The Fields

Consolidated
Zone District Map Amendment,
Sketch & Preliminary Plan

Narrative

December 8, 2020

(revised for sufficiency April 5 & June 7, 2021)
(revised per referral comments November 9, 2021)

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3. Project Overview

3.1. Community Vision

Since the approval of Sketch Plan in 2016, The Fields has been thoroughly re-envisioned utilizing progressive planning principles to arrive at a plan that promotes open space conservation, building sustainability, healthy lifestyles and a diverse offering of housing types for local residents. The provision of modest new homes and price-capped affordable housing at The Fields will help to address the local housing crisis as identified by Eagle County. A new ownership team has aspired to create a project which is far better aligned with County master plans, contemporary planning methodologies, and prevailing local culture. The results of those goals are embodied in this application.

While the previously approved Sketch Plan checked many boxes regarding land use and zoning standards, perhaps the most important box was left un-checked – **the creation of a forward-thinking and inspiring community in which to live**.

In 2018, the Roaring Fork Valley Regional Planning Commission embarked on a process to update the Mid Valley Area Community Plan, which provides guidance for development of Eagle County lands located within the Roaring Fork Valley. As a result of that effort in 2018 and resulting Future Land Use Map (FLUM), the Planning Commission identified The Fields property as one of the few remaining properties in the mid-valley that is suitable for Moderate Density Residential development of up to 7 units per acre. The plan for The Fields was crafted around the 2018 Mid Valley Area Community Plan and FLUM as the framework for this new neighborhood.

The land plan for The Fields places considerable emphasis on the creation of “villages”, each connected with a robust two-tiered system of open space linkages. Each village contains a variety of housing types and sizes, encouraging the intermingling of residents with varied backgrounds. The community trail network prioritizes efficient multi-modal connectivity, while also providing opportunities for exploration and tranquility. Landscaping for the community is intended to emphasize our connections with nature, utilizing native vegetation groupings, meadows, and water elements to create purposeful and meaningful experiences in the community, with opportunities for the addition of future amenities. The plan also aims to create a model of future sustainable development, with considerations for energy efficient homes and building technologies.

Collectively, the ownership’s design goals and proposed development plan far outshine the prior Sketch Plan and are significantly more aligned with Eagle County’s vision for future development as embodied in the Comprehensive Plan and Mid-Valley Area Community Plan.

3.2. Purpose of Report

The purpose of this report is to provide information relative to a request for a Zone Change Map Amendment and Sketch/Preliminary Plan review for The Fields. Specifically, the application contains

all information required for a Zone Change Map Amendment review per Article 5-230, and all information required for a Sketch and Preliminary Plan review as required by Article 5-280 of the Eagle County Land Use Regulations (ECLUR).

This report demonstrates the project's conformance with the Eagle County Comprehensive Plan, the Mid-Valley Area Community Plan, the Eagle County Affordable Housing Guidelines, and the Mid Valley Trails Plan.

3.3. Prior Land Use Actions

The subject property is Lot 5 of the Arlian Ranch Subdivision. The following is a chronological history of land use actions associated with the property:

1980 Eagle County approved and recorded a Final Plat for the Arlian Ranch Subdivision at Reception No. 205385. This Final Plat created the subject property known as Lot 5 at 19.39 acres.

1982 Eagle County approved and recorded a Corrected Final Plat for the Arlian Ranch Subdivision at Reception No. 214101. This Plat corrected the legal description for the Arlian Ranch Subdivision, in which the overall acreage was revised from 54.55 acres to 54.37 acres.

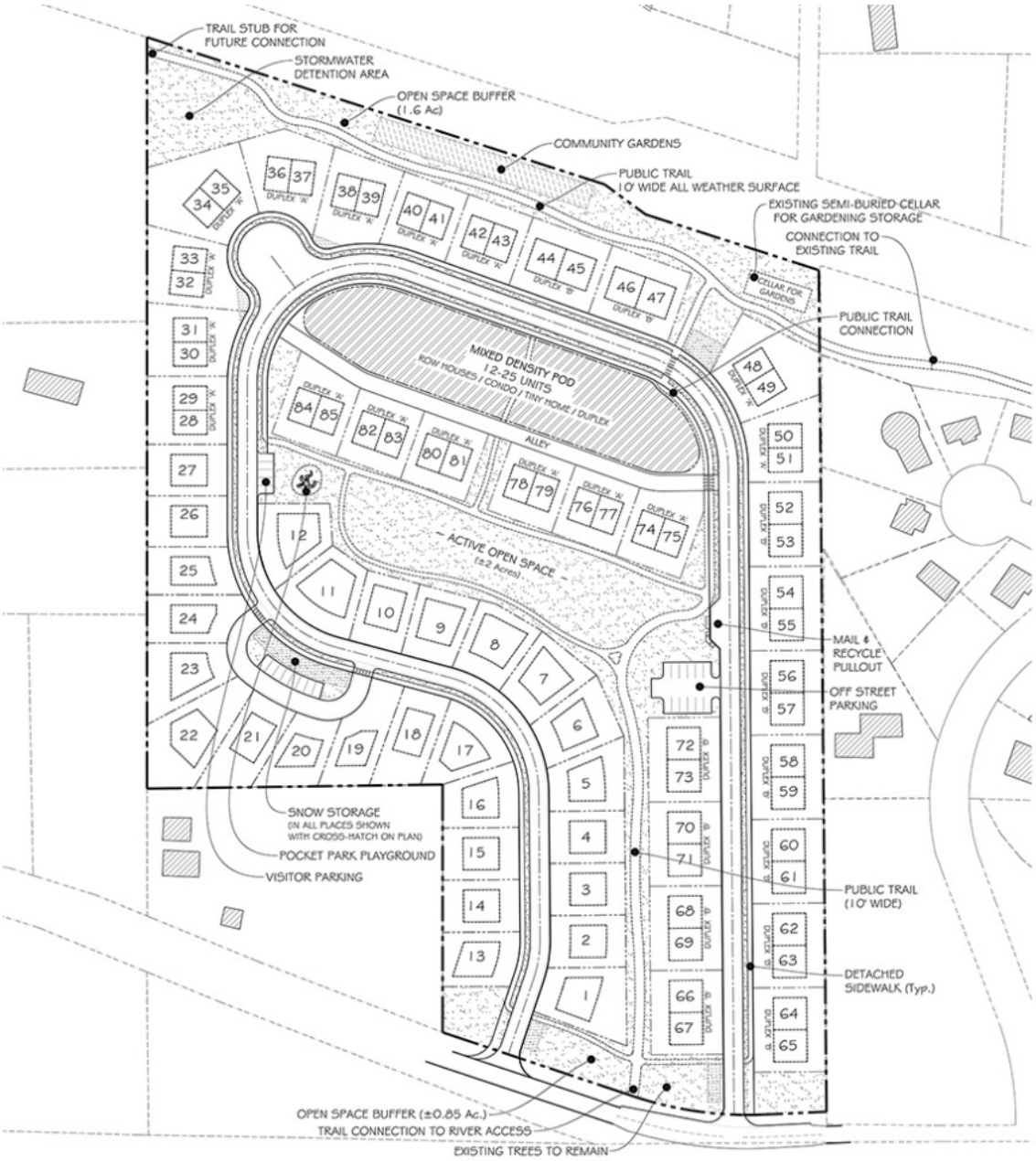
2013 The Roaring Fork Valley Regional Planning Commission adopted the 2013 Mid Valley Area Community Plan and associated Future Land Use Map, identifying The Fields property as suitable for Urban/ Suburban Residential development up to 7 units per acre.

2016 The Board of County Commissioners approved a Sketch Plan for The Fields Subdivision via Resolution No. 2018-051. The Sketch Plan approval included 110 dwelling units on the subject property with seven Conditions of Approval.

2018 The Board of County Commissioners approved a two-year extension to The Fields Sketch Plan for Subdivision, via Resolution No. 2019-057.

2018 The Roaring Fork Valley Regional Planning Commission adopted the 2018 Mid Valley Area Community Plan and associated Future Land Use Map, re-confirming The Fields property as suitable for Moderate Density Residential development up to 7 units per acre.

Prior Sketch Plan *(2016)*



3.4. Proposed Project Summary

The Fields comprises 19.39 acres located in the El Jebel area of Eagle County and is currently zoned Rural Residential (RR). The Applicant seeks to rezone the property to the Residential Multi-Family (RMF) Zone District and obtain approval for the proposed Preliminary Plan. The re-zoning will allow the property to be zoned consistently with the 2018 Future Land Use Map's prescription of Moderate Density Residential development up to 7 units per acre.

Proposed Preliminary Plan *(large format version included in Appendix G)*

Northwest model view of proposed buildout *(large format version included in Appendix G)*

Proposed central open space and pond *(large format version in Appendix G)*

Proposed open space and trail *(large format version included in Appendix G)*

Meadow areas are a prominent landscape theme *(large format version in Appendix G)*

Example of "village green" landscaping *(large format version included in Appendix G)*

The Preliminary Plan Summary table below provides a quantitative overview of the proposed project.

Preliminary Plan Summary

	Metric	Preliminary Plan
SUMMARY	**Total Acres**	19.39
	Open Space/ Park Acres	6.0
	Open Space/ Park Percent	31.0%
	Total Dwelling Units	135
	Single Family Units	28
	Duplex Units	18
	Townhome Units	24
	Multi-Family Units	65
	Affordable Housing Units	17
	Average SF per Unit	1675
	Gross Density (DU/AC)	6.96
	New Weekday Traffic (VPD)	1021

Central to the project vision, the Preliminary Plan for The Fields provides the following:

- **A development plan that is intentional in its conformance with the goals and policies of the Eagle County Comprehensive Plan, Mid Valley Area Community Plan, Future Land Use Map, and 2019 Greater Roaring Fork Regional Housing Study.**

- **An efficient clustering of density and a diversity of housing typologies that are designed for locals, including deed-restricted residential units in compliance with the 2020 Eagle County Affordable Housing Guidelines.**

- **Compatibility with adjacent land uses in a location adjacent to existing transportation networks, utility services, public amenities, services, recreation, and employment centers.**

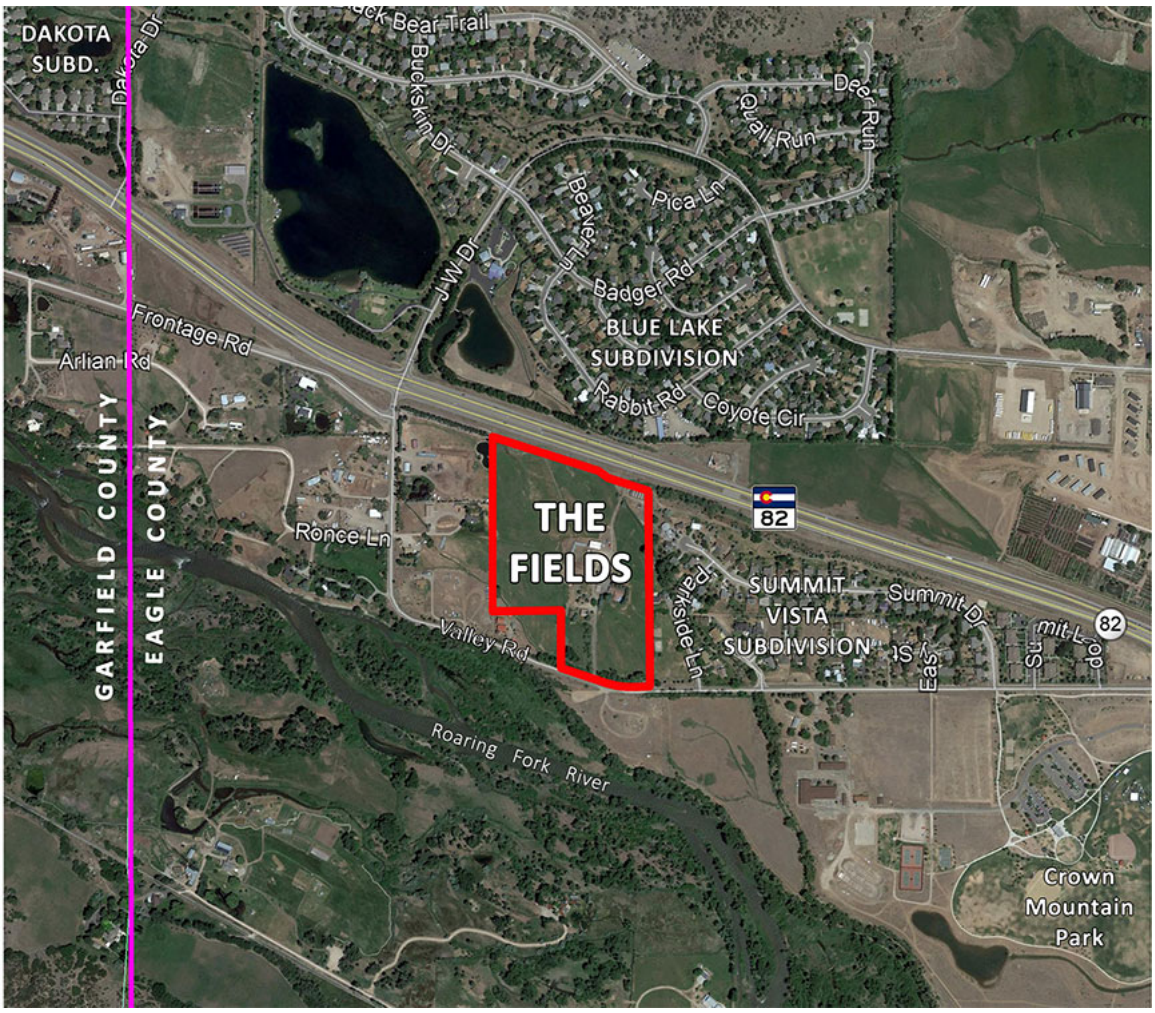
- **An on-site prioritization of open space preservation, passive recreation, livability, and forward-thinking sustainability and efficient building practices.**

4. Existing Site Conditions

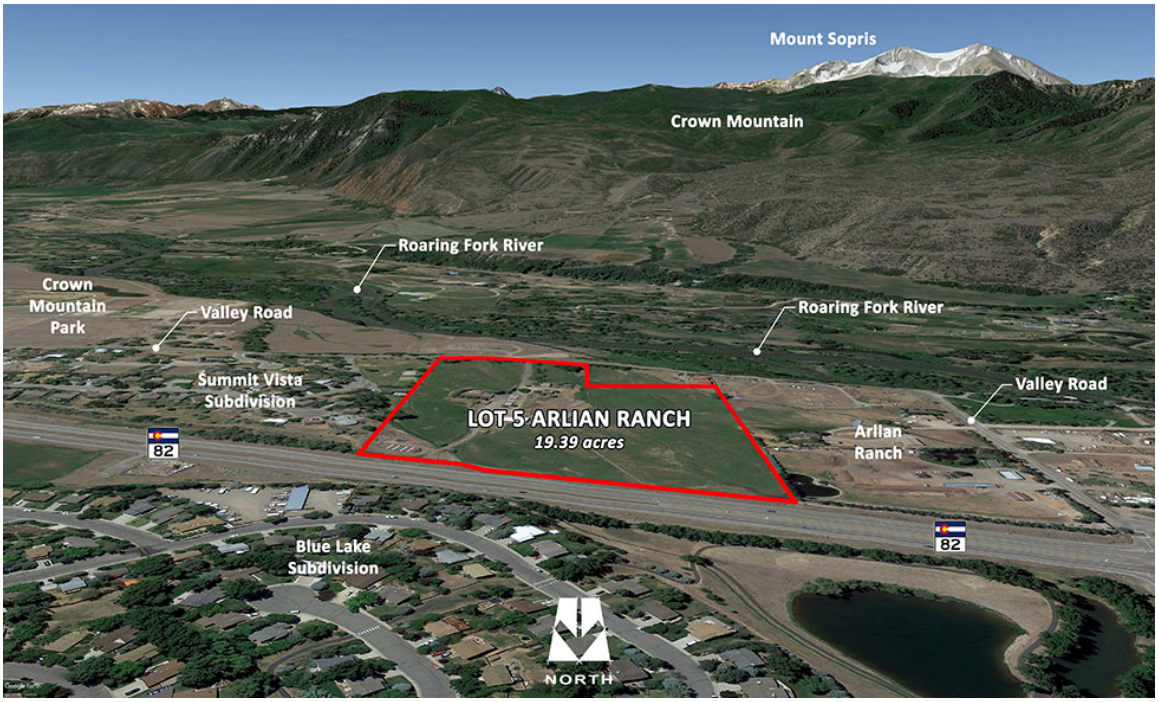
4.1. Location

The Fields property is located within the Arlian Ranch Subdivision in the unincorporated El Jebel area between Valley Road and State Highway 82. The property is adjacent to a U.S. Forest Service-administered parcel to the south; the Summit Vista Subdivision to the east; State Highway 82 and the Blue Lake Subdivision to the north; and the remainder of the Arlian Ranch Subdivision to the west. The site is accessed from Valley Road, with connections to State Highway 82 at JW Drive (west of property) and El Jebel Road (east of property).

Vicinity Map *(map source: Google Earth)*



Oblique Aerial Map *(map source: Google Earth)*



Looking northwest at existing property driveway, accessed from Valley Road.

4.2. Existing Site Uses

The subject property is currently zoned Rural Residential (RR), and most of the property acreage is used as irrigated agricultural pastureland. The property also contains a primary residence built in 1944 and four additional smaller residential structures constructed between 1939 and 1982. Several additional agricultural outbuildings and "lean-to" style buildings are located proximate to the residential structures. All existing structures on the property can be described as being of average to poor construction quality and condition.

Looking northwest at horse pasture, toward existing structures.

Looking north at driveway approach to residential structures.

Existing agricultural "lean-to" structure.

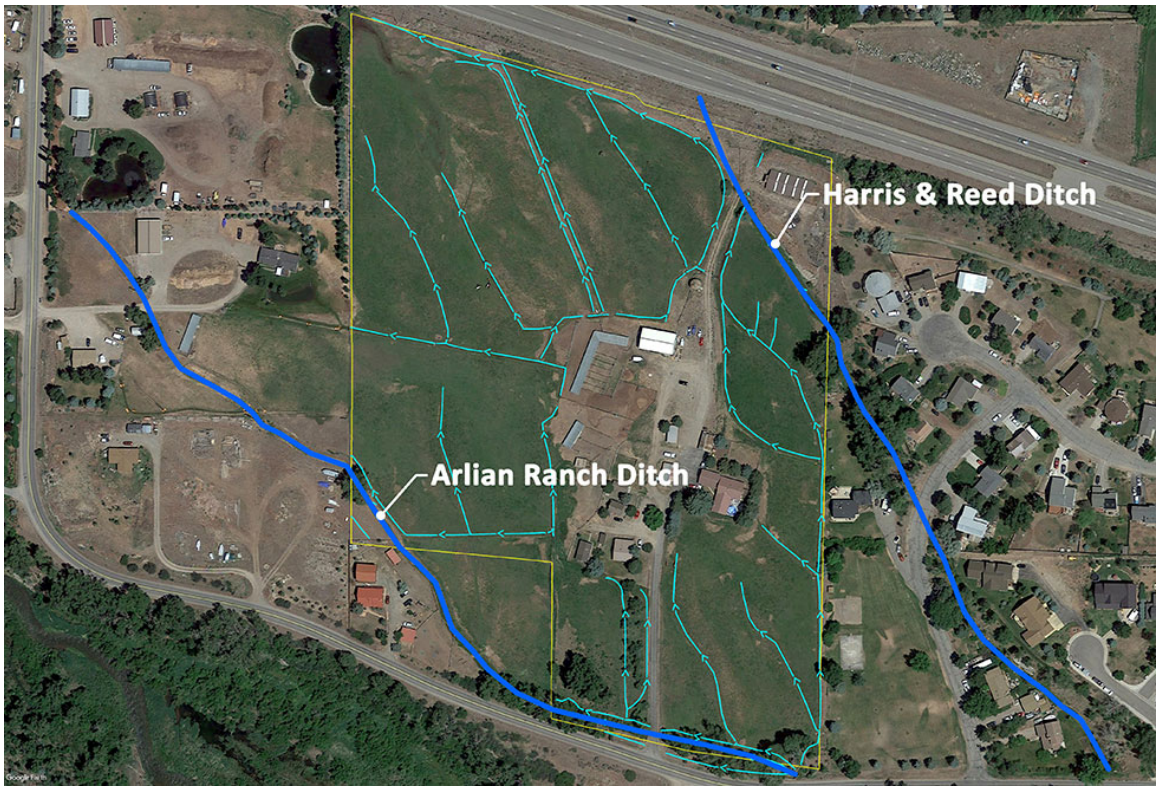
Typical examples of existing agricultural outbuildings.

The Property is associated with 173 shares out of the total 780 shares in the Arlian Ranch Ditch Company, or a 22.2% interest in the use of the Company's water rights. This translates to 112 uninterrupted hours of receipt of the Ditch Company's full water supply every three weeks beginning at 9am on May 3. The Arlian Ranch Ditch Company's water supply in turn comes from shares of stock in the Harris and Reed Ditch Company. The Arlian Ranch Ditch Company owns 3,000 shares out of the total 24,273 shares in the Harris and Reed Ditch Company, or a 12.4% interest in the use of the Harris and Reed Ditch Company's water rights. This translates into approximately 3.0 c.f.s. of flow.

The main Arlian Ranch Ditch traverses east to west along the southern border of The Fields Property, and the main ditch of the Harris and Reed Ditch crosses the northeast corner of the Property and is then piped under Highway 82 to the Blue Lake Subdivision.

Numerous lateral ditches from the main Arlian Ranch Ditch exist on the property. These lateral ditches disperse irrigation water across the property primarily for pasture irrigation.

Map indicating primary source ditches (dark blue), and lateral ditches (light blue).



The Arlian Ranch Ditch along the southern property boundary near Valley Road.

The property is currently served by full utility services. Overhead electric lines from Holy Cross Energy serve the existing residences and a portion of the outbuildings. There is a 20' powerline easement that crosses the southern portion of the property. Domestic water is from the Mid Valley Metropolitan District, from a water line near the northern property boundary along Highway 82. Wastewater treatment is handled by on-site wastewater treatment systems (OWTS), and the property is served by underground gas, telephone, and cable.

All existing utilities have been surveyed and are shown on the Boundary Survey in **Appendix F**.

4.3. Physical Site Description

The property can be described as generally flat, draining toward the northwest at an overall average gradient of 1%. The highest elevation of the property is in the southeast corner at 6439', and the low elevation is in the northwest corner at 6422', with a total elevation difference of 17'. Vegetation on the property largely consists of pasture grasses, however there are some areas of mature cottonwood stands associated with ditches, mature spruce trees primarily adjacent to buildings, and an area of fruit trees along the existing entry driveway.

Looking northwest at pasture on northwestern portion of property.

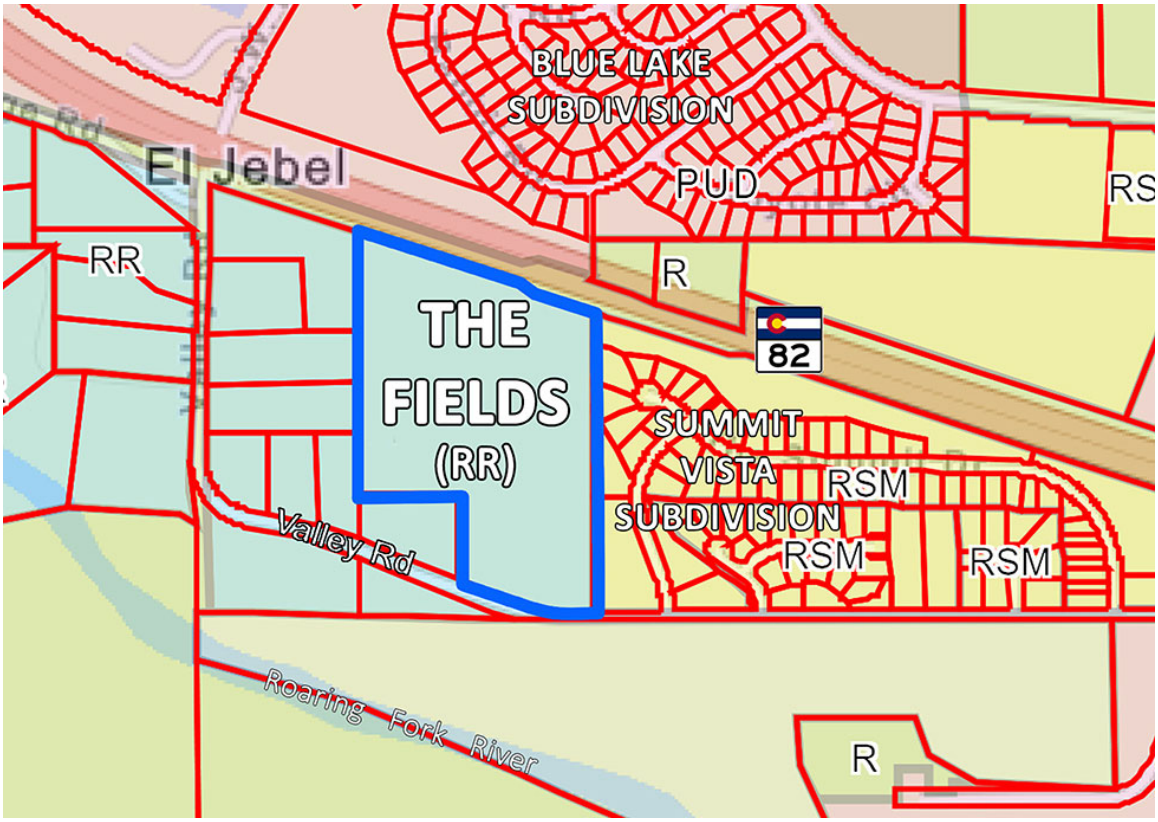
Looking west, existing cottonwood trees along Valley Road.

5. Zone District Map Amendment

5.1. Summary of Request

The purpose of this request for a Zone District Map Amendment is to re-zone the 19.39-acre subject property from Rural Residential (RR) to the Residential Multi-Family (RMF) Zone District. As required by Article 5-230.B.4.b of the ECLUR, this request for Zone District Map Amendment is companion to the Preliminary Plan for Subdivision in this consolidated application.

Current Zoning Map *(data from Eagle County GIS).*



5.2. Existing & Proposed Zone District Descriptions

As discussed in the previous section, the entirety of the 19.39-acre property is currently zoned Rural Residential, which description is as follows:

> **Rural Residential (RR) Zone District *(Existing Zoning)***
> The purpose of the Rural Residential (RR) zone district is to serve as a transition area between the denser development found in towns, community centers and rural centers and the lower densities found in the County's agricultural and resource areas. This is accomplished by permitting development of single-family dwelling units on lots of two (2) acres or more.

The proposed Residential Multi-Family Zone District description is as follows:

> **Residential Multi Family (RMF) Zone District (*Proposed Zoning)***
> The purpose of the Residential Multi-Family (RMF) zone district is to provide for higher density residential development within the County's community centers, where transportation facilities, necessary infrastructure and employment opportunities are already available. This is accomplished by permitting development of single-family, duplex, and multi-family residences on lots of six thousand (6,000) square feet or larger and by setting maximum lot coverage and maximum floor area standards appropriate for such uses and lots. The zone district also permits the development of small, convenience-type commercial uses to serve the neighborhood.

In 2018, the Roaring Fork Valley Regional Planning Commission embarked on a process to amend the Mid Valley Area Community Plan, which provides guidance for development of Eagle County lands located within the Roaring Fork Valley. As a result of that effort in 2018 and resulting Future Land Use Map (FLUM), the Planning Commission identified The Fields property as one of the few remaining properties in the mid-valley that is suitable for Moderate Density Residential (MDR) development of up to 7 units per acre. The plan for The Fields was crafted around the 2018 Mid Valley Area Community Plan and FLUM, and the proposed RMF Zone District is consistent with the MDR FLUM designation.

5.3. Conformance with Standards

5.3.1. Conformance with the Comprehensive Plan

The proposed change in zoning is in substantial conformance with the purposes, intents, goals and policies of the Comprehensive Plan, Mid Valley Area Community Plan, and Mid Valley Trails Plan. Section 7 of this Narrative addresses this application's responses to the specific goals and policies of these guiding documents.

5.3.2. Compatibility with Surrounding Uses

This request for Zone District Map Amendment is compatible with the type, intensity, character, and scale of existing and permissible surrounding land uses. The property is bounded on the east by the medium-density Summit Vista subdivision. To the north, the medium-density Blue Lake PUD also has a similar physical character. This proposal is predicated on responsible growth that ensures quality of life for future residents. This project brings additional moderate density residential uses adjacent to those existing developments, in a location that is proximate to nearby services. The proposed zone change provides the ability to add vitality to the area via a well-designed, clustered development that adds to housing diversity and housing choice. Adding housing near other developed areas provides more opportunities for efficient mass transit and could help protect other open lands. The dimensional limitations of the proposed Residential Multi Family zone district will result in development that will be harmonious with the physical character of most uses surrounding the subject property.

5.3.3. Public Benefit

The proposed change in zoning addresses several demonstrated community needs through the Fields' provision of substantial Public Benefits, which are detailed below.

Section 5-230.D.3 of the Eagle County Land Use Regulations (ECLUR) describes "Public Benefit" as follows:

> ***Public Benefit.*** *The proposed change in zoning addresses a demonstrated community need or otherwise result in one or more particular public benefits that offset the impacts of the proposed uses requested, including but not limited to: Affordable local resident housing; childcare facilities; transportation efficiencies, public recreational opportunities; infrastructure improvements; preservation of lands of high conservation value, senior housing, or medical facilities. (am.04/04/06) (am 5/08/12)*

The following sections are intended to demonstrate how The Fields will either "address a demonstrated community need" or "offset the impacts of the proposed uses". Consistent with the above ECLUR description, The Fields is proposing Public Benefits for affordable local resident housing; transportation efficiencies, public recreational opportunities; and infrastructure improvements.

Affordable Housing

The Fields will consist of 135 total dwelling units delivered in a well-balanced mix of sizes, types, and price points. Home sizes will range from 800 to 3400 square feet, with an average size of 1675 square feet. This will include single family homes, duplexes, townhomes, and multifamily units. This diversity of size and type of units along with other amenities, such as access to recreation and commercial centers, will attract a diverse mix of residents and household types - seniors, young families, singles, and working professional households.

The Fields has worked with various local housing partners and the County Housing Department to compose an affordable housing plan that meets the goals of the 2020 Eagle County Affordable Housing Guidelines. These units will be comparable in design quality and finishes to free market units and will directly and significantly benefit lower and middle-income households by reducing cost burden and improve the jobs-to-housing balance. It is important to understand that there are currently no Eagle County-administered price-capped housing units in the Roaring Fork Valley. The 2019 Greater Roaring Fork Regional Housing Study identified that the region has a 2,100-unit shortfall in housing for households at 60 percent of area median income (AMI) and less, and a 1,900-unit shortfall for households between 100 and 160 percent AMI, the "missing middle". Through the provision of 17 price-capped units, The Fields will help to populate the map of affordable housing in the Roaring Fork Valley portion of Eagle County.

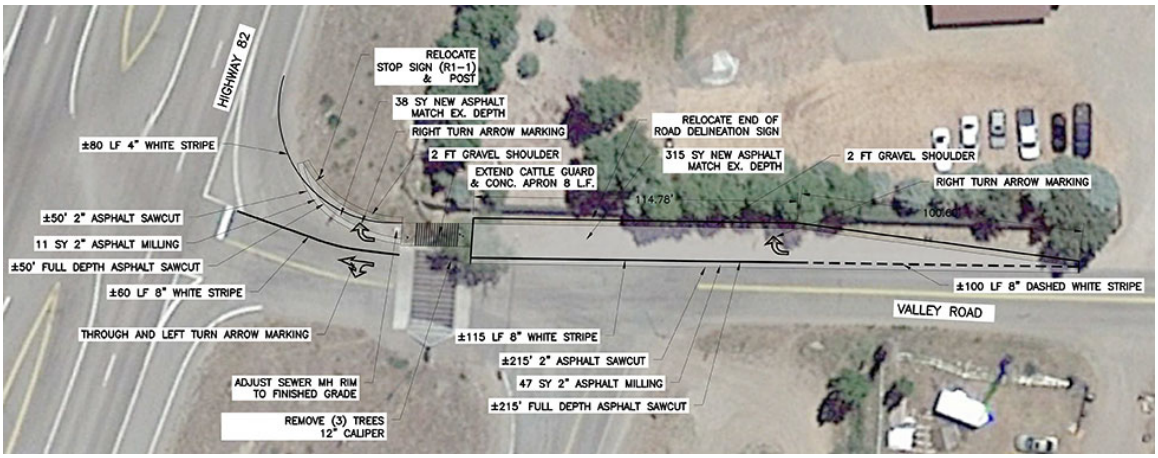
Per Section 3.01 of the 2020 Affordable Housing Guidelines, Eagle County has set the affordable housing mitigation rate at the higher of 25% of the total residential units or 15% of the total residential square feet. Since the "unit" calculation is highest, the applicant has used that calculation as the basis for the provision of affordable housing units. Per Chapter 4 of the Housing Guidelines, the provision of Price Capped For Sale Housing with a maximum Initial Sales Price set at or below 100% - 140% AMI affordability level, or Price Capped Rental units will be valued double (2x). The Fields intends to provide all Affordable Housing units as either Price Capped For Sale or Price Capped Rental units. The applicant has been coordinating with various potential local housing partners, and letters of intent have been provided by the Roaring Fork Fire Authority and the Aspen Music School for several employee rental units (see **Appendix R**). The applicant expects that one or more additional housing partnerships will transpire prior to construction, and we will provide the County with any such information as it becomes available.

AFFORDABLE HOUSING	Unit Type	Quantity	Approx. Unit Size (SF)	AMI Pricing Level	For Sale/ Rent	Entity
	Studio	2	400	120%	For Sale	The Fields
	1 Bedroom	4	500	120%	For Sale	The Fields
	1 Bedroom	2	500	140%	For Sale	The Fields
	1 Bedroom	3	500	80-120%	For Rent to Employees	Aspen Music School
	2 Bedroom	1	1,100	80-120%	For Rent to Employees	Aspen Music School
	2 Bedroom	1	1,100	140%	For Sale	The Fields
	2 Bedroom	4	1,100	50-80%	For Rent to Employees	Roaring Fork Fire Authority
	Total Units:	**17**				

Valley Road/ Highway 82 Intersection Improvements

At the intersection of Valley Road and Highway 82 (west of the project site), the applicant will construct a dedicated northbound right-turn lane onto Highway 82 (as discussed in Section 3.7 of the Transportation Impact Study, **Appendix L**). This northbound right turn lane improvement on Valley Road will require widening the pavement by approximately eight feet, the extension of the cattle guard, and striping modifications to incorporate the new left-through lane and separate northbound right turn lane. An exhibit of these improvements is included as Sheet 3 of **Appendix S**. This improvement will minimize delays for those turning right (east) onto Highway 82, eliminating the need to wait for the left-turning traffic to clear.

Planned Improvements at Valley Road/ Highway 82 intersection *(see Appendix S)*



El Jebel Road Intersection Improvements

While Eagle County is currently developing engineering plans for a long-term solution, interim improvements will be made to the combined intersections of Valley Road/ East Valley Road/ El Jebel Road/ Highway 82. These interim improvements will significantly improve the function of this intersection until Eagle County implements their final intersection design (as discussed in Section 3.5 of the Transportation Impact Study, **Appendix L**). This alternative utilizes the existing roadway network and removes the northbound stop sign from the East Valley Road leg of the intersection. To operate successfully in the interim, the afternoon signal timing will be modified to shift 10 seconds of green time to the south leg of the El Jebel Road intersection. This green time will be taken from the north leg which does not have a queuing concern in the afternoon. This will not impact the Highway 82 signal timing requirements from CDOT and will remove some of the northbound queueing that is currently occurring during peak traffic hours. This interim solution has been field-tested and approved by CDOT, as evidenced by an email from Mark Bunnell dated July 28, 2021 (**Appendix T**).

Eagle County is currently designing the long-term solution for the re-configuration of the El Jebel Road intersection, with the intent to begin construction of the improvements in 2022. The County Engineer has estimated the total cost of construction at $1.7M. Consistent with commitments made by the prior Fields ownership group in 2016, the current developers will

contribute 24% of the cost of the County's intersection improvements, not to exceed $408,000. The cost basis for the improvements, and subsequent capital contribution amount, shall be derived from the final Engineer's Opinion of Cost (EOPC) as prepared by the County's consulting engineer. This capital contribution amount will make the Fields one of the largest financial contributors to the re-constructed intersection, which is critical to initiating and completing the long-term solution, and this would be a failing intersection without the Fields' leadership and participation in the capital improvements.

The Transportation Impact Study (**Appendix L**) has determined the Fields' share of traffic volumes for the year 2045 at the Highway 82/ El Jebel Road intersection to be as follows:

Hwy 82 / El Jebel Rd. Intersection (with long-term improvements)	Fields' % of Total Traffic
South Leg of Intersection Only	3.0%
Entire Hwy 82/El Jebel Road Intersection	0.8%

It is important to note that while the Fields is committing to contributing 24% of the cost of the El Jebel Road intersection improvements (up to $408,000), traffic generated by the Fields will only comprise 3% of the volume. Similarly, The Fields has not created the hardship at this intersection as demonstrated by the Transportation Impact Study (**Appendix L**) but is willing to contribute to an existing County need for the benefit of the greater public infrastructure. Future improvements for Crown Mountain Park, the Forest Service Property, and an expanded RFTA park and ride are entirely dependent upon the implementation of these long-term intersection improvements.

Off-Site Public Trail

The Valley Road corridor has existing deficiencies in pedestrian access. Pedestrian trails along the corridor currently end within Crown Mountain Park at the intersection of Summit Drive, leaving all properties to the west along Valley Road (Summit Vista, Arlian Ranch) without adequate pedestrian access. The Fields has taken a proactive approach to providing solutions and capital improvements to help resolve this issue. We have studied the corridor and viable options and have discussed various solutions with the County Engineering Department. As a result of these studies and conversations, the applicant is proposing to provide one of the following public trail improvements, as determined by the Eagle County BoCC:

- **Option 1:** The future construction of a 10' wide, 600' long trail from The Fields through the Forest Service property toward Crown Mountain Park on an alignment to be determined by Eagle County. The preference of this Applicant and the Summit Vista HOA (see **Appendix S**) is that this trail would parallel the Valley Road right-of-way, as we feel it would benefit more existing residents in this location. In this option, it is not within the purview of The Fields developers to obtain any necessary approvals or permitting for public trail access across Federal Lands or Special Districts, and any

clearances for such would need to be processed and obtained by Eagle County or others. This is the preferred option of the Applicant, as it would provide a full-width multi-use public trail platform that is separated from the vehicular traffic on Valley Road.

OR

- **Option 2:** The construction of 600' of a narrower 6' wide trail along the north side of Valley Road, connecting to Valley Court. A 10' width trail is not possible here due to topographic and ROW width constraints. This option would require retaining walls within the ROW. In this option, the proposed crosswalk on Valley Road at The Fields property would not be necessary nor provided. This option is not preferred by the Applicant as there may be indirect impacts to adjacent homeowners in Summit Vista, and the trail would be a compromised width immediately adjacent to vehicular traffic. Some current neighbors also went on record to oppose this solution in 2016.

Traffic Calming and Pedestrian Improvements

It has been widely documented by existing residents of Summit Vista that vehicular speeding is an issue on Valley Road, which has a posted speed limit of 25 mph. The Fields has spent time discussing these known issues with neighbors and is being proactive in helping to address the problem. The applicant is proposing to provide traffic calming and pedestrian improvements along Valley Road for slowing traffic and increasing pedestrian safety. The Summit Vista HOA supports the addition of pedestrian crossings, and has provided a letter to that effect in **Appendix S**. The applicant is proposing to construct the following improvements:

- The Fields will install a raised pedestrian crosswalk with Rectangular Rapid Flashing Beacons (RRFB) at the intersection of Summit Drive and Valley Road. The crosswalk will connect existing pathways. Please see engineering exhibit and supporting letter from the Summit Vista HOA, included in **Appendix S** of the application. This crossing would significantly benefit the Summit Vista community.

- The Fields will install a raised pedestrian crosswalk with Rectangular Rapid Flashing Beacons (RRFB) at the future path connection at The Fields property and Valley Road. Please see engineering exhibit included in **Appendix S** of the application. (Note: If the "Option 2" off-site public trail is selected by the County, this crosswalk will not be necessary nor provided.)

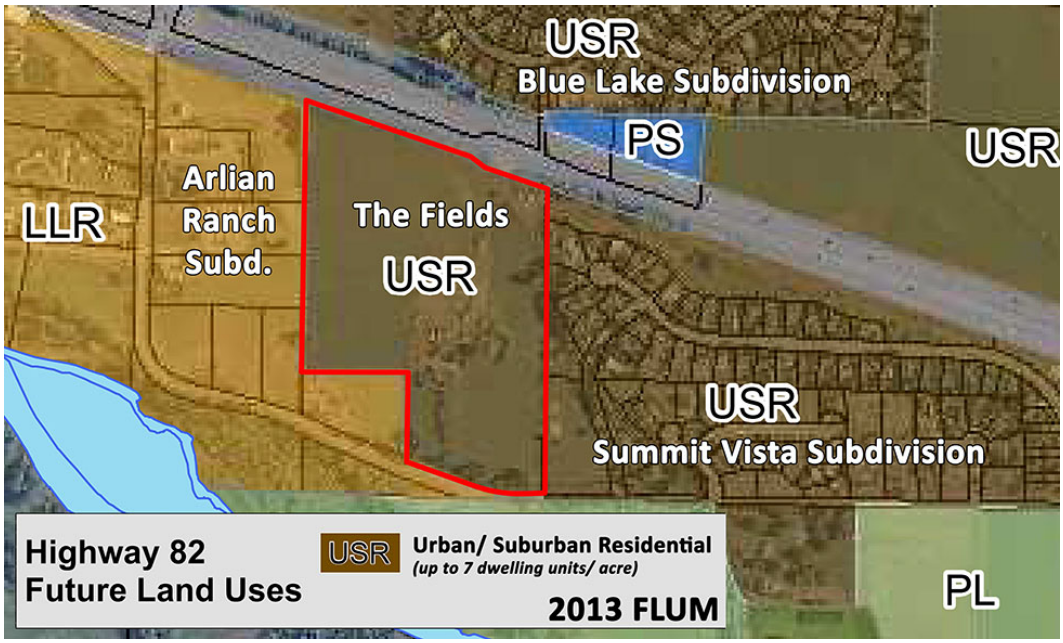
5.3.4. Change of Circumstances

The proposed change in zoning addresses and responds to a material change that has occurred to the immediate planning area, in that the Mid Valley Area Community Plan and Future Land Use Map were updated in 2013 and again in 2018 with certain prescribed densities for the subject property.

In 2008, Eagle County and the Roaring Fork Valley Regional Planning Commission began the process of updating the 1991 Mid Valley Community Master Plan. The Plan update involved significant amounts of public and stakeholder input, a Technical Advisory Committee which provided guidance into the formulation of the plan, County staff who authored the Plan, and guiding direction from the Planning Commission. The result of this years-long effort was the adoption of the 2013 Mid Valley Area Community Plan by the Planning Commission. That updated Plan used a "Character Area" approach to master planning, and The Fields was located in the "Highway 82 Character Area". Each Character Area had its own unique Future Land Use Map (FLUM), which was intended to guide land use decisions for properties within the planning area.

In the formulation of the 2013 Mid Valley Area Community Plan, The Fields property was analyzed against such criteria as availability of domestic water and wastewater treatment, access to existing infrastructure, public safety, transportation networks, and compatibility with adjacent land uses. As a result of this analysis, Eagle County and the Roaring Fork Valley Regional Planning Commission determined that the Fields property should be designated as "Urban/ Suburban Residential" on the FLUM, with a density of up to 7 dwelling units per acre.

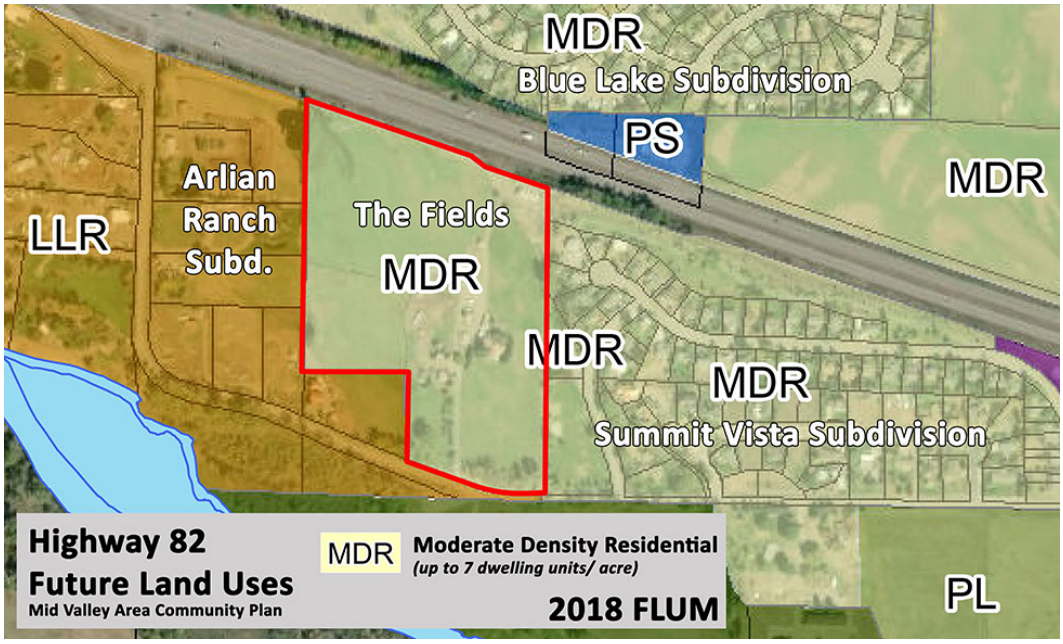
2013 Mid Valley Area Community Plan – Future Land Use Map, annotated.



As a result of public input, in October of 2017 the Eagle County Commissioners passed a moratorium on certain land-use proposals to allow time for a review of the 2013 Mid Valley Area Community Plan, which provides guidance for development in the mid-valley. The intent of the moratorium was to ensure that the Mid Valley Area Community Plan clearly represented the will of the public and stakeholders regarding new development. After nine months of public input, work sessions, and hearings, the result was the adoption of the updated 2018 Mid Valley Area Community Plan by the Roaring Fork Valley Regional Planning Commission. The 2018 Plan included various changes based on public sentiment. One of those changes was in the land use classifications, which now uses the term "Moderate Density Residential" to describe properties that are suitable for development of up to 7 dwelling units per acre. The FLUM classification associated with The Fields property now states:

> ***MODERATE DENSITY RESIDENTIAL (MDR)***
> *Applied to lands where moderately higher density residential neighborhoods exist or would be appropriate. (Up to 7 du/acre)*

2018 Mid Valley Area Community Plan – Future Land Use Map, annotated.



It is important to recognize that in 2013, the County and Planning Commission identified The Fields property as suitable for the type and density of development that is currently being proposed. In 2018 after a thorough re-evaluation, that designation was re-confirmed with the Planning Commission's adoption of the updated 2018 Mid Valley Area Community Plan. As a result of both the 2013 and 2018 Mid Valley Area Community Plan updates, the property's current zoning is incompatible with Eagle County's FLUM designation of Moderate Density Residential (MDR) for the property. The current RR zoning only allows for up to 0.5 dwelling units per acre, which is inconsistent with the prescription of up to 7 dwelling units per acre in the 2018 Mid-Valley Area Community Plan and Future Land Use Map.

5.3.5. Adequate Infrastructure

The subject property will be served by an adequate road (Valley Road), domestic water (MVMD), sanitary sewer (MVMD) and other public utilities and infrastructure. All necessary utilities have provided will-serve letters which are included in **Appendix P**. The Fields will be served by multiple modes of transportation and its location will inherently reduce the need for personal vehicle use and encourage walking and biking. The Roaring Fork Transportation Authority (RFTA) El Jebel Park & Ride is 0.8 miles from The Fields - a 16-minute walk, 4-minute bike ride, or 2-minute drive. The nearest grocery and dining options are about one mile away in Orchard Plaza, with additional services in El Jebel and the Willits Town Center, all accessible by non-motorized modes. Much of the route consists of the off-street paths of Crown Mountain Park, minimizing the use of Valley Road. Recreational facilities are also nearby, including Crown Mountain Park, the Rio Grande Trail, and the Roaring Fork River.

6. Sketch & Preliminary Plan

6.1. Project Overview

The Fields has been re-designed from the original Sketch Plan based on valuable comments, conditions, and feedback received during that review. Like the prior plan, the new plan features a primary loop road with two points of access to Valley Road. The housing is arranged in distinct "villages", each surrounding an interior open space area. Each village includes a varied mix of housing typologies and sizes. Multifamily buildings are dispersed throughout the community and will contain underground parking with two residential stories above. Connecting the entire community is a significant network of open space, parks, trails, and a large pond. An amenity lot in the northwest portion of the site will provide storage for recreational items and vehicles while also serving as overflow parking.

Proposed Site Plan *(large format version included in Appendix G)*

Northwest model view of proposed buildout *(large format version included in Appendix G)*

6.2. Key Findings

This proposal for Preliminary Plan is in conformance with the Subdivision standards per Section 5-280 of the ECLUR, as described:

1) Conformance with Comprehensive Plan
The Preliminary Plan for subdivision is in substantial conformance with the goals and policies of the Eagle County Comprehensive Plan and Mid-Valley Area Community Plan, including natural resource protection, affordable housing, and infrastructure. Section 7 of this Narrative provides a comprehensive analysis of the project's conformance with these Plans.

2) Consistent with Land Use Regulations
The Preliminary Plan for subdivision complies with the provisions of the Land Use Regulations, including Article 3 - Zone Districts, and Article 4 - Site Development Standards, except for the two variances discussed in Section 6.10 of this Narrative.

3) Spatial Pattern Shall be Efficient
The Preliminary Plan for subdivision is located and designed to create spatial efficiencies in the delivery of public services and does not require any duplication or premature extension of public facilities.

a. Utility and Road Extensions
The project's proposed utility extensions are consistent with the Mid Valley Metropolitan District's (MVMD) existing service area, with water and sewer service available on or adjacent to the subject property. A companion 1041 Amendment application will be required to update MVMD's 1041 Permit. Other required utilities (electric, communications) are readily available on or adjacent to the property. No extension of any County road is required by this application.

b. Serve Ultimate Population
All utility lines have been sized to serve the planned ultimate buildout of the project.

c. Coordinate Utility Extensions
The entire range of necessary utility extensions are available and can be provided, as evidenced by the Utility Service Letters in **Appendix P**. The project does not require any incremental extensions of services.

4) Suitability for Development

This application demonstrates that the subject property is suitable for development, with generally flat topography (**Appendix F**), minimal environmental concerns (**Appendix N**), and very limited risk of potential for man-made or natural hazards (**Appendix M**).

5) Compatible with Surrounding Uses

This application demonstrates that the proposed subdivision is generally compatible with the existing and currently permissible future uses of adjacent land, services, and infrastructure. Section 7 of this Narrative provides an analysis of the project's compatibility with adjacent land uses.

6) Adequate Facilities

This application demonstrates that the proposed Preliminary Plan incorporates adequate facilities for potable water supply, sewage disposal, electrical supply, fire protection and roads. The property is also conveniently located in relation to schools, police and fire protection, and emergency medical services. A Master Homeowner's Association will be established, and that Association will be responsible for the maintenance of the common areas, open space, streets, sidewalks and trails within the subdivision.

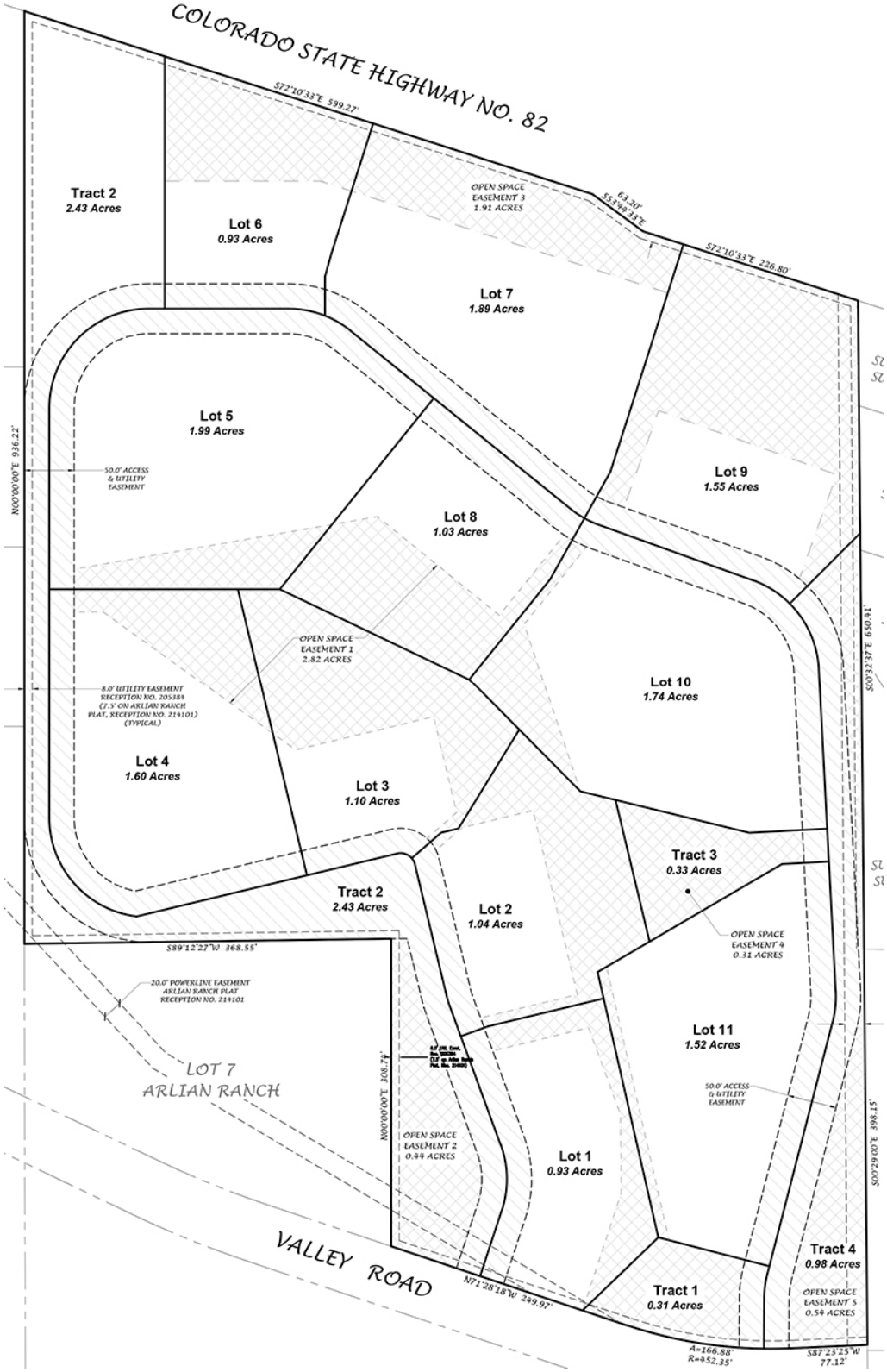
6.3. Land Use Summary

The property is proposed to be subdivided into 11 buildable residential Lots which comply with the dimensional standards of the RMF zone district. Each of the 11 Lots will contain a range of dwelling unit types and sizes, and each dwelling unit will be platted as an individual condominium lot or unit. The subdivision will also contain 4 non-buildable Tracts. These Tracts are generally located around the periphery of the subdivision and would include improvements such as a park, playground, dog park, and the amenity lot in the northwest. A total of 5 Open Space easements will also be platted to overlay portions of the Lots and Tracts. These easements will create 6.0 acres of permanent open space to be granted to and managed by the future Master Association.

LOTS & TRACTS	Building Lots	Acres
	Lot 1	0.93
	Lot 2	1.04
	Lot 3	1.10
	Lot 4	1.60
	Lot 5	1.99
	Lot 6	0.93
	Lot 7	1.89
	Lot 8	1.03
	Lot 9	1.55
	Lot 10	1.74
	Lot 11	1.52
	Subtotal Building Lots:	***15.33***
	Tracts	**Acres**
	Tract 1	0.31
	Tract 2	2.43
	Tract 3	0.33
	Tract 4	0.98
	Subtotal Tracts:	***4.06***
	Total Lots & Tracts:	**19.39**

OPEN SPACE	Open Space Easements	Acres
	Open Space Easement 1	2.82
	Open Space Easement 2	0.44
	Open Space Easement 3	1.91
	Open Space Easement 4	0.31
	Open Space Easement 5	0.54
	Total Open Space:	**6.0**

Preliminary Plat *(large format version included in Appendix H)*



6.4. Zoning and Land Use Compliance

The Preliminary Plan was designed to comply with the dimensional limitations of the proposed Residential Multi-Family Zone District per Table 3-340 of the ECLUR. The following sections demonstrate compliance with each of the specific limitations.

The project will meet the standards and requirements of Article 4, apart from the two requested variances as documented in Section 6.10 of this Narrative.

6.4.1. Minimum Lot Area

The Minimum Lot Area for single family and multi family uses in the Residential Multi-Family Zone District is 6000 sf. The smallest building lot in the proposed subdivision is Lot 6 at 40,677 sf, and the smallest non-building lot is Tract 1 at 13,696 s.f. The Minimum Lot Area standards are satisfied.

6.4.2. Maximum Lot Coverage

Compliance with Maximum Lot Coverage is demonstrated in the table below.

	Lot Coverage				Lot Area
ECLUR Standard	Buildings Impervious Max. 40%		All Impervious Max. 60%		Min. 6000 sf
Building Lots	Buildings Actual SF Coverage	Minimum Lot Size Required	All Impervious Actual SF Coverage	Minimum Lot Size Required	Proposed SF Lot Size
Lot 1	6,817	17,043	14,248	23,747	**40,700**
Lot 2	9,750	24,375	12,892	21,487	**45,209**
Lot 3	7,995	19,988	9,939	16,565	**48,050**
Lot 4	13,286	33,215	27,268	45,447	**69,602**
Lot 5	17,444	43,610	34,397	57,328	**86,581**
Lot 6	7,995	19,988	10,818	18,030	**40,677**
Lot 7	14,076	35,190	26,741	44,568	**82,532**
Lot 8	9,750	24,375	12,998	21,663	**45,084**
Lot 9	9,750	24,375	13,413	22,355	**67,403**
Lot 10	15,435	38,588	29,928	49,880	**75,862**
Lot 11	13,426	33,565	26,912	44,853	**66,079**

6.4.3. Maximum Floor Area Ratio

Compliance with Maximum Floor Area Ratio is demonstrated in the table below.

	Floor Area (SF)		Lot Area
ECLUR Standard	**Max. FAR 0.50:1**		**Min. 6000 sf**
Building Lots	**Actual Floor Area Per Design**	**Minimum Lot Size Required**	**Proposed SF Lot Size**
Lot 1	10,000	20,000	**40,700**
Lot 2	18,550	37,100	**45,209**
Lot 3	14,250	28,500	**48,050**
Lot 4	19,200	38,400	**69,602**
Lot 5	26,400	52,800	**86,581**
Lot 6	14,250	28,500	**40,677**
Lot 7	20,800	41,600	**82,532**
Lot 8	18,550	37,100	**45,084**
Lot 9	18,550	37,100	**67,403**
Lot 10	23,600	47,200	**75,862**
Lot 11	20,800	41,600	**66,079**

6.4.4. Minimum Setbacks

Compliance with Minimum Setbacks is demonstrated in the table below.

	Minimum Front Yard Setback	Minimum Rear Yard Setback	Minimum Side Yard Setback
ECLUR Standard	**25' From Local Street (as measured from EOP)**	**The greater of 12.5' or half the height of the tallest building on the lot**	**The greater of 12.5' or half the height of the tallest building on the lot**
Building Lots	**Minimum Provided**	**Minimum Provided**	**Minimum Provided**
Lot 1	29'	29'	24'
Lot 2	20'	20'	55'
Lot 3	17'	86'	18'
Lot 4	17'	42'	12.5'
Lot 5	18'	26'	12.5'
Lot 6	20'	104'	18'
Lot 7	20'	72'	15'
Lot 8	20'	105'	18'
Lot 9	20'	197'	36'
Lot 10	20'	23'	15'
Lot 11	21'	28'	15'

Please note that the **red** numbers listed in the table above are those that do not comply with minimum Front Yard Setbacks. This was due to a drafting error on the conceptual building layout, and this issue will be corrected prior to building permitting. It is the Applicant's intent to comply with all setback requirements of the RMF Zone District, and to not seek a variance for reduced setbacks. As noted in the table, there is ample Rear Yard Setback available in all cases to move buildings further away from the street, thereby complying with the minimum Front Yard Setback.

6.4.5. Minimum Steam Setback

There are no streams or 100-year floodplains within the property, and the floodplain of the Roaring Fork River to the south is more than 75' away from the property, therefore this setback requirement is not applicable.

6.4.6. Maximum Height

The Maximum Height for the RMF Zone District is 45'. Single family, duplex and townhome units in the project are planned to be 2-stories with building heights likely to be 25 feet or less to the top of flat roofs or to the midpoint of gable, gambrel, hip or shed roofs. The five multi-family buildings within the project are planned to be 2.5 stories, with a ½ story of the lower-level parking garages below grade. The heights of these buildings will likely be 36 feet or less to the top of flat roofs or to the midpoint of gable, gambrel, hip or shed roofs. The project complies with the Maximum Height of the RMF Zone District.

6.4.7. Parking Standards

The Fields will comply with the ECLUR's Off-Street Parking Standards that are in place at the time of building permitting.

6.5. Housing Program

The Fields will consist of 135 total dwelling units delivered in a well-balanced mix of sizes, types, and price points. Home sizes will range from 800 to 3400 square feet, with an average size of 1675 square feet. This will include single family homes, duplexes, townhomes, and multifamily units. This diversity of size and type of units along with other amenities, such as access to recreation and commercial centers, will attract a diverse mix of residents and household types - seniors, young families, singles, and working professional households.

HOUSING PROGRAM	Unit Type	Single Family Units	Duplex Units	Townhome Units	Multi-Family Units	Total Units	Approx. SF/ Unit
	Market Rate Studio / 1 Ba	0	0	0	6	**6**	800
	Market Rate 1 Bedroom / 1 Ba	0	0	0	26	**26**	1100
	Market Rate 2 Bedroom / 2 Ba	5	18	24	11	**58**	1600
	Market Rate 3 Bedroom / 3 Ba	7	0	0	5	**12**	2800
	Market Rate 4 Bedroom / 4 Ba	16	0	0	0	**16**	3400
	Affordable Studio / 1 Ba	0	0	0	2	**2**	400
	Affordable 1 Bedroom / 1 Ba	0	0	0	9	**9**	500
	Affordable 2 Bedroom / 2 Ba	0	0	0	6	**6**	1100
	Totals:	**28**	**18**	**24**	**65**	**135**	

The Fields has worked with various local housing partners and the County Housing Department to compose an affordable housing plan that meets the goals of the 2020 Eagle County Affordable Housing Guidelines. These units will be comparable in design quality and finishes to free market units and will directly and significantly benefit lower and middle-income households by reducing cost burden and improve the jobs-to-housing balance. It is important to understand that there are currently no Eagle County-administered price-capped housing units in the Roaring Fork Valley. The 2019 Greater Roaring Fork Regional Housing Study identified that the region has a 2,100-unit shortfall in housing for households at 60 percent of area median income (AMI) and less, and a 1,900-unit shortfall for households between 100 and 160 percent AMI, the “missing middle”. Through the provision of 17 price-capped units, The Fields will help to populate the map of affordable housing in the Roaring Fork Valley portion of Eagle County.

Per Section 3.01 of the 2020 Affordable Housing Guidelines, Eagle County has set the affordable housing mitigation rate at the higher of 25% of the total residential units or 15% of the total residential square feet. Since the “unit” calculation is highest, the applicant has used that calculation as the basis for the provision of affordable housing units. Per Chapter 4 of the Housing Guidelines, the provision of Price Capped For Sale Housing with a maximum Initial Sales Price set at or below 100% - 140% AMI affordability level, or Price Capped Rental units will be valued double (2x). The Fields intends to provide all Affordable Housing units as either Price Capped For Sale or Price Capped Rental units. The applicant has been coordinating with various potential local housing partners, and

letters of intent have been provided by the Roaring Fork Fire Authority and the Aspen Music School for several employee rental units (see **Appendix R**). The applicant expects that one or more additional housing partnerships will transpire prior to construction, and we will provide the County with any such information as it becomes available.

AFFORDABLE HOUSING	Unit Type	Quantity	Approx. Unit Size (SF)	AMI Pricing Level	For Sale/ Rent	Entity
	Studio	2	400	120%	For Sale	The Fields
	1 Bedroom	4	500	120%	For Sale	The Fields
	1 Bedroom	2	500	140%	For Sale	The Fields
	1 Bedroom	3	500	80-120%	For Rent to Employees	Aspen Music School
	2 Bedroom	1	1,100	80-120%	For Rent to Employees	Aspen Music School
	2 Bedroom	1	1,100	140%	For Sale	The Fields
	2 Bedroom	4	1,100	50-80%	For Rent to Employees	Roaring Fork Fire Authority
	Total Units:	**17**				

6.6. Open Space & Trails

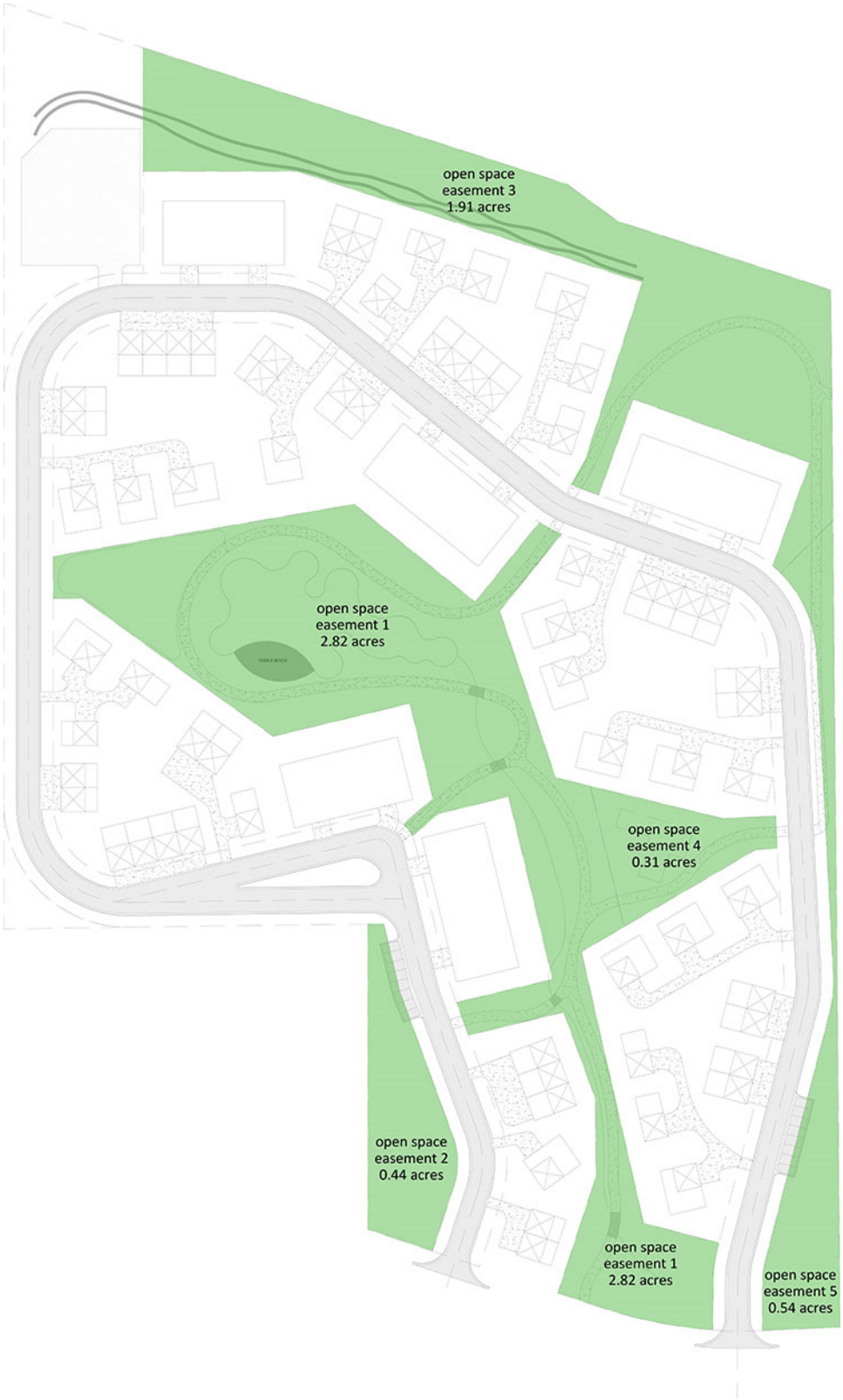
The Open Space Plan for The Fields comprises 6.0 acres, or 31% of the total subdivision acreage. The site design includes a variety of parks, play areas, a dog park, and a central pond. Within the open space is a substantial trail network, including over a half-mile (2900') of 10' wide multi-use pathways. These pathways will serve as efficient multi-modal access routes to and from the site and provide opportunities for residents to recreate and exercise. The open space and trail systems are vital to integrating the various residential areas of the community. The open space components have been carefully created and designed to meet on site recreational demands, to provide buffer zones between dwellings, and to provide environmental benefits to the community.

OPEN SPACE	Open Space Easements	Acres
	Open Space Easement 1	2.82
	Open Space Easement 2	0.44
	Open Space Easement 3	1.91
	Open Space Easement 4	0.31
	Open Space Easement 5	0.54
	Total Open Space:	**6.0**

Proposed central open space and pond *(large format version in Appendix G)*

Proposed open space and trail *(large format version included in Appendix G)*

Open Space Plan



6.7. Landscaping

The landscaping within The Fields acknowledges the importance of the outdoors in shaping people's connection to a place and to their environment. Landscaping has been designed as an integral layer of the site plan, reflecting and helping to define the distinct character of the community. The landscape will emphasize subtle and visually appealing streetscapes and open space areas while providing adequate shade, screening, massing, and form. Within the open space areas, the landscape design is generally naturalized, with the use of primarily native plant materials in conjunction with preserved existing vegetation. Irrigation water will be sourced from a raw water pump located in the proposed pond and supplied by the Arian Ranch Ditch. The Conceptual Landscape Plans are included in **Appendix I**.

Meadow areas are a prominent landscape theme *(large format version in Appendix G)*

Example of "village green" landscaping *(large format version included in Appendix G)*

6.8. Transportation & Circulation

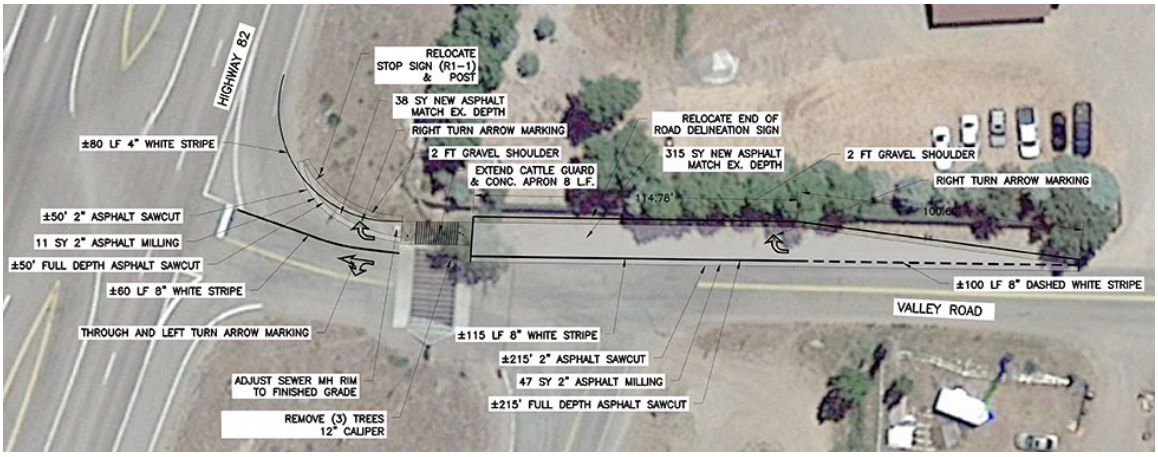
The site design for The Fields includes two points of access to Valley Road, and a looped road (Waverly Street) within the subdivision to provide efficient mobility for residents and ease of access for emergency services. Waverly Street will be constructed at widths from 24 to 26' to meet County Road standards and fire code. A 50' wide access and utility easement will provide ample room for drainage and snow storage along Waverly Street. The project also includes a 10' wide multi-use trail, which will provide efficient multi-modal access for residents while connecting to surrounding services, transit and amenities. A RFTA transit stop is approximately 0.75-mile away at the El Jebel Park and Ride and is accessed by local multi-use trails in Crown Mountain Park.

Valley Road provides access from State Highway 82, from either the JW Drive or El Jebel Road intersections. McDowell Engineering provided a Transportation Impact Study (**Appendix L**) which states that the proposed development is expected to generate 1021 new vehicle trips on the average weekday. A CDOT State Highway Access Permit will be required for the south leg of the Highway 82 and El Jebel Road intersection.

Valley Road/ Highway 82 Intersection Improvements

At the intersection of Valley Road and Highway 82 (west of the project site), the applicant will construct a dedicated northbound right-turn lane onto Highway 82 (as discussed in Section 3.7 of the Transportation Impact Study, **Appendix L**). This northbound right turn lane improvement on Valley Road will require widening the pavement by approximately eight feet, the extension of the cattle guard, and striping modifications to incorporate the new left-through lane and separate northbound right turn lane. An exhibit of these improvements is included as Sheet 3 of **Appendix S**. This improvement will minimize delays for those turning right (east) onto Highway 82, eliminating the need to wait for the left-turning traffic to clear.

Planned Improvements at Valley Road/ Highway 82 intersection *(see Appendix S)*



El Jebel Road Intersection Improvements

While Eagle County is currently developing engineering plans for a long-term solution, interim improvements will be made to the combined intersections of Valley Road/ East Valley Road/ El Jebel Road/ Highway 82. These interim improvements will significantly improve the function of this intersection until Eagle County implements their final intersection design (as discussed in Section 3.5 of the Transportation Impact Study, **Appendix L**). This alternative utilizes the existing roadway network and removes the northbound stop sign from the East Valley Road leg of the intersection. To operate successfully in the interim, the afternoon signal timing will be modified to shift 10 seconds of green time to the south leg of the El Jebel Road intersection. This green time will be taken from the north leg which does not have a queuing concern in the afternoon. This will not impact the Highway 82 signal timing requirements from CDOT and will remove some of the northbound queueing that is currently occurring during peak traffic hours. This interim solution has been field-tested and approved by CDOT, as evidenced by an email from Mark Bunnell dated July 28, 2021 (**Appendix T**).

Eagle County is currently designing the long-term solution for the re-configuration of the El Jebel Road intersection, with the intent to begin construction of the improvements in 2022. The County Engineer has estimated the total cost of construction at $1.7M. Consistent with commitments made by the prior Fields ownership group in 2016, the current developers will contribute 24% of the cost of the County's intersection improvements, not to exceed $408,000. The cost basis for the improvements, and subsequent capital contribution amount, shall be derived from the final Engineer's Opinion of Cost (EOPC) as prepared by the County's consulting engineer. This capital contribution amount will make the Fields one of the largest financial contributors to the re-constructed intersection, which is critical to initiating and completing the long-term solution, and this would be a failing intersection without the Fields' leadership and participation in the capital improvements.

The Transportation Impact Study (**Appendix L**) has determined the Fields' share of traffic volumes for the year 2045 at the Highway 82/ El Jebel Road intersection to be as follows:

Hwy 82 / El Jebel Rd. Intersection (with long-term improvements)	Fields' % of Total Traffic
South Leg of Intersection Only	3.0%
Entire Hwy 82/El Jebel Road Intersection	0.8%

It is important to note that while the Fields is committing to contributing 24% of the cost of the El Jebel Road intersection improvements (up to $408,000), traffic generated by the Fields will only comprise 3% of the volume. Similarly, The Fields has not created the hardship at this intersection as demonstrated by the Transportation Impact Study (**Appendix L**) but is willing to contribute to an existing County need for the benefit of the greater public infrastructure. Future improvements for Crown Mountain Park, the Forest Service Property, and an expanded RFTA park and ride are entirely dependent upon the implementation of these long-term intersection improvements.

6.9. Utilities

All utilities required to serve the project are currently in place on or adjacent to the site. The Fields is within the boundaries of the Mid Valley Metropolitan District (MVMD) service area, and that District will provide water and sewer service to the project. All water system components have been designed to MVMD specifications and will ultimately be owned and maintained by that District. The Mid Valley Metropolitan District will also provide sanitary sewer service for the project. All sewer system components have been designed to MVMD specifications and will ultimately be owned and maintained by that District. The water and sewer plans are detailed in the Engineering Plans (**Appendix J**) and Engineering Report (**Appendix K**).

With the availability of significant raw-water rights on the property, a separate non-potable irrigation system has been designed. This system will utilize existing water rights and flows from the Arlian Ranch Ditch. A raw water pump station adjacent to the proposed pond will provide pressurized irrigation water to all areas of the project. This system will be owned and operated by the Master Association. The raw water irrigation system is detailed in the Engineering Plans (**Appendix J**).

Source Gas will provide natural gas to the site, Holy Cross Energy will provide electric service, and Comcast will provide communications service. All utility lines will be placed underground, and all existing overhead lines within the project will be removed or placed underground, except for the existing Holy Cross overhead powerline along Valley Road. Each utility service provider has provided letters confirming their capacity and ability to serve the project, which may be found in **Appendix P**, Utility Service Letters.

Trash and recycling service will be provided by one of the local waste haulers with curbside pickup. For each housing cluster, residents will be required to wheel their containers to the street. For each multi-family building, dumpster enclosures will be provided in the building and those dumpsters will also be wheeled to the street. The applicant will work with the local USPS to design an efficient system of mail and package delivery within the project.

6.10. Requested Variances from Improvement Standards

The applicant is requesting two Variances from Improvement Standards as discussed below. In accordance with Article 5-260.G, the Board of County Commissioners shall have the authority to approve, approve with conditions, or disapprove variances from Article 4, Division 6, Improvement Standards.

6.10.1. Backing onto Roads

The site plan includes two pods of 8 parking spaces for use as guest parking along Waverly Street. These sixteen spaces are designed to be 90-degree on-street parking, which would require backing onto Waverly Street. ECLUR Section 4-140.H states that *"vehicles exiting from a parking space shall not be required to back into the right-of-way of a public street"*. Since these sixteen guest parking spaces will be used less frequently than residential spaces and the applicant is proposing a 15-mph speed limit on Waverly Street, we believe that the provision of these parking spaces will have no adverse impact on the health, safety, and welfare of persons or lands affected.

6.10.2. On-Street Parking

This requested variance is also related to the two pods of 8 parking spaces for use as guest parking along Waverly Street. Table 4-620 J of the ECLUR identifies that no On-Street Parking is allowed for Suburban Residential Roads. Since these sixteen proposed guest parking spaces will be used less frequently than residential spaces and the applicant is proposing a 15-mph speed limit on Waverly Street, we believe that the provision of these parking spaces will have no adverse impact on the health, safety, and welfare of persons or lands affected.

6.11. Parking Management Plan

A Parking Management Plan (PMP) will be developed and recorded as part of the Covenants of the Master Association at the time of recording Final Plat. The PMP will be prepared in consultation with County Engineering, and will incorporate the following regulatory provisions:

- Identify the entity responsible for administering the PMP (likely the Master HOA).
- Required signage for sixteen guest parking spaces, including time limitations and restrictions on residential use.
- Required signage and security for overflow/amenity parking lot.
- Required permits for overflow/amenity parking lot.
    - These permits are intended to be issued on a fee basis for residents of The Fields.
- Parking violations, including warnings, booting, and/or towing.

6.12. Phasing and Build-Out

Infrastructure construction is expected to commence in 2022. This schedule anticipates a Final Plat approval in early 2022. The infrastructure phase of the project is expected to be completed in a single phase within the 2022 and 2023 construction seasons including all deep utilities, shallow utilities, stormwater facilities, roads, trails, and overall site grading. Common area landscaping for

streetscapes and open space areas will likely be completed the following year, during the 2023 growing season. Vertical buildout of the residential units will commence in 2023, after the subdivision improvements have been installed and approved by the County. Buildout will likely occur on a lot-by-lot basis with an average of 22-27 dwelling units constructed per year over a five to six-year period, as market absorption dictates.

6.13. Prior Sketch Plan Conditions of Approval

The 2016 Sketch Plan for The Fields was approved with seven conditions of approval via Resolution No. 2018-051. While the applicant acknowledges that the prior Sketch Plan approval has since expired, we understand that similar Conditions may resurface as part of the current review. This section details those prior conditions of approval and outlines the actions that have been undertaken by the applicant to address them. The numbered conditions of the prior Sketch Plan approval are displayed in **bold** text, and Applicant responses are displayed in regular text.

1. **Except as otherwise modified by this development permit, all material representations made by the Applicant in this application and in public meeting shall be adhered to and considered conditions of approval.**

   Response: Acknowledged.

2. **The Applicant shall meet the Eagle County Affordable Housing Guidelines and provide affordable housing units as recommended by the Guidelines within the subdivision.**

   Response: The Preliminary Plan complies with the 2020 Eagle County Affordable Housing Guidelines. The Plan contains 135 dwelling units. Per Section 3.01 of the 2020 Affordable Housing Guidelines, Eagle County has set the affordable housing mitigation rate at the higher of 25% of the total residential units or 15% of the total residential square feet. Since the "unit" calculation is highest, the applicant has used that calculation as the basis for the provision of affordable housing units. Per Chapter 4 of the Housing Guidelines, the provision of Price Capped For Sale Housing with a maximum Initial Sales Price set at or below 100% - 140% AMI affordability level, or Price Capped Rental units will be valued double (2x). The Fields intends to provide all 17 Affordable Housing units as either Price Capped For Sale or Price Capped Rental units.

3. **Applicant shall continue to work with staff to incorporate a diversity of housing types, clustering of uses, and a transition to lower density rural character properties to the west.**

   Response: In preparing the Preliminary Plan, the applicant conducted web-based review sessions with County staff on March 20 and again on June 11, 2020. During those meetings, the applicant presented conceptual plans and alternatives, to which staff provided valuable

responses and direction. The result of these collaborations with staff is a plan which incorporates a far greater degree of clustering, diversity of housing types, and better transitions to adjacent properties than the prior Sketch Plan.

4. **A site specific geotechnical assessment shall be completed for each building site at the time of building permit application.**

   Response: This statement has been included as a "Plat Note" on the Preliminary Plan (**Appendix H**) and will be carried forward to Final Plat.

5. **All street, sidewalk and trail improvements within the subdivision shall be constructed to County standards and in accordance with the Subdivision Improvement Agreement and shall be dedicated to the public. The Applicant or its successor or assigns are responsible for construction, maintenance, repair and improvement of all streets, sidewalks and trails within the subdivision.**

   Response: All streets and trails within the subdivision have been designed to County standards. The loop road (Waverly Street) is designed as a Suburban Residential Road per Table 4-620.J of the ECLUR. The clear width of the road is 24', and where the road is adjacent to buildings that could be taller than 30', the width is increased to 26' to comply with fire access code. The road will be in a 50' platted access & utility easement, with a proper Plat Note allowing access for utility providers and emergency services. This Plat Note may be reviewed on the Preliminary Plan in **Appendix H**. The multi-use trail has been designed to a width of 10', will be a hard all-weather surface and will be located within permanent open space easements. The future Master Association will assume the responsibility for maintenance and repair of all streets, trails, and potential sidewalks within the subdivision.

6. **Applicant shall provide an updated traffic study congruent with the Applicant's revised layout #2. depicting the subdivision's accesses onto Valley Road.**

   Response: A new Transportation Impact Study has been included in **Appendix L** which discusses of the compliance of the proposed dual access layout onto Valley Road.

7. **The Applicant or its successor or assigns shall construct and maintain a ten (10') foot paved sidewalk/trail for use by the public along Valley Road to Valley Court to provide safe pedestrian access to local amenities.**

   Response: This trail segment is 600' in length along Valley Road. Recent off-site surveys and investigations in the Valley Road Right of Way (ROW) have identified significant constraints that prevent the fulfillment of this condition. Specifically, a) the ROW is not of sufficient width to accommodate a 10' wide trail, and b) grade changes between Valley Road and the ROW boundary would necessitate the construction of lengthy retaining walls and guardrails, further

reducing the width of the trail. These constraints were presented and discussed with the County Engineer during a web-meeting on September 22, 2020. Based on these physical constraints, the County Engineer suggested that the applicant consider a commitment to an alternate means of trail connection through the Forest Service property to the south of The Fields. As a result of these studies and conversations, the applicant is proposing to provide one of the following public trail improvements, as determined by the Eagle County BoCC:

- **Option 1:** The future construction of a 10' wide, 600' long trail from The Fields through the Forest Service property toward Crown Mountain Park on an alignment to be determined by Eagle County. The preference of this Applicant and the Summit Vista HOA (see **Appendix S**) is that this trail would parallel the Valley Road right-of-way, as we feel it would benefit more existing residents in this location. In this option, it is not within the purview of The Fields developers to obtain any necessary approvals or permitting for public trail access across Federal Lands or Special Districts, and any clearances for such would need to be processed and obtained by Eagle County or others. This is the preferred option of the Applicant, as it would provide a full-width multi-use public trail platform that is separated from the vehicular traffic on Valley Road.

  OR

- **Option 2:** The construction of 600' of a narrower 6' wide trail along the north side of Valley Road, connecting to Valley Court. A 10' width trail is not possible here due to topographic and ROW width constraints. This option would require retaining walls within the ROW. In this option, the proposed crosswalk on Valley Road at The Fields property would not be necessary nor provided. This option is not preferred by the Applicant as there may be indirect impacts to adjacent homeowners in Summit Vista, and the trail would be a compromised width immediately adjacent to vehicular traffic. Some current neighbors also went on record to oppose this solution in 2016.

7. Conformance with County Master Plans

This request for a Zone District Map Amendment and Preliminary Plan for The Fields conforms with the Eagle County Comprehensive Plan and the Mid-Valley Area Community Plan. The following sections address this application's responses to the specific goals and policies of these guiding documents.

7.1. Eagle County Comprehensive Plan

The 2005 Eagle County Comprehensive Plan includes general goals and policies that apply to all areas of the County. Certain goals and policies that relate specifically to The Fields Zone District Map Amendment and Preliminary Plan are addressed in this section. Selections from the Comprehensive Plan are displayed in **bold** text, and The Fields responses are displayed in regular text.

General Development – Section 3.2

Goal: The impacts of development in Eagle County are carefully monitored, and future development occurs in a manner that preserves a high quality of life, a diverse and sustainable economy, the area's scenic beauty, a healthy natural environment and a vibrant, well designed community.

Relevant policies:

a. Those attributes that support quality of life options unique to Eagle County today should be preserved for future generations.
c. Growth should be managed toward future sustainability - a healthy balance between economic success, quality of life and the preservation of the environment.
e. Urban and suburban type growth should be appropriately designed and should be located within or immediately contiguous to existing towns and community centers.
g. Redevelopment and/or revitalization of currently underdeveloped, outdated, rundown, or otherwise dysfunctional areas should be encouraged.
i. A cluster style of development should be encouraged, especially in areas where cultural, environmental or scenic resources are at risk.
j. Development should be fully responsible for the mitigation of development related impacts upon both the natural and built environment.

Response:

<u>Responsible Location</u>: This proposal is predicated on responsible growth that ensures quality of life for future residents. This project brings additional residential development adjacent to the existing Summit Vista Subdivision and across the highway from the Blue Lake Subdivision, all in proximity to the Willits Town Center and other nearby services. The re-zoning of the property provides the ability to add vitality to the area via a well-designed, clustered development that adds to housing diversity

and housing choice. Adding housing near other developed areas provides more opportunities for efficient mass transit and could help protect other open lands.
Vibrant Community: The Fields will provide a physical environment that supports a strong quality of life through diverse housing types, provision of ample open space, and the village concept. The village concept promotes opportunities for social interactions through clusters of housing and tiered open spaces. The Fields also ensures environmental preservation, recreation, and unique features like preservation of a historic foundation and an amenities parking area.
Community Benefits: Current uses of this property include a few residences and pastureland. The proposal will add vitality to the area, provide additional housing for the nearby job centers, and utilize established infrastructure like the RFTA station and commercial service centers. The Fields will use existing water rights for irrigation, provide a berm to screen the view of the development from the highway, and landscaping to screen from neighboring properties. Further, The Fields will be maintained by a master HOA that will ensure proper maintenance and upkeep of open spaces and amenities.

Economic Resources – Section 3.3

Goal: Eagle County is home to a resilient, sustainable economy that is based on local attributes and provides its residents and visitors with healthy lifestyles and a comfortable standard of living.

Relevant policies:

c. Those qualities that make Eagle County a world class tourist destination and a great place to live, work and play should be identified, promoted and protected.
d. The potential impacts of second-home ownership and an aging resident population in Eagle County should be identified and incorporated into the decision-making process.
j. Agricultural land uses should be retained to preserve Eagle County's historical heritage and scenic quality for the benefit of future generations.

Response:
This request does not include commercial land uses; however, there are a few policies within this Section 3.3 that are addressed below.
The Fields offers an inspiring and forward-thinking place to live. With diverse housing options, internal systems of open space and trails, access to nearby recreation, and a focus on energy efficiency and natural landscapes, this development embodies much of what makes Eagle County a great place to live. The Fields is designed to be attractive to locals. The location is central to the Roaring Fork Valley and job centers and is just off Highway 82. The internal design creates smaller villages within the larger development promoting a real sense of community. Thirty-four affordable units will be provided for the local workforce which will be required to serve as primary residences. This community is meant to be attractive to a variety of residents, including those that are aging. Features that may entice seniors include common and open space areas maintained by the HOA, proximity to services and commercial centers like Willits Town Center, and access to recreation like Crown Mountain Park and the Rio Grande Trail.

This compact development will provide 135 dwelling units in 19.39 acres that will safeguard the preservation of outlying valuable tracts of agricultural land in the County. The subject property is surrounded by Highway 82 to the north, residential and commercial uses along Valley Road, and protected open space to the south.

Housing – Section 3.4

Goals:
1) Housing is available and affordable for no less than 70% of Eagle County's workforce.
2) Housing needs are clearly identified, and housing types are appropriately balanced to meet all community needs, appropriately located to reduce long distance commutes, and appropriately managed to assure long term affordability for Eagle County's workforce.

Relevant policies:

a. Affordable workforce housing should be located near job centers.
e. Adequate housing options for Senior Citizens should be available.
i. Workforce housing projects should incorporate quality design standards and programs for long term maintenance.
n. Development should share responsibility for fulfilling Eagle County's workforce housing needs.

Response:
Housing Variety: The re-zoning of The Fields allows for many additional housing units than under current zoning, which will increase the availability of market rate and affordable housing for Eagle County's workforce. The Fields will consist of 135 total dwelling units delivered in a well-balanced mix of sizes, types, and price points. Home sizes will range from 800 to 3400 square feet, with an average size of 1675 square feet. This will include single family homes, duplexes, townhomes, and multifamily units. This diversity of units along with other amenities, such as access to recreation and commercial centers, will attract a diverse mix of residents and household types - seniors, young families, singles, and working professional households.
Workforce Housing: The affordable housing plan for the Fields complies with the County's Affordable Housing Guidelines and will directly and significantly benefit lower and middle-income households by reducing cost burden and improve the jobs-to-housing balance. These units will be comparable in design quality and finishes as all other units, and will help address the significant undersupply of missing-middle housing for those households earning 50% to 140% AMI.
Central Location: Additional mid-valley units immediately adjacent to Highway 82 will also reduce the number of long-distance commutes within the region's commute shed. Residents of The Fields will be less than one mile from the RTFA El Jebel Park & Ride station and within about 20 miles of all employment centers in the valley, including the "up valley" job hubs of Aspen and Snowmass.

Infrastructure and Services – Section 3.5

Goal: Eagle County's infrastructure and community services support all present and future community needs and encourage efficient travel, healthy lifestyles, a stable economy and the preservation of environmental quality.

Relevant policies:

a. Developed areas in Eagle County should be served by multiple modes of transportation.
b. Pedestrian paths should be safe, well-designed, well maintained and appropriately networked within and between communities.
d. Bike paths should be safe, well designed, well maintained and appropriately connected within and between communities.

Response:
The Fields will be served by multiple modes of transportation and its location will inherently reduce the need for personal vehicle use and encourage walking and biking. The Roaring Fork Transportation Authority (RFTA) El Jebel Park & Ride is within less than 1 mile. According to Google Maps, the up-valley station is 0.9 miles from The Fields - an 18-minute walk, 4-minute bike ride, or 2-minute drive.

Google Maps walking directions map

The nearest grocery and dining options are about one mile away in Orchard Plaza, with additional services in the Willits Town Center, all accessible by non-motorized modes. Much of the route consists of the off-street paths of Crown Mountain Park, minimizing the use of Valley Road. The Fields will provide bike parking to facilitate travel by bike. The Fields includes internal multi-use paths. Recreational facilities are also in close proximity, including Crown Mountain Park, the Rio Grande Trail, and the Roaring Fork River. The internal paths are designed to connect to potential future trails on the northeast corner and southern end of the property. The proposal will also

enhance socioeconomic diversity by increasing housing variety through a mix of home types, sizes, and price points.

Water Resources – Section 3.6

Goals:
1) Source water in Eagle County is protected, and contributors of surface and ground water pollution are identified and eliminated to the fullest extent possible.
2) Sufficient domestic water is available to all developed areas so long as requirements for maintaining healthy natural riparian and aquatic ecosystems are being met.

Relevant policies:

a. The long term viability of both ground and surface water sources should be protected.
c. Water conservation efforts by all water users in Eagle County should be implemented.
h. Aquatic and riparian habitats should be protected from agricultural, industrial and development related impacts.

Response:
The Fields' compact development allows for significant pervious surfaces and ample stormwater detention in the form of resident amenities (a pond and stormwater basin) that will benefit groundwater recharge and protect water quality. The native and drought tolerant landscaping will be irrigated with an efficient system using raw water through existing Arlian Ranch Ditch water rights. The residences will be equipped with water efficient fixtures. The property is not within the riparian zone. The Mid Valley Metropolitan District has confirmed that the property is within the District's service area and that it can and will serve the property with 135 EQRs (see SGM letter dated October 8, 2020, in **Appendix P**).

Wildlife Resources – Section 3.7

Goal: Preserve and/or enhance the quality of wildlife habitat, and the vitality of wildlife populations in Eagle County.

Relevant policies:

a. The integrity, quality and interconnected nature of critical wildlife habitat in Eagle County should be preserved.
g. Wildlife friendly measures should be incorporated into the design of individual home sites and neighborhoods.
h. Measures designed to protect wildlife from contact with human activities and disturbances should be implemented and enforced.

Response:
The conversion of the property to the Residential Multi Family District and proposed residential development will not detract from the quality of wildlife habitat or the vitality of wildlife populations because the property's current condition is of poor habitat for local wildlife species and existing nearby development has already cut off wildlife movement corridors. The property is also not within the riparian zone and no known federally listed, proposed, or candidate species are present on the site. Moreover, the property is outside big game ranges and calving/fawning areas. Use of the property by mule deer is anticipated to be minimal and use by elk very unlikely. Although the property is within a CPW-mapped area of bald eagle winter range, it is not immediately adjacent to the Roaring Fork River and lacks suitable trees for roosting and perching. Bald eagle use of the parcel is not anticipated. Most of the Roaring Fork Valley is within the CPW-mapped black bear Fall Concentration Area, including this property, but it is not good black bear habitat. The use of animal-proof containers and planting of native and wildlife compatible landscaping will minimize the potential for human wildlife interaction and conflict. Lastly, fencing will be wildlife friendly and the designated dog park will reduce the potential for resident dogs chasing or harassing wildlife.

Sensitive Lands – Section 3.8

Goal: Development in Eagle County avoids or fully mitigates impacts to sensitive lands. Open space is preserved to the greatest degree possible, and scenic quality and cultural resources are protected.

Relevant policies:

a. Development should avoid areas of significant natural hazard.
c. Development and development patterns should preserve landscapes that include visual, historic, and archeological value.
d. The continued evolution of Eagle County's present day culture should be considered integral to the high quality of life desired by residents and visitors.
e. A variety of approaches should be utilized to preserve land as open space.
f. Open space should be able to serve different needs in different applications.

Response:
Sensitive Lands and Hazards: The subject property is not in an area subject to significant natural hazards. The nearest sensitive land to the property is the riparian zone, which is across Valley Road to the south, and FEMA identifies the parcel as having minimal probability of flooding (Zone X). The property is also dominated by low wildfire hazard conditions due to discontinuous fuels and being on relatively level ground. The development will not have shake shingle roofs and will comply with Eagle County wildfire hazard guidance regarding landscaping proximity to homes. The change of zoning and development of this property will not increase risk for or cause avalanches, landslides, siltation, settlement, floods, or other significant landform changes or hazard to health and safety.
Open Space: Open space is a prominent feature of The Fields comprising 6 acres, or 31% of the property. This is made possible by clustering units, which also provides for view corridors to the

mountain surroundings. The tiered open space system provides semi-private spaces for each village and then public spaces for the greater community. There are also paths within the development for recreational use. In addition, the pond within the open space will provide a resident amenity as well as stormwater management.
Nod to History: The Fields will retain the foundation of the existing 1944 ranch house and feature it as a resident amenity, "Foundation Park", to memorialize the valley's agricultural and ranching heritage.

Environmental Quality – Section 3.9

Goals:
1) Air quality, ambient noise levels and the quality of the night sky in Eagle County are preserved at levels appropriate to a modern mountain community.
2) Eagle County is recognized as a leader in promoting energy efficiency and conservation.

Relevant policies:

b. Lighting plans that reduce nuisance glare and protect the quality of the night sky should be encouraged.
c. Noise should be minimized to meet the highest applicable safety standards, as well as the aesthetic expectations of local residents.
d. Energy efficiency and the reduction of overall energy consumption should be a primary goal for future operations and developments in Eagle County.

Response:
Lighting: The Fields will include an outdoor lighting program that respects the valuable night sky resource with fully shielded light fixtures, a warmer and less intrusive color temperature, and just enough light to provide for safe use of the property. Adaptive controls like motion sensors and photocells will be utilized where practical.
Noise and Air: While this residential subdivision should not produce much noise, the landscaping buffer provided around the edges of the property will help filter noise between this development and neighboring properties. The natural landscaping program and ample open space will benefit air quality.
Energy: The attached and multifamily buildings offer inherent energy efficiency, and all buildings will be designed using energy efficient materials. In addition, the organic layout of the buildings promotes solar access and the use of native landscaping with raw irrigation water requires very little energy. The Fields' location encourages non-motorized travel due to its proximity to multi-modal transportation and job centers. Given this access, personal vehicle trips and associated emissions are anticipated to be lower than other equivalently sized developments.

Future Land Use Map – Section 3.10

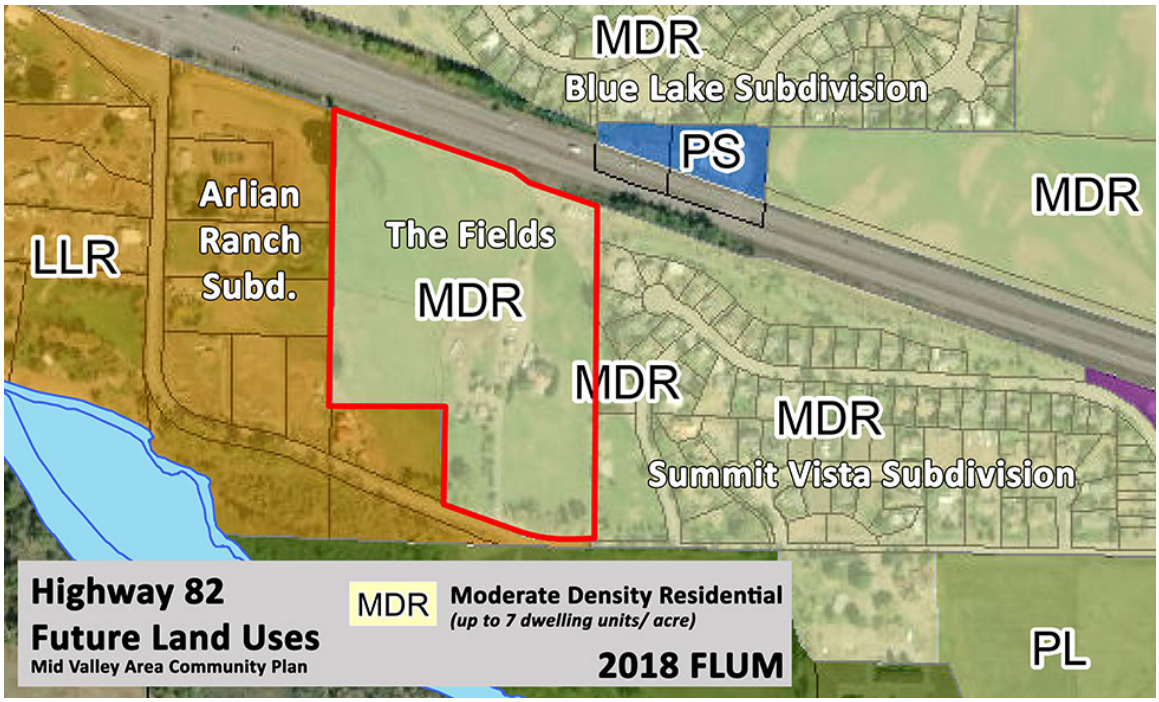
Goal: Future Land Use Maps are valuable tools, developed through community input, that help guide development in Eagle County.

Policy:

a. Zone changes and site-specific land use proposals should reflect the written policies of this Comprehensive Plan, the land use designations of the Future Land Use Map and the goals and objectives set forth within Area Community Plans, as applicable.

Response:
The information provided above explains how this Zone District Map Amendment and Preliminary Plan application support the policies within the Eagle County Comprehensive Plan. The Future Land Use Map (FLUM) for this property is considered in the Mid-Valley Area Community Plan. On this map, the requested area of rezone is "Moderate Density Residential," a classification applied to lands where moderately higher density residential neighborhoods would be appropriate. The Fields gross density of under seven dwelling units per acre complies with this classification and is consistent with the Future Land Use Map.

2018 Mid Valley Area Community Plan – Future Land Use Map, annotated.



7.2. Mid Valley Area Community Plan

Among the significant changes from the 1996 Master Plan is the way the Comp Plan incorporates the existing and proposed Eagle County Sub Area Plans. The subject property of this request for Zone District Map Amendment and Preliminary Plan falls within the jurisdiction of the Mid-Valley Area Community Plan (MVACP). The MVACP was originally adopted in 1991, amended in 2013, and further refined in 2018. The 2018 plan supersedes and replaces prior versions. The current Mid-Valley Area Community Plan contains four specific character areas. The subject property falls into the Highway 82 Corridor character area, which has its own specific goals as addressed below.

Land Use – Section 1

Goal 1.1 The type and distribution of land uses in the Highway 82 Character Area meet community needs, reflect community desires, and demonstrate effective multi-agency collaboration.
Policy 1.1.2 Accommodate an appropriate mix and density of residential uses.

Response: The Fields Preliminary Plan meets the general concepts of providing for higher density residential uses near commercial and transit service areas. The addition of 135 dwelling units at a density of 6.96 dwelling units per acre is within the range envisioned by the Mid-Valley Area Community Plan. The housing units vary by type, sizes, and price point and will be near commercial services in Orchard Plaza and the Willits Town Center, as well as within one mile of the RFTA El Jebel station. The housing mix is very diverse and includes single family homes, duplexes, fourplexes, and multifamily buildings, which creates housing choice to meet the needs of diverse household types (single-person households, couples with/without children, other family households). It also adds 17 affordable homes to the local workforce to the area's affordable housing supply.

Policy 1.1.8 Establish land use compatibility.

Response: The Fields Preliminary Plan would add additional residential development between the medium density Summit Vista Subdivision to the east, U.S. Forest Service land to the south, and a mix of low density residential, commercial, and light industrial uses to the west. The Fields impact to neighboring properties will be quite minimal in terms of noise, light, and other impacts through intentional and quality design.

Policy 1.1.9 Adhere to the purposes and intents of the Mid Valley Area Community Plan Future Land Use Map.

Response: The Mid-Valley Area Community Plan Future Land Use Map designates the subject property as Moderate Density Residential (MDR). This classification is applied to lands where moderately higher density residential neighborhoods exist or would be appropriate up to seven dwelling units per acre. The Preliminary Plan is for a residential density of 6.96 dwelling units per acre, within the density deemed appropriate.

Goal 1.2 Development and land use is sustainable.

Policy 1.2.1 Encourage land uses and businesses that effectively utilize the area's natural, fiscal and human resources while assuring the availability and quality of those same resources for future generations.

Response: The Fields preliminary plan utilizes land adjacent to other developed properties and existing infrastructure like Valley Road, the RFTA El Jebel station, and open spaces. In addition, the "village" concept is compact and of a moderately high density where infrastructure exists and can be efficiently provided. The Fields' developers will focus on building highly energy efficient homes and will utilize existing water rights for raw irrigation water.

Design, Character & Appearance – Section 2

Goal 2.1 Development is planned and designed to create the perception of a single integrated community.
Policy 2.1.1 Coordinate planning efforts to achieve design consistency and functionality between incorporated and unincorporated properties.

Response: The Fields has been designed to be compatible with adjacent land uses and densities, which will reinforce the perception of a single integrated community in the El Jebel area. The El Jebel area is unincorporated, and the project has been designed to achieve design consistency with other existing developments in the El Jebel area.

Goal 2.2 Development showcases an attractive and coordinated mix of building forms, architecture, landscaping, streetscape improvements, open spaces and natural backdrops.

Policy 2.2.1 Strive to preserve elements of local history.

Response: The Fields Preliminary Plan includes the creation of Foundation Park as a community amenity and a means to preserve the valley's history of agricultural production and ranching. The foundation of the existing 1944 ranch house will be maintained to serve as a monument to local history.

Policy 2.2.2 Work to establish an eclectic, attractive blend of buildings, parking lots and streetscape enhancements in the El Jebel area.

Response: The Fields' "village" concept clusters development and orients the buildings so that parking predominately faces the loop road. Parking is associated with each building rather than being clustered in a larger lot configuration. Parking deliberately oriented toward the road enhances viewsheds within the interior of the community along its pathways. Landscaping helps buffer the loop road and parking from neighboring properties. Conceptual renderings highlight the benefits of this design on views into and out of the community. The architecture will be of quality design with diversity throughout the community and will add to the eclectic character of the El Jebel area. Dark sky friendly lighting will be incorporated, and open space along the Valley Road corridor will enhance the streetscape.

Policy 2.2.3 Maintain and protect elements of the natural landscape that enhance El Jebel's quality of place.

Response: The Fields Preliminary Plan will protect the existing Cottonwood trees along Valley Road and the Arlian Ranch Ditch. The small portion of the Harris & Reed Ditch in the northeast corner of the property and the Arlian Ranch Ditch along the southern property boundary will be preserved and unaltered. Modular or panelized construction will speed up the construction process and minimize dust, which will lessen any potential impact on neighboring properties. Landscaping will be natural and reflect the ecology of the area. It will also be managed by the HOA ensuring proper ongoing care and weed management.

Public Service & Infrastructure – Section 3

Goal 3.1 Land uses in the Highway 82 area are supported by adequate public services and infrastructure.
Policy 3.1.1 Develop a comprehensive and coordinated approach to meeting service and infrastructure needs.

Response: Service providers have committed to serving the 135 proposed residential units with water, sewer, electricity, natural gas, cable, telephone, internet, and home security services. Coordination with the fire district has also occurred to ensure accessibility and adequacy of emergency services. Landscaping irrigation will be provided by existing water rights on the property, stored in a central pond as an amenity for residents. Snow will be stored in the access easement with ample space to meet the needs of the property.

Policy 3.1.2 Assure safe and efficient vehicular and pedestrian transportation and parking systems.

Response: The Fields will include two points of ingress/egress from Valley Road at 90-degree angles and inclusive of clear sightlines. Vehicular travel within the property is a loop road, which is mostly aligned on the outer edge of the property. This alignment concentrates primary pedestrian pathways on the interior of the property away from the road. The spatial separation makes all modes of travel on the property very safe. In addition, parking is generally oriented to the loop road, which makes ingress/egress easy. Easements and trails will provide for regional trail connections, like the Rio Grande Trail seasonal bypass and other more local routes as called for in the Mid-Valley Trails Plan. Parking on-site will be mostly in garages or under buildings to minimize parking surfaces and the appearance of large parking areas.

Policy 3.1.3 Accommodate adequate law enforcement, fire and life safety services.

Response: The Fields has coordinated the project design with the fire district to ensure adequate and timely provision of life safety services should they ever be needed. This includes meeting fire flow requirements, ensuring adequate street widths, and installing an ample number of fire hydrants in proper locations.

Policy 3.1.4 Review concurrent demands for the delivery of high quality water and wastewater services.

Response: The Fields will utilize a pond and an overflow area for stormwater management, which will help protect the quality of any runoff. Existing water rights from the Arlian Ranch Ditch will be utilized for irrigation through storing water in a central pond and recirculating it through the native water-wise landscaping. The Mid Valley Metropolitan District has committed to serve the 135 residential dwelling units with water and sewer service.

Policy 3.1.5 Review concurrent demands for adequate power and telecommunication services.

Response: The Fields is within the certified service area of Holy Cross Energy and the company has stated that adequate power supply is available to provide electric power to the development. In addition, Comcast of Colorado has confirmed the ability to provide cable, telephone, and internet to the development.

Policy 3.1.7 Maintain the integrity and function of irrigation ditches that serve the area.

Response: There are two primary source ditches on the property, the Arlian Ranch Ditch and Harris & Reed Ditch. The Arlian Ranch Ditch runs east to west along the southern boundary of the property and the Harris & Reed Ditch crosses a small portion of the property in its northeast corner before being piped to the Blue Lake Subdivision under Highway 82. Raw water from the Arlian Ranch Ditch is currently used to irrigate the pasture through a system of laterals. These laterals will be graded and filled so the irrigation water can go to the central pond to be used for irrigation purposes. Details of the raw water irrigation system are included in the Engineering Plans in **Appendix J**.

Policy 3.1.8 Promote local control, and encourage local funding of public services and infrastructure.

Response: The Fields will be served by existing utility providers. The HOA will provide for ongoing maintenance of the roads, sidewalks, paths, community amenities, landscaping and associated raw water irrigation system.

Natural Resources & Environmental Quality – Section 4

Goal 4.1 The responsibility for overseeing the protection of natural resources is appropriately shared between affected stakeholders, management agencies and user groups.
Policy 4.1.1 Foster agency and stakeholder collaboration in efforts to preserve and manage natural resources and environmental quality.

Goal 4.2 The quality of the natural environment and the function of sensitive lands and natural ecosystems is preserved and protected.
Policy 4.2.1 Encourage the preservation of the natural environment that enhance the visual quality of the area.

Response: The Fields has been deliberately designed to ensure views of area mountains are preserved. The clustering of buildings consolidates open space in the interior of the property and in the corners nearest to Valley Road and Highway 82. This allows for expansive views from the pond and other interior pathways. In addition, smaller open spaces within each village creates unique and interesting views between buildings and through the trees. All utility service lines will be underground and will not impact the viewshed in any way.

Policy 4.2.2 Work to maintain and/or improve air quality.

Response: The project will preclude wood burning fireplaces. The development is situated in proximity to the RFTA El Jebel station and conveniently accessible on foot or bike, all reducing vehicle trips and encouraging the use of public transportation. The entire property will either be planted or paved, virtually eliminating dust and adding to the natural landscape with native plantings. By using modular or panelized construction, the construction period is greatly reduced from standard stick-built projects, minimizing soil exposure to wind and the elements.

Policy 4.2.3 Identify opportunities to preserve and/or enhance water quantities and water quality.

Response: The Fields Preliminary Plan includes adequate stormwater detention in the form of a pond and stormwater overflow to also serve as resident amenities. This coupled with ample open space and comprehensive natural landscaping will serve to filter rainwater and slow runoff, which will allow for groundwater replenishment. Landscaping will mostly consist of native, water efficient plantings and will be irrigated with raw water.

Policy 4.2.4 Strive to protect and preserve the quality of wildlife habitat.

Response: The property does not have good habitat for local wildlife species and this development will not change that. Although the property is within a CPW-mapped area of bald eagle winter range, it is not immediately adjacent to the Roaring Fork River and lacks suitable trees for roosting and perching. Bald eagle use of the parcel is not anticipated. Most of the Roaring Fork Valley is within the CPW-mapped black bear Fall Concentration Area, including this property, but it is not good black bear habitat. The use of animal-proof containers and planting of native and wildlife

compatible landscaping will minimize the potential for human wildlife interaction and conflict. Moreover, the project includes a fenced dog park which minimizes the potential for impacts to wildlife from domestic dogs. And finally, the re-zoning and additional density concentrates development adjacent to where it already exists, maintaining higher-quality habitat elsewhere in the valley.

Policy 4.2.5 Review development in natural hazard areas or areas that support rare, endangered or unique vegetative communities to align with established State plans, or other local plans/guidelines for best practices in such conditions.

Response: FEMA identifies the property as having a minimal probability of flooding (Zone X) and the geologic hazards evaluation found no hazards precluding development of the site. The potential for subsurface subsidence was noted, although of no greater risk than nearby development including the Willits Town Center and Tree Farm PUD. During development, appropriate engineering consultation will be retained to provide appropriate geotechnical design.

Goal 4.3 Development incorporates appropriate energy and resource efficiencies.
Policy 4.3.1 Promote programs and designs that improve energy efficiency.

Response: As previously noted, The Fields is served by public transportation and regional trails, minimizing personal vehicle trips and associated use of fossil fuels and emissions. The buildings will be built with energy use at top of mind and designed to accommodate future energy efficient technologies.

Policy 4.3.2 Promote energy efficient lifestyles.

Response: Recycling will be provided by local waste service companies. Open spaces within the community will contain several locations for community gardens, for residents to increase local food production and further reduce the community's carbon footprint. Existing transportation networks will provide efficient transportation options to nearby services and amenities.

7.3. Mid Valley Trails Plan

The Mid Valley Trails Plan (MVTP) was updated in 2020, and supports "*safe, environmentally friendly transportation facilities and quality of life-enhancing recreation opportunities*". The geographic focus of the MVTP is the Mid-Valley area of Eagle County, within which it "*supports increasing opportunities for active transportation and recreation by underserved and underrepresented populations*".

The MVTP includes recommendations and suggestions for future trail and shared roadway projects that are either already included in adopted local jurisdiction documents or were suggested through the referral agency and public comment process. The Plan identifies a list of "Proposed New or Expanded Projects", and Section 10 of the MVTP beginning on page 81 identifies several potential future trail improvements in the Valley Road and State Highway 82 Frontage Road corridors related to The Fields subdivision. Those suggested improvements of the MVTP are copied below in bold text, followed by applicant responses.

- **(page 82) Adjacent to the west boundary of Summit Vista subdivision, residential units are proposed as the "Fields Subdivision", on the north side of Valley Road. The Subdivision Sketch Plan Approval in 2018 included a condition of approval to "Construct and maintain a 10' paved sidewalk/trail along Valley Road to Valley Court", resulting in 1,000 feet of added trail route.**

Response: This trail segment is 600' in length along Valley Road from the Fields property to Valley Court. Recent off-site surveys and investigations in the Valley Road Right of Way (ROW) have identified significant constraints that prevent the fulfillment of this condition. Specifically, a) the ROW is not of sufficient width to accommodate a 10' wide trail, and b) grade changes between Valley Road and the ROW boundary would necessitate the construction of lengthy retaining walls and guardrails, further reducing the width of the trail. These constraints were presented and discussed with the County Engineer during a web-meeting on September 22, 2020. Based on these physical constraints, the County Engineer suggested that the applicant consider a commitment to an alternate means of trail connection through the Forest Service property to the south of The Fields. The applicant has also committed to the construction of a pedestrian crosswalk on Valley Road with Rectangular Rapid Flashing Beacons (RRFB), which will connect The Fields to this future trail. As a result of these studies and conversations, the applicant is proposing to provide one of the following public trail improvements, as determined by the Eagle County BoCC:

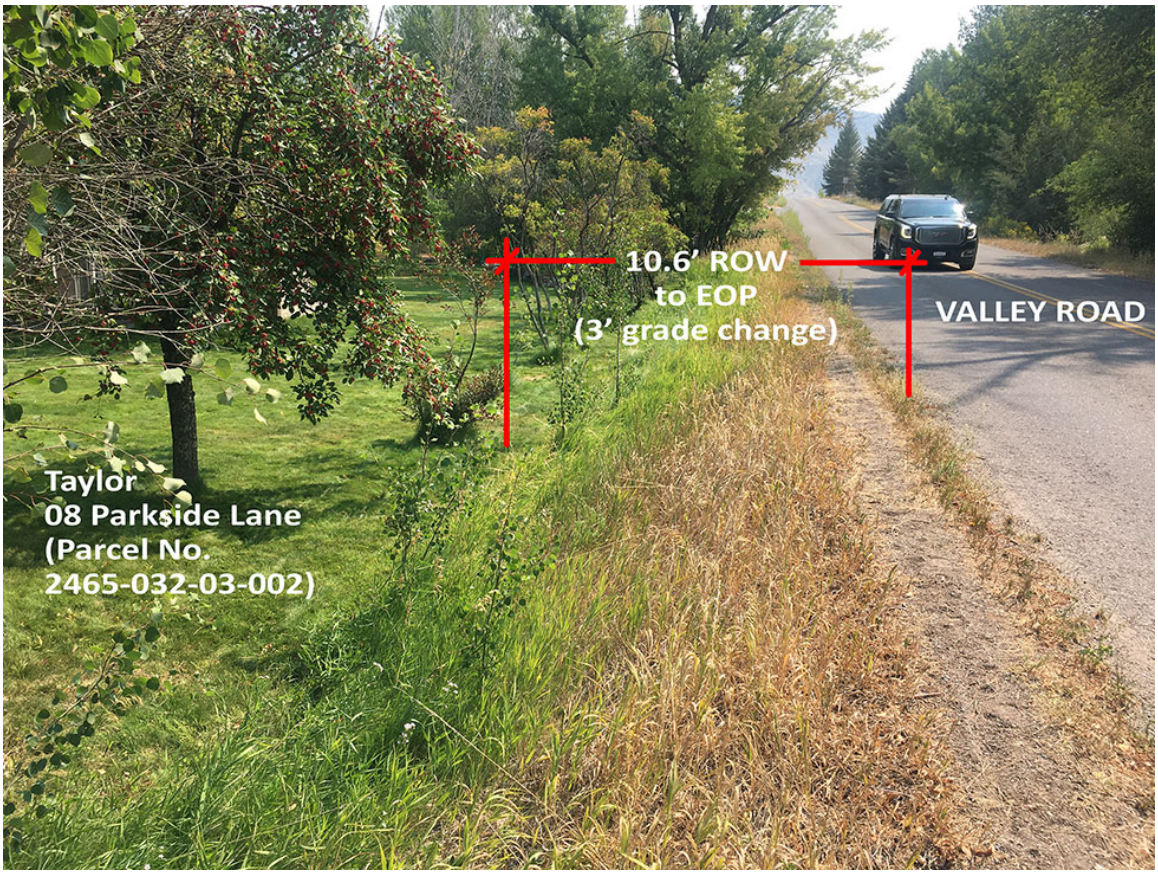
- **Option 1:** The future construction of a 10' wide, 600' long trail from The Fields through the Forest Service property toward Crown Mountain Park on an alignment to be determined by Eagle County. The preference of this Applicant and the Summit Vista HOA (see **Appendix S**) is that this trail would parallel the Valley Road right-of-way, as we

feel it would benefit more existing residents in this location. In this option, it is not within the purview of The Fields developers to obtain any necessary approvals or permitting for public trail access across Federal Lands or Special Districts, and any clearances for such would need to be processed and obtained by Eagle County or others. This is the preferred option of the Applicant, as it would provide a full-width multi-use public trail platform that is separated from the vehicular traffic on Valley Road.

OR

- **Option 2:** The construction of 600' of a narrower 6' wide trail along the north side of Valley Road, connecting to Valley Court. A 10' width trail is not possible here due to topographic and ROW width constraints. This option would require retaining walls within the ROW. In this option, the proposed crosswalk on Valley Road at The Fields property would not be necessary nor provided. This option is not preferred by the Applicant as there may be indirect impacts to adjacent homeowners in Summit Vista, and the trail would be a compromised width immediately adjacent to vehicular traffic. Some current neighbors also went on record to oppose this solution in 2016.

Example of Existing ROW Constraints on Valley Road



- **(page 83) Additionally, the proposed Fields Subdivision, if approved, will include a dedicated easement to the public along the northside of the property line adjacent to SH 82 to allow for a possible future connection to the existing paved trail on the north boundary of the adjacent Summit Vista subdivision. This proposal would enable a future trail connection to the intersection of Valley Road, SH 82 and JW Drive and a link with the community of Blue Lake on the opposite side of SH 82, if CDOT and adjacent private property owners participate.**

  Response: As the MVTP acknowledges, the existing Summit Vista trail is private and was never dedicated to the public. For this reason, the current owners of the Fields have not included this segment of trail in their current plan. The Fields plan includes an internally looped trail system which can easily connect to the Summit Vista trail if that trail were to ever be made public. However, this is unlikely as the MVTP states and this applicant agrees: **(page 84)** "**Summit Vista Homeowners Association does not support granting an easement to allow public use of their existing paved trail through their open space parcel and connecting to the proposed Fields Subdivision.**" The applicant for The Fields is supportive of the Secondary Paved Trail within the SH 82 right of way as depicted on Map 3 (page 60) of the MVTP. If such a trail were to come to fruition, a connection could be made to the internal paved trails of The Fields, which are all located within Open Space tracts or easements.

- **(page 83) If connection to the Summit Vista trail is not possible, construction of a trail in the Valley Road right-of-way from the Fields Subdivision to SH 82 may be possible. Further study is required to determine if sufficient unimproved right-of-way exists on Valley Road to accommodate the width of a paved trail, or if it will be necessary to seek additional property from adjacent private property owners.**

  Response: As discussed above, the right-of-way for Valley Road is not of sufficient width for the construction of a paved trail. Both the north and south sides of the roadway are dimensionally constrained, and the corridor is further limited by the existence of physical constraints such as topography, irrigation ditches, and existing tree groves. Conversations with the County Engineer have indicated an alternative desire to connect the Fields to Crown Mountain Park through the Forest Service property, instead of utilizing the constrained Valley Road corridor. In support of that recommendation, the applicant has committed to one of the two trail option as discussed above.

LAND USE APPLICATION FORM
EAGLE COUNTY LAND USE REGULATIONS

EAGLE COUNTY
DEPARTMENT OF COMMUNITY DEVELOPMENT
P.O. BOX 179, EAGLE, CO 81631
(970) 328-8730 / FAX (970) 328-7185
www.eaglecounty.us

EAGLE COUNTY

TYPE OF APPLICATION:	LAND USE REGULATION REFERENCE:	TYPE OF APPLICATION:	LAND USE REGULATION REFERENCE:
☒ Sketch Plan Subdivision	Section 5-280, SUBDIVISION	☐ Special Use Permit	Section 5-250, SPECIAL USES
☐ Sketch Plan PUD	Section 5-240, PUD	☐ Consolidated	
☒ Preliminary Plan Subdivision	Section 5-280, SUBDIVISION	☐ Concept Evaluation	
☐ Preliminary Plan PUD	Section 5-240, PUD	☐ Final	
☐ Final Plat	Section 5-280, SUBDIVISION	☐ PUD Amendment	Section 5-240, PUD
☐ Exemption Plat	Section 5-270, SUB. EXEMPTION	☒ Variance- Zoning/VIS	Section 5-260, VARIANCES
☐ Correction Plat	C.R.S. 30-28-133(a)	☐ 1041 Permit	Chapter 6, MATTERS OF STATE INTEREST
☐ Location & Extent	C.R.S. 30-28-110	☐ Limited Review	Section 5-2100, CERTIF. OF ZONING
☐ Amended Final Plat	Section 5-290, MINOR SUBDIVISION	☐ Vacation	Section 5-2200 VACATIONS
☐ Minor Type A Subdivision	Section 5-290, MINOR SUBDIVISION	☒ FONSI	FINDING OF NO SIGNIFICANT IMPACT
☐ Minor Type B Subdivision	Section 5-290, MINOR SUBDIVISION	☐ Other_____	
☒ Zone Change	Section 5-230, ZONE DISTRICT AMENDMENT		
☐ LUR Text Amendment			

INVOLVED PARTIES:

OWNER/APPLICANT:
Name: Fields Development Group, LLC
Mailing Address: 1009 Cattle Creek Ridge Road
Town/State/Zip: Carbondale, CO 81623
Phone #: 970-274-8412 FAX #:
Email Address: wrw3@hotmail.com

REPRESENTATIVE (Authorization Required):
Name: Jon Fredericks, LANDWEST Colorado, LLC
Mailing Address: 345 Colorado Ave. #106
Town /State/Zip: Carbondale, CO 81623
Phone #: 970-379-4155 FAX #:
Email Address: jon@landwestcolorado.com

Note: All correspondence will be mailed, emailed or faxed to the representative listed above UNLESS otherwise requested.

SURVEYOR/ENGINEER:
Name: True North Colorado, LLC
Mailing Address: PO Box 614
Town/State/Zip: New Castle, CO 81647
Phone #: 970-984-0474 FAX #:
Email Address: rodney@truenorthcolorado.com

NOTE: Please read the above referenced Section in Chapter II of the Eagle County Land Use Regulations, and the applicable Process Guide. Please submit all necessary application documentation and fees as required.

ADJACENT PROPERTY OWNERS:
For all applications, please submit a list of all adjacent property owner names and addresses, using the most current Eagle County tax records. These names and addresses must be submitted on adhesive mailing labels or pre-addressed envelopes. Please see corresponding application checklist.

DISCLOSURE OF OWNERSHIP:
For all applications, please submit the necessary ownership disclosure (dated within two months of the application), pursuant to Section 5-210.D.2.c. Please see corresponding application checklist.

SUBSURFACE MINERAL INTERESTS: Pursuant to C.R.S. § 24-65.5-103 *Notice Requirements, please note*: It is the responsibility of the applicant for any Sketch Plan, Preliminary Plan, Variance, and/or Zone Change application to notify owner(s) and/or lessee(s) of subsurface mineral interests, affected by your proposal.

PROJECT NAME AND LOCATION:

Assessor's Parcel # 2391-334-01-003
Physical/Street Address: 554 Valley Road

Name of Project: The Fields

Legal Description of Project:
Subdivision: Arlian Ranch
Lot 5 Block _____ Filing _____ Tract _____
Section _____ Township _____ Range _____
-- OR --
Attach a Metes and Bounds legal description and survey depicting the property boundary. ATTACHED

PROJECT DATA (Pursuant to Section 5-210.D.2.e):

Written Description of Project:
This application is for a consolidated Zone Change Map Amendment, Sketch and Preliminary Plan for subdivision. The applicant requests a Zone Change Map Amendement from Rural Residential (RR) to Residential Multi-Family (RMF), and requests the approval of a Preliminary Plan for Subdivision to include 135 total dwelling units on the 19.39 acre parcel. Dwelling units include a diverse mix of single family, duplex, townhome, and multi-family units, including 34 affordable housing units (25%). The application demonstrates that the project will be adequately served by utilties and infrastructure. The plan includes 7.0 acres of dedicated open space, which is 36% of the proposed subdivision. The approved subdivision will ultimately result in the creation of 11 building lots, 4 open space tracts, and 7 open space easements at the time of Final Plat. This application also requests a variance from Table 4-120 (Parking & Loading), and a FONSI for a proposed Large Landscape Berm per Article 4-230.B.15 of the ECLUR.

Proposed Land Use Type	# of Lots	# of Units	Acreage	Floor Area Ft^2
☒ Single Family	n/a	27	n/a	60,800
☒ Duplex	n/a	20	n/a	29,600
☒ Multi-Family	n/a	88	n/a	115,000
☐ Commercial/Office				
☐ Industrial				
☒ Other: Open Space	n/a	n/a	7.0	n/a
Total Project:	15	135	19.39	205,400

■ Existing Zoning	Rural Residential (RR)
■ Proposed Zoning	Residential Multi-Family (RMF)
■ Existing Land Use(s) (Be Specific)	Residential, Agricultural
■ Proposed Land Use(s) (Be Specific)	Residential, Open Space
■ Existing Source of Water	Mid Valley Metropolitan District
■ Proposed Source of Water	Mid Valley Metropolitan District
■ Existing Source of Waste Disposal	Onsite Wastewater Treatment Systems (OWTS)
■ Proposed Source of Waste Disposal	Mid Valley Metropolitan District
■ Existing Fire Protection	Basalt & Rural Fire Protection District
■ Proposed Fire Protection	Basalt & Rural Fire Protection District
■ Existing Access	Valley Road
■ Proposed Access	Valley Road
■ Date of Parcel Creation	September 10, 1980

☒ **VICINITY MAP ATTACHED (Pursuant to Section 5-210.D.2.d).**
☒ **ENVIRONMENTAL IMPACT REPORT ATTACHED, IF REQUIRED (Pursuant to Section 5-210.D.2.f).**
☒ **ADDITIONAL REQUIREMENTS ATTACHED, IF REQUIRED (Pursuant to Section 5-210.D.2.g).**

☒ **REQUIRED* PRE-APPLICATION MEETING** ☒ **YES** ☐ **NO**

■ ***If YES: Date of meeting:*** 12/3/2020 ***Planner(s) attended:*** Steve O'Conner, Richard Davies
Names

*See Section 5-210.D

I do hereby certify that the foregoing representations and attachments are true and correct to the best of my knowledge.

Jon Fredericks 12/3/2020
Signature of Property Owner or Authorized Representative Date

OFFICIAL USE ONLY:

Received By: Date:
Amount Received: $ Receipt #: Check #

Appendix A

Applicant's Identity & Letter of Authorization

FIELDS DEVELOPMENT GROUP, LLC
1009 Cattle Creek Ridge Road
Carbondale, CO 81623

November 12, 2020

Morgan Landers, AICP
Planning Manager, Eagle County
500 Broadway
Eagle, Colorado 81631

RE: Applicants Identity and Letter of Authority

Dear Ms. Landers,

The application for The Fields: Zone Change Map Amendment & Preliminary Plan concerns the following subject applicant and property owner:

Fields Development Group, LLC
1009 Cattle Creek Ridge Road
Carbondale, CO 81623
970-274-8412
wrw3@hotmail.com
Parcel No. 2391-334-01-003

This letter grants Power of Attorney to LANDWEST Colorado, LLC via Jon Fredericks ("Agent") on behalf of Fields Development Group, LLC ("Applicant").

LANDWEST Colorado, LLC
345 Colorado Ave. #106
Carbondale, CO 81623
(970) 379-4155
jon@landwestcolorado.com

Said Power of Attorney authorizes Agent to submit the Applicant's land use applications and to represent the Applicant throughout the review processes.

Yours truly,

Fields Development Group, LLC
By: _____
Whit Whitaker, Manager

Cc: Jon Fredericks, LANDWEST Colorado, LLC

Appendix B

Legal Description

THE FIELDS:

LOT 5
ARLIAN RANCH SUBDIVISION
ACCORDING TO THE PLAT THEREOF RECORDED SEPTEMBER 10, 1980 IN BOOK 309 AT PAGE 5 AS RECEPTION NO. 205385 AND THE ARLIAN RANCH (CORRECTED FINAL PLAT) RECORDED JANUARY 30, 1981 IN BOOK 317 AT PAGE 729 AS RECEPTION NO. 214101.

COUNTY OF EAGLE
STATE OF COLORADO

TRUE NORTH
COLORADO
A LAND SURVEYING AND MAPPING COMPANY

FIELDS DEVELOPMENT GROUP
554 VALLEY ROAD - BASALT
COUNTY OF EAGLE - STATE OF COLORADO

COLORADO LICENSED
RODNEY P. KIRK
38215
PROFESSIONAL LAND SURVEYOR
11/13/2020

TRUE NORTH COLORADO LLC.
A LAND SURVEYING AND MAPPING COMPANY
P.O. BOX 614 - 386 MAIN STREET UNIT 3
NEW CASTLE, COLORADO 81647
(970) 984-0474
www.truenorthcolorado.com

PROJECT NO: 2020-128	DRAWN: RPK	SHEET 1 OF 1
DATE:November 13, 2020	SURVEYED: LDV	

Appendix C

Disclosure of Ownership

711 E. Valley Rd, Unit 201B
Basalt, CO 81621
Phone: 970-366-4111 Fax: 970-672-1576
www.titlecorockies.com

Commitment Ordered By:
Joseph Edwards
Klein Cote Edwards Citron LLC
101 South Mill Street, Ste. 200
Aspen, CO 81611
Phone: 970-925-8700 Fax: 970-925-3977
email: jee@kceclaw.com

Inquiries should be directed to:
Priscilla Cooper
Title Company of the Rockies
711 E. Valley Rd, Unit 201B
Basalt, CO 81621
Phone: 970-366-4111 Fax: 970-672-1576
email: PProhl-Cooper@TitleCoRockies.com

Commitment Number: 7000495-C
Buyer's Name(s): TBD
Seller's Name(s): Field Development Group, LLC a Colorado limited liability company

Property: 554 Valley Rd, Basalt, CO 81621
Lot 5, Arlian Ranch, Eagle County, Colorado

TITLE CHARGES

These charges are based on issuance of the policy or policies described in the attached Commitment for Title Insurance, and includes premiums for the proposed coverage amount(s) and endorsement(s) referred to therein, and may also include additional work and/or third party charges related thereto.

If applicable, the designation of "Buyer" and "Seller" shown below may be based on traditional settlement practices in Eagle County, Colorado, and/or certain terms of any contract, or other information provided with the Application for Title Insurance.

Owner's Policy Premium:	$0.00
Loan Policy Premium:	$0.00
Additional Lender Charge(s):	
Additional Other Charge(s):	
Tax Certificate:	
Total Endorsement Charge(s):	
TBD Charge(s):	$250.00
TOTAL CHARGES:	**$250.00**

ALTA Commitment For Title Insurance
(Adopted 06-17-06) (Revised 08-01-2016)

COMMITMENT FOR TITLE INSURANCE
ISSUED BY
WESTCOR LAND TITLE INSURANCE COMPANY

NOTICE

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

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

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

COMMITMENT TO ISSUE POLICY

Subject to the Notice; Schedule B, Part I-Requirements; Schedule B, Part II-Exceptions; and the Commitment Conditions, WESTCOR LAND TITLE INSURANCE COMPANY, a South Carolina Corporation (the "Company"), commits to issue the Policy according to the terms and provisions of this Commitment. This Commitment is effective as of the Commitment Date shown in Schedule A for each Policy described in Schedule A, only when the Company has entered in Schedule A both the specified dollar amount as the Proposed Policy Amount and the name of the Proposed Insured.

If all of the Schedule B, Part I-Requirements have not been met within six (6) months after the Commitment Date, this Commitment terminates and the Company's liability and obligation end.

IN WITNESS WHEREOF, **WESTCOR LAND TITLE INSURANCE COMPANY** has caused its corporate name and seal to be hereunto affixed and by these presents to be signed in facsimile under authority of its by-laws, effective as of the date of Commitment shown in Schedule A.

Issued By:

TITLE COMPANY of the rockies

The Title Company of the Rockies
711 E. Valley Rd, Unit 201B
Basalt, CO 81621
Phone:

WESTCOR LAND TITLE INSURANCE COMPANY

By: Mary O'Donnell
President

Attest:
Secretary

CONDITIONS

1. The term mortgage, when used herein, shall include deed of trust, trust deed, or other security instrument.

2. If the proposed Insured has or acquired actual knowledge of any defect, lien, encumbrance, adverse claim or other matter affecting the estate or interest or mortgage thereon covered by this Commitment other than those shown in Schedule B hereof, and shall fail to disclose such knowledge to the Company in writing, the Company shall be relieved from liability for any loss or damage resulting from any act of reliance hereon to the extent the Company is prejudiced by failure to so disclose such knowledge. If the proposed Insured shall disclose such knowledge to the Company, or if the Company otherwise acquires actual knowledge of any such defect, lien, encumbrance, adverse claim or other matter, the Company at its option may amend Schedule B of this Commitment accordingly, but such amendment shall not relieve the Company from liability previously incurred pursuant to paragraph 3 of these Conditions and Stipulations.

3. Liability of the Company under this Commitment shall be only to the named proposed Insured and such parties included under the definition of Insured in the form of policy or policies committed for and only for actual loss incurred in reliance hereon in undertaking in good faith (a) to comply with the requirements hereof, or (b) to eliminate exceptions shown in Schedule B, or (c) to acquire or create the estate or interest or mortgage thereon covered by this Commitment. In no event shall such liability exceed the amount stated in Schedule A for the policy or policies committed for and such liability is subject to the insuring provisions and Conditions and Stipulations and the Exclusions from Coverage of the form of policy or policies committed for in favor of the proposed Insured which are hereby incorporated by reference and are made a part of this Commitment except as expressly modified herein.

4. This Commitment is a contract to issue one or more title insurance policies and is not an abstract of title or a report of the condition of title. Any action or actions or rights of action that the proposed Insured may have or may bring against the Company arising out of the status of the title to the estate or interest or the status of the mortgage thereon covered by this Commitment must be based on and are subject to the provisions of this Commitment.

5. *The policy to be issued contains an arbitration clause. 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 as the exclusive remedy of the parties. You may review a copy of the arbitration rules at< http://www.alta.org/>.*

Joint Notice of Privacy Policy

of

Westcor Land Title Insurance Company

and

The Title Company of the Rockies

Westcor Land Title Insurance Company ("WLTIC") and **The Title Company of the Rockies** value their customers and are committed to protecting the privacy of personal information. In keeping with that philosophy, we each have developed a Privacy Policy, set out below, that will endure the continued protection of your nonpublic personal information and inform you about the measures WLTIC and **The Title Company of the Rockies** take to safeguard that information. This notice is issued jointly as a means of paperwork reduction and is not intended to create a joint privacy policy. Each company's privacy policy is separately instituted, executed, and maintained.

Who is Covered

We provide our Privacy Policy to each customer when they purchase a WLTIC title insurance policy. Generally, this means that the Privacy Policy is provided to the customer at the closing of the real estate transaction.

Information Collected

In the normal course of business and to provide the necessary services to our customers, we may obtain nonpublic personal information directly from the customer, from customer-related transactions, or from third parties such as our title insurance agent, lenders, appraisers, surveyors and other similar entities.

Access to Information

Access to all nonpublic personal information is limited to those employees who have a need to know in order to perform their jobs. These employees include, but are not limited to, those in departments such as closing, legal, underwriting, claims and administration and accounting.

Information Sharing

Generally, neither WLTIC nor **The Title Company of the Rockies** shares nonpublic personal information that it collects with anyone other than those individuals necessary needed to complete the real estate settlement services and issue its title insurance policy as requested by the consumer. WLTIC or **The Title Company of the Rockies** may share nonpublic personal information as permitted by law with entities with whom WLTIC or **The Title Company of the Rockies** has a joint marketing agreement. Entities with whom WLTIC or **The Title Company of the Rockies** have a joint marketing agreement have agreed to protect the privacy of our customer's nonpublic personal information by utilizing similar precautions and security measures as WLTIC and **The Title Company of the Rockies** use to protect this information and to use the information for lawful purposes. WLTIC or **The Title Company of the Rockies**, however, may share information as required by law in response to a subpoena, to a government regulatory agency or to prevent fraud.

Information Security

WLTIC and **The Title Company of the Rockies**, at all times, strive to maintain the confidentiality and integrity of the personal information in its possession and has instituted measures to guard against its unauthorized access. We maintain physical, electronic and procedural safeguards in compliance with federal standards to protect that information.

The WLTIC Privacy Policy can be found on WLTIC's website at www.wltic.com

COMMITMENT FOR TITLE INSURANCE

Issued by

TITLE COMPANY of the rockies

as agent for

Westcor Land Title Insurance Company

SCHEDULE A

Reference: **Commitment Number:** 7000495-C

1. Effective Date: **November 10, 2020, 7:00 am** Issue Date: **November 24, 2020**

2. Policy (or Policies) to be issued:

   ALTA Owner's Policy (6-17-06) Policy Amount: *Amount to be Determined*
   Premium: *Amount to be Determined*

   Proposed Insured: **TBD**

3. The estate or interest in the land described or referred to in this Commitment is **Fee Simple**.

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

   Field Development Group, LLC a Colorado limited liability company

5. The land referred to in this Commitment is described as follows:

   FOR LEGAL DESCRIPTION SEE SCHEDULE A CONTINUED ON NEXT PAGE
   For Informational Purposes Only - APN: **R027402**

Countersigned
The Title Company of the Rockies

By: SAdams

Susan Adams

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by Westcor Land Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; and Schedule B, Part II-Exceptions.

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AMERICAN LAND TITLE ASSOCIATION

SCHEDULