other known and or unknown conditions that may be present on the job site, since this is not our area of expertise.

LOCATION AND SITE CONDITIONS:

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3. Provide frequent scoring of the slabs in square dimensions (non- rectangular) to provide joints for controlled cracking of the slab. Control joints should be placed at distances equal to 24 to 30 times the slab thickness and the depth of sawed control joints should be ¼ of the slab thickness. Joints should be sawed as soon as the concrete will withstand the energy of sawing without raveling the edges of the joint. For most concrete mixtures, sawing should be completed within 6 to 18 hours after pouring, but never more than 24 hours. Install a good quality sealant (pliable/non-hardening) in these joints to prevent surface discharges of liquid from penetrating slab sub-grades.

4. The soils that will support the concrete slabs should be kept moist during construction by occasional sprinkling of water. The soils should be moistened to +/- 2 % optimum moisture within 24 hours of pouring the slabs. This procedure will help maintain the moisture content of the underlying soil. **Heavy watering or pooling of any kind next to the foundation or within the backfilled area is not recommended.**

BACKFILL:

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When compacting cohesion-less free-draining materials such as gravel and sand, the materials shall be deposited in layers and compacted by treads of a crawler type tractor, surface of internal vibrators, pneumatic or smooth rollers, power or hand tampers, or by any other means approved by the soils engineer. The thickness of the horizontal layers after compaction is not to exceed 6 inches compacted thickness if compaction is performed by tractor treads, surface vibrators or similar equipment, or not more than penetrating length of the vibrator head if compaction is performed by internal vibrators. When the moisture content and condition of each spread layer is satisfactory, it shall be compacted by a method approved by the soils engineer **to 91% ASTM D1557 (Modified Proctor Density) for slab areas, and 94% ASTM D1557 for footing and/or pad areas.**

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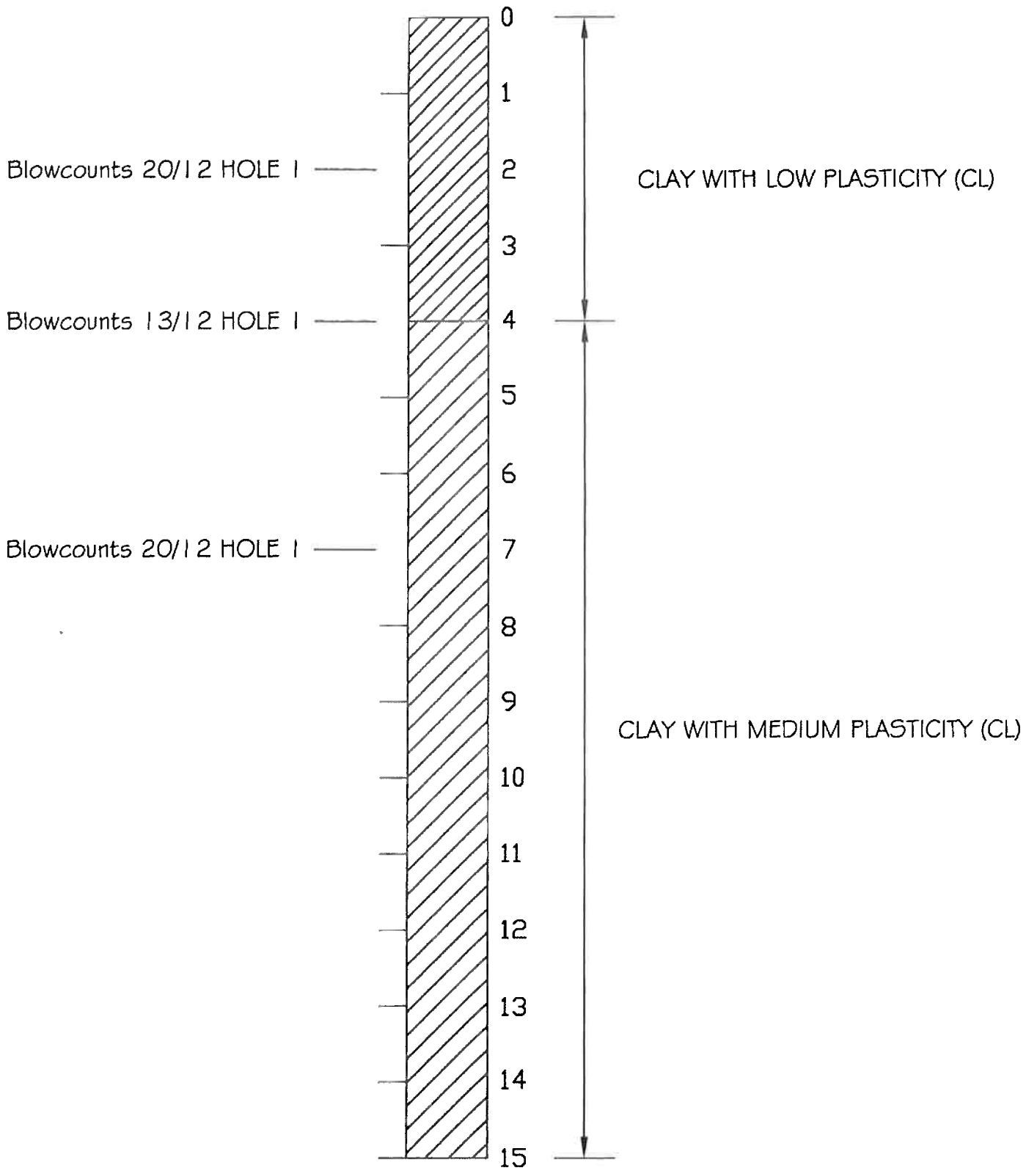

TEST HOLE(S) 1 & 2

HIGH PLAINS ENGINEERING & DESIGN, LLC
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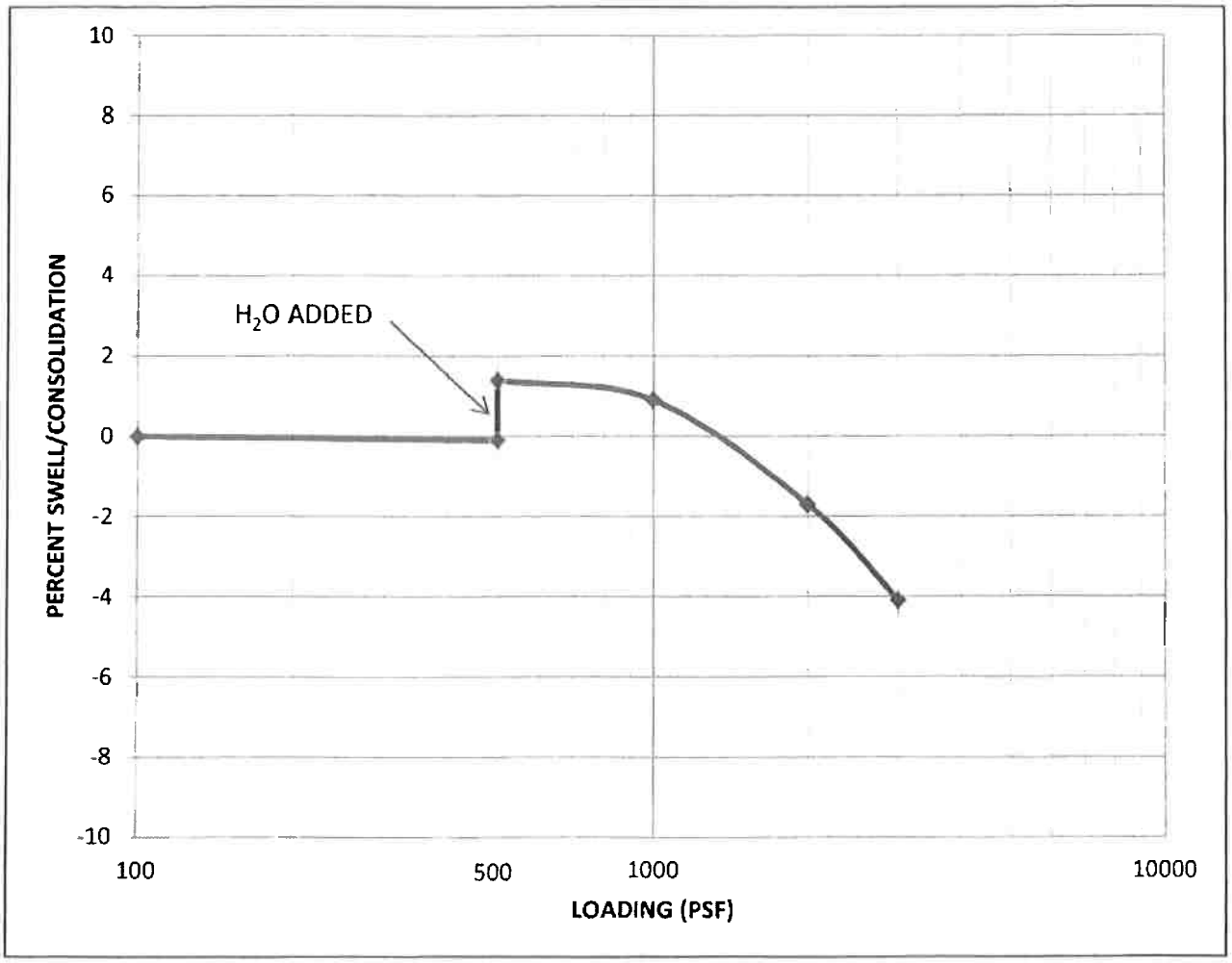

HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	2' BC	36.07	21.13	14.93	1.5		7.97

SOIL TYPE:	CLAY WITH LOW PLASTICITY (CL)

JOB NO:	19-9436	**JOB LOCATION:**
DATE:	1/22/20	FUTURE 2.00 ACRE PARCEL LOCATED WITHIN PARCEL 130319300014
DRAWN:	KELSEY	LOT 4, A PART OF THE SW1/4 OF SEC. 19, T2N, R63W OF THE 6TH P.M.
CHECKED:	TMS	WELD COUNTY, CO

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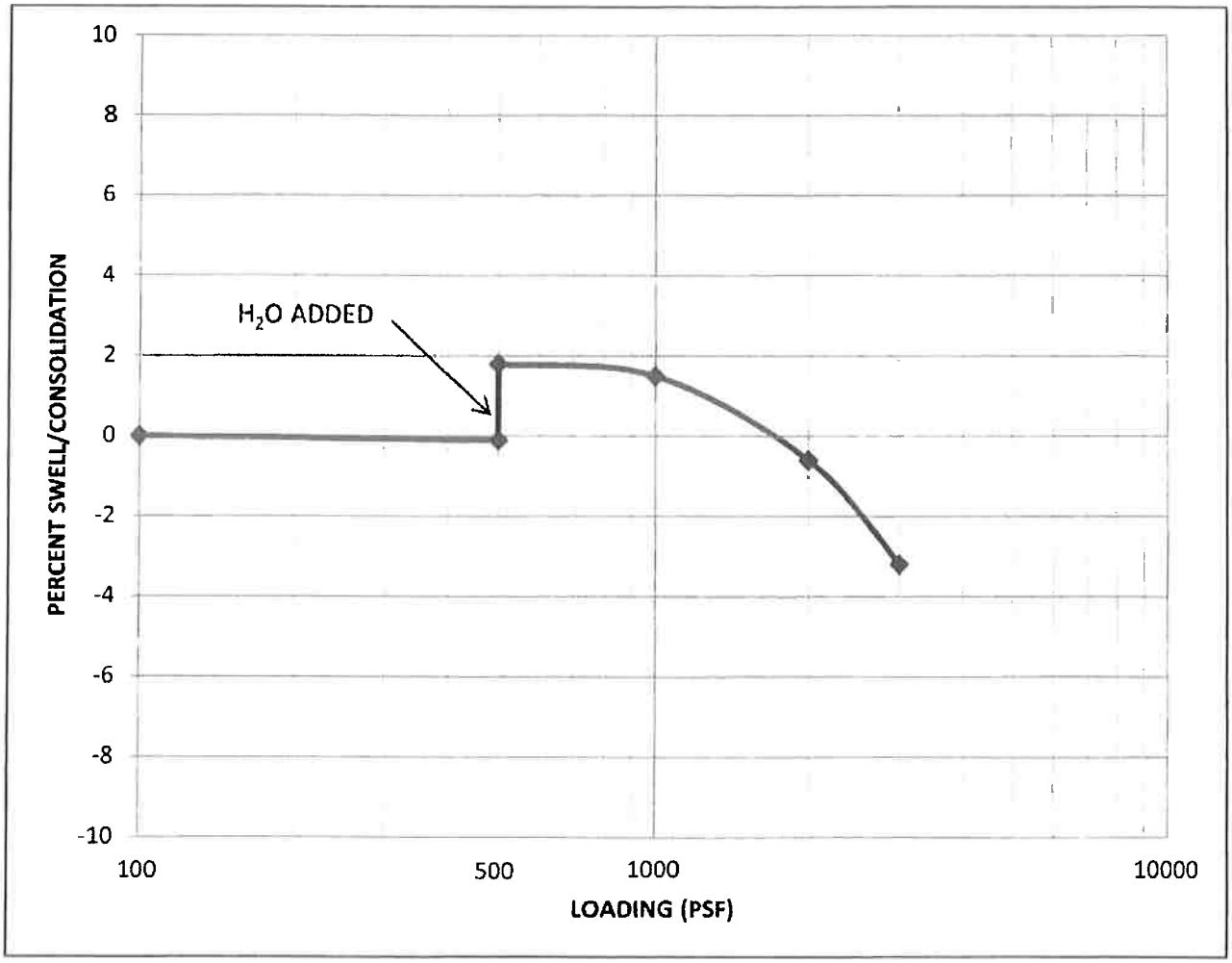

HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	4' BC	38.82	22.11	16.71	1.9		9.53

SOIL TYPE:	CLAY WITH MEDIUM PLASTICITY (CL)

JOB NO:	19-9436	**JOB LOCATION:**
DATE:	1/22/20	FUTURE 2.00 ACRE PARCEL LOCATED WITHIN PARCEL 130319300014
DRAWN:	KELSEY	LOT 4, A PART OF THE SW1/4 OF SEC. 19, T2N, R63W OF THE 6TH P.M.
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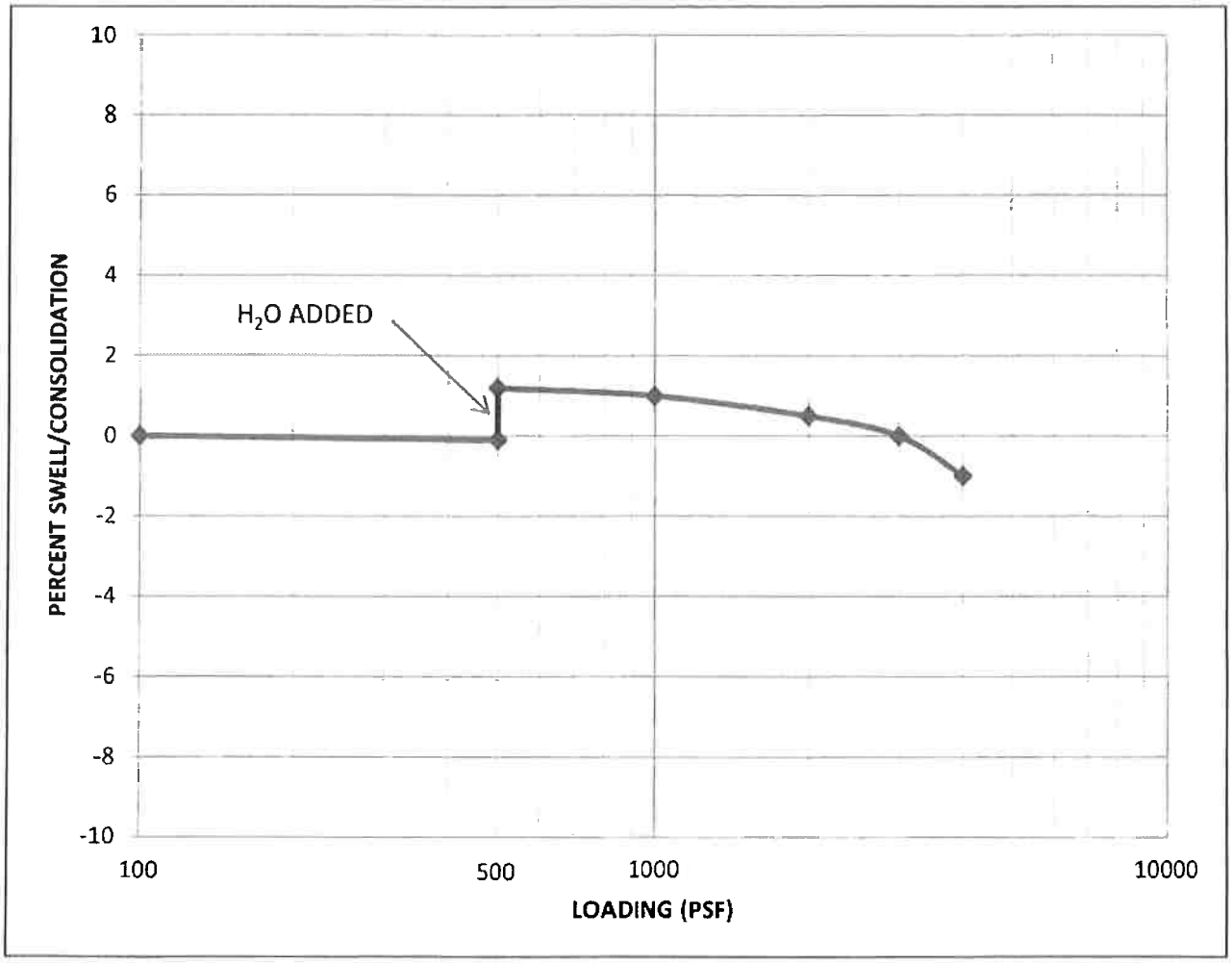

HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	7' BC	37.11	21.93	15.18	1.3		14.21

SOIL TYPE:	CLAY WITH MEDIUM PLASTICITY (CL)

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DATE:	1/22/20	FUTURE 2.00 ACRE PARCEL LOCATED WITHIN PARCEL 130319300014
DRAWN:	KELSEY	LOT 4, A PART OF THE SW1/4 OF SEC. 19, T2N, R63W OF THE 6TH P.M.
CHECKED:	TMS	WELD COUNTY, CO

HIGH PLAINS ENGINEERING & DESIGN, LLC
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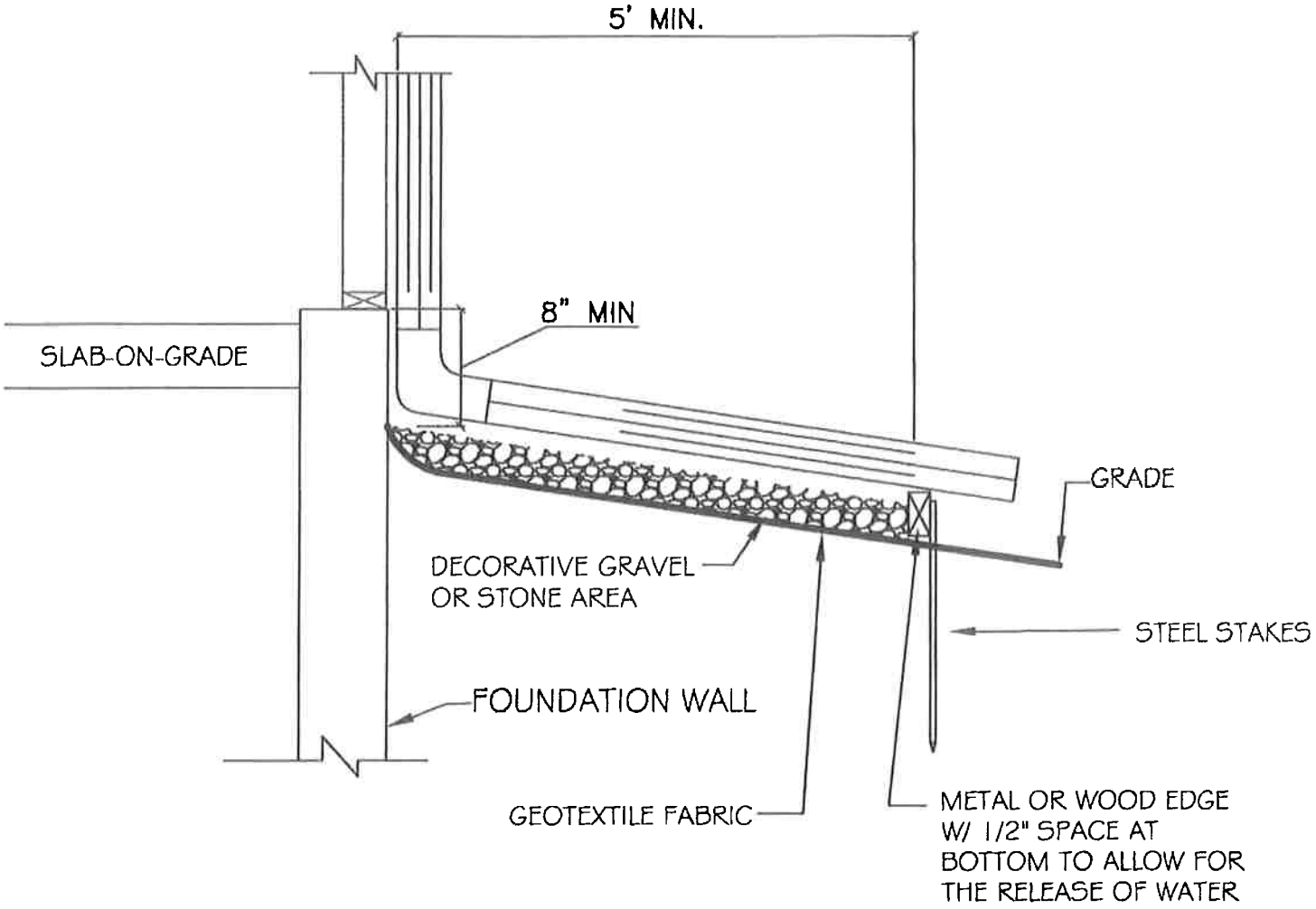
FOUNDATION GRADING DETAIL

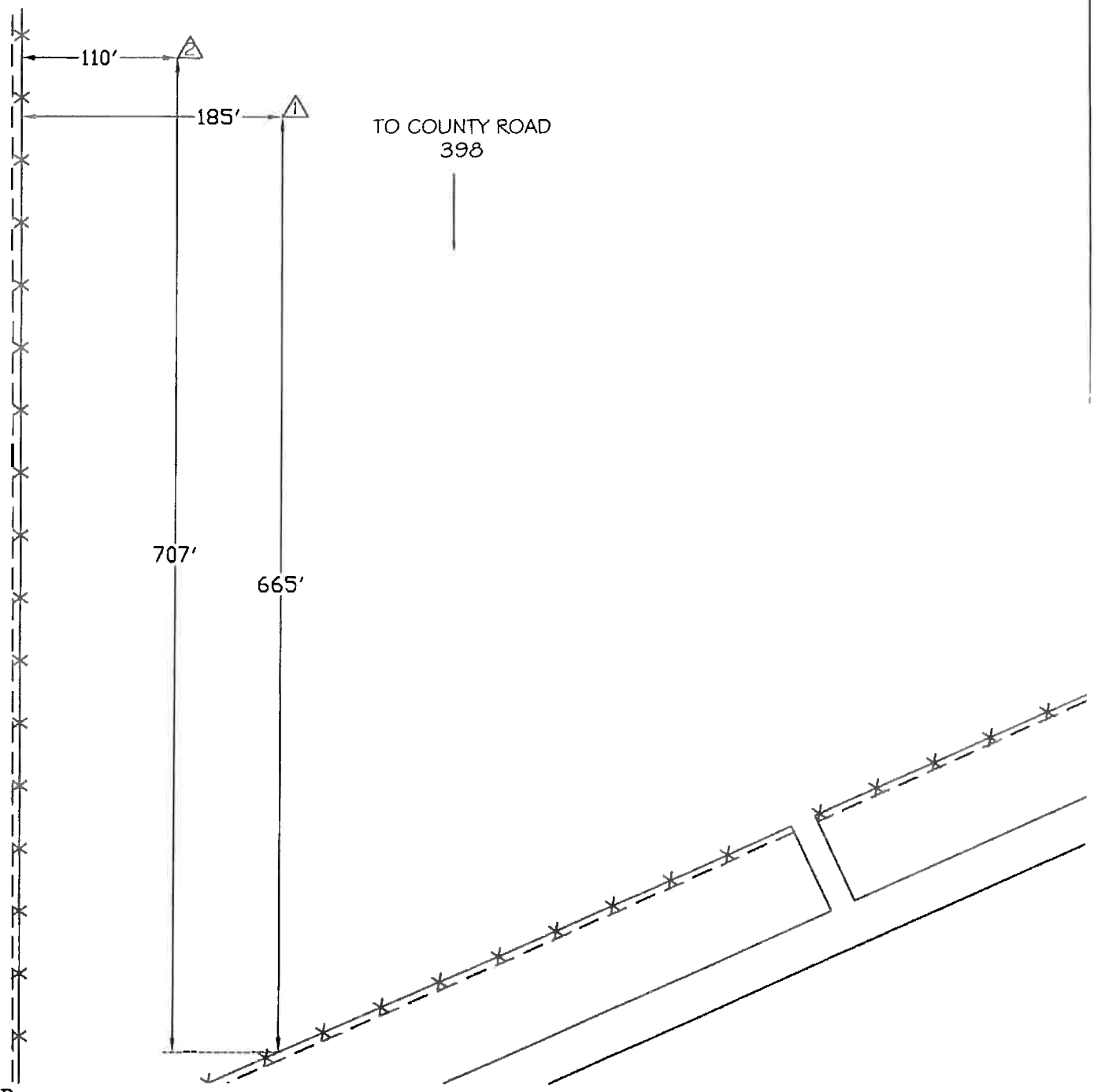


NOTE

1. PROVIDE A MINIMUM SLOPE OF 12" IN THE FIRST 10'-0" FROM FOUNDATION (10%)
2. DOWNSPOUTS AND EXTENSIONS SHOULD EXTEND BEYOND THE GRAVEL OR STONE AREA
3. HARDSCAPING NEXT TO FOUNDATION SHOULD SLOPE AWAY AT 2% SLOPE

SITE MAP

FUTURE 2.00 ACRE PARCEL CURRENTLY LOCATED WITHIN PARCEL 1303193000014
LOT 4, A PART OF THE SW1/4 OF SECTION 19, T2N, R63W OF THE 6TH P.M.
WELD COUNTY, CO



LEGEND

- o - Percolation Test Hole
- X - Percolation Profile Hole
- △ - Soil Profile Hole
- ✕✕ - Fence
- ☆ - Bench Mark
- ▯ - Soil Pit

All locations shown above are based on specific information furnished by others or estimates made in the field by High Plains Engineering & Design personnel. The locations, distances, directions, etc. are not the result of a property survey but are approximations and are not warranted to be exact. It is the owner/builder's responsibility to define property - boundaries and ensure all onsite improvements are located within the platted site and out of inappropriate easements. All distances are to be verified prior to excavation.

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SUBSURFACE INVESTIGATION AND FOUNDATION RECOMMENDATIONS

Prepared For:
Platte River Investments, Inc.
8537 County Road 51
Keenesburg, CO 80643

Job Site Located At:
Future 7.16 Acre Parcel Currently Located within
Parcel No. 130319300014
Lot 7
A Part of the SW1/4 of Section 19
T2N, R63W of the 6th P.M.
Weld County, CO

February 13, 2020

JOB #19-9437

Todd M. Schroeder P.E. 33548

COLORADO REGISTERED
TODD M. SCHROEDER
33548
2/13/20
PROFESSIONAL ENGINEER

AGREEMENT OF PURPOSE AND DISCLAIMER:

The parties specifically agree and contract that the purpose of the provided subsurface investigation is to test, analyze, and provide geotechnical recommendations for the foundation recommendations. This report presents a description of subsurface conditions encountered at the site, design, and construction criteria influenced by the subsurface conditions. The opinions and recommendations presented in this report are based on the data generated during this field exploration, laboratory testing, and our experience. A foundation design sealed by a Professional Engineer is required to obtain a building permit but is not included in this report.

The parties specifically agree that High Plains Engineering & Design, LLC has not been retained nor will they render an opinion concerning environmental issues, hazardous waste or any other known and or unknown conditions that may be present on the job site, since this is not our area of expertise.

LOCATION AND SITE CONDITIONS:

This report represents the results of the data obtained during the subsoil investigation for the proposed steel building located at the Future 7.16 Acre Parcel currently located within Parcel No. 130319300014, Lot 7, A Part of the SW1/4 of Section 19, T2N, R63W of the 6th P.M., Weld County, CO.

The proposed building site is a vacant lot. The site is reasonably level with approximate slopes of 1.0% to the East. The lot appears to be well drained with no erosion evident.

The depths of the excavation are anticipated to range from two (2) to four (4) feet below grades that existed at the time of this investigation. It is anticipated that final grades may be adjusted to accommodate drainage and construction depths. It is recommended that we review the final grading plan to determine if any revisions to the recommendations presented in this report are necessary.

SUBSOIL CONDITIONS:

Two, four-inch-diameter holes were drilled up to a depth of fifteen feet at the project site on January 7, 2020, as shown on the attached site map. Soil samples were analyzed in the field and laboratory to determine the characteristics of the soil (per Unified Soil Classification System) for identification and foundation design recommendations. In general, the soil profiles in test-holes #1 & #2 indicated Clay with Low Plasticity (CL) to a final depth of 15 feet.

The Standard Penetration Test per ASTM D1586 showed 17 blows for a 12-inch penetration at a depth of 2 feet, 17 blows for a 12-inch penetration at a depth of 4 feet, and 18 blows for a 12-inch penetration at a depth of 7 feet. Please note that actual subsurface soil conditions may vary between samples and locations tested.

One-dimensional swell/consolidation tests were performed on selected samples to evaluate the expansive, compressive and collapsing nature of the soils and/or bedrock strata. These tests indicated an expansion potential of 1.5% at a depth of 2 feet, an expansion potential of 2.1% at a depth of 4 feet and an expansion potential of 2.5% at a depth of 7 feet. The soils in this report were classified using the American Society of Testing Materials (ASTM) procedures.

The geotechnical practice in the State of Colorado utilizes a relative scale to evaluate swelling (expansion) potentials. When a sample is wetted under a surcharge pressure of 500 pounds per square foot (psf), the measured swell is classified as low, moderate, high, or very high. The following table represents the relative classification criteria. Please note that the measured swell is not the only criteria for slab-on-grade recommendations and additional factors are considered by the engineer when evaluating the risk for slab-on-grade construction.

TABLE 1	
SLAB PERFORMANCE RISK CATEGORY	REPRESENTATIVE PERCENT SWELL (500 PSF SURCHARGE)
LOW	0 TO <3
MODERATE	3 TO <5
HIGH	5 TO <8
VERY HIGH	≥8

Source: Colorado Association of Geotechnical Engineers, Guideline for Slab Performance Risk Evaluation and Residential Basement Floor System Recommendations (Denver Metropolitan Area), 1996

GROUNDWATER:

Groundwater levels were not recorded at the time of our field investigation; however, it may be possible for groundwater to exist at construction depths at a later date. The groundwater can be expected to fluctuate throughout the year depending on variations in precipitation, surface drainage and irrigation on the site. The possible presence of shallow bedrock/dense clays beneath the surface is favorable for the formation of "perched" groundwater. We recommend that the bottom of the basement or crawlspace excavations be maintained at least 4 feet above the free groundwater level.

The ground water levels recorded represent the free, static water levels after equalization of hydrostatic pressures in the test-hole borings. It is possible that the groundwater levels recorded in the test-hole borings may not be present at those levels in the foundation excavations. Flow rates, seepage paths, hydrostatic pressures, seasonal groundwater fluctuations, water quality and other factors were not determined in this investigation. A program, which may include special well construction, test procedures, long-term monitoring, and analysis, would be necessary to determine these factors.

FOUNDATION RECOMMENDATIONS:

The Clay with Low Plasticity (CL) material has a bearing strength of 2000 pounds per square foot (psf) and an equivalent liquid pressure of 55 pcf. We recommend the use of a continuous spread footing, due to the low/moderate expansion-consolidation potential of the analyzed soils. **The foundation must be constructed at the location in which soils investigation was performed.**

All rebar must be fully contained within the footing/foundation and shall not have any contact with the native soils due to the known risks of soluble sulfates contained in area soils.

Unmonitored moisture content in foundation excavations over an extended period of time can create foundation stress and potential damage after backfilling operations are complete. Foundation excavations left open for a period greater than 7 days will require moisture monitoring and/or moisture augmentation. High Plains Engineering & Design, LLC cannot be held responsible for foundation damage as a result of the failure to monitor moisture content after a period of 7 days. If it's anticipated that the foundation excavation will be left open for an extended period of time, the general contractor/owner shall contact High Plains Engineering & Design, LLC for further recommendations.

All loose and disturbed soil shall be removed before placing of the concrete for the foundation. The bottom of the foundation shall be a minimum of 30" below final grade (or that required by local jurisdiction; whichever is greater) for frost protection.

Soil settlement resulting from the assumed structural loads is estimated to be one inch or less. Soil expansion at this site may be up to one inch in some areas. No foundation wall is to exceed twenty-five feet in length without utilizing buttresses or counterforts unless otherwise designed by the foundation engineer.

Engineered steel reinforcements shall be required in the footings and foundation walls. This will give walls or footing beams the strength to span or bridge over any loose or soft pockets of soil that may develop during construction.

Owners shall be made aware of all contents of this report, and the fact that *water accumulation around foundation elements is the primary cause of distressed foundations.*

To help prevent secondary damage that could be caused by slab movement, the following construction techniques are additional recommendations for the foundation construction.

SLAB ON GRADE CONSTRUCTION:

Steel Building/Shop and Exterior Slab-on-grade Concrete: The soil encountered at or below anticipated slab elevations has a low swell potential. If removal and replacement of soil below slabs is required, use a non-expansive granular soil with Plasticity Index less than 15 and Liquid Limit less than 30 and compacted to a minimum of 95% ASTM D698 (Standard Proctor Density), within 2% of the optimum moisture content.

The slabs should be constructed as "floating" slabs, which are free to move in the vertical direction. The slabs should not be attached to interior or exterior bearing members. The following design and construction details for slab-on-grade construction are recommended.

1. Floor slabs placed above potentially expansive soils will be expected to heave and crack to some degree. It is impossible to predict with certainty how much slab movement will actually occur. **When the owners cannot tolerate slab movement, we recommend to install a structural slab in place of the conventional slab on grade for floor construction.**

2. Where steel building/shop slabs and exterior slabs-on-grade are chosen, and the owners understand and accepts all the risks associated with slab movement, the following recommendations should be followed with the amount of over-excavation and replacement with imported fill determined by the owner/builder.

   a. Positive separations and/or isolation joints should be provided between slabs and all foundation walls, bearing members (columns), plumbing and utility lines. Isolation may be achieved with ½ inch expansion material or by sleeving. Vertical movement of the slabs should not be restricted. A minimum void of 3 inches should be provided with all non-bearing partition walls to allow movement without damaging the structure. Provide a minimum ½ inch space at the bottom of all doorjambs. It is the owner's responsibility to maintain these void spaces. Mechanical equipment set on the slab will require an expandable/collapsible connection to ductwork, etc.

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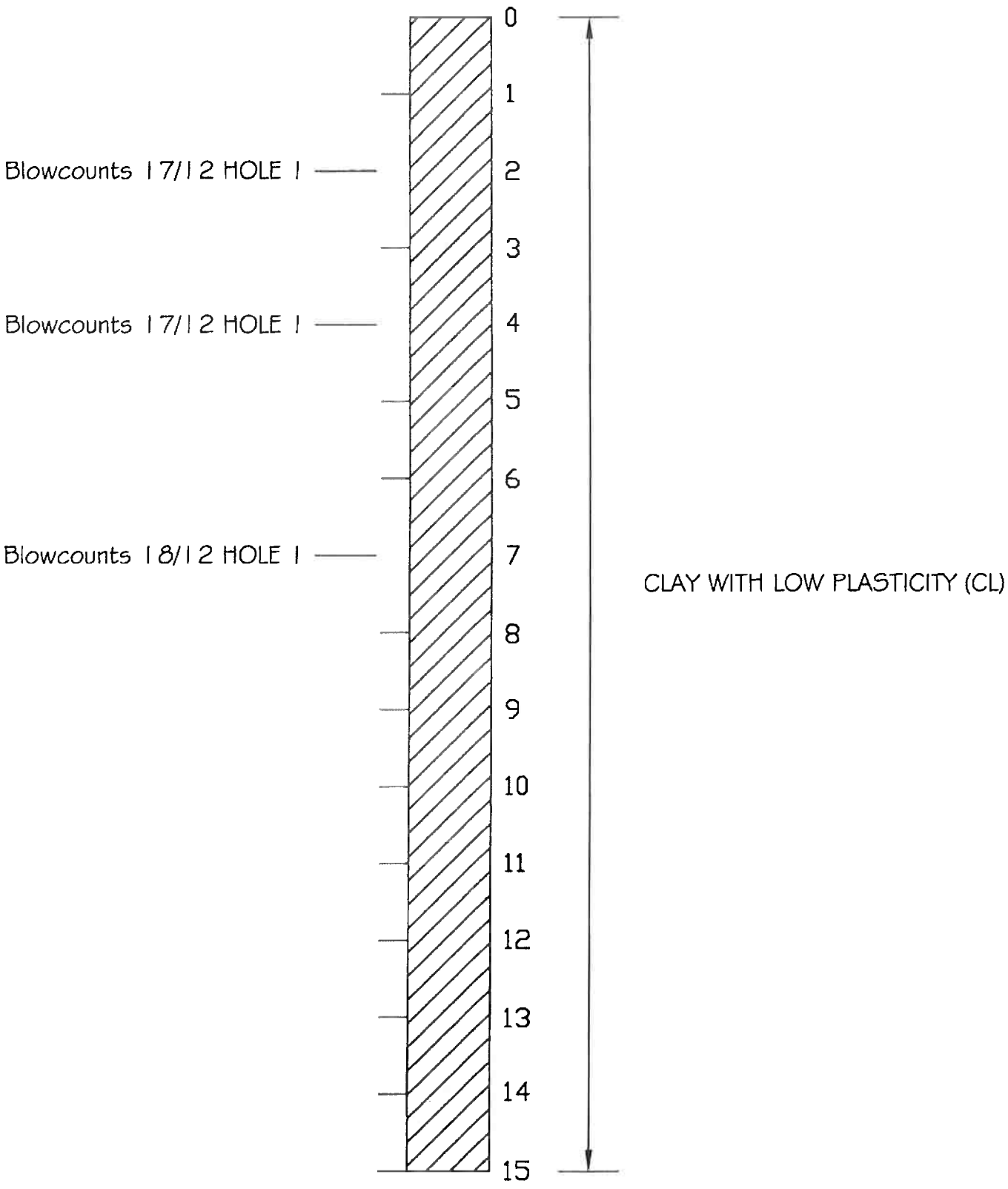

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HIGH PLAINS ENGINEERING & DESIGN, LLC
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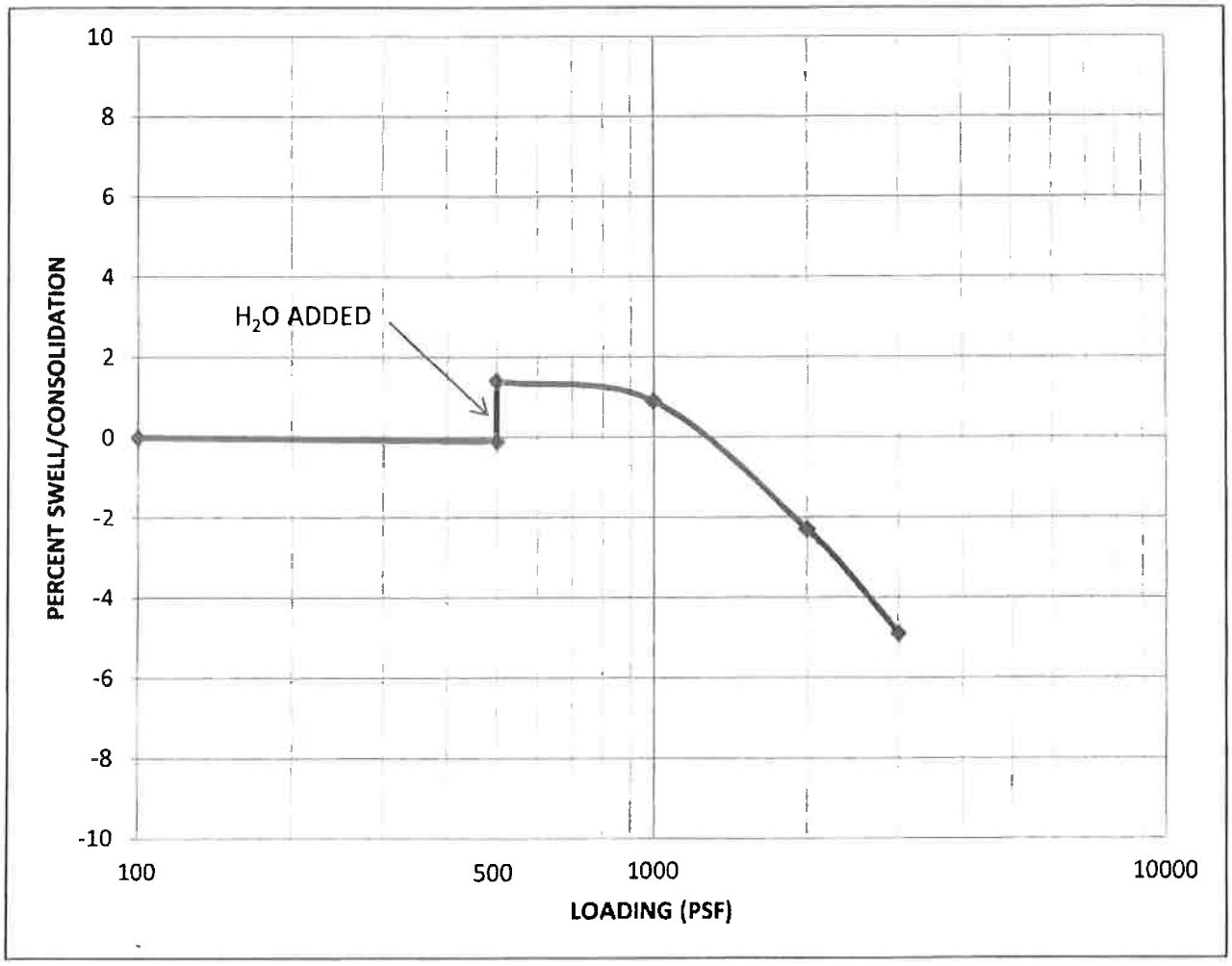

HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	2' BC	37.81	24.14	13.67	1.5		9.94

SOIL TYPE:	CLAY WITH LOW PLASTICITY (CL)

JOB NO:	19-9437	**JOB LOCATION:**
DATE:	1/29/20	FUTURE 7.16 ACRE PARCEL LOCATED WITHIN PARCEL 130319300014
DRAWN:	KELSEY	LOT 7, A PART OF THE SW1/4 OF SEC. 19, T2N, R63W OF THE 6TH P.M.
CHECKED:	TMS	WELD COUNTY, CO

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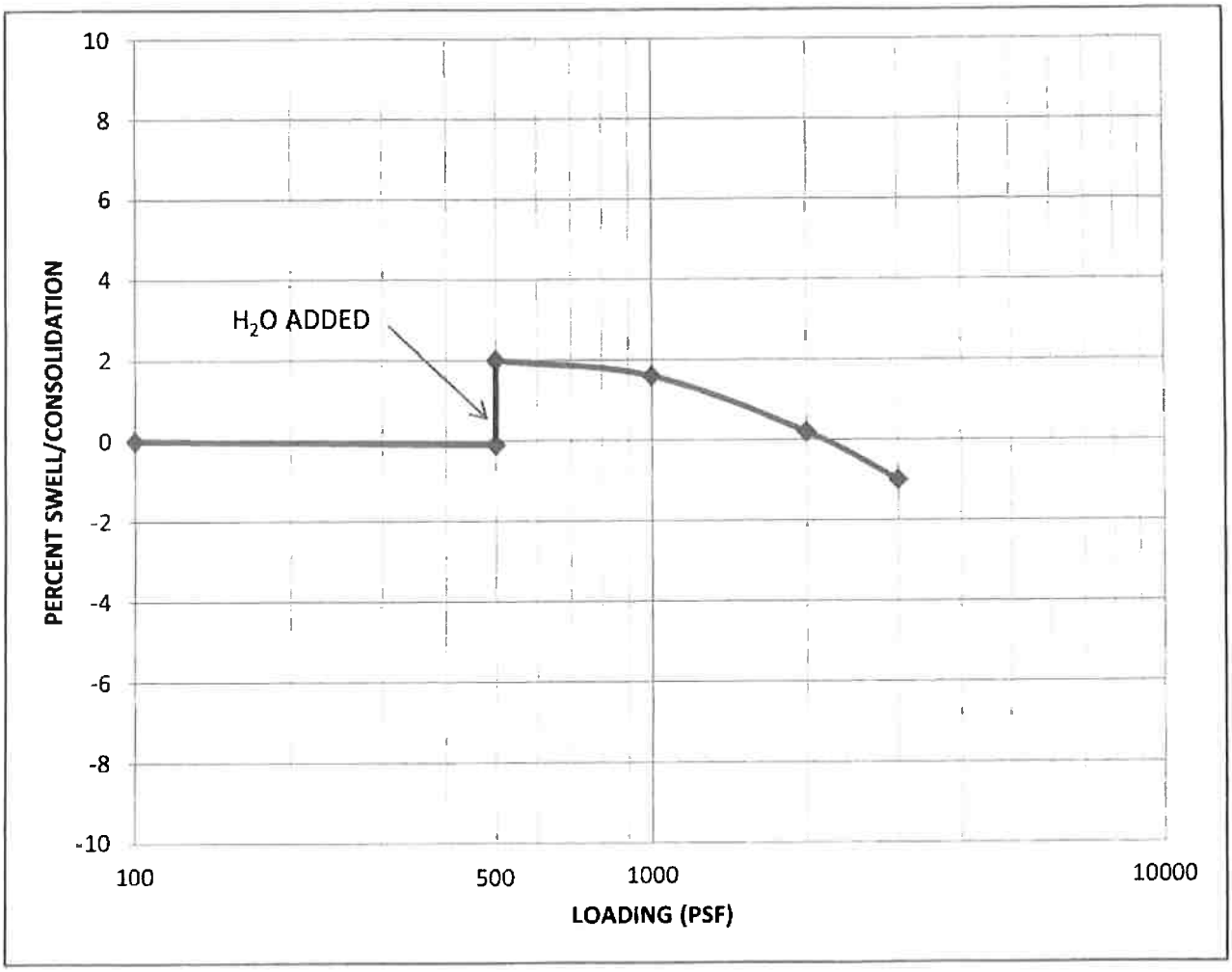

HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	4' BC	35.53	21.68	13.85	2.1		9.38

SOIL TYPE:	CLAY WITH LOW PLASTICITY (CL)

JOB NO:	19-9437	**JOB LOCATION:**
DATE:	1/29/20	FUTURE 7.16 ACRE PARCEL LOCATED WITHIN PARCEL 130319300014
DRAWN:	KELSEY	LOT 7, A PART OF THE SW1/4 OF SEC. 19, T2N, R63W OF THE 6TH P.M.
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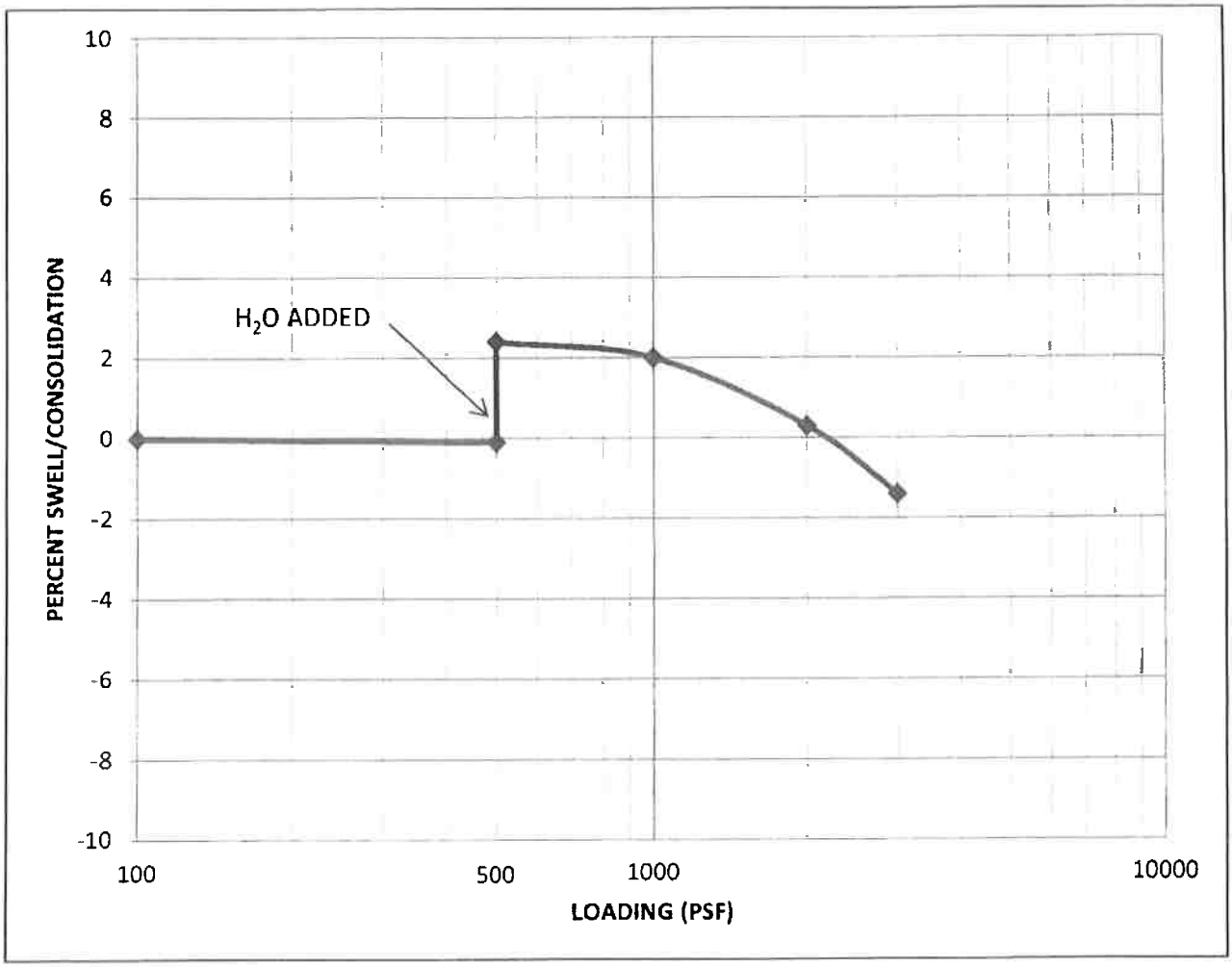

HOLE #	DEPTH	L.L.	P.L.	P.I.	% EXPANSION	% CONSOLIDATION	% MOISTURE
1	7' BC	36.07	21.74	14.33	2.5		10.31

SOIL TYPE:	CLAY WITH MEDIUM PLASTICITY (CL)

JOB NO:	19-9437	**JOB LOCATION:**
DATE:	1/29/20	FUTURE 7.16 ACRE PARCEL LOCATED WITHIN PARCEL 130319300014
DRAWN:	KELSEY	LOT 7, A PART OF THE SW1/4 OF SEC. 19, T2N, R63W OF THE 6TH P.M.
CHECKED:	TMS	WELD COUNTY, CO

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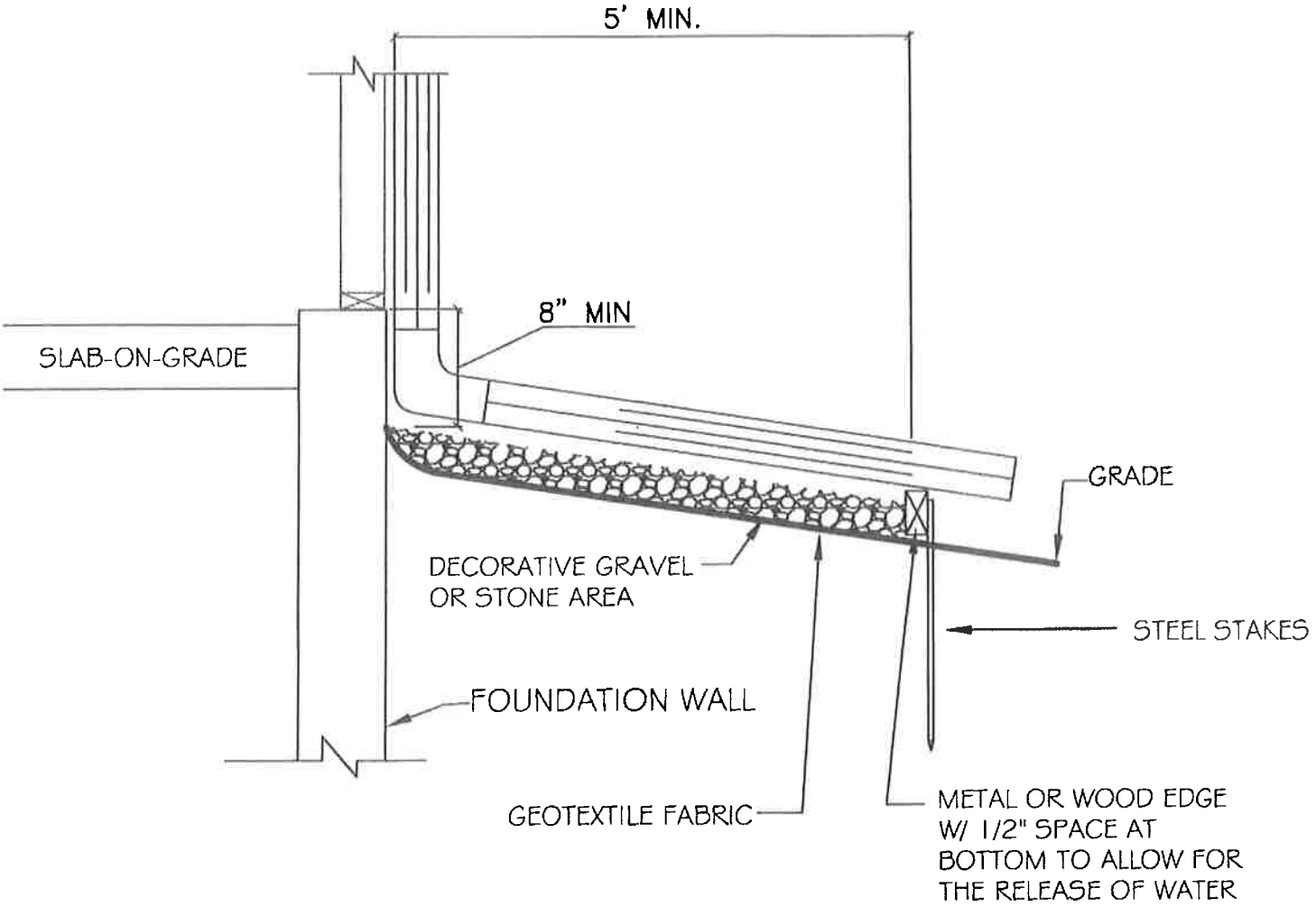
FOUNDATION GRADING DETAIL

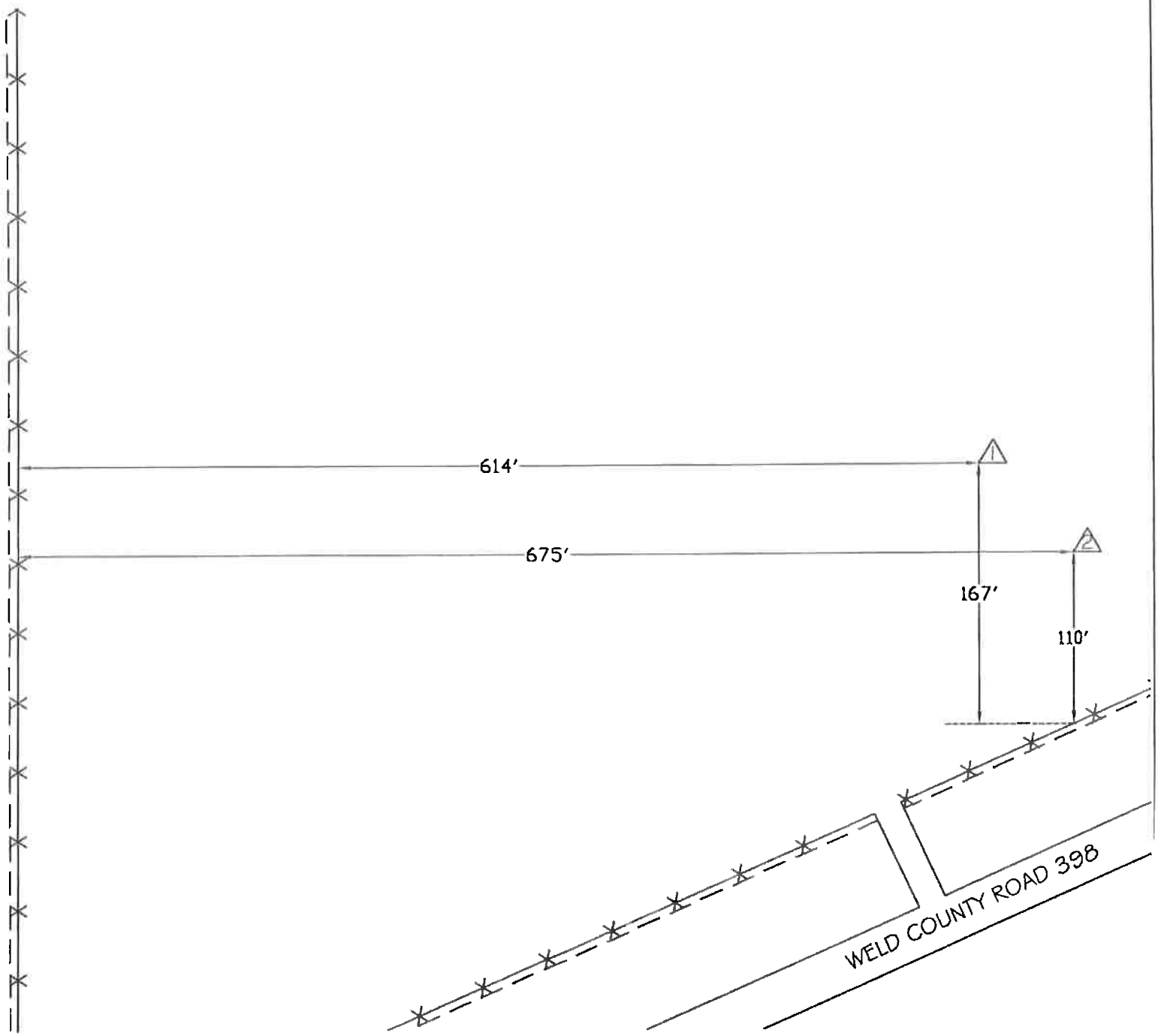


NOTE

1. PROVIDE A MINIMUM SLOPE OF 12" IN THE FIRST 10'-0" FROM FOUNDATION (10%)
2. DOWNSPOUTS AND EXTENSIONS SHOULD EXTEND BEYOND THE GRAVEL OR STONE AREA
3. HARDSCAPING NEXT TO FOUNDATION SHOULD SLOPE AWAY AT 2% SLOPE

SITE MAP

FUTURE 7.16 ACRE PARCEL CURRENTLY LOCATED WITHIN PARCEL 130319300014
LOT 7, A PART OF THE SW1/4 OF SECTION 19, T2N, R63W OF THE 6TH P.M.
WELD COUNTY, CO



LEGEND

- o - Percolation Test Hole
- X - Percolation Profile Hole
- △ - Soil Profile Hole
- XX - Fence
- ☆ - Bench Mark
- ▯ - Soil Pit

All locations shown above are based on specific information furnished by others or estimates made in the field by High Plains Engineering & Design personnel. The locations, distances, directions, etc. are not the result of a property survey but are approximations and are not warranted to be exact. It is the owner/builder's responsibility to define property - boundaries and ensure all onsite improvements are located within the platted site and out of inappropriate easements. All distances are to be verified prior to excavation.

APPENDIX B

Rational Method Runoff Calculations

HISTORIC RUNOFF TABLE (RK Annexation)							
BASIN	Impervious	C-YR	I	A	CIA(YR-historic)	Flow	DESIGN POINT
H							
C_5 (UDFCD 2017)	2.00	0.01	1.96	15.06	0.29	cfs	HE1
C_{100}	2.00	0.44	4.57	15.06	30.27	cfs	

RK ANNEX - HISTORIC RUNOFF CALCS

for D soils - C_5 C_{10} C_{100} = from Table RO-5

**for Ti calculations - only C_5 is used

Ti= (.395*(1.1-C_{yr})*(L^.5)) / (S)^.333
From UDFCD 2016, Equation 6-3

	5	10	100
1-Hour Point Rainfall	1.14	1.42	2.66

2017 UDFCD >>> Tc Check = (26-17i) + [Ltravel / (60*(14i + 9)(So)^.5)]

H — **Existing - 5, 10, 100 yr** — 100% NCS TYPE B — **15.060** acres

		Length	Slope	C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	check	Use Tc	I	A	$CIA_{5\ existing}$	
5yr	initial	989	0.010	0.01	62.75	1.00	0.00	62.75	25.66	25.66	1.96	15.06		0.29 **cfs**
	travel	0	0.010											
10yr		989		0.07	62.75	1.00	0.00	62.75	25.66	25.66	2.44	15.06	$CIA_{10\ existing}$	2.57 **cfs**
	Overland flow only													
	Overland distance 1049 ft, limited to 500 ft per UDFCD RO 2.4.1													
100yr	Remainder carried as travel	Cv=	10	0.44	62.75	1.00	0.00	62.75	25.66	25.66	4.57	15.06	$CIA_{100\ existing}$	30.27 **cfs**

15.060 acres

H 100% NCS TYPE B	**Undeveloped**	**Building**	**Asphalt**	**Concrete**	**Gravel (packed)**	**EFFECTIVE**
Imperviousness %	2	90.00	100.00	90.00	40.00	**2.00**
C5	0.01	0.76	0.86	0.76	0.32	**0.01**
C10	0.07	0.78	0.86	0.78	0.38	**0.07**
C100	0.44	0.84	0.89	0.84	0.61	**0.44**
AREA	15.060	0.00	0.00	0.00	0.00	15.06

0.000 acres

H-I76 Use NCS Type C	**Undeveloped**	**Building**	**Asphalt**	**Concrete**	**Gravel (packed)**	**EFFECTIVE**
I	2	90.00	100.00	90.00	40.00	**#DIV/0!**
C5	0.07	0.83	0.92	0.83	0.40	**#DIV/0!**
C10	0.22	0.87	0.94	0.87	0.50	**#DIV/0!**
C100	0.52	0.91	0.96	0.91	0.69	**#DIV/0!**
AREA	0.000	0.00	0.00	0.00	0.00	0.00

TABLE RO-2 (taken from UDFCD Manual - Vol. I)

Type of Land Surface	Conveyance coefficient, Cv
Heavy Meadow	2.5
Tillage/field	5
Short pasture/Lawns	7
Nearly Bare Ground	10.00
Grassed Waterway	15.00
Paved areas and shallow paved swales	20.00

EXISTING RUNOFF TABLE (RK Annexation)							
BASIN	Impervious	C-YR	I	A	CIA(YR-existing)	Flow	DESIGN POINT
E							
C5 (UDFCD 2017)	2.00	0.01	1.96	15.06	0.29	cfs	E1
C_{100}	2.00	0.44	4.57	15.06	30.27	cfs	
OFF N							
C5 (UDFCD 2017)	3.66	0.02	0.83	19.74	0.39	cfs	O1
C_{100}	3.66	0.45	1.94	19.74	17.17	cfs	
OFF W							
C5 (UDFCD 2017)	6.00	0.04	1.05	25.84	1.15	cfs	O2
C_{100}	6.00	0.46	2.44	25.84	28.93	cfs	

RK ANNEX - EXISTING RUNOFF CALCS

for D soils - C_5 C_{10} C_{100}= from Table RO-5

**for Ti calculations - only C_5 is used

Ti= (.395*(1.1-C_{yr})*(L^.5)) / (S)^.333
From UDFCD 2016, Equation 6-3

	5	10	100
1-Hour Point Rainfall	1.14	1.42	2.66

2017 UDFCD >>> Tc Check = (26-17i) + [Ltravel / (60*(14i + 9)(So)^.5)]

E

Existing - 5, 10, 100 yr
100% NCS TYPE B
15.060 acres

		Length	Slope	C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	check	Use Tc	I	A	$CIA_{5\ existing}$	
5yr	initial	1,075	0.016	0.01	56.54	1.24	0.00	56.54	25.66	25.66	1.96	15.06		0.29 cfs
	travel	0	0.016											
10yr		1075		0.07	56.54	1.24	0.00	56.54	25.66	25.66	2.44	15.06	$CIA_{10\ existing}$	2.57 cfs
100yr		Cv=	10	0.44	56.54	1.24	0.00	56.54	25.66	25.66	4.57	15.06	$CIA_{100\ existing}$	30.27 cfs

Overland distance 960 ft, limited to 500 ft per UDFCD RO 2.4.1
Remainder carried as travel

OFF N

Existing - 5, 10, 100 yr
100% NCS TYPE B
19.739 acres

		Length	Slope	C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	check	Use Tc	I	A	$CIA_{5\ existing}$	
5yr	initial	2,203	0.009	0.02	95.76	1.14	0.00	95.76	25.38	95.76	0.83	19.74		0.39 cfs
	travel	0	0.009											
10yr		2203		0.08	95.76	1.14	0.00	95.76	25.38	95.76	1.04	19.74	$CIA_{10\ existing}$	1.71 cfs
100yr		Cv=	12	0.45	95.76	1.14	0.00	95.76	25.38	95.76	1.94	19.74	$CIA_{100\ existing}$	17.17 cfs

OFF W

Existing - 5, 10, 100 yr
100% NCS TYPE B
25.844 acres

		Length	Slope	C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	check	Use Tc	I	A	$CIA_{5\ existing}$	
5yr	initial	1,513	0.013	0.04	69.00	1.37	0.00	69.00	24.98	69.00	1.05	25.84		1.15 cfs
	travel	0	0.013											
10yr		1513		0.10	69.00	1.37	0.00	69.00	24.98	69.00	1.31	25.84	$CIA_{10\ existing}$	3.46 cfs
100yr		Cv=	12	0.46	69.00	1.37	0.00	69.00	24.98	69.00	2.44	25.84	$CIA_{100\ existing}$	28.93 cfs

15.060 acres

E 100% NCS TYPE B	Undeveloped	Building	Asphalt	Concrete	Gravel (packed)	EFFECTIVE
Imperviousness %	2	90.00	100.00	90.00	40.00	**2.00**
C5	0.01	0.76	0.86	0.76	0.32	**0.01**
C10	0.07	0.78	0.86	0.78	0.38	**0.07**
C100	0.44	0.84	0.89	0.84	0.61	**0.44**
AREA	15.060	0.00	0.00	0.00	0.00	15.06

25.844 acres

OFF W 100% NCS TYPE B	Undeveloped	Building	Asphalt	Concrete	Gravel (packed)	EFFECTIVE
Imperviousness %	2	90.00	100.00	90.00	40.00	**6.00**
C5	0.01	0.76	0.86	0.76	0.32	**0.04**
C10	0.07	0.78	0.86	0.78	0.38	**0.10**
C100	0.44	0.84	0.89	0.84	0.61	**0.46**
AREA	23.123	0.00	0.00	0.00	2.72	25.84

25.844 acres

OFF W 100% NCS TYPE B	Undeveloped	Building	Asphalt	Concrete	Gravel (packed)	EFFECTIVE
Imperviousness %	2	90	100	90	40	**6.00**
C5	0.01	0.76	0.86	0.76	0.32	**0.04**
C10	0.07	0.78	0.86	0.78	0.38	**0.10**
C100	0.44	0.84	0.89	0.84	0.61	**0.46**
AREA	23.123	0	0	0	2.72	25.84

19.739 acres

OFF N 100% NCS TYPE B	Undeveloped	Building	Asphalt	Concrete	Gravel (packed)	EFFECTIVE
I	2	90.00	100.00	90.00	40.00	**3.66**
C5	0.01	0.76	0.86	0.76	0.32	**0.02**
C10	0.07	0.78	0.86	0.78	0.38	**0.08**
C100	0.44	0.84	0.89	0.84	0.61	**0.45**
AREA	19.122	0.18	0.00	0.00	0.43	19.74

0.275 acres

ROW 398 100% NCS TYPE B	Undeveloped	Building	Asphalt	Concrete	Gravel (packed)	EFFECTIVE
I	2	90.00	100.00	90.00	40.00	**2.00**
C5	0.01	0.76	0.86	0.76	0.32	**0.01**
C10	0.07	0.78	0.86	0.78	0.38	**0.07**
C100	0.44	0.84	0.89	0.84	0.61	**0.44**
AREA	0.275	0.00	0.00	0.00	0.00	0.28

TABLE RO-2 (taken from UDFCD Manual - Vol. I)	
Type of Land Surface	Conveyance coefficient, Cv
Heavy Meadow	2.5
Tillage/field	5
Short pasture/Lawns	7
Nearly Bare Ground	10.00
Grassed Waterway	15.00
Paved areas and shallow paved swales	20.00

DEVELOPED (RK Annexation)							
BASIN	Impervious	C-YR	I	A	CIA(YR-DEVELOPED)	cfs	DESIGN POINT
LOT 1							
C5 (UDFCD 2017)	40.92	0.34	2.00	1.96	1.32	cfs	1
C_{100}	40.92	0.62	4.68	1.96	5.65	cfs	1
LOT 2							
C_5	42.16	0.35	3.87	1.70	2.28	cfs	2
C_{100}	42.16	0.62	9.02	1.70	9.53	cfs	2
LOT 3							
C_5	31.37	0.26	1.89	1.65	0.80	cfs	3
						cfs	
C_{100}	31.37	0.57	4.40	1.65	4.16	cfs	3
						cfs	
LOT 4							
C_5	41.34	0.34	2.21	2.00	1.50	cfs	4
						cfs	
C_{100}	41.34	0.62	5.16	2.00	6.38	cfs	4
						cfs	
LOT 5							
C_5	40.92	0.34	2.12	1.95	1.39	cfs	5
						cfs	
C_{100}	40.92	0.62	4.95	1.95	5.95	cfs	5
						cfs	
LOT 6							
C_5	42.16	0.35	2.15	2.32	1.73	cfs	6
C_{100}	42.16	0.62	5.03	2.32	7.23	cfs	6
LOT 7							
C_5	31.37	0.26	1.92	2.18	1.07	cfs	7
C_{100}	31.37	0.57	4.48	2.18	5.60	cfs	7
ROW RK							
C_5	41.34	0.34	2.30	0.73	0.57	cfs	8
C_{100}	41.34	0.62	5.38	0.73	2.43	cfs	8

RK ANNEX - DEVELOPED RUNOFF CALCS (25.5% Max Bldg-Pavement)

See below for effective C values as calculated from Table RO-5

**for Ti calculations - only C_5 is used

$T_i = (.395*(1.1-C_{yr})*(L^{.5})) / (S)^{.333}$
From UDFCD 2016, Equation 6-3

	5	10	100
Point Rainfall	**1.14**	**1.42**	**2.66**

2017 UDFCD >>> Tc Check = (26-17i) + [Ltravel / (60*(14i + 9)(So)^.5)]

LOT 1

Developed -5, 10, 100 yr — **1.96** acres
100% NCS TYPE B

		Length	Slope	C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	CIA5 developed
5yr	initial	99	0.004	0.34	17.90	1.08	6.71	24.60	25.87	24.60	0.34	2.00	1.96	1.32 cfs
	travel	435	0.005											
10yr				0.34	17.90	1.08	6.71	24.60	25.87	24.60	0.39	2.50	1.96	CIA10 developed 1.89 cfs
		Cv=	15.00											
100yr				0.34	17.90	1.08	6.71	24.60	25.87	24.60	0.62	4.68	1.96	CIA100 developed 5.65 cfs

LOT 2

Developed -5, 10, 100 yr — **1.70** acres
100% NCS TYPE B

		Length	Slope	C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	CIA5 developed
5yr	initial	130	0.003	0.35	24.61	0.64	13.71	38.32	32.63	5.00	0.35	3.87	1.70	2.28 cfs
	travel	523	0.002											
10yr				0.35	24.61	0.64	13.71	38.32	32.63	5.00	0.40	4.82	1.70	CIA10 developed 3.24 cfs
		Cv=	15.00											
100yr				0.35	24.61	0.64	13.71	38.32	32.63	5.00	0.62	9.02	1.70	CIA100 developed 9.53 cfs

LOT 3

Developed -5, 10, 100 yr — **1.65** acres
100% NCS TYPE B

		Length	Slope	C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	CIA5 developed
5yr	initial	120	0.005	0.26	20.68	1.12	6.00	26.68	27.39	27.39	0.26	1.89	1.65	0.80 cfs
	travel	404	0.006											
10yr	Overland distance 1790 ft, limited to 500 ft per UDFCD RO 2.4.1 Remainder carried as travel			0.26	20.68	1.12	6.00	26.68	27.39	27.39	0.31	2.35	1.65	CIA10 developed 1.20 cfs
		Cv=	15.00											
100yr				0.26	20.68	1.12	6.00	26.68	27.39	27.39	0.57	4.40	1.65	CIA100 developed 4.16 cfs

LOT 4

Developed -5, 10, 100 yr — **2.00** acres
100% NCS TYPE B

		Length	Slope	C5	Ti	Velocity	Tt	Tc	check	Use Tc - see above		I	A	CIA5 developed
5yr	initial	184	0.028	0.34	15.31	1.44	1.57	16.88	20.57	20.57	0.34	2.21	2.00	1.50 cfs
	travel	136	0.009											
10yr				0.34	15.31	1.44	1.57	16.88	20.57	20.57	0.39	2.75	2.00	CIA10 developed 2.14 cfs
		Cv=	15.00											
100yr				0.34	15.31	1.44	1.57	16.88	20.57	20.57	0.62	5.16	2.00	CIA100 developed 6.38 cfs

LOT 5

Developed -5, 10, 100 yr — **1.95** acres

100% NCS TYPE B

		Length	Slope	C5	Ti	Velocity	Tt	Tc	check	Use Tc - see above		I	A	CIA5 developed
5yr	initial	91	0.059	0.34	8.60	1.89	3.06	11.66	22.16	22.16	0.34	2.12	1.95	1.39 cfs
	travel	347	0.016											
10yr				0.34	8.60	1.89	3.06	11.66	22.16	22.16	0.39	2.64	1.95	CIA10 developed 1.99 cfs
		Cv=	15.00											
100yr				0.34	8.60	1.89	3.06	11.66	22.16	22.16	0.62	4.95	1.95	CIA100 developed 5.95 cfs

LOT 6

Developed -5, 10, 100 yr — **2.32** acres

100% NCS TYPE B

		Length	Slope	C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{vr} - see above	I	A	CIA_5 developed
5yr	initial	31	0.031	0.35	5.46	2.35	2.73	8.19	21.58	21.58	0.35	2.15	2.32	1.73 cfs
	travel	385	0.025											
10yr				0.35	5.46	2.35	2.73	8.19	21.58	21.58	0.40	2.68	2.32	CIA_{10} developed 2.46 cfs
		Cv=	15.00											
100yr				0.35	5.46	2.35	2.73	8.19	21.58	21.58	0.62	5.03	2.32	CIA_{100} developed 7.23 cfs

LOT 7

Developed -5, 10, 100 yr — **2.18** acres

100% NCS TYPE B

		Length	Slope	C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{vr} - see above	I	A	CIA_5 developed
5yr	initial	104	0.091	0.26	9.22	1.42	5.24	14.46	26.54	26.54	0.26	1.92	2.18	1.07 cfs
	travel	445	0.009											
10yr				0.26	9.22	1.42	5.24	14.46	26.54	26.54	0.31	2.39	2.18	CIA_{10} developed 1.61 cfs
		Cv=	15.00											
100yr				0.26	9.22	1.42	5.24	14.46	26.54	26.54	0.57	4.48	2.18	CIA_{100} developed 5.60 cfs

ROW RK

Developed -5, 10, 100 yr — **0.73** acres

100% NCS TYPE B

		Length	Slope	C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{vr} - see above	I	A	CIA_5 developed
5yr	initial	497	0.005	0.34	38.31	1.46	0.00	38.31	18.97	18.97	0.34	2.30	0.73	0.57 cfs
	travel	0	0.005											
10yr				0.34	38.31	1.46	0.00	38.31	18.97	18.97	0.39	2.87	0.73	CIA_{10} developed 0.82 cfs
		Cv=	20.00											
100yr				0.34	38.31	1.46	0.00	38.31	18.97	18.97	0.62	5.38	0.73	CIA_{100} developed 2.43 cfs

LOT 1	TOTAL AREA	1.960 acres				
100% NCS TYPE B	Landscaping	Gravel	Building	Concrete	Asphalt	EFFECTIVE
I	2	40.00	90.00	90.00	100.00	40.92
C5	0.01	0.32	0.76	0.76	0.86	0.34
C10	0.07	0.38	0.78	0.78	0.86	0.39
C100	0.44	0.61	0.84	0.84	0.89	0.62
AREA	0.54	1.03	0.00	0.14	0.25	1.960

LOT 2	TOTAL AREA	1.700 acres			Water /	
100% NCS TYPE B	Landscaping	Gravel	Building	Concrete	Asphalt	EFFECTIVE
I	2	40.00	90.00	90.00	100.00	42.16
C5	0.01	0.32	0.76	0.76	0.86	0.35
C10	0.07	0.38	0.78	0.78	0.86	0.40
C100	0.44	0.61	0.84	0.84	0.89	0.62
AREA	0.40	0.96	0.00	0.14	0.19	1.700

LOT 3	TOTAL AREA	2.316 acres				
100% NCS TYPE B	Landscaping	Gravel	Building	Concrete	Asphalt	EFFECTIVE
I	2	40.00	90.00	90.00	100.00	31.37
C5	0.01	0.32	0.76	0.76	0.86	0.26
C10	0.07	0.38	0.78	0.78	0.86	0.31
C100	0.44	0.61	0.84	0.84	0.89	0.57
AREA	1.02	0.96	0.00	0.14	0.19	2.316

LOT 4	TOTAL AREA	2.001 acres			Water /	
100% NCS TYPE B	Landscaping	Gravel	Building	Concrete	Asphalt	EFFECTIVE
I	2	40.00	90.00	90.00	100.00	41.34
C5	0.01	0.32	0.76	0.76	0.86	0.34
C10	0.07	0.38	0.78	0.78	0.86	0.39
C100	0.44	0.61	0.84	0.84	0.89	0.62
AREA	0.55	1.03	0.00	0.12	0.29	2.001

LOT 5	TOTAL AREA	1.950 acres				
119.5	Landscaping	Gravel	Building	Concrete	Asphalt	EFFECTIVE
I	2	40.00	90.00	90.00	100.00	40.92
C5	0.01	0.32	0.76	0.76	0.86	0.34
C10	0.07	0.38	0.78	0.78	0.86	0.39
C100	0.44	0.61	0.84	0.84	0.89	0.62
AREA	0.12	1.26	0.00	0.14	0.43	1.950

LOT 6	TOTAL AREA	2.316 acres			Water /	
183.8	Landscaping	Gravel	Building	Concrete	Asphalt	EFFECTIVE
I	2	40.00	90.00	90.00	100.00	42.16
C5	0.01	0.32	0.76	0.76	0.86	0.35
C10	0.07	0.38	0.78	0.78	0.86	0.40
C100	0.44	0.61	0.84	0.84	0.89	0.62
AREA	0.41	1.45	0.00	0.14	0.30	2.316

LOT 7	TOTAL AREA	2.180 acres				
497.1597	Landscaping	Gravel	Building	Concrete	Asphalt	EFFECTIVE
I	2	40.00	90.00	90.00	100.00	31.37
C5	0.01	0.32	0.76	0.76	0.86	0.26
C10	0.07	0.38	0.78	0.78	0.86	0.31
C100	0.44	0.61	0.84	0.84	0.89	0.57
AREA	0.35	1.68	0.00	0.14	0.00	2.180

ROW RK	TOTAL AREA	0.730 acres			Water /	
2.315610652	Landscaping	Gravel	Building	Concrete	Asphalt	EFFECTIVE
I	2	40.00	90.00	90.00	100.00	41.34
C5	0.01	0.32	0.76	0.76	0.86	0.34
C10	0.07	0.38	0.78	0.78	0.86	0.39
C100	0.44	0.61	0.84	0.84	0.89	0.62
AREA	0.13	0.11	0.00	0.00	0.48	0.730

TABLE RO-2 (taken from UDFCD Manual - Vol. I)	
Type of Land Surface	Conveyance coefficient, Cv
Heavy Meadow	2.5
Tillage/field	5
Short pasture/Lawns	7
Nearly Bare Ground	10.00
Grassed Waterway	15.00
Paved areas and shallow paved swales	20.00

APPENDIX C

Empirical Detention Calculations, ACSDCM, CFSCM, & UDFCD Retention Calculations, Design Pond Volumes, Channel Capacities, etc

OVERALL REQUIRED INFILTRATION (EMPIRICAL) per CFSCM & UDFCD

Per NOAA Atlas - 24 hr 100 yr rate of 5 inches (conservatively - value interpolated = 4.7)

Per Colorado Floodplain & Stormwater Criteria Manual (CFSCM) - retention is Tributary area X rainfall depth

Per UDFCD Volume II - Storage - 3.3.4 Retention Facilities - factor by 2.0

	Tributary Area (ac)	Tributary Area (ft)	Noaa Rainfall (in)	CFSCM Ret Volume (cft)	UDFCD Factored 2.0 Ret Volume (cft)	Ret Volume (ac-ft)
POND 1	1.83	79,776	5	33,240	66,480	1.53
POND 2-3	3.32	144,441	5	60,184	120,367	2.76
POND 4	2.00	87,167	5	36,320	72,639	1.67
POND 5-7	7.16	311,819	5	129,925	259,849	5.97

WATER QUALITY CALCULATIONS

from Figure EDB-2, 40 hr drain @ I, WQCV= noted below

BASIN	A acres	WQ (in/watershed)	WQCV ac-ft	WQCV cubic feet	TOTAL w/ 10 yr acre ft	TOTAL w/ 100 yr acre ft	TOTAL w/ 10 yr cubic feet	TOTAL w/ 100 yr cubic feet**
LOT 1	1.96	0.19	0.04	1,647.4	0.12	0.20	5,135	7,700
LOT 2	1.70	0.19	0.03	1,428.8	0.10	0.17	4,454	6,679
LOT 3	1.65	0.17	0.03	1,196.1	0.08	0.13	3,452	5,098
LOT 4	2.00	0.19	0.04	1,681.9	0.12	0.20	5,243	7,862
LOT 5	1.95	0.19	0.04	1,638.9	0.12	0.19	5,109	7,661
LOT 6	2.32	0.19	0.04	1,949.9	0.14	0.23	6,070	9,099
LOT 7	2.18	0.17	0.04	1,578.6	0.10	0.17	4,556	6,729
ROW RK	0.73	0.19	0.01	613.6	0.04	0.07	1,913	2,868
TOTAL	**14.49**	**1.49**	**0.27**	**11,735**	**0.82**	**1.37**	**35,930.55**	**53,695.95**

** only includes 50% of WQCV

FOREBAY	A acres	WQCV cubic feet	Min Reqd Vol % of WQCV	Min Reqd Vol cubic feet	Max Depth (in)	Forebay Dimensions	Forebay Volume (ft^3)	Release Rate 2% of Dev Q (cfs)	Weir (in)
POND 1	1.96	1,647.4	2%	32.9	12	8' * 8'	32	0.11	1.1"
POND 2/3 S	1.70	1,428.8	2%	28.6	12	8' * 8'	32	0.19	2"
POND 2/3 N	1.65	1,196.1	2%	23.9	12	7'*7'	25	0.08	0.8"
POND 4	2.00	1,681.9	2%	33.6	12	9' * 9'	41	0.13	1.4"
POND 5/6/7 N	4.27	3,588.9	2%	71.8	12	13' * 13'	85	0.26	3.3"
POND 5/6/7 N	2.18	1,578.6	2%	31.6	12	9' * 9'	41	0.11	1.3"

POND 1 - LOT BUILDOUT Imp = 43.65%
100 YEAR INFILTRATION VOLUME - WATER SURFACE
ESTIMATED POND (TYPICAL) VOLUME vs ELEVATION

WQCV:	**1,647.4**	**ft^3**	**4886.66**	**ELEVATION**
REQUIRED 10 yr per MODIFIED FAA:	**5,149.4**	**ft^3**	**4888.26**	**ELEVATION**
REQUIRED 100 yr per MODIFIED FAA:	**34,063.7**	**ft^3**	**4893.51**	**ELEVATION**
Avail Vol @ Emer Overflow:	**34,810.9**	**ft^3**	**4893.60**	**ELEVATION**

43560

	ELEV	AREA	t	VOL	ACCUM	ACUM (ac-ft)
	4,884.80	534.0				
			0.20	114.7	114.7	0.00
	4,885.00	613.5				
881.36			1.00	841.3	955.9	0.02
	4,886.00	1,091.8				
			1.00	1,386.6	2,342.6	0.05
	4,887.00	1,704.1				
2,338.57			1.00	2,066.1	4,408.6	0.10
	4,888.00	2,450.5				
			1.00	2,879.5	7,288.2	0.17
	4,889.00	3,331.0				
			1.00	3,827.1	11,115.3	0.26
	4,890.00	4,345.6				
			1.00	4,908.7	16,024.0	0.37
	4,891.00	5,494.3				
			1.00	6,124.4	22,148.4	0.51
	4,892.00	6,777.0				
			1.00	7,474.2	29,622.7	0.68
	4,893.00	8,193.9				
			0.60	5,188.2	34,810.9	0.80
	4,893.60	9,108.3				

Infiltration Rates:

Using 46 min per inch >>	4888.26	5 yr W/S ELEV	Using 46 min per inch >>	4893.51	100 yr W/S ELEV
	4,884.80	Bottom ELEV		4,884.80	Bottom ELEV
	3.46	Head (ft)		8.71	Head (ft)
46 min per inch =	0.109	ft/hour percolation	46 min per inch =	0.109	ft/hour percolation
	31.8	hrs to drain 5 yr W/S		80.2	hrs to drain 100 yr W/S

POND 2-3 - LOT BUILDOUT Imp = 32.23%
100 YEAR INFILTRATION VOLUME - WATER SURFACE
ESTIMATED POND (TYPICAL) VOLUME vs ELEVATION

WQCV:	**2,624.9**	**ft^3**	**4887.26**	**ELEVATION**
REQUIRED 10 yr per MODIFIED FAA:	**8,215.9**	**ft^3**	**4888.74**	**ELEVATION**
REQUIRED 100 yr per MODIFIED FAA:	**61,496.4**	**ft^3**	**4894.65**	**ELEVATION**
Avail Vol @ Emer Overflow:	**66,312.5**	**ft^3**	**4895.00**	**ELEVATION**

43560

	ELEV	AREA	t	VOL	ACCUM	ACUM (ac-ft)
	4,886.00	990.0				
			1.00	1,776.9	1,776.9	0.04
	4,887.00	2,704.4				
3,303.43			1.00	3,224.4	5,001.3	0.11
	4,888.00	3,774.1				
			1.00	4,357.9	9,359.2	0.21
	4,889.00	4,969.1				
6,091.35			1.00	5,616.3	14,975.5	0.34
	4,890.00	6,289.4				
			1.00	6,999.7	21,975.3	0.50
	4,891.00	7,735.0				
			1.00	8,508.3	30,483.6	0.70
	4,892.00	9,305.9				
			1.00	10,142.1	40,625.8	0.93
	4,893.00	11,002.1				
			1.00	11,901.2	52,527.0	1.21
	4,894.00	12,823.6				
			1.00	13,785.5	66,312.5	1.52
	4,895.00	14,770.4				

Infiltration Rates:

Using 46 min per inch >>	4888.74	5 yr W/S ELEV	Using 46 min per inch >>	4894.65	100 yr W/S ELEV
	4,886.00	Bottom ELEV		4,886.00	Bottom ELEV
	2.74	Head (ft)		8.65	Head (ft)
46 min per inch =	0.109	ft/hour percolation	46 min per inch =	0.109	ft/hour percolation
	25.2	hrs to drain 5 yr W/S		79.6	hrs to drain 100 yr W/S

POND 4 - LOT BUILDOUT Imp = 41.34%
100 YEAR INFILTRATION VOLUME - WATER SURFACE
ESTIMATED POND (TYPICAL) VOLUME vs ELEVATION

WQCV:	**2,295.4**	**ft^3**	**4888.87**	**ELEVATION**
REQUIRED 10 yr per MODIFIED FAA:	**7,563.4**	**ft^3**	**4890.78**	**ELEVATION**
REQUIRED 100 yr per MODIFIED FAA:	**36,320.0**	**ft^3**	**4894.98**	**ELEVATION**
Avail Vol @ Emer Overflow:	**36,542.5**	**ft^3**	**4895.00**	**ELEVATION**

43560

	ELEV	AREA	t	VOL	ACCUM	ACUM (ac-ft)
	4,887.00	653.1				
			1.00	922.7	922.7	0.02
	4,888.00	1,221.7				
1,634.75			1.00	1,576.0	2,498.8	0.06
	4,889.00	1,959.3				
			1.00	2,403.6	4,902.4	0.11
	4,890.00	2,877.3				
3,820.81			1.00	3,417.2	8,319.6	0.19
	4,891.00	3,987.3				
			1.00	4,623.0	12,942.6	0.30
	4,892.00	5,289.3				
			1.00	6,020.9	18,963.5	0.44
	4,893.00	6,783.4				
			1.00	7,675.3	26,638.8	0.61
	4,894.00	8,603.2				
			1.00	9,903.7	36,542.5	0.84
	4,895.00	11,263.7				

Infiltration Rates:

Using 46 min per inch >>	4890.78	5 yr W/S ELEV	Using 46 min per inch >>	4894.98	100 yr W/S ELEV
	4,887.00	Bottom ELEV		4,887.00	Bottom ELEV
	3.78	Head (ft)		7.98	Head (ft)
46 min per inch =	0.109	ft/hour percolation	46 min per inch =	0.109	ft/hour percolation
	34.8	hrs to drain 5 yr W/S		73.4	hrs to drain 100 yr W/S

POND 5-7 - LOT BUILDOUT Imp = 34.01%
100 YEAR INFILTRATION VOLUME - WATER SURFACE
ESTIMATED POND (TYPICAL) VOLUME vs ELEVATION

WQCV:	**5,167.5**	**ft^3**	**4876.89**	**ELEVATION**
REQUIRED 10 yr per MODIFIED FAA:	**17,802.5**	**ft^3**	**4878.41**	**ELEVATION**
REQUIRED 100 yr per MODIFIED FAA:	**132,508.8**	**ft^3**	**4884.84**	**ELEVATION**
REQUIRED 1.5x100 yr per MODIFIED FAA:	**194,887.0**	**ft^3**	**4886.84**	**ELEVATION**
Avail Vol @ Emer Overflow:	**200,401.9**	**ft^3**	**4887.00**	**ELEVATION**

43560

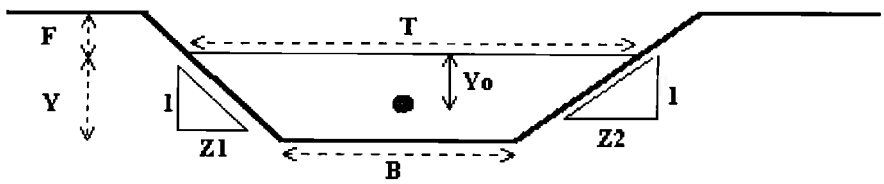
	ELEV	AREA	t	VOL	ACCUM	ACUM (ac-ft)
	4,876.00	5,161.4				
			1.00	5,997.5	5,997.5	0.14
	4,877.00	6,874.6				
7,937.03			1.00	7,804.0	13,801.5	0.32
	4,878.00	8,771.8				
			1.00	9,809.1	23,610.6	0.54
	4,879.00	10,884.3				
12,862.77			1.00	12,029.3	35,639.9	0.82
	4,880.00	13,211.9				
			1.00	14,464.7	50,104.6	1.15
	4,881.00	15,754.7				
			1.00	17,115.2	67,219.7	1.54
	4,882.00	18,512.7				
			1.00	19,980.8	87,200.5	2.00
	4,883.00	21,485.8				
			1.00	23,061.6	110,262.2	2.53
	4,884.00	24,674.2				
			1.00	26,357.6	136,619.7	3.14
	4,885.00	28,077.6				
			1.00	29,868.7	166,488.4	3.82
	4,886.00	31,696.3				
			1.00	33,913.4	200,401.9	4.60
	4,887.00	36179.96				

Infiltration Rates:

Using 46 min per inch >>	4878.41	5 yr W/S ELEV	Using 46 min per inch >>	4886.84	1.5x100 yr W/S ELEV
	4,876.00	Bottom ELEV		4,876.00	Bottom ELEV
	2.41	Head (ft)		10.84	Head (ft)
46 min per inch =	0.109	ft/hour percolation	46 min per inch =	0.109	ft/hour percolation
	22.2	hrs to drain 5 yr W/S		99.7	hrs to drain 1.5x100 yr W/S

Normal Flow Analysis - Trapezoidal Channel

Project:	RK Annexation
Channel ID:	Lot 1 Spillway Wall

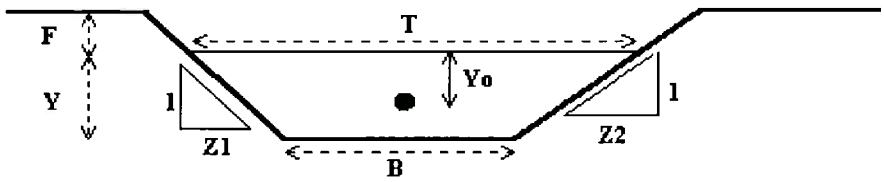


Design Information (Input)			
Channel Invert Slope	So =	0.0050	ft/ft
Manning's n	n =	0.030	
Bottom Width	B =	15.00	ft
Left Side Slope	Z1 =	0.01	ft/ft
Right Side Slope	Z2 =	0.01	ft/ft
Freeboard Height	F =	0.00	ft
Design Water Depth	Y =	**0.40**	ft

Normal Flow Condtion (Calculated)			
Discharge	**Q =**	**11.05**	cfs
Froude Number	**Fr =**	**0.51**	
Flow Velocity	**V =**	**1.84**	fps
Flow Area	A =	6.00	sq ft
Top Width	T =	15.01	ft
Wetted Perimeter	P =	15.80	ft
Hydraulic Radius	R =	0.38	ft
Hydraulic Depth	D =	0.40	ft
Specific Energy	Es =	0.45	ft
Centroid of Flow Area	Yo =	0.20	ft
Specific Force	Fs =	0.11	kip

Normal Flow Analysis - Trapezoidal Channel

Project:	RK Annexation
Channel ID:	Lot 2/3 Spillway Wall

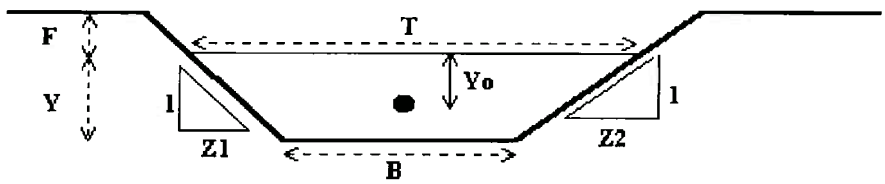


Design Information (Input)			
Channel Invert Slope	So =	0.0050	ft/ft
Manning's n	n =	0.030	
Bottom Width	B =	25.00	ft
Left Side Slope	Z1 =	0.01	ft/ft
Right Side Slope	Z2 =	0.01	ft/ft
Freeboard Height	F =	0.00	ft
Design Water Depth	Y =	**0.51**	ft

Normal Flow Condtion (Calculated)			
Discharge	**Q =**	**27.39**	cfs
Froude Number	**Fr =**	**0.54**	
Flow Velocity	**V =**	**2.17**	fps
Flow Area	A =	12.63	sq ft
Top Width	T =	25.01	ft
Wetted Perimeter	P =	26.01	ft
Hydraulic Radius	R =	0.49	ft
Hydraulic Depth	D =	0.50	ft
Specific Energy	Es =	0.58	ft
Centroid of Flow Area	Yo =	0.25	ft
Specific Force	Fs =	0.31	kip

Normal Flow Analysis - Trapezoidal Channel

Project:	RK Annexation
Channel ID:	Lot 4 Spillway Wall

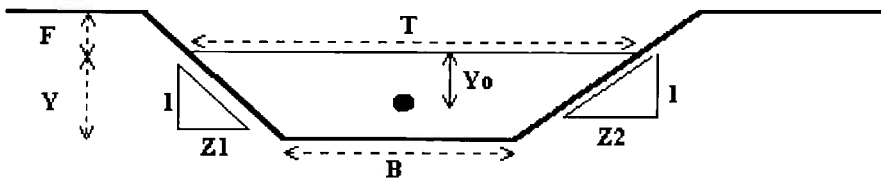


Design Information (Input)			
Channel Invert Slope	So =	0.0050	ft/ft
Manning's n	n =	0.030	
Bottom Width	B =	15.00	ft
Left Side Slope	Z1 =	0.01	ft/ft
Right Side Slope	Z2 =	0.01	ft/ft
Freeboard Height	F =	0.00	ft
Design Water Depth	Y =	**0.45**	ft

Normal Flow Condtion (Calculated)			
Discharge	**Q =**	**13.40**	cfs
Froude Number	**Fr =**	**0.52**	
Flow Velocity	**V =**	**1.98**	fps
Flow Area	A =	6.75	sq ft
Top Width	T =	15.01	ft
Wetted Perimeter	P =	15.90	ft
Hydraulic Radius	R =	0.42	ft
Hydraulic Depth	D =	0.45	ft
Specific Energy	Es =	0.51	ft
Centroid of Flow Area	Yo =	0.22	ft
Specific Force	Fs =	0.15	kip

Normal Flow Analysis - Trapezoidal Channel

Project:	**RK Annexation**
Channel ID:	**Lot 5/6/7 Spillway Wall**

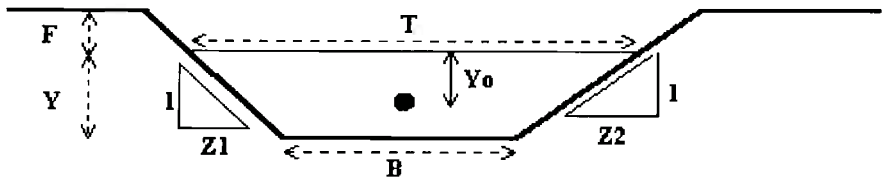


Design Information (Input)			
Channel Invert Slope	So =	0.0050	ft/ft
Manning's n	n =	0.030	
Bottom Width	B =	40.00	ft
Left Side Slope	Z1 =	0.01	ft/ft
Right Side Slope	Z2 =	0.01	ft/ft
Freeboard Height	F =	0.00	ft
Design Water Depth	Y =	**0.50**	ft

Normal Flow Condtion (Calculated)			
Discharge	**Q =**	**43.53**	cfs
Froude Number	**Fr =**	**0.54**	
Flow Velocity	**V =**	**2.18**	fps
Flow Area	A =	20.00	sq ft
Top Width	T =	40.01	ft
Wetted Perimeter	P =	41.00	ft
Hydraulic Radius	R =	0.49	ft
Hydraulic Depth	D =	0.50	ft
Specific Energy	Es =	0.57	ft
Centroid of Flow Area	Yo =	0.25	ft
Specific Force	Fs =	0.50	kip

Normal Flow Analysis - Trapezoidal Channel

Project:	**RK Annexation**
Channel ID:	**West Spillway Channel**

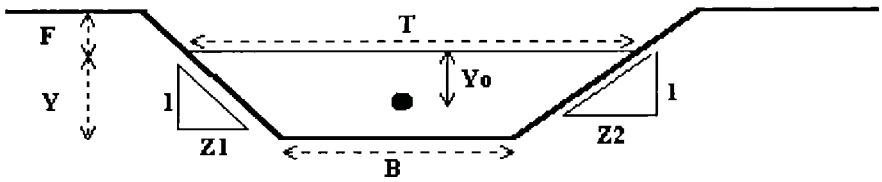


Design Information (Input)			
Channel Invert Slope	So =	0.0050	ft/ft
Manning's n	n =	0.029	
Bottom Width	B =	9.00	ft
Left Side Slope	Z1 =	10.00	ft/ft
Right Side Slope	Z2 =	10.00	ft/ft
Freeboard Height	F =	0.00	ft
Design Water Depth	Y =	**1.00**	ft

Normal Flow Condtion (Calculated)			
Discharge	**Q =**	**51.95**	cfs
Froude Number	**Fr =**	**0.60**	
Flow Velocity	**V =**	**2.73**	fps
Flow Area	A =	19.00	sq ft
Top Width	T =	29.00	ft
Wetted Perimeter	P =	29.10	ft
Hydraulic Radius	R =	0.65	ft
Hydraulic Depth	D =	0.66	ft
Specific Energy	Es =	1.12	ft
Centroid of Flow Area	Yo =	0.41	ft
Specific Force	Fs =	0.76	kip

Normal Flow Analysis - Trapezoidal Channel

Project:	**RK Annexation**
Channel ID:	**East Spillway Channel**

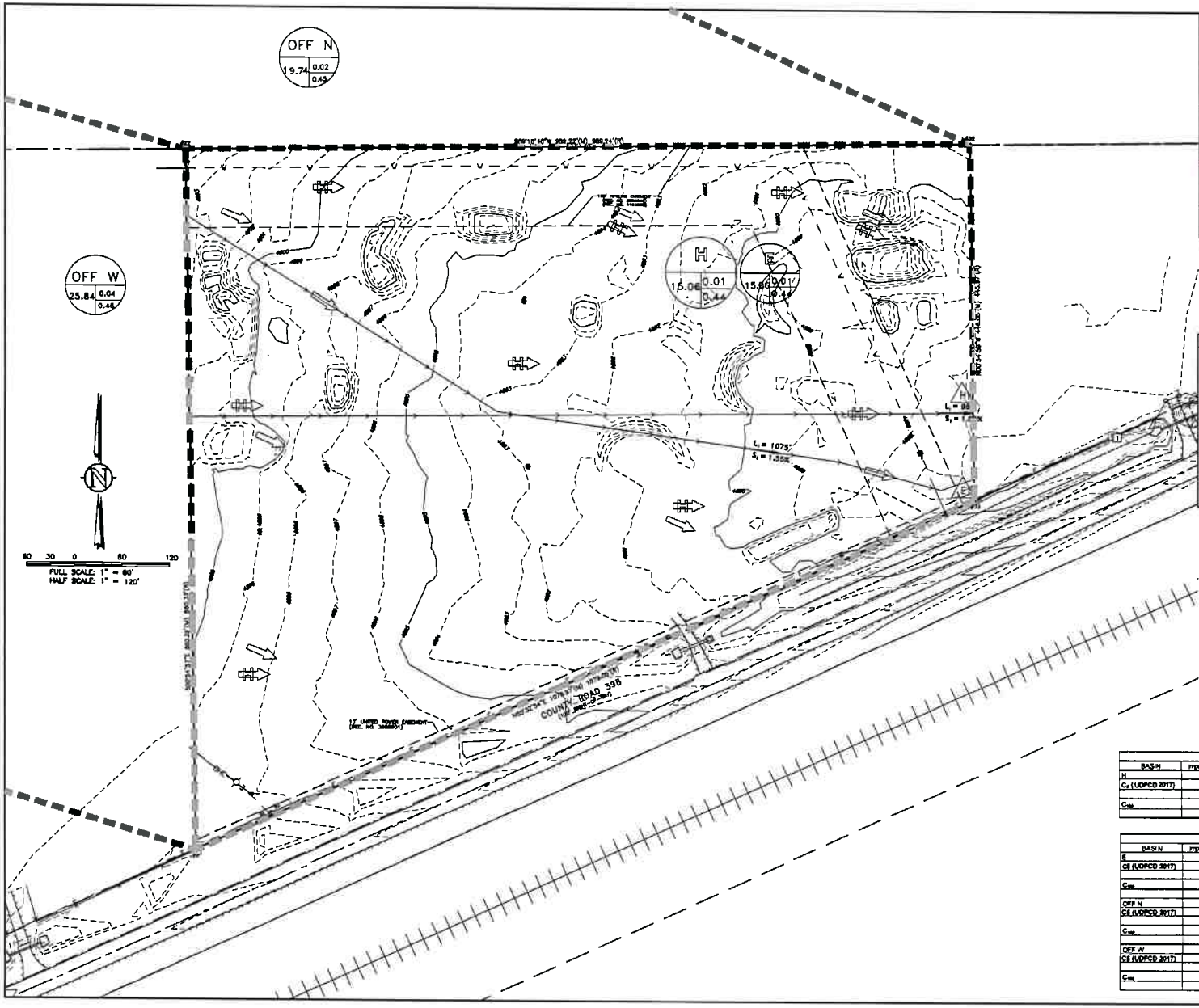


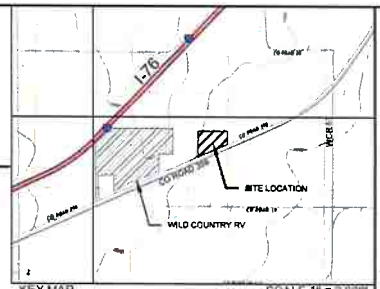
Design Information (Input)			
Channel Invert Slope	So =	0.0050	ft/ft
Manning's n	n =	0.030	
Bottom Width	B =	10.00	ft
Left Side Slope	Z1 =	25.00	ft/ft
Right Side Slope	Z2 =	25.00	ft/ft
Freeboard Height	F =	0.00	ft
Design Water Depth	Y =	**1.00**	ft

Normal Flow Condtion (Calculated)			
Discharge	**Q =**	**85.78**	cfs
Froude Number	**Fr =**	**0.57**	
Flow Velocity	**V =**	**2.45**	fps
Flow Area	A =	35.00	sq ft
Top Width	T =	60.00	ft
Wetted Perimeter	P =	60.04	ft
Hydraulic Radius	R =	0.58	ft
Hydraulic Depth	D =	0.58	ft
Specific Energy	Es =	1.09	ft
Centroid of Flow Area	Yo =	0.38	ft
Specific Force	Fs =	1.23	kip

APPENDIX D

WEC Drainage Sheets





KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

HISTORIC & EXISTING DRAINAGE LEGEND

E — EXISTING SUB-BASIN DESIGNATION; 1.12 / .73 / .83; C5 / C100; AREA IN ACRES

H — HISTORIC SUB-BASIN DESIGNATION; 1.12 / .73 / .83; C5 / C100; AREA IN ACRES

EXISTING BASIN

EXISTING DRAINAGE PATTERN

HISTORICAL DRAINAGE PATTERN

L_i - INITIAL LENGTH	L_i = 72.5
S_i - INITIAL SLOPE	S_i = 6.0%
L_t - TRAVEL LENGTH	L_t = 180'
S_t - TRAVEL SLOPE	S_t = 0.75%

* AVERAGE SLOPE INCLUDES ROOF SLOPE OF 0.50%

HISTORIC RUNOFF TABLE (Rk Annexation)

BASIN	Impervious	C-YR	I	A	CIA (Acre-feet)	Flow	DESIGN POINT
H							
C_5 (UDFCD 2017)	2.00	0.01	1.98	15.06	0.29	cfs	HE1
C_{100}	2.00	0.44	4.57	15.06	30.27	cfs	

EXISTING RUNOFF TABLE (Rk Annexation)

BASIN	Impervious	C-YR	I	A	CIA (Acre-feet)	Flow	DESIGN POINT
E							
C_5 (UDFCD 2017)	2.00	0.01	1.98	15.06	0.29	cfs	E1
C_{100}	2.00	0.44	4.57	15.06	30.27	cfs	
OFF N							
C_5 (UDFCD 2017)	3.66	0.02	0.83	19.74	0.36	cfs	O1
C_{100}	3.66	0.43	1.94	19.74	17.17	cfs	
OFF W							
C_5 (UDFCD 2017)	6.00	0.04	1.05	25.84	1.15	cfs	O2
C_{100}	6.00	0.46	2.44	25.84	28.93	cfs	

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ROBERTSON-KAISER ANNEX

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5033 E. 150th AVENUE
BRIGHTON, CO 80602
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MAINTENANCE OF ALL PRIVATE STORMWATER TREATMENT AND DRAINAGE IMPROVEMENTS IS A CONTINUING OBLIGATION OF THE LAND OWNER, ITS SUCCESSORS, AND ASSIGNS TO ENSURE THE FACILITIES FUNCTION AS DESIGNED AND CONTINUE SERVING THE INTENDED FUNCTIONS IN PERPETUITY UNLESS THE CITY EXPRESSLY ACCEPTS THE RESPONSIBILITY IN WRITING. A NON-EXCLUSIVE ACCESS AND DRAINAGE EASEMENTS ARE HEREBY GRANTED TO CITY OF BRIGHTON FOR THE PURPOSE OF ACCESSING, INSPECTING, MAINTAINING, AND REPAIRING PRIVATE DRAINAGE FACILITIES IN THE EVENT THE LAND OWNER, ITS SUCCESSORS, AND ASSIGNS FAILS TO SATISFACTORILY MAINTAIN OR REPAIR SAID FACILITIES

L_i - INITIAL LENGTH	L_i = 72.5
S_i - INITIAL SLOPE	S_i = 6.0%
L_t - TRAVEL LENGTH	L_t = 160'
S_t - TRAVEL SLOPE	S_t = 0.75%

* AVERAGE SLOPE INCLUDES ROOF SLOPE OF 5.00%

DEVELOPED DRAINAGE LEGEND

- B1 — SUB-BASIN DESIGNATION
- 3.20 — AREA IN ACRES
- 58 — C5
- .88 — C100
- EXISTING DRAINAGE PATTERN
- DEVELOPED BASIN
- PROPOSED DRAINAGE PATTERN
- INTERNAL EMERGENCY OVERFLOW
- OFFSITE EMERGENCY OVERFLOW

OFF N 19.74 0.02 0.45

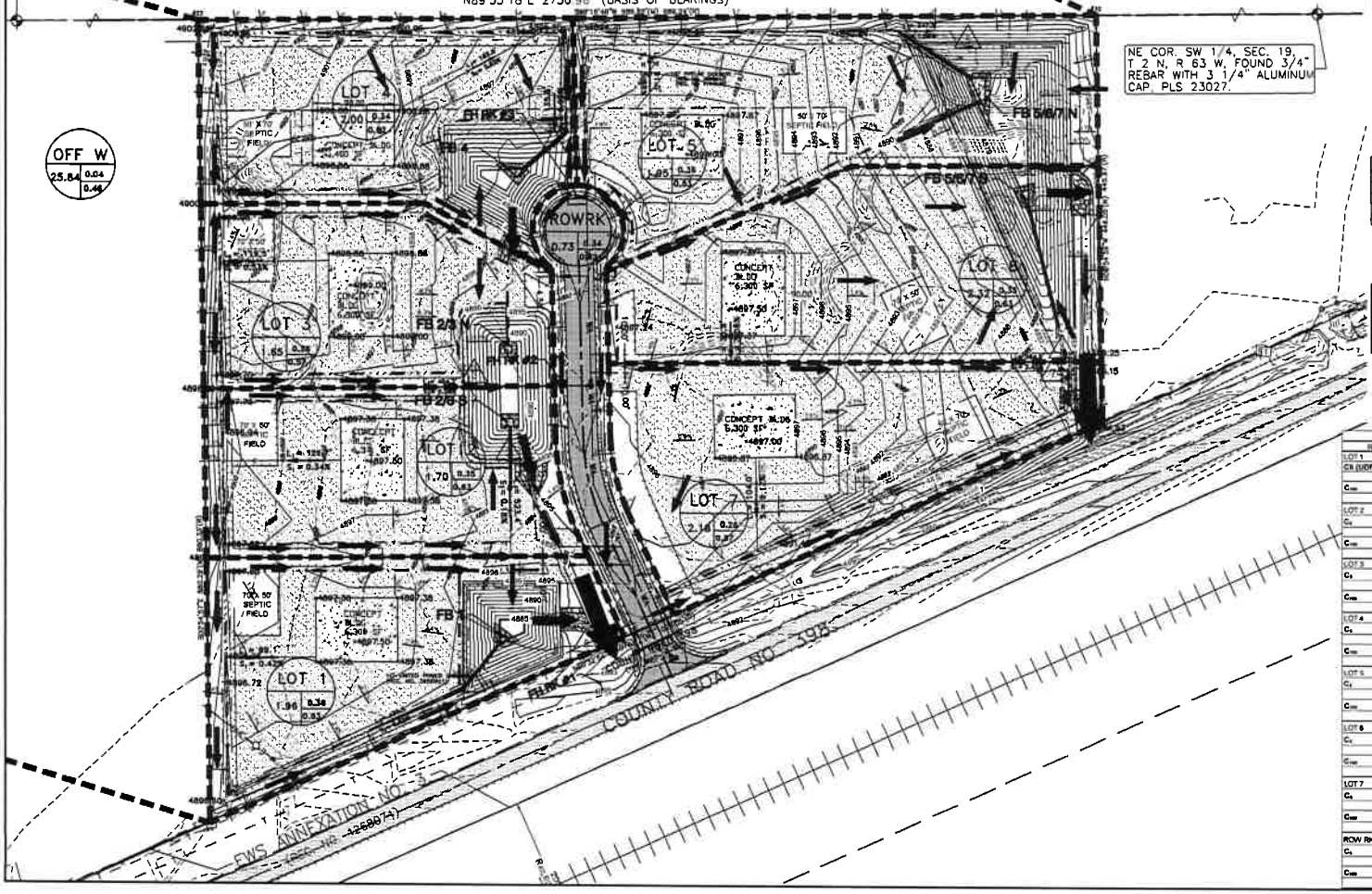
PARCEL NO. 130319000003
GARY DOUGLAS MYERS (1/2 INT)
ARTHUR W. BERGLUND
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W

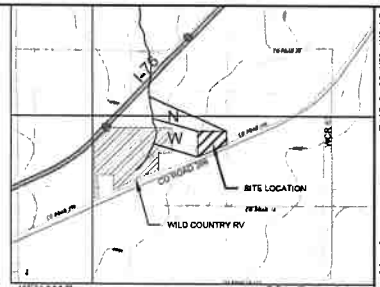
N89°53'18"E 2756.96' (BASIS OF BEARINGS)

NW COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

OFF W 25.84 0.04 0.46





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SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

INFILTRATION PONDS - 100yr STORM

POND	REQUIRED VOLUME	DESIGN VOLUME	INFILTRATION RATE*
1	34,010	34,811	50.1 HRS
2-3	81,481	86,313	79.6 HRS
4	35,320	36,543	71.4 HRS
6-7	194,887	200,402	90.7 HRS

* USING PERCOLATION RATE FROM ROBERTSON RV PARK DATED JANUARY 14, 2014 PER CRS 37-92-602(8) - 100yr STORM IS REQUIRED TO DRAIN WITHIN 120 HOURS.

INFILTRATION PONDS - 5yr STORM

POND	REQUIRED VOLUME	DESIGN VOLUME	INFILTRATION RATE*
1	5,041	34,811	31.5 HRS
2-3	8,186	86,313	25.1 HRS
4	7,563	36,543	34.8 HRS
6-7	18,382	200,402	22.7 HRS

* USING PERCOLATION RATE FROM ROBERTSON RV PARK DATED JANUARY 14, 2014 PER CRS 37-92-602(8) - 5yr STORM IS REQUIRED TO DRAIN WITHIN 72 HOURS.

BASIN	Impervious	C-YR	I	A	Q(w/w/developed)	cfs	DESIGN POINT
	DEVELOPED (RK Annexation)						
LOT 1							
C5 (UDFCD 2017)	43.65	0.36	2.93	1.83	1.34	cfs	1
C_{100}	43.65	0.63	4.74	1.83	5.48	cfs	1
LOT 2							
C_5	43.03	0.35	3.87	1.88	2.27	cfs	2
C_{100}	43.03	0.63	9.82	1.88	9.29	cfs	2
LOT 3							
C_5	31.37	0.26	1.89	1.85	0.90	cfs	3
						cfs	
C_{100}	31.37	0.57	4.40	1.85	4.18	cfs	3
						cfs	
LOT 4							
C_5	41.34	0.34	2.21	2.00	1.50	cfs	4
						cfs	
C_{100}	41.34	0.62	5.16	2.00	6.38	cfs	4
						cfs	
LOT 5							
C_5	43.65	0.36	2.15	2.32	1.96	cfs	5
						cfs	
C_{100}	43.65	0.63	6.02	2.32	7.96	cfs	5
						cfs	
LOT 6							
C_5	43.03	0.35	2.16	2.32	1.77	cfs	6
C_{100}	43.03	0.63	5.05	2.32	7.31	cfs	6
LOT 7							
C_5	31.37	0.26	1.82	2.32	1.14	cfs	7
C_{100}	31.37	0.57	4.48	2.32	5.96	cfs	7
ROW RK							
C_5	41.34	0.34	2.21	0.75	0.57	cfs	8
C_{100}	41.34	0.62	5.16	0.75	2.40	cfs	8

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1	2/18/19	GRIMSEN, SB, MB	RC, CFC

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CONTACT: RICK ROBERTSON
5051 E. 120RD, WITWER
BRIGHTON, CO 80603
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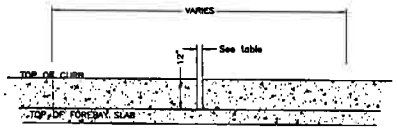
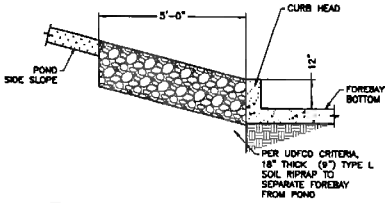
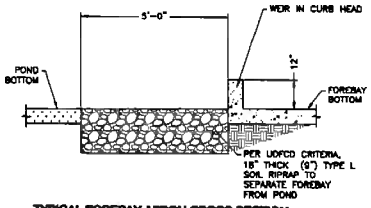


SEE TABLE FOR RELEASE FROM FOREBAY PER UDFCD EQN. SO-13 SEE DRAINAGE REPORT APPENDIX FOR CALCULATIONS

TYPICAL FOREBAY WEIR
SCALE 1" = 2'

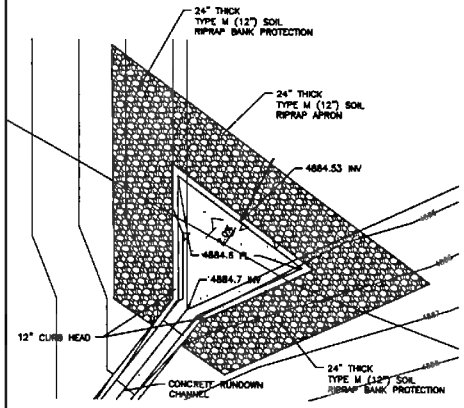


TYPICAL FOREBAY BANK PROTECTION CROSS SECTION
SCALE 1" = 2'

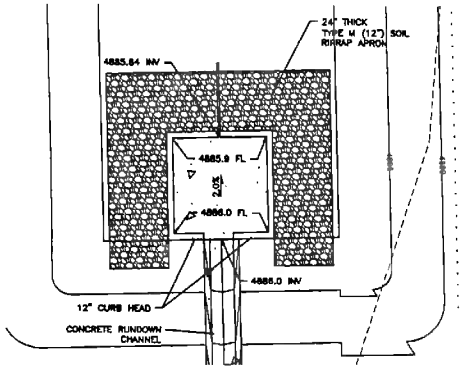


TYPICAL FOREBAY APRON CROSS SECTION
SCALE 1" = 2'

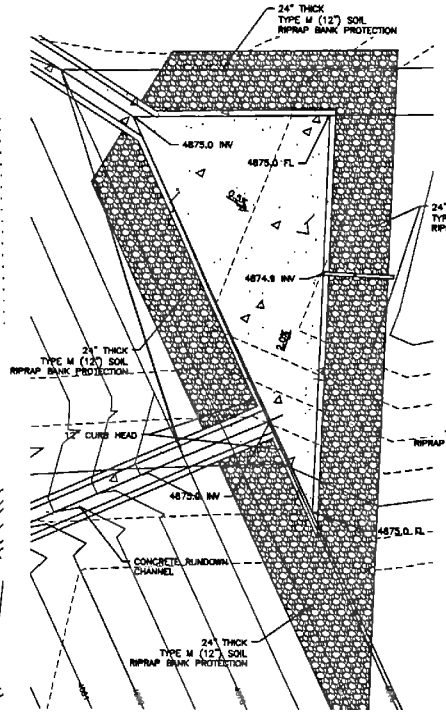
CONC RUNDOWN SECTION
SCALE 1" = 2'



FOREBAY 1 DETAIL
SCALE 1" = 5'

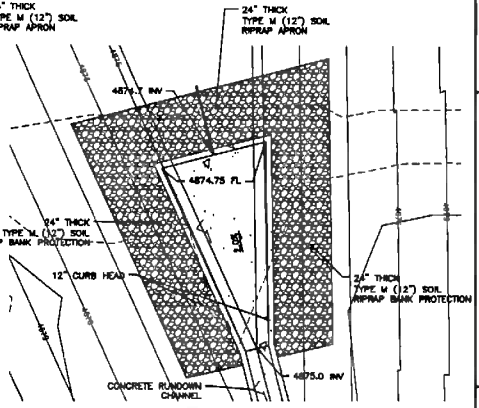


FOREBAY 2/3 S DETAIL
SCALE 1" = 5'

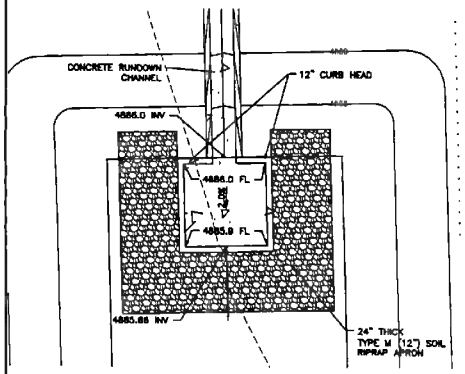


FOREBAY 5/6/7 N DETAIL
SCALE 1" = 5'

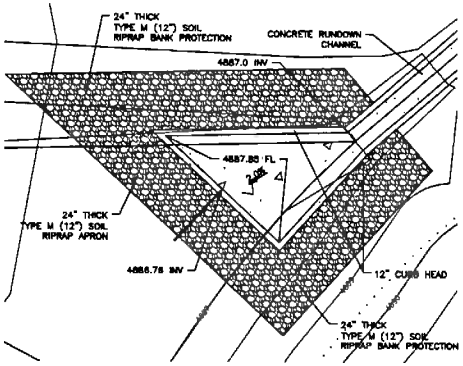
FOREBAY DATA TABLE				
FOREBAY	FOREBAY AREA (SF)	BASINS TREATED	2% RELEASE Q (CFS)	WEIR WIDTH (IN)
1	84	LOT 1	0.11	1.1
2/3 S	84	LOT 2	0.19	2
2/3 N	49	LOT 3	0.06	0.8
4	81	LOT 4	0.13	1.4
5/6/7 N	169	LOTS 5 & 6	0.31	3.3
5/6/7 S	81	LOT 7	0.12	1.3



FOREBAY 5/6/7 S DETAIL
SCALE 1" = 5'



FOREBAY 2/3 N DETAIL
SCALE 1" = 5'



FOREBAY 4 DETAIL
SCALE 1" = 5'

5 2.5 0 5 10
FULL SCALE: 1" = 5'
HALF SCALE: 1" = 10'

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NO.	REVISION	DATE	BY
1	DRAINAGE, SITE PLAN, ETC.	03/04/19	EFC

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SUBMITTED
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5420 LEETSDALE DRIVE
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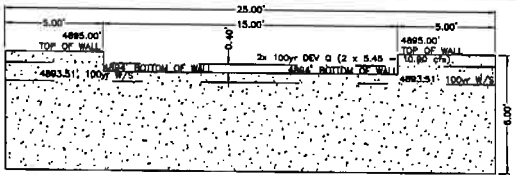
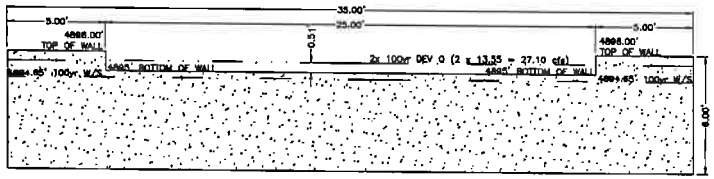
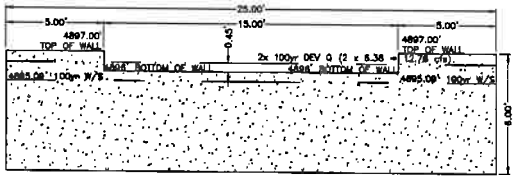


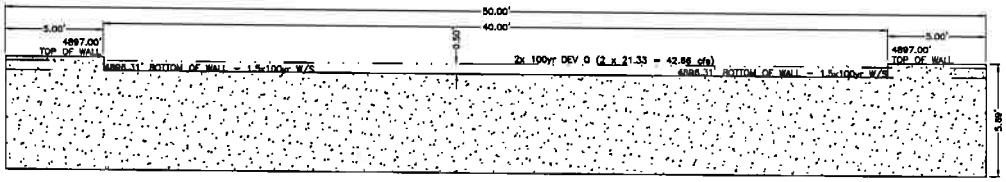
POND "1" EMERGENCY SPILLWAY WALL
SCALE 1" = 3'



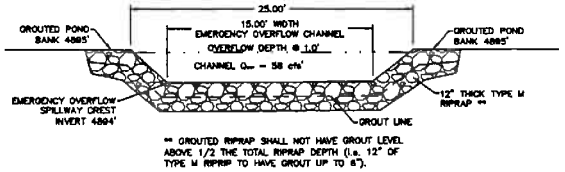
POND 2/3' EMERGENCY SPILLWAY WALL
SCALE 1" = 3'



POND '4' EMERGENCY SPILLWAY WALL
SCALE 1" = 3'

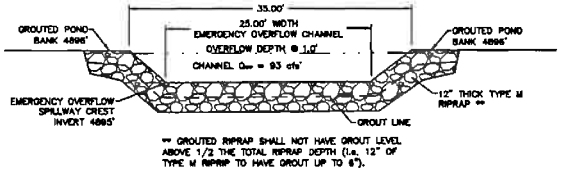


POND '5/6/7' EMERGENCY SPILLWAY WALL
SCALE 1" = 3'



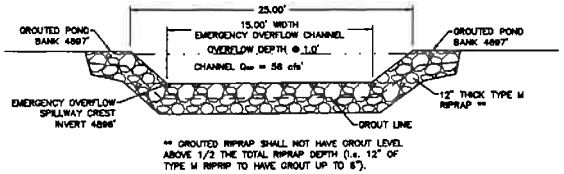
** GROUTED RIPRAP SHALL NOT HAVE GROUT LEVEL ABOVE 1/2 THE TOTAL RIPRAP DEPTH (i.e. 12" OF TYPE M RIPRIP TO HAVE GROUT UP TO 6").

EMERGENCY OVERFLOW CHANNEL • SPILLWAY WALL
SCALE 1" = 2.0'
DETAIL - POND 1



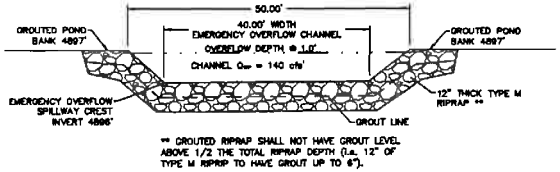
** GROUTED RIPRAP SHALL NOT HAVE GROUT LEVEL ABOVE 1/2 THE TOTAL RIPRAP DEPTH (i.e. 12" OF TYPE M RIPRIP TO HAVE GROUT UP TO 6").

EMERGENCY OVERFLOW CHANNEL • SPILLWAY WALL
SCALE 1" = 2.0'
DETAIL - POND 2/3



** GROUTED RIPRAP SHALL NOT HAVE GROUT LEVEL ABOVE 1/2 THE TOTAL RIPRAP DEPTH (i.e. 12" OF TYPE M RIPRIP TO HAVE GROUT UP TO 6").

EMERGENCY OVERFLOW CHANNEL • SPILLWAY WALL
SCALE 1" = 2.0'
DETAIL - POND 4



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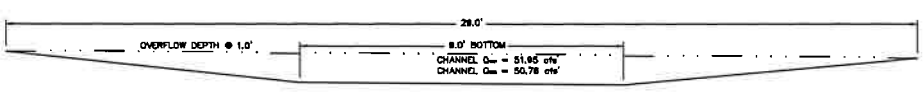
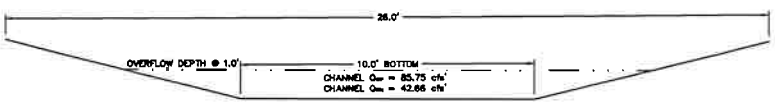
EMERGENCY OVERFLOW CHANNEL • SPILLWAY WALL
SCALE 1" = 2.0'
DETAIL - POND 5/6/7



SPILLWAY CHANNEL DETAIL - PONDS 1, 2/3, 4
SCALE 1" = 2.0'



SPILLWAY CHANNEL DETAIL - POND 5/6/7
SCALE 1" = 2.0'

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#	Date	Description	By
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2			
3			
4			
5			

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BURLINGTON, CO 80807
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FOR REVIEW

INITIAL PLAN RELEASE: 08/18/20
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0170-POND DTL
SHEET 170 OF 27

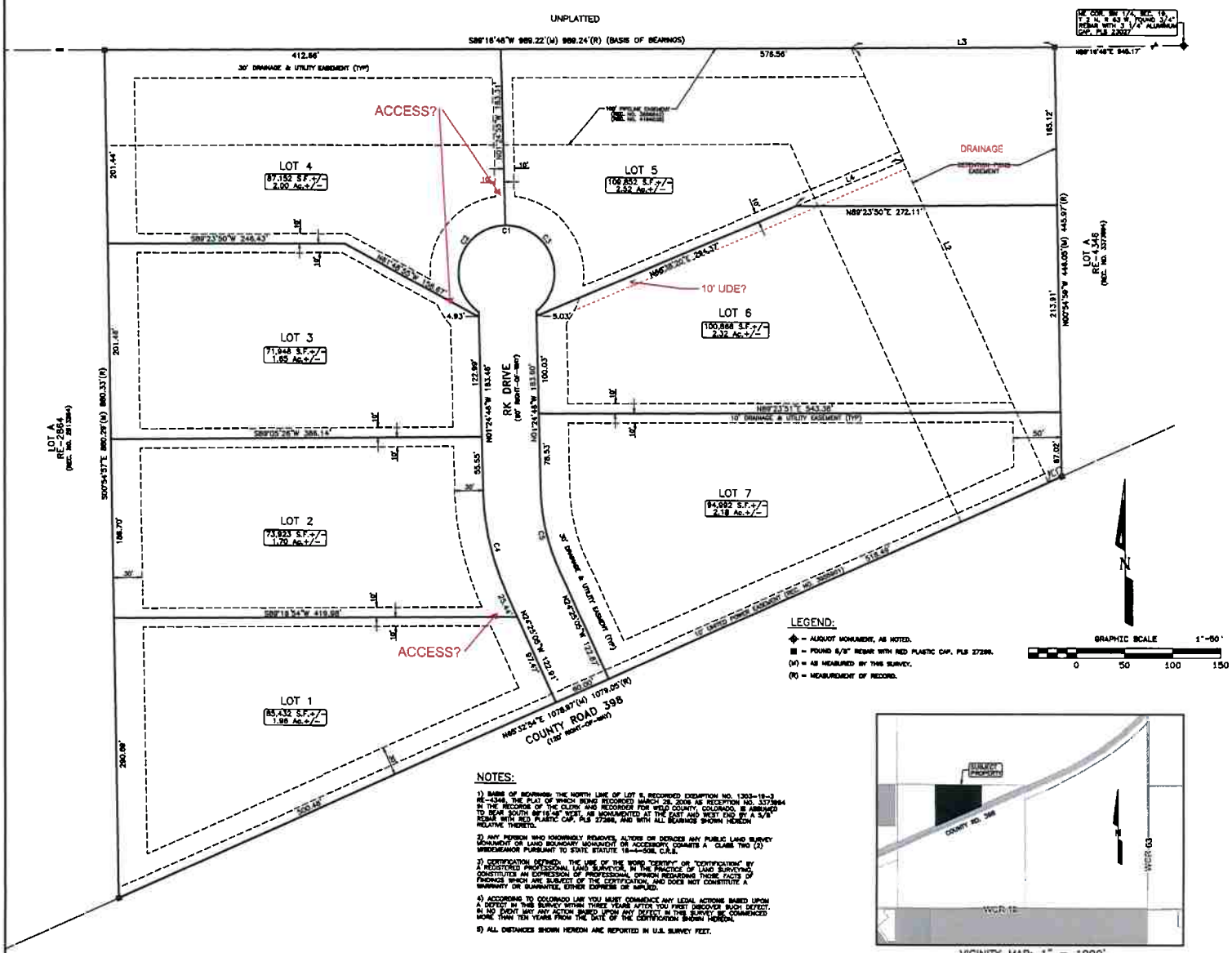
RK SUBDIVISION

Part of the Southwest 1/4 of Section 19,
Township 2 North, Range 63 West of the 6th P.M.,
County of Weld, State of Colorado

Sheet 1 of 1

LINE	BEARING	DISTANCE
L1	N89°33'54"E	15.31'
L2	N24°59'08"W	464.11'
L3	N89°16'46"E	311.61'
L4	N89°39'20"E	121.18'

LINE	RADIUS	ARC	DELTA	CHORD BEARING	CHORD
C1	50.00'	248.81	286°15'33"	N89°27'28"E	60.00'
C2	50.00'	125.12'	143°22'16"	N17°00'50"E	94.83'
C3	50.00'	124.69'	142°53'17"	S12°31'24"E	94.80'
C4	380.00'	112.43'	2°30'19"	N12°54'38"E	111.97'
C5	320.00'	98.32'	2°30'19"	N12°54'38"E	97.74'



LEGEND:

- ◆ = ALIQUOT MONUMENT, AS NOTED.
- ■ = FOUND 5/8" REBAR WITH RED PLASTIC CAP, PLS 27288.
- (M) = AS MEASURED BY THIS SURVEY.
- (R) = MEASUREMENT OF RECORD.

NOTES:

1) BASIS OF BEARINGS: THE NORTH LINE OF LOT B, RECORDED EXEMPTION NO. 1303-19-3 RE-4346, THE PLAT OF WHICH BEING RECORDED MARCH 28, 2006 AS RECEPTION NO. 3373944 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO, IS ASSUMED TO BEAR SOUTH 89°16'46" WEST, AS MONUMENTED AT THE EAST AND WEST END BY A 5/8" REBAR WITH RED PLASTIC CAP, PLS 27288, AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO.

2) ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.

3) CERTIFICATION DEFINED: THE USE OF THE WORD "CERTIFY" OR "CERTIFICATION" BY A REGISTERED PROFESSIONAL LAND SURVEYOR, IN THE PRACTICE OF LAND SURVEYING, CONSTITUTES AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THOSE FACTS OF FINDINGS WHICH ARE SUBJECT OF THE CERTIFICATION, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EITHER EXPRESS OR IMPLIED.

4) ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTIONS BASED UPON A DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT, MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

5) ALL DISTANCES SHOWN HEREON ARE REPORTED IN U.S. SURVEY FEET.

VICINITY MAP: 1" = 1000'

OWNER'S CERTIFICATE AND DEDICATION:

KNOW ALL MEN BY THESE PRESENTS THAT THE UNDERSIGNED BEING THE SOLE OWNERS OF THAT PART OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., TOWN OF KEENESBURG, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

LOT B, RECORDED EXEMPTION NO. 1303-19-3 RE-4346, BEING A PART OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH PRINCIPAL MERIDIAN, WELD COUNTY, COLORADO, AS RECORDED AT RECEPTION NO. 3373944, MARCH 28, 2006, IN THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER.

CONTAINING 19.06 ACRES, MORE OR LESS.

HAVE BY THESE PRESENTS, LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS AS SHOWN ON THIS PLAT UNDER THE NAME AND STYLE OF "RK SUBDIVISION" AND DO HEREBY DEDICATE TO THE PUBLIC ALL WAYS AND OTHER PUBLIC RIGHTS-OF-WAY AND EASEMENTS FOR THE PURPOSES SHOWN HEREON.

EXECUTED THIS_____ DAY OF_____ 20____

RICHARD L. ROBERTSON

HEIDI D. ROBERTSON

THE FOREGOING CERTIFICATION WAS ACKNOWLEDGED BEFORE ME
BY: RICHARD L. ROBERTSON & HEIDI D. ROBERTSON
THIS_____DAY OF_____ A.D., 20____

COUNTY OF _____ }
STATE OF _____ } SS

MY COMMISSION EXPIRES:

NOTARY PUBLIC

WITNESS MY HAND AND SEAL

AARON L. KAISER

LORI J. KAISER

THE FOREGOING CERTIFICATION WAS ACKNOWLEDGED BEFORE ME
BY: AARON L. KAISER & LORI J. KAISER
THIS_____DAY OF_____ A.D., 20____

COUNTY OF _____ }
STATE OF _____ } SS

MY COMMISSION EXPIRES:

NOTARY PUBLIC

WITNESS MY HAND AND SEAL

PLANNING COMMISSION APPROVAL:

THIS PLAT IS APPROVED BY THE TOWN OF KEENESBURG PLANNING COMMISSION
THIS_____DAY OF_____ 20____

CHAIRPERSON:

TOWN BOARD APPROVAL:

APPROVED BY THE TOWN BOARD OF KEENESBURG, COLORADO
THIS_____DAY OF_____ 20____

MAYOR:

ATTEST:
TOWN CLERK:

SURVEYOR'S STATEMENT:

I, CURTIS D. HOOS, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAT WAS MADE BY ME OR UNDER MY DIRECT SUPERVISION, AND THIS PLAT ACCURATELY REPRESENTS SAID SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY ME TO DETERMINE OWNERSHIP.

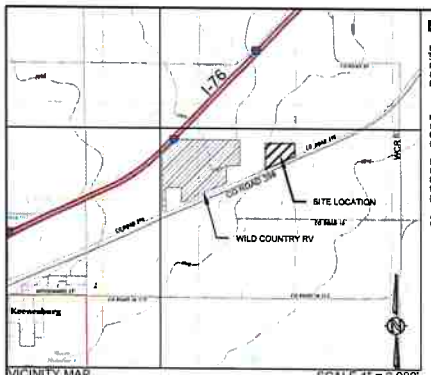
CURTIS D. HOOS, PLS 37871
FOR AND ON BEHALF OF:
AMERICAN WEST LAND SURVEYING CO.
A COLORADO CORPORATION

American West
Land Surveying Co.
A Colorado Corporation
PO Box 126, Brighton, CO 80601 • P:303-659-1528 F:303-659-0875 • amwestls.com

SCALE 1" = 50'	DRAWN BY: CDH	CHECKED BY: MJH	DATE: JULY 26, 2019
REVISIONS			
JOB NO. 19-	FILE: J:\19-JOBS\19_JOBS\1919\RK SUBDIVISION_REV07262019_8.dwg		

RK SUBDIVISION CIVIL CONST. DWGS.

KEENESBURG, CO 80643



VICINITY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN VICINITY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

BASIS of BEARING & BENCHMARK

BASIS OF BEARING: THE NORTH LINE OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., IN WELD COUNTY, COLORADO IS ASSUMED TO BEAR NORTH 89°53'18" EAST, AS MONUMENTED HEREON AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO;

HORIZONTAL COORDINATES ARE BASED UPON THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH ZONE (0501) AND HAVE BEEN MODIFIED TO GROUND BY A FACTOR OF 1.000271714 / 0.99972836.

ELEVATIONS SHOWN HEREON ARE BASED UPON STATIC GPS OBSERVATIONS POST PROCESSED THROUGH THE JAVAD DATA PROCESSING ONLINE SERVICE (DPOS) RESULTING IN CONTROL POINT NO. 1 HAVING AN ELEVATION OF 4893.43 FEET NAVD 88 (GEOID 12B).

ALL CONTOURS SHOWN HEREON ARE AT ONE FOOT INTERVALS WITH INDEX CONTOURS SHOWN AT FIVE FOOT INTERVALS

LEGAL DESCRIPTION

ANNEXATION TABLE TOTAL PERIMETER: 3307.55 FEET REQUIRED 1/6 CONTIGUOUS
PERIMETER: 565.77 FEET CONTIGUOUS
BOUNDARY: 1079.05 FEET

ANNEXATION DESCRIPTION: LOT B OF RECORDED EXEMPTION NO. 1303-19-3 RE-4364, BEING A PART OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH PRINCIPAL MERIDIAN, AS RECORDED AS RECEPTION NO. 3372964, MARCH 28, 2006 IN THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER

OWNER'S CERTIFICATE, KNOW ALL MEN BY THESE PRESENTS, THAT RICHARD L. ROBERTSON, HEIDI D. ROBERTSON, AARON L. KAISER, AND LORI J. KAISER, BEING THE SOLE OWNERS AND PROPRIETORS OF THAT PARCEL OF LAND DESCRIBED HEREON, EXCLUDING PUBLIC RIGHTS-OF-WAY, REQUEST THAT THE LAND DESCRIBED HEREON BE ANNEXED UNDER THE NAME OF ROBERTSON-KAISER ANNEXATION TO THE TOWN OF KEENESBURG.

0	1	1	COVER SHEET
0	1	2	GENERAL NOTES & SPECIFICATIONS
0	1	3AE	EXISTING CONDITIONS W/ AERIAL
0	1	3	EXISTING CONDITIONS & DEMO PLAN
0	1	4	SITE PLAN
0	1	5	UTILITY PLAN
0	1	6	WATER PLAN & PROFILE
0	1	7	HYDRANT PLAN & PROFILE
0	1	8	SEPTIC PLAN
0	1	9	ROUGH GRADING PLAN
0	1	10	FINAL GRADING PLAN
0	1	10X	GRADING CROSS SECTIONS
	1	10OF	OVERFLOW GRADING DETAILS
	1	10-39B	WCR 39B DITCH GRADING
0	1	11	RK DRIVE PLAN AND PROFILE
0	1	12	KEENESBURG WATER DETAILS
0	1	13	KEENESBURG WATER DETAILS
0	1	14	KEENESBURG WATER DETAILS
0	1	15	HISTORIC DRAINAGE
0	1	16	DEVELOPED DRAINAGE
0	1	17	POND "S" PLAN
	1	17D	POND SPILLWAY DETAILS
0	1	18	INITIAL EROSION CONTROL PLAN
0	1	19	INTERIM EROSION CONTROL PLAN
0	1	20	FINAL EROSION CONTROL PLAN
0	1	21	SWMP/EROSION CONTROL DETAILS
0	1	22	SWMP/EROSION CONTROL DETAILS
0	1	23	SWMP/EROSION CONTROL DETAILS
0	1	24	SCREENING/LANDSCAPE PLAN
0	1	25	SCREENING/LANDSCAPE DETAILS
	1	26	PHOTOMETRIC PLAN
	1	27	PHOTOMETRIC DETAILS

PREPARED FOR:

RICK ROBERTSON
8537 WCR 51
KEENESBURG, CO 80643
(303)961-0031

AARON KAISER
39673 E 160th AVENUE
KEENESBURG, CO 80643
(303)994-7947

APPROVED BY:

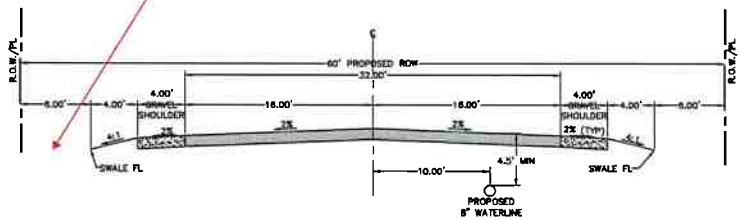
RICK ROBERTSON DATE AARON KAISER DATE

WESTERN ENGINEERING CONSULTANTS, Inc. LLC DATE
CHADWIN F. COX, P.E.

NOTE: SHEETS WITHOUT COMMENTS ARE NOT INCLUDED HEREIN.
DATE = 7/7/2020.

0	INITIAL RELEASE:	MARCH 19, 2019
1	RESUBMITTAL PER 05/02/19 TOWN COMMENTS	MAY 19, 2020

MOVE THIS TYPICAL SECTION TO SHEET 11.
COMPLETE THE CROSS SECTION AT THE EDGES.



RK DRIVE DRIVE TYPICAL SECTION
SCALE 1" = 5' VIEW IS NORTH

UNCC CALL BEFORE YOU DIG
1-800-922-1987
Utility Notification Center of Colorado
Administrative Office
12301 Table Mountain Parkway
Golden, Colorado 80403
Office: (303) 231-1991 Fax: (303) 231-1912
Locator: (800-922-1987)
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

OWNER/DEVELOPER	TOWN/CITY	FIRE DISTRICT	UTILITY
ROBERTSON KAISER LAND HOLDINGS LLC CONTACT: RICK ROBERTSON 50531 E. 160th AVENUE BENNETT, CO 80102 (303)961-0031	TOWN OF KEENESBURG CONTACT: TODD HODGES 140 S. MAIN STREET KEENESBURG, CO 80643 PHONE: (303)732-4281	SOUTHEAST WELD FIRE PROTECTION DISTRICT CONTACT: THOMAS BEACH 65 E. DANDY AVENUE KEENESBURG, CO 80643 PHONE (303) 732-4203	UNITED POWER BRIGHTON HEADQUARTERS OFFICE 500 COOPERATIVE WAY BRIGHTON, CO 80603 (303)637-1300

PREPARED BY:

Western Engineering Consultants, Inc. LLC

WESTERN ENGINEERING CONSULTANTS, Inc. LLC
127 SOUTH DENVER AVENUE, FT. LUPTON, CO 80621
720-685-9951 PH, 720-294-1330 FAX, email@westerneci.com

PROJECT NO: 00-0167.002.00
INITIAL PLAN RELEASE: MARCH 19, 2019
TOTAL SHEETS: 32
SHEET: 1 of 27

REMOVE.

NOT FOR TOWN REVIEW - FOR CONTRACT DOCUMENTS ONLY

ALL REFERENCES HERE-IN THIS PLAN SET TO "CITY" or "TOWN" SHALL BE INTERPRETED AS MEANING KEENESBURG.

SUPPLEMENTAL CONSTRUCTION NOTES

(TOWN of KEENESBURG NOTES & REQUIREMENTS SHALL GOVERN)

GENERAL CONSTRUCTION NOTES:

1. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY, OR EASEMENT, SHALL CONFORM TO TOWN of KEENESBURG CONSTRUCTION SPECIFICATIONS AND DESIGN STANDARDS. IN THE CASE SUCH STANDARDS ARE NOT PROVIDED, CDOT STANDARDS SHALL APPLY.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS PRIOR TO COMMENCEMENT OF ANY WORK ON THE PROJECT.
3. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY THE OWNER AND THE TOWN OF ANY PROBLEMS IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR DURING CONSTRUCTION ACTIVITIES TO RESOLVE CONSTRUCTION PROBLEMS DUE TO CHANGED CONDITIONS OR DESIGN ERRORS ENCOUNTERED BY THE CONTRACTOR DURING THE PROGRESS OF ANY PORTION OF THE PROJECT. IF, IN THE OPINION OF THE OWNER, THE MODIFICATIONS PROPOSED BY THE CONTRACTOR TO THE APPROVED PLANS INVOLVE SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK, OR TO THE FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESUBMITTING THE REVISED PLAN TO THE OWNER FOR APPROVAL PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE PROJECT. ANY IMPROVEMENTS NOT CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS, OR THE APPROVED REVISED PLANS, SHALL BE REMOVED AND RECONSTRUCTED ACCORDING TO THE APPROVED PLANS.
5. THE GRADING PLAN IS FOR ROUGH GRADING ONLY. CHANGES MAY BE NECESSARY TO BRING PLANS INTO CONFORMANCE WITH APPROVED FINAL DRAINAGE PLAN AND SITE PLAN.
6. A WATER TRUCK, IF CALLED BY THE INSPECTOR (OR PUBLIC WORKS DEPARTMENT (PWD)), WILL BE PROVIDED, BY THE CONTRACTOR, TO MAINTAIN DUST CONTROL.
7. ANY SETTLEMENT OR SOIL ACCUMULATION, BEYOND THE PROPERTY LIMITS, DUE TO GRADING OR EROSION, SHALL BE REPAIRED BY THE CONTRACTOR IMMEDIATELY.
8. NO GRADING SHALL TAKE PLACE IN DESIGNATED FLOOD HAZARD AREAS UNTIL THE FINAL DRAINAGE PLAN HAS BEEN APPROVED AND ALL APPROPRIATE PERMITS HAVE BEEN OBTAINED.
9. ANY CONSTRUCTION DEBRIS OR MUD TRACKING ONTO THE PUBLIC RIGHT-OF-WAY, RESULTING FROM THE PROJECT, SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL IMMEDIATELY FIX ANY EXCAVATION OR EXCESSIVE PAVEMENT FAILURE CAUSED BY PROJECT, AND SHALL PROPERLY BARRICADE THE SITE UNTIL CONSTRUCTION IS COMPLETE. FAILURE BY THE CONTRACTOR TO CORRECT ANY OF THE ABOVE WITHIN 48 HOURS OF WRITTEN NOTICE BY THE TOWN, SHALL CAUSE THE TOWN TO ISSUE A STOP WORK ORDER (RED TAG) AND/OR DO THE WORK AND MAKE A CLAIM AGAINST THE PROJECT'S LETTER OF CREDIT FOR ANY COSTS INCURRED BY THE TOWN.
10. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS AT, AND ADJACENT TO, THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, DURING THE PERFORMANCE OF THE WORK. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY, AND SHALL NOT BE LIMITED TO, NORMAL WORKING HOURS. THE DUTY OF THE TOWN TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
12. ~~ALL LIGHT POLES SHALL BE RELOCATED PRIOR TO PLACEMENT OF ANY CONCRETE [illegible] ELECTRIC [illegible]~~
13. THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS PRIOR TO ADJUSTING ALL CLEANOUTS, MANHOLES, VALVE BOXES, SURVEY MONUMENTS, AND ANY OTHER FIXTURES TO FINISHED GRADE PRIOR TO FINAL PAVING.
14. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGPERSONS, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY, IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
15. THE CONTRACTOR SHALL PROVIDE INGRESS AND EGRESS TO PRIVATE PROPERTY ADJACENT TO THE PROJECT THROUGHOUT THE PERIOD OF CONSTRUCTION. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL OBTAIN A WRITTEN AGREEMENT FROM THE PROPERTY OWNERS IMPACTED BY THIS ACCESS. ~~UPON REQUEST, THE CONTRACTOR SHALL PROVIDE A COPY OF THE WRITTEN AGREEMENT TO THE OWNER.~~
16. PRIOR TO FINAL PLACEMENT OF SURFACE PAVEMENT, ALL UNDERGROUND UTILITY MAINS SHALL BE INSTALLED AND SERVICE CONNECTIONS STUBBED OUT BEYOND CURB LINE. WHEN ALLOWED BY THE UTILITY, SERVICE FROM PUBLIC UTILITIES AND FROM SANITARY SEWERS SHALL BE MADE AVAILABLE FOR EACH LOT IN SUCH A MANNER THAT WILL NOT BE NECESSARY TO DISTURB THE STREET PAVEMENT, CURB, GUTTER, AND SIDEWALK WHEN CONNECTIONS ARE MADE.
17. REPRODUCIBLE COPIES OF "AS BUILT" PLANS SHALL BE SUBMITTED TO THE TOWN PRIOR TO CONSTRUCTION ACCEPTANCE OF THE PUBLIC IMPROVEMENTS (IF ANY PUBLIC IMPROVEMENTS ARE NECESSARY).
18. THE CONTRACTOR SHALL NOTIFY THE TOWN INSPECTOR (OR PWD) AT LEAST 24 HOURS PRIOR TO DESIRED INSPECTION.
19. THE CONTRACTOR SHALL BE RESPONSIBLE TO APPROPRIATELY MARK (BY BAGGING) ALL FIRE HYDRANTS THAT ARE TAKEN OUT OF SERVICE DURING THIS PROJECT. THE CONTRACTOR SHALL NOTIFY THE TOWN FIRE DEPARTMENT AT LEAST 24 HOURS PRIOR TO REMOVING ANY FIRE HYDRANT FROM SERVICE.
20. THE CONTRACTOR SHALL SCHEDULE A PRE CONSTRUCTION MEETING WITH THE TOWN of KEENESBURG AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.
21. THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE APPROVED PLANS, ONE (1) COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS, AND A COPY OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB, ON-SITE AT ALL TIMES.
22. THERE SHALL BE NO SITE CONSTRUCTION ACTIVITIES ON SATURDAYS, UNLESS SPECIFICALLY APPROVED BY THE PUBLIC WORKS INSPECTOR, AND NO SITE CONSTRUCTION ACTIVITIES ON SUNDAYS OR HOLIDAYS, UNLESS THERE IS PRIOR WRITTEN APPROVAL BY THE PUBLIC WORKS DIRECTOR.

WESTERN ENGINEERING CONSULTANTS GENERAL CONSTRUCTION NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN DESIGN & CONSTRUCTION SPECIFICATIONS. IN THE CASE SUCH STANDARDS ARE NOT PROVIDED, A PROPER SPECIFICATION SHALL BE FOLLOWED AS AGREED BETWEEN THE OWNER, ENGINEER, AND CONTRACTOR.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE ELEVATION AND O.D. OF ALL EXISTING LINES AT THE POINT OF CONNECTION TO THE NEW SYSTEM PRIOR TO ORDERING MATERIALS THAT DEPEND ON THIS INFORMATION.
3. WESTERN ENGINEERING CONSULTANTS (WEC) IS NOT A GUARANTOR OF THE CONSTRUCTING CONTRACTORS OBLIGATION AND PERFORMANCE OF WORK.
4. WEC IS NOT RESPONSIBLE FOR SAFETY, IN, ON, OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATIONS THERETO.
5. WEC EXERCISES NO CONTROL OF THE SAFETY OR ADEQUACY OF ANY EQUIPMENT, BUILDING COMPONENTS, SCAFFOLDING, FORMS, OR OTHER WORK AIDS USED IN OR ABOUT THE PROJECT, OR IN THE SUPERVISION OF THE SAME.

ARCHITECTURAL INFORMATION:

1. ~~THESE PLANS USE THE BUILDING PLAN PREPARED BY ______ DATED ______~~
2. ~~ANY SUBSEQUENT REVISIONS MADE BY ______ ARE NOT REFLECTED IN THIS PLAN SET.~~ REVISIONS DESCRIBED AND DATED ON INDIVIDUAL SHEETS IN THIS PLAN SET ARE ENGINEERING REVISIONS ONLY.

UTILITY LOCATION NOTES:

1. COLORADO STATE S.B. 93-153 REQUIRES ANYONE WHO ENGAGES IN ANY TYPE OF EXCAVATION TO PROVIDE ADVANCE NOTICE OF AT LEAST TWO (2) BUSINESS DAYS NOT INCLUDING THE DAY OF ACTUAL NOTICE.

UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) 1-800-922-1987

2. NEW UTILITIES MAY HAVE BEEN INSTALLED SINCE THE LOCATES FOR THIS PROJECT WERE COMPLETED (IF NOT SHOWN ON PLANS). IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ATTAIN NEW LOCATES AS STATED BY LAW.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND COORDINATE ADDITIONAL LOCATES IF THE STATE OR ANOTHER UTILITY ENTITY HAS UTILITIES IN THE AREA WHICH WERE NOT IDENTIFIED BY UNCC.

UTILITY POTHOLE & SURVEY NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO STARTING CONSTRUCTION. LOCATIONS WHERE EXISTING UTILITIES AND PROPOSED CONSTRUCTION CROSS OR POTENTIALLY CONFLICT SHALL BE POTHOLED BY THE CONTRACTOR, ELEVATIONS SURVEYED, AND RESULTS AND CONFLICTS PROVIDED TO WEC. WEC REQUIRES A MINIMUM OF 5 WORKING DAYS FOR RE-DESIGN OF ANY CONFLICTS DISCOVERED BY THE POTHOLE. SEE ALSO CONTRACTOR'S AS-BUILT DRAWING NOTES.
2. THE CONTRACTOR SHALL PROVIDE DRAWINGS OF EXISTING ON-SITE UNDERGROUND UTILITIES AS EXPLAINED WITHIN THE CONTRACTOR'S AS-BUILT DRAWING NOTES. THE CONTRACTOR IS REQUIRED TO PLAN AHEAD AND NOTIFY THE OWNER OF ANY CONFLICTS IN A TIMELY MANNER.

CONTRACTOR'S AS-BUILT DRAWINGS NOTES:

1. THE CONTRACTOR SHALL PROVIDE, AT THE COMPLETION OF THE PROJECT OR EACH PHASE OF THE PROJECT, A COMPLETE SET OF "AS BUILT" DRAWINGS TO THE OWNER. THE AS BUILT DRAWINGS WILL CONSIST OF A MARKED UP SET OF "ISSUED FOR CONSTRUCTION" DRAWINGS VERIFYING THE FOLLOWING:
   - A) ALL LENGTHS, SIZES, AND MATERIALS OF INSTALLED PIPE, MANHOLES, AND ANY OTHER IMPROVEMENT.
   - B) HORIZONTAL LOCATIONS EITHER BY STATION AND OFFSET, OR BY NORTHING AND EASTING COORDINATES OF ALL MANHOLES, BENDS, CLEANOUTS, VALVES, TAPS, WYES, STUBS, PLUGS, TEES, ETC.
   - C) INVERT ELEVATION OF EACH CONSTRUCTED PIPE AT: STORM SEWER AND SANITARY SEWER MANHOLES, INLETS, OUTLETS, STUB ENDS, ETC. TOP OF PIPE ELEVATIONS OF EACH FORE GN PIPE OR UTILITY CROSSING.
   - D) CONSTRUCTED SLOPE OF STORM AND SANITARY PIPES BETWEEN MANHOLES AND STRUCTURES.
   - E) TOP OF PIPE ELEVATION AT REGULAR INTERVALS AND/OR FITTINGS FOR WATER LINES, FIRE PROTECTION LINES, GAS LINES, AND ELECTRIC CONDUITS.
   - F) ELEVATIONS AT FLOWLINE OF CURB AND GUTTER AT DESIGN LOCATIONS AND GRADE BREAKS. ELEVATION OF INLET AND TRENCH DRAIN GRATES. TOP OF CURB AT CURB INLETS.
   - G) ANY OTHER VARIATIONS FROM THE CONSTRUCTION DOCUMENTS MUST BE CLEARLY NOTED AND DETAILED ON THE PLANS.
2. THE CONTRACTOR SHALL VERIFY AND SUBMIT, FOR APPROVAL BY THE OWNER, THE GROUND SURFACE ELEVATIONS AT THE FINAL COMPLETION OF THE PROJECT PRIOR TO THE FINAL ACCEPTANCE.
3. THE FINAL AS-BUILT DRAWING CERTIFICATE SHALL BE SIGNED ON EACH SHEET BY THE CONTRACTOR RESPONSIBLE FOR THE WORK.
4. CONTRACTOR AS BUILT DRAWINGS WILL BE DUE PRIOR TO SUBMITTING THE FINAL PAY REQUEST. NON-CONFORMING AS-BUILT DRAWINGS WILL BE RETURNED TO THE CONTRACTOR FOR REVISIONS AND RESUBMITTAL. FINAL PAYMENT WILL NOT BE APPROVED UNTIL THE OWNER HAS REVIEWED AND APPROVED THE AS BUILT DRAWINGS.
5. ALL AS BUILT SURVEYING SHALL MEET COLORADO STANDARD OF CARE (I.E. HORIZONTAL WITHIN 0.10 FEET AND VERTICAL WITHIN 0.05 FEET). IT IS RECOMMENDED ALL GRAVITY SYSTEMS BE DIFFERENTIAL SURVEYED TO MAINTAIN ACCEPTABLE TOLERANCES.

GEOTECHNICAL NOTES:

1. FOR ALL GEOTECHNICAL RELATED ISSUES (PIPE BEDDING, BACKFILL, IMPORTING FILLS, ASPHALT, ETC). REFERENCE THE LOT 1, 2, 3, 4, AND 7 SUBSURFACE INVESTIGATION AND FOUNDATION RECOMMENDATIONS PREPARED BY HIGH PLAINS ENGINEERING AND DESIGN, LLC DATED JANUARY 22, 2020 AND FEBRUARY 13, 2020. ALSO SEE TOWN DESIGN & CONSTRUCTION STANDARDS & SPECIFICATIONS.

GEOTECHNICAL TESTING:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL TESTING IN ORDER TO MEET ADJACENT PROPERTY OWNER REQUIREMENTS AND TOWN DESIGN STANDARDS.
2. THE OWNER SHALL PAY FOR TESTING TO MEET THE MINIMUM REQUIRED BY TOWN STANDARDS.
3. ALL COSTS FOR FAILING TESTS WILL BE DEDUCTED FROM THE CONTRACTOR'S PAYMENT REQUEST(S).

CONSTRUCTION WORK LIMITS:

1. NO CONSTRUCTION ACTIVITIES SHALL TAKE PLACE OUTSIDE OF THE SHOWN WORK LIMITS, EXCEPT FOR ACCESS WITHIN EXISTING ACCESS ROUTES.
2. ALL EXISTING FENCE WITHIN THE CONSTRUCTION WORK LIMITS SHALL BE REMOVED, SALVAGED, AND REPLACED AS DIRECTED BY THE OWNER.
3. ANY FENCE DAMAGED DURING REMOVAL SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

BASIS of BEARING & BENCHMARK:

BASIS OF BEARING: THE NORTH LINE OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., IN WELD COUNTY, COLORADO IS ASSUMED TO BEAR NORTH 89°53'18" EAST, AS MONUMENTED HEREON AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO.

BENCH-MARK: ELEVATIONS SHOWN HEREON ARE BASED UPON STATIC GPS OBSERVATIONS POST PROCESSED THROUGH THE JAVAD DATA PROCESSING ONLINE SERVICE (DPOS) RESULTING IN CONTROL POINT NO. 1 HAVING AN ELEVATION OF 4893.43 FEET NAVD 88 (GEOID 12B).

SURVEY CONSTRUCTION NOTES:

1. PROJECT HORIZONTAL & VERTICAL CONTROL AND CONTROL NOTES ARE SHOWN ON THE HORIZONTAL BASELINE CONTROL SHEET OF THIS PLAN SET.
2. ALL PROPERTY PINS OR SURVEY MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY A LICENSED SURVEYOR AT THE CONTRACTOR'S EXPENSE. THIS SHALL INCLUDE A SURVEY PLAT IF REQUIRED BY LAW.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIND AND IDENTIFY ALL EXISTING SURVEY MONUMENTS WHICH MAY BE DISTURBED DURING CONSTRUCTION.
4. EXISTING HORIZONTAL AND VERTICAL CONTROL SHALL BE VERIFIED BY A PROFESSIONAL LAND SURVEYOR. THE CONTRACTOR'S SURVEYOR SHALL PROVIDE WRITTEN CONFIRMATION VERIFYING THE CONTROL IS SATISFACTORY PRIOR TO BEGINNING OF CONSTRUCTION.
5. ALL CONSTRUCTION SURVEYING SHALL MEET COLORADO STANDARD OF CARE.
6. THE CONTRACTOR SHALL FIELD SURVEY THE EXISTING GROUND SURFACE ALONG THE PROPOSED ALIGNMENT, COMPARE THE SURFACE TO THE TOPOGRAPHY AS SHOWN ON THESE PLANS AND SUBMIT IN WRITING ANY CONCLUSIONS / DISCREPANCIES BETWEEN THE SURVEYS.
7. ALL FIELD STAKING SHALL BE PERFORMED AND LABELED MATCHING THE STATIONING AND OFFSET BASELINE AS SHOWN IN THIS PLAN SET. ARBITRARY BASELINE OR STATIONING (NOT MATCHING THESE DESIGN PLANS) WILL NOT BE ALLOWED.
8. CUT SHEETS ARE REQUIRED TO BE COPIED TO THE SPECIFIC IMPROVEMENT CONTRACTOR, OWNER AND WEC WITHIN 2 DAYS OF CONSTRUCTION STAKING.
9. ANY MONUMENTS INSTALLED FOR THIS PROJECT (NEW & REVISED) SHALL BE PER CDOT DETAIL (M-629-1).

EXISTING TOPOGRAPHY and CONTOURS:

1. ALL PROFILES (THIS PLAN SET) REPRESENT A DIGITAL TERRAIN MODEL (DTM) CREATED BY WEC BASED ON FIELD SURVEY PROVIDED BY OTHERS.
2. CONTOUR LINES OF EXISTING/ORIGINAL GRADE HAVE A 2 FOOT INTERVAL ACCURACY AND ARE SHOWN FOR ILLUSTRATION ONLY.

GRADING AND COMPACTION NOTES:

1. REFERENCE THE "GEOTECHNICAL SUBSURFACE EXPLORATION REPORT" PREPARED BY SOILOGIC, INC DATED JANUARY 14, 2014.
2. ALL EXCESS SOIL MATERIALS ARE TO BE STOCKPILED AS DIRECTED BY THE OWNER or REMOVED AT THE CONTRACTOR'S EXPENSE. ALL CONCRETE, ASPHALT, AND OTHER REMOVED IMPROVEMENTS SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
3. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION AS A MINIMUM, UNLESS OTHERWISE NOTED.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL GRADEWORK TO ENSURE POSITIVE DRAINAGE AT ALL TIMES (MATCH ORIGINAL CONDITIONS).
5. ALL BACKFILL SHALL MEET THE TYPICAL TRENCH DETAIL SPECIFICATIONS SHOWN IN THIS PLAN SET AND PER TOWN CRITERIA.
6. ALL OTHER SOIL PLACEMENT OVER 12-INCHES IN THICKNESS SHALL ALSO MEET THE TYPICAL TRENCH DETAIL COMPACTION SPECIFICATIONS SHOWN IN THIS PLAN SET.
7. STRIP THE TOP 6-INCHES OF ALL AREAS TO BE DISTURBED DURING CONSTRUCTION, AND STOCKPILE SEPARATE FROM TRENCH SPOILS IN LOCATION(S) AS APPROVED BY PROPERTY OWNER. REPLACE STRIPPINGS ABOVE COMPLETED PIPELINES MATCHING PRE CONSTRUCTION GRADES WHERE NO PROPOSED GRADING IS SHOWN.
8. THE CONTRACTOR SHALL MEET THE PROJECT SPECIFICATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT AND COORDINATE SCHEDULING THE GEOTECHNICAL TESTING FIRM IN ORDER TO MEET THE PROJECT SPECIFICATIONS AND STANDARDS.
9. FOR GRADING NOT SHOWN HERE-IN THESE PLANS, REFER TO LANDSCAPE GRADING BY OTHERS. LANDSCAPE FINAL GRADING TO BE PROVIDED BY OTHERS.
10. ROUGH GRADING VERTICAL TOLERANCES ARE ± 0.10 FT.
11. COMPACTION OF ALL HYDRANT RUN BACKFILL SHALL MEET 100% OF MAXIMUM DENSITY AND WITHIN 3% ± OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY STANDARD PROCTOR ASTM-D-698.
12. CONTRACTOR TO PROVIDE TRAFFIC CONTROL MEASURES AS REQUIRED BY TOWN STANDARDS FOR PUBLIC RIGHT OF WAY.
13. IF NECESSARY TO ACCESS OVER EXISTING IMPROVEMENTS (IE, EXISTING ROADS, SHALLOWS UTILITIES ETC.) THE CONTRACTOR SHALL COORDINATE WITH THE GEOTECHNICAL CONSULTANT REGARDING PROTECTION AGAINST CONSTRUCTION TRAFFIC LOADS.

EROSION CONTROL & STORM WATER MANAGEMENT PLAN:

1. ALL EROSION CONTROL MEASURES MUST BE INSTALLED PER URBAN DRAINAGE FLOOD CONTROL DISTRICT (UDFCD) REQUIREMENTS (UNLESS OTHERWISE SHOWN HEREIN), AND ALSO STATE SWMP PERMIT REQUIREMENTS.
2. ALL DISTURBED AREAS (I.E. CONSTRUCTION WORK LIMITS) SHALL BE ENCLOSED BY SILT FENCE IF POTENTIAL FOR RUNOFF EXISTS.
3. INSTALL VEHICLE TRACKING CONTROL AT ALL ACCESS ROAD LOCATIONS ADJACENT TO ALL ENTRANCES / EXITS TO & FROM THE SITE.
4. SEE EROSION PROTECTION DETAILS AS SHOWN ON DRAWINGS.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN (IE, SEASONAL SEEDING, MATERIALS, ETC.) ANY AND ALL EROSION PROTECTION NECESSARY UNTIL FINAL ACCEPTANCE OR ONCE SEEDING IS ESTABLISHED, WHICHEVER COMES FIRST.
6. THE CONTRACTOR SHALL PROVIDE SWEEPING AS NECESSARY TO KEEP PRIVATE AND PUBLIC ROADWAYS CLEAN OF DEBRIS.

SEEDING:

1. ALL SEEDING SHALL BE PER TOWN PARKS & RECREATION DESIGN STANDARDS AND AS ACCEPTABLE TO THE PROPERTY OWNER.

ADJACENT DITCH or LATERAL WORK:

1. NO WORK SHALL COMMENCE WITHIN 15-FEET OF ANY DITCH or LATERAL TOP OF BANK EXCEPT AT THOSE CROSSING LOCATIONS AS NOTED ON THE PLANS UNLESS OTHERWISE APPROVED BY THE OWNER AND APPROPRIATE DITCH COMPANY.
2. ALL WORK WITHIN 15-FEET OF ANY DITCH OR LATERAL TOP OF BANK SHALL MEET ALL REQUIREMENTS AND SPECIFICATIONS PER THE DITCH CROSSING PERMIT.
3. CONTACT OWNER/WEC FOR ANY DITCH RELATED ISSUES.

ELECTRIC and COMMUNICATION CONDUIT CONSTRUCTION NOTES:

1. SEE ALSO ELECTRICAL PLANS FOR ELECTRIC AND COMMUNICATION DESIGN AND SPECIFICATIONS - BY OTHERS.

RELOCATION OF EXISTING LIGHT POLES AND EQUIPMENT:

1. SEE ALSO ELECTRICAL PLANS FOR REMOVAL, SALVAGE, AND RE-INSTALLATION OF EXISTING LIGHT POLES AND EXISTING SECURITY IMPROVEMENTS - BY OTHERS.

RAW WATERLINE CONSTRUCTION NOTES:

1. ~~[illegible]~~
2. ~~[illegible]~~
3. ~~[illegible]~~
4. ~~[illegible]~~
5. ~~[illegible]~~

STORM SEWER CONSTRUCTION NOTES:

1. ALL STORM SEWER PIPE TO BE A.S.T.M. C-76, CLASS III REINFORCED CONCRETE PIPE WITH RUBBER GASKETS MEETING AASHTO M170 REQUIREMENTS, UNLESS OTHERWISE NOTED.
2. STORM SEWER MANHOLES SHALL BE 4 FEET DIAMETER FOR 30 INCH PIPE OR LESS, 5 FEET DIAMETER FOR 36 INCH PIPE. FOR SIZES ABOVE 36 INCH, CONCRETE JUNCTION BOXES, OR PRECAST MANHOLE TEES, WILL BE DETAILED BY THE ENGINEER.
3. ALL ROADWAY STORM SEWER INLETS ARE CDOT TYPE R CURB INLETS, UNLESS OTHERWISE NOTED. THE PROPOSED POND STORM SEWER OUTLET IS CDOT TYPE C.
4. ALL STORM SEWER MANHOLE AND INLET LIDS SHALL BE LABELED PER TOWN STANDARDS ~~[illegible]~~
5. MANHOLE AND INLET LID LOCATION TO BE COORDINATED WITH TOWN INSPECTOR.
6. A MINIMUM OF 2.0 FEET OF COVER OVER THE TOP OF THE STORM SEWER LINES SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.
7. A MINIMUM VERTICAL SEPARATION OF 18" SHALL BE MAINTAINED AT ALL CROSSINGS UNLESS OTHERWISE NOTED.
8. ALL LENGTHS OF STORM SEWER LINES SHOWN ON THE PLANS ARE MEASURED HORIZONTALLY FROM CENTER TO CENTER OF ALL STRUCTURES, MANHOLES, BENDS, TEES, AND INLETS UNLESS OTHERWISE NOTED.
9. STORM SEWER SHALL BE AIR TESTED AT 4 PSI. CONCRETE MANHOLES SHALL BE TESTED PER MANHOLE LEAKAGE TEST.
10. ALL STORM SEWER PIPE SHALL BE LEFT SMOOTH, CLEAN, AND FREE OF OBSTRUCTIONS THROUGHOUT THE ENTIRE ALIGNMENT.
11. PIPE, BENDS, TEES, AND ALL ACCESSORIES ARE TO BE SUPPLIED BY THE SAME SUPPLIER.
12. EXCAVATION SHALL BE DEWATERED AS NECESSARY TO EXCAVATE AND PLACE PIPE WITHIN DRY TRENCH.
13. ALL INSTALLED STORM PIPING IS REQUIRED TO BE WATER JETTED CLEAN TWO WEEKS PRIOR TO THE FINAL ACCEPTANCE WALK THRU.
14. ALL STORM PIPING THIS PROJECT "PRIVATE" UNLESS OTHERWISE NOTED.

STORM DRAINAGE MAINTENANCE:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM EROSION AND SEDIMENT CONTROL MEASURES (INCLUDING PLANTINGS) AND TO MAINTAIN CONSTRUCTED DRAINAGE FACILITIES THROUGH THE CONSTRUCTION PROCESS IN A MANNER THAT PRESERVES THE INTENDED FUNCTION AND LIFE OF THE FACILITIES.

SANITARY SEWER CONSTRUCTION NOTES:

1. SEWER PIPE SHALL BE RIGID POLYVINYL CHLORIDE (PVC) ASTM D3034 (≤ 15") OR ASTM 679 (≥ 18") WITH WALL THICKNESS SDR 35 (SDR 26 FOR DEPTHS ≥ 20').
2. ALL LENGTHS OF SEWER LINE SHOWN ON THE MASTER UTILITY PLAN ARE FROM THE CENTER OF MANHOLE TO THE CENTER OF MANHOLE.
3. THE CONTRACTOR SHALL INSTALL TEMPORARY PLUGS IN THE MANHOLES AT THE POINTS OF CONNECTION TO THE EXISTING SEWER SYSTEMS. PLUGS SHALL REMAIN IN PLACE UNTIL CONSTRUCTION ACCEPTANCE IS ISSUED AT WHICH TIME THEY SHALL BE REMOVED BY THE CONTRACTOR.
4. INSTALL MARKER POSTS IN LANDSCAPE AREAS OR PERMANENT SURVEY MONUMENTS IN EXISTING PAVED SURFACES WITHIN 2.0 FEET OF EVERY MANHOLE AND STUB LOCATION (ALONG THE PIPE CENTERLINE NOT OFFSET).

STREET CONSTRUCTION NOTES:

1. ALL STREET IMPROVEMENTS TO BE COMPLETED PER CDOT CONSTRUCTION STANDARDS & SPECIFICATIONS.
2. HANDICAP RAMPS ARE TO BE FORMED AT ALL INTERSECTIONS.

ASPHALT NOTES:

1. FULL ASPHALT DESIGN SECTION TO BE PER GEOTECHNICAL REPORT AND CITY STANDARDS (& DETAILS). SEE GEOTECHNICAL NOTES AND TYPICAL ASPHALT AND CONCRETE TRENCH PATCH DETAILS.
2. STANDARD ASPHALT INSTALLATIONS MUST FOLLOW TOWN STANDARDS.

STRIPING NOTES:

1. ALL STANDARD PARKING STALL STRIPING DIMENSIONS ARE 9.0 FEET WIDE BY 19.0 FEET LONG UNLESS OTHERWISE NOTED.
2. ALL STRIPING THIS PROJECT TO BE WHITE UNLESS OTHERWISE NOTED.
3. ALL HANDICAP STALLS TO BE SIGNED & STRIPED PER ADA SPECIFICATIONS. USE BLUE & WHITE SYMBOLOGY. VAN DENOTES VAN ACCESSIBLE STALLS. STD DENOTES STANDARD ACCESSIBLE STALLS.
4. STRIPING MATERIAL TO BE EPOXY FOR LONG LINES AND PRE-FORMED THERMOPLASTIC FOR ARROW LEGENDS.
5. ALL STRIPING SHALL COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
6. REMOVAL OF EXISTING STRIPING WHICH CONFLICTS WITH THE NEW STRIPING DESIGN WILL BE REQUIRED. PAVEMENT MARKING REMOVAL AND INSTALLATION WILL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR.
7. LAYOUT OF STRIPING IN THE FIELD WILL REQUIRE APPROVAL BY THE TOWN of KEENESBURG PRIOR TO APPLICATION OF FINAL STRIPING.

FIRELINE and WATERLINE CONSTRUCTION NOTES:

1. A MINIMUM OF 4.5 FEET OF COVER OVER THE TOP OF THE WATER LINES IS TO BE MAINTAINED. (5'-0" MINIMUM OF COVER FOR FIRE PROTECTION LINES.)
2. A MINIMUM VERTICAL SEPARATION OF 18" SHALL BE MAINTAINED AT ALL CROSSINGS, UNLESS OTHERWISE NOTED.
3. ALL LENGTHS OF WATER LINE AND FIRE PROTECTION LINES SHOWN ON THE PLANS ARE MEASURED HORIZONTALLY FROM CENTER TO CENTER OF ALL VALVES, FITTINGS, BENDS, TEES, ETC. VERTICAL RISERS ARE MEASURED VERTICALLY.
4. P.V.C. FIRE PROTECTION LINES TO BE AWWA C-900, CLASS 200. D.I.P. FIRE PROTECTION LINES AND FITTINGS TO BE PRESSURE CLASS 350 AND COMPLY WITH AWWA C110. ALL PIPELINE APPURTENANCES SHALL BE OF SIMILAR METALS (NO DISSIMILAR METALS).
5. TAPPING SADDLES TO BE USED ONLY FOR TEMPORARY BLOW OFFS.
   - A) ALL TEMPORARY BLOW OFF TAPPING SADDLES SHALL BE BRASS.
   - B) ALL TEES SHALL BE SWIVEL TEES.
6. FIRE PROTECTION AND WATER LINES SHALL BE HYDROSTATICALLY TESTED AT 150 PSI FOR 2 HOURS.
7. ALL WATER LINES, INCLUDING FIRE LINES, ARE TO BE DISINFECTED AND PRESSURE TESTED PER TOWN STANDARDS.
8. TEMPORARY TAP(S) SHALL BE INSTALLED AS REQUIRED TO FLUSH AND TEST THE LINE. THE TAPPING SADDLE SHALL BE PLUGGED WITH A BRASS PLUG UPON COMPLETION.
9. THE TOWN WATER DEPARTMENT INSPECTOR SHALL BE NOTIFIED PRIOR TO BACKFILLING AND TESTING (DISINFECTION AND HYDROSTATIC).
10. PIPE, FITTINGS, BOLTS, WASHERS, NUTS AND ALL ACCESSORIES ARE TO BE SUPPLIED BY THE SAME MANUFACTURER.
11. EXCAVATION SHALL BE DEWATERED AS NECESSARY TO EXCAVATE AND PLACE PIPE WITHIN DRY TRENCH.
12. ~~[illegible]~~
13. INSTALL MARKER POSTS IN LANDSCAPE AREAS OR PERMANENT SURVEY MONUMENTS IN EXISTING PAVED SURFACES ABOVE ALL HORIZONTAL BENDS AND STUB LOCATIONS.
14. ALL NEW HYDRANTS SHALL BE MUELLER.

FIRELINE and WATERLINE RESTRAINT NOTES:

1. BOTH THRUST BLOCKS AND MEGALUG RESTRAINTS (ALL JOINTS AND FITTINGS) ARE REQUIRED WITHIN RESTRAINT ZONES. NEW PIPING AND FITTINGS SHALL BE CONTINUOUSLY CONNECTED WITH MEGALUGS. ALL THRUST RESTRAINT CONCRETE SHALL BE 28 DAY COMPRESSIVE STRENGTH ≥ 3,500 P.S.I.
2. ALL MECHANICAL JOINTS SHALL BE RESTRAINED USING MEGALUG SERIES 2000 PV (NEW JOINTS) OR 2000 SV (SPLIT VERSION) FOR EXISTING JOINTS (TIE INTO EXISTING SYSTEM) OR UNI-FLANGE SERIES UFR 1500 C 'RAT' OR APPROVED EQUAL.
3. ALL PUSH ON JOINTS SHALL BE RESTRAINED USING MEGALUG SERIES 1600 OR UNI-FLANGE SERIES 1390-C 'RAT' OR APPROVED EQUAL WITHIN RESTRAINT ZONES.
4. CONNECTION TO AN EXISTING SYSTEM WITH A NEW GATE VALVE SHALL BE RESTRAINED ON EACH SIDE.
5. ANY EXISTING UNRESTRAINED PIPELINE JOINTS/FITTINGS EXPOSED DURING CONSTRUCTION SHALL BE RESTRAINED USING THE APPROPRIATE MEGALUG SERIES.
6. TO INSTALL MEGALUG TO EXISTING MECHANICAL JOINT FITTINGS AND VALVES, REMOVE BOLTS AND SLIDE EXISTING RETAINER GLAND AWAY FROM FITTING. INSTALL MEGALUG SERIES 2000 PER MANUFACTURER'S SPECIFICATIONS. DO NOT ATTEMPT TO REMOVE THE EXISTING FOLLOWER GLAND.
7. EXISTING THRUST BLOCKS THAT ARE DISTURBED DURING THE CONSTRUCTION OF THE NEW FIRE PROTECTION LINE SHALL BE REINSTALLED (USING FORMS IF NECESSARY TO CREATE BLOCKING THAT WILL BEAR ON UNDISTURBED SOIL).

SUPPLEMENTAL SPECIAL CONDITIONS:

1. ALL POINTS OF CONNECTION TO ANY EXISTING PIPE AND ALL EXISTING UTILITY CROSSINGS SHALL BE POTHOLED AND THE LOCATION, ELEVATION, PIPE MATERIAL, PIPE DIAMETER, AND ANY OTHER EXISTING INFORMATION SHALL BE NOTED AND FORWARDED TO WEC PRIOR TO ORDERING MATERIALS WHICH DEPEND ON THIS INFORMATION. ALL POTHOLE LOCATIONS ARE SHOWN ON THE PLANS.
2. FOLLOWING SUCCESSFUL PRESSURE TESTING ALL NEWLY PLACED PIPE SHALL BE LOCATED USING THE TRACING WIRE AND SURVEYED BY THE CONTRACTOR AS ADDITIONAL AS BUILT INFORMATION.
3. WEEKLY PROGRESS MEETINGS WILL BE HELD. PROJECT ENGINEER, CONTRACTOR SUPERINTENDENT (SITE SUPERINTENDENT), SUBCONTRACTORS AND OWNER SHALL ATTEND.
4. ALL ADJACENT PROPERTY OWNER RELATIONS & CORRESPONDENCE MUST BE ROUTED THROUGH AND APPROVED BY THE OWNER.
5. ALL PROPOSED PIPE INSTALLATION SHALL BE WITH FULL LENGTHS OF PIPE. NO SHORT OR CUT PIPE SHALL BE INSTALLED UNLESS OTHERWISE APPROVED AND SHOWN ON THE PLANS (I.E. CLOSURE PIECES, FABRICATED BEND LOCATIONS AND AT MANHOLES).

PERMITS

PERMITS	OBTAINED BY
BUILDING PERMIT	OWNER/SUBCONTRACTOR
STATE STORMWATER MANAGEMENT PLAN PERMIT or WAIVER	OWNER/WEC/CONTRACTOR
STATE GROUNDWATER DISCHARGE PERMIT	CONTRACTOR
~~[illegible] PERMIT~~	~~OWNER~~
TOWN OF KEENESBURG GRADING PERMIT	OWNER or CONTRACTOR

REQUIRED SUBMITTALS:

1. ALL CATALOG CUT SHEETS FOR ALL IMPROVEMENTS, GRADATIONS, MIX DESIGNS, PROCTOR TESTS, TACK COATS, ETC. ARE REQUIRED SUBMITTALS AND MUST BE APPROVED BY ENGINEER AND SUBMITTED TO THE TOWN.
2. ALL PROPOSED IMPROVEMENT MATERIALS AS APPROVED BY THE ENGINEER SHALL BE SUBMITTED TO THE TOWN. (MATERIAL SPECIFICATIONS AND PRODUCT DATA SHEETS ONLY)

PROJECT CLOSE OUT:

1. IT IS THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR TO PERFORM EROSION CONTROL MEASURES (INCLUDING PLANTINGS) AND TO MAINTAIN CONSTRUCTION FACILITIES THROUGH THE CONSTRUCTION PROCESS IN A MANNER THAT PRESERVES THE INTENDED FUNCTION AND LIFE OF THE FACILITIES.
2. IT IS THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR TO OBTAIN FINAL ACCEPTANCE FROM THE TOWN AFTER WHICH THE 1 YEAR WARRANTY PERIOD REGARDING ANY PUBLIC IMPROVEMENTS AND RELATED CONSTRUCTION WILL BEGIN.

ADA NOTES:

ALL HANDICAP PARKING STALLS, RAMPS, AND ROUTES SHALL MEET CURRENT ADA STANDARDS.

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ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
50531 E 160th AVENUE
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GENERAL NOTES & SPECIFICATIONS
ROBERTSON -KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely.
CALL UNCC
1-800-922-1987
UTILITY NOTIFICATION CENTER OF COLORADO

FOR REVIEW

INITIAL PLAN RELEASE: 02/18/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0002-NOTES
SHEET 2 OF 27

LUMINAIRE SCHEDULE						
SYMBOL	QTY	LABEL	LUM. WATTS	LUM. LUMENS	LLF	CATLOG
	6	A	156.5	14852	0.900	LDRL-T2-F06-E

PARCEL NO. 130319000003
GARY DOUGLAS MYERS (1/2 INT)
ARTHUR W. BERGLUND
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W

N89°53'18"E 2756.96' (BASIS OF BEARINGS)

NW COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

RK ANNEX 15.060 ac. 656,013.20

INTERSECTION SIGHT TRIANGLES SHOWN PER AASHTO FIGURE 9-15, CASES B1 & B2, DESIGN SPEED = 55 MPH (POSTED SPEED = 45 MPH), USING COMBINATION TRUCK. LEFT TURN ISD = 930', RIGHT TURN ISD = 850'.

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

Parcel 130319000011
Account R0544301
Account Type Residential
Property Address30123 COUNTY ROAD 398 WELD
Owner DUPRE MELISSA M

Parcel130319300013
AccountR4274506
Account Type Residential
Property Address 30425 COUNTY ROAD 398 WELD
Owner SCHNEIDER LONNIE D

HOW WILL LOTS 1 AND 4 BE ACCESSED, WITH THE DESIGN OF SWALES AND PONDS ALONG THE ENTIRE FRONT OF THE LOTS?

LOT A
RE-2864

LOT A

RK DRIVE — ROW

COUNTY ROAD NO. 398

FWS ANNEXATION NO. 1

UNION PACIFIC RAILROAD

50' X 70' SEPTIC FIELD — CONCEPT BLDG 4,400 SF — Lot 1 — POND 1

70' X 50' SEPTIC FIELD — CONCEPT BLDG 6,300 SF — Lot 3

70' X 50' SEPTIC FIELD — CONCEPT BLDG 6,300 SF — Lot 4

70' X 50' SEPTIC FIELD — CONCEPT BLDG 6,300 SF — Lot 2

50' X 70' SEPTIC FIELD — CONCEPT BLDG 6,300 SF — Lot 5 — POND 2

70' X 50' SEPTIC FIELD — CONCEPT BLDG 6,300 SF — Lot 6

50' X 70' SEPTIC FIELD — CONCEPT BLDG 6,300 SF — Lot 7

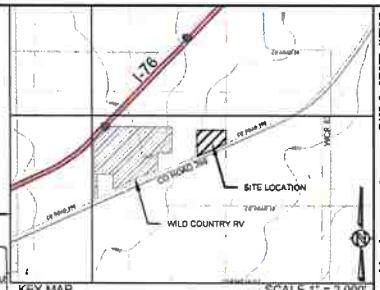
Parcel Table		
Parcel	Area SF	ACRES
BUILDABLE AREA	624,157.2	14.33
RK ANNEX	656,013.2	15.06

Parcel Table		
Parcel	Area SF	ACRES
Lot 1	85,431.1	1.96
Lot 2	73,924.0	1.70
Lot 3	71,947.8	1.65
Lot 4	87,166.5	2.00
Lot 5	109,850.8	2.52
Lot 6	100,888.0	2.32
Lot 7	94,990.8	2.18

LOT DATA TABLE			
	AREA (SF)	AREA (AC)	%
ZONING	A		
LOT INCLUDING ROW	656,016 SF	15.06 AC	100.00 %
ROW	31,858 SF	0.73 AC	4.86 %
NET LOT AREA NOT INCLUDING ROW	624,158 SF	14.33 AC	95.14 %
PROPOSED BUILDINGS	43,200 SF	0.99 AC	6.59 %
FUTURE BUILDING	28,000 SF	0.64 AC	4.27 %
TOTAL BUILDING	71,200 SF	1.63 AC	10.85 %
PROPOSED GRAVEL	367,188 SF	8.43 AC	56.07 %
PROPOSED ASPHALT PAVING	4,762 SF	0.11 AC	0.73 %
PROPOSED CONCRETE	2,303 SF	0.05 AC	0.35 %
PROPOSED LANDSCAPE AREA	178,726 SF	4.10 AC	27.24 %
PERCENTAGES BASED ON LOT SIZE NOT INCLUDING THE RIGHT-OF-WAY			

SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'

FULL SCALE: 1" = 60'
HALF SCALE: 1" = 120'



KEY MAP — SCALE 1" = 2,000'
SE 1/4, S24, T2N, R64W, 6th P.M.
SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE SITE PLAN FOR RK SUBDIVISION

ALL IMPROVEMENTS ARE EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY – DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY DUNKER ENGINEERING CONSULTING, INC.

SHOWN PROPOSED LAYOUT PROVIDED BY DUNKER ENGINEERING CONSULTING, INC. DATED DECEMBER 04, 2013. ANY SUBSEQUENT REVISIONS MADE BY DUNKER ENGINEERING CONSULTING, INC. ARE NOT REFLECTED IN THIS PLAN SET. REVISIONS DESCRIBED AND DATED ON INDIVIDUAL SHEETS IN THIS PLAN SET ARE WESTERN ENGINEERING REVISIONS ONLY.

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WO W/S
SWALE
EXISTING OVERHEAD ELEC
EXISTING ELECTICAL LINE
EXISTING STORM LINE
EXISTING SANITARY LINE
EXISTING WATER LINE
EXISTING GAS LINE
EXISTING FIBER OPTIC LINE
EXISTING TELEPHONE LINE
PROPOSED SANITARY LINE
PROPOSED SANITARY SERVICE
PROPOSED STORM LINE
PROPOSED WATER LINE
PROPOSED WATER SERVICE
PROPOSED GAS LINE
PROPOSED ELECTRIC LINE
PROPOSED TELEPHONE LINE

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Western Engineering Consultants, Inc LLC

ROBERTSON-KAISER SURVEYING
CONTACT: RICK ROBERTSON
35351 E. COLFAX AVENUE
BENNETT, CO 80102
(303)941-0031

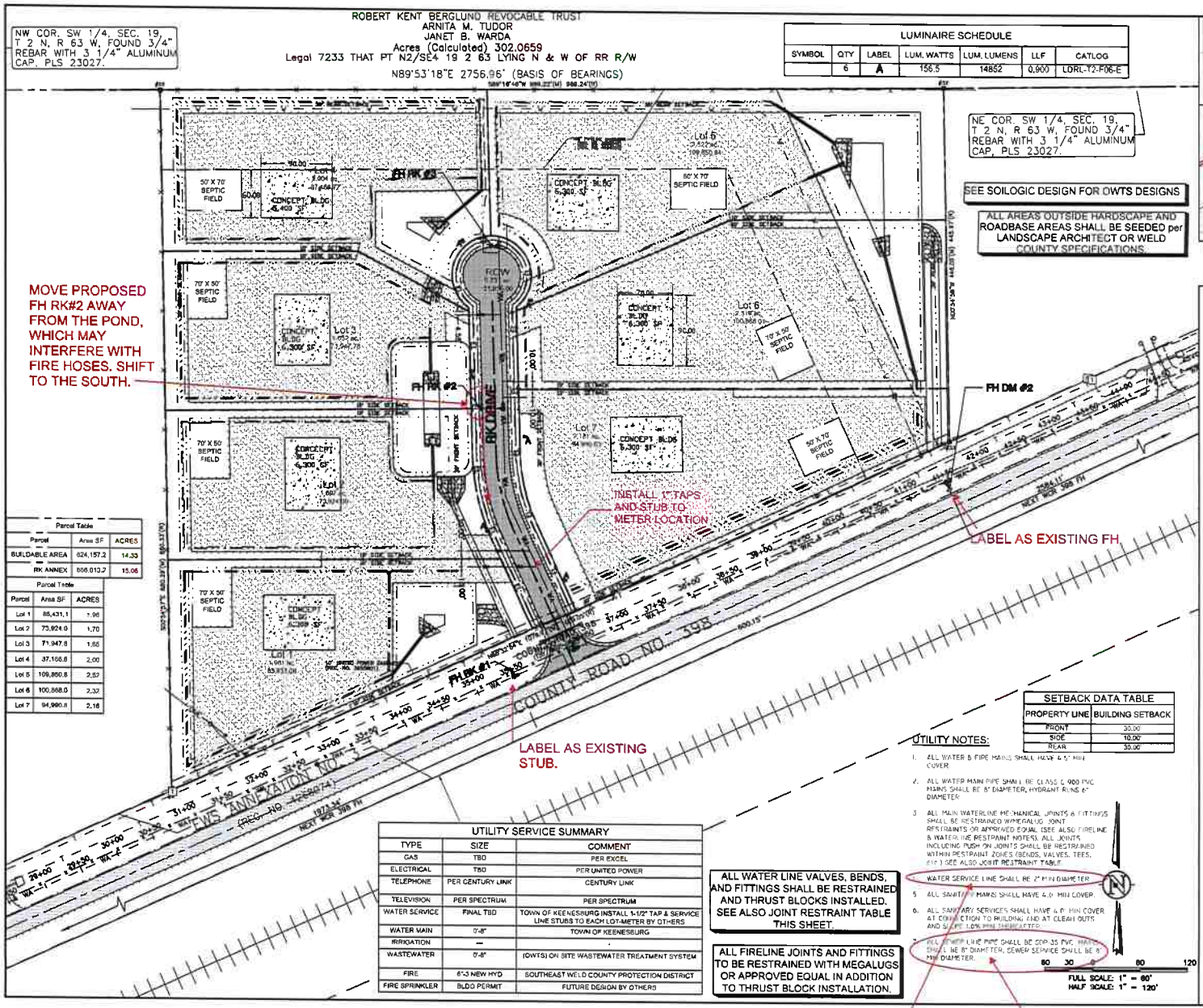
SITE PLAN
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely. CALL UNCC
THREE WORKING DAYS BEFORE YOU DIG
1-800-922-1987
UTILITY NOTIFICATION CENTER OF COLORADO

FOR REVIEW

INITIAL PLAN RELEASE 02/18/13
DESIGNED BY: GES
DRAWN BY: GES
CHECKED BY: DFE
PROJECT NO. 01-0187.002.00
DOC CON # 004-SITE
SHEET 4 OF 27

THE TOWN WOULD LIKE THE DEVELOPER TO INSTALL 1" TAPS AND 1-1/2" COPPER SERVICE STUBS TO EACH LOT LINE. AT THE SITE PLAN STAGE, THE LOT OWNER WILL DETERMINE WATER REQUIREMENTS. METER SIZE WILL DETERMINE TAP AND RAW WATER DEVELOPMENT FEES.



Parcel Table		
Parcel	Area SF	ACRES
BUILDABLE AREA	624,157.2	14.33
RK ANNEX	656,013.7	15.06

Parcel Table		
Parcel	Area SF	ACRES
Lot 1	85,431.1	1.96
Lot 2	73,924.0	1.70
Lot 3	71,947.8	1.65
Lot 4	87,166.8	2.00
Lot 5	109,850.8	2.52
Lot 6	100,868.0	2.32
Lot 7	94,990.8	2.18

LUMINAIRE SCHEDULE						
SYMBOL	QTY	LABEL	LUM. WATTS	LUM. LUMENS	LLF	CATLOG
	6	A	156.5	14852	0.900	LDRL-T2-F06-E

UTILITY SERVICE SUMMARY		
TYPE	SIZE	COMMENT
GAS	TBD	PER EXCEL
ELECTRICAL	TBD	PER UNITED POWER
TELEPHONE	PER CENTURY LINK	CENTURY LINK
TELEVISION	PER SPECTRUM	PER SPECTRUM
WATER SERVICE	FINAL TBD	TOWN OF KEENESBURG INSTALL 1-1/2" TAP & SERVICE LINE STUBS TO EACH LOT-METER BY OTHERS
WATER MAIN	0'-8"	TOWN OF KEENESBURG
IRRIGATION	—	-
WASTEWATER	0'-8"	(OWTS) ON SITE WASTEWATER TREATMENT SYSTEM
FIRE	6"-3 NEW HYD	SOUTHEAST WELD COUNTY PROTECTION DISTRICT
FIRE SPRINKLER	BLDG PERMIT	FUTURE DESIGN BY OTHERS

KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE UTILITY PLAN FOR RK SUBDIVISION

ALL IMPROVEMENTS ARE EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY – DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND W/O W/S
SWALE
EXISTING OVERHEAD ELEC
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EXISTING STORM LINE
EXISTING SANITARY LINE
EXISTING WATER LINE
EXISTING GAS LINE
EXISTING FIBER OPTIC LINE
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PROPOSED SANITARY LINE
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PROPOSED GAS LINE
PROPOSED ELECTRIC LINE
PROPOSED TELEPHONE LINE

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FAX (720) 284-1339
ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
5055 S. ALTON WAY
ENGLEWOOD, CO 80112
(303)981-0031

UTILITY PLAN
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely.
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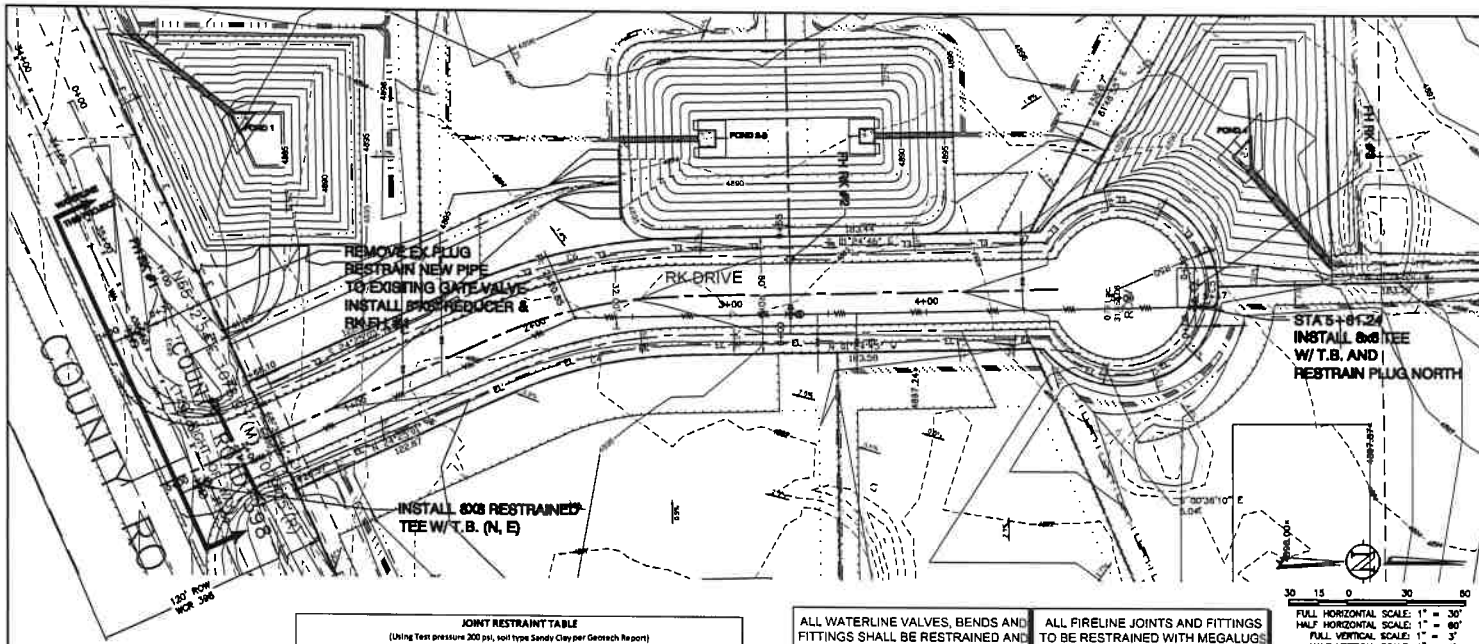
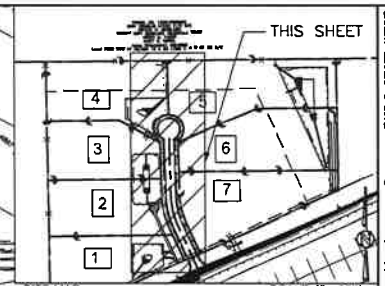
UTILITY INFORMATION

FOR REVIEW

INITIAL PLAN RELEASE: 02/19/13
DESIGNED BY: CFE
DRAWN BY: CFE
CHECKED BY: CFE
PROJECT NO. 01-0187.002.00
DOC CON # 005-UTL
SHEET 5 OF 27





SITE MAP SCALE 1" = 200'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE WATERLINE PLAN FOR RK SUBDIVISION

ALL IMPROVEMENTS ARE EXISTING.

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SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

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JOINT RESTRAINT TABLE

(Using Test pressure 200 psi, soil type Sandy Clay per Geotech Report)
All values below are feet in each direction unless otherwise noted

22.5	45	90	8"-8 Tee	8"-6 Tee	45 V bend	22.5 V bend	11.25 V bend	8"-3 Reduction	Dead End
9	18	42	14	8	49 up, 12 lower	24 up, 6 lower	12 up, 3 lower	76	94

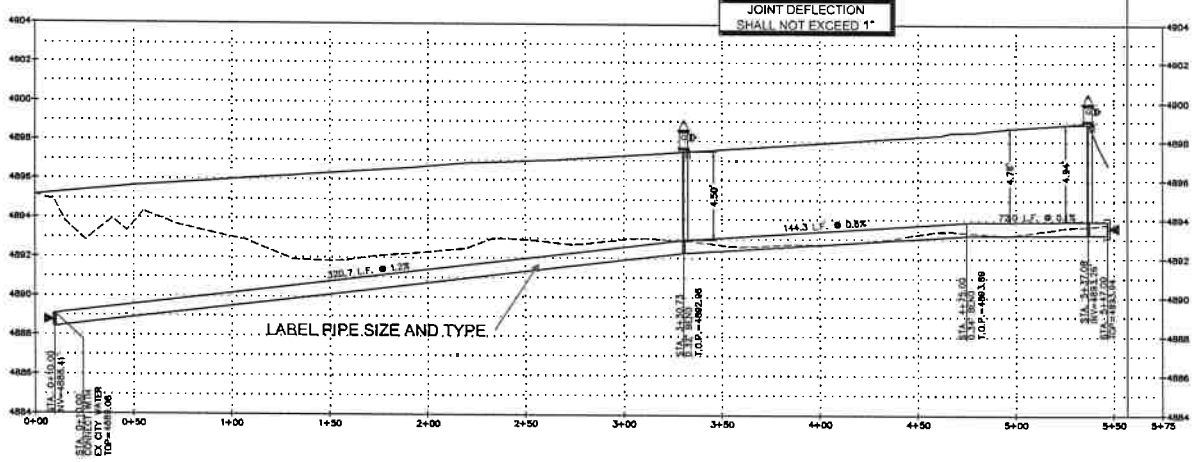
ALL WATERLINE VALVES, BENDS AND FITTINGS SHALL BE RESTRAINED AND THRUST BLOCK INSTALLED SEE ALSO JOINT RESTRAINT TABLE THIS SHEET

ALL FIRELINE JOINTS AND FITTINGS TO BE RESTRAINED WITH MEGALUGS OR APPROVED EQUAL IN ADDITION TO THRUST BLOCKS INSTALLATION

4.5' MIN COVER REQUIRED

JOINT DEFLECTION SHALL NOT EXCEED 1°

VERT. SCALE: 1" = 1'



SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED WATER VALVE
- PIPE CROSSOVER
- MANHOLE
- EXISTING ASPHALT PAVING
- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE PAVING
- PROPOSED GRAVEL

LINETYPE LEGEND

- LOT / PROPERTY LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND W/O W/S
- SWALE
- OHE — OHE — EXISTING OVERHEAD ELEC
- E — EXISTING ELECTRICAL LINE
- EXISTING STORM LINE
- S — EXISTING SANITARY LINE
- W — EXISTING WATER LINE
- G — EXISTING GAS LINE
- FIBER — FIBER — EXISTING FIBER OPTIC LINE
- T — EXISTING TELEPHONE LINE
- SA — SA — PROPOSED SANITARY LINE
- SS — SS — PROPOSED SANITARY SERVICE
- ST — ST — PROPOSED STORM LINE
- WA — WA — PROPOSED WATER LINE
- WAS — WAS — PROPOSED WATER SERVICE
- GA — GA — PROPOSED GAS LINE
- EL — EL — PROPOSED ELECTRIC LINE
- PH — PH — PROPOSED TELEPHONE LINE

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www.westernengineers.com
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FAX (720) 834-1330
Western Engineering Consultants, Inc LLC

ROBERTSON VAUGHN SUBMISSION

CONTACT: RICK ROBERTSON
50531 E 160th AVENUE
BENNETT, CO 80102
(303)261-4031

WATER LINE PLAN & PROFILE
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely. CALL UNCC
1-800-922-1987

FOR REVIEW

INITIAL PLAN RELEASE: 03/18/19
DESIGNED BY: CTC
DRAWN BY: CTC
CHECKED BY: CTC
PROJECT NO. 01-0187.002.00
DOC CON # 006-WTR PRP
SHEET 8 OF 27

THIS SHEET IS NOT NEEDED IN CONSTRUCTION DOCUMENTS FOR THE SUBDIVISION.

CONCEPT DESIGN

(EACH SITE SHALL BE DESIGNED PER INDIVIDUAL APPROVED SITE PLAN)

SHALLOW TRENCH SPECIFICATIONS AND DESIGN CALCULATIONS

TREATMENT UNIT:

1. SEE FINAL DESIGN BY OTHERS FOR TANK CONFIGURATION.
2. ATTENUATION = 1.25 * Qmax (1.25 * 2,257.5 = 2,826 GALLONS MINIMUM).
3. PUMP: SEE NOTES ABOVE.
4. ALARM/CONTROL PANEL LOCATION TO BE DETERMINED BY OWNER.
5. RISERS TO SURFACE FOR EACH ACCESS LID.
6. PRESSURE RELEASE VALVE AT HIGH POINT.
7. DRAINBACK TO SEPTIC TANK AND FIELD.

DRAIN FIELD:

1. AVERAGE DAILY LOADING, 20 EMPLOYEES @ 35gal/DAY AVG = Q = 700 GPD
2. Qx = Qmax = 1.5 Q(avg daily) = 1050 GPD
3. PERCOLATION RATE = (T) =46 MPI per ROBERTSON RV PARK FIELD TEST ON JANUARY 14, 2014
4. MIN TRENCH ABSORPTION AREA = ((Qx) X 1.5 X (T^½) / 3.5 = 2884 SF
5. PROPOSED TRENCH ABSORPTION AREA = 3,000 SF (2.5' WIDE x 100' LONG x 12 TRENCHES).
6. TRENCH WIDTH = 30 INCHES.
7. NO GROUND WATER FOUND IN SOIL BORINGS.
8. LANDSCAPING BY OTHERS.

ARTICLE XIII - Operation and Maintenance

Sec. 30-13-10. - Responsibility.

The owner must be responsible for maintenance of an OWTS unless the responsibility has been contractually assigned to a tenant or third party or a public, quasi-public or political subdivision.

(Weld County Code Ordinance 2013-13.)

Sec. 30-13-20. - Service label.

For higher level treatment systems or other components under a service contract, a clearly visible, permanently attached label or plate giving instructions for obtaining service must be placed at a conspicuous location.

(Weld County Code Ordinance 2013-13.)

Sec. 30-13-30. - Monitoring and sampling.

A. For an OWTS for which monitoring of effluent is required, a delegated third party must collect and test effluent samples to ensure compliance with the provisions of this Regulation.

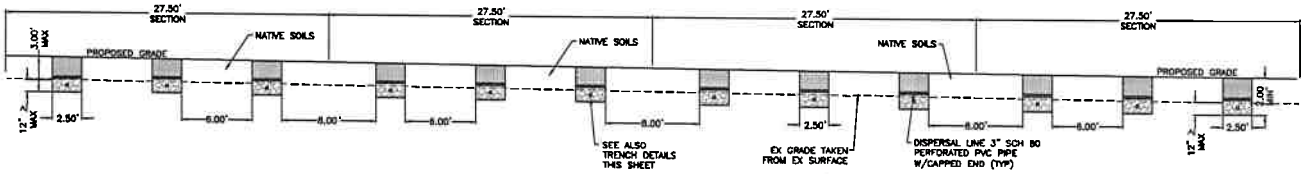
B. Sampling may be required by the Division in conjunction with an enforcement action.

C. Any owner or occupant of property on which an OWTS is located may request the Division to collect and test an effluent sample from the system. The Division may perform such collection and testing services. The owner or occupant must pay for these services.

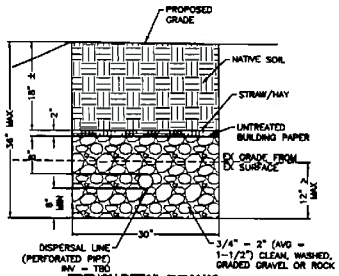
1. If the Division or a delegated third party collects and tests effluent samples, a fee not to exceed that which is allowed by the OWTS Act may be charged for each sample collected and tested. Payment of such charge must be stated in the permit as a condition for its continued use.
2. Conditions when the Division can require routine monitoring, including but not limited to
   a. Indications of inadequate performance;
   b. Location in sensitive areas; and
   c. Experimental systems.

D. Sampling and analysis must be performed according to American Public Health Association, American Water Works Association and Water Environment Federation: *Standards Methods for the Examination of Water and Wastewater*, 21 st edition.

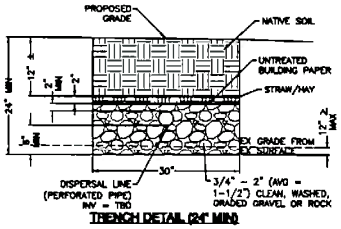
(Weld County Code Ordinance 2013-1; Weld County Code Ordinance 2017-19



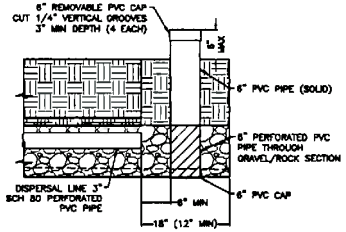
EXPECTED TYPICAL GRAVITY FIELD CROSS-SECTION



TRENCH DETAIL (36" MAX)



TRENCH DETAIL (24" MIN)



INSPECTION/MONITORING PORT DETAIL
SEE ALSO TRENCH DETAILS THIS SHEET

TRENCH DEPTH NOT TO BE MORE THAN 12" BELOW EXISTING GRADE.

PUMP SYSTEM NOTES BY OTHERS

Western Engineering Consultants, Inc. LLC
137 S. BOYER AVENUE
FT. LUPTON, CO 80621
www.westernwel.com
email@westernwel.com
(720) 863-7931
FAX (720) 284-1530

ROBERT C. KAISER
ALPINA
CONTACT: RICK ROBERTSON
3635 E. TIBBETT RD. NO. 102
BENNETT, CO 80102
(303)961-0031

SEPTIC PLAN
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely.
CALL UNCC
1-800-922-1987

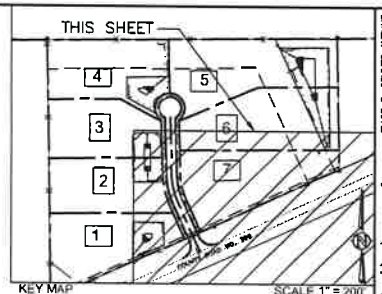
FOR REVIEW

INITIAL PLAN RELEASE: 02/19/19
DESIGNED BY: DPC
DRAWN BY: DPC
CHECKED BY: DPC
PROJECT NO. 01-0187.002.00
DOC CON # 000-SEPTIC PLAN
SHEET 8 OF 27

SHOW A TYPICAL DITCH CROSS SECTION.

40 20 0 40 80

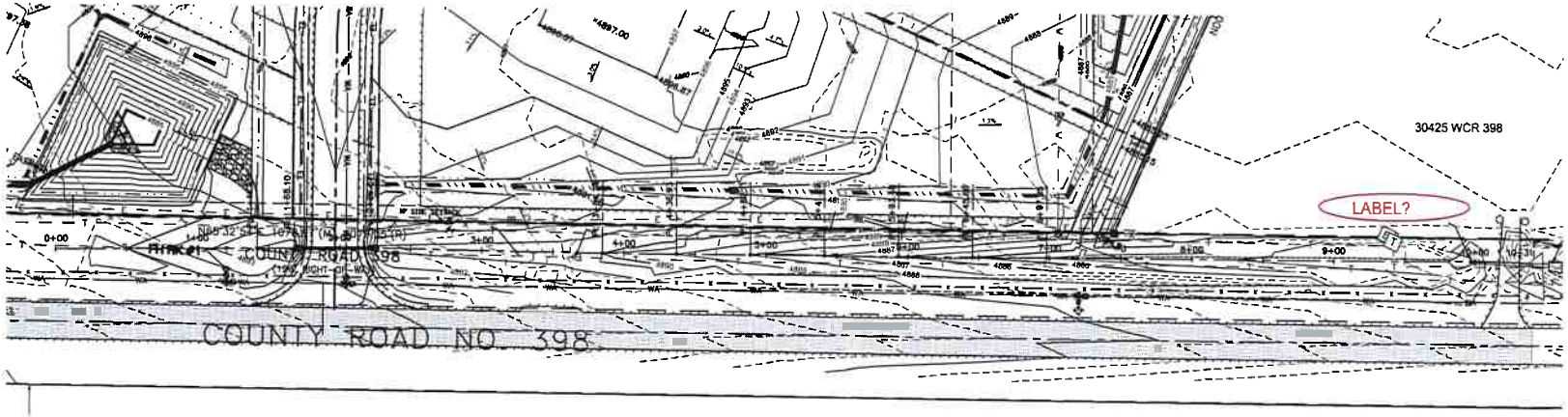
FULL SCALE: 1" = 40'
HALF SCALE: 1" = 80'

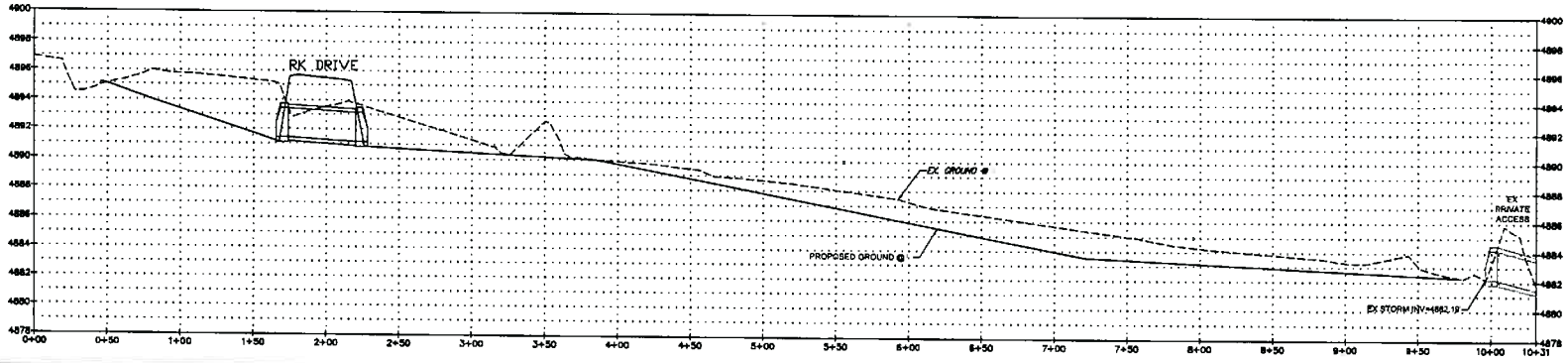


KEY MAP SCALE 1" = 200'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4





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western@westernsd.com
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FAX (720) 254-1330
Western Engineering Consultants, Inc LLC

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
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BENNETT, CO 80102
(303)681-0031

WCR 398 DITCH GRADING PLAN
ROBERTSON -KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

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UTILITY NOTIFICATION CENTER OF COLORADO

FOR REVIEW

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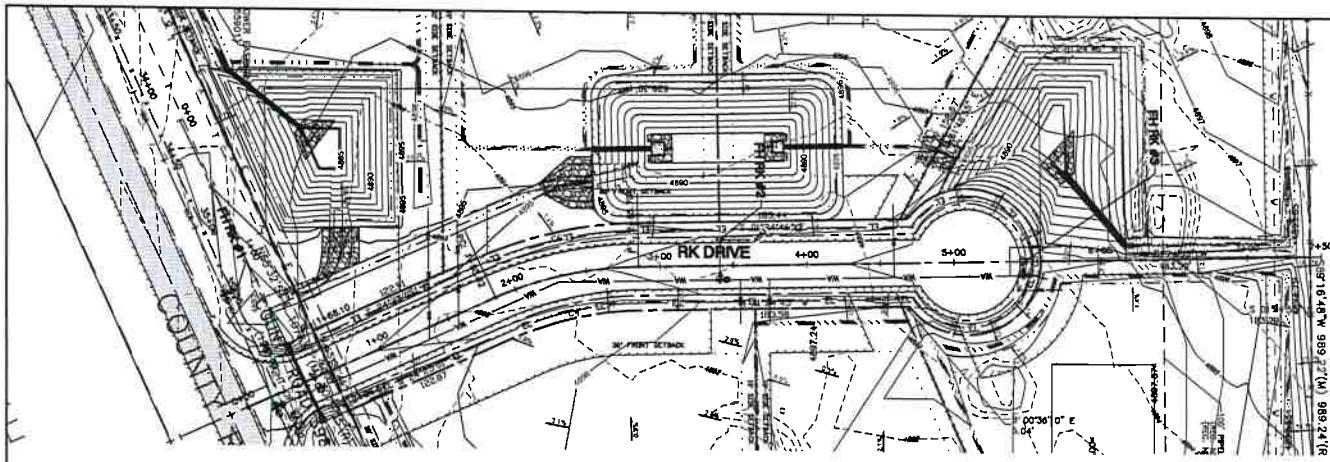
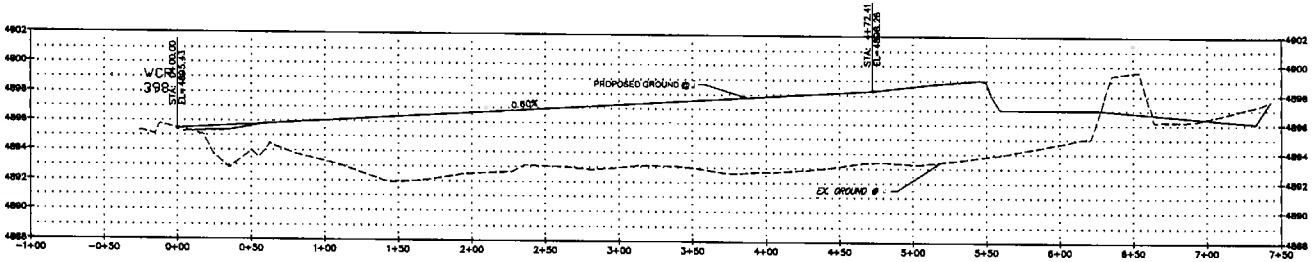
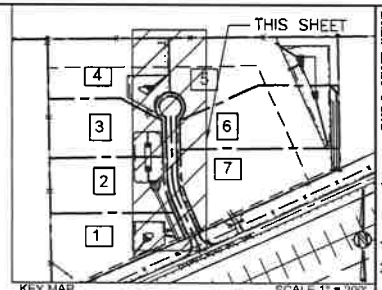
CHECKED BY: CTC
PROJECT NO. 01-0187.002.00
DOC. CON # 10398-GRADE
SHEET 10-398 OF 27



ADD THE FOLLOWING TO THIS SHEET:
1. TYPICAL ROAD SECTION
2. PAVEMENT SECTION
3. SPOT ELEVATIONS AT CUL-DE-SAC





KEY MAP SCALE 1" = 200'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

40 20 0 40 80

FULL HORIZONTAL SCALE: 1" = 40'
HALF HORIZONTAL SCALE: 1" = 80'
FULL VERTICAL SCALE: 1" = 4'
HALF VERTICAL SCALE: 1" = 8'

NOTES

THIS PLAN IS INTENDED AS THE RK ROAD PLAN & PROFILE FOR RK SUBDIVISION

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SEE COVER SHEET FOR BASIS OF BEARING.

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SYMBOL LEGEND

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22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
OHE — EXISTING OVERHEAD ELEC
E — EXISTING ELECTICAL LINE
EXISTING STORM LINE
S — EXISTING SANITARY LINE
W — EXISTING WATER LINE
G — EXISTING GAS LINE
FIBER — EXISTING FIBER OPTIC LINE
T — EXISTING TELEPHONE LINE
SA — PROPOSED SANITARY LINE
SS — PROPOSED SANITARY SERVICE
STM — PROPOSED STORM LINE
WA — PROPOSED WATER LINE
WAS — PROPOSED WATER SERVICE
GA — PROPOSED GAS LINE
EL — PROPOSED ELECTRIC LINE
PH — PROPOSED TELEPHONE LINE

Western Engineering Consultants, Inc LLC
127 S. BEAVER AVENUE
FT. LUPTON, CO 80621
www.westernwec.com
(720) 863-9951
FAX (720) 294-1330

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
35351 E. KIOWA AVENUE
BENNETT, CO 80102
(303)961-0031

R.K. DRIVE PLAN & PROFILE
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safety. CALL UNCC
THREE WORKING DAYS BEFORE YOU DIG
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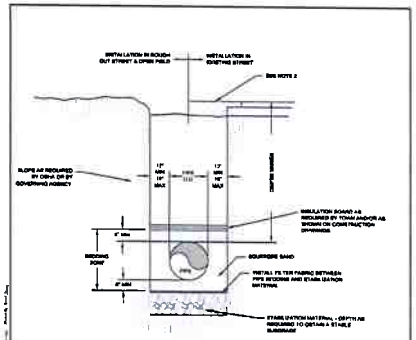
UTILITY NOTIFICATION CENTER OF COLORADO

FOR REVIEW

INITIAL PLAN RELEASE: 02/19/13
DESIGNED BY: DFC
DRAWN BY: DFC
CHECKED BY: DFC
PROJECT NO. 01-0187.002.00
DOC CON # 2011-ROAD P&P
SHEET 11 OF 27

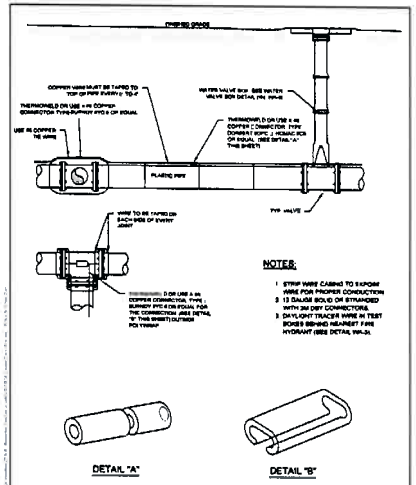
USE THE LATEST DETAILS, I WILL SEND.



NOTES:

N.T.S.
WA-1

TRENCH CROSS SECTION



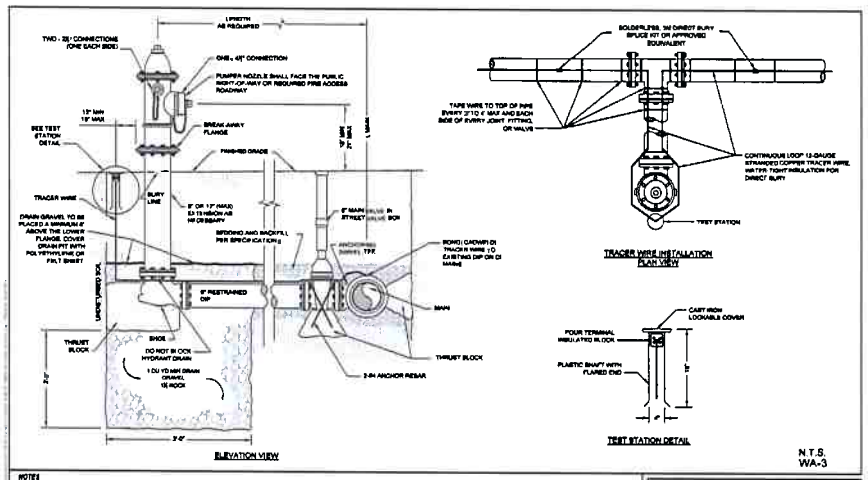
NOTES:

DETAIL "A"

DETAIL "B"

N.T.S.
WA-2

COPPER TRACER WIRE DETAIL ON PVC PIPE



ELEVATION VIEW

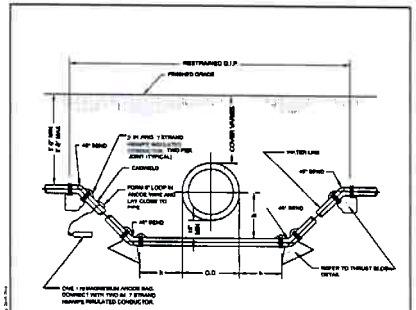
TRACER WIRE INSTALLATION PLAN VIEW

TEST STATION DETAIL

NOTES:

N.T.S.
WA-3

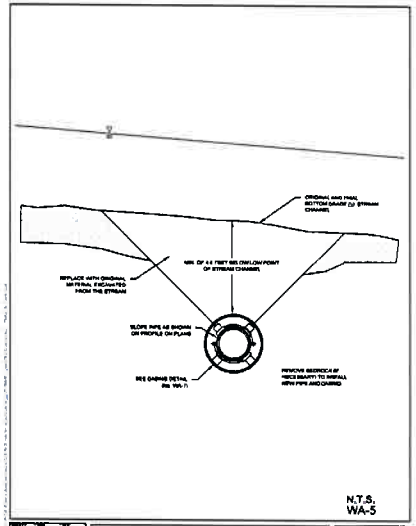
FIRE HYDRANT ASSEMBLY WITH TRACER WIRE INSTALLATION



NOTES:

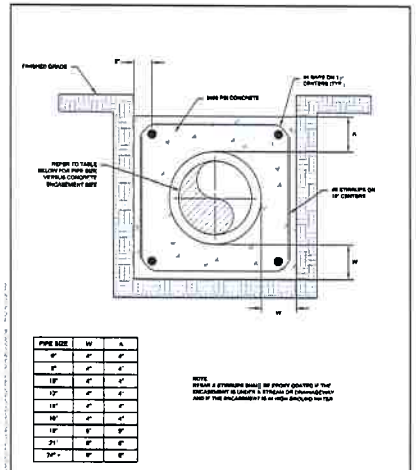
N.T.S.
WA-4

WATER LINE LOWERING



N.T.S.
WA-5

STREAM/DITCH CROSSING



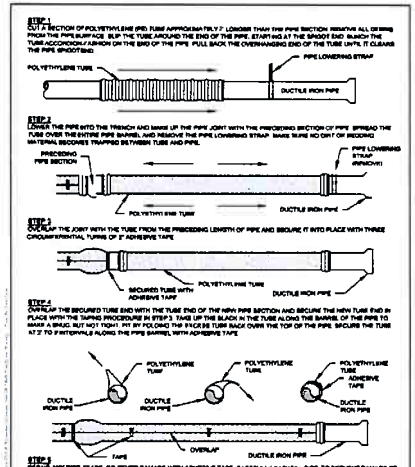
PIPE SIZE	W	A
6"	4"	4"
8"	4"	4"
10"	4"	4"
12"	4"	4"
14"	4"	4"
16"	4"	4"
18"	6"	6"
21"	6"	6"
24" +	6"	6"

NOTE

N.T.S.
WA-6

CONCRETE ENCASEMENT

NOT NEEDED



STEP 1

STEP 2

STEP 3

STEP 4

STEP 5

N.T.S.
WA-8

POLYETHYLENE WRAP

127 S. DENVER AVENUE
FT. LUPTON, CO 80621
www.westernengineers.com
(720) 832-8951
FAX (720) 894-1330

Western Engineering Consultants, Inc LLC

1			
2			
3			
4			
5			

REVISIONS

ROBERTSON-KAISER ANNEX
CONTACT: PETE ROBERTSON
5400 E. PEAKVIEW AVE
BENNETT, CO 80102
(303)561-0031

KEENESBURG WATER DETAILS
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely.
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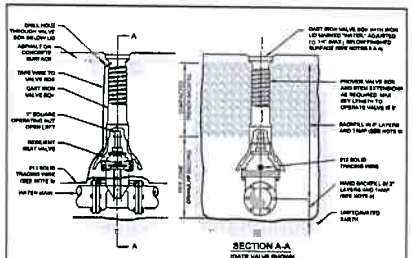
THREE WORKING DAYS BEFORE YOU DIG
1-800-922-1987
NOTIFICATION OF UTILITY INTERFERENCE

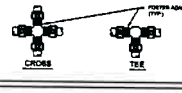
FOR REVIEW

INITIAL PLAN RELEASE: 03/19/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0012-WTR01LS
SHEET 12 OF 27



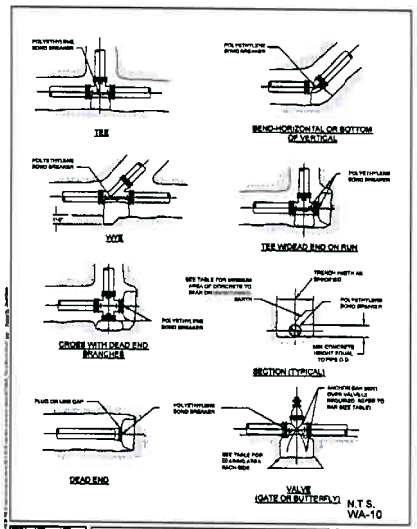
NOTES:

1. ALL VALVES SHALL BE ENCASED IN A MINIMUM 8 MIL POLYETHYLENE WRAP, 2' WIDE, TEN MIL THICK POLYETHYLENE PRESSURE-SENSITIVE TAPE SHALL BE USED TO CLOSE SEAMS. SECURE TO PIPE OR HOLD OVERLAPS
2. ALL VALVE BOXES SHALL BE OF CAST IRON CONSTRUCTION. TWO PIECE THREADED ADJUSTABLE DESIGN PER DEPARTMENT STANDARDS. ALL THREAD RODS AND NUTS SHALL BE 316 STAINLESS STEEL.
3. WITHIN OPEN AREAS OR AREAS TO BE DEVELOPED IN THE FUTURE, VALVE BOX LID MAY BE DEPRESSED OR HAVE A CONCRETE PAD WHERE VALVE LOCATION WITH FLEXIBLE MARKER POST
4. FOR FIRE SERVICE LINES ONLY, LIDS SHALL BE LOCKING TYPE
5. TRACER WIRE TO BE TYPICALLY DAYLIGHTED AT FIRE HYDRANT. IF HYDRANT IS NOT AVAILABLE, PROVIDE AT MAINLINE VALVE AS SHOWN ABOVE AND COIL A MINIMUM OF 3' OF TRACER WIRE IN VALVE BOX.
6. SEE SPECIFICATIONS FOR COMPACTION AND TESTING REQUIREMENTS.
7. VALVES TYPICALLY REQUIRED AS SHOWN. UNLESS OTHERWISE APPROVED BY THE DEPARTMENT. SINCE DPU NATIONAL CONSIDERATIONS MAY RESULT IN FEWER VALVES BEING REQUIRED TO BE INSTALLED
8. RESTRAINT FOR VALVES TO A FITTING CAN BE MADE DIRECTLY WITH FOSTER ADAPTORS OR BY MECHANICAL JOINT RESTRAINT. EXAMPLE FOSTER ADAPTOR CONNECTIONS ARE DETAILED BELOW



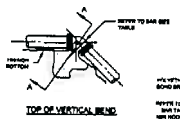
N.T.S.
WA-9

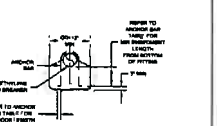
VALVE BOX



N.T.S.
WA-10

THRUST BLOCKS
SHEET 1 OF 3





VOL CONCRETE FOR 100 PSI TEST PRESSURE (CU FT)

PIPE SIZE	BENDS		
	45°	22½°	11¼°
6"	1.6 ft	0.9	0.7
8"	3.0 ft	1.6	0.7
12"	6.8 ft	3.4	1.7
16"	11.8 ft	6.0	3.0

FOR TEST PRESSURE GREATER THAN 100 PSI, ADJUST CONCRETE VOLUMES BY MULTIPLYING TABLE VALUES BY CORRECTION FACTOR "F"

$F = \frac{\text{TEST PRESSURE}}{100}$

ANCHOR BAR INFORMATION FOR 100 PSI TEST PRESSURE

CONCRETE VOLUME	REBAR SIZE	MIN EMBEDMENT LENGTH	MIN HOOK LENGTH
4.0 CF	NO. 4	9"	9"
6.0 CF	NO. 5	12"	12"
11.0 CF	NO. 6	16"	12"

N.T.S.
WA-10

THRUST BLOCKS
SHEET 2 OF 3

THRUST BLOCK BEARING AREAS (SQ-FT) FOR INTERNAL STATIC PRESSURE OF 100 PSI AND SOIL BEARING CAPACITY OF 1000 PSF

DIAM (IN)	90° BEND	45° BEND	22½° BEND	11¼° BEND	DEAD ENDS VALVES & TEES PLUGGED CROSS BRANCHES
3	1.7	0.9	0.5	0.3	1.7
4	3.0	1.4	0.7	0.4	1.5
6	6.3	3.2	1.6	0.7	3.7
8	9.1	4.6	2.3	1.1	6.4
12	19.4	10.5	5.3	2.7	13.7
16	33.8	18.2	9.2	4.7	23.6

NOTES:

1. POLYETHYLENE BOND BREAKER SHALL BE INSTALLED BETWEEN ALL FITTINGS AND CONCRETE
2. ALL THRUST BLOCKING SHALL BE CAST IN PLACE CONCRETE WITH A MINIMUM YIELD 28 DAY STRENGTH OF 2000 P S I
3. THRUST BLOCKING SHALL BE CAST AGAINST UNDISTURBED SOIL. FORMS SHALL BE USED AS REQUIRED TO OBTAIN ADEQUATE BEARING AREA AND TO CONFINE THE CONCRETE. THRUST BLOCKING SHALL BEAR ON THE FITTING ON END CAP ONLY AND THE L NOT BE ALLOWED TO SPILL OVER THE JOINT OR AGAINST THE PIPE
4. THE CITY MAY REQUIRE LARGER THRUST BLOCKS THAN SPECIFIED IF SOILS ARE DETERMINED TO PROVIDE LESS THAN 1000 PSF BEARING CAPACITY
5. IN THE ABSENCE OF SOIL BEARING CAPACITY INFORMATION USE 1000 PSF
6. BEARING AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE DETERMINED BY MULTIPLYING THE TABULATED BEARING AREAS BY A CORRECTION FACTOR "F"

   $F = \frac{\text{ACTUAL BEARING TEST PRESSURE IN PSI}}{\text{100 TEST SOIL BEARING CAPACITY IN PSF/1000 PSF}}$
7. EXAMPLE: CALCULATE THE BEARING AREA FOR 6" 45° BEND WITH A STATIC INTERNAL PRESSURE OF 150 PSI AND SOIL BEARING CAPACITY OF 2000 PSF

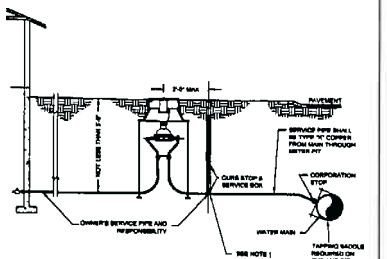
FROM TABLE BEARING AREA = 6.1 SF

$F = \frac{150 \text{ PSI}/100 \text{ PSI}}{2000 \text{ PSF}/1000 \text{ PSF}} = 0.6$

REQUIRED BEARING AREA ON UNDISTURBED SOIL = (6.1)(0.6) = 3.7 SF

N.T.S.
WA-10

THRUST BLOCKS
SHEET 3 OF 3

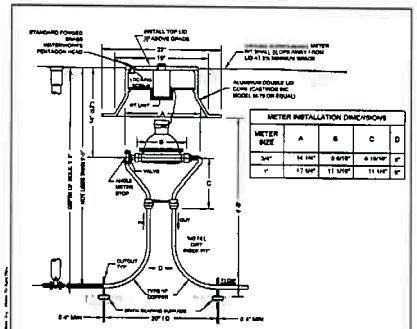


NOTES:

1. PLACEMENT OF CURB STOP BOX MAY VARY FROM A MINIMUM OF 1 FOOT OUTSIDE THE PROPERTY LINE TO A MAXIMUM OF 1 FOOT INSIDE THE PROPERTY LINE. PLACEMENT OF CURB STOP BOX OUTSIDE THE PROPERTY LINE IS [illegible]
2. PUBLIC WORKS DEPARTMENT'S RESPONSIBILITY SHALL BE THE WATER MAIN CORPORATION STOP, SERVICE PIPING UP TO THE CURB STOP, AND THE TUBE NUT ON THE STREET SIDE OF THE CURB STOP. OWNERS RESPONSIBILITY SHALL BE UP TO AN INCLUDING THE CURB STOP AND BOX
3. BOXES MAY BE VARIED FROM THAT SHOWN CONCERNING THE DEPTH OR OBSTRUCTION OF SERVICE LINE OR THE PLACEMENT OF THE METER PIT OR STOP BOX. CALL TOWN'S PUBLIC WORKS DEPARTMENT
4. REFER TO WATER AND SEWER STANDARD DRAWINGS AND CONSTRUCTION SPECIFICATIONS FOR METER INSTALLATION REQUIREMENTS
5. SEE DETAIL WA-11 FOR METER SETTING

N.T.S.
WA-11

SERVICE LINE, STOP BOX AND METER



METER INSTALLATION DIMENSIONS

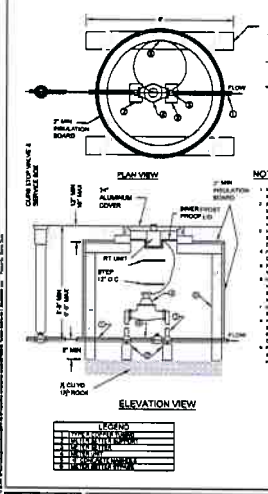
METER SIZE	A	B	C	D
3/4"	14 3/4"	8 5/16"	6 15/16"	9"
1"	17 5/8"	11 1/16"	11 1/4"	9"

NOTES:

1. NOT FOR INSTALLATION IN ROADWAYS OR PARKING AREAS.
2. IF SURFACE IS NOT TO FINAL GRADE AT TIME OF INSTALLATION OF METER, OR GRADE CHANGES AFTER INSTALLATION OWNER/UNIT ADJUST PIT TO MEET SPECIFICATIONS.
3. METER SETTING MUST BE INSPECTED BEFORE BACKFILLING. FOR INSPECTION CALL TOWN DEPARTMENT OF PUBLIC WORKS. LOCATION OF METER SHALL BE 2 FEET DOWNSTREAM OF THE CURB STOP UNLESS OTHERWISE PLACED BY METER SERVICES
4. NO CONCRETE FLOOR TO BE POURED IN METER PIT
5. NO SPRINKLER SYSTEM CONNECTIONS SHALL BE MADE IN THE METER PIT. SPRINKLER PIT SHALL BE MINIMUM 6 FT DOWNSTREAM FROM METER PIT MEASURED FROM THE CURB STOP
6. NO MAJOR LANDSCAPING OR STRUCTURES SHALL BE LOCATED WITHIN 4 FT OF THE METER PIT
7. IF PRESSURE REDUCING VALVE IS REQUIRED BY PLUMBING CODE, IT SHALL BE INSTALLED INSIDE THE BUILDING, IMMEDIATELY FOLLOWING THE MAIN WATER SHUT OFF VALVE
8. COPPER SHALL BE NO WORSE THAN [illegible]
9. REFER TO WATER & SEWER CONSTRUCTION SPECIFICATIONS, CURRENT VERSION, FOR PRODUCT SPECIFICATIONS

N.T.S.
WA-12

SETTING FOR ¾" & 1" METER

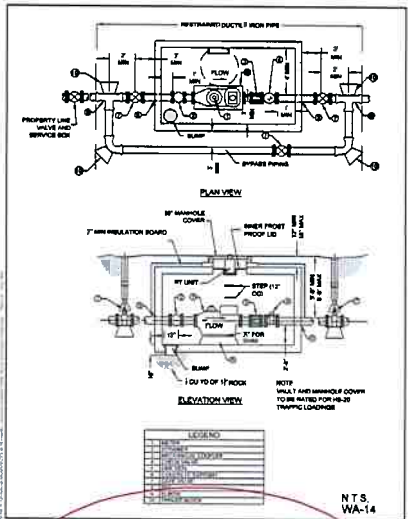


NOTES:

1. MANHOLE BASE SPANS ARE REQUIRED FOR ALL INSTALLATIONS
2. IF SURVEYS IS NOT TO FINAL GRADE AT TIME OF METER INSTALLATION OR GRADE CHANGES AFTER INSTALLATION, OWNER MUST ADJUST UNIT TO MEET SPECIFICATIONS
3. [illegible] SHOPPING LINE FOR INSPECTION CALL PUBLIC WORKS DEPARTMENT
4. [illegible] SHALL NOT COME INTO DIRECT CONTACT WITH CONCRETE COLLAR
5. NO CONCRETE FLOOR TO BE POURED IN METER VAULT
6. [illegible] SHALL BE INSTALLED INSIDE BUILDING ABOVE INSTALL PER LATEST TOWN ADOPTION (in current) [illegible]
7. [illegible] SHALL BE INSTALLED INSIDE BUILDING ABOVE INSTALL PER LATEST TOWN ADOPTION (in current) [illegible]
8. REFER TO WATER AND SEWER CONSTRUCTION SPECIFICATIONS, CURRENT VERSION, FOR PRODUCT SPECIFICATIONS

N.T.S.
WA-13

SETTING FOR 1 ½" & 2" METER



NOTE
VAULT AND MANHOLE COVER TO BE RATED FOR HS-20 TRAFFIC LOADINGS

N.T.S.
WA-14

SETTING FOR 3" OR LARGER

NOT NEEDED

127 S. BENITO AVENUE
FT. LUPTON, CO 80621
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(720) 863-2951
FAX (720) 884-1530
Western Engineering Consultants, Inc LLC

REV.	DATE	BY	DESCRIPTION
1	10/18/19	DFC	ADDED DETAILS, REVISED DETAILS

ROBERTSON-KAISER SUBDIVISION
CONTACT: ROB ROBERTSON
50531 E 160th AVENUE
BRIGHTON, CO 80602
(303) 591-0031

KEENESBURG WATER DETAILS
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely.
CALL UNCC
THREE WORKING DAYS BEFORE YOU DIG
1-800-922-1987
EMERGENCY UTILITY NOTIFICATION

FOR REVIEW

INITIAL PLAN RELEASE: 10/18/19
DESIGNED BY: DFC
DRAWN BY: DFC
CHECKED BY: DFC
PROJECT NO: 01-0187.002.00
DOC CON #: 0013-WTR01L5
SHEET 13 OF 27

MAINTENANCE OF ALL PRIVATE STORMWATER TREATMENT AND DRAINAGE IMPROVEMENTS IS A CONTINUING OBLIGATION OF THE LAND OWNER, ITS SUCCESSORS, AND ASSIGNS, TO ENSURE THE FACILITIES FUNCTION AS DESIGNED AND CONTINUE SERVING THE INTENDED FUNCTIONS IN PERPETUITY UNLESS THE CITY EXPRESSLY ACCEPTS THE RESPONSIBILITY IN WRITING. A NON-EXCLUSIVE ACCESS AND DRAINAGE EASEMENTS ARE HEREBY GRANTED TO CITY OF BRIGHTON FOR THE PURPOSE OF ACCESSING, INSPECTING, MAINTAINING, AND REPAIRING PRIVATE DRAINAGE FACILITIES IN THE EVENT THE LAND OWNER, ITS SUCCESSORS, AND ASSIGNS FAILS TO SATISFACTORILY MAINTAIN OR REPAIR SAID FACILITIES

L_i - INITIAL LENGTH L_i = 72.5
S_i - INITIAL SLOPE S_i = 6.0%
L_t - TRAVEL LENGTH L_t = 180'
S_t - TRAVEL SLOPE S_t = 0.75%
* AVERAGE SLOPE INCLUDES ROOF SLOPE OF 0.25%

DEVELOPED DRAINAGE LEGEND
B1 — SUB-BASIN DESIGNATION
3.20 — AREA IN ACRES
58 — C5
88 — C100
EXISTING DRAINAGE PATTERN
DEVELOPED BASIN
PROPOSED DRAINAGE PATTERN
INTERNAL EMERGENCY OVERFLOW
OFFSITE EMERGENCY OVERFLOW

FULL SCALE: 1" = 60'
HALF SCALE: 1" = 120'

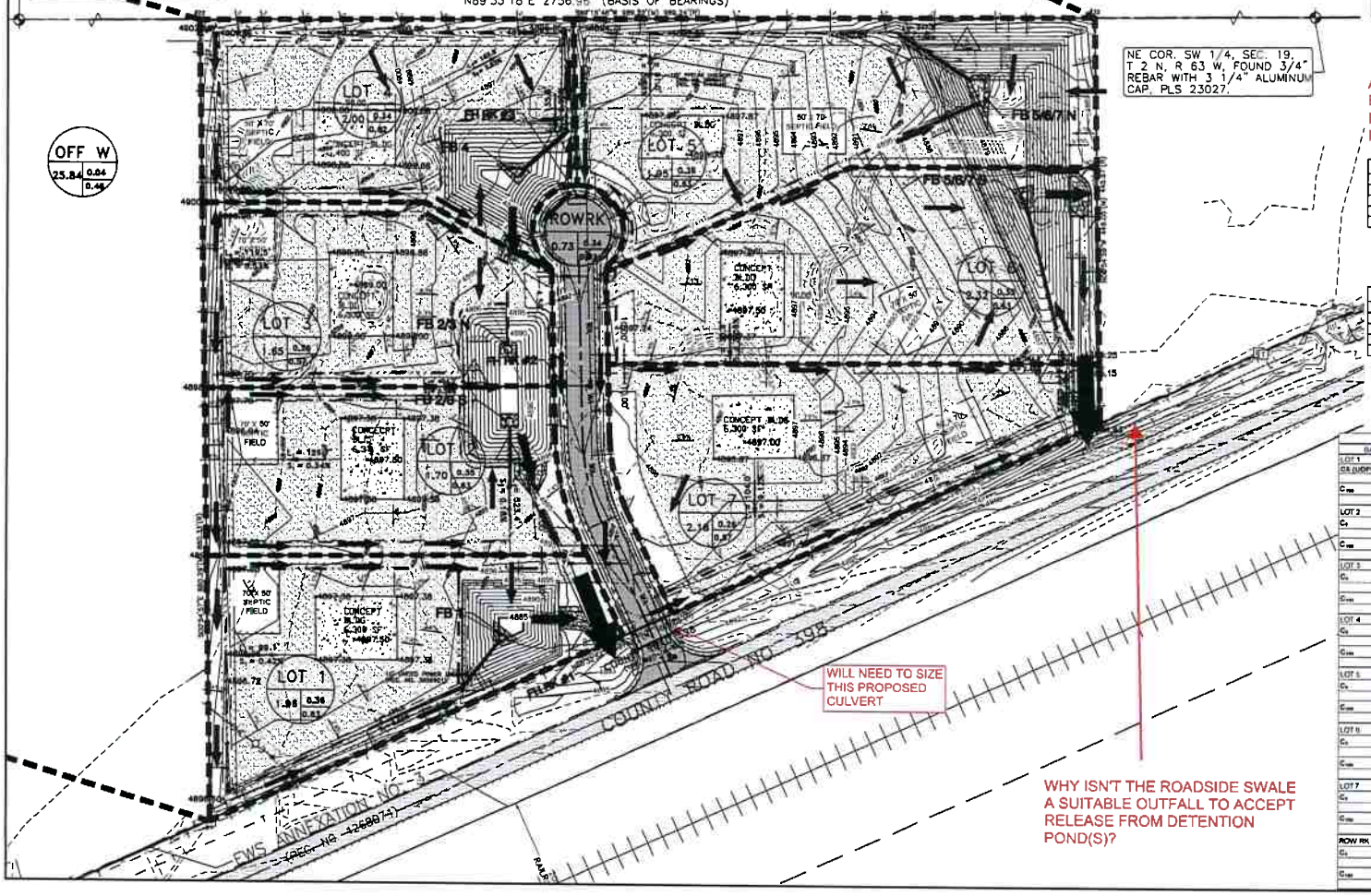
PARCEL NO. 130319000003
GARY DOUGLAS MYERS (1/2 INT)
ARTHUR W. BERGLUND
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W
N89°53'18"E 2756.96' (BASIS OF BEARINGS)

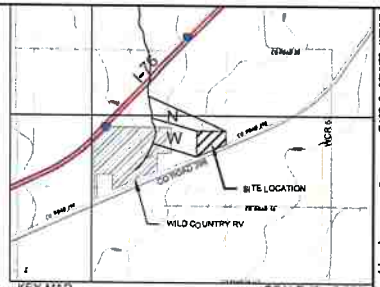
NW COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

OFF N 19.74 0.02 0.45

OFF W 25.84 0.04 0.46





KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.
SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

ADD THIS INFORMATION TO THE DRAINAGE REPORT. JUSTIFY THE RATIONALE FOR INFILTRATION, THE POND VOLUME, AND THE INFILTRATION TIME FRAME.

INFILTRATION PONDS - 100yr STORM

POND	REQUIRED VOLUME	DESIGN VOLUME	INFILTRATION RATE*
1	34,010	34,811	80.1 HRS
2-3	61,481	66,313	79.9 HRS
4	36,320	38,543	73.4 HRS
5-7	194,887	200,402	99.7 HRS

* USING PERCOLATION RATE FROM ROBERTSON RV PARK DATED JANUARY 14, 2014 PER CRS 37-92-602(8) - 100yr STORM IS REQUIRED TO DRAIN WITHIN 120 HOURS.

INFILTRATION PONDS - 5yr STORM

POND	REQUIRED VOLUME	DESIGN VOLUME	INFILTRATION RATE*
1	5,041	34,811	31.5 HRS
2-3	9,186	66,313	25.1 HRS
4	7,643	38,543	34.8 HRS
5-7	38,382	200,402	22.7 HRS

* USING PERCOLATION RATE FROM ROBERTSON RV PARK DATED JANUARY 14, 2014 PER CRS 37-92-602(8) - 5yr STORM IS REQUIRED TO DRAIN WITHIN 72 HOURS.

PROVIDE A COPY OF THIS PERCOLATION DATA IN THE DRAINAGE REPORT

DEVELOPED (5yr Annexation)

BASIN	Impervious	C-5yr	I	A	Q5yr(Developed)	DESIGN POINT
LOT 1						
C5 (UDFCD 2017)	43.65	0.36	2.03	1.83	1.34 cfs	1
C_{100}	43.65	0.63	4.74	1.83	5.45 cfs	1
LOT 2						
C_5	43.03	0.35	3.87	1.66	2.27 cfs	2
C_{100}	43.03	0.63	9.02	1.66	9.36 cfs	2
LOT 3						
C_5	31.37	0.26	1.89	1.86	0.90 cfs	3
					cfs	
C_{100}	31.37	0.57	4.49	1.86	4.96 cfs	3
					cfs	
LOT 4						
C_5	41.34	0.34	3.21	2.00	1.95 cfs	4
					cfs	
C_{100}	41.34	0.62	6.18	2.00	8.38 cfs	4
					cfs	
LOT 5						
C_5	43.65	0.36	2.18	2.52	1.95 cfs	5
					cfs	
C_{100}	43.65	0.63	5.02	2.52	7.96 cfs	5
					cfs	
LOT 6						
C_5	43.03	0.35	2.18	2.32	1.77 cfs	6
C_{100}	43.03	0.63	5.05	2.32	7.31 cfs	6
LOT 7						
C_5	31.37	0.26	1.82	2.32	1.14 cfs	7
C_{100}	31.37	0.57	4.49	2.32	5.96 cfs	7
ROW RK						
C_5	41.34	0.34	2.21	0.75	0.57 cfs	8
C_{100}	41.34	0.62	5.11	0.75	2.40 cfs	8

WHY ISN'T THE ROADSIDE SWALE A SUITABLE OUTFALL TO ACCEPT RELEASE FROM DETENTION POND(S)?

Western Engineering Consultants, Inc LLC
137 S. DENVER AVENUE
FT. LUPTON, CO 80621
www.westernengineers.com
(720) 485-2951
FAX (720) 294-1330

ROBERTSON'S RV PARK
CONTACT: RICK ROBERTSON
30431 E. 120th AVENUE
BENNETT, CO 80102
(303)261-0033

DEVELOPED DRAINAGE PLAN
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely. CALL UNCC 1-800-922-1987

FOR REVIEW

PRELIMINARY PLAN RELEASE: 02/19/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0018-DEVDRNG
SHEET 15 OF 27

INTERSECTION SIGHT TRIANGLES SHOWN PER AASHTO FIGURE 9-15, CASES B1 & B2. DESIGN SPEED = 55 MPH (POSTED SPEED = 45 MPH), USING COMBINATION TRUCK. LEFT TURN ISD = 930', RIGHT TURN ISD = 850'.

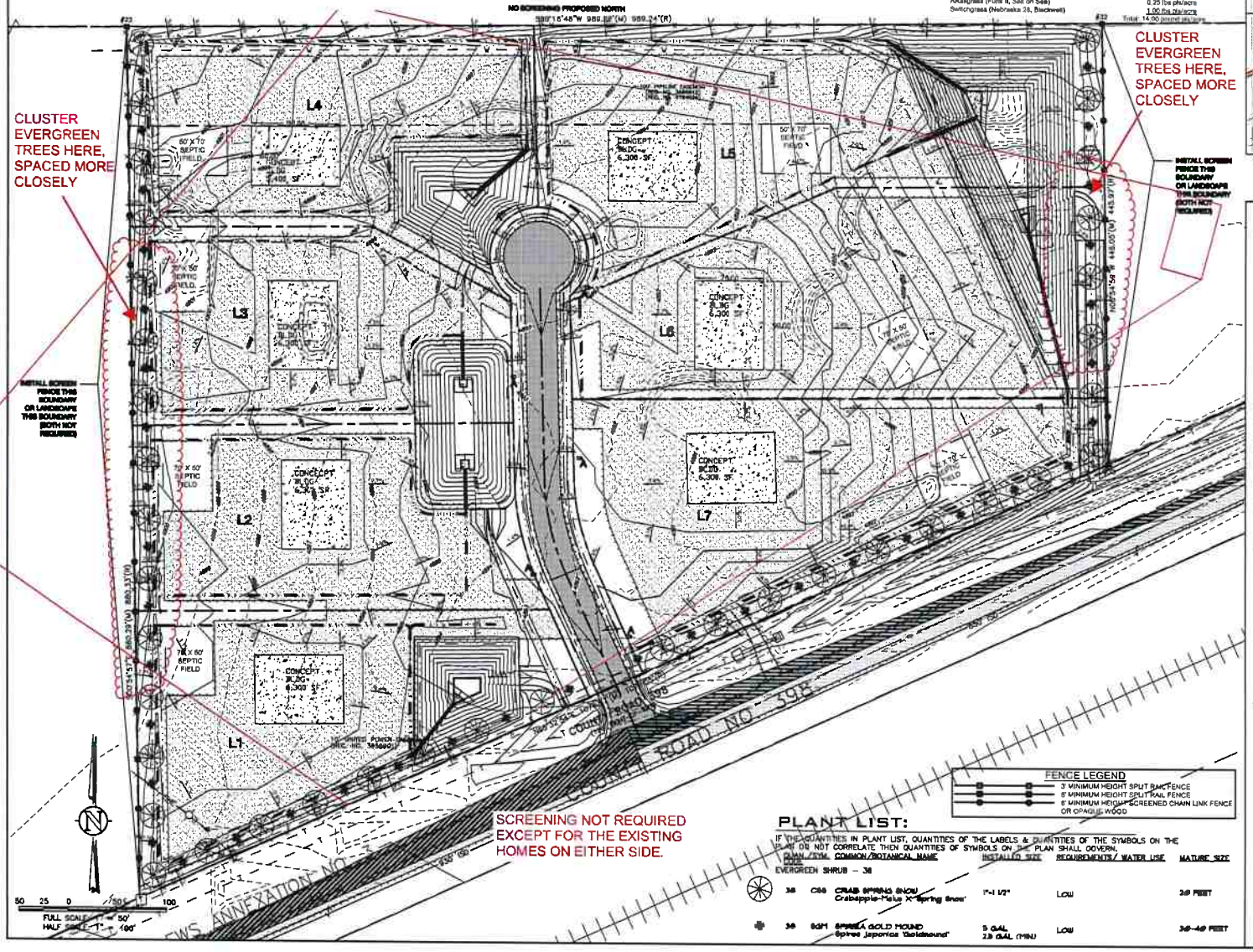
ALL AREAS OUTSIDE HARDSCAPE AND ROADBASE AREAS SHALL BE SEEDED per WELD COUNTY SPECIFICATIONS.

LUMINAIRE SCHEDULE

SYMBOL	QTY	LABEL	LUM. WATTS	LUM. LUMENS	LLF	CATLOG
	6	A	156.5	14852	0.900	LDRL-T2-F06-E

WELD COUNTY SEED MIX:

Western Wheatgrass (Arriba, Barton, Rosana)	2.50 lbs pls/acre
Blue Grama (Hachita, Lovington)	1.50 lbs pls/acre
Sideoats Grama (Vaughn, Butte, Niner, El Reno, Haskell)	2.25 lbs pls/acre
Smooth Brome (Lincoln, Manchar)	2.75 lbs pls/acre
Sand dropseed	0.25 lbs pls/acre
Perennial Ryegrass (Calibra or Gunthalski introprint)	1.00 lbs pls/acre
Slender Wheatgrass (Pryor, Revenue or San Luis)	2.50 lbs pls/acre
Alkaligrass (Fults II, Salt on Sea)	0.25 lbs pls/acre
Switchgrass (Nebraska 28, Blackwell)	1.00 lbs pls/acre
	Total 14.00 pound pls/acre



FENCE LEGEND

- 3' MINIMUM HEIGHT SPLIT RAIL FENCE
- 6' MINIMUM HEIGHT SPLIT RAIL FENCE
- 6' MINIMUM HEIGHT SCREENED CHAIN LINK FENCE OR OPAQUE WOOD

PLANT LIST:

IF THE QUANTITIES IN PLANT LIST, QUANTITIES OF THE LABELS & QUANTITIES OF THE SYMBOLS ON THE PLAN DO NOT CORRELATE THEN QUANTITIES OF SYMBOLS ON THE PLAN SHALL GOVERN.

QUAN.	SYM.	COMMON/BOTANICAL NAME	INSTALLED SIZE	REQUIREMENTS/ WATER USE	MATURE SIZE
EVERGREEN SHRUB – 36					
36	CSS	CRAB SPRING SNOW Crabapple-Malus X-'Spring Snow'	1"-1 1/2"	Low	20 FEET
36	SGM	SPIREA GOLD MOUND Spirea japonica 'Goldmound'	5 GAL 2.5 GAL (MIN)	Low	30-40 FEET

KEY MAP

SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE SCREENING AND LANDSCAPE PLAN FOR THE RK SUBDIVISION

ALL IMPROVEMENTS ARE EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "ROBERTSON–LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY – DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY DUNKER ENGINEERING CONSULTING, INC.

SHOWN PROPOSED LAYOUT PROVIDED BY DUNKER ENGINEERING CONSULTING, INC. DATED DECEMBER 06, 2013. ANY SUBSEQUENT REVISIONS MADE BY DUNKER ENGINEERING CONSULTING, INC. ARE NOT REFLECTED IN THIS PLAN SET. REVISIONS DESCRIBED AND DATED ON INDIVIDUAL SHEETS IN THIS PLAN SET ARE WESTERN ENGINEERING REVISIONS ONLY.

NOT ALL UNCC UTILITY LOCATES HAVE BEEN PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES ARE LOCATED AND SURVEY PROVIDED TO THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION DRAWING RELEASE.

SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED WATER VALVE
- PIPE CROSSOVER
- MANHOLE
- EXISTING ASPHALT PAVING
- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE PAVING
- PROPOSED GRAVEL

LINETYPE LEGEND

- LOT / PROPERTY LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WQ W/S
- SWALE
- OHE — EXISTING OVERHEAD ELEC
- E — EXISTING ELECTICAL LINE
- EXISTING STORM LINE
- S — EXISTING SANITARY LINE
- W — EXISTING WATER LINE
- G — EXISTING GAS LINE
- FIBER — EXISTING FIBER OPTIC LINE
- T — EXISTING TELEPHONE LINE
- SA — PROPOSED SANITARY LINE
- SS — PROPOSED SANITARY SERVICE
- STM — PROPOSED STORM LINE
- WA — PROPOSED WATER LINE
- WAS — PROPOSED WATER SERVICE
- GA — PROPOSED GAS LINE
- EL — PROPOSED ELECTRIC LINE
- PH — PROPOSED TELEPHONE LINE

127 S. DENVER AVENUE
FT. LUPTON, CO 80621
www.westernengineers.com
(720) 685-9931
FAX (720) 284-1330
Western Engineering Consultants, Inc LLC

REVISIONS	DATE	BY

ROBERTSON-KAISER ANNEX

CONTACT: RICK ROBERTSON
30351 E. 1-76 SERVICE RD.
BENNETT, CO 80102
(303)981-0031

SCREENING AND LANDSCAPE PLAN
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT

TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely.
CALL UNCC
1-800-922-1987

FOR REVIEW

INITIAL PLAN RELEASED 03/19/19
DESIGNED BY: CTC
DRAWN BY: SFC
CHECKED BY: CTC
PROJECT NO. 01-0187.002.00
DOC CON # 0024-15 PLAN
SHEET 24 OF 27

b.

RESOLUTION NO. PC2020-08

A RESOLUTION RECOMMENDING APPROVAL OF A PRELIMINARY AND FINAL PLAT FOR THE RK SUBDIVISION

WHEREAS, there has been submitted to the Planning and Zoning Commission of the Town of Keenesburg a request for approval of a preliminary and final plat for the RK Subdivision; and

WHEREAS, all materials related to the application have been reviewed by Town Staff and found with conditions to be in compliance with Town of Keenesburg subdivision and zoning ordinances and related Town ordinances, regulations, and policies; and

WHEREAS, after a duly-noticed public hearing, at which evidence and testimony were entered into the record, the Planning and Zoning Commission finds the application to be in compliance with Town of Keenesburg subdivision and zoning ordinances and related Town ordinances, regulations, and policies and should therefore be approved, subject to those conditions set forth herein.

NOW, THEREFORE, BE IT RESOLVED BY THE PLANNING COMMISSION OF THE TOWN OF KEENESBURG, COLORADO:

Section 1. The Planning and Zoning Commission hereby recommends approval of the proposed preliminary and final plat for the RK Subdivision, subject to the conditions set forth on Exhibit A, attached hereto and incorporated herein by reference, all of which conditions shall be met prior to recording.

PASSED AND ADOPTED this 3rd day of September, 2020.

_____
John Howell, Chairperson

ATTEST:

_____
Teri Smith, Secretary

EXHIBIT A
RK Subdivision
Conditions of Approval

1. Execute a Subdivision Agreement in a form to be approved by the Board of Trustees.

2. Submit adequate evidence of gas service to the site.

3. Revise the plat and other application materials to address the redlines and comments provided by the Town Engineer.

4. Make a cash-in-lieu payment for 1.8 acres of open space land dedication, as required by Section 7 of the annexation agreement.

5. Add the following note to the plat:

> Landscaping and irrigation will be a requirement for future owners of each lot as part of the development or use of each lot. Prior to development or use of any lot a pre-application meeting will be required to determine the appropriate land use process for the proposed uses.

6. Provide an updated Property Information Binder or title commitment issued within 30 days prior to submitting the final plat for recording.

7. Revise the Certificate of Ownership and Dedication to read as follows, following the legal description:

> Have laid out, subdivided and platted said land as per drawing hereon contained under the name and style of RK Subdivision , a subdivision of a part of the Town of Keenesburg, County of Weld, State of Colorado, and by these presents do hereby dedicate to the Town of Keenesburg the streets, avenues and other public places as shown on the accompanying plat for the public use thereof forever and does further dedicate to the use of the Town of Keenesburg and all serving public utilities those portions of said real property which are so designated as easements as shown.
>
> It is expressly understood and agreed by the undersigned that all expenses and costs involved in constructing and installing sanitary sewer works and lines, water system works and lines, gas service lines, electrical service works and lines, landscaping, curbs, gutters, street pavement, sidewalks, and other such utilities and services shall be guaranteed and paid for by the subdivider or arrangements made by the subdivider thereof which are approved by the Town of Keenesburg, Colorado, and such sums shall not

be paid by the Town of Keenesburg, and that any item so constructed or installed when accepted by the Town of Keenesburg shall become the sole property of said Town of Keenesburg, Colorado, except private roadway curbs, gutter and pavement and items owned by municipality franchised utilities, other serving public entities, and/or CenturyLink, which when constructed or installed shall remain and/or become the property of such municipality franchised utilities, other serving public entities, and/or CenturyLink. and shall not become the property of the Town of Keenesburg, Colorado.

8. Revise the Town Board approval block to read as follows:

This is to certify that the plat of RK Subdivision was approved by the Board of Trustees of the Town of Keenesburg by Resolution No. _____ , this _____ day of _____ , 20___ , and that the Mayor of the Town of Keenesburg, on behalf of the Town of Keenesburg, hereby acknowledges said plat upon which this certification is endorsed for all purposes indicated hereon.

9. A pdf of the revised final plat shall be sent to staff for review and approval prior to submitting the signed mylar.

C.

STAFF REPORT

TO: **PLANNING COMMISSION**

FROM: **TODD A. HODGES, PLANNER**

SUBJECT: **KAUFMAN ANNEXATION, INITIAL ZONING & SKETCH PLAN**

PC MEETING DATE: SEPTEMBER 3, 2020

BOARD OF TRUSTEES MEETING DATE: SEPTEMBER 21, 2020

I. Attachments

1. Application submittals
2. Drawings
3. Referrals

II. Project Owners and Representatives:

Owners:

Kauffman Brothers Limited Partnerships c/o Mark Kauffman
8616 WCR 63
Keenesburg, CO 80643

Applicant:

Mark Kauffman
8616 WCR 63
Keenesburg, CO 80643
(303)961-3960
cmkauff@rtebb.net

Project Representative:

Mark Kauffman
8616 WCR 63
Keenesburg, CO 80643
(303)961-3960
cmkauff@rtebb.net

III. Location

The site is located north and adjacent to CR 398 approximately 120 feet north of the intersection of CR 63 and CR 398.

Legal:

PT NW4 20-2-63 COMM NW SEC COR TH N89D11E 711.19 S34E48W 626.82 TH 495.55 ALG CRV CONCAVE NW (R=5528.9 CH=S37D23W) N00D30W 30.89 TH 56.56 ALG CRV CONCAVE NW (R=5508.9 CH=S40D00W) N00D59W 910.67 TPOB

III. Project Description

The land use application is for an annexation of 7.91 acre, zoning to (LI) Light Industrial and a subdivision sketch plan for 4 lots.

The annexation is located 2.3 miles from the Town of Keenesburg municipal boundary and meets the 1/6 continuity annexation requirements, establishing a community of interest and all other said requirements of the Colorado Municipal

Annexation Act of 1965. The parcel along the northern boundary of the proposed annexation is part of the Town of Keenesburg. West of the property is Weld County Ag, North of the property is currently Ag but has been designated as Industrial by the Town of Keenesburg, Northeast of the property is Industrial (operated by Plains Marketing L P), East of the parcel is Ag and South of the Parcel is Ag as well. Access to the parcel will be provide by WCR 398. WCR 398 and the associated ROW have been previously annexed into the Town of Keenesburg. With this application, the applicant will dedicate 30ft of ROW along County Road 20 as part of the parcel development.

The zoning application enclosed is proposing initial zoning of the property to Light Industrial. The adjacent properties to the northeast of the site are designated as industrial on the Town of Keenesburg land use map and comprehensive plan.

Under section 16-2-140 of the Town of Keenesburg municipal code, light industrial zoning is purposed to provide land areas to be used primarily for research and development, mini warehousing, small product assembly and manufacturing and other service, distribution and industrial uses that are relatively nonpolluting and have few off-site impacts as a result of the operations on-site.

With this application, the applicant is further requesting for approval of a subdivision sketch plan that will allow the property to be divided into four (4) separate lots. These lots are proposed to be sized as, 0.7AC, 1.54AC, 2.23AC, and 2.26AC. Each of these lots will be directly connected to Carol Drive, which will directly connect to Weld County Road 398. Each lot will be connected to municipal water, electric, gas and have an onsite water treatment plant. Per the application submittal any proposed streetscape and lot fencing will be left to the individual lot owner. This item must be addressed in more detail through a condition of approval requiring the applicant to address the newly adopted design standards. Staff has concerns about the proposed layout of the development concerning the access being split onto adjacent properties and also some other items that are included in referral comments. Some of the issues need to be addressed prior to going to the Board of Trustees and conditions of approval address these issues.

Utilities for the site are provided by:
Gas: Atmos
Electric: United Power
Water: Town of Keenesburg.
Sewer: Onsite Wastewater Treatment System
Fire: S.E. Weld County Fire

At the time this report was written, there have been no written objections filed with the Town concerning the proposed annexation, zoning or sketch plan. Referrals were received from CDOT, Weld County Health Department, Fire District, Division of Water Resources, Fire District, Town Attorney, and Town Engineer. The referral comments are attached to this report.

VIII. Findings/Conclusions

After review of the Comprehensive Plan Municipal Code and referral comments and Planning Commission, staff finds that:

1. That not less than one-sixth of the perimeter of the area proposed to be annexed is contiguous with the annexing municipality.

2. That a community of interest exists between the area proposed to be annexed and the annexing municipality; that said area is urban or will be urbanized in the near future; and that said area is integrated with or is capable of being integrated with the annexing municipality.

3. The annexation request meets all criteria set forth in 15-1-20 of the Town of Keenesburg Code.

3. The property is directly adjacent to property designated as Heavy Industrial (HI) in the 2017 Comprehensive Plan Land Use Map.

3. The subdivision sketch plan submittal meets all criteria set forth in 17-2-10 of the Town of Keenesburg code. Conditions of approval address the issues that need to be addressed prior to the project going to the Board of Trustees.

IX. Recommendation

Based upon the findings identified in this report, staff recommends approval of the Kauffman #4 annexation, re-zoning and sketch plan with the following conditions:

1. Prior to review of the sketch plan by the Board the applicant shall adequately address the referral comments from the Town Engineer, Public Works Director, and the Fire District.

2. Address redlines provided by Town Attorney and any other staff members.

3. Provide a pdf of the final drawing documents prior to printing on mylars for review and approval.

4. As part of the preliminary plat submittal the applicant shall address the adopted design standards that pertain to this development. This includes but is not limited to landscaping, lighting, and signage for the proposed development.

5. Prior to submittal of the preliminary plat the applicant shall submit a request for a pre-application meeting.

Town Of Keenesburg
140 South Main Street
PO BOX 312
Keenesburg, CO 80643
(303)732-4281

Zoning Application
Fee $250.00

Applicant(s) Name: KAUFFMAN BROTHERS LIMITED PARTNERSHIP c/o MARK KAUFFMAN

Address of Applicant (s) 8616 WCR 63, KEENESBURG, CO 80643

Legal Description of Property: PT NW4 20-2-63 COMM NW SEC COR TH N89D11 E 711.19 S34E48W 626.82 TH 495.55 ALG CRV CONCAVE NW (R=5528.9 CH=S37D23W) N00D30W 30.89 TH 56.56 ALG CRV CONCAVE NW (R=5508.9 CH=S40D00W) N00D59W 910.67 TPOB

Current Zoning AG (Weld County Requested Zoning Industrial (I-1)

Reason for requested zoning change: Consistent with I-76 and WCR 398 Corridor

Each applicant whose name appears upon the deed or title to this property must sign:

Name Mark Kauffman on behalf of Kauffman Brothers Limited Partnership Date

Name Date

Mark Kauffman 11-8-19

Name Date

This application must be accompanied by a title commitment for proof of ownership issued within 30 days of hearing.

WESTERN ENGINEERING CONSULTANTS, Inc LLC
127 S. Denver Avenue, Ft. Lupton CO 80621
2501 Mill St. Brush, CO 80723
Ph. 303-913-7341, Fax 720-294-1330
Email: chadwin.cox@westerneci.com

February 19, 2020

Town of Keenesburg
140 S. Main St
Keenesburg, CO 80643

RE: KAUFFMAN SOUTHWEST PARCEL ZONING SUBMITTAL NARRATIVE

Dear Town Staff,

Please find the attached Zoning Application and supporting documents for the Kauffman Southwest Parcel Zoning Submittal.

This letter is intended to serve as the Project narrative (Annexation Item #08).

General Information and Brief Project Description:

Owner:	Kauffman Brothers Limited Partnership Mark Kauffman authorized as the agent /representative 8616 WCR 63 Keenesburg, CO 80643
Civil Engineer:	Western Engineering Consultants inc, LLC 127 South Denver Ave. Fort Lupton, CO 80621 720-685-9951 Chadwin Cox PE 303-913-7341
Land Surveyor:	American West Land Surveyors 331 South 4th Avenue Brighton, Colorado 80601 303-659-1532 Curtis Hoos PLS
Traffic Engineer:	Sustainable Traffic Solutions 823 West 124th Drive Westminster, Colorado 80234 303-589-6875 Joe Henderson PE PTOE
Geotechnical Engineer:	Soilogic 4350 Highway 66 Longmont, Colorado 80504 970-535-6144 Wolf Von Carlowitz PE, Darrel DiCarlo PE

Electrical Engineer:	To Be Determined
Drainage Engineer:	Western Engineering Consultants 127 S. Denver Avenue Ft. Lupton, Colorado 80643 303-913-7341 Chadwin Cox PE
Location of Site:	Adjacent to WCR 398 and 120 feet north from intersection of County Road 63 and WCR 398, Weld County.
Total Site Area:	7.91 Acres (412,218 sf)
Total Build-out Area:	3 Lots are proposed (1.5 ac, 2.25 ac, and 2.25 ac)

TDB by lot	Building area at buildout
TBD	Landscaping

COMPREHENSIVE PLAN:
The current Land Use Plan for this property and the adjacent north and east properties as Industrial. This proposal to is Zone as Industrial. See figure 1.

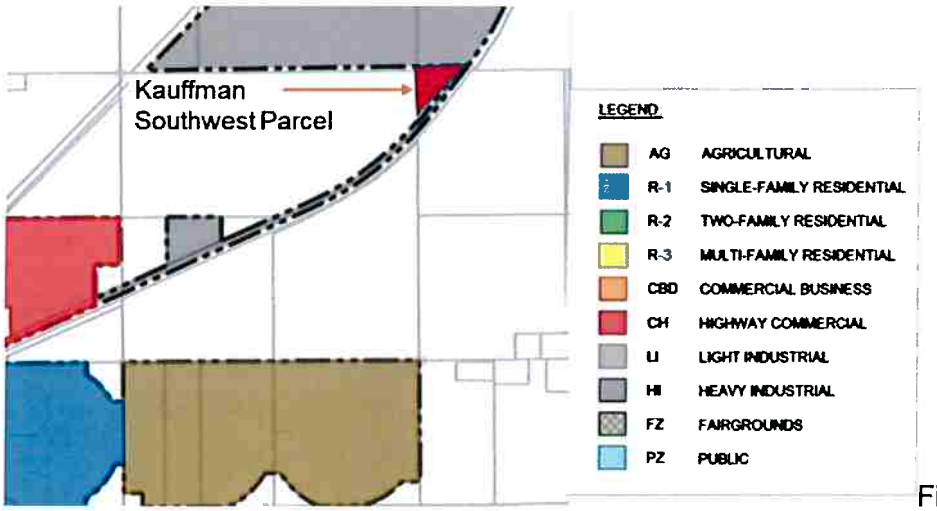


Fig. 1

ZONING DISTRICT:
Current zone is Agricultural. Proposed Zone is Light Industrial (LI)

DENSITY:
The maximum density will be determined during Site design and review. Each lot is expected to have an Office/Shop building, gravel access/parking yard, and on site Wastewater Treatment System (OWTS).

DIVERSITY:
The proposed industrial lot size are limited in Town – the Applicant believes this project will bring further diversity to the Town of Keenesburg.

ADJACENT ADLAND USES:
To the west lies agricultural farm ground, to the North is agricultural farm ground, to the South is WCR 398, and to the east agricultural and to the Northeast and industrial complex (Discovery Midstream Gas Plant). North and east are planned as Industrial per the Town's Land Use plan.

CONNECTIVITY:
The property is directly connected to the Town and it's frequently traveled locations via WCR 398.

PUBLIC OPEN SPACE:
Not applicable.

ROADWAY NETWORK:
The Town has existing roadways to the east and west. A new local industrial roadway ROW will be dedicated as part of the parcel development.

TREATMENTS TO ROADWAYS
None expected at this time – see attached Traffic Letter for anticipated demands. It is expected the Subdivision Improvement Agreement and/or Development Agreement will define the terms for acceleration/deceleration and/or turn lanes if demands exceed acceptable thresholds.

LOT LAYOUT:
One 1.5 acres lot and two 2.25 acres lots are proposed for Southwest Parcel.

LOT INTERFACE WITH ROADWAYS:
Each lot within Southeast parcel will be connected direct to Carol Drive which will be directly connected to WCR 398.

LOT SIZE DIVERSITY:
Since this is an industrial subdivision there is no significant diversity proposed here-in-however each lot will be individually developed so they will have diversity from each other.

SETBACKS:
The setbacks are 30 feet front and rear and 10 feet each side.

LOT SIZES ENHANCING STREETCAPE:
Lot sizes vary from just over 1.5 acres to approximately 2.25 acres. Each adjacent lot will include independent landscape designs that complement WCR 398 road corridor. Currently no streetscape is proposed along the Town standard Industrial road cross section beyond native drought resistant grasses in the 4 foot area between back of the 8 foot walk and right of way boundary.

COMMON AREAS:
Currently none are proposed with this overall subdivision plan. This development is not large enough nor part of a larger development where Common Areas would be appropriate.

FENCING:
All site fencing is proposed to be handled by each individual lot owner in accordance with Town regulations. Screened fence (metal sided) will be required for the perimeter of any equipment parking (expected to be in the rear – eastern portion of each lot) with exception to the front (west) where screening will occur between the side fencing and/or building.

AMENITIES, ENTRIES, CONNECTIVITY, ARCHITECTURAL & LANSCAPE DESIGNS FOR EACH LOT
The current amenities include proposed street, utility, lighting, grading and drainage improvements necessary to develop the infrastructure needed for lot specific development. Each Light Industrial lot development will be individually designed (drought resistant landscape included). No **architectural features are proposed with this public infrastructure phase for the Overall Subdivision.**

IRRIGATION SYSTEM
Each lot will be required to have its own irrigation system (if necessary – current expectation is to be drought resistant Xeriscape). It is expected each lot will include varying levels of xeriscape as well to be compliant with modern water wise methodology.

POTABLE WATER:
Potable water exists in adjacent WCR 398. The Town water system will be extended into the proposed public right of way proposed as Carol Drive.

ADEQUATE POTABLE WATER:
Pursuant to the Pre-Application meeting – Town of Keenesburg adequate water is said to not be an issue.

STORM WATER MANAGEMENT:
This project will detain stormwater as allowed by the Town of Keenesburg and State of Colorado. Currently a subdivision Infiltration Pond is proposed. Further investigation will be performed to confirm if a detained release can occur into WCR 398 right of way.

GAS AND ELECTRIC:
Electric is already adjacent to the property. It is unclear if gas exist.

WILL SERVICE LETTERS:
We have contacted South East Weld County Fire Rescue requesting service and a will serve letter.

SURVEYS:
The Site topography and boundary survey was provided by American West Land Surveyors in Brighton

6) Annexation Impact Questions

a.) Soils Description	See attached NRCS Soil data.
b.) Known hazards	None known to exist.
c.) Preliminary Utility Plan	Buried electric exists within WCR 398 right of way Extension of Town Water main is proposed in the new ROW Septic (OWTS) It is unclear if gas exists in this area No water rights are known to exist
d.) Affidavit concerning water	No water rights are known to exist
e.) Statement on Community need	Industrial "pad ready" parcels are in demand
f.) Effect of annexation on Schools	Effect unclear – a developed pad could attract new employees and said employees could commute or move into community.

SUBMITTAL & HOPEFUL PROJECT SCHEDULE:

Date:	Time/ location:	Event:	Notes:
February 19, 2020	1:00 p.m.	Submit Annexation documents	
April 15, 2020		Complete Annexation and Zoning approvals	

SPECIAL USE APPLICATION CHECKLIST:

The following is a summary of the checklist items:

1. Pre-Application Meeting	Held
2. Zoning Application	Enclosed
3. Site Plan (3 copies 11"X17" and 3 copies 36"X24")	Enclosed
4. Written comments from Utilities companies	
5. Electronic Copy	Enclosed
6. Application Fees	Enclosed
7. Cost Agreement	Enclosed
8. Written Description of Proposal	This document
9. Proof of Ownership	Enclosed
10. 300 ft Report and envelopes	Enclosed
11. Copy of any surface agreement with mineral interest	Enclosed Report
12. Traffic Study	Enclosed
13. Soils Report	Enclosed

Please contact me with any questions or comments you may have on this proposed project!

Sincerely,

Western Engineering Consultants inc., LLC
Chadwin F. Cox, P.E.
Senior Project Manager

Encl. Annexation submittal documents

TOWN OF KEENESBURG
FOUNDED JULY, 1906
A MUNICIPAL CORPORATION SINCE JULY, 1919

ANNEXATION PETITION

TO THE MAYOR AND BOARD OF TRUSTEES OF THE TOWN OF KEENESBURG, COLORADO:

The undersigned, in accordance with Title 31, Article 12, Chapters 101 et.seq., Colorado Revised Statues, hereby petition the Board of Trustees of the Town of Keenesburg for annexation into the Town of Keenesburg the unincorporated territory, the legal description of which is attached hereto as Exhibit A and incorporated herein by this reference, located in the County of Weld and State of Colorado, and to be known as the KAUFFMAN ANNEXATION No.4 Annexation to the Town of Keenesburg.

In support of this petition, the petitioner (s) further state to the Board of Trustees that:

1. It is desirable and necessary that the territory described in Exhibit A be annexed to the Town of Keenesburg.

2. The requirements of Section 31-12-104 and 31-12-105 of the Colorado Revised Statutes as amended, exist or have been met in that:

   a. Not less than one-sixth (1/6) of the perimeter of the area proposed to be annexed is contiguous with the Town of Keenesburg or will be contiguous with the Town of Keenesburg within such time as required by Section 31-12-104..

   b. A community of interest exists between the territory proposed to be annexed and the Town of Keenesburg.

   c. The territory sought to be annexed is urban or will be urbanized in the near future.

   d. The territory sought to be annexed is integrated with or is capable of being integrated with the Town of Keenesburg.

   e.. No land within the boundary of the territory proposed to be annexed which is held in identical ownership, whether consisting of one tract or parcel of real estate or two or more contiguous tracts or parcels of real estate, has been divided into separate parts or parcels without the written consent of the landowner or landowners thereof, unless such tracts or parcels were separated by a dedicated street, road, or other public way.

   f. No land within the boundary of the territory proposed to be annexed which is held in identical ownership, whether consisting of one tract or parcel of real estate or two or more contiguous tracts or parcels of real estate, comprises twenty acres or more, and which, together with the buildings and improvements situated thereon, has an assessed value in excess of two hundred thousand dollars ($200,000.00) for ad valorem tax purposes for the year next preceding the

annexation, has been included within the area proposed to be annexed without the written consent of the landowner or landowners.

g. The territory proposed to be annexed does not include any area which is the same or substantially the same area in which an election for an annexation to the Town of Keenesburg was held within twelve months preceding the filing of this petition.

h. The territory proposed to be annexed does not include any area included in another annexation proceeding involving a town other than the Town of Keenesburg

i. The annexation of the territory proposed to be annexed will not result in the detachment of area from any school district.

j. The annexation of the territory proposed to be annexed will not have the effect of extending the boundary of the Town of Keenesburg more than three miles in any direction from any point of the boundary of the Town of Keenesburg in any one year.

k. The territory proposed to be annexed is 7.91 acres in total area.

l. Prior to completion of the annexation of the area proposed to be annexed, a plan will be in place, pursuant to Section 31-12-105(1)(e), C.R.S., which generally describes the proposed location, character, and extent of streets, subways, bridges, waterways, waterfronts, parkways, playgrounds, squares, parks, aviation fields, other public ways, grounds, open spaces, public utilities, and terminals for water, and sanitation to be provided by the Town of Keenesburg; including the providers of transportation, light, natural gas, and power, and the proposed land uses for the area; such plan to be updated at least once annually.

m. In establishing the boundary of the area proposed to be annexed, if a portion of a platted street or alley is to be annexed, the entire width of the street or alley has been included within the area annexed, and reasonable access will not be denied to any landowners, owners of any easement, or the owners of any franchise adjoining any platted street or alley which is to be annexed to the Town of Keenesburg but is not bounded on both sides by the Town of Keenesburg.

3. The owners of more than fifty percent (50%) of the area proposed to be annexed, exclusive of dedicated streets and alleys, have signed this petition and hereby petition for annexation of such territory.

The signatures on this petition comprise one-hundred percent (100%) of the landowners of the territory to be annexed and said landowners attesting to the facts and agreeing to the conditions herein contained will negate the necessity of any annexation election.

4. Accompanying this petition are four copies of an annexation map as well as an electronic file that will contain the following information:

a. A written legal description of the boundaries of the area proposed to be annexed, in the form of a title commitment issued within 30 days of the application date;

b. A map showing the boundary of the area proposed to be annexed said map prepared by and containing the seal of a registered engineer;

c. Within the annexation boundary map, an identification of the location of each ownership tract in unplatted land and, if part or all of the area is platted, the boundaries and the plat numbers of plots or of lots and blocks. Also within the boundary map, identification of any special districts the area proposed to be annexed may be part of.

d. Next to the boundary of the area proposed to be annexed, a drawing of the contiguous boundary of the Town of Keenesburg and the contiguous boundary of any other municipality abutting the area proposed to be annexed, and a showing of the dimensions of such contiguous boundaries.

e. A surveyor's certificate prepared by a registered land surveyor that attests to the preparation of the map and certifies at least one-sixth (1/6) contiguity to the Town of Keenesburg.

f. Acceptance block describing the acceptance action by the Mayor on behalf of the Town of Keenesburg and providing for the effective date and Town Clerk attest signature.

5. Upon the annexation ordinance becoming effective, all lands within the area proposed to be annexed will become subject to all ordinances, resolutions, rules, and regulations of the Town of Keenesburg, except for general property taxes of the Town of Keenesburg, which shall become effective as of the January 1 next ensuing.

6. The zoning classification requested for the area proposed to be annexed is Industrial LI.

   The petitioners agree that said annexed land shall be brought under the provisions of Chapter 16 of the Keenesburg Municipal Code within ninety (90) days from the effective date of the annexation ordinance.

7. There shall be no duty or obligation upon the Town of Keenesburg to furnish water or sanitary sewer facilities to the area proposed to be annexed. Such services will be provided at such time, in the sole discretion of the Town, when such services for water and sanitary sewer can be economically and reasonably installed to service a sufficient number of inhabitants within the area so as to make the construction and establishment of such services feasible and at no additional cost for the same or similar type of services provided to inhabitants within the existing corporate limits of the Town.

8. If required by the Town, an annexation agreement has been or will be executed by the petitioners herein and the Town of Keenesburg relating to this annexation and the petitioners hereby expressly consent to the terms and conditions set forth in the annexation agreement.

9. The petitioners agree to the following terms and conditions, which shall be covenants running with the land, and which may, at the option of the Town, appear on the annexation map:

   a. Water rights shall be provided pursuant to Town ordinance.

   b. All conditions set out in the annexation agreement executed by the petitioner.

   c. Other:

THEREFORE, the petitioners, whose signatures are on the signature sheet on the next page, respectfully petitions the Board of Trustees of the Town of Keenesburg to annex the territory described and referenced to in Exhibit "A" to the Town of Keenesburg in accordance with and pursuant to the statues of the State of Colorado.

AFFIDAVIT OF CIRCULATOR

The undersigned, being of lawful age, who being first duly sworn upon oath deposes and says:

That (he or she) was the circulator of the foregoing Petition for Annexation of lands to the Town of Keenesburg, Colorado, consisting of _6_ pages, including this page and that each signature thereon was witnessed by your affiant and is the true signature of the person whose name it purports to be.

Carmen L. Maldonado(Circulator)

ACKNOWLEDGEMENT

STATE OF COLORADO)
)ss
COUNTY OF Weld)

The above and foregoing Affidavit of Circulator was subscribed and sworn to before me this _08___ day of ___November_____, 2019___.

Witness my hand and official seal.

My commission expires on: 09/21/2022

Dawn Koshio
Notary Public ID.

810 1st St
Address
Ft Lupton, CO 80621

DAWN KOSHIO
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20104038580
My Commission Expires September 21, 2022

(SEAL)

Land Owner (s) Name (s) and Signature (s) Mailing Address Date

Kauffman Brothers Limited Partnership c/o Mark Kauffman 8616 WCR 63 Keenesburg, CO 80643, Nov 8th, 2019

Mark Kauffman

Printed Name

Mark Kauffman

Signature

WESTERN ENGINEERING CONSULTANTS, Inc LLC
127 S. Denver Avenue, Ft. Lupton CO 80621
2501 Mill St. Brush, CO 80723
Ph. 303-913-7341, Fax 720-294-1330
Email: chadwin.cox@westerneci.com

February 19, 2020

Town of Keenesburg
140 S. Main St
Keenesburg, CO 80643

RE: KAUFFMAN SOUTHWEST PARCEL ANNEXATION SUBMITTAL NARRATIVE

Dear Town Staff,

Please find the attached Annexation Petition and supporting documents for the Kauffman Southwest Parcel Annexation Submittal.

This letter is intended to serve as the Project narrative (Annexation Item #6).

General Information and Brief Project Description:

Owner:	Kauffman Brothers Limited Partnership Mark Kauffman authorized as the agent /representative 8616 WCR 63 Keenesburg, CO 80643
Civil Engineer:	Western Engineering Consultants inc, LLC 127 South Denver Ave. Fort Lupton, CO 80621 720-685-9951 Chadwin Cox PE 303-913-7341
Land Surveyor:	American West Land Surveyors 331 South 4th Avenue Brighton, Colorado 80601 303-659-1532 Curtis Hoos PLS
Traffic Engineer:	Sustainable Traffic Solutions 823 West 124th Drive Westminster, Colorado 80234 303-589-6875 Joe Henderson PE PTOE
Geotechnical Engineer:	Soilogic 4350 Highway 66 Longmont, Colorado 80504 970-535-6144 Wolf Von Carlowitz PE, Darrel DiCarlo PE

Electrical Engineer:	To Be Determined
Drainage Engineer:	Western Engineering Consultants 127 S. Denver Avenue Ft. Lupton, Colorado 80643 303-913-7341 Chadwin Cox PE
Location of Site:	Adjacent to WCR 398 and 120 feet north from intersection of County Road 63 and WCR 398, Weld County.
Total Site Area:	7.91 Acres (412,218 sf)
Total Build-out Area:	3 Lots are proposed (1.5 ac, 2.25 ac, and 2.25 ac)

TDB by lot	Building area at buildout
TBD	Landscaping

COMPREHENSIVE PLAN:
The current Land Use Plan for this property and the adjacent north and east properties as Industrial. This proposal to is Zone as Industrial. See figure 1.

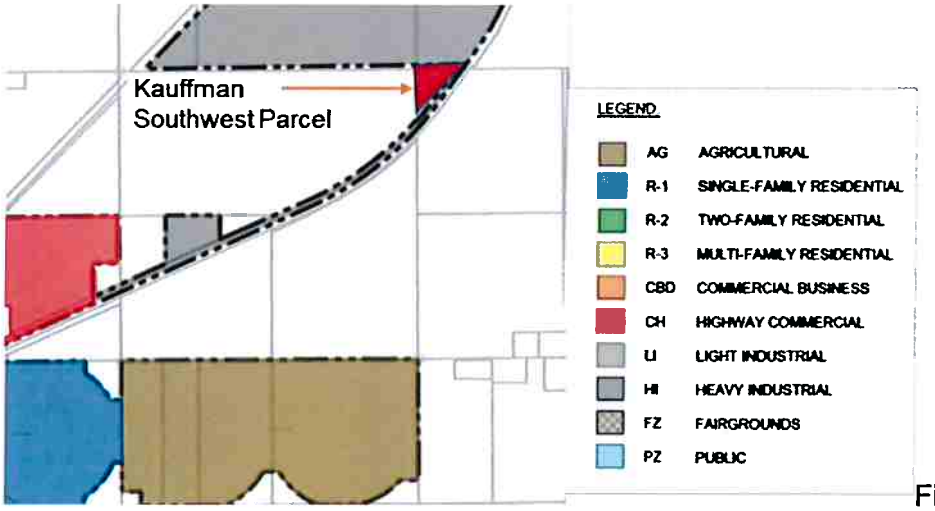


Fig. 1

ZONING DISTRICT:
Current zone is Agricultural. Proposed Zone is Light Industrial (LI)

DENSITY:
The maximum density will be determined during Site design and review. Each lot is expected to have an Office/Shop building, gravel access/parking yard, and on site Wastewater Treatment System (OWTS).

DIVERSITY:
The proposed industrial lot size are limited in Town – the Applicant believes this project will bring further diversity to the Town of Keenesburg.

ADJACENT ADLAND USES:
To the west lies agricultural farm ground, to the North is agricultural farm ground, to the South is WCR 398, and to the east agricultural and to the Northeast and industrial complex (Discovery Midstream Gas Plant). North and east are planned as Industrial per the Town's Land Use plan.

CONNECTIVITY:
The property is directly connected to the Town and it's frequently traveled locations via WCR 398.

PUBLIC OPEN SPACE:
Not applicable.

ROADWAY NETWORK:
The Town has existing roadways to the east and west. A new local industrial roadway ROW will be dedicated as part of the parcel development.

TREATMENTS TO ROADWAYS
None expected at this time – see attached Traffic Letter for anticipated demands. It is expected the Subdivision Improvement Agreement and/or Development Agreement will define the terms for acceleration/deceleration and/or turn lanes if demands exceed acceptable thresholds.

LOT LAYOUT:
One 1.5 acres lot and two 2.25 acres lots are proposed for Southwest Parcel.

LOT INTERFACE WITH ROADWAYS:
Each lot within Southeast parcel will be connected direct to Carol Drive which will be directly connected to WCR 398.

LOT SIZE DIVERSITY:

Since this is an industrial subdivision there is no significant diversity proposed here-in-however each lot will be individually developed so they will have diversity from each other.

SETBACKS:
The setbacks are 30 feet front and rear and 10 feet each side.

LOT SIZES ENHANCING STREETCAPE:
Lot sizes vary from just over 1.5 acres to approximately 2.25 acres. Each adjacent lot will include independent landscape designs that complement WCR 398 road corridor. Currently no streetscape is proposed along the Town standard Industrial road cross section beyond native drought resistant grasses in the 4 foot area between back of the 8 foot walk and right of way boundary.

COMMON AREAS:
Currently none are proposed with this overall subdivision plan. This development is not large enough nor part of a larger development where Common Areas would be appropriate.

FENCING:
All site fencing is proposed to be handled by each individual lot owner in accordance with Town regulations. Screened fence (metal sided) will be required for the perimeter of any equipment parking (expected to be in the rear – eastern portion of each lot) with exception to the front (west) where screening will occur between the side fencing and/or building.

AMENITIES, ENTRIES, CONNECTIVITY, ARCHITECTURAL & LANSCAPE DESIGNS FOR EACH LOT
The current amenities include proposed street, utility, lighting, grading and drainage improvements necessary to develop the infrastructure needed for lot specific development. Each Light Industrial lot development will be individually designed (drought resistant landscape included). No **architectural features are proposed with this public infrastructure phase for the Overall Subdivision.**

IRRIGATION SYSTEM
Each lot will be required to have its own irrigation system (if necessary – current expectation is to be drought resistant Xeriscape). It is expected each lot will include varying levels of xeriscape as well to be compliant with modern water wise methodology.

POTABLE WATER:
Potable water exists in adjacent WCR 398. The Town water system will be extended into the proposed public right of way proposed as Carol Drive.

ADEQUATE POTABLE WATER:
Pursuant to the Pre-Application meeting – Town of Keenesburg adequate water is said to not be an issue.

STORM WATER MANAGEMENT:
This project will detain stormwater as allowed by the Town of Keenesburg and State of Colorado. Currently a subdivision Infiltration Pond is proposed. Further investigation will be performed to confirm if a detained release can occur into WCR 398 right of way.

GAS AND ELECTRIC:
Electric is already adjacent to the property. It is unclear if gas exist.

WILL SERVICE LETTERS:
We have contacted South East Weld County Fire Rescue requesting service and a will serve letter.

SURVEYS:
The Site topography and boundary survey was provided by American West Land Surveyors in Brighton

6) Annexation Impact Questions

a.) Soils Description	See attached NRCS Soil data.
b.) Known hazards	None known to exist.
c.) Preliminary Utility Plan	Buried electric exists within WCR 398 right of way Extension of Town Water main is proposed in the new ROW Septic (OWTS) It is unclear if gas exists in this area No water rights are known to exist
d.) Affidavit concerning water	No water rights are known to exist
e.) Statement on Community need	Industrial "pad ready" parcels are in demand
f.) Effect of annexation on Schools	Effect unclear – a developed pad could attract new employees and said employees could commute or move into community.

SUBMITTAL & HOPEFUL PROJECT SCHEDULE:

Date:	Time/ location:	Event:	Notes:
February 19, 2020	1:00 p.m.	Submit Annexation documents	
April 15, 2020		Complete Annexation and Zoning approvals	

SPECIAL USE APPLICATION CHECKLIST:

The following is a summary of the checklist items:

1.	Annexation Petition	Enclosed
2.	Completed Land Use Application	Enclosed
3.	Application fees and fee deposits	Enclosed
4.	Annexation Map	Enclosed
5.	Completed Annexation Agreement	Enclosed
6.	Supporting Annexation Impact information	Enclosed

Please contact me with any questions or comments you may have on this proposed project!

Sincerely,

Western Engineering Consultants inc., LLC
Chadwin F. Cox, P.E.
Senior Project Manager

Encl. Annexation submittal documents

Quit Claim Deed
(Pursuant to 38-30-116 C.R.S.)

THIS DEED, made on **April 9, 2019**, by **_Kauffman Bros Ltd Partnership**, Grantor(s), of the County of **_Weld** and State of **Colorado** for the consideration of ***** Ten ***** dollars in hand paid, hereby sells and quitclaims to **Kauffman Bros Ltd Partnership**, Grantee(s), whose street address is **_8616 County Road 63, Keenesburg, CO 80643** County of **Weld**, State of **Colorado**, the following real property in the County of **Weld**, and State of **Colorado**, to wit:

Lengthy legal attached as Exhibit A
also known by street and number as
__n/a

with all its appurtenances.

Mark A. Kauffman G.P. Mark A Kauffman G.P.

Kauffman Bros Ltd Partnership, Mark A. Kauffman, General Partner

Kauffman Bros Ltd Partnership, Mark A. Kauffman, General Partner

State of **Colorado**)
)ss
County of **Weld**)

The foregoing instrument was acknowledged before me this day of **April 9, 2019**
by Mark A Kauffman

Christina Fernandez
Notary Public
My commission expires 10-12-2020

CHRISTINA FERNANDEZ
Notary Public
State of Colorado
Notary ID # 20164039047
My Commission Expires 10-12-2020

When recorded return to:

4479881 Pages: 1 of 2
04/09/2019 02:35 PM R Fee:$18.00 D Fee:$0.00
Carly Koppes, Clerk and Recorder, Weld County, CO

Form 13038 02/2011 qcd.dot

EXHIBIT A

A PARCEL OF LAND LOCATED IN THE NORTHWEST 1/4 OF SECTION 20, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

CONSIDERING THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 20 TO BEAR NORTH 89°11'00" EAST, BEING MONUMENTED ON THE EAST END BY A 3/4" REBAR WITH 2" ALUMINUM CAP, PLS 25937 AND ON THE WEST END BY A 2 1/2" PIPE WITH 3 1/4" ALUMINUM CAP, PLS 23027, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO;

BEGINNING AT THE NORTHWEST CORNER OF SAID SECTION 20; THENCE NORTH 89°11'00" EAST, COINCIDENT WITH THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 20, A DISTANCE OF 711.19 FEET TO THE WEST RIGHT-OF-WAY LINE OF COUNTY ROAD NO. 398 AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AS RECEPTION NO. 659487 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO; THNCE SOUTH 34°48'59" WEST, COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 626.82 FEET TO THE BEGINNING OF A CURVE, CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5528.90 FEET AND A CENTRAL ANGLE OF 05°08'07", WHOSE CHORD BEARS SOUTH 37°23'03" WEST, A DISTANCE OF 495.38 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 495.55 FEET TO AN ANGLE POINT IN SAID WEST RIGHT-OF-WAY LINE; THENCE NORTH 00°30'49" WEST, COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 30.89 FEET TO AN ANGLE POINT IN SAID WEST RIGHT-OF-WAY LINE AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AS RECEPTION NO. 659484 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO, AND THE BEGINNING OF A CURVE, CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5508.90 FEET AND A CENTRAL ANGLE OF 00°35'18", WHOSE CHORD BEARS SOUTH 40°00'05" WEST, A DISTANCE OF 56.56 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, AND COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 56.56 FEET TO THE WEST LINE OF THE NORTHWEST 1/4 OF SAID SECITON 20; THENCE NORTH 00°59'44" WEST, COINCIDENT WITH SAID WEST LINE, A DISTANCE OF 910.67 FEET TO THE TRUE POINT OF BEGINNING.

SAID PARCEL CONTAINS 7.91 ACRES, MORE OR LESS.

PREPARED BY: CURTIS D. HOOS, PLS 37971
FOR AND ON BEHALF OF:
AMERICAN WEST LAND SURVEYING CO.
A COLORADO CORPORATION
P.O. BOX 129
BRIGHTON, CO 80601

4479881 Pages: 2 of 2
04/09/2019 02:35 PM R Fee:$18.00 D Fee:$0.00
Carly Koppes, Clerk and Recorder, Weld County, CO

LAND TITLE GUARANTEE COMPANY

Date: November 15, 2019

Subject: Attached Title Policy/Guarantee

Enclosed please find your product insuring the property located at TBD, KEENESBURG, CO 80643.

If you have any inquiries or require further assistance, please contact Land Title Customer Care Team at (970) 282-3649 or customercare@ltgc.com

Chain of Title Documents:

Weld county recorded 04/09/2019 under reception no. 4479881

Weld county recorded 07/13/2018 under reception no. 4414881

Weld county recorded 03/06/1995 under reception no. 2428989

Property Information Binder

CONDITIONS AND STIPULATIONS

1. Definition of Terms

The following terms when used in this Binder mean:

(a) "Land": The land described, specifically or by reference, in this Binder and improvements affixed thereto which by law constitute real property;

(b) "Public Records"; those records which impart constructive notice of matters relating to said land;

(c) "Date": the effective date;

(d) "the Assured": the party or parties named as the Assured in this Binder, or in a supplemental writing executed by the Company;

(e) "the Company" means Old Republic National Title Insurance Company, a Minnesota stock company.

2. Exclusions from Coverage of this Binder

The company assumes no liability including cost of defense by reason of the following:

(a) Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; taxes and assessments not yet due or payable and special assessments not yet certified to the Treasurer's office.

(b) Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

(c) Title to any property beyond the lines of the Land, or title to streets, roads, avenues, lanes, ways or waterways on which such land abuts, or the right to maintain therein vaults, tunnels, ramps, or any other structure or improvement; or any rights or easements therein unless such property, rights or easements are expressly and specifically set forth in said description.

(d) Mechanic's lien(s), judgment(s) or other lien(s).

(e) Defects, liens, encumbrances, adverse claims or other matters: (a) created, suffered or agreed to by the Assured;(b) not known to the Company, not recorded in the Public Records as of the Date, but known to the Assured as ofthe Date; or (c) attaching or creating subsequent to the Date.

3. Prosecution of Actions

1. The Company shall have the right at its own costs to institute and prosecute any action or proceeding or do any other act which in its opinion may be necessary or desirable to establish or confirm the matters herein assured; and the Company may take any appropriate action under the terms of this Binder, whether or not it shall be liable thereunder and shall not thereby concede liability or waive any provision hereof.
2. In all cases where the Company does not institute and prosecute any action or proceeding, the Assured shall permit the Company to use, at its option, the name of the Assured for this purpose. Whenever requested by the Company, the Assured shall give the Company all reasonable aid in prosecuting such action or proceeding, and the Company shall reimburse the Assured for any expense so incurred.

4. Notice of Loss - Limitation of Action

A statement in writing of any loss or damage for which it is claimed the Company is liable under this Binder shall be furnished to the Company within sixty days after such loss or damage shall have been determined, and no right of action shall accrue to the Assured under this Binder until thirty days after such statement shall have been furnished, and no recovery shall be had by the Assured under this Binder unless action shall be commenced thereon with two years after expiration of the thirty day period. Failure to furnish the statement of loss or damage or to commence the action within the time herinbefore specified, shall be conclusive bar against maintenance by the Assured of any action under this Binder.

5. Option to Pay, Settle or Compromise Claims

The Company shall have the option to pay, settle or compromise for or in the name of the Assured any claim which could result in loss to the Assured within the coverage of this Binder, or to pay the full amount of this Binder. Such payment or tender of payment of the full amount of the Binder shall terminate all liability of the Company hereunder.

6. Limitation of Liability - Payment of Loss

(a) The liability of the Company under this Binder shall be limited to the amount of actual loss sustained by the Assured because of reliance upon the assurances herein set forth, but in no event shall the liability exceed the amount of the liability stated on the face page hereof.

(b) The Company will pay all costs imposed upon the Assured in litigation carried on by the Company for the Assured, and all costs and attorneys' fees in litigation carried on by the Assured with the written authorization of the Company.

(c) No claim for loss or damages shall arise or be maintainable under this Binder (1) if the Company after having received notice of any alleged defect, lien or encumbrance not shown as an Exception or excluded herein removes such defect, lien or encumbrance within a reasonable time after receipt of such notice, or (2) for liability voluntarily assumed by the Assured in settling any claim or suit without written consent of the Company.

(d) All payments under this Binder, except for attorney's fees as provided for in paragraph 6(b) thereof, shall reduce the amount of the liability hereunder pro tanto, and no payment shall be made without producing this Binder or an acceptable copy thereof for endorsement of the payment unless the Binder be lost or destroyed, in which case proof of the loss or destruction shall be furnished to the satisfaction of the Company.

(e) When liability has been definitely fixed in accordance with the conditions of this Binder, the loss or damage shall be payable within thirty days thereafter.

7. Subrogation Upon Payment or Settlement

Whenever the Company shall have settled a claim under this Binder, all right of subrogation shall vest in the Company unaffected by any act of the Assured, and it shall be subrogated to and be entitled to all rights and remedies which the Assured would have had against any person or property in respect to the claim had this Binder not been issued. If the payment does not cover the loss of the Assured, the Company shall be subrogated to the rights and remedies in the proportion which the payment bears to the amount of said loss. The Assured, if requested by the Company, shall transfer to the Company all rights and remedies against any person or property necessary in order to perfect the right of subrogation, and shall permit the Company to use the name of the Assured in any transaction or litigation involving the rights or remedies.

8. Binder Entire Contract

Any action or actions or rights of action that the Assured may have or may bring against the Company arising out of the subject matter hereof must be based on the provisions of this Binder. No provision or condition of this Binder can be waived or changed except by a writing endorsed or attached hereto signed by the President, a Vice President, the Secretary, an Assistant Secretary or other validating officer of the Company.

9. Notices. Where Sent

All notices required to be given the Company and any statement in writing required to be furnished the Company shall be addressed to it at 400 Second Avenue South, Minneapolis, Minnesota 55401, (612) 371-1111.

10. Arbitration

Unless prohibited by applicable law, either the Company or the insured may demand arbitration pursuant to the Title Insurance Arbitration Rules of the American Arbitration Association.

ANTI-FRAUD STATEMENT: Pursuant to CRS 10-1-128(6)(a), it is unlawful to knowingly provide false, incomplete or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or

attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

This anti-fraud statement is affixed and made a part of this policy.

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Issued by:
Land Title Guarantee Company
3033 East First Avenue Suite 600
Denver, Colorado 80206
(303)321-1880

Senior Vice President

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
A Stock Company
400 Second Avenue South, Minneapolis, Minnesota 55401
(612) 371-1111

By President

Attest Secretary

AMERICAN LAND TITLE ASSOCIATION

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: FCIF25170049

Policy No.: PIB25170049.1706123

Liability: $50,000.00

Fee: $500.00

Subject to the exclusions from coverage, the limits of liability and other provisions of the Conditions and Stipulations hereto annexed and made a part of this Binder,

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY a Corporation, herein called the Company,

GUARANTEES

WESTERN ENGINEERING CONSULTANTS INC

Herein called the Assured, against loss, not exceeding the liability amount stated above, which the assured shall sustain by reason of any incorrectness in the assurance which the Company hereby gives that, according to the public records as of

November 08, 2019 at 5:00 P.M.

1. Title to said estate or interest at the date hereof is vested in:

KAUFFMAN BROTHERS LIMITED PARTNERSHIP AKA KAUFFMAN BROS LTD PARTNERSHIP

2. The estate or interest in the land hereinafter described or referred to covered by this Binder :

A Fee Simple

3. The Land referred to in this Binder is described as follows:

A PARCEL OF LAND LOCATED IN THE SW 1/4 OF SECTION 20, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:
CONSIDERING THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 20 TO BEAR N 89° 11' 00" E, BEING MONUMENTED ON THE EAST END BY A 3/4" REBAR WITH A 2" ALUMINUM CAP, PLS 25937 AND ON THE WEST END BY A 2 1/2" PIPE WITH 3 1/4" ALUMINUM CAP, PLS 23027, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO:
BEGINNING AT THE NW CORNER OF SAID SECTION 20; THENCE N 89° 11' 00" E, COINCIDENT WITH THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 20, A DISTANCE OF 711.19 FEET TO THE WEST RIGHT OF WAY LINE OF COUNTY ROAD NO. 398 AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AT RECEPTION NO. 859487 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO; THENCE S 34° 48' 58" W, COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 626.82 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5528.90 FEET AND A CENTRAL ANGLE OF 05° 08' 07", WHOSE CHORD BEARS S 37° 23' 03" W, A DISTANCE OF 495.38 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 495.55 FEET TO AN ANGLE POINT IN SAID WEST RIGHT

OF WAY LINE; THENCE N 00° 30' 49" W, COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 30.89 FEET TO AN ANGLE POINT IN SAID WEST RIGHT OF WAY LINE AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AT RECEPTION NO. 659484 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO, AND THE BEGINNING OF A CURVE CONCAVE TO THE NW HAVING A RADIUS OF 5508.90 FEET AND A CENTRAL ANGLE OF 00° 35' 18", WHOSE CHORD BEARS S 40° 00' 05" W, A DISTANCE OF 56.56; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, AND COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 56.56 FEET TO THE WEST LINE OF THE NW 1/4 OF SAID SECTION 20; THENCE N 00° 59' 44" W, COINCIDENT WITH SAID WEST LINE, A DISTANCE OF 910.67 FEET TO THE TRUE POINT OF BEGINNING.

4. The following documents affect the land:

1. RIGHT OF WAY FOR DITCHES OR CANALS CONSTRUCTED BY THE AUTHORITY OF THE UNITED STATES AS RESERVED IN UNITED STATES PATENT RECORDED JULY 30, 1921, AT RECEPTION NO. 359467
2. ALL OIL, GAS, MINERALS AND OTHER MINERAL RIGHTS AS RESERVED IN INSTRUMENT RECORDED FEBRUARY 13, 1931, IN BOOK 908 AT PAGE 373, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.
3. TERMS, CONDITIONS AND PROVISIONS OF RIGHT OF WAY AGREEMENT RECORDED AUGUST 06, 1956 IN BOOK 1457 AT PAGE 136.
4. OIL AND GAS LEASE RECORDED FEBRUARY 07, 1970 UNDER RECEPTION NO. 1544574 AND ANY AND ALL ASSIGNMENTS THEREOF, OR INTEREST THEREIN.
5. TERMS, CONDITIONS AND PROVISIONS OF PERMANENT PIPELINE RIGHT OF WAY RECORDED AUGUST 17, 1981 AT RECEPTION NO. 1866420.
6. TERMS, CONDITIONS AND PROVISIONS OF PIPELINE RIGHT OF WAY AGREEMENT RECORDED SEPTEMBER 23, 1991 AT RECEPTION NO. 2263852.
7. TERMS, CONDITIONS AND PROVISIONS OF PIPELINE RIGHT OF WAY AGREEMENT RECORDED SEPTEMBER 23, 1991 AT RECEPTION NO. 2263854.
8. TERMS, CONDITIONS AND PROVISIONS OF RIGHT OF WAY AGREEEMENT RECORDED OCTOBER 16, 1995 AT RECEPTION NO. 2459615.
9. TERMS, CONDITIONS AND PROVISIONS OF RIGHT OF WAY AND EASEMENT RECORDED NOVEMBER 04, 2008 AT RECEPTION NO. 3588046.
10. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT RECORDED JUNE 01, 2009 AT RECEPTION NO. 3626536.
11. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT RECORDED JUNE 01, 2009 AT RECEPTION NO. 3626537.
12. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT BY ORDER RECORDED MARCH 15, 2013 AT RECEPTION NO. 3917346.
13. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT RECORDED JULY 13, 2018 AT RECEPTION NO. 4414879.
14. ALL OIL, GAS, MINERALS AND OTHER MINERAL RIGHTS AS RESERVED IN INSTRUMENT RECORDED JULY 13, 2018, UNDER RECEPTION NO. 4414881, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: FCIF25170049 **Policy No.:** PIB25170049.1706123

15. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF RIGHT OF WAY RECORDED SEPTEMBER 20, 2018 AT RECEPTION NO. 4432515 AND AMENDED JUNE 7, 2019 AT RECEPTION NO. 4495585.

16. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF LEASE AGREEMENT RECORDED NOVEMBER 20, 2018 AT RECEPTION NO. 4447675.

17. A DEED OF TRUST DATED AUGUST 23, 2019 FROM KAUFFMAN BROTHERS LIMITED PARTNERSHIP AKA KAUFFMAN BROS LTD PARTNERSHIP TO THE PUBLIC TRUSTEE OF WELD COUNTY FOR THE USE OF TBK BANK SSB TO SECURE THE SUM OF $723,750.00, AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF, RECORDED AUGUST 26, 2019, UNDER RECEPTION NO. 4517692.

18. EXISTING LEASES OR TENANCIES.

NOTE: THIS BINDER DOES NOT REFLECT THE STATUS OF TITLE TO WATER RIGHTS OR REPRESENTATION OF SAID RIGHTS, RECORDED OR NOT.

NOTE: THIS BINDER IS NOT A REPORT OR REPRESENTATION AS TO MINERAL INTERESTS, AND SHOULD NOT BE USED, OR RELIED UPON, IN CONNECTION WITH THE NOTICE REQUIREMENTS THAT ARE SET FORTH IN CRS 24-65.5-103.

NOTE: ADDITIONAL UPDATES TO THE EFFECTIVE DATE OF THE BINDER MAY BE REQUESTED BY THE PROPOSED INSURED. ONE UPDATE IS INCLUDED WITH THIS BINDER AT NO ADDITIONAL COST. ANY ADDITIONAL UPDATES WILL BE ISSUED AT THE COST OF $125 PER UPDATE. FOR EACH UPDATE PROVIDED, A REVISED BINDER WILL BE ISSUED SHOWING A NEW EFFECTIVE DATE AND ANY MATTERS RECORDED SINCE THE EFFECTIVE DATE OF THE PREVIOUS BINDER.

INVOICE

Land Title Guarantee Company
5975 Greenwood Plaza Blvd Suite 125
Greenwood Village, CO 80111
970-282-3649

WESTERN ENGINEERING CONSULTANTS INC
WESTERN ENGINEERING CONSULTANTS INC
PO BOX 595
None
BRIGHTON, CO 80601

Reference

Your Reference Number:	
Our Order Number:	25170049
Our Customer Number:	27985
Invoice Requested by:	WESTERN ENGINEERING CONSULTANTS INC
Invoice (Process) Date:	November 15, 2019
Transaction Invoiced By:	Dan Greenfield
Email Address:	dgreenfield@ltgc.com

Invoice Number: 25170049 Date: November 15, 2019

Order Number: 25170049

Property Address: TBD KEENESBURG 80643

Parties: Kaufman Brothers Limited Partnership

Invoice Charges	
Previous Amount Due:	$0.00
Property Information Binder	$500.00
Total Invoice Amount:	$500.00
Current Balance Due:	$500.00

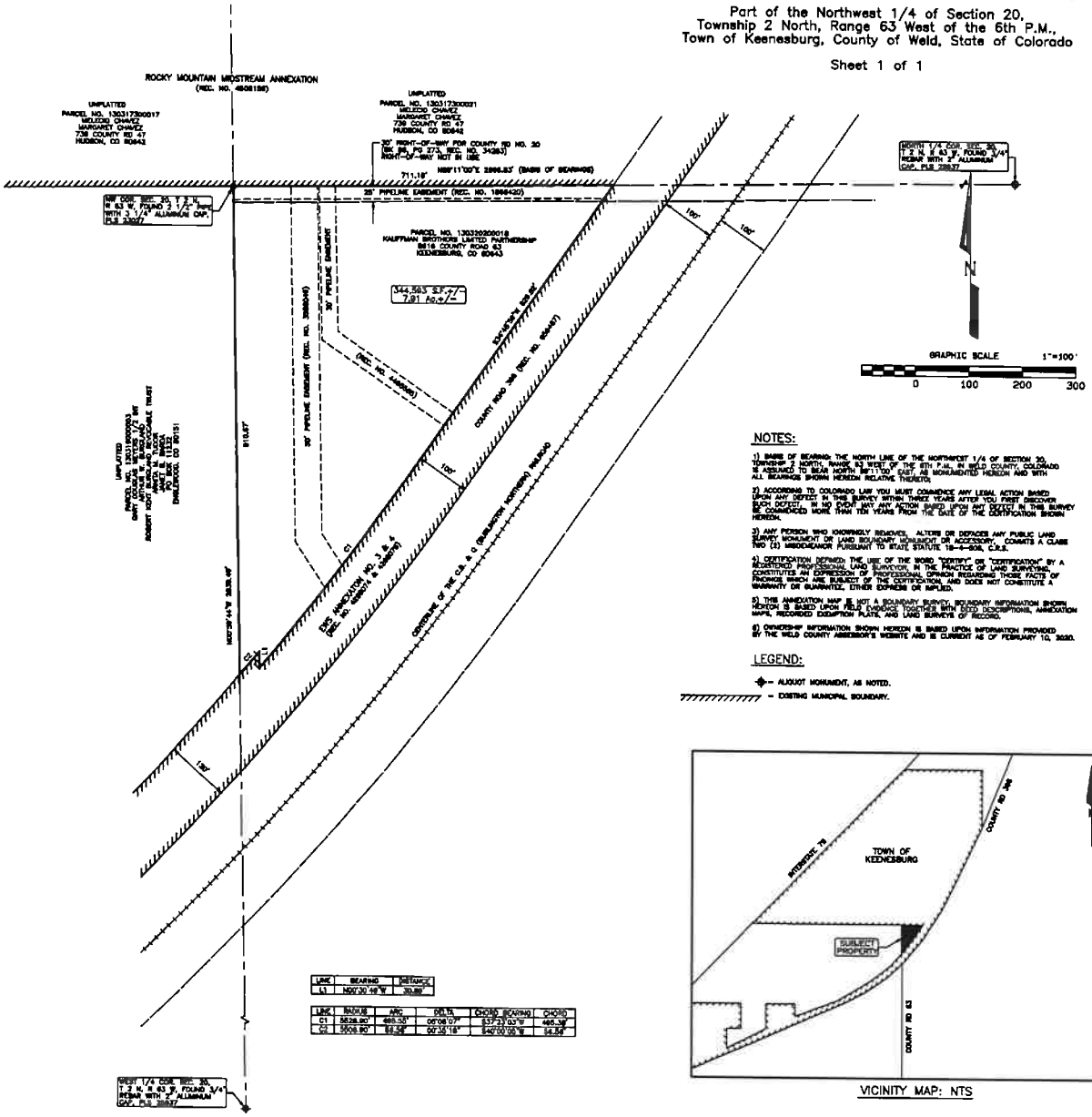
Due and Payable upon receipt

Please make check payable to Land Title Guarantee Company and send to the address at the top of Page 1.
Please reference **Invoice Number 25170049** on your Payment

KAUFFMAN ANNEXATON NO. 4 TO THE TOWN OF KEENESBURG

Part of the Northwest 1/4 of Section 20,
Township 2 North, Range 63 West of the 6th P.M.,
Town of Keenesburg, County of Weld, State of Colorado

Sheet 1 of 1



LINE	BEARING	DISTANCE
L1	N00°30'49"W	30.88'

LINE	RADIUS	ARC	DELTA	CHORD BEARING	CHORD
C1	5528.90'	465.30'	05°08'07"	S37°23'03"E	465.30'
C2	5508.90'	54.54'	00°35'18"	S40°50'06"E	54.54'

NOTES:

1) BASIS OF BEARING: THE NORTH LINE OF THE NORTHWEST 1/4 OF SECTION 20, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., IN WELD COUNTY, COLORADO IS ASSUMED TO BEAR NORTH 89°11'00" EAST, AS MONUMENTED HEREON AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO.

2) ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

3) ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.

4) CERTIFICATION DEFINED: THE USE OF THE WORD "CERTIFY" OR "CERTIFICATION" BY A REGISTERED PROFESSIONAL LAND SURVEYOR, IN THE PRACTICE OF LAND SURVEYING, CONSTITUTES AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THOSE FACTS OF FINDINGS WHICH ARE SUBJECT OF THE CERTIFICATION, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EITHER EXPRESS OR IMPLIED.

5) THIS ANNEXATION MAP IS NOT A BOUNDARY SURVEY. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON FIELD EVIDENCE TOGETHER WITH DEED DESCRIPTIONS, ANNEXATION MAPS, RECORDED EXEMPTION PLATS, AND LAND SURVEYS OF RECORD.

6) OWNERSHIP INFORMATION SHOWN HEREON IS BASED UPON INFORMATION PROVIDED BY THE WELD COUNTY ASSESSOR'S WEBSITE AND IS CURRENT AS OF FEBRUARY 10, 2020.

LEGEND:

- ALIQUOT MONUMENT, AS NOTED.
- EXISTING MUNICIPAL BOUNDARY.

VICINITY MAP: NTS

ANNEXATION DESCRIPTION:

A PARCEL OF LAND LOCATED IN THE NORTHWEST 1/4 OF SECTION 20, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

CONSIDERING THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 20 TO BEAR NORTH 89°11'00" EAST, BEING MONUMENTED ON THE EAST END BY A 3 1/4" REBAR WITH 2" ALUMINUM CAP, PLS 23027 AND ON THE WEST END BY A 3 1/2" PIPE WITH 3 1/4" ALUMINUM CAP, PLS 23027, AND WITH ALL BEARINGS CONTAINED HEREON RELATIVE THERETO;

BEGINNING AT THE NORTHWEST CORNER OF SAID SECTION 20; THENCE NORTH 89°11'00" EAST, CONCIDENT WITH THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 20, A DISTANCE OF 711.18 FEET TO THE WEST RIGHT-OF-WAY LINE OF COUNTY ROAD NO. 20B AS DESCRIBED IN DEED RECORDED JANUARY 13, 1933 AS RECEPTION NO. 834487 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO; THENCE SOUTH 37°43'00" WEST, CONCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 225.83 FEET TO THE BEGINNING OF A CURVE, CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5528.90 FEET AND A CENTRAL ANGLE OF 05°08'07", WHOSE CHORD BEARS SOUTH 37°23'03" WEST, A DISTANCE OF 465.38 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND CONCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 465.38 FEET TO AN ANGLE POINT IN SAID WEST RIGHT-OF-WAY LINE; THENCE NORTH 00°30'49" WEST, CONCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 30.88 FEET TO AN ANGLE POINT IN SAID WEST RIGHT-OF-WAY LINE AS DESCRIBED IN DEED RECORDED JANUARY 13, 1933 AS RECEPTION NO. 834484 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO AND THE BEGINNING OF A CURVE, CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5508.90 FEET AND A CENTRAL ANGLE OF 00°35'18", WHOSE CHORD BEARS SOUTH 40°50'06" WEST, A DISTANCE OF 54.54 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND CONCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 54.54 FEET TO THE WEST LINE OF THE NORTHWEST 1/4 OF SAID SECTION 20; THENCE NORTH 00°30'44" WEST, CONCIDENT WITH SAID WEST LINE, A DISTANCE OF 810.63 FEET TO THE TRUE POINT OF BEGINNING.

SAID PARCEL CONTAINS 344,583 SQUARE FEET OR 7.91 ACRES, MORE OR LESS.

OWNER'S CERTIFICATE:

KNOW ALL MEN BY THESE PRESENTS, THAT KAUFFMAN BROTHERS LIMITED PARTNERSHIP, BEING THE SOLE OWNER AND PROPRIETORS OF THE LAND DESCRIBED HEREIN AS KAUFFMAN ANNEXATION NO. 4 HAVE CAUSED SUCH LAND TO BE ANNEXED TO THE TOWN OF KEENESBURG.

OWNER: KAUFFMAN BROTHERS LIMITED PARTNERSHIP

MARK A. KAUFFMAN AS MANAGER

STATE OF COLORADO }
COUNTY OF _____ } SS

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS ____ DAY OF _____ 20____

BY: RICHARD L. ROBERTSON AND HEIDI D. ROBERTSON

WITNESS MY HAND AND OFFICIAL SEAL.

(SEAL) NOTARY PUBLIC

MY COMMISSION EXPIRES _____

TOWN OF KEENESBURG ACCEPTANCE:

THIS IS TO CERTIFY THAT KAUFFMAN ANNEXATION NO. 4 TO THE TOWN OF KEENESBURG WAS APPROVED

ON THE ____ DAY OF _____ 20____ BY ORDINANCE NO. _____ AND THAT THE MAYOR OF THE TOWN OF KEENESBURG, ON BEHALF OF THE TOWN OF KEENESBURG, HEREBY ACKNOWLEDGES SAID ANNEXATIONS UPON WHICH THIS CERTIFICATE IS ENDORSED FOR ALL PURPOSES INDICATED THEREON.

MAYOR _____ ATTEST: TOWN CLERK _____

SURVEYOR'S CERTIFICATE:

I, CURTIS D. HOOSE, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS MAP WAS MADE BY ME OR UNDER MY SUPERVISION, AND THIS MAP ACCURATELY REPRESENTS SAID SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY ME TO DETERMINE OWNERSHIP. FURTHERMORE, THIS CERTIFIES THAT AT LEAST ONE-SIXTH (1/6) OF THE PROPERTY SHOWN HEREON IS CONTIGUOUS WITH THE BOUNDARY OF THE TOWN OF KEENESBURG.

CURTIS D. HOOSE, PLS 37871
FOR AND ON BEHALF OF:
AMERICAN WEST LAND SURVEYING CO.
A COLORADO CORPORATION

ANNEXATION TABLE

TOTAL PERIMETER:	2631.88 FEET
REQUIRED 1/6 CONTIGUOUS PERIMETER:	471.98 FEET
CONTIGUOUS BOUNDARY:	1921.01 FEET

American West
Land Surveying Co.
A Colorado Corporation
PO Box 135, Brighton, CO 80601 • P:303-659-1592 F:303-659-0575 • awsurvey.com

SCALE: 1" = 100' | DRAWN BY: CDH | CHECKED BY: MJG | DATE: APRIL 13, 2020
REVISIONS:
JOB NO. 20- | FILE: P:\SURVEY\17-DRJTW_BROS\17\KAUFFMAN ANNEX.prj

Town Of Keenesburg
140 South Main Street
PO BOX 312
Keenesburg, CO 80643
(303)732-4281

Zoning Application
Fee $250.00

Applicant(s) Name: KAUFFMAN BROTHERS LIMITED PARTNERSHIP c/o MARK KAUFFMAN

Address of Applicant (s) 8616 WCR 63, KEENESBURG, CO 80643

Legal Description of Property: PT NW4 20-2-63 COMM NW SEC COR TH N89D11 E 711.19 S34E48W 626.82 TH 495.55 ALG CRV CONCAVE NW (R=5528.9 CH=S37D23W) N00D30W 30.89 TH 56.56 ALG CRV CONCAVE NW (R=5508.9 CH=S40D00W) N00D59W 910.67 TPOB

Current Zoning AG (Weld County Requested Zoning Industrial (I-1)

Reason for requested zoning change: Consistent with I-76 and WCR 398 Corridor

Each applicant whose name appears upon the deed or title to this property must sign:

Name Mark Kauffman on behalf of Kauffman Brothers Limited Partnership Date

Name Date

Mark Kauffman 11-8-19

Name Date

This application must be accompanied by a title commitment for proof of ownership issued within 30 days of hearing.

WESTERN ENGINEERING CONSULTANTS, Inc LLC
127 S. Denver Avenue, Ft. Lupton CO 80621
2501 Mill St. Brush, CO 80723
Ph. 303-913-7341, Fax 720-294-1330
Email: chadwin.cox@westerneci.com

February 19, 2020

Town of Keenesburg
140 S. Main St
Keenesburg, CO 80643

RE: KAUFFMAN SOUTHWEST PARCEL ZONING SUBMITTAL NARRATIVE

Dear Town Staff,

Please find the attached Zoning Application and supporting documents for the Kauffman Southwest Parcel Zoning Submittal.

This letter is intended to serve as the Project narrative (Annexation Item #08).

General Information and Brief Project Description:

Owner:	Kauffman Brothers Limited Partnership Mark Kauffman authorized as the agent /representative 8616 WCR 63 Keenesburg, CO 80643
Civil Engineer:	Western Engineering Consultants inc, LLC 127 South Denver Ave. Fort Lupton, CO 80621 720-685-9951 Chadwin Cox PE 303-913-7341
Land Surveyor:	American West Land Surveyors 331 South 4th Avenue Brighton, Colorado 80601 303-659-1532 Curtis Hoos PLS
Traffic Engineer:	Sustainable Traffic Solutions 823 West 124th Drive Westminster, Colorado 80234 303-589-6875 Joe Henderson PE PTOE
Geotechnical Engineer:	Soilogic 4350 Highway 66 Longmont, Colorado 80504 970-535-6144 Wolf Von Carlowitz PE, Darrel DiCarlo PE

Electrical Engineer:	To Be Determined
Drainage Engineer:	Western Engineering Consultants 127 S. Denver Avenue Ft. Lupton, Colorado 80643 303-913-7341 Chadwin Cox PE
Location of Site:	Adjacent to WCR 398 and 120 feet north from intersection of County Road 63 and WCR 398, Weld County.
Total Site Area:	7.91 Acres (412,218 sf)
Total Build-out Area:	3 Lots are proposed (1.5 ac, 2.25 ac, and 2.25 ac)

TDB by lot	Building area at buildout
TBD	Landscaping

COMPREHENSIVE PLAN:
The current Land Use Plan for this property and the adjacent north and east properties as Industrial. This proposal to is Zone as Industrial. See figure 1.

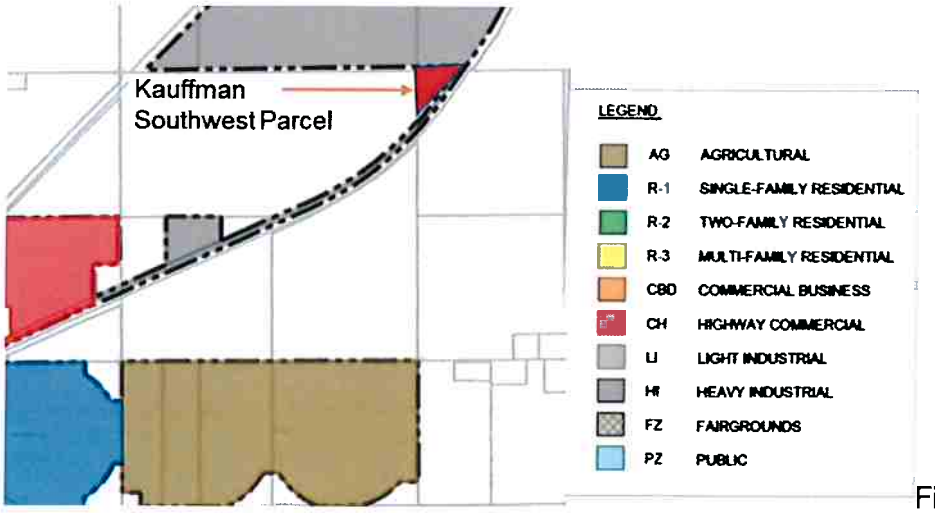


Fig. 1

ZONING DISTRICT:
Current zone is Agricultural. Proposed Zone is Light Industrial (LI)

DENSITY:
The maximum density will be determined during Site design and review. Each lot is expected to have an Office/Shop building, gravel access/parking yard, and on site Wastewater Treatment System (OWTS).

DIVERSITY:
The proposed industrial lot size are limited in Town – the Applicant believes this project will bring further diversity to the Town of Keenesburg.

ADJACENT ADLAND USES:
To the west lies agricultural farm ground, to the North is agricultural farm ground, to the South is WCR 398, and to the east agricultural and to the Northeast and industrial complex (Discovery Midstream Gas Plant). North and east are planned as Industrial per the Town's Land Use plan.

CONNECTIVITY:
The property is directly connected to the Town and it's frequently traveled locations via WCR 398.

PUBLIC OPEN SPACE:
Not applicable.

ROADWAY NETWORK:
The Town has existing roadways to the east and west. A new local industrial roadway ROW will be dedicated as part of the parcel development.

TREATMENTS TO ROADWAYS
None expected at this time – see attached Traffic Letter for anticipated demands. It is expected the Subdivision Improvement Agreement and/or Development Agreement will define the terms for acceleration/deceleration and/or turn lanes if demands exceed acceptable thresholds.

LOT LAYOUT:
One 1.5 acres lot and two 2.25 acres lots are proposed for Southwest Parcel.

LOT INTERFACE WITH ROADWAYS:
Each lot within Southeast parcel will be connected direct to Carol Drive which will be directly connected to WCR 398.

LOT SIZE DIVERSITY:
Since this is an industrial subdivision there is no significant diversity proposed here-in-however each lot will be individually developed so they will have diversity from each other.

SETBACKS:
The setbacks are 30 feet front and rear and 10 feet each side.

LOT SIZES ENHANCING STREETCAPE:
Lot sizes vary from just over 1.5 acres to approximately 2.25 acres. Each adjacent lot will include independent landscape designs that complement WCR 398 road corridor. Currently no streetscape is proposed along the Town standard Industrial road cross section beyond native drought resistant grasses in the 4 foot area between back of the 8 foot walk and right of way boundary.

COMMON AREAS:
Currently none are proposed with this overall subdivision plan. This development is not large enough nor part of a larger development where Common Areas would be appropriate.

FENCING:
All site fencing is proposed to be handled by each individual lot owner in accordance with Town regulations. Screened fence (metal sided) will be required for the perimeter of any equipment parking (expected to be in the rear – eastern portion of each lot) with exception to the front (west) where screening will occur between the side fencing and/or building.

AMENITIES, ENTRIES, CONNECTIVITY, ARCHITECTURAL & LANSCAPE DESIGNS FOR EACH LOT
The current amenities include proposed street, utility, lighting, grading and drainage improvements necessary to develop the infrastructure needed for lot specific development. Each Light Industrial lot development will be individually designed (drought resistant landscape included). No **architectural features are proposed with this public infrastructure phase for the Overall Subdivision.**

IRRIGATION SYSTEM
Each lot will be required to have its own irrigation system (if necessary – current expectation is to be drought resistant Xeriscape). It is expected each lot will include varying levels of xeriscape as well to be compliant with modern water wise methodology.

POTABLE WATER:
Potable water exists in adjacent WCR 398. The Town water system will be extended into the proposed public right of way proposed as Carol Drive.

ADEQUATE POTABLE WATER:
Pursuant to the Pre-Application meeting – Town of Keenesburg adequate water is said to not be an issue.

STORM WATER MANAGEMENT:
This project will detain stormwater as allowed by the Town of Keenesburg and State of Colorado. Currently a subdivision Infiltration Pond is proposed. Further investigation will be performed to confirm if a detained release can occur into WCR 398 right of way.

GAS AND ELECTRIC:
Electric is already adjacent to the property. It is unclear if gas exist.

WILL SERVICE LETTERS:
We have contacted South East Weld County Fire Rescue requesting service and a will serve letter.

SURVEYS:
The Site topography and boundary survey was provided by American West Land Surveyors in Brighton

6) Annexation Impact Questions

a.) Soils Description	See attached NRCS Soil data.
b.) Known hazards	None known to exist.
c.) Preliminary Utility Plan	Buried electric exists within WCR 398 right of way Extension of Town Water main is proposed in the new ROW Septic (OWTS) It is unclear if gas exists in this area No water rights are known to exist
d.) Affidavit concerning water	No water rights are known to exist
e.) Statement on Community need	Industrial "pad ready" parcels are in demand
f.) Effect of annexation on Schools	Effect unclear – a developed pad could attract new employees and said employees could commute or move into community.

SUBMITTAL & HOPEFUL PROJECT SCHEDULE:

Date:	Time/ location:	Event:	Notes:
February 19, 2020	1:00 p.m.	Submit Annexation documents	
April 15, 2020		Complete Annexation and Zoning approvals	

SPECIAL USE APPLICATION CHECKLIST:

The following is a summary of the checklist items:

1. Pre-Application Meeting	Held
2. Zoning Application	Enclosed
3. Site Plan (3 copies 11"X17" and 3 copies 36"X24")	Enclosed
4. Written comments from Utilities companies	
5. Electronic Copy	Enclosed
6. Application Fees	Enclosed
7. Cost Agreement	Enclosed
8. Written Description of Proposal	This document
9. Proof of Ownership	Enclosed
10. 300 ft Report and envelopes	Enclosed
11. Copy of any surface agreement with mineral interest	Enclosed Report
12. Traffic Study	Enclosed
13. Soils Report	Enclosed

Please contact me with any questions or comments you may have on this proposed project!

Sincerely,

Western Engineering Consultants inc., LLC
Chadwin F. Cox, P.E.
Senior Project Manager

Encl. Annexation submittal documents

TOWN OF KEENESBURG
FOUNDED JULY, 1906
A MUNICIPAL CORPORATION SINCE JULY, 1919

ANNEXATION PETITION

TO THE MAYOR AND BOARD OF TRUSTEES OF THE TOWN OF KEENESBURG, COLORADO:

The undersigned, in accordance with Title 31, Article 12, Chapters 101 et.seq., Colorado Revised Statues, hereby petition the Board of Trustees of the Town of Keenesburg for annexation into the Town of Keenesburg the unincorporated territory, the legal description of which is attached hereto as Exhibit A and incorporated herein by this reference, located in the County of Weld and State of Colorado, and to be known as the KAUFFMAN ANNEXATION No.4 Annexation to the Town of Keenesburg.

In support of this petition, the petitioner (s) further state to the Board of Trustees that:

1. It is desirable and necessary that the territory described in Exhibit A be annexed to the Town of Keenesburg.

2. The requirements of Section 31-12-104 and 31-12-105 of the Colorado Revised Statutes as amended, exist or have been met in that:

   a. Not less than one-sixth (1/6) of the perimeter of the area proposed to be annexed is contiguous with the Town of Keenesburg or will be contiguous with the Town of Keenesburg within such time as required by Section 31-12-104..

   b. A community of interest exists between the territory proposed to be annexed and the Town of Keenesburg.

   c. The territory sought to be annexed is urban or will be urbanized in the near future.

   d. The territory sought to be annexed is integrated with or is capable of being integrated with the Town of Keenesburg.

   e.. No land within the boundary of the territory proposed to be annexed which is held in identical ownership, whether consisting of one tract or parcel of real estate or two or more contiguous tracts or parcels of real estate, has been divided into separate parts or parcels without the written consent of the landowner or landowners thereof, unless such tracts or parcels were separated by a dedicated street, road, or other public way.

   f. No land within the boundary of the territory proposed to be annexed which is held in identical ownership, whether consisting of one tract or parcel of real estate or two or more contiguous tracts or parcels of real estate, comprises twenty acres or more, and which, together with the buildings and improvements situated thereon, has an assessed value in excess of two hundred thousand dollars ($200,000.00) for ad valorem tax purposes for the year next preceding the

annexation, has been included within the area proposed to be annexed without the written consent of the landowner or landowners.

g. The territory proposed to be annexed does not include any area which is the same or substantially the same area in which an election for an annexation to the Town of Keenesburg was held within twelve months preceding the filing of this petition.

h. The territory proposed to be annexed does not include any area included in another annexation proceeding involving a town other than the Town of Keenesburg

i. The annexation of the territory proposed to be annexed will not result in the detachment of area from any school district.

j. The annexation of the territory proposed to be annexed will not have the effect of extending the boundary of the Town of Keenesburg more than three miles in any direction from any point of the boundary of the Town of Keenesburg in any one year.

k. The territory proposed to be annexed is 7.91 acres in total area.

l. Prior to completion of the annexation of the area proposed to be annexed, a plan will be in place, pursuant to Section 31-12-105(1)(e), C.R.S., which generally describes the proposed location, character, and extent of streets, subways, bridges, waterways, waterfronts, parkways, playgrounds, squares, parks, aviation fields, other public ways, grounds, open spaces, public utilities, and terminals for water, and sanitation to be provided by the Town of Keenesburg; including the providers of transportation, light, natural gas, and power, and the proposed land uses for the area; such plan to be updated at least once annually.

m. In establishing the boundary of the area proposed to be annexed, if a portion of a platted street or alley is to be annexed, the entire width of the street or alley has been included within the area annexed, and reasonable access will not be denied to any landowners, owners of any easement, or the owners of any franchise adjoining any platted street or alley which is to be annexed to the Town of Keenesburg but is not bounded on both sides by the Town of Keenesburg.

3. The owners of more than fifty percent (50%) of the area proposed to be annexed, exclusive of dedicated streets and alleys, have signed this petition and hereby petition for annexation of such territory.

The signatures on this petition comprise one-hundred percent (100%) of the landowners of the territory to be annexed and said landowners attesting to the facts and agreeing to the conditions herein contained will negate the necessity of any annexation election.

4. Accompanying this petition are four copies of an annexation map as well as an electronic file that will contain the following information:

a. A written legal description of the boundaries of the area proposed to be annexed, in the form of a title commitment issued within 30 days of the application date;

b. A map showing the boundary of the area proposed to be annexed said map prepared by and containing the seal of a registered engineer;

c. Within the annexation boundary map, an identification of the location of each ownership tract in unplatted land and, if part or all of the area is platted, the boundaries and the plat numbers of plots or of lots and blocks. Also within the boundary map, identification of any special districts the area proposed to be annexed may be part of.

d. Next to the boundary of the area proposed to be annexed, a drawing of the contiguous boundary of the Town of Keenesburg and the contiguous boundary of any other municipality abutting the area proposed to be annexed, and a showing of the dimensions of such contiguous boundaries.

e. A surveyor's certificate prepared by a registered land surveyor that attests to the preparation of the map and certifies at least one-sixth (1/6) contiguity to the Town of Keenesburg.

f. Acceptance block describing the acceptance action by the Mayor on behalf of the Town of Keenesburg and providing for the effective date and Town Clerk attest signature.

5. Upon the annexation ordinance becoming effective, all lands within the area proposed to be annexed will become subject to all ordinances, resolutions, rules, and regulations of the Town of Keenesburg, except for general property taxes of the Town of Keenesburg, which shall become effective as of the January 1 next ensuing.

6. The zoning classification requested for the area proposed to be annexed is Industrial LI.

   The petitioners agree that said annexed land shall be brought under the provisions of Chapter 16 of the Keenesburg Municipal Code within ninety (90) days from the effective date of the annexation ordinance.

7. There shall be no duty or obligation upon the Town of Keenesburg to furnish water or sanitary sewer facilities to the area proposed to be annexed. Such services will be provided at such time, in the sole discretion of the Town, when such services for water and sanitary sewer can be economically and reasonably installed to service a sufficient number of inhabitants within the area so as to make the construction and establishment of such services feasible and at no additional cost for the same or similar type of services provided to inhabitants within the existing corporate limits of the Town.

8. If required by the Town, an annexation agreement has been or will be executed by the petitioners herein and the Town of Keenesburg relating to this annexation and the petitioners hereby expressly consent to the terms and conditions set forth in the annexation agreement.

9. The petitioners agree to the following terms and conditions, which shall be covenants running with the land, and which may, at the option of the Town, appear on the annexation map:

   a. Water rights shall be provided pursuant to Town ordinance.

   b. All conditions set out in the annexation agreement executed by the petitioner.

   c. Other:

THEREFORE, the petitioners, whose signatures are on the signature sheet on the next page, respectfully petitions the Board of Trustees of the Town of Keenesburg to annex the territory described and referenced to in Exhibit "A" to the Town of Keenesburg in accordance with and pursuant to the statues of the State of Colorado.

AFFIDAVIT OF CIRCULATOR

The undersigned, being of lawful age, who being first duly sworn upon oath deposes and says:

That (he or she) was the circulator of the foregoing Petition for Annexation of lands to the Town of Keenesburg, Colorado, consisting of _6_ pages, including this page and that each signature thereon was witnessed by your affiant and is the true signature of the person whose name it purports to be.

Carmen L. Maldonado(Circulator)

ACKNOWLEDGEMENT

STATE OF COLORADO)
)ss
COUNTY OF Weld)

The above and foregoing Affidavit of Circulator was subscribed and sworn to before me this _08___ day of ___November_____, 2019___.

Witness my hand and official seal.

My commission expires on: 09/21/2022

DAWN KOSHIO
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20104038580
My Commission Expires September 21, 2022

Notary Public ID.

810 1st St
Address
Ft Lupton, CO 80621

(SEAL)

Land Owner (s) Name (s) and Signature (s) Mailing Address Date

Kauffman Brothers Limited Partnership c/o Mark Kauffman 8616 WCR 63 Keenesburg, CO 80643, Nov 8th, 2019

Mark Kauffman

Printed Name

Mark Kauffman

Signature

WESTERN ENGINEERING CONSULTANTS, Inc LLC
127 S. Denver Avenue, Ft. Lupton CO 80621
2501 Mill St. Brush, CO 80723
Ph. 303-913-7341, Fax 720-294-1330
Email: chadwin.cox@westerneci.com

February 19, 2020

Town of Keenesburg
140 S. Main St
Keenesburg, CO 80643

RE: KAUFFMAN SOUTHWEST PARCEL ANNEXATION SUBMITTAL NARRATIVE

Dear Town Staff,

Please find the attached Annexation Petition and supporting documents for the Kauffman Southwest Parcel Annexation Submittal.

This letter is intended to serve as the Project narrative (Annexation Item #6).

General Information and Brief Project Description:

Owner:	Kauffman Brothers Limited Partnership Mark Kauffman authorized as the agent /representative 8616 WCR 63 Keenesburg, CO 80643
Civil Engineer:	Western Engineering Consultants inc, LLC 127 South Denver Ave. Fort Lupton, CO 80621 720-685-9951 Chadwin Cox PE 303-913-7341
Land Surveyor:	American West Land Surveyors 331 South 4th Avenue Brighton, Colorado 80601 303-659-1532 Curtis Hoos PLS
Traffic Engineer:	Sustainable Traffic Solutions 823 West 124th Drive Westminster, Colorado 80234 303-589-6875 Joe Henderson PE PTOE
Geotechnical Engineer:	Soilogic 4350 Highway 66 Longmont, Colorado 80504 970-535-6144 Wolf Von Carlowitz PE, Darrel DiCarlo PE

Electrical Engineer:	To Be Determined
Drainage Engineer:	Western Engineering Consultants 127 S. Denver Avenue Ft. Lupton, Colorado 80643 303-913-7341 Chadwin Cox PE
Location of Site:	Adjacent to WCR 398 and 120 feet north from intersection of County Road 63 and WCR 398, Weld County.
Total Site Area:	7.91 Acres (412,218 sf)
Total Build-out Area:	3 Lots are proposed (1.5 ac, 2.25 ac, and 2.25 ac)

TDB by lot	Building area at buildout
TBD	Landscaping

COMPREHENSIVE PLAN:
The current Land Use Plan for this property and the adjacent north and east properties as Industrial. This proposal to is Zone as Industrial. See figure 1.

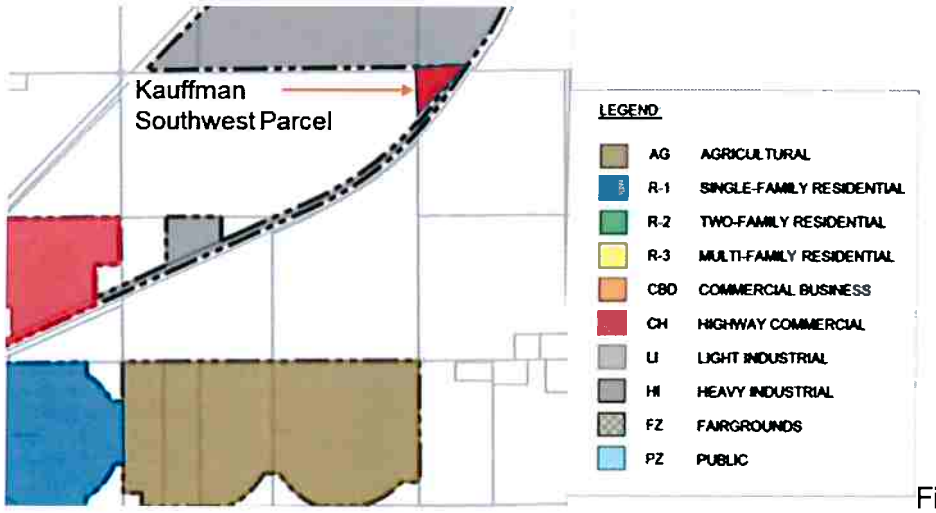


Fig. 1

ZONING DISTRICT:
Current zone is Agricultural. Proposed Zone is Light Industrial (LI)

DENSITY:
The maximum density will be determined during Site design and review. Each lot is expected to have an Office/Shop building, gravel access/parking yard, and on site Wastewater Treatment System (OWTS).

DIVERSITY:
The proposed industrial lot size are limited in Town – the Applicant believes this project will bring further diversity to the Town of Keenesburg.

ADJACENT ADLAND USES:
To the west lies agricultural farm ground, to the North is agricultural farm ground, to the South is WCR 398, and to the east agricultural and to the Northeast and industrial complex (Discovery Midstream Gas Plant). North and east are planned as Industrial per the Town's Land Use plan.

CONNECTIVITY:
The property is directly connected to the Town and it's frequently traveled locations via WCR 398.

PUBLIC OPEN SPACE:
Not applicable.

ROADWAY NETWORK:
The Town has existing roadways to the east and west. A new local industrial roadway ROW will be dedicated as part of the parcel development.

TREATMENTS TO ROADWAYS
None expected at this time – see attached Traffic Letter for anticipated demands. It is expected the Subdivision Improvement Agreement and/or Development Agreement will define the terms for acceleration/deceleration and/or turn lanes if demands exceed acceptable thresholds.

LOT LAYOUT:
One 1.5 acres lot and two 2.25 acres lots are proposed for Southwest Parcel.

LOT INTERFACE WITH ROADWAYS:
Each lot within Southeast parcel will be connected direct to Carol Drive which will be directly connected to WCR 398.

LOT SIZE DIVERSITY:

Since this is an industrial subdivision there is no significant diversity proposed here-in-however each lot will be individually developed so they will have diversity from each other.

SETBACKS:
The setbacks are 30 feet front and rear and 10 feet each side.

LOT SIZES ENHANCING STREETCAPE:
Lot sizes vary from just over 1.5 acres to approximately 2.25 acres. Each adjacent lot will include independent landscape designs that complement WCR 398 road corridor. Currently no streetscape is proposed along the Town standard Industrial road cross section beyond native drought resistant grasses in the 4 foot area between back of the 8 foot walk and right of way boundary.

COMMON AREAS:
Currently none are proposed with this overall subdivision plan. This development is not large enough nor part of a larger development where Common Areas would be appropriate.

FENCING:
All site fencing is proposed to be handled by each individual lot owner in accordance with Town regulations. Screened fence (metal sided) will be required for the perimeter of any equipment parking (expected to be in the rear – eastern portion of each lot) with exception to the front (west) where screening will occur between the side fencing and/or building.

AMENITIES, ENTRIES, CONNECTIVITY, ARCHITECTURAL & LANSCAPE DESIGNS FOR EACH LOT
The current amenities include proposed street, utility, lighting, grading and drainage improvements necessary to develop the infrastructure needed for lot specific development. Each Light Industrial lot development will be individually designed (drought resistant landscape included). No **architectural features are proposed with this public infrastructure phase for the Overall Subdivision.**

IRRIGATION SYSTEM
Each lot will be required to have its own irrigation system (if necessary – current expectation is to be drought resistant Xeriscape). It is expected each lot will include varying levels of xeriscape as well to be compliant with modern water wise methodology.

POTABLE WATER:
Potable water exists in adjacent WCR 398. The Town water system will be extended into the proposed public right of way proposed as Carol Drive.

ADEQUATE POTABLE WATER:
Pursuant to the Pre-Application meeting – Town of Keenesburg adequate water is said to not be an issue.

STORM WATER MANAGEMENT:
This project will detain stormwater as allowed by the Town of Keenesburg and State of Colorado. Currently a subdivision Infiltration Pond is proposed. Further investigation will be performed to confirm if a detained release can occur into WCR 398 right of way.

GAS AND ELECTRIC:
Electric is already adjacent to the property. It is unclear if gas exist.

WILL SERVICE LETTERS:
We have contacted South East Weld County Fire Rescue requesting service and a will serve letter.

SURVEYS:
The Site topography and boundary survey was provided by American West Land Surveyors in Brighton

6) Annexation Impact Questions

a.) Soils Description	See attached NRCS Soil data.
b.) Known hazards	None known to exist.
c.) Preliminary Utility Plan	Buried electric exists within WCR 398 right of way Extension of Town Water main is proposed in the new ROW Septic (OWTS) It is unclear if gas exists in this area No water rights are known to exist
d.) Affidavit concerning water	No water rights are known to exist
e.) Statement on Community need	Industrial "pad ready" parcels are in demand
f.) Effect of annexation on Schools	Effect unclear – a developed pad could attract new employees and said employees could commute or move into community.

SUBMITTAL & HOPEFUL PROJECT SCHEDULE:

Date:	Time/ location:	Event:	Notes:
February 19, 2020	1:00 p.m.	Submit Annexation documents	
April 15, 2020		Complete Annexation and Zoning approvals	

SPECIAL USE APPLICATION CHECKLIST:

The following is a summary of the checklist items:

1.	Annexation Petition	Enclosed
2.	Completed Land Use Application	Enclosed
3.	Application fees and fee deposits	Enclosed
4.	Annexation Map	Enclosed
5.	Completed Annexation Agreement	Enclosed
6.	Supporting Annexation Impact information	Enclosed

Please contact me with any questions or comments you may have on this proposed project!

Sincerely,

Western Engineering Consultants inc., LLC
Chadwin F. Cox, P.E.
Senior Project Manager

Encl. Annexation submittal documents

Quit Claim Deed
(Pursuant to 38-30-116 C.R.S.)

THIS DEED, made on **April 9, 2019**, by **_Kauffman Bros Ltd Partnership,** Grantor(s), of the County of **_Weld** and State of **Colorado** for the consideration of ***** Ten ***** dollars in hand paid, hereby sells and quitclaims to **Kauffman Bros Ltd Partnership,** Grantee(s), whose street address is **_8616 County Road 63, Keenesburg, CO 80643** County of **Weld**, State of **Colorado**, the following real property in the County of **Weld**, and State of **Colorado**, to wit:

Lengthy legal attached as Exhibit A
also known by street and number as
n/a

with all its appurtenances.

Mark A. Kauffman G.P. Mark A Kauffman G.P.

Kauffman Bros Ltd Partnership, Mark A. Kauffman, General Partner

Kauffman Bros Ltd Partnership, Mark A. Kauffman, General Partner

State of **Colorado**)
)ss
County of **Weld**)

The foregoing instrument was acknowledged before me this day of **April 9, 2019**
by Mark A Kauffman

Christina Fernandez
Notary Public
My commission expires 10-12-2020

CHRISTINA FERNANDEZ
Notary Public
State of Colorado
Notary ID # 20164039047
My Commission Expires 10-12-2020

When recorded return to:

4479881 Pages: 1 of 2
04/09/2019 02:35 PM R Fee:$18.00 D Fee:$0.00
Carly Koppes, Clerk and Recorder, Weld County, CO

Form 13038 02/2011 qcd.dot

EXHIBIT A

A PARCEL OF LAND LOCATED IN THE NORTHWEST 1/4 OF SECTION 20, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

CONSIDERING THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 20 TO BEAR NORTH 89°11'00" EAST, BEING MONUMENTED ON THE EAST END BY A 3/4" REBAR WITH 2" ALUMINUM CAP, PLS 25937 AND ON THE WEST END BY A 2 1/2" PIPE WITH 3 1/4" ALUMINUM CAP, PLS 23027, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO;

BEGINNING AT THE NORTHWEST CORNER OF SAID SECTION 20; THENCE NORTH 89°11'00" EAST, COINCIDENT WITH THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 20, A DISTANCE OF 711.19 FEET TO THE WEST RIGHT-OF-WAY LINE OF COUNTY ROAD NO. 398 AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AS RECEPTION NO. 659487 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO; THNCE SOUTH 34°48'59" WEST, COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 626.82 FEET TO THE BEGINNING OF A CURVE, CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5528.90 FEET AND A CENTRAL ANGLE OF 05°08'07", WHOSE CHORD BEARS SOUTH 37°23'03" WEST, A DISTANCE OF 495.38 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 495.55 FEET TO AN ANGLE POINT IN SAID WEST RIGHT-OF-WAY LINE; THENCE NORTH 00°30'49" WEST, COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 30.89 FEET TO AN ANGLE POINT IN SAID WEST RIGHT-OF-WAY LINE AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AS RECEPTION NO. 659484 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO, AND THE BEGINNING OF A CURVE, CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5508.90 FEET AND A CENTRAL ANGLE OF 00°35'18", WHOSE CHORD BEARS SOUTH 40°00'05" WEST, A DISTANCE OF 56.56 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, AND COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 56.56 FEET TO THE WEST LINE OF THE NORTHWEST 1/4 OF SAID SECITON 20; THENCE NORTH 00°59'44" WEST, COINCIDENT WITH SAID WEST LINE, A DISTANCE OF 910.67 FEET TO THE TRUE POINT OF BEGINNING.

SAID PARCEL CONTAINS 7.91 ACRES, MORE OR LESS.

PREPARED BY: CURTIS D. HOOS, PLS 37971
FOR AND ON BEHALF OF:
AMERICAN WEST LAND SURVEYING CO.
A COLORADO CORPORATION
P.O. BOX 129
BRIGHTON, CO 80601

4479881 Pages: 2 of 2
04/09/2019 02:35 PM R Fee:$18.00 D Fee:$0.00
Carly Koppes, Clerk and Recorder, Weld County, CO

LAND TITLE GUARANTEE COMPANY

Date: November 15, 2019

Subject: Attached Title Policy/Guarantee

Enclosed please find your product insuring the property located at TBD, KEENESBURG, CO 80643.

If you have any inquiries or require further assistance, please contact Land Title Customer Care Team at (970) 282-3649 or customercare@ltgc.com

Chain of Title Documents:

Weld county recorded 04/09/2019 under reception no. 4479881

Weld county recorded 07/13/2018 under reception no. 4414881

Weld county recorded 03/06/1995 under reception no. 2428989

Property Information Binder

CONDITIONS AND STIPULATIONS

1. Definition of Terms

The following terms when used in this Binder mean:

(a) "Land": The land described, specifically or by reference, in this Binder and improvements affixed thereto which by law constitute real property;

(b) "Public Records"; those records which impart constructive notice of matters relating to said land;

(c) "Date": the effective date;

(d) "the Assured": the party or parties named as the Assured in this Binder, or in a supplemental writing executed by the Company;

(e) "the Company" means Old Republic National Title Insurance Company, a Minnesota stock company.

2. Exclusions from Coverage of this Binder

The company assumes no liability including cost of defense by reason of the following:

(a) Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; taxes and assessments not yet due or payable and special assessments not yet certified to the Treasurer's office.

(b) Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

(c) Title to any property beyond the lines of the Land, or title to streets, roads, avenues, lanes, ways or waterways on which such land abuts, or the right to maintain therein vaults, tunnels, ramps, or any other structure or improvement; or any rights or easements therein unless such property, rights or easements are expressly and specifically set forth in said description.

(d) Mechanic's lien(s), judgment(s) or other lien(s).

(e) Defects, liens, encumbrances, adverse claims or other matters: (a) created, suffered or agreed to by the Assured;(b) not known to the Company, not recorded in the Public Records as of the Date, but known to the Assured as ofthe Date; or (c) attaching or creating subsequent to the Date.

3. Prosecution of Actions

1. The Company shall have the right at its own costs to institute and prosecute any action or proceeding or do any other act which in its opinion may be necessary or desirable to establish or confirm the matters herein assured; and the Company may take any appropriate action under the terms of this Binder, whether or not it shall be liable thereunder and shall not thereby concede liability or waive any provision hereof.
2. In all cases where the Company does not institute and prosecute any action or proceeding, the Assured shall permit the Company to use, at its option, the name of the Assured for this purpose. Whenever requested by the Company, the Assured shall give the Company all reasonable aid in prosecuting such action or proceeding, and the Company shall reimburse the Assured for any expense so incurred.

4. Notice of Loss - Limitation of Action

A statement in writing of any loss or damage for which it is claimed the Company is liable under this Binder shall be furnished to the Company within sixty days after such loss or damage shall have been determined, and no right of action shall accrue to the Assured under this Binder until thirty days after such statement shall have been furnished, and no recovery shall be had by the Assured under this Binder unless action shall be commenced thereon with two years after expiration of the thirty day period. Failure to furnish the statement of loss or damage or to commence the action within the time herinbefore specified, shall be conclusive bar against maintenance by the Assured of any action under this Binder.

5. Option to Pay, Settle or Compromise Claims

The Company shall have the option to pay, settle or compromise for or in the name of the Assured any claim which could result in loss to the Assured within the coverage of this Binder, or to pay the full amount of this Binder. Such payment or tender of payment of the full amount of the Binder shall terminate all liability of the Company hereunder.

6. Limitation of Liability - Payment of Loss

(a) The liability of the Company under this Binder shall be limited to the amount of actual loss sustained by the Assured because of reliance upon the assurances herein set forth, but in no event shall the liability exceed the amount of the liability stated on the face page hereof.

(b) The Company will pay all costs imposed upon the Assured in litigation carried on by the Company for the Assured, and all costs and attorneys' fees in litigation carried on by the Assured with the written authorization of the Company.

(c) No claim for loss or damages shall arise or be maintainable under this Binder (1) if the Company after having received notice of any alleged defect, lien or encumbrance not shown as an Exception or excluded herein removes such defect, lien or encumbrance within a reasonable time after receipt of such notice, or (2) for liability voluntarily assumed by the Assured in settling any claim or suit without written consent of the Company.

(d) All payments under this Binder, except for attorney's fees as provided for in paragraph 6(b) thereof, shall reduce the amount of the liability hereunder pro tanto, and no payment shall be made without producing this Binder or an acceptable copy thereof for endorsement of the payment unless the Binder be lost or destroyed, in which case proof of the loss or destruction shall be furnished to the satisfaction of the Company.

(e) When liability has been definitely fixed in accordance with the conditions of this Binder, the loss or damage shall be payable within thirty days thereafter.

7. Subrogation Upon Payment or Settlement

Whenever the Company shall have settled a claim under this Binder, all right of subrogation shall vest in the Company unaffected by any act of the Assured, and it shall be subrogated to and be entitled to all rights and remedies which the Assured would have had against any person or property in respect to the claim had this Binder not been issued. If the payment does not cover the loss of the Assured, the Company shall be subrogated to the rights and remedies in the proportion which the payment bears to the amount of said loss. The Assured, if requested by the Company, shall transfer to the Company all rights and remedies against any person or property necessary in order to perfect the right of subrogation, and shall permit the Company to use the name of the Assured in any transaction or litigation involving the rights or remedies.

8. Binder Entire Contract

Any action or actions or rights of action that the Assured may have or may bring against the Company arising out of the subject matter hereof must be based on the provisions of this Binder. No provision or condition of this Binder can be waived or changed except by a writing endorsed or attached hereto signed by the President, a Vice President, the Secretary, an Assistant Secretary or other validating officer of the Company.

9. Notices. Where Sent

All notices required to be given the Company and any statement in writing required to be furnished the Company shall be addressed to it at 400 Second Avenue South, Minneapolis, Minnesota 55401, (612) 371-1111.

10. Arbitration

Unless prohibited by applicable law, either the Company or the insured may demand arbitration pursuant to the Title Insurance Arbitration Rules of the American Arbitration Association.

ANTI-FRAUD STATEMENT: Pursuant to CRS 10-1-128(6)(a), it is unlawful to knowingly provide false, incomplete or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or

attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

This anti-fraud statement is affixed and made a part of this policy.

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Issued by:
Land Title Guarantee Company
3033 East First Avenue Suite 600
Denver, Colorado 80206
(303)321-1880

Senior Vice President

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
A Stock Company
400 Second Avenue South, Minneapolis, Minnesota 55401
(612) 371-1111

By President

Attest Secretary

AMERICAN LAND TITLE ASSOCIATION

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: FCIF25170049

Policy No.: PIB25170049.1706123

Liability: $50,000.00

Fee: $500.00

Subject to the exclusions from coverage, the limits of liability and other provisions of the Conditions and Stipulations hereto annexed and made a part of this Binder,

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY a Corporation, herein called the Company,

GUARANTEES

WESTERN ENGINEERING CONSULTANTS INC

Herein called the Assured, against loss, not exceeding the liability amount stated above, which the assured shall sustain by reason of any incorrectness in the assurance which the Company hereby gives that, according to the public records as of

November 08, 2019 at 5:00 P.M.

1. Title to said estate or interest at the date hereof is vested in:

KAUFFMAN BROTHERS LIMITED PARTNERSHIP AKA KAUFFMAN BROS LTD PARTNERSHIP

2. The estate or interest in the land hereinafter described or referred to covered by this Binder :

A Fee Simple

3. The Land referred to in this Binder is described as follows:

A PARCEL OF LAND LOCATED IN THE SW 1/4 OF SECTION 20, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:
CONSIDERING THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 20 TO BEAR N 89° 11' 00" E, BEING MONUMENTED ON THE EAST END BY A 3/4" REBAR WITH A 2" ALUMINUM CAP, PLS 25937 AND ON THE WEST END BY A 2 1/2" PIPE WITH 3 1/4" ALUMINUM CAP, PLS 23027, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO:
BEGINNING AT THE NW CORNER OF SAID SECTION 20; THENCE N 89° 11' 00" E, COINCIDENT WITH THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 20, A DISTANCE OF 711.19 FEET TO THE WEST RIGHT OF WAY LINE OF COUNTY ROAD NO. 398 AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AT RECEPTION NO. 859487 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO; THENCE S 34° 48' 58" W, COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 626.82 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5528.90 FEET AND A CENTRAL ANGLE OF 05° 08' 07", WHOSE CHORD BEARS S 37° 23' 03" W, A DISTANCE OF 495.38 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 495.55 FEET TO AN ANGLE POINT IN SAID WEST RIGHT

OF WAY LINE; THENCE N 00° 30' 49" W, COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 30.89 FEET TO AN ANGLE POINT IN SAID WEST RIGHT OF WAY LINE AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AT RECEPTION NO. 659484 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO, AND THE BEGINNING OF A CURVE CONCAVE TO THE NW HAVING A RADIUS OF 5508.90 FEET AND A CENTRAL ANGLE OF 00° 35' 18", WHOSE CHORD BEARS S 40° 00' 05" W, A DISTANCE OF 56.56; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, AND COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 56.56 FEET TO THE WEST LINE OF THE NW 1/4 OF SAID SECTION 20; THENCE N 00° 59' 44" W, COINCIDENT WITH SAID WEST LINE, A DISTANCE OF 910.67 FEET TO THE TRUE POINT OF BEGINNING.

4. The following documents affect the land:

1. RIGHT OF WAY FOR DITCHES OR CANALS CONSTRUCTED BY THE AUTHORITY OF THE UNITED STATES AS RESERVED IN UNITED STATES PATENT RECORDED JULY 30, 1921, AT RECEPTION NO. 359467
2. ALL OIL, GAS, MINERALS AND OTHER MINERAL RIGHTS AS RESERVED IN INSTRUMENT RECORDED FEBRUARY 13, 1931, IN BOOK 908 AT PAGE 373, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.
3. TERMS, CONDITIONS AND PROVISIONS OF RIGHT OF WAY AGREEMENT RECORDED AUGUST 06, 1956 IN BOOK 1457 AT PAGE 136.
4. OIL AND GAS LEASE RECORDED FEBRUARY 07, 1970 UNDER RECEPTION NO. 1544574 AND ANY AND ALL ASSIGNMENTS THEREOF, OR INTEREST THEREIN.
5. TERMS, CONDITIONS AND PROVISIONS OF PERMANENT PIPELINE RIGHT OF WAY RECORDED AUGUST 17, 1981 AT RECEPTION NO. 1866420.
6. TERMS, CONDITIONS AND PROVISIONS OF PIPELINE RIGHT OF WAY AGREEMENT RECORDED SEPTEMBER 23, 1991 AT RECEPTION NO. 2263852.
7. TERMS, CONDITIONS AND PROVISIONS OF PIPELINE RIGHT OF WAY AGREEMENT RECORDED SEPTEMBER 23, 1991 AT RECEPTION NO. 2263854.
8. TERMS, CONDITIONS AND PROVISIONS OF RIGHT OF WAY AGREEEMENT RECORDED OCTOBER 16, 1995 AT RECEPTION NO. 2459615.
9. TERMS, CONDITIONS AND PROVISIONS OF RIGHT OF WAY AND EASEMENT RECORDED NOVEMBER 04, 2008 AT RECEPTION NO. 3588046.
10. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT RECORDED JUNE 01, 2009 AT RECEPTION NO. 3626536.
11. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT RECORDED JUNE 01, 2009 AT RECEPTION NO. 3626537.
12. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT BY ORDER RECORDED MARCH 15, 2013 AT RECEPTION NO. 3917346.
13. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT RECORDED JULY 13, 2018 AT RECEPTION NO. 4414879.
14. ALL OIL, GAS, MINERALS AND OTHER MINERAL RIGHTS AS RESERVED IN INSTRUMENT RECORDED JULY 13, 2018, UNDER RECEPTION NO. 4414881, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: FCIF25170049 **Policy No.:** PIB25170049.1706123

15. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF RIGHT OF WAY RECORDED SEPTEMBER 20, 2018 AT RECEPTION NO. 4432515 AND AMENDED JUNE 7, 2019 AT RECEPTION NO. 4495585.
16. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF LEASE AGREEMENT RECORDED NOVEMBER 20, 2018 AT RECEPTION NO. 4447675.
17. A DEED OF TRUST DATED AUGUST 23, 2019 FROM KAUFFMAN BROTHERS LIMITED PARTNERSHIP AKA KAUFFMAN BROS LTD PARTNERSHIP TO THE PUBLIC TRUSTEE OF WELD COUNTY FOR THE USE OF TBK BANK SSB TO SECURE THE SUM OF $723,750.00, AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF, RECORDED AUGUST 26, 2019, UNDER RECEPTION NO. 4517692.
18. EXISTING LEASES OR TENANCIES.

NOTE: THIS BINDER DOES NOT REFLECT THE STATUS OF TITLE TO WATER RIGHTS OR REPRESENTATION OF SAID RIGHTS, RECORDED OR NOT.

NOTE: THIS BINDER IS NOT A REPORT OR REPRESENTATION AS TO MINERAL INTERESTS, AND SHOULD NOT BE USED, OR RELIED UPON, IN CONNECTION WITH THE NOTICE REQUIREMENTS THAT ARE SET FORTH IN CRS 24-65.5-103.

NOTE: ADDITIONAL UPDATES TO THE EFFECTIVE DATE OF THE BINDER MAY BE REQUESTED BY THE PROPOSED INSURED. ONE UPDATE IS INCLUDED WITH THIS BINDER AT NO ADDITIONAL COST. ANY ADDITIONAL UPDATES WILL BE ISSUED AT THE COST OF $125 PER UPDATE. FOR EACH UPDATE PROVIDED, A REVISED BINDER WILL BE ISSUED SHOWING A NEW EFFECTIVE DATE AND ANY MATTERS RECORDED SINCE THE EFFECTIVE DATE OF THE PREVIOUS BINDER.

INVOICE

Land Title Guarantee Company
5975 Greenwood Plaza Blvd Suite 125
Greenwood Village, CO 80111
970-282-3649

WESTERN ENGINEERING CONSULTANTS INC
WESTERN ENGINEERING CONSULTANTS INC
PO BOX 595
None
BRIGHTON, CO 80601

Reference

Your Reference Number:	
Our Order Number:	25170049
Our Customer Number:	27985
Invoice Requested by:	WESTERN ENGINEERING CONSULTANTS INC
Invoice (Process) Date:	November 15, 2019
Transaction Invoiced By:	Dan Greenfield
Email Address:	dgreenfield@ltgc.com

Invoice Number: 25170049 Date: November 15, 2019

Order Number: 25170049

Property Address: TBD KEENESBURG 80643

Parties: Kaufman Brothers Limited Partnership

Invoice Charges	
Previous Amount Due:	$0.00
Property Information Binder	$500.00
Total Invoice Amount:	$500.00
Current Balance Due:	$500.00

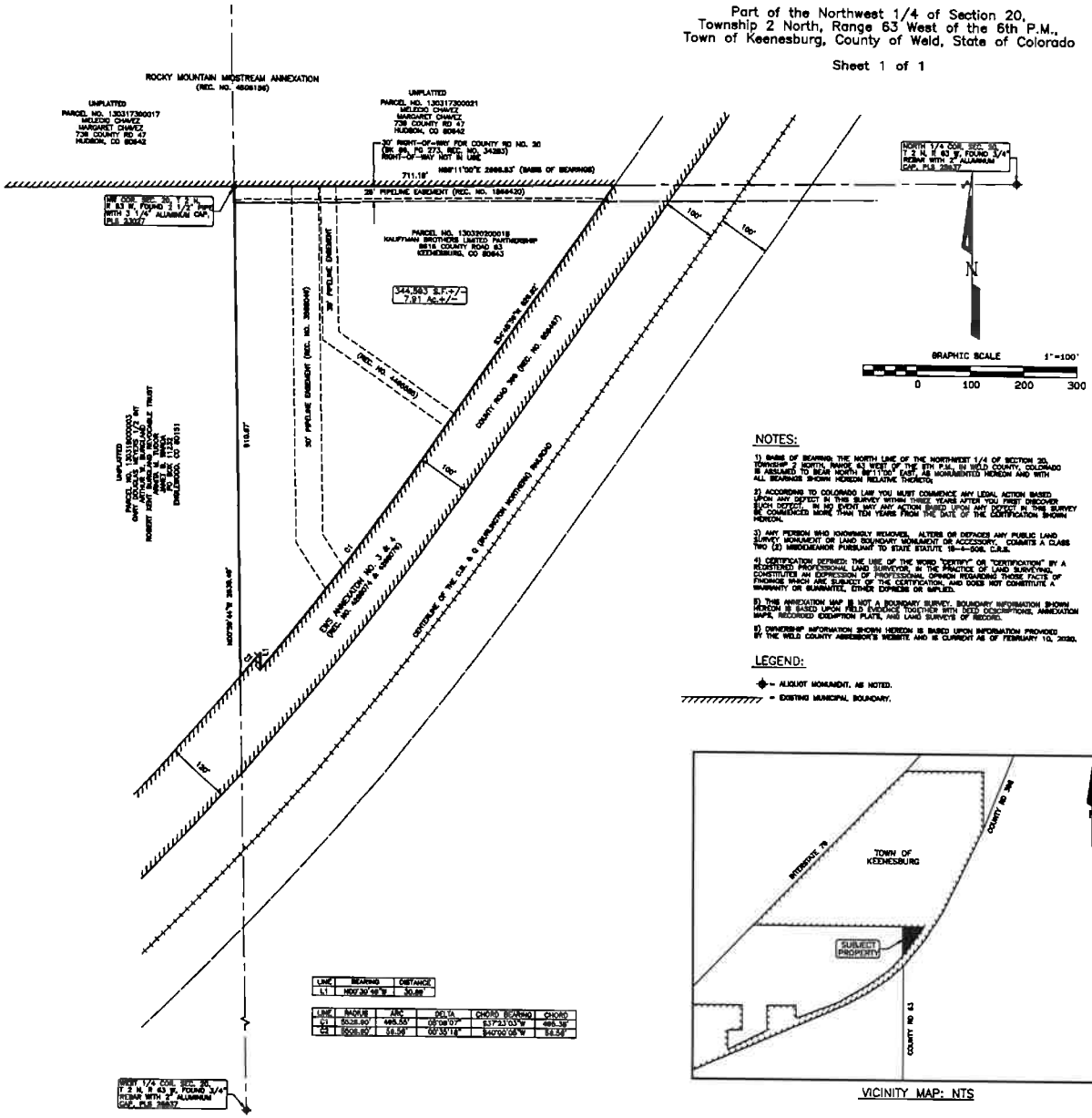
Due and Payable upon receipt

Please make check payable to Land Title Guarantee Company and send to the address at the top of Page 1.
Please reference **Invoice Number 25170049** on your Payment

KAUFFMAN ANNEXATON NO. 4 TO THE TOWN OF KEENESBURG

Part of the Northwest 1/4 of Section 20,
Township 2 North, Range 63 West of the 6th P.M.,
Town of Keenesburg, County of Weld, State of Colorado

Sheet 1 of 1



LINE	BEARING	DISTANCE
L1	N00°30'49"W	30.88'

LINE	RADIUS	ARC	DELTA	CHORD BEARING	CHORD
C1	5028.80'	465.55'	05°08'07"	S37°23'03"W	465.38'
C2	5028.80'	54.56'	00°37'18"	S40°00'08"W	54.55'

NOTES:

1) Basis of Bearing: THE NORTH LINE OF THE NORTHWEST 1/4 OF SECTION 20, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M. IN WELD COUNTY, COLORADO IS ASSUMED TO BEAR NORTH 89°11'00" EAST, AS MONUMENTED HEREON AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO.

2) ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

3) ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.

4) CERTIFICATION DEFINED: THE USE OF THE WORD "CERTIFY" OR "CERTIFICATION" BY A REGISTERED PROFESSIONAL LAND SURVEYOR, IN THE PRACTICE OF LAND SURVEYING, CONSTITUTES AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THOSE FACTS OF FINDINGS WHICH ARE SUBJECT OF THE CERTIFICATION, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EITHER EXPRESS OR IMPLIED.

5) THIS ANNEXATION MAP IS NOT A BOUNDARY SURVEY. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON FIELD EVIDENCE TOGETHER WITH DEED DESCRIPTIONS, ANNEXATION MAPS, RECORDED EXEMPTION PLATS, AND LAND SURVEYS OF RECORDS.

6) OWNERSHIP INFORMATION SHOWN HEREON IS BASED UPON INFORMATION PROVIDED BY THE WELD COUNTY ASSESSOR'S WEBSITE AND IS CURRENT AS OF FEBRUARY 10, 2020.

LEGEND:

- ALIQUOT MONUMENT, AS NOTED.
- EXISTING MUNICIPAL BOUNDARY.

VICINITY MAP: NTS

ANNEXATION DESCRIPTION:

A PARCEL OF LAND LOCATED IN THE NORTHWEST 1/4 OF SECTION 20, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

CONSIDERING THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 20 TO BEAR NORTH 89°11'00" EAST, BEING MONUMENTED ON THE EAST END BY A 3 1/4" REBAR WITH 2" ALUMINUM CAP, PLS 25867 AND ON THE WEST END BY A 2 1/2" PIPE WITH 3 1/4" ALUMINUM CAP, PLS 23067, AND WITH ALL BEARINGS CONTAINED HEREON RELATIVE THERETO;

BEGINNING AT THE NORTHWEST CORNER OF SAID SECTION 20; THENCE NORTH 89°11'00" EAST, COINCIDENT WITH THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 20, A DISTANCE OF 711.18 FEET TO THE WEST RIGHT-OF-WAY LINE OF COUNTY ROAD NO. 30B AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AS RECEPTION NO. 95640 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO; THENCE SOUTH 00°48'37" WEST, COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 629.42 FEET TO THE BEGINNING OF A CURVE, CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5028.80 FEET AND A CENTRAL ANGLE OF 05°08'07", WHOSE CHORD BEARS SOUTH 37°23'03" WEST, A DISTANCE OF 465.38 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 465.55 FEET TO AN ANGLE POINT IN SAID WEST RIGHT-OF-WAY LINE; THENCE NORTH 00°30'49" WEST, COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 30.88 FEET TO AN ANGLE POINT IN SAID WEST RIGHT-OF-WAY LINE AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AS RECEPTION NO. 95640 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO AND THE BEGINNING OF A CURVE, CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5028.80 FEET AND A CENTRAL ANGLE OF 00°37'18", WHOSE CHORD BEARS SOUTH 40°00'08" WEST, A DISTANCE OF 54.56 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 54.56 FEET TO THE WEST LINE OF THE NORTHWEST 1/4 OF SAID SECTION 20; THENCE NORTH 00°58'44" WEST, COINCIDENT WITH SAID WEST LINE, A DISTANCE OF 910.67 FEET TO THE TRUE POINT OF BEGINNING.

SAID PARCEL CONTAINS 344,363 SQUARE FEET OR 7.91 ACRES, MORE OR LESS.

OWNER'S CERTIFICATE:

KNOW ALL MEN BY THESE PRESENTS, THAT KAUFFMAN BROTHERS LIMITED PARTNERSHIP, BEING THE SOLE OWNER AND PROPRIETORS OF THE LAND DESCRIBED HEREIN AS KAUFFMAN ANNEXATION NO. 4 HAVE CAUSED SUCH LAND TO BE ANNEXED TO THE TOWN OF KEENESBURG.

OWNER: KAUFFMAN BROTHERS LIMITED PARTNERSHIP

_____
MARK A. KAUFFMAN AS MANAGER

STATE OF COLORADO }
COUNTY OF _____ } SS

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS ____ DAY OF _____, 20____

BY: RICHARD L. ROBERTSON AND HEIDI D. ROBERTSON

WITNESS MY HAND AND OFFICIAL SEAL.

(SEAL) _____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

TOWN OF KEENESBURG ACCEPTANCE:

THIS IS TO CERTIFY THAT KAUFFMAN ANNEXATION NO. 4 TO THE TOWN OF KEENESBURG WAS APPROVED

ON THE ____ DAY OF _____, 20____ BY ORDINANCE NO. _____ AND THAT THE MAYOR OF THE TOWN OF KEENESBURG, ON BEHALF OF THE TOWN OF KEENESBURG, HEREBY ACKNOWLEDGES SAID ANNEXATIONS UPON WHICH THIS CERTIFICATE IS ENDORSED FOR ALL PURPOSES INDICATED THEREON.

_____ _____
MAYOR ATTEST: TOWN CLERK

SURVEYOR'S CERTIFICATE:

I, CURTIS D. HOOS, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS MAP WAS MADE BY ME, OR UNDER MY SUPERVISION, AND THIS MAP ACCURATELY REPRESENTS SAID SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY ME TO DETERMINE OWNERSHIP. FURTHERMORE, THIS CERTIFIES THAT AT LEAST ONE-SIXTH (1/6) OF THE PROPERTY SHOWN HEREON IS CONTIGUOUS WITH THE BOUNDARY OF THE TOWN OF KEENESBURG.

_____
CURTIS D. HOOS PLS 37971
FOR AND ON BEHALF OF:
AMERICAN WEST LAND SURVEYING CO.
A COLORADO CORPORATION

ANNEXATION TABLE

TOTAL PERIMETER:	2631.88 FEET
REQUIRED 1/6 CONTIGUOUS PERIMETER:	471.98 FEET
CONTIGUOUS BOUNDARY:	1921.01 FEET

American West
Land Surveying Co.
A Colorado Corporation
PO Box 126, Brighton, CO 80601 • P:303-659-1532 F:303-659-0575 • amwestls.com

SCALE 1" = 100'	DRAWN BY: CDH	CHECKED BY: MAR / DATE: APRIL 12, 2020
REVISIONS:		
JOB NO. 20-	FILE: F:\SURVEY\11-DATA_WORK\ET\KAUFFMAN ANNEX.DWG	

Sketch Plan Subdivision Application
Application Fee: $250.00
(Plus all developer related review fees incurred by the Town of Keenesburg i.e. legal, engineering, publication, recording fees, etc.)

Applicant Name	Kauffman Brothers Partnership LLC c/o Mark Kauffman
Address	8616 County Road 63
	Keenesburg, Colorado 80643
Daytime Phone	303-961-3960
Email:	cmkauff@rtebb.net
Subdivision Name	SOUTHWEST PARCEL
Address of Proposed Subdivision	TBD

Legal Description PT NW4 20-2-63 COMM NW SEC COR TH N89D11 E 711.19 S34E48W 626.82 TH 495.55 ALG CRV CONCAVE NW (R=5528.9 CH=S37D23W) N00D30W 30.89 TH 56.56 ALG CRV CONCAVE NW (R=5508.9 CH=S40D00W) N00D59W 910.67 TPOB

Is the Applicant the Owner of the Property? X **Yes** ___ **No**

Owner Name (if not Applicant):	Kauffman Brothers Partnership LLC c/o Mark Kauffman
Owner Address:	8616 County Road 63
	Keenesburg, Colorado 80643
Owner's Phone:	303-961-3960
Owner's email:	cmkauff@rtebb.net

Sketch Plan Requirements and procedure

1. Public hearing will be set when staff determines that all application materials are complete.

2. Application shall be submitted at least thirty (30) days prior to date of public hearing by the Planning Commission or Board of Trustees.

3. Site plan drawn to scale and supporting maps and written materials, with the following information:

   a. Complete Legal description of the property.
   b. The names and addresses of all fee owners and lien holders having an interest in the Land.
   c. A statement of existing and proposed zoning.
   d. Description of the land uses adjacent to the property.
   e. Existing site conditions including topography and unique natural or man made features.
   f. Proposed street system with approximate right of way width if applicable.
   g. Generalized lot layout with approximate lot areas.
   h. Locations of existing and proposed utilities.
   i. Generalized locations of all existing and proposed land uses.
   j. The approximate locations and areas of land to be used for public or private Open space, recreation areas, school sites or public uses if applicable.

4. Written comments from utility companies and other Governmental agencies (will serve letters).

5. One (1) electronic complete packet, three (3) copies (11 X 17), three (3) (36 X 24) of the sketch plan shall be submitted.

6. A **$250.00** application fee shall be submitted with the sketch plan application.

7. An executed Cost Agreement.

8. In accordance with KMC 17-1-20 a deposit of the estimated costs that include administrative, engineering, legal, and any other technical review deemed appropriate by the administrator. $5,000 (As represented on the fee deposit schedule)

Checklist

_____Pre-application conference.

_____Subdivider's Certification that all utilites are available.

_____Completed Application

_____Executed Cost Agreement

$5000 Deposit (Amount determined by administrator during pre application conference)

_____Public Hearings will be scheduled by the Town Clerk when the application is determined to be complete.

_____The Subdivider will be responsible for notifying all property owners located within three hundred (300) feet of the property in question at least fifteen (15) days prior to the public hearings. (Notice to be provided by the Town Clerk)

_____Public Hearing notice posted on property at least ten (10) days prior to the public hearings. (The Posting shall contain the same information as the mailed notice, as provided by the Town Clerk)

_____Notarized affidavit stating that notice was mailed, when, with attached list, and that the property was posted with an attached photo.

_____ Affidavit of compliance with notification of surface development under C.R.S. § 24-65.5-101 et. seq.

Property Owner signature: Mark Hoffman **Date:** 11-8-19

The Applicant understands that this is an application only, that is must be approved, and that any required building permits must be obtained before the property may be used in accordance with the request. The Applicant further acknowledges that the above information is correct. By signing this Application, the Applicant certifies that he or his consultants have read and understand the pertinent ordinances of the Town of Keenesburg and will prepare application materials consistent with them.

Applicant signature: Mark Kaufman **Date:** 11-8-19

WESTERN ENGINEERING CONSULTANTS, Inc LLC
127 S. Denver Avenue, Ft. Lupton CO 80621
2501 Mill St. Brush, CO 80723
Ph. 303-913-7341, Fax 720-294-1330
Email: chadwin.cox@westerneci.com

February 20, 2020

Town of Keenesburg
140 S. Main St
Keenesburg, CO 80643

RE: KAUFFMAN SOUTHWEST PARCEL SKETCH PLAN REVIEW SUBMITTAL NARRATIVE

Dear Town Staff,

Please find the attached Sketch Plan review Application and supporting documents for the Kauffman Southwest Parcel Sketch Plan Review Submittal.

This letter is intended to serve as the Project narrative (Sketch Plan review Item #03).

General Information and Brief Project Description:

Owner:	Kauffman Brothers Limited Partnership Mark Kauffman authorized as the agent /representative 8616 WCR 63 Keenesburg, CO 80643
Civil Engineer:	Western Engineering Consultants inc, LLC 127 South Denver Ave. Fort Lupton, CO 80621 720-685-9951 Chadwin Cox PE 303-913-7341
Land Surveyor:	American West Land Surveyors 331 South 4th Avenue Brighton, Colorado 80601 303-659-1532 Curtis Hoos PLS
Traffic Engineer:	Sustainable Traffic Solutions 823 West 124th Drive Westminster, Colorado 80234 303-589-6875 Joe Henderson PE PTOE
Geotechnical Engineer:	Soilogic 4350 Highway 66 Longmont, Colorado 80504 970-535-6144 Wolf Von Carlowitz PE, Darrel DiCarlo PE

Electrical Engineer:	To Be Determined
Drainage Engineer:	Western Engineering Consultants 127 S. Denver Avenue Ft. Lupton, Colorado 80643 303-913-7341 Chadwin Cox PE
Location of Site:	Adjacent to WCR 398 and 120 feet north from intersection of County Road 63 and WCR 398, Weld County.
Total Site Area:	7.91 Acres (412,218 sf)
Total Build-out Area:	4 Lots are proposed (0.7 ac, 1.54 ac, 2.23 ac, and 2.26 ac)

TDB by lot	Building area at buildout
TBD	Landscaping

COMPREHENSIVE PLAN:
The current Land Use Plan for this property and the adjacent north and east properties as Industrial. This proposal to is Zone as Industrial. See figure 1.

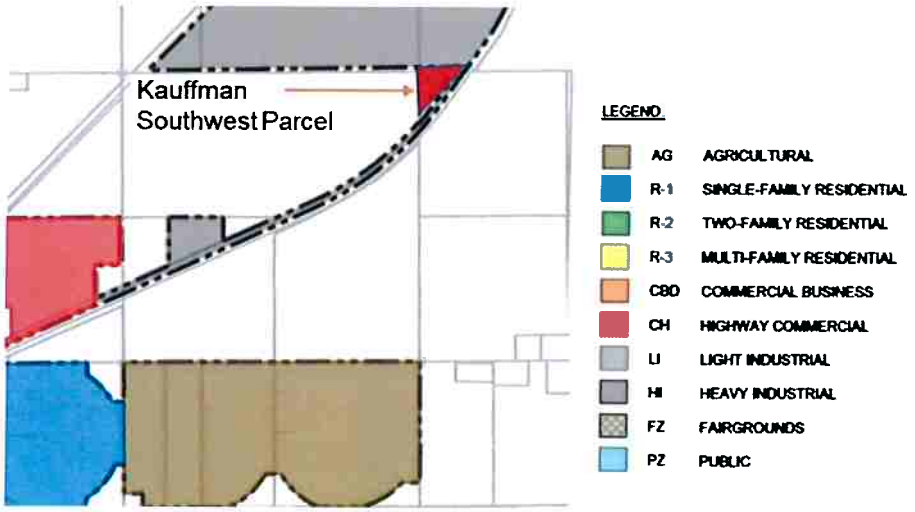


Fig. 1

ZONING DISTRICT:
Current zone is Agricultural. Proposed Zone is Light Industrial (LI)

DENSITY:
The maximum density will be determined during Site design and review. Each lot is expected to have an Office/Shop building, gravel access/parking yard, and on site Wastewater Treatment System (OWTS).

DIVERSITY:
The proposed industrial lot size are limited in Town – the Applicant believes this project will bring further diversity to the Town of Keenesburg.

ADJACENT ADLAND USES:
To the west lies agricultural farm ground, to the North is agricultural farm ground, to the South is WCR 398, and to the east agricultural and to the Northeast and industrial complex (Discovery Midstream Gas Plant). North and east are planned as Industrial per the Town's Land Use plan.

CONNECTIVITY:
The property is directly connected to the Town and it's frequently traveled locations via WCR 398.

PUBLIC OPEN SPACE:
Not applicable.

ROADWAY NETWORK:
The Town has existing roadways to the east and west. A new 30 ft ROW will be dedicated along the north boundary for future County Road 20 as part of the parcel development.

TREATMENTS TO ROADWAYS
None expected at this time – see attached Traffic Letter for anticipated demands. It is expected the Subdivision Improvement Agreement and/or Development Agreement will define the terms for acceleration/deceleration and/or turn lanes if demands exceed acceptable thresholds.

LOT LAYOUT:
One 1.5 acres lot and two 2.25 acres lots are proposed for Southwest Parcel.

LOT INTERFACE WITH ROADWAYS:
Each lot within Southeast parcel will be connected direct to Carol Drive which will be directly connected to WCR 398.

LOT SIZE DIVERSITY:
Since this is an industrial subdivision there is no significant diversity proposed here-in-however each lot will be individually developed so they will have diversity from each other.

SETBACKS:
The setbacks are 20 feet front and rear and 10 feet each side, except on district boundaries.

LOT SIZES ENHANCING STREETCAPE:
Lot sizes vary from just over 1.5 acres to approximately 2.25 acres. Each adjacent lot will include independent landscape designs that complement WCR 398 road corridor. Currently no streetscape is proposed along the Town standard Industrial road cross section beyond native drought resistant grasses in the 4 foot area between back of the 8 foot walk and right of way boundary.

COMMON AREAS:
Currently none are proposed with this overall subdivision plan. This development is not large enough nor part of a larger development where Common Areas would be appropriate.

FENCING:
All site fencing is proposed to be handled by each individual lot owner in accordance with Town regulations. Screened fence (metal sided) will be required for the perimeter of any equipment parking (expected to be in the rear – eastern portion of each lot) with exception to the front (west) where screening will occur between the side fencing and/or building.

AMENITIES, ENTRIES, CONNECTIVITY, ARCHITECTURAL & LANSCAPE DESIGNS FOR EACH LOT
The current amenities include proposed street, utility, lighting, grading and drainage improvements necessary to develop the infrastructure needed for lot specific development. Each Light Industrial lot development will be individually designed (drought resistant landscape included). No **architectural features are proposed with this public infrastructure phase for the Overall Subdivision.**

IRRIGATION SYSTEM
Each lot will be required to have its own irrigation system (if necessary – current expectation is to be drought resistant Xeriscape). It is expected each lot will include varying levels of xeriscape as well to be compliant with modern water wise methodology.

POTABLE WATER:
Potable water exists in adjacent WCR 398. The Town water system will be extended into the proposed public right of way proposed as Carol Drive.

ADEQUATE POTABLE WATER:
Pursuant to the Pre-Application meeting – Town of Keenesburg adequate water is said to not be an issue.

STORM WATER MANAGEMENT:
This project will detain stormwater as allowed by the Town of Keenesburg and State of Colorado. Currently a subdivision Infiltration Pond is proposed. Further investigation will be performed to confirm if a detained release can occur into WCR 398 right of way.

GAS AND ELECTRIC:
Electric is already adjacent to the property. It is unclear if gas exist.

WILL SERVICE LETTERS:
We have contacted South East Weld County Fire Rescue requesting service and a will serve letter.

SURVEYS:
The Site topography and boundary survey was provided by American West Land Surveyors in Brighton

6) Project Impact Questions

a.) Soils Description	See attached NRCS Soil data.
b.) Known hazards	None known to exist.
c.) Preliminary Utility Plan	Buried electric exists within WCR 398 right of way Extension of Town Water main is proposed in the new ROW Septic (OWTS) It is unclear if gas exists in this area No water rights are known to exist
d.) Affidavit concerning water	No water rights are known to exist
e.) Statement on Community need	Industrial "pad ready" parcels are in demand
f.) Effect of project on Schools	Effect unclear – a developed pad could attract new employees and said employees could commute or move into community.

SUBMITTAL & HOPEFUL PROJECT SCHEDULE:

Date:	Time/ location:	Event:	Notes:
February 19, 2020	1:00 p.m.	Submit Annexation and Zoning documents	
February 20, 2020	1:00 p.m.	Submit Sketch Plan Review documents	
April 15, 2020		Complete Annexation and Zoning approvals	

SPECIAL USE APPLICATION CHECKLIST:

The following is a summary of the checklist items:

1. Sketch Plan Review Application	Enclosed
2. Application Fees	Enclosed
3. Written Description of Proposal	Enclosed
4. Proof of Ownership	Enclosed
5. 300 ft Report and envelopes	Enclosed
6. Copy of any surface agreement with mineral interest	Enclosed Report
7. Traffic Study	Enclosed
8. Drainage Study	Enclosed
9. Soils Report	Enclosed
10. Sketch Plans (3) copies 11X17 and (3) 36X24	Enclosed
11. Executed Cost Agreement with Town of Keenesburg	Enclosed
12. Electronic Copy (USB)	

Please contact me with any questions or comments you may have on this proposed project!

Sincerely,

Western Engineering Consultants inc., LLC
Chadwin F. Cox, P.E.
Senior Project Manager

Encl. Sketch Plan review submittal documents

LAND TITLE GUARANTEE COMPANY

Date: November 15, 2019

Subject: Attached Title Policy/Guarantee

Enclosed please find your product insuring the property located at TBD, KEENESBURG, CO 80643.

If you have any inquiries or require further assistance, please contact Land Title Customer Care Team at (970) 282-3649 or customercare@ltgc.com

Chain of Title Documents:

Weld county recorded 04/09/2019 under reception no. 4479881

Weld county recorded 07/13/2018 under reception no. 4414881

Weld county recorded 03/06/1995 under reception no. 2428989

Property Information Binder

CONDITIONS AND STIPULATIONS

1. Definition of Terms

The following terms when used in this Binder mean:

(a) "Land": The land described, specifically or by reference, in this Binder and improvements affixed thereto which by law constitute real property;

(b) "Public Records"; those records which impart constructive notice of matters relating to said land;

(c) "Date": the effective date;

(d) "the Assured": the party or parties named as the Assured in this Binder, or in a supplemental writing executed by the Company;

(e) "the Company" means Old Republic National Title Insurance Company, a Minnesota stock company.

2. Exclusions from Coverage of this Binder

The company assumes no liability including cost of defense by reason of the following:

(a) Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; taxes and assessments not yet due or payable and special assessments not yet certified to the Treasurer's office.

(b) Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

(c) Title to any property beyond the lines of the Land, or title to streets, roads, avenues, lanes, ways or waterways on which such land abuts, or the right to maintain therein vaults, tunnels, ramps, or any other structure or improvement; or any rights or easements therein unless such property, rights or easements are expressly and specifically set forth in said description.

(d) Mechanic's lien(s), judgment(s) or other lien(s).

(e) Defects, liens, encumbrances, adverse claims or other matters: (a) created, suffered or agreed to by the Assured;(b) not known to the Company, not recorded in the Public Records as of the Date, but known to the Assured as ofthe Date; or (c) attaching or creating subsequent to the Date.

3. Prosecution of Actions

1. The Company shall have the right at its own costs to institute and prosecute any action or proceeding or do any other act which in its opinion may be necessary or desirable to establish or confirm the matters herein assured; and the Company may take any appropriate action under the terms of this Binder, whether or not it shall be liable thereunder and shall not thereby concede liability or waive any provision hereof.
2. In all cases where the Company does not institute and prosecute any action or proceeding, the Assured shall permit the Company to use, at its option, the name of the Assured for this purpose. Whenever requested by the Company, the Assured shall give the Company all reasonable aid in prosecuting such action or proceeding, and the Company shall reimburse the Assured for any expense so incurred.

4. Notice of Loss - Limitation of Action

A statement in writing of any loss or damage for which it is claimed the Company is liable under this Binder shall be furnished to the Company within sixty days after such loss or damage shall have been determined, and no right of action shall accrue to the Assured under this Binder until thirty days after such statement shall have been furnished, and no recovery shall be had by the Assured under this Binder unless action shall be commenced thereon with two years after expiration of the thirty day period. Failure to furnish the statement of loss or damage or to commence the action within the time herinbefore specified, shall be conclusive bar against maintenance by the Assured of any action under this Binder.

5. Option to Pay, Settle or Compromise Claims

The Company shall have the option to pay, settle or compromise for or in the name of the Assured any claim which could result in loss to the Assured within the coverage of this Binder, or to pay the full amount of this Binder. Such payment or tender of payment of the full amount of the Binder shall terminate all liability of the Company hereunder.

6. Limitation of Liability - Payment of Loss

(a) The liability of the Company under this Binder shall be limited to the amount of actual loss sustained by the Assured because of reliance upon the assurances herein set forth, but in no event shall the liability exceed the amount of the liability stated on the face page hereof.

(b) The Company will pay all costs imposed upon the Assured in litigation carried on by the Company for the Assured, and all costs and attorneys' fees in litigation carried on by the Assured with the written authorization of the Company.

(c) No claim for loss or damages shall arise or be maintainable under this Binder (1) if the Company after having received notice of any alleged defect, lien or encumbrance not shown as an Exception or excluded herein removes such defect, lien or encumbrance within a reasonable time after receipt of such notice, or (2) for liability voluntarily assumed by the Assured in settling any claim or suit without written consent of the Company.

(d) All payments under this Binder, except for attorney's fees as provided for in paragraph 6(b) thereof, shall reduce the amount of the liability hereunder pro tanto, and no payment shall be made without producing this Binder or an acceptable copy thereof for endorsement of the payment unless the Binder be lost or destroyed, in which case proof of the loss or destruction shall be furnished to the satisfaction of the Company.

(e) When liability has been definitely fixed in accordance with the conditions of this Binder, the loss or damage shall be payable within thirty days thereafter.

7. Subrogation Upon Payment or Settlement

Whenever the Company shall have settled a claim under this Binder, all right of subrogation shall vest in the Company unaffected by any act of the Assured, and it shall be subrogated to and be entitled to all rights and remedies which the Assured would have had against any person or property in respect to the claim had this Binder not been issued. If the payment does not cover the loss of the Assured, the Company shall be subrogated to the rights and remedies in the proportion which the payment bears to the amount of said loss. The Assured, if requested by the Company, shall transfer to the Company all rights and remedies against any person or property necessary in order to perfect the right of subrogation, and shall permit the Company to use the name of the Assured in any transaction or litigation involving the rights or remedies.

8. Binder Entire Contract

Any action or actions or rights of action that the Assured may have or may bring against the Company arising out of the subject matter hereof must be based on the provisions of this Binder. No provision or condition of this Binder can be waived or changed except by a writing endorsed or attached hereto signed by the President, a Vice President, the Secretary, an Assistant Secretary or other validating officer of the Company.

9. Notices. Where Sent

All notices required to be given the Company and any statement in writing required to be furnished the Company shall be addressed to it at 400 Second Avenue South, Minneapolis, Minnesota 55401, (612) 371-1111.

10. Arbitration

Unless prohibited by applicable law, either the Company or the insured may demand arbitration pursuant to the Title Insurance Arbitration Rules of the American Arbitration Association.

ANTI-FRAUD STATEMENT: Pursuant to CRS 10-1-128(6)(a), it is unlawful to knowingly provide false, incomplete or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or

attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

This anti-fraud statement is affixed and made a part of this policy.

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Issued by:
Land Title Guarantee Company
3033 East First Avenue Suite 600
Denver, Colorado 80206
(303)321-1880

Senior Vice President

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
A Stock Company
400 Second Avenue South, Minneapolis, Minnesota 55401
(612) 371-1111

By C Monroe President

Attest Daniel Weld Secretary

AMERICAN LAND TITLE ASSOCIATION

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: FCIF25170049 **Policy No.:** PIB25170049.1706123

Liability: $50,000.00

Fee: $500.00

Subject to the exclusions from coverage, the limits of liability and other provisions of the Conditions and Stipulations hereto annexed and made a part of this Binder,

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY a Corporation, herein called the Company,

GUARANTEES

WESTERN ENGINEERING CONSULTANTS INC

Herein called the Assured, against loss, not exceeding the liability amount stated above, which the assured shall sustain by reason of any incorrectness in the assurance which the Company hereby gives that, according to the public records as of

November 08, 2019 at 5:00 P.M.

1. Title to said estate or interest at the date hereof is vested in:

KAUFFMAN BROTHERS LIMITED PARTNERSHIP AKA KAUFFMAN BROS LTD PARTNERSHIP

2. The estate or interest in the land hereinafter described or referred to covered by this Binder :

A Fee Simple

3. The Land referred to in this Binder is described as follows:

A PARCEL OF LAND LOCATED IN THE SW 1/4 OF SECTION 20, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:
CONSIDERING THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 20 TO BEAR N 89° 11' 00" E, BEING MONUMENTED ON THE EAST END BY A 3/4" REBAR WITH A 2" ALUMINUM CAP, PLS 25937 AND ON THE WEST END BY A 2 1/2" PIPE WITH 3 1/4" ALUMINUM CAP, PLS 23027, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO:
BEGINNING AT THE NW CORNER OF SAID SECTION 20; THENCE N 89° 11' 00" E, COINCIDENT WITH THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 20, A DISTANCE OF 711.19 FEET TO THE WEST RIGHT OF WAY LINE OF COUNTY ROAD NO. 398 AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AT RECEPTION NO. 859487 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO; THENCE S 34° 48' 58" W, COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 626.82 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5528.90 FEET AND A CENTRAL ANGLE OF 05° 08' 07", WHOSE CHORD BEARS S 37° 23' 03" W, A DISTANCE OF 495.38 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 495.55 FEET TO AN ANGLE POINT IN SAID WEST RIGHT

OF WAY LINE; THENCE N 00° 30' 49" W, COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 30.89 FEET TO AN ANGLE POINT IN SAID WEST RIGHT OF WAY LINE AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AT RECEPTION NO. 659484 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO, AND THE BEGINNING OF A CURVE CONCAVE TO THE NW HAVING A RADIUS OF 5508.90 FEET AND A CENTRAL ANGLE OF 00° 35' 18", WHOSE CHORD BEARS S 40° 00' 05" W, A DISTANCE OF 56.56; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, AND COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 56.56 FEET TO THE WEST LINE OF THE NW 1/4 OF SAID SECTION 20; THENCE N 00° 59' 44" W, COINCIDENT WITH SAID WEST LINE, A DISTANCE OF 910.67 FEET TO THE TRUE POINT OF BEGINNING.

4. The following documents affect the land:

1. RIGHT OF WAY FOR DITCHES OR CANALS CONSTRUCTED BY THE AUTHORITY OF THE UNITED STATES AS RESERVED IN UNITED STATES PATENT RECORDED JULY 30, 1921, AT RECEPTION NO. 359467
2. ALL OIL, GAS, MINERALS AND OTHER MINERAL RIGHTS AS RESERVED IN INSTRUMENT RECORDED FEBRUARY 13, 1931, IN BOOK 908 AT PAGE 373, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.
3. TERMS, CONDITIONS AND PROVISIONS OF RIGHT OF WAY AGREEMENT RECORDED AUGUST 06, 1956 IN BOOK 1457 AT PAGE 136.
4. OIL AND GAS LEASE RECORDED FEBRUARY 07, 1970 UNDER RECEPTION NO. 1544574 AND ANY AND ALL ASSIGNMENTS THEREOF, OR INTEREST THEREIN.
5. TERMS, CONDITIONS AND PROVISIONS OF PERMANENT PIPELINE RIGHT OF WAY RECORDED AUGUST 17, 1981 AT RECEPTION NO. 1866420.
6. TERMS, CONDITIONS AND PROVISIONS OF PIPELINE RIGHT OF WAY AGREEMENT RECORDED SEPTEMBER 23, 1991 AT RECEPTION NO. 2263852.
7. TERMS, CONDITIONS AND PROVISIONS OF PIPELINE RIGHT OF WAY AGREEMENT RECORDED SEPTEMBER 23, 1991 AT RECEPTION NO. 2263854.
8. TERMS, CONDITIONS AND PROVISIONS OF RIGHT OF WAY AGREEEMENT RECORDED OCTOBER 16, 1995 AT RECEPTION NO. 2459615.
9. TERMS, CONDITIONS AND PROVISIONS OF RIGHT OF WAY AND EASEMENT RECORDED NOVEMBER 04, 2008 AT RECEPTION NO. 3588046.
10. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT RECORDED JUNE 01, 2009 AT RECEPTION NO. 3626536.
11. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT RECORDED JUNE 01, 2009 AT RECEPTION NO. 3626537.
12. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT BY ORDER RECORDED MARCH 15, 2013 AT RECEPTION NO. 3917346.
13. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT RECORDED JULY 13, 2018 AT RECEPTION NO. 4414879.
14. ALL OIL, GAS, MINERALS AND OTHER MINERAL RIGHTS AS RESERVED IN INSTRUMENT RECORDED JULY 13, 2018, UNDER RECEPTION NO. 4414881, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: FCIF25170049 **Policy No.:** PIB25170049.1706123

15. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF RIGHT OF WAY RECORDED SEPTEMBER 20, 2018 AT RECEPTION NO. **4432515** AND AMENDED JUNE 7, 2019 AT RECEPTION NO. **4495585**.

16. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF LEASE AGREEMENT RECORDED NOVEMBER 20, 2018 AT RECEPTION NO. **4447675**.

17. A DEED OF TRUST DATED AUGUST 23, 2019 FROM KAUFFMAN BROTHERS LIMITED PARTNERSHIP AKA KAUFFMAN BROS LTD PARTNERSHIP TO THE PUBLIC TRUSTEE OF WELD COUNTY FOR THE USE OF TBK BANK SSB TO SECURE THE SUM OF $723,750.00, AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF, RECORDED AUGUST 26, 2019, UNDER RECEPTION NO. **4517692**.

18. EXISTING LEASES OR TENANCIES.

NOTE: THIS BINDER DOES NOT REFLECT THE STATUS OF TITLE TO WATER RIGHTS OR REPRESENTATION OF SAID RIGHTS, RECORDED OR NOT.

NOTE: THIS BINDER IS NOT A REPORT OR REPRESENTATION AS TO MINERAL INTERESTS, AND SHOULD NOT BE USED, OR RELIED UPON, IN CONNECTION WITH THE NOTICE REQUIREMENTS THAT ARE SET FORTH IN CRS 24-65.5-103.

NOTE: ADDITIONAL UPDATES TO THE EFFECTIVE DATE OF THE BINDER MAY BE REQUESTED BY THE PROPOSED INSURED. ONE UPDATE IS INCLUDED WITH THIS BINDER AT NO ADDITIONAL COST. ANY ADDITIONAL UPDATES WILL BE ISSUED AT THE COST OF $125 PER UPDATE. FOR EACH UPDATE PROVIDED, A REVISED BINDER WILL BE ISSUED SHOWING A NEW EFFECTIVE DATE AND ANY MATTERS RECORDED SINCE THE EFFECTIVE DATE OF THE PREVIOUS BINDER.

INVOICE

Land Title Guarantee Company
5975 Greenwood Plaza Blvd Suite 125
Greenwood Village, CO 80111
970-282-3649

WESTERN ENGINEERING CONSULTANTS INC
WESTERN ENGINEERING CONSULTANTS INC
PO BOX 595
None
BRIGHTON, CO 80601

Reference

Your Reference Number:	
Our Order Number:	25170049
Our Customer Number:	27985
Invoice Requested by:	WESTERN ENGINEERING CONSULTANTS INC
Invoice (Process) Date:	November 15, 2019
Transaction Invoiced By:	Dan Greenfield
Email Address:	dgreenfield@ltgc.com

Invoice Number: 25170049 Date: November 15, 2019

Order Number: 25170049

Property Address: TBD KEENESBURG 80643

Parties: Kaufman Brothers Limited Partnership

Invoice Charges	
Previous Amount Due:	$0.00
Property Information Binder	$500.00
Total Invoice Amount:	$500.00
Current Balance Due:	$500.00

Due and Payable upon receipt

Please make check payable to Land Title Guarantee Company and send to the address at the top of Page 1.
Please reference **Invoice Number 25170049** on your Payment

Sustainable Traffic Solutions
Joseph L. Henderson PE, PTOE
Traffic Engineer / Principal

December 2, 2019

Mr. Chadwin F. Cox, PE
Western Engineering Consultants
127 South Denver Avenue
Fort Lupton, CO 80735

RE: Trip Generation Estimate for the Kauffman Brothers Light Industrial Project Near Keenesburg

Dear Chad,

This letter contains a trip generation estimate for the Kauffman Brothers light industrial project that is proposed on the north side of WCR 398 near the intersection with WCR 63. Four to five industrial lots are proposed. Each lot is assumed to include a building with a shop and offices. Figure 1 contains a vicinity map that shows the location of the project on the north side of WCR 398.

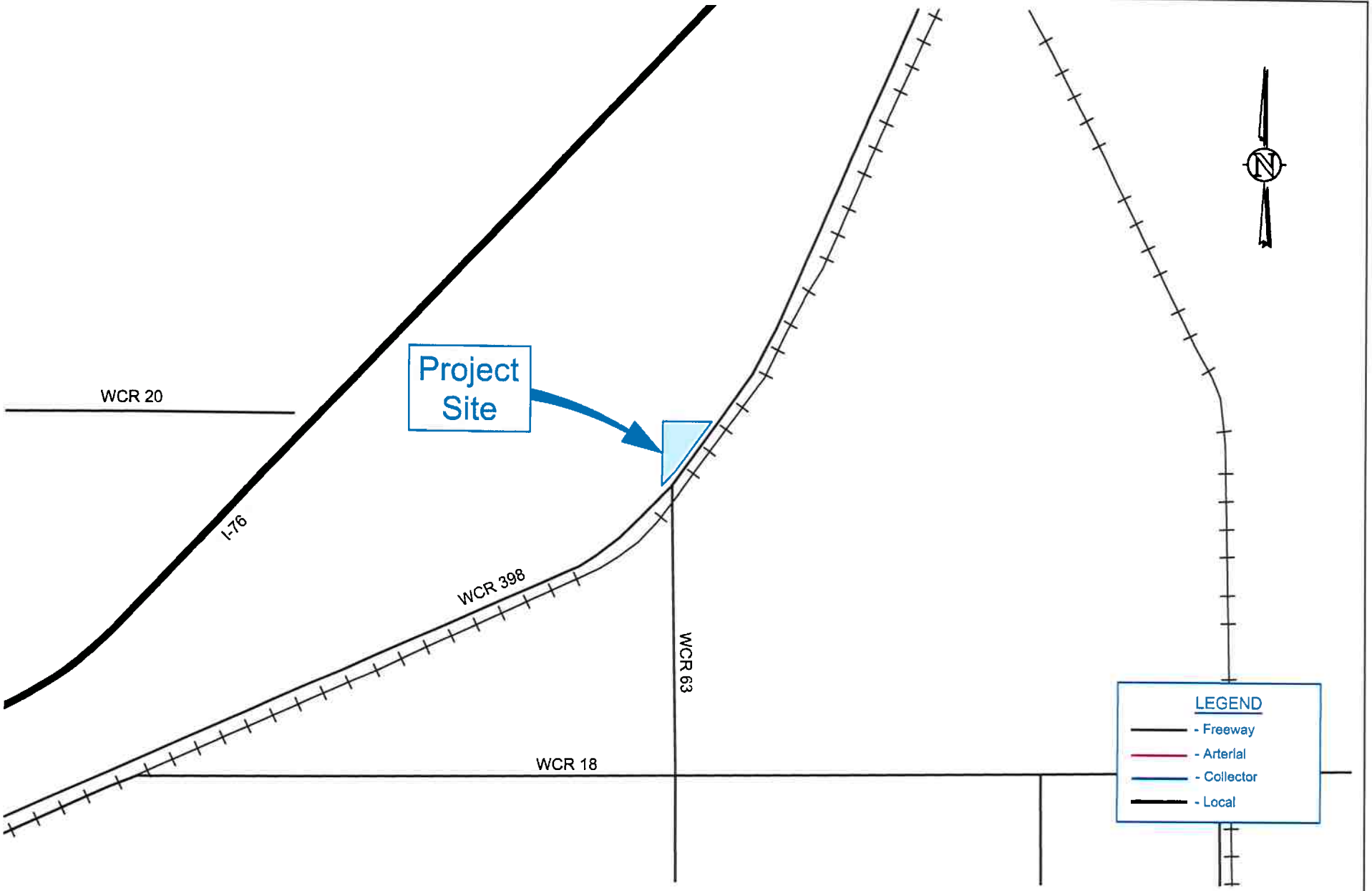
The trip generation for the industrial buildings was estimated using rates that are contained in the Institute of Transportation Engineers (ITE) Trip Generation[1] manual. Estimates were prepared that assume four lots or five lots. Each lot is assumed to include a 6,000 ft^2 building. The development is expected to generate approximately 119 to 149 trips on an average weekday, 17 to 21 trips during the morning peak hour, and 15 to 19 trips during the evening peak hour (see Table 1).

Feel free to contact me to discuss the contents of this report.

Sincerely,

Joseph L. Henderson, PE, PTOE
Project Manager / Principal
Kauffman Brothers Trip Generation Letter

[1] Trip Generation, 10th Edition. Institute of Transportation Engineers. September 2017.



STS

Kauffman Brothers Trip Generation Letter

VICINITY MAP

Scale	1" = 2,000'	Date	December 2, 2019	Drawn by	JLH	Job #	Western Engineering	Figure	1

Table 1. Trip Generation Estimate

Land Use [2]	ITE Code [1]	Size	Unit	Average Daily Trips				Morning Peak Hour Trips				Evening Peak Hour Trips			
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
General Light Industrial - Four Lots	110	24.0	1,000 ft^2	4.96	119	60	60	0.70	17	15	2	0.63	15	2	13
General Light Industrial - Five Lots	110	30.0	1,000 ft^2	4.96	149	74	74	0.70	21	18	3	0.63	19	2	16

Notes:

1. Trip generation estimates are based on rates contained in Trip Generation, 10th Edition (Institute of Transportation Engineers, September 2017).

2. The land use was provided by Western Engineering Consultants.

WESTERN ENGINEERING CONSULTANTS, Inc LLC
127 S. Denver Avenue, Ft. Lupton, CO 80621
2501 Mill St. Brush, CO 80723
Office: 720-685-9951
Cell: 303-913-7341, Fax: 720-294-1330
Email: firstname.lastname@westerneci.com

February 19, 2019

Town of Keenesburg
140 S. Main St
Keenesburg, CO 80643

RE: KAUFFMAN SOUTHWEST PARCEL DRAINAGE NARRATIVE LETTER

Dear Town Staff,

Western Engineering Consultants inc LLC (WEC) appreciates the opportunity to submit this Drainage Narrative Letter on behalf of the Kauffman Southwest Parcel.

This letter summarizes the drainage impact from the development of the 7.91-acre Kauffman SW Parcel and the proposed buildings, asphalt road, and gravel accesses.

Attached to this letter are the following:

- Vicinity Map
- Key map (Google Exhibit)
- FEMA Firmette
- NRCS Soils Report
- WEC Drainage Plans
- Rational Method Runoff Calculations
- Infiltration Calculations

FLOODPLAIN
Pursuant to the attached exhibit (the current FEMA) – the entire Kauffman SW Parcel is **not** within a current or expected amended floodplain. It is located within an Area of Minimal Flood Hazard (Zone X).

PARCEL DESCRIPTION
The overall property lies approximately 5,000 feet south of I-76 with Weld County Road 398 along the eastern border. The entire parcel was noted as the NW ¼ of Section 20, Township 2 North, Range 63 West.

HISTORIC / EXISTING DRAINAGE DESCRIPTION
The entire 7.91-acre parcel has been mapped as a single Historic and a single Existing Basin.

Historically the site drained from west to east at roughly 1.4% (per USGS Tampa, CO Quad Map).

The existing site generally drains from the southwest corner northeast at roughly 2.0%.

The effective imperviousness of the 7.91-acre Historic Basin was calculated at 2.0%. The runoff calculated is 0.12 cfs and 12.14 cfs for the minor (5yr) and major (100yr) storm events, respectively.

The effective imperviousness of the 7.91-acre Existing Basin was calculated at 3.76% as there is an existing gravel road along the western edge. The runoff calculated is 0.29 cfs and 12.49 cfs for the minor (5yr) and major (100yr) storm events, respectively.

Three offsite basins were also mapped as part of this development – ROW 398, OFF N, and OFF W. These basins are not proposed to be developed with this project, but runoff from these basins may enter onto this site.

PROPOSED IMPROVEMENTS

The overall 7.91-acre parcel has been designed to adequately convey developed runoff from the proposed improvements to the designed infiltration pond.

The developed site will consist of four lots, an asphalt road from WCR 398 north along the western site boundary, and two gravel access roads off of the proposed road.

Lot 1 will be located in the southwest corner of the site, south of the proposed road. The lot will contain an 80' x 100' building pad and a gravel covered lot. Lots 2 thru 4 will be located along the eastern edge of the site from south to north, respectively. Each of these lots will contain a 120' x 80' building pad and a gravel covered lot. A gravel access road will run east to west between each of these lots.

The centerline of the proposed road will be the western site boundary line once the road turns north. Only a 16' paved lane and an 8' gravel shoulder will be constructed on the eastern side to act as an interim 24' road until the property to the west is developed in the future. A temporary 100' gravel cul-de-sac is proposed to be constructed at the northern end of the road.

WEC has prepared and analyzed preliminary grading concepts for each basin and enclosed drainage calculations based on the proposed improvements of the overall City property.

DEVELOPED DRAINAGE & INFILTRATION POND ANALYSIS

Appendix B includes all Rational Method runoff calculations summarizing the 2, 5, 10, and 100 year event runoff from the proposed Developed Basins.

Currently, the grading and drainage design is intended to convey all runoff on site to the proposed infiltration pond through the use of roadside ditches and drainage swales.

The proposed grading for the site will begin at the southwest corner of the lot. Runoff will flow overland around the proposed building onto the super elevated access road and into the roadside ditch on the inside of the road. Runoff will then be conveyed either east or west from the access road high point and then north and into the proposed infiltration pond.

The 7.91-acre parcel has been mapped as five developed drainage basins (Basins L1, L2, L3-4, W, & N).

Basin L1 (0.70 ac) contains the developed Lot 1. Runoff from this basin will flow from the proposed building pad southeast to the proposed drainage swale along the eastern lot boundary. Runoff will then be conveyed northeast to design point 1 where runoff will be sent under the proposed road through a proposed culvert. The effective imperviousness of Basin L1 is calculated at 45.40%. The minor (5yr) and major (100yr) runoff rates are approximately 1.02 cfs and 4.02 cfs, respectively.

Basin L2 (1.54 ac) contains the developed Lot 2. Runoff from this basin will flow from the proposed building pad southeast to the proposed drainage swale along the eastern lot boundary. Runoff will then be conveyed northeast to design point 3 where runoff will be sent across the Lot 2 – Lot 3 boundary. The effective imperviousness of Basin L2 is calculated at 43.25%. The minor (5yr) and major (100yr) runoff rates are approximately 1.81 cfs and 7.47 cfs, respectively.

Basin L3-4 (4.49 ac) contains the developed Lots 3 & 4. Runoff from this basin will begin in the northwest corner and flow overland northeast to the proposed drainage swale along the northern lot boundary of Lot 4. Runoff will then be conveyed southeast to design point 5 where the swale meets the proposed infiltration pond. The effective imperviousness of Basin L3-4 is calculated at 49.85%. The minor (5yr) and major (100yr) runoff rates are approximately 5.40 cfs and 19.97 cfs, respectively.

Basin W (0.73 ac) contains the proposed paved super-elevated road. Runoff from this basin will begin at the western edge of the interim road and will flow east across the road. Runoff will then be conveyed to design point 2 at the design low point of the proposed road. The effective imperviousness of Basin W is calculated at 63.83%. The minor (5yr) and major (100yr) runoff rates are approximately 1.11 cfs and 3.43 cfs, respectively.

Basin N (0.46 ac) contains the 30' strip of land along the north of the site that is dedicated for the future WCR 20. Runoff from this basin will begin at the north and flow overland southeast to design point 4 where runoff will leave the basin. The effective imperviousness of Basin N is calculated at 2.00%. The minor (5yr) and major (100yr) runoff rates are approximately 0.01 cfs and 1.19 cfs, respectively.

The proposed Infiltration Pond has been designed in accordance with UDFCD Volume 3 Infiltration Volume criteria.

Per Weld County Code section 8-11-100-B-2, the proposed infiltration pond is required to provide a minimum of 199,862 cubic feet to retain 1.5 times the 100 yr runoff from the 24 hr storm (4.64 inches).

Additional details are in the Sketch Plan Construction Drawings for the Kauffman SW site.

CONCLUSION

The proposed Kauffman SW site improvements will create additional imperviousness, however the attached drainage plan and supporting calculations enhance and significantly improve the current existing runoff conditions. The attached designs are intended to meet or exceed the minimum requirements of Town of Keenesburg Storm Drainage and UDFCD criteria.

Please contact me with any questions or comments you may have on the development project!

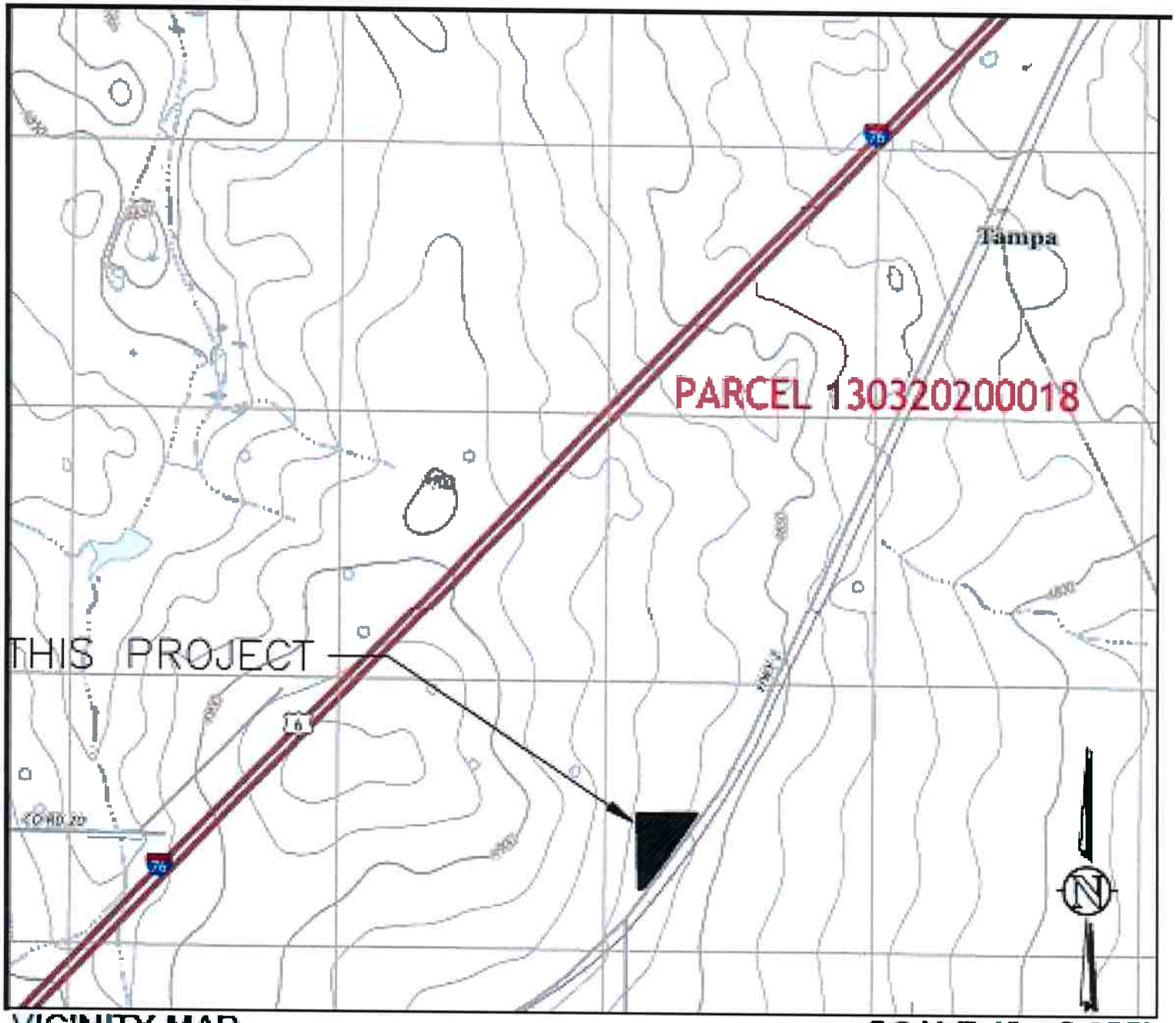
Sincerely,

Western Engineering Consultants inc., LLC
Chadwin F. Cox, P.E.
Senior Project Manager

Encl. Google Site Plan Exhibit, USGS Vicinity Map, NRCS Soils Report, WEC Drainage Plans, WEC Historic, Existing, & Developed Rational Drainage Calcs, and WEC Infiltration Calcs

APPENDIX A

Vicinity Map (USGS) / Key Map (Google Exhibit) /
FEMA Firmette / NRCS Soils Map & Legend



VICINITY MAP

SCALE 1" = 2,000'

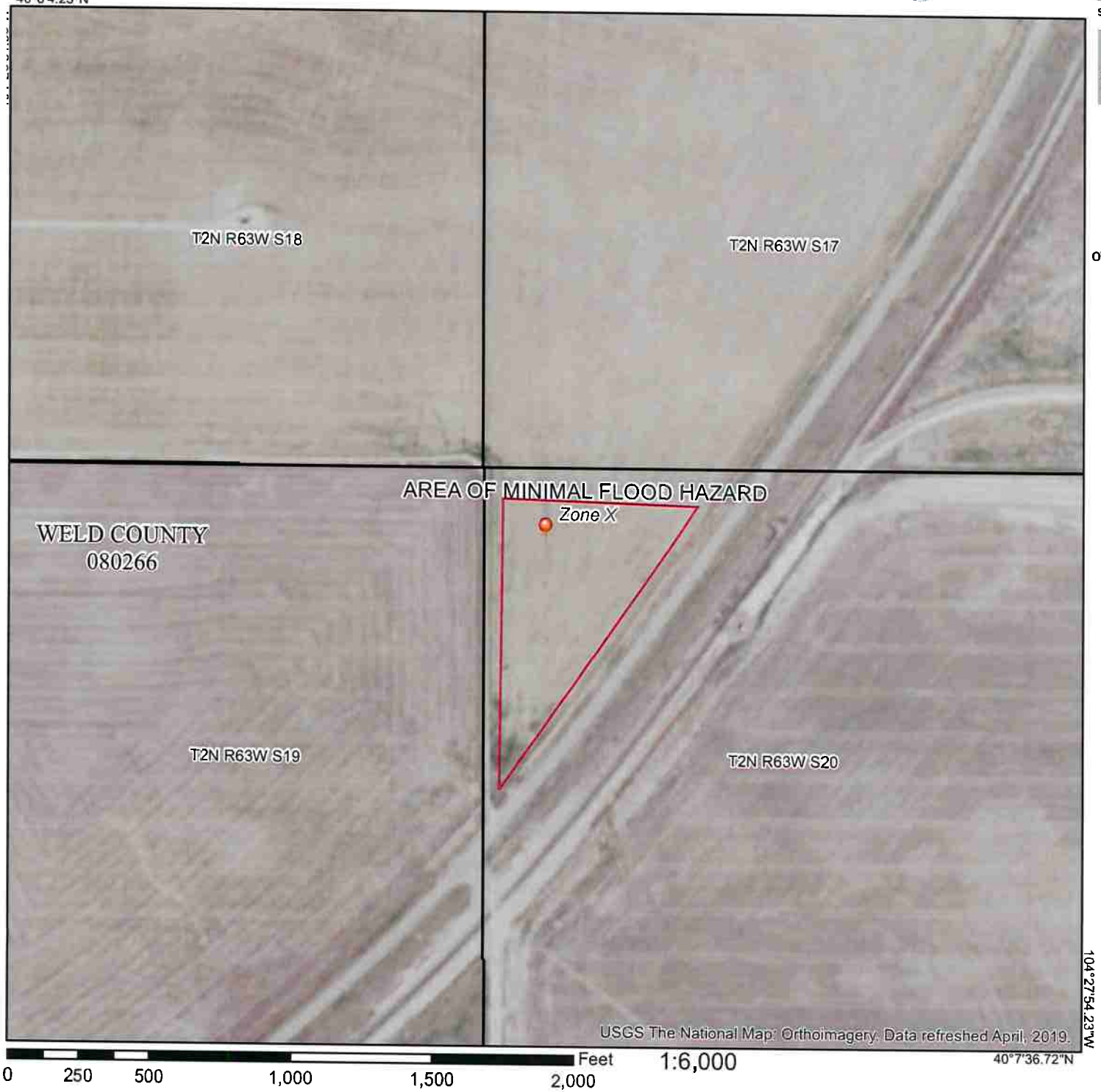
SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN VICINITY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4


THIS PROJECT
6
63
398
Google Earth
© 2020 Google
2000 ft
N

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Area of 1% annual chance flood with average depth less than one foot or with drainag areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represe an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/7/2019 at 4:31:47 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

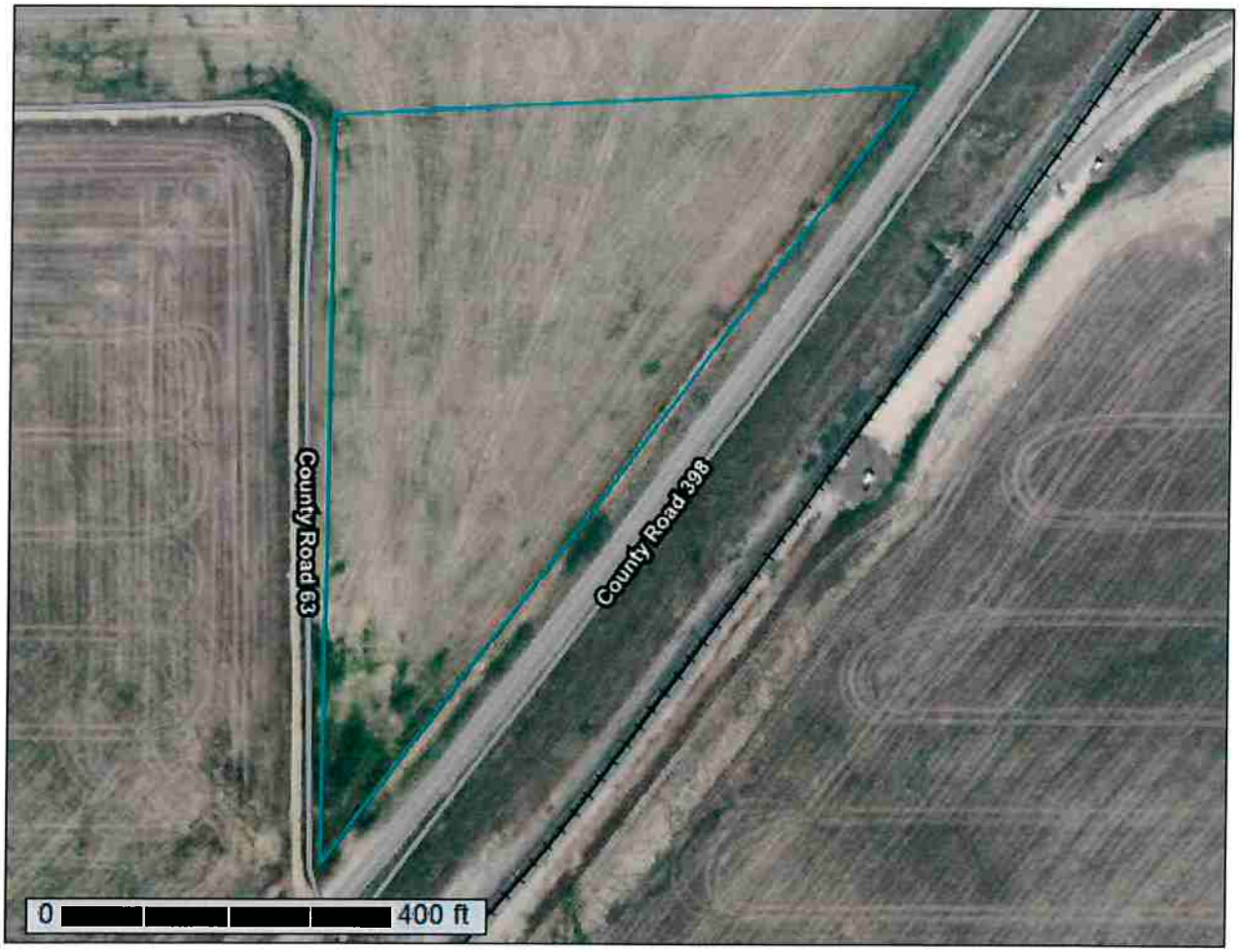
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Kauffman Parcel # 130320200018



November 7, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,680 if printed on A portrait (8.5" x 11") sheet.

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Weld County, Colorado, Southern Part
Survey Area Data: Version 18, Sep 13, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 17, 2015—Oct 2, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
47	Olney fine sandy loam, 1 to 3 percent slopes	7.3	100.0%
Totals for Area of Interest		**7.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Weld County, Colorado, Southern Part

47—Olney fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 362v
Elevation: 4,600 to 5,200 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 125 to 175 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Olney and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Olney

Setting

Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed deposit outwash

Typical profile

H1 - 0 to 10 inches: fine sandy loam
H2 - 10 to 20 inches: sandy clay loam
H3 - 20 to 25 inches: sandy clay loam
H4 - 25 to 60 inches: fine sandy loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: Sandy Plains (R067BY024CO)
Hydric soil rating: No

Minor Components

Zigweid

Percent of map unit: 10 percent
Hydric soil rating: No

Vona

Percent of map unit: 5 percent
Hydric soil rating: No

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APPENDIX B

WEC Rational Method Drainage Calculations

Historic Runoff Table - Kauffman SW Parcel							
BASIN	Impervious	C-YR	I	A	CIA(YR-historic)	Flow	DESIGN POINT
H							
C_2 (UDFCD 2018)	2.00	0.01	1.14	7.91	0.09	cfs	H
C_5	2.00	0.01	1.51	7.91	0.12	cfs	
C_{10}	2.00	0.07	1.86	7.91	1.03	cfs	
C_{100}	2.00	0.44	3.49	7.91	12.14	cfs	

Existing Runoff Table - Kauffman SW Parcel							
BASIN	Impervious	C-YR	I	A	CIA(YR-existing)	Flow	DESIGN POINT
E							
C_2 (UDFCD 2018)	3.76	0.02	1.15	7.91	0.21	cfs	E
C_5	3.76	0.02	1.52	7.91	0.29	cfs	
C_{10}	3.76	0.08	1.88	7.91	1.26	cfs	
C_{100}	3.76	0.45	3.53	7.91	12.49	cfs	
ROW-398							
C_2 (UDFCD 2018)	30.28	0.25	1.80	1.42	0.63	cfs	OFF1
C_5	30.28	0.25	2.38	1.42	0.86	cfs	
C_{10}	30.28	0.30	2.94	1.42	1.25	cfs	
C_{100}	30.28	0.57	5.50	1.42	4.46	cfs	
OFF-N							
C_2 (UDFCD 2018)	16.59	0.12	1.21	1.87	0.27	cfs	OFF2
C_5	16.59	0.13	1.61	1.87	0.39	cfs	
C_{10}	16.59	0.19	1.99	1.87	0.70	cfs	
C_{100}	16.59	0.51	3.72	1.87	3.51	cfs	
OFF-W							
C_2 (UDFCD 2018)	2.00	0.01	1.15	16.89	0.19	cfs	OFF3
C_5	2.00	0.01	1.52	16.89	0.26	cfs	
C_{10}	2.00	0.07	1.88	16.89	2.22	cfs	
C_{100}	2.00	0.44	3.52	16.89	26.17	cfs	

Kauffman SW Parcel - Historic Runoff Calcs

2/19/2020

for soils - C_2 C_5 C_{10} C_{100} --> from Table RO-5

**for Ti calculations - only C_5 is used

Ti= (.395*(1.1-C_{yr})*(L^.5)) / (S)^.333
From UDFCD 2018, Equation 6-3

	2	5	10	100
1-Hour Point Rainf	0.868	1.15	1.42	2.66

H — Historic - 2, 5, 10, 100 yr
NRCS Types 100% B

7.911 acres

		Length	Slope	C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	Use Tc	I	A	$CIA_{5\ existing}$
2yr				0.01	39.89	1.18	0.35	40.24	40.24	1.14	7.91	0.09 cfs
	initial	500	0.014									$CIA_{10\ existing}$
5yr	travel	25	0.014	0.01	39.89	1.18	0.35	40.24	40.24	1.51	7.91	0.12 cfs
		525										$CIA_{10\ existing}$
10yr	Overland flow			0.07	39.89	1.18	0.35	40.24	40.24	1.86	7.91	1.03 cfs
	300 ft max for urban, 500 ft max for rural											
	Remainder carried as travel											$CIA_{100\ existing}$
100yr		Cv=	10	0.44	39.89	1.18	0.35	40.24	40.24	3.49	7.91	12.14 cfs

7.911 acres

H NRCS Types 100% B	Undeveloped	Gravel	Building	Concrete	Water/Aphalt	EFFECTIVE
Imperviousness %	2	40.00	90.00	100.00	100.00	2.00
C2	0.01	0.29	0.74	0.84	0.84	0.01
C5	0.01	0.32	0.76	0.86	0.86	0.01
C10	0.07	0.38	0.78	0.86	0.86	0.07
C100	0.44	0.61	0.84	0.89	0.89	0.44
AREA	7.911	0.00	0.00	0.00	0.00	7.91

0.000 acres

H2 NRCS Types 100% B	Undeveloped	Gravel	Building	Concrete	Water/Aphalt	EFFECTIVE
Imperviousness %	2	40.00	90.00	100.00	100.00	#DIV/0!
C2	0.01	0.29	0.74	0.84	0.84	#DIV/0!
C5	0.01	0.32	0.76	0.86	0.86	#DIV/0!
C10	0.07	0.38	0.78	0.86	0.86	#DIV/0!
C100	0.44	0.61	0.84	0.89	0.89	#DIV/0!
AREA	0.000	0.00	0.00	0.00	0.00	0.00

TABLE RO-2 (taken from UDFCD Manual - Vol. I)

Type of Land Surface	Conveyance coefficient,
Heavy Meadow	2.5
Tillage/field	5
Short pasture/Lawns	7
Nearly Bare Ground	10.00
Grassed Waterway	15.00
Paved areas and shallow paved swales	20.00

Kauffman SW Parcel - Existing Runoff Calcs

2/19/2020

for soils - C2 C_5 C_{10} C_{100} = from Table RO-5

**for Ti calculations - only C_5 is used

Ti= (.395*(1.1-C_{yr})*(L^.5)) / (S)^.333
From UDFCD 2018, Equation 6-3

	2	5	10	100
1-Hour Point Rainfall	0.868	1.15	1.42	2.66

2018 UDFCD >>> Tc Check = (26-17i) + [Ltravel / (60*(14i + 9)(So)^.5)]

E	Existing - 2, 5, 10, 100 yr			7.911 acres									
	NRCS Types 100% B		C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	check	Use Tc	I	A	$CIA_{5\ existing}$	
2yr			0.02	32.10	0.71	13.55	45.65	39.59	39.59	1.15	7.91		0.21 cfs
		Length / Slope											
	initial	300 / 0.019											
5yr	travel	575 / 0.005	0.02	32.10	0.71	13.55	45.65	39.59	39.59	1.52	7.91	$CIA_{5\ existing}$	0.29 cfs
		875											
10yr	Overland flow		0.08	32.10	0.71	13.55	45.65	39.59	39.59	1.88	7.91	$CIA_{10\ existing}$	1.26 cfs
	300 ft max for urban, 500 ft max for rural												
	Remainder carried as travel												
100yr		Cv= 10	0.45	32.10	0.71	13.55	45.65	39.59	39.59	3.53	7.91	$CIA_{100\ existing}$	12.49 cfs
ROW-398	Existing - 2, 5, 10, 100 yr			1.421 acres									
	NRCS Types 100% B		C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	check	Use Tc	I	A	$CIA_{5\ existing}$	
2yr			0.25	4.86	1.25	13.28	18.14	35.90	18.14	1.80	1.42		0.63 cfs
		Length / Slope											
	initial	12 / 0.020											
5yr	travel	1,000 / 0.007	0.25	4.86	1.25	13.28	18.14	35.90	18.14	2.38	1.42	$CIA_{5\ existing}$	0.86 cfs
		1012											
10yr	Overland flow		0.30	4.86	1.25	13.28	18.14	35.90	18.14	2.94	1.42	$CIA_{10\ existing}$	1.25 cfs
	300 ft max for urban, 500 ft max for rural												
	Remainder carried as travel												
100yr		Cv= 15	0.57	4.86	1.25	13.28	18.14	35.90	18.14	5.50	1.42	$CIA_{100\ existing}$	4.46 cfs
OFF-N	Existing - 2, 5, 10, 100 yr			1.869 acres									
	NRCS Types 100% B		C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	check	Use Tc	I	A	$CIA_{5\ existing}$	
2yr			0.12	23.68	1.48	14.89	38.57	36.33	36.33	1.21	1.87		0.27 cfs
		Length / Slope											
	initial	300 / 0.022											
5yr	travel	1,325 / 0.022	0.13	23.68	1.48	14.89	38.57	36.33	36.33	1.61	1.87	$CIA_{5\ existing}$	0.39 cfs
		1625											
10yr	Overland flow		0.19	23.68	1.48	14.89	38.57	36.33	36.33	1.99	1.87	$CIA_{10\ existing}$	0.70 cfs
	300 ft max for urban, 500 ft max for rural												
	Remainder carried as travel												
100yr		Cv= 10	0.51	23.68	1.48	14.89	38.57	36.33	36.33	3.72	1.87	$CIA_{100\ existing}$	3.51 cfs
OFF-W	Existing - 2, 5, 10, 100 yr			16.885 acres									
	NRCS Types 100% B		C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	check	Use Tc	I	A	$CIA_{5\ existing}$	
2yr			0.01	27.44	1.41	12.96	40.40	39.63	39.63	1.15	16.89		0.19 cfs
		Length / Slope											
	initial	300 / 0.020											
5yr	travel	1,100 / 0.020	0.01	27.44	1.41	12.96	40.40	39.63	39.63	1.52	16.89	$CIA_{5\ existing}$	0.26 cfs
		1400											
10yr	Overland flow		0.07	27.44	1.41	12.96	40.40	39.63	39.63	1.88	16.89	$CIA_{10\ existing}$	2.22 cfs
	300 ft max for urban, 500 ft max for rural												
	Remainder carried as travel												
100yr		Cv= 10	0.44	27.44	1.41	12.96	40.40	39.63	39.63	3.52	16.89	$CIA_{100\ existing}$	26.17 cfs

7.911 acres

E	Undeveloped	Gravel	Building	Concrete	Water/Asphalt	EFFECTIVE
NRCS Types 100% B						
Imperviousness %	2	40.00	90.00	100.00	100.00	3.76
C2	0.01	0.29	0.74	0.84	0.84	0.02
C5	0.01	0.32	0.76	0.86	0.86	0.02
C10	0.07	0.38	0.78	0.86	0.86	0.08
C100	0.44	0.61	0.84	0.89	0.89	0.45
AREA	7.544	0.37	0.00	0.00	0.00	7.91

0.000 acres

E2	Undeveloped	Gravel	Building	Concrete	Water/Asphalt	EFFECTIVE
NRCS Types 100% B						
Imperviousness %	2	40.00	90.00	100.00	100.00	#DIV/0!
C2	0.01	0.29	0.74	0.84	0.84	#DIV/0!
C5	0.01	0.32	0.76	0.86	0.86	#DIV/0!
C10	0.07	0.38	0.78	0.86	0.86	#DIV/0!
C100	0.44	0.61	0.84	0.89	0.89	#DIV/0!
AREA	0.000	0.00	0.00	0.00	0.00	0.00

1.421 acres

ROW-398	Undeveloped	Gravel	Building	Concrete	Water/Asphalt	EFFECTIVE
NRCS Types 100% B						
Imperviousness %	2	40.00	90.00	100.00	100.00	30.28
C2	0.01	0.29	0.74	0.84	0.84	0.25
C5	0.01	0.32	0.76	0.86	0.86	0.25
C10	0.07	0.38	0.78	0.86	0.86	0.30
C100	0.44	0.61	0.84	0.89	0.89	0.57
AREA	0.945	0.11	0.00	0.00	0.37	1.42

1.869 acres

OFF-N	Undeveloped	Gravel	Building	Concrete	Water/Asphalt	EFFECTIVE
NRCS Types 100% B						
Imperviousness %	2	40.00	90.00	100.00	100.00	16.59
C2	0.01	0.29	0.74	0.84	0.84	0.12
C5	0.01	0.32	0.76	0.86	0.86	0.13
C10	0.07	0.38	0.78	0.86	0.86	0.19
C100	0.44	0.61	0.84	0.89	0.89	0.51
AREA	1.152	0.72	0.00	0.00	0.00	1.87

16.885 acres

OFF-W	Undeveloped	Gravel	Building	Concrete	Water/Asphalt	EFFECTIVE
NRCS Types 100% B						
Imperviousness %	2	40.00	90.00	100.00	100.00	2.00
C2	0.01	0.29	0.74	0.84	0.84	0.01
C5	0.01	0.32	0.76	0.86	0.86	0.01
C10	0.07	0.38	0.78	0.86	0.86	0.07
C100	0.44	0.61	0.84	0.89	0.89	0.44
AREA	16.885	0.00	0.00	0.00	0.00	16.89

0.000 acres

E-04	Undeveloped	Gravel	Building	Concrete	Water/Asphalt	EFFECTIVE
NRCS Types 100% B						
Imperviousness %	2	40.00	90.00	100.00	100.00	#DIV/0!
C2	0.01	0.29	0.74	0.84	0.84	#DIV/0!
C5	0.01	0.32	0.76	0.86	0.86	#DIV/0!
C10	0.07	0.38	0.78	0.86	0.86	#DIV/0!
C100	0.44	0.61	0.84	0.89	0.89	#DIV/0!
AREA	0.000	0.00	0.00	0.00	0.00	0.00

TABLE RO-2 (taken from UDFCD Manual - Vol. I)

Type of Land Surface	Conveyance coefficient, Cv
Heavy Meadow	2.5
Tillage/field	5
Short pasture/Lawns	7
Nearly Bare Ground	10.00
Grassed Waterway	15.00
Paved areas and shallow paved swales	20.00

Developed Runoff Table - Kauffman SW Parcel							
BASIN	Impervious	C-YR	I	A	CIA(YR-DEVELOPED)	cfs	DESIGN POINT
L1							
C_2 (UDFCD 2018)	45.40	0.35	2.94	0.70	0.72	cfs	1
C_5	45.40	0.37	3.90	0.70	1.02	cfs	
C_{10}	45.40	0.42	4.82	0.70	1.42	cfs	
C_{100}	45.40	0.64	9.02	0.70	4.02	cfs	
L2							
C_2 (UDFCD 2018)	43.25	0.33	2.53	1.54	1.27	cfs	3
C_5	43.25	0.35	3.36	1.54	1.81	cfs	
C_{10}	43.25	0.41	4.15	1.54	2.59	cfs	
C_{100}	43.25	0.63	7.77	1.54	7.47	cfs	
L3-4							
C_2 (UDFCD 2018)	49.85	0.39	2.21	4.49	3.83	cfs	5
C_5	49.85	0.41	2.93	4.49	5.40	cfs	
C_{10}	49.85	0.46	3.62	4.49	7.44	cfs	
C_{100}	49.85	0.66	6.78	4.49	19.97	cfs	
W							
C_2 (UDFCD 2018)	63.83	0.52	2.13	0.73	0.81	cfs	2
C_5	63.83	0.54	2.83	0.73	1.11	cfs	
C_{10}	63.83	0.57	3.49	0.73	1.44	cfs	
C_{100}	63.83	0.72	6.54	0.73	3.43	cfs	
N							
C_2 (UDFCD 2018)	2.00	0.01	1.91	0.46	0.01	cfs	4
C_5	2.00	0.01	2.53	0.46	0.01	cfs	
C_{10}	2.00	0.07	3.13	0.46	0.10	cfs	
C_{100}	2.00	0.44	5.86	0.46	1.19	cfs	
ROW-398							
C_2 (UDFCD 2018)	30.28	0.25	1.16	1.42	0.40	cfs	0FF1
C_5	30.28	0.25	1.53	1.42	0.55	cfs	
C_{10}	30.28	0.30	1.89	1.42	0.80	cfs	
C_{100}	30.28	0.57	3.54	1.42	2.87	cfs	
OFF-N							
C_2 (UDFCD 2018)	16.59	0.12	1.35	1.87	0.30	cfs	OFF2
C_5	16.59	0.13	1.79	1.87	0.43	cfs	
C_{10}	16.59	0.19	2.20	1.87	0.78	cfs	
C_{100}	16.59	0.51	4.13	1.87	3.90	cfs	
OFF-W							
C_2 (UDFCD 2018)	2.00	0.01	1.04	16.89	0.18	cfs	OFF3
C_5	2.00	0.01	1.38	16.89	0.23	cfs	
C_{10}	2.00	0.07	1.70	16.89	2.01	cfs	
C_{100}	2.00	0.44	3.18	16.89	23.65	cfs	

Kauffman SW Parcel - Developed Runoff Calcs (% Max Bldg-Pavement)

2/19/2020

See below for effective C values as calculated from Table RO-5

**for Ti calculations - only C_5 is used

$T_i = (.395*(1.1-C_{yr})*(L^{.5})) / (S)^{.333}$

From UDFCD 2018, Equation 6-3

	2	5	10	100
Point Rainfall	**0.868**	**1.15**	**1.42**	**2.66**

2018 UDFCD >>> Tc Check = (26-17i) + [Ltravel / (60*(14i + 9)(So)^.5)]

L1	**Developed -2, 5, 10, 100 yr**			**0.70** acres										
	NRCS Types 100% B			C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	CIA_5 developed
2yr				0.37	4.31	7.63	0.28	4.59	18.62	4.59 5	0.35	2.94	0.70	0.72 cfs
		Length	Slope											
	initial	50	0.039											
5yr	travel	130	0.170	0.37	4.31	7.63	0.28	4.59	18.62	4.59 5	0.37	3.90	0.70	CIA_5 developed 1.02 cfs
		180	0.134											
10yr	Overland flow			0.37	4.31	7.63	0.28	4.59	18.62	4.59 5	0.42	4.82	0.70	CIA_{10} developed 1.42 cfs
	300 ft max for urban, 500 ft max for rural													
	Remainder carried as travel													
100yr		Cv=	18.50	0.37	4.31	7.63	0.28	4.59	18.62	4.59 5	0.64	9.02	0.70	CIA_{100} developed 4.02 cfs
L2	**Developed -2, 5, 10, 100 yr**			**1.54** acres										
	NRCS Types 100% B			C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	CIA_5 developed
2yr				0.35	5.13	1.43	3.02	8.15	22.36	8.15	0.33	2.53	1.54	1.27 cfs
		Length	Slope											
	initial	88	0.310											
5yr	travel	260	0.006	0.35	5.13	1.43	3.02	8.15	22.36	8.15	0.35	3.36	1.54	CIA_5 developed 1.81 cfs
		348	0.083											
10yr	Overland flow			0.35	5.13	1.43	3.02	8.15	22.36	8.15	0.41	4.15	1.54	CIA_{10} developed 2.59 cfs
	300 ft max for urban, 500 ft max for rural													
	Remainder carried as travel													
100yr		Cv=	18.50	0.35	5.13	1.43	3.02	8.15	22.36	8.15	0.63	7.77	1.54	CIA_{100} developed 7.47 cfs
L3-4	**Developed -2, 5, 10, 100 yr**			**4.49** acres										
	NRCS Types 100% B			C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	CIA_5 developed
2yr				0.41	8.85	2.55	2.71	11.56	20.67	11.56	0.39	2.21	4.49	3.83 cfs
		Length	Slope											
	initial	60	0.008											
5yr	travel	415	0.019	0.41	8.85	2.55	2.71	11.56	20.67	11.56	0.41	2.93	4.49	CIA_5 developed 5.40 cfs
		475	0.018											
10yr	Overland flow			0.41	8.85	2.55	2.71	11.56	20.67	11.56	0.46	3.62	4.49	CIA_{10} developed 7.44 cfs
	300 ft max for urban, 500 ft max for rural													
	Remainder carried as travel													
100yr		Cv=	18.50	0.41	8.85	2.55	2.71	11.56	20.67	11.56	0.66	6.78	4.49	CIA_{100} developed 19.97 cfs
W	**Developed -2, 5, 10, 100 yr**			**0.73** acres										
	NRCS Types 100% B			C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	CIA_5 developed
2yr				0.54	12.60	2.48	0.00	12.60	15.15	12.60	0.52	2.13	0.73	0.81 cfs
		Length	Slope											
	initial	225	0.018											
5yr	travel	0	0.018	0.54	12.60	2.48	0.00	12.60	15.15	12.60	0.54	2.83	0.73	CIA_5 developed 1.11 cfs
		225	0.018											
10yr	Overland flow			0.54	12.60	2.48	0.00	12.60	15.15	12.60	0.57	3.49	0.73	CIA_{10} developed 1.44 cfs
	300 ft max for urban, 500 ft max for rural													
	Remainder carried as travel													
100yr		Cv=	18.50	0.54	12.60	2.48	0.00	12.60	15.15	12.60	0.72	6.54	0.73	CIA_{100} developed 3.43 cfs

N	**Developed -2, 5, 10, 100 yr**				**0.46** acres									
	NRCS Types 100% B			C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	CIA_5 developed
2yr				0.01	15.97	2.68	0.00	15.97	25.66	15.97	0.01	1.91	0.46	0.01 **cfs**
		Length	Slope											
	initial	105	0.021											
5yr	travel	0	0.021	0.01	15.97	2.68	0.00	15.97	25.66	15.97	0.01	2.53	0.46	CIA_5 developed 0.01 **cfs**
		105	0.021											
10yr	Overland flow			0.01	15.97	2.68	0.00	15.97	25.66	15.97	0.07	3.13	0.46	CIA_{10} developed 0.10 **cfs**
	300 ft max for urban, 500 ft max for rural													
	Remainder carried as travel													
100yr		Cv=	18.50	0.01	15.97	2.68	0.00	15.97	25.66	15.97	0.44	5.86	0.46	CIA_{100} developed 1.19 **cfs**
ROW-398	**Developed -2, 5, 10, 100 yr**				**1.42** acres									
	NRCS Types 100% B			C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	CIA_5 developed
2yr				0.25	24.91	1.31	14.37	39.28	40.93	39.28	0.25	1.16	1.42	0.40 **cfs**
		Length	Slope											
	initial	300	0.020											
5yr	travel	1,128	0.005	0.25	24.91	1.31	14.37	39.28	40.93	39.28	0.25	1.53	1.42	CIA_5 developed 0.55 **cfs**
		1,428	0.008											
10yr	Overland flow			0.25	24.91	1.31	14.37	39.28	40.93	39.28	0.30	1.89	1.42	CIA_{10} developed 0.80 **cfs**
	300 ft max for urban, 500 ft max for rural													
	Remainder carried as travel													
100yr		Cv=	18.50	0.25	24.91	1.31	14.37	39.28	40.93	39.28	0.57	3.54	1.42	CIA_{100} developed 2.87 **cfs**
OFF-N	**Developed -2, 5, 10, 100 yr**				**1.87** acres									
	NRCS Types 100% B			C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	CIA_5 developed
2yr				0.13	28.58	1.85	4.50	33.09	30.54	30.54	0.12	1.35	1.87	0.30 **cfs**
		Length	Slope											
	initial	300	0.015											
5yr	travel	500	0.010	0.13	28.58	1.85	4.50	33.09	30.54	30.54	0.13	1.79	1.87	CIA_5 developed 0.43 **cfs**
		800	0.012											
10yr	Overland flow			0.13	28.58	1.85	4.50	33.09	30.54	30.54	0.19	2.20	1.87	CIA_{10} developed 0.78 **cfs**
	300 ft max for urban, 500 ft max for rural													
	Remainder carried as travel													
100yr		Cv=	18.50	0.13	28.58	1.85	4.50	33.09	30.54	30.54	0.51	4.13	1.87	CIA_{100} developed 3.90 **cfs**
OFF-W	**Developed -2, 5, 10, 100 yr**				**16.89** acres									
	NRCS Types 100% B			C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	CIA_5 developed
2yr				0.01	32.09	1.31	14.37	46.46	54.31	46.46	0.01	1.04	16.89	0.18 **cfs**
		Length	Slope											
	initial	300	0.020											
5yr	travel	1,128	0.005	0.01	32.09	1.31	14.37	46.46	54.31	46.46	0.01	1.38	16.89	CIA_5 developed 0.23 **cfs**
		1,428	0.008											
10yr	Overland flow			0.01	32.09	1.31	14.37	46.46	54.31	46.46	0.07	1.70	16.89	CIA_{10} developed 2.01 **cfs**
	300 ft max for urban, 500 ft max for rural													
	Remainder carried as travel													
100yr		Cv=	18.50	0.01	32.09	1.31	14.37	46.46	54.31	46.46	0.44	3.18	16.89	CIA_{100} developed 23.65 **cfs**

L1	TOTAL AREA Landscaping	0.700 acres Gravel	Building	Concrete	Water/ Asphalt	EFFECTIVE
NRCS Types 100% B						
I	2	40.00	90.00	100.00	100.00	**45.40**
C2	0.01	0.29	0.74	0.84	0.84	**0.35**
C5	0.01	0.32	0.76	0.86	0.86	**0.37**
C10	0.07	0.38	0.78	0.86	0.86	**0.42**
C100	0.44	0.61	0.84	0.89	0.89	**0.64**
AREA	0.14	0.37	0.18	0.00	0.00	0.700

L2	TOTAL AREA Landscaping	1.538 acres Gravel	Building	Concrete	Water/ Asphalt	EFFECTIVE
NRCS Types 100% B						
I	2	40.00	90.00	100.00	100.00	**43.25**
C2	0.01	0.29	0.74	0.84	0.84	**0.33**
C5	0.01	0.32	0.76	0.86	0.86	**0.35**
C10	0.07	0.38	0.78	0.86	0.86	**0.41**
C100	0.44	0.61	0.84	0.89	0.89	**0.63**
AREA	0.16	1.16	0.22	0.00	0.00	1.538

L3-4	TOTAL AREA Landscaping	4.485 acres Gravel	Building	Concrete	Water/ Asphalt	EFFECTIVE
NRCS Types 100% B						
I	2	40.00	90.00	100.00	100.00	**49.85**
C2	0.01	0.29	0.74	0.84	0.84	**0.39**
C5	0.01	0.32	0.76	0.86	0.86	**0.41**
C10	0.07	0.38	0.78	0.86	0.86	**0.46**
C100	0.44	0.61	0.84	0.89	0.89	**0.66**
AREA	0.41	3.00	0.44	0.00	0.63	4.485

W	TOTAL AREA Landscaping	0.725 acres Gravel	Building	Concrete	Water/ Asphalt	EFFECTIVE
NRCS Types 100% B						
I	2	40.00	90.00	100.00	100.00	**63.83**
C2	0.01	0.29	0.74	0.84	0.84	**0.52**
C5	0.01	0.32	0.76	0.86	0.86	**0.54**
C10	0.07	0.38	0.78	0.86	0.86	**0.57**
C100	0.44	0.61	0.84	0.89	0.89	**0.72**
AREA	0.17	0.16	0.00	0.00	0.40	0.725

N	TOTAL AREA Landscaping	0.462 acres Gravel	Building	Concrete	Water/ Asphalt	EFFECTIVE
NRCS Types 100% B						
I	2	40.00	90.00	100.00	100.00	**2.00**
C2	0.01	0.29	0.74	0.84	0.84	**0.01**
C5	0.01	0.32	0.76	0.86	0.86	**0.01**
C10	0.07	0.38	0.78	0.86	0.86	**0.07**
C100	0.44	0.61	0.84	0.89	0.89	**0.44**
AREA	0.46	0.00	0.00	0.00	0.00	0.462

~~P6~~	~~TOTAL AREA Landscaping~~	~~0.000 acres Gravel~~	~~Building~~	~~Concrete~~	~~Water/ Asphalt~~	~~EFFECTIVE~~
~~NRCS Types 100% B~~						
~~I~~	~~2~~	~~40.00~~	~~90.00~~	~~100.00~~	~~100.00~~	~~#DIV/0!~~
~~**C2**~~	~~0.01~~	~~0.29~~	~~0.74~~	~~0.84~~	~~0.84~~	~~#DIV/0!~~
~~**C5**~~	~~0.01~~	~~0.32~~	~~0.76~~	~~0.86~~	~~0.86~~	~~#DIV/0!~~
~~**C10**~~	~~0.07~~	~~0.38~~	~~0.78~~	~~0.86~~	~~0.86~~	~~#DIV/0!~~
~~**C100**~~	~~0.44~~	~~0.61~~	~~0.84~~	~~0.89~~	~~0.89~~	~~#DIV/0!~~
~~AREA~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.000~~

ROW-398	TOTAL AREA Landscaping	1.421 acres Gravel	Building	Concrete	Water/ Asphalt	EFFECTIVE
NRCS Types 100% B						
I	2	40.00	90.00	100.00	100.00	**30.28**
C2	0.01	0.29	0.74	0.84	0.84	**0.25**
C5	0.01	0.32	0.76	0.86	0.86	**0.25**
C10	0.07	0.38	0.78	0.86	0.86	**0.30**
C100	0.44	0.61	0.84	0.89	0.89	**0.57**
AREA	0.95	0.11	0.00	0.00	0.37	1.421

OFF-W	TOTAL AREA Landscaping	16.885 acres Gravel	Building	Concrete	Water/ Asphalt	EFFECTIVE
NRCS Types 100% B						
I	2	40.00	90.00	100.00	100.00	**2.00**
C2	0.01	0.29	0.74	0.84	0.84	**0.01**
C5	0.01	0.32	0.76	0.86	0.86	**0.01**
C10	0.07	0.38	0.78	0.86	0.86	**0.07**
C100	0.44	0.61	0.84	0.89	0.89	**0.44**
AREA	16.89	0.00	0.00	0.00	0.00	16.885

OFF-N	TOTAL AREA Landscaping	1.869 acres Gravel	Building	Concrete	Water/ Asphalt	EFFECTIVE
NRCS Types 100% B						
I	2	40.00	90.00	100.00	100.00	**16.59**
C2	0.01	0.29	0.74	0.84	0.84	**0.12**
C5	0.01	0.32	0.76	0.86	0.86	**0.13**
C10	0.07	0.38	0.78	0.86	0.86	**0.19**
C100	0.44	0.61	0.84	0.89	0.89	**0.51**
AREA	1.15	0.72	0.00	0.00	0.00	1.869

P-04	TOTAL AREA Landscaping	0.000 acres Gravel	Building	Concrete	Water/ Asphalt	EFFECTIVE
NRCS Types 100% B						
I	2	40.00	90.00	100.00	100.00	**#DIV/0!**
C2	0.01	0.29	0.74	0.84	0.84	**#DIV/0!**
C5	0.01	0.32	0.76	0.86	0.86	**#DIV/0!**
C10	0.07	0.38	0.78	0.86	0.86	**#DIV/0!**
C100	0.44	0.61	0.84	0.89	0.89	**#DIV/0!**
AREA	0.00	0.00	0.00	0.00	0.00	0.000

TABLE RO-2 (taken from UDFCD Manual - Vol. I)	
Type of Land Surface	Conveyance coefficient, Cv
Heavy Meadow	2.5
Tillage/field	5
Short pasture/Lawns	7
Nearly Bare Ground	10.00
Grassed Waterway	15.00
Paved areas and shallow paved swales	20.00

APPENDIX C

WEC Infiltration Calculations

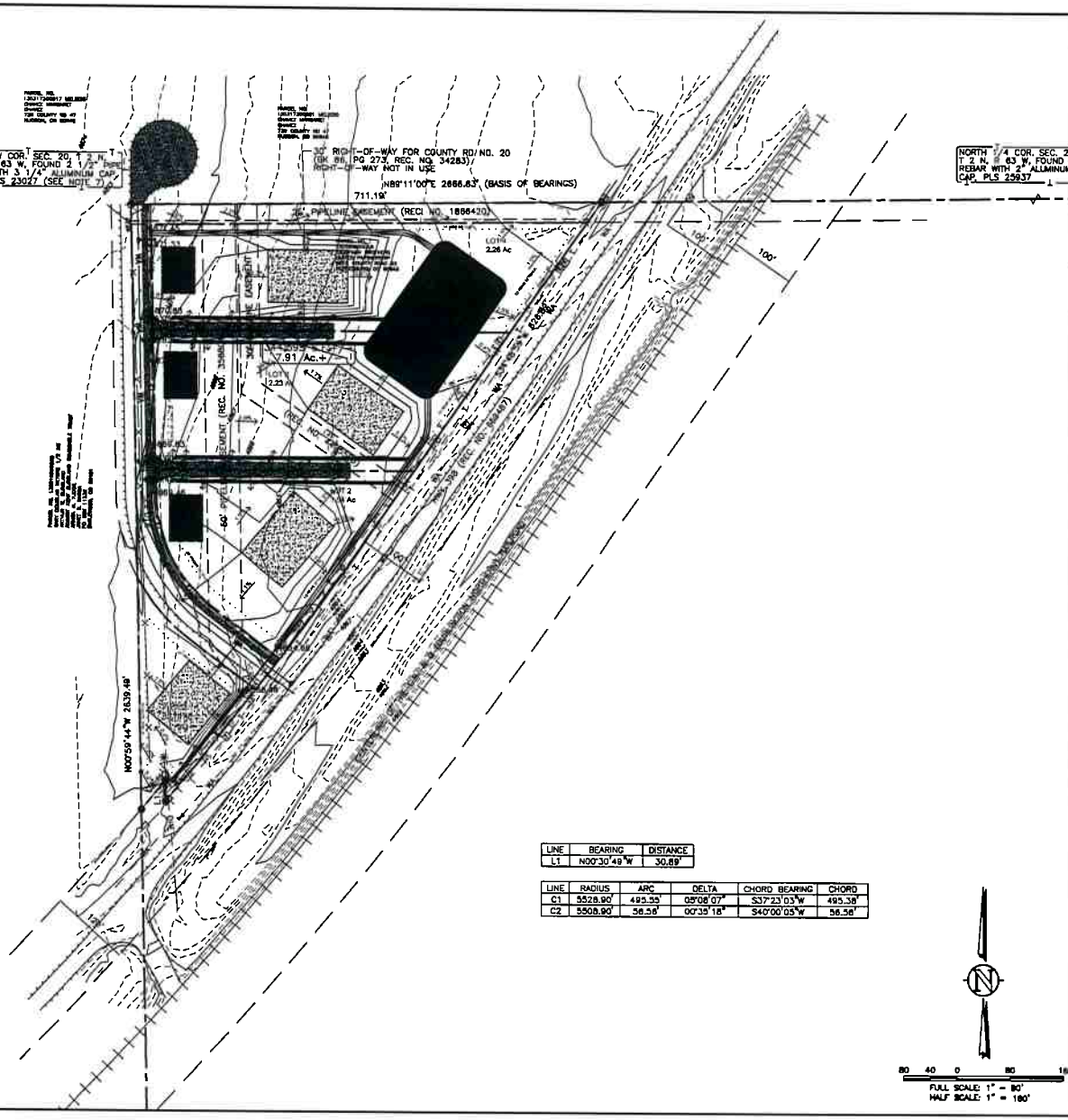
REQUIRED INFILTRATION (EMPIRICAL) per CFSCM & UDFCD

Per NOAA Atlas - 24 hr 100 yr rate of 4.64 inches
Per Colorado Floodplain & Stormwater Criteria Manual (CFSCM) - Retention / Infiltration is Tributary area X rainfall depth
Per UDFCD Volume II - Storage - 3.3.4 Retention / Infiltration Facilities - factor by 2.0

	BASIN	Tributary Area (ac)	Tributary Area (ft)	Noaa Rainfall (in)	CFSCM Ret Volume (cft)	1.5 Factor of Safety Ret Volume (cft)	UDFCD Factored 2.0 Ret Volume (cft)
	L1	0.7	30,504	4.64	11,795	17,692.4	23,589.9
	L2	1.5	67,013	4.64	25,912	38,867.5	51,823.3
	L3-4	4.5	195,378	4.64	75,546	113,319.5	151,092.7
	W	0.7	31,583	4.64	12,212	18,317.9	24,423.9
	N	0.5	20,112	4.64	7,777	11,664.8	15,553.0
POND KSW	**TOTAL**	**7.91**	**344,589.88**	**4.64**	133,241	**199,862.1**	**266,482.8**

APPENDIX D

WEC Drainage Plans

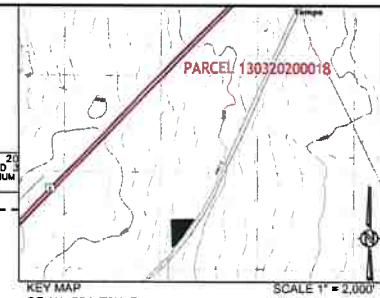


LINE	BEARING	DISTANCE
L1	N00°30'49"W	30.89'

LINE	RADIUS	ARC	DELTA	CHORD BEARING	CHORD
C1	5528.90'	495.55'	05°08'07"	S37°23'03"W	495.38'
C2	5508.90'	56.58'	00°35'18"	S40°00'05"W	56.58'

80 40 0 80 160

FULL SCALE: 1" = 80'
HALF SCALE: 1" = 160'



KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

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SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED WATER VALVE
- PIPE CROSSOVER
- MANHOLE
- EXISTING ASPHALT PAVING
- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE PAVING
- PROPOSED GRAVEL

LINETYPE LEGEND

- LOT / PROPERTY LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WQ W/S
- SWALE
- OHE — EXISTING OVERHEAD ELEC
- E — EXISTING ELECTRICAL LINE
- EXISTING STORM LINE
- S — EXISTING SANITARY LINE
- W — EXISTING WATER LINE
- G — EXISTING GAS LINE
- FIBER — EXISTING FIBER OPTIC LINE
- T — EXISTING TELEPHONE LINE
- SA — PROPOSED SANITARY LINE
- SS — PROPOSED SANITARY SERVICE
- STM — PROPOSED STORM LINE
- WA — PROPOSED WATER LINE
- WAS — PROPOSED WATER SERVICE
- GA — PROPOSED GAS LINE
- EL — PROPOSED ELECTRIC LINE
- PH — PROPOSED TELEPHONE LINE

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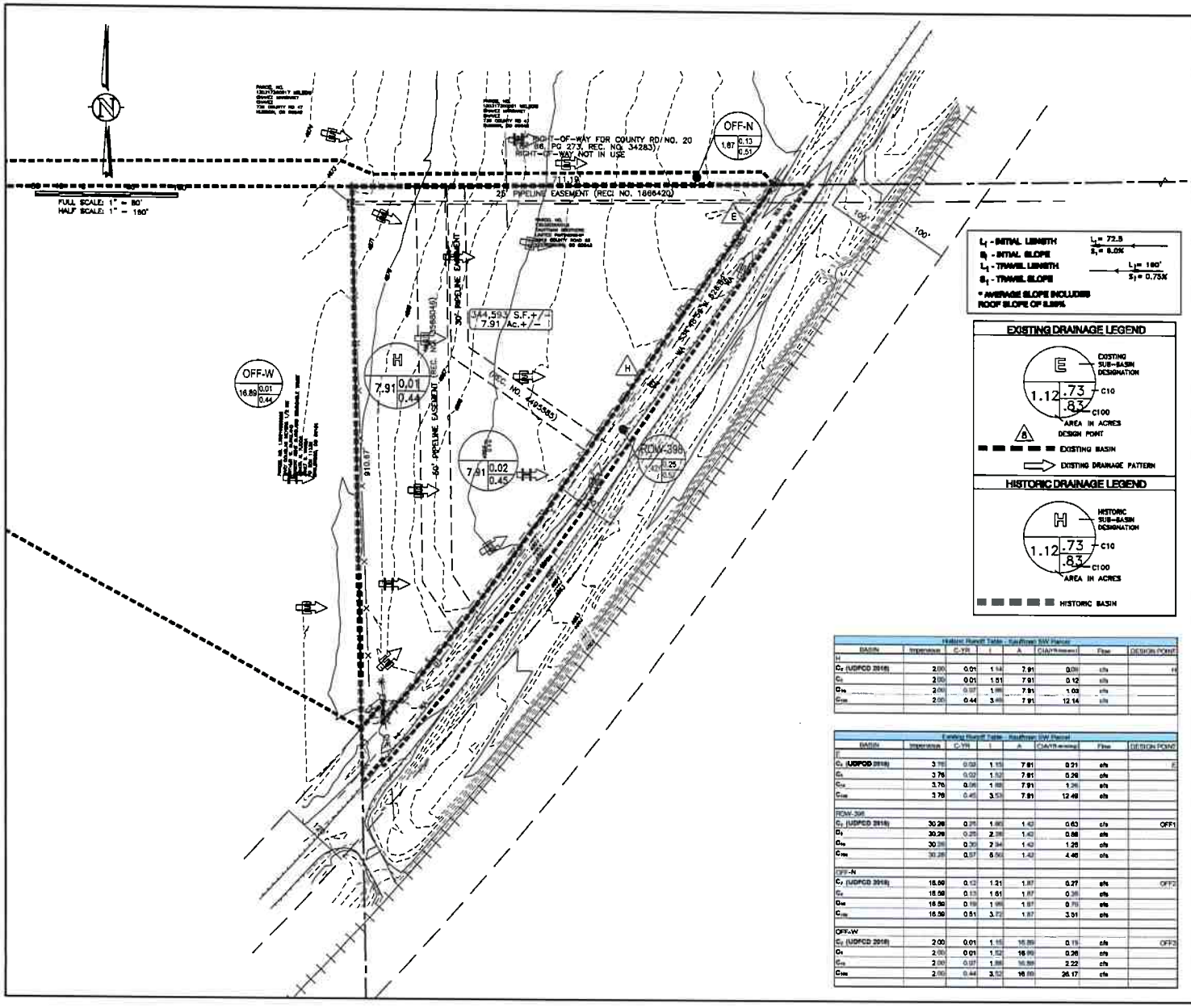

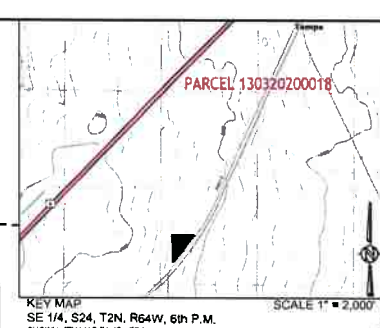

KEY MAP

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

L_i - INITIAL LENGTH — L_i = 72.5
S_i - INITIAL SLOPE — S_i = 6.0%
L_t - TRAVEL LENGTH — L_t = 180'
S_t - TRAVEL SLOPE — S_t = 0.75%

* AVERAGE SLOPE INCLUDES ROOF SLOPE OF 5.89%

EXISTING DRAINAGE LEGEND

E — EXISTING SUB-BASIN DESIGNATION
1.12 — AREA IN ACRES
.73 — C10
.83 — C100
B — DESIGN POINT
EXISTING BASIN
EXISTING DRAINAGE PATTERN

HISTORIC DRAINAGE LEGEND

H — HISTORIC SUB-BASIN DESIGNATION
1.12 — AREA IN ACRES
.73 — C10
.83 — C100
HISTORIC BASIN

NOTES

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WO W/S
SWALE
EXISTING OVERHEAD ELEC
EXISTING ELECTRICAL LINE
EXISTING STORM LINE
EXISTING SANITARY LINE
EXISTING WATER LINE
EXISTING GAS LINE
EXISTING FIBER OPTIC LINE
EXISTING TELEPHONE LINE
PROPOSED SANITARY LINE
PROPOSED SANITARY SERVICE
PROPOSED STORM LINE
PROPOSED WATER LINE
PROPOSED WATER SERVICE
PROPOSED GAS LINE
PROPOSED ELECTRIC LINE
PROPOSED TELEPHONE LINE

Hydraulic Runoff Table - Kauffman SW Parcel

BASIN	Impervious	C-YR	I	A	CIA(Vfreeway)	Flow	DESIGN POINT
H							
C_2 (UDFCD 2016)	2.00	0.01	1.14	7.91	0.09	cfs	H
C_5	2.00	0.01	1.51	7.91	0.12	cfs	
C_{10}	2.00	0.07	1.98	7.91	1.03	cfs	
C_{100}	2.00	0.44	3.48	7.91	12.14	cfs	

Existing Runoff Table - Kauffman SW Parcel

BASIN	Impervious	C-YR	I	A	CIA(Vfreeway)	Flow	DESIGN POINT
E							
C_2 (UDFCD 2016)	3.76	0.02	1.15	7.91	0.21	cfs	E
C_5	3.76	0.02	1.52	7.91	0.29	cfs	
C_{10}	3.76	0.06	1.98	7.91	1.26	cfs	
C_{100}	3.76	0.45	3.53	7.91	12.49	cfs	
ROW-396							
C_2 (UDFCD 2016)	30.26	0.25	1.95	1.42	0.63	cfs	OFF1
C_5	30.26	0.25	2.38	1.42	0.88	cfs	
C_{10}	30.26	0.30	2.94	1.42	1.26	cfs	
C_{100}	30.26	0.57	5.56	1.42	4.46	cfs	
OFF-N							
C_2 (UDFCD 2016)	16.50	0.12	1.21	1.87	0.27	cfs	OFF2
C_5	16.50	0.13	1.61	1.87	0.39	cfs	
C_{10}	16.50	0.19	1.98	1.87	0.71	cfs	
C_{100}	16.50	0.51	3.72	1.87	3.51	cfs	
OFF-W							
C_2 (UDFCD 2016)	2.00	0.01	1.15	16.89	0.19	cfs	OFF3
C_5	2.00	0.01	1.52	16.89	0.26	cfs	
C_{10}	2.00	0.07	1.98	16.89	2.22	cfs	
C_{100}	2.00	0.44	3.52	16.89	26.17	cfs	

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9616 N. WCR 53
KEENESBURG, CO 80643
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HIST & EX DRAINAGE PLAN
CMK-SW INDUSTRIAL PARK
SKETCH PLAN

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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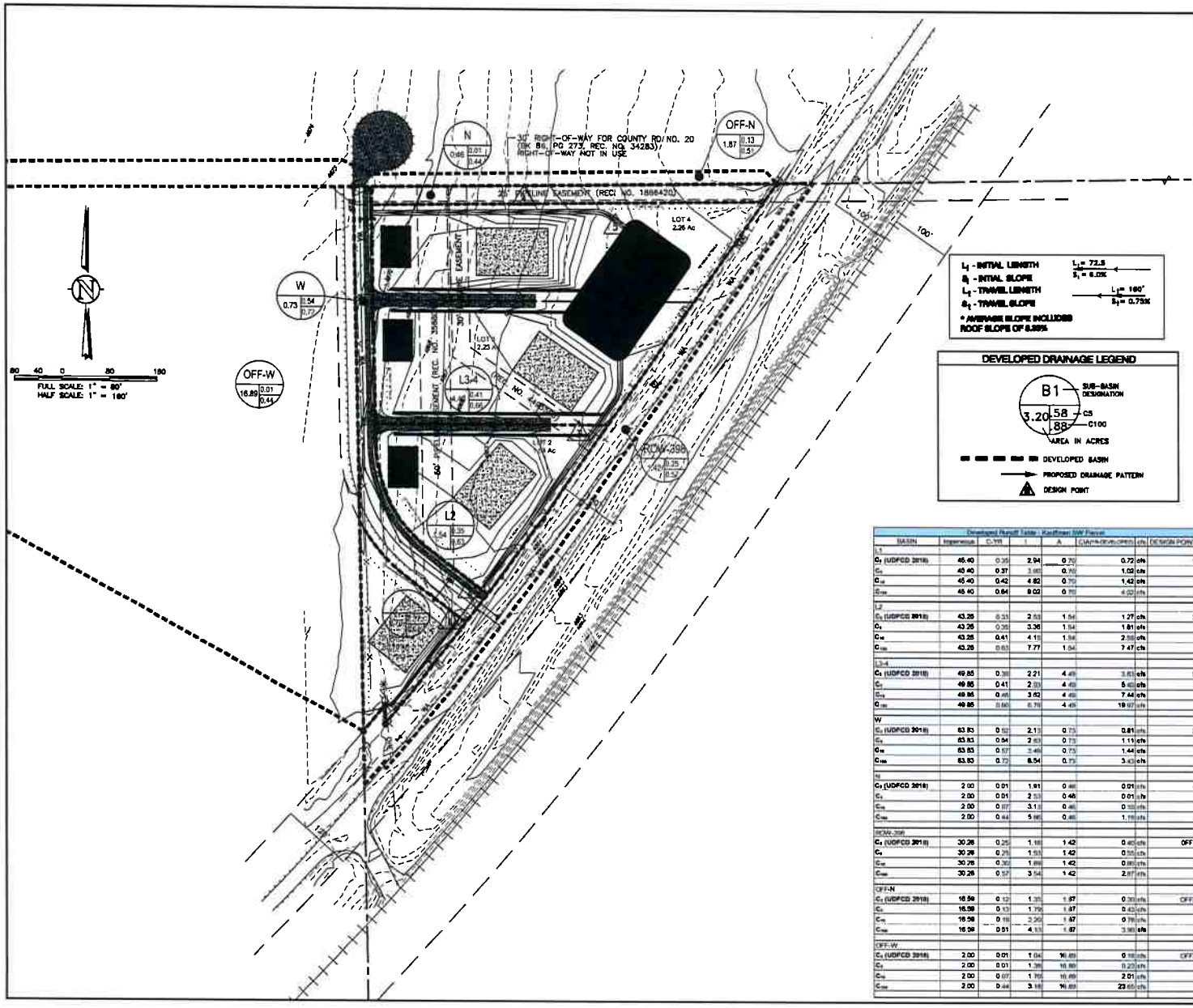

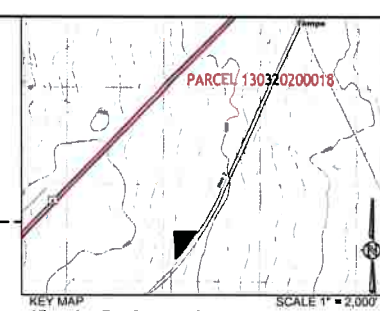

KEY MAP SCALE 1" = 2,000'

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L_i - INITIAL LENGTH
S_i - INITIAL SLOPE
L_t - TRAVEL LENGTH
S_t - TRAVEL SLOPE

L_i = 72.5
S_i = 6.0%
L_t = 160'
S_t = 0.75%

* AVERAGE SLOPE INCLUDES ROOF SLOPE OF 0.25%

DEVELOPED DRAINAGE LEGEND

B1 — SUB-BASIN DESIGNATION
3.20 — AREA IN ACRES
58 — C5
88 — C100
DEVELOPED BASIN
PROPOSED DRAINAGE PATTERN
DESIGN POINT

NOTES

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
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RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
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ST — PROPOSED STORM LINE
WA — PROPOSED WATER LINE
WAS — PROPOSED WATER SERVICE
GA — PROPOSED GAS LINE
EL — PROPOSED ELECTRIC LINE
PH — PROPOSED TELEPHONE LINE

Developed Runoff Table - Kauffman SW Parcel

BASIN	Impervious	C/100	I	A	Q MAX-DEVELOPED	cfs	DESIGN POINT
L1							
C_5 (UDFCD 2016)	45.40	0.35	2.94	0.70	0.72	cfs	1
C_5	45.40	0.37	3.60	0.70	1.03	cfs	
C_{100}	45.40	0.42	4.82	0.70	1.42	cfs	
C_{100}	45.40	0.64	9.02	0.70	4.02	cfs	
L2							
C_5 (UDFCD 2016)	43.26	0.33	2.53	1.54	1.27	cfs	2
C_5	43.26	0.35	3.36	1.54	1.81	cfs	
C_{100}	43.26	0.41	4.15	1.54	2.59	cfs	
C_{100}	43.26	0.63	7.77	1.54	7.47	cfs	
L3-4							
C_5 (UDFCD 2016)	49.85	0.38	2.21	4.49	3.61	cfs	3
C_5	49.85	0.41	2.93	4.49	5.40	cfs	
C_{100}	49.85	0.46	3.62	4.49	7.44	cfs	
C_{100}	49.85	0.60	6.79	4.49	19.07	cfs	
W							
C_5 (UDFCD 2016)	83.83	0.52	2.13	0.73	0.81	cfs	2
C_5	83.83	0.54	2.83	0.73	1.11	cfs	
C_{100}	83.83	0.67	3.46	0.73	1.44	cfs	
C_{100}	83.83	0.72	6.54	0.73	3.43	cfs	
N							
C_5 (UDFCD 2016)	2.00	0.01	1.91	0.46	0.01	cfs	4
C_5	2.00	0.01	2.53	0.46	0.01	cfs	
C_{100}	2.00	0.07	3.13	0.46	0.10	cfs	
C_{100}	2.00	0.44	5.66	0.46	1.16	cfs	
RCW-396							
C_5 (UDFCD 2016)	30.26	0.25	1.18	1.42	0.42	cfs	OFF1
C_5	30.26	0.25	1.53	1.42	0.55	cfs	
C_{100}	30.26	0.30	1.89	1.42	0.80	cfs	
C_{100}	30.26	0.57	3.54	1.42	2.87	cfs	
OFF-N							
C_5 (UDFCD 2016)	16.59	0.12	1.35	1.87	0.30	cfs	OFF2
C_5	16.59	0.13	1.79	1.87	0.42	cfs	
C_{100}	16.59	0.18	2.20	1.87	0.76	cfs	
C_{100}	16.59	0.51	4.13	1.87	3.86	cfs	
OFF-W							
C_5 (UDFCD 2016)	2.00	0.01	1.04	16.89	0.18	cfs	OFF3
C_5	2.00	0.01	1.38	16.89	0.23	cfs	
C_{100}	2.00	0.07	1.70	16.89	2.01	cfs	
C_{100}	2.00	0.44	3.18	16.89	23.65	cfs	

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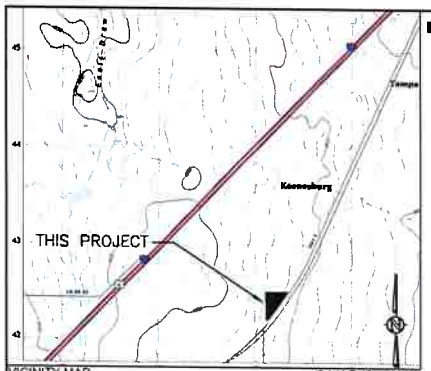
PROJECT NO. 01-0090.004.00
DOC CON # 0007-DEVDRNG
SHEET 6 OF 8



VICINITY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN VICINITY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

BASIS of BEARING & BENCHMARK

BASIS OF BEARING: THE NORTH LINE OF THE NORTHWEST 1/4 OF SECTION 20; TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M ., IN WELD COUNTY, COLORADO IS ASSUMED TO BEAR NORTH 89°11 '00" EAST, AS MONUMENTED HEREON AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO;

2) ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
3) ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.
4) CERTIFICATION DEFINED: THE USE OF THE WORD "CERTIFY" OR "CERTIFICATION" BY A REGISTERED PROFESSIONAL LAND SURVEYOR, IN THE PRACTICE OF LAND SURVEYING, CONSTITUTES AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THOSE FACTS OF FINDINGS WHICH ARE SUBJECT OF THE CERTIFICATION, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EITHER EXPRESS OR IMPLIED.
5) THIS ANNEXATION MAP IS NOT A BOUNDARY SURVEY. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON FIELD EVIDENCE TOGETHER WITH DEED DESCRIPTIONS, ANNEXATION MAPS, RECORDED EXEMPTION PLATS, AND LAND SURVEYS OF RECORD.
6) OWNERSHIP INFORMATION SHOWN HEREON IS BASED UPON INFORMATION PROVIDED BY THE WELD COUNTY ASSESSOR'S WESSITE AND IS CURRENT AS OF FEBRUARY 10, 2020.

LEGAL DESCRIPTION

ANNEXATION TABLE:
TOTAL PERIMETER: 2831.68 FEET
REQUIRED 1/6 CONTIGUOUS PERIMETER: 471.96 FEET
CONTIGUOUS BOUNDARY: 1209.52 FEET

ANNEXATION DESCRIPTION: A PARCEL OF LAND LOCATED IN THE SW 1/4 OF SECTION 20; TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:
CONSIDERING THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 20 TO BEAR N 89° 11' 00" E, BEING MONUMENTED ON THE EAST END BY A 3/4" REBAR WITH A 2" ALUMINUM CAP, PLS 25937 AND ON THE WEST END BY A 2 1/2" PIPE WITH 3 1/4" ALUMINUM CAP, PLS 23027, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO; BEGINNING AT THE NW CORNER OF SAID SECTION 20; THENCE N 89° 11' 00" E, COINCIDENT WITH THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 20, A DISTANCE OF 711.19 FEET TO THE WEST RIGHT OF WAY LINE OF COUNTY ROAD NO. 398 AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AT RECEPTION NO. 859487 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO; THENCE S 34° 48' 58" W, COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 626.93 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5528.90 FEET AND A CENTRAL ANGLE OF 05° 08' 07", WHOSE CHORD BEARS S 37° 23' 03" W, A DISTANCE OF 495.38 FEET, THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 495.55 FEET TO AN ANGLE POINT IN SAID WEST RIGHT OF WAY LINE; THENCE N 00° 30' 49" W, COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 30.89 FEET TO AN ANGLE POINT IN SAID WEST RIGHT OF WAY LINE AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AT RECEPTION NO. 859484 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO, AND THE BEGINNING OF A CURVE CONCAVE TO THE NW HAVING A RADIUS OF 5508.90 FEET AND A CENTRAL ANGLE OF 00° 30' 18", WHOSE CHORD BEARS S 40°00' 05" W, A DISTANCE OF 56.59; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, AND COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 56.59 FEET TO THE WEST LINE OF THE NW 1/4 OF SAID SECTION 20; THENCE N 00° 59' 44" W, COINCIDENT WITH SAID WEST LINE, A DISTANCE OF 910.67 FEET TO THE TRUE POINT OF BEGINNING.
SAID PARCEL CONTAINS 344,563 SQUARE FEET OR 7.91 ACRES, MORE OR LESS.

OWNER'S CERTIFICATE:
KNOW ALL MEN BY THESE PRESENTS, THAT KAUFFMAN BROTHERS LIMITED PARTNERSHIP, BEING THE SOLE OWNERS AND PROPRIETORS OF THAT PARCEL OF LAND DESCRIBED HEREON, EXCLUDING PUBLIC RIGHTS-OF-WAY, REQUEST THAT THE LAND DESCRIBED HEREON BE ANNEXED UNDER THE NAME OF KAUFFMAN ANNEXATION NO. 4 TO THE TOWN OF KEENESBURG:
OWNER: KAUFFMAN BROTHERS LIMITED PARTNERSHIP

REVISIONS	SHEET	INDEX:
0	1	COVER SHEET
0	2AE	EXISTING CONDITIONS W/ AERIAL
0	2	EXISTING CONDITIONS & DEMO PLAN
0	3	SITE PLAN
0	4	UTILITY PLAN
0	5	GRADING PLAN
0	6	HISTORIC & EXISTING DRAINAGE PLAN
0	7	DEVELOPED DRAINAGE PLAN
0	8	LANDSCAPE PLAN
0	9	LANDSCAPE DETAILS

0 INITIAL RELEASE: FEBRUARY 20, 2020

CMK-SW INDUSTRIAL PARK SKETCH PLAN

KEENESBURG, CO 80643

PREPARED FOR:

MARK KAUFFMAN
8616 WCR 63
KEENESBURG, CO 80643
(303)732-4878

APPROVED BY:

KAUFFMAN BROTHERS LIMITED DATE

WESTERN ENGINEERING CONSULTANTS, Inc. LLC DATE
CHADWIN F. COX, P.E.

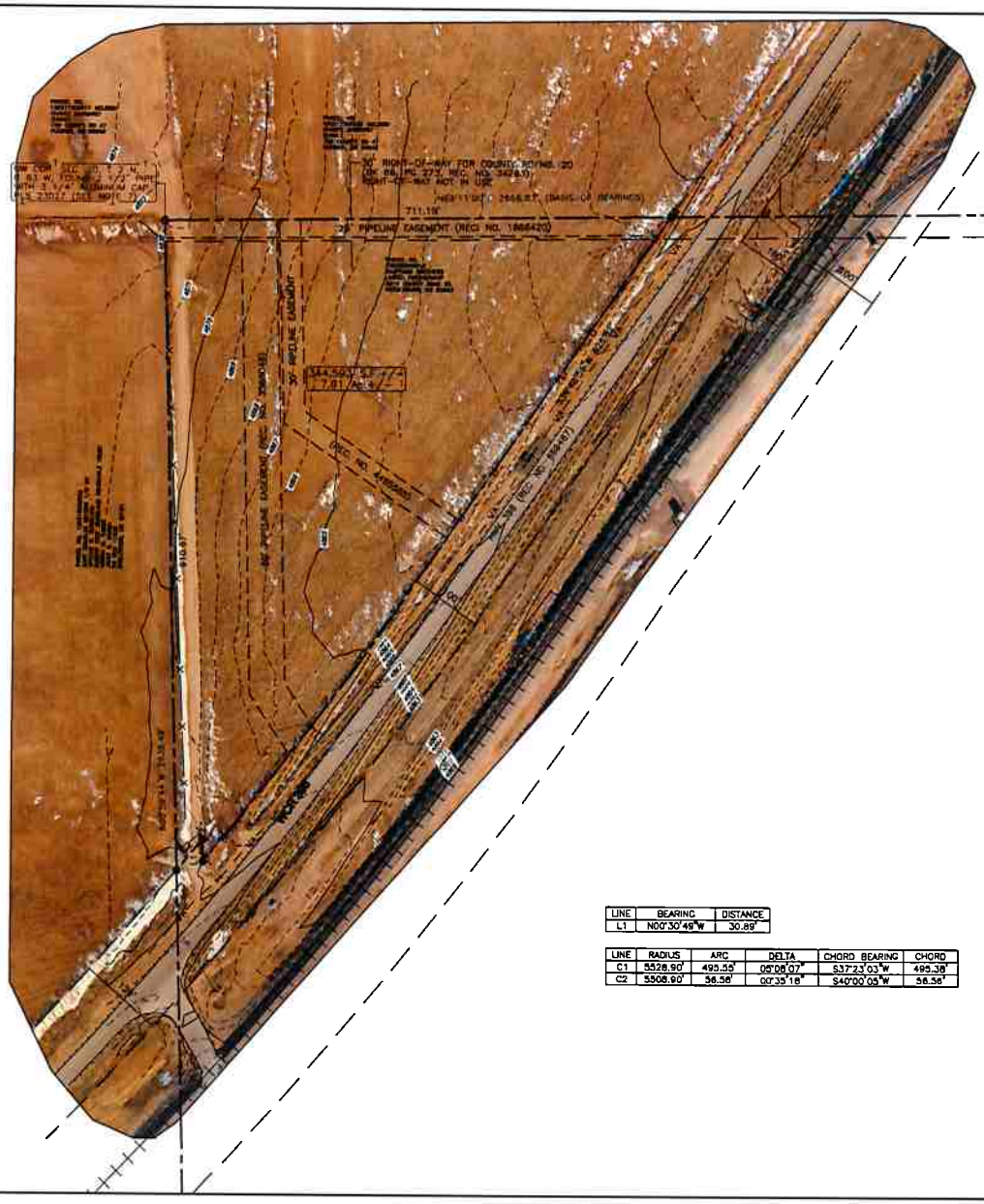
OWNER/DEVELOPER	TOWN/CITY	FIRE DISTRICT	UTILITY
KAUFFMAN BROTHERS LIMITED CONTACT: MARK KAUFFMAN 8616 WCR 63 KEENESBURG, CO 80643 PHONE: (303)732-4878	TOWN OF KEENESBURG CONTACT: TODD HODGES 140 S. MAIN STREET KEENESBURG, CO 80643 PHONE: (303)732-4281	SOUTHEAST WELD FIRE PROTECTION DISTRICT CONTACT: THOMAS BEACH 65 E. GANDY AVENUE KEENESBURG, CO 80643 PHONE: (303) 732-4203	UNITED POWER BRIGHTON HEADQUARTERS OFFICE 500 COOPERATIVE WAY BRIGHTON, CO 80603 (303)637-1300

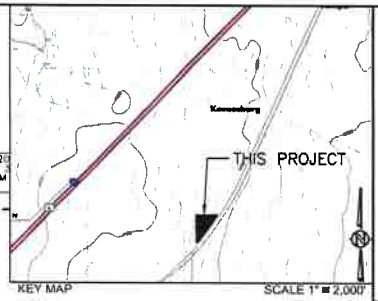
UNCC CALL BEFORE YOU DIG
1-800-922-1987
Utility Notification Center of Colorado
Administrative Office
10361 Teller Mountain Parkway
Golden, Colorado 80403
Office: 720-316-1991 Fax: 303-234-1702
Info-line: 1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

PREPARED BY:

WESTERN ENGINEERING CONSULTANTS, Inc. LLC
127 SOUTH DENVER AVENUE, FT. LUPTON, CO 80621
720-685-9951 PH, 720-294-1330 FAX, email@westerneci.com
Western Engineering Consultants, Inc. LLC

PROJECT NO: 00-0090.004.00
INITIAL PLAN RELEASE: FEBRUARY 20, 2020
SHEET: 1 of 9





80 40 0 80 160

FULL SCALE: 1" = 80'
HALF SCALE: 1" = 160'

LINE	BEARING	DISTANCE
L1	N00°30'49"W	30.89'

LINE	RADIUS	ARC	DELTA	CHORD BEARING	CHORD
C1	5528.90'	495.35'	05°08'07"	S37°23'03"W	495.38'
C2	5508.90'	56.56'	00°35'18"	S40°00'05"W	56.56'

NOTES

THIS PLAN IS INTENDED AS THE EX CONDITIONS PLAN FOR CMK-SW INDUSTRIAL PARK.

ALL IMPROVEMENTS ARE EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "KAUFFMAN ANNEXATION NO. 4" COMPLETED BY AMERICAN WEST LAND SURVEYING CO. - DATED FEBRUARY 11, 2020.

SEE COVER SHEET FOR BASIS OF BEARING.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY AMRICAN WEST LAND SURVEYING CO.

SHOWN PROPOSED LAYOUT PROVIDED BY AMERICAN WEST LAND SURVEYING CO. DATED FEBRUARY 11, 2020. ANY SUBSEQUENT REVISIONS MADE BY AMERICAN WEST LAND SURVEYING CO. ARE NOT REFLECTED IN THIS PLAN SET. REVISIONS DESCRIBED AND DATED ON INDIVIDUAL SHEETS IN THIS PLAN SET ARE WESTERN ENGINEERING REVISIONS ONLY.

NOT ALL UNCC UTILITY LOCATES HAVE BEEN PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES ARE LOCATED AND SURVEY PROVIDED TO THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION DRAWING RELEASE.

SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WO W/S
SWALE
OHE — EXISTING OVERHEAD ELEC
E — EXISTING ELECTRICAL LINE
EXISTING STORM LINE
S — EXISTING SANITARY LINE
W — EXISTING WATER LINE
G — EXISTING GAS LINE
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KAUFFMAN PROPERTIES LLC
CONTACT: MARK KAUFFMAN
8616 WCR 63
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(303) 732-4478

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www.westernengineering.com
email@westernengineering.com
PH (720) 842-1991
FAX (720) 842-1330
Western Engineering Consultants, Inc LLC

REVISIONS
INITIAL RELEASE

EXISTING CONDITION & DEMO PLAN
CMK-SW INDUSTRIAL PARK
SKETCH PLAN

TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely.
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1-800-922-1987

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INITIAL PLAN RELEASE: 02/25/20
DESIGNED BY: CFC
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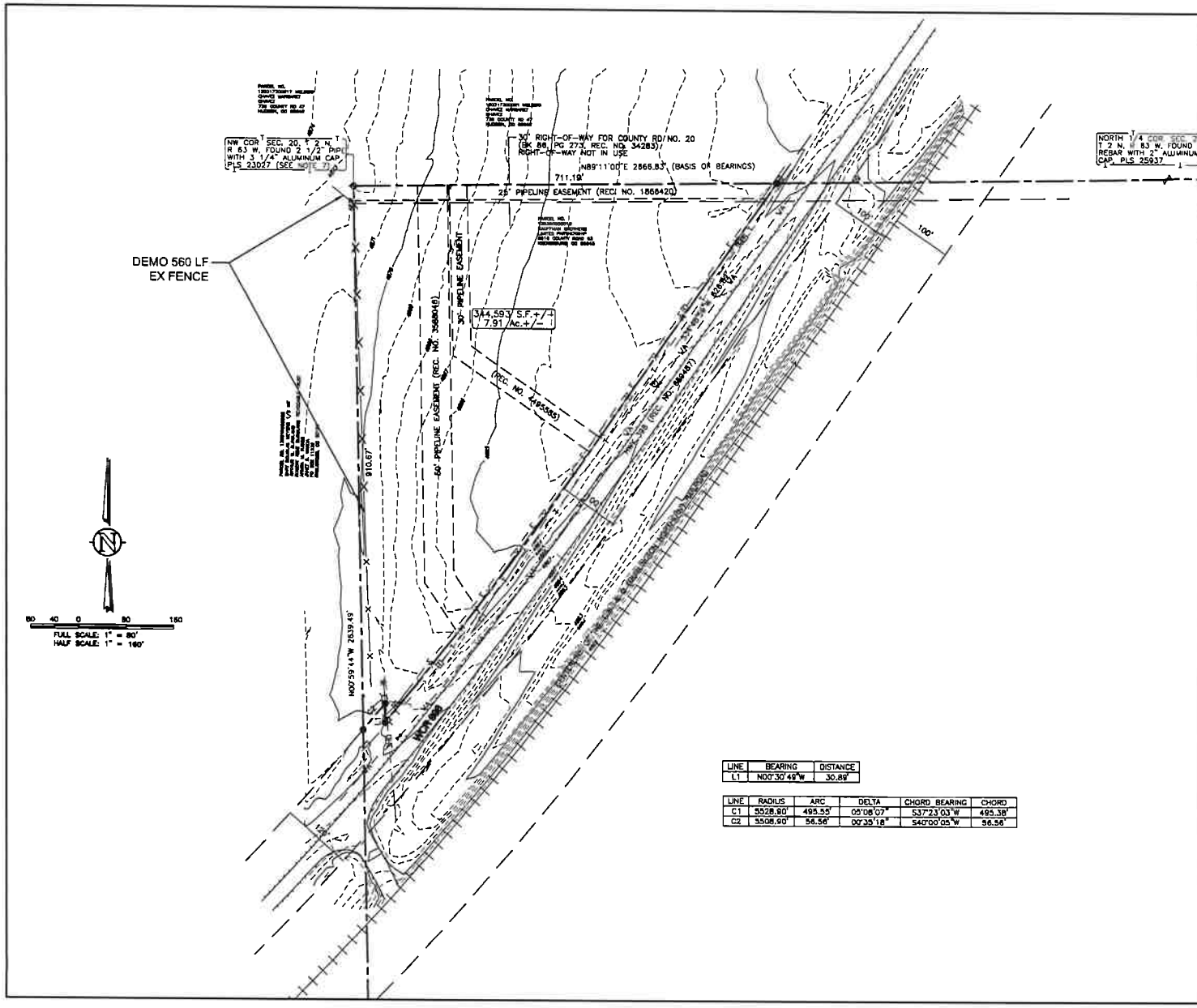
CHECKED BY: CFC
PROJECT NO. 61-0090.004.00
DOC CON # 0002-EXAM
SHEET 2AE OF 9



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L1	N00°30'49"W	30.89'

LINE	RADIUS	ARC	DELTA	CHORD BEARING	CHORD
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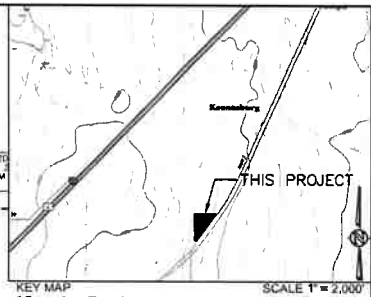

KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A3, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

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SEE COVER SHEET FOR BASIS OF BEARING.

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND W/O W/S
SWALE
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KAUFFMAN DEVELOPMENT LIMITED
CONTACT: MARK KAUFFMAN
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KEENESBURG, CO 80643
(303)732-4878

EXISTING CONDITION & DEMO PLAN
CMK-SW INDUSTRIAL PARK
SKETCH PLAN

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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UTILITY NOTIFICATION CENTER OF COLORADO

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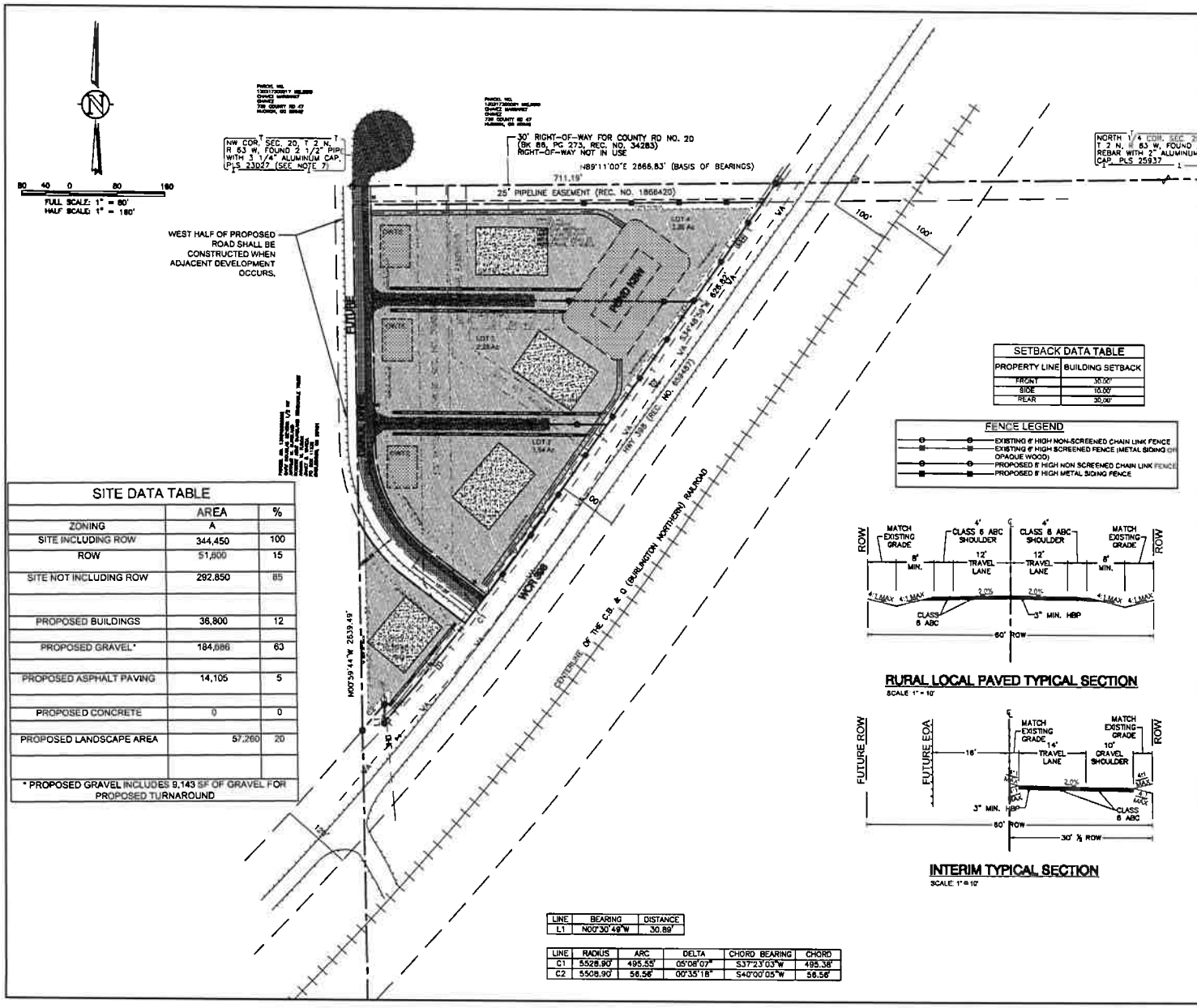
INITIAL PLAN RELEASE 02/20/20
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0090.004.00
DOC CON # 0002-DI COND
SHEET 2 OF 9



127 S. BONVER AVENUE
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KAUFFMAN PROPERTIES LIMITED
CONTACT: MARK KAUFFMAN
8616 WCR 53
KEENESBURG, CO 80643
(303) 732-4878

SITE PLAN
CMK-SW INDUSTRIAL PARK
SKETCH PLAN

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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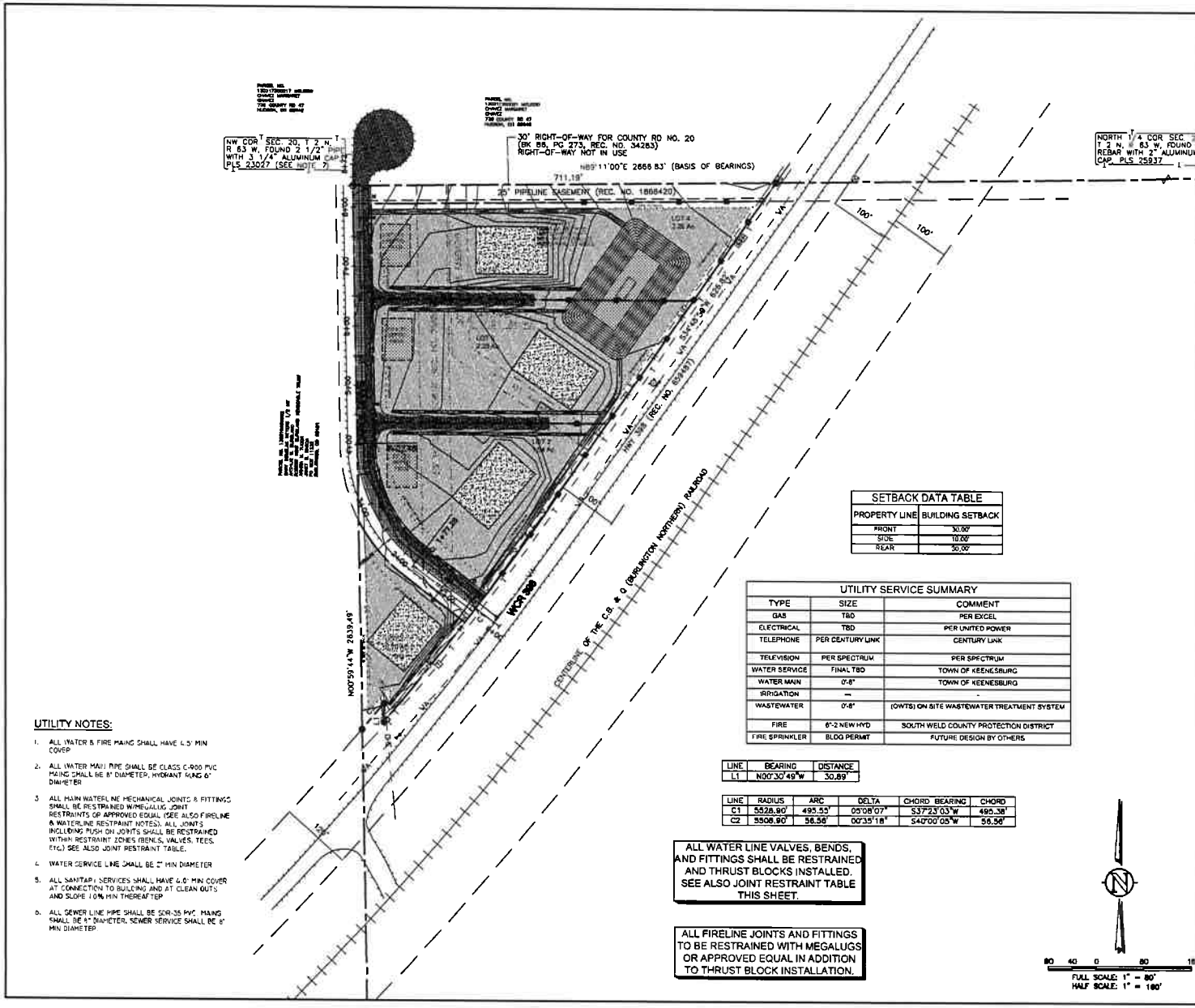
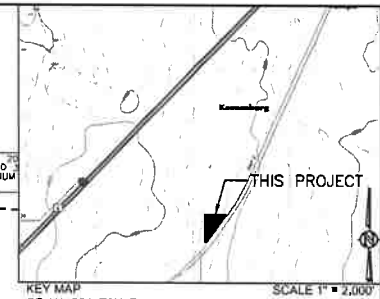
DESIGNED BY: DTE
DRAWN BY: DTE
CHECKED BY: CTC
PROJECT NO. 01-0090.004.00
DOC CON # 0001-SITE
SHEET 3 OF 9





KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A6, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
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LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
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TO BE ABANDONED LOT LINE
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SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'

UTILITY SERVICE SUMMARY		
TYPE	SIZE	COMMENT
GAS	TBD	PER EXCEL
ELECTRICAL	TBD	PER UNITED POWER
TELEPHONE	PER CENTURY LINK	CENTURY LINK
TELEVISION	PER SPECTRUM	PER SPECTRUM
WATER SERVICE	FINAL TBD	TOWN OF KEENESBURG
WATER MAIN	0'-8"	TOWN OF KEENESBURG
IRRIGATION	—	-
WASTEWATER	0'-8"	(OWTS) ON SITE WASTEWATER TREATMENT SYSTEM
FIRE	6"-2 NEW HYD	SOUTH WELD COUNTY PROTECTION DISTRICT
FIRE SPRINKLER	BLDG PERMIT	FUTURE DESIGN BY OTHERS

LINE	BEARING	DISTANCE
L1	N00°30'49"W	30.89'

LINE	RADIUS	ARC	DELTA	CHORD BEARING	CHORD
C1	5528.90'	495.55'	05°08'07"	S37°23'03"W	495.38'
C2	5508.90'	56.56'	00°35'18"	S40°00'05"W	56.56'

ALL WATER LINE VALVES, BENDS, AND FITTINGS SHALL BE RESTRAINED AND THRUST BLOCKS INSTALLED. SEE ALSO JOINT RESTRAINT TABLE THIS SHEET.

ALL FIRELINE JOINTS AND FITTINGS TO BE RESTRAINED WITH MEGALUGS OR APPROVED EQUAL IN ADDITION TO THRUST BLOCK INSTALLATION.

80 40 0 80 160
FULL SCALE: 1" = 80'
HALF SCALE: 1" = 160'

UTILITY NOTES:

1. ALL WATER & FIRE MAINS SHALL HAVE 4.5' MIN COVER
2. ALL WATER MAIN PIPE SHALL BE CLASS C-900 PVC MAINS SHALL BE 8" DIAMETER, HYDRANT RUNS 6" DIAMETER
3. ALL MAIN WATERLINE MECHANICAL JOINTS & FITTINGS SHALL BE RESTRAINED W/MEGALUG JOINT RESTRAINTS OR APPROVED EQUAL (SEE ALSO FIRELINE & WATERLINE RESTRAINT NOTES). ALL JOINTS INCLUDING PUSH ON JOINTS SHALL BE RESTRAINED WITHIN RESTRAINT ZONES (BENDS, VALVES, TEES, ETC.) SEE ALSO JOINT RESTRAINT TABLE.
4. WATER SERVICE LINE SHALL BE 2" MIN DIAMETER
5. ALL SANITARY SERVICES SHALL HAVE 4.0' MIN COVER AT CONNECTION TO BUILDING AND AT CLEAN OUTS AND SLOPE 1.0% MIN THEREAFTER
6. ALL SEWER LINE PIPE SHALL BE SDR-35 PVC. MAINS SHALL BE 8" DIAMETER, SEWER SERVICE SHALL BE 6" MIN DIAMETER

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FT. LUPTON, CO 80621
(720) 865-2601
FAX (720) 294-1330
Western Engineering Consultants, Inc. / LLC

KAUFFMAN PROPERTIES LIMITED
CONTACT: MARK KAUFFMAN
8615 WCR 53
KEENESBURG, CO 80643
(303)732-4878

UTILITY PLAN
CMK-SW INDUSTRIAL PARK
SKETCH PLAN

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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FOR REVIEW

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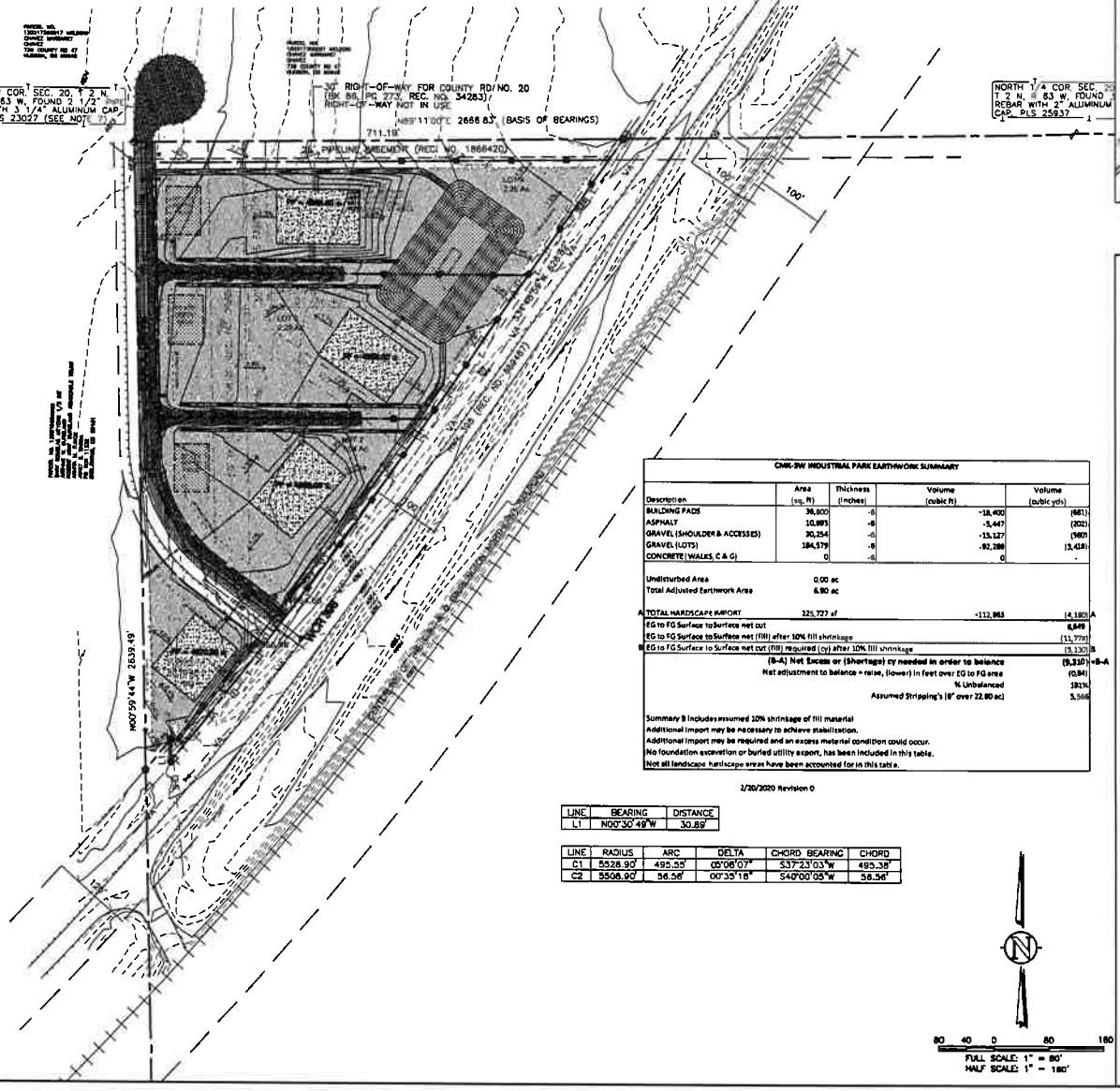
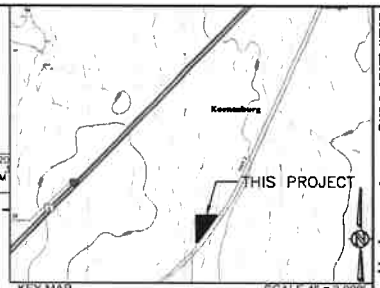
DOC CON # 0004-UTL
SHEET 4 OF 9





KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

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CMK-SW INDUSTRIAL PARK EARTHWORK SUMMARY

Description	Area (sq. ft)	Thickness (inches)	Volume (cubic ft)	Volume (cubic yds)	
BUILDING PADS	36,800	-8	-18,400	(681)	
ASPHALT	10,893	-8	-5,447	(202)	
GRAVEL (SHOULDER & ACCESSES)	30,254	-6	-15,127	(560)	
GRAVEL (LOTS)	184,579	-8	-92,289	(3,418)	
CONCRETE (WALKS, C & G)	0	-6	0	-	
Undisturbed Area	0.00 ac				
Total Adjusted Earthwork Area	6.90 ac				
A TOTAL HARDSCAPE IMPORT	225,727 sf		+112,963	(4,180)	A
EG to FG Surface to Surface net cut				6,649	
EG to FG Surface to Surface net (fill) after 10% fill shrinkage				(11,779)	
B EG to FG Surface to Surface net cut (fill) required (cy) after 10% fill shrinkage				(5,130)	B
(B-A) Net Excess or (Shortage) cy needed in order to balance				(9,310)	=B-A
Net adjustment to balance = raise, (lower) in feet over EG to FG area				(0.84)	
% Unbalanced				181%	
Assumed Stripping's (8" over 22.90 ac)				5,568	

Summary B includes assumed 10% shrinkage of fill material
Additional import may be necessary to achieve stabilization.
Additional import may be required and an excess material condition could occur.
No foundation excavation or buried utility export, has been included in this table.
Not all landscape hardscape areas have been accounted for in this table.

2/20/2020 Revision 0

LINE	BEARING	DISTANCE
L1	N00°30'49"W	30.89'

LINE	RADIUS	ARC	DELTA	CHORD BEARING	CHORD
C1	5528.90'	495.55'	05°08'07"	S37°23'03"W	495.38'
C2	5508.90'	56.56'	00°35'18"	S40°00'05"W	56.56'

80 40 0 80 160
FULL SCALE: 1" = 80'
HALF SCALE: 1" = 160'

SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
OHE — OHE EXISTING OVERHEAD ELEC
E EXISTING ELECTICAL LINE
EXISTING STORM LINE
S EXISTING SANITARY LINE
W EXISTING WATER LINE
G EXISTING GAS LINE
FIBER — FIBER EXISTING FIBER OPTIC LINE
T EXISTING TELEPHONE LINE
SA — SA PROPOSED SANITARY LINE
SS — SS PROPOSED SANITARY SERVICE
STM — STM PROPOSED STORM LINE
WA — WA PROPOSED WATER LINE
WAS — WAS PROPOSED WATER SERVICE
GA — GA PROPOSED GAS LINE
EL — EL PROPOSED ELECTRIC LINE
PH — PH PROPOSED TELEPHONE LINE

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KAUFFMAN PROPERTIES LIMITED
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P.O. BOX 643
KEENESBURG, CO 80643
(303)733-4878

GRADING PLAN
CMK-SW INDUSTRIAL PARK
SKETCH PLAN

TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely. CALL UNCC
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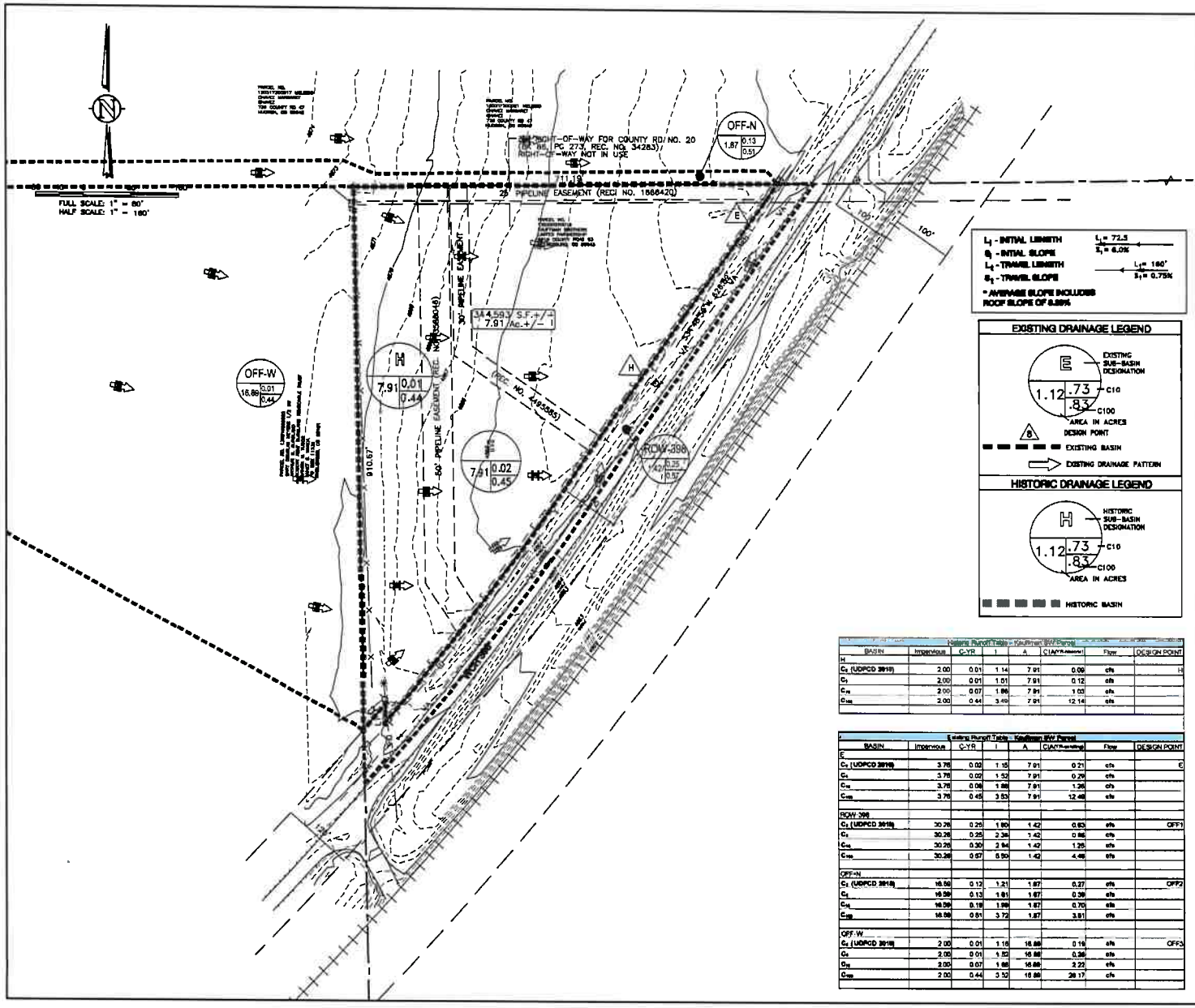
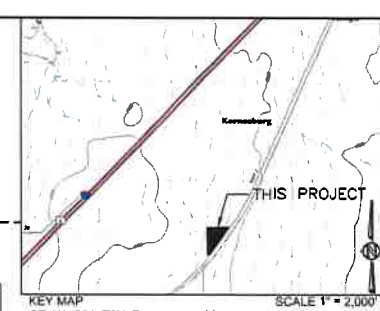
FOR REVIEW

INITIAL PLAN RELEASE: 02/20/20
DESIGNED BY: EES
DRAWN BY: CPC
CHECKED BY: CPC
PROJECT NO. 01-0090.004.00
DOC CON # 0005-GRAD
SHEET 5 OF 9





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L_i - INITIAL LENGTH — L_i = 72.5
S_i - INITIAL SLOPE — S_i = 6.0%
L_t - TRAVEL LENGTH — L_t = 180'
S_t - TRAVEL SLOPE — S_t = 0.75%

* AVERAGE SLOPE INCLUDES ROOF SLOPE OF 0.89%

EXISTING DRAINAGE LEGEND

E — EXISTING SUB-BASIN DESIGNATION
1.12 — C10
.73 — C100
.83 — AREA IN ACRES
8 — DESIGN POINT
EXISTING BASIN
EXISTING DRAINAGE PATTERN

HISTORIC DRAINAGE LEGEND

H — HISTORIC SUB-BASIN DESIGNATION
1.12 — C10
.73 — C100
.83 — AREA IN ACRES
HISTORIC BASIN

NOTES

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
OHE — EXISTING OVERHEAD ELEC
E — EXISTING ELECTICAL LINE
STC — EXISTING STORM LINE
S — EXISTING SANITARY LINE
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G — EXISTING GAS LINE
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STC — PROPOSED STORM LINE
WA — PROPOSED WATER LINE
WAS — PROPOSED WATER SERVICE
GA — PROPOSED GAS LINE
EL — PROPOSED ELECTRIC LINE
PH — PROPOSED TELEPHONE LINE

Historic Runoff Table - Kauffman SW Parcel

BASIN	Impervious	C-YR	I	A	C1A(YR-acres)	Flow	DESIGN POINT
H							
C_5 (UDFCD 2010)	2.00	0.01	1.14	7.91	0.09	cfs	H
C_5	2.00	0.01	1.01	7.91	0.12	cfs	
C_{10}	2.00	0.07	1.86	7.91	1.03	cfs	
C_{100}	2.00	0.44	3.49	7.91	12.14	cfs	

Existing Runoff Table - Kauffman SW Parcel

BASIN	Impervious	C-YR	I	A	C1A(YR-acres)	Flow	DESIGN POINT
E							
C_5 (UDFCD 2010)	3.76	0.02	1.15	7.91	0.21	cfs	E
C_5	3.76	0.02	1.52	7.91	0.29	cfs	
C_{10}	3.76	0.08	1.88	7.91	1.26	cfs	
C_{100}	3.76	0.45	3.53	7.91	12.46	cfs	
ROW 398							
C_5 (UDFCD 2010)	30.26	0.25	1.80	1.42	0.63	cfs	OFF1
C_5	30.26	0.25	2.34	1.42	0.86	cfs	
C_{10}	30.26	0.30	3.04	1.42	1.26	cfs	
C_{100}	30.26	0.57	5.50	1.42	4.46	cfs	
OFF-N							
C_5 (UDFCD 2010)	16.88	0.12	1.21	1.87	0.27	cfs	OFF2
C_5	16.88	0.13	1.61	1.87	0.39	cfs	
C_{10}	16.88	0.19	1.99	1.87	0.70	cfs	
C_{100}	16.88	0.51	3.72	1.87	3.51	cfs	
OFF-W							
C_5 (UDFCD 2010)	2.00	0.01	1.16	16.88	0.19	cfs	OFF3
C_5	2.00	0.01	1.52	16.88	0.36	cfs	
C_{10}	2.00	0.07	1.88	16.88	2.22	cfs	
C_{100}	2.00	0.44	3.52	16.88	26.17	cfs	

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REVISIONS	
1	
2	
3	
4	
5	

KAUFFMAN PROPERTIES LLC
CONTACT: MARK KAUFFMAN
P.O. BOX 43
KEENESBURG, CO 80643
(303)732-4676

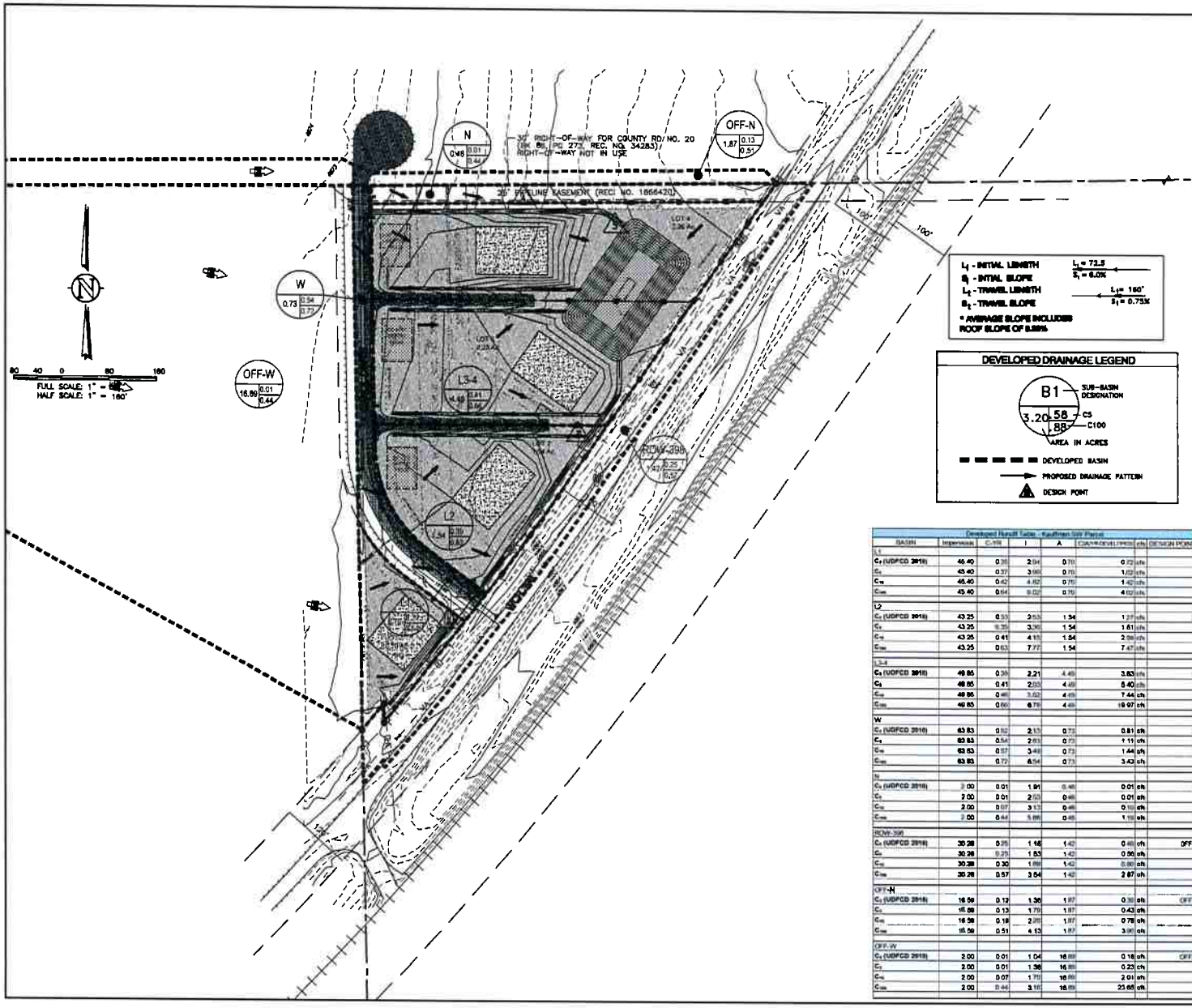
HIST & EX DRAINAGE PLAN
CMK-SW INDUSTRIAL PARK
SKETCH PLAN

TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely.
CALL UNCC
1-800-922-1987
UTILITY NOTIFICATION CENTER OF COLORADO

FOR REVIEW

INITIAL PLAN RELEASE: 02/20/20
DESIGNED BY: CTC
DRAWN BY: CTC
CHECKED BY: CTC
PROJECT NO. 01-0090.004.00
DOC CON # 0008-HDRDRNG
SHEET 8 OF 9



L_1 - INITIAL LENGTH
S_1 - INTIAL SLOPE
L_2 - TRAVEL LENGTH
S_2 - TRAVEL SLOPE

L_1 = 72.5
S_1 = 6.0%
L_2 = 160'
S_2 = 0.75%

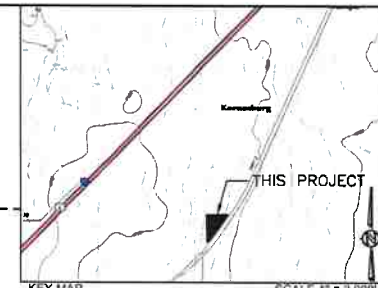
* AVERAGE SLOPE INCLUDES ROOF SLOPE OF 0.25%

DEVELOPED DRAINAGE LEGEND

B1 — SUB-BASIN DESIGNATION
3.20 — AREA IN ACRES
58 — C5
88 — C100

DEVELOPED BASIN
PROPOSED DRAINAGE PATTERN
DESIGN POINT

Developed Runoff Table - Kauffman Site Plan							
BASIN	Impervious	C/100	I	A	Q(A)=C(I)A(I)	cfs	DESIGN POINT
L1							
C_5 (UDFCD 2016)	45.40	0.35	3.94	0.70	0.72	cfs	1
C_{10}	45.40	0.37	3.98	0.70	1.02	cfs	
C_{100}	45.40	0.42	4.82	0.70	1.42	cfs	
C_{500}	45.40	0.64	8.02	0.70	4.02	cfs	
L2							
C_5 (UDFCD 2016)	43.25	0.33	2.53	1.54	1.27	cfs	2
C_{10}	43.25	0.35	3.36	1.54	1.81	cfs	
C_{100}	43.25	0.41	4.15	1.54	2.98	cfs	
C_{500}	43.25	0.63	7.77	1.54	7.47	cfs	
L3-4							
C_5 (UDFCD 2016)	49.85	0.38	2.21	4.49	3.83	cfs	3
C_{10}	49.85	0.41	2.93	4.49	5.40	cfs	
C_{100}	49.85	0.46	3.82	4.49	7.44	cfs	
C_{500}	49.85	0.66	6.78	4.49	19.97	cfs	
W							
C_5 (UDFCD 2016)	63.83	0.52	2.13	0.73	0.81	cfs	2
C_{10}	63.83	0.54	2.63	0.73	1.11	cfs	
C_{100}	63.83	0.57	3.48	0.73	1.44	cfs	
C_{500}	63.83	0.72	6.54	0.73	3.43	cfs	
N							
C_5 (UDFCD 2016)	2.00	0.01	1.91	0.48	0.01	cfs	4
C_{10}	2.00	0.01	2.53	0.48	0.01	cfs	
C_{100}	2.00	0.07	3.13	0.48	0.10	cfs	
C_{500}	2.00	0.44	5.66	0.48	1.19	cfs	
ROW-398							
C_5 (UDFCD 2016)	30.28	0.25	1.18	1.42	0.48	cfs	OFF1
C_{10}	30.28	0.25	1.63	1.42	0.58	cfs	
C_{100}	30.28	0.30	1.99	1.42	0.85	cfs	
C_{500}	30.28	0.57	3.54	1.42	2.87	cfs	
OFF-N							
C_5 (UDFCD 2016)	16.89	0.12	1.30	1.87	0.30	cfs	OFF2
C_{10}	16.89	0.13	1.79	1.87	0.43	cfs	
C_{100}	16.89	0.19	2.65	1.87	0.78	cfs	
C_{500}	16.89	0.51	4.13	1.87	3.90	cfs	
OFF-W							
C_5 (UDFCD 2016)	2.00	0.01	1.04	16.89	0.18	cfs	OFF3
C_{10}	2.00	0.01	1.38	16.89	0.23	cfs	
C_{100}	2.00	0.07	1.79	16.89	2.01	cfs	
C_{500}	2.00	0.44	3.16	16.89	23.65	cfs	



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SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A3, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
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PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

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SKETCH PLAN

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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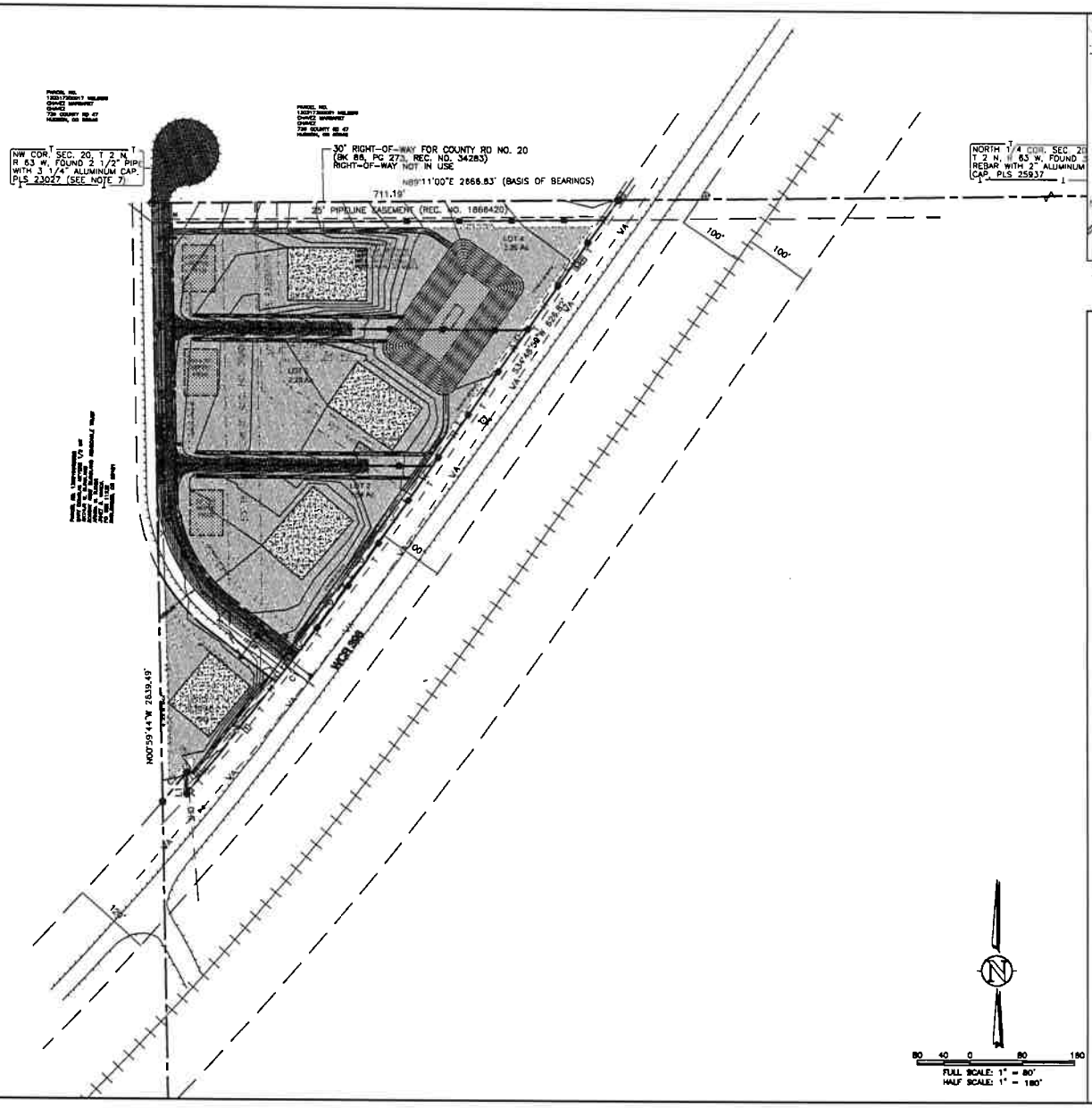
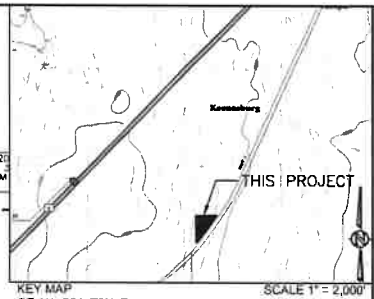
DRAWN BY: EDC
CHECKED BY: CFC
PROJECT NO. 01-0080.004.00
DOC CON # 0007-DEVDRNG
SHEET 7 OF 9





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RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL SHOULDER
PROPOSED LANDSCAPE
PROPOSED SITE GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
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EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND W/O W/S
SWALE
OHE — EXISTING OVERHEAD ELEC
E — EXISTING ELECTRICAL LINE
ST — EXISTING STORM LINE
S — EXISTING SANITARY LINE
W — EXISTING WATER LINE
G — EXISTING GAS LINE
FIBER — EXISTING FIBER OPTIC LINE
T — EXISTING TELEPHONE LINE
SA — PROPOSED SANITARY LINE
SS — PROPOSED SANITARY SERVICE
ST — PROPOSED STORM LINE
WA — PROPOSED WATER LINE
WAS — PROPOSED WATER SERVICE
GA — PROPOSED GAS LINE
EL — PROPOSED ELECTRIC LINE
PH — PROPOSED TELEPHONE LINE

Western Engineering Consultants, Inc LLC
TIT & JENNIFER WENCK
P.O. BOX 1000, BRIGHTON, CO 80601
www.westernengineers.com
email@westernengineers.com
(720) 994-0920
FAX (720) 994-1330

KAUFFMAN PROPERTIES LLC
CONTACT: MARK KAUFFMAN
8616 WCR 63
KEENESBURG, CO 80643
(303) 733-4873

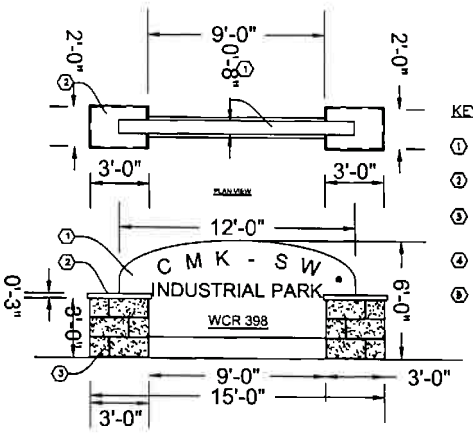
LANDSCAPE PLAN
CMK-SW INDUSTRIAL PARK
SKETCH PLAN

TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely. CALL UNCC
THREE WORKING DAYS BEFORE YOU DIG
1-800-922-1987
UTILITY REPRESENTATIVE
DATE OF CONTACT

FOR REVIEW

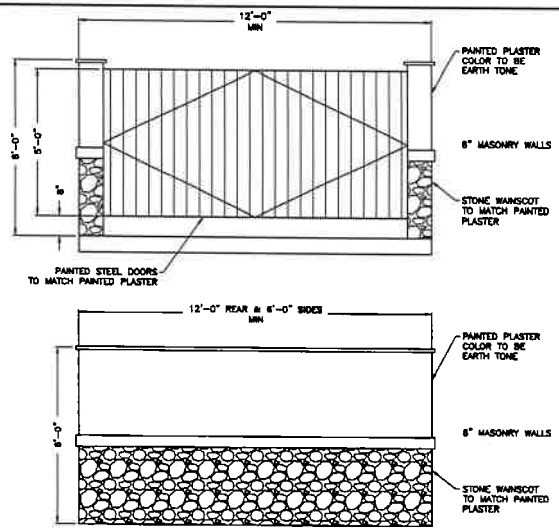
INITIAL PLAN RELEASE: 02/20/20
DESIGNED BY: DSS
DRAWN BY: DFC
CHECKED BY: DFC
PROJECT NO. 01-0090.004.00
DOC CON # 0008-LNDSCP
SHEET 8 OF 9



KEY NOTES:

1. ARCHITECTURAL METAL SIGNAGE COLOR: BERRIDGE 'COLONIAL RED'
2. PRECAST CONCRETE CAP COLOR: TAN
3. INTEGRALLY COLORED SPLIT FACE CMU, RUNNING BOND PATTERN COLOR: BASELITE #____ 'GOLD'
4. CLEAR ANODIZED ALUMINUM LETTERING
5. EXPOSED AGGREGATE TAN BLEND FINISH

MONUMENT SIGNAGE
SCALE 1" = 3'



TRASH ENCLOSURE
SCALE 1" = 2'

SCREENED FENCE DETAIL - ALONG WCR 398

Western Engineering Consultants, Inc LLC
117 S. LEMPI AVENUE
FT. LUPTON, CO 80621
www.weinc.net
email@weinc.net
FAX (720) 863-8961
(720) 863-8960
(720) 834-1330
KAUFFMAN PROPERTIES LIMITED
CONTACT: MARK KAUFFMAN
8610 WCR 63
KEENESBURG, CO 80643
(303)732-4019

LANDSCAPE DETAILS
CMK-SW INDUSTRIAL PARK
SKETCH PLAN
TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig Safely.
CALL UNCC
1-800-922-1987

FOR REVIEW

INITIAL PLAN RELEASE: 02/20/20
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0090.004.00
DOC CON # 0009-LS01LS
SHEET 9 OF 9

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

June 15, 2020

Debra Chumley
Town of Keenesburg Manager
P.O. Box 312
140 S. Main Street
Keenesburg, CO 80643

RE: Kauffman No. 4 Annexation
Annexation Map and Petition Review, April 22, 2020 Map

Dear Debra:

Professional Engineering Consultants (PEC) reviewed submitted legal descriptions and drawings on the annexation maps, and the legal descriptions in the annexation petition, for an annexation to the Town of Keenesburg (Town) proposed as the Kauffman No. 4 Annexation. This would result in the annexation to the Town of property located in Section 20, Township 2 North, Range 63 West, 6th Principal Meridian, Weld County, Colorado. Our review is summarized below. The submitted April 22, 2020 map documented that where County Road right-of-way was annexed, the entire right-of-way was included.

Legal Descriptions. PEC reviewed the bearings and distances provided on the annexation map drawing and in the legal descriptions provided on the annexation map and in the annexation petition and found them to be consistent one with the other. The legal descriptions on the map, in the petition, and in the title commitment were also found to be consistent with each other.

Contiguity Calculations. PEC performed a check on the perimeter length for the annexation compared to the State of Colorado requirement that the perimeter length contiguous with the annexation community be greater than 1/6 of the total annexation perimeter in the proposed annexation. We found that the proposed annexation met the State contiguity requirement, as listed in Table 1.

Table 1. Contiguity Calculations

Annexation Name	Perimeter Length, Feet	1/6 of Annexation Perimeter, Feet	Provided Contiguity, Feet
Kauffman No. 4 Annexation	2,831.68	471.95	1,921.01

Closure Calculations. PEC also independently reviewed closure calculations for the annexation using the bearings and distances provided in the applicant's legal descriptions. Table 2 summarizes these results.

Table 2. Closure Calculations as Checked by PEC

Annexation Name	Closure Distance, Feet	Precision
Kauffman No. 4 Annexation	0.0044	1:637,766

Closure precision and absolute closure distances are acceptable, indicating that the annexation legal descriptions accurately describe the areas they bound.

Please let me know if you have any questions or comments.

Respectfully Submitted,

PROFESSIONAL ENGINEERING CONSULTANTS, PA

Kent Bruxvoort

Kent Bruxvoort, P.E.
Town Engineer

cc: Todd Hodges, Town Planner
Kathleen Kelly, Town Attorney

THDLLC

From: Hice-Idler - CDOT, Gloria <gloria.hice-idler@state.co.us>
Sent: Monday, July 27, 2020 5:04 PM
To: THDLLC
Cc: Timothy Bilobran - CDOT; Allyson Mattson - CDOT
Subject: Kaufman Annexation

Follow Up Flag: Follow up
Flag Status: Flagged

CDOT has no comment regarding the zoning or annexation proposed by this submittal.

Gloria Hice-Idler
Rocksol Consulting

(970) 381-8629

10601 W. 10th Street, Greeley, CO 80634
gloria.hice-idler@state.co.us | www.codot.gov | www.cotrip.org

THDLLC

From: Tom Beach <tbeach@seweldfire.org>
Sent: Wednesday, August 26, 2020 3:28 PM
To: THDLLC
Subject: RE: Keenesburg referral request for the Kaufman Annexation, zoning and sketch plan submittal

Todd,
Reviewing the sketch plans for Kaufman Annexation, I understand that these will be reviewed and approved at a later time and that this is only for the annexation piece.

- However, the road that is drawn in crosses into another person's property where it is shown as a cul-de-sac, also, the road widths do not appear to be present and there is a lack of connectivity.
- There isn't a distance noted from the fire hydrant that is existing to inside the proposed annexed piece.
- In their letter it states that they have contacted the fire district requesting service and a will serve letter, that statement is incorrect, we were never part of this until you sent the referral to the best of our knowledge.

Tom Beach
Fire Chief
Southeast Weld Fire Rescue
95 W. Broadway Ave.
Keenesburg, Colorado 80643
(303) 732-4203 Office
(970) 539-0874 Cell
www.seweldfire.org
HONOR . COURAGE . BRAVERY

"Every accomplishment starts with the decision to try."– John Fitzgerald Kennedy

This electronic communication (including attachments) is intended solely for the person or the persons to whom it is addressed and may contain confidential information. If you receive this communication in error, you are prohibited from disseminating or copying this communication (including attachments), please notify the sender that you received this email in error and delete this communication from your system.

From: THDLLC <toddhodgesdesign@qwestoffice.net>
Sent: Friday, July 10, 2020 11:14 AM
To: 'gloria.hice-idler' <gloria.hice-idler@state.co.us>; Tom Beach <tbeach@seweldfire.org>; 'Tom Parko' <tparko@co.weld.co.us>; gregrabenhorst@re3j.com; Timothy.Bilobran@state.co.us; keenesburgclerk@rtebb.net; 'Mark Gray' <pwdirector@rtebb.net>; 'Debra Chumley' <tokmanager@rtebb.net>; kathleen@kellypc.com; Gary.Fleshman@centurylink.com; jerry.adams@atmosenergy.com; ginny.brannon@state.co.us; jmcdonald@weldgov.com; 'Jim Flesher' <jflesher@weldgov.com>; 'Kent Bruxvoort' <kent.bruxvoort@pec1.com>; joanna.williams@state.co.us; llight@co.weld.co.us; sauter@esrta.com
Subject: Keenesburg referral request for the Kaufman Annexation, zoning and sketch plan submittal

Attached is a referral request form for the Kaufman annexation, zoning and sketch plan submittal to the Town of Keenesburg. Below is a link to the submittal documents.
Have a good weekend.

https://www.dropbox.com/sh/g976em8p7zmhpx4/AAAWSxzsPmm8lW6Kr_PoEJcma?dl=0

Todd A. Hodges, Principal
Todd Hodges Design, LLC
970-215-4311

THDLLC

From: Mark Gray <pwdirector@rtebb.net>
Sent: Thursday, August 27, 2020 2:30 PM
To: THDLLC
Cc: Kathleen Kelly; Debra Chumley; 'Kent Bruxvoort'
Subject: Re: Kaufman annexation, zoning and sketch plan draft staff report

Importance: High

Todd: I have reviewed the Sketch Plan for CMK SW Industrial Park. My comments are listed below.

1. Carol Drive will need to be constructed as a complete 60 foot street in this project.

2. The proposed cul-de-sac is not in the Town limits these will need to be addressed.

3 The water main crosses a 50 foot pipeline easement will need clarification as to weather this can be located there or not.

Thank you:

Mark Gray
Public Works Director
Town of Keenesburg
303437-4970

On 2020-08-27 07:57, THDLLC wrote:

> Attached is the draft report that we need to complete for PC packets. I will be out this afternoon and tomorrow but will be watching for any correspondence on this item so we can complete for the packet delivery. Mark is still working on referral comments and I have addressed them in the report and conditions.
>
> Take a look and let me know if you have any proposed changes.
>
> Thanks
>
> Todd A. Hodges, Principal
>
> Todd Hodges Design, LLC
>
> 970-215-4311

COLORADO
Division of Water Resources
Department of Natural Resources

August 6, 2020

Todd Hodges
Keenesburg Planning Department
toddhodgesdesign@qwestoffice.net

RE: Kaufman Annexation #4, Zoning Request and sketch plan
Part of the NW ¼ of the NW ¼, Sec. 20, T2N, R63W, 6th P.M.
Water Division 1, Water District 1

Dear Mr. Hodges,

The Applicant is requesting annexation of 7.91 acres into the Town of Keenesburg, the rezoning of the property to light industrial and the plotting of 3 lots.

This referral does not appear to qualify as a "subdivision" as defined in Section 30-28-101(10)(a), C.R.S. Therefore, pursuant to the State Engineer's March 4, 2005 and March 11, 2011 memorandums to county planning directors, this office will only perform a cursory review of the referral information and provide informal comments. The comments do not address the adequacy of the water supply plan for this project or the ability of the water supply plan to satisfy any County regulations or requirements. In addition, the comments provided herein cannot be used to guarantee a viable water supply plan or infrastructure, the issuance of a well permit, or physical availability of water.

Information provided with the submittal indicates the Town of Keenesburg will supply water to the property.

A review of our records did not find any well permits or groundwater water rights associated with the property.

If you, or the applicant, have any questions please contact Ailis Thyne at ailis.thyne@state.co.us.

Sincerely,

Joanna Williams, P.E.
Water Resource Engineer

KEENESBURG PLANNING DEPARTMENT

DEVELOPMENT REVIEW REFERRAL

FROM: **TODD HODGES, TOWN PLANNER**

DATE: **JULY 10, 2020**

PROJECT: **Kaufman Annexation #4, zoning and sketch plan request**

INTERNAL DISTRIBUTION:

_x__	City Engineer	_x__	City Attorney	__x__	City Clerk
_x__	Public Works Manager	_x__	Building Inspector		

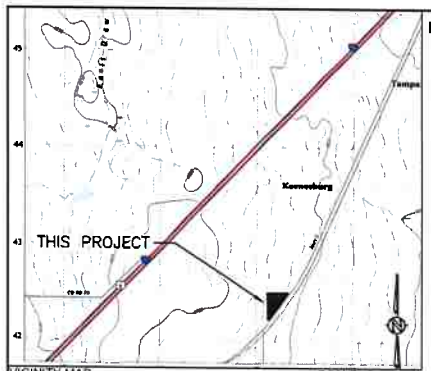
OUTSIDE DISTRIBUTION:

_x__	SE Weld Fire Protection District	_X__	Weld County Department of Planning Services
_X__	CDOT	___	Army Corp of Engineers
_X__	Atmos Energy	___	Postmaster
_x__	United Power	__X_	Colorado Department of Natural Resources
___	Colorado Division of Wildlife	_X__	Weld County Public Works
_X__	Weld County School District RE-3	_X__	Century Link
_x__	Division of Water Resources	__x_	Weld County Health Department
__X__	Town of Hudson	__X__	Lost Creek Water

If you have comments, please respond by: **July 31, 2020**

Comments may be emailed to toddhodgesdesign@qwestoffice.net or mailed to the address below. A non-response to this referral may be considered a favorable response.

COMMENTS: _____no concerns as long as public water and sewer is available to serve the property.



VICINITY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN VICINITY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

BASIS of BEARING & BENCHMARK

BASIS OF BEARING: THE NORTH LINE OF THE NORTHWEST 1/4 OF SECTION 20, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M. IN WELD COUNTY, COLORADO IS ASSUMED TO BEAR NORTH 89°11'00" EAST, AS MONUMENTED HEREON AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO.

2) ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

3) ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.

4) CERTIFICATION DEFINED: THE USE OF THE WORD "CERTIFY" OR "CERTIFICATION" BY A REGISTERED PROFESSIONAL LAND SURVEYOR, IN THE PRACTICE OF LAND SURVEYING, CONSTITUTES AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THOSE FACTS OF FINDINGS WHICH ARE SUBJECT OF THE CERTIFICATION, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EITHER EXPRESS OR IMPLIED.

5) THIS ANNEXATION MAP IS NOT A BOUNDARY SURVEY. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON FIELD EVIDENCE TOGETHER WITH DEED DESCRIPTIONS, ANNEXATION MAPS, RECORDED EXEMPTION PLATS, AND LAND SURVEYS OF RECORD.

6) OWNERSHIP INFORMATION SHOWN HEREON IS BASED UPON INFORMATION PROVIDED BY THE WELD COUNTY ASSESSOR'S WEBSITE AND IS CURRENT AS OF FEBRUARY 10, 2020.

Sketch Plan

LEGAL DESCRIPTION

ANNEXATION TABLE:
TOTAL PERIMETER: 2,041.66 FEET
REQUIRED 1/6 CONTIGUOUS PERIMETER: 471.85 FEET
CONTIGUOUS BOUNDARY: 1,208.94 FEET

legal

~~ANNEXATION~~ DESCRIPTION: A PARCEL OF LAND LOCATED IN THE SW 1/4 OF SECTION 20, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:
CONSIDERING THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 20 TO BEAR N 89° 11' 00" E, BEING MONUMENTED ON THE EAST END BY A 3/4" REBAR WITH A 2" ALUMINUM CAP, PLS 25937 AND ON THE WEST END BY A 2 1/2" PIPE WITH 3 1/4" ALUMINUM CAP, PLS 23007, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO: BEGINNING AT THE NW CORNER OF SAID SECTION 20; THENCE N 89° 11' 00" E, COINCIDENT WITH THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 20, A DISTANCE OF 711.19 FEET TO THE WEST RIGHT OF WAY LINE OF COUNTY ROAD NO. 396 AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AT RECEPTION NO. 884487 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO; THENCE S 34° 48' 58" W, COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 638.82 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5528.90 FEET AND A CENTRAL ANGLE OF 05° 08' 07", WHOSE CHORD BEARS S 37° 23' 03" W, A DISTANCE OF 496.38 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 496.55 FEET TO AN ANGLE POINT IN SAID WEST RIGHT OF WAY LINE; THENCE N 00° 30' 49" W, COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 30.89 FEET TO AN ANGLE POINT IN SAID WEST RIGHT OF WAY LINE AS DESCRIBED IN DEED RECORDED JANUARY 12, 1933 AT RECEPTION NO. 884484 IN THE RECORDS OF THE CLERK AND RECORDER FOR WELD COUNTY, COLORADO, AND THE BEGINNING OF A CURVE CONCAVE TO THE NW HAVING A RADIUS OF 5508.90 FEET AND A CENTRAL ANGLE OF 00° 35' 18", WHOSE CHORD BEARS S 40°00' 08" W, A DISTANCE OF 56.56; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, AND COINCIDENT WITH SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 56.56 FEET TO THE WEST LINE OF THE NW 1/4 OF SAID SECTION 20; THENCE N 00° 59' 44" W, COINCIDENT WITH SAID WEST LINE, A DISTANCE OF 910.67 FEET TO THE TRUE POINT OF BEGINNING
SAID PARCEL CONTAINS 344,593 SQUARE FEET OR 7.91 ACRES, MORE OR LESS.

OWNER'S ~~CERTIFICATE~~:
KNOW ALL MEN BY THESE ~~PRESENTS~~, THAT KAUFFMAN BROTHERS ~~LIMITED PARTNERSHIP~~, BEING THE SOLE OWNERS ~~AND PROPRIETORS~~ OF THAT PARCEL OF LAND DESCRIBED ~~HEREON~~, EXCLUDING PUBLIC RIGHTS-OF-WAY, ~~REQUEST~~ THAT THE LAND DESCRIBED HEREON BE ANNEXED UNDER THE NAME OF KAUFFMAN ANNEXATION NO. ~~1~~ TO THE TOWN OF KEENESBURG.
OWNER: ~~KAUFFMAN BROTHERS LIMITED PARTNERSHIP~~

REVISIONS	SHEET	INDEX:
0	1	COVER SHEET
0	2AE	EXISTING CONDITIONS W/ AERIAL
0	2	EXISTING CONDITIONS & DEMO PLAN
0	3	SITE PLAN
0	4	UTILITY PLAN
0	5	GRADING PLAN
0	6	HISTORIC & EXISTING DRAINAGE PLAN
0	7	DEVELOPED DRAINAGE PLAN
0	8	LANDSCAPE PLAN
0	9	LANDSCAPE DETAILS

0 INITIAL RELEASE: FEBRUARY 20, 2020

CMK-SW INDUSTRIAL PARK SKETCH PLAN
KEENESBURG, CO 80643

PREPARED FOR:

MARK KAUFFMAN
8616 WCR 63
KEENESBURG, CO 80643
(303)732-4878

APPROVED BY:

KAUFFMAN BROTHERS LIMITED DATE

WESTERN ENGINEERING CONSULTANTS, Inc. LLC DATE
CHADWIN F. COX, P.E.

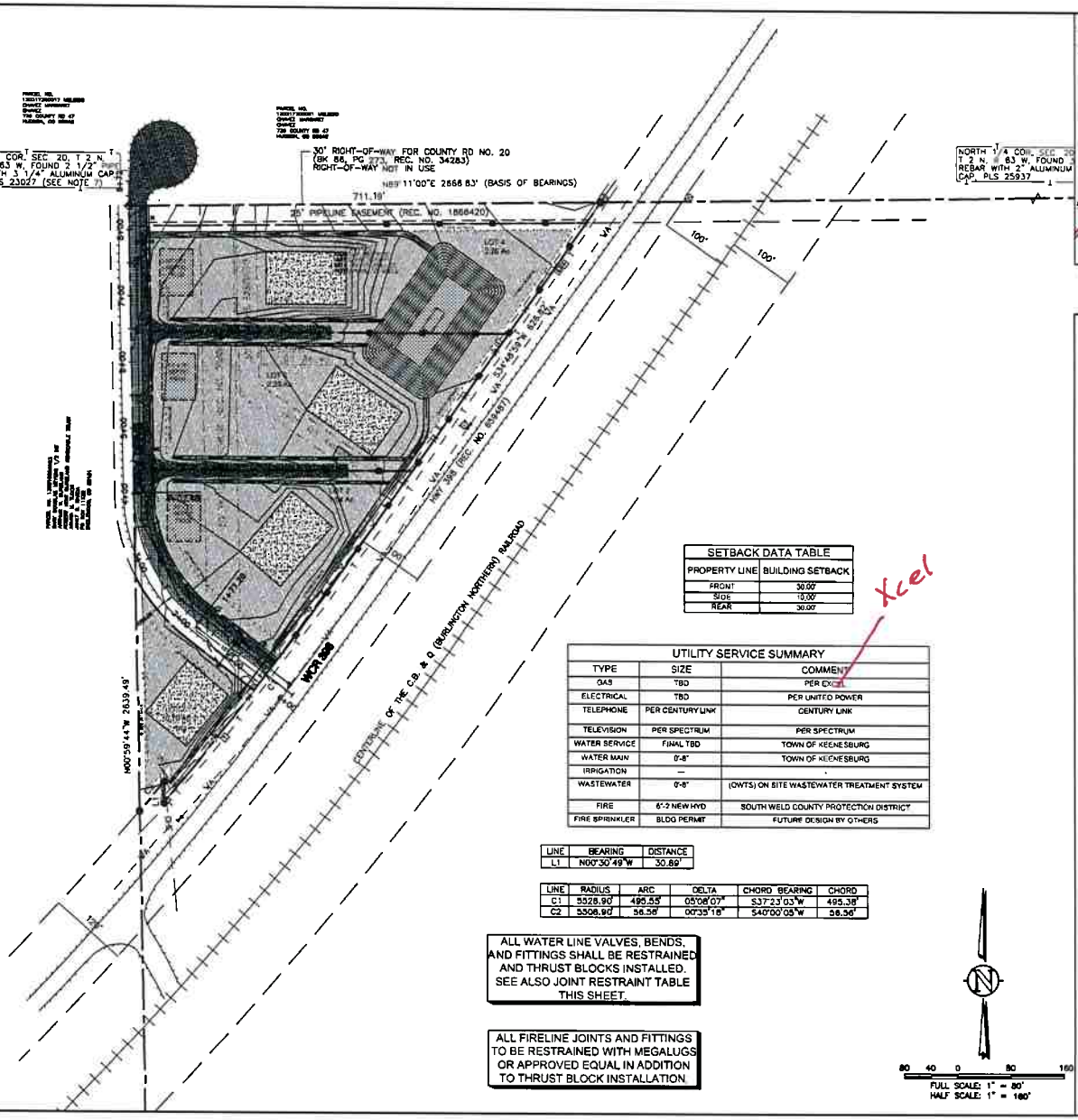
UNCC CALL BEFORE YOU DIG
1-800-922-1987
Utility Notification Center of Colorado
Administrative Office
10361 Teller Mountain Parkway
Golden, Colorado 80402
Office 303-232-1991 Fax 303-234-1732
(48 hour Locate 800-922-1987)
CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

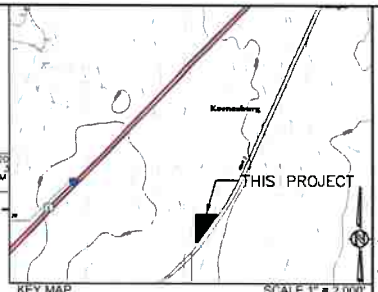
OWNER/DEVELOPER	TOWN/CITY	FIRE DISTRICT	UTILITY
KAUFFMAN BROTHERS LIMITED CONTACT: MARK KAUFFMAN 8616 WCR 63 KEENESBURG, CO 80643 PHONE: (303)732-4878	TOWN OF KEENESBURG CONTACT: TODD HODGES 140 S. MAIN STREET KEENESBURG, CO 80643 PHONE: (303)732-4289	SOUTHEAST WELD FIRE PROTECTION DISTRICT CONTACT: THOMAS BEACH 85 E. GANDY AVENUE KEENESBURG, CO 80643 PHONE: (303) 732-4203	UNITED POWER BRIGHTON HEADQUARTERS OFFICE 500 COOPERATIVE WAY BRIGHTON, CO 80603 (303)637-1300

PREPARED BY:

WESTERN ENGINEERING CONSULTANTS, Inc. LLC
127 SOUTH DENVER AVENUE, FT. LUPTON, CO 80621
720-685-9951 PH, 720-294-1330 FAX, email@westerneci.com
Western Engineering Consultants, Inc. LLC

PROJECT NO: 00-0090.004.00
INITIAL PLAN RELEASE: FEBRUARY 20, 2020
SHEET: 1 of 9





SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A6, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE UTILITY PLAN FOR CMK-SW INDUSTRIAL PARK.

ALL IMPROVEMENTS ARE PROPOSED UNLESS NOTED OTHERWISE.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "KAUFFMAN ANNEXATION NO. 4" COMPLETED BY AMERICAN WEST LAND SURVEYING CO. – DATED FEBRUARY 11, 2020.

SEE COVER SHEET FOR BASIS OF BEARING.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY AMERICAN WEST LAND SURVEYING CO.

SHOWN PROPOSED LAYOUT PROVIDED BY AMERICAN WEST LAND SURVEYING CO. DATED FEBRUARY 11, 2020. ANY SUBSEQUENT REVISIONS MADE BY AMERICAN WEST LAND SURVEYING CO. ARE NOT REFLECTED IN THIS PLAN SET. REVISIONS DESCRIBED AND DATED ON INDIVIDUAL SHEETS IN THIS PLAN SET ARE WESTERN ENGINEERING REVISIONS ONLY.

NOT ALL UNCC UTILITY LOCATES HAVE BEEN PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES ARE LOCATED AND SURVEY PROVIDED TO THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION DRAWING RELEASE.

SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
OHE — EXISTING OVERHEAD ELEC
E — EXISTING ELECTICAL LINE
EXISTING STORM LINE
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WAS — PROPOSED WATER SERVICE
GA — PROPOSED GAS LINE
EL — PROPOSED ELECTRIC LINE
PH — PROPOSED TELEPHONE LINE

SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'

Xcel

UTILITY SERVICE SUMMARY		
TYPE	SIZE	COMMENT
GAS	TBD	PER EXCEL
ELECTRICAL	TBD	PER UNITED POWER
TELEPHONE	PER CENTURY LINK	CENTURY LINK
TELEVISION	PER SPECTRUM	PER SPECTRUM
WATER SERVICE	FINAL TBD	TOWN OF KEENESBURG
WATER MAIN	0'-8"	TOWN OF KEENESBURG
IRRIGATION	—	-
WASTEWATER	0'-8"	(OWTS) ON SITE WASTEWATER TREATMENT SYSTEM
FIRE	6'-2 NEW HYD	SOUTH WELD COUNTY PROTECTION DISTRICT
FIRE SPRINKLER	BLDG PERMIT	FUTURE DESIGN BY OTHERS

LINE	BEARING	DISTANCE
L1	N00°30'49"W	30.89'

LINE	RADIUS	ARC	DELTA	CHORD BEARING	CHORD
C1	5528.90'	495.55'	05°08'07"	S37°23'03"W	495.38'
C2	5508.90'	58.56'	00°35'18"	S40°00'05"W	58.56'

ALL WATER LINE VALVES, BENDS, AND FITTINGS SHALL BE RESTRAINED AND THRUST BLOCKS INSTALLED. SEE ALSO JOINT RESTRAINT TABLE THIS SHEET.

ALL FIRELINE JOINTS AND FITTINGS TO BE RESTRAINED WITH MEGALUGS OR APPROVED EQUAL IN ADDITION TO THRUST BLOCK INSTALLATION.

80 40 0 80 160
FULL SCALE: 1" = 80'
HALF SCALE: 1" = 160'

UTILITY NOTES:

1. ALL WATER & FIRE MAINS SHALL HAVE 4.5' MIN COVER
2. ALL WATER MAIN PIPE SHALL BE CLASS C-900 PVC MAINS SHALL BE 8" DIAMETER, HYDRANT MAINS 6" DIAMETER
3. ALL MAIN WATERLINE MECHANICAL JOINTS & FITTINGS SHALL BE RESTRAINED W/MEGALUG JOINT RESTRAINTS OR APPROVED EQUAL (SEE ALSO FIRELINE & WATERLINE RESTRAINT NOTES). ALL JOINTS INCLUDING PUSH ON JOINTS SHALL BE RESTRAINED WITHIN RESTRAINT ZONES (BENDS, VALVES, TEES, ETC.) SEE ALSO JOINT RESTRAINT TABLE.
4. WATER SERVICE LINE SHALL BE 2" MIN DIAMETER
5. ALL SANITARY SERVICES SHALL HAVE 6.0' MIN COVER AT CONNECTION TO BUILDING AND AT CLEAN OUTS AND SLOPE 1.0% MIN THEREAFTER
6. ALL SEWER LINE PIPE SHALL BE SDR-35 PVC MAINS SHALL BE 4" DIAMETER, SEWER SERVICE SHALL BE 6" MIN DIAMETER

127 S. DENVER AVENUE
FT. LUPTON, CO 80621
www.westernengineers.com
(720) 985-9551
FAX (720) 284-1539
Western Engineering Consultants, Inc LLC

KAUFFMAN PROPERTIES LLC
CONTACT: MARK KAUFFMAN
P.O. BOX 643
KEENESBURG, CO 80643
(303)737-4875

UTILITY PLAN
CMK-SW INDUSTRIAL PARK
SKETCH PLAN

TOWN of KEENESBURG, WELD COUNTY, COLORADO

Dig | Safely.
CALL UNCC
1-800-922-1987

FOR REVIEW

INITIAL PLAN RELEASED 02/20/20
DESIGNED BY: EPS
DRAWN BY: EPS
CHECKED BY: CFC
PROJECT NO. 01-0080.004.00
DOC CON # 0004-UTL
SHEET 4 OF 9

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

April 23, 2020

Debra Chumley
Town of Keenesburg Manager
P.O. Box 312
140 S. Main Street
Keenesburg, CO 80643

RE: SMK-SW Industrial Park
Sketch Plan Review

Dear Debra:

Professional Engineering Consultants (PEC) reviewed the Sketch Plan submittal plans entitled "CMK-SW Industrial Park Sketch Plan." The purpose of the Sketch Plan submittal is "to allow a review of the concept for development and overall feasibility." We consider the following to be overall feasibility issues for the sketch plan as currently presented that should be addressed with the submittal of preliminary civil engineering design plans. The Town would also accept a Sketch Plan resubmittal of Sheet 3, Site Plan, and a response to comments letter demonstrating how the comments below could be addressed.

1. The sketch plan proposes Carol Drive to be developed with an interim road section, and that the remainder of the road would be constructed when development of the neighboring property occurs. The proposed Carol Drive is required to meet the Town's rural local road section with construction of the project.
2. The applicant would be required to obtain an easement for any portion of a road segment that is located off the property and not within public right-of-way. The cul-de-sac turnaround bulb as depicted would require an easement.
3. The Town discourages retention ponds but will accept retention if State statute 37-92-602(8) can be documented to be achieved. The Town would accept full spectrum detention pond sizing per Mile High Flood District design criteria as the preferred storm drainage solution.
4. Design of the site plan shall allow all lots to meet Weld County criteria for on-site wastewater treatment systems (OWTS). We note that no OWTS is proposed for Lot 1.

Please let me know if you have any questions.

Respectfully Submitted,

PROFESSIONAL ENGINEERING CONSULTANTS, PA

Kent Bruxvoort

Kent Bruxvoort, P.E.
Town Engineer

cc: Todd Hodges, Town Planner

d.

RESOLUTION NO. PC2020-11

A RESOLUTION RECOMMENDING APPROVAL OF AN INITIAL ZONING AND SITE PLAN REQUEST FOR PROPERTY TO BE ANNEXED TO THE TOWN AND KNOWN AS THE KAUFFMAN ANNEXATION NO. 4 TO THE TOWN OF KEENESBURG

WHEREAS, there has been submitted to the Planning Commission of the Town of Keenesburg a request for approval of initial zoning and site plan for property to be annexed to the Town and known as the Kauffman Annexation No. 4 to the Town of Keenesburg; and

WHEREAS, all materials related to the proposed initial zoning and site plan request have been reviewed by Town Staff and found with conditions to be in compliance with Town of Keenesburg zoning ordinances and related Town ordinances, regulations, and policies; and

WHEREAS, after a duly-noticed public hearing, at which evidence and testimony were entered into the record, the Planning Commission finds the initial zoning request, to zone the property Light Industrial (LI), and site plan should be approved.

NOW, THEREFORE, BE IT RESOLVED BY THE PLANNING COMMISSION OF THE TOWN OF KEENESBURG, COLORADO:

Section 1. The Planning Commission hereby recommends approval of the proposed initial zoning of Light Industrial (LI) and site plan for the property annexed to the Town and known as the Kauffman Annexation No. 4 to the Town of Keenesburg, subject to the following conditions:

1. Prior to review of the sketch plan by the Board the applicant shall adequately address the referral comments from the Town Engineer, Public Works Director, and the Fire District.

2. Address redlines provided by Town Attorney and any other staff members.

3. Provide a pdf of the final drawing documents prior to printing on mylars for review and approval.

4. As part of the preliminary plat submittal the applicant shall address the adopted design standards that pertain to this development. This includes but is not limited to landscaping, lighting, and signage for the proposed development.

INTRODUCED, READ, and ADOPTED this 3rd day of September, 2020.

TOWN OF KEENESBURG, COLORADO
PLANNING COMMISSION

_____
Chairperson

ATTEST:

_____

Secretary

e.

STAFF REPORT

TO: **PLANNING COMMISSION**

FROM: **TODD A. HODGES, PLANNER**

SUBJECT: **OLIVER SPECIAL USE APPLICATION**

PC MEETING DATE: SEPTEMBER 3, 2020

BOARD OF TRUSTEES MEETING DATE: SEPTEMBER 21, 2020

I. Attachments

1. Application submittal
2. Special Use Permit Map
3. Referrals

II. Project Owners and Representatives:

Owners:

Katherine Oliver
1738 Edgewater Place
Longmont, CO 80504
(303)772-9633

Applicant:

Katherine Oliver
1738 Edgewater Place
Longmont, CO 80504
(303)772-9633

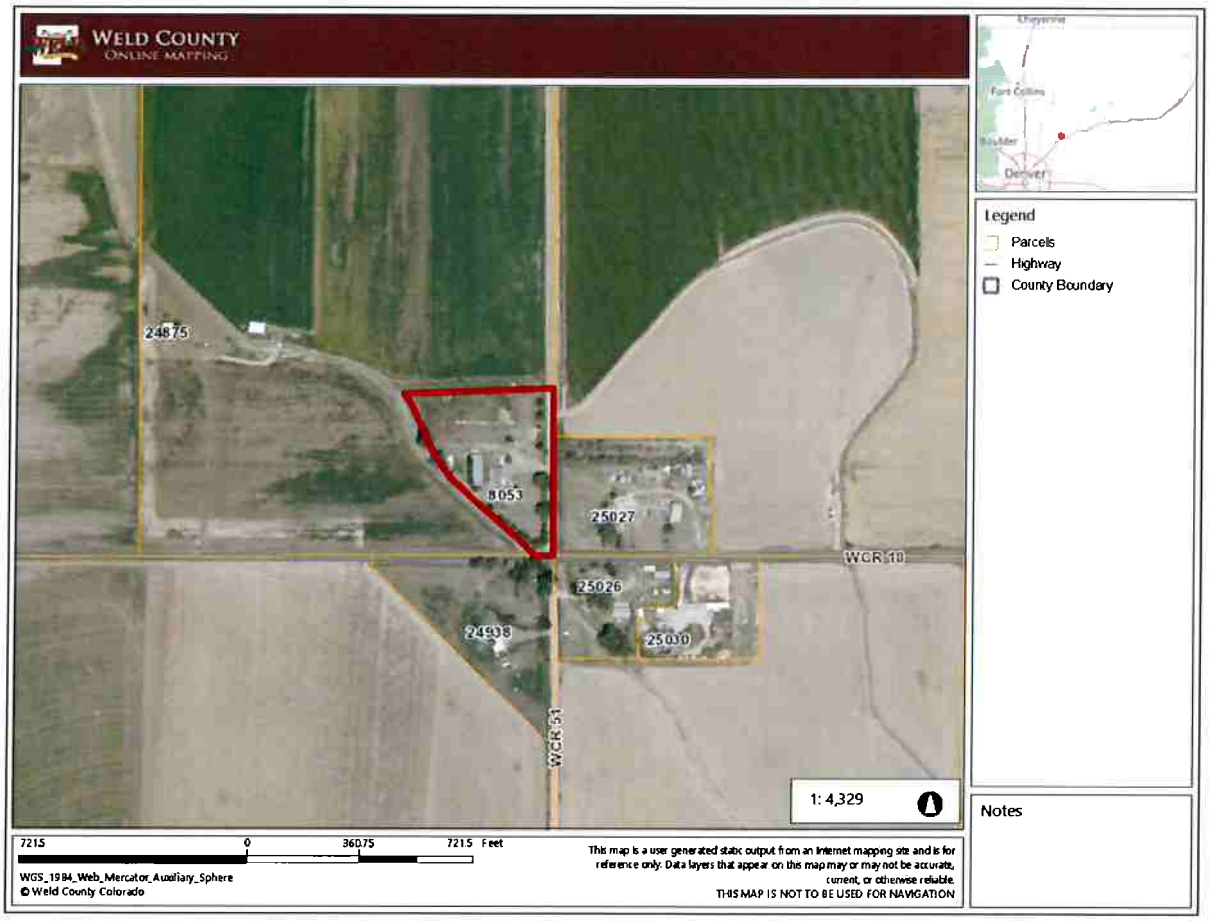
Project Representative:

Katherine Oliver
1738 Edgewater Place
Longmont, CO 80504
(303)772-9633

III. Location

The site is located at 8051 CR 51, Weld County, CO

Legal:
PT E2SE4 19-2-64 LOT A CORR REC EXEMPT RE-2907



III. Project Description

The land use application is for a special land use application for a use by special review permit ("USR") on 3.65AC. The USR will allow the residential structure to remain in residential use on the industrial zoned property. This property was annexed into the Town of Keenesburg on April 20, 2020 by the Board and zoned light industrial. The site contains two buildings, one residential and one outbuilding. The residential building was built in 1999 as a modular one story with a basement. The uses of the residential structure are intended to stay the same with this USR. The outbuilding was constructed in 1978 and is roughly 4,600 sq.ft. The outbuilding is intended for the storage of impounded or wrecked vehicles. With this application, the applicant is proposing for a 41,874 sq. ft. of screened outdoor storage, a 5,000 sq.ft. building to be constructed for the purposes of office space and tow truck parking. There is no anticipated date of construction for the future 5,000 sq. ft.

building. The office will be a small converted camping trailer that will serve as a point of contact for customers. The portion of the site dedicated for business used will be a graveled surface. The driveway leading onto the property is gravel and will be replaced with recycled asphalt in the future. The applicant is proposing to construct a security gate at the WCR 51 entrance.

Surrounding land uses to the property are Rural to the North and Northeast, East, South and West. Each of these parcels are large in size with the smallest being approximately 2 AC in size located direct southeast of the property.

This business will operate with one full time employee from the hours of 7am-5pm Monday-Friday. The employee will live onsite in the existing residence. The business will be on call 24 hours a day, 7 days a week.

Traffic is typically 4-6 per day from towing operations and 2-4 per day for customers. These numbers are an average estimate of traffic on the site.

The applicant has indicated that the site is adequately landscaped with existing trees and vegetation as shown on the site plan. It is staff's opinion that the existing vegetation is adequate for this proposed use.

Under section 16-2-140 of the Town of Keenesburg municipal code, light industrial zoning is purposed to provide land areas to be used primarily for research and development, mini warehousing, small product assembly and manufacturing and other service, distribution and industrial uses that are relatively nonpolluting and have few off-site impacts as a result of the operations on-site. The applicant is requesting for a Special Use Permit to allow for the continued use of the residence in association with light industrial uses as listed in the project description.

Referral comments were received by the Town Engineer and have been attached to this report.

VIII. Findings/Conclusions

After review of the Comprehensive Plan, Municipal Code, and referral comments staff finds that:

1. This property is in compliance with the Comprehensive Plan and has been designated as an industrial area on the future land use map. The property is currently zoned (LI) Light Industrial.

2. Auto Towing and Recovery confirms to the basic characteristics of the allowed usages of Light Industrial under the Town of Keenesburg Code.

3. The USR request complies with the Town of Keenesburg Code under 16-6-60.2.b. stating that commercial, businesses and industrial offices are permitted in the Light Industrial (LI) zoning designation.

IX. Recommendation

Based upon the findings identified in this report, staff recommends approval of the Oliver Special Use Permit with the following recommendations:

1. The applicant shall adequately address the comments of the Town Engineer.

2. The applicant shall adequately address any staff and/or referral comments received.

3. The USR map shall be amended to show the proposed gate located as to allow for a vehicle to pull into the access drive without encroaching into CR 51.

4. The proposed screening fence shall be completed.

5. The following notes shall be placed on the USR map:

   A. The site shall maintain compliance with the Weld County Health Department.

   B. Dead and/or dying trees and shrubs shall be removed from the property. Landscaping shall be maintained and replaced as necessary.

   C. The site shall maintain compliance with the Division of Water Resources requirements concerning the well.

   D. The site shall maintain compliance with Southeast Weld County Fire Department requirements.

   E. The uses of the proposed office and storage building shall be consistent with the uses as described in the USR permit submittal.

   F. Building permits shall be required to be submitted prior to the construction and/or placement of the future storage building and the office building.

6. The applicant shall address any redlines provided by staff for the USR map.

7. Prior to submitting the mylar of the USR map, the applicant shall provide a pdf for staff review.

TOWN OF KEENESBURG
140 S. MAIN ST.
P.O. BOX 312
KEENESBURG, CO 80643
303-732-4281

APPLICATION FOR SPECIAL USE PERMIT
Application Fee $500.00

A preapplication conference and site visit may be required prior to submitting the Special Use Permit Application. The applicant may meet with representatives from the Planning Department to discuss the applicant's intended submittal, the Town's application requirements and processes and other information relevant to the proposed application.
Please contact the Town Clerk 303-732-4281

Applicant should provide the following:

1. Plat of area with proposed zoning with vicinity map identifying site and surrounding area. If you are constructing a new building or adding to an existing building as part of this application, you must also submit a plot plan, construction plans, and a drainage plan. Approval of the special use permit will be based upon the drawings submitted unless changes are recommended by the engineer, planning commission, or Town Council.
2. Information as requested. Please refer to attached checklist.

The applicant is responsible for the following:

1. Mailing of public hearing notice 15 days prior to hearing
2. Posting a hearing notice on the property 10 days prior to the hearing.

Name of Property Owner: KATHARINE OLIVER Phone: 303-772-9633

Address: 1738 EDGEWATER PL LONGMONT, CO. 80504

Applicant (if different from owner): _____

Address: _____

Home Phone: _____ Cell Phone: _____

Address or location of Property for which Special Use Permit is being requested:

8053 CR 51 KEENESBURG, CO. 80643

Legal Description PART OF THE E. 1/2 OF THE SE 1/4 SEC. 19-2-64 LOT A OF COUR RE-2907

Current Zoning AG (A)

Reason for Request:

PLEASE SEE ATTACHED PROJECT DESCRIPTION.

Please answer the following questions in detail.

1. What is the proposed use?

2. How will the proposed use impact the surrounding properties as it relates to the following areas:

Noise

Dust

Odor

Safety

Traffic

Light

3. What are the proposed hours of operation?

4. Are you required to obtain any special licenses or permits through any other government agency? If yes, what types of licenses and permits are required?

5. If this application is for a daycare, how many children will you be caring for?

6. If this application is for an assisted living facility, how many units will you have in the facility?

The applicant hereby certifies that the above information, along with the attached plans and project descriptions, is correct. The applicant agrees to comply with the provisions of the zoning ordinances, building code and all other applicable sections of the Town Code, Land Use Code, and Comprehensive Plan and all other laws and ordinances affecting the construction and occupancy of the proposed building.

Signatures Katherine H. Oliver Date: 12/13/19

Submittal requirements

(1) Completed land use application.

(2) Application fees and fee deposits with signed fee agreement.

(3) A detailed written description of the proposal, including acreage or square footage of the property, hours of operation, number of employees, number of patrons or customers, members, buyers or visitors, existing zone district and existing land uses adjacent to the property.

(4) Proof of ownership acceptable to the Town Clerk or Town Attorney.

(5) A list of property owners within three hundred (300) feet of the property. (provided by staff)

(6) Copies of any applicable state or federal permits for the proposed use.

(7) Written certification that notice as required by Section 24-65.5-103.3, C.R.S., has been provided. Such certification may be submitted on the date of the initial public hearing referred to in Section 24-65.5-103(1), C.R.S.

(8) Copy of any surface use agreement with mineral interest owners of the property.

(9) Traffic study. Requirement TBD at pre-application meeting.

(10) Drainage study. Requirement TBD at pre-application meeting.

(11) Soils report. Requirement TBD at pre-application meeting.

(12) Noise report. Requirement TBD at pre-application meeting.

(13) Use by special review and landscape plan maps. Plans shall show existing and proposed buildings, parking, landscape elements, lighting, drainage elements, utilities, public rights-of-way and any other information deemed necessary by Town staff. Plans shall include a vicinity map at an appropriate scale to show surrounding area.

(14) Such additional information that may be reasonably required by Town staff.

(f) Recording. After conditions are met, the Town Clerk shall have the approved use by special review map recorded with the County Clerk and Recorder's office.

(g) Changes to use by special review. No changes may be made in an approved use by special review unless an amendment is approved by the Town. An amendment shall follow the same procedures as set forth herein for approval, except that the Town Planner may authorize minor changes that are generally consistent with the purpose and content of the use by special review application as heard by the Planning Commission and Board of Trustees. The Town Planner shall advise the Planning Commission and Board of Trustees by written memorandum of any administratively approved amendment or modification to a use by special review.

(h) Operation and monitoring. The Town may establish and carry out procedures as are reasonably necessary to ensure compliance with the conditions of approval of use by special review permits.

(i) Revocation. Upon receipt of evidence that conditions of a use by special review have not been met or operation of the property is not consistent with the approved uses, after providing the property owner with notice and following public hearings held before the Planning Commission and Board of Trustees, the use by special review may revoked, suspended or modified. (Ord. 5-00, 2000, §3; Ord. 2007-06, 2007, §2; Ord. 2012-04, 2012, §§33, 34)

PROJECT DESCRIPTION FOR THE PROPOSED OLIVER SPECIAL USE PERMIT, TOWN OF KEENESBURG, WELD COUNTY, COLORADO

Property Description:
Lot A of Corrected Recorded Exemption No. 1305-19-4 RE-2907, recorded August 30, 2002 at Reception No. 2982966, records of Weld County, CO, being a portion of the East Half of the Southeast Quarter of Section 19, Township 2 North, Range 64 West of the 6th P.M., County of Weld, State of Colorado

Weld County Parcel No: 130519000024

Property Address: 8053 CR 51, Keenesburg, CO 80643

Property Owner / Applicant:
Katharine Oliver
1738 Edgewater Place, Longmont, CO 80504

Existing Zoning: Light Industrial (LI), Keenesburg, CO

PROJECT DESCRIPTION:

This application request is for a Special Use Permit. The subject property contains approximately 3.65 acres and is currently zoned Light Industrial (LI) (Town of Keenesburg). The site contains an existing house and a 4,478 square foot shop. The property owner's Grandson lives on the property and is currently operating a vehicle towing and recovery business on site. Through the special use permit process, the owner is attempting to bring the property/use into Town compliance.

The proposed use of the site will be for a vehicle towing and recovery business. This business serves Southern Weld County, surrounding communities, and local law enforcement/emergency services. A screened outside storage area, a mobile office and a long-range future 5,000± square foot shop are proposed for the site. The mobile office will be a small converted camper trailer. The office will not have a full-time employee present. It will be used for a point of contact for individuals to view/pick-up various vehicles. The intent is to keep people from approaching the residence for business purposes. A small parking area is designated near the office for visitor parking. The outside storage area will consist of approximately 41,874 square feet and will be fenced and screened. It will be used to stage towed vehicles waiting for transport or pick-up. A 5,000 square foot shop is proposed for the future with no construction date in mind. The proposed 5,000 square foot shop is intended for office space and tow truck parking. The proposed 5,000 square foot shop is not intended for storage for impounded or wrecked vehicles. The existing metal building is intended for the storage of impounded or wrecked vehicles. The portion of the site to be used for the business will be a graveled surface. The driveway will initially be gravel with recycled asphalt planned in the future. A security gate is proposed at the entrance of the site which accesses WCR 51 along the East side of the property.

Existing land uses adjacent to the site are farming to the West, North and Northwest. Single Family Residence and farming are to the East, South and Southeast.

The owner is requesting that no landscaping be proposed for this Special Use Permit. The site contains many trees (see site plan) and is naturally well screened from adjacent residential properties.

Impacts to the surrounding properties will be negligible with the uses proposed for this site. Noise will be limited to basically vehicle operation. There will be no consistent noise throughout the day as the site will only be accessed a few times a day. It will have far less of an impact than the surrounding farming operations.

Dust will be very minor due to the fact of infrequent use and graveled drive/storage areas.

There will be no odor associated with the proposed use.

Safety to surrounding properties will not be an issue with this proposal. All activities are conducted on site and have no chance of affecting adjacent properties.

Traffic to and from the site will be very minor and sporadic from day to day. On a busy day, approximately 4 to 6 trips per day will be generated as a result of the towing operation. An additional 2 to 4 trips will be generated by individuals to view/pick-up various vehicles such as insurance companies, law enforcement and/or vehicle owners. Again, these numbers are based on a busy day and typically will be less than this on a day to day basis. Due to the limited traffic impact, the owner requests that the traffic study be waived for this proposal.

Drainage for the site generally flows to the Northwest corner of the property (see site plan for flow direction). Attached is a Drainage Memorandum prepared by Wohnrade Civil Engineers.

No outdoor lighting is proposed with this Special Use Permit. If business operation is conducted in the evening hours, the business truck has "Scene Lighting". This method will be used if light is needed.

The business will contain 1 full time employee (owner/operator). The hours of business operation will be 7:00 a.m. to 5:00 p.m., Monday through Friday. The business will be on call 7 days a week, 24 hours a day as towing services are needed.

All special licenses and permits are in place and possessed by the owner/operator for this business.

The owner/applicant is not aware of any surface use agreements associated with the property.

HAZARDS / ENVIRONMENTAL CONDITIONS / FLOODPLAIN:
There are no known hazards or environmental conditions that would prevent the site from being used in the manner proposed.

SOILS INFORMATION:

Weld County, Colorado, Southern Part
15—Colby loam, 1 to 3 percent slopes

Properties and qualities

- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- Runoff class: Low
- Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Available water storage in profile: High (about 10.6 inches)

Weld County, Colorado, Southern Part
79—Weld loam, 1 to 3 percent slopes

Properties and qualities

- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- Runoff class: Medium
- Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Available water storage in profile: High (about 11.3 inches)

Thank you for your consideration regarding the attached land use application. If you should have any questions and/or need additional information, please do not hesitate to contact us.

Steve Stencel
Intermill Land Surveying, Inc
(970) 669-0516

Wohnrade
Civil Engineers

Memorandum

11582 Colony Row
Broomfield, Colorado 80021
Phone:720-259-0965
Fax: 720-259-1519

Date: June 30, 2020

To: Mr. Kent Bruxvoort, P.E.
Professional Engineering Consultants

From: Mary Wohnrade, P.E., Wohnrade Civil Engineers, Inc.

Subject: Oliver Property Special Use Review

We have reviewed your comments dated January 6, 2020, and offer the following responses.

1. The property owner has removed the proposed lighting in the commercial storage area.
2. The proposed fence will be set along the north property line, and along the right-of-way of County Road 51, with no setbacks. The proposed 20-foot setback from the future building to the WCR 51 right-of-way has been noted on the Drainage Plan.
3. The proposed Site Plan includes the addition of a gravel visitor parking area, and gravel surface within the limits of the proposed storage area which will be screened with 6-foot high chain link fencing with privacy slats. The Site Plan also includes a 5,000 sf metal building, which would be constructed at some point in the future.

The following describes storm drainage patterns and calculations, and erosion control measures to be implemented as part of this project.

Site Drainage Patterns

Two existing concrete-lined irrigation ditches are located immediately adjacent to the property on the north and west. Best Management Practices (BMPs) and temporary erosion control measures will be employed to mitigate any potential impact to the adjacent irrigation ditches.

Erosion and Sediment Transport Mitigation Measures

Potential erosion due to the increase in stormwater runoff from the gravel storage area and future building, will be mitigated through the use of a grass buffer strip, using design criteria established by the Mile-High Flood District. The 10-foot wide Grass Buffer will serve as a treatment BMP to mitigate erosion and sediment transport from the developed site to the adjacent irrigation ditches.

Sediment control logs (SCL) will be used as a temporary measure to control sediment transport, and protect the adjacent irrigation ditches, until vegetation has been established within the grass buffer strip.

Stormwater Runoff Calculations

Stormwater runoff coefficient calculations based on the Rational Method have been employed to estimate the pre-project and post-project runoff coefficients from the existing 3.65-acre property. The 100-yr pre and post-project coefficients are 0.47 and 0.52 respectively. The increase in the 100-yr site imperviousness is 10.6%. See attached coefficient calculations.

Runoff Coefficient Calculations

Wohnrade Civil Engineers

Pre-Project Condition, Basin 1

NRCS Soil Type B

Surface Characteristics	Streets: Paved	Streets: Gravel	Concrete Drives & Walks	Roofs	Lawns: Sandy Soil	Imperviousness
Area (acres)	0.000	0.186	0.031	0.183	3.250	0.0910
Percent Imperviousness	100	40	90	90	2	
Total Area (acres)	3.650					

Runoff coefficient equations taken from Table 6-4 of the Urban Storm Drainage Criteria Manual, Volume 1, Chapter 2, Section 2.5.1

NRCS Soil Type	Storm Return Period						
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year
A	0.04	0.04	0.05	0.06	0.10	0.18	0.31
B	0.05	0.06	0.13	0.31	0.38	0.47	0.57
C/D	0.06	0.11	0.20	0.37	0.44	0.52	0.62

Runoff Coefficient Calculations

Wohnrade Civil Engineers

Post-Project Condition, Basin 1

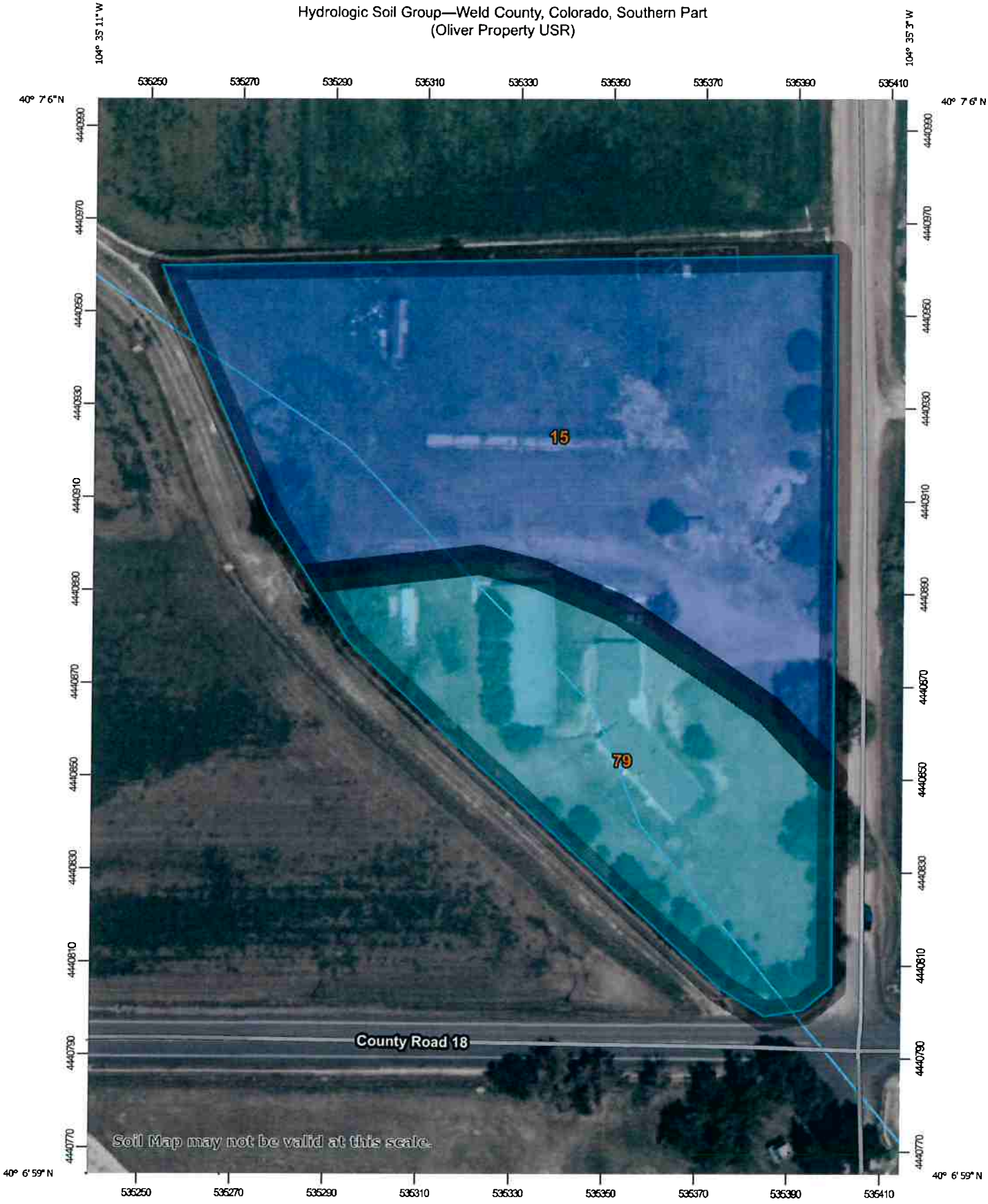
NRCS Soil Type B

Surface Characteristics	Streets: Paved	Streets: Gravel	Concrete Drives & Walks	Roofs	Lawns: Sandy Soil	Imperviousness
Area (acres)	0.000	0.985	0.031	0.298	2.336	0.2019
Percent Imperviousness	100	40	90	90	2	
Total Area (acres)	3.650					

Runoff coefficient equations taken from Table 6-4 of the Urban Storm Drainage Criteria Manual, Volume 1, Chapter 2, Section 2.5.1

NRCS Soil Type	Storm Return Period						
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year
A	0.10	0.11	0.12	0.14	0.20	0.27	0.39
B	0.13	0.15	0.22	0.38	0.44	0.52	0.61
C/D	0.14	0.20	0.28	0.43	0.49	0.57	0.65

Hydrologic Soil Group—Weld County, Colorado, Southern Part
(Oliver Property USR)



Map Scale: 1:1,130 if printed on A portrait (8.5" x 11") sheet.

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Weld County, Colorado, Southern Part
Survey Area Data: Version 18, Sep 13, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 19, 2018—Aug 10, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
15	Colby loam, 1 to 3 percent slopes	B	2.5	65.0%
79	Weld loam, 1 to 3 percent slopes	C	1.3	35.0%
Totals for Area of Interest			**3.8**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Table 6-3. Recommended percentage imperviousness values

Land Use or Surface Characteristics	Percentage Imperviousness (%)
Business:	
Downtown Areas	95
Suburban Areas	75
Residential lots (lot area only)**:**	
Single-family	
2.5 acres or larger	12
0.75 – 2.5 acres	20
0.25 – 0.75 acres	30
0.25 acres or less	45
Apartments	75
Industrial:	
Light areas	80
Heavy areas	90
Parks, cemeteries	10
Playgrounds	25
Schools	55
Railroad yard areas	50
Undeveloped Areas:	
Historic flow analysis	2
Greenbelts, agricultural	2
Off-site flow analysis (when land use not defined)	45
Streets:	
Paved	100
Gravel (packed)	40
Drive and walks	90
Roofs	90
Lawns, sandy soil	2
Lawns, clayey soil	2

Grass Buffer T-1

Description

Grass buffers are densely vegetated strips of grass designed to accept sheet flow from upgradient development. Properly designed grass buffers play a key role in LID, enabling infiltration and slowing runoff. Grass buffers provide filtration (straining) of sediment. Buffers differ from swales in that they are designed to accommodate overland sheet flow rather than concentrated or channelized flow.

Photograph GB-1. A flush curb allows roadway runoff to sheet flow through the grass buffer. Flows are then further treated by the grass swale. Photo courtesy of Muller Engineering.

Site Selection

Grass buffers can be incorporated into a wide range of development settings. Runoff can be directly accepted from a parking lot, roadway, or the roof of a structure, provided the flow is distributed in a uniform manner over the width of the buffer. This can be achieved through the use of flush curbs, slotted curbs, or level spreaders where needed. Grass buffers are often used in conjunction with grass swales. They are well suited for use in riparian zones to assist in stabilizing channel banks adjacent to major drainageways and receiving waters. These areas can also sometimes serve multiple functions such as recreation.

Hydrologic Soil Groups (HSG) A and B provide the best infiltration capacity for grass buffers. For Type C and D soils, buffers still serve to provide filtration (straining) although infiltration rates are lower. Refer to Fact Sheet T-0 to quantify volume reduction in grass buffers and understand how HSG effects reduction.

Grass Buffer	
Functions	
LID/Volume Red.	Yes
WQCV Capture	No
WQCV+Flood Control	No
Fact Sheet Includes EURV Guidance	No
Typical Effectiveness for Targeted Pollutants[3]	
Sediment/Solids	Good
Nutrients	Moderate
Total Metals	Good
Bacteria	Poor
Other Considerations	
Life-cycle Costs	Low

[3] Based primarily on data from the International Stormwater BMP Database (www.bmpdatabase.org).

Designing for Maintenance

Recommended ongoing maintenance practices for all BMPs are provided in Chapter 6 of this manual. During design the following should be considered to ensure ease of maintenance over the long-term:

- Where appropriate (where vehicle safety would not be impacted), install the top of the buffer 1 to 3 inches below the adjacent pavement so that growth of vegetation and accumulation of sediment at the edge of the strip does not prevent runoff from entering the buffer. Alternatively, a sloped edge can be used adjacent to vehicular traffic areas.
- Amend soils to encourage deep roots and reduce irrigation requirements, as well as promote infiltration.

- Design and adjust the irrigation system (temporary or permanent) to provide water in amounts appropriate for the selected vegetation. Irrigation needs will change from month to month and year to year.

- Protect the grass buffer from vehicular traffic when using this BMP adjacent to roadways. This can be done with a slotted curb (or other type of barrier) or by constructing a reinforced grass shoulder (see Fact Sheet T-10.5).

Design Procedure and Criteria

The following steps outline the grass buffer design procedure and criteria. Figure GB-1 is a schematic of the facility and its components:

1. **Design Discharge**: Use the hydrologic procedures described in the *Runoff* chapter of Volume 1 to determine the 2-year peak flow rate (Q_2) of the area draining to the grass buffer.

2. **Minimum Width:** The width (W), normal to flow of the buffer, is typically the same as the contributing basin (see Figure GB-1). An exception to this is where flows become concentrated. Concentrated flows require a level spreader to distribute flows evenly across the width of the buffer. The minimum width should be:

$$W = \frac{Q_2}{0.05} \qquad \text{Equation GB-1}$$

Where:

W = width of buffer (ft)

Q_2 = 2-year peak runoff (cfs)

3. **Length:** The recommended length (L), the distance along the sheet flow direction, should be a minimum of 14 feet. This value is based on the findings of Barrett et al. 2004 in *Stormwater Pollutant Removal in Roadside Vegetated Strips* and is appropriate for buffers with greater than 80% vegetative cover and slopes up to 10%. The study found that pollutant removal continues throughout a length of 14 feet. Beyond this length, a point of diminishing returns in pollutant reduction was found. It is important to note that shorter lengths or slightly steeper slopes will also provide some level of removal where site constraints dictate the geometry of the buffer.

Benefits

- Filters (strains) sediment and trash.
- Reduces directly connected impervious area. (See Chapter 3 for quantifying benefits.)
- Can easily be incorporated into a treatment train approach.
- Provides green space available for multiple uses including recreation and snow storage.
- Straightforward maintenance requirements when the buffer is protected from vehicular traffic.

Limitations

- Frequently damaged by vehicles when adjacent to roadways and unprotected.
- A thick vegetative cover is needed for grass buffers to be effective.
- Nutrient removal in grass buffers is typically low.
- High loadings of coarse solids, trash, and debris require pretreatment.
- Space for grass buffers may not be available in ultra urban areas (lot-line-to-lot-line).

4. **Buffer Slope:** The design slope of a grass buffer in the direction of flow should not exceed 10%. Generally, a minimum slope of 2% or more in turf is adequate to facilitate positive drainage. For slopes less than 2%, consider including an underdrain system to mitigate nuisance drainage.

5. **Flow Characteristics (sheet or concentrated):** Concentrated flows can occur when the width of the watershed differs from that of the grass buffer. Additionally, when the product of the watershed flow length and the interface slope (the slope of the watershed normal to flow at the grass buffer) exceeds approximately one, flows may become concentrated. Use the following equations to determine flow characteristics:

Use of Grass Buffers

Sheet flow of stormwater through a grassed area provides some benefit in pollutant removal and volume reduction even when the geometry of the BMP does not meet the criteria provided in this Fact Sheet. These criteria provide a design procedure that should be used when possible; however, when site constraints are limiting, this treatment concept is still encouraged.

Sheet Flow: $FL(SI) \leq 2$ Equation GB-2

Concentrated Flow: $FL(SI) > 2$ Equation GB-3

Where:

FL = watershed flow length (ft)

SI = interface slope (normal to flow) (ft/ft)

6. **Flow Distribution:** Flows delivered to a grass buffer must be sheet flows. Slotted or flush curbing, permeable pavements, or other devices can be used to spread flows. The grass buffer should have relatively consistent slopes to avoid concentrating flows within the buffer.

A level spreader should be used when flows are concentrated. A level spreader can be a slotted drain designed to discharge flow through the slot as shown in Photo GB-2. It could be an exfiltration trench filled with gravel, which allows water to infiltrate prior to discharging over a level concrete or rock curb. There are many ways to design and construct a level spreader. They can also be used in series when the length of the buffer allows flows to re-concentrate. See Figure GB-2 for various level spreader sections.

Photograph GB-2. This level spreader carries concentrated flows into a slotted pipe encased in concrete to distribute flows evenly to the grass buffer shown left in the photo. Photo courtesy of Bill Wenk.

Photos GB-3 and GB-4 show a level spreader that includes a basin for sedimentation. Concentrated flows enter the basin via stormsewer. The basin is designed to drain slowly while overflow is spread evenly to the downstream vegetation. A small notch, orifice, or pipe can be used to drain the level spreader completely. The opening should be small to encourage frequent flows to overtop the level spreader but not so small that it is frequently clogged.

Photograph GB-3. This level spreader includes the added benefit of a sedimentation basin prior to even distribution of concentrated flows from the roadway into the grass buffer. Photo courtesy of Bill Wenk.

7. **Soil Preparation**: In order to encourage establishment and long-term health of the selected vegetation, it is essential that soil conditions be properly prepared prior to installation. Following site grading, poor soil conditions often exist. When possible, remove, strip, stockpile, and reuse on-site topsoil. If the site does not contain topsoil, the soils should be amended prior to vegetation. Typically 3 to 5 cubic yards of soil amendment (compost) per 1,000 square feet, tilled 6 inches into the soil is required in order for vegetation to thrive, as well as to enable infiltration of runoff. Additionally, inexpensive soil tests can be conducted to determine required soil amendments. (Some local governments may also require proof of soil amendment in landscaped areas for water conservation reasons.)

Photograph GB-4. Maintenance access is provided via the ramp located at the end of the basin. Photo courtesy of Bill Wenk.

8. **Vegetation:** This is the most critical component for treatment within a grass buffer. Select durable, dense, and drought tolerant grasses to vegetate the buffer. Also consider the size of the watershed as larger watersheds will experience more frequent flows. The goal is to provide a dense mat of vegetative cover. Grass buffer performance falls off rapidly as the vegetation coverage declines below 80% (Barrett et al.2004).

Turf grasses such as Kentucky bluegrass are often selected due to these qualities[1]. Dense native turf grasses may also be selected where a more natural look is desirable. Once established, these provide the benefit of lower irrigation requirements. See the *Revegetation* chapter in Volume 2 of this manual with regard to seed mix selection, planting and ground preparation. Depending on soils and anticipated flows, consider erosion control measures until vegetation has been established.

9. **Irrigation**: Grass buffers should be equipped with irrigation systems to promote establishment and survival in Colorado's semi-arid environment. Systems may be temporary or permanent, depending on the type of vegetation selected. Irrigation application rates and schedules should be developed and adjusted throughout the establishment and growing season to meet the needs of the selected plant species. Initially, native grasses require the same irrigation requirements as bluegrass. After the grass is established, irrigation requirements for native grasses can be reduced. Irrigation practices have a significant effect on the function of the grass buffer. Overwatering decreases the permeability of the soil, reducing the infiltration capacity and contributing to nuisance baseflows. Conversely, under watering may result in delays in establishment of the vegetation in the short term and unhealthy vegetation that provides less filtering and increased susceptibility to erosion and rilling over the long term.

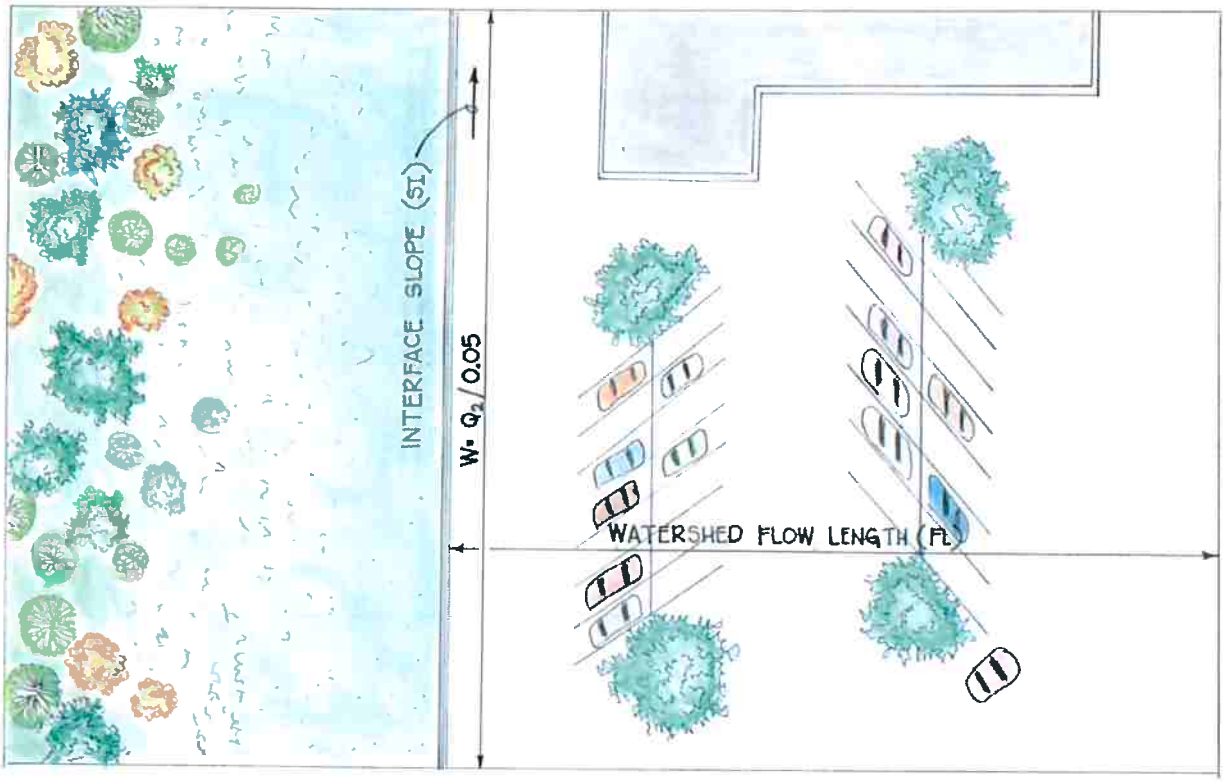
10. **Outflow Collection**: Provide a means for downstream conveyance. A grass swale can be used for this purpose, providing additional LID benefits.

Construction Considerations

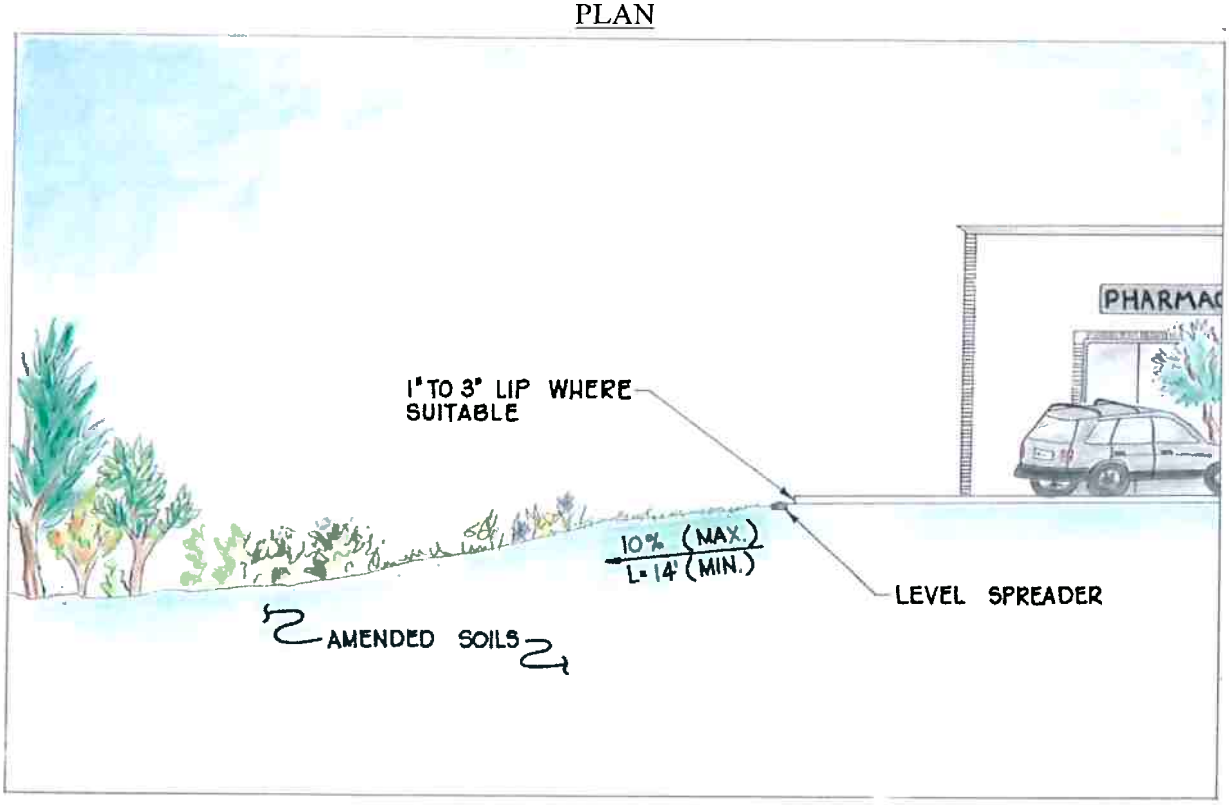
Success of grass buffers depends not only on a good design and long-term maintenance, but also on installing the facility in a manner that enables the BMP to function as designed. Construction considerations include:

- The final grade of the buffer is critical. Oftentimes, following soil amendment and placement of sod, the final grade is too high to accept sheet flow. The buffer should be inspected prior to placement of seed or sod to ensure appropriate grading.
- Perform soil amending, fine grading, and seeding only after tributary areas have been stabilized and utility work crossing the buffer has been completed.
- When using sod tiles stagger the ends of the tiles to prevent the formation of channels along the joints. Use a roller on the sod to ensure there are no air pockets between the sod and soil.
- Avoid over compaction of soils in the buffer area during construction to preserve infiltration capacities.
- Erosion and sediment control measures on upgradient disturbed areas must be maintained to prevent excessive sediment loading to grass buffer.

[1] Although Kentucky bluegrass has relatively high irrigation requirements to maintain a lush, green aesthetic, it also withstands drought conditions by going dormant. Over-irrigation of Kentucky bluegrass is a common problem along the Colorado Front Range, and it can be healthy, although less lush, with much less irrigation than is typically applied.



PLAN



PROFILE

Figure GB-1. Typical Grass Buffer Graphic by Adia Davis.

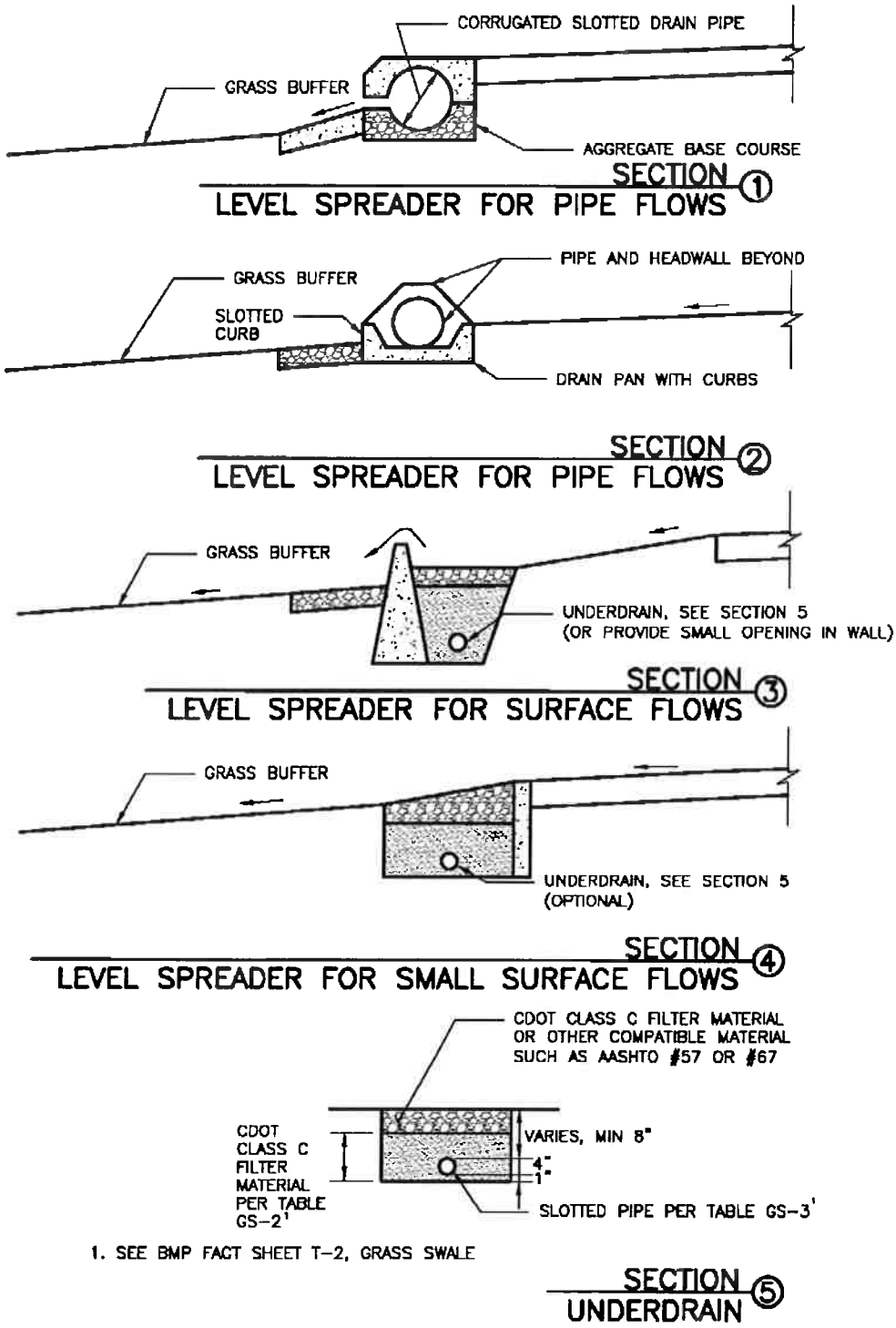


Figure GB-2. Typical Level Spreader Details

Design Example

The *UD-BMP* workbook, designed as a tool for both designer and reviewing agency is available at www.udfcd.org. This section provides a completed design form from this workbook as an example.

Design Procedure Form: Grass Buffer (GB)

Sheet 1 of 1

Designer:	R. Dunn
Company:	BMP, Inc.
Date:	November 24, 2010
Project:	Filing 37
Location:	NE Corner of 34th Ave. and 105th St., north entrance road

1. Design Discharge A) 2-Year Peak Flow Rate of the Area Draining to the Grass Buffer	Q_2 = 5.0 cfs
2. Minimum Width of Grass Buffer	W_G = 100 ft
3. Length of Grass Buffer (14' or greater recommended)	L_G = 15 ft
4. Buffer Slope (in the direction of flow, not to exceed 0.1 ft / ft)	S_G = 0.100 ft / ft
5. Flow Characteristics (sheet or concentrated) A) Does runoff flow into the grass buffer across the entire width of the buffer?	Choose One: (●) Yes ( ) No
B) Watershed Flow Length	F_L = 20 ft
C) Interface Slope (normal to flow)	S_I = 0.020 ft / ft
D) Type of Flow Sheet Flow: $F_L * S_I \leq 1$ Concentrated Flow: $F_L * S_I > 1$	SHEET FLOW
6. Flow Distribution for Concentrated Flows	Choose One: (●) None (sheet flow) ( ) Slotted Curbing ( ) Level Spreader ( ) Other (Explain):
7 Soil Preparation (Describe soil amendment)	Till 5 CY of compost per 1000 SF to a depth of 6 inches.
8 Vegetation (Check the type used or describe "Other")	Choose One: ( ) Existing Xeric Turf Grass (●) Irrigated Turf Grass ( ) Other (Explain):
9. Irrigation (*Select None if existing buffer area has 80% vegetation AND will not be disturbed during construction.)	Choose One: (●) Temporary ( ) Permanent ( ) None*
10. Outflow Collection (Check the type used or describe "Other")	Choose One: (●) Grass Swale ( ) Street Gutter ( ) Storm Sewer Inlet ( ) Other (Explain):
Notes:	

References

Barrett, M., Lantin, A. and S. Austrheim-Smith. 2004. *Stormwater Pollutant Removal in Roadside Vegetated Buffer Strips.* Prepared for the Transportation Research Board: Washington, DC.

California Stormwater Quality Association (CASQA). 2003. *California Stormwater BMP Handbook, Vegetated Buffer Strip.*

Sediment Control Log (SCL) SC-2

Description

A sediment control log is a linear roll made of natural materials such as straw, coconut fiber, or other fibrous material trenched into the ground and held with a wooden stake. Sediment control logs are also often referred to as "straw wattles." They are used as a sediment barrier to intercept sheet flow runoff from disturbed areas.

Photographs SCL-1 and SCL-2. Sediment control logs used as 1) a perimeter control around a soil stockpile; and, 2) as a "J-hook" perimeter control at the corner of a construction site.

Appropriate Uses

Sediment control logs can be used in the following applications to trap sediment:

- As perimeter control for stockpiles and the site.
- As part of inlet protection designs.
- As check dams in small drainage ditches. (Sediment control logs are not intended for use in channels with high flow velocities.)
- On disturbed slopes to shorten flow lengths (as an erosion control).
- As part of multi-layered perimeter control along a receiving water such as a stream, pond or wetland.

Sediment control logs work well in combination with other layers of erosion and sediment controls.

Design and Installation

Sediment control logs should be installed along the contour to avoid concentrating flows. The maximum allowable tributary drainage area per 100 lineal feet of sediment control log, installed along the contour, is approximately 0.25 acres with a disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. Longer and steeper slopes require additional measures. This recommendation only applies to sediment control logs installed along the contour. When installed for other uses, such as perimeter control, it should be installed in a way that will not produce concentrated flows. For example, a "J-hook" installation may be appropriate to force runoff to pond and evaporate or infiltrate in multiple areas rather than concentrate and cause erosive conditions parallel to the BMP.

Sediment Control Log	
Functions	
Erosion Control	Moderate
Sediment Control	Yes
Site/Material Management	No

Although sediment control logs initially allow runoff to flow through the BMP, they can quickly become a barrier and should be installed is if they are impermeable.

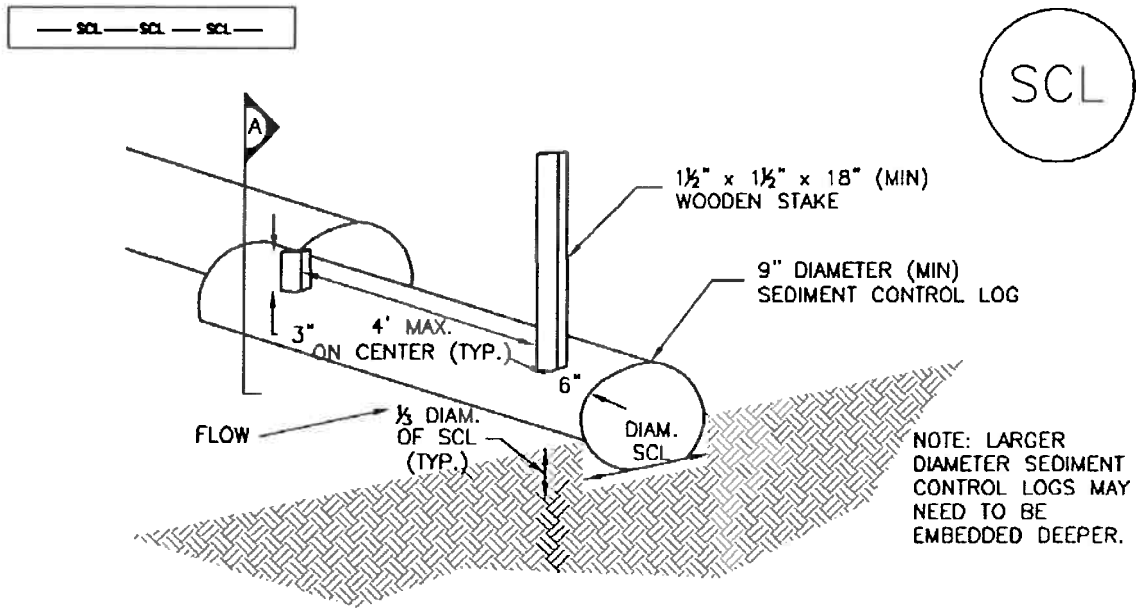
Design details and notes for sediment control logs are provided in Detail SCL-1. Sediment logs must be properly trenched and staked into the ground to prevent undercutting, bypassing and displacement. When installed on slopes, sediment control logs should be installed along the contours (i.e., perpendicular to flow).

Improper installation can lead to poor performance. Be sure that sediment control logs are properly trenched, anchored and tightly jointed.

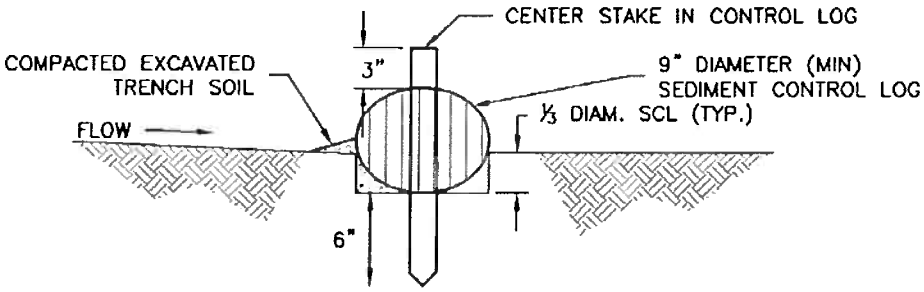
Maintenance and Removal

Be aware that sediment control logs will eventually degrade. Remove accumulated sediment before the depth is one-half the height of the sediment log and repair damage to the sediment log, typically by replacing the damaged section.

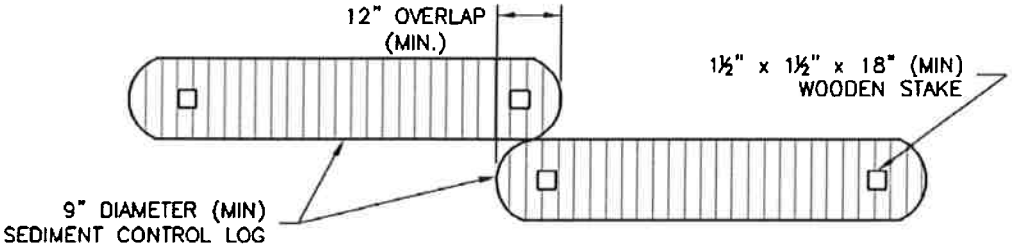
Once the upstream area is stabilized, remove and properly dispose of the logs. Areas disturbed beneath the logs may need to be seeded and mulched. Sediment control logs that are biodegradable may occasionally be left in place (e.g., when logs are used in conjunction with erosion control blankets as permanent slope breaks). However, removal of sediment control logs after final stabilization is typically recommended when used in perimeter control, inlet protection and check dam applications.



SEDIMENT CONTROL LOG

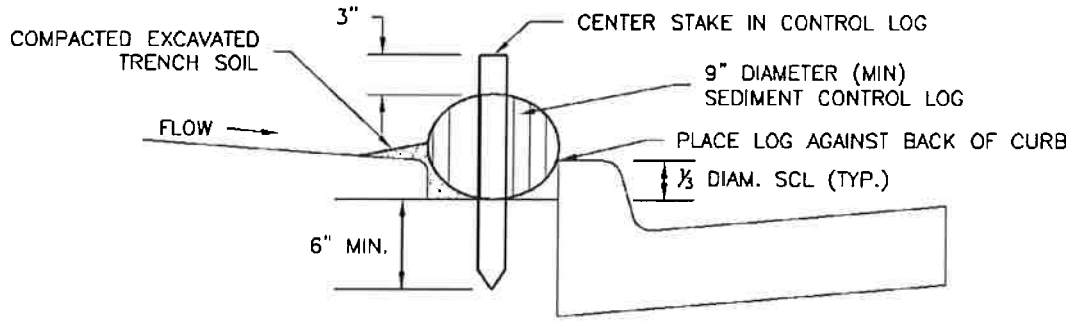


SECTION A

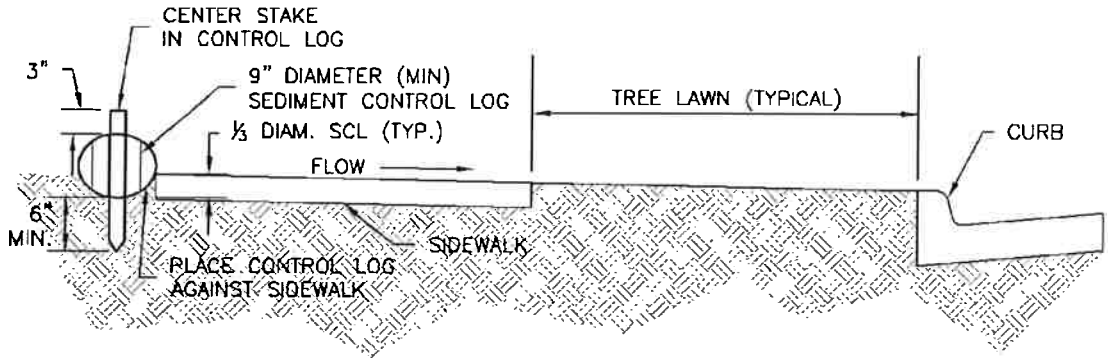


SEDIMENT CONTROL LOG JOINTS

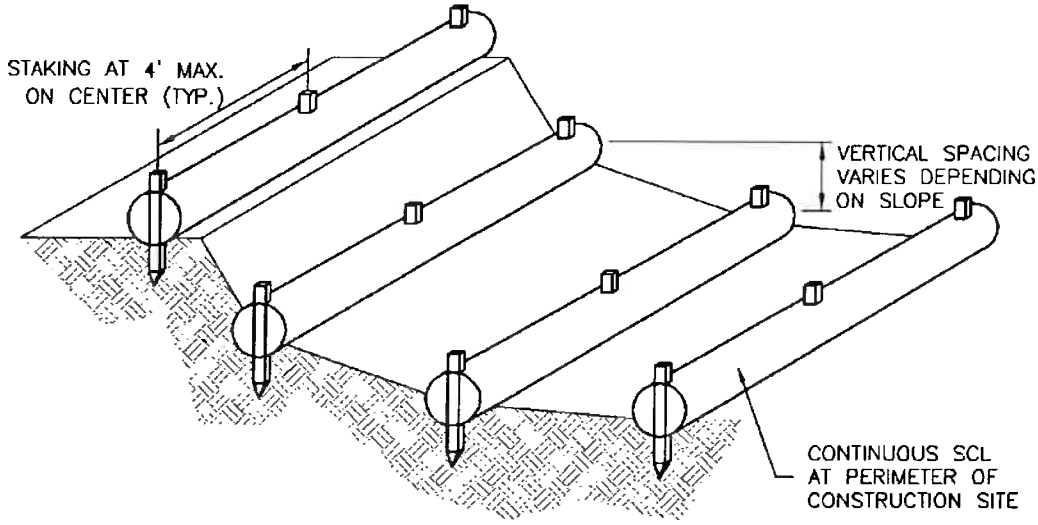
SCL-1. SEDIMENT CONTROL LOG



SCL-2. SEDIMENT CONTROL LOG AT BACK OF CURB



SCL-3. SEDIMENT CONTROL LOG AT SIDEWALK WITH TREE LAWN



SCL-4. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.

2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.

3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.

4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.

5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY ⅓ OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING

6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.

7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.

5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

INSTALL 426 LF OF 10'W GRASS BUFFER (LIMITS SHOWN HATCHED)

INSTALL 426 LF OF TEMPORARY 9" DIA. SEDIMENT CONTROL LOG (SCL) TO REMAIN IN PLACE UNTIL PERMANENT VEGETATION IS ESTABLISHED

Everett R Spears
Parcel No. 130519000025
(Existing Zoning: AG) (Weld County)
(Use: Farming/Residential)

PROPERTY BOUNDARY

N89°14'51"E 471.07'

Fence with Privacy Slats

N32°45'09"W 42.11'

EXISTING CONCRETE-LINED IRRIGATION DITCH

GB

SCL

12" Tree

PROPOSED GRAVEL SURFACE

(2) 3" Trees

Proposed Future Shop

50.0'

100.0'

Proposed Wood Chicken Coop (As Relocated)

N24°14'00"W 167.81'

Proposed Gate

Proposed Chain-Link Fence with Privacy Slats

PROPOSED DEVELOPED AREA DEFINED BY PERIMETER FENCING

Spigot

Elec Breaker

8053 CR 51
3.65± ACRES

8'x12 Wood Chicken Coop (To Be Moved)

Proposed Light Pole

Proposed Gate

Water Well

Proposed Office

Spigot

Proposed Gravel Parking

Gravel

60" Tree

24" C.M.P.

EXISTING CONCRETE-LINED IRRIGATION DITCH

4" Tree

Cluster of 2" Trees

60" Tree

Bush

N33°54'45"W 94.01'

(8) 4" Trees

Cluster of 4" Trees

36" Tree

Cluster of 1"-4" Trees

Existing Steel Shop

Conc

45.0'

±185.3'

Propane Tank

Spigot

Well House

(2) Elec Meters

Water Well

12" Tree

1" Tree

Proposed Gate

18" C.M.P.

(4) 1" Trees

(3) 2" Trees

48" Tree

10" Tree

(6) 4" Trees

2" Tree

±83.5'

Existing One-Story Wood Frame Ranch with Basement

5" Tree

36" Tree

Cluster of 2" Trees

12" Tree

Bush

24" Tree

Cluster of 2"-8" Trees

WCR 51
(60' R.O.W)

N00°00'04"W 1320.08'

S00°00'00"W 33.90'

Mail

John R Ashley
Raedene Ashley
Carolyn Spears
Everett R Spears
Parcel No. 130519000025
(Existing Zoning: AG) (Weld County)
(Use: Farming/Residential)

HISTORIC CONDITIONS
NO CHANGE IN SITE IMPERVIOUSNESS

PROPERTY BOUNDARY

N46°52'21"W 375.4'

S89°58'

Existing One-Story Wood Frame Ranch with Basement

18" C.M.P.

WCR 18
(60' R.O.W)

S89°19'14"E 2642.63'

24" C.M.P.

N89°19'14"W 57.01'

South line of the Southeast Quarter

Mary Ellen Bell
Parcel No. 130520000014
(Existing Zoning: AG) (Weld County)
(Use: Farming)

LEGEND:

- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING SEWER MANHOLE
- EXISTING STORM MANHOLE
- EXISTING CONCRETE
- EXISTING GAS METER
- EXISTING WATER METER
- EXISTING LIGHT POLE
- CONIFEROUS TREE
- EXISTING SIGN
- SURVEY STATION
- EXISTING POWER POLE
- EXISTING TELEPHONE LINE
- EXISTING FIBER OPTICS LINE
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING OVERHEAD POWER LINE
- EXISTING UNDERGROUND POWER LINE
- EXISTING UNDERGROUND CABLE TV
- IRRIGATION WATER VALVE
- DECIDUOUS TREE
- ST — EXISTING STORM SEWER
- ST — EXISTING STORM SEWER WITH INLET
- PROPOSED STORM SEWER OR CULVERT
- PROPOSED STORM SEWER WITH INLET
- 5020 — EXISTING CONTOUR
- 20 — PROPOSED CONTOUR
- PROJECT BOUNDARY
- POST-PROJECT DRAINAGE BASIN BOUNDARY
- 1 / 3.65 — BASIN IDENTIFICATION / AREA IN ACRES
- 1 — DESIGN POINT
- HISTORIC FLOW DIRECTION

60' 0 60' 120' 180'

1" = 60'

No.	Revision	By	Date

OLIVER SPECIAL REVIEW
8053 CR 81, KEENESBURG, COLORADO
POST-DEVELOPMENT DRAINAGE PLAN

COLORADO REGISTERED PROFESSIONAL ENGINEER 30325

WOHNRADE CIVIL ENGINEERS, INC.

Project: CLV 2013.00
Date: 06/26/2020
Scale: 1"=60'
Designed By: JR
Reviewed By: MBH

1 Sheet / 2 Sheets

NATIVE SEEDING

COMMON NAME	VARIETY NAME	LBS. PLS PER ACRE
WESTERN WHEATGRASS	ARRIBA, BARTON, ROSANA	2.50
BLUE GRAMA	HACHITAL, LOVINGTON	1.50
SIDEOATS GRAMA	VAUGHN, BUTTE, NINER, EL RENO, HASKELL	2.25
SMOOTH BROME	LINCOLN, MANCHAR	2.00
SAND DROPSEED		0.25
PERENNIAL RYEGRASS	CALIBRA, OR GARIBALDI TETRALOID	0.75
SLENDER WHEATGRASS	PRYOR, REVENUE OR SAN LUIS	2.50
ALKALIGRASS	FULTS II, SALT ON SEA	1.25
SWITCHGRASS	NEBRASKA 28, BLACKWELL	1.00
TOTAL		14.00

No.	Revision	By	Date

OLIVER SPECIAL REVIEW
8053 CR 81, KEENESBURG, COLORADO
NATIVE SEEDING SPECIFICATION

COLORADO REGISTERED PROFESSIONAL ENGINEER 30325

WOHNRADE CIVIL ENGINEERS, INC.

Project: OLV 2012.00
Date: 06/16/2020
Scale: 1"=40'
Designed By: LJ
Reviewed By: MBF

Sheet 2 / 2 Sheets

4445804 11/13/2018 10:11 AM
Total Pages: 2 Rec Fee: $18.00 Doc Fee: $45.50
Carly Koppes - Clerk and Recorder, Weld County, CO

WHEN RECORDED RETURN TO:
Katharine Oliver
8053 County Road 51
Keenesburg, CO 80643

First American

File Number: 5523-3147157

WARRANTY DEED

THIS DEED, Made this Fifth day of November, 2018, between **Bearson Dairy, L.L.C.** a Colorado limited liability company duly organized and existing under and by virtue of the laws of the State of Colorado, grantor, and **Katharine Oliver** whose legal address is 8053 County Road 51, Keenesburg, CO 80643 of the County of Weld and State of Colorado, grantee:

WITNESSETH, That the grantor, for and in consideration of the sum of **FOUR HUNDRED FIFTY FIVE THOUSAND AND NO/100 DOLLARS ($455,000.00)**, the receipt and sufficiency of which is hereby acknowledged, has granted, bargained, sold and conveyed, and by these presents does grant, bargain, sell, convey and confirm, unto the grantee, his heirs, successors and assigns forever, Tenants in Severalty all the real property, together with improvements, if any, situate, lying and being in the County of Weld, State of Colorado, described as follows:

LOT A OF RECORDED EXEMPTION NO. 1305-19-4-RE-2907, BEING THE EAST HALF OF THE SOUTHEAST QUARTER OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 64 WEST OF THE 6TH P.M., RECORDED JANUARY 26, 2001 AT RECEPTION NO. 2821719 AND CORRECTION RECORDED AUGUST 30, 2002 AT RECEPTION NO. 2982966, COUNTY OF WELD, STATE OF COLORADO.

also known by street and number as: **8053 County Road 51, Keenesburg, CO 80643**

TOGETHER with all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining and the reversion and remainders, rents, issues and profits thereof; and all the estate, right, interest, claim and demand whatsoever of the grantor, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

TO HAVE AND TO HOLD the said premises above bargained and described, with the appurtenances, unto the said grantee, his heirs and assigns forever. And the grantor, for himself, his heirs and personal representatives, does covenant, grant, bargain and agree to and with the grantee, his heirs and assigns, that at the time of the ensealing and delivery of these presents, he is well seized of the premises above conveyed, has good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and has good right, full power and lawful authority to grant, bargain sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments, encumbrances and restrictions of whatever kind or nature soever, and except general taxes for the current year and subsequent years, and except easements, covenants, reservations, restrictions, and right of way, if any, of record.

The grantor shall and will WARRANT AND FOREVER DEFEND the above-bargained premises in the quiet and peaceable possession of the grantee, his heirs and assigns, against all and every person or persons lawfully claiming the whole or any part thereof.

The singular number shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.

Doc Fee: $45.50

IN WITNESS WHEREOF, The grantor has caused its corporate name to be hereunto subscribed by its **Manager**, and its corporate seal to be hereunto affixed, attested by its **Manager**, the day and year first above written.

Bearson Dairy, L.L.C., a Colorado limited liability company

By: _____
Name: Bradley Bearson
Title: Manager

State of **Colorado**)
)ss
County of _____)

The foregoing instrument was acknowledged to before me this Fifth day of November, 2018 by **Bradley Bearson**, the **Manager** of **Bearson Dairy, L.L.C., a Colorado limited liability company.**

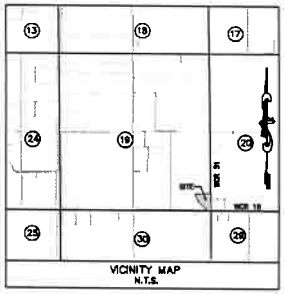
Witness my hand and official seal.
My commission expires: 7-15-2022

_____
Notary Public

ROSE NOLAN
Notary Public
State of Colorado
Notary ID # 19884002193
My Commission Expires 07-15-2022

OLIVER SPECIAL USE PERMIT

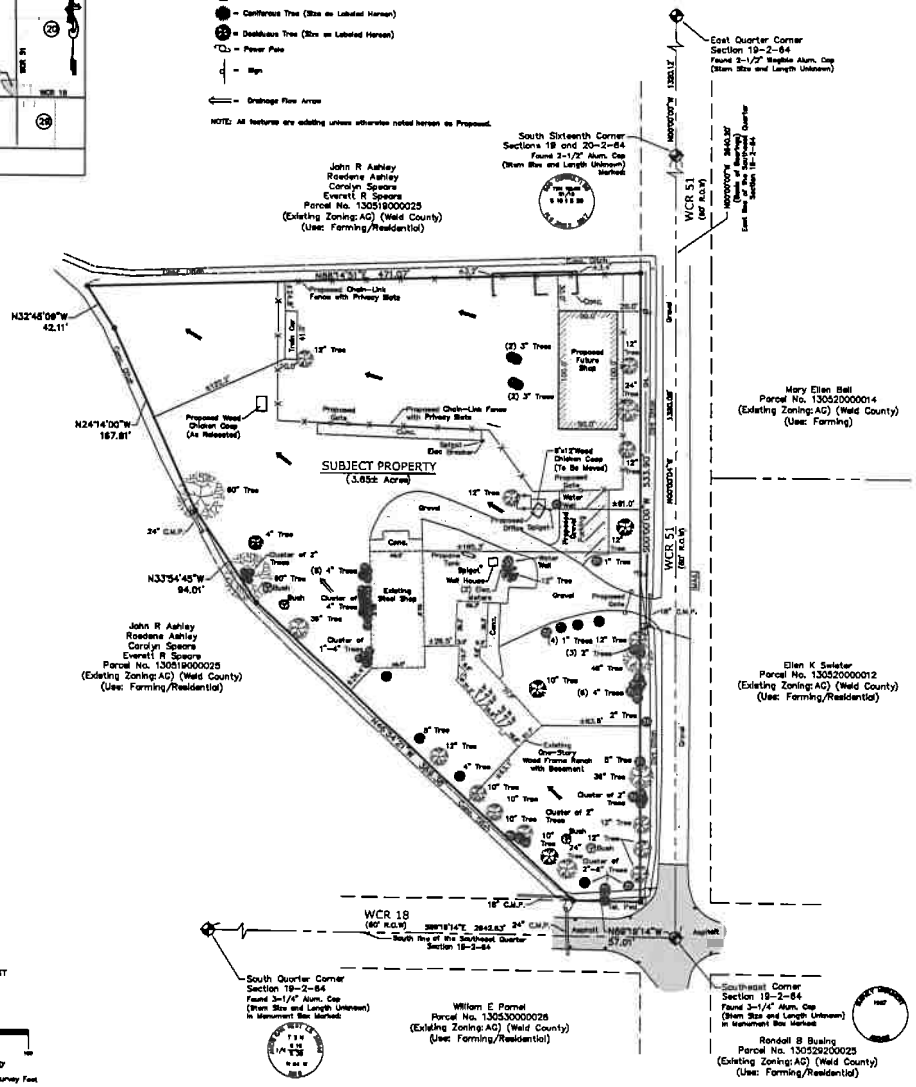
TOWN OF KENNESBURG, COLORADO
A PORTION OF THE SOUTHEAST QUARTER OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 64 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO.



SYMBOL LEGEND

- = Telephone Pedestal
- = Bush
- = Coniferous Tree (Size as Labeled Hereon)
- = Deciduous Tree (Size as Labeled Hereon)
- = Power Pole
- = Sign
- = Drainage Flow Arrow

NOTE: All features are existing unless otherwise noted hereon as Proposed.



According to Colorado law you must commence any legal action based on this survey within three years after you discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

LEGAL DESCRIPTION:

LOT A OF CORRECTED RECORDED EXEMPTION NO. 1305-19-4-RE 2907, STUATE IN THE SOUTHEAST QUARTER OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 64 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO.

PROPERTY OWNER(S):

KATHARINE OLIVER, BEING THE OWNER(S) OF THE PROPERTY DESCRIBED HEREIN HAVE PLANNED THIS PROPERTY UNDER THE NAME OF OLIVER SPECIAL REVIEW. ALL CONDITIONS, TERMS, AND SPECIFICATIONS DESIGNATED OR DESCRIBED ON THIS DOCUMENT SHALL BE BINDING ON THE OWNER(S), THEIR HEIRS, SUCCESSORS AND ASSIGNS.

IN WITNESS WE HAVE SET OUR HANDS AND SEALS THIS____DAY OF_____, 20___.

OWNER(S)

KATHARINE OLIVER

STATE OF COLORADO)
) SS
COUNTY OF WELD)

The foregoing instrument was acknowledged before me this _____
day of _____, 20____ by Katharine Oliver, owners.

My commission expires _____
Witness my hand and official seal.

Notary Public

TOWN BOARD APPROVAL:

THIS IS TO CERTIFY THAT THE OLIVER SPECIAL REVIEW WAS APPROVED ON THIS____DAY OF_____, 20____, BY RESOLUTION No. _____ AND THAT THE MAYOR OF THE TOWN OF KENNESBURG, ON BEHALF OF THE TOWN OF KENNESBURG, HEREBY ACKNOWLEDGES SAID SITE PLAN ON WHICH THIS CERTIFICATE IS ENDORSED FOR ALL PURPOSES INDICATED HEREON.

MAYOR

ATTEST: TOWN CLERK

PLANNING AND ZONING COMMISSION APPROVAL:

APPROVED THIS____DAY OF_____, 20___.

CHAIRPERSON, PLANNING AND ZONING COMMISSION

BASIS OF BEARINGS STATEMENT:

Basis of Bearings for this survey are based on an assumed bearing of South 00°00'00" West on the West line of Section 19, Township 2 North, Range 64 West of the 6th P.M., County of Weld, State of Colorado. Note: Monuments of said line as shown hereon.

SURVEYORS CERTIFICATE:

I, STEVEN JOHN STENCEL CERTIFY THIS SITE PLAN ACCURATELY REPRESENTS THE RESULTS OF A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT THE SURVEY WAS COMPLETED ACCORDING TO APPLICABLE STATE OF COLORADO REQUIREMENTS.

PREPARED BY AND ON BEHALF OF
INTERMILL LAND SURVEYING, INC.
1301 N. CLEVELAND AVE.
LOVELAND, CO 80537

STEVEN JOHN STENCEL
COLORADO PLS 30462

COLORADO REGISTERED LICENSED LAND SURVEYOR 30462 PROFESSIONAL LAND SURVEYOR

REVISIONS	BY:	DATE:

INTERMILL LAND SURVEYING, INC.
1301 NORTH CLEVELAND AVENUE LOVELAND, COLORADO 80537 FAX: (970)-635-0173

TITLE: OLIVER SPECIAL USE PERMIT
LOT A OF CORRECTED RECORDED EXEMPTION NO. 1305-19-4-RE 2907, COUNTY OF WELD, STATE OF COLORADO

CLIENT: KATHARINE OLIVER

DRAWN BY: MCS
CHECKED BY:
APPROVED BY:
DATE: 6-30-2020
SCALE: 1" = 50'

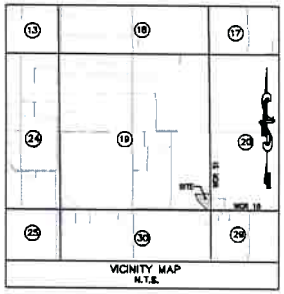
PROJECT NO.: P-19-8904

SHEET	OF
1	1

OLIVER SPECIAL ~~USE PERMIT~~ Review

use by

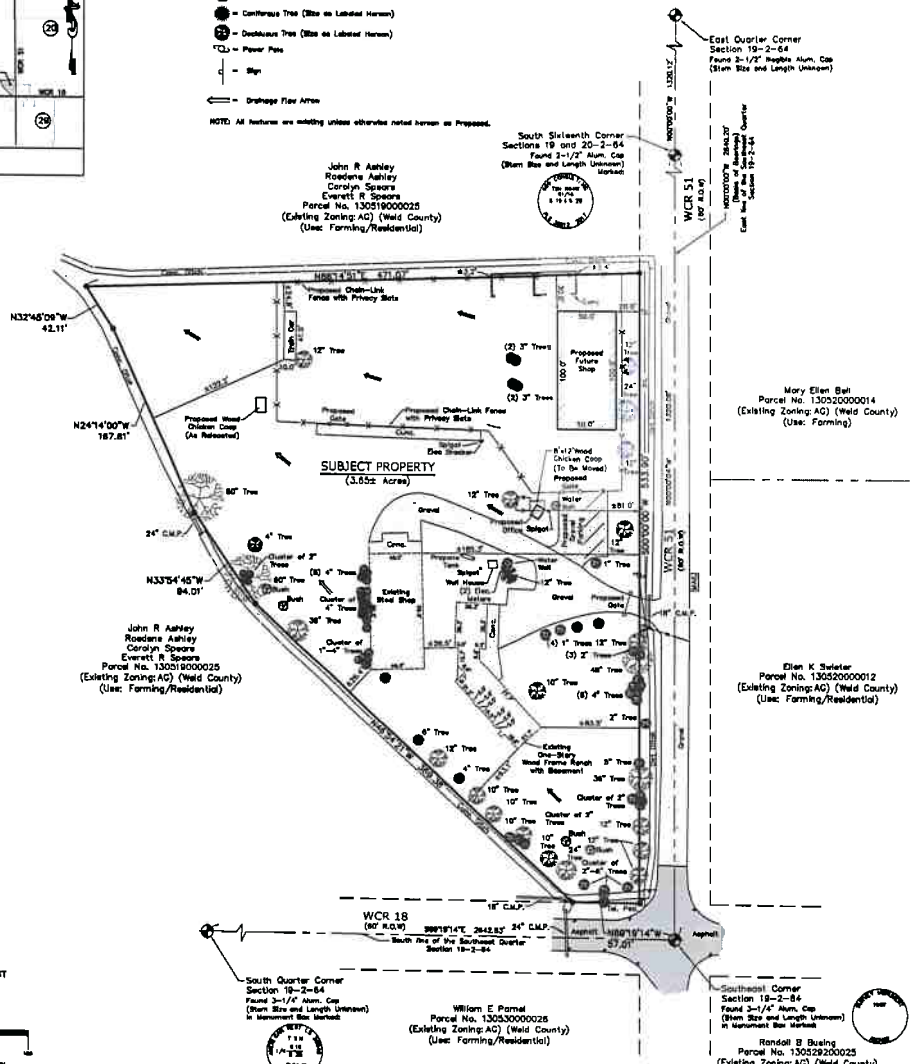
TOWN OF KENNESBURG, COLORADO
A PORTION OF THE SOUTHEAST QUARTER OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 64 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO.



SYMBOL LEGEND

- Telephone Pedestal
- Bush
- Coniferous Tree (Size as Labeled Hereon)
- Deciduous Tree (Size as Labeled Hereon)
- Power Pole
- Sign
- Drainage Flow Arrow

NOTE: All features are existing unless otherwise noted hereon as Proposed.



According to Colorado law you must commence any legal action based on this survey within three years after you discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

LEGAL DESCRIPTION:

LOT A OF CORRECTED RECORDED EXEMPTION NO. 1305-19-4-RE 2907, STUATE IN THE SOUTHEAST QUARTER OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 64 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO.

PROPERTY OWNER(S):

use by

KATHARINE OLIVER, BEING THE OWNER(S) OF THE PROPERTY DESCRIBED HEREIN HAVE PLANNED THIS PROPERTY UNDER THE NAME OF OLIVER SPECIAL REVIEW, ALL CONDITIONS, TERMS, AND SPECIFICATIONS DESIGNATED OR DESCRIBED ON THIS DOCUMENT SHALL BE BINDING ON THE OWNER(S), THEIR HEIRS, SUCCESSORS AND ASSIGNS.

IN WITNESS WE HAVE SET OUR HANDS AND SEALS THIS ____ DAY OF _____, 20___.

OWNER(S)

_____

KATHARINE OLIVER

STATE OF COLORADO)
) SS
COUNTY OF WELD)

The foregoing instrument was acknowledged before me this _____ day of _____, 20____ by Katharine Oliver, owner.

My commission expires _____

Witness my hand and official seal.

_____

Notary Public

TOWN BOARD APPROVAL:

use by ("USR")

THIS IS TO CERTIFY THAT THE OLIVER SPECIAL REVIEW WAS APPROVED ON THIS ____ DAY OF _____, 20____, BY RESOLUTION No. _____, AND THAT THE MAYOR OF THE TOWN OF KEENESBURG, ON BEHALF OF THE TOWN OF KEENESBURG, HEREBY ACKNOWLEDGES SAID ~~SITE PLAN~~ ON WHICH THIS CERTIFICATE IS ENDORSED FOR ALL PURPOSES INDICATED HEREON.

_____ MAYOR

_____ ATTEST: TOWN CLERK

PLANNING AND ZONING COMMISSION APPROVAL:

APPROVED THIS____DAY OF_____, 20____.

_____

CHAIRPERSON, PLANNING AND ZONING COMMISSION

BASIS OF BEARINGS STATEMENT:

Basis of Bearings for this survey are based on an assumed bearing of South 00°00'00" West on the West line of Section 19, Township 2 North, Range 64 West of the 6th P.M., County of Weld, State of Colorado. Note: Monuments of said line as shown hereon.

SURVEYORS CERTIFICATE:

I, STEVEN JOHN STENCEL CERTIFY THIS SITE PLAN ACCURATELY REPRESENTS THE RESULTS OF A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT THE SURVEY WAS COMPLETED ACCORDING TO APPLICABLE STATE OF COLORADO REQUIREMENTS.

PREPARED BY AND ON BEHALF OF
INTERMILL LAND SURVEYING, INC.
1301 N. CLEVELAND AVE.
LOVELAND, CO 80537

STEVEN JOHN STENCEL
COLORADO PLS 30462

COLORADO REGISTERED PROFESSIONAL LAND SURVEYOR 30462

REVISIONS:	BY:	DATE:

INTERMILL LAND SURVEYING, INC.
1301 NORTH CLEVELAND AVENUE LOVELAND, COLORADO 80537 FAX (970)-669-9619 / PH. (970)-635-0775

TITLE: OLIVER SPECIAL USE PERMIT
LOT A OF CORRECTED RECORDED EXEMPTION NO. 1305-19-4-RE 2907, SITUATE IN THE SOUTHEAST QUARTER OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 64 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO.

CLIENT: KATHARINE OLIVER

DRAWN BY:	MCB
CHECKED BY:	
APPROVED BY:	
DATE:	8-30-2020
SCALE:	1" = 50'
PROJECT NO.:	P-19-8904
SHEET	OF
1	1

\\Server\p-drive\proj\p19-8-2b\dwg

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

July 27, 2020

Debra Chumley
Town of Keenesburg Manager
P.O. Box 312
140 S. Main Street
Keenesburg, CO 80643

RE: Oliver Special Use Review
Site Plan and Engineering Memorandum Review

Dear Debra:

Professional Engineering Consultants (PEC) reviewed the Site Plan and engineering narrative submitted on June 30, 2020 for application for use by special review for property located at the northwest corner of the intersection of County Roads 18 and 51. These documents were reviewed for content.

Comments. The application should address the following comments:

1. The analysis provided in the engineering memorandum provided on June 30, 2020 by Wohnrade Civil Engineers is acceptable. Increases in runoff should be relatively minor with the proposed gravel surfaces, and no on-site detention is required. The proposed interim and long-term erosion control measures to limit sedimentation are also acceptable. However, an Erosion Control Plan prepared for implementation by the owner should be provided to the Town for review.
2. The Site Plan provided by the applicant should add the following:
    a. The proposed gravel surface inside the fence should be labeled and denoted with the same hatching used to delineate the gravel parking.
    b. The location of the grass buffer strip described in the engineering memorandum should be shown or described with a narrative note on the Site Plan.
    c. A note should be added to the Site Plan clarifying that the proposed uses for the future shop will be consistent with those uses identified with the Special Use Permit application. It would be acceptable to state this with a narrative note, or to note the specific uses proposed with the future shop, e.g., future shop to be used for facility office and tow truck parking, or as otherwise applicable.

Please let me know if you have any questions or comments.

Respectfully Submitted,

PROFESSIONAL ENGINEERING CONSULTANTS, PA

Kent Bruxvoort

Kent Bruxvoort, P.E.
Town Engineer

cc: Todd Hodges, Town Planner

THDLLC

From: Tom Beach <tbeach@seweldfire.org>
Sent: Wednesday, August 26, 2020 2:46 PM
To: THDLLC
Subject: RE: Keenesburg referral request for Oliver SUP

We do not have any concerns at this time.
Thank you

Tom Beach
Fire Chief
Southeast Weld Fire Rescue
95 W. Broadway Ave.
Keenesburg, Colorado 80643
(303) 732-4203 Office
(970) 539-0874 Cell
www.seweldfire.org
HONOR . COURAGE . BRAVERY

"Every accomplishment starts with the decision to try."– John Fitzgerald Kennedy

This electronic communication (including attachments) is intended solely for the person or the persons to whom it is addressed and may contain confidential information. If you receive this communication in error, you are prohibited from disseminating or copying this communication (including attachments), please notify the sender that you received this email in error and delete this communication from your system.

From: THDLLC <toddhodgesdesign@qwestoffice.net>
Sent: Wednesday, August 26, 2020 8:24 AM
To: 'gloria.hice-idler' <gloria.hice-idler@state.co.us>; Tom Beach <tbeach@seweldfire.org>; 'Tom Parko' <tparko@co.weld.co.us>; gregrabenhorst@re3j.com; Timothy.Bilobran@state.co.us; keenesburgclerk@rtebb.net; 'Mark Gray' <pwdirector@rtebb.net>; 'Debra Chumley' <tokmanager@rtebb.net>; kathleen@kellypc.com; Gary.Fleshman@centurylink.com; jerry.adams@atmosenergy.com; ginny.brannon@state.co.us; jmcdonald@weldgov.com; 'Jim Flesher' <jflesher@weldgov.com>; 'Kent Bruxvoort' <kent.bruxvoort@pec1.com>; joanna.williams@state.co.us; llight@co.weld.co.us; 'Bethany Pascoe' <bpascoe@weldgov.com>
Subject: Keenesburg referral request for Oliver SUP

Attached are documents for a referral request from the Town of Keenesburg for a special use permit and site plan to allow the continued residential use of the existing residence in the industrial zone district and site plan for a towing business located in the Town of Keenesburg.

Todd A. Hodges, Principal
Todd Hodges Design, LLC
970-215-4311

f.

RESOLUTION NO. PC2020-10

A RESOLUTION RECOMMENDING APPROVAL OF A USE BY SPECIAL REVIEW PERMIT FOR A RESIDENTIAL STRUCTURE TO BE USED IN CONNECTION WITH A VEHICLE TOWING AND RECOVERY BUSINESS IN THE LIGHT INDUSTRIAL (LI) ZONE DISTRICT

WHEREAS, there has been submitted to the Planning Commission of the Town of Keenesburg a request by property owner Katharine Oliver for approval of a Use by Special Review ("USR") permit for a residential structure to be used in connection with a vehicle towing and recovery business on the property located at 8053 CR 51, Keenesburg, CO 80643, which property was annexed to the Town as the Oliver Annexation No. 1 and No. 2; and

WHEREAS, all materials related to the proposed USR permit request have been reviewed by Town staff and found with conditions to be in compliance with the Town of Keenesburg zoning ordinances and related Town ordinances, regulations, and policies; and

WHEREAS, after a duly-noticed public hearing, at which evidence and testimony were entered into the record, the Planning Commission finds the USR permit request should be approved, subject to certain conditions.

NOW, THEREFORE, BE IT RESOLVED BY THE PLANNING COMMISSION OF THE TOWN OF KEENESBURG, COLORADO:

Subject to the following conditions, the Planning Commission hereby recommends approval of the application by property owner Katharine Oliver for a Use by Special Review ("USR") permit for a residential structure to be used in connection with a vehicle towing and recovery business:

1. The applicant shall adequately address the comments of the Town Engineer.

2. The applicant shall adequately address any staff and/or referral comments received.

3. The USR map shall be amended to show the proposed gate located as to allow for a vehicle to pull into the access drive without encroaching into CR 51.

4. The proposed screening fence shall be completed.

5. The following notes shall be placed on the USR map:

    A. The site shall maintain compliance with the Weld County Health Department.

B. Dead and/or dying trees and shrubs shall be removed from the property. Landscaping shall be maintained and replaced as necessary.

C. The site shall maintain compliance with the Division of Water Resources requirements concerning the well.

D. The site shall maintain compliance with Southeast Weld County Fire Department requirements.

E. The uses of the proposed office and storage building shall be consistent with the uses as described in the USR permit submittal.

F. Building permits shall be required to be submitted prior to the construction and/or placement of the future storage building and the office building.

6. The applicant shall address any redlines provided by staff for the USR map.

7. Prior to submitting the mylar of the USR map, the applicant shall provide a pdf for staff review.

INTRODUCED, READ, and ADOPTED this 3rd day of September, 2020.

_____
Chair Howell

ATTEST:

_____
Teri Smith, Secretary