Community & Economic
Development Department
www.adcogov.org

ADAMS COUNTY
COLORADO

4430 South Adams County Parkway
1st Floor, Suite W2000
Brighton, CO 80601-8204
PHONE 720.523.6800
FAX 720.523.6998

REZONING (Zoning Map Amendment)

Application submittals must include all documents on this checklist as well as this page. Please use the reference guide (pg. 2) included in this packet for more information on each submittal item.

All submittals shall include one (1) hard copy of all documents and one (1) electronic copy with all documents combined in a single PDF. For hard copies, each document shall be labeled or tabbed with the corresponding checklist number.

- ☑ 1. Development Application Form (pg. 4)
- ☑ 2. Application Fees (see table)
- ☑ 3. Written Explanation of the Project
- ☑ 4. Site Plan Showing Proposed Development, including:
    - a. Proposed Building Envelope
    - b. Parking Areas
    - c. Site Access
    - d. Landscape Areas
- ☑ 5. Trip Generation Letter
- ☑ 6. Preliminary Drainage Analysis
- ☑ 7. Neighborhood Meeting Summary
- ☑ 8. Proof of Ownership (warranty deed or title policy)
- ☑ 9. Proof of Water and Sewer Services
- ☑ 10. Legal Description
- ☑ 11. Certificate of Taxes Paid
- ☑ 12. Certificate of Notice to Mineral Estate Owners/and Lessees (pg. 6)
- ☑ 13. Certificate of Surface Development (pg. 7)

Applications Fees	Amount	Due
Application *made payable to Adams County	$1,500	At application submittal
Tri-County Health *made payable to Tri-County Health	$150 (public utilities) $210 (individual septic)	At application submittal

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Brighton, CO 80601-8204
PHONE 720.523.6800
FAX 720.523.6998

Application Type:

☐ Conceptual Review	☐ Preliminary PUD	☐ Temporary Use
☐ Subdivision, Preliminary	☐ Final PUD	☐ Variance
☐ Subdivision, Final	☒ Rezone	☐ Conditional Use
☐ Plat Correction/ Vacation	☐ Special Use	☐ Other: _____

PROJECT NAME: 5602 LOWELL BOULEVARD

APPLICANT

Name(s): 5602 LOWELL LLC Phone #: 303.888.8802

Address: 5895 W 56TH AVENUE

City, State, Zip: ARVADA, COLORADO 80002

2nd Phone #: Email: marko@macinvestmentgroup.com

OWNER

Name(s): 5602 LOWELL LLC Phone #: 303.888.8802

Address: 5895 W 56TH AVENUE

City, State, Zip: ARVADA, COLORADO 80002

2nd Phone #: Email: marko@macinvestmentgroup.com

TECHNICAL REPRESENTATIVE (Consultant, Engineer, Surveyor, Architect, etc.)

Name: The FronTerra Group Phone #: 970.669.3737

Address: P.O. Box 178

City, State, Zip: Loveland, Colorado 80539

2nd Phone #: Email: josh@fronterra.design

DESCRIPTION OF SITE

Address:	5602 & 5660 Lowell Boulevard
City, State, Zip:	Denver, Colorado 80221
Area (acres or square feet):	12.845 acres
Tax Assessor Parcel Number	0182508302004 & 0182508302003
Existing Zoning:	C-4
Existing Land Use:	Agricultural & Residential
Proposed Land Use:	Multi-Family Residential

Have you attended a Conceptual Review? YES [X] NO [ ]

If Yes, please list PRE#: PRE2022-00056

I hereby certify that I am making this application as owner of the above described property or acting under the authority of the owner (attached authorization, if not owner). I am familiar with all pertinent requirements, procedures, and fees of the County. I understand that the Application Review Fee is non-refundable. All statements made on this form and additional application materials are true to the best of my knowledge and belief.

Name: Marko Mackovic Date: 2023.02.01

Owner's Printed Name

Name: 

Owner's Signature

5602 LOWELL BOULEVARD REZONING PROPOSAL

5602 LOWELL BOULEVARD, DENVER, COLORADO 80221

FRONTERRA

LANDSCAPE ARCHITECTURE
PLANNING

Dear Adams County,

Please consider this package our formal request for review of the 5602 Lowell Boulevard Rezoning Application by the County staff. Our team thanks you for your consideration of this request.

The proposed Lowell Development Subdivision, depicted in the attached Plat, is currently zoned C-4 Commerical-4 District. We propose to rezone this property to R-4 Residential-4 District, to align with the future land use, Urban Residential, specified in the Adams County Comprehensive Plan.

FEBRUARY 01, 2023

LOWELL DEVELOPMENT SUBDIVISION

A REPLAT OF LOT 2, SPANO SUBDIVISION AND LOTS 1 AND 2, CALABRESE SUBDIVISION
BEING PART OF THE SOUTHWEST QUARTER OF SECTION 8, TOWNSHIP 3 SOUTH, RANGE 68 WEST OF THE 6TH P.M.
COUNTY OF ADAMS, STATE OF COLORADO
SHEET 1 OF 2

DEDICATION STATEMENT:

THE UNDERSIGNED, BEING THE OWNER(S), MORTGAGEE(S) OR LIEN HOLDER OF CERTAIN LANDS IN THE COUNTY OF ADAMS, COLORADO, DESCRIBED AS FOLLOWS:

LOTS 2, SPANO SUBDIVISION RECORDED FEBRUARY 2, 2005 AT RECEPTION NO. 20050202000110370, EXCEPT THAT PORTION OF LOT 2 DEEDED TO ADAMS COUNTY IN WARRANTY DEED RECORDED MAY 18, 2016 AT RECEPTION NO. 2016000038603, TOGETHER WITH LOTS 1 AND 2, CALABRESE SUBDIVISION, RECORDED FEBRUARY 2, 2005 AT RECEPTION NO. 20050202000110270, COUNTY OF ADAMS, STATE OF COLORADO.

CONTAINING 1,019,731 SQUARE FEET OR 23.410 ACRES, MORE OR LESS.

HAVE BY THESE PRESENTS LAID OUT, PLATTED, AND SUBDIVIDED THE SAME INTO LOTS, AND DEDICATED ALL EASEMENTS, AS SHOWN ON THIS PLAT, UNDER THE NAME AND SUBDIVISION OF "LOWELL DEVELOPMENT SUBDIVISION".

EXECUTED THIS _____ DAY OF THE MONTH OF _____ A.D. 20___.

OWNER: LOT 2, SPANO SUBDIVISION

_____
SPANO FAMILY HOLDING, LLC

ACKNOWLEDGMENT:

STATE OF COLORADO)
)ss
COUNTY OF _____)

KNOW ALL MEN BY THESE PRESENTS THAT THE FOREGOING DEDICATION WAS ACKNOWLEDGED

BEFORE ME THIS _____ DAY OF THE MONTH OF _____, A.D., 20___.

MY COMMISSION EXPIRES _____ WITNESS MY HAND AND SEAL

_____.
NOTARY PUBLIC

OWNER: LOTS 1 AND 2, CALABRESE SUBDIVISION

_____
5602 LOWELL, LLC

ACKNOWLEDGMENT:

STATE OF COLORADO)
)ss
COUNTY OF _____)

KNOW ALL MEN BY THESE PRESENTS THAT THE FOREGOING DEDICATION WAS ACKNOWLEDGED

BEFORE ME THIS _____ DAY OF THE MONTH OF _____, A.D., 20___.

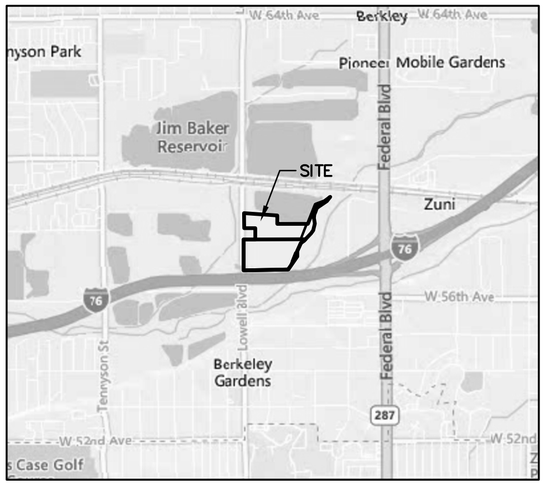
MY COMMISSION EXPIRES _____ WITNESS MY HAND AND SEAL

_____.
NOTARY PUBLIC

VICINITY MAP

SCALE: 1" = 2000'

N



APPROVAL:

APPROVED BY THE ADAMS COUNTY COMMUNITY AND ECONOMIC DEVELOPMENT DEPARTMENT ON THIS _____DAY OF _____,20___.

_____
DEVELOPMENT SERVICES MANAGER

RECORDER'S CERTIFICATE:

STATE OF COLORADO)
)ss
COUNTY OF ADAMS)

I HEREBY CERTIFY THAT THIS INSTRUMENT WAS FILED FOR RECORD IN MY OFFICE ON THE _____ DAY OF _____, 20___

AT _____ O'CLOCK ___M., RECEPTION No. _____

CLERK AND RECORDER

BY: _____
DEPUTY

BY: _____

NOTES:

1) THIS PURPOSE OF THIS PLAT IS TO SUBDIVIDE THE EXISTING PROPERTIES INTO 2 LOTS, AS SHOWN HEREON.

2) THIS PLAT DOES NOT CONSTITUTE A TITLE SEARCH BY EHRHART LAND SURVEYING, LLC TO DETERMINE OWNERSHIP OF THIS TRACT, OR VERIFY EASEMENTS OF RECORD. REFERENCE IS MADE TO FIRST AMERICAN TITLE INSURANCE COMPANY FILE NO. TOC-30364-A REVISION NO. 3 WITH A COMMITMENT DATE OF AUGUST 3, 2021 FROM WHICH THIS SURVEY IS BASED. THIS PROPERTY IS SUBJECT TO ALL COVENANTS AND RESTRICTIONS RELATING TO THE USE AND CHARACTER OF THE LAND AND ALL MATTERS APPEARING OF PUBLIC RECORD AND AS MAY BE DISCLOSED BY A MORE RECENT TITLE COMMITMENT OR REPORT.

3) LINEAL UNITS USED ARE U.S. SURVEY FEET.

4) BASIS OF BEARINGS: THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 8, BEARING S00°12'28"E (ASSUMED), A DISTANCE OF 2633.71 FEET, MONUMENTED AS SHOWN HEREON.

5) ALL RIGHT-OF-WAY AND LOT AND BLOCK INFORMATION WAS TAKEN FROM THE PLAT OF CALABRESE SUBDIVISION RECORDED FEBRUARY 2, 2005 AT RECEPTION NO. 20050202000110270; AND THE PLAT OF SPANO SUBDIVISION RECORDED FEBRUARY 2, 2005 AT RECEPTION NO. 20050202000110370.

6) NOTICE: 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 SURVEYOR'S STATEMENT SHOWN HEREON.

7) PER THE STATE OF COLORADO BOARD OF LICENSURE FOR ARCHITECTS, PROFESSIONAL ENGINEERS, AND PROFESSIONAL LAND SURVEYORS RULE 1.6.B.2, THE WORD "CERTIFY" AS USED HEREON MEANS AN EXPRESSION OF PROFESSIONAL OPINION AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED. THE SURVEY REPRESENTED HEREON HAS BEEN PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH APPLICABLE STANDARDS OF PRACTICE AND IS BASED UPON MY KNOWLEDGE, INFORMATION AND BELIEF.

8) CONFLICTING BOUNDARY EVIDENCE: THE CONCRETE PATH CROSSES THE PROPERTY, AS PLATTED, ALONG THE EAST BOUNDARY. THE PLAT DEFINES IT'S BOUNDARY AS RELATED TO TRACTS SHOWN ON A MAP IN A WARRANTY DEED RECORDED NOVEMBER 10, 1930 AT RECEPTION NO. 164420. THE MAP IN QUESTION IS REFERENCED AS BOOK 191, PAGE 471. SOME OF THE NUMBERS ON THE MAP ARE DIFFICULT TO READ AND THE LOCATION OF THE TRACTS IS NOT CERTAIN, WHICH MAY BE THE SOURCE OF SOME OF THESE ENCROACHMENTS. IN ADDITION, MANY EASEMENTS SHOWN ON THE PLAT AND ON THIS SURVEY ARE ALSO REFERENCED TO THESE TRACTS, CREATING A POSSIBLE DISCREPANCY IN THEIR LOCATIONS AS WELL, AND MAY EXPLAIN WHY THE EASEMENTS, AS PLATTED, DO NOT COVER THE UTILITIES THAT THEY ARE INTENDED TO BENEFIT. THE BOUNDARY AND THE EASEMENTS ARE SHOWN AS DELINEATED ON THE PLAT.

9) FLOOD ZONE CLASSIFICATION: *SUBJECT PROPERTY IS LOCATED IN "FLOODWAY AREAS IN ZONE AE (FLOODPLAIN AREA THAT MUST BE KEPT FREE OF ENCROACHMENT SO THAT THE 1% ANNUAL CHANCE FLOOD CAN BE CARRIED WITHOUT SUBSTANTIAL INCREASE IN FLOOD HEIGHTS)", AND "ZONE X (AREAS OF LESS THAN 0.2% ANNUAL CHANCE FLOOD)" PER FLOOD INSURANCE RATE MAP FOR ADAMS COUNTY, COLORADO AND INCORPORATED AREAS, MAP NUMBER 08001C0591H, REVISED MARCH 5, 2007. LINE SHOWN HEREON WAS DOWNLOADED FROM ONLINE FEMA DATA.*

SURVEYOR'S CERTIFICATE:

I, JOHN P. EHRHART, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAT WAS MADE UNDER MY SUPERVISION AND THE MONUMENTS SHOWN HEREON ACTUALLY EXIST AND THIS PLAT ACCURATELY REPRESENTS SAID SURVEY MADE ON JULY 14, 2021.

COLORADO REGISTERED JOHN P. EHRHART 29414 PROFESSIONAL LAND SURVEYOR

_____
JOHN P. EHRHART
COLORADO P.L.S. #29414
EHRHART LAND SURVEYING, LLC
PO BOX 930, ERIE, CO 80516
PHONE: 303-828-3340

EHRHART LAND SURVEYING

P.O. Box 930 • Erie, Colorado 80516
(303) 828-3340 • www.coloradols.com

ELS PROJECT NO.	**S225088**
DATE:	1/5/23
DRAWN BY:	JPE
CHECKED BY:	JMH

LOWELL DEVELOPMENT SUBDIVISION

A REPLAT OF LOT 2, SPANO SUBDIVISION AND LOTS 1 AND 2, CALABRESE SUBDIVISION
BEING PART OF THE SOUTHWEST QUARTER OF SECTION 8, TOWNSHIP 3 SOUTH, RANGE 68 WEST OF THE 6TH P.M.
COUNTY OF ADAMS, STATE OF COLORADO
SHEET 2 OF 2

W 1/4 COR. SEC. 8
#6 REBAR WITH 2.5" ALUMINUM
CAP IN RANGE BOX, LS 23500

NORTH
SCALE: 1" = 100'
0 50 100 200

FOUND CHISELED CROSS IN FLAGSTONE
N06°40'33"W 1.13' FROM SET CORNER
NOT ACCEPTED

OWNER:
GILPIN
INDUSTRIAL
LLC

UNPLATTED

PARCEL NO.
0182508300005
UNPLATTED

OWNER:
CAROL HUDAK AND
EDDIE ARTHUR BOHN

LAKE

SET 1.5" ALUMINUM CAP
PLS 29414 50' WC

S85°59'58"E
619.06'(M&P)

N81°00'42"E
9.54'(M)
S86°00'32"E
10.03'(P)

N00°12'28"W 280.62'(M)

EXCEPTED PORTION OF LOT 2
REC 2016000038603
5/18/16

PARCEL NO.
0182508300047
UNPLATTED

OWNER:
CAROL HUDAK AND
EDDIE ARTHUR BOHN

LAKE

S01°13'52"E
156.99'(M)
157.00'(P)

N89°47'39"E
571.37'(M) 571.42'(P)

N52°55'06"E
132.02'(M)
132.08'(P)

N69°04'18"E
180.26'(M)
180.30'(P)

S38°28'05"W
102.19'(M)
102.21'(P)

S55°34'27"W
226.57'(M)
226.67'(P)

N21°27'40"E
385.02'(M)
385.06'(P)

S18°42'43"W
77.83'(M) 77.84'(P)

S22°15'22"W
51.72'(M) 51.73'(P)

S06°30'23"W
68.57'(M) 68.58'(P)

S09°10'46"E
99.23'(M) 99.18'(P)

S13°21'07"W
129.99'(M) 130.02'(P)

S34°06'14"W
70.25'(M) 70.48'(P)

S43°13'43"W
187.11'(M)
187.06'(P)

S55°02'17"W
74.97'(M)

S24°16'14"W
74.95'(M) 74.98'(P)

S24°06'07"W
85.02'(M) 85.03'(P)

S00°10'09"E
47.43'(M) 47.36'(P)

S00°10'52"E
53.79'(M)
53.88'(P)

76'
90'
40'
80'
30'

LOWELL BLVD.
RIGHT OF WAY VARIES

S89°49'04"W
208.72'(M)
208.71'(P)

LOT 1
SPANO
SUBDIVISION
NOT A PART

N00°12'28"W
208.71'(M&P)

N00°12'28"W
208.71'(M&P)

LOT 2
10.559 ACRES

CLEAR CREEK BIKE PATH

30' RECREATIONAL TRAIL EASEMENT
DEDICATED BY THIS PLAT

EASEMENT (APPROX.)
BK 1099, PG 232 AND
REC 20050202000110370
AS SHOWN ON PLAT

20' SEWER EASEMENT
DEDICATED BY THIS PLAT

PARCEL NO.
0182508300066
UNPLATTED

OWNER:
COUNTY OF
ADAMS

9.94'

N89°49'04"E
218.66'(M)
218.71'(P)

S89°47'13"W 934.83'

37.52'

149.58'

LOT 1
CALABRESE SUB.
CONSOLIDATED
INTO LOT 1

PORTION OF LOT 2
SPANO SUB.
CONSOLIDATED
INTO LOT 1

N21°22'23"E 902.53'

EASEMENT (APPROX.)
BK 2842, PG 37, 2/21/84
AS SHOWN ON PLAT

EASEMENT (APPROX.)
BK 1099, PG 232, 9/25/63
AS SHOWN ON PLAT

EASEMENT (APPROX.)
BK 2842, PG 42, 2/21/84
AS SHOWN ON PLAT

BASIS OF BEARINGS
W LINE SW 1/4 SEC. 8
S00°12'28"E 2633.71'

N00°12'27"W
577.60'(M)
577.64'(P)

LOT 1
12.850 ACRES

FLOODWAY ZONE AE
FLOOD ZONE X

EASEMENT
BK 5188, PG 706,
12/22/97

20' ACCESS & UTILITY EASEMENT
BK 5157, PG 658, 11/14/97
BK 5188, PG 706, 12/22/97

299.61'(M)
300.76'(P)
S35°03'08"W

11.31'

827.14'(M)
S88°41'00"W

20' UTILITY EASEMENT
BK 2842, PG 42, 2/21/84
AS SHOWN ON PLAT

N88°41'00"E
30.07'

543.31'

I-76 RIGHT-OF-WAY
OWNER: STATE OF COLORADO

SW CORNER SEC 8
#6 REBAR WITH 2.5" ALUMINUM
CAP IN RANGE BOX, LS 20699

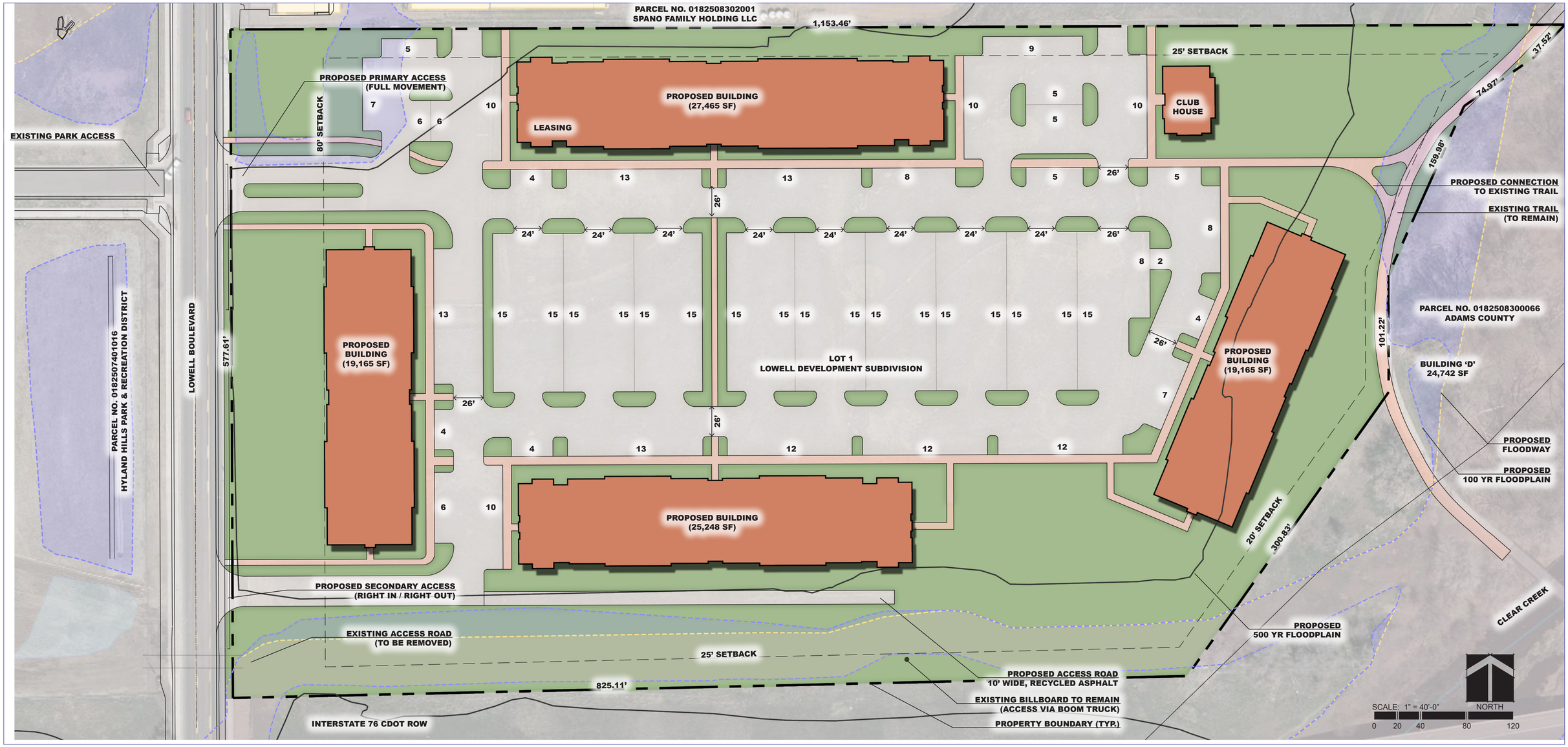
COLORADO REGISTERED
JOHN P. EHRHART
29414
PROFESSIONAL LAND SURVEYOR

LEGEND

⊕	FOUND SECTION CORNER AS DESCRIBED
⊙	FOUND 0.75" BRASS DISK & NAIL, ILLEGIBLE
●	FOUND #5 REBAR WITH 1.25" YELLOW PLASTIC CAP, LS 6973 – UNLESS NOTED OTHERWISE
○	SET #5 REBAR WITH 1.25" YELLOW PLASTIC CAP, EHRHART PLS 29414
⊕	CHISELED + IN CONCRETE
(P)	PLATTED DISTANCE
(M)	MEASURED DISTANCE
WC	WITNESS CORNER

EHRHART
LAND SURVEYING
P.O. Box 930 • Erie, Colorado 80516
(303) 828-3340 • www.coloradols.com

ELS PROJECT NO. S225088
DATE: 1/5/23
DRAWN BY: JPE
CHECKED BY: JMH



LAND USE SUMMARY

SITE DATA

	Current Zone District	Proposed Zone District	Proposed Land Use	Area	Proposed Density
Phase One	C-4	R-4	Multi-Family Dwelling	12.845 ac (559,527) sf	27.87 Dwelling Units / Acre

SITE COVERAGE (Per DSR 4-07-02-04-02)

Specifications	Required	Provided	Area (Acres)	Area (Square Feet)
Totaal Impermeable Surface	**70% Maximum**	**60.08%**	**7.718**	**336,177**
Principal & Accessory Structures	40% Maximum	16.72%	2.147	93,543
Paved Area	30% Maximum	43.36%	5.570	242,634
Landscape Area	**30% Minimum**	**44.91%**	**5.77**	**223,350**
Open Space	30% Minimum	34.91%	4.484	195,307
Non-Open Space Landscape Area		5.01%	0.644	28,043

PRELIMINARY CALCULATIONS

Dwelling Units	Per Development (4 Buildings)	Parking (Required)	Parking (Provided)	
2br	119	179		
1br	205	205		
Studio	34	26		
Resident ADA Parking (2% of Resident Spaces)		9	9	Surface
Total Resident Spaces		410	479	Surface
Visitor ADA Parking (2% of Visitor Spaces)		2	2	Surface
Visitor Parking (+15% of Total Resident Spaces)		62	80	Surface
Leasing Office (1 Space Per 300 sf)	1200 sf	4	13	Surface
Clubhouse (1 Space Per 200 sf)	2500 sf	13	13	Surface
Total	**358**	**489**	**492**	

NOTES:

Electric charging stations can reduce total count by up to 5%

The FronTerra Group
fronterra.design

5602 LOWELL BOULEVARD DENVER, COLORADO 80221

PRELIMINARY DEVELOPMENT SKETCH

JANUARY 27, 2023

Lowell Blvd Apartments

5602 Lowell Blvd., Denver, CO

Traffic Letter

KE Job #2022-046

Prepared for:

Mac Investment Group, LLC
4738 Co. Rd. 5
Erie, CO 80516

Prepared by:

KELLAR ENGINEERING

skellar@kellarengineering.com
970.219.1602 phone

January 19, 2023

Sean K. Kellar, PE, PTOE

1.0 Introduction

The purpose of this Traffic Letter is to evaluate the proposed traffic generated by the proposed Lowell Blvd apartments project located at 5602 Lowell Blvd. in Denver, CO.

2.0 Proposed Development

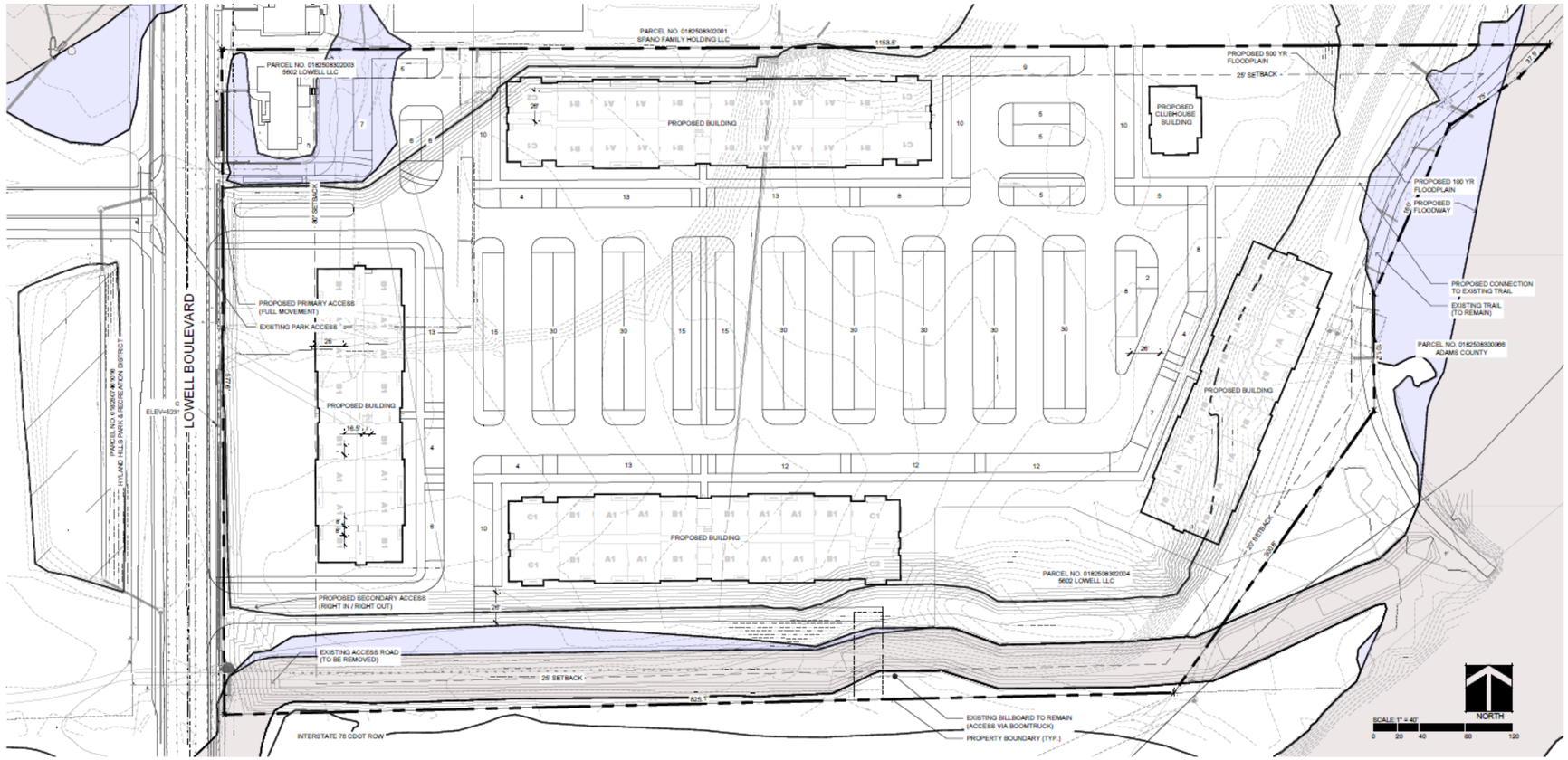
This Traffic Letter is for the proposed apartments project (~360 dwelling units) located at 5602 Lowell Blvd, Denver, CO. See Figure 1: Vicinity Map and Figure 2: Site Plan.

3.0 Trip Generation

Site generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the Trip Generation Report published by the Institute of Transportation Engineers (ITE). ITE has established trip generation rates in nationwide studies of similar land uses. Per the ITE, the proposed project is anticipated to generate approximately 2,426 daily trips, 144 AM total peak hour trips, and 184 PM total peak hour trips. See Table 1: Trip Generation.

Figure 1: Vicinity Map

Figure 2: Site Plan



LAND USE SUMMARY

SITE DATA

	Current Zone District	Proposed Zone District	Proposed Land Use	Area	Proposed Density
Phase One	C-4	R-4	Multi-Family Dwelling	12.85 ac (559,562) sf	27.24 Dwelling Units / Acre

SITE COVERAGE (Per DSR 4-07-02-04-02)

Specifications	Required	Provided	Area (Acres)	Area (Square Feet)
Impermeable Surface	70% Maximum	55.09%	7.08	308,282
Principal & Accessory Structures	40% Maximum	16.72%	2.15	93,543
Paved Area	30% Maximum	38.38%	4.93	214,739
Landscape Area	30% Minimum	44.91%	5.77	251,280
Open Space	30% Minimum	40.05%	5.14	224,078

PRELIMINARY CALCULATIONS

Dwelling Units	Per Development (4 Buildings)	Parking (Required)	Parking (Provided)	
2br	119	179		
1br	205	205		
Studio	34	26		
Resident ADA Parking (2% of Resident Spaces)		9	9	Surface
Total Resident Spaces		410	479	Surface
Visitor ADA Parking (2% of Visitor Spaces)		2	2	Surface
Visitor Parking (+15% of Total Resident Spaces)		62	80	Surface
Leasing Office (1 Space Per 300 sf)	1200 sf	4	13	Surface
Clubhouse (1 Space Per 200 sf)	2500 sf	13	13	Surface
Total		358	489	492

5602 LOWELL BOULEVARD DENVER, COLORADO 80221
PRELIMINARY DEVELOPMENT CONCEPT
JANUARY 12, 2023

fronterra.design
FRONTERRA
LANDSCAPE ARCHITECTURE
PLANNING

Table 1: Trip Generation (ITE 11th Edition)

ITE Code	Land Use	Size	Average Daily Trips		AM Peak Hour Trips						PM Peak Hour Trips					
			Rate	Total	Rate	% In	In	% Out	Out	Total	Rate	% In	In	% Out	Out	Total
310	Multifamily Housing	360 DU	6.74	2,426	0.40	24%	35	76%	109	144	0.51	63%	116	37%	68	184
	Total	**360 DU**		**2,426**			**35**		**109**	**144**			**116**		**68**	**184**

DU = Dwelling Units

4.0 Conclusions

A Traffic Impact Study (TIS) is underway and will be provided by Kellar Engineering to demonstrate compliance with City standards.

APPENDIX:

Aerial Image (Google Earth)

Land Use: 220
Multifamily Housing (Low-Rise)

Description

Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have two or three floors (levels). Various configurations fit this description, including walkup apartment, mansion apartment, and stacked townhouse.

- A walkup apartment typically is two or three floors in height with dwelling units that are accessed by a single or multiple entrances with stairways and hallways.
- A mansion apartment is a single structure that contains several apartments within what appears to be a single-family dwelling unit.
- A fourplex is a single two-story structure with two matching dwelling units on the ground and second floors. Access to the individual units is typically internal to the structure and provided through a central entry and stairway.
- A stacked townhouse is designed to match the external appearance of a townhouse. But, unlike a townhouse dwelling unit that only shares walls with an adjoining unit, the stacked townhouse units share both floors and walls. Access to the individual units is typically internal to the structure and provided through a central entry and stairway.

Multifamily housing (mid-rise) (Land Use 221), multifamily housing (high-rise) (Land Use 222), affordable housing (Land Use 223), and off-campus student apartment (low-rise) (Land Use 225) are related land uses.

Land Use Subcategory

Data are presented for two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Additional Data

For the three sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.72 residents per occupied dwelling unit.

For the two sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96.2 percent of the total dwelling units were occupied.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip

generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

For the three sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.72 residents per occupied dwelling unit.

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1980s, the 1990s, the 2000s, the 2010s, and the 2020s in British Columbia (CAN), California, Delaware, Florida, Georgia, Illinois, Indiana, Maine, Maryland, Massachusetts, Minnesota, New Jersey, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, and Washington.

Source Numbers

188, 204, 237, 300, 305, 306, 320, 321, 357, 390, 412, 525, 530, 579, 583, 638, 864, 866, 896, 901, 903, 904, 936, 939, 944, 946, 947, 948, 963, 964, 966, 967, 1012, 1013, 1014, 1036, 1047, 1056, 1071, 1076

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

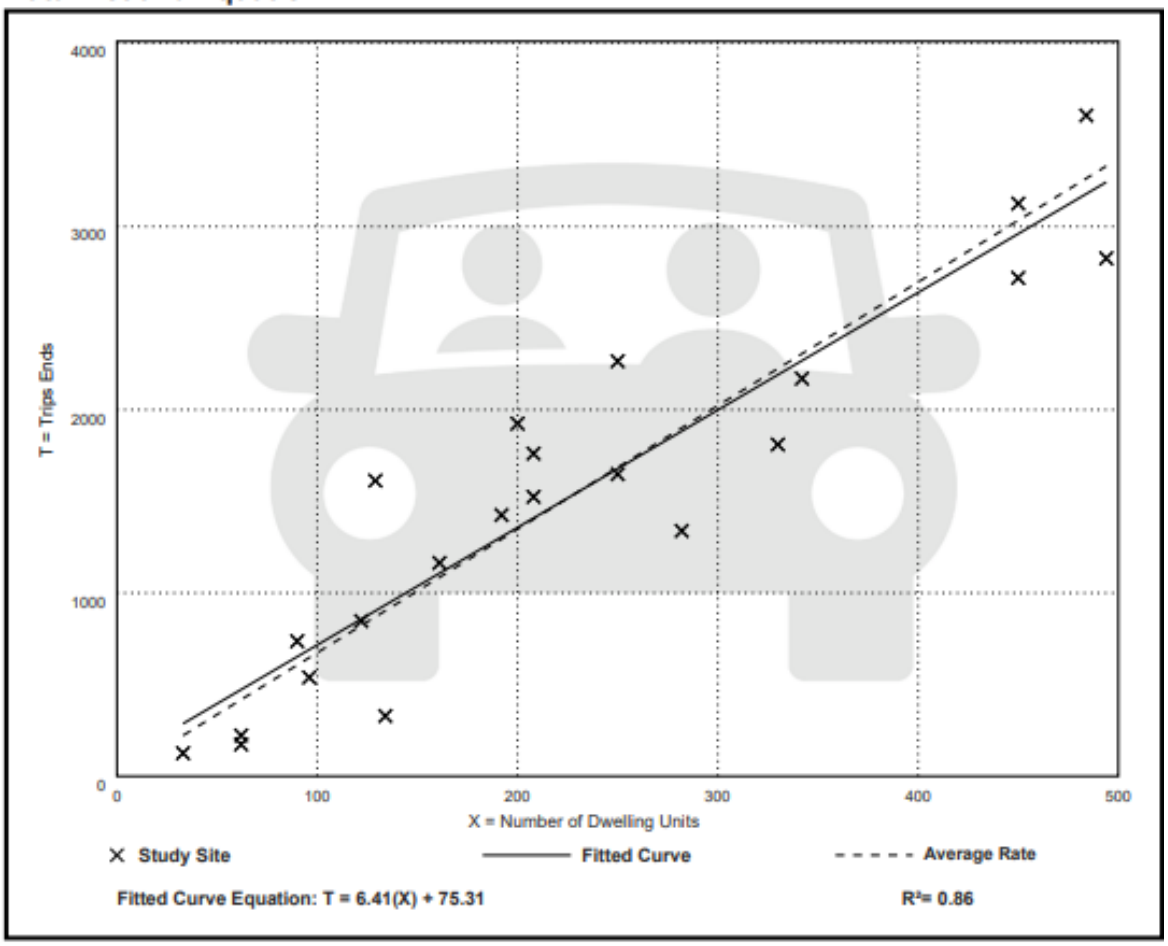
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 229
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



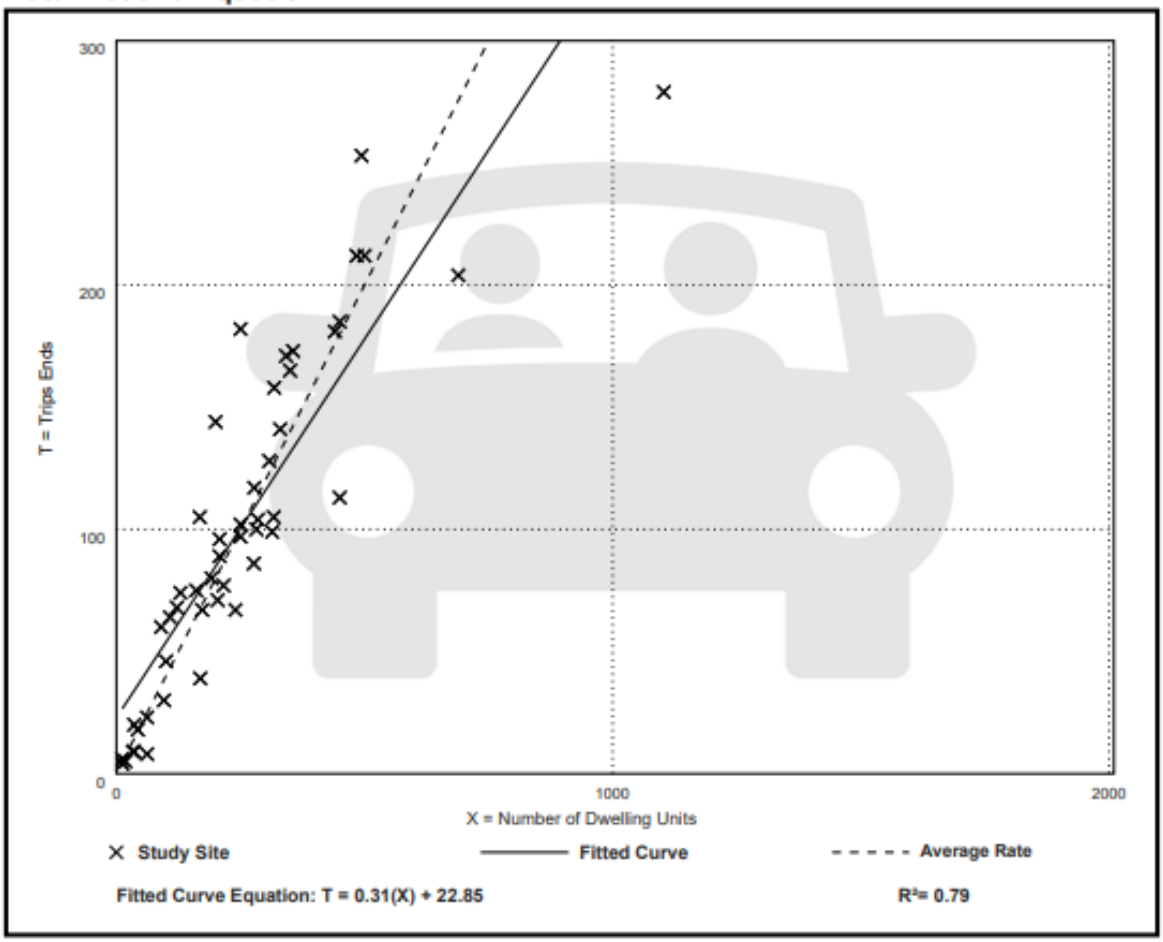
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 49
Avg. Num. of Dwelling Units: 249
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



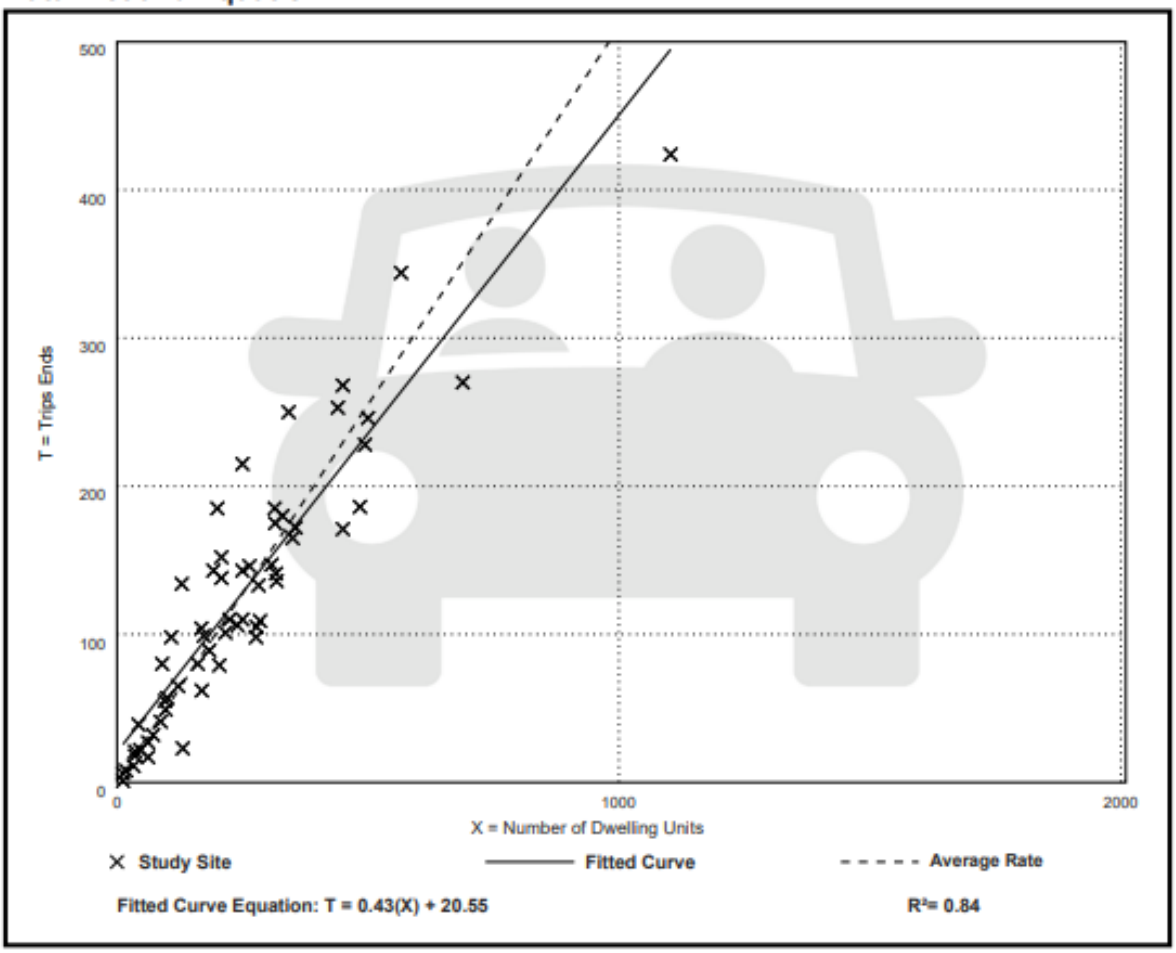
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 59
Avg. Num. of Dwelling Units: 241
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



KELLAR ENGINEERING

Sean Kellar, PE, PTOE

Principal Engineer

Education
B.S., Civil Engineering, Arizona State University – Tempe, AZ

Registration
Colorado, Professional Engineer (PE)
Wyoming, Professional Engineer (PE)
Idaho, Professional Engineer (PE)
Arizona, Professional Engineer (PE)
Kansas, Professional Engineer (PE)
Missouri, Professional Engineer (PE)
Professional Traffic Operations Engineer (PTOE)

Professional Memberships
Institute of Transportation Engineers (ITE)

Industry Tenure
23 Years

Sean's wide range of expertise includes: transportation planning, traffic modeling roadway design, bike and pedestrian facilities, traffic impact studies, traffic signal warrant analysis, parking studies, corridor planning and access management. Sean's experience in both the private and public sectors; passion for safety and excellence; and strong communication and collaboration skills can bring great value to any project. Prior to starting Kellar Engineering, Sean was employed at the Missouri Department of Transportation (MoDOT) as the District Traffic Engineer for the Kansas City District. Sean also worked for the City of Loveland, CO for over 10 years as a Senior Civil Engineer supervising a division of transportation/traffic engineers. While at the City of Loveland, Sean managed several capital improvement projects, presented several projects to the City Council and Planning Commission in public hearings, and managed the revisions to the City's Street Standards. Sean is also proficient in Highway Capacity Software, Synchro, PT Vissim, Rodel, GIS, and AutoCAD.

WORK EXPERIENCE:

Kellar Engineering, Principal Engineer/President – January 2016 – Present

Missouri Department of Transportation, District Traffic Engineer, Kansas City District – June 2015 – January 2016

City of Loveland, Colorado, Senior Civil Engineer, Public Works Department – February 2005 – June 2015

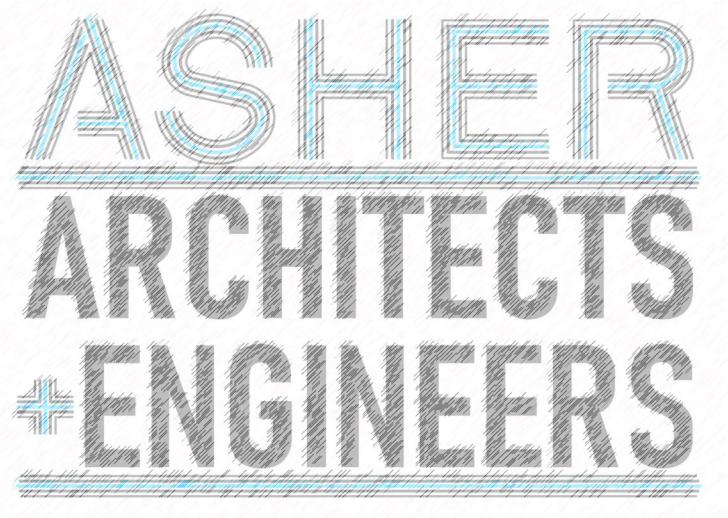
Kirkham Michael Consulting Engineers, Project Manager - February 2004 – February 2005

Dibble and Associates Consulting Engineers, Project Engineer – August 1999 – February 2004

Lowell Boulevard Apartments - Preliminary Drainage Report

Lot 1 of Spano-Calabrese Subdivision Amendment No. 1
Located in part of the Southwest Quarter of Section 8, Township 3 South, Range 68 West of the 6th Principal Meridian, County of Adams, Colorado

5602 Lowell Boulevard
Denver, Colorado 80221



Prepared For: Mac Investment Group, LLC

Prepared By: TJ Heupel, PE

January 27, 2023

Project No. 22-C14

Engineer's Certification of Drainage Report

I hereby certify that this report for the Preliminary Drainage design of the Lowell Boulevard Apartment Project was prepared by me or under my direct supervision in accordance with the provisions of Adams County Storm Drainage Design and Technical Criteria for the owners thereof. I understand that Adams County does not and will not assume liability for drainage facilities designed by others.

COLORADO LICENSED
TYLER J. HEUPEL
58284
PROFESSIONAL ENGINEER

_____ Date: 1/27/2023

TJ Heupel, PE
State of Colorado No. 58284
tj@asherarch.com

Table of Contents

General Location and Description

The subject property is Lot 2 of the Calabrese Subdivision and a portion of Lot 2 of the Spano Subdivision for a total of ±12.850 acres of agricultural land located on the east side of Lowell Boulevard, just north of Interstate-76 (I-76), and west of Clear Creek in Adams County, Colorado. Reference the Property Vicinity Map with the property outlined in blue in Figure 1 below. The property is currently used for agriculture with a single-family house in the northwest corner of the site, irrigated fields to the south and east of the house, and a public trail along the eastern property line going through the Clear Creek Natural Area. At some point in the last several decades as much as 20 feet of sandy clay soil was imported and placed on both lots with the bulk of the fill being placed in the east half of the properties. The property slopes generally from the west to east at a 0-3% slopes, but in the filled are grades slope from the east to the west at slopes of 1-5%. The property is bordered on the east by Lowell Boulevard, on the south by I-76, and on the east by Clear Creek. Directly north of the site is another agricultural property, Lot 2 of Spano Subdivision, that used to be combined with the subject property before being split off in 2005 via the Calabrese Subdivision. West of Lowell Boulevard is a large public park on property claimed from gravel mining owned by the Hyland Hills Park & Recreation District. There are several large ponds to the west and north of the site created by mining activity in the area.

The subject property is within FIRM Panel Number 08001C0591H, effective March 5, 2007, Risk Hazard Zone AE over a majority of the property. However, due to impact from development in the area, and flood mitigation/waterway restoration efforts, the floodplain along this stretch of the Clear Creek has changed considerably. As a result, separate Certified Letters of Map Revision (CLOMR's) have been submitted to FEMA by MAC Investment Group, LLC and the Hyland Hills Park & Recreation District that take into account all of the ponds and the changes in topography across the area between I-76 and the Union Pacific railroad on both sides of Lowell since the effective study was conducted. The new limits of the floodplain around the subject property, as determined for the owner by Loewen Engineering Inc and submitted to FEMA on November 18, 2022, FEMA Case No. 23-08-0122R, are represented on the Drainage Plan included in Appendix D of this report.

Per NRCS Web Soil Survey data the western half of the site is made up of a Loamy Alluvial soil, hydrologic group C, and a sand-gravel complex type soil, hydrologic group A, in the east. Reference Appendix A for the USDA Web Soil Survey information for the site. The fill placed on the site was explored and analyzed by CTL Thompson in 2016 for a separate development effort on the site. Their findings were presented on September 23, 2016 in a report for THN Investments, LLC, CTL Project No. DN48, 539-115.

Figure 1. Property Vicinity Map

Historic Sub-basins

Historic drainage sub-basins have been delineated and are shown on the Historic Drainage Plan in Appendix D of this report. Historic drainage patterns across the subject property generally flow from the west to the east into a network of culverts and poorly defined swales going discharging into Clear Creek. Due to farming activities, there are large areas that were set-up for flood irrigation with very little slope or intentional ponding areas. Areas that were filled slope to the west where water generally ponds to a shallow depth before making it into the irrigation ditches and culvert network along the northern property line that is shared by the neighboring property. Lowell Boulevard, along the western edge of the site, was recently improved and the road was elevated 3-4 feet above existing ground elevations to removed portions of the road from within the floodplain. A concrete retaining wall was constructed behind the eastern sidewalk to achieve this grade difference in the road. This is also where water generally pond on the site. A network of inlets and storm pipes conveys runoff from the road into Clear Creek either to the north or south of the subject property. On the east side of the site there is a 20-foot-tall embankment dropping into the Clear Creek Open Space where a 10-foot-wide concrete trail runs north-south along the western bank of the river before crossing over to the eastern bank via a steel pedestrian bridge near the southeast corner of the subject property. At the southern property line is the toe of the northern embankment for I-76 which has a grade separated crossing over Lowell Boulevard. Between the interstate embankment and the fill on the site lies a dirt road used to access a billboard at the center of the southern property line.

The subject property was delineated into four separate on-site sub-basins and six off-site basins based on existing property boundaries and the natural drainage pattern across the site and adjacent roads and properties. Due to the historical use of the site as a part of Spano Subdivision property there is a network of irrigation channels and culvert linked throughout the properties. Reference the drainage plans in Appendix D for the delineated sub-basin boundaries, sub-basin runoff calculations are presented in Appendix B. The historic sub-basins are more specifically described below.

Sub-basin H-1

Runs along the northern one-third of the site, containing 4.168 acres. The catchment includes the area of the subject property the flows north-northeast into the adjacent property. The northern boundary of the catchment is the northern property line, and the southern boundary runs along a ridge line at the top of the fill on the lot and then the western top of the fill embankment moving west from the eastern top of the fill embankment to the western property line. Including a narrow strip of Right-of-Way (ROW) between the retaining wall on the east side of Lowell Boulevard and the western property line included in the catchment area. Within the catchment is the existing farm house with driveway, garage, and irrigated fields around the house and at the top of the fill on the east half of the catchment. Runoff generated within the catchment will sheet flow with minor channelization due to farming, to the northeast where it will enter a network of culverts and irrigation channels along the common property line with the adjacent property to the north where it will combine with flows from Sub-basin HOS-3 before entering into Sub-basin HOS-4 which ultimately discharges to Clear Creek via culverts going under the public trail. The historic runoff rates and coefficients determined for sub-basin H-1 using an imperviousness of 2% and Time of Concentration (Tc) of 35 minutes are listed below.

- Q_5 = 0.27 cfs
- Q_{10} = 1.00 cfs
- Q_{100} = 5.98 cfs
- C_5 = 0.04
- C_{10} = 0.12
- C_{100} = 0.41

Sub-basin H-2

Sits south of Sub-basin H-1 and contains the middle half of the site generally between the northern and southern tops of the fill embankment, containing 5.275 acres. This catchment contains all sprinkler irrigated areas between Lowell Boulevard and the eastern top of the fill embankment. Runoff in this catchment sheet flows with some channelization to the west side of the site where it ponds in the center of the property against Lowell Boulevard until it reach gets deep enough to spill into Sub-basin H-1. There is a narrow strip of ROW between the retaining wall on the east side of Lowell Boulevard and the western property line included in the catchment area. There is a sub-catchment at the southwest corner of the catchment that grades back into a 30” Reinforced Concrete Pipe (RCP) Culvert installed under the access road along the southern property line. Per the elevation data this area doesn’t discharge to any one location instead runoff will just pond until spilling over to the north and east depending on which side of the culvert. The area is delineated at Sub-basin H-2A and represents an area with no discharge in the existing grading. The historic runoff rates and coefficients determined for sub-basin H-2 using an imperviousness of 2% and Tc of 31 minutes are listed below.

- Q_5 = 0.36 cfs
- Q_{10} = 1.11 cfs
- Q_{100} = 7.20 cfs
- C_5 = 0.04
- C_{10} = 0.10
- C_{100} = 0.37

Sub-basin H-3

Is in the northeast corner of the site to the east of Sub-basins H-1 and H-2 and north of Sub-basin H-4, containing 1.032 acres. The western boundary of the catchment is the eastern top of the fill embankment from the northern property line south to a minor ridgeline created by a road in the embankment and the southernmost culvert that conveys runoff under the trail and out of the property to Clear Creek. The eastern catchment boundary is the eastern property line of the site. Runoff in this catchment general sheet flows down the eastern fill embankment before pooling in the relatively flat area at the toe of the embankment where several poorly defined paths lead to one of the six culverts installed under the trail. Runoff ultimately flows into the Clear Creek through the open space bordering the site on the east. The historic runoff rates and coefficients determined for sub-basin H-3 using an imperviousness of 2% and Tc of 5 minutes are listed below.

- Q_5 = 0.04 cfs
- Q_{10} = 0.05 cfs
- Q_{100} = 1.21 cfs
- C_5 = 0.01
- C_{10} = 0.01
- C_{100} = 0.13

Sub-basin H-4

Is a long and narrow catchment between the southern top of the fill embankment and the southern property line of the site, containing 2.349 acres. The catchment extends from the western property line to the eastern property line and north up to Sub-basin H-3. There is a small area at southeast corner of the top of fill that is graded into a hole approximately 10-feet above the native grades in the catchment. Precipitation the falls within this area, delineated as Sub-basin H-4A, is will pool until either infiltrating or evaporating. Any runoff that infiltrates through the embankment will ultimately combine with surface flows within Sub-basin H-4. For this reason, the pond area was included as a part of the larger catchment Runoff in the catchment will generally sheet flow with some channelization along the toe of the fill embankment until leaving the site into Sub-basin HOS-5. The historic runoff rates and coefficients determined for sub-basin H-4 using an imperviousness of 2% and Tc of 31 minutes are listed below.

- Q_5 = 0.20 cfs
- Q_{10} = 0.60 cfs
- Q_{100} = 3.78 cfs
- C_5 = 0.04
- C_{10} = 0.10
- C_{100} = 0.36

Sub-basin HOS-1

Is part of the eastern half of Lowell Boulevard bordering the site on the west, containing 0.162 acres. The catchment starts at a high point in Lowell Boulevard near the middle of the site and runs south to

an inlet beyond the limits of this study. Runoff will sheet flow a short distance from the crown of Lowell Boulevard to the eastern gutter flowline and then south into an inlet. The historic runoff rates and coefficients determined for sub-basin HOS-1 using an imperviousness of 2% and Tc of 10 minutes are listed below.

- Q_5 = 0.02 cfs
- Q_{10} = 0.09 cfs
- Q_{100} = 0.52 cfs
- C_5 = 0.05
- C_{10} = 0.15
- C_{100} = 0.49

Sub-basin HOS-2

Is part of the eastern half of Lowell Boulevard bordering the site on the west, containing 0.266 acres. The catchment starts at a high point in Lowell Boulevard near the middle of the site and runs north to an inlet beyond the limits of this study. Runoff will sheet flow a short distance from the crown of Lowell Boulevard to the eastern gutter flowline and then north into an inlet. The historic runoff rates and coefficients determined for sub-basin HOS-2 using an imperviousness of 2% and Tc of 24 minutes are listed below.

- Q_5 = 0.03 cfs
- Q_{10} = 0.10 cfs
- Q_{100} = 0.57 cfs
- C_5 = 0.05
- C_{10} = 0.15
- C_{100} = 0.49

Sub-basin HOS-3

Is the southeastern corner of the Spano property to the north that includes the farm house, greenhouses, and other various agricultural use structures, collectively referred to as the farm house area containing 2.209 acres. The catchment extends from the northern property line of the subject site north to the edge of the farm house area where an irrigated field and network of irrigation ditches act as a low point in the property, and from Lowell Boulevard to the east side of the farm house area. Runoff generated within the catchment will sheet flow with minor channelization due to farming, to the southeast where it will enter a network of culverts and irrigation channels along the common property line with the subject site where it will combine with flows from Sub-basin H-1 before entering into Sub-basin HOS-4 which ultimately discharges to Clear Creek via culverts going under the public trail. The historic runoff rates and coefficients determined for sub-basin HOS-3 using an imperviousness of 2% and Tc of 35 minutes are listed below.

- Q_5 = 0.18 cfs
- Q_{10} = 0.66 cfs
- Q_{100} = 3.79 cfs
- C_5 = 0.05
- C_{10} = 0.15
- C_{100} = 0.49

Sub-basin HOS-4

Is the remainder of the Spano property to the north and east of Sub-basin HOS-3 and the subject site, containing an approximated 7.933 acres. A majority of the area within this catchment is beyond the

limits of the survey area so the basin characteristics are based on field observation along with partial survey data at pertinent locations. This catchment is mainly irrigated fields with the bottom end of the irrigation and culvert network leading to Clear Creek from the rest of the area. Runoff from both sub-basins H-1 and HOS-3 will combine at the southwest corner of Sub-basin HOS-4 where it enters the existing irrigation network. The historic runoff rates and coefficients determined for sub-basin HOS-4 using an imperviousness of 2% and Tc of 29 minutes are listed below.

- Q_5 = 0.57 cfs
- Q_{10} = 1.91 cfs
- Q_{100} = 11.91 cfs
- C_5 = 0.04
- C_{10} = 0.11
- C_{100} = 0.39

Sub-basin HOS-5

Is the relatively small open space area between the southeast corner of the subject property and Clear Creek, containing 0.805 acres. The area gently slopes towards a minor drainage running down the western bank of Clear Creek. Runoff from sub-basins H-4 and HOS-6 will combine at the western boundary of the catchment and sheet flow towards the drainage and into Clear Creek. The historic runoff rates and coefficients determined for sub-basin HOS-5 using an imperviousness of 2% and Tc of 22 minutes are listed below.

- Q_5 = 0.02 cfs
- Q_{10} = 0.02 cfs
- Q_{100} = 0.48 cfs
- C_5 = 0.01
- C_{10} = 0.01
- C_{100} = 0.13

Sub-basin HOS-6

Is the catchment south of the Sub-basin H-4 extending up the northern embankment of I-76 to the roadway, from Lowell Boulevard on the west to Sub-basin HOS-5 on the east, containing 1.806 acres. HOS-6 is also the only off-site catchment that directs flows onto the subject property. Runoff sheet flows off of the interstate embankment to the north where it will combine with flows from Sub-basin H-4 before routing east into Sub-basin HOS-5 and ultimately into Clear Creek. The historic runoff rates and coefficients determined for sub-basin HOS-6 using an imperviousness of 2% and Tc of 31 minutes are listed below.

- Q_5 = 0.12 cfs
- Q_{10} = 0.46 cfs
- Q_{100} = 2.80 cfs
- C_5 = 0.04
- C_{10} = 0.12
- C_{100} = 0.42

Proposed Development

The Lowell Boulevard Apartments is a 360-unit apartment complex. The units will be split between four separate buildings along the perimeter of the site with a large parking lot located in the middle between all of the buildings. Internal access aisles will circulate through the development with two connection points to Lowell Boulevard at the northwest and southwest corners of the site. The main

access at the northwest corner of the site will line up directly across from the western entrance to the park on the west side of Lowell Boulevard. The parking lot will have head-to-head parking with landscape islands breaking up the asphalt surface. There will also be wide landscape buffers around the perimeter of the buildings. A connection to the existing trail and common open space is provided on the east side of the property with a club house and to be determined tenant amenities.

The proposed grading design for the development will be changed to flatten the site with an overall 2% slope from the west to the east following the pre-fill drainage patterns and ultimate discharge points currently used on the west side of Clear Creek. The internal drive aisles will serve as the main conduits for runoff to move to the Extended Detention Basin (EDB) which will capture all on-site and some off-site runoff. The stormwater generated on-site will surface flow directly away from the proposed structures and into the adjacent gutter network. From there a series of valley pans will convey runoff to inlets along the southern edge of the site that will discharge directly into the detention pond. Garbage dumpster enclosures will be elevated relative to the adjacent area to prevent runoff from flowing into or through the dumpsters to prevent contamination. Based on the CLOMR for the site, a diversion ditch has to be included along the southern boundary of the subject property to carry possible split flows from Lowell Boulevard to the south and the park area to the west into the Clear Creek channel. The ditch will be used as the ultimate discharge point for the detention pond in order to consolidate site discharge points into one protected drainage way.

Drainage Design

Runoff

Design rainfall intensities from the National Oceanic and Atmospheric Administration (NOAA) Precipitation Frequency Data Server, NOAA Atlas 14, Volume 8, Version 2, downloaded January 24, 2023, were used to estimate runoff generation for each sub-basin. The 5-year, 10-year and 100-year storm events were used to determine the intensity (i) of the design storms.

The one-hour duration intensities from NOAA are:

- i_5= 1.07 in/hr
- i_{10}= 1.32 in/hr
- i_{100}= 2.31 in/hr

The rainfall intensities were adjusted based on the times of concentration calculated for each sub-basin, which vary from 5 minutes to 35 minutes in the historic condition. The Rational Method was used to calculate design runoff flow rates for each sub-basin. Reference the sub-basin calculations in Appendix B. The proposed drainage pattern for the developed site will capture all on-site generated flows in the proposed detention pond.

Per Adams County Code Chapter 9 – Stormwater Drainage Design and Stormwater Quality Control Regulations (SDR)

§9-01-03-11,
"The minimum capacity and maximum release rates for the 5-year and 100-year recurrence interval storms will be determined by procedures and criteria presented in this Chapter."

§9-01-11,
"The detention storage facility shall be sized to hold the 5-year and the 100-year runoff, and water quality capture volumes. Refer to Section 9-04 for additional water quality treatment requirements for applicable projects within the County's MS4 Permitted area (urbanized area). Post-development flows from the site cannot be greater than the pre-development flows. Surface water shall not be released from the development at rates greater than provided for in Table 9.16."

Table 9.16 – Allowable Release Rates (cfs/acre)

Control Frequency	*Dominate Soil Group*		
	A	*B*	*C & D*
5-year	*0.07*	*0.13*	*0.17*
100-year	*0.50*	*0.85*	*1.00*

The cumulative historic runoff flow rates from the on-site sub-basins are:

- Q_5= 0.87 cfs
- Q_{10}= 2.76 cfs
- Q_{100}= 18.18 cfs

The 5-year and 100-year historic runoff rates will be used for the maximum allowable release rate out of the detention pond per Adams County criteria. The runoff from Sub-basin HOS-6 will flow directly into the flood diversion ditch on the south side of the site and will not be captured by the proposed. The pond will outlet into the flood diversion ditch which will convey flows to Clear Creek per the historical drainage patterns in the area and on the property. The pond outlet pipe will have an erosion protected outlet with a low slope to keep flow energies low during the peak storm, and prevent gradual erosion damage from minor storm events.

Proposed Sub-Basins

Lot coverage calculations were performed using the conceptual site plan. As the final site plan is developed the figures below will act as a guide for lot coverage limits.

Residential Area Coverage:

- Building Area = 93,543 ft^2 (16.7%)
- Pavement Area = 214,739 ft^2 (38.4%)
- Site Concrete/Sidewalks = 27,895 ft^2 (5.0%)
- Landscape Area = 223,350 ft^2 (39.9%)

Residential Area Total = 559,527 ft^2 (12.845 acres)

The lot coverages were then used to calculate the imperviousness percentage of each area individually and for the overall site using Mile High Flood District (MHFD) Percentage Imperviousness Values, Table 6-3 of the Urban Storm Drainage Criteria Manual (USDCM) Vol. 1.

Lot 1 Overall Imperviousness:

- Building Area = 93,543 ft^2 @ 90%
- Concrete Area = 27,895 ft^2 @ 90%
- Pavement Area = 214,739 ft^2 @ 100%
- Landscape Area = 223,350 ft^2 @ 2%
- Total Residential Area = 559,527 ft^2 (12.845 acre)
- Total Impervious Area Imperviousness = 328,500 ft^2 (58.7%)

Detention Pond & Release Structure

An EDB type detention pond was selected to attenuate developed flows and treat runoff generated by the proposed development. MHFD provided Detention Basin Design Workbook, UD-Detention, Version 3.07, Published February, 2017, was used to calculate the required detention volume for the proposed development based. The design storage volume for the proposed development includes the Water Quality Control Volume (WQCV) per USDCM Volume III, Chapter 3.0, the minor storm (5-year) volume, and the major storm (100-year) volume. Based on the overall property characteristics, estimated post-development imperviousness, and Adams County maximum release rate criteria a required storage volume of 58,126 ft^3 will be needed for the project. At this stage of the development planning an oversized pond is being used to allow for changes during the final design phase. A summary of the preliminary sizing of the EDB is below.

- WQCV = 11,915 ft^3 (0.273 ac-ft)
- 5-yr Volume = 18,324 ft^3 (0.420 ac-ft)
- 100-yr Volume = 27,887 ft^3 (0.640 ac-ft)
- Required Volume = 58,126 ft^3 (1.333 ac-ft)
- Allowable Overall Impervious Area = 363,693 ft^2 (65%)

Detention Pond Maintenance

The pond maintenance requirements below are provided in the UDFCM Chapter 6, Volume 3. EDB have low to moderate routine maintenance requirements, and may require significant maintenance once every 15 to 25 years. Reference the MHFD Fact Sheets in Appendix C for information on common maintenance practices. The approved grading and drainage plans are provided in Appendix D of this report. Below is a summary list of the recommended maintenance schedule.

Routine Maintenance

- Routine site walks should be conducted by the owner or maintenance staff to collect wind blow debris and litter around the property as a preventative measure.

- Inspect the detention pond at least twice annually for erosion and sediment or debris build-up in the of the detention pond, around the outlet structure, in the micro-pool/well screen, in the outlet pipe, and at the discharge point into the ditch along the southern property line.
- Until the permanent ground cover is established across the whole property it will be necessary to inspect the detention pond after every precipitation event for erosion/sediment build-up. Any damage or build-up observed should be repaired or removed immediately.
- Sediment build-up should be removed from the trickle channel and micro-pool annually. Dispose of the sediment at a local dump or gravel mine. Do not spread the sediment out within the detention pond or on-site.
- Repair any damage to the detention pond structural elements if observed. Fill and regrade eroded areas per the approved grading plans and revegetate to protect from further erosion. If the problem persists in specific areas, a Rolled Erosion Control Product can be used to fortify the area. Reference Appendix C for more information.
- Check the outlet orifice plates for damage or clogging. Clean any debris or sediment away from the plate immediately when noticed. If the plate is replaced it must conform to the configuration detailed in the approved drainage plans.
- Streets and paved surfaces that drain into the detention pond should be kept clean with periodic (1-2 times annually) sweeping and weekly trash removal.
- Sediment build-up may be removed by hand with a shovel to avoid damaging the ground with heavy equipment. If heavy equipment is used all rutting should be repaired by hand prior to reseeding or laying sod.
- All areas disturbed by erosion or during repair efforts must be reseeded or new sod laid and established before considering the issue resolved. Constant monitoring, targeted irrigating, and restricting access will be required until the final ground cover is established (70% coverage for seeded areas, 3-4 weeks for sod).
- Native/drought tolerant grasses should be used for the final ground cover within the pond. Mowing should be kept to the minimum needed for weed control. A minimum grass height of 6” should be kept within the pond area.
- If manicured or turf grasses are used, the outlet structure should be inspected after each mowing and grass clippings removed to prevent clogging. Turf grasses should be aerated annually to keep the grass healthy and increase infiltration.

Major Maintenance

- The bottom of the detention pond should be checked for conformance with the approved grading plan once every 10-15 years, or if excessive sediment build-up or erosion is observed. The depth of the pond relative to the emergency spillway, slope of the trickle channel, and uniformity of grades within the bottom of the pond (trickle channel, perpendicular to trickle channel, and along toe of embankment) should be surveyed by a qualified professional using an

optical transit or GPS system. Regrade the detention pond as necessary to reestablish design grades if:
  - more than 6" of build-up is measured over the bottom of the pond,
  - the trickle channel is excessively cracked (<1/2") or broken,
  - or uniformity of grades within the bottom of the pond deviate by more than 0.10%.
- Inspect the outlet pipe for erosion or structural damage (spalling, exposed rebar, collapse) using a pipe camera. Consult with an underground utility service for possible repair options if structural damage is observed.

Sediment & Erosion Control

Construction BMP's

Construction Best Management Practices (BMP) will be utilized to control sediment travel and construction debris during grading operations on-site as well as prevent contamination of storm water or dirty storm water from exiting the site during the construction process. These methods will include:

Erosion Control (EC) BMP's

- Temporary and Permanent Seeding
- Mulching
- Rolled Erosion Control Products
- Temporary Outlet Protection
- Earth Dikes and Drainage Swales
- Wind Erosion-Dust Control

Source Control (S) BMP's

- Covering Outdoor Storage and Handling Areas
- Spill Prevention, Containment and Control
- Vehicle Maintenance, Fueling and Storage

Sediment Control (SC) BMP's

- Silt Fence
- Sediment Control Logs and Rock Socks
- Inlet Protection
- Sediment Basin/Sediment Traps
- Vegetative Buffer

Material Management (MM) BMP's

- Concrete Washout Area (Earthen and Eco-pan type)
- Stockpile Management
- Good Housekeeping Practices

Site Management (SM) BMP's

- Construction Fence
- Vehicle Tracking Control
- Stabilized Staging Area
- Street Sweeping and Vacuuming
- Paving and Grinding Operations

Permanent BMP's

Permanent structural BMP's will be utilized to continue to treat storm water runoff generated on-site and prevent contamination from common development sources.

Treatment (T) BMP's

- Grass Buffer
- Grass Swale
- Extended Detention Basin
- Outlet Structure

Source Control (S) BMP's

- Disposal of Household Waste
- Preventative Maintenance
- Use of Pesticides, Herbicides and Fertilizers
- Landscape Maintenance
- Snow and Ice Management
- Steet Sweeping and Cleaning
- Storm Sewer System Cleaning

Conclusions

As outlined in this report, the drainage design for the proposed development generally conforms to Adams County criteria as defined. On-site flow will be routed to the proposed detention pond via the internal road network and released into the Clear Creek via a flood diversion ditch planned along the southern property line. This report presents the preliminary drainage design for the proposed apartment development. Temporary BMP's will be used during construction to mitigate issues common with grading activities and will stay in place until final stabilization is complete.

References

- Adams County Code Chapter 9 – Stormwater Drainage Design and Stormwater Quality Control Regulations effective December 8th, 2020
- United States Department of Agriculture Web Soil Survey, accessed December, 2022
- NOAA Atlas 14, Volume 8, Version 2, downloaded January 24, 2023
- Mile High Flood District, Volume I and II. Revised January 2016
- Mile High Flood District, Volume III, Revised November 2010
- FEMA FIRM Panel 08001C0591H, Accessed January 22, 2023, effective date March 5th, 2007

Appendix A

USGS Web Soil Survey

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 Adams County Area, Parts of Adams and Denver Counties, Colorado

September 22, 2022

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,350 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 1:20,000.

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: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 18, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 1, 2020—Jul 2, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

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
EgA	Ellicott-Glenberg complex, 0 to 3 percent slopes, occasionally flooded	6.4	36.0%
Lw	Loamy alluvial land, moderately wet	10.3	57.5%
W	Water	1.2	6.5%
Totals for Area of Interest		**17.9**	**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.

Adams County Area, Parts of Adams and Denver Counties, Colorado

EgA—Ellicott-Glenberg complex, 0 to 3 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2x0j6
Elevation: 3,950 to 5,960 feet
Mean annual precipitation: 13 to 17 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 135 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition

Ellicott, occasionally flooded, and similar soils: 65 percent
Glenberg, rarely flooded, and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ellicott, Occasionally Flooded

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Noncalcareous, stratified sandy alluvium

Typical profile

A - 0 to 4 inches: sand
AC - 4 to 13 inches: sand
C1 - 13 to 30 inches: sand
C2 - 30 to 44 inches: sand
C3 - 44 to 80 inches: coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 39.96 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R067BY031CO - Sandy Bottomland
Hydric soil rating: No

Description of Glenberg, Rarely Flooded

Setting

Landform: Ephemeral streams, flood-plain steps
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified, calcareous alluvium

Typical profile

A - 0 to 6 inches: sandy loam
AC - 6 to 18 inches: sandy loam
C1 - 18 to 45 inches: sandy loam
C2 - 45 to 80 inches: loamy coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: A
Ecological site: R067BY031CO - Sandy Bottomland
Hydric soil rating: No

Minor Components

Las animas, occasionally flooded

Percent of map unit: 10 percent
Landform: Flood plains, ephemeral streams
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R067BY038CO - Wet Meadow
Hydric soil rating: No

Ellicott sandy-skeletal, occasionally flooded

Percent of map unit: 5 percent
Landform: Channels, flood plains
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R067BY031CO - Sandy Bottomland
Hydric soil rating: No

Lw—Loamy alluvial land, moderately wet

Map Unit Setting

National map unit symbol: 34w5
Elevation: 4,000 to 5,500 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Loamy alluvial land: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Loamy Alluvial Land

Setting

Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 6 inches: variable
H2 - 6 to 36 inches: stratified loam to clay loam
H3 - 36 to 60 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: OccasionalNone
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Nunn
Percent of map unit: 12 percent
Hydric soil rating: No

Satanta
Percent of map unit: 12 percent
Landform: Paleoterraces
Hydric soil rating: No

Fluvaquentic haplustolls
Percent of map unit: 6 percent
Landform: Sloughs
Hydric soil rating: Yes

W—Water

Map Unit Setting
National map unit symbol: wdnx
Mean annual precipitation: 12 to 14 inches
Farmland classification: Not prime farmland

Map Unit Composition
Water: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Minor Components

Other soils
Percent of map unit: 10 percent
Hydric soil rating: No

Aquolls
Percent of map unit: 10 percent
Landform: Marshes
Hydric soil rating: Yes

Appendix B

Hydraulic Computations

SUB-BASIN CALCULATIONS

Job Name Lowell Blvd Apts - 5602 Lowell Blvd
Job No. 22-C14
Date January 24, 2023

Table 1. Historic Sub-Basin Summary

Basin ID	Basin Parameters						Runoff Coefficients, C			Runoff, Q			Conveyance
	Area (acre)	L (ft)	Δ (ft)	Avg S_o	I	t_{use} (min)	C_5	C_{10}	C_{100}	Q_5 (cfs)	Q_{10} (cfs)	Q_{100} (cfs)	
H-1	4.168	561.3	1.8	0.3%	2%	35	0.04	0.12	0.41	0.27	1.00	5.98	Sheet Flow/Channelization
H-2	5.275	800.7	9.5	1.2%	2%	31	0.04	0.10	0.37	0.36	1.11	7.20	Sheet Flow
H-3	1.032	194.3	20.6	10.6%	2%	5	0.01	0.01	0.13	0.04	0.05	1.21	Sheet Flow/Channelization
H-4	2.847	650.6	10.8	1.7%	2%	31	0.04	0.10	0.36	0.20	0.60	3.78	Sheet Flow/Channelization
HOS-1	0.162	184.9	1.0	0.5%	2%	10	0.05	0.15	0.49	0.02	0.09	0.52	Sheet Flow/Curb & Gutter
HOS-2	0.266	416.8	1.6	0.4%	2%	24	0.05	0.15	0.49	0.03	0.10	0.57	Sheet Flow/Curb & Gutter
HOS-3	2.209	505.6	3.5	0.7%	2%	35	0.05	0.15	0.49	0.18	0.66	3.79	Sheet Flow/Channelization
HOS-4	7.933	634.1	6.1	1.0%	2%	29	0.04	0.11	0.39	0.57	1.91	11.91	Sheet Flow/Channelization
HOS-5	0.805	188.4	3.4	1.8%	2%	22	0.01	0.01	0.13	0.02	0.02	0.48	Sheet Flow
HOS-6	1.806				2%	31	0.04	0.12	0.42	0.12	0.46	2.80	Sheet Flow/Channelization
Hist. Site	13.323							Total Historic On-Site Q		0.87	2.76	18.18	
Hist. Off-Site	13.181							Total Historic Off-Site Q		0.94	3.24	20.08	

Sub-Basin H-1

Sub-basin Area =	181579	ft^2	4.168	acre
Paved		ft^2		
Packed Gravel		ft^2		
Roofs/Concrete		ft^2		
Landscaping/Undeveloped	181579	ft^2		
Imp =	2.0%			

Percent Imperviousness from Table 6-3

Paved	1.00
Gravel	0.40
Roofs/Concrete	0.90
Greenbelts/Landscaping	0.02

Soil Type

A/C

C_5 = runoff coefficient for 5-year frequency (from Table 6-5)	0.04
C_{10} = runoff coefficient for 10-year frequency (from Table 6-5)	0.12
C_{100} = runoff coefficient for 100-year frequency (from Table 6-5)	0.41

TIME OF CONCENTRATION, t_c

t_c = computed time of concentration (minutes)

$t_c = t_i + t_t$ Equation 6-2

t_i = overland (initial) flow time (minutes)

$t_i = (0.395(1.1-Cy)(L_i^{0.5}))/S_o^{0.33}$ Equation 6-3

Cy = runoff coefficient for storm frequency frequency (from Table 6-4)

L_i = length of overland flow (ft), not greater than 300' (urban) or 500' (rural)

S_o = average slope along overland flow path (ft/ft)

t_t = channelized flow time (minutes)

$t_t = L_t/((60*C_v)*(S_w^{0.5})) = L_t/60V_t$ Equation 6-4

L_t = length of channelized flow (ft)

S_w = average slope along channelized flow path (ft/ft)

C_v = Conveyance Coefficient (Table 6-5)

Developed Flow Rates, Q

Q=CIA Equation 6-1

Q = peak rate of runoff (CFS)

C = Runoff coefficient

I = avg intensity of rainfall

A = area (AC)

t_c, 5-yr

L_i =	265.1	ft
Delta =	0.8	ft
S_o =	0.003	ft/ft
C_5 =	0.04	
t_i =	46	minutes
L_t =	296.2	ft
Delta =	1.0	ft
S_w =	0.003	ft/ft
K =	5	Table 6-2
t_t =	17	minutes
Therefore; t_c =	63	minutes

Q_5, 5-YR

C_5 =	0.04	
I_5 =	1.63	in/hr
A =	4.168	acre
Q_5 =	0.272	cfs
	0.065	cfs/acre

Q_{10}, 10-YR

C_{10} =	0.12	
I_{10} =	2.00	in/hr
A =	4.168	acre
Q_{10} =	1.000	cfs
	0.240	cfs/acre

Q_{100}, 100-YR

C_{100} =	0.41	
I_{100}=	3.50	in/hr
A =	4.168	acre
Q_{100} =	5.982	cfs
	1.435	cfs/acre

t_c Check for Urbanized Catchments

$t_c = (26-17i)+(L_t / (60(14i+9)S_t\text{^}0.5))$ Equation 6-5

t_c = computed time of concentration (minutes)

L_t = length of flow path (ft)

i = imperviousness in decimal

S_t = average slope along channelized flow path (ft/ft)

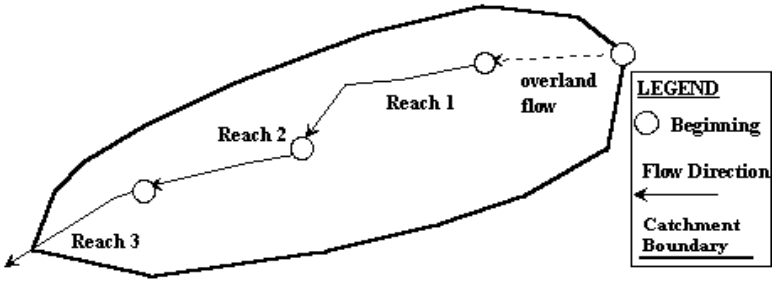
*T_c not to exceed equation 6-5 at first design pt

i =	0.02	
L_t =	296.2	ft
Delta =	1.0	ft
S_t =	0.003	ft/ft
t_c =	35	minutes
Use t_c =	35	minutes

Length-Weighted Slope Calculations

Version 2.00 released May 2017

Designer: TJH
Company: Asher Arch + Eng
Date: 1/27/2023
Project: Lowell Blvd Apartments
Location: 5602 Lowell Blvd



Subcatchment Name	Percent Imperviousness (%)
H-1	2

OVERLAND FLOW

Reach ID	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)
1	19.75	5226.17	5225.84	0.017
2	84.79	5225.84	5225.70	0.002
3	160.59	5225.70	5225.26	0.003
Total Overland Length (ft)	**265.13**	**Length-Weighted Slope (ft/ft)**		**0.003**

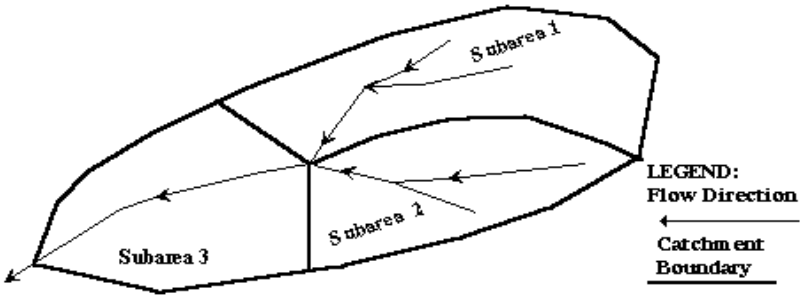
CHANNELIZED FLOW

Reach ID	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)
4	296.19	5224.27	5223.40	0.003
Total Channelized Length (ft)	**296.19**	**Length-Weighted Slope (ft/ft)**		**0.003**

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: TJH
Company: Asher Arch+Eng
Date: 1/27/2023
Project: Lowell Blvd Apts
Location: 5602 Lowell Blvd



Subcatchment Name
H-1

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
H-1(A)	0.912	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27
H-1(C)	3.256	C	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59
Total Area (ac)	4.168		Area-Weighted C	0.01	0.04	0.12	0.26	0.32	0.41	0.52
			Area-Weighted Override C	0.01	0.04	0.12	0.26	0.32	0.41	0.52

Sub-Basin H-2

Sub-basin Area =	229761	ft^2	5.275	acre
Paved		ft^2		
Packed Gravel		ft^2		
Roofs/Concrete		ft^2		
Landscaping/Undeveloped	229761	ft^2		
Imp =	2.0%			

Percent Imperviousness from Table 6-3

Paved	1.00
Gravel	0.40
Roofs/Concrete	0.90
Greenbelts/Landscaping	0.02

Soil Type

A/C

C_5 = runoff coefficient for 5-year frequency (from Table 6-5)	0.04
C_{10} = runoff coefficient for 10-year frequency (from Table 6-5)	0.10
C_{100} = runoff coefficient for 100-year frequency (from Table 6-5)	0.37

TIME OF CONCENTRATION, t_c

t_c = computed time of concentration (minutes)

$t_c = t_i + t_t$ Equation 6-2

t_i = overland (initial) flow time (minutes)

$t_i = (0.395(1.1-Cy)(L_i^{0.5}))/S_o^{0.33}$ Equation 6-3

Cy = runoff coefficient for storm frequency frequency (from Table 6-4)

L_i = length of overland flow (ft), not greater than 300' (urban) or 500' (rural)

S_o = average slope along overland flow path (ft/ft)

t_t = channelized flow time (minutes)

$t_t = L_t/((60*C_v)*(S_w^{0.5})) = L_t/60V_t$ Equation 6-4

L_t = length of channelized flow (ft)

S_w = average slope along channelized flow path (ft/ft)

C_v = Conveyance Coefficient (Table 6-5)

Developed Flow Rates, Q

Q=CIA Equation 6-1

Q = peak rate of runoff (CFS)

C = Runoff coefficient

I = avg intensity of rainfall

A = area (AC)

t_c, 5-yr

L_i =	504.1	ft
Delta =	6.0	ft
S_o =	0.012	ft/ft
C_5 =	0.04	Table 6-5
t_i =	41	minutes
L_t =	296.6	ft
Delta =	3.5	ft
S_w =	0.012	ft/ft
K =	5	Table 6-2
t_t =	9.10	minutes
Therefore; t_c =	50	minutes

Q_5, 5-YR

C_5 =	0.04	
I_5 =	1.72	in/hr
A =	5.275	acre
Q_5 =	0.363	cfs
	0.069	cfs/acre

Q_{10}, 10-YR

C_{10} =	0.10	
I_{10} =	2.10	in/hr
A =	5.275	acre
Q_{10} =	1.108	cfs
	0.210	cfs/acre

Q_{100}, 100-YR

C_{100} =	0.37	
I_{100}=	3.69	in/hr
A =	5.275	acre
Q_{100} =	7.201	cfs
	1.365	cfs/acre

t_c Check for Urbanized Catchments

$t_c = (26-17i)+(L_t / (60(14i+9)S_t\text{^}0.5))$ Equation 6-5

t_c = computed time of concentration (minutes)

L_t = length of flow path (ft)

i = imperviousness in decimal

S_t = average slope along channelized flow path (ft/ft)

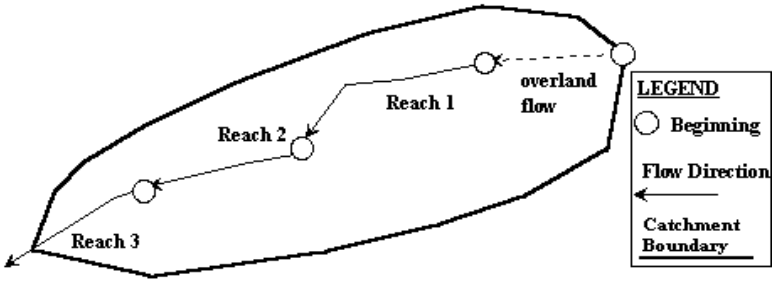
*T_c not to exceed equation 6-5 at first design pt

i =	0.02	
L_t =	296.6	ft
Delta =	3.5	ft
S_t =	0.012	ft/ft
t_c =	31	minutes
Use t_c =	31	minutes

Length-Weighted Slope Calculations

Version 2.00 released May 2017

Designer: TJH
Company: Asher Arch + Eng
Date: 1/27/2023
Project: Lowell Blvd Apartments
Location: 5602 Lowell Blvd



Subcatchment Name	Percent Imperviousness (%)
H-2	2

OVERLAND FLOW

Reach ID	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)
1	258.48	5239.34	5236.99	0.009
2	245.62	5236.99	5233.21	0.015
Total Overland Length (ft)	**504.10**		**Length-Weighted Slope (ft/ft)**	**0.012**

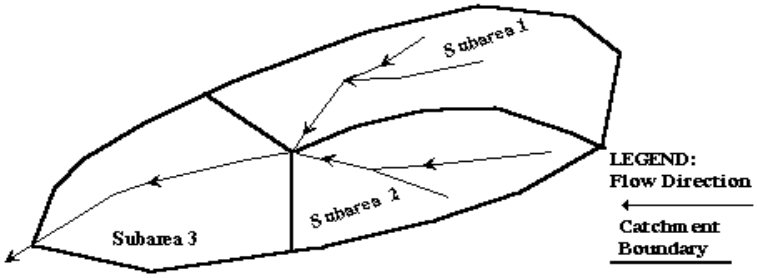
CHANNELIZED FLOW

Reach ID	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)
3	296.59	5233.21	5229.64	0.012
Total Channelized Length (ft)	**296.59**		**Length-Weighted Slope (ft/ft)**	**0.012**

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: TJH
Company: Asher Arch+Eng
Date: 1/27/2023
Project: Lowell Blvd Apts
Location: 5602 Lowell Blvd



Subcatchment Name
H-2

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
H-2(A)	1.635	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27
H-2(C)	3.142	C	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59
Total Area (ac)	4.777		Area-Weighted C	0.01	0.04	0.10	0.22	0.28	0.37	0.48
			Area-Weighted Override C	0.01	0.04	0.10	0.22	0.28	0.37	0.48

Sub-Basin H-3

Sub-basin Area =	44972	ft^2	1.032	acre
Paved		ft^2		
Packed Gravel		ft^2		
Roofs/Concrete		ft^2		
Landscaping/Undeveloped	44972	ft^2		
Imp =	2.0%			

Percent Imperviousness from Table 6-3

Paved	1.00
Gravel	0.40
Roofs/Concrete	0.90
Greenbelts/Landscaping	0.02

C_5 = runoff coefficient for 5-year frequency (from Table 6-5)	0.01
C_{10} = runoff coefficient for 10-year frequency (from Table 6-5)	0.01
C_{100} = runoff coefficient for 100-year frequency (from Table 6-5)	0.13

Soil Type

A

TIME OF CONCENTRATION, t_c

t_c = computed time of concentration (minutes)

$t_c = t_i + t_t$ Equation 6-2

t_i = overland (initial) flow time (minutes)

$t_i = (0.395(1.1-Cy)(L_i^{0.5}))/S_o^{0.33}$ Equation 6-3

Cy = runoff coefficient for storm frequency frequency (from Table 6-4)

L_i = length of overland flow (ft), not greater than 300' (urban) or 500' (rural)

S_o = average slope along overland flow path (ft/ft)

t_t = channelized flow time (minutes)

$t_t = L_t/((60*C_v)*(S_w^{0.5})) = L_t/60V_t$ Equation 6-4

L_t = length of channelized flow (ft)

S_w = average slope along channelized flow path (ft/ft)

C_v = Conveyance Coefficient (Table 6-5)

Developed Flow Rates, Q

Q=CIA Equation 6-1

Q = peak rate of runoff (CFS)

C = Runoff coefficient

I = avg intensity of rainfall

A = area (AC)

t_c, 5-yr

L_i =	30.8	ft
Delta =	5.9	ft
S_o =	0.192	ft/ft
C_5 =	0.01	Table 6-5
t_i =	4	minutes
L_t =	163.5	ft
Delta =	14.7	ft
S_w =	0.090	ft/ft
K =	7	Table 6-2
t_t =	1.30	minutes
Therefore; t_c =	5	minutes

Q_5, 5-YR

C_5 =	0.01	
I_5 =	4.15	in/hr
A =	1.032	acre
Q_5 =	0.043	cfs
	0.042	cfs/acre

Q_{10}, 10-YR

C_{10} =	0.01	
I_{10} =	5.12	in/hr
A =	1.032	acre
Q_{10} =	0.053	cfs
	0.051	cfs/acre

Q_{100}, 100-YR

C_{100} =	0.13	
I_{100}=	9.04	in/hr
A =	1.032	acre
Q_{100} =	1.213	cfs
	1.175	cfs/acre

t_c Check for Urbanized Catchments

$t_c = (26-17i)+(L_t / (60(14i+9)S_t\text{^}0.5))$ Equation 6-5

t_c = computed time of concentration (minutes)

L_t = length of flow path (ft)

i = imperviousness in decimal

S_t = average slope along channelized flow path (ft/ft)

*T_c not to exceed equation 6-5 at first design pt

i =	0.02	
L_t =	163.5	ft
Delta =	14.7	ft
S_t =	0.090	ft/ft
t_c =	27	minutes
Use t_c =	5	minutes

Length-Weighted Slope Calculations

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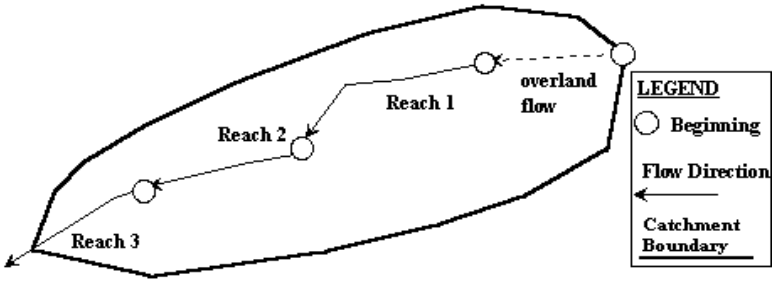
Location: 5602 Lowell Blvd



Subcatchment Name	Percent Imperviousness (%)
H-3	2

OVERLAND FLOW

Reach ID	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)
1	30.81	5240.59	5234.68	0.192
Total Overland Length (ft)	**30.81**	**Length-Weighted Slope (ft/ft)**		**0.192**

CHANNELIZED FLOW

Reach ID	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)
2	113.90	5234.68	5221.19	0.118
3	49.62	5221.19	5220.00	0.024
Total Channelized Length (ft)	**163.52**	**Length-Weighted Slope (ft/ft)**		**0.090**

Sub-Basin H-4

Sub-basin Area =	124019	ft^2	2.847	acre
Paved		ft^2		
Packed Gravel		ft^2		
Roofs/Concrete		ft^2		
Landscaping/Undeveloped	124019	ft^2		
Imp =	2.0%			

Percent Imperviousness from Table 6-3

Paved	1.00
Gravel	0.40
Roofs/Concrete	0.90
Greenbelts/Landscaping	0.02

C_5 = runoff coefficient for 5-year frequency (from Table 6-5)	0.04
C_{10} = runoff coefficient for 10-year frequency (from Table 6-5)	0.10
C_{100} = runoff coefficient for 100-year frequency (from Table 6-5)	0.36

Soil Type

A/C

TIME OF CONCENTRATION, t_c

t_c = computed time of concentration (minutes)

$t_c = t_i + t_t$ Equation 6-2

t_i = overland (initial) flow time (minutes)

$t_i = (0.395(1.1-Cy)(L_i^{0.5}))/S_o^{0.33}$ Equation 6-3

Cy = runoff coefficient for storm frequency frequency (from Table 6-4)

L_i = length of overland flow (ft), not greater than 300' (urban) or 500' (rural)

S_o = average slope along overland flow path (ft/ft)

t_t = channelized flow time (minutes)

$t_t = L_t/((60*C_v)*(S_w^{0.5})) = L_t/60V_t$ Equation 6-4

L_t = length of channelized flow (ft)

S_w = average slope along channelized flow path (ft/ft)

C_v = Conveyance Coefficient (Table 6-5)

Developed Flow Rates, Q

Q=CIA Equation 6-1

Q = peak rate of runoff (CFS)

C = Runoff coefficient

I = avg intensity of rainfall

A = area (AC)

t_c, 5-yr

L_i =	416.8	ft
Delta =	9.4	ft
S_o =	0.023	ft/ft
C_5 =	0.04	Table 6-5
t_i =	30	minutes
L_t =	233.8	ft
Delta =	1.4	ft
S_w =	0.006	ft/ft
K =	7	Table 6-2
t_t =	7.2	minutes
Therefore; t_c =	37	minutes

Q_5, 5-YR

C_5 =	0.04	
I_5 =	1.72	in/hr
A =	2.847	acre
Q_5 =	0.196	cfs
	0.069	cfs/acre

Q_{10}, 10-YR

C_{10} =	0.10	
I_{10} =	2.10	in/hr
A =	2.847	acre
Q_{10} =	0.598	cfs
	0.210	cfs/acre

Q_{100}, 100-YR

C_{100} =	0.36	
I_{100}=	3.69	in/hr
A =	2.847	acre
Q_{100} =	3.782	cfs
	1.328	cfs/acre

t_c Check for Urbanized Catchments

$t_c = (26-17i)+(L_t / (60(14i+9)S_t\text{^}0.5))$ Equation 6-5

t_c = computed time of concentration (minutes)

L_t = length of flow path (ft)

i = imperviousness in decimal

S_t = average slope along channelized flow path (ft/ft)

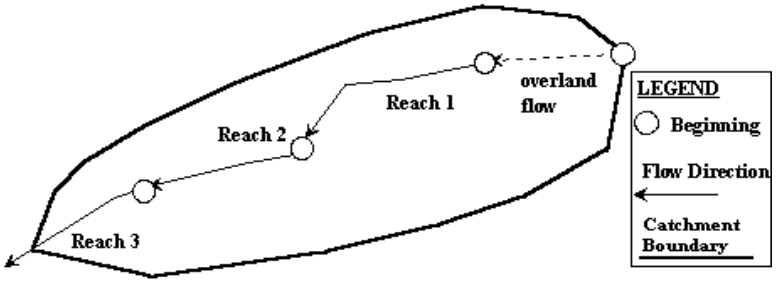
*T_c not to exceed equation 6-5 at first design pt

i =	0.02	
L_t =	233.8	ft
Delta =	1.4	ft
S_t =	0.006	ft/ft
t_c =	31	minutes
Use t_c =	31	minutes

Length-Weighted Slope Calculations

Version 2.00 released May 2017

Designer: TJH
Company: Asher Arch + Eng
Date: 1/27/2023
Project: Lowell Blvd Apartments
Location: 5602 Lowell Blvd



Subcatchment Name	Percent Imperviousness (%)
H-4	2

OVERLAND FLOW

Reach ID	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)
1	69.90	5233.84	5232.98	0.012
2	30.63	5232.98	5227.63	0.175
3	316.25	5227.63	5223.91	0.012

Total Overland Length (ft) 416.78 — **Length-Weighted Slope (ft/ft)** 0.024

CHANNELIZED FLOW

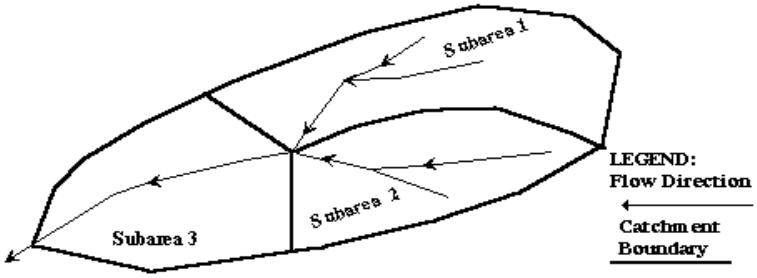
Reach ID	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)
4	233.84	5223.91	5222.55	0.006

Total Channelized Length (ft) 233.84 — **Length-Weighted Slope (ft/ft)** 0.006

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: TJH
Company: Asher Arch+Eng
Date: 1/27/2023
Project: Lowell Blvd Apts
Location: 5602 Lowell Blvd



Subcatchment Name
H-4

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Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
H-4(A)	0.823	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27
H-4(C)	1.526	C	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59
Total Area (ac)	2.349		Area-Weighted C	0.01	0.04	0.10	0.22	0.28	0.36	0.48
			Area-Weighted Override C	0.01	0.04	0.10	0.22	0.28	0.36	0.48

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

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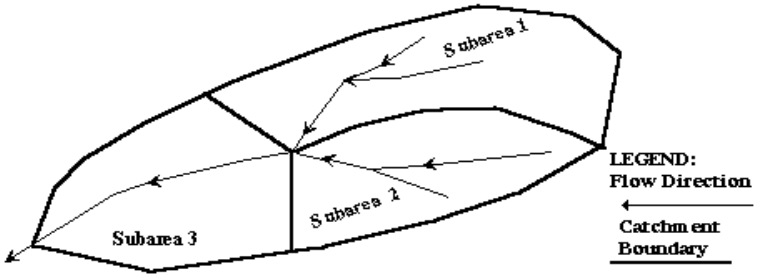
Company: Asher Arch+Eng
Date: 1/27/2023
Project: Lowell Blvd Apts
Location: 5602 Lowell Blvd



Subcatchment Name
H-4A

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
H-4A(A)	0.374	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27
H-4A(C)	0.124	C	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59
Total Area (ac)	0.498		Area-Weighted C	0.01	0.02	0.04	0.09	0.13	0.22	0.35
			Area-Weighted Override C	0.01	0.02	0.04	0.09	0.13	0.22	0.35

Sub-Basin HOS-1

Sub-basin Area =	7047	ft^2	0.162	acre
Paved		ft^2		
Packed Gravel		ft^2		
Roofs/Concrete		ft^2		
Landscaping/Undeveloped	7047	ft^2		
Imp =	2.0%			

Percent Imperviousness from Table 6-3

Paved	1.00
Gravel	0.40
Roofs/Concrete	0.90
Greenbelts/Landscaping	0.02

		Soil Type
C_5 = runoff coefficient for 5-year frequency (from Table 6-5)	0.05	C
C_{10} = runoff coefficient for 10-year frequency (from Table 6-5)	0.15	
C_{100} = runoff coefficient for 100-year frequency (from Table 6-5)	0.49	

TIME OF CONCENTRATION, t_c

t_c = computed time of concentration (minutes)

$t_c = t_i + t_t$ Equation 6-2

t_i = overland (initial) flow time (minutes)

$t_i = (0.395(1.1-Cy)(L_i^{0.5}))/S_o^{0.33}$ Equation 6-3

Cy = runoff coefficient for storm frequency frequency (from Table 6-4)

L_i = length of overland flow (ft), not greater than 300' (urban) or 500' (rural)

S_o = average slope along overland flow path (ft/ft)

t_t = channelized flow time (minutes)

$t_t = L_t/((60*C_v)*(S_w^{0.5})) = L_t/60V_t$ Equation 6-4

L_t = length of channelized flow (ft)

S_w = average slope along channelized flow path (ft/ft)

C_v = Conveyance Coefficient (Table 6-5)

Developed Flow Rates, Q

Q=CIA Equation R6-1

Q = peak rate of runoff (CFS)

C = Runoff coefficient

I = avg intensity of rainfall

A = area (AC)

t_c, 5-yr

L_i =	16.1	ft
Delta =	0.5	ft
S_o =	0.030	ft/ft
C_5 =	0.05	Table 6-5
t_i =	5	minutes
L_t =	168.8	ft
Delta =	0.5	ft
S_w =	0.003	ft/ft
K =	10	Table 6-2
t_t =	5	minutes
Therefore; t_c =	10	minutes

Q_5, 5-YR

C_5 =	0.05	
I_5 =	3.04	in/hr
A =	0.162	acre
Q_5 =	0.025	cfs
	0.152	cfs/acre

Q_{10}, 10-YR

C_{10} =	0.15	
I_{10} =	3.75	in/hr
A =	0.162	acre
Q_{10} =	0.091	cfs
	0.563	cfs/acre

Q_{100}, 100-YR

C_{100} =	0.49	
I_{100}=	6.61	in/hr
A =	0.162	acre
Q_{100} =	0.524	cfs
	3.239	cfs/acre

t_c Check for Urbanized Catchments

$t_c = (26-17i)+(L_t / (60(14i+9)S_t\text{^}0.5))$ Equation 6-5

t_c = computed time of concentration (minutes)

L_t = length of flow path (ft)

i = imperviousness in decimal

S_t = average slope along channelized flow path (ft/ft)

*T_c not to exceed equation 6-5 at first design pt

i =	0.02	
L_t =	168.8	ft
Delta =	0.5	ft
S_t =	0.003	ft/ft
t_c =	31	minutes
Use t_c =	10	minutes

Length-Weighted Slope Calculations

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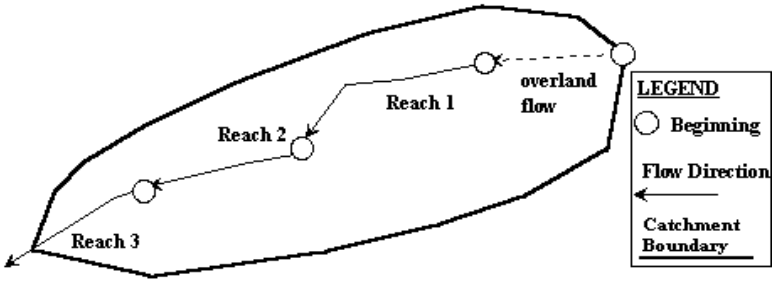


Subcatchment Name	Percent Imperviousness (%)
HOS-1	2

OVERLAND FLOW

Reach ID	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)
1	16.12	5232.07	5231.58	0.030
Total Overland Length (ft)	**16.12**	**Length-Weighted Slope (ft/ft)**		**0.030**

CHANNELIZED FLOW

Reach ID	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)
2	168.81	5231.58	5231.11	0.003
Total Channelized Length (ft)	**168.81**	**Length-Weighted Slope (ft/ft)**		**0.003**

Sub-Basin HOS-2

Sub-basin Area =	11573	ft^2	0.266	acre
Paved		ft^2		
Packed Gravel		ft^2		
Roofs/Concrete		ft^2		
Landscaping/Undeveloped	11573	ft^2		
Imp =	2.0%			

Percent Imperviousness from Table 6-3

Paved	1.00
Gravel	0.40
Roofs/Concrete	0.90
Greenbelts/Landscaping	0.02

Soil Type

C

C_5 = runoff coefficient for 5-year frequency (from Table 6-5)	0.05
C_{10} = runoff coefficient for 10-year frequency (from Table 6-5)	0.15
C_{100} = runoff coefficient for 100-year frequency (from Table 6-5)	0.49

TIME OF CONCENTRATION, t_c

t_c = computed time of concentration (minutes)

$t_c = t_i + t_t$ Equation 6-2

t_i = overland (initial) flow time (minutes)

$t_i = (0.395(1.1-Cy)(L_i^{0.5}))/S_o^{0.33}$ Equation 6-3

Cy = runoff coefficient for storm frequency frequency (from Table 6-4)

L_i = length of overland flow (ft), not greater than 300' (urban) or 500' (rural)

S_o = average slope along overland flow path (ft/ft)

t_t = channelized flow time (minutes)

$t_t = L_t/((60*C_v)*(S_w^{0.5})) = L_t/60V_t$ Equation 6-4

L_t = length of channelized flow (ft)

S_w = average slope along channelized flow path (ft/ft)

C_v = Conveyance Coefficient (Table 6-5)

Developed Flow Rates, Q

Q=CIA Equation 6-1

Q = peak rate of runoff (CFS)

C = Runoff coefficient

I = avg intensity of rainfall

A = area (AC)

t_c, 5-yr

L_i =	16.1	ft
Delta =	0.5	ft
S_o =	0.030	ft/ft
C_5 =	0.05	Table 6-5
t_i =	5	minutes
L_t =	400.7	ft
Delta =	1.1	ft
S_w =	0.003	ft/ft
K =	7	Table 6-2
t_t =	18	minutes
Therefore; t_c =	24	minutes

Q_5, 5-YR

C_5 =	0.05	
I_5 =	2.03	in/hr
A =	0.266	acre
Q_5 =	0.027	cfs
	0.102	cfs/acre

Q_{10}, 10-YR

C_{10} =	0.15	
I_{10} =	2.50	in/hr
A =	0.266	acre
Q_{10} =	0.100	cfs
	0.375	cfs/acre

Q_{100}, 100-YR

C_{100} =	0.49	
I_{100}=	4.40	in/hr
A =	0.266	acre
Q_{100} =	0.573	cfs
	2.156	cfs/acre

t_c Check for Urbanized Catchments

$t_c = (26-17i)+(L_t / (60(14i+9)S_t\text{^}0.5))$ Equation 6-5

t_c = computed time of concentration (minutes)

L_t = length of flow path (ft)

i = imperviousness in decimal

S_t = average slope along channelized flow path (ft/ft)

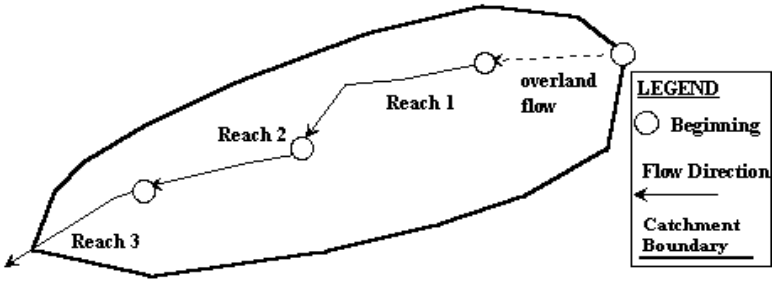
*T_c not to exceed equation 6-5 at first design pt

i =	0.02	
L_t =	400.7	ft
Delta =	1.1	ft
S_t =	0.003	ft/ft
t_c =	39	minutes
Use t_c =	24	minutes

Length-Weighted Slope Calculations

Version 2.00 released May 2017

Designer: TJH
Company: Asher Arch + Eng
Date: 1/27/2023
Project: Lowell Blvd Apartments
Location: 5602 Lowell Blvd



Subcatchment Name	Percent Imperviousness (%)
HOS-2	2

OVERLAND FLOW

Reach ID	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)
1	16.10	5232.08	5231.58	0.031

Total Overland Length (ft)	16.10	Length-Weighted Slope (ft/ft)	0.031

CHANNELIZED FLOW

Reach ID	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)
2	400.65	5231.58	5230.43	0.003

Total Channelized Length (ft)	400.65	Length-Weighted Slope (ft/ft)	0.003

Sub-Basin HOS-3

Sub-basin Area =	96228	ft^2	2.209	acre
Paved		ft^2		
Packed Gravel		ft^2		
Roofs/Concrete		ft^2		
Landscaping/Undeveloped	96228	ft^2		
Imp =	2.0%			

Percent Imperviousness from Table 6-3

Paved	1.00
Gravel	0.40
Roofs/Concrete	0.90
Greenbelts/Landscaping	0.02

Soil Type

C

C_5 = runoff coefficient for 5-year frequency (from Table 6-5)	0.05
C_{10} = runoff coefficient for 10-year frequency (from Table 6-5)	0.15
C_{100} = runoff coefficient for 100-year frequency (from Table 6-5)	0.49

TIME OF CONCENTRATION, t_c

t_c = computed time of concentration (minutes)

$t_c = t_i + t_t$ Equation 6-2

t_i = overland (initial) flow time (minutes)

$t_i = (0.395(1.1-Cy)(L_i^{0.5}))/S_o^{0.33}$ Equation 6-3

Cy = runoff coefficient for storm frequency frequency (from Table 6-4)

L_i = length of overland flow (ft), not greater than 300' (urban) or 500' (rural)

S_o = average slope along overland flow path (ft/ft)

t_t = channelized flow time (minutes)

$t_t = L_t/((60*C_v)*(S_w^{0.5})) = L_t/60V_t$ Equation 6-4

L_t = length of channelized flow (ft)

S_w = average slope along channelized flow path (ft/ft)

C_v = Conveyance Coefficient (Table 6-5)

Developed Flow Rates, Q

Q=CIA Equation 6-1

Q = peak rate of runoff (CFS)

C = Runoff coefficient

I = avg intensity of rainfall

A = area (AC)

t_c, 5-yr

L_i =	207.3	ft
Delta =	2.5	ft
S_o =	0.012	ft/ft
C_5 =	0.05	Table 6-5
t_i =	26	minutes
L_t =	298.3	ft
Delta =	1.0	ft
S_w =	0.003	ft/ft
K =	7	Table 6-2
t_t =	12	minutes
Therefore; t_c =	38	minutes

Q_5, 5-YR

C_5 =	0.05	
I_5 =	1.63	in/hr
A =	2.209	acre
Q_5 =	0.180	cfs
	0.082	cfs/acre

Q_{10}, 10-YR

C_{10} =	0.15	
I_{10} =	2.00	in/hr
A =	2.209	acre
Q_{10} =	0.663	cfs
	0.300	cfs/acre

Q_{100}, 100-YR

C_{100} =	0.49	
I_{100}=	3.50	in/hr
A =	2.209	acre
Q_{100} =	3.789	cfs
	1.715	cfs/acre

t_c Check for Urbanized Catchments

$t_c = (26-17i)+(L_t / (60(14i+9)S_t\text{^}0.5))$ Equation 6-5

t_c = computed time of concentration (minutes)

L_t = length of flow path (ft)

i = imperviousness in decimal

S_t = average slope along channelized flow path (ft/ft)

*T_c not to exceed equation 6-5 at first design pt

i =	0.02	
L_t =	298.3	ft
Delta =	1.0	ft
S_t =	0.003	ft/ft
t_c =	35	minutes
Use t_c =	35	minutes

Length-Weighted Slope Calculations

Version 2.00 released May 2017

Designer: TJH
Company: Asher Arch + Eng
Date: 1/27/2023
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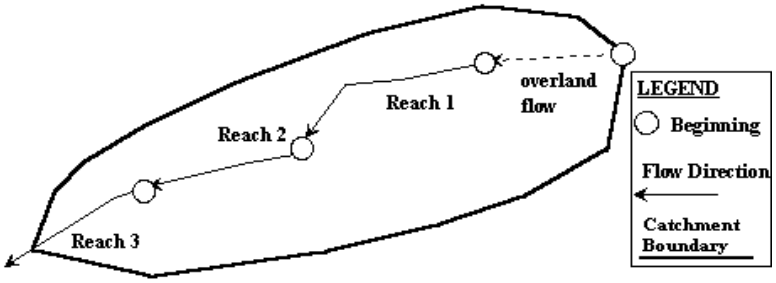
Location: 5602 Lowell Blvd



Subcatchment Name	Percent Imperviousness (%)
HOS-3	2

OVERLAND FLOW

Reach ID	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)
1	207.33	5227.50	5225.00	0.012
Total Overland Length (ft)	**207.33**	**Length-Weighted Slope (ft/ft)**		**0.012**

CHANNELIZED FLOW

Reach ID	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)
2	298.29	5224.27	5223.40	0.003
Total Channelized Length (ft)	**298.29**	**Length-Weighted Slope (ft/ft)**		**0.003**

Sub-Basin HOS-4

Sub-basin Area =	345560	ft^2	7.933 acre
Paved		ft^2	
Packed Gravel		ft^2	
Roofs/Concrete		ft^2	
Landscaping/Undeveloped	345560	ft^2	
Imp =	2.0%		

Percent Imperviousness from Table 6-3

Paved	1.00
Gravel	0.40
Roofs/Concrete	0.90
Greenbelts/Landscaping	0.02

Soil Type

A/C

C_5 = runoff coefficient for 5-year frequency (from Table 6-5)	0.04
C_{10} = runoff coefficient for 10-year frequency (from Table 6-5)	0.11
C_{100} = runoff coefficient for 100-year frequency (from Table 6-5)	0.39

TIME OF CONCENTRATION, t_c

t_c = computed time of concentration (minutes)

$t_c = t_i + t_t$ Equation 6-2

t_i = overland (initial) flow time (minutes)

$t_i = (0.395(1.1-Cy)(L_i^{0.5}))/S_o^{0.33}$ Equation 6-3

Cy = runoff coefficient for storm frequency frequency (from Table 6-4)

L_i = length of overland flow (ft), not greater than 300' (urban) or 500' (rural)

S_o = average slope along overland flow path (ft/ft)

t_t = channelized flow time (minutes)

$t_t = L_t/((60*C_v)*(S_w^{0.5})) = L_t/60V_t$ Equation 6-4

L_t = length of channelized flow (ft)

S_w = average slope along channelized flow path (ft/ft)

C_v = Conveyance Coefficient (Table 6-5)

Developed Flow Rates, Q

Q=CIA Equation 6-1

Q = peak rate of runoff (CFS)

C = Runoff coefficient

I = avg intensity of rainfall

A = area (AC)

t_c, 5-yr

L_i =	519.2	ft
Delta =	5.6	ft
S_o =	0.011	ft/ft
C_5 =	0.04	Table 6-5
t_i =	43	minutes
L_t =	114.9	ft
Delta =	0.5	ft
S_w =	0.004	ft/ft
K =	7	Table 6-2
t_t =	4	minutes
Therefore; t_c =	47	minutes

Q_5, 5-YR

C_5 =	0.04	
I_5 =	1.79	in/hr
A =	7.933	acre
Q_5 =	0.568	cfs
	0.072	cfs/acre

Q_{10}, 10-YR

C_{10} =	0.11	
I_{10} =	2.19	in/hr
A =	7.933	acre
Q_{10} =	1.911	cfs
	0.241	cfs/acre

Q_{100}, 100-YR

C_{100} =	0.39	
I_{100}=	3.85	in/hr
A =	7.933	acre
Q_{100} =	11.911	cfs
	1.502	cfs/acre

t_c Check for Urbanized Catchments

$t_c = (26-17i)+(L_t / (60(14i+9)S_t\text{^}0.5))$ Equation 6-5

t_c = computed time of concentration (minutes)

L_t = length of flow path (ft)

i = imperviousness in decimal

S_t = average slope along channelized flow path (ft/ft)

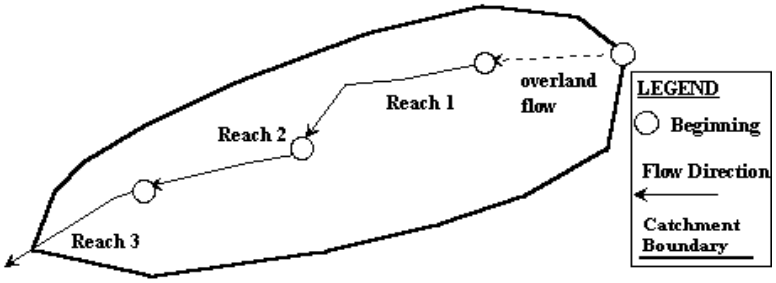
*T_c not to exceed equation 6-5 at first design pt

i =	0.02	
L_t =	114.9	ft
Delta =	0.5	ft
S_t =	0.004	ft/ft
t_c =	29	minutes
Use t_c =	29	minutes

Length-Weighted Slope Calculations

Version 2.00 released May 2017

Designer: TJH
Company: Asher Arch + Eng
Date: 1/27/2023
Project: Lowell Blvd Apartments
Location: 5602 Lowell Blvd



Subcatchment Name	Percent Imperviousness (%)
HOS-4	2

OVERLAND FLOW

Reach ID	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)
1	519.22	5225.20	5219.47	0.011
Total Overland Length (ft)	**519.22**		**Length-Weighted Slope (ft/ft)**	**0.011**

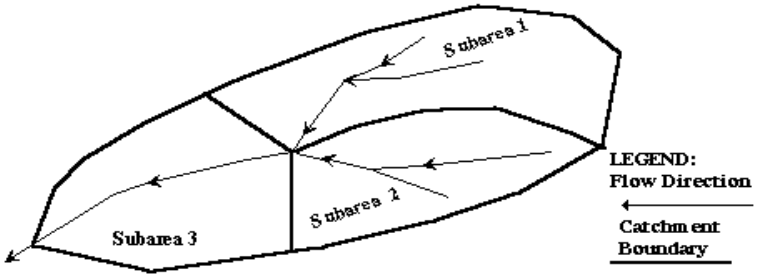
CHANNELIZED FLOW

Reach ID	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)
2	114.89	5219.47	5219.00	0.004
Total Channelized Length (ft)	**114.89**		**Length-Weighted Slope (ft/ft)**	**0.004**

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: TJH
Company: Asher Arch+Eng
Date: 1/27/2023
Project: Lowell Blvd Apts
Location: 5602 Lowell Blvd



Subcatchment Name
HOS-4

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
HOS-4(A)	2.199	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27
HOS-4(C)	5.734	C	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59
Total Area (ac)	7.933		Area-Weighted C	0.01	0.04	0.11	0.24	0.30	0.39	0.50
			Area-Weighted Override C	0.01	0.04	0.11	0.24	0.30	0.39	0.50

Sub-Basin HOS-5

Sub-basin Area =	35082	ft^2	0.805	acre
Paved		ft^2		
Packed Gravel		ft^2		
Roofs/Concrete		ft^2		
Landscaping/Undeveloped	35082	ft^2		
Imp =	2.0%			

Percent Imperviousness from Table 6-3

Paved	1.00
Gravel	0.40
Roofs/Concrete	0.90
Greenbelts/Landscaping	0.02

Soil Type

A

C_5 = runoff coefficient for 5-year frequency (from Table 6-5)	0.01
C_{10} = runoff coefficient for 10-year frequency (from Table 6-5)	0.01
C_{100} = runoff coefficient for 100-year frequency (from Table 6-5)	0.13

TIME OF CONCENTRATION, t_c

t_c = computed time of concentration (minutes)

$t_c = t_i + t_t$ Equation 6-2

t_i = overland (initial) flow time (minutes)

$t_i = (0.395(1.1-Cy)(L_i^{0.5}))/S_o^{0.33}$ Equation 6-3

Cy = runoff coefficient for storm frequency frequency (from Table 6-4)

L_i = length of overland flow (ft), not greater than 300' (urban) or 500' (rural)

S_o = average slope along overland flow path (ft/ft)

t_t = channelized flow time (minutes)

$t_t = L_t/((60*C_v)*(S_w^{0.5})) = L_t/60V_t$ Equation 6-4

L_t = length of channelized flow (ft)

S_w = average slope along channelized flow path (ft/ft)

C_v = Conveyance Coefficient (Table 6-5)

Developed Flow Rates, Q

Q=CIA Equation 6-1

Q = peak rate of runoff (CFS)

C = Runoff coefficient

I = avg intensity of rainfall

A = area (AC)

t_c, 5-yr

L_i =	188.4	ft
Delta =	3.4	ft
S_o =	0.018	ft/ft
C_5 =	0.01	Table 6-5
t_i =	22	minutes
L_t =		ft
Delta =		ft
S_w =		ft/ft
K =	7	Table 6-2
t_t =		minutes
Therefore; t_c =	22	minutes

Q_5, 5-YR

C_5 =	0.01	
I_5 =	2.13	in/hr
A =	0.805	acre
Q_5 =	0.017	cfs
	0.021	cfs/acre

Q_{10}, 10-YR

C_{10} =	0.01	
I_{10} =	2.62	in/hr
A =	0.805	acre
Q_{10} =	0.021	cfs
	0.026	cfs/acre

Q_{100}, 100-YR

C_{100} =	0.13	
I_{100}=	4.61	in/hr
A =	0.805	acre
Q_{100} =	0.483	cfs
	0.599	cfs/acre

t_c Check for Urbanized Catchments

$t_c = (26-17i)+(L_t / (60(14i+9)S_t\text{^}0.5))$ Equation 6-5

t_c = computed time of concentration (minutes)

L_t = length of flow path (ft)

i = imperviousness in decimal

S_t = average slope along channelized flow path (ft/ft)

*T_c not to exceed equation 6-5 at first design pt

i =		
L_t =		ft
Delta =		ft
S_t =		ft/ft
t_c =		minutes
Use t_c =	22	minutes

Sub-Basin HOS-6

Sub-basin Area =	78665	ft^2	1.806	acre
Paved		ft^2		
Packed Gravel		ft^2		
Roofs/Concrete		ft^2		
Landscaping/Undeveloped	78665	ft^2		
Imp =	2.0%			

Percent Imperviousness from Table 6-3

Paved	1.00
Gravel	0.40
Roofs/Concrete	0.90
Greenbelts/Landscaping	0.02

Soil Type

A/C

C_5 = runoff coefficient for 5-year frequency (from Table 6-5)	0.04
C_{10} = runoff coefficient for 10-year frequency (from Table 6-5)	0.12
C_{100} = runoff coefficient for 100-year frequency (from Table 6-5)	0.42

TIME OF CONCENTRATION, t_c

t_c = computed time of concentration (minutes)

$t_c = t_i + t_t$ Equation 6-2

t_i = overland (initial) flow time (minutes)

$t_i = (0.395(1.1-Cy)(L_i^{0.5}))/S_o^{0.33}$ Equation 6-3

Cy = runoff coefficient for storm frequency frequency (from Table 6-4)

L_i = length of overland flow (ft), not greater than 300' (urban) or 500' (rural)

S_o = average slope along overland flow path (ft/ft)

t_t = channelized flow time (minutes)

$t_t = L_t/((60*C_v)*(S_w^{0.5})) = L_t/60V_t$ Equation 6-4

L_t = length of channelized flow (ft)

S_w = average slope along channelized flow path (ft/ft)

C_v = Conveyance Coefficient (Table 6-5)

Developed Flow Rates, Q

Q=CIA Equation 6-1

Q = peak rate of runoff (CFS)

C = Runoff coefficient

I = avg intensity of rainfall

A = area (AC)

t_c, 5-yr

L_i =		ft
Delta =		ft
S_o =		ft/ft
C_5 =	0.04	Table 6-5
t_i =		minutes
L_t =		ft
Delta =		ft
S_w =		ft/ft
K =		Table 6-2
t_t =		minutes
Therefore; t_c =		minutes

Q_5, 5-YR

C_5 =	0.04	
I_5 =	1.72	in/hr
A =	1.806	acre
Q_5 =	0.124	cfs
	0.069	cfs/acre

Q_{10}, 10-YR

C_{10} =	0.12	
I_{10} =	2.10	in/hr
A =	1.806	acre
Q_{10} =	0.455	cfs
	0.252	cfs/acre

Q_{100}, 100-YR

C_{100} =	0.42	
I_{100}=	3.69	in/hr
A =	1.806	acre
Q_{100} =	2.799	cfs
	1.550	cfs/acre

t_c Check for Urbanized Catchments

$t_c = (26-17i)+(L_t / (60(14i+9)S_t\text{^}0.5))$ Equation 6-5

t_c = computed time of concentration (minutes)

L_t = length of flow path (ft)

i = imperviousness in decimal

S_t = average slope along channelized flow path (ft/ft)

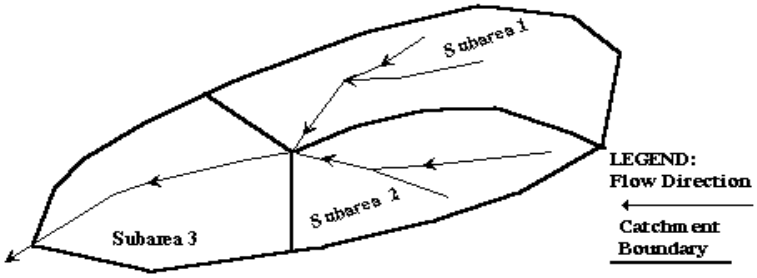
*T_c not to exceed equation 6-5 at first design pt

i =		
L_t =		ft
Delta =		ft
S_t =		ft/ft
t_c =		minutes
Use t_c =	31	minutes

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: TJH
Company: Asher Arch+Eng
Date: 1/27/2023
Project: Lowell Blvd Apts
Location: 5602 Lowell Blvd



Subcatchment Name
HOS-6

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
HOS-6(A)	0.368	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27
HOS-6(C)	1.438	C	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59
Total Area (ac)	1.806		Area-Weighted C	0.01	0.04	0.12	0.27	0.33	0.42	0.53
			Area-Weighted Override C	0.01	0.04	0.12	0.27	0.33	0.42	0.53

NOAA Atlas 14, Volume 8, Version 2
Location name: Denver, Colorado, USA*
Latitude: 39.7992°, Longitude: -105.0347°
Elevation: 5232.18 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**2.48** (1.93-3.19)	**3.08** (2.40-3.97)	**4.15** (3.22-5.36)	**5.12** (3.94-6.64)	**6.56** (4.93-8.88)	**7.75** (5.68-10.6)	**9.04** (6.38-12.6)	**10.4** (7.07-14.8)	**12.3** (8.06-17.9)	**13.9** (8.82-20.3)
10-min	**1.82** (1.41-2.34)	**2.26** (1.75-2.91)	**3.04** (2.35-3.93)	**3.75** (2.89-4.86)	**4.80** (3.61-6.50)	**5.68** (4.16-7.75)	**6.61** (4.68-9.20)	**7.62** (5.17-10.8)	**9.04** (5.90-13.1)	**10.2** (6.46-14.9)
15-min	**1.48** (1.15-1.90)	**1.84** (1.43-2.37)	**2.47** (1.91-3.20)	**3.05** (2.34-3.95)	**3.90** (2.93-5.28)	**4.62** (3.38-6.30)	**5.38** (3.80-7.48)	**6.20** (4.21-8.80)	**7.35** (4.80-10.7)	**8.28** (5.25-12.1)
30-min	**1.05** (0.814-1.35)	**1.30** (1.01-1.67)	**1.74** (1.34-2.24)	**2.13** (1.64-2.76)	**2.72** (2.05-3.68)	**3.21** (2.35-4.38)	**3.74** (2.64-5.20)	**4.30** (2.92-6.11)	**5.10** (3.33-7.40)	**5.74** (3.64-8.38)
60-min	**0.649** (0.504-0.835)	**0.801** (0.622-1.03)	**1.07** (0.829-1.38)	**1.32** (1.01-1.71)	**1.68** (1.26-2.27)	**1.98** (1.45-2.70)	**2.31** (1.63-3.20)	**2.65** (1.80-3.77)	**3.14** (2.05-4.56)	**3.54** (2.24-5.16)
2-hr	**0.387** (0.304-0.492)	**0.478** (0.375-0.608)	**0.638** (0.500-0.814)	**0.782** (0.609-1.00)	**0.999** (0.759-1.34)	**1.18** (0.872-1.59)	**1.37** (0.980-1.88)	**1.58** (1.08-2.21)	**1.87** (1.23-2.68)	**2.10** (1.35-3.03)
3-hr	**0.279** (0.221-0.353)	**0.344** (0.272-0.435)	**0.459** (0.361-0.581)	**0.562** (0.440-0.715)	**0.716** (0.548-0.951)	**0.845** (0.629-1.13)	**0.982** (0.707-1.34)	**1.13** (0.781-1.57)	**1.34** (0.889-1.90)	**1.51** (0.972-2.15)
6-hr	**0.166** (0.133-0.208)	**0.203** (0.162-0.254)	**0.268** (0.214-0.336)	**0.327** (0.259-0.411)	**0.414** (0.321-0.543)	**0.487** (0.367-0.644)	**0.565** (0.411-0.761)	**0.649** (0.453-0.892)	**0.767** (0.515-1.08)	**0.861** (0.562-1.22)
12-hr	**0.102** (0.083-0.126)	**0.124** (0.100-0.153)	**0.161** (0.130-0.200)	**0.195** (0.156-0.242)	**0.245** (0.191-0.316)	**0.286** (0.218-0.372)	**0.330** (0.243-0.438)	**0.377** (0.266-0.511)	**0.443** (0.301-0.614)	**0.496** (0.328-0.692)
24-hr	**0.063** (0.052-0.077)	**0.076** (0.062-0.092)	**0.098** (0.080-0.120)	**0.117** (0.095-0.144)	**0.146** (0.115-0.185)	**0.169** (0.130-0.216)	**0.193** (0.144-0.252)	**0.219** (0.156-0.292)	**0.254** (0.175-0.347)	**0.282** (0.189-0.389)
2-day	**0.037** (0.031-0.044)	**0.044** (0.037-0.053)	**0.057** (0.047-0.069)	**0.068** (0.056-0.082)	**0.084** (0.067-0.104)	**0.096** (0.075-0.121)	**0.109** (0.082-0.140)	**0.122** (0.088-0.160)	**0.140** (0.097-0.188)	**0.154** (0.104-0.209)
3-day	**0.027** (0.022-0.032)	**0.032** (0.027-0.038)	**0.041** (0.034-0.049)	**0.048** (0.040-0.058)	**0.059** (0.047-0.073)	**0.067** (0.053-0.084)	**0.076** (0.058-0.097)	**0.085** (0.062-0.111)	**0.098** (0.068-0.130)	**0.107** (0.073-0.144)
4-day	**0.021** (0.018-0.025)	**0.025** (0.021-0.030)	**0.032** (0.027-0.038)	**0.038** (0.031-0.045)	**0.046** (0.037-0.056)	**0.052** (0.041-0.065)	**0.059** (0.045-0.075)	**0.066** (0.048-0.086)	**0.075** (0.053-0.100)	**0.083** (0.057-0.111)
7-day	**0.014** (0.012-0.016)	**0.016** (0.014-0.019)	**0.020** (0.017-0.024)	**0.024** (0.020-0.028)	**0.028** (0.023-0.035)	**0.032** (0.026-0.040)	**0.036** (0.028-0.045)	**0.040** (0.030-0.052)	**0.046** (0.033-0.060)	**0.050** (0.035-0.067)
10-day	**0.011** (0.009-0.013)	**0.013** (0.011-0.015)	**0.015** (0.013-0.018)	**0.018** (0.015-0.021)	**0.021** (0.017-0.026)	**0.024** (0.019-0.029)	**0.027** (0.021-0.033)	**0.030** (0.022-0.038)	**0.034** (0.024-0.044)	**0.037** (0.026-0.048)
20-day	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.010** (0.008-0.011)	**0.011** (0.009-0.013)	**0.013** (0.011-0.015)	**0.014** (0.012-0.017)	**0.016** (0.012-0.019)	**0.017** (0.013-0.022)	**0.019** (0.014-0.025)	**0.021** (0.015-0.027)
30-day	**0.006** (0.005-0.006)	**0.006** (0.006-0.007)	**0.008** (0.007-0.009)	**0.009** (0.007-0.010)	**0.010** (0.008-0.012)	**0.011** (0.009-0.013)	**0.012** (0.010-0.015)	**0.013** (0.010-0.016)	**0.015** (0.011-0.019)	**0.016** (0.011-0.020)
45-day	**0.004** (0.004-0.005)	**0.005** (0.004-0.006)	**0.006** (0.005-0.007)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.009** (0.007-0.010)	**0.010** (0.008-0.012)	**0.010** (0.008-0.013)	**0.011** (0.008-0.014)	**0.012** (0.009-0.015)
60-day	**0.004** (0.003-0.004)	**0.004** (0.004-0.005)	**0.005** (0.005-0.006)	**0.006** (0.005-0.007)	**0.007** (0.006-0.008)	**0.008** (0.006-0.009)	**0.008** (0.007-0.010)	**0.009** (0.007-0.011)	**0.010** (0.007-0.012)	**0.010** (0.007-0.013)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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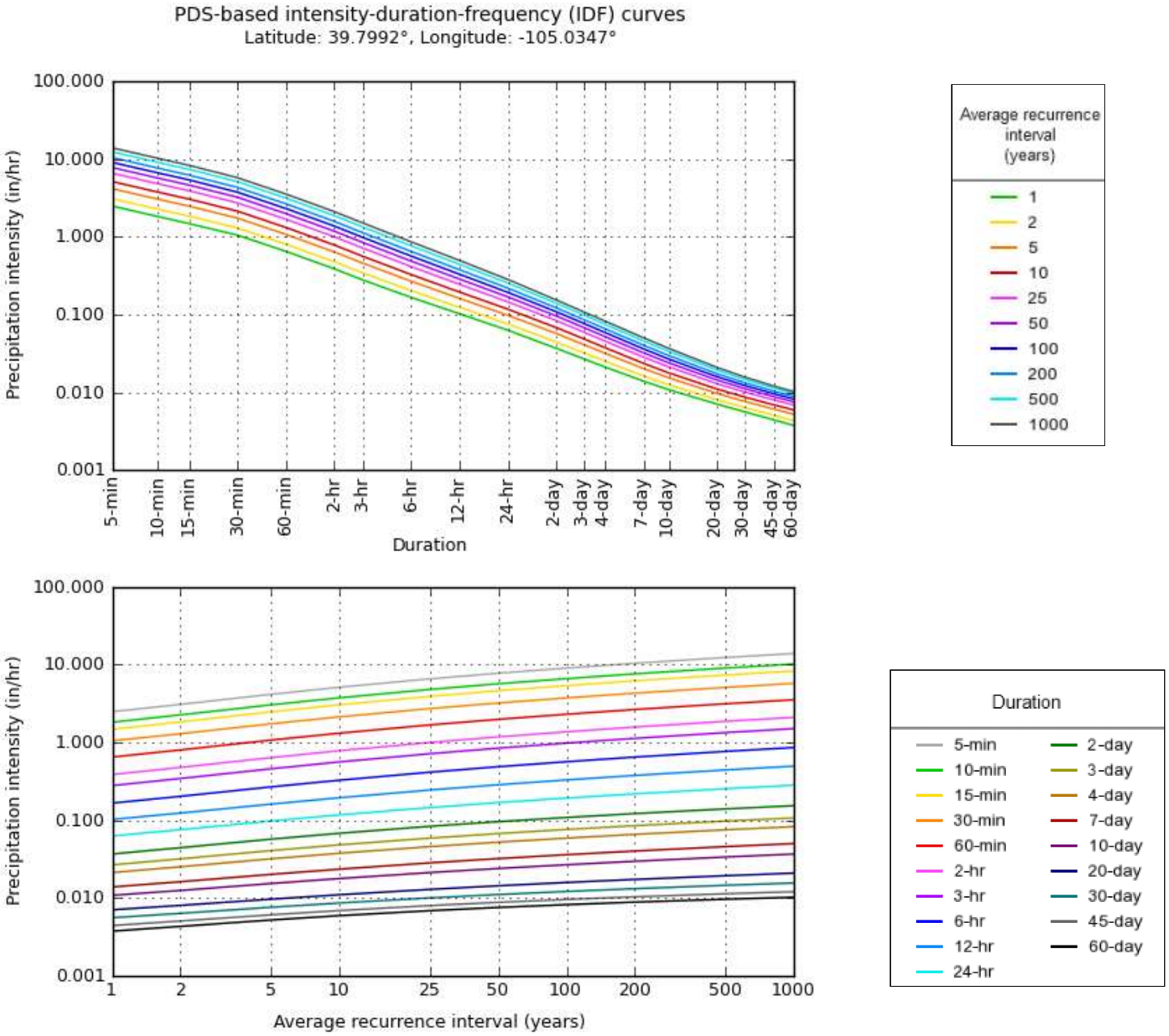
PF graphical



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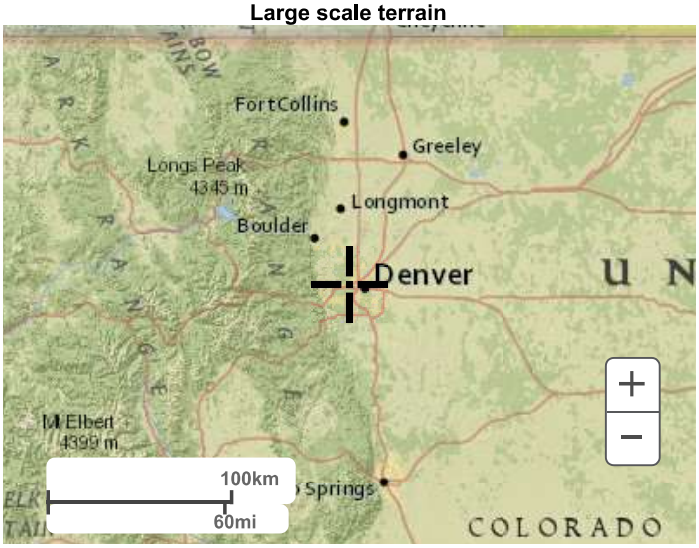
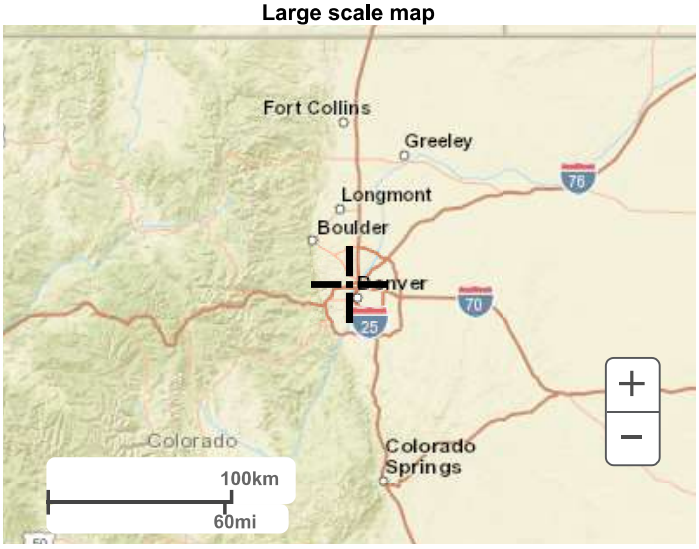
Maps & aerials

Small scale terrain

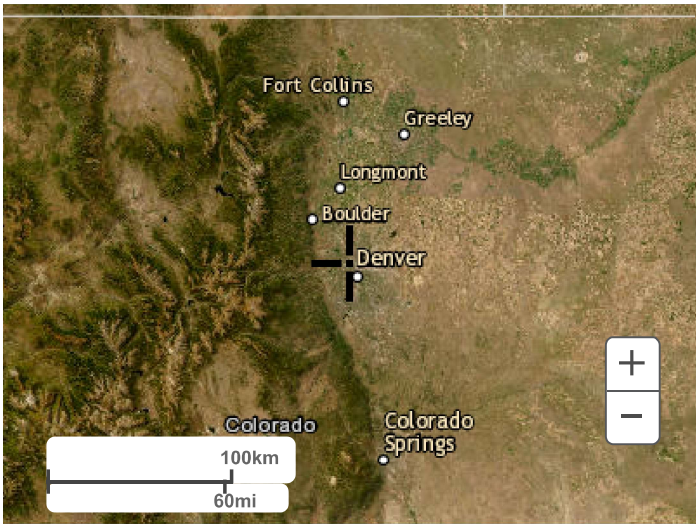
Large scale terrain



Large scale map



Large scale aerial



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National Weather Service
National Water Center
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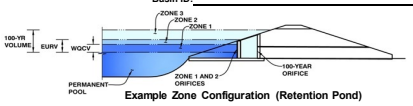
DETENTION BASIN STAGE-STORAGE TABLE BUILDER

UD-Detention, Version 3.07 (February 2017)

Project: Lowell Boulevard Apartment - Preliminary Pond Sizing

Basin ID:



Example Zone Configuration (Retention Pond)

Required Volume Calculation

Selected BMP Type =	EDB	
Watershed Area =	12.845	acres
Watershed Length =	850	ft
Watershed Slope =	0.020	ft/ft
Watershed Imperviousness =	65.00%	percent
Percentage Hydrologic Soil Group A =	36.6%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	63.4%	percent
Desired WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	
Water Quality Capture Volume (WQCV) =	0.272	acre-feet
Excess Urban Runoff Volume (EURV) =	0.891	acre-feet
2-yr Runoff Volume (P1 = 0.8 in.) =	0.503	acre-feet
5-yr Runoff Volume (P1 = 1.07 in.) =	0.734	acre-feet
10-yr Runoff Volume (P1 = 1.32 in.) =	0.952	acre-feet
25-yr Runoff Volume (P1 = 1.68 in.) =	1.330	acre-feet
50-yr Runoff Volume (P1 = 1.98 in.) =	1.643	acre-feet
100-yr Runoff Volume (P1 = 2.31 in.) =	2.025	acre-feet
500-yr Runoff Volume (P1 = 3.14 in.) =	2.941	acre-feet
Approximate 2-yr Detention Volume =	0.474	acre-feet
Approximate 5-yr Detention Volume =	0.692	acre-feet
Approximate 10-yr Detention Volume =	0.852	acre-feet
Approximate 25-yr Detention Volume =	1.057	acre-feet
Approximate 50-yr Detention Volume =	1.169	acre-feet
Approximate 100-yr Detention Volume =	1.333	acre-feet

Optional User Override 1-hr Precipitation

0.80	inches
1.07	inches
1.32	inches
1.68	inches
1.98	inches
2.31	inches
3.14	inches

Stage-Storage Calculation

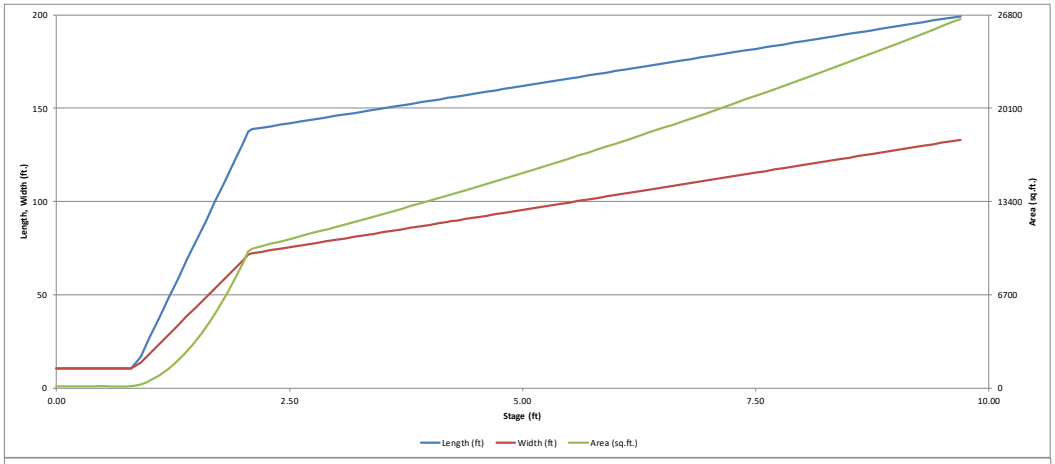
Zone 1 Volume (WQCV) =	0.272	acre-feet
Zone 2 Volume (5-year - Zone 1) =	0.420	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	0.640	acre-feet
Total Detention Basin Volume =	1.333	acre-feet
Initial Surcharge Volume (ISV) =	36	ft^3
Initial Surcharge Depth (ISD) =	0.33	ft
Total Available Detention Depth (H_{total}) =	6.00	ft
Depth of Trickle Channel (H_{TC}) =	0.50	ft
Slope of Trickle Channel (S_{TC}) =	0.010	ft/ft
Slopes of Main Basin Sides (S_{main}) =	4	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	2	
Initial Surcharge Area (A_{ISV}) =	108	ft^2
Surcharge Volume Length (L_{ISV}) =	10.4	ft
Surcharge Volume Width (W_{ISV}) =	10.4	ft
Depth of Basin Floor (H_{FLOOR}) =	1.23	ft
Length of Basin Floor (L_{FLOOR}) =	138.2	ft
Width of Basin Floor (W_{FLOOR}) =	71.8	ft
Area of Basin Floor (A_{FLOOR}) =	9,928	ft^2
Volume of Basin Floor (V_{FLOOR}) =	4,535	ft^3
Depth of Main Basin (H_{MAIN}) =	3.94	ft
Length of Main Basin (L_{MAIN}) =	169.7	ft
Width of Main Basin (W_{MAIN}) =	103.4	ft
Area of Main Basin (A_{MAIN}) =	17,544	ft^2
Volume of Main Basin (V_{MAIN}) =	53,424	ft^3
Calculated Total Basin Volume (V_{total}) =	**1.333**	acre-feet

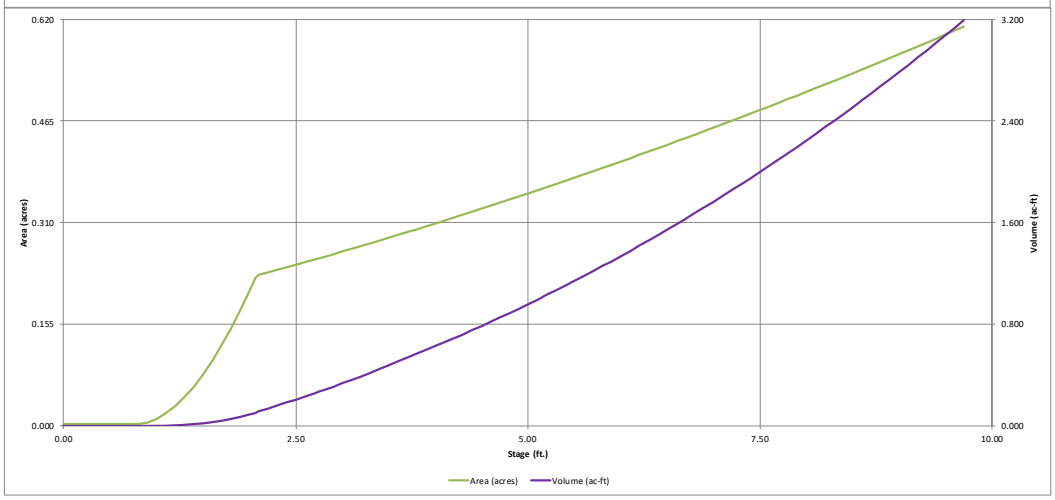
Depth Increment = 0.1 ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	0.00		10.4	10.4	108		0.002		
ISV	0.33		10.4	10.4	108		0.002	34	0.001
	0.40		10.4	10.4	108		0.002	42	0.001
	0.50		10.4	10.4	108		0.002	53	0.001
	0.60		10.4	10.4	108		0.002	64	0.001
	0.70		10.4	10.4	108		0.002	74	0.002
	0.80		10.4	10.4	108		0.002	85	0.002
	0.90		16.6	13.4	222		0.005	99	0.002
	1.00		27.0	18.4	497		0.011	134	0.003
	1.10		37.4	23.4	875		0.020	202	0.005
	1.20		47.8	28.4	1,357		0.031	313	0.007
	1.30		58.2	33.4	1,943		0.045	477	0.011
	1.40		68.6	38.4	2,634		0.060	705	0.016
	1.50		79.0	43.4	3,428		0.079	1,007	0.023
	1.60		89.4	48.4	4,326		0.099	1,394	0.032
	1.70		99.8	53.4	5,328		0.122	1,876	0.043
	1.80		110.2	58.4	6,434		0.148	2,463	0.057
	1.90		120.6	63.4	7,645		0.175	3,166	0.073
	2.00		131.0	68.4	8,959		0.206	3,995	0.092
Floor	2.06		137.3	71.4	9,797		0.225	4,558	0.105
	2.10		138.5	72.2	9,997		0.229	5,055	0.116
	2.20		139.3	73.0	10,166		0.233	6,063	0.139
	2.30		140.1	73.8	10,336		0.237	7,088	0.163
	2.40		140.9	74.6	10,508		0.241	8,130	0.187
	2.50		141.7	75.4	10,681		0.245	9,190	0.211
	2.60		142.5	76.2	10,855		0.249	10,267	0.236
	2.70		143.3	77.0	11,031		0.253	11,361	0.261
Zone 1 (WQCV)	2.75		143.7	77.4	11,119		0.255	11,915	0.274
	2.80		144.1	77.8	11,208		0.257	12,473	0.286
	2.90		144.9	78.6	11,386		0.261	13,603	0.312
	3.00		145.7	79.4	11,566		0.266	14,750	0.339
	3.10		146.5	80.2	11,746		0.270	15,916	0.365
	3.20		147.3	81.0	11,928		0.274	17,099	0.393
	3.30		148.1	81.8	12,111		0.278	18,301	0.420
	3.40		148.9	82.6	12,296		0.282	19,522	0.448
	3.50		149.7	83.4	12,482		0.287	20,761	0.477
	3.60		150.5	84.2	12,669		0.291	22,018	0.505
	3.70		151.3	85.0	12,857		0.295	23,295	0.535
	3.80		152.1	85.8	13,047		0.300	24,590	0.565
	3.90		152.9	86.6	13,238		0.304	25,904	0.595
	4.00		153.7	87.4	13,430		0.308	27,237	0.625
	4.10		154.5	88.2	13,624		0.313	28,590	0.656
	4.20		155.3	89.0	13,819		0.317	29,962	0.688
Zone 2 (5-year)	4.22		155.5	89.1	13,858		0.318	30,239	0.694
	4.30		156.1	89.8	14,015		0.322	31,354	0.720
	4.40		156.9	90.6	14,212		0.326	32,765	0.752
	4.50		157.7	91.4	14,411		0.331	34,196	0.785
	4.60		158.5	92.2	14,611		0.335	35,647	0.818
	4.70		159.3	93.0	14,812		0.340	37,118	0.852
	4.80		160.1	93.8	15,014		0.345	38,610	0.886
	4.90		160.9	94.6	15,218		0.349	40,121	0.921
	5.00		161.7	95.4	15,423		0.354	41,653	0.956
	5.10		162.5	96.2	15,629		0.359	43,206	0.992
	5.20		163.3	97.0	15,837		0.364	44,779	1.028
	5.30		164.1	97.8	16,046		0.368	46,373	1.065
	5.40		164.9	98.6	16,256		0.373	47,988	1.102
	5.50		165.7	99.4	16,467		0.378	49,625	1.139
	5.60		166.5	100.2	16,680		0.383	51,282	1.177
	5.70		167.3	101.0	16,894		0.388	52,961	1.216
	5.80		168.1	101.8	17,109		0.393	54,661	1.255
	5.90		168.9	102.6	17,326		0.398	56,383	1.294
Zone 3 (100-year)	6.00		169.7	103.4	17,544		0.403	58,126	1.334
	6.10		170.5	104.2	17,763		0.408	59,891	1.375
	6.20		171.3	105.0	17,983		0.413	61,679	1.416
	6.30		172.1	105.8	18,205		0.418	63,488	1.457
	6.40		172.9	106.6	18,428		0.423	65,320	1.500
	6.50		173.7	107.4	18,652		0.428	67,174	1.542
	6.60		174.5	108.2	18,878		0.433	69,050	1.585
	6.70		175.3	109.0	19,104		0.439	70,949	1.629
	6.80		176.1	109.8	19,333		0.444	72,871	1.673
	6.90		176.9	110.6	19,562		0.449	74,816	1.718
	7.00		177.7	111.4	19,793		0.454	76,784	1.763
	7.10		178.5	112.2	20,024		0.460	78,774	1.808
	7.20		179.3	113.0	20,258		0.465	80,788	1.855
	7.30		180.1	113.8	20,492		0.470	82,826	1.901
	7.40		180.9	114.6	20,728		0.476	84,887	1.949
	7.50		181.7	115.4	20,965		0.481	86,972	1.997
	7.60		182.5	116.2	21,203		0.487	89,080	2.045
	7.70		183.3	117.0	21,443		0.492	91,212	2.094
	7.80		184.1	117.8	21,684		0.498	93,369	2.143
	7.90		184.9	118.6	21,926		0.503	95,549	2.194
	8.00		185.7	119.4	22,169		0.509	97,754	2.244
	8.10		186.5	120.2	22,414		0.515	99,983	2.295
	8.20		187.3	121.0	22,660		0.520	102,237	2.347
	8.30		188.1	121.8	22,907		0.526	104,515	2.399
	8.40		188.9	122.6	23,156		0.532	106,818	2.452
	8.50		189.7	123.4	23,406		0.537	109,146	2.506
	8.60		190.5	124.2	23,657		0.543	111,499	2.560
	8.70		191.3	125.0	23,909		0.549	113,878	2.614
	8.80		192.1	125.8	24,163		0.555	116,281	2.669
	8.90		192.9	126.6	24,418		0.561	118,710	2.725
	9.00		193.7	127.4	24,674		0.566	121,165	2.782
	9.10		194.5	128.2	24,932		0.572	123,645	2.838
	9.20		195.3	129.0	25,190		0.578	126,151	2.896
	9.30		196.1	129.8	25,450		0.584	128,683	2.954
	9.40		196.9	130.6	25,712		0.590	131,241	3.013
	9.50		197.7	131.4	25,974		0.596	133,826	3.072
	9.60		198.5	132.2	26,238		0.602	136,436	3.132
	9.70		199.3	133.0	26,503		0.608	139,073	3.193

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

UD-Detention, Version 3.07 (February 2017)





Appendix C

Mile High Flood District Fact Sheets

Appendix D

Drainage Plans

LOWELL BLVD APTS - SITE PLAN

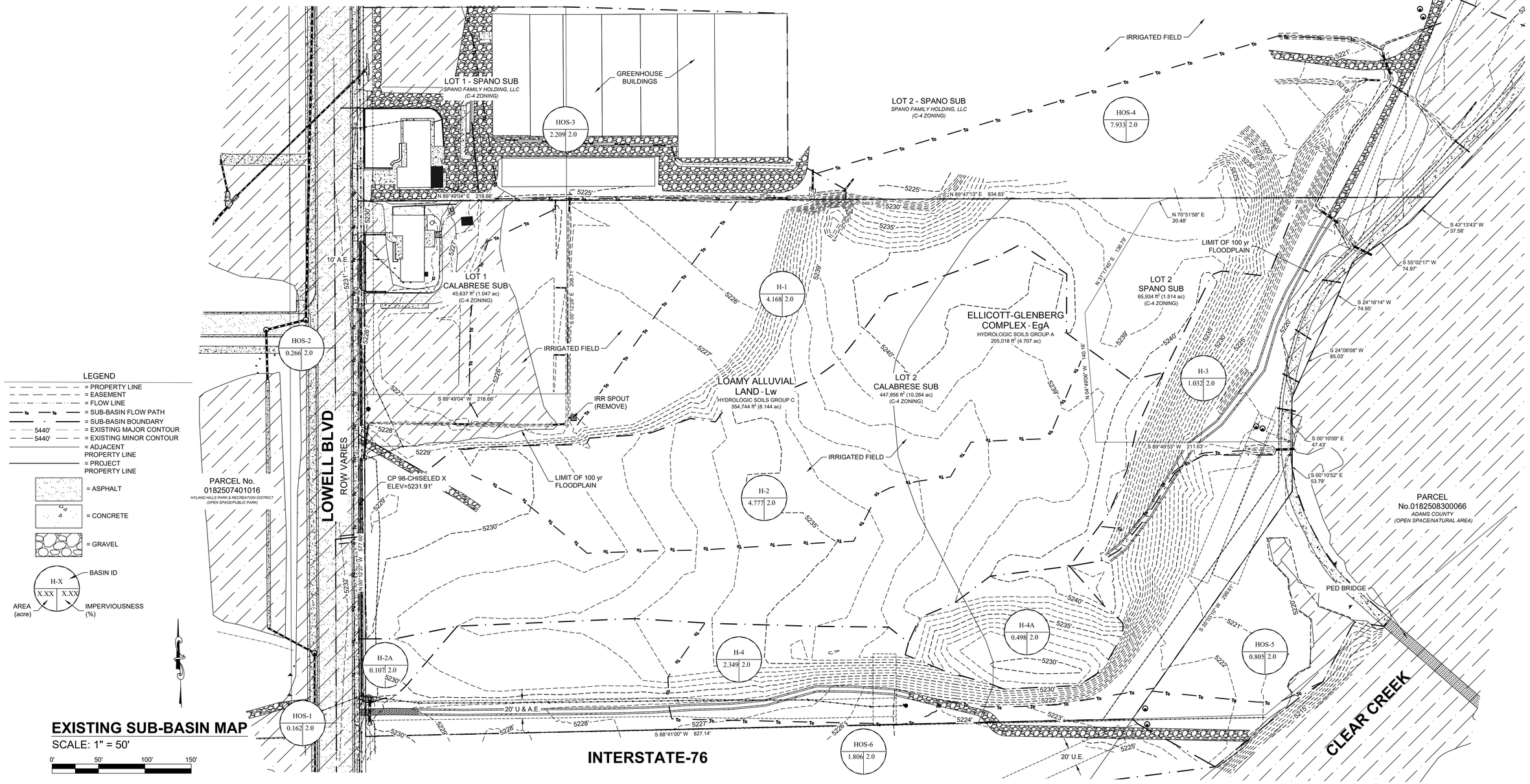
LOCATED IN PART OF THE SOUTHWEST ¼ OF SECTION 8, TOWNSHIP 3 SOUTH, RANGE 68 WEST OF THE 6TH P.M., COUNTY OF ADAMS, STATE OF COLORADO

Table 1. Historic Sub-Basin Summary

Basin ID	Basin Parameters						Runoff Coefficients, C			Runoff, Q			Conveyance
	Area (acre)	L (ft)	Δ (ft)	Avg So	I	tuse (min)	C5	C10	C100	Q5 (cfs)	Q10 (cfs)	Q100 (cfs)	
H-1	4.168	561.3	1.8	0.3%	2%	35	0.04	0.12	0.41	0.27	1.00	5.98	Sheet Flow/Channelization
H-2	5.275	800.7	9.5	1.2%	2%	31	0.04	0.10	0.37	0.36	1.11	7.20	Sheet Flow
H-3	1.032	194.3	20.6	10.6%	2%	5	0.01	0.01	0.13	0.04	0.05	1.21	Sheet Flow/Channelization
H-4	2.847	650.6	10.8	1.7%	2%	31	0.04	0.10	0.36	0.20	0.60	3.78	Sheet Flow/Channelization
HOS-1	0.162	184.9	1.0	0.5%	2%	10	0.05	0.15	0.49	0.02	0.09	0.52	Sheet Flow/Curb & Gutter
HOS-2	0.266	416.8	1.6	0.4%	2%	24	0.05	0.15	0.49	0.03	0.10	0.57	Sheet Flow/Curb & Gutter
HOS-3	2.209	505.6	3.5	0.7%	2%	35	0.05	0.15	0.49	0.18	0.66	3.79	Sheet Flow/Channelization
HOS-4	7.933	634.1	6.1	1.0%	2%	29	0.04	0.11	0.39	0.57	1.91	11.91	Sheet Flow/Channelization
HOS-5	0.805	188.4	3.4	1.8%	2%	22	0.01	0.01	0.13	0.02	0.02	0.48	Sheet Flow
HOS-6	1.806				2%	31	0.04	0.12	0.42	0.12	0.46	2.80	Sheet Flow/Channelization
Hist. Site	13.323	Total Historic On-Site Q								0.87	2.76	18.18	
Hist. Off-Site	13.181	Total Historic Off-Site Q								0.94	3.24	20.08	

NOTES:

1. EXISTING BOUNDARY, UTILITY, IMPROVEMENT LOCATIONS, AND TOPOGRAPHY INFORMATION BASED ON FIELD SURVEY CONDUCTED BY EHRHART LAND SURVEYING IN OCTOBER OF 2022.
   1.1. HORIZONTAL DATUM: US STATE PLANE COORDINATES, NAD 1983, MODIFIED STATE PLANE NORTH ZONE, GEOID MODEL GEOID 18. GROUND COORDINATES DERIVED USING A COMBINED SCALE FACTOR OF 0.99973994 AND BEING SCALED ABOUT CONTROL POINT No. 98 (N 1170542.63, E 3130753.89) AN X CHISELED INTO THE CONCRETE ON TOP OF THE RETAINING WALL ALONG THE EAST SIDE OF LOWELL BOULEVARD.
   1.2. VERTICAL DATUM: VERTICAL DATUM ESTABLISHED USING NGS CONTROL POINT "HIDDEN" (PID AB3302 - 3.25" BRASS DISK) HAVING A NAVD88 ELEVATION OF 5285.30 ft. THE ELEVATION WAS VERIFIED USING AN NGS OPUS SOLUTION WITH GEOID 18.



LEGEND

- = PROPERTY LINE
- = EASEMENT
- = FLOW LINE
- = SUB-BASIN FLOW PATH
- = SUB-BASIN BOUNDARY
- 5440' = EXISTING MAJOR CONTOUR
- 5440' = EXISTING MINOR CONTOUR
- = ADJACENT PROPERTY LINE
- = PROJECT PROPERTY LINE
- = ASPHALT
- = CONCRETE
- = GRAVEL
- H-X = BASIN ID; X.XX = AREA (acre); X.XX = IMPERVIOUSNESS (%)

EXISTING SUB-BASIN MAP

SCALE: 1" = 50'

0' 50' 100' 150'

ENTITLEMENTS REVIEW ONLY NOT FOR CONSTRUCTION

ASHER ARCHITECTS + ENGINEERS
512 5th STREET
BERTHOUD, CO 80513
p: 970-532-9970
w: AsherArch.com
e: tj@AsherArch.com

LOWELL DEVELOPMENT, LLC
5602 & 5660 LOWELL BLVD
DENVER, CO 80221
LOT 1, SPANO-CALABRESE SUB AMENDMENT No.1

PROJECT NUMBER 22-C14
DOCUMENT DATE:
01/26/2023 11:45:00 AM
DOCUMENT PHASE:
FOR REVIEW - INTERNAL

DRAWN BY:	DATE	CHECKED BY:	DATE
TJH	01/25/2023	TJH	01/26/2023

REV	DATE	DESCRIPTION

EXISTING SUB-BASINS

EX-1

SHEET 1 OF 1

5602 LOWELL BOULEVARD NEIGHBORHOOD MEETING SUMMARY

5602 LOWELL BOULEVARD, DENVER, COLORADO 80221

FRONTERRA

LANDSCAPE ARCHITECTURE
PLANNING

Dear Adams County,

The following is a summary of the Neighborhood Meeting held on Wednesday, January 25th at 5.30p in support of the proposed development at 5602 Lowell Boulevard.

The meeting was held in a virtual format via the Zoom meeting platform.

The following people were in attendance:

- Marko Mackovic (5602 Lowell LLC)
- Craig Bryan (5602 Lowell LLC)
- Anthony Spano (Spano Family Holding LLC)
- Sam Rodgers (Project Team - Asher Architects + Engineers)
- TJ Heupel (Project Team - Asher Architects + Engineers)
- David Stranathan (Project Team - Asher Architects + Engineers)
- Sara Kady (Project Team - The FronTerra Group)
- Josh McCarn (Project Team - The FronTerra Group)

The presentation began at approximately 5.35p. There were no questions and/or issues brought up regarding the proposed rezoning of the property.

A recording of the meeting is available should it be required.

Fidelity National Title
NATIONAL COMMERCIAL SERVICES

8055 E Tufts Ave, Suite 900
Denver, CO 80237
Phone:

DATE: November 7, 2022
FILE NUMBER: 100-N0035233-010-TO2, Amendment No. 2
PROPERTY ADDRESS: 5660 Lowell Blvd, 5602 Lowell Blvd, Denver, CO 80221
BUYER/BORROWER: Purchaser with contractual rights under a purchase agreement with the vested Owner identified at Item 4 below
OWNER(S): 5602 Lowell, LLC, a Colorado limited liability company
YOUR REFERENCE NUMBER:
ASSESSOR PARCEL NUMBER: R0178385 R0178384

PLEASE TAKE NOTE OF THE FOLLOWING REVISED TERMS CONTAINED HEREIN:

None.

WIRED FUNDS ARE REQUIRED ON ALL CASH PURCHASE TRANSACTIONS. FOR WIRING INSTRUCTIONS, PLEASE CONTACT YOUR ESCROW OFFICE AS NOTED ON THE TRANSMITTAL PAGE OF THIS COMMITMENT.

TO:	**Escrow Officer**	**ATTN:**	Title Only 10
		PHONE:	
		FAX:	**(303) 633-7720**
		E-MAIL:	
	Escrow Assistant	**ATTN:**	
		PHONE:	
		E-MAIL:	
	Title Officer	**ATTN:**	Eric Stearns
		PHONE:	(303) 692-6778
		E-MAIL:	estearns@fnf.com
	Sales Executive	**ATTN:**	Geoff Sanders
		E-MAIL:	Geoff.Sanders@fnf.com

TO:	**Mac Investments Group, LLC** **5895 W. 56th Ave.** **Arvada, CO 80001**	**ATTN:** **PHONE:** **FAX:** **E-MAIL:**	**Marko Mackovic** **(303) 888-8802** **marko@macinvestmentgroup.com**
TO:	**National Commercial Services Title Only** **8055 E Tufts Ave** **Suite 900** **Denver, CO 80237**	**ATTN:** **PHONE:** **FAX:** **E-MAIL:**	**Title Only 10** **(303) 633-7720**

END OF TRANSMITTAL

COMMITMENT FOR TITLE INSURANCE

Issued by

Fidelity National Title Insurance Company

NOTICE

IMPORTANT—READ CAREFULLY: THIS COMMITMENT IS AN OFFER TO ISSUE ONE OR MORE TITLE INSURANCE POLICIES. ALL CLAIMS OR REMEDIES SOUGHT AGAINST THE COMPANY INVOLVING THE CONTENT OF THIS COMMITMENT OR THE POLICY MUST BE BASED SOLELY IN CONTRACT.

THIS COMMITMENT IS NOT AN ABSTRACT OF TITLE, REPORT OF THE CONDITION OF TITLE, LEGAL OPINION, OPINION OF TITLE, OR OTHER REPRESENTATION OF THE STATUS OF TITLE. THE PROCEDURES USED BY THE COMPANY TO DETERMINE INSURABILITY OF THE TITLE, INCLUDING ANY SEARCH AND EXAMINATION, ARE PROPRIETARY TO THE COMPANY, WERE PERFORMED SOLELY FOR THE BENEFIT OF THE COMPANY, AND CREATE NO EXTRA CONTRACTUAL LIABILITY TO ANY PERSON, INCLUDING A PROPOSED INSURED.

THE COMPANY'S OBLIGATION UNDER THIS COMMITMENT IS TO ISSUE A POLICY TO A PROPOSED INSURED IDENTIFIED IN SCHEDULE A IN ACCORDANCE WITH THE TERMS AND PROVISIONS OF THIS COMMITMENT. THE COMPANY HAS NO LIABILITY OR OBLIGATION INVOLVING THE CONTENT OF THIS COMMITMENT TO ANY OTHER PERSON.

COMMITMENT TO ISSUE POLICY

Subject to the Notice; Schedule B, Part I—Requirements; Schedule B, Part II—Exceptions; and the Commitment Conditions, **Fidelity National Title Insurance Company**, a Florida Corporation (the "Company"), commits to issue the Policy according to the terms and provisions of this Commitment. This Commitment is effective as of the Commitment Date shown in Schedule A for each Policy described in Schedule A, only when the Company has entered in Schedule A both the specified dollar amount as the Proposed Policy Amount and the name of the Proposed Insured.

If all of the Schedule B, Part I—Requirements have not been met within 180 Days after the Commitment Date, this Commitment terminates and the Company's liability and obligation end.

Countersigned

By:
John Miller
Authorized Signature

Fidelity National Title Insurance Company

By:
Michael J. Nolan
President

ATTEST:
Marjorie Nemzura
Secretary

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by Fidelity National Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I—Requirements; and Schedule B, Part II—Exceptions; and a counter-signature by the Company or its issuing agent that may be in electronic form.

COMMITMENT CONDITIONS

1. DEFINITIONS

(a) "Knowledge" or "Known": Actual or imputed knowledge, but not constructive notice imparted by the Public Records.

(b) "Land": The land described in Schedule A and affixed improvements that by law constitute real property. The term "Land" does not include any property beyond the lines of the area described in Schedule A, nor any right, title, interest, estate, or easement in abutting streets, roads, avenues, alleys, lanes, ways, or waterways, but this does not modify or limit the extent that a right of access to and from the Land is to be insured by the Policy.

(c) "Mortgage": A mortgage, deed of trust, or other security instrument, including one evidenced by electronic means authorized by law.

(d) "Policy": Each contract of title insurance, in a form adopted by the American Land Title Association, issued or to be issued by the Company pursuant to this Commitment.

(e) "Proposed Insured": Each person identified in Schedule A as the Proposed Insured of each Policy to be issued pursuant to this Commitment.

(f) "Proposed Policy Amount": Each dollar amount specified in Schedule A as the Proposed Policy Amount of each Policy to be issued pursuant to this Commitment.

(g) "Public Records": Records established under state statutes at the Commitment Date for the purpose of imparting constructive notice of matters relating to real property to purchasers for value and without Knowledge.

(h) "Title": The estate or interest described in Schedule A.

2. If all of the Schedule B, Part I—Requirements have not been met within the time period specified in the Commitment to Issue Policy, this Commitment terminates and the Company's liability and obligation end.

3. The Company's liability and obligation is limited by and this Commitment is not valid without:

(a) the Notice;
(b) the Commitment to Issue Policy;
(c) the Commitment Conditions;
(d) Schedule A;
(e) Schedule B, Part I—Requirements;
(f) Schedule B, Part II—Exceptions; and
(g) a counter-signature by the Company or its issuing agent that may be in electronic form.

4. COMPANY'S RIGHT TO AMEND

The Company may amend this Commitment at any time. If the Company amends this Commitment to add a defect, lien, encumbrance, adverse claim, or other matter recorded in the Public Records prior to the Commitment Date, any liability of the Company is limited by Commitment Condition 5. The Company shall not be liable for any other amendment to this Commitment.

5. LIMITATIONS OF LIABILITY

(a) The Company's liability under Commitment Condition 4 is limited to the Proposed Insured's actual expense incurred in the interval between the Company's delivery to the Proposed Insured of the Commitment and the delivery of the amended Commitment, resulting from the Proposed Insured's good faith reliance to:

(i) comply with the Schedule B, Part I—Requirements;
(ii) eliminate, with the Company's written consent, any Schedule B, Part II—Exceptions; or
(iii) acquire the Title or create the Mortgage covered by this Commitment.

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(b) The Company shall not be liable under Commitment Condition 5(a) if the Proposed Insured requested the amendment or had Knowledge of the matter and did not notify the Company about it in writing.
(c) The Company will only have liability under Commitment Condition 4 if the Proposed Insured would not have incurred the expense had the Commitment included the added matter when the Commitment was first delivered to the Proposed Insured.
(d) The Company's liability shall not exceed the lesser of the Proposed Insured's actual expense incurred in good faith and described in Commitment Conditions 5(a)(i) through 5(a)(iii) or the Proposed Policy Amount.
(e) The Company shall not be liable for the content of the Transaction Identification Data, if any.
(f) In no event shall the Company be obligated to issue the Policy referred to in this Commitment unless all of the Schedule B, Part I—Requirements have been met to the satisfaction of the Company.
(g) In any event, the Company's liability is limited by the terms and provisions of the Policy.

6. LIABILITY OF THE COMPANY MUST BE BASED ON THIS COMMITMENT

(a) Only a Proposed Insured identified in Schedule A, and no other person, may make a claim under this Commitment.
(b) Any claim must be based in contract and must be restricted solely to the terms and provisions of this Commitment.
(c) Until the Policy is issued, this Commitment, as last revised, is the exclusive and entire agreement between the parties with respect to the subject matter of this Commitment and supersedes all prior commitment negotiations, representations, and proposals of any kind, whether written or oral, express or implied, relating to the subject matter of this Commitment.
(d) The deletion or modification of any Schedule B, Part II—Exception does not constitute an agreement or obligation to provide coverage beyond the terms and provisions of this Commitment or the Policy.
(e) Any amendment or endorsement to this Commitment must be in writing and authenticated by a person authorized by the Company.
(f) When the Policy is issued, all liability and obligation under this Commitment will end and the Company's only liability will be under the Policy.

7. IF THIS COMMITMENT HAS BEEN ISSUED BY AN ISSUING AGENT

The issuing agent is the Company's agent only for the limited purpose of issuing title insurance commitments and policies. The issuing agent is not the Company's agent for the purpose of providing closing or settlement services.

8. PRO-FORMA POLICY

The Company may provide, at the request of a Proposed Insured, a pro-forma policy illustrating the coverage that the Company may provide. A pro-forma policy neither reflects the status of Title at the time that the pro-forma policy is delivered to a Proposed Insured, nor is it a commitment to insure.

9. ARBITRATION

The Policy contains an arbitration clause. All arbitrable matters when the Proposed Policy Amount is $2,000,000 or less shall be arbitrated at the option of either the Company or the Proposed Insured as the exclusive remedy of the parties. A Proposed Insured may review a copy of the arbitration rules at <http://www.alta.org/arbitration>.

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Transaction Identification Data for reference only:

Issuing Agent:	Fidelity National Title, National Commercial Services
Issuing Office:	8055 E Tufts Ave, Suite 900, Denver, CO 80237
Loan ID Number:	
Issuing Office File Number:	100-N0035233-010-TO2, Amendment No. 2
Property Address:	5660 Lowell Blvd, 5602 Lowell Blvd, Denver, CO 80221
Revision Number:	Amendment No. 2, Amendment Date: November 7, 2022

SCHEDULE A

AMERICAN LAND TITLE ASSOCIATION COMMITMENT

1. Commitment Date: **October 28, 2022**
2. Policy to be issued:
   (a) ALTA Owners Policy 6-17-06

   Proposed Insured: Purchaser with contractual rights under a purchase agreement with the vested Owner identified at Item 4 below

   Proposed Policy Amount: **$**100,000.00

   (b) None

   Proposed Insured:

   Proposed Policy Amount: **$**0.00

   (c) None

   Proposed Insured:

   Proposed Policy Amount: **$**0.00
3. The estate or interest in the Land described or referred to in this Commitment is:

   FEE SIMPLE
4. The Title is, at the Commitment Date, vested in:

   5602 Lowell, LLC, a Colorado limited liability company
5. The Land is described as follows:

   See Exhibit A attached hereto and made a part hereof.

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SCHEDULE A
(Continued)

PREMIUMS:

Owners Policy	579.00
Deletion of 1 - 4 upon requirements met and provided there is no recent, ongoing or anticipated construction on the land	75.00
ALTA 39-06 - Policy Authentication	0.00
Tax Certificate	18.00

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EXHIBIT A
LEGAL DESCRIPTION

Lots 1 and 2, Calabrese Subdivision, County of Adams, State of Colorado.

FOR INFORMATIONAL PURPOSES
TAX ID NO. 0182508302003 and 0182508302004

SCHEDULE B

PART I – REQUIREMENTS

All of the following Requirements must be met:

a. Pay the agreed amounts for the interest in the land and/or for the mortgage to be insured.

b. Pay us the premiums, fees and charges for the policy.

c. Obtain a certificate of taxes due from the county treasurer or the county treasurer's authorized agent.

Note: Any documents being executed in conjunction with this transaction must be signed in the presence of an authorized Company employee, an authorized employee of an agent, an authorized employee of the insured lender, or by using Bancserv or other approved third-party service. If the above requirement cannot be met, please call the Company at the number provided in this report.

d. Furnish for recordation a full release of deed of trust:

Amount:	$1,000,000.00
Dated:	September 2, 2021
Trustor/Grantor:	5602 Lowell, LLC, a Colorado limited liability company
Trustee:	Public Trustee of Adams County
Beneficiary:	Stockmens Bank
Recording Date:	September 2, 2021
Recording No:	Reception No. 2021000105049

e. Deed sufficient to convey the fee simple estate or interest in the Land described or referred to herein, to the Proposed Insured Purchaser.

SCHEDULE B
PART I – Requirements
(Continued)

f. The Company will require the following documents for review prior to the issuance of any title insurance predicated upon a conveyance or encumbrance from the entity named below:

Limited Liability Company: 5602 Lowell, LLC, a Colorado limited liability company

a) A copy of its operating agreement, if any, and any and all amendments, supplements and/or modifications thereto, certified by the appropriate manager or member

b) If a domestic Limited Liability Company, a copy of its Articles of Organization and all amendments thereto with the appropriate filing stamps

c) If the Limited Liability Company is member-managed, a full and complete current list of members certified by the appropriate manager or member

d) A current dated certificate of good standing from the proper governmental authority of the state in which the entity was created

e) If less than all members, or managers, as appropriate, will be executing the closing documents, furnish evidence of the authority of those signing.

The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

g. Recordation of Statement of Authority for 5602 Lowell, LLC, a Colorado limited liability company pursuant to Colorado Revised Statutes evidencing the existence of the entity and authority of the person(s) authorized to execute and deliver instruments affecting title to real property on behalf of the entity and containing other information required by Colorado Revised Statutes.

h. The Company will require a survey of the subject Land, which is in compliance with minimum technical standards, prepared by a duly registered and licensed surveyor. If the owner of the Land the subject of this transaction is in possession of a survey, the Company will require that said survey be submitted for review and approval; otherwise, a new survey, satisfactory to the Company, must be submitted to the Company for examination. In order to prevent delays, please furnish the survey at least 10 days prior to the close of this transaction.

If an existing survey is to be relied upon, an affidavit from the seller(s)/mortgagor(s) must be furnished to the Company stating that no improvements have been made on the Land the subject of this transaction or adjacent thereto subsequent to the survey presented to the Company.

The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

SCHEDULE B
PART I – Requirements
(Continued)

i. The Company will require that an Owner's Affidavit be completed by the party(s) named below before the issuance of any policy of title insurance.

Party(s): 5602 Lowell, LLC, a Colorado limited liability company

The Company reserves the right to add additional items or make further requirements after review of the requested Affidavit.

Please be advised that our search did not disclose any open Deeds of Trust of record. If you should have knowledge of any outstanding obligation, please contact the Title Department immediately for further review prior to closing.

Note: Please be aware that due to the conflict between federal and state laws concerning the cultivation, distribution, manufacture or sale of marijuana, the Company is not able to close or insure any transaction involving Land that is associated with these activities.

END OF REQUIREMENTS

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SCHEDULE B

PART II – EXCEPTIONS

THIS COMMITMENT DOES NOT REPUBLISH ANY COVENANT, CONDITION, RESTRICTION, OR LIMITATION CONTAINED IN ANY DOCUMENT REFERRED TO IN THIS COMMITMENT TO THE EXTENT THAT THE SPECIFIC COVENANT, CONDITION, RESTRICTION, OR LIMITATION VIOLATES STATE OR FEDERAL LAW BASED ON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, GENDER IDENTITY, HANDICAP, FAMILIAL STATUS, OR NATIONAL ORIGIN.

The Policy will not insure against loss or damage resulting from the terms and provisions of any lease or easement identified in Schedule A, and will include the following Exceptions unless cleared to the satisfaction of the Company:

1. Any facts, rights, interests or claims that are not shown by the Public Records but which could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.

2. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.

3. Any encroachments, encumbrances, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by Public Records.

4. Any lien or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the Public Records.

5. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the Public Records or attaching subsequent to the effective date hereof but prior to the date the proposed Insured acquires of record for the value the estate or interest or mortgage thereon covered by this Commitment.

   NOTE: The above exception will not appear on policies where closing and settlement has been performed by the Company.

6. Water rights, claims of title to water, whether or not these matters are shown by the Public Records.

7. All taxes and assessments, now or heretofore assessed, due or payable.

   NOTE: This tax exception will be amended at policy upon satisfaction and evidence of payment of taxes.

8. Any existing leases or tenancies, and any and all parties claiming by, through or under said lessees.

9. Right of way for Clear Creek Bike Path/Recreation Trail.

10. Reservations as contained in Deed recorded March 4, 1938 in Book 245 at Page 361 and in Deed recorded April 4, 1938 in Book 246 at Page 283.

11. Reservations, conditions, and restrictions as contained in Deed recorded December 4, 1939 in Book 259 at Page 577.

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SCHEDULE B
PART II – Exceptions
(Continued)

12. Terms, conditions, provisions, agreements and obligations contained in the Easements for Construction and Maintenance of Sewer Lines as set forth below:

    Recording Date: September 25, 1963
    Recording No.: Book 1099 at Page 232

13. Terms, conditions, provisions, agreements and obligations contained in the Easements for Construction and Maintenance of Sewer Lines as set forth below:

    Recording Date: September 25, 1963
    Recording No.: Book 1099 at Page 248

14. Terms, conditions, provisions, agreements and obligations contained in the Easement for Construction and Maintenance of Sewer Lines as set forth below:

    Recording Date: February 21, 1984
    Recording No.: Book 2842 at Page 42

15. Terms, conditions, provisions, agreements and obligations contained in the Rule and Order as set forth below:

    Recording Date: July 31, 1985
    Recording No.: Book 3030 at Page 1

16. Terms, conditions, provisions, agreements and obligations contained in the Rule and Order as set forth below:

    Recording Date: June 12, 1987
    Recording No.: Book 3329 at Page 801

17. Any tax, lien, fee, or assessment by reason of inclusion of the Land in the Hyland Hills Park and Recreation District, as evidenced by instrument(s) recorded August 23, 1990 in Book 3712 at Page 402.

18. Terms, conditions, provisions, agreements and obligations contained in the Grant of Permanent Easement as set forth below:

    Recording Date: November 14, 1997
    Recording No.: Book 5157 at Page 652

19. Terms, conditions, provisions, agreements and obligations contained in the Grant of Easement as set forth below:

    Recording Date: November 14, 1997
    Recording No.: Book 5157 at Page 658

SCHEDULE B
PART II – Exceptions
(Continued)

20. Terms, conditions, provisions, agreements and obligations contained in the Grant of Permanent Easement as set forth below:

    Recording Date: December 22, 1997
    Recording No.: Book 5188 at Page 706

21. Terms, conditions, provisions, agreements and obligations contained in the Zoning Hearing Decision as set forth below:

    Recording Date: November 30, 2004
    Recording No.: Reception No. 20041130001205310

22. Easements, notes, terms, conditions, provisions, agreements and obligations as shown on the plat of Calabrese Subdivision recorded February 2, 2005 at Reception No. 20050202000110270.

23. Terms, conditions, provisions, agreements and obligations contained in the Planned Unit Development as set forth below:

    Recording Date: July 21, 2005
    Recording No.: Reception No. 20050772130

24. Terms, conditions, provisions, agreements and obligations contained in the Zoning Hearing Decision as set forth below:

    Recording Date: May 10, 2005
    Recording No.: Reception No. 20050510000498800

END OF EXCEPTIONS

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DISCLOSURE STATEMENT

- Pursuant to Section 38-35-125 of Colorado Revised Statutes and Colorado Division of Insurance Regulation 8-1-2 (Section 5), if the parties to the subject transaction request us to provide escrow-settlement and disbursement services to facilitate the closing of the transaction, then all funds submitted for disbursement must be available for immediate withdrawal.
- Colorado Division of Insurance Regulation 8-1-2, Section 5, Paragraph H, requires that "Every title insurance company shall be responsible to the proposed insured(s) subject to the terms and conditions of the title insurance commitment, other than the effective date of the title insurance commitment, for all matters which appear of record prior to the time of recording whenever the title insurance company, or its agent, conducts the closing and settlement service that is in conjunction with its issuance of an owners policy of title insurance and is responsible for the recording and filing of legal documents resulting from the transaction which was closed". Provided that Fidelity National Title, National Commercial Services conducts the closing of the insured transaction and is responsible for recording the legal documents from the transaction, exception No. 5 in Schedule B-2 will not appear in the Owner's Title Policy and Lender's Title Policy when issued.
- Colorado Division of Insurance Regulation 8-1-2, Paragraph M of Section 5, requires that prospective insured(s) of a single family residence be notified in writing that the standard exception from coverage for unfiled Mechanics or Materialmans Liens may or may not be deleted upon the satisfaction of the requirement(s) pertinent to the transaction. These requirements will be addressed upon receipt of a written request to provide said coverage, or if the Purchase and Sale Agreement/Contract is provided to the Company then the necessary requirements will be reflected on the commitment.
- Colorado Division of Insurance Regulation 8-1-3, Paragraph C. 11.f. of Section 5 - requires a title insurance company to make the following notice to the consumer: “A closing protection letter is available to be issued to lenders, buyers and sellers.”
- If the sales price of the subject property exceeds $100,000.00 the seller shall be required to comply with the Disclosure of Withholding Provisions of C.R.S. 39-22-604.5 (Nonresident Withholding).
- Section 39-14-102 of Colorado Revised Statutes requires that a Real Property Transfer Declaration accompany any conveyance document presented for recordation in the State of Colorado. Said Declaration shall be completed and signed by either the grantor or grantee.
- Recording statutes contained in Section 30-10-406(3)(a) of the Colorado Revised Statutes require that all documents received for recording or filing in the clerk and recorder's office shall contain a top margin of at least one inch and a left, right, and bottom margin of at least one-half of an inch. The clerk and recorder may refuse to record or file a document that does not conform to requirements of this paragraph.
- Section 38-35-109 (2) of the Colorado Revised Statutes, requires that a notation of the purchasers legal address, (not necessarily the same as the property address) be included on the face of the deed to be recorded.
- Regulations of County Clerk and Recorder's offices require that all documents submitted for recording must contain a return address on the front page of every document being recorded.
- Pursuant to Section 10-11-122 of the Colorado Revised Statutes, the Company is required to disclose the following information:
    - The subject property may be located in a special taxing district.
    - A Certificate of Taxes Due listing each taxing jurisdiction shall be obtained from the County Treasurer or the County Treasurer's authorized agent.
    - Information regarding special districts and the boundaries of such districts may be obtained from the Board of County Commissioners, the County Clerk and Recorder or the County Assessor.
- Pursuant to Section 10-11-123 of the Colorado Revised Statutes, when it is determined that a mineral estate has been severed from the surface estate, the Company is required to disclose the following information: that there is recorded evidence that a mineral estate has been severed, leased, or otherwise conveyed from the surface estate and that there is a substantial likelihood that a third party holds some or all interest in oil, gas, other minerals, or geothermal energy in the property; and that such mineral estate may include the right to enter and use the property without the surface owner's permission.

Note: Notwithstanding anything to the contrary in this Commitment, if the policy to be issued is other than an ALTA Owner's Policy (6/17/06), the policy may not contain an arbitration clause, or the terms of the arbitration clause may be different from those set forth in this Commitment. If the policy does contain an arbitration clause, and the Amount of Insurance is less than the amount, if any, set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties.

Wire Fraud Alert

This Notice is not intended to provide legal or professional advice. If you have any questions, please consult with a lawyer.

All parties to a real estate transaction are targets for wire fraud and many have lost hundreds of thousands of dollars because they simply relied on the wire instructions received via email, without further verification. **If funds are to be wired in conjunction with this real estate transaction, we strongly recommend verbal verification of wire instructions through a known, trusted phone number prior to sending funds.**

In addition, the following non-exclusive self-protection strategies are recommended to minimize exposure to possible wire fraud.

- **NEVER RELY** on emails purporting to change wire instructions. Parties to a transaction rarely change wire instructions in the course of a transaction.
- **ALWAYS VERIFY** wire instructions, specifically the ABA routing number and account number, by calling the party who sent the instructions to you. DO NOT use the phone number provided in the email containing the instructions, use phone numbers you have called before or can otherwise verify. **Obtain the phone number of relevant parties to the transaction as soon as an escrow account is opened**. DO NOT send an email to verify as the email address may be incorrect or the email may be intercepted by the fraudster.
- **USE COMPLEX EMAIL PASSWORDS** that employ a combination of mixed case, numbers, and symbols. Make your passwords greater than eight (8) characters. Also, change your password often and do NOT reuse the same password for other online accounts.
- **USE MULTI-FACTOR AUTHENTICATION** for email accounts. Your email provider or IT staff may have specific instructions on how to implement this feature.

For more information on wire-fraud scams or to report an incident, please refer to the following links:

Federal Bureau of Investigation:
http://www.fbi.gov

Internet Crime Complaint Center:
http://www.ic3.gov

FIDELITY NATIONAL FINANCIAL, INC.
PRIVACY NOTICE

Effective August 1, 2021

Fidelity National Financial, Inc. and its majority-owned subsidiary companies (collectively, "FNF," "our," or "we") respect and are committed to protecting your privacy. This Privacy Notice explains how we collect, use, and protect personal information, when and to whom we disclose such information, and the choices you have about the use and disclosure of that information.

A limited number of FNF subsidiaries have their own privacy notices. If a subsidiary has its own privacy notice, the privacy notice will be available on the subsidiary's website and this Privacy Notice does not apply.

Collection of Personal Information

FNF may collect the following categories of Personal Information:

- contact information (*e.g.*, name, address, phone number, email address);
- demographic information (*e.g.*, date of birth, gender, marital status);
- identity information (*e.g.* Social Security Number, driver's license, passport, or other government ID number);
- financial account information (*e.g.* loan or bank account information); and
- other personal information necessary to provide products or services to you.

We may collect Personal Information about you from:

- information we receive from you or your agent;
- information about your transactions with FNF, our affiliates, or others; and
- information we receive from consumer reporting agencies and/or governmental entities, either directly from these entities or through others.

Collection of Browsing Information

FNF automatically collects the following types of Browsing Information when you access an FNF website, online service, or application (each an "FNF Website") from your Internet browser, computer, and/or device:

- Internet Protocol (IP) address and operating system;
- browser version, language, and type;
- domain name system requests; and
- browsing history on the FNF Website, such as date and time of your visit to the FNF Website and visits to the pages within the FNF Website.

Like most websites, our servers automatically log each visitor to the FNF Website and may collect the Browsing Information described above. We use Browsing Information for system administration, troubleshooting, fraud investigation, and to improve our websites. Browsing Information generally does not reveal anything personal about you, though if you have created a user account for an FNF Website and are logged into that account, the FNF Website may be able to link certain browsing activity to your user account.

Other Online Specifics

Cookies. When you visit an FNF Website, a "cookie" may be sent to your computer. A cookie is a small piece of data that is sent to your Internet browser from a web server and stored on your computer's hard drive. Information gathered using cookies helps us improve your user experience. For example, a cookie can help the website load properly or can customize the display page based on your browser type and user preferences. You can choose whether or not to accept cookies by changing your Internet browser settings. Be aware that doing so may impair or limit some functionality of the FNF Website.

Web Beacons. We use web beacons to determine when and how many times a page has been viewed. This information is used to improve our websites.

Do Not Track. Currently our FNF Websites do not respond to "Do Not Track" features enabled through your browser.

Links to Other Sites. FNF Websites may contain links to unaffiliated third-party websites. FNF is not responsible for the privacy practices or content of those websites. We recommend that you read the privacy policy of every website you visit.

Use of Personal Information

FNF uses Personal Information for three main purposes:

- To provide products and services to you or in connection with a transaction involving you.
- To improve our products and services.
- To communicate with you about our, our affiliates', and others' products and services, jointly or independently.

When Information Is Disclosed

We may disclose your Personal Information and Browsing Information in the following circumstances:

- to enable us to detect or prevent criminal activity, fraud, material misrepresentation, or nondisclosure;
- to nonaffiliated service providers who provide or perform services or functions on our behalf and who agree to use the information only to provide such services or functions;

- to nonaffiliated third party service providers with whom we perform joint marketing, pursuant to an agreement with them to jointly market financial products or services to you;
- to law enforcement or authorities in connection with an investigation, or in response to a subpoena or court order; or
- in the good-faith belief that such disclosure is necessary to comply with legal process or applicable laws, or to protect the rights, property, or safety of FNF, its customers, or the public.

The law does not require your prior authorization and does not allow you to restrict the disclosures described above. Additionally, we may disclose your information to third parties for whom you have given us authorization or consent to make such disclosure. We do not otherwise share your Personal Information or Browsing Information with nonaffiliated third parties, except as required or permitted by law. We may share your Personal Information with affiliates (other companies owned by FNF) to directly market to you. Please see "Choices with Your Information" to learn how to restrict that sharing.

We reserve the right to transfer your Personal Information, Browsing Information, and any other information, in connection with the sale or other disposition of all or part of the FNF business and/or assets, or in the event of bankruptcy, reorganization, insolvency, receivership, or an assignment for the benefit of creditors. By submitting Personal Information and/or Browsing Information to FNF, you expressly agree and consent to the use and/or transfer of the foregoing information in connection with any of the above described proceedings.

Security of Your Information
We maintain physical, electronic, and procedural safeguards to protect your Personal Information.

Choices With Your Information
If you do not want FNF to share your information among our affiliates to directly market to you, you may send an "opt out" request as directed at the end of this Privacy Notice. We do not share your Personal Information with nonaffiliates for their use to direct market to you without your consent.

Whether you submit Personal Information or Browsing Information to FNF is entirely up to you. If you decide not to submit Personal Information or Browsing Information, FNF may not be able to provide certain services or products to you.

For California Residents: We will not share your Personal Information or Browsing Information with nonaffiliated third parties, except as permitted by California law. For additional information about your California privacy rights, please visit the "California Privacy" link on our website (https://fnf.com/pages/californiaprivacy.aspx) or call (888) 413-1748.

For Nevada Residents: You may be placed on our internal Do Not Call List by calling (888) 714-2710 or by contacting us via the information set forth at the end of this Privacy Notice. Nevada law requires that we also provide you with the following contact information: Bureau of Consumer Protection, Office of the Nevada Attorney General, 555 E. Washington St., Suite 3900, Las Vegas, NV 89101; Phone number: (702) 486-3132; email: BCPINFO@ag.state.nv.us.
For Oregon Residents: We will not share your Personal Information or Browsing Information with nonaffiliated third parties for marketing purposes, except after you have been informed by us of such sharing and had an opportunity to indicate that you do not want a disclosure made for marketing purposes.

For Vermont Residents: We will not disclose information about your creditworthiness to our affiliates and will not disclose your personal information, financial information, credit report, or health information to nonaffiliated third parties to market to you, other than as permitted by Vermont law, unless you authorize us to make those disclosures.

Information From Children
The FNF Websites are not intended or designed to attract persons under the age of eighteen (18).We do not collect Personal Information from any person that we know to be under the age of thirteen (13) without permission from a parent or guardian.

International Users
FNF's headquarters is located within the United States. If you reside outside the United States and choose to provide Personal Information or Browsing Information to us, please note that we may transfer that information outside of your country of residence. By providing FNF with your Personal Information and/or Browsing Information, you consent to our collection, transfer, and use of such information in accordance with this Privacy Notice.

FNF Website Services for Mortgage Loans
Certain FNF companies provide services to mortgage loan servicers, including hosting websites that collect customer information on behalf of mortgage loan servicers (the "Service Websites"). The Service Websites may contain links to both this Privacy Notice and the mortgage loan servicer or lender's privacy notice. The sections of this Privacy Notice titled When Information is Disclosed, Choices with Your Information, and Accessing and Correcting Information do not apply to the Service Websites. The mortgage loan servicer or lender's privacy notice governs use, disclosure, and access to your Personal Information. FNF does not share Personal Information collected through the Service Websites, except as required or authorized by contract with the mortgage loan servicer or lender, or as required by law or in the good-faith belief that such disclosure is necessary: to comply with a legal process or applicable law, to enforce this Privacy Notice, or to protect the rights, property, or safety of FNF or the public.

Your Consent To This Privacy Notice; Notice Changes

By submitting Personal Information and/or Browsing Information to FNF, you consent to the collection and use of the information in accordance with this Privacy Notice. We may change this Privacy Notice at any time. The Privacy Notice's effective date will show the last date changes were made. If you provide information to us following any change of the Privacy Notice, that signifies your assent to and acceptance of the changes to the Privacy Notice.

Accessing and Correcting Information; Contact Us

If you have questions, would like to correct your Personal Information, or want to opt-out of information sharing for affiliate marketing, visit FNF's Opt Out Page or contact us by phone at (888) 714-2710 or by mail to:

Fidelity National Financial, Inc.
601 Riverside Avenue,
Jacksonville, Florida 32204
Attn: Chief Privacy Officer

AMENDMENT TO LETTER OF INTENT

Amendment to Letter of Intent (the "**LOI**"), dated November 29, 2022 (the "**Amendment**"), between Spano Family Holding, LLC, a Colorado limited liability company, having its principal place of business at 5780 Lowell Blvd, Denver, CO 80221 ("**Seller**"), and 5602 Lowell, LLC, a Colorado limited liability company, having its principal place of business at 5895 W. 56th Ave., Arvada, CO 80002 ("**Purchaser**", and together with Seller, the "**Parties**", and each, a "**Party**").

RECITALS

WHEREAS, the Purchaser and the Seller have entered into a Letter of Intent, dated October 25, 2022 (the "**Existing Agreement**") attached hereto as **Exhibit A**; and

WHEREAS, the Purchaser in the Existing Agreement intends to consider the acquisition of a certain property located at 5780 Lowell Blvd, Denver, CO 80221 and as set forth in the LOI; and

WHEREAS, the Parties hereby desire to amend the Existing Agreement to extend the LOI effective date by 30-days on the terms and subject to the conditions set forth herein.

NOW, THEREFORE, in consideration of the foregoing and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Definitions. Capitalized terms used and not defined in this Amendment have the respective meanings assigned to them in the Existing Agreement.

2. Amendments to the Existing Agreement. As of the Effective Date (defined below), the Existing Agreement is hereby amended or modified as follows:

(a) The definition of "Purchaser" appearing in the preamble and referenced throughout the Existing Agreement is hereby deleted in its entirety and replaced with the following:

"Purchaser" means 5602 Lowell, LLC.

(b) The definition of "Seller" appearing in the preamble and referenced throughout the Existing Agreement is hereby deleted in its entirety and replaced with the following:

"Seller" means Spano Family Holding, LLC.

(c) Section 3(a) of the Existing Agreement is hereby amended and reinstated in its entirety to the following:

"Within sixty (60) days after the LOI Effective Date, the parties agree to negotiate in good faith the Purchase Agreement, which shall be consistent with the terms and conditions of this LOI, together with such other terms and conditions as are customary in a commercial transaction of this nature. Failure of the parties to reach an agreement with respect to the Purchase

Agreement and cause mutual execution thereof within the 60-day period for any reason whatsoever will terminate the obligations of the parties under this LOI, excluding Paragraph 9 below."

3. Date of Effectiveness; Limited Effect. This Amendment will become effective on the date on the date first written above (the "**Effective Date**"). Except as expressly provided in this Amendment, all of the terms and provisions of the Existing Agreement are and will remain in full force and effect and are hereby ratified and confirmed by the Parties. Without limiting the generality of the foregoing, the amendments contained herein will not be construed as an amendment to or waiver of any other provision of the Existing Agreement or of any other Transaction Document or as a waiver of or consent to any further or future action on the part of either Party that would require the waiver or consent of the other Party. On and after the Effective Date, each reference in the Existing Agreement to "this Agreement," "the Agreement," "hereunder," "hereof," "herein," or words of like import will mean and be a reference to the Existing Agreement as amended by this Amendment.

4. Miscellaneous.

(a) This Amendment is governed by and construed in accordance with the laws of the State of Colorado, without regard to the conflict of laws provisions of such State.

(b) This Amendment shall inure to the benefit of and be binding upon each of the Parties and each of their respective successors and assigns.

(c) The headings in this Amendment are for reference only and do not affect the interpretation of this Amendment.

(d) This Amendment may be executed in counterparts, each of which is deemed an original, but all of which constitute one and the same agreement. Delivery of an executed counterpart of this Amendment electronically or by facsimile shall be effective as delivery of an original executed counterpart of this Amendment.

(e) This Amendment constitutes the sole and entire agreement between the Parties with respect to the subject matter contained herein, and supersedes all prior and contemporaneous understandings, agreements, representations, and warranties, both written and oral, with respect to such subject matter.

[Signature Page Follows]

IN WITNESS WHEREOF, the Parties have executed this Amendment on the date first written above.

PURCHASER:

Spano Family Holding, LLC

DocuSigned by:

By _____
95FE8B6CEBF94A8...

Name: Anthony Spano

Title: Manager

SELLER:

5602 Lowell, LLC

DocuSigned by:

By _____
CE0B2DCFDFBE441...

Name: Marko Mackovic

Title: Manager

EXHIBIT A

[See Attached]

October 27, 2022

5602 Lowell LLC
5602 Lowell Blvd., Denver, CO 80211

Re: Letter of Intent - Approximately 1.5 Acres located in Adams, Colorado, which is set forth in red and further described in Exhibit A attached hereto (the "Property")

Dear Anthony Spano:

This Letter of Intent (this "LOI") shall set forth the terms and conditions upon which 5602 Lowell LLC, or any of its affiliates (the "Purchaser"), will consider acquiring from Spano Family Holdings LLC (the "Seller") the Property, which is set forth in red and more particularly described on Exhibit A attached hereto.

The parties wish to commence negotiating a definitive written purchase agreement for the purchase and sale of the Property (the "Purchase Agreement") and, to facilitate the negotiation of the Purchase Agreement, the parties request that Purchaser prepare the initial draft of the Purchase Agreement. Based on information currently known to Purchaser, it is proposed that the Purchase Agreement will include the following terms and conditions:

1. **Purchase Price:**

   The "Purchase Price" for the Property shall be $700,000, payable in cash at closing plus or minus standard prorations and credits.

2. **Title:**

   The Seller shall convey fee simple interest to the Property by means of a Special/Limited Warranty Deed, subject only to those exceptions, if any, approved by the Purchaser during the Due Diligence Period (the "Permitted Exceptions").

3. **Document Timing:**

   a. This LOI constitutes an offer by the Purchaser that will lapse and be of no further effect unless signed and returned by the Seller within seven (7) days after the date first written above. The date on which the last party to execute this LOI delivers a fully executed copy to the other party shall be the "LOI Effective Date."

   b. Within thirty (30) days after the LOI Effective Date, the parties agree to negotiate in good faith the Purchase Agreement, which shall be consistent with the terms and conditions of this LOI, together with such other terms and conditions as are customary in a commercial transaction of this nature. Failure of the parties to reach an agreement with respect to the Purchase Agreement and cause mutual execution thereof within the 30-day period for any reason whatsoever will terminate the obligations of the parties under this LOI, excluding Paragraph 9 below.

4. **Seller Obligations:**

   a. Following execution of the Purchase Agreement, the Seller shall reasonably assist and execute all necessary documentation required by the local government to obtain the required permits and entitlements to allow for the development of a total of not less than 350 multifamily units located on the Purchaser's land and the property post the purchase. Seller further agrees to appear and perform such other requests as Purchaser may reasonably request for Purchaser to obtain the necessary permits and entitlements with respect to the Property and the multifamily project set forth herein.

2204 Lakeshore Drive
Suite 450
Birmingham, AL 35209

P (205) 484-2840
F (205) 484-2837
www.livdev.com

b. Within five (5) days of effective date of the Purchase Agreement, the Seller shall provide to the Purchaser copies of all soil studies, plans, surveys, existing title insurance policies, and other documents reasonably requested by Purchaser and in Seller's possession or control.

c. Seller agrees in concept to provide a sewer easement in the approximate location described in Exhibit A and the parties agree to negotiate in good faith toward a commercially reasonable easement agreement with standard maintenance and indemnification terms during the LOI period.

d. The Seller shall enter into a minor subdivision agreement and take reasonably necessary steps to effectuate the same to divide the property the Purchaser is buying. This includes allowing surveyors and engineers to enter the property with 24-hour notice from Purchaser. Additionally, all costs associated with the minor subdivision, surveying, engineering, and entitlements shall be borne by the Purchaser.

5. Purchaser Due Diligence & Zoning Periods:

a. During the period commencing on the date of execution of the Purchase Agreement and expiring on the date that is ninety (90) days thereafter (the "Due Diligence Period"), Purchaser will have the right to conduct such tests, inspections, and investigations regarding the Property as Purchaser determines in its sole discretion are necessary or desirable, and to obtain all necessary governmental approvals and permits. If Purchaser is not satisfied with respect to the results of such due diligence, it may elect, prior to the expiration of the Due Diligence Period, to terminate the Purchase Agreement, in which event the Deposit would be returned to Purchaser.

b. The later of ninety (90) days after the expiration of the Due Diligence Period or receipt of final non-appealable zoning for a minimum of 350 units of conventional multifamily development will be known as the ("Zoning Period").

c. Within thirty (30) days after the end of the Zoning Period, as extended from time to time, the parties agree to close on the contemplated transaction (the "Closing Date").

d. The Purchaser shall have the option to extend the Closing Date three (3) additional thirty (30) day periods (each, an "Extension"). The Purchaser shall exercise its right to any Extension by providing written notice to the Seller prior to the end of the Closing Date, as extended from time to time.

6. Escrow Deposits:

a. Within five (5) days of the effective date of the Purchase Agreement the Purchaser shall provide a refundable deposit to the escrow agent in the amount of $10,000 (the "Initial Deposit").

b. The Initial Deposit (the "Deposit") shall be credited toward the Purchase Price at closing.

7. Marketing Restriction:

As consideration for the Purchaser incurring significant costs and expenses, including attorney, engineering, environmental audit, and other due diligence costs, in connection with the contemplated acquisition of the Property, the Seller agrees that from and after the LOI Effective Date, and continuing to the closing or termination of this LOI or the Purchase Agreement, the Seller will not, directly or indirectly, market, negotiate, enter into any agreement or otherwise attempt to sell or transfer the Property, or any part thereof, to any third-party.

8. Confidentiality:

All information and material regarding this LOI as well as all information obtained by the Purchaser during the Due Diligence Period, and otherwise in connection with its investigation of the Property (i) will be held in strict confidence and (ii) will not be disclosed to any third party without the other party's prior written consent. Notwithstanding the immediately

preceding sentence, either party may disclose the terms of this LOI to its respective affiliates, investors, lenders, employees, agents, attorneys, or consultants or as required by law on the condition that such persons maintain the confidentiality of this LOI. Notwithstanding any other provision of this LOI to the contrary, the obligations of the parties set forth in this Paragraph 9 will survive the expiration or termination of this LOI and the closing.

9. Non-binding Agreement:

The Purchase Agreement, and not this LOI, shall constitute the controlling document relative to the transaction. Except for Paragraphs 3, 4, 5, 8, 9, and 10, this LOI is not a binding commitment or agreement by any of the undersigned, and there will be no binding agreement between the parties or any legal obligations, including an obligation to continue negotiations, until the Purchase Agreement, subject to the terms and conditions to be contained therein, has been executed by the parties. If the requisite approvals are not obtained or the parties fail to enter into the Purchase Agreement within the time frame set forth in Paragraph 3 above, this LOI, excluding Paragraph 9, will be automatically terminated and have no further force or effect.

10. Right of First Refusal for Additional Land.

Seller pursuant to the terms set forth in this **Section 10** shall provide Purchaser a right of first refusal to the property highlighted in yellow and outlined in purple and as further set forth in Exhibit A ("ROFR Property"). If Seller receives from a third party a bona fide offer to purchase the ROFR Property, before Seller may accept such an offer, Seller must first give written notice to Purchaser of said offer. Purchaser shall have thirty (30) days from the date of receipt of said offer, to provide Seller with written acceptance of the offer, upon the same terms and conditions as set forth therein. If Purchaser accepts said offer, closing shall take place within sixty (60) days from the date of acceptance. Purchaser may elect to assign Purchaser's rights to purchase the Property to the parent of the Purchaser, a subsidiary of the Purchaser, or other entity wholly owned by Purchaser or its parent. If Purchaser fails to accept said offer within the thirty (30) days provided herein, Seller may proceed to sell to said third party in accordance with the terms of the offer. If Seller has not consummated a sale within one hundred eighty (180) days after the expiration of Purchaser's option rights hereunder, the restrictions and options herein provided shall be restored and shall continue in full force and effect, and so long as these restrictions and options remain in effect the Seller shall not thereafter sell or transfer the ROFR Property without first giving the Purchaser notice as herein provided and otherwise complying with the foregoing provisions. This Right of First Refusal for Additional Land as set forth in this **Section 10** shall terminate and be no longer in force and effect ten years from the date first written above. This Right of First Refusal for Additional Land as set forth in this **Section 10** shall apply to other conveyances including leases, partial conveyances of the Property, etc. The Purchaser shall have a right of first refusal on any leases considered by Seller for the ROFR Property.

[Signature Page Follows]

If the terms of this LOI are satisfactory, please indicate your acceptance of the terms set forth in this LOI by signing, dating, and returning a copy of this executed LOI. If you have any questions, please feel free to contact me at your convenience.

Sincerely,

5602 LOWELL LLC (Purchaser)

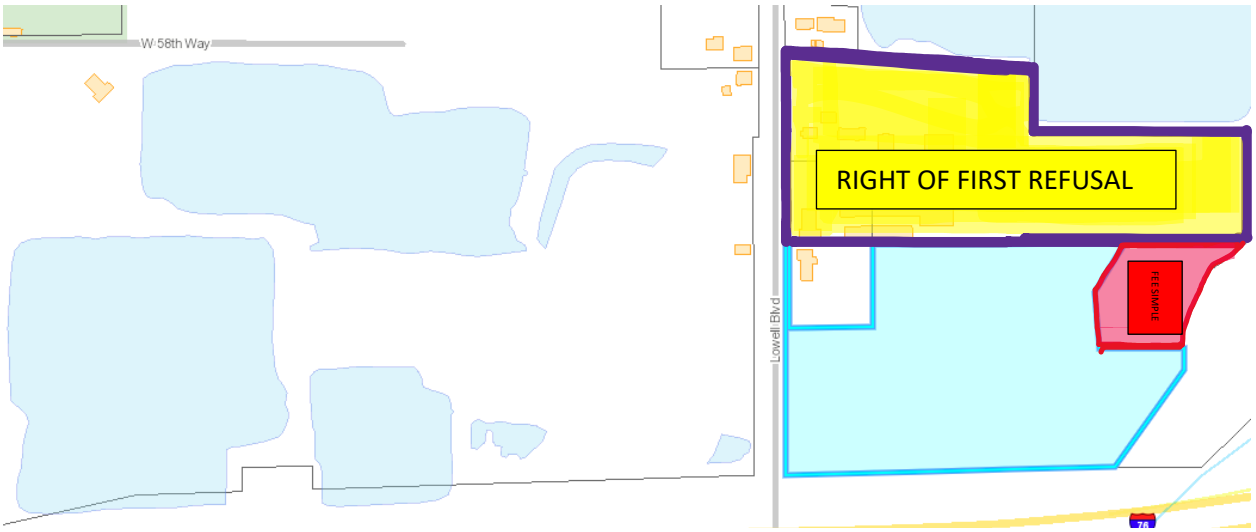
DocuSigned by:
By: Marko Mackovic
CE0B2DCFDFBE441...
Name: Marko Mackovic
Title: Manager
Phone: 303-888-8802
E-mail: marko@macinvestmentgroup.com

AGREED AND ACCEPTED ON THE DATE SET FORTH BELOW.

SPANO FAMILY HOLDINGS LLC (Seller)

DocuSigned by:
By: Anthony Spano
95FE8B6CEBF94A8...
Name: Anthony Spano
Title: Manager
Date: 10/28/2022

Exhibit A



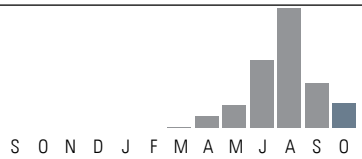
Easement

PUBLIC SERVICE COMPANY OF COLORADO

Xcel Energy®
RESPONSIBLE BY NATURE®

SERVICE ADDRESS	ACCOUNT NUMBER		DUE DATE
5602 LOWELL LLC 5660 LOWELL BLVD DENVER, CO 80221-7320	53-0013603470-2		11/22/2022
	STATEMENT NUMBER	STATEMENT DATE	AMOUNT DUE
	802768085	11/01/2022	$230.88

YOUR MONTHLY ELECTRICITY USAGE



DAILY AVERAGES	Last Year	This Year
Temperature	55° F	55° F
Electricity kWh	0.0	22.8
Electricity Cost	$0.00	$3.28

YOUR MONTHLY NATURAL GAS USAGE

DAILY AVERAGES	Last Year	This Year
Temperature	53° F	53° F
Gas Therms	0.0	2.5
Gas Cost	$0.00	$4.01

QUESTIONS ABOUT YOUR BILL?

See our website: xcelenergy.com
Email us at: Customerservice@xcelenergy.com

Call Mon - Fri 7 a.m.-7 p.m. or Sat 9 a.m.-5 p.m.

Please Call: 1-800-895-4999
Hearing Impaired: 1-800-895-4949
Español: 1-800-687-8778

Or write us at: XCEL ENERGY
PO BOX 8
EAU CLAIRE WI 54702-0008

Like us on Facebook Follow us on Twitter YouTube

SUMMARY OF CURRENT CHARGES (detailed charges begin on page 2)

Electricity Service	09/29/22 - 10/30/22	706 kWh	$101.75
Natural Gas Service	10/04/22 - 11/01/22	71 therms	$112.20
Other Recurring Charges			$16.93
Current Charges			**$230.88**

ACCOUNT BALANCE *(Balance de su cuenta)*

Previous Balance	As of 09/29		$260.30
Payment Received	Auto Pay 10/25		-$260.30 **CR**
Balance Forward			**$0.00**
Current Charges			$230.88
Amount Due *(Cantidad a pagar)*			**$230.88**

INFORMATION ABOUT YOUR BILL

Now that you have a smart meter, your monthly electric bill will look different than it has in the past and will show your electric use during different segments of the day. Visit www.xcelenergy.com/SmartMeter to learn more. You can also sign up at xcelenergy.com/MyAccount to see your billing history and other helpful information.

Thank you for your payment.

021404 1/4

-- no inserts --

RETURN BOTTOM PORTION WITH YOUR PAYMENT • **PLEASE DO NOT USE STAPLES, TAPE OR PAPER CLIPS**

ACCOUNT NUMBER	DUE DATE	AMOUNT DUE	AMOUNT ENCLOSED
53-0013603470-2	11/22/2022	$230.88	Automated Bank Payment

Your bill is paid through an automated bank payment plan.

NOVEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Please help our neighbors in need by donating to Energy Outreach Colorado. Please mark your donation amount on the back of this payment stub and CHECK THE RED BOX under your address below.

Xcel Energy®

------ manifest line ---------

5602 LOWELL LLC
5891 W 56TH AVE
ARVADA CO 80002-2810

XCEL ENERGY
P.O. BOX 9477
MPLS MN 55484-9477

32 53112222 00136034702 000000230800000023088

Xcel Energy®

SERVICE ADDRESS	ACCOUNT NUMBER		DUE DATE
5602 LOWELL LLC 5660 LOWELL BLVD DENVER, CO 80221-7320	53-0013603470-2		11/22/2022
	STATEMENT NUMBER	STATEMENT DATE	AMOUNT DUE
	802768085	11/01/2022	$230.88

SERVICE ADDRESS: **5660 LOWELL BLVD DENVER, CO 80221-7320**
NEXT READ DATE: 12/05/22

ELECTRICITY SERVICE DETAILS

PREMISES NUMBER: 300767425
INVOICE NUMBER: 0999435007

METER READING INFORMATION

METER 345541586 Read Dates: 09/29/22 - 10/30/22 (31 Days)

DESCRIPTION	CURRENT READING	PREVIOUS READING	USAGE
Mid Pk Energy	12 Actual	0 Actual	12 kWh
On-Peak Energy	89 Actual	0 Actual	89 kWh
Off-Peak Energy	605 Actual	0 Actual	605 kWh
Total Energy	706 Actual	0 Actual	706 kWh

ELECTRICITY CHARGES — RATE: R Residential General

DESCRIPTION	USAGE	UNITS	RATE	CHARGE
Service & Facility				$5.60
Summer Season	22.77	kWh	$0.083560	$1.90
Winter Season	683.23	kWh	$0.071360	$48.76
Trans Cost Adj	706	kWh	$0.001030	$0.73
Elec Commodity Adj	22.77	kWh	$0.033820	$0.77
Elec Commodity Adj	683.23	kWh	$0.039050	$26.68
Demand Side Mgmt Cost	706	kWh	$0.001690	$1.19
Purch Cap Cost Adj	706	kWh	$0.004140	$2.92
GRSA E	706	kWh	$0.012490	$8.82
EGCRR	706	kWh	$0.002390	$1.69
Renew. Energy Std Adj				$0.97
Colo Energy Plan Adj				$0.97
Energy Assistance Chg				$0.02
Energy Assistance Chg				$0.73
Total				**$101.75**

Xcel Energy®

SERVICE ADDRESS	ACCOUNT NUMBER		DUE DATE
5602 LOWELL LLC 5660 LOWELL BLVD DENVER, CO 80221-7320	53-0013603470-2		**11/22/2022**
	STATEMENT NUMBER	**STATEMENT DATE**	**AMOUNT DUE**
	802768085	11/01/2022	**$230.88**

SERVICE ADDRESS: **5660 LOWELL BLVD DENVER, CO 80221-7320**
NEXT READ DATE: 12/05/22

NATURAL GAS SERVICE DETAILS

PREMISES NUMBER: 300767425
INVOICE NUMBER: 0489046092

METER READING INFORMATION

METER R471706 Read Dates: 10/04/22 - 11/01/22 (28 Days)

DESCRIPTION	CURRENT READING	PREVIOUS READING	USAGE
Total Energy	9283 Actual	9202 Actual	81 ccf

NATURAL GAS ADJUSTMENTS

DESCRIPTION	VALUE UNITS	CONVERSION	VALUE UNITS
Therm Multiplier	81 ccf	x 0.875758	**71** therms

NATURAL GAS CHARGES — RATE: RG Residential

DESCRIPTION	USAGE UNITS	RATE	CHARGE
Service & Facility			$12.14
Usage Charge	71 therms	$0.198732	$14.11
Interstate Pipeline	71 therms	$0.056000	$3.97
Natural Gas 4 Qtr	71 therms	$0.953200	$67.67
DSMCA			$1.33
RDS			$3.42
GRSA-P			$3.19
EGCRR	20.65 therms	$0.075010	$1.55
EGCRR	50.35 therms	$0.072210	$3.64
GRSA			$0.43
Energy Assistance Chg			$0.75
Total			**$112.20**

OTHER RECURRING CHARGES DETAILS

INVOICE NUMBER: 999434982
ADDRESS: 5660 LOWELL BLVD
DENVER, CO 80221-7320

DESCRIPTION	USAGE UNITS	UNIT CHARGE	QTY	CHARGE
Install Number 66523 09/29/22 to 10/29/22 100 WATT HPS DK-DN - RAL				
Area Lights	45 kWh	$12.96	1	$12.96
Trans Cost Adj				$0.02
Elec Commodity Adj				$0.10
Elec Commodity Adj				$1.64
Demand Side Mgmt				$0.04
Purch Cap Cost Adj				$0.08
Renew. Energy Std Adj				$0.16
Renew. Energy Std Adj				$0.00
Colo Energy Plan Adj				$0.16
Colo Energy Plan Adj				$0.00
GRSA E				$0.15
EGCRR				$0.20
GRSA				$1.42
Total				**$16.93**

DENVER WATER

1600 West 12th Ave
Denver, CO 80204-3412
303.628.6000
denverwater.org

August 9, 2022

Lowell Development LLC
c/o Marko Mackovic

RE: 5602 & 5660 Lowell Blvd

Legal: 5660 Lowell Blvd., Denver, CO 80221, Lot 1 of Calabrese Subdivision, SW 1/4 of Section 8, Township 3 South, Range 68 West
5602 Lowell Blvd., Denver, CO 80221, Lot 2 of Calabrese Subdivision, SW 1/4 of Section 8, Township 3 South, Range 68 West

Dear Marko -

Denver Water has been asked to determine whether the property described above is located within Denver Water's service area and would be eligible to receive water service from Denver Water. This letter verifies that the property is located within the Berkeley District or one of Denver Water's Total Service distributor's service area. This property is eligible to receive water. Any project located on the property will be subject to compliance with Denver Water's Operating Rules, Regulations, Engineering Standards and applicable charges. Prior to proceeding with the project, you should determine the regulations and charges that might apply.

Please check the fire requirements for the proposed development with the Fire Prevention Bureau and the availability of fire flow from existing mains with Denver Water's Hydraulics Department.

Feel free to contact me at 303-628-6100 should you have any additional questions/concerns.

Sincerely,

Leslie Gomez

Sales Administration

LEGAL DESCRIPTION

LOT 2, SPANO SUBDIVISION RECORDED FEBRUARY 2, 2005 AT RECEPTION NO. 20050202000110370, EXCEPT THAT PORTION OF LOT 2 DEEDED TO ADAMS COUNTY IN WARRANTY DEED RECORDED MAY 18, 2016 AT RECEPTION NO. 2016000038603, TOGETHER WITH LOTS 1 AND 2, CALABRESE SUBDIVISION, RECORDED FEBRUARY 2, 2005 AT RECEPTION NO. 20050202000110270, COUNTY OF ADAMS, STATE OF COLORADO.

TREASURER & PUBLIC TRUSTEE
ADAMS COUNTY, COLORADO
Certificate Of Taxes Due

Account Number R0178385
Parcel 0182508302004
Assessed To
5602 LOWELL LLC
5895 W 56TH AVE
ARVADA, CO 80002-2810

Certificate Number 2022-223554
Order Number
Vendor ID
FRONTERRA GROUP - JOSH MCCARN ASSOCIATE PRINCIPLE
PO BOX 178 LOVELAND CO 80539

Legal Description
CALABRESE SUBDIVISION LOT 2

Situs Address
5602 LOWELL BLVD

Year	Tax	Interest	Fees	Payments	Balance
Tax Charge					
2021	$253.18	$0.00	$0.00	($253.18)	$0.00
Total Tax Charge					$0.00
Grand Total Due as of 12/09/2022					**$0.00**

Tax Billed at 2021 Rates for Tax Area 480 - 480

Authority	Mill Levy	Amount
RANGEVIEW LIBRARY DISTRICT	3.6890000	$7.67
BERKELEY WATER & SANITATION	3.3530000	$6.97
ADAMS COUNTY FIRE PROTECTIO	16.6860000	$34.71
ADAMS COUNTY	27.0690000	$56.30
HYLAND HILLS PARK & RECREAT	5.1230000	$10.66
SD 50	64.8000000	$134.79
URBAN DRAINAGE SOUTH PLATTE	0.1000000	$0.21
URBAN DRAINAGE & FLOOD CONT	0.9000000	$1.87
Taxes Billed 2021	121.7200000	$253.18

Values	Actual	Assessed
AG FLOOD IRRG LAND	$7,160	$2,080
Total	$7,160	$2,080

ALL TAX SALE AMOUNTS ARE SUBJECT TO CHANGE DUE TO ENDORSEMENT OF CURRENT TAXES BY THE LIENHOLDER OR TO ADVERTISING AND DISTRAINT WARRANT FEES. CHANGES MAY OCCUR; PLEASE CONTACT THE TREASURY PRIOR TO MAKING A PAYMENT AFTER AUGUST 1. TAX LIEN SALE REDEMPTION AMOUNTS MUST BE PAID BY CASH OR CASHIER'S CHECK.

SPECIAL TAXING DISTRICTS AND THE BOUNDARIES OF SUCH DISTRICTS MAY BE ON FILE WITH THE BOARD OF COUNTY COMMISSIONERS, THE COUNTY CLERK, OR, THE COUNTY ASSESSOR.

This certificate does not include land or improvements assessed under a separate account number, personal property taxes, transfer tax, or, miscellaneous tax collected on behalf of other entities, special or local improvement district assessments, or mobile homes, unless specifically mentioned.

I, the undersigned, do hereby certify that the entire amount of taxes due upon the above described parcels of real property and all outstanding lien sales for unpaid taxes as shown by the records in my office from which the same may still be redeemed with the amount required for redemption on this date are as noted herein. In witness whereof, I have hereunto set my hand and seal.

TREASURER & PUBLIC TRUSTEE, ADAMS COUNTY, Lisa L. Culpepper, J.D.

Treasurer, Adams County, Lisa L. Culpepper J.D.

4430 S. Adams County Parkway
Brighton, CO 80601

TREASURER & PUBLIC TRUSTEE
ADAMS COUNTY, COLORADO
Certificate Of Taxes Due

Account Number R0178384
Parcel 0182508302003
Assessed To
5602 LOWELL LLC
5895 W 56TH AVE
ARVADA, CO 80002-2810

Certificate Number 2022-223555
Order Number
Vendor ID
FRONTERRA GROUP - JOSH MCCARN ASSOCIATE PRINCIPLE
PO BOX 178 LOVELAND CO 80539

Legal Description
CALABRESE SUBDIVISION LOT 1

Situs Address
5660 LOWELL BLVD

Year	Tax	Interest	Fees	Payments	Balance
Tax Charge					
2021	$4,066.66	$0.00	$0.00	($4,066.66)	$0.00
Total Tax Charge					$0.00
Grand Total Due as of 12/09/2022					**$0.00**

Tax Billed at 2021 Rates for Tax Area 480 - 480

Authority	Mill Levy	Amount
RANGEVIEW LIBRARY DISTRICT	3.6890000	$123.25
BERKELEY WATER & SANITATION	3.3530000	$112.02
ADAMS COUNTY FIRE PROTECTIO	16.6860000	$557.48
ADAMS COUNTY	27.0690000	$904.38
HYLAND HILLS PARK & RECREAT	5.1230000	$171.16
SD 50	64.8000000	$2,164.96
URBAN DRAINAGE SOUTH PLATTE	0.1000000	$3.34
URBAN DRAINAGE & FLOOD CONT	0.9000000	$30.07
Taxes Billed 2021	121.7200000	$4,066.66

Values	Actual	Assessed
RES IMPRV LAND	$177,000	$12,660
SINGLE FAMILY RES	$290,153	$20,750
Total	$467,153	$33,410

ALL TAX SALE AMOUNTS ARE SUBJECT TO CHANGE DUE TO ENDORSEMENT OF CURRENT TAXES BY THE LIENHOLDER OR TO ADVERTISING AND DISTRAINT WARRANT FEES. CHANGES MAY OCCUR; PLEASE CONTACT THE TREASURY PRIOR TO MAKING A PAYMENT AFTER AUGUST 1. TAX LIEN SALE REDEMPTION AMOUNTS MUST BE PAID BY CASH OR CASHIER'S CHECK.

SPECIAL TAXING DISTRICTS AND THE BOUNDARIES OF SUCH DISTRICTS MAY BE ON FILE WITH THE BOARD OF COUNTY COMMISSIONERS, THE COUNTY CLERK, OR, THE COUNTY ASSESSOR.

This certificate does not include land or improvements assessed under a separate account number, personal property taxes, transfer tax, or, miscellaneous tax collected on behalf of other entities, special or local improvement district assessments, or mobile homes, unless specifically mentioned.

I, the undersigned, do hereby certify that the entire amount of taxes due upon the above described parcels of real property and all outstanding lien sales for unpaid taxes as shown by the records in my office from which the same may still be redeemed with the amount required for redemption on this date are as noted herein. In witness whereof, I have hereunto set my hand and seal.

TREASURER & PUBLIC TRUSTEE, ADAMS COUNTY, Lisa L. Culpepper, J.D.

Treasurer, Adams County, Lisa L. Culpepper J.D.

4430 S. Adams County Parkway
Brighton, CO 80601

TREASURER & PUBLIC TRUSTEE
ADAMS COUNTY, COLORADO
Certificate Of Taxes Due

Account Number R0183478
Parcel 0182508302001
Assessed To
SPANO FAMILY HOLDING LLC
5780 LOWELL BLVD
DENVER, CO 80221-1936

Certificate Number 2022-223556
Order Number
Vendor ID
FRONTERRA GROUP - JOSH MCCARN ASSOCIATE PRINCIPLE
PO BOX 178 LOVELAND CO 80539

Legal Description
SPANO SUBD LOT 2 EXC RD (REC NO 2016000038603)

Situs Address
5820 LOWELL BLVD

Year	Tax	Interest	Fees	Payments	Balance
Tax Charge					
2021	$5,476.18	$0.00	$0.00	($5,476.18)	$0.00
Total Tax Charge					$0.00
Grand Total Due as of 12/09/2022					**$0.00**

Tax Billed at 2021 Rates for Tax Area 480 - 480

Authority	Mill Levy	Amount
RANGEVIEW LIBRARY DISTRICT	3.6890000	$165.97
BERKELEY WATER & SANITATION	3.3530000	$150.85
ADAMS COUNTY FIRE PROTECTIO	16.6860000	$750.70
ADAMS COUNTY	27.0690000	$1,217.84
HYLAND HILLS PARK & RECREAT	5.1230000	$230.48
SD 50	64.8000000	$2,915.35
URBAN DRAINAGE SOUTH PLATTE	0.1000000	$4.50
URBAN DRAINAGE & FLOOD CONT	0.9000000	$40.49
Taxes Billed 2021	121.7200000	$5,476.18

Values	Actual	Assessed
1276	$136,206	$9,740
AG BUSINESS LAND	$121,553	$35,250
Total	$257,759	$44,990

ALL TAX SALE AMOUNTS ARE SUBJECT TO CHANGE DUE TO ENDORSEMENT OF CURRENT TAXES BY THE LIENHOLDER OR TO ADVERTISING AND DISTRAINT WARRANT FEES. CHANGES MAY OCCUR; PLEASE CONTACT THE TREASURY PRIOR TO MAKING A PAYMENT AFTER AUGUST 1. TAX LIEN SALE REDEMPTION AMOUNTS MUST BE PAID BY CASH OR CASHIER'S CHECK.

SPECIAL TAXING DISTRICTS AND THE BOUNDARIES OF SUCH DISTRICTS MAY BE ON FILE WITH THE BOARD OF COUNTY COMMISSIONERS, THE COUNTY CLERK, OR, THE COUNTY ASSESSOR.

This certificate does not include land or improvements assessed under a separate account number, personal property taxes, transfer tax, or, miscellaneous tax collected on behalf of other entities, special or local improvement district assessments, or mobile homes, unless specifically mentioned.

I, the undersigned, do hereby certify that the entire amount of taxes due upon the above described parcels of real property and all outstanding lien sales for unpaid taxes as shown by the records in my office from which the same may still be redeemed with the amount required for redemption on this date are as noted herein. In witness whereof, I have hereunto set my hand and seal.

TREASURER & PUBLIC TRUSTEE, ADAMS COUNTY, Lisa L. Culpepper, J.D.

Treasurer, Adams County, Lisa L. Culpepper J.D.

4430 S. Adams County Parkway
Brighton, CO 80601

CERTIFICATION OF NOTICE TO MINERAL ESTATE OWNERS

I/We, Marko Mackovic
(the "Applicant") by signing below, hereby declare and certify as follows:

With respect to the property located at:

Physical Address: 5602 & 5660 Lowell Boulevard, Denver, Colorado 80221

Legal Description: CALABRESE SUBDIVISION LOTS 1 & 2

Parcel #(s): 0182508302004 & 0182508302003

(PLEASE CHECK ONE):

X On the 28 day of NOVEMBER, 2022, which is not less than thirty days before the initial public hearing, notice of application for surface development was provided to mineral estate owners pursuant to section 24-65.5-103 of the Colorado Revised Statutes;

or

___ I/We have searched the records of the Adams County Tax Assessor and the Adams County Clerk and Recorder for the above identified parcel and have found that no mineral estate owner is identified therein.

Date: 11/28/22 Applicant: MARKO MACKOVIC

By: [signature]

Print Name: MARKO MACKOVIC

Address: 5895 WEST 56TH AVE
ARVADA CO 80002

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this 28 day of November, 2022, by Michele R Perry.

Witness my hand and official seal.

My Commission expires: 1/8/23

[signature]
Notary Public

MICHELE R PERRY
NOTARY PUBLIC - STATE OF COLORADO
NOTARY ID 19984028390
MY COMMISSION EXPIRES JAN 8, 2023

After Recording Return To:

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.

CERTIFICATION OF NOTICE TO MINERAL ESTATE OWNERS

I/We, Anthony Spano
(the "Applicant") by signing below, hereby declare and certify as follows:

With respect to the property located at:
Physical Address: 5820 Lowell Boulevard, Denver, Colorado 80221
Legal Description: SPANO SUBD LOT 2 EXC RD (REC NO 2016000038603)

Parcel #(s): 0182508302001

(PLEASE CHECK ONE):

X On the 28 day of November, 2022, which is not less than thirty days before the initial public hearing, notice of application for surface development was provided to mineral estate owners pursuant to section 24-65.5-103 of the Colorado Revised Statutes;

or

____ I/We have searched the records of the Adams County Tax Assessor and the Adams County Clerk and Recorder for the above identified parcel and have found that no mineral estate owner is identified therein.

Date: 11/28/22 Applicant: Anthony Spano

By: Anthony Spano
Print Name: Anthony Spano
Address: 5780 Lowell Blvd
Denver Co 80221

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this 28th day of November, 2022, by Anthony Spano.

Witness my hand and official seal.

My Commission expires: 1/25/23

PAUL R DANBORN
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19954001348
MY COMMISSION EXPIRES JANUARY 25, 2023

Notary Public

After Recording Return To:

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.

APPLICANT'S CERTIFICATION CONCERNING QUALIFYING SURFACE DEVELOPMENT, PURSUANT TO C.R.S. §24-65.5-103.3 (1)(b)

I, Marko Mackovic (the "Applicant") by signing below, hereby declare and certify as follows concerning the property located at:

Physical Address: 5602 & 5660 LOWELL BOULEVARD

Legal Description: CALABRESE SUBDIVISION LOTS 1 & 2

Parcel # (s): 0182508302003 & 0182508302004

With respect to qualifying surface developments:

Access to existing and proposed mineral operations, surface facilities, flowlines, and pipelines in support of such existing and proposed operations for oil and gas exploration and production, including provisions for public roads sufficient to withstand trucks and drilling equipment or thirty-foot-wide access easements, were provided for in a "N/A" area as recorded in Reception # N/A on N/A.

Date: 12/27/2022 Applicant: MARKO MACKOVIC

By: [signature]

Address: 5602 LOWELL BLVD DENVER 80211

STATE OF COLORADO)
COUNTY OF ~~ADAMS~~ Jefferson)

Subscribed and sworn to before me this 27th day of December, 20~~22~~, by Marko Mackovic.

Witness my hand and official seal.

CHERYL C. SWANSON
NOTARY PUBLIC - STATE OF COLORADO
NOTARY ID 20184048791
MY COMMISSION EXPIRES DEC 28, 2026

My Commission expires: DEC. 28, 2026 Cheryl C. Swanson
Notary Public

After Recording Return To:

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.

APPLICANT'S CERTIFICATION CONCERNING QUALIFYING SURFACE DEVELOPMENT, PURSUANT TO C.R.S. §24-65.5-103.3 (1)(b)

I, Anthony Spano (the "Applicant") by signing below, hereby declare and certify as follows concerning the property located at:

Physical Address: 5820 LOWELL BOULEVARD

Legal Description: SPANO SUBD LOT 2 EXC RD (REC NO 2016000038603)

Parcel # (s): 0182508302001

With respect to qualifying surface developments:

Access to existing and proposed mineral operations, surface facilities, flowlines, and pipelines in support of such existing and proposed operations for oil and gas exploration and production, including provisions for public roads sufficient to withstand trucks and drilling equipment or thirty-foot-wide access easements, were provided for in a " N/A " area as recorded in Reception # N/A on N/A.

Date: 1/3/2023 Applicant: Anthony Spano

By: Anthony Spano

Address: 5780 Lowell Blvd Denver Co. 80221

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this 3 day of January, 2023 by Anthony Spano.

Witness my hand and official seal.

HIBAT LECHGAR
Notary Public
State of Colorado
Notary ID # 20184013942
My Commission Expires 03-27-2026

My Commission expires: 03-27-26 Hibat Lechgar
Notary Public

After Recording Return To:

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.