AGENDA
CITY OF GLENWOOD SPRINGS
Planning and Zoning Commission
Regular Meeting
FEBRUARY 22, 2022
Council Chambers, First Floor
101 W. 8TH STREET
6:00 PM

1 Attendance Instructions

A. This meeting is being held IN PERSON as well as via Zoom. Webinar instructions are below.

Please click the link below to join the webinar:
https://us02web.zoom.us/j/87943926967
Or One tap mobile :
US: +16699006833,,87943926967# or +12532158782,,87943926967#
Or Telephone:
Dial(for higher quality, dial a number based on your current location):
US: +1 669 900 6833 or +1 253 215 8782 or +1 346 248 7799 or +1 929 205 6099 or +1 301 715 8592 or +1 312 626 6799
Webinar ID: 879 4392 6967
International numbers available: https://us02web.zoom.us/u/kcxeSISok2

2 Roll Call

3 Receipt of the Minutes

A. Draft Minutes January 25, 2022 Planning and Zoning Commission Meeting

B. Draft Minutes February 8, 2022 Special Planning and Zoning Commission Meeting

4 Comments from citizens appearing for items not on the agenda

5 New Items

A. Planning Item 34-21 Annexation and Rezoning (initial zoning) 25 Airport Road

B. Planning Item 49-21 Site/Architectural Plan Review and Design Variances 1010 Grand

C. Planning Item 67-21 Minor Site/Architectural Plan 702 23rd Street

D. Planning Item 69-21 Minor Site/Architectural Plan 2525 S Grand Avenue

6 Continued Items

A. Planning File 02-02, Part 2 Fire Impact Fee

7 Planning and Zoning Commission Officers

A. Election of Officers

8 Commissioner Comments

9 Director Comments

10 Adjournment

MINUTES

CITY OF GLENWOOD SPRINGS

Planning and Zoning Commission

Regular Meeting

January 25, 2022

1. Roll Call

Present: Commissioners Wissing, Schachter, Cipperly, Shaver, White, and West. Alternate Commissioner Amy Connerton.

Staff: Jenn Ooton, Assistant City Manager, Hannah Klausman, Assistant Director Community Development, Attorney Richard Peterson.

Commissioner Cipperly motioned to seat Alternate Amy Connerton. Commissioner Shaver seconded. Unanimously approved.

Chair Dehm logged into the meeting after roll call but before the first item.

2. Receipt of Minutes

Receipt of December 14, 2021 Draft Minutes
Commissioner Shaver motioned to approve the December 14, 2021 Minutes. Commissioner Schachter seconded. Minutes unanimously approved.

3. Comments from Citizens for items not on the agenda.

No comments received.

4. Continued Items

a. Planning File 57-21, Part 3 - Public Art Master Plan Implementation

Assistant City Manager Jenn Ooton described the Public Art Master Plan and background for Code Amendment changes necessary to implement the plan. Parks, Recreation and Economic Development staff members determined that if the city pursued five public art pieces each year, that the need would be just over $60,000 annually.

Ms. Ooton explained that staff reviewed the square footages of past projects that would be subject to the open space requirements to arrive at a recommendation of a fee of 10 cents per foot, but that City Council adopt the fees by resolution, so that the fee can change in the future without a change to the

DRAFT

Municipal Code. Staff recommended approval of amendments to Title 070 as listed in the attachment to the staff report, with the findings listed on page three.

Questions from Commissioners:
Commissioner Shaver asked about exemptions for developments that are providing affordable housing. Sumner wants to exempt any deed restricted property at 100% AMI or lower from these fees. Staff asked for clarification if this was for inclusionary zoning program, or voluntary program. Sumner says he is most concerned about the Inclusionary Zoning projects but would defer to staff on recommendation. Commissioner White comments that if developments are required to provide affordable housing it seems like the incentive should be to developments that voluntarily provide affordable housing. Commissioner Cipperly asks if this will create low-income housing developments without art. Suggestion to only exempt the square footage that is deed restricted below 100%AMI for both required and voluntary units.

Commissioners wondered why architects were specifically excluded from being the artist. Staff explains that the intent was that masonry or other architectural features would not meet the requirement of Art. The intent is that architecture itself is not meant to satisfy the art requirement. Suggestion that some aspects of a building might qualify as art, such as a gargoyle, and that could be a review and approval by staff.

Question on who provides maintenance of art as it is not clear in the proposed code. Is it the City? Question on duration of art. Do they have to apply again if they want to change out the art pieces?

Question on what it means for the fees to be set by resolution and not an ordinance. Staff explains that resolutions allow for more flexible approval process that doesn't require two readings and that all fees are set by resolution annually which allows a complete review of fees.

Question on whether the cost could be diffused or collected through different means for example a real estate transfer tax. Staff explains transfer taxes are not allowed.

Question how Planning and Zoning Commission could relay that they would like to see the funding for art possibly come from other sources.

Clarification that the art would be occurring on public property. Question on whether there is an option to place the art on the site of the proposed development. Staff clarifies that either public property or an easement on the property itself. Question on wouldn't the City want to own the art after it was required and be in public view. Legal mentions that there might need to be higher scrutiny of selection if it is going to be city property.

Ms. Ooton summarized the suggested changes from Planning and Zoning Commissioners as the following:

1. Changing the definition of 090.080.010(c) excluding the sentence that references the prohibiting of architects from being artists.
2. Changing the funding section 090.080.040(a) and (d) to include costs for private development as a cost per square foot and a percentage of the cost of capitally funded improvement projects.
3. Putting an exception for deed restricted square footage at 100% AMI.
4. Developer shall dedicate to the City public art but shall enter into an agreement for maintenance with covenants for art duration.

DRAFT

Chair Dehm opened the item up for public comment and received none.

Commissioner Cipperly motions to approve the item as discussed. Commissioner Schachter Seconds. Unanimously approved. 7-0

Next Item:

a. **Discussion on City Boards and Commissions Special Meeting**

Assistant Director of Community Development Hannah Klausman explained the purpose and intent of the meeting and introduced the summary of responses to City Council questions from Commissioners.

Staff opened it up for discussion on the item.

Commissioner Schachter wanted to highlight the Commissions desire for the work shops and emphasize the roll of "Planning" for Planning and Zoning Commission. Chair Dehm agreed on highlighting the visionary work of the work sessions and the importance of continuing that effort.

Commissioners nominated Chair Dehm to be their representative at the meeting on January 27, 2022.

5. **Commissioner Comments**

Commissioner White asked for protocol on emails received from the public. Legal confirmed that emails should be forwarded to Community Development but not to directly respond as a Commissioner.

Commissioner West thanked the Commission as this would be his last meeting of serving his term.

6. **Director Comments**

Ms. Ooton thanked Commissioners West and Schachter for their service on the Planning and Zoning Commission. She also noted that City Council appointed alternate Commissioners Peter Waller and Amy Connerton to regular seats that were open, as well as appointed two new alternates to serve for a term of three years.

7. **Meeting adjourned at 7:50 PM**

DRAFT

MINUTES
CITY OF GLENWOOD
SPRINGS
Planning and Zoning Commission
Special Meeting
FEBRUARY 8, 2022
Virtual on ZOOM
5:00 PM

1 Roll Call

A. Commissioners Present: Dehm, Waller, Cipperly, Shaver, Connerton

B. Staff Present: Asst. City Manager Jenn Ooton, Asst. Director Community Development Hannah Klausman, Asst. City Attorney Richard Peterson-Cremer

2 Comments from citizens appearing for items not on the agenda

A. No comments

3 New Items

A. Consideration of Code Text Amendments to Municipal Code Title 070 pursuant to C.R.S. Title 24, Article 65.1 and other changes to the land use code.

a. Article 070.080 Guidelines and Regulations for Matters of State Interest

Assistant City Attorney Richard Peterson-Cremer detailed the background on State law that governs the 1041 regulations which originated from House Bill 74-1041.

Questions from Commissioners:
Commissioner Cipperly: Question on historical resources and how that interacts.

Commissioner Shaver: Had questions on the ordinary high-water mark and whether there was a more definitive map. Staff explained that SGM did the mapping and the City just received the GIS layers for that information.

Commissioner Waller: The quasi-government agencies can do the Location and Extent, and that this gives more teeth to the specified areas. Is that correct? Legal answered yes, and that this would also apply to nonprofit and nongovernmental entities proposing developments that this would cover as well. Legal clarified that the 1041 regulations would add additional review for that development process. Each scenario would be evaluated for whether it triggers the thresholds for a 1041 review.

Commissioner Connerton asked how many cities had already adopted this.
Legal answered that many counties and approximately a dozen cities have adopted aspects of 1041 for implementation.

Chair Dehm: Had questions on boundaries and why it isn't City wide.
Commissioner Shaver: Does this extend to the City itself? If the City were to do a project close to the river, would

they call it upon themselves to fall on these regulations?

Legal answered: The City would likely subject themselves to these regulations much like location and extent reviews which City developments go through. We recognize these are activities and areas that are likely to be controversial, so it is good to have an additional threshold for review.

Commissioners had some confusion over the exemptions table and what the thresholds are and wanted additional clarification on the reasons why the exemptions were listed and why only development permits that go to City Council are required to possibly abide by the 1041 regulation process.

Chair Dehm opened the item for public comment:
No public comment received.

Commissioner Waller motioned to approve item 1, guidelines and regulations for matters of State Interest. Commissioner Shaver seconds the motion. Unanimously approved with a 5-0.

b. Fire and Emergency Services Impact Fees, Section 070.040.030(g)(5) TO BE CONTINUED TO FEBRUARY 22, 2022
c. Commissioner Cipperly made a motion to continue the item. Commissioner Connerton seconded. Unanimously approved 5-0.

4 Meeting adjourned at 5:55 PM

DRAFT

Planning and Zoning Commission Report

Date: February 22, 2022
To: Planning and Zoning Commission
From: Trent L. Hyatt, Long Ranger Senior Planner
Subject: Planning Item #34-21 – Ochko Annexation and Rezoning

REQUEST	Consideration of the Annexation of a 0.358 acre parcel and Rezoning (initial zoning) to Residential Medium-Density (RM1) District
APPLICANT	Steve Ochko
OWNER	Steven Joseph Ochko Living Trust
LOCATION	25 Airport Road/County Road 116 (PIN: 2185-272-00-024)
ZONE	Garfield County Residential Suburban
SURROUNDING LAND USES	North: Airport Road/Sopris Elementary School South: City property/utility access East: Airport Road/triplex West: Four Mile Road/Single-family residential
LOT SIZE	Approximately 0.358 acres

ACTION ITEMS

The Planning and Zoning Commission (Commission) is the recommending body to City Council on all Annexation and related Rezoning (initial zoning) applications. Both action items are discussed in further detail below.

Action 1 - <u>Annexation</u> – of a 0.358 acre parcel into the municipal limits of the City of Glenwood Springs.

<u>Staff recommendation</u>: *Staff recommends **approval (with conditions)** of the Annexation request with the findings and conditions on page 7.*

Action 2 - <u>Rezoning (initial zoning)</u> – of a 0.358 acre parcel to Residential Medium-Density (RM1) District.

<u>Staff recommendation</u>: *Staff recommends **approval (with conditions)** of the Rezoning (initial zoning) request with the findings on pages 7-8.*

BACKGROUND/ANALYSIS

Proposal

The applicant, Steve Ochko, proposes the annexation of a 0.358 acre parcel located in unincorporated Garfield County in south Glenwood Springs outside of the municipal limits of the City. The subject property is located at the southwest corner of the intersection of Four Mile

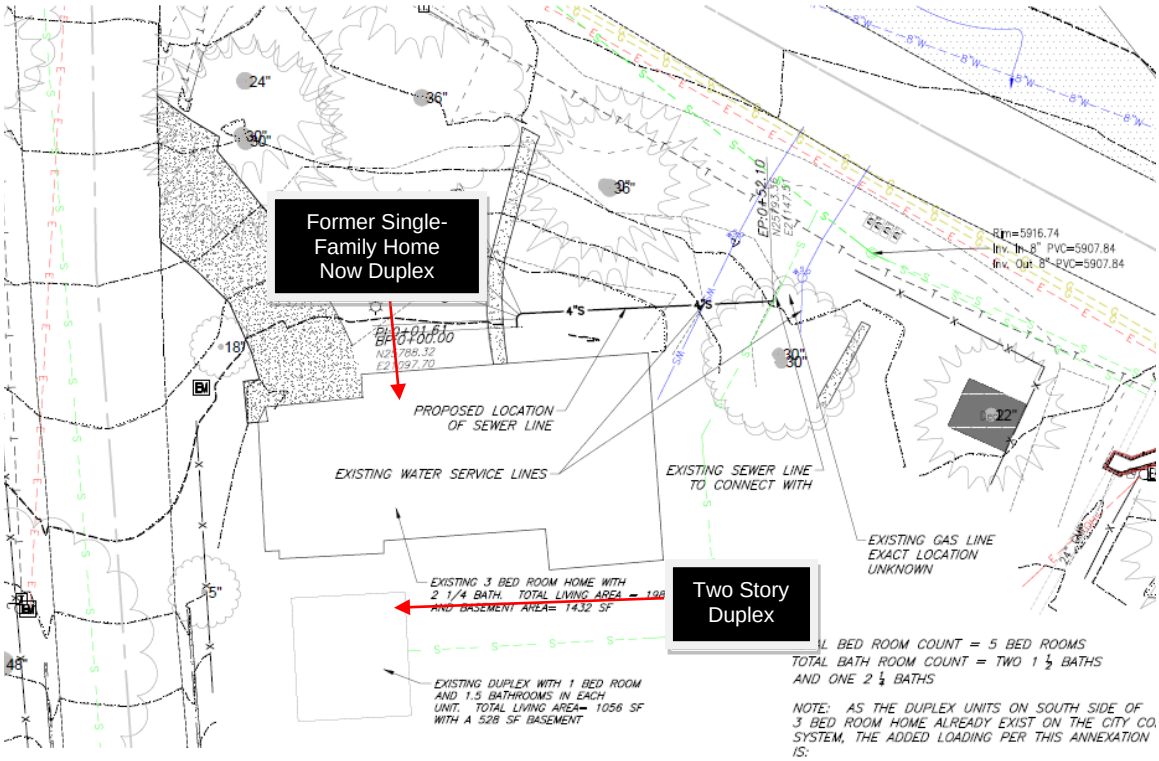
and Airport Roads. A location/vicinity map of the site is provided below which depicts the current City limits in a yellow dashed line.

Vicinity map

Two structures existing on the property, a one story, former single-family home which fronts Airport Road and contains two units and a two story, duplex structure to the rear having access off Four Mile Road. The structures are pictured below.

Southwest view (Google Maps)

A portion of the site survey on the next page depicts the structures, utilities, accesses, etc. in relation to adjacent roads. No changes to site are proposed or anticipated in the immediate future. Please note, the current proposal is not a request for a development approval.



Portion of Site Survey

Annexation Process

In most cases, the annexation of a property adjacent to a city's municipal limits is a voluntary process requested by a property owner. With sufficient contiguity, a property owner may petition City Council for inclusion into the City. Such a petition begins a series of analyses by the City to determine the impacts of an annexation, including both the positive benefits and potential negative impacts. Public input is solicited through the process as well. To mitigate impacts and to incentivize the annexation, both parties negotiate certain terms that are reflected in an annexation agreement. Many municipalities, including ours, require annexation as means of obtaining various utilities. In this circumstance, both structures are currently connected to City water but sewer service is needed for the former single family home, now duplex.

The annexation process is codified in the Colorado Revised Statutes (CRS 31-12-107) and in Section 070.060.040(d) of the Code. To meet statutory qualifications, at least 1/6th (or 16.67 percent) of the annexing parcel's perimeter must be contiguous with existing city limits. In this case, approximately 61.90 percent of the parcel's perimeter is contiguous with the existing city limits (see vicinity map above and attached draft annexation map for contiguous boundaries). City Council must pass a resolution determining an annexation request is in substantial compliance with CRS. Thereafter, a series of public notices and hearings are required.

Annexation Review Criteria

Section 070.060.040(d)3.b of the Code guides the Commission to ensure the following: "***The final annexation plan shall conform to applicable state statutes, shall be consistent with the Comprehensive Plan, and shall include all information required by the City to evaluate whether and to what extent the annexation impacts the city and the public health, safety, and welfare of the city.***" The Commission should base its recommendation on the anticipated

impacts upon the City and surrounding neighborhood including consideration of traffic, open space, active recreational facilities, infrastructure capacity and the compatibility of the proposed development with the City's goals and policies as adopted by ordinance or resolution. Since the parcel is currently developed, annexation is not expected to have a negative impact on any of these factors.

Bicycle and Pedestrian Facilities

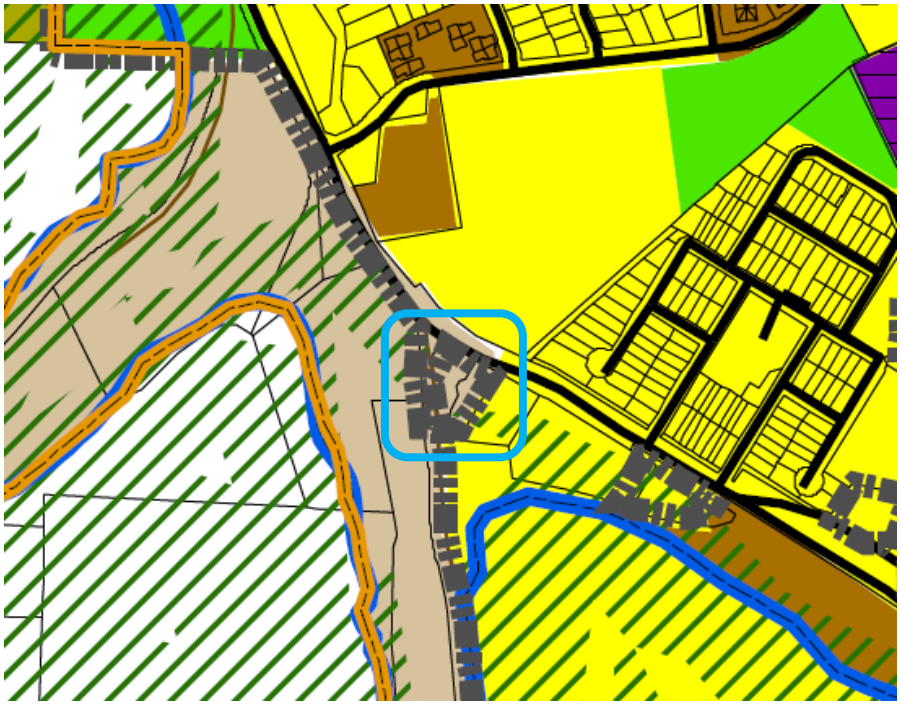
No bicycle or pedestrian facilities are located adjacent to the subject property. Therefore, staff is requesting the applicant construct a five foot wide sidewalk adjacent to the Airport Road portion of the site. Alternatively, the applicant could submit a payment in lieu of sidewalk construction for the 104.34 feet of frontage along said road.

Infrastructure

The City's water and electric service areas already include the property. The duplex structure is already connected to City sewer, however, the former single-family home now duplex is not as it is connected to an onsite wastewater treatment system which is expected to be impacted by future Airport Road improvements. Demand loads for sewer have been reviewed and determined to be within the City's ability to serve. Costs related to the proposed sewer connection are the responsibility of the applicant.

Comprehensive Plan

As shown at lower right, Map 2.3 Future Land Use – South Portion of City of the *2011 Glenwood Springs Comprehensive Plan* (Comp Plan) designates the site as a "Low Density Residential." Chapter 2, Page 28 of the Comp Plan explains the the designation is "*…for land that is outside of the city limits but within the urban growth area. This designation consists of single-family residential development that is intended to maintain a rural character. Appropriate development densities will be determined by, among other things,* ***current land uses****, topographic constraints, existing and future utility connections, and existing road networks.*" The site lies within the City's urban growth boundary. Page 29 states, "*[I]t is intended that these properties within the Urban Growth Boundary be annexed into the city at some point in the future. Among other things, these future land use designations take into account current uses, topographic constraints, existing/future utility connections, existing road networks, and land uses on adjacent properties.*"



Chapter 3, Page 46 outlines the City's "Overall Annexation Position" as outlined in ***bold italics*** below. Other commetns are provided by staff. The proposed annexation appears to comply with the guidance provided.

1. Within the Urban Growth Boundary annexation is preferred over development through county jurisdiction, unless there are extenuating circumstances and significant public benefit to do otherwise.

While the proposal is located within the Urban Growth Boundary, the critieia is not fully applicable since no new development is associated with the proposal.

2. Annexation will occur through petition of the land owner(s). While it is not the intent of the City to compel annexation, the City reserves the prerogative to initiate annexation if found to be in the best interest of the community.

The applicant has petitioned the City for the requested annexation.

3. The City will consider annexation only within the Urban Growth Boundary unless there is a compelling public benefit to consider annexation of a parcel outside the boundary.

The proposal is located witthin the City's Urban Growth Boundary.

4. The City is required to provide annexed parcels with infrastructure (electricity, water, wastewater) and services (police, emergency and other urban services) in a manner that is cost-effective and that does not unduly burden Glenwood Springs residents.

As mentioned above, the parcel is City adjacent and currently utilizes many City services and roadway infrastructure and is not expected to further burden City residents.

5. The City encourages and supports the annexation of the property immediately north of the Glenwood Mall to facilitate a compatible/coordinated mixed-use development.

Not applicable.

6. The City should work with Garfield County to jointly adopt a major street plan for the Bershenyi Ranch / Elk Meadows property that will assure mutual commitment to a unified vision for development and open space.

Not applicable.

Rezoning Approval Criteria

As outlined above, RM1 is requested for the subject property. Section 070.060.040(a)(3)f.3 of the Code outlines the criteria for the review and approval of a Rezoning application. Code language is provided in ***bold italics*** below along with supporting information from staff.

Rezoning Approval Criteria Section 070.060.040(a)(3)f.3

i. The rezoning is consistent with the City's comprehensive plan and the purpose of this Code;

As detailed above, the Annexation and related RM1 Rezoning (initial zoning) are consistent with the future land use designation of the property and annexation position as addressed in the Comp Plan. The propose of this Code as stated in Section 070.010.030 *"…is to protect the public health, safety, and welfare of the city and to implement the policies, goals, and strategies adopted by the City of Glenwood Springs, including those set forth in the Glenwood Springs Comprehensive Plan."* Annexation allows the City to be directly involved with any future implementation of various goals and policies at the site and in the greater south Glenwood neighborhood.

ii. ***The rezoning is consistent with the proposed purpose statement of the proposed zoning district;***

As per Section 070.020.50(a), "[*T]he RM1 district is intended to accommodate medium-density, primarily single-family uses on smaller- to medium-sized lots. The RM1 district is intended to transition from low-density single-family residential districts to multifamily development districts.*" While the current number of units on the property (four) exceeds that which is permitted by the district (duplex maximum), it is a good transition from single family to the west to multi-family to the east. However, the lot is in conformance with other area requirements for the RM1 district as outlined in Table 020.7 depicted at right. RM1 also seems to be a good temporary fit for the property if and until the area is reclassified with the ongoing comp plan update and/or the property redevelops.

Table 020.7: RM1 District Dimensional Standards

Lot Standards, Minimum		
A	Lot area (sq ft)	6,000
	Lot area (sq ft), lots created prior to March 1, 1965	5,000
	Lot area (sq ft), attached dwellings sharing common wall	7,500
Setbacks, Minimum		
B	Front (from arterial streets) (ft)	30
	Front (from other streets) (ft)	20
C	Side (ft)	5
D	Rear (ft)	15
Building Standards, Maximum		
E	Building height (ft)	27

iii. ***Substantial changes in the subject area warrant a zoning change; and/or***

This criterion is not entirely applicable to an initial zoning. However, the proposed zone district is reflective of the Comp Plan designation for the property and vicinity.

iv. ***The intensity of development in the new zoning district is not expected to create significantly adverse impacts to surrounding properties or the neighborhood.***

Again, no additional development is expected with the proposal. Therefore, no significant impacts will result from the Annexation/Rezoning (initial zoning).

Reviewing Agency Comments
Comments received from the referral agencies are outlined below and attached for review.

Engineering – Comments outline the need for allow details related to existing utility connections.

Public Works – Comments outline the need for backflow prevention on the new sewer connection and the need to review existing connections.

ACTION ALTERNATIVES AND STAFF RECOMMENDATION:

Section 070.060.050(e)(1)e.1 of the Code explains, "The Planning Commission shall review and approve, approve with conditions, or deny the special use permit application in accordance with 070.060.030(g) and the approval criteria in paragraph 2 below [addressed above in in this instance]. The Planning Commission may also remand the application back to the Director for further consideration." Section 070.060.030(g)(1)d also states, "The body may also continue the hearing or refer the application to another authority as provided in 070.060.050(a)(2)c, *Referral and Call-Up Procedures*. In the instance of marijuana related business, Section 070.060.020(d)/ Table 060.1 Summary of Development Review Procedures outlines the Commission is the review and reminding authority to City Council.

Action 1 - Annexation – of a 0.358 acre parcel into the municipal limits of the City of Glenwood Springs.

Staff recommendation: Staff recommends **approval (with conditions)** of the Annexation request with the findings and conditions below:

Recommended Findings:
1. The annexation conforms to applicable state statutes.
2. The annexation is consistent with the Comprehensive Plan; and
3. The annexation minimizes potential adverse impacts to the City and does not negatively impact the City's public health, safety, and welfare.

Recommended Conditions:
1. The applicant shall comply with/address all City staff comments related to the proposal prior to recordation of the annexation map.
2. The applicant shall execute an annexation agreement with the City.
3. The applicant shall design and install a five foot wide sidewalk adjacent to Airport Road, as per the City Engineer and Public Works Director or shall provide for a payment in lieu of.
4. Future development/redevelopment shall comply with the various requirements outlined in the *Glenwood Springs Municipal Code*.
5. The applicant shall comply with all verbal representations made in the public hearings, as outlined in all application materials, and/or as revised per conditions herein and approved by the Community Development Director.
6. Applicant is responsible for paying all applicable system improvements fees.

Action 2 - Rezoning (initial zoning) – of a 0.358 acre parcel to Residential Medium-Density (RM1) District.

Staff recommendation: Staff recommends **approval (with conditions)** of the Initial Zoning/Rezoning request with the findings:

Recommended Findings:
1. The rezoning is consistent with the City's comprehensive plan and the purpose of the *Glenwood Springs Municipal Code*;
2. The rezoning is consistent with the purpose statements of the Residential Medium-Density (RM1) District;

3. The intensity of existing development is not expected to create significantly adverse impacts to surrounding properties or the neighborhood.

LAND USE APPLICATION

City of Glenwood Springs
Economic and Community Development Dept.
101 West 8th Street
Glenwood Springs, CO 81601
970-384-6411

	Ordinance Amendments			Development Permits
✓	Rezoning			Site/Architectural Plan Review
	Rezoning to Planned Unit Development (PUD)			☐ Administrative
✓	Annexation			☐ Minor
	Condominiumization			☐ Major
	Annexation			Master Plan
	Street Vacation			Construction Plans
				Location & Extent
	Subdivisions			Right of Way Encroachment License
	Minor Subdivision			Floodplain Development Permit
	Preliminary Plat			Special Use Permit
	Final Plat			**Flexibility and Relief Procedures**
	Vacation of Right-of-Way			Variance
				Administrative Adjustment
	Other Land Use Applications			Appeal
	Outdoor Seating			

Applicant/Property Owner Information:			
Applicant		Owner	
Steve Ochko		Steve Joseph Ochko Living Trust	
Relationship to Owner		Owner	
Self			
Applicant Address		Owner Address	
	Same		1318 Pitkin Avenue, Glenwood Springs, CO 81601
Phone Same	Email Address Same	Phone 970-618-4134	Email Address sgochko@comcast.net

Property Information:	
Address	Parcel Number
25 CR 116, Glenwood Springs, CO	2185-272-00-024
Subdivision	Lot and Block Number
	Section 27, T6S, R89W, A tract of land in the NWNW, AKA Lot 1 Cator Trust Parcel
Zone District Garfield County Residential/Suburban	Existing Land Use Single family residence with attached ADU

General Project Description:

Annex to the City of Glenwood Springs and tie the existing home onto City waste water collection system (removing from OWTS). Once annexed, provide appropriate City zoning to parcel(s)

Signatures:

The owner or applicant must be present at the hearing. All public hearings must be property noticed according to G.S.M.C. Section 070.010.030. Signatures of all owners of the property must appear before the application is accepted. Partnerships or corporations may have the authorized general partner or corporate officer sign the

X [signature]	9-1-21
Applicant	Date
X [signature]	9-1-21
Owner	Date

701914 07/13/2006 11:39A B1819 P834 M ALSDORF
1 of 2 R 11.00 D 65.80 GARFIELD COUNTY CO

WARRANTY DEED

Rec Fee$11.00

Doc Fee $65.80

THIS DEED, made this 3rd day of July, 2006, between
David G. Massender and Lorelei A. Massender

of the said County of Garfield and State of Colorado, Grantor, and
Steven J. Ochko and Georgia Mae Ochko

whose legal address is: **1011 Pitkin Avenue, Glenwood Springs CO 81601**
of the said County of Garfield and State of Colorado, grantee:

WITNESS, that the grantor, for and in consideration of the sum of **($10.00) Ten dollars and Zero cents**, the receipt and sufficiency of which is hereby acknowledged, has granted, bargained, sold and conveyed, and by these presents does grant, bargain, sell, convey and confirm, unto the grantees, their heirs and assigns forever, not in tenancy in common but in joint tenancy, all the real property, together with improvements, if any, situate, lying and being in the County of Garfield and State of Colorado described as follows:

A TRACT OF LAND SITUATED IN THE NW1/4NW1/4 OF SECTION 27, TOWNSHIP 6 SOUTH, RANGE 89 WEST OF THE SIXTH P.M., COUNTY OF GARFIELD, STATE OF COLORADO, SAID TRACT OF LAND BEING DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING AT A POINT FROM WHICH THE NORTH 1/4 CORNER OF SAID SECTION 27 BEARS N62°25'13"E, 1658.83 FEET (FROM WHICH USGLO BRASS CAP MONUMENT FOUND IN PLACE BEARS N88°40'10"W, 302.00 FEET), SAID POINT BEING THE NORTHWEST CORNER OF THAT TRACT OF LAND DESCRIBED IN DOCUMENT RECORDED IN BOOK 159 AT PAGE 38 OF THE RECORDS OF SAID COUNTY;
THENCE N60°21'00"W, 9.54 FEET;
THENCE S38°13'26"W, 47.38 FEET;
THENCE S02°28'27"W, 62.56 FEET;
THENCE S09°00'00"E, 155.90 FEET TO A POINT ON THE SOUTHERLY LINE OF THAT TRACT OF LAND AS DESCRIBED IN DOCUMENT RECORDED IN BOOK 159 AT PAGE 30 OF THE RECORDS OF SAID COUNTY;
THENCE ALONG SAID SOUTHERLY LINE S88°57'19"E, 9.55 FEET;
THENCE DEPARTING SAID SOUTHERLY LINE N16°50'52"E, 55.65 FEET;
THENCE N10°14'59"W, 6.98 FEET;
THENCE N28°08'47"E, 46.48 FEET;
THENCE N11°07'40"W, 23.28 FEET;
THENCE N19°59'26"E, 16.88 FEET;
THENCE N70°11'27"E, 21.18 FEET;
THENCE N29°04'56"E, 63.25 FEET TO THE NORTHERLY LINE OF SAID TRACT;
THENCE ALONG SAID NORTHERLY LINE N60°21'00"W, 18.50 FEET TO THE NORTHWEST CORNER OF SAID TRACT OF LAND;
THENCE N60°21'00"W, 76.30 FEET ALONG THE NORTHERLY LINE OF THAT TRACT OF LAND AS DESCRIBED IN BOOK 159 AT PAGE 38 TO THE POINT OF BEGINNING.

ALSO KNOWN AND DESCRIBED AS CATOR TRUST PARCEL 1 AS SHOWN ON CATOR TRUST PARCELS LOT BOUNDARY LINE ADJUSTMENT PLAT RECORDED JULY 16, 2001 AS RECEPTION NO. 584506.

County of Garfield, State of Colorado

also known by street and number as: **25 County Road 116, Glenwood Springs, CO 81601**

TOGETHER with all and singular the hereditaments and appurtenances thereto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim and demand whatsoever of the grantor, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

TO HAVE AND TO HOLD the said premises above bargained and described, with the appurtenances, unto the grantee, his heirs and assigns forever. And the grantor, for himself, his heirs, and personal representatives, does covenant, grant, bargain, and agree to and with the grantee, his heirs and assigns, that at the time of the ensealing and delivery of these presents, he is well seized of the premises above conveyed, has good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and has good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form as aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments, encumbrances and restrictions of whatever kind or nature soever, except
"general taxes for the year 2006 and subsequent years; and those specific exceptions described by reference to recorded documents as reflected in the Title Documents accepted by Grantee(s) In accordance with Section 8a(Title Review) of the Contract to Buy and Sell Real Estate relating to the above described property; distribution utility easements (including cable TV); those specifically described rights of third parties not shown by the public records of which Grantee has actual knowledge and which were accepted by Grantee(s) in accordance with Section 8b (Matters not shown by the Public Records) and Section 8c (Survey Review) of the Contract to Buy and Sell Real Estate relating to the above described real property, inclusion of the property within any special tax district; and, the benefit and burdens of any declaration and party wall agreements, if any."

The grantor shall and will **WARRANT AND FOREVER DEFEND** the above-bargained premises in the quiet and peaceable possession of the grantee, his heirs and assigns, against all and every person or persons lawfully claiming the whole or any part thereof. The singular number shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.

IN WITNESS WHEREOF, the grantor has executed this deed on the date set forth above.

David G. Massender

Lorelei A. Massender

STATE OF Colorado)
) ss.
COUNTY OF Garfield)

The foregoing instrument was acknowledged before me this 7th day of July, 2006, by David G. Massender and Lorelei A. Massender

My commission expires: September 6, 2006.

Witness my hand and official seal.

Notary Public

NOTARY PUBLIC
AMY E. CARTWRIGHT
STATE OF COLORADO

My Commission Expires 09/06/2006

August 30, 2021

Mr. Trent Hyatt, Senior Planner
City of Glenwood Springs
Community Development
101 W. 8th Street
Glenwood Springs, CO 81601

RE: Ochko Annexation and Request for Sewer Service

Dear Trent,

Please let this letter serve to transmit a land use application to the City of Glenwood Springs for an Annexation and the subsequent zoning request for the Ochko Property located at the SE corner of the intersection of CR 117 and CR 116. The physical address of the property is 25 CR 116, Glenwood Springs, CO 81601. You will find attached the land use application, an annexation map and a design of the sewer service line that will tie onto the existing line already in service from the same property to the City's existing waste water collection line.

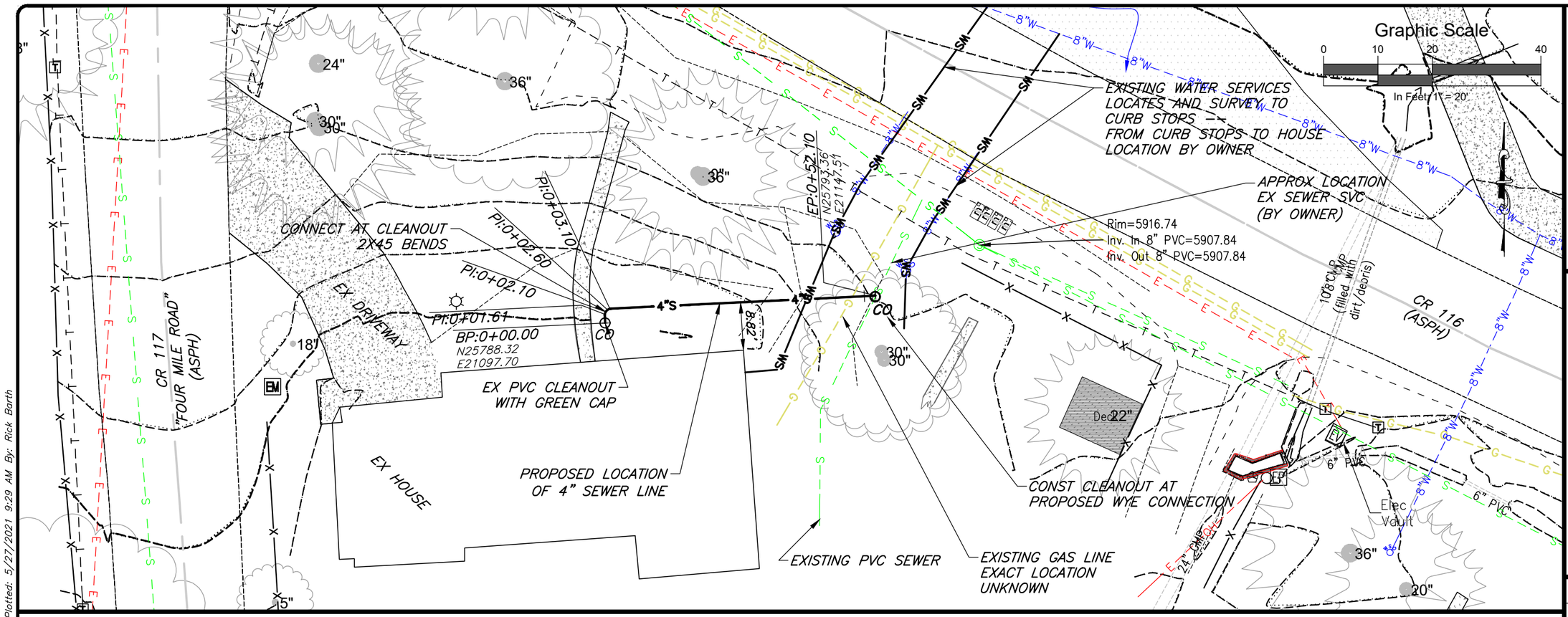
As I briefly mentioned on the phone, the main residence consists of the older single-family residence (2 bedrooms) and an accessory dwelling unit (1 bedroom) that was constructed in the early 2000's. The original home is still on an OWTS for sewer service while the accessory dwelling unit is already on City sewer. The intent of request for service is to abandon the OWTS and tie the older part of the residence onto the City's collection system. As part of the proposal, the annexation is proposed to become an in-town user of the City's services in lieu of being an out of town user.

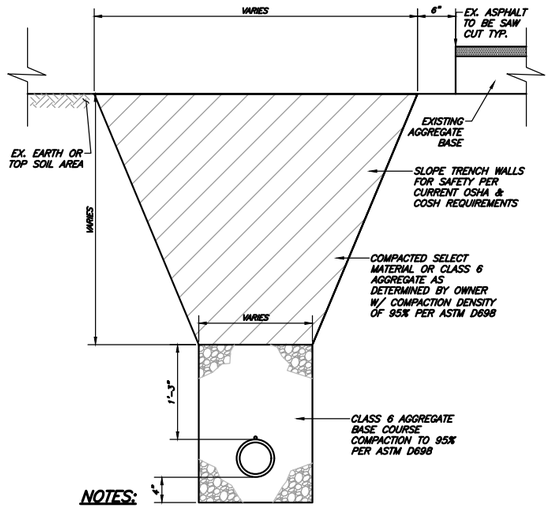
We understand going forward that we will still need to provide a petition for annexation and will need to participate in a preapplication conference as well as enter into a pre-annexation agreement. Therefore, upon your receipt of this letter and the attached documents, we will look forward from you on putting together the preapplication conference and will coordinate with you on the proper form of the pre-annexation agreement and the petition for annexation.

Upon your receipt and review, if you have any questions, please don't hesitate to contact me.

Respectfully,
SGM

Jefferey S. Simonson, PE
Principal





NOTES:

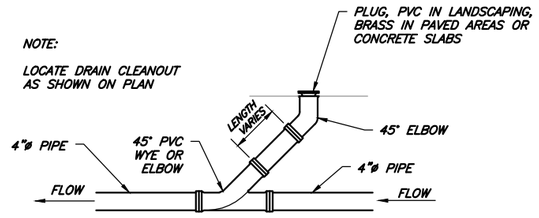
1. PAVEMENT REPLACEMENT SHALL MEET EXISTING THICKNESS AND KIND WITH THE FOLLOWING MINIMUMS: ASPHALT SURFACING = 3" MIN. AGGREGATE BASE COURSE = 8" MIN.
2. BASE COURSE REPLACEMENT SHALL MEET EXISTING THICKNESS WITH THE FOLLOWING MINIMUMS: AGGREGATE BASE COURSE = 12" MIN.
3. DIRT / TOPSOIL PLACEMENT SHALL MEET EXISTING THICKNESS AND KIND WITH THE FOLLOWING MINIMUMS: 4" TOPSOIL.
4. SELECT MATERIAL AS FOLLOWS: 6" MAXIMUM SIZE IN TOP 12" OF BACKFILL
   12" MAXIMUM SIZE IN REMAINDER OF BACKFILL

SEWER TRENCH CROSS-SECTION

SCALE 1"=1'

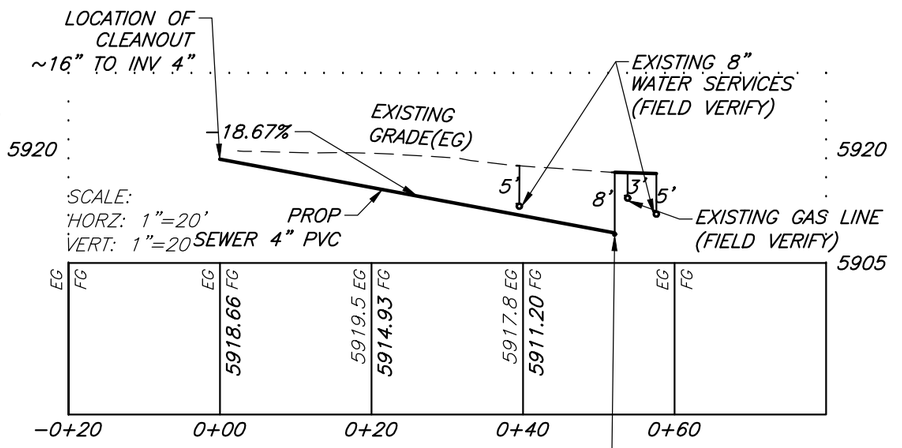
GENERAL NOTES:

1) LOCATES WERE COMPLETED UP TO THE CURB STOPS ON THE WATER SERVICES. BETWEEN THE STOPS AND HOUSE THE ROUTING IS PROVIDED BY THE OWNER. PRESUMED NORMAL DEPTH ~5 FEET.
2) CONTRACTOR SHALL POTHOLE AND LOCATE UTILITIES AND SERVICES IN THE NE CORNER OF THE SITE TO VERIFY THE SEWER SERVICE LOCATION AND DEPTH TIE IN, THE WATER SERVICE OR SERVICES, AND THE GAS SERVICE LOCATION.
3) ONCE SEWER SERVICE TIE IN AND WATER SERVICES ARE LOCATED, CONFIRM WITH ENGINEER FOR UTILITY CROSSING PROCEDURE AND SLOPE CALCULATION FOR THE SERVICE LINE. CONTRACTOR SHOULD ANTICIPATE FOLLOWING CDPHE REGULATIONS FOR WATER / SEWER CROSSINGS THAT MAY INCLUDE AN ADDITIONAL SLEEVE OF PIPE FOR THE SEWER IF NEEDED. GENERAL GUIDELINES ARE MINIMUM 18" VERTICAL SEPARATION AND 10 FEET HORIZONTALLY FOR POTENTIAL LEAK SPOTS.
4) SEWER SERVICE IS PRESUMED 8 FEET DEEP TO APPROXIMATELY TIE IN WITH THE MAIN.
5) CONTRACTOR TO PROVIDE SWING TIES AND APPROXIMATE DEPTHS OF INSTALLED SERVICE ELEMENTS AND EXISTING SERVICES ONCE FOUND.



CLEAN-OUT DETAIL (CO)

NTS



PROPOSED SEWER LINE PROFILE

EXISITING 4" SEWER SERVICE
(FIELD LOCATION PRESUMED
DEPTH OF 8')

SGM
118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

OCHKO
Glenwood Springs, CO

#	Revision	Date	By:
1			

Project Milestone: Preliminary Not For Construction

Job No.	2017-100.001		
Drawn by:	JMW		
Date:	11.15.17		
QC:	JS	PE:	RLB
File:	OchkoSheet		

Title: Ochko

Dwg No. 1

Of : 0

I:\2021\2021-305-OchkoAnnexSewer\001-CivilEng\H-Dwgs\Civil\PS-SheetSet\OchkoSheet.dwg Plotted: 5/27/2021 9:29 AM By: Rick Barth

Graphic Scale
0 10 20 40
In Feet: 1" = 20'

PROPOSED LOCATION OF SEWER LINE

EXISTING WATER SERVICE LINES

EXISTING SEWER LINE TO CONNECT WITH

EXISTING GAS LINE EXACT LOCATION UNKNOWN

EXISTING 3 BED ROOM HOME WITH 2 1/4 BATH. TOTAL LIVING AREA = 1985 SF AND BASEMENT AREA= 1432 SF

EXISTING DUPLEX WITH 1 BED ROOM AND 1.5 BATHROOMS IN EACH UNIT. TOTAL LIVING AREA= 1056 SF WITH A 528 SF BASEMENT

Rim=5916.74
Inv. In 8" PVC=5907.84
Inv. Out 8" PVC=5907.84

BP:0+00.00
N25788.32
E21097.70

EP:0+52.10
N25793.36
E21147.51

Pi:0+01.61
Pi:0+02.10
Pi:0+02.60
Pi:0+03.10

TOTAL BED ROOM COUNT = 5 BED ROOMS
TOTAL BATH ROOM COUNT = TWO 1 ½ BATHS AND ONE 2 ¼ BATHS

NOTE: AS THE DUPLEX UNITS ON SOUTH SIDE OF 3 BED ROOM HOME ALREADY EXIST ON THE CITY COLLECTION SYSTEM, THE ADDED LOADING PER THIS ANNEXATION REQUEST: IS:

2 ½ BATH WITH 3 BEDROOMS
TOTAL LIVING AREA = 1985 SF
BASEMENT AREA = 1432 SF

SGM
118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

Ochko Residence
Glenwood Springs, CO

#	Revision	Date	By:
1	Project Milestone:		

Job No.	2021-305.001
Drawn by:	JS
Date:	10/29/21
QC: RLB	PE: JSS
File:	2021-305BM

Title: Ochko Bedroom and Bath Count

Dwg No. 2

Of : 18

I:\2021\2021-305-OchkoAnnexSewer\001-CivilEng\H-Dwgs\Civil\BaseMaps\2021-305BM.dwg Plotted: 10/29/2021 10:50 AM By: Jeff Simonson

PETITION FOR ANNEXATION

The undersigned Petitioner, in accordance with The Municipal Annexation Act of 1965, Article 12, Title 31, C.R.S., as amended, hereby petitions the City Council of the City of Glenwood Springs, Colorado, for annexation to the City of Glenwood Springs that certain real property more particularly described in Exhibit A (the "Property"), which Exhibit is attached hereto and made a part hereof by reference. In support of this Petition, the Petitioner alleges that:

1. Petitioner is Steve Joseph Ochko Living Trust. The purpose of this Petition is to enable Petitioner to obtain municipal services within the municipal boundaries of the City of Glenwood Springs.

2. Petitioner alleges that it is the landowner—as that term is defined in the Municipal Annexation Act----of 100% of the Property described in Exhibit A as of the date of this Petition.

3. It is desirable and necessary that the Property be annexed to the City of Glenwood Springs, Colorado.

4. The requirements of C.R.S. §31 - 12-104 and §31-12-105, as amended, exist or have been met as set forth and shown herein.

5. As provided in C.R.S. § 31-12-104, not less than one-sixth (1/6) of the perimeter of the area proposed to be annexed is contiguous with the City of Glenwood Springs.

6. A community of interest exists between the Property proposed to be annexed and the City of Glenwood Springs.

7. The Property proposed to be annexed is urban or will be urbanized in the near future.

8. The Property proposed to be annexed is integrated with or is capable of being integrated with the City of Glenwood Springs.

9. No land in the Property sought to be annexed which is held in identical ownership, whether consisting of one tract or parcel of real estate or two or more contiguous tracts or parcels of real estate, has been or shall be divided into separate parcels without the written consent of the landowner(s).

10. No land in the Property sought to be annexed which is held in identical ownership and comprising twenty (20) or more acres and having an assessed valuation for ad valorem tax purposes in excess of $200,000.00 has been included in the area without the written consent of the landowner(s).

11. The proposed annexation will not result in detachment of the Property from any school district or attachment to another district.

12. The Property to be annexed is not presently a part of any incorporated city, city and county, or town; nor have any proceedings been commenced for annexation of part or all of the Property to any other municipality; nor has any election for annexation of such Property or substantially the same Property to the City of Glenwood Springs been held within the twelve (12) months immediately preceding the filing of this Petition.

13. The annexation of the Property proposed to be annexed will not have the effect of extending the boundary of the City of Glenwood Springs more than three (3) miles in any direction from any point of the City of Glenwood Springs municipal boundary in any one (1) year.

14. The signers of this Petition comprise more than fifty percent of the landowners and own more than fifty percent of the Property, exclusive of public streets and alleys and any land owned by the City of Glenwood Springs.

15. The affidavit of the circulator of this Petition stating that each signature hereon is the signature of the person whose name it purports to be is attached to this Petition and made a part hereof by this reference.

16. Attached hereto and incorporated herein by reference are four (4) copies of an annexation map in the form required by C.R.S. §31-12-107(l)(d) and containing:

a) a written legal description of the boundaries of the area proposed to be annexed;
b) a map showing the boundary of the area proposed to be annexed;
c) within the annexation boundary map, a showing of the location of each ownership tract in unplatted land and, if part or all of the area is platted, the boundaries and the plat numbers of plots or lots and blocks; and
d) next to the boundary of the area proposed to be annexed, a drawing of the contiguous boundary of the annexing municipality and the contiguous boundary of any other municipality abutting the area proposed to be annexed.

17. Each person signing this Petition for Annexation represents that he or she has full authorization to execute this Petition on behalf of the Petitioner.

18. The notary executing this Petition states that each signature herein is the signature of the person whose name it purports to be.

19. Petitioner reserves the right to withdraw this petition and its signature therefrom at any time prior to the recordation of the annexation map.

20. The mailing address of the Petitioner is as follows: 1318 Pitkin Avenue, Glenwood Springs, Colorado 8160 l.

WHEREFORE, Petitioner requests that the City of Glenwood Springs approve the annexation of the Property into the City.

PETITIONER

Dated: 11/22/21

Steve Ochko
Steve Joseph Ochko Living Trust

STATE OF COLORADO)
) ss.
COUNTY OF GARFIELD)

The foregoing Petition for Annexation was subscribed and sworn to before me this 22nd day of November, 2021, by Steve Ochko, Steve Joseph Ochko Living Trust.

Witness my hand and official seal.

My commission expires January 7, 2025

Catherine Brigid Mythen Fletcher
Notary Public

Catherine Brigid Mythen Fletcher
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20214000900
MY COMMISSION EXPIRES JANUARY 7, 2025

EXHIBIT A

A tract of land situated in the NW1/4NW1/4 of Section 27, Township 6 South, Range 89 West of the Sixth P.M., County of Garfield, State of Colorado, said tract of land being described by metes and bounds as follows:

Beginning at a point from which the North 1/4 Corner of said Section 27 bears N62°25'13"E, 1658.83 feet (from which USGLO Brass Cap Monument found in place bears N88°40'10"W, 302.00 feet), said point being the northwest corner of that tract of land described in Document recorded in Book 159 at Page 38 of the Records of said County;
Thence N60°21'00"W, 9.54 feet;
Thence S38°13'26"W, 47.38 feet;
Thence S02°28'27"W, 62.56 feet;
Thence S09°00'00"E, 155.90 feet to a point on the southerly line of that tract of land as described in Document recorded in Book 159 at Page 30 of the Records of said County;
Thence along said southerly line S88°57'19"E, 9.55 feet;
Thence departing said southerly line N16°50'52"E, 55.65 feet;
Thence N10°14'59"W, 6.98 feet;
Thence N28°08'47"E, 46.48 feet;
Thence N11°07'40"W, 23.28 feet;
Thence N19°59'26"E, 16.88 feet;
Thence N70°11'27"E, 21.18 feet;
Thence N29°04'56"E, 63.25 feet to the northerly line of said tract;
Thence along said northerly line N60°21'00"W, 18.50 feet to the northwest corner of said tract of land;
Thence N60°21'00"W, 76.30 feet along the northerly line of that tract of land as described in Book 159 at Page 38 to the Point of Beginning.

Also known and described as Cator Trust Parcel 1 as shown on Cator Trust Parcels Lot Boundary Line Adjustment Plat recorded July 16, 2001 as Reception No. 584506.

COUNTY OF GARFIELD
STATE OF COLORADO.

AFFIDAVIT OF CIRCULATOR

STATE OF COLORADO)
) ss.
COUNTY OF GARFIELD)

I, the undersigned, being duly sworn, do state as follows:

1. I am over the age of 21;
2. I was the circulator of the Petition attached hereto; and
3. Each signature thereon is the signature of the person that it pur orts to be.

Steve Ochko

The foregoing Affidavit of Circulator was acknowledged, subscribed, and sworn to before me this 22nd day of November, 2021, by Steve Ochko.

Witness my hand and official seal.

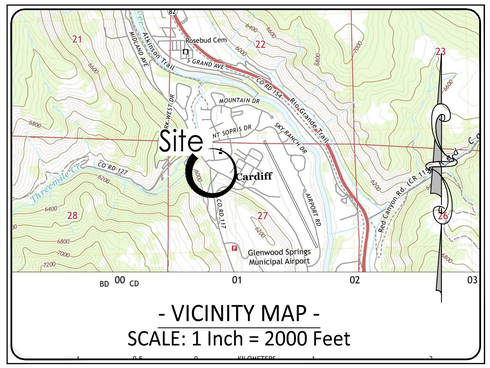
My commission expires January 7, 2025

Catherine Brigid Mythen Fletcher
Notary Public

Catherine Brigid Mythen Fletcher
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20214000900
MY COMMISSION EXPIRES JANUARY 7, 2025

Ochko Annexation Map

0.358 acres to be Annexed to the City of Glenwood Springs, Colorado
A Parcel of Land Situated in the NW1/4NW1/4
Section 27, Township 6 South, Range 89 West, of the 6th P.M.
Garfield County, Colorado



- VICINITY MAP -
SCALE: 1 Inch = 2000 Feet

NOTES:

1. This map has been prepared pursuant to client request for an Annexation Map.
2. Units of linear measurements are displayed in US Survey Feet.
3. This map does not represent a complete boundary of the parcels depicted hereon, and some information has been prepared solely upon documents of record.
4. SGM will not be responsible for any changes made to this document after it leaves our possession. Any copy, facsimile, etc., of this document must be compared to the original signed, sealed and dated document to insure the accuracy of the information shown on any such copy, and to insure that no such changes have been made.
5. Property description shown hereon is based on Reception No. 932444 of the Garfield County records.

ANNEXATION PARCEL DESCRIPTION

A tract of land situated in the NW1/4NW1/4 of Section 27, Township 6 South, Range 89 West of the Sixth P.M., County of Garfield, State of Colorado, said tract of land being described by metes and bounds as follows:

Beginning at a point from which the North 1/4 Corner of said Section 27 bears N62°25'13"E, 1658.83 feet (from which USGLO Brass Cap Monument found in place bears N88°40'10"W, 302.00 feet), said point being the northwest corner of that tract of land described in Document recorded in Book 159 at Page 38 of the Records of said County;
Thence N60°21'00"W, 9.54 feet;
Thence S38°13'26"W, 47.38 feet;
Thence S02°28'27"W, 62.56 feet;
Thence S09°00'00"E, 155.90 feet to a point on the southerly line of that tract of land as described in Document recorded in Book 159 at Page 30 of the Records of said County;
Thence along said southerly line S88°57'19"E, 9.55 feet;
Thence departing said southerly line N16°50'52"E, 55.65 feet;
Thence N10°14'59"W, 6.98 feet;
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Thence N19°59'26"E, 16.88 feet;
Thence N70°11'27"E, 21.18 feet;
Thence N29°04'56"E, 63.25 feet to the northerly line of said tract;
Thence along said northerly line N60°21'00"W, 18.50 feet to the northwest corner of said tract of land;
Thence N60°21'00"W, 76.30 feet along the northerly line of that tract of land as described in Book 159 at Page 38 to the Point of Beginning.

Also known and described as Cator Trust Parcel 1 as shown on Cator Trust Parcels Lot Boundary Line Adjustment Plat recorded July 16, 2001 as Reception No. 584506.

Account Number R005544
Parcel Number 2185-272-08-003
Situs Address Glenwood Springs, CO
Tax Area 54
Legal Summary Section: 27 Township: 6 Range: 89 Subdivision: GLENWOOD LTD SUB AMD PARCEL 3 AS PER SECOND AMENDED PLAT RECEPTION NO. 546750 EXCEPT THAT .933 AC. +/- TRACT OF LAND CONVEYED TO THE CITY OF GLENWOOD SPRINGS FOR MIDLAND AVENUE RIGHT-OF-WAY EXPANSION PER WARR
Owner Name ROARING FORK SCHOOL DISTRICT RE-1
Owner Address 1405 GRAND AVENUE, GLENWOOD SPRINGS, CO 81602

Account Number R041616
Parcel Number 2185-272-23-038
Situs Address Glenwood Springs, CO
Tax Area 54
Legal Summary Section: 27 Township: 6 Range: 89 Subdivision: CARDIFF GLEN PUD FILING 6 TRACT F-1
Owner Name VILLAGE HOMES OF COLORADO, INC
Owner Address 100 INVERNESS TERRACE EAST, ENGLEWOOD, CO 80112

Account Number R007612
Parcel Number 2185-272-00-024
Situs Address 25 116 County Rd, Glenwood Springs, CO
Tax Area 8
Legal Summary Section: 27 Township: 6 Range: 89 A TR IF LAND IN THE NWNW, AKA LOT 1 CATOR TRUST PARCEL
Owner Name STEVEN JOSEPH OCHKO LIVING TRUST
Owner Address 1318 PITKIN AVENUE
GLENWOOD SPRINGS, CO 81601

Account Number R007613
Parcel Number 2185-272-00-025
Situs Address 41 116 County Rd, Glenwood Springs, CO
Tax Area 8
Legal Summary Section: 27 Township: 6 Range: 89 A TR IF LAND IN THE NWNW, AKA LOT CATOR TRUST PARCELS
Owner Name JOHN CHRISTNER
Owner Address 41 COUNTY ROAD 116
GLENWOOD SPRINGS, CO 81601

Account Number R540078
Parcel Number 2185-272-00-023
Situs Address 63 116 County Rd, Glenwood Springs, CO
Tax Area 54
Legal Summary Section: 27 Township: 6 Range: 89 A TR IN N1/2NW
Owner Name MCGREGOR, HEATHER LOUISE & SMITH, STEVEN
Owner Address 63 COUNTY ROAD 116
GLENWOOD SPRINGS, CO 81601

Account Number R083981
Parcel Number 2185-272-35-008
Situs Address 0 116 County Rd, Glenwood Springs, CO
Tax Area 54
Legal Summary Section: 27 Township: 6 Range: 89 Subdivision: SILVER SAGE PRESERVE PUD Lot: TRACT 5 AS PER FINAL SUBDIVISION PLAT RECEPTION NUMBER
Owner Name GLENWOOD SPRINGS, CITY OF
Owner Address 101 W 8TH STREET, GLENWOOD SPRINGS, CO 81601

- LEGEND -

Existing Town Limits

Existing Town Limits contiguous with Annexation Parcel

Contiguity Table	
Perimeter of area being annexed:	613.43'
Minimum Required Contiguous Boundary (613.43' x 1/6):	102.24'
Existing Boundary Contiguous w/ City of Glenwood Springs:	113.12'

Certificate of Ownership:

Steven Joseph Ochko Living Trust, the sole owner of the Annexation Parcel described hereon containing 0.358 acre, more or less, has by these presents laid out and mapped the same as shown hereon and designate the same as the Ochko Annexation to the City of Glenwood Springs, Colorado.

Executed this _____ day of _____, 2021.

_____
By: _____ for Steven Joseph Ochko Living Trust

State of Colorado)
)ss
County of Garfield)

The foregoing was acknowledged before me this _____ day of _____, 2021 by _____.

Witness my hand and official seal.

My Commission expires: _____

_____
Notary Public

Town Council Certificate:

This Annexation Map is hereby approved by the City Council of the City of Glenwood Springs, Colorado this _____ day of _____, 2021 for filing with the Clerk and Recorder of Garfield County, subject to the provisions that this approval does not obligate the City of Glenwood Springs to finance or construct any improvements of the land, streets or easements which may be dedicated to the public, except as specifically agreed to by the City Council. This map is approved for filing pursuant to the terms and conditions of Ordinance No. _____, Series of 2021, as the annexation of unincorporated municipally-owned land pursuant to CRS 31-12-106(3).

Witness my hand and the seal of the City of Glenwood Springs this _____ day of _____, 2021.

_____
Mayor

Attest: _____
Town Clerk

Title Certificate:

_____ does hereby certify that I have examined the title to all lands shown on this map and that title such lands is vested in _____ free and clear of all liens, taxes, and encumbrances, except as follows:

_____
_____
_____
_____.

Executed this _____ day of _____, 2021.

_____

Lienholder Consent and Subordination Certificate:

The undersigned lienholder hereby consents to and approves the recording of this Ochko Annexation Map and hereby subordinates its lien recorded as Reception Number _____ in the real property records for Garfield County thereto.

_____
By: _____

Clerk and Recorder's Certificate:

This Annexation Map was filed for record in the Office of the Clerk and Recorder of Garfield County, Colorado, at _____ o'clock _____, on this _____ day of _____, 2021, and is duly recorded as Reception No. _____.

_____
Clerk and Recorder

By: _____
Deputy

Surveyor's Certificate:

I, Shawn Binion, a registered Professional Land Surveyor, licensed under the laws of the State of Colorado, do hereby certify that this Annexation Map was made under my direct supervision and that the information hereon is correct to the best of my knowledge and belief, and that no less than one-sixth (1/6) of the perimeter of the area as shown hereon is contiguous with the existing boundaries of the City of Glenwood Springs, Colorado.

EXECUTED THIS _____ DAY OF _____, 2021.

Shawn Binion
Colorado PLS # 38200
For and on behalf of SGM

DRAFT COPY ONLY

Graphic Scale
0 10 20 40
In U.S. Feet : 1" = 20'

SGM
118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

Ochko Annexation
Glenwood Springs, CO

#	Revision	Date	By:
1			
2			
3			
4			
5			
6			
7			
8			
9			

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 legal action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

Job No.	2021-305.001
Drawn by:	AO
Date:	8/13/2021
Approved:	-- | PLS: SB
File:	OchkoAnnexationMap

Title: Annexation Map

Sheet No. 1
Of: 1

I:\2021\2021-305-OchkoAnnexSewer\001-CivilEng\Vir-Dwgs\Surv\Dwgs\BaseMaps\OchkoAnnexationMap.dwg Plotted: 8/13/2021 2:21 PM By: Shawn Binion

City of Glenwood Springs
101 West 8th Street
Glenwood Springs, CO 81601
Attn: Trent L. Hyatt, Senior Planner
trent.hyatt@cogs.us
January 7, 2022

RE: Ochko Annexation/Rezoning of Parcel 2185-272-00-024

Dear Trent:

Please accept this letter as our intent to amend the zoning of parcel 2185-272-00-024 from residential suburban to residential medium density RM1. The subject property is located at 25 County Road 116, Glenwood Springs, CO 81601 and is owned by the Steven Joseph Ochko Living Trust. Please note that the zoning is consistent with the City's comprehensive plan and falls within the purpose of the code and is also consistent with the purpose statement of the code. It's current status complies with the outline for residential medium density RM1. Our intent is to both rezone the property and have it annexed into the City of Glenwood Springs.

Current Zoning: Garfield County Residential/Suburban

Parcel: 2185-272-00-024

Legal Description:

Sec 27, T6S. R89W, A tract of land in the NWNW, aka lot 1 Cater Trust Parcel

Thank you for your time and attention to this matter. Please do not hesitate to reach out with questions or additional requirements.

Sincerely,

Kimberly D Ochko

Digitally signed by Kimberly D Ochko
DN: C=US, E=kim@gouldconstruction.com, O=Gould Construction Inc, OU=Sr Vice President Finance, CN=Kimberly D Ochko
Date: 2022.01.07 17:06:41-07'00'

Kimberly D Ochko
Administration for the Steven Joseph Ochko Living Trust

CITY OF GLENWOOD SPRINGS

Engineering Department

Engineering Department
Ryan Johnson, Asst. City Engineer

Date: 01/19/2022

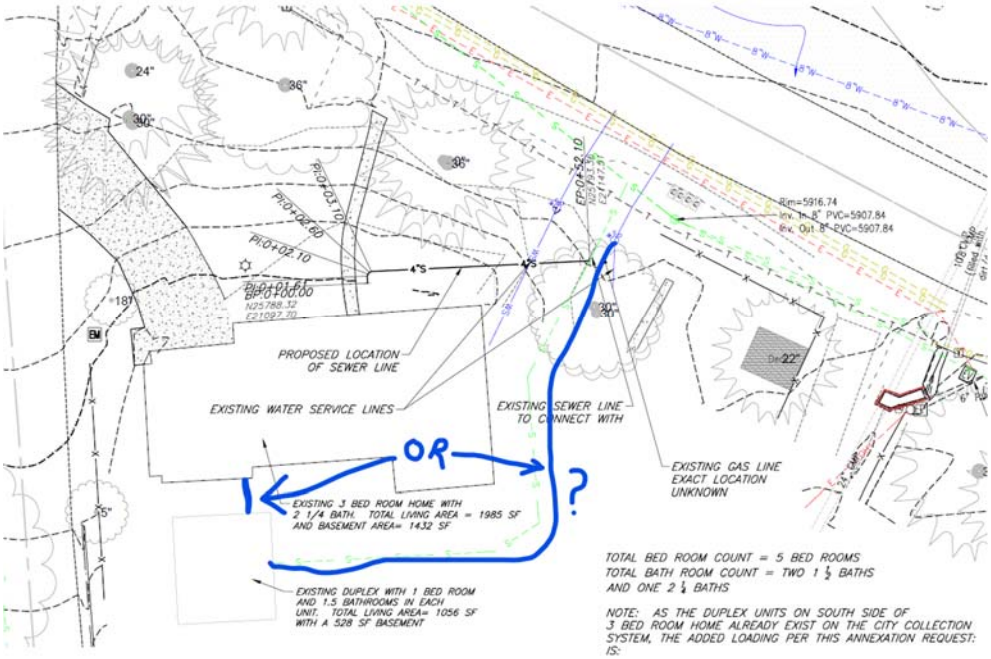
To: Community Development

Re: Ochko Annexation and Rezoning

Please see the following engineering comments for the Ochko Annexation and Rezoning. These comments are not inclusive of comments from other departments, including Public Works, Building, etc. It is up to the applicant to verify that the appropriate reviews have been completed by these departments. City of Glenwood Springs Engineering reserves the right to make additional comments throughout the application process, especially if significant modifications are made. It is in the applicant's best interested to address all comments holistically to reduce the number of reviews necessary for approvals.

Ochko Annexation and Rezoning Comments:

1. Show the linework for the domestic water service connection to the existing rear duplex on dwg no. 2.



From:	Matthew Langhorst
To:	Trent Hyatt
Subject:	RE: Land Use Referral, Planning Item 76-21 RFTA Location and Extent Review
Date:	Friday, February 4, 2022 10:15:53 AM
Attachments:	image001.png image002.png

Trent,

Did we get you the two comment we had on Ochko? They need to install a sanitary sewer backflow preventor on the new line, we will supply that backflow device? We need to review the backflow device in the home since it controls connection to the system for the house, the garage ADU and the detached ADUs. I notice we were behind on that one.

Working on Parks World Headquarters now.

Thanks,

Matt

From: Trent Hyatt <trent.hyatt@cogs.us>
Sent: Friday, February 4, 2022 9:16 AM
To: Bill Kimminau <bill.kimminau@cogs.us>; Brian Smith <brian.smith@cogs.us>; brian.killian@state.co.us; Bryana Starbuck <bryana.starbuck@cogs.us>; Carlos Peugnet <carlos.peugnet@cogs.us>; Dan Roper <dan.roper@cogs.us>; Danielle Campbell <danielle.campbell@cogs.us>; Debra Figueroa <debra.figueroa@cogs.us>; Doug Hazzard <doug.hazzard@cogs.us>; Emery Ellingson <emery.ellingson@cogs.us>; Greg Bak <greg.bak@cogs.us>; Hannah Klausman <hannah.klausman@cogs.us>; Jake Velasquez <jake.velasquez@cogs.us>; jason.sharpe@centurylink.com; Jennie Koenig <jennie.koenig@cogs.us>; Jennifer Ooton <jenn.ooton@cogs.us>; Jessica Bowser <jessica.bowser@cogs.us>; John Hassell <john.hassell@cogs.us>; Joseph Deras <joseph.deras@cogs.us>; Karl Hanlon <kjh@mountainlawfirm.com>; Linda DuPriest <linda.dupriest@cogs.us>; Matthew Langhorst <matthew.langhorst@cogs.us>; Mike Hoffman <mike.hoffman@cogs.us>; Peter Hayes <peter.hayes@cogs.us>; Richard J. Peterson-Cremer <rjp@mountainlawfirm.com>; Ryan Johnson <ryan.johnson@cogs.us>; Terri Partch <terri.partch@cogs.us>; todd.ellsworth@blackhillscorp.com; Trent Hyatt <trent.hyatt@cogs.us>; Victor Meraz <victor.meraz@cogs.us>; Warren Hays <warren.hays@cogs.us>; Watkins Fulk-Gray <watkins.fulkgray@cogs.us>
Subject: Land Use Referral, Planning Item 76-21 RFTA Location and Extent Review

Referral Agencies,
The City has received the application described below. Please review the submittal materials and provide comments, if applicable, by **Friday, February 25**. Please let me know if you have any questions.

Planning Item 76-21, Location and Extent Review
Applicant: Bluegreen

Planning and Zoning Commission Report

Date: February 22, 2022
To: Planning and Zoning Commission
From: Trent L. Hyatt, Long Range Senior Planner
Subject: Planning Item #49-21– Site Arch Plan Review and Design Variances 1010 Grand

REQUEST	Site/Architectural Plan Review for an addition allowing five residential units and related Design Variances
APPLICANT	Mark Noel/Scott Dillard
OWNER	Present Tense, LLC
LOCATION	1010 Grand Avenue (PIN: 2185-094-28-018)
ZONE	Mixed-Use Core (M2) District
SURROUNDING LAND USES	North: Institutional South: Duplex East: Grand Avenue/offices West: Alley/single-family residential
LOT SIZE	Approximately 5,000 square feet (0.115 acres)

ACTION ITEMS

Per Section 070.060.050(a)/Table 060.2 of the *Glenwood Springs Municipal Code* (Code), the Planning and Zoning Commission (Commission) is the reviewing body for *Minor* Site/Architectural Plan review applications which include 9 to 24 new dwelling units and/or 10,000 to 30,000 gross square feet of nonresidential space. A development permit for the current proposal would generally be an administrative review but Section 070.060.050(a)(2)c.1.ii of the Code allows for Commission call up review of any proposal with three or more residential units. Upon receipt of the application, three or more commissioners requested review of the application. Additionally, staff review of the application determined that certain aspects of the building and site design were not in full compliance with applicable Code standards for which the applicant decided to request variances. Following any approval (with or without conditions) of the Site/Architectural Plan Review or Design Variance applications, the applicant must receive approval of a Final Plans Review application from City staff prior to submittal of a building permit application.

Action 1 – <u>Design Variance</u> – from Section 070.040.060(h)(6) of the *Glenwood Springs Municipal Code* requiring landscaping for off-street parking.

<u>Staff recommendation</u>: *Staff recommends **approval (with conditions)** of the request with the findings and conditions on page 9-10.*

Action 2 – Design Variance – from Section 070.040.080(e)(10)c.5.1 of the *Glenwood Springs Municipal Code* to allow for a 2:12 shed roof on a block face consisting of gabled roofs in the Downtown Core.

Staff recommendation: *Staff recommends **denial** of the request with the findings on page 10.*

Action 3 – Design Variance – from Section 070.040.080(e)(10) d.2. of the *Glenwood Springs Municipal Code* to allow for the use of vertical siding in the Downtown Core.

Staff recommendation: *Staff recommends **denial** of the request with the findings on page 10.*

Action 4 - Site/Architectural Plan Review – for the construction of a 1,740 square foot second story addition to an existing 3,540 square foot building to accommodate five multi-family units.

Staff recommendation: *Staff recommends **approval (with conditions)** of the Site/Architectural Plan Review with the findings and conditions on page 11.*

BACKGROUND/ANALYSIS

Proposal

On behalf of Scott Dillard/Present Tense, LLC, architect Mark Noel proposes the construction of a 1,740 square foot second story addition to an existing 3,540 square foot (for a total of 5,280 square feet) former single-family home/office building located at 1010 Grand Avenue. Said improvements are intended to accommodate five multi-family units. The site is located in the Downtown Core and the Mixed-Use Core (M2) district. Other site work includes the construction of an exterior stairwell to access various levels, new bicycle parking, tenant storage, etc. The attached submittal includes a site plan, floor plans, elevations, and various engineering reports for your review.

Development Standards

Section 070.040 of the Code outlines the development standards for all land use applications. Staff provides an overview of the various applicable standards below.

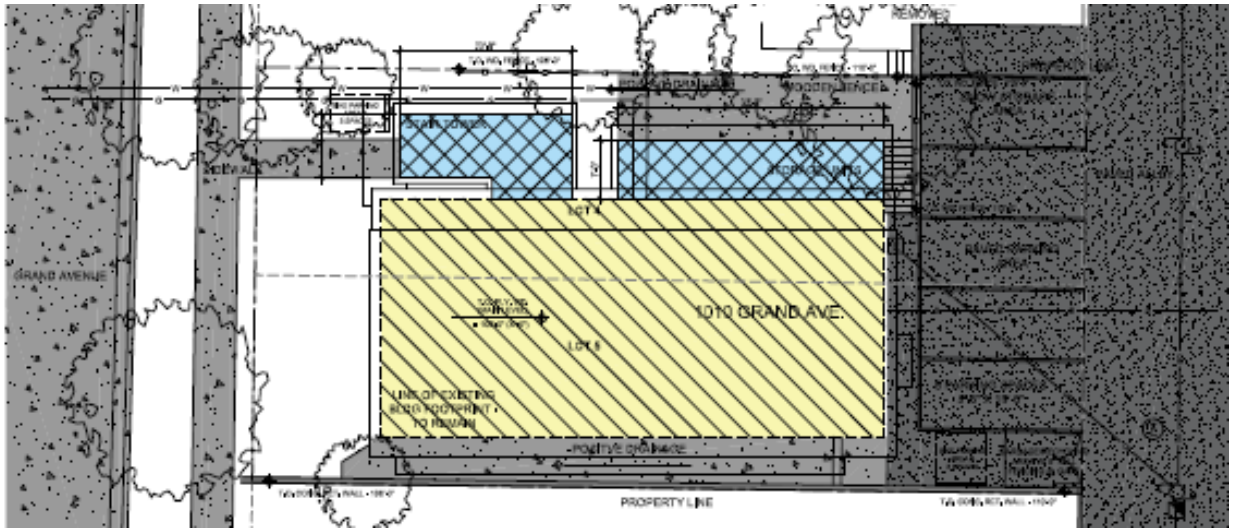
Common Open Space/Landscaping, Screening, and Retaining Walls

Properties within the M2 zone district are exempt from the common open space requirements of Section 070.040.040(c)/Table 040.3. Similarly, the zone district does not require landscaping coverage of a certain percentage of the site. However, the site currently includes 3,168 square feet of landscaping/open space and the current proposal will reduce this amount by approximately 315 to 57 percent of site.

Existing west elevation

Off Street Parking and Loading

The subject property is also located within the City's General Improvement District (GID). Developments in the GID are exempt from the parking requirements outlined in the Section 070.030.020(e)/Table 030.1 Table of Allowed Uses. As depicted in the site plan below, the applicant plans to retain the existing parking area/five spaces located at the rear/east of the building and plans to install six bicycle parking spaces. The existing parking does not include landscaping generally required by various sections of the Code. In these instances, the nonconforming site features standards outlined in Section 070.010.070(f)(3) of the Code require the upgrading of landscaping when a structural addition of 500 square feet or more or a building elevation change of 50 percent or more is proposed. The building improvements would require buffering of the existing parking from adjacent properties resulting in the likely loss of at least one space. As a result, the applicant is requesting a design variance which is detailed further below.



Proposed Site Plan

Nonresidential and Mixed-Use Site and Building Design

Section 070.040.080 of the Code addresses various layout and design elements intended to promote high-quality and distinctive development, protect established neighborhoods, encourage housing variety, create visual interest, protect property values, and enhance the streetscape. The proposed design of the addition adds a more prominent entrance, color and material variations, window/door fenestration, a balcony, and variations in roof form and building height to the existing structure. Because of the location in the Downtown Core certain additional design characteristics apply per Section 070.040.080 (e)(10) including respecting the scale of traditional single-family homes, having distinguishable subordinate additions, and compatible architectural details (i.e. roof form, siding details, etc.) A color rendering of the west elevation is provided at right. Attached elevations (sheets 8-10) explain design elements proposed for the addition. Requested design variances are discussed further below.

Design Variance Approval Criteria

Design Variance applications must adhere to the approval criteria of Section 070.060.070(a)(3)e.3 of the Code (all of section A and at least four criteria from section B) as outlined in ***bold italics*** in the table below. Other language is provided by staff.

	Criteria	**Staff Comment**
Section A	***The variance requested does not harm the public health, safety, or welfare; and***	**Action Items 1-3** -It does not appear that any of the requested design variances negatively impact public health, safety, or welfare.
	The variance requested is in general conformance with the Comprehensive Plan and with the stated purpose and intent of the Code including the specific regulation for which the variance is sought; and	**Action Items 1-3** -It appears that all of the requested design variances are in general conformance with the Comprehensive Plan and the purpose and intent of the Code.
	The variance requested will	**Action Items 1-3** -The requested design variances do

	not violate building or fire code requirements.	not result in building or fire code violations.
Section B	***The variance requested advances the goals and policies of the Code or achieves the intent of the subject standard to the same or better degree than the subject standard; or***	**Action Item 1** - The intent of landscaping standards is to mitigate environmental and visual impacts related to parking. While minimum parking standards do not apply in the M2 zone, landscaping requirements still apply when it is provided in order to soften related impacts. Perhaps the applicant and Commission can consider an alternate from of screening such as fencing instead to meet the intent of these standards. **Action Item 2** – While there is inconsistency in the degree of roof pitches along the east 1000 block face of Grand Avenue, all are of gabled design/style. The shed roof design is aesthetically pleasing but the intent of the Downtown Core standards is to consider predominant characteristics along a block face to protect established neighborhoods. However, this is sometimes in conflict with the stated design standards purposes to provide variety and visual interest. **Action Item 3** – The exterior materials of structures along the block face consist mainly of masonry or horizontal siding. Perhaps additional masonry material or an alternate colored horizontal siding is a good substitute for the proposed vertical siding.
	The subject property has an exceptional shape, topography, building configuration or other exceptional site condition that is not a general condition throughout the zone district; or	**Action Items 1-3** - It does not appear this criteria is applicable to the subject property.
	The variance requested results in benefits to the community that are equivalent to or exceed benefits associated with the subject standard; or	**Action Item 1** – There is a valid argument that saving a parking space for a residential use is more beneficial to the community/Downtown Core than the value of the related screening. **Action Item 2** – While there is inconsistency in the pitch of roofs along the east 1000 block face of Grand Avenue, all are of a gabled design/style. It does not seem that the proposed shed roof provides a greater benefit to the community or exceeds the intent/purpose of the Downtown Core standards.

		Action Item 3 – The exterior materials of structures along the block face consist mainly of masonry or horizontal siding. It does not seem the proposed shed roof provides a greater benefit to the community or exceeds the intent/purpose of the Downtown Core standards.
	The variance is necessary and appropriate to make possible the reasonable use of the land or the structures on the property; or	**Action Item 1** – The design variance is necessary to maintain the use of the existing parking. However, a fence could provide a similar screening function. **Action Items 2-3** – The requested variances are not necessary to make responsible use of the property or existing structure.
	The variance is the minimum variance that will afford relief of the subject standards of the Code; or	**Action Items 1-3** – The design variances requested are the minimum request which will provide relief from the application standards.
	The strict application of the Code standards for which a variance is sought would produce undue hardship.	**Action Items 1-3** – The Code standards do not result in an undue hardship that limits the use of site and/or existing building.

Site/Architectural Plan Review Approval Criteria

A Site/Architectural Plan Review application must adhere to the approval criteria outlined in Section 070.060.050(6) of the Code as outlined in ***bold italics*** below. Other language is provided by staff.

a. The site/architectural plan is consistent with the general purpose and intent of this Code;

The proposal is consistent with the general purpose and intent of the Code regarding guarding against natural hazards, efficient development, compatible design, and addressing impacts.

b. The site/architectural plan is consistent with the dimensional, design, development, and all other standards of this Code;

Outside of the Code sections outlined above, staff finds that the proposal is consistent with the dimensional, design, development, and all other standards of the Code.

c. The site/architectural plan is consistent with any previously approved plat, PUD, or any other precedent land use approval; and

Not applicable.

d. The site/architectural plan is consistent with the Comprehensive Plan and other adopted City

policies and plans.

As shown at right, *Map 2.1 Future Land Use – North Portion of the City of the Glenwood Springs* (shown at right) of the Comprehensive Plan (Comp Plan) identifies the area as "Commercial" in red and "Downtown" by the purple asterisk. According to the Comp Plan, the Commercial designation "*…provides a wide range of general retail goods and services for both regional and local markets, in attached and freestanding structures.*" Downtown is described as "*…intended to reflect the character of the historic Downtown and yet allow additional uses that will strengthen and expand the core of the community including retail, offices, restaurants, residences, lodging, and civic uses. Pedestrian friendly design and a mix of uses are expected.*" The current proposal is in compliance with the map designations and descriptions.

Numerous community goals and related objectives and strategies outlined in the Executive Summary and subsequent chapters of the Comp Plan. These goals are outlined in the following table.

Comprehensive Plan Goal Supported	**Objective and Strategies**
Promote long-term, sustainable, diverse, economic development	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34)
Staff Comment: The objective/strategy outlined above is supported by the current application since it includes infill development/redevelopment.	
Preserve small town character while maintaining the livability of Glenwood Springs and increasing the vibrancy and commercial success of the downtown	-Develop according to the vision (Chapter 4, Page 34) -Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Enhance pedestrian–friendliness while facilitating traffic (Chapter 3, Page 36) -Direct growth inward (Chapter 9, Page 102)
Staff Comment: Infill, as proposed, makes improvements more cost effective to serve. Most aspects of the project design are substantially in character with surrounding uses and structures, related design standards, and the M2 zone district purpose.	
Address transportation and provide multiple convenient travel choices	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34)

	-Encourage reduction of single occupant vehicles and encourage alternate travel modes through land use planning and community design (Chapter 5, Page 66)
Staff Comment: Infill/redevelopment, as proposed, makes improvements more cost effective to serve. The design of the project is substantially in character with uses and structures surrounding the site. Additionally, the location discourages single occupant vehicle use.	
Direct development to locations and building forms that are cost effective to serve	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Direct growth to areas where utilities and services can be provided efficiently (Chapter 7, Page 82) -Retain role as a regional center (Chapter 7, Page 83) -Direct growth inward (Chapter 9, Page 102)
Staff Comment: Infill/redevelopment, as proposed, makes improvements more cost effective to serve. Residential density in the Downtown Core helps to invigorate businesses and services located in the area.	
Provide housing opportunities for the entire community	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Encourage housing variety and affordability throughout the community (Chapter 6, Page 76) -Require good design for mixed-use and higher density projects (Chapter 6, Page 78)
Staff Comment: Housing supports the City's workforce. Infill/redevelopment, as proposed, makes improvements more cost effective to serve while providing a nice aesthetic.	
Support social diversity	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Require good design for mixed-use and higher density projects (Chapter 6, Page 78) -Direct growth inward (Chapter 9, Page 102) -Retain role as a regional center (Chapter 7, Page 83) -Direct growth inward (Chapter 9, Page 102)
Staff Comment: Housing supports the City's workforce. Infill/redevelopment, as proposed, makes improvements more cost effective to serve while providing a nice aesthetic.	

Reviewing Agency Comments
An overview of any comments received from referral agencies is provided below. Said comments are also attached.

Colorado Department of Transportation – Comments outline that direct access to Highway 82 is not permitted and that the proposal is compliant with the limitation.

Electric – Comments are related service upgrade requirements for electric and community broadband.

Engineering – Comments outline that the traffic trip generation information provided is acceptable as well as the need to verify the building footprints and geotechnical findings prior to the issuance of a certificate of occupancy.

Fire – Comments acknowledge the proposed installation of fire sprinklers as required by Code.

Public Works – Comments provided include standard requirements for future water/wastewater, electric, and fire service connections and the need for additional related details. Drainage and expected disturbances to the alley are also addressed.

ACTION ALTERNATIVES AND STAFF RECOMMENDATION:

Section 070.060.030(g)(1)d outlines the review and decision procedures for applications being considered by the Commission and/or City Council stating, "[T]he applicable review body shall **approve, approve with conditions, or deny** the application **based on the applicable approval criteria** listed in the application-specific procedures. The body may also **continue** the hearing or **refer the application** to another authority as provided in 070.060.050(a)(2)c, Referral and Call-Up Procedures."

Action 1 – Design Variance – from Section 070.040.060(h)(6) of the *Glenwood Springs Municipal Code* requiring landscaping for off-street parking.

Staff Recommendation/Suggested Motion
It appears the request meets all of Section A and four of the Section B Design Variance approval criteria. Staff recommends **approval (with conditions)** with the following findings and conditions:

Recommended Findings:
1. The request does not harm the public health, safety, or welfare; and
2. The request is in general conformance with the Comprehensive Plan and with the stated purpose and intent of the Code including the specific regulation for which the variance is sought; and
3. The variance request will not violate building or fire code requirements; and
4. The variance request advances the goals and policies of the Code or achieves the intent of the subject standard to the same or better degree than the subject standard; and
5. The variance request results in benefits to the community that are equivalent to or exceed benefits associated with the subject standard; and
6. The variance is necessary and appropriate to make possible the reasonable use of the land or the structures on the property; and
7. The variance is the minimum variance that will afford relief of the subject standards of the Code;

Recommended Conditions:

1. The applicant shall revise the application to include fence screening of the subject parking area along the north and south properties boundaries to the satisfaction of the Community Development Director and Public Works Director prior to approval of the Final Plans Review application.

Action 2 – Design Variance – from Section 070.040.080(e)(10)c.5.1 of the *Glenwood Springs Municipal Code* to allow for a 2:12 shed roof on a block face consisting of gabled roofs in the Downtown Core.

Staff Recommendation/Suggested Motion

It does not appear the request meets all of Section A and at least four of the Section B Design Variance approval criteria. Staff recommends **denial** with the following findings and conditions:

Recommended Findings:

1. It does not appear the variance request advances the goals and policies of the Code or achieves the intent of the subject standard to the same or better degree than the subject standard; and
2. The subject property does not have an exceptional shape, topography, building configuration or other exceptional site condition that is not a general condition throughout the zone district; and
3. The variance requested does not result in benefits to the community that are equivalent to or exceed benefits associated with the subject standard; and
4. The variance is not necessary and appropriate to make possible the reasonable use of the land or the structures on the property; and
5. The strict application of the Code standards for which a variance is sought does not produce undue hardship.

Action 3 – Design Variance – from Section 070.040.080(e)(10) d.2. of the *Glenwood Springs Municipal Code* to allow for the use of vertical siding in the Downtown Core.

Staff Recommendation/Suggested Motion

It does not appear the request meets all of Section A and at least four of the Section B Design Variance approval criteria. Staff recommends **denial** with the following findings and conditions:

Recommended Findings:

1. It does not appear the variance request advances the goals and policies of the Code or achieves the intent of the subject standard to the same or better degree than the subject standard; and
2. The subject property does not have an exceptional shape, topography, building configuration or other exceptional site condition that is not a general condition throughout the zone district; and
3. The variance requested does not result in benefits to the community that are equivalent to or exceed benefits associated with the subject standard; and
4. The variance is not necessary and appropriate to make possible the reasonable use of the land or the structures on the property; and
5. The strict application of the Code standards for which a variance is sought does not produce undue hardship.

Action 4 - Site/Architectural Plan Review – for the construction of a 1,740 square foot second story addition to an existing 3,540 square foot building to accommodate five multi-family units.

Staff Recommendation/Suggested Motion
With approval of one of the requested Design Variances and slight modifications to the building elevations related to roof style and siding, it appears the request meets the Site/Architectural Plan Review approval criteria. Staff recommends **approval (with conditions)** with the following findings and conditions:

Recommended Findings:
1. The site/architectural plan is consistent with the general purpose and intent of this Code;
2. The site/architectural plan is consistent with the dimensional, design, development, and all other standards of this Code;
3. The site/architectural plan is not in conflict with precedent land use approvals; and
4. The site/architectural plan is substantially consistent with the Comprehensive Plan and other adopted City policies and plans.

Recommended Conditions:
1. The applicant shall revise the roof design to comply the applicable Downtown Core standards prior to approval of a Final Plans Review application.
2. The applicant shall revise the vertical siding to comply the applicable Downtown Core standards prior to approval of a Final Plans Review application.
3. The applicant shall comply with/address all City staff comments related to specific Code requirements prior to approval of a Final Plans Review application.
4. Any future physical changes or improvements to the property or buildings on the parcel are subject to the review and approval of the Community Development Director for compliance with applicable requirements of the Glenwood Springs Municipal Code.
5. The applicant shall comply with all verbal representations made in the public hearings, as outlined in all application materials, and/or as revised per conditions herein and approved by the Community Development Director.
6. Prior to submitting a building permit application, the applicant shall enter into a development agreement with the City.
7. Prior to submitting a building permit application, the applicant shall submit an engineer's estimate of all public improvement and submit a financial security therefor.

ABBREVIATIONS

A/C air conditioning
A/E architect/engineer
AB anchor bolt
AC alternating current
ACOUS acoustical
ADA Americans with Disabilities Act
ADDM addendum
ADDL additional
ADJ adjustable, adjacent
AFF above finished floor
AGGR aggregate
AIA American Institute of Architects
AISC American Institute of Steel Construction
ALT alternate
ALUM aluminum
AMP ampere
AMT amount
ANSI American National Standards Institute
APPROX approximate
APT apartment
ARCH architect (ural)
ASHRAE American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASTM American Society for Testing and Materials
ASI architect's supplemental instructions
ASPH asphalt
ASSN association
AUTO automatic
AUX auxiliary
AV audio/visual
AVE avenue
AVG average
B&B board and batten
BALC balcony
BD board
BITUM bituminous
BKG backing
BLDG building
BLKG blocking
BLT IN built-in
BLVD boulevard
BLW below
BM beam
BO bottom of
BOF bottom of footing
BOT bottom
BR bedroom
BRG bearing
BRZ bronze
BSMT basement
Btu British Thermal Unit
BTWN between
C Celsius
C&P carpet and pad
CAB cabinet
CALC calculate
CANTIL cantilever(ed)
CAP capacity
CBB cementitious (backer) board
CD construction documents
CEM cement
CER ceramic
CIP cast-in-place
CJ control joint
CL center line
CLG ceiling
CLR clear (ance)
CM centimeter
CMU concrete masonry unit
CLO closet
CO Certificate of Occupancy
carbon monoxide
COL column
CONC concrete
CONSTR construction
CONSULT consultant
CONT continuous
CONTR contract/contractor
COORD coordinate
CORR corrugated
CPT carpet
CSMT casement
CTR center
CU FT cubic foot (feet)
CU YD cubic yard(s)
D deep
DBL double
DD design development
DEMO demolition
DEPT department
DH double hung
DIA diameter
DIM dimension
DIV division
DIAG diagonal
DN down
DOC document
DOUG FIR Douglass fir
DTL detail
DR door
DS downspout
DW dishwasher
DWG drawing
DWR drawer
E east
EA each
EIFS exterior insulation finish system
EL elevation
ELEC electric (al)
ELEV elevator
ENCL enclose (ure)
ENG engineer
EQ equal
EQUIP equipment
ESMT easement
ETC et cetera
EXH exhaust
EXIST existing
EXP expansion
EXT exterior
EXTN extention
F Fahrenheit
FAR floor area ratio
FD floor drain
FIN finish (ed)
FIN FLR finished floor
FIXT fixture
FLASH flashing
FLEX flexible
FLOUR flourescent
FLR floor
FND foundation
FO face of
FOC face of concrete
FOS face of stud
FP fire place
FR fire rating
FRMG framing
FRZ freezer
FSTNR fastener
FT feet, foot
FTG footing
FURN furniture
GA guage /
Gypsum Association
GALV galvanized
GC general contractor
GL glass/glazing(glazed)
GLU LAM glued laminated wood
GSKT gasket
GWB gypsum wall board
GYP PLAS gypsum plaster
H high
H/C handicap accessible
HB hose bibb
HC hollow core
HDW hardware
HDR header
HEX hexagon (al)
HGR hanger
HM hollow metal
HORIZ horizontal
HR hour
HT height
HTG heating
HVAC heating/ventilation/ air conditioning
HVY heavy
HWH hot water heater
IBC International Building Code
ID inside diameter
INCL include (ing)
INSUL insulation
INT interior
INV invert
JST joist
JT joint
KIT kitchen
KO knock out
LAB laboratory
LAM laminate(d)
LAV lavoratory
LAY layer
LB pound
LBL label
LF linear feet(foot)
LH left hand
LL live load
LPT low point
LT light
LT WT light weight
LTL lintel
M meter
MAINT maintenance
MAS masonry
MATL material
MAX maximum
MBR master bedroom
MECH mechanical
MED medium
MEMB membrane
MEZZ mezzanine
MFR manufacturer
MH man hole
MIN minimum
MIRR mirror
MISC miscellaneous
MLDG moulding
MM millimeter
MO masory opening
MT mount
MTD mounted
MTL metal
MULL mullion
N north
NA not applicable
NAT natural
NFPA National Fire Protection Association
NIC not in contract
NO number
NOM nominal
NR noise reduction
NRC noise reduction coefficient
NTS not to scale
O/ over
OA overall
OC on center
OD outside diameter
OH overhang
OPNG opening
OPH opposite hand
OPP opposite
OPT optional
ORIG original
OSHA Occupational Saftey & Health Adminstration
PAR parallel
PCC precast concrete
PERF perforated
PERIM perimeter
PLAS plaster
PLAM plastic laminate
PLF pounds per lineal foot
PLYWD plywood
PNL panel
PREFAB prefabricated
PREFIN prefinished
PRELIM preliminary
PRKG parking
PSF pounds per square foot
PSI pounds per square inch
PT pressure treated
PTD painted
PVC polyvinyl chloride
QT quarry tile
R radius / riser
RA return air
RAD radiant
RCP reflected ceiling plan
RD road / roof drain
REBAR reinforcing steel bars
REF reference, refrigerator
REFL reflect (ed) (ive) (or)
REG register
REINF reinforce (ed)
REQD required
REV revis (e) (ed) (ion)
RFI request for information
RH right hand (ed)
RM room
RO rough opening
ROW right of way
RS rough sawn
RT right
S south
SC solid core
SCHED schedule
SD smoke detector / storm drain (site) / schematic design
SECT section
SF square foot (feet)
SHTHG sheathing
SHT sheet
SHV shelving
SIM similar
SM small
SPEC specification (s)
SPKR speaker
SQ square
SS standing seam / storm sewer
SST stainless steel
STA station
STC sound trasmission class
STD standard
STL steel
STOR storage
STRUCT stucture / structural
SUSP suspended
SYM symmetrical
SYS system
T tread
T&G tongue and groove
TB towel bar
TBD to be determined
TEL telephone
THK thick (ness)
THR threshold
TO top of
TOB top of beam
TOC top of concrete
TOF top of footing
TOJ top of joist
TOL tolerance
TOPO topography
TOS top of slab
TOW top of wall
TPD toilet paper dispenser
TPH toiler paper holder
TS tube steel
TV television
TYP typical
UBC Uniform Building Code
UC undercut
UL Underwriters Laboratories
UNFIN unfinished
UNO unless noted otherwise
VAR varies
VCT vinyl composition tile
VERT vertical
VEST vestibule
VG vertical grain
VIF verify in field
VNR veneer
VR vapor retarder
W west / width / wide
W/ with
W/O without
WC water closet
WD wood
WDW window
WP waterproofing
WPT working point
WSCT wainscot
WWF welded wire fabric
WWM welded wire mesh
XL extra large
XPS extruded polystyrene board (insulation)

SYMBOLS USED AS ABBREVIATIONS
@ at
& and
L angle
centerline
C channel
° degrees
ø diameter
number
d penny
perpendicular
PL plate

NUMERICAL SYMBOLS USED AS ABBREVIATIONS
1st first
2nd second
3rd third
4th fourth
5th fifth
6th sixth
7th seventh

SYMBOLS LEGEND

NORTH — TRUE NORTH ARROW

ROOM NAME / 101 / FLOOR FINISH — ROOM NAME, ROOM NUMBER, FLOOR FINISH

T.O. XXX / 99'-0" — FLOOR PLAN SPOT ELEVATIONS (BUILDING)

WXX / XX — WINDOW MARK

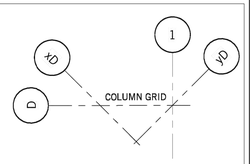
XXX / X — DOOR MARK

8000.00' — TOPO SPOT ELEVATION EXISTING

8000.00' — TOPO SPOT ELEVATION NEW

EXISTING CONTOURS

NEW CONTOURS



X# / A-2XX — ELEVATION KEYING ('XX'-DWG. # / 'A-2XX'-SHT. #)

X# / A3XX — BUILDING SECTION ('XX'-DWG. # / 'A-3XX'-SHT. #)

X# / A3XX — WALL SECTION ('XX'-DWG. # / 'A-3XX'-SHT. #)

X# / A3XX — ENLARGED PLAN/DETAIL ('XX'-DWG. # / 'A-3XX'-SHT. #)

X# / A3XX — SECTION DETAIL KEYING ('XX'-DWG. # / 'A-3XX'-SHT. #)

W-X — CONSTRUCTION TYPE ('W1'-TYPE)

X# / X# A-2XX X# / X# — INTERIOR ELEVATION KEYING ('1'-EL. ID / '1-2XX'-SHT. #)

1 — DRAWING REVISION

2 — SMOKE DETECTOR

J — JUNCTION BOX

MATERIALS LEGEND

SITEWORK:
DISTURBED
UNDISTURBED
STONE / GRAVEL POROUS FILL

MASONRY:
FIREBRICK
BRICK
STONE
CONCRETE MASONRY UNIT

CAST IN PLACE & PRE-CAST
GROUT / MORTAR
SAND

STEEL:
ALUMINUM
STEEL - LARGE SCALE
STEEL - SMALL SCALE — I O L

CARPENTRY:
ROUGH FRAMING BLK'G. CONTINUOUS
BLOCKING DISCONTINUOUS
PLYWOOD
FINISHED CARPENTRY

THERMAL PROTECTION:
BATT / BLANKET LOOSE FILL
RIGID
FIBERBOARD
SPRAYED FOAM

CAULK and SEALANT:
SEALANT W/ BACKER ROD
JOINT FILLER

PLASTER / BACKING BOARDS:
LATH PLASTER
GYPSUM WALL BOARD
CEMENTITOUS BACKER UNIT
DENS GLASS GOLD

GENERAL NOTES

1. THE AIA DOCUMENT A201 "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION", 1997 AND SUPPLEMENTARY CONDITIONS, AS PREPARED BY THE ARCHITECT, ARE HEREBY MADE A PART OF THESE CONTRACT DOCUMENTS, AND ARE ON FILE AT THE OFFICE OF THE ARCHITECT FOR REFERENCE DURING REGULAR BUSINESS HOURS.

2. THE CONTRACT DOCUMENTS CONSIST OF THE AGREEMENT, THE GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, GENERAL PROVISIONS, DRAWINGS, SPECIFICATIONS, ADDENDA, AND SUPPLEMENTARY DOCUMENTS AS ISSUED BY THE ARCHITECT IN ACCORDANCE WITH THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THE CONTRACT, DRAWINGS AND SPECIFICATIONS ARE COOPERATIVE AND CONTINUOUS, WORK INDICATED OR REASONABLY IMPLIED IN EITHER SHALL BE PROVIDED AS THOUGH FULLY COVERED BY BOTH. ANY DISCREPANCY BETWEEN THE CONTRACT DOCUMENTS SHOULD BE REPORTED TO THE OFFICE OF THE ARCHITECT IMMEDIATELY.

3. ALL WORK SHALL COMPLY WITH ALL STATE AND LOCAL CODES AND ORDINANCES, AND SHALL BE PERFORMED TO THE HIGHEST STANDARDS OF CRAFTMANSHIP BYJOURNEYMEN OF THE APPROPRIATE TRADES.

4. THE CONTRACT DOCUMENTS ARE INTENDED TO INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICES REQUIRED TO COMPLETE ALL WORK DESCRIBED THEREIN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BRING TO THE ATTENTION OF THE ARCHITECT ANY CONDITIONS WHICH WILL NOT PERMIT CONSTRUCTION ACCORDING TO THE INTENTIONS OF THESE DOCUMENTS. THE ARCHITECT SHALL PROVIDE SUPPLEMENTAL INFORMATION REGARDING DESIGN INTENT WHERE ACCOMODATIONS FOR EXISTING CONDITIONS OR WHERE SUFFICIENT INFORMATION IS ABSENT FROM THE CONTRACT DOCUMENTS, IN ACCORDANCE WITH THE GENERAL CONDITIONS.

5. ANY PROPOSED SUBSTITUTION OF SPECIFIED MATERIALS/PRODUCTS SHALL BE PRESENTED TO THE ARCHITECT FOR REVIEW, IN ACCORDANCE WITH PROCEDURES DESCRIBED IN DIVISION ONE (1) OF THE PROJECT MANUAL AND THE GENERAL CONDITIONS. SUBSTITUTIONS WILL BE CONSIDERED ONLY IF A MORE ADVANTAGEOUS DELIVERY DATE OR LESSER COST, WITH CREDIT TO THE OWNER, ARE PROVIDED WITHOUT SACRIFICING QUALITY, APPEARANCE, AND/OR FUNCTION; UNDER NO CIRCUMSTANCES WILL THE ARCHITECT BE REQUIRED TO PROVE THAT A PRODUCT PROPOSED FOR SUBSTITUTION IS OR IS NOT EQUAL TO THE QUALITY OF THE PRODUCT SPECIFIED. INITIATING A REQUEST FOR SUBSTITUTION DOES NOT AUTHORIZE THE CONTRACTOR TO CHANGE THE SPECIFIED PRODUCT, UNTIL THE ARCHITECT HAS APPROVED THE SUBSTITUTION.

6. SUBMIT SHOP DRAWINGS, CUT SHEETS AND SAMPLES WHEN REQUIRED BY THE SPECIFICATIONS, FOR REVIEW BY THE ARCHITECT PRIOR TO COMMENCING WITH RELATED WORK. ALL WORK RELATED TO SUCH SAMPLES SHALL CONFORM WITH REVIEWED AND ACCEPTED SAMPLES. WORK WHICH DOES NOT CONFORM SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. SUB-CONTRACTORS SHALL SUBMIT ALL SUBMITTALS AND SAMPLES FOR REVIEW THROUGH THE GENERAL CONTRACTOR. ALL SUBMITTALS AND SAMPLES SHALL BE SUBMITTED IN SUCH A MANNER, AS TO ALLOW ADEQUATE TIME FOR REVIEW, AS NOTED IN THE SPECIFICATIONS, AND AS NOT TO DELAY WORK IN PROGRESS.

7. ALL WORK SHALL BE ERECTED PLUMB AND TRUE-TO-LINE IN ACCORDANCE WITH BEST PRACTICES OF THE TRADE. MANUFACTURER'S RECOMMENDATIONS FOR THE PARTICULAR PRODUCT, AND IN ACCORDANCE WITH THE SPECIFICATIONS.

8. THE LOCAL GOVERNMENT AGENCIES SHALL BE NOTIFIED BY THE CONTRACTOR WHEN THERE IS NEED OF INSPECTION AS REQUIRED BY THE APPLICABLE CODE OR BY ANY CODE OR ORDINANCE.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY AND CARE OF ADJACENT PROPERTIES DURING CONSTRUCTION, FOR COMPLIANCE WITH FEDERAL AND STATE O.S.H.A. REGULATIONS, AND FOR THE PROTECTION OF ALL WORK UNTIL IT IS DELIVERED COMPLETED TO THE OWNER.

10. ALL DIMENSIONS NOTED TAKE PRECEDENCE OVER SCALED DIMENSIONS. DIMENSIONS NOTED "N.T.S." DENOTES NOT TO SCALE. DIMENSIONS ARE TO FACE OF FRAMING, U.N.O.

11. CONTRACTOR SHALL VERIFY AND COORDINATE ALL OPENINGS THROUGH FLOORS, CEILINGS, AND WALLS WITH ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL AND OTHER DISCIPLINE DRAWINGS AND SPECIFICATIONS, AS WELL AS EXISTING CONDITIONS.

12. CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ITEMS REQUIRING COORDINATION AND RESOLUTION DURING THE BIDDING PROCESS. THE CONTRACTOR SHALL CONTACT THE ARCHITECT FOR ANY CLARIFICATIONS. THE CONTRACTOR SHALL NOT EXCLUDE FROM HIS BID, ANY ITEMS, AS NOTED IN THE CONTRACT DOCUMENTS, WITHOUT PRIOR WRITTEN AUTHORIZATION OF THE ARCHITECT. CONTRACTOR'S CLARIFICATIONS SHALL NOT OMIT, CHANGE OR REDUCE THE QUALITY OF CONSTRUCTION, AS INDICATED BY THE CONTRACT DOCUMENTS.

13. VERIFY ALL SPACE DIMENSIONS AS SHOWN WITH EXISTING JOB CONDITIONS BEFORE STARTING CONSTRUCTION.

14. WHERE WORK IS INSTALLED OR EXISTING FINISHES ARE DISTURBED, SUCH AREAS SHALL BE REFINISHED TO MATCH THE AREA PRIOR TO THE DISTURBANCE.

15. WHERE WORK IS INSTALLED OR EXISTING FINISHES ARE DISTURBED, SUCH AREAS SHALL BE REFINISHED TO MATCH THE AREA PRIOR TO THE DISTURBANCE.

16. THE CONTRACTOR SHALL CHECK AND VERIFY THE CONTRACT DOCUMENTS WITH FIELD CONDITIONS, CONFIRMING THAT ALL WORK IS BUILDABLE AS AS SHOWN, PRIOR TO PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY IF ANY DISCREPANCIES EXIST, PRIOR TO COMMENCEMENT OF WORK, OR AS SOON AS POSSIBLE, THEREAFTER.

17. EACH MISCELLANEOUS ITEM OF CUTTING, PATCHING, OR FITTING IS NOT NECESSARILY INDIVIDUALLY DESCRIBED IN THE CONTRACT DOCUMENTS, NO SPECIFIC DESCRIPTION OF CUTTING, PATCHING, OR FITTING REQUIRED TO PROPERLY ACOMMODATE THE SCOPE OF WORK SHALL RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY TO PERFORM SUCH WORK AS REQUIRED.

18. ANY QUESTIONS REGARDING THE INTENT OF THE DRAWINGS OR SPECIFICATIONS ARE TO BE CLARIFIED WITH THE ARCHITECT PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH THE RELATED WORK. ALL QUESTIONS SHALL BE IN THE FORM OF A REQUEST FOR INFORMATION IN ACCORDANCE WITH PROCEDURES AS NOTED IN DIVISION ONE (1) OF THE PROJECT MANUAL.

19. ALL ITEMS ARE NEW UNLESS CALLED OUT AS "EXISTING"

Project Description					
Lot Size Information	Acres	Square Feet	Lot Coverage	Existing (Sq Ft & %)	Proposed (Sq Ft & %)
	.115 Acre	5000		1832 SF/36 % *	2147 SF/43% *
Limits of Disturbance	Existing (Sq Ft & %)	Proposed (Sq Ft & %)	Average Slope within Limits of disturbance	Percentage	
	N/A	N/A		6%	
Off Street Parking Spaces	# of Existing Spaces	Proposed # of Spaces	Bicycle Parking	Existing # of Spaces	Proposed # of Spaces
	5	5		NONE	6
Residential Units	# of Existing Units	# of Proposed Units	Non-Residential Uses	Type of Use(s)	Gross Floor Area (Sq Ft)
	1	5		N/A	N/A
Open Space	Existing (Sq Ft & %)	Proposed (Sq Ft & %)	Total Landscaped Area	Existing (Sq Ft & %)	Proposed (Sq Ft & %)
	N/A	N/A		3168 SF/63% **	2853 SF/57% **
Building Height	Existing	Proposed	Total Impervious Area	Existing (Sq Ft & %)	Proposed (Sq Ft & %)
	21' - 0"	32' - 8"		1571 SF/31% ***	1854 SF/37% ***
Snow Storage	Required (Sq Ft)	Proposed (Sq Ft)	Other		
	N/A	160 SF			

* Building footprint
** Total Lot Area minus Building Footprint (includes all paved areas)
*** Accumulated area not paved (does not include Building Footprint)

PROJECT DATA

RESIDENTIAL MULTI UNIT BLDG
1010 GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

JURISTRICTION - CITY OF GLENWOOD SPRINGS
OCCUPANCY GROUP 'R-2' RESIDENTIAL
TYPE OF CONSTRUCTION - TYPE III ORDINARY CONSTRUCTION
Total Building - 5280 SF
(measured from outside surface of exterior walls)

FEMA Floodplain - Zone AE (Base Flood Elevations determined) - Map 1162E - 08045C1162E.pdf

This property is subject to geologic hazards per the adopted mappIng by the CIty of Glenwood Springs. Hazards to note are 'Debris Fan Deposits and Hazards w/ Hydro-Compactive and Corrosive Soils'. A final Geologic Hazard Report will be submitted upon application of a building permit.

Public Facilities Note: N/A - There are no known public impositions related to this project.

PROJECT DIRECTORY

OWNER:
PRESENT TENSE LLC
SCOTT DILLARD
852 HANDY DRIVE
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Email: awe@rof.net

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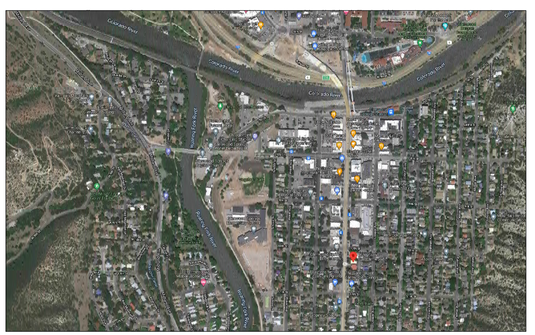
Telephone: 970-945-7988
Email: kaglenwood@kumarusa.com

DRAWING INDEX

A.0	COVER SHEET	E0-1	ELECTRICAL COVER SHEET
SP-1	SITE PLAN	E1-1	LIGHTING NEW CONSTR.
A1.0	EXISTING PHOTOS	E1-2	LIGHTING NEW CONSTR.
A1.1	EXIST/DEMO PLANS	IES1-1	LIGHTING SITE PLAN
A1.2	EXIST ELEVs	E2-1	ELECTRICAL NEW CONSTR.
A2.1	NC PLANS	E2-2	ELECTRICAL NEW CONSTR.
A2.2	NC PLANS	E3-1	SCHEDULES & DETAILS
A3.1	NC ELEVATIONS		
A3.2	NC ELEVATIONS	PRELIMINARY STRUCTURAL	
A3.3	NC ELEVATIONS	S1	FOUNDATION PLAN
A4.1	NC STAIR DETs	S2	MAIN LEVEL FRAMING PLAN
M0-1	MECH COVER SHEET	S3	MAIN LEVEL FRAMING & FOUND. PLAN
M1-1	MECH, NEW CONSTRUCTION	S4	ROOF & UPPER LEVEL FRAMING PLAN
M1-2	MECH, NEW CONSTRUCTION	S5	GENERAL NOTES & DETAILS
M2-1	SCHEDULES & DETAILS		
P0-1	PLUMBING COVER SHEET		
P1-1	PLUMBING NEW CONSTR.		
P1-2	PLUMBING NEW CONSTR.		
P2-1	SCHEDULES & DETAILS		

LOCATION MAP/VICINITY



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LAND USE APP SET

DATE	REVISION

2021.12.28

COLORADO LICENSED
Mark Andrew Noel
ARC.00405758
12/28/2021
REGISTERED ARCHITECT

COVER SHEET

A.0

Project Description					
Lot Size Information	Acres	Square Feet	**Lot Coverage**	Existing (Sq Ft & %)	Proposed (Sq Ft & %)
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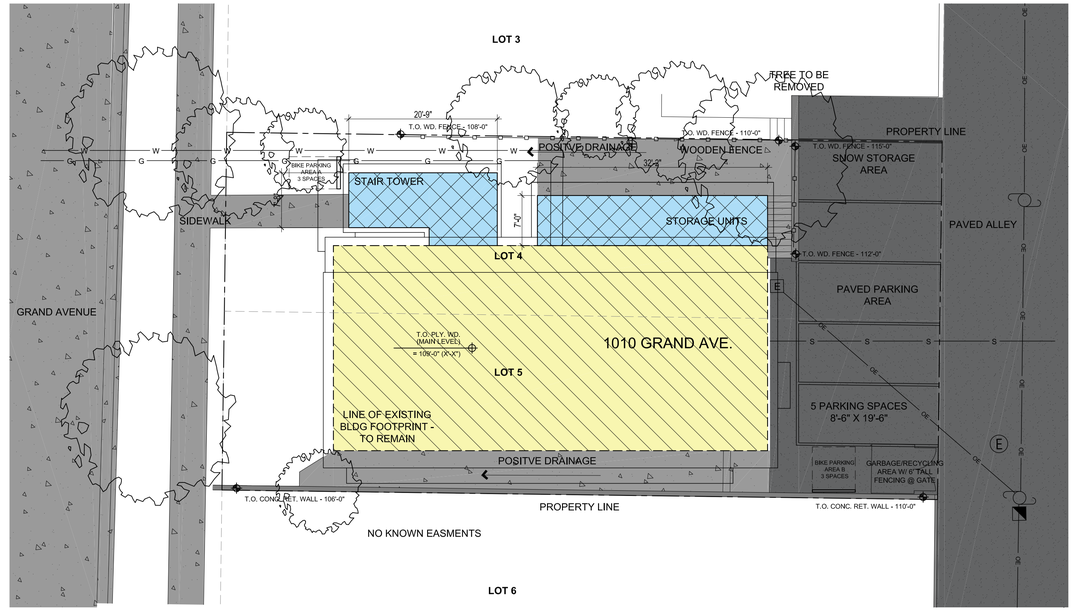

1 **SITE PLAN**
SCALE 1" = 10'-0"

NORTH

SITE - ASPHALT

SITE - CONC

BUILDING FOOTPRINT - NEW

BUILDING FOOTPRINT - EXIST

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LAND USE APP SET

DATE	REVISION

2021.12.28

COLORADO LICENSED Mark Andrew Noel ARC.00405758 12/28/2021 ARCHITECT

SITE PLAN

SP-1

PHOTO A1

PHOTO B1

PHOTO C1

PHOTO D1

PHOTO E1

PHOTO F1

PHOTO G1

PHOTO H1

PHOTO J1

PHOTO K1

PHOTO L1

PHOTO M1

PHOTO M

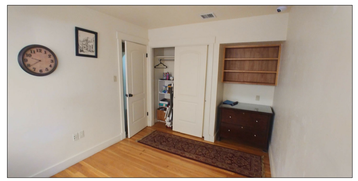

PHOTO N

PHOTO O

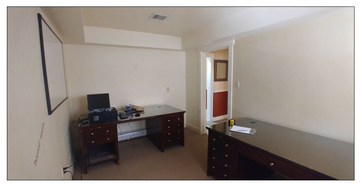

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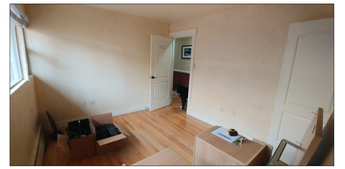
PHOTO Q



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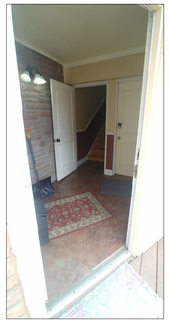

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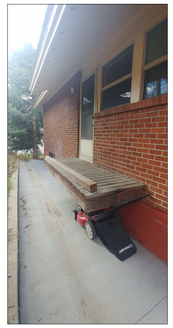

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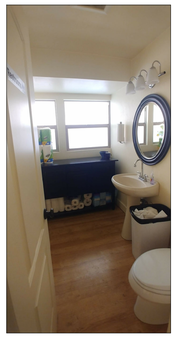

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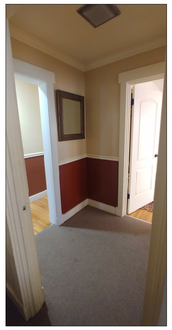
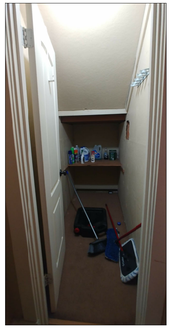


PHOTO X

PHOTO Y



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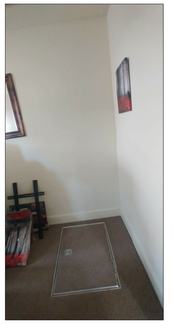

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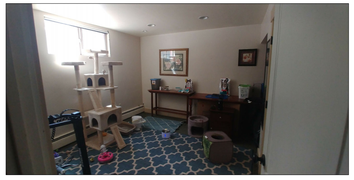

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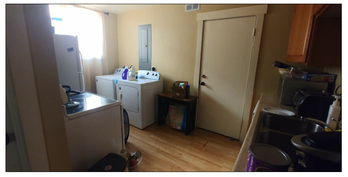

PHOTO EE

PHOTO J

PHOTO K

PHOTO L

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1010 GRAND AVENUE

1010 GRAND AVENUE GARFIELD COUNTY Colorado
Glenwood Springs

LAND USE APP SET

DATE	REVISION

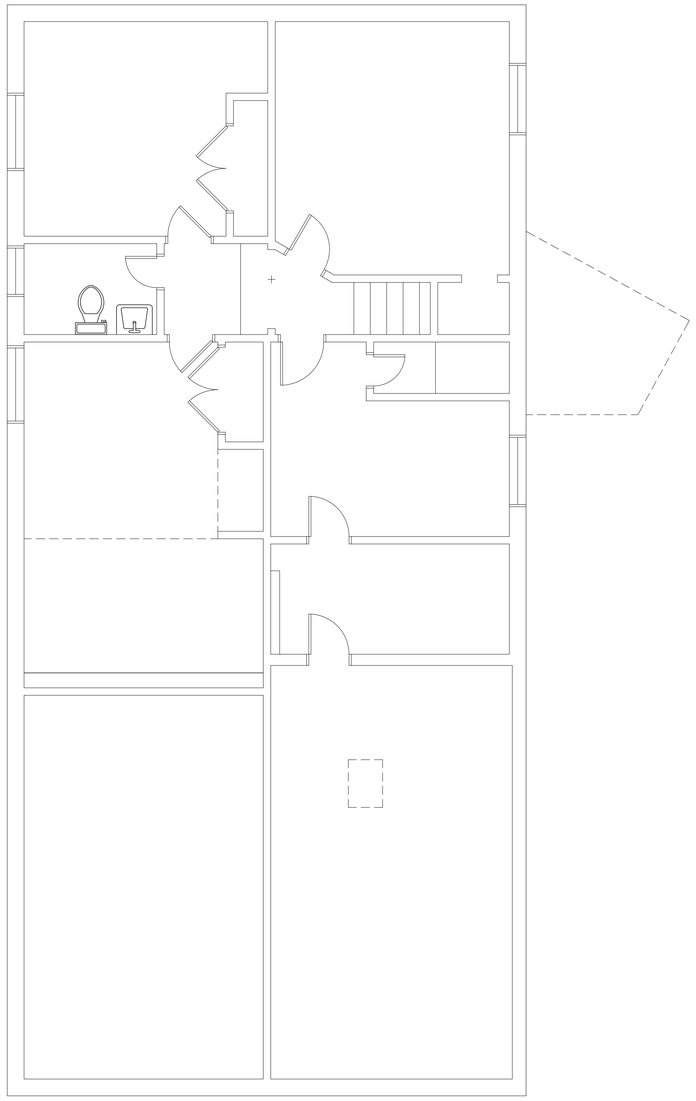
2021.12.28

COLORADO LICENSED
Mark Andrew Noel
ARC.00405758
INACTIVE

EXISTING PHOTOS

A1.0

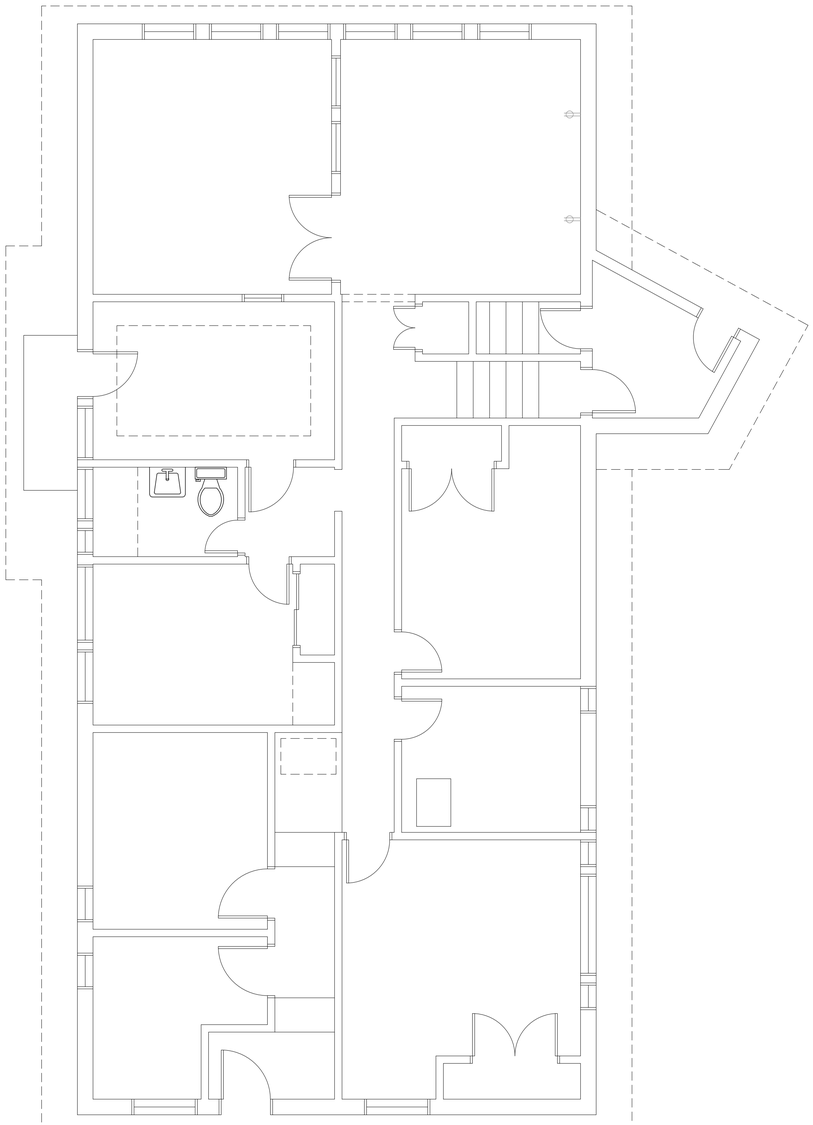
NOTES



1 **LOWER LEVEL EXISTING / DEMO PLAN**

SCALE 1/4" = 1'-0"

NORTH



2 **MAIN LEVEL EXISTING / DEMO PLAN**

SCALE 1/4" = 1'-0"

NORTH

1010 GRAND AVENUE

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Glenwood Springs

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LAND USE APP SET

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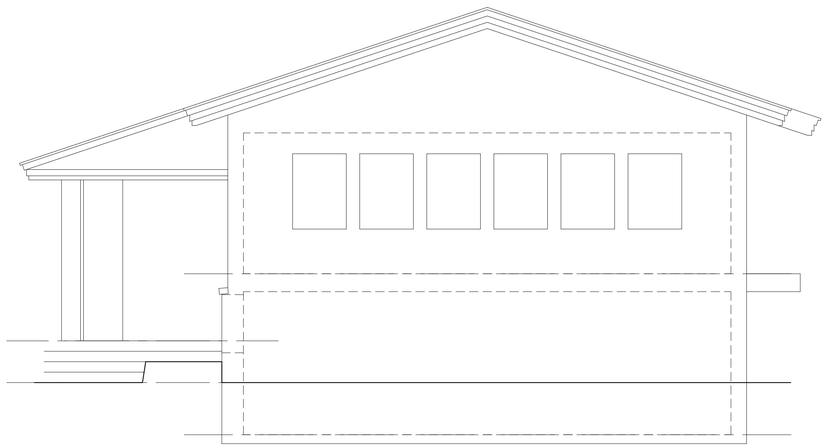
2021.12.28

COLORADO LICENSED
Mark Andrew Noel
ARC.0040758
12/28/2021
ARCHITECT

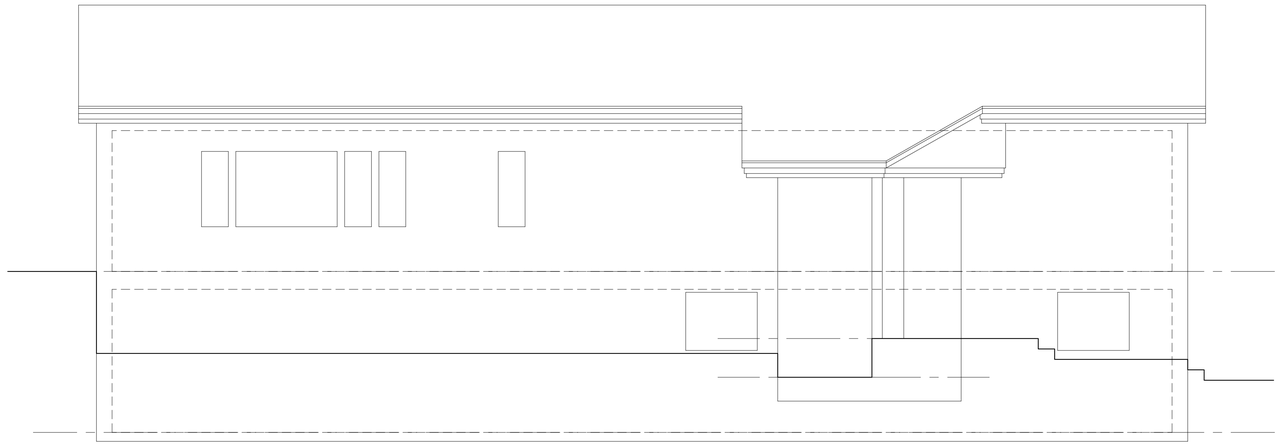
EXISTING / DEMO PLANS

A1.1



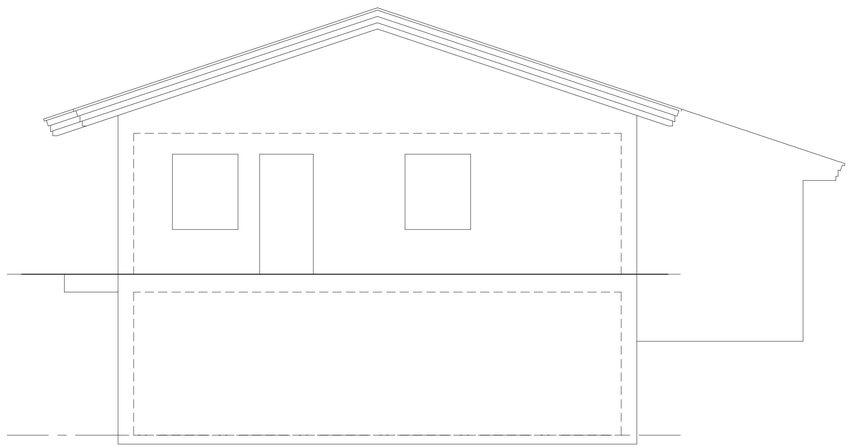
1 EXISTING WEST ELEVATION

SCALE 1/4" = 1'-0"



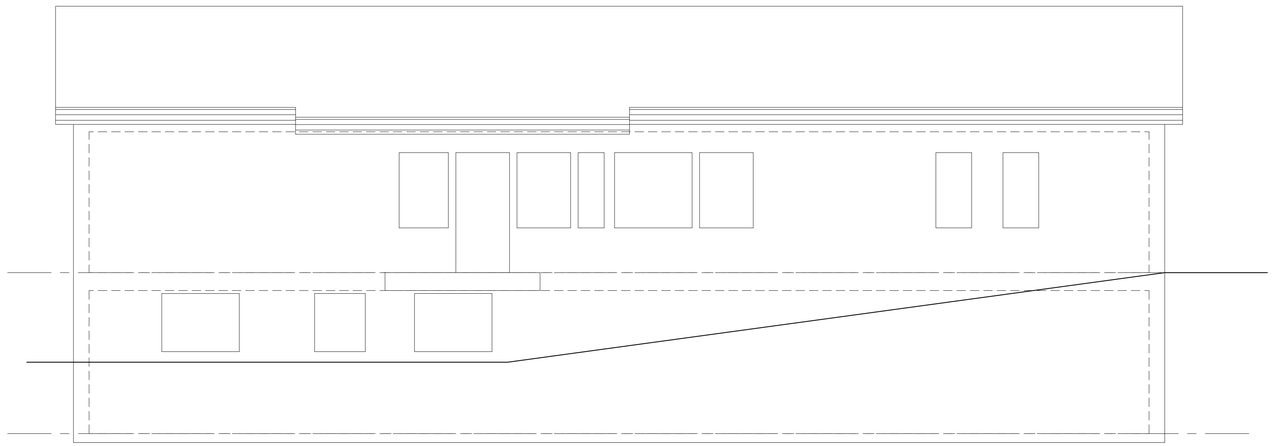
2 EXISTING NORTH ELEVATION

SCALE 1/4" = 1'-0"



3 EXISTING EAST ELEVATION

SCALE 1/4" = 1'-0"



4 EXISTING SOUTH ELEVATION

SCALE 1/4" = 1'-0"

NOTES

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LAND USE APP SET

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2021.12.28

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ARC.0040758
12/28/2021
REGISTERED

EXISTING ELEVATIONS

A1.2

NOTES

SQUARE FOOTAGES

Total Building (w/ 3rd Floor) - 5280 SF
(measured from outside surface of exterior walls)

Lower Level - 1770 SF
Main Level - 1770 SF
Upper Level - 1740 SF

Existing Building - 3540 SF

Individual Units
(measured from inside surface of exterior/interior walls)

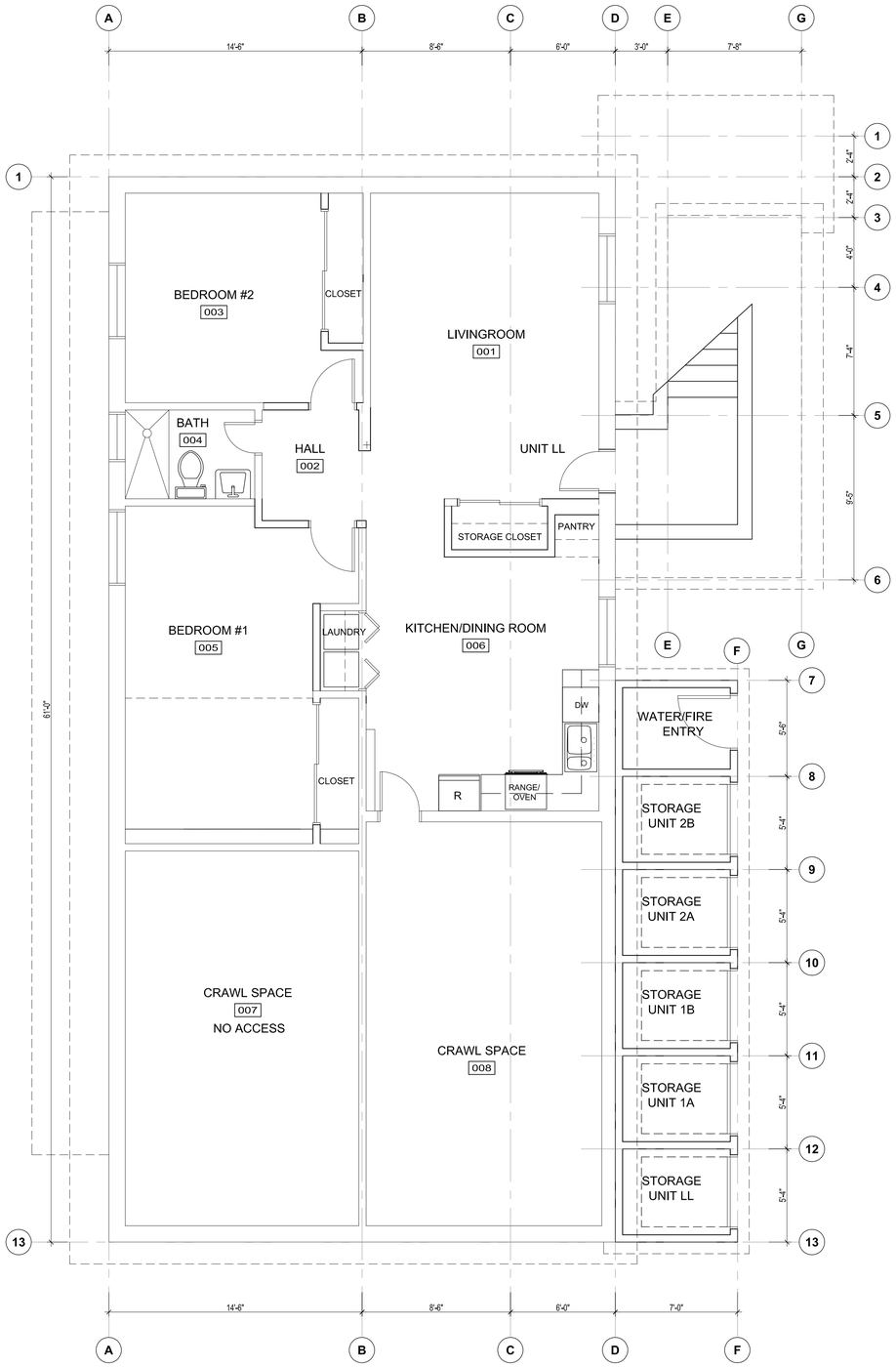
Unit LL - 985 SF
Unit 1A - 875 SF
Unit 1B - 722 SF
Unit 2A - 824 SF (includes balcony 5'-2" x 6'-0" - 31 SF)
Unit 2B - 768 SF

Storage unit calculations

Exterior Storage Units - 5' x 6'2 x 7'6 = **232.5 cf**

Unit	SF		REQ.		Int. Closet Dims	closet cf	PROVIDED cf
Unit LL	985	x 1/3	328	232.5	2'6 x 5'6 x 8'	110	342.5
Unit 1A	875	x 1/3	292	232.5	2'10 x 6'2 x 8'	136.6	369.1
Unit 1B	722	x 1/3	241	232.5	3'4 x 3'4 x 8'	87.1	319.6
Unit 2A	824	x 1/3	275	232.5	2'2 x 5'4 x 8'	89	321.5
Unit 2B	768	x 1/3	256	232.5	3'0 x 4'5 x 8'	108	340.5

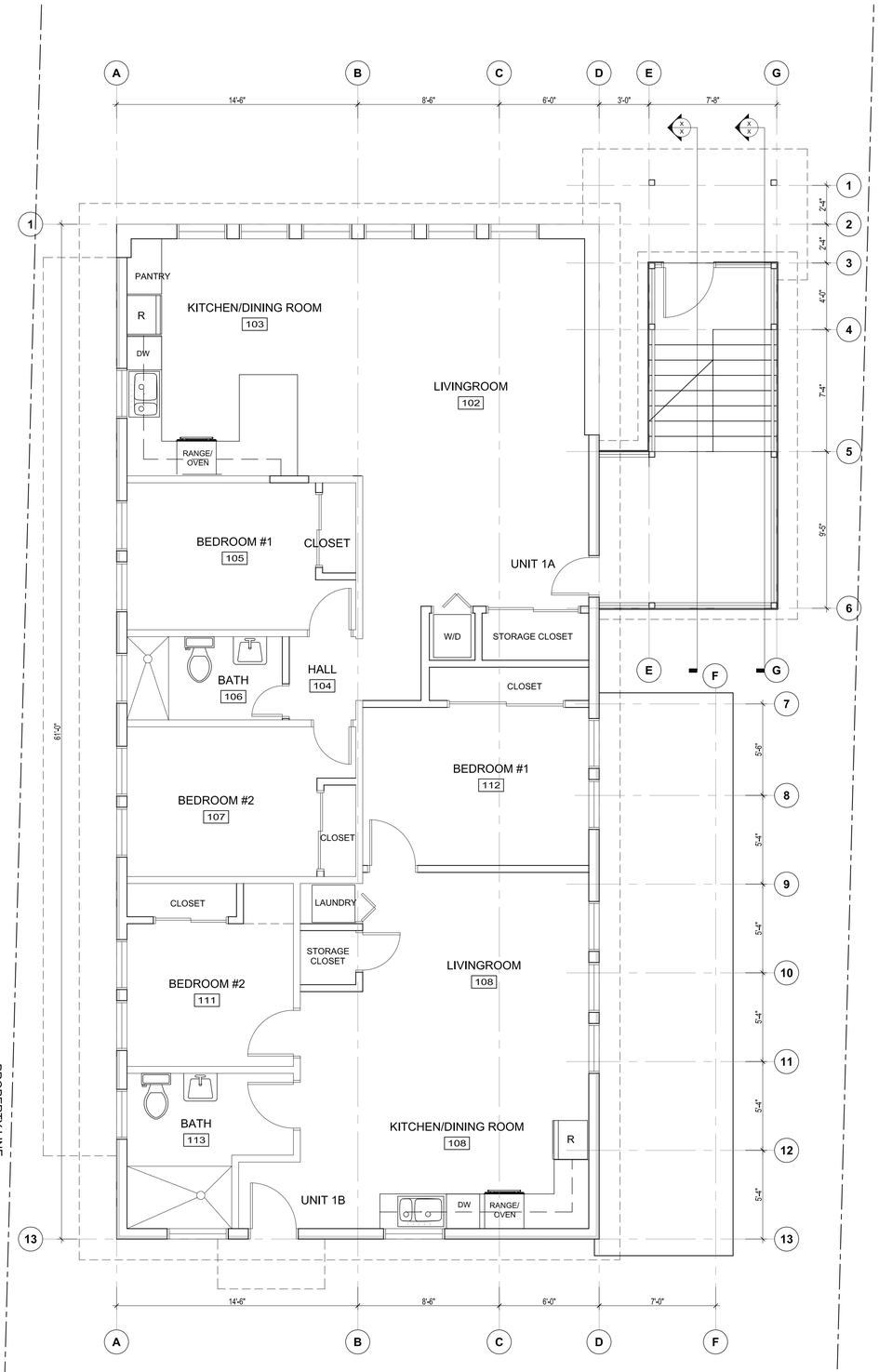
* Storage provided for each unit is a combination of exterior storage unit + interior storage closet



1 LOWER LEVEL NEW CONSTR. PLAN

SCALE 1/4" = 1'-0"

NORTH



2 FIRST FLOOR NEW CONSTR. PLAN

SCALE 1/4" = 1'-0"

NORTH

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LAND USE APP SET

DATE	REVISION

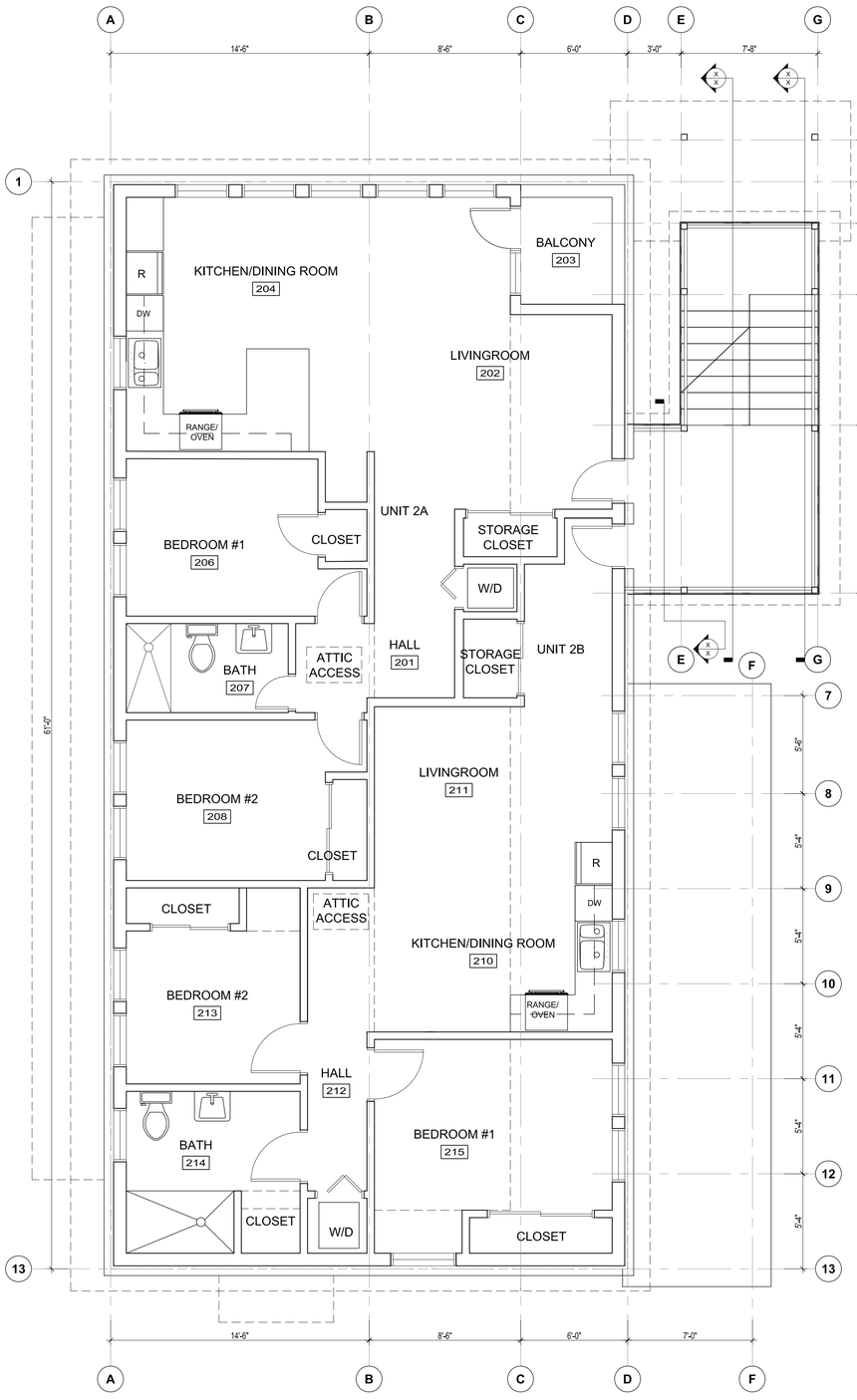
2021.12.28

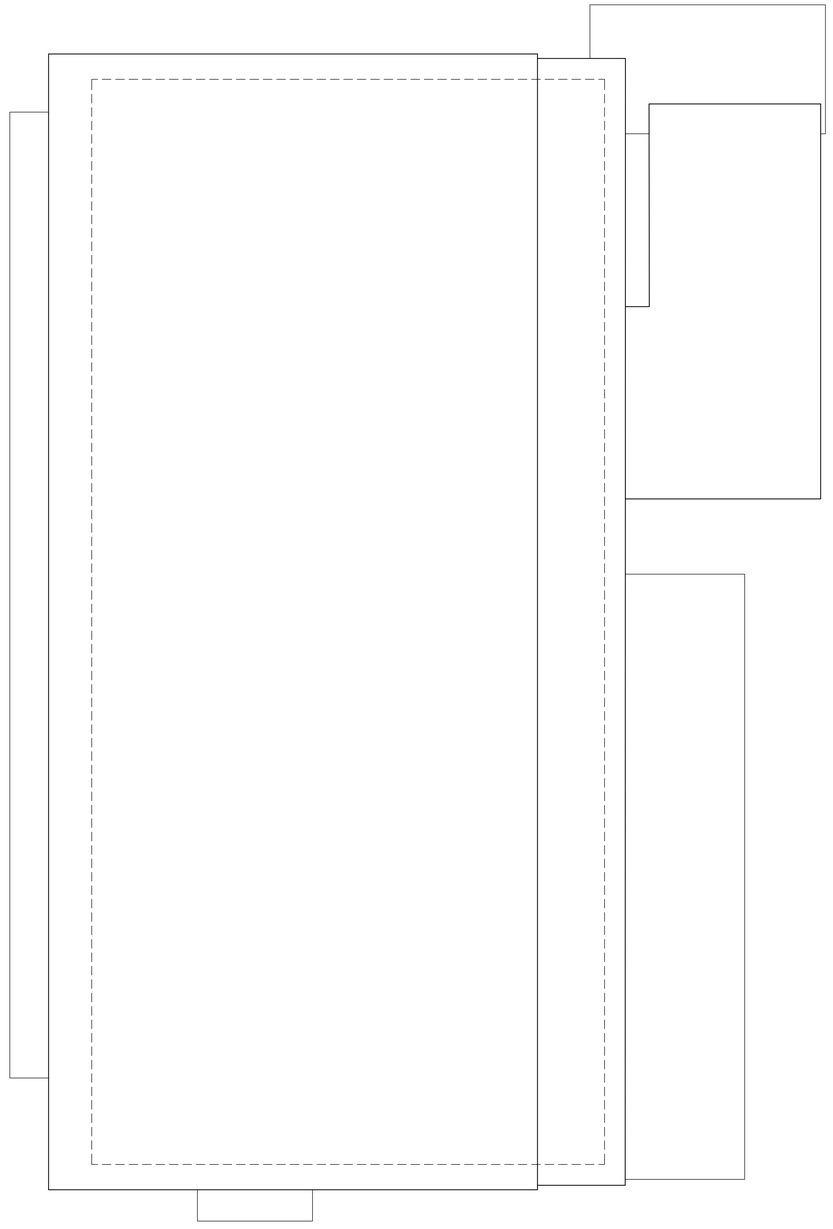
COLORADO LICENSED
Mark Andrew Noel
ARCHITECT
12/28/2021

NEW CONSTR. PLANS

A2.1

NOTES





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* Storage provided for each unit is a combination of exterior storage unit + interior storage closet

1 SECOND FLOOR NEW CONSTR. PLAN

SCALE 1/4" = 1'-0"

NORTH

2 ROOF NEW CONSTR. PLAN

SCALE 1/4" = 1'-0"

NORTH

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Glenwood Springs

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LAND USE APP SET

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2021.12.28

COLORADO LICENSED
Mark Andrew Noel
ARCHITECT
12/28/2021

NEW CONSTR. PLANS

A2.2

NORTH ELEVATION - NEW CONSTRUCTION		
	Surface Area	**Percentage of Net***
Gross of Wall	720 s.f.	NA
Net* Painted Wd Siding	587 s.f.	82 %
Net* of Glazing	133 s.f.	18 %

1 NC NORTH ELEVATION - A

SCALE 1/4" = 1'-0"

ASPHALT SHINGLES

BUILDING TRIM & STAIR TOWER

PAINTED SIDING

WINDOW TRIM

EXISTING STONE

2 NC NORTH ELEVATION - B

SCALE 1/4" = 1'-0"

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LAND USE APP SET

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NEW CONSTR. ELEVATIONS

A3.1

ASPHALT SHINGLES

BUILDING TRIM & STAIR TOWER

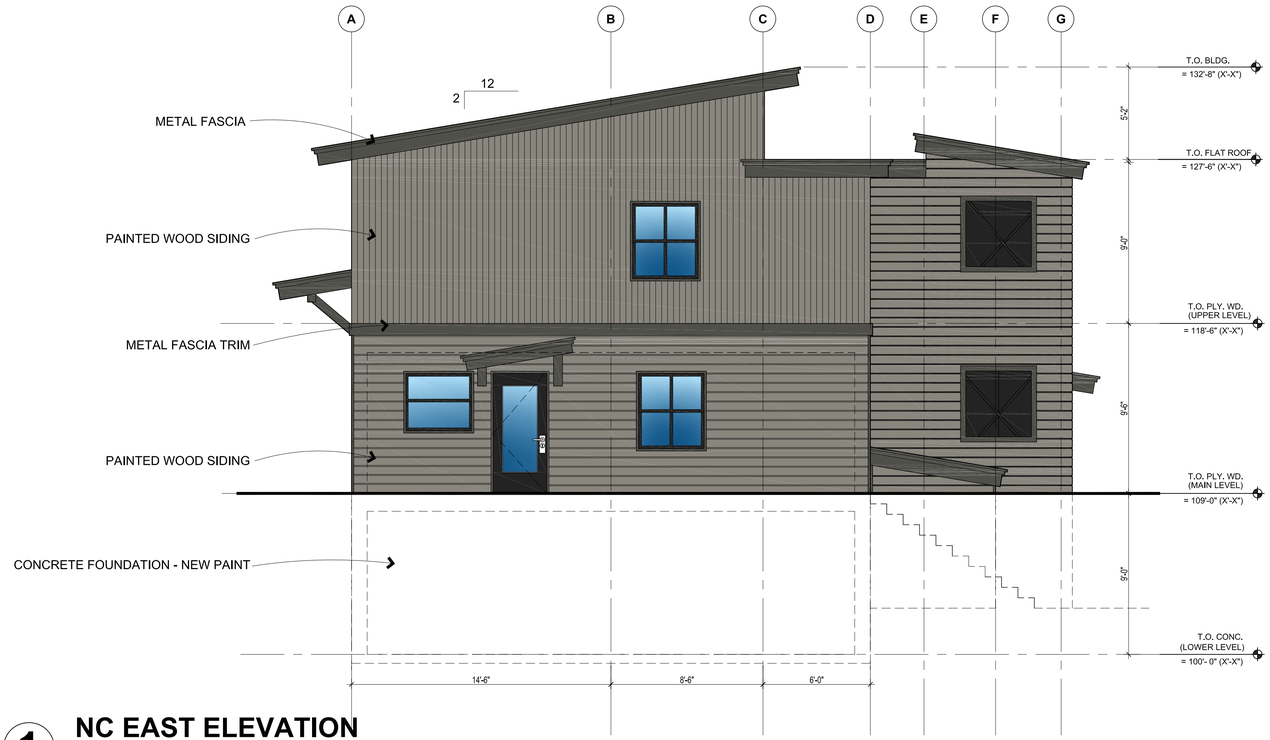
PAINTED SIDING

WINDOW TRIM

EXISTING STONE

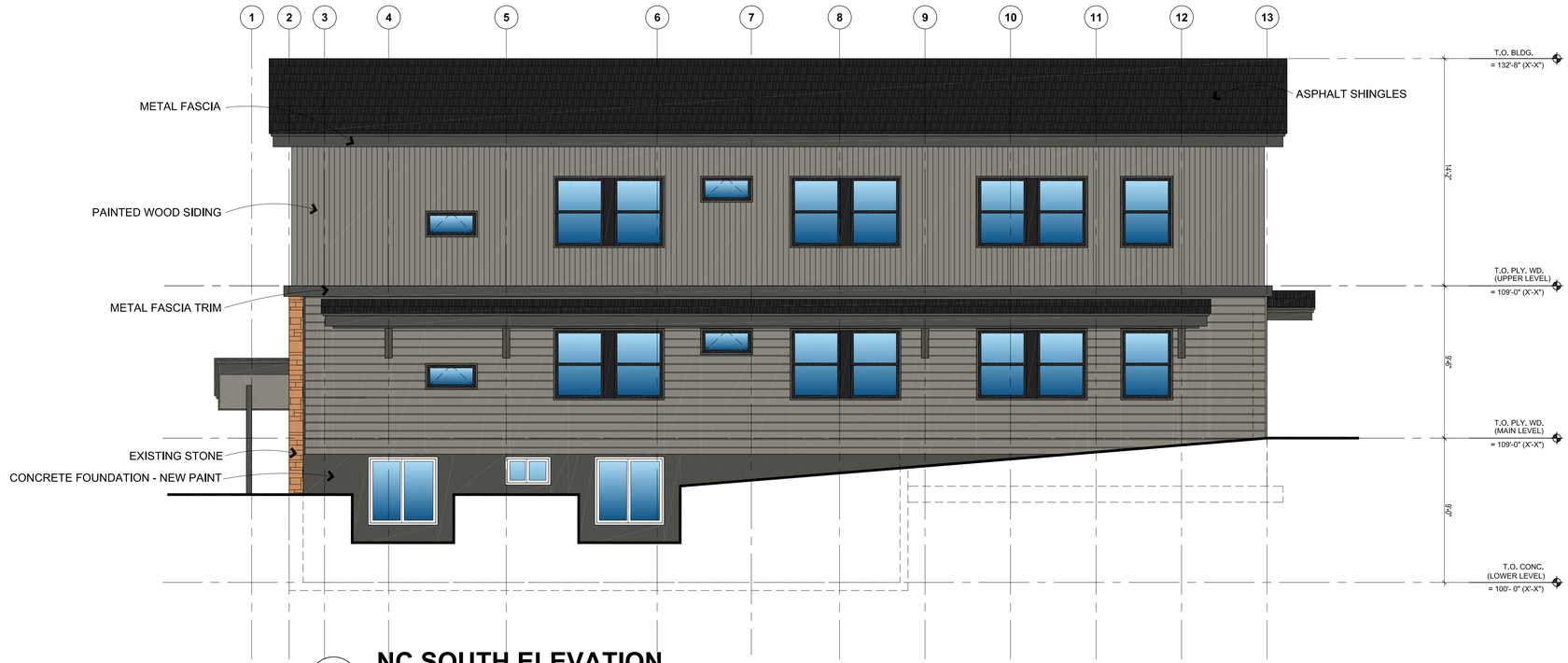
EAST ELEVATION - NEW CONSTRUCTION		
	Surface Area	**Percentage of Net***
Gross of Wall	303 s.f.	NA
Net* Painted Wd Siding	290 s.f.	96%
Net* Glazing	13 s.f.	4%

SOUTH ELEVATION - NEW CONSTRUCTION		
	Surface Area	**Percentage of Net***
Gross of Wall	526 s.f.	NA
Net* Painted Wd Siding	423 s.f.	80%
Net* Painted Wd Siding	103 s.f.	20%



1 NC EAST ELEVATION

SCALE 1/4" = 1'-0"



2 NC SOUTH ELEVATION

SCALE 1/4" = 1'-0"

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ARCHITECT

NEW CONSTR. ELEVATIONS

A3.2

1000 BLOCK GRAND AVENUE FACING BUILDING ELEVATIONS

070.040.080 - Residential Site and Building Design.

(e) Residential Building Design and Character.

(4) Architectural Variety. A continuous row of identical homes or multi-family buildings along a block is prohibited. Individual structures shall be differentiated through distinctions in the architectural features required in Subsection (5)c. below in combination with requirements for varied garage orientation in Subsection (9) below, Garages. (Figure 040-15) This provision is not intended to prohibit a row of attached townhouses, provided that each individual unit is architecturally distinguished from adjacent units through distinctions in the architectural features required in Subsection (5)c. below.

(5) Four-Sided Design.

a. Although the front facade of a building is expected to be the primary focal point in terms of level of architectural character and features, all sides of a residential building shall incorporate architectural detailing that complements the front facade and provides visual interest. Blank walls void of architectural detailing are prohibited except where required by the fire code.

b. For the purposes of satisfying this standard, a minimum number of the architectural features listed below shall be incorporated into the overall design on each side of the building.

2. For each multi-family residential structure, a minimum of five (5) different architectural features.

c. Architectural features appropriate for achieving the standard in Paragraph b. above may include:

1. **Covered porches;**
2. **Balconies,**
3. **Prominent entry features;**
4. **Windows;**
5. **Door openings,**
6. **Distinct variations in color (not a slight variation of a similar hue, such as beige or pastel)**;
7. **Variations in materials;**
8. **Variations in building height;**
9. **Variation in roof form;**
10. Dormers;
11. **Projected or recessed building walls; or**
12. Another architectural feature as approved by the Director.

* **BOLD =** items used

WEST ELEVATION - NEW CONSTRUCTION		
	Surface Area	**Percentage of Net***
Gross of Wall	303 s.f.	NA
Net* Painted Wd Siding	175 s.f.	60%
Net* Glazing	120 s.f.	40%

ASPHALT SHINGLES

BUILDING TRIM & STAIR TOWER

PAINTED SIDING

WINDOW TRIM

EXISTING STONE

1 NC WEST ELEVATION

SCALE 1/4" = 1'-0"

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Glenwood Springs Colorado

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ARC 00405758
ARCHITECT
12/28/2021

NEW CONSTR. ELEVATIONS

A3.3

LAND USE APPLICATION

City of Glenwood Springs
Economic and Community Development Dept.
101 West 8th Street
Glenwood Springs, CO 81601
970-384-6411

Ordinance Amendments		Development Permits	
☐	Rezoning		Site/Architectural Plan Review
☐	Rezoning to Planned Unit Development (PUD)	☑	Administrative
☐	Annexation	☐	Minor
☐	Condominiumization	☐	Major
☐	Annexation	☐	Master Plan
☐	Street Vacation	☑	Construction Plans
		☐	Location & Extent
Subdivisions		☐	Right of Way Encroachment License
☐	Minor Subdivision	☐	Floodplain Development Permit
☐	Preliminary Plat	☐	Special Use Permit
☐	Final Plat		**Flexibility and Relief Procedures**
☐	Vacation of Right-of-Way	☐	Variance
		☐	Administrative Adjustment
Other Land Use Applications		☐	Appeal
☐	Outdoor Seating		

Applicant/Property Owner Information:			
Mark Noel		Scott Dillard	
Applicant		Owner	
Architect		Integrated Mountain Properties	
Relationship to Owner		Owner	
0189 Aspen Way, Glenwood Springs, CO 81601		1001 Grand Avenue, Glenwood Springs, CO 81601	
Applicant Address		Owner Address	
Phone (970) 379-3778	Email Address mark@mnarchitect.com	Phone (970) 355-4080	Email Address scottdillardrealtor@gmail.com

Property Information:	
1010 Grand Avenue, Glenwood Springs, CO 81601	218509428018
Address	Parcel Number
ORIGINAL TWNSTE. GLENWOOD	GLENWOOD Block: 17 Lot: 4 AND:- Lot: 5 5000 SQ FT
Subdivision	Lot and Block Number
Section: 9 Township: 6 Range: 89 Subdivision: ORIGINAL TWNSTE.	OFFICES-IMPROVEMENTS-2220 (COMMERCIAL PROPERTY)
Zone District	Existing Land Use

General Project Description:

Currently the building is a main level with a commercial space and a lower level (basement) with a residential unit that takes up a little more than half the level (the remaining basement has an accessible and an inaccessible crawl space. The accessible crawl space is used for storage and mechanical. The plan is to convert the entire building to 5 residential units. An upper level will be added (matching the lower building footprint, same (or similar SF) as the current main level) . The existing entry foyer (in ill repair) will be removed and replaced with an open exterior steel stairway to provide access to all 3 floors.

Signatures:

The owner or applicant must be present at the hearing. All public hearings must be property noticed according to G.S.M.C. Section 070.010.030. Signatures of all owners of the property must appear before the application is accepted. Partnerships or corporations may have the authorized general partner or corporate officer sign the

Mark Noel Digitally signed by Mark Noel Date: 2021.09.08 08:29:11 -06'00'	
Applicant	Date
Scott Dillard 9/10/2021	
Owner	Date

Payment Receipt Confirmation

Your payment was successfully processed.

Transaction Summary

Receipt Confirmation

Description	Amount
City of Glenwood Springs Transaction	**$900.00**
Service Fee	**$1.00**
TOTAL	**$901.00**

Transaction Detail

The following amounts will be remitted back to the agency.

SKU	Description	Unit Price	Quantity	Amount
Planning	Planning	$900.00	1	$900.00
	Service Fee	$1.00		$1.00
			Total	**$901.00**

This online service is provided by a 3rd party working in partnership with the state of Colorado. The price includes a service fee of $.75 plus 2.25% of the order total for credit card payments or $1 for electronic check payments.

Customer Information

Customer Name	scott dillard	**Receipt Date**	10/7/2021
Company Name	Present Tense LLC	**Receipt Time**	04:09:50 PM MDT
Local Reference ID	a581a439-25b4-4ca5-b2c6-f8c7f7c7bddc		

Payment Information

386 Indian Road
Grand Junction, CO 81501
Ph: (970) 241-8709

BIGHORN
CONSULTING ENGINEERS, CO.

101 W 11th Street #109-C
Durango, CO 81301
Ph: (970) 422-7676

Building Renovation and New Construction
1010 Grand Avenue
Glenwood Springs, CO 81601

Mechanical, Plumbing, and Electrical Schematic Design Narrative
September 8, 2021

General:

The project will include construction and restoration to an existing building with the addition of a 3rd Floor for a total of approximately 5280 ft^2 for five (5) residential apartments.

Applicable Codes and Standards:

- 2015 International Building Code
- 2015 International Fuel Gas Code
- 2015 International Fire Code
- 2015 International Mechanical Code
- 2015 International Plumbing Code
- 2009 International Energy Conservation Code
- 2020 National Electrical Code

Plumbing:

A fire protection line shall be routed to the building to provide fire protection water, size will be determined by Fire Protection Contractor, and a 2" domestic water line would be used for the building domestic water. This water line will come from city utility mains and the tap location will be coordinated during design. The domestic water entry will include a strainer, PRV's, reduced pressure backflow preventer and pressure gauges.

An existing 4" sanitary sewer line will exit the building and tie to the sanitary main on site. Coordination with the civil consultant will be necessary to determine the final location of the sewer tap.

Natural gas will be brought to the building to serve the water heaters and other items for the mechanical system. A new meter set location will be coordinated during design based on the size of the gas load in the system. Delivery pressure of the natural gas system will be 7" wc. Exterior, underground gas piping will be HDPE with fusion welded joints. Interior gas piping will be schedule 40 steel piping.

Multiple methods for providing domestic hot water will be analyzed during design to determine the best approach with the understanding the demand for hot water may be intermittent. One option is to provide a stand-alone, electric, tank-type, water heater coupled with a domestic hot water recirculation system for each unit. Note this Cyclone water heater meets the thermal efficiency and standby loss requirements of the U.S. Department of Energy and current edition ASHRAE/IES 90.1. Another option would be to consider tankless, gas fired, high-efficiency, wall mounted water heaters similar to the Rinnai RUR199iN. Strategically placed tankless water heaters would alleviate the recirculation system requirements and standby heat losses.

Unit plumbing fixtures will be standard grade, residential quality. The water closets will be high efficiency 1.28 gpf flush tank type, floor-mounted water closets. Lavatory faucets will be 0.3 gpm. All plumbing fixtures shall be low to maximize sustainability.

Waste, vent, and storm piping will be Solid-wall PVC pipe complying with ASTM D 2665 combined with PVC socket fittings made to ASTM D 3311 patterns. Domestic water piping will be crosslinked polyethylene (PEX) tubing complying with ASTM F877. All domestic cold, hot, and recirculation water will be insulated with fiberglass insulation according to the 2018 IECC.

Floor drainage with trap guards will be provided in the mechanical room. The drain locations and type will be coordinated with the architect and the owner during design.

Fire Protection:

The entire building will be served by a wet-fire sprinkler system designed and installed in accordance with the adopted version of NFPA 13. The fire riser and zone valves shall be located in the mechanical room.

Sprinklers in all areas with finished ceilings will be quick response, concealed type, with white cover plates and positioned as required by governing codes and standards.

Flow and pressure data to be determined via a flow test.

Heating, Ventilating and Air-Conditioning:

Apartment Units

The heating, ventilation, and cooling for the units separate for each unit. The units will consist of a wall mount VRF split system with an outdoor heat pump to provide heating and cooling. The refrigerant linesets will have fire caulking where penetrating through rated assemblies. The mechanical unit will be controlled by a 7-day programmable thermostat in conjunction with its onboard, factory provided digital controls. The wall mount mechanical unit will be provided with a MERV 8 filter. The ventilation for the units will be provided by a 2 stage Panasonic exhaust fan with a controller.

General

Air will be distributed to each zone by steel ductwork built according to SMACNA standards and ceiling-mounted diffusers and grilles. Ductwork will be insulated as per the 2018 IECC. The supply and return ductwork will be lined with 1-1/2” duct liner.

All new entry vestibules will be served by ceiling or wall-mounted electrical unit heaters.

Electrical:

General Power

The Main Electrical Service gear is planned to be sized at 400-600 amps, 120/240V, single phase and be distributed to the individual residential units by means of a six (6) meter stack. Each residential unit will be provided with a 100 amp, 120/240V single phase service with an additional 100 amp, 120/240V single phase service for common (house) power. The power distribution for each residential unit will be typical for a multi-unit apartment complex, following the requirements of the 2020 NEC, including Arc-Fault and Ground-Fault circuit interrupter protection of branch circuits or devices and Overvoltage (Surge) protection for each independent service. The power distribution for the common (House) power will include general convenience power, common area and egress path lighting, fire protection needs, and Site power for lighting of parking spaces and circulation paths as may be required. Additional design provisions will be included for the future addition of interconnected Photovoltaic generation connected to the common (House) service and the addition of one (1) EV charging receptacle to each of the five (5) residential services. Electrical service load calculations will be confirmed during the design and any required adjustments will be included in the final Construction drawings.

Site Lighting

At this time it is not planned to add remote Site lighting for parking spaces that are currently existing. The general circulation and egress path lighting is planned to be provided using building mounted lighting at coordinated locations. All exterior lighting will be designed using a minimum number of Full-cutoff style LED fixtures to align with dark sky standards, as well as designed to provide zero foot-candle light levels at the property lines to minimize light pollution to surrounding areas. The exterior lighting shall be photocell and timeclock controlled and may incorporate motion sensors to allow for lighting to dim or turn off when not needed.

Lighting

General interior lighting layout will be provided for each space with the design intent of compliance with the 2009 IECC. Light fixtures will not be specified, but basis-of-design fixtures will be scheduled and shown to comply with governing codes and standards. Lighting controls are planned to be manual switches throughout the residential units and occupancy sensors, timeclock, and/or photocell control for all common area interior lighting.

Fire Alarm and Smoke/CO detectors

A fire alarm system shall be provided in the building. Smoke and Carbon Monoxide detectors will be shown on the electrical floor plans at required locations in the residential units and associated common spaces. The fire alarm system shall monitor the residential devices and the flow/tamper switches of the fire protection system. Exterior audible and visual devices will be indicated.

All items under this section shall be designed and installed to the International Building Code 2015, National Electric Code 2020, and all applicable NFPA codes.

Kimley»Horn

October 22, 2021

Mr. Scott Dillard, CCIM
852 Handy Drive
Carbondale, CO 81623

Re: 1010 Grand Avenue Residential Redevelopment
Traffic Generation Comparison Letter
Glenwood Springs, Colorado

Dear Mr. Dillard,

INTRODUCTION

This traffic study letter documents the results of a trip generation comparison for the proposed multifamily housing redevelopment of an existing single-family/office located at 1010 Grand Avenue in Glenwood Springs, Colorado. Specifically, this project is located near the southeast corner of the 10th Street and Grand Avenue (SH-82) intersection. The existing residence and small office will be redeveloped to provide five (5) multifamily dwelling units. A conceptual site plan of the proposed redevelopment is attached.

Regional access to 1010 grand Avenue will be provided by Interstate 70 (I-70) while primary access to the site will be provided Grand Avenue (SH-82). Direct access and parking will be provided from the existing paved alley located on the east side of the project. This paved alley can be accessed from 10th Street and 11th Street.

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 Manual[1] published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of many types of land uses. Trip generation is based on the ITE Trip Generation, 10th Edition (most current edition) average rates for Single-Family Detached Housing (ITE Land Use Code 210), Low-Rise Multifamily Housing (ITE 220), and Small Office Building (ITE 712).

The existing site contains one (1) single family house with a small business, Pro Velocity, operating within the residence. It is believed that a range of one (1) to six (6) employees were staffed at this small business. For the purpose of this analysis, it is believed that an average of approximately four (4) employees were staffed at this location. The current proposal consists of redeveloping the current residence and small business with five (5) multifamily housing units. The following **Table 1** summarizes a comparison of the trip generation from the existing residence and small business to the proposed multifamily housing redevelopment. (calculations attached).

[1] Institute of Transportation Engineers, *Trip Generation Manual*, Tenth Edition, Washington DC, 2017.

Table 1 – Trip Generation Comparison:
Residence/Small Business (original use) vs. Multifamily Housing (proposed use)

Use	Weekday Vehicles Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Original Land Uses							
Single Family Detached Housing - (ITE 210) 1 Dwelling Unit	10	0	1	1	1	0	1
Small Office Building – (ITE 712) 4 Employees	32	3	1	4	2	3	5
Total Trips (Existing Land Use)	**42**	**3**	**2**	**5**	**3**	**3**	**6**
Proposed Land Use							
Low-Rise Multifamily Housing - (ITE 220) 5 Dwelling Units	36	0	2	2	2	1	3
Total Trips (Proposed Land Use)	***-6***	***-3***	***0***	***-3***	***-1***	***-2***	***-3***

As summarized in **Table 1**, the currently proposed redevelopment of 1010 Grand Avenue is anticipated to generate approximately 36 daily weekday trips with two (2) of these trips occurring during the morning peak hour, and three (3) of these trips occurring during the afternoon peak hour. Therefore, the proposed redevelopment is anticipated to generate approximately six (6) fewer weekday daily trips and three (3) fewer trips during both the morning and afternoon peak hours than the existing development.

CONCLUSIONS

As shown in this trip generation comparison letter, the proposed redevelopment of 1010 Grand Avenue is anticipated to generate fewer trips than the existing land uses. The adjacent public streets and surrounding area intersections are anticipated to successfully accommodate the project traffic volumes when compared to the original use. Therefore, we believe no further traffic analysis is needed due to this proposal. If you have any questions or require anything further, please feel free to call me at (720) 943-9962.

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.

Jeffrey R. Planck, P.E.
Project Manager

Kimley»Horn

Project	1010 Grand Avenue				
Subject	Trip Generation for Single-Family Detached Housing				
Designed by	MAG	*Date*	October 21, 2021	*Job No.*	196320000
Checked by		*Date*		*Sheet No.*	of

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - Single-Family Detached Housing (210)

Independant Variable - Dwelling Units (X)

X = 1
T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (200 Series Page 3)

Average Weekday
(T) = 0.74(X)
(T) = 0.74 * (1.0)

Directional Distribution: 25% entering, 75% exiting
T = 1 Average Vehicle Trip Ends
0 entering 1 exiting

0 + 1 = 1

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (200 Series Page 4)

Average Weekday
(T) = 0.99(X)
(T) = 0.99 * (1.0)

Directional Distribution: 63% entering, 37% exiting
T = 1 Average Vehicle Trip Ends
1 entering 0 exiting

1 + 0 = 1

Weekday (200 Series Page 2)

Average Weekday
(T) = 9.44(X)
(T) = 9.44 * (1.0)

Directional Distribution: 50% entering, 50% exiting
T = 10 Average Vehicle Trip Ends
5 entering 5 exiting

5 + 5 = 10

Kimley»Horn

Project	1010 Grand Avenue				
Subject	Trip Generation for Multifamily Housing (Low-Rise)				
Designed by	MAG	*Date*	October 21, 2021	*Job No.*	196320000
Checked by				*Sheet No.*	1 *of* 1

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - Multifamily Housing (Low-Rise) (220)

Independant Variable - Dwelling Units (X)

X = 5
T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (Series 200 Page 32)

Directional Distribution: 23% ent. 77% exit.

T = 0.46 * X
T = 0.46 * 5.0

T = 2 Average Vehicle Trip Ends
0 entering 2 exiting

0 + 2 = 2

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (Series 200 page 33)

Directional Distribution: 63% ent. 37% exit.

T = 0.56 * X
T = 0.56 * 5.0

T = 3 Average Vehicle Trip Ends
2 entering 1 exiting

2 + 1 = 3

Weekday (Series 200 Page 31)

Daily Weekday
T = 7.32 * X
T = 7.32* 5.0

Directional Distribution: 50% entering, 50% exiting
T = 36 Average Vehicle Trip Ends
18 entering 18 exiting

18 + 18 = 36

Kimley»Horn

Project	1010 Grand Avenue				
Subject	Trip Generation for Small Office Building				
Designed by	MAG	*Date*	October 21, 2021	*Job No.*	196320000
Checked by		*Date*		*Sheet No.*	1 of 1

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rates

Land Use Code - Small Office Building (712)

Independant Variable - Employees (X)
Employees = 4
X = 4.000
T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (700 Series Page 101)

Directional Distribution: 84% ent. 16% exit.
(T) = 1.03 (X) T = 4 Average Vehicle Trip Ends
(T) = 1.03 * (4.0) 3 entering 1 exiting

3 + 1 = 4

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (700 Series Page 102)

Directional Distribution: 35% ent. 65% exit.
(T) = 1.20 (X) T = 5 Average Vehicle Trip Ends
(T) = 1.20 * (4.0) 2 entering 3 exiting

2 + 3 = 5

Weekday (700 Series Page 100)

Average Weekday Directional Distribution: 50% ent. 50% exit.
(T) = 7.98 (X) T = 32 Average Vehicle Trip Ends
(T) = 7.98 * (4.0) 16 entering 16 exiting

16 + 16 = 32

Kumar & Associates, Inc.®
Geotechnical and Materials Engineers
and Environmental Scientists

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phone: (970) 945-7988
fax: (970) 945-8454
email: kaglenwood@kumarusa.com
www.kumarusa.com

An Employee Owned Company

Office Locations: Denver (HQ), Parker, Colorado Springs, Fort Collins, Glenwood Springs, and Summit County, Colorado

October 21, 2021

Present Tense, LLC
Attn: Scott Dillard
852 Handy Drive
Carbondale, Colorado 81623
scottdillardrealtor@gmail.com

Project No. 21-7-772

Subject: Subsoil Conditions, Proposed 2nd Story Addition to Existing Residence, 1010 Grand Avenue, Glenwood Springs, Colorado

Dear Scott:

As requested, Kumar & Associates has reviewed the existing conditions at the site and a previous subsoil study at the former St. Stephens Church directly north of this site in order to provide recommendations for the proposed additional loading of the existing foundation at the subject site. The findings of our observations and recommendations for the foundation support are presented in this report. The services were performed in accordance with our agreement for professional engineering services to you dated September 20, 2021.

The existing house was built in the 1950's and is a one-story structure over a partial garden level basement on the west (street) side and a crawlspace on the east (alley) side. The house is wood frame with a brick/masonry façade. It is proposed to add a second story to the residence. Evaluation by others indicates that the house is supported by drilled piers. We understand that the existing house appears to be performing well with regard to settlement.

The previous borings drilled along the south side of 10th Street in 2005, indicated the soils in this area consist of 35 to 45 feet of medium stiff, sandy silt and clay over dense gravel. We expect that the depth to gravel on this site is at least 5 feet deeper since it is higher in elevation. We assume the drilled piers that support the existing house are based in the underlying gravel soils.

Based on a discussion with Matt Monger, structural engineer, we understand that the piers are on 15 foot spacing and are 16 to 18 inches in diameter. Existing loads on the piers are estimated at about 15,000 pounds.

Based on our understanding of the current foundation conditions and the previous nearby borings, it should be possible to place additional loads on the order of 20 percent of the existing load or about 3,000 pounds per pier without significant settlement for bearing in the gravel soils. If additional piers are needed, we expect that micro-piles can be installed bearing in the underlying gravel soils with similar capacities to the existing piers. Wetting of the soils beneath the house could result in additional loading of the existing piers and care should be taken during

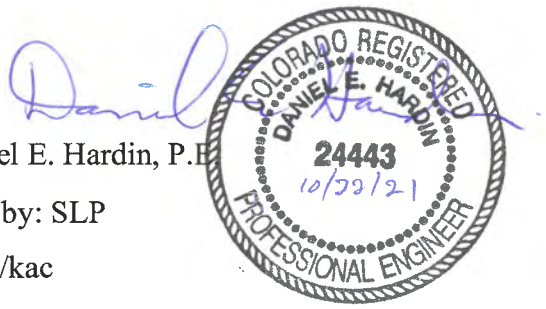
construction to prevent wetting of below grade areas. We should review the foundation design plans for the addition when available.

The recommendations submitted in this letter are based on our understanding of the current structure and proposed addition and do not include subsurface exploration to evaluate the current subsurface conditions. This study is based on the assumption that soils beneath the residence have equal or better support than those encountered in nearby borings. The risk of foundation movement may be greater than indicated in this report because of possible variations in the existing piers and subsurface conditions. In order to reveal the nature and extent of variations in the subsurface conditions below the excavation, drilling would be required. It is possible the data obtained by subsurface exploration could change the recommendations contained in this letter. Our services do not include determining the presence, prevention or possibility of mold or other biological contaminants (MOBC) developing in the future. If the client is concerned about MOBC, then a professional in this special field of practice should be consulted.

If you have any questions or need further assistance, please call our office.

Sincerely,

Kumar & Associates, Inc.



Daniel E. Hardin, P.E.

Rev. by: SLP

DEH/kac

cc: Matt Monger (monger20@sopris.net)

From: Greg Bak
To: Trent Hyatt
Subject: RE: Land Use Referral, Planning Items 49-21 and 70-21
Date: Friday, November 12, 2021 11:53:32 AM
Attachments: image002.png
image003.png

49-21. No comments at this time. Submitted narrative includes provision for Automatic fire Sprinkler System and Fire Alarm System.

70-21. No comments at this time. Unable to open One Drive documents

Greg Bak
Fire Marshal

From: Trent Hyatt <trent.hyatt@cogs.us>
Sent: Friday, November 12, 2021 9:36 AM
To: Bill Kimminau <bill.kimminau@cogs.us>; Brian Smith <brian.smith@cogs.us>; Carlos Peugnet <carlos.peugnet@cogs.us>; Dan Roper <dan.roper@cogs.us>; Danielle Campbell <danielle.campbell@cogs.us>; Debra Figueroa <debra.figueroa@cogs.us>; Doug Hazzard <doug.hazzard@cogs.us>; Emery Ellingson <emery.ellingson@cogs.us>; Greg Bak <greg.bak@cogs.us>; Hannah Klausman <hannah.klausman@cogs.us>; Jake Velasquez <jake.velasquez@cogs.us>; Jennie Koenig <jennie.koenig@cogs.us>; Jennifer Ooton <jenn.ooton@cogs.us>; Jessica Bowser <jessica.bowser@cogs.us>; John Hassell <john.hassell@cogs.us>; Joseph Deras <joseph.deras@cogs.us>; Karl Hanlon <kjh@mountainlawfirm.com>; Linda DuPriest <linda.dupriest@cogs.us>; Matthew Langhorst <matthew.langhorst@cogs.us>; Mike Hoffman <mike.hoffman@cogs.us>; Peter Hayes <peter.hayes@cogs.us>; Richard J. Peterson-Cremer <rjp@mountainlawfirm.com>; Ryan Johnson <ryan.johnson@cogs.us>; Terri Partch <terri.partch@cogs.us>; Trent Hyatt <trent.hyatt@cogs.us>; Victor Meraz <victor.meraz@cogs.us>; Warren Hays <warren.hays@cogs.us>; Watkins Fulk-Gray <watkins.fulkgray@cogs.us>; Bill Kimminau <bill.kimminau@cogs.us>; Brian Killian - CDOT <brian.killian@state.co.us>; Brian Smith <brian.smith@cogs.us>; Danielle Campbell <danielle.campbell@cogs.us>; Debra Figueroa <debra.figueroa@cogs.us>; Doug Hazzard <doug.hazzard@cogs.us>; Emery Ellingson <emery.ellingson@cogs.us>; Greg Bak <greg.bak@cogs.us>; Jake Velasquez <jake.velasquez@cogs.us>; Jason Sharpe <jason.sharpe@centurylink.com>; Jennifer Ooton <jenn.ooton@cogs.us>; Jessica Bowser <jessica.bowser@cogs.us>; Karl Hanlon <kjh@mountainlawfirm.com>; Matthew Langhorst <matthew.langhorst@cogs.us>; Mike Hoffman <mike.hoffman@cogs.us>; Peter Hayes <peter.hayes@cogs.us>; Richard J. Peterson-Cremer <rjp@mountainlawfirm.com>; Ryan Johnson <ryan.johnson@cogs.us>; Terri Partch <terri.partch@cogs.us>; Todd Ellsworth <todd.ellsworth@blackhillscorp.com>; Victor Meraz <victor.meraz@cogs.us>; Warren Hays <warren.hays@cogs.us>; Watkins Fulk-Gray <watkins.fulkgray@cogs.us>; John Hassell <john.hassell@cogs.us>
Subject: Land Use Referral, Planning Items 49-21 and 70-21

Matthew Langhorst DPW
(970) 384-6438 (o)

CITY OF GLENWOOD SPRINGS PUBLIC WORKS

101 West 8th Street
Glenwood Springs, CO 81601

Planning Item: **1010 Grand Avenue, 49-21**
Applicant: **Mark Noel**
Owner: **Scott Dillard**
Location: **1010 Grand Avenue, Glenwood Springs, CO**
Date of Comments: **12-6-2021**

The following are W/WW Department comments based on the application/plans package dated 10-29-2021

W/WW Department Comments

- All sanitary sewer, sewer laterals, water mains and water services shall have a tracer wire installed.
- The water, sewer and electric details need to follow city standard details at the City of Glenwood Springs Engineering Department website, Engineering Standards.
- Provide riser room details for the fire/domestic water services, backflow protection and how the proposed buildings 5 meters are to layout within the room.
- Existing WSO is believed to be a ¾" line. This service will need to be abandoned at the main within Grand Avenue if the service needs to be upsized to a 2.5" line. A 2.5" line is not a common service line size. Confirm size.
- Proposed fire service can be a combined fire/domestic but must be designed to NFPA 24 standards.
- Since the new tap and service will be used for combined potable/fire, the service will need to be designed, installed, and tested to meet NFPA 24 requirements. Prior to construction, an engineered detail of the service line must be submitted to the City for review and approval. At a minimum, the detail must show the following:
    1) A plan and profile view of the piping alignments extending from the tap location to the building interior penetration.
    2) Materials for construction.
    3) Thrust restraint locations and specifications.
    4) A comment indicating that the design conforms to all NFPA 24 requirements.
    5) A note indicating that the service line must be pressure- and flow-tested in accordance with NFPA 24.
    6) The stamp and signature of the Professional Engineer (PE) certifying the design.
    7) The applicant is responsible for providing the City with a signed copy of the completed "Contractor's Material and Testing Certificate for Underground Piping" form (attached) prior to issuance of a Certificate of Occupancy. This form certifies that

the service line was designed, installed, and tested in accordance with all NFPA 24 requirements

- Domestic water service will require a backflow. The backflow cannot be located below grade and must have proper drainage. I appears on the plans it might be located below grade.
- Existing sanitary sewer is believed to be a 4" line. If it is not used as part of this project, it must be abandoned at the main. Please provide a site plan that shows all existing/proposed utility locations from the main connection points to the building.
- New sanitary sewer service must have a backwater valve installed and will be the owner's responsibility to maintain.
- Any new sanitary sewer service taps will be performed by the WW department. All excavation and materials are the contractor's responsibility.

W/WW Department Contact Information:

- Mike Hoffman – 384-6343 (W/WW Information)
- Utility Billing – 384-6400 (Account setup; Water Meter Purchase)
- Community Development Department – 384-6411 (Improvements Fees)

The following are Electric Department comments based on the application package dated 10-29-2021.

Electric Department Comments

- Owner will be responsible for cost associated with all infrastructure for the new development, including the needed upgrade to the existing transformer feeding the property.
- Owners GC/excavation company will be responsible for all trenching, including any line extension trenches to new transformer locations, electric primary and secondary conduit installation, electric pull vaults and transformer vaults.
- Electric costing proposal will be paid in full prior to any work commencing. Any additions to the proposal will be due at time of completion of work or any saving will be refunded at time of completion of work.
- Contractor can install a 2" electrical conduit adjacent to the main electrical run to be swept up at pedestal locations for Broadband installation if the owner wishes to have CBN data service brough to the building. Owner/contractor to coordinate with Community Broadband Network.
- Electric design, details and clearances need to follow City Engineering Standards details located at the City of Glenwood Springs Engineering Department website, Engineering Standards.
- Owner to provide an electrical load calculation form as soon as this information is available and prior to commencing construction.

Electric Department Contact Information:

- Doug Hazzard – 384-6353 (Electric Information)
- Utility Billing – 384-6400 (Account setup; Water Meter Purchase)
- Community Broadband Network: 970-384-4800 (customer service rep)

The following are Public Works Department comments based on the application package dated 10-29-2021.

PW Department Comments

- Any damage to the surface of the alleyway during construction must be repaired per the Engineering Standards. Existing conditions photos or video should be taken prior to work commencing.
- Please provide a site plan that shows changes in storm drainage or down spout locations from existing.
- Note on utility plans states "If necessary contractor shall install traffic control measures" for the gas line cut, electric, cable, etc installation and repair. These alleys are minimal width, contractor should assume that the alleyways will need to be closed to thru traffic for these utility sections of work for safety reasons. To be coordinated with trash collection services, adjoining properties and EMS.
- Alleyway closures need to be warned at the end of each alleyway, not just adjacent to the work area.

Public Works Contact Information:

- Matthew Langhorst – 384-6438 (PW Director)

From: Aggen - CDOT, Kandis
To: Trent Hyatt
Cc: Brian Killian - CDOT
Subject: Fwd: Land Use Referral, Planning Items 49-21 and 70-21
Date: Monday, November 22, 2021 1:29:08 PM

This sender is trusted.

Hi Trent,
Thanks for sending these to CDOT for review. CDOT has the following comments:

1. Planning Item 49-21, Administrative Site/Architectural Plan and Final Plans Review
Per the 2013 access control plan no direct access is allowed onto the highway for this parcel. This is reflected in the site plan and traffic study therefore CDOT has no additional comments.

2. Planning Item 70-21, ROW Encroachment License
CDOT has no comment

Thanks,

Kandis Aggen
Assistant Access Manager
Region 3 Traffic & Safety

P 970.683.6270 | F 970.683.6290
kandis.aggen@state.co.us | www.codot.gov
222 S. Sixth St., Rm 100, Grand Junction, CO 81501

From:	Jessica Bowser
To:	Trent Hyatt; Matthew Langhorst; Ryan Johnson; Doug Hazzard; Mike Hoffman
Subject:	RE: Land Use Referral, Planning Items 49-21 and 70-21
Date:	Monday, December 6, 2021 9:12:25 AM
Attachments:	image002.png image003.png

1010 Grand:

The Trip Generation looks reasonable.
The Geotech was provided – Could you verify that there is not a footprint change in the building? The geotechnical letter asks to review the foundation design for the addition, so we will need a letter from Kumar that confirms their review of that before issuing a permit. I would also like them to certify/provide any observation and testing documents (if necessary) before we provide a CO.

Thanks!

Jessica

From: Trent Hyatt <trent.hyatt@cogs.us>
Sent: Monday, December 6, 2021 8:36 AM
To: Matthew Langhorst <matthew.langhorst@cogs.us>; Jessica Bowser <jessica.bowser@cogs.us>; Ryan Johnson <ryan.johnson@cogs.us>; Doug Hazzard <doug.hazzard@cogs.us>; Mike Hoffman <mike.hoffman@cogs.us>
Subject: FW: Land Use Referral, Planning Items 49-21 and 70-21

Hi all,
Comments were due for these items last Friday. Just wanted to make sure you all didn't have any, specifically for 49-21. I can tell you that I have already told them that a final grading plan and drainage letter are still need. Also, they need to provide civil details related to site demo and utilities connection because since this includes a final plans review. What other issues do they have?

Thanks,

Trent L. Hyatt
City of Glenwood Springs
970.384.6427 (p)
trent.hyatt@cogs.us

From:	Doug Hazzard
To:	Trent Hyatt
Subject:	FW: Land Use Referral, Planning Items 49-21 and 70-21
Date:	Wednesday, December 8, 2021 11:28:26 AM
Attachments:	image001.png image002.png Load information.pdf City of GS Line Extension Policy.pdf

Sorry missed you on the cc

From: Doug Hazzard
Sent: Tuesday, December 7, 2021 12:34 PM
To: Matthew Langhorst <matthew.langhorst@cogs.us>; Mike Hoffman <mike.hoffman@cogs.us>; Jessica Bowser <jessica.bowser@cogs.us>; Ryan Johnson <ryan.johnson@cogs.us>
Subject: RE: Land Use Referral, Planning Items 49-21 and 70-21

Trent,

Additional Electric comments for 1010 Grand
The existing service is underground and will need to be upgraded to handle the proposed 400-600 amp service, this will require the installation of new conduit runs from load center to pad mounted transformer across the alley. The transformer will we evaluated for additional load capacity and developer may have to upgrade transformer. The CBN is currently overhead to building, developer should plan on adding an additional conduit across alley to power pole, this conduit can be placed in same trench as new electrical. All excavation and conduit installation to be done by developer. New electric will be done by developers electrician. If transformer needs upgraded an estimate will be provided per our Line Extension Policy.

CITY OF GLENWOOD SPRINGS
REQUEST FOR LOAD INFORMATION

Owner's Name: _____ Date: _____

Address: _____

Person Contact: _____

Telephone #: _____

Building Classification:

□ Residential □ Industrial

□ Commercial □ Other _____

Building Features: Square Footage: _____

Type Use (Office, Retail Store, etc.): _____

Electrical Data: Voltage Request:

□ 120/240, 1□, 3-w □ 277/480, 3□, 4-w

□ 120/208, 3□, 4-w □ Other _____

Secondary Main Breaker Size:

□ 100-amp □ 400 amp

□ 200 amp □ Other _____

Load Profile: Total Connected KW: _____

Estimated Maximum Demand KW: _____

Transformer Request Size KVA: _____

Equipment List:

Heat: □ Gas □ Electric □ Other _____

Air Conditioning: □ Yes □ No

Largest Motor Load, HP _____ Qty _____

Largest Resistance Load, KW _____ Qty _____

Utility Service Information

Electrical Summary:

Transformer Size: _____KVA

Service Voltage: _____

Meter Classification:

Voltage Configuration: _____ Amp Classification: _____

Instrument Rated (CTS): _____ Meter Type: _____

Fault Current: _____

City of Glenwood Springs Line Extension Policy

1. AVAILABILITY AND APPLICABILITY.

This Line Extension Policy is available in all territories served by the City of Glenwood Springs Electric System and is applicable to all classes of electric service.

2. GENERAL PROVISIONS.

The provisions of this policy are subject to the following rules for all customers served outside and within the City limits:

A. Construction Policies of the Glenwood Springs Electric Department.
B. Rules and Regulations of the City of Glenwood Springs.
C. Line Extension Policy as filed with the Public Utilities Commission of the State of Colorado.
   (i) Customers within City limits: Courtesy Filing
   (ii) Customers outside City limits: Filing per PUC of Colorado

3. POLICY.

The rules and regulations of the City of Glenwood Springs Electric System, as outlined above under the General Provisions, require that the customer, owner or developer pay the full estimated cost for the requested new line extension.

The cost for the new requested facilities shall be paid for by the customer in full in advance of construction with no provisions for rebates or refunds.

Line extensions and new electrical facilities needed to serve new customers shall be classified into two categories of construction: On-site Facilities and Off-site Facilities. The new consumer, owner or developer shall pay the full amount for the new on-site and off-site facilities needed to provide electric service to the new customer.

4. DEFINITIONS.

On-site facilities are comprised of those electrical facilities on the premises of the project needed to provide electric service to the new load. These new facilities include but are not limited to the following items: poles and line appurtenances, primary underground cables, trenching and backfilling, transformers, meters, sectionalizing equipment, vaults, equipment pads, secondary pedestals, and secondary services.

Off-site facilities are comprised of electrical facilities not located on the premises of the project, but are associated with the backbone system comprised of substation equipment and main primary feeder lines which may or may not need to be upgraded to serve the new load.

5. FEE CALCULATION.

The Glenwood Springs Electric Department will estimate the investment required for on-site facilities and off-site facilities needed to provide electric service to the new customer. The cost estimate for each new project will be provided by the City Electric Department and will be based on historical cost records. In the case of large, phased projects, the City may permit estimates and construction advances for individual phases of the project. No construction shall proceed until the required construction advance is received by the City. If, during the course of construction, it is apparent that actual construction costs are or will exceed, by more than ten percent (10%) the original estimate, construction shall cease until a sufficient additional construction advance is received by the City to cover additional estimated costs.

A. The investment estimate shall include all costs necessary for the extension for appropriate new on-site and off-site equipment and facilities.
B. The investment estimate shall include all incidental costs such as engineering fees, fees for legal counsel, and all other overhead costs incurred in conjunction with the extension.
C. The investment estimate shall not include any additional costs for capacity, size or strength in excess of that necessary to meet the requirements of the customer or customers requesting the extension.

If the actual costs for the extension is less than the cost estimate submitted by the City, this overcharge will be refunded to the owner upon completion of all work for the line extension. If the actual cost for the extension is more than the cost estimate submitted by the City, this underpayment amount shall be paid by the owner to the City prior to energization of the project.

Referral Agencies,
The City has received the applications described below. Please review the submittal materials and provide comments, if applicable, by **Friday, December 3**. Please let me know if you have any questions.

1. Planning Item 49-21, Administrative Site/Architectural Plan and Final Plans Review

Applicant: Mark Noel
Owner: Present Tense, LLC
Location: 1010 Grand Avenue
Zone: Mixed-Use Core (M2) District
Parcel: 2185-094-28-018

Project Description: The City has received a request for the renovation of and addition of a third level to an existing building to allow for five residential units and a total of 5,280 square feet. Application materials are located at the following One Drive link: 1010 Grand App Materials.

2. Planning Item 70-21, ROW Encroachment License

Applicant: Realty Management Group
Owner: ANB Bank
Location: 910 Grand Avenue
Zone: Mixed-Use Core (M2) District
Parcel: 2185-094-21-002

Project Description: The City has received a request for a license to encroach for three chase drains which cross a City sidewalk along Grand Avenue. Application materials are located at the following One Drive link: Planning Item 70-21 ROW Encroachment License 910 Grand ANB.

Thank you,

Trent L. Hyatt
Long Range Senior Planner
City of Glenwood Springs
101 W. Eighth Street
Glenwood Springs, CO 81601
970.384.6427 (p)
trent.hyatt@cogs.us

Planning and Zoning Commission Report

Date: February 22, 2022
To: Planning and Zoning Commission
From: Emery Ellingson, Planner I
Subject: Planning File #67-21– Minor Site/Architectural Plan
702 23rd Street

REQUEST	Consideration of a Minor Site and Architectural Plan for a five unit residential building
APPLICANT	Jordan Architecture, Inc.
OWNER	AB & SB Construction Company, Inc.
LOCATION	702 23rd Street (PIN 2185-164-00-037)
ZONE	RH – Residential High Density
SURROUNDING LAND USES	North: Residential South: Residential East: Residential West: Residential
LOT SIZE	Parcel (2185-164-00-037)) 13,068 square feet

ACTION ITEM

Per Section 070.060.050 of the *Glenwood Springs Municipal Code* (Code), an application for Minor Site & Architectural Plan for 1-8 units is an administrative decision. Code allows the Community Development Director to refer an administrative application to Planning & Zoning Commission. Per this referral by the Director, Planning & Zoning Commission will be the reviewing and deciding body for this application for a five unit multifamily residential building at 702 23rd Street. Application items and related items are attached.

Action 1 – Minor Site Plan & Architectural Plan – approve Minor Site & Architectural Plan for development of a 5 unit multifamily residential building.

Staff recommendation: *Staff recommends **approval** of the Minor Site/Architectural Plan for development of a 5 unit multifamily residential building with findings and conditions on pages 12 and 13 of the staff report.*

BACKGROUND

Project Summary

The application, submitted by Jordan Architecture on behalf of the property owner AB & SB Construction, Inc, proposes the development of a two story five unit multifamily residential building located at 702 23rd Street. All the units will be 2 bedroom units 1 bathroom units, with three 880 sf units and two 1,320 square foot units.

Location and Background

The proposed location for this development is 702 23rd Street. The property is located in the RH – Residential High Density Zoning District as are properties to the west and south. The properties to the east and north are also residential and zoned RM1, Residential Medium Density. Nearby uses include single family dwellings, duplexes, apartment buildings, senior care facility, and a church. The existing structure on the property is a single family dwelling.

South – Residential, view from south facing property

East – Residential

West – Residential

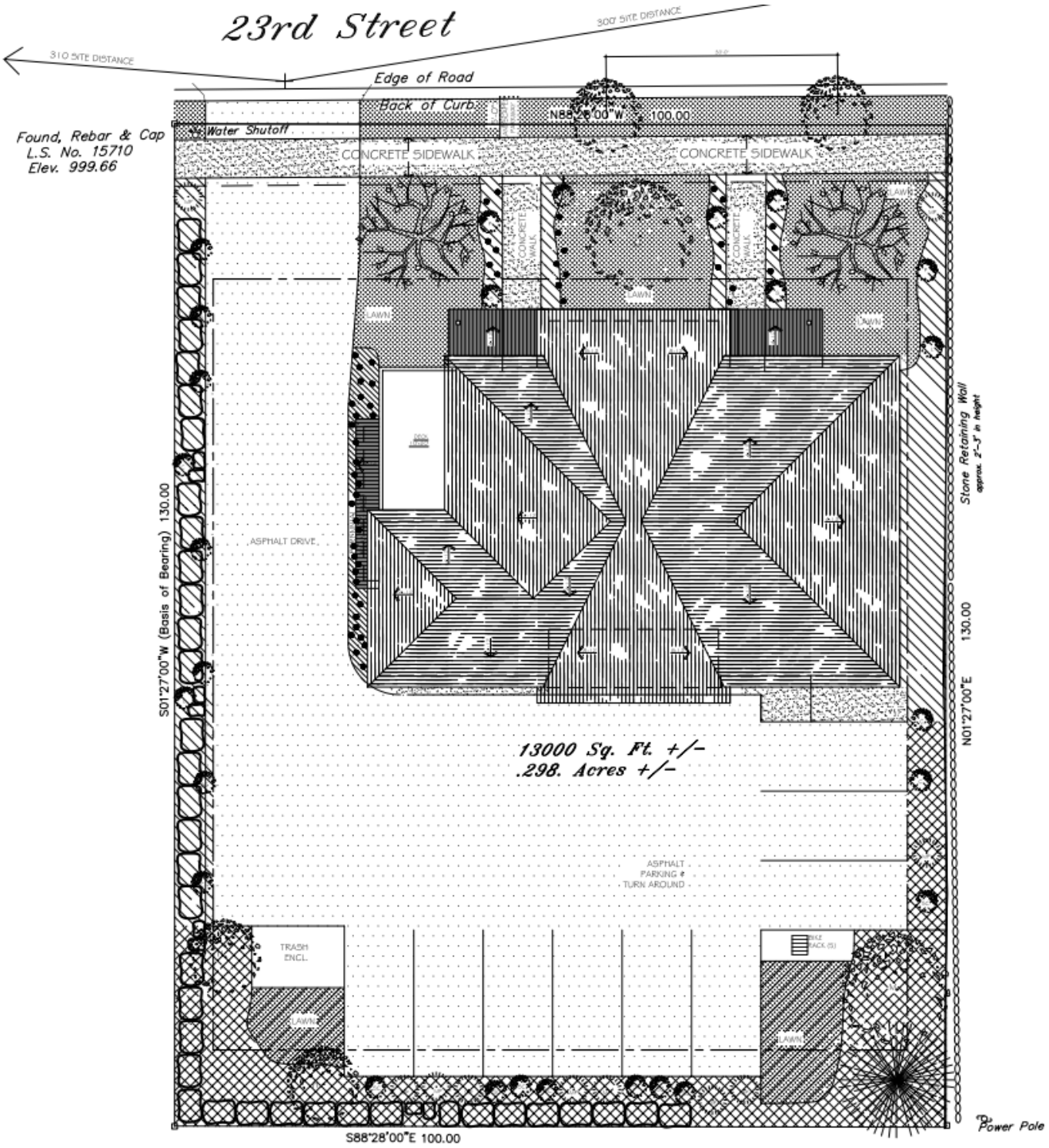
North – Residential

PROJECT ANALYSIS

The application is a Minor Site/Architectural Plan Application for a five unit multifamily residential development. The following section provides further details on the compliance of the proposed project with Code standards.

CODE STANDARD		PROPOSED	REQ. MET
Lot Standards	2,250 square feet per unit	13,068 square feet (2,250 x 5 = 11,250 sf)	YES
Lot Coverage	50% of total lot (6,534 sf) or 25% more than existing, (5,038 sf/38%) whichever less	21% (2,847 sf)	YES
Open Space	20% (2,613.6 sf)	3,611 sf	YES
Landscape	20% (2,613.6 sf)	3,920 sf	YES
Street Trees	1 per 75 linear feet (2 required)	2 street trees	YES
Planting Strip	Min. 5' from back of curb	5' planting strip	YES
Sidewalk	5' minimum width	5'width	YES
Parking Lot Landscape			
Total Parking Area	Area sufficient to accommodate all required parking	3,915 sf	YES
Surface Area Landscape	391.5 sf	1,237 sf	YES
Interior Landscape	90 sf	309 sf	YES
Setback			
Front	10'	25' 6"	YES
Rear	10'	57' 6"	YES
Side	5'	7' 6" east 24' 6" west	YES
Height	40 ft.	25' to midpoint of highest gable	YES
Vehicle Parking	1.5 per unit + Guest = 9 total required	9 spaces	YES
Bike Parking	3 spaces	5 spaces	YES
Trash Enclosure	Enclosed	Enclosed	YES
Architectural Elements	Four sided, 5 elements	5 elements on each side	YES
Storage	1 cubic ft/ 3 sq. ft. floor area per unit	Unit 1: 293 cf req, 390 cf provided Unit 2: 293 cf req., 354 cf provided Unit 3: 293 cf req., 316 cf provided Unit 4: 440 cf, req., 466 cf provided Unit 5: 440 cf req., 466 cf provided	YES
Resident restricted & Income restricted units	N/A, less than 10 units proposed	None	YES

SITE PLAN


23rd Street
310' SITE DISTANCE
300' SITE DISTANCE
Edge of Road
Back of Curb
N88°28'00"W 100.00
Found, Rebar & Cap
L.S. No. 15710
Elev. 999.66
Water Shutoff
CONCRETE SIDEWALK
CONCRETE SIDEWALK
LAWN
ASPHALT DRIVE
S01°27'00"W (Basis of Bearing) 130.00
Stone Retaining Wall
approx. 2'-3' in height
13000 Sq. Ft. +/-
.298. Acres +/-
ASPHALT
PARKING &
TURN AROUND
TRASH
ENCL.
N01°27'00"E 130.00
S88°28'00"E 100.00
Power Pole

Site Layout and Building Design (Section 070.040.080)

Section 070.040.080 Residential Site and Building Design describes design standards for multi-family residential developments related to building orientation, architectural elements, heights, and façade articulation. This proposed project meets the requirements such as four sided design, building height, colors, and transition to existing residential.

Building Materials

The proposed primary exterior building material is stucco, which requires administrative approval for use by the Director. The Director refers the decision for the proposed primary exterior building material to Planning & Zoning Commission.

Building Color

Code requires that the predominant exterior colors on a multi-family building be earth tones to minimize visual impact. As seen on the submitted materials board, the proposed colors are all earth toned. Proposed primary color is tan with brown accents.

Building Orientation

Code requires that all multi-family units with frontage along the primary street shall have an entrance that faces the street. Code also states that to the maximum extent feasible that the primary entrance of buildings shall be oriented toward primary, internal, or perimeter streets. As a smaller development with only one building, staff finds that this design meets this requirement to the maximum extent feasible as two units are accessed via entries on the front of the building facing 23rd Street while the other three units are accessed via entries on the rear of the building facing the parking and internal circulation area.

Lot Standards

The RH Residential High Density Zoning District requires 2,250 square feet lot area per residential unit. This size of a lot allows for five residential units.

Lot Coverage

This project meets the Code definition of residential infill and is required to meet standards for maximum lot coverage. Lot coverage cannot exceed 50% of the total lot or 25% more than existing, whichever is less. The lot is currently at 13.6% coverage which allows for a maximum lot coverage of 38.6% or 5,038 square feet. The proposed building footprint of 2,847 square feet results in a lot coverage of 21.8% which is within the allowed amount.

Architectural Elements

The proposed project meets the architectural design requirements with at least five design elements on each elevation.

Transitions to Existing Residential

Section 070.040.080(e)(8) Transitions to Existing Residential describes requirements for any new residential structure that will be located adjacent to an existing residential dwelling.

Height Transitions
Per *Section 070.040.080(e)(8)(b) Height Transitions*, any time a new building with a height that exceeds an adjacent existing dwelling by one (1) story or more shall provide at least three of the techniques listed below. Staff determined that the proposed building exceeds the height of the neighboring home to the west by one story or more which requires the proposed design include at least three of the techniques listed below. Each corresponding technique used is labelled on the elevation below:

1) Stepping down building height and mass along the shared property line to meet the height of the existing neighboring home along a minimum of fifty (50) percent of the new building's length. The stepped down portion shall be a minimum of ten (10) feet in width and depth.

The proposed design meets this requirement with the deck space on the west side of the 2nd floor. This deck space functions as a stepped down area for 50% of the new buildings length and this area is a minimum of 10' in width and depth.

2) Providing variations in the side building wall and/or roof form so that new structures have a comparable scale as neighboring homes along the shared property line

The proposed design incorporates a stepped down deck area as well as variations in the side wall and roof form on the west side of the building.

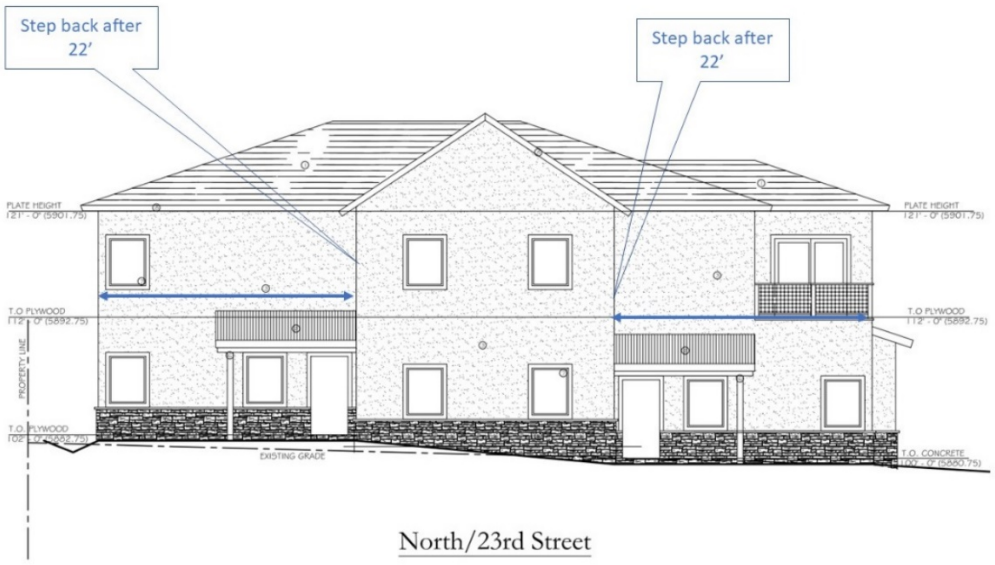
3) Utilizing a roof pitch and overhang similar to that of the neighboring structures
The proposed design uses similar roof pitch and overhang and style as neighboring structures, which is a gable style roof.

4) Utilizing dormers and sloping roofs to accommodate upper stories.
Proposed design does not use this technique.

In combination, the proposed design uses techniques 1-3 to meet the height transition requirement.

Massing and Form (Multi-family Only)
Section 070.040.080(e)(8)(c) Massing and Form requires a multi-family development located on a block face where more than seventy-five (75) percent of existing homes are single-family to employ designs to help reduce the overall bulk and mass of individual buildings and help maintain a lower intensity residential character. All the homes on this block face are single family homes, which creates this requirement.

One option is to break up the mass of the multi-family building by stepping back the front façade (minimum two feet deep and one foot wide for every thirty feet of building frontage so that the building appears from the street to be separate. The proposed design meets this requirement on the north elevation by stepping back the building on each side of the building. This design element is only required on the façade, the front elevation.



Common Open Space (Section 070.040.040)
Code requires 20% of the site be common open space. The required amount of common open space is 2,613.6 square feet. Required buffer and landscape areas can count towards this amount, except for interior parking lot landscaping areas. The total amount of landscaped area, subtracting the interior parking lot landscaping areas is 3,611 square feet which meets the requirement.

Landscaping, Screening, and Fencing (Section 070.040.050)
For a proposed multifamily residential use in the Residential High Density Zoning District, the Code requires that 20% of the entire site be landscaped. The total amount of required landscaped area is 2,613.6 square feet. The proposed development will have 3,920 square feet which meets the requirement. Requirements for planting by type is found in the table below.

Plant Material	Code Requirement	Required	Provided	Meets Req.
Trees	1 per 400 sf req. landscaped area	7	9	YES
Shrubs	1 per 100 sf req. landscaped area	27	37	YES
Perennials	1 per 50 sf req. landscaped area	53	55	YES

Planting Strip
This property currently has no sidewalk or planting strip. Per Code, this project is required to create a planting strip with a minimum width of 5' from the curb, which the designs include.

Street Trees
For residential zoning districts, Code requires one street tree per 75 feet of street frontage. This lot has a frontage of 100 linear feet which would require two street trees. The proposed design meets this requirement.

Parking Lot Landscaping
For parking lots with fewer than 20 spaces, the Code requires that 10% of the total parking area be designated for landscaping and this includes 10 square feet of interior parking landscaping per parking space. The total parking area is 3,915 square feet. The landscape designs propose 1237 square feet of parking area landscaping and 309 square feet of interior parking space landscaping. These totals meet the required amount of landscaping.

Off Street Parking and Loading (Section 070.040.060)
Section 070.030.020(e) Table 030.1 Table of Allowed Uses requires 1.5 spaces per multi-family dwelling unit and one guest space per five dwelling. This plan proposes 9 parking spaces which meets the required number of parking spaces.

Section 070.040.060(f)(2) Number of Bicycle Parking outlines the amount of bicycle parking required. For a development with fewer than 50 vehicle spaces, 3 short term bicycle spaces are required. This plan includes bike racks for 3 short term bicycle spaces.

Access and Circulation (Section 070.040.070)

Driveway
The proposed project has one access point, a driveway on the west side of the property. This access and circulation design has been reviewed by the Engineering Department and two Engineering Variances are requested for the following items:

1) Driveway proximity to property line. The proposed driveway, which is in the general location of the existing access to the property, would be 4' from the property line. Engineering Standards require 15' of separation from property line to a new access.

2) Driveway width. The proposed design calls for a 18' 6" wide driveway, widening to 20' where it connects to 23rd Street. Engineering standards call for a two way driveway to be 24' wide.

Approval of these variance requests by the Engineering Department is listed as a condition of approval on pages 12 and 13 of this staff report.

Sidewalk
There is no current sidewalk at the property. Residential zoning district requires a minimum 5' wide sidewalk. Plans propose a 5' wide sidewalk which meets this requirement.

Traffic Impact Study
The applicant has submitted a Traffic Impact Study for the proposal. Per the submitted traffic study, traffic generation for the multi-family use is summarized in the table below. Trips were calculated using Multifamily Housing (Low Rise) category in Section 220 of the ITE Trip Generation Manual 11th edition.

The projected traffic volumes do not require a CDOT access permit.

Period	AM Peak (7-AM)	PM Peak (4-6PM)	Total Daily Trips*
Entry	24%	63%	50%
Exit	76%	37%	50%
Total Trips	*2*	*3*	*34*

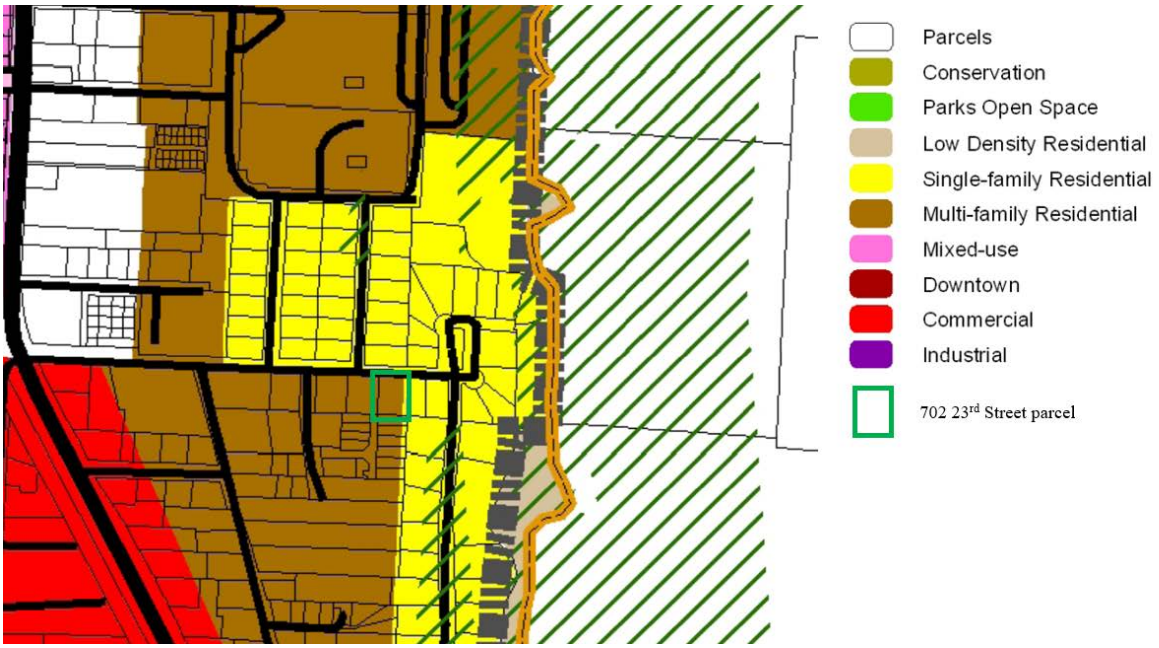
*Calculated for weekday

Drainage and Geotechnical Reports
The applicant has submitted all required reports for drainage and geotechnical reports. The submitted reports have been reviewed by staff which has reviewed and commented on the submitted reports. It will be a condition of approval that these reports meet all City requirements and standards.

COMPREHENSIVE PLAN COMPATIBILITY

Below is staff's analysis of the proposed project and its compatibility with the Comprehensive Plan.

The subject property is shown on the Future Land Use Map in the Comprehensive Plan as multi-family residential. The Comprehensive Plan describes the Future Land Use as "residential land use accommodating multi-family structures of 3 units or greater". The proposed use is compatible with the Future Land Use designated for this property by the Comprehensive Plan.



The table below describes how the proposed project supports specific goals from the Comprehensive Plan.

Comprehensive Plan Goal Supported	Objective and Strategies
Promote long-term, sustainable, diverse, economic development	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34)
Staff Comment: This application supports the goal above as the proposed development is redevelopment of an existing lot, which is infill development not requiring development of an undeveloped parcel.	
Direct development to locations and building forms that are cost effective to serve	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Direct growth to areas where utilities and services can be provided efficiently (Chapter 7, Page 82) -Direct growth inward (Chapter 9, Page 102)
Staff Comment: Infill development fulfills this goal as direct development to this location and density at this location are cost effective for the City to serve.	

Provide housing opportunities for the entire community	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Encourage greater variety in housing variety and affordability throughout the community (Chapter 6, Page 76) -Require good design for mixed-use and higher density project (Chapter 6, Page 78)
Staff Comment: The proposed development for residential infill provides residential units at a density allowed by existing zoning district limitations and at a density as identified by the future land use map.	
Support social diversity	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Encourage greater variety in housing variety and affordability throughout the community (Chapter 6, Page 76) -Require good design for mixed-use and higher density projects (Chapter 6, Page 78) -Direct growth inward (Chapter 9, Page 102)
Staff Comment: Infill development in a compact form helps support social diversity	

REVIEWING AGENCY COMMENTS

A summary of comments received from referral agencies is provided below. Comments are also attached with the application packet.

Engineering Department – Engineering Department comments indicated that the proposed project would require a grading plan, drainage letter and plan completed by an engineer, and a Geotechnical Report/Letter to address the potential for hydrocompactive and corrosive soils for this property.

In addition to the items above, the proposed design would require two Engineering Variances. Receiving approval for the following variances is included in the conditions listed on pages 11 and 12 of the staff report.

Required Engineering Variances

1. Distance of proposed access from west property line.
2. Driveway width

Public Work, Electric, Water, Wastewater –Public Works required a 7.5’ easement on the east side of the property to ensure future access to an existing sewer line. A 7’ 6” side setback on the east side of the property was used to accommodate the easement request.. Comments also included technical details on utility locations.

Fire Department – Fire Department comments indicate that the building design and site layout does not inhibit the Fire Department’s ability to access the site and provide emergency services.

ACTION ALTERNATIVES AND STAFF RECOMMENDATION:

The Planning and Zoning Commission may approve, approve with conditions, or deny the application. The Commission may also continue the hearing with a request for specific information necessary to determine compliance with the Municipal Code and city goals and policies.

Action 1 – Minor Site & Architectural Plan – approve Minor Site & Architectural Plan for development of a five unit multifamily residential building.

Staff Recommendation/Suggested Motion
Staff recommends **approval** of the Minor Sit & Architectural Plan with the following **findings and conditions**:

Suggested Findings:
1. The site/architectural plan is consistent with general purpose and intent of the Code;
2. The site/architectural plan is consistent with dimensional, design, development, and all other standards of this Code;
3. The site/architectural plan is not in conflict with precedent land use approvals; and
4. The site/architectural plan is consistent with goals and objectives of the Comprehensive Plan

Suggested Conditions

1. The development shall comply with the requirements of the Code. Any future physical changes or improvements to the property or buildings are subject to the review and approval of the Community Development Director for compliance with applicable requirements of the Glenwood Springs Municipal Code.

2. The owner shall comply with all verbal representations made in the public hearings, as outlined in all application materials, and/or as revised per conditions herein and approved by the Community Development Director

3. The owner shall comply with recommendations identified in the technical reports submitted as part of the application including but not limited to Geotechnical and Drainage.

4. Prior to submitting a building and/or grading permit, the owner shall:

    a. Request and receive approval for all required variances from the Engineering Department.

5. At the time of Final Plans review the owner shall submit all required civil and architectural plans and related reports that demonstrate compliance with Code requirements and the Engineering Standards, including applicable comments provided by staff.

6. Prior to issuance of the building permit, the owner shall –

a. Pay all required system improvement fees including but not limited to water, sewer, parkland, school land, and Fire/EMS

b. Provide executed utility easement and record agreement with Garfield County Clerk & Recorder's Office.

7. Prior to issuance of Certificate of Occupancy, the owner shall

a. Submit a set of as-built documents and Improvement Survey Plat per the Engineering Standards.

ALTERNATIVE MOTION

***A member of City Council has requested that land use applications include suggested motions for both approval and denial. In most instances, staff has worked diligently with the applicant to address requirements outlined in the *Glenwood Springs Municipal Code* (Code) applicable to any given proposal. Therefore, we are usually in support of an application by the time it reaches the Planning and Zoning Commission and/or City Council. However, if the Planning and Zoning Commission does not believe the application meets the Code's minimum standards, your denial motion should be based on one or more of the same approval criteria applicable to the application. You should support your findings with information outlining the shortcomings of the request as shown in the example below:

MOTION TO DENY

Action 1:

Consideration of a Minor Site/Architectural Plan review for the construction of a 5-unit multifamily building in the RH – Residential High Density Zoning District. I move to **DENY** finding that -

1. The site/architectural plan is not consistent with general purpose and intent of the Code because **[insert reasoning]**;
2. The site/architectural plan is not consistent with dimensional, design, development, and other standards of this Code [**insert where you find inconsistencies with Code requirements**]; and
3. The site/architectural plan is not in conformance with **[insert applicable Comp Plan or other City plan or policy sections here]** of the Comprehensive Plan and other City plans and policies.

LAND USE APPLICATION

City of Glenwood Springs
Economic and Community Development Dept.
101 West 8th Street
Glenwood Springs, CO 81601
970-384-6411

Ordinance Amendments		Development Permits	
☐	Rezoning	☐	Site/Architectural Plan Review
☐	Rezoning to Planned Unit Development (PUD)	☑	Administrative
☐	Annexation	☐	Minor
☐	Condominiumization	☐	Major
☐	Annexation	☐	Master Plan
☐	Street Vacation	☐	Construction Plans
☐		☐	Location & Extent
Subdivisions		☐	Right of Way Encroachment License
☐	Minor Subdivision	☐	Floodplain Development Permit
☐	Preliminary Plat	☐	Special Use Permit
☐	Final Plat	**Flexibility and Relief Procedures**	
☐	Vacation of Right-of-Way	☐	Variance
☐		☐	Administrative Adjustment
Other Land Use Applications		☐	Appeal
☐	Outdoor Seating		

Applicant/Property Owner Information:			
Brad Jordan/Jordan Architecture Inc		AB & SB Construction Company Inc	
Applicant		Owner	
Representative			
Relationship to Owner		Owner	
PO Box 1031, Glenwood Springs, CO 81602		162 W 6th Street, Glenwood Springs, CO 81601	
Applicant Address		Owner Address	
970-618-6690	bradjordanarchitect@gmail.com	970--948-9232	
Phone	Email Address	Phone	Email Address

Property Information:	
702 23rd Street	218516400037
Address	Parcel Number
N/A	N/A
Subdivision	Lot and Block Number
RH	Single Family Residence
Zone District	Existing Land Use

General Project Description:
Remove existing single family residence and construct a 5-plex, 2 bedroom residential units

Signatures:		
The owner or applicant must be present at the hearing. All public hearings must be property noticed according to G.S.M.C. Section 070.010.030. Signatures of all owners of the property must appear before the application is accepted. Partnerships or corporations may have the authorized general partner or corporate officer sign the	Brad S Jordan Digitally signed by Brad S Jordan Date: 2021.10.07 16:14:28 -06'00'	10-07-21
	Applicant	Date
	Stanley Bartlomiejczuk	10-07-21
	Owner	Date

application. (Attach additional incorporation documents if necessary.) I declare under the penalty of perjury that the above information is true and correct to the best of my knowledge.		
	Owner	Date

Reception#: 819475
06/01/2012 03:58:23 PM Jean Alberico
1 of 8 Rec Fee:$46.00 Doc Fee:0.00 GARFIELD COUNTY CO

RECORDATION REQUESTED BY:

Bank of Colorado
Glenwood Springs
901 Grand Avenue
PO Box 520
Glenwood Springs, CO 81601

WHEN RECORDED MAIL TO:

Bank of Colorado
Glenwood Springs
901 Grand Avenue
PO Box 520
Glenwood Springs, CO 81601

FOR RECORDER'S USE ONLY

DEED OF TRUST

MAXIMUM PRINCIPAL AMOUNT SECURED. The Lien of this Deed of Trust shall not exceed at any one time $337,679.61 except as allowed under applicable Colorado law.

THIS DEED OF TRUST is dated May 30, 2012, among AB & SB Construction Co., Inc., as to Parcel 1, whose address is 162 W 6th St, Glenwood Springs, CO 81601 ("Grantor"); Bank of Colorado, whose address is Glenwood Springs, 901 Grand Avenue, PO Box 520, Glenwood Springs, CO 81601 (referred to below sometimes as "Lender" and sometimes as "Beneficiary"); and the Public Trustee of Garfield County, Colorado (referred to below as "Trustee").

CONVEYANCE AND GRANT. For valuable consideration, Grantor hereby irrevocably grants, transfers and assigns to Trustee for the benefit of Lender as Beneficiary all of Grantor's right, title, and interest in and to the following described real property, together with all existing or subsequently erected or affixed buildings, improvements and fixtures; all easements, rights of way, and appurtenances; all water, water rights and ditch rights (including stock in utilities with ditch or irrigation rights); and all other rights, royalties, and profits relating to the real property, including without limitation all minerals, oil, gas, geothermal and similar matters, **(the "Real Property") located in Garfield County, State of Colorado:**

See Exhibit "A", which is attached to this Deed of Trust and made a part of this Deed of Trust as if fully set forth herein.

The Real Property or its address is commonly known as 702 23rd Street, Glenwood Springs, CO 81601.

Grantor presently assigns to Lender (also known as Beneficiary in this Deed of Trust) all of Grantor's right, title, and interest in and to all present and future leases of the Property and all Rents from the Property. In addition, Grantor grants to Lender a Uniform Commercial Code security interest in the Personal Property and Rents.

THIS DEED OF TRUST, INCLUDING THE ASSIGNMENT OF RENTS AND THE SECURITY INTEREST IN THE RENTS AND PERSONAL PROPERTY, IS GIVEN TO SECURE (A) PAYMENT OF THE INDEBTEDNESS AND (B) PERFORMANCE OF ANY AND ALL OBLIGATIONS UNDER THE NOTE, THE RELATED DOCUMENTS, AND THIS DEED OF TRUST. THIS DEED OF TRUST IS GIVEN AND ACCEPTED ON THE FOLLOWING TERMS:

PAYMENT AND PERFORMANCE. Except as otherwise provided in this Deed of Trust, Grantor shall pay to Lender all amounts secured by this Deed of Trust as they become due, and shall strictly and in a timely manner perform all of Grantor's obligations under the Note, this Deed of Trust, and the Related Documents.

POSSESSION AND MAINTENANCE OF THE PROPERTY. Grantor agrees that Grantor's possession and use of the Property shall be governed by the following provisions:

Possession and Use. Until the occurrence of an Event of Default, Grantor may (1) remain in possession and control of the Property; (2) use, operate or manage the Property; and (3) collect the Rents from the Property.

Duty to Maintain. Grantor shall maintain the Property in tenantable condition and promptly perform all repairs, replacements, and maintenance necessary to preserve its value.

Compliance With Environmental Laws. Grantor represents and warrants to Lender that: (1) During the period of Grantor's ownership of the Property, there has been no use, generation, manufacture, storage, treatment, disposal, release or threatened release of any Hazardous Substance by any person on, under, about or from the Property; (2) Grantor has no knowledge of, or reason to believe that there has been, except as previously disclosed to and acknowledged by Lender in writing, (a) any breach or violation of any Environmental Laws, (b) any use, generation, manufacture, storage, treatment, disposal, release or threatened release of any Hazardous Substance on, under, about or from the Property by any prior owners or occupants of the Property, or (c) any actual or threatened litigation or claims of any kind by any person relating to such matters; and (3) Except as previously disclosed to and acknowledged by Lender in writing, (a) neither Grantor nor any tenant, contractor, agent or other authorized user of the Property shall use, generate, manufacture, store, treat, dispose of or release any Hazardous Substance on, under, about or from the Property; and (b) any such activity shall be conducted in compliance with all applicable federal, state, and local laws, regulations and ordinances, including without limitation all Environmental Laws. Grantor authorizes Lender and its agents to enter upon the Property to make such inspections and tests, at Grantor's expense, as Lender may deem appropriate to determine compliance of the Property with this section of the Deed of Trust. Any inspections or tests made by Lender shall be for Lender's purposes only and shall not be construed to create any responsibility or liability on the part of Lender to Grantor or to any other person. The representations and warranties contained herein are based on Grantor's due diligence in investigating the Property for Hazardous Substances. Grantor hereby (1) releases and waives any future claims against Lender for indemnity or contribution in the event Grantor becomes liable for cleanup or other costs under any such laws; and (2) agrees to indemnify, defend, and hold harmless Lender against any and all claims, losses, liabilities, damages, penalties, and expenses which Lender may directly or indirectly sustain or suffer resulting from a breach of this section of the Deed of Trust or as a consequence of any use, generation, manufacture, storage, disposal, release or threatened release occurring prior to Grantor's ownership or interest in the Property, whether or not the same was or should have been known to Grantor. The provisions of this section of the Deed of Trust, including the obligation to indemnify and defend, shall survive the payment of the Indebtedness and the satisfaction and reconveyance of the lien of this Deed of Trust and shall not be affected by Lender's acquisition of any interest in the Property, whether by foreclosure or otherwise.

Nuisance, Waste. Grantor shall not cause, conduct or permit any nuisance nor commit, permit, or suffer any stripping of or waste on or to the Property or any portion of the Property. Without limiting the generality of the foregoing, Grantor will not remove, or grant to any other party the right to remove, any timber, minerals (including oil and gas), coal, clay, scoria, soil, gravel or rock products without Lender's prior written consent.

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Removal of Improvements. Grantor shall not demolish or remove any Improvements from the Real Property without Lender's prior written consent. As a condition to the removal of any Improvements, Lender may require Grantor to make arrangements satisfactory to Lender to replace such Improvements with Improvements of at least equal value.

Lender's Right to Enter. Lender and Lender's agents and representatives may enter upon the Real Property at all reasonable times to attend to Lender's interests and to inspect the Real Property for purposes of Grantor's compliance with the terms and conditions of this Deed of Trust.

Compliance with Governmental Requirements. Grantor shall promptly comply with all laws, ordinances, and regulations, now or hereafter in effect, of all governmental authorities applicable to the use or occupancy of the Property, including without limitation, the Americans With Disabilities Act. Grantor may contest in good faith any such law, ordinance, or regulation and withhold compliance during any proceeding, including appropriate appeals, so long as Grantor has notified Lender in writing prior to doing so and so long as, in Lender's sole opinion, Lender's interests in the Property are not jeopardized. Lender may require Grantor to post adequate security or a surety bond, reasonably satisfactory to Lender, to protect Lender's interest.

Duty to Protect. Grantor agrees neither to abandon or leave unattended the Property. Grantor shall do all other acts, in addition to those acts set forth above in this section, which from the character and use of the Property are reasonably necessary to protect and preserve the Property.

DUE ON SALE - CONSENT BY LENDER. Lender may, at Lender's option, declare immediately due and payable all sums secured by this Deed of Trust upon the sale or transfer, without Lender's prior written consent, of all or any part of the Real Property, or any interest in the Real Property. A "sale or transfer" means the conveyance of Real Property or any right, title or interest in the Real Property; whether legal, beneficial or equitable; whether voluntary or involuntary; whether by outright sale, deed, installment sale contract, land contract, contract for deed, leasehold interest with a term greater than three (3) years, lease-option contract, or by sale, assignment, or transfer of any beneficial interest in or to any land trust holding title to the Real Property, or by any other method of conveyance of an interest in the Real Property. If any Grantor is a corporation, partnership or limited liability company, transfer also includes any change in ownership of more than twenty-five percent (25%) of the voting stock, partnership interests or limited liability company interests, as the case may be, of such Grantor. However, this option shall not be exercised by Lender if such exercise is prohibited by federal law or by Colorado law.

TAXES AND LIENS. The following provisions relating to the taxes and liens on the Property are part of this Deed of Trust:

Payment. Grantor shall pay when due (and in all events prior to delinquency) all taxes, special taxes, assessments, charges (including water and sewer), fines and impositions levied against or on account of the Property, and shall pay when due all claims for work done on or for services rendered or material furnished to the Property. Grantor shall maintain the Property free of all liens having priority over or equal to the interest of Lender under this Deed of Trust, except for the lien of taxes and assessments not due and except as otherwise provided in this Deed of Trust.

Right to Contest. Grantor may withhold payment of any tax, assessment, or claim in connection with a good faith dispute over the obligation to pay, so long as Lender's interest in the Property is not jeopardized. If a lien arises or is filed as a result of nonpayment, Grantor shall within fifteen (15) days after the lien arises or, if a lien is filed, within fifteen (15) days after Grantor has notice of the filing, secure the discharge of the lien, or if requested by Lender, deposit with Lender cash or a sufficient corporate surety bond or other security satisfactory to Lender in an amount sufficient to discharge the lien plus any costs and attorneys' fees, or other charges that could accrue as a result of a foreclosure or sale under the lien. In any contest, Grantor shall defend itself and Lender and shall satisfy any adverse judgment before enforcement against the Property. Grantor shall name Lender as an additional obligee under any surety bond furnished in the contest proceedings.

Evidence of Payment. Grantor shall upon demand furnish to Lender satisfactory evidence of payment of the taxes or assessments and shall authorize the appropriate governmental official to deliver to Lender at any time a written statement of the taxes and assessments against the Property.

Notice of Construction. Grantor shall notify Lender at least fifteen (15) days before any work is commenced, any services are furnished, or any materials are supplied to the Property, if any mechanic's lien, materialmen's lien, or other lien could be asserted on account of the work, services, or materials. Grantor will upon request of Lender furnish to Lender advance assurances satisfactory to Lender that Grantor can and will pay the cost of such improvements.

PROPERTY DAMAGE INSURANCE. The following provisions relating to insuring the Property are a part of this Deed of Trust.

Maintenance of Insurance. Grantor shall procure and maintain policies of fire insurance with standard extended coverage endorsements on a replacement basis for the full insurable value covering all Improvements on the Real Property in an amount sufficient to avoid application of any coinsurance clause, and with a standard mortgagee clause in favor of Lender. Grantor shall also procure and maintain comprehensive general liability insurance in such coverage amounts as Lender may request with Trustee and Lender being named as additional insureds in such liability insurance policies. Additionally, Grantor shall maintain such other insurance, including but not limited to hazard, business interruption, and boiler insurance, as Lender may reasonably require. Policies shall be written in form, amounts, coverages and basis reasonably acceptable to Lender and issued by a company or companies reasonably acceptable to Lender. Grantor, upon request of Lender, will deliver to Lender from time to time the policies or certificates of insurance in form satisfactory to Lender, including stipulations that coverages will not be cancelled or diminished without at least ten (10) days prior written notice to Lender. Each insurance policy also shall include an endorsement providing that coverage in favor of Lender will not be impaired in any way by any act, omission or default of Grantor or any other person. Should the Real Property be located in an area designated by the Director of the Federal Emergency Management Agency as a special flood hazard area, Grantor agrees to obtain and maintain Federal Flood Insurance, if available, for the full unpaid principal balance of the loan and any prior liens on the property securing the loan, up to the maximum policy limits set under the National Flood Insurance Program, or as otherwise required by Lender, and to maintain such insurance for the term of the loan.

Application of Proceeds. Grantor shall promptly notify Lender of any loss or damage to the Property. Lender may make proof of loss if Grantor fails to do so within fifteen (15) days of the casualty. Whether or not Lender's security is impaired, Lender may, at Lender's election, receive and retain the proceeds of any insurance and apply the proceeds to the reduction of the Indebtedness, payment of any lien affecting the Property, or the restoration and repair of the Property. If Lender elects to apply the proceeds to restoration and repair, Grantor shall repair or replace the damaged or destroyed Improvements in a manner satisfactory to Lender. Lender shall, upon satisfactory proof of such expenditure, pay or reimburse Grantor from the proceeds for the reasonable cost of repair or restoration if Grantor is not in default under this Deed of Trust. Any proceeds which have not been disbursed within 180 days after their receipt and which Lender has not committed to the repair or restoration of the Property shall be used first to pay any amount owing to Lender under this Deed of Trust, then to pay accrued interest, and the remainder, if any, shall be applied to the principal balance of the Indebtedness. If Lender holds any proceeds after payment in full of the Indebtedness, such proceeds shall be paid to Grantor as Grantor's interests may appear.

Grantor's Report on Insurance. Upon request of Lender, however not more than once a year, Grantor shall furnish to Lender a report on each existing policy of insurance showing: (1) the name of the insurer; (2) the risks insured; (3) the amount of the policy; (4) the property insured, the then current replacement value of such property, and the manner of determining that value; and (5) the expiration date of the policy. Grantor shall, upon request of Lender, have an independent appraiser satisfactory to Lender determine the cash value replacement cost of the Property.

LENDER'S EXPENDITURES. If any action or proceeding is commenced that would materially affect Lender's interest in the Property or if Grantor fails to comply with any provision of this Deed of Trust or any Related Documents, including but not limited to Grantor's failure to discharge or pay when due any amounts Grantor is required to discharge or pay under this Deed of Trust or any Related

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Documents, Lender on Grantor's behalf may (but shall not be obligated to) take any action that Lender deems appropriate, including but not limited to discharging or paying all taxes, liens, security interests, encumbrances and other claims, at any time levied or placed on the Property and paying all costs for insuring, maintaining and preserving the Property. All such expenditures incurred or paid by Lender for such purposes will then bear interest at the rate charged under the Note from the date incurred or paid by Lender to the date of repayment by Grantor. All such expenses will become a part of the Indebtedness and, at Lender's option, will (A) be payable on demand; (B) be added to the balance of the Note and be apportioned among and be payable with any installment payments to become due during either (1) the term of any applicable insurance policy; or (2) the remaining term of the Note; or (C) be treated as a balloon payment which will be due and payable at the Note's maturity. The Deed of Trust also will secure payment of these amounts. Such right shall be in addition to all other rights and remedies to which Lender may be entitled upon Default.

WARRANTY; DEFENSE OF TITLE. The following provisions relating to ownership of the Property are a part of this Deed of Trust:

Title. Grantor warrants that: (a) Grantor holds good and marketable title of record to the Property in fee simple, free and clear of all liens and encumbrances other than those set forth in the Real Property description or in any title insurance policy, title report, or final title opinion issued in favor of, and accepted by, Lender in connection with this Deed of Trust, and (b) Grantor has the full right, power, and authority to execute and deliver this Deed of Trust to Lender.

Defense of Title. Subject to the exception in the paragraph above, Grantor warrants and will forever defend the title to the Property against the lawful claims of all persons. In the event any action or proceeding is commenced that questions Grantor's title or the interest of Trustee or Lender under this Deed of Trust, Grantor shall defend the action at Grantor's expense. Grantor may be the nominal party in such proceeding, but Lender shall be entitled to participate in the proceeding and to be represented in the proceeding by counsel of Lender's own choice, and Grantor will deliver, or cause to be delivered, to Lender such instruments as Lender may request from time to time to permit such participation.

Compliance With Laws. Grantor warrants that the Property and Grantor's use of the Property complies with all existing applicable laws, ordinances, and regulations of governmental authorities.

Survival of Representations and Warranties. All representations, warranties, and agreements made by Grantor in this Deed of Trust shall survive the execution and delivery of this Deed of Trust, shall be continuing in nature, and shall remain in full force and effect until such time as Grantor's Indebtedness shall be paid in full.

CONDEMNATION. The following provisions relating to condemnation proceedings are a part of this Deed of Trust:

Proceedings. If any proceeding in condemnation is filed, Grantor shall promptly notify Lender in writing, and Grantor shall promptly take such steps as may be necessary to defend the action and obtain the award. Grantor may be the nominal party in such proceeding, but Lender shall be entitled to participate in the proceeding and to be represented in the proceeding by counsel of its own choice, and Grantor will deliver or cause to be delivered to Lender such instruments and documentation as may be requested by Lender from time to time to permit such participation.

Application of Net Proceeds. If all or any part of the Property is condemned by eminent domain proceedings or by any proceeding or purchase in lieu of condemnation, Lender may at its election require that all or any portion of the net proceeds of the award be applied to the Indebtedness or the repair or restoration of the Property. The net proceeds of the award shall mean the award after payment of all reasonable costs, expenses, and attorneys' fees incurred by Trustee or Lender in connection with the condemnation.

IMPOSITION OF TAXES, FEES AND CHARGES BY GOVERNMENTAL AUTHORITIES. The following provisions relating to governmental taxes, fees and charges are a part of this Deed of Trust:

Current Taxes, Fees and Charges. Upon request by Lender, Grantor shall execute such documents in addition to this Deed of Trust and take whatever other action is requested by Lender to perfect and continue Lender's lien on the Real Property. Grantor shall reimburse Lender for all taxes, as described below, together with all expenses incurred in recording, perfecting or continuing this Deed of Trust, including without limitation all taxes, fees, documentary stamps, and other charges for recording or registering this Deed of Trust.

Taxes. The following shall constitute taxes to which this section applies: (1) a specific tax upon this type of Deed of Trust or upon all or any part of the Indebtedness secured by this Deed of Trust; (2) a specific tax on Grantor which Grantor is authorized or required to deduct from payments on the Indebtedness secured by this type of Deed of Trust; (3) a tax on this type of Deed of Trust chargeable against the Lender or the holder of the Note; and (4) a specific tax on all or any portion of the Indebtedness or on payments of principal and interest made by Grantor.

Subsequent Taxes. If any tax to which this section applies is enacted subsequent to the date of this Deed of Trust, this event shall have the same effect as an Event of Default, and Lender may exercise any or all of its available remedies for an Event of Default as provided below unless Grantor either (1) pays the tax before it becomes delinquent, or (2) contests the tax as provided above in the Taxes and Liens section and deposits with Lender cash or a sufficient corporate surety bond or other security satisfactory to Lender.

SECURITY AGREEMENT; FINANCING STATEMENTS. The following provisions relating to this Deed of Trust as a security agreement are a part of this Deed of Trust:

Security Agreement. This instrument shall constitute a Security Agreement to the extent any of the Property constitutes fixtures, and Lender shall have all of the rights of a secured party under the Uniform Commercial Code as amended from time to time.

Security Interest. Upon request by Lender, Grantor shall take whatever action is requested by Lender to perfect and continue Lender's security interest in the Rents and Personal Property. In addition to recording this Deed of Trust in the real property records, Lender may, at any time and without further authorization from Grantor, file executed counterparts, copies or reproductions of this Deed of Trust as a financing statement. Grantor shall reimburse Lender for all expenses incurred in perfecting or continuing this security interest. Upon default, Grantor shall not remove, sever or detach the Personal Property from the Property. Upon default, Grantor shall assemble any Personal Property not affixed to the Property in a manner and at a place reasonably convenient to Grantor and Lender and make it available to Lender within three (3) days after receipt of written demand from Lender to the extent permitted by applicable law.

Addresses. The mailing addresses of Grantor (debtor) and Lender (secured party) from which information concerning the security interest granted by this Deed of Trust may be obtained (each as required by the Uniform Commercial Code) are as stated on the first page of this Deed of Trust.

FURTHER ASSURANCES; ATTORNEY-IN-FACT. The following provisions relating to further assurances and attorney-in-fact are a part of this Deed of Trust:

Further Assurances. At any time, and from time to time, upon request of Lender, Grantor will make, execute and deliver, or will cause to be made, executed or delivered, to Lender or to Lender's designee, and when requested by Lender, cause to be filed, recorded, refiled, or rerecorded, as the case may be, at such times and in such offices and places as Lender may deem appropriate, any and all such mortgages, deeds of trust, security deeds, security agreements, financing statements, continuation statements, instruments of further assurance, certificates, and other documents as may, in the sole opinion of Lender, be necessary or desirable in order to effectuate, complete, perfect, continue, or preserve (1) Grantor's obligations under the Note, this Deed of Trust, and the Related Documents, and (2) the liens and security interests created by this Deed of Trust as first and prior liens on the Property, whether now owned or hereafter acquired by Grantor. Unless prohibited by law or Lender agrees to the contrary in writing, Grantor shall reimburse Lender for all costs and expenses incurred in connection with the matters referred to in this paragraph.

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Attorney-in-Fact. If Grantor fails to do any of the things referred to in the preceding paragraph, Lender may do so for and in the name of Grantor and at Grantor's expense. For such purposes, Grantor hereby irrevocably appoints Lender as Grantor's attorney-in-fact for the purpose of making, executing, delivering, filing, recording, and doing all other things as may be necessary or desirable, in Lender's sole opinion, to accomplish the matters referred to in the preceding paragraph.

FULL PERFORMANCE. Upon the full performance of all the obligations under the Note and this Deed of Trust, Trustee may, upon production of documents and fees as required under applicable law, release this Deed of Trust, and such release shall constitute a release of the lien for all such additional sums and expenditures made pursuant to this Deed of Trust. Lender agrees to cooperate with Grantor in obtaining such release and releasing the other collateral securing the Indebtedness. Any release fees required by law shall be paid by Grantor, if permitted by applicable law.

EVENTS OF DEFAULT. Each of the following, at Lender's option, shall constitute an Event of Default under this Deed of Trust:

Payment Default. Grantor fails to make any payment when due under the Indebtedness.

Other Defaults. Grantor fails to comply with or to perform any other term, obligation, covenant or condition contained in this Deed of Trust or in any of the Related Documents or to comply with or to perform any term, obligation, covenant or condition contained in any other agreement between Lender and Grantor.

Compliance Default. Failure to comply with any other term, obligation, covenant or condition contained in this Deed of Trust, the Note or in any of the Related Documents.

Default on Other Payments. Failure of Grantor within the time required by this Deed of Trust to make any payment for taxes or insurance, or any other payment necessary to prevent filing of or to effect discharge of any lien.

Default in Favor of Third Parties. Should Grantor default under any loan, extension of credit, security agreement, purchase or sales agreement, or any other agreement, in favor of any other creditor or person that may materially affect any of Grantor's property or Grantor's ability to repay the Indebtedness or Grantor's ability to perform Grantor's obligations under this Deed of Trust or any of the Related Documents.

False Statements. Any warranty, representation or statement made or furnished to Lender by Grantor or on Grantor's behalf under this Deed of Trust or the Related Documents is false or misleading in any material respect, either now or at the time made or furnished or becomes false or misleading at any time thereafter.

Defective Collateralization. This Deed of Trust or any of the Related Documents ceases to be in full force and effect (including failure of any collateral document to create a valid and perfected security interest or lien) at any time and for any reason.

Insolvency. The dissolution or termination of Grantor's existence as a going business, the insolvency of Grantor, the appointment of a receiver for any part of Grantor's property, any assignment for the benefit of creditors, any type of creditor workout, or the commencement of any proceeding under any bankruptcy or insolvency laws by or against Grantor.

Creditor or Forfeiture Proceedings. Commencement of foreclosure or forfeiture proceedings, whether by judicial proceeding, self-help, repossession or any other method, by any creditor of Grantor or by any governmental agency against any property securing the Indebtedness. This includes a garnishment of any of Grantor's accounts, including deposit accounts, with Lender. However, this Event of Default shall not apply if there is a good faith dispute by Grantor as to the validity or reasonableness of the claim which is the basis of the creditor or forfeiture proceeding and if Grantor gives Lender written notice of the creditor or forfeiture proceeding and deposits with Lender monies or a surety bond for the creditor or forfeiture proceeding, in an amount determined by Lender, in its sole discretion, as being an adequate reserve or bond for the dispute.

Breach of Other Agreement. Any breach by Grantor under the terms of any other agreement between Grantor and Lender that is not remedied within any grace period provided therein, including without limitation any agreement concerning any indebtedness or other obligation of Grantor to Lender, whether existing now or later.

Events Affecting Guarantor. Any of the preceding events occurs with respect to any Guarantor of any of the Indebtedness or any Guarantor dies or becomes incompetent, or revokes or disputes the validity of, or liability under, any Guaranty of the Indebtedness.

Adverse Change. A material adverse change occurs in Grantor's financial condition, or Lender believes the prospect of payment or performance of the Indebtedness is impaired.

Insecurity. Lender in good faith believes itself insecure.

Right to Cure. If any default, other than a default in payment is curable and if Grantor has not been given a notice of a breach of the same provision of this Deed of Trust within the preceding twelve (12) months, it may be cured if Grantor, after Lender sends written notice to Grantor demanding cure of such default: (1) cures the default within twenty (20) days; or (2) if the cure requires more than twenty (20) days, immediately initiates steps which Lender deems in Lender's sole discretion to be sufficient to cure the default and thereafter continues and completes all reasonable and necessary steps sufficient to produce compliance as soon as reasonably practical.

RIGHTS AND REMEDIES ON DEFAULT. If an Event of Default occurs under this Deed of Trust, at any time thereafter, Trustee or Lender may exercise any one or more of the following rights and remedies:

Election of Remedies. Election by Lender to pursue any remedy shall not exclude pursuit of any other remedy, and an election to make expenditures or to take action to perform an obligation of Grantor under this Deed of Trust, after Grantor's failure to perform, shall not affect Lender's right to declare a default and exercise its remedies.

Accelerate Indebtedness. Lender shall have the right at its option without notice to Grantor to declare the entire Indebtedness immediately due and payable, including any prepayment penalty which Grantor would be required to pay.

Foreclosure. Lender shall have the right to cause all or any part of the Real Property, and Personal Property, if Lender decides to proceed against it as if it were real property, to be sold by the Trustee according to the laws of the State of Colorado as respects foreclosures against real property. The Trustee shall give notice in accordance with the laws of Colorado. The Trustee shall apply the proceeds of the sale in the following order: (a) to all costs and expenses of the sale, including but not limited to Trustee's fees, attorneys' fees, and the cost of title evidence; (b) to all sums secured by this Deed of Trust; and (c) the excess, if any, to the person or persons legally entitled to the excess.

UCC Remedies. With respect to all or any part of the Personal Property, Lender shall have all the rights and remedies of a secured party under the Uniform Commercial Code.

Collect Rents. Lender shall have the right, without notice to Grantor to take possession of and manage the Property and collect the Rents, including amounts past due and unpaid, and apply the net proceeds, over and above Lender's costs, against the Indebtedness. In furtherance of this right, Lender may require any tenant or other user of the Property to make payments of rent or use fees directly to Lender. If the Rents are collected by Lender, then Grantor irrevocably designates Lender as Grantor's attorney-in-fact to endorse instruments received in payment thereof in the name of Grantor and to negotiate the same and collect the proceeds. Payments by tenants or other users to Lender in response to Lender's demand shall satisfy the obligations for which the payments are made, whether or not any proper grounds for the demand existed. Lender may exercise its rights under this subparagraph either in person, by agent, or through a receiver.

Appoint Receiver. Lender shall have the right to have a receiver appointed to take possession of all or any part of the Property, with the power to protect and preserve the Property, to operate the Property preceding foreclosure or sale, and to collect the

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Rents from the Property and apply the proceeds, over and above the cost of the receivership, against the Indebtedness. The receiver may serve without bond if permitted by law. Lender's right to the appointment of a receiver shall exist whether or not the apparent value of the Property exceeds the Indebtedness by a substantial amount. Employment by Lender shall not disqualify a person from serving as a receiver. Receiver may be appointed by a court of competent jurisdiction upon ex parte application and without notice, notice being expressly waived.

Tenancy at Sufferance. If Grantor remains in possession of the Property after the Property is sold as provided above or Lender otherwise becomes entitled to possession of the Property upon default of Grantor, Grantor shall become a tenant at sufferance of Lender or the purchaser of the Property and shall, at Lender's option, either (1) pay a reasonable rental for the use of the Property, or (2) vacate the Property immediately upon the demand of Lender.

Other Remedies. Trustee or Lender shall have any other right or remedy provided in this Deed of Trust or the Note or available at law or in equity.

Sale of the Property. In exercising its rights and remedies, Lender shall be free to designate on or before it files a notice of election and demand with the Trustee, that the Trustee sell all or any part of the Property together or separately, in one sale or by separate sales. Lender shall be entitled to bid at any public sale on all or any portion of the Property. Upon any sale of the Property, whether made under a power of sale granted in this Deed of Trust or pursuant to judicial proceedings, if the holder of the Note is a purchaser at such sale, it shall be entitled to use and apply all, or any portion of, the Indebtedness for or in settlement or payment of all, or any portion of, the purchase price of the Property purchased, and, in such case, this Deed of Trust, the Note, and any documents evidencing expenditures secured by this Deed of Trust shall be presented to the person conducting the sale in order that the amount of Indebtedness so used or applied may be credited thereon as having been paid.

Attorneys' Fees; Expenses. If Lender forecloses or institutes any suit or action to enforce any of the terms of this Deed of Trust, Lender shall be entitled to recover such sum as the court may adjudge reasonable as attorneys' fees at trial and upon any appeal. Whether or not any court action is involved, and to the extent not prohibited by law, all reasonable expenses Lender incurs that in Lender's opinion are necessary at any time for the protection of its interest or the enforcement of its rights shall become a part of the Indebtedness payable on demand and shall bear interest at the Note rate from the date of the expenditure until repaid. Expenses covered by this paragraph include, without limitation, however subject to any limits under applicable law, Lender's attorneys' fees whether or not there is a lawsuit, including attorneys' fees and expenses for bankruptcy proceedings (including efforts to modify or vacate any automatic stay or injunction), appeals, and any anticipated post-judgment collection services, the cost of searching records, obtaining title reports (including foreclosure reports), surveyors' reports, and appraisal fees, title insurance, and fees for the Trustee, to the extent permitted by applicable law. Grantor also will pay any court costs, in addition to all other sums provided by law.

Rights of Trustee. To the extent permitted by applicable law, Trustee shall have all of the rights and duties of Lender as set forth in this section.

NOTICES. Any notice required to be given under this Deed of Trust, including without limitation any notice of default and any notice of sale shall be given in writing, and shall be effective when actually delivered, when actually received by telefacsimile (unless otherwise required by law), when deposited with a nationally recognized overnight courier, or, if mailed, when deposited in the United States mail, as first class, certified or registered mail postage prepaid, directed to the addresses shown near the beginning of this Deed of Trust. All copies of notices of foreclosure from the holder of any lien which has priority over this Deed of Trust shall be sent to Lender's address, as shown near the beginning of this Deed of Trust. Any party may change its address for notices under this Deed of Trust by giving formal written notice to the other parties, specifying that the purpose of the notice is to change the party's address. For notice purposes, Grantor agrees to keep Lender informed at all times of Grantor's current address. Unless otherwise provided or required by law, if there is more than one Grantor, any notice given by Lender to any Grantor is deemed to be notice given to all Grantors.

MISCELLANEOUS PROVISIONS. The following miscellaneous provisions are a part of this Deed of Trust:

Amendments. This Deed of Trust, together with any Related Documents, constitutes the entire understanding and agreement of the parties as to the matters set forth in this Deed of Trust. No alteration of or amendment to this Deed of Trust shall be effective unless given in writing and signed by the party or parties sought to be charged or bound by the alteration or amendment.

Annual Reports. If the Property is used for purposes other than Grantor's residence, Grantor shall furnish to Lender, upon request, a certified statement of net operating income received from the Property during Grantor's previous fiscal year in such form and detail as Lender shall require. "Net operating income" shall mean all cash receipts from the Property less all cash expenditures made in connection with the operation of the Property.

Caption Headings. Caption headings in this Deed of Trust are for convenience purposes only and are not to be used to interpret or define the provisions of this Deed of Trust.

Merger. There shall be no merger of the interest or estate created by this Deed of Trust with any other interest or estate in the Property at any time held by or for the benefit of Lender in any capacity, without the written consent of Lender.

Governing Law. This Deed of Trust will be governed by federal law applicable to Lender and, to the extent not preempted by federal law, the laws of the State of Colorado without regard to its conflicts of law provisions. This Deed of Trust has been accepted by Lender in the State of Colorado.

No Waiver by Lender. Lender shall not be deemed to have waived any rights under this Deed of Trust unless such waiver is given in writing and signed by Lender. No delay or omission on the part of Lender in exercising any right shall operate as a waiver of such right or any other right. A waiver by Lender of a provision of this Deed of Trust shall not prejudice or constitute a waiver of Lender's right otherwise to demand strict compliance with that provision or any other provision of this Deed of Trust. No prior waiver by Lender, nor any course of dealing between Lender and Grantor, shall constitute a waiver of any of Lender's rights or of any of Grantor's obligations as to any future transactions. Whenever the consent of Lender is required under this Deed of Trust, the granting of such consent by Lender in any instance shall not constitute continuing consent to subsequent instances where such consent is required and in all cases such consent may be granted or withheld in the sole discretion of Lender.

Severability. If a court of competent jurisdiction finds any provision of this Deed of Trust to be illegal, invalid, or unenforceable as to any circumstance, that finding shall not make the offending provision illegal, invalid, or unenforceable as to any other circumstance. If feasible, the offending provision shall be considered modified so that it becomes legal, valid and enforceable. If the offending provision cannot be so modified, it shall be considered deleted from this Deed of Trust. Unless otherwise required by law, the illegality, invalidity, or unenforceability of any provision of this Deed of Trust shall not affect the legality, validity or enforceability of any other provision of this Deed of Trust.

Successors and Assigns. Subject to any limitations stated in this Deed of Trust on transfer of Grantor's interest, this Deed of Trust shall be binding upon and inure to the benefit of the parties, their successors and assigns. If ownership of the Property becomes vested in a person other than Grantor, Lender, without notice to Grantor, may deal with Grantor's successors with reference to this Deed of Trust and the Indebtedness by way of forbearance or extension without releasing Grantor from the obligations of this Deed of Trust or liability under the Indebtedness.

Time is of the Essence. Time is of the essence in the performance of this Deed of Trust.

Waive Jury. All parties to this Deed of Trust hereby waive the right to any jury trial in any action, proceeding, or counterclaim

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brought by any party against any other party.

Waiver of Homestead Exemption. Grantor hereby releases and waives all rights and benefits of the homestead exemption laws of the State of Colorado as to all Indebtedness secured by this Deed of Trust.

DEFINITIONS. The following capitalized words and terms shall have the following meanings when used in this Deed of Trust. Unless specifically stated to the contrary, all references to dollar amounts shall mean amounts in lawful money of the United States of America. Words and terms used in the singular shall include the plural, and the plural shall include the singular, as the context may require. Words and terms not otherwise defined in this Deed of Trust shall have the meanings attributed to such terms in the Uniform Commercial Code:

Beneficiary. The word "Beneficiary" means Bank of Colorado, and its successors and assigns.

Borrower. The word "Borrower" means AB & SB Construction Co., Inc. and includes all co-signers and co-makers signing the Note and all their successors and assigns.

Deed of Trust. The words "Deed of Trust" mean this Deed of Trust among Grantor, Lender, and Trustee, and includes without limitation all assignment and security interest provisions relating to the Personal Property and Rents.

Default. The word "Default" means the Default set forth in this Deed of Trust in the section titled "Default".

Environmental Laws. The words "Environmental Laws" mean any and all state, federal and local statutes, regulations and ordinances relating to the protection of human health or the environment, including without limitation the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. Section 9601, et seq. ("CERCLA"), the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499 ("SARA"), the Hazardous Materials Transportation Act, 49 U.S.C. Section 1801, et seq., the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901, et seq., or other applicable state or federal laws, rules, or regulations adopted pursuant thereto.

Event of Default. The words "Event of Default" mean any of the events of default set forth in this Deed of Trust in the events of default section of this Deed of Trust.

Grantor. The word "Grantor" means AB & SB Construction Co., Inc..

Guarantor. The word "Guarantor" means any guarantor, surety, or accommodation party of any or all of the Indebtedness.

Guaranty. The word "Guaranty" means the guaranty from Guarantor to Lender, including without limitation a guaranty of all or part of the Note.

Hazardous Substances. The words "Hazardous Substances" mean materials that, because of their quantity, concentration or physical, chemical or infectious characteristics, may cause or pose a present or potential hazard to human health or the environment when improperly used, treated, stored, disposed of, generated, manufactured, transported or otherwise handled. The words "Hazardous Substances" are used in their very broadest sense and include without limitation any and all hazardous or toxic substances, materials or waste as defined by or listed under the Environmental Laws. The term "Hazardous Substances" also includes, without limitation, petroleum and petroleum by-products or any fraction thereof and asbestos.

Improvements. The word "Improvements" means all existing and future improvements, buildings, structures, mobile homes affixed on the Real Property, facilities, additions, replacements and other construction on the Real Property.

Indebtedness. The word "Indebtedness" means all principal, interest, and other amounts, costs and expenses payable under the Note or Related Documents, together with all renewals of, extensions of, modifications of, consolidations of and substitutions for the Note or Related Documents and any amounts expended or advanced by Lender to discharge Grantor's obligations or expenses incurred by Trustee or Lender to enforce Grantor's obligations under this Deed of Trust, together with interest on such amounts as provided in this Deed of Trust.

Lender. The word "Lender" means Bank of Colorado, its successors and assigns.

Note. The word "Note" means the promissory note dated May 30, 2012, **in the original principal amount of $337,679.61** from Grantor to Lender, together with all renewals of, extensions of, modifications of, refinancings of, consolidations of, and substitutions for the promissory note or agreement. The maturity date of the Note is June 2, 2022. **NOTICE TO GRANTOR: THE NOTE CONTAINS A VARIABLE INTEREST RATE.**

Personal Property. The words "Personal Property" mean all equipment, fixtures, and other articles of personal property now or hereafter owned by Grantor, and now or hereafter attached or affixed to the Real Property; together with all accessions, parts, and additions to, all replacements of, and all substitutions for, any of such property; and together with all proceeds (including without limitation all insurance proceeds and refunds of premiums) from any sale or other disposition of the Property.

Property. The word "Property" means collectively the Real Property and the Personal Property.

Real Property. The words "Real Property" mean the real property, interests and rights, as further described in this Deed of Trust.

Related Documents. The words "Related Documents" mean all promissory notes, credit agreements, loan agreements, environmental agreements, guaranties, security agreements, mortgages, deeds of trust, security deeds, collateral mortgages, and all other instruments, agreements and documents, whether now or hereafter existing, executed in connection with the Indebtedness.

Rents. The word "Rents" means all present and future rents, revenues, income, issues, royalties, profits, and other benefits derived from the Property.

GRANTOR ACKNOWLEDGES HAVING READ ALL THE PROVISIONS OF THIS DEED OF TRUST, AND GRANTOR AGREES TO ITS TERMS.

GRANTOR:

AB & SB CONSTRUCTION CO., INC.

By: Stanislaw Bartlomiejczuk
Stanislaw Bartlomiejczuk, President of AB & SB Construction Co., Inc.

By: Aleksandra Bartlomiejczuk
Aleksandra Bartlomiejczuk, Secretary of AB & SB Construction Co., Inc.

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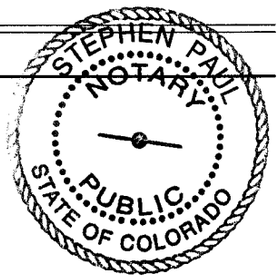
CORPORATE ACKNOWLEDGMENT



STATE OF Colorado)
) **SS**
COUNTY OF Garfield)

On this 30 day of May, 20 12, before me, the undersigned Notary Public, personally appeared **Stanislaw Bartlomiejczuk, President of AB & SB Construction Co., Inc. and Aleksandra Bartlomiejczuk, Secretary of AB & SB Construction Co., Inc.**, and known to me to be authorized agents of the corporation that executed the Deed of Trust and acknowledged the Deed of Trust to be the free and voluntary act and deed of the corporation, by authority of its Bylaws or by resolution of its board of directors, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute this Deed of Trust and in fact executed the Deed of Trust on behalf of the corporation.

By _____ **Residing at** 901 Grand Ave Glen CO 81601

Notary Public in and for the State of Colorado **My commission expires** 05-13-2013

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EXHIBIT "A"

Parcel 1:

A tract or parcel of land situated in the NE1/4SE1/4, of Section 16, Township 6 South, Range 89 West of the 6th Principal Meridian, described as:

Beginning at the Southeast corner of said NE1/4SE1/4; thence North 88°28' West 100 feet; thence North 1°27' East 130 feet; thence South 88°28' East 100 feet; thence South 1°27' West 130 feet to the place of beginning.

Parcel 2:

A parcel of land situated in the E½ of Lot 6 and the W½ of Lot 1 of Section 9, Township 6 South, Range 89 West of the Sixth Principal Meridian, in the City of Glenwood Springs, County of Garfield, State of Colorado; said parcel lying Southwesterly of State Highway No. 6 & 24 and being more particularly described as follows:

Commencing at the North quarter corner of said Section 9, a rock found in place; thence South 03°41'39" West 863.77 feet to a rebar and cap marked L.S. #10732 found in place on the Southwesterly right of way line of said State Highway No. 6 & 24, the TRUE POINT OF BEGINNING; thence along a line between said rebar and cap L.S. #10732 and a found rebar and cap marked L.S. #15710 South 64°57'39 West (and bounded on the North by Document No. 193180 as filed in the Garfield County Clerk and Recorder's Office) 313.56 feet to a point on a line running between 2 (two) hex bolts found set in concrete (whence said rebar and cap L.S. #15710 bears South 64°57'39" West 49.91 feet and the Northerly hex bolt bears North 26°52'45" West 10.98 feet); thence along the line between said hex bolts South 26°52'45" East (and bounded on the west by Document No. 222198) 243.78 feet to the Southerly hex bolt; thence North 74°58'49" East (bounded on the south by Document No. 168895) 130.07 feet to a spike found in place; thence North 00°12'38" West (bounded on the east by Document No. 160258) 42.53 feet to an axel found in place; thence South 88°35'18" East along a line parallel to the Southerly line of said Lot 6 as presently monumented (and bounded on the south by Document No. 160258) 74.72 feet to the Easterly line of said Lot 6; thence South 88°27'58" East along a line parallel to the Southerly line of said Lot 1, as presently monumented by a rebar and cap L.S. #10732 found at the Southeast corner of said Lot 6 and by a plain rebar found at the Southeast corner of said Lot 1, (and bounded on the south by Document No. 160258) 123.03 feet to the Southwesterly right of way line of said State Highway No. 6 & 24; thence North 28°08'42" West along said Southwesterly right of way line 316.48 feet to the true Point of Beginning.

Jordan Architecture Inc.

PO Box 1031 Glenwood Springs, CO 81602 970-618-6690
email: bradjordanarchitect@gmail.com
website: jordanarchitecture.com

01 December 2021

City of Glenwood Springs
Planning Department

RE: 702 23rd Street

To whom it may concern:

This letter serves as a brief narrative of the aforementioned project and site.

The said property consists of a single family residence, which is intended to be demolished and replaced with a 5-plex. The proposed 5-plex is all within one structure, and each unit consists of 2 bedroom units. The proposed use is for long term rental units.

Lot coverage, on-site parking, landscaping proposed/required, along with area calculations for each unit and other pertinent information is integrated into the architectural site plan, floor plans, exterior elevations and building sections and meets and/or exceeds the City's requirements.

Hip roofs, combined with gable and shed elements are used to reduce the overall scale and massing of the structure. In addition, a stone wainscot is being used with earth tone stucco. The intent is to provide 2 colors of stucco, the main field area and the raised 'trim' around the windows in order to provide additional architectural character to the structure.

The proposed drive width is proposed to be 20', which does not meet the engineering standards (24') and will require a variance.

The proposed drive access is approximately 5' from the Westerly property line, which does not meet the engineering standards (15') and will require a variance.

Please feel free to contact me with any questions.

Respectfully submitted,

Brad Jordan

Brad Jordan
Principal Architect

Administrative Adjustment

Adjustment Type: The owner would like to use stucco as an exterior finish on the structure, highlighted with a different color, raised stucco trim around windows and doors. Stone wainscoting will be implemented around the base of the structure, along with secondary roof structures with exposed wood/timber elements. With the ever changing use of sustainable materials, stucco will continue to become a more readily used material. Stucco is used in many applications throughout the Roaring Fork Valley.

1. Stucco when used in combination with other materials (stone and wood) can create a beautiful alternative to a stained or painted exterior finish of a home/structure, which also provides a maintenance free and sustainable finish.
2. By integrating the use of other materials (wood and stone) to compliment the use of stucco, the adverse impact of an entire structure of stucco is avoided.
3. There is not an unusual site condition that relates to the use of stucco.
4. The Municipal Code was written and stucco was not included in the list of approved materials. Based on the changing environment, sustainability and the continued request for maintenance free applications on the exterior of homes due to our extreme weather conditions, stucco is becoming a more preferred exterior finish.
5. In allowing the use of stucco, the structure will require less maintenance and the appearance of the structure will maintain a better appearance for a much longer period of time. Maintenance of structures throughout the City are compromised in many cases and the structures within the City begin to look more ‘run down’ and ‘not kept up’ in appearance, whereas a stucco product tends to have the same appearance for a much longer time.

GENERAL NOTES

1. THE A.I.A DOCUMENT A201 'GENERAL CONDITIONS OF THE CONTRACT FOR CONSRTUCTION', LATEST EDITION, ARE HEREBY MADE A PART OF THESE CONTRACT DOCUMENTS, EXCEPT AS AMENDED HEREIN.

2. THE CONTRACT DOCUMENTS CONSIST OF THE AGREEMENT, THE GENERAL NOTES, THE SPECIFICATIONS, AND THE DRAWINGS, WHICH ARE COOPERATIVE AND CONTINUOUS. WORK INDICATED OR REASONABLY IMPLIED IN ANY ONE OF THE DOCUMENTS SHALL BE SUPPLIED AS THOUGH FULLY COVERED IN ALL. ANY DISCREPANCY BETWEEN THE DIFFERENT PARTS SHOULD BE REPORTED TO THE ARCHITECT IMMEDIATELY.

3. ALL WORK SHALL COMPLY WITH ALL STATE AND LOCAL CODES AND ORDINANCES, AND SHALL BE PERFORMED TO THE HIGHEST STANDARDS OF CRAFTSMANSHIP BY JOURNEYMEN OF THE APPROPRIATED TRADES.

4. THESE DOCUMENTS ARE INTENDED TO INCLUDE ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE ALL WORK DESCRIBED HEREIN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BRING TO THE ATTENTION OF THE ARCHITECT CONDITIONS, WHICH WILL NOT PERMIT CONSTRUCTION ACCORDING TO THE INTENTIONS OF THESE DOCUMENTS. IT IS THE RESPONSIBILITY OF THE ARCHITECT TO PROVIDE DETAILS AND/OR DIRECTIONS REGARDING DESIGN INTENT WHERE IT IS ALTERED BY EXISTING CONDITIONS OR WHERE NEGLECTED IN THE DOCUMENTS.

5. ANY MATERIALS PROPOSED FOR SUBSTITUTION OF THOSE SPECIFIED OR CALLED OUT BY TRADE NAME IN THESE DOCUMENTS SHALL BE PRESENTED TO THE ARCHITECT FOR REVIEW. THE CONTRACTOR SHALL SUBMIT SAMPLES WHEN REQUIRED BY THE ARCHITECT, AND THE ARCHITECT SHALL REVIEW ALL SUCH SAMPLES BEFORE THE WORK IS PERFORMED. WORK MUST CONFORM TO THE REVIEWED SAMPLES. ANY WORK WHICH DOES NOT CONFORM SHALL BE REMOVED AND REPLACED WITH WORK WHICH CONFORMS AT THE CONTRACTORS' EXPENSE. SUBCONTRACTORS SHALL SUBMIT REQUEST AND SAMPLES FOR REVIEW THROUGH THE GENERAL CONTRACTOR WHEN WORK IS LET THROUGH THE GENERAL CONTRACTOR. REQUIRED VERIFICATIONS AND SUBMITTALS TO BE MADE IN ADEQUATE TIME AS NOT TO DELAY WORK IN PROGRESS.

6. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR THEIR REVIEW WHERE CALLED FOR ANYWHERE IN THESE DOCUMENTS. REVIEW SHALL BE MADE BY THE ARCHITECT BEFORE WORK IS BEGUN, AND WORK SHALL CONFORM TO THE REVIEWED SHOP DRAWINGS, SUBJECT TO REPLACEMENT AS REQUIRED FOR SAMPLES IN PARAGRAPHS, ABOVE.

7. THE CONTRACTOR SHALL NOTIFY THE BUILDING INSPECTOR OR WHEN THERE IS A NEED OF INSPECTION AS REQUIRED BY THE INTERNATIONAL BUILDING CODE OR BY ANY LOCAL CODE OR ORDINANCE.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY AND CARE OF ADJACENT PROPERTIES DURING CONSTRUCTION, FOR COMPLIANCE WITH FEDERAL AND STATE O.S.H.A. REGULATIONS AND FOR THE PROTECTION OF ALL WORK UNTIL IT IS DELIVERED COMPLETED TO THE OWNER.

9. DO NOT SCALE DRAWINGS.

10. CONTRACTOR SHALL VERIFY AND COORDINATE ALL OPENINGS THROUGH FLOORS, CEILINGS, AND WALLS WITH ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS.

11. CONTRACTOR WILL ASSUME RESPONSIBILITY OF ITEMS REQUIRING COORDINATION AND RESOLUTION DURING THE BIDDING PROCESS.

12. CROWN ALL STUDS, JOISTS, AND RAFTERS. CROWN JOISTS AND RAFTERS UP.

13. COORDINATE JOIST PLACEMENT WITH PLUMBING AND ELECTRICAL FIXTURE PLACEMENT.

14. ARCHITECT SHALL FIELD VERIFY BUILDING LOCATION AFTER STAKE OUT IS COMPLETE AND BEFORE THE CONTRACTOR BEGINS ANY SITE CLEARING. NOTIFY THE ARCHITECT 24 HOURS IN ADVANCE TO ARRANGE INSPECTION.

15. CONTACT UTILITY COMPANIES TO FIELD VERIFY LOCATION OR RESPECTIVE SERVICE LINES PRIOR TO BEGINNING CONSTRUCTION.

16. THE PURPOSE OF THESE DRAWINGS IS ONLY TO GRAPHICALLY DEPICT THE GENERAL NATURE OF THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING DIMENSIONS AND SELECTING FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION. THE ARCHITECT AND/OR ENGINEERS SHALL BE NOTIFIED OF ANY VARIATION FROM DIMENSIONS OR CONDITIONS SHOWN IN THE DRAWINGS.

ABBREVIATIONS

AFF	ABOVE FINISH FLR.
ADJ	ADJACENT
AGG	AGGREGATE
ARCH	ARCHITECTURAL
BM	BEAM
BRG	BEARING
BTWN	BETWEEN
BLDG	BUILDING
CL	CENTERLINE
CER	CERAMIC TILE
CLR	CLEAR
CLOS	CLOSET
COL	COLUMN
CONC	CONCRETE
CJ	CONSTRUCTION JOINT
CONT	CONTINUOUS
DTL	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DW	DISHWASHER
DN	DOWN
DWG	DRAWING
EA	EACH
EL	ELEVATION
EQ	EQUAL
EXIST	EXISTING
EXT	EXTERIOR
FIN	FINISH
FLR	FLOOR
FD	FLOOR DRAIN
FTG	FOOTING
FDN	FOUNDATION
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GL	GLASS
GR	GRADE
GYP	GYPSUM
HDWR	HARDWARE
HD	HEAD
HT	HEIGHT
HORIZ	HORIZONTAL
INT	INTERIOR
JT	JOINT
LAM	LAMINATE
LAV	LAVATORY
MFGR	MANUFACTURER
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MISC	MISCELLANEOUS
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
PERF	PERFORATED
PL	PLATE
PLY	PLYWOOD
REF	REFRIGERATOR
REQD	REQUIRED
RO	ROUGH OPENING
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATION
STL	STEEL
TBD	TO BE DETERMINED
TEL	TELEPHONE
TV	TELEVISION
TEMP	TEMPERED
THK	THICK
T & G	TOUNGE AND GROOVE
T & B	TOP AND BOTTOM
TO	TOP OF
T	TREAD
TYP	TYPICAL
VIF	VERIFY IN FIELD
VERT	VERTICAL
WP	WATERPROOF
WNDW	WINDOW
WD	WOOD

ELECTRICAL SYMBOLS

- RECESSED DOWNLIGHT
- +84" SURFACE WALL FIXTURE
- SURFACE INCANDESCENT
- UNDER COUNTER LIGHT STRIP
- +84" TORCHIERE SCONCE
- EXHAUST FAN
- DECORATIVE FAN/LIGHT COMBINATION
- NG NATURAL FUEL GAS
- CABLE TELEVISION JACK
- TELEPHONE JACK
- DUPLEX OUTLET
- SWITCHED DUBLEX OUTLET
- 220V 220 VOLT OUTLET
- SINGLEPOLE LIGHT SWITCH
- 3 3-WAY LIGHT SWITCH
- 4 4-WAY LIGHT SWITCH
- WP WATERPROOF DUPLEX OUTLET
- GFI GROUND FAULT INTERRUPTED CIRCUIT
- ELECTRIC GARAGE DOOR OPENER
- WALL MOUNTED FLOOD LIGHT
- 1x4 FLUOR 1x4 SURFACE FLOURESCENT
- 2x4 FLUOR 2x4 SURFACE FLUORECENT
- FS FIRE SPRINKLER
- SD SMOKE DETECTOR

LEGEND

- T.O. CONCRETE XXX.(000) — ELEVATION HEIGHTS ACTUAL (DATUM)
- T.O. PLYWOOD XXX.(000) — FLOOR ELEVATION ACTUAL (DATUM)
- A1 SHEET NO. — SECTION CUT/SHEET NUMBER
- XX — MATERIAL CHANGE
- XXX — INTERIOR ELEVATION DENOTATION / SHEET NUMBER

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A 2.1	ARCHITECTURAL SITE PLAN
A 3.1	MAIN LEVEL FLOOR PLAN
A 3.2	UPPER LEVEL FLOOR PLAN
A 3.3	ROOF PLAN
A 4.1	EXTERIOR ELEVATIONS
A 4.2	EXTERIOR ELEVATIONS
A5.1	BUILDING SECTIONS & CONSTRUCTION
C1	GRADING, DRAINAGE & EROSION CONT
C2	DRAINAGE BASIN
C3	DRAINAGE DETAILS
C4	DRAINAGE DETAILS
C5	MASTER UTILITY PLAN
T1	TOPOGRAPHIC SURVEY

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Phone: (970) 618-0006
brad@jordanarchitect@gmail.com
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A Residence Development for:

AB & SB Construction

Project Site: 702 23rd Street
Glenwood Springs, Colorado

Date	
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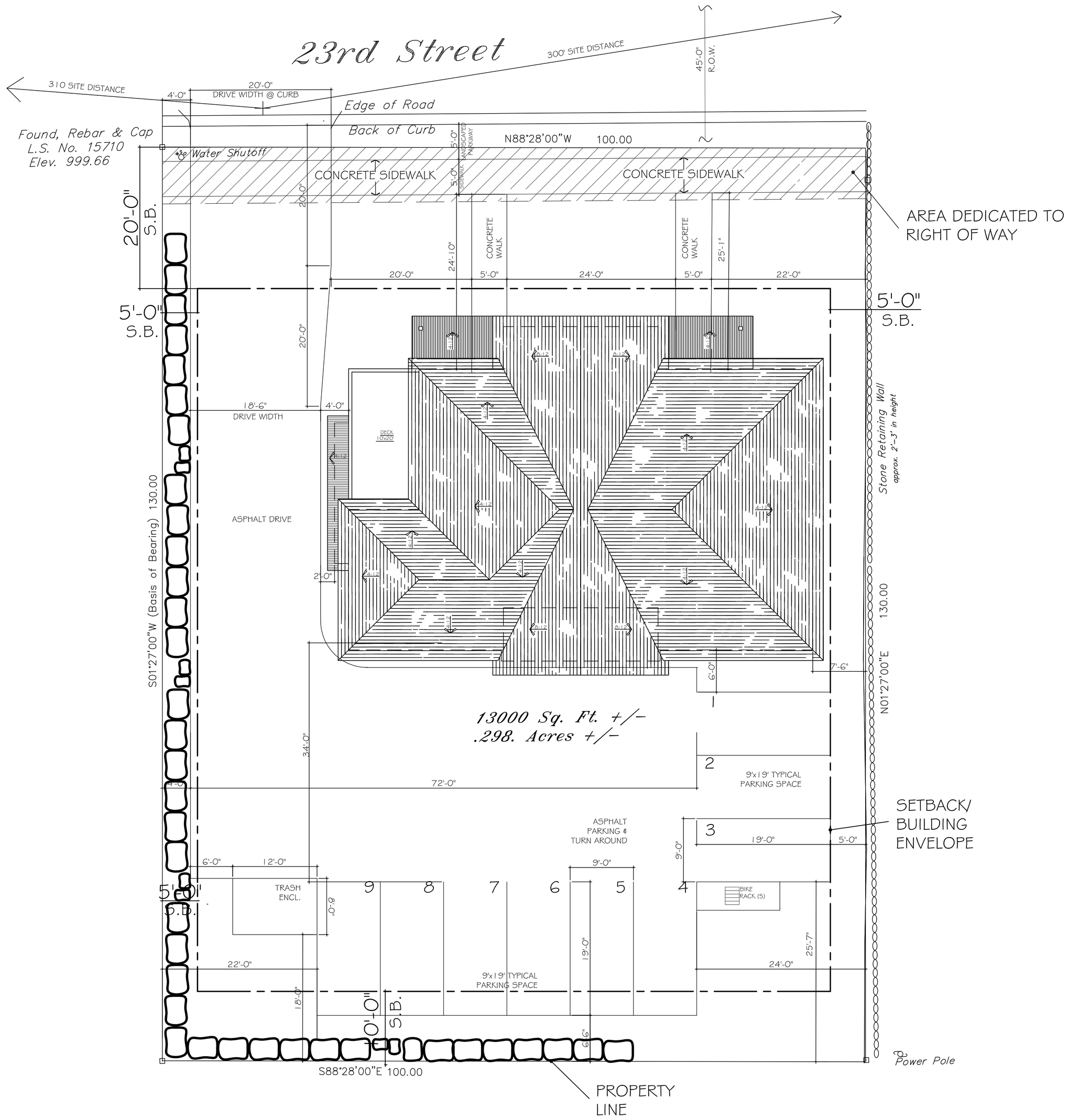

Lot size: 13,000sf

Unit Total: 5 Units (maximum allowed units for lot size - 5 units/11,250sf)

Unit Areas:
UNIT #1 (Main Level) = 880 sf
UNIT #2 (Main Level) = 880 sf
UNIT #3 (Main Level) = 920 sf

UNIT #4 (Upper Level) = 1170 sf
UNIT #5 (Upper Level) = 1320 sf

Total:
Main Level + Upper Level = 5170 sf
(11,250 sf allowed)

Parking Requirements: 1.5 spaces/unit (5) = 7.5 + 1 space/5 units = 8.5 spaces required
(9 spaces provided)

Open Space/Landscping Requirements: 20% of lot area or 2600 sf. 3920 sf provided - 30.14%

Hardscape Area: 5408 sf
Parking Area: 3915 sf

Landscape Planting Requirements:
20% of lot size = 2600 sf
Trees: 1 per 400 sf = 6.5 (9 provided)
Shrubs: 1 per 100 sf = 26 (37 provided)
Perennials: 1 per 25 sf = 52 (55 provided)

Lot Coverage:
Existing Structures: 1771 sf (13.6%)
Proposed Structure: 2847 sf (21.9%)
Allowable Lot Coverage: 25% + 13.6% = 38.6% (5018 sf)

Additional Storage Requirement: 1 cf per 3 sf gross floor area
Unit 1: 880 sf/3 = 293 cf (390 cf provided)
Unit 2: 880 sf/3 = 293 cf (354 cf provided)
Unit 3: 920 sf/3 = 307 cf (316 cf provided)
Unit 4: 1170 sf/3 = 390 cf (390 cf provided)
Unit 5: 1320 sf/3 = 440 cf (466 cf provided)

PLAN NORTH

Architectural Site Plan

1/8"=1'-0"

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A Residential Development for:
AB & SB Construction

Project Site: 702 23rd Street
Glenwood Springs, Colorado

Date	
12-23-21	Admin. Rev.
01-31-22	Comm.Dev.
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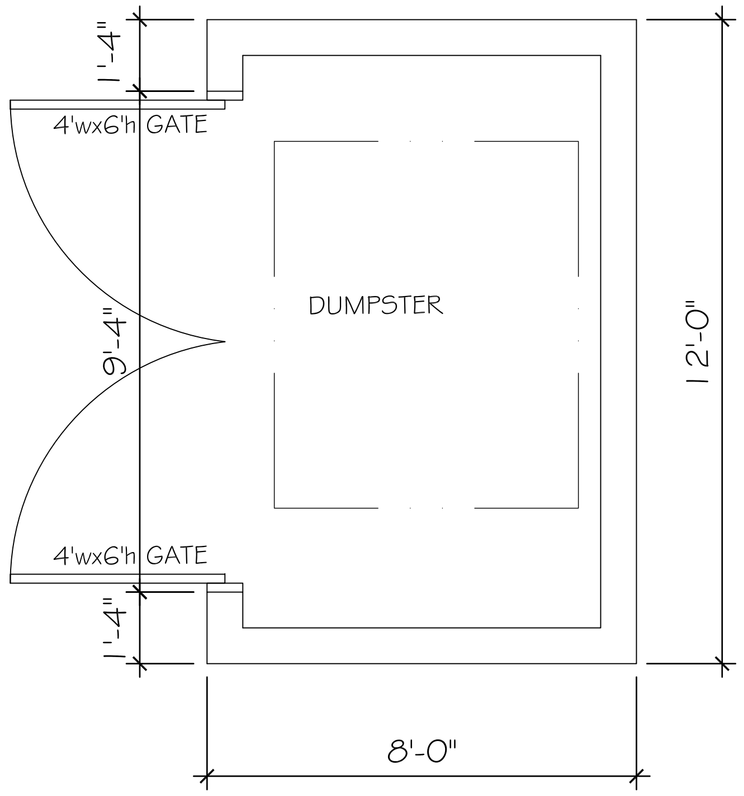

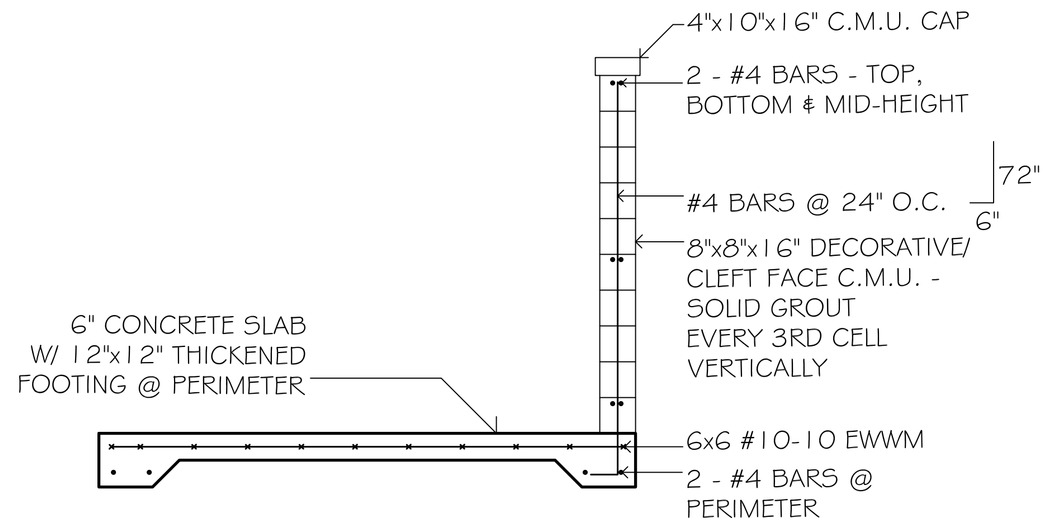

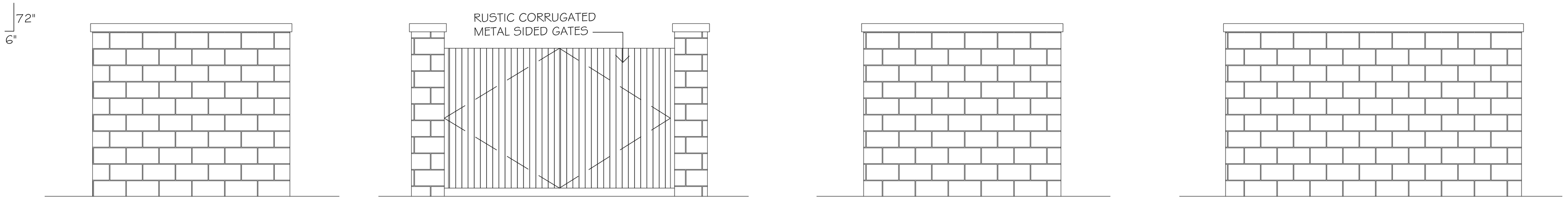

PLAN NORTH

Trash Enclosure Details

1/2"=1'-0"

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A Residential Development for:
AB & SB Construction

Project Site: 702 23rd Street
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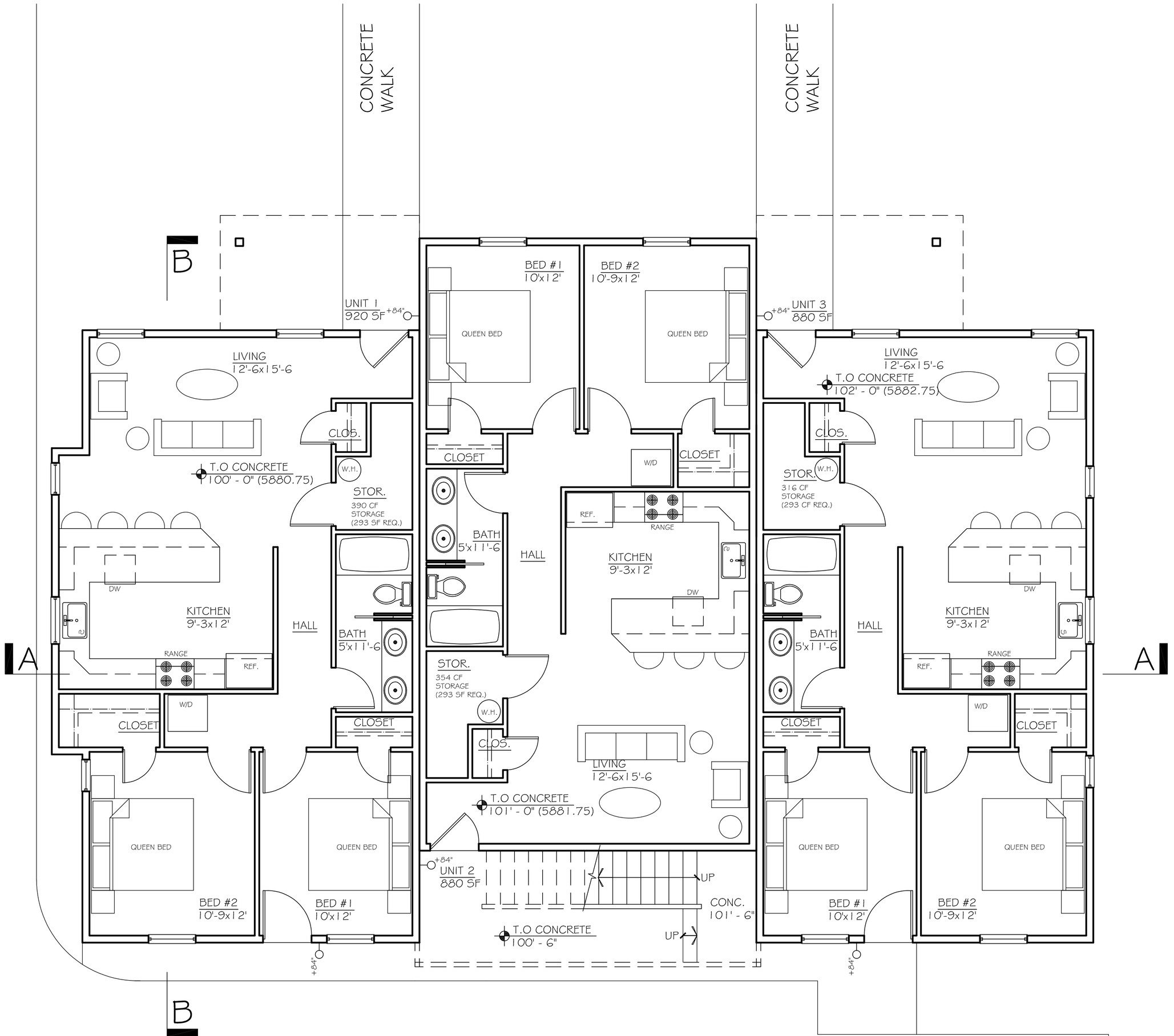

PLAN NORTH

Main Level Floor Plan

$\frac{1}{4}$" = 1'-0"

JORDAN ARCHITECTURE, INC.
P.O. Box 1031
Glenwood Springs, Colorado 81602
Phone: 970.618.6690
bradjordanarchitect@gmail.com
jordanarchitecure.com

A Residential Development for:
AB & SB Construction

Project Site: 702 23rd Street
Glenwood Springs, Colorado

Date	
12-17-21	Admin. Rev.
Revisions	

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A3.1

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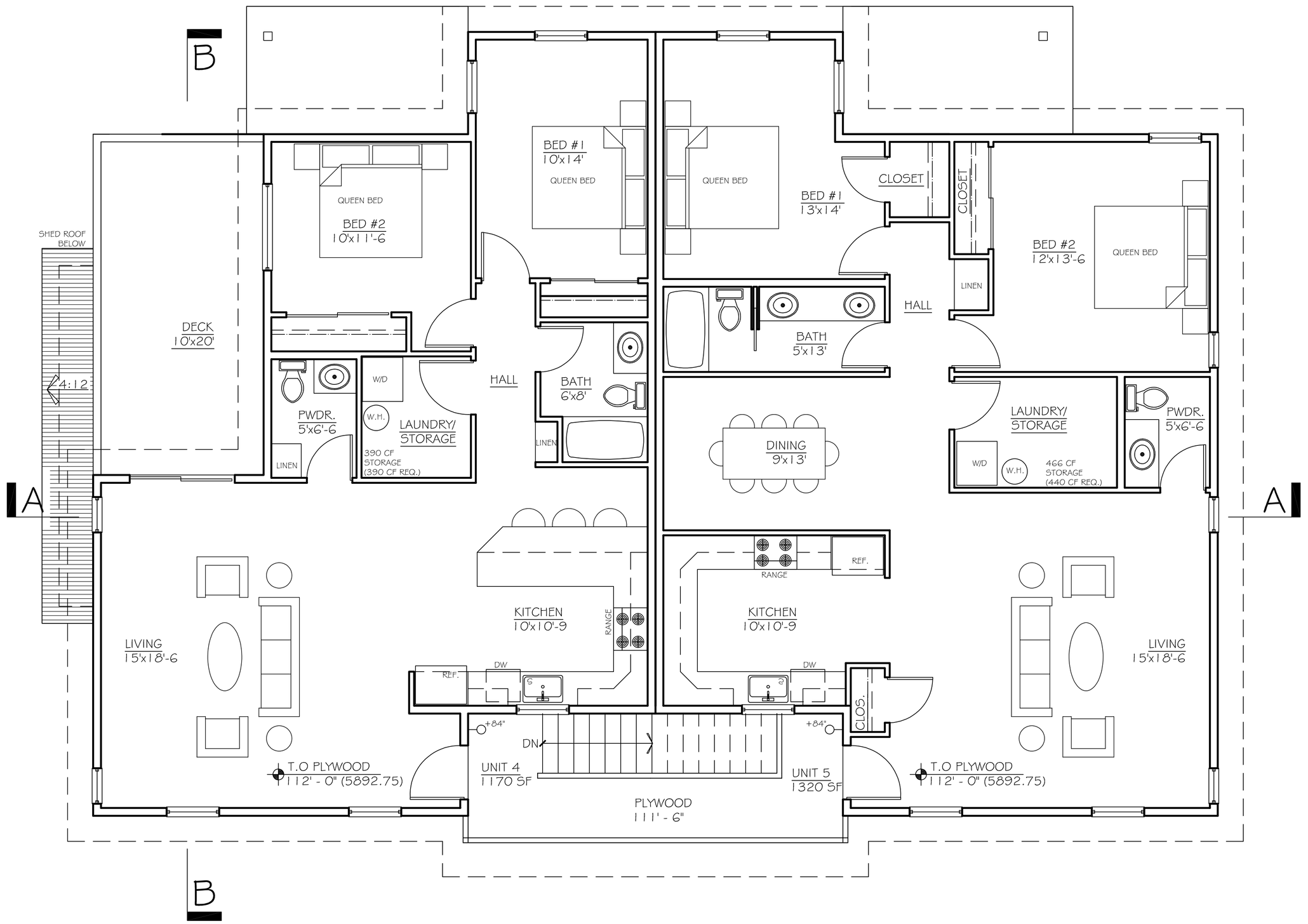

PLAN NORTH

Upper Level Floor Plan

1/4" =1'-0"

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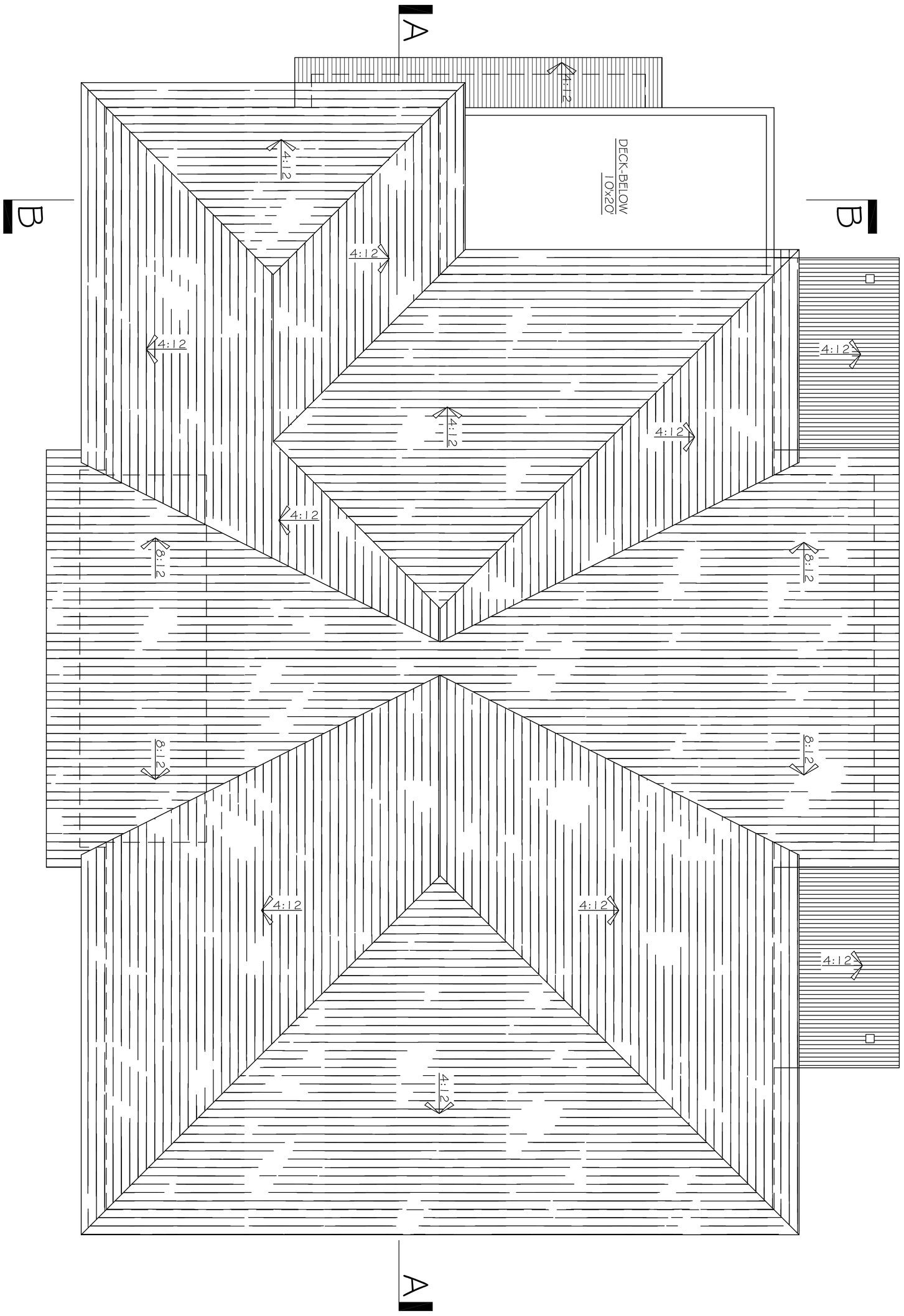

Roof Plan

1/4" =1'-0"

PLAN NORTH

Sheet
A3.3

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Glenwood Springs, Colorado

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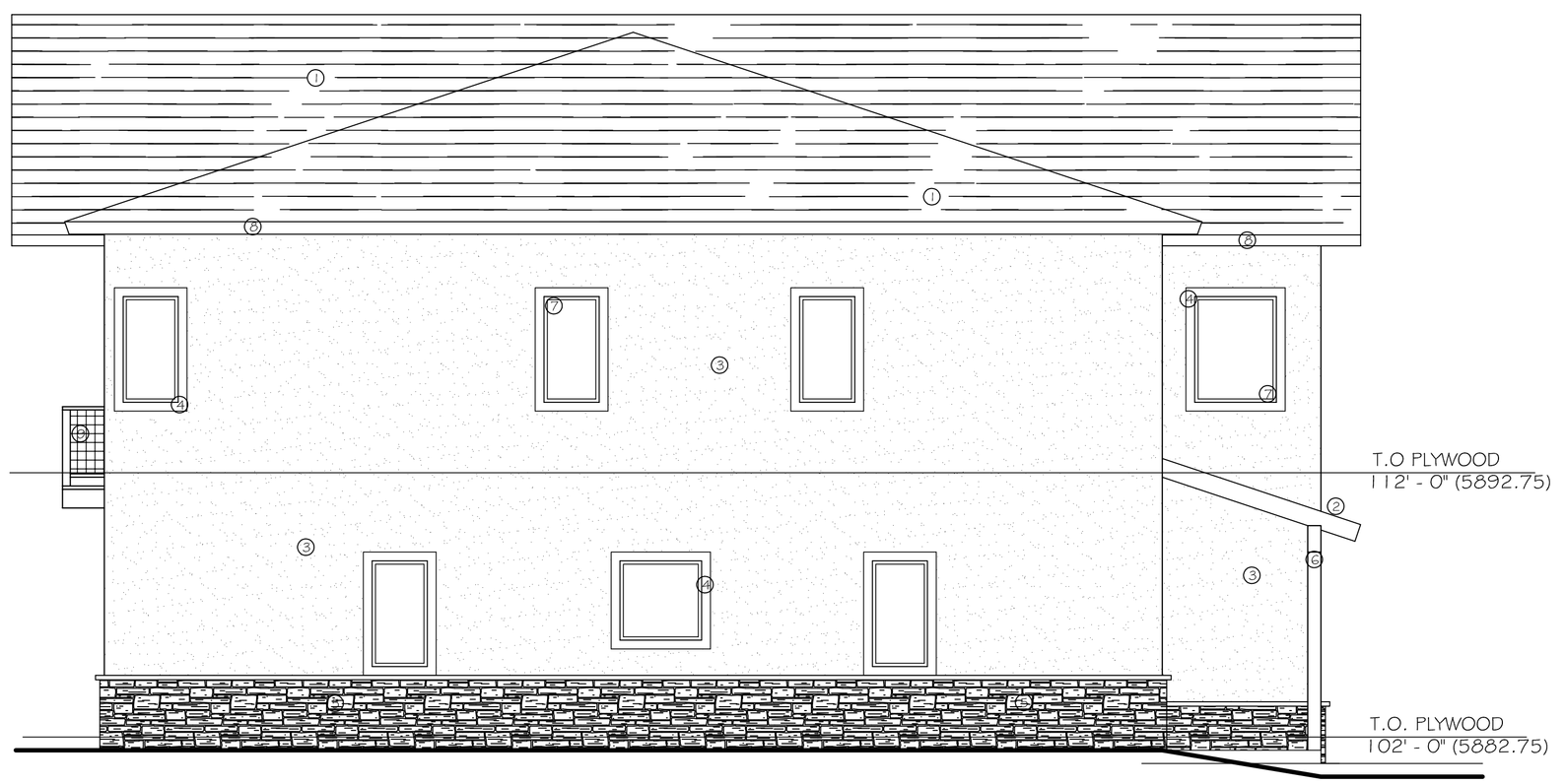
North/23rd Street

ELEVATION KEYNOTES:

1 ARCHITECTURAL SERIES ASPHALT COMPOSITION SHINGLES
2 RUSTIC CORRUGATED METAL ROOFING
3 SYNTHETIC STUCCO
4 RAISED SYNTHETIC STUCCO TRIM
5 SYNTHETIC/CULTURED STONE VENEER AND STONE CAP
6 6x6 POST & 6x12 ROUGH SAWN TIMBER
7 VINYL WINDOW
8 1x8 FASCIA
9 SUPPORT POSTS, METAL CAP & ELK FENCING GUARDRAIL



East

Conceptual Exterior Elevations

1/4" =1'-0"

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A Residential Development for:
AB & SB Construction

Project Site: 702 23rd Street
Glenwood Springs, Colorado

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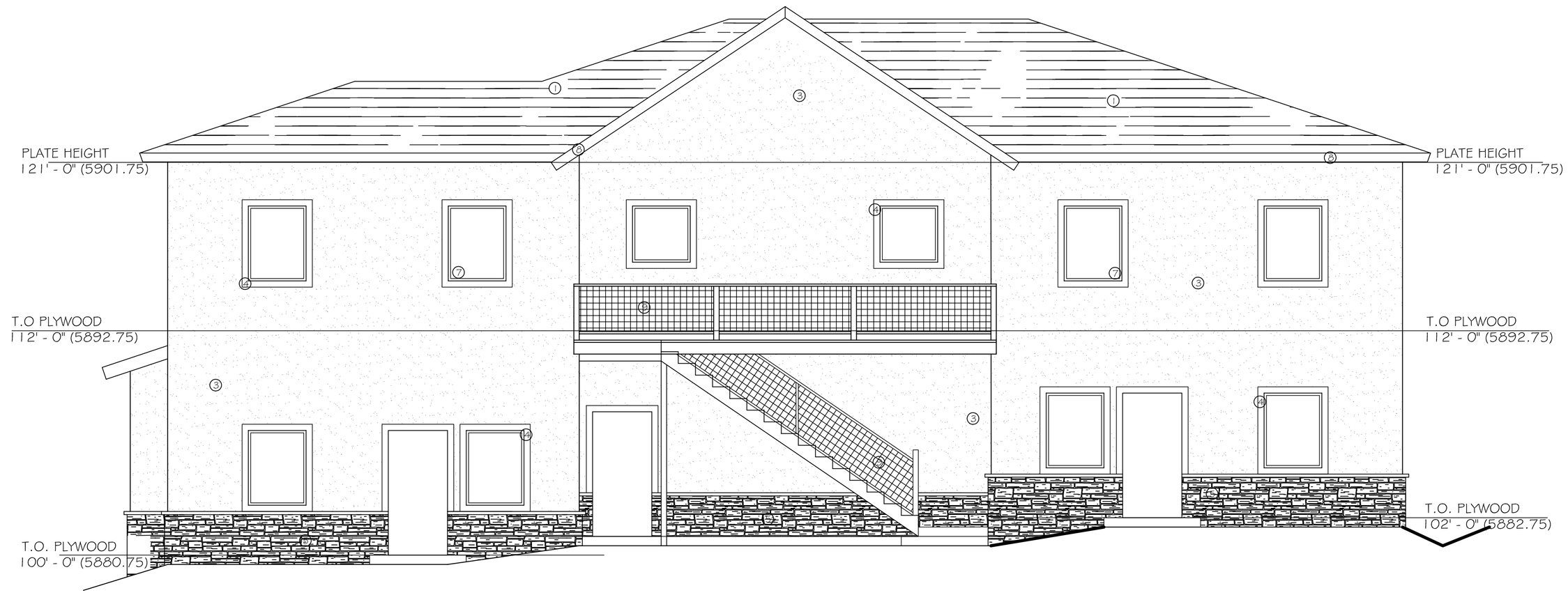
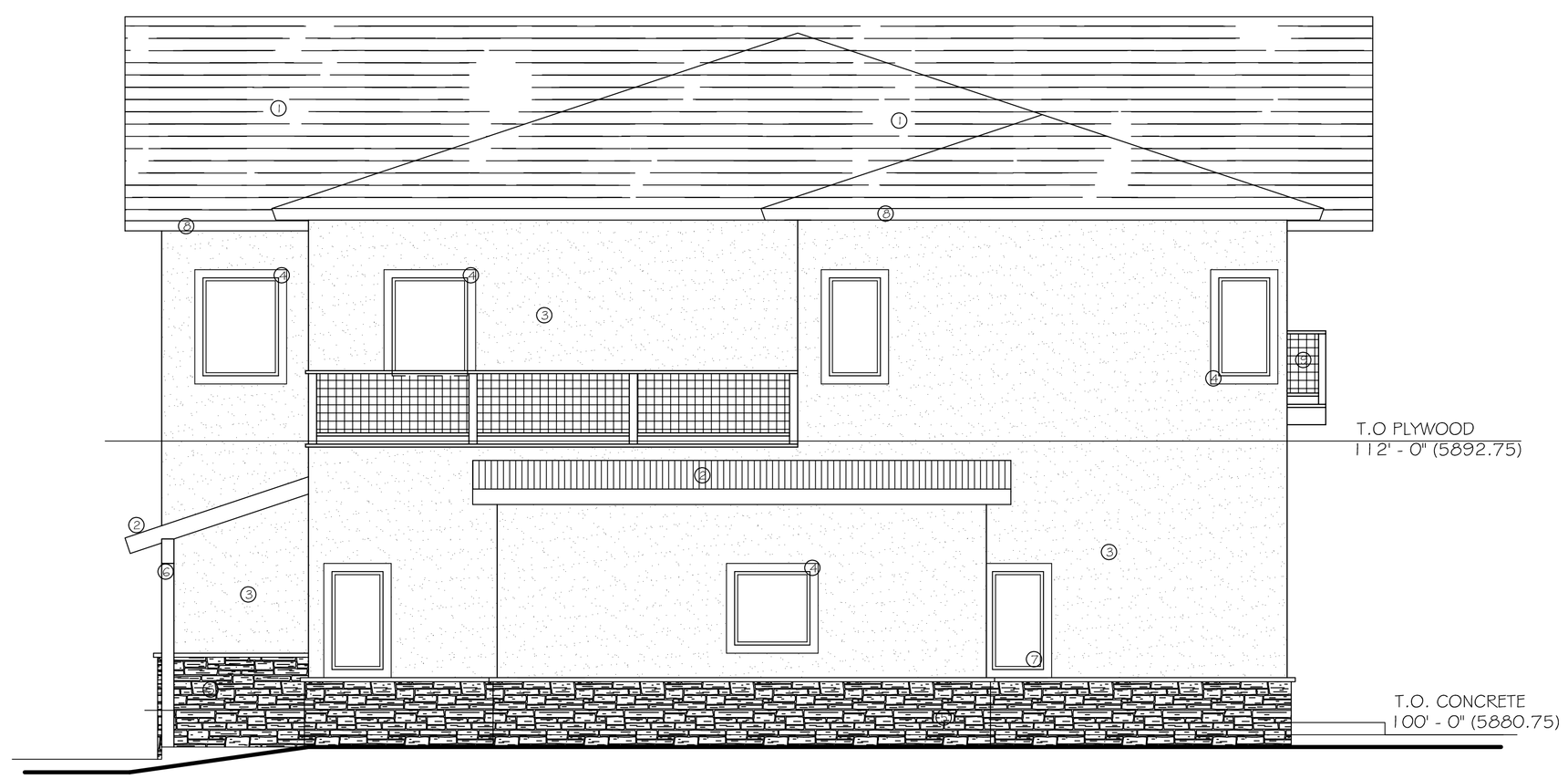


South/Rear



West

ELEVATION KEYNOTES:

1 ARCHITECTURAL SERIES ASPHALT COMPOSITION SHINGLES
2 RUSTIC CORRUGATED METAL ROOFING
3 SYNTHETIC STUCCO
4 RAISED SYNTHETIC STUCCO TRIM
5 SYNTHETIC/CULTURED STONE VENEER AND STONE CAP
6 6x6 POST & 6x12 ROUGH SAWN TIMBER
7 VINYL WINDOW
8 1x8 FASCIA
9 SUPPORT POSTS, METAL CAP & ELK FENCING GUARDRAIL

Coneptual Exterior Elevations

$\frac{1}{4}$" =1'-0"

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A Residential Development for:
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Project Site: 702 23rd Street
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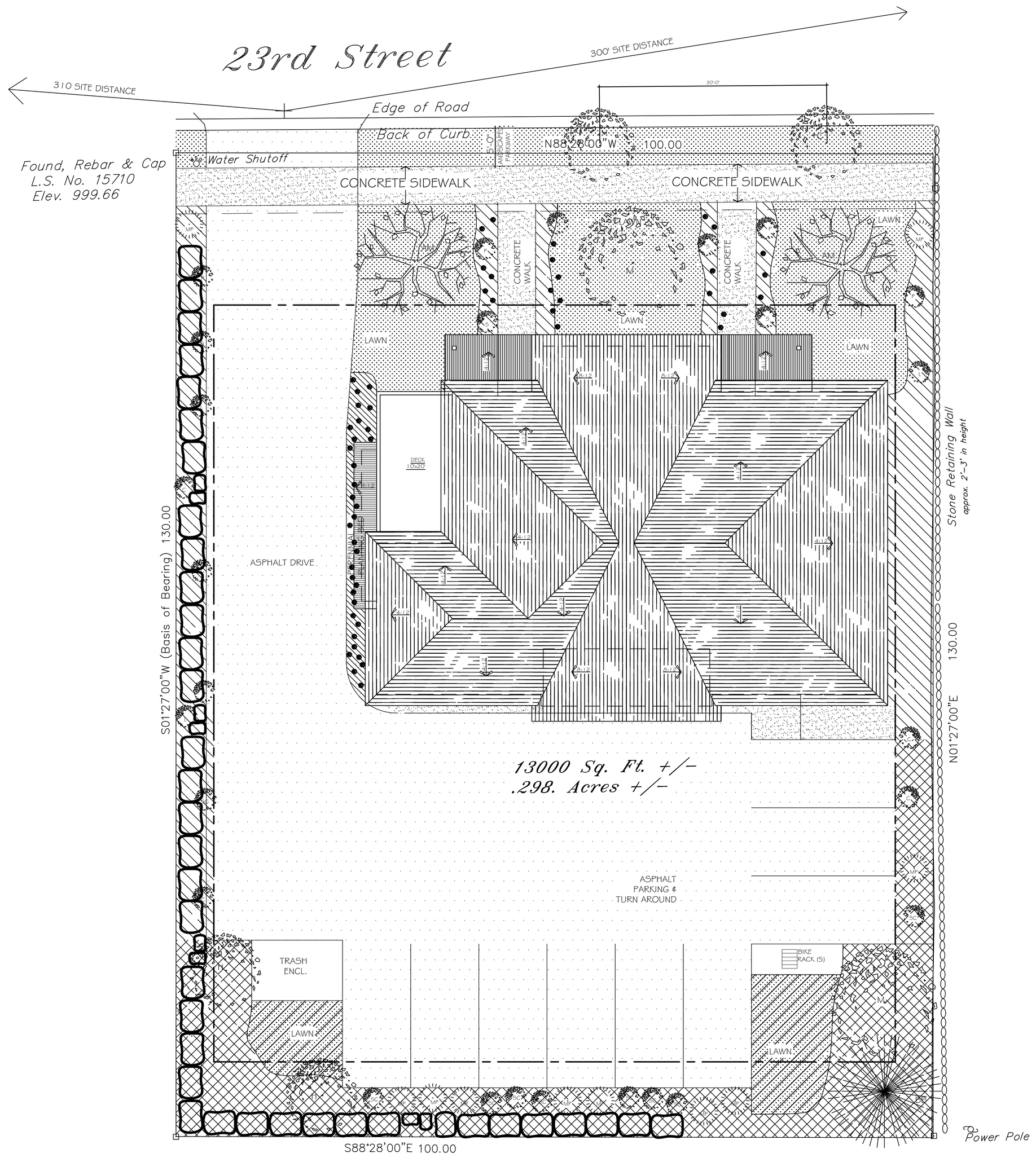

PLANTING LEGEND:

SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE	QTY
	TREES			
S	BABY BLUE EYES SPRUCE	PICEA PUNGENS 'BABY BLUE'	10'	1
M	HOT WINGS MAPLE	ACER TARTARIAN 'HOT WINGS'	2"C	2
C	SPRING SNOW CRABAPPLE	MALUS SP. 'SPRING SNOW'	2.5"C	2
H	THORNLESS COCKSPUR HAWTHORNE	CRATAEGUS-CRUS GALLI VAR. INERMIS	2"C	2
AM	AMUR MAPLE	ACER GINNALA	2"C	2
	SHRUBS			
L	MISS KIM DWARF LILAC	SYRINGA PETULA 'MISS KIM'	5 GAL	4
P	McKAY'S WHITED POTENTILLA	POTENTILLA FRUTICOSA 'McKAY'S'	5 GAL	4
S	NEON SPLASH SPIREA	SPIREA JAPONICA 'NEON FLASH'	5 GAL	5
C	CRANBERRY COTONEASTER	COTONEASTER APICULATA	5 GAL	5
SC	SAND CHERRY	PRUNUS BESSEYI	5 GAL	9
MP	DWARF MUGO PINE	PINUS MUGO 'PUMILLO'	5 GAL	10
	PERENNIALS			
	MOUNTAIN LUPINE, BLUE FLAX, SHASTA DAISY, COLUMBINE, CONEFLOWER, KARL FOERSTER REED GRASS, HAMELN DWARF FOUNTAIN GRASS, BLUE GRAMA		1 GAL.	55
	MULCH BED - CEDAR BARK			
	SOD/LAWN	KENTUCKY BLUEGRASS	8000 S.F.	
	MULCH BED - CEDAR BARK (INTERIOR PARKING LOT LANDSCAPING)		1237 S.F.	
	LAWN - (INTERIOR PARKING LOT LANDSCAPING)		309 S.F.	

PLAN NORTH

Conceptual Landscape Plan

1/8"=1'-0"

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A Residential Development for:
AB & SB Construction

Project Site: 702 23rd Street
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01-31-22	Comm.Dev.
Revisions	

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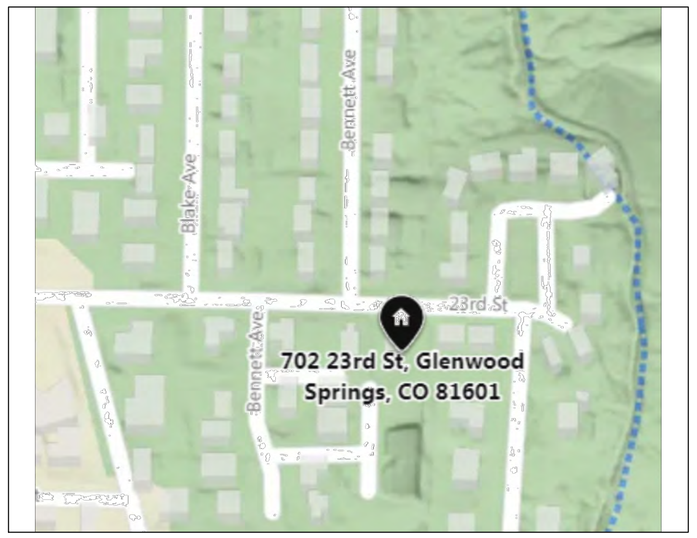
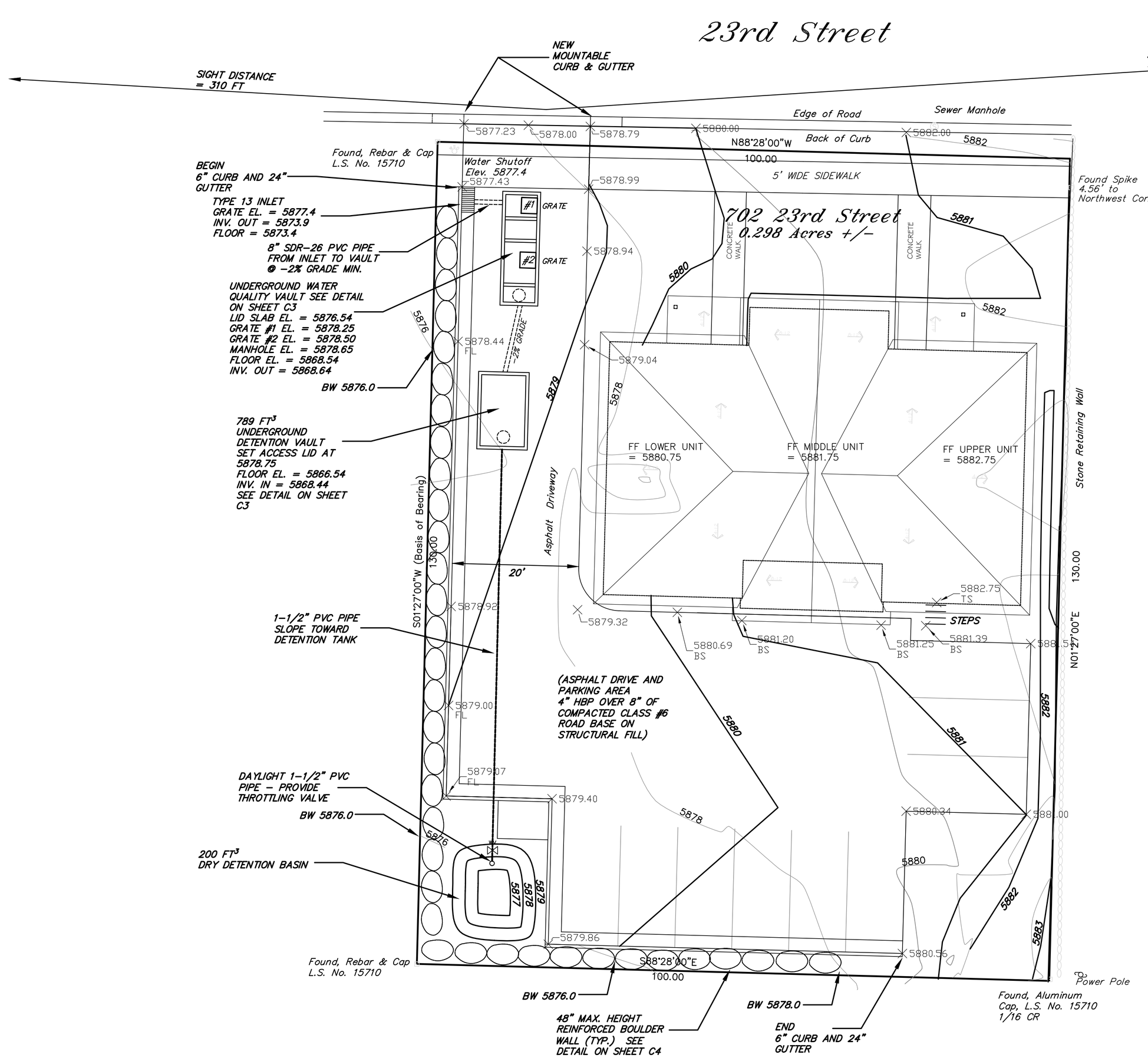


VICINITY MAP
N.T.S.



GENERAL NOTES:

1. SILT FENCE SHALL BE INSTALLED ON THE DOWN-GRADIENT SIDE OF THE PROPOSED DISTURBANCE AREA PRIOR TO CONSTRUCTION IN ACCORDANCE WITH THE DETAIL SHOWN ON SHEET C3.

2. THE LOCATIONS OF UNDERGROUND UTILITIES LINES IN ALL CASES ARE NOT SHOWN HEREON. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES FOR FIELD UTILITY LOCATES, 48 HOURS PRIOR TO CONSTRUCTION.

3. SEE DRAINAGE AND EROSION CONTROL DETAILS ON SHEET C3 & C4.

COLORADO LICENSED
HANS E. BRICKER
35088
12/03/21
PROFESSIONAL ENGINEER

OWNER: AB & SB CONSTRUCTION CO INC
162 W 6TH ST
GLENWOOD SPRINGS, CO 81601

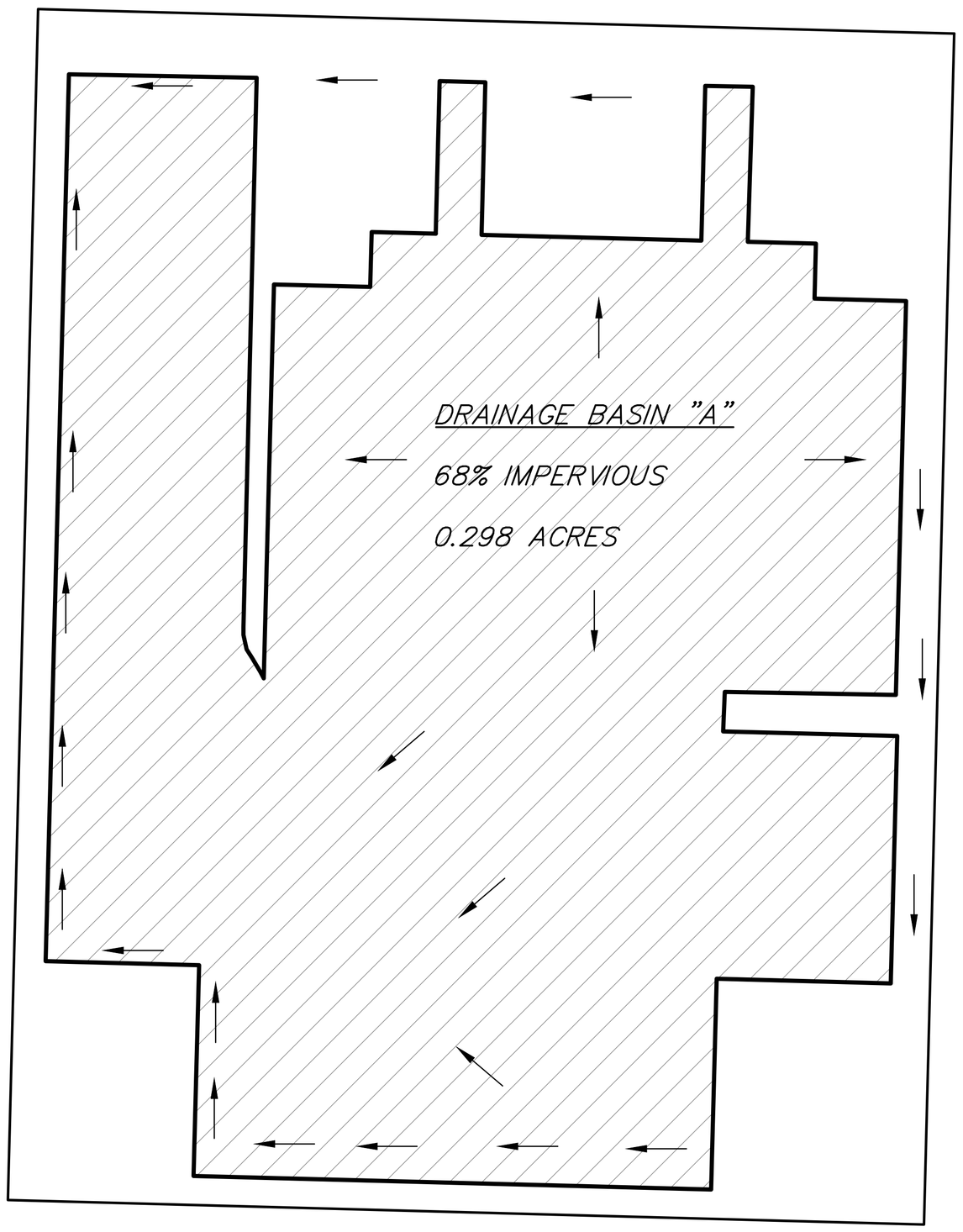
DRAWN & DESIGNED BY: H.E.B.	REVIEWED BY:	PINNACLE DESIGN CONSULTING GROUP, INC.	REVISION	DATE	DESCRIPTION	BY	CH'D
CHECKED BY: H.E.B.	DATE: FOR	CONSULTING ENGINEERS ● 0805 BUCK POINT ROAD CARBONDALE, CO 81623 ● (970) 963-2170 pinnacledesign@sopris.net					

AB & SB CONSTRUCTION CO INC — CITY OF GLENWOOD SPRINGS, CO

SCALE: 1" = 10' | JOB NO: 2021.19 | DATE: 12-03-21

SHEET NO: C1

702 23RD STREET
GRADING, DRAINAGE & EROSION CONTROL PLAN



LEGEND

1. DRAINAGE DIRECTION ARROW (TYP.)

702 23rd Street
100-year Developed Peak Flow Rates

Basin or Sub-Basin	% Impervious	Area Acres	100-year Runoff Coefficient	Tc= 5-min. 100-year Intensity in/hr	Major 100-year Peak Flow cfs
"A"	68%	0.298	0.67	6.56	1.31

COLORADO LICENSED
HANS E. BRICKER
35088
12/03/21
PROFESSIONAL ENGINEER

DRAWN & DESIGNED BY: H.E.B.
CHECKED BY: H.E.B.
REVIEWED BY: _____
DATE: _____ FOR _____

PINNACLE DESIGN CONSULTING GROUP, INC.
CONSULTING ENGINEERS ● 0805 BUCK POINT ROAD
CARBONDALE, CO 81623 ● (970) 963-2170
pinnacledesign@sopris.net

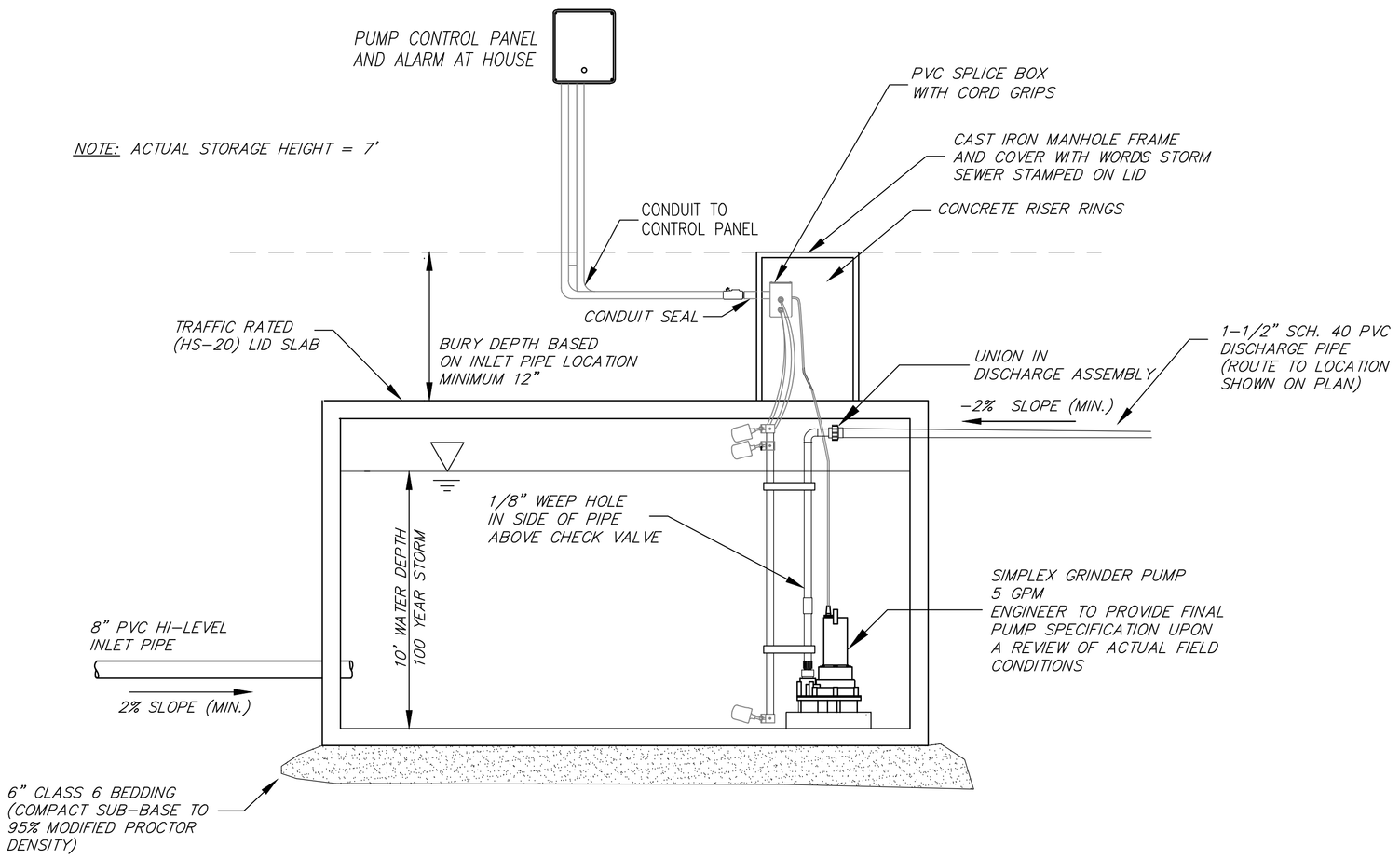
REVISION	DATE	DESCRIPTION	BY	CHD

AB & SB CONSTRUCTION CO INC — CITY OF GLENWOOD SPRINGS, CO

702 23RD STREET
DRAINAGE BASIN

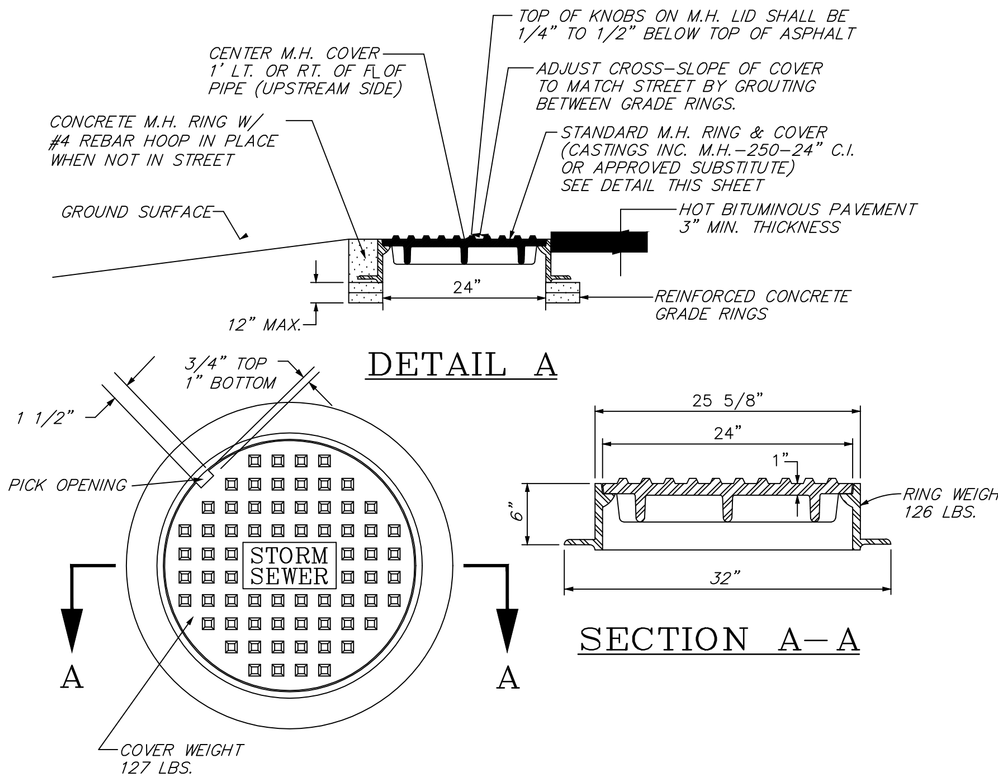
SCALE: 1" = 10' | JOB NO: 2021.19 | DATE: 12-03-21
SHEET NO: C2

Packet Page 110



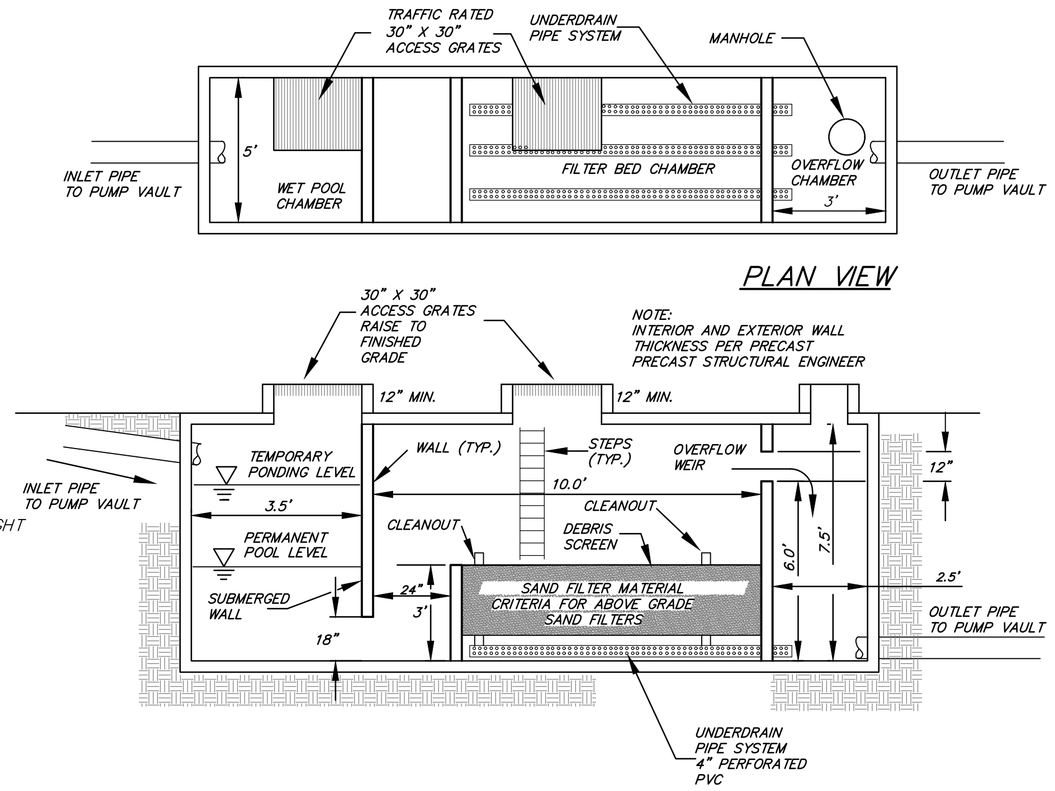
PRECAST CONCRETE (789 CU. FT. DETENTION TANK) (INSIDE DIMENSIONS 11.25' L X 11' H X 7' W) TANK ELEVATION

N.T.S.



STANDARD CAST IRON MANHOLE RING & COVER

N.T.S.



165 CU. FT. (WQCV) PRECAST SAND FILTER/TREATMENT VAULT

N.T.S.

GENERAL NOTES

1. CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
2. CAST-IN-PLACE CONCRETE WALLS SHALL BE FORMED ON BOTH SIDES.
3. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4 IN.
4. REINFORCING BARS SHALL BE DEFORMED AND SHALL HAVE A 2 IN. MINIMUM CLEARANCE. ALL REINFORCING BARS SHALL BE EPOXY COATED.
5. STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" EXCEEDS 3 FT-6 IN. AND SHALL BE IN ACCORDANCE WITH AASHTO M 199.
6. ALL GRATES AND FRAMES SHALL BE GRAY OR DUCTILE CAST IRON CONFORMING TO 712.06. GRATES AND FRAMES SHALL BE DESIGNED TO WITHSTAND HS 20 LOADING AND BE BICYCLE PROOF.

QUANTITIES

H	CONCRETE CU. YD.	REINFORCING STEEL θ LB.	NO. OF 401 BARS REQ'D.
3'-0"	1.3	72	4
3'-6"	1.5	76	4
4'-0"	1.6	90	5
4'-6"	1.8	104	6
5'-0"	1.9	109	6
5'-6"	2.1	122	7
6'-0"	2.2	136	8
6'-6"	2.4	141	8
7'-0"	2.5	154	9
7'-6"	2.7	168	10
8'-0"	2.8	173	10
8'-6"	3.0	187	11
9'-0"	3.1	200	12
9'-6"	3.3	205	12
10'-0"	3.4	219	13

θ INCLUDES 1% FOR OVERRUN.
NOTE: CONCRETE QUANTITIES INCLUDE VOLUME OCCUPIED BY PIPE.

BAR LIST FOR H=3'-0"

MARK	NO. REQ'D.	DIMENSIONS X	DIMENSIONS Y	LENGTH
401	4	3'-6"	2'-2"	13'-4"
402	2	3'-4 1/2"	* 2'-6 1/2"	8'-5 1/2"
403	5	2'-1/2"	* 2'-7"	7'-2 1/2"

* ADD 6 IN. TO THIS DIMENSION FOR EACH 6 IN. INCREASE OF "H" OVER 3 FT-0 IN.

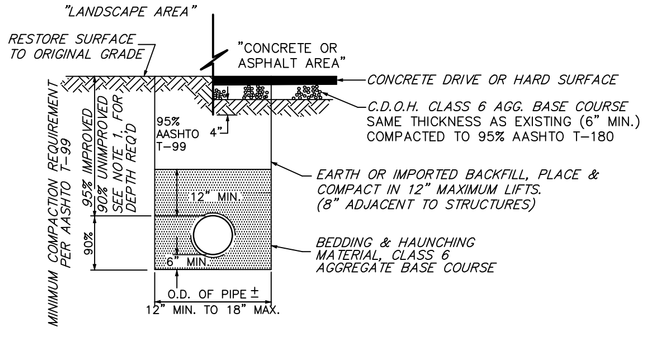
NOTE:
SEE PLAN DETAILS FOR LOCATION AND SIZE OF PIPE.
▲ WHEN BITUMINOUS MATERIAL IS TO EXTEND TO THE EDGE OF THE GRATING FRAME, CONCRETE MAY BE DEPRESSED.

TYPE 13 INLET DETAILS

N. T. S.

TRENCH DETAIL NOTES:

1. *MINIMUM PIPE COVER 24" UNDER HARD SURFACES AND 36" IN NATIVE, STEEP SLOPE AREAS (30" INTO DRYWELL) UNLESS OTHERWISE NOTED.*



DRAINAGE PIPE TYPICAL TRENCH DETAIL

N.T.S.

	MAXIMUM PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES		
SIEVE SIZE	PIPE BEDDING & HAUNCHING MATERIAL (TYPE A)	GRANULAR STABILIZATION MATERIAL (SCREENED OR CRUSHED ROCK TYPE B)	IMPORTED MATERIAL (TO BE USED WHERE SPECIFIED OR DIRECTED BY THE ENGINEER
12 INCH	---	---	100
2 INCH	---	100	---
1 INCH	100	---	---
NO 4	---	15 MAX	---
NO 200	20 MAX	---	3% - 20%

IMPORTED MATERIAL SHALL ALSO MEET HAZEN UNIFORMITY COEF. (C_U) > 6 AND COEFFICIENT OF CURVATURE (C_C) 1 TO 8 AND PLASTICITY INDEX (PI) MAXIMUM OF 7.

ALL BACKFILL MATERIAL SHALL BE PLACED FULL WIDTH IN 12" MAX. LIFTS (8" LIFTS ADJACENT TO STRUCTURES) AND COMPACTED TO THE MIN. RELATIVE DENSITIES SHOWN

NOTE: NATIVE MATERIAL MAY BE USED IN LIEU OF GRANULAR BEDDING & HAUNCHING MATERIAL IF APPROVED BY THE ENGINEER AND THE NATIVE MATERIAL IS IN COMPLIANCE WITH SIZE REQUIREMENTS FOR "TYPE A".

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CHECKED BY: H.E.B.	DATE: FOR	CONSULTING ENGINEERS ● 0805 BUCK POINT ROAD CARBONDALE, CO 81623 ● (970) 963-2170					

AB & SB CONSTRUCTION CO INC — CITY OF GLENWOOD SPRINGS, CO

702 23RD STREET
DRAINAGE DETAILS

SCALE:	JOB NO:	DATE:
N.T.S.	2021.19	12-03-21

SHEET NO: C3

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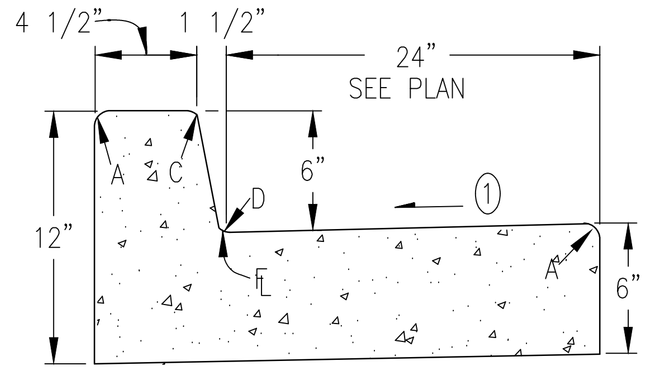
CONSTRUCT CURB ON 6" OF CLASS 6" AGGREGATE BASE COURSE COMPACTED TO 95% OF MODIFIED PROCTOR DENSITY



CURB AND GUTTER
(6" BARRIER – 24" GUTTER)
N.T.S.

LEGEND FOR RADII
A = 1/8' TO 1/4"
B = 1"
C = 1 1/2"
D = 1 1/2" TO 2"

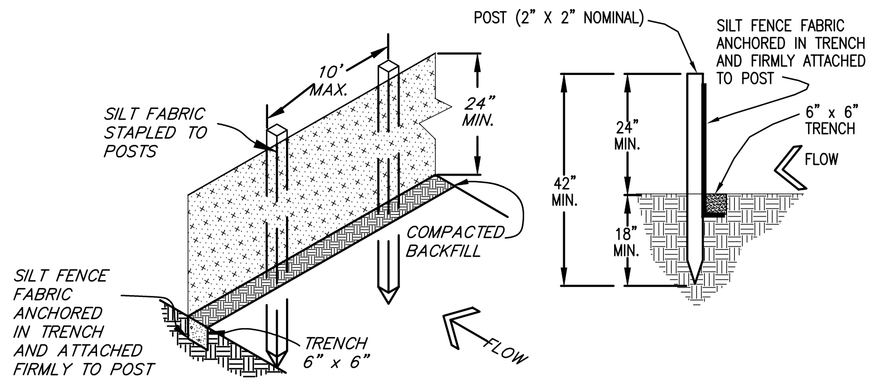
GENERAL NOTES

ON CURVES 3° OR LESS, CURBS AND/OR GUTTERS ARE TO BE PLACED ON THE ARC OF THE CURVE UNLESS OTHERWISE NOTED ON THE PLANS. A MAXIMUM CHORD LENGTH OF 10 FEET MAY BE USED WHEN THE CURVE IS LESS THEN 3°.

EXPANSION JOINTS SHALL BE INSTALLED WHEN ABUTTING EXISTING CONCRETE OR FIXED STRUCTURE. EXPANSION JOINT MATERIAL SHALL BE 1/2" THICK AND SHALL EXTEND THE FULL DEPTH OF CONTACT SURFACE.

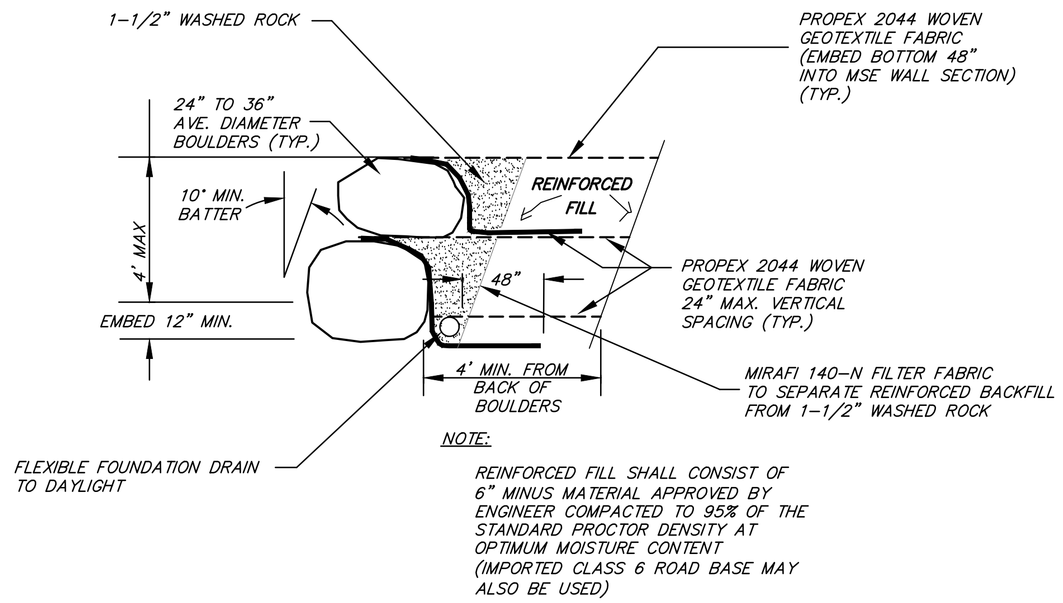
CONCRETE SHALL BE IN ACCORDANCE WITH NOTE #10 SHEET C1.

① — GUTTER CROSS SLOPES SHALL BE 0.04 FT/FT WHEN DRAINING AWAY FROM CURB AND 0.08 FT/FT WHEN DRAINING TOWARD CURB.



SILT FENCE

N.T.S.



NOTE:

REINFORCED FILL SHALL CONSIST OF 6" MINUS MATERIAL APPROVED BY ENGINEER COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY AT OPTIMUM MOISTURE CONTENT (IMPORTED CLASS 6 ROAD BASE MAY ALSO BE USED)

MECHANICALLY REINFORCED BOULDER WALL DETAIL

N.T.S.

COLORADO LICENSED
HANS E. BUCHER
35088
12/03/21
PROFESSIONAL ENGINEER

DRAWN & DESIGNED BY: H.E.B.	REVIEWED BY:	PINNACLE DESIGN CONSULTING GROUP, INC.	REVISION	DATE	DESCRIPTION	BY	CH'D	AB & SB CONSTRUCTION CO INC — CITY OF GLENWOOD SPRINGS, CO
CHECKED BY: H.E.B.	DATE: FOR	CONSULTING ENGINEERS ● 0805 BUCK POINT ROAD CARBONDALE, CO 81623 ● (970) 963-2170						702 23RD STREET DRAINAGE DETAILS

SCALE:	JOB NO:	DATE:
N.T.S.	2021.19	12-03-21

SHEET NO: C4

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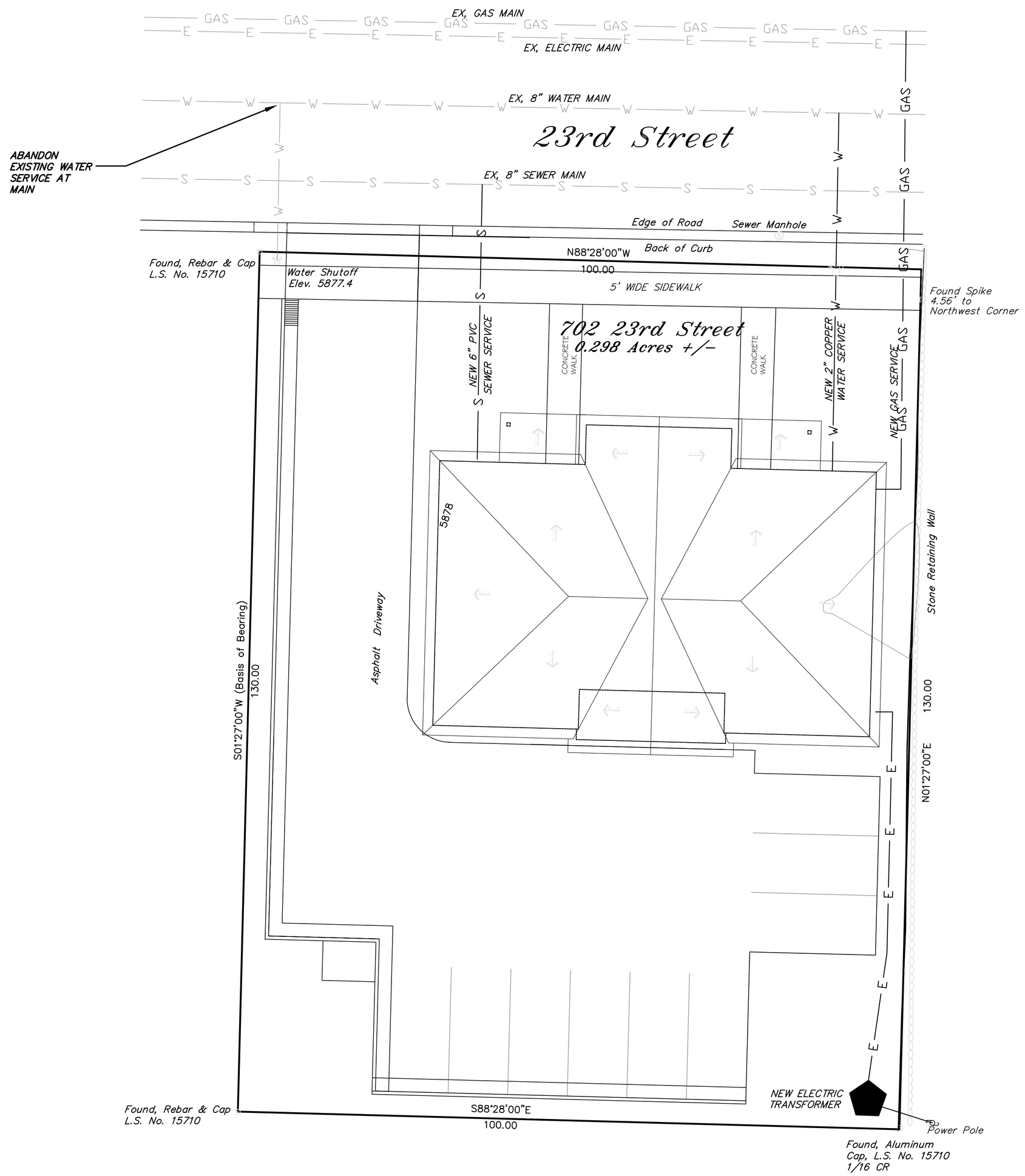
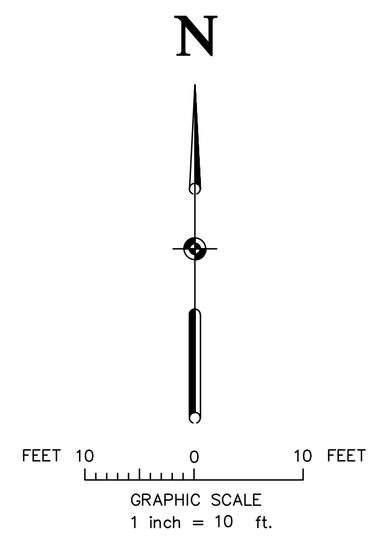




GENERAL NOTES:

1. ALL WATER AND SEWER SERVICE LINES SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF GLENWOOD SPRINGS WATER AND SEWER DEPARTMENT STANDARDS AND SPECIFICATIONS.

DRAWN & DESIGNED BY: H.E.B.	REVIEWED BY: _____	PINNACLE DESIGN CONSULTING GROUP, INC.	REVISION	DATE	DESCRIPTION	BY	CH'D
CHECKED BY: H.E.B.	DATE: _____ FOR _____	CONSULTING ENGINEERS ● 0805 BUCK POINT ROAD CARBONDALE, CO 81623 ● (970) 963-2170 pinnacledesign@sopris.net					

AB & SB CONSTRUCTION CO INC — CITY OF GLENWOOD SPRINGS, CO

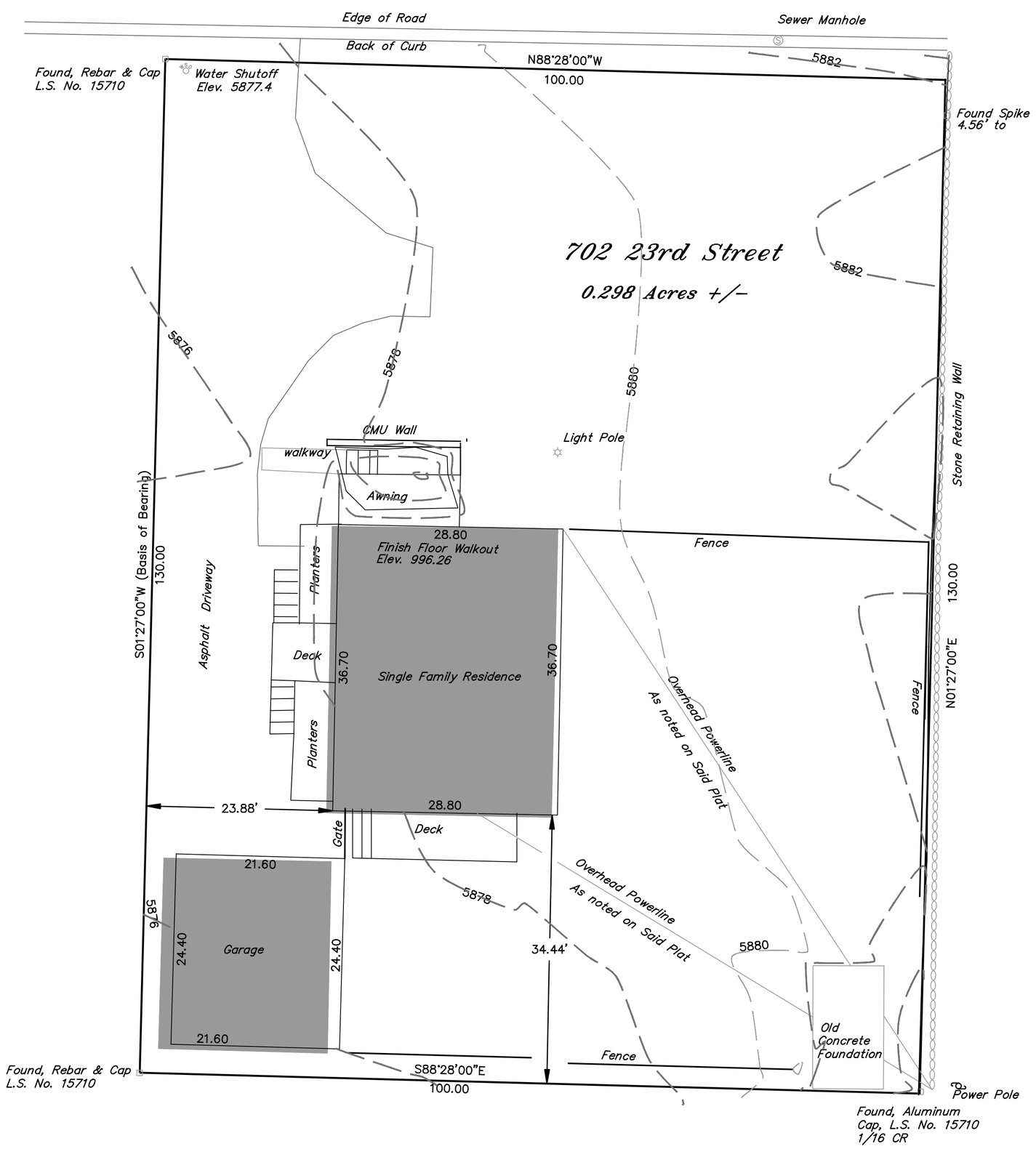
702 23RD STREET MASTER UTILITY PLAN

SCALE:	JOB NO:	DATE:
1" = 10'	2021.19	12-03-21

SHEET NO: C5

Topographical Survey Map
702 23rd Street,

A Parcel of land situated in the NE 1/4 SE 1/4 of Sec. 16
Township 6 South, Range 89 West of the 6th P.M.
City of Glenwood Springs, County of Garfield, State of Colorado



GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

CONTOUR INTERVAL= 2'

Legend and Notes:

- ▫ *Indicates found monument as described.*
- *Due to snow cover at the time of this survey some topographical features may not be shown.*
- *Bearings are based upon two rebars with plastic caps L.S. #15710 found at the southwesterly corner and northwesterly corner both of the subject parcel using a bearing of S01°27'00"W between the ywo described monuments.*
- *This survey does not represent a title search by this surveyor to determine ownership or to discover easements or other encumbrances of record. All information pertaining to ownership, easements or other encumbrances of record has been taken from a title insurance commitment issued by Land Title Guarantee Company, dated January 26, 2007 as Order Number GW63000315*
- *This property is subject to easements, rights of way and/ or requirements as recorded with the Garfield County Clerk & Recorder.*
- *Date of Field Work– January 04, 2008*

Surveyor's Certificate:

I, JEFFREY ALLEN TUTTLE, being a Registered Land Surveyor in the State of Colorado, do hereby certify that this map of existing conditions was prepared by me and under my supervision from a survey made by me and under my supervision on January 4, 2008 and that both the survey and map are true and accurate to the best of my knowledge and belief.

_____

JEFFREY ALLEN TUTTLE, L.S.33638 *DATE*

Note: This topography map complies with National Map Accuracy Standards for topographic maps. Where checked 90% of points should be within 1/2 the contour interval and well defined points should be plotted within 1/50" of their true position. Critical design should be based upon spot elevations, please contact Tuttle Surveying Services for this spot elevation information.

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 legal action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

TUTTLE SURVEYING SERVICES
226 Heather Lane
Glenwood Springs, Colorado 81601
(970) 928–9708 (FAX 947–9007)
jeff@tss–us.com

Topographical Survey Map

702 23rd Street
Glenwood Springs, Colorado

Drawn by: SJ
Date: 1/4/08

1 OF 1

Packet Page 114

Material Specifications

Walls: Elastomeric Stucco o/ Brown Coat & Foil Backed Rigid Insulation with drainage channels; Akroflex, #922SS color (Tan Plan/SW 3047 – Almond Tree), Sahara fine sand steel trowel finish

Trim: Elastomeric Stucco o/ Brown Coat & Foil Backed Rigid Insulation with drainage channels (raised trim over wall for shadow line/reveal); Akroflex, #12A009 (SW 6068 – Brevity Brown), Sahara fine sand steel trowel finish

Fascia/Posts/Beams/Exposed Rafters: Rough Sawn Cedar or Fir; SW 3524 – Chestnut, Solid Body Semi-Transparent Stain

Asphalt Roofing: GAF Timberline, High Definition, Lifetime Architectural Series, Hickory

Metal Roofing: Corten, Rustic Corrugated Metal, Self Weathering

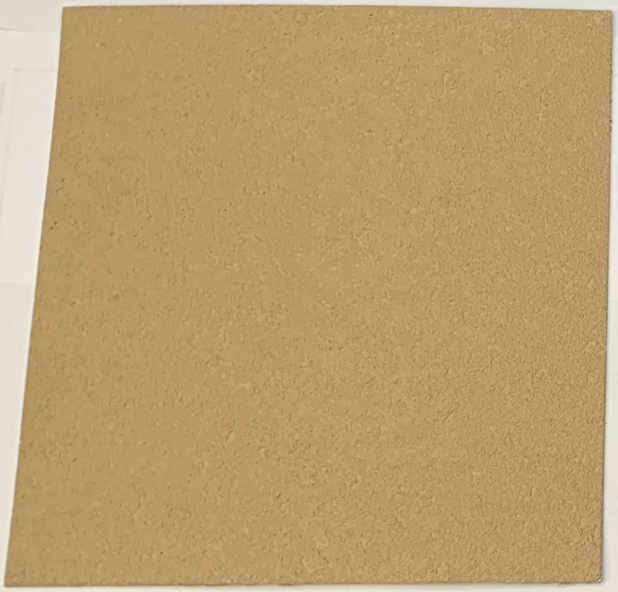
Window Clad: Vinyl, Brown – 02

Stone: Synthetic Ledgestone, pre-grouted

ASPHALT ROOFING

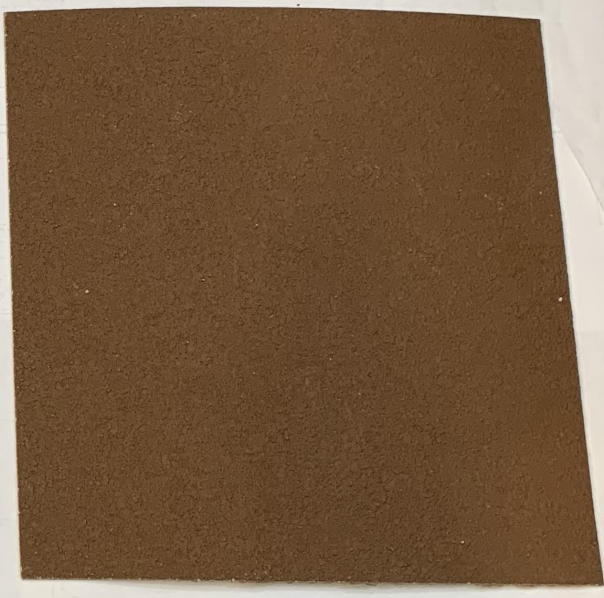
FASCIA, POSTS, BEAMS, RAFTERS

METAL ROOFING



STUCCO - FIELD

WINDOW CLAD



STUCCO - TRIM

STONE

TRAFFIC ASSESSMENT
702 23RD STREET
GLENWOOD SPRINGS, COLORADO

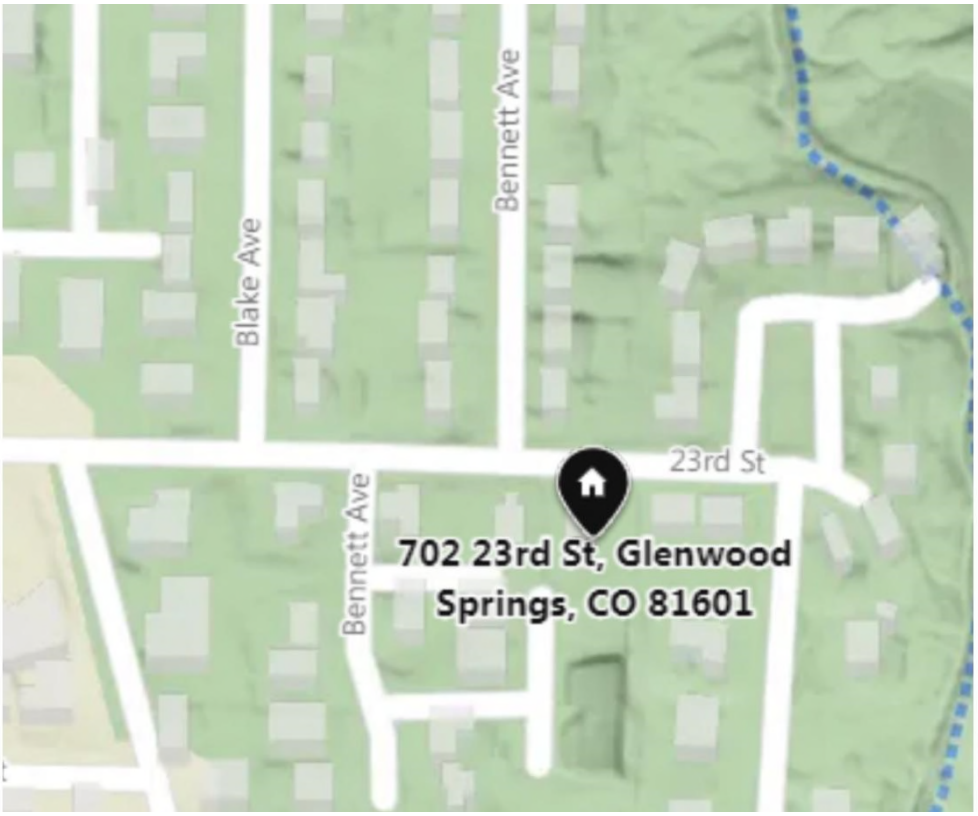
INTRODUCTION

This traffic assessment is being provided to provide trip generation quantities for a 5-unit development proposed at 702 23RD Street in Glenwood Springs. The current plan calls for the multi-family building to be constructed on the northerly portion of the Lot with a twenty (20) foot wide access drive located on the westerly portion of the property which will provide ingress and egress to nine (9) parking spaces. Approximately 68% of the property will be covered with hardscape improvements.

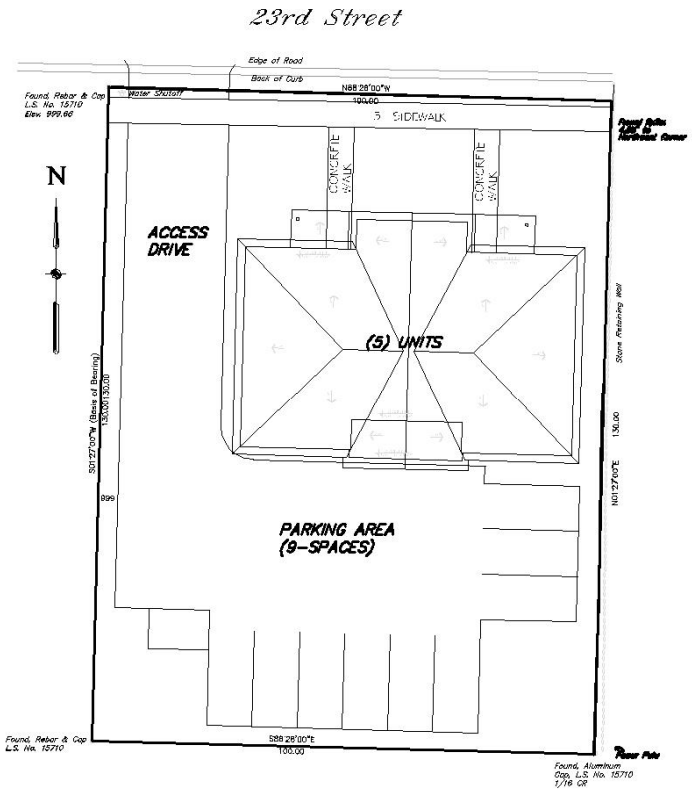
The development is situated south of 23rd Street and has single family homes on both the east and west sides. Multi-family duplex units are situated south of the proposed development. 23rd street terminates approximately 300 feet to the east but provided direct vehicular access to Highway 82 approximately 1200 feet to the west.

SITE LOCATION AND ZONING

The neighborhood is depicted in accordance with the following vicinity map:



The property is zoned RH (Residential High Density) and is being planned in accordance with the following site plan:



TRIP GENERATION

Based upon the Trip Generation Manual 11th Addition, the project is categorized at Multifamily Housing (Low Rise). This is in section 220 of the Manual.

The weekday average trip rate is 6.74 trips per day.
Based upon a 5-unit development the total is (5 x 6.74 trips/dwelling unit/day) 34 trips per day.
50% of the trips would be entering and 50% would be exiting the development.

The am peak hour of adjacent street traffic between 7 and 9 a.m. is 0.4 trips/dwelling unit/day.
Therefore, we can expect two (2) trips generated for the am peak hour with 24% entering and 76% exiting.

Similarly, the pm peak hour between 4 and 6 pm, we can expect 0.51 trips/dwelling unit/day.
Therefore, for five units, we can expect 3 trips per day with a distribution of 63% entering and 37% exiting.

CONCLUSION

The development will generate 34 trips during a normal weekday and at most 3 trips during the busiest peak hour.

Kumar & Associates, Inc.®
Geotechnical and Materials Engineers
and Environmental Scientists

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www.kumarusa.com

An Employee Owned Company

Office Locations: Denver (HQ), Parker, Colorado Springs, Fort Collins, Glenwood Springs, and Summit County, Colorado

SUBSOIL STUDY
FOR FOUNDATION DESIGN
PROPOSED 5-PLEX RESIDENTIAL BUILDING
702 23RD STREET
GLENWOOD SPRINGS, COLORADO

PROJECT NO. 21-7-583

AUGUST 26, 2021

PREPARED FOR:

STANLEY BARTLOMIECJZUK
C/O JORDAN ARCHITECTURE
ATTN: BRAD JORDAN
410 20TH STREET, SUITE 204
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FIGURE 1 - LOCATION OF EXPLORATORY BORINGS

FIGURE 2 - LOGS OF EXPLORATORY BORINGS

FIGURE 3 – LEGEND AND NOTES

FIGURE 4 - SWELL-CONSOLIDATION TEST RESULTS

FIGURE 5 – GRADATION TEST RESULTS

TABLE 1- SUMMARY OF LABORATORY TEST RESULTS

PURPOSE AND SCOPE OF STUDY

This report presents the results of a subsoil study for the proposed 5-plex residential building to be located at 702 23rd Street, Glenwood Springs, Colorado. The project site is shown on Figure 1. The purpose of the study was to develop recommendations for the foundation design. The study was conducted in accordance with our proposal for geotechnical engineering services to Stanley Bartlomiecjzuk dated July 1, 2021.

The subsurface conditions were evaluated by drilling exploratory borings at the site. Samples of the subsoils obtained during the field exploration were tested in the laboratory to determine their classification, compressibility or swell and other engineering characteristics. The results of the field exploration and laboratory testing were analyzed to develop recommendations for foundation types, depths and allowable pressures for the proposed building foundation. This report summarizes the data obtained during this study and presents our conclusions, design recommendations and other geotechnical engineering considerations based on the proposed construction and the subsurface conditions encountered.

PROPOSED CONSTRUCTION

The proposed building will replace the existing residence at the site and be a 2-story, wood frame structure located as shown on Figure 1. Ground floor could be structural above crawlspace or slab-on-grade. Grading for the structure is assumed to be relatively minor with cut and fill depths between about 3 to 6 feet. We assume relatively light foundation loadings, typical of the proposed type of construction.

If building loadings, location or grading plans change significantly from those described above, we should be notified to re-evaluate the recommendations contained in this report.

SITE CONDITIONS

The existing residence is single-story above a walkout basement and generally located on the property within the proposed building footprint shown on Figure 1. A detached garage with driveway to 23rd Street is in the southwest part of the lot. The remainder of the property is vacant and vegetated with lawn and scattered mature trees. The ground surface slopes gently to moderately down to the west up to around 5% grade. Lots to the east and west are developed with single family residences and to the south with duplex residences.

GEOLOGIC CONDITIONS

The subject property is mapped as being in a high hazard zone of debris flow potential (Lincoln-DeVore, 1978). The debris flow potential is from a series of coalescing ephemeral drainages and

mainly Basin E-12 that outlets from the east valley side about 800 feet east of the property. Flow depths of about 2 feet and 1 foot were measured at a distance of about 500 feet and 1,200 feet respectively from the outlet of Basin E-12 following the 1977 debris flow event (Lincoln-DeVore, 1978). The existing residential development upslope of the property may help to reduce the debris flow risk but cannot be totally relied on as mitigation to the project site. The site grading for the proposed residential development should consider the potential for debris flooding. In our opinion, the debris flow potential to the project site is mainly from a "mud flood" event and mitigation can be provided by a combination of direct building protection and deflection walls with a height of about 3 feet. Grading design should also be planned to not adversely impact adjacent properties from potential storm runoff flows.

The subsoils at the site are mapped as alluvial fan deposits with a high risk of settlement from hydro-compression (Lincoln-DeVore, 1978). Based on the subsoil information obtained for this study, the hydro-compression potential is judged to be moderate considering the general adequate performance of the existing building in this area to our knowledge. Foundation design recommendations provided below should be followed to help reduce the risk of foundation settlement and building distress.

FIELD EXPLORATION

The field exploration for the project was conducted on July 30, 2021. Two exploratory borings were drilled at the locations shown on Figure 1 to evaluate the subsurface conditions. The borings were advanced with 4-inch diameter continuous flight augers powered by a truck-mounted CME-45B drill rig. The borings were logged by a representative of Kumar & Associates.

Samples of the subsoils were taken with 1⅜-inch and 2-inch I.D. spoon samplers. The samplers were driven into the subsoils at various depths with blows from a 140 pound hammer falling 30 inches. This test is similar to the standard penetration test described by ASTM Method D-1586. The penetration resistance values are an indication of the relative density or consistency of the subsoils. Depths at which the samples were taken and the penetration resistance values are shown on the Logs of Exploratory Borings, Figure 2. The samples were returned to our laboratory for review by the project engineer and testing.

SUBSURFACE CONDITIONS

Graphic logs of the subsurface conditions encountered at the site are shown on Figure 2. The subsoils encountered, below a shallow depth of topsoil, consist of roughly-stratified, medium dense/stiff to very stiff, clayey silty sand and sandy silt with gravel and scattered cobbles (alluvial fan deposit) down to the drilled depth of 51 feet.

Laboratory testing performed on samples obtained from the borings included natural moisture content and density and gradation analyses. Results of swell-consolidation testing performed on a relatively undisturbed drive sample of the silt and clay soils, presented on Figure 4, indicate low to moderate compressibility under conditions of loading and wetting. Our experience in this area indicates the alluvial fan soils typically tend to collapse (settlement under constant load) when wetted. Results of gradation analysis performed on a sample of the more granular soil are presented on Figure 5. The laboratory testing is summarized in Table 1.

No free water was encountered in the borings at the time of drilling and the subsoils were slightly moist to moist.

FOUNDATION BEARING CONDITIONS

The alluvial fan soils encountered at the site are known to typically have hydro-compression potential and tend to settle under load when wetted which could cause settlement and distress to structures built on these soils. In residential areas there are several sources of subsurface wetting, such as irrigation, surface water runoff and utility line leaks. The upper natural soils at the site have low bearing capacity and low to moderate compressibility, mainly when wetted under loading. Lightly loaded spread footings placed on the natural soils can be used with a risk of settlement and building distress. If a low settlement risk foundation is desired, such as with piles down to dense river gravel deposits, we should be contacted for additional evaluation and recommendations.

DESIGN RECOMMENDATIONS

FOUNDATIONS

Based on the subsurface conditions identified in the exploratory borings, the building can be supported by lightly loaded spread footings placed on the natural soils or compacted structural fill with a risk of long term foundation settlement and distress. The design and construction criteria presented below should be observed for a spread footing foundation system.

1) Footings placed on the undisturbed natural soils or compacted structural fill should be designed for an allowable bearing pressure of 1,500 psf. Based on experience, we expect initial settlement of footings designed and constructed as discussed in this section will be about 1 inch or less. Additional differential settlement could be about 1 to 2 inches depending on the depth and extent of wetting below the foundation.
2) The footings should have a minimum width of 20 inches for continuous walls and 2 feet for isolated pads.
3) Exterior footings and footings beneath unheated areas should be provided with adequate soil cover above their bearing elevation for frost protection. Placement

of foundations at least 36 inches below exterior grade is typically used in this area.

4) Continuous foundation walls should be heavily reinforced top and bottom to span local anomalies, such as by assuming an unsupported length of at least 14 feet. Foundation walls acting as retaining structures should also be designed to resist a lateral earth pressure as discussed in the "Foundation and Retaining Walls" section of this report.

5) All existing fill, debris, topsoil and any loose or disturbed soils should be removed and the footing bearing level extended down to the firm natural soils. The exposed soils in footing area should then be moistened and compacted. Structural fill, where needed, should be placed in uniform lifts not to exceed 8 inches and compacted to at least 98% of the maximum standard Proctor density at a moisture content within 2% of optimum. Fill should extend laterally beyond the edges of the footing a distance at least equal to one-half the depth of fill below the footing. The structural fill should have sufficient fines content to restrict subsurface water flow such as the on-site silt, clay and sand soils.

6) A representative of the geotechnical engineer should evaluate fill placement for compaction and observe all footing excavations prior to concrete placement to evaluate bearing conditions.

FOUNDATION AND RETAINING WALLS

Foundation walls and retaining structures which are laterally supported and can be expected to undergo only a slight amount of deflection should be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of at least 55 pcf for backfill consisting of the on-site soils. Cantilevered retaining structures which are separate from the residence and can be expected to deflect sufficiently to mobilize the full active earth pressure condition should be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of at least 45 pcf for backfill consisting of the on-site soils. Backfill should not contain organics, debris or rock larger than about 6 inches.

All foundation and retaining structures should be designed for appropriate hydrostatic and surcharge pressures such as adjacent footings, traffic, construction materials and equipment. The pressures recommended above assume drained conditions behind the walls and a horizontal backfill surface. The buildup of water behind a wall or an upward sloping backfill surface will increase the lateral pressure imposed on a foundation wall or retaining structure. An underdrain should be provided to prevent hydrostatic pressure buildup behind walls.

Backfill should be placed in uniform lifts and compacted to at least 90% of the maximum standard Proctor density at near optimum moisture content. Backfill placed in pavement and

walkway areas should be compacted to at least 95% of the maximum standard Proctor density. Care should be taken not to overcompact the backfill or use large equipment near the wall, since this could cause excessive lateral pressure on the wall. Some settlement of deep foundation wall backfill should be expected, even if the material is placed correctly, and could result in distress to facilities constructed on the backfill.

The lateral resistance of foundation or retaining wall footings will be a combination of the sliding resistance of the footing on the foundation materials and passive earth pressure against the side of the footing. Resistance to sliding at the bottoms of the footings can be calculated based on a coefficient of friction of 0.40. Passive pressure of compacted backfill against the sides of the footings can be calculated using an equivalent fluid unit weight of 375 pcf. The coefficient of friction and passive pressure values recommended above assume ultimate soil strength. Suitable factors of safety should be included in the design to limit the strain which will occur at the ultimate strength, particularly in the case of passive resistance. Fill placed against the sides of the footings to resist lateral loads should be compacted to at least 95% of the maximum standard Proctor density at a moisture content near optimum.

FLOOR SLABS

The upper natural soils encountered at the site possess variable compressibility potential and there could be slab settlement depending on slab loading and grading of the site. Slab-on-grade construction can be used provided the risk of some settlement and distress is acceptable to the owner. A lower risk alternative with respect to settlement would be a structurally supported floor system. To reduce the effects of some differential movement, floor slabs should be separated from all bearing walls and columns with expansion joints which allow unrestrained vertical movement. Floor slab control joints should be used to reduce damage due to shrinkage cracking. The requirements for joint spacing and slab reinforcement should be established by the designer based on experience and the intended slab use. A minimum 4-inch layer of relatively well graded sand and gravel, such as road base should be placed beneath slabs for support. This material should consist of minus 2-inch aggregate with at least 50% retained on the No. 4 sieve and less than 12% passing the No. 200 sieve.

All fill materials for support of floor slabs should be compacted to at least 95% of maximum standard Proctor density at a moisture content near optimum. Required fill can consist of the onsite soils devoid of vegetation, topsoil and debris.

UNDERDRAIN SYSTEM

Although free water was not encountered during our exploration, it has been our experience in the area that local perched groundwater can develop during times of heavy precipitation or seasonal runoff. Frozen ground during spring runoff can create a perched condition. We

recommend below-grade construction, such as retaining walls and basement areas, be protected from wetting and hydrostatic pressure buildup by an underdrain system. An underdrain should not be provided around shallow crawlspace (up to about 4 feet deep) or slabs-at-grade to reduce the potential for wetting of soils below shallow footings of the building.

Where provided, the drains should consist of drainpipe placed in the bottom of the wall backfill surrounded above the invert level with free-draining granular material. The drain should be placed at each level of excavation and at least 1 foot below lowest adjacent finish grade and sloped at a minimum 1% to a suitable gravity outlet. Free-draining granular material used in the underdrain system should contain less than 2% passing the No. 200 sieve, less than 50% passing the No. 4 sieve and have a maximum size of 2 inches. The drain gravel backfill should be at least 1½ feet deep. An impervious membrane such as 20 mil PVC should be placed beneath the drain gravel in a trough shape and attached to the foundation wall with mastic to prevent wetting of the bearing soils.

SURFACE DRAINAGE

Proper surface grading and drainage will be critical to the satisfactory performance of new structures. The following drainage precautions should be observed during construction and maintained at all times after the building has been completed:

1) Inundation of the foundation excavations and underslab areas should be avoided during construction.
2) Exterior backfill should be adjusted to near optimum moisture and compacted to at least 95% of the maximum standard Proctor density in pavement and slab areas and to at least 90% of the maximum standard Proctor density in landscape areas.
3) The ground surface surrounding the exterior of the building should be sloped to drain away from the foundation in all directions. We recommend a minimum slope of 6 inches in the first 5 feet in unpaved areas and a minimum slope of 2½ inches in the first 10 feet in paved areas. Free-draining wall backfill should be covered with filter fabric and capped with about 2 feet of the on-site soils to reduce surface water infiltration.
4) Roof downspouts and drains should discharge well beyond the limits of all backfill.
5) Landscaping which requires regular heavy irrigation should be located at least 10 feet from foundation walls. Consideration should be given to use of xeriscape to reduce the potential for wetting of soils below the building caused by irrigation.

LIMITATIONS

This study has been conducted in accordance with generally accepted geotechnical engineering principles and practices in this area at this time. We make no warranty either express or implied.

The conclusions and recommendations submitted in this report are based upon the data obtained from the exploratory borings drilled at the locations indicated on Figure 1, the proposed type of construction and our experience in the area. Our services do not include determining the presence, prevention or possibility of mold or other biological contaminants (MOBC) developing in the future. If the client is concerned about MOBC, then a professional in this special field of practice should be consulted. Our findings include interpolation and extrapolation of the subsurface conditions identified at the exploratory borings and variations in the subsurface conditions may not become evident until excavation is performed. If conditions encountered during construction appear different from those described in this report, we should be notified so that re-evaluation of the recommendations may be made.

This report has been prepared for the exclusive use by our client for design purposes. We are not responsible for technical interpretations by others of our information. As the project evolves, we should provide continued consultation and field services during construction to review and monitor the implementation of our recommendations, and to verify that the recommendations have been appropriately interpreted. Significant design changes may require additional analysis or modifications to the recommendations presented herein. We recommend on-site observation of excavations and foundation bearing strata and testing of structural fill by a representative of the geotechnical engineer.

Respectfully Submitted,

Kumar & Associates, Inc.

Steven L. Pawlak, P.E.

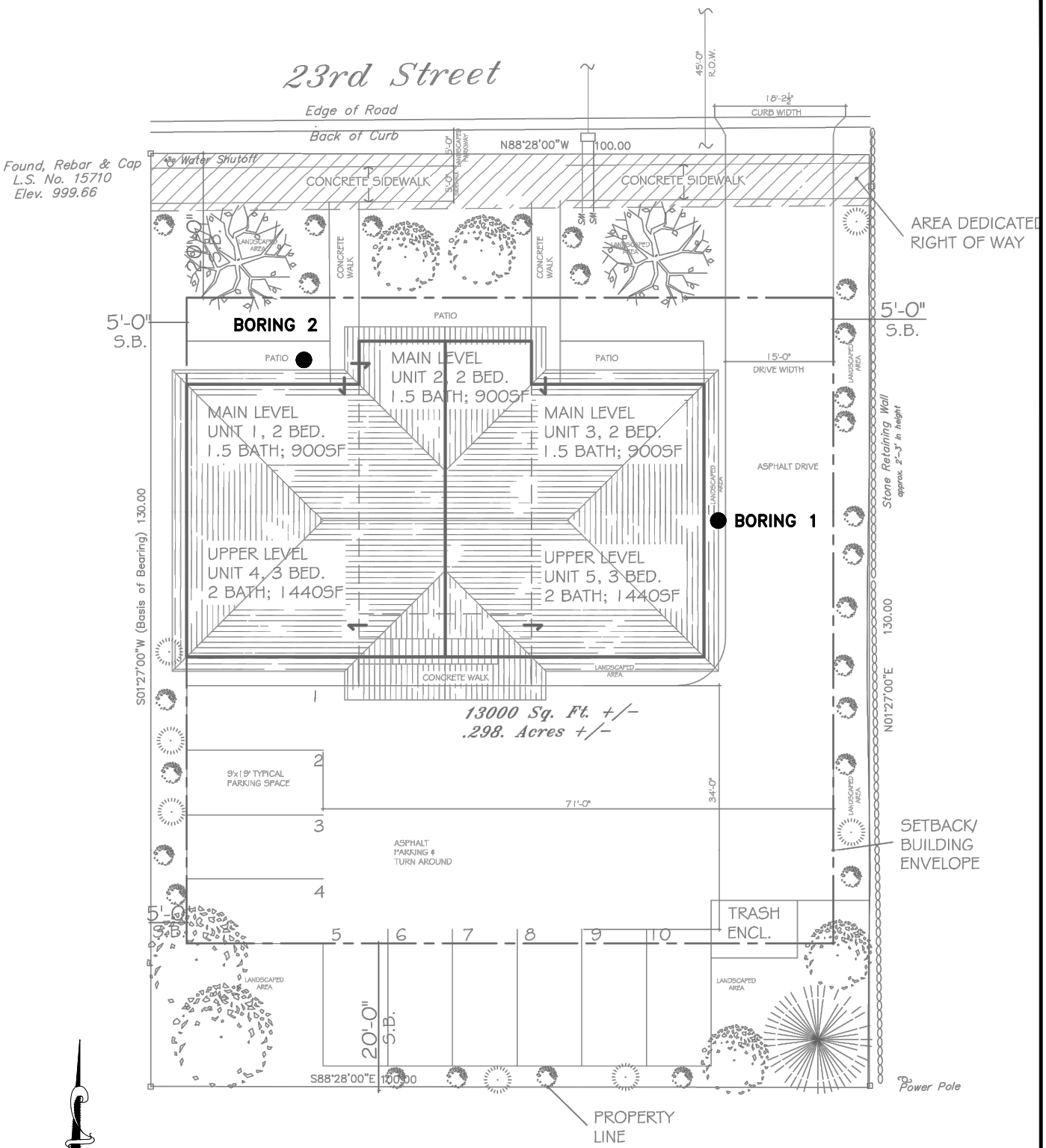
Reviewed by:

Daniel E. Hardin, P.E.

SLP/kac

REFERENCE

Lincoln-DeVore, 1978. *Geologic Hazards of the Glenwood Springs Metropolitan Area, Garfield County, Colorado.* Colorado Geological Survey Open File Report 78-10.



702 23rd ST

10 0 10 20

APPROX. SCALE-FEET

21-7-583	Kumar & Associates	LOCATION OF EXPLORATORY BORINGS	Fig. 1

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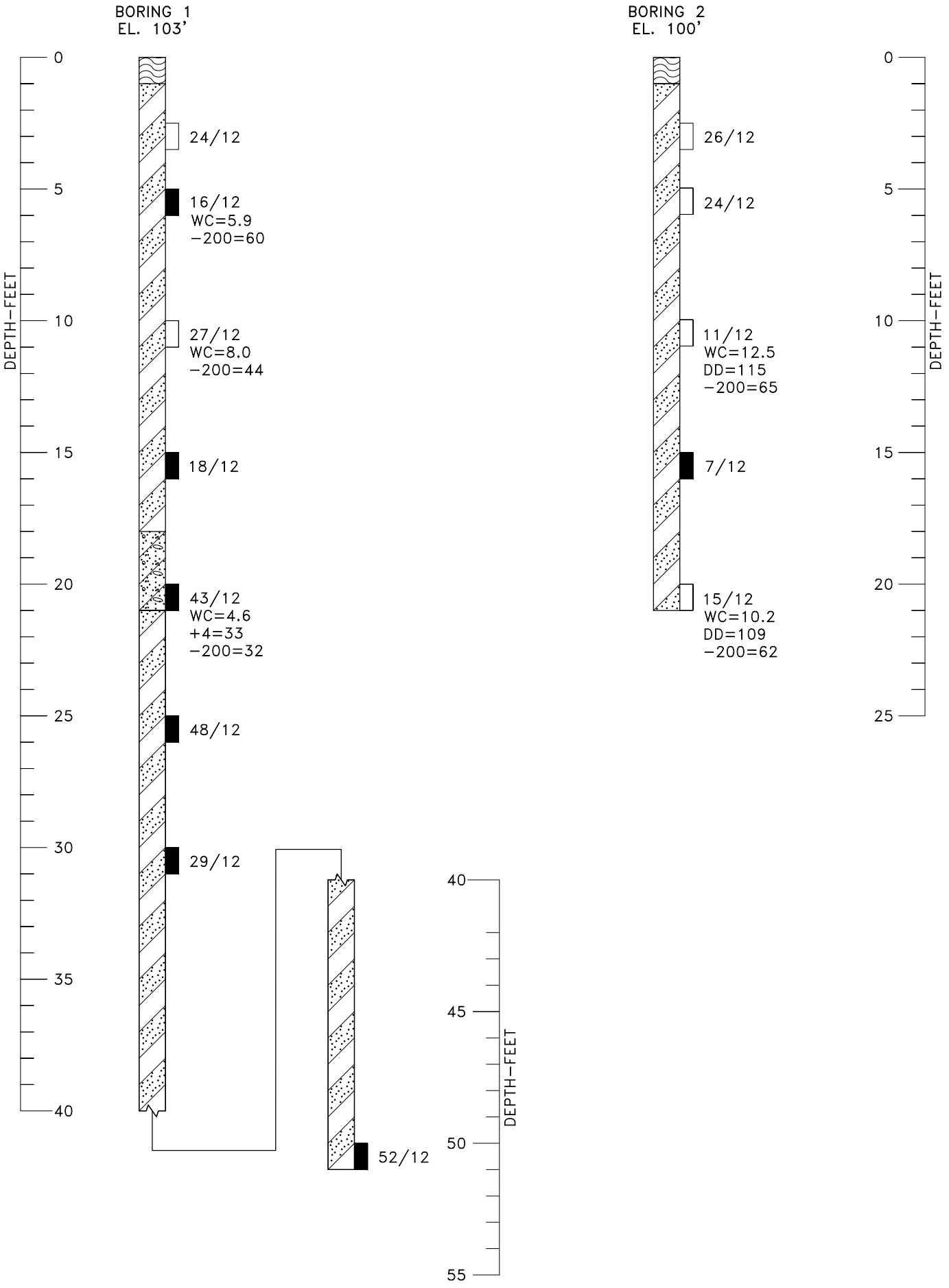

21-7-583	Kumar & Associates	LOGS OF EXPLORATORY BORINGS	Fig. 2

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LEGEND

TOPSOIL; ORGANIC SANDY SILT AND CLAY, MOIST, BROWN.

SAND AND SILT (SM–ML); SLIGHTLY CLAYEY TO CLAYEY, GRAVELLY, SCATTERED COBBLES, MEDIUM DENSE/STIFF TO VERY STIFF, SLIGHTLY MOIST TO MOIST, RED–BROWN.

SAND AND GRAVEL (SM–GM); SILTY, SLIGHTLY CLAYEY, COBBLES, MEDIUM DENSE, SLIGHTLY MOIST, RED.

DRIVE SAMPLE, 2–INCH I.D. CALIFORNIA LINER SAMPLE.

DRIVE SAMPLE, 1 3/8–INCH I.D. SPLIT SPOON STANDARD PENETRATION TEST.

24/12 DRIVE SAMPLE BLOW COUNT. INDICATES THAT 24 BLOWS OF A 140–POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE THE SAMPLER 12 INCHES.

NOTES

1. THE EXPLORATORY BORINGS WERE DRILLED ON JULY 30, 2021 WITH A 4–INCH DIAMETER CONTINUOUS–FLIGHT POWER AUGER.
2. THE LOCATIONS OF THE EXPLORATORY BORINGS WERE MEASURED APPROXIMATELY BY PACING FROM FEATURES SHOWN ON THE SITE PLAN PROVIDED.
3. THE ELEVATIONS OF THE EXPLORATORY BORINGS WERE MEASURED BY HAND LEVEL AND REFER TO BORING 2 AS EL. 100', ASSUMED.
4. THE EXPLORATORY BORING LOCATIONS AND ELEVATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
5. THE LINES BETWEEN MATERIALS SHOWN ON THE EXPLORATORY BORING LOGS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN MATERIAL TYPES AND THE TRANSITIONS MAY BE GRADUAL.
6. GROUNDWATER WAS NOT ENCOUNTERED IN THE BORINGS AT THE TIME OF DRILLING.
7. LABORATORY TEST RESULTS:
   WC = WATER CONTENT (%) (ASTM D2216);
   DD = DRY DENSITY (pcf) (ASTM D2216);
   +4 = PERCENTAGE RETAINED ON NO. 4 SIEVE (ASTM D6913);
   –200= PERCENTAGE PASSING NO. 200 SIEVE (ASTM D1140).

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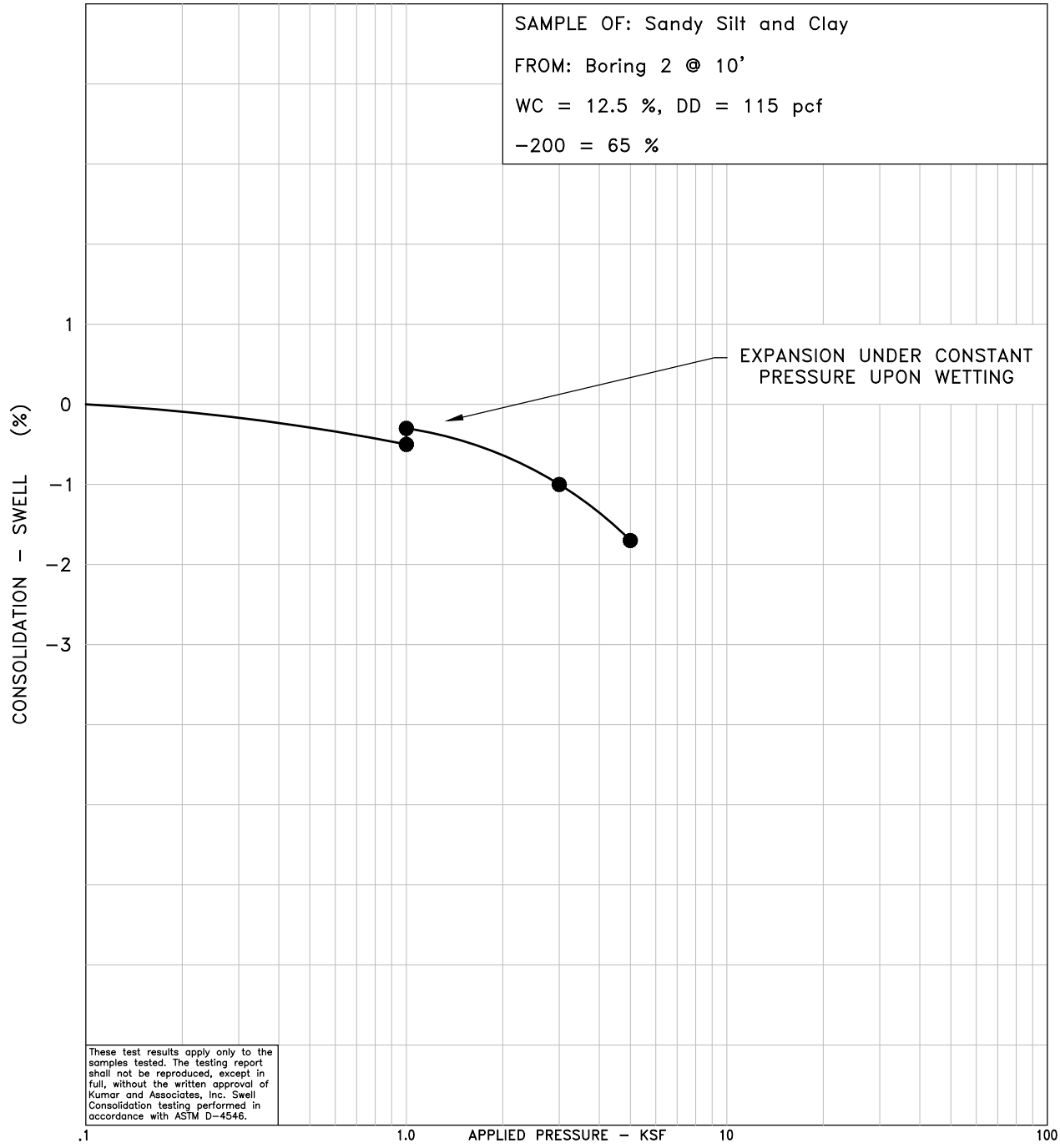
21–7–583	Kumar & Associates	LEGEND AND NOTES	Fig. 3



21-7-583	Kumar & Associates	SWELL-CONSOLIDATION TEST RESULTS	Fig. 4

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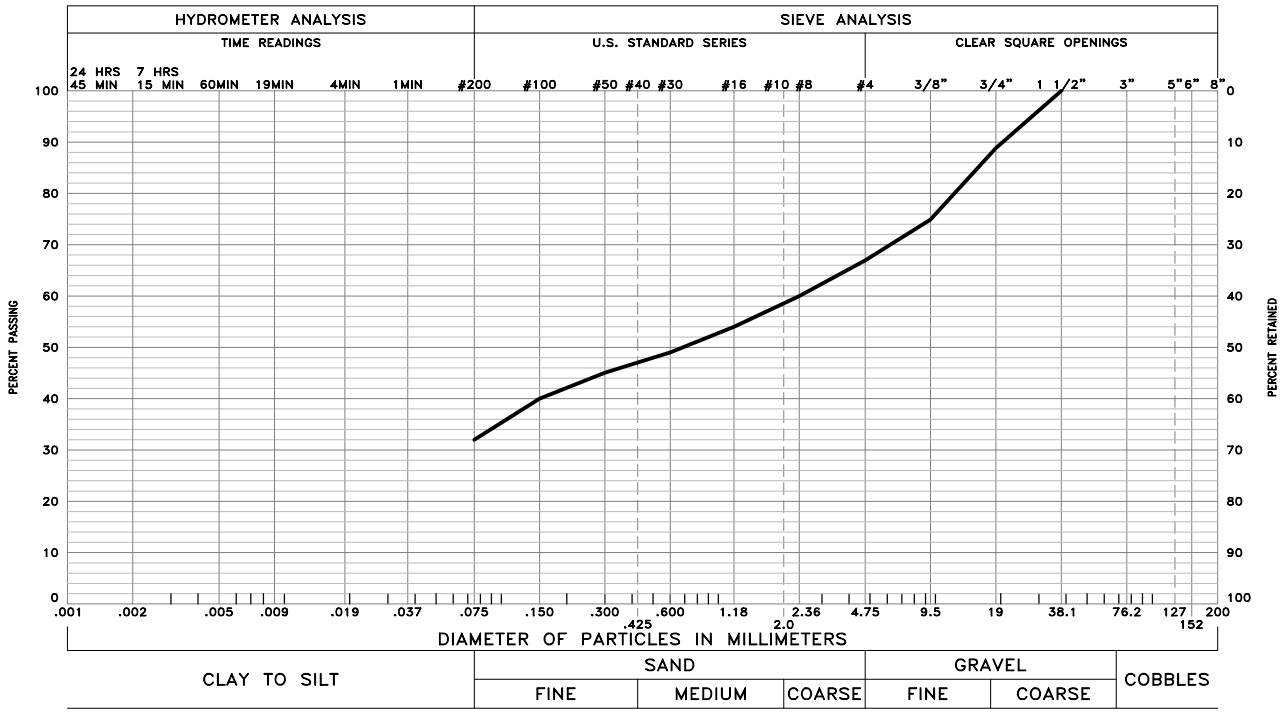

GRAVEL 33 % SAND 35 % SILT AND CLAY 32 %

LIQUID LIMIT – PLASTICITY INDEX –

SAMPLE OF: Silty Sand and Gravel FROM: Boring 1 @ 20'

These test results apply only to the samples which were tested. The testing report shall not be reproduced, except in full, without the written approval of Kumar & Associates, Inc. Sieve analysis testing is performed in accordance with ASTM D6913, ASTM D7928, ASTM C136 and/or ASTM D1140.

21-7-583	Kumar & Associates	GRADATION TEST RESULTS	Fig. 5

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Kumar & Associates, Inc.®
Geotechnical and Materials Engineers
and Environmental Scientists

TABLE 1
SUMMARY OF LABORATORY TEST RESULTS

Project No. 21-7-583

SAMPLE LOCATION		NATURAL MOISTURE CONTENT	NATURAL DRY DENSITY	GRADATION		PERCENT PASSING NO. 200 SIEVE	ATTERBERG LIMITS		UNCONFINED COMPRESSIVE STRENGTH		SOIL TYPE
BORING	DEPTH (ft)	(%)	(pcf)	GRAVEL (%)	SAND (%)		LIQUID LIMIT (%)	PLASTIC INDEX (%)	(psf)		
1	5	5.9				60					Sandy Silt and Clay
	10	8.0				44					Silty Clayey Sand with Gravel
	20	4.6		33	35	32					Silty Sand and Gravel
2	10	12.5	115			65					Sandy Silt and Clay
	20	10.2	109			62					Sandy Silt and Clay

MAJOR DRAINAGE REPORT

702 23RD STREET
GLENWOOD SPRINGS, COLORADO 81601

Prepared For:

AB & SB CONSTRUCTION CO INC
162 W 6TH STREET
GLENWOOD SPRINGS, COLORADO

Prepared By:

Hans E. Brucker, PE, PLS
Pinnacle Design Consulting Group, Inc.
805 Buck Point Road
Carbondale, Colorado 81623

December 23, 2021

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Computer Printouts

Introduction / General Description

This drainage report has been prepared for the residential development of the Lot located at 702 23rd Street in Glenwood Springs, Colorado. The Lot is located in south Glenwood Springs near the intersection of Blake Street and 23rd Street approximately 1,200 feet east of Highway 82. The building site is bordered by 23rd Street to the north and single-family homes east and west sides. Duplex residences exist south of the Lot

The building site is considered moderately sloping with grades sloping at approximately 8% from east to west. The Lot includes vegetation consisting of mostly scattered mature trees and lawn grass. An existing residence is located on the Lot, but will be torn down as part of this development. There are no wetlands or riparian areas located on the site.

Based on a geotechnical report prepared by Kumar & Associates, Inc., soils on the Lot consist generally of a shallow depth of topsoil overlying stiff to very stiff, clayey silty sand and sandy silt with gravel and scattered cobbles. The area is within and alluvial fan deposit. A percolation test was not

Project Description

The development plan for the site includes the construction of a five (5) unit attached multi-family structure with access to the west from 23rd Street and a parking area to the south. The development is consistent with the surrounding development.

Given the project location being within and alluvial fan, the site can be expected to generate mud or debris flows under certain conditions. The existing adjacent residential development upslope of the property may reduce the debris flow risk but will not likely eliminate it.

In an effort to minimize the lessen debris flow concerns, the unit finished floor elevations have been set as high as feasible given the topographical site constraints. Furthermore, the most eastern foundation wall has been designed to be above grade by approximately three (3) feet for impact attenuation.

Ultimately the site is tributary to the Colorado River Basin.

It is estimated that construction will commence in the Spring of 2022 and will end sometime in 2023 depending on permitting and weather conditions.

Drainage Analysis Methodology

As part of the development of this Lot, we have analyzed the entire parcel area as one standalone drainage basin, given that the neighboring residential Lot tends to convey offside flows around the property. The Rational Method is used as the basis for determining the on-site peak 100-year storm water flow rate. Runoff coefficients have been selected based on the percent imperviousness of the site for Soil Group D.

Detention for the site will be based on the 1-hour, 25-year storm precipitation depth across all new impervious areas and essentially will provide 100% detention for the site. This will assure that there won't be any off-site flow rates with the exception of minimal storm water pumping that will occur as part of the drainage design.

Peak Flow Rates –Rational Method:

Based on the COGS drainage standards, the developed peak flow rates for each basin using a 25-year and 100-year return periods and can be calculated by using the Rational Method as follows:

Rational Method:

Given:

Q = CIA

Where:

Q = Peak Discharge, cfs for the return period
C = Runoff Coefficient
I = Rainfall Intensity, inches/hour
A = Drainage Area, acres

The intensity value is derived based on the time of concentration for the Lot from the ground cover, slope, and the degree to which the stormwater is channelized. Based past experience when analyzing smaller sized drainage basins by using the Rational Method, time-of-concentration values typically are less than 5-minutes, especially on steep sites. Therefore, we will use the minimum time-of-concentration value of 5-minutes for the analysis as it will yield more conservative peak flow rates in this instance.

Since specific time-intensity-frequency curves for the Glenwood Springs area are not published in the Glenwood Springs Drainage Standards, however, the intensity can be derived from the NOAA Atlas 14 information in Chapter 4 of the City of Glenwood Springs Engineering Standards.

For this particular Lot, the Drainage Basin/Sub-Basin characteristics (See Appendix for Drainage Basin locations) are as follows:

702 23rd Street
Developed Basin and Sub-Basin Characteristics

Basin or Sub-Basin	Runoff Classification	Area sf	Pervious Area sf	Impervious Area sf	% Impervious	Area Acres
"A"	Composite	13,000	4,102	8,898	68%	0.298

Based on applying Hydrologic Type D soil runoff coefficients and an intensity of 5.06 in/hr the developed 25-year peak flow rates are calculated as follows:

702 23rd Street
25-year Developed Peak Flow Rates

Basin or Sub-Basin	% Impervious	Area Acres	25-year Runoff Coefficient	Tc= 5-min. 25-year Intensity in/hr	Major 25-year Peak Flow cfs
"A"	68%	0.298	0.62	5.06	0.94

Similarly, based upon and intensity of 6.56 in/hr the developed 100-year peak flow rates are calculated as follows:

702 23rd Street
100-year Developed Peak Flow Rates

Basin or Sub-Basin	% Impervious	Area Acres	100-year Runoff Coefficient	Tc= 5-min. 100-year Intensity in/hr	Major 100-year Peak Flow cfs
"A"	68%	0.298	0.67	6.56	1.31

See Appendix for Drainage Basin/Sub-Basin information.

Type 13 Catch Basin and Connection Pipe Capacity Check:

Flow from around the development will work its way around the site to the proposed Type 13 Catch Basin, located near the northwest property corner. Based upon an open area of 288 in^2 and a depth of one inch, the inlet capacity was found to be 1246 gpm or 2.8 cfs. With 50% clogging, the capacity will be 1.4 cfs, so there is adequate capacity (see Appendix).

8” PVC pipe will provide adequate capacity for flow routing (see Appendix).

Water Quality:

Water quality for the project will be based upon treating the entire development including the structure, parking lot and access sidewalks.

Given a tributary area of 13,000 ft^2 and an imperviousness of 68%, we determined that total Water Quality Control Volume (WQCV) of 165 ft^3 would be adequate based upon the design of a sand filter (see Appendix). As part of the proposed design, a subsurface treatment vault will be provided with a QQVC of total volume of 175 ft^3 will be provided (see Engineering Plans).

Once the WQCV is achieved, the stormwater will flow into a detention vault.

Detention:

Detention for the project will be achieve via the use of a concrete detention tank. Based upon a total impervious area of 8,898 ft^2, and a 25-year, 1-hour precipitation depth of rate of 1.06 inches, the total detention for the project is calculated as follows:

Detention Volume = Area x Precipitation Depth / (12 in/ft)

Detention Volume = 8,898 ft^2 x 1.06 in / 12 in/ft = 786 gallons

A 789 ft^3 concrete tank has been designed for the project with 5 gallon per minute pump.

Outlet Works:

Given the lack of open area around the project, 100% detention will be provided. The outlet for the stormwater system is an 1-1/2-inch PVC pipe routed to a dry detention basin. The pump should be sized to release the maximum detention volume over a 24-hour period and is calculated as follows:

Discharge Rate = Volume / Time
Discharge Rate = 786 ft^3 x 7.48 gal/ft^3 gal/ (24 x 60 min) = 4.1 gal/min

Use a 5 gal/min. pump for the project with a total dynamic head of approximately 14 feet.
We would recommend a throttling valve at the end of the pipe to better control the flow rate.

Project Design Principles:

The project, to the extent possible considering all of the input parameters, has been designed in concert with USDCM principals. Given the predetermined location of the residence and access street. We considered water quality and detention early in the design process and have used major portions of the site to incorporate various BMP's including a rain garden. A treatment train approach has been utilized where feasible to provide water quality and flood controls. In addition, we have designed the new drainage facilities for maintenance access and have considered public safety.

Erosion Control:

Given the size of the project, disturbance to the site will be considerable. We are recommending that a silt fence be installed on the down-gradient side of the proposed improvements in order to eliminate sediment transfer and to mitigate concern for water quality impacts on surrounding roadways and the Colorado River Basin. All excavations should be planned to minimize, to the extent possible, damage to surrounding vegetation.

Maintenance:

The water quality vault should be checked after every rain storm over 0.6 inches and semiannually to make sure it is free of debris and silt. If debris and silt are encountered, it should be removed via pumping or other mechanical means to minimize clogging of the sand/soil media. The sand/soil mixture should be inspected to determine if the sand media is allowing acceptable infiltration every one to two years and after significant rainfalls. If clogging is apparent, the sand/soil mixture should be replaced.

The centralized detention tank should be checked annually for sediment buildup and should be pumped out every other year to minimize sediment transfer into the dry detention basin.

Temporary silt fence should remain in place until all areas on the Lot are revegetated.

Nearest Flood Zone:

The subject property is not located within a major FIRM 100-year flood zone for the Roaring Fork River, but is mapped as being in a high hazard zone of debris flow potential.

Conclusions:

The development of this Lot, from a drainage perspective, will mostly utilize stormwater piping, an underground water quality vault and detention tank to treat and route stormwater through the site. To the extent possible, we have avoided unnecessary impervious areas and have designed the proposed plan in concert with the USDCM principles, the desires of the client, and long-term BMP maintenance concerns. The proposed design will improve the existing drainage conditions by increasing water quality treatment in areas not previously mitigated as such and by mitigating developed portions of the site with on-site detention.

Recommendations:

1. Positive drainage should be constructed away from the building foundations in accordance with the grading and drainage plan (if proposed grades are shown) and to the extent possible, with the final soils report.

2. Stormwater should be conveyed to the water quality vault and detention tank as shown on the Grading Plan.

3. Erosion control measures recommended above should be strictly followed.

4. The Outlet Works should include a 1-1/2-inch PVC pipe and throttling valve which will release stormwater from the site at a slow rate.

5. Maintenance for drainage facilities should be in accordance with the aforementioned maintenance section.

References:

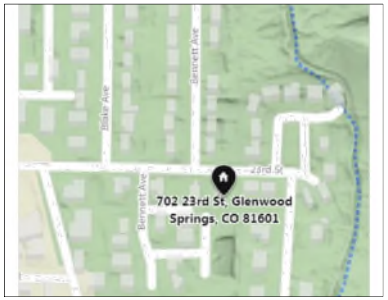
City of Aspen URMP (latest edition)
USDCM Vols. 1-3
City of Glenwood Springs Drainage Standards

Engineering Certificate:

"I hereby affirm that this report and the accompanying plans for the 702 23rd Street were prepared by me for the owner thereof in accordance with the provisions of the City of Glenwood Springs Stormwater, Drainage, Water Quality and Erosion Control Chapter and approved variances and exceptions listed thereto. I understand that it is the policy of the City of Glenwood Springs that the City of Glenwood Springs does not and will not assume liability for drainage facilities designed by others."

Hans E. Brucker License No. 35088
Licensed Professional Engineer, State of Colorado

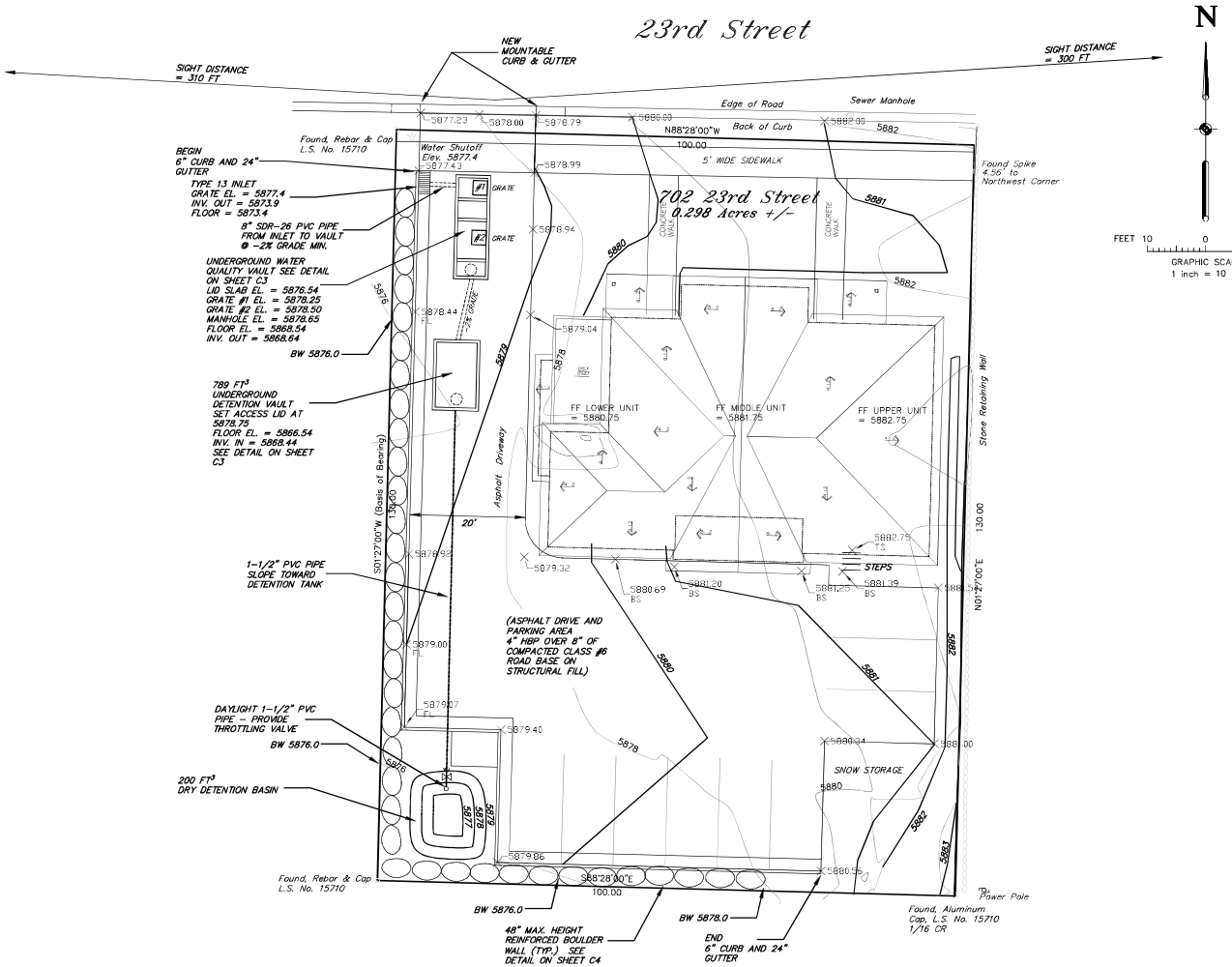
APPENDIX



VICINITY MAP
N.T.S.

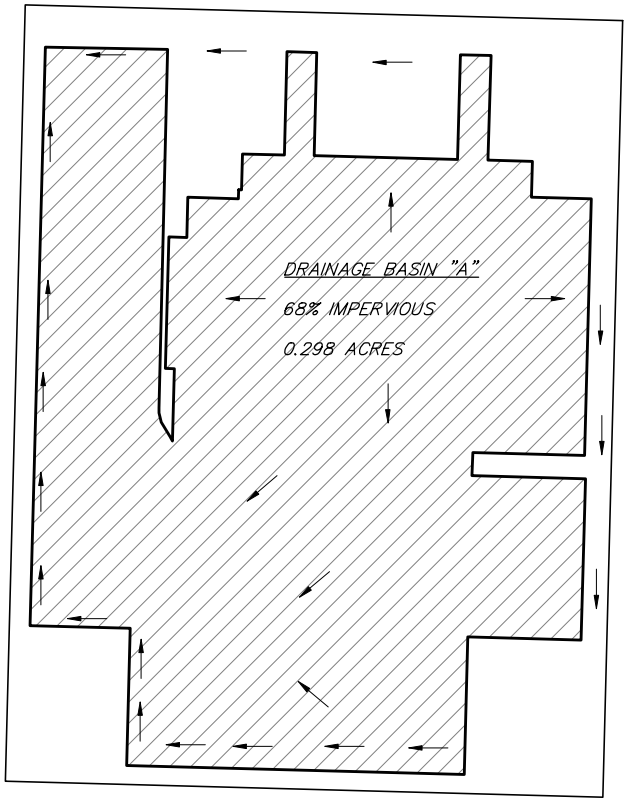
GENERAL NOTES:

1. SILT FENCE SHALL BE INSTALLED ON THE DOWN-GRADIENT SIDE OF THE PROPOSED DISTURBANCE AREA PRIOR TO CONSTRUCTION IN ACCORDANCE WITH THE DETAIL SHOWN ON SHEET C3.
2. THE LOCATIONS OF UNDERGROUND UTILITIES LINES IN ALL CASES ARE NOT SHOWN HEREON. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES FOR FIELD UTILITY LOCATES, 48 HOURS PRIOR TO CONSTRUCTION.
3. SEE DRAINAGE AND EROSION CONTROL DETAILS ON SHEET C3 & C4.



OWNER: AB & SB CONSTRUCTION CO INC
162 W 6TH ST
GLENWOOD SPRINGS, CO 81601

DRAWN & DESIGNED BY: H.E.B.	REVIEWED BY:	PINNACLE DESIGN CONSULTING GROUP, INC.	REVISION	DATE	DESCRIPTION	BY	CHD	AB & SB CONSTRUCTION CO INC — CITY OF GLENWOOD SPRINGS, CO	SCALE: 1" = 10'	JOB NO: 2021.19	DATE: 12-23-21
CHECKED BY: H.E.B.	DATE: FOR:	CONSULTING ENGINEERS ● 0805 BUCK POINT ROAD CARBONDALE, CO 81623 ● (970) 963-2170 pinnacledesign@sopris.net						702 23RD STREET GRADING, DRAINAGE & EROSION CONTROL PLAN	SHEET NO: C1		



LEGEND

1. DRAINAGE DIRECTION ARROW (TYP.)

702 23rd Street
100-year Developed Peak Flow Rates

Basin or Sub-Basin	% Impervious	Area Acres	100-year Runoff Coefficient	Tc= 5-min. 100-year Intensity in/hr	Major 100-year Peak Flow cfs
"A"	68%	0.298	0.67	6.56	1.31

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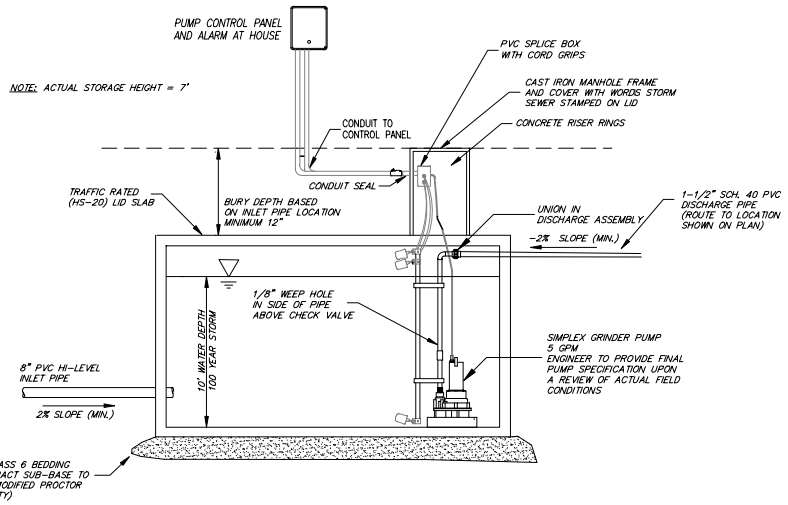
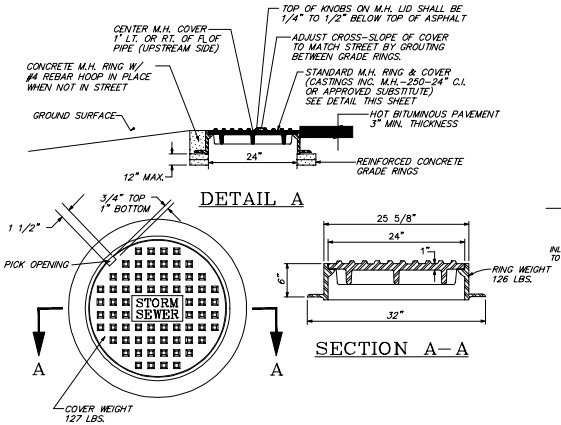
CHECKED BY: H.E.B.	DATE: FOR	CONSULTING ENGINEERS ● 0805 BUCK POINT ROAD CARBONDALE, CO 81623 ● (970) 963-2170 pinnacledesign@sopris.net						702 23RD STREET DRAINAGE BASIN

SCALE: 1" = 10' | JOB NO: 2021.19 | DATE: 12-23-21 | SHEET NO: C2



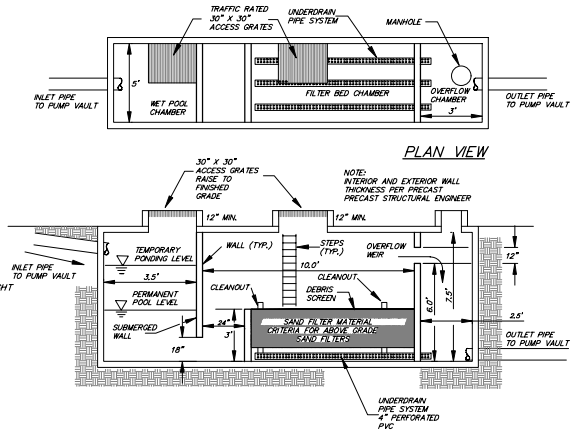
PRECAST CONCRETE (789 CU. FT. DETENTION TANK) (INSIDE DIMENSIONS 11.25' L X 11' H X 7' W) TANK ELEVATION

N.T.S.



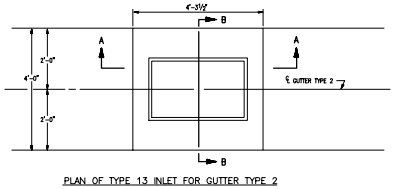
STANDARD CAST IRON MANHOLE RING & COVER

N.T.S.

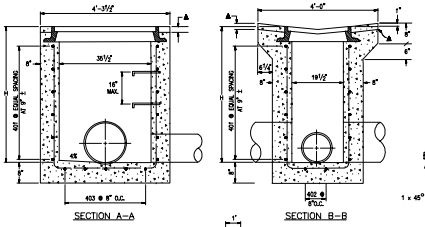


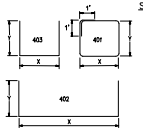
165 CU. FT. (WQCV) PRECAST SAND FILTER/TREATMENT VAULT

N.T.S.

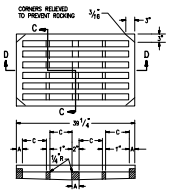


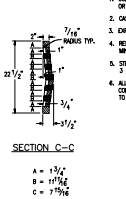
PLAN OF TYPE 13 INLET FOR GUTTER TYPE 2

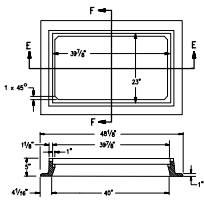


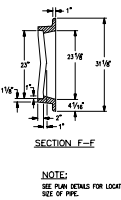


BENDING DIAGRAM N.T.S.









NOTE:
SEE PLAN DETAILS FOR LOCATION AND SIZE OF PIPE.
▲ WHEN BITUMINOUS MATERIAL IS TO EXTEND TO THE EDGE OF THE GRATING FRAME, CONCRETE MAY BE DEPRESSED.

GENERAL NOTES

1. CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
2. CAST-IN-PLACE CONCRETE WALLS SHALL BE FORMED ON BOTH SIDES.
3. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ IN.
4. REINFORCING BARS SHALL BE DEFORMED AND SHALL HAVE A 2 IN. MINIMUM CLEARANCE. ALL REINFORCING BARS SHALL BE EPOXY COATED.
5. STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" EXCEEDS 3 FT.-6 IN. AND SHALL BE IN ACCORDANCE WITH AASHTO M 199.
6. ALL GRATES AND FRAMES SHALL BE GRAY OR DUCTILE CAST IRON CONFORMING TO 7132.05. GRATES AND FRAMES SHALL BE DESIGNED TO WITHSTAND HS 20 LOADING AND BE BICYCLE PROOF.

QUANTITIES

H	CONCRETE CU. YD.	REINFORCING STEEL # LB.	NO. OF 401 BARS REQ'D.
3'-0"	1.3	72	4
3'-6"	1.5	78	4
4'-0"	1.6	80	5
4'-6"	1.8	106	6
5'-0"	2.0	109	6
5'-6"	2.1	122	7
6'-0"	2.3	136	8
6'-6"	2.4	141	8
7'-0"	2.5	154	9
7'-6"	2.7	168	10
8'-0"	2.8	173	10
8'-6"	3.0	187	11
9'-0"	3.1	200	12
9'-6"	3.3	205	12
10'-0"	3.4	219	13

INCLUDES 1% FOR OVERRUN.
NOTE: CONCRETE QUANTITIES INCLUDE VOLUME OCCUPIED BY PIPE.

BAR LIST FOR H=3'-0"

MARK	NO. REQ'D.	DIMENSIONS X	DIMENSIONS Y	LENGTH
401	4	3'-8"	2'-2"	13'-4"
402	2	3'-4½"	* 3'-4½"	8'-5½"
403	5	2'-1½"	* 2'-7"	7'-2½"

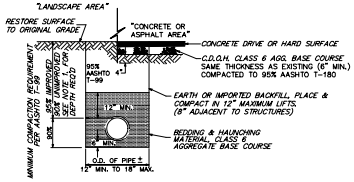
* ADD 6 IN. TO THIS DIMENSION FOR EACH 6 IN. INCREASE OF "H" OVER 3 FT.-0 IN.

TYPE 13 INLET DETAILS

N.T.S.

TRENCH DETAIL NOTES:

1. MINIMUM PIPE COVER 24" UNDER HARD SURFACES AND 36" IN NATIVE, STEEP SLOPE AREAS (30" INTO DRYWELL) UNLESS OTHERWISE NOTED.



DRAINAGE PIPE TYPICAL TRENCH DETAIL

N.T.S.

SIEVE SIZE	MAXIMUM PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES: PIPE BEDDING & HAUNCHING MATERIAL (TYPE A)	GRANULAR STABILIZATION MATERIAL (SCREENED OR CRUSHED ROCK TYPE B)	IMPORTED MATERIAL (TO BE USED WHERE SPECIFIED OR DIRECTED BY THE ENGINEER
12 INCH	---	---	100
2 INCH	---	100	---
1 INCH	100	---	---
NO 4	---	15 MAX	---
NO 200	20 MAX	---	3% – 20%

IMPORTED MATERIAL SHALL ALSO MEET HAZEN UNIFORMITY COEF. (C_U) > 6 AND COEFFICIENT OF CURVATURE (C_C) 1 TO 8 AND PLASTICITY INDEX (PI) MAXIMUM OF 7.

ALL BACKFILL MATERIAL SHALL BE PLACED FULL WIDTH IN 12" MAX. LIFTS (8" LIFTS ADJACENT TO STRUCTURES) AND COMPACTED TO THE MIN. RELATIVE DENSITIES SHOWN

NOTE: NATIVE MATERIAL MAY BE USED IN LIEU OF GRANULAR BEDDING & HAUNCHING MATERIAL IF APPROVED BY THE ENGINEER AND THE NATIVE MATERIAL IS IN COMPLIANCE WITH SIZE REQUIREMENTS FOR "TYPE A".

Packet Page 147

DRAWN & DESIGNED BY: H.E.B.	REVIEWED BY:	PINNACLE DESIGN CONSULTING GROUP, INC.	REVISION	DATE	DESCRIPTION	BY	CHD
CHECKED BY: H.E.B.	DATE: FOR	CONSULTING ENGINEERS ● 0805 BUCK POINT ROAD CARBONDALE, CO 81623 ● (970) 963-2170					

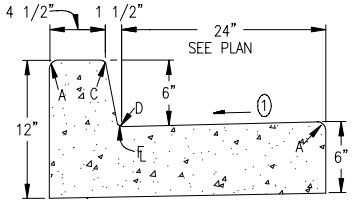
AB & SB CONSTRUCTION CO INC — CITY OF GLENWOOD SPRINGS, CO

702 23RD STREET
DRAINAGE DETAILS

SCALE:	JOB NO:	DATE:
N.T.S.	2021.19	12-23-21

SHEET NO: C3

CONSTRUCT CURB ON 6" OF CLASS 6" AGGREGATE BASE COURSE COMPACTED TO 95% OF MODIFIED PROCTOR DENSITY



CURB AND GUTTER
(6" BARRIER – 24" GUTTER)
N.T.S.

LEGEND FOR RADII
A = 1/8' TO 1/4"
B = 1"
C = 1 1/2"
D = 1 1/2" TO 2"

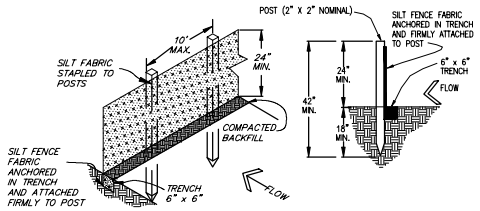
GENERAL NOTES

ON CURVES 3° OR LESS, CURBS AND/OR GUTTERS ARE TO BE PLACED ON THE ARC OF THE CURVE UNLESS OTHERWISE NOTED ON THE PLANS. A MAXIMUM CHORD LENGTH OF 10 FEET MAY BE USED WHEN THE CURVE IS LESS THEN 3°.

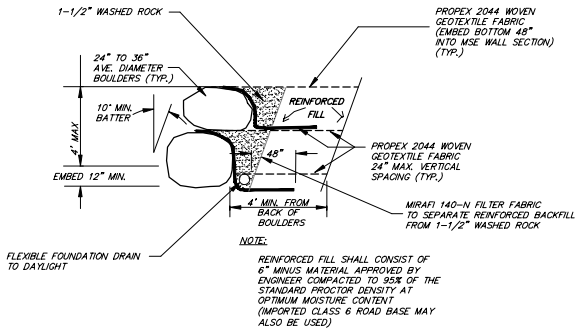
EXPANSION JOINTS SHALL BE INSTALLED WHEN ABUTTING EXISTING CONCRETE OR FIXED STRUCTURE. EXPANSION JOINT MATERIAL SHALL BE 1/2" THICK AND SHALL EXTEND THE FULL DEPTH OF CONTACT SURFACE.

CONCRETE SHALL BE IN ACCORDANCE WITH NOTE #10 SHEET C1.

① — GUTTER CROSS SLOPES SHALL BE 0.04 FT/FT WHEN DRAINING AWAY FROM CURB AND 0.08 FT/FT WHEN DRAINING TOWARD CURB.



SILT FENCE
N.T.S.

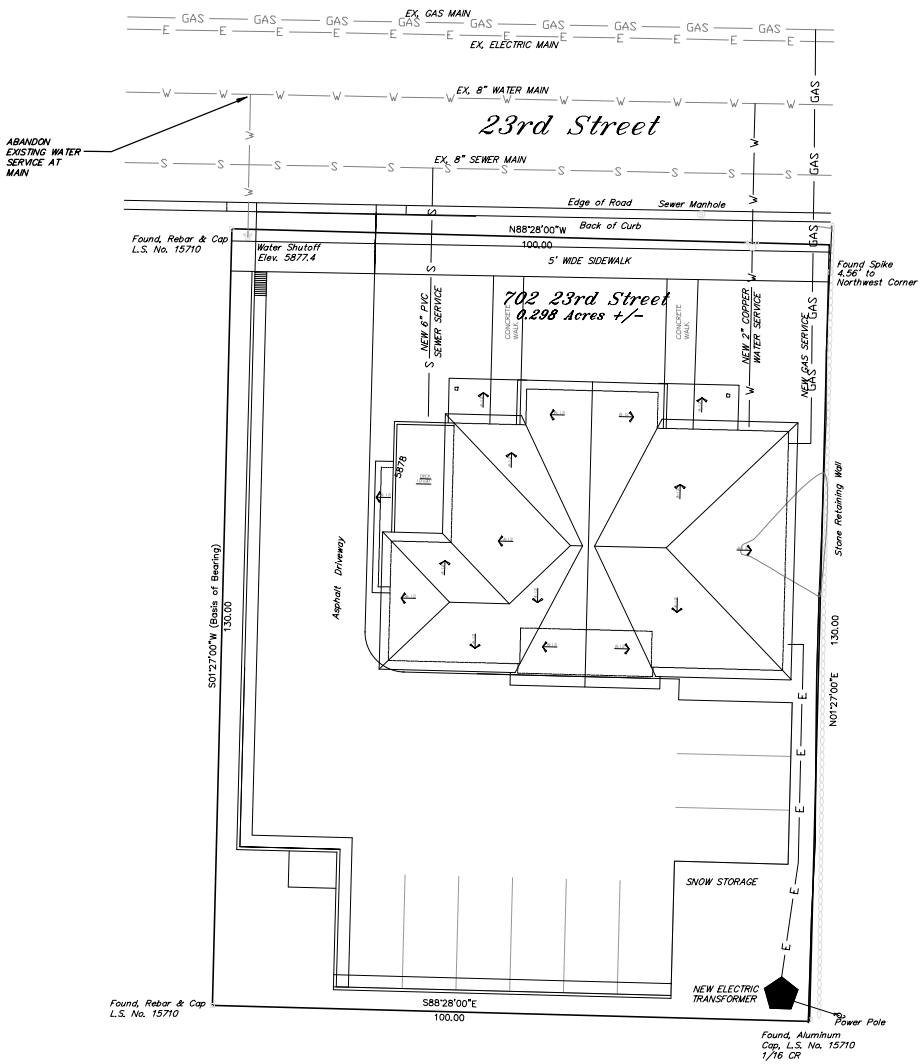


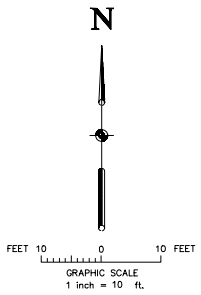
MECHANICALLY REINFORCED BOULDER WALL DETAIL
N.T.S.

DRAWN & DESIGNED BY: H.E.B.	REVIEWED BY:	PINNACLE DESIGN CONSULTING GROUP, INC.	REVISION	DATE	DESCRIPTION	BY	CHD	AB & SB CONSTRUCTION CO INC	CITY OF GLENWOOD SPRINGS, CO
CHECKED BY: H.E.B.	DATE: FOR	CONSULTING ENGINEERS ● 0805 BUCK POINT ROAD CARBONDALE, CO 81623 ● (970) 963-2170						702 23RD STREET DRAINAGE DETAILS	

SCALE:	JOB NO:	DATE:
N.T.S.	2021.19	12-23-21

SHEET NO: C4





GENERAL NOTES:

1. ALL WATER AND SEWER SERVICE LINES SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF GLENWOOD SPRINGS WATER AND SEWER DEPARTMENT STANDARDS AND SPECIFICATIONS.

DRAWN & DESIGNED BY: H.E.B.	REVIEWED BY:	PINNACLE DESIGN CONSULTING GROUP, INC.	REVISION	DATE	DESCRIPTION	BY	CHD	AB & SB CONSTRUCTION CO INC — CITY OF GLENWOOD SPRINGS, CO
CHECKED BY: H.E.B.	DATE: FOR:	CONSULTING ENGINEERS ● 0805 BUCK POINT ROAD CARBONDALE, CO 81623 ● (970) 963-2170 pinnacledesign@sopris.net						702 23RD STREET MASTER UTILITY PLAN

SCALE:	JOB NO:	DATE:
1" = 10'	2021.19	12-23-21

SHEET NO: C5

Design Procedure Form: Sand Filter (SF)

UD-BMP (Version 3.07, March 2018) **Sheet 1 of 2**

Designer: Hans Brucker
Company: Pinnacle Design
Date: December 3, 2021
Project: 702 23rd Street
Location: Glenwood Springs, Colorado

1. Basin Storage Volume

A) Effective Imperviousness of Tributary Area, I_a (100% if all paved and roofed areas upstream of sand filter): I_a = 68.0 %

B) Tributary Area's Imperviousness Ratio ($i = I_a/100$): i = 0.680

C) Water Quality Capture Volume (WQCV) Based on 12-hour Drain Time
$WQCV = 0.8 * (0.91* i^3 - 1.19 * i^2 + 0.78 * i)$: WQCV = 0.21 watershed inches

D) Contributing Watershed Area (including sand filter area): Area = 13,000 sq ft

E) Water Quality Capture Volume (WQCV) Design Volume
$V_{WQCV} = WQCV / 12 * Area$: V_{WQCV} = cu ft

F) For Watersheds Outside of the Denver Region, Depth of Average Runoff Producing Storm: d_6 = 0.30 in

G) For Watersheds Outside of the Denver Region, Water Quality Capture Volume (WQCV) Design Volume: $V_{WQCV\ OTHER}$ = cu ft

H) User Input of Water Quality Capture Volume (WQCV) Design Volume (Only if a different WQCV Design Volume is desired): $V_{WQCV\ USER}$ = 165 cu ft

2. Basin Geometry

A) WQCV Depth: D_{WQCV} = ft

B) Sand Filter Side Slopes (Horizontal distance per unit vertical, 4:1 or flatter preferred). Use "0" if sand filter has vertical walls.: Z = ft / ft

C) Minimum Filter Area (Flat Surface Area): A_{Min} = sq ft

D) Actual Filter Area: A_{Actual} = sq ft

E) Volume Provided: V_T = cu ft

3. Filter Material

Choose One
- ◯ 18" CDOT Class B or C Filter Material
- ◯ Other (Explain):

4. Underdrain System

A) Are underdrains provided?

Choose One
- ◯ YES
- ◯ NO

B) Underdrain system orifice diameter for 12 hour drain time

i) Distance From Lowest Elevation of the Storage Volume to the Center of the Orifice: y = ft

ii) Volume to Drain in 12 Hours: Vol_{12} = cu ft

iii) Orifice Diameter, 3/8" Minimum: D_O = in

DRAIN OPEN AREA / FLOW RATE CALCULATIONS

ASSUMED VALUES / UNITS USED IN SPREADSHEET CALCULATION:

Q = FLOW RATE (GALLONS PER MINUTE)
Cd = DISCHARGE COEFFICIENT (0.6 ASSUMED)
A = OPEN AREA OF GRATE (SQUARE INCHES)
g = ACCELERATION (32 ft/sec/sec)
h = HEAD ABOVE FLOOR (INCHES)

***NOTE:** ORIGINAL FORMULAS SHOWN AND UNITS USED ARE FOR REFERENCE ONLY. SPREADSHEET CALCULATES USING INCH AND SQUARE INCH UNITS FOR CONVENIENCE

INDICATES FORMULA INPUT VALUE CELL

INDICATES FORMULA OUTPUT VALUE CELL

OPEN AREA CALCULATION

(GIVEN FLOW RATE & HEAD ABOVE FLOOR)

ENTER FLOW RATE (GPM):	
ENTER HEAD ABOVE FLOOR (INCHES):	
OPEN AREA (SQUARE INCHES):	#VALUE!

*FORMULA USED:
$A = Q / (448.2 \times Cd \times \sqrt{2gh})$

A (SQUARE FEET)
h (FEET)

FLOW RATE CALCULATION

(GIVEN OPEN AREA & HEAD ABOVE FLOOR)

ENTER OPEN AREA (SQUARE INCHES):	288.00
ENTER HEAD ABOVE FLOOR (INCHES):	1.00
FLOW RATE (GPM):	1245.96

*FORMULA USED:
$Q = 448.2 \times Cd \times A \times \sqrt{2gh}$

A (SQUARE FEET)
h (FEET)

Channel Report

8 INCH PVC PIPE FLOWING AT 1.31 CFS

Circular

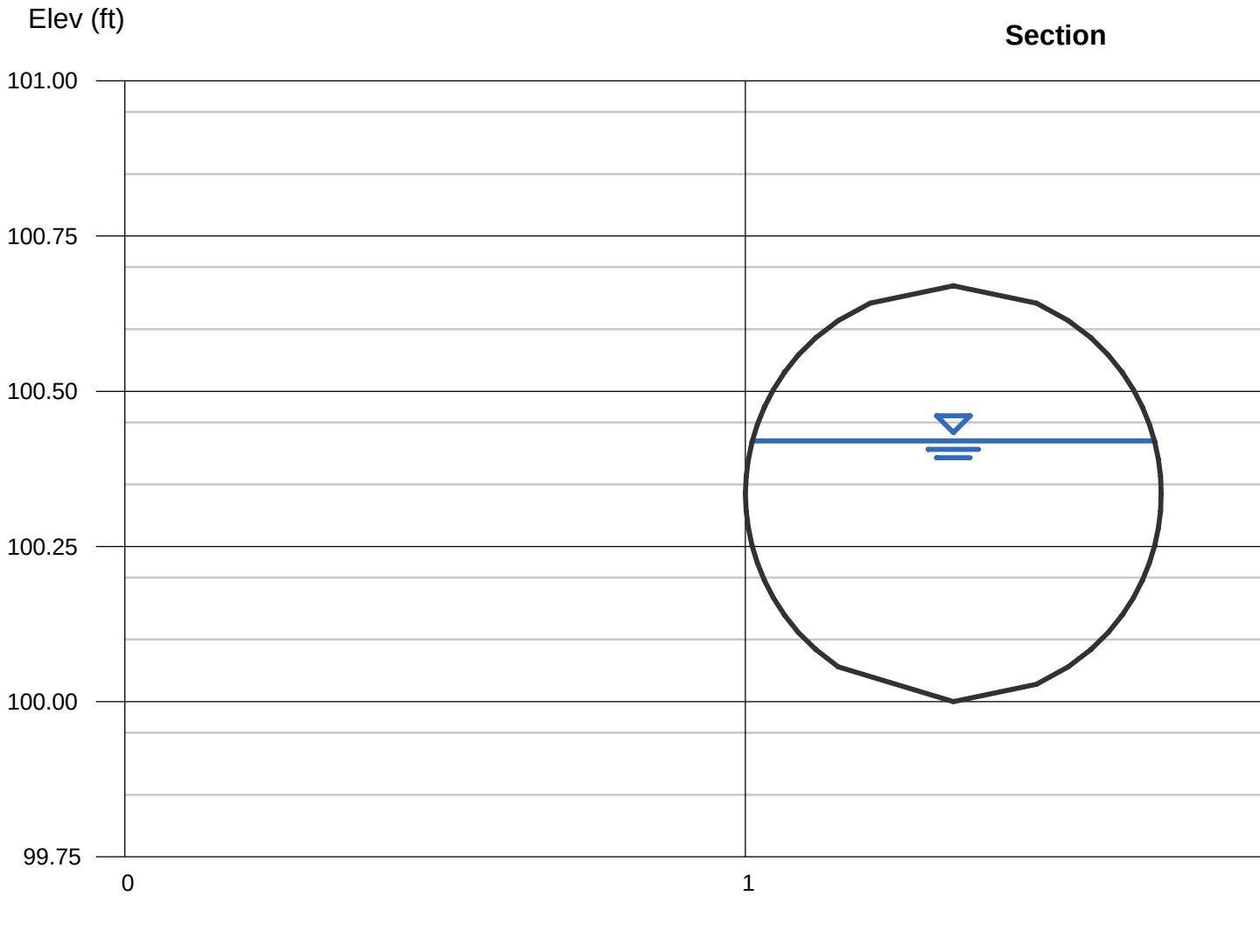
Diameter (ft)	= 0.67
Invert Elev (ft)	= 100.00
Slope (%)	= 2.00
N-Value	= 0.012

Calculations

Compute by:	Known Q
Known Q (cfs)	= 1.31

Highlighted

Depth (ft)	= 0.42
Q (cfs)	= 1.310
Area (sqft)	= 0.23
Velocity (ft/s)	= 5.62
Wetted Perim (ft)	= 1.23
Crit Depth, Yc (ft)	= 0.55
Top Width (ft)	= 0.65
EGL (ft)	= 0.91



Variance Criteria

Instructions

1. Complete this questionnaire after you have had your pre-application conference. Once completed, submit this questionnaire along with the other items on the checklist. Complete one questionnaire for each variance you are requesting. Use a separate sheet if necessary.

2. It is important to remember that the decision to approve or deny a variance is a discretionary action based on how well you meet all the variance criteria. This is your opportunity to describe in detail the reason why you need to deviate from the Municipal Code. If you are unable to provide justification of how your application meets each of the criteria below, you may want to consider whether a variance is truly warranted.

Variance type

Explain what Municipal Code requirement you are requesting a variance from and what it is that you are proposing that does not meet this requirement.

Request from engineering standards, chapter 5, table 5-12 pertaining to the access location of the driveway. The table indicates 15' as a minimum and we are requesting 4', which is where the existing access to this property occurs.

Variance Criteria

1. **Explain how your property has an exceptional shape, topography, building configuration or other exceptional site condition that is not a general condition throughout the zone district.**

The lot is a relatively small lot (13,000sf) with 100' of street frontage, and 7' of gradient change across the property from East to West. Based on the lot slope and adjacent lot conditions, the drive access location is in the best possible location. Based on the natural geological hazards tied to the lot also dictates where the access is best located.

2. **Explain how the strict application of the Code standards for the variance you are seeking produces undue hardship.**

To meet the Engineering Design Standard set forth, we would compromise 10% of our allowable buildable area. Based on the geologic hazard report, the access is best located to allow for proper drainage, access and site water retention.

3. **Explain how you did not create the hardship by your own actions.**

Based on the site topography, neighboring lots/retaining walls, existing drive access and gelogic hazards, which are all existing site conditions and not created by the client

4. **Explain how the requested variance does not harm the public and does not impair the intent or purposes of this Code, goals, and policies, including the specific regulation in question.**

The drive access location already exists and doesn't provide any additional impairment to the code, goals and policies. The proposed existing location doesn't change the current access point and is similar to the adjacent properties in reference to the access locations.

5. **Explain how the variance request demonstrates exceptional hardship not related to purposes of convenience or financial burden.**

The Engineering Design Standard would affect the existing streetscape and would be difficult to meet with the site conditions and geological hazards, while maintaining the integrity of the lot for development. The proposed existing drive access is consistent with the adjacent properties.

6. **Explain how the variance request will not violate building or fire code requirements.**

The existing drive access currently meets the building and fire codes, and by upgrading this access, yet keeping in the same location will continue to adhere to current building and fire codes.

7. **Explain how the variance is the minimum variance that will afford relief of the subject standards of the Code.**

By maintaining the existing drive access point, we are keeping within the integrity of the existing streetscape. This will minimize any additional impacts to the streetscape, utility access and handling of the geological hazards of the site.

Variance Criteria

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1. Complete this questionnaire after you have had your pre-application conference. Once completed, submit this questionnaire along with the other items on the checklist. Complete one questionnaire for each variance you are requesting. Use a separate sheet if necessary.

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Emery Ellingson

From: Anne Sale <anne.sale@comcast.net>
Sent: Thursday, February 17, 2022 10:51 AM
To: Emery Ellingson
Subject: 702 23rd Street

Caution! This message was sent from outside your organization. Allow sender | Block sender

Good morning Emery,

This letter serves as a written public comment related to the Site Plan Application for proposed construction at 702 23rd Street.

After reviewing the site plan application, I have the following concerns:

1) The overall dwelling footprint is exceptionally large for the neighborhood and although it (probably) meets all building code requirements, doesn't necessarily create an aesthetically pleasing piece of architecture. This is demonstrated by the owner/architects designing a building that will require 2 engineering variances (driveway width and driveway access) allowing for a larger dwelling and encroaching on the available land. *My hope is for the owner to consider building a smaller 3-plex unit that would better complement the existing neighborhood and allow for a higher ratio of land to remain as part of the design.*

2) According to the "Sub Soil Study" conducted and as it relates to geological conditions - this property is mapped as being in a **"high hazard zone of debris flow potential". Please NO mud slides.** Construction during our "Spring Run Off" could increase the risk of "debris flow" thus greatly impacting the neighbors to the west. My hope is the builder will be required to do everything possible to mitigate this potential regardless of what is built. *A smaller complex would certainly help reduce this potential.*

3) According to the "Major Drainage Report" - "**Given the size of the project, disturbance to the site will be considerable**". My hope again is that the owner will be required to follow the recommendation that a silt fence be installed in order to eliminate sediment transfer and to mitigate concern for water quality impacts on surrounding roadways and the Colorado River Basin. *A smaller complex again, would reduce this risk.*

4) The site plan barely meets landscaping requirements. The small bushes and mulch planned for the west side don't really add much of a buffer. *A smaller building footprint would allow for more green space.*

5) In consideration for the neighbors to the South - *I request a fence taller than the "4' Boulder Wall" currently planned, be built to mitigate noise and lights from the parking lot.*

6) Finally, I also have concern for the size of the "snow storage" area. Regardless of codes, is this really large enough accommodate the removal of snow that will cover both the entire driveway and parking lot areas?

In summary, the owner/architect has clearly designed a structure meeting all building codes and ***most*** engineering codes therefor maximizing his/her investment. My hope is that the owner will consider shifting his/her goal by taking into account the impact the construction and overall size of the building will have on the neighborhood. *A compromising solution would be to design/build a smaller complex while adding more landscaping that is more aligned with the current atmosphere of our quaint neighborhood. Just as important however is an owner that demonstrates a willingness to listen and respond to the voices of the neighbors.*

Respectfully,

Anne Sale
2307 Bennett Court

cell (615)812-2575

Emery Ellingson

From: LRW <lrw618@comcast.net>
Sent: Thursday, February 17, 2022 2:50 PM
To: Emery Ellingson
Cc: Anne Sale; Steve Peltzman; Julie Ebeler; Kathi Olson; Hilary Stumpus
Subject: 702 23rd Street

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As President of the Bennet Ct Townhomes HOA, on behalf of the HOA Board, we are in agreement with the letter (below) emailed to you by Anne Sale, one of 10 HOA owners.
We have grave concerns about the 702 23rd St project density and accompanying requested variances. Variances are in place for a reason. In this case, they are being requested simply because the owners are attempting to over-populate a tract of land not meant to accommodate the proposed project density. We also have strong serious concerns about the lack of landscaping mitigation for this project, as well as the unattractive aesthetics of the building itself.

In addition to the concerns outlined in the letter below, the HOA Board endorses concerns brought forth by Martin Mata, another Bennett Ct Townhome HOA owner.

I, along with other Bennett Ct HOA members, will be in attendance at the P&Z meeting next week.

Sincerely,
Lisa Wilson, President
Bennett Court Townhome Association

Good morning Emery,

This letter serves as a written public comment related to the Site Plan Application for proposed construction at 702 23rd Street.

After reviewing the site plan application, I have the following concerns:

1) The overall dwelling footprint is exceptionally large for the neighborhood and although it (probably) meets all building code requirements, doesn't necessarily create an aesthetically pleasing piece of architecture. This is demonstrated by the owner/architects designing a building that will require 2 engineering variances (driveway width and driveway access) allowing for a larger dwelling and encroaching on the available land. *My hope is for the owner to consider building a smaller 3-plex unit that would better complement the existing neighborhood and allow for a higher ratio of land to remain as part of the design.*

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4) The site plan barely meets landscaping requirements. The small bushes and mulch planned for the west side don't really add much of a buffer. *A smaller building footprint would allow for more green space.*

5) In consideration for the neighbors to the South - *I request a fence taller than the "4' Boulder Wall" currently planned, be built to mitigate noise and lights from the parking lot.*

6) Finally, I also have concern for the size of the "snow storage" area. Regardless of codes, is this really large enough accommodate the removal of snow that will cover both the entire driveway and parking lot areas?

In summary, the owner/architect has clearly designed a structure meeting all building codes and ***most*** engineering codes therefor maximizing his/her investment. My hope is that the owner will consider shifting his/her goal by taking into account the impact the construction and overall size of the building will have on the neighborhood. *A compromising solution would be to design/build a smaller complex while adding more landscaping that is more aligned with the*

current atmosphere of our quaint neighborhood. Just as important however is an owner that demonstrates a willingness to listen and respond to the voices of the neighbors.

Respectfully,

Anne Sale
2307 Bennett Court

cell (615)812-2575

Emery Ellingson

From: Dave Malehorn <dave.malehorn@gmail.com>
Sent: Thursday, January 20, 2022 9:30 AM
To: Emery Ellingson
Cc: Charlie Willman; Ingrid Wussow; Jonathan Godes; Paula Stepp; Shelley Kaup; Steve Davis; Tony Hershey; Debra Figueroa
Subject: 702 23rd development

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Good morning Emery,

I would like my comments on public record.

The proposed 5 plex at 702 23rd street is too big for such a small lot in a residential neighborhood. A duplex or triplex at most is more suitable for this lot. Parking overflow is a concern. Are these units owner occupied or are they rentals? We have a large number of massive rental complexes being developed and very few affordable, owner occupied units being built. Our neighborhood is will be greatly impacted by the Bell Rippy project by Walmart. Myself and my neighbors are very concerned about the impact of all of this development nearby. We, city citizens in the Oakhurst Platt, feel our quiet neighborhood is being sacrificed.

I request a review by planning and zoning.

Respectfully,

Dave and Polly Malehorn
2407 Palmer Ave
Glenwood Springs, CO 81601
Dave.malehorn@gmail.com (970) 379-2872
Pmalehorn@gmail.com (970) 379-8540

Emery Ellingson

From: lcrfnd@rof.net
Sent: Wednesday, January 19, 2022 4:23 PM
To: Emery Ellingson
Cc: Paula Stepp; skeegan@rfta.com; kramers85@comcast.net
Subject: 702 23rd St Public Comment

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Hello,

My name is Lynn B Cary I have lived at 2405 Palmer Ave for 48 years. I agree with Patrick Carpenter and

I would like to request that the 702 23rd Street application be sent to the Planning + Zoning Commission

on behalf of the neighborhood.

There are many concerns with an increase of traffic on 23rd Street which is not in great condition now and

a change in the atmosphere of single family/duplex neighborhood.

Thank you,
Lynn B Cary
2405 Palmer Ave
Glenwood Spgs, Co 81601
lcrfnd@rof.net

Emery Ellingson

From: Martin Mata <matadesign@mac.com>
Sent: Friday, January 28, 2022 7:47 AM
To: Emery Ellingson
Cc: Lisa Willson
Subject: Objection to 702 23rd Street Application

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Emery,
My home is immediately to the south of the proposed development at 702 23rd street.

Overall:
- The application for development at 702 23rd street should be denied.
- I have been asking for substantiation for the requested variances or an extension of the public comment period to allow a proper evaluation and formulation of comments.
- Neither have been provided. This has not afforded me or the public a normal and fair review process that is due to surrounding property owners.
- It simply is not possible to adequately review this application as submitted.

Site Related Variances
- The applicant has not provided any substantiation for the site related variance requests listed in the application
- Variances from the established building regulations always come with a cost or burden imposed on to the immediate and surrounding neighbors as adverse impacts
- No explanation or evidence of investigation has been provided that there is not a solution to this project without the variances.
- I personally have been designing single and multi family residences for several decades and I can assure you that there is a solution for this property that does not require variances from any of the established regulations.
- The present long driveway solution is an excessive amount of pavement the tis completely out of character with the overall character of that portion of 23 St. There is likely a solution that minimizes paving the majority of the property
- Presently the extent of site disturbance is practically the entire site. There is no evidence in the application of temporary or permanent disturbances to be completely contained within the applicant's property lines on all sides.

Exterior Material Variance:
- The exterior material variance basically states that complying with the established rules will cost the applicant more money. This justification is not an acceptable basis for granting variances to established development rules.

- The applicant may feel that stucco is “nicer/ better” than wood. Most in the neighborhood would strongly object and consider stucco as an adverse impact. I request that this variance be denied due to inadequate justification and adverse impact to property and to surrounding neighbors.

Neighborhood:
- This entire block on 23rd street has historically consisted of a small-scale single-family-home character and presently serves as a buffer and transition to the small-scale homes that comprise the neighborhood to the north. The planning an zoning board is a more appropriate venue for any project seeking to change from single family to multi-family along this block. I request that this project be reviewed by the planning and zoning board. This would afford a more just and fair notice to the neighbors, insure a complete application submittal and allow adequate opportunity for neighbor evaluation and formulation of comments as is common practice of due process.

Bennett Court HOA
- I am a member of the Bennett Court HOA. The 5-member HOA board and other households are also in strong opposition to the proposed development and request that this application be denied and any future application be sent to the planning and zoning board for review.

Thank you
- Martin Mata 970-274-6011

Emery Ellingson

From: Martin Mata <matadesign@mac.com>
Sent: Thursday, February 17, 2022 11:39 PM
To: Emery Ellingson
Cc: Lisa R Wilson; Anne Sale
Subject: 702 23rd street

Emery,
I live at the home immediately south of the 23rd St property. Below are our comments for the up-coming planning and zoning hearing for the proposed development at 702 23rd St.

DRIVEWAY WIDTH:
- Driveway and parking dimensions must be kept to at least the minimums required by the present codes. The applicant attempts to justify the driveway width variance request by simply stating that there will be “minimal vehicular movements” on the proposed development but does not provide any factual or engineering data to support this claim. In fact, parking and vehicular conflicts are common in all multi-family development. In the few years we have been living at the Bennett Court townhomes we have witnessed several vehicular collisions, on-going parking in the driving lanes and on-going problems with the minimal guest parking. Similar behavior will occur in any multi-family development and reducing vehicular requirements only make vehicular movement and vehicular related matters worse. There is always someone that can justify parking in the access lane “for just a little bit”. Allowing this to be narrower than required with so little justification is simply wrong.

DRIVEWAY LOCATION
- The application proposes a change in use from single family to multi-family. Keeping the existing access location by granting a variance should not be allowed with such a significant change in use that will triple or quadruple the present vehicular movements by going from one household to five.
- Again, the justification in the application for this variance request is shallow and lacks any technical justification.
- "Geologic hazards" are mentioned as somehow being a justification for a variance from driveway location requirements. However the only geologic hazard that I see is a passing comment in the soils report about debris flow. Debris flow mitigation for this property is proposed as simple 3ft diverting walls. That is vastly different from the 8ft concrete retaining wall that was required at the Bennett Court development. At the risk of getting off-subject I ask why the huge difference in mitigation requirement for the same hazard but a higher density of households? Is the debris flow hazard that much less on the 23rd st property than at the Bennett court property? Regardless; debris flow on this property has nothing to do with driveway location and is certainly not an appropriate justification for a variance in the driveway location requirements.
- Drainage is not a hazard and will be handled under whatever parking and driveway is provided.
- A code compliant driveway location solution needs to be provided for this property.

VARIANCE REQUEST JUSTIFICATION
- There is no convincing evidence in the application that the requested variances are actually needed. A code compliant solution is very likely by the use of basement space or maximizing the allowable building height or placing livable space over required parking or a combination of these concepts.

- I have been working as an architect in this valley and other mountain communities for 29 years. Relatively speaking, this an "easy" property to develop. There is no convincing evidence in the application that this property is so unique that it needs these variances to develop a successful project.
- Variances almost always come at the expense of increased impacts to the immediate neighbors. In addition, if approved, these particular variance requests will set a low-bar precedent for not wanting to dive deeper into fully code-compliant development solutions.

NEIGHBOR REQUEST
- We request that these variances be denied due to lack of justification for their need.
- Regardless of the eventual development proposal that gets built. We request that at time of re-development, the owner replace the existing solid privacy fences on the South and West sides that have been historically in-place there for many years. This is particularly true along the south property line where the site is being proposed to be raised by the installation of a new 4ft retaining wall along the south property line with only minimal landscaping. If that is not bad enough, the present proposal locates the most impactful activity (parking) immediately adjacent to our property line. As you can imagine, a solid privacy fence and heavy landscaping would perform much better on the “high” side of the property line.

Thank you,
- Martin Mata

To: January 26, 2022
Emery Ellingson
Community Development Department
Glenwood Springs, CO

This letter is in response to the public notice that was sent regarding the property directly to the South of our home, at 702 23rd Street, Glenwood Springs.

We are strongly and immediately opposed to the consideration and application submitted by JORDAN ARCHITECTURE INC. for a five-unit residential building zoned as a Residential High Density property, for the reasons stated below. This appears to be an up-zoning initiative by the City of Glenwood Springs. In any case, it is contradictory to the preservation of stable and safe neighborhoods for the city and its residents. We are not sure what is behind the sudden increase of high-density residential properties in the city that we see popping up seemingly everywhere recently. It appears, and we fear, that this is just the beginning of what will lead to a flood of new developments all across the city in once single-family neighborhoods. Such initiatives in both the near term and the long term will destroy the image and experience of the city as a safe and settled place to live. Among our concerns:

1. Destruction of Single-Family neighborhoods city-wide. The current neighborhood surrounding this property, with the exception of the condominiums behind the above noted property and out of view from the homes in this area are considered single family homes, owned by most residents with at most 5 occupants including children. There are two VRBO's that are owned and properly maintained with little disruption to the neighborhood on Bennett and the corner of 23rd and Palmer Ave.

2. Safety for neighbors: Traffic on 23rd street would increase significantly with more residents occupying the 5-unit building, on top of the new development on Palmer Ave. This neighborhood is frequented by owners who walk their dogs, children who ride their bikes to school and recreationally and adult residents who walk frequently for recreation and to obtain goods and services from the shopping areas on Main Street?? Having to monitor other cars and look out for one's safety constantly brings risk and potential hazards and is an obvious and unacceptable safety concern for all of the neighborhood's residents.

3. The potential of multiple residents within a single unit with multiple cars is concerning, particularly if the units intentionally or unintentionally become rentals.

4. We want to preserve what this neighborhood has represented, for the past half century, more than 50 years, which is a cohesive family environment, and we feel that would be disrupted with an eye sore of condominiums or apartments and the amount of people added to the neighborhood. Worse, what comes next is even more troubling and concerning. The amount of development that is currently taking place in Glenwood Springs is already an issue and of significant concern to residents of the single-family neighborhoods of the city. The thought of adding 5 more units to this neighborhood, the likelihood that this is just the beginning of more

growth impacts, along with the question of sustainability of this community will weigh heavily on the schools, first responders, traffic, and way of life.

It appears the city is intent on destroying its single-family neighborhoods. We, and our neighbors, are absolutely opposed to these growth-at-any cost policies and the damage it will do to our traditional way of life. We fear that this is just the beginning of these encroachments on our once secure and safe neighborhoods.

If the city wants to increase its density and its reach, we ask the planning and development staff to look elsewhere to increase these potentially out of control growth patterns. The city should seek other properties not located in traditional single-family neighborhoods, annexing properties as necessary or at least creating specific zones not immediately impacting our long preserved and treasured peaceful neighborhoods. There are plenty of places where this growth could happen without the major disruptions of destroying single-family neighborhoods. We hope that you, Glenwood Springs municipal government, do your job properly and keep Glenwood Springs the viable and pleasant community it has been throughout its history. You and we as a community can have both without the unnecessary impact of growth on our long-settled single-family neighborhoods.

Sincerely,

Meghan and Jason Hegberg

Emery Ellingson

From: kramers85@comcast.net
Sent: Wednesday, January 19, 2022 5:43 PM
To: Emery Ellingson
Subject: 702 23rd Street - Public Comment

Caution! This message was sent from outside your organization. Allow sender | Block sender

TO: Emery Ellingson, Community Development Department
City of Glenwood Springs

FROM: Trish and Scott Kramer
2501 Palmer Avenue
Glenwood Springs, CO 81601
970-309-7646, 970-618-5235

RE: Request to have proposed 5 unit development at 702 23rd Street reviewed by Planning and Zoning Commission

Our concerns regarding this proposed development are as follows:

Density of 5 units on small lot: How are parking, snow removal, quality of life accommodated for future residents of this development? Is any yard or off-road privacy provided for residents with this density? (23rd gets lots of traffic from other residents, VVH employees and patients)
Are the proposed units rental or owned? We have tons of large project-rental units in development in this city. The city has a lack of housing units that permit ownership. Rental units smack in the middle of a neighborhood of mostly single family homes is really concerning. We singe family home owners in this area of town feel the encroachment pressures of large multi-unit housing coming from all directions. Triplex at most, maybe - but 5 units? That are livable and of quality? We are very concerned and request P&Z review.

Thank you,

Trish and Scott Kramer

Planning and Zoning Commission Report

Date: February 22, 2022
To: Planning and Zoning Commission
From: Emery Ellingson, Planner I
Subject: Planning File #69-21– Minor Site/Architectural Plan
2525 S. Grand Ave.

REQUEST	Consideration of a Minor Site and Architectural Plan for construction of 17 townhomes.
APPLICANT	North Mountain Properties LLC
OWNER	The Rivers LLC
LOCATION	2525 S. Grand Avenue (PIN 2185-164-00-074)
ZONE	CO - Commercial
SURROUNDING LAND USES	North: Commercial South: Commercial and residential East: Commercial and residential West: Roaring Fork River
LOT SIZE	Parcel (2185-164-00-074) 2.619 acres

ACTION ITEM

Per Section 070.060.050 of the *Glenwood Springs Municipal Code* (Code), the Planning and Zoning Commission (Commission) is the reviewing and deciding body for Minor Site & Architectural Plans. The proposed development is for 17 townhomes.

Action 1 – Minor Site Plan & Architectural Plan – approve Minor Site & Architectural Plan for development of a 17 townhomes.

Staff recommendation: *Staff recommends **approval** of the Minor Site/Architectural Plan for development of a 17 townhome units with findings and conditions on pages 13 and 14 of the staff report.*

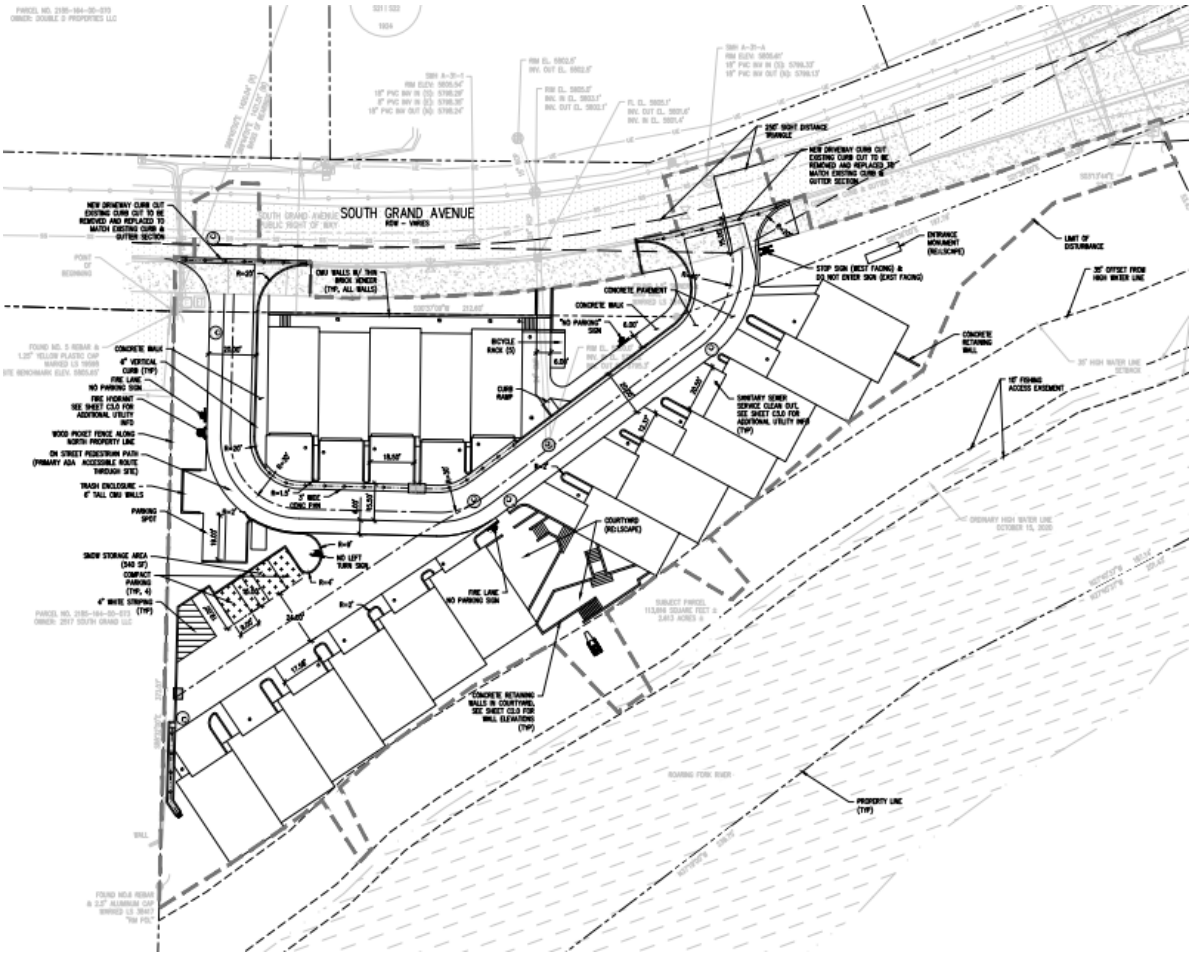
BACKGROUND

Project Summary

The application was submitted by North Mountain Partners LLC on behalf of the property owner *The Rivers, LLC.* The application proposes the development of 17 townhomes on the site formerly occupied by the Rivers Restaurant. The development proposes two 6 unit buildings and one 5 unit building.

East Group Along Grand Avenue (14,348 sf total)			
Unit Type	*Square Footage*	*Number of Units*	*Garage Spaces*
3 BR 2.5 BA	2,716 sf	5	2 vehicles
South Group Along Roaring Fork (18,210 sf total)			
3 BR 2.5 BA	2,618 sf	3	2 vehicles
2 BR, 2.5 BA	1,959 sf	3	1 vehicle
North Group Along Roaring Fork (20,663 sf total)			
3 BR, 3 BA	2,618 sf	6	2 vehicles

Site Plan



Location and Background

The proposed location for this development is 2525 South Grand. This property is zoned CO – Commercial and is currently vacant. The site was previously the River Restaurant which has been demolished. The property is located in the CO – Commercial Zoning District, as are all the surrounding properties. Nearby uses include a veterinarian clinic, single family and multifamily residential, senior living facility, offices, and a pet care facility.

South – Commercial and townhomes

East – Vet clinic, townhomes, apartments

West – River, condominiums

North – Commercial, residential

PROJECT ANALYSIS

The application is a Minor Site/Architectural Plan Application for development pf 17 townhomes. For this project, the area of distrubance, whhich is 53,716 square feet is used to calcuate landsacping requirements as the entire site is not being developed. Approximately 36% of this property is in the Roaring Fork River. The following section provides further details on the compliance of the proposed project with Code standards.

CODE STANDARD		PROPOSED	REQUIREMENT MET
Lot Standards	N/A, no minimum per CO Zoning District	53,716 sf limit of disturbance (113,816 sf total site)	YES
Lot Coverage	N/A, does not apply	53,716 sf limit of disturbance (47.2% of total site)	YES
Common Open Space	20% (10,743.2 sf)	56% (63,426 sf)	YES
Landscape	10% (5,371.6 sf)	10.7% (11,933.1 sf)	YES
Parking Lot Landscape			
Total Parking Area	N/A	1,051 sf	N/A
Surface Area Landscape	105 sf	559.3 sf	YES
Interior Landscape	70 sf	632 sf	YES
Setback			
Front	5’ minimum, 40’ maximum	Varies per building, meets req.	YES
Rear	10’	Varies per building, meets req.	YES
Side	5’	Varies per building, meets req.	YES
Height	40 ft.	Varies, < 40’ from finished grade	YES
Parking	1.5 per unit + 1 guest per 5 units (30 required)	38 spaces (31 resident + 7 guest)	YES
Bike Parking	3 short term spaces	10 short term spaces	YES
Trash Enclosure	Enclosed	Enclosed	YES
Architectural Elements	Four sided, 5 elements	5 elements on each side	YES
Storage	N/A, only required for multi-family developments	Storage provided via garages and closets	YES
Affordable Housing	3 resident occupied, 1 income restricted	3 resident occupied, 1 income restricted	YES

Site Layout and Building Design (Section 070.040.080)

Section 070.040.080 Residential Site and Building design provides standards for residential buildings related to building orientation, architectural elements, heights, and façade articulation. This proposed project meets the requirements such as four sided design, building height, colors, material, and orientation.

Building Materials

The primary exterior building material will be cementitious panels, which is an approved building material. Addition accent materials include stone veneer, metal paneling, glazing, and small sections of exposed concrete wall. All of which are approved building materials.

Building Color

Code requires that the predominant exterior colors on a multi-family building be earth tones to minimize visual impact. The proposed building colors meet this requirement with earth toned colors.

Building Orientation

Code requires that all multi-family buildings shall, to the maximum extent feasible, have a primary entrance oriented toward the street or internal drives. There is one townhouse group which has entries directly facing Grand while the other buildings, although set back from Grand Avenue, are also oriented towards the street and internal drives.

Building Height

The maximum height for a structure in the Commercial Zoning District is 40'. The image below provides a visual for how Code measures building height. All three townhome buildings are under 40' as measured from finished grade. The east elevations provide the best visual for how these units will be seen from the street.

(d) *Building Height.*

(1) *Measurement.* Height shall be measured as the vertical distance above finished grade measured to the highest point of the coping of a flat roof or to the deck line of a mansard roof, or to the midpoint of the highest gable of a pitched or hipped roof. (See examples in Figure 020-17)

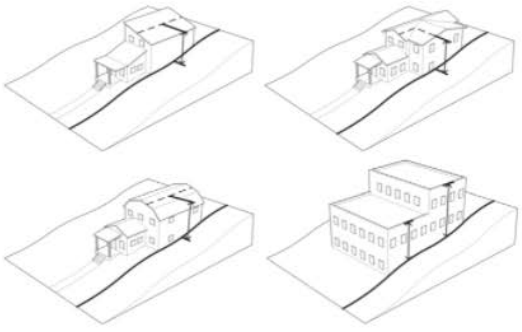


Figure 020-17: Examples of Building Height Mesasurment

Lot Standards
The Commercial Zoning District does not have a minimum lot area requirement per unit such as is required in residential zoning districts.

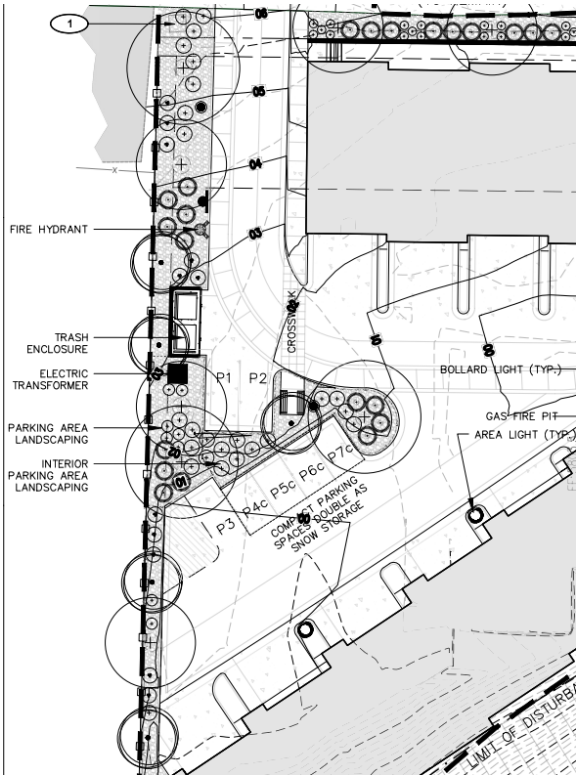
Lot Coverage
This project does not meet the Code definition of residential infill and maximum lot coverage requirements for infill residential do not apply. The proposed lot coverage is 17,261 sf which is 15.2% of the total site.

Common Open Space (Section 070.040.040)
Code requires 20% of the site be common open space. The required amount of common open space is 10,743.2 sf square feet. Required buffer and landscape areas can count towards this amount, except for interior parking lot landscaping areas. The total amount of landscaped area, subtracting the interior parking lot landscaping areas is 63,426 square feet, which meets the requirement. A significant portion of this common open space includes natural area along the river as well as common patio space area between the two buildings along the river.

Landscaping, Screening, and Fencing (Section 070.040.050)
For a property zoned CO Commercial the Code requires that 10% of the entire site be landscaped. The total amount of required landscaped area is 5,371.6 square feet. The proposed development will have 11,933.1 square feet which meets the requirement. Natural areas do not count towards landscaped areas. Requirements for planting by type is found in the table below.

Plant Material	Code Requirement	Required	Provided	Meets Req.
Trees	1 per 400 sf req. landscaped area	14	38	YES
Shrubs	1 per 100 sf req. landscaped area	54	156	YES
Perennials	1 per 50 sf req. landscaped area	108	129	YES

Planting Strip
Typically a planting strip is required for a new development, which is from back of curb to the sidewalk. The Director may waive this requirement based on existing conditions along the block face, provided that landscape elements are used to define the edge of the property in absence of a planting strip. The existing condition is that no planting strip exists, the existing sidewalk is adjacent to Grand Avenue. The applicant is using landscaping, including street trees immediately adjacent to the sidewalk be used to define the edge of the property in absence of a planting strip, which meets this requirement.



Parking Lot Landscaping

For parking lots with 20 or fewer spaces, the Code requires that 10% of the total parking area be designated for landscaping, this includes 10 square feet of interior parking landscaping per parking space. The total parking area is 1,051 square feet as most of the parking is provided with garages in each unit. This amount of parking area requires 105 square feet of landscaped area and 70 square feet of interior parking space landscaping.. The proposed project calls for 559.3 sf of parking area landscaping and 632 square feet of interior parking space landscaping. These totals meet the required amount of landscaping for both parking area and interior parking area landscaping.

Off Street Parking and Loading (Section 070.040.060

Section 070.030.020(e)/Table 030.1 Table of Allowed Uses outlines 1.5 spaces per multi-family dwelling unit and one guest space per five dwelling which would require 30 spaces. The project proposed 38 parking spaces. There are 31 parking spaces in the garages with 7 surface parking spaces.

Section 070.040.060(f)(2) Number of Bicycle Parking outlines the amount of bicycle parking required. For a development with fewer than 50 vehicle spaces, 3 bicycle spaces are required. This plan includes 10 bicycle spaces.

Access and Circulation (Section 070.040.070)

Site Access

The proposed project has two access points. There is a north access which is a one way entry while the second access point to the south is a one way exit.

Snow Storage

There is a total of 540 square feet proposed for snow storage in the area of the guest spaces. Code allows for up to 10% of the required parking spaces be used for snow storage and 100% of those spaces in excess of those required be used for snow storage. The proposed snow storage area is occurring in less than 10% of the required parking area and meets Code requirements.

Traffic Impact

The applicant has submitted a Traffic Impact Study and a summary of results for traffic generation for the use is shown in the table below.

The projected traffic volumes do not require a CDOT access permit.

Table 1: Trip Generation Table

			ITE Trip Generation Equation[3]			Average Weekday	Morning Peak Hour				Evening Peak Hour			
							Inbound		Outbound		Inbound		Outbound	
ITE Code	Units [2]	Eq. Coef	Avg. Weekday	AM Peak Hour	PM Peak Hour	Trips (VPD)	% Trips	Trips	% Trips	Trips	% Trips	Trips	% Trips	Trips
Proposed Land Use														
Residential Development														
#220 - Multifamily Housing (Low-Rise)	17 DU	Type	A	B	A	88	28%	4	72%	8	59%	8	41%	6
		a=	7.56	0.94	0.66									
		b=	40.86	0.29	1.41									
Multi-Modal Reduction	*-10%*					*-9*	*0*		*-1*		*-1*		*-1*	
Proposed New Trips						**79**	**4**		**7**		**7**		**5**	

Notes:

[1] Values obtained from *Trip Generation, 10th Edition,* Institute of Transportation Engineers, 2017.

[2] DU = Dwelling Units, kSF = 1,000 Square Feet

[3] Fitted curve equations from ITE Land Uses - Equation Type A is T = a * X + b, Equation Type B is Ln(T) = a * Ln(X) + b, Rate is T = a * X

Drainage and Geotechnical Reports

The applicant has submitted all required reports for drainage and geotechnical reports. The submitted reports have been reviewed by staff which has reviewed and commented on the submitted reports. It will be a condition of approval that these reports meet all City requirements and standards.

Sensitive Area Protections (Section 070.040.020)

This proposed development is adjacent to the Roaring Fork River. The proposed building area and limit of disturbance observes requirements for riverfront development, including leaving an undisturbed area within 35' of the ordinary high water mark. The applicant will have to meet all requirements for actual construction, including requirements for managing water quality and erosion during construction. It will be a condition of approval that construction meet all City requirements and standards.

Site Development and Improvement Standards (Section 070.040.030)

Fisherman's Easement

Section 070.040.030(g)(3) Fisherman's Easement states that when a development or subdivision fronts a river or creek within the City, a public fisherman's easement may be requested and may be included as a portion of the required parkland dedication. The project proposes a 10' fishing access easement along the Roaring Fork River centered on the normal high water line of the Roaring Fork River. This easement would count towards the required parkland dedication.

Community Housing (Section 070.040.120)

Section 070.040.120 provides for requirements for all residential and mixed use developments proposing the construction of ten (10) or more new dwelling units or residential lots. This requirement applies to this development. The community housing units will be the following:

- 3 units for deed restricted for resident occupied housing.

- 1 unit deed restricted to incomes no higher than 100% AMI, average over the total required deed restricted units.

Per housing guidelines, the type of community housing units shall closely mirror the market value unit mix. The project proposes 14 three bedroom units and 3 two bedroom units. Given that the majority of units are three bedroom units, the single 100% AMI restricted unit should also be a three bedroom unit. Staff has included this as a condition.

COMPREHENSIVE PLAN COMPATIBILITY

Below is staff's analysis of the application and its compatibility with the Comprehensive Plan.

The subject property is shown on the Future Land Use Map in the Comprehensive Plan as Commercial. The designation of Commercial in the Comprehensive Plan is as follows:

"This land use designation provides a wide range of general goods and services for both regional and local markets in attached and freestanding structures. Retail that would compete directly with Downtown retail is discouraged".

Future land use as commercial does not preclude this site from being residential. The CO – Commercial Zoning District allows residential uses, including multifamily residential as is proposed by this project.

The property is also included in both the hillside preservation and riverside protection zones. The riverside protection land use describes that land and habitat along the Colorado and Roaring Fork rivers should be protected. This proposed project leaves much of the habitat next to the river undisturbed. The Comprehensive Plan states that development of hillside areas requires special care to limit physical and visual impact to the hillside. Staff finds that the proposed project is compatible with these concerns as the site is designed with attention and will be required to meet all design and construction standards associated with development in these areas.

The table below describes how the proposed project supports specific goals from the Comprehensive Plan.

Comprehensive Plan Goal Supported	**Objective and Strategies**
Promote long-term, sustainable, diverse, economic development	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34)
Staff Comment: This application supports the goal above as the proposed development is redevelopment of a vacant lot into residential infill.	
Preserve small town character while maintaining the livability of Glenwood Springs and increasing the vibrancy and commercial success of the downtown	-Develop according to the vision (Chapter 4, Page34) -Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Enhance pedestrian–friendliness while facilitating traffic (Chapter 3, Page 36) -Direct growth inward (Chapter 9, Page 102)
Staff Comment: The proposed development directs development in compact form as infill and redevelopment of a vacant lot.	
Address transportation and provide multiple convenient travel choices	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Encourage reduction of single occupant vehicles and encourage alternate travel modes through land use planning and community design (Chapter 5, Page 66)
Staff Comment: The proposed development calls for dense infill in a mixed use area within walking distance of a transit station at 27th Street. Infill near transit is a land use strategy used to address transportation issues by encouraging use of public transportation to reduce single occupancy vehicles.	
Direct development to locations and building forms that are cost effective to serve	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Direct growth to areas where utilities and services can be provided efficiently (Chapter 7, Page 82) -Direct growth inward (Chapter 9, Page 102)
Staff Comment: Infill development fulfills this goal as direct development to this location and density at this location are cost effective for the City to serve.	
Provide housing opportunities for the entire community	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Encourage greater variety in housing variety and affordability throughout the community (Chapter 6, Page 76) -Require good design for mixed-use and higher density project (Chapter 6, Page 78)
Staff Comment: The proposed development for residential infill provides housing in a location near transit and will also provide housing variety and opportunity for ownership.	
Support social diversity	-Direct development into a compact form: infill and redevelopment (Chapter 3, Page 34) -Encourage greater variety in housing variety and affordability throughout the community (Chapter 6, Page 76) -Require good design for mixed-use and higher density projects (Chapter 6, Page 78) -Direct growth inward (Chapter 9, Page 102)
Staff Comment: Infill development in a compact form helps support social diversity, as this project will offer opportunities for ownership as well as create 4 deed restricted units, including one restricted to 100% AMI.	

REVIEWING AGENCY COMMENTS

An overview of any comments received from referral agencies is provided below. Comments are also attached with application information.

Engineering Department – Comments received mentioned that the proposed project would require a grading plan, drainage letter and plan completed by an engineer, and a Geotechnical Report/Letter to address the potential for hydrocompactive and corrosive soils for this property.

Additional comments from Engineering Department included technical details on the drainage report, geotechnical report, and traffic assessment. If this Minor Site Plan were approved by Planning & Zoning Commission, these issues would be required to be resolved prior to Final Plans approval and subsequent building permit application.

Public Work, Electric, Water, Wastewater – Comments submitted by these departments is included in application information. Comments included technical details on utility locations.

Fire Department – Comments submitted by this Department indicate that the building design and site layout does not inhibit the Fire Department's ability to access the site and provide emergency services.

ACTION ALTERNATIVES AND STAFF RECOMMENDATION:

The Planning and Zoning Commission may approve, approve with conditions, or deny the variance. The Commission may also continue the hearing with a request for specific information necessary to determine compliance with the Municipal Code and city goals and policies.

Action 1 – Minor Site & Architectural Plan – approve Minor Site & Architectural Plan for development of a 17 townhome units.

Staff Recommendation/Suggested Motion
Staff recommends **approval** of the Minor Site & Architectural Plan with the following **findings and conditions**:

Suggested Findings:
1. The site/architectural plan is consistent with general purpose and intent of the Code;
2. The site/architectural plan is consistent with dimensional, design, development, and all other standards of this Code;
3. The site/architectural plan is not in conflict with precedent land use approvals; and
4. The site/architectural plan is consistent with goals and objectives of the Comprehensive Plan

Suggested Conditions

1. The development shall comply with the requirements of the Code. Any future physical changes or improvements to the property or buildings are subject to the review and approval of the Community Development Director for compliance with applicable requirements of the Glenwood Springs Municipal Code.

2. The owner shall comply with all verbal representations made in the public hearings, as outlined in all application materials, and/or as revised per conditions herein and approved by the Community Development Director

3. The owner shall comply with recommendations identified in the technical reports submitted as part of the application including but not limited to Geotechnical and Drainage.

4. Prior to submitting a building and/or grading permit, the owner shall:

. a. Submit a Final Plans application in accordance with Municipal Code section 070.060.050(c)

b. Submit an Engineer's Estimate of all public improvements and provide security for completing said improvements per requirements of Engineering Standards.

c. Enter into a Development Agreement that memorializes the development approvals.

5. At the time of Final Plans review the owner shall submit all required civil and architectural plans and related reports that demonstrate compliance with Code requirements and the Engineering Standards, including applicable comments provided by staff.

6. Prior to issuance of the building permit, the owner shall pay all required system improvement fees including but not limited to water, sewer, parkland, school land, and Fire/EMS.

7. Prior to issuance of the Certificate of Occupancy, owner shall.

a. Submit and record a deed restriction agreement for all units satisfying Section 070.045 Community Housing Standards for all Resident Occupied and deed restricted units to the satisfaction of the City or it's designee.

b. Submit and record an easement for the Fisherman's Easement with the Garfield County Clerk & Recorder

c. Provide as-built plans and Improvement Survey Plat per the Engineering Standards.

ALTERNATIVE MOTION

***A member of City Council has requested that land use applications include suggested motions for both approval and denial. In most instances, staff has worked diligently with the applicant to address requirements outlined in the *Glenwood Springs Municipal Code* (Code) applicable to any given proposal. Therefore, we are usually in support of an application by the time it reaches the Planning and Zoning Commission and/or City Council. However, if the Planning and Zoning Commission does not believe the application meets the Code's minimum standards, your denial motion should be based on one or more of the same approval criteria applicable to the application. You should support your findings with information outlining the shortcomings of the request as shown in the example below:

MOTION TO DENY

Action 1:

Consideration of a Minor Site/Architectural Plan review for the construction of a 17 townhome units in the CO - Commercial Zoning District. I move to **DENY** finding that -

1. The site/architectural plan is not consistent with general purpose and intent of the Code because **[insert reasoning]**;
2. The site/architectural plan is not consistent with dimensional, design, development, and other standards of this Code [**insert where you find inconsistencies with Code requirements**]; and
3. The site/architectural plan is not in conformance with **[insert applicable Comp Plan or other City plan or policy sections here]** of the Comprehensive Plan and other City plans and policies.

2525 South Grand Avenue Townhomes
City of Glenwood Springs, Colorado

Parcel ID #218516400074

Minor Site & Architectural Plan Review Application

Prepared December 23, 2021 for:

North Mountain Partners LLC
c/o Brian Wilson
2327 South Loveland St.
Lakewood, CO 80228
bwilson@northmountainpartners.com

Prepared by:

The Land Studio, Inc.
365 River Bend Way
Glenwood Springs, CO 81601
Phone: (970) 927-3690
landstudio2@comcast.net

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Owner/Applicant/Consultant List

OWNER:
The Rivers, LLC
Attn: Kevin Moore
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(303) 903-4593
kmooreboulder@gmail.com

APPLICANT:
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Attn: Brian Wilson
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Lakewood, Colorado 80228
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bwilson@northmountainpartners.com

PLANNER:
The Land Studio, Inc.
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Glenwood Springs, Colorado 81601
(970) 927-3690
landstudio2@comcast.net

ARCHITECT:
Move Matter / Architects, PLLC
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Vail, Colorado 81657
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zac@movematter.com

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jspung@jvajva.com

GEOTECHNICAL ENGINEER:
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TRAFFIC ENGINEER:
McDowell Engineering
Attn: Greg Schroeder, PE
241 Broadway Street, Suite 202
PO Box 4259
Eagle, CO 81631
(970) 948-1376
greg@mcdowelleng.com

SURVEYOR:
SGM
Attn: Joshua L. Wilson
118 West Sixth Street, Suite 200
Glenwood Springs, Colorado 81601
(970) 945-1004
joshw@sgm-inc.com

Land Use Application Form

LAND USE APPLICATION
City of Glenwood Springs
Economic and Community Development Dept.
101 West 8th Street
Glenwood Springs, CO 81601
970-384-6411

Ordinance Amendments		Development Permits	
☐	Rezoning		Site/Architectural Plan Review
☐	Rezoning to Planned Unit Development (PUD)		☐ Administrative
☐	Annexation		☐ Minor
☐	Condominiumization		☑ Major
☐	Annexation	☐	Master Plan
☐	Street Vacation	☐	Construction Plans
		☐	Location & Extent
Subdivisions		☐	Right of Way Encroachment License
☐	Minor Subdivision	☐	Floodplain Development Permit
☐	Preliminary Plat	☐	Special Use Permit
☐	Final Plat		**Flexibility and Relief Procedures**
☐	Vacation of Right-of-Way	☐	Variance
		☐	Administrative Adjustment
Other Land Use Applications		☐	Appeal
☐	Outdoor Seating		

Applicant/Property Owner Information:

North Mountain Partners LLC c/o Brian Wilson		The Rivers, LLC, c/o Kevin Moore	
Applicant		Owner	
Under Contract to Purchase Property			
Relationship to Owner		Owner	
2327 South Loveland St., Lakewood, CO 80228		730 15th Street, Boulder, CO 80302	
Applicant Address		Owner Address	
303.229.0097	bwilson@northmountainpartners.com	303-903-4593	kmoore@gmail.com
Phone	Email Address	Phone	Email Address

Property Information:

2525 South Grand Ave, Glenwood Springs, CO 81601	218516400074
Address	Parcel Number
Subdivision	Lot and Block Number
CO- Commercial	Commercial/ Old Rivers Restaurant
Zone District	Existing Land Use

General Project Description:

The Applicant proposes to develop a multi-family residential program to be sold as individual units upon completion of construction. The program accounts for 17 townhouse units ranging from approx. 2,610 GSF to 3,340 GSF, totaling approximately 50,800 GSF of residential building. Please see attached Exhibits for additional project information and drawings.

Signatures:

The owner or applicant must be present at the hearing. All public hearings must be property noticed according to G.S.M.C. Section 070.010.030. Signatures of all owners of the property must appear before the application is accepted. Partnerships or corporations may have the authorized general partner or corporate officer sign the

Applicant	10/28/21 Date
DocuSigned by: Owner ED6FF8206C39436...	10/28/21 Date

Project Description

The Application

North Mountain Partners, LLC is submitting a request for Minor Site/Architectural Plan Review for a townhome project at 2525 South Grand Avenue in the City of Glenwood Springs, Colorado with Garfield County Parcel ID #218516400074.

The Development

The site is approximately 2.6 acres of riverfront property in the City of Glenwood Springs and is zoned CO (Commercial). The property is more commonly known as the location of the previous Rivers Restaurant. The site is currently owned by The Rivers, LLC and North Mountain Partners, LLC has the property under contract to purchase.

The proposed multi-family residential program at 2525 South Grand will be developed as townhomes to be sold as individual units ranging in size from 1,959 to 2,618 interior square feet of floor area in three distinct architectural types totaling approximately 53,219 GSF of residential building per the following:

East Townhouse Group along Grand Avenue
(5) Three Bedroom Units - 2,176 SF - (2) Garage Parking Spaces

South Townhouse Group
(3) Two Bedroom Units - 1,959 SF - (1) Garage Parking Space & (1) Driveway Space
(3) Three Bedroom Units - 2,618 SF - (2) Garage Parking Spaces

North Townhouse Group
(6) Three Bedroom Units - 2,618 SF - (2) Garage Parking Spaces

The (14) three bedroom units and (3) two bedroom units will accommodate parking beyond the code requirements with (2) proposed spaces per each townhouse along with (8) additional surface parking spaces for guest accommodations as shown on the Site Plan included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit.

2525 South Grand is being developed with the intention of avoiding the need for City variances during the land use process. A primary focus has been placed on maximizing views to nearby Mount Sopris, the upper valley, and the adjacent river, while providing a sensitive site plan for the residential program with the necessary circulation and parking on the site.

Ownership

A Deed of Trust and Owner's Policy of Title Insurance are included as an Exhibit to this Application as proof of ownership.

Public Notice

Notice will be mailed to property owners within 300 feet and the mineral owners and lessees on the property.

Mineral Interest

The following severed mineral interest was found in the Land Title Guarantee Company Title Policy for 2525 South Grand Avenue, Glenwood Springs, CO Schedule B Exceptions dated August 13, 2021:

> *"RIGHT OF PROPRIETOR OF A VEIN OR LODE TO EXTRACT AND REMOVE HIS ORE THEREFROM SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES AS RESERVED IN UNITED STATES PATENT RECORDED AUGUST 29, 1896, IN BOOK 12 AT PAGE 433."*

The Mineral Rights Affidavit/Certification of Notice Pursuant to C.R.S. 24-65.5-103 is attached as an Exhibit.

Code Compliance

070.020.120: Zone District, Commercial (CO) District

Dimensional Standards:

- Lot area (sq. ft.)	none
- Landscaped area , min.	10%
- Setbacks, Front, min.	5 ft
- Front, max.	60 ft
- Side, min.	5 ft
- Rear, without alley, min.	7.5 ft
- Building height	40 ft

The proposed residential project complies with the above setbacks which have been illustrated on the Site Plan included in the Minor Site & Architectural Plan Review Set attached as an Exhibit.

The proposed maximum building height is 39.75', which complies with the allowed maximum building height of 40'. For building height reference each Architectural Elevation includes a dashed line indicative of 40' above existing grade. The

Architectural Elevations are included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit.

The required Minimum Landscaped Area is (10%) and the proposed landscaped area is 11,933 SF, which is 10.5% of the site. Refer to the Landscape Plan included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit regarding conformance to this standard.

070.030.020: Table of Allowed Uses

The proposed multi-family residential project is a permitted use-by-right in the CO zone district.

070.040.030 (e): Site Development and Improvement Standards

070.040.030 (e) (1): Drainage Plan.

The proposed Grading Plan is included in the 2525 South Grand Minor Site & Architectural Plan Review Set, which is attached and an Exhibit.

The Preliminary Drainage Report with attached drainage maps has been prepared by JVA for The Rivers at 2525 South Grand. The stormwater report and drainage maps have been produced in accordance with the City of Glenwood Springs Stormwater, Drainage, Water Quality and Erosion Control Chapter and relevant Mile High Flood District and the latest Urban Storm Drainage Criteria Manual recommendations. The Preliminary Drainage Report is included as an Exhibit to this Application.

070.040.030 (e) (2): Erosion and Sediment Control, Slope Stabilization, and Revegetation Plan.

The Preliminary Drainage Report with attached drainage maps has been prepared by JVA for The Rivers at 2525 South Grand. The stormwater report and drainage maps have been produced in accordance with the City of Glenwood Springs Stormwater, Drainage, Water Quality and Erosion Control Chapter and relevant Mile High Flood District and the latest Urban Storm Drainage Criteria Manual recommendations. The Preliminary Drainage Report is included as an Exhibit to this Application.

Re: LAND, LLC has prepared a Landscape Plan that addresses planting, revegetation, and general hillside cleanup to remove invasive species and noxious weeds and remediate erosion concerns. The Landscape Plan is included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit.

070.040.030 (e) (3): Lot and Block Design.

The site has been designed to provide adequate access to each residential townhome on the site.

As there is not a minimum or maximum lot area defined for the Commercial (CO) Zone District, the 2.6 acre parcel is in compliance with this standard.

The townhomes are generally oriented east/west so that each residential unit has access to east and west sun. Some of the townhomes located along the Roaring Fork River have a southwest orientation for views of Sopris resulting in an optimized solar orientation. All townhomes will have roof terrace access resulting in solar access from this rooftop terrace. Refer to the Site Plan included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit regarding compliance with Lot and Block Design standards.

070.040.030 (e) (5): Water Distribution.

Per the Preliminary Engineering Report prepared by JVA:

"The existing water service to the previously existing Rivers Restaurant is wholly inadequate to serve the proposed development. It will be removed to the corporation stop. The corporation stop will be closed, plugged, and abandoned.

A new 8" ductile iron looped water main is proposed to be tapped off of the existing 12" transmission line in South Grand Avenue. The locations of the proposed taps coincide with the two access drive connections in S. Grand Avenue and the line is routed within the looped access drive. There will be one fire hydrant installed off of this main north of the center courtyard of the site to provide fire protection coverage. This fire hydrant location was coordinated with City of Glenwood Springs Fire Department. A 6" ductile iron pipe connects the hydrant to the water main.

As shown in the preliminary utility plan, the domestic service lines to each town home will consist of 1" type K copper lines.

At the time of this report, current flow and pressure data for the existing water main was not available to JVA. However, we intend to coordinate this data with the City of Glenwood Springs and provide additional design calculations and or modeling as required."

For additional information refer to the Preliminary Engineering Report attached as an Exhibit to this Application and the Preliminary Utility Plan included in the Minor Site & Architectural Plan Review Set which is also attached as an Exhibit.

070.040.030 (e) (6) Wastewater Collection

Per the Preliminary Engineering Report prepared by JVA:

"As shown in the preliminary utility plan, sanitary sewer flows are proposed to be collected by 4" PVC service lines which will connect to an on-site 6" PVC main. Due to the topographical constraints of the site and the relatively shallow existing sanitary sewer main in South Grand Avenue, a lift station will be needed to convey sanitary flows to said existing main. The currently proposed system gravity flows to a lift station manhole near the northwest corner of the site. It is anticipated that a 2" HDPE force main will convey flows to a new manhole in the north leg of the access drive from which sanitary sewer flows will gravity flow to another new manhole installed over the existing sanitary line in South Grande Avenue.

The design of the lift station will meet all applicable COGS and CDPHE requirements. Additional details for the lift station, including design calculations, pump & operation specifications, etc. will be provided to the city at a later date as the design of this development progresses."

For additional information, refer to the Preliminary Engineering Report attached as an Exhibit to this Application and the Preliminary Utility Plan included in the Minor Site & Architectural Plan Review Set which is also attached as an Exhibit.

070.040.030 (e) (7): Underground Utilities

Per the Preliminary Engineering Report prepared by JVA:

"As shown in the preliminary utility plan, gas, electric, & telephone services will be provided to meter & service box banks located at each of the three groupings of townhomes. It is anticipated that two new electric transformers will be needed and that the existing transformer at the northeast corner of the site will remain. The preliminary locations of these are shown on the utility plan along with general routing of primary and secondary electric lines. These will be coordinated with the City of Glenwood Springs Electric Department. Similarly, the layout and routing of gas and telephone service lines will also be coordinated with the appropriate utility owners."

For additional information refer to the Preliminary Engineering Report attached as an Exhibit to this Application and the Preliminary Utility Plan included in the Minor Site & Architectural Plan Review Set which is also attached as an Exhibit.

070.040.030 (g): Dedications and Impact Fees

070.040.030 (g) (2): Parkland Dedication

- Parkland shall be dedicated in the ration of .007 acres per resident based on 2.5 residents per multi-family dwelling unit.
- 2.5 Residents x 17 units = 42.5 residents x .007 acres. = .298 acres required for parkland dedication.
- The Applicant proposes to reduce the .298 by 25% with a 10' fishing access easement along the Roaring Fork River riverbank leaving a requirement of .223 acres.
- A fee in lieu of parkland dedication is based on $235,706.13 per acre.
- Therefore the remaining parkland fee in lieu will be .223 x $235,706.13 = $52,562.47.

070.040.030 (g) (3): Fishing Access Easement

The Applicant agrees to provide a ten-foot wide fishing access easement centered on the normal high water line of the Roaring Fork River to be established as 25% of the required parkland dedication. The fishing access easement is illustrated on the Site Plan included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit.

070.040.030 (g) (4): School Land Dedication

- The land dedication requirement is 1,776 SF of land per potential student based on .375 students per attached unit.
- .375 students x 17 units = 6.375 students.
- 6.375 students x 1,776 SF of land = 11,322 SF.
- The fee in lieu of School Land Dedication is: 11,322 SF (.26 acres) of land x $2.53/SF = $28,644.66

The Applicant agrees to pay $28,644.66 to the Roaring Fork RE1 School District as fee in lieu of school land dedication.

070.040.030 (g) (5): Fire and Emergency Services Impact Fee

The Applicant agrees to pay the emergency service impact fee established by the City of Glenwood Springs.

070.040.040: Common Open Space

- Zone District: Commercial
- Lot Size: 113,816 square feet
- Required Common Open Space: 22,763.2 square feet (20%)
- Proposed Common Open Space: 63,426.0 square feet (56%)

070.040.050 (c): Landscaping, Screening, and Fencing

- Lot Standards: Minimum Landscape Area 10%
    - Lot Size: 113,816 square feet
    - Required Landscape Area = 11,381.6 square feet
    - Proposed Landscape Area= 11,933.1 square feet

- Minimum Plant Material:
    - One tree per 400 square feet of Min. Landscape Area = 29 Trees (29 provided)
    - One shrub per 100 square feet of Min. Landscape Area = 114 Shrubs (156 provided)
    - One perennial per 50 square feet of Min. Landscape Area = 228 Perennials (165 provided in plan+ shrub overages)

- Streetscape Requirements:
    - One tree per 50 feet of frontage = 29 Trees
    - Grand Avenue frontage = 433' at Property Line = 8 Street Trees

070.040.060 (h) 6: Parking Area Landscaping

- Interior Parking Lot Landscaping shall count toward overall landscaping required by 070.040.050, Landscaping, Screening and Fencing.

- Total Parking Area Designated for Landscaping = 10% of total Surface Parking Area
    - Total Surface Parking Area= 1,246 square feet
    - Required Landscape Area= 125 square feet
    - Proposed Landscape Area= 559.3 square feet

- Interior Parking Area Designated for Landscaping = 10 square feet per parking space
    - 8 parking spaces = 80 square feet required for interior landscaping
    - Proposed Interior Parking Landscape Area= 632 square feet

- Landscaped Islands, Peninsulas shall be a minimum of 9' wide.

- Planting Materials: Trees, shrubs, groundcover, xeriscaping

- Trees shall be planted at a rate of 1 tree per 8 parking spaces.
- 8 parking spaces = 1 parking lot tree (4 parking lot trees are provided)

Refer to the Landscape Plan included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit for the species, sizes, and locations of the proposed plant materials.

070.040.060: Off-Street Parking and Loading

2525 South Grand will have 42 parking spaces per the following:

070.040.060 (c): Calculation of Off-Street Parking and Loading Requirements

42 total parking spaces are proposed of which 34 are resident parking spaces and eight are guest parking spaces. This includes eight surplus resident parking spaces proposed, and four surplus guest spaces proposed. Table showing calculations per (d) below.

070.040.060 (d): Number of Off-Street Parking Spaces Required

PARKING SCHEDULE			
UNIT / DESCRIPTION	*QUANTITY*	*# OF SPACES PER UNIT*	*SUBTOTAL*
REQUIRED:			
TOWNHOUSE	17	1.5	26
GUEST		0.2	4
		SUBTOTAL	30
PROPOSED:			
TOWNHOUSE	17	2	34
GUEST		0.4	8
		SUBTOTAL	**42**

070.040.060 (e): Parking Alternatives

Because parking provided specifically for guests has been doubled (eight vs four), the Design Team has shown the surplus of four as compact spaces (dimensions per City Standards) in order to satisfy the 24’ clear aisle width at 90-degree parking configurations.

Because these spaces are above and beyond, we do not consider this as seeking an Alternative for reductions, but rather something to note. For exact location refer to spaces labeled “G4 – G7” on the Architectural Site Plan included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit.

070.040.060 (f): Bicycle Parking

A dedicated area to the south of the Grand Avenue Townhouse group – perhaps the most centrally located area of the project – has been provided with a pad and bicycle racks to accommodate up to ten bikes. This area is uncovered. For exact location refer to Landscape and Architectural Site Plan included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit.

070.040.060 (h) (5): Snow Storage Areas

Because parking provided specifically for guests has been doubled (eight vs four), the Design Team has indicated the surplus of four spaces – shown as compact spaces (dimensions per City Standards) – as Snow Storage Area totaling 540 square feet. For specific callout, Refer to Civil sheet included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit.

070.040.070: Access and Circulation

Per the Preliminary Engineering Report prepared by JVA:

"A traffic impact study for this project has been completed by McDowell Engineering. To summarize, the study concluded that the anticipated trips generated by the proposed development would have no adverse impact to the adjacent roadways and that no additional traffic control measures would be required to maintain acceptable levels of service of the surrounding roads."

The Traffic Impact Study is attached as an Exhibit to this Application.

070.040.070 (h) (7): Parking Area Lighting

As called for on Exterior Lighting Plan, general parking area lighting has been provided with fixture types LT-02 centrally located at the juncture of the one-way and two-way access drives and at the trash enclosure. Lighting fixtures selected are mounted at a 10' pole height, fully-shielded, providing approximately four footcandles (fc) of illumination directly downward and adjacent to the pole falling off to approximately one fc at 14' from pole. Poles are located such to light the parking and trash enclosure areas with no light trespass onto adjacent property and the residential units within the project.

The Exterior Lighting Plan is included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit.

070.040.080: Residential Site and Building Design

070.040.080 (d): Residential Site Design Standards

The proposed infill development on the previous Rivers Restaurant site consists of 17 townhomes grouped into three separate buildings. Two of the buildings are aligned with the Roaring Fork River and the other is aligned with South Grand Avenue. A terraced resident courtyard is also proposed between the two riverside buildings.

Site circulation consists of a one-way multi-functional access drive that creates a loop around the South Grand Avenue building, connecting to South Grand Avenue on the north and south sides. Vehicles will enter the site from the north and travel in a counterclockwise direction around the loop. The northern riverside building is accessed by a two-way spur drive from the looped drive. The required fire/emergency access is available to all areas from the proposed internal multi-functional access loop and spur drive. For details related to access and circulation refer to the Circulation Plan included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit.

42 total parking spaces are proposed of which 34 are resident parking spaces and eight are guest parking spaces. This includes eight proposed surplus resident parking spaces, and four proposed surplus guest spaces. Parking garages and spaces are located off of the interior loop and spur drive in order to be screened by the Grand Avenue Townhouse group and proposed landscape. A dedicated area to the south of the Grand Avenue Townhouse group has been provided with a pad and bicycle racks to accommodate up to ten bikes.

A trash dumpster enclosure is included as part of the project site. The enclosure will be of a color that is compatible with the materials of the surrounding buildings. The enclosure has been located to minimize visibility in a location where it can be screened from South Grand Avenue views.

An Exterior Lighting Plan is included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit.

The Dimensional Standards have all been incorporated and are noted on the drawing set including:

a. Front yard, min. = 5’
b. Front yard, max (from arterials) = 60’
c. Side yard, min = 5’
d. Rear yard, min. = 7.5’
e. Building height= 39.75’(40’0 allowed)

Proposed Lot Coverage = 15.2 %

070.040.080 (e): Residential Building Design and Character

(1) General Intent

The layout, massing, and design of the 17 townhouse structures is a balanced approach to relationships both internal and external of the site. The 17 structures are grouped into three massings that react to their immediate context and independently of one another, with one situated along South Grand Avenue and the other two facing the Roaring Fork.

The street mass provides frontage through its dominant east elevation with entries oriented to the street, activating this section of South Grand, while generally obscuring most of the vehicular parking within the site. Though the adjacent neighborhood has no applicable residential developments to refer to, this mass is broken up by setting back every other unit from the other and grounding itself approximately 5' lower than the adjacent sidewalk, reminiscent of the urban garden townhouse, appropriately scaled to the pedestrian, and creating a rhythm that anticipates other street-fronting parcels along South Grand to relate to.

The remaining river massings have no public street frontage but rather are provided access via an internal circulation drive and sidewalk. Straddling the flatter, interior court and the slope of the riverbank, both massings step and set into hillside: from the interior of the site, they appear as modest combinations of two and three story structures, with the grade falling off revealing the lower walkout level and a full three-story structure along the river. The uppermost floor is set back from 12' to 18' such that a continuous foug-story structure is never experienced from the river. The northerly river mass is oriented more directly to the river, with every unit set back from the other by 2'-6" and every other unit set 6" higher in elevation to respond to the interior site grading. The southerly river mass rotates approximately 30-degrees up-river/up-valley to both take in views of the broader expanse of the Roaring Fork as well as the vista with Mt. Sopris in the distance. This mass is highly differentiated through the use of a combination of varying unit widths, set back anywhere from approximately 3' to 16' from one another, and stepping up 1' in elevation with every unit from north to south totaling a 5' elevation gain at the southerly most unit in order to both respond to the interior site grading as well as minimize disturbance at the steeper, southerly portion of the site.

(2) Building Orientation

Refer to above.

(3) Variety of Housing Types

Though the project is less than three acres – thus not required to provide different multi-family offerings – and is comprised of only townhouses, there are three distinct townhouse types: a more urban, garden-flat along South Grand Avenue, and one and two-vehicle garage units along the river. This makeup of units provides housing ranging from 1,959 to 2,618 interior square feet of floor area.

(4) Architectural Variety

By their nature, townhouses are repetitive in their efficient compact footprint lending themselves very effective with in-fill development such as this project. In order to minimize the repetition and to provide distinct and evolving character as one moves through the site, the Design Team has deployed nine of the twelve "Architectural Features" listed in Section (c) of Four-Sided Design below uniquely to each of the three massings and to the units comprising them, resulting in 17 distinguished townhouses that still cohesively relate to one another supporting a communal identity.

(5) Four-Sided Design

As noted above, the design of the townhouses utilizes nine of the twelve listed "Architectural Features": succinct use of balconies; entry screening and awning; varied configurations of both window and door openings; distinction in color palette and applique of material; stepping up and down of building heights; utilization of roof pitches to break up perceived unit widths; and the deliberate offset of building elevations from unit to unit to break down overall perceived mass. These features are utilized on all four elevations to varying degrees from mass to mass to mass.

(6) Building Materials

The selection exterior finishes were driven by not only distinction and variety as discussed above, but also for durability, and ultimately to provide a finely crafted product. Varied stone is used along the building bases and at unit entries to both ground the buildings and to elevate the entries into the home. For broad areas of building façade the use of textured, horizontally-oriented cementitious panel in varying colors is used to tie together elevations and provide distinction from unit to unit. While the use of a low-luster cementitious panel is used to group windows together to provide compositional movement. As materials move up to the roof levels, vertically-oriented metal panels in a lighter, sky-toned gray are used to visually lighten the buildings and transition cohesively to the primary sloped roof materials of a standing seam metal panel.

(7) Building Colors

The choice of terrestrial warm grays, taupes, and browns are predominantly used for broad areas of building facades, with windows and doors set back with a dark bronze finish and complimented by a celestial cooler gray palette at the roof level. Entry doors and features are set off through the concise use of wood and its intimate hue.

(8) Transitions to Existing Residential

No adjacent residential development.

(9) Garages, Storage and Accessory Structures

All garages are integrated into the building mass as described in the previous sections. Where front door and garage doors share the same façade, the garage doors are set back 2' and visually pushed back further through the choice of a dark bronze finish, with the front doors made even more prominent through the use of stone and wood accents.

A townhouse dwelling is distinct from a multi-family dwelling as defined in the Development Code and by its nature of each having its own garage and multiple floor levels, storage is amply provided for every resident not necessitating additional accessory structures on the property. For the ease of day of trash collection, a centrally located, screened open-air structure has been located in a functional yet not visually prominent location. The material finishes of this structure will utilize the same stone veneer as the adjacent residential buildings.

070.040.100 (f): Exterior Lighting, General Lighting Requirements

Though the property is technically located in Lighting District 1 by its commercial zoning, this is a for-sale residential development that borders the river and is a gateway to the residential developments to the west and as such proposes the sensible, succinct use of exterior common lighting to adequately, but not overly, light the property for safe and intimate circulation through. Periodic use of pathway lighting and a clustered use of area lighting at the guest parking is shown on the Exterior Lighting Plan, with every unit having a recessed, down/wall-washer light at their front entry door and garage doors. All common lighting will be controlled via a combination of timer/photocell sensors, fully-shielded and directed down to illuminate adjacent ground plan, kept at 3' and 10' pole heights, with minimal to no light trespass onto other properties.

The Exterior Lighting Plan is included in the Minor Site & Architectural Plan Review Set which is attached as an Exhibit.

070.045.070: Mitigation for Residential Development

Per Ordinance No. 1 Series of 2021, all new residential subdivisions and all new multi-family residential developments shall set aside lots or units for community housing as set forth below:

(a) Twenty (20%) percent of the total residential units in any new residential or mixed-use development proposing to create ten (10) or more residential dwelling units shall be deed restricted for Resident Occupied Community Housing.

(b) Ten (10%) percent of the total residential units in any new residential or mixed-use development proposing to create ten (10) or more residential dwelling units shall be deed restricted to limit the average Initial Sales Price to no greater than that which is affordable to Households earning no more than 100% AMI; or to limit the Community housing rental unit rental prices in accordance with guidelines established by the City and generally set at rates that are affordable to Households with incomes no higher than 100% AMI, averaged over the total required deed restricted units.

(c) Fractional remainders. The development's mitigation responsibility will be rounded to the nearest whole number: below 0.75 round down (= 0 unit) and round up from 0.75 and higher (= 1 unit).

Per (a), (b), and (c) above, the Applicant will deed restrict (2) three bedroom East Townhouse Units along Grand Avenue as Resident Occupied Community Housing, and (1) two-bedroom South Townhouse Unit as Resident Occupied Community Housing that is deed restricted to households with incomes no higher than 100% AMI.

070.060.030: Neighborhood Meeting

Two Neighborhood Meetings were held on November 30, 2021, at 4:00 p.m. and December 17, 2021, at 1:00 p.m. to present a project overview and receive feedback from the neighborhood group. The Applicant presented a site plan and building layout showing the proposed project. Neighborhood attendees asked questions about timing for the project, building height, covenants and HOA development, parking, and unit sizes. Additionally, attendees expressed concern about parking in the neighborhood and Applicant representatives illustrated that 30 parking spaces are required and 42 are proposed.

The Applicant also reminded the neighbors that they would be receiving public notice as public hearings are scheduled with the City of Glenwood Springs.

The Exhibit showing the list of those notified by mail and those in attendance at the meetings has been included. A copy of the Exhibits used at the meeting has also been included.

Exhibits

A. Title Policy and Warranty Deeds

B. Mineral Rights Affidavit

C. Geologic and Geotechnical Investigation

D. Traffic Impact Study

E. Preliminary Drainage Report

F. Preliminary Engineering Report

G. Neighborhood Meeting Documents

H. Minor Site & Architectural Plan Review Set

Exhibit A

Title Policy
And
Warranty Deeds

Land Title
GUARANTEE COMPANY

State Documentary Fee
Date: June 17, 2021
$235.90

Special Warranty Deed

(Pursuant to C.R.S. 38-30-113(1)(b))

Grantor(s), **JABE LLC, A COLORADO LIMITED LIABILITY COMPANY**, whose street address is **2525 GRAND AVENUE, GLENWOOD SPRINGS, CO 81601**, City or Town of **GLENWOOD SPRINGS**, County of **Garfield** and State of **Colorado** , for the consideration of (**$2,359,000.00**) ***Two Million Three Hundred Fifty Nine Thousand and 00/100*** dollars, in hand paid, hereby sell(s) and convey(s) to **THE RIVERS, LLC, A COLORADO LIMITED LIABILITY COMPANY**, whose street address is **730 15TH STREET, BOULDER, CO 80302**, City or Town of **BOULDER**, County of **Boulder** and State of **Colorado**, the following real property in the County of **Garfield** and State of Colorado, to wit:

See attached "Exhibit A"

also known by street and number as: **2525 GRAND AVENUE, GLENWOOD SPRINGS, CO 81601**

with all its appurtenances and warrant(s) the title to the same against all persons claiming under me(us), subject to Statutory Exceptions.

Signed this day of **June 17, 2021**. (SEE ATTACHED "SIGNATURE PAGE")

When recorded return to: **THE RIVERS, LLC, A COLORADO LIMITED LIABILITY COMPANY**
730 15TH STREET, BOULDER, CO 80302

Exhibit A

A PARCEL OF LAND SITUATED IN THE SE1/4SE1/4 AND THE SW1/4SE1/4 OF SECTION 16, TOWNSHIP 6 SOUTH, RANGE 89 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO, LYING WESTERLY OF THE WESTERLY RIGHT OF WAY LINE OF GRAND AVENUE BEING THE SAME AS THE OLD HIGHWAY NO. 82 AND EASTERLY OF THE CENTER OF THE ROARING FORK RIVER, SAID PARCEL OF LAND IS DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY WHENCE THE SECTION CORNER COMMON TO SECTIONS 15, 16, 21 AND 22 IN SAID TOWNSHIP AND RANGE BEARS: S. 69 DEGREES 45'00" E. 1420.04 FEET;
THENCE S. 00 DEGREES 37'09" W. 212.60 FEET ALONG THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY;
THENCE S. 21 DEGREES 36'00" E. 305.29 FEET ALONG THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY;
THENCE S. 89 DEGREES 45'00" W. 170.48 FEET TO A POINT IN THE CENTER OF SAID RIVER,
THENCE N. 27 DEGREES 40'37" W. 201.43 FEET ALONG THE CENTER OF SAID RIVER;
THENCE N. 37 DEGREES 19'00" W. 239.75 FEET ALONG THE CENTER OF SAID RIVER;
THENCE N. 28 DEGREES 08'38" W. 156.14 FEET ALONG THE CENTER OF SAID RIVER;
THENCE S. 88 DEGREES 32'00" E. 373.07 FEET TO A POINT ON THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY, THE POINT OF BEGINNING.

LESS AND EXCEPT A PARCEL OF LAND AS DESCRIBED IN DEED RECORDED DECEMBER 12, 2001 IN BOOK 1310 AT PAGE 712 AND LESS AND EXCEPT THAT PORTION CONVEYED TO THE CITY OF GLENWOOD SPRINGS IN WARRANTY DEED RECORDED JULY 3, 2018 UNDER RECEPTION NO. 908898.

COUNTY OF GARFIELD
STATE OF COLORADO

Special Warranty Deed with Statutory Exceptions

SIGNATURE PAGE

JABE LLC, A COLORADO LIMITED LIABILITY COMPANY

By: _____
Ben Herr, Manager

By: _____
Desiree Herr, Manager

KIMBERLY JANETTE SZCZESNY
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20124022396
My Commission Expires April 26, 2024

State of **Colorado**)
)ss.
County of **Garfield**)

The foregoing instrument was acknowledged before me on this day of **June 5th, 2021** by **BEN HERR AND DESIREE HERR AS MANAGER OF JABE LLC, A COLORADO LIMITED LIABILITY COMPANY**

Witness my hand and official seal

My Commission expires: 4/26/2024

Notary Public

LAND TITLE GUARANTEE COMPANY

Date: August 13, 2021

Subject: Attached Title Policy THE RIVERS, LLC, A COLORADO LIMITED LIABILITY COMPANY for 2525 GRAND AVENUE, GLENWOOD SPRINGS, CO 81601

Enclosed please find the Owner's Title Insurance Policy for your purchase of the property listed above.

This title policy is the final step in your real estate transaction, and we want to take a moment to remind you of its importance. Please review all information in this document carefully and be sure to safeguard this policy along with your other legal documents.

Your owner's policy insures you as long as you own the property and requires no additional premium payments.

Please feel free to contact any member of our staff if you have questions or concerns regarding your policy, or you may contact Commercial Title Dept. at (303) 850-4158 or _____

As a Colorado-owned and operated title company for over 50 years, with offices throughout the state, we take pride in serving our customers one transaction at a time. We sincerely appreciate your business and welcome the opportunity to assist you with any future real estate needs. Not only will Land Title be able to provide you with the title services quickly and professionally, but you may also be entitled to a discount on title premiums if you sell or refinance the property described in the enclosed policy.

Thank you for giving us the opportunity to work with you on this transaction. We look forward to serving you again in the future.

Sincerely,

Land Title Guarantee Company

OWNER'S POLICY OF TITLE INSURANCE

ANY NOTICE OF CLAIM AND ANY OTHER NOTICE OR STATEMENT IN WRITING REQUIRED TO BE GIVEN TO THE COMPANY UNDER THIS POLICY MUST BE GIVEN TO THE COMPANY AT THE ADDRESS SHOWN IN SECTION 18 OF THE CONDITIONS.

COVERED RISKS

SUBJECT TO THE EXCLUSIONS FROM COVERAGE, THE EXCEPTIONS FROM COVERAGE CONTAINED IN SCHEDULE B AND THE CONDITIONS,OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, a Minnesota corporation, (the "Company"), insures, as of Date of Policy and, to the extent stated in Covered Risks 9 and 10, after Date of Policy, against loss or damage, not exceeding the Amount of Insurance, sustained or incurred by the Insured by reason of:

1. Title being vested other than as stated in Schedule A.
2. Any defect in or lien or encumbrance on the title; This covered Risk includes but is not limited to insurance against loss from
    a. A defect in the Title caused by
        (i) forgery, fraud, undue influence, duress, incompetency, incapacity, or impersonation;
        (ii) failure of any person or Entity to have authorized a transfer or conveyance;
        (iii) a document affecting Title not properly created, executed, witnessed, sealed, acknowledged, notarized, or delivered;
        (iv) failure to perform those acts necessary to create a document by electronic means authorized by law;
        (v) a document executed under a falsified, expired, or otherwise invalid power of attorney;
        (vi) a document not properly filed, recorded, or indexed in the Public Records including failure to perform those acts by electronic means authorized by law; or
        (vii) a defective judicial or administrative proceeding.
    b. The lien of real estate taxes or assessments imposed on the Title by a governmental authority due or payable, but unpaid.
    c. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land. The term "encroachment" includes encroachments of existing improvements located on the Land onto adjoining land, and encroachments onto the Land of existing improvements located on adjoining land.
3. Unmarketable Title.
4. No right of access to and from the Land.
5. The violation or enforcement of any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
    (a) the occupancy, use or enjoyment of the Land;
    (b) the character, dimensions, or location of any improvement erected on the Land;
    (c) the subdivision of land; or
    (d) environmental protection

    if a notice, describing any part of the Land, is recorded in the Public Records setting forth the violation or intention to enforce, but only to the extent of the violation or enforcement referred to in that notice.
6. An enforcement action based on the exercise of a governmental police power not covered by Covered Risk 5 if a notice of the enforcement action, describing any part of the Land, is recorded in the Public Records, but only to the extent of the enforcement referred to in that notice.
7. The exercise of the rights of eminent domain if a notice of the exercise, describing any part of the Land, is recorded in the Public Records.
8. Any taking by a governmental body that has occurred and is binding on the rights of a purchaser for value without Knowledge.
9. Title being vested other than as stated in Schedule A or being defective
    (a) as a result of the avoidance in whole or in part, or from a court order providing an alternative remedy, of a transfer of all or any part of the title to or any interest in the Land occurring prior to the transaction vesting Title as shown in Schedule A because that prior transfer constituted a fraudulent or preferential transfer under federal bankruptcy, state insolvency, or similar creditors' rights laws; or
    (b) because the instrument of transfer vesting Title as shown in Schedule A constitutes a preferential transfer under federal bankruptcy, state insolvency, or similar creditors' rights laws by reason of the failure of its recording in the Public Records
        (i) to be timely, or
        (ii) to impart notice of its existence to a purchaser for value or to a judgment or lien creditor.
10. Any defect in or lien or encumbrance on the Title or other matter included in Covered Risks 1 through 9 that has been created or attached or has been filed or recorded in the Public Records subsequent to Date of Policy and prior to the recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A. The Company will also pay the costs, attorneys' fees, and expenses incurred in defense of any matter insured against by this Policy, but only to the extent provided in the Conditions.

Issued by:
Land Title Guarantee Company
3033 East First Avenue Suite 600
Denver, Colorado 80206
303-321-1880

Craig B. Rants, Senior Vice President

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

By _____ President
Attest _____ Secretary

AMERICAN LAND TITLE ASSOCIATION

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AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY Adopted 6-17-06

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

(1)(a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting or relating to
- (i) the occupancy, use, or enjoyment of the Land;
- (ii) the character, dimensions, or location of any improvement erected on the Land;
- (iii) the subdivision of land; or
- (iv) environmental protection; or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5. (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.

(2) Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.

(3) Defects, liens, encumbrances, adverse claims, or other matters
- (a) created, suffered, assumed, or agreed to by the Insured Claimant;
- (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
- (c) resulting in no loss or damage to the Insured Claimant;
- (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
- (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.

(4) Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
- (a) a fraudulent conveyance or fraudulent transfer; or
- (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.

(5) Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

CONDITIONS

1. DEFINITION OF TERMS

The following terms when used in this policy mean:

(a) "Amount of Insurance": The amount stated in Schedule A, as may be increased or decreased by endorsement to this policy, increased by Section 8(b) or decreased by Sections 10 and 11 of these Conditions.

(b) "Date of Policy": The date designated as "Date of Policy" in Schedule A.

(c) "Entity": A corporation, partnership, trust, limited liability company, or other similar legal entity.

(d) "Insured": The Insured named in Schedule A.
- (i) The term "Insured" also includes
  - (A) successors to the Title of the Insured by operation of law as distinguished from purchase, including heirs, devisees, survivors, personal representatives, or next of kin;
  - (B) successors to an Insured by dissolution, merger, consolidation, distribution, or reorganization;
  - (C) successors to an Insured by its conversion to another kind of Entity;
  - (D) a grantee of an Insured under a deed delivered without payment of actual valuable consideration conveying the Title
    - (1) if the stock, shares, memberships, or other equity interests of the grantee are wholly-owned by the named Insured.
    - (2) if the grantee wholly owns the named Insured,
    - (3) if the grantee is wholly-owned by an affiliated Entity of the named Insured, provided the affiliated Entity and the named Insured are both wholly-owned by the same person or Entity, or
    - (4) if the grantee is a trustee or beneficiary of a trust created by a written instrument established by the Insured named in Schedule A for estate planning purposes
- (ii) With regard to (A), (B), (C), and (D) reserving, however, all rights and defensed as to any successor that the Company would have had against any predecessor Insured.

(e) "Insured Claimant": An Insured claiming loss or damage.

(f) "Knowledge" or "Known": Actual knowledge, not constructive knowledge or notice that may be imputed to an Insured by reason of the Public Records or any other records that impart constructive notice of matters affecting the Title.

(g) "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, avenue, 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 insured by this policy.

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

(i) "Public Records": Records established under state statutes at Date of Policy for the purpose of imparting constructive notice of matters relating to real property to purchasers for value and without Knowledge. With respect to Covered Risk 5(d), "Public Records" shall also include environmental protection liens filed in the records of the clerk of the United States District Court for the district where the Land is located.

(j) "Title": The estate or interest described in Schedule A. "Unmarketable Title": Title affected by an alleged or apparent matter that would permit a prospective purchaser or lessee of the Title or lender on the Title to be released from the obligation to purchase, lease, or lend if there is a contractual condition requiring the delivery of marketable title.

2. CONTINUATION OF INSURANCE

The coverage of this policy shall continue in force as of Date of Policy in favor of an Insured, but only so long as the Insured retains an estate or interest in the Land, or holds an obligation secured by a purchase money Mortgage given by a purchaser from the Insured, or only so long as the Insured shall have liability by reason of warranties in any transfer or conveyance of the Title. This policy shall not continue in force in favor of any purchaser from the Insured of either (i) an estate or interest in the Land, or (ii) an obligation secured by a purchase money Mortgage given to the Insured.

3. NOTICE OF CLAIM TO BE GIVEN BY INSURED CLAIMANT

The Insured shall notify the Company promptly in writing (i) in case of any litigation as set forth in Section 5(a) of these Conditions, (ii) in case Knowledge shall come to an Insured hereunder of any claim of title or interest that is adverse to the Title, as insured, and that might cause loss or damage for which the Company may be

liable by virtue of this policy, or (iii) if the Title, as insured, is rejected as Unmarketable Title. If the Company is prejudiced by the failure of the Insured Claimant to provide prompt notice, the Company's liability to the Insured Claimant under the policy shall be reduced to the extent of the prejudice.

4. PROOF OF LOSS

In the event the Company is unable to determine the amount of loss or damage, the Company may, at its option, require as a condition of payment that the Insured Claimant furnish a signed proof of loss. The proof of loss must describe the defect, lien, encumbrance, or other matter insured against by this policy that constitutes the basis of loss or damage and shall state, to the extent possible, the basis of calculating the amount of the loss or damage.

5. DEFENSE AND PROSECUTION OF ACTIONS

(a) Upon written request by the Insured, and subject to the options contained in Section 7 of these Conditions, the Company, at its own cost and without unreasonable delay, shall provide for the defense of an Insured in litigation in which any third party asserts a claim covered by this policy adverse to the Insured. This obligation is limited to only those stated causes of action alleging matters insured against by this policy. The Company shall have the right to select counsel of its choice (subject to the right of the Insured to object for reasonable cause) to represent the Insured as to those stated causes of action. It shall not be liable for and will not pay the fees of any other counsel. The Company will not pay any fees, costs, or expenses incurred by the Insured in the defense of those causes of action that allege matters not insured against by this policy.

(b) The Company shall have the right, in addition to the options contained in Section 7 of these Conditions, at its own cost, to institute and prosecute any action or proceeding or to do any other act that in its opinion may be necessary or desirable to establish the Title, as insured, or to prevent or reduce loss or damage to the Insured. The Company may take any appropriate action under the terms of this policy, whether or not it shall be liable to the Insured. The exercise of these rights shall not be an admission of liability or waiver of any provision of this policy. If the Company exercises its rights under this subsection, it must do so diligently.

(c) Whenever the Company brings an action or asserts a defense as required or permitted by this policy, the Company may pursue the litigation to a final determination by a court of competent jurisdiction, and it expressly reserves the right, in its sole discretion, to appeal any adverse judgment or order.

6. DUTY OF INSURED CLAIMANT TO COOPERATE

(a) In all cases where this policy permits or requires the Company to prosecute or provide for the defense of any action or proceeding and any appeals, the Insured shall secure to the Company the right to so prosecute or provide defense in the action or proceeding, including the right to use, at its option, the name of the Insured for this purpose. Whenever requested by the Company, the Insured, at the Company's expense, shall give the Company all reasonable aid (i) in securing evidence, obtaining witnesses, prosecuting or defending the action or proceeding, or effecting settlement, and (ii) in any other lawful act that in the opinion of the Company may be necessary or desirable to establish the Title or any other matter as insured. If the Company is prejudiced by the failure of the Insured to furnish the required cooperation, the Company's obligation to the Insured under the policy shall terminate, including any liability or obligation to defend, prosecute, or continue any litigation, with regard to the matter or matters requiring such cooperation.

(b) The Company may reasonably require the Insured Claimant to submit to examination under oath by any authorized representative of the Company and to produce for examination, inspection, and copying, at such reasonable times and places as may be designated by the authorized representative of the Company, all records, in whatever medium maintained, including books, ledgers, checks, memoranda, correspondence, reports, e-mails, disks, tapes, and videos whether bearing a date before or after Date of Policy, that reasonably pertain to the loss or damage. Further, if requested by any authorized representative of the Company, the Insured Claimant shall grant its permission, in writing, for any authorized representative of the Company to examine, inspect, and copy all of these records in the custody or control of a third party that reasonably pertain to the loss or damage. All information designated as confidential by the Insured Claimant provided to the Company pursuant to this Section shall not be disclosed to others unless, in the reasonable judgment of the Company, it is necessary in the administration of the claim. Failure of the Insured Claimant to submit for examination under oath produce any reasonably requested information, or grant permission to secure reasonably necessary information from third parties as required in this subsection, unless prohibited by law or governmental regulation, shall terminate any liability of the Company under this policy as to that claim.

7. OPTIONS TO PAY OR OTHERWISE SETTLE CLAIMS; TERMINATION OF LIABILITY

In case of a claim under this policy, the Company shall have the following additional options:

(a) To Pay or Tender Payment of the Amount of Insurance. To pay or tender payment of the Amount of Insurance under this policy together with any costs, attorneys' fees, and expenses incurred by the Insured Claimant that were authorized by the Company up to the time of payment or tender of payment and that the Company is obligated to pay. Upon the exercise by the Company of this option, all liability and obligations of the Company to the Insured under this policy, other than to make the payment required in the subsection, shall terminate, including any liability or obligation to defend, prosecute, or continue any litigation.

(b) To Pay or Otherwise Settle With Parties Other Than the Insured or With the Insured Claimant.

(i) To pay or otherwise settle with other parties for or in the name of an Insured Claimant any claim insured against under this policy. In addition, the Company will pay any costs, attorneys' fees, and expenses incurred by the Insured Claimant that were authorized by the Company up to the time of payment and that the Company is obligated to pay; or

(ii) To pay or otherwise settle with the Insured Claimant the loss or damage provided for under this policy, together with any costs, attorneys' fees, and expensed incurred by the Insured Claimant that were authorized by the Company up to the time of payment and that the Company is obligated to pay. Upon the exercise by the Company of either of the options provided for in subsections (b)(i) or (ii), the Company's obligations to the Insured under this policy for the claimed loss or damage, other than the payments required to be made, shall terminate, including any liability or obligation to defend, prosecute, or continue any litigation.

8. DETERMINATION AND EXTENT OF LIABILITY

This policy is a contract of indemnity against actual monetary loss or damage sustained or incurred by the Insured Claimant who has suffered loss or damage by reason of matters insured against by this policy.

(a) The extent of liability of the Company for loss or damage under this policy shall not exceed the lesser of

(i) the Amount of Insurance; or

(ii) the difference between the value of the Title as insured and the value of the Title subject to the risk insured against by this policy.

(b) If the Company pursues its rights under Section 5 of these Conditions and is unsuccessful in establishing the Title, as insured,

(i) the Amount of Insurance shall be increased by 10%, and
(ii) the Insured Claimant shall have the right to have the loss or damage determined either as of the date the claim was made by the Insured Claimant or as of the date it is settled and paid.

(c) In addition to the extent of liability under (a) and (b), the Company will also pay those costs, attorneys' fees, and expenses incurred in accordance with Sections 5 and 7 of these Conditions.

9. LIMITATION OF LIABILITY

(a) If the Company establishes the Title, or removes the alleged defect, lien, or encumbrance, or cures the lack of a right of access to or from the Land, or cures the claim of Unmarketable Title, all as insured, in a reasonably diligent manner by any method, including litigation and the completion of any appeals, it shall have fully performed its obligations with respect to that matter and shall not be liable for any loss or damage caused to the Insured.

(b) In the event of any litigation, including litigation by the Company or with the Company's consent, the Company shall have no liability for loss or damage until there has been a final determination by a court of competent jurisdiction, and disposition of all appeals, adverse to the Title, as insured.

(c) The Company shall not be liable for loss or damage to the Insured for liability voluntarily assumed by the Insured in settling any claim or suit without the prior written consent of the Company.

10. REDUCTION OF INSURANCE; REDUCTION OR TERMINATION OF LIABILITY

All payments under this policy, except payments made for costs, attorneys' fees, and expenses, shall reduce the Amount of Insurance by the amount of the payment.

11. LIABILITY NONCUMULATIVE

The Amount of Insurance shall be reduced by any amount the Company pays under any policy insuring a Mortgage to which exception is taken in Schedule B or to which the Insured has agreed, assumed, or taken subject, or which is executed by an Insured after Date of Policy and which is a charge or lien on the Title, and the amount so paid shall be deemed a payment to the Insured under this policy.

12. PAYMENT OF LOSS

When liability and the extent of loss or damage have been definitely fixed in accordance with these Conditions, the payment shall be made within 30 days.

13. RIGHTS OF RECOVERY UPON PAYMENT OR SETTLEMENT

(a) Whenever the Company shall have settled and paid a claim under this policy, it shall be subrogated and entitled to the rights of the Insured Claimant in the Title and all other rights and remedies in respect to the claim that the Insured Claimant has against any person or property, to the extent of the amount of any loss, costs, attorneys' fees, and expenses paid by the Company. If requested by the Company, the Insured Claimant shall execute documents to evidence the transfer to the Company of these rights and remedies. The Insured Claimant shall permit the Company to sue, compromise, or settle in the name of the Insured Claimant and to use the name of the Insured Claimant in any transaction or litigation involving these rights and remedies. If a payment on account of a claim does not fully cover the loss of the Insured Claimant, the Company shall defer the exercise of its right to recover until after the Insured Claimant shall have recovered its loss.

(b) The Company's right of subrogation includes the rights of the Insured to indemnities, guaranties, other policies of insurance, or bonds, notwithstanding any terms or conditions contained in those instruments that address subrogation rights.

14. ARBITRATION

Either the Company or the Insured may demand that the claim or controversy shall be submitted to arbitration pursuant to the Title Insurance Arbitration Rules of the American Land Title Association ("Rules"). Except as provided in the Rules, there shall be no joinder or consolidation with claims or controversies of other persons, Arbitrable matters may include, but are not limited to, any controversy or claim between the Company and the Insured arising out of or relating to this policy, any service in connection with its issuance or the breach of a policy provision, or to any other controversy or claim arising out of the transaction giving rise to this policy. All arbitrable matters when the Amount of Insurance is $2,000,000 or less shall be arbitrated at the option of either the Company or the Insured. All arbitrable matters when the Amount of Insurance is in excess of $2,000,000 shall be arbitrated only when agreed to by both the Company and the Insured. Arbitration pursuant to this policy and under the Rules shall be binding upon the parties. Judgment upon the award rendered by the Arbitrator(s) may be entered in any court of competent jurisdiction.

15. LIABILITY LIMITED TO THIS POLICY; POLICY ENTIRE CONTRACT

(a) This policy together with all endorsements, if any, attached to it by the Company is the entire policy and contract between the Insured and the Company. In interpreting any provision of this policy, this policy shall be construed as a whole.

(b) Any claim or loss or damage that arises out of the status of the Title or by any action asserting such claim shall be restricted to this policy.

(c) Any amendment of or endorsement to this policy must be in writing and authenticated by an authorized person, or expressly incorporated by Schedule A of this policy.

(d) Each endorsement to this policy issued at any time is made a part of this policy and is subject to all of its terms and provisions. Except as the endorsement expressly states, it does not (i) modify any of the terms and provisions of the policy, (ii) modify any prior endorsement, (iii) extend the Date of Policy, or (iv) increase the Amount of Insurance.

16. SEVERABILITY

In the event any provision of this policy, in whole or in part, is held invalid or unenforceable under applicable law, the policy shall be deemed not to include that provision or such part held to be invalid, but all other provisions shall remain in full force and effect.

17. CHOICE OF LAW; FORUM

(a) Choice of Law; The Insured acknowledges the Company has underwritten the risks covered by this policy and determined the premium charged therefor in reliance upon the law affecting interests in real property and applicable to the interpretation, rights, remedies, or enforcement of policies of title insurance of the jurisdiction where the Land is located. Therefore, the court or an arbitrator shall apply the law of the jurisdiction where the Land is located to determine the validity of claims against the Title that are adverse to the Insured and to interpret and enforce the terms of this policy. In neither case shall the court or arbitrator apply its conflicts of law principles to determine the applicable law.

(b) Choice of Forum; Any litigation or other proceeding brought by the Insured against the Company must be filed only in a state or federal court within the United States of America or its territories having appropriate jurisdiction.

18. NOTICES, WHERE SENT

Any notice of claim and any other notice or statement in writing required to be given to the Company under this policy must be given to the Company at: 400 Second Avenue South, Minneapolis, Minnesota 55401 (612)371-1111.

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

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

Old Republic National Title Insurance Company

Schedule A

Order Number: ABS63016871 **Policy No.:** OX63016871.6133509

Amount of Insurance: $2,359,000.00

Property Address:

2525 GRAND AVENUE, GLENWOOD SPRINGS, CO 81601

1. Policy Date:

June 18, 2021 at 10:38:49 A.M.

2. Name of Insured:

THE RIVERS, LLC, A COLORADO LIMITED LIABILITY COMPANY

3. The estate or interest in the Land described in this Schedule and which is covered by this policy is:

A FEE SIMPLE

4. Title to the estate or interest covered by this policy at the date is vested in:

THE RIVERS, LLC, A COLORADO LIMITED LIABILITY COMPANY

5. The Land referred to in this Policy is described as follows:

A PARCEL OF LAND SITUATED IN THE SE1/4SE1/4 AND THE SW1/4SE1/4 OF SECTION 16, TOWNSHIP 6 SOUTH, RANGE 89 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO, LYING WESTERLY OF THE WESTERLY RIGHT OF WAY LINE OF GRAND AVENUE BEING THE SAME AS THE OLD HIGHWAY NO. 82 AND EASTERLY OF THE CENTER OF THE ROARING FORK RIVER, SAID PARCEL OF LAND IS DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY WHENCE THE SECTION CORNER COMMON TO SECTIONS 15, 16, 21 AND 22 IN SAID TOWNSHIP AND RANGE BEARS: S. 69 DEGREES 45'00" E. 1420.04 FEET;
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THENCE N. 28 DEGREES 08'38" W. 156.14 FEET ALONG THE CENTER OF SAID RIVER;
THENCE S. 88 DEGREES 32'00" E. 373.07 FEET TO A POINT ON THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY, THE POINT OF BEGINNING.

LESS AND EXCEPT A PARCEL OF LAND AS DESCRIBED IN DEED RECORDED DECEMBER 12, 2001 IN BOOK 1310 AT PAGE 712
AND LESS AND EXCEPT THAT PORTION CONVEYED TO THE CITY OF GLENWOOD SPRINGS IN

Old Republic National Title Insurance Company

Schedule A

WARRANTY DEED RECORDED JULY 3, 2018 UNDER RECEPTION NO. **908898**.

COUNTY OF GARFIELD
STATE OF COLORADO

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Old Republic National Title Insurance Company

(Schedule B)

Order Number: ABS63016871 **Policy No.:** OX63016871.6133509

This policy does not insure against loss or damage by reason of the following:

1. **Any facts, rights, interests, or claims thereof, not shown by the Public Records but that 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 encroachment, encumbrance, 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 the 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. **(a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water.**

   ITEM NOS. 1 THROUGH 3 OF THE STANDARD EXCEPTIONS ARE HEREBY DELETED.

   ITEM NO. 4 OF THE STANDARD EXCEPTIONS IS DELETED AS TO ANY LIENS OR FUTURE LIENS RESULTING FROM WORK OR MATERIAL CONTRACTED FOR OR FURNISHED AT THE SPECIFIC, DIRECT REQUEST, AND WITH THE ACTUAL KNOWLEDGE OF JABE LLC, A COLORADO LIMITED LIABILITY COMPANY.
   OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY SHALL HAVE NO LIABILITY FOR ANY LIENS ARISING FROM WORK OR MATERIAL FURNISHED AT THE SPECIFIC, DIRECT REQUEST, AND WITH THE ACTUAL KNOWLEDGE OF THE RIVERS, LLC, A COLORADO LIMITED LIABILITY COMPANY.
6. TAXES AND ASSESSMENTS FOR THE YEAR 2021 AND SUBSEQUENT YEARS.
7. RIGHT OF WAY FOR DITCHES OR CANALS CONSTRUCTED BY THE AUTHORITY OF THE UNITED STATES AS RESERVED IN UNITED STATES PATENT RECORDED AUGUST 29, 1896, IN BOOK 12 AT PAGE **433**.
8. RIGHT OF PROPRIETOR OF A VEIN OR LODE TO EXTRACT AND REMOVE HIS ORE THEREFROM SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES AS RESERVED IN UNITED STATES PATENT RECORDED AUGUST 29, 1896, IN BOOK 12 AT PAGE **433**.
9. ANY QUESTION, DISPUTE OR ADVERSE CLAIMS AS TO ANY LOSS OR GAIN OF LAND AS A RESULT OF ANY CHANGE IN THE RIVER BED LOCATION BY NATURAL OR OTHER THAN NATURAL CAUSES, OR ALTERATION THROUGH ANY CAUSE, NATURAL OR UNNATURAL, OF THE CENTER THREAD, BANK, CHANNEL OR FLOW OF WATERS IN THE ROARING FORK RIVER LYING WITHIN SUBJECT LAND; AND ANY QUESTION AS TO THE LOCATION OF SUCH CENTER THREAD, BED, BANK OR CHANNEL AS A LEGAL DESCRIPTION MONUMENT OR MARKER FOR PURPOSES OF DESCRIBING OR LOCATING SUBJECT LANDS.
10. ANY RIGHTS, INTERESTS OR EASEMENTS IN FAVOR OF THE UNITED STATES OF AMERICA, THE STATE OF COLORADO, OR THE PUBLIC, WHICH EXIST OR ARE CLAIMED TO EXIST IN AND OVER THE PAST AND PRESENT BED, BANKS OR WATERS OF COLORADO RIVER.

Old Republic National Title Insurance Company

(Schedule B)

Order Number: ABS63016871 **Policy No.:** OX63016871.6133509

11. MATTERS DISCLOSED ON ALTA/NSPS LAND TITLE SURVEY PREPARED BY JOSHUA L. WILSON ON BEHALF OF SMG, CERTIFIED OCTOBER 19, 2020, JOB NO. 2020-177.003

    SAID DOCUMENT STORED AS OUR IMAGE **35066400**

    A: FENCES NOT COINCIDENT WITH PROPERTY LINES.
    B: SUBSURFACE CULVERT AND SUBSURFACE PIPE ARE LOCATED ON AND TRAVERSE THE BOUNDARY OF THE LAND WITHOUT THE BENEFIT OF A RECORDED EASEMENT.
    C: A SET WALL ON THE NORTH PROPERTY LINE ENCROACH ONTO THE ADJACENT PARCEL WITHOUT THE BENEFIT OF A RECORDED EASEMENT OR ENCROACHMENT AGREEMENT.
    D: EXCEPTION FOR RIGHTS OF UTILITIES WITHOUT THE BENEFIT OF A RECORDED EASEMENT.

12. DEED OF TRUST DATED JUNE 17, 2021, FROM THE RIVERS, LLC, A COLORADO LIMITED LIABILITY COMPANY TO THE PUBLIC TRUSTEE OF GARFIELD COUNTY, COLORADO FOR THE USE OF ALPINE BANK TO SECURE THE SUM OF $1,550,000.00 RECORDED JUNE 18, 2021, UNDER RECEPTION NO. **958422**.

Exhibit B

Mineral Rights Affidavit

DocuSign Envelope ID: 1C2EBDB8-F3C5-4666-A3F1-59E17D68954E

CERTIFICATION OF NOTICE PURSUANT TO C.R.S. 24-65.5-103

I hereby affirm that an examination of the records in the office of the County Clerk and Recorder was made in accordance with C.R.S. 24-65.5-103 et seq. and

(check applicable box and fill in the information)

After such examination on DECEMBER 21, 2021, which is not less than thirty (30) days before the date scheduled for the initial public hearing on the application for the development known as 2525 SOUTH GRAND AVE SITE/ARCHITECTURAL PLAN REVIEW, notice was sent, by certified mail, return receipt requested, or by a nationally recognized overnight carrier, to the below-named mineral right owner(s) as listed in the records of the County Clerk and Recorder, containing the time and place of the initial public hearing, and contact information of the Community Development Department, the nature of the hearing, the location and legal description of the property that is the subject of the hearing, and the name of the applicant(s). Notice was also sent, by certified mail, return receipt requested, or by a nationally recognized overnight carrier, to the City of Glenwood Springs, containing the name and address of the mineral right owners to whom the foregoing notice was sent. A copy of the notices sent is attached hereto.

Listing of Mineral Right Owner(s)	Address
NONE FOUND	

Such records do not identify any mineral right owners; or

The mineral right owner(s) have provided a signed waiver of the right to notice in writing, a copy of which is attached hereto.

DocuSigned by:

ED9FF5206C39436...

Applicant Signature

Surface Owner's Signature

BRIAN WILSON

Print Name

Kevin Moore

Print Name

Exhibit C

Geologic
And
Geotechnical Investigation

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

GEOTECHNICAL STUDY

2525 South Grand Avenue
Glenwood Springs, Colorado

Report Prepared for:

c/o Mr. Brian Wilson
North Mountain Partners
2327 South Loveland Street
Lakewood, CO 80228

Project No. 21.5059.A
December 9, 2021

Corporate Office: 7108 South Alton Way, Building B • Centennial, CO 80112
Locations: Centennial • Frederick • Silverthorne • Salida/Crested Butte
Phone 303-220-0300 • www.cesareinc.com

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

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Report Prepared for:

c/o Mr. Brian Wilson
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Project No. 21.5059.A
December 9, 2021

Report Prepared by:

Yvonne "Bonnie" E. Schimmel, P.E.
Senior Engineer

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COMMON ABBREVIATIONS

AASHTO ..... American Association of State Highway and Transportation Officials
ABC ..... aggregate base course
ACI ..... American Concrete Institute
ADA ..... Americans with Disabilities Act
ADSC ..... Association of Drilled Contractors
AI ..... Asphalt Institute
APM ..... asphalt paving material
ASCE ..... American Society of Civil Engineers
ASTM ..... American Society for Testing and Materials
AWWA ..... American Water Works Association
bgs ..... below ground surface
CDOT ..... Colorado Department of Transportation
CBR ..... California Bearing Ratio
CFR ..... Code of Federal Regulations
CGS ..... Colorado Geological Survey
CKD ..... cement of kiln dust stabilized subgrade
CMU ..... concrete masonry unit
CTB ..... cement treated base course
deg ..... degree
EDLA ..... equivalent daily load application
e_m ..... edge moisture variation distance
EPS ..... expanded polystyrene
ESAL ..... equivalent single axle loads
f'c ..... specified compressive strength of concrete at the age of 28 days
F_a ..... seismic site coefficient
FHWA ..... Federal Highway Administration
FS ..... factor of safety
F_V ..... seismic site coefficient
GSA ..... global stability analysis
GVW ..... gross vehicle weight
IBC ..... International Building Code
ICC-ES ..... International Code Council Evaluation Services, Inc.
IRC ..... International Residential Code
kip ..... 1,000 pounds-force
km ..... kilometer
LTS ..... lime treated subgrade
MDD ..... maximum dry density
mg/L ..... milligrams per liter
MGPEC ..... Metropolitan Government Pavement Engineers Council
mm ..... millimeter
Mr ..... resilient modulus
MSE ..... mechanically stabilized earth
mV ..... millivolts
NAPA ..... National Asphalt Pavement Association
N_{DESIGN} ..... design gyrations
OMC ..... optimum moisture content

OSHA ..... **Occupational Safety and Health Administration**
OWTS ..... **onsite wastewater treatment system**
PCA ..... **Portland Cement Association**
PCC ..... **portland cement concrete**
pcf ..... **pounds per cubic foot**
pci ..... **pounds per cubic inch**
pH ..... **power of hydrogen**
psf ..... **pounds per square foot**
psi ..... **pounds per square inch**
PT ..... **post-tension**
S_s ..... **mapped spectral accelerations for short periods**
UBC ..... **Uniform Building Code**
USGS ..... **United States Geological Survey**

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

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1. PURPOSE

1.1 GENERAL

Cesare, Inc. (Cesare) performed a geotechnical study for the proposed mixed use multi-family residential development to be located at 2525 Grand Avenue in Glenwood Springs, Colorado. The study was made to characterize existing subsurface conditions at the site and assist in determining design criteria for planning, site development, foundation systems, interior floor systems, exterior flatwork, surface and subsurface drainage adjacent to structures, pavement, and to present other pertinent geotechnical issues. Information gathered during the field exploration and laboratory testing is summarized in Figures 1 through 3 and Appendices A through D. Cesare's opinions and recommendations presented in this report are based on data generated during this field exploration, laboratory testing, review of a previous geotechnical study performed for the site, and its experience.

1.2 SCOPE OF SERVICES

The scope of services performed is detailed in Cesare's Proposal Agreement No. S210711 which was executed on September 8, 2021.

2. SITE CONDITIONS

The site is located at 2525 Grand Avenue in Glenwood Springs, Colorado. A vicinity map is shown in Figure 1. The site is currently developed land occupied by the abandoned Rivers Restaurant, paved parking, and accompanying infrastructure, as shown in Figures 2A and 2B. The site is bound by the Roaring Fork River to the south and west, Grand Avenue to the east, and commercial developments to the north. The site is situated about 45 feet above the river. The site slopes gently down from Grand Avenue westward to the crest of the riverbank. The riverbank slope is about 2:1 (horizontal to vertical). Topography north and south of the site is similar to that onsite.

Vegetation onsite consists of native and landscaped trees, grasses, and shrubbery. The section of Roaring Fork River adjacent to the western edge of the site is about 150 feet wide. The Roaring Fork River was flowing southeast to northwest at an elevation about 45 feet lower than the site at the time of this study. No bedrock outcrops were observed onsite.

Photo 1. View looking north at the site from across the Roaring Fork River.

Photo 2. View looking east at the site from across the Roaring Fork River.

Photo 3. View looking south at the slope above The Roaring Fork River and below the abandoned Rivers Restaurant.

Photo 4. View looking south at the slope above The Roaring Fork River and below the abandoned Rivers Restaurant.

3. PROPOSED CONSTRUCTION

The existing restaurant will be demolished and the site redeveloped with residential development. Cesare understands that 2525 South Grand Avenue will consist of 17 townhomes totaling about

50,800 gross square feet. Twelve townhomes are planned to be three stories, above grade and one story, below grade with an attached garage and will be located along the crest of the existing 2:1 slope about 25 to 45 feet above the Roaring Fork River. Five townhomes will be in three story, above grade buildings situated along Grand Avenue and will include no below grade space. Site development will involve about 7 feet of cut to achieve finish grade in the southern half of the site with little change of grade planned in the northern half of the site. The basements and foundations will require up to an estimated 12 to 15 feet of excavation below finish grade. Construction will likely be wood frame, above grade and cast-in-place concrete, below grade. The locations of Cesare's borings are shown in Figures 2A and 2B. If the actual below grade level varies by more than 2 feet from that shown, Cesare should be notified and the recommendations of this report reviewed.

The proposed pavement area will consist of a total of about 37,000 square feet of APM planned for on grade parking and drives between the townhomes and the condominiums. Entrance/exit to the development will be near the southerly portion of the development along Grand Avenue. Cesare assumes some minor cuts and fill will be required (less than 3 feet), and onsite soil or similar quality offsite soil will be used for fill.

4. PREVIOUS STUDIES

Cesare reviewed the "Subsoil Study for Foundation Design Proposed Apartment Building 2525 Grand Avenue Glenwood Springs, Colorado" prepared by Kumar & Associates, Inc. (Kumar), Project No. 20-7-766, dated February 11, 2021. Kumar's study evaluated site and geologic conditions to develop recommendations for foundation design. Kumar performed field explorations on January 6 and 7, 2021, consisting of five exploratory borings and performed laboratory testing on samples collected. During the study, Kumar encountered previously placed, undocumented fill to depths of up to 15.5 feet which overlaid sand, gravel, cobbles, and boulders. Kumar concluded that the undocumented fill was not suitable for support of building foundations or floor slabs and provided preliminary foundation recommendations that included footings supported on the native coarse granular soil below the fill. Micropiles or drilled piers were recommended for foundation support where the building was on or within about 10 feet of the edge of the riverbank slope. Additional recommendations were provided for retaining walls, floor slabs, underdrain system, site grading, MSE site walls, surface drainage, and pavement section thicknesses. Kumar's report is included for reference in Appendix D.

5. GEOLOGIC CONDITIONS

5.1 SURFICIAL DEPOSITS

The "Geologic Map of The Glenwood Springs Quadrangle, Garfield County, Colorado", prepared for the USGS (Map Series MS-38) by Kirkham, R.M., Streufert, R.K., Cappa, J.A., Shaw, C.A., Allen, J.L., and Schroeder, T.J. II, dated 2008, indicates that surficial deposits, on or in close proximity to the site, likely consist of:

> ***Qa:*** *"Stream-channel, flood-plain, and low-terrace deposits (Holocene and late Pleistocene)—Includes modern alluvium and other deposits along the Roaring Fork and Colorado Rivers, adjacent flood-plain deposits, and low-terrace alluvium that is as much as about 15 ft above modern stream level. Unit is mostly clast-supported, silty, sandy, occasionally bouldery, pebble and cobble gravel in a sandy or silty matrix. It is locally interbedded with and commonly overlain by sandy silt and silty sand. Unit is*

poorly to moderately well sorted and is moderately well to well bedded. Clasts are well rounded to subangular. Their varied lithology reflects the diverse types of bedrock within their provenance. Unit may locally include organic-rich deposits or lacustrine clay or silt. It may be interfingered with younger debris flow deposits where the distal ends of fans extend into modern river channels. Maximum thickness is about 154 ft in Glenwood Canyon (Bowen, 1988). Flood-plain and terrace deposits included in this unit correlate with deposits in terrace T8 of the Carbondale Glenwood Springs area of Piety (1981). Low lying areas are subject to flooding. Unit commonly is a good source of sand and gravel.

Qty: *"Younger terrace alluvium (late Pleistocene)—Chiefly stream alluvium underlying terraces that range from about 19 to 56 ft above modern stream level. Locally the unit may be capped by a single, thin loess sheet. It consists mostly of poorly sorted, clast-supported, occasionally bouldery, pebble and cobble gravel with a sand matrix that was deposited as glacial outwash. Fine-grained overbank deposits are locally present. Clasts are mainly subrounded to rounded and are comprised of a variety of lithologies reflecting the diverse types of bedrock found in their drainage basins. Clasts are generally unweathered or only slightly weathered. Maximum thickness may locally exceed 100 ft, but is much thinner in other areas.*

At the rest area on 1-70 in West Glenwood Springs, the top of the unit is about 19 ft above the Colorado River and is overlain by a tufa deposit which includes an interbedded thin, 0.1 to 0.3-ft thick layer of organic-rich clayey sandy silt and peat. A conventional radiocarbon age of 12,410 ± 60 years BP was obtained on the peat (Trimble, 1995, written commun.; sample no. USGS3544), providing a minimum age for this terrace. Unit includes deposits in terrace T7 in the Carbondale-Glenwood Springs area described by Piety (1981). It may also correlate with terrace A of Bryant (1979) in the Aspen area and in part with younger terrace alluvium of Bryant and Shroba (1997) in the Storm King Mountain quadrangle. Unit is probably in part equivalent to outwash of the Pinedale glaciation, which Richmond (1986) estimated to be about 12 to 35 ka. Unit is a good source of sand and gravel.

5.2 BEDROCK

The "Geologic Map of The Glenwood Springs Quadrangle, Garfield County, Colorado", prepared for the USGS (Map Series MS-38) by Kirkham, R.M., Streufert, R.K., Cappa, J.A., Shaw, C.A., Allen, J.L., and Schroeder, T.J. II, dated 2008, indicates that bedrock onsite likely consists of:

PPm: *"Maroon Formation (Lower Permian and Pennsylvanian)—Mainly red beds of sandstone, conglomerate, mudstone, siltstone, and claystone with minor, thin beds of gray limestone. Includes the Schoolhouse Member at the top of the formation (Johnson and others, 1990), which was previously called the Schoolhouse Tongue of the Weber Sandstone (Bass and Northrop, 1963; Stewart and others, 1972b). Conglomerate beds contain subangular to rounded pebble- and cobble-sized clasts of quartz, feldspar, and granitic rock fragments. Unit commonly is arkosic and very micaceous. Schoolhouse Member consists of light-gray to greenish-black, grayish red, and pale-reddish-brown, fine-grained, feldspathic sandstone and*

conglomeratic sandstone which contain locally abundant interstitial and grain coatings of solid hydrocarbon. Marcasite nodules are occasionally present in the middle of Schoolhouse Member. Total thickness is about 3,000 to 4,000 ft, including the 150- to 175-ft-thick Schoolhouse Member."

Pe: *"Eagle Valley Formation (Middle Pennsylvanian)—Interbedded reddish-brown, gray, reddish-gray, and tan siltstone, shale, sandstone, gypsum, and carbonate rocks. Unit represents a stratigraphic interval in which the red beds of the Maroon Formation grade into and intertongue with the dominantly evaporitic rocks of the Eagle Valley Evaporite. It includes rock types of both formations. Thickness is variable, ranging from about 500 to 1,000 ft. Formation is generally poorly exposed. It is conformable and intertonguing with the overlying Maroon Formation and underlying Eagle Valley Evaporite. Contact with Maroon Formation is placed at the top of the uppermost evaporite bed or light colored clastic bed below the thick sequence of red beds. The Eagle Valley Formation was deposited in the Eagle Basin on the margin of an evaporite basin at the distal end of a coalescing alluvial fan complex and in a submarine environment within the evaporite basin. The formation may be susceptible to subsidence, sinkhole development, compaction, piping, and corrosion problems where evaporitic rocks occur near the land surface."*

Pee: *"Eagle Valley Evaporite (Middle Pennsylvanian)—Sequence of evaporitic rocks consisting of massive to laminated gypsum, anhydrite, halite, and beds of light-colored mudstone and fine-grained sandstone, thin limestone and dolomite beds, and black shale. Formation may include eolian deposits similar to those reported by Schenk (1987). Beds commonly are intensely folded, faulted, and ductily deformed by diapirism, flowage, dissolution-related subsidence or collapse, load metamorphism, hydration of anhydrite, and Laramide tectonism. The formation is generally poorly exposed except in recent alluvial cuts, man-made exposures, and stacks, which are unique chimney-like landforms that are well developed west of Roaring Fork River. Stacks are typically composed of yellowish-brown, calcareous sandstone breccia and sandy limestone breccia cemented by orangish-yellow to greenish-yellow-brown calcareous siltstone, sandstone, and claystone."*

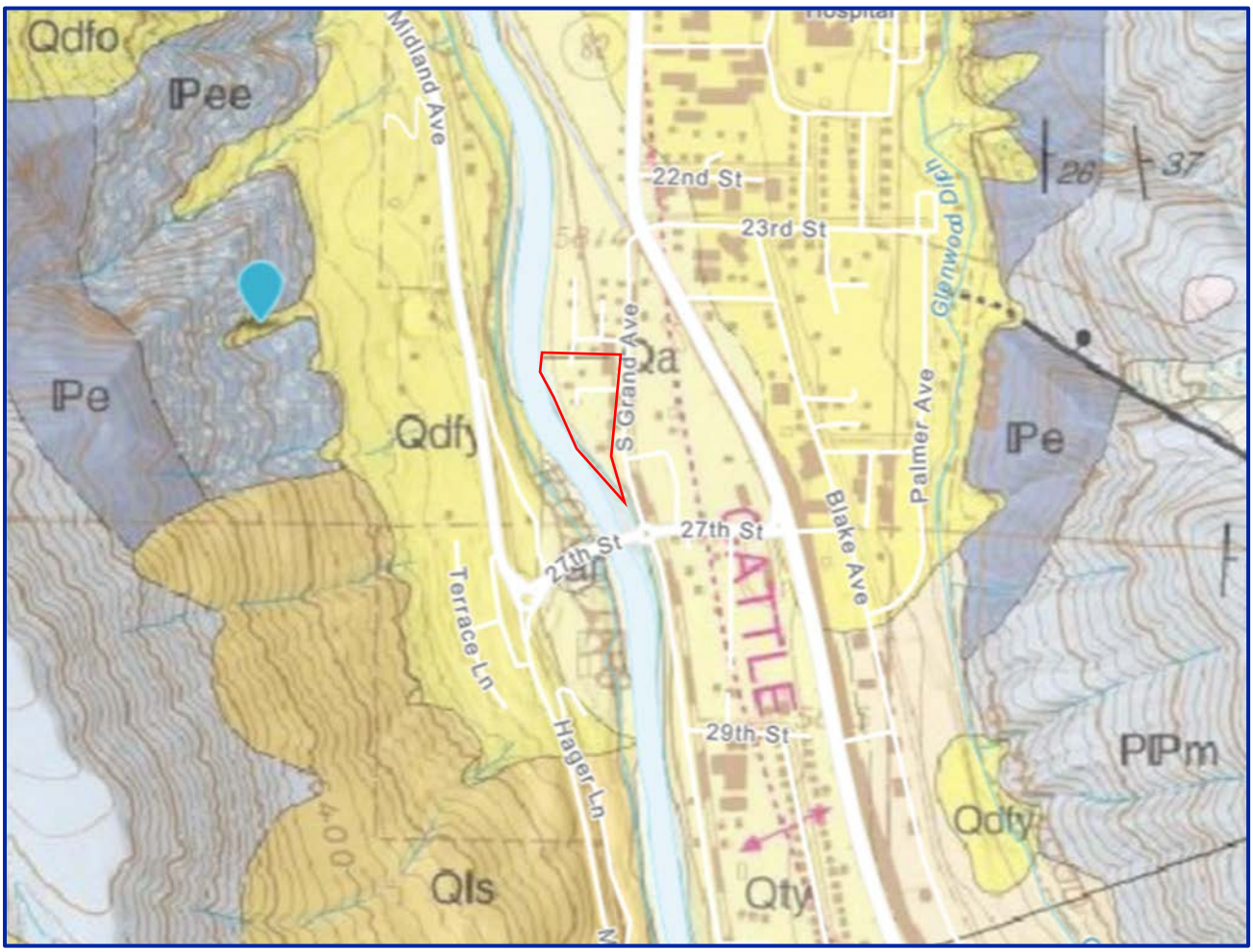


EXHIBIT 1. Geology of the Glenwood Springs area. 2525 Grand Avenue is shown outlined in the approximate center of the exhibit.

5.3. GEOLOGIC HAZARDS

The following subsections present a cursory review of geologic publications. A detailed geologic hazards assessment was not the focus of Cesare's scope of services, nor was it requested.

5.3.1 Eagle Valley Evaporite Bedrock

The "Geologic Map of The Glenwood Springs Quadrangle, Garfield County, Colorado", prepared for the USGS (Map Series MS-38) by Kirkham, R.M., Streufert, R.K., Cappa, J.A., Shaw, C.A., Allen, J.L., and Schroeder, T.J. II, dated 2008, indicates that the site may overlie the Eagle Valley evaporite and that:

"The Eagle Valley Evaporite contains cavernous voids as much as several feet in diameter and tens of feet deep that have resulted from near-surface dissolution of halite and gypsum. It is prone to development of sinkholes into which overlying deposits may subside or be piped. Surficial deposits derived from the Eagle Valley Evaporite may be subject to compaction, settlement, sinkhole, and corrosion problems."

The "Collapsible Soils and Evaporite Karst Hazards Map of the Roaring Fork River Corridor, Garfield,

Eagle, and Pitkin Counties, Colorado", prepared for the CGS by Jonathan L. White, dated 2002, indicates that bedrock underlying the alluvial soil onsite consists of the Eagle Valley evaporite which is described by White as:

> *"Evaporitic sequence of gypsum, anhydrite, and halite (rock salt) interbedded with mudstone, fine-grained sandstone, thin carbonate beds, and black shale. Commonly intensely folded, faulted, and ductily deformed. Includes areas overlain by various thin (approximately 50-ft or 15-m thick), surficial deposits. Boundaries are approximate where covered by surficial deposits. Evaporite minerals are soluble; as dissolution of the bedrock occurs, a karst morphology results. Hazards include spontaneous ground openings (sinkholes) and subsidence deformation and settlement near sinkholes and closed depressions. Soils derived from evaporite have high gypsum content and may have high potential for significant collapse upon wetting (hydrocompaction). Potential hazards from regional deformation of the evaporite and risks to structures and infrastructure are undefined. Groundwater in this unit typically has a high percentage of total dissolved solids and high salinity."*

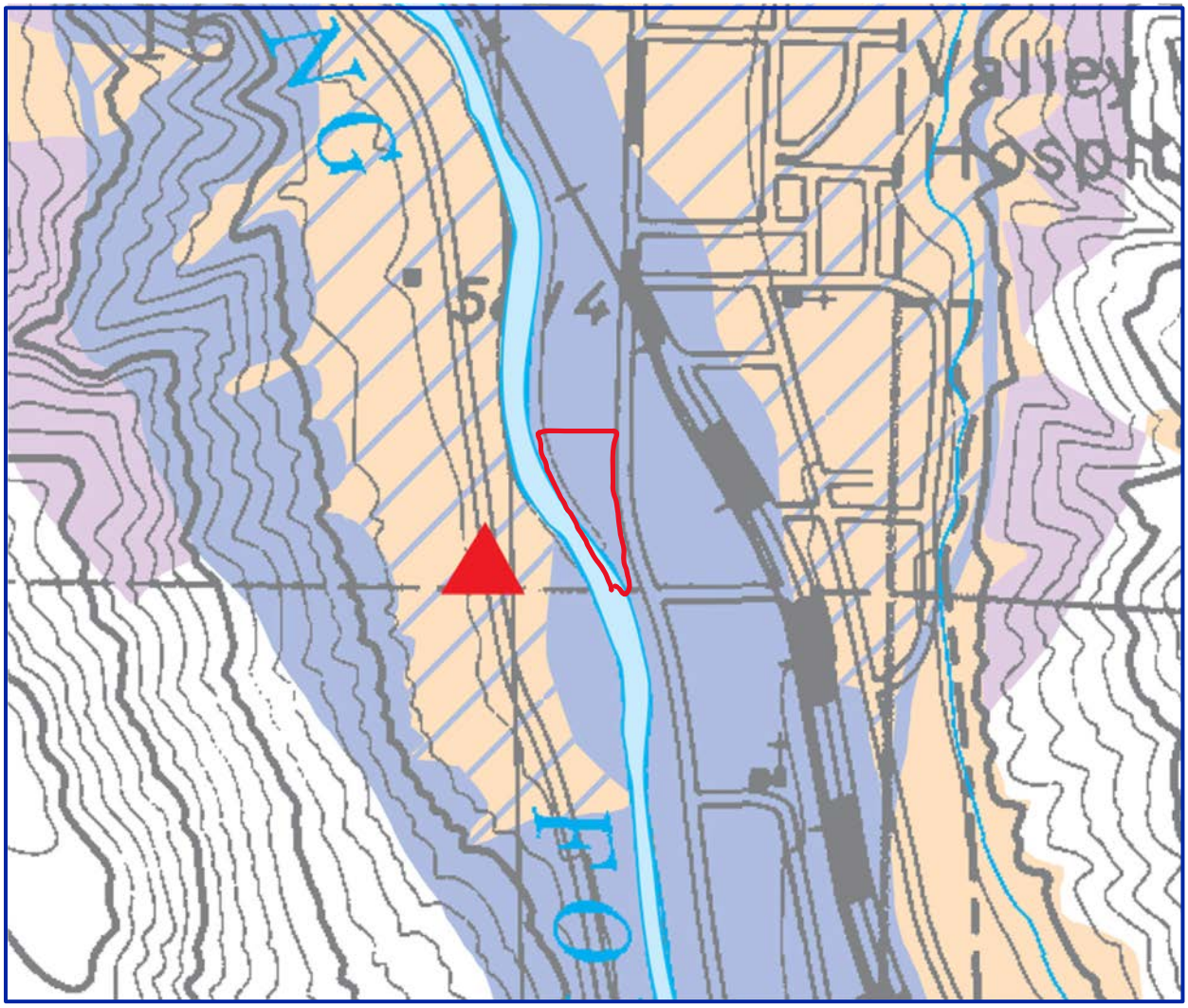
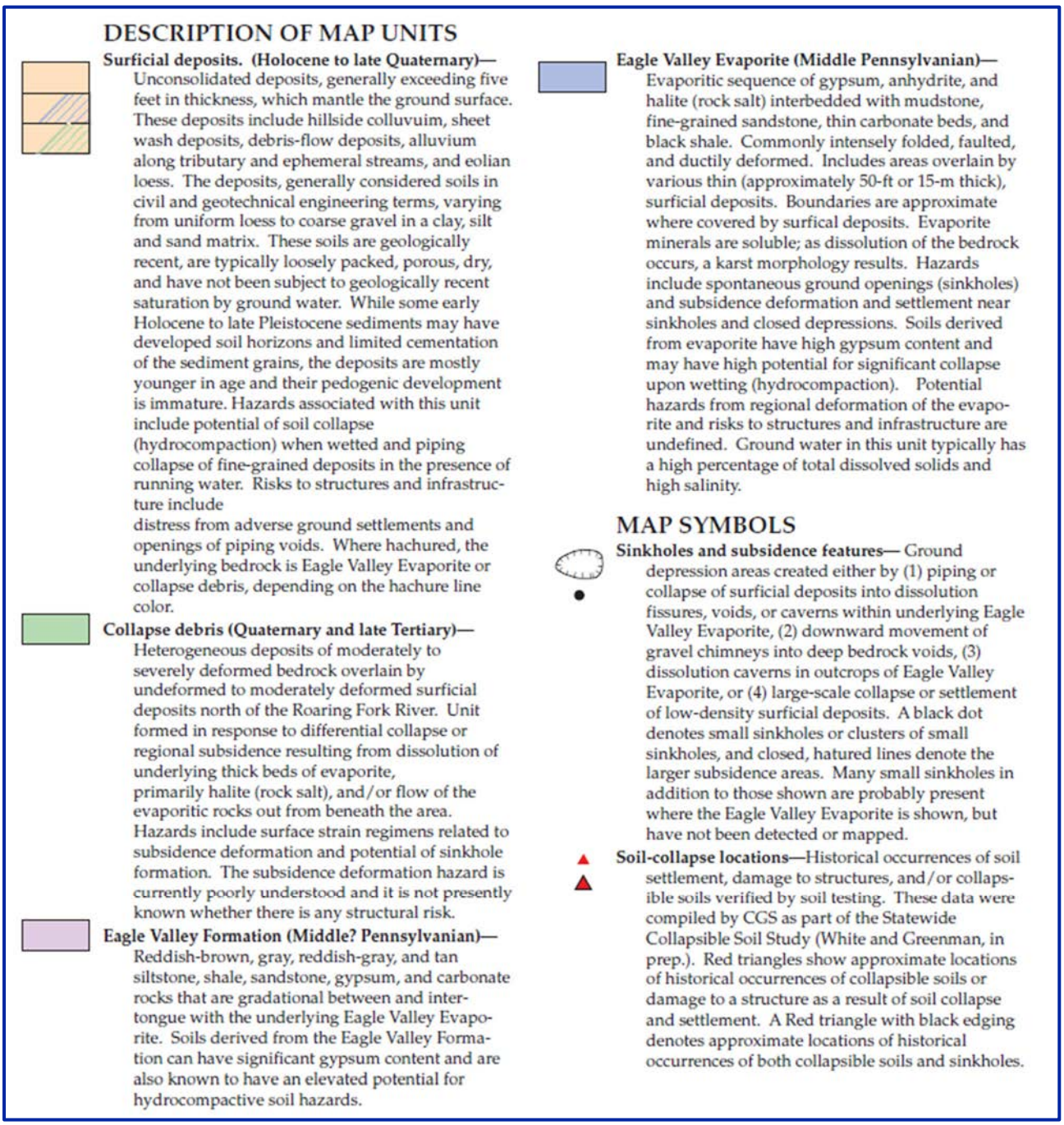


EXHIBIT 2. "Collapsible Soils and Evaporite Karst Hazards Map of the Roaring Fork River Corridor, Garfield, Eagle, and Pitkin Counties, Colorado". The approximate site locations outlined in red in the approximate center of the exhibit.



DESCRIPTION OF MAP UNITS

Surficial deposits. (Holocene to late Quaternary)— Unconsolidated deposits, generally exceeding five feet in thickness, which mantle the ground surface. These deposits include hillside colluvuim, sheet wash deposits, debris-flow deposits, alluvium along tributary and ephemeral streams, and eolian loess. The deposits, generally considered soils in civil and geotechnical engineering terms, varying from uniform loess to coarse gravel in a clay, silt and sand matrix. These soils are geologically recent, are typically loosely packed, porous, dry, and have not been subject to geologically recent saturation by ground water. While some early Holocene to late Pleistocene sediments may have developed soil horizons and limited cementation of the sediment grains, the deposits are mostly younger in age and their pedogenic development is immature. Hazards associated with this unit include potential of soil collapse (hydrocompaction) when wetted and piping collapse of fine-grained deposits in the presence of running water. Risks to structures and infrastructure include distress from adverse ground settlements and openings of piping voids. Where hachured, the underlying bedrock is Eagle Valley Evaporite or collapse debris, depending on the hachure line color.

Collapse debris (Quaternary and late Tertiary)— Heterogeneous deposits of moderately to severely deformed bedrock overlain by undeformed to moderately deformed surficial deposits north of the Roaring Fork River. Unit formed in response to differential collapse or regional subsidence resulting from dissolution of underlying thick beds of evaporite, primarily halite (rock salt), and/or flow of the evaporitic rocks out from beneath the area. Hazards include surface strain regimens related to subsidence deformation and potential of sinkhole formation. The subsidence deformation hazard is currently poorly understood and it is not presently known whether there is any structural risk.

Eagle Valley Formation (Middle? Pennsylvanian)— Reddish-brown, gray, reddish-gray, and tan siltstone, shale, sandstone, gypsum, and carbonate rocks that are gradational between and intertongue with the underlying Eagle Valley Evaporite. Soils derived from the Eagle Valley Formation can have significant gypsum content and are also known to have an elevated potential for hydrocompactive soil hazards.

Eagle Valley Evaporite (Middle Pennsylvanian)— Evaporitic sequence of gypsum, anhydrite, and halite (rock salt) interbedded with mudstone, fine-grained sandstone, thin carbonate beds, and black shale. Commonly intensely folded, faulted, and ductily deformed. Includes areas overlain by various thin (approximately 50-ft or 15-m thick), surficial deposits. Boundaries are approximate where covered by surfical deposits. Evaporite minerals are soluble; as dissolution of the bedrock occurs, a karst morphology results. Hazards include spontaneous ground openings (sinkholes) and subsidence deformation and settlement near sinkholes and closed depressions. Soils derived from evaporite have high gypsum content and may have high potential for significant collapse upon wetting (hydrocompaction). Potential hazards from regional deformation of the evaporite and risks to structures and infrastructure are undefined. Ground water in this unit typically has a high percentage of total dissolved solids and high salinity.

MAP SYMBOLS

Sinkholes and subsidence features— Ground depression areas created either by (1) piping or collapse of surficial deposits into dissolution fissures, voids, or caverns within underlying Eagle Valley Evaporite, (2) downward movement of gravel chimneys into deep bedrock voids, (3) dissolution caverns in outcrops of Eagle Valley Evaporite, or (4) large-scale collapse or settlement of low-density surficial deposits. A black dot denotes small sinkholes or clusters of small sinkholes, and closed, hatured lines denote the larger subsidence areas. Many small sinkholes in addition to those shown are probably present where the Eagle Valley Evaporite is shown, but have not been detected or mapped.

Soil-collapse locations—Historical occurrences of soil settlement, damage to structures, and/or collapsible soils verified by soil testing. These data were compiled by CGS as part of the Statewide Collapsible Soil Study (White and Greenman, in prep.). Red triangles show approximate locations of historical occurrences of collapsible soils or damage to a structure as a result of soil collapse and settlement. A Red triangle with black edging denotes approximate locations of historical occurrences of both collapsible soils and sinkholes.

EXHIBIT 3. Map description for "Collapsible Soils and Evaporite Karst Hazards Map of the Roaring Fork River Corridor, Garfield, Eagle, and Pitkin Counties, Colorado" (Exhibit 2).

There is a possibility that gypsum deposits associated with the Eagle Valley evaporite underlie this site. Dissolution of the gypsum may cause sinkholes to develop, which may result in localized areas of subsidence. Cesare is aware of several sinkholes that have been observed in Glenwood Springs which are associated with the Eagle Valley evaporite. Cesare did not observe sinkholes onsite or in the immediate area during its study; however, the borings were drilled for foundation design only and not to explore potential karst conditions. The nearest mapped soil collapse is about 500 feet west of the site across the Roaring Fork River. During this study, Cesare encountered a heavy rock matrix. While some fines may have been lost during drilling with the ODEX tooling, laboratory testing

indicates a small amount of fines. Cesare is not aware of distress due to subsidence on the existing development or on the buildings adjacent to the site. It is Cesare's opinion that the risk of future subsidence onsite during the service life of the proposed building is low; however, there is a chance of future distress caused by hydro-compaction and subsidence from sinkhole formation due to karst within the Eagle Valley evaporite. The owner should be made aware of the potential for subsidence. To further reduce the uncertainty regarding the potential for future distress, additional studies may be performed.

5.3.2 Slope Stability

The "Geologic Hazards of the Glenwood Springs Metropolitan Area – Garfield County, Colorado", prepared for the CGS (Map Series MS-38) by Lincoln-Devore Engineers and Geologists, dated 1978, shows mapped landslide on the western side of the Roaring Fork River across the site. Landslides are not mapped on the site.

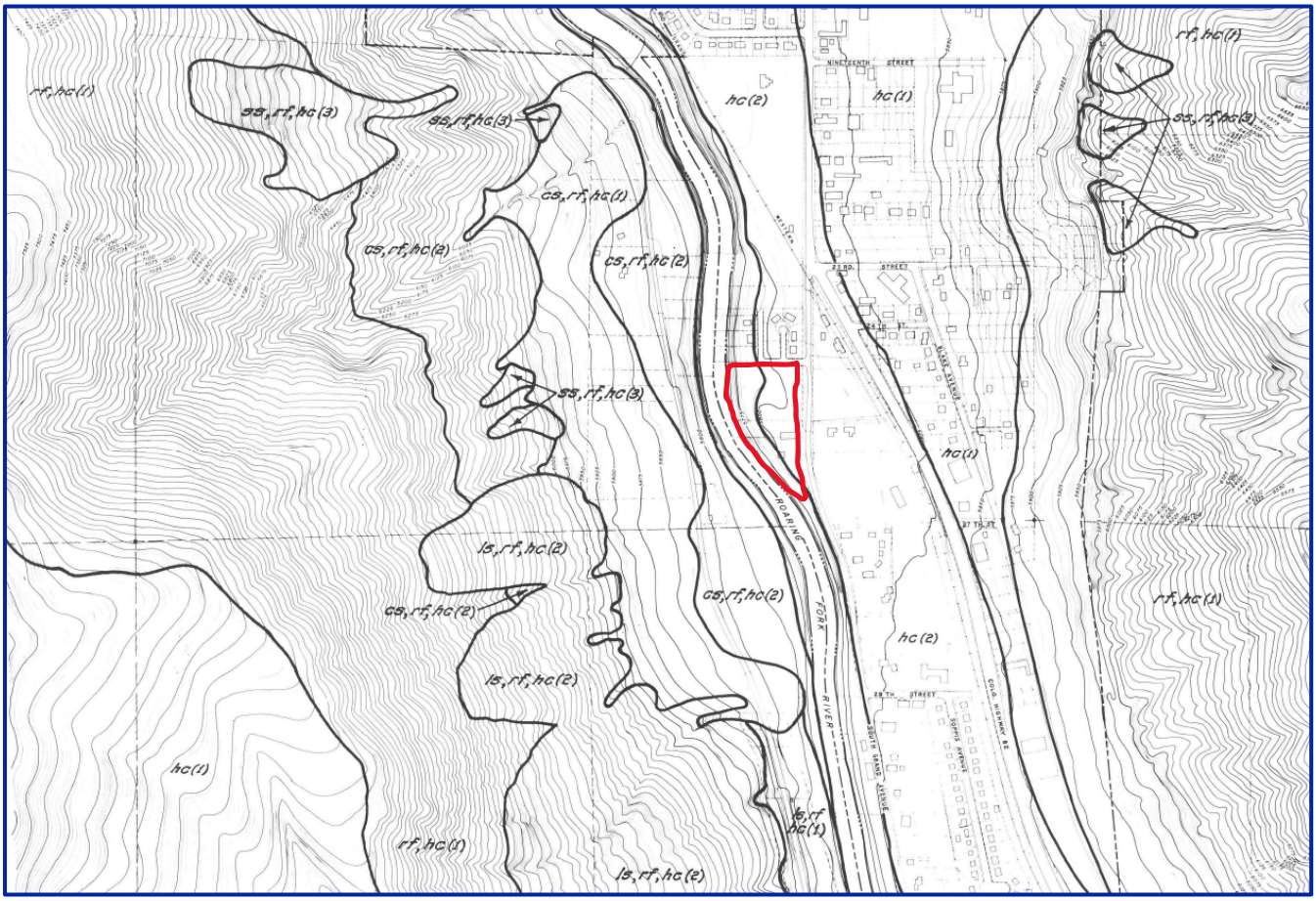


EXHIBIT 4. "Geologic Hazards of the Glenwood Springs Metropolitan Area – Garfield County, Colorado". The approximate site locations are outlined in red in the approximate center of the exhibit.

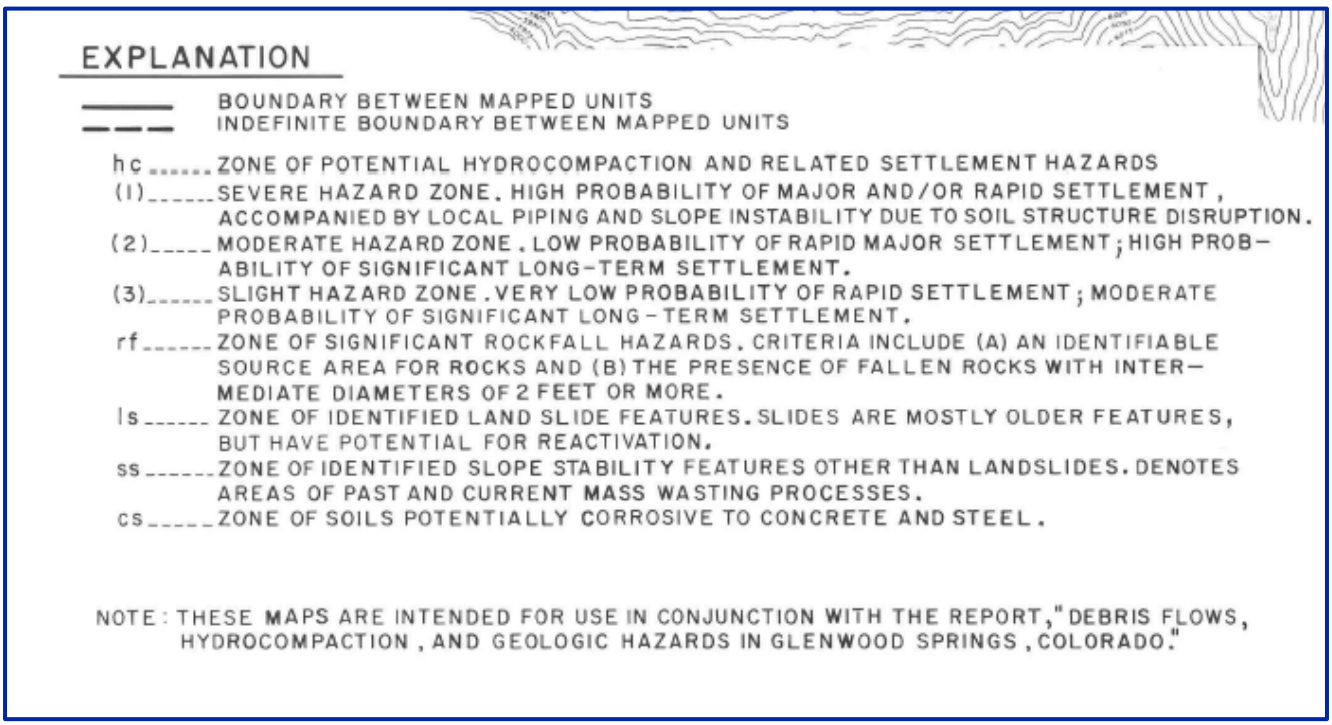


EXHIBIT 5. Map description for "Geologic Hazards of the Glenwood Springs Metropolitan Area - Garfield County, Colorado" (Exhibit 4).

5.3.3 Radon

The U.S. Environmental Protection Agency map of radon zones indicates that most of Colorado, including the site, is in Zone 1. Zone 1 is the zone with the highest risk of exposure to radon gas (i.e., greater than 4 picocuries per liter (PCi/l)). Radon mitigation systems may be required for below grade spaces.

5.3.4 Seismic Considerations

The soil/bedrock and groundwater conditions present onsite are consistent with criteria for Site Class D according to the 2015 IBC (ASCE 7, Chapter 20). Additional geophysical studies are necessary to justify a different site classification.

6. FIELD EXPLORATION

Subsurface conditions were explored on October 18 through 20, 2021 by drilling four borings at the locations indicated in Figures 2A and 2B. Borings were advanced through the previously placed, undocumented fill soil using solid stem auger and into the native soil using ODEX drilling. Borings were drilled about 39 to 49 feet deep. Graphical logs of the subsurface conditions observed, locations of sampling, and further explanation of the exploration are presented in the boring logs contained in Appendix A.

Photo 5. View looking north at drilling of Boring B-1.

Photo 6. View looking east at drilling of Boring B-2.

Photo 7. View looking northwest at drilling of Boring B-3.

Photo 8. View looking southwest at drilling of Boring B-4.

7. LABORATORY TESTING

Cesare personnel returned samples obtained during field exploration to its laboratory where professional staff visually classified them and assigned testing to selected samples to evaluate pertinent engineering properties. Laboratory tests performed are listed in Table 7.1. Further discussion of laboratory testing and the laboratory test results are presented in Appendix B.

TABLE 7.1. Laboratory Testing Performed

Laboratory Test	To Evaluate
Grain size analysis and hydrometer	Grain size distribution for classification purposes*.
Atterberg limits	Soil plasticity for classification purposes.
Swell/consolidation	Effect of wetting and loading on the soil.
Proctor (standard)	Moisture/density relationship of compacted soil.
Water soluble sulfate content	Potential corrosivity of the soil on cementitious material.

*Gradations for the native soil were performed on samples recovered from ODEX drilling operations are not representative of in situ conditions.

8. SUBSURFACE CONDITIONS

Cesare's borings encountered sand and clay fill with cobbles and native sand and gravel with cobbles and boulders.

- Sand and clay fill with cobbles was encountered to depths of 4.5 to 14 feet.
- Native overburden soil consisting of sand and gravel with cobbles and boulders was encountered to the maximum depths explored of 39 to 49 feet. The soil is alluvial and consists of tightly packed cobbles and boulders in a sand and gravel matrix.
- Bedrock was not encountered during drilling.
- Groundwater was measured at a depth of 46.4 feet in Boring B-4 at the time of drilling.

- At the conclusion of drilling (0 to 2 days after drilling operations began), groundwater was not encountered in Borings B-1 through B-4.
- Borings B-1, B-2, and B-3 had caved at depths of 27.7, 21.7 and 29.8 feet, respectively at the conclusion of all drilling operations (1 to 2 days after drilling operations began).

The subsurface conditions encountered in Cesare's borings are reasonably consistent with previously placed fill overlying the surficial deposits described in Section **5. GEOLOGIC CONDITIONS**. The previously placed, undocumented fill may be deeper or shallower than shown in Kumar's and Cesare's boring logs. These observations represent conditions at the time of field exploration and may not be indicative of other times or other locations.

Groundwater can be expected to fluctuate and can be influenced by variations in seasons, weather, precipitation, drainage, vegetation, landscaping, irrigation, leakage of water and/or wastewater systems, etc., both onsite and offsite. Discontinuous zones of perched water may exist or develop within the overburden material and/or upper zones of the bedrock. Cesare's field explorations were performed during the fall when groundwater levels are usually decreasing or relatively low. Groundwater levels may be higher in the spring and early summer.

9. GEOTECHNICAL CONSIDERATIONS

Cesare encountered previously placed, undocumented fill to depths of up to 14 feet and Kumar encountered previously placed, undocumented fill to depths of up to 15.5 feet. The source of the fill, time and method of placement, and whether the placement was observed or tested, is unknown. As such, the performance of the fill is likely variable and is not recommended to support the foundations or floor slabs. Swell/consolidation tests performed to gage the response to wetting of the onsite fill indicated volume change ranging from 2.5% compression to 3.1% swell.

To reduce the risk of poor performance for the structures, Cesare recommends that:

1) the existing fill be overexcavated and replaced with compacted structural fill to support spread footings, or
2) footings be supported on the native sand and gravel below the previously placed undocumented fill, or
3) the structures should be supported by deep foundations comprised of micropiles.

10. FOUNDATION RECOMMENDATIONS

10.1 SPREAD FOOTINGS

The proposed structure may be founded on conventional spread footings or pad type footings bearing on the natural, undisturbed soil or on controlled, structural fill below frost depth and below any existing manmade fill.

Footings located 5 footing widths or more inboard from the slope crest (set back from slope at least 5B, as shown in Exhibit 6) can be designed in accordance with the following design recommendations:

a) Footings bearing on the native sand and gravel or on controlled structural fill consisting of import material as recommended in Table 15.2 should be designed for a maximum allowable soil bearing pressure of 4,000 psf based on dead load plus full live load.

b) Footings bearing on controlled structural fill consisting of the sand and clay fill encountered onsite should be designed for a maximum allowable soil bearing pressure of 2,500 psf based on dead load plus full live load.
c) Within each building footings should bear either entirely on native sand and gravel or entirely on fill to the same depth below the footings over the entire building footprint. If footing depths vary within the building footprint and footings will bear on fill, the fill should extend at least to a depth equal to 3 footing widths.

Cesare assumes that the footings associated with the residences adjacent to the slope to Roaring Fork River will be strip footings that may be founded on native granular material between the existing crest and toe of the slope; however, geometric details were not provided at the time of this report. For this reason, Equation 1 provides the maximum allowable bearing pressure as a function of footing width and slope angle. The maximum allowable soil bearing pressure ($q_{allowable}$) may be given as:

$$q_{allowable}\ (psf) = (1{,}100(B))\ (1-\tan(\omega))^2 < 4{,}000 \quad \text{..... Equation 1}$$

where ω is the slope angle (up to 45 degrees maximum) and B is the footing width in feet. A diagram is shown in Exhibit 6.

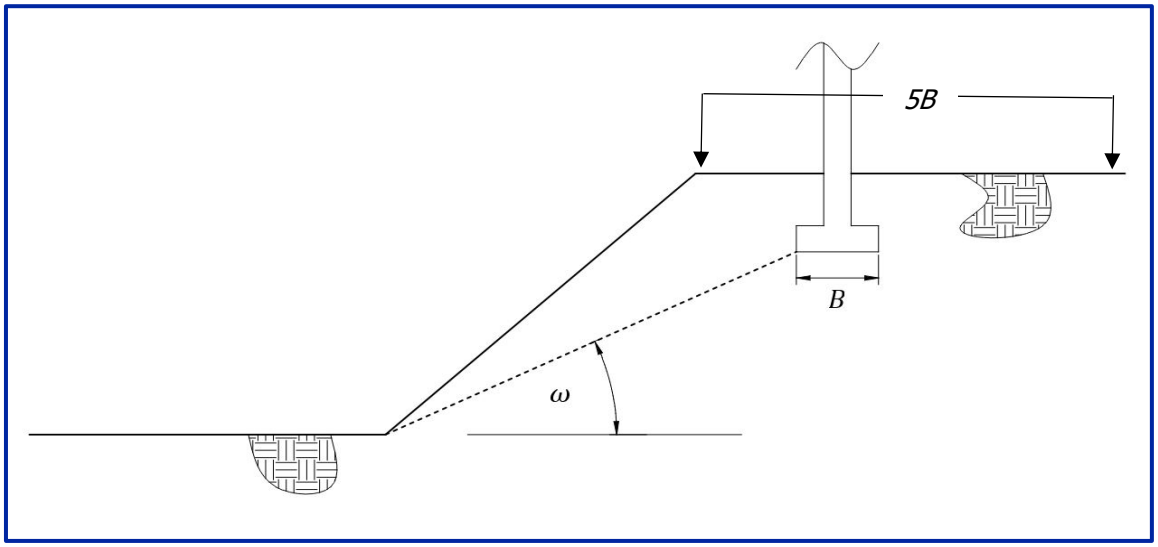


EXHIBIT 6. Diagram showing variables from Equation 1.

If the foundations associated with the recommendations of this report are to be constructed on or within sloping ground (i.e., between the toe and crest of the slope), Cesare should be contacted to perform overall global stability analyses. The recommendations contained in this report do not address or confirm overall global stability.

All footings should be designed in accordance with the following design recommendations:

a) A frost depth of 36 inches should be assumed for this area (2015 IRC, as adopted by Garfield County at the time of this study).
b) Continuous footings should have a minimum width of 18 inches and isolated pad type footings should have a minimum dimension of 24 inches. Using the soil pressures

recommended above, Cesare estimates the maximum settlement for the structure will be on the order of 1 inch, with differential settlement potentially on the order of about 50% to 75% of that amount. Footings should be proportioned as much as practicable to reduce differential settlement.

c) Steel reinforcement for continuous concrete foundation walls should be designed to span localized settlements over a distance of at least 10 feet.
d) All soft or loose soil beneath footing areas should be redensified in place, or removed and replaced with properly compacted structural fill, suitable flow fill, or concrete prior to placement of footing concrete. All footing excavations should be observed by a Cesare representative prior to concrete placement to evaluate whether bearing conditions are consistent with those assumed to develop the recommendations herein.

10.2 MICROPILES

As an alternative to spread footings, the proposed structures can be supported on grouted micropiles. The following design criteria should be observed where micropiles are to be installed:

a) Micropile design should conform with the *Micropile Design and Construction Reference Manual*, Publication FHWA NHI-05-039, dated December 2005, as published by the Federal Highway Administration.
b) Based on the four classifications of micropiles defined in FHWA NHI-05-039 (A, B, C, and D) and considering local practice, Cesare anticipates that a Type A micropile will be constructed; i.e., grout will be tremied to the bottom of the drilled shafts and no excess pressure above the fluid head of the grout will be applied to the grout.
c) The micropiles should extend at least 5 feet into the native sand and gravel, below the existing fill.
d) In areas where previously placed, undocumented fill is present, a 4 inch minimum void space shall be provided beneath the grade beams between the piers and below all pier caps to achieve effective concentration of loads on the micropiles.
e) Dead load plus full live load of the structure should be used for micropile sizing for downward axial loading. Micropile design and installation is typically performed by specialty contractors. The selection of appropriate grout-to-ground bond strengths for micropiles is typically the responsibility of the local design contractor because the values are dependent on installation methods and equipment, which varies from contractor to contractor. Typical grout-to-ground bond values for various ground conditions and installation methods can be found in Table 5-3 of the FHWA NHI-05-039 design manual. The micropiles may be initially designed for an estimated ultimate grout-to-ground bond strength of 25 psi in tension or compression below the preexisting fill, which was encountered to a depth from the existing ground surface of about 14 feet (Cesare) to 15.5 feet (Kumar). A factor of safety of 2.0 is recommended by FHWA. The estimated grout-to-ground bond strength is based upon gravity grout techniques. This estimate may be increased if pressure grouting techniques are used. Cesare should be contacted to provide estimates based on pressure grouting after a specific technique is selected.
f) Micropiles should be capable of resisting potential uplift forces generated from swelling soil. A design uplift force due to a swelling pressure of 8,000 psf applied to the surface over a 15.5 foot length of each micropile should be considered. Resistance to uplift can

be derived from deadload and from that portion of the pile that is embedded below the previously placed, undocumented fill. Cesare recommends the micropiles be spaced as far apart as practical to maximize the effective dead load on each micropile, however, the design parameters provided herein assume no dead load on the micropile.

g) To avoid downdrag loading due to the potential compression of the previously placed, undocumented fill encountered, the micropiles may be provided with bond breakers to a depth of 15.5 feet from the existing ground surface. If the use of bond breakers is not feasible, a downdrag force of 2 kips should be considered for each micropile.
h) Cesare estimates the elastic shortening of the micropile and deflection of the soil to be about 3/4 inches.
i) The micropile contractor should perform at least three compression verification load tests prior to installation of production micropiles to confirm the design load capacity of the micropiles.
j) During installation, proof tests should be performed on at least 5% of the production micropiles.
k) Micropiles should have a minimum center-to-center spacing of 30 inches or 3 pile diameters, whichever is greater, to avoid group efficiency reduction.
l) Micropiles should be reinforced their full length to resist tension forces. Size, grade, type, and positioning of reinforcement shall be determined by the structural engineer. Connection between the micropile and the superstructure shall be designed and detailed by the structural engineer.
m) Casing for the micropile holes may be necessary to permit placement of grout due to open matrix of the cobbles and boulders and caving soil.
n) Grouting must be performed using appropriate tremie techniques from the bottom of the drilled shaft up. The structural engineer shall determine whether grout tubing (if used) can remain in the shaft after grouting is completed.
o) Grout for each micropile shall be formed at the top of the micropile, as necessary, to provide a uniform diameter the full length of the micropile. Excess grout or overpour resulting in enlargement of the micropile shall be removed.
p) Grout placement shall occur the same day as drilling. Drilled shafts shall not be left open overnight.
q) It is recommended that grout may/be designed for at least moderate exposure to water soluble sulfates as defined by ACI 318R-34. ACI recommends that a modified Type II cement with a maximum water:cementitious ratio of 0.50 and a minimum 28 day compressive strength of 4,000 psi be used for moderate sulfate exposure levels. The use of pozzolan can further reduce the exposure.
r) Difficult drilling should be anticipated in the cobbles and boulders.
s) Micropile installation (i.e., from drilling through grouting) should be observed by a Cesare representative in an effort to confirm that actual subsurface conditions are consistent with those presented in this study. If conditions deviate significantly, recommendations may need to be modified.
t) LPILE by Ensoft, Inc. may be used to model micropiles under lateral load. Table 10.1 below presents recommended LPILE input parameters. The parameters provided by Table 10.1 apply to micropiles spaced no closer together than 3 micropile diameters for

loading perpendicular to the line of micropiles and 7 micropile diameters for an inline loading condition. For an inline loading condition and a micropile spacing less than 7 micropile diameters, a p-multiplier of 0.8 should be applied to the lead row of micropiles, a p-multiplier of 0.4 should be applied to the second row, and a p-multiplier of 0.3 should be applied to all rows trailing the second row.

TABLE 10.1. LPILE Analysis Parameters

Material Type	Unit Weight (pcf)	Drained Friction Angle (deg)	Soil Modulus Parameter (k) (pci)
Sand and clay fill above the water table	125	30	90
Sand, gravel, and rock above the water table	135	34	225

11. LATERAL EARTH PRESSURES

Lateral pressures on walls depend on the type of wall, hydrostatic pressure behind the wall, type of backfill material, and allowable wall movements. Cesare recommends drain systems be constructed behind walls to reduce the potential for hydrostatic pressures to develop. Where anticipated/permissible wall movements are greater than 0.5% of the wall height, lateral earth pressures can be estimated for an "active" condition. Where anticipated/permissible wall movement is less than approximately 0.5% of the wall height or wall movement is constrained, lateral earth pressures should be estimated for an "at rest" condition. Recommended lateral earth pressures for onsite materials are provided in Table 11.1.

These soil pressures are for horizontal backfill with no surcharge loading or hydrostatic pressures. If these criteria cannot be met, Cesare should be contacted for additional criteria.

TABLE 11.1. Lateral Earth Pressures and Coefficients of Sliding Resistance for Onsite Material

Backfill Material Type	Equivalent Unit Weight (pcf)			Coefficient of Sliding Resistance
	Active	At Rest	Passive	
Previously placed, undocumented fill (clay and sand)	40	60	245	0.4
Native soil (sand and gravel)	40	60	315	0.45

12. INTERIOR FLOORS

The existing manmade fill was likely placed at the same time the existing structure was built. Potential settlement of the fill has likely been realized to a significant degree, but it is unknown if there is potential for additional settlement after new construction is complete. To reduce the potential for movement of the slabs-on-grade, all existing fill should be removed. Acceptable existing fill material or a suitable, offsite material should be moisture conditioned and compacted in accordance with Section **15. STRUCTURAL FILL/BACKFILL SOIL.**

There is a risk for slab movement to occur after replacement of previously placed, undocumented fill. Movement can result in damage to the slab, as well as items supported on the slab or partially on the slab and partially on foundation walls. Damage can consist of cracking, vertical offsets, horizontal separation, tilting, or racking, etc. Potential slab movement usually cannot be tolerated in finished areas. Cesare recommends a floor that is separated from the existing fill and a structurally supported floor be constructed in finished areas. Slab in areas where potential slab movement can be tolerated in areas such as garages and unfinished basements, should be designed in accordance with Section **12.1 SLAB-ON-GRADE CONSTRUCTION DETAILS**.

12.1 SLAB-ON-GRADE CONSTRUCTION DETAILS

Slab-on-grade cracking can result from compression of the supporting soil and also from concrete curing stresses. If slab-on-grade floors are chosen, Cesare recommends that design and construction of all interior slab-on-grade floors incorporate the following considerations and precautions. These details will not reduce the amount of movement but are intended to reduce potential damage should some movement of the supporting subgrade take place. The ACI Committee 302, "Guide for Concrete Floor and Slab Construction (ACI 302.R-96)" should be consulted regarding methods/techniques to reduce the occurrence of concrete shrinkage cracks and other potential issues associated with concrete finishing and curing.

a) A vapor barrier is recommended beneath concrete slabs-on-grade that will support equipment sensitive to moisture or will be covered with wood, tile, carpet, linoleum, or other moisture sensitive or impervious coverings. Location of the vapor barrier should be in accordance with recommendations provided by ACI 302.2R-06, "Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials." Further discussion of vapor barriers is presented in Appendix C.
b) Plumbing beneath slabs should be eliminated, where practicable. Where such plumbing is unavoidable, it should be thoroughly pressure tested during construction for leaks prior to slab placement.
c) Backfill in utility trenches beneath slabs should be compacted as specified in Section **15. STRUCTURAL FILL/BACKFILL SOIL.**
d) Plumbing and utilities that pass through the slab should be isolated from the slabs
e) Separate slabs from foundation walls, interior columns, and utilities with a joint which allows/provides free vertical movement of the slab (i.e., floating slab construction).
f) Provide frequent control joints in the slab. Refer to ACI 302.1R-15.
g) Use of load-transfer devices at construction and contraction joints is recommended when positive load transfer is required (See ACI 302.1R).

12.2 STRUCTURALLY SUPPORTED FLOORS

A floor system that is supported by the foundation system and has an air or void space (typically a crawlspace) below the floor so that it is not in contact with the underlying soil/bedrock material is considered a structurally supported or structurally suspended floor. If potential movement of slab-on-grade floors and associated cracking, offsets, separation, or other distress are not considered tolerable by the owner, developer, architect, or structural engineer for any reason, a structurally supported floor should be provided.

There are design and construction issues associated with structurally supported floors that must be considered, such as ventilation and lateral loads. Where structurally supported floors are installed, the minimum required air space depends on the material used to construct the floor. Building codes require a clearance space of at least 18 inches above exposed soil if untreated wood floor components are used. Where other support material is used, a minimum clearance space of 8 inches is recommended. This minimum clearance space should be maintained between any point on the underside of the floor system (including beams and plumbing) and the surface of the exposed soil. The minimum clearance between the crawlspace ground surface and the structural floor members and suspended plumbing should be constructed to meet minimum code or recommended clearances.

Where structurally supported floors are used, utility connections, including water, gas, air duct, and exhaust stack connections to floor supported appliances should be capable of absorbing some deflection of the floor. Plumbing that passes through the floor should ideally be hung from the underside of structural floor and not lay on the bottom of the excavation. This configuration may not be achievable for some parts of the installation. It is prudent to maintain the minimum clearance space below all plumbing lines. If trenching below the lines is necessary, Cesare recommends sloping these trenches so they discharge to the foundation drain. Penetrations through the foundation wall should allow for at least 3 inches of clearance and/or be provided with flexible connections. The ground surface below the structurally supported floor should be sloped to the perimeter drain.

Control of humidity in crawlspaces is important for indoor air quality and performance of wood floor systems. The Moisture Management Task Force of Metro Denver has compiled discussion and recommendations regarding best practices for control of humidity in below grade, underfloor spaces. An engineering professional with expertise in the design and construction of crawlspace humidity control should be contacted.

13. EXTERIOR FLATWORK

Flatwork supported on foundation wall backfill may settle and crack if the backfill is not properly moisture conditioned and compacted.

Exterior flatwork should be isolated from the structures. Exterior flatwork should be expected to move, although measures can be incorporated into construction to limit the movement or effects of the movement. Cesare recommends flatwork not be doweled into structure foundations, but rather supported on a haunch to limit settlement. The haunch should extend the full length of the slab.

Exterior flatwork, such as driveways and sidewalks, are normally constructed as slabs-on-grade. Porches and patios are increasingly constructed as structurally supported slabs, which in Cesare's opinion, is the most positive means of keeping slabs from moving and adversely affecting the operation of doors or means of egress. Cesare recommends that landings and slabs at egress doors, as well as porches and patios, be constructed as structurally supported elements if potential movement cannot be tolerated.

Simple decks that are not integral to the structure and can tolerate foundation movement can be constructed with less substantial foundations. A short pier or footing bottomed below frost depth can

be used if movement is acceptable and if acceptable by local building requirements. Use of deeper foundation elements can reduce potential movement. Footings or short piers should not be underlain by wall backfill or the existing onsite fill, due to risk of settlement. Inner edges of decks may be constructed on haunches and detailed such that movement of the deck foundations will not cause distress to the structure.

13.1 OVERHANGING ROOFS

Porches, patios, or decks with overhanging roofs that are integral to the structure, such that foundation movement cannot be tolerated, should be constructed with the same foundation type as the structure.

14. EXCAVATIONS

Conventional earthmoving equipment should be adequate to excavate the onsite fill soil. Larger equipment may be needed to excavate cobbles and boulders in the native soil. Excavations should be properly sloped and/or braced, and local and federal safety codes observed. Slopes and other areas void of vegetation should be protected against erosion. If temporary shoring is required, a contractor specializing in design and construction of shoring should be contacted.

It is the contractor's responsibility to provide safe working conditions and comply with the regulations in OSHA Standards-Excavations, 29 CFR Part 1926. The following guidelines are provided for planning purposes. Sloping and shoring requirements must be evaluated at the time of construction by the contractor's competent person as defined by OSHA. OSHA classifications for various material types and the steepest allowable slope configuration corresponding to those classifications are shown in Table 14.1.

TABLE 14.1. Allowable Slope Configuration for Onsite Material

Material Type	OSHA Classification	Steepest Allowable Slope Configuration*
Fill and native sand and gravel	Type C	1-1/2:1

* Units horizontal to units vertical. The values shown apply to excavation less than 20 feet in height. Conditions can change and evaluation is the contractor's responsibility.

The classifications and slope configurations in Table 14.1 assume that excavations are above the groundwater table, there is no standing water in the excavations, and there is no seepage from the slope into the excavations, unless otherwise specified. The above classifications and slope configurations assume that the material in the excavations is not fractured, adversely bedded, jointed, nor left open to desiccate, crack, or slough, and are protected from surface runoff. There are other considerations regarding allowable slope configurations that the contractor is responsible for, including proximity of equipment, stockpiles, and other surcharge loads to the excavation. The contractor's competent person is responsible for all decisions regarding slope configuration and safety conditions for excavations.

Excavations should not undermine existing foundation systems of structures or infrastructure unless they are adequately protected. At a minimum, new excavations should not intersect a line drawn on a 45 degree angle down and away from the bottom edge of the existing foundation systems or bottom edge of infrastructure. If this condition cannot be met, shoring or staged excavations may be

required. If shoring is required, a condition survey of the adjacent structures is recommended before construction starts and upon completion of construction. In Cesare's experience, condition surveys include, but may not be limited to photographs of any distress to adjacent structures.

Permanent slopes should be no steeper than 2:1 and revegetated or otherwise protected from erosion.

15. STRUCTURAL FILL/BACKFILL SOIL

Where fill/backfill soil is necessary, the suitable onsite inorganic soil, including the previously placed, undocumented fill may be used. At this site, unsuitable material is defined as topsoil, organics, trash, ash, frozen material, hard lumps and clods, and particles larger than 6 inches. Existing onsite fill material can be reused for structural fill/backfill, provided it is free of unsuitable material. If unsuitable material is encountered in the previously placed, undocumented fill, it must be removed before the previously placed, undocumented fill can be reused as fill/backfill. Recommendations for fill/backfill placement are:

a) Clods and lumps shall be broken down to a maximum size of 6 inches. Pieces larger than 6 inches shall be removed from the fill/backfill.
b) Fill/backfill material should be placed in loose lifts and compacted in accordance with Table 15.1.
c) Maximum loose lift thickness shall be 8 inches, depending on the type of equipment used to apply compactive effort and shall be reduced if the specified compaction cannot be obtained with the equipment used.
d) Fill/backfill should not be placed if material is frozen or if the placement surface is frozen.
e) Fill/backfill material should be placed and spread in horizontal lifts of uniform thickness in a manner that avoids segregation.
f) Placement surface should be kept free of standing water, debris, and unsuitable material during placement and compaction of fill/backfill material.
g) Fill/backfill maximum allowable particle size is 6 inches. Do not incorporate oversize material in the fill/backfill that is incapable of being broken down by the equipment and methods being employed to process and compact the fill/backfill. Process and compact material in the lift, as necessary, to produce the specified fill/backfill characteristics. If oversize particles remain in the lift after processing and compacting, remove oversize material to produce a fill/backfill within specified requirements.
h) Overlot fill placement and compaction should be observed and tested on a full-time basis by a representative of Cesare. At a minimum, utility trench backfill and pavement subgrade should be tested in accordance with jurisdictional requirements.

TABLE 15.1. Compaction Specifications

Fill Location	Material Type (General)	AASHTO Classification	Material Thickness (ft)	Moisture Content (%)	Relative Compaction (%)	Compaction Standard
Structural fill (includes all overlot grading)	Granular material that is clean to silty	A-1, A-2-4, A-2-5, A-3, A-4, A-5	≤15	±2% of OMC	≥98%*	Standard Proctor (ASTM D698)
	Fine grained material and granular material with plastic fines	A-2-6, A-2-7 A-6, A-7	≤15	0% to +3% of OMC	≥95%*	Standard Proctor (ASTM D698)
Top 24 inches of subgrade below pavement	All	All	2	+2% of OMC	>95%	Standard Proctor (ASTM D698)
ABC	Granular material	A-1 (assumed)	≤1	±2% of OMC	≥95%	Modified Proctor (ASTM D1557)

* If fill thickness greater than 15 feet is planned, additional requirements may apply.

Due to the quantity of the gravel and cobbles in the onsite material, placement may need to be controlled via a method specification (i.e., through observation). Where placement is controlled via a method specification, material shall be placed in loose lifts not exceeding 12 inches thick. Each lift shall be compacted using vibratory methods. The vibratory equipment must be capable of exerting a minimum of 15,000 pounds of centrifugal force. The gravel particles shall be in a surface saturated condition. Each lift shall be rolled with a minimum of four passes or until no measurable compaction of the layer is observed, whichever is greater.

15.1 IMPORT FILL

Material imported for structural fill should be tested and approved for use onsite by the project geotechnical engineer prior to hauling to the site. Proctor and classification tests should be conducted to determine if the fill meets required specifications. Fill material should be well graded meeting the specifications in Table 15.2.

TABLE 15.2. Import Fill Specifications

Soil Parameter	Specification
Maximum particle size	3 inch
Percent finer than No. 200 sieve	12% maximum
Plasticity index	6% maximum

16. SUBSURFACE DRAINAGE

Groundwater was observed 46.4 feet deep in Boring B-4 during drilling, which is more than 35 feet below the assumed lower floor levels. This indicates that subdrains will not be required to accomplish below grade excavation and construction, however, development of a site often adversely affects groundwater conditions, sometimes raising the water table level. In addition, groundwater or surface water tends to drain into areas where excavations are made, even after backfilling. Fine grained soil

and bedrock generally have relatively low permeability and may trap water that drains into these areas, resulting in localized perched groundwater problems around the structure.

The 2015 IBC requires that basement and/or crawlspace areas be provided with an exterior perimeter subsurface drainage system. The system shall be sloped to drain to a suitable gravity outlet or a sump. A pump shall be installed if a sump is used. The drainage system shall consist of perforated, machine slotted, or equivalent rigid plastic pipe placed around the perimeter of the basement or crawlspace foundation. Pipes with a smooth interior are recommended. Pipes that are corrugated on the interior can become obstructed more easily than pipes with smooth interiors and may be more difficult to clean. A recommended drain schematic is shown in Figure 3.

17. SURFACE DRAINAGE

Good drainage and surface water management is important. Performance of site improvements, such as foundations, floors, hardscape, and pavement are often adversely affected by failing to establish and/or maintain good site drainage. Grades must be adjusted to provide positive drainage away from the structure, pavement, and other site improvements during construction and maintained throughout the life of the proposed facility. The following drainage precautions are recommended:

a) Ground surface around the perimeter foundation walls should be sloped to drain away from the structure in all directions. Current building codes require a minimum slope of 6 inches in the first 10 feet (5%) of the structure. At the completion of construction, Cesare recommends a continuous slope away from foundations of 12 inches in the first 10 feet (10%), where site constraints permit. Cesare recommends that concrete and pavement adjacent to structures slope at a rate of at least 2% away from the structure or as otherwise required by ADA criteria. Maximum grades practical should be used for paving and flatwork to prevent areas where water can pond.
b) Joints that occur at locations where paving or flatwork abuts the structure should be properly sealed with flexible sealants and maintained.
c) Ground surface should be sloped so water will not pond between or adjacent to structures and other site improvements. Curbs, sidewalks, paths, plants, or other improvements should not block, impede, or otherwise disrupt surface runoff. Use of chases and weep holes to promote drainage is encouraged. Landscape edging should be perforated or otherwise constructed in a manner to prevent ponding of surface water, especially in the vicinity of the backfill soil.
d) Drainage swales should be located as far away from the foundation as practicable.
e) If site constraints do not allow for the recommended slopes, the project civil engineer shall provide a method for drainage that is equivalent to the recommendations herein. Water should not be allowed to pond adjacent to or near foundations, flatwork, or other improvements.
f) Roof downspouts and other water collection systems should discharge onto pavements or extend away from the structure well beyond the limits of the backfill zone using downspout extensions, appropriately sized splash blocks, or other means. Buried downspout extensions are discouraged as they can be difficult to monitor and maintain.
g) Irrigation directly adjacent to the structure is discouraged and should be minimized. Sprinkler lines, zone control boxes, and sprinkler drains shall be located outside the limits

of the foundation backfill. Sprinkler systems should be placed so that the spray from the heads, under full pressure, does not fall within 5 feet of the foundation walls.

h) Plants, vegetation, and trees that require moderate to high water usage are discouraged and should not be located within 5 feet of foundation walls.

i) The project civil engineer shall perform measurements to document that positive drainage, as described in this section or as otherwise designed by the project civil engineer is achieved. Maintenance of surface drainage is imperative subsequent to construction and is the responsibility of the owner and/or tenant.

18. PAVEMENT RECOMMENDATIONS

18.1 DESIGN CRITERIA

The pavement recommendations contained in this report are based the 2012 CDOT Pavement Design Manual and the design parameters indicated in Table 18.1. There is a risk settlement and pavement distress if the previously placed, undocumented fill is not removed and recompacted or replaced beneath the pavement.

TABLE 18.1. Pavement Design Parameters

Design Parameter	Value
Design period (years)	20
Initial serviceability (ρ_s)	4.5
Terminal serviceability (ρ_t)	2.0
Serviceability loss (ρ_s-ρ_t)	2.5
Reliability, Z_r (%)	80
Overall standard deviation, S_o (PCC/APM)	0.34/0.44
Total 18 kip ESAL's • Automobile parking • Drive lanes and entry drives	 73,000 200,000
Subgrade strength • R-value (assumed based on soil classification and blow counts) • Resilient modulus, Mr (psi) (by correlation to R-value per CDOT) • Modulus of subgrade reaction, k (psi/in) (by correlation to R-value)	 7 3,230 70
Strength coefficients for: a. APM b. ABC	 0.44 0.12
Concrete • Modulus of elasticity, E_c (psi) • Mean modulus of rupture (psi)	 3,400,000 650

Deviation from the parameters shown in Table 18.1 will require a revision to the recommended pavement section thicknesses. If the subgrade becomes saturated, the pavement is not properly maintained, and/or the actual traffic is greater than the values used in the design, the design service life will be reduced.

18.2 SPECIAL CONCERNS

18.2.1 Swell Potential

The onsite clay fill soil that was tested exhibited consolidation of up to 2.5% and swell ranging from

0.8% to 3.1% upon wetting at a surcharge load of 500 psf. Swell/consolidation curves for this material are included in Appendix B. Cesare recommends mitigation of expansive soil by overexcavating, moisture conditioning and recompacting the soil to a depth of at least 2 feet prior to placement of pavement.

18.2.2 Frost Heave

The sand and clay fill soil encountered onsite has low to high susceptibility to frost heave. The presence of water is required for frost heave to occur. Groundwater was not encountered during this study to depths of 46.4 feet below existing grade. In Cesare's opinion, infiltration of surface water is the most likely source for moisture in the pavement section. Maintaining surface drainage and regularly sealing cracks will keep the potential for distress due to frost heave low and will help increase pavement longevity.

18.3 PAVEMENT THICKNESSES

Most of the shallow subgrade soil consisted of sand and clay fill. According to FHWA-RD-97-083 *Design Pamphlet for the Determination of Design Subgrade in Support of the 1993 AASHTO Guide for the Design of Pavement Structures*, dated September 1997, this material is considered poor to fair for pavement subgrade. Recommended pavement sections are shown on Table 18.2.

TABLE 18.2. Recommended Pavement Section Thicknesses

Traffic Area	Alternate	APM (in)	ABC (in)	PCC (in)	Prepared Subgrade (in)	Total Thickness (in)
Light duty (car and pickup parking only)	APM	6.5	--	--	24.0	30.5
	APM+ABC	4.5	8.0	--		36.5
	PCC	--	--	6.0		30.0
Standard duty (drive lanes, fire lanes, and truck access or delivery routes)	APM	7.5	--	--	24.0	31.5
	APM+ABC	4.5	12.0	--		40.5
	PCC	--	--	6.0		30.0
Trash dumpster approaches and other areas subject to concentrated and repetitive loading conditions	PCC	--	--	8.0	24.0	32.0

18.4 TRASH DUMPSTER APPROACHES

Approaches to trash dumpsters typically experience a greater frequency of distress due to higher loading conditions. To reduce the risk of increased maintenance, Cesare recommends paving these areas with concrete. CDOT Class P portland cement concrete is recommended. Cesare recommends control joints spaced at a maximum spacing of 12 feet, and at least one control joint transverse and longitudinal to each approach. The approach to the trash dumpster should be large enough to include the collection truck's runup braking distance and its front wheels should fully bear on the slab when emptying the dumpster.

18.5 SUBGRADE PREPARATION AND PAVEMENT CONSTRUCTION

18.5.1 Pavement Subgrade

At least the top 24 inches of the subgrade should be uniformly moisture conditioned in accordance

with Table 15.1. Blading, tilling, windrowing, watering, or drying shall be performed, as needed, to achieve the moisture/density specification to the required depth. It is Cesare's experience that scarifying to a depth of 12 inches in-place and attempting to compact 12 inches of scarified material in one lift is usually not successful in achieving a uniformly moisture conditioned and adequately compacted subgrade.

The entire subgrade should be proof rolled a maximum of 24 hours prior to paving with a loaded 988 front end loader or similar heavy rubber tired vehicle (GVW of 50,000 pounds with 18 kip per axle at tire pressures of 90 psi) to detect any soft or loose areas. All areas exhibiting unstable subgrade conditions, such as rutting, pumping, or excessive movement should be overexcavated to a firm soil layer or to a maximum depth of 2 feet, whichever is shallowest, and replaced with suitable compacted fill. If unstable subgrade conditions persist, Cesare should be contacted for consultation. Soft spots should be stabilized prior to placement of pavement sections. Positive drainage off paved surfaces should be provided.

Very moist to wet subgrade conditions should be anticipated in areas where existing pavement, especially cracked and distress pavement, will be removed. These areas typically require additional subgrade preparation in the form of drying and/or overexcavating to provide a subgrade that will support paving operations. If unstable subgrade conditions are encountered, Cesare should be contacted for recommended mitigation procedures.

18.5.2 Subbase and Aggregate Base Course

Subbase and ABC should meet the following requirements:

- ABC material should be approved prior to construction and should subsequently be tested as the material is being placed.
- ABC should have a minimum R-value of 78.
- ABC material should be compacted to a minimum of 95% of the MDD as determined by the modified Proctor test, ASTM D1557.

18.5.3 Pavement

Pavement construction shall be in accordance with the following recommendations and criteria:

- APM shall meet the requirements in the CDOT *Standard Specifications for Road and Bridge Construction*, Section 400, dated 2021/Garfield County Specifications.
- Asphalt binder grade shall be PG 58-28, N_{Design} of 50 or 75.
- Approved APM material should be placed in the lifts indicated on Table 18.3.

TABLE 18.3. Pavement Section Lift Thickness Recommendations

Grade	Lift Thickness (in)
S	2 to 4-1/4
`SX	1-1/2 to 2-1/2

Per MGPEC 2019.

- APM shall be compacted to 92% to 96% of the maximum theoretical density within 0.3% of the optimum asphalt content as determined by ASTM D2041.

- APM placement specifications should follow CDOT specifications and industry standards as recommended by the NAPA and the AI.
- Portland cement concrete should be obtained from an approved mixture design with minimum properties meeting a CDOT Class P mixture.
- Portland cement concrete placement specifications should follow industry standards as recommended by the ACI and the PCA.
- Positive drainage off paved surfaces should be provided.
- Construction material should be approved prior to use and should subsequently be tested as this material is being placed.

19. SULFATE EXPOSURE

Water soluble sulfate contents of 0.00% to 0.05% were measured on samples of the onsite soil. Results are summarized in Appendix B. The PCA publication, *Design and Control of Concrete Mixtures* 2002 and the ACI publication, *Building Code Requirements for Structural Concrete and Commentary* consider this range nil to negligible for water soluble sulfate exposure. ACI recommendations for all concrete which will be in contact with or within 6 inches of the soil are shown in Table 19.1.

TABLE 19.1 Information from ACI 318-08 - Table 4.3.1

Water Soluble Sulfates (%)	Exposure Class	Maximum (w/cm)*	Minimum $f'c$, (psi)	Cementitious materials† (types)			Calcium Chloride Admixture
				ASTM C150	ASTM C595	ASTM C1157	
<0.10	S0	N/A	2,500	No type restriction	No type restriction	No type restriction	No restriction

*For lightweight concrete, see ACI 318-08 4.1.2.

†Alternative combinations of cementitious materials listed in Table 4.3.1 shall be permitted when tested for sulfate resistance and meeting the criteria in ACI 318-08 4.5.1.

Refer to ACI 318-08 R4.3.1 for further interpretation of this table.

20. GEOTECHNICAL RISK

The concept of risk is an important aspect of any geotechnical study. The primary reason for this is that the analytical methods used by geotechnical engineers are generally empirical and must be tempered by engineering judgment and experience, therefore, the solutions or recommendations presented in any geotechnical study should not be considered risk free, and more importantly, are not a guarantee that the interaction between the soil and the proposed construction will perform as predicted, desired, or intended. The engineering recommendations presented in the preceding sections constitute Cesare's best estimate of those measures that are necessary to help the structures and pavement perform in a satisfactory manner based on the information generated during this study, training, and experience in working with these conditions.

21. LIMITATIONS

This document has been prepared as an instrument of service for the exclusive use of North Mountain Partners for the specific application to the project as discussed herein and has been prepared in accordance with geotechnical engineering practices generally accepted in the state of Colorado at the date of its preparation. No warranties, either expressed or implied, are intended or made. This

document should not be assumed to contain information for other parties or other purposes.

The findings of this study are valid as of the date its preparation. Changes in the conditions of a property can occur with the passage of time, whether due to natural processes or the works of people on this or adjacent properties. Standards of practice evolve in engineering and changes in applicable or appropriate standards may occur, whether a result from legislation or the broadening of knowledge. Accordingly, the findings of this study may be invalidated wholly or partially by changes outside of Cesare's control, therefore, this study is subject to review and should not be relied upon without such review after a period of 3 years.

In the event that changes, including but not limited to, the nature, type, design, size, elevation, or location of the project or project elements as outlined in this report are made, the conclusions and recommendations contained in this report shall not be considered valid unless Cesare reviews the changes and either confirms or modifies the conclusions of this report in writing.

Cesare should be retained to review final plans and specifications that are developed for proposed construction to judge whether the recommendations presented in this report and any addenda have been appropriately interpreted and incorporated in the project plans and specifications as intended.

The exploration locations for this study were selected to obtain a reasonably accurate depiction of underground conditions for design purposes and these locations are often modified based on accessibility and the presence of underground or overhead utility conflicts. Variations from the soil conditions encountered are possible. These variations may necessitate modifications to Cesare's design recommendations, therefore, Cesare should be retained to observe subsurface conditions, once exposed, to evaluate whether they are consistent with the conditions encountered during Cesare's exploration and that the recommendations of this study remain valid. If parties other than Cesare perform these observations and judgements, they must accept responsibility to judge whether the recommendations in this report remain appropriate.

Cesare's scope of services for this report did not include either specifically, or by implication, any environmental assessment of the site or identification of contaminated or hazardous material or conditions. Additionally, none of the services performed in connection with this study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not, of itself, be enough to prevent mold from growing in or on the structures involved.

At a minimum, Cesare should be retained during construction to observe and/or test:

- completed excavations.
- placement and compaction of fill.
- micropile drilling operations.
- proposed import or onsite fill material.
- placement and compaction of pavement subgrade, subbase, base course and asphalt.

Cesare offers many other construction observations, materials engineering, and testing services and can be contacted to discuss further.

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PROJECT NO:	21.5059		
PROJECT NAME:	2525 South Grand Avenue		
DRAWN BY:	KNZ	CHECKED BY:	YES
DWG DATE:	10.25.21	REV. DATE:	--

FIGURE 1
Vicinity Map

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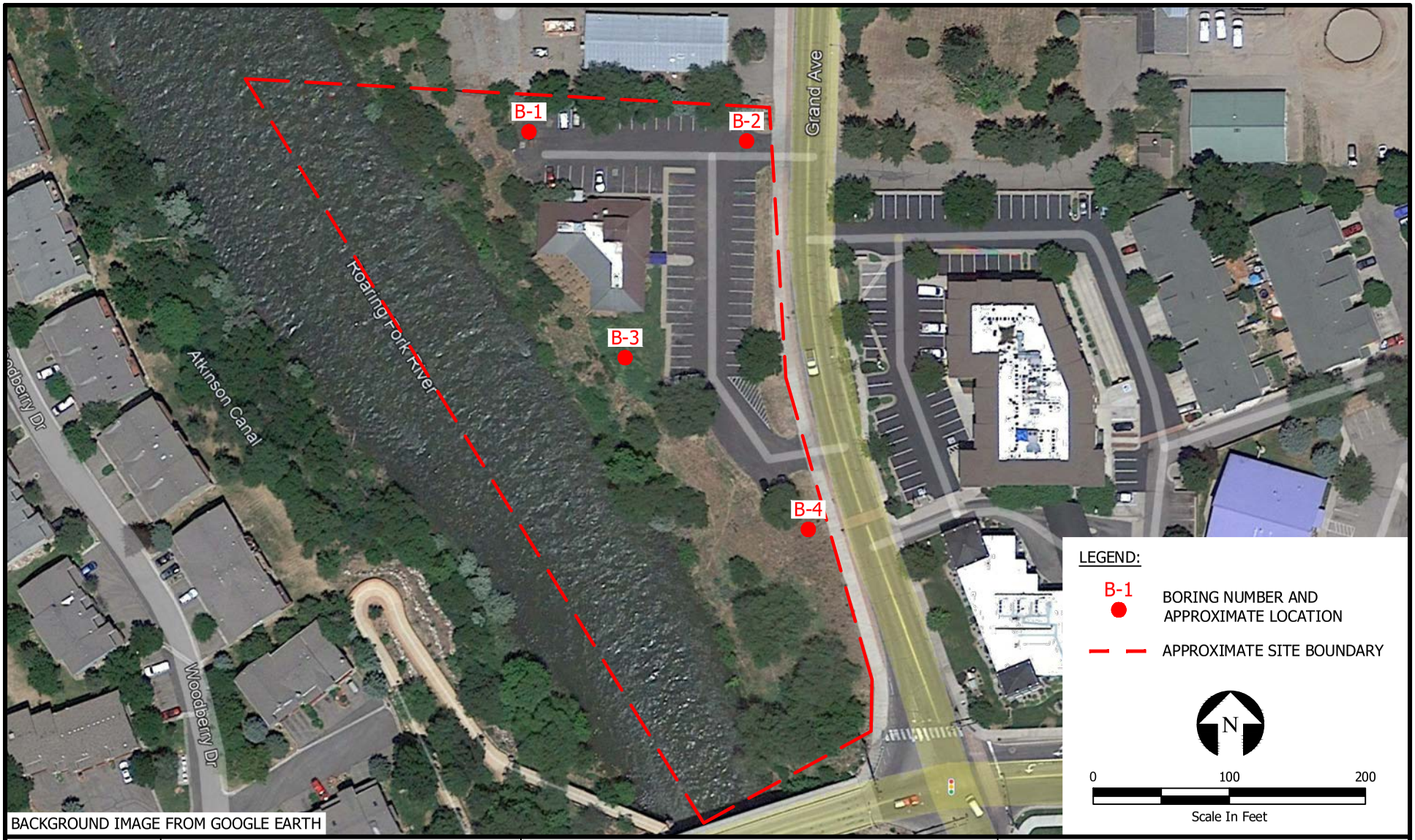

PROJECT NO:	21.5059		
PROJECT NAME:	2525 South Grand Avenue		
DRAWN BY:	KNZ	CHECKED BY:	YES
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FIGURE 2A
Site Plan and Boring Locations

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LEGEND:

B-1 BORING NUMBER AND APPROXIMATE LOCATION

N

0 60' 120'

APPROXIMATE SCALE: 1 INCH = 60 FEET

BACKGROUND IMAGE FROM GOOGLE EARTH

PROJECT NO:	21.5059		
PROJECT NAME:	2525 South Grand Avenue		
DRAWN BY:	JBE	CHECKED BY:	YES
DWG DATE:	11.19.21	REV. DATE:	--

FIGURE 2B
Proposed Development and Boring Locations

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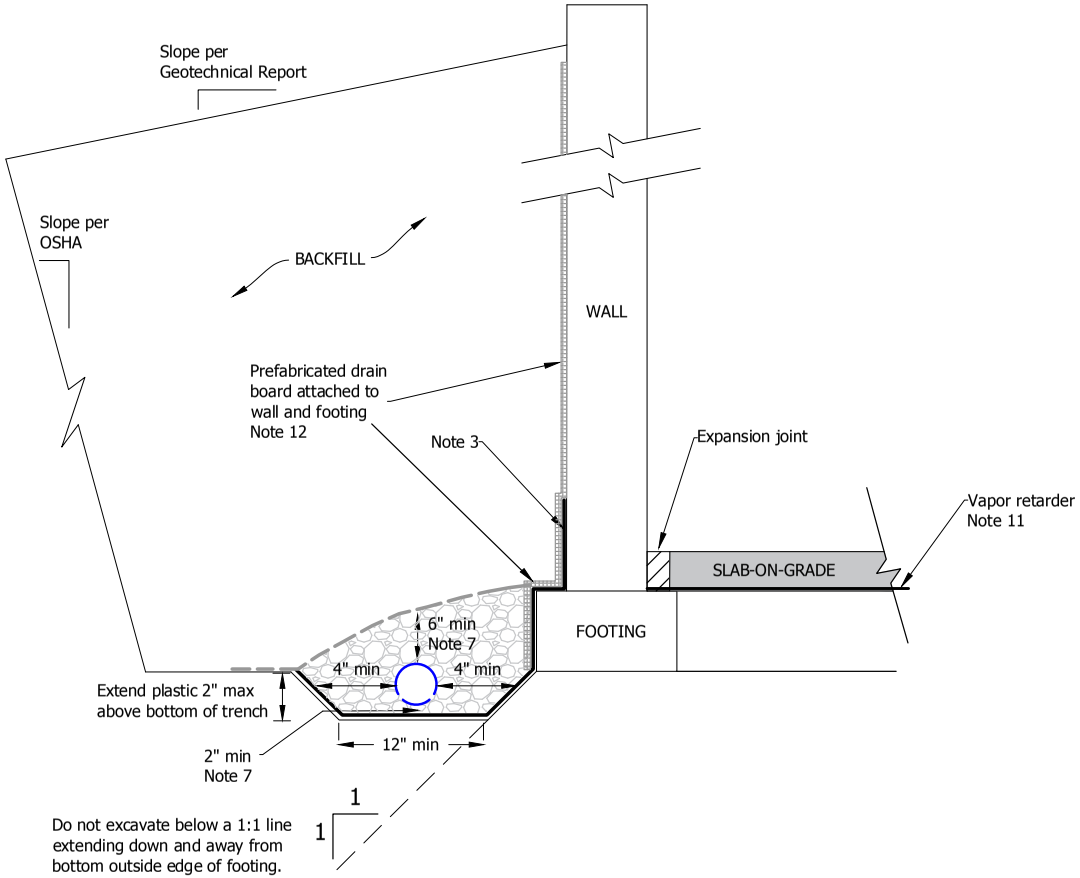

TYPICAL EXTERIOR PERIMETER DRAIN FOOTINGS/SLAB-ON-GRADE FLOOR

NOTES:

1. At the high point of the drain system the bottom of the pipe shall be a minimum of 2 inches below the bottom of the footing.
2. Bottom of trench and drainpipe must slope a minimum of 1/8 inch per foot (i.e., 1%) to a positive gravity outlet (i.e. daylight) and/or to a sump where water can be removed by pumping.
3. Plastic sheeting shall have a minimum thickness of 10 mils, extend beneath the drain media across the bottom of the trench excavation and extend a maximum of 2 inches above the trench bottom. The plastic sheeting shall be continuous, attached to the foundation wall, and shall extend up the foundation wall above the top of the footing a minimum of 12 inches. Where plastic sheeting must be lapped, upstream sections should be placed over downstream sections.
4. Drainpipe shall consist of perforated, machine slotted, or equivalent rigid plastic pipe (minimum Schedule 20), with a minimum inside diameter of 4 inches.
5. Perforated pipe should have a fabric sock around the pipe or alternatively, the pipe perforations or drainage media sized so that at least 85% of the drainage media is larger than the perforations in the pipe.
6. Perforated pipe shall be positioned so that perforations are facing down in about the 4 and 8 o'clock positions.
7. Drainpipe shall be surrounded by an envelope of drainage media. Drainage media shall be at least 2 inches thick under the pipe, 4 inches thick on both sides of the pipe, and shall extend at least 6 inches above the top of the pipe and at least 4 inches above the bottom of the footing.
8. Drainage media shall consist of durable, washed, free draining, crushed natural stone aggregate. Recycled concrete or recycled asphalt materials are not acceptable.
9. Drainage media shall have a maximum particle size of 3/4 inches, 30% to 100% passing the 3/8 inch sieve, and a maximum of 35% passing the #4 sieve size. Alternatively, drainage media meeting CDOT 703.09 Class B Filter requirements may be used.
10. The drainage media shall be covered with a nonwoven geotextile filter fabric consisting of Mirafi 140N or 180N or equivalent. The fabric shall extend beyond the drainage media so that it is lapped against the foundation and the side or bottom of the trench at least 8 inches. Alternatively, the drainage media should be completely wrapped by nonwoven geotextile filter fabric with a minimum overlap of at least 8 inches on top of the drainage media.
11. A vapor retarder should be placed per the recommendation of the geotechnical report. Overlap joints at least 3 feet and seal.
12. The top edge of prefabricated drain board shall be at least 1 foot below final surface grade and shall extend to at least the bottom of the footing. The drain board shall consist of Mirafi 6000 XL (one sided drainage) or equivalent and shall be attached to the foundation wall in accordance with the manufacturer's recommendations.

LEGEND

- Free draining granular material (i.e., Drainage media)
- Perforated drainpipe
- Nonwoven geotextile filter fabric
- Plastic sheeting

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FIGURE 3
Typical Exterior Perimeter Drain

PROJECT NO:	21.5059		
PROJECT NAME:	2525 South Grand Avenue	CHECKED BY:	CAC
DRAWN BY:	YES	REV. DATE:	xx.xx.xx
DWG DATE:	11.23.21		

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APPENDIX A

Field Exploration

FIELD EXPLORATION

Samples of the subsoil were obtained at this site using a modified California sampler which was driven into the soil by dropping a 140 pound hammer through a free fall of 30 inches. The modified California sampler is a 2-1/2 inch outside diameter by 2 inch inside diameter device lined with brass tubes. The procedure to drive the modified California sampler into the soil and to record the number of blows required to drive the sampler into the soil is known as a penetration test. The number of blows required for the sampler to penetrate 12 inches gives an indication of the relative stiffness of cohesive soil, relative density of non-cohesive soil, and relative hardness of sedimentary bedrock material encountered. Bulk samples were collected from cuttings generated during drilling. Locations of sampling and penetration test results are presented on the boring logs contained in this appendix.

PROJECT NAME	2525 South Grand Avenue		PROJECT NUMBER	21.5059	**B-1**	
BORING LOCATION	Northwest Corner of Parking Lot		BORING ELEVATION	5801ft.		
DRILLING COMPANY/RIG	Dakota Drilling/CME 75		CESARE REP.	L. Savage-Foote		
DRILLING METHOD	5in. Diameter ODEX Automatic		DATE STARTED	10/19/2021		
HAMMER SYSTEM	Hammer		DATE COMPLETED	10/19/2021	Page 1 of 1	

DEPTH (ft)	NATURAL DRY DENSITY (pcf)	NATURAL MOISTURE CONTENT (%)	FINES (%)	LL-PL-PI	SWELL-CONSOL VOL CHANGE/SURCHARGE PRESSURE (psf)	BLOW COUNT	SAMPLE DRIVE	SAMPLE BULK	GRAPHIC LOG	ELEVATION (ft)	MATERIAL DESCRIPTION	DEPTH (ft)	Water Level and Depth of Cave (ft)
										5800.75	Asphalt pavement (3 inches).	0.25	
	97.5	11.3			-2.5/500	27/12					FILL; SAND, clayey to CLAY, lean, sandy, with gravel, medium dense to very dense (sand), very stiff to hard (clay), moist, dark red-brown to brown, fine to medium grained sand, with occasional cobbles typically around 6 inches in dimension, calcareous with a strong reaction to hydrochloric acid, (SC) to(CL), A-2-6 to A-4 to A-6.		
						50/4							
5.0										5795	Amount of gravel and cobbles increased around 6 feet.	6	
											SAND and GRAVEL, well-graded, with silt, very dense, slightly moist, greenish gray to red-brown to brown to dark brown, closely spaced cobbles and boulders typically around 13 inches but up to about 30 inches in dimension, nested cobbles and boulders in a gravelly to sandy matrix with silt, (SW) to (SW-SM) to (GW-GM), A-1-a to A-1-b.		
10.0													
						50/1							
15.0													
20.0													
						50/2							
25.0			3	NV-NP-NP									1
30.0													
						50/0							
35.0										5762		39	

Boring terminated at 39 feet

LEGEND

- WATER LEVEL AT TIME OF DRILLING
- #: WATER LEVEL # DAYS AFTER DRILLING
- #: DEPTH OF CAVE # DAYS AFTER DRILLING
- DEPTH OF REFUSAL
- BULK SAMPLE
- MODIFIED CALIFORNIA SAMPLER

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PROJECT NAME	2525 South Grand Avenue	PROJECT NUMBER	21.5059	**B-2**	
BORING LOCATION	Northeast Corner of Parking Lot	BORING ELEVATION	5804ft.		
DRILLING COMPANY/RIG	Dakota Drilling/CME 75	CESARE REP.	L. Savage-Foote		
DRILLING METHOD	5in. Diameter ODEX Automatic	DATE STARTED	10/19/2021	Page 1 of 2	
HAMMER SYSTEM	Hammer	DATE COMPLETED	10/19/2021		

DEPTH (ft)	NATURAL DRY DENSITY (pcf)	NATURAL MOISTURE CONTENT (%)	FINES (%)	LL-PL-PI	SWELL-CONSOL VOL CHANGE/SURCHARGE PRESSURE (psf)	BLOW COUNT	SAMPLE DRIVE	SAMPLE BULK	GRAPHIC LOG	ELEVATION (ft)	MATERIAL DESCRIPTION	DEPTH (ft)	Water Level and Depth of Cave (ft)
										5803.83	Asphalt pavement (2 inches).	0.17	
	120.7	12.6			3.1/500	30/12					FILL; SAND, clayey, with gravel to CLAY, lean, sandy, with occasional gravel, medium dense (sand), very stiff (clay), slightly to very moist, dark red-brown to brown, fine to medium grained sand, occasional cobbles typically about 5 inches in dimension, slightly calcareous with a weak reaction to hydrochloric acid, (SC) to (CL), A-2-6 to A-4 to A-6.		
						50/0				5799.5		4.5	
5.0											Amount of gravel and cobbles increased around 4.5 feet.		
											SAND to GRAVEL, well-graded, occasionally poorly graded, with silt and sand, very dense, slightly moist, greenish gray to red-brown to brown to dark brown, closely spaced cobbles to boulders typically about 13 inches in dimension, nested cobbles and boulders in a gravelly to sandy matrix with silt, (SW) to (SP) to (SW-SM) to (GW) to (GP) to (GW-GM), A-1-a to A-1-b.		
						50/1							
10.0											2.5 foot boulder encountered at about 11 feet.		
15.0			4	NV-NP-NP									
20.0													1
25.0													
											Poorly-graded sand lens from about 28.5 to 29 feet.		
						50/0							
30.0													
35.0										5765		39	
											Boring terminated at 39 feet		

LEGEND

- WATER LEVEL AT TIME OF DRILLING
- #: WATER LEVEL # DAYS AFTER DRILLING
- #: DEPTH OF CAVE # DAYS AFTER DRILLING
- DEPTH OF REFUSAL
- BULK SAMPLE
- MODIFIED CALIFORNIA SAMPLER

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PROJECT NAME	2525 South Grand Avenue	PROJECT NUMBER	21.5059
BORING LOCATION	Green Space Southeast of the Structure	BORING ELEVATION	5800ft.
DRILLING COMPANY/RIG	Dakota Drilling/CME 75	CESARE REP.	L. Savage-Foote
DRILLING METHOD	5in. Diameter ODEX	DATE STARTED	10/18/2021
HAMMER SYSTEM	Automatic Hammer	DATE COMPLETED	10/18/2021

B-3

DEPTH (ft)	NATURAL DRY DENSITY (pcf)	NATURAL MOISTURE CONTENT (%)	FINES (%)	LL-PL-PI	SWELL-CONSOL VOL CHANGE/SURCHARGE PRESSURE (psf)	BLOW COUNT	SAMPLE DRIVE	SAMPLE BULK	GRAPHIC LOG	ELEVATION (ft)	MATERIAL DESCRIPTION	DEPTH (ft)	Water Level and Depth of Cave (ft)
						30/12					FILL; SAND, clayey, with gravel to CLAY, lean, sandy, with gravel, medium dense to very dense (sand), very stiff to hard (clay), slightly moist to moist, light red-brown to red-brown to brown, fine to medium grained sand, occasional to closely spaced cobbles to boulders typically about 13 inches in dimension, calcareous with a strong reaction to hydrochloric acid, (SC) to (CL) to (GC).		
	110.1	7.4	44	26-19-7	0.8/500	50/7							
5.0											Amount of gravel and cobbles increased at about 6 feet.		
						33/12							
10.0										5786		14	
						50/2					SAND to GRAVEL, well-graded, with silt, very dense, slightly moist, greenish gray to red-brown to brown to dark brown, closely spaced cobbles to boulders typically about 13 inches in dimension, nested cobbles and boulders in a gravelly to sandy matrix with silt, (SW) to (SW-SM) to (GW) to (GW-GM), A-1-a to A-1-b.		
15.0													
20.0													
25.0													
30.0													→2
35.0										5761		39	

Boring terminated at 39 feet

LEGEND

- WATER LEVEL AT TIME OF DRILLING
- #WATER LEVEL # DAYS AFTER DRILLING
- →#DEPTH OF CAVE # DAYS AFTER DRILLING
- DEPTH OF REFUSAL
- BULK SAMPLE
- MODIFIED CALIFORNIA SAMPLER

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PROJECT NAME	2525 South Grand Avenue	PROJECT NUMBER	21.5059
BORING LOCATION	Southern 7 foot Cut Area	BORING ELEVATION	5808ft.
DRILLING COMPANY/RIG	Dakota Drilling/CME 75	CESARE REP.	L. Savage-Foote
DRILLING METHOD	5in. Diameter ODEX	DATE STARTED	10/20/2021
HAMMER SYSTEM	Automatic Hammer	DATE COMPLETED	10/20/2021

B-4

DEPTH (ft)	NATURAL DRY DENSITY (pcf)	NATURAL MOISTURE CONTENT (%)	FINES (%)	LL-PL-PI	SWELL-CONSOL VOL CHANGE/SURCHARGE PRESSURE (psf)	BLOW COUNT	SAMPLE DRIVE	SAMPLE BULK	GRAPHIC LOG	ELEVATION (ft)	MATERIAL DESCRIPTION	DEPTH (ft)	Water Level and Depth of Cave (ft)
	114.5	10.8	28	30-21-9	1.9/500	16/12	⧓				FILL; SAND, clayey to silty, with gravel to CLAY, lean, sandy, with gravel, dense (sand), very stiff (clay), moist, dark red-brown to red-brown to brown, fine to medium grained sand, occasional cobbles typically about 5 inches in dimension, calcareous with a weak to strong reaction to hydrochloric acid,(SC-SM) to (SC) to (CL), A-2-6 to A-4 to A-6.		
						33/12	⧓						
										5801	Soil became coarser grained at around 7 feet.	7	
10.0						50/4	⧓				SAND to GRAVEL, well-graded, with silt, very dense, slightly moist, greenish gray to red-brown to brown to dark brown, closely spaced cobbles to boulders typically about 13 inches in dimension, nested cobbles and boulders in a gravelly to sandy matrix with silt, (SW) to (GW) to (GW-GM), A-1-a to A-1-b.. Greater amount of boulders encountered from 7 to 49 feet than in borings B-1 through B-3.		
						50/0					Greater amount of nested boulders averaging 15 inches in dimension from about 14 to 19 feet.		
20.0													
30.0						50/1							
40.0													
										5759		49	

Boring terminated at 49 feet

LEGEND

- ▼ WATER LEVEL AT TIME OF DRILLING
- ▽# WATER LEVEL # DAYS AFTER DRILLING
- →# DEPTH OF CAVE # DAYS AFTER DRILLING
- ↑ DEPTH OF REFUSAL
- ⧓ BULK SAMPLE
- ⧓ MODIFIED CALIFORNIA SAMPLER

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APPENDIX B

Laboratory Testing

LABORATORY TESTING

Swell/consolidation testing was performed on samples collected using a modified California sampler to evaluate the effect of wetting and loading on the soil. The samples were loaded to 500 psf and then inundated with water.

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SUMMARY OF LABORATORY TEST RESULTS
2525 South Grand Avenue
Project No. 21.5059

Sample Location		Natural Dry Density (pcf)	Natural Moisture Content (%)	Water Soluble Sulfates (%)	Standard Proctor (ASTM D698)		Gradation				Atterberg Limits		Swell/Consolidation			Material Type
Boring	Depth (feet)				Maximum Dry Density (pcf)	Optimum Moisture Content (%)	Gravel (%)	Sand (%)	Silt/ Clay (%)	Clay Only (%)	Liquid Limit (%)	Plasticity Index (%)	Inundation Pressure (psf)	Volume Change (%)	Swell Pressure (psf)	
B-1	1	97.5	11.3										500	-2.5	NA	FILL; CLAY, sandy, with gravel, brown
B-1	24 to 29						47	50	3		NV	NP				SAND, with gravel, brown, (SW), A-1-a(0)
B-2	1	120.7	12.6										500	3.1	8,000	FILL; CLAY, sandy, with gravel, brown
B-2	14 to 19			0.00			43	53	4		NV	NP				SAND, with gravel, brown, (SW), A-1-a(0)
B-3	0 to 5			0.05	123.7	10.4	19	37	44		26	7				FILL; SAND, silty, clayey, with gravel, brown, (SC-SM), A-4(0)
B-3	4	110.1	7.4										500	0.8	1,700	FILL; CLAY, sandy, brown
B-3	34 to 39						38	60	2		NV	NP				SAND, with gravel, brown, (SW), A-1-a(0)
B-4	0 to 7						32	40	28	12	30	9				FILL; SAND, clayey, with gravel, brown, (SC), A-2-6(0)
B-4	1	114.5	10.8	0.00									500	1.9	4,400	FILL; CLAY, sandy, brown

NA = not applicable
NV = no value
NP = non plastic

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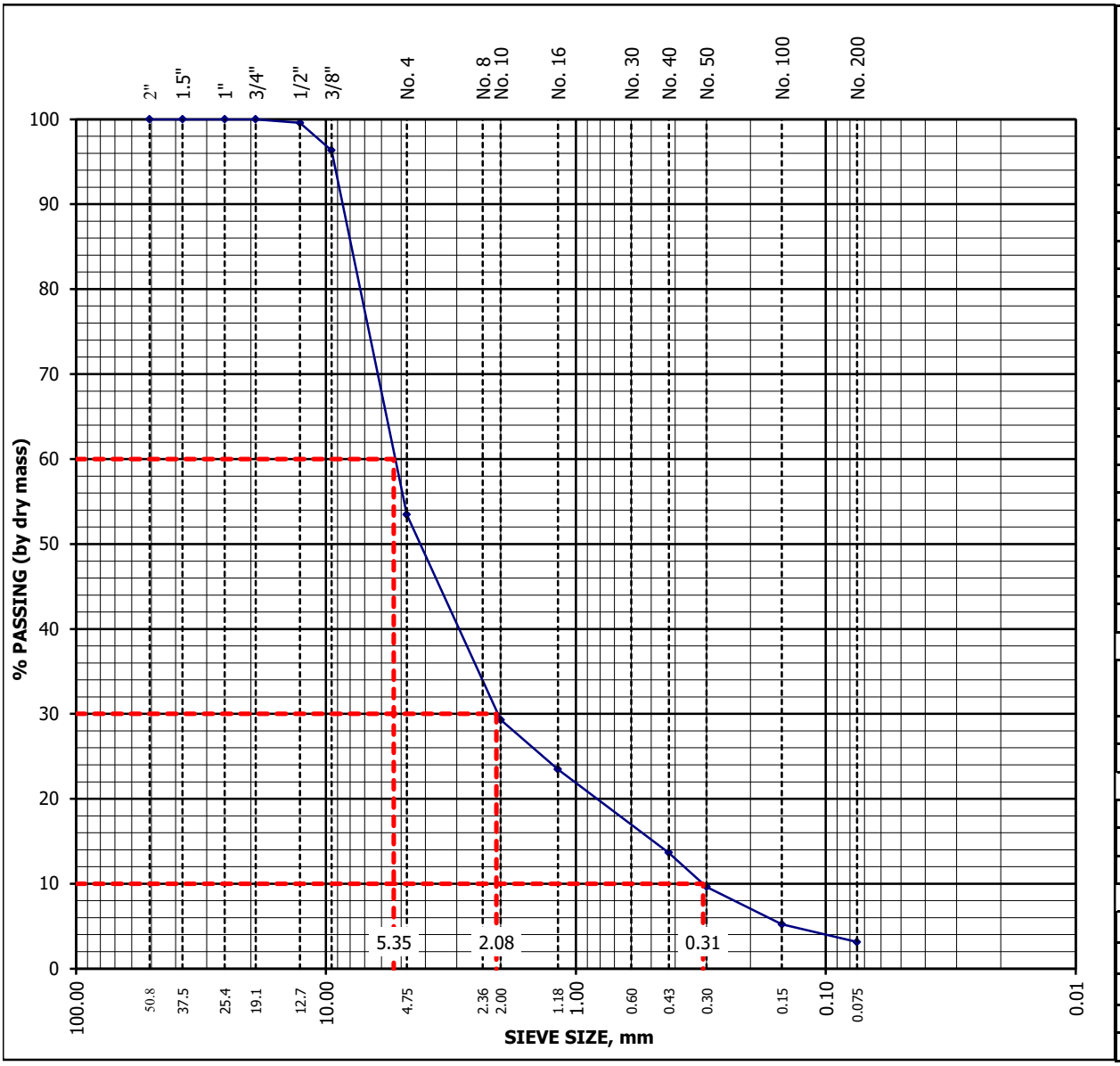
GRADATION PLOT - SOIL & AGGREGATE

Project Number:	21.5059	Date:	5-Nov-21
Project Name:	2525 South Grand Avenue	Technician:	J. Holiman
Lab ID Number:	2121596	Reviewer:	G. Hoyos
Sample Location:	B-1 at 24' to 29'		
Visual Description:	SAND, with gravel, brown		

AASHTO M 145 Classification: **A-1-a** **Group Index:** **0**

Unified Soil Classification System (ASTM D 2487): **(SW)** **Well-graded sand with gravel**



Sieve Size	% Passing
2"	
1.5"	
1"	
3/4"	100
1/2"	100
3/8"	96
#4	53
#8	
#10	29
#16	23
#30	
#40	14
#50	10
#100	5
#200	3.1

Moisture (M) & Density (D)	
M, %:	0.7
D, pcf:	

LL	NV
PL	NP
PI	NP

D_{60}	5.35
D_{30}	2.08
D_{10}	0.31
Cu	**17.26**
Cc	**2.61**

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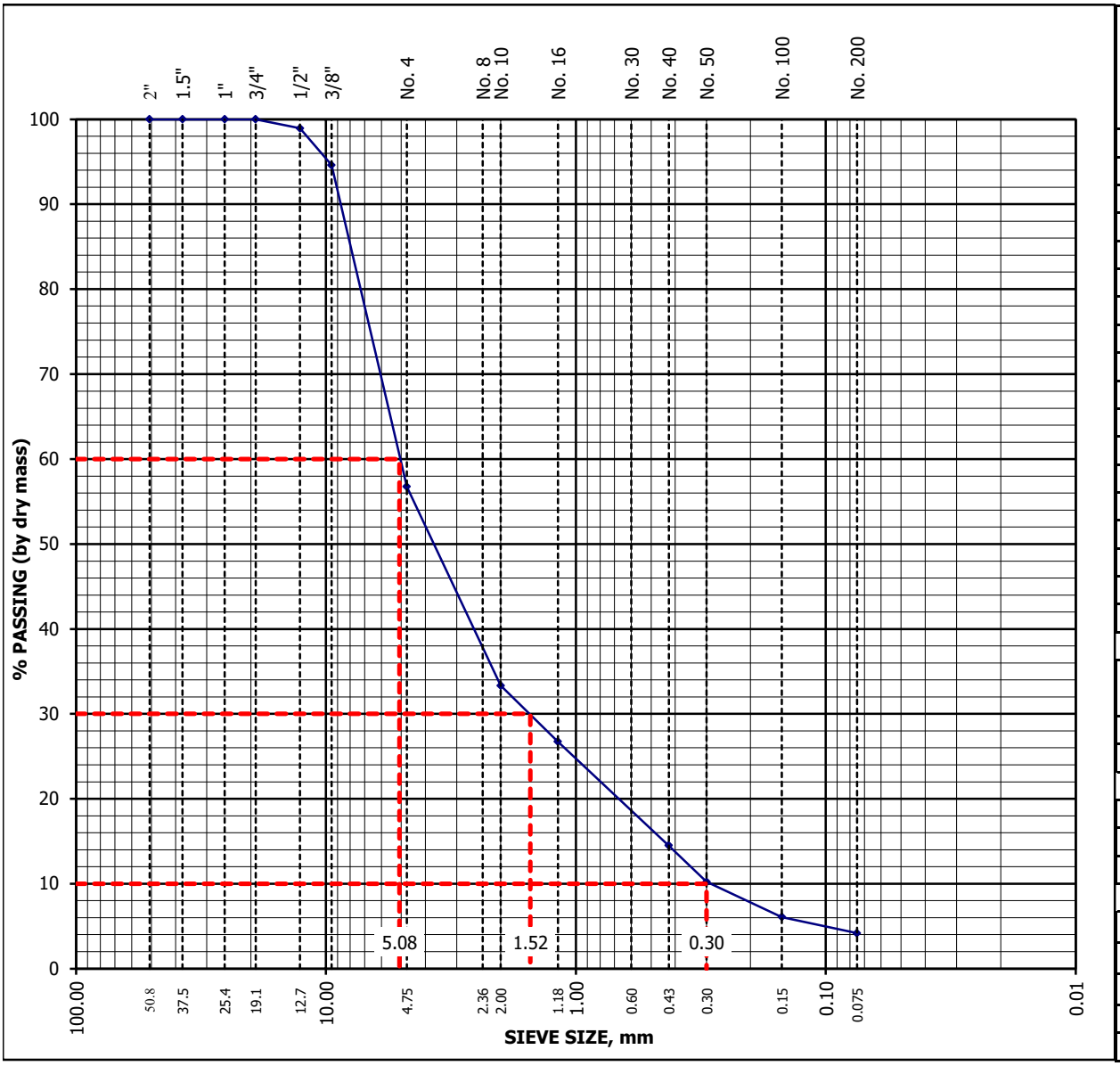
GRADATION PLOT - SOIL & AGGREGATE

Project Number:	21.5059	Date:	5-Nov-21
Project Name:	2525 South Grand Avenue	Technician:	J. Holiman
Lab ID Number:	2121598	Reviewer:	G. Hoyos
Sample Location:	B-2 at 14' to 19'		
Visual Description:	SAND, with gravel, brown		

AASHTO M 145 Classification: **A-1-a** **Group Index:** **0**

Unified Soil Classification System (ASTM D 2487): **(SW)** **Well-graded sand with gravel**



Sieve Size	% Passing
2"	
1.5"	
1"	
3/4"	100
1/2"	99
3/8"	95
#4	57
#8	
#10	33
#16	27
#30	
#40	14
#50	10
#100	6
#200	4.2

Moisture (M) & Density (D)	
M, %:	0.8
D, pcf:	

LL	NV
PL	NP
PI	NP

D_{60}	5.08
D_{30}	1.52
D_{10}	0.30
Cu	**16.93**
Cc	**1.52**

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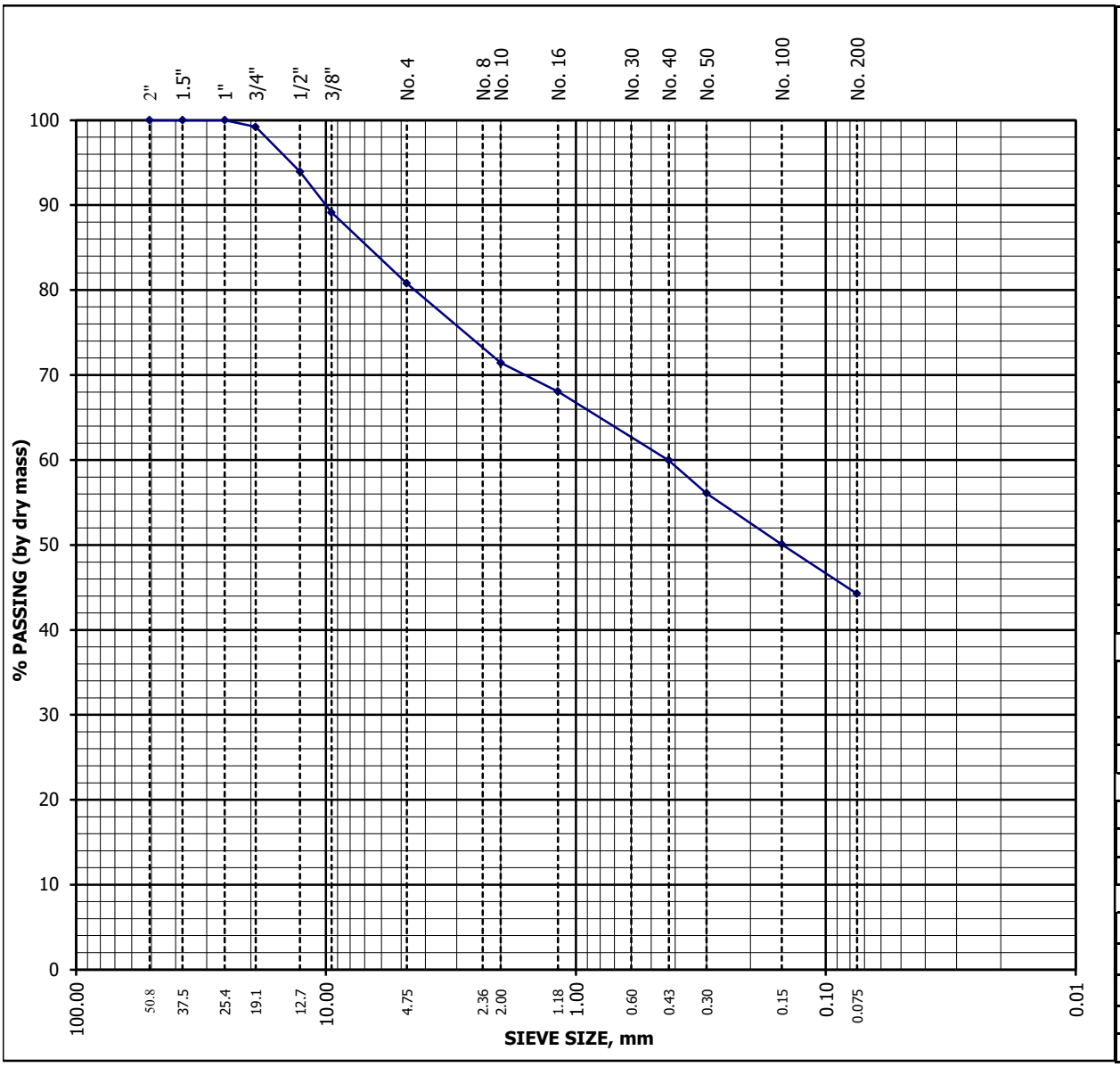
GRADATION PLOT - SOIL & AGGREGATE

Project Number:	21.5059	Date:	5-Nov-21
Project Name:	2525 South Grand Avenue	Technician:	J. De Los Santos
Lab ID Number:	2121600	Reviewer:	G. Hoyos
Sample Location:	B-3 at 0' to 5'		
Visual Description:	FILL; SAND, silty, clayey, with gravel, brown		

AASHTO M 145 Classification: **A-4** **Group Index:** **0**

Unified Soil Classification System (ASTM D 2487): **(SC-SM) Silty, clayey sand with gravel**



Sieve Size	% Passing
2"	
1.5"	
1"	100
3/4"	99
1/2"	94
3/8"	89
#4	81
#8	
#10	71
#16	68
#30	
#40	60
#50	56
#100	50
#200	44.3

Moisture (M) & Density (D)	
M, %:	1.2
D, pcf:	

LL	26
PL	19
PI	7

D_{60}	
D_{30}	
D_{10}	
Cu	
Cc	

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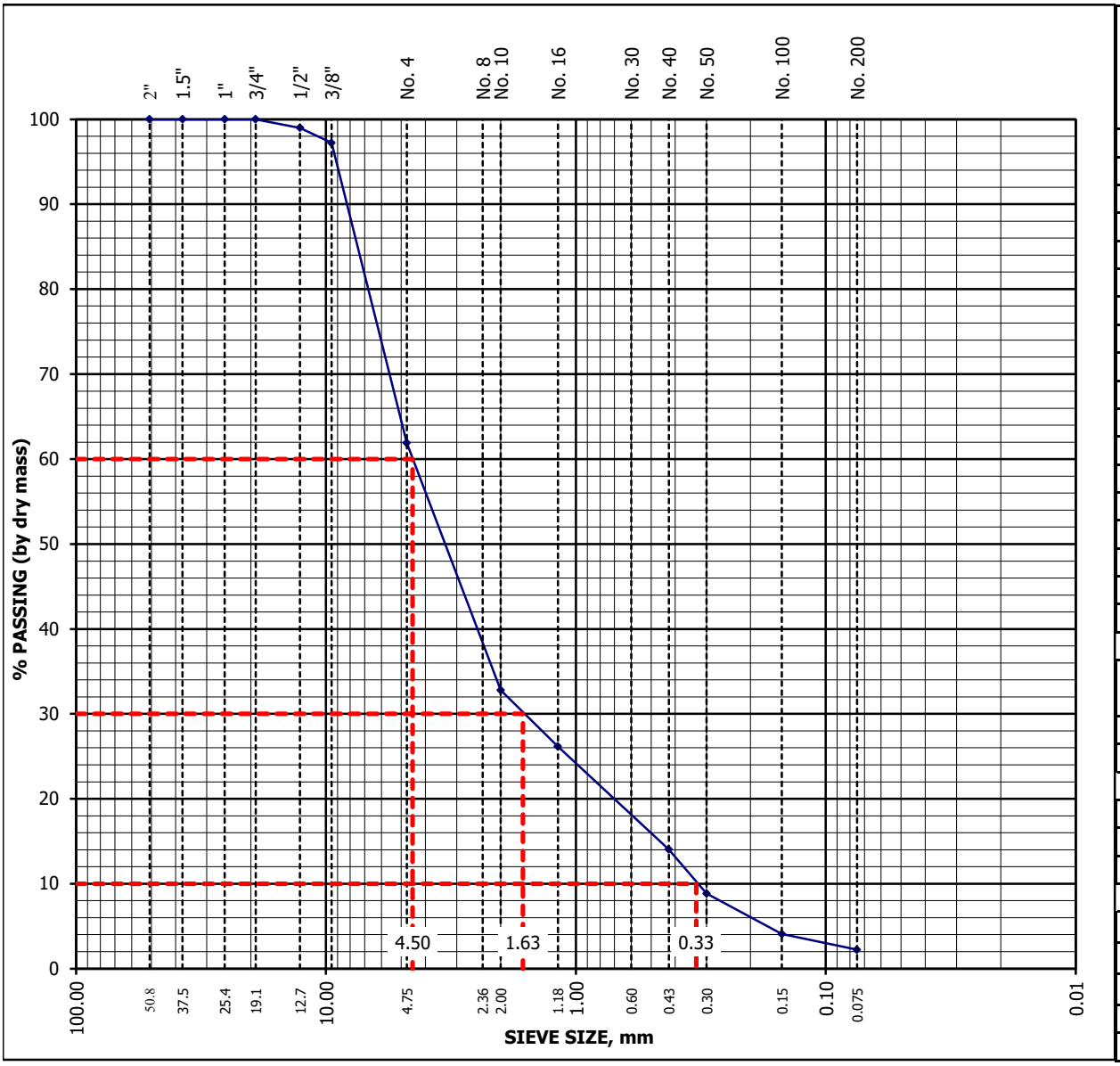
GRADATION PLOT - SOIL & AGGREGATE

Project Number:	21.5059	Date:	5-Nov-21
Project Name:	2525 South Grand Avenue	Technician:	J. Holiman
Lab ID Number:	2121601	Reviewer:	G. Hoyos
Sample Location:	B-3 at 34' to 39'		
Visual Description:	SAND, with gravel, brown		

AASHTO M 145 Classification: **A-1-a** **Group Index:** **0**

Unified Soil Classification System (ASTM D 2487): **(SW)** **Well-graded sand with gravel**



Sieve Size	% Passing
2"	
1.5"	
1"	
3/4"	100
1/2"	99
3/8"	97
#4	62
#8	
#10	33
#16	26
#30	
#40	14
#50	9
#100	4
#200	2.2

Moisture (M) & Density (D)	
M, %:	0.4
D, pcf:	

LL	NV
PL	NP
PI	NP

D_{60}	4.50
D_{30}	1.63
D_{10}	0.33
Cu	**13.64**
Cc	**1.79**

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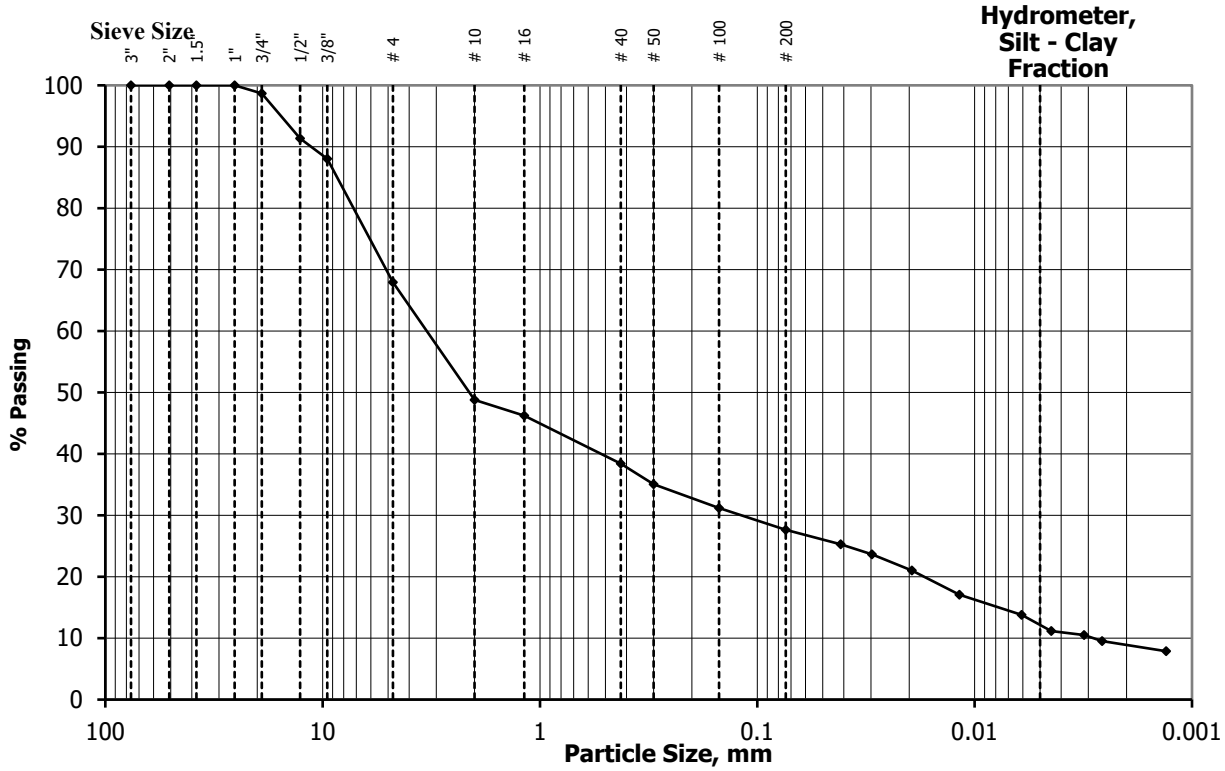
PARTICLE SIZE ANALYSIS (ASTM D422)

Project Number:	21.5059	Date:	11/08/21
Project Name:	2525 South Grand Avenue	Technician:	GPH/JLH
Lab ID Number:	2121603	Reviewer:	G. Hoyos
Sample Location:	B-4 at 0' to 7'		
Visual Description:	FILL; SAND, clayey, with gravel, brown		
Soil Classification (USCS):	**SC**	**Clayey sand with gravel**	

Sieve Size	% Passing
3"	100
2"	100
1-1/2"	100
1"	100
3/4"	99
1/2"	91
3/8"	88
#4	68
#10	49
#16	46
#40	38
#50	35
#100	31
#200	28

Hydrometer	
Particle Size	**% Passing**
41 Micron	25
30 Micron	24
19 Micron	21
12 Micron	17
6 Micron	14
4.4 Micron	11
3.1 Micron	11
2.6 Micron	10
1.3 Micron	8
% Gravel:	**32**
% Sand:	**40**
% Silt:	**16**
% Clay (< 5 micron):	**12**



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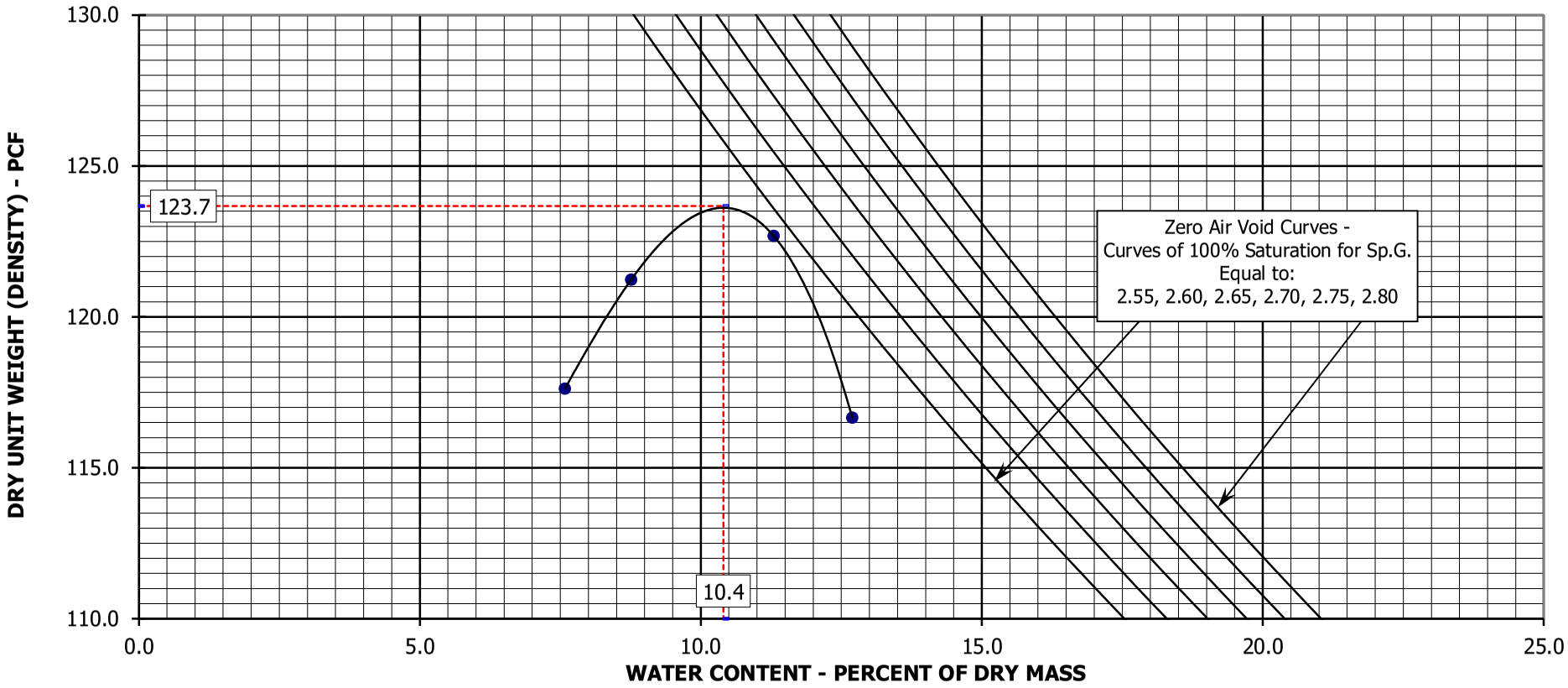
ASTM/AASHTO Compaction
Test Procedure Designation: ASTM D698 (Standard)
Method: A

Laboratory Maximum Dry Unit Weight (Density): 123.7 pcf
Laboratory Optimum Moisture Content (OMC): 10.4 %



Sample Location	Depth (ft)	LL	PL	PI	-#200 (%)	Soil Description/Classification
B-3	0 to 5	**26**	19	**7**	**44.3**	Visual: FILL; SAND, silty, clayey, with gravel, AASHTO: A-4 (0) USCS: (SC-SM) Silty, clayey sand with gravel

Moisture/Density Relationship (Proctor) Test

Project Number:	21.5059		
Project Name:	2525 South Grand Avenue		
Drawn By:	A. Wright	Tested by:	G. Hoyos
Checked By:	G. Hoyos	Date:	10-Nov-21
Date:	11-Nov-21	Lab ID Number:	2121600

Corporate: 7108 South Alton Way, Building B • Centennial, Colorado 80112
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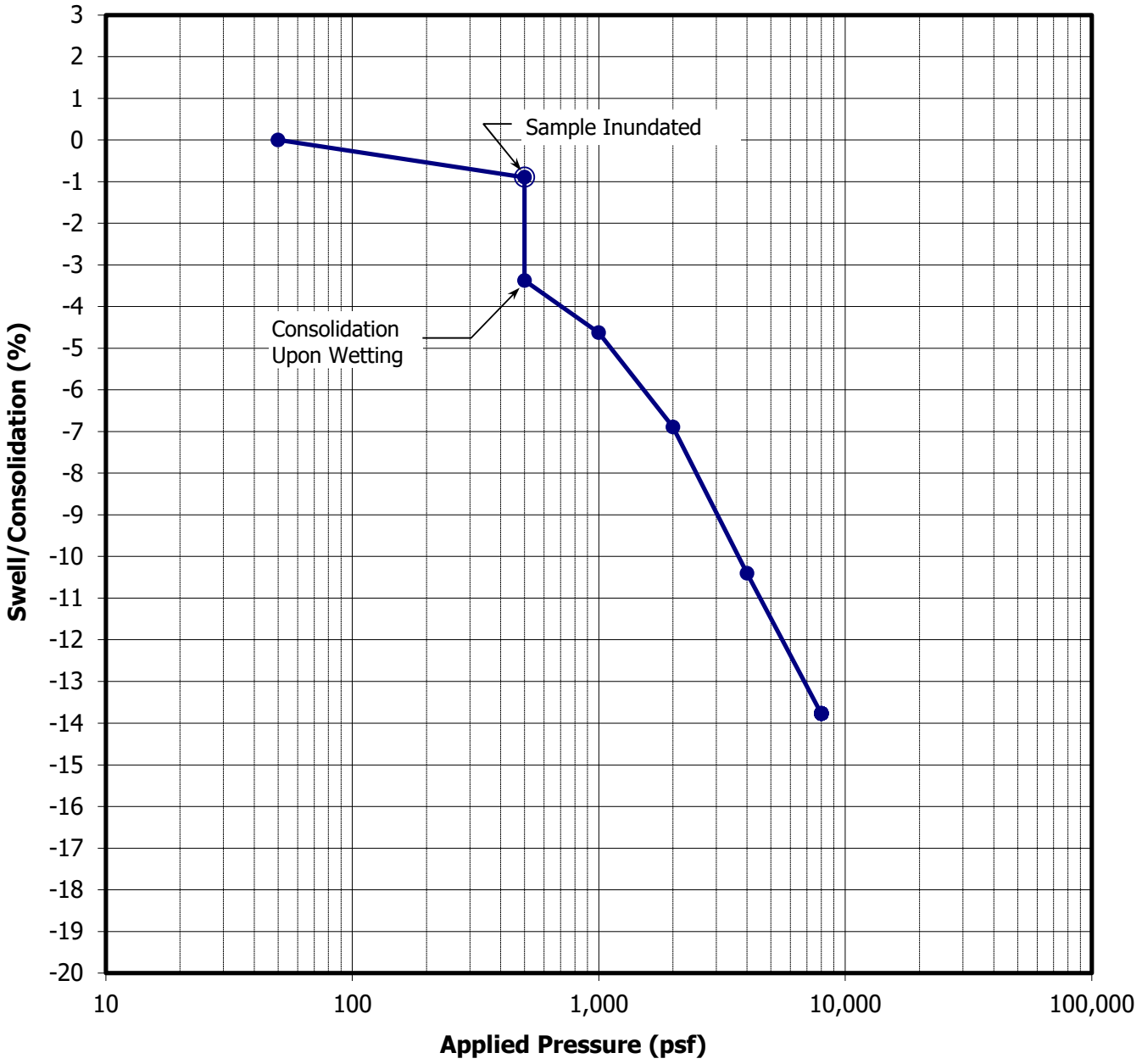
SWELL/CONSOLIDATION PLOT



Sample Location	Sample Depth (ft)	Visual Description of Sample	Dry Density (pcf)	Moisture Content (%)	Inundation Pressure (psf)	Volume Change (%)	Swell Pressure (psf)
B-1	1	FILL; CLAY, sandy, with gravel, brown	97.5	11.3	500	-2.5	N/A

Project Number	Project Name	Lab ID Number
21.5059	2525 South Grand Avenue	2121595

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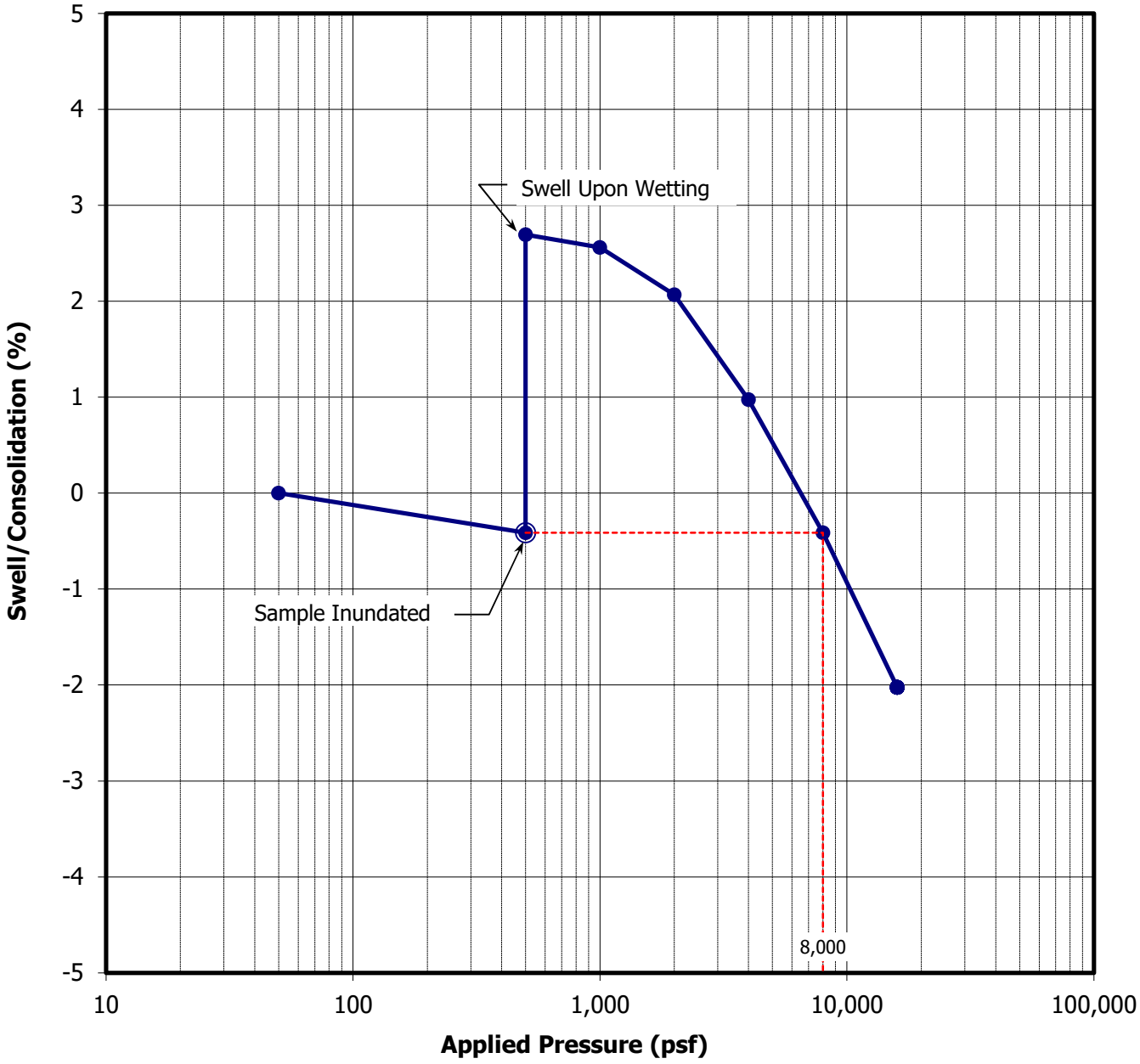
SWELL/CONSOLIDATION PLOT

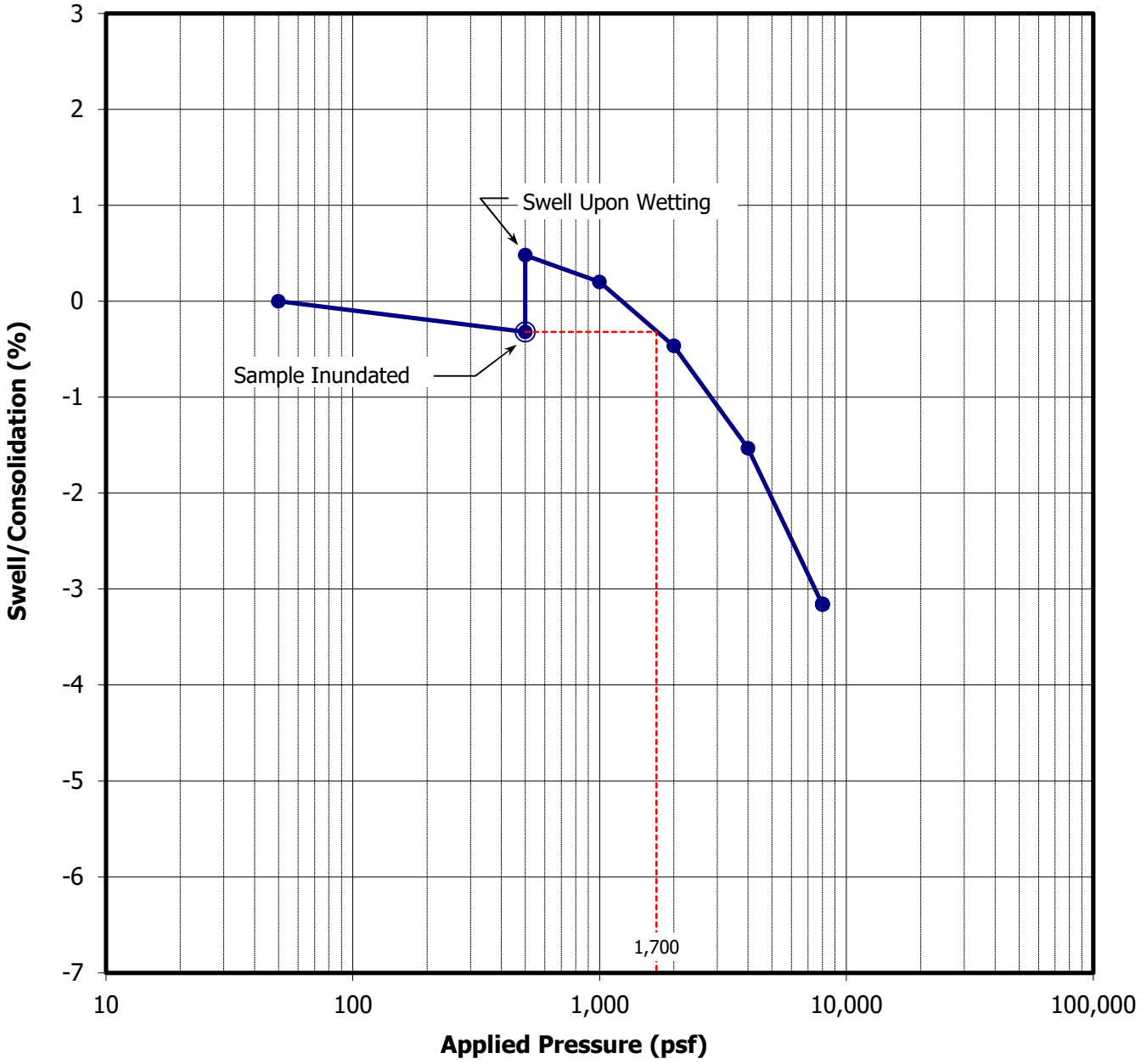


Sample Location	Sample Depth (ft)	Visual Description of Sample	Dry Density (pcf)	Moisture Content (%)	Inundation Pressure (psf)	Volume Change (%)	Swell Pressure (psf)
B-2	1	FILL; CLAY, sandy, with gravel, brown	120.7	12.6	500	3.1	8,000

Project Number	Project Name	Lab ID Number
21.5059	2525 South Grand Avenue	2121597

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

SWELL/CONSOLIDATION PLOT

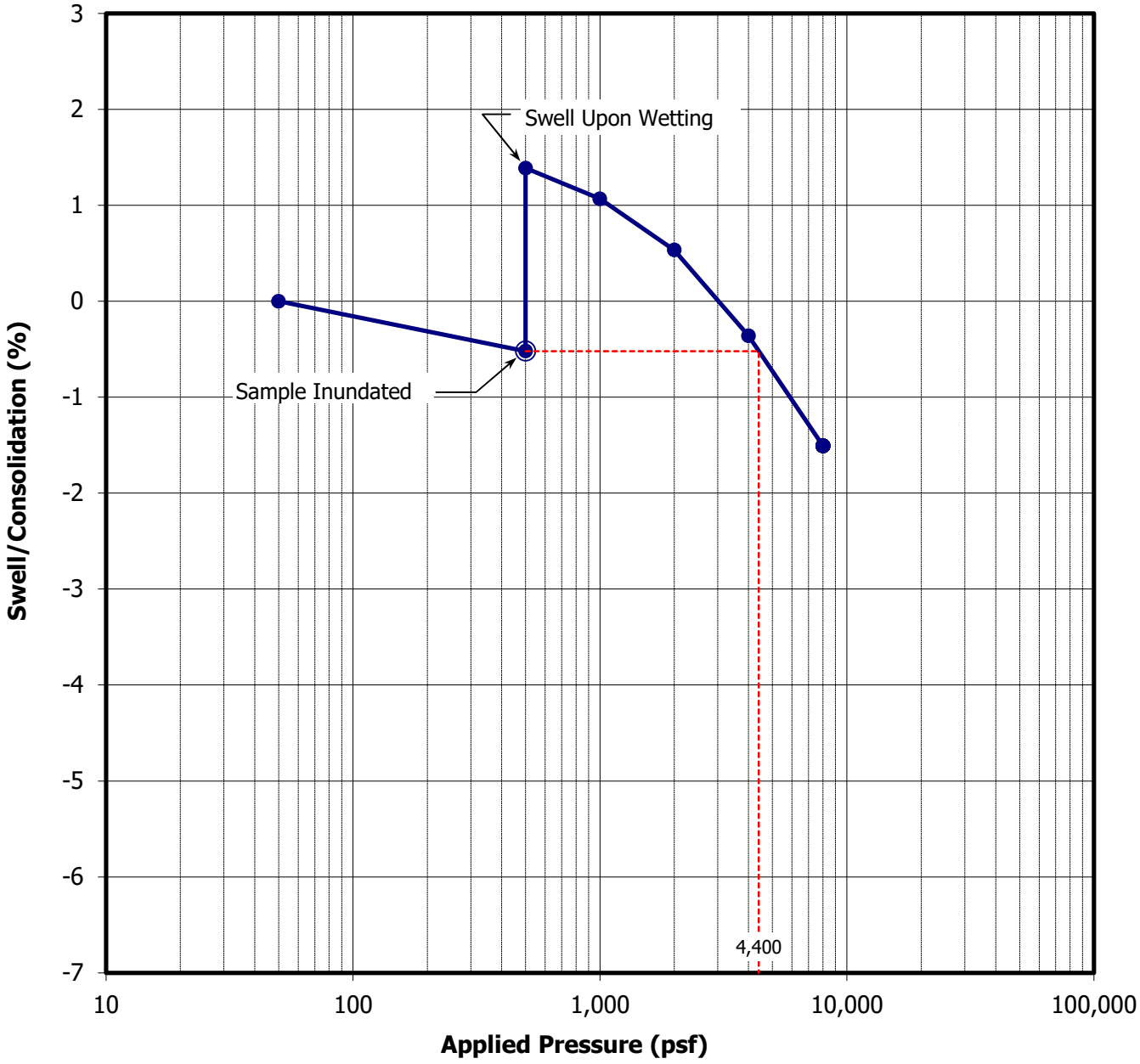


Sample Location	Sample Depth (ft)	Visual Description of Sample	Dry Density (pcf)	Moisture Content (%)	Inundation Pressure (psf)	Volume Change (%)	Swell Pressure (psf)
B-3	4	FILL; CLAY, sandy, brown	110.1	7.4	500	0.8	1,700

Project Number	Project Name	Lab ID Number
21.5059	2525 South Grand Avenue	2121599

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

SWELL/CONSOLIDATION PLOT



Sample Location	Sample Depth (ft)	Visual Description of Sample	Dry Density (pcf)	Moisture Content (%)	Inundation Pressure (psf)	Volume Change (%)	Swell Pressure (psf)
B-4	1	FILL; CLAY, sandy, brown	114.5	10.8	500	1.9	4,400

Project Number	Project Name	Lab ID Number
21.5059	2525 South Grand Avenue	2121602

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

APPENDIX C

Vapor Barriers

VAPOR BARRIERS

If it is determined that a vapor retarder/barrier is warranted, Cesare recommends that the vapor barrier comply with ASTM E1745, and if moisture sensitive flooring will be utilized, have a permeance below 0.01 perms before and after mandatory conditioning testing. The vapor retarder/barrier should be installed per ASTM E1643 and the design professional should consider project specific requirements in specification verbiage. See the ACI Committee 302, "Guide for Concrete Floor and Slab Construction (ACI 302.R-96)" for additional discussion and guidance regarding the use of vapor retarders/barriers beneath floor slabs.

The 2015 IBC, Section 1805.2 Dampproofing states that where hydrostatic pressure will not occur, as determined by Section 18-03.5.4, floors shall be dampproofed in accordance with this section.

Section 1805.2 Floors, states,

> "*Dampproofing materials for floors shall be installed between the floor and the base course required by Section 1805.4.1, except where a separate floor is provided above a concrete slab. Where installed beneath the slab, dampproofing shall consist of not less than 6-mil (0.006 inch; 0.152 mm) polyethylene with joints lapped not less than 6 inches (152 mm), or other approved methods or materials. Where permitted to be installed on top of the slab, damp proofing shall consist of mopped-on bitumen, not less than 4-mil; (0.004 inch; 0.102 mm) polyethylene, or other approved methods or materials. Joints in the membrane shall be lapped and sealed in accordance with the manufacturer's installation instructions*".

Section 1805.4.1 Floor Base Course, states,

> *"Floors of basements, except as provided for in Section 1805.1.1 shall be placed over a floor base course not less than 4 inches (102 mm) in thickness that consists of gravel or crushed stone containing no more than 10 percent of material that passes through a No. 4 (4.75mm) sieve.*"

Cesare recommends that basement slabs be constructed directly on the existing subgrade soil without the addition of a layer of base course material and that the architect be consulted regarding the need for a vapor retarder or vapor barrier. Decision to include a vapor retarder/barrier beneath the slab is dependent on the sensitivity of floor coverings and building use to moisture.

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

APPENDIX D

Previous Geotechnical Study

Kumar & Associates, Inc.®
Geotechnical and Materials Engineers
and Environmental Scientists

An Employee Owned Company

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Office Locations: Denver (HQ), Parker, Colorado Springs, Fort Collins, Glenwood Springs, and Summit County, Colorado

SUBSOIL STUDY
FOR FOUNDATION DESIGN
PROPOSED APARTMENT BUILDING
2525 GRAND AVENUE
GLENWOOD SPRINGS, COLORADO

PROJECT NO. 20-7-766

FEBRUARY 11, 2021

PREPARED FOR:

THE JAR GROUP, LLC
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FIGURES 1A and 1B - LOCATION OF EXPLORATORY BORINGS

FIGURE 2 - LOGS OF EXPLORATORY BORINGS

FIGURES 3 and 4 - SWELL-CONSOLIDATION TEST RESULTS

FIGURES 5 through 7 - GRADATION TEST RESULTS

TABLE 1- SUMMARY OF LABORATORY TEST RESULTS

PURPOSE AND SCOPE OF STUDY

This report presents the results of a subsoil study for a proposed apartment building to be located at 2525 Grand Avenue, Glenwood Springs, Colorado. The project site is shown on Figures 1A and 1B. The purpose of the study was to develop recommendations for the foundation design. The study was conducted in accordance with our proposal for geotechnical engineering services to The JAR Group, LLC dated December 11, 2020.

A field exploration program consisting of exploratory borings was conducted to obtain information on the general subsurface conditions. Samples of the subsoils obtained during the field exploration were tested in the laboratory to determine their classification, compressibility or swell and other engineering characteristics. The results of the field exploration and laboratory testing were analyzed to develop recommendations for foundation types, depths and allowable pressures for the proposed building foundation. This report summarizes the data obtained during this study and presents our conclusions, design recommendations and other geotechnical engineering considerations based on the proposed construction and the subsurface conditions encountered.

PROPOSED CONSTRUCTION

The building will be a 3 and 4-story wood frame structure located as shown on Figure 1B. The lower 1½ to 2 levels of the building will be cut into the site on the east side and daylight on the west side of the site on the steep slope down to the Roaring Fork River. The proposed lower-level finish floor elevation will be 5793 feet, see Figure 2. Ground floors will be slab-on-grade and/or structurally supported in areas. Grading for the structure will require cut depths up to about 15 feet. We assume moderate to moderately heavy foundation loadings for the building.

Paved parking will be adjacent the east side of the building and extend to the south as shown on Fig 1B. The southern portion of the parking area will have an approximately 10 to 15 feet tall retaining structure along the west side on the steep slope down to the Roaring Fork River. It is planned to use a mechanically stabilized earth (MSE) wall as the retaining structure in this area.

When building foundation loading and site grading information have been better developed, we should be notified to re-evaluate the recommendations presented in this report and perform additional analyses as needed.

SITE CONDITIONS

The existing site conditions are shown on Figure 1A. The site is occupied by a single story wood-framed building and associated asphalt surface parking. The site is located adjacent a steep slope down to the Roaring Fork River. The slope is about 30 feet high and generally about 1½ horizontal (H) to 1 vertical (V). The site has been graded for the existing development to create a relatively flat bench and consisted of cuts along the eastern side and fills along the western side that extends onto the steep riverbank slope. There is also considerable fill in the southern portion of the site outside the developed area. Vegetation consists of landscaped lawn around the existing building and grass and weeds and brush on the steep slope down to the Roaring Fork River.

GEOLOGIC CONDITIONS

The property is located on a river terrace deposit adjacent the Roaring Fork River and at the lower limit of coalescing alluvial fan deposits. The project site geology should not present major constraints or unusually high risks to the proposed development. There are, however, several conditions of a geologic nature that should be considered for the design and construction of the project. Exploratory borings drilled on the property encountered man-placed fill material above the river terrace deposits absent of alluvial fan soils. Issues dealing with development on the existing fill materials are discussed in the *Design Recommendations* section of this report.

Potential geologic hazards at the subject site consist of the steep slope (about 65 percent grade) along the west side of the site down to the Roaring Fork River consisting and the previously placed fill over the native river terrace (coarse granular) soil deposits. The steep slope appears to be stable and no signs of recent movement were observed. Site grading recommendations to limit the potential for construction induced instability of the steep slope are discussed below in the *Site Grading* section of this report. Based on our review of the current site conditions, the information provided, and our experience in the area, the proposed building area is feasible from a geotechnical viewpoint with proper planning, design and construction.

FIELD EXPLORATION

The field exploration for the project was conducted on January 6 and 7, 2021. Five exploratory borings were drilled at the locations shown on Figures 1A and 1B to evaluate the subsurface conditions. The borings were advanced with 4 inch diameter continuous flight augers powered by a truck-mounted CME-45B drill rig. The borings were logged by a representative of Kumar & Associates.

Samples of the subsoils were taken with 1⅜ inch and 2 inch I.D. spoon samplers. The samplers were driven into the subsoils at various depths with blows from a 140 pound hammer falling 30 inches. This test is similar to the standard penetration test described by ASTM Method D-1586. The penetration resistance values are an indication of the relative density or consistency of the subsoils. Depths at which the samples were taken and the penetration resistance values are shown on the Logs of Exploratory Borings, Figure 2. The samples were returned to our laboratory for review by the project engineer and testing.

SUBSURFACE CONDITIONS

Graphic logs of the subsurface conditions encountered at the site are shown on Figure 2. The subsoils encountered were variable with respect to types, depths and engineering characteristics but in general consisted from about 4 to 15½ feet of previously placed fill materials underlain by relatively dense, silty sandy gravel and cobbles with boulders (coarse granular soils) that extended down to the maximum depth drilled of 21 feet. Drilling in the dense coarse granular soils with auger equipment was difficult due to the cobbles and boulders and drilling refusal was encountered in the deposit in Borings 3 and 4. The fill varied from silty clayey sand and gravel (primarily at Boring 1) to very moist silty clay (primarily at Boring 3) to intermixed sandy silty clay with gravel and clayey silty sandy gravel with cobbles (primarily at Borings 2, 4 and 5). A typical topsoil (sod) or asphalt pavement layer was encountered at the surface of the borings.

Laboratory testing performed on samples obtained from the borings included natural moisture content and density, gradation analyses and Atterberg limits. Results of swell-consolidation testing performed on relatively undisturbed drive samples of the sandy silty clay fill, presented on Figures 3 and 4, indicate high compressibility under conditions of loading and wetting.

Results of gradation analyses performed on small diameter drive samples of the more granular fill materials and natural coarse granular soils (minus 1½ inch fraction) are shown on Figures 5 through 7. The laboratory testing is summarized in Table 1.

No groundwater was encountered in the borings at the time of drilling and the subsoils were slightly moist to very moist in portions of the finer grained fill materials.

FOUNDATION BEARING CONDITIONS

The existing fill soils encountered to depths from about 4 to 15½ feet are of variable condition and not considered suitable for support of building foundations or floor slabs. The underlying natural dense coarse granular soils are suitable for support of spread footings with moderate bearing capacity and relatively low settlement potential. An alternative in existing deep fill areas is to use a relatively deep foundation system such as micro-piles or straight-shaft piers drilled into the natural coarse granular soils to achieve low settlement potential and adequate stability of the foundation adjacent the steep slope on the west side of the building. The piles or piers have the advantage of providing moderately high load capacity with a relatively low settlement potential. The spread footings and deep piles or piers should have adequate depth and setback the top of slope to not adversely impact stability of the steep slope along the west side of the property. Other deep foundation systems may be feasible and can be evaluated if desired.

DESIGN RECOMMENDATIONS

FOUNDATIONS

Considering the subsurface conditions encountered in the exploratory borings and the nature of the proposed construction, we believe spread footings bearing on the natural coarse granular soils can be used for foundation support for most of the building. Micro-piles or drilled piers appear needed for foundation support where the building is on or within about 10 feet of the edge of the steep slope along the west side. Micro-piles may be more desirable as difficult drilling conditions in the coarse granular soils due to cobbles and boulders is expected.

The spread footings should penetrate existing fill to bear on the natural coarse granular soils. It may be feasible bear the footings on a limited depth of compacted structural fill placed on

the natural coarse granular soils. The structural fill can consist of the on-site coarse granular soils (minus 6-inch fraction), single pass pit-run sand and gravel, or aggregate base course. Depth of the structural fill below building footing areas should be limited to about 5 feet.

Provided below are recommendations for spread footings and for drilled piers and micro-piles. The recommendations are considered suitable for planning and preliminary design. We should review the preliminary foundation design information and provide additional recommendations as needed.

Spread Footings: The design and construction criteria presented below should be observed for a spread footing foundation system.

1) Spread footings placed on the undisturbed natural coarse granular soils or on properly placed and compacted structural fill placed on the natural coarse granular soils should be designed for an allowable bearing pressure of 4,000 psf. Based on experience, we expect settlement of footings designed and constructed as discussed in this section will be up to about 1 inch depending on the bearing conditions and foundation loadings.
2) The footings should have a minimum width of 18 inches for continuous walls and 2 feet for isolated pads.
3) Exterior footings and footings beneath unheated areas should be provided with adequate soil cover above their bearing elevation for frost protection. Placement of foundations at least 36 inches below exterior grade is typically used in this area.
4) Continuous foundation walls should be well reinforced top and bottom to span local anomalies such as by assuming an unsupported length of at least 12 feet. Foundation walls acting as retaining structures should also be designed to resist lateral earth pressures as discussed in the "Foundation and Retaining Walls" section of this report.
5) All existing fill, topsoil and any loose or disturbed soils should be removed and the footing bearing level extended down to the relatively dense natural coarse granular soils. The exposed soils in footing area should then be moistened and compacted. If structural fill is placed below the footings, the material should consist of a relatively well graded granular material having a maximum size of

6 inches and less than 25 percent passing the No. 200 sieve, and be approved by the geotechnical engineer prior to placement. The structural fill extends a minimum 1½ feet below and beyond the edges of the footings and be compacted to at least 98% standard Proctor density at a moisture content within about 2% of optimum.

6) A representative of the geotechnical engineer should observe all footing excavations and test structural fill compaction on a regular basis prior to concrete placement to evaluate bearing conditions.

Micro-Piles and Drilled Piers: Micro-piles are typically design/build by qualified contractors with experience in the area. We expect individual micro-pile capacities in the range of 30 to 50 kips for typical size piles commonly used in the area. The piles should have a minimum embedded length of about 20 feet. Lateral capacities of micro-piles are limited and lateral loadings are usually resisted by battered piles. We can review the micro-pile design if desired.

The design and construction criteria presented below should be observed for a straight-shaft drilled pier foundation system.

1) The piers should be designed for an allowable end bearing pressure of 10,000 psf and a skin friction of 1,200 psf for that portion of the pier or pile embedded in the coarse granular soils. Pier or pile penetration through the upper fill should be neglected in the skin friction calculations.
2) The piers should have a minimum total embedment length of 10 feet and a minimum penetration into the gravel of 2 feet.
3) The pier holes should be properly cleaned prior to placement of concrete. The fill mainly consists of granular soils which indicates that caving may occur and casing of the open holes could be required. Some caving and difficult drilling may also be experienced in the coarse granular bearing soils due to gravel, cobbles and boulders. Placing concrete in the pier hole immediately after drilling is recommended.
4) The pier drilling contractor should mobilize equipment of sufficient size to achieve the design pier sizes and depths.
5) Groundwater was not encountered in the borings made at the site and it appears that dewatering will probably not be needed.

6) A representative of the geotechnical engineer should observe pier drilling operations on a full-time basis.

FOUNDATION AND RETAINING WALLS

Foundation walls and retaining structures which are laterally supported and can be expected to undergo only a slight amount of deflection should be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of at least 55 pcf for backfill consisting the on-site soils and at least 45 pcf for backfill consisting of suitable imported granular materials. Cantilevered retaining structures which are separate from the building and can be expected to deflect sufficiently to mobilize the full active earth pressure condition should be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of at least 50 pcf for backfill consisting of on-site soils and at least 40 pcf for backfill consisting of suitable imported granular materials. The backfill should not contain debris, topsoil or oversized (plus 6-inch) rocks. If foundation walls are designed for lateral pressures for imported granular soils, the material should have a maximum size of 6 inches and contain less than 25% passing the No. 200 size sieve.

All foundation and retaining structures should be designed for appropriate hydrostatic and surcharge pressures such as adjacent footings, traffic, construction materials and equipment. The pressures recommended above assume drained conditions behind the walls and a horizontal backfill surface. The buildup of water behind a wall or an upward sloping backfill surface will increase the lateral pressure imposed on a foundation wall or retaining structure. An underdrain should be provided to prevent hydrostatic pressure buildup behind walls.

Backfill should be placed in uniform lifts and compacted to at least 90% of the maximum standard Proctor density at a moisture content near optimum. Backfill in pavement and walkway areas should be compacted to at least 95% of the maximum standard Proctor density. Care should be taken not to overcompact the backfill or use large equipment near the wall, since this could cause excessive lateral pressure on the wall. Some settlement of deep foundation wall backfill should be expected, even if the material is placed correctly, and could result in distress to facilities constructed on the backfill. Use of a select granular material, such as processed on-site granular soils or of imported base course, and increasing compaction to at least 98% standard Proctor density could be done to reduce the backfill settlement.

The lateral resistance of foundation or retaining wall footings will be a combination of the sliding resistance of the footing on the foundation materials and passive earth pressure against the side of the footing. Resistance to sliding at the bottoms of the footings can be calculated based on a coefficient of friction of 0.45. Passive pressure of compacted backfill against the sides of the footings can be calculated using an equivalent fluid unit weight of 400 pcf. The coefficient of friction and passive pressure values recommended above assume ultimate soil strength. Suitable factors of safety should be included in the design to limit the strain which will occur at the ultimate strength, particularly in the case of passive resistance. Fill placed against the sides of the footings to resist lateral loads should consist of a suitable be well graded granular material, such as processed on-site granular soils or aggregate base course, compacted to at least 95% of the maximum standard Proctor density at a moisture content near optimum.

FLOOR SLABS

The natural on-site soils, exclusive of topsoil or previously placed fill material, are suitable to support lightly loaded slab-on-grade construction. All fill below slabs should consist of a fairly well graded granular material such as processed on-site granular soils, minus 6-inch single pass pit-run or of aggregate base course. Suitability of existing fill to support floor slabs can be evaluated at the time of construction.

To reduce the effects of some differential movement, floor slabs should be separated from all bearing walls and columns with expansion joints which allow unrestrained vertical movement. Floor slab control joints should be used to reduce damage due to shrinkage cracking. The requirements for joint spacing and slab reinforcement should be established by the designer based on experience and the intended slab use. A minimum 4 inch layer of free-draining gravel should be placed immediately beneath basement level slabs to facilitate drainage. This material should consist of minus 2-inch aggregate with at least 50% retained on the No. 4 sieve and less than 2% passing the No. 200 sieve.

All fill materials for support of floor slabs should be compacted to at least 95% of maximum standard Proctor density at a moisture content near optimum. Required fill can consist of the on-site granular soils devoid of debris, topsoil and oversized (plus 6-inch) rocks or other suitable granular materials having a maximum size of 6 inches and less than 25% passing the No. 200 sieve approved by the geotechnical engineer prior to placement.

UNDERDRAIN SYSTEM

Although groundwater was not encountered during our exploration, it has been our experience in the area that local perched groundwater can develop during times of heavy precipitation or seasonal runoff. Frozen ground during spring runoff can also create a perched condition. We recommend below-grade construction, such as retaining walls, crawlspace and basement areas, be protected from wetting and hydrostatic pressure buildup by an underdrain system.

The drains should consist of 4 inch diameter PVC drainpipe placed in the bottom of the wall backfill surrounded above the invert level with free-draining granular material. The drain should be placed at each level of excavation and at least 1 foot below lowest adjacent finish grade and sloped at a minimum ½% to a suitable gravity outlet. Free-draining granular material used in the underdrain system should contain less than 2% passing the No. 200 sieve, less than 50% passing the No. 4 sieve and have a maximum size of 2 inches. The drain gravel backfill should be at least 1½ feet deep and be covered with filter fabric such as Mirafi 140N or 160N.

SITE GRADING

The risk of construction-induced slope instability at the site appears generally low provided fill depths adjacent the steep slope on the west side of the site is limited and building foundations adjacent and on the slope have adequate depth such as by using micro-piles or drilled piers. We assume the cut depths for the basement level will not exceed about 15 feet. Fills should be limited to about 10 feet deep adjacent the steep slope unless stability analyses show deeper fills to be feasible. Fills up to about 15 feet deep should be feasible provided the fill is retained by a properly designed and constructed retaining structure and the stability analyses shows this to be feasible.

All embankment fills should be compacted to at least 95% of the maximum standard Proctor density near optimum moisture content. Prior to fill placement, the subgrade should be carefully prepared by removing all debris, topsoil and existing fill, compacting to at least 95% of the maximum standard Proctor density. Suitability of the existing fill to be left in place can be evaluated prior to or at the time of construction if desired. The fill should be benched horizontally into the portions of the site exceeding 20% grade. Permanent unretained cut and fill slopes should be graded at 2 horizontal to 1 vertical or flatter and protected against erosion by

revegetation or other means. We should review site grading plans for the project prior to construction and perform additional analyses as needed.

MSE SITE WALL

We understand an approximately 15 foot high mechanically stabilized earth (MSE) wall is proposed to retain the downhill, western side of the southern parking lot fill area. The MSE wall should be placed on undisturbed natural coarse granular soils below all existing fill and fine-grained soils, and have a minimum toe embedment depth adjacent the slope of 2 feet.

The MSE backfill should consist of imported granular material such as CDOT Class 1 structure backfill or processed on site select granular soils devoid of debris, topsoil and primarily fine grained soils. The processed on-site granular material should have a maximum size of 4 inches and less than 25% passing the No 200 sieve. The MSE backfill should be placed in 8-inch-thick loose lifts and compacted to at least 98% standard Proctor density at a moisture content within about 2% of optimum.

For the MSE wall design, a friction angle of 34 degrees, moist unit weight of 130 pcf and no cohesion can be assumed for the natural coarse granular foundation soils and CDOT Class 1 structure backfill material. A friction angle of 28 degrees, moist unit weight of 120 pcf and no cohesion can be assumed for backfill consisting of processed on site granular soils with the specifications as discussed above (4 inch maximum size and less than 25% passing the No. 200 sieve.). The MSE wall should be designed by a qualified professional with experience in the area. A global stability analysis should be performed as part of the MSE wall design.

SURFACE DRAINAGE

The following drainage precautions should be observed during construction and maintained at all times after the building has been completed:

1) Inundation of the foundation excavations and underslab areas should be avoided during construction.
2) Exterior backfill should be adjusted to near optimum moisture and compacted to at least 95% of the maximum standard Proctor density in pavement and slab areas and to at least 90% of the maximum standard Proctor density in landscape areas.

3) The ground surface surrounding the exterior of the building should be sloped to drain away from the foundation in all directions. We recommend a minimum slope of 6 inches in the first 10 feet in unpaved areas and a minimum slope of 2½ inches in the first 10 feet in paved areas. Free-draining wall backfill should be capped with filter fabric and about 2 feet of the on-site finer graded soils to reduce surface water infiltration.
4) Roof downspouts and drains should discharge well beyond the limits of all backfill.
5) Landscaping which requires regular heavy irrigation should be located at least 10 feet from foundation walls.

PAVEMENT SECTION THICKNESS

We understand asphalt pavement is proposed for the parking areas and drive lanes. Traffic loadings for the project have not been provided but are assumed to be typical of the planned development. The subgrade soils encountered at the site are generally low plasticity clayey and silty existing fill materials which are considered a relatively poor support for pavement sections and moderately susceptible to frost heave. We assume a Hveem stabilometer "R" value of about 5 for the on-site soils.

Based on our experience, an "R" value of 5, an 18 kip equivalent daily load application (EDLA) of 20, a Regional Factor of 2.0 and a serviceability index of 2.0, we recommend the minimum pavement section thickness for access drive and areas subjected to heavier traffic consist of 4 inches of asphalt on 8 inches of base course. For automobile only parking areas the minimum pavement section thickness can consist of 3 inches of asphalt on 8 inches of base course or 4 inches of asphalt on 4 inches of base course. Concrete sections should consist of 6 inches of concrete on 4 inches of base course. Providing a granular sub-base below the pavement section would increase the subgrade strength and reduce the frost heave potential.

If previously placed fill material is encountered along the proposed parking areas or drive lanes, a minimum depth of 2 feet should be removed and replaced in a moisture adjusted and compacted condition, or a granular sub-base material placed, prior the pavement section.

The asphalt should be a batched hot mix, approved by the engineer and placed and compacted to the project specifications. The base course and subbase should meet CDOT Class 6 and Class 2

specifications, respectively. All base course, subbase and required subgrade fill should be compacted to at least 95% of the maximum standard Proctor density at a moisture content within 2% of optimum. Concrete should meet CDOT Class P or D specifications and be air entrained.

If previously placed fill material is encountered in the area of the proposed parking areas or drive lanes, we should evaluate the need for removal and replacement with granular materials or imported granular materials such as single pass pit-run sand and gravel or minus 3" aggregate base course. We expect a 2 feet depth of the existing fill soils will need to be removed and replaced, likely also with a geo-grid such as Tensar TriAx 140 material on the subgrade.

Required fill below pavement areas can consist of select on-site granular soils or suitable imported granular soils approved by the geotechnical engineer. Prior to fill placement the subgrade should be scarified to a depth of 8 inches, adjusted to near optimum moisture and compacted to at least 95% of standard Proctor density. In soft or wet areas, the subgrade may require drying or stabilization prior to fill placement. A geogrid and/or subexcavation and replacement with aggregate base soils may be needed for the stabilization. The subgrade should be proof-rolled. Areas that deflect excessively should be corrected before placing pavement materials. The subgrade improvements and placement and compaction of base and asphalt materials should be monitored on a regular basis by a representative of the geotechnical engineer.

Once traffic loadings are better known, we should review our pavement section thickness recommendations.

LIMITATIONS

This study has been conducted in accordance with generally accepted geotechnical engineering principles and practices in this area at this time. We make no warranty either express or implied. The conclusions and recommendations submitted in this report are based upon the data obtained from the exploratory borings drilled at the locations indicated on Figure 1, the proposed type of construction and our experience in the area. Our services do not include determining the presence, prevention or possibility of mold or other biological contaminants (MOBC) developing in the future. If the client is concerned about MOBC, then a professional in this special field of practice should be consulted. Our findings include interpolation and extrapolation of the

subsurface conditions identified at the exploratory borings and variations in the subsurface conditions may not become evident until excavation is performed. If conditions encountered during construction appear different from those described in this report, we should be notified so that re-evaluation of the recommendations may be made.

This report has been prepared for the exclusive use by our client for planning and preliminary design purposes. We are not responsible for technical interpretations by others of our information. As the project evolves, we should provide continued consultation and field services during construction to review and monitor the implementation of our recommendations, and to verify that the recommendations have been appropriately interpreted. Significant design changes may require additional analysis or modifications to the recommendations presented herein. We recommend on-site observation of excavations and foundation bearing strata and testing of structural fill by a representative of the geotechnical engineer.

Respectfully Submitted,

Kumar & Associates, Inc.

Robert L. Duran, P.E.

Reviewed by:

David A. Young, P.E.

RLD/kac

cc: SGM, Inc. – Dave Kotz (davek@sgm-inc.com)

20-7-766	Kumar & Associates	EXISTING CONDITIONS	LOCATION OF EXPLORATORY BORINGS	Fig. 1A

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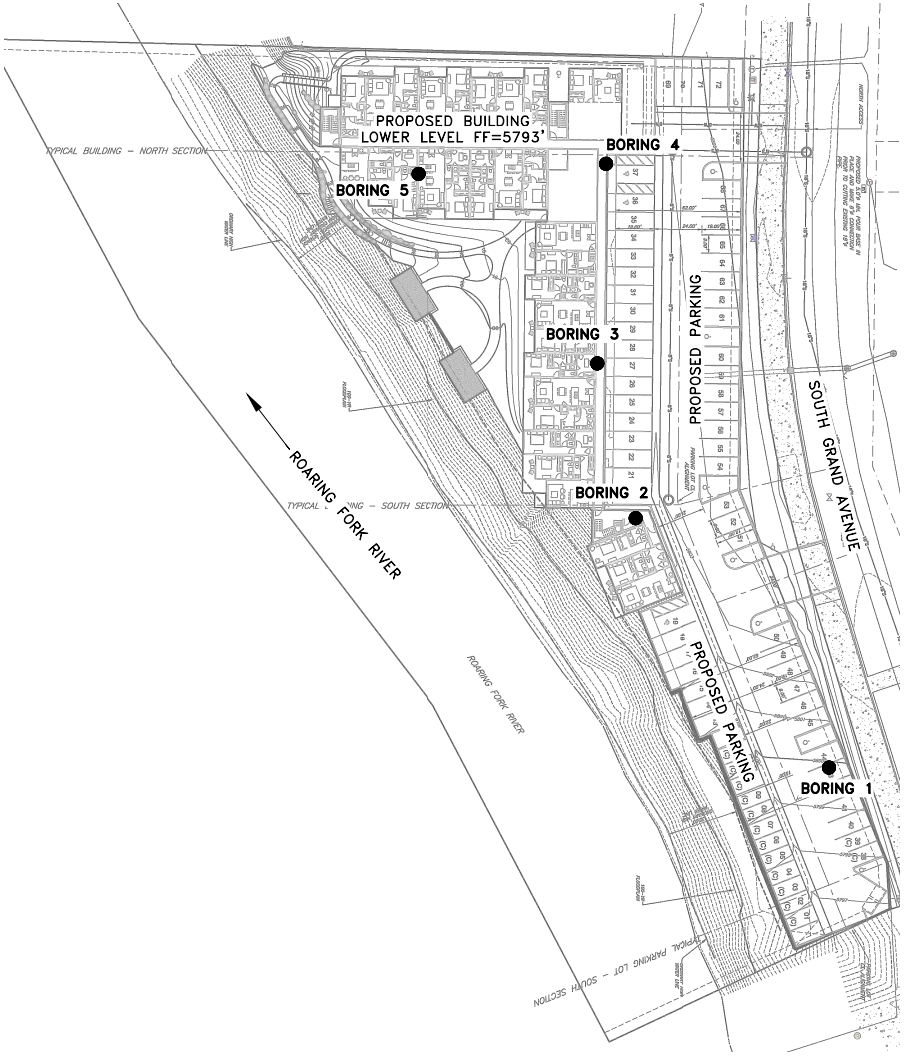

30 0 30 60

APPROXIMATE SCALE–FEET

20–7–766	Kumar & Associates	PROPOSED CONSTRUCTION	LOCATION OF EXPLORATORY BORINGS	Fig. 1B

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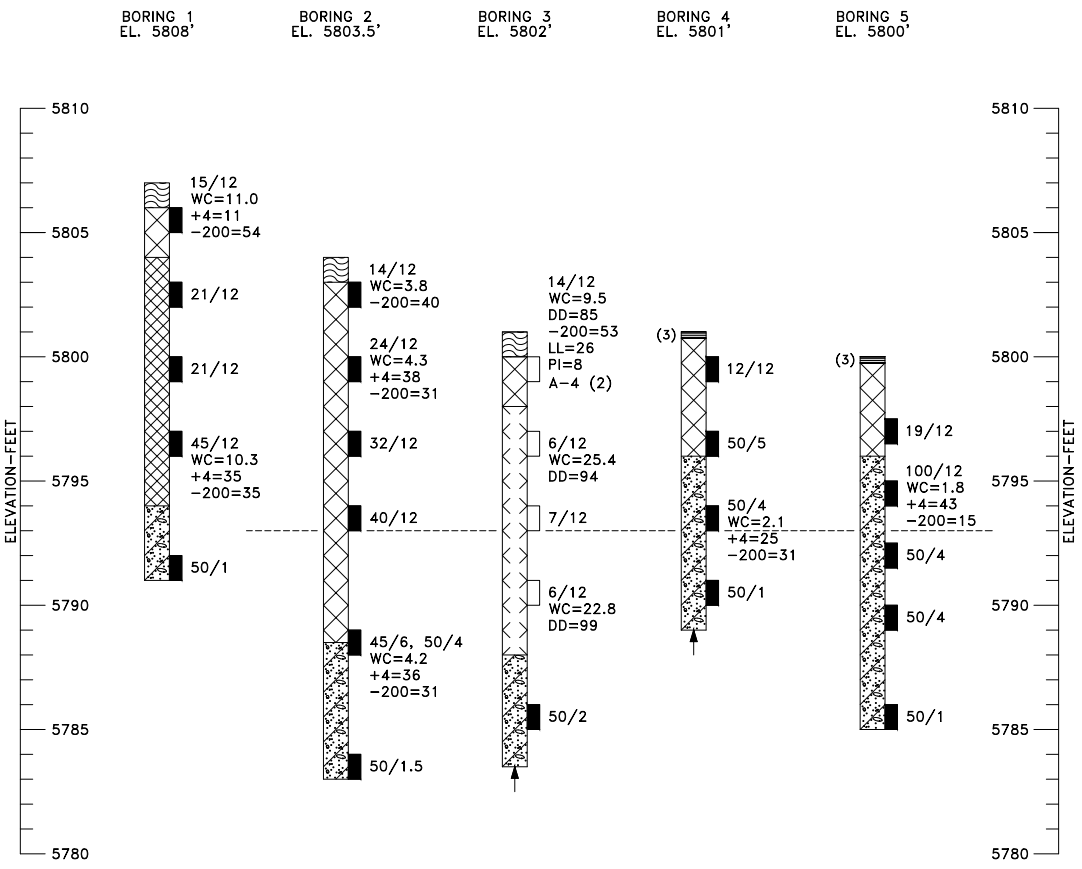

LEGEND

(3) ASPHALT; THICKNESS IN INCHES SHOWN IN PARENTHESES TO LEFT OF THE LOG.

TOPSOIL; ORGANIC SILTY CLAY AND/OR LANDSCAPE SOD.

FILL; MAN-PLACED SANDY SILTY CLAY WITH GRAVEL TO CLAYEY SILTY SANDY GRAVEL, SCATTERED COBBLES, SOME CONSTRUCTION DEBRIS, STIFF TO MEDIUM DENSE, SLIGHTLY MOIST TO MOIST, MIXED BROWN.

FILL: MAN-PLACED SILTY CLAYEY SAND AND GRAVEL WITH COBBLES, MEDIUM DENSE, MOIST, RED-BROWN, PRIMARILY ANGULAR ROCKS.

FILL; MAN-PLACED SANDY SILTY CLAY MIXED WITH SOME TOPSOIL, MEDIUM STIFF, VERY MOIST, MIXED BROWN AND DARK BROWN.

GRAVEL AND COBBLES (GM); WITH BOULDERS, SANDY, SILTY, DENSE, SLIGHTLY MOIST, LIGHT BROWN, ROUNDED TO SUBROUNDED ROCKS.

DRIVE SAMPLE, 2-INCH I.D. CALIFORNIA LINER SAMPLE.

DRIVE SAMPLE, 1 3/8-INCH I.D. SPLIT SPOON STANDARD PENETRATION TEST.

15/12 DRIVE SAMPLE BLOW COUNT. INDICATES THAT 15 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE THE SAMPLER 12 INCHES.

PRACTICAL AUGER DRILLING REFUSAL.

NOTES

1. THE EXPLORATORY BORINGS WERE DRILLED ON JANUARY 6 AND 7, 2020 WITH A 4-INCH-DIAMETER CONTINUOUS-FLIGHT POWER AUGER.
2. THE LOCATIONS OF THE EXPLORATORY BORINGS WERE MEASURED APPROXIMATELY BY TAPING FROM FEATURES SHOWN ON THE SITE PLAN PROVIDED.
3. THE ELEVATIONS OF THE EXPLORATORY BORINGS WERE OBTAINED BY INTERPOLATION BETWEEN CONTOURS ON THE SITE PLAN PROVIDED.
4. THE EXPLORATORY BORING LOCATIONS AND ELEVATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
5. THE LINES BETWEEN MATERIALS SHOWN ON THE EXPLORATORY BORING LOGS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN MATERIAL TYPES AND THE TRANSITIONS MAY BE GRADUAL.
6. GROUNDWATER WAS NOT ENCOUNTERED IN THE BORINGS AT THE TIME OF DRILLING. FLUCTUATIONS IN THE WATER LEVEL MAY OCCUR WITH TIME.
7. LABORATORY TEST RESULTS:
   WC = WATER CONTENT (%) (ASTM D2216);
   DD = DRY DENSITY (pcf) (ASTM D2216);
   +4 = PERCENTAGE RETAINED ON NO. 4 SIEVE (ASTM D6913);
   -200= PERCENTAGE PASSING NO. 200 SIEVE (ASTM D1140);
   LL = LIQUID LIMIT (ASTM D4318);
   PI = PLASTICITY INDEX (ASTM D4318);
   A-2-6 (0) = AASHTO CLASSIFICATION (GROUP INDEX) (AASHTO M145).

20-7-766	Kumar & Associates		LOGS OF EXPLORATORY BORINGS	Fig. 2

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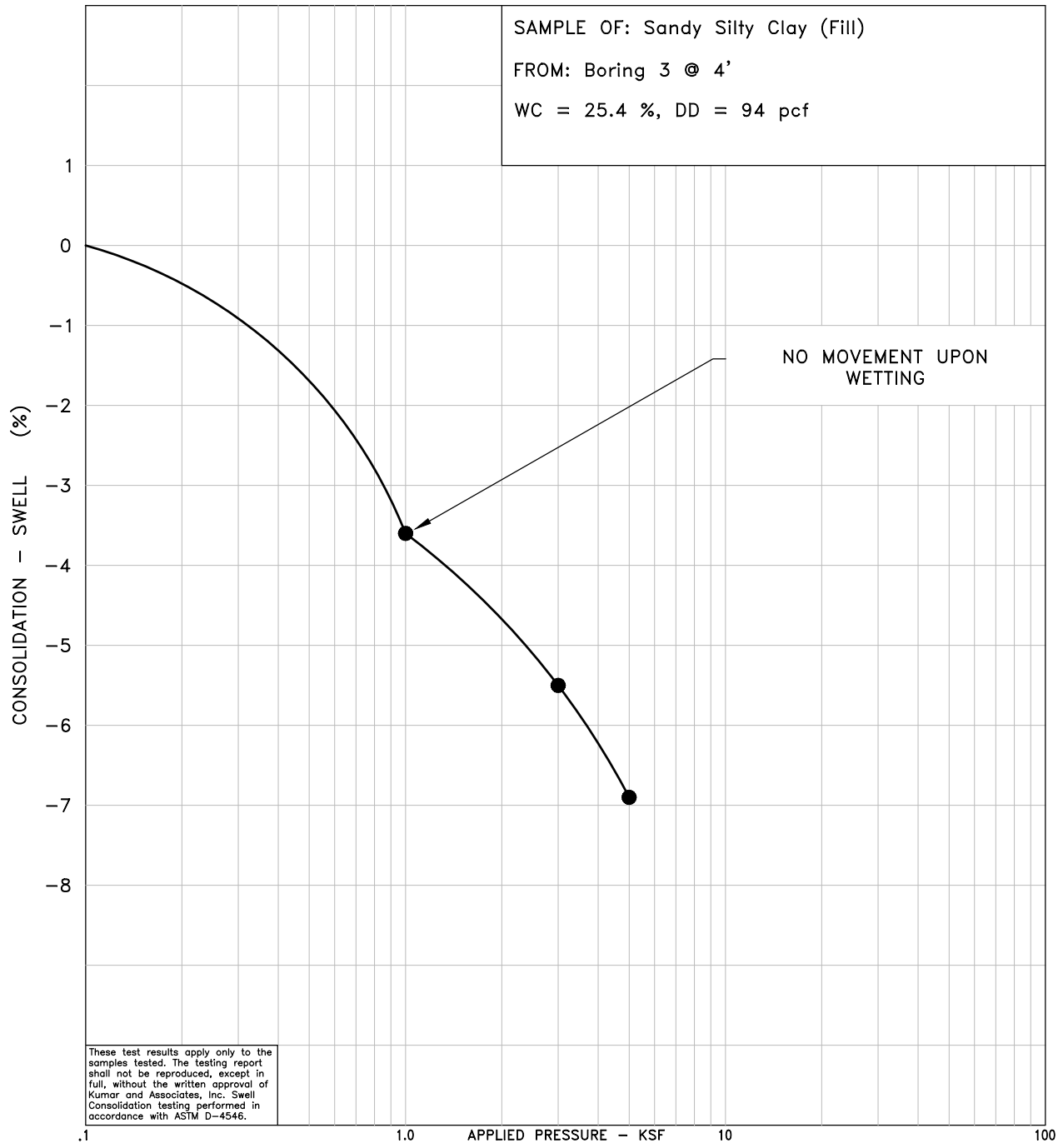

20-7-766	Kumar & Associates	SWELL-CONSOLIDATION TEST RESULT	Fig. 3

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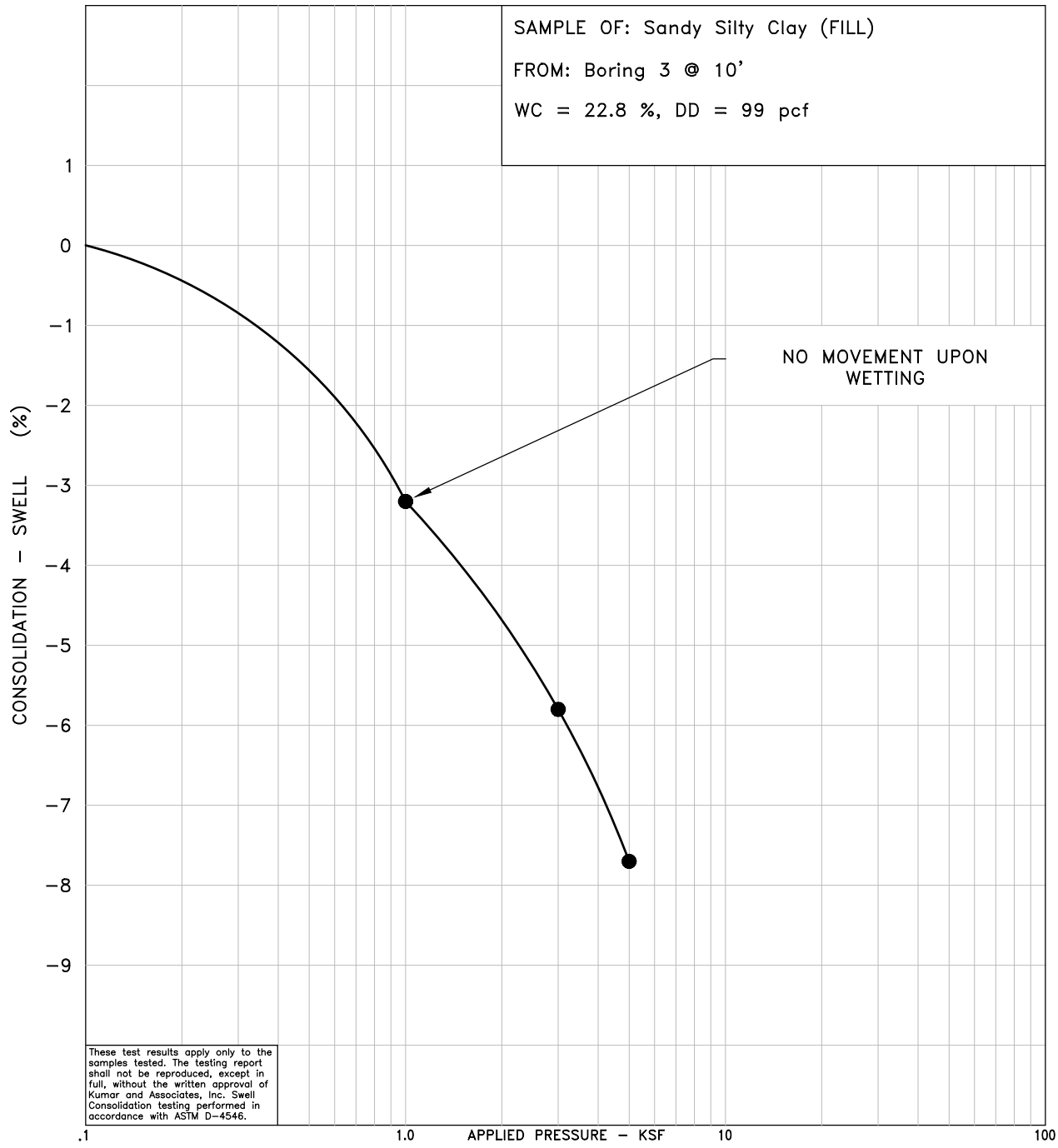

20-7-766	Kumar & Associates	SWELL-CONSOLIDATION TEST RESULT	Fig. 4

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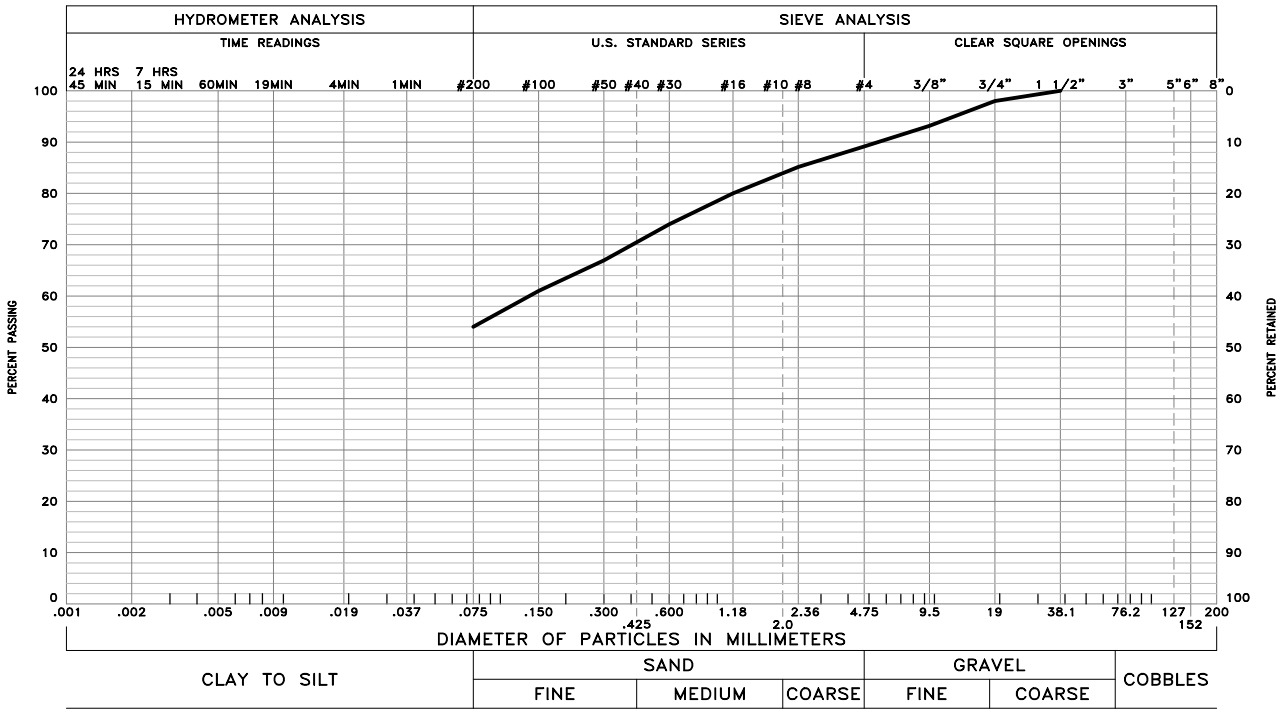
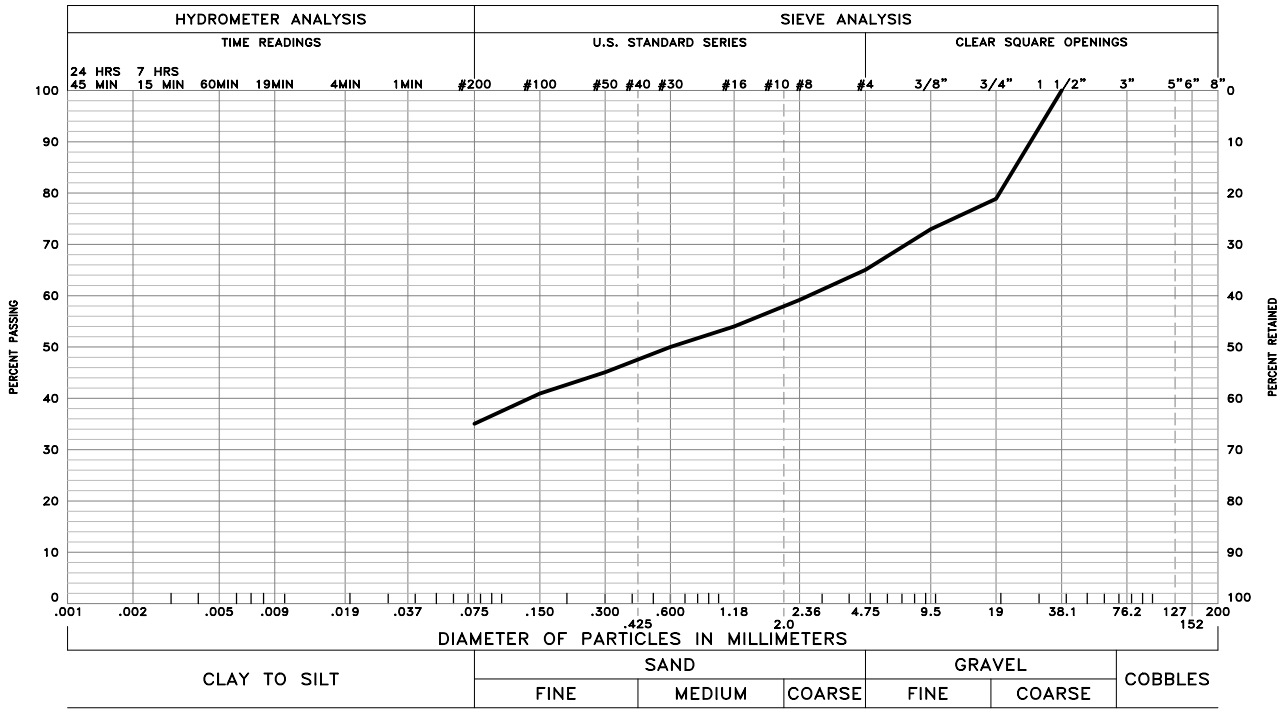


GRAVEL 11 % SAND 35 % SILT AND CLAY 54 %

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Sandy Silty Clay with Gravel (Fill) FROM: Boring 1 @ 1'



GRAVEL 35 % SAND 30 % SILT AND CLAY 35 %

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Silty Clayey Sand and Gravel (Fill) FROM: Boring 1 @ 10'

These test results apply only to the samples which were tested. The testing report shall not be reproduced, except in full, without the written approval of Kumar & Associates, Inc. Sieve analysis testing is performed in accordance with ASTM D6913, ASTM D7928, ASTM C136 and/or ASTM D1140.

20-7-766	Kumar & Associates	GRADATION TEST RESULTS	Fig. 5

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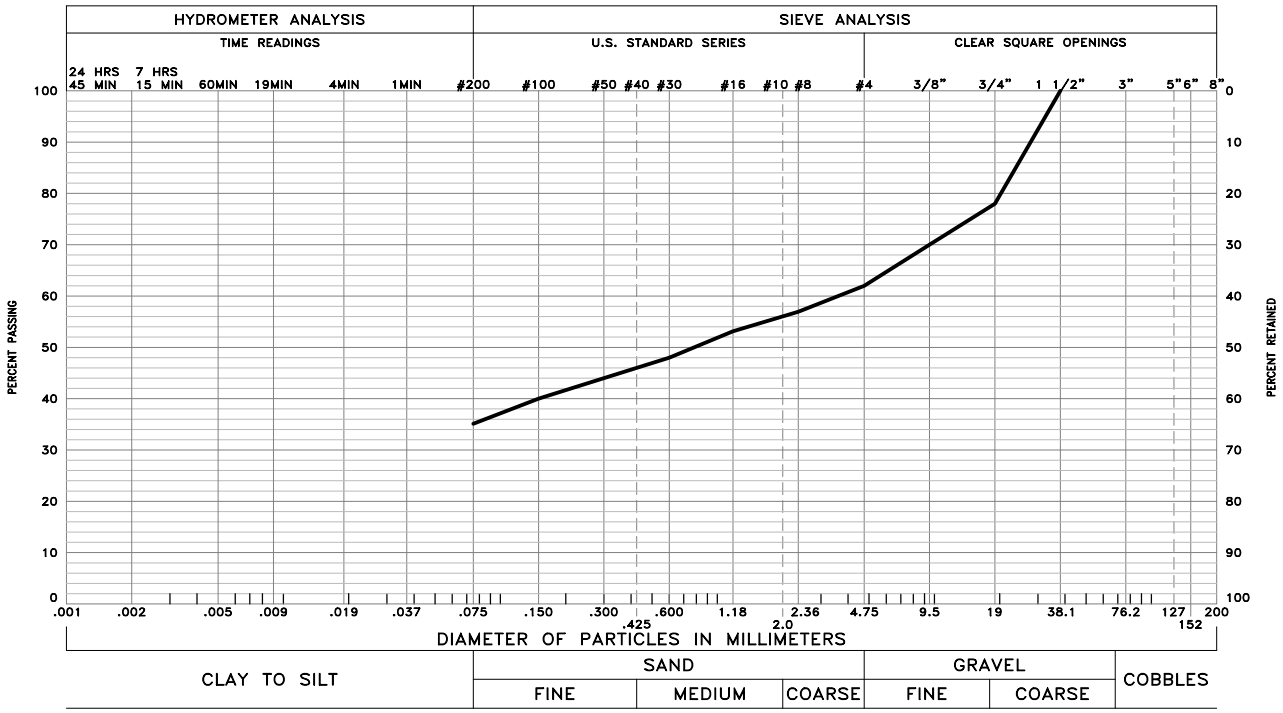
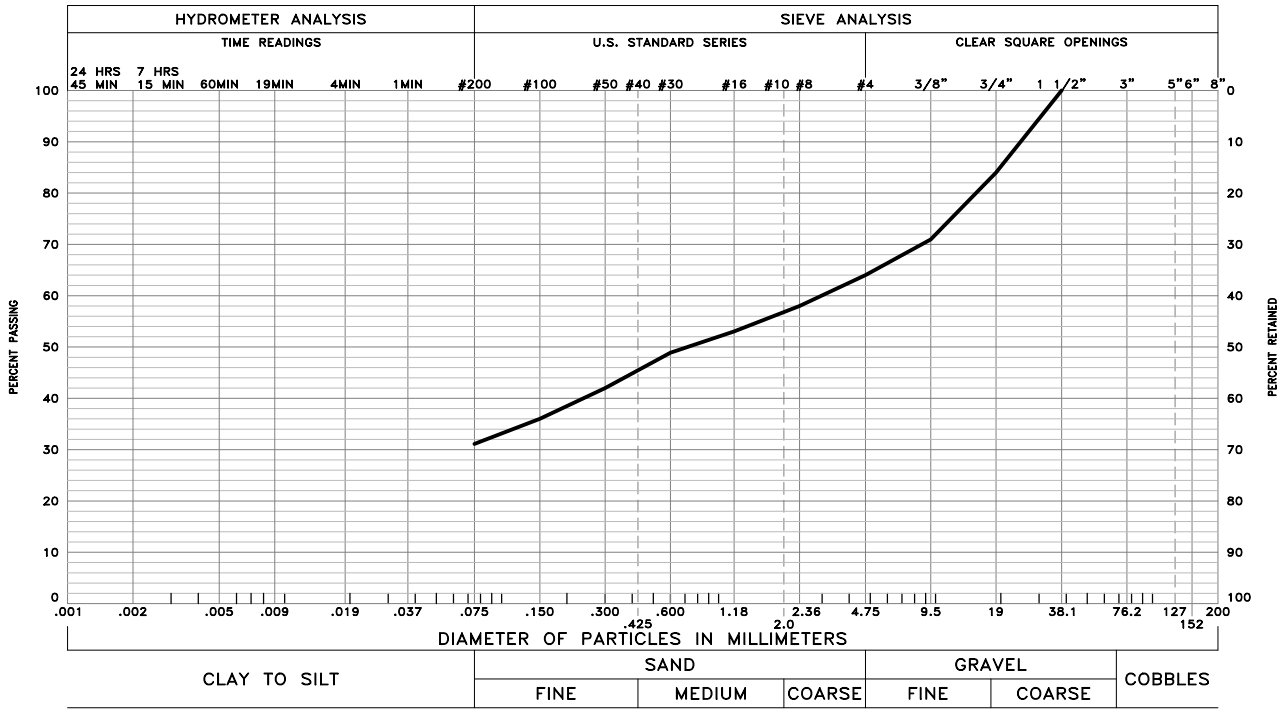


GRAVEL 38 % SAND 27 % SILT AND CLAY 35 %

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Clayey Silty Sand and Gravel (Fill) FROM: Boring 2 @ 4'



GRAVEL 36 % SAND 33 % SILT AND CLAY 31 %

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Clayey Silty Sand and Gravel (Fill) FROM: Boring 2 @ 15'

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20-7-766	Kumar & Associates	GRADATION TEST RESULTS	Fig. 6

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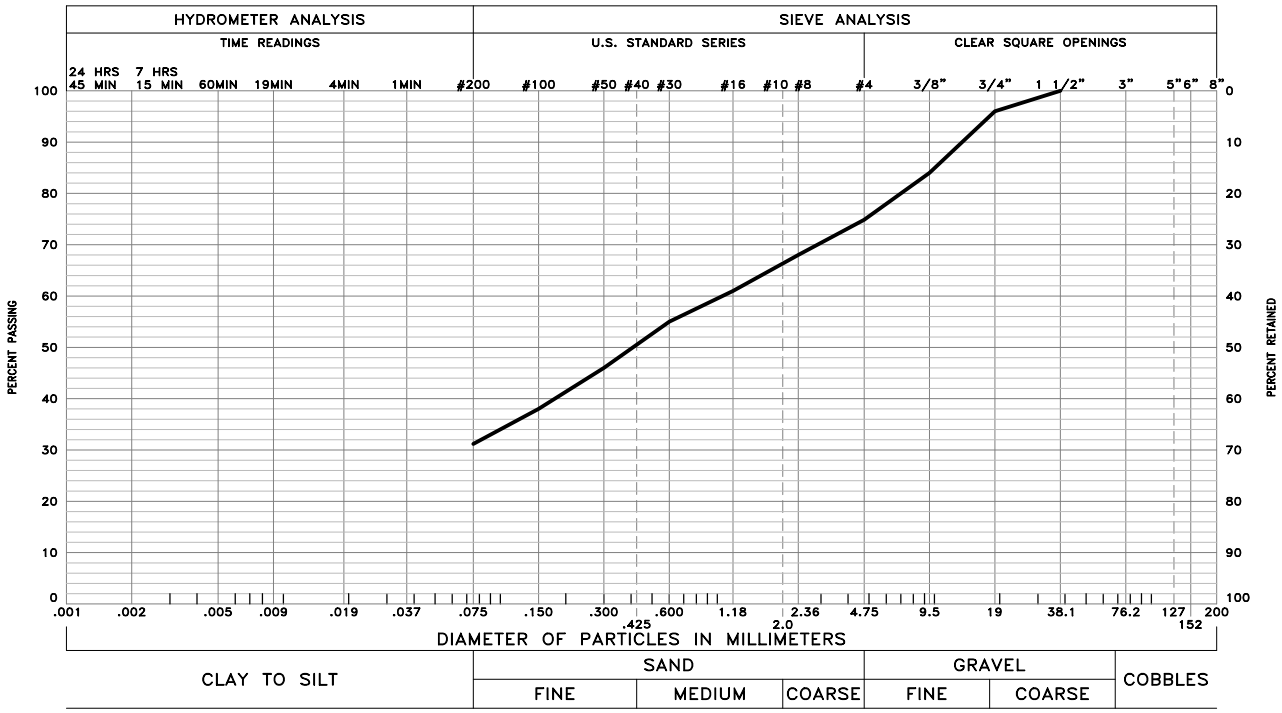
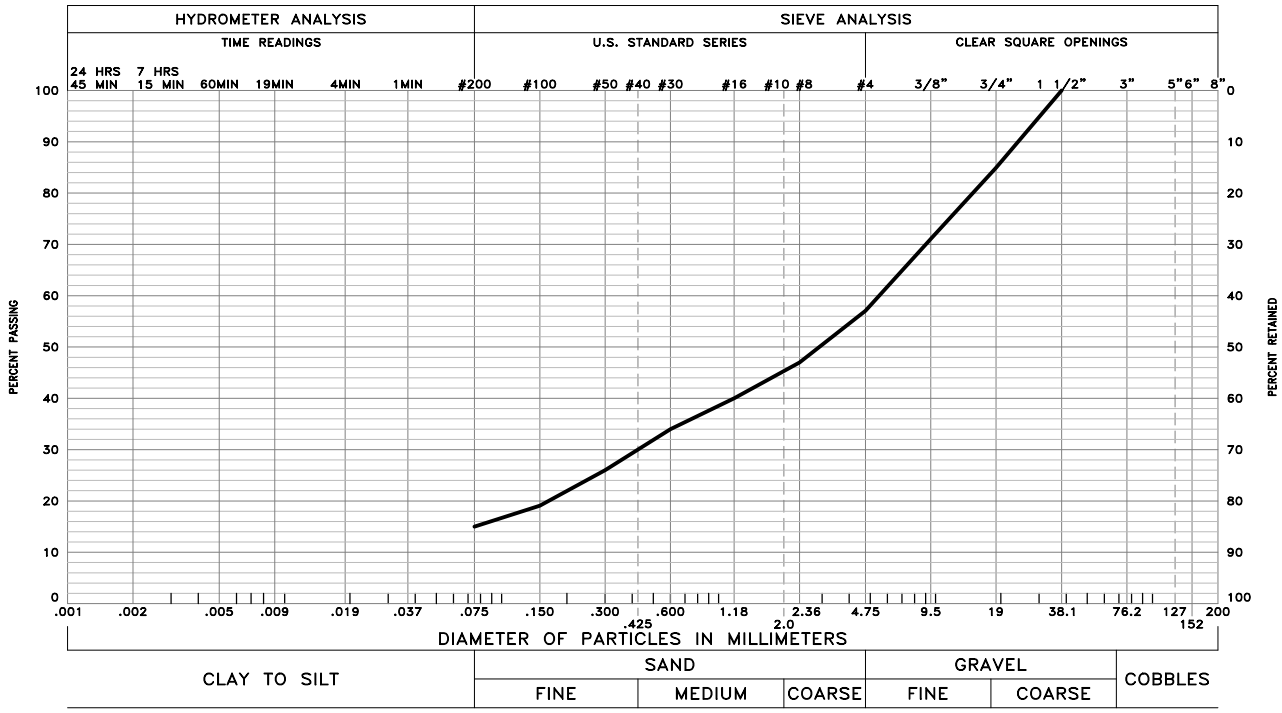


GRAVEL 25 % SAND 44 % SILT AND CLAY 31 %

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Silty Sand with Gravel FROM: Boring 4 @ 7'



GRAVEL 43 % SAND 42 % SILT AND CLAY 15 %

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Silty Sand and Gravel FROM: Boring 5 @ 5'

These test results apply only to the samples which were tested. The testing report shall not be reproduced, except in full, without the written approval of Kumar & Associates, Inc. Sieve analysis testing is performed in accordance with ASTM D6913, ASTM D7928, ASTM C136 and/or ASTM D1140.

20-7-766	Kumar & Associates	GRADATION TEST RESULTS	Fig. 7

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Kumar & Associates, Inc.®
Geotechnical and Materials Engineers
and Environmental Scientists

TABLE 1
SUMMARY OF LABORATORY TEST RESULTS

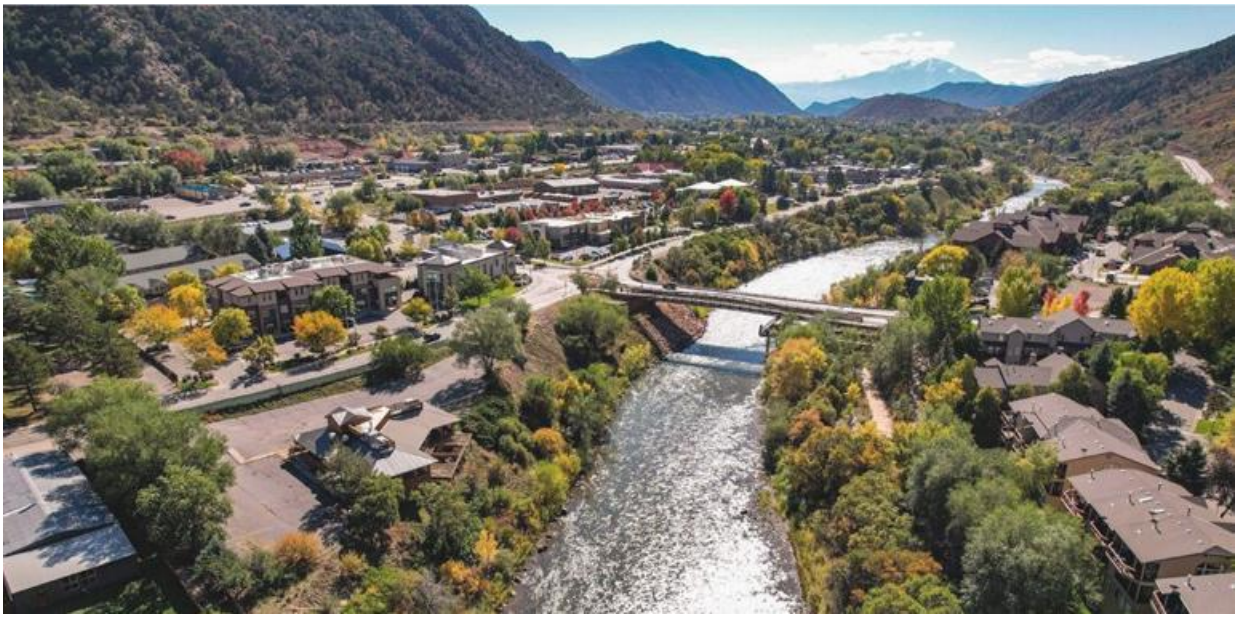
Project No. 20-7-766

SAMPLE LOCATION		NATURAL MOISTURE CONTENT	NATURAL DRY DENSITY	GRADATION		PERCENT PASSING NO. 200 SIEVE	ATTERBERG LIMITS		AASHTO CLASSIFIACTION		SOIL TYPE
BORING	DEPTH (ft)	(%)	(pcf)	GRAVEL (%)	SAND (%)		LIQUID LIMIT (%)	PLASTIC INDEX (%)			
1	1	11.0		11	35	54					Sandy Silty Clay with Gravel (Fill)
	10	10.3		35	30	35					Silty Clayey Sand and Gravel (Fill)
2	1	3.8				40					Very Clayey Silty Sand and Gravel (Fill)
	4	4.3		38	27	35					Clayey Silty Sand and Gravel (Fill)
	15	4.2		36	33	31					Clayey Silty Sand and Gravel (Fill)
3	1	9.5	85			53	26	8	A-4 (2)		Sandy Silty Clay with Gravel (Fill)
	4	25.4	94								Sandy Silty Clay (Fill)
	10	22.8	99								Sandy Silty Clay (Fill)
4	7	2.1		25	44	31					Silty Sand with Gravel
5	5	1.8		43	42	15					Silty Sand and Gravel

Exhibit D

Traffic Impact Study

Transportation Impact Analysis
for
The Rivers
Glenwood Springs, Colorado



December 10, 2021

PREPARED FOR:
North Mountain Partners
2327 S Loveland Street
Lakewood, CO 80228
Attention: Brian Wilson

PREPARED BY:
McDowell Engineering, LLC
PO Box 4259
Eagle, CO 81631
970.623.0788

Contact: Kari J. McDowell Schroeder, PE, PTOE
Project Number: M1538

Statement of Engineering Qualifications

Kari J. McDowell Schroeder, PE, PTOE is a Transportation and Traffic Engineer for McDowell Engineering, LLC. Ms. McDowell Schroeder has over twenty-four years of extensive traffic and transportation engineering experience. She has completed numerous transportation studies and roadway design projects throughout the State of Colorado. Ms. McDowell Schroeder is a licensed Professional Engineer in the State of Colorado and has her certification as a Professional Traffic Operations Engineer from the Institute of Transportation Engineers.

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1.0 Project Description

McDowell Engineering has prepared a Level Two Auxiliary Turn Lane Assessment summarizing the anticipated traffic generated from the proposed The Rivers residential development in Glenwood Springs, Colorado. The development is located at 2525 S Grand Ave approximately 700 feet west of State Highway 82 and 350' north of 27th Street. The proposed development will be constructed on 1 lot comprised of approximately 2.6 acres total. The lot currently has a closed restaurant constructed on the parcel. The restaurant building will be removed from the site and replaced with new construction of the proposed project. The project is proposing 17 townhome residential dwelling units. The property is accessed directly by Grand Avenue east of the project site.

The location of the residential development is shown in the vicinity map in **Figure 1**. The current site plan is shown in **Figure 2.**

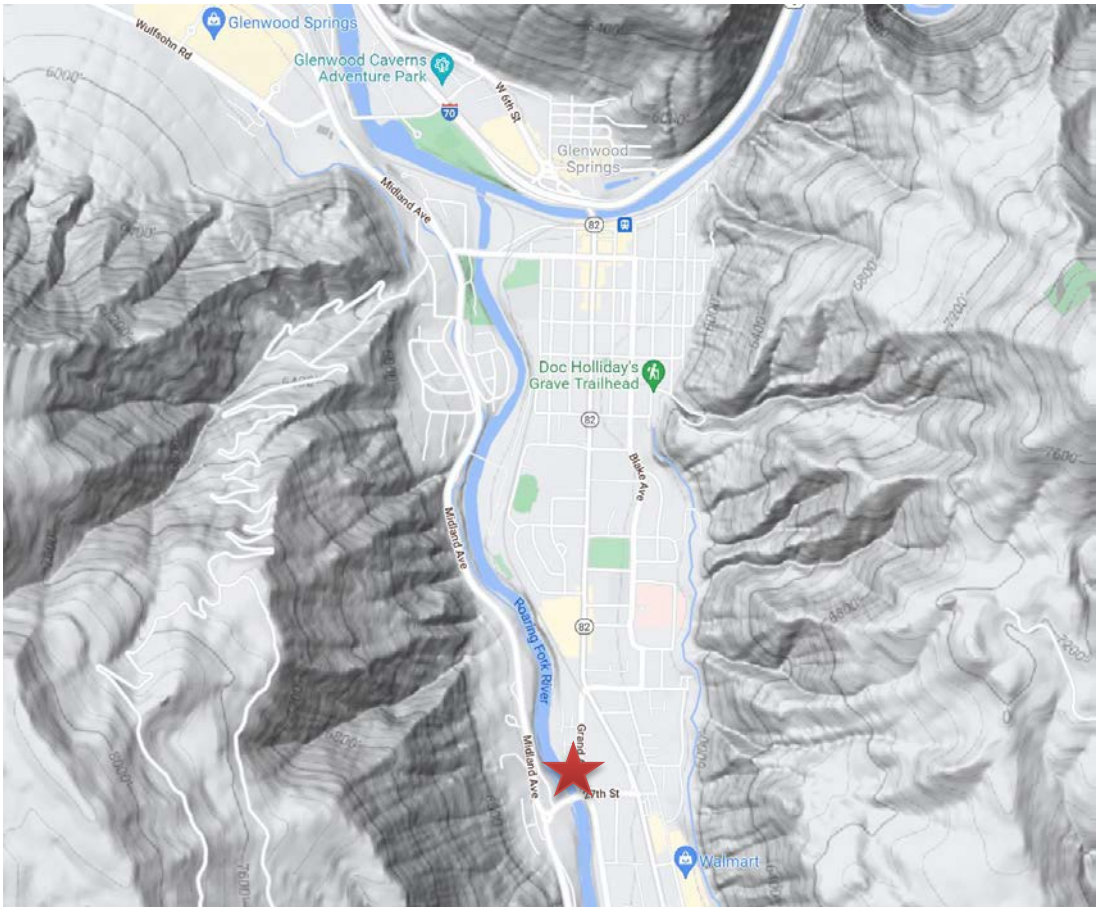


Figure 1: Vicinity Map

The project is proposing two accesses with a one-way configuration. The accesses will have direct connectivity to Grand Avenue. The proposed site plan is shown in **Figure 2**.

Figure 2: Area Map

2.0 Existing Conditions

2.1 Road Network

SH 82 (South Glen Avenue): SH 82 is a State Highway that connects Interstate 70 at Glenwood Springs to US 24 south of Leadville. This major regional route is classified by the State as Access Category NR-B, Non-Rural Arterial, in the vicinity of the project. While SH 82 is generally considered an east/west highway, the alignment in this area is more north/south in nature. The posted speed limit is 35mph south of 23rd Street and 25mph north of 23rd Street. SH 82 is a four-lane facility from Glenwood Springs to just north of the City of Aspen.

South Grand Avenue: South Grand Avenue is a two-lane collector that provides access to residential and commercial development to the west, parallel to SH 82. The posted speed on South Grand Avenue is 25mph. South Grand Avenue begins at the intersection of SH 82 / 23rd Street / South Grand Avenue and connects to 27th Street on the south.

The intersection of 23rd Street / South Grand Avenue and SH 82 is signalized.

27th Street: 27th Street is a two-lane collector roadway that connects SH 82 to Blake Avenue to the east and SH 82 to Midland Avenue to the west. The posted speed limit on 27th Street is 25 mph. 27th Street accesses local businesses and residential neighborhoods on both sides of SH 82 including a RFTA transit station just east of SH 82.

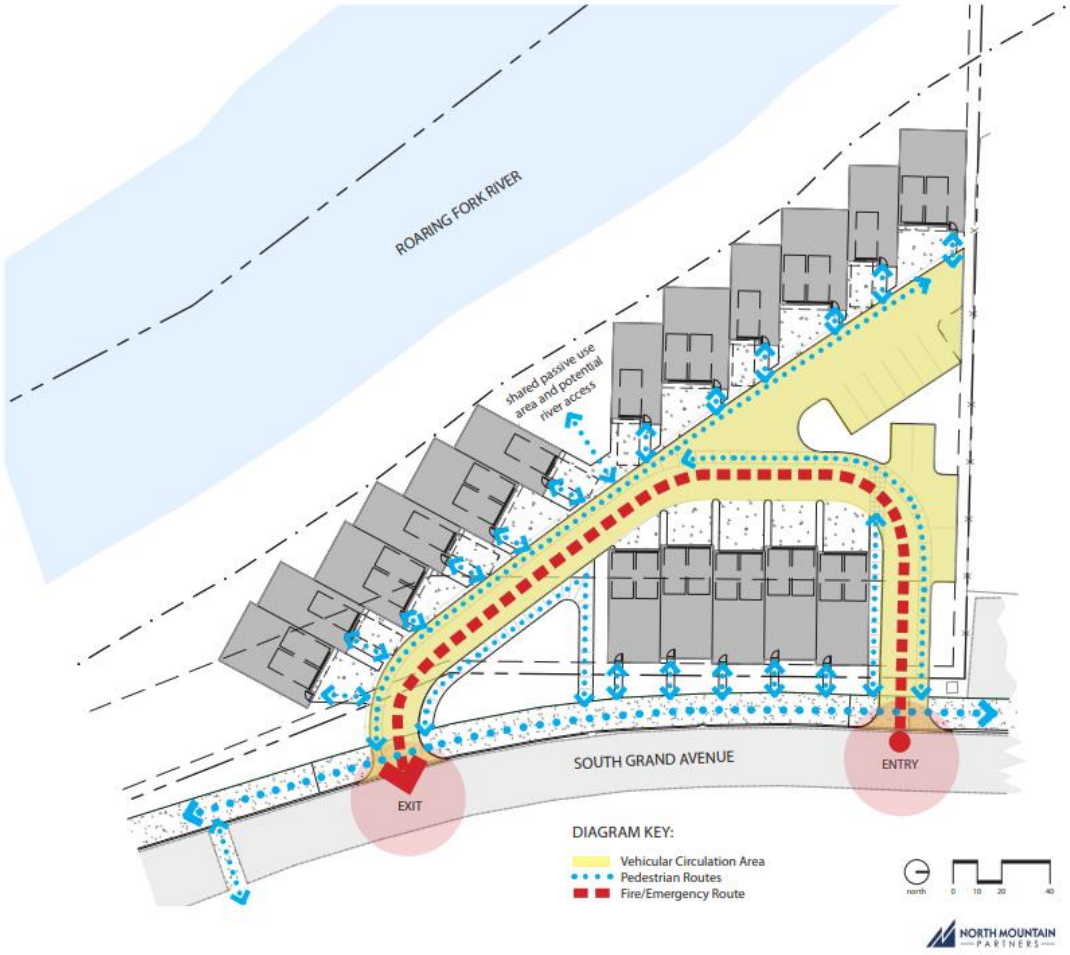
The intersection of 27th Street and SH 82 is signalized.

2.2 Site Access Description

The project site is currently accessed by two paved accesses located approximately 450' and 230' north of 27th Street, respectively. The accesses are be located on the east side of the parcel. The existing access locations are shown in **Figure 2**.

With the proposed project, the existing paved north access will remain as the entrance to the facility. The existing paved south access will remain as the exit to the facility. Refer to **Figure 3**.

Figure 3: Site Circulation Plan



2.3 Traffic Data Collection

Weekday traffic counts were obtained on Tuesday September 28, 2021, between 7:00 AM and 9:00 AM and 4:00 PM and 6:00 PM. The locations of the counts were obtained at the following locations:

- Midland Ave & 27th St
- Grand Ave & 27th St
- S Glen Ave (SH 82) & 27th St
- Grand Ave & S Glen Ave (SH 82)
- Grand Ave & Site Access

The morning peak hour occurred between 7:30 AM and 8:30 PM. The evening peak hour occurred between 4:45 PM and 5:45 PM.

A few adjustments were made to the traffic data collected to reflect traffic conditions in the field. At Midland Ave & 27th Street counts were obtained for a private driveway with access to the roundabout. It is not a separate leg on the roundabout and does

not provide circulation for the roundabout. Therefore, traffic at this driveway was moved to the main legs. At Grand Ave and the Site access, traffic was represented as one large intersection. In the field, this intersection is two intersections and should be analyzed as two intersections. Therefore, the data was split into two intersections.

Detailed traffic count data is included in the **Appendix**.

3.0 Future Traffic Projections

3.1 Background Infrastructure Assumptions

There are no known proposed development projects that would impact the traffic projections significantly near the proposed site.

3.2 Background Traffic Growth

The City of Glenwood Springs and CDOT completed the *City of Glenwood Springs State Highway 82 Access Study*[1] in September 2013. The Study provides Year 2032 traffic volume projections for the SH 82 corridor including the intersections of SH 82 / 23rd / South Grand Avenue, and SH 82 / 27th Street. The *Access Control Plan* recommends a background traffic growth rate of 2%. This growth rate was used for all traffic forecasts. The methodology for traffic forecasting is consistent with nearby projects.

3.3 Seasonal Adjustment Factor

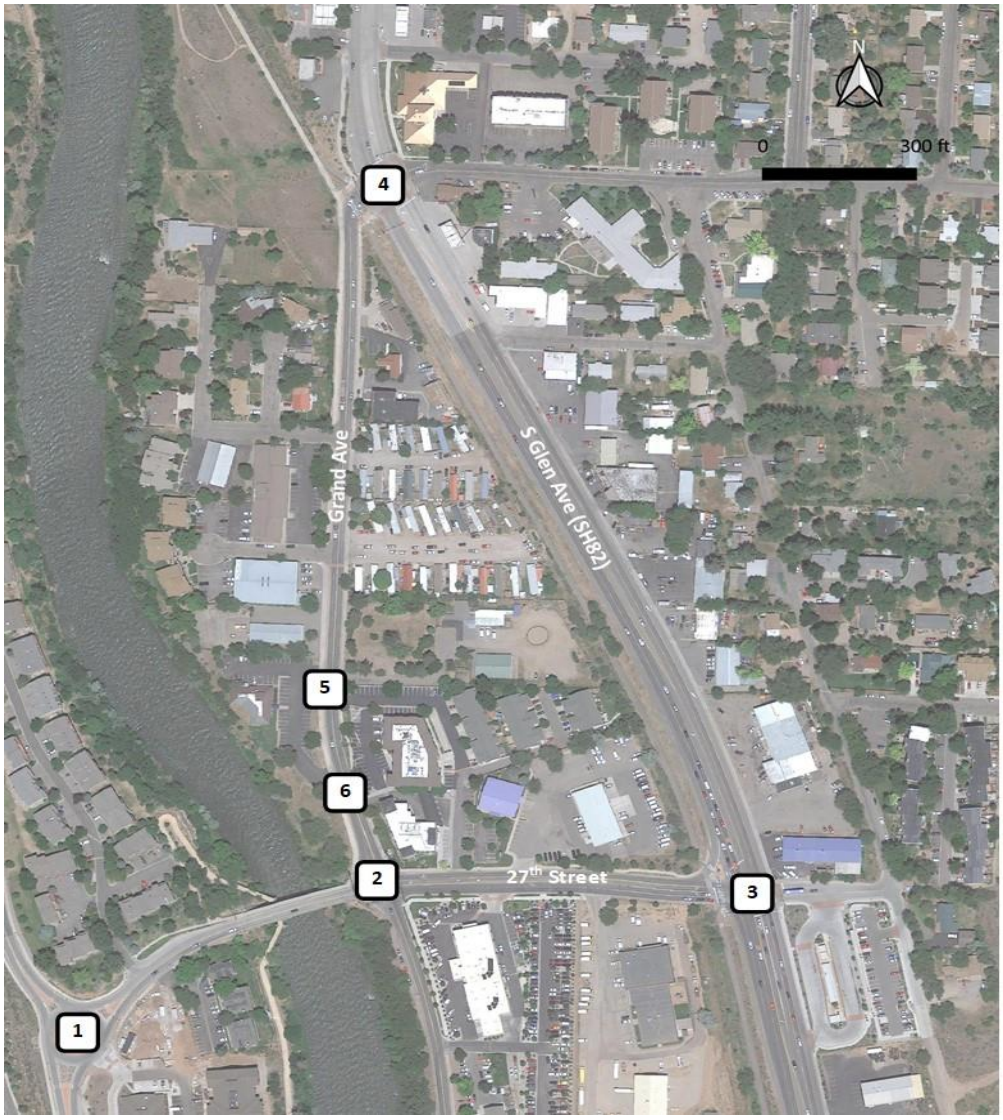
The peak traffic in Glenwood Springs occurs during the summer months. Traffic counts were obtained in September. Based upon CDOT OTIS traffic station #000214, a seasonal adjustment factor of 1.04 was applied to September traffic counts to adjust counts to July traffic volumes. Seasonal adjustment calculations are included in the **Appendix**.

3.4 Background Traffic

The Year 2021 Existing traffic volumes can be found in **Figure 4**. The resulting Year 2022 background traffic volumes can be found in **Figure 5. Figure 6** shows the Year 2042 background traffic volumes.

[1] *City of Glenwood Springs State Highway 82 Access Study*. Stolfus & Associates, 2013.

Figure 4: 2021 Existing



4

174/197 1437/676 33/28	35/36 25/61 79/109
124/106 18/25 2/3	2/21 903/1578 57/69

5

201/239 5/0	2/3 5/4
1/0 1/3	1/2 129/122 13/23

6

187/235 15/7	11/21 9/8
	125/126 13/5

1

111/91 292/164	64/444 168/379
	150/126 441/193

2

107/200 56/36 34/19	15/36 103/448 16/21
108/58 549/259 81/36	23/194 23/37 37/42

3

26/47 1400/713 15/12	11/18 6/16 46/32
208/111 10/4 417/216	110/411 755/1523 10/57

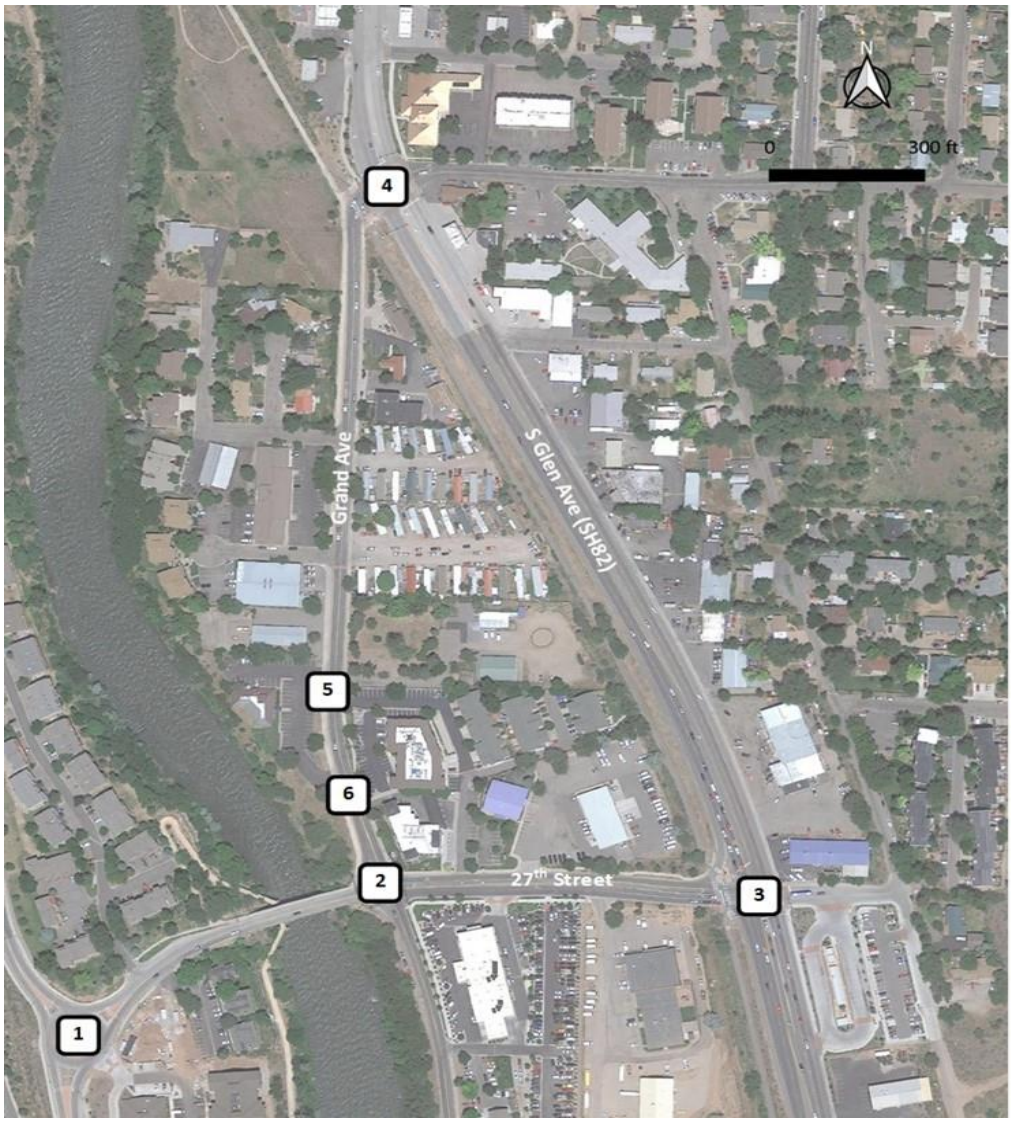
McDowell Engineering, LLC
Transportation Engineering Consultants

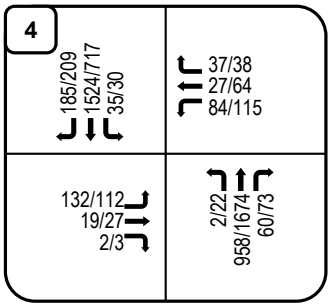
LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

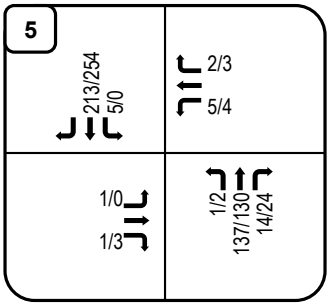
Project Number	M1538
Prepared By	GWS
	12/10/2021

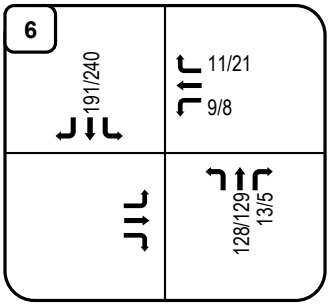
The Rivers
Glenwood Springs, CO

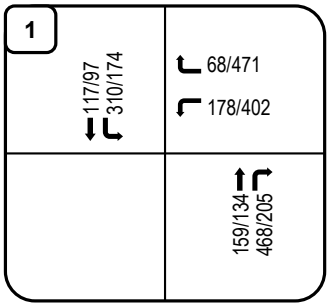
Figure 5: 2022 Background

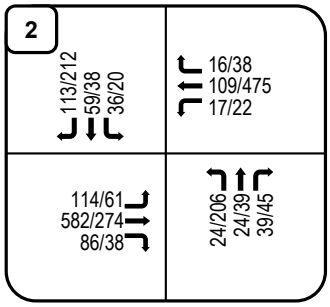


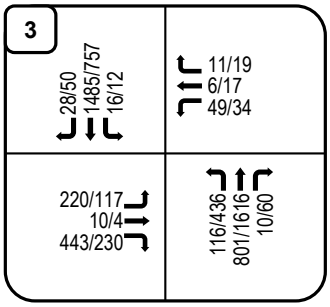










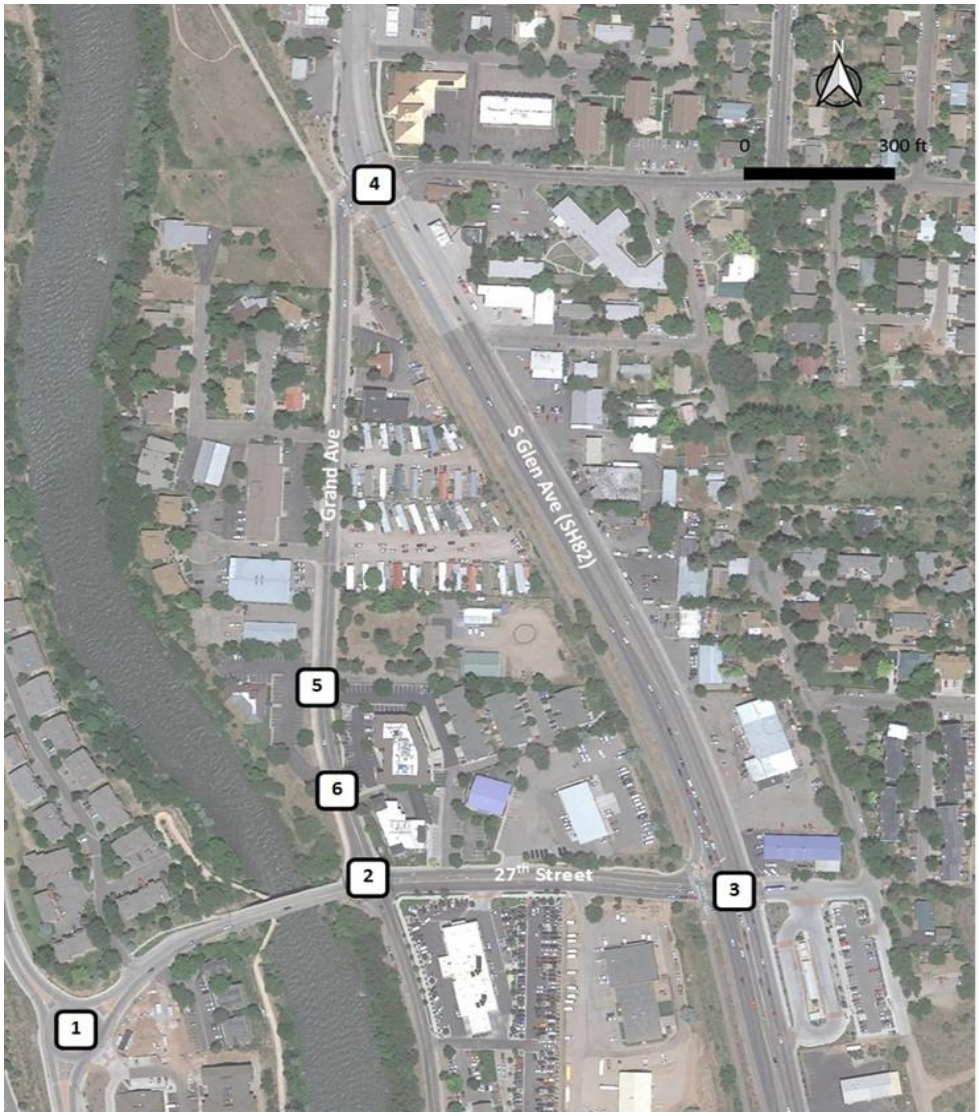


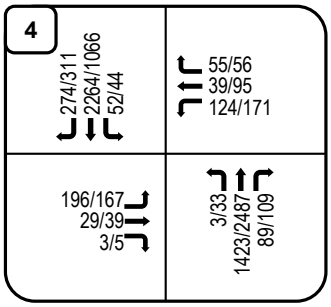
LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

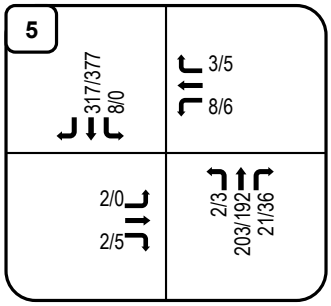
McDowell Engineering, LLC
Transportation Engineering Consultants

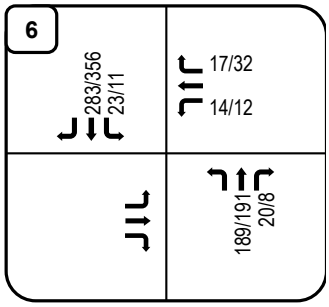
Project Number	M1538
Prepared By	GWS
The Rivers Glenwood Springs, CO	12/10/2021

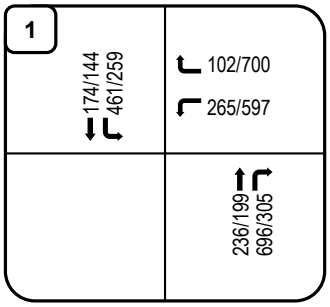
Figure 6: 2042 Background

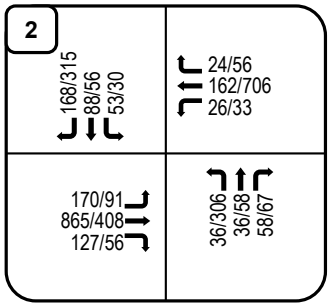


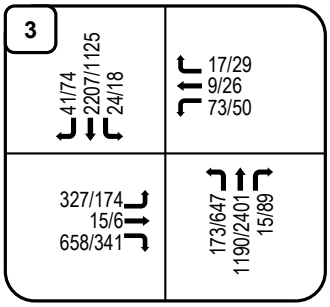












LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

Project Number	M1538
Prepared By	GWS
	12/10/2021

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4.0 Project Traffic

4.1 Existing Land Use

The existing parcel currently has a vacant restaurant constructed on the lot. The restaurant was closed in June 2021 and will be removed prior to construction of the townhomes. Therefore, there are no trips generated from the existing use.

4.2 Proposed Land Use

The applicant is proposing a new, 17-unit, townhouse complex located on Grand Ave between 23rd Street and 27th Street. Each dwelling unit will have parking onsite with additional guest parking on the north side of the parcel. Internal circulation will be primarily one-way. (**Figure 3**)

4.3 Trip Generation

The anticipated traffic generation for this project was calculated using the Institute of Transportation Engineers' (ITE's) *10th Edition of the Trip Generation Manual*[2]. The national standard rates were applied to the size/number of each use to determine the average weekday and morning/evening peak hour traffic volumes. ITE land use code (LUC) #220 (Multifamily Housing Low-Rise) was used for the townhouse dwelling units in the trip generation analysis.

4.4 Multi-Modal Trip Reduction

The project is in close proximity to transit stops. The *RFTA* park n' ride transit stop is located on the south side of the 27th Street and is approximately 1,200' from the southeast corner of the parcel. The park n' ride transit stop is within the ¼ mile walking distance (1320') which is commonly used as a walkable distance to transit. A local circulator bus system, as well as a regional provider, utilize these transit stops and provide both local and regional transit service from Rifle to Aspen.

As a result of the close proximity to transit and extensive sidewalks, the project is conducive to supporting multi-modal travel options. As a result, a ten percent (10%) multi-modal reduction has been applied.

4.5 Site Generated Traffic

Based upon the applicant's proposed land use, the site is anticipated to generate 79 vehicle trips per day. This includes 11 trips during the morning peak hour (4 inbound + 7 outbound) and 12 trips during the evening peak hour (7 inbound + 5 outbound). Refer to **Table 1** for trip generation calculations and further breakdown of these trips.

[2] *Institute of Transportation Engineers, Trip Generation Manual, 10th Edition*, September 2017

Table 1: Trip Generation Table

ITE Code	Units [2]	Eq. Coef	ITE Trip Generation Equation[3] Avg. Weekday	AM Peak Hour	PM Peak Hour	Average Weekday Trips (VPD)	Morning Peak Hour Inbound % Trips	Morning Peak Hour Inbound Trips	Morning Peak Hour Outbound % Trips	Morning Peak Hour Outbound Trips	Evening Peak Hour Inbound % Trips	Evening Peak Hour Inbound Trips	Evening Peak Hour Outbound % Trips	Evening Peak Hour Outbound Trips
Proposed Land Use														
Residential Development														
#220 - Multifamily Housing (Low-Rise)	17 DU	Type a= b=	A 7.56 -40.86	B 0.94 -0.29	A 0.66 1.41	88	28%	4	72%	8	59%	8	41%	6
Multi-Modal Reduction	*-10%*					*-9*		*0*		*-1*		*-1*		*-1*
Proposed New Trips						**79**		**4**		**7**		**7**		**5**

Notes:

[1] Values obtained from *Trip Generation, 10th Edition,* Institute of Transportation Engineers, 2017.

[2] DU = Dwelling Units, kSF = 1,000 Square Feet

[3] Fitted curve equations from ITE Land Uses - Equation Type A is T = a * X + b, Equation Type B is Ln(T) = a * Ln(X) + b, Rate is T = a * X

4.6 Directional Distribution

The distribution of project-generated traffic on the surrounding roadway network is influenced by several factors including the following:

- The location of the site relative to other facilities and the roadway network
- The configuration of the existing and proposed adjacent roadway network
- Relative location of neighboring population centers

Based upon the proposed land use and the location of the project in relation to nearby population centers, 75 percent (75%) of the site-generated traffic is anticipated to enter/exit the site from the south towards 27th Street and 25 percent (25%) to/from the north towards 23rd Street. Refer to **Figure 7**.

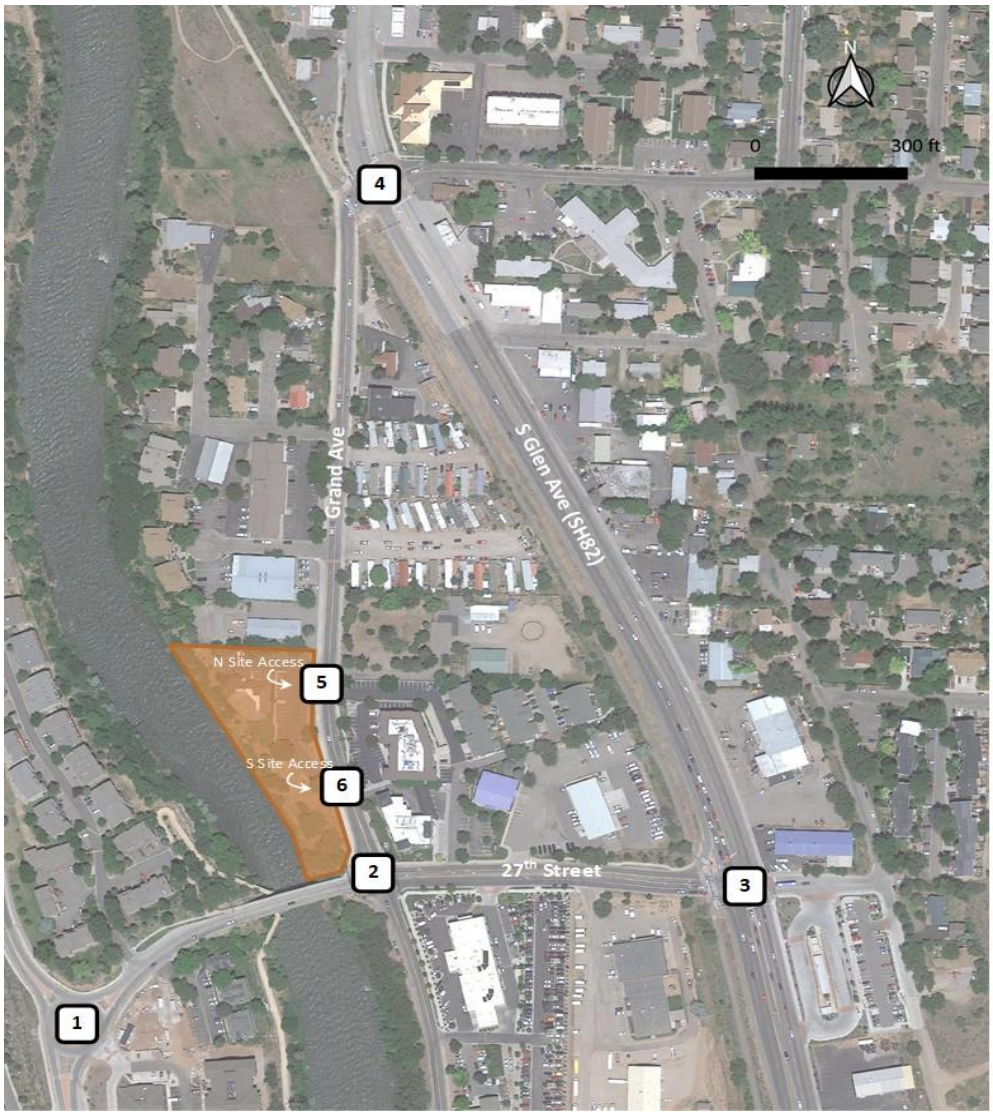
4.7 Traffic Assignment and Total Traffic

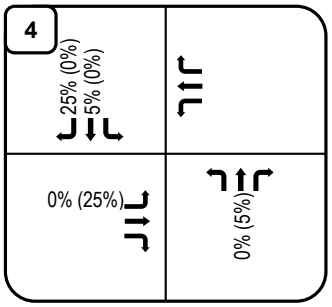
When the trip generation expected for this site is applied to the estimated trip distribution, the result is the anticipated assignment of trips on the roadway system. **Figure 7** depicts the new vehicle trips that are anticipated from the proposed development.

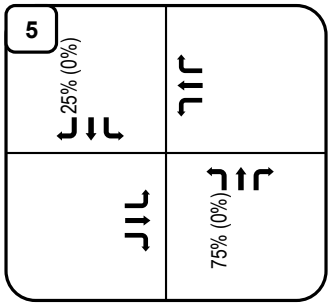
The Year 2022 total traffic is the sum of Year 2022 background **(Figure 5)** traffic with **Figure 8** and can be seen in **Figure 9.**

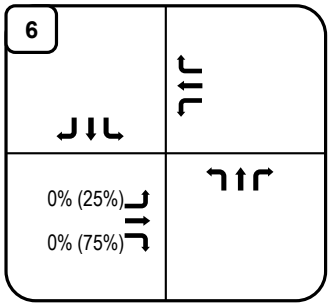
Similarly, Year 2042 total traffic is the sum of **Figure 6** with **Figure 8** and can be seen in **Figure 10.**

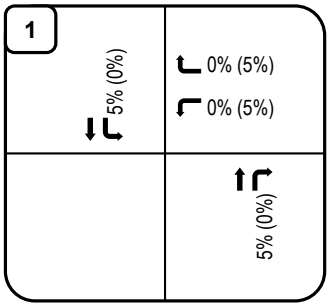
Figure 7: Project Generated Traffic Distribution

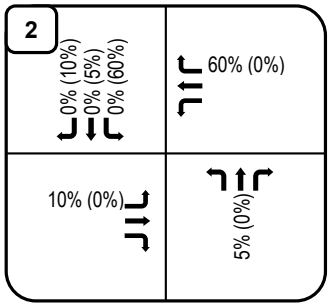


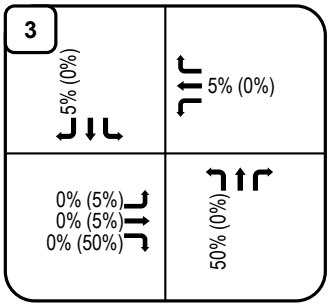












LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

Project Number	M1538
Prepared By	GWS
	12/10/2021

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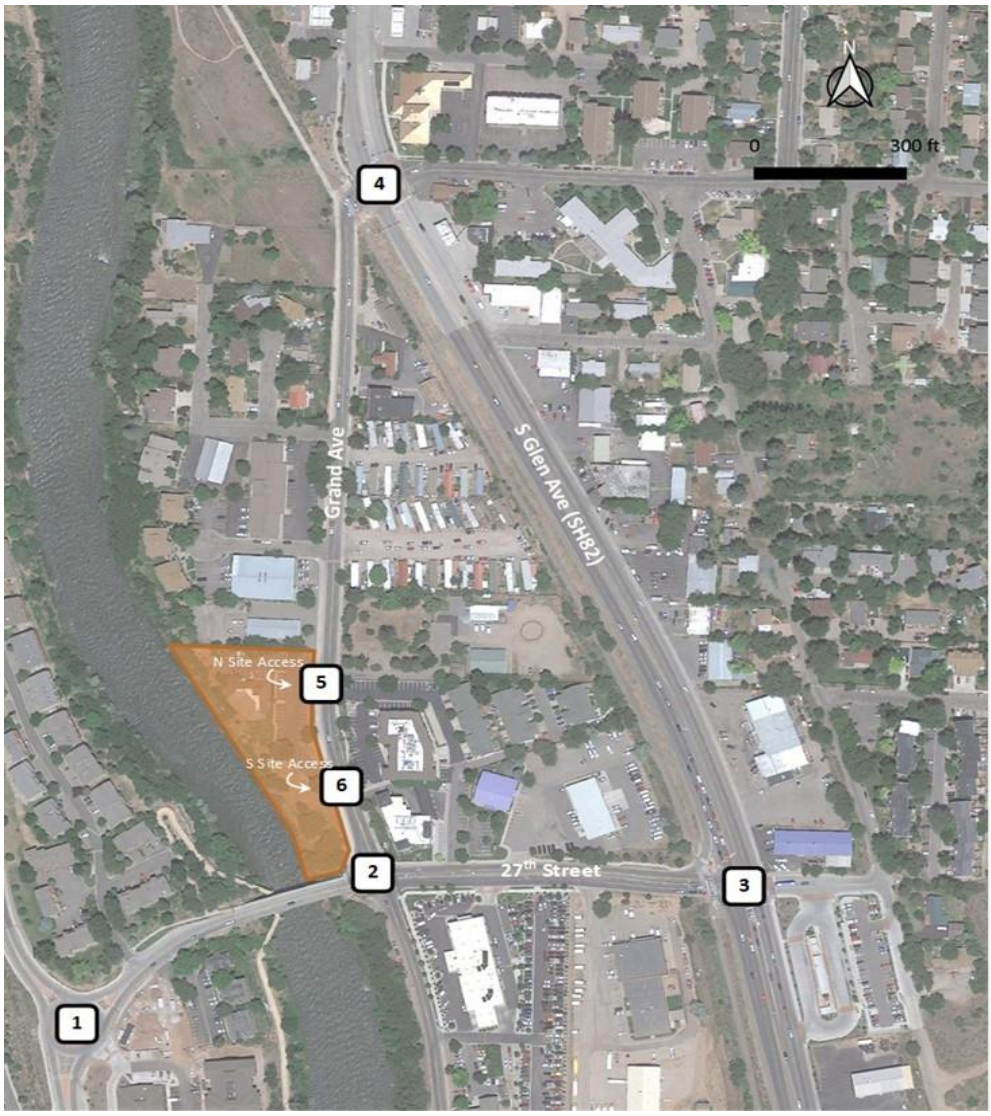
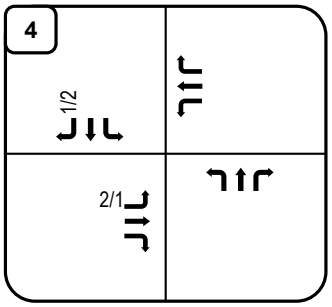
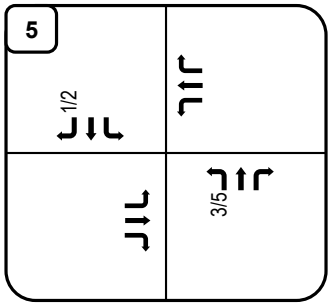
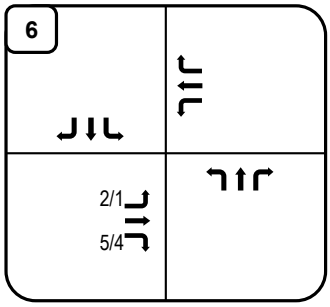
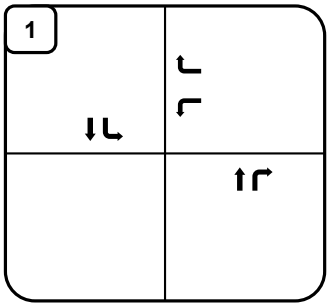
Figure 8: Project Generated Traffic Assignment

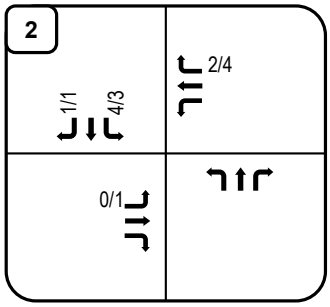


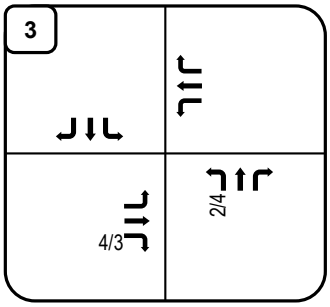












LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

Project Number	M1538
Prepared By	GWS
	12/10/2021

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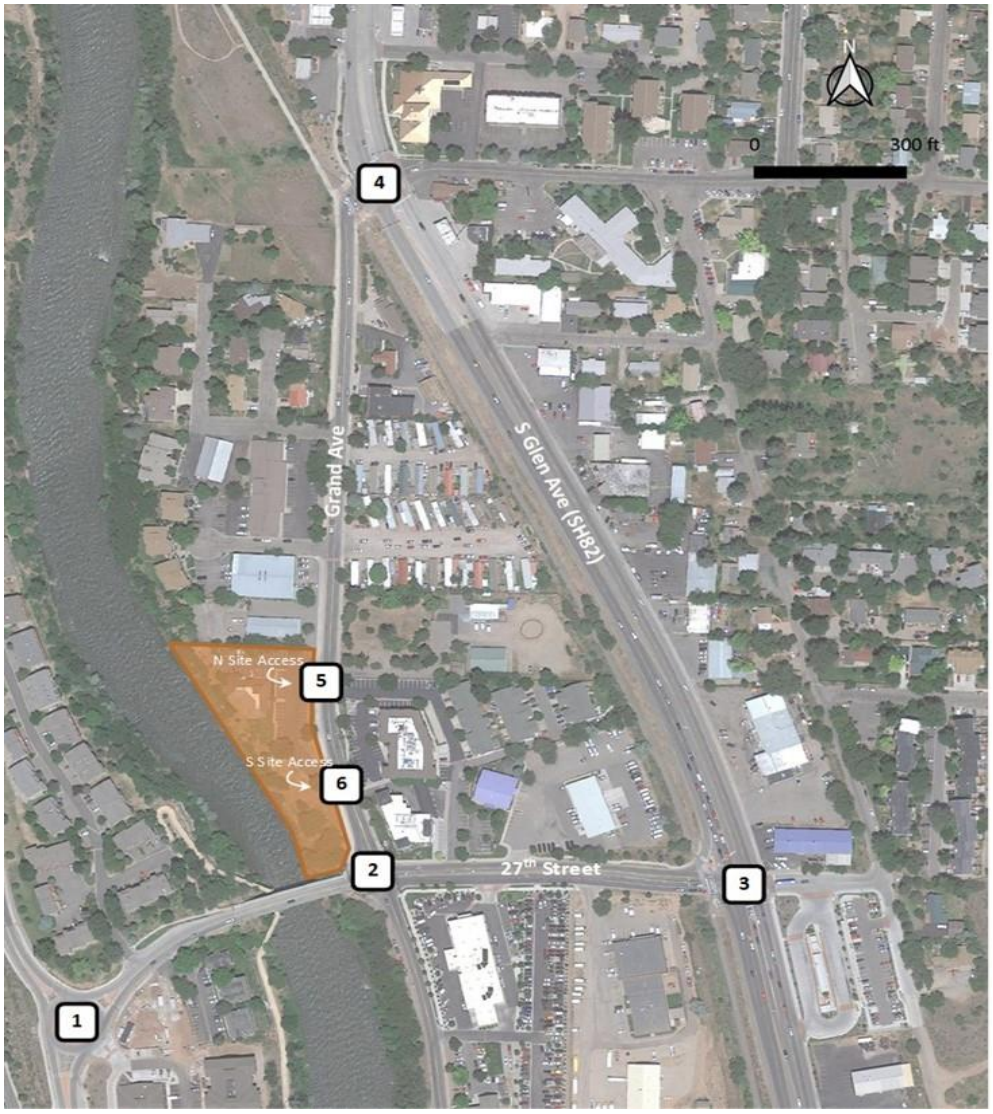
Glenwood Springs, CO

Figure 9: 2022 Total



4	
186/211 1524/717 35/30	37/38 27/64 84/115
134/113 19/27 2/3	2/22 958/1674 60/73

5	
1/2 213/254 5/0	2/3 5/4
1/0 1/3	4/7 137/130 14/24

6	
191/240 15/7	11/21 9/8
2/1 5/4	128/129 13/5

1	
117/97 310/174	68/471 178/402
	159/134 468/205

2	
114/213 59/38 40/23	18/42 109/475 17/22
114/62 582/274 86/38	24/206 24/39 39/45

3	
28/50 1485/757 16/12	11/19 6/17 49/34
220/117 10/4 447/233	118/440 801/1616 10/60

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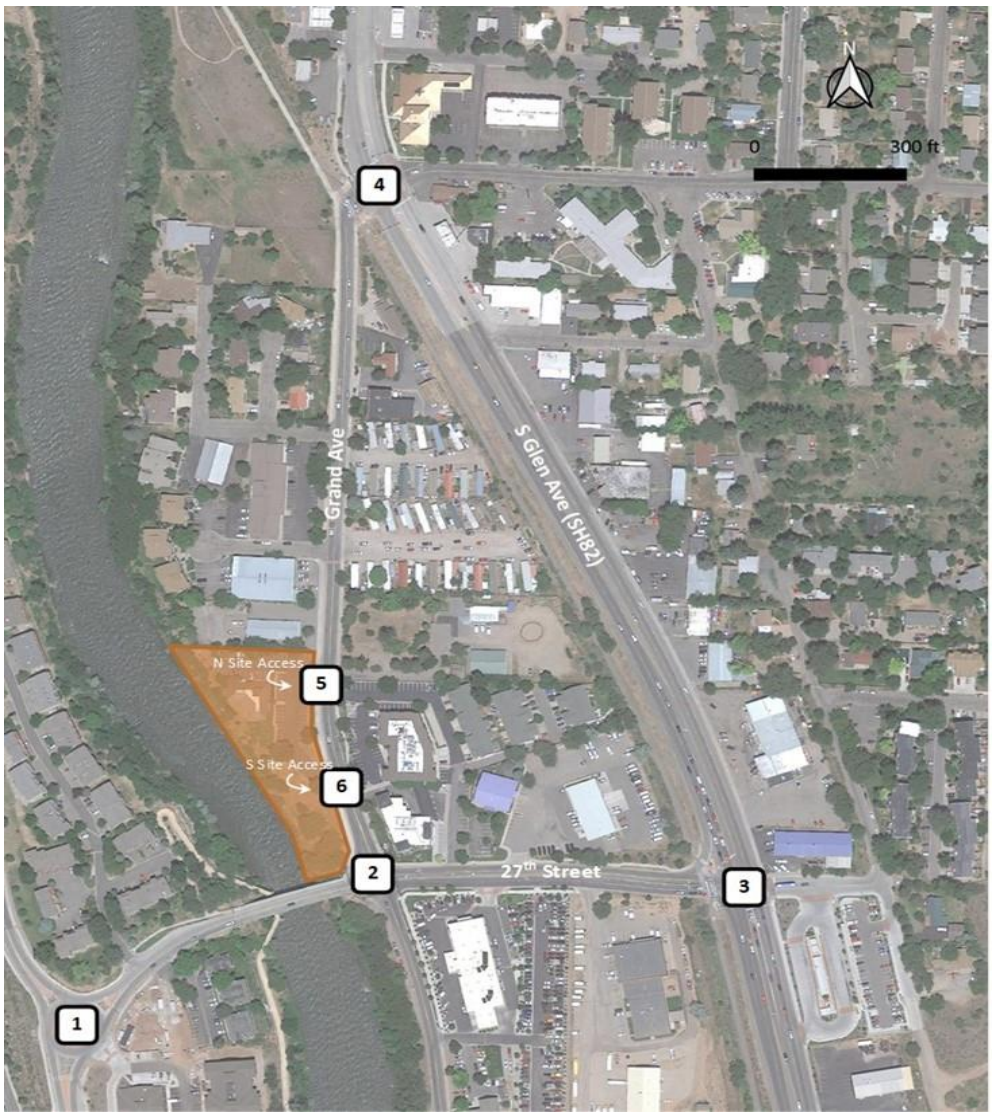
LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

Project Number	M1538
Prepared By	GWS
The Rivers Glenwood Springs, CO	12/10/2021

Figure 10: 2042 Total



4	
275/313 2264/1066 52/44	55/56 39/95 124/171
198/168 29/39 3/5	3/33 1423/2487 89/109

5	
1/2 317/377 8/0	3/5 8/6
2/0 2/5	5/8 203/192 21/36

6	
283/356 23/11	17/32 14/12
2/1 5/4	189/191 20/8

1	
174/144 461/259	102/700 265/597
	236/199 696/305

2	
169/316 88/56 57/33	26/60 162/706 26/33
170/92 865/408 127/56	36/306 36/58 58/67

3	
41/74 2207/1125 24/18	17/29 9/26 73/50
327/174 15/6 662/344	175/651 1190/2401 15/89

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LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

Project Number	M1538
Prepared By	GWS
The Rivers Glenwood Springs, CO	12/10/2021

5.0 Traffic Analysis

5.1 State Highway Access Permits

Section 2.6(3) of the State Highway Access Code (Access Code)[3] requires a new access permit when there is a new access, land use change, or the approach volume is anticipated to increase by more than twenty percent or safety issues have been identified.

The project is anticipated to add a total of 6 AM / 7 PM peak hour trips to 27th St/SH 82 resulting in an increase of 1% AM / 1% PM over the existing volume. The project is anticipated to add a total of 6 AM / 7 PM peak hour trips to 23rd St/SH 82 resulting in an increase of 1% AM / 1% PM over the existing volume. Based upon the existing traffic volumes, the proposed site traffic does not exceed the 20% threshold. Therefore, new State Highway Access Permits are not required.

5.2 State Highway Turn Lane Analysis

The *State Highway Access Code* establishes the need for auxiliary turn lanes on state highways. Several criteria apply when determining the traffic volume thresholds. SH 82 is a four-lane highway with a posted speed limit of 25-35mph in the vicinity of the proposed project site. It is classified by the Colorado Department of Transportation (CDOT) as an access category NR-B, non-rural arterial.

Local engineering standards apply to 27th Street and Grand Ave in determining auxiliary turn lanes. Per the City of Glenwood Springs[4], 27th Street is a Principal Arterial Roadway west of SH 82 with a speed limit of 35 mph. Grand Ave is a local collector roadway with a speed limit of 25 mph.

Refer to **Table 2** for calculations of the required turn lane modifications and triggers. Acceleration lanes are generally not used on low-speed roadways.

[3] *State Highway Access Code*. State of Colorado, 2002.

[4] Glenwood Springs Street Classification map, 08-06-2018. Retrieved 12/9/2021 https://cogs.us/DocumentCenter/View/4304/Streets-Classification-Map-24x36-PDF---City-of-Glenwood-Springs-Grid-4MB.

Table 2: Auxiliary Turn Lane Requirements

#	Int.	Mvmt	Accel or Decel	Posted Speed Limit (MPH)	Road Classification	SHAC Trigger Volume (VPH)	Year 2021 Existing		Year 2021 BG		Year 2041 BG		Year 2021 Total		Year 2041 Total		Existing Turn Lane	*Access Code* Required Turn Lane	Trigger Year & Condition
							AM	PM	AM	PM	AM	PM	AM	PM	AM	PM			
3	27th St & S Glen Ave	EBL	Decel	35	Princ. Art.	N/A	208	111	220	117	327	174	220	117	327	174	790'		
		EBR	Decel	35	Princ. Art.	N/A	417	216	443	230	658	341	447	233	662	344	490'		
		NBL	Decel	35	NR-B	> 25	110	411	116	436	173	647	118	440	175	651	400'	780' (includes 10:1 taper)	Existing
		SBR	Decel	35	NR-B	> 50	26	47	28	50	41	74	28	50	41	74	440'	195' (includes 10:1 taper)	Meets Requirements
		EBL	Accel	35	NR-B	N/A	208	111	220	117	327	174	220	117	327	174	None		
		EBR	Accel	35	NR-B	N/A	417	216	443	230	658	341	447	233	662	344	None		
4	Grand Ave/23rd St & S Glen Ave	EBL	Decel	35	Collector	N/A	124	106	132	112	196	167	134	113	198	168	25'		
		EBR	Decel	35	Collector	N/A	2	3	2	3	3	5	2	3	3	5	25'		
		NBL	Decel	35	NR-B	> 25	2	21	2	22	3	33	2	22	3	33	170'	155' (includes 10:1 taper)	Meets Requirements
		SBR	Decel	35	NR-B	> 50	174	197	185	209	274	311	186	211	275	313	170'	435' (includes 10:1 taper)	Existing
		EBL	Accel	35	NR-B	N/A	124	106	132	112	196	167	134	113	198	168	None		
		EBR	Accel	35	NR-B	N/A	2	3	2	3	3	5	2	3	3	5	None		

[1]SH 82 is based upon *State Highway Access Code* requirements for an NR-B roadway with posted speed of 35mph.

Triggered by State Highway Access Code Volumes

Triggered by State Highway Access Code Safety and Operations

SH 82 / 27th Street: Per Section 3.11(4) of the Access Code[4], auxiliary turn lanes for SH 82 are required for more than 25vph making a left turn movement and 50vph making a right turn movement. The northbound left deceleration lane is currently 400 feet and is less than the required 780 feet (includes 10:1 taper + storage), due to a two-way left turn lane (TWLTL) that is located directly south of this turn lane and provides southbound left turns to businesses on the east side of SH82. It should be noted that the length of the northbound left turn lane exists as a background traffic condition. The project traffic contributes minimally to this movement. Since this condition occurs with the background condition, the City should consider completing a design waiver for the shorter turn lane length. The southbound right auxiliary turn lane currently meets the *Access Code* requirement of 195'. There are existing turn lanes for the eastbound left and right movements to accommodate future traffic volumes.

Grand Ave / 23rd St & S Glen Ave: Per Section 3.11(4) of the Access Code[4], auxiliary turn lanes for SH 82 are required for more than 50vph making a right turn movement. The existing southbound right auxiliary turn lane is approximately 170 feet. Based upon Year 2042 total traffic volumes, the Access Code requires a 435 foot auxiliary turn lane including a 10:1 taper. Multiple driveways are directly north of this intersection and would conflict with a longer turn lane. Since this condition occurs with the background condition, the City should consider completing a design waiver for the shorter turn lane length. The northbound left auxiliary turn lane currently meets the Access Code requirement of 170'. There are existing turn lanes for the eastbound left and right movements to accommodate future traffic volumes.

5.3 Queuing and Storage

A single-lane roundabout has recently been constructed at 27th Street and Grand Avenue. (Intersection #2). Since the site generated volumes are small, and are within 2% of the background traffic, only the total traffic volumes were analyzed as there

would be no practical difference between background and total traffic. RODEL roundabout analysis software was used to calculate the level of service, delay, and anticipated queue lengths for the 27th Street and Grand Avenue roundabout intersection. **Table 3** shows the intersection delay for the Year 2022 and Year 2042 Total traffic scenarios. With traffic growth, the morning eastbound approach will see increasing delays, and the evening westbound approach will see the same increasing delay pattern. **Table 4** shows the anticipated 95th percentile queue length in vehicles. Queue lengths for the morning eastbound approach will grow in the future as the roundabout sees increasing delay, and the same behavior is observed for the westbound approach in the evening.

The Rivers proposed south site access is located approximately 225' south of the 27th Street and Grand Avenue roundabout. It is anticipated that near the Total 2042 scenario, that the PM queuing could back up to the location of the south site access. Using 25' per vehicle for the queue length, the 95th percentile anticipated queue for the Year 2042 PM total scenario is estimated to be 246' long. Therefore, a small delay due to queuing may occur for vehicles leaving the site during the 2042 Total PM peak hour condition. The outbound site generated traffic at this access is anticipated to be 5 vph, or one vehicle every 12 minutes. Since the southbound average delay in the Total 2042 is estimated to be 23 seconds, with up to 10 vehicles in a queue, the internal queue at the south site access should not be more than 1 or 2 vehicles, as it is anticipated that likely a vehicle traveling in the southbound direction would allow a merging vehicle in during these conditions due to the slow speeds as a result of this queue.

Table 3: Intersection Level of Service and Delay

#	Int.	Approach	Year 2022 Total Level of Service (Delay in Seconds)		Year 2042 Total Level of Service (Delay in Seconds)	
			AM	PM	AM	PM
2	27th Street & Grand Ave RAB	SB	A (4.17)	A (7.35)	A (5.01)	C (23.08)
		EB	B (12.23)	A (4.89)	F (216.83)	A (6.81)
		NB	A (5.42)	A (5.39)	A (7.05)	A (8.50)
		WB	A (3.89)	A (8.17)	A (4.37)	E (44.19)

Table 4: Intersection Level of Service and Delay

#	Int.	Approach	Year 2022 Total 95th Percentile Queue Length (Vehicles)		Year 2042 Total 95th Percentile Queue Length (Vehicles)	
			AM	PM	AM	PM
2	27th Street & Grand Ave RAB	SB	0.76	1.89	1.38	9.84
		EB	9.30	1.59	259.11	3.41
		NB	0.42	1.39	0.78	3.48
		WB	0.48	4.11	0.80	39.56

5.4 Access Design Criteria

The proposed access shall be constructed per Section 4 of the *Access Code.* The City of Glenwood Springs design standards will also apply.

6.0 Summary and Recommendations

The project is proposing 17 townhome residential dwelling units. The property is accessed directly by Grand Avenue east of the project site.

Trip Generation: Based upon the applicant's proposed land use, the site is anticipated to generate 79 vehicle trips per day. This includes 11 trips during the morning peak hour (4 inbound + 7 outbound) and 12 trips during the evening peak hour (7 inbound + 5 outbound).

State Highway Access Permit: A State Highway Access Permit is not required.

Auxiliary Turn Lanes:

The northbound left deceleration lane at State Highway 82 and 27th Street is currently 400 feet and is less than the required 780 feet (includes 10:1 taper + storage), due to a two-way left turn lane (TWLTL) that is located directly south of this turn lane and provides southbound left turns to businesses on the east side of SH82. The southbound right auxiliary turn lane at Grand Ave / 23rd St & S Glen Ave does not meet the State Highway Access Code Requirement. Multiple driveways are directly north of this intersection and prevent a longer auxiliary turn lane.

Since both turn lane length conditions occur in the background condition, the City should consider completing design waivers for the existing shorter turn lane lengths if it has not already done so.

Based upon the analysis presented in this report, the proposed townhome residential development is anticipated to be successfully incorporated into the existing roadway network.

7.0 Appendix

7.1 Reference Documents

1. City of Glenwood Springs State Highway 82 Access Study. Stolfus & Associates, 2013.

2. *Institute of Transportation Engineers, Trip Generation Manual, 10th Edition*, September 2017.

3. State Highway Access Code. State of Colorado, 2002.

4. Glenwood Springs Street Classification map, 08-06-2018. Retrieved 12/9/2021. https://cogs.us/DocumentCenter/View/4304/Streets-Classification-Map-24x36-PDF---City-of-Glenwood-Springs-Grid-4MB.

7.2 Included Documents

1. Scoping Form

2. Traffic Counts

3. Seasonal adjustment factor calculations

4. RODEL Reports

Gmail **Greg Schroeder <greg@mcdowelleng.com>**

The Rivers Development - Scoping Form

1 message

Greg Schroeder <greg@mcdowelleng.com> Wed, Dec 8, 2021 at 11:42 AM
To: Terri Partch <terri.partch@cogs.us>, Brian Killian <brian.killian@state.co.us>
Cc: Zach Stevens <zac@movematter.com>, Mandy Edeen <mandy@mcdowelleng.com>, Kari Schroeder <kari@mcdowelleng.com>
Bcc: M1538 Glenwood Springs The Rivers N Mtn Partners <m1538@mcdowelleng.com>

Terri and Brian,

Please see the attached scoping form for the Rivers development. Let us know if you have any questions.

Thanks,

Greg Schroeder, PE

Senior Transportation / Traffic Engineer

241 Broadway Street, Suite 202
PO Box 4259
Eagle, CO 81631

970.948.1376

greg@mcdowelleng.com

www.mcdowelleng.com

2021-12-07 TIS Methodology Form.pdf
1234K

COLORADO
Department of Transportation
Region 3

Transportation Impact Study Methodology Form

Prior to starting a traffic impact study, a Methodology Form must be submitted for review and signed by the Region 3 Access Engineer. It shall be included as part of the study.

CONTACT INFORMATION	
Consultant:	Name: McDowell Engineering
	Telephone: 970-623-0788
	Email: kari@mcdowelleng.com
Developer/Owner Name:	North Moutain Partners/Brian Wilson (bwilson@northmountainpartners.com)

PROJECT INFORMATION	
Project Name	The Rivers
Project Location	Glenwood Springs, CO
Project Description *(Attached proposed site plan)*	Construction of 17 multifamily dwelling units on Grand Avenue in Glenwood Springs, CO.
State Highway	Analysis includes percent impact to SH82 at 23rd St and 27th St
County	Garfield
Mile Post	MP 1.4 & MP 1.71
Posted Speed Limit	35 MPH

TIS ASSUMPTIONS			
Study Years	Current Year: 2021	Buildout Year: 2022	Long Term Year: 2042
Traffic Assessment Level *(Provide justification)*	The proposed development generates less than 100 vehicles per hour. Therefore, a level II assessment will be completed.		
Study Intersections	1. Midland Ave & 27th St	6.	
	2. Grand Ave & 27th St	7.	
	3. 27th St & S Glen Ave	8.	
	4. 23rd & S Grand Ave & Grand Ave	9.	
	5. Site Access (2)	10.	
Future Growth Rate	☐ OTIS	☐ Regional TDM	■ Other (See Notes)
Seasonal Adjustment Factor	SAF 1.04 will be applied to adjust September counts to July		

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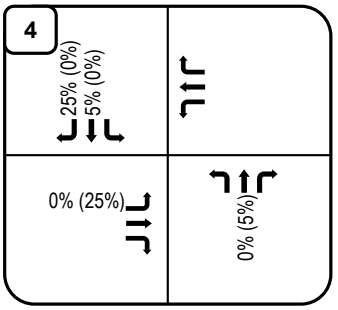
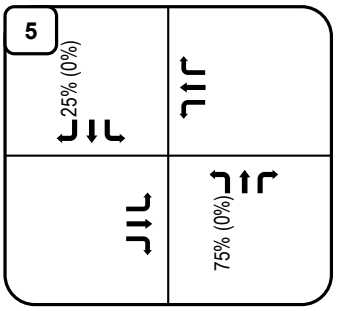
Department of Transportation
Region 3

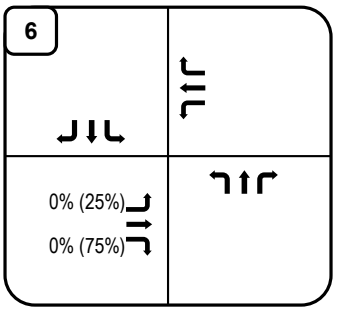
ASSUMPTIONS CONTINUED				
Project Trip Distribution *(State assumptions and attach sketch that shows individual movements.)*	30% to/from the north, 55% to/from the south (5% of this along old 82), 5% to/from the east, and 5% to/from the southwest (Midland Ave S), and 5% to/from the northwest (Midland Ave N)			
Trip Reduction Percentage	Internal Capture:		Pass By:	
	Multi-Modal:	10%	Other:	
Study Time Periods *(Check all that apply)*	☒ AM (7-9)	☒ PM (4-6)	☐ Weekday	
	☐ SAT (Midday)	☐ Other		
Existing and Proposed ITE Trip Generation Land Use	Multi-Family Low-Rise (#220): 17 dwelling units			
Analysis Methods *(Check all that apply)*	☐ Synchro or ☐ HCS *(isolated intersections only)*		☐ SimTraffic or ☐ Other *(closely spaced intersections or when known/expected queuing issue)*	
	☐ Signal Warrants		☐ Pedestrian/Transit/Bicycle	
	☒ Safety/Sight Distance		☒ Queuing and Storage	
	☐ Other			
Notes and Other Assumptions	Per the SH 82 Corridor Optimization Study and Access Control Plan, a 2% growth rate was used for all background traffic. A restaurant is currently constructed on the parcel. The restaurant was closed when counts were obtained. Therefore, the restaurant land use will be ignored.			
Crash Data	CDOT will perform a crash data analysis for the highway in the vicinity of the proposed access and provide to the consultant. As a part of the study consultant shall recommend mitigation measures for any identified safety issues.			
Simulation Input Files	Consultant to provide computer files used for analysis with a signed and sealed copy of the study.			

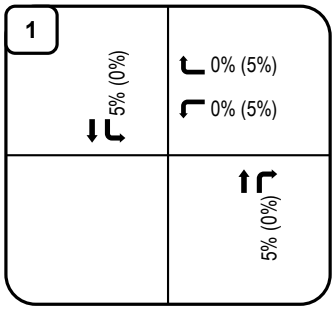
CDOT INTERNAL USE ONLY	
Review Comments ☐ Revise and Resubmit	
Engineer Signature/Date	☐ Approved

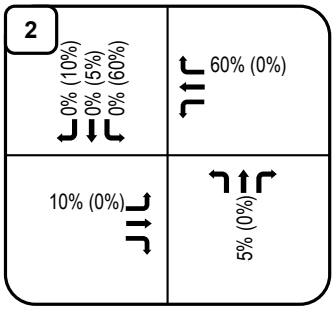
Figure 6: Project Generated Traffic Distribution

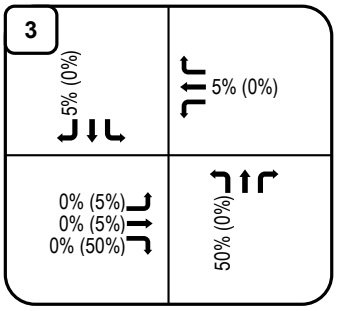












LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

McDowell Engineering, LLC
Transportation Engineering Consultants

Project Number	M1538
Prepared By	GWS
The Rivers	12/7/2021
Glenwood Springs, CO	DRAFT - FOR INTERNAL USE ONLY

Table 1 - The Rivers

Project Trip Generation

Estimated Project-Generated Traffic[1]

ITE Code	Units [2]	Eq. Coef	ITE Trip Generation Equation[3] Avg. Weekday	AM Peak Hour	PM Peak Hour	Average Weekday Trips (VPD)	Morning Peak Hour Inbound % Trips	Trips	Morning Peak Hour Outbound % Trips	Trips	Evening Peak Hour Inbound % Trips	Trips	Evening Peak Hour Outbound % Trips	Trips
Proposed Land Use														
Residential Development														
#220 - Multifamily Housing (Low-Rise)	17 DU	Type	A	B	A	88	28%	4	72%	8	59%	8	41%	6
		a=	7.56	0.94	0.66									
		b=	-40.86	-0.29	1.41									
Multi-Modal Reduction	*-10%*					*-9*		*0*		*-1*		*-1*		*-1*
Proposed New Trips						**79**		**4**		**7**		**7**		**5**

Notes:

[1] Values obtained from *Trip Generation, 10th Edition,* Institute of Transportation Engineers, 2017.

[2] DU = Dwelling Units, kSF = 1,000 Square Feet

[3] Fitted curve equations from ITE Land Uses - Equation Type A is T = a * X + b, Equation Type B is Ln(T) = a * Ln(X) + b, Rate is T = a * X

Monthly Summary Data

CDOT OTIS Station ID 000214 - ON SH 82, GLEN AVE S/O BLAKE AVE, GLENWOOD SPRINGS

CALYR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2021	22,534	23,360	24,863	26,000	27,154	29,065	28,564	27,888				
2020	23,732	23,818	19,530	15,080	21,526	24,775	25,592	24,845	26,241	25,786	22,462	22,231
2019	22,045	22,387	22,885	23,892	24,283	25,402	25,858	25,648	25,266	26,224	24,326	23,900
2018	23,365	23,237	24,444	24,974	25,824	26,106	25,420	25,235	24,793	23,781	22,025	21,717
2017	22,576	23,590	24,797	25,270	25,389	27,223	27,128	23,295	21,072	21,144	22,774	23,736
2016	22,629	22,949	23,948	24,786	25,563	27,086	27,406	27,089	27,051	25,737	23,475	23,145
2015	22,134	22,151	23,508	23,842	24,174	26,460	27,049	26,201	26,455	25,224	22,799	22,782
2014	20,312	20,646	21,761	22,204	22,727	24,366	25,318	24,725	24,859	23,947	20,843	21,677
2013	20,065	20,137	20,483	20,986	21,928	22,998	23,938	23,718	22,993	22,538	20,564	19,880
2012	19,531	19,709	20,760	20,884	21,349	22,956	23,301	23,793	22,904	22,152	20,404	19,386
2011	19,557	19,445	20,557	20,174	20,612	22,241	23,089	23,255	23,149	21,614	19,952	20,194
2010	20,137	20,140	20,998	20,777	21,017	23,097	24,447	24,073	24,005	21,863	21,239	20,097
2009	21,638	22,319	22,144	22,424	22,912	24,701	25,134	24,300	24,150	22,561	19,785	20,400
2008	23,112	23,324	24,444	24,929	25,006	26,191	26,580	26,231	25,768	25,323	22,664	22,140
2007	20,956	23,067	24,472	24,836	25,605	26,598	26,724	27,227	26,754	25,724	24,328	22,715
2006	21,346	22,174	22,476	23,410	23,967	25,736	25,747	25,967	25,854	24,205	22,466	22,424
2005	21,024	21,907	22,544	22,652	22,997	24,963	25,564	25,465	24,352	23,362	22,362	21,578
2004		21,061	21,761	22,242	21,886	24,336	24,937	24,743	24,373	22,921	21,363	21,829
2003	20,521	20,586	20,471	20,691	21,234	23,811	24,859	23,899	23,188	22,506	19,602	20,525
2002									23,173	22,975	20,658	20,815
2001	20,369	20,980	22,123	22,774	23,131	24,161	24,315	25,555	24,094			
2000	18,546	20,063	20,881	21,592	22,350	24,926	24,236	24,569	23,737	22,778	20,828	20,217
1999	17,820	19,049	20,071	20,246	20,259	22,756	23,208	22,999	22,652	21,438	19,915	19,502
Average	**21,140**	**21,641**	**22,269**	**22,485**	**23,222**	**24,998**	**25,382**	**25,033**	**24,404**	**23,514**	**21,659**	**21,471**

Seasonal Adjustment Factors

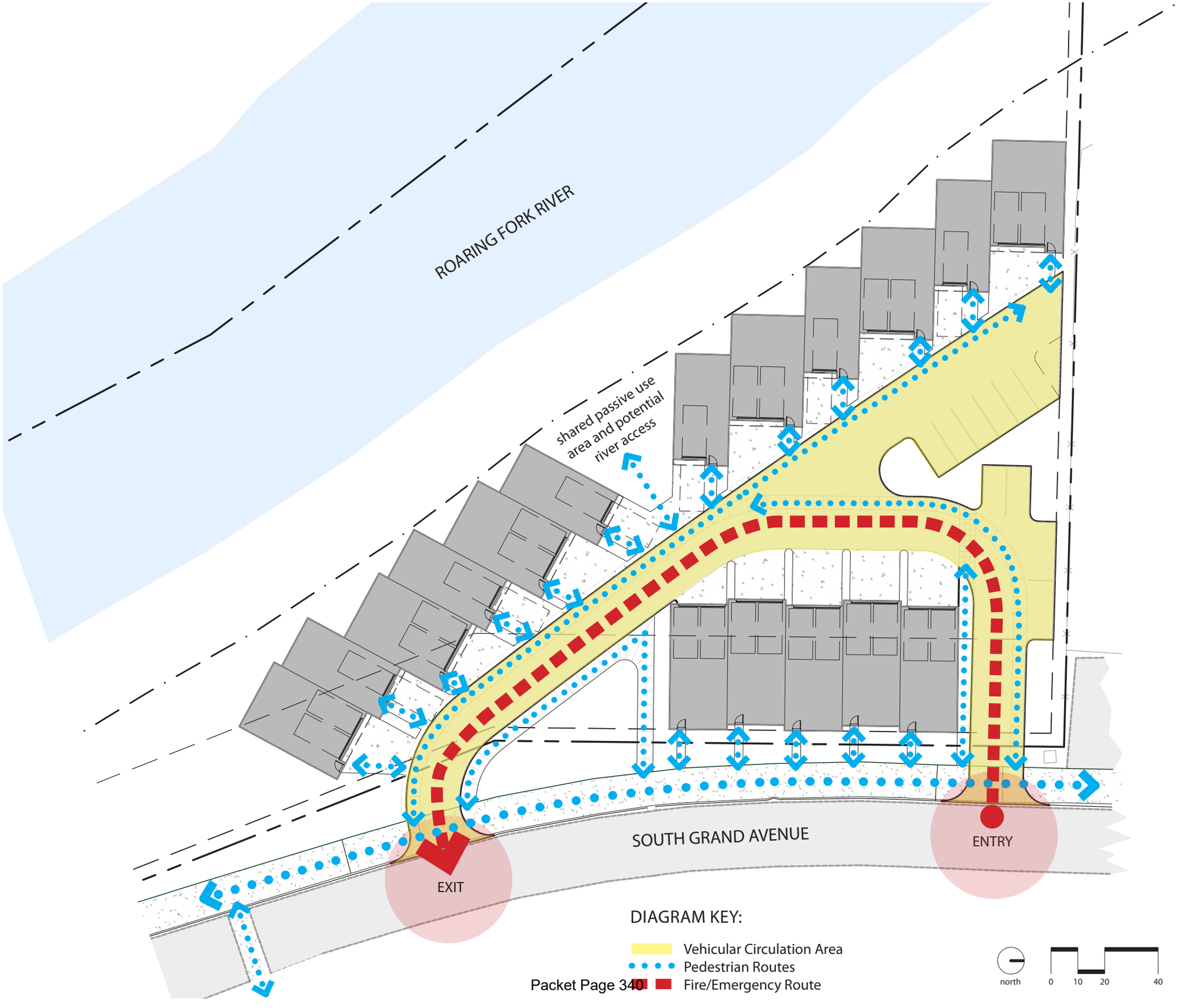
CDOT OTIS Station ID 000214 - ON SH 82, GLEN AVE S/O BLAKE AVE, GLENWOOD SPRINGS

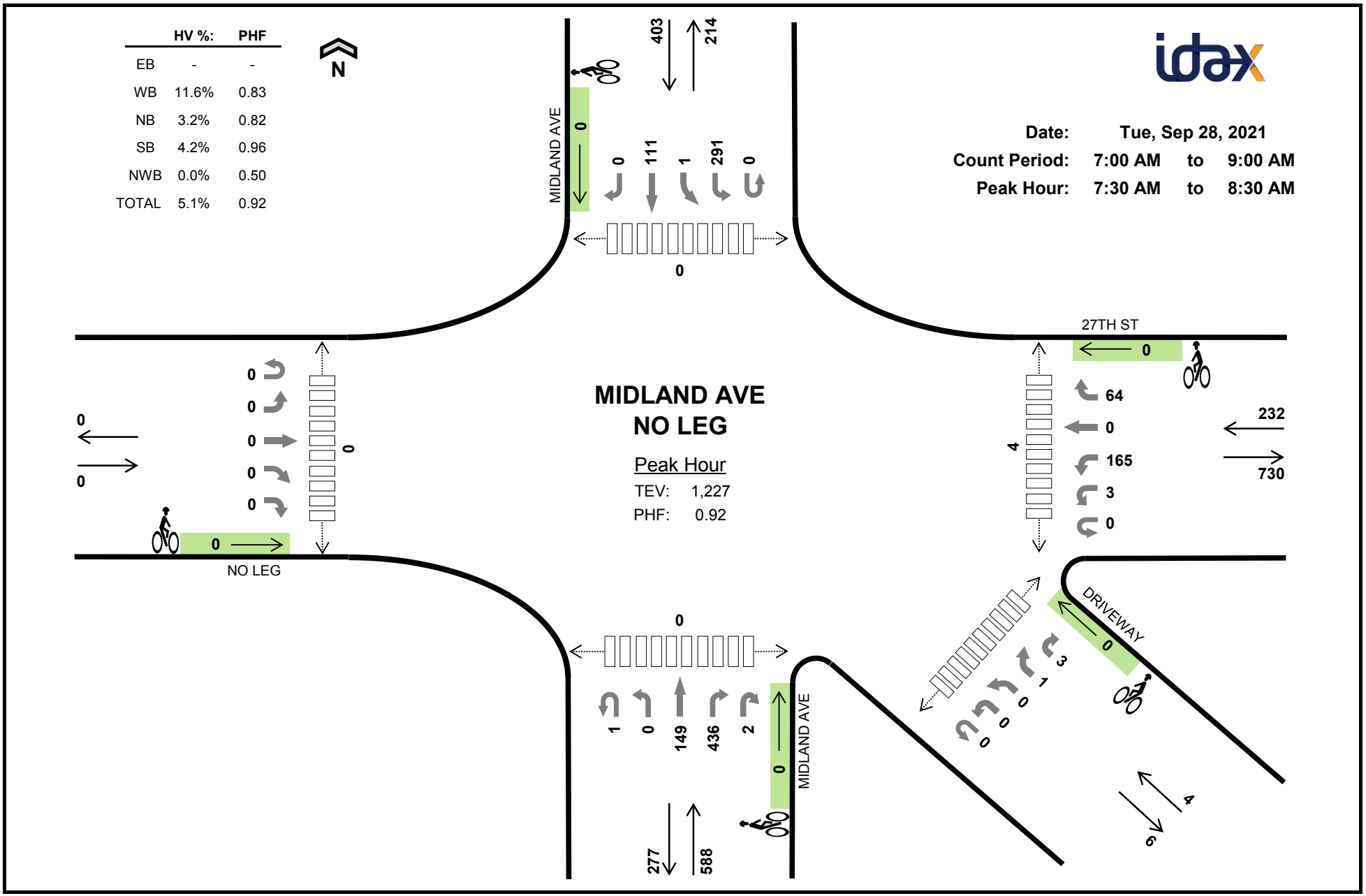
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		21,140	21,641	22,269	22,485	23,222	24,998	25,382	25,033	24,404	23,514	21,659	21,471
Jan	21,140	1.00	1.02	1.05	1.06	1.10	1.18	1.20	1.18	1.15	1.11	1.02	1.02
Feb	21,641	0.98	1.00	1.03	1.04	1.07	1.16	1.17	1.16	1.13	1.09	1.00	0.99
Mar	22,269	0.95	0.97	1.00	1.01	1.04	1.12	1.14	1.12	1.10	1.06	0.97	0.96
Apr	22,485	0.94	0.96	0.99	1.00	1.03	1.11	1.13	1.11	1.09	1.05	0.96	0.95
May	23,222	0.91	0.93	0.96	0.97	1.00	1.08	1.09	1.08	1.05	1.01	0.93	0.92
Jun	24,998	0.85	0.87	0.89	0.90	0.93	1.00	1.02	1.00	0.98	0.94	0.87	0.86
Jul	25,382	0.83	0.85	0.88	0.89	0.91	0.98	1.00	0.99	0.96	0.93	0.85	0.85
Aug	25,033	0.84	0.86	0.89	0.90	0.93	1.00	1.01	1.00	0.97	0.94	0.87	0.86
Sep	24,404	0.87	0.89	0.91	0.92	0.95	1.02	1.04	1.03	1.00	0.96	0.89	0.88
Oct	23,514	0.90	0.92	0.95	0.96	0.99	1.06	1.08	1.06	1.04	1.00	0.92	0.91
Nov	21,659	0.98	1.00	1.03	1.04	1.07	1.15	1.17	1.16	1.13	1.09	1.00	0.99
Dec	21,471	0.98	1.01	1.04	1.05	1.08	1.16	1.18	1.17	1.14	1.10	1.01	1.00

Monthly Summary Data from CDOT OTIS:

https://dtdapps.coloradodot.info/otis/TrafficData#ui/2/0/1/station/000214/criteria/000214/

Data Retrieved on October 5, 2021


ROARING FORK RIVER
shared passive use area and potential river access
SOUTH GRAND AVENUE
EXIT
ENTRY
DIAGRAM KEY:
Vehicular Circulation Area
Pedestrian Routes
Fire/Emergency Route
north
0
10
20
40


HV %: PHF
EB - -
WB 11.6% 0.83
NB 3.2% 0.82
SB 4.2% 0.96
NWB 0.0% 0.50
TOTAL 5.1% 0.92
N
idax
Date: Tue, Sep 28, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM
MIDLAND AVE
NO LEG
Peak Hour
TEV: 1,227
PHF: 0.92
27TH ST
DRIVEWAY
403
214
111
291
232
730
64
165
149
436
277
588

Two-Hour Count Summaries

Interval Start	NO LEG Eastbound					27TH ST Westbound					MIDLAND AVE Northbound					MIDLAND AVE Southbound					DRIVEWAY Northwestbound					15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	1	30	0	4	1	0	13	83	0	0	66	0	28	0	0	0	0	1	0	227	0
7:15 AM	0	0	0	0	0	0	1	22	0	10	0	0	29	93	1	0	77	0	15	0	0	0	0	0	1	249	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**12**	**0**	**0**	**29**	**92**	**0**	**0**	**82**	**0**	**22**	**0**	**0**	**0**	**0**	**0**	**1**	**277**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**38**	**0**	**10**	**1**	**0**	**60**	**119**	**0**	**0**	**71**	**0**	**32**	**0**	**0**	**0**	**0**	**0**	**1**	**334**	1,087
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**49**	**0**	**20**	**0**	**0**	**33**	**87**	**0**	**0**	**70**	**0**	**35**	**0**	**0**	**0**	**0**	**1**	**1**	**297**	1,157
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**22**	**0**	**0**	**27**	**138**	**2**	**0**	**68**	**1**	**22**	**0**	**0**	**0**	**0**	**0**	**0**	**319**	**1,227**
8:30 AM	0	0	0	0	0	0	2	38	0	23	1	0	20	103	1	0	58	1	10	0	0	0	0	1	1	259	1,209
8:45 AM	0	0	0	0	0	0	0	33	0	18	0	0	14	61	0	0	51	0	11	0	0	0	0	0	0	188	1,063
Count Total	0	0	0	0	0	0	7	288	0	119	3	0	225	776	4	0	543	2	175	0	0	0	0	3	5	2,150	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**165**	**0**	**64**	**1**	**0**	**149**	**436**	**2**	**0**	**291**	**1**	**111**	**0**	**0**	**0**	**0**	**1**	**3**	**1,227**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**7**	**1**	**0**	**4**	**14**	**0**	**0**	**11**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**63**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**12%**	**-**	**11%**	**100%**	**-**	**3%**	**3%**	**0%**	**-**	**4%**	**0%**	**5%**	**-**	**-**	**-**	**-**	**0%**	**0%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

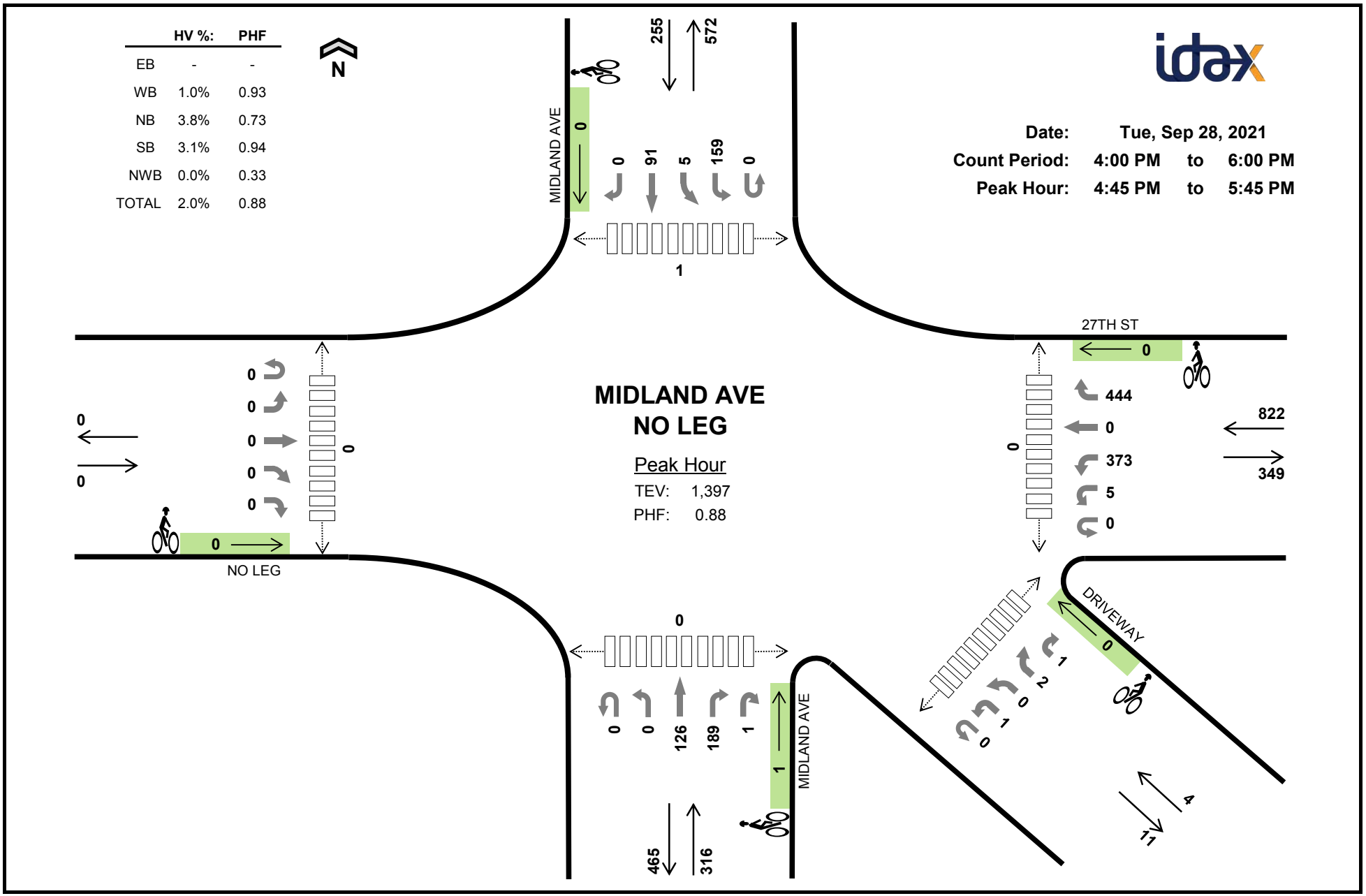
Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	NWB	Total	EB	WB	NB	SB	NWB	Total	East	West	North	South	Southeast	Total
7:00 AM	0	4	2	4	0	*10*	0	0	1	0	0	*1*	0	0	0	0	0	*0*
7:15 AM	0	2	11	2	0	*15*	0	0	0	0	0	*0*	1	0	0	0	0	*1*
7:30 AM	**0**	**10**	**3**	**2**	**0**	***15***	**0**	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**0**	**0**	**3**	***6***
7:45 AM	**0**	**6**	**5**	**5**	**0**	***16***	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**	***0***
8:00 AM	**0**	**6**	**5**	**6**	**0**	***17***	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**	***0***
8:15 AM	**0**	**5**	**6**	**4**	**0**	***15***	**0**	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	**1**	***2***
8:30 AM	0	4	8	1	1	*14*	0	0	0	0	0	*0*	0	0	0	0	0	*0*
8:45 AM	0	0	2	3	0	*5*	0	0	0	0	0	*0*	0	0	0	0	2	*2*
Count Total	0	37	42	27	1	*107*	0	0	1	0	0	*1*	5	0	0	0	6	*11*
Peak Hr	**0**	**27**	**19**	**17**	**0**	***63***	**0**	**0**	**0**	**0**	**0**	***0***	**4**	**0**	**0**	**0**	**4**	*8*

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	NO LEG					27TH ST					MIDLAND AVE					MIDLAND AVE					DRIVEWAY					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northwestbound						
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	3	0	1	1	0	0	1	0	0	2	0	2	0	0	0	0	0	0	10	0
7:15 AM	0	0	0	0	0	0	0	2	0	0	0	0	2	9	0	0	2	0	0	0	0	0	0	0	0	15	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**1**	**0**	**0**	**1**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**2**	**1**	**0**	**2**	**2**	**0**	**0**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	56
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**0**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	63
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**0**	**0**	**1**	**5**	**0**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**63**
8:30 AM	0	0	0	0	0	0	1	2	0	1	0	0	0	7	1	0	0	0	1	0	0	0	0	0	1	14	62
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	2	0	0	0	0	0	0	5	51
Count Total	0	0	0	0	0	0	1	27	0	9	2	0	6	33	1	0	16	0	11	0	0	0	0	0	1	107	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**7**	**1**	**0**	**4**	**14**	**0**	**0**	**11**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	63	**0**

Two-Hour Count Summaries - Bikes

Interval Start	NO LEG					27TH ST					MIDLAND AVE					MIDLAND AVE					DRIVEWAY					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northwestbound						
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	**0**


HV %: PHF
EB - -
WB 1.0% 0.93
NB 3.8% 0.73
SB 3.1% 0.94
NWB 0.0% 0.33
TOTAL 2.0% 0.88
N
idax
Date: Tue, Sep 28, 2021
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM
MIDLAND AVE
NO LEG
Peak Hour
TEV: 1,397
PHF: 0.88
27TH ST
DRIVEWAY
MIDLAND AVE
255
572
0 91 5 159 0
1
0 0 0 0 0
0
0
0
0
NO LEG
444 0 373 5 0
822
349
0
0 0 126 189 1
1
465
316
4
11

Two-Hour Count Summaries

Interval Start	NO LEG Eastbound					27TH ST Westbound					MIDLAND AVE Northbound					MIDLAND AVE Southbound					DRIVEWAY Northwestbound					15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	0	0	0	3	67	0	79	1	0	30	32	0	0	40	0	25	0	0	0	0	2	0	279	0
4:15 PM	0	0	0	0	0	0	1	81	0	88	0	0	38	45	1	0	45	1	15	0	0	1	0	3	1	320	0
4:30 PM	0	0	0	0	0	0	1	93	0	87	0	0	26	23	0	0	41	0	25	0	0	0	0	0	3	299	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**103**	**0**	**106**	**0**	**0**	**39**	**41**	**1**	**0**	**41**	**0**	**20**	**0**	**0**	**0**	**0**	**0**	**0**	**352**	1,250
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**88**	**0**	**130**	**0**	**0**	**50**	**58**	**0**	**0**	**37**	**1**	**30**	**0**	**0**	**0**	**0**	**0**	**0**	**397**	1,368
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**88**	**0**	**109**	**0**	**0**	**27**	**45**	**0**	**0**	**44**	**3**	**21**	**0**	**0**	**1**	**0**	**1**	**1**	**340**	1,388
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**94**	**0**	**99**	**0**	**0**	**10**	**45**	**0**	**0**	**37**	**1**	**20**	**0**	**0**	**0**	**0**	**1**	**0**	**308**	**1,397**
5:45 PM	0	0	0	0	0	0	1	82	0	117	0	0	18	39	0	0	40	0	24	0	0	0	0	0	0	321	1,366
Count Total	0	0	0	0	0	0	11	696	0	815	1	0	238	328	2	0	325	6	180	0	0	2	0	7	5	2,616	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**373**	**0**	**444**	**0**	**0**	**126**	**189**	**1**	**0**	**159**	**5**	**91**	**0**	**0**	**1**	**0**	**2**	**1**	**1,397**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**1**	**0**	**0**	**2**	**10**	**0**	**0**	**6**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**28**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**2%**	**-**	**0%**	**-**	**-**	**2%**	**5%**	**0%**	**-**	**4%**	**20%**	**1%**	**-**	**-**	**0%**	**-**	**0%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	NWB	Total	EB	WB	NB	SB	NWB	Total	East	West	North	South	Southeast	Total
4:00 PM	0	6	6	1	1	*14*	0	0	0	0	0	*0*	0	0	0	0	1	*1*
4:15 PM	0	4	7	1	0	*12*	0	0	0	0	0	*0*	0	0	0	0	0	*0*
4:30 PM	0	8	3	3	0	*14*	0	0	1	0	0	*1*	0	0	0	0	0	*0*
4:45 PM	**0**	**2**	**6**	**2**	**0**	***10***	**0**	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	**2**	***2***
5:00 PM	**0**	**1**	**2**	**2**	**0**	***5***	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	**2**	***3***
5:15 PM	**0**	**4**	**2**	**2**	**0**	***8***	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**	***0***
5:30 PM	**0**	**1**	**2**	**2**	**0**	***5***	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**	***0***
5:45 PM	0	3	1	1	0	*5*	0	0	0	0	0	*0*	1	0	0	0	1	*2*
Count Total	0	29	29	14	1	*73*	0	0	2	0	0	*2*	1	0	1	0	6	*8*
Peak Hr	**0**	**8**	**12**	**8**	**0**	***28***	**0**	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**1**	**0**	**4**	*5*

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	NO LEG					27TH ST					MIDLAND AVE					MIDLAND AVE					DRIVEWAY					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northwestbound						
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	0	0	0	0	3	0	3	1	0	2	3	0	0	1	0	0	0	0	0	0	1	0	14	0
4:15 PM	0	0	0	0	0	0	0	2	0	2	0	0	2	4	1	0	1	0	0	0	0	0	0	0	0	12	0
4:30 PM	0	0	0	0	0	0	0	6	0	2	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	14	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**5**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	50
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	41
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	37
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**28**
5:45 PM	0	0	0	0	0	0	0	2	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	5	23
Count Total	0	0	0	0	0	0	0	20	0	9	1	0	6	21	1	0	12	1	1	0	0	0	0	1	0	73	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**1**	**0**	**0**	**2**	**10**	**0**	**0**	**6**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	28	**0**

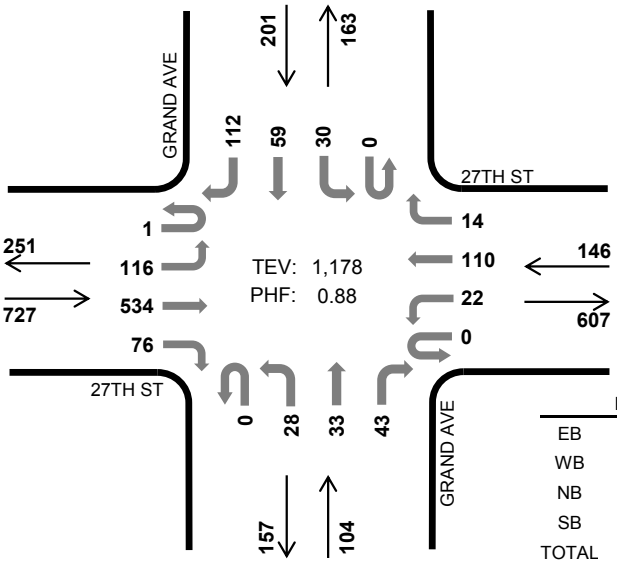
Two-Hour Count Summaries - Bikes

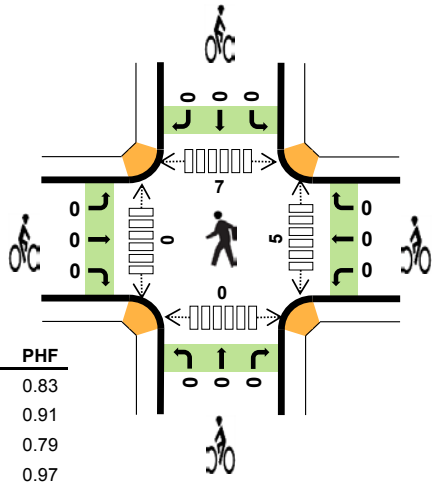
Interval Start	NO LEG					27TH ST					MIDLAND AVE					MIDLAND AVE					DRIVEWAY					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northwestbound						
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	2
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1	**0**

GRAND AVE
27TH ST

Peak Hour

Date: Tue, Sep 28, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	3.6%	0.83
WB	7.5%	0.91
NB	2.9%	0.79
SB	6.5%	0.97
TOTAL	4.5%	0.88

Two-Hour Count Summaries

Interval Start		27TH ST Eastbound				27TH ST Westbound				GRAND AVE Northbound				GRAND AVE Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	10	117	18	0	4	19	1	0	4	5	4	1	11	6	13	213	0
7:15 AM		0	21	130	21	0	3	17	5	0	4	5	3	0	5	12	13	239	0
7:30 AM		0	14	136	26	0	1	25	1	0	3	2	7	0	12	11	21	259	0
7:45 AM		**0**	**24**	**145**	**23**	**0**	**2**	**22**	**5**	**0**	**4**	**6**	**10**	**0**	**11**	**15**	**26**	**293**	1,004
8:00 AM		**0**	**19**	**121**	**12**	**0**	**5**	**28**	**5**	**0**	**8**	**5**	**11**	**0**	**5**	**14**	**33**	**266**	1,057
8:15 AM		**1**	**51**	**147**	**20**	**0**	**8**	**28**	**4**	**0**	**8**	**10**	**9**	**0**	**6**	**16**	**27**	**335**	1,153
8:30 AM		**0**	**22**	**121**	**21**	**0**	**7**	**32**	**0**	**0**	**8**	**12**	**13**	**0**	**8**	**14**	**26**	**284**	**1,178**
8:45 AM		0	19	87	12	0	4	25	5	0	8	6	8	0	5	9	20	208	1,093
Count Total		1	180	1,004	153	0	34	196	26	0	47	51	65	1	63	97	179	2,097	0
Peak Hour	**All**	**1**	**116**	**534**	**76**	**0**	**22**	**110**	**14**	**0**	**28**	**33**	**43**	**0**	**30**	**59**	**112**	**1,178**	**0**
	HV	**0**	**1**	**23**	**2**	**0**	**3**	**7**	**1**	**0**	**2**	**0**	**1**	**0**	**1**	**2**	**10**	**53**	**0**
	HV%	**0%**	**1%**	**4%**	**3%**	**-**	**14%**	**6%**	**7%**	**-**	**7%**	**0%**	**2%**	**-**	**3%**	**3%**	**9%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	3	3	1	*9*	1	0	1	0	*2*	0	0	1	0	*1*
7:15 AM	13	3	2	1	*19*	0	0	0	0	*0*	0	0	2	0	*2*
7:30 AM	5	6	0	2	*13*	0	0	0	0	*0*	1	0	0	0	*1*
7:45 AM	**3**	**3**	**1**	**1**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
8:00 AM	**9**	**2**	**0**	**3**	***14***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**3**	**0**	*6*
8:15 AM	**8**	**4**	**1**	**5**	***18***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**0**	*2*
8:30 AM	**6**	**2**	**1**	**4**	***13***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**2**	**0**	***3***
8:45 AM	4	1	1	1	*7*	0	0	0	0	*0*	3	0	3	0	*6*
Count Total	50	24	9	18	*101*	1	0	1	0	2	9	0	13	0	*22*
Peak Hour	**26**	**11**	**3**	**13**	***53***	**0**	**0**	**0**	**0**	***0***	**5**	**0**	**7**	**0**	***12***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	27TH ST Eastbound				27TH ST Westbound				GRAND AVE Northbound				GRAND AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	0	0	0	3	0	0	3	0	0	0	1	0	0	9	0
7:15 AM	0	1	11	1	0	0	2	1	0	1	0	1	0	0	0	1	19	0
7:30 AM	0	1	3	1	0	0	6	0	0	0	0	0	0	1	0	1	13	0
7:45 AM	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**8**	49
8:00 AM	**0**	**1**	**7**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**14**	54
8:15 AM	**0**	**0**	**8**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**4**	**18**	53
8:30 AM	**0**	**0**	**5**	**1**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**13**	**53**
8:45 AM	0	0	4	0	0	0	1	0	0	0	0	1	0	0	1	0	7	52
Count Total	0	3	43	4	0	3	19	2	0	6	0	3	0	3	3	12	101	0
Peak Hour	**0**	**1**	**23**	**2**	**0**	**3**	**7**	**1**	**0**	**2**	**0**	**1**	**0**	**1**	**2**	**10**	**53**	**0**

Two-Hour Count Summaries - Bikes

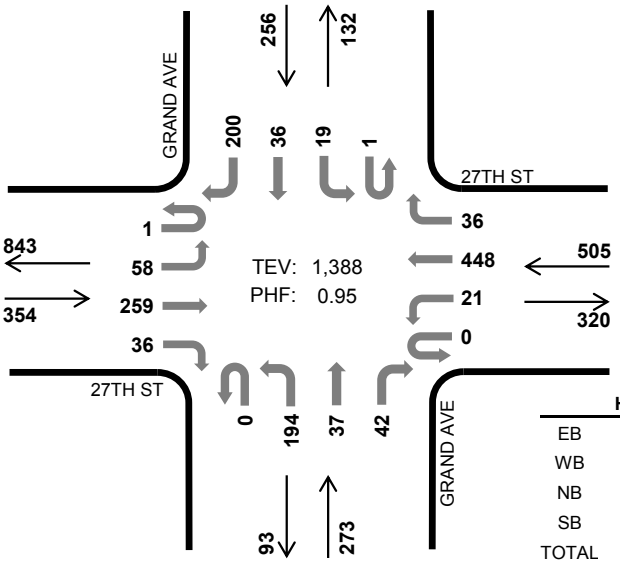
Interval Start	27TH ST Eastbound			27TH ST Westbound			GRAND AVE Northbound			GRAND AVE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	1	0	0	0	0	0	1	0	0	0	0	2	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	1	0	0	0	0	0	1	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

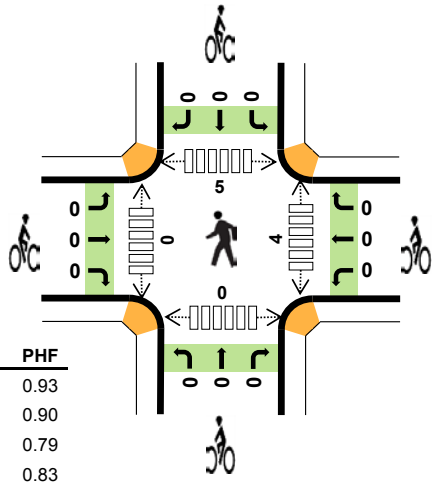
GRAND AVE
27TH ST

Date: Tue, Sep 28, 2021
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Peak Hour



	HV %:	PHF
EB	5.6%	0.93
WB	1.8%	0.90
NB	1.8%	0.79
SB	0.8%	0.83
TOTAL	2.6%	0.95



Two-Hour Count Summaries

Interval Start	27TH ST Eastbound				27TH ST Westbound				GRAND AVE Northbound				GRAND AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	13	60	10	1	5	81	6	0	18	8	8	1	5	15	42	273	0
4:15 PM	0	14	60	18	0	7	109	5	0	22	8	7	0	10	10	45	315	0
4:30 PM	0	7	59	9	0	5	85	7	0	39	15	13	1	3	8	63	314	0
4:45 PM	**0**	**12**	**70**	**6**	**0**	**3**	**107**	**8**	**0**	**44**	**5**	**12**	**1**	**7**	**8**	**61**	**344**	1,246
5:00 PM	**0**	**13**	**58**	**13**	**0**	**5**	**111**	**8**	**0**	**62**	**12**	**12**	**0**	**6**	**7**	**58**	**365**	1,338
5:15 PM	**1**	**14**	**69**	**11**	**0**	**6**	**123**	**11**	**0**	**45**	**8**	**11**	**0**	**2**	**10**	**42**	**353**	1,376
5:30 PM	**0**	**19**	**62**	**6**	**0**	**7**	**107**	**9**	**0**	**43**	**12**	**7**	**0**	**4**	**11**	**39**	**326**	**1,388**
5:45 PM	0	10	70	5	0	6	102	4	0	44	19	7	0	3	3	48	321	1,365
Count Total	1	102	508	78	1	44	825	58	0	317	87	77	3	40	72	398	2,611	0
Peak Hour All	**1**	**58**	**259**	**36**	**0**	**21**	**448**	**36**	**0**	**194**	**37**	**42**	**1**	**19**	**36**	**200**	**1,388**	**0**
Peak Hour HV	**0**	**4**	**15**	**1**	**0**	**0**	**4**	**5**	**0**	**3**	**0**	**2**	**1**	**1**	**0**	**0**	**36**	**0**
Peak Hour HV%	**0%**	**7%**	**6%**	**3%**	**-**	**0%**	**1%**	**14%**	**-**	**2%**	**0%**	**5%**	**100%**	**5%**	**0%**	**0%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	4	1	1	*10*	0	0	0	0	*0*	1	0	0	0	*1*
4:15 PM	5	7	0	2	*14*	0	0	0	0	*0*	1	0	1	0	*2*
4:30 PM	4	6	2	2	*14*	0	0	1	1	*2*	1	0	3	0	*4*
4:45 PM	**10**	**1**	**1**	**2**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
5:00 PM	**2**	**0**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**0**	*2*
5:15 PM	**4**	**7**	**4**	**0**	***15***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**3**	**0**	*6*
5:30 PM	**4**	**1**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:45 PM	1	3	1	0	*5*	0	0	0	0	*0*	0	0	1	0	*1*
Count Total	34	29	9	7	*79*	0	0	1	1	*2*	7	0	10	0	*17*
Peak Hour	**20**	**9**	**5**	**2**	***36***	**0**	**0**	**0**	**0**	***0***	**4**	**0**	**5**	**0**	***9***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	27TH ST Eastbound				27TH ST Westbound				GRAND AVE Northbound				GRAND AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	2	2	0	0	4	0	0	1	0	0	0	0	0	1	10	0
4:15 PM	0	1	4	0	0	0	4	3	0	0	0	0	0	2	0	0	14	0
4:30 PM	0	1	3	0	0	0	6	0	0	1	1	0	0	0	0	2	14	0
4:45 PM	**0**	**1**	**8**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**14**	52
5:00 PM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	44
5:15 PM	**0**	**1**	**3**	**0**	**0**	**0**	**2**	**5**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**15**	45
5:30 PM	**0**	**2**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**36**
5:45 PM	0	0	1	0	0	0	3	0	0	0	1	0	0	0	0	0	5	27
Count Total	0	6	25	3	0	0	21	8	0	5	2	2	1	3	0	3	79	0
Peak Hour	**0**	**4**	**15**	**1**	**0**	**0**	**4**	**5**	**0**	**3**	**0**	**2**	**1**	**1**	**0**	**0**	**36**	**0**

Two-Hour Count Summaries - Bikes

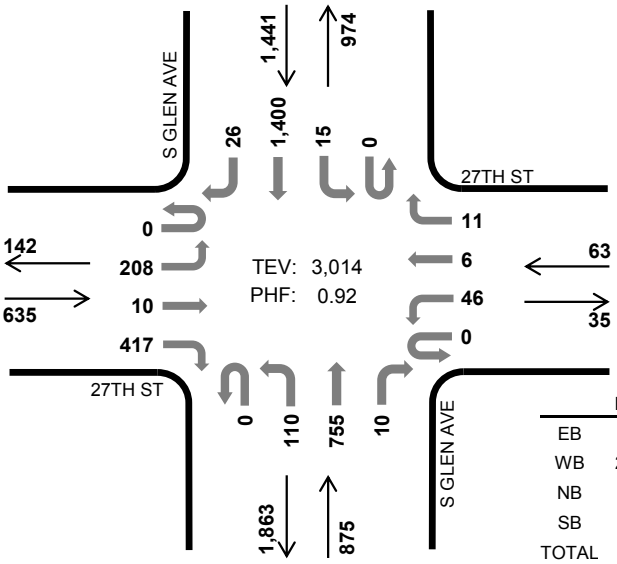
Interval Start	27TH ST Eastbound			27TH ST Westbound			GRAND AVE Northbound			GRAND AVE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	1	0	0	1	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

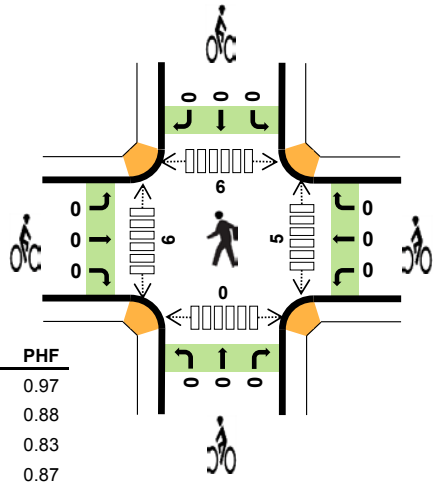
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

S GLEN AVE
27TH ST

Peak Hour

Date: Tue, Sep 28, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	3.5%	0.97
WB	25.4%	0.88
NB	5.1%	0.83
SB	5.5%	0.87
TOTAL	5.4%	0.92

Two-Hour Count Summaries

Interval Start		27TH ST Eastbound				27TH ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	38	2	96	0	10	3	2	0	17	87	2	0	6	391	6	660	0
7:15 AM		0	23	2	103	0	9	3	3	0	18	109	2	0	7	383	7	669	0
7:30 AM		**0**	**44**	**1**	**119**	**0**	**13**	**1**	**3**	**0**	**22**	**136**	**2**	**0**	**4**	**362**	**3**	**710**	0
7:45 AM		**0**	**44**	**3**	**117**	**0**	**14**	**1**	**3**	**0**	**30**	**191**	**2**	**0**	**4**	**406**	**3**	**818**	2,857
8:00 AM		**0**	**59**	**4**	**84**	**0**	**8**	**2**	**4**	**0**	**28**	**195**	**4**	**0**	**4**	**328**	**11**	**731**	2,928
8:15 AM		**0**	**61**	**2**	**97**	**0**	**11**	**2**	**1**	**0**	**30**	**233**	**2**	**0**	**3**	**304**	**9**	**755**	**3,014**
8:30 AM		0	44	1	103	0	6	1	3	0	40	166	0	0	3	313	7	687	2,991
8:45 AM		0	29	0	77	0	9	1	1	0	24	166	1	0	4	272	5	589	2,762
Count Total		0	342	15	796	0	80	14	20	0	209	1,283	15	0	35	2,759	51	5,619	0
Peak Hour	**All**	**0**	**208**	**10**	**417**	**0**	**46**	**6**	**11**	**0**	**110**	**755**	**10**	**0**	**15**	**1,400**	**26**	**3,014**	**0**
	HV	**0**	**8**	**0**	**14**	**0**	**13**	**1**	**2**	**0**	**11**	**33**	**1**	**0**	**7**	**70**	**2**	**162**	**0**
	HV%	**-**	**4%**	**0%**	**3%**	**-**	**28%**	**17%**	**18%**	**-**	**10%**	**4%**	**10%**	**-**	**47%**	**5%**	**8%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	6	2	7	25	*40*	1	0	0	0	*1*	3	0	4	0	*7*
7:15 AM	10	5	11	20	*46*	0	0	0	0	*0*	5	0	4	0	*9*
7:30 AM	**2**	**2**	**11**	**20**	***35***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**4**	**6**	**12**	**24**	***46***	**0**	**0**	**0**	**0**	***0***	**2**	**2**	**2**	**0**	*6*
8:00 AM	**8**	**4**	**14**	**14**	***40***	**0**	**0**	**0**	**0**	***0***	**3**	**3**	**4**	**0**	*10*
8:15 AM	**8**	**4**	**8**	**21**	***41***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	***1***
8:30 AM	5	3	10	24	*42*	0	0	0	0	*0*	7	3	7	0	*17*
8:45 AM	6	5	11	26	*48*	0	0	0	0	*0*	0	3	2	0	*5*
Count Total	49	31	84	174	*338*	1	0	0	0	*1*	20	12	23	0	*55*
Peak Hour	**22**	**16**	**45**	**79**	***162***	**0**	**0**	**0**	**0**	***0***	**5**	**6**	**6**	**0**	***17***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	27TH ST Eastbound				27TH ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	3	0	3	0	2	0	0	0	2	4	1	0	2	23	0	40	0
7:15 AM	0	6	0	4	0	4	0	1	0	3	8	0	0	4	16	0	46	0
7:30 AM	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**5**	**6**	**0**	**0**	**1**	**19**	**0**	**35**	0
7:45 AM	**0**	**3**	**0**	**1**	**0**	**6**	**0**	**0**	**0**	**5**	**7**	**0**	**0**	**3**	**21**	**0**	**46**	167
8:00 AM	**0**	**2**	**0**	**6**	**0**	**2**	**1**	**1**	**0**	**1**	**12**	**1**	**0**	**1**	**12**	**1**	**40**	167
8:15 AM	**0**	**1**	**0**	**7**	**0**	**4**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**2**	**18**	**1**	**41**	**162**
8:30 AM	0	1	0	4	0	2	0	1	0	1	9	0	0	1	22	1	42	169
8:45 AM	0	4	0	2	0	5	0	0	0	2	8	1	0	2	23	1	48	171
Count Total	0	22	0	27	0	26	1	4	0	19	62	3	0	16	154	4	338	0
Peak Hour	**0**	**8**	**0**	**14**	**0**	**13**	**1**	**2**	**0**	**11**	**33**	**1**	**0**	**7**	**70**	**2**	**162**	**0**

Two-Hour Count Summaries - Bikes

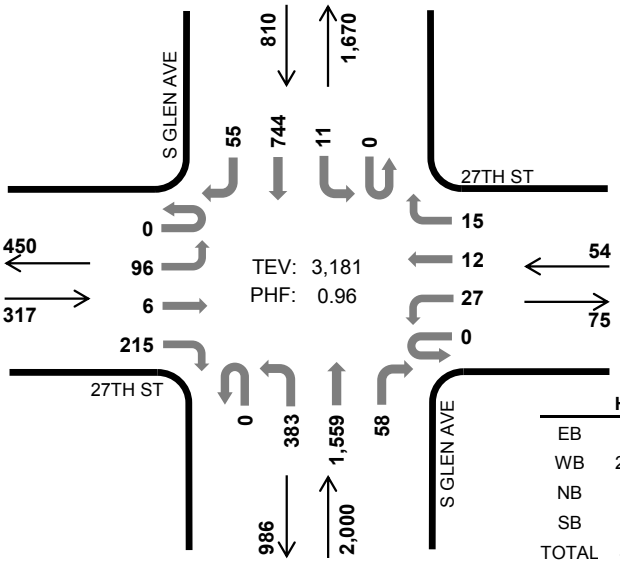
Interval Start	27TH ST Eastbound			27TH ST Westbound			S GLEN AVE Northbound			S GLEN AVE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

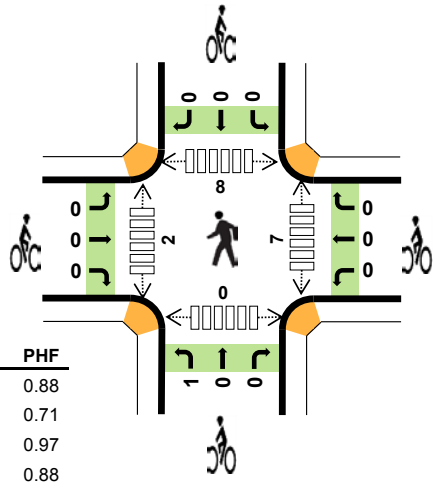
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

S GLEN AVE
27TH ST

Peak Hour

Date: Tue, Sep 28, 2021
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM





	HV %:	PHF
EB	6.3%	0.88
WB	24.1%	0.71
NB	3.4%	0.97
SB	3.8%	0.88
TOTAL	4.1%	0.96

Two-Hour Count Summaries

Interval Start	27TH ST Eastbound				27TH ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	34	2	48	0	7	0	9	0	79	340	6	0	3	192	12	732	0
4:15 PM	**0**	**17**	**3**	**58**	**0**	**7**	**2**	**5**	**0**	**99**	**359**	**17**	**0**	**5**	**189**	**13**	**774**	0
4:30 PM	**0**	**22**	**1**	**48**	**0**	**5**	**1**	**3**	**0**	**88**	**416**	**9**	**0**	**1**	**167**	**12**	**773**	0
4:45 PM	**0**	**28**	**1**	**61**	**0**	**13**	**4**	**2**	**0**	**93**	**393**	**15**	**0**	**4**	**178**	**12**	**804**	3,083
5:00 PM	**0**	**29**	**1**	**48**	**0**	**2**	**5**	**5**	**0**	**103**	**391**	**17**	**0**	**1**	**210**	**18**	**830**	**3,181**
5:15 PM	0	31	2	56	0	12	3	6	0	122	356	10	0	5	145	7	755	3,162
5:30 PM	0	23	0	51	0	5	4	5	0	93	383	15	0	2	180	10	771	3,160
5:45 PM	0	24	3	57	0	5	1	2	0	112	410	10	0	3	134	9	770	3,126
Count Total	0	208	13	427	0	56	20	37	0	789	3,048	99	0	24	1,395	93	6,209	0
Peak Hour All	**0**	**96**	**6**	**215**	**0**	**27**	**12**	**15**	**0**	**383**	**1,559**	**58**	**0**	**11**	**744**	**55**	**3,181**	**0**
Peak Hour HV	**0**	**7**	**0**	**13**	**0**	**8**	**1**	**4**	**0**	**11**	**57**	**0**	**0**	**5**	**25**	**1**	**132**	**0**
Peak Hour HV%	**-**	**7%**	**0%**	**6%**	**-**	**30%**	**8%**	**27%**	**-**	**3%**	**4%**	**0%**	**-**	**45%**	**3%**	**2%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	3	20	10	*36*	0	0	0	0	*0*	2	2	2	0	*6*
4:15 PM	**5**	**4**	**14**	**9**	***32***	**0**	**0**	**0**	**0**	***0***	**2**	**1**	**2**	**0**	*5*
4:30 PM	**6**	**3**	**24**	**7**	***40***	**0**	**0**	**1**	**0**	***1***	**1**	**0**	**2**	**0**	*3*
4:45 PM	**7**	**3**	**16**	**8**	***34***	**0**	**0**	**0**	**0**	***0***	**2**	**1**	**1**	**0**	*4*
5:00 PM	**2**	**3**	**14**	**7**	***26***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**3**	**0**	***5***
5:15 PM	3	3	17	7	*30*	0	0	0	0	*0*	3	1	5	0	*9*
5:30 PM	2	1	10	6	*19*	0	0	0	0	*0*	0	0	2	0	*2*
5:45 PM	2	3	13	5	*23*	0	0	0	0	*0*	0	1	1	0	*2*
Count Total	30	23	128	59	*240*	0	0	1	0	*1*	12	6	18	0	*36*
Peak Hour	**20**	**13**	**68**	**31**	***132***	**0**	**0**	**1**	**0**	***1***	**7**	**2**	**8**	**0**	***17***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	27TH ST Eastbound				27TH ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	3	0	1	0	2	0	6	14	0	0	1	8	1	36	0
4:15 PM	**0**	**1**	**0**	**4**	**0**	**2**	**1**	**1**	**0**	**0**	**14**	**0**	**0**	**1**	**8**	**0**	**32**	0
4:30 PM	**0**	**4**	**0**	**2**	**0**	**2**	**0**	**1**	**0**	**6**	**18**	**0**	**0**	**0**	**6**	**1**	**40**	0
4:45 PM	**0**	**2**	**0**	**5**	**0**	**3**	**0**	**0**	**0**	**3**	**13**	**0**	**0**	**3**	**5**	**0**	**34**	142
5:00 PM	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**2**	**0**	**2**	**12**	**0**	**0**	**1**	**6**	**0**	**26**	**132**
5:15 PM	0	1	0	2	0	3	0	0	0	5	12	0	0	3	3	1	30	130
5:30 PM	0	1	0	1	0	0	0	1	0	1	9	0	0	1	5	0	19	109
5:45 PM	0	1	0	1	0	3	0	0	0	1	12	0	0	1	3	1	23	98
Count Total	0	10	0	20	0	15	1	7	0	24	104	0	0	11	44	4	240	0
Peak Hour	**0**	**7**	**0**	**13**	**0**	**8**	**1**	**4**	**0**	**11**	**57**	**0**	**0**	**5**	**25**	**1**	**132**	**0**

Two-Hour Count Summaries - Bikes

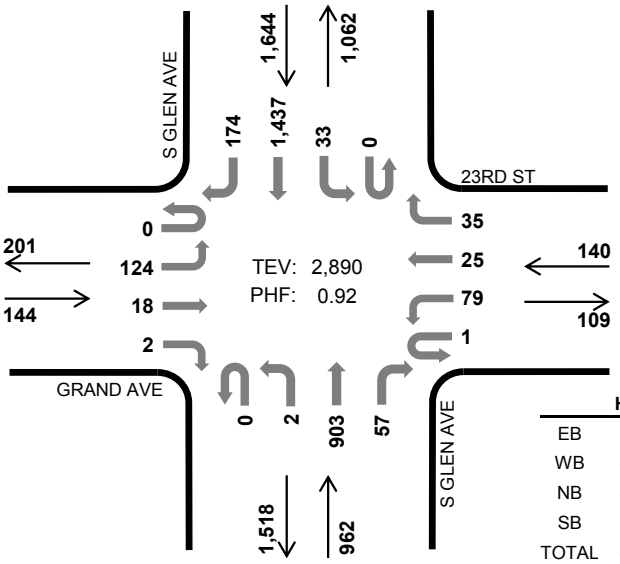
Interval Start	27TH ST Eastbound			27TH ST Westbound			S GLEN AVE Northbound			S GLEN AVE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

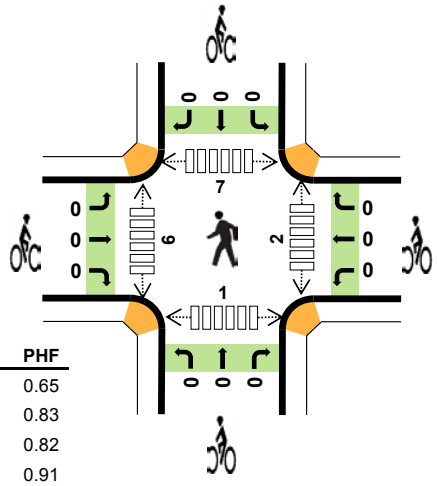
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

S GLEN AVE
GRAND AVE

Peak Hour

Date: Tue, Sep 28, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	1.4%	0.65
WB	4.3%	0.83
NB	4.6%	0.82
SB	5.2%	0.91
TOTAL	4.8%	0.92

Two-Hour Count Summaries

Interval Start	GRAND AVE Eastbound				23RD ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	10	0	1	0	24	3	1	0	1	106	11	0	4	348	20	529	0
7:15 AM	0	19	2	0	0	11	2	4	0	1	124	13	0	3	411	33	623	0
7:30 AM	**0**	**15**	**4**	**0**	**0**	**25**	**10**	**7**	**0**	**1**	**162**	**10**	**0**	**8**	**383**	**31**	**656**	0
7:45 AM	**0**	**30**	**3**	**1**	**0**	**18**	**5**	**6**	**0**	**0**	**229**	**22**	**0**	**9**	**395**	**46**	**764**	2,572
8:00 AM	**0**	**31**	**4**	**1**	**1**	**18**	**5**	**12**	**0**	**1**	**234**	**9**	**0**	**5**	**316**	**44**	**681**	2,724
8:15 AM	**0**	**48**	**7**	**0**	**0**	**18**	**5**	**10**	**0**	**0**	**278**	**16**	**0**	**11**	**343**	**53**	**789**	**2,890**
8:30 AM	0	37	3	0	0	20	3	7	0	2	186	12	0	15	323	35	643	2,877
8:45 AM	0	27	1	0	0	13	3	2	0	1	187	7	0	9	266	42	558	2,671
Count Total	0	217	24	3	1	147	36	49	0	7	1,506	100	0	64	2,785	304	5,243	0
Peak Hour All	**0**	**124**	**18**	**2**	**1**	**79**	**25**	**35**	**0**	**2**	**903**	**57**	**0**	**33**	**1,437**	**174**	**2,890**	**0**
Peak Hour HV	**0**	**1**	**1**	**0**	**0**	**3**	**2**	**1**	**0**	**0**	**43**	**1**	**0**	**2**	**74**	**10**	**138**	**0**
Peak Hour HV%	**-**	**1%**	**6%**	**0%**	**0%**	**4%**	**8%**	**3%**	**-**	**0%**	**5%**	**2%**	**-**	**6%**	**5%**	**6%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	3	3	23	*29*	0	0	0	0	*0*	0	0	2	0	*2*
7:15 AM	1	0	17	22	*40*	0	0	0	0	*0*	0	1	1	0	*2*
7:30 AM	**2**	**2**	**12**	**19**	***35***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**1**	**0**	*3*
7:45 AM	**0**	**1**	**9**	**27**	***37***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**3**	**1**	*6*
8:00 AM	**0**	**2**	**15**	**21**	***38***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**3**	**0**	*5*
8:15 AM	**0**	**1**	**8**	**19**	***28***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**0**	***2***
8:30 AM	1	0	13	30	*44*	1	0	0	0	*1*	1	2	2	0	*5*
8:45 AM	1	2	10	29	*42*	0	0	0	0	*0*	0	3	0	0	*3*
Count Total	5	11	87	190	*293*	1	0	0	0	*1*	3	12	12	1	*28*
Peak Hour	**2**	**6**	**44**	**86**	***138***	**0**	**0**	**0**	**0**	***0***	**2**	**6**	**7**	**1**	***16***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	GRAND AVE Eastbound				23RD ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	3	0	0	0	0	3	0	0	1	21	1	29	0
7:15 AM	0	0	1	0	0	0	0	0	0	0	13	4	0	0	21	1	40	0
7:30 AM	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**18**	**1**	**35**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**8**	**1**	**0**	**1**	**25**	**1**	**37**	141
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**15**	**0**	**0**	**1**	**18**	**2**	**38**	150
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**13**	**6**	**28**	**138**
8:30 AM	0	1	0	0	0	0	0	0	0	0	13	0	0	2	25	3	44	147
8:45 AM	0	1	0	0	0	1	1	0	0	0	10	0	0	0	28	1	42	152
Count Total	0	3	2	0	0	7	3	1	0	0	82	5	0	5	169	16	293	0
Peak Hour	**0**	**1**	**1**	**0**	**0**	**3**	**2**	**1**	**0**	**0**	**43**	**1**	**0**	**2**	**74**	**10**	**138**	**0**

Two-Hour Count Summaries - Bikes

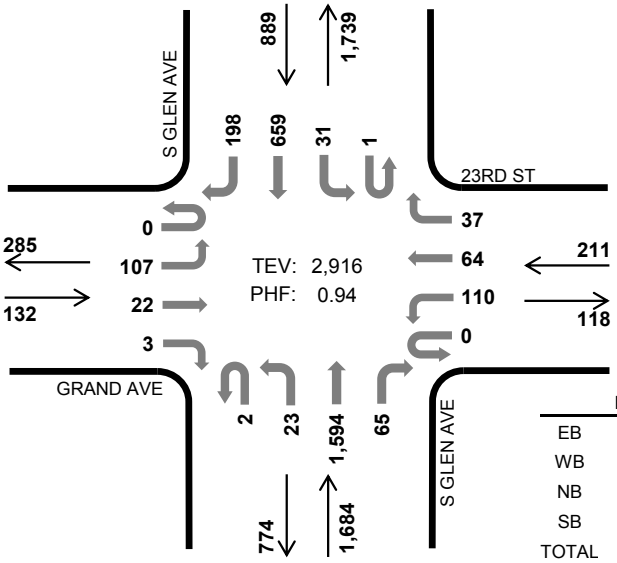
Interval Start	GRAND AVE Eastbound			23RD ST Westbound			S GLEN AVE Northbound			S GLEN AVE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	1	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

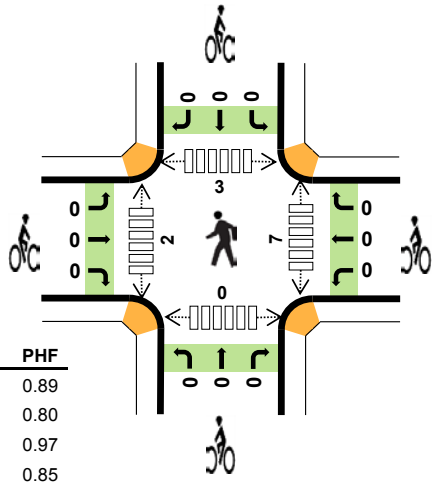
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

S GLEN AVE
GRAND AVE

Peak Hour

Date: Tue, Sep 28, 2021
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	6.8%	0.89
WB	0.5%	0.80
NB	3.7%	0.97
SB	3.8%	0.85
TOTAL	3.6%	0.94

Two-Hour Count Summaries

Interval Start		GRAND AVE Eastbound				23RD ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	28	4	0	0	23	16	15	0	10	349	32	0	9	225	52	763	0
4:15 PM		0	24	7	0	0	24	19	9	0	0	346	28	0	10	156	44	667	0
4:30 PM		**0**	**29**	**7**	**0**	**0**	**24**	**16**	**9**	**0**	**2**	**393**	**17**	**0**	**10**	**137**	**52**	**696**	0
4:45 PM		**0**	**30**	**2**	**0**	**0**	**24**	**19**	**10**	**1**	**12**	**403**	**16**	**0**	**12**	**185**	**64**	**778**	2,904
5:00 PM		**0**	**28**	**7**	**2**	**0**	**43**	**14**	**9**	**0**	**6**	**387**	**14**	**1**	**4**	**191**	**41**	**747**	2,888
5:15 PM		**0**	**20**	**6**	**1**	**0**	**19**	**15**	**9**	**1**	**3**	**411**	**18**	**0**	**5**	**146**	**41**	**695**	**2,916**
5:30 PM		0	28	10	0	0	23	13	8	0	0	377	21	0	7	154	51	692	2,912
5:45 PM		0	17	5	2	0	18	8	11	0	1	416	10	0	7	128	50	673	2,807
Count Total		0	204	48	5	0	198	120	80	2	34	3,082	156	1	64	1,322	395	5,711	0
Peak Hour	**All**	**0**	**107**	**22**	**3**	**0**	**110**	**64**	**37**	**2**	**23**	**1,594**	**65**	**1**	**31**	**659**	**198**	**2,916**	**0**
	HV	**0**	**8**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**61**	**1**	**0**	**1**	**30**	**3**	**106**	**0**
	HV%	**-**	**7%**	**5%**	**0%**	**-**	**1%**	**0%**	**0%**	**0%**	**0%**	**4%**	**2%**	**0%**	**3%**	**5%**	**2%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	3	19	10	*34*	0	0	0	0	*0*	0	5	1	1	*7*
4:15 PM	2	0	17	9	*28*	0	0	0	0	*0*	0	0	1	0	*1*
4:30 PM	**2**	**1**	**16**	**10**	***29***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**1**	**0**	*4*
4:45 PM	**2**	**0**	**18**	**11**	***31***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	*1*
5:00 PM	**3**	**0**	**18**	**7**	***28***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**0**	**0**	*2*
5:15 PM	**2**	**0**	**10**	**6**	***18***	**0**	**0**	**0**	**0**	***0***	**2**	**1**	**2**	**0**	***5***
5:30 PM	4	0	12	6	*22*	0	0	0	0	*0*	3	0	1	1	*5*
5:45 PM	0	1	11	6	*18*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	17	5	121	65	*208*	0	0	0	0	*0*	10	7	6	2	*25*
Peak Hour	**9**	**1**	**62**	**34**	***106***	**0**	**0**	**0**	**0**	***0***	**7**	**2**	**3**	**0**	***12***

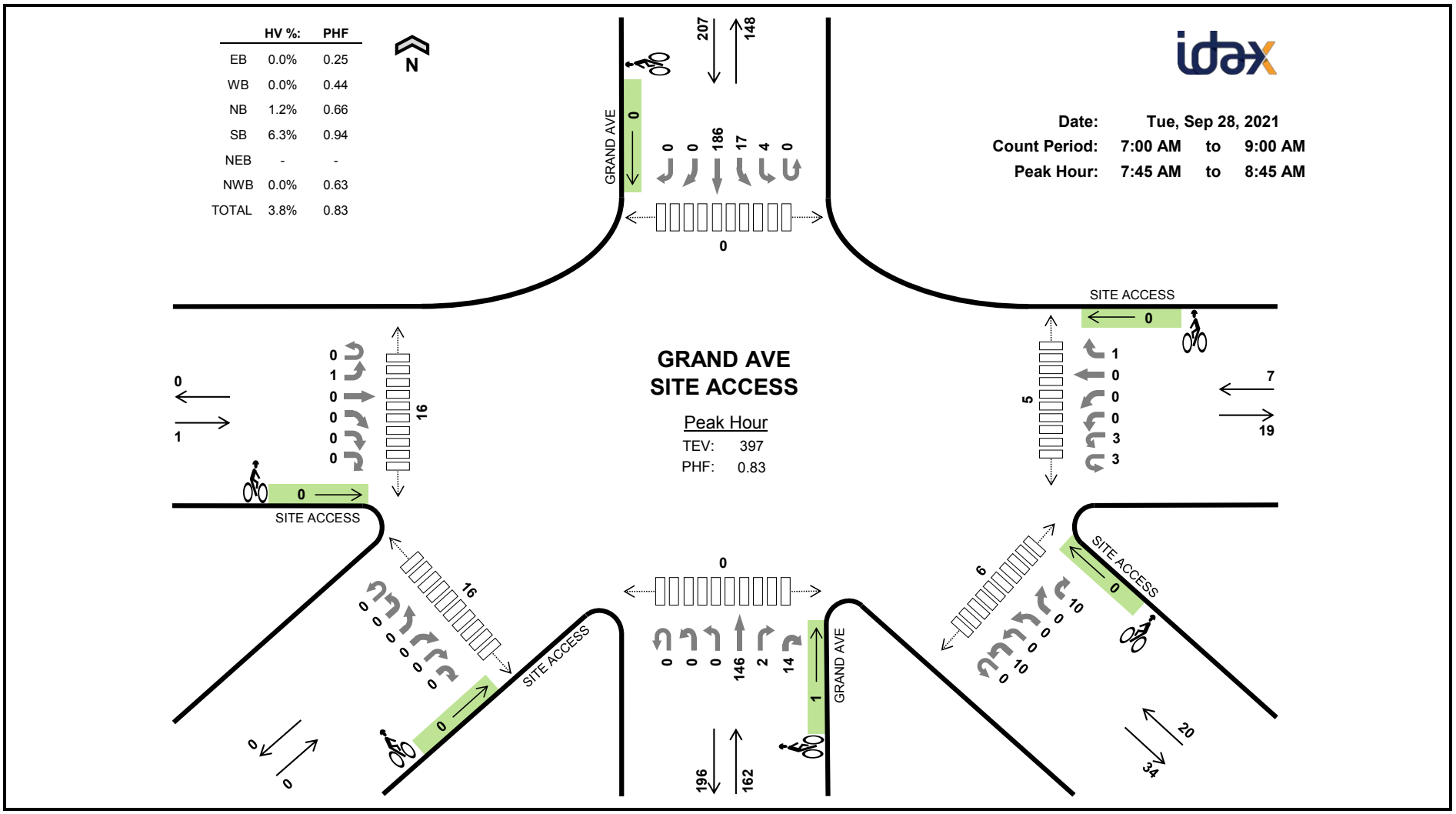
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	GRAND AVE Eastbound				23RD ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	0	0	0	2	0	1	0	0	19	0	0	2	6	2	34	0
4:15 PM	0	1	1	0	0	0	0	0	0	0	15	2	0	0	7	2	28	0
4:30 PM	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**8**	**2**	**29**	0
4:45 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**1**	**0**	**0**	**10**	**1**	**31**	122
5:00 PM	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**0**	**0**	**7**	**0**	**28**	116
5:15 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**1**	**5**	**0**	**18**	**106**
5:30 PM	0	4	0	0	0	0	0	0	0	0	12	0	0	0	6	0	22	99
5:45 PM	0	0	0	0	0	1	0	0	0	0	11	0	0	0	6	0	18	86
Count Total	0	15	2	0	0	4	0	1	0	0	118	3	0	3	55	7	208	0
Peak Hour	**0**	**8**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**61**	**1**	**0**	**1**	**30**	**3**	**106**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	GRAND AVE Eastbound			23RD ST Westbound			S GLEN AVE Northbound			S GLEN AVE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.


HV %: PHF
EB 0.0% 0.25
WB 0.0% 0.44
NB 1.2% 0.66
SB 6.3% 0.94
NEB - -
NWB 0.0% 0.63
TOTAL 3.8% 0.83
N
Date: Tue, Sep 28, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM
GRAND AVE
SITE ACCESS
Peak Hour
TEV: 397
PHF: 0.83
GRAND AVE
SITE ACCESS
SITE ACCESS
SITE ACCESS
SITE ACCESS

Two-Hour Count Summaries

Interval Start	SITE ACCESS Eastbound						SITE ACCESS Westbound						GRAND AVE Northbound						GRAND AVE Southbound						SITE ACCESS Northeastbound						SITE ACCESS Northwestbound						15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	13	1	2	0	1	0	29	0	0	0	0	0	0	0	0	0	2	0	0	0	1	51	0
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	28	0	3	0	0	3	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63	0
7:30 AM	0	0	0	0	1	0	3	3	0	0	0	1	0	0	1	16	0	2	0	1	3	42	0	0	0	0	0	0	0	0	0	1	0	0	0	4	78	0
7:45 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**0**	**4**	**0**	**1**	**4**	**50**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**4**	**98**	290
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**27**	**2**	**2**	**0**	**2**	**6**	**42**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**89**	328
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**56**	**0**	**5**	**0**	**1**	**2**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**120**	385
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**33**	**0**	**3**	**0**	**0**	**5**	**42**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**90**	**397**
8:45 AM	0	0	0	0	0	0	3	3	0	0	0	0	0	1	0	25	1	3	0	0	3	35	0	0	0	0	1	0	0	0	0	0	0	0	0	0	75	374
Count Total	0	1	0	0	2	0	10	10	0	0	0	2	0	1	1	228	4	24	0	6	26	320	0	0	0	0	1	0	0	0	0	13	0	0	0	15	664	0
Peak Hour All	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**146**	**2**	**14**	**0**	**4**	**17**	**186**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**10**	**397**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**0**
Peak Hour HV%	**-**	**0%**	**-**	**-**	**-**	**-**	**0%**	**0%**	**-**	**-**	**-**	**0%**	**-**	**-**	**-**	**1%**	**0%**	**0%**	**-**	**25%**	**0%**	**6%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**-**	**-**	**0%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

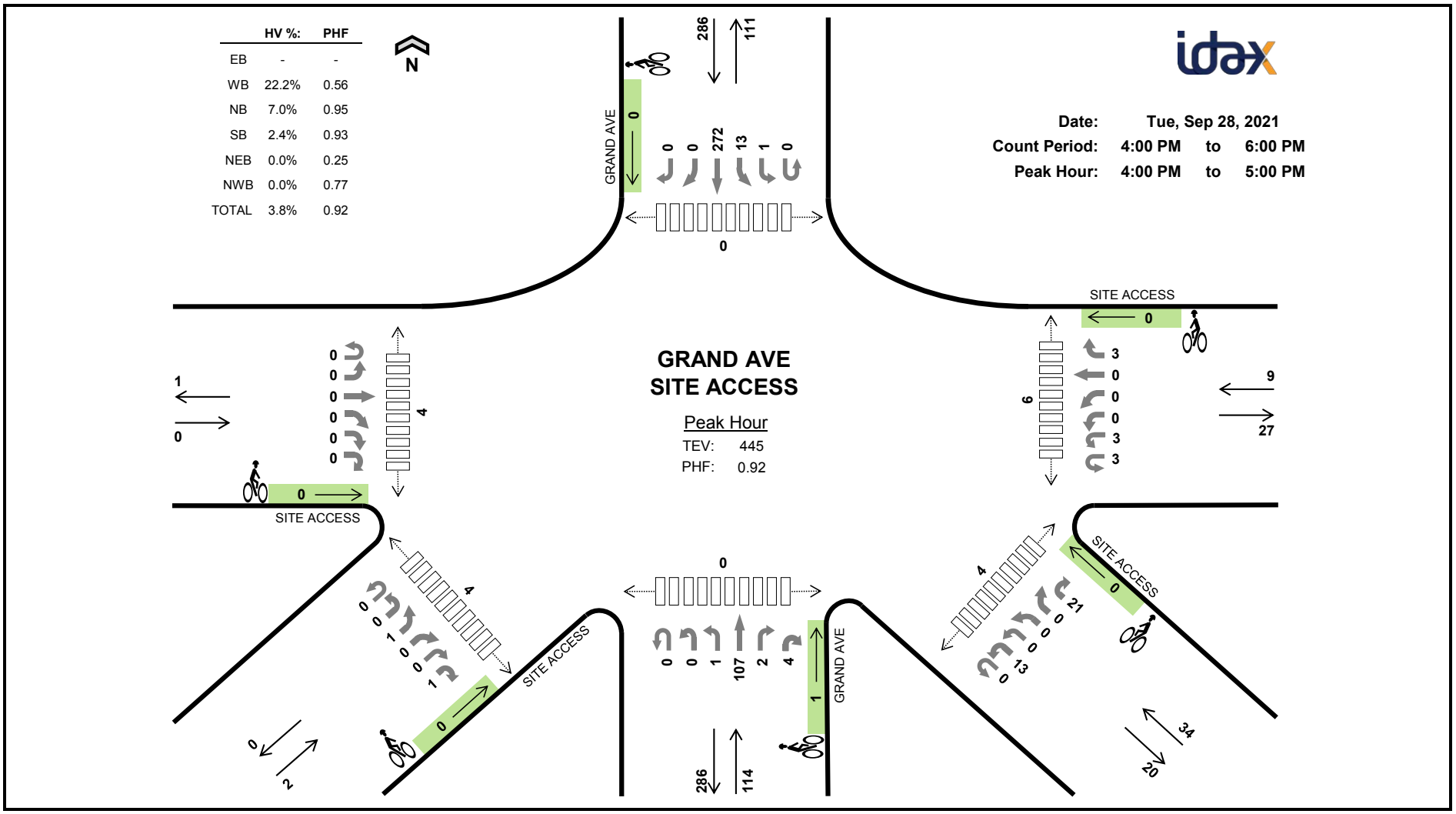
Interval Start	Heavy Vehicle Totals							Bicycles							Pedestrians (Crossing Leg)						
	EB	WB	NB	SB	NEB	NWB	Total	EB	WB	NB	SB	NEB	NWB	Total	East	West	North	South	SE	SW	Total
7:00 AM	0	0	0	2	0	0	*2*	0	0	1	0	0	0	*1*	1	2	1	0	2	1	*7*
7:15 AM	0	0	2	0	0	0	*2*	0	0	0	0	0	0	*0*	0	1	0	0	0	1	*2*
7:30 AM	0	0	1	1	0	0	*2*	0	0	0	0	0	0	*0*	0	3	0	0	0	3	*6*
7:45 AM	**0**	**0**	**0**	**2**	**0**	**0**	***2***	**0**	**0**	**1**	**0**	**0**	**0**	***1***	**2**	**2**	**0**	**0**	**3**	**2**	***9***
8:00 AM	**0**	**0**	**0**	**3**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**8**	**0**	**0**	**0**	**8**	***16***
8:15 AM	**0**	**0**	**1**	**6**	**0**	**0**	***7***	**0**	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**0**	**0**	**0**	**4**	***8***
8:30 AM	**0**	**0**	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	**0**	**0**	***0***	**3**	**2**	**0**	**0**	**3**	**2**	***10***
8:45 AM	0	0	0	3	0	0	*3*	0	0	0	0	0	0	*0*	1	1	1	0	2	0	*5*
Count Total	0	0	5	19	0	0	*24*	0	0	2	0	0	0	*2*	7	23	2	0	10	21	*63*
Peak Hr	**0**	**0**	**2**	**13**	**0**	**0**	***15***	**0**	**0**	**1**	**0**	**0**	**0**	***1***	**5**	**16**	**0**	**0**	**6**	**16**	***43***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	SITE ACCESS Eastbound						SITE ACCESS Westbound						GRAND AVE Northbound						GRAND AVE Southbound						SITE ACCESS Northeastbound						SITE ACCESS Northwestbound						15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	8
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	9
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	14
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**15**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	16
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	15	**0**

Two-Hour Count Summaries - Bikes

Interval Start	SITE ACCESS Eastbound						SITE ACCESS Westbound						GRAND AVE Northbound						GRAND AVE Southbound						SITE ACCESS Northeastbound						SITE ACCESS Northwestbound						15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	2
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1	**0**


HV %: PHF
EB - -
WB 22.2% 0.56
NB 7.0% 0.95
SB 2.4% 0.93
NEB 0.0% 0.25
NWB 0.0% 0.77
TOTAL 3.8% 0.92
N
Date: Tue, Sep 28, 2021
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM
GRAND AVE
SITE ACCESS
Peak Hour
TEV: 445
PHF: 0.92
286
111
272
13
107
114
34
20
27
21

Two-Hour Count Summaries

Interval Start		SITE ACCESS Eastbound						SITE ACCESS Westbound						GRAND AVE Northbound						GRAND AVE Southbound						SITE ACCESS Northeastbound						SITE ACCESS Northwestbound						15-min Total	Rolling One Hour
		UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
4:00 PM		**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**29**	**0**	**1**	**0**	**1**	**3**	**73**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**4**	**0**	**0**	**0**	**5**	**121**	0
4:15 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**26**	**0**	**1**	**0**	**0**	**3**	**63**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**99**	0
4:30 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**29**	**0**	**0**	**0**	**0**	**3**	**70**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**9**	**113**	0
4:45 PM		**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**23**	**2**	**2**	**0**	**0**	**4**	**66**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**7**	**112**	**445**
5:00 PM		0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	32	0	1	0	0	1	49	0	0	0	0	0	0	0	0	0	4	0	0	0	4	94	418
5:15 PM		0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	31	0	1	0	0	1	52	0	0	0	0	0	0	0	0	0	1	0	0	0	6	94	413
5:30 PM		0	0	0	0	1	0	1	1	0	0	0	2	0	0	1	36	0	1	0	0	1	65	0	0	0	0	0	0	0	0	0	0	0	0	0	4	113	413
5:45 PM		0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	32	0	1	0	0	3	50	0	0	0	0	0	0	0	0	0	4	0	0	0	0	93	394
Count Total		0	0	0	0	4	0	6	6	0	0	0	6	0	0	2	238	2	8	0	1	19	488	0	0	0	0	1	0	0	1	0	22	0	0	0	35	839	0
Peak Hour	**All**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**107**	**2**	**4**	**0**	**1**	**13**	**272**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**13**	**0**	**0**	**0**	**21**	**445**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**0**
	HV%	**-**	**-**	**-**	**-**	**-**	**-**	**33%**	**33%**	**-**	**-**	**-**	**0%**	**-**	**-**	**0%**	**7%**	**0%**	**0%**	**-**	**0%**	**0%**	**3%**	**-**	**-**	**-**	**-**	**0%**	**-**	**-**	**0%**	**-**	**0%**	**-**	**-**	**-**	**0%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals							Bicycles							Pedestrians (Crossing Leg)						
	EB	WB	NB	SB	NEB	NWB	Total	EB	WB	NB	SB	NEB	NWB	Total	East	West	North	South	SE	SW	Total
4:00 PM	**0**	**0**	**2**	**2**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	**0**	**0**	***0***	**6**	**2**	**0**	**0**	**4**	**2**	***14***
4:15 PM	**0**	**0**	**3**	**2**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	**0**	**1**	***2***
4:30 PM	**0**	**0**	**2**	**3**	**0**	**0**	***5***	**0**	**0**	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	**0**	**0**	***0***
4:45 PM	**0**	**2**	**1**	**0**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	**0**	**1**	***2***
5:00 PM	0	0	5	0	0	0	*5*	0	0	0	0	0	0	*0*	0	4	0	0	0	4	*8*
5:15 PM	0	0	1	0	0	0	*1*	0	0	0	0	0	0	*0*	1	3	0	0	0	4	*8*
5:30 PM	0	0	2	0	0	0	*2*	0	0	0	0	0	0	*0*	0	1	0	0	0	1	*2*
5:45 PM	0	0	1	0	0	0	*1*	0	0	0	0	0	0	*0*	0	1	0	0	0	1	*2*
Count Total	0	2	17	7	0	0	*26*	0	0	1	0	0	0	*1*	7	13	0	0	4	14	*38*
Peak Hr	**0**	**2**	**8**	**7**	**0**	**0**	***17***	**0**	**0**	**1**	**0**	**0**	**0**	***1***	**6**	**4**	**0**	**0**	**4**	**4**	***18***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	SITE ACCESS Eastbound						SITE ACCESS Westbound						GRAND AVE Northbound						GRAND AVE Southbound						SITE ACCESS Northeastbound						SITE ACCESS Northwestbound						15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**17**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	18
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	11
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9
Count Total	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	17	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	17	**0**

Two-Hour Count Summaries - Bikes

Interval Start	SITE ACCESS Eastbound						SITE ACCESS Westbound						GRAND AVE Northbound						GRAND AVE Southbound						SITE ACCESS Northeastbound						SITE ACCESS Northwestbound						15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1	**0**

Monthly Summary Data

CDOT OTIS Station ID 000214 - ON SH 82, GLEN AVE S/O BLAKE AVE, GLENWOOD SPRINGS

CALYR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2021	22,534	23,360	24,863	26,000	27,154	29,065	28,564	27,888				
2020	23,732	23,818	19,530	15,080	21,526	24,775	25,592	24,845	26,241	25,786	22,462	22,231
2019	22,045	22,387	22,885	23,892	24,283	25,402	25,858	25,648	25,266	26,224	24,326	23,900
2018	23,365	23,237	24,444	24,974	25,824	26,106	25,420	25,235	24,793	23,781	22,025	21,717
2017	22,576	23,590	24,797	25,270	25,389	27,223	27,128	23,295	21,072	21,144	22,774	23,736
2016	22,629	22,949	23,948	24,786	25,563	27,086	27,406	27,089	27,051	25,737	23,475	23,145
2015	22,134	22,151	23,508	23,842	24,174	26,460	27,049	26,201	26,455	25,224	22,799	22,782
2014	20,312	20,646	21,761	22,204	22,727	24,366	25,318	24,725	24,859	23,947	20,843	21,677
2013	20,065	20,137	20,483	20,986	21,928	22,998	23,938	23,718	22,993	22,538	20,564	19,880
2012	19,531	19,709	20,760	20,884	21,349	22,956	23,301	23,793	22,904	22,152	20,404	19,386
2011	19,557	19,445	20,557	20,174	20,612	22,241	23,089	23,255	23,149	21,614	19,952	20,194
2010	20,137	20,140	20,998	20,777	21,017	23,097	24,447	24,073	24,005	21,863	21,239	20,097
2009	21,638	22,319	22,144	22,424	22,912	24,701	25,134	24,300	24,150	22,561	19,785	20,400
2008	23,112	23,324	24,444	24,929	25,006	26,191	26,580	26,231	25,768	25,323	22,664	22,140
2007	20,956	23,067	24,472	24,836	25,605	26,598	26,724	27,227	26,754	25,724	24,328	22,715
2006	21,346	22,174	22,476	23,410	23,967	25,736	25,747	25,967	25,854	24,205	22,466	22,424
2005	21,024	21,907	22,544	22,652	22,997	24,963	25,564	25,465	24,352	23,362	22,362	21,578
2004		21,061	21,761	22,242	21,886	24,336	24,937	24,743	24,373	22,921	21,363	21,829
2003	20,521	20,586	20,471	20,691	21,234	23,811	24,859	23,899	23,188	22,506	19,602	20,525
2002									23,173	22,975	20,658	20,815
2001	20,369	20,980	22,123	22,774	23,131	24,161	24,315	25,555	24,094			
2000	18,546	20,063	20,881	21,592	22,350	24,926	24,236	24,569	23,737	22,778	20,828	20,217
1999	17,820	19,049	20,071	20,246	20,259	22,756	23,208	22,999	22,652	21,438	19,915	19,502
Average	**21,140**	**21,641**	**22,269**	**22,485**	**23,222**	**24,998**	**25,382**	**25,033**	**24,404**	**23,514**	**21,659**	**21,471**

Seasonal Adjustment Factors

CDOT OTIS Station ID 000214 - ON SH 82, GLEN AVE S/O BLAKE AVE, GLENWOOD SPRINGS

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		21,140	21,641	22,269	22,485	23,222	24,998	25,382	25,033	24,404	23,514	21,659	21,471
Jan	21,140	1.00	1.02	1.05	1.06	1.10	1.18	1.20	1.18	1.15	1.11	1.02	1.02
Feb	21,641	0.98	1.00	1.03	1.04	1.07	1.16	1.17	1.16	1.13	1.09	1.00	0.99
Mar	22,269	0.95	0.97	1.00	1.01	1.04	1.12	1.14	1.12	1.10	1.06	0.97	0.96
Apr	22,485	0.94	0.96	0.99	1.00	1.03	1.11	1.13	1.11	1.09	1.05	0.96	0.95
May	23,222	0.91	0.93	0.96	0.97	1.00	1.08	1.09	1.08	1.05	1.01	0.93	0.92
Jun	24,998	0.85	0.87	0.89	0.90	0.93	1.00	1.02	1.00	0.98	0.94	0.87	0.86
Jul	25,382	0.83	0.85	0.88	0.89	0.91	0.98	1.00	0.99	0.96	0.93	0.85	0.85
Aug	25,033	0.84	0.86	0.89	0.90	0.93	1.00	1.01	1.00	0.97	0.94	0.87	0.86
Sep	24,404	0.87	0.89	0.91	0.92	0.95	1.02	1.04	1.03	1.00	0.96	0.89	0.88
Oct	23,514	0.90	0.92	0.95	0.96	0.99	1.06	1.08	1.06	1.04	1.00	0.92	0.91
Nov	21,659	0.98	1.00	1.03	1.04	1.07	1.15	1.17	1.16	1.13	1.09	1.00	0.99
Dec	21,471	0.98	1.01	1.04	1.05	1.08	1.16	1.18	1.17	1.14	1.10	1.01	1.00

Monthly Summary Data from CDOT OTIS:

https://dtdapps.coloradodot.info/otis/TrafficData#ui/2/0/1/station/000214/criteria/000214/

Data Retrieved on October 5, 2021

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Grand Ave SB (North Leg)	0	0	12.00	1	17.00	1	50.00	35.00	30.00
2	27th EB (West Leg)	110	0	12.00	1	17.00	1	50.00	35.00	30.00
3	Grand Ave NB (South Leg)	180	0	12.00	1	17.00	1	50.00	35.00	30.00
4	27th WB (East Leg)	290	0	12.00	1	17.00	1	50.00	35.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Grand Ave SB (North Leg)	110.00	20.00	1	16.00	1	12.00	1
2	27th EB (West Leg)	110.00	20.00	1	16.00	1	12.00	1
3	Grand Ave NB (South Leg)	110.00	20.00	1	16.00	1	12.00	1
4	27th WB (East Leg)	110.00	20.00	1	16.00	1	12.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Grand Ave SB (North Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
2	27th EB (West Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
3	Grand Ave NB (South Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
4	27th WB (East Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0

Traffic Flow Data (veh/hr)

2022 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers	
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor
1	Grand Ave SB (North Leg)	0	40	59	114	0	5.0	1.00
2	27th EB (West Leg)	0	114	582	86	0	5.0	1.00
3	Grand Ave NB (South Leg)	0	24	24	39	0	5.0	1.00
4	27th WB (East Leg)	0	17	109	18	0	5.0	1.00

2022 AM Peak Synthetic Flow Profile - Timeslice 7.5 mins

Leg	Leg Names	Flow Ratios			Flow Times		
		Ratio 1	Ratio 2	Ratio 3	Time 1	Time 2	Time 3
1	Grand Ave SB (North Leg)	0.750	1.125	0.750	0	30	60
2	27th EB (West Leg)	0.750	1.125	0.750	0	30	60
3	Grand Ave NB (South Leg)	0.750	1.125	0.750	0	30	60
4	27th WB (East Leg)	0.750	1.125	0.750	0	30	60

Operational Results

2022 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	213		150		156	1031		0.2066	
2	27th EB (West Leg)	None	782		116		247	1049		0.7456	
3	Grand Ave NB (South Leg)	None	87		736		162	726		0.1198	
4	27th WB (East Leg)	None	144		162		661	1025		0.1405	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	4.17		4.17	0.76		A		A
2	27th EB (West Leg)	None	12.23		12.23	9.30		B		B
3	Grand Ave NB (South Leg)	None	5.42		5.42	0.42		A		A
4	27th WB (East Leg)	None	3.89		3.89	0.48		A		A

2022 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	240		169		176	1021		0.2352	
2	27th EB (West Leg)	None	882		131		278	1041		0.8470	
3	Grand Ave NB (South Leg)	None	98		828		182	678		0.1447	
4	27th WB (East Leg)	None	162		182		744	1014		0.1601	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	4.26		4.26	0.76		A		A
2	27th EB (West Leg)	None	14.63		14.63	9.30		B		B
3	Grand Ave NB (South Leg)	None	5.73		5.73	0.42		A		A
4	27th WB (East Leg)	None	3.94		3.94	0.48		A		A

Approach Flow Profile

2022 AM Peak - Approach Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	22.15	81.32	9.05	14.97
7.5 - 15.0	25.79	94.68	10.53	17.43
15.0 - 22.5	28.54	104.78	11.66	19.29
22.5 - 30.0	30.02	110.22	12.26	20.30
30.0 - 37.5	30.02	110.22	12.26	20.30
37.5 - 45.0	28.54	104.78	11.66	19.29
45.0 - 52.5	25.79	94.68	10.53	17.43
52.5 - 60.0	22.15	81.32	9.05	14.97
Peak 15 min	30.02	110.22	12.26	20.30
Peak 60 min	26.62	97.75	10.88	18.00

Exit Flow Profile

2022 AM Peak - Exit Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	16.20	25.67	16.83	68.64
7.5 - 15.0	18.83	29.88	19.57	79.76
15.0 - 22.5	20.83	33.07	21.65	88.23
22.5 - 30.0	21.93	34.80	22.79	92.88
30.0 - 37.5	21.97	34.81	22.82	93.10
37.5 - 45.0	20.93	33.10	21.73	88.71
45.0 - 52.5	18.98	29.92	19.68	80.47
52.5 - 60.0	16.29	25.71	16.90	69.08
0-60	156	247	162	661
%Trucks	5.00	5.00	5.00	5.00

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Grand Ave SB (North Leg)	0	0	12.00	1	17.00	1	50.00	35.00	30.00
2	27th EB (West Leg)	110	0	12.00	1	17.00	1	50.00	35.00	30.00
3	Grand Ave NB (South Leg)	180	0	12.00	1	17.00	1	50.00	35.00	30.00
4	27th WB (East Leg)	290	0	12.00	1	17.00	1	50.00	35.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Grand Ave SB (North Leg)	110.00	20.00	1	16.00	1	12.00	1
2	27th EB (West Leg)	110.00	20.00	1	16.00	1	12.00	1
3	Grand Ave NB (South Leg)	110.00	20.00	1	16.00	1	12.00	1
4	27th WB (East Leg)	110.00	20.00	1	16.00	1	12.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Grand Ave SB (North Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
2	27th EB (West Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
3	Grand Ave NB (South Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
4	27th WB (East Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0

Traffic Flow Data (veh/hr)

2022 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers	
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor
1	Grand Ave SB (North Leg)	0	23	38	213	0	5.0	1.00
2	27th EB (West Leg)	0	62	274	38	0	5.0	1.00
3	Grand Ave NB (South Leg)	0	206	39	45	0	5.0	1.00
4	27th WB (East Leg)	0	22	475	42	0	5.0	1.00

2022 PM Peak Synthetic Flow Profile - Timeslice 7.5 mins

Leg	Leg Names	Flow Ratios			Flow Times		
		Ratio 1	Ratio 2	Ratio 3	Time 1	Time 2	Time 3
1	Grand Ave SB (North Leg)	0.750	1.125	0.750	0	30	60
2	27th EB (West Leg)	0.750	1.125	0.750	0	30	60
3	Grand Ave NB (South Leg)	0.750	1.125	0.750	0	30	60
4	27th WB (East Leg)	0.750	1.125	0.750	0	30	60

Operational Results

2022 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	274		703		143	743		0.3687	
2	27th EB (West Leg)	None	374		83		894	1066		0.3508	
3	Grand Ave NB (South Leg)	None	290		359		98	922		0.3144	
4	27th WB (East Leg)	None	539		307		342	949		0.5678	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	7.35		7.35	1.89		A		A
2	27th EB (West Leg)	None	4.89		4.89	1.59		A		A
3	Grand Ave NB (South Leg)	None	5.39		5.39	1.39		A		A
4	27th WB (East Leg)	None	8.17		8.17	4.11		A		A

2022 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	309		792		161	697		0.4435	
2	27th EB (West Leg)	None	422		94		1007	1061		0.3977	
3	Grand Ave NB (South Leg)	None	327		405		110	898		0.3640	
4	27th WB (East Leg)	None	608		346		386	929		0.6543	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	8.15		8.15	1.89		A		A
2	27th EB (West Leg)	None	5.09		5.09	1.59		A		A
3	Grand Ave NB (South Leg)	None	5.69		5.69	1.39		A		A
4	27th WB (East Leg)	None	9.19		9.19	4.11		A		A

Approach Flow Profile

2022 PM Peak - Approach Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	28.49	38.89	30.16	56.05
7.5 - 15.0	33.17	45.28	35.11	65.26
15.0 - 22.5	36.71	50.11	38.86	72.22
22.5 - 30.0	38.62	52.72	40.88	75.97
30.0 - 37.5	38.62	52.72	40.88	75.97
37.5 - 45.0	36.71	50.11	38.86	72.22
45.0 - 52.5	33.17	45.28	35.11	65.26
52.5 - 60.0	28.49	38.89	30.16	56.05
Peak 15 min	38.62	52.72	40.88	75.97
Peak 60 min	34.25	46.75	36.25	67.38

Exit Flow Profile

2022 PM Peak - Exit Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	14.86	92.88	10.18	35.54
7.5 - 15.0	17.29	108.02	11.84	41.36
15.0 - 22.5	19.14	119.57	13.11	45.78
22.5 - 30.0	20.14	125.86	13.80	48.18
30.0 - 37.5	20.15	125.99	13.81	48.20
37.5 - 45.0	19.17	119.89	13.14	45.84
45.0 - 52.5	17.34	108.48	11.89	41.45
52.5 - 60.0	14.90	93.20	10.21	35.61
0-60	143	894	98	342
%Trucks	5.00	5.00	5.00	5.00

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Grand Ave SB (North Leg)	0	0	12.00	1	17.00	1	50.00	35.00	30.00
2	27th EB (West Leg)	110	0	12.00	1	17.00	1	50.00	35.00	30.00
3	Grand Ave NB (South Leg)	180	0	12.00	1	17.00	1	50.00	35.00	30.00
4	27th WB (East Leg)	290	0	12.00	1	17.00	1	50.00	35.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Grand Ave SB (North Leg)	110.00	20.00	1	16.00	1	12.00	1
2	27th EB (West Leg)	110.00	20.00	1	16.00	1	12.00	1
3	Grand Ave NB (South Leg)	110.00	20.00	1	16.00	1	12.00	1
4	27th WB (East Leg)	110.00	20.00	1	16.00	1	12.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Grand Ave SB (North Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
2	27th EB (West Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
3	Grand Ave NB (South Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
4	27th WB (East Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0

Traffic Flow Data (veh/hr)

2042 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers	
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor
1	Grand Ave SB (North Leg)	0	57	88	169	0	5.0	1.00
2	27th EB (West Leg)	0	170	865	127	0	5.0	1.00
3	Grand Ave NB (South Leg)	0	36	36	58	0	5.0	1.00
4	27th WB (East Leg)	0	26	162	26	0	5.0	1.00

2042 AM Peak Synthetic Flow Profile - Timeslice 7.5 mins

Leg	Leg Names	Flow Ratios			Flow Times		
		Ratio 1	Ratio 2	Ratio 3	Time 1	Time 2	Time 3
1	Grand Ave SB (North Leg)	0.750	1.125	0.750	0	30	60
2	27th EB (West Leg)	0.750	1.125	0.750	0	30	60
3	Grand Ave NB (South Leg)	0.750	1.125	0.750	0	30	60
4	27th WB (East Leg)	0.750	1.125	0.750	0	30	60

Operational Results

2042 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	314		224		210	993		0.3163	
2	27th EB (West Leg)	None	1162		171		367	1020		1.1390	
3	Grand Ave NB (South Leg)	None	130		957		224	611		0.2129	
4	27th WB (East Leg)	None	214		220		867	995		0.2151	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	5.01		5.01	1.38		A		A
2	27th EB (West Leg)	None	216.83		216.83	259.11		F		F
3	Grand Ave NB (South Leg)	None	7.05		7.05	0.78		A		A
4	27th WB (East Leg)	None	4.37		4.37	0.80		A		A

2042 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	354		252		217	978		0.3621	
2	27th EB (West Leg)	None	1310		193		414	1009		1.2988	
3	Grand Ave NB (South Leg)	None	147		963		239	608		0.2412	
4	27th WB (East Leg)	None	241		229		881	990		0.2437	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	5.23		5.23	1.38		A		A
2	27th EB (West Leg)	None	198.12		198.12	202.02		F		F
3	Grand Ave NB (South Leg)	None	7.18		7.18	0.78		A		A
4	27th WB (East Leg)	None	4.44		4.44	0.80		A		A

Approach Flow Profile

2042 AM Peak - Approach Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	32.65	120.84	13.52	22.25
7.5 - 15.0	38.02	140.68	15.74	25.91
15.0 - 22.5	42.07	155.69	17.42	28.67
22.5 - 30.0	44.26	163.79	18.32	30.16
30.0 - 37.5	44.26	163.79	18.32	30.16
37.5 - 45.0	42.07	155.69	17.42	28.67
45.0 - 52.5	38.02	140.68	15.74	25.91
52.5 - 60.0	32.65	120.84	13.52	22.25
Peak 15 min	44.26	163.79	18.32	30.16
Peak 60 min	39.25	145.25	16.25	26.75

Exit Flow Profile

2042 AM Peak - Exit Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	23.96	38.14	24.94	101.09
7.5 - 15.0	26.20	44.34	27.75	109.09
15.0 - 22.5	26.84	49.10	29.10	109.73
22.5 - 30.0	27.18	51.69	29.84	110.07
30.0 - 37.5	27.19	51.73	29.85	110.08
37.5 - 45.0	26.85	49.19	29.13	109.75
45.0 - 52.5	26.22	44.51	27.80	109.12
52.5 - 60.0	25.39	38.26	26.02	108.30
0-60	210	367	224	867
%Trucks	5.00	5.00	5.00	5.00

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Grand Ave SB (North Leg)	0	0	12.00	1	17.00	1	50.00	35.00	30.00
2	27th EB (West Leg)	110	0	12.00	1	17.00	1	50.00	35.00	30.00
3	Grand Ave NB (South Leg)	180	0	12.00	1	17.00	1	50.00	35.00	30.00
4	27th WB (East Leg)	290	0	12.00	1	17.00	1	50.00	35.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Grand Ave SB (North Leg)	110.00	20.00	1	16.00	1	12.00	1
2	27th EB (West Leg)	110.00	20.00	1	16.00	1	12.00	1
3	Grand Ave NB (South Leg)	110.00	20.00	1	16.00	1	12.00	1
4	27th WB (East Leg)	110.00	20.00	1	16.00	1	12.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Grand Ave SB (North Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
2	27th EB (West Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
3	Grand Ave NB (South Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
4	27th WB (East Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0

Traffic Flow Data (veh/hr)

2042 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers	
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor
1	Grand Ave SB (North Leg)	0	33	56	316	0	5.0	1.00
2	27th EB (West Leg)	0	92	408	56	0	5.0	1.00
3	Grand Ave NB (South Leg)	0	306	58	67	0	5.0	1.00
4	27th WB (East Leg)	0	33	706	60	0	5.0	1.00

2042 PM Peak Synthetic Flow Profile - Timeslice 7.5 mins

Leg	Leg Names	Flow Ratios			Flow Times		
		Ratio 1	Ratio 2	Ratio 3	Time 1	Time 2	Time 3
1	Grand Ave SB (North Leg)	0.750	1.125	0.750	0	30	60
2	27th EB (West Leg)	0.750	1.125	0.750	0	30	60
3	Grand Ave NB (South Leg)	0.750	1.125	0.750	0	30	60
4	27th WB (East Leg)	0.750	1.125	0.750	0	30	60

Operational Results

2042 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	405		1041		210	567		0.7142	
2	27th EB (West Leg)	None	556		122		1324	1046		0.5317	
3	Grand Ave NB (South Leg)	None	431		533		145	832		0.5183	
4	27th WB (East Leg)	None	799		456		508	872		0.9165	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	23.08		23.08	9.84		C		C
2	27th EB (West Leg)	None	6.81		6.81	3.41		A		A
3	Grand Ave NB (South Leg)	None	8.50		8.50	3.48		A		A
4	27th WB (East Leg)	None	44.19		44.19	39.56		E		E

2042 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	457		1123		232	524		0.8711	
2	27th EB (West Leg)	None	627		134		1440	1040		0.6031	
3	Grand Ave NB (South Leg)	None	486		600		160	797		0.6100	
4	27th WB (East Leg)	None	901		513		572	842		1.0702	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	28.52		28.52	9.84		D		D
2	27th EB (West Leg)	None	7.40		7.40	3.41		A		A
3	Grand Ave NB (South Leg)	None	9.63		9.63	3.48		A		A
4	27th WB (East Leg)	None	57.54		57.54	39.50		F		F

Approach Flow Profile

2042 PM Peak - Approach Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	42.12	57.82	44.82	83.09
7.5 - 15.0	49.03	67.31	52.18	96.73
15.0 - 22.5	54.26	74.50	57.75	107.05
22.5 - 30.0	57.09	78.37	60.75	112.62
30.0 - 37.5	57.09	78.37	60.75	112.62
37.5 - 45.0	54.26	74.50	57.75	107.05
45.0 - 52.5	49.03	67.31	52.18	96.73
52.5 - 60.0	42.12	57.82	44.82	83.09
Peak 15 min	57.09	78.37	60.75	112.62
Peak 60 min	50.63	69.50	53.88	99.87

Exit Flow Profile

2042 PM Peak - Exit Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	21.80	137.74	15.05	52.77
7.5 - 15.0	25.20	158.26	17.35	61.24
15.0 - 22.5	27.74	173.04	19.07	67.76
22.5 - 30.0	29.00	179.71	19.97	71.37
30.0 - 37.5	29.03	180.32	20.08	71.55
37.5 - 45.0	28.15	177.95	19.45	68.17
45.0 - 52.5	26.42	172.96	18.30	61.86
52.5 - 60.0	22.30	143.99	15.53	53.19
0-60	210	1324	145	508
%Trucks	5.00	5.00	5.00	5.00

COLORADO
Department of Transportation
Region 3

Transportation Impact Study Methodology Form

Prior to starting a traffic impact study, a Methodology Form must be submitted for review and signed by the Region 3 Access Engineer. It shall be included as part of the study.

CONTACT INFORMATION	
Consultant:	Name: McDowell Engineering
	Telephone: 970-623-0788
	Email: kari@mcdowelleng.com
Developer/Owner Name:	North Moutain Partners/Brian Wilson (bwilson@northmountainpartners.com)

PROJECT INFORMATION	
Project Name	The Rivers
Project Location	Glenwood Springs, CO
Project Description *(Attached proposed site plan)*	Construction of 17 multifamily dwelling units on Grand Avenue in Glenwood Springs, CO.
State Highway	Analysis includes percent impact to SH82 at 23rd St and 27th St
County	Garfield
Mile Post	MP 1.4 & MP 1.71
Posted Speed Limit	35 MPH

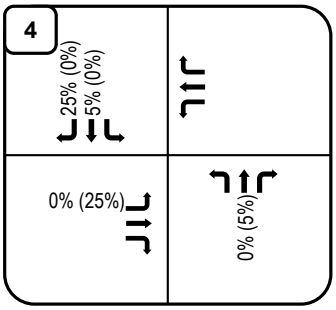
TIS ASSUMPTIONS			
Study Years	Current Year: 2021	Buildout Year: 2022	Long Term Year: 2042
Traffic Assessment Level *(Provide justification)*	The proposed development generates less than 100 vehicles per hour. Therefore, a level II assessment will be completed.		
Study Intersections	1. Midland Ave & 27th St	6.	
	2. Grand Ave & 27th St	7.	
	3. 27th St & S Glen Ave	8.	
	4. 23rd & S Grand Ave & Grand Ave	9.	
	5. Site Access (2)	10.	
Future Growth Rate	☐ OTIS	☐ Regional TDM	■ Other (See Notes)
Seasonal Adjustment Factor	SAF 1.04 will be applied to adjust September counts to July		

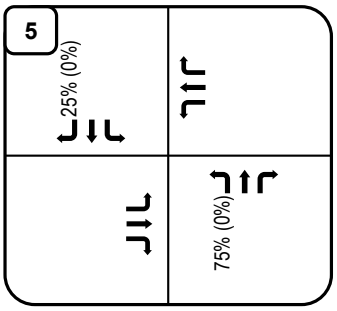
COLORADO
Department of Transportation
Region 3

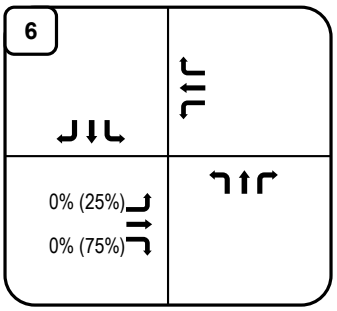
ASSUMPTIONS CONTINUED				
Project Trip Distribution *(State assumptions and attach sketch that shows individual movements.)*	30% to/from the north, 55% to/from the south (5% of this along old 82), 5% to/from the east, and 5% to/from the southwest (Midland Ave S), and 5% to/from the northwest (Midland Ave N)			
Trip Reduction Percentage	Internal Capture:		Pass By:	
	Multi-Modal:	10%	Other:	
Study Time Periods *(Check all that apply)*	☒ AM (7-9)	☒ PM (4-6)	☐ Weekday	
	☐ SAT (Midday)	☐ Other		
Existing and Proposed ITE Trip Generation Land Use	Multi-Family Low-Rise (#220): 17 dwelling units			
Analysis Methods *(Check all that apply)*	☐ Synchro or ☐ HCS *(isolated intersections only)*		☐ SimTraffic or ☐ Other *(closely spaced intersections or when known/expected queuing issue)*	
	☐ Signal Warrants		☐ Pedestrian/Transit/Bicycle	
	☒ Safety/Sight Distance		☒ Queuing and Storage	
	☐ Other			
Notes and Other Assumptions	Per the SH 82 Corridor Optimization Study and Access Control Plan, a 2% growth rate was used for all background traffic. A restaurant is currently constructed on the parcel. The restaurant was closed when counts were obtained. Therefore, the restaurant land use will be ignored.			
Crash Data	CDOT will perform a crash data analysis for the highway in the vicinity of the proposed access and provide to the consultant. As a part of the study consultant shall recommend mitigation measures for any identified safety issues.			
Simulation Input Files	Consultant to provide computer files used for analysis with a signed and sealed copy of the study.			

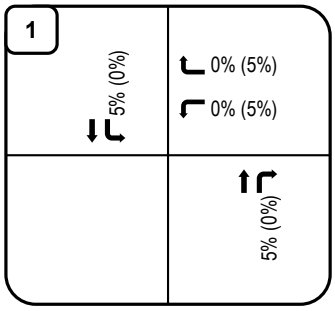
CDOT INTERNAL USE ONLY	
Review Comments ☐ Revise and Resubmit	
Engineer Signature/Date	☐ Approved

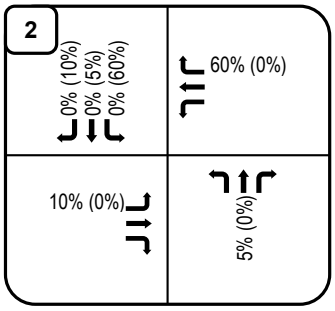
Figure 6: Project Generated Traffic Distribution

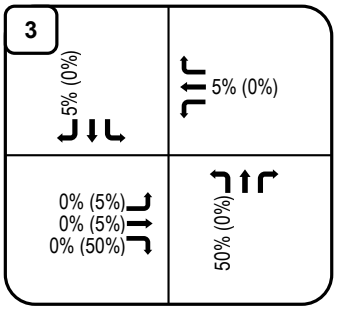












LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

McDowell Engineering, LLC
Transportation Engineering Consultants

Project Number	M1538
Prepared By	GWS
The Rivers	12/7/2021
Glenwood Springs, CO	DRAFT - FOR INTERNAL USE ONLY

Table 1 - The Rivers

Project Trip Generation

Estimated Project-Generated Traffic[1]

ITE Code	Units [2]	Eq. Coef	ITE Trip Generation Equation[3] Avg. Weekday	AM Peak Hour	PM Peak Hour	Average Weekday Trips (VPD)	Morning Peak Hour Inbound % Trips	Morning Peak Hour Inbound Trips	Morning Peak Hour Outbound % Trips	Morning Peak Hour Outbound Trips	Evening Peak Hour Inbound % Trips	Evening Peak Hour Inbound Trips	Evening Peak Hour Outbound % Trips	Evening Peak Hour Outbound Trips
Proposed Land Use														
Residential Development														
#220 - Multifamily Housing (Low-Rise)	17 DU	Type a= b=	A 7.56 -40.86	B 0.94 -0.29	A 0.66 1.41	88	28%	4	72%	8	59%	8	41%	6
Multi-Modal Reduction	*-10%*					*-9*		*0*		*-1*		*-1*		*-1*
Proposed New Trips						**79**		**4**		**7**		**7**		**5**

Notes:

[1] Values obtained from *Trip Generation, 10th Edition,* Institute of Transportation Engineers, 2017.

[2] DU = Dwelling Units, kSF = 1,000 Square Feet

[3] Fitted curve equations from ITE Land Uses - Equation Type A is T = a * X + b, Equation Type B is Ln(T) = a * Ln(X) + b, Rate is T = a * X

Monthly Summary Data

CDOT OTIS Station ID 000214 - ON SH 82, GLEN AVE S/O BLAKE AVE, GLENWOOD SPRINGS

CALYR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2021	22,534	23,360	24,863	26,000	27,154	29,065	28,564	27,888				
2020	23,732	23,818	19,530	15,080	21,526	24,775	25,592	24,845	26,241	25,786	22,462	22,231
2019	22,045	22,387	22,885	23,892	24,283	25,402	25,858	25,648	25,266	26,224	24,326	23,900
2018	23,365	23,237	24,444	24,974	25,824	26,106	25,420	25,235	24,793	23,781	22,025	21,717
2017	22,576	23,590	24,797	25,270	25,389	27,223	27,128	23,295	21,072	21,144	22,774	23,736
2016	22,629	22,949	23,948	24,786	25,563	27,086	27,406	27,089	27,051	25,737	23,475	23,145
2015	22,134	22,151	23,508	23,842	24,174	26,460	27,049	26,201	26,455	25,224	22,799	22,782
2014	20,312	20,646	21,761	22,204	22,727	24,366	25,318	24,725	24,859	23,947	20,843	21,677
2013	20,065	20,137	20,483	20,986	21,928	22,998	23,938	23,718	22,993	22,538	20,564	19,880
2012	19,531	19,709	20,760	20,884	21,349	22,956	23,301	23,793	22,904	22,152	20,404	19,386
2011	19,557	19,445	20,557	20,174	20,612	22,241	23,089	23,255	23,149	21,614	19,952	20,194
2010	20,137	20,140	20,998	20,777	21,017	23,097	24,447	24,073	24,005	21,863	21,239	20,097
2009	21,638	22,319	22,144	22,424	22,912	24,701	25,134	24,300	24,150	22,561	19,785	20,400
2008	23,112	23,324	24,444	24,929	25,006	26,191	26,580	26,231	25,768	25,323	22,664	22,140
2007	20,956	23,067	24,472	24,836	25,605	26,598	26,724	27,227	26,754	25,724	24,328	22,715
2006	21,346	22,174	22,476	23,410	23,967	25,736	25,747	25,967	25,854	24,205	22,466	22,424
2005	21,024	21,907	22,544	22,652	22,997	24,963	25,564	25,465	24,352	23,362	22,362	21,578
2004		21,061	21,761	22,242	21,886	24,336	24,937	24,743	24,373	22,921	21,363	21,829
2003	20,521	20,586	20,471	20,691	21,234	23,811	24,859	23,899	23,188	22,506	19,602	20,525
2002									23,173	22,975	20,658	20,815
2001	20,369	20,980	22,123	22,774	23,131	24,161	24,315	25,555	24,094			
2000	18,546	20,063	20,881	21,592	22,350	24,926	24,236	24,569	23,737	22,778	20,828	20,217
1999	17,820	19,049	20,071	20,246	20,259	22,756	23,208	22,999	22,652	21,438	19,915	19,502
Average	**21,140**	**21,641**	**22,269**	**22,485**	**23,222**	**24,998**	**25,382**	**25,033**	**24,404**	**23,514**	**21,659**	**21,471**

Seasonal Adjustment Factors

CDOT OTIS Station ID 000214 - ON SH 82, GLEN AVE S/O BLAKE AVE, GLENWOOD SPRINGS

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		21,140	21,641	22,269	22,485	23,222	24,998	25,382	25,033	24,404	23,514	21,659	21,471
Jan	21,140	1.00	1.02	1.05	1.06	1.10	1.18	1.20	1.18	1.15	1.11	1.02	1.02
Feb	21,641	0.98	1.00	1.03	1.04	1.07	1.16	1.17	1.16	1.13	1.09	1.00	0.99
Mar	22,269	0.95	0.97	1.00	1.01	1.04	1.12	1.14	1.12	1.10	1.06	0.97	0.96
Apr	22,485	0.94	0.96	0.99	1.00	1.03	1.11	1.13	1.11	1.09	1.05	0.96	0.95
May	23,222	0.91	0.93	0.96	0.97	1.00	1.08	1.09	1.08	1.05	1.01	0.93	0.92
Jun	24,998	0.85	0.87	0.89	0.90	0.93	1.00	1.02	1.00	0.98	0.94	0.87	0.86
Jul	25,382	0.83	0.85	0.88	0.89	0.91	0.98	1.00	0.99	0.96	0.93	0.85	0.85
Aug	25,033	0.84	0.86	0.89	0.90	0.93	1.00	1.01	1.00	0.97	0.94	0.87	0.86
Sep	24,404	0.87	0.89	0.91	0.92	0.95	1.02	1.04	1.03	1.00	0.96	0.89	0.88
Oct	23,514	0.90	0.92	0.95	0.96	0.99	1.06	1.08	1.06	1.04	1.00	0.92	0.91
Nov	21,659	0.98	1.00	1.03	1.04	1.07	1.15	1.17	1.16	1.13	1.09	1.00	0.99
Dec	21,471	0.98	1.01	1.04	1.05	1.08	1.16	1.18	1.17	1.14	1.10	1.01	1.00

Monthly Summary Data from CDOT OTIS:

https://dtdapps.coloradodot.info/otis/TrafficData#ui/2/0/1/station/000214/criteria/000214/

Data Retrieved on October 5, 2021

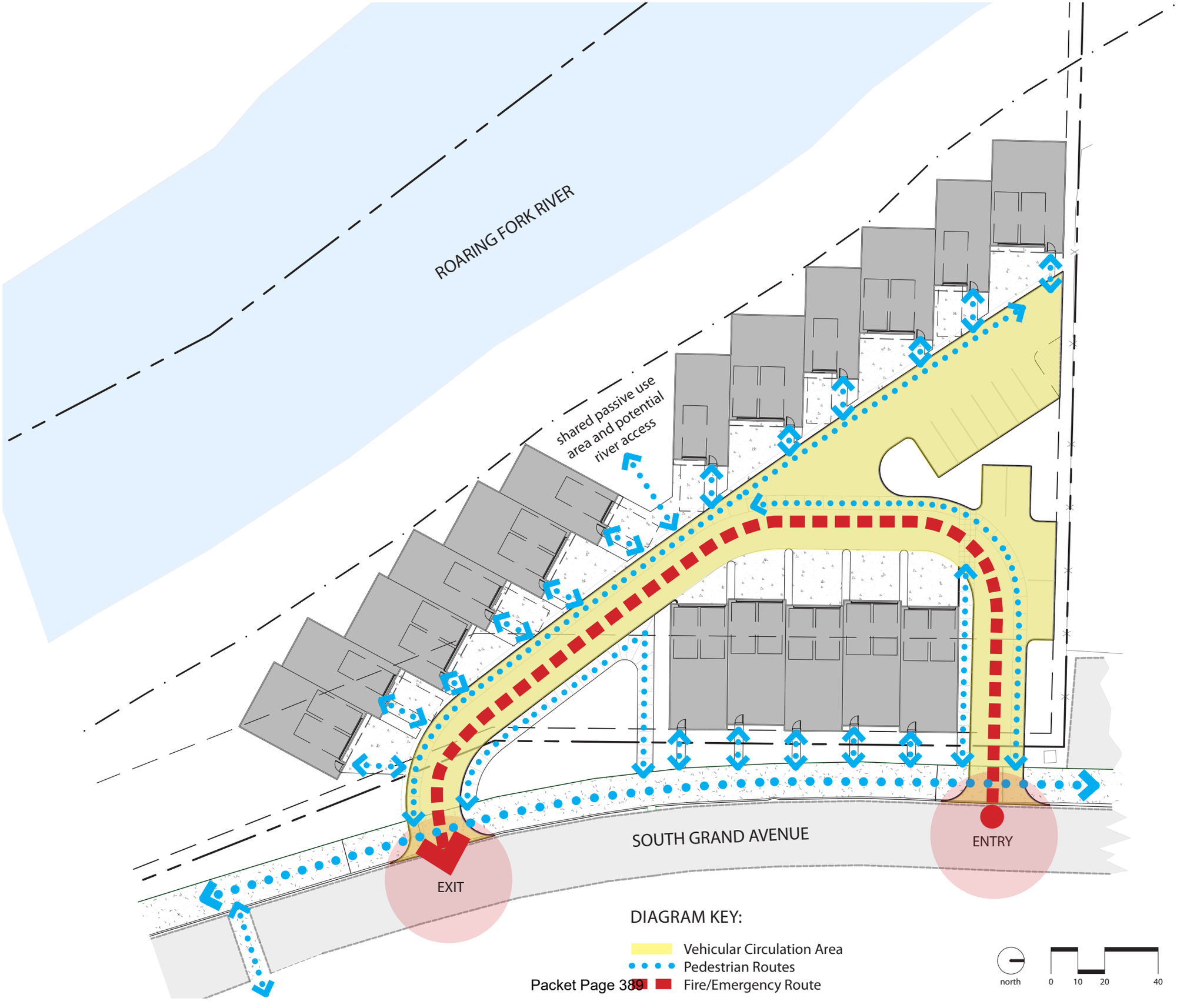

ROARING FORK RIVER
shared passive use area and potential river access
SOUTH GRAND AVENUE
EXIT
ENTRY
DIAGRAM KEY:
Vehicular Circulation Area
Pedestrian Routes
Fire/Emergency Route
north
0
10
20
40

Exhibit E

Preliminary Drainage Report

Preliminary Drainage Report

FOR

The Rivers

AT

2525 S Grand Ave, Glenwood Springs, CO 81601

FOR

City of Glenwood Springs

December 16, 2021

JVA, Inc.
Consulting Engineers
817 Colorado Ave. Ste. 301
Glenwood Springs, CO 81601
(303) 444-1951

JVA, Inc. Project No. 3496c

JVA, Incorporated
817 Colorado Avenue
Suite 301
Glenwood Springs,
CO 81601
970.404.3100
info@jvajva.com

www.jvajva.com

December 16, 2021

Terri Partch
City Engineer
City of Glenwood Springs Engineering
101 West 8th Street
Glenwood Springs, CO 81601

RE: Preliminary Drainage Report for The Rivers
JVA, Inc. Project No. 3496c

Dear Terri,

The following Preliminary Drainage Report and attached drainage maps have been prepared for The Rivers. The stormwater report and drainage maps have been produced in accordance with the Mile High Flood District and the latest Urban Storm Drainage Criteria Manual recommendations.

It is our understanding that the information provided herein meets all requirements of the Mile High Flood District.

Please contact us if you have any questions regarding this submission.

Sincerely,

JVA, Inc.

_____
Quinn Harnett
Design Engineer

Engineer's Statement:

"I hereby certify that this report and plan for the preliminary stormwater design of The Rivers was prepared by me (or under my direct supervision) in accordance with the provisions of the Mile High Flood District for the owners thereof."

Kevin A. Tone
Registered Professional Engineer
State of Colorado No. 28699

Table Of Contents

Preliminary Drainage Report for The Rivers

1.	Background	2
2.	Description of Existing Site	2
3.	Description of Proposed Project	2
4.	Previous Drainage Studies	2
5.	Adjacent Drainage Issues	3
6.	Major Drainage Way Studies	3
7.	Site Constraints	3
8.	Irrigation Facilities and Waterways	3
9.	Easements and Tracts	3
10.	Developed Drainage Design	3
11.	Conclusions	4
12.	References	4

Appendix A – Mapping

Appendix B – Calculations

Appendix C – Excerpts of Previous Drainage Studies

Figure 1 – Historic Drainage Map

Figure 2 – Developed Drainage Map

Preliminary Drainage Report for The Rivers

1. Background

JVA has been contracted by MV MTTR to provide civil engineering services in the form of site design and layout, grading and stormwater design for The Rivers, a proposed multifamily residential development in Glenwood Springs, CO. This Preliminary Drainage Report details the intent and preliminary calculations and design of the stormwater management system proposed for this site.

2. Description of Existing Site

The Rivers is located at 2525 S Grand Avenue in Glenwood Springs, CO. The existing site was the location of the Rivers restaurant and includes an existing restaurant building and associated paved parking areas and utilities. The site is bound by S Grand Avenue to the east, the Roaring Fork River to the west, commercial property to the north and 27th street to the south. The building and parking lot sit approximately 20 vertical feet above the river. Drainage from S Grand Avenue is collected in a storm pipe that travels under the site and outfalls into the river. Runoff from the Rivers restaurant parking lot is collected in an inlet that connects to the storm pipe running under the site. The site is comprised of soils in hydrologic soil group B.

3. Description of Proposed Project

The Rivers is a proposed multi-family residential development that includes 17 units. The site includes a main looped drive that connects to S Grand Avenue in two places, as well as parking areas, walkways, a trash enclosure, and a series of stairs and landings leading from the main drive down to the river. Utility construction will include a new looped water line and services, a gravity sanitary sewer main that leads to a pump and force main to connect to the existing main in S Grand Avenue, a gas main and services, and electric. Stormwater will be collected on site through a series of inlets which will connect to the existing stormwater system and outfall to the river.

4. Previous Drainage Studies

At the time of writing this report we are not aware of any previous drainage studies created in association with the design and construction of the Rivers Restaurant.

5. Adjacent Drainage Issues

At the time of writing this report we are not aware of any adjacent drainage issues. The existing storm sewer manhole on site will be maintained in this design. The pipe downstream of the manhole and outfall to the river will be modified to connect to the new stormwater system. Existing drainage patterns from adjacent properties will not be impacted by this development.

6. Major Drainage Way Studies

The major drainage way associated with the site is the Roaring Fork River to the west. The developed site finished grade and finished floor elevations are approximately 20 vertical feet higher than the ordinary high-water mark shown on the survey. The limits of disturbance were designed to be 35 horizonal feet minimum from the ordinary high-water mark. At the time of writing this report we do not have accurate mapping of the floodplain boundaries or FEMA FIRM mapping but assume since this site was previously developed and the design is not deviating significantly from existing conditions in proximity to the river, that there will be no impacts to the floodplain.

7. Site Constraints

The two major site constraints are S Grand Avenue to the east and the Roaring Fork River to the west. Drainage from S Grand Avenue bypasses the site in an existing storm system. This storm system also collects runoff from the existing site, and outfalls to the river. The Roaring Fork River to the west is significantly lower than the site and it should not impact the site. The proposed development maintains historic drainage patterns, conveying runoff from S Grand Avenue and runoff from our site into the Roaring Fork River.

8. Irrigation Facilities and Waterways

At the time of writing this report we are not aware of any irrigation facilities or other on-site waterways that will influence or be influenced by the site drainage.

9. Easements and Tracts

At the time of writing this report we are not aware of any Easements or Tracts related to drainage or drainage pathways.

10. Developed Drainage Design

Runoff from the proposed buildings and parking areas will be collected in a proposed stormwater system. This system consists of two large inlets in the drive, 7 small area inlets in landscaped areas, a drywell and a manhole that will combine onsite flows with existing runoff from S Grand Avenue. The existing manhole on site will be maintained and the downstream pipe will be replaced. A new pipe will be installed to connect the existing manhole to the proposed manhole. A new pipe will exit the proposed manhole and outfall via

an FES with riprap reinforcement on the hillside where the runoff will enter the Roaring Fork River.

The stormwater system design includes treatment of the Water Quality Capture Volume (WQCV) and the reduction of offsite flows to the historic rate during the 25-year storm. For this study the area analyzed was limited to the developed portion of the site for both historic and developed conditions, including all buildings and parking lots. Drainage basins are shown in Figure 1 and Figure 2 attached. The historic runoff rate for the 25-year storm is 4.80 cfs, and the developed rate is 5.96, an increase of 1.16 cfs. The WQCV was calculated using a spreadsheet from Mile High Flood District (MHFD), the resultant volume being 47.70 cubic feet. Because the entire developed stormwater system is routed through the drywell, only the overflow will outfall from the system and into the river. The volume of water being captured and infiltrated by the drywell is expected to reduce developed runoff to below historic rates. Calculations utilized in this report are attached in Appendix B. Further calculations will be completed as design progresses and prior to the submittal of the Final Drainage Report.

11. Conclusions

The proposed improvements will provide adequate storage and treatment of the WQCV via an infiltration drywell, will reduce runoff rates to below historic rates, and will match existing drainage patterns with no impact to adjacent properties or storm conveyance systems. Existing storm infrastructure will be modified to provide a more efficient storm system conveying water from S Grand Ave to the Roaring Fork River.

12. References

1. "Urban Storm Drainage Criteria Manual," Mile High Flood District, updated 2019.
2. Web Soil Survey, Natural Resources Conservation Service, United State Department of Agriculture, Online at http://websoilsurvey.nrcs.usda.gov
3. FEMA Flood Map Service Center, Online at https://msc.fema.gov/portal

APPENDIX A – MAPPING

The Rivers Vicinity Map
(NTS)

107° 19' 36" W
107° 19' 30" W
39° 31' 36" N
39° 31' 30" N
300030
300050
300070
300090
300110
300130
300150
4377830
4377810
4377790
4377770
4377750
4377730
4377710
4377690
4377670
4377650
Roaring Fork River
Grand Ave
Woodberry Dr
8
73
Soil Map may not be valid at this scale.
Map Scale: 1:915 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 10 20 40 60
Feet
0 40 80 160 240
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rifle Area, Colorado, Parts of Garfield and Mesa Counties
Survey Area Data: Version 14, Sep 2, 2021

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

Date(s) aerial images were photographed: Sep 24, 2015—Nov 2, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Atencio-Azeltine complex, 1 to 3 percent slopes	B	0.9	45.5%
73	Water		1.0	54.5%
Totals for Area of Interest			**1.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

NOAA Atlas 14, Volume 2, Version 3
Location name: Centre Hall, Pennsylvania, USA*
Latitude: 40.8°, Longitude: -77.7°
Elevation: 1283.3 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

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	3.91 (3.50-4.39)	4.67 (4.16-5.24)	5.68 (5.08-6.37)	6.47 (5.76-7.24)	7.50 (6.64-8.38)	8.29 (7.31-9.25)	9.11 (7.97-10.1)	9.95 (8.65-11.1)	11.1 (9.56-12.3)	12.0 (10.2-13.3)
10-min	3.04 (2.72-3.41)	3.65 (3.25-4.10)	4.42 (3.94-4.95)	4.99 (4.45-5.59)	5.74 (5.08-6.40)	6.29 (5.54-7.01)	6.86 (6.00-7.63)	7.43 (6.46-8.25)	8.18 (7.03-9.07)	8.74 (7.46-9.71)
15-min	2.48 (2.22-2.79)	2.97 (2.65-3.34)	3.61 (3.23-4.05)	4.09 (3.64-4.58)	4.72 (4.18-5.27)	5.19 (4.57-5.78)	5.68 (4.97-6.32)	6.16 (5.35-6.84)	6.80 (5.85-7.55)	7.28 (6.22-8.09)
30-min	1.64 (1.47-1.85)	1.99 (1.78-2.23)	2.47 (2.21-2.77)	2.84 (2.53-3.18)	3.34 (2.95-3.72)	3.71 (3.27-4.13)	4.10 (3.59-4.56)	4.49 (3.91-4.99)	5.04 (4.33-5.59)	5.46 (4.66-6.06)
60-min	1.00 (0.897-1.13)	1.22 (1.09-1.37)	1.55 (1.39-1.74)	1.81 (1.61-2.02)	2.16 (1.92-2.41)	2.44 (2.15-2.72)	2.74 (2.40-3.05)	3.05 (2.65-3.39)	3.49 (3.00-3.87)	3.83 (3.27-4.26)
2-hr	0.570 (0.504-0.644)	0.692 (0.612-0.780)	0.880 (0.778-0.992)	1.03 (0.907-1.16)	1.25 (1.09-1.40)	1.42 (1.24-1.59)	1.61 (1.39-1.79)	1.82 (1.56-2.02)	2.11 (1.79-2.35)	2.36 (1.98-2.62)
3-hr	0.410 (0.366-0.460)	0.495 (0.443-0.557)	0.625 (0.556-0.701)	0.730 (0.649-0.818)	0.882 (0.779-0.983)	1.01 (0.884-1.12)	1.15 (0.998-1.27)	1.29 (1.12-1.43)	1.51 (1.29-1.67)	1.70 (1.43-1.87)
6-hr	0.254 (0.228-0.284)	0.306 (0.276-0.342)	0.381 (0.343-0.426)	0.444 (0.398-0.495)	0.534 (0.475-0.592)	0.609 (0.539-0.674)	0.689 (0.605-0.761)	0.777 (0.675-0.857)	0.905 (0.778-0.997)	1.01 (0.860-1.11)
12-hr	0.157 (0.142-0.174)	0.188 (0.170-0.209)	0.234 (0.211-0.260)	0.272 (0.245-0.301)	0.328 (0.292-0.362)	0.375 (0.332-0.413)	0.427 (0.375-0.468)	0.483 (0.420-0.528)	0.567 (0.485-0.618)	0.637 (0.539-0.695)
24-hr	0.094 (0.087-0.101)	0.113 (0.105-0.122)	0.140 (0.130-0.151)	0.163 (0.150-0.175)	0.196 (0.180-0.210)	0.224 (0.205-0.240)	0.254 (0.231-0.272)	0.287 (0.259-0.308)	0.336 (0.299-0.360)	0.377 (0.332-0.404)
2-day	0.054 (0.050-0.059)	0.065 (0.060-0.071)	0.081 (0.075-0.088)	0.094 (0.087-0.102)	0.113 (0.104-0.122)	0.129 (0.118-0.139)	0.147 (0.133-0.158)	0.166 (0.149-0.179)	0.194 (0.172-0.210)	0.218 (0.192-0.236)
3-day	0.039 (0.036-0.042)	0.046 (0.043-0.050)	0.057 (0.053-0.062)	0.066 (0.061-0.072)	0.079 (0.073-0.086)	0.091 (0.083-0.098)	0.103 (0.093-0.111)	0.116 (0.104-0.125)	0.135 (0.120-0.146)	0.152 (0.133-0.164)
4-day	0.031 (0.028-0.033)	0.037 (0.034-0.040)	0.045 (0.042-0.049)	0.052 (0.048-0.057)	0.063 (0.057-0.068)	0.071 (0.065-0.077)	0.081 (0.073-0.087)	0.091 (0.082-0.098)	0.106 (0.094-0.114)	0.118 (0.104-0.128)
7-day	0.021 (0.019-0.022)	0.025 (0.023-0.026)	0.030 (0.028-0.032)	0.034 (0.032-0.037)	0.040 (0.037-0.043)	0.045 (0.042-0.049)	0.051 (0.047-0.054)	0.056 (0.051-0.060)	0.064 (0.058-0.069)	0.071 (0.063-0.076)
10-day	0.017 (0.016-0.018)	0.020 (0.019-0.021)	0.024 (0.022-0.025)	0.027 (0.025-0.029)	0.031 (0.029-0.034)	0.035 (0.033-0.037)	0.039 (0.036-0.042)	0.043 (0.039-0.046)	0.049 (0.044-0.052)	0.053 (0.048-0.057)
20-day	0.012 (0.011-0.012)	0.014 (0.013-0.014)	0.016 (0.015-0.017)	0.018 (0.017-0.019)	0.020 (0.019-0.021)	0.022 (0.021-0.023)	0.024 (0.022-0.025)	0.026 (0.024-0.027)	0.028 (0.026-0.030)	0.030 (0.028-0.032)
30-day	0.010 (0.009-0.010)	0.011 (0.011-0.012)	0.013 (0.012-0.014)	0.014 (0.014-0.015)	0.016 (0.015-0.017)	0.017 (0.016-0.018)	0.019 (0.018-0.020)	0.020 (0.019-0.021)	0.022 (0.020-0.023)	0.023 (0.021-0.024)
45-day	0.008 (0.008-0.009)	0.010 (0.009-0.010)	0.011 (0.010-0.011)	0.012 (0.011-0.012)	0.013 (0.012-0.014)	0.014 (0.013-0.015)	0.015 (0.014-0.016)	0.016 (0.015-0.017)	0.017 (0.016-0.018)	0.017 (0.016-0.018)
60-day	0.007 (0.007-0.008)	0.009 (0.008-0.009)	0.010 (0.009-0.010)	0.011 (0.010-0.011)	0.011 (0.011-0.012)	0.012 (0.012-0.013)	0.013 (0.012-0.013)	0.013 (0.013-0.014)	0.014 (0.013-0.015)	0.015 (0.014-0.016)

[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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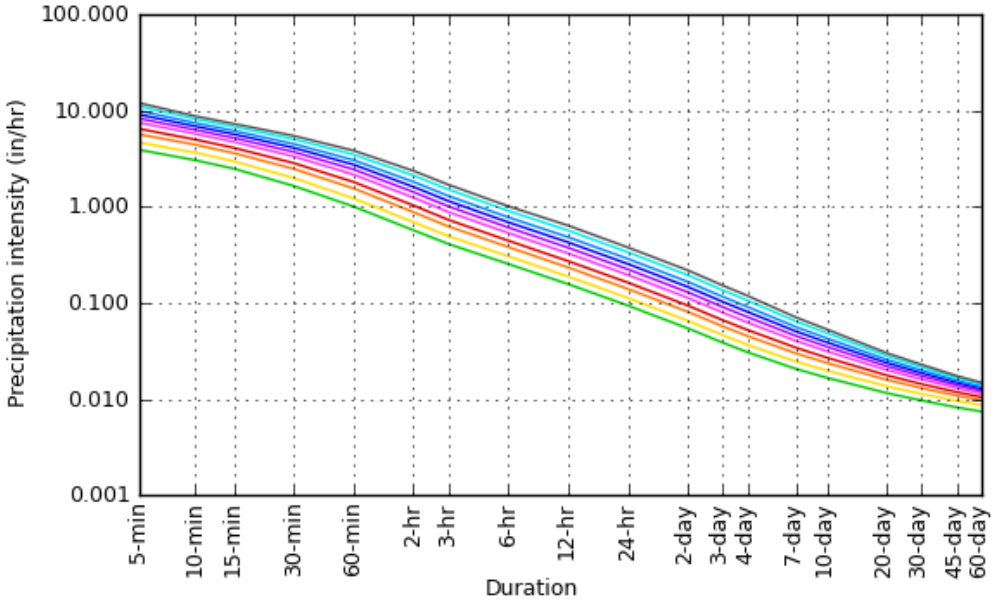
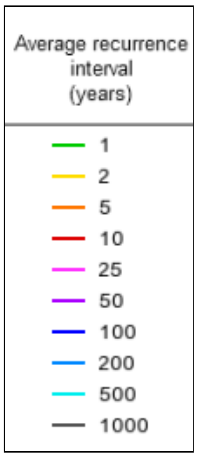
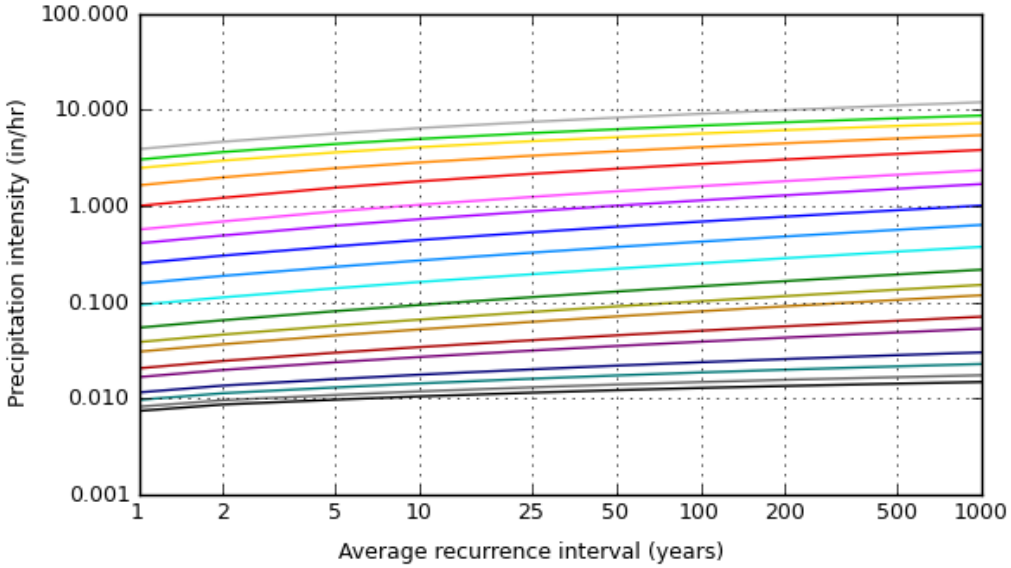
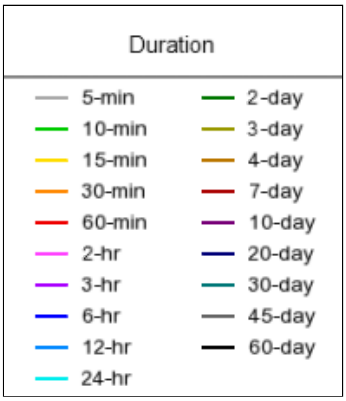
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 40.8000°, Longitude: -77.7000°









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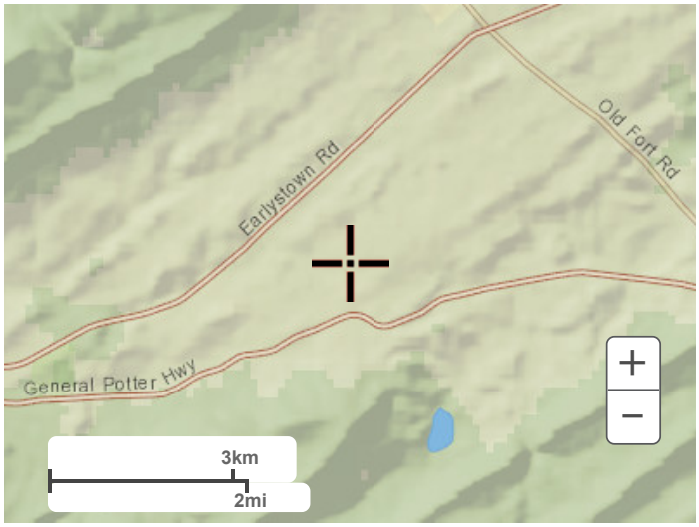
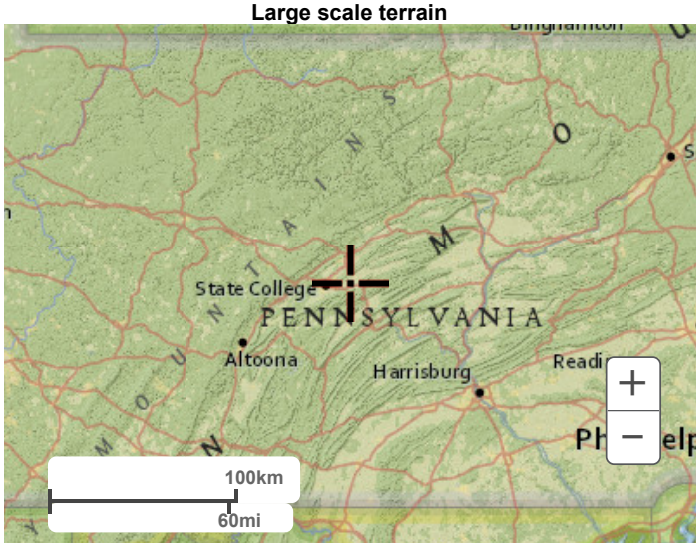
Maps & aerials

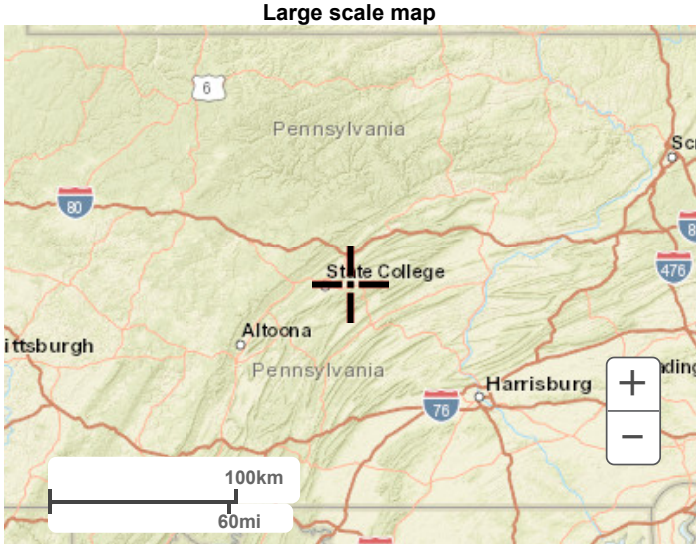
Small scale terrain



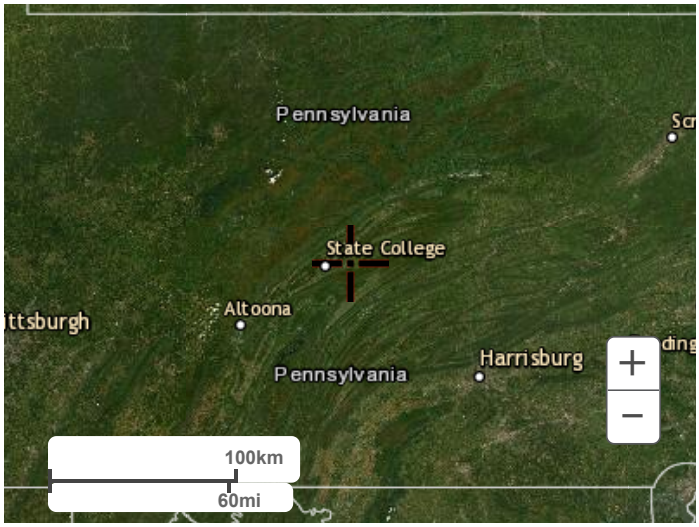
Large scale terrain



Large scale map



Large scale aerial



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National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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NOAA Atlas 14, Volume 8, Version 2
Location name: Glenwood Springs, Colorado, USA*
Latitude: 39.546°, Longitude: -107.3237°
Elevation: 5795.68 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)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.121 (0.096-0.157)	0.177 (0.140-0.229)	0.264 (0.207-0.343)	0.332 (0.260-0.434)	0.421 (0.313-0.565)	0.486 (0.354-0.664)	0.547 (0.385-0.769)	0.605 (0.407-0.878)	0.677 (0.437-1.01)	0.726 (0.460-1.12)
10-min	0.178 (0.140-0.230)	0.259 (0.204-0.335)	0.386 (0.304-0.502)	0.486 (0.380-0.635)	0.617 (0.459-0.827)	0.712 (0.518-0.972)	0.801 (0.563-1.13)	0.886 (0.596-1.29)	0.991 (0.640-1.49)	1.06 (0.673-1.64)
15-min	0.217 (0.171-0.280)	0.316 (0.249-0.409)	0.471 (0.370-0.612)	0.593 (0.464-0.775)	0.752 (0.560-1.01)	0.868 (0.632-1.19)	0.977 (0.687-1.37)	1.08 (0.727-1.57)	1.21 (0.781-1.81)	1.30 (0.821-2.00)
30-min	0.291 (0.230-0.376)	0.412 (0.325-0.534)	0.601 (0.472-0.780)	0.748 (0.585-0.977)	0.937 (0.696-1.25)	1.07 (0.780-1.46)	1.20 (0.841-1.68)	1.32 (0.884-1.90)	1.46 (0.940-2.18)	1.55 (0.982-2.39)
60-min	0.387 (0.305-0.500)	0.512 (0.404-0.663)	0.707 (0.556-0.918)	0.860 (0.672-1.12)	1.06 (0.786-1.41)	1.20 (0.873-1.63)	1.33 (0.935-1.87)	1.45 (0.978-2.11)	1.60 (1.04-2.40)	1.71 (1.08-2.62)
2-hr	0.482 (0.386-0.615)	0.611 (0.488-0.781)	0.813 (0.647-1.04)	0.971 (0.768-1.25)	1.18 (0.887-1.55)	1.32 (0.977-1.78)	1.46 (1.04-2.02)	1.59 (1.08-2.28)	1.75 (1.14-2.59)	1.86 (1.19-2.82)
3-hr	0.565 (0.456-0.715)	0.683 (0.550-0.865)	0.870 (0.697-1.11)	1.02 (0.811-1.30)	1.21 (0.924-1.59)	1.36 (1.01-1.81)	1.49 (1.07-2.05)	1.62 (1.11-2.30)	1.79 (1.18-2.62)	1.90 (1.22-2.86)
6-hr	0.738 (0.602-0.920)	0.840 (0.684-1.05)	1.01 (0.818-1.26)	1.15 (0.927-1.45)	1.35 (1.05-1.76)	1.50 (1.14-1.99)	1.66 (1.21-2.26)	1.82 (1.27-2.56)	2.04 (1.36-2.96)	2.20 (1.43-3.26)
12-hr	0.917 (0.757-1.13)	1.05 (0.862-1.29)	1.26 (1.04-1.56)	1.45 (1.18-1.79)	1.71 (1.35-2.20)	1.92 (1.47-2.51)	2.13 (1.57-2.87)	2.35 (1.66-3.27)	2.65 (1.80-3.80)	2.89 (1.90-4.21)
24-hr	1.11 (0.930-1.35)	1.28 (1.07-1.55)	1.56 (1.30-1.89)	1.80 (1.49-2.20)	2.15 (1.71-2.73)	2.42 (1.88-3.13)	2.71 (2.03-3.59)	3.01 (2.15-4.12)	3.41 (2.34-4.82)	3.73 (2.48-5.36)
2-day	1.34 (1.14-1.60)	1.53 (1.30-1.83)	1.86 (1.56-2.22)	2.14 (1.79-2.57)	2.55 (2.07-3.20)	2.88 (2.27-3.67)	3.23 (2.45-4.23)	3.60 (2.60-4.86)	4.11 (2.85-5.72)	4.51 (3.03-6.38)
3-day	1.50 (1.28-1.77)	1.72 (1.46-2.03)	2.08 (1.77-2.47)	2.40 (2.03-2.86)	2.86 (2.33-3.54)	3.22 (2.55-4.06)	3.60 (2.74-4.66)	3.99 (2.91-5.34)	4.54 (3.16-6.26)	4.97 (3.35-6.95)
4-day	1.64 (1.41-1.92)	1.87 (1.60-2.20)	2.27 (1.93-2.67)	2.60 (2.21-3.08)	3.08 (2.52-3.79)	3.46 (2.76-4.33)	3.86 (2.95-4.96)	4.27 (3.12-5.66)	4.82 (3.37-6.60)	5.26 (3.57-7.31)
7-day	1.98 (1.72-2.29)	2.23 (1.93-2.59)	2.65 (2.29-3.09)	3.01 (2.58-3.52)	3.52 (2.91-4.26)	3.92 (3.15-4.83)	4.33 (3.35-5.48)	4.75 (3.50-6.21)	5.33 (3.76-7.18)	5.77 (3.95-7.92)
10-day	2.28 (1.99-2.62)	2.54 (2.22-2.92)	2.98 (2.59-3.44)	3.36 (2.90-3.89)	3.88 (3.23-4.66)	4.30 (3.48-5.25)	4.72 (3.68-5.93)	5.16 (3.83-6.69)	5.76 (4.09-7.70)	6.22 (4.28-8.46)
20-day	3.11 (2.75-3.52)	3.44 (3.04-3.89)	3.99 (3.51-4.53)	4.44 (3.89-5.07)	5.08 (4.27-5.99)	5.57 (4.57-6.68)	6.07 (4.78-7.49)	6.58 (4.94-8.38)	7.27 (5.21-9.54)	7.79 (5.42-10.4)
30-day	3.81 (3.40-4.27)	4.22 (3.76-4.73)	4.89 (4.34-5.50)	5.44 (4.79-6.15)	6.19 (5.24-7.21)	6.76 (5.58-8.01)	7.33 (5.81-8.93)	7.90 (5.96-9.94)	8.65 (6.24-11.2)	9.21 (6.45-12.2)
45-day	4.71 (4.24-5.23)	5.25 (4.71-5.82)	6.10 (5.45-6.79)	6.78 (6.02-7.59)	7.69 (6.55-8.84)	8.36 (6.94-9.79)	9.02 (7.19-10.9)	9.66 (7.33-12.0)	10.5 (7.59-13.4)	11.1 (7.80-14.5)
60-day	5.49 (4.97-6.05)	6.15 (5.55-6.77)	7.17 (6.44-7.92)	7.97 (7.12-8.86)	9.02 (7.71-10.3)	9.79 (8.16-11.4)	10.5 (8.41-12.5)	11.2 (8.53-13.8)	12.0 (8.77-15.3)	12.6 (8.95-16.5)

[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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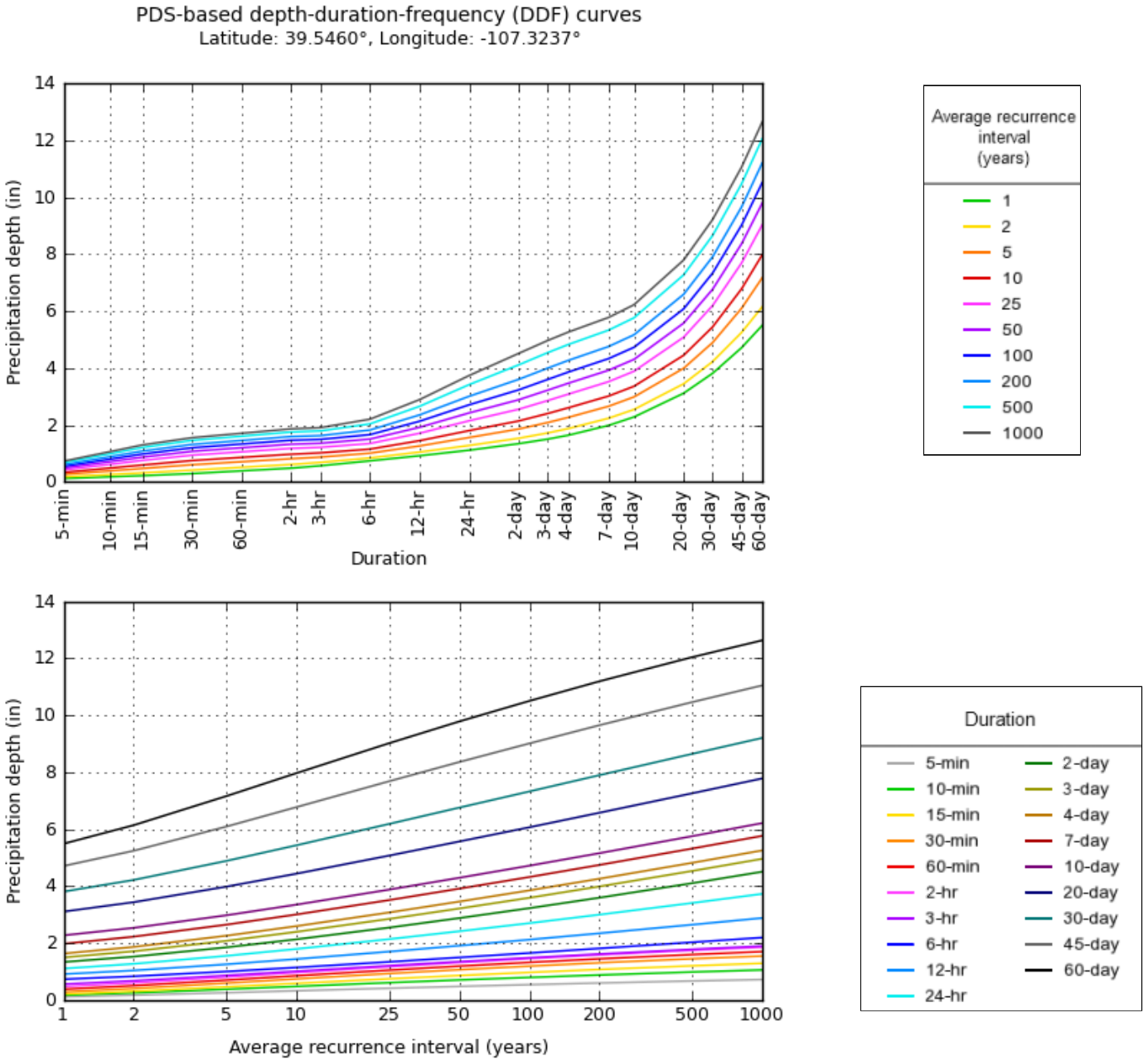
PF graphical



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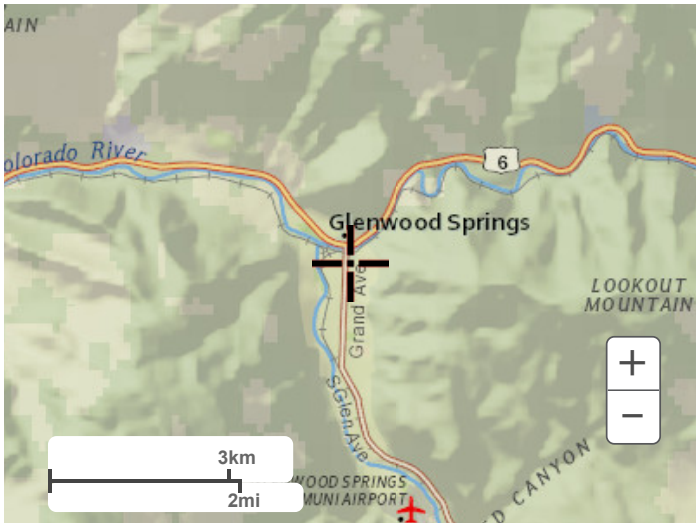
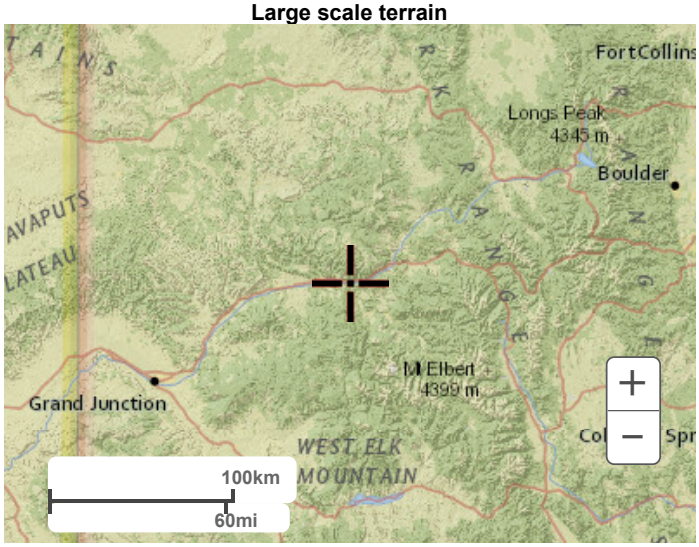
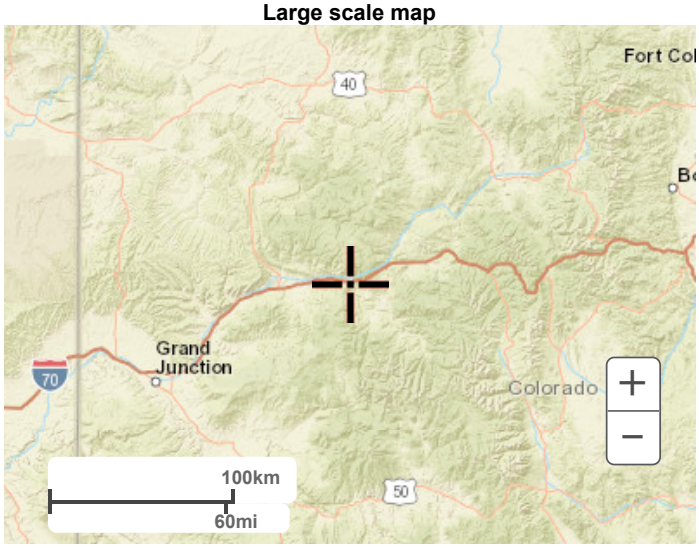
Small scale terrain



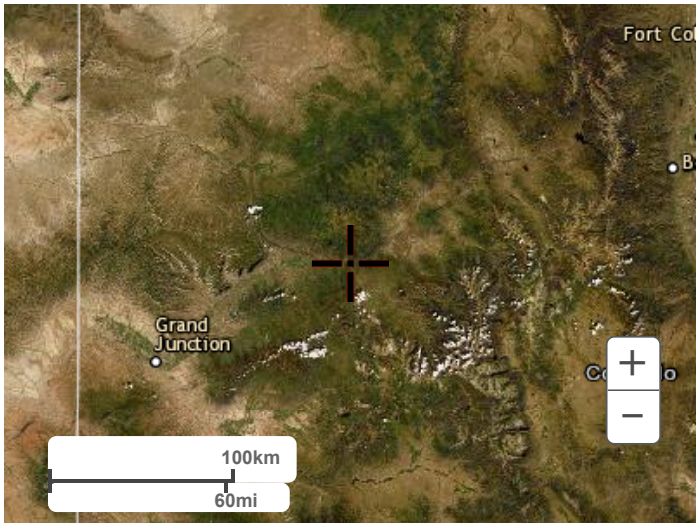
Large scale terrain



Large scale map



Large scale aerial



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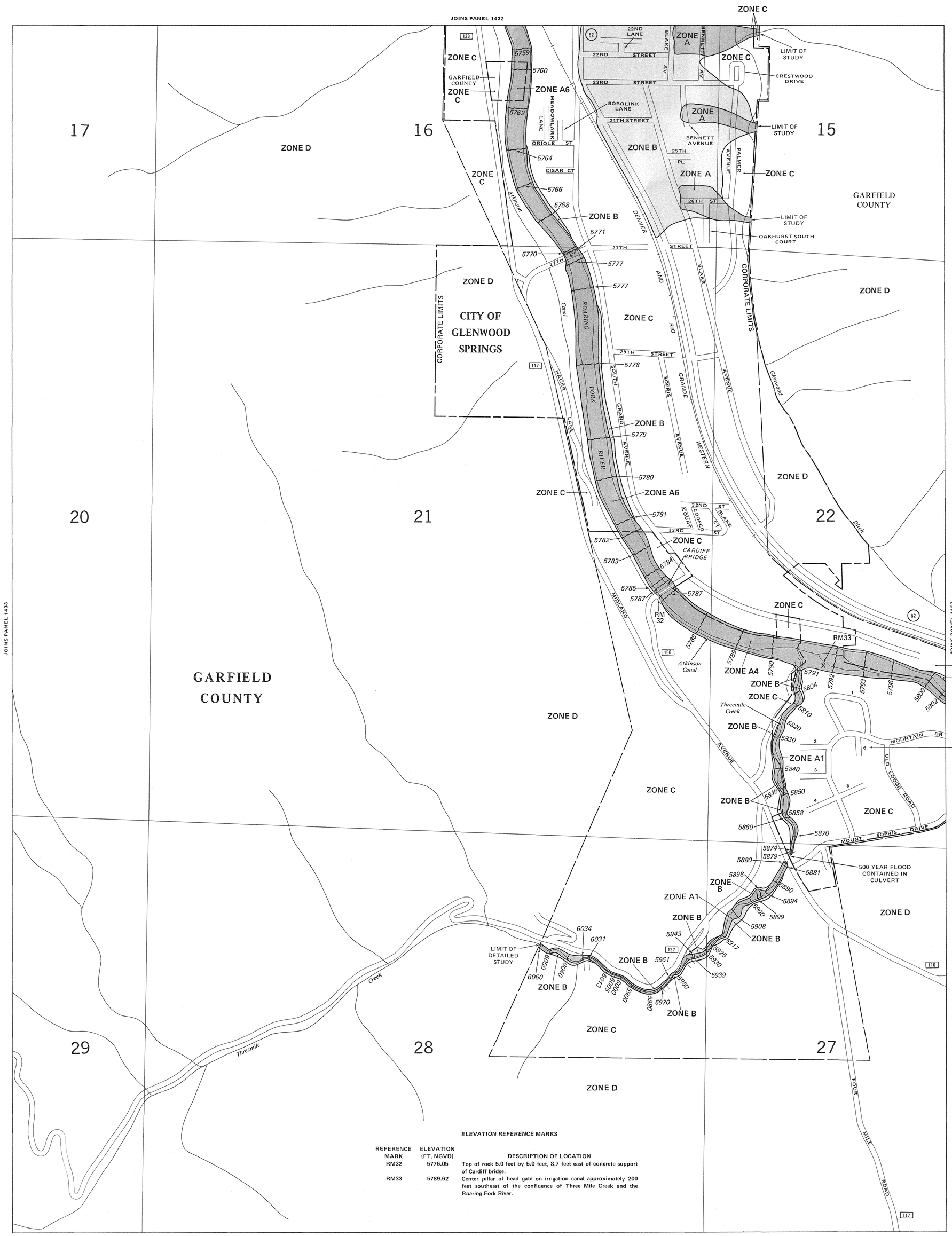

KEY TO MAP

500-Year Flood Boundary	ZONE B
100-Year Flood Boundary	ZONE A1 / ZONE A5
Zone Designations	
100-Year Flood Boundary	ZONE B
500-Year Flood Boundary	
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
MARCH 1, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:
NOVEMBER 14, 1975

FLOOD INSURANCE RATE MAP EFFECTIVE:
JULY 16, 1979

FLOOD INSURANCE RATE MAP REVISIONS:
Map revised October 15, 1985 to change flood plain boundaries, zone designations, base flood elevations, corporate limits, scale, cultural features, or map format.

Flood Insurance Rate Map (FIRM) panel numbers correspond to GARFIELD COUNTY, COLORADO FIRM panel numbers. For adjoining areas, refer to the GARFIELD COUNTY FIRM published separately.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.

KEY TO STREETS
1 VALLEY VIEW ROAD
2 BRUSH CREEK LANE
3 COTTONWOOD LANE
4 GLEN OAK LANE
5 PARK WOOD LANE
6 RED BLUFF LANE

APPROXIMATE SCALE IN FEET
500 0 500

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM32	5776.05	Top of rock 5.0 feet by 5.0 feet, 8.7 feet east of concrete support of Cardiff bridge.
RM33	5789.62	Center pillar of head gate on irrigation canal approximately 200 feet southeast of the confluence of Three Mile Creek and the Roaring Fork River.

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 6 SOUTH, RANGE 89 WEST

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
GLENWOOD SPRINGS,
COLORADO
GARFIELD COUNTY

PANEL 1434 OF 1900
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
080071 1434 C

MAP REVISED:
OCTOBER 15, 1985

Federal Emergency Management Agency

APPENDIX B – CALCULATIONS

JVA Incorporated
817 Colorado, Ste. 301
Glenwood Springs, CO 81601
Ph: (970) 404 3100

Job Name: 298 7th Street
Job Number: 3101c
Date: 12/16/21
By: QDH

298 7th Street

Historic Runoff Coefficient & Time of Concentration Calculations

Location: Glenwood Springs
Minor Design Storm: 25
Major Design Storm: 100
Soil Type: B

Basin Design Data

	I (%) =	100%	90%	90%	40%	25%	25%	2%	2%			I (%)	Runoff Coeff's				Initial Overland Time (t_i)			Travel Time (t_t) t_t=Length/(Velocity x 60)						t_c Comp	tc Urbanized Check ON		t_c Final
Basin Name	Design Point	A_{paved} streets (sf)	$A_{drives/conc}$ (sf)	A_{roof} (sf)	A_{gravel} (sf)	A_{plygnd} (sf)	$A_{art.\ turf}$ (sf)	$A_{lscape\ (B\ soil)}$ (sf)	$A_{lscape\ (C/D\ soil)}$ (sf)	A_{Total} (sf)	A_{Total} (ac)	Imp (%)	C2	C5	C25	C100	Upper most Length (ft)	Slope (%)	t_i (min)	Length (ft)	Slope (%)	Type of Land Surface	K	Velocity (fps)	t_t (min)	Time of Conc $t_i + t_t = t_c$	Total Length (ft)	t_c=(L/180)+ 10 (min.)	Min t_c
H1	1	23,615	1,183	5,664	0	0	0	10,078		40,540	0.93	73.9%	0.59	0.62	0.71	0.77	100	4.0%	5.6	50	4.0%	Paved areas & shallow paved swales	20	4.0	0.2	5.8	150	10.8	5.8
H2	2		655					85,017		85,672	1.97	2.7%	0.01	0.02	0.27	0.44	105	50.0%	5.5			Nearly bare ground	10	0.0	0.0	5.5	105	10.6	5.5
											0.00											Paved areas & shallow paved swales	20				0	10.0	
											0.00											Paved areas & shallow paved swales	20				0	10.0	
																						Paved areas & shallow paved swales	20				0	10.0	
TOTAL SITE		23,615	1,838	5,664	0	0	0	95,095	0	126,212	2.90	25.6%	0.17	0.20	0.26	0.55													

			Runoff Coeff's				Rainfall Intensities (in/hr)				Area		Flow Rates (cfs)			
Basin Name	Design Point	Time of Conc (tc)	C2	C5	C25	C100	2	5	25	100	A_{Total} (sf)	A_{Total} (ac)	Q2	Q5	Q25	Q100
H1	1	5.8	0.59	0.62	0.71	0.77	4.51	5.48	7.22	8.66	40,540	0.93	2.48	3.16	4.80	6.23
H2	2	5.5	0.01	0.02	0.27	0.44	4.57	5.55	7.32	8.79	85,672	1.97	0.11	0.18	3.83	7.58
0	0										0	0.00				
0	0										0	0.00				
0	0										0	0.00				
										TOTAL SITE	126,212	2.90	2.59	3.34	8.63	13.81

JVA Incorporated
817 Colorado, Ste. 301
Glenwood Springs, CO 81601
Ph: (970) 404 3100

Job Name: 298 7th Street
Job Number: 3101c
Date: 12/16/21
By: QDH

298 7th Street

Composite Runoff Coefficient Calculations

Location: Glenwood Springs
Minor Design Storm: 25
Major Design Storm: 100
Soil Type: B

CA 100yr = 0.78i + 0.11
CB 100yr = 0.47i + 0.426
CC/D 100yr = 0.41i + 0.484)

Basin Design Data

	I (%) =	100%	90%	90%	40%	25%	25%	2%	2%			I (%)	Runoff Coeff's			
Basin Name	Design Point	$A_{paved\ streets}$ (sf)	$A_{drives/conc}$ (sf)	A_{roof} (sf)	A_{gravel} (sf)	A_{plygnd} (sf)	$A_{art.\ turf}$ (sf)	$A_{lscape\ (B\ soil)}$ (sf)	$A_{lscape\ (C/D\ soil)}$ (sf)	A_{Total} (sf)	A_{Total} (ac)	Imp (%)	C2	C5	C25	C100
A	1	17,599	4,321	17,261	0	0	0	6,390		45,571	1.05	81.5%	0.66	0.69	0.76	0.81
B	2	0	655	0	0	0	0	79,987		80,642	1.85	2.7%	0.01	0.02	0.27	0.44
										0	0.00					
										0	0.00					
										0	0.00					
										0	0.00					
TOTAL SITE		17,599	4,976	17,261	0	0	0	86,377	0	126,213	2.90	31.2%	0.22	0.24	0.45	0.57

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Glenwood Springs, CO 81601
Ph: (970) 404 3100

Job Name: 298 7th Street
Job Number: 3101c
Date: 12/16/21
By: QDH

298 7th Street

Time of Concentration Calculations

Location: Glenwood Springs
Minor Design Storm: 25
Major Design Storm: 100
Soil Type: B

Sub-Basin Data				Initial Overland Time (t_i)			Travel Time (t_t) t_t=Length/(Velocity x 60)						t_c Comp	tc Urbanized Check ON		t_c Final
Basin Name	Design Point	A_{Total} (ac)	C5	Upper most Length (ft)	Slope (%)	t_i (min)	Length (ft)	Slope (%)	Type of Land Surface	C_v	Velocity (fps)	t_t (min)	Time of Conc $t_i + t_t = t_c$	Total Length (ft)	t_c=(L/180) +10 (min)	Min t_c
A	1	1.05	0.69	120	5.0%	4.8	50	4.0%	Grassed waterway	15	3.0	0.3	5.1	170	10.9	5.1
B	2	1.85	0.02	105	50.0%	5.5			Paved areas & shallow paved swales	20	0.0	0.0	5.5	105	10.6	5.5
0	0	0.00							Paved areas & shallow paved swales	20				0	10.0	

JVA Incorporated
817 Colorado, Ste. 301
Glenwood Springs, CO 81601
Ph: (970) 404 3100

Job Name: 298 7th Street
Job Number: 3101c
Date: 12/16/21
By: QDH

298 7th Street

Developed Storm Runoff Calculations

Design Storm : **25 Year**

Point Hour Rainfall (P_1) : **1.06**

	Direct Runoff							Total Runoff				Inlets				Pipe					Pipe/Swale Travel Time			
Basin Name	Design Point	Area (ac)	Runoff Coeff	tc (min)	C*A (ac)	I (in/hr)	Q (cfs)	Total tc (min)	ΣC*A (ac)	I (in/hr)	Q (cfs)	Inlet Type	Q intercepted	Q carryover	Q bypass	Pipe Size (in) or equivalent	Pipe Material	Slope (%)	Pipe Flow (cfs)	Max Pipe Capacity (cfs)	Length (ft)	Velocity (fps)	tt (min)	Total Time (min)
A	1	1.05	0.76	5.10	0.80	7.46	5.96	5.10	0.80	7.46	5.96													
B	2	1.85	0.27	5.50	0.49	7.32	3.61	5.50	0.49	7.32	3.61													

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Ph: (970) 404 3100

Job Name: 298 7th Street
Job Number: 3101c
Date: 12/16/21
By: QDH

298 7th Street

Developed Storm Runoff Calculations

Design Storm : **100 Year**

Point Hour Rainfall (P_1) : **1.33**

	Direct Runoff							Total Runoff				Inlets				Pipe					Pipe/Swale Travel Time			
Basin Name	Design Point	Area (ac)	Runoff Coeff	tc (min)	C*A (ac)	I (in/hr)	Q (cfs)	Total tc (min)	ΣC*A (ac)	I (in/hr)	Q (cfs)	Inlet Type	Q intercepted	Q carryover	Q bypass	Pipe Size (in) or equivalent	Pipe Material	Slope (%)	Pipe Flow (cfs)	Max Pipe Capacity (cfs)	Length (ft)	Velocity (fps)	tt (min)	Total Time (min)
A	1	1.05	0.81	5.10	0.85	8.96	7.58	5.10	0.85	8.96	7.58													
B	2	1.85	0.44	5.50	0.81	8.79	7.14	5.50	0.81	8.79	7.14													

JVA Incorporated
817 Colorado Ave, Ste 301
Glenwood Springs, CO 81601
Ph: (970) 404 3100

Job Name: 932 Queen Street
Job Number: 3405c
Date: 12/7/21
By: MRG

DRY WELL SIZING

(Reference: Figure 8.69 Typical WQCV Dry Well "Urban Runoff Management Plan – A Guide to Stormwater Management in the City of Aspen", City of Aspen, Revised December 2014 Edition)

WQCV:	47.70	
FACTOR OF SAFETY:	1.5	
TARGET DESIGN CAPTURE VOL.:	71.55	

Dry Well 1

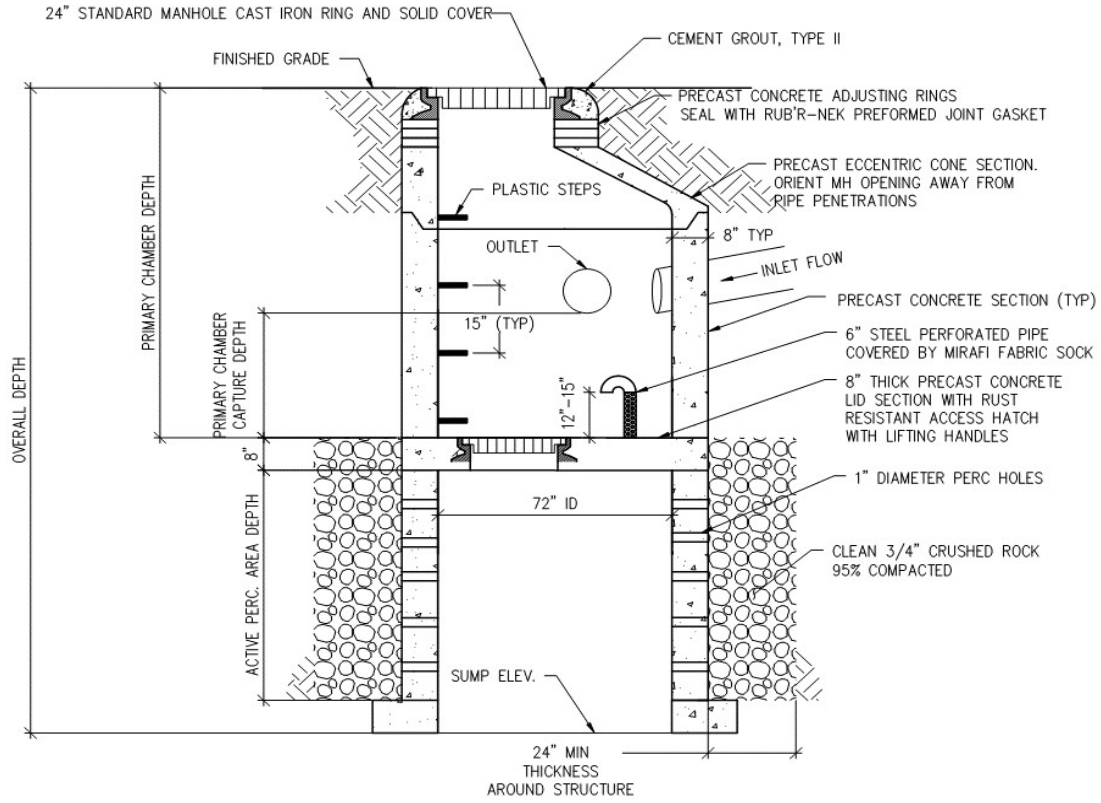
Inner Diameter:	4.00	(ft)
Outer Diameter	5.33	(ft) (8" wall)
Gravel Backfill Thickness	24	(in)
Diameter to edge of Gravel	9.33	
Rim Elevation	5799.89	(ft)
Invert In:	5796.89	(ft)
Overall Depth	8.00	(ft)
Pimary Chamber Depth:	5.00	(ft)
Primary Chamber Inv:	5794.89	(ft)
Primary Chamber Capture Depth:	2.00	(ft)
Sump Inv	5791.89	(ft)
Active Perc. Area Depth	2.33	(ft)
Structure Capture Volume:	54.4	ft^3
Vol. in Gravel Void Space	23.0	ft^3 (0.3 Void ratio)
Total Volume DW1:	77.5	ft^3

Total Captured Volume:	77.45

K	0.00006944	ft/sec
Required Percolation area:	11.925	ft^2
Provided Percolation Area:	29.307	ft^2

Drain Down Time (s) = Total Capture Vol. / (K x Perc. Area x .5 clogging factor)

Drain Down time DW1:	76114	(s)	1268.6 (min)	**21.14**	**(hour)**

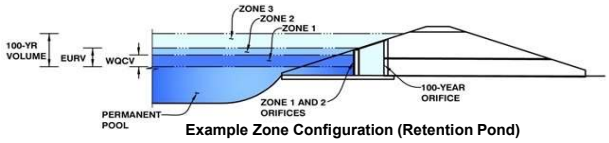


DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.04 (February 2021)

Project: The Rivers

Basin ID: Developed Basin A



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	EDB	
Watershed Area =	1.05	acres
Watershed Length =	215	ft
Watershed Length to Centroid =	25	ft
Watershed Slope =	0.037	ft/ft
Watershed Imperviousness =	81.50%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	100.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

			Optional User Overrides
Water Quality Capture Volume (WQCV) =	0.030	acre-feet	acre-feet
Excess Urban Runoff Volume (EURV) =	0.095	acre-feet	acre-feet
2-yr Runoff Volume (P1 = 0.51 in.) =	0.021	acre-feet	0.51 inches
5-yr Runoff Volume (P1 = 0.71 in.) =	0.031	acre-feet	0.71 inches
10-yr Runoff Volume (P1 = 0.86 in.) =	0.039	acre-feet	0.86 inches
25-yr Runoff Volume (P1 = 1.06 in.) =	0.051	acre-feet	1.06 inches
50-yr Runoff Volume (P1 = 1.2 in.) =	0.060	acre-feet	1.20 inches
100-yr Runoff Volume (P1 = 1.33 in.) =	0.068	acre-feet	1.33 inches
500-yr Runoff Volume (P1 = 1.45 in.) =	0.076	acre-feet	1.45 inches
Approximate 2-yr Detention Volume =	0.032	acre-feet	
Approximate 5-yr Detention Volume =	0.047	acre-feet	
Approximate 10-yr Detention Volume =	0.060	acre-feet	
Approximate 25-yr Detention Volume =	0.070	acre-feet	
Approximate 50-yr Detention Volume =	0.073	acre-feet	
Approximate 100-yr Detention Volume =	0.076	acre-feet	

Define Zones and Basin Geometry

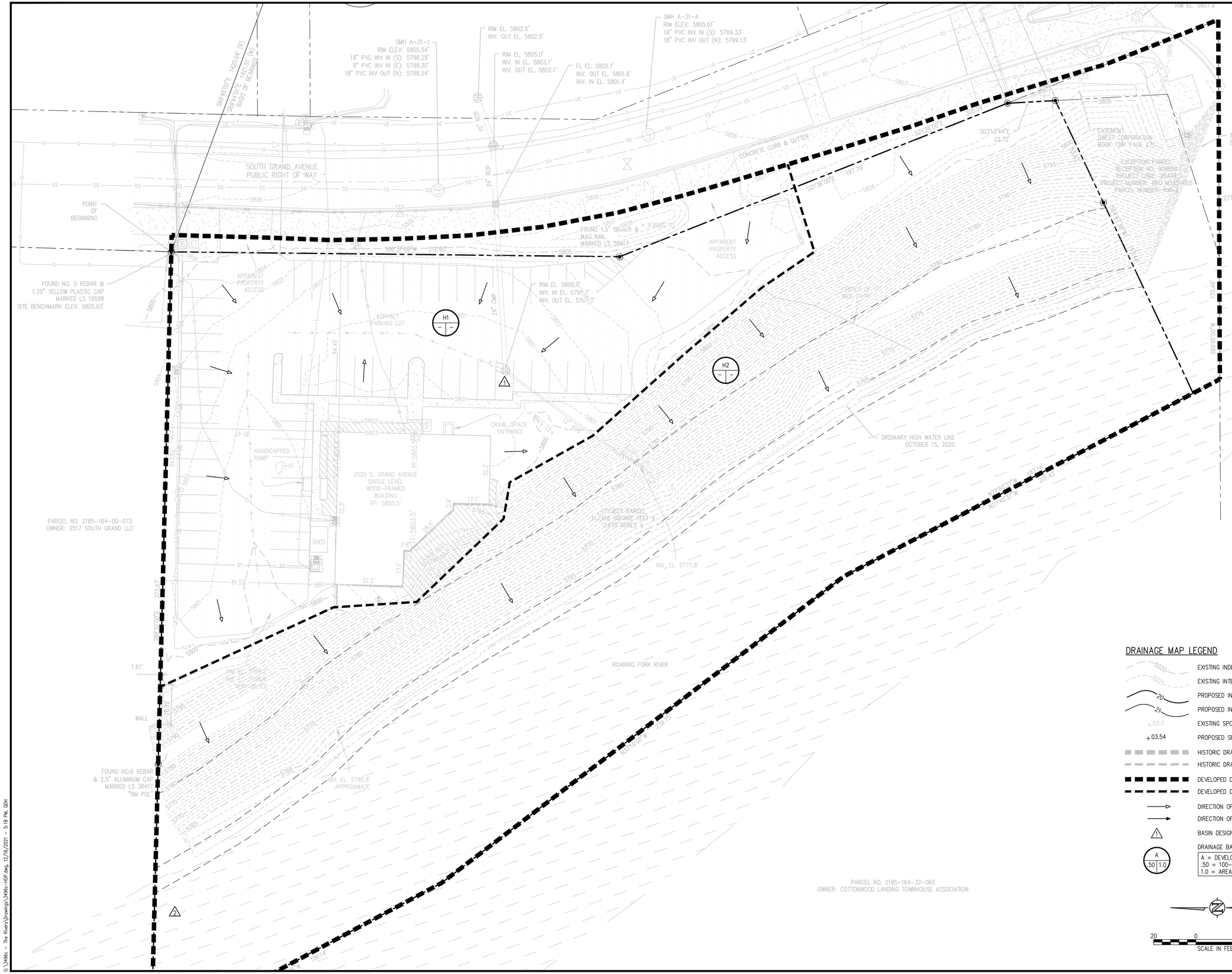
Zone 1 Volume (WQCV) =	0.030	acre-feet
Zone 2 Volume (25-year - Zone 1) =	0.040	acre-feet
Select Zone 3 Storage Volume (Optional) =		acre-feet
Total Detention Basin Volume =	0.070	acre-feet
Initial Surcharge Volume (ISV) =	4	ft^3
Initial Surcharge Depth (ISD) =		ft
Total Available Detention Depth (H_{total}) =		ft
Depth of Trickle Channel (H_{TC}) =		ft
Slope of Trickle Channel (S_{TC}) =		ft/ft
Slopes of Main Basin Sides (S_{main}) =		H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =		

Total detention volume is less than 100-year volume.

Initial Surcharge Area (A_{ISV}) =		ft^2
Surcharge Volume Length (L_{ISV}) =		ft
Surcharge Volume Width (W_{ISV}) =		ft
Depth of Basin Floor (H_{FLOOR}) =		ft
Length of Basin Floor (L_{FLOOR}) =		ft
Width of Basin Floor (W_{FLOOR}) =		ft
Area of Basin Floor (A_{FLOOR}) =		ft^2
Volume of Basin Floor (V_{FLOOR}) =		ft^3
Depth of Main Basin (H_{MAIN}) =		ft
Length of Main Basin (L_{MAIN}) =		ft
Width of Main Basin (W_{MAIN}) =		ft
Area of Main Basin (A_{MAIN}) =		ft^2
Volume of Main Basin (V_{MAIN}) =		ft^3
Calculated Total Basin Volume (V_{total}) =		acre-feet

Depth Increment = 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									



DRAINAGE MAP LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- HISTORIC DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- HISTORIC DRAINAGE BASIN BOUNDARY (SUB BASIN)
- DEVELOPED DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- DEVELOPED DRAINAGE BASIN BOUNDARY (SUB BASIN)
- DIRECTION OF FLOW (HISTORIC)
- DIRECTION OF FLOW (DEVELOPED)
- BASIN DESIGN POINT
- DRAINAGE BASIN IDENTIFICATION BUBBLE

A = DEVELOPED BASIN DESIGNATION
.50 = 100-YR RUNOFF COEFFICIENT
1.0 = AREA ACRES

20 0 20 40
SCALE IN FEET

JVA, Inc. 817 Colorado Ave., Suite 301
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www.jvajva.com
Boulder • Fort Collins • Winter Park
Glenwood Springs • Denver

NO.	DATE	DES'D	DWN	REVISION DESCRIPTION

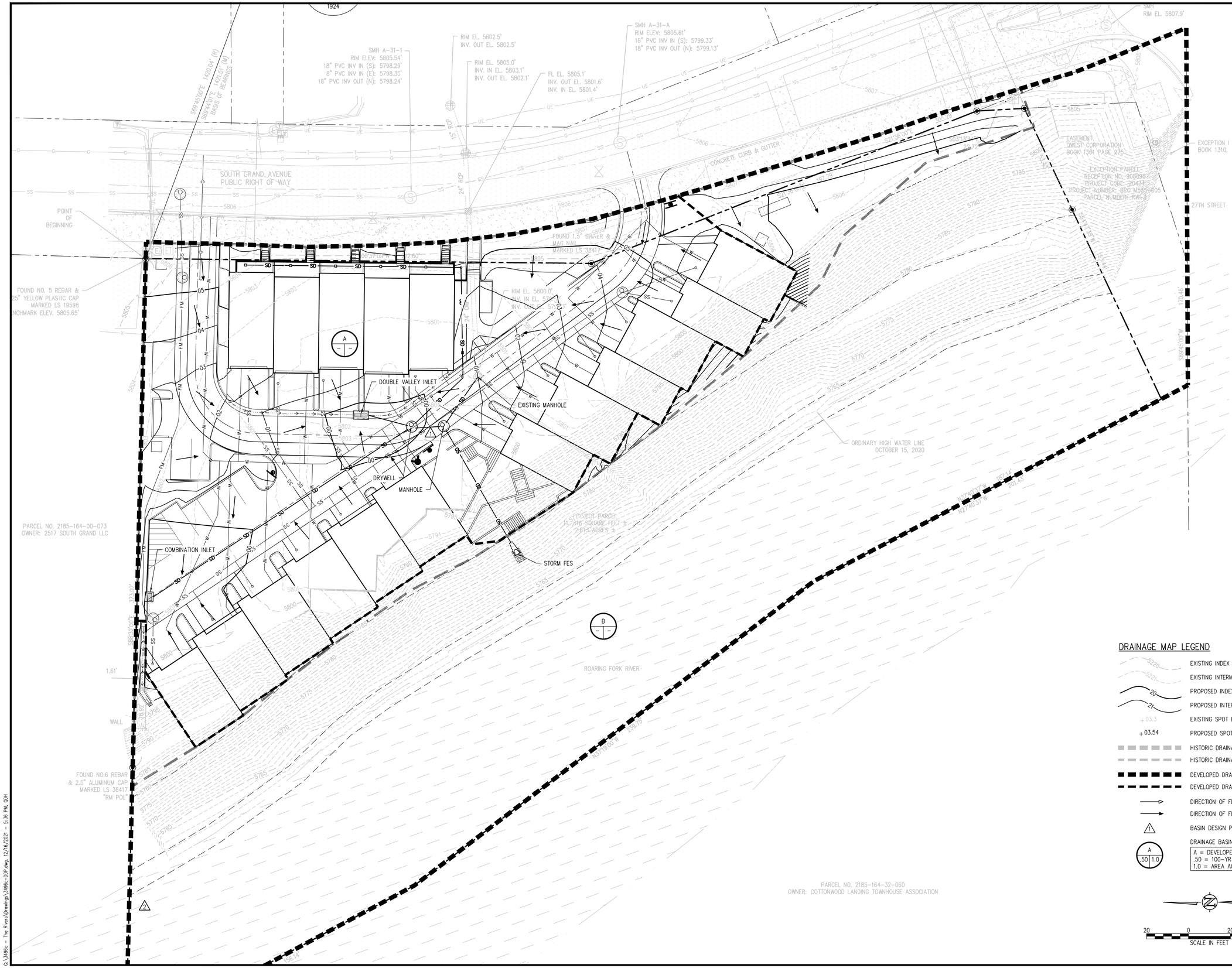
DESIGNED BY:	RMM
DRAWN BY:	MRG
CHECKED BY:	JLS
JOB #:	3496c
DATE:	DEC 2021

© JVA, INC.

THE RIVERS
2525 S GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

HISTORIC DRAINAGE MAP

SHEET NO.
FIG 1



DRAINAGE MAP LEGEND

- EXISTING INDEX CONTOUR (5220)
- EXISTING INTERMEDIATE CONTOUR (5221)
- PROPOSED INDEX CONTOUR (20)
- PROPOSED INTERMEDIATE CONTOUR (21)
- EXISTING SPOT ELEVATION (+03.3)
- PROPOSED SPOT ELEVATION (+03.54)
- HISTORIC DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- HISTORIC DRAINAGE BASIN BOUNDARY (SUB BASIN)
- DEVELOPED DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- DEVELOPED DRAINAGE BASIN BOUNDARY (SUB BASIN)
- DIRECTION OF FLOW (HISTORIC)
- DIRECTION OF FLOW (DEVELOPED)
- BASIN DESIGN POINT
- DRAINAGE BASIN IDENTIFICATION BUBBLE

A = DEVELOPED BASIN DESIGNATION
.50 = 100-YR RUNOFF COEFFICIENT
1.0 = AREA ACRES

SCALE IN FEET: 20 0 20 40

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Boulder • Fort Collins • Winter Park
Glenwood Springs • Denver

NO.	DATE	DES'D	DWN	REVISION DESCRIPTION

DESIGNED BY:	RMM
DRAWN BY:	MRG
CHECKED BY:	JLS
JOB #:	3496c
DATE:	DEC 2021

© JVA, INC.

THE RIVERS
2525 S GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DEVELOPED DRAINAGE MAP

SHEET NO.
FIG 2

C:\3496c - The Rivers\Drawings\3496c-DDP.dwg, 12/16/2021 - 5:36 PM, DDH

Exhibit F

Preliminary Engineering Report

JVA, Incorporated
817 Colorado Avenue
Suite 301
Glenwood Springs,
CO 81601
970.404.3100
info@jvajva.com

www.jvajva.com

December 16, 2021

Terri Partch
City Engineer
City of Glenwood Springs Engineering
101 West 8th Street
Glenwood Springs, CO 81601

RE: Preliminary Engineering Report for The Rivers Town Homes
JVA, Inc. Project No. 3496c

Dear Terri,

The following Preliminary Engineering Report has been prepared for the above referenced project. This report has been produced in accordance with the City of Glenwood Springs Engineering Standards and Specifications and is intended to supplement the preliminary civil engineering plan sheets accompanying this overall submittal package. It is our understanding that the information provided herein meets all requirements of the above-mentioned standards.

GENERAL LOCATION AND PROJECT DESCRIPTION

North Mountain Partners is proposing to construct a 17-unit townhome complex at the site of the previously existing Rivers Restaurant, 2525 South Grand Avenue in Glenwood Springs, Colorado. The project is located north of the intersection of South Grand Avenue and 27th Street. Specifically, the project is located in the SE ¼ SE ¼ and the SW1/4 SE 1/4 of section 16, township 6 south, range 89 west of the 6th p.m., city of Glenwood Springs and county of Garfield, state of Colorado.

The site is bound by South Grande Avenue to the west, the Roaring Fork River to the east, and developed commercial property to the north, and 27th Street to the South. The total area of the site is 2.90 acres.

The proposed development consists of 17 townhomes grouped into three separate buildings. Two of the buildings are aligned with the Roaring Fork River and the other is aligned with S. Grande Avenue. A one-way access drive creates a horseshoe like shape around the S. Grande Avenue building, connecting to S. Grand Avenue on the north and south sides. Vehicles will enter the site from the north and travel in a counterclockwise direction around the horseshoe. The northern riverside building is accessed by a two-way spur drive from the looped drive. A tiered community courtyard is also proposed between the two riverside buildings.

DOMESTIC WATER MAIN AND SERVICES

The existing water service to the previously existing Rivers Restaurant is wholly inadequate to serve the proposed development. It will be removed to the corporation stop. The corporation stop will be closed, plugged, and abandoned.

A new 8" ductile iron looped water main is proposed to be tapped off of the existing 12" transmission line South Grand Avenue. The locations of the proposed taps coincide with the two access drive connections to S. Grand Avenue and the line is routed within the looped access drive. There will be one fire hydrant installed off of this main north of the center courtyard of the site to provide fire protection coverage. This fire hydrant location was coordinated with City of Glenwood Springs Fire Department. A 6" ductile iron pipe connects the hydrant to the water main.

As shown in the preliminary utility plan, the domestic service lines to each town home will consist of 1" type K copper lines.

At the time of this report, current flow and pressure data for the existing water main was not available to JVA. However, we intend to coordinate this data with the City of Glenwood Springs and provide additional design calculations and or modeling as required.

SANITARY SEWER SERVICE

As shown in the preliminary utility plan, sanitary sewer flows are proposed to be collected by 4" PVC service lines which will connect to an on-site 6" PVC main. Due to the topographical constraints of the site and the relatively shallow existing sanitary sewer main in South Grand Avenue, a lift station will be needed to covey sanitary flows to said existing main. The currently proposed system gravity flows to a lift station manhole near the northwest corner of the site. It is anticipated that a 2" HDPE force main will convey flows to a new manhole in the north leg of the access drive from which sanitary sewer flows will gravity flow to another new manhole installed over the existing sanitary line in South Grande Avenue.
The design of the lift station will meet all applicable COGS and CDPHE requirements. Additional details for the lift station, including design calculations, pump & operation specifications, etc. will be provided to the city at a later date as the design of this development progresses.

DRY UTILITIES – GAS, ELECTRIC, TELEPHONE

As shown in the preliminary utility plan, gas, electric, & telephone services will be provided to meter & service box banks located at each of the three groupings of townhomes. It is anticipated that two new electric transformers will be needed and that the existing transformer at the northeast corner of the site will remain. The preliminary locations of these are shown the utility plan along with general routing of primary and secondar electric lines. These will be coordinated with the City of Glenwood Springs Electric Department. Similarly, the layout and routing of gas and telephone service lines will also be coordinated with the appropriate utility owners.

DRAINAGE/STORM WATER MANAGEMENT

A separate preliminary drainage report has been prepared by JVA and have been included with this submittal. To briefly summarize, an onsite storm water collection system consisting of both at and below grade infrastructure will be utilized to capture runoff from this site and provide water quality enhancement. The proposed development reduces net run off as compared to the previously existing site.

TRAFFIC

A traffic impact study for this project has been completed by McDowell Engineering. To summarize, the study concluded that the anticipated trips generated by the proposed development would have no adverse impact to the adjacent roadways and that no additional traffic control measures would be required to maintain acceptable levels of service of the surrounding roads. The traffic study has been provided with this submittal packet.

CONCLUSIONS

The proposed utility design is in compliance with the engineering standards of the City of Glenwood Springs. Additionally, the existing utility infrastructure immediately adjacent to the site is sufficient to handle the demands of the proposed townhome development.

Sincerely,
JVA, INCORPORATED

_____

James "J.R" L. Spung, Jr, PE
Project Manager, Associate
Registered Professional Engineer
State of Colorado No. 41789

Exhibit G

Neighborhood Meeting Documents

November 11, 2021

RE: PUBLIC NOTICE of a NEIGHBORHOOD MEETING to discuss the upcoming Major Site/Architectural Plan Application.

The property address is 2525 South Grand and occupies approximately 2.6-acres of riverfront property in the City of Glenwood Springs and is zoned CO (Commercial). The Applicant is North Mountain Partners, LLC.

The objective of 2525 South Grand is to develop a multi-family residential program to be sold as individual units. The current program accounts for 17 townhouse units ranging from approximately 2,610 gross square feet (GSF) to 3,340 GSF, totaling approximately 50,800 GSF of residential building.

For more information about the project, please attend the neighborhood meeting:

LOCATION:

2525 South Grand
Glenwood Springs, CO 81601

MEETING DATE: Tuesday, November 30, 2021

MEETING TIME: 4:00 PM (MST)

If you are unable to attend the meeting, please forward your questions
To: landstudio2@comcast.net

December 7, 2021

RE: NOTICE of a NEIGHBORHOOD MEETING to discuss the upcoming Major Site/Architectural Plan Application.

The property address is 2525 South Grand and occupies approximately 2.6-acres of riverfront property in the City of Glenwood Springs and is zoned CO (Commercial). The Applicant is North Mountain Partners, LLC.

The objective of 2525 South Grand is to develop a multi-family residential program to be sold as individual units. The current program accounts for 17 townhouse units ranging from approximately 2,610 gross square feet (GSF) to 3,340 GSF, totaling approximately 50,800 GSF of residential building.

For more information about the project, please attend the neighborhood meeting:

LOCATION:

2525 South Grand
Glenwood Springs, CO 81601

MEETING DATE: Friday, December 17, 2021

MEETING TIME: 1:00 PM (MST)

If you are unable to attend the meeting, please forward your questions
To: landstudio2@comcast.net

PARKING SCHEDULE (per Table 030.1)			
UNIT / DESCRIPTION	*QTY.*	*# OF SPACES PER UNIT*	*SUBTOTAL*
Required:			
Townhouse	17	1.5	26
Guest parking (1 for every 5 units)		0.2	4
		SUBTOTAL	30
Provided:			
Townhouse	17	2	34
Guest parking (1 for every 2 units)		0.5	9
		SUBTOTAL	43
TOTAL		(+ OVER / - UNDER)	13

AREA TAKEOFFS		
DESCRIPTION	*AREA (sf)*	*% of PARCEL*
Parcel	113,816	100%
Impermeable Site Coverage	32,453	29%
Site Paving	15,496	14%
Building Footprint	16,957	15%
Permeable Site Coverage	40,559	36%
River	40,804	36%

SITE DESIGN NOTES:

Proposed development will adhere to all applicable City Codes and Standards for Development, including: Sensitive Area Protection, Common Open Space, Landscaping, Screening + Fencing, Streetscape, Access + Circulation Standards.

DIAGRAM KEY:

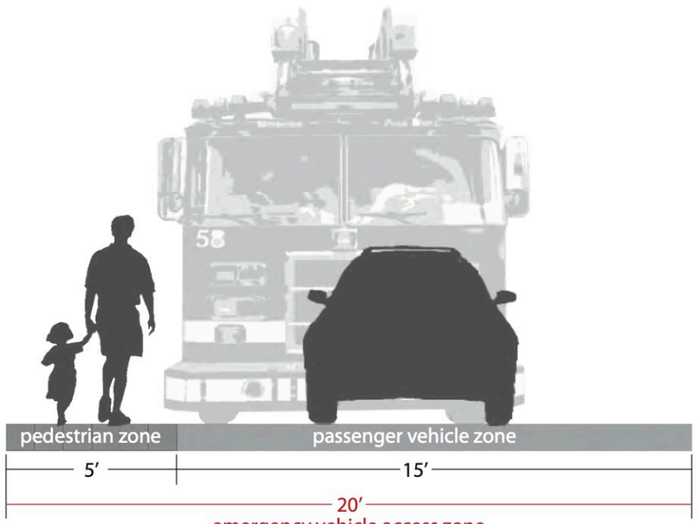
- Pervious Area within LOD
- Shoreline Recovery + Protection Zone
- Vehicular Access
- Existing Bench (~1300 sf)
- Potential River Access Area
- Townhome Connector Alignment
- T# Townhome Surface Parking
- S# Shared Surface Parking

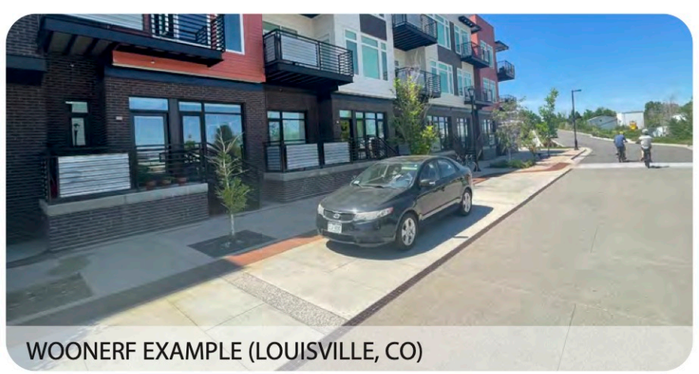
SITE CIRCULATION ONE WAY + MULTI-FUNCTIONAL STREET DESIGN

WOONERF:

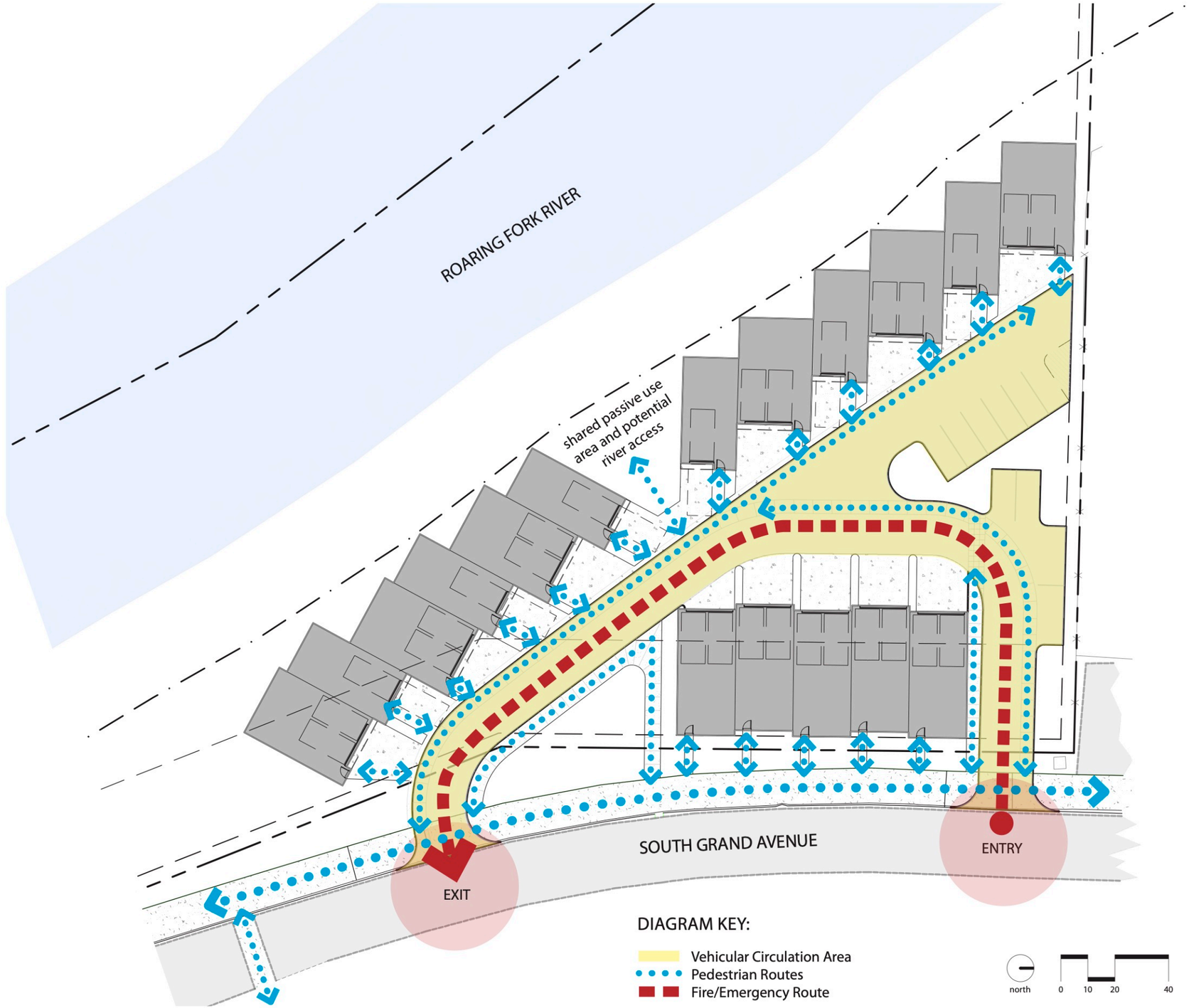
A woonerf is a living street, as originally implemented in Europe. Techniques include shared space, traffic calming, and low speed limits. The term "woonerf" has been adopted directly by some English-language publications. In the UK, these areas are called home zones. (Wikepedia, 2021)

WOONERF STREET SECTION:





WOONERF EXAMPLE (LOUISVILLE, CO)



Parcel	Physical Address	Owner	Account Num	Mailing Address
2.18516E+11	2412 S GRAND AVE GLENWOOD SPRINGS	STOREY ENTERPRISES, INC.	R311769	98 COTTAGE DRIVE CARBONDALE, CO 81623
2.18516E+11	2514 S GRAND AVE GLENWOOD SPRINGS	RAMVET PROPERTIES LTD	R311672	2514 S GRAND AVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2512 S GRAND AVE GLENWOOD SPRINGS	2512 SOUTH GRAND LLC	R311374	312D ASPEN AIRPORT BUSINESS CENTER ASPEN, CO 81611
2.18516E+11	2509 S GRAND AVE GLENWOOD SPRINGS	TJ DEARMON LLC	R311679	1010 VALLEY ROAD CARBONDALE, CO 81623-9757
2.18516E+11	2517 S GRAND AVE GLENWOOD SPRINGS	2517 SOUTH GRAND LLC	R311953	906 OXFORD LANE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2525 S GRAND AVE GLENWOOD SPRINGS	RIVERS LLC	R031059	730 15TH STREET BOULDER, CO 80302
2.18516E+11	Not available GLENWOOD SPRINGS	GLENWOOD SPRINGS, CITY OF	R040434	101 W 8TH STREET GLENWOOD SPRINGS, CO 81601
2.18516E+11	Not available GLENWOOD SPRINGS	ROARING FORK CONDOMINIUM ASSOCIATION OF GLENWOOD SPRINGS	R311961	PO BOX 267 GLENWOOD SPRINGS, CO 81602
2.18516E+11	2640 WOODBERRY DR GLENWOOD SPRINGS	KORTHALS, CATHERINE	R312341	42 WO 46 RETREAT COURT SAINT CHARLES, IL 60175
2.18516E+11	2642 WOODBERRY DR GLENWOOD SPRINGS	FLOTTMEYER, WENDY	R312342	2642 WOODBERRY DRIVE #2 GLENWOOD SPRINGS, CO 81601
2.18516E+11	2644 WOODBERRY DR GLENWOOD SPRINGS	BLUE WATER ENTERPRISES, LLC	R312343	865 CITRINE VIEW COLORADO SPRINGS, CO 80921
2.18516E+11	2646 WOODBERRY DR GLENWOOD SPRINGS	FIGUEROA, DEBRA M & DYLAN T	R312344	2646 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2620 WOODBERRY DR GLENWOOD SPRINGS	DERKASH, JUSTIN RICHARD	R312382	1618 LINCOLNWOOD DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2622 WOODBERRY DR GLENWOOD SPRINGS	CHRISTIE, PHILLIP & JUDITH	R312383	23149 CRESTWOOD LN CALIFORNIA, MD 20619-2401
2.18516E+11	2624 WOODBERRY DR GLENWOOD SPRINGS	RUDER, MICHAEL E	R312384	245 S LOCUST STREET DENVER, CO 80224-1049
2.18516E+11	2626 WOODBERRY DR GLENWOOD SPRINGS	LORD, ANTHONY HAVERTON & HELEN KIMBERLY	R312385	PO BOX 1706 BRECKENRIDGE, CO 80424
2.18516E+11	2600 WOODBERRY DR GLENWOOD SPRINGS	BRADLEY, PETER E & MARY J	R312421	1673 S LAMAR STREET LAKEWOOD, CO 80232
2.18516E+11	2602 WOODBERRY DR GLENWOOD SPRINGS	RUBIN FAMILY TRUST DTD 02/21/18 & RUBIN FAMILY TRUST DTD 05/15/18	R312422	6439 S BLACKHAWK WAY AURORA, CO 80016
2.18516E+11	2604 WOODBERRY DR GLENWOOD SPRINGS	LINET FAMILY PARTNERSHIP, FLORIDA LP	R312423	1512 GRAND AVENUE, SUITE 109 GLENWOOD SPRINGS, CO 81601
2.18516E+11	2580 WOODBERRY DR GLENWOOD SPRINGS	FROHLICH, MARKHAM T & DIANE FRANCES	R312506	11568 WEEPING WILLOW DRIVE ZIONSVILLE, IN 46077
2.18516E+11	2582 WOODBERRY DR GLENWOOD SPRINGS	MESHKOV, GEORGE L	R312507	12104 GAY RIO COURT LAKESIDE, CA 92040
2.18516E+11	2584 WOODBERRY DR GLENWOOD SPRINGS	SHIRK, JAMES & LINDA TRUST	R312508	PO BOX 1549 BLOOMINGTON, IL 61702
2.18516E+11	2621 WOODBERRY DR GLENWOOD SPRINGS	FREEMAN, ROGER LEE	R312536	1225 CODY STREET DENVER, CO 80215
2.18516E+11	2623 WOODBERRY DR GLENWOOD SPRINGS	WILD RIVERS RANCH TRUST	R312537	PO BOX 2899 CHEYENNE, WY 82003
2.18516E+11	2625 WOODBERRY DR GLENWOOD SPRINGS	MARRAN, MATTHEW F & MEGAN E	R312538	201 S CHURCH STREET PARKESBURG, PA 19365
2.18516E+11	2560 WOODBERRY DR GLENWOOD SPRINGS	FLYNN INVESTMENTS LLC	R312540	15850 COOK ROAD FORT MYERS, FL 33908
2.18516E+11	2562 WOODBERRY DR GLENWOOD SPRINGS	DOLL, HENRY T REVOCABLE TRUST & DOLL, SHERLY L REVOCABLE TRUST	R312541	2562 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2564 WOODBERRY DR GLENWOOD SPRINGS	MOORE, MARTHA	R312542	2564 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2601 WOODBERRY DR GLENWOOD SPRINGS	BARRAGAN, ELVIA	R005111	2601 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2603 WOODBERRY DR GLENWOOD SPRINGS	SOLANO, FLORENCIO & ELIDA	R005112	2603 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2605 WOODBERRY DR GLENWOOD SPRINGS	MONTOVER, CHARLES V	R005113	PO BOX 1341 GLENWOOD SPRINGS, CO 81602
2.18516E+11	2607 WOODBERRY DR GLENWOOD SPRINGS	MORALES, JAVIER	R005114	2607 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2581 WOODBERRY DR GLENWOOD SPRINGS	GRUBER, RUDOLF F & GISELA	R005152	1214 CAMINO MELENO SANTA BARBARA, CA 93111
2.18516E+11	2583 WOODBERRY DR GLENWOOD SPRINGS	WIENER, MARY RUTH TRUST	R005153	2583 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2585 WOODBERRY DR GLENWOOD SPRINGS	INDGJER, RANDALL WILLIAM & KAREN JANET	R005154	2585 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2540 WOODBERRY DR GLENWOOD SPRINGS	LONG, PHILIP MARK	R006434	2540 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2542 WOODBERRY DR GLENWOOD SPRINGS	COX, TERESA A & CRANTS, MARK	R006435	2030 S ROUTT COURT LAKEWOOD, CO 80227
2.18516E+11	2544 WOODBERRY DR GLENWOOD SPRINGS	KIESSLING, DIETER H	R006436	2544 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2520 WOODBERRY DR GLENWOOD SPRINGS	DILLON, CHRISTOPHER & MARINA	R008692	2520 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2522 WOODBERRY DR GLENWOOD SPRINGS	HELLING, STEN O REVOCABLE TRUST & HELLING, PATRICIA ANN TRUST	R008693	2522 WOODBERRY DR GLENWOOD SPRINGS, CO 81601
2.18516E+11	2504 WOODBERRY DR GLENWOOD SPRINGS	SPIDELL, JOHN MATTHEW & MICHELLE E	R042433	2504 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18516E+11	2502 WOODBERRY DR GLENWOOD SPRINGS	BURROWS, DEBBIE E	R042434	15280 E BROADWAY LONG BEACH, CA 90803
2.18516E+11	Not available GLENWOOD SPRINGS	COTTONWOOD LANDING TOWNHOUSE ASSOCIATION	R042436	1512 GRAND AVENUE SUITE 109 GLENWOOD SPRINGS, CO 81601
2.18516E+11	2624 GRAND AVE GLENWOOD SPRINGS	MESA NATIONAL BANK (GLENWOOD SPRINGS)	R009853	3033 E 1ST AVE STE LL108 DENVER, CO 80206
2.18516E+11	401 27TH ST GLENWOOD SPRINGS	BLUE ROOF LLC	R040435	401 27TH STREET GLENWOOD SPRINGS, CO 81601
2.18516E+11	2425 S GRAND AVE GLENWOOD SPRINGS	ROARING FORK DEVELOPMENT GROUP LLC	R311750	12221 BIRCH STREET LEAWOOD, KS 66209
2.18521E+11	Not available GLENWOOD SPRINGS	GLENWOOD SPRINGS, CITY OF	R311944	101 W 8TH STREET GLENWOOD SPRINGS, CO 81601
2.18521E+11	Not available GLENWOOD SPRINGS	GLENWOOD SPRINGS RACQUET CLUB ASSOCIATION	R330479	PO BOX 1107 GLENWOOD SPRINGS, CO 81602
2.18521E+11	2660 WOODBERRY DR GLENWOOD SPRINGS	1315 GRAND LLC	R312367	PO BOX 2478 GLENWOOD SPRINGS, CO 81602
2.18521E+11	2662 WOODBERRY DR GLENWOOD SPRINGS	POMEROY, FLINN & BOUGHTON, WOODSON HAGOOD	R312368	2662 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18521E+11	2664 WOODBERRY DR GLENWOOD SPRINGS	SARDINKSY, COLLEEN MARIE	R312369	2664 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18521E+11	2666 WOODBERRY DR GLENWOOD SPRINGS	CASTRO, YOLANDA & ANTONIO GEOVANNI	R312370	2666 WOODBERRY DRIVE GLENWOOD SPRINGS, CO 81601
2.18521E+11	2668 WOODBERRY DR GLENWOOD SPRINGS	STANFIELD, TRACY A	R312371	87 W SUNLIGHT COURT GLENWOOD SPRINGS, CO 81601
2.18521E+11	400 27TH ST GLENWOOD SPRINGS	ROARING VIEW, LLC	R083299	1010 PARK WEST DRIVE GLENWOOD SPRINGS, CO 81601
2.18521E+11	2800 MIDLAND AVE GLENWOOD SPRINGS	GLENWOOD SPRINGS MOB PARTNERS I LLC	R083580	120 N HALE STREET SUITE 3 WHEATON, IL 60187

218516442001	002520 S GRAND AVE #112	VALLEY VIEW HOSPITAL ASSOCIATION	R009126	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442002	002520 S GRAND AVE #102	KAUFMAN, DONALD J & DIANA J	R009127	2520 SOUTH GRAND AVENUE #110	GLENWOOD CO	81601
218516442003	002520 S GRAND AVE #114	G & G CORPORATE OFFICES LLC	R009128	2520 S GRAND AVENUE #114	GLENWOOD CO	81601
218516442004	002520 S GRAND AVE #104	VALLEY VIEW HOSPITAL ASSOCIATION	R009129	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442005	002520 S GRAND AVE #106	VALLEY VIEW HOSPITAL ASSOCIATION	R009130	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442006	002520 S GRAND AVE #108	GLENWOOD SPRINGS ASSOCIATION OF REALTORS	R009131	2520 S GRAND AVE, STE 108	GLENWOOD CO	81601
218516442007	002520 S GRAND AVE #110	KAUFMAN, DONALD J & DIANA J	R009132	926 BENNETT AVENUE	GLENWOOD CO	81601
218516442008	002520 S GRAND AVE #212	ROSS, NEIL	R009133	18 UPLAND UNIT A	CARBONDAL CO	81623
218516442009	002520 S GRAND AVE #211	VALLEY VIEW HOSPITAL ASSOCIATION	R009134	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442010	002520 S GRAND AVE #209	VALLEY VIEW HOSPITAL ASSOCIATION	R009135	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442011	002520 S GRAND AVE #207	EMOTION CINEMA LLC	R009136	514 CANYON CREEK DRIVE	GLENWOOD CO	81601
218516442012	002520 S GRAND AVE #203	VALLEY VIEW HOSPITAL ASSOCIATION	R009137	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442013	002520 S GRAND AVE #202	PADMA LLC	R009138	2520 GRAND AVE STE 202	GLENWOOD CO	81601
218516442014	002520 S GRAND AVE #204	LUPINE GWS LLC	R009139	2520 GRAND AVENUE #204	GLENWOOD CO	81601
218516442015	002520 S GRAND AVE #206	MNS GROUP LLC	R009140	2520 SOUTH GLENWOOD AVENUE #210	GLENWOOD CO	81601
218516442016	002520 S GRAND AVE #208	MNS GROUP LLC	R009141	2520 SOUTH GLENWOOD AVENUE #210	GLENWOOD CO	81601
218516442017	002520 S GRAND AVE #2J	MNS GROUP LLC	R009142	2520 SOUTH GLENWOOD AVENUE #210	GLENWOOD CO	81601
218516442018	002520 S GRAND AVE #302	PITTARD, RALPH GILBERT JR	R009143	2520 SOUTH GRAND AVENUE NO 302	GLENWOOD CO	81601
218516442019	002520 S GRAND AVE #303	SPRICK, CHARLES B	R009144	2520 S GRAND AVENUE #303	GLENWOOD CO	81601
218516442020	002520 S GRAND AVE #307	HARDMAN, TALBOT D & LAURA	R009145	2520 SOUTH GRAND AVENUE # 307	GLENWOOD CO	81601
218516442021	002520 S GRAND AVE #309	BOYD, JAMES B & GAHM, GRETCHEN J	R009146	2520 GRAND AVE APT 309	GLENWOOD CO	81601
218516442022	002520 S GRAND AVE #304	CHIAPPINELLI, DANA & JEANNETTE	R009147	1427 WALZ AVENUE	GLENWOOD CO	81601
218516442023	002520 S GRAND AVE #306	JANTZ, DIANE ELAINE	R009148	77 SOUTH ADAMS STREET #1101	DENVER CO	80209
218516442024	002520 S GRAND AVE #308	TROUT REALTY LLC	R009149	1338 GRAND AVENUE #172	GLENWOOD CO	81601
218516442025	002520 S GRAND AVE #310	HENSLEY HOLDINGS LLC	R009150	282 HOME PLACE	GLENWOOD CO	81601
218516442026	002520 S GRAND AVE #A	VALLEY VIEW HOSPITAL ASSOCIATION	R009151	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442027	002520 S GRAND AVE #B	VALLEY VIEW HOSPITAL ASSOCIATION	R009152	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442028	002520 S GRAND AVE #C	VALLEY VIEW HOSPITAL ASSOCIATION	R009153	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442029	002520 S GRAND AVE #D	VALLEY VIEW HOSPITAL ASSOCIATION	R009154	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442030	002520 S GRAND AVE #E	BOYD, JAMES B & GAHM, GRETCHEN J	R009155	2520 GRAND AVE APT 309	GLENWOOD CO	81601
218516442031	002520 S GRAND AVE #F	PADMA LLC	R009156	2520 GRAND AVE STE 202	GLENWOOD CO	81601
218516442032	002520 S GRAND AVE #G	HARDMAN, TALBOT & LAURA	R009157	2520 GRAND AVENUE #307	GLENWOOD CO	81601
218516442033	002520 S GRAND AVE #H	VALLEY VIEW HOSPITAL ASSOCIATION	R009158	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442034	002520 S GRAND AVE #I	VALLEY VIEW HOSPITAL ASSOCIATION	R009159	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442035	002520 S GRAND AVE #J	VALLEY VIEW HOSPITAL ASSOCIATION	R009160	1906 BLAKE AVENUE	GLENWOOD CO	81601
218516442036	002520 S GRAND AVE #K	CHIAPPINELLI, DANA & JEANNETTE L	R009161	1427 WALZ AVENUE	GLENWOOD CO	81601
218516442037	002520 S GRAND AVE	PENROSE PLAZA UNIT OWNERS ASSOCIATION	R009162	1317 GRAND AVENUE STE 101	GLENWOOD CO	81601
218516442038	S GRAND AVE	CHIAPPINELLI, DANA & JEANNETTE L	R040996	1427 WALZ AVENUE	GLENWOOD CO	81601
218516442039	S GRAND AVE	CHIAPPINELLI, DANA & JEANNETTE L	R040997	1427 WALZ AVENUE	GLENWOOD CO	81601
218516442040	S GRAND AVE	KAUFMAN, DONALD J & DIANA J	R040998	2520 GRAND AVENUE #110	GLENWOOD CO	81601
218516442040	S GRAND AVE	ROARING FORK COMPUTER SOCIETY NON PROFIT CORPORATION	R040998	2520 GRAND AVENUE #110	GLENWOOD CO	81601
218516442040		KAUFMAN, DONALD J & DIANA J	R040998	2520 GRAND AVENUE #110	GLENWOOD CO	81601
218516442040		ROARING FORK COMPUTER SOCIETY NON PROFIT CORPORATION	R040998	2520 GRAND AVENUE #110	GLENWOOD CO	81601

218516443001	002624 GRAND AVE #0001	MESA NATIONAL BANK	R009850	3033 E 1ST AVE STE LL108	DENVER CO	80206
218516443002	002624 GRAND AVE #0002	MESA NATIONAL BANK	R009851	3033 E 1ST AVE STE LL108	DENVER CO	80206
218516443003	002624 GRAND AVE #0003	MBCJ LLC	R009852	2624 GRAND AVENUE, STE 200	GLENWOOD CO	81601
218516443004	002624 GRAND AVE	MESA NATIONAL BANK (GLENWOOD SPRINGS)	R009853	3033 E 1ST AVE STE LL108	DENVER CO	80206

Exhibit H

Minor Site & Architectural Plan Review Set

ABBREVIATIONS

A.C. TILE	ACOUSTIC TILE	LAM.	LAMINATE
ACOUS.	ACOUSTICAL	LAV.	LAVATORY
ADJ.	ADJUSTABLE	LT.	LIGHT
AGGR.	AGGREGATE	LKR.	LOCKER
ALUM.	ALUMINUM	L.V.	LOW VOLTAGE
L	ANGLE		
~	APPROXIMATE/ APPROXIMATELY	M.H.	MANHOLE
		MFR.	MANUFACTURER
ARCH.	ARCHITECTURAL	M.O.	MASONRY OPENING
A.D.	AREA DRAIN	MAX.	MAXIMUM
ASB.	ASBESTOS	MECH.	MECHANICAL
ASPH.	ASPHALT	M.C.	MEDICINE CABINET
@	AT	MEMB.	MEMBRANE
		MTL.	METAL
BM.	BEAM	MIN.	MINIMUM
BITUM.	BITUMINOUS	MIR.	MIRROR
BLK.	BLOCK	MISC.	MISCELLANEOUS
BLKG.	BLOCKING	MOD.	MODIFIED
BD.	BOARD	MTD.	MOUNTED
BOT.	BOTTOM	MUL.	MULLION
BLDG.	BUILDING		
		NOM.	NOMINAL
CAB.	CABINET	N.	NORTH
C.I.	CAST IRON	N.I.C.	NOT IN CONTRACT
C.B.	CATCH BASIN	N.T.S.	NOT TO SCALE
CFRG.	CONFIGURE	#	NUMBER
CLKG.	CAULKING		
CLG.	CEILING	OBS.	OBSCURE
CEM.	CEMENT	OFF.	OFFICE
CTR.	CENTER	O.C.	ON CENTER
CER.	CERAMIC	OPNG.	OPENING
C.T.	CERAMIC TILE	OPP.	OPPOSITE
CLR.	CLEAR	O.D.	OUTSIDE DIAMETER
C.O.	CLEAR OPENING	O.A.	OVERALL
COL.	COLUMN		
COM.	COMPACT	PR.	PAIR
CONC.	CONCRETE	P.T.D.	PAPER TOWEL DISPENSER
CONN.	CONNECTION	P.T.D./R.	PAPER TOWEL DISPENSER & RECEPTACLE COMBINATION
CONSTR.	CONSTRUCTION		
CONT.	CONTINUOUS/ CONTINUE		
CORR.	CORRIDOR	P.T.R.	PAPER TOWEL RECEPTACLE
CNTR.	COUNTER	PRTN.	PARTITION
CTSK.	COUNTERSUNK	PRMTR.	PERIMETER
		PLAS.	PLASTER
DBL.	DOUBLE	PL. LAM.	PLASTIC LAMINATE
DEPT.	DEPARTMENT	PL.	PLATE
DET.	DETAIL	PLMBG.	PLUMBING
Ø	DIAMETER	PLYWD.	PLYWOOD
DIM.	DIMENSION	PT.	POINT
		PRCST.	PRECAST
D.O.	DOOR OPENING	P.T.WD.	PRESSURE TREATED WOOD
DN.	DOWN		
DS.	DOWNSPOUT		
DWG.	DRAWING	Q.T.	QUARRY TILE
D.F.	DRINKING FOUNTAIN		
D.S.P.	DRY STANDPIPE	RAD.	RADIUS
		R.W.L.	RAIN WATER LEADER
EA.	EACH	RCPT.	RECEPTACLE
E.	EAST	REF.	REFERENCE/REFER
E.W.C.	ELECTRIC WATER COOLER	RFRG.	REFRIGERATOR
		REGTR.	REGISTER
ELEC.	ELECTRICAL	REINF.	REINFORCED
E.P.	ELECTRICAL PANEL BOARD	REQ.	REQUIRED/ REQUIREMENTS
EL.	ELEVATION	RESIL.	RESILIENT
ELEV.	ELEVATOR	RS.	RISER
EMER.	EMERGENCY	R.D.	ROOF DRAIN
ENCL.	ENCLOSURE	RM.	ROOM
EQ.	EQUAL	R.O.	ROUGH OPENING
EQUIP.	EQUIPMENT	ROT.	ROTATE
EXST.	EXISTING		
EXP.	EXPANSION	SCH.	SCHEDULE
E.J.	EXPANSION JOINT	SCHED.	SCHEDULE
EXPO.	EXPOSED	SECT.	SECTION
EXT.	EXTERIOR	S.S.	SERVICE SINK
		S.S.K.	SERVICE SINK
F.O.C.	FACE OF CONCRETE	SHT.	SHEET
F.O.F.	FACE OF FINISH	SH.	SHELF
F.O.S.	FACE OF STUDS	SHWR.	SHOWER
FT.	FEET	SIM.	SIMILAR
FIN.	FINISH	S.D.	SOAP DISPENSER
F.O.	FINISH OPENING	S.C.	SOLID CORE
F.A.	FIRE ALARM		SOUTH
F.E.C.	FIRE EXTINGUISHER CABINET	SPEC.	SPECIFICATION
		SQ.	SQUARE
F.H.C.	FIRE HOSE CABINET	SST.	STAINLESS STEEL
FPRF.	FIRE PROOF	STD.	STANDARD
FLSHG.	FLASHING	STA.	STATION
F.B.	FLAT BAR	STL.	STEEL
FLR.	FLOOR	STOR.	STORAGE
F.D.	FLOOR DRAIN	STRUCT.	STRUCTURAL
FLUOR.	FLUORESCENT	SUSP.	SUSPENDED
FT.	FOOT	SYM.	SYMMETRICAL
FTG.	FOOTING		
FDN.	FOUNDATION	TER.	TERRAZZO
F.S.	FULL SIZE	TERM.	TERMINATE
FRG.	FURRING	TH.	THICK
FUT.	FUTURE	T.O.	TOP OF
		T.O.C.	TOP OF CURB
GALV.	GALVANIZED	T.O.P.	TOP OF PAVEMENT
GA.	GAUGE	T.O.W.	TOP OF WALL
G.B.	GRAB BAR	T.B.	TOWEL BAR
GL.	GLASS/GLAZING	T.B.D.	TO BE DETERMINED
GR.	GRADE	TRD.	TREAD
GND.	GROUND	TYP.	TYPICAL
G.W.B.	GYPSUM WALLBOARD		
		U.N.O.	UNLESS NOTED OTHERWISE
H.C.	ACCESSIBLE		
HDWR.	HARDWARE		
HDWD.	HARDWOOD	V.I.F	VERIFY IN FIELD
HT.	HEIGHT	VERT.	VERTICAL
H.M.	HOLLOW METAL	VEST.	VESTIBULE
HORIZ.	HORIZONTAL		
H.B.	HOSE BIBB	W.C.	WATER CLOSET
HR.	HOUR	WP.	WATERPROOF
		WT.	WEIGHT
I.D.	INSIDE DIAMETER	W.	WEST
INSUL.	INSULATION	WDW.	WINDOW
INT.	INTERIOR	W/	WITH
		W/O	WITHOUT
JT.	JOINT	WD.	WOOD
J-BOX	JUNCTION BOX		

GRAPHIC SYMBOLS

GRID BUBBLE — 1

SECTION SYMBOL — 1 / A1.00

DETAIL BUBBLE — 1 / A1.00

ELEVATION CALLOUT — 1 / A1.00

REVISION — 1

ROOM NUMBER — 1-01 / MECH / ROOM

SCHEDULE CALLOUT — PT | 02

HEIGHT CALLOUT — CH 12'-0"

DOOR NUMBER — 1

WINDOW NUMBER — 1

DATUM SYMBOL — LEVEL 1 / EL 0'-0"

BREAK LINE

CENTER LINE — ℄

FINISH FLOOR/ FINISH ROOF LEVEL — +0'-0"

FINISH SLAB LEVEL — +0'-0"

WALL TYPE — W-01

MATERIAL SYMBOLS

- NOT IN CONTRACT (BY OTHERS)
- EXISTING WALL
- NEW WALL
- TO BE DEMOLISHED
- EARTH
- BEDROCK
- RIGID INSULATION
- BATT INSULATION
- IRON
- STEEL
- BRONZE, BRASS, COPPER
- PLASTIC, RUBBER
- FIRE, REFRACTORY BRICK
- STONE
- LEAD, ZINC, MAGNESIUM
- ALUMINUM
- PLYWOOD
- CONCRETE
- CMU, BRICK, MASONRY
- GYPSUM, EXT. PLASTER (STUCCO)

APPLICABLE CODES & REGULATIONS

1. ALL WORK SHALL CONFORM TO THE CURRENT REQUIREMENTS OF THE CITY OF GLENWOOD SPRINGS, INCLUDING BUT NOT LIMITED TO:
   a. THE ADOPTED DEVELOPMENT CODE OF GLENWOOD SPRINGS
   b. THE ADOPTED BUILDING CODE OF GLENWOOD SPRINGS

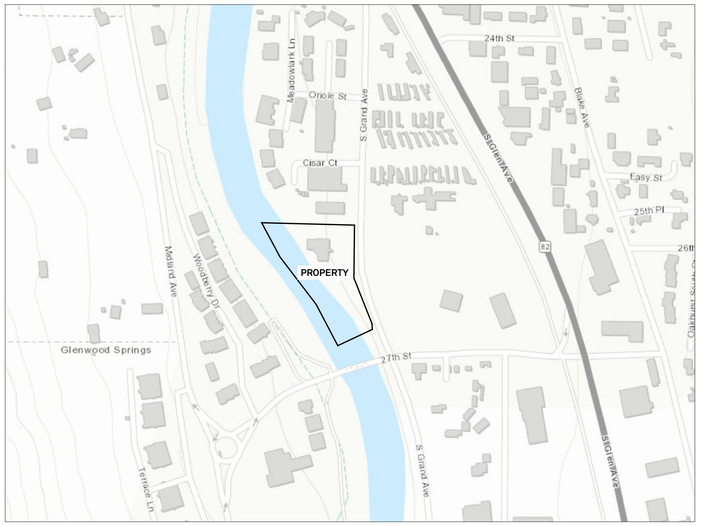
PROJECT SUMMARY TABLE

LOT SIZE	*ACRES*	*SQUARE FEET (SF)*	**LOT COVERAGE**	*EXISTING (SF & %)*	*PROPOSED (SF & %)*
	2.6	113,816		0	17,261 / 15.2%
LIMITS OF DISTURBANCE	*EXISTING (SF & %)*	*PROPOSED (SF & %)*	**AVERAGE SLOPE WITHIN LIMITS OF DISTURBANCE**	%	
		53,716 / 47.2%		9	
OFF-STREET PARKING SPACES	*EXISTING # SPACES*	*PROPOSED # SPACES*	**BICYCLE PARKING SPACES**	*EXISTING # SPACES*	*PROPOSED # SPACES*
		42 (34 RESIDENT + 8 GUEST)			10
RESIDENTIAL UNITS	*EXISTING # UNITS*	*PROPOSED # UNITS*	**NON-RESIDENTIAL UNITS**	*TYPE OF USE(S)*	*GROSS FLOOR AREA (SF)*
	0	17		NA	0
OPEN SPACE	*EXISTING (SF & %)*	*PROPOSED (SF & %)*	**TOTAL LANDSCAPED AREA**	*EXISTING (SF & %)*	*PROPOSED (SF & %)*
		63,426.0 / 56%			11,933.1 /10.5%
BUILDING HEIGHT	*EXISTING*	*PROPOSED (FEET)*	**TOTAL IMPERVIOUS AREA**	*EXISTING (SF & %)*	*PROPOSED (SF & %)*
		39.75'			38,454.16 / 78.8%
SNOW STORAGE	*REQUIRED (SF)*	*PROPOSED (SF)*	**OTHER**	*LANDSCAPED R.O.W. (SF)*	
		540		3,380	

GENERAL NOTES

1. FLOOD PLAIN AND FLOOD ZONE INFORMATION SHOWN ON INCLUDED SURVEY IS BASED SOLELY UPON THE FLOOD INSURANCE RATE MAP (COMMUNITY PANEL NO. 080205 1164 E, DATED PRELIMINARY OCTOBER 26.2011 PREPARED BY THE FEDERAL EMERGENCY EMERGENCY MANAGEMENT AGENCY.) PORTION OF PROPERTY IS LOCATED WITHIN A DESIGNATE FLOODPLAIN: REFER TO AREAS AS INDICATED IN SURVEY.

2. THIS PROPERTY IS SUBJECT TO GEOLOGIC HAZARDS PER THE ADOPTED MAPPING BY THE CITY OF GLENWOOD SPRINGS. HAZARDS TO NOTE ARE THE PROPERTY MAY OVERLIE THE EAGLE VALLEY EVAPORITE: REFER TO THE INCLUDED GEOTECHNICAL STUDY COMPLETED BY CESARE, INC. ON 12/09/2021 FOR MORE INFORMATION. A FINAL GEOLOGIC HAZARD REPORT WILL BE SUBMITTED UPON APPLICATION OF A BUILDING PERMIT.



01 **VICINITY MAP**
SCALE: N.T.S.

2525 SOUTH GRAND

SHEET #	*SHEET TITLE*	*SCALE*
T-100	TITLE SHEET	N.T.S.
	ALTA/NSPS LAND TITLE SURVEY	1" = 30'
C1.0	SITE PLAN	1" = 20'
C2.0	GRADING PLAN	1" = 20'
C2.1	SLOPE ANALYSIS PLAN	1" = 20'
C3.0	UTILITY PLAN	1" = 20'
L1.0	LANDSCAPE PLAN	1" = 20'
L2.0	CIRCULATION PLAN	1" = 20'
A-100	ARCHITECTURAL SITE PLAN	1" = 20'
A-101	EXTERIOR LIGHTING PLAN	1" = 20'
A-110	FLOOR PLANS	1/8"=1'-0"
A-111	FLOOR PLANS	1/8"=1'-0"
A-112	FLOOR PLANS	1/8"=1'-0"
A-113	FLOOR PLANS	1/8"=1'-0"
A-114	FLOOR PLANS	1/8"=1'-0"
A-115	FLOOR PLANS	1/8"=1'-0"
A-116	FLOOR PLANS	1/8"=1'-0"
A-117	FLOOR PLANS	1/8"=1'-0"
A-200	EXTERIOR ELEVATIONS	1/8"=1'-0"
A-201	EXTERIOR ELEVATIONS	1/8"=1'-0"
A-202	EXTERIOR ELEVATIONS	1/8"=1'-0"

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EAGLE CO 81631
info@movematter.com www.movematter.com

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BWILSON@NORTHMOUNTAINPARTNERS.COM

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970.404.3100 | JSPUNG@JVAJVA.COM

LANDSCAPE ARCHITECT:
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CARBONDALE, CO 81623
303.829.8362 | NICK@RE-LAND.COM

GEOTECHNICAL ENGINEER:
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7108 S. ALTON WAY, BUILDING B
CENTENNIAL, CO 80112
303.220.0300 | INFO@CESAREINC.COM

TRAFFIC ENGINEER:
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241 BROADWAY STREET, SUITE 202
EAGLE, CO 81631
970.623.0788 | GREG@MCDOWELLENG.COM

ENTITLEMENTS PLANNER:
THE LAND STUDIO, INC.
365 RIVER BEND WAY
GLENWOOD SPRINGS, CO 81601
970.927.3690 | LANDSTUDIO2@COMCAST.NET

REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

TITLE SHEET

DATE: 12/23/2021
PROJECT: 039
DWG BY: CHK BY:
SCALE:
DWG NO:
T-100.00

OF

ALTA/NSPS
Land Title Survey

Situated in

SE1/4SE1/4 & SW1/4SE1/4 Section 16
Township 6 South, Range 89 West of the 6th P.M.
City of Glenwood Springs, Garfield County, Colorado

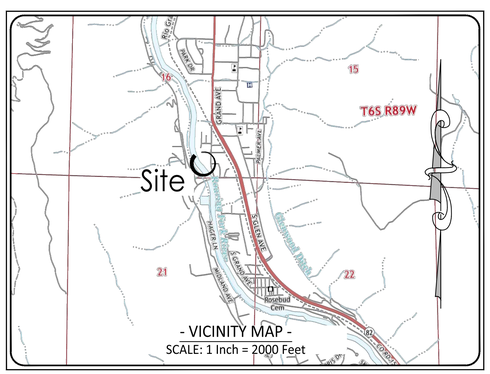
— LEGEND —

- Found Monument as Described
- Electric Meter
- Electric Transformer
- Electric Manhole
- Electric Ped
- Telephone Ped
- Water valve
- Water Shut-off
- Sanitary Sewer Manhole
- Cleanout
- Gas Meter
- Mailbox
- Irrigation Cont. Box
- Electric vault
- Telephone Manhole
- Cable TV vault
- Storm Drain Inlet
- Sign – Single Pole
- Curb Inlet
- CATV Pedestal
- Deck
- Concrete
- Asphalt paving
- River
- Fenceline
- Flow Line
- Gas Line
- Water Line
- Underground Electric Line
- Underground Telephone Line
- Cable Television Line

— LEGEND —
— Floodplain —

Floodplain and Flood Zone information shown hereon is based solely upon the Flood Insurance Rate Map (Community Panel No. 080205 1164 E, Dated PRELIMINARY October 26, 2011 prepared by the Federal Emergency Management Agency.

- Flood Zone AE 1% Annual Chance
- Zone X 0.2% Annual Chance
- Zone X 0.1% Annual Chance



PROPERTY DESCRIPTION:

A PARCEL OF LAND SITUATED IN THE SE1/4SE1/4 AND THE SW1/4SE1/4 OF SECTION 16, TOWNSHIP 6 SOUTH, RANGE 89 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO, LYING WESTERLY OF THE WESTERLY RIGHT OF WAY LINE OF GRAND AVENUE BEING THE SAME AS THE OLD HIGHWAY NO. 82 AND EASTERLY OF THE CENTER OF THE ROARING FORK RIVER, SAID PARCEL OF LAND IS DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY WHENCE THE SECTION CORNER COMMON TO SECTIONS 15, 16, 21 AND 22 IN SAID TOWNSHIP AND RANGE BEARS: S. 69 DEGREES 45'00" E. 1420.04 FEET;
THENCE S. 00 DEGREES 37'09" W. 212.60 FEET ALONG THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY;
THENCE S. 21 DEGREES 36'00" E. 305.29 FEET ALONG THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY;
THENCE S. 89 DEGREES 45'00" W. 170.48 FEET TO A POINT IN THE CENTER OF SAID RIVER,
THENCE N. 27 DEGREES 40'37" W. 201.43 FEET ALONG THE CENTER OF SAID RIVER;
THENCE N. 37 DEGREES 19'00" W. 239.75 FEET ALONG THE CENTER OF SAID RIVER;
THENCE N. 28 DEGREES 08'38" W. 156.14 FEET ALONG THE CENTER OF SAID RIVER;
THENCE S. 88 DEGREES 32'00" E. 373.07 FEET TO A POINT ON THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY, THE POINT OF BEGINNING.

LESS AND EXCEPT A PARCEL OF LAND AS DESCRIBED IN DEED RECORDED DECEMBER 12, 2001 IN BOOK 1310 AT PAGE 712
AND LESS AND EXCEPT THAT PORTION CONVEYED TO THE CITY OF GLENWOOD SPRINGS IN WARRANTY DEED RECORDED JULY 3, 2018 UNDER RECEPTION NO. 908898.

COUNTY OF GARFIELD
STATE OF COLORADO

NOTES:

1. Basis of Bearings: Bearings shown hereon are based on a bearing of S69°44'01"E, between a found No.5 Rebar & 1.25" Yellow Plastic Cap Marked LS 19598 found at the Northeast Corner of the subject parcel and a found 1.5" Steel Pipe with 2.5" USGLO Brass Cap properly marked at the Southeast Corner of said Section 16 dated 1924, as shown hereon.
2. This map has been prepared pursuant to client request for an ALTA/NSPS Land Title Survey, and includes items 2,3,4,6(b),7(a),7(b1),8,9,11,13,16,17,19 and 20 of Tabel A thereof.
3. Date of field survey :March 2, 2020, August 24, 2020 and September 30, 2021
4. Units of linear measurements are displayed in US Survey Feet.
5. SGM is not responsible for any changes made to this document after it leaves our possession. Any copy, facsimile, etc., of this document must be compared to the original signed, sealed and dated document to insure the accuracy of the information shown on any such copy, and to insure that no such changes have been made.
6. Property descriptions shown hereon are based on title insurance commitment issued by Land Title Guarantee Company, Commitment No. ABS63016871, having a policy date of June 18, 2021.
7. Fences shown hereon, if any, have been shown for general reference and do not necessarily depict limits of ownership.
8. Pertaining to Table A, Optional Survey Responsibilities and Specifications, the items that were requested are listed below.

Item 2: Property Address: 2525 Grand Ave, Glenwood Springs, CO

Item 3: Flood Hazard Zone information: As shown hereon.

Item 4: Gross Land Area :113,816 Square Feet ±, 2.613 Acres ±

Item 5: Vertical Information: Datum: Elevation information shown hereon is based upon GPS observations utilizing OPUS, Geoid 12B to derive the NAVD88 elevation of 5805.65'' at the top of a No. 5 Rebar & 1.25" Yellow Plastic Cap Marked LS 19598, as shown hereon. Contour Interval: One (1) Foot.

Item 6(b): Zoning Setback requirements not provided to surveyor.

Item 7(a): Exterior dimensions of all buildings are shown hereon.

Item 7(b1): Exterior footprint of all buildings at ground level are shown hereon.

Item 8: Substantial features are shown hereon.

Item 9: Property contains 57 total parking spaces, with 1 of those identified as for the disabled.

Item 11: Any subsurface utilities not shown, were not marked by appropriate utility companies at the time of this survey and therefore may not be shown hereon. Underground utilities locates have been marked by Roaring Fork Utility Locators LLC. Only paint marks and utility pin flags on the ground surface were surveyed by SGM as part of this survey. Client/contractor must contact specific utility companies to verify both the location and depth of respective utilities. Additional surveying work may be required to show any such subsurface utility locations on this drawing. SGM will not be responsible for protection of subsurface utilities.

Item 13: Names of adjoining owners are shown hereon.

Item 16: There was no observed evidence of current earth moving work, building construction or building additions, other than an observed temporary chain-link construction fence around the perimeter of the parking lot. This fence is not a permanent structure and is therefore not shown.

Item 17: No evidence of proposed changes of street right of ways made available. Evidence of recent street or sidewalk construction not observed.

Item 18: Plottable offsite easements shown hereon.

10. The property shown hereon is subject to all easements, rights-of-way, building setbacks or other restrictions of record, as such items may affect this property. This survey does not represent a title search by this surveyor to determine ownership or to discover easements or other encumbrances of record. All information pertaining to ownership, easement and other encumbrances of record has been taken from the title insurance commitment issued by Land Title Guarantee Company, Commitment No. ABS63016871, having a policy date of June 18, 2021.

    Every attempt has been made to show all easements, rights-of-way, etc. referred to in the Schedule B2 Exceptions recited in said title insurance policy. Some such items may not be shown (i.e. Items 1-6) if they are standard title commitment exceptions. In regards to other such items:

    ITEM 7. RIGHT OF WAY FOR DITCHES OR CANALS CONSTRUCTED BY THE AUTHORITY OF THE UNITED STATES AS RESERVED IN UNITED STATES PATENT RECORDED AUGUST 29, 1896, IN BOOK 12 AT PAGE 433. MAY AFFECT SUBJECT PARCEL, CANNOT BE GRAPHICALLY DEPICTED.

    ITEM 8. RIGHT OF PROPRIETOR OF A VEIN OR LODE TO EXTRACT AND REMOVE HIS ORE THEREFROM SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES AS RESERVED IN UNITED STATES PATENT RECORDED AUGUST 29, 1896, IN BOOK 12 AT PAGE 433. MAY AFFECT SUBJECT PARCEL, CANNOT BE GRAPHICALLY DEPICTED.

    ITEM 9. ANY QUESTION, DISPUTE OR ADVERSE CLAIMS AS TO ANY LOSS OR GAIN OF LAND AS A RESULT OF ANY CHANGE IN THE RIVER BED LOCATION BY NATURAL OR OTHER THAN NATURAL CAUSES, OR ALTERATION THROUGH ANY CAUSE, NATURAL OR UNNATURAL, OF THE CENTER THREAD, BANK, CHANNEL OR FLOW OF WATERS IN THE ROARING FORK RIVER LYING WITHIN SUBJECT LAND; AND ANY QUESTION AS TO THE LOCATION OF SUCH CENTER THREAD, BED, BANK OR CHANNEL AS A LEGAL DESCRIPTION MONUMENT OR MARKER FOR PURPOSES OF DESCRIBING OR LOCATING SUBJECT LANDS.

    ITEM 10. ANY RIGHTS, INTERESTS OR EASEMENTS IN FAVOR OF THE UNITED STATES OF AMERICA, THE STATE OF COLORADO, OR THE PUBLIC, WHICH EXIST OR ARE CLAIMED TO EXIST IN AND OVER THE PAST AND PRESENT BED, BANKS OR WATERS OF COLORADO RIVER MAY AFFECT SUBJECT PARCEL BUT CANNOT BE GRAPHICALLY DEPICTED.

    ITEM 11. MATTERS DISCLOSED ON ALTA/NSPS LAND TITLE SURVEY PREPARED BY JOSHUA L. WILSON ON BEHALF OF SGM, CERTIFIED OCTOBER 19, 2020, JOB NO. 2020-177.003

    SAID DOCUMENT STORED AS TITLE IMAGE 35066400

    A: FENCES NOT COINCIDENT WITH PROPERTY LINES.
    B: SUBSURFACE CULVERT AND SUBSURFACE PIPE ARE LOCATED ON AND TRAVERSE THE BOUNDARY OF THE LAND WITHOUT THE BENEFIT OF A RECORDED EASEMENT.
    C: A SET WALL ON THE NORTH PROPERTY LINE ENCROACH ONTO THE ADJACENT PARCEL WITHOUT THE BENEFIT OF A RECORDED EASEMENT OR ENCROACHMENT AGREEMENT.
    D: EXCEPTION FOR RIGHTS OF UTILITIES WITHOUT THE BENEFIT OF A RECORDED EASEMENT.

    ARE DEPICTED HEREON.

    ITEM 12. DEED OF TRUST DATED JUNE 17, 2021, FROM THE RIVERS, LLC, A COLORADO LIMITED LIABILITY COMPANY TO THE PUBLIC TRUSTEE OF GARFIELD COUNTY, COLORADO FOR THE USE OF ALPINE BANK TO SECURE THE SUM OF $1,550,000.00 RECORDED JUNE 18, 2021, UNDER RECEPTION NO. 958422 AFFECTS SUBJECT PARCEL BUT CANNOT BE GRAPHICALLY DEPICTED.

SURVEYOR'S CERTIFICATION:

To: The Rivers, LLC, a Colorado Limited Liability Company, and Land Title Guarantee Company

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2,3,4,6(b),7(a),7(b1),8,9,11,13,16,17,18 and 20 of Table A thereof. The field work was completed on October 15, 2020 and verified on September 30, 2021

Date of Plat or Map: October 12, 2021.

Joshua L. Wilson
Colorado PLS # 38417
For, and on behalf of SGM
Joshw@sgm-inc.com

COLORADO LICENSED
JOSHUA L. WILSON
38417
10.12.21
PROFESSIONAL LAND SURVEYOR

Graphic Scale
0 15 30 60
In U.S. Feet : 1" = 30'

SGM
118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

Joshua L. Wilson
Digitally signed by Joshua L. Wilson
DN: C=US, E=joshw@sgm-inc.com, O=Survey, OU="SGM, Inc.", CN=Joshua L. Wilson
Reason: ALTA
Date: 2021.10.12 14:10:38-06'00'

2525 South Grand Ave
Glenwood Springs, Colorado 81601

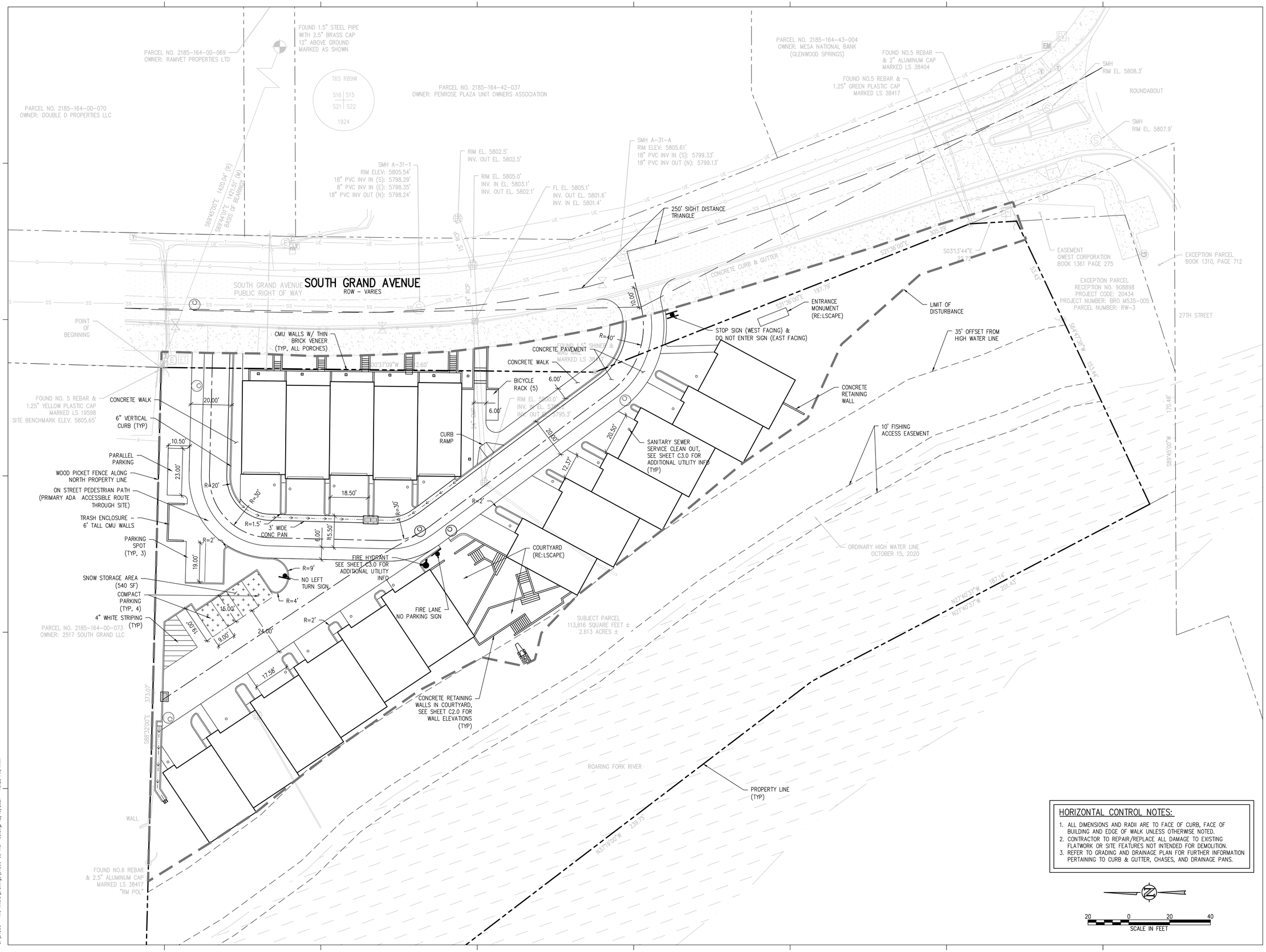
#	Revision	Date	By
1			
2			
3			
4			
5			
6			
7			
8			
9			

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 legal action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

Job No.	2020-177.003
Drawn by:	hs
Date:	10/12/2021
Approved:	– PLS: jlw
File:	RiversRestaurant_ALTA_Oct2021

Title:
ALTA/NSPS
Land Title Survey

Sheet No.
1
Of: 1



HORIZONTAL CONTROL NOTES:

1. ALL DIMENSIONS AND RADII ARE TO FACE OF CURB, FACE OF BUILDING AND EDGE OF WALK UNLESS OTHERWISE NOTED.
2. CONTRACTOR TO REPAIR/REPLACE ALL DAMAGE TO EXISTING FLATWORK OR SITE FEATURES NOT INTENDED FOR DEMOLITION.
3. REFER TO GRADING AND DRAINAGE PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.

20 0 20 40
SCALE IN FEET

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GEOTECHNICAL ENGINEER:
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7108 S. ALTON WAY, BUILDING B
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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
SITE PLAN

DATE: 12/23/2021
PROJECT: 039 JVA PROJECT: 3496c
DWG BY: RMM CHK BY: JLS
SCALE:
DWG NO:
C1.0

SHEET 1 OF 3

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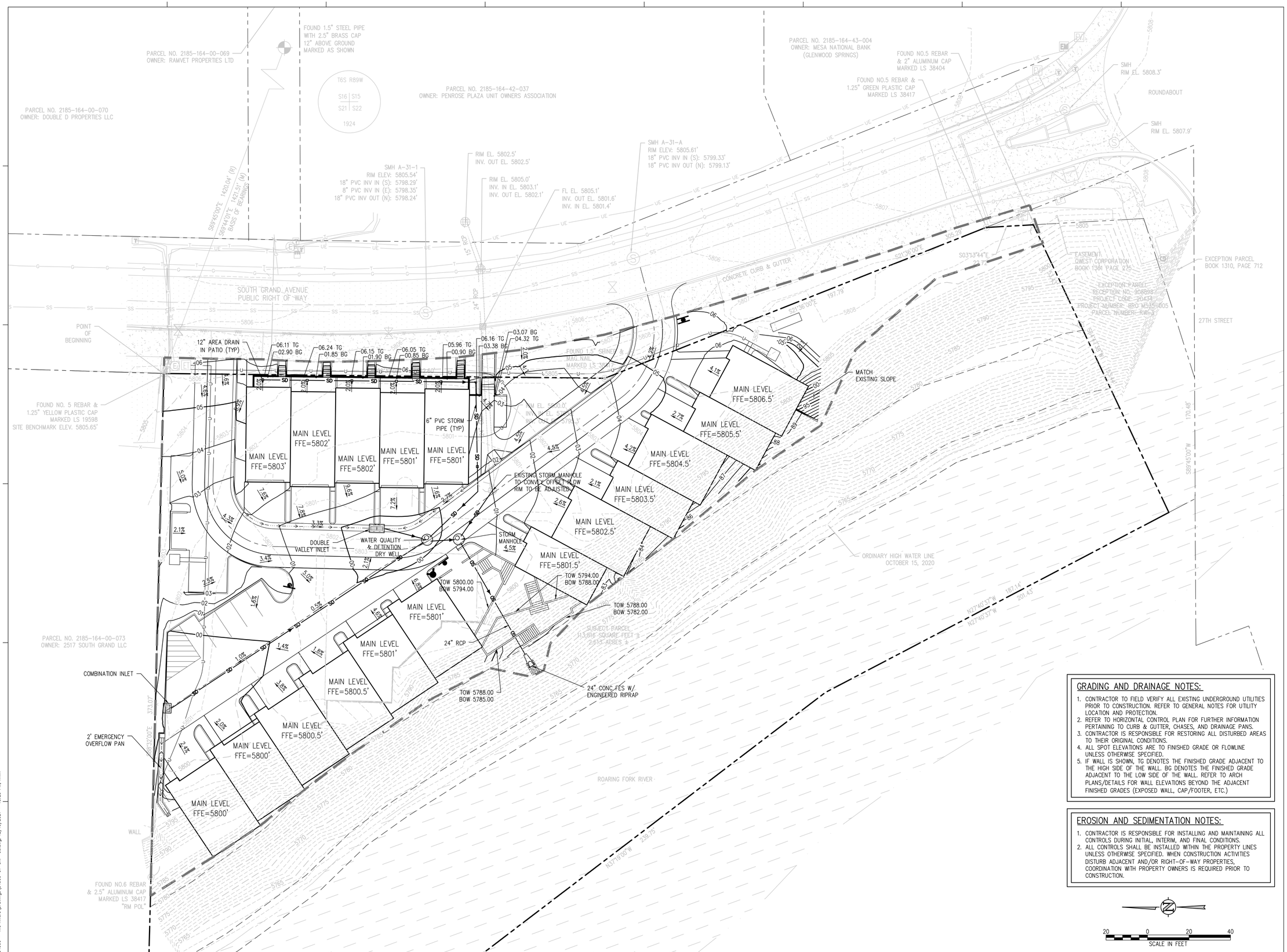

GRADING AND DRAINAGE NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
2. REFER TO HORIZONTAL CONTROL PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.
3. CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITIONS.
4. ALL SPOT ELEVATIONS ARE TO FINISHED GRADE OR FLOWLINE UNLESS OTHERWISE SPECIFIED.
5. IF WALL IS SHOWN, TG DENOTES THE FINISHED GRADE ADJACENT TO THE HIGH SIDE OF THE WALL. BG DENOTES THE FINISHED GRADE ADJACENT TO THE LOW SIDE OF THE WALL. REFER TO ARCH PLANS/DETAILS FOR WALL ELEVATIONS BEYOND THE ADJACENT FINISHED GRADES (EXPOSED WALL, CAP/FOOTER, ETC.)

EROSION AND SEDIMENTATION NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING ALL CONTROLS DURING INITIAL, INTERIM, AND FINAL CONDITIONS.
2. ALL CONTROLS SHALL BE INSTALLED WITHIN THE PROPERTY LINES UNLESS OTHERWISE SPECIFIED. WHEN CONSTRUCTION ACTIVITIES DISTURB ADJACENT AND/OR RIGHT-OF-WAY PROPERTIES, COORDINATION WITH PROPERTY OWNERS IS REQUIRED PRIOR TO CONSTRUCTION.

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REVISIONS:

NO:	DATE:	REMARKS:

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PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
PRELIMINARY GRADING PLAN

DATE:	12/23/2021
PROJECT: 039	JVA PROJECT: 3496c
DWG BY: RMM	CHK BY: JLS
SCALE:	
DWG NO:	C2.0

SHEET 2 OF 3

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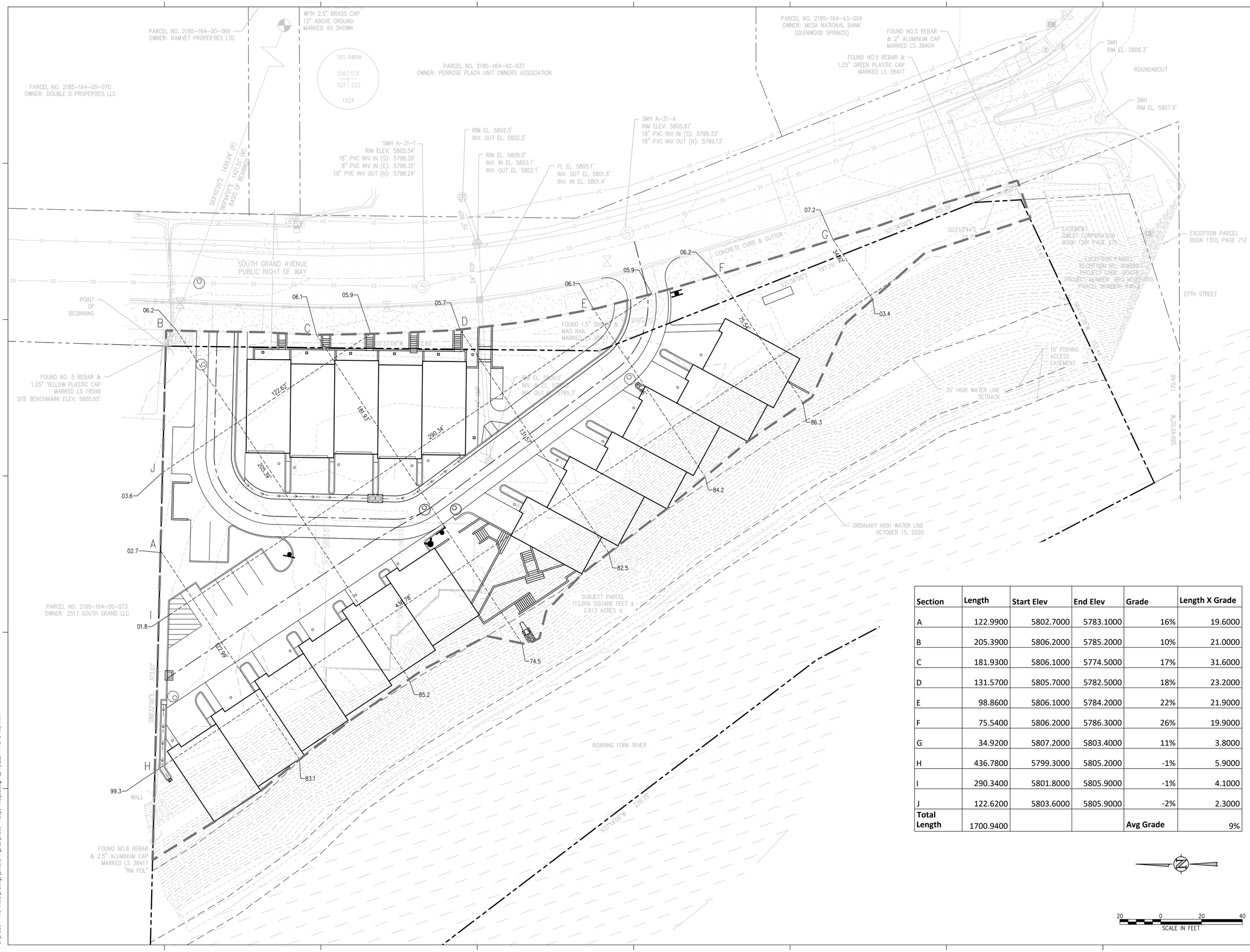

Section	Length	Start Elev	End Elev	Grade	Length X Grade
A	122.9900	5802.7000	5783.1000	16%	19.6000
B	205.3900	5806.2000	5785.2000	10%	21.0000
C	181.9300	5806.1000	5774.5000	17%	31.6000
D	131.5700	5805.7000	5782.5000	18%	23.2000
E	98.8600	5806.1000	5784.2000	22%	21.9000
F	75.5400	5806.2000	5786.3000	26%	19.9000
G	34.9200	5807.2000	5803.4000	11%	3.8000
H	436.7800	5799.3000	5805.2000	-1%	5.9000
I	290.3400	5801.8000	5805.9000	-1%	4.1000
J	122.6200	5803.6000	5805.9000	-2%	2.3000
Total Length	1700.9400			**Avg Grade**	9%

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NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
SLOPE ANALYSIS PLAN

DATE: 12/23/2021
PROJECT: 039 JVA PROJECT: 3496c
DWG BY: RMM CHK BY: JLS
SCALE:
DWG NO:
C2.1
OF

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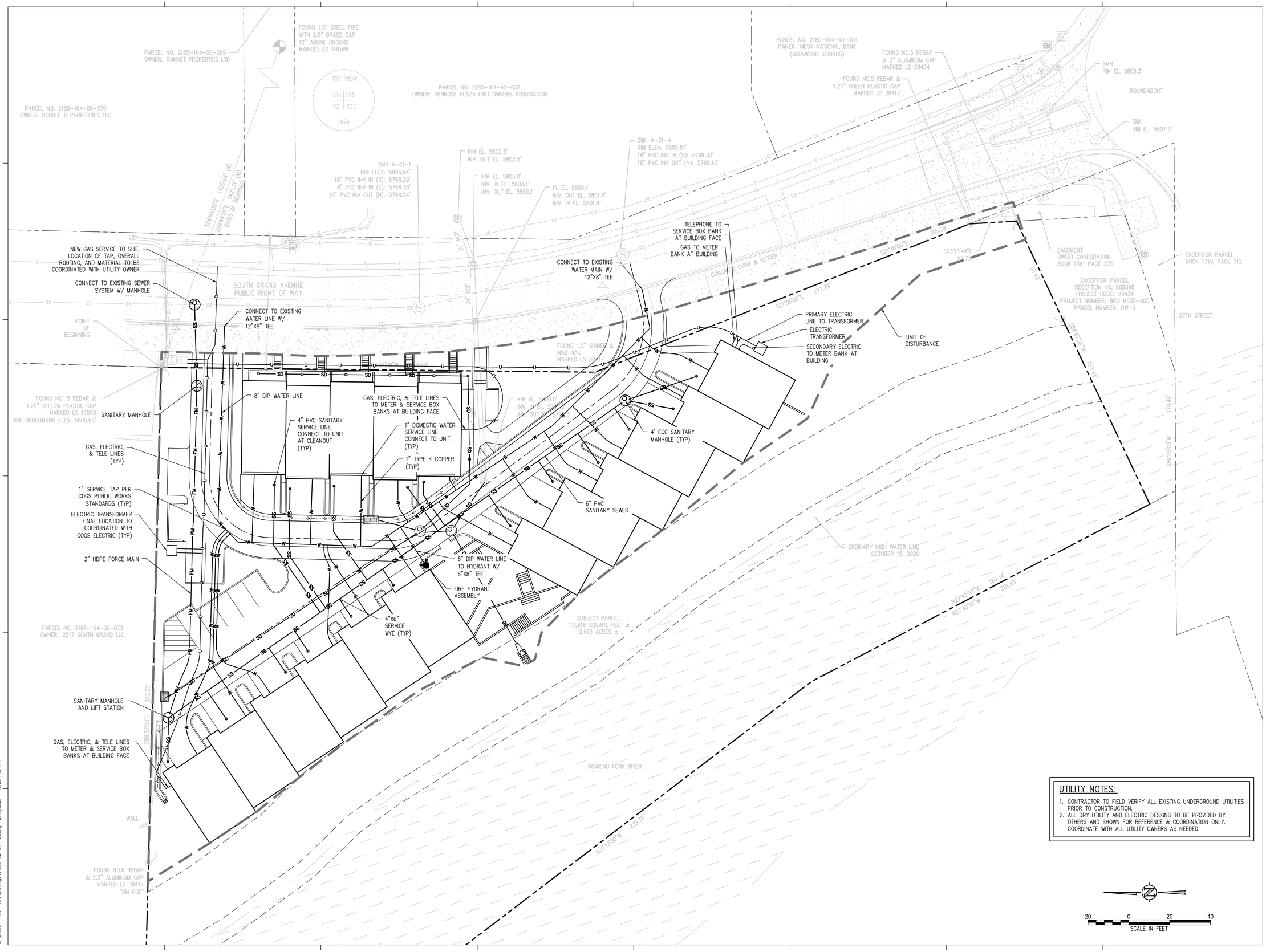

UTILITY NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
2. ALL DRY UTILITY AND ELECTRIC DESIGNS TO BE PROVIDED BY OTHERS AND SHOWN FOR REFERENCE & COORDINATION ONLY. COORDINATE WITH ALL UTILITY OWNERS AS NEEDED.

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NO:	DATE:	REMARKS:

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PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
PRELIMINARY UTILITY PLAN

DATE: 12/23/2021
PROJECT: 039 JVA PROJECT: 3496c
DWG BY: RMM CHK BY: JLS
SCALE:
DWG NO:
C3.0

SHEET 3 OF 3

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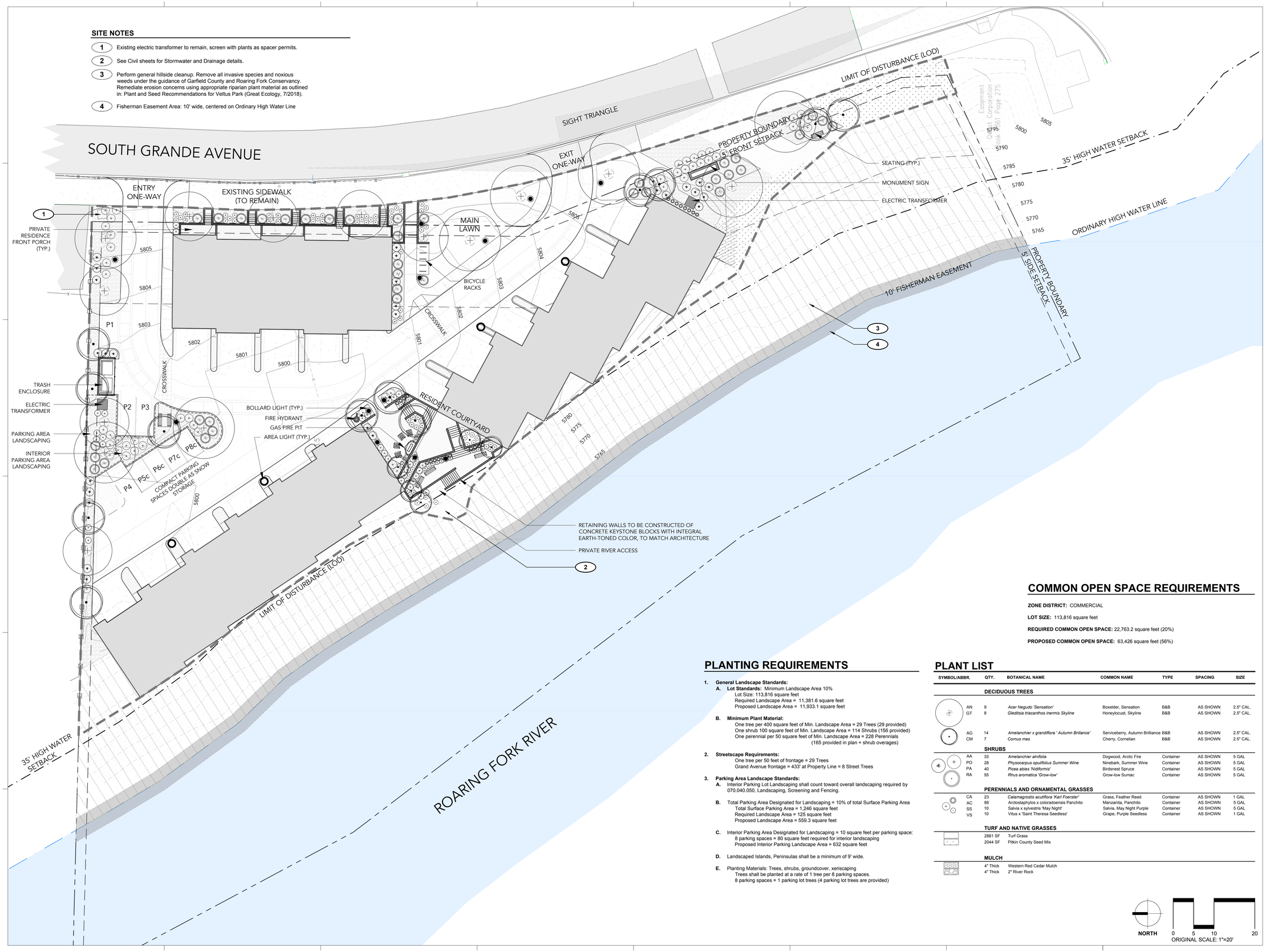
SITE NOTES

1. Existing electric transformer to remain, screen with plants as spacer permits.
2. See Civil sheets for Stormwater and Drainage details.
3. Perform general hillside cleanup. Remove all invasive species and noxious weeds under the guidance of Garfield County and Roaring Fork Conservancy. Remediate erosion concerns using appropriate riparian plant material as outlined in: Plant and Seed Recommendations for Veltus Park (Great Ecology, 7/2018).
4. Fisherman Easement Area: 10' wide, centered on Ordinary High Water Line



COMMON OPEN SPACE REQUIREMENTS

ZONE DISTRICT: COMMERCIAL

LOT SIZE: 113,816 square feet

REQUIRED COMMON OPEN SPACE: 22,763.2 square feet (20%)

PROPOSED COMMON OPEN SPACE: 63,426 square feet (56%)

PLANTING REQUIREMENTS

1. **General Landscape Standards:**
   - **A. Lot Standards:** Minimum Landscape Area 10%
     Lot Size: 113,816 square feet
     Required Landscape Area = 11,381.6 square feet
     Proposed Landscape Area = 11,933.1 square feet
   - **B. Minimum Plant Material:**
     One tree per 400 square feet of Min. Landscape Area = 29 Trees (29 provided)
     One shrub 100 square feet of Min. Landscape Area = 114 Shrubs (156 provided)
     One perennial per 50 square feet of Min. Landscape Area = 228 Perennials (165 provided in plan + shrub overages)
2. **Streetscape Requirements:**
   One tree per 50 feet of frontage = 29 Trees
   Grand Avenue frontage = 433' at Property Line = 8 Street Trees
3. **Parking Area Landscape Standards:**
   - **A.** Interior Parking Lot Landscaping shall count toward overall landscaping required by 070.040.050, Landscaping, Screening and Fencing.
   - **B.** Total Parking Area Designated for Landscaping = 10% of total Surface Parking Area
     Total Surface Parking Area = 1,246 square feet
     Required Landscape Area = 125 square feet
     Proposed Landscape Area = 559.3 square feet
   - **C.** Interior Parking Area Designated for Landscaping = 10 square feet per parking space:
     8 parking spaces = 80 square feet required for interior landscaping
     Proposed Interior Parking Landscape Area = 632 square feet
   - **D.** Landscaped Islands, Peninsulas shall be a minimum of 9' wide.
   - **E.** Planting Materials: Trees, shrubs, groundcover, xeriscaping
     Trees shall be planted at a rate of 1 tree per 8 parking spaces.
     8 parking spaces = 1 parking lot trees (4 parking lot trees are provided)

PLANT LIST

SYMBOL/ABBR.	QTY.	BOTANICAL NAME	COMMON NAME	TYPE	SPACING	SIZE
DECIDUOUS TREES						
AN	9	*Acer Negudo 'Sensation'*	Boxelder, Sensation	B&B	AS SHOWN	2.5" CAL.
GT	8	*Gleditsia triacanthos inermis Skyline*	Honeylocust, Skyline	B&B	AS SHOWN	2.5" CAL.
AG	14	*Amelanchier x grandiflora ' Autumn Brilliance'*	Serviceberry, Autumn Brilliance	B&B	AS SHOWN	2.5" CAL.
CM	7	*Cornus mas*	Cherry, Cornelian	B&B	AS SHOWN	2.5" CAL.
SHRUBS						
AA	33	*Amelanchier alnifolia*	Dogwood, Arctic Fire	Container	AS SHOWN	5 GAL
PO	28	*Physocarpus opulifolius Summer Wine*	Ninebark, Summer Wine	Container	AS SHOWN	5 GAL
PA	40	*Picea abies 'Nidiformis'*	Birdsnest Spruce	Container	AS SHOWN	5 GAL
RA	55	*Rhus aromatica 'Grow-low'*	Grow-low Sumac	Container	AS SHOWN	5 GAL
PERENNIALS AND ORNAMENTAL GRASSES						
CA	23	*Calamagrostis acutiflora 'Karl Foerster'*	Grass, Feather Reed	Container	AS SHOWN	1 GAL
AC	86	Arctostaphylos x coloradoensis Panchito	Manzanita, Panchito	Container	AS SHOWN	5 GAL
SS	10	Salvia x sylvestris 'May Night'	Salvia, May Night Purple	Container	AS SHOWN	5 GAL
VS	10	Vitus x 'Saint Theresa Seedless'	Grape, Purple Seedless	Container	AS SHOWN	1 GAL
TURF AND NATIVE GRASSES						
	2881 SF	Turf Grass				
	2044 SF	Pitkin County Seed Mix				
MULCH						
	4" Thick	Western Red Cedar Mulch				
	4" Thick	2" River Rock				

NORTH
0 5 10 20
ORIGINAL SCALE: 1"=20'

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
LANDSCAPE PLAN

DATE: 12/23/2021
PROJECT: 039
DWG BY: RL CHK BY: NJD
SCALE:
DWG NO: L1-0
OF

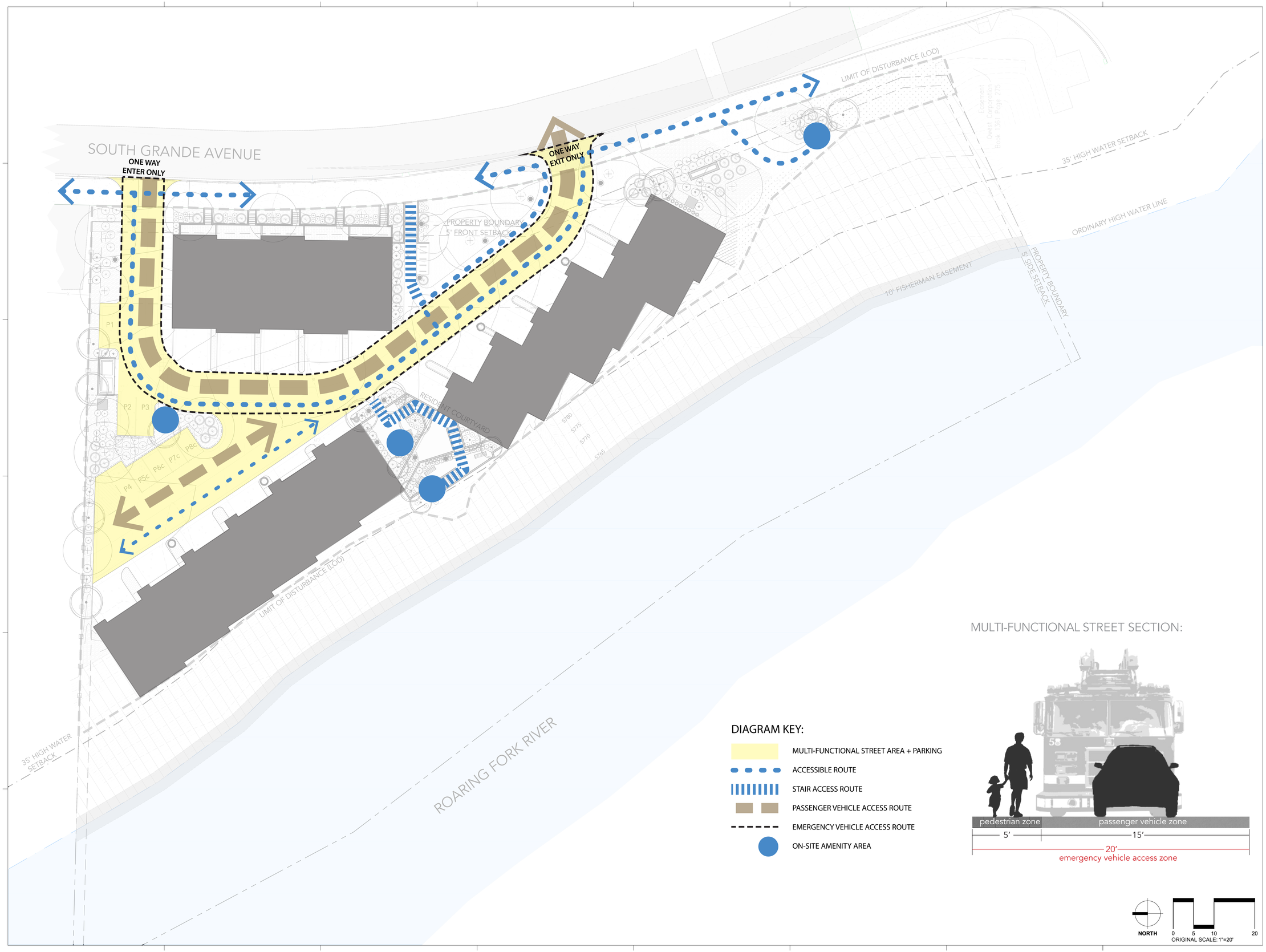

DIAGRAM KEY:

- MULTI-FUNCTIONAL STREET AREA + PARKING
- ACCESSIBLE ROUTE
- STAIR ACCESS ROUTE
- PASSENGER VEHICLE ACCESS ROUTE
- EMERGENCY VEHICLE ACCESS ROUTE
- ON-SITE AMENITY AREA

MULTI-FUNCTIONAL STREET SECTION:

NORTH

0 5 10 20

ORIGINAL SCALE: 1"=20'

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NO:	DATE:	REMARKS:

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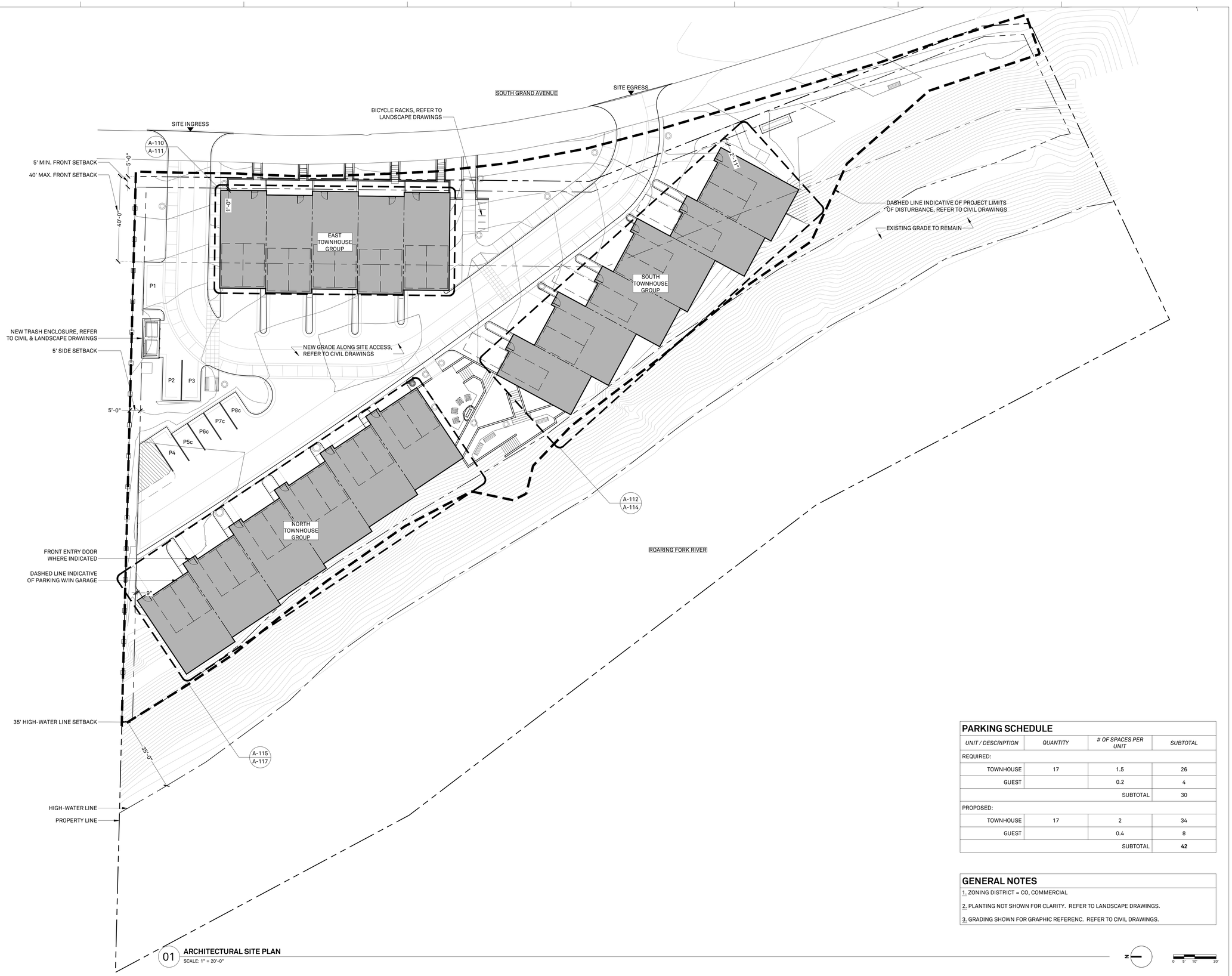
PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

CIRCULATION PLAN

DATE:	12/23/2021
PROJECT:	039
DWG BY: RL	CHK BY: NJD
SCALE:	
DWG NO:	L2-0
	OF



01 **ARCHITECTURAL SITE PLAN**
SCALE: 1" = 20'-0"

PARKING SCHEDULE

UNIT / DESCRIPTION	*QUANTITY*	*# OF SPACES PER UNIT*	*SUBTOTAL*
REQUIRED:			
TOWNHOUSE	17	1.5	26
GUEST		0.2	4
		SUBTOTAL	30
PROPOSED:			
TOWNHOUSE	17	2	34
GUEST		0.4	8
		SUBTOTAL	**42**

GENERAL NOTES

1. ZONING DISTRICT = CO, COMMERCIAL
2. PLANTING NOT SHOWN FOR CLARITY. REFER TO LANDSCAPE DRAWINGS.
3. GRADING SHOWN FOR GRAPHIC REFERENC. REFER TO CIVIL DRAWINGS.

N

0 5' 10' 20'

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REVISIONS:

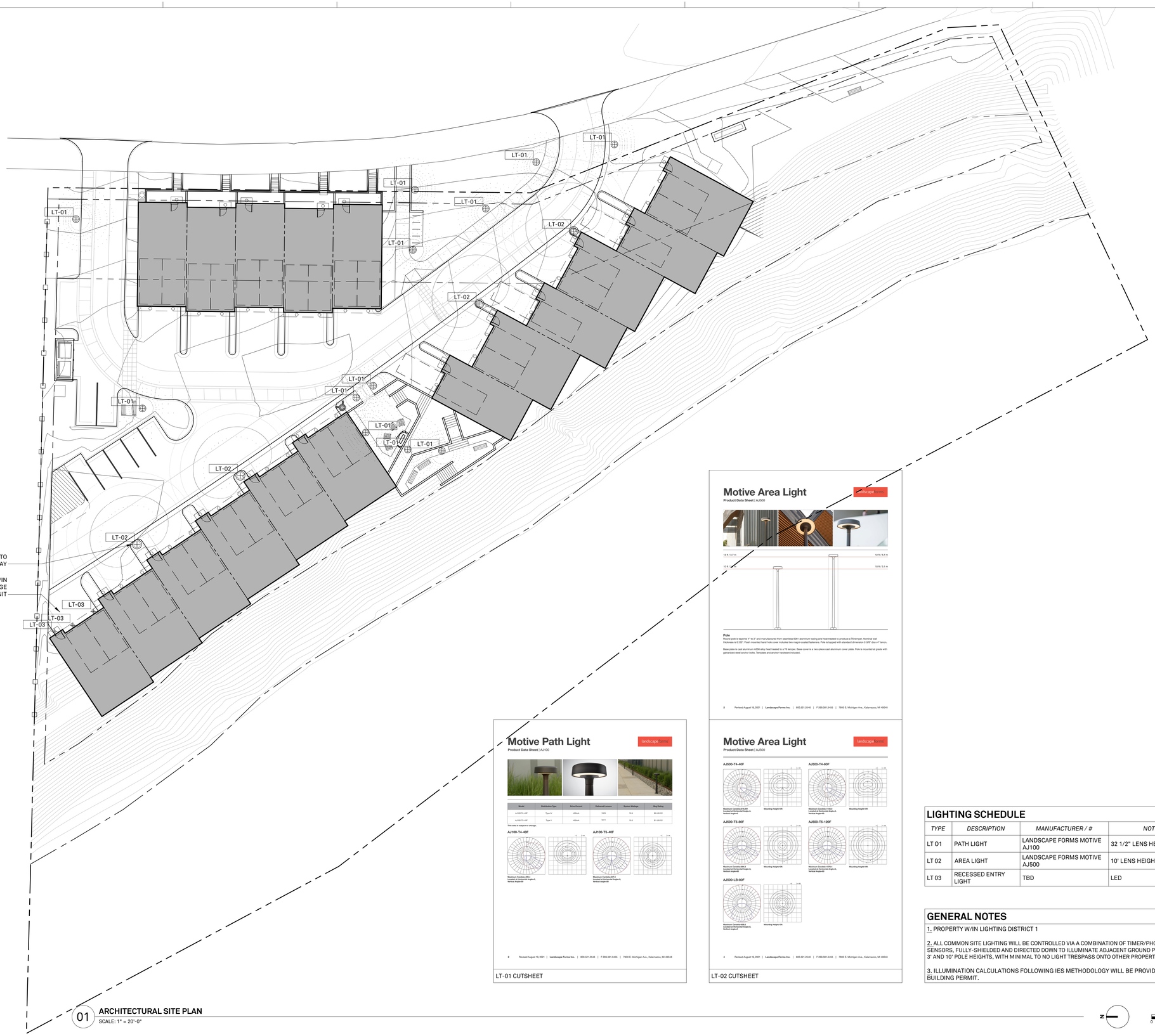
NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
ARCHITECTURAL SITE PLAN

DATE: 12/23/2021
PROJECT: 039
DWG BY: CHK BY:
SCALE:
DWG NO:
A-100.00
OF



01 **ARCHITECTURAL SITE PLAN**
SCALE: 1" = 20'-0"

LT-01 CUTSHEET

LT-02 CUTSHEET

LIGHTING SCHEDULE

TYPE	*DESCRIPTION*	*MANUFACTURER / #*	*NOTES*
LT 01	PATH LIGHT	LANDSCAPE FORMS MOTIVE AJ100	32 1/2" LENS HEIGHT
LT 02	AREA LIGHT	LANDSCAPE FORMS MOTIVE AJ500	10' LENS HEIGHT
LT 03	RECESSED ENTRY LIGHT	TBD	LED

GENERAL NOTES

1. PROPERTY W/IN LIGHTING DISTRICT 1

2. ALL COMMON SITE LIGHTING WILL BE CONTROLLED VIA A COMBINATION OF TIMER/PHOTOCELL SENSORS, FULLY-SHIELDED AND DIRECTED DOWN TO ILLUMINATE ADJACENT GROUND PLAN, KEPT AT 3' AND 10' POLE HEIGHTS, WITH MINIMAL TO NO LIGHT TRESPASS ONTO OTHER PROPERTIES.

3. ILLUMINATION CALCULATIONS FOLLOWING IES METHODOLOGY WILL BE PROVIDED AT BUILDING PERMIT.

N

0 5' 10' 20'

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
EXTERIOR LIGHTING PLAN

DATE: 12/23/2021
PROJECT: 039
DWG BY: CHK BY:
SCALE:
DWG NO:
A-101.00
OF

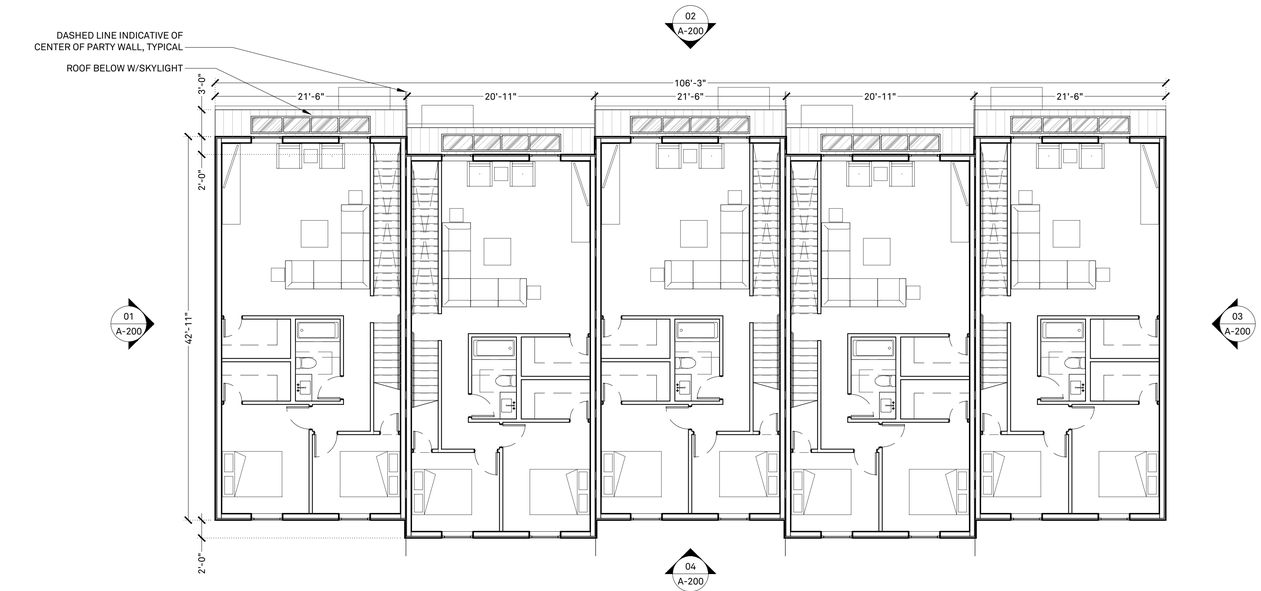
GENERAL NOTES

1. THESE PLANS ARE PRELIMINARY AND SUBJECT TO CHANGE. THEY ARE PROVIDED TO UNDERSTAND OVERALL BUILDING DIMENSIONS AND PROGRAM.

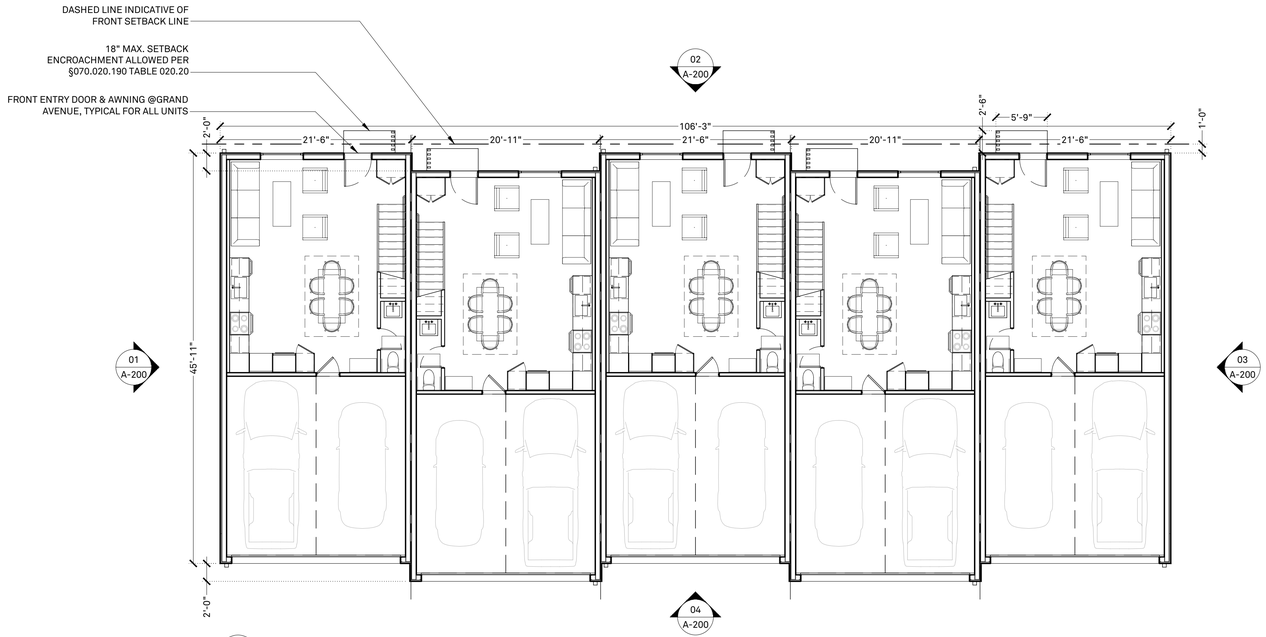
FLOOR AREA TAKEOFFS

	GROSS AREA (SF)[1]	NET AREA (INDIVIDUAL UNIT SF)[1]
ROOF LEVEL	344	41
LEVEL 03	4,561	829
LEVEL 02	4,561	829
LEVEL 01	4,880	477
TOTAL	14,346	2,176

[1] ROUNDED TO NEAREST WHOLE INTEGER



01 **LEVEL 02 FLOOR PLANS - EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"



02 **LEVEL 01 FLOOR PLANS - EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"

N

0 2 4 8

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

FLOOR PLANS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	

DWG NO:
A-110.00

OF

GENERAL NOTES

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TOTAL	14,346	2,176

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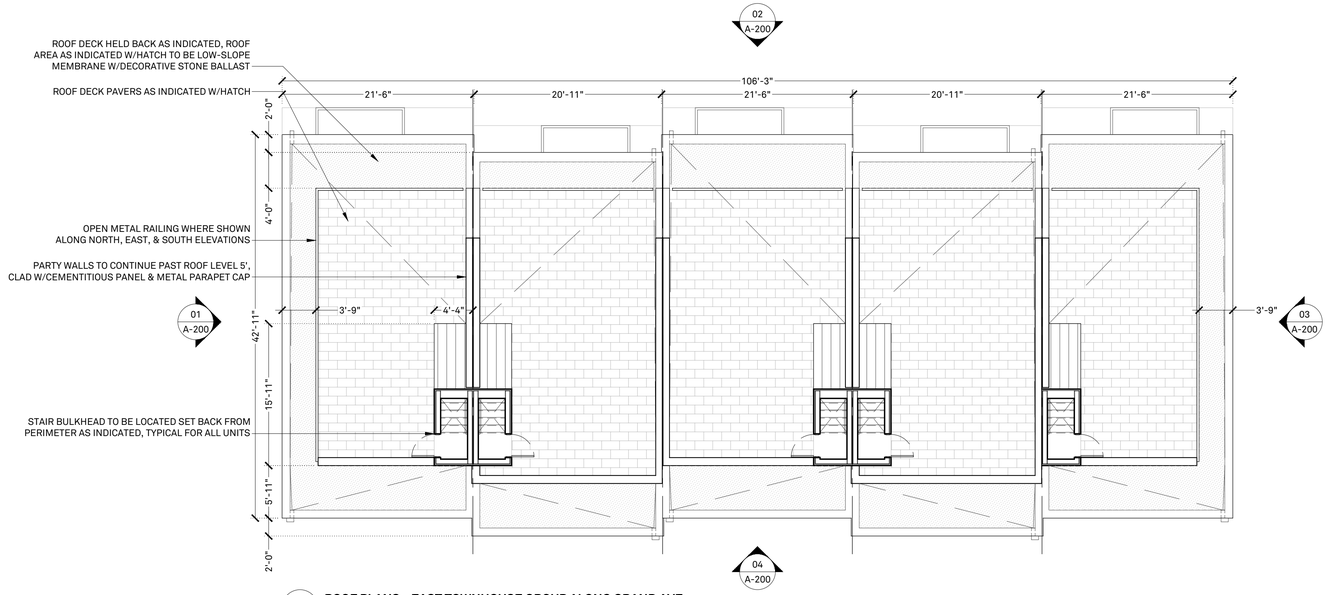
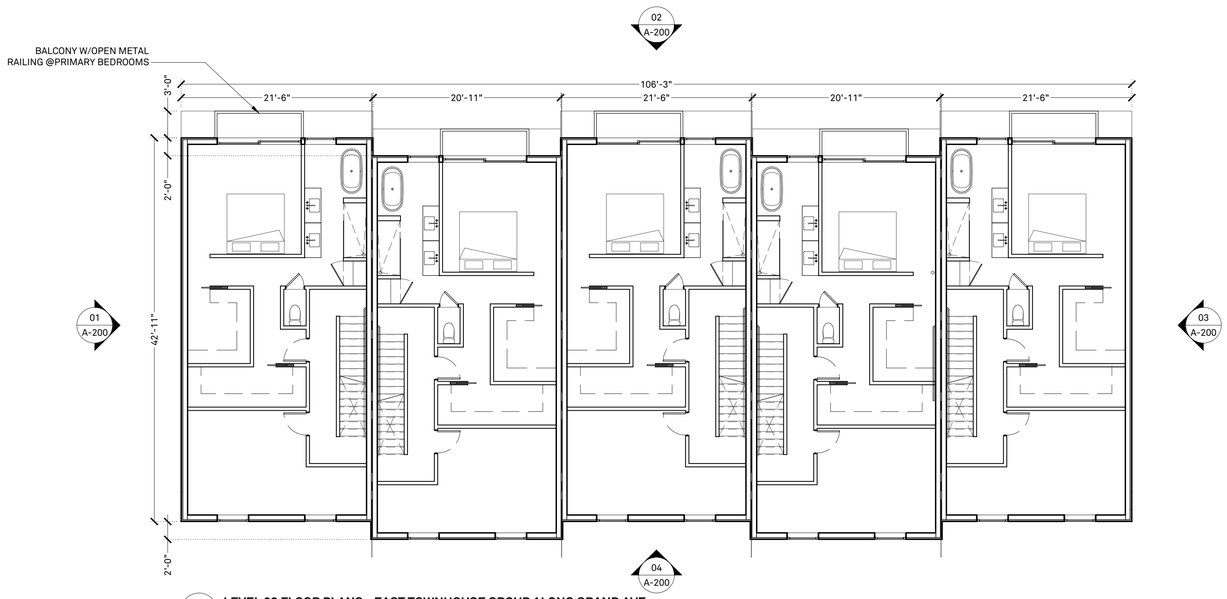


01 **ROOF PLANS - EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"



02 **LEVEL 03 FLOOR PLANS - EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"

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NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

FLOOR PLANS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	

DWG NO:
A-111.00

OF

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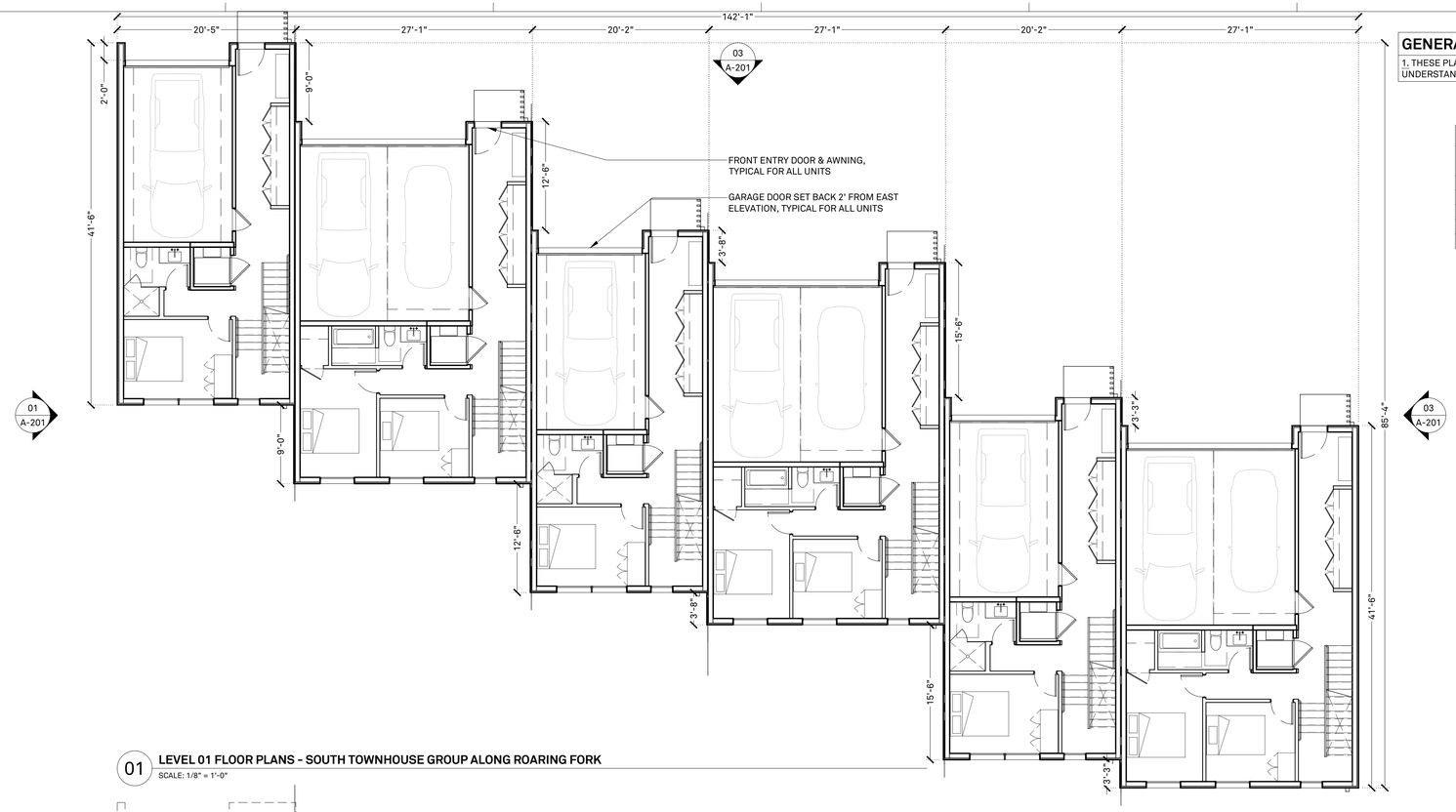
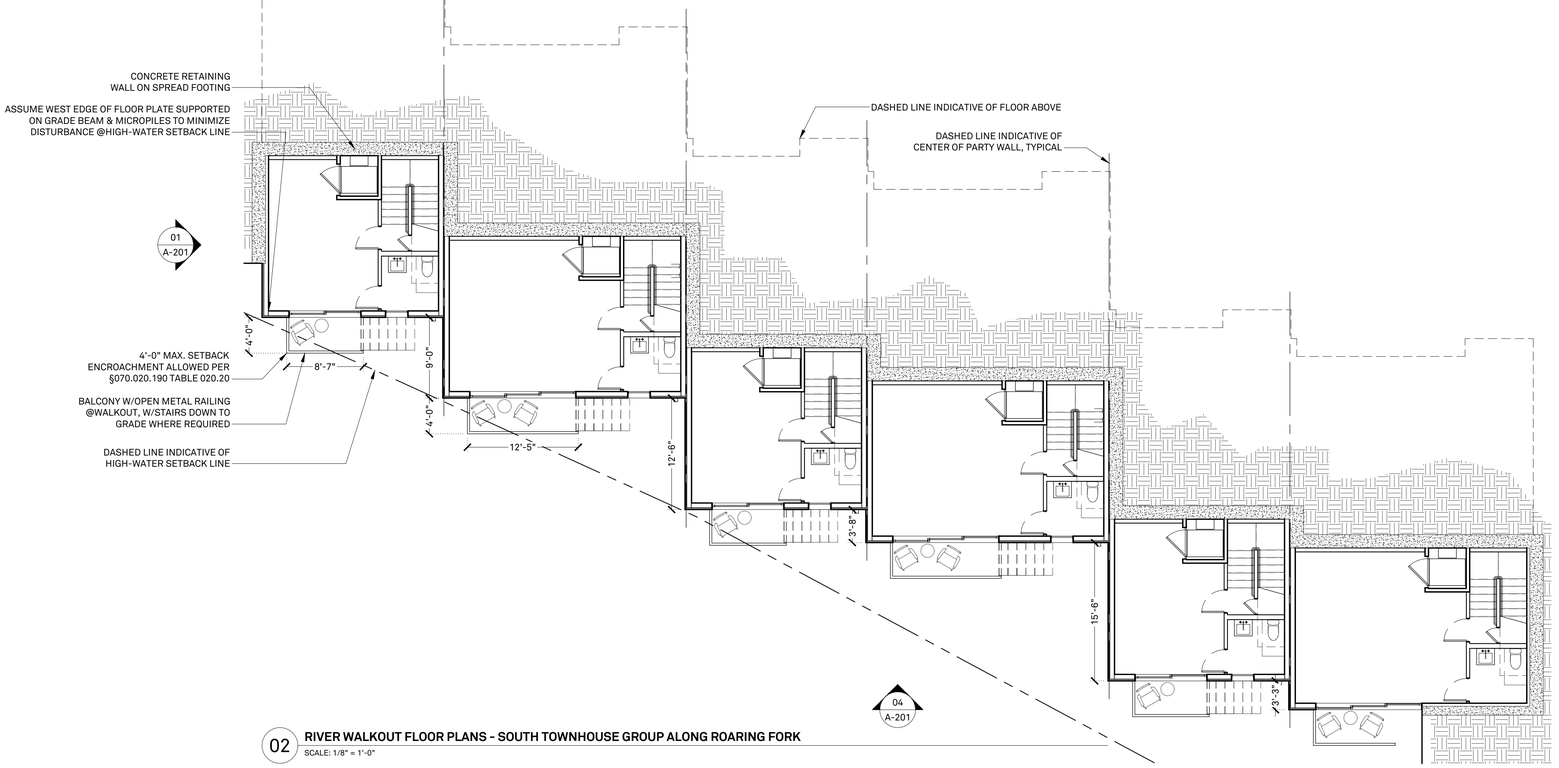
0 2 4 8



01 **LEVEL 01 FLOOR PLANS - SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"



02 **RIVER WALKOUT FLOOR PLANS - SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. THESE PLANS ARE PRELIMINARY AND SUBJECT TO CHANGE. THEY ARE PROVIDED TO UNDERSTAND OVERALL BUILDING DIMENSIONS AND PROGRAM.

FLOOR AREA TAKEOFFS

	GROSS AREA (SF)[1]	NET AREA (INDIVIDUAL 1-VEHICE UNIT SF)[1]	NET AREA (INDIVIDUAL 2-VEHICE UNIT SF)[1]
PENTHOUSE	3,674	398	544
LEVEL 02	5,909	761	1,036
LEVEL 01	5,725	470	589
RIVER WALKOUT LEVEL	2,902	330	449
TOTAL	18,210	1,959	2,618

[1] ROUNDED TO NEAREST WHOLE INTEGER

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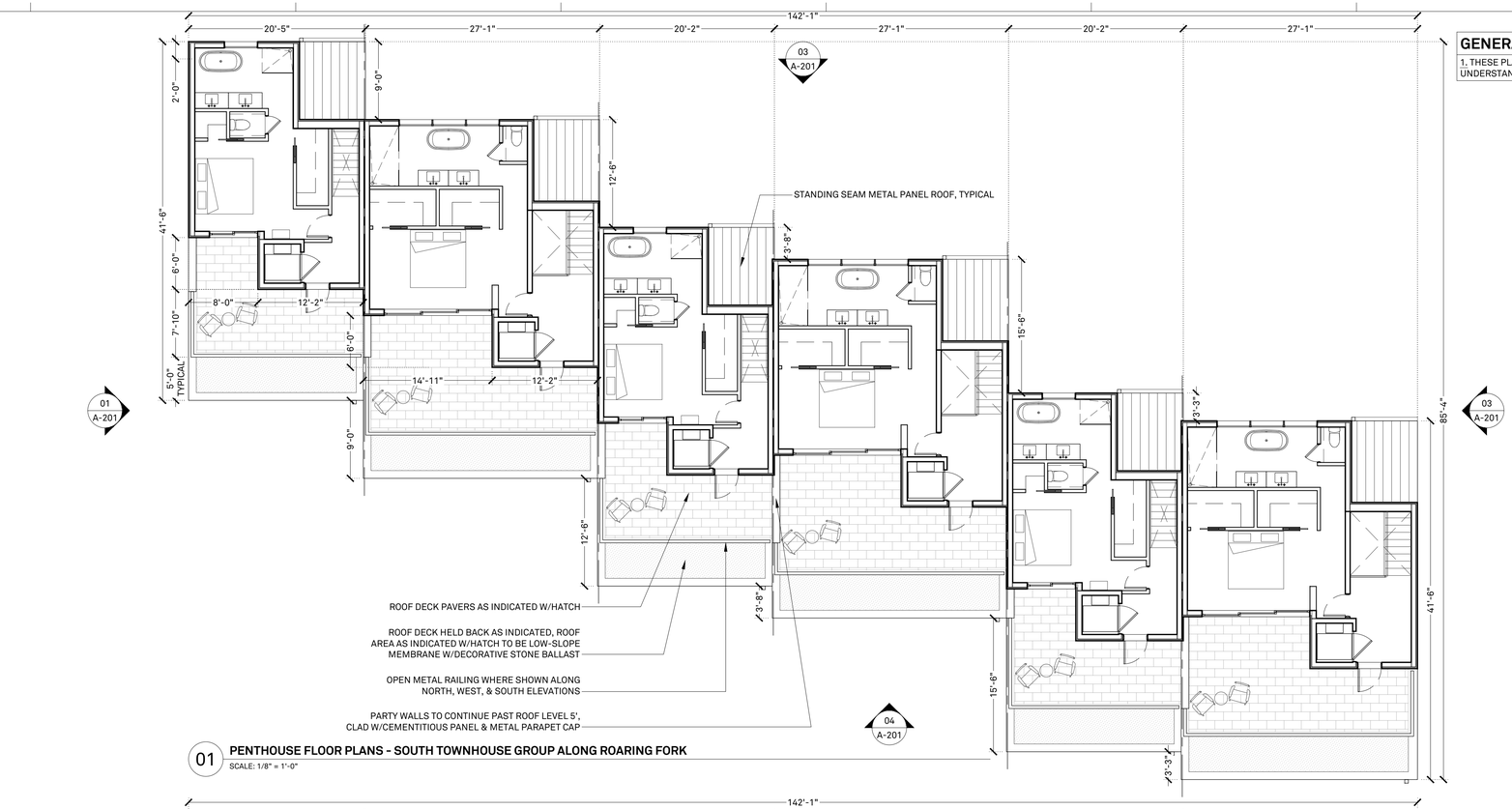
NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

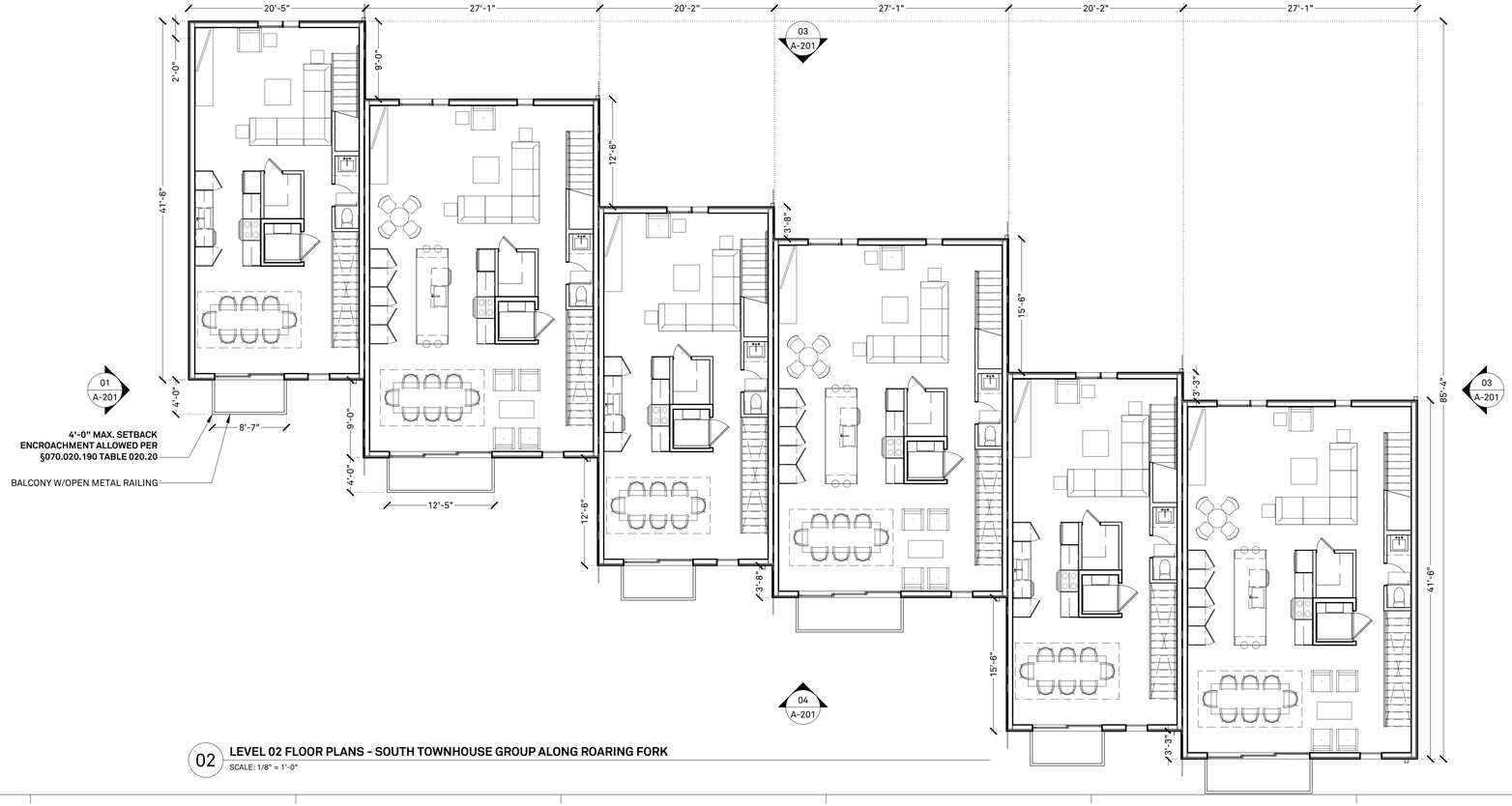
PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
FLOOR PLANS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	A-112.00
	OF



01 **PENTHOUSE FLOOR PLANS - SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"



02 **LEVEL 02 FLOOR PLANS - SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. THESE PLANS ARE PRELIMINARY AND SUBJECT TO CHANGE. THEY ARE PROVIDED TO UNDERSTAND OVERALL BUILDING DIMENSIONS AND PROGRAM.

FLOOR AREA TAKEOFFS

	GROSS AREA (SF)[1]	NET AREA (INDIVIDUAL 1-VEHICE UNIT SF)[1]	NET AREA (INDIVIDUAL 2-VEHICE UNIT SF)[1]
PENTHOUSE	3,674	398	544
LEVEL 02	5,909	761	1,036
LEVEL 01	5,725	470	589
RIVER WALKOUT LEVEL	2,902	330	449
TOTAL	18,210	1,959	2,618

[1] ROUNDED TO NEAREST WHOLE INTEGER

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
FLOOR PLANS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	

DWG NO:
A-113.00

OF

GENERAL NOTES

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FLOOR AREA TAKEOFFS

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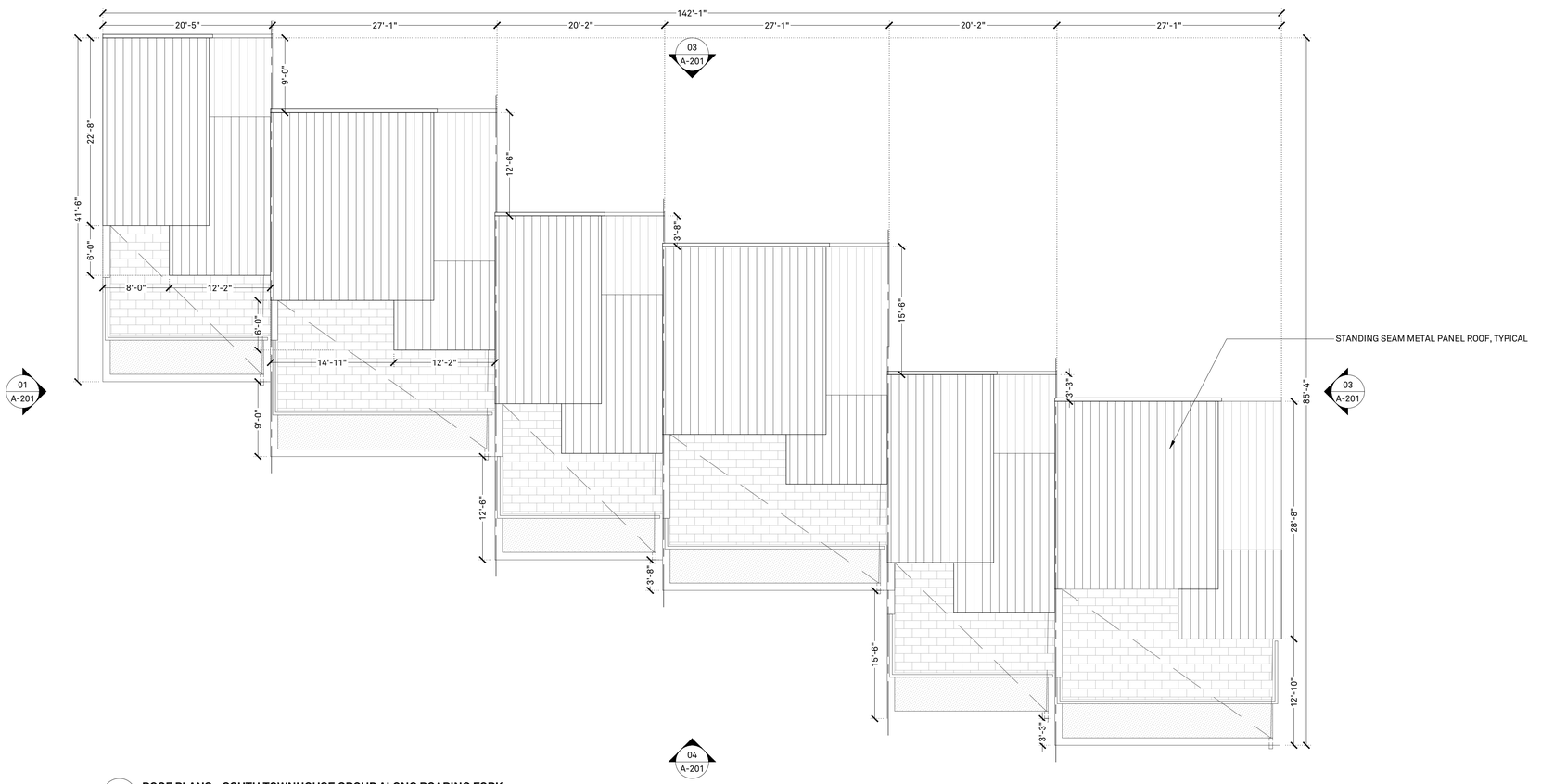
PENTHOUSE	3,674	398	544
LEVEL 02	5,909	761	1,036
LEVEL 01	5,725	470	589
RIVER WALKOUT LEVEL	2,902	330	449
TOTAL	18,210	1,959	2,618

[1] ROUNDED TO NEAREST WHOLE INTEGER



01 **ROOF PLANS - SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
FLOOR PLANS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	A-114.00
	OF

GENERAL NOTES

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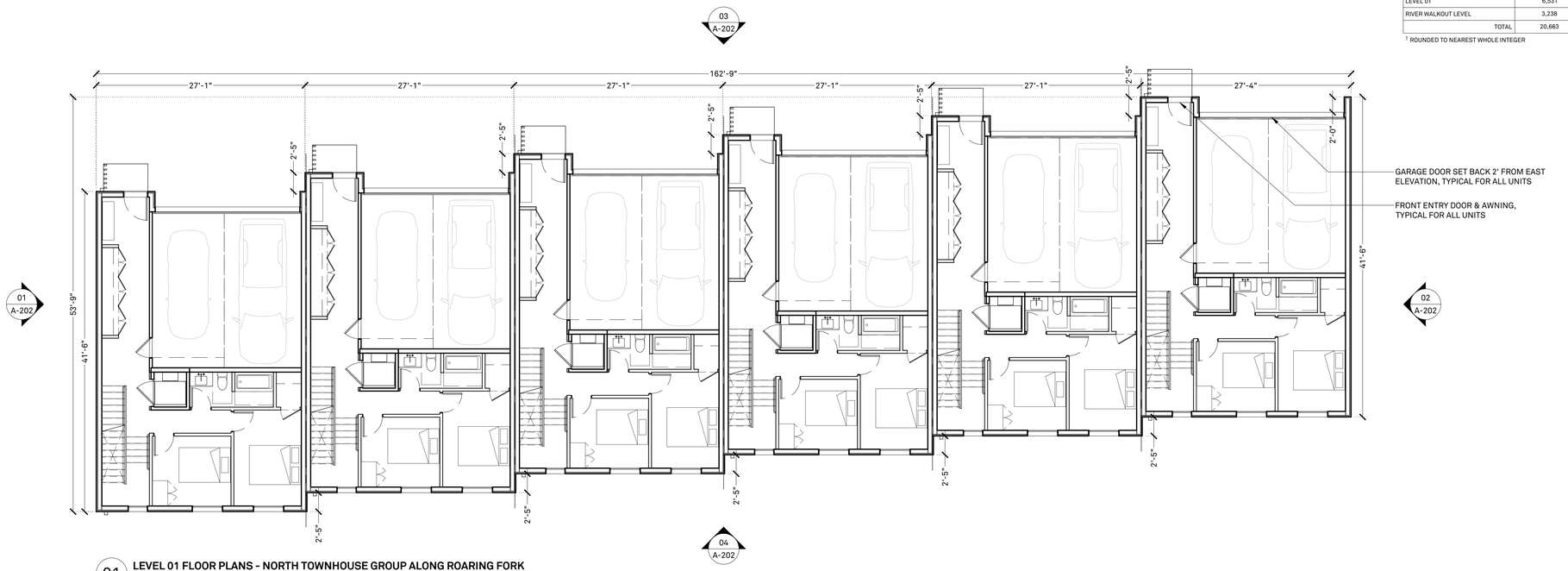
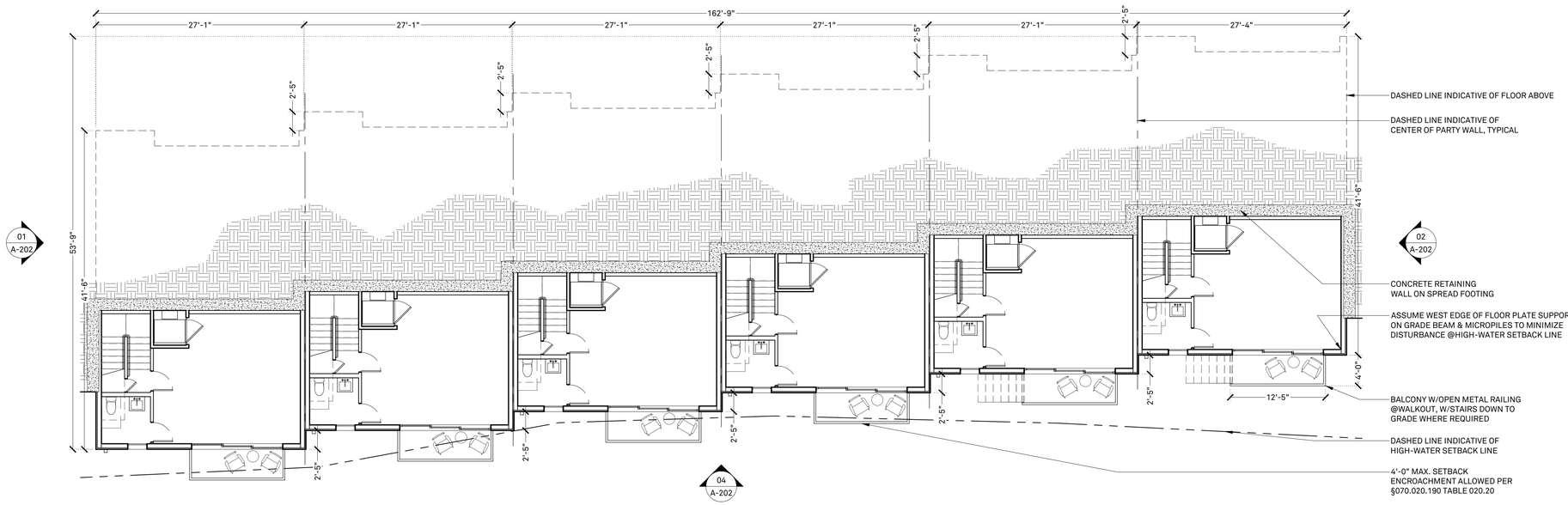
FLOOR AREA TAKEOFFS

	GROSS AREA (SF)[1]	NET AREA (INDIVIDUAL 2-VEHICE UNIT SF)[1]
PENTHOUSE	4,137	544
LEVEL 02	6,757	1,036
LEVEL 01	6,531	589
RIVER WALKOUT LEVEL	3,238	449
TOTAL	20,663	2,618

[1] ROUNDED TO NEAREST WHOLE INTEGER



01 **LEVEL 01 FLOOR PLANS - NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"



02 **RIVER WALKOUT FLOOR PLANS - NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

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REVISIONS:

NO:	DATE:	REMARKS:

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PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
FLOOR PLANS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	A-115.00

OF

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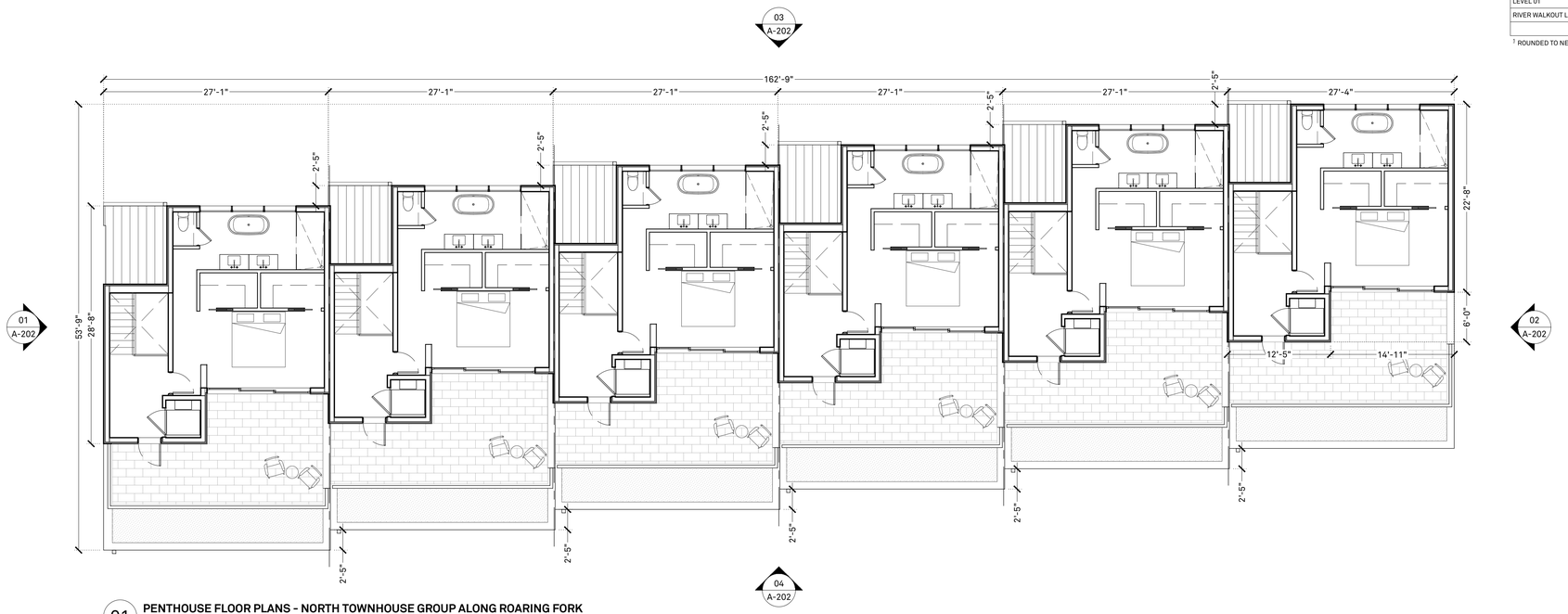
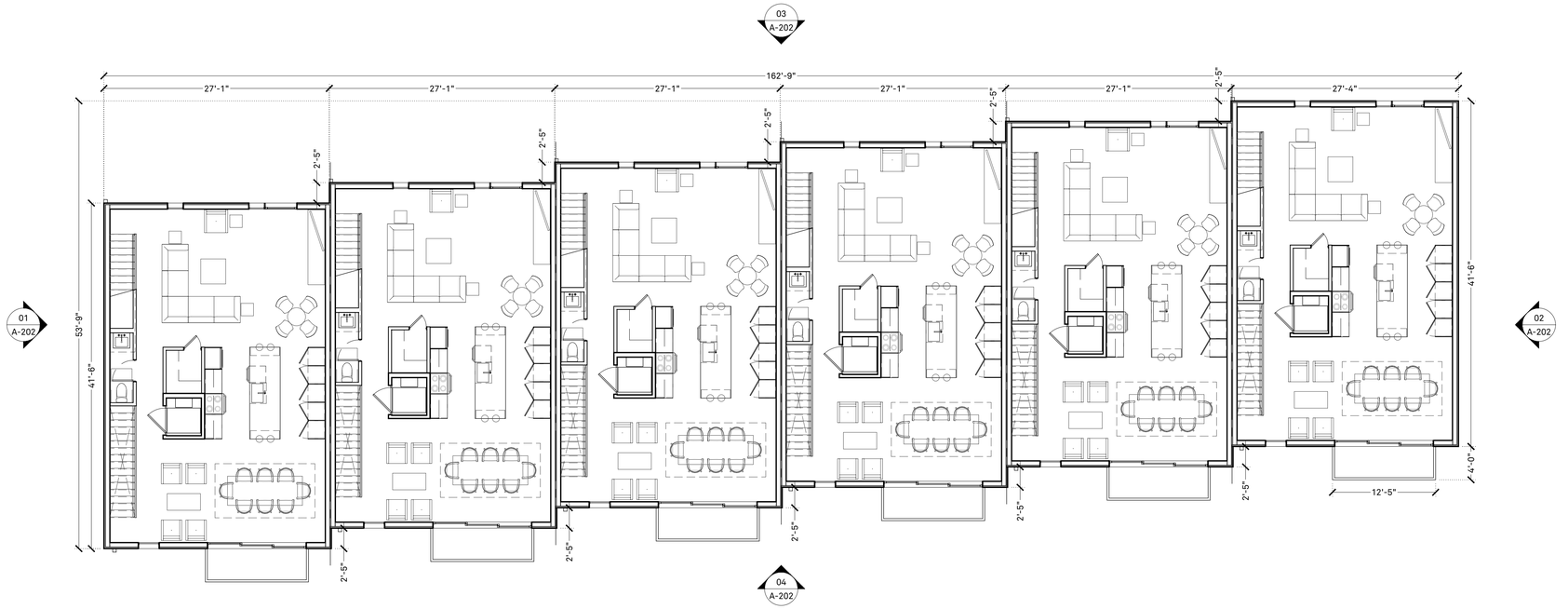


01 **PENTHOUSE FLOOR PLANS - NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"



02 **LEVEL 02 FLOOR PLANS - NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

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NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
FLOOR PLANS

DATE: 12/23/2021
PROJECT: 039
DWG BY: CHK BY:
SCALE:
DWG NO:
A-116.00
OF

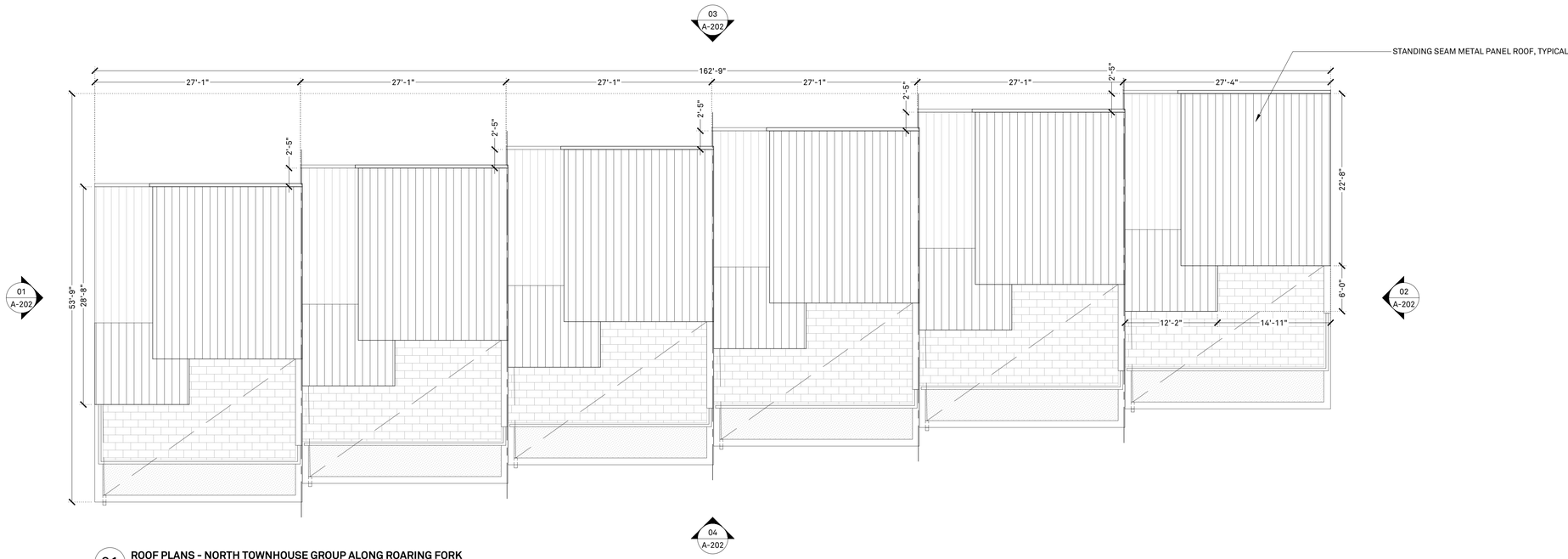
GENERAL NOTES

1. THESE PLANS ARE PRELIMINARY AND SUBJECT TO CHANGE. THEY ARE PROVIDED TO UNDERSTAND OVERALL BUILDING DIMENSIONS AND PROGRAM.

FLOOR AREA TAKEOFFS

	GROSS AREA (SF)[1]	NET AREA (INDIVIDUAL 2-VEHICE UNIT SF)[1]
PENTHOUSE	4,137	544
LEVEL 02	6,757	1,036
LEVEL 01	6,531	589
RIVER WALKOUT LEVEL	3,238	449
TOTAL	20,663	2,618

[1] ROUNDED TO NEAREST WHOLE INTEGER



01 **ROOF PLANS - NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
FLOOR PLANS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	

DWG NO:
A-117.00

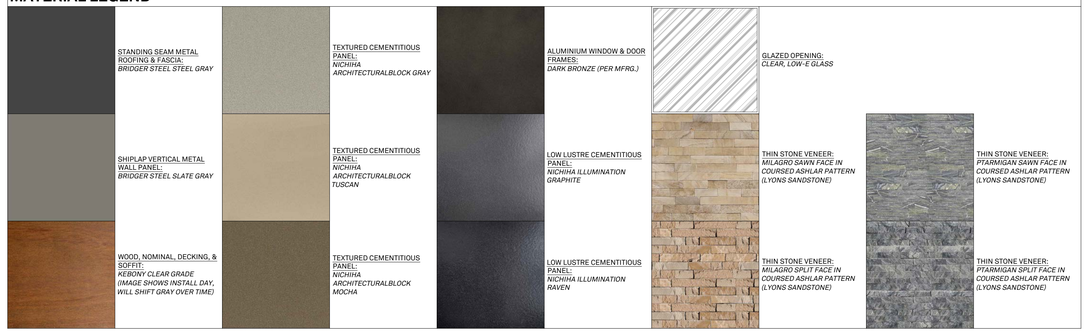
OF

EXTERIOR FINISHES TAKEOFFS

	NORTH ELEVATION		EAST ELEVATION		SOUTH ELEVATION		WEST ELEVATION	
	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]
GROSS WALL	1,347		3,289		1,347		3,809	
NET AREAS BELOW								
NET WALL	1,347		3,102		1,347		3,809	
CEMENTITIOUS PANEL - TEXTURED	686	52	950	31	686	52	1,155	30
CEMENTITIOUS PANEL - LOW LUSTRE	74	5	210	7	74	5	840	22
METAL PANEL	56	4	245	8	56	4	270	7
STONE VENEER	442	33	760	25	442	33	250	7
GLAZING	70	5	760	25	70	5	479	13
EXPOSED CONCRETE WALL	19	1	52	0	19	1	20	0
OPAQUE DOOR	0	0	125	4	0	0	795	21

[1] ROUNDED TO NEAREST WHOLE INTEGER & PERCENTAGE

MATERIAL LEGEND



GENERAL NOTES

1. THESE ELEVATIONS ARE CONCEPTUAL IN NATURE. INDIVIDUAL BUILDING ELEVATIONS MAY VARY BUT WILL BE EVALUATED FOR COMPLIANCE WITH DESIGN STANDARDS CONTAINED WITHIN TITLE 070 OF THE GLENWOOD SPRINGS MUNICIPAL CODE AT THE TIME OF SUBMITTING A BUILDING PERMIT APPLICATION.

01 **NORTH ELEVATION- EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"

02 **EAST ELEVATION- EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"

03 **SOUTH ELEVATION- EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"

04 **WEST ELEVATION- EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"

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970.927.3690 | LANDSTUDIO2@COMCAST.NET

REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

EXTERIOR ELEVATIONS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	A-200.00

OF

GENERAL NOTES

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01 **NORTH ELEVATION- SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

02 **SOUTH ELEVATION- SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

EXTERIOR FINISHES TAKEOFFS

	NORTH ELEVATION		EAST ELEVATION		SOUTH ELEVATION		WEST ELEVATION	
	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]
GROSS WALL	1,280		3,771		1,058		6,689	
NET AREAS BELOW								
NET WALL	1,264		3,730		1,044		6,357	
CEMENTITIOUS PANEL - TEXTURED	752	59	864	23	427	41	2,278	36
CEMENTITIOUS PANEL - LOW LUSTRE	0	0	177	5	0	0	699	11
METAL PANEL	237	19	633	17	163	16	1,105	17
STONE VENEER	185	15	759	20	347	33	0	0
GLAZING	48	4	408	11	75	7	2,168	34
EXPOSED CONCRETE WALL	42	3	72	2	32	3	107	2
OPAQUE DOOR	0	0	817	22	0	0	0	0

[1] ROUNDED TO NEAREST WHOLE INTEGER & PERCENTAGE

MATERIAL LEGEND

	STANDING SEAM METAL ROOFING & FASCIA: *BRIDGER STEEL STEEL GRAY*		TEXTURED CEMENTITIOUS PANEL: *NICHIHA ARCHITECTURALBLOCK GRAY*
	SHIPLAP VERTICAL METAL WALL PANEL: *BRIDGER STEEL SLATE GRAY*		TEXTURED CEMENTITIOUS PANEL: *NICHIHA ARCHITECTURALBLOCK TUSCAN*
	WOOD, NOMINAL, DECKING, & SOFFIT: *KEBONY CLEAR GRADE (IMAGE SHOWS INSTALL DAY, WILL SHIFT GRAY OVER TIME)*		TEXTURED CEMENTITIOUS PANEL: *NICHIHA ARCHITECTURALBLOCK MOCHA*
	THIN STONE VENEER: *MILAGRO SAWN FACE IN COURSED ASHLAR PATTERN (LYONS SANDSTONE)*		LOW LUSTRE CEMENTITIOUS PANEL: *NICHIHA ILLUMINATION GRAPHITE*
	THIN STONE VENEER: *MILAGRO SPLIT FACE IN COURSED ASHLAR PATTERN (LYONS SANDSTONE)*		LOW LUSTRE CEMENTITIOUS PANEL: *NICHIHA ILLUMINATION RAVEN*
	THIN STONE VENEER: *PTARMIGAN SAWN FACE IN COURSED ASHLAR PATTERN (LYONS SANDSTONE)*		GLAZED OPENING: *CLEAR, LOW-E GLASS*
	THIN STONE VENEER: *PTARMIGAN SPLIT FACE IN COURSED ASHLAR PATTERN (LYONS SANDSTONE)*		ALUMINIUM WINDOW & DOOR FRAMES: *DARK BRONZE (PER MFRG.)*

03 **EAST ELEVATION- SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

04 **WEST ELEVATION- SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
EXTERIOR ELEVATIONS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	

DWG NO:
A-201.00

OF

EXTERIOR FINISHES TAKEOFFS

	NORTH ELEVATION		EAST ELEVATION		SOUTH ELEVATION		WEST ELEVATION	
	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]
GROSS WALL	1,444		4,331		1,226		7,894	
NET AREAS BELOW								
NET WALL	1,418		4,197		1,207		7,473	
CEMENTITIOUS PANEL - TEXTURED	633	45	712	17	656	54	2,580	35
CEMENTITIOUS PANEL - LOW LUSTRE	0	0	356	8	0	0	874	12
METAL PANEL	225	16	746	18	260	22	1,319	18
STONE VENEER	346	24	759	18	185	15	0	0
GLAZING	75	5	492	12	62	5	2,539	34
EXPOSED CONCRETE WALL	139	10	61	1	44	4	161	1
OPAQUE DOOR	0	0	1,071	26	0	0	0	0

[1] ROUNDED TO NEAREST WHOLE INTEGER & PERCENTAGE

GENERAL NOTES

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MATERIAL LEGEND

- STANDING SEAM METAL ROOFING & FASCIA: *BRIDGER STEEL STEEL GRAY*
- SHIPLAP VERTICAL METAL WALL PANEL: *BRIDGER STEEL SLATE GRAY*
- WOOD, NOMINAL, DECKING, & SOFFIT: *KEBONY CLEAR GRADE (IMAGE SHOWS INSTALL DAY, WILL SHIFT GRAY OVER TIME)*
- THIN STONE VENEER: *MILAGRO SAWN FACE IN COURSED ASHLAR PATTERN (LYONS SANDSTONE)*
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- LOW LUSTRE CEMENTITIOUS PANEL: *NICHIHA ILLUMINATION GRAPHITE*
- LOW LUSTRE CEMENTITIOUS PANEL: *NICHIHA ILLUMINATION RAVEN*
- GLAZED OPENING: *CLEAR, LOW-E GLASS*
- ALUMINIUM WINDOW & DOOR FRAMES: *DARK BRONZE (PER MFRG.)*

01 **NORTH ELEVATION- NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

02 **SOUTH ELEVATION- NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

03 **EAST ELEVATION- NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

04 **WEST ELEVATION- NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
EXTERIOR ELEVATIONS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	

DWG NO:
A-202.00

OF

THE LANDSTUDIO INC.
landscape architecture land planning community planning

365 River Bend Way • Glenwood Springs, CO 81601 • Tel 970 927 3690 • landstudio2@comcast.net

February 9, 2022

Emery Ellingson, Planner I
City of Glenwood Springs
101 W. Eighth Street
Glenwood Springs, CO 81601

Re: Compiled Response to various letters received during Staff review of the 2525 South Grand Avenue Minor Site & Architectural Plan Development Permit Application

Dear Emery:

The following is a compiled response to the various letters received during Staff review of the 2525 South Grand Avenue Minor Site & Architectural Plan Development Permit Application.

Community Development Comments in Memo from Emery Ellingson dated January 14th and 25th, 2022:

Code Section 070.040.040 Common Open Space
- An accompanying diagram has been developed to illustrate the proposed Common Open Space area calculations.
- The interior parking landscape area is not included within the Common Open Space area calculations as illustrated in the accompanying diagram.

Code Section 070.040.050 Landscaping, Screening & Fencing
- All proposed trees have been located at least four (4) feet from all parking spaces.

Code Section 070.040.060 Off-Street Parking and Loading
- Previous parking totals have been reduced by 4 spaces bringing the total number of spaces to 38, which is 125% of the 30 required and compliant with the CO-Commercial stipulation for maximum parking.

Code Section 070.040.070 Access & Circulation
- The sidewalk fronting the property and adjacent to South Grand Ave. is approximately 13' in width.

Code Section 070.040.080 Residential Site & Building Design
- The encroachment pertains to the front entry awnings only and has been further clarified in the callout on A-110.
- Due to revisions of the residential front entry access along South Grand Ave., the private patios/porches have been replaced with a common pedestrian walkway.

Public Works Comments from Department of Public Works Director Matthew Langhorst dated January 13th, 2022:

Water/Waste-Water Department Comments:

- Noted. The public/private delineation points will be indicated in future submittals.
- Noted. The design will include these valves in future submittals.
- Noted. The design will include these curb stops in future submittals.
- Noted. Construction details and specifications will include tracer wire in future submittals.
- Noted. Construction details will follow city standards in future submittals.
- Additional survey will be needed to locate the existing sewer line. Details of the abandonment of this line will be included in future submittals.
- Sanitary Sewer mains will be profiled in future submittals. Crossings with water and other utilities will conform to local and state regulations.
- The proposed fire hydrant has been relocated to the north of the property along the entrance drive. This location will provide adequate clearance from buildings & landscape components as needed for maintenance and operation.
- Noted. Additional detailing of fire services will conform to NFPA 24 requirements.
- Noted. Backwater valves will be included for each sanitary service.
- Noted. Details for the fire riser room will be provided in future submittals.
- Correct. Each unit will be metered individually.
- Noted. Proper CDPHE documentation will be provided for the lift station as the design progresses.
- Noted. This will be provided with future submittals as fixture counts and demand quantities are finalized.
- Noted. Future submittals will conform to water department standards
- Noted. Additional survey will be required to locate existing water and sewer services. The plans will reflect their removal in future submittals.

Electric Department Comments:

- Owner understands.
- Final designs will be coordinated fully with the Electric Department prior to final and building permitting approvals.
- Owner understands.
- Costs to proposal and timing of payment understood.
- Final selections of tele/data provider will be made further in design development and coordinated fully with the Electric Department and other entities prior to final and building permitting approvals.
- Load Calculations will be coordinated fully with the Electric Department prior to final and building permitting approvals.

Public Works:

- Section 18 of Cesare's Geotechnical Study addresses pavement recommendations.

Engineering Department Comments in Memo from Assistant City Engineer Ryan Johnson dated January 24th, 2022:

Drainage Report:

1. Engineers Statement has been revised in the Preliminary Drainage Report and the Preliminary Drainage Report has been stamped.
2. This information has been added to the Preliminary Drainage Report.
3. This information has been added to the Preliminary Drainage Report.
4. This information has been added to the Preliminary Drainage Report.
5. This information has been added to the Preliminary Drainage Report.
6. This has been corrected to indicate that the existing inlet will be replaced by a manhole.
7. This information has been added to the Preliminary Drainage Report.
8. Noted. Easements will be coordinated with city staff as needed.
9. This has been revised in the Preliminary Drainage Report.
10. This has been revised in the Preliminary Drainage Report.
11. This information has been added to the Preliminary Drainage Report.
12. This information has been added to the Preliminary Drainage Report.
13. This has been revised in the Preliminary Drainage Report.
14. This has been revised in the Preliminary Drainage Report.
15. This has been revised in the Preliminary Drainage Report.
16. Drainage Maps have been revised with the required information.
17. An Erosion Control Plan will be coordinated fully with the applicable Department and agency standards prior to and included within final design documents for final and building permitting approvals.
18. A Stormwater Facility Maintenance Plan will be devised coordinated fully with the applicable Department and agency standards prior to and included within final design documents for final and building permitting approvals.

Geotechnical Report

19. The final geotechnical report or addendum letter will address recommendations and percolation rates for drywells prior to final drywell design.

20. Cesare has provided an addendum letter (dated 2/4/2022) addressing the potential concern for hydrocompactive soil more explicitly.

Traffic Assessment:

21. The turning radius accommodates direct access by passenger vehicles. Larger vehicles (moving trucks, etc.) which would not be regularly anticipated can access these units by continuing through the main access drive and reversing to the units to the north.

22. Parking is not allowed along the property's one-way drive and will be signed appropriately as a "Fire Lane": Refer to callouts on C1.0 Site Plan. Parking restrictions will be stipulated within forthcoming HOA Declarations and enforced by the HOA. Parking will be allowed in designated parking spaces and within the private property of the townhouses themselves.

23. Per the revised TIS, dated February 8, 2022, see **Section 2.1** for RFTA park and ride language.

24. Per the revised TIS, dated February 8, 2022, see **Section 3.1** and **Figure 5** for the inclusion of the Glenwood Multifamily (formerly Bell Rippy) project and the Farm at Grand Ave project. Project based traffic for both of these have been included as background traffic.

25. Per the Legend as shown in **Figure 8**, there are two sets of directional distributions shown in this figure. The first value refers to the inbound percentage, as is followed by the outbound percentage, which is shown in parentheses '()'. As an example, for an inbound distribution percentage of 10%, and an outbound percentage of 20%, it would be written as **10% (20%)**. There are no differences between morning and evening distributions for this study. Please note that the distributions that are shown herein have been previously scoped per our email transaction dated December 8, 2021 as included in the TIS **Appendix**. We sent our initial assumptions which included a distribution figure to Terri Partch and Brian Killian. We received only one response back from Brian indicating that the methodology that was presented was acceptable. Since CDOT's intersections of concern are at #3 and #4 (SH82/Grand and SH82/27th), we chose to not change the distribution of those, but to modify the distribution at 27th and Grand (intersection #2) to provide 10% distribution to/from the north leg on Midland. Please see the revised distribution graphic as shown as Figure 8 in the TIS.

26. The revised TIS contains the adjusted background traffic volumes from comment #24, as well as the revised distribution, associated assignment, and revised total traffic figures. **There are no changes to the conclusions or recommendations as a result of these changes.**

General Comments:

27. Designs for site access along South Grand Ave. have been revised to eliminate individual unit stairs in the ROW. A License to Encroach is no longer applicable.

Plan Comments:

28. The Geohazards note on T-100 has been updated to reference the hydrocompactive soils.

29. C1.0: Response:
    a. Site access drives have been revised to conform to city standards
    b. Existing curb cuts will be removed and replaced to match existing curb section.
    c. Old drive cuts will be removed and replaced to match existing curb sections.
    d. Leg of site triangle has been adjusted to 15' from lip of gutter.

30. C2.0: Response:
    a. Noted. The project team understands that an easement agreement will be needed for improvements over public infrastructure.
    b. Noted. The project team understands that an easement agreement will be needed for improvements over public infrastructure.
    c. Eroded area will be regraded and has been added to the limits of disturbance.
    d. Finished floor elevations have been adjusted to improve driveway slopes.
    e. Stairs to the back sides of each unit have been removed and access to these units has been reconfigured to not encroach in the ROW.
    f. The limit of disturbance has been expanded in anticipation of extending erosion control measures to the highwater mark. The design of these measures will be determined as the project progresses.
    g. Noted. Easements will be coordinated for public storm sewer as needed.
    h. Noted. The project team will weight this option as the design progresses.

31. C3.0: Response:
    a. Limit of disturbance has been revised to incorporate utility work in South Grand Avenue.
    b. The location will provide sufficient room for associated appurtenances. Existing site topography and site layout dictated the current location of the lift station. Alternative locations will be explored for feasibility.

32. L2.0: Response:
    a. Yes, there will be both jointing and material changes to differentiate the internal pedestrian zone areas from vehicular access and parking areas.
    b. Yes, the upper level of the terraced resident courtyard will be ADA accessible. This largest area of the courtyard amenity will be located at the same grade as the adjacent pedestrian walkway/zone.

Please note that the above responses were compiled from the consulting group that prepared the 2525 South Grand Avenue Minor Site/Architectural Plan Application including The Land Studio, Inc. / *Planner*, Move Matter / *Architect*, Re: Land / *Landscape Architect*, JVA, Inc. */ Civil Engineer,* Cesare, Inc. / *Geotechnical Engineer, and* McDowell Engineering / *Traffic Engineer.*

The documents included as an Exhibit to this response letter include:

- Memo from Emery Ellingson dated January 14th and 25th, 2022
- Public Works Comments from Department of Public Works Director Matthew Langhorst dated January 13th, 2022
- Engineering Department Comments in Memo from Assistant City Engineer Ryan Johnson dated January 24th, 2022
- Open Space/Landscape Area Calculations Diagram
- Geotechnical Engineer Response Letter
- Updated Traffic Impact Study
- Updated Preliminary Drainage Report
- Updated 24” x 36” Minor Site & Architectural Plan Review Set
- Illustrative Site Plan and Perspective Renderings

Please note that the Illustrative Site Plan and Perspective Renderings noted above are added as supplemental information to our original Minor Site/Architectural Plan Application to provide a more lifelike look at the architecture and site. Thank you for working with us on this project and as always please call or email with any discussion as we move forward with this review process.

Kind regards,

THE LAND STUDIO, INC.

By: _____
Douglas J. Pratte

MEMO

TO: North Mountain Partners LLC

FROM: Emery Ellingson

DATE: January 14th, 2022

RE: Minor Site & Architectural Plan Review Comments

Hello,

This letter summarizes the comments from Community Development Department review of the Minor Site & Architectural Plan application submitted by North Mountain Partners LLC for the development of 17 townhouses at the property located at 2525 Grand Avenue. The following are comments:

Code Section 070.040.040 Common Open Space

- Required common open space is 22,763.2 square feet and plans indicate that 63,426 square feet are provided. Landscaped areas totals are provided which count towards this amount, could you please provide further detail what contributes to the final total? For example, what is approximate area for the resident courtyard, approximate area for natural resource and hazard areas? Would need to see how that 22,763.2 square feet is met apart from amount from the 11,381.6 sf of landscaped area.

- Please note that the 632 square feet of interior parking landscape area is not applicable for meeting Common Open Space requirements.

Code Section 070.040.050 Landscaping, Screening & Fencing

- *Section 070.040.050(c)(3) Location of Plant Material* requires that trees shall be planted at least four (4) feet way from overhanging vehicles. Distance between the tree and parking spot P7c would need to be at least 4'.

Code Section 070.040.060 Off-Street Parking and Loading

- *Section 070.040.060(d)(3) – Maximum Parking Spaces Allowed*. Code states that in nonresidential and mixed use districts, uses shall not provide off-street parking spaces in an amount more than one hundred twenty-five percent (125%) of the minimum parking spaces required pursuant to Table 030.1 Table of Allowed Uses. As this site is zoned CO – Commercial, which is a non-residential zoning district, the maximum amount of parking spaces to be provided would be 38 spaces. Exceeding the 125% can be allowed on submittal of a parking demand study/letter. . A parking demand study/letter would make the case why the additional

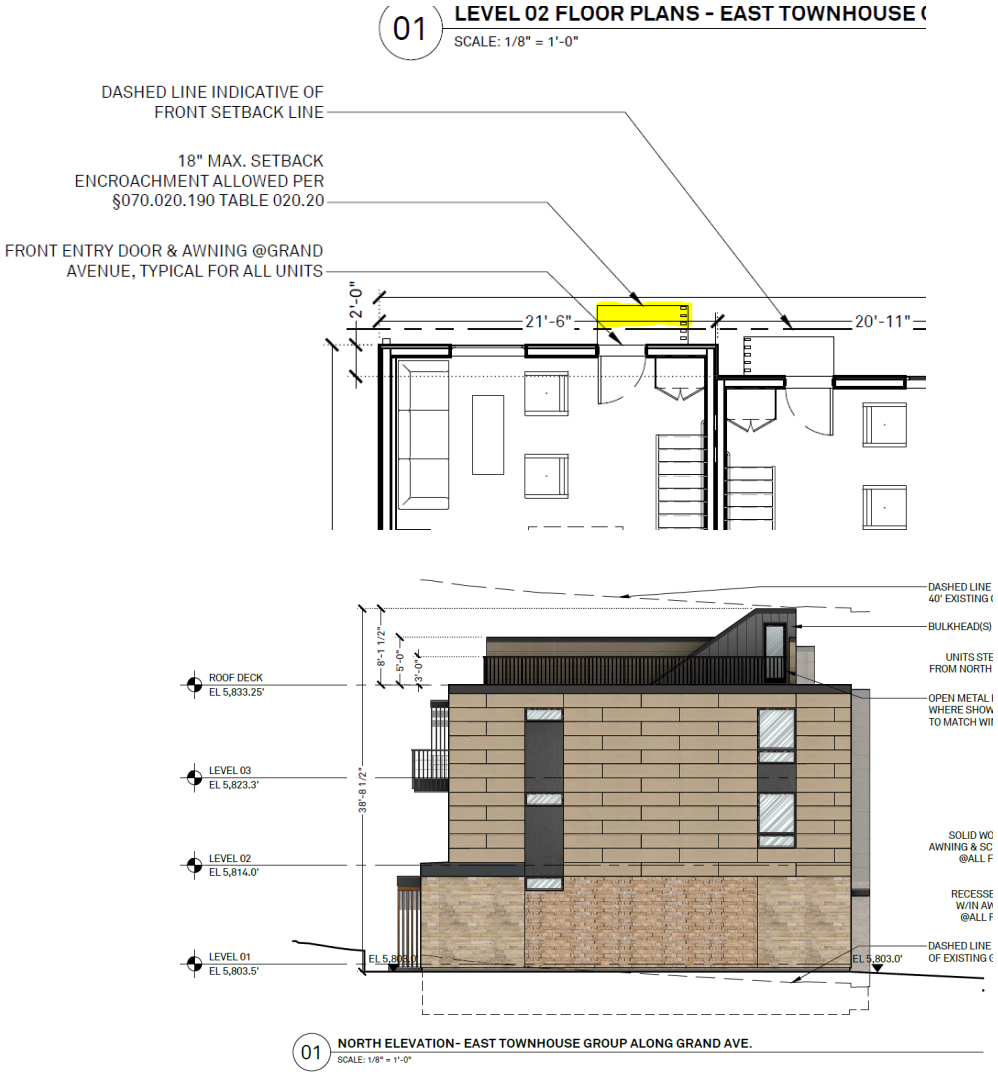
parking would be necessary, which in this case is providing the guest parking spots as surface parking and accommodating adequate snow storage.

Code Section 070.040.070 Access & Circulation

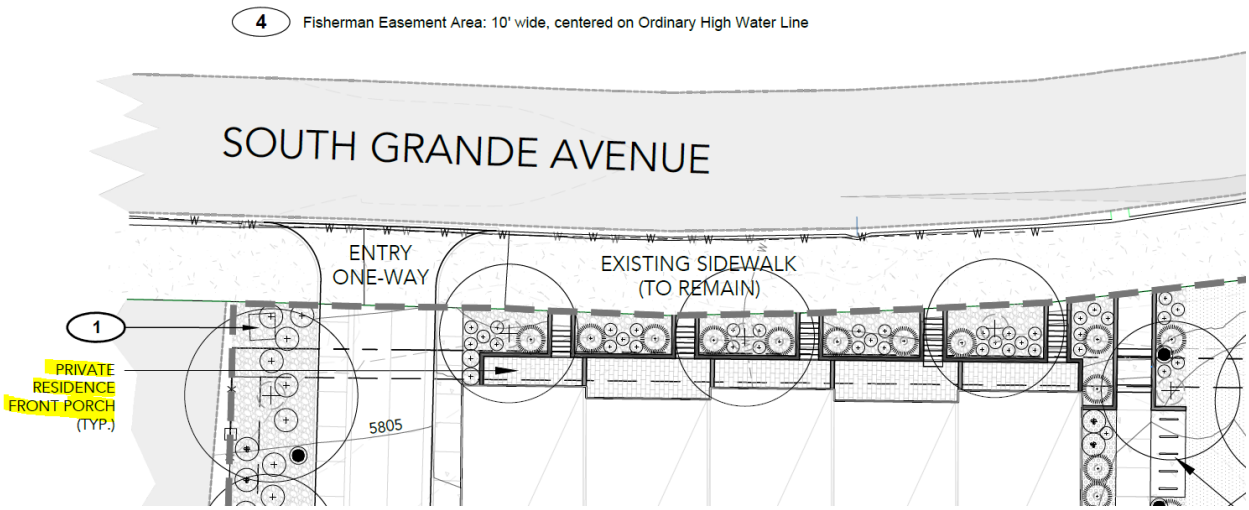
- *Section 070.040.070(f)(1)(d)(2)* – Code states that sidewalks shall be at least 8' wide in non-residential and mixed use zoning districts. This property is zoned CO – Commercial and will require an 8' wide sidewalk. From the plans, it appears this width is 8', could you please confirm?

Code Section 070.040.080 Residential Site & Building Design

- There is an 18" encroachment shown on the floor plans. To confirm, this is the entryway awning shown in the elevations?



- Have questions on the private residence porch and steps that are indicated as being within the front setback. Such as what is the grade difference, what does the porch look like. The awning/entryway is shown on the elevations, would want to see what the porch area looks like.



Emery Ellingson

Emery Ellingson
Planner I
City of Glenwood Springs
101 W. 8th Street
Glenwood Springs, CO 81601
E-mail: emery.ellingson@cogs.us
Phone: 970-384-6432

MEMO

TO: North Mountain Partners LLC

FROM: Emery Ellingson

DATE: January 25th, 2022

RE: Minor Site & Architectural Plan Development Review Meeting Summary

Hello,

This letter summarizes the comments from Community Development Department Development review meeting on Tuesday, January 18th of the Minor Site & Architectural Plan application submitted by North Mountain Partners LLC for the development of 17 townhouses at the property located at 2525 Grand Avenue. The following are comments:

Code Section 070.040.040 Common Open Space

- Required common open space is 22,763.2 square feet and plans indicate that 63,426 square feet are provided. Landscaped areas totals are provided which count towards this amount, could you please provide further detail what contributes to the final total? For example, what is approximate area for the resident courtyard, approximate area for natural resource and hazard areas? Would need to see how that 22,763.2 square feet is met apart from amount from the 11,381.6 sf of landscaped area. **ITEM DISCUSSED, REQUESTED ADDITIONAL INFORMATION**

- Please note that the 632 square feet of interior parking landscape area is not applicable for meeting Common Open Space requirements. . **ITEM ACKNOWLEDGE BY APPLICANT**

Code Section 070.040.050 Landscaping, Screening & Fencing

- *Section 070.040.050(c)(3) Location of Plant Material* requires that trees shall be planted at least four (4) feet way from overhanging vehicles. Distance between the tree and parking spot P7c would need to be at least 4'. . **ITEM DISCUSSED, ACKNOWLEDGED BY APPLICANT**

Code Section 070.040.060 Off-Street Parking and Loading

- *Section 070.040.060(d)(3) – Maximum Parking Spaces Allowed*. Code states that in nonresidential and mixed use districts, uses shall not provide off-street parking spaces in an amount more than one hundred twenty-five percent (125%) of the minimum parking spaces required pursuant to Table 030.1 Table of Allowed Uses. As this site is zoned CO – Commercial, which is a non-residential zoning district, the maximum amount of parking spaces to be provided would be 38 spaces. Exceeding the 125% can be allowed on submittal of a parking demand study/letter. . A parking demand study/letter would make the case why the additional

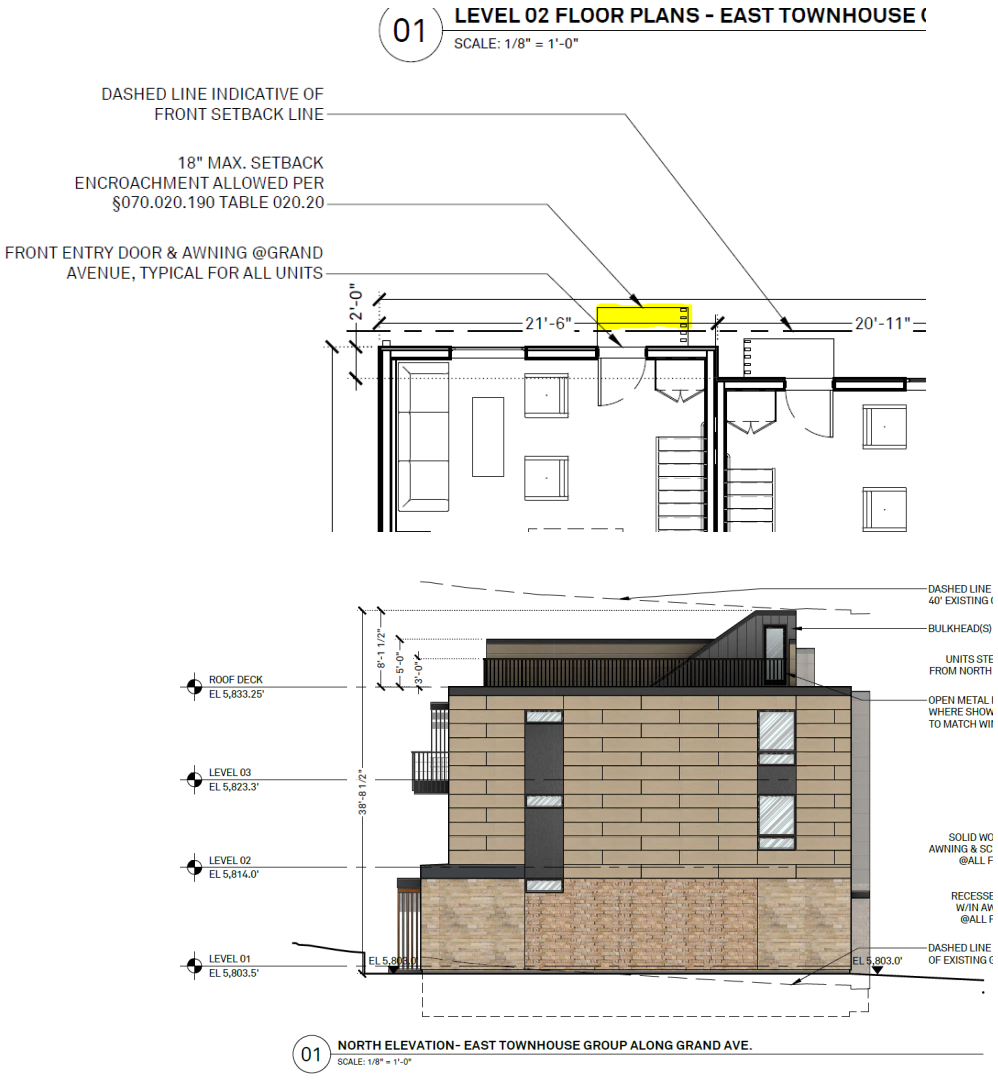
parking would be necessary, which in this case is providing the guest parking spots as surface parking and accommodating adequate snow storage. . **ITEM DISCUSSED, REQUESTED ADDITIONAL INFORMATION**

Code Section 070.040.070 Access & Circulation

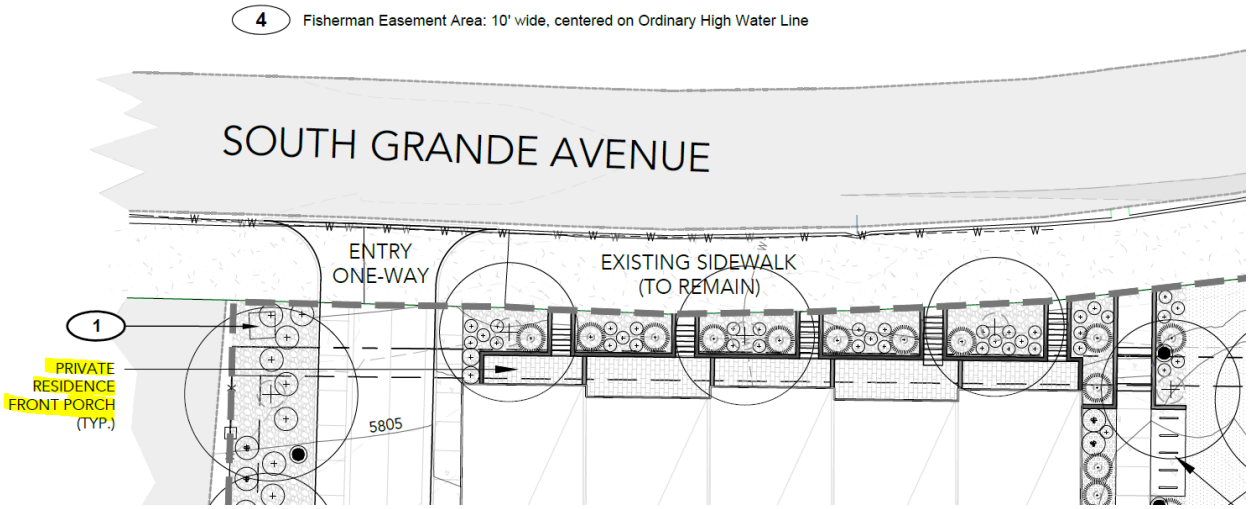
- *Section 070.040.070(f)(1)(d)(2)* – Code states that sidewalks shall be at least 8' wide in non-residential and mixed use zoning districts. This property is zoned CO – Commercial and will require an 8' wide sidewalk. From the plans, it appears this width is 8', could you please confirm? . **ITEM DISCUSSED, REQUESTED ADDITIONAL INFORMATION**

Code Section 070.040.080 Residential Site & Building Design

- There is an 18" encroachment shown on the floor plans. To confirm, this is the entryway awning shown in the elevations? . **ITEM DISCUSSED**



- Have questions on the private residence porch and steps that are indicated as being within the front setback. Such as what is the grade difference, what does the porch look like. The awning/entryway is shown on the elevations, would want to see what the porch area looks like. **ITEM DISCUSSED, APPLICANT ANTICIPATES REVISING DESIGN**



NEW ITEMS DISCUSSED AT DEVELOPMENT REVIEW MEETING

The submitted plans included a housing plan which designated two 3 bedroom units as resident restricted and one 2 bedroom unit as income restricted. Since this development is mostly comprised of 3 bedroom units, the income restricted unit should also be a 3 bedroom unit.

Emery Ellingson

Emery Ellingson
Planner I
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101 W. 8th Street
Glenwood Springs, CO 81601
E-mail: emery.ellingson@cogs.us
Phone: 970-384-6432

Matthew Langhorst DPW
(970) 384-6438 (o)

CITY OF GLENWOOD SPRINGS PUBLIC WORKS

101 West 8th Street
Glenwood Springs, CO 81601

Planning Item: **70-21 Rivers Site**
Applicant: **North Mountain Partners LLC**
Owner: **The Rivers, LLC**
Location: **2525 South Grand Avenue**
Parcel: **2185-164-00-074**
Date of Comments: **1-13-2022, Original comments on 3-18-2021**

The following are W/WW Department comments based on the application package dated 12-23-2021.

W/WW Department Comments

- All water and wastewater utilities proposed for this project outside of the ROW will be considered private and not maintained by the City, including the lift station. The two 8" valves located at the water taps will be considered the water public/private delineation point, sewer manhole connections and/or sewer wye will be considered private/public delineation points. Please label these locations as the delineation point on the plans.
- Add two 8" valves at the tap locations for control of the private system and delineation points for public/private ownership. Also, add a 6" valve for the hydrant lateral.
- All individual water service lines should have curb stops.
- All sanitary sewer, sewer laterals, water mains and water services shall have a tracer wire installed per state regulations.
- The water, sewer and electric details need to follow city standards details at the City of Glenwood Springs Engineering Department website, Engineering Standards.
- Please show how the existing sewer system is to be abandoned heading north to the Meadow Lark lift station.
- Please create a sanitary sewer main profile and depict whether the sewer service crossings of the water main are going to be within 18" of the main vertically.
- All Fire hydrants must have a 15' easement centered on the hydrant if they are outside of the ROW. With this hydrant location that easement will be difficult to accommodate and repair or replacement of the hydrant in the future may damage the adjacent structure. We would ask the hydrant location be reconsidered by the Fire Department to a landscape island just north of its current spot. Access to the hydrant will also need to have an easement for maintenance. The City will own and maintain all fire hydrants, leads and valves.

- All services that are to be used for Fire sprinkler water must be designed and constructed to NFPA24 requirements and will be considered private. Items needing to be shown in detail…thrust block calculations, restraints, etc.
- All separate sanitary sewer services shall have a backwater valve installed, so 17 of them in this case. The city understands that flushing of our mainline will not cause damage to the buildings with the lift station being the main connection point, but for public safety they will need to be added.
- Will need to see a detail for the fire riser room that shows fire/domestic services, meter and backflow installation. Fire connection will only be shown if pertinent to the design.
- Each unit be individual metered is the current assumption.
- If the project is approved, we will need to see an approval letter from CDPHE for site location, final plans and specifications for construction approval for the proposed lift station.
- A utility report that shows water and wastewater system demands based on EQRs for the property should be included in the Engineering Report.
- The Preliminary engineering report notes that the existing water service to be abandoned at the corporation stop by turning it off. This does not follow water department standards. The saddle and corporation stop will need to be removed and a full circle clamp installed over the tap.
- The existing sanitary service and water service will need to be shown on the plans. They will need to be abandoned at the existing main line connections per City Standards. This is noted in the engineering report, but not shown on the plans.

W/WW Department Contact Information:

- Mike Hoffman – 384-6343 (W/WW Field Superintendent)
- Utility Billing – 384-6400 (Account setup; Water Meter Purchase)
- Community Development Department – 384-6411 (Improvements Fees)

The following are Electric Department comments based on the application package dated 12-23-2021.

Electric Department Comments

- Owner will be responsible for cost associated with line extensions and or relocation through the ROW/property and all infrastructure for the new development.
- Final service layout, transformer locations and site planning will need to be coordinated with the City of Glenwood Springs Electric Department and final layout shown on final plans.
- Owners GC/excavation company will be responsible for all trenching, including the line extension trenches to new transformer locations, electric primary and secondary conduit installation, electric pull vaults and transformer vaults.
- The City of Glenwood Springs Electric Department Costing Proposal will be paid in full prior to any work commencing. Any additions to the proposal will be due at time of completion of work or any saving will be refunded at time of completion of work.

- Contractor could install a 2" conduit from transformer locations to each of the buildings. The city can provide 100% Fiber to The Home (FTTH) internet and voice services (VoIP) provided by our Community Broadband Network. Please reach out to Mark to find out details for your project if you are interested in another data/phone service option. This service is wholly owned and operated by the City of Glenwood Springs.
- Developer to supply a Load Calculation form to the City of Glenwood Springs Electric Department for each set of buildings.

Electric Department Contact Information:

- Doug Hazzard – 384-6353 (Electric Superintendent)
- Mark Smith – 970-930-7071, mark.smith@cogs.us (CBN)
- Utility Billing – 384-6400 (Account setup)

The following are Public Works Department comments based on the application package dated 12-23-2021.

PW Department Comments

- Please show extent of concrete and asphalt removal/replacements along South Grand for connections into the utility systems and have the geotechnical engineer design a pavement section based on the traffic information provided within the traffic report for the full depth trench asphalt replacement.

Public Works Contact Information:

- Matthew Langhorst – 384-6438 (PW Director)

Engineering Department	**Date:**	January 24, 2022
Ryan Johnson	**To:**	Community Development
Asst. City Engineer	**Re:**	2525 South Grand Avenue Minor Site & Architectural Plan Development Permit

Please see the following engineering comments for the 2525 South Grand Avenue Minor Site & Architectural Plan Development Permit. City of Glenwood Springs Engineering reserves the right to make additional comments throughout the application process, especially if significant modifications are made. It is in the applicant's best interested to address all comments holistically to reduce the number of reviews necessary for approvals.

Engineering will not review a revised submittal until the applicant provides a written response to these comments.

Drainage Report:

1. Drainage Report should be completed by qualified State of Colorado licensed Professional Engineer. Requirements for drainage are outlined within Chapter 4 of the City of Glenwood Springs Engineering Standards available here: Chapter 4 - Engineering Standards. The submitted Preliminary Drainage Report does not meet the minimum requirements of Chapter 4. Deficiencies include:

    a. The Engineers Statement should match what is required per Section 4.5.2:

"I hereby affirm that this report and the accompanying plans for the (type or phase design) of (Name of Development) was prepared by me (or under my direct supervision) for the owners thereof in accordance with the provisions of the City of Glenwood Springs Stormwater, Drainage, Water Quality and Erosion Control Chapter and approved variances and exceptions listed thereto. I understand that it is the policy of the City of Glenwood Springs that the City of Glenwood Springs does not and will not assume liability for drainage facilities designed by others."

License No. _____
Licensed Professional Engineer, State of Colorado (Affix Seal)

    b. The report, even preliminary, should be stamped.

2. A section should be provided for the Hydrologic Criteria for the site. This should identify and discuss:

a. Storm recurrence intervals analyzed.

b. The design rainfall.

c. The runoff calculation method used.

d. The detention and the storage calculation method used or why detention was not provided.

e. Discuss criteria and calculation method used.

3. The description of the existing site requires revision.

    a. The river should be named when indicating the outfall for clarity on the receiving system.

    b. The parking lot has two known inlets in the parking area with two separate outfall locations.

    c. Indicate if there are (or are not) riparian areas or wetlands on or near the property.

    d. Describe any current drainage issues. Current known issues include severe erosion at the existing stormwater outfall locations.

    e. Discuss the drainage basins and sub-basins (including off site basins that cross this property) in the pre-developed condition. The areas of ground cover should be identified for each basin or subbasin.

    f. The design points and flow rates should be described.

4. The description of the proposed project requires revision:

    a. The changes in topography and land cover should be described.

    b. The drainage patterns should be described.

    c. The receiving system should be indicated.

    d. How will the existing drainage issues be addressed with this development?

    e. Discuss the drainage basins and sub-basins in the developed condition. This should include the alterations in drainage such as increased flow, change in direction or condition of flow, changes to the outfall, etc. The areas of ground cover should be identified for each basin or subbasin.

f. The design points and flow rates should be described.

5. Preliminary sizing calculations should be provided for all stormwater facilities.

6. Section 5 states that an existing storm sewer manhole on site will be maintained. There is not an existing manhole. There are two existing inlets on site.

7. While it is agreed that the floodplain elevation should not have an impact on this development, the floodplain mapping provided in the Alta survey should be shown on all plans.

8. An easement will be required for the existing and proposed piping that conveys off site and public drainage through the property.

9. The pre-developed runoff rate is described as 4.8 cfs, however the tables indicate that is the rate for Basin H1 only.

10. The developed runoff rate is described as 5.96 and is missing units, however that is the rate for Basin A only.

11. A description of the developed stormwater system is included along with the WQCV and method. The following items are missing:

    a. A description of what efforts have been made to reduce runoff and increase infiltration.

12. References should include:

    a. The City of Glenwood Springs Engineering Standards (as required)

    b. The City of Aspen Urban Runoff Management Plan (since this was used for the drywell design)

13. The rainfall intensities used are not described and do not seem to align with Table 4-1 in the Engineering standards.

    a. Remove reference to Pennsylvania rainfall in the appendix.

    b. Rainfall intensities should be per the table in Engineering Standards Chapter 4 or interpolated from them. If an equation is preferred, please contact engineering department and it can be provided.

14. The job name appears incorrect on the provided calculation tables.

15. It is unclear how the WQCV was calculated. The drywell sizing using 47.70 (with no indication for units) but was described in the report as cubic feet. The detention basin stage-storage table indicates the WQCV as 0.03 acre feet, which would equate to 1306.8 cubic feet.

    a. The total captured volume of the drywell is indicated as 77.45 cubic feet, but the following detention basin state storage calculation sheet indicates 0.70 acre-feet (or 3049.2 cubic feet).

    b. Cursory calculation of site at 1.05 ac and 81.5% imp. is 808 cf

16. The provided pre- and post-development drainage mapping is insufficient.

        i. Property lines and easements

        ii. Basin information:

            1. Area

            2. C-values

            3. design points

            4. runoff volumes

17. Erosion Control Plan should be provided with final documents

18. A maintenance plan for the proposed stormwater facilities should be provided with the final documents.

Geotechnical Report:

19. The final geotechnical report or addendum letter, should address recommendations and percolation rates for drywells

20. This project site has been identified to be partially in a mapped geologic hazards area per the City of Glenwood Springs Geologic Hazards Mapping Completed by Lincoln Devore in 1978. It appears that there is moderate soil hazard for hydrocompactive soils exists on the site. Note the hazard in the report and indicated what mitigative measures may be necessary for the hazard.

Traffic Assessment:

21. Check the turning radius from the one way road back to the units on the north side of the project. Describe any limitations from a vehicular length stand point.

22. Is parking allowed on the one way drive?

    a. If no parking is allowed, how will the one-way configuration and no parking be enforced?

23. The existing road network description should add in the new RFTA park and ride at the former Colorado Mountain Express facility.
24. In section 3.1, these proposed developments should be added to the analysis:

    a. Bell Rippy project on the east side of the 27th Street intersection.

    b. New development at 2512 South Grand, east side of the road (the Farm at Grand Ave).

25. Please provide more explanation of the percentages in Figure 7. I assume the intersection figure percentages mean percentages of total generated site volume coming through the intersection in the am and pm peak hours, with direction of travel.

    a. Figure 1 – It looks like your am/pm numbers are switched. Also, many people take Midland coming in from the west. Maybe 10-15%?

    b. Figure 2- It seems like your am and pm numbers are switched.

    c. Figure 3 - Your am/pm numbers are switched again.

26. Please reset your distribution and resubmit.

General Comments:

27. Any permanent facilities within the City of Glenwood Springs Right of Way requires a **License to Encroach**. See Community Development for further information.

Plan Comments:

28. Tittle Sheet T-100: General note number 2 should be updated to include the hydrocompactive soils referenced in the geotechnical report comments.

29. Site Plan C1.0:

a. does the access line up with existing curb cut? It does not appear to. Access will need to be modified if not aligned with current drive cut refer to chapter 5 engineering standards for access requirements.

b. are new curb cuts or curb returns being installed?

c. old drive cuts are to be removed and replaced with standard curb section.

d. leg of site triangle should extend 15' back from lip of gutter.

30. Prelimianry Grading Plan C2.0

a. Walls and grading may be in conflict with existing storm pipe. Walls over public storm infrastructure generally are not allowed.

b. If combined public and private storm sewer is located under walls a maintenance agreement will be required to assign responsibly of wall replacement costs if the pipes fail and assign regular maintenance of the pipe to the property owners.

c. eroded area should be regraded vegetated.

d. can these driveway grades be reduced? 9.6% is steep and will not work very well in snow conditions.

e. stairs required license to encroach or remove.

f. proposed storm sewer discharges to the middle of the slope and will likely erode down gradient from the rip-rap. How will erosion at the end of the pipe and riprap be mitigated

g. all public storm sewer infrastructure should be located within a drainage easement.

h. possible alternate alignment of public storm sewer.

31. Preliminary Utility Plan C3.0

a. Limits of disturbance should encompass all disturbed areas. show reconstructed area within the ROW for all utilities.

b. does the lift station location leave sufficient room for all appurtenances of the lift station? Is this location suitable for maintenance of the lift station. if work occurs on the lift station for long durations this would be very disruptive to the end unit owners.

32. Circulation Plan L2.0

    a. is there going to be a color or jointing distinction for the pedestrian zone areas?

    b. will a portion of the amenity area be ADA accessible? Top section is is shown as a stair access route.

Miscellaneous Comments that are provided for information only:

33. Any work taking place within the City of Glenwood Springs Right of Way requires a **Right of Way Permit.**

    a. Provide S.U.E. plan per Colorado Law CRS 9-1.5-102 requirements or provide a stamped letter determining why this is not a Subsurface Utility Engineering-Required Project.

34. This project requires a **Grading Permit.**

35. Any work taking place within an adjacent property required an easement (temporary or permanent).

36. If the disturbance of this project is greater than one (1) acre, a Colorado Department of Health and Environment (CDPHE) **Construction Stormwater Discharges Permit**. This includes phased projects, regardless of timeline. ***This site has a current permit that will need to be maintained through the completion of the project.***

Comments to be addressed prior to Grading Permit Approval:

37. A **Grading Permit** shall be submitted along with the following documentation:

    a. No work for this project will be allowed to commence until **all** work easements (temporary or permanent), on or off site, are in place for the development of property.

    b. Final Stamped Reports (Geotechnical, Drainage, Traffic Geologic Hazards, etc).

    c. Final Stamped Construction Documents.

    d. The Stormwater Management Plan, along with any applicable approved state permits, including a **Construction Stormwater Discharges Permit** or **Dewatering Permit**, *if applicable.*

38. Any additional permitting necessary for the project should be submitted, including Building and/or Right of Way Permits.

Comments to be addressed prior to Certificate of Occupancy:

39. The city will require a **maintenance plan and agreement** with the development for the detention and debris system/s. If the system/s are not being maintained property and having a negative effect on downstream facilities, the City will need access to perform the maintenance and back charge the facility owner. See Community Development for further information.

40. All drainage, retaining walls, and/or other site improvements require a **stamped/signed certification letter** from the engineer of record that verifies that all improvements were constructed per plan.

    b. If not constructed per plan, an explanation for the changes and any calculations/certifications should be submitted to verify that it meets the plan requirements.

41. **Record drawings (As-Builts)** will be required to be submitted to the city along with electronic drawings (CAD) as described in the Engineering Standards.

    c. Critical improvements should be identified including, but not limited to:

        i. Utility improvements, identify:

            1. Structures
            2. Pipes
            3. Inverts
            4. Service locations
            5. Ownership demarcation points
            6. As-built plan and profile for any utility mains (private or public)

        ii. Stormwater improvements, include

            1. Verified detention capacity and/or verified infiltration rates

        iii. Retaining walls, identify:

            1. Locations
            2. Height, i.e. top of wall (TOW) and bottom of wall (BOW)

d. Any approved **Licenses to Encroach** may require amending if the as-built conditions vary from the approved licensing locations.

e. **Utility Easements** shall be recorded for any City of Glenwood Springs main lines, hydrants, or transformers not in the City right of way.

Exhibit H

Minor Site & Architectural Plan Review Set

ABBREVIATIONS

A.C. TILE	ACOUSTIC TILE	LAM.	LAMINATE
ACOUS.	ACOUSTICAL	LAV.	LAVATORY
ADJ.	ADJUSTABLE	LT.	LIGHT
AGGR.	AGGREGATE	LKR.	LOCKER
ALUM.	ALUMINUM	L.V.	LOW VOLTAGE
L	ANGLE		
~	APPROXIMATE/ APPROXIMATELY	M.H.	MANHOLE
		MFR.	MANUFACTURER
ARCH.	ARCHITECTURAL	M.O.	MASONRY OPENING
A.D.	AREA DRAIN	MAX.	MAXIMUM
ASB.	ASBESTOS	MECH.	MECHANICAL
ASPH.	ASPHALT	M.C.	MEDICINE CABINET
@	AT	MEMB.	MEMBRANE
		MTL.	METAL
BM.	BEAM	MIN.	MINIMUM
BITUM.	BITUMINOUS	MIR.	MIRROR
BLK.	BLOCK	MISC.	MISCELLANEOUS
BLKG.	BLOCKING	MOD.	MODIFIED
BD.	BOARD	MTD.	MOUNTED
BOT.	BOTTOM	MUL.	MULLION
BLDG.	BUILDING		
		NOM.	NOMINAL
CAB.	CABINET	N.	NORTH
C.I.	CAST IRON	N.I.C.	NOT IN CONTRACT
C.B.	CATCH BASIN	N.T.S.	NOT TO SCALE
CFRG.	CONFIGURE	#	NUMBER
CLKG.	CAULKING		
CLG.	CEILING	OBS.	OBSCURE
CEM.	CEMENT	OFF.	OFFICE
CTR.	CENTER	O.C.	ON CENTER
CER.	CERAMIC	OPNG.	OPENING
C.T.	CERAMIC TILE	OPP.	OPPOSITE
CLR.	CLEAR	O.D.	OUTSIDE DIAMETER
C.O.	CLEAR OPENING	O.A.	OVERALL
COL.	COLUMN		
COM.	COMPACT	PR.	PAIR
CONC.	CONCRETE	P.T.D.	PAPER TOWEL DISPENSER
CONN.	CONNECTION	P.T.D./R.	PAPER TOWEL DISPENSER & RECEPTACLE COMBINATION
CONSTR.	CONSTRUCTION		
CONT.	CONTINUOUS/ CONTINUE		
CORR.	CORRIDOR	P.T.R.	PAPER TOWEL RECEPTACLE
CNTR.	COUNTER	PRTN.	PARTITION
CTSK.	COUNTERSUNK	PRMTR.	PERIMETER
		PLAS.	PLASTER
DBL.	DOUBLE	PL. LAM.	PLASTIC LAMINATE
DEPT.	DEPARTMENT	PL.	PLATE
DET.	DETAIL	PLMBG.	PLUMBING
Ø	DIAMETER	PLYWD.	PLYWOOD
DIM.	DIMENSION	PT.	POINT
		PRCST.	PRECAST
D.O.	DOOR OPENING	P.T.WD.	PRESSURE TREATED WOOD
DN.	DOWN		
DS.	DOWNSPOUT		
DWG.	DRAWING	Q.T.	QUARRY TILE
D.F.	DRINKING FOUNTAIN		
D.S.P.	DRY STANDPIPE	RAD.	RADIUS
		R.W.L.	RAIN WATER LEADER
EA.	EACH	RCPT.	RECEPTACLE
E.	EAST	REF.	REFERENCE/REFER
E.W.C.	ELECTRIC WATER COOLER	RFRG.	REFRIGERATOR
		REGTR.	REGISTER
ELEC.	ELECTRICAL	REINF.	REINFORCED
E.P.	ELECTRICAL PANEL BOARD	REQ.	REQUIRED/ REQUIREMENTS
EL.	ELEVATION	RESIL.	RESILIENT
ELEV.	ELEVATOR	RS.	RISER
EMER.	EMERGENCY	R.D.	ROOF DRAIN
ENCL.	ENCLOSURE	RM.	ROOM
EQ.	EQUAL	R.O.	ROUGH OPENING
EQUIP.	EQUIPMENT	ROT.	ROTATE
EXST.	EXISTING		
EXP.	EXPANSION	SCH.	SCHEDULE
E.J.	EXPANSION JOINT	SCHED.	SCHEDULE
EXPO.	EXPOSED	SECT.	SECTION
EXT.	EXTERIOR	S.S.	SERVICE SINK
		S.S.K.	SERVICE SINK
F.O.C.	FACE OF CONCRETE	SHT.	SHEET
F.O.F.	FACE OF FINISH	SH.	SHELF
F.O.S.	FACE OF STUDS	SHWR.	SHOWER
FT.	FEET	SIM.	SIMILAR
FIN.	FINISH	S.D.	SOAP DISPENSER
F.O.	FINISH OPENING	S.C.	SOLID CORE
F.A.	FIRE ALARM		SOUTH
F.E.C.	FIRE EXTINGUISHER CABINET	SPEC.	SPECIFICATION
		SQ.	SQUARE
F.H.C.	FIRE HOSE CABINET	SST.	STAINLESS STEEL
FPRF.	FIRE PROOF	STD.	STANDARD
FLSHG.	FLASHING	STA.	STATION
F.B.	FLAT BAR	STL.	STEEL
FLR.	FLOOR	STOR.	STORAGE
F.D.	FLOOR DRAIN	STRUCT.	STRUCTURAL
FLUOR.	FLUORESCENT	SUSP.	SUSPENDED
FT.	FOOT	SYM.	SYMMETRICAL
FTG.	FOOTING		
FDN.	FOUNDATION	TER.	TERRAZZO
F.S.	FULL SIZE	TERM.	TERMINATE
FRG.	FURRING	TH.	THICK
FUT.	FUTURE	T.O.	TOP OF
		T.O.C.	TOP OF CURB
GALV.	GALVANIZED	T.O.P.	TOP OF PAVEMENT
GA.	GAUGE	T.O.W.	TOP OF WALL
G.B.	GRAB BAR	T.B.	TOWEL BAR
GL.	GLASS/GLAZING	T.B.D.	TO BE DETERMINED
GR.	GRADE	TRD.	TREAD
GND.	GROUND	TYP.	TYPICAL
G.W.B.	GYPSUM WALLBOARD		
		U.N.O.	UNLESS NOTED OTHERWISE
H.C.	ACCESSIBLE		
HDWR.	HARDWARE		
HDWD.	HARDWOOD	V.I.F	VERIFY IN FIELD
HT.	HEIGHT	VERT.	VERTICAL
H.M.	HOLLOW METAL	VEST.	VESTIBULE
HORIZ.	HORIZONTAL		
H.B.	HOSE BIBB	W.C.	WATER CLOSET
HR.	HOUR	WP.	WATERPROOF
		WT.	WEIGHT
I.D.	INSIDE DIAMETER	W.	WEST
INSUL.	INSULATION	WDW.	WINDOW
INT.	INTERIOR	W/	WITH
		W/O	WITHOUT
JT.	JOINT	WD.	WOOD
J-BOX	JUNCTION BOX		

GRAPHIC SYMBOLS

GRID BUBBLE — 1

SECTION SYMBOL — 1 / A1.00

DETAIL BUBBLE — 1 / A1.00

ELEVATION CALLOUT — 1 / A1.00

REVISION — 1

ROOM NUMBER — 1-01 / MECH / ROOM

SCHEDULE CALLOUT — PT | 02

HEIGHT CALLOUT — CH 12'-0"

DOOR NUMBER — 1

WINDOW NUMBER — 1

DATUM SYMBOL — LEVEL 1 / EL 0'-0"

BREAK LINE

CENTER LINE — ℄

FINISH FLOOR/ FINISH ROOF LEVEL — +0'-0"

FINISH SLAB LEVEL — +0'-0"

WALL TYPE — W-01

MATERIAL SYMBOLS

- NOT IN CONTRACT (BY OTHERS)
- EXISTING WALL
- NEW WALL
- TO BE DEMOLISHED
- EARTH
- BEDROCK
- RIGID INSULATION
- BATT INSULATION
- IRON
- STEEL
- BRONZE, BRASS, COPPER
- PLASTIC, RUBBER
- FIRE, REFRACTORY BRICK
- STONE
- LEAD, ZINC, MAGNESIUM
- ALUMINUM
- PLYWOOD
- CONCRETE
- CMU, BRICK, MASONRY
- GYPSUM, EXT. PLASTER (STUCCO)

APPLICABLE CODES & REGULATIONS

1. ALL WORK SHALL CONFORM TO THE CURRENT REQUIREMENTS OF THE CITY OF GLENWOOD SPRINGS, INCLUDING BUT NOT LIMITED TO:
   a. THE ADOPTED DEVELOPMENT CODE OF GLENWOOD SPRINGS
   b. THE ADOPTED BUILDING CODE OF GLENWOOD SPRINGS

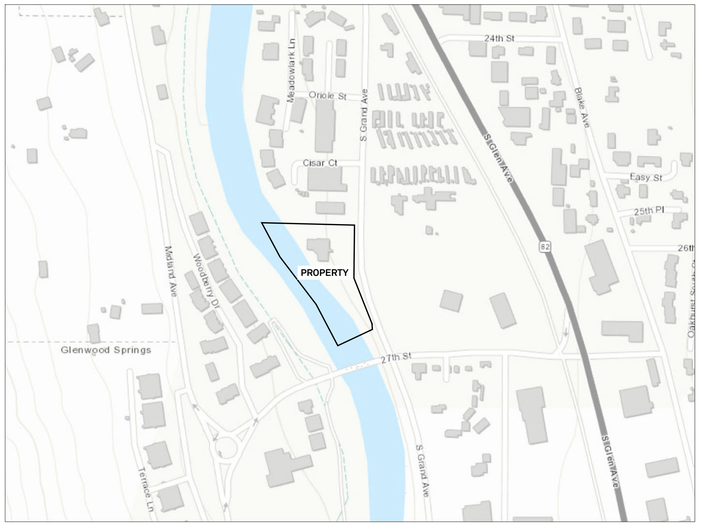
PROJECT SUMMARY TABLE

LOT SIZE	*ACRES*	*SQUARE FEET (SF)*	**LOT COVERAGE**	*EXISTING (SF & %)*	*PROPOSED (SF & %)*
	2.6	113,816		0	17,261 / 15.2%
LIMITS OF DISTURBANCE	*EXISTING (SF & %)*	*PROPOSED (SF & %)*	**AVERAGE SLOPE WITHIN LIMITS OF DISTURBANCE**	%	
		53,716 / 47.2%		9	
OFF-STREET PARKING SPACES	*EXISTING # SPACES*	*PROPOSED # SPACES*	**BICYCLE PARKING SPACES**	*EXISTING # SPACES*	*PROPOSED # SPACES*
		42 (34 RESIDENT + 8 GUEST)			10
RESIDENTIAL UNITS	*EXISTING # UNITS*	*PROPOSED # UNITS*	**NON-RESIDENTIAL UNITS**	*TYPE OF USE(S)*	*GROSS FLOOR AREA (SF)*
	0	17		NA	0
OPEN SPACE	*EXISTING (SF & %)*	*PROPOSED (SF & %)*	**TOTAL LANDSCAPED AREA**	*EXISTING (SF & %)*	*PROPOSED (SF & %)*
		63,426.0 / 56%			11,933.1 /10.5%
BUILDING HEIGHT	*EXISTING*	*PROPOSED (FEET)*	**TOTAL IMPERVIOUS AREA**	*EXISTING (SF & %)*	*PROPOSED (SF & %)*
		39.75'			38,454.16 / 78.8%
SNOW STORAGE	*REQUIRED (SF)*	*PROPOSED (SF)*	**OTHER**	*LANDSCAPED R.O.W. (SF)*	
		540		3,380	

GENERAL NOTES

1. FLOOD PLAIN AND FLOOD ZONE INFORMATION SHOWN ON INCLUDED SURVEY IS BASED SOLELY UPON THE FLOOD INSURANCE RATE MAP (COMMUNITY PANEL NO. 080205 1164 E, DATED PRELIMINARY OCTOBER 26.2011 PREPARED BY THE FEDERAL EMERGENCY EMERGENCY MANAGEMENT AGENCY.) PORTION OF PROPERTY IS LOCATED WITHIN A DESIGNATE FLOODPLAIN: REFER TO AREAS AS INDICATED IN SURVEY.

2. THIS PROPERTY IS SUBJECT TO GEOLOGIC HAZARDS PER THE ADOPTED MAPPING BY THE CITY OF GLENWOOD SPRINGS. HAZARDS TO NOTE ARE THE PROPERTY MAY OVERLIE THE EAGLE VALLEY EVAPORITE: REFER TO THE INCLUDED GEOTECHNICAL STUDY COMPLETED BY CESARE, INC. ON 12/09/2021 FOR MORE INFORMATION. A FINAL GEOLOGIC HAZARD REPORT WILL BE SUBMITTED UPON APPLICATION OF A BUILDING PERMIT.



01 **VICINITY MAP**
SCALE: N.T.S.

N

2525 SOUTH GRAND

SHEET #	*SHEET TITLE*	*SCALE*
T-100	TITLE SHEET	N.T.S.
	ALTA/NSPS LAND TITLE SURVEY	1" = 30'
C1.0	SITE PLAN	1" = 20'
C2.0	GRADING PLAN	1" = 20'
C2.1	SLOPE ANALYSIS PLAN	1" = 20'
C3.0	UTILITY PLAN	1" = 20'
L1.0	LANDSCAPE PLAN	1" = 20'
L2.0	CIRCULATION PLAN	1" = 20'
A-100	ARCHITECTURAL SITE PLAN	1" = 20'
A-101	EXTERIOR LIGHTING PLAN	1" = 20'
A-110	FLOOR PLANS	1/8"=1'-0"
A-111	FLOOR PLANS	1/8"=1'-0"
A-112	FLOOR PLANS	1/8"=1'-0"
A-113	FLOOR PLANS	1/8"=1'-0"
A-114	FLOOR PLANS	1/8"=1'-0"
A-115	FLOOR PLANS	1/8"=1'-0"
A-116	FLOOR PLANS	1/8"=1'-0"
A-117	FLOOR PLANS	1/8"=1'-0"
A-200	EXTERIOR ELEVATIONS	1/8"=1'-0"
A-201	EXTERIOR ELEVATIONS	1/8"=1'-0"
A-202	EXTERIOR ELEVATIONS	1/8"=1'-0"

MOVE MATTER / ARCHITECTS
1115 CHAMBERS AVE. C101
EAGLE CO 81631
info@movematter.com www.movematter.com

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NORTH MOUNTAIN PARTNERS, LLC
2327 SOUTH LOVELAND ST.
LAKEWOOD, CO 80228
303.229.0097 |
BWILSON@NORTHMOUNTAINPARTNERS.COM

CONSULTANTS:

CIVIL ENGINEER:
JVA, INC.
817 COLORADO AVENUE, SUITE 301
GLENWOOD SPRINGS, CO 81601
970.404.3100 | JSPUNG@JVAJVA.COM

LANDSCAPE ARCHITECT:
RE:LAND, LLC
652 MELISSA LANE
CARBONDALE, CO 81623
303.829.8362 | NICK@RE-LAND.COM

GEOTECHNICAL ENGINEER:
CESARE, INC.
7108 S. ALTON WAY, BUILDING B
CENTENNIAL, CO 80112
303.220.0300 | INFO@CESAREINC.COM

TRAFFIC ENGINEER:
MCDOWELL ENGINEERING
241 BROADWAY STREET, SUITE 202
EAGLE, CO 81631
970.623.0788 | GREG@MCDOWELLENG.COM

ENTITLEMENTS PLANNER:
THE LAND STUDIO, INC.
365 RIVER BEND WAY
GLENWOOD SPRINGS, CO 81601
970.927.3690 | LANDSTUDIO2@COMCAST.NET

REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

TITLE SHEET

DATE: 12/23/2021
PROJECT: 039
DWG BY: CHK BY:
SCALE:
DWG NO:

T-100.00

OF

ALTA/NSPS
Land Title Survey

Situated in

SE1/4SE1/4 & SW1/4SE1/4 Section 16
Township 6 South, Range 89 West of the 6th P.M.
City of Glenwood Springs, Garfield County, Colorado

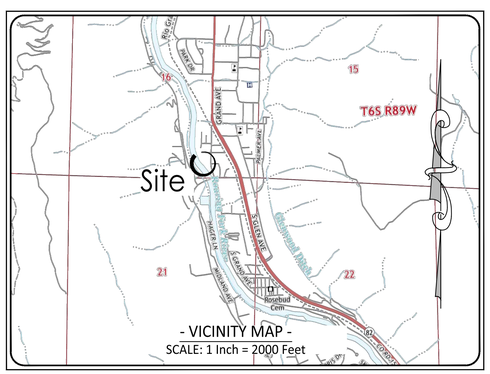
— LEGEND —

- Found Monument as Described
- Electric Meter
- Electric Transformer
- Electric Manhole
- Electric Ped
- Telephone Ped
- Water valve
- Water Shut-off
- Sanitary Sewer Manhole
- Cleanout
- Gas Meter
- Mailbox
- Irrigation Cont. Box
- Electric vault
- Telephone Manhole
- Cable TV vault
- Storm Drain Inlet
- Sign – Single Pole
- Curb Inlet
- CATV Pedestal
- Deck
- Concrete
- Asphalt paving
- River
- Fenceline
- Flow Line
- Gas Line
- Water Line
- Underground Electric Line
- Underground Telephone Line
- Cable Television Line

— LEGEND —
— Floodplain —

Floodplain and Flood Zone information shown hereon is based solely upon the Flood Insurance Rate Map (Community Panel No. 080205 1164 E, Dated PRELIMINARY October 26, 2011 prepared by the Federal Emergency Management Agency.

- Flood Zone AE 1% Annual Chance
- Zone X 0.2% Annual Chance
- Zone X 0.1% Annual Chance



PROPERTY DESCRIPTION:

A PARCEL OF LAND SITUATED IN THE SE1/4SE1/4 AND THE SW1/4SE1/4 OF SECTION 16, TOWNSHIP 6 SOUTH, RANGE 89 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO, LYING WESTERLY OF THE WESTERLY RIGHT OF WAY LINE OF GRAND AVENUE BEING THE SAME AS THE OLD HIGHWAY NO. 82 AND EASTERLY OF THE CENTER OF THE ROARING FORK RIVER, SAID PARCEL OF LAND IS DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY WHENCE THE SECTION CORNER COMMON TO SECTIONS 15, 16, 21 AND 22 IN SAID TOWNSHIP AND RANGE BEARS: S. 69 DEGREES 45'00" E. 1420.04 FEET;
THENCE S. 00 DEGREES 37'09" W. 212.60 FEET ALONG THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY;
THENCE S. 21 DEGREES 36'00" E. 305.29 FEET ALONG THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY;
THENCE S. 89 DEGREES 45'00" W. 170.48 FEET TO A POINT IN THE CENTER OF SAID RIVER,
THENCE N. 27 DEGREES 40'37" W. 201.43 FEET ALONG THE CENTER OF SAID RIVER;
THENCE N. 37 DEGREES 19'00" W. 239.75 FEET ALONG THE CENTER OF SAID RIVER;
THENCE N. 28 DEGREES 08'38" W. 156.14 FEET ALONG THE CENTER OF SAID RIVER;
THENCE S. 88 DEGREES 32'00" E. 373.07 FEET TO A POINT ON THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY, THE POINT OF BEGINNING.

LESS AND EXCEPT A PARCEL OF LAND AS DESCRIBED IN DEED RECORDED DECEMBER 12, 2001 IN BOOK 1310 AT PAGE 712
AND LESS AND EXCEPT THAT PORTION CONVEYED TO THE CITY OF GLENWOOD SPRINGS IN WARRANTY DEED RECORDED JULY 3, 2018 UNDER RECEPTION NO. 908898.

COUNTY OF GARFIELD
STATE OF COLORADO

NOTES:

1. Basis of Bearings: Bearings shown hereon are based on a bearing of S69°44'01"E, between a found No.5 Rebar & 1.25" Yellow Plastic Cap Marked LS 19598 found at the Northeast Corner of the subject parcel and a found 1.5" Steel Pipe with 2.5" USGLO Brass Cap properly marked at the Southeast Corner of said Section 16 dated 1924, as shown hereon.
2. This map has been prepared pursuant to client request for an ALTA/NSPS Land Title Survey, and includes items 2,3,4,6(b),7(a),7(b1),8,9,11,13,16,17,19 and 20 of Tabel A thereof.
3. Date of field survey :March 2, 2020, August 24, 2020 and September 30, 2021
4. Units of linear measurements are displayed in US Survey Feet.
5. SGM is not responsible for any changes made to this document after it leaves our possession. Any copy, facsimile, etc., of this document must be compared to the original signed, sealed and dated document to insure the accuracy of the information shown on any such copy, and to insure that no such changes have been made.
6. Property descriptions shown hereon are based on title insurance commitment issued by Land Title Guarantee Company, Commitment No. ABS63016871, having a policy date of June 18, 2021.
7. Fences shown hereon, if any, have been shown for general reference and do not necessarily depict limits of ownership.
8. Pertaining to Table A, Optional Survey Responsibilities and Specifications, the items that were requested are listed below.

Item 2: Property Address: 2525 Grand Ave, Glenwood Springs, CO

Item 3: Flood Hazard Zone information: As shown hereon.

Item 4: Gross Land Area :113,816 Square Feet ±, 2.613 Acres ±

Item 5: Vertical Information: Datum: Elevation information shown hereon is based upon GPS observations utilizing OPUS, Geoid 12B to derive the NAVD88 elevation of 5805.65" at the top of a No. 5 Rebar & 1.25" Yellow Plastic Cap Marked LS 19598, as shown hereon. Contour Interval: One (1) Foot.

Item 6(b): Zoning Setback requirements not provided to surveyor.

Item 7(a): Exterior dimensions of all buildings are shown hereon.

Item 7(b1): Exterior footprint of all buildings at ground level are shown hereon.

Item 8: Substantial features are shown hereon.

Item 9: Property contains 57 total parking spaces, with 1 of those identified as for the disabled.

Item 11: Any subsurface utilities not shown, were not marked by appropriate utility companies at the time of this survey and therefore may not be shown hereon. Underground utilities locates have been marked by Roaring Fork Utility Locators LLC. Only paint marks and utility pin flags on the ground surface were surveyed by SGM as part of this survey. Client/contractor must contact specific utility companies to verify both the location and depth of respective utilities. Additional surveying work may be required to show any such subsurface utility locations on this drawing. SGM will not be responsible for protection of subsurface utilities.

Item 13: Names of adjoining owners are shown hereon.

Item 16: There was no observed evidence of current earth moving work, building construction or building additions, other than an observed temporary chain-link construction fence around the perimeter of the parking lot. This fence is not a permanent structure and is therefore not shown.

Item 17: No evidence of proposed changes of street right of ways made available. Evidence of recent street or sidewalk construction not observed.

Item 18: Plottable offsite easements shown hereon.

10. The property shown hereon is subject to all easements, rights-of-way, building setbacks or other restrictions of record, as such items may affect this property. This survey does not represent a title search by this surveyor to determine ownership or to discover easements or other encumbrances of record. All information pertaining to ownership, easement and other encumbrances of record has been taken from the title insurance commitment issued by Land Title Guarantee Company, Commitment No. ABS63016871, having a policy date of June 18, 2021.

    Every attempt has been made to show all easements, rights-of-way, etc. referred to in the Schedule B2 Exceptions recited in said title insurance policy. Some such items may not be shown (i.e. Items 1-6) if they are standard title commitment exceptions. In regards to other such items:

    ITEM 7. RIGHT OF WAY FOR DITCHES OR CANALS CONSTRUCTED BY THE AUTHORITY OF THE UNITED STATES AS RESERVED IN UNITED STATES PATENT RECORDED AUGUST 29, 1896, IN BOOK 12 AT PAGE 433. MAY AFFECT SUBJECT PARCEL, CANNOT BE GRAPHICALLY DEPICTED.

    ITEM 8. RIGHT OF PROPRIETOR OF A VEIN OR LODE TO EXTRACT AND REMOVE HIS ORE THEREFROM SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES AS RESERVED IN UNITED STATES PATENT RECORDED AUGUST 29, 1896, IN BOOK 12 AT PAGE 433. MAY AFFECT SUBJECT PARCEL, CANNOT BE GRAPHICALLY DEPICTED.

    ITEM 9. ANY QUESTION, DISPUTE OR ADVERSE CLAIMS AS TO ANY LOSS OR GAIN OF LAND AS A RESULT OF ANY CHANGE IN THE RIVER BED LOCATION BY NATURAL OR OTHER THAN NATURAL CAUSES, OR ALTERATION THROUGH ANY CAUSE, NATURAL OR UNNATURAL, OF THE CENTER THREAD, BANK, CHANNEL OR FLOW OF WATERS IN THE ROARING FORK RIVER LYING WITHIN SUBJECT LAND; AND ANY QUESTION AS TO THE LOCATION OF SUCH CENTER THREAD, BED, BANK OR CHANNEL AS A LEGAL DESCRIPTION MONUMENT OR MARKER FOR PURPOSES OF DESCRIBING OR LOCATING SUBJECT LANDS.

    ITEM 10. ANY RIGHTS, INTERESTS OR EASEMENTS IN FAVOR OF THE UNITED STATES OF AMERICA, THE STATE OF COLORADO, OR THE PUBLIC, WHICH EXIST OR ARE CLAIMED TO EXIST IN AND OVER THE PAST AND PRESENT BED, BANKS OR WATERS OF COLORADO RIVER MAY AFFECT SUBJECT PARCEL BUT CANNOT BE GRAPHICALLY DEPICTED.

    ITEM 11. MATTERS DISCLOSED ON ALTA/NSPS LAND TITLE SURVEY PREPARED BY JOSHUA L. WILSON ON BEHALF OF SGM, CERTIFIED OCTOBER 19, 2020, JOB NO. 2020-177.003

    SAID DOCUMENT STORED AS TITLE IMAGE 35066400

    A: FENCES NOT COINCIDENT WITH PROPERTY LINES.
    B: SUBSURFACE CULVERT AND SUBSURFACE PIPE ARE LOCATED ON AND TRAVERSE THE BOUNDARY OF THE LAND WITHOUT THE BENEFIT OF A RECORDED EASEMENT.
    C: A SET WALL ON THE NORTH PROPERTY LINE ENCROACH ONTO THE ADJACENT PARCEL WITHOUT THE BENEFIT OF A RECORDED EASEMENT OR ENCROACHMENT AGREEMENT.
    D: EXCEPTION FOR RIGHTS OF UTILITIES WITHOUT THE BENEFIT OF A RECORDED EASEMENT.

    ARE DEPICTED HEREON.

    ITEM 12. DEED OF TRUST DATED JUNE 17, 2021, FROM THE RIVERS, LLC, A COLORADO LIMITED LIABILITY COMPANY TO THE PUBLIC TRUSTEE OF GARFIELD COUNTY, COLORADO FOR THE USE OF ALPINE BANK TO SECURE THE SUM OF $1,550,000.00 RECORDED JUNE 18, 2021, UNDER RECEPTION NO. 958422 AFFECTS SUBJECT PARCEL BUT CANNOT BE GRAPHICALLY DEPICTED.

SURVEYOR'S CERTIFICATION:

To: The Rivers, LLC, a Colorado Limited Liability Company, and Land Title Guarantee Company

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2,3,4,6(b),7(a),7(b1),8,9,11,13,16,17,18 and 20 of Table A thereof. The field work was completed on October 15, 2020 and verified on September 30, 2021

Date of Plat or Map: October 12, 2021.

Joshua L. Wilson
Colorado PLS # 38417
For, and on behalf of SGM
Joshw@sgm-inc.com

COLORADO LICENSED
JOSHUA L. WILSON
38417
10.12.21
PROFESSIONAL LAND SURVEYOR

Graphic Scale
0 15 30 60
In U.S. Feet : 1" = 30'

SGM
118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

Joshua L. Wilson
Digitally signed by Joshua L. Wilson
DN: C=US, E=joshw@sgm-inc.com, O=Survey, OU="SGM, Inc.", CN=Joshua L. Wilson
Reason: ALTA
Date: 2021.10.12 14:10:38-06'00'

2525 South Grand Ave
Glenwood Springs, Colorado 81601

#	Revision	Date	By
1			
2			
3			
4			
5			
6			
7			
8			
9			

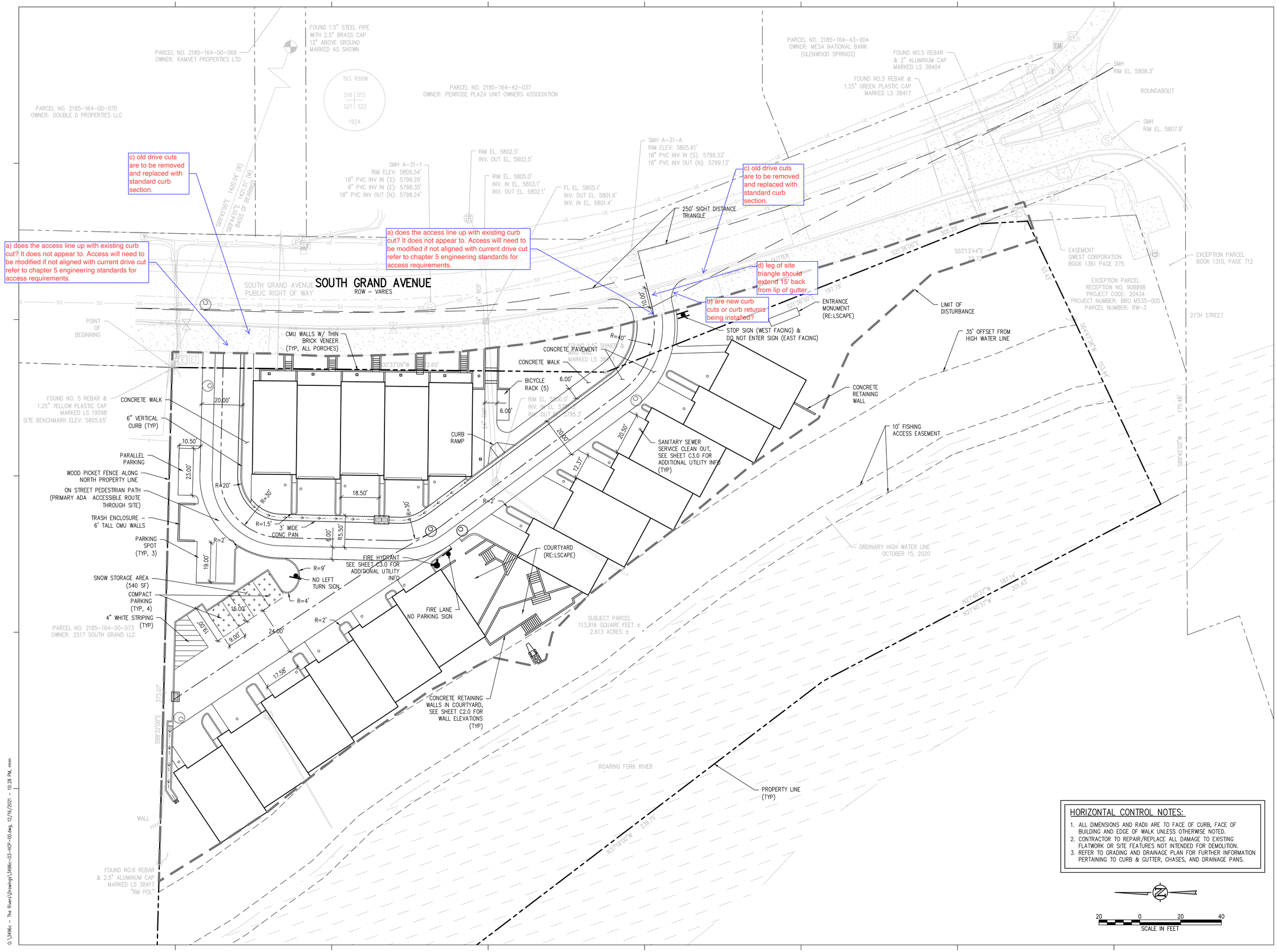
Notice: According to Colorado Law, you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any legal action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

Job No.	2020-177.003
Drawn by:	hs
Date:	10/12/2021
Approved:	– | PLS: jlw
File:	RiversRestaurant_ALTA_Oct2021

Title:
ALTA/NSPS
Land Title Survey

Sheet No.
1
Of: 1

L:\2020\2020-177-RiversRestaurant\003-ALTASurvey\dt-Dwgs\Dwgs\BaseMaps\RiversRestaurant_ALTA_Oct2021.dwg Plotted: 10/12/2021 2:08 PM By: Josh Wilson



HORIZONTAL CONTROL NOTES:

1. ALL DIMENSIONS AND RADII ARE TO FACE OF CURB, FACE OF BUILDING AND EDGE OF WALK UNLESS OTHERWISE NOTED.
2. CONTRACTOR TO REPAIR/REPLACE ALL DAMAGE TO EXISTING FLATWORK OR SITE FEATURES NOT INTENDED FOR DEMOLITION.
3. REFER TO GRADING AND DRAINAGE PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.

20 0 20 40
SCALE IN FEET

G:\3496c - The Rivers\Drawings\3496c-03-HCP-00.dwg, 12/16/2021 - 10:28 PM, rmm

MOVE MATTER / ARCHITECTS
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CONSULTANTS:
CIVIL ENGINEER:
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REVISIONS:

NO:	DATE:	REMARKS:

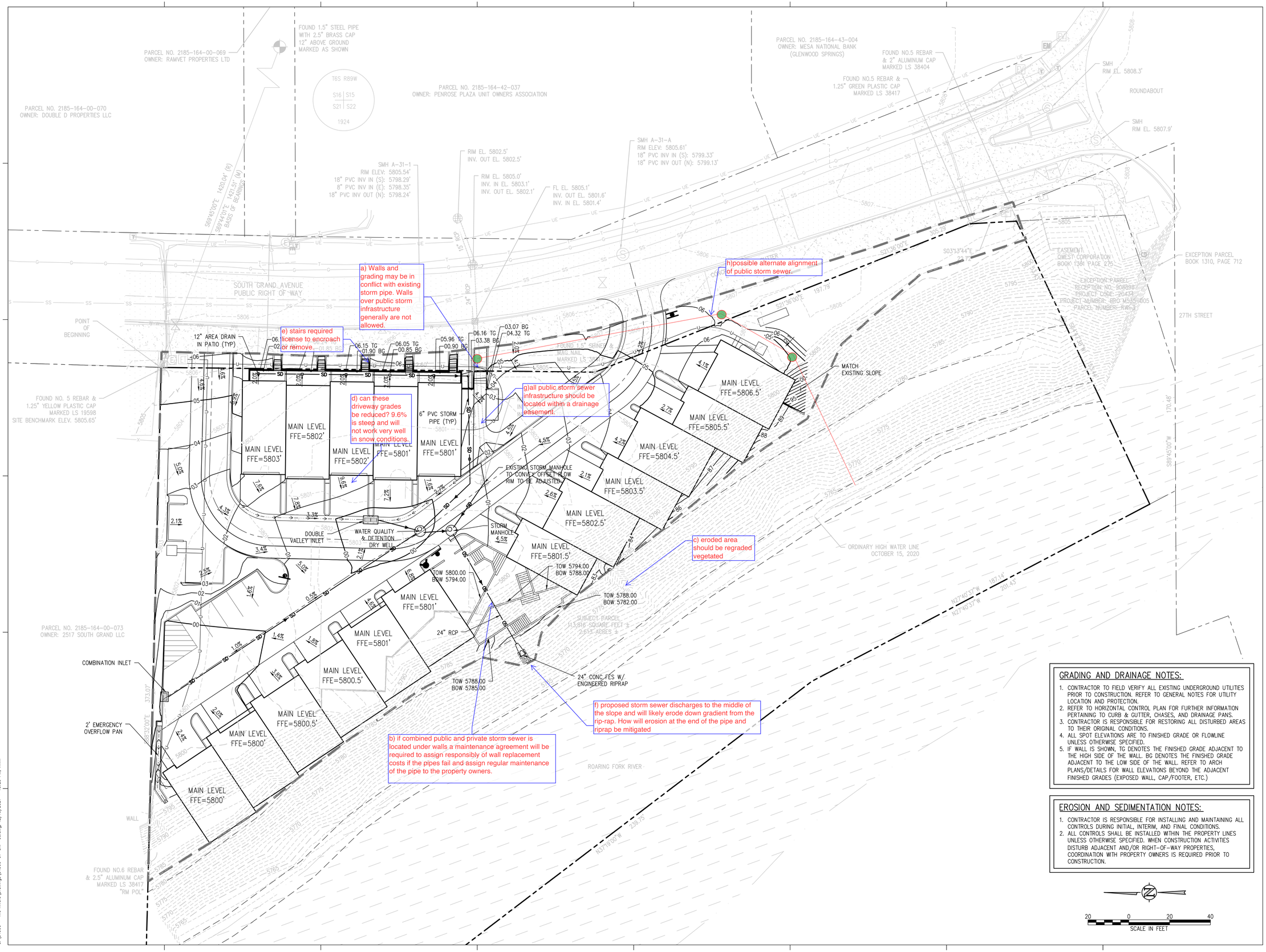
SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
SITE PLAN

DATE: 12/23/2021
PROJECT: 039 JVA PROJECT: 3496c
DWG BY: RMM CHK BY: JLS
SCALE:
DWG NO:
C1.0

SHEET 1 OF 3



GRADING AND DRAINAGE NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
2. REFER TO HORIZONTAL CONTROL PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.
3. CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITIONS.
4. ALL SPOT ELEVATIONS ARE TO FINISHED GRADE OR FLOWLINE UNLESS OTHERWISE SPECIFIED.
5. IF WALL IS SHOWN, TG DENOTES THE FINISHED GRADE ADJACENT TO THE HIGH SIDE OF THE WALL. BG DENOTES THE FINISHED GRADE ADJACENT TO THE LOW SIDE OF THE WALL. REFER TO ARCH PLANS/DETAILS FOR WALL ELEVATIONS BEYOND THE ADJACENT FINISHED GRADES (EXPOSED WALL, CAP/FOOTER, ETC.)

EROSION AND SEDIMENTATION NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING ALL CONTROLS DURING INITIAL, INTERIM, AND FINAL CONDITIONS.
2. ALL CONTROLS SHALL BE INSTALLED WITHIN THE PROPERTY LINES UNLESS OTHERWISE SPECIFIED. WHEN CONSTRUCTION ACTIVITIES DISTURB ADJACENT AND/OR RIGHT-OF-WAY PROPERTIES, COORDINATION WITH PROPERTY OWNERS IS REQUIRED PRIOR TO CONSTRUCTION.

20 0 20 40
SCALE IN FEET

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PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
PRELIMINARY GRADING PLAN

DATE:	12/23/2021
PROJECT: 039	JVA PROJECT: 3496c
DWG BY: RMM	CHK BY: JLS
SCALE:	
DWG NO:	C2.0

SHEET 2 OF 3

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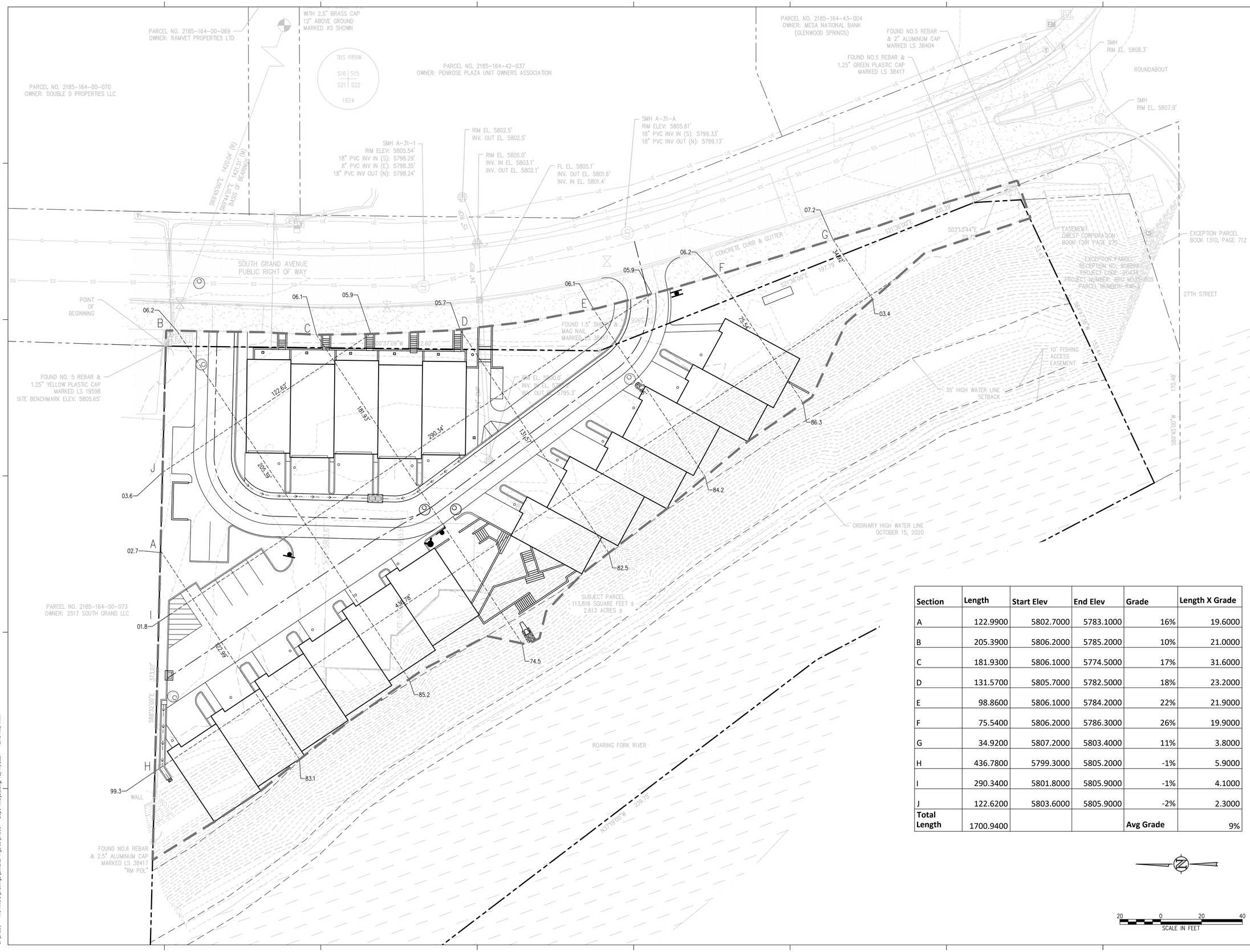

Section	Length	Start Elev	End Elev	Grade	Length X Grade
A	122.9900	5802.7000	5783.1000	16%	19.6000
B	205.3900	5806.2000	5785.2000	10%	21.0000
C	181.9300	5806.1000	5774.5000	17%	31.6000
D	131.5700	5805.7000	5782.5000	18%	23.2000
E	98.8600	5806.1000	5784.2000	22%	21.9000
F	75.5400	5806.2000	5786.3000	26%	19.9000
G	34.9200	5807.2000	5803.4000	11%	3.8000
H	436.7800	5799.3000	5805.2000	-1%	5.9000
I	290.3400	5801.8000	5805.9000	-1%	4.1000
J	122.6200	5803.6000	5805.9000	-2%	2.3000
Total Length	1700.9400			**Avg Grade**	9%

20 0 20 40
SCALE IN FEET

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REVISIONS:

NO:	DATE:	REMARKS:

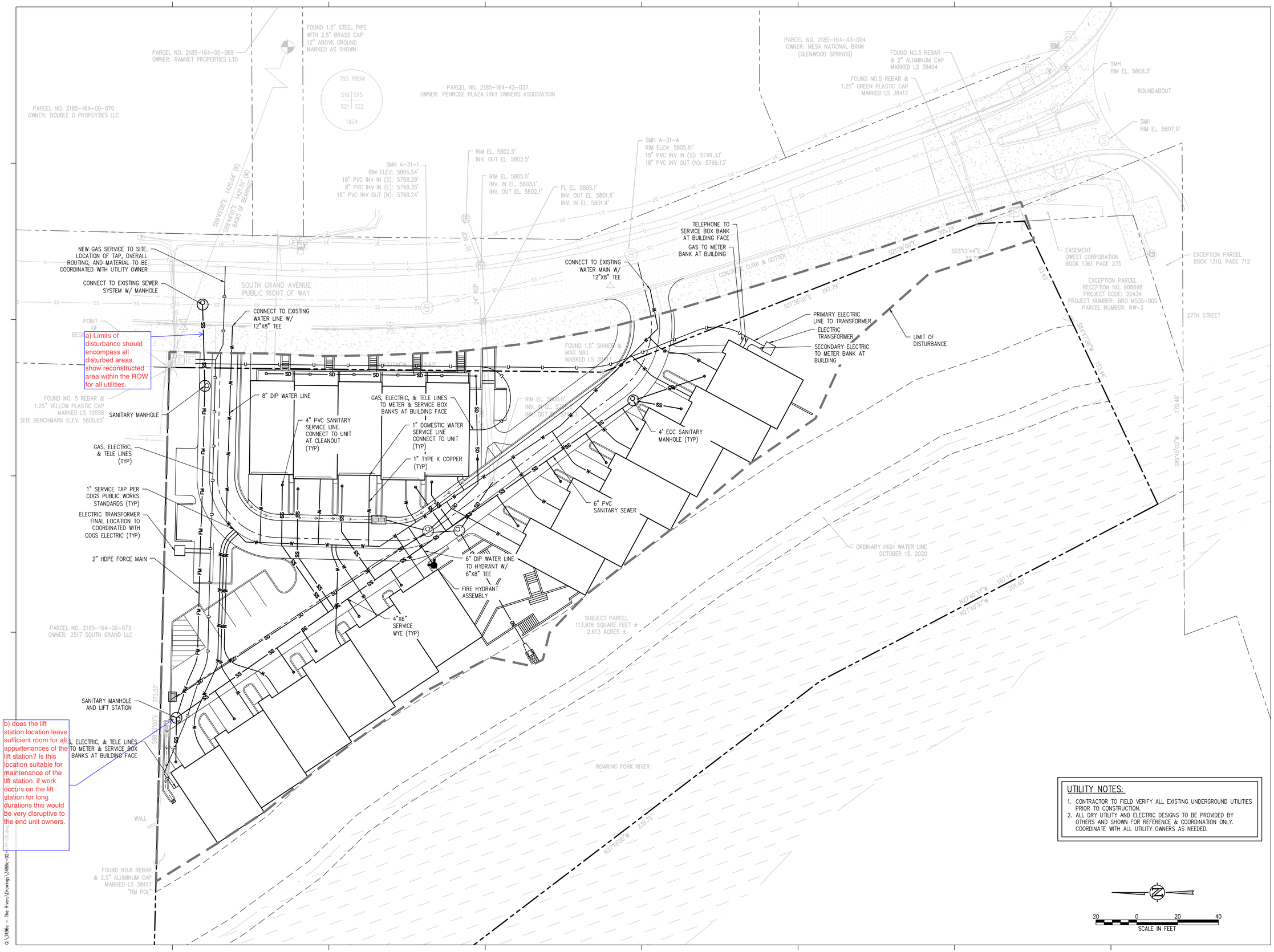
SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
SLOPE ANALYSIS PLAN

DATE: 12/23/2021
PROJECT: 039 JVA PROJECT: 3496c
DWG BY: RMM CHK BY: JLS
SCALE:
DWG NO:
C2.1
OF

G:\3496c - The Rivers\Drawings\Exhibits-Figures\3496c - Slope Analysis.dwg, 12/17/2021 - 10:13 AM, mmm



UTILITY NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
2. ALL DRY UTILITY AND ELECTRIC DESIGNS TO BE PROVIDED BY OTHERS AND SHOWN FOR REFERENCE & COORDINATION ONLY. COORDINATE WITH ALL UTILITY OWNERS AS NEEDED.

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REVISIONS:

NO:	DATE:	REMARKS:

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PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
PRELIMINARY UTILITY PLAN

DATE: 12/23/2021
PROJECT: 039 JVA PROJECT: 3496c
DWG BY: RMM CHK BY: JLS
SCALE:
DWG NO:
C3.0

SHEET 3 OF 3

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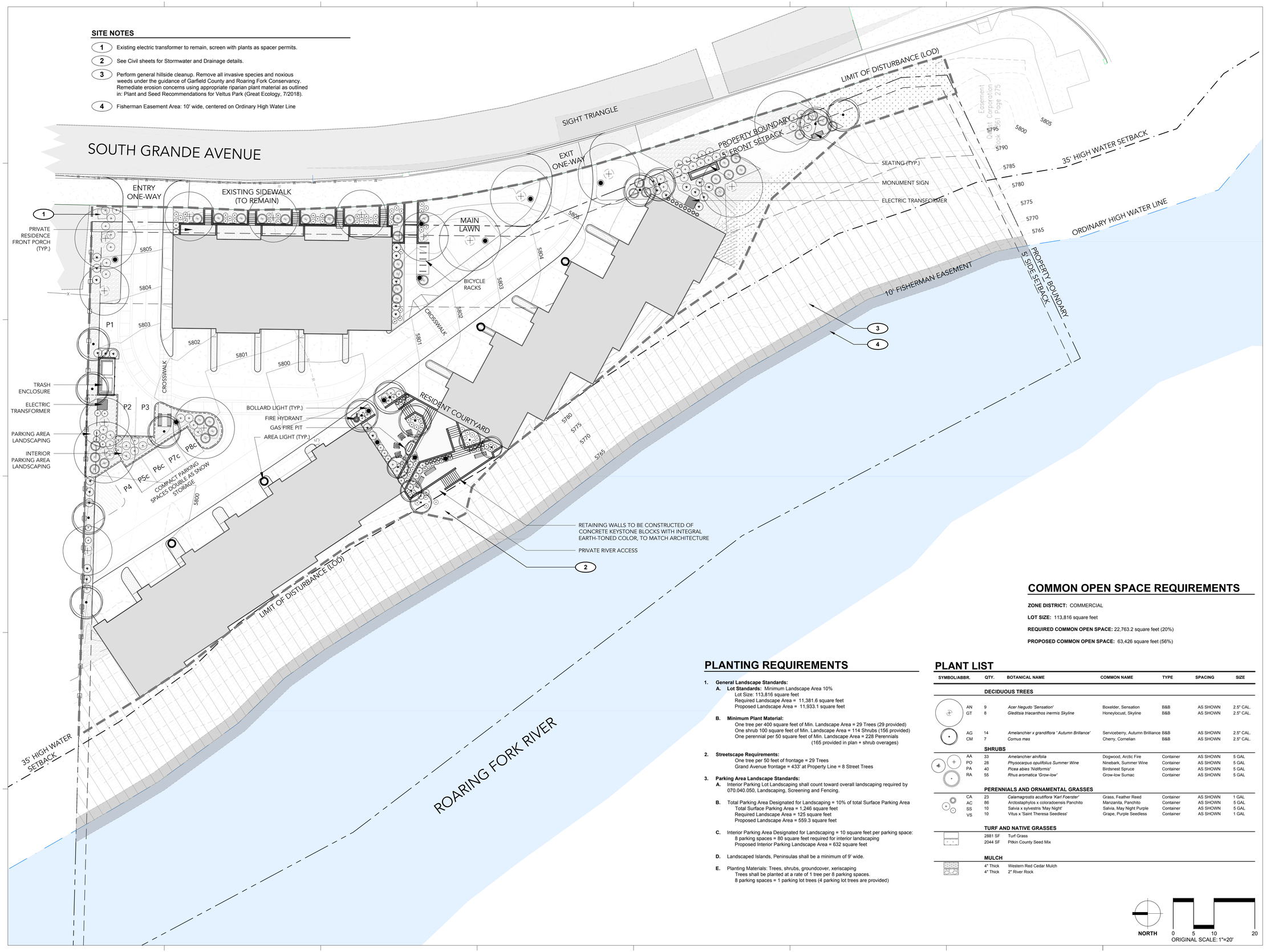
SITE NOTES

1. Existing electric transformer to remain, screen with plants as spacer permits.
2. See Civil sheets for Stormwater and Drainage details.
3. Perform general hillside cleanup. Remove all invasive species and noxious weeds under the guidance of Garfield County and Roaring Fork Conservancy. Remediate erosion concerns using appropriate riparian plant material as outlined in: Plant and Seed Recommendations for Veltus Park (Great Ecology, 7/2018).
4. Fisherman Easement Area: 10' wide, centered on Ordinary High Water Line



COMMON OPEN SPACE REQUIREMENTS

ZONE DISTRICT: COMMERCIAL

LOT SIZE: 113,816 square feet

REQUIRED COMMON OPEN SPACE: 22,763.2 square feet (20%)

PROPOSED COMMON OPEN SPACE: 63,426 square feet (56%)

PLANTING REQUIREMENTS

1. **General Landscape Standards:**
   - **A. Lot Standards:** Minimum Landscape Area 10%
     Lot Size: 113,816 square feet
     Required Landscape Area = 11,381.6 square feet
     Proposed Landscape Area = 11,933.1 square feet
   - **B. Minimum Plant Material:**
     One tree per 400 square feet of Min. Landscape Area = 29 Trees (29 provided)
     One shrub 100 square feet of Min. Landscape Area = 114 Shrubs (156 provided)
     One perennial per 50 square feet of Min. Landscape Area = 228 Perennials (165 provided in plan + shrub overages)
2. **Streetscape Requirements:**
   One tree per 50 feet of frontage = 29 Trees
   Grand Avenue frontage = 433' at Property Line = 8 Street Trees
3. **Parking Area Landscape Standards:**
   - **A.** Interior Parking Lot Landscaping shall count toward overall landscaping required by 070.040.050, Landscaping, Screening and Fencing.
   - **B.** Total Parking Area Designated for Landscaping = 10% of total Surface Parking Area
     Total Surface Parking Area = 1,246 square feet
     Required Landscape Area = 125 square feet
     Proposed Landscape Area = 559.3 square feet
   - **C.** Interior Parking Area Designated for Landscaping = 10 square feet per parking space:
     8 parking spaces = 80 square feet required for interior landscaping
     Proposed Interior Parking Landscape Area = 632 square feet
   - **D.** Landscaped Islands, Peninsulas shall be a minimum of 9' wide.
   - **E.** Planting Materials: Trees, shrubs, groundcover, xeriscaping
     Trees shall be planted at a rate of 1 tree per 8 parking spaces.
     8 parking spaces = 1 parking lot trees (4 parking lot trees are provided)

PLANT LIST

SYMBOL/ABBR.	QTY.	BOTANICAL NAME	COMMON NAME	TYPE	SPACING	SIZE
DECIDUOUS TREES						
AN	9	*Acer Negudo 'Sensation'*	Boxelder, Sensation	B&B	AS SHOWN	2.5" CAL.
GT	8	*Gleditsia tracanthos inermis Skyline*	Honeylocust, Skyline	B&B	AS SHOWN	2.5" CAL.
AG	14	*Amelanchier x grandiflora ' Autumn Brillance'*	Serviceberry, Autumn Brilliance	B&B	AS SHOWN	2.5" CAL.
CM	7	*Cornus mas*	Cherry, Cornelian	B&B	AS SHOWN	2.5" CAL.
SHRUBS						
AA	33	*Amelanchier alnifolia*	Dogwood, Arctic Fire	Container	AS SHOWN	5 GAL
PO	28	*Physocarpus opulifolius Summer Wine*	Ninebark, Summer Wine	Container	AS SHOWN	5 GAL
PA	40	*Picea abies 'Nidiformis'*	Birdsnest Spruce	Container	AS SHOWN	5 GAL
RA	55	*Rhus aromatica 'Grow-low'*	Grow-low Sumac	Container	AS SHOWN	5 GAL
PERENNIALS AND ORNAMENTAL GRASSES						
CA	23	*Calamagrostis acutiflora 'Karl Foerster'*	Grass, Feather Reed	Container	AS SHOWN	1 GAL
AC	86	Arctostaphylos x coloradoensis Panchito	Manzanita, Panchito	Container	AS SHOWN	5 GAL
SS	10	Salvia x sylvestris 'May Night'	Salvia, May Night Purple	Container	AS SHOWN	5 GAL
VS	10	Vitus x 'Saint Theresa Seedless'	Grape, Purple Seedless	Container	AS SHOWN	1 GAL
TURF AND NATIVE GRASSES						
	2881 SF	Turf Grass				
	2044 SF	Pitkin County Seed Mix				
MULCH						
	4" Thick	Western Red Cedar Mulch				
	4" Thick	2" River Rock				

NORTH
0 5 10 20
ORIGINAL SCALE: 1"=20'

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
LANDSCAPE PLAN

DATE: 12/23/2021
PROJECT: 039
DWG BY: RL CHK BY: NJD
SCALE:
DWG NO: L1-0
OF

SOUTH GRANDE AVENUE

ONE WAY
ENTER ONLY

ONE WAY
EXIT ONLY

LIMIT OF DISTURBANCE (LOD)

Easement
Gwest Corporation
Book 1361 Page 275

35' HIGH WATER SETBACK

ORDINARY HIGH WATER LINE

PROPERTY BOUNDARY
5' FRONT SETBACK

10' FISHERMAN EASEMENT

PROPERTY BOUNDARY
5' SIDE SETBACK

RESIDENT COURTYARD

5780
5775
5770
5765

P1
P2
P3
P4
P5c
P6c
P7c
P8c

b) will a portion of the amenity area be ADA accessible?

LIMIT OF DISTURBANCE (LOD)

35' HIGH WATER SETBACK

ROARING FORK RIVER

a) is there going to be a color or jointing distinction for the pedestrian zone areas?

DIAGRAM KEY:

- MULTI-FUNCTIONAL STREET AREA + PARKING
- ACCESSIBLE ROUTE
- STAIR ACCESS ROUTE
- PASSENGER VEHICLE ACCESS ROUTE
- EMERGENCY VEHICLE ACCESS ROUTE
- ON-SITE AMENITY AREA

MULTI-FUNCTIONAL STREET SECTION:

NORTH

0 5 10 20
ORIGINAL SCALE: 1"=20'

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REVISIONS:

NO:	DATE:	REMARKS:

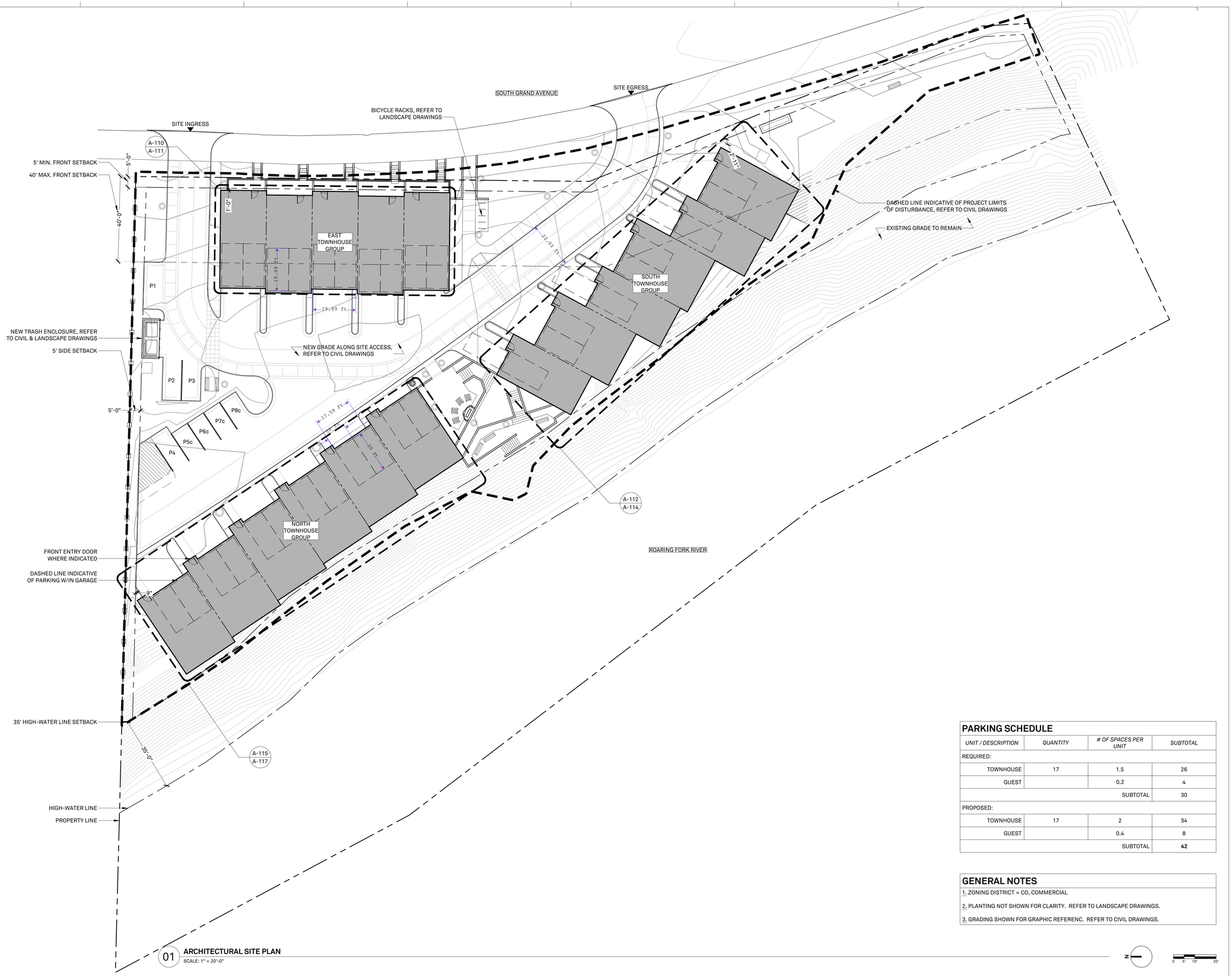
SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

CIRCULATION PLAN

DATE:	12/23/2021
PROJECT:	039
DWG BY: RL	CHK BY: NJD
SCALE:	
DWG NO:	L2-0
	OF



01 **ARCHITECTURAL SITE PLAN**
SCALE: 1" = 20'-0"

PARKING SCHEDULE

UNIT / DESCRIPTION	*QUANTITY*	*# OF SPACES PER UNIT*	*SUBTOTAL*
REQUIRED:			
TOWNHOUSE	17	1.5	26
GUEST		0.2	4
		SUBTOTAL	30
PROPOSED:			
TOWNHOUSE	17	2	34
GUEST		0.4	8
		SUBTOTAL	**42**

GENERAL NOTES

1. ZONING DISTRICT = CO, COMMERCIAL
2. PLANTING NOT SHOWN FOR CLARITY. REFER TO LANDSCAPE DRAWINGS.
3. GRADING SHOWN FOR GRAPHIC REFERENC. REFER TO CIVIL DRAWINGS.

N

0 5' 10' 20'

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SEAL & SIGNATURE:

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2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
ARCHITECTURAL SITE PLAN

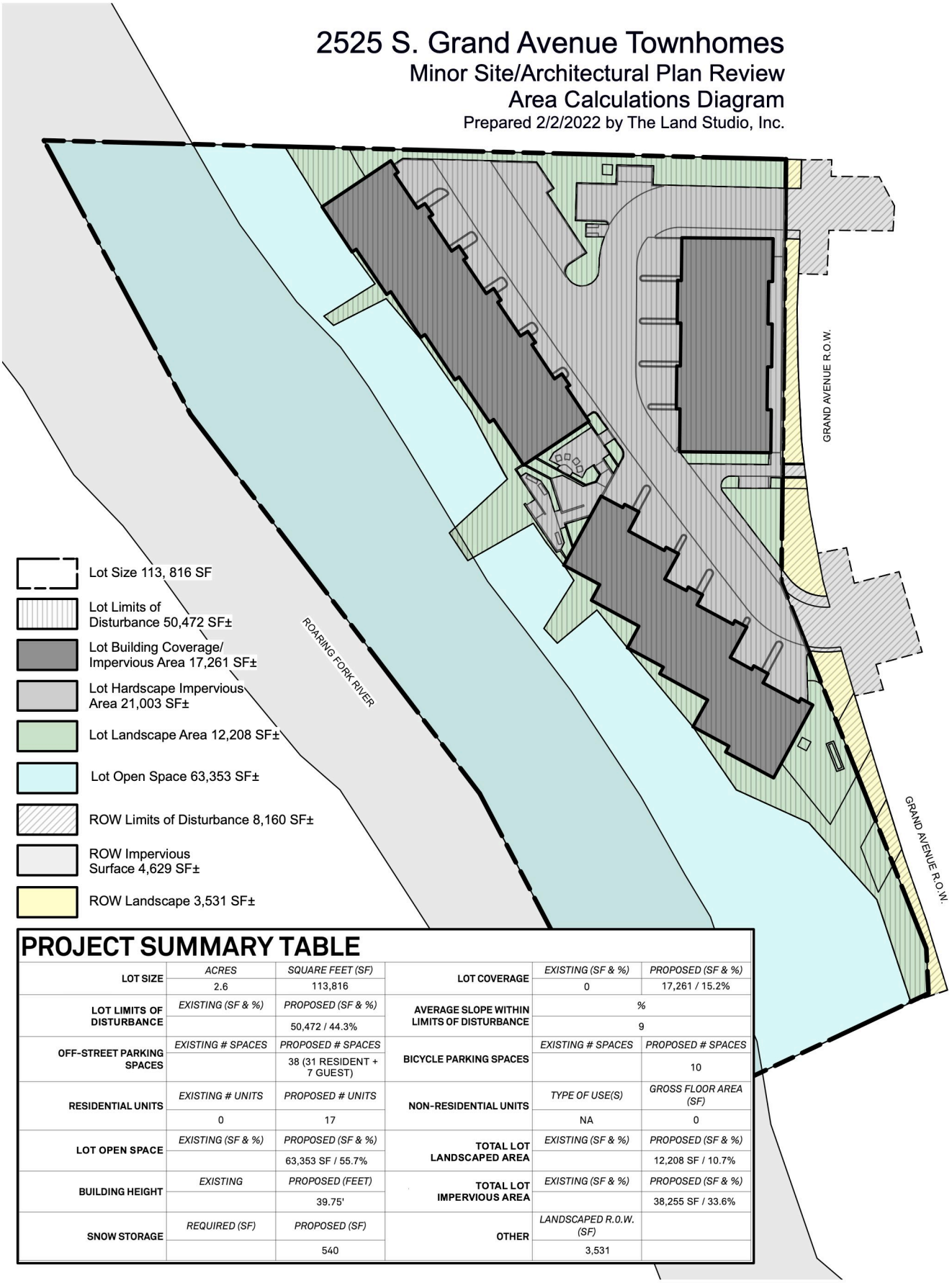
DATE: 12/23/2021
PROJECT: 039
DWG BY: CHK BY:
SCALE:
DWG NO:
A-100.00
OF

2525 S. Grand Avenue Townhomes

Minor Site/Architectural Plan Review

Area Calculations Diagram

Prepared 2/2/2022 by The Land Studio, Inc.



PROJECT SUMMARY TABLE

LOT SIZE	*ACRES*	*SQUARE FEET (SF)*	**LOT COVERAGE**	*EXISTING (SF & %)*	*PROPOSED (SF & %)*
	2.6	113,816		0	17,261 / 15.2%
LOT LIMITS OF DISTURBANCE	*EXISTING (SF & %)*	*PROPOSED (SF & %)*	**AVERAGE SLOPE WITHIN LIMITS OF DISTURBANCE**	%	
		50,472 / 44.3%		9	
OFF-STREET PARKING SPACES	*EXISTING # SPACES*	*PROPOSED # SPACES*	**BICYCLE PARKING SPACES**	*EXISTING # SPACES*	*PROPOSED # SPACES*
		38 (31 RESIDENT + 7 GUEST)			10
RESIDENTIAL UNITS	*EXISTING # UNITS*	*PROPOSED # UNITS*	**NON-RESIDENTIAL UNITS**	*TYPE OF USE(S)*	*GROSS FLOOR AREA (SF)*
	0	17		NA	0
LOT OPEN SPACE	*EXISTING (SF & %)*	*PROPOSED (SF & %)*	**TOTAL LOT LANDSCAPED AREA**	*EXISTING (SF & %)*	*PROPOSED (SF & %)*
		63,353 SF / 55.7%			12,208 SF / 10.7%
BUILDING HEIGHT	*EXISTING*	*PROPOSED (FEET)*	**TOTAL LOT IMPERVIOUS AREA**	*EXISTING (SF & %)*	*PROPOSED (SF & %)*
		39.75'			38,255 SF / 33.6%
SNOW STORAGE	*REQUIRED (SF)*	*PROPOSED (SF)*	**OTHER**	*LANDSCAPED R.O.W. (SF)*	
		540		3,531	

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

February 4, 2022

Mr. Brian Wilson
North Mountain Partners
2327 South Loveland Street
Lakewood, CO 80228

Subject: Response to Engineering Comment 20
2525 South Grand Avenue
Glenwood Springs, Colorado
Project No. 21.5059

Dear Mr. Wilson:

Cesare, Inc. (Cesare) prepared the "Geotechnical Study, 2525 South Grand Avenue, Glenwood Springs, Colorado" Project No. 21.5059.A, dated December 9, 2021. Cesare understands the City of Glenwood Springs issued comments during its development review on January 24, 2022. Per Item 20 in the development review comments:

> *"This project site has been identified to be partially in a mapped geologic hazards area per the City of Glenwood Springs Geologic Hazards Mapping Completed by Lincoln Devore in 1978. It appears that there is moderate soil hazard for hydrocompactive soils exists on the site. Note the hazard in the report and indicated what mitigative measures may be necessary for the hazard."*

Per the "City of Glenwood Springs Geologic Hazards Mapping" by Lincoln Devore, dated 1978, the site is mapped to have a moderate hazard for hydrocompactive soil. A structure existed onsite since at least 1993 and there was no apparent evidence of settlement on the exterior of the structure or on the site during Cesare's study. The proposed construction will cover about the same area as the previous development, however; the new development will have higher loads than the previous development (three stories proposed versus one story previously). At depth below the surface, likely near the elevation of the Roaring Fork River, groundwater was present. Cesare encountered groundwater in Boring B-4 at a depth of about 46 feet. Collapse potential of the onsite soil is not likely below that elevation. Hydrocompaction due to the Eagle Valley evaporite bedrock is addressed in Cesare's study, Section 5.3.1 Eagle Valley Evaporite Bedrock. Hydrocompaction of the onsite sand and clay fill and native overburden soil above the water table is discussed below.

Cesare considered the collapse potential of the onsite clay and sand fill utilizing the "Characteristics and Problems of Collapsible Soils" by the U.S. Department of the Interior, Bureau of Reclamation, dated 1992, and the laboratory data from Cesare's geotechnical study, assuming a specific gravity around 2.6 to 2.7. One of the four samples tested indicated a borderline potential for collapse. The onsite soil with a liquid limit and in situ density indicative of possible hydromcompaction was determined to be previously placed fill. Cesare further considered collapse potential per:

- Roullier and Stilley (1993): two of four samples tested, indicative of collapse potential;
- Karakouzian & Roullier (1993): one of four samples tested, indicative of collapse potential; and
- White for CGS (2008): two of four samples tested, indicative of low to moderate collapse potential.

The onsite clay and sand fill should be removed and recompacted or structures should be placed on foundations below the material as outlined in Cesare's study, Section 9. Geotechnical Considerations.

The potential for hydrcompaction in the native overburden soil (below the fill) would occur above the water table where soil has a low density and thin coatings of clay exist on sand and silt particles. Cesare was unable to collect samples in several locations of the native overburden soil due to the presence of cobbles and boulders. Blow counts in the native overburden soil ranged from 50/0 to 50/2, which is indicative of tight packing of gravels, cobbles, and boulders. Where samples of the native overburden soil were obtained, 2% to 4% of the soil passed the #200 sieve, indicating a sand and gravel matrix, rather than a silt and clay matrix. Based on this information, hydrocompaction of the native overburden soil is not likely and mitigative measures are not necessary.

Please contact Cesare with any questions or comments regarding this information.

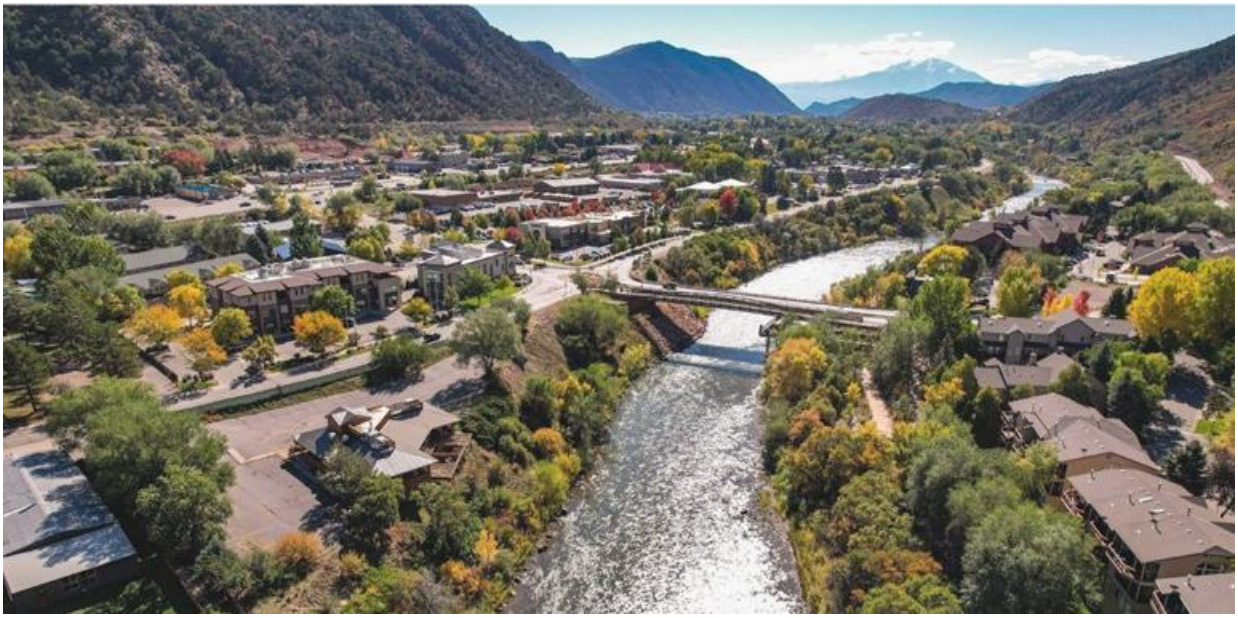
Sincerely,
CESARE, INC.

Yvonne "Bonnie" E. Schimmel, P.E.
Senior Engineer

YES/ksm

cc: Mr. Zachary Stevens, MVMTTR, zac@movematter.com

Transportation Impact Analysis
for
The Rivers
Glenwood Springs, Colorado



December 10, 2021
Revised February 8, 2022

PREPARED FOR:
North Mountain Partners
2327 S Loveland Street
Lakewood, CO 80228
Attention: Brian Wilson

PREPARED BY:
McDowell Engineering, LLC
PO Box 4259
Eagle, CO 81631
970.623.0788

Contact: Kari J. McDowell Schroeder, PE, PTOE

Project Number: M1538

Statement of Engineering Qualifications

Kari J. McDowell Schroeder, PE, PTOE is a Transportation and Traffic Engineer for McDowell Engineering, LLC. Ms. McDowell Schroeder has over twenty-four years of extensive traffic and transportation engineering experience. She has completed numerous transportation studies and roadway design projects throughout the State of Colorado. Ms. McDowell Schroeder is a licensed Professional Engineer in the State of Colorado and has her certification as a Professional Traffic Operations Engineer from the Institute of Transportation Engineers.

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1.0 Project Description

McDowell Engineering has prepared a Level Two Auxiliary Turn Lane Assessment summarizing the anticipated traffic generated from the proposed The Rivers residential development in Glenwood Springs, Colorado. The development is located at 2525 S Grand Ave approximately 700 feet west of State Highway 82 and 350' north of 27th Street. The proposed development will be constructed on 1 lot comprised of approximately 2.6 acres total. The lot currently has a closed restaurant constructed on the parcel. The restaurant building will be removed from the site and replaced with new construction of the proposed project. The project is proposing 17 townhome residential dwelling units. The property is accessed directly by Grand Avenue east of the project site.

The location of the residential development is shown in the vicinity map in **Figure 1**. The current site plan is shown in **Figure 2.**

Figure 1: Vicinity Map

The project is proposing two accesses with a one-way configuration. The accesses will have direct connectivity to Grand Avenue. The proposed site plan is shown in **Figure 2**.

Figure 2: Area Map

2.0 Existing Conditions

2.1 Road Network

SH 82 (South Glen Avenue): SH 82 is a State Highway that connects Interstate 70 at Glenwood Springs to US 24 south of Leadville. This major regional route is classified by the State as Access Category NR-B, Non-Rural Arterial, in the vicinity of the project. While SH 82 is generally considered an east/west highway, the alignment in this area is more north/south in nature. The posted speed limit is 35mph south of 23rd Street and 25mph north of 23rd Street. SH 82 is a four-lane facility from Glenwood Springs to just north of the City of Aspen.

South Grand Avenue: South Grand Avenue is a two-lane collector that provides access to residential and commercial development to the west, parallel to SH 82. The posted speed on South Grand Avenue is 25mph. South Grand Avenue begins at the intersection of SH 82 / 23rd Street / South Grand Avenue and connects to 27th Street on the south.

The intersection of 23rd Street / South Grand Avenue and SH 82 is signalized.

27th Street: 27th Street is a two-lane collector roadway that connects SH 82 to Blake Avenue to the east and SH 82 to Midland Avenue to the west. The posted speed limit on 27th Street is 25 mph. 27th Street accesses local businesses and residential neighborhoods on both sides of SH 82 including a RFTA transit station just east of SH 82.

The intersection of 27th Street and SH 82 is signalized.

RFTA Park and Ride Station: The Roaring Fork Transit Authority (RFTA) operates a park and ride facility located at the southeast corner of 27th Street and SH 82 intersection. According to the Garfield County Assessor's Office, RFTA has recently acquired a 1.4 Acre parcel[1] located at the northwest corner of this intersection in November 2021. This will be a part of RFTA's 27th Street Parking Expansion project which also includes an underpass. RFTA intends to construct these improvements in the spring of 2022.[2]

2.2 Site Access Description

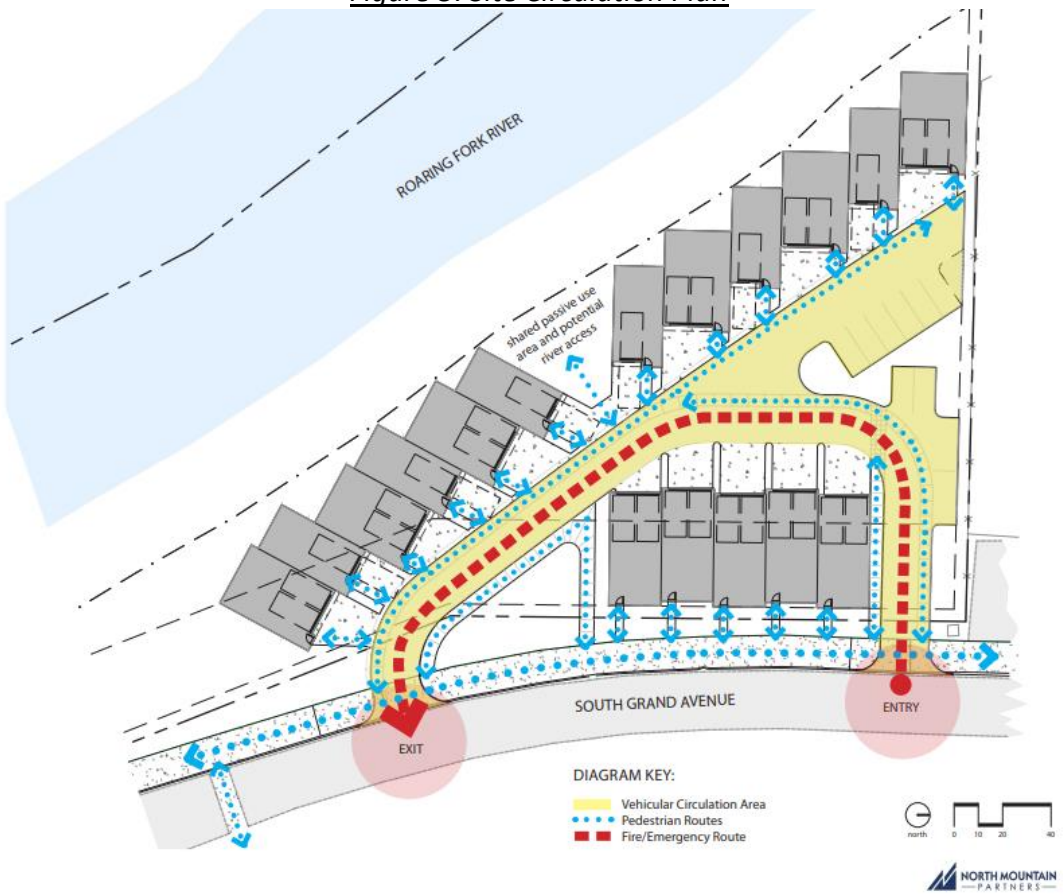
The project site is currently accessed by two paved accesses located approximately 450' and 230' north of 27th Street, respectively. The accesses are be located on the east side of the parcel. The existing access locations are shown in **Figure 2**.

[1] Garfield County Assessor, qPublic.net Garfield County, CO, https://qpublic.schneidercorp.com/Application.aspx?AppID=1038&LayerID=22381&PageTypeID=4&PageID=9447&Q=1992968047&KeyValue=R040433, Retrieved February 8, 2022

[2] RFTA Board of Directors Meeting Agenda, November 11, 2021, https://3qpuead9yxf3lp4zqrcwbatd-wpengine.netdna-ssl.com/wp-content/uploads/2021/11/full-board-agenda-11.11.2021.pdf, Retrieved February 8, 2022

With the proposed project, the existing paved north access will remain as the entrance to the facility. The existing paved south access will remain as the exit to the facility. Refer to **Figure 3**.

Figure 3: Site Circulation Plan



2.3 Traffic Data Collection

Weekday traffic counts were obtained on Tuesday September 28, 2021, between 7:00 AM and 9:00 AM and 4:00 PM and 6:00 PM. The locations of the counts were obtained at the following locations:

- Midland Ave & 27th St
- Grand Ave & 27th St
- S Glen Ave (SH 82) & 27th St
- Grand Ave & S Glen Ave (SH 82)
- Grand Ave & Site Access

The morning peak hour occurred between 7:30 AM and 8:30 PM. The evening peak hour occurred between 4:45 PM and 5:45 PM.

A few adjustments were made to the traffic data collected to reflect traffic conditions in the field. At Midland Ave & 27th Street counts were obtained for a private driveway

with access to the roundabout. It is not a separate leg on the roundabout and does not provide circulation for the roundabout. Therefore, traffic at this driveway was moved to the main legs. At Grand Ave and the Site access, traffic was represented as one large intersection. In the field, this intersection is two intersections and should be analyzed as two intersections. Therefore, the data was split into two intersections.

Detailed traffic count data is included in the **Appendix**.

3.0 Future Traffic Projections

3.1 Background Infrastructure Assumptions

Two recent projects are included in the background traffic assumptions, as follows:

- Glenwood Multifamily Development (Formerly Bell Rippy Apartments)
- 2512 S Grand Avenue (The Farm at Grand Avenue)

Assignment Figures from the respective traffic studies for the above-mentioned project are included in the **Appendix**. Traffic assignment from these studies will be added to both 2022 and 2042 background traffic, as shown in **Figure 5**.

3.2 Background Traffic Growth

The City of Glenwood Springs and CDOT completed the *City of Glenwood Springs State Highway 82 Access Study*[3] in September 2013. The Study provides Year 2032 traffic volume projections for the SH 82 corridor including the intersections of SH 82 / 23rd / South Grand Avenue, and SH 82 / 27th Street. The *Access Control Plan* recommends a background traffic growth rate of 2%. This growth rate was used for all traffic forecasts. The methodology for traffic forecasting is consistent with nearby projects.

3.3 Seasonal Adjustment Factor

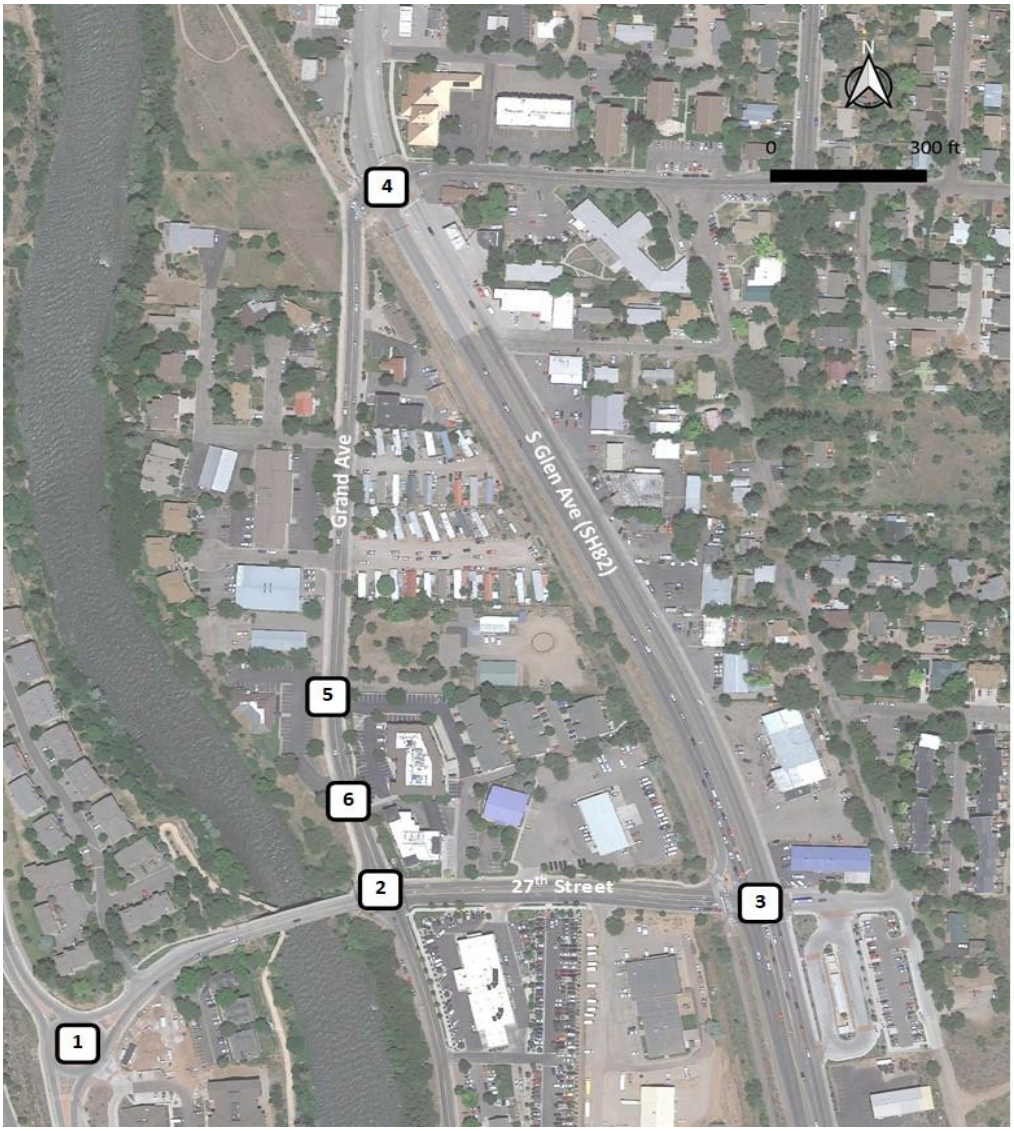
The peak traffic in Glenwood Springs occurs during the summer months. Traffic counts were obtained in September. Based upon CDOT OTIS traffic station #000214, a seasonal adjustment factor of 1.04 was applied to September traffic counts to adjust counts to July traffic volumes. Seasonal adjustment calculations are included in the **Appendix**.

3.4 Background Traffic

The Year 2021 Existing traffic volumes can be found in **Figure 4**. **Figure 5** contains the background traffic from adjacent projects as mentioned in **Section 3.1**. The resulting Year 2022 background traffic volumes can be found in **Figure 6. Figure 7** shows the Year 2042 background traffic volumes.

[3] *City of Glenwood Springs State Highway 82 Access Study*. Stolfus & Associates, 2013.

Figure 4: 2021 Existing



1		
	111/91 292/164	64/444 168/379
	1/0 150/126 441/193	

2		
	107/200 56/36 34/19 0/1	15/36 103/448 16/21
	1/1 108/58 549/259 81/36	23/194 23/37 37/42

3		
	26/47 1400/713 15/12	11/18 6/16 46/32
	208/111 10/4 417/216	110/411 755/1523 10/57

4		
	174/197 1437/676 33/28	35/36 25/61 79/109
	124/106 18/25 2/3	2/21 903/1578 57/69

5		
	201/239 5/0	2/3 5/4
	1/0 1/3	1/2 129/122 13/23

6		
	187/235 15/7	11/21 9/8
		125/126 13/5

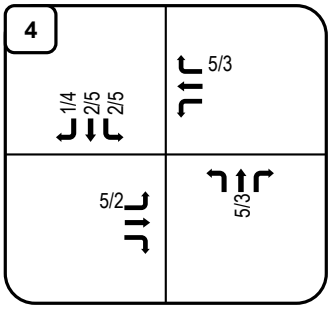
McDOWELL ENGINEERING, LLC
TRANSPORTATION ENGINEERING CONSULTANTS

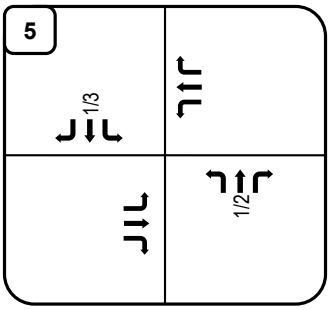
LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

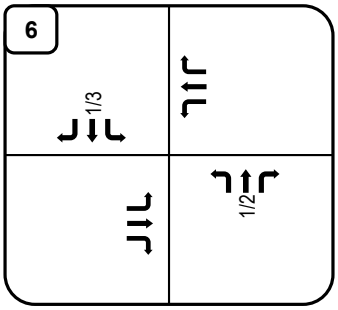
Project Number	M1538
Prepared By	GWS
	2/8/2022

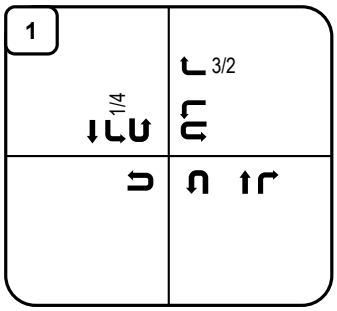
The Rivers
Glenwood Springs, CO

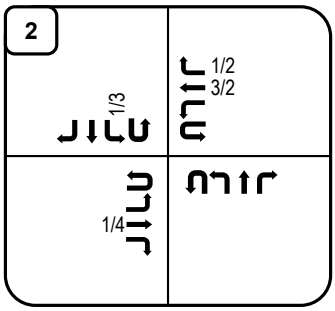
Figure 5: Background Project Traffic

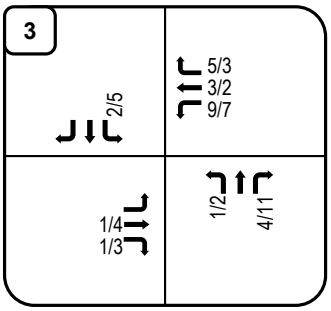












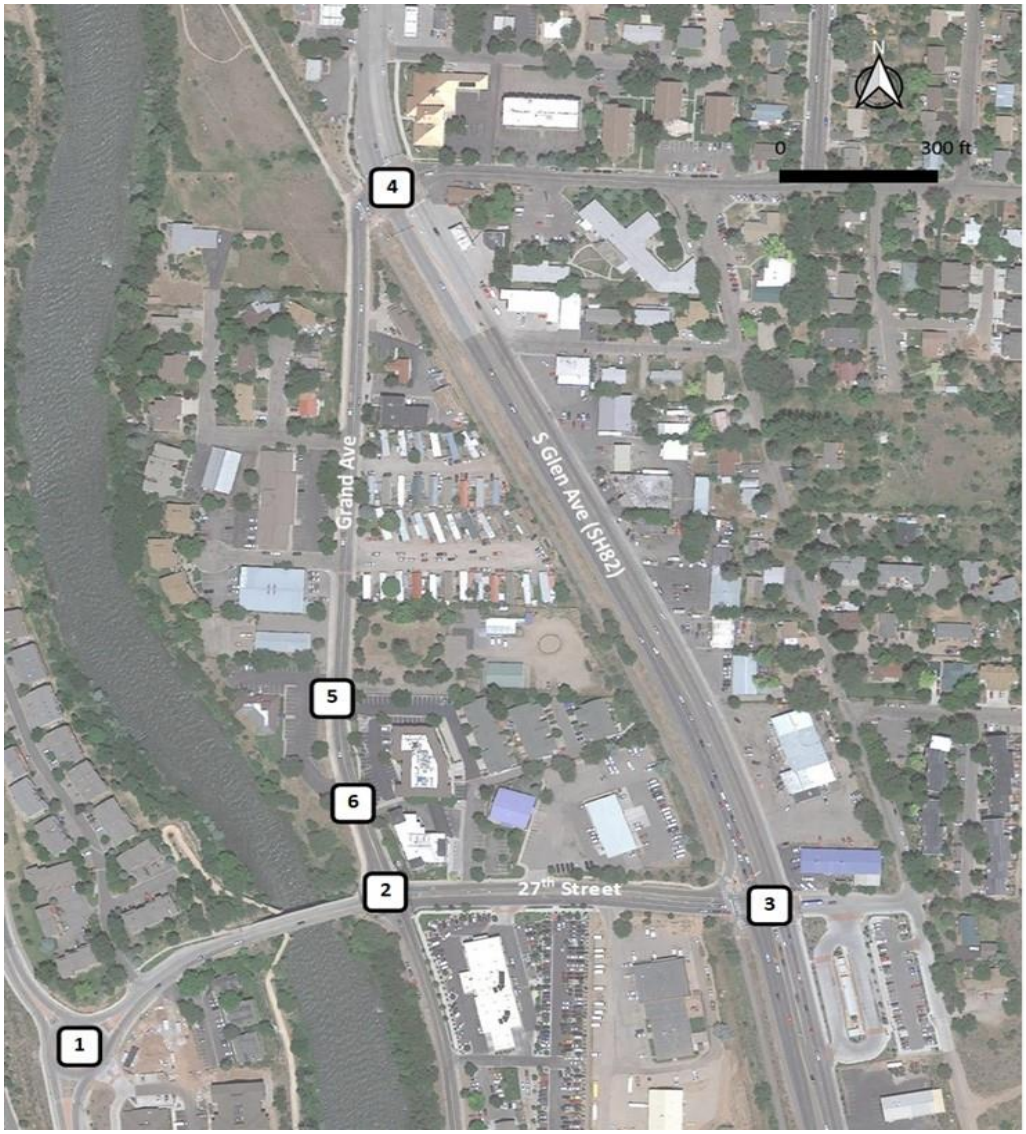
LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

McDOWELL ENGINEERING, LLC
TRANSPORTATION ENGINEERING CONSULTANTS

Project Number	M1538
Prepared By	GWS
	2/8/2022

The Rivers
Glenwood Springs, CO

Figure 6: 2022 Background



4

186/213 1526/722 37/35	42/41 27/64 84/115
137/114 19/27 2/3	2/22 963/1677 60/73

5

214/257 5/0	2/3 5/4
1/0 1/3	1/2 138/132 14/24

6

192/243	11/21 9/8
	129/131 13/5

1

117/97 311/178	71/473 178/402
	1/0 159/134 468/205

2

113/212 59/38 37/23 0/1	17/40 112/477 17/22
1/1 114/61 583/278 86/38	24/206 24/39 39/45

3

28/50 1485/757 18/17	16/22 9/19 58/41
220/117 11/8 444/233	117/438 801/1616 14/71

LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

McDOWELL ENGINEERING, LLC
TRANSPORTATION ENGINEERING CONSULTANTS

Project Number	M1538
Prepared By	GWS
	2/8/2022

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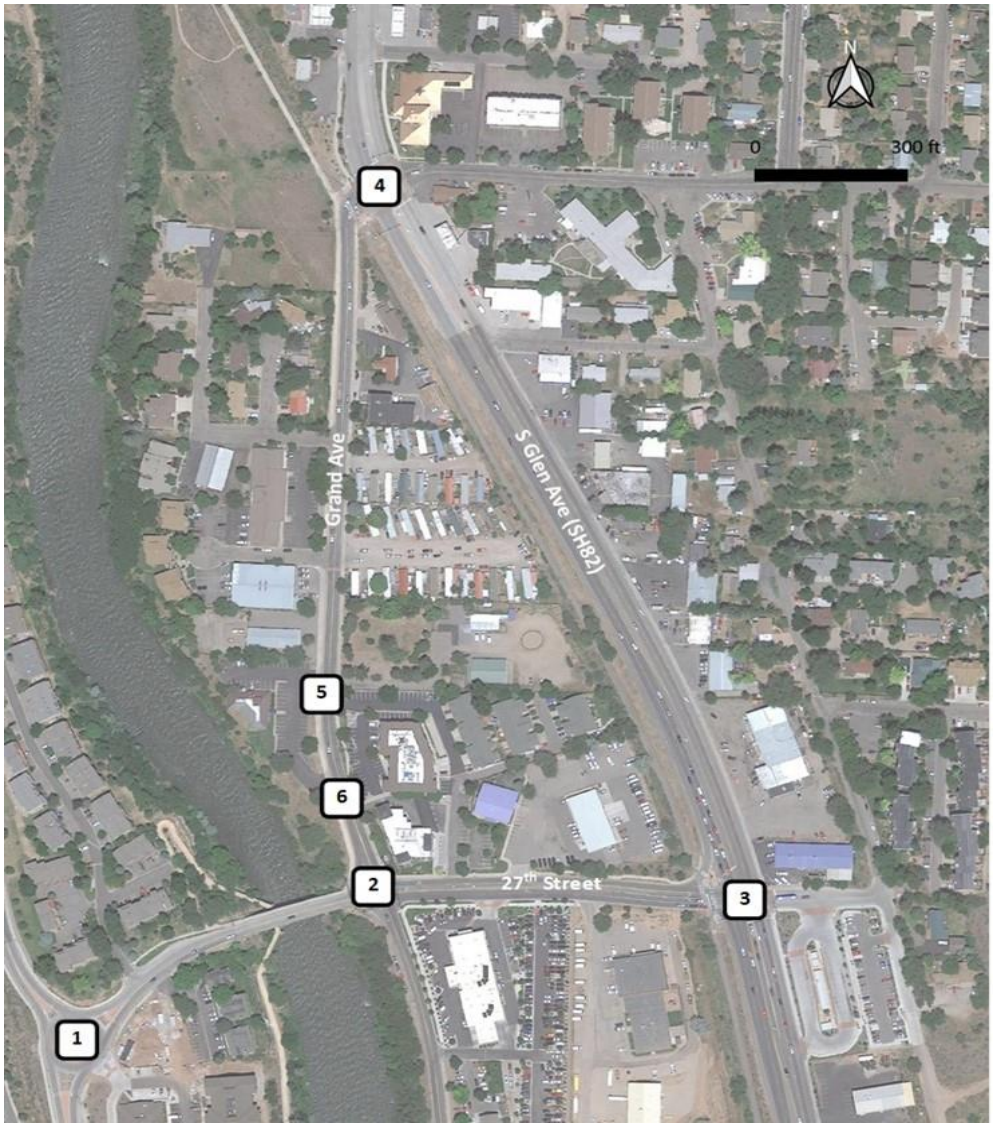
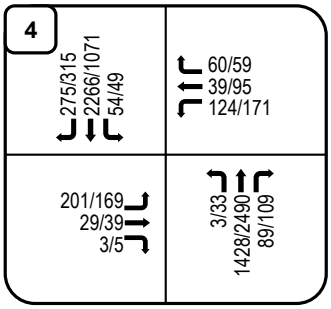
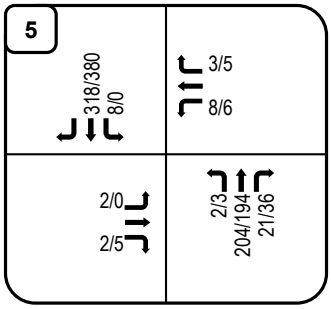
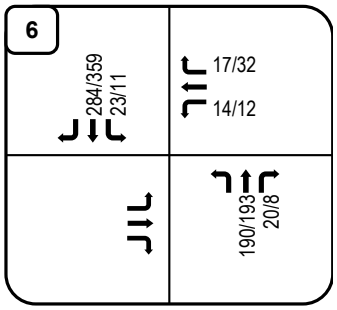
Glenwood Springs, CO

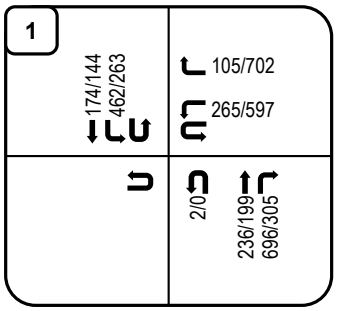
Figure 7: 2042 Background

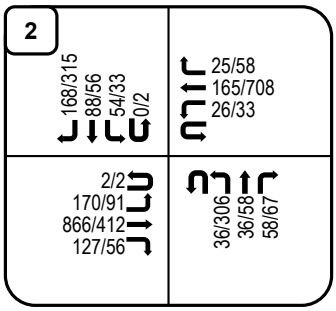


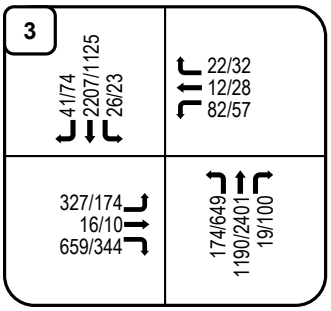












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Turning Movements

Project Number	M1538
Prepared By	GWS
	2/8/2022

The Rivers
Glenwood Springs, CO

4.0 Project Traffic

4.1 Existing Land Use

The existing parcel currently has a vacant restaurant constructed on the lot. The restaurant was closed in June 2021 and will be removed prior to construction of the townhomes. Therefore, there are no trips generated from the existing use.

4.2 Proposed Land Use

The applicant is proposing a new, 17-unit, townhouse complex located on Grand Ave between 23rd Street and 27th Street. Each dwelling unit will have parking onsite with additional guest parking on the north side of the parcel. Internal circulation will be primarily one-way. (**Figure 3**)

4.3 Trip Generation

The anticipated traffic generation for this project was calculated using the Institute of Transportation Engineers' (ITE's) *10th Edition of the Trip Generation Manual*[4]. The national standard rates were applied to the size/number of each use to determine the average weekday and morning/evening peak hour traffic volumes. ITE land use code (LUC) #220 (Multifamily Housing Low-Rise) was used for the townhouse dwelling units in the trip generation analysis.

4.4 Multi-Modal Trip Reduction

The project is in close proximity to transit stops. The *RFTA* park n' ride transit stop is located on the south side of the 27th Street and is approximately 1,200' from the southeast corner of the parcel. The park n' ride transit stop is within the ¼ mile walking distance (1320') which is commonly used as a walkable distance to transit. A local circulator bus system, as well as a regional provider, utilize these transit stops and provide both local and regional transit service from Rifle to Aspen.

As a result of the close proximity to transit and extensive sidewalks, the project is conducive to supporting multi-modal travel options. As a result, a ten percent (10%) multi-modal reduction has been applied.

4.5 Site Generated Traffic

Based upon the applicant's proposed land use, the site is anticipated to generate 79 vehicle trips per day. This includes 11 trips during the morning peak hour (4 inbound + 7 outbound) and 12 trips during the evening peak hour (7 inbound + 5 outbound). Refer to **Table 1** for trip generation calculations and further breakdown of these trips.

[4] *Institute of Transportation Engineers, Trip Generation Manual, 10th Edition*, September 2017

Table 1: Trip Generation Table

ITE Code	Units [2]	Eq. Coef	ITE Trip Generation Equation[3] Avg. Weekday	AM Peak Hour	PM Peak Hour	Average Weekday Trips (VPD)	Morning Peak Hour Inbound % Trips	Trips	Morning Peak Hour Outbound % Trips	Trips	Evening Peak Hour Inbound % Trips	Trips	Evening Peak Hour Outbound % Trips	Trips
Proposed Land Use														
Residential Development														
#220 - Multifamily Housing (Low-Rise)	17 DU	Type	A	B	A	88	28%	4	72%	8	59%	8	41%	6
		a=	7.56	0.94	0.66									
		b=	-40.86	-0.29	1.41									
Multi-Modal Reduction	*-10%*					*-9*		*0*		*-1*		*-1*		*-1*
Proposed New Trips						**79**		**4**		**7**		**7**		**5**

Notes:

[1] Values obtained from *Trip Generation, 10th Edition,* Institute of Transportation Engineers, 2017.

[2] DU = Dwelling Units, kSF = 1,000 Square Feet

[3] Fitted curve equations from ITE Land Uses - Equation Type A is T = a * X + b, Equation Type B is Ln(T) = a * Ln(X) + b, Rate is T = a * X

4.6 Directional Distribution

The distribution of project-generated traffic on the surrounding roadway network is influenced by several factors including the following:

- The location of the site relative to other facilities and the roadway network
- The configuration of the existing and proposed adjacent roadway network
- Relative location of neighboring population centers

Based upon the proposed land use and the location of the project in relation to nearby population centers, 75 percent (75%) of the site-generated traffic is anticipated to enter/exit the site from the south towards 27th Street and 25 percent (25%) to/from the north towards 23rd Street. Refer to **Figure 8**.

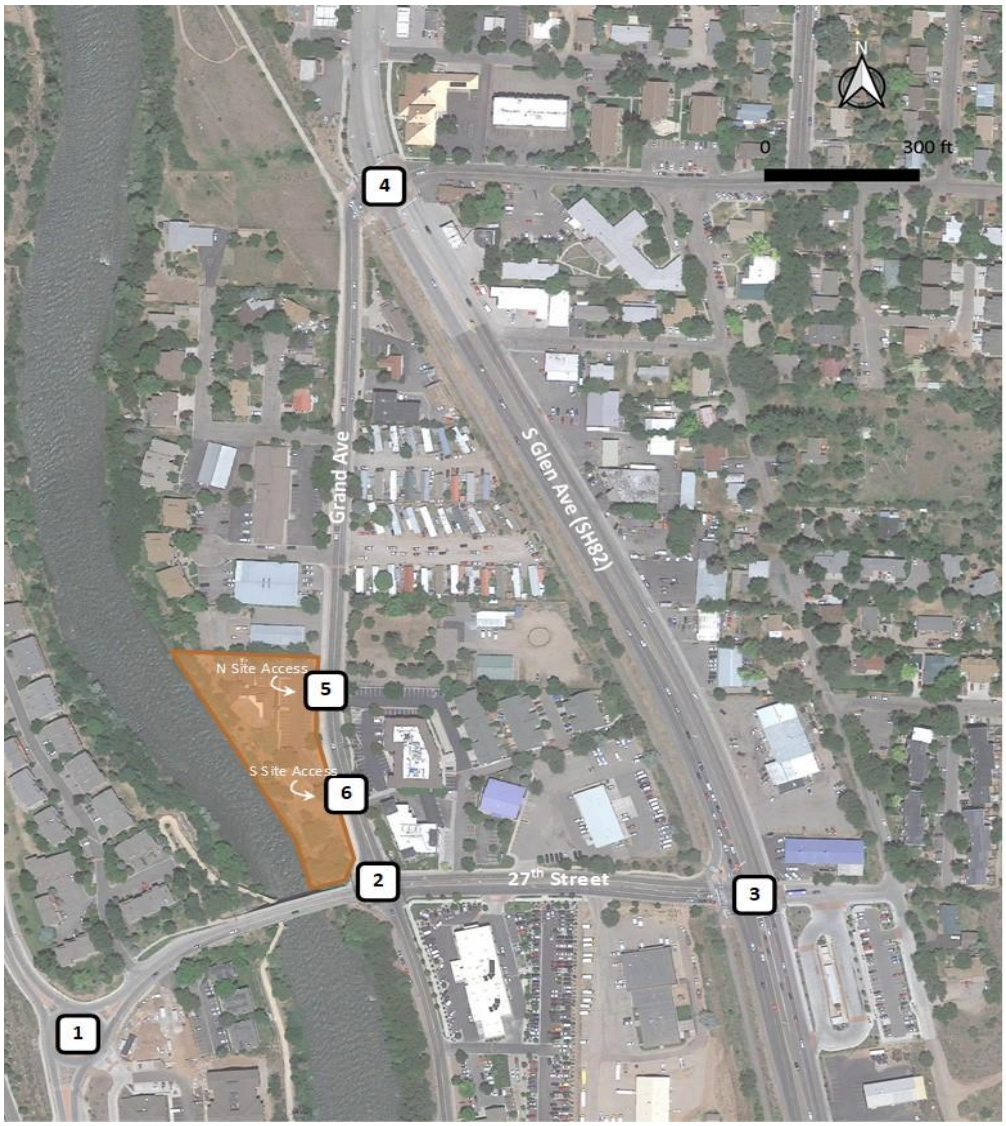
4.7 Traffic Assignment and Total Traffic

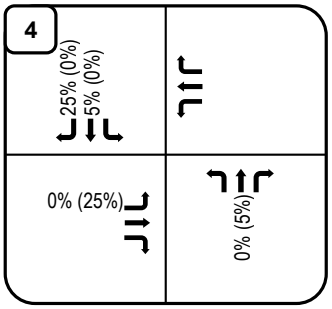
When the trip generation expected for this site is applied to the estimated trip distribution, the result is the anticipated assignment of trips on the roadway system. **Figure 9** depicts the new vehicle trips that are anticipated from the proposed development.

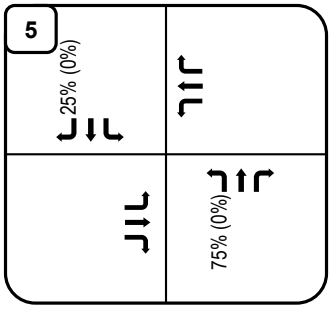
The Year 2022 total traffic is the sum of Year 2022 background **(Figure 6)** traffic with **Figure 9** and can be seen in **Figure 10.**

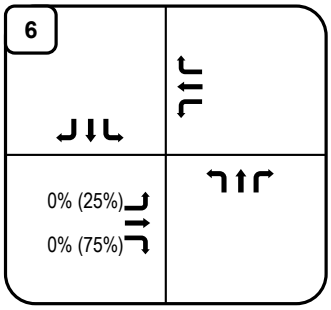
Similarly, Year 2042 total traffic is the sum of **Figure 7** with **Figure 9** and can be seen in **Figure 11.**

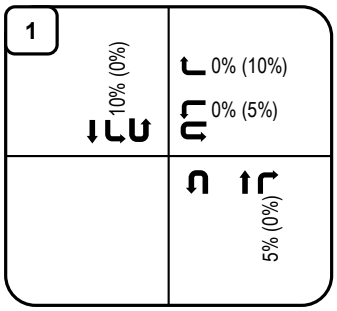
Figure 8: Project Generated Traffic Distribution

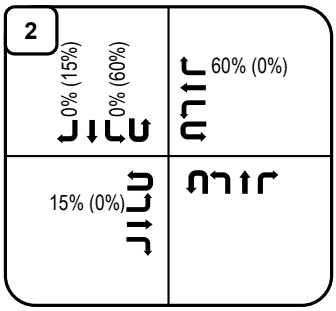


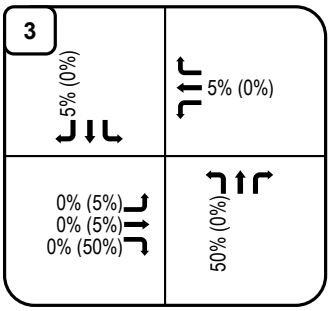












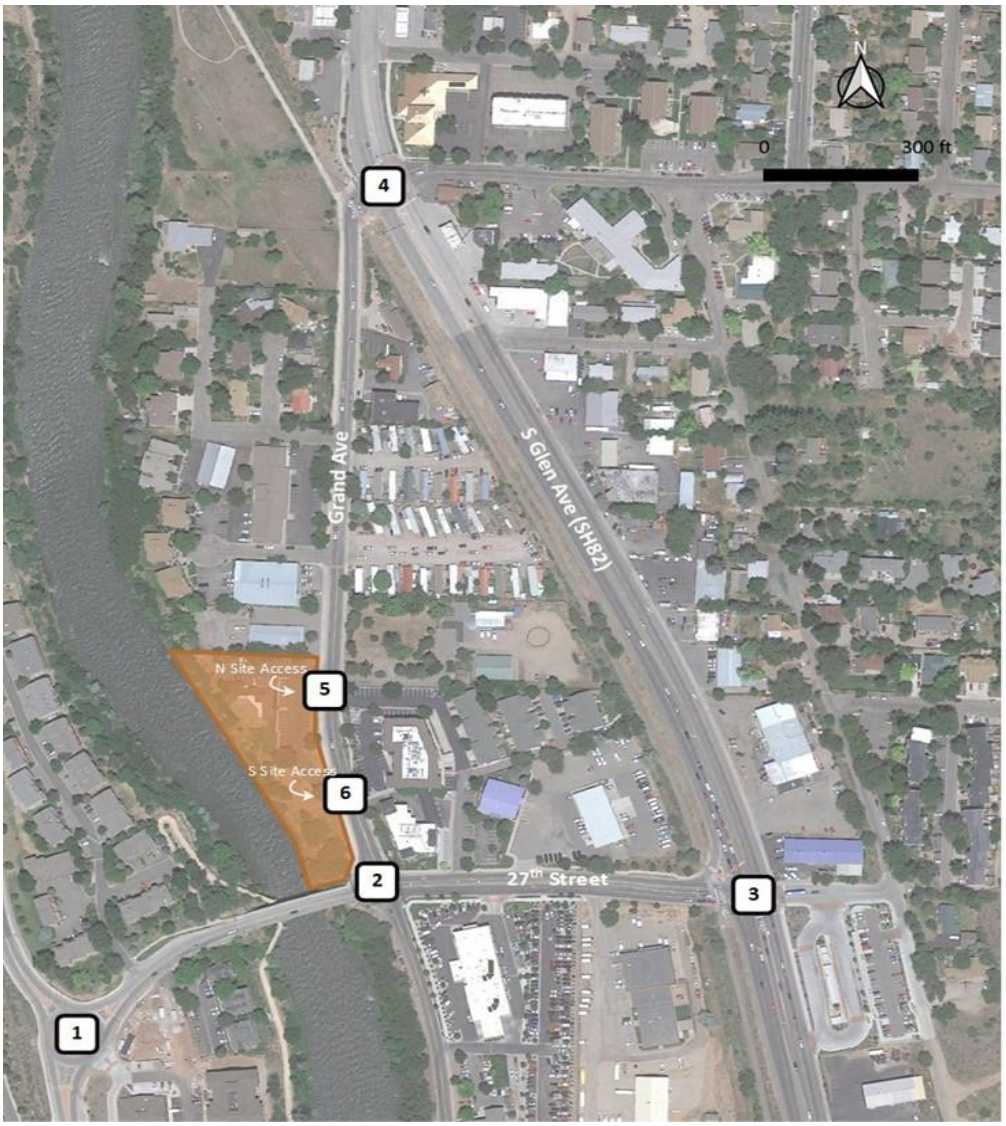
LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

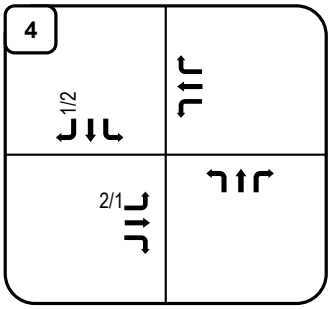
McDowell Engineering, LLC
Transportation Engineering Consultants

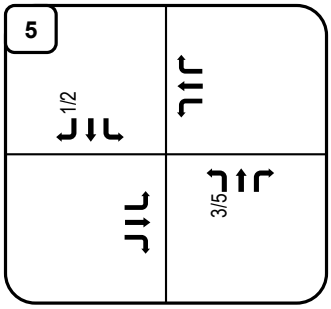
Project Number	M1538
Prepared By	GWS
	2/8/2022

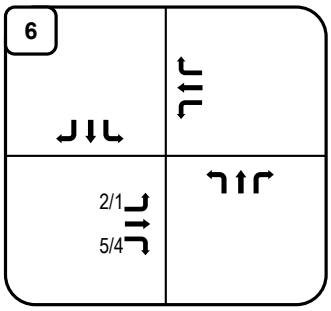
The Rivers
Glenwood Springs, CO

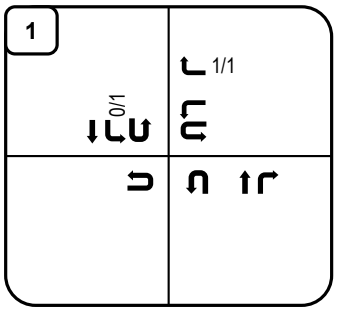
Figure 9: Project Generated Traffic Assignment

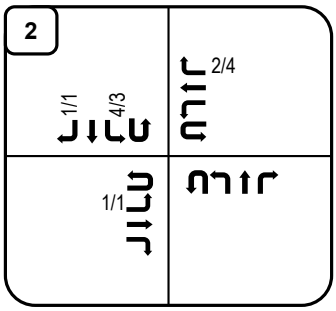


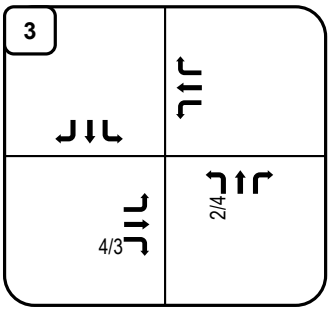












LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

McDowell Engineering, LLC
Transportation Engineering Consultants

Project Number	M1538
Prepared By	GWS
	2/8/2022

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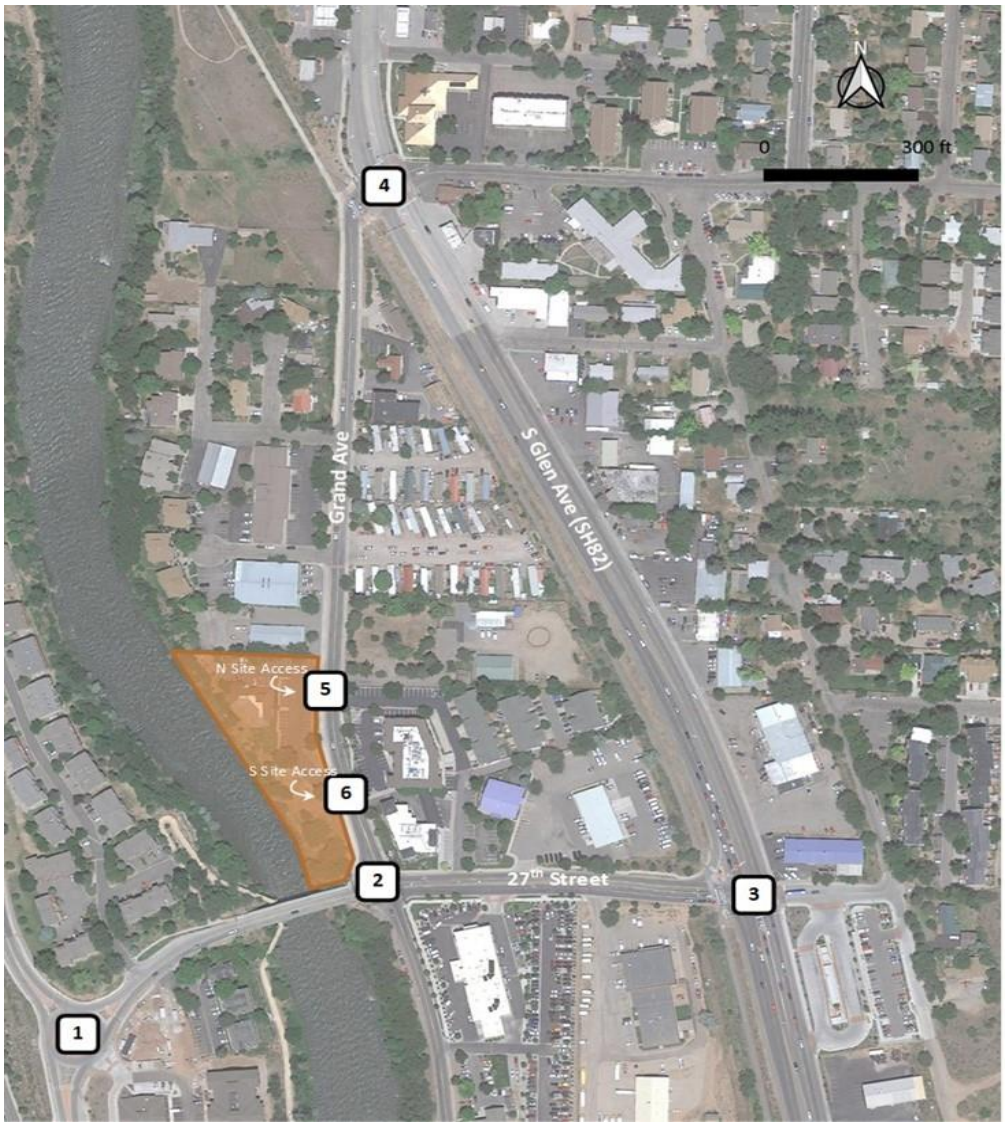
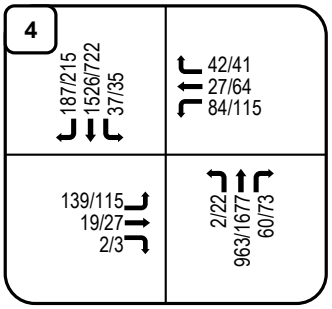
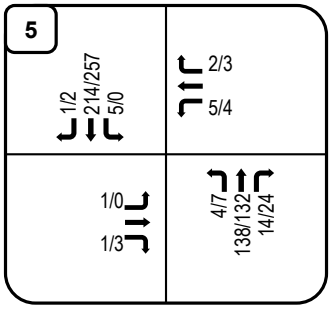
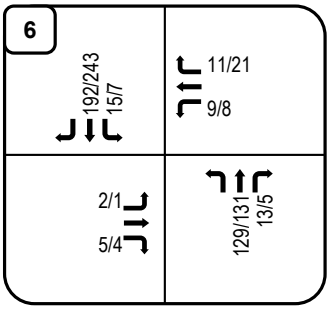
Glenwood Springs, CO

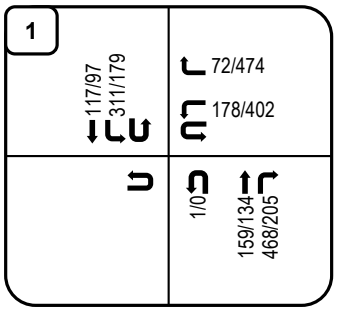
Figure 10: 2022 Total

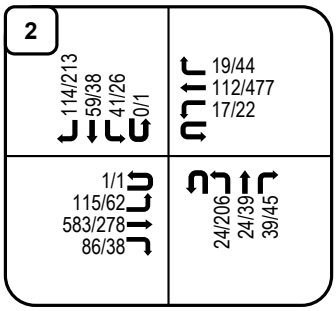


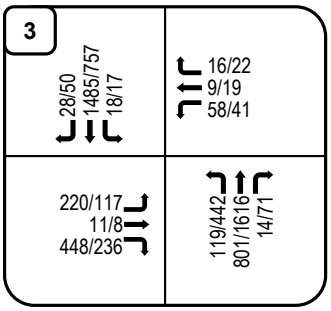












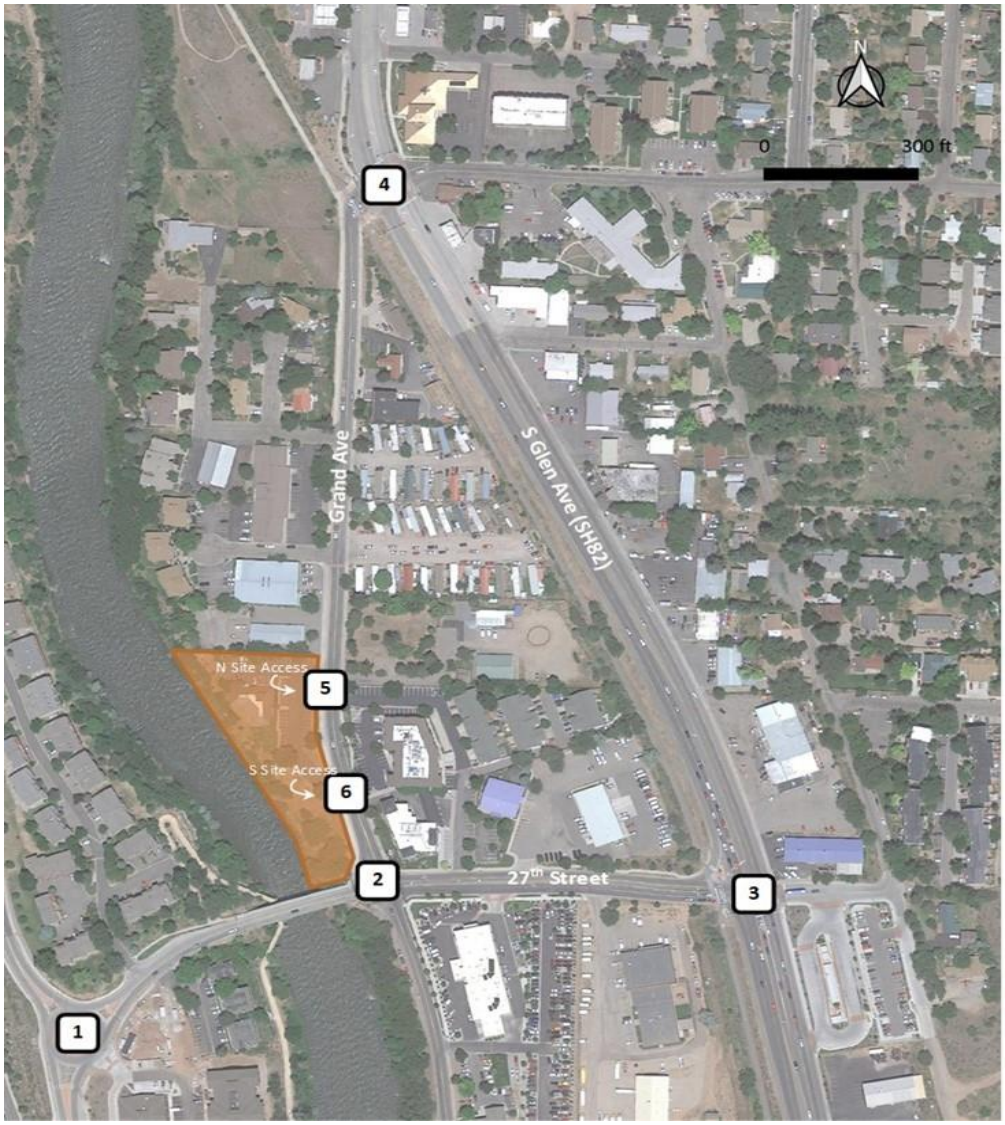
LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

McDOWELL ENGINEERING, LLC
TRANSPORTATION ENGINEERING CONSULTANTS

Project Number	M1538
Prepared By	GWS
	2/8/2022

The Rivers
Glenwood Springs, CO

Figure 11: 2042 Total



4	
276/317 2266/1071 54/49	60/59 39/95 124/171
203/170 29/39 3/5	3/33 1428/2490 89/109

5	
1/2 318/380 8/0	3/5 8/6
2/0 2/5	5/8 204/194 21/36

6	
284/359 23/11	17/32 14/12
2/1 5/4	190/193 20/8

1	
174/144 462/264	106/703 265/597
	2/0 236/199 696/305

2	
169/316 88/56 58/36 0/2	27/62 165/708 26/33
2/2 171/92 866/412 127/56	36/306 36/58 58/67

3	
41/74 2207/1125 26/23	22/32 12/28 82/57
327/174 16/10 663/347	176/653 1190/2401 19/100

McDOWELL ENGINEERING, LLC
TRANSPORTATION ENGINEERING CONSULTANTS

LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

Project Number	M1538
Prepared By	GWS
	2/8/2022

The Rivers
Glenwood Springs, CO

5.0 Traffic Analysis

5.1 State Highway Access Permits

Section 2.6(3) of the State Highway Access Code (Access Code)[5] requires a new access permit when there is a new access, land use change, or the approach volume is anticipated to increase by more than twenty percent or safety issues have been identified.

The project is anticipated to add a total of 6 AM / 7 PM peak hour trips to 27th St/SH 82 resulting in an increase of 1% AM / 1% PM over the existing volume. The project is anticipated to add a total of 6 AM / 7 PM peak hour trips to 23rd St/SH 82 resulting in an increase of 1% AM / 1% PM over the existing volume. Based upon the existing traffic volumes, the proposed site traffic does not exceed the 20% threshold. Therefore, new State Highway Access Permits are not required.

5.2 State Highway Turn Lane Analysis

The *State Highway Access Code* establishes the need for auxiliary turn lanes on state highways. Several criteria apply when determining the traffic volume thresholds. SH 82 is a four-lane highway with a posted speed limit of 25-35mph in the vicinity of the proposed project site. It is classified by the Colorado Department of Transportation (CDOT) as an access category NR-B, non-rural arterial.

Local engineering standards apply to 27th Street and Grand Ave in determining auxiliary turn lanes. Per the City of Glenwood Springs[6], 27th Street is a Principal Arterial Roadway west of SH 82 with a speed limit of 35 mph. Grand Ave is a local collector roadway with a speed limit of 25 mph.

Refer to **Table 2** for calculations of the required turn lane modifications and triggers. Acceleration lanes are generally not used on low-speed roadways.

[5] *State Highway Access Code*. State of Colorado, 2002.

[6] Glenwood Springs Street Classification map, 08-06-2018. Retrieved 12/9/2021 https://cogs.us/DocumentCenter/View/4304/Streets-Classification-Map-24x36-PDF---City-of-Glenwood-Springs-Grid-4MB.

Table 2: Auxiliary Turn Lane Requirements

#	Int.	Mvmt	Accel or Decel	Posted Speed Limit (MPH)	Road Classification	SHAC Trigger Volume (VPH)	Year 2021 Existing		Year 2021 BG		Year 2041 BG		Year 2021 Total		Year 2041 Total		Existing Turn Lane	*Access Code* Required Turn Lane	Trigger Year & Condition
							AM	PM	AM	PM	AM	PM	AM	PM	AM	PM			
3	27th St & S Glen Ave	EBL	Decel	35	Princ. Art.	N/A	208	111	220	117	327	174	220	117	327	174	790'		
		EBR	Decel	35	Princ. Art.	N/A	417	216	444	233	659	344	448	236	663	347	490'		
		NBL	Decel	35	NR-B	> 25	110	411	117	438	174	649	119	442	176	653	400'	780' (includes 10:1 taper)	Existing
		SBR	Decel	35	NR-B	> 50	26	47	28	50	41	74	28	50	41	74	440'	195' (includes 10:1 taper)	Meets Requirements
		EBL	Accel	35	NR-B	N/A	208	111	220	117	327	174	220	117	327	174	None		
		EBR	Accel	35	NR-B	N/A	417	216	444	233	659	344	448	236	663	347	None		
4	Grand Ave/23rd St & S Glen Ave	EBL	Decel	35	Collector	N/A	124	106	137	114	201	169	139	115	203	170	25'		
		EBR	Decel	35	Collector	N/A	2	3	2	3	3	5	2	3	3	5	25'		
		NBL	Decel	35	NR-B	> 25	2	21	2	22	3	33	2	22	3	33	170'	155' (includes 10:1 taper)	Meets Requirements
		SBR	Decel	35	NR-B	> 50	174	197	186	213	275	315	187	215	276	317	170'	435' (includes 10:1 taper)	Existing
		EBL	Accel	35	NR-B	N/A	124	106	137	114	201	169	139	115	203	170	None		
		EBR	Accel	35	NR-B	N/A	2	3	2	3	3	5	2	3	3	5	None		

[1]SH 82 is based upon *State Highway Access Code* requirements for an NR-B roadway with posted speed of 35mph.

Triggered by State Highway Access Code Volumes

Triggered by State Highway Access Code Safety and Operations

SH 82 / 27th Street: Per Section 3.11(4) of the Access Code[4], auxiliary turn lanes for SH 82 are required for more than 25vph making a left turn movement and 50vph making a right turn movement. The northbound left deceleration lane is currently 400 feet and is less than the required 780 feet (includes 10:1 taper + storage), due to a two-way left turn lane (TWLTL) that is located directly south of this turn lane and provides southbound left turns to businesses on the east side of SH82. It should be noted that the length of the northbound left turn lane exists as a background traffic condition. The project traffic contributes minimally to this movement. Since this condition occurs with the background condition, the City should consider completing a design waiver for the shorter turn lane length. The southbound right auxiliary turn lane currently meets the *Access Code* requirement of 195'. There are existing turn lanes for the eastbound left and right movements to accommodate future traffic volumes.

Grand Ave / 23rd St & S Glen Ave: Per Section 3.11(4) of the Access Code[4], auxiliary turn lanes for SH 82 are required for more than 50vph making a right turn movement. The existing southbound right auxiliary turn lane is approximately 170 feet. Based upon Year 2042 total traffic volumes, the Access Code requires a 435 foot auxiliary turn lane including a 10:1 taper. Multiple driveways are directly north of this intersection and would conflict with a longer turn lane. Since this condition occurs with the background condition, the City should consider completing a design waiver for the shorter turn lane length. The northbound left auxiliary turn lane currently meets the Access Code requirement of 170'. There are existing turn lanes for the eastbound left and right movements to accommodate future traffic volumes.

5.3 Queuing and Storage

A single-lane roundabout has recently been constructed at 27th Street and Grand Avenue. (Intersection #2). Since the site generated volumes are small, and are within 2% of the background traffic, only the total traffic volumes were analyzed as there

would be no practical difference between background and total traffic. RODEL roundabout analysis software was used to calculate the level of service, delay, and anticipated queue lengths for the 27th Street and Grand Avenue roundabout intersection. **Table 3** shows the intersection delay for the Year 2022 and Year 2042 Total traffic scenarios. With traffic growth, the morning eastbound approach will see increasing delays, and the evening westbound approach will see the same increasing delay pattern. **Table 4** shows the anticipated 95th percentile queue length in vehicles. Queue lengths for the morning eastbound approach will grow in the future as the roundabout sees increasing delay, and the same behavior is observed for the westbound approach in the evening.

The Rivers proposed south site access is located approximately 225' south of the 27th Street and Grand Avenue roundabout. It is anticipated that near the Total 2042 scenario, that the PM queuing could back up to the location of the south site access. Using 25' per vehicle for the queue length, the 95th percentile anticipated queue for the Year 2042 PM total scenario is estimated to be 257' long. Therefore, a small delay due to queuing may occur for vehicles leaving the site during the 2042 Total PM peak hour condition. The outbound site generated traffic at this access is anticipated to be 5 vph, or one vehicle every 12 minutes. Since the southbound average delay in the Total 2042 is estimated to be 23 seconds, with up to 10 vehicles in a queue, the internal queue at the south site access should not be more than 1 or 2 vehicles, as it is anticipated that likely a vehicle traveling in the southbound direction would allow a merging vehicle in during these conditions due to the slow speeds as a result of this queue.

Table 3: Intersection Level of Service and Delay

#	Int.	Approach	Year 2022 Total Level of Service (Delay in Seconds)		Year 2042 Total Level of Service (Delay in Seconds)	
			AM	PM	AM	PM
2	27th Street & Grand Ave RAB	SB	A (4.19)	A (7.44)	A (5.03)	C (23.94)
		EB	B (12.39)	A (4.94)	F (221.49)	A (6.92)
		NB	A (5.44)	A (5.43)	A (7.06)	A (8.63)
		WB	A (3.91)	A (8.27)	A (4.39)	E (46.97)

Table 4: Intersection Level of Service and Delay

#	Int.	Approach	Year 2022 Total 95th Percentile Queue Length (Vehicles)		Year 2042 Total 95th Percentile Queue Length (Vehicles)	
			AM	PM	AM	PM
2	27th Street & Grand Ave RAB	SB	0.70	1.40	1.39	10.30
		EB	9.48	1.63	265.84	3.51
		NB	0.43	1.40	0.79	3.54
		WB	0.49	4.20	0.82	42.42

5.4 Access Design Criteria

The proposed access shall be constructed per Section 4 of the *Access Code.* The City of Glenwood Springs design standards will also apply.

6.0 Summary and Recommendations

The project is proposing 17 townhome residential dwelling units. The property is accessed directly by Grand Avenue east of the project site.

Trip Generation: Based upon the applicant's proposed land use, the site is anticipated to generate 79 vehicle trips per day. This includes 11 trips during the morning peak hour (4 inbound + 7 outbound) and 12 trips during the evening peak hour (7 inbound + 5 outbound).

State Highway Access Permit: A State Highway Access Permit is not required.

Auxiliary Turn Lanes:

The northbound left deceleration lane at State Highway 82 and 27th Street is currently 400 feet and is less than the required 780 feet (includes 10:1 taper + storage), due to a two-way left turn lane (TWLTL) that is located directly south of this turn lane and provides southbound left turns to businesses on the east side of SH82. The southbound right auxiliary turn lane at Grand Ave / 23rd St & S Glen Ave does not meet the State Highway Access Code Requirement. Multiple driveways are directly north of this intersection and prevent a longer auxiliary turn lane.

Since both turn lane length conditions occur in the background condition, the City should consider completing design waivers for the existing shorter turn lane lengths if it has not already done so.

Based upon the analysis presented in this report, the proposed townhome residential development is anticipated to be successfully incorporated into the existing roadway network.

7.0 Appendix

7.1 Reference Documents

1. City of Glenwood Springs State Highway 82 Access Study. Stolfus & Associates, 2013.

2. *Institute of Transportation Engineers, Trip Generation Manual, 10th Edition*, September 2017.

3. State Highway Access Code. State of Colorado, 2002.

4. Glenwood Springs Street Classification map, 08-06-2018. Retrieved 12/9/2021. https://cogs.us/DocumentCenter/View/4304/Streets-Classification-Map-24x36-PDF---City-of-Glenwood-Springs-Grid-4MB.

7.2 Included Documents

1. Scoping Form

2. Traffic Counts

3. Background Traffic Assignment from Glenwood Multifamily TIS (Formerly Bell Rippy Apartments), March 10, 2017, Revised July 24, 2019

4. Background Traffic Assignment from 2512 Grand Avenue, Apex Consulting Engineers, October 14, 2021

5. Seasonal adjustment factor calculations

6. RODEL Reports

Gmail

Greg Schroeder <greg@mcdowelleng.com>

The Rivers Development - Scoping Form

1 message

Greg Schroeder <greg@mcdowelleng.com> Wed, Dec 8, 2021 at 11:42 AM
To: Terri Partch <terri.partch@cogs.us>, Brian Killian <brian.killian@state.co.us>
Cc: Zach Stevens <zac@movematter.com>, Mandy Edeen <mandy@mcdowelleng.com>, Kari Schroeder <kari@mcdowelleng.com>
Bcc: M1538 Glenwood Springs The Rivers N Mtn Partners <m1538@mcdowelleng.com>

Terri and Brian,

Please see the attached scoping form for the Rivers development. Let us know if you have any questions.

Thanks,

Greg Schroeder, PE

Senior Transportation / Traffic Engineer

241 Broadway Street, Suite 202
PO Box 4259
Eagle, CO 81631

970.948.1376

greg@mcdowelleng.com

www.mcdowelleng.com

2021-12-07 TIS Methodology Form.pdf
1234K

COLORADO
Department of Transportation
Region 3

Transportation Impact Study Methodology Form

Prior to starting a traffic impact study, a Methodology Form must be submitted for review and signed by the Region 3 Access Engineer. It shall be included as part of the study.

CONTACT INFORMATION	
Consultant:	Name: McDowell Engineering
	Telephone: 970-623-0788
	Email: kari@mcdowelleng.com
Developer/Owner Name:	North Moutain Partners/Brian Wilson (bwilson@northmountainpartners.com)

PROJECT INFORMATION	
Project Name	The Rivers
Project Location	Glenwood Springs, CO
Project Description *(Attached proposed site plan)*	Construction of 17 multifamily dwelling units on Grand Avenue in Glenwood Springs, CO.
State Highway	Analysis includes percent impact to SH82 at 23rd St and 27th St
County	Garfield
Mile Post	MP 1.4 & MP 1.71
Posted Speed Limit	35 MPH

TIS ASSUMPTIONS			
Study Years	Current Year: 2021	Buildout Year: 2022	Long Term Year: 2042
Traffic Assessment Level *(Provide justification)*	The proposed development generates less than 100 vehicles per hour. Therefore, a level II assessment will be completed.		
Study Intersections	1. Midland Ave & 27th St	6.	
	2. Grand Ave & 27th St	7.	
	3. 27th St & S Glen Ave	8.	
	4. 23rd & S Grand Ave & Grand Ave	9.	
	5. Site Access (2)	10.	
Future Growth Rate	☐ OTIS	☐ Regional TDM	■ Other (See Notes)
Seasonal Adjustment Factor	SAF 1.04 will be applied to adjust September counts to July		

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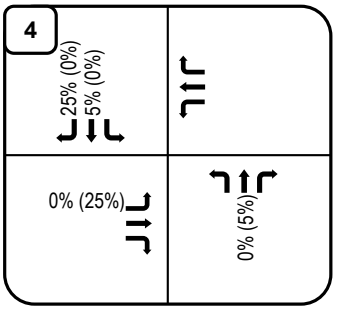
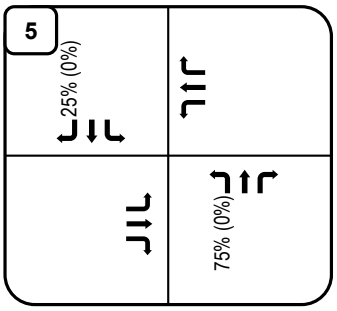
Region 3

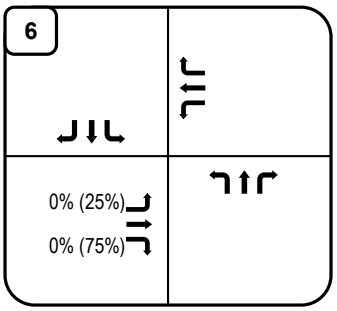
ASSUMPTIONS CONTINUED					
Project Trip Distribution *(State assumptions and attach sketch that shows individual movements.)*	30% to/from the north, 55% to/from the south (5% of this along old 82), 5% to/from the east, and 5% to/from the southwest (Midland Ave S), and 5% to/from the northwest (Midland Ave N)				
Trip Reduction Percentage	Internal Capture:		Pass By:		
	Multi-Modal:	10%	Other:		
Study Time Periods *(Check all that apply)*	☒ AM (7-9)	☒ PM (4-6)	☐ Weekday		
	☐ SAT (Midday)	☐ Other			
Existing and Proposed ITE Trip Generation Land Use	Multi-Family Low-Rise (#220): 17 dwelling units				
Analysis Methods *(Check all that apply)*	☐ Synchro or ☐ HCS *(isolated intersections only)*		☐ SimTraffic or ☐ Other *(closely spaced intersections or when known/expected queuing issue)*		
	☐ Signal Warrants		☐ Pedestrian/Transit/Bicycle		
	☒ Safety/Sight Distance		☒ Queuing and Storage		
	☐ Other				
Notes and Other Assumptions	Per the SH 82 Corridor Optimization Study and Access Control Plan, a 2% growth rate was used for all background traffic. A restaurant is currently constructed on the parcel. The restaurant was closed when counts were obtained. Therefore, the restaurant land use will be ignored.				
Crash Data	CDOT will perform a crash data analysis for the highway in the vicinity of the proposed access and provide to the consultant. As a part of the study consultant shall recommend mitigation measures for any identified safety issues.				
Simulation Input Files	Consultant to provide computer files used for analysis with a signed and sealed copy of the study.				

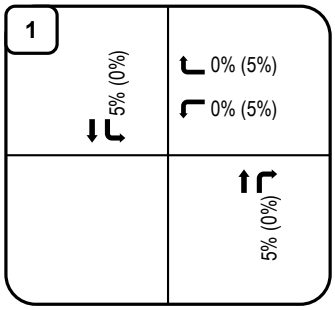
CDOT INTERNAL USE ONLY	
Review Comments ☐ Revise and Resubmit	
Engineer Signature/Date	☐ Approved

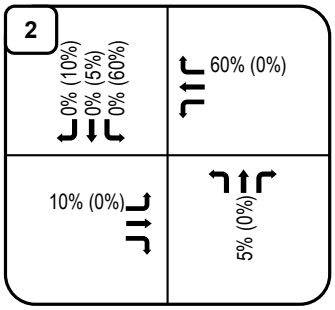
Figure 6: Project Generated Traffic Distribution

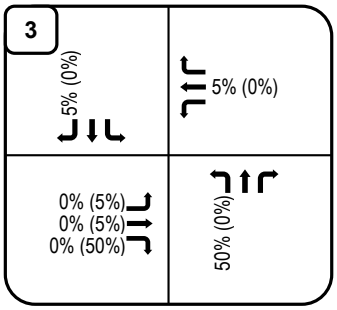












LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM/SAT Volumes = XX/XX/XX VPH (in PCEs)
Turning Movements

McDowell Engineering, LLC
Transportation Engineering Consultants

Project Number	M1538
Prepared By	GWS
The Rivers	12/7/2021
Glenwood Springs, CO	DRAFT - FOR INTERNAL USE ONLY

Table 1 - The Rivers

Project Trip Generation

Estimated Project-Generated Traffic[1]

ITE Code	Units [2]	Eq. Coef	ITE Trip Generation Equation[3] Avg. Weekday	AM Peak Hour	PM Peak Hour	Average Weekday Trips (VPD)	Morning Peak Hour Inbound % Trips	Trips	Morning Peak Hour Outbound % Trips	Trips	Evening Peak Hour Inbound % Trips	Trips	Evening Peak Hour Outbound % Trips	Trips
Proposed Land Use														
Residential Development														
#220 - Multifamily Housing (Low-Rise)	17 DU	Type	A	B	A	88	28%	4	72%	8	59%	8	41%	6
		a=	7.56	0.94	0.66									
		b=	-40.86	-0.29	1.41									
Multi-Modal Reduction	*-10%*					*-9*		*0*		*-1*		*-1*		*-1*
Proposed New Trips						**79**		**4**		**7**		**7**		**5**

Notes:

[1] Values obtained from *Trip Generation, 10th Edition,* Institute of Transportation Engineers, 2017.

[2] DU = Dwelling Units, kSF = 1,000 Square Feet

[3] Fitted curve equations from ITE Land Uses - Equation Type A is T = a * X + b, Equation Type B is Ln(T) = a * Ln(X) + b, Rate is T = a * X

Monthly Summary Data

CDOT OTIS Station ID 000214 - ON SH 82, GLEN AVE S/O BLAKE AVE, GLENWOOD SPRINGS

CALYR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2021	22,534	23,360	24,863	26,000	27,154	29,065	28,564	27,888				
2020	23,732	23,818	19,530	15,080	21,526	24,775	25,592	24,845	26,241	25,786	22,462	22,231
2019	22,045	22,387	22,885	23,892	24,283	25,402	25,858	25,648	25,266	26,224	24,326	23,900
2018	23,365	23,237	24,444	24,974	25,824	26,106	25,420	25,235	24,793	23,781	22,025	21,717
2017	22,576	23,590	24,797	25,270	25,389	27,223	27,128	23,295	21,072	21,144	22,774	23,736
2016	22,629	22,949	23,948	24,786	25,563	27,086	27,406	27,089	27,051	25,737	23,475	23,145
2015	22,134	22,151	23,508	23,842	24,174	26,460	27,049	26,201	26,455	25,224	22,799	22,782
2014	20,312	20,646	21,761	22,204	22,727	24,366	25,318	24,725	24,859	23,947	20,843	21,677
2013	20,065	20,137	20,483	20,986	21,928	22,998	23,938	23,718	22,993	22,538	20,564	19,880
2012	19,531	19,709	20,760	20,884	21,349	22,956	23,301	23,793	22,904	22,152	20,404	19,386
2011	19,557	19,445	20,557	20,174	20,612	22,241	23,089	23,255	23,149	21,614	19,952	20,194
2010	20,137	20,140	20,998	20,777	21,017	23,097	24,447	24,073	24,005	21,863	21,239	20,097
2009	21,638	22,319	22,144	22,424	22,912	24,701	25,134	24,300	24,150	22,561	19,785	20,400
2008	23,112	23,324	24,444	24,929	25,006	26,191	26,580	26,231	25,768	25,323	22,664	22,140
2007	20,956	23,067	24,472	24,836	25,605	26,598	26,724	27,227	26,754	25,724	24,328	22,715
2006	21,346	22,174	22,476	23,410	23,967	25,736	25,747	25,967	25,854	24,205	22,466	22,424
2005	21,024	21,907	22,544	22,652	22,997	24,963	25,564	25,465	24,352	23,362	22,362	21,578
2004		21,061	21,761	22,242	21,886	24,336	24,937	24,743	24,373	22,921	21,363	21,829
2003	20,521	20,586	20,471	20,691	21,234	23,811	24,859	23,899	23,188	22,506	19,602	20,525
2002									23,173	22,975	20,658	20,815
2001	20,369	20,980	22,123	22,774	23,131	24,161	24,315	25,555	24,094			
2000	18,546	20,063	20,881	21,592	22,350	24,926	24,236	24,569	23,737	22,778	20,828	20,217
1999	17,820	19,049	20,071	20,246	20,259	22,756	23,208	22,999	22,652	21,438	19,915	19,502
Average	**21,140**	**21,641**	**22,269**	**22,485**	**23,222**	**24,998**	**25,382**	**25,033**	**24,404**	**23,514**	**21,659**	**21,471**

Seasonal Adjustment Factors

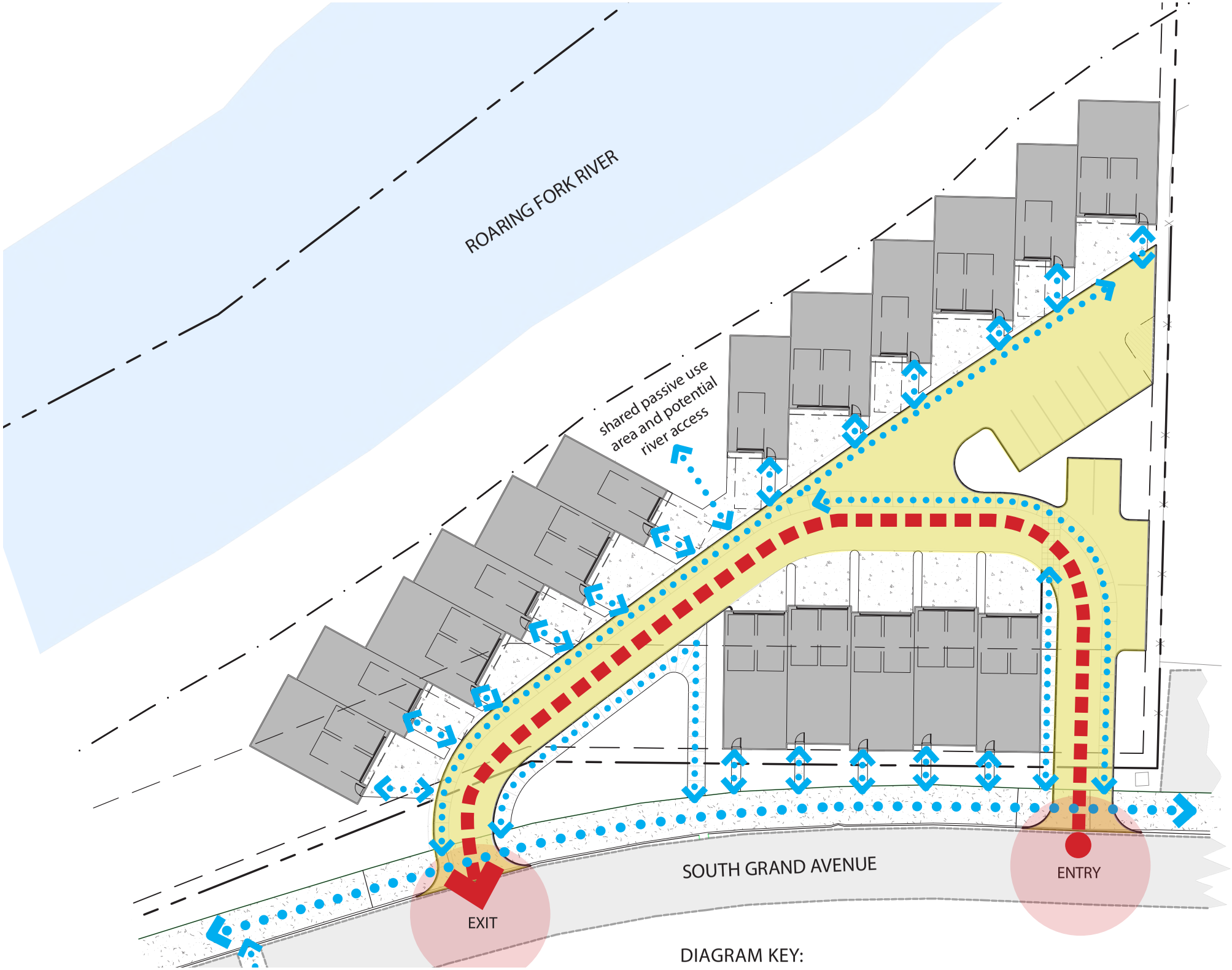
CDOT OTIS Station ID 000214 - ON SH 82, GLEN AVE S/O BLAKE AVE, GLENWOOD SPRINGS

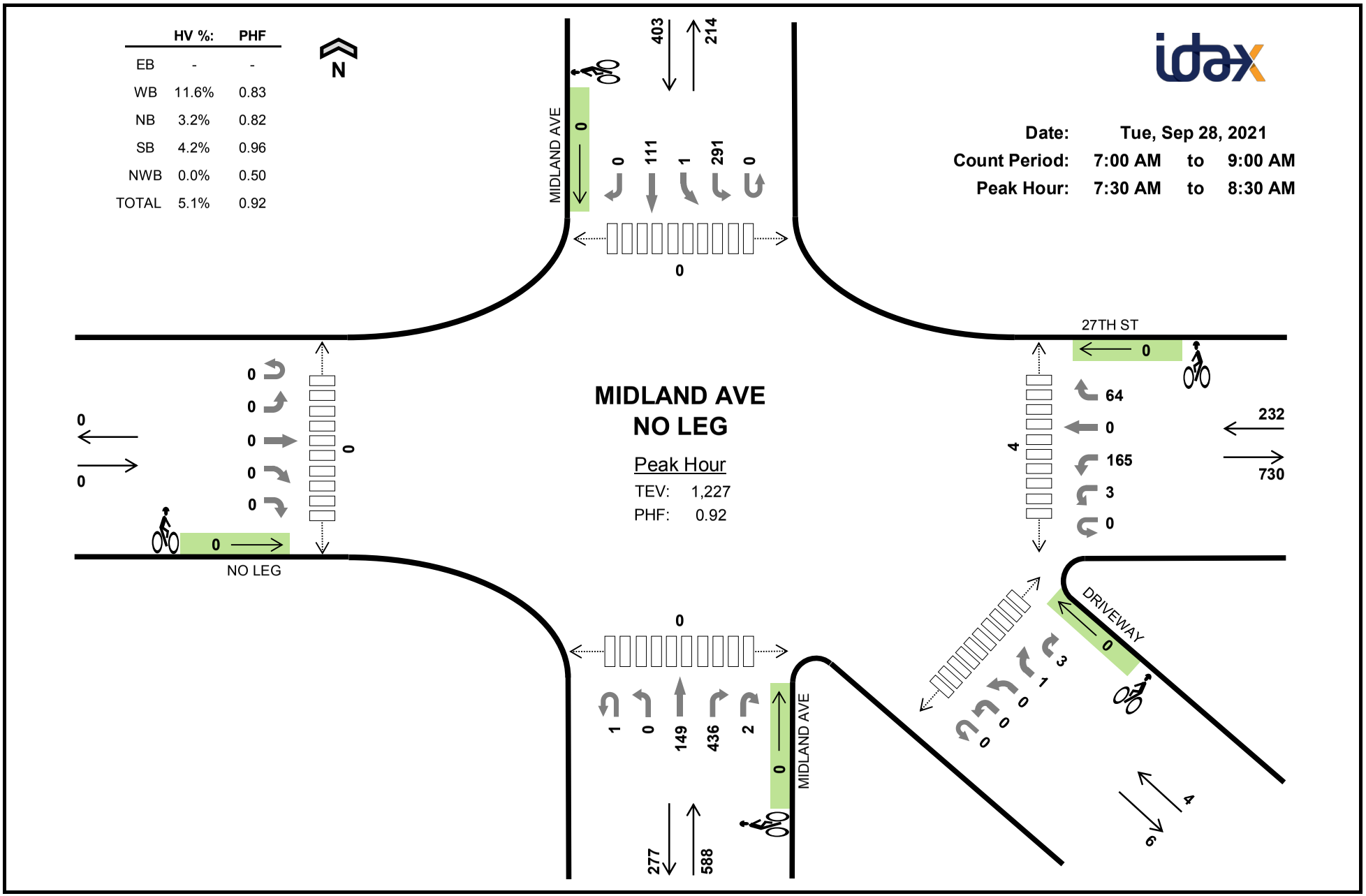
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		21,140	21,641	22,269	22,485	23,222	24,998	25,382	25,033	24,404	23,514	21,659	21,471
Jan	21,140	1.00	1.02	1.05	1.06	1.10	1.18	1.20	1.18	1.15	1.11	1.02	1.02
Feb	21,641	0.98	1.00	1.03	1.04	1.07	1.16	1.17	1.16	1.13	1.09	1.00	0.99
Mar	22,269	0.95	0.97	1.00	1.01	1.04	1.12	1.14	1.12	1.10	1.06	0.97	0.96
Apr	22,485	0.94	0.96	0.99	1.00	1.03	1.11	1.13	1.11	1.09	1.05	0.96	0.95
May	23,222	0.91	0.93	0.96	0.97	1.00	1.08	1.09	1.08	1.05	1.01	0.93	0.92
Jun	24,998	0.85	0.87	0.89	0.90	0.93	1.00	1.02	1.00	0.98	0.94	0.87	0.86
Jul	25,382	0.83	0.85	0.88	0.89	0.91	0.98	1.00	0.99	0.96	0.93	0.85	0.85
Aug	25,033	0.84	0.86	0.89	0.90	0.93	1.00	1.01	1.00	0.97	0.94	0.87	0.86
Sep	24,404	0.87	0.89	0.91	0.92	0.95	1.02	1.04	1.03	1.00	0.96	0.89	0.88
Oct	23,514	0.90	0.92	0.95	0.96	0.99	1.06	1.08	1.06	1.04	1.00	0.92	0.91
Nov	21,659	0.98	1.00	1.03	1.04	1.07	1.15	1.17	1.16	1.13	1.09	1.00	0.99
Dec	21,471	0.98	1.01	1.04	1.05	1.08	1.16	1.18	1.17	1.14	1.10	1.01	1.00

Monthly Summary Data from CDOT OTIS:

https://dtdapps.coloradodot.info/otis/TrafficData#ui/2/0/1/station/000214/criteria/000214/

Data Retrieved on October 5, 2021


ROARING FORK RIVER
shared passive use area and potential river access
SOUTH GRAND AVENUE
EXIT
ENTRY
DIAGRAM KEY:



Project Manager: (415) 310-6469

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Two-Hour Count Summaries

Interval Start	NO LEG Eastbound					27TH ST Westbound					MIDLAND AVE Northbound					MIDLAND AVE Southbound					DRIVEWAY Northwestbound					15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	1	30	0	4	1	0	13	83	0	0	66	0	28	0	0	0	0	1	0	227	0
7:15 AM	0	0	0	0	0	0	1	22	0	10	0	0	29	93	1	0	77	0	15	0	0	0	0	0	1	249	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**12**	**0**	**0**	**29**	**92**	**0**	**0**	**82**	**0**	**22**	**0**	**0**	**0**	**0**	**0**	**1**	**277**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**38**	**0**	**10**	**1**	**0**	**60**	**119**	**0**	**0**	**71**	**0**	**32**	**0**	**0**	**0**	**0**	**0**	**1**	**334**	1,087
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**49**	**0**	**20**	**0**	**0**	**33**	**87**	**0**	**0**	**70**	**0**	**35**	**0**	**0**	**0**	**0**	**1**	**1**	**297**	1,157
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**22**	**0**	**0**	**27**	**138**	**2**	**0**	**68**	**1**	**22**	**0**	**0**	**0**	**0**	**0**	**0**	**319**	**1,227**
8:30 AM	0	0	0	0	0	0	2	38	0	23	1	0	20	103	1	0	58	1	10	0	0	0	0	1	1	259	1,209
8:45 AM	0	0	0	0	0	0	0	33	0	18	0	0	14	61	0	0	51	0	11	0	0	0	0	0	0	188	1,063
Count Total	0	0	0	0	0	0	7	288	0	119	3	0	225	776	4	0	543	2	175	0	0	0	0	3	5	2,150	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**165**	**0**	**64**	**1**	**0**	**149**	**436**	**2**	**0**	**291**	**1**	**111**	**0**	**0**	**0**	**0**	**1**	**3**	**1,227**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**7**	**1**	**0**	**4**	**14**	**0**	**0**	**11**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**63**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**12%**	**-**	**11%**	**100%**	**-**	**3%**	**3%**	**0%**	**-**	**4%**	**0%**	**5%**	**-**	**-**	**-**	**-**	**0%**	**0%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	NWB	Total	EB	WB	NB	SB	NWB	Total	East	West	North	South	Southeast	Total
7:00 AM	0	4	2	4	0	*10*	0	0	1	0	0	*1*	0	0	0	0	0	*0*
7:15 AM	0	2	11	2	0	*15*	0	0	0	0	0	*0*	1	0	0	0	0	*1*
7:30 AM	**0**	**10**	**3**	**2**	**0**	***15***	**0**	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**0**	**0**	**3**	***6***
7:45 AM	**0**	**6**	**5**	**5**	**0**	***16***	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**	***0***
8:00 AM	**0**	**6**	**5**	**6**	**0**	***17***	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**	***0***
8:15 AM	**0**	**5**	**6**	**4**	**0**	***15***	**0**	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	**1**	***2***
8:30 AM	0	4	8	1	1	*14*	0	0	0	0	0	*0*	0	0	0	0	0	*0*
8:45 AM	0	0	2	3	0	*5*	0	0	0	0	0	*0*	0	0	0	0	2	*2*
Count Total	0	37	42	27	1	*107*	0	0	1	0	0	*1*	5	0	0	0	6	*11*
Peak Hr	**0**	**27**	**19**	**17**	**0**	***63***	**0**	**0**	**0**	**0**	**0**	***0***	**4**	**0**	**0**	**0**	**4**	*8*

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	NO LEG					27TH ST					MIDLAND AVE					MIDLAND AVE					DRIVEWAY					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northwestbound						
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	3	0	1	1	0	0	1	0	0	2	0	2	0	0	0	0	0	0	10	0
7:15 AM	0	0	0	0	0	0	0	2	0	0	0	0	2	9	0	0	2	0	0	0	0	0	0	0	0	15	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**1**	**0**	**0**	**1**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**2**	**1**	**0**	**2**	**2**	**0**	**0**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	56
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**0**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	63
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**0**	**0**	**1**	**5**	**0**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**63**
8:30 AM	0	0	0	0	0	0	1	2	0	1	0	0	0	7	1	0	0	0	1	0	0	0	0	0	1	14	62
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	2	0	0	0	0	0	0	5	51
Count Total	0	0	0	0	0	0	1	27	0	9	2	0	6	33	1	0	16	0	11	0	0	0	0	0	1	107	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**7**	**1**	**0**	**4**	**14**	**0**	**0**	**11**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	63	**0**

Two-Hour Count Summaries - Bikes

Interval Start	NO LEG					27TH ST					MIDLAND AVE					MIDLAND AVE					DRIVEWAY					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northwestbound						
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	**0**

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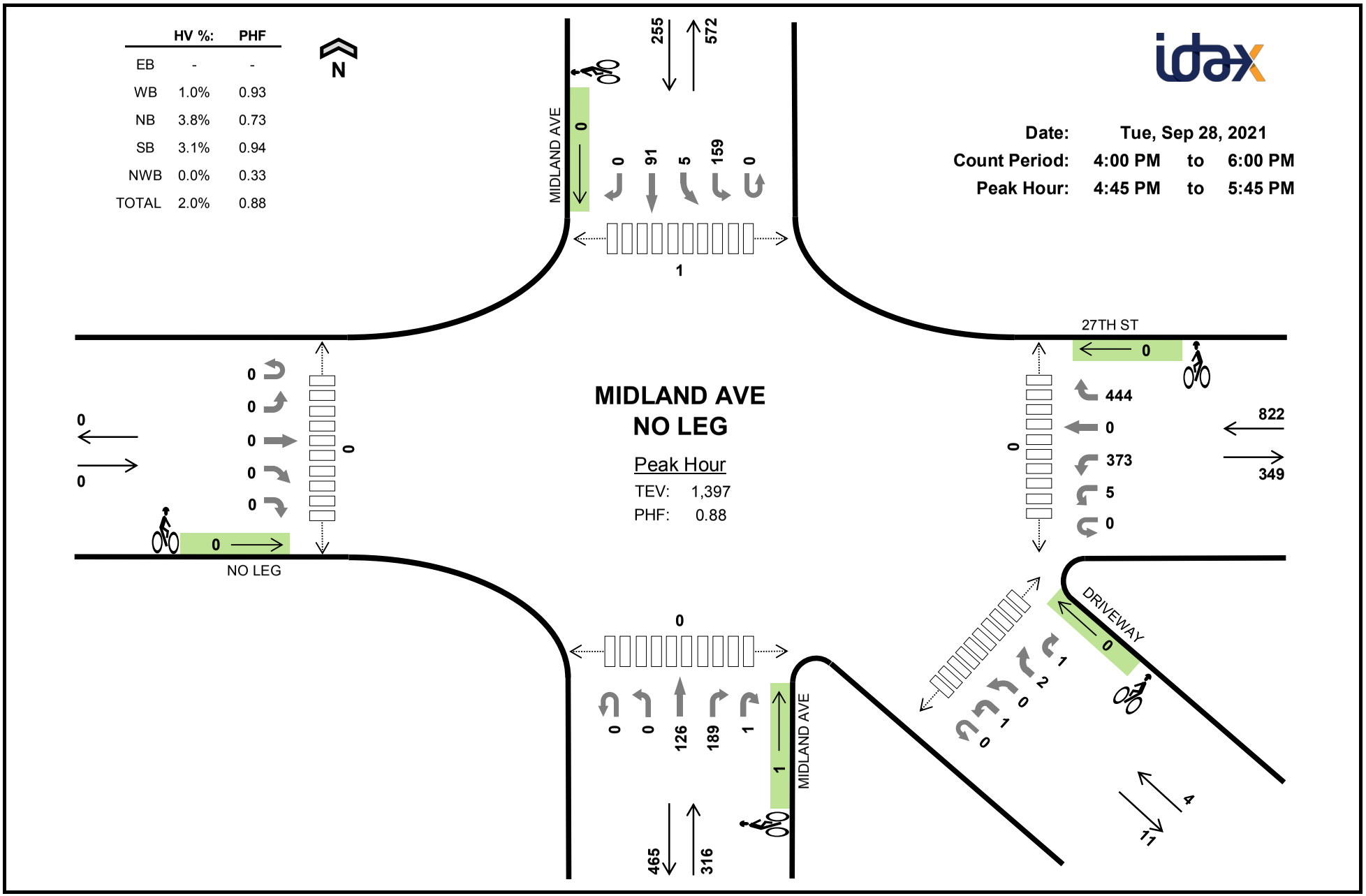

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Two-Hour Count Summaries

Interval Start	NO LEG Eastbound					27TH ST Westbound					MIDLAND AVE Northbound					MIDLAND AVE Southbound					DRIVEWAY Northwestbound					15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	0	0	0	3	67	0	79	1	0	30	32	0	0	40	0	25	0	0	0	0	2	0	279	0
4:15 PM	0	0	0	0	0	0	1	81	0	88	0	0	38	45	1	0	45	1	15	0	0	1	0	3	1	320	0
4:30 PM	0	0	0	0	0	0	1	93	0	87	0	0	26	23	0	0	41	0	25	0	0	0	0	0	3	299	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**103**	**0**	**106**	**0**	**0**	**39**	**41**	**1**	**0**	**41**	**0**	**20**	**0**	**0**	**0**	**0**	**0**	**0**	**352**	1,250
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**88**	**0**	**130**	**0**	**0**	**50**	**58**	**0**	**0**	**37**	**1**	**30**	**0**	**0**	**0**	**0**	**0**	**0**	**397**	1,368
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**88**	**0**	**109**	**0**	**0**	**27**	**45**	**0**	**0**	**44**	**3**	**21**	**0**	**0**	**1**	**0**	**1**	**1**	**340**	1,388
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**94**	**0**	**99**	**0**	**0**	**10**	**45**	**0**	**0**	**37**	**1**	**20**	**0**	**0**	**0**	**0**	**1**	**0**	**308**	**1,397**
5:45 PM	0	0	0	0	0	0	1	82	0	117	0	0	18	39	0	0	40	0	24	0	0	0	0	0	0	321	1,366
Count Total	0	0	0	0	0	0	11	696	0	815	1	0	238	328	2	0	325	6	180	0	0	2	0	7	5	2,616	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**373**	**0**	**444**	**0**	**0**	**126**	**189**	**1**	**0**	**159**	**5**	**91**	**0**	**0**	**1**	**0**	**2**	**1**	**1,397**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**1**	**0**	**0**	**2**	**10**	**0**	**0**	**6**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**28**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**2%**	**-**	**0%**	**-**	**-**	**2%**	**5%**	**0%**	**-**	**4%**	**20%**	**1%**	**-**	**-**	**0%**	**-**	**0%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	NWB	Total	EB	WB	NB	SB	NWB	Total	East	West	North	South	Southeast	Total
4:00 PM	0	6	6	1	1	*14*	0	0	0	0	0	*0*	0	0	0	0	1	*1*
4:15 PM	0	4	7	1	0	*12*	0	0	0	0	0	*0*	0	0	0	0	0	*0*
4:30 PM	0	8	3	3	0	*14*	0	0	1	0	0	*1*	0	0	0	0	0	*0*
4:45 PM	**0**	**2**	**6**	**2**	**0**	***10***	**0**	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	**2**	***2***
5:00 PM	**0**	**1**	**2**	**2**	**0**	***5***	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	**2**	***3***
5:15 PM	**0**	**4**	**2**	**2**	**0**	***8***	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**	***0***
5:30 PM	**0**	**1**	**2**	**2**	**0**	***5***	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**	***0***
5:45 PM	0	3	1	1	0	*5*	0	0	0	0	0	*0*	1	0	0	0	1	*2*
Count Total	0	29	29	14	1	*73*	0	0	2	0	0	*2*	1	0	1	0	6	*8*
Peak Hr	**0**	**8**	**12**	**8**	**0**	***28***	**0**	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**1**	**0**	**4**	*5*

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	NO LEG					27TH ST					MIDLAND AVE					MIDLAND AVE					DRIVEWAY					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northwestbound						
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	0	0	0	0	3	0	3	1	0	2	3	0	0	1	0	0	0	0	0	0	1	0	14	0
4:15 PM	0	0	0	0	0	0	0	2	0	2	0	0	2	4	1	0	1	0	0	0	0	0	0	0	0	12	0
4:30 PM	0	0	0	0	0	0	0	6	0	2	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	14	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**5**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	50
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	41
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	37
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**28**
5:45 PM	0	0	0	0	0	0	0	2	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	5	23
Count Total	0	0	0	0	0	0	0	20	0	9	1	0	6	21	1	0	12	1	1	0	0	0	0	1	0	73	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**1**	**0**	**0**	**2**	**10**	**0**	**0**	**6**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	28	**0**

Two-Hour Count Summaries - Bikes

Interval Start	NO LEG					27TH ST					MIDLAND AVE					MIDLAND AVE					DRIVEWAY					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northwestbound						
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	2
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1	**0**

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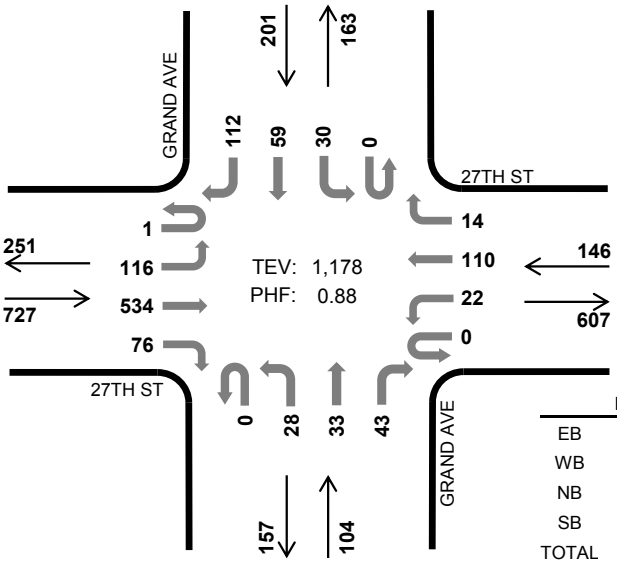
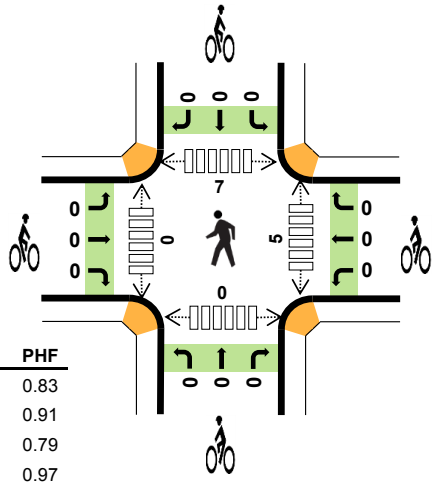
GRAND AVE
27TH ST

Peak Hour

Date: Tue, Sep 28, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	3.6%	0.83
WB	7.5%	0.91
NB	2.9%	0.79
SB	6.5%	0.97
TOTAL	4.5%	0.88

Two-Hour Count Summaries

Interval Start		27TH ST Eastbound				27TH ST Westbound				GRAND AVE Northbound				GRAND AVE Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	10	117	18	0	4	19	1	0	4	5	4	1	11	6	13	213	0
7:15 AM		0	21	130	21	0	3	17	5	0	4	5	3	0	5	12	13	239	0
7:30 AM		0	14	136	26	0	1	25	1	0	3	2	7	0	12	11	21	259	0
7:45 AM		**0**	**24**	**145**	**23**	**0**	**2**	**22**	**5**	**0**	**4**	**6**	**10**	**0**	**11**	**15**	**26**	**293**	1,004
8:00 AM		**0**	**19**	**121**	**12**	**0**	**5**	**28**	**5**	**0**	**8**	**5**	**11**	**0**	**5**	**14**	**33**	**266**	1,057
8:15 AM		**1**	**51**	**147**	**20**	**0**	**8**	**28**	**4**	**0**	**8**	**10**	**9**	**0**	**6**	**16**	**27**	**335**	1,153
8:30 AM		**0**	**22**	**121**	**21**	**0**	**7**	**32**	**0**	**0**	**8**	**12**	**13**	**0**	**8**	**14**	**26**	**284**	**1,178**
8:45 AM		0	19	87	12	0	4	25	5	0	8	6	8	0	5	9	20	208	1,093
Count Total		1	180	1,004	153	0	34	196	26	0	47	51	65	1	63	97	179	2,097	0
Peak Hour	**All**	**1**	**116**	**534**	**76**	**0**	**22**	**110**	**14**	**0**	**28**	**33**	**43**	**0**	**30**	**59**	**112**	**1,178**	**0**
	HV	**0**	**1**	**23**	**2**	**0**	**3**	**7**	**1**	**0**	**2**	**0**	**1**	**0**	**1**	**2**	**10**	**53**	**0**
	HV%	**0%**	**1%**	**4%**	**3%**	**-**	**14%**	**6%**	**7%**	**-**	**7%**	**0%**	**2%**	**-**	**3%**	**3%**	**9%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	3	3	1	*9*	1	0	1	0	*2*	0	0	1	0	*1*
7:15 AM	13	3	2	1	*19*	0	0	0	0	*0*	0	0	2	0	*2*
7:30 AM	5	6	0	2	*13*	0	0	0	0	*0*	1	0	0	0	*1*
7:45 AM	**3**	**3**	**1**	**1**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
8:00 AM	**9**	**2**	**0**	**3**	***14***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**3**	**0**	*6*
8:15 AM	**8**	**4**	**1**	**5**	***18***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**0**	*2*
8:30 AM	**6**	**2**	**1**	**4**	***13***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**2**	**0**	***3***
8:45 AM	4	1	1	1	*7*	0	0	0	0	*0*	3	0	3	0	*6*
Count Total	50	24	9	18	*101*	1	0	1	0	*2*	9	0	13	0	*22*
Peak Hour	**26**	**11**	**3**	**13**	***53***	**0**	**0**	**0**	**0**	***0***	**5**	**0**	**7**	**0**	***12***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	27TH ST Eastbound				27TH ST Westbound				GRAND AVE Northbound				GRAND AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	0	0	0	3	0	0	3	0	0	0	1	0	0	9	0
7:15 AM	0	1	11	1	0	0	2	1	0	1	0	1	0	0	0	1	19	0
7:30 AM	0	1	3	1	0	0	6	0	0	0	0	0	0	1	0	1	13	0
7:45 AM	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**8**	49
8:00 AM	**0**	**1**	**7**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**14**	54
8:15 AM	**0**	**0**	**8**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**4**	**18**	53
8:30 AM	**0**	**0**	**5**	**1**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**13**	**53**
8:45 AM	0	0	4	0	0	0	1	0	0	0	0	1	0	0	1	0	7	52
Count Total	0	3	43	4	0	3	19	2	0	6	0	3	0	3	3	12	101	0
Peak Hour	**0**	**1**	**23**	**2**	**0**	**3**	**7**	**1**	**0**	**2**	**0**	**1**	**0**	**1**	**2**	**10**	**53**	**0**

Two-Hour Count Summaries - Bikes

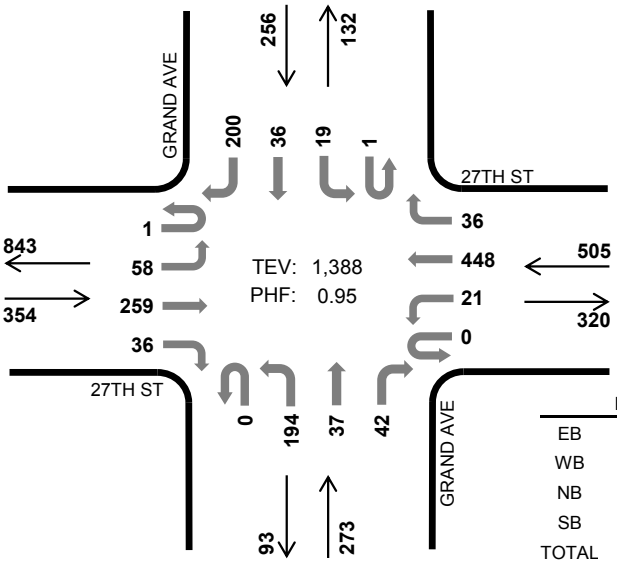
Interval Start	27TH ST Eastbound			27TH ST Westbound			GRAND AVE Northbound			GRAND AVE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	1	0	0	0	0	0	1	0	0	0	0	2	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	1	0	0	0	0	0	1	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

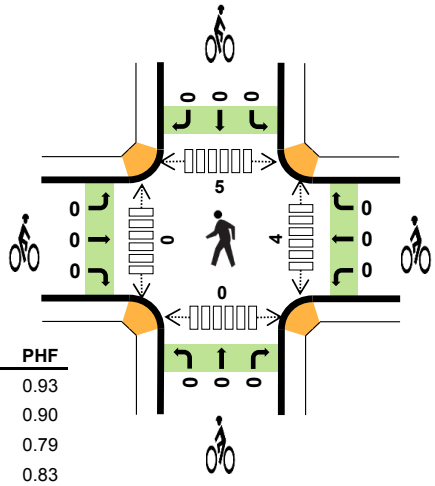
GRAND AVE
27TH ST

Date: Tue, Sep 28, 2021
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Peak Hour



	HV %:	PHF
EB	5.6%	0.93
WB	1.8%	0.90
NB	1.8%	0.79
SB	0.8%	0.83
TOTAL	2.6%	0.95



Two-Hour Count Summaries

Interval Start		27TH ST Eastbound				27TH ST Westbound				GRAND AVE Northbound				GRAND AVE Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	13	60	10	1	5	81	6	0	18	8	8	1	5	15	42	273	0
4:15 PM		0	14	60	18	0	7	109	5	0	22	8	7	0	10	10	45	315	0
4:30 PM		0	7	59	9	0	5	85	7	0	39	15	13	1	3	8	63	314	0
4:45 PM		**0**	**12**	**70**	**6**	**0**	**3**	**107**	**8**	**0**	**44**	**5**	**12**	**1**	**7**	**8**	**61**	**344**	1,246
5:00 PM		**0**	**13**	**58**	**13**	**0**	**5**	**111**	**8**	**0**	**62**	**12**	**12**	**0**	**6**	**7**	**58**	**365**	1,338
5:15 PM		**1**	**14**	**69**	**11**	**0**	**6**	**123**	**11**	**0**	**45**	**8**	**11**	**0**	**2**	**10**	**42**	**353**	1,376
5:30 PM		**0**	**19**	**62**	**6**	**0**	**7**	**107**	**9**	**0**	**43**	**12**	**7**	**0**	**4**	**11**	**39**	**326**	**1,388**
5:45 PM		0	10	70	5	0	6	102	4	0	44	19	7	0	3	3	48	321	1,365
Count Total		1	102	508	78	1	44	825	58	0	317	87	77	3	40	72	398	2,611	0
Peak Hour	**All**	**1**	**58**	**259**	**36**	**0**	**21**	**448**	**36**	**0**	**194**	**37**	**42**	**1**	**19**	**36**	**200**	**1,388**	**0**
	HV	**0**	**4**	**15**	**1**	**0**	**0**	**4**	**5**	**0**	**3**	**0**	**2**	**1**	**1**	**0**	**0**	**36**	**0**
	HV%	**0%**	**7%**	**6%**	**3%**	**-**	**0%**	**1%**	**14%**	**-**	**2%**	**0%**	**5%**	**100%**	**5%**	**0%**	**0%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	4	1	1	*10*	0	0	0	0	*0*	1	0	0	0	*1*
4:15 PM	5	7	0	2	*14*	0	0	0	0	*0*	1	0	1	0	*2*
4:30 PM	4	6	2	2	*14*	0	0	1	1	*2*	1	0	3	0	*4*
4:45 PM	**10**	**1**	**1**	**2**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
5:00 PM	**2**	**0**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**0**	*2*
5:15 PM	**4**	**7**	**4**	**0**	***15***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**3**	**0**	*6*
5:30 PM	**4**	**1**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:45 PM	1	3	1	0	*5*	0	0	0	0	*0*	0	0	1	0	*1*
Count Total	34	29	9	7	*79*	0	0	1	1	*2*	7	0	10	0	*17*
Peak Hour	**20**	**9**	**5**	**2**	***36***	**0**	**0**	**0**	**0**	***0***	**4**	**0**	**5**	**0**	***9***

Two-Hour Count Summaries - Heavy Vehicles

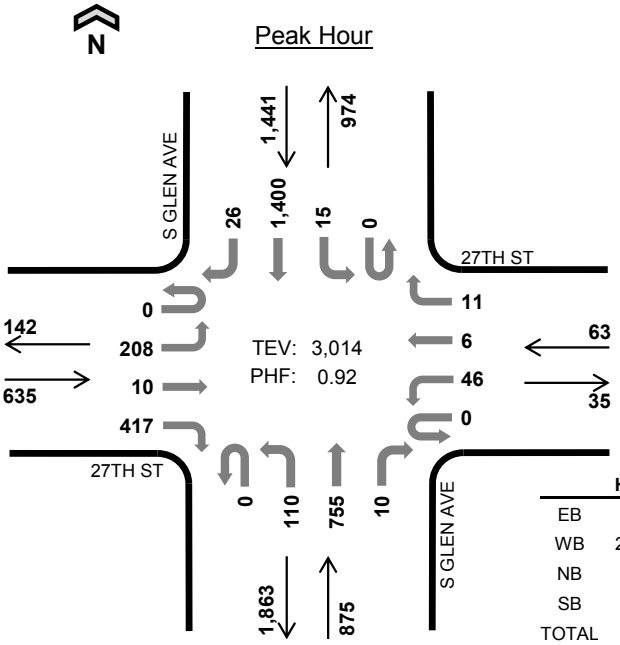
Interval Start	27TH ST Eastbound				27TH ST Westbound				GRAND AVE Northbound				GRAND AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	2	2	0	0	4	0	0	1	0	0	0	0	0	1	10	0
4:15 PM	0	1	4	0	0	0	4	3	0	0	0	0	0	2	0	0	14	0
4:30 PM	0	1	3	0	0	0	6	0	0	1	1	0	0	0	0	2	14	0
4:45 PM	**0**	**1**	**8**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**14**	52
5:00 PM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	44
5:15 PM	**0**	**1**	**3**	**0**	**0**	**0**	**2**	**5**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**15**	45
5:30 PM	**0**	**2**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**36**
5:45 PM	0	0	1	0	0	0	3	0	0	0	1	0	0	0	0	0	5	27
Count Total	0	6	25	3	0	0	21	8	0	5	2	2	1	3	0	3	79	0
Peak Hour	**0**	**4**	**15**	**1**	**0**	**0**	**4**	**5**	**0**	**3**	**0**	**2**	**1**	**1**	**0**	**0**	**36**	**0**

Two-Hour Count Summaries - Bikes

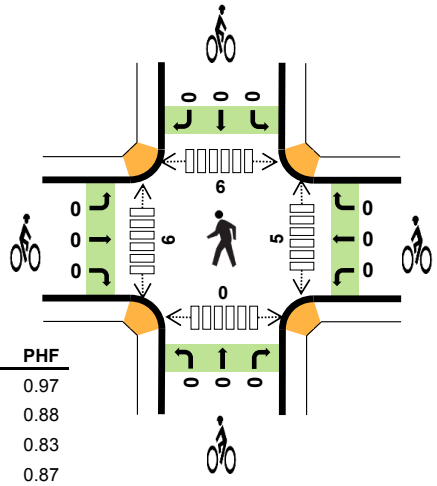
Interval Start	27TH ST Eastbound			27TH ST Westbound			GRAND AVE Northbound			GRAND AVE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	1	0	0	1	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

S GLEN AVE
27TH ST



Date: Tue, Sep 28, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	3.5%	0.97
WB	25.4%	0.88
NB	5.1%	0.83
SB	5.5%	0.87
TOTAL	5.4%	0.92

Two-Hour Count Summaries

Interval Start		27TH ST Eastbound				27TH ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	38	2	96	0	10	3	2	0	17	87	2	0	6	391	6	660	0
7:15 AM		0	23	2	103	0	9	3	3	0	18	109	2	0	7	383	7	669	0
7:30 AM		**0**	**44**	**1**	**119**	**0**	**13**	**1**	**3**	**0**	**22**	**136**	**2**	**0**	**4**	**362**	**3**	**710**	0
7:45 AM		**0**	**44**	**3**	**117**	**0**	**14**	**1**	**3**	**0**	**30**	**191**	**2**	**0**	**4**	**406**	**3**	**818**	2,857
8:00 AM		**0**	**59**	**4**	**84**	**0**	**8**	**2**	**4**	**0**	**28**	**195**	**4**	**0**	**4**	**328**	**11**	**731**	2,928
8:15 AM		**0**	**61**	**2**	**97**	**0**	**11**	**2**	**1**	**0**	**30**	**233**	**2**	**0**	**3**	**304**	**9**	**755**	**3,014**
8:30 AM		0	44	1	103	0	6	1	3	0	40	166	0	0	3	313	7	687	2,991
8:45 AM		0	29	0	77	0	9	1	1	0	24	166	1	0	4	272	5	589	2,762
Count Total		0	342	15	796	0	80	14	20	0	209	1,283	15	0	35	2,759	51	5,619	0
Peak Hour	**All**	**0**	**208**	**10**	**417**	**0**	**46**	**6**	**11**	**0**	**110**	**755**	**10**	**0**	**15**	**1,400**	**26**	**3,014**	**0**
	HV	**0**	**8**	**0**	**14**	**0**	**13**	**1**	**2**	**0**	**11**	**33**	**1**	**0**	**7**	**70**	**2**	**162**	**0**
	HV%	**-**	**4%**	**0%**	**3%**	**-**	**28%**	**17%**	**18%**	**-**	**10%**	**4%**	**10%**	**-**	**47%**	**5%**	**8%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	6	2	7	25	*40*	1	0	0	0	*1*	3	0	4	0	*7*
7:15 AM	10	5	11	20	*46*	0	0	0	0	*0*	5	0	4	0	*9*
7:30 AM	**2**	**2**	**11**	**20**	***35***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**4**	**6**	**12**	**24**	***46***	**0**	**0**	**0**	**0**	***0***	**2**	**2**	**2**	**0**	*6*
8:00 AM	**8**	**4**	**14**	**14**	***40***	**0**	**0**	**0**	**0**	***0***	**3**	**3**	**4**	**0**	*10*
8:15 AM	**8**	**4**	**8**	**21**	***41***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	***1***
8:30 AM	5	3	10	24	*42*	0	0	0	0	*0*	7	3	7	0	*17*
8:45 AM	6	5	11	26	*48*	0	0	0	0	*0*	0	3	2	0	*5*
Count Total	49	31	84	174	*338*	1	0	0	0	*1*	20	12	23	0	*55*
Peak Hour	**22**	**16**	**45**	**79**	***162***	**0**	**0**	**0**	**0**	***0***	**5**	**6**	**6**	**0**	***17***

Two-Hour Count Summaries - Heavy Vehicles

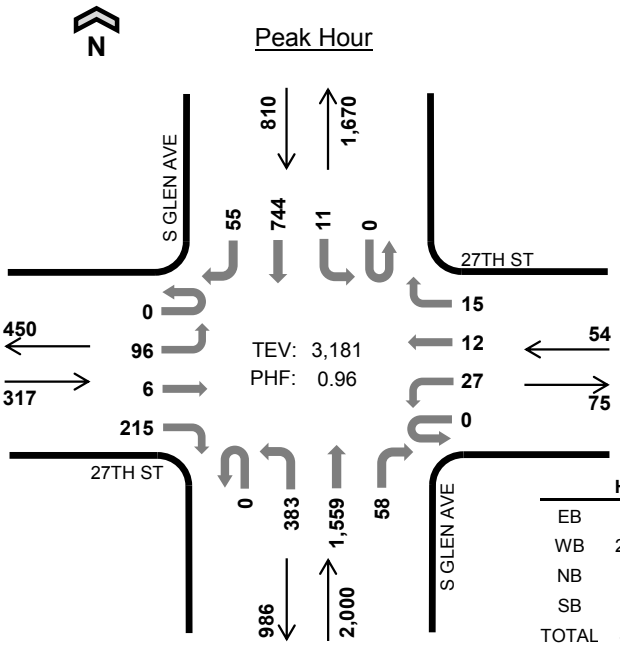
Interval Start	27TH ST Eastbound				27TH ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	3	0	3	0	2	0	0	0	2	4	1	0	2	23	0	40	0
7:15 AM	0	6	0	4	0	4	0	1	0	3	8	0	0	4	16	0	46	0
7:30 AM	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**5**	**6**	**0**	**0**	**1**	**19**	**0**	**35**	0
7:45 AM	**0**	**3**	**0**	**1**	**0**	**6**	**0**	**0**	**0**	**5**	**7**	**0**	**0**	**3**	**21**	**0**	**46**	167
8:00 AM	**0**	**2**	**0**	**6**	**0**	**2**	**1**	**1**	**0**	**1**	**12**	**1**	**0**	**1**	**12**	**1**	**40**	167
8:15 AM	**0**	**1**	**0**	**7**	**0**	**4**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**2**	**18**	**1**	**41**	**162**
8:30 AM	0	1	0	4	0	2	0	1	0	1	9	0	0	1	22	1	42	169
8:45 AM	0	4	0	2	0	5	0	0	0	2	8	1	0	2	23	1	48	171
Count Total	0	22	0	27	0	26	1	4	0	19	62	3	0	16	154	4	338	0
Peak Hour	**0**	**8**	**0**	**14**	**0**	**13**	**1**	**2**	**0**	**11**	**33**	**1**	**0**	**7**	**70**	**2**	**162**	**0**

Two-Hour Count Summaries - Bikes

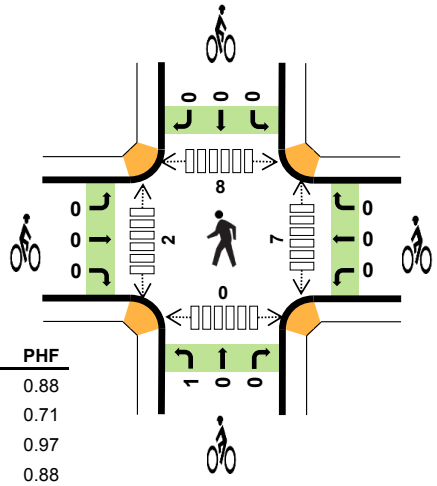
Interval Start	27TH ST Eastbound			27TH ST Westbound			S GLEN AVE Northbound			S GLEN AVE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

S GLEN AVE
27TH ST



Date: Tue, Sep 28, 2021
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM



	HV %:	PHF
EB	6.3%	0.88
WB	24.1%	0.71
NB	3.4%	0.97
SB	3.8%	0.88
TOTAL	4.1%	0.96

Two-Hour Count Summaries

Interval Start		27TH ST Eastbound				27TH ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	34	2	48	0	7	0	9	0	79	340	6	0	3	192	12	732	0
4:15 PM		**0**	**17**	**3**	**58**	**0**	**7**	**2**	**5**	**0**	**99**	**359**	**17**	**0**	**5**	**189**	**13**	**774**	0
4:30 PM		**0**	**22**	**1**	**48**	**0**	**5**	**1**	**3**	**0**	**88**	**416**	**9**	**0**	**1**	**167**	**12**	**773**	0
4:45 PM		**0**	**28**	**1**	**61**	**0**	**13**	**4**	**2**	**0**	**93**	**393**	**15**	**0**	**4**	**178**	**12**	**804**	3,083
5:00 PM		**0**	**29**	**1**	**48**	**0**	**2**	**5**	**5**	**0**	**103**	**391**	**17**	**0**	**1**	**210**	**18**	**830**	**3,181**
5:15 PM		0	31	2	56	0	12	3	6	0	122	356	10	0	5	145	7	755	3,162
5:30 PM		0	23	0	51	0	5	4	5	0	93	383	15	0	2	180	10	771	3,160
5:45 PM		0	24	3	57	0	5	1	2	0	112	410	10	0	3	134	9	770	3,126
Count Total		0	208	13	427	0	56	20	37	0	789	3,048	99	0	24	1,395	93	6,209	0
Peak Hour	**All**	**0**	**96**	**6**	**215**	**0**	**27**	**12**	**15**	**0**	**383**	**1,559**	**58**	**0**	**11**	**744**	**55**	**3,181**	**0**
	HV	**0**	**7**	**0**	**13**	**0**	**8**	**1**	**4**	**0**	**11**	**57**	**0**	**0**	**5**	**25**	**1**	**132**	**0**
	HV%	**-**	**7%**	**0%**	**6%**	**-**	**30%**	**8%**	**27%**	**-**	**3%**	**4%**	**0%**	**-**	**45%**	**3%**	**2%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	3	20	10	*36*	0	0	0	0	*0*	2	2	2	0	*6*
4:15 PM	**5**	**4**	**14**	**9**	***32***	**0**	**0**	**0**	**0**	***0***	**2**	**1**	**2**	**0**	*5*
4:30 PM	**6**	**3**	**24**	**7**	***40***	**0**	**0**	**1**	**0**	***1***	**1**	**0**	**2**	**0**	*3*
4:45 PM	**7**	**3**	**16**	**8**	***34***	**0**	**0**	**0**	**0**	***0***	**2**	**1**	**1**	**0**	*4*
5:00 PM	**2**	**3**	**14**	**7**	***26***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**3**	**0**	***5***
5:15 PM	3	3	17	7	*30*	0	0	0	0	*0*	3	1	5	0	*9*
5:30 PM	2	1	10	6	*19*	0	0	0	0	*0*	0	0	2	0	*2*
5:45 PM	2	3	13	5	*23*	0	0	0	0	*0*	0	1	1	0	*2*
Count Total	30	23	128	59	*240*	0	0	1	0	*1*	12	6	18	0	*36*
Peak Hour	**20**	**13**	**68**	**31**	***132***	**0**	**0**	**1**	**0**	***1***	**7**	**2**	**8**	**0**	***17***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	27TH ST Eastbound				27TH ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	3	0	1	0	2	0	6	14	0	0	1	8	1	36	0
4:15 PM	**0**	**1**	**0**	**4**	**0**	**2**	**1**	**1**	**0**	**0**	**14**	**0**	**0**	**1**	**8**	**0**	**32**	0
4:30 PM	**0**	**4**	**0**	**2**	**0**	**2**	**0**	**1**	**0**	**6**	**18**	**0**	**0**	**0**	**6**	**1**	**40**	0
4:45 PM	**0**	**2**	**0**	**5**	**0**	**3**	**0**	**0**	**0**	**3**	**13**	**0**	**0**	**3**	**5**	**0**	**34**	142
5:00 PM	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**2**	**0**	**2**	**12**	**0**	**0**	**1**	**6**	**0**	**26**	**132**
5:15 PM	0	1	0	2	0	3	0	0	0	5	12	0	0	3	3	1	30	130
5:30 PM	0	1	0	1	0	0	0	1	0	1	9	0	0	1	5	0	19	109
5:45 PM	0	1	0	1	0	3	0	0	0	1	12	0	0	1	3	1	23	98
Count Total	0	10	0	20	0	15	1	7	0	24	104	0	0	11	44	4	240	0
Peak Hour	**0**	**7**	**0**	**13**	**0**	**8**	**1**	**4**	**0**	**11**	**57**	**0**	**0**	**5**	**25**	**1**	**132**	**0**

Two-Hour Count Summaries - Bikes

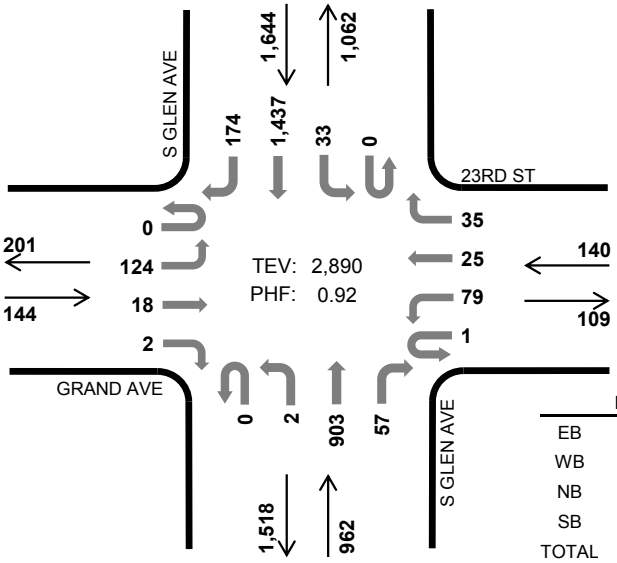
Interval Start	27TH ST Eastbound			27TH ST Westbound			S GLEN AVE Northbound			S GLEN AVE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

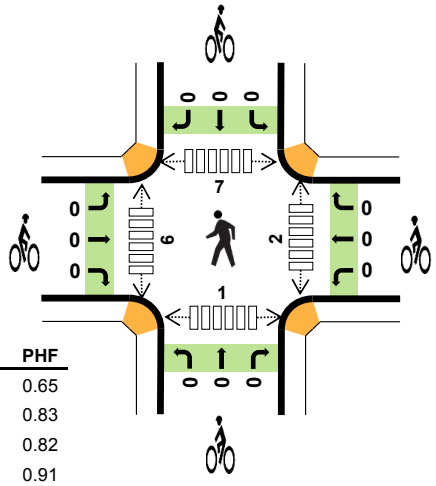
S GLEN AVE
GRAND AVE

Peak Hour

Date: Tue, Sep 28, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	1.4%	0.65
WB	4.3%	0.83
NB	4.6%	0.82
SB	5.2%	0.91
TOTAL	4.8%	0.92



Two-Hour Count Summaries

Interval Start	GRAND AVE Eastbound				23RD ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	10	0	1	0	24	3	1	0	1	106	11	0	4	348	20	529	0
7:15 AM	0	19	2	0	0	11	2	4	0	1	124	13	0	3	411	33	623	0
7:30 AM	**0**	**15**	**4**	**0**	**0**	**25**	**10**	**7**	**0**	**1**	**162**	**10**	**0**	**8**	**383**	**31**	**656**	0
7:45 AM	**0**	**30**	**3**	**1**	**0**	**18**	**5**	**6**	**0**	**0**	**229**	**22**	**0**	**9**	**395**	**46**	**764**	2,572
8:00 AM	**0**	**31**	**4**	**1**	**1**	**18**	**5**	**12**	**0**	**1**	**234**	**9**	**0**	**5**	**316**	**44**	**681**	2,724
8:15 AM	**0**	**48**	**7**	**0**	**0**	**18**	**5**	**10**	**0**	**0**	**278**	**16**	**0**	**11**	**343**	**53**	**789**	**2,890**
8:30 AM	0	37	3	0	0	20	3	7	0	2	186	12	0	15	323	35	643	2,877
8:45 AM	0	27	1	0	0	13	3	2	0	1	187	7	0	9	266	42	558	2,671
Count Total	0	217	24	3	1	147	36	49	0	7	1,506	100	0	64	2,785	304	5,243	0
Peak Hour All	**0**	**124**	**18**	**2**	**1**	**79**	**25**	**35**	**0**	**2**	**903**	**57**	**0**	**33**	**1,437**	**174**	**2,890**	**0**
Peak Hour HV	**0**	**1**	**1**	**0**	**0**	**3**	**2**	**1**	**0**	**0**	**43**	**1**	**0**	**2**	**74**	**10**	**138**	**0**
Peak Hour HV%	**-**	**1%**	**6%**	**0%**	**0%**	**4%**	**8%**	**3%**	**-**	**0%**	**5%**	**2%**	**-**	**6%**	**5%**	**6%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	3	3	23	*29*	0	0	0	0	*0*	0	0	2	0	*2*
7:15 AM	1	0	17	22	*40*	0	0	0	0	*0*	0	1	1	0	*2*
7:30 AM	**2**	**2**	**12**	**19**	***35***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**1**	**0**	*3*
7:45 AM	**0**	**1**	**9**	**27**	***37***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**3**	**1**	*6*
8:00 AM	**0**	**2**	**15**	**21**	***38***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**3**	**0**	*5*
8:15 AM	**0**	**1**	**8**	**19**	***28***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**0**	***2***
8:30 AM	1	0	13	30	*44*	1	0	0	0	*1*	1	2	2	0	*5*
8:45 AM	1	2	10	29	*42*	0	0	0	0	*0*	0	3	0	0	*3*
Count Total	5	11	87	190	*293*	1	0	0	0	*1*	3	12	12	1	*28*
Peak Hour	**2**	**6**	**44**	**86**	***138***	**0**	**0**	**0**	**0**	***0***	**2**	**6**	**7**	**1**	***16***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	GRAND AVE Eastbound				23RD ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	3	0	0	0	0	3	0	0	1	21	1	29	0
7:15 AM	0	0	1	0	0	0	0	0	0	0	13	4	0	0	21	1	40	0
7:30 AM	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**18**	**1**	**35**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**8**	**1**	**0**	**1**	**25**	**1**	**37**	141
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**15**	**0**	**0**	**1**	**18**	**2**	**38**	150
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**13**	**6**	**28**	**138**
8:30 AM	0	1	0	0	0	0	0	0	0	0	13	0	0	2	25	3	44	147
8:45 AM	0	1	0	0	0	1	1	0	0	0	10	0	0	0	28	1	42	152
Count Total	0	3	2	0	0	7	3	1	0	0	82	5	0	5	169	16	293	0
Peak Hour	**0**	**1**	**1**	**0**	**0**	**3**	**2**	**1**	**0**	**0**	**43**	**1**	**0**	**2**	**74**	**10**	**138**	**0**

Two-Hour Count Summaries - Bikes

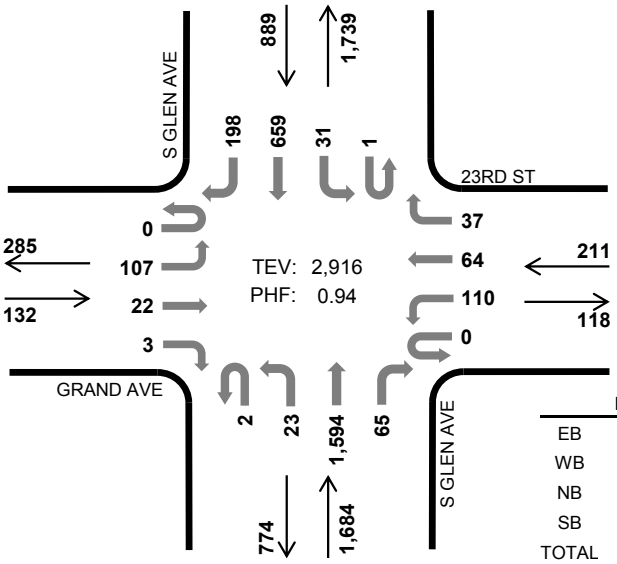
Interval Start	GRAND AVE Eastbound			23RD ST Westbound			S GLEN AVE Northbound			S GLEN AVE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	1	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

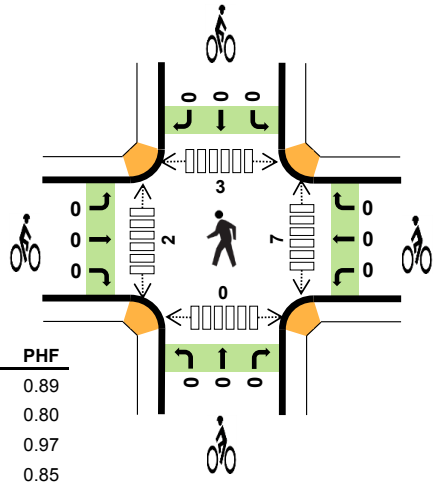
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

S GLEN AVE
GRAND AVE

Peak Hour

Date: Tue, Sep 28, 2021
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	6.8%	0.89
WB	0.5%	0.80
NB	3.7%	0.97
SB	3.8%	0.85
TOTAL	3.6%	0.94

Two-Hour Count Summaries

Interval Start		GRAND AVE Eastbound				23RD ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	28	4	0	0	23	16	15	0	10	349	32	0	9	225	52	763	0
4:15 PM		0	24	7	0	0	24	19	9	0	0	346	28	0	10	156	44	667	0
4:30 PM		**0**	**29**	**7**	**0**	**0**	**24**	**16**	**9**	**0**	**2**	**393**	**17**	**0**	**10**	**137**	**52**	**696**	0
4:45 PM		**0**	**30**	**2**	**0**	**0**	**24**	**19**	**10**	**1**	**12**	**403**	**16**	**0**	**12**	**185**	**64**	**778**	2,904
5:00 PM		**0**	**28**	**7**	**2**	**0**	**43**	**14**	**9**	**0**	**6**	**387**	**14**	**1**	**4**	**191**	**41**	**747**	2,888
5:15 PM		**0**	**20**	**6**	**1**	**0**	**19**	**15**	**9**	**1**	**3**	**411**	**18**	**0**	**5**	**146**	**41**	**695**	**2,916**
5:30 PM		0	28	10	0	0	23	13	8	0	0	377	21	0	7	154	51	692	2,912
5:45 PM		0	17	5	2	0	18	8	11	0	1	416	10	0	7	128	50	673	2,807
Count Total		0	204	48	5	0	198	120	80	2	34	3,082	156	1	64	1,322	395	5,711	0
Peak Hour	**All**	**0**	**107**	**22**	**3**	**0**	**110**	**64**	**37**	**2**	**23**	**1,594**	**65**	**1**	**31**	**659**	**198**	**2,916**	**0**
	HV	**0**	**8**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**61**	**1**	**0**	**1**	**30**	**3**	**106**	**0**
	HV%	**-**	**7%**	**5%**	**0%**	**-**	**1%**	**0%**	**0%**	**0%**	**0%**	**4%**	**2%**	**0%**	**3%**	**5%**	**2%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	3	19	10	*34*	0	0	0	0	*0*	0	5	1	1	*7*
4:15 PM	2	0	17	9	*28*	0	0	0	0	*0*	0	0	1	0	*1*
4:30 PM	**2**	**1**	**16**	**10**	***29***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**1**	**0**	*4*
4:45 PM	**2**	**0**	**18**	**11**	***31***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	*1*
5:00 PM	**3**	**0**	**18**	**7**	***28***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**0**	**0**	*2*
5:15 PM	**2**	**0**	**10**	**6**	***18***	**0**	**0**	**0**	**0**	***0***	**2**	**1**	**2**	**0**	***5***
5:30 PM	4	0	12	6	*22*	0	0	0	0	*0*	3	0	1	1	*5*
5:45 PM	0	1	11	6	*18*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	17	5	121	65	*208*	0	0	0	0	*0*	10	7	6	2	*25*
Peak Hour	**9**	**1**	**62**	**34**	***106***	**0**	**0**	**0**	**0**	***0***	**7**	**2**	**3**	**0**	***12***

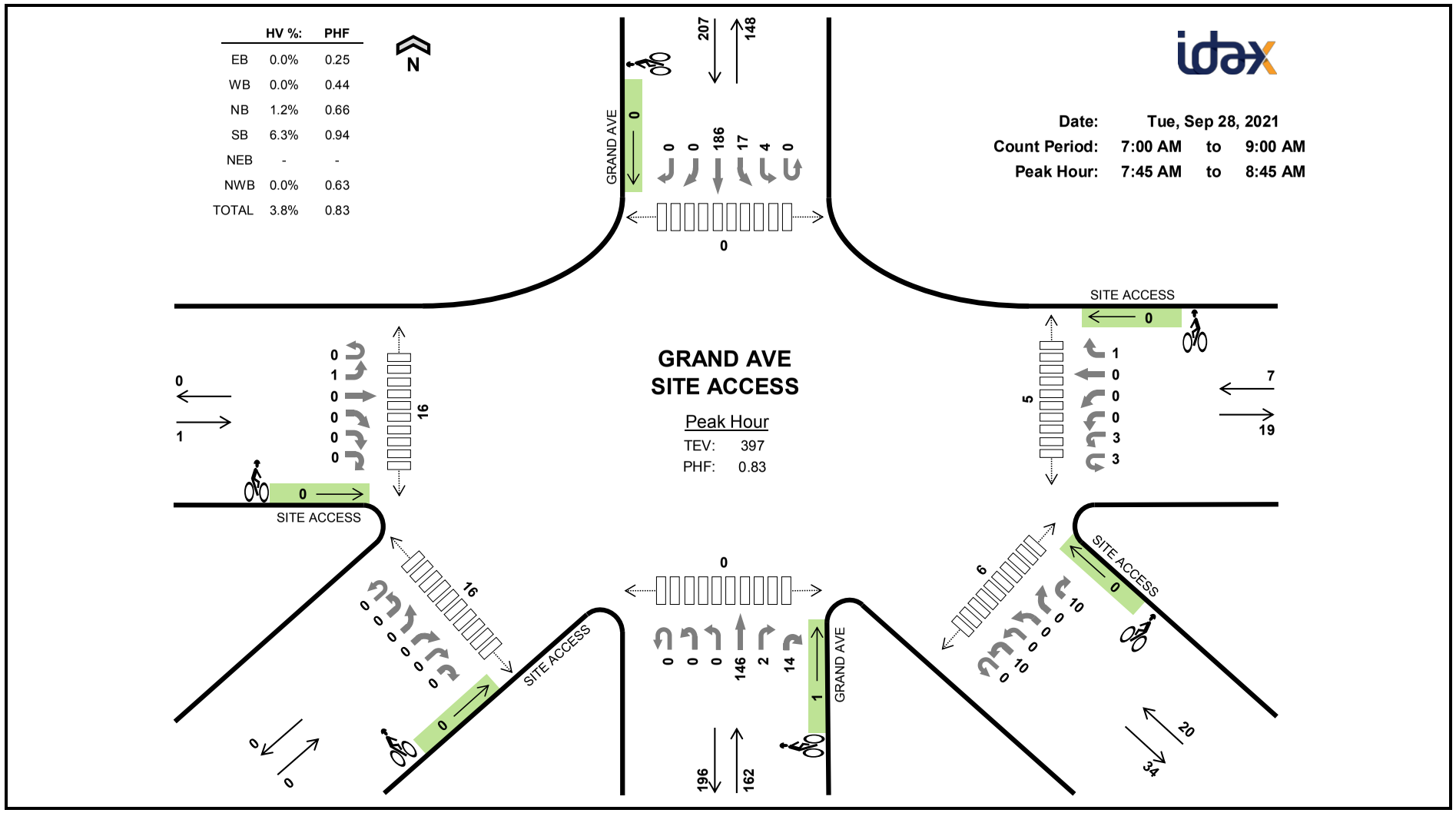
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	GRAND AVE Eastbound				23RD ST Westbound				S GLEN AVE Northbound				S GLEN AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	0	0	0	2	0	1	0	0	19	0	0	2	6	2	34	0
4:15 PM	0	1	1	0	0	0	0	0	0	0	15	2	0	0	7	2	28	0
4:30 PM	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**8**	**2**	**29**	0
4:45 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**1**	**0**	**0**	**10**	**1**	**31**	122
5:00 PM	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**0**	**0**	**7**	**0**	**28**	116
5:15 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**1**	**5**	**0**	**18**	**106**
5:30 PM	0	4	0	0	0	0	0	0	0	0	12	0	0	0	6	0	22	99
5:45 PM	0	0	0	0	0	1	0	0	0	0	11	0	0	0	6	0	18	86
Count Total	0	15	2	0	0	4	0	1	0	0	118	3	0	3	55	7	208	0
Peak Hour	**0**	**8**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**61**	**1**	**0**	**1**	**30**	**3**	**106**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	GRAND AVE Eastbound			23RD ST Westbound			S GLEN AVE Northbound			S GLEN AVE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



Project Manager: (415) 310-6469 project.manager.ca@idaxdata.com

Two-Hour Count Summaries

Interval Start	SITE ACCESS Eastbound						SITE ACCESS Westbound						GRAND AVE Northbound						GRAND AVE Southbound						SITE ACCESS Northeastbound						SITE ACCESS Northwestbound						15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	13	1	2	0	1	0	29	0	0	0	0	0	0	0	0	0	2	0	0	0	1	51	0
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	28	0	3	0	0	3	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63	0
7:30 AM	0	0	0	0	1	0	3	3	0	0	0	1	0	0	1	16	0	2	0	1	3	42	0	0	0	0	0	0	0	0	0	1	0	0	0	4	78	0
7:45 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**0**	**4**	**0**	**1**	**4**	**50**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**4**	**98**	290
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**27**	**2**	**2**	**0**	**2**	**6**	**42**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**89**	328
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**56**	**0**	**5**	**0**	**1**	**2**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**120**	385
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**33**	**0**	**3**	**0**	**0**	**5**	**42**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**90**	**397**
8:45 AM	0	0	0	0	0	0	3	3	0	0	0	0	0	1	0	25	1	3	0	0	3	35	0	0	0	0	1	0	0	0	0	0	0	0	0	0	75	374
Count Total	0	1	0	0	2	0	10	10	0	0	0	2	0	1	1	228	4	24	0	6	26	320	0	0	0	0	1	0	0	0	0	13	0	0	0	15	664	0
Peak Hour All	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**146**	**2**	**14**	**0**	**4**	**17**	**186**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**10**	**397**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**0**
Peak Hour HV%	**-**	**0%**	**-**	**-**	**-**	**-**	**0%**	**0%**	**-**	**-**	**-**	**0%**	**-**	**-**	**-**	**1%**	**0%**	**0%**	**-**	**25%**	**0%**	**6%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**-**	**-**	**0%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals							Bicycles							Pedestrians (Crossing Leg)						
	EB	WB	NB	SB	NEB	NWB	Total	EB	WB	NB	SB	NEB	NWB	Total	East	West	North	South	SE	SW	Total
7:00 AM	0	0	0	2	0	0	2	0	0	1	0	0	0	*1*	1	2	1	0	2	1	*7*
7:15 AM	0	0	2	0	0	0	*2*	0	0	0	0	0	0	*0*	0	1	0	0	0	1	*2*
7:30 AM	0	0	1	1	0	0	*2*	0	0	0	0	0	0	*0*	0	3	0	0	0	3	*6*
7:45 AM	**0**	**0**	**0**	**2**	**0**	**0**	***2***	**0**	**0**	**1**	**0**	**0**	**0**	***1***	**2**	**2**	**0**	**0**	**3**	**2**	***9***
8:00 AM	**0**	**0**	**0**	**3**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**8**	**0**	**0**	**0**	**8**	***16***
8:15 AM	**0**	**0**	**1**	**6**	**0**	**0**	***7***	**0**	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**0**	**0**	**0**	**4**	***8***
8:30 AM	**0**	**0**	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	**0**	**0**	***0***	**3**	**2**	**0**	**0**	**3**	**2**	***10***
8:45 AM	0	0	0	3	0	0	*3*	0	0	0	0	0	0	*0*	1	1	1	0	2	0	*5*
Count Total	0	0	5	19	0	0	*24*	0	0	2	0	0	0	*2*	7	23	2	0	10	21	*63*
Peak Hr	**0**	**0**	**2**	**13**	**0**	**0**	***15***	**0**	**0**	**1**	**0**	**0**	**0**	***1***	**5**	**16**	**0**	**0**	**6**	**16**	***43***

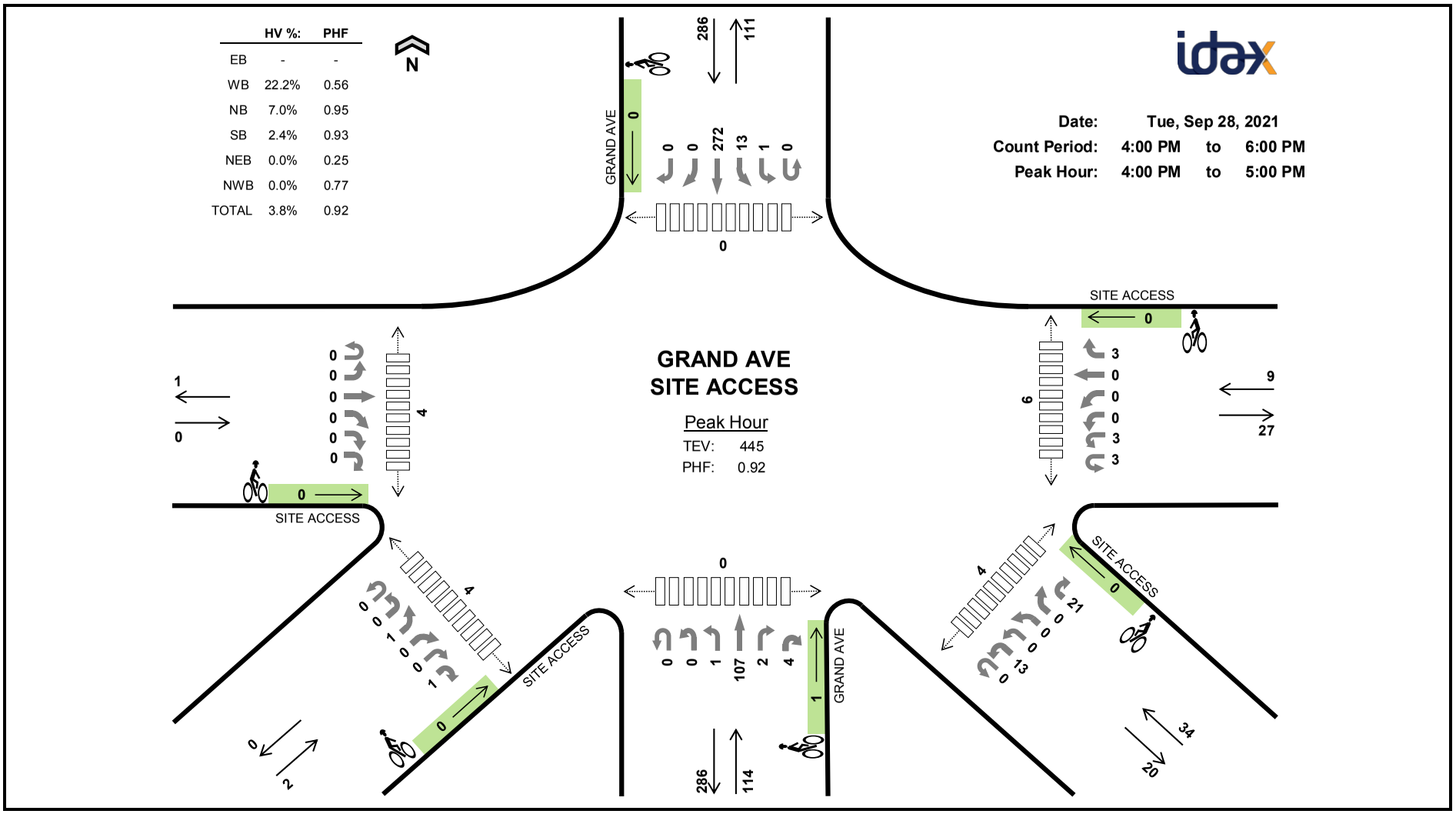
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	SITE ACCESS Eastbound						SITE ACCESS Westbound						GRAND AVE Northbound						GRAND AVE Southbound						SITE ACCESS Northeastbound						SITE ACCESS Northwestbound						15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	8
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	9
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	14
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**15**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	16
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	15	**0**

Two-Hour Count Summaries - Bikes

Interval Start	SITE ACCESS Eastbound						SITE ACCESS Westbound						GRAND AVE Northbound						GRAND AVE Southbound						SITE ACCESS Northeastbound						SITE ACCESS Northwestbound						15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	2
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1	**0**

Project Manager: (415) 310-6469 project.manager.ca@idaxdata.com



Project Manager: (415) 310-6469 project.manager.ca@idaxdata.com

Two-Hour Count Summaries

Interval Start		SITE ACCESS Eastbound						SITE ACCESS Westbound						GRAND AVE Northbound						GRAND AVE Southbound						SITE ACCESS Northeastbound						SITE ACCESS Northwestbound						15-min Total	Rolling One Hour
		UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
4:00 PM		**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**29**	**0**	**1**	**0**	**1**	**3**	**73**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**4**	**0**	**0**	**0**	**5**	**121**	0
4:15 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**26**	**0**	**1**	**0**	**0**	**3**	**63**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**99**	0
4:30 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**29**	**0**	**0**	**0**	**0**	**3**	**70**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**9**	**113**	0
4:45 PM		**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**23**	**2**	**2**	**0**	**0**	**4**	**66**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**7**	**112**	**445**
5:00 PM		0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	32	0	1	0	0	1	49	0	0	0	0	0	0	0	0	0	4	0	0	0	4	94	418
5:15 PM		0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	31	0	1	0	0	1	52	0	0	0	0	0	0	0	0	0	1	0	0	0	6	94	413
5:30 PM		0	0	0	0	1	0	1	1	0	0	0	2	0	0	1	36	0	1	0	0	1	65	0	0	0	0	0	0	0	0	0	0	0	0	0	4	113	413
5:45 PM		0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	32	0	1	0	0	3	50	0	0	0	0	0	0	0	0	0	4	0	0	0	0	93	394
Count Total		0	0	0	0	4	0	6	6	0	0	0	6	0	0	2	238	2	8	0	1	19	488	0	0	0	0	1	0	0	1	0	22	0	0	0	35	839	0
Peak Hour	**All**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**107**	**2**	**4**	**0**	**1**	**13**	**272**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**13**	**0**	**0**	**0**	**21**	**445**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**0**
	HV%	-	-	-	-	-	-	**33%**	**33%**	-	-	-	**0%**	-	-	**0%**	**7%**	**0%**	**0%**	-	**0%**	**0%**	**3%**	-	-	-	-	**0%**	-	-	**0%**	-	**0%**	-	-	-	**0%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals							Bicycles							Pedestrians (Crossing Leg)						
	EB	WB	NB	SB	NEB	NWB	Total	EB	WB	NB	SB	NEB	NWB	Total	East	West	North	South	SE	SW	Total
4:00 PM	**0**	**0**	**2**	**2**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	**0**	**0**	***0***	**6**	**2**	**0**	**0**	**4**	**2**	***14***
4:15 PM	**0**	**0**	**3**	**2**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	**0**	**1**	***2***
4:30 PM	**0**	**0**	**2**	**3**	**0**	**0**	***5***	**0**	**0**	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	**0**	**0**	***0***
4:45 PM	**0**	**2**	**1**	**0**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	**0**	**1**	***2***
5:00 PM	0	0	5	0	0	0	*5*	0	0	0	0	0	0	*0*	0	4	0	0	0	4	*8*
5:15 PM	0	0	1	0	0	0	*1*	0	0	0	0	0	0	*0*	1	3	0	0	0	4	*8*
5:30 PM	0	0	2	0	0	0	*2*	0	0	0	0	0	0	*0*	0	1	0	0	0	1	*2*
5:45 PM	0	0	1	0	0	0	*1*	0	0	0	0	0	0	*0*	0	1	0	0	0	1	*2*
Count Total	0	2	17	7	0	0	*26*	0	0	1	0	0	0	*1*	7	13	0	0	4	14	*38*
Peak Hr	**0**	**2**	**8**	**7**	**0**	**0**	***17***	**0**	**0**	**1**	**0**	**0**	**0**	***1***	**6**	**4**	**0**	**0**	**4**	**4**	***18***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start		SITE ACCESS Eastbound						SITE ACCESS Westbound						GRAND AVE Northbound						GRAND AVE Southbound						SITE ACCESS Northeastbound						SITE ACCESS Northwestbound						15-min Total	Rolling One Hour
		UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
4:00 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	0
4:15 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	0
4:30 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	0
4:45 PM		**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**17**
5:00 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	18
5:15 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14
5:30 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	11
5:45 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9
Count Total		0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	17	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0
Peak Hour		**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	17	**0**

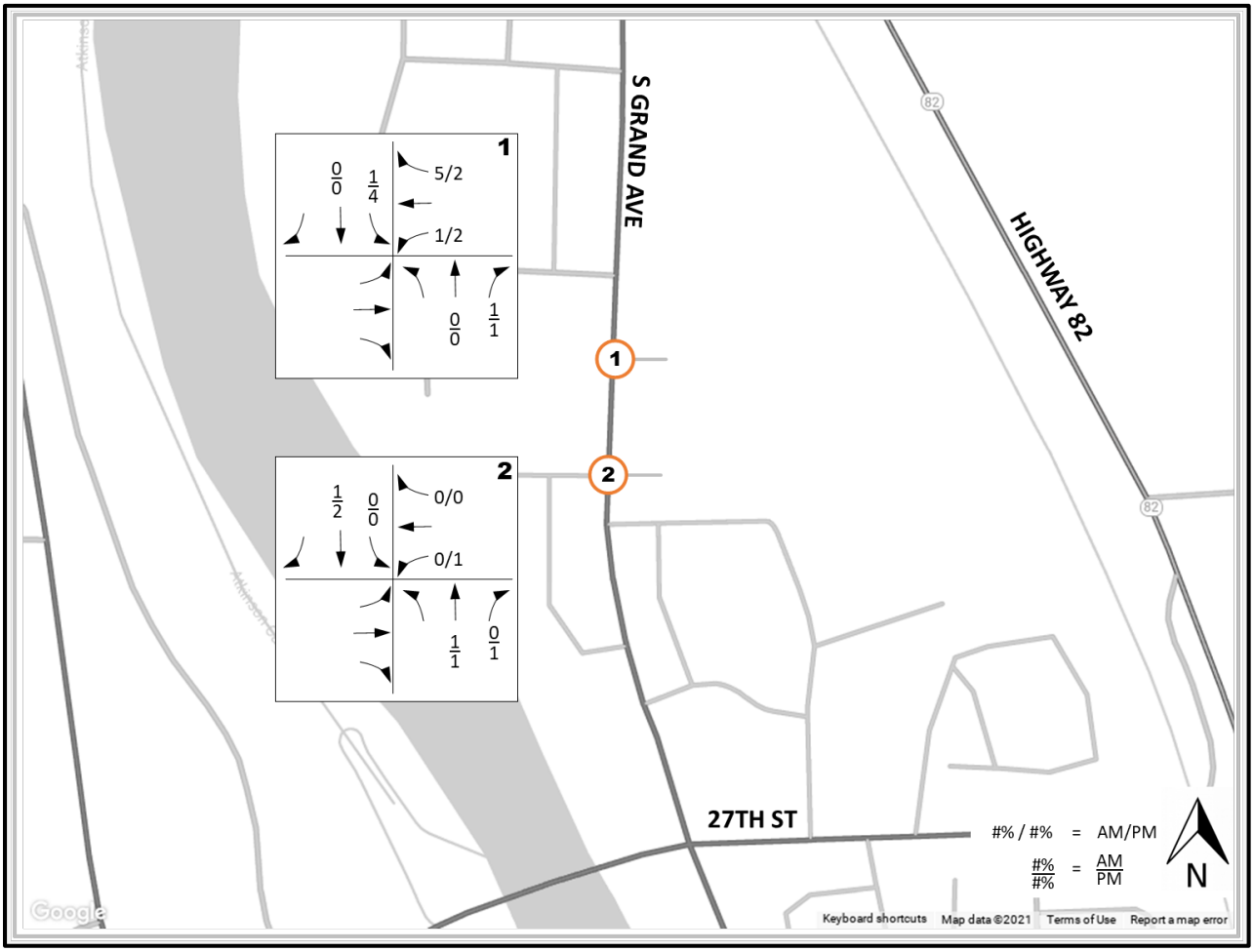
Two-Hour Count Summaries - Bikes

Interval Start		SITE ACCESS Eastbound						SITE ACCESS Westbound						GRAND AVE Northbound						GRAND AVE Southbound						SITE ACCESS Northeastbound						SITE ACCESS Northwestbound						15-min Total	Rolling One Hour
		UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
4:00 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:00 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1	**0**

Project Manager: (415) 310-6469

project.manager.ca@idaxdata.com

Figure 4 – Project Trip Assignment



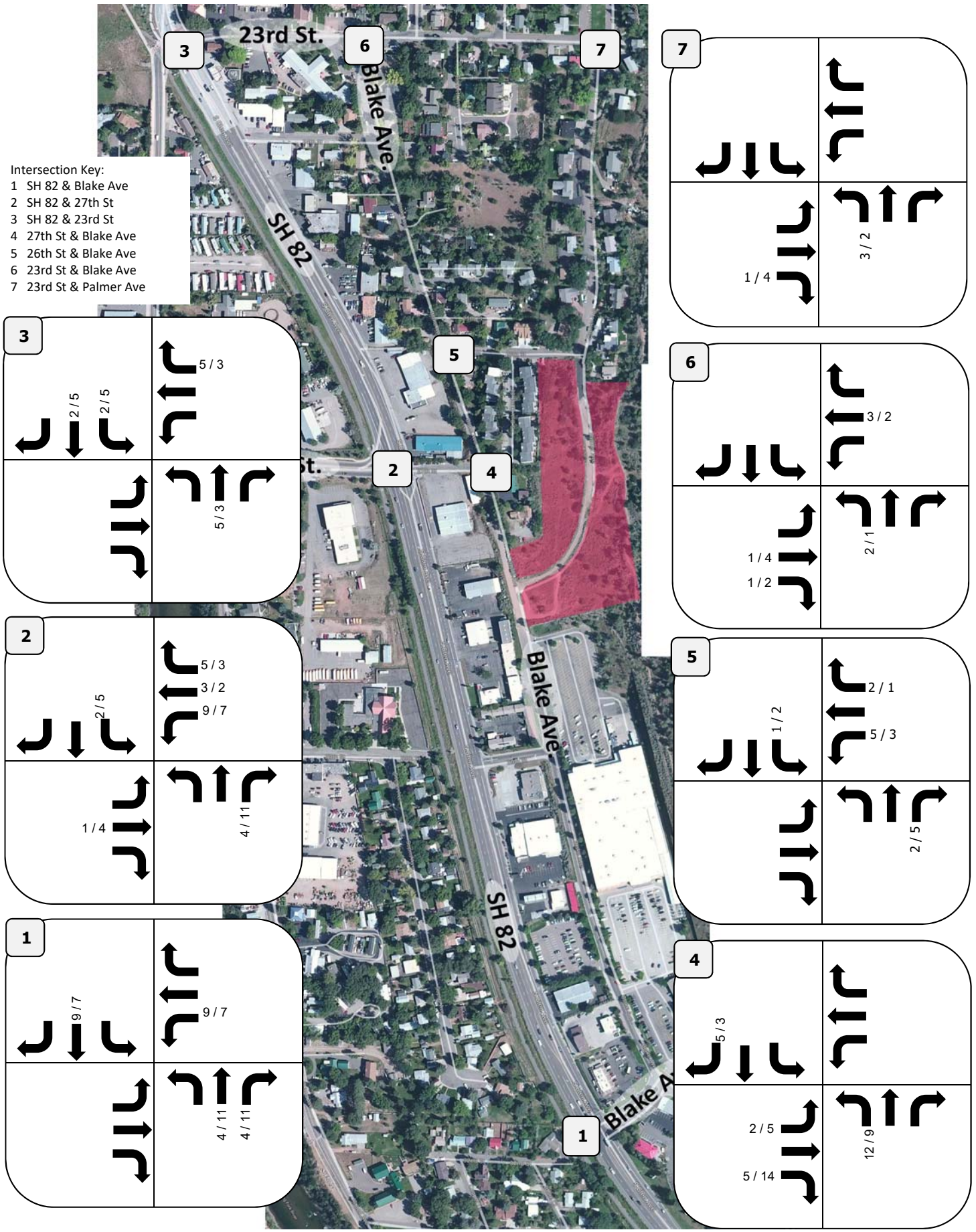
5. Existing & Future Traffic Volumes

Peak hour intersection turning movement counts were conducted at 2520 S Grand Avenue on August 25th and 26th, 2021.

The existing driveway at 2525 S Grand Avenue is slightly offset to the north of the south Project access and forms the west leg of Intersection 2. No traffic was recorded on the west leg during the counting effort due to the building being renovated at that time. However, the study assumes the property will be reopened as a restaurant by the time the project is completed. The study accounts for this traffic using the ITE Trip Generation Manual 10th Edition for a High-Turnover Restaurant (Land Use Code 932). The gravity model was used to determine the total traffic generated from the restaurant at Intersection 2 and the trips are included in Figure 6. Trip generation traffic calculations from the ITETripGen Web-based App are attached in Appendix A.

The existing peak hour traffic is represented in Figure 5. Count summaries are included in Appendix B.

Figure 8: Project-Generated Traffic Assignment - Blake Ave. Gate is Opened



Project Number: 1247
Prepared By: KJS
Bell Rippy, Glenwood Springs, Colorado

LEGEND :

LEGEND :
AM/PM Volumes = XX / XX vph

April 9, 2019

Monthly Summary Data

CDOT OTIS Station ID 000214 - ON SH 82, GLEN AVE S/O BLAKE AVE, GLENWOOD SPRINGS

CALYR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2021	22,534	23,360	24,863	26,000	27,154	29,065	28,564	27,888				
2020	23,732	23,818	19,530	15,080	21,526	24,775	25,592	24,845	26,241	25,786	22,462	22,231
2019	22,045	22,387	22,885	23,892	24,283	25,402	25,858	25,648	25,266	26,224	24,326	23,900
2018	23,365	23,237	24,444	24,974	25,824	26,106	25,420	25,235	24,793	23,781	22,025	21,717
2017	22,576	23,590	24,797	25,270	25,389	27,223	27,128	23,295	21,072	21,144	22,774	23,736
2016	22,629	22,949	23,948	24,786	25,563	27,086	27,406	27,089	27,051	25,737	23,475	23,145
2015	22,134	22,151	23,508	23,842	24,174	26,460	27,049	26,201	26,455	25,224	22,799	22,782
2014	20,312	20,646	21,761	22,204	22,727	24,366	25,318	24,725	24,859	23,947	20,843	21,677
2013	20,065	20,137	20,483	20,986	21,928	22,998	23,938	23,718	22,993	22,538	20,564	19,880
2012	19,531	19,709	20,760	20,884	21,349	22,956	23,301	23,793	22,904	22,152	20,404	19,386
2011	19,557	19,445	20,557	20,174	20,612	22,241	23,089	23,255	23,149	21,614	19,952	20,194
2010	20,137	20,140	20,998	20,777	21,017	23,097	24,447	24,073	24,005	21,863	21,239	20,097
2009	21,638	22,319	22,144	22,424	22,912	24,701	25,134	24,300	24,150	22,561	19,785	20,400
2008	23,112	23,324	24,444	24,929	25,006	26,191	26,580	26,231	25,768	25,323	22,664	22,140
2007	20,956	23,067	24,472	24,836	25,605	26,598	26,724	27,227	26,754	25,724	24,328	22,715
2006	21,346	22,174	22,476	23,410	23,967	25,736	25,747	25,967	25,854	24,205	22,466	22,424
2005	21,024	21,907	22,544	22,652	22,997	24,963	25,564	25,465	24,352	23,362	22,362	21,578
2004		21,061	21,761	22,242	21,886	24,336	24,937	24,743	24,373	22,921	21,363	21,829
2003	20,521	20,586	20,471	20,691	21,234	23,811	24,859	23,899	23,188	22,506	19,602	20,525
2002									23,173	22,975	20,658	20,815
2001	20,369	20,980	22,123	22,774	23,131	24,161	24,315	25,555	24,094			
2000	18,546	20,063	20,881	21,592	22,350	24,926	24,236	24,569	23,737	22,778	20,828	20,217
1999	17,820	19,049	20,071	20,246	20,259	22,756	23,208	22,999	22,652	21,438	19,915	19,502
Average	**21,140**	**21,641**	**22,269**	**22,485**	**23,222**	**24,998**	**25,382**	**25,033**	**24,404**	**23,514**	**21,659**	**21,471**

Seasonal Adjustment Factors

CDOT OTIS Station ID 000214 - ON SH 82, GLEN AVE S/O BLAKE AVE, GLENWOOD SPRINGS

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		21,140	21,641	22,269	22,485	23,222	24,998	25,382	25,033	24,404	23,514	21,659	21,471
Jan	21,140	1.00	1.02	1.05	1.06	1.10	1.18	1.20	1.18	1.15	1.11	1.02	1.02
Feb	21,641	0.98	1.00	1.03	1.04	1.07	1.16	1.17	1.16	1.13	1.09	1.00	0.99
Mar	22,269	0.95	0.97	1.00	1.01	1.04	1.12	1.14	1.12	1.10	1.06	0.97	0.96
Apr	22,485	0.94	0.96	0.99	1.00	1.03	1.11	1.13	1.11	1.09	1.05	0.96	0.95
May	23,222	0.91	0.93	0.96	0.97	1.00	1.08	1.09	1.08	1.05	1.01	0.93	0.92
Jun	24,998	0.85	0.87	0.89	0.90	0.93	1.00	1.02	1.00	0.98	0.94	0.87	0.86
Jul	25,382	0.83	0.85	0.88	0.89	0.91	0.98	1.00	0.99	0.96	0.93	0.85	0.85
Aug	25,033	0.84	0.86	0.89	0.90	0.93	1.00	1.01	1.00	0.97	0.94	0.87	0.86
Sep	24,404	0.87	0.89	0.91	0.92	0.95	1.02	1.04	1.03	1.00	0.96	0.89	0.88
Oct	23,514	0.90	0.92	0.95	0.96	0.99	1.06	1.08	1.06	1.04	1.00	0.92	0.91
Nov	21,659	0.98	1.00	1.03	1.04	1.07	1.15	1.17	1.16	1.13	1.09	1.00	0.99
Dec	21,471	0.98	1.01	1.04	1.05	1.08	1.16	1.18	1.17	1.14	1.10	1.01	1.00

Monthly Summary Data from CDOT OTIS:

https://dtdapps.coloradodot.info/otis/TrafficData#ui/2/0/1/station/000214/criteria/000214/

Data Retrieved on October 5, 2021

Scheme Summary

Control Data

Control Data and Model Parameters

27th Street & Grand Ave	2022 Synthetic Flow Profile (veh)
Total	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
AM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Grand Ave SB (North Leg)	0	0	12.00	1	17.00	1	50.00	35.00	30.00
2	27th EB (West Leg)	110	0	12.00	1	17.00	1	50.00	35.00	30.00
3	Grand Ave NB (South Leg)	180	0	12.00	1	17.00	1	50.00	35.00	30.00
4	27th WB (East Leg)	290	0	12.00	1	17.00	1	50.00	35.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Grand Ave SB (North Leg)	110.00	20.00	1	16.00	1	12.00	1
2	27th EB (West Leg)	110.00	20.00	1	16.00	1	12.00	1
3	Grand Ave NB (South Leg)	110.00	20.00	1	16.00	1	12.00	1
4	27th WB (East Leg)	110.00	20.00	1	16.00	1	12.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Grand Ave SB (North Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
2	27th EB (West Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
3	Grand Ave NB (South Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
4	27th WB (East Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0

Traffic Flow Data (veh/hr)

2022 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers	
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor
1	Grand Ave SB (North Leg)	0	41	59	114	0	5.0	1.00
2	27th EB (West Leg)	1	115	583	86	0	5.0	1.00
3	Grand Ave NB (South Leg)	0	24	24	39	0	5.0	1.00
4	27th WB (East Leg)	0	17	112	19	0	5.0	1.00

2022 AM Peak Synthetic Flow Profile - Timeslice 7.5 mins

Leg	Leg Names	Flow Ratios			Flow Times		
		Ratio 1	Ratio 2	Ratio 3	Time 1	Time 2	Time 3
1	Grand Ave SB (North Leg)	0.750	1.125	0.750	0	30	60
2	27th EB (West Leg)	0.750	1.125	0.750	0	30	60
3	Grand Ave NB (South Leg)	0.750	1.125	0.750	0	30	60
4	27th WB (East Leg)	0.750	1.125	0.750	0	30	60

Operational Results

2022 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	214		154		158	1029		0.2080	
2	27th EB (West Leg)	None	785		117		251	1048		0.7488	
3	Grand Ave NB (South Leg)	None	87		740		162	724		0.1202	
4	27th WB (East Leg)	None	148		164		663	1024		0.1446	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	4.19		4.19	0.77		A		A
2	27th EB (West Leg)	None	12.39		12.39	9.48		B		B
3	Grand Ave NB (South Leg)	None	5.44		5.44	0.43		A		A
4	27th WB (East Leg)	None	3.91		3.91	0.49		A		A

2022 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	241		174		178	1019		0.2369	
2	27th EB (West Leg)	None	885		132		283	1041		0.8507	
3	Grand Ave NB (South Leg)	None	98		833		182	675		0.1452	
4	27th WB (East Leg)	None	167		185		746	1013		0.1647	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	4.28		4.28	0.77		A		A
2	27th EB (West Leg)	None	14.85		14.85	9.48		B		B
3	Grand Ave NB (South Leg)	None	5.75		5.75	0.43		A		A
4	27th WB (East Leg)	None	3.96		3.96	0.49		A		A

Approach Flow Profile

2022 AM Peak - Approach Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	22.25	81.63	9.05	15.39
7.5 - 15.0	25.91	95.04	10.53	17.92
15.0 - 22.5	28.67	105.18	11.66	19.83
22.5 - 30.0	30.16	110.65	12.26	20.86
30.0 - 37.5	30.16	110.65	12.26	20.86
37.5 - 45.0	28.67	105.18	11.66	19.83
45.0 - 52.5	25.91	95.04	10.53	17.92
52.5 - 60.0	22.25	81.63	9.05	15.39
Peak 15 min	30.16	110.65	12.26	20.86
Peak 60 min	26.75	98.12	10.88	18.50

Exit Flow Profile

2022 AM Peak - Exit Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	16.41	26.09	16.83	68.85
7.5 - 15.0	19.07	30.36	19.57	79.99
15.0 - 22.5	21.10	33.61	21.65	88.49
22.5 - 30.0	22.21	35.37	22.79	93.15
30.0 - 37.5	22.26	35.38	22.82	93.38
37.5 - 45.0	21.20	33.64	21.73	88.98
45.0 - 52.5	19.22	30.41	19.69	80.73
52.5 - 60.0	16.50	26.13	16.90	69.29
0-60	158	251	162	663
%Trucks	5.00	5.00	5.00	5.00

Scheme Summary

Control Data

Control Data and Model Parameters

27th Street & Grand Ave	2022 Synthetic Flow Profile (veh)
Total	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
PM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Grand Ave SB (North Leg)	0	0	12.00	1	17.00	1	50.00	35.00	30.00
2	27th EB (West Leg)	110	0	12.00	1	17.00	1	50.00	35.00	30.00
3	Grand Ave NB (South Leg)	180	0	12.00	1	17.00	1	50.00	35.00	30.00
4	27th WB (East Leg)	290	0	12.00	1	17.00	1	50.00	35.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Grand Ave SB (North Leg)	110.00	20.00	1	16.00	1	12.00	1
2	27th EB (West Leg)	110.00	20.00	1	16.00	1	12.00	1
3	Grand Ave NB (South Leg)	110.00	20.00	1	16.00	1	12.00	1
4	27th WB (East Leg)	110.00	20.00	1	16.00	1	12.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Grand Ave SB (North Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
2	27th EB (West Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
3	Grand Ave NB (South Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
4	27th WB (East Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0

Traffic Flow Data (veh/hr)

2022 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers	
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor
1	Grand Ave SB (North Leg)	1	26	38	213	0	5.0	1.00
2	27th EB (West Leg)	1	62	278	38	0	5.0	1.00
3	Grand Ave NB (South Leg)	0	206	39	45	0	5.0	1.00
4	27th WB (East Leg)	0	22	477	44	0	5.0	1.00

2022 PM Peak Synthetic Flow Profile - Timeslice 7.5 mins

Leg	Leg Names	Flow Ratios			Flow Times		
		Ratio 1	Ratio 2	Ratio 3	Time 1	Time 2	Time 3
1	Grand Ave SB (North Leg)	0.750	1.125	0.750	0	30	60
2	27th EB (West Leg)	0.750	1.125	0.750	0	30	60
3	Grand Ave NB (South Leg)	0.750	1.125	0.750	0	30	60
4	27th WB (East Leg)	0.750	1.125	0.750	0	30	60

Operational Results

2022 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	278		706		146	742		0.3749	
2	27th EB (West Leg)	None	379		87		897	1064		0.3562	
3	Grand Ave NB (South Leg)	None	290		368		98	918		0.3161	
4	27th WB (East Leg)	None	543		309		349	948		0.5726	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	7.44		7.44	1.94		A		A
2	27th EB (West Leg)	None	4.94		4.94	1.63		A		A
3	Grand Ave NB (South Leg)	None	5.43		5.43	1.40		A		A
4	27th WB (East Leg)	None	8.27		8.27	4.20		A		A

2022 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	313		796		165	695		0.4511	
2	27th EB (West Leg)	None	427		98		1011	1058		0.4039	
3	Grand Ave NB (South Leg)	None	327		415		110	893		0.3661	
4	27th WB (East Leg)	None	612		348		393	928		0.6599	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	8.27		8.27	1.94		A		A
2	27th EB (West Leg)	None	5.14		5.14	1.63		A		A
3	Grand Ave NB (South Leg)	None	5.74		5.74	1.40		A		A
4	27th WB (East Leg)	None	9.32		9.32	4.20		A		A

Approach Flow Profile

2022 PM Peak - Approach Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	28.91	39.41	30.16	56.47
7.5 - 15.0	33.66	45.89	35.11	65.74
15.0 - 22.5	37.25	50.78	38.86	72.75
22.5 - 30.0	39.18	53.42	40.88	76.54
30.0 - 37.5	39.18	53.42	40.88	76.54
37.5 - 45.0	37.25	50.78	38.86	72.75
45.0 - 52.5	33.66	45.89	35.11	65.74
52.5 - 60.0	28.91	39.41	30.16	56.47
Peak 15 min	39.18	53.42	40.88	76.54
Peak 60 min	34.75	47.38	36.25	67.88

Exit Flow Profile

2022 PM Peak - Exit Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	15.17	93.19	10.18	36.27
7.5 - 15.0	17.65	108.38	11.84	42.20
15.0 - 22.5	19.54	119.96	13.11	46.72
22.5 - 30.0	20.56	126.28	13.80	49.17
30.0 - 37.5	20.58	126.41	13.81	49.19
37.5 - 45.0	19.57	120.29	13.14	46.78
45.0 - 52.5	17.70	108.85	11.89	42.30
52.5 - 60.0	15.21	93.52	10.21	36.34
0-60	146	897	98	349
%Trucks	5.00	5.00	5.00	5.00

Scheme Summary

Control Data

Control Data and Model Parameters

27th Street & Grand Ave	2042 Synthetic Flow Profile (veh)
Total	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
AM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Grand Ave SB (North Leg)	0	0	12.00	1	17.00	1	50.00	35.00	30.00
2	27th EB (West Leg)	110	0	12.00	1	17.00	1	50.00	35.00	30.00
3	Grand Ave NB (South Leg)	180	0	12.00	1	17.00	1	50.00	35.00	30.00
4	27th WB (East Leg)	290	0	12.00	1	17.00	1	50.00	35.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Grand Ave SB (North Leg)	110.00	20.00	1	16.00	1	12.00	1
2	27th EB (West Leg)	110.00	20.00	1	16.00	1	12.00	1
3	Grand Ave NB (South Leg)	110.00	20.00	1	16.00	1	12.00	1
4	27th WB (East Leg)	110.00	20.00	1	16.00	1	12.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Grand Ave SB (North Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
2	27th EB (West Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
3	Grand Ave NB (South Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
4	27th WB (East Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0

Traffic Flow Data (veh/hr)

2042 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers	
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor
1	Grand Ave SB (North Leg)	0	58	88	169	0	5.0	1.00
2	27th EB (West Leg)	2	171	866	127	0	5.0	1.00
3	Grand Ave NB (South Leg)	0	36	36	58	0	5.0	1.00
4	27th WB (East Leg)	0	26	165	27	0	5.0	1.00

2042 AM Peak Synthetic Flow Profile - Timeslice 7.5 mins

Leg	Leg Names	Flow Ratios			Flow Times		
		Ratio 1	Ratio 2	Ratio 3	Time 1	Time 2	Time 3
1	Grand Ave SB (North Leg)	0.750	1.125	0.750	0	30	60
2	27th EB (West Leg)	0.750	1.125	0.750	0	30	60
3	Grand Ave NB (South Leg)	0.750	1.125	0.750	0	30	60
4	27th WB (East Leg)	0.750	1.125	0.750	0	30	60

Operational Results

2042 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	315		229		211	990		0.3181	
2	27th EB (West Leg)	None	1166		172		372	1020		1.1435	
3	Grand Ave NB (South Leg)	None	130		958		224	610		0.2131	
4	27th WB (East Leg)	None	218		222		866	994		0.2194	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	5.03		5.03	1.39		A		A
2	27th EB (West Leg)	None	221.49		221.49	265.84		F		F
3	Grand Ave NB (South Leg)	None	7.06		7.06	0.79		A		A
4	27th WB (East Leg)	None	4.39		4.39	0.82		A		A

2042 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	355		258		219	975		0.3643	
2	27th EB (West Leg)	None	1315		194		419	1008		1.3040	
3	Grand Ave NB (South Leg)	None	147		964		238	607		0.2414	
4	27th WB (East Leg)	None	246		231		880	989		0.2485	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	5.26		5.26	1.39		A		A
2	27th EB (West Leg)	None	202.03		202.03	206.52		F		F
3	Grand Ave NB (South Leg)	None	7.19		7.19	0.79		A		A
4	27th WB (East Leg)	None	4.47		4.47	0.82		A		A

Approach Flow Profile

2042 AM Peak - Approach Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	32.76	121.26	13.52	22.67
7.5 - 15.0	38.14	141.17	15.74	26.39
15.0 - 22.5	42.21	156.23	17.42	29.21
22.5 - 30.0	44.40	164.35	18.32	30.73
30.0 - 37.5	44.40	164.35	18.32	30.73
37.5 - 45.0	42.21	156.23	17.42	29.21
45.0 - 52.5	38.14	141.17	15.74	26.39
52.5 - 60.0	32.76	121.26	13.52	22.67
Peak 15 min	44.40	164.35	18.32	30.73
Peak 60 min	39.37	145.75	16.25	27.25

Exit Flow Profile

2042 AM Peak - Exit Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	24.16	38.66	24.93	101.28
7.5 - 15.0	26.35	44.92	27.70	108.95
15.0 - 22.5	27.00	49.72	29.05	109.59
22.5 - 30.0	27.36	52.32	29.78	109.94
30.0 - 37.5	27.36	52.37	29.79	109.95
37.5 - 45.0	27.02	49.81	29.07	109.61
45.0 - 52.5	26.38	45.09	27.75	108.98
52.5 - 60.0	25.53	38.79	25.97	108.14
0-60	211	372	224	866
%Trucks	5.00	5.00	5.00	5.00

Scheme Summary

Control Data

Control Data and Model Parameters

27th Street & Grand Ave	2042 Synthetic Flow Profile (veh)
Total	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
PM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Grand Ave SB (North Leg)	0	0	12.00	1	17.00	1	50.00	35.00	30.00
2	27th EB (West Leg)	110	0	12.00	1	17.00	1	50.00	35.00	30.00
3	Grand Ave NB (South Leg)	180	0	12.00	1	17.00	1	50.00	35.00	30.00
4	27th WB (East Leg)	290	0	12.00	1	17.00	1	50.00	35.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Grand Ave SB (North Leg)	110.00	20.00	1	16.00	1	12.00	1
2	27th EB (West Leg)	110.00	20.00	1	16.00	1	12.00	1
3	Grand Ave NB (South Leg)	110.00	20.00	1	16.00	1	12.00	1
4	27th WB (East Leg)	110.00	20.00	1	16.00	1	12.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Grand Ave SB (North Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
2	27th EB (West Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
3	Grand Ave NB (South Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0
4	27th WB (East Leg)	0	1.000	0	1.000	20.00	1792	0	12.00	1792	0

Traffic Flow Data (veh/hr)

2042 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers	
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor
1	Grand Ave SB (North Leg)	2	36	56	316	0	5.0	1.00
2	27th EB (West Leg)	2	92	412	56	0	5.0	1.00
3	Grand Ave NB (South Leg)	0	306	58	67	0	5.0	1.00
4	27th WB (East Leg)	0	33	708	62	0	5.0	1.00

2042 PM Peak Synthetic Flow Profile - Timeslice 7.5 mins

Leg	Leg Names	Flow Ratios			Flow Times		
		Ratio 1	Ratio 2	Ratio 3	Time 1	Time 2	Time 3
1	Grand Ave SB (North Leg)	0.750	1.125	0.750	0	30	60
2	27th EB (West Leg)	0.750	1.125	0.750	0	30	60
3	Grand Ave NB (South Leg)	0.750	1.125	0.750	0	30	60
4	27th WB (East Leg)	0.750	1.125	0.750	0	30	60

Operational Results

2042 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	410		1043		213	566		0.7245	
2	27th EB (West Leg)	None	562		127		1326	1043		0.5387	
3	Grand Ave NB (South Leg)	None	431		544		145	826		0.5218	
4	27th WB (East Leg)	None	803		460		515	870		0.9233	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	23.94		23.94	10.30		C		C
2	27th EB (West Leg)	None	6.92		6.92	3.51		A		A
3	Grand Ave NB (South Leg)	None	8.63		8.63	3.54		A		A
4	27th WB (East Leg)	None	46.97		46.97	42.42		E		E

2042 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Grand Ave SB (North Leg)	None	462		1121		236	525		0.8804	
2	27th EB (West Leg)	None	634		139		1438	1037		0.6112	
3	Grand Ave NB (South Leg)	None	486		612		160	790		0.6149	
4	27th WB (East Leg)	None	905		518		580	840		1.0785	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Grand Ave SB (North Leg)	None	29.56		29.56	10.30		D		D
2	27th EB (West Leg)	None	7.54		7.54	3.51		A		A
3	Grand Ave NB (South Leg)	None	9.80		9.80	3.54		A		A
4	27th WB (East Leg)	None	60.84		60.84	42.16		F		F

Approach Flow Profile

2042 PM Peak - Approach Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	42.64	58.44	44.82	83.51
7.5 - 15.0	49.64	68.04	52.18	97.22
15.0 - 22.5	54.93	75.30	57.75	107.59
22.5 - 30.0	57.79	79.21	60.75	113.18
30.0 - 37.5	57.79	79.21	60.75	113.18
37.5 - 45.0	54.93	75.30	57.75	107.59
45.0 - 52.5	49.64	68.04	52.18	97.22
52.5 - 60.0	42.64	58.44	44.82	83.51
Peak 15 min	57.79	79.21	60.75	113.18
Peak 60 min	51.25	70.25	53.88	100.38

Exit Flow Profile

2042 PM Peak - Exit Flows (Veh / Hour)

Time Slice	Grand Ave SB (North Leg)	27th EB (West Leg)	Grand Ave NB (South Leg)	27th WB (East Leg)
0.0 - 7.5	22.22	138.15	15.05	53.50
7.5 - 15.0	25.67	158.64	17.34	62.07
15.0 - 22.5	28.24	173.28	19.05	68.67
22.5 - 30.0	29.47	179.50	19.93	72.34
30.0 - 37.5	29.51	180.12	20.04	72.54
37.5 - 45.0	28.62	177.69	19.41	69.11
45.0 - 52.5	26.95	173.40	18.28	62.71
52.5 - 60.0	22.80	145.20	15.58	53.95
0-60	213	1326	145	515
%Trucks	5.00	5.00	5.00	5.00

Preliminary Drainage Report

FOR

2525 South Grand

AT

2525 South Grand Ave, Glenwood Springs, CO 81601

FOR

City of Glenwood Springs

December 16, 2021
Updated February 9, 2022

JVA, Inc.
Consulting Engineers
817 Colorado Ave. Ste. 301
Glenwood Springs, CO 81601
(303) 444-1951

JVA, Inc. Project No. 3496c

JVA, Incorporated
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Suite 301
Glenwood Springs,
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www.jvajva.com

February 9, 2022

Terri Partch
City Engineer
City of Glenwood Springs Engineering
101 West 8th Street
Glenwood Springs, CO 81601

RE: Preliminary Drainage Report for 2525 South Grand
JVA, Inc. Project No. 3496c

Dear Terri,

The following Preliminary Drainage Report and attached drainage maps have been prepared for 2525 South Grand. The stormwater report and drainage maps have been produced in accordance with the City of Glenwood Springs Stormwater, Drainage, Water Quality and Erosion Control Chapter, relevant Mile High Flood District criteria and the latest Urban Storm Drainage Criteria Manual recommendations.

It is our understanding that the information provided herein meets all requirements of the City of Glenwood Springs Engineering Standards.

Please contact us if you have any questions regarding this submission.

Sincerely,

JVA, Inc.

Raul Morales
Project Engineer

Engineer's Statement:

"I hereby affirm that this report and the accompanying plans for the preliminary design of The 2525 South Grand Townhome Development was prepared by me (or under my direct supervision) for the owners thereof in accordance with the provisions of the City of Glenwood Springs Stormwater, Drainage, Water Quality and Erosion Control Chapter and approved variances and exceptions listed thereto. I understand that it is the policy of the City of Glenwood Springs that the City of Glenwood Springs does not and will not assume liability for drainage facilities designed by others."

Kevin A. Tone
Registered Professional Engineer
State of Colorado No. 28699

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Preliminary Drainage Report for 2525 South Grand

I. Introduction

JVA has been contracted by Move Matter Architects for North Mountain Partners, LLC to provide civil engineering services in the form of site design and layout, grading and stormwater design for 2525 South Grand, a proposed townhome development in Glenwood Springs, Colorado. This Preliminary Drainage Report details the intent and preliminary calculations and design of the stormwater management system proposed for this site.

A. Description of Existing Site

The proposed project located at 2525 S Grand Avenue in Glenwood Springs, CO. The existing site is 2.90 acres and was the location of the Rivers restaurant. Existing improvements include the restaurant building and associated paved parking areas and utilities. The site is bound by South Grand Avenue to the east, the Roaring Fork River to the west, commercial property to the north and 27th street to the south. The site is comprised of two distinct topographical elements; an upper bench where all of the development is contained, and a steep embankment created by the Roaring Fork River. The embankment is comprised of native grasses, shrubs, and some trees. The building and asphalt parking lot are situated on the bench which is approximately 20 vertical feet above the Roaring Fork River. Runoff from the Rivers restaurant building and surrounding parking lot is collected by underground storm drain infrastructure which discharges directly to the Roaring Fork River. The storm drain system is comprised of two primary inlets in the parking lot with each inlet having a separate outfall pipe to the Roaring Fork River.

Offsite runoff from an adjacent portion of South Grand and the existing commercial development to the east of South Grand (Penrose Plaza) is routed through the project site by an existing storm drain line which connects to the parking lot inlet west of the building.

The steep hillside along the Roaring Fork River contains riparian areas. There are no wetlands area on or immediately adjacent to the project site.

The site is comprised of soils in hydrologic soil group B.

B. Description of Proposed Project

2525 South Grand is a proposed townhome development that includes 17 units. The site includes a main looped drive that connects to South Grand Avenue in two places, as well as parking areas, walkways, a trash enclosure, and a series of stairs and landings leading from the main drive down to the river. Utility construction will include a new looped water line and services, a gravity sanitary sewer main that leads to a pump and force main to connect to the existing main in South Grand Avenue, a gas main and services, and electric services. Stormwater runoff from the site will be collected through a series of inlets. Onsite run off will be routed to a dry well which will provide detention and water quality enhancement. Overflow from the drywell will combine with offsite flows and will be routed to outfall to The Roaring Fork River.

This project will not significantly change the topographical composition of the site with the proposed development taking place on the upper bench of the property and little, to no impact on the hillside adjacent to the river.

C. Previous Drainage Studies

At the time of preparing this report, JVA is unaware of any previous drainage studies completed for the project site that may have been completed in association with the design and construction of the Rivers Restaurant. Should any such report become available, the Final Drainage Report will be revised to include any relevant information.

D. Adjacent Drainage Issues

The design team and owners are aware of erosion created at the discharge points of the existing storm sewer system. The erosion will be mitigated under the scope of this project.

Additionally, as previously mentioned the sites existing storm infrastructure conveys run off from South Grand Avenue and the Penrose Plaza development on the east side of South Grand Ave. There is no apparent easement for the conveyance of the offsite flows. A 24" corrugated metal pipe (CMP) conveys these offsite flows to an existing inlet junction structure on site. City staff has communicated to the design team that this CMP should be evaluated more closely to determine the condition of the pipe and if it warrants replacement. The design team will heed this recommendation and communicate findings.

The location of the existing storm sewer inlet where offsite and onsite flows combine will be maintained in the proposed design; however the structure will be replaced with a manhole. The existing pipe downstream of the inlet which outfalls directly to the river will be removed and a new outlet pipe and

structure will be constructed. This well generally maintain existing drainage patterns from the adjacent ROW and properties with no adverse impact up or down stream.

E. Major Drainage Way Studies

The major drainage way associated with the site is the Roaring Fork River to the west. The developed site finished grade and finished floor elevations are approximately 20 vertical feet higher than the ordinary high-water mark shown on the survey. The limits of disturbance were designed to be a minimum of 35 horizonal feet from the ordinary high-water mark.

At the time of preparing this report we do not have accurate mapping of the floodplain boundaries or a recent FEMA FIRM. However, since this site was previously developed and the design is not deviating significantly from existing conditions in relation to the river, we anticipate be no impact to the floodplain.

F. Site Constraints

The two major site constraints are South Grand Avenue to the east and the Roaring Fork River to the west. As mentioned, drainage from South Grand Avenue is routed through the sites existing storm system. The Roaring Fork River is significantly lower than the site and the natural fluctuation of its water surface elevation should not impact the site.

The proposed development maintains historic drainage patterns, conveying runoff from S. Grand Avenue and runoff from our site into the Roaring Fork River. Aside from the proposed erosion mitigation and the construction of the proposed outfall, there will be no other impact to the riparian area along the bank of the Roaring Fork River.

G. Irrigation Facilities and Waterways

At the time of preparing this report, we are not aware of any irrigation facilities or other on-site waterways that will influence or be influenced by the re-development of this site.

H. Easements and Tracts

At the time of preparing this report we are not aware of any existing easements or tracts related to drainage or drainage pathways. In initial review discussions with city staff, we are aware that an easement will need to be granted for the portion of the storm drain system conveying offsite flows since one does not currently exist.

I. Reference to Input/Output Files

Intensity, Duration, Frequency (IDF) values for the 2, 25, & 100-year events from NOAA Atlas for Glenwood Springs were utilized for the analysis of this site.

A copy of IDF data is provided in Appendix B. Output calculation spreadsheets and hydrographs are provided in Appendix C.

J. Reference To Drainage Figures

Historic and Developed Drainage Maps are provided in Appendix D as Figure 1 and Figure 2 respectively.

II. Drainage Basins & Sub-Basins

A. (i)Existing Sub Basins

The existing site is comprised of two basins designated as Basins H1 and H2. Basin H1 consists of the developed portion of the site which drains to existing onsite storm infrastructure. The basin is 0.93 acres and 73.9% impervious. Ground cover consists of a paved parking area, surrounding concrete walks and the former restaurant building. Run off from this basin is collected by the existing storm drain system and is discharged to the Roaring Fork River.

Basin H2 consists of the undeveloped portion of the site and drains directly to the Roaring Fork River in a sheet flow pattern. This basin is 1.97 acres and 2.7% impervious. Ground cover consists of native grasses & shrubs. A tabular summary of the ground cover and imperviousness of these basins is provided in Appendix C.

(ii) Proposed Sub Basins

The proposed site is comprised of two basins designated as Basins A & B. Similar to existing conditions, Basin A consists of the developed portion of the site which drains to the proposed storm drain system. The system routes runoff to an onsite drywell which will provide water quality enhancement as well as detention. Overflow from this drywell will be routed to the proposed manhole that replaces the aforementioned inlet to the west of the existing building. As described above, this new manhole will combine onsite and offsite run off. A new storm outfall will extend from this manhole to the bank of Roaring Fork River. Basin A is 1.05 acres and 81.5% impervious.

Basin B consists of the undeveloped portion of the site and will continue to drain to the Roaring Fork River in a sheet flow pattern. This basin is 1.85 acres and is 2.7% impervious.

A tabular summary of the ground cover and imperviousness of these basins is provided in Appendix C.

B. Reference to Drainage Exhibits

The basins described above are depicted in the attached Figure 1 – Historic Drainage Map and Figure -2 Developed Drainage Map. Basins are labeled with their corresponding name, area (acres), run off coefficient (C), and run off rate (Q). Basin design/discharge points are also indicated on each drainage map.

C. Offsite Drainage Patterns

Offsite drainage patterns will remain unchanged. Runoff from the adjacent portion of South Grand Avenue will continue to collect in the existing curb inlet where it will combine with runoff from the Penrose Plaza development. The existing capacity of the outlet pipe from this structure will be maintained in all new downstream infrastructure.

D. Historic & Post Developed Flow Rates

Historic runoff rates for basins H1 and H2 were found to be 3.29 CFS and 2.63 CFS for the 25-year minor event respectively. Developed flow rates for basins A and B were found to be 4.09 CFS and 2.47 CFS for the 25-year minor event respectively. This results in a marginal increase in net run off of 0.64 CFS. Calculations are included in Appendix C as well as run off rates for the 2-year and the 100-year events.

III. Low Impact Site Design

A. LID Efforts

Low Impact Design (LID) efforts implemented in the layout of this site include the selection of a drywell to provide detention and infiltration and limiting the area of disturbance to the portion of the site that was previously developed as the Rivers restaurant.

The drywell will promote infiltration of run off versus direct discharge as was the approach of the previous development. The drywell will also provide water quality enhancement by collecting, filtering, and promoting infiltration of minor storm events and the "first flush" from major storm events.

By limiting the area of disturbance to what is being proposed, the existing riparian area adjacent to the river will be maintained.

B. Percolation Rates

The current geotechnical Engineering Report did not identify existing percolation rates of the onsite soils. However, it is anticipated that this information will be provided as the design of this development progresses. Due to the proximity of the site to the Roaring Fork River and based on our experience with the soils on other sites in the surrounding area, it is expected that the onsite soils will provide adequate percolation rates suitable for the implementation of the proposed drywell for detention.

IV. Hydrologic Criteria

A. Design Storm Recurrence Intervals

In accordance with Chapter 4 of the Glenwood Engineering Standards, the two (2), twenty five (25), and one hundred (100) year rainfall events were analyzed for the proposed drainage design.

B. Design Rainfall

Rainfall Data from the Precipitation-Frequency Atlas of the United States, Midwestern States, NOAA Atlas 14, Volume 8 (NOAA 2013) was utilized for this analysis. These tables are provided in Appendix B of this report.

C. Runoff Methodology

The Rational Method (Q=C* i * A) was utilized to determine runoff rates, where "Q" is the runoff rate in cubic feet per second (CFS), C is the runoff coefficient, "I" is the rainfall intensity in inches per hour (in/hr), and "A" is the area in acres.

D. Detention & Discharge Methodology

The Modified Rational Method (MRM) was used to determine the approximate detention volume for Basin A. The MRM extends the peak of the design storm hydrograph through the duration of said event versus peaking only at the time of concentration of the basin as with the Rational Method. The MRM provides a more conservative approach to determining the volume of run off for the design storm. Additionally, *Hydraflow Hydrographs extension for Autodesk Civil3D* was utilized to determine the approximate required detention volume. The target release rate was set the historic runoff rate of

the corresponding basin H1 (3.29 cfs). This resulted in a required storage volume of 290 cubic feet.
The Modified Rational Method inflow/outflow hydrograph has been included in Appendix D.

E. Other Criteria
The City of Aspens *Figure 8.69 - Typical WQCV Dry Well from the* "Urban Runoff Management Plan – A Guide to Stormwater Management in the City of Aspen" (City of Aspen, Revised December 2014 Edition) was utilized to design the proposed drywell. The detail has been adopted on the Dry Well Sizing spreadsheet included in Appendix C. Preliminary sizing calculations indicate that a 22' deep drywell will be required.

F. Intensity, Duration, Frequency, Time of Concentration & Runoff Coefficients.

Intensity, Duration, Frequency (IDF) values from NOAA Atlas 14 were utilized in this analysis. Time of concentration was determined by analyzing the runoff path of each basin including initial overland sheet flow, shallow concentrated flow, and pipe flow times. Runoff coefficients for each basin were determined by tabulating ground cover areas and using a weighted sum of each area by imperviousness.

A tabular summary of these values is provided in Appendix C of this report.

G. Developed Runoff

Developed runoff was calculated using the Rational Method as outlined above. A summary of developed run off rates for each storm event is provided below with details of these calculations being provided in Appendix C.

Basin	**Q-2-year (CFS)**	**Q-25-year (CFS)**	**Q-100-year (CFS)**
A	1.45	4.09	5.59
B	0.05	2.47	5.25

H. Reference to Proposed Drainage Basins

Proposed drainage basins are delineated in Figure 2 in Appendix D of this report.

I. WQCV, Minor & Major Events

The water Quality Capture Volume was determined using the following equation from Chapter 3, Volume 3 of the *MHFD Urban Storm Drainage Criteria Manual*;

$$WQCV = a(0.91I^3 - 1.19I^2 + 0.78I)$$

Where:

WQCV = Water Quality Capture Volume (watershed-inches)

a = Coefficient corresponding to BMP type and based on WQCV design drain time (Table 3-2). This was chosen to be 0.8 which corresponds to 12 Hour drain time filtration BMP.

I = Imperviousness (percent expressed as a decimal)

This resulted in a WQCV of 1,030 cubic ft. This volume is not achievable with a traditional detention basin or even a drywell without causing significant impact to the layout of the site given the existing topographical constraints. An alternative approach may be to incorporate an inline structure, such as a hydrodynamic separator, which is rated to continuously treat runoff at a specified rate versus a set volume. For instance, an S4 ADS Barracuda unit is capable of removing 80% of suspended solids at a rate of 1.52 CFS which exceeds the two-year run off rate of developed Basin A.

Major and Minor Event Volumes for developed basins were determined using Hyrdaflow Hydrographs and are summarized in the table below.

Basin	2-year Volume (CF)	25-year Volume (CF)	100-year Vol. (CF)
A	437	1,235	1,693
B	322	869	5.25

J. Hyrdographs

As mentioned previously Hyrdorgraphs for existing and proposed basins were created using *Hydraflow Hydrographs extension for Autodesk Civil3D* and are provided in Appendix D.

V. Hydraulic Criteria

A. Hydraulic Design Points are indicated on the included Figures 1 and 2 in Appendix E.
B. Capacity of Drainage Facilities
    a. Our preliminary analysis has determined that a 12" PVC storm pipe at 2% slope has sufficient capacity to convey peak 100 years flows from developed basins onsite. Additional analysis will be completed to determine the required capacity for pipes conveying offsite flows from South Grand Avenue and Penrose Plaza.
    b. There are no downstream drainage structures to analyze as the site outfalls directly to the roaring fork river.
    c. Gutter capacity of the proposed access drive will be analyzed as the design progresses.
    d. Storm inlet capacity of the proposed inlets in the access drive will be analyzed as the design progresses.
    e. No open channel facilities are proposed for this development.

VI. Proposed Facilities

A. Proposed permanent site BMPs include the water quality & infiltration drywell.
B. Preliminary Sizing information for the drywall is provided in Appendix C.
C. Volumes and runoff rates are outlined in previous sections of this report. Calculations are provided in Appendix C.
D. Coordination will be needed with City staff to establish easements as needed for conveyance of off-site, public flows.
E. As previously discussed, routing of site flows will be maintained through the site. These flows will continue to discharge to the Roaring Fork River.
F. Operation of Maintenance Plans will be submitted in later versions of this report as the design progresses.

VII. Conclusions

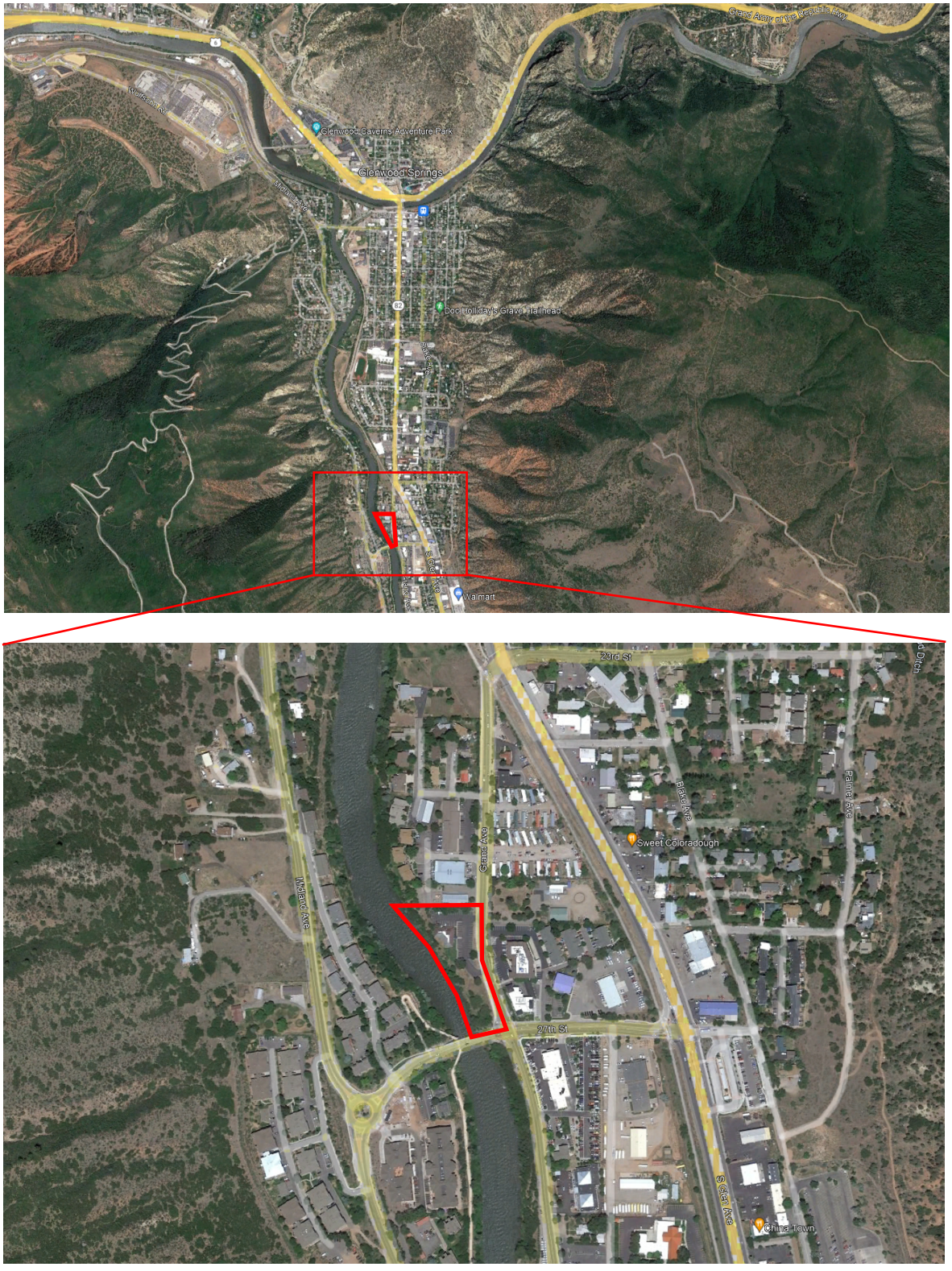
The proposed improvements will provide adequate storage and Water Quality enhancement via an infiltration drywell, will reduce net runoff rates to below historic rates, and will match existing drainage patterns with no impact to adjacent properties or storm conveyance systems. Existing storm infrastructure will be modified to provide a more efficient conveyance of runoff from South Grand Ave to the Roaring Fork River.

VIII. References

1. "Chapter 4 – Stormwater, Drainage, Water Quality And Erosion Control," Glenwood Springs Engineering Standards, City of Glenwood Springs, approved 2018.
2. "Urban Storm Drainage Criteria Manual," Mile High Flood District, updated 2019.
3. "Urban Runoff Management Plan – A Guide to Stormwater Management in the City of Aspen" City of Aspen, Revised December 2014 Edition
4. Web Soil Survey, Natural Resources Conservation Service, United State Department of Agriculture, Online at http://websoilsurvey.nrcs.usda.gov
5. FEMA Flood Map Service Center, Online at https://msc.fema.gov/portal

APPENDIX A – MAPPING

The Rivers Vicinity Map
(NTS)



107° 19' 36" W
107° 19' 30" W
39° 31' 36" N
39° 31' 30" N
300030
300050
300070
300090
300110
300130
300150
4377830
4377810
4377790
4377770
4377750
4377730
4377710
4377690
4377670
4377650
Roaring Fork River
Grand Ave
Woodberry Dr
8
73
Soil Map may not be valid at this scale.
Map Scale: 1:915 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 10 20 40 60
Feet
0 40 80 160 240
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rifle Area, Colorado, Parts of Garfield and Mesa Counties
Survey Area Data: Version 14, Sep 2, 2021

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

Date(s) aerial images were photographed: Sep 24, 2015—Nov 2, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Atencio-Azeltine complex, 1 to 3 percent slopes	B	0.9	45.5%
73	Water		1.0	54.5%
Totals for Area of Interest			**1.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

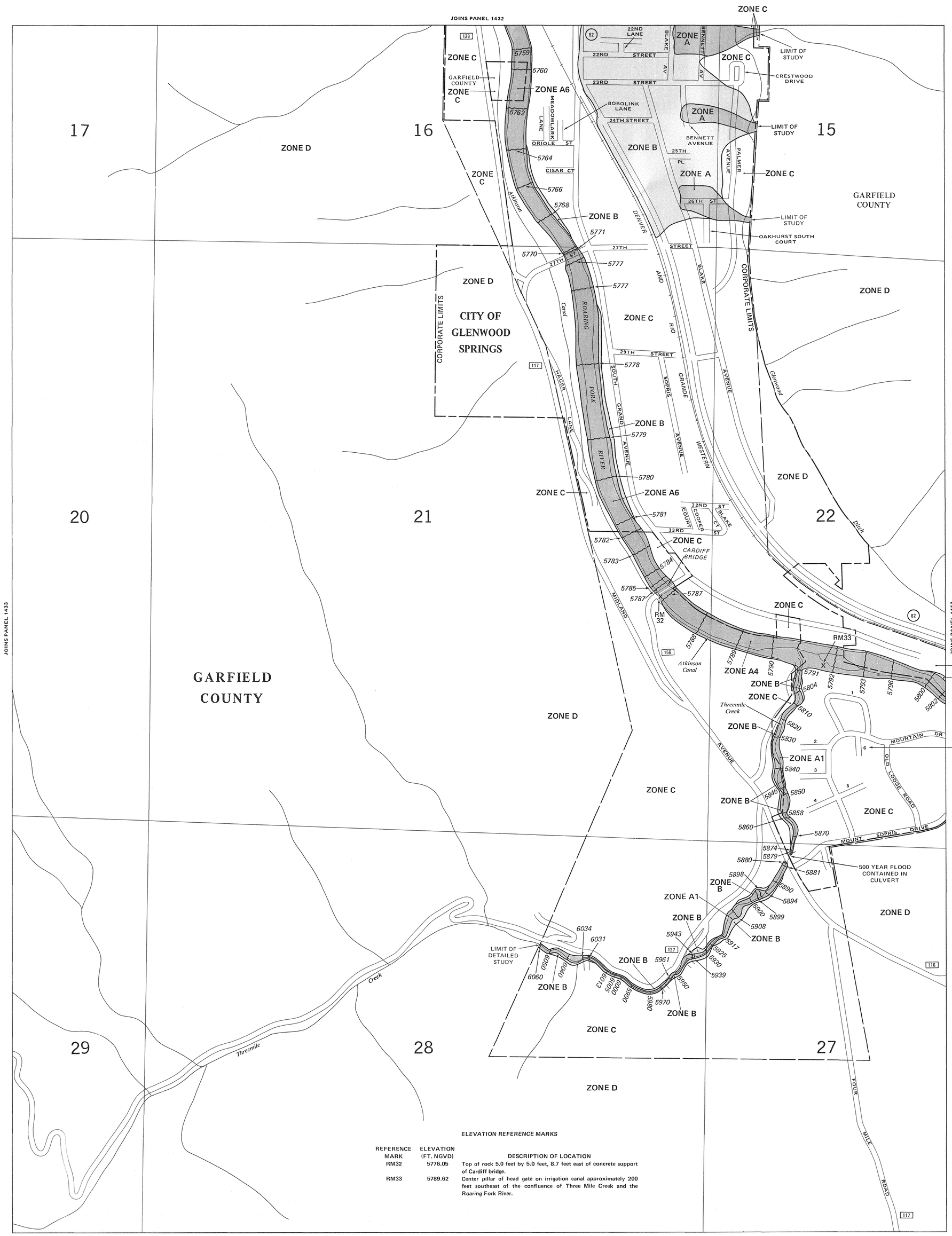
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



KEY TO STREETS
1 VALLEY VIEW ROAD
2 BRUSH CREEK LANE
3 COTTONWOOD LANE
4 GLEN OAK LANE
5 PARK WOOD LANE
6 RED BLUFF LANE

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM32	5776.05	Top of rock 5.0 feet by 5.0 feet, 8.7 feet east of concrete support of Cardiff bridge.
RM33	5789.62	Center pillar of head gate on irrigation canal approximately 200 feet southeast of the confluence of Three Mile Creek and the Roaring Fork River.

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 6 SOUTH, RANGE 89 WEST

KEY TO MAP

500-Year Flood Boundary
100-Year Flood Boundary
Zone Designations
100-Year Flood Boundary
500-Year Flood Boundary

ZONE B
ZONE A1 / ZONE A5
ZONE B

Base Flood Elevation Line With Elevation In Feet** — 513
Base Flood Elevation in Feet Where Uniform Within Zone** — (EL 987)
Elevation Reference Mark — RM7×
Zone D Boundary
River Mile — •M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
MARCH 1, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:
NOVEMBER 14, 1975

FLOOD INSURANCE RATE MAP EFFECTIVE:
JULY 16, 1979

FLOOD INSURANCE RATE MAP REVISIONS:
Map revised October 15, 1985 to change flood plain boundaries, zone designations, base flood elevations, corporate limits, scale, cultural features, or map format.

Flood Insurance Rate Map (FIRM) panel numbers correspond to GARFIELD COUNTY, COLORADO FIRM panel numbers. For adjoining areas, refer to the GARFIELD COUNTY FIRM published separately.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.

APPROXIMATE SCALE IN FEET
500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
GLENWOOD SPRINGS, COLORADO
GARFIELD COUNTY

PANEL 1434 OF 1900
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
080071 1434 C

MAP REVISED:
OCTOBER 15, 1985

Federal Emergency Management Agency

APPENDIX B – RAINFALL DATA

NOAA Atlas 14, Volume 8, Version 2 GLENWOOD SPGS #2
Station ID: 05-3359
Location name: Glenwood Springs, Colorado, USA*
Latitude: 39.5181°, Longitude: -107.3172°
Elevation:
Elevation (station metadata): 5880 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)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.116 (0.092-0.150)	0.176 (0.139-0.228)	0.268 (0.212-0.348)	0.339 (0.266-0.443)	0.430 (0.320-0.573)	0.494 (0.360-0.671)	0.553 (0.388-0.773)	0.607 (0.408-0.876)	0.670 (0.432-1.00)	0.712 (0.451-1.09)
10-min	0.170 (0.135-0.220)	0.258 (0.204-0.333)	0.392 (0.310-0.509)	0.497 (0.390-0.648)	0.630 (0.468-0.839)	0.723 (0.527-0.983)	0.809 (0.569-1.13)	0.889 (0.597-1.28)	0.982 (0.633-1.47)	1.04 (0.660-1.60)
15-min	0.208 (0.165-0.269)	0.314 (0.249-0.407)	0.479 (0.378-0.621)	0.606 (0.476-0.791)	0.768 (0.571-1.02)	0.882 (0.643-1.20)	0.987 (0.694-1.38)	1.08 (0.728-1.56)	1.20 (0.772-1.79)	1.27 (0.805-1.95)
30-min	0.285 (0.226-0.369)	0.411 (0.326-0.532)	0.604 (0.477-0.784)	0.753 (0.591-0.982)	0.940 (0.698-1.25)	1.07 (0.780-1.45)	1.19 (0.836-1.66)	1.30 (0.872-1.87)	1.42 (0.916-2.12)	1.50 (0.950-2.31)
60-min	0.381 (0.303-0.493)	0.510 (0.404-0.660)	0.707 (0.559-0.918)	0.860 (0.675-1.12)	1.05 (0.784-1.40)	1.19 (0.867-1.61)	1.31 (0.923-1.83)	1.43 (0.959-2.06)	1.56 (1.00-2.32)	1.64 (1.04-2.52)
2-hr	0.478 (0.384-0.608)	0.608 (0.488-0.776)	0.810 (0.648-1.04)	0.967 (0.769-1.24)	1.17 (0.881-1.53)	1.31 (0.966-1.75)	1.44 (1.02-1.98)	1.55 (1.06-2.21)	1.69 (1.11-2.49)	1.79 (1.14-2.70)
3-hr	0.560 (0.454-0.707)	0.679 (0.549-0.858)	0.865 (0.697-1.10)	1.01 (0.809-1.29)	1.20 (0.917-1.57)	1.34 (0.998-1.78)	1.46 (1.05-2.00)	1.59 (1.09-2.24)	1.73 (1.14-2.53)	1.84 (1.18-2.75)
6-hr	0.732 (0.600-0.909)	0.833 (0.682-1.04)	1.00 (0.816-1.25)	1.14 (0.923-1.43)	1.33 (1.04-1.73)	1.48 (1.13-1.95)	1.63 (1.19-2.22)	1.78 (1.25-2.50)	1.99 (1.33-2.88)	2.14 (1.39-3.16)
12-hr	0.908 (0.754-1.11)	1.04 (0.860-1.27)	1.25 (1.03-1.54)	1.43 (1.18-1.77)	1.69 (1.34-2.16)	1.89 (1.46-2.46)	2.10 (1.56-2.81)	2.31 (1.63-3.19)	2.60 (1.76-3.71)	2.82 (1.85-4.10)
24-hr	1.10 (0.924-1.32)	1.26 (1.06-1.52)	1.54 (1.29-1.87)	1.78 (1.48-2.16)	2.12 (1.70-2.68)	2.39 (1.87-3.07)	2.67 (2.00-3.52)	2.95 (2.11-4.02)	3.35 (2.29-4.70)	3.65 (2.42-5.21)
2-day	1.32 (1.12-1.56)	1.51 (1.28-1.79)	1.83 (1.55-2.17)	2.11 (1.78-2.52)	2.51 (2.04-3.12)	2.83 (2.24-3.58)	3.17 (2.41-4.12)	3.52 (2.55-4.73)	4.01 (2.78-5.55)	4.39 (2.95-6.18)
3-day	1.47 (1.26-1.72)	1.68 (1.45-1.98)	2.04 (1.75-2.40)	2.35 (2.00-2.78)	2.79 (2.29-3.44)	3.14 (2.51-3.93)	3.51 (2.68-4.51)	3.89 (2.83-5.15)	4.40 (3.07-6.03)	4.81 (3.25-6.69)
4-day	1.60 (1.38-1.86)	1.83 (1.58-2.13)	2.21 (1.90-2.59)	2.54 (2.17-2.98)	3.00 (2.47-3.66)	3.37 (2.70-4.18)	3.74 (2.88-4.77)	4.13 (3.03-5.44)	4.66 (3.26-6.33)	5.07 (3.44-7.01)
7-day	1.92 (1.68-2.21)	2.17 (1.89-2.49)	2.58 (2.24-2.97)	2.92 (2.52-3.38)	3.41 (2.83-4.09)	3.79 (3.06-4.63)	4.18 (3.24-5.25)	4.58 (3.38-5.94)	5.12 (3.62-6.85)	5.54 (3.79-7.55)
10-day	2.21 (1.94-2.51)	2.46 (2.17-2.80)	2.89 (2.53-3.30)	3.25 (2.83-3.73)	3.75 (3.14-4.46)	4.15 (3.38-5.02)	4.55 (3.56-5.66)	4.97 (3.69-6.38)	5.53 (3.93-7.33)	5.96 (4.10-8.05)
20-day	3.01 (2.69-3.37)	3.33 (2.97-3.73)	3.85 (3.42-4.33)	4.29 (3.79-4.84)	4.89 (4.15-5.71)	5.36 (4.43-6.36)	5.83 (4.62-7.12)	6.31 (4.75-7.95)	6.95 (4.99-9.04)	7.44 (5.18-9.87)
30-day	3.68 (3.32-4.08)	4.08 (3.67-4.52)	4.72 (4.23-5.25)	5.25 (4.67-5.87)	5.97 (5.09-6.87)	6.51 (5.40-7.63)	7.04 (5.61-8.49)	7.58 (5.74-9.43)	8.27 (5.98-10.6)	8.79 (6.16-11.5)
45-day	4.55 (4.13-4.98)	5.07 (4.60-5.56)	5.89 (5.32-6.48)	6.54 (5.87-7.23)	7.41 (6.36-8.42)	8.05 (6.73-9.31)	8.67 (6.95-10.3)	9.27 (7.06-11.4)	10.0 (7.28-12.7)	10.6 (7.45-13.7)
60-day	5.30 (4.84-5.76)	5.93 (5.41-6.45)	6.92 (6.29-7.55)	7.70 (6.94-8.44)	8.70 (7.50-9.79)	9.43 (7.92-10.8)	10.1 (8.14-11.9)	10.8 (8.23-13.1)	11.6 (8.42-14.5)	12.1 (8.57-15.6)

[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.

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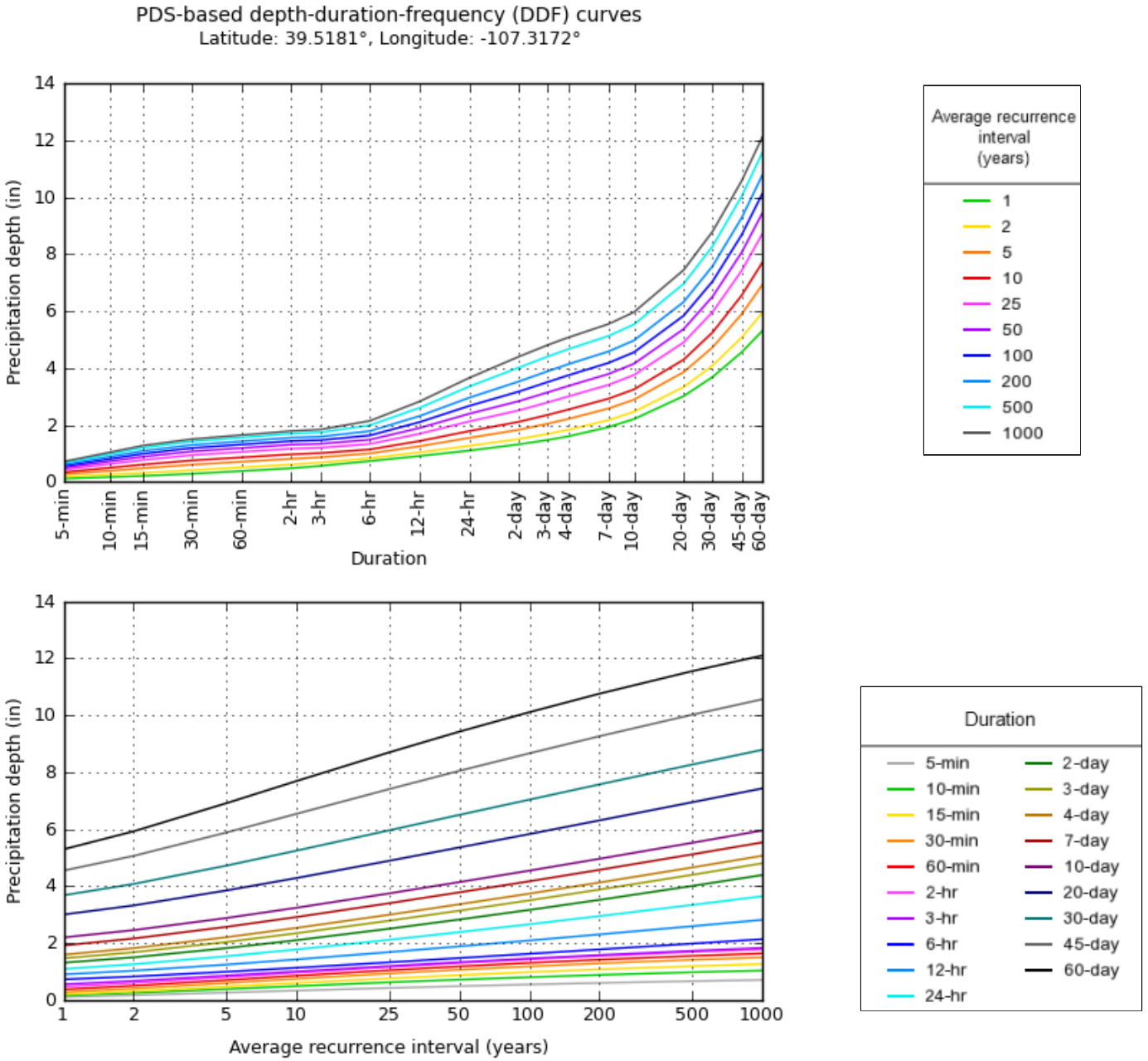
PF graphical



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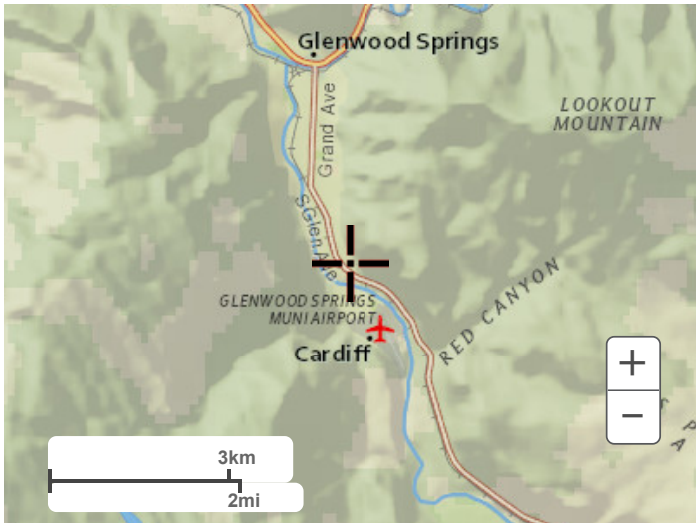
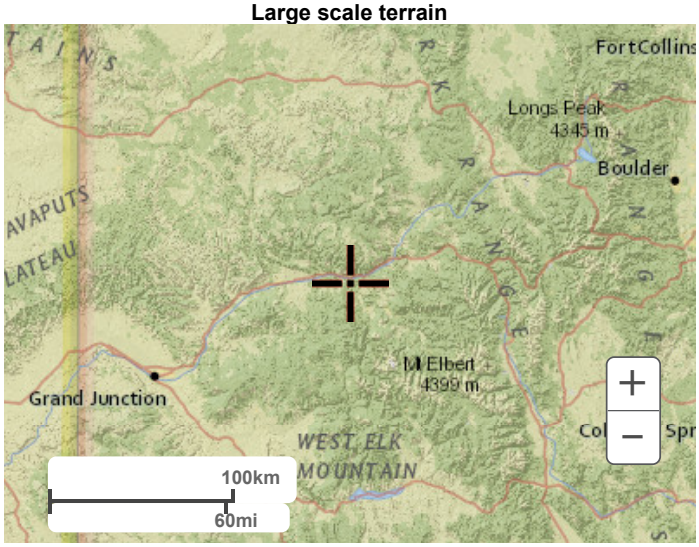
Maps & aerials

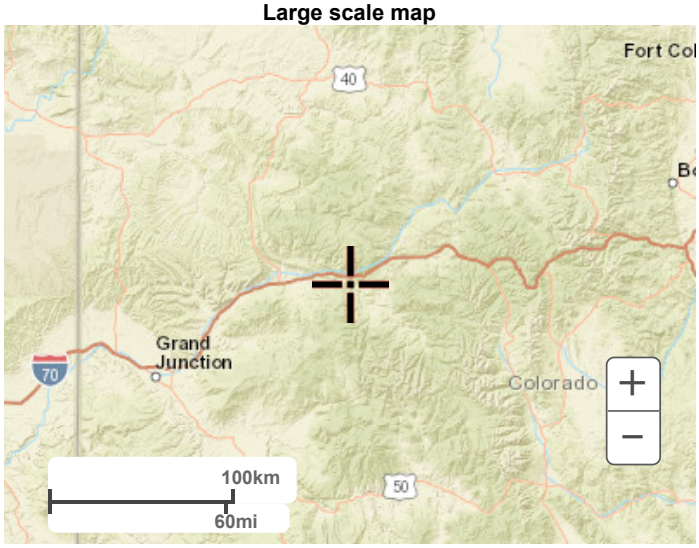
Small scale terrain



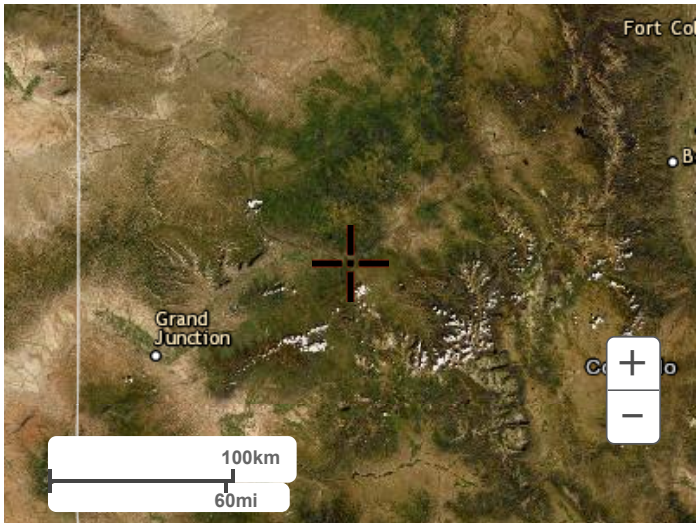
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

NOAA Atlas 14, Volume 8, Version 2
Location name: Glenwood Springs, Colorado, USA*
Latitude: 39.5181°, Longitude: -107.3172°
Elevation: 5898.09 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	**1.39** (1.10-1.80)	**2.11** (1.67-2.74)	**3.22** (2.54-4.18)	**4.07** (3.19-5.32)	**5.16** (3.84-6.88)	**5.93** (4.32-8.05)	**6.64** (4.66-9.28)	**7.28** (4.90-10.5)	**8.04** (5.18-12.0)	**8.54** (5.41-13.1)
10-min	**1.02** (0.810-1.32)	**1.55** (1.22-2.00)	**2.35** (1.86-3.05)	**2.98** (2.34-3.89)	**3.78** (2.81-5.03)	**4.34** (3.16-5.90)	**4.85** (3.41-6.79)	**5.33** (3.58-7.69)	**5.89** (3.80-8.79)	**6.26** (3.96-9.62)
15-min	**0.832** (0.660-1.08)	**1.26** (0.996-1.63)	**1.92** (1.51-2.48)	**2.42** (1.90-3.16)	**3.07** (2.28-4.09)	**3.53** (2.57-4.79)	**3.95** (2.78-5.52)	**4.34** (2.91-6.26)	**4.79** (3.09-7.14)	**5.09** (3.22-7.82)
30-min	**0.570** (0.452-0.738)	**0.822** (0.652-1.06)	**1.21** (0.954-1.57)	**1.51** (1.18-1.96)	**1.88** (1.40-2.50)	**2.14** (1.56-2.91)	**2.38** (1.67-3.32)	**2.59** (1.74-3.74)	**2.84** (1.83-4.24)	**3.00** (1.90-4.61)
60-min	**0.381** (0.303-0.493)	**0.510** (0.404-0.660)	**0.707** (0.559-0.918)	**0.860** (0.675-1.12)	**1.05** (0.784-1.40)	**1.19** (0.867-1.61)	**1.31** (0.923-1.83)	**1.43** (0.959-2.06)	**1.56** (1.00-2.32)	**1.64** (1.04-2.52)
2-hr	**0.239** (0.192-0.304)	**0.304** (0.244-0.388)	**0.405** (0.324-0.518)	**0.484** (0.384-0.622)	**0.583** (0.440-0.766)	**0.653** (0.483-0.874)	**0.718** (0.512-0.988)	**0.777** (0.529-1.10)	**0.846** (0.552-1.24)	**0.892** (0.570-1.35)
3-hr	**0.186** (0.151-0.235)	**0.226** (0.183-0.286)	**0.288** (0.232-0.365)	**0.336** (0.269-0.429)	**0.399** (0.305-0.521)	**0.445** (0.332-0.592)	**0.488** (0.351-0.667)	**0.528** (0.363-0.746)	**0.577** (0.380-0.843)	**0.611** (0.393-0.916)
6-hr	**0.122** (0.100-0.152)	**0.139** (0.114-0.173)	**0.167** (0.136-0.208)	**0.190** (0.154-0.238)	**0.222** (0.174-0.289)	**0.247** (0.188-0.326)	**0.272** (0.199-0.370)	**0.298** (0.208-0.418)	**0.332** (0.222-0.480)	**0.358** (0.233-0.528)
12-hr	**0.075** (0.063-0.092)	**0.086** (0.071-0.105)	**0.104** (0.086-0.127)	**0.119** (0.098-0.147)	**0.140** (0.111-0.180)	**0.157** (0.121-0.204)	**0.174** (0.129-0.233)	**0.192** (0.136-0.265)	**0.216** (0.146-0.308)	**0.234** (0.154-0.340)
24-hr	**0.046** (0.039-0.055)	**0.053** (0.044-0.063)	**0.064** (0.054-0.078)	**0.074** (0.062-0.090)	**0.088** (0.071-0.112)	**0.100** (0.078-0.128)	**0.111** (0.083-0.147)	**0.123** (0.088-0.168)	**0.139** (0.095-0.196)	**0.152** (0.101-0.217)
2-day	**0.027** (0.023-0.032)	**0.031** (0.027-0.037)	**0.038** (0.032-0.045)	**0.044** (0.037-0.052)	**0.052** (0.043-0.065)	**0.059** (0.047-0.075)	**0.066** (0.050-0.086)	**0.073** (0.053-0.098)	**0.084** (0.058-0.116)	**0.092** (0.061-0.129)
3-day	**0.020** (0.018-0.024)	**0.023** (0.020-0.027)	**0.028** (0.024-0.033)	**0.033** (0.028-0.039)	**0.039** (0.032-0.048)	**0.044** (0.035-0.055)	**0.049** (0.037-0.063)	**0.054** (0.039-0.072)	**0.061** (0.043-0.084)	**0.067** (0.045-0.093)
4-day	**0.017** (0.014-0.019)	**0.019** (0.016-0.022)	**0.023** (0.020-0.027)	**0.026** (0.023-0.031)	**0.031** (0.026-0.038)	**0.035** (0.028-0.043)	**0.039** (0.030-0.050)	**0.043** (0.032-0.057)	**0.049** (0.034-0.066)	**0.053** (0.036-0.073)
7-day	**0.011** (0.010-0.013)	**0.013** (0.011-0.015)	**0.015** (0.013-0.018)	**0.017** (0.015-0.020)	**0.020** (0.017-0.024)	**0.023** (0.018-0.028)	**0.025** (0.019-0.031)	**0.027** (0.020-0.035)	**0.030** (0.022-0.041)	**0.033** (0.023-0.045)
10-day	**0.009** (0.008-0.010)	**0.010** (0.009-0.012)	**0.012** (0.011-0.014)	**0.014** (0.012-0.016)	**0.016** (0.013-0.019)	**0.017** (0.014-0.021)	**0.019** (0.015-0.024)	**0.021** (0.015-0.027)	**0.023** (0.016-0.031)	**0.025** (0.017-0.034)
20-day	**0.006** (0.006-0.007)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.009** (0.008-0.010)	**0.010** (0.009-0.012)	**0.011** (0.009-0.013)	**0.012** (0.010-0.015)	**0.013** (0.010-0.017)	**0.014** (0.010-0.019)	**0.015** (0.011-0.021)
30-day	**0.005** (0.005-0.006)	**0.006** (0.005-0.006)	**0.007** (0.006-0.007)	**0.007** (0.006-0.008)	**0.008** (0.007-0.010)	**0.009** (0.008-0.011)	**0.010** (0.008-0.012)	**0.011** (0.008-0.013)	**0.011** (0.008-0.015)	**0.012** (0.009-0.016)
45-day	**0.004** (0.004-0.005)	**0.005** (0.004-0.005)	**0.005** (0.005-0.006)	**0.006** (0.005-0.007)	**0.007** (0.006-0.008)	**0.007** (0.006-0.009)	**0.008** (0.006-0.010)	**0.009** (0.007-0.011)	**0.009** (0.007-0.012)	**0.010** (0.007-0.013)
60-day	**0.004** (0.003-0.004)	**0.004** (0.004-0.004)	**0.005** (0.004-0.005)	**0.005** (0.005-0.006)	**0.006** (0.005-0.007)	**0.007** (0.005-0.008)	**0.007** (0.006-0.008)	**0.007** (0.006-0.009)	**0.008** (0.006-0.010)	**0.008** (0.006-0.011)

[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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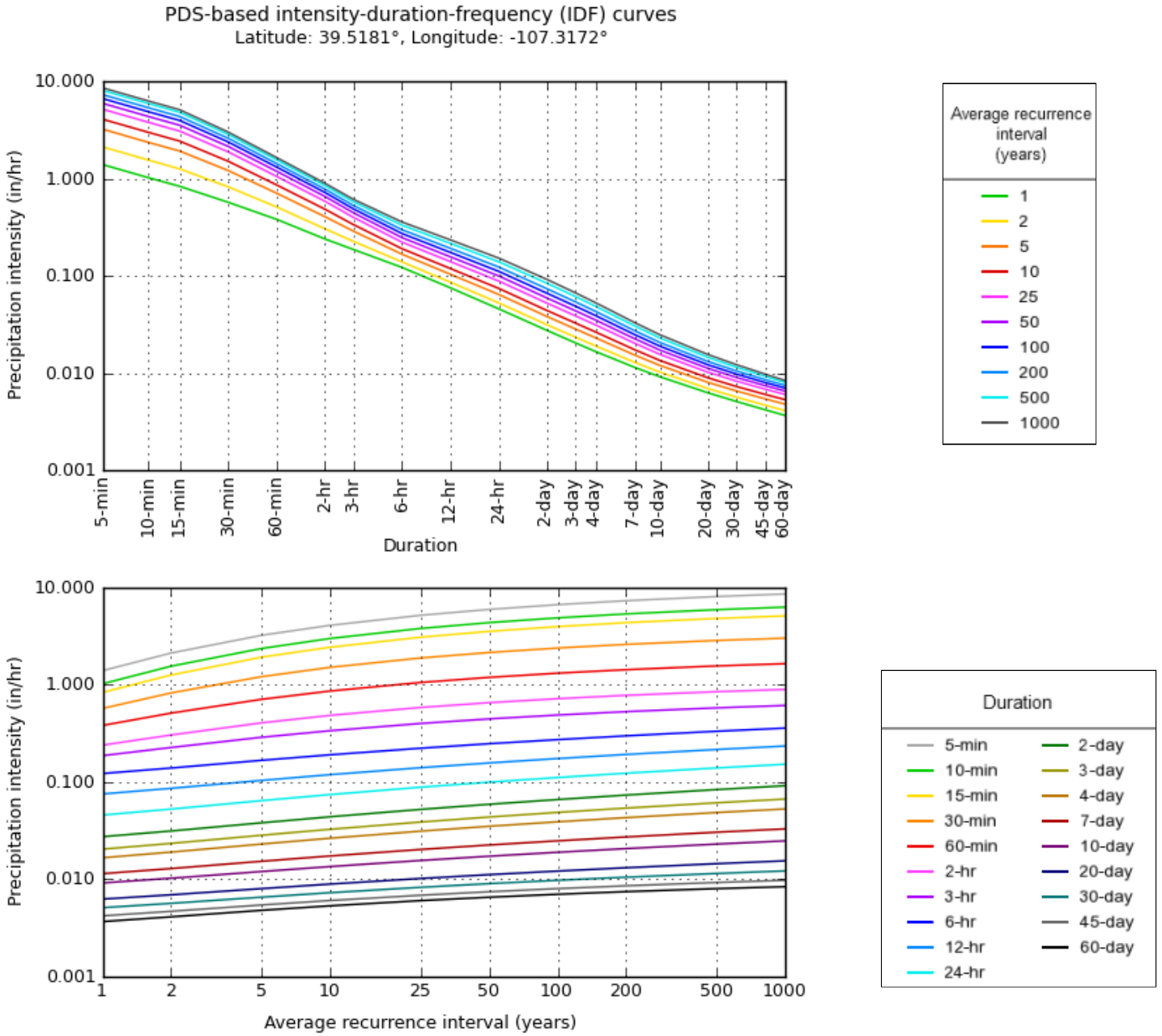
PF graphical



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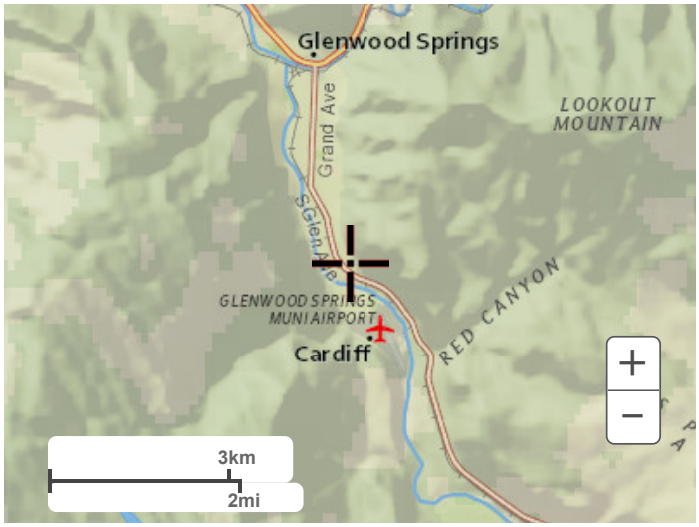
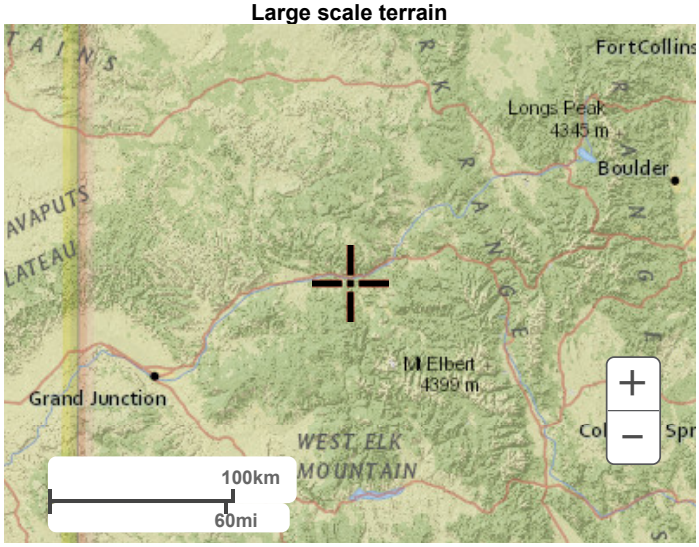
Maps & aerials

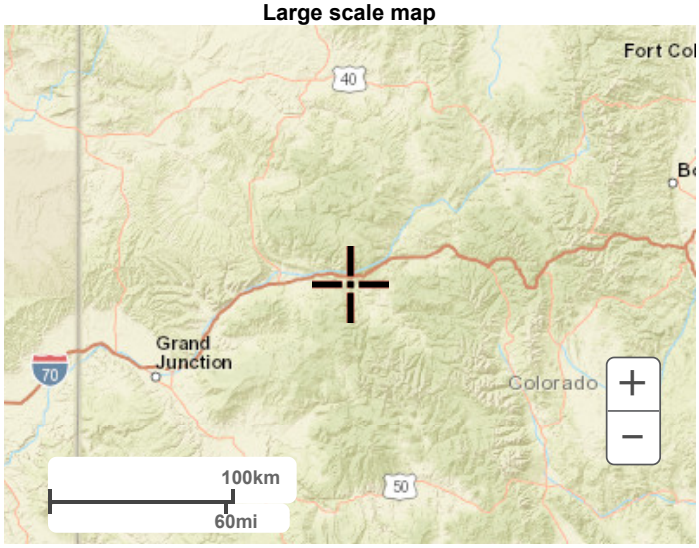
Small scale terrain



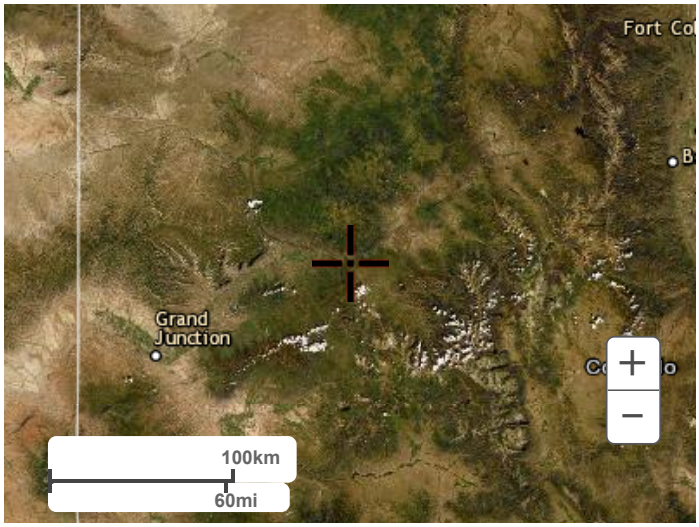
Large scale terrain



Large scale map



Large scale aerial



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National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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APPENDIX C – CALCULATIONS

JVA Incorporated
817 Colorado, Ste. 301
Glenwood Springs, CO 81601
Ph: (970) 404 3100

Job Name: 2525 South Grande Ave.
Job Number: 3496c
Date: 2/9/22
By: RMM

2525 South Grande Ave.

Historic Runoff Coefficient & Time of Concentration Calculations

Location: Glenwood Springs
Minor Design Storm: 25
Major Design Storm: 100
Soil Type: B

Basin Design Data

	I (%) =	100%	90%	90%	40%	25%	25%	2%	2%			I (%)	Runoff Coeff's				Initial Overland Time (t_i)			Travel Time (t_t) t_t=Length/(Velocity x 60)						t_c Comp	tc Urbanized Check ON		t_c Final
Basin Name	Design Point	$A_{paved\ streets}$ (sf)	$A_{drives/conc}$ (sf)	A_{roof} (sf)	A_{gravel} (sf)	A_{plygnd} (sf)	$A_{art.\ turf}$ (sf)	$A_{lscape\ (B\ soil)}$ (sf)	$A_{lscape\ (C/D\ soil)}$ (sf)	A_{Total} (sf)	A_{Total} (ac)	Imp (%)	C2	C5	C25	C100	Upper most Length (ft)	Slope (%)	t_i (min)	Length (ft)	Slope (%)	Type of Land Surface	K	Velocity (fps)	t_t (min)	Time of Conc $t_i + t_t = t_c$	Total Length (ft)	t_c=(L/180)+ 10 (min.)	Min t_c
H1	1	23,615	1,183	5,664	0	0	0	10,078	0	40,540	0.93	73.9%	0.59	0.62	0.71	0.77	100	4.0%	5.6	50	4.0%	Paved areas & shallow paved swales	20	4.0	0.2	5.8	150	10.8	5.8
H2	2	0	655	0	0	0	0	85,017	0	85,672	1.97	2.7%	0.01	0.02	0.27	0.44	105	50.0%	5.5			Nearly bare ground	10	0.0	0.0	5.5	105	10.6	5.5
											0.00											Paved areas & shallow paved swales	20				0	10.0	
											0.00											Paved areas & shallow paved swales	20				0	10.0	
																						Paved areas & shallow paved swales	20				0	10.0	
TOTAL SITE		23,615	1,838	5,664	0	0	0	95,095	0	126,212	2.90	25.6%	0.17	0.20	0.26	0.55													

			Runoff Coeff's				Rainfall Intensities (in/hr)				Area		Flow Rates (cfs)			
Basin Name	Design Point	Time of Conc (tc)	C2	C5	C25	C100	2	5	25	100	A_{Total} (sf)	A_{Total} (ac)	Q2	Q5	Q25	Q100
H1	1	5.8	0.59	0.62	0.71	0.77	2.02	3.08	4.94	6.35	40,540	0.93	1.11	1.78	3.29	4.57
H2	2	5.5	0.01	0.02	0.27	0.44	2.05	3.13	5.02	6.46	85,672	1.97	0.05	0.10	2.63	5.57
0	0										0	0.00				
0	0										0	0.00				
0	0										0	0.00				
										TOTAL SITE	126,212	2.90	1.16	1.88	5.91	10.15

JVA Incorporated
817 Colorado, Ste. 301
Glenwood Springs, CO 81601
Ph: (970) 404 3100

Job Name: 2525 South Grande Ave.
Job Number: 3496c
Date: 2/9/22
By: RMM

2525 South Grande Ave.

Composite Runoff Coefficient Calculations

Location: Glenwood Springs
Minor Design Storm: 25
Major Design Storm: 100
Soil Type: B

CA 100yr = 0.78i + 0.11
CB 100yr = 0.47i + 0.426
CC/D 100yr = 0.41i + 0.484)

Basin Design Data

	I (%) =	100%	90%	90%	40%	25%	25%	2%	2%			I (%)	Runoff Coeff's			
Basin Name	Design Point	$A_{paved\ streets}$ (sf)	$A_{drives/conc}$ (sf)	A_{roof} (sf)	A_{gravel} (sf)	A_{plygnd} (sf)	$A_{art.\ turf}$ (sf)	$A_{lscape\ (B\ soil)}$ (sf)	$A_{lscape\ (C/D\ soil)}$ (sf)	A_{Total} (sf)	A_{Total} (ac)	Imp (%)	C2	C5	C25	C100
A	1	17,599	4,321	17,261	0	0	0	6,390	0	45,571	1.05	81.5%	0.66	0.69	0.76	0.81
B	2	0	655	0	0	0	0	79,987	0	80,642	1.85	2.7%	0.01	0.02	0.27	0.44
										0	0.00					
										0	0.00					
										0	0.00					
										0	0.00					
TOTAL SITE		17,599	4,976	17,261	0	0	0	86,377	0	126,213	2.90	31.2%	0.22	0.24	0.45	0.57

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Ph: (970) 404 3100

Job Name: 2525 South Grande Ave.
Job Number: 3496c
Date: 2/9/22
By: RMM

2525 South Grande Ave.

Time of Concentration Calculations

Location: Glenwood Springs
Minor Design Storm: 25
Major Design Storm: 100
Soil Type: B

Sub-Basin Data				Initial Overland Time (t_i)			Travel Time (t_t) t_t=Length/(Velocity x 60)						t_c Comp	tc Urbanized Check ON		t_c Final
Basin Name	Design Point	A_{Total} (ac)	C5	Upper most Length (ft)	Slope (%)	t_i (min)	Length (ft)	Slope (%)	Type of Land Surface	C_v	Velocity (fps)	t_t (min)	Time of Conc $t_i + t_t = t_c$	Total Length (ft)	t_c=(L/180) +10 (min)	Min t_c
A	1	1.05	0.69	90	3.8%	4.6	93	3.0%	Paved areas & shallow paved swales	20	3.5	0.4	5.1	183	11.0	5.1
B	2	1.85	0.02	105	50.0%	5.5			Paved areas & shallow paved swales	20	0.0	0.0	5.5	105	10.6	5.5

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Job Name: 2525 South Grande Ave.
Job Number: 3496c
Date: 2/9/22
By: RMM

2525 South Grande Ave.

Developed Storm Runoff Calculations

Design Storm : **2 Year**

Point Hour Rainfall (P_1) : **0.51**

	Direct Runoff							Total Runoff				Inlets				Pipe					Pipe/Swale Travel Time			
Basin Name	Design Point	Area (ac)	Runoff Coeff	tc (min)	C*A (ac)	I (in/hr)	Q (cfs)	Total tc (min)	ΣC*A (ac)	I (in/hr)	Q (cfs)	Inlet Type	Q intercepted	Q carryover	Q bypass	Pipe Size (in) or equivalent	Pipe Material	Slope (%)	Pipe Flow (cfs)	Max Pipe Capacity (cfs)	Length (ft)	Velocity (fps)	tt (min)	Total Time (min)
A	1	1.05	0.66	5.10	0.69	2.10	1.45	5.10	0.69	2.10	1.45	Valley Pan	1.45	0.00	0.00	12 in	PVC	2.0%	1.5	7.0	30	5.6	0.09	5.19
B	2	1.85	0.01	5.50	0.02	2.05	0.05	5.50	0.02	2.05	0.05													

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Ph: (970) 404 3100

Job Name: 2525 South Grande Ave.
Job Number: 3496c
Date: 2/9/22
By: RMM

2525 South Grande Ave.

Developed Storm Runoff Calculations

Design Storm : **25 Year**

Point Hour Rainfall (P_1) : **1.05**

	Direct Runoff							Total Runoff				Inlets				Pipe					Pipe/Swale Travel Time			
Basin Name	Design Point	Area (ac)	Runoff Coeff	tc (min)	C*A (ac)	I (in/hr)	Q (cfs)	Total tc (min)	ΣC*A (ac)	I (in/hr)	Q (cfs)	Inlet Type	Q intercepted	Q carryover	Q bypass	Pipe Size (in) or equivalent	Pipe Material	Slope (%)	Pipe Flow (cfs)	Max Pipe Capacity (cfs)	Length (ft)	Velocity (fps)	tt (min)	Total Time (min)
A	1	1.05	0.76	5.10	0.80	5.13	4.09	5.10	0.80	5.13	4.09	Valley Pan	4.09	0.00	0.00	12 in	PVC	2.0%	4.1	7.0	30	5.6	0.09	5.19
B	2	1.85	0.27	5.50	0.49	5.02	2.47	5.50	0.49	5.02	2.47													

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Job Name: 2525 South Grande Ave.
Job Number: 3496c
Date: 2/9/22
By: RMM

2525 South Grande Ave.

Developed Storm Runoff Calculations

Design Storm : **100 Year**

Point Hour Rainfall (P_1) : **1.31**

	Direct Runoff							Total Runoff				Inlets				Pipe					Pipe/Swale Travel Time			
Basin Name	Design Point	Area (ac)	Runoff Coeff	tc (min)	C*A (ac)	I (in/hr)	Q (cfs)	Total tc (min)	ΣC*A (ac)	I (in/hr)	Q (cfs)	Inlet Type	Q intercepted	Q carryover	Q bypass	Pipe Size (in) or equivalent	Pipe Material	Slope (%)	Pipe Flow (cfs)	Max Pipe Capacity (cfs)	Length (ft)	Velocity (fps)	tt (min)	Total Time (min)
A	1	1.05	0.81	5.10	0.85	6.60	5.59	5.10	0.85	6.60	5.59	Valley Pan	5.59	0.00	0.00	12 in	PVC	2.0%	5.6	7.0	30	5.6	0.09	5.19
B	2	1.85	0.44	5.50	0.81	6.46	5.25	5.50	0.81	6.46	5.25													

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Job Name: 2525 South Grande Ave.
Job Number: 3496c
Date: 2/9/22
By: RMM

DRY WELL SIZING

(Reference: Figure 8.69 Typical WQCV Dry Well "Urban Runoff Management Plan – A Guide to Stormwater Management in the City of Aspen", City of Aspen, Revised December 2014 Edition)

Dentention Volume Required:	290.00	
FACTOR OF SAFETY:	1.5	
TARGET DESIGN CAPTURE VOL.:	435.00	

Dry Well 1

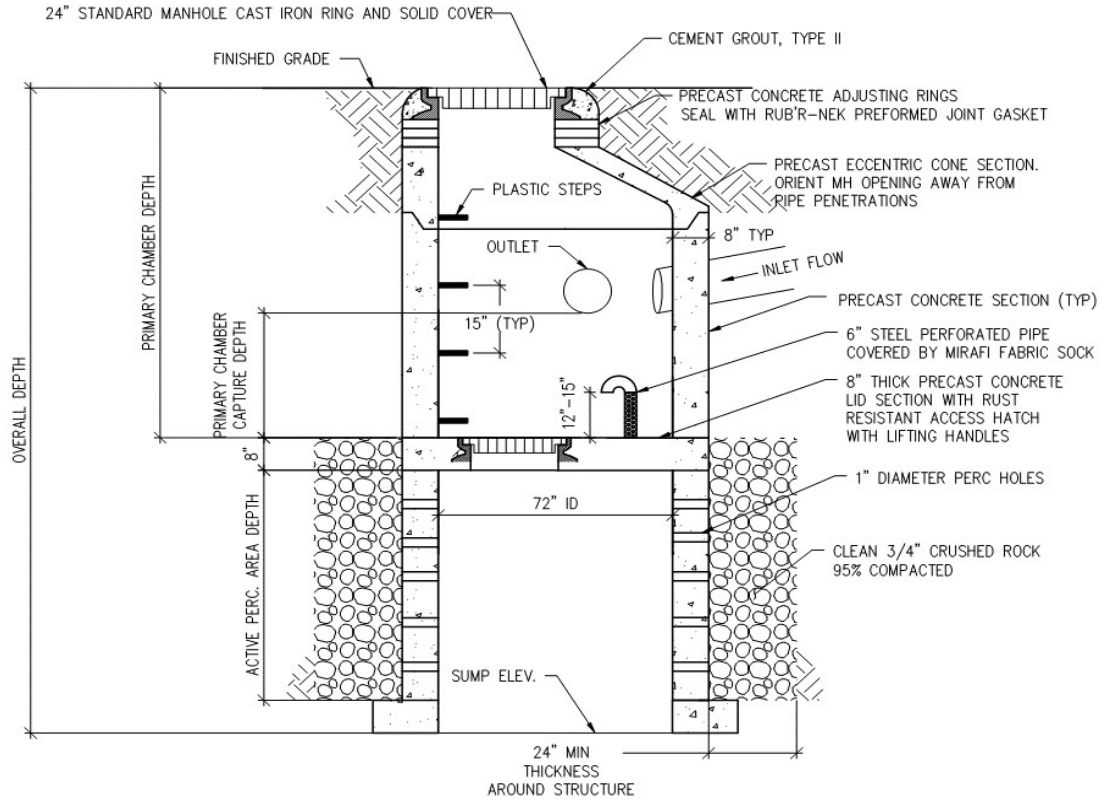
Inner Diameter:	4.00	(ft)
Outer Diameter	5.33	(ft) (8" wall)
Gravel Backfill Thickness	24	(in)
Diameter to edge of Gravel	9.33	
Rim Elevation	5799.89	(ft)
Invert In:	5796.89	(ft)
Overall Depth	22.00	(ft)
Pimary Chamber Depth:	5.00	(ft)
Primary Chamber Inv:	5794.89	(ft)
Primary Chamber Capture Depth:	2.00	(ft)
Sump Inv	5777.89	(ft)
Active Perc. Area Depth	16.33	(ft)
Structure Capture Volume:	230.3	ft^3
Vol. in Gravel Void Space	216.5	ft^3 (0.3 Void ratio)
Total Volume DW1:	446.7	ft^3

Total Captured Volume: 446.72

K	0.00006944	ft/sec
Required Percolation area:	72.500	ft^2
Provided Percolation Area:	205.147	ft^2

Drain Down Time (s) = Total Capture Vol. / (K x Perc. Area x .5 clogging factor)

Drain Down time DW1:	62713	(s)	1045.2 (min)	**17.42**	**(hour)**



APPENDIX D – INPUT/OUTPUT FILES FROM HYDROLOGIC MODEL

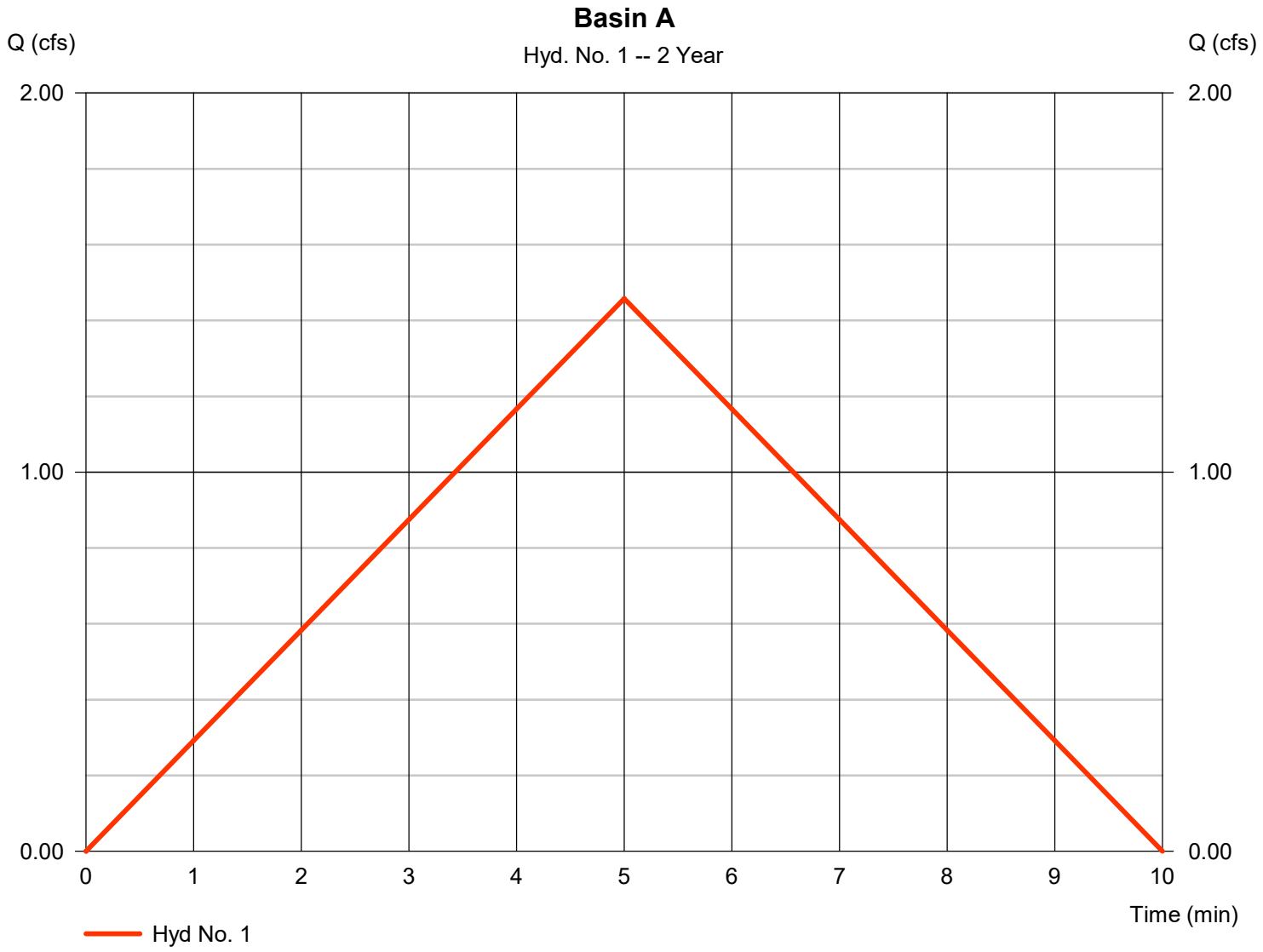
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 02 / 8 / 2022

Hyd. No. 1

Basin A

Hydrograph type	= Rational	Peak discharge	= 1.458 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 437 cuft
Drainage area	= 1.050 ac	Runoff coeff.	= 0.66
Intensity	= 2.104 in/hr	Tc by User	= 5.00 min
IDF Curve	= Glenwood-Springs-IDF.IDF	Asc/Rec limb fact	= 1/1



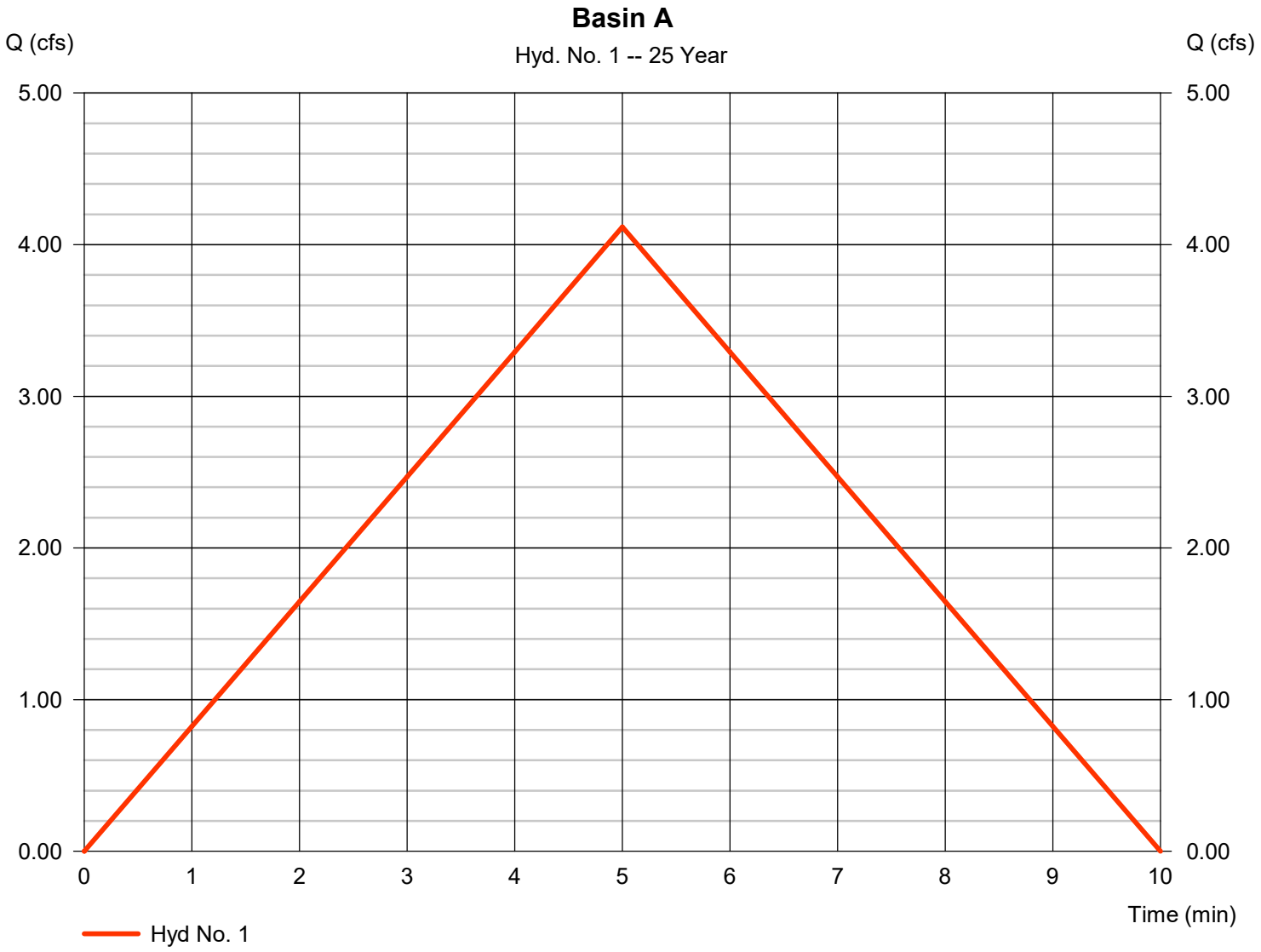
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 02 / 8 / 2022

Hyd. No. 1

Basin A

Hydrograph type	=	Rational	Peak discharge	=	4.116 cfs
Storm frequency	=	25 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	1,235 cuft
Drainage area	=	1.050 ac	Runoff coeff.	=	0.76
Intensity	=	5.158 in/hr	Tc by User	=	5.00 min
IDF Curve	=	Glenwood-Springs-IDF.IDF	Asc/Rec limb fact	=	1/1



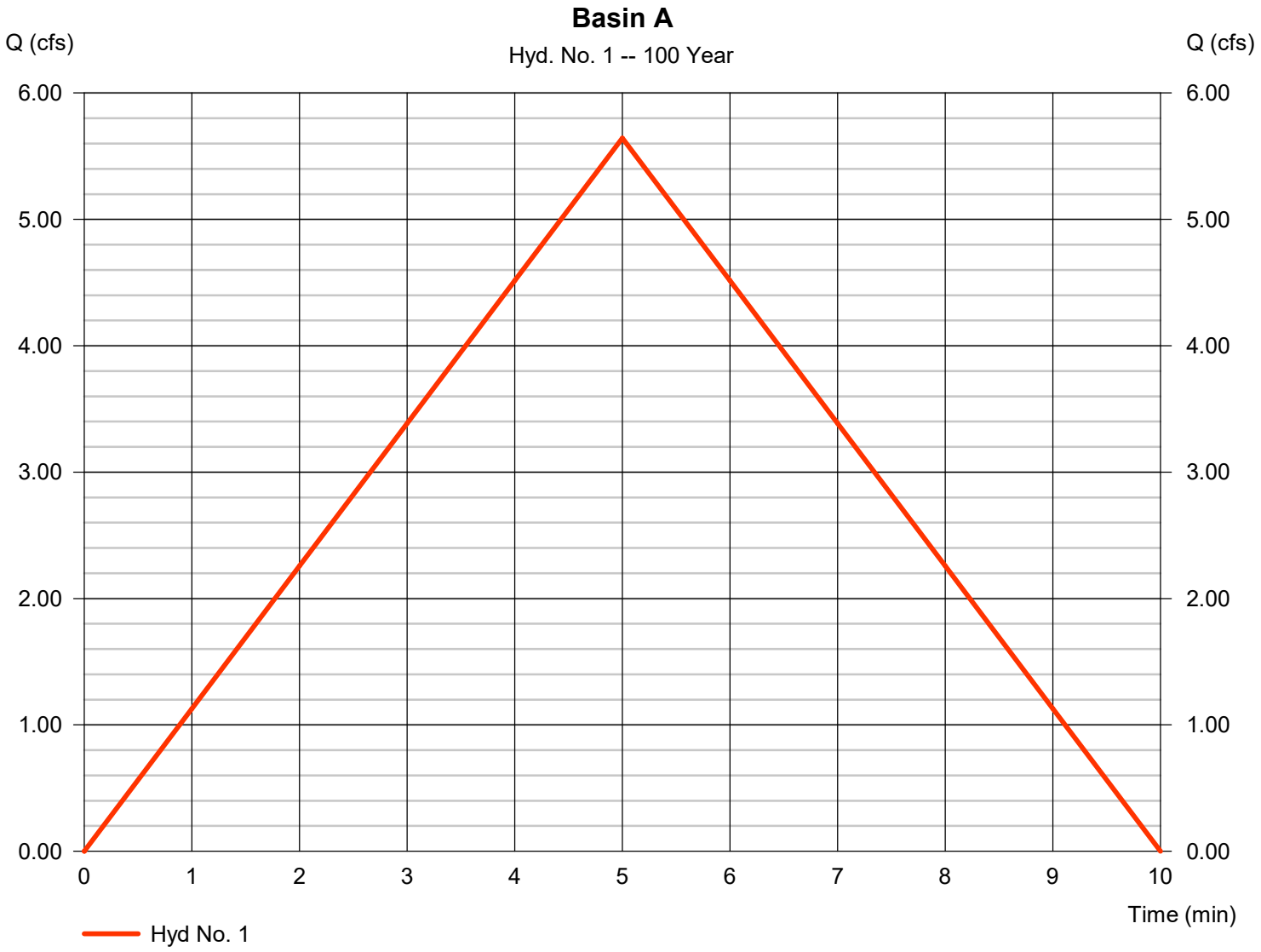
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 02 / 8 / 2022

Hyd. No. 1

Basin A

Hydrograph type	=	Rational	Peak discharge	=	5.644 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	1,693 cuft
Drainage area	=	1.050 ac	Runoff coeff.	=	0.81
Intensity	=	6.636 in/hr	Tc by User	=	5.00 min
IDF Curve	=	Glenwood-Springs-IDF.IDF	Asc/Rec limb fact	=	1/1



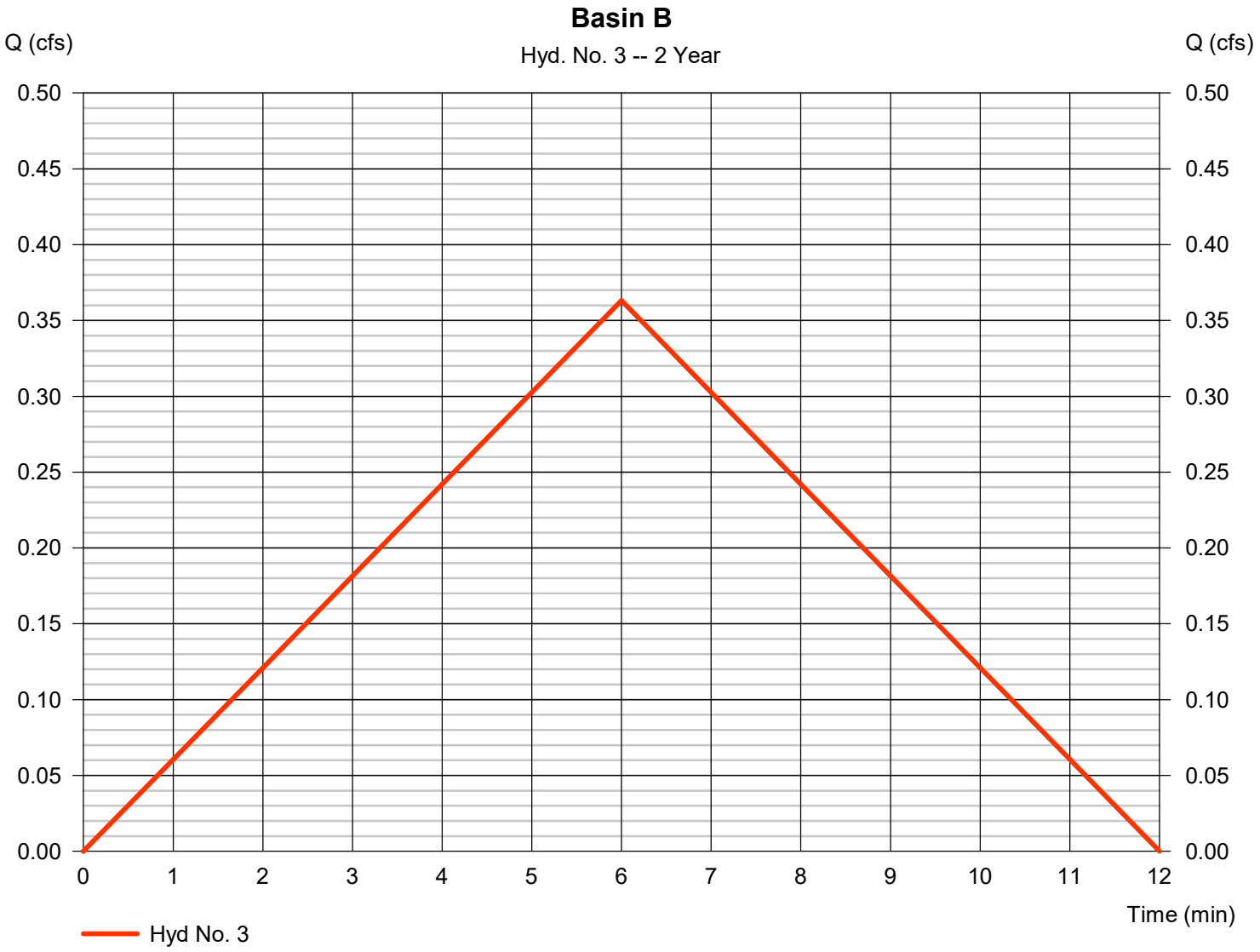
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Wednesday, 02 / 9 / 2022

Hyd. No. 3

Basin B

Hydrograph type	=	Rational	Peak discharge	=	0.363 cfs
Storm frequency	=	2 yrs	Time to peak	=	6 min
Time interval	=	1 min	Hyd. volume	=	131 cuft
Drainage area	=	1.850 ac	Runoff coeff.	=	0.1
Intensity	=	1.963 in/hr	Tc by User	=	6.00 min
IDF Curve	=	Glenwood-Springs-IDF.IDF	Asc/Rec limb fact	=	1/1



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Wednesday, 02 / 9 / 2022

Hyd. No. 3

Basin B

Hydrograph type	=	Rational	Peak discharge	=	2.413 cfs
Storm frequency	=	25 yrs	Time to peak	=	6 min
Time interval	=	1 min	Hyd. volume	=	869 cuft
Drainage area	=	1.850 ac	Runoff coeff.	=	0.27
Intensity	=	4.830 in/hr	Tc by User	=	6.00 min
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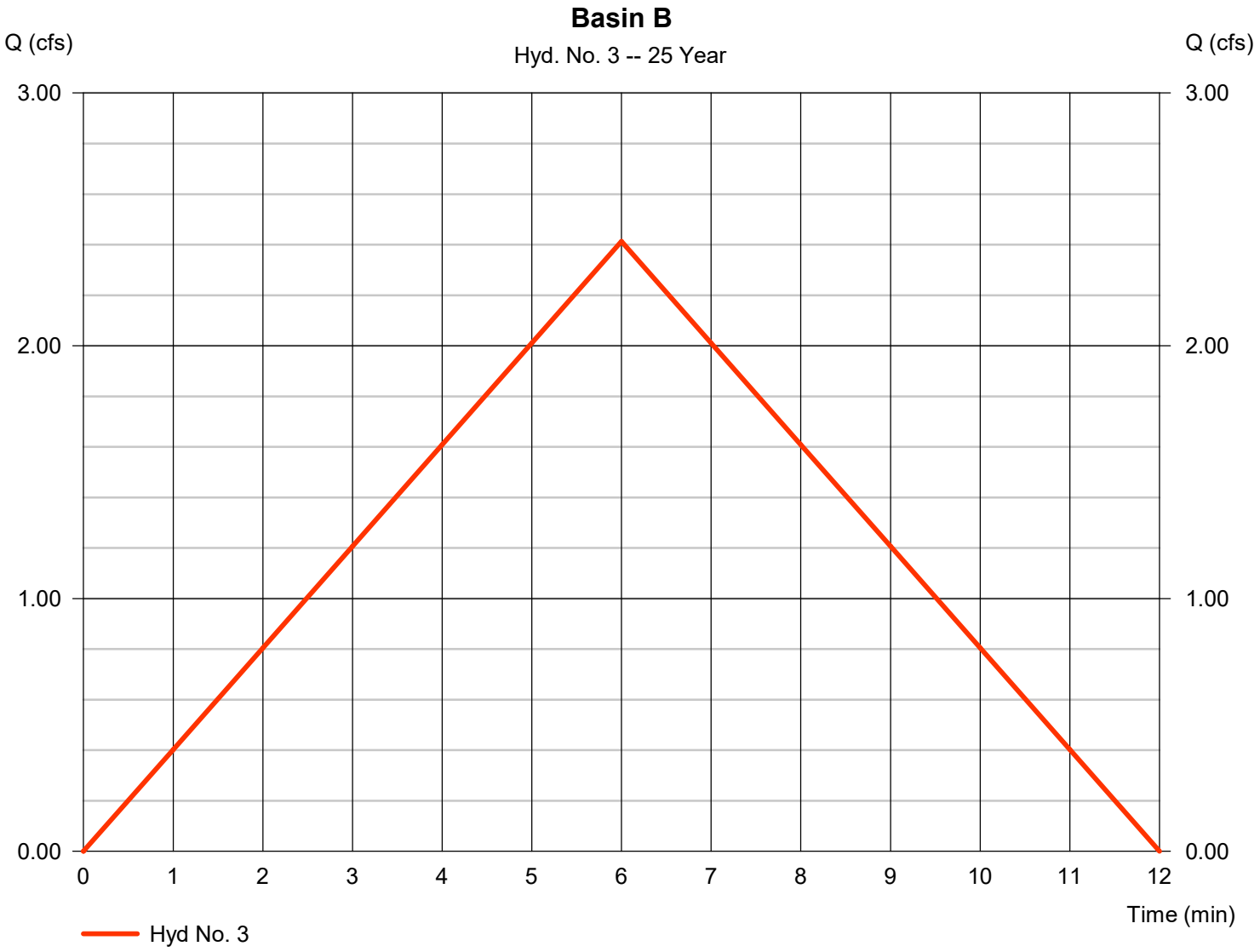


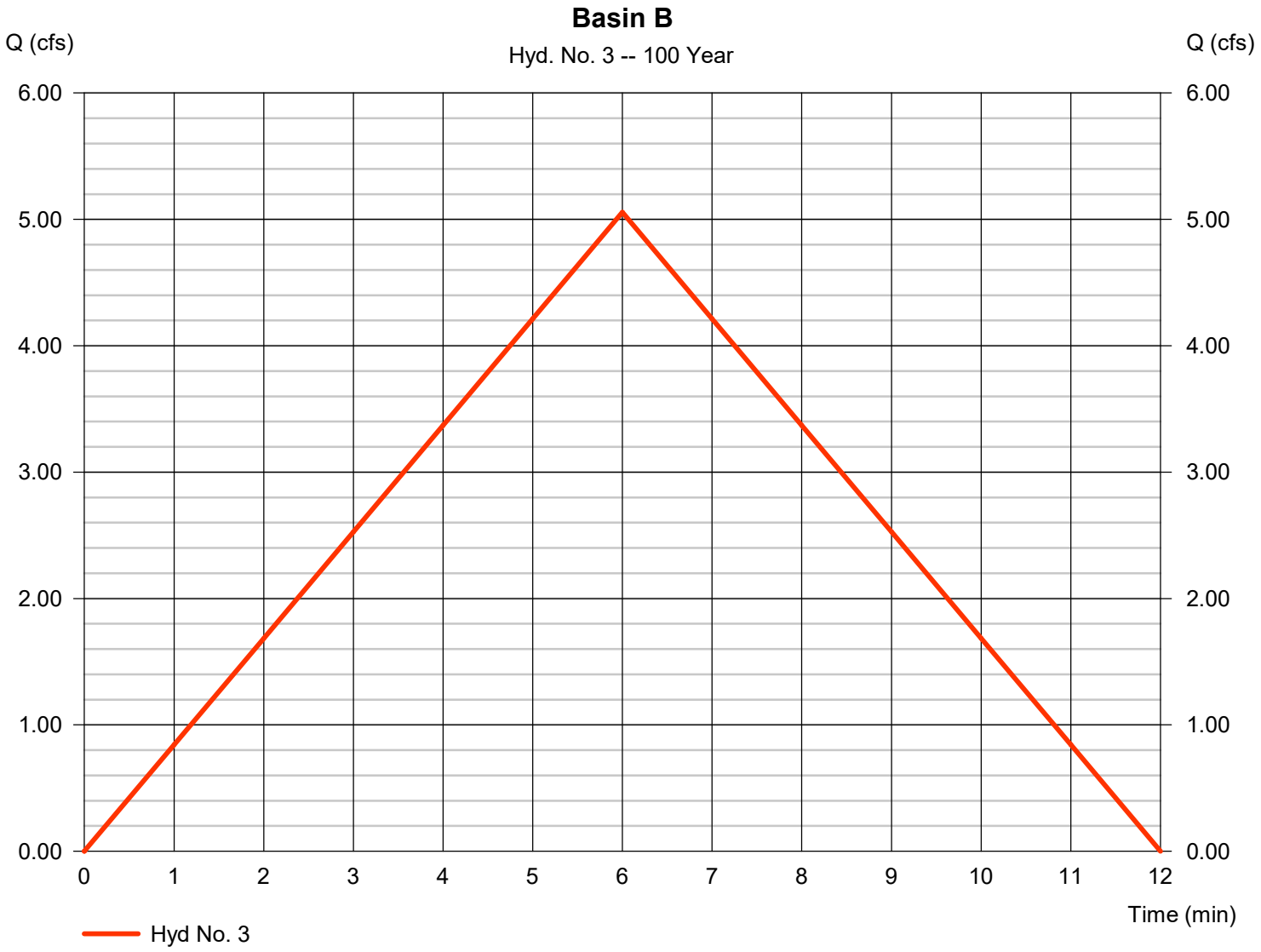
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Wednesday, 02 / 9 / 2022

Hyd. No. 3

Basin B

Hydrograph type	= Rational	Peak discharge	= 5.056 cfs
Storm frequency	= 100 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 1,820 cuft
Drainage area	= 1.850 ac	Runoff coeff.	= 0.44
Intensity	= 6.211 in/hr	Tc by User	= 6.00 min
IDF Curve	= Glenwood-Springs-IDF.IDF	Asc/Rec limb fact	= 1/1



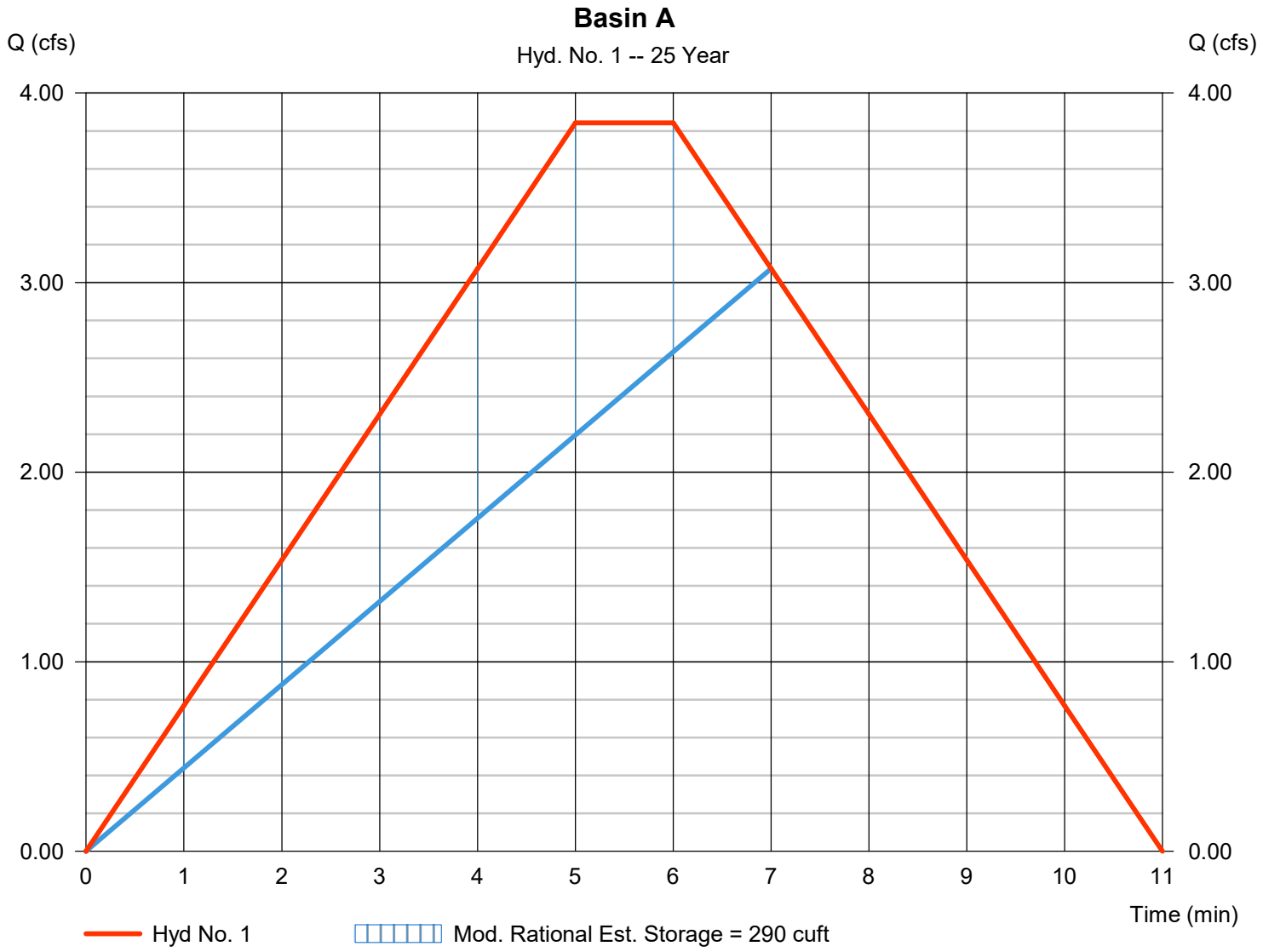
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Wednesday, 02 / 9 / 2022

Hyd. No. 1

Basin A

Hydrograph type	= Mod. Rational	Peak discharge	= 3.842 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,395 cuft
Drainage area	= 1.050 ac	Runoff coeff.	= 0.76
Intensity	= 4.815 in/hr	Tc by User	= 5.00 min
IDF Curve	= Glenwood-Springs-IDF.IDF	Storm duration	= 1.2 x Tc
Target Q	=3.290 cfs	Est. Req'd Storage	=290 cuft



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	13.5972	5.8000	0.7842	--------
3	0.0000	0.0000	0.0000	--------
5	0.0000	0.0000	0.0000	--------
10	0.0000	0.0000	0.0000	--------
25	91.8980	10.5000	1.0508	--------
50	0.0000	0.0000	0.0000	--------
100	133.5975	10.9000	1.0853	--------

File name: Glenwood-Springs-IDF.IDF

Intensity = B / (Tc + D)^E

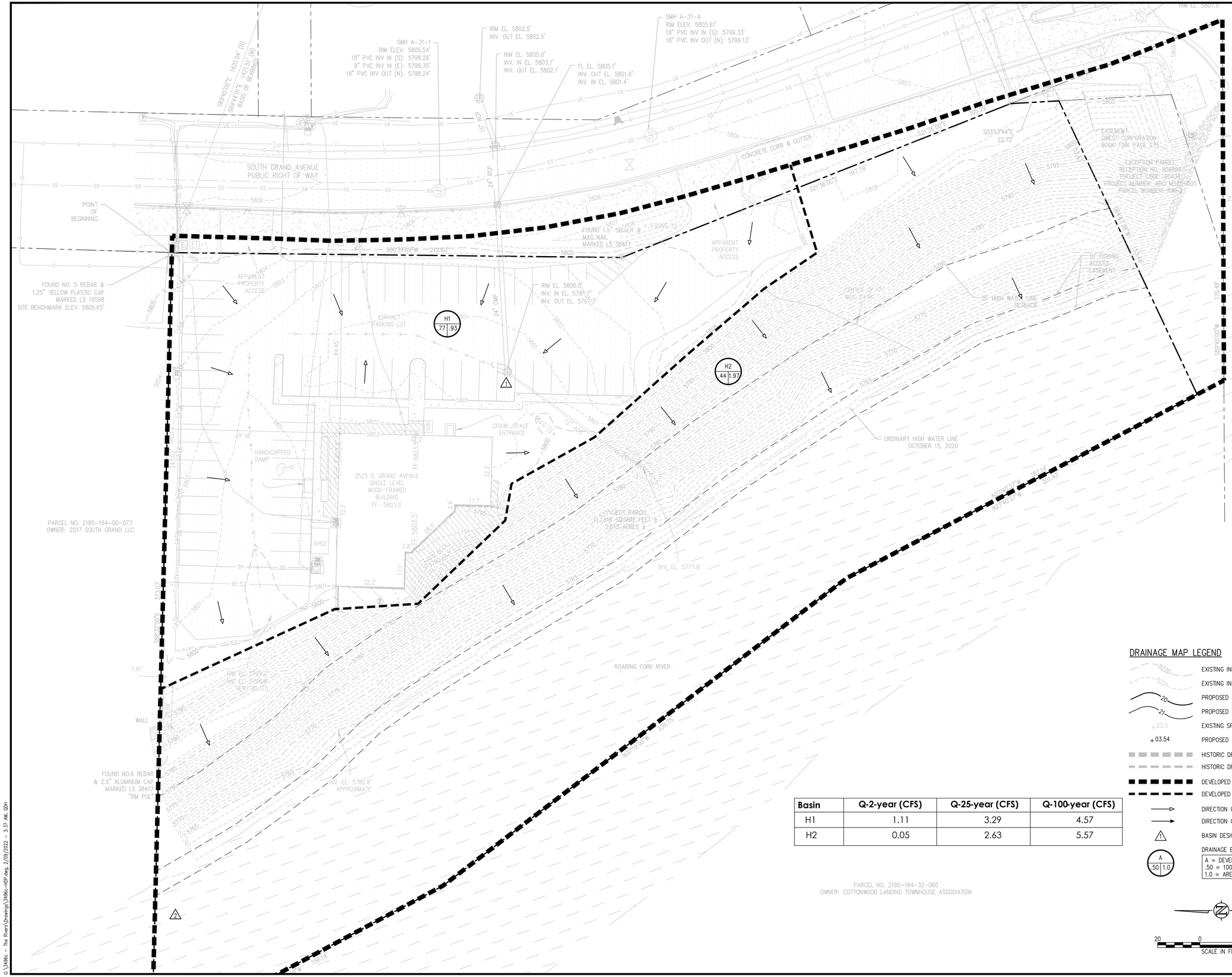
Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.10	1.56	1.26	1.06	0.92	0.82	0.74	0.68	0.62	0.58	0.54	0.51
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	5.16	3.84	3.06	2.53	2.16	1.88	1.66	1.49	1.35	1.23	1.13	1.05
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	6.64	4.93	3.91	3.23	2.74	2.38	2.10	1.88	1.70	1.55	1.42	1.31

Tc = time in minutes. Values may exceed 60.

Precip. file name: G:\3496c - The Rivers\Reports\Drainage\Hydrographs\Glenwood-Springs-Point Rainfall.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	0.00	1.26	0.00	0.00	0.00	2.12	0.00	2.67
SCS 6-Hr	0.00	0.83	0.00	0.00	0.00	1.33	0.00	1.63
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

APPENDIX E – FIGURES



Basin	Q-2-year (CFS)	Q-25-year (CFS)	Q-100-year (CFS)
H1	1.11	3.29	4.57
H2	0.05	2.63	5.57

DRAINAGE MAP LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- HISTORIC DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- HISTORIC DRAINAGE BASIN BOUNDARY (SUB BASIN)
- DEVELOPED DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- DEVELOPED DRAINAGE BASIN BOUNDARY (SUB BASIN)
- DIRECTION OF FLOW (HISTORIC)
- DIRECTION OF FLOW (DEVELOPED)
- BASIN DESIGN POINT
- DRAINAGE BASIN IDENTIFICATION BUBBLE

A = DEVELOPED BASIN DESIGNATION
.50 = 100-YR RUNOFF COEFFICIENT
1.0 = AREA ACRES

20 0 20 40
SCALE IN FEET

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www.jvajva.com
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Glenwood Springs • Denver

COLORADO REGISTERED KEVIN A. TORPY 28699 02/09/2022 PROFESSIONAL ENGINEER

NO.	DATE	DES'D	DWN	REVISION DESCRIPTION

DESIGNED BY:	RMM
DRAWN BY:	MRG
CHECKED BY:	JLS
JOB #:	3496c
DATE:	FEB 2022

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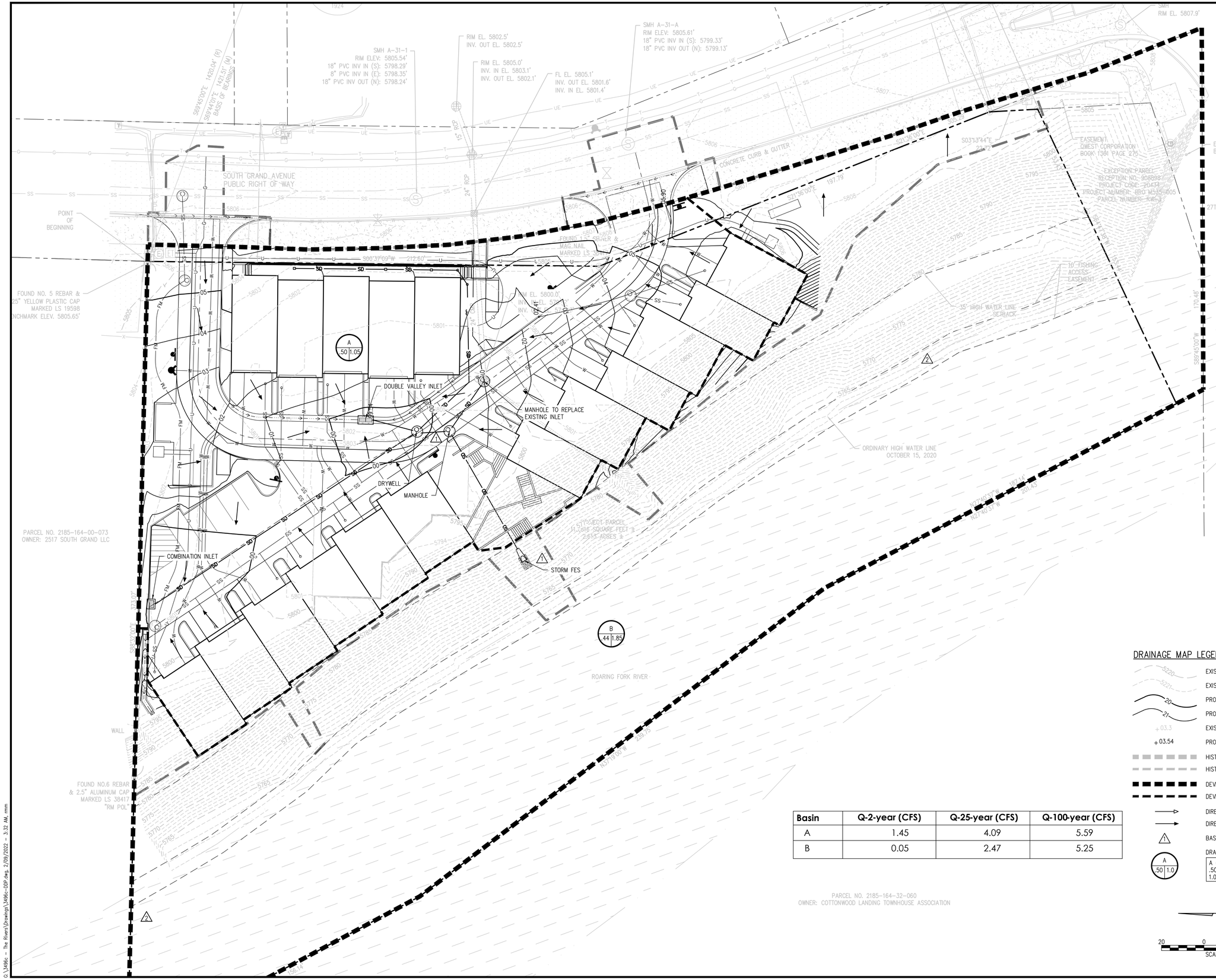
THE RIVERS
2525 S GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

HISTORIC DRAINAGE MAP

SHEET NO.
FIG 1

C:\3496c - The Rivers\Drawings\3496c-HDP.dwg, 2/09/2022 - 3:37 AM, QIH



DRAINAGE MAP LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- HISTORIC DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- HISTORIC DRAINAGE BASIN BOUNDARY (SUB BASIN)
- DEVELOPED DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- DEVELOPED DRAINAGE BASIN BOUNDARY (SUB BASIN)
- DIRECTION OF FLOW (HISTORIC)
- DIRECTION OF FLOW (DEVELOPED)
- BASIN DESIGN POINT
- DRAINAGE BASIN IDENTIFICATION BUBBLE

A = DEVELOPED BASIN DESIGNATION
.50 = 100-YR RUNOFF COEFFICIENT
1.0 = AREA ACRES

Basin	Q-2-year (CFS)	Q-25-year (CFS)	Q-100-year (CFS)
A	1.45	4.09	5.59
B	0.05	2.47	5.25

20 0 20 40
SCALE IN FEET

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Glenwood Springs • Denver

COLORADO REGISTERED PROFESSIONAL ENGINEER
28699
02/09/2022

NO.	DATE	DES'D	DWN	REVISION DESCRIPTION

DESIGNED BY:	RMM
DRAWN BY:	MRG
CHECKED BY:	JLS
JOB #:	3496c
DATE:	FEB 2022

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THE RIVERS
2525 S GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DEVELOPED DRAINAGE MAP

SHEET NO.
FIG 2

G:\3496c - The Rivers\Drawings\3496c-DDP.dwg, 2/09/2022 - 3:32 AM, mmm

ABBREVIATIONS

A.C. TILE	ACOUSTIC TILE	LAM.	LAMINATE
ACOUS.	ACOUSTICAL	LAV.	LAVATORY
ADJ.	ADJUSTABLE	LT.	LIGHT
AGGR.	AGGREGATE	LKR.	LOCKER
ALUM.	ALUMINUM	L.V.	LOW VOLTAGE
L	ANGLE		
~	APPROXIMATE/ APPROXIMATELY	M.H.	MANHOLE
		MFR.	MANUFACTURER
ARCH.	ARCHITECTURAL	M.O.	MASONRY OPENING
A.D.	AREA DRAIN	MAX.	MAXIMUM
ASB.	ASBESTOS	MECH.	MECHANICAL
ASPH.	ASPHALT	M.C.	MEDICINE CABINET
@	AT	MEMB.	MEMBRANE
		MTL.	METAL
BM.	BEAM	MIN.	MINIMUM
BITUM.	BITUMINOUS	MIR.	MIRROR
BLK.	BLOCK	MISC.	MISCELLANEOUS
BLKG.	BLOCKING	MOD.	MODIFIED
BD.	BOARD	MTD.	MOUNTED
BOT.	BOTTOM	MUL.	MULLION
BLDG.	BUILDING		
		NOM.	NOMINAL
CAB.	CABINET	N.	NORTH
C.I.	CAST IRON	N.I.C.	NOT IN CONTRACT
C.B.	CATCH BASIN	N.T.S.	NOT TO SCALE
CFRG.	CONFIGURE	#	NUMBER
CLKG.	CAULKING		
CLG.	CEILING	OBS.	OBSCURE
CEM.	CEMENT	OFF.	OFFICE
CTR.	CENTER	O.C.	ON CENTER
CER.	CERAMIC	OPNG.	OPENING
C.T.	CERAMIC TILE	OPP.	OPPOSITE
CLR.	CLEAR	O.D.	OUTSIDE DIAMETER
C.O.	CLEAR OPENING	O.A.	OVERALL
COL.	COLUMN		
COM.	COMPACT	PR.	PAIR
CONC.	CONCRETE	P.T.D.	PAPER TOWEL DISPENSER
CONN.	CONNECTION	P.T.D./R.	PAPER TOWEL DIS-PENSER & RECEP-TACLE COMBINATION
CONSTR.	CONSTRUCTION		
CONT.	CONTINUOUS/ CONTINUE		
		P.T.R.	PAPER TOWEL RECEPTACLE
CORR.	CORRIDOR	PRTN.	PARTITION
CNTR.	COUNTER	PRMTR.	PERIMETER
CTSK.	COUNTERSUNK	PLAS.	PLASTER
		PL. LAM.	PLASTIC LAMINATE
DBL.	DOUBLE	PL.	PLATE
DEPT.	DEPARTMENT	PLMBG.	PLUMBING
DET.	DETAIL	PLYWD.	PLYWOOD
Ø	DIAMETER	PT.	POINT
DIM.	DIMENSION	PRCST.	PRECAST
		P.T.WD.	PRESSURE TREATED WOOD
D.O.	DOOR OPENING		
DN.	DOWN	Q.T.	QUARRY TILE
DS.	DOWNSPOUT		
DWG.	DRAWING	RAD.	RADIUS
D.F.	DRINKING FOUNTAIN	R.W.L.	RAIN WATER LEADER
D.S.P.	DRY STANDPIPE	RCPT.	RECEPTACLE
		REF.	REFERENCE/REFER
EA.	EACH	RFRG.	REFRIGERATOR
E.	EAST	RGTR.	REGISTER
E.W.C.	ELECTRIC WATER COOLER	REINF.	REINFORCED
		REQ.	REQUIRED/ REQUIREMENTS
ELEC.	ELECTRICAL		
E.P.	ELECTRICAL PANEL BOARD	RESIL.	RESILIENT
		RS.	RISER
EL.	ELEVATION	R.D.	ROOF DRAIN
ELEV.	ELEVATOR	RM.	ROOM
EMER.	EMERGENCY	R.O.	ROUGH OPENING
ENCL.	ENCLOSURE	ROT.	ROTATE
EQ.	EQUAL		
EQUIP.	EQUIPMENT	SCH.	SCHEDULE
EXST.	EXISTING	SCHED.	SCHEDULE
EXP.	EXPANSION	SECT.	SECTION
E.J.	EXPANSION JOINT	S.S.	SERVICE SINK
EXPO.	EXPOSED	S.S.K.	SERVICE SINK
EXT.	EXTERIOR	SHT.	SHEET
		SH.	SHELF
F.O.C.	FACE OF CONCRETE	SHWR.	SHOWER
F.O.F.	FACE OF FINISH	SIM.	SIMILAR
F.O.S.	FACE OF STUDS	S.D.	SOAP DISPENSER
FT.	FEET	S.C.	SOLID CORE
FIN.	FINISH	S.	SOUTH
F.O.	FINISH OPENING	SPEC.	SPECIFICATION
F.A.	FIRE ALARM	SQ.	SQUARE
F.E.C.	FIRE EXTINGUISHER CABINET	SST.	STAINLESS STEEL
		STD.	STANDARD
F.H.C.	FIRE HOSE CABINET	STA.	STATION
FPRF.	FIRE PROOF	STL.	STEEL
FLSHG.	FLASHING	STOR.	STORAGE
F.B.	FLAT BAR	STRUCT.	STRUCTURAL
FLR.	FLOOR	SUSP.	SUSPENDED
F.D.	FLOOR DRAIN	SYM.	SYMMETRICAL
FLUOR.	FLUORESCENT		
FT.	FOOT	TER.	TERRAZZO
FTG.	FOOTING	TERM.	TERMINATE
FDN.	FOUNDATION	TH.	THICK
F.S.	FULL SIZE	T.O.	TOP OF
FRG.	FURRING	T.O.C.	TOP OF CURB
FUT.	FUTURE	T.O.P.	TOP OF PAVEMENT
		T.O.W.	TOP OF WALL
GALV.	GALVANIZED	T.B.	TOWEL BAR
GA.	GAUGE	T.B.D.	TO BE DETERMINED
G.B.	GRAB BAR	TRD.	TREAD
GL.	GLASS/GLAZING	TYP.	TYPICAL
GR.	GRADE		
GND.	GROUND	U.N.O.	UNLESS NOTED OTHERWISE
G.W.B.	GYPSUM WALLBOARD		
H.C.	ACCESSIBLE		
HDWR.	HARDWARE		
HDWD.	HARDWOOD	V.I.F	VERIFY IN FIELD
HT.	HEIGHT	VERT.	VERTICAL
H.M.	HOLLOW METAL	VEST.	VESTIBULE
HORIZ.	HORIZONTAL		
H.B.	HOSE BIBB	W.C.	WATER CLOSET
HR.	HOUR	WP.	WATERPROOF
		WT.	WEIGHT
I.D.	INSIDE DIAMETER	W.	WEST
INSUL.	INSULATION	WDW.	WINDOW
INT.	INTERIOR	W/	WITH
		W/O	WITHOUT
JT.	JOINT	WD.	WOOD
J-BOX	JUNCTION BOX		

GRAPHIC SYMBOLS

GRID BUBBLE

SECTION SYMBOL

DETAIL BUBBLE

ELEVATION CALLOUT

REVISION

ROOM NUMBER

SCHEDULE CALLOUT

HEIGHT CALLOUT

DOOR NUMBER

WINDOW NUMBER

DATUM SYMBOL

BREAK LINE

CENTER LINE

FINISH FLOOR/ FINISH ROOF LEVEL

FINISH SLAB LEVEL

WALL TYPE

MATERIAL SYMBOLS

- NOT IN CONTRACT (BY OTHERS)
- EXISTING WALL
- NEW WALL
- TO BE DEMOLISHED
- EARTH
- BEDROCK
- RIGID INSULATION
- BATT INSULATION
- IRON
- STEEL
- BRONZE, BRASS, COPPER
- PLASTIC, RUBBER
- FIRE, REFRACTORY BRICK
- STONE
- LEAD, ZINC, MAGNESIUM
- ALUMINUM
- PLYWOOD
- CONCRETE
- CMU, BRICK, MASONRY
- GYPSUM, EXT. PLASTER (STUCCO)

APPLICABLE CODES & REGULATIONS

1. ALL WORK SHALL CONFORM TO THE CURRENT REQUIREMENTS OF THE CITY OF GLENWOOD SPRINGS, INCLUDING BUT NOT LIMITED TO:
   a. THE ADOPTED DEVELOPMENT CODE OF GLENWOOD SPRINGS
   b. THE ADOPTED BUILDING CODE OF GLENWOOD SPRINGS

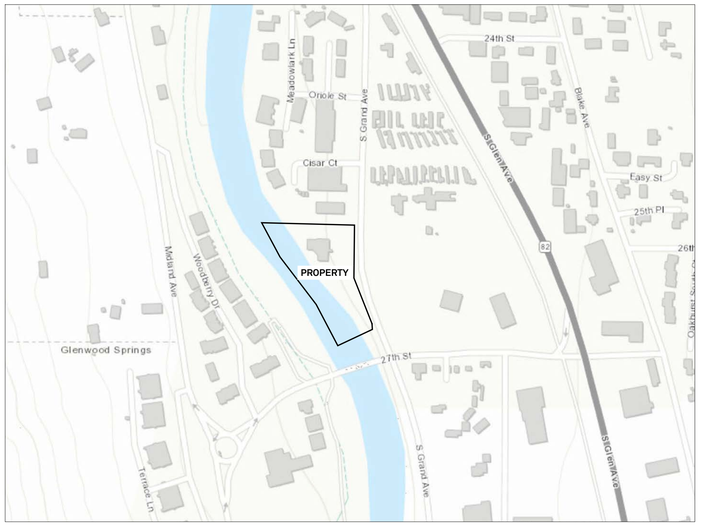
PROJECT SUMMARY TABLE

LOT SIZE	*ACRES*	*SQUARE FEET (SF)*	**LOT COVERAGE**	*EXISTING (SF & %)*	*PROPOSED (SF & %)*
	2.6	113,816		0	17,261 / 15.2%
LIMITS OF DISTURBANCE	*EXISTING (SF & %)*	*PROPOSED (SF & %)*	**AVERAGE SLOPE WITHIN LIMITS OF DISTURBANCE**	%	
		50,472 / 44.3%		9	
OFF-STREET PARKING SPACES	*EXISTING # SPACES*	*PROPOSED # SPACES*	**BICYCLE PARKING SPACES**	*EXISTING # SPACES*	*PROPOSED # SPACES*
		38 (31 RESIDENT + 7 GUEST)			10
RESIDENTIAL UNITS	*EXISTING # UNITS*	*PROPOSED # UNITS*	**NON-RESIDENTIAL UNITS**	*TYPE OF USE(S)*	*GROSS FLOOR AREA (SF)*
	0	17		NA	0
OPEN SPACE	*EXISTING (SF & %)*	*PROPOSED (SF & %)*	**TOTAL LANDSCAPED AREA**	*EXISTING (SF & %)*	*PROPOSED (SF & %)*
		63,353 / 55.7%			12,208 /10.7%
BUILDING HEIGHT	*EXISTING*	*PROPOSED (FEET)*	**TOTAL IMPERVIOUS AREA**	*EXISTING (SF & %)*	*PROPOSED (SF & %)*
		39.75'			38,255 / 33.6%
SNOW STORAGE	*REQUIRED (SF)*	*PROPOSED (SF)*	**OTHER**	*LANDSCAPED R.O.W. (SF)*	
		540		3,531	

GENERAL NOTES

1. FLOOD PLAIN AND FLOOD ZONE INFORMATION SHOWN ON INCLUDED SURVEY IS BASED SOLELY UPON THE FLOOD INSURANCE RATE MAP (COMMUNITY PANEL NO. 080205 1164 E, DATED PRELIMINARY OCTOBER 26.2011 PREPARED BY THE FEDERAL EMERGENCY EMERGENCY MANAGEMENT AGENCY.) PORTION OF PROPERTY IS LOCATED WITHIN A DESIGNATE FLOODPLAIN: REFER TO AREAS AS INDICATED IN SURVEY.

2. THIS PROPERTY IS SUBJECT TO GEOLOGIC HAZARDS PER THE ADOPTED MAPPING BY THE CITY OF GLENWOOD SPRINGS. HAZARDS TO NOTE ARE THE PROPERTY MAY OVERLIE THE EAGLE VALLEY EVAPORITE AND HYDROCOMPACTIVE SOILS MAY BE PRESENT: REFER TO THE INCLUDED GEOTECHNICAL STUDY COMPLETED BY CESARE, INC. ON 12/09/2021 WITH SUBSEQUENT REVISIONS FOR MORE INFORMATION. A FINAL GEOLOGIC HAZARD REPORT WILL BE SUBMITTED UPON APPLICATION OF A BUILDING PERMIT.



01 **VICINITY MAP**
SCALE: N.T.S.

N

2525 SOUTH GRAND

SHEET #	*SHEET TITLE*	*SCALE*
T-100	TITLE SHEET	N.T.S.
	ALTA/NSPS LAND TITLE SURVEY	1" = 30'
C1.0	SITE PLAN	1" = 20'
C2.0	GRADING PLAN	1" = 20'
C2.1	SLOPE ANALYSIS PLAN	1" = 20'
C3.0	UTILITY PLAN	1" = 20'
L1.0	LANDSCAPE PLAN	1" = 20'
L2.0	CIRCULATION PLAN	1" = 20'
A-100	ARCHITECTURAL SITE PLAN	1" = 20'
A-101	EXTERIOR LIGHTING PLAN	1" = 20'
A-110	FLOOR PLANS	1/8"=1'-0"
A-111	FLOOR PLANS	1/8"=1'-0"
A-112	FLOOR PLANS	1/8"=1'-0"
A-113	FLOOR PLANS	1/8"=1'-0"
A-114	FLOOR PLANS	1/8"=1'-0"
A-115	FLOOR PLANS	1/8"=1'-0"
A-116	FLOOR PLANS	1/8"=1'-0"
A-117	FLOOR PLANS	1/8"=1'-0"
A-200	EXTERIOR ELEVATIONS	1/8"=1'-0"
A-201	EXTERIOR ELEVATIONS	1/8"=1'-0"
A-202	EXTERIOR ELEVATIONS	1/8"=1'-0"

MOVE MATTER / ARCHITECTS
1115 CHAMBERS AVE. C101
EAGLE CO 81631
info@movematter.com www.movematter.com

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CLIENT:
NORTH MOUNTAIN PARTNERS, LLC
2327 SOUTH LOVELAND ST.
LAKEWOOD, CO 80228
303.229.0097 |
BWILSON@NORTHMOUNTAINPARTNERS.COM

CONSULTANTS:

CIVIL ENGINEER:
JVA, INC.
817 COLORADO AVENUE, SUITE 301
GLENWOOD SPRINGS, CO 81601
970.404.3100 | JSPUNG@JVAJVA.COM

LANDSCAPE ARCHITECT:
RE:LAND, LLC
652 MELISSA LANE
CARBONDALE, CO 81623
303.829.8362 | NICK@RE-LAND.COM

GEOTECHNICAL ENGINEER:
CESARE, INC.
7108 S. ALTON WAY, BUILDING B
CENTENNIAL, CO 80112
303.220.0300 | INFO@CESAREINC.COM

TRAFFIC ENGINEER:
MCDOWELL ENGINEERING
241 BROADWAY STREET, SUITE 202
EAGLE, CO 81631
970.623.0788 | GREG@MCDOWELLENG.COM

ENTITLEMENTS PLANNER:
THE LAND STUDIO, INC.
365 RIVER BEND WAY
GLENWOOD SPRINGS, CO 81601
970.927.3690 | LANDSTUDIO2@COMCAST.NET

REVISIONS:

NO:	DATE:	REMARKS:
1	2/4/2022	STAFF COMMENTS

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
TITLE SHEET

DATE: 12/23/2021
PROJECT: 039
DWG BY: CHK BY:
SCALE:
DWG NO:
T-100.01
OF

ALTA/NSPS
Land Title Survey

Situated in

SE1/4SE1/4 & SW1/4SE1/4 Section 16
Township 6 South, Range 89 West of the 6th P.M.
City of Glenwood Springs, Garfield County, Colorado

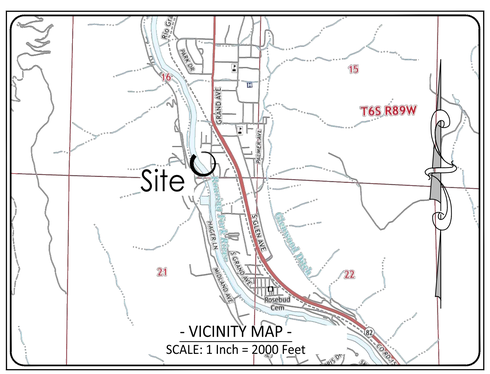
— LEGEND —

- Found Monument as Described
- EM — Electric Meter
- ET — Electric Transformer
- E — Electric Manhole
- EP — Electric Ped
- T — Telephone Ped
- Water valve
- Water Shut-off
- S — Sanitary Sewer Manhole
- CO — Cleanout
- GM — Gas Meter
- M — Mailbox
- ICB — Irrigation Cont. Box
- EV — Electric vault
- TV — Telephone Manhole
- CTV — Cable TV vault
- Storm Drain Inlet
- Sign — Single Pole
- Curb Inlet
- C — CATV Pedestal
- Deck
- Concrete
- Asphalt paving
- River
- X — X — X — Fenceline
- Flow Line
- G — G — Gas Line
- W — W — Water Line
- E — E — Underground Electric Line
- T — T — Underground Telephone Line
- CATV — Cable Television Line

— LEGEND —
— Floodplain —

Floodplain and Flood Zone information shown hereon is based solely upon the Flood Insurance Rate Map (Community Panel No. 080205 1164 E, Dated PRELIMINARY October 26, 2011 prepared by the Federal Emergency Management Agency.

- Flood Zone AE 1% Annual Chance
- Zone X 0.2% Annual Chance
- Zone X 0.1% Annual Chance



PROPERTY DESCRIPTION:

A PARCEL OF LAND SITUATED IN THE SE1/4SE1/4 AND THE SW1/4SE1/4 OF SECTION 16, TOWNSHIP 6 SOUTH, RANGE 89 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF GLENWOOD SPRINGS, COUNTY OF GARFIELD, STATE OF COLORADO, LYING WESTERLY OF THE WESTERLY RIGHT OF WAY LINE OF GRAND AVENUE BEING THE SAME AS THE OLD HIGHWAY NO. 82 AND EASTERLY OF THE CENTER OF THE ROARING FORK RIVER, SAID PARCEL OF LAND IS DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY WHENCE THE SECTION CORNER COMMON TO SECTIONS 15, 16, 21 AND 22 IN SAID TOWNSHIP AND RANGE BEARS: S. 69 DEGREES 45'00" E. 1420.04 FEET;
THENCE S. 00 DEGREES 37'09" W. 212.60 FEET ALONG THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY;
THENCE S. 21 DEGREES 36'00" E. 305.29 FEET ALONG THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY;
THENCE S. 89 DEGREES 45'00" W. 170.48 FEET TO A POINT IN THE CENTER OF SAID RIVER,
THENCE N. 27 DEGREES 40'37" W. 201.43 FEET ALONG THE CENTER OF SAID RIVER;
THENCE N. 37 DEGREES 19'00" W. 239.75 FEET ALONG THE CENTER OF SAID RIVER;
THENCE N. 28 DEGREES 08'38" W. 156.14 FEET ALONG THE CENTER OF SAID RIVER;
THENCE S. 88 DEGREES 32'00" E. 373.07 FEET TO A POINT ON THE WESTERLY RIGHT OF WAY LINE OF SAID HIGHWAY, THE POINT OF BEGINNING.

LESS AND EXCEPT A PARCEL OF LAND AS DESCRIBED IN DEED RECORDED DECEMBER 12, 2001 IN BOOK 1310 AT PAGE 712
AND LESS AND EXCEPT THAT PORTION CONVEYED TO THE CITY OF GLENWOOD SPRINGS IN WARRANTY DEED RECORDED JULY 3, 2018 UNDER RECEPTION NO. 908898.

COUNTY OF GARFIELD
STATE OF COLORADO

NOTES:

1. Basis of Bearings: Bearings shown hereon are based on a bearing of S69°44'01"E, between a found No.5 Rebar & 1.25" Yellow Plastic Cap Marked LS 19598 found at the Northeast Corner of the subject parcel and a found 1.5" Steel Pipe with 2.5" USGLO Brass Cap properly marked at the Southeast Corner of said Section 16 dated 1924, as shown hereon.
2. This map has been prepared pursuant to client request for an ALTA/NSPS Land Title Survey, and includes items 2,3,4,6(b),7(a),7(b1),8,9,11,13,16,17,19 and 20 of Tabel A thereof.
3. Date of field survey :March 2, 2020, August 24, 2020 and September 30, 2021
4. Units of linear measurements are displayed in US Survey Feet.
5. SGM is not responsible for any changes made to this document after it leaves our possession. Any copy, facsimile, etc., of this document must be compared to the original signed, sealed and dated document to insure the accuracy of the information shown on any such copy, and to insure that no such changes have been made.
6. Property descriptions shown hereon are based on title insurance commitment issued by Land Title Guarantee Company, Commitment No. ABS63016871, having a policy date of June 18, 2021.
7. Fences shown hereon, if any, have been shown for general reference and do not necessarily depict limits of ownership.
8. Pertaining to Table A, Optional Survey Responsibilities and Specifications, the items that were requested are listed below.

Item 2: Property Address: 2525 Grand Ave, Glenwood Springs, CO

Item 3: Flood Hazard Zone information: As shown hereon.

Item 4: Gross Land Area :113,816 Square Feet ±, 2.613 Acres ±

Item 5: Vertical Information: Datum: Elevation information shown hereon is based upon GPS observations utilizing OPUS, Geoid 12B to derive the NAVD88 elevation of 5805.65'' at the top of a No. 5 Rebar & 1.25" Yellow Plastic Cap Marked LS 19598, as shown hereon. Contour Interval: One (1) Foot.

Item 6(b): Zoning Setback requirements not provided to surveyor.

Item 7(a): Exterior dimensions of all buildings are shown hereon.

Item 7(b1): Exterior footprint of all buildings at ground level are shown hereon.

Item 8: Substantial features are shown hereon.

Item 9: Property contains 57 total parking spaces, with 1 of those identified as for the disabled.

Item 11: Any subsurface utilities not shown, were not marked by appropriate utility companies at the time of this survey and therefore may not be shown hereon. Underground utilities locates have been marked by Roaring Fork Utility Locators LLC. Only paint marks and utility pin flags on the ground surface were surveyed by SGM as part of this survey. Client/contractor must contact specific utility companies to verify both the location and depth of respective utilities. Additional surveying work may be required to show any such subsurface utility locations on this drawing. SGM will not be responsible for protection of subsurface utilities.

Item 13: Names of adjoining owners are shown hereon.

Item 16: There was no observed evidence of current earth moving work, building construction or building additions, other than an observed temporary chain-link construction fence around the perimeter of the parking lot. This fence is not a permanent structure and is therefore not shown.

Item 17: No evidence of proposed changes of street right of ways made available. Evidence of recent street or sidewalk construction not observed.

Item 18: Plottable offsite easements shown hereon.

10. The property shown hereon is subject to all easements, rights-of-way, building setbacks or other restrictions of record, as such items may affect this property. This survey does not represent a title search by this surveyor to determine ownership or to discover easements or other encumbrances of record. All information pertaining to ownership, easement and other encumbrances of record has been taken from the title insurance commitment issued by Land Title Guarantee Company, Commitment No. ABS63016871, having a policy date of June 18, 2021.

    Every attempt has been made to show all easements, rights-of-way, etc. referred to in the Schedule B2 Exceptions recited in said title insurance policy. Some such items may not be shown (i.e. Items 1-6) if they are standard title commitment exceptions. In regards to other such items:

    ITEM 7. RIGHT OF WAY FOR DITCHES OR CANALS CONSTRUCTED BY THE AUTHORITY OF THE UNITED STATES AS RESERVED IN UNITED STATES PATENT RECORDED AUGUST 29, 1896, IN BOOK 12 AT PAGE 433. MAY AFFECT SUBJECT PARCEL, CANNOT BE GRAPHICALLY DEPICTED.

    ITEM 8. RIGHT OF PROPRIETOR OF A VEIN OR LODE TO EXTRACT AND REMOVE HIS ORE THEREFROM SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES AS RESERVED IN UNITED STATES PATENT RECORDED AUGUST 29, 1896, IN BOOK 12 AT PAGE 433. MAY AFFECT SUBJECT PARCEL, CANNOT BE GRAPHICALLY DEPICTED.

    ITEM 9. ANY QUESTION, DISPUTE OR ADVERSE CLAIMS AS TO ANY LOSS OR GAIN OF LAND AS A RESULT OF ANY CHANGE IN THE RIVER BED LOCATION BY NATURAL OR OTHER THAN NATURAL CAUSES, OR ALTERATION THROUGH ANY CAUSE, NATURAL OR UNNATURAL, OF THE CENTER THREAD, BANK, CHANNEL OR FLOW OF WATERS IN THE ROARING FORK RIVER LYING WITHIN SUBJECT LAND; AND ANY QUESTION AS TO THE LOCATION OF SUCH CENTER THREAD, BED, BANK OR CHANNEL AS A LEGAL DESCRIPTION MONUMENT OR MARKER FOR PURPOSES OF DESCRIBING OR LOCATING SUBJECT LANDS.

    ITEM 10. ANY RIGHTS, INTERESTS OR EASEMENTS IN FAVOR OF THE UNITED STATES OF AMERICA, THE STATE OF COLORADO, OR THE PUBLIC, WHICH EXIST OR ARE CLAIMED TO EXIST IN AND OVER THE PAST AND PRESENT BED, BANKS OR WATERS OF COLORADO RIVER MAY AFFECT SUBJECT PARCEL BUT CANNOT BE GRAPHICALLY DEPICTED.

    ITEM 11. MATTERS DISCLOSED ON ALTA/NSPS LAND TITLE SURVEY PREPARED BY JOSHUA L. WILSON ON BEHALF OF SGM, CERTIFIED OCTOBER 19, 2020, JOB NO. 2020-177.003

    SAID DOCUMENT STORED AS TITLE IMAGE 35066400

    A: FENCES NOT COINCIDENT WITH PROPERTY LINES.
    B: SUBSURFACE CULVERT AND SUBSURFACE PIPE ARE LOCATED ON AND TRAVERSE THE BOUNDARY OF THE LAND WITHOUT THE BENEFIT OF A RECORDED EASEMENT.
    C: A SET WALL ON THE NORTH PROPERTY LINE ENCROACH ONTO THE ADJACENT PARCEL WITHOUT THE BENEFIT OF A RECORDED EASEMENT OR ENCROACHMENT AGREEMENT.
    D: EXCEPTION FOR RIGHTS OF UTILITIES WITHOUT THE BENEFIT OF A RECORDED EASEMENT.

    ARE DEPICTED HEREON.

    ITEM 12. DEED OF TRUST DATED JUNE 17, 2021, FROM THE RIVERS, LLC, A COLORADO LIMITED LIABILITY COMPANY TO THE PUBLIC TRUSTEE OF GARFIELD COUNTY, COLORADO FOR THE USE OF ALPINE BANK TO SECURE THE SUM OF $1,550,000.00 RECORDED JUNE 18, 2021, UNDER RECEPTION NO. 958422 AFFECTS SUBJECT PARCEL BUT CANNOT BE GRAPHICALLY DEPICTED.

SURVEYOR'S CERTIFICATION:

To: The Rivers, LLC, a Colorado Limited Liability Company, and Land Title Guarantee Company

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2,3,4,6(b),7(a),7(b1),8,9,11,13,16,17,18 and 20 of Table A thereof. The field work was completed on October 15, 2020 and verified on September 30, 2021

Date of Plat or Map: October 12, 2021.

Joshua L. Wilson
Colorado PLS # 38417
For, and on behalf of SGM
Joshw@sgm-inc.com

COLORADO LICENSED
JOSHUA L. WILSON
38417
10.12.21
PROFESSIONAL LAND SURVEYOR

Graphic Scale
0 15 30 60
In U.S. Feet : 1" = 30'

SGM
118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

Joshua L. Wilson
Digitally signed by Joshua L. Wilson
DN: C=US, E=joshw@sgm-inc.com, OU=SGM, Inc., CN=Joshua L. Wilson
Reason: ALTA
Date: 2021.10.12 14:10:38-06'00'

2525 South Grand Ave
Glenwood Springs, Colorado 81601

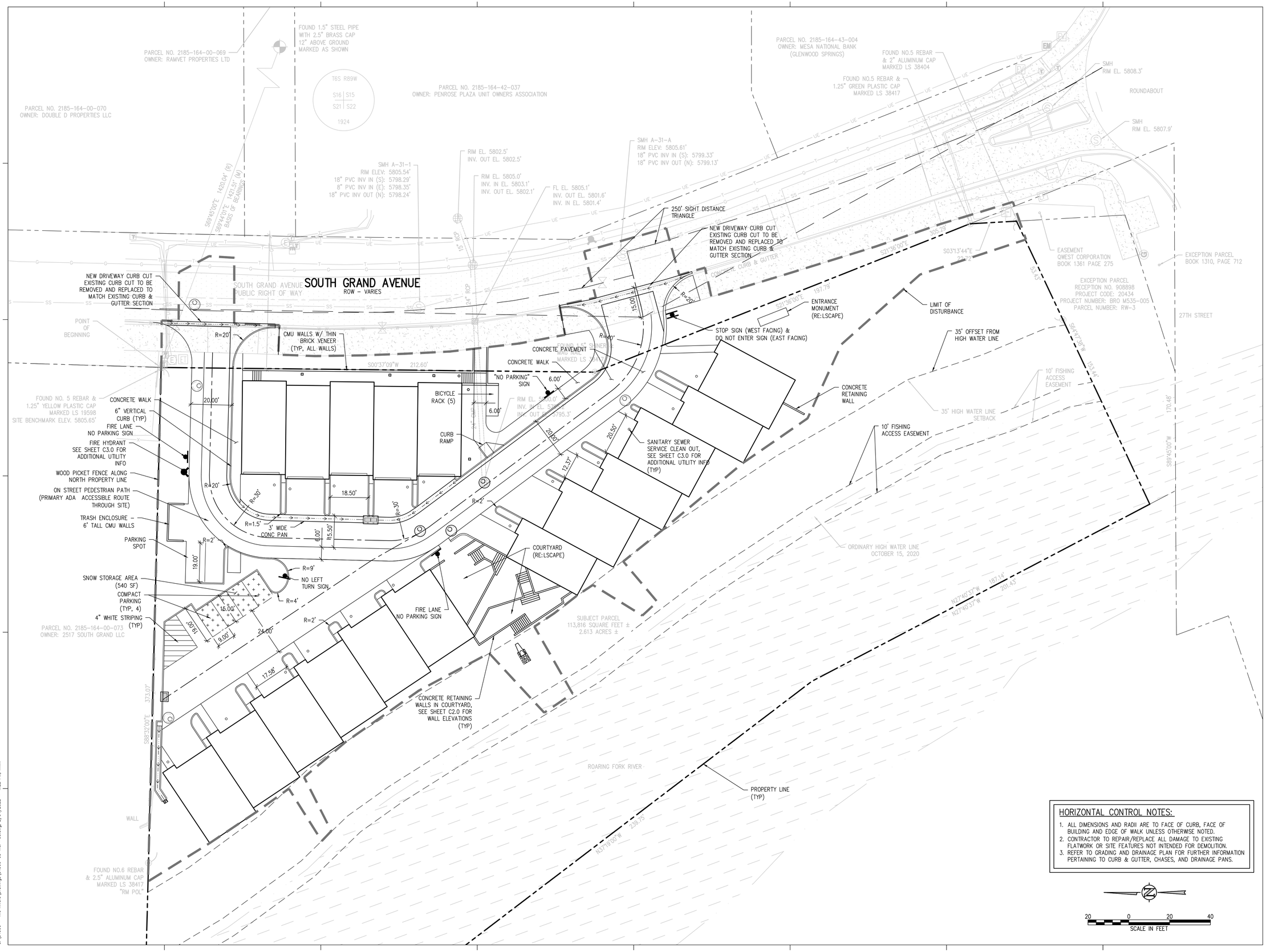
No.	Revision	Date	By
1			
2			
3			
4			
5			
6			
7			
8			
9			

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 legal action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

Job No.	2020-177.003
Drawn by:	ns
Date:	10/12/2021
Approved:	– PLS: jlw
File:	RiversRestaurant_ALTA_Oct2021

Title:
ALTA/NSPS
Land Title Survey

Sheet No.
1
Of: 1



HORIZONTAL CONTROL NOTES:

1. ALL DIMENSIONS AND RADII ARE TO FACE OF CURB, FACE OF BUILDING AND EDGE OF WALK UNLESS OTHERWISE NOTED.
2. CONTRACTOR TO REPAIR/REPLACE ALL DAMAGE TO EXISTING FLATWORK OR SITE FEATURES NOT INTENDED FOR DEMOLITION.
3. REFER TO GRADING AND DRAINAGE PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.

20 0 20 40
SCALE IN FEET

G:\3496c – The Rivers\Drawings\3496c-03-HCP-00.dwg, 2/04/2022 – 4:22 PM, mmm

MOVE MATTER / ARCHITECTS
1115 CHAMBERS AVE. C101
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CLIENT:
NORTH MOUNTAIN PARTNERS, LLC
2327 SOUTH LOVELAND ST.
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REVISIONS:

NO:	DATE:	REMARKS:
1	2/4/2022	STAFF COMMENTS

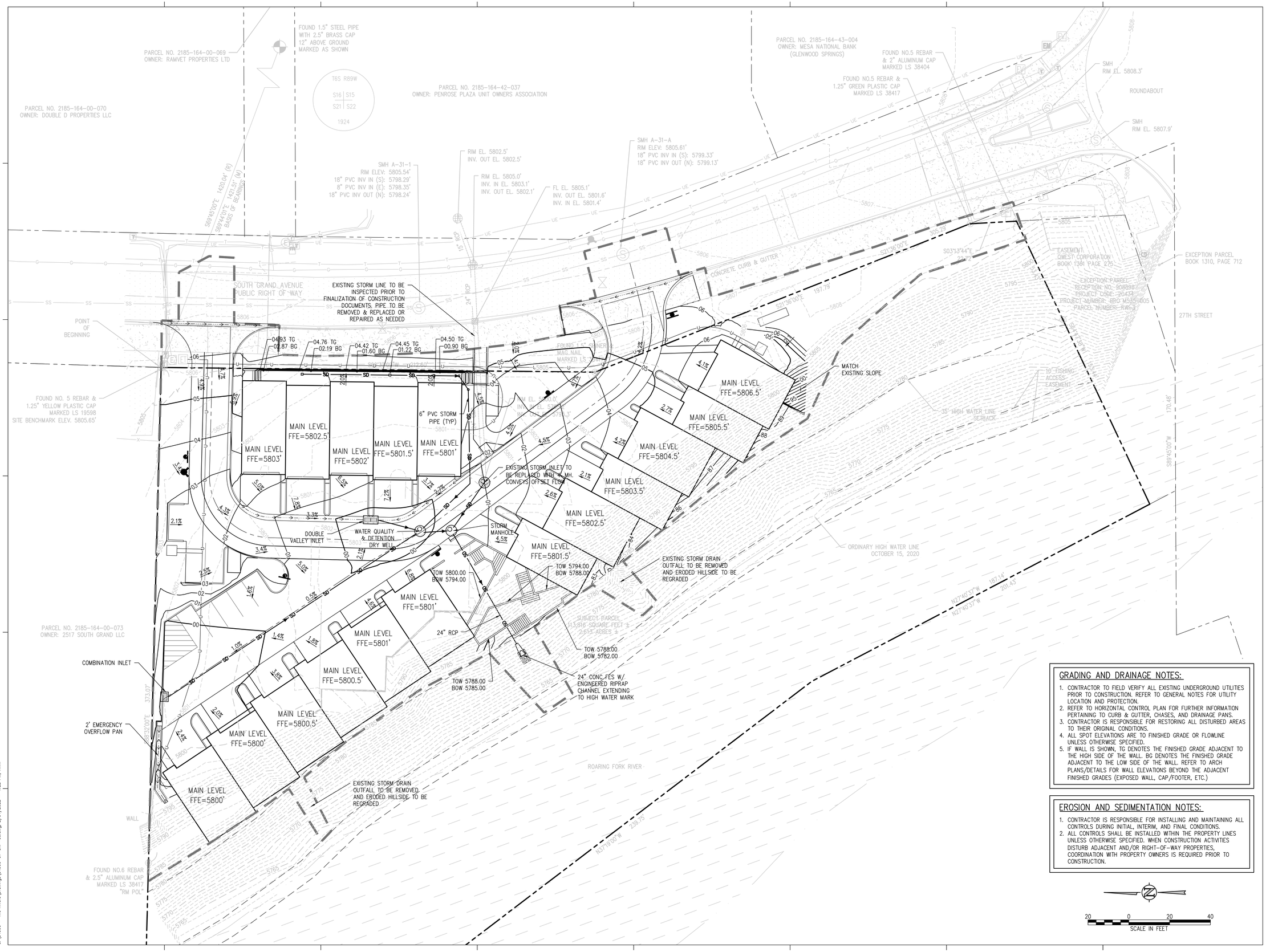
SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

SITE PLAN

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	C1.0
	OF



GRADING AND DRAINAGE NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REFER TO GENERAL NOTES FOR UTILITY LOCATION AND PROTECTION.
2. REFER TO HORIZONTAL CONTROL PLAN FOR FURTHER INFORMATION PERTAINING TO CURB & GUTTER, CHASES, AND DRAINAGE PANS.
3. CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITIONS.
4. ALL SPOT ELEVATIONS ARE TO FINISHED GRADE OR FLOWLINE UNLESS OTHERWISE SPECIFIED.
5. IF WALL IS SHOWN, TC DENOTES THE FINISHED GRADE ADJACENT TO THE HIGH SIDE OF THE WALL. BG DENOTES THE FINISHED GRADE ADJACENT TO THE LOW SIDE OF THE WALL. REFER TO ARCH PLANS/DETAILS FOR WALL ELEVATIONS BEYOND THE ADJACENT FINISHED GRADES (EXPOSED WALL, CAP/FOOTER, ETC.)

EROSION AND SEDIMENTATION NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING ALL CONTROLS DURING INITIAL, INTERIM, AND FINAL CONDITIONS.
2. ALL CONTROLS SHALL BE INSTALLED WITHIN THE PROPERTY LINES UNLESS OTHERWISE SPECIFIED. WHEN CONSTRUCTION ACTIVITIES DISTURB ADJACENT AND/OR RIGHT-OF-WAY PROPERTIES, COORDINATION WITH PROPERTY OWNERS IS REQUIRED PRIOR TO CONSTRUCTION.

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PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
PRELIMINARY GRADING PLAN

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	C2.0
	OF

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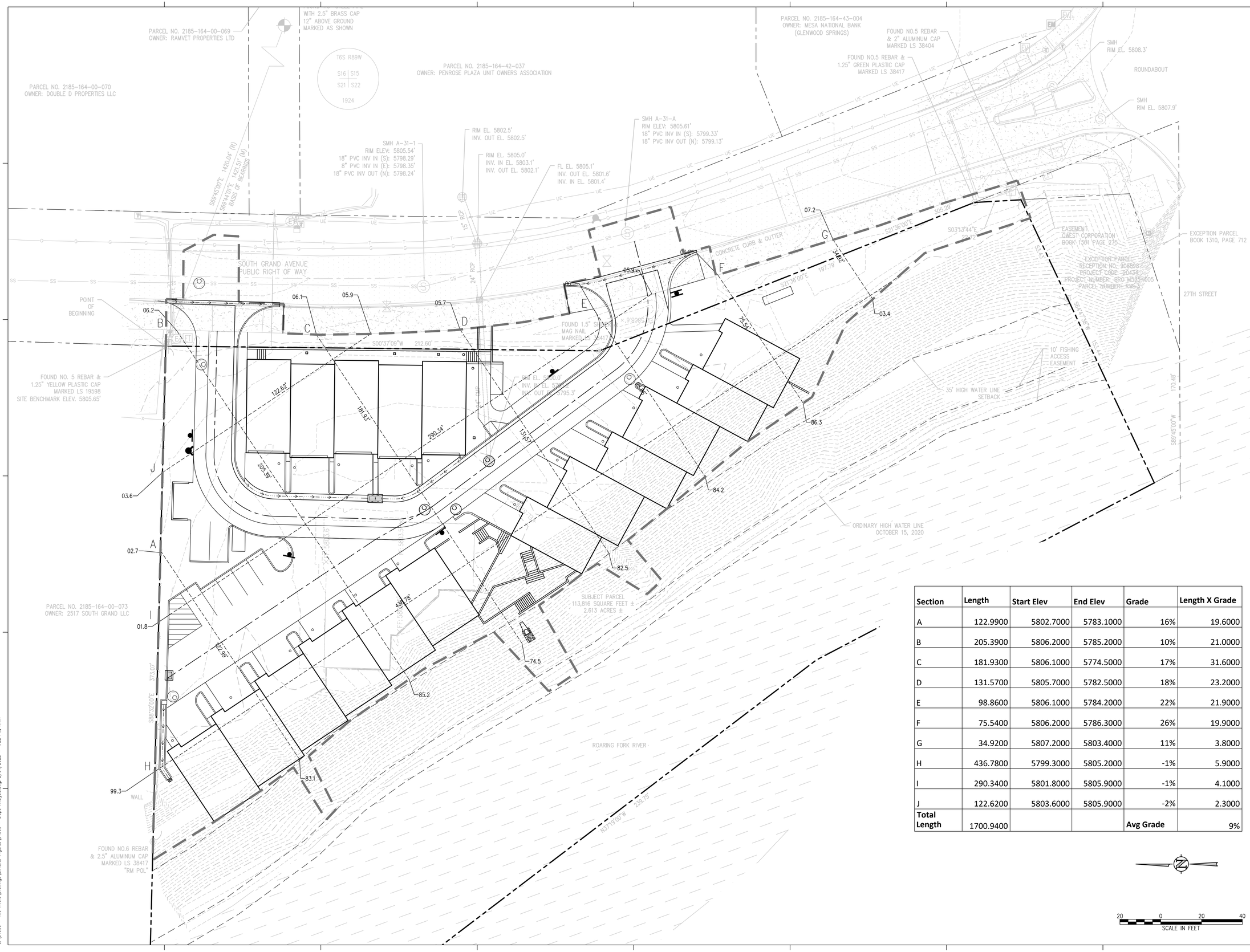

Section	Length	Start Elev	End Elev	Grade	Length X Grade
A	122.9900	5802.7000	5783.1000	16%	19.6000
B	205.3900	5806.2000	5785.2000	10%	21.0000
C	181.9300	5806.1000	5774.5000	17%	31.6000
D	131.5700	5805.7000	5782.5000	18%	23.2000
E	98.8600	5806.1000	5784.2000	22%	21.9000
F	75.5400	5806.2000	5786.3000	26%	19.9000
G	34.9200	5807.2000	5803.4000	11%	3.8000
H	436.7800	5799.3000	5805.2000	-1%	5.9000
I	290.3400	5801.8000	5805.9000	-1%	4.1000
J	122.6200	5803.6000	5805.9000	-2%	2.3000
Total Length	1700.9400			**Avg Grade**	9%

20 0 20 40
SCALE IN FEET

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NO:	DATE:	REMARKS:
1	2/4/2022	STAFF COMMENTS

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
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GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

SLOPE ANALYSIS PLAN

DATE: 12/23/2021
PROJECT: 039
DWG BY: CHK BY:
SCALE:
DWG NO:

C2.1

OF

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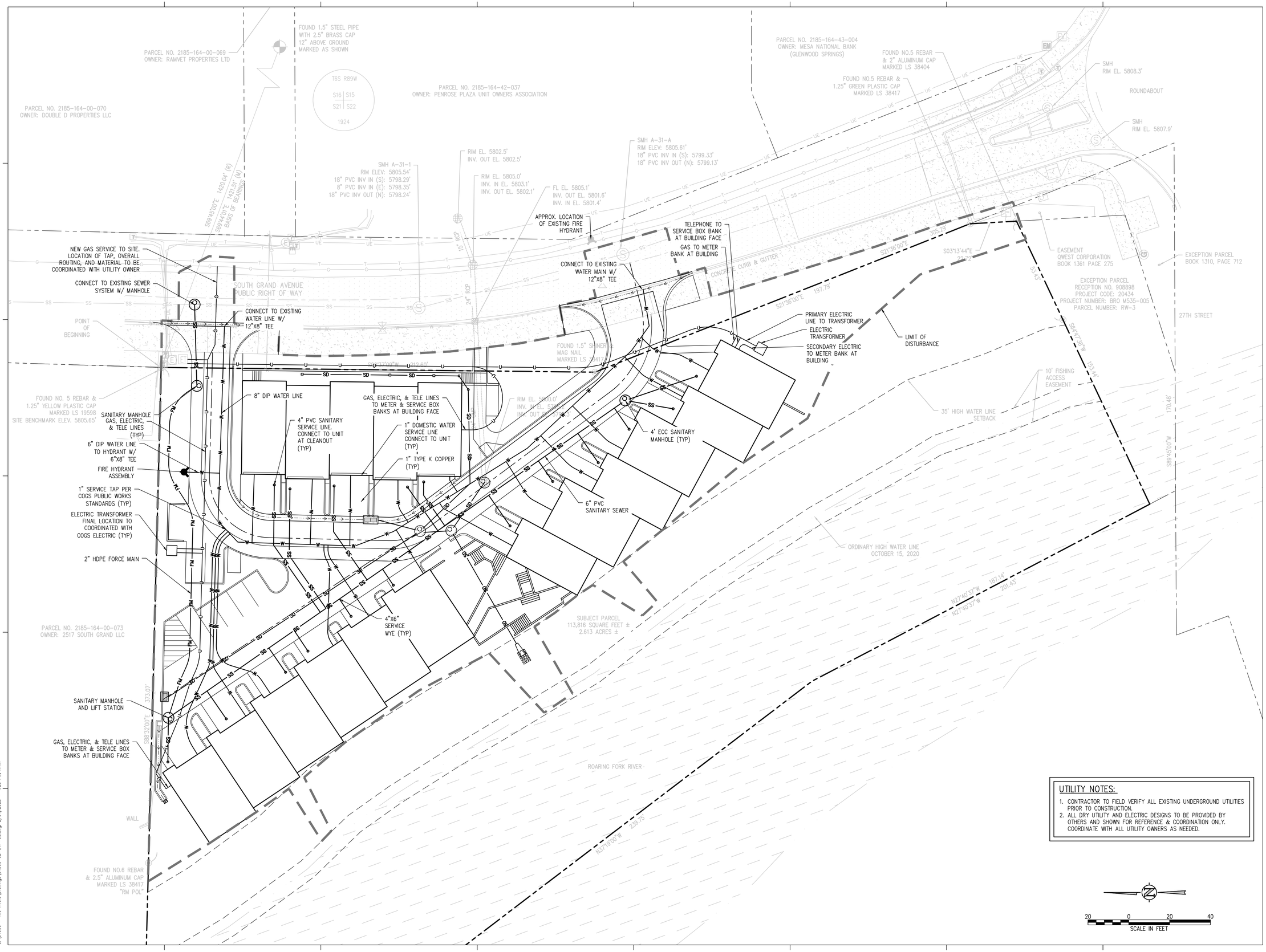

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1	2/4/2022	STAFF COMMENTS

SEAL & SIGNATURE:

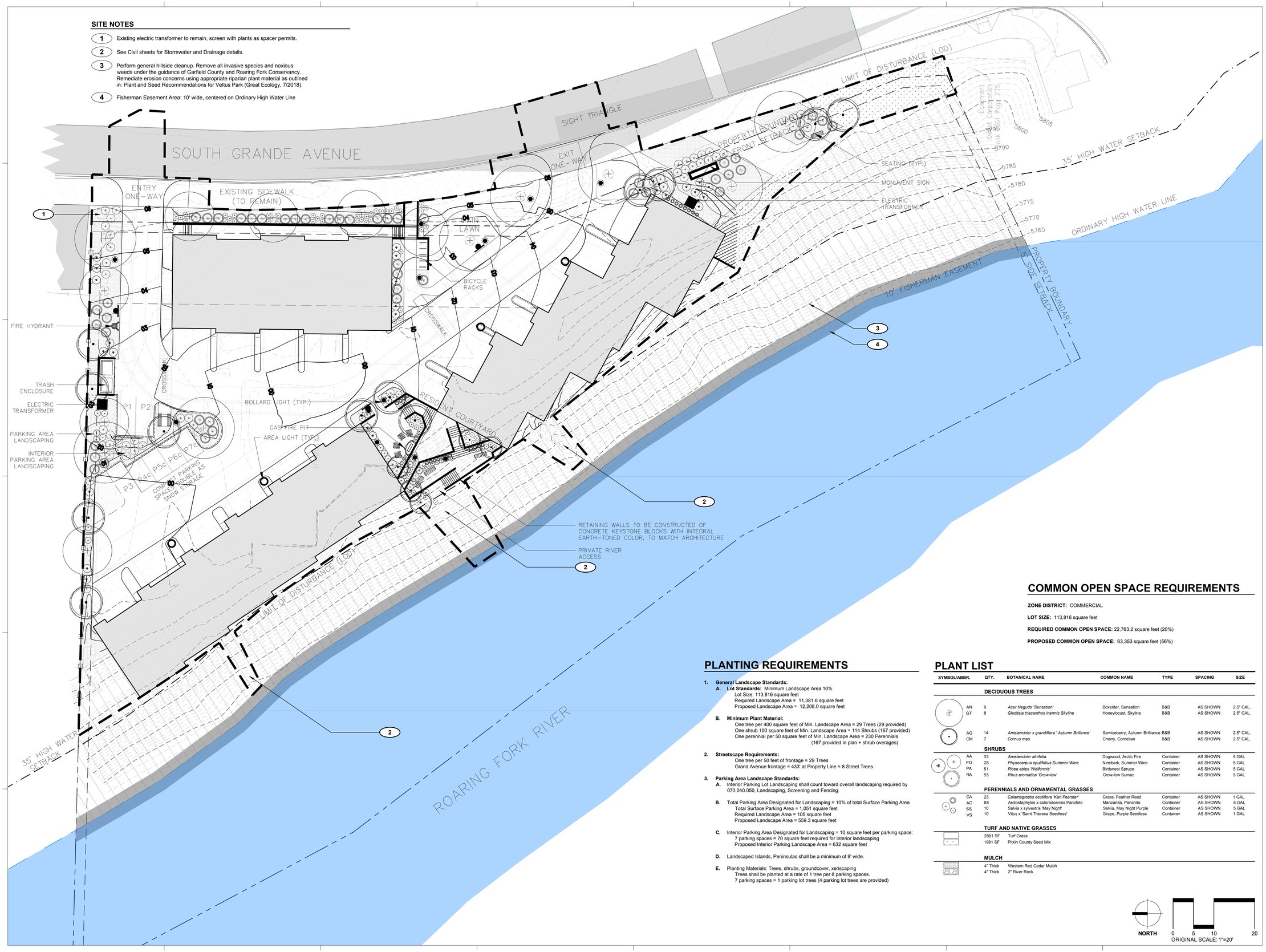
PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
PRELIMINARY UTILITY PLAN

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	C3.0
	OF

SITE NOTES

1. Existing electric transformer to remain, screen with plants as spacer permits.
2. See Civil sheets for Stormwater and Drainage details.
3. Perform general hillside cleanup. Remove all invasive species and noxious weeds under the guidance of Garfield County and Roaring Fork Conservancy. Remediate erosion concerns using appropriate riparian plant material as outlined in: Plant and Seed Recommendations for Veltus Park (Great Ecology, 7/2018).
4. Fisherman Easement Area: 10' wide, centered on Ordinary High Water Line



COMMON OPEN SPACE REQUIREMENTS

ZONE DISTRICT: COMMERCIAL

LOT SIZE: 113,816 square feet

REQUIRED COMMON OPEN SPACE: 22,763.2 square feet (20%)

PROPOSED COMMON OPEN SPACE: 63,353 square feet (56%)

PLANTING REQUIREMENTS

1. **General Landscape Standards:**
   - **A. Lot Standards:** Minimum Landscape Area 10%
     - Lot Size: 113,816 square feet
     - Required Landscape Area = 11,381.6 square feet
     - Proposed Landscape Area = 12,208.0 square feet
   - **B. Minimum Plant Material:**
     - One tree per 400 square feet of Min. Landscape Area = 29 Trees (29 provided)
     - One shrub 100 square feet of Min. Landscape Area = 114 Shrubs (167 provided)
     - One perennial per 50 square feet of Min. Landscape Area = 230 Perennials (167 provided in plan + shrub overages)
2. **Streetscape Requirements:**
   - One tree per 50 feet of frontage = 29 Trees
   - Grand Avenue frontage = 433' at Property Line = 8 Street Trees
3. **Parking Area Landscape Standards:**
   - **A.** Interior Parking Lot Landscaping shall count toward overall landscaping required by 070.040.050, Landscaping, Screening and Fencing.
   - **B.** Total Parking Area Designated for Landscaping = 10% of total Surface Parking Area
     - Total Surface Parking Area = 1,051 square feet
     - Required Landscape Area = 105 square feet
     - Proposed Landscape Area = 559.3 square feet
   - **C.** Interior Parking Area Designated for Landscaping = 10 square feet per parking space:
     - 7 parking spaces = 70 square feet required for interior landscaping
     - Proposed Interior Parking Landscape Area = 632 square feet
   - **D.** Landscaped Islands, Peninsulas shall be a minimum of 9' wide.
   - **E.** Planting Materials: Trees, shrubs, groundcover, xeriscaping
     - Trees shall be planted at a rate of 1 tree per 8 parking spaces.
     - 7 parking spaces = 1 parking lot trees (4 parking lot trees are provided)

PLANT LIST

SYMBOL/ABBR.	QTY.	BOTANICAL NAME	COMMON NAME	TYPE	SPACING	SIZE
DECIDUOUS TREES						
AN	9	*Acer Negudo 'Sensation'*	Boxelder, Sensation	B&B	AS SHOWN	2.5" CAL.
GT	8	*Gleditsia triacanthos inermis Skyline*	Honeylocust, Skyline	B&B	AS SHOWN	2.5" CAL.
AG	14	*Amelanchier x grandiflora ' Autumn Brilliance'*	Serviceberry, Autumn Brilliance	B&B	AS SHOWN	2.5" CAL.
CM	7	*Cornus mas*	Cherry, Cornelian	B&B	AS SHOWN	2.5" CAL.
SHRUBS						
AA	33	*Amelanchier alnifolia*	Dogwood, Arctic Fire	Container	AS SHOWN	5 GAL
PO	28	*Physocarpus opulifolius Summer Wine*	Ninebark, Summer Wine	Container	AS SHOWN	5 GAL
PA	51	*Picea abies 'Nidiformis'*	Birdsnest Spruce	Container	AS SHOWN	5 GAL
RA	55	*Rhus aromatica 'Grow-low'*	Grow-low Sumac	Container	AS SHOWN	5 GAL
PERENNIALS AND ORNAMENTAL GRASSES						
CA	23	*Calamagrostis acutiflora 'Karl Foerster'*	Grass, Feather Reed	Container	AS SHOWN	1 GAL
AC	88	Arctostaphylos x coloradoensis Panchito	Manzanita, Panchito	Container	AS SHOWN	5 GAL
SS	10	Salvia x sylvestris 'May Night'	Salvia, May Night Purple	Container	AS SHOWN	5 GAL
VS	10	Vitus x 'Saint Theresa Seedless'	Grape, Purple Seedless	Container	AS SHOWN	1 GAL
TURF AND NATIVE GRASSES						
	2881 SF	Turf Grass				
	1981 SF	Pitkin County Seed Mix				
MULCH						
	4" Thick	Western Red Cedar Mulch				
	4" Thick	2" River Rock				

NORTH

0 5 10 20

ORIGINAL SCALE: 1"=20'

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REVISIONS:

NO:	DATE:	REMARKS:
1	2/4/2022	STAFF COMMENTS

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
LANDSCAPE PLAN

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	L1.0
	OF

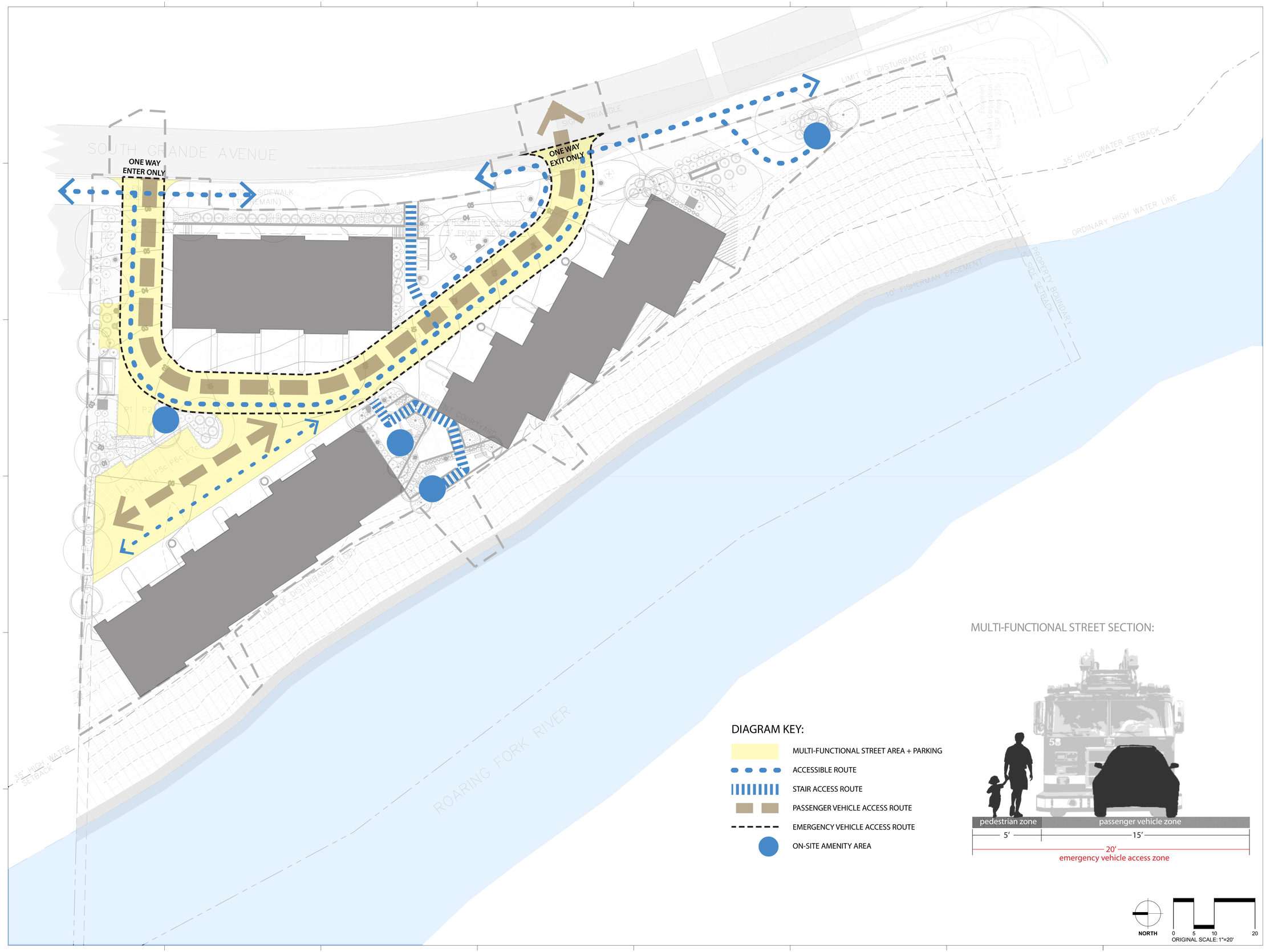

DIAGRAM KEY:

- MULTI-FUNCTIONAL STREET AREA + PARKING
- ACCESSIBLE ROUTE
- STAIR ACCESS ROUTE
- PASSENGER VEHICLE ACCESS ROUTE
- EMERGENCY VEHICLE ACCESS ROUTE
- ON-SITE AMENITY AREA

MULTI-FUNCTIONAL STREET SECTION:

NORTH

0 5 10 20

ORIGINAL SCALE: 1"=20'

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GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
CIRCULATION PLAN

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	

DWG NO:
L2.0

OF

01 **ARCHITECTURAL SITE PLAN**
SCALE: 1" = 20'-0"

N

0 5' 10' 20'

PARKING SCHEDULE

UNIT / DESCRIPTION	*QUANTITY*	*# OF SPACES PER UNIT*	*SUBTOTAL*
REQUIRED:			
TOWNHOUSE	17	1.5	26
GUEST		0.2	4
		SUBTOTAL	30
PROPOSED:			
TOWNHOUSE	17	1.8	31
GUEST		0.4	7
		SUBTOTAL	**38**

GENERAL NOTES

1. ZONING DISTRICT = CO, COMMERCIAL
2. PLANTING NOT SHOWN FOR CLARITY. REFER TO LANDSCAPE DRAWINGS.
3. GRADING SHOWN FOR GRAPHIC REFERENC. REFER TO CIVIL DRAWINGS.

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A-100.01
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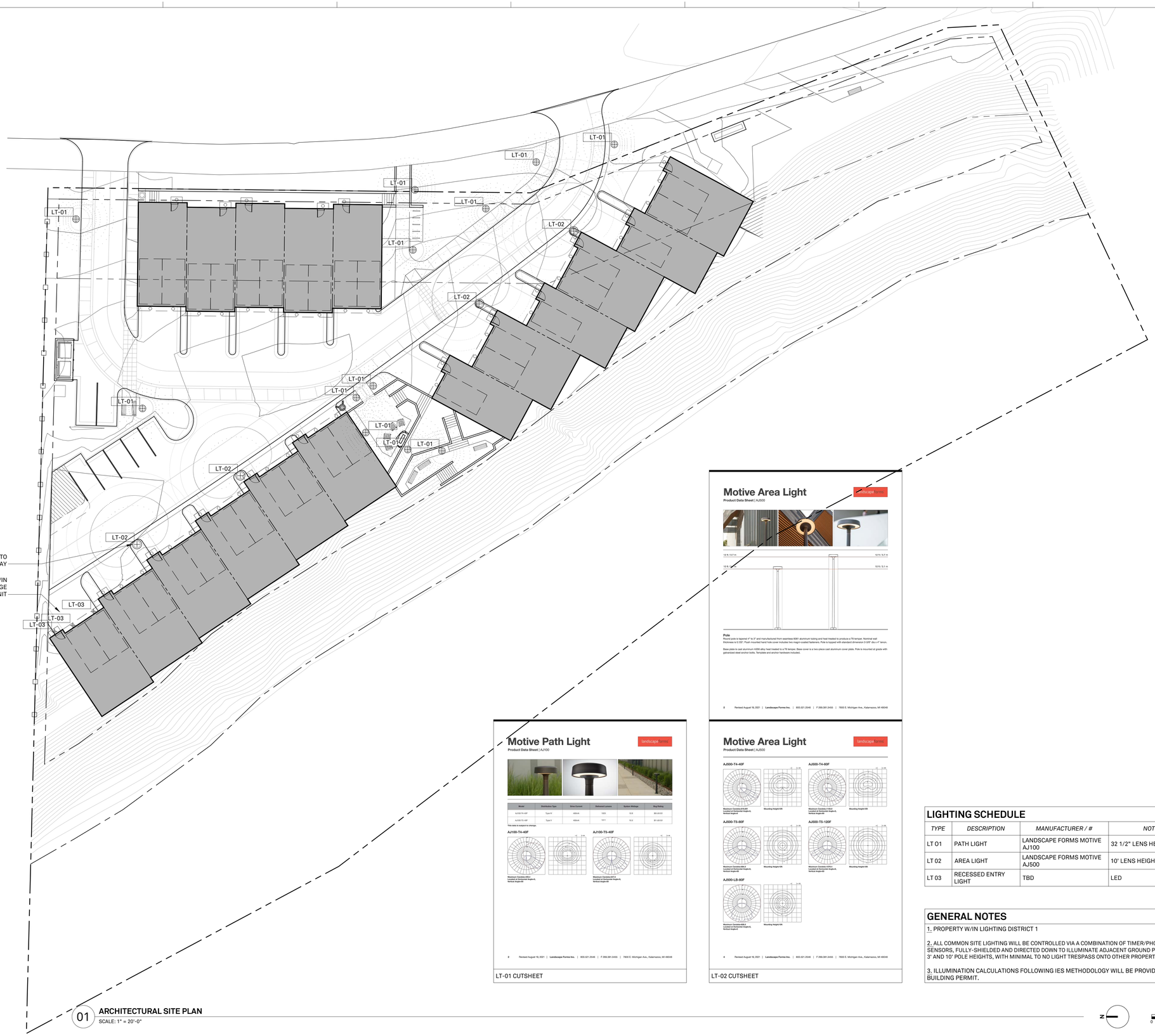

01 **ARCHITECTURAL SITE PLAN**
SCALE: 1" = 20'-0"

LT-01 CUTSHEET

LT-02 CUTSHEET

LIGHTING SCHEDULE

TYPE	*DESCRIPTION*	*MANUFACTURER / #*	*NOTES*
LT 01	PATH LIGHT	LANDSCAPE FORMS MOTIVE AJ100	32 1/2" LENS HEIGHT
LT 02	AREA LIGHT	LANDSCAPE FORMS MOTIVE AJ500	10' LENS HEIGHT
LT 03	RECESSED ENTRY LIGHT	TBD	LED

GENERAL NOTES

1. PROPERTY W/IN LIGHTING DISTRICT 1

2. ALL COMMON SITE LIGHTING WILL BE CONTROLLED VIA A COMBINATION OF TIMER/PHOTOCELL SENSORS, FULLY-SHIELDED AND DIRECTED DOWN TO ILLUMINATE ADJACENT GROUND PLAN, KEPT AT 3' AND 10' POLE HEIGHTS, WITH MINIMAL TO NO LIGHT TRESPASS ONTO OTHER PROPERTIES.

3. ILLUMINATION CALCULATIONS FOLLOWING IES METHODOLOGY WILL BE PROVIDED AT BUILDING PERMIT.

N

0 5' 10' 20'

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REVISIONS:

NO:	DATE:	REMARKS:
1	2/4/2022	STAFF COMMENTS

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

EXTERIOR LIGHTING PLAN

DATE: 12/23/2021
PROJECT: 039
DWG BY: CHK BY:
SCALE:
DWG NO:
A-101.01
OF

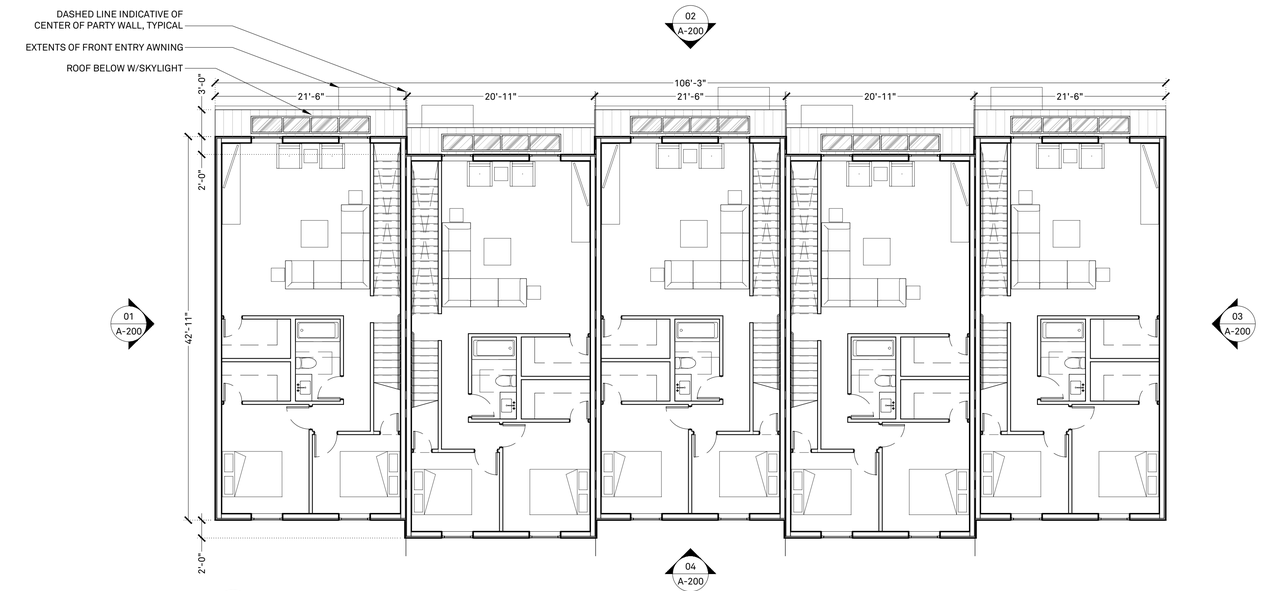
GENERAL NOTES

1. THESE PLANS ARE PRELIMINARY AND SUBJECT TO CHANGE. THEY ARE PROVIDED TO UNDERSTAND OVERALL BUILDING DIMENSIONS AND PROGRAM.

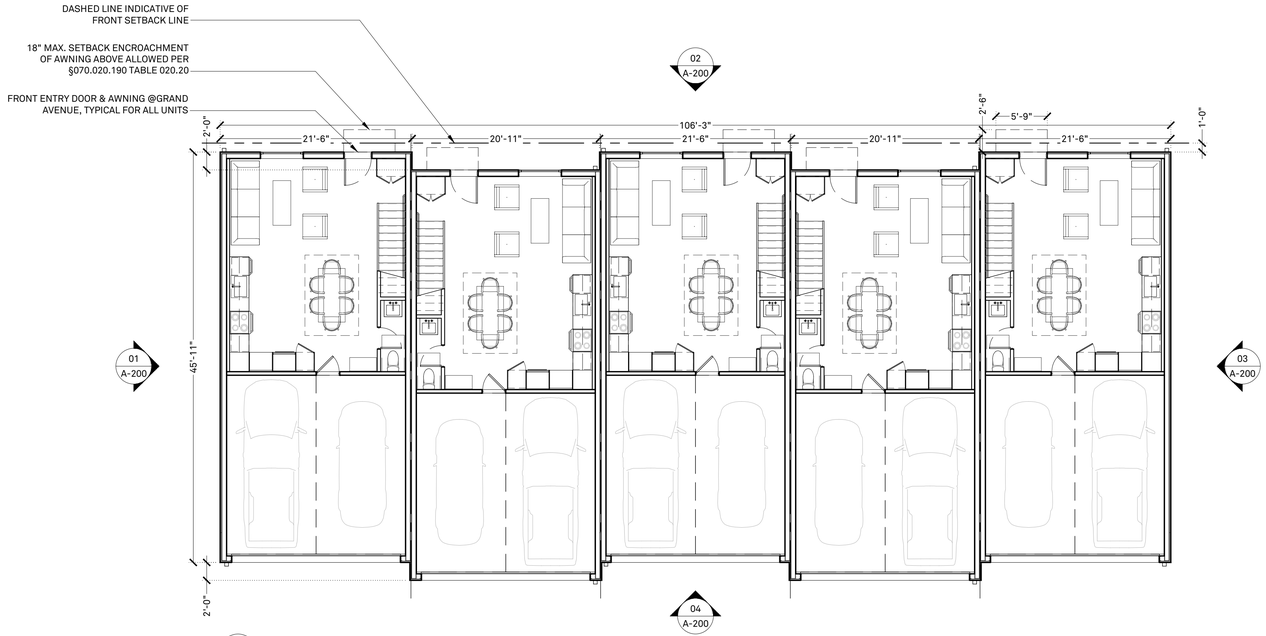
FLOOR AREA TAKEOFFS

	GROSS AREA (SF)[1]	NET AREA (INDIVIDUAL UNIT SF)[1]
ROOF LEVEL	344	41
LEVEL 03	4,561	829
LEVEL 02	4,561	829
LEVEL 01	4,880	477
TOTAL	14,346	2,176

[1] ROUNDED TO NEAREST WHOLE INTEGER



01 **LEVEL 02 FLOOR PLANS - EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"



02 **LEVEL 01 FLOOR PLANS - EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"

N

0 2 4 8'

MOVE MATTER / ARCHITECTS

1115 CHAMBERS AVE. C101
EAGLE CO 81631

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PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

FLOOR PLANS

DATE: 12/23/2021
PROJECT: 039
DWG BY: CHK BY:
SCALE:
DWG NO:

A-110.01

OF

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TOTAL	14,346	2,176

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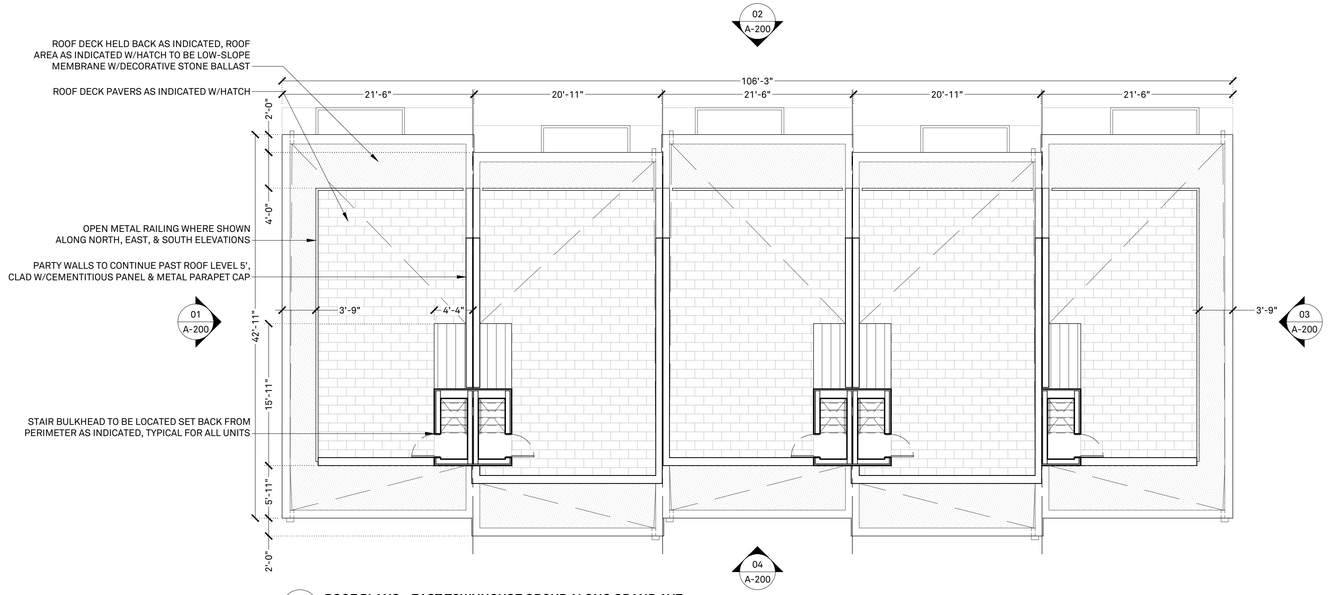
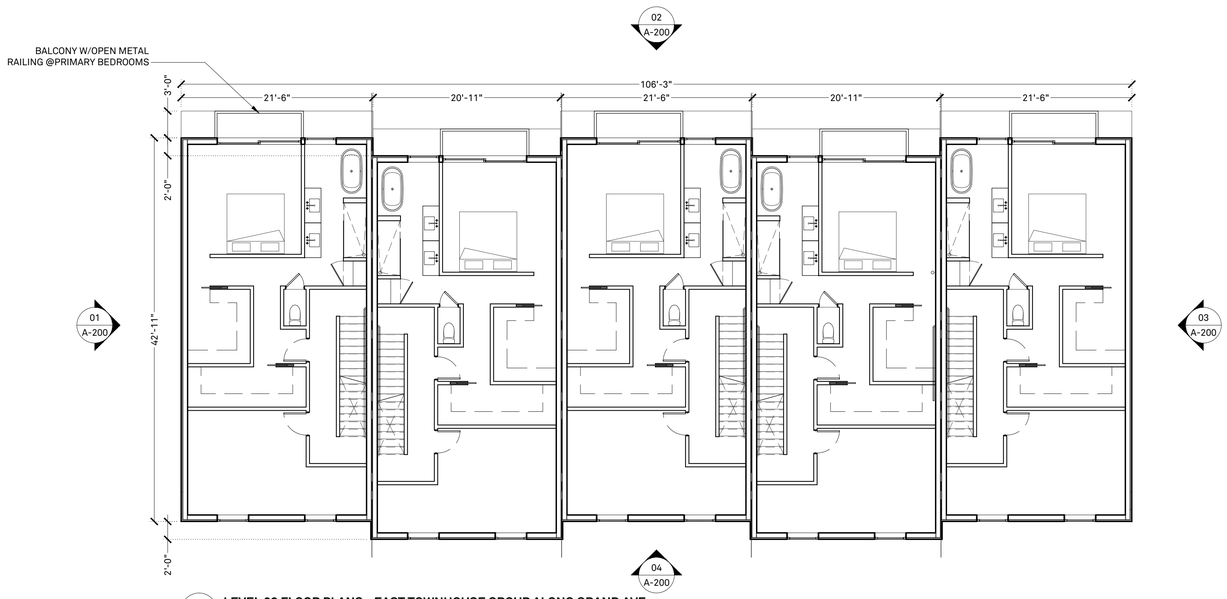


01 **ROOF PLANS - EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"



02 **LEVEL 03 FLOOR PLANS - EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"

N

0 2 4 8

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NO:	DATE:	REMARKS:

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PROJECT:
2525 SOUTH GRAND
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GLENWOOD SPRINGS, CO 81601

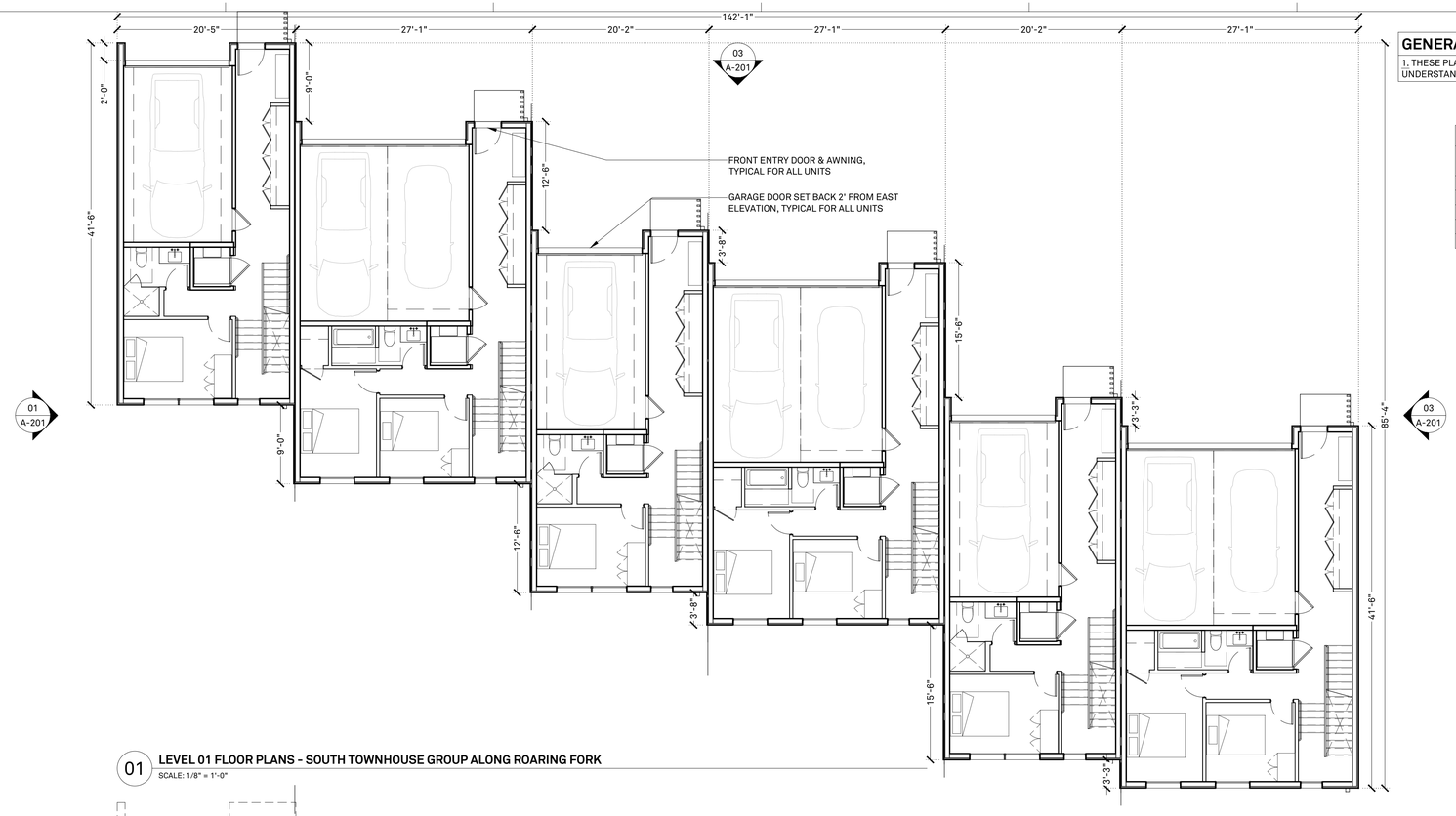
DRAWING TITLE:

FLOOR PLANS

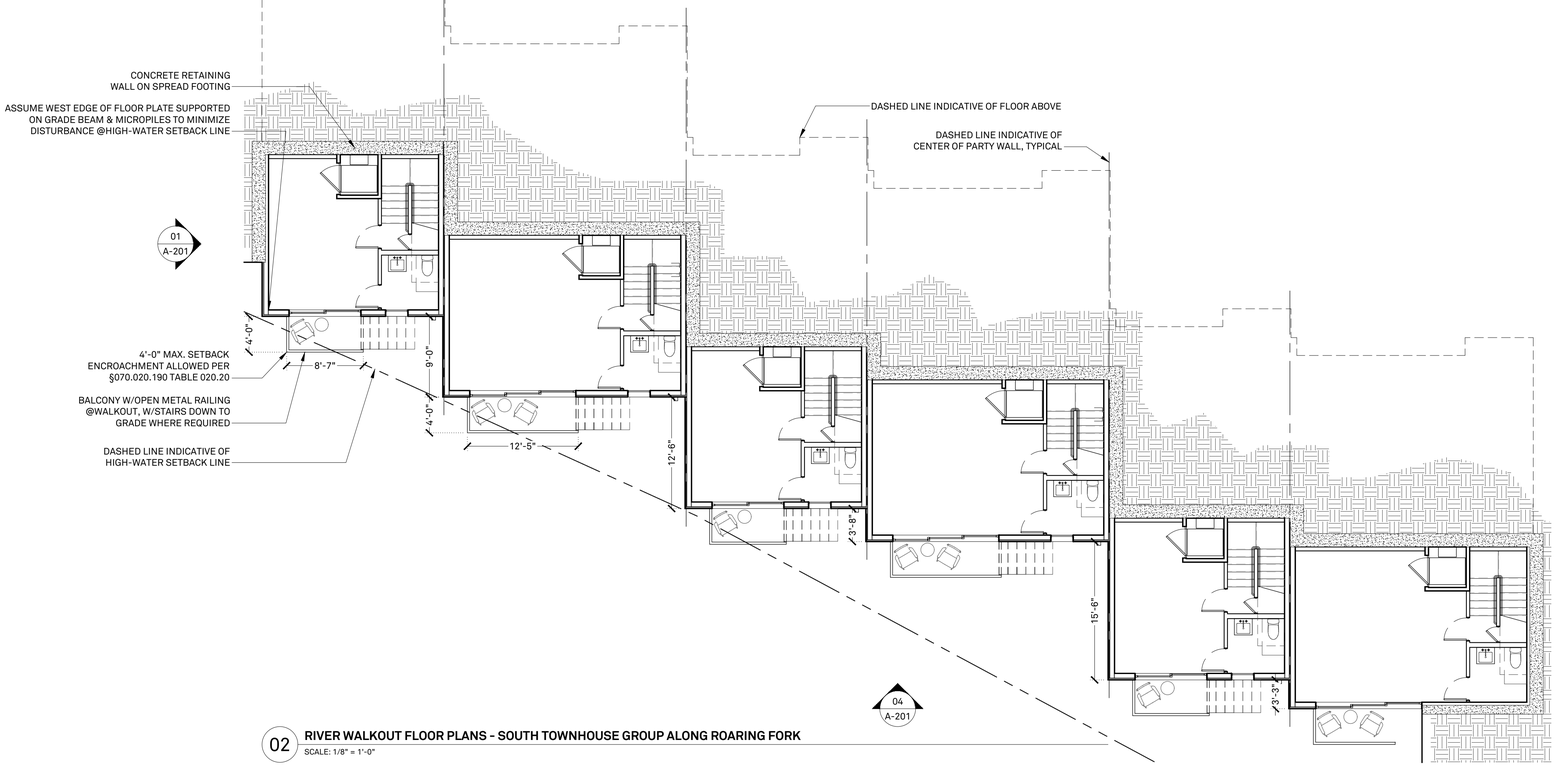
DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	

DWG NO:
A-111.00

OF



01 **LEVEL 01 FLOOR PLANS - SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"



02 **RIVER WALKOUT FLOOR PLANS - SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. THESE PLANS ARE PRELIMINARY AND SUBJECT TO CHANGE. THEY ARE PROVIDED TO UNDERSTAND OVERALL BUILDING DIMENSIONS AND PROGRAM.

FLOOR AREA TAKEOFFS

	GROSS AREA (SF)[1]	NET AREA (INDIVIDUAL 1-VEHICE UNIT SF)[1]	NET AREA (INDIVIDUAL 2-VEHICE UNIT SF)[1]
PENTHOUSE	3,674	398	544
LEVEL 02	5,909	761	1,036
LEVEL 01	5,725	470	589
RIVER WALKOUT LEVEL	2,902	330	449
TOTAL	18,210	1,959	2,618

[1] ROUNDED TO NEAREST WHOLE INTEGER

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NO:	DATE:	REMARKS:

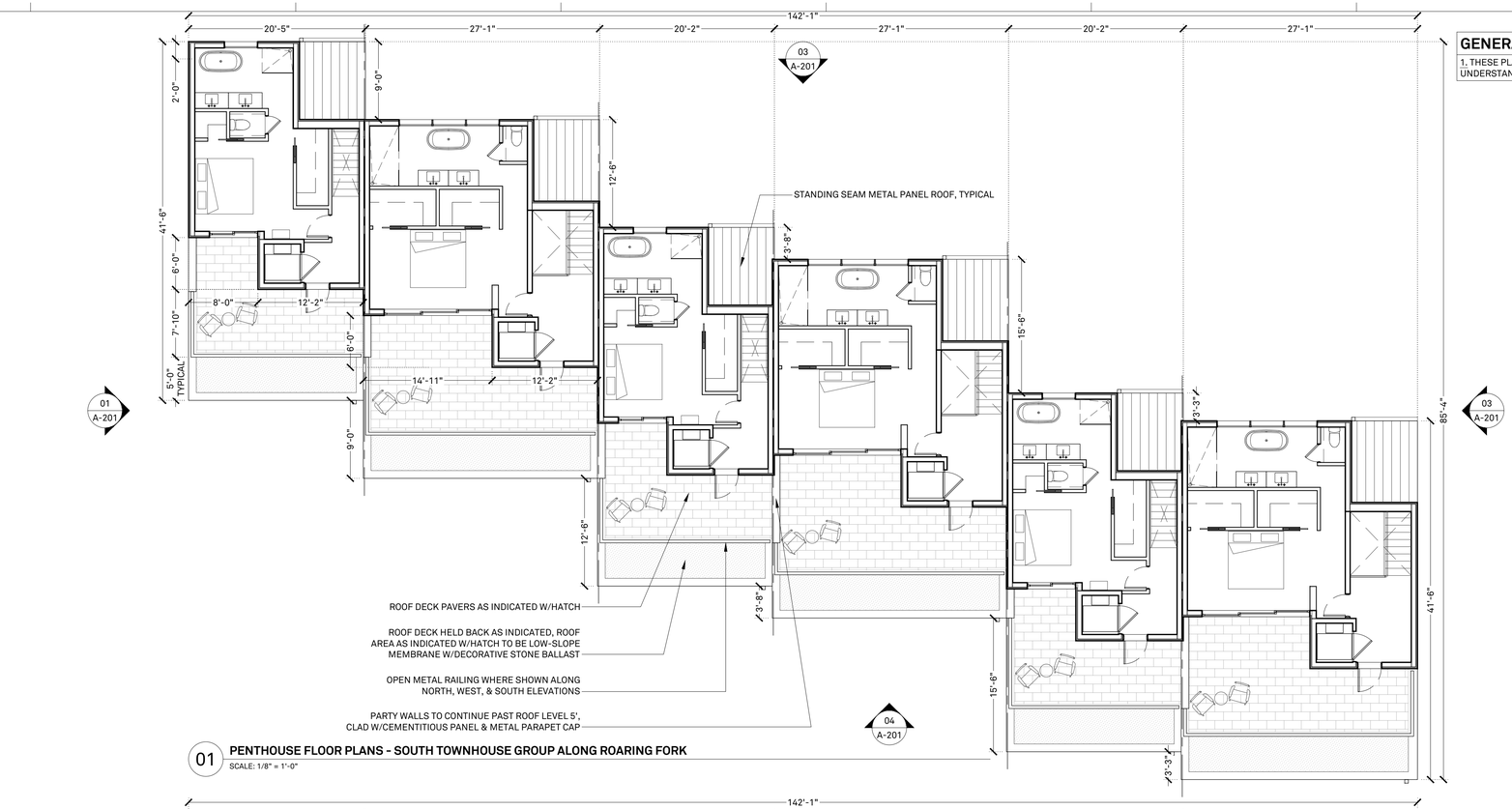
SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

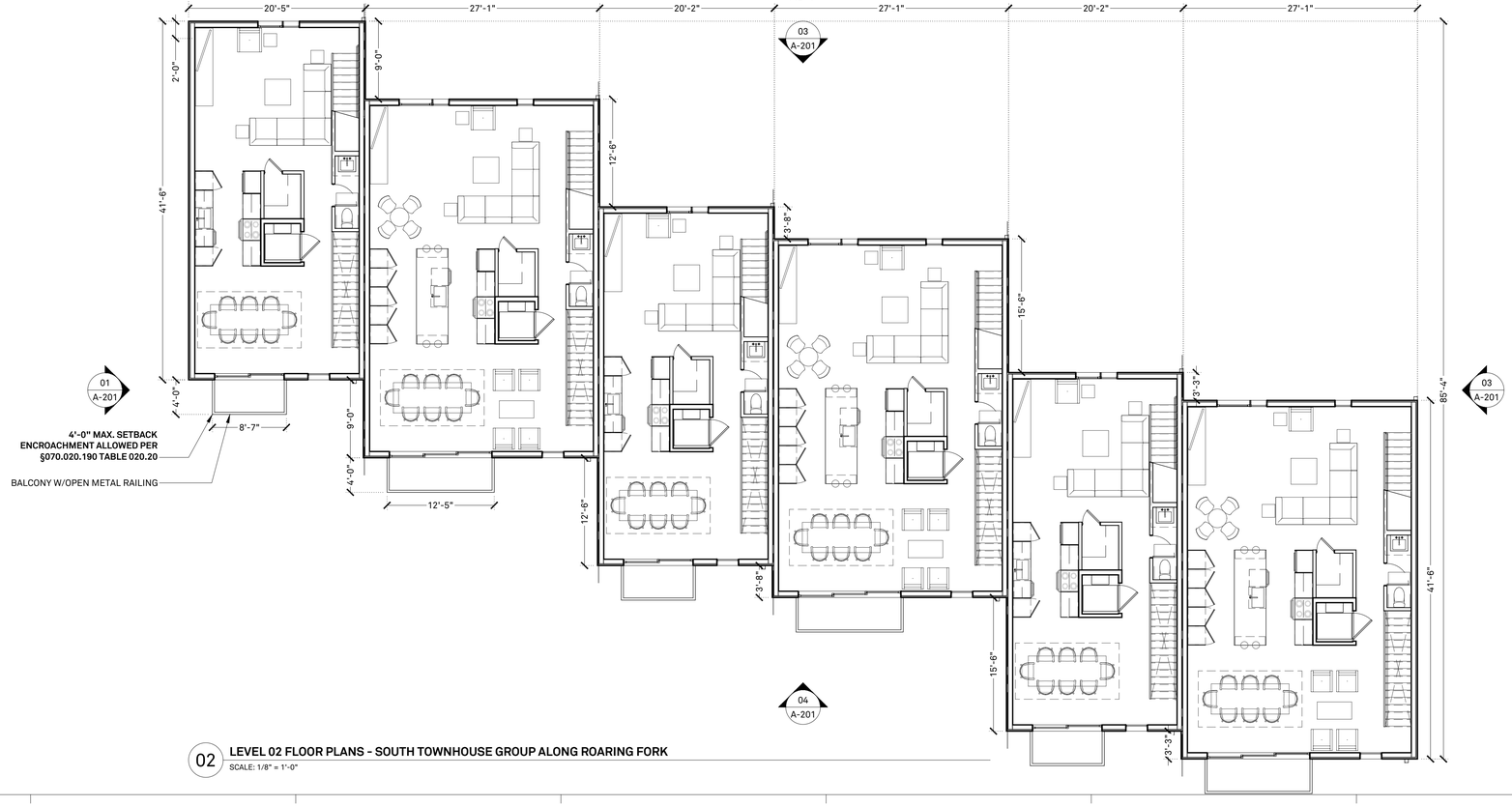
DRAWING TITLE:
FLOOR PLANS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	A-112.00

OF



01 **PENTHOUSE FLOOR PLANS - SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"



02 **LEVEL 02 FLOOR PLANS - SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. THESE PLANS ARE PRELIMINARY AND SUBJECT TO CHANGE. THEY ARE PROVIDED TO UNDERSTAND OVERALL BUILDING DIMENSIONS AND PROGRAM.

FLOOR AREA TAKEOFFS

	GROSS AREA (SF)[1]	NET AREA (INDIVIDUAL 1-VEHICE UNIT SF)[1]	NET AREA (INDIVIDUAL 2-VEHICE UNIT SF)[1]
PENTHOUSE	3,674	398	544
LEVEL 02	5,909	761	1,036
LEVEL 01	5,725	470	589
RIVER WALKOUT LEVEL	2,902	330	449
TOTAL	18,210	1,959	2,618

[1] ROUNDED TO NEAREST WHOLE INTEGER

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

FLOOR PLANS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	

DWG NO:
A-113.00

OF

GENERAL NOTES

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FLOOR AREA TAKEOFFS

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LEVEL 02	5,909	761	1,036
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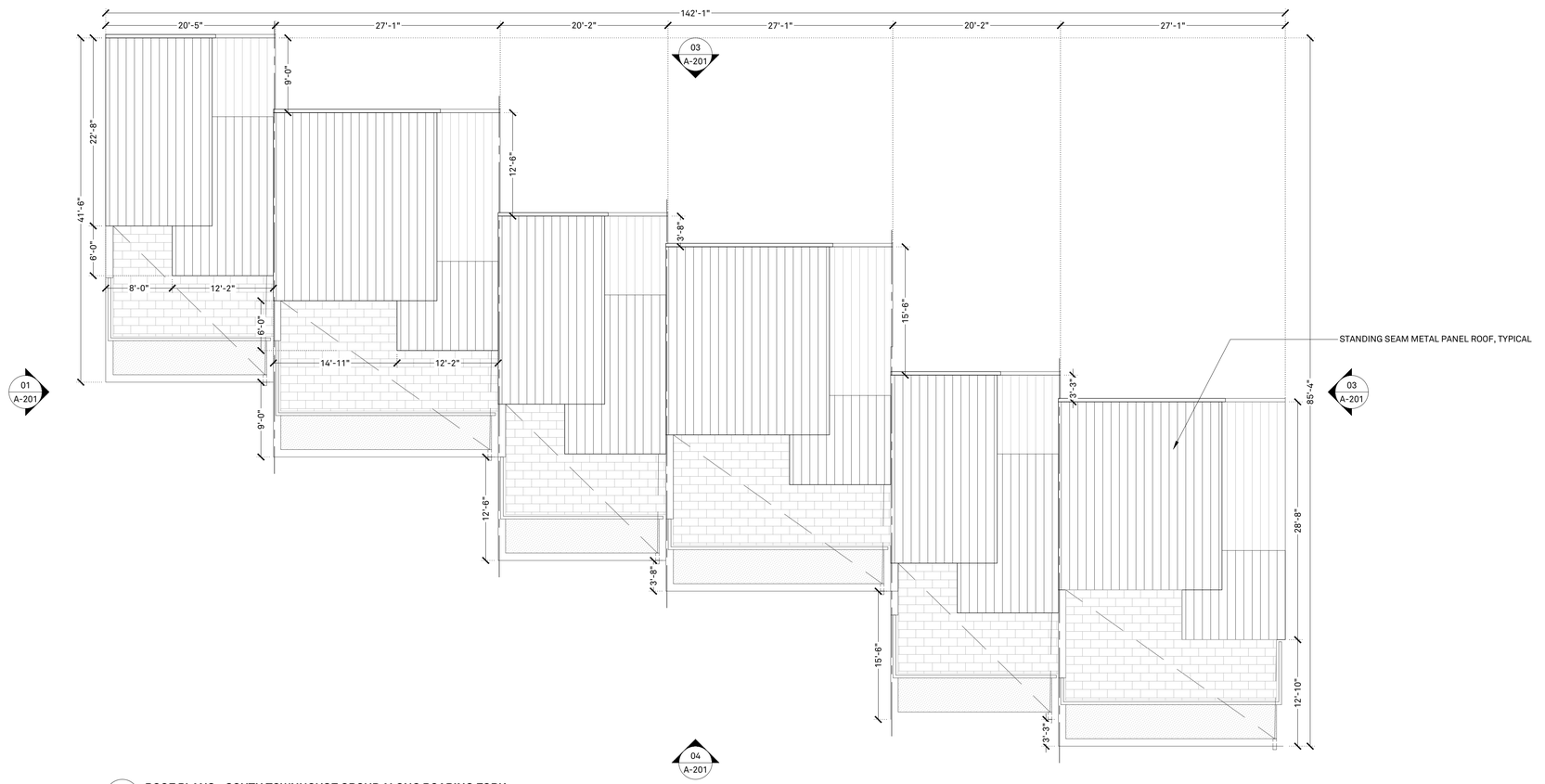
RIVER WALKOUT LEVEL	2,902	330	449
TOTAL	18,210	1,959	2,618

[1] ROUNDED TO NEAREST WHOLE INTEGER



01 **ROOF PLANS - SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
FLOOR PLANS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	A-114.00
	OF

GENERAL NOTES

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FLOOR AREA TAKEOFFS

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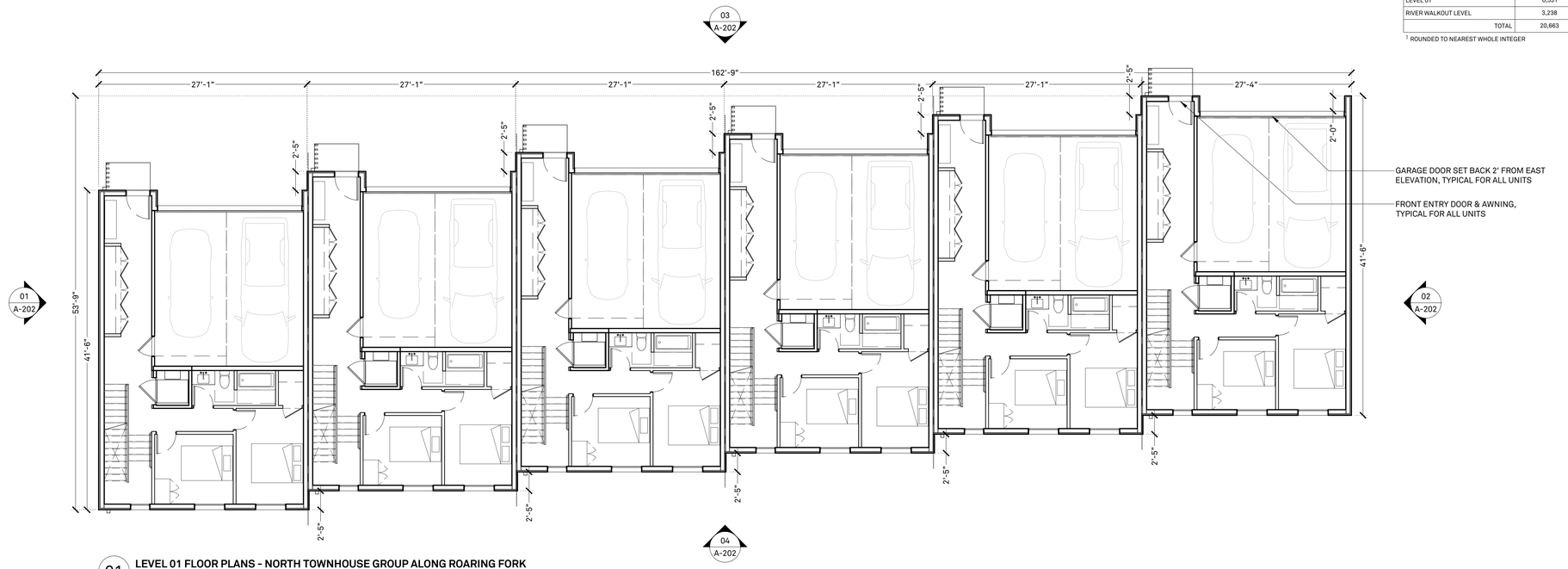
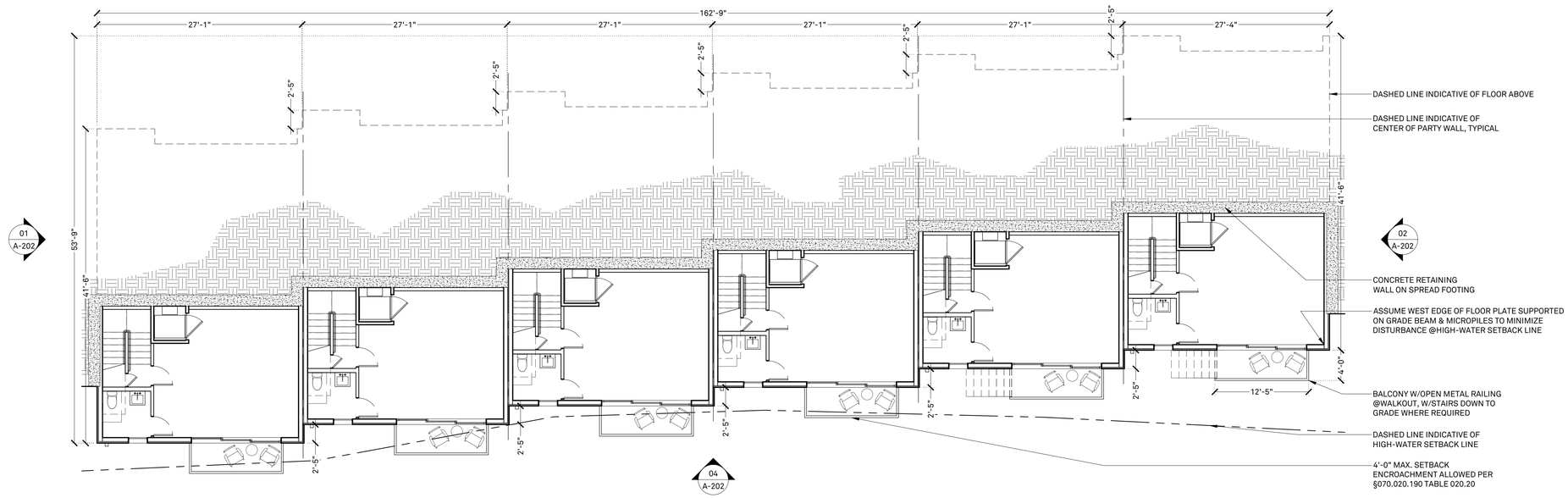
PENTHOUSE	4,137	544
LEVEL 02	6,757	1,036
LEVEL 01	6,531	589
RIVER WALKOUT LEVEL	3,238	449
TOTAL	20,663	2,618

[1] ROUNDED TO NEAREST WHOLE INTEGER



01 **LEVEL 01 FLOOR PLANS - NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"



02 **RIVER WALKOUT FLOOR PLANS - NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

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DRAWING TITLE:

FLOOR PLANS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	

DWG NO:
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OF

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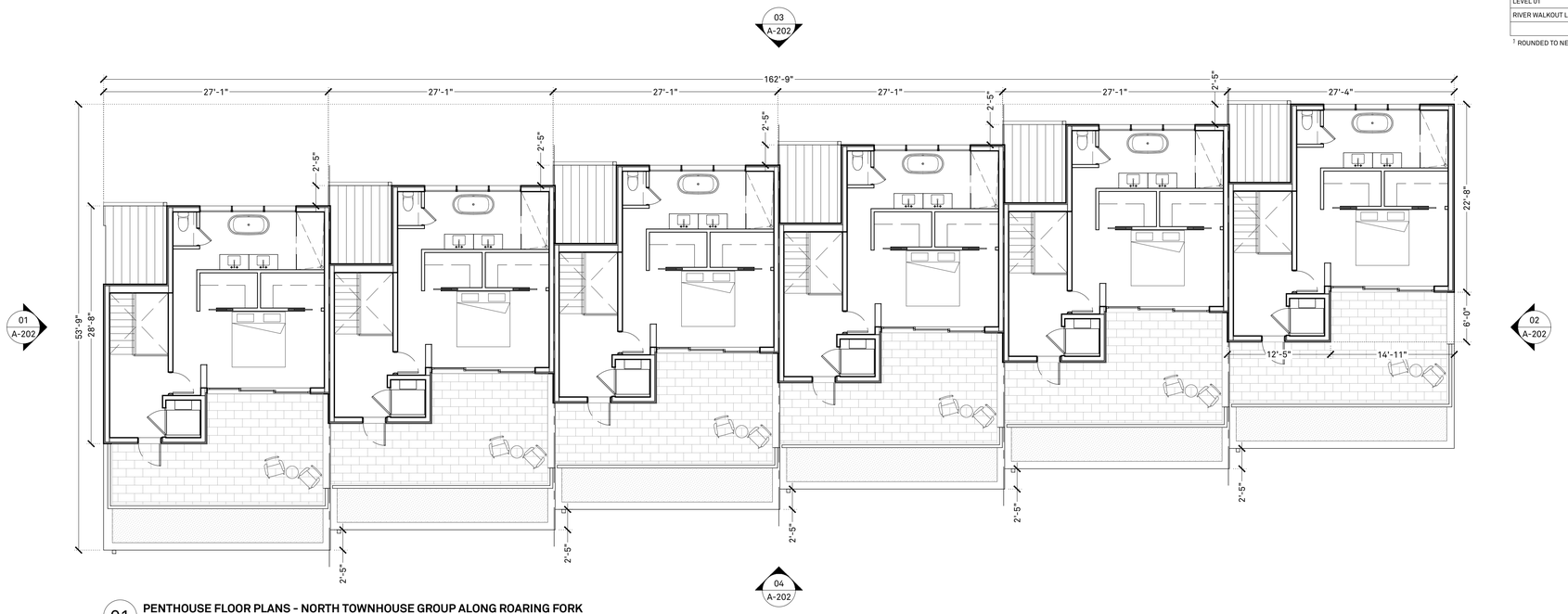
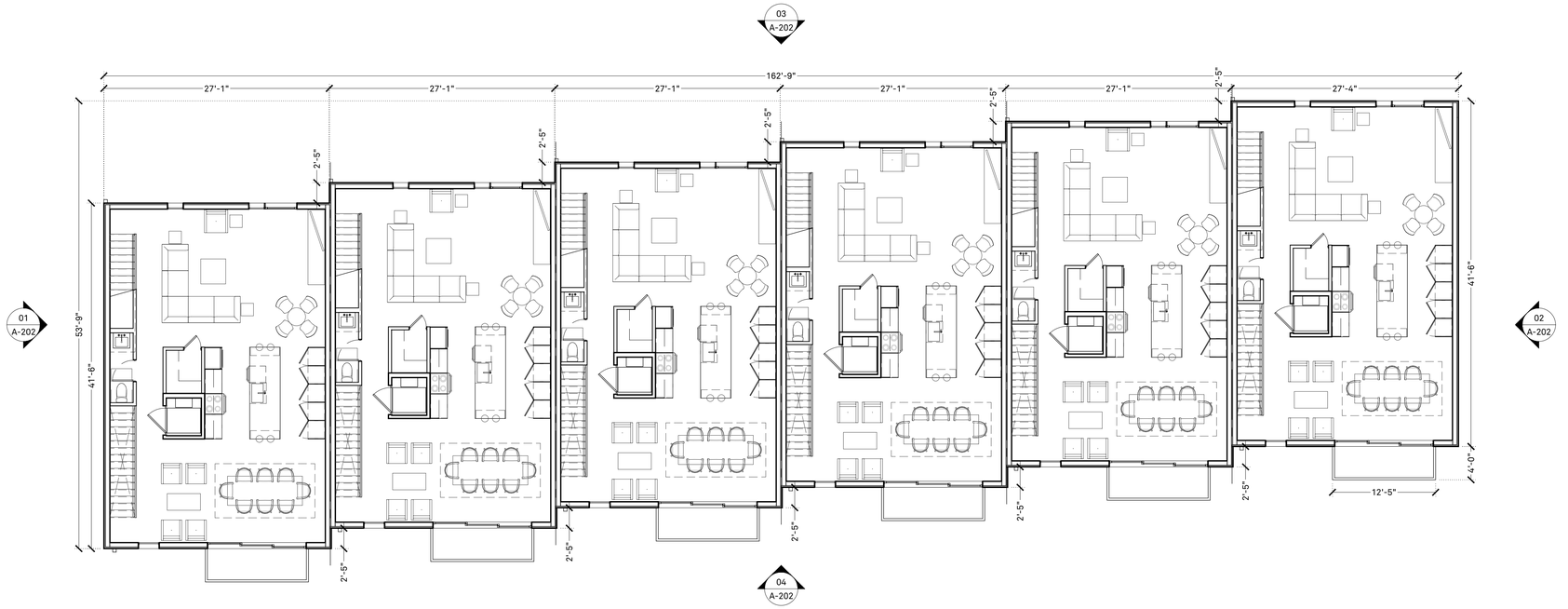


01 **PENTHOUSE FLOOR PLANS - NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"



02 **LEVEL 02 FLOOR PLANS - NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

FLOOR PLANS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	A-116.00
	OF

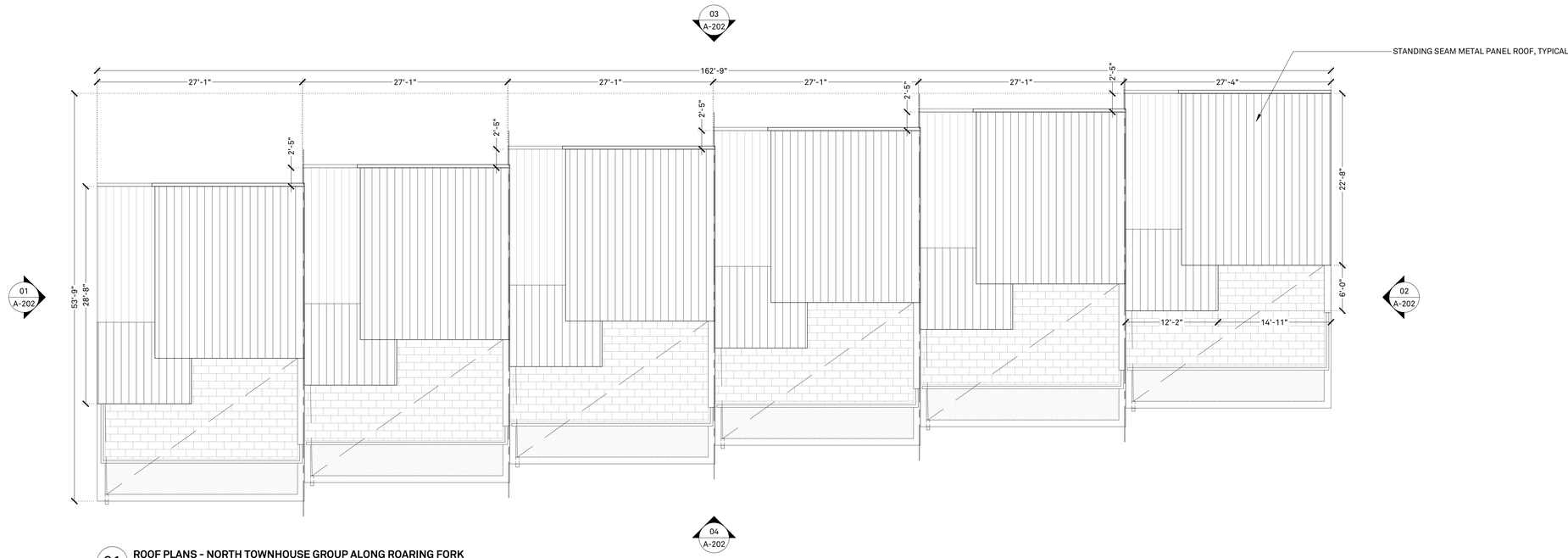
GENERAL NOTES

1. THESE PLANS ARE PRELIMINARY AND SUBJECT TO CHANGE. THEY ARE PROVIDED TO UNDERSTAND OVERALL BUILDING DIMENSIONS AND PROGRAM.

FLOOR AREA TAKEOFFS

	GROSS AREA (SF)[1]	NET AREA (INDIVIDUAL 2-VEHICE UNIT SF)[1]
PENTHOUSE	4,137	544
LEVEL 02	6,757	1,036
LEVEL 01	6,531	589
RIVER WALKOUT LEVEL	3,238	449
TOTAL	20,663	2,618

[1] ROUNDED TO NEAREST WHOLE INTEGER



01 **ROOF PLANS - NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

N

0 2' 4' 8'

MOVE MATTER / ARCHITECTS

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EAGLE CO 81631

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

FLOOR PLANS

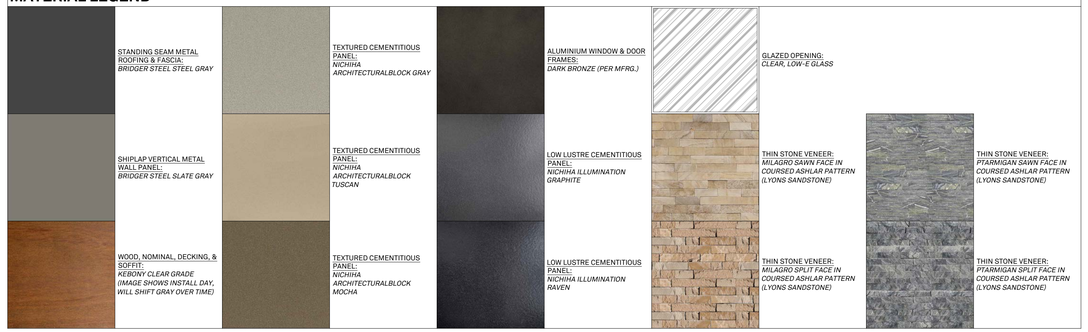
DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	**A-117.00**
	OF

EXTERIOR FINISHES TAKEOFFS

	NORTH ELEVATION		EAST ELEVATION		SOUTH ELEVATION		WEST ELEVATION	
	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]
GROSS WALL	1,347		3,289		1,347		3,809	
NET AREAS BELOW								
NET WALL	1,347		3,102		1,347		3,809	
CEMENTITIOUS PANEL - TEXTURED	686	52	950	31	686	52	1,155	30
CEMENTITIOUS PANEL - LOW LUSTRE	74	5	210	7	74	5	840	22
METAL PANEL	56	4	245	8	56	4	270	7
STONE VENEER	442	33	760	25	442	33	250	7
GLAZING	70	5	760	25	70	5	479	13
EXPOSED CONCRETE WALL	19	1	52	0	19	1	20	0
OPAQUE DOOR	0	0	125	4	0	0	795	21

[1] ROUNDED TO NEAREST WHOLE INTEGER & PERCENTAGE

MATERIAL LEGEND



GENERAL NOTES

1. THESE ELEVATIONS ARE CONCEPTUAL IN NATURE. INDIVIDUAL BUILDING ELEVATIONS MAY VARY BUT WILL BE EVALUATED FOR COMPLIANCE WITH DESIGN STANDARDS CONTAINED WITHIN TITLE 070 OF THE GLENWOOD SPRINGS MUNICIPAL CODE AT THE TIME OF SUBMITTING A BUILDING PERMIT APPLICATION.

01 **NORTH ELEVATION- EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"

02 **EAST ELEVATION- EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"

03 **SOUTH ELEVATION- EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"

04 **WEST ELEVATION- EAST TOWNHOUSE GROUP ALONG GRAND AVE.**
SCALE: 1/8" = 1'-0"

MOVE MATTER / ARCHITECTS

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REVISIONS:

NO:	DATE:	REMARKS:
1	2/4/2022	STAFF COMMENTS

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:

EXTERIOR ELEVATIONS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	
DWG NO:	A-200.01
	OF

GENERAL NOTES

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01 **NORTH ELEVATION- SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

02 **SOUTH ELEVATION- SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

EXTERIOR FINISHES TAKEOFFS

	NORTH ELEVATION		EAST ELEVATION		SOUTH ELEVATION		WEST ELEVATION	
	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]
GROSS WALL	1,280		3,771		1,058		6,689	
NET AREAS BELOW								
NET WALL	1,264		3,730		1,044		6,357	
CEMENTITOUS PANEL - TEXTURED	752	59	864	23	427	41	2,278	36
CEMENTITOUS PANEL - LOW LUSTRE	0	0	177	5	0	0	699	11
METAL PANEL	237	19	633	17	163	16	1,105	17
STONE VENEER	185	15	759	20	347	33	0	0
GLAZING	48	4	408	11	75	7	2,168	34
EXPOSED CONCRETE WALL	42	3	72	2	32	3	107	2
OPAQUE DOOR	0	0	817	22	0	0	0	0

[1] ROUNDED TO NEAREST WHOLE INTEGER & PERCENTAGE

MATERIAL LEGEND

- STANDING SEAM METAL ROOFING & FASCIA: *BRIDGER STEEL STEEL GRAY*
- SHIPLAP VERTICAL METAL WALL PANEL: *BRIDGER STEEL SLATE GRAY*
- WOOD, NOMINAL, DECKING, & SOFFIT: *KEBONY CLEAR GRADE (IMAGE SHOWS INSTALL DAY, WILL SHIFT GRAY OVER TIME)*
- THIN STONE VENEER: *MILAGRO SAWN FACE IN COURSED ASHLAR PATTERN (LYONS SANDSTONE)*
- THIN STONE VENEER: *MILAGRO SPLIT FACE IN COURSED ASHLAR PATTERN (LYONS SANDSTONE)*
- THIN STONE VENEER: *PTARMIGAN SAWN FACE IN COURSED ASHLAR PATTERN (LYONS SANDSTONE)*
- THIN STONE VENEER: *PTARMIGAN SPLIT FACE IN COURSED ASHLAR PATTERN (LYONS SANDSTONE)*
- TEXTURED CEMENTITIOUS PANEL: *NICHIHA ARCHITECTURALBLOCK GRAY*
- TEXTURED CEMENTITIOUS PANEL: *NICHIHA ARCHITECTURALBLOCK TUSCAN*
- TEXTURED CEMENTITIOUS PANEL: *NICHIHA ARCHITECTURALBLOCK MOCHA*
- LOW LUSTRE CEMENTITIOUS PANEL: *NICHIHA ILLUMINATION GRAPHITE*
- LOW LUSTRE CEMENTITIOUS PANEL: *NICHIHA ILLUMINATION RAVEN*
- GLAZED OPENING: *CLEAR, LOW-E GLASS*
- ALUMINIUM WINDOW & DOOR FRAMES: *DARK BRONZE (PER MFRG.)*

03 **EAST ELEVATION- SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

04 **WEST ELEVATION- SOUTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
EXTERIOR ELEVATIONS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	

DWG NO:
A-201.00

OF

EXTERIOR FINISHES TAKEOFFS

	NORTH ELEVATION		EAST ELEVATION		SOUTH ELEVATION		WEST ELEVATION	
	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]	SURFACE AREA (SF)[1]	%[1]
GROSS WALL	1,444		4,331		1,226		7,894	
NET AREAS BELOW								
NET WALL	1,418		4,197		1,207		7,473	
CEMENTITIOUS PANEL - TEXTURED	633	45	712	17	656	54	2,580	35
CEMENTITIOUS PANEL - LOW LUSTRE	0	0	356	8	0	0	874	12
METAL PANEL	225	16	746	18	260	22	1,319	18
STONE VENEER	346	24	759	18	185	15	0	0
GLAZING	75	5	492	12	62	5	2,539	34
EXPOSED CONCRETE WALL	139	10	61	1	44	4	161	1
OPAQUE DOOR	0	0	1,071	26	0	0	0	0

[1] ROUNDED TO NEAREST WHOLE INTEGER & PERCENTAGE

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MATERIAL LEGEND

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- GLAZED OPENING: *CLEAR, LOW-E GLASS*
- ALUMINIUM WINDOW & DOOR FRAMES: *DARK BRONZE (PER MFRG.)*

01 **NORTH ELEVATION- NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

02 **SOUTH ELEVATION- NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

03 **EAST ELEVATION- NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

04 **WEST ELEVATION- NORTH TOWNHOUSE GROUP ALONG ROARING FORK**
SCALE: 1/8" = 1'-0"

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REVISIONS:

NO:	DATE:	REMARKS:

SEAL & SIGNATURE:

PROJECT:
2525 SOUTH GRAND
2525 SOUTH GRAND AVENUE
GLENWOOD SPRINGS, CO 81601

DRAWING TITLE:
EXTERIOR ELEVATIONS

DATE:	12/23/2021
PROJECT:	039
DWG BY:	CHK BY:
SCALE:	

DWG NO:
A-202.00

OF

1" = 40'

2525 SOUTH GRAND

GLENWOOD SPRINGS, COLORADO

FEBRUARY 4, 2022

SITE PLAN

re:LAND
URBAN • LANDSCAPE • ENVIRONMENT

MOVE MATTER / ARCHITECTS

ARRIVAL + STREET FRONTAGE

2525 SOUTH GRAND AVENUE - GLENWOOD SPRINGS, COLORADO

RIVER VIEW

2525 SOUTH GRAND AVENUE - GLENWOOD SPRINGS, COLORADO

COURTYARD + RIVER ACCESS

2525 SOUTH GRAND AVENUE - GLENWOOD SPRINGS, COLORADO

ROOF-TOP VIEW

2525 SOUTH GRAND AVENUE - GLENWOOD SPRINGS, COLORADO

AERIAL OBLIQUE + SITE CONTEXT

2525 SOUTH GRAND AVENUE - GLENWOOD SPRINGS, COLORADO

AERIAL OBLIQUE

2525 SOUTH GRAND AVENUE - GLENWOOD SPRINGS, COLORADO

Planning and Zoning Commission Report

Date: February 22, 2022
To: Planning and Zoning Commission
From: Jenn Ooton, Assistant City Manager
Subject: Planning Item 02-22

REQUEST	Consideration of code changes to Title 070
APPLICANT	City of Glenwood Springs
OWNER	
ZONE	
LOCATION:	
SURROUNDING LAND USES	
LOT SIZE	

ACTION ITEMS

Action 1:

Consideration of code text amendments to Municipal Code Section 070.040.030(g)(5)e.1

Staff recommends approval with suggested findings on page 2

Background & Project Description

In researching a question about fire impact fees for a member of the Rural Fire Protection Board, staff realized that the formula for the fire fees was inadvertently left out of the land use code redraft. Staff believes that this is a scrivener's error, however, staff felt that this should come back through the process for a code amendment after so much time had lapsed.

Fire fees are one of several system improvement fees that are charged to new and renovated developments to cover the cost of connecting to or receiving services from City Utilities and emergency services.

Changes to Title 070 of the Municipal Code require a public hearing at the Planning and Zoning Commission and Council, so that is why this technical code amendment is coming back through the process. The Comprehensive Plan states that providing efficient public utilities and services is essential to quality of life, livability and to cost-effective growth.

According to Ordinance 21-2016, "City Council authorized a study of the industry standard rational nexus of classifications for the payment of fire and emergency services impact fees and reviewed the recommendations in the Fire\EMS System Impact Fee Report dated March 3, 2016 and the information provided on the July 7, 2016 City Council agenda, and determined a policy change was necessary." This item restores the formula that was adopted through that ordinance back into the code. The Ordinance

and Resolutions from 2016 are included as attachments to this report, in addition to the new Ordinance authorizing the amendment.

For actions involving amendments to the Land Use, Code, the Planning and Zoning Commission is a recommending body to City Council. All Municipal Code amendments are completed by ordinance, which requires two hearings before City Council.

A Code amendment is a legislative decision by the City Council. Prior to recommending approval or approving a proposed Code amendment, the Planning Commission and City Council shall consider whether and to what extent the proposed amendment:
i. Is consistent with the Comprehensive Plan and other City policies;
ii. Does not conflict with other provisions of this Code or other provisions in the Glenwood Springs Municipal Code;
iii. Is necessary to address a demonstrated community need;
iv. Is necessary to respond to substantial changes in conditions and/or policy; and
v. Is consistent with the general purpose and intent of this Code.

This is a technical fix to the land use code, which staff believes is consistent with the Comprehensive Plan and other policies. While fire impact fees are not specifically mentioned within the Comprehensive Plan, maintaining fire service is important to the goal to "Preserve the small town character while maintaining the livability of Glenwood Springs and increasing the vibrancy and commercial success of the Downtown."

As is mentioned elsewhere in this report, this item is intended to ensure that the code reflects the formula that was adopted in 2016. This is similar to other locations within the Municipal Code, which establish a measurement for equivalent to a single-family residential unit for different types of uses.

Staff Recommendation and Suggested Findings
Staff recommends approval of the proposed text amendments with the following suggested findings:
i. Is consistent with the Comprehensive Plan and other City policies;
ii. Does not conflict with other provisions of this Code or other provisions in the Glenwood Springs Municipal Code;
iii. Is necessary to address a demonstrated community need;
iv. Is necessary to respond to substantial changes in conditions and/or policy; and
v. Is consistent with the general purpose and intent of this code.

ORDINANCE NO. xx

Series of 2022

AN ORDINANCE OF THE CITY OF GLENWOOD SPRINGS, COLORADO, AMENDING SECTION 070.040.030 OF THE GLENWOOD SPRINGS MUNICIPAL CODE REGARDING CLASSIFICATIONS FOR THE PAYMENT OF FIRE AND EMERGENCY SERVICES IMPACT FEES.

WHEREAS, Subsection 070.040.030(g)(5) of the Glenwood Springs Municipal Code establishes the calculation of emergency services impact fees; and

WHEREAS, City Council authorized a study of the industry standard rational nexus of classifications for the payment of fire and emergency services impact fees and reviewed the recommendations in the Fire\EMS System Impact Fee Report dated March 3, 2016 and the information provided on the July 7, 2016 City Council agenda, and determined a policy change was necessary; and

WHEREAS, the City Council previously amended Section 070.030.150 of the code via Ordinance No. 16, Series 2016, and that revision to implement a classification schedule and EQR definition was inadvertently left out of the land use code redraft in 2018; and

WHEREAS, the Glenwood Springs Home Rule Charter requires that an ordinance be enacted to effectuate this amendment.

NOW, THEREFORE, IT IS ORDAINED BY THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO, THAT:

Section 1. The recitals above are hereby adopted as findings.

Section 2. Section 070.040.030 of the City Code is hereby amended in part as provided for on the attached **Exhibit A.**

Section 3. Any ordinances or resolutions or parts thereof, which are in conflict with this ordinance, are hereby repealed to the extent of such conflict only.

INTRODUCED, READ ON FIRST READING, PASSED, AND ORDERED PUBLISHED BY TITLE ONLY THIS _____ DAY OF _____, 2022.

CITY OF GLENWOOD SPRINGS, COLORADO

ATTEST:

_____

Jonathan Godes, Mayor

_____

Ryan Muse, City Clerk

INTRODUCED, READ ON SECOND READING, PASSED, AND ORDERED PUBLISHED BY TITLE ONLY TO BE EFFECTIVE TEN DAYS FOLLOWING THE DATE OF SECOND PUBLICATION THIS _____ DAY OF _____, 2022.

CITY OF GLENWOOD SPRINGS, COLORADO

_____

ATTEST: Jonathan Godes, Mayor

_____

Ryan Muse, City Clerk

EXHIBIT A

New language in bold.

070.040.030 – Site Development and Improvement Standards.

…

(5) *Fire and emergency services impact fee.* In order to help offset the financial impacts of new development on the residents of the City, all new development shall pay a fire and emergency services impact fee as provided for in this section.

…

(e) *Calculation of emergency services impact fee and credit for improvements.*

1. The emergency services impact fee shall be calculated as follows, **and the amount of the fee shall be set by City Council resolution. One (1) EQR is the equivalent of one single family residential unit.**

A. RESIDENTIAL CLASSIFICATIONS

1. Single-Family Residential Units:

Single family homes, three (3) bedrooms	**1.00 EQR**
Each additional bedroom	**0.15 EQR**

2. Secondary Residential Units:

Accessory dwelling unit: guesthouse, accessory dwelling unit, separate apartment attached to single-family residential unit, and other separate residential units associated. Up to two (2) bedrooms, one(1) bathroom, one (1) kitchen **0.65 EQR**

3. Multi-Family Residential Units: duplexes, apartments, townhouses, and similar facilities in the same complex, and small cabins in courts not associated with motels.

a. Studio apartment or buffet or condo with one (1) kitchen, no greater than 1,500 sq ft	**0.65 EQR**
b. Up to two (2) bedrooms with 1.5 bath and one (1) kitchen, no greater than 1,500 sq ft	**0.75 EQR**
c. Three (3) bedrooms witih up to two (2) baths and one(1) kitchen, no greater than 2,000 sq ft	**1.00 EQR**

B. COMMERCIAL CLASSIFICATIONS

1. **General Office, medial, retail, warehouse, industrial buildings, theaters, grocery stores, churches, athletic clubs and any other commercial classification (per 1,000 sq ft)** **0.30 EQR**

2. **Special Review**

   Any commercial or industrial use that may have special FIRE/EMS needs or that may have hazardous materials may undergo a special review.

RESOLUTION 2016-21

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO, SETTING THE FIRE AND EMERGENCY SERVICE IMPACT FEE FOR THE PERIOD BEGINNING SEPTEMBER 1, 2016 AND ENDING JANUARY 31, 2018, AND PROVIDING FOR THE ANNUAL ADJUSTMENT OF EMERGENCY SERVICE, WATER, AND WASTEWATER FEES.

WHEREAS, Subsection 070.030.150(e)(6) of the Glenwood Springs Municipal Code establishes the calculation of fire and emergency services impact fees; and

WHEREAS, City Council authorized a study of the industry standard rational nexus of classifications for the payment of fire and emergency services impact fees and determined a policy change was necessary; and

WHEREAS, the City Council desires to set the fire and emergency service impact fees to better reflect actual costs to the City in providing these services to new developments in the City; and

WHEREAS, the City Council further desires to establish annual adjustments of service and system impact fees based on the prior years' average inflation.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO, RESOLVES THAT:

1. The foregoing recitals are hereby incorporated as if set forth in full.

2. The emergency services impact fee established in Section 070.030.150(6) shall be $1,290.00 for one (1) equivalent residential unit ("EQR") during the period beginning September 1, 2016 and ending January 31, 2018.

3. Unless otherwise adjusted by the resolution of the Glenwood Springs City Council, the emergency services impact fee set herein shall, beginning in 2018, be adjusted annually based on the prior years' average inflation as established by the United States Bureau of Labor Statistics Consumer Price Index for Denver-Boulder-Greeley, to be effective February 1 of each year.

4. Unless otherwise adjusted by the resolution of the Glenwood Springs City Council, the water and wastewater system improvement fees set in Resolution 2016-13 shall, beginning in 2018, be adjusted annually based on the prior years' average inflation as established

by the United States Bureau of Labor Statistics Consumer Price Index for Denver-Boulder-Greeley, to be effective February 1 of each year.

INTRODUCED, READ, AND PASSED THIS 4TH DAY OF AUGUST, 2016.

CITY OF GLENWOOD SPRINGS, COLORADO

_____
Michael Gamba, Mayor

ATTEST:

_____
Catherine Mythen Fletcher, City Clerk

ORDINANCE NO. 21

Series of 2016

AN ORDINANCE OF THE CITY OF GLENWOOD SPRINGS, COLORADO, AMENDING SECTION 070.030.150 OF THE GLENWOOD SPRINGS MUNICIPAL CODE REGARDING CLASSIFICATIONS FOR THE PAYMENT OF FIRE AND EMERGENCY SERVICES IMPACT FEES.

WHEREAS, Subsection 070.030.150(e)(6) of the Glenwood Springs Municipal Code establishes the calculation of emergency services impact fees; and

WHEREAS, City Council authorized a study of the industry standard rational nexus of classifications for the payment of fire and emergency services impact fees and reviewed the recommendations in the Fire\EMS System Impact Fee Report dated March 3, 2016 and the information provided on the July 7, 2016 City Council agenda, and determined a policy change was necessary; and

WHEREAS, the City Council desires to amend Section 070.030.150 by implementing a classification schedule and EQR definition; and

WHEREAS, the Glenwood Springs Home Rule Charter requires that an ordinance be enacted to effectuate this amendment.

NOW, THEREFORE, IT IS ORDAINED BY THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO, THAT:

Section 1. The recitals above are hereby adopted as findings.

Section 2. Section 070.030.150 of the City Code is hereby amended in part as provided for on the attached **Exhibit A.**

Section 3. Any ordinances or resolutions or parts thereof, which are in conflict with this ordinance, are hereby repealed to the extent of such conflict only.

INTRODUCED, READ ON FIRST READING, PASSED, AND ORDERED PUBLISHED BY TITLE ONLY THIS _____ DAY OF _____, 2016.

CITY OF GLENWOOD SPRINGS, COLORADO

ATTEST:

_____
Michael Gamba, Mayor

_____
Catherine Mythen Fletcher, City Clerk

INTRODUCED, READ ON SECOND READING, PASSED, AND ORDERED PUBLISHED BY TITLE ONLY TO BE EFFECTIVE TEN DAYS FOLLOWING THE DATE OF SECOND PUBLICATION THIS _____ DAY OF _____, 2016.

CITY OF GLENWOOD SPRINGS, COLORADO

_____

ATTEST: Michael Gamba, Mayor

_____

Catherine Mythen Fletcher, City Clerk

EXHIBIT A

New language in bold.
~~Strike-through language is deleted~~

070.030.150 - Dedications.

…

(e) *Fire and emergency services impact fee.* In order to help offset the financial impacts of new development on the residents of the City, all new development shall pay a fire and emergency services impact fee as provided for in this section.

…

(6) *Calculation of emergency services impact fee and credit for improvements.*

a. The emergency services impact fee shall be calculated as follows, **or as set by City Council resolution. One (1) EQR is the equivalent of one single family residential unit.**

A. RESIDENTIAL CLASSIFICATIONS

1. Single-Family Residential Units:

Single family homes, three (3) bedrooms 1.00 EQR

Each additional bedroom 0.15 EQR

2. Secondary Residential Units:

Accessory dwelling unit: guesthouse, accessory dwelling unit, 0.65 EQR
separate apartment attached to single-family residential unit, and other separate residential units associated. Up to two (2) bedrooms, one(1) bathroom, one (1) kitchen

3. Multi-Family Residential Units: duplexes, apartments, townhouses, and similar facilities in the same complex, and small cabins in courts not associated with motels.

a. **Studio apartment or buffet or condo with one (1) kitchen, no greater than 1,500 sq ft** **0.65 EQR**
b. **Up to two (2) bedrooms with 1.5 bath and one (1) kitchen, no greater than 1,500 sq ft** **0.75 EQR**
c. **Three (3) bedrooms witih up to two (2) baths and one(1) kitchen, no greater than 2,000 sq ft** **1.00 EQR**

B. COMMERCIAL CLASSIFICATIONS

1. **General Office, medial, retail, warehouse, industrial buildings, theaters, grocery stores, churches, athletic clubs and any other commercial classification (per 1,000 sq ft)** **0.30 EQR**

2. **Special Review**
   Any commercial or industrial use that may have special FIRE/EMS needs or that may have hazardous materials may undergo a special review.

~~Residential:~~	~~$1,720.43 per residential unit~~
~~Commercial:~~	~~$1,720.43 per 1,900 square feet of commercial space~~

Planning and Zoning Commission Report

Date: February 22, 2022
To: Planning and Zoning Commission
From: Hannah Klausman, Assistant Director, Economic & Community Development
Subject: Election of Officers

REQUEST	
APPLICANT	
OWNER	
LOCATION	
ZONE	
SURROUNDING LAND USES	
LOT SIZE	

ACTION ITEMS

Nomination and Election of Chair and Vice Chair

BACKGROUND

According to the Planning and Zoning Commission Rules and Regulations, the Commission, at its regular meeting in February shall elect officers for the position of Chairperson and Vice-Chairperson. The positions shall serve in such capacity for a twelve month period until the next election.

PROJECT SUMMARY

The duties and powers of the officers of the Commission are as follows:

Chairperson.

Preside at all meetings of the Commission.
Call special meetings in conformance with Rules I.
Sign all documents of the Commission.
Oversee compliance with the Municipal Code provisions pertinent to the actions of the Commission.

Vice-Chairperson.

During the absence, disability, or disqualification of the chairperson, the Vice-Chairperson shall exercise or perform all duties and be subject to all responsibility of the Chairperson.

REVIEW CRITERIA AND STAFF ANALYSIS

N/A

REVIEWING AGENCY COMMENTS

None

ACTION ITEMS & STAFF RECOMMENDATIONS

Nomination and Election of Chair and Vice Chair

Staff defers to the Planning and Zoning Commission.

Suggested Findings:
N/A

RULES, REGULATIONS AND PROCEDURES

GLENWOOD SPRINGS PLANNING AND ZONING COMMISSION

The Glenwood Springs Planning and Zoning Commission ("Commission") was created by ordinance pursuant to the authority provided in the home rule charter section 7.1 section 020. 020. 030 parentheses LM parentheses set forth the power and duties of this Commission the purpose of these rules, regulations and procedures in parentheses rules is to provide an orderly set of rules and procedures for the Commission to carry out the function set forth in the municipal code.

I. MEETINGS.

A. **Time Limit.** Meeting shall not continue past 11:00 PM. No agenda item shall be taken up after 10:00 PM., unless approved by the unanimous vote of the Commission.

B. **Regular Meetings.** The Commission shall meet once a month on the fourth Tuesday. Meeting shall be held in the City Council Chambers unless the Commission deems it necessary to use other facilities. Meetings shall commence at 6:00 PM. In the event that the proposed number of agenda items appears to require two meetings to complete such business, two meetings shall be scheduled at the discretion of the Community Development Director, upon consultation with the Chairperson and such other members of the Commission necessary to ensure a quorum at such additional meeting.

C. **Continuation of Regular Meeting.** In the event that an agenda item scheduled for the regular meeting has not been taken up due to the provisions of I. (A) above, the Commission shall have the option of continuing such agenda item until a regular meeting or a special meeting. Agenda items maybe continued as addressed in the Glenwood Springs Municipal Code.

D. **Work Sessions.** The Commission may meet once a month for a work session. Work sessions shall generally be held one week before the regular meeting date, unless another date has been designated by the staff based on room availability. All work session shall be in the City Council chambers unless the Commission deems it necessary to use other facilities. Work session shall commence a 6:00 PM and shall not extend past 8:00 PM unless approved by a unanimous vote of the Commission.

E. **Special Meetings.** Special meetings are discouraged. A special meeting shall be held only in those circumstances in which there is a matter of pressing business which requires action by the Commission to the next regular meeting prior to calling a special meeting the chairperson shall consult with the community development

director and such other members of the Commission which are necessary to form a quorum. The decision to call a special meeting shall be at the sole discretion of the chairperson. Such meeting shall be called with no less than twenty-four hours notice.

F. **Notice.** In the event that a special meeting is called, all notices required by the municipal code shall be followed. In the event that a continued regular meeting is held, all notices published in compliance with the Municipal Code shall be deemed automatically continued until the date of the continued regular meeting.

II MEMBERSHIP/OFFICERS

A. Election of Officers.

1. **Chairperson.** The Commission, at its regular meeting in February shall elect a Chairperson who shall serve in such capacity for a twelve month period. In the event of a Chairperson vacates the Commission, for whatever reason, the Vice-Chairperson shall act in the role of Chairperson to serve out the Chairperson's term.

2. **Vice-Chairperson.** The Commission, at its regular meeting in February, shall elect the Vice-Chairperson who shall serve in such capacity for a twelve month period. In the event a Vice-Chairperson vacates the Commission, for whatever reason, the Commission shall elect a Vice-Chairperson at its next regular meeting.

3. **Election of chairperson in the event of absence of the chairperson and vice chairperson.** In the event the Chairperson and Vice-Chairperson are both absent from any meeting any members of the Commission present shall vote to elect a Chairperson to preside over such meeting.

4. **Recording secretary.** The Recording Secretary shall be a non-elected position and shall be a member of the Community Development Department or shall be designated by the Community Development Director.

B. **Duties of Officers.** The duties and powers of the officers of the Commission shall be as follows:

1. **Chairperson.**

(a) Preside at all meetings of the Commission.
(b) Call special meetings in conformance with Rules I. (E).

(c) Sign all documents of the Commission.

(d) Oversee compliance with the Municipal Code provisions pertinent to the actions of the Commission.

2. **Vice-Chairperson.** During the absence, disability, or disqualification of the chairperson, the Vice-Chairperson shall exercise or perform all duties and be subject to all responsibility of the Chairperson.

3. **Recording Secretary.**

(a) Keep the minutes of all meetings of the Commission and recording of such meetings per the Colorado retention schedule.

(b) Prepare summaries of such meetings.

(c) Arrange for a verbatim transcription upon written request, if the recording for the meeting has not been purged per the Colorado retention schedule. A fee for the actual cost of such verbatim transcription may be charged.

(d) Prepare the agenda upon consultation with the Chairperson and Community Development Director.

(e) Act as the official custodian of all Commission records.

(f) Publish notices of appeals in city actions as required by the Municipal Code.

III **QUORUM**

The quorum shall be met if at least four (4) members of the Commission are present for any meeting. The Commission shall not act on any matter unless there is at least a quorum of its members present.

IV **Alternate.**

A Commissioner appointed as an alternate shall be authorized to participate in a meeting when substituting for an absent member. An alternate may attend any meeting of the Commission. An alternate shall not be authorized to participate in a meeting when not substituting for an absent member, except in cases where the alternate is speaking as a citizen on his own behalf and not as a representative of the Commission. Alternate member shall be allowed to participate in work sessions.

V DEADLINE FOR AGENDA.

The deadline for filing applications or other items on an agenda shall be eight weeks prior to the public hearing, unless otherwise provided by the Municipal Code. Requests for continuance of any application for a particular agenda shall be filed with the Community Development Director as soon as is practicable with the goal of having those changes reflected on the final agenda. In the event a request for continuance is not made in a timely manner in strict compliance with these Rules, an application for continuance maybe presented by the applicant at the meeting.

VI CORRESPONDENCE/APPLICATIONS.

All correspondence or any application shall be provided to the Planning Commission.

VII PROCEDURE FOR PUBLIC HEARINGS.

The following procedure shall normally be followed. It may be re-arranged by the Chairperson upon consultation with the Community Development Director, if necessary, for the expeditious conduct of business.

A. Community Development Director, or designated representative, shall present the staff report and make recommendations.

B. Commission members may ask questions regarding the staff presentation, report and recommendations.

C. Applicant or applicant's representative shall make their presentation.

D. Commission members may ask questions pertaining to the applicant's presentation.

E. Comments shall be taken from the public.

F. Applicant makes rebuttal of any points not previously covered.

G. The public hearing is then closed. No further statements may be made by anyone who is not a Commissioner, subject to clarification questions directed to staff by the commissioners (see "J" below).

H. A Commissioner makes a motion on the application per the actions allowed in the Glenwood Springs Municipal Code.

I. Discussion among Commissioners on the findings for the public hearing.

J. Discussion among Commissioners on the motion. Commissioners may ask clarification questions of staff and applicant. No one from the public is allowed to make further statements or provide additional evidence.

K. The Chairperson shall call for the vote when discussion ends.

L. A vote is then taken.

M. A majority vote is necessary to carry any motion.

VIII **CONFLICT OF INTEREST.**

Any member who shall feel that he or she has a conflict of interest on any matter that is on the agenda shall voluntarily excuse himself or herself, temporarily vacate the Commission seat, and refrain from discussing and voting on said matter. Commissioners who have business or financial interest that would stand to profit from a decision should absent themselves from the hearing.

IX **RULES TO ENSURE FAIRNESS FOR PUBLIC HEARINGS.**

The Commission intends to provide the following to anyone involved in a public hearing before the Commission:

A. Adequate notice;

B. An impartial tribunal;

C. An opportunity to present, hear and rebut evidence; and

D. A decision based upon the law and upon evidence presented at the hearing.

In Order to ensure that these precepts are followed:

1. Commissioners shall never discuss any item with anyone who is to come before the Commission at a public hearing; However, the Commission is authorized to make a site visit with staff prior to the hearing. The site visit is subject to open meeting laws. In the event the site visit is taken, the Chairperson shall report on the record of what the Commission saw and did on the site visit.

2. Commissioner shall never comment on the pros and cons of an agenda item until all evidence and testimony have been presented and the public hearing is closed;

3. In the event many people wish to speak on a particular item, the chairperson shall ration speaking time so that all may be heard in a timely matter.

4. Speakers who represent groups at the hearing shall be given more time than individuals expressing their own views;

5. Individuals who persist in interrupting the proceedings shall be asked to leave the hearing room a member of the Police Department shall be requested to remove anyone persisting in unruly or disruptive behavior;

6. Due to the tape recording of the proceedings, all Commissioners and speaker shall speak clearly and directly into the microphones to ensure at clear record; All speakers shall identify themselves and state their home or business address and the group they represent, if any.

7. Individuals wishing to be part of the record must be at the podium or at the microphone prior to speaking;

8. Written materials offer to the Commission shall be handed to the recording secretary. The material shall then be circulated to the Commissioners;

9. No cross examination of a witness or speaker shall be allowed. In the event a person wishes to ask a question of a witness or speaker, such questions shall be addressed to the Chairperson, who may then address such witness or speaker with the question;

10. The strict rules of evidence shall not be followed;

11. No Speaker shall be subject to harassment or embarrassment during the hearing;

12. The Chairperson shall determine whether offered testimony is material or relevant to the hearing.

13. The Commissioners shall give offered evidence whatever weight is deemed worthy by the Commission;

14. Commissioners shall base their vote only upon evidence presented during the hearing;

15. Commissioners serving as alternates who are not filling in for another absent Commissioner shall not ask questions, comment or participate in a public hearing; unless the alternate member clearly states they are speaking as a citizen and not as a representative of the Planning Commission.

16. Commissioners shall not vote on minutes of a meeting at which they were not present;

17. A Commissioner who has not participated in a hearing on an item that is continued, may not participate in discussion of the item at a future meeting unless the Commissioner has listened to the audio recording of the item from the original meeting and also has fully reviewed all written evidence presented at the previous meeting on that agenda item.

18. Commissioners and alternate members that wish to speak on items taken up by the Planning Commission, City Council or other City Boards and Commissions, shall identify himself/herself as a member of the Planning Commission and shall preface their remarks by stating they are speaking on their own behalf, not as a representative of the Planning Commission as a whole.

X **AMENDMENT OF RULES.**

These rules may be amended from time to time upon the majority vote of the full Commission.

XI **AVAILABILITY OF RULES.**

The Recording Secretary shall see to whether anyone who requests a copy of these rules shall have them provided at the cost of copying said rules.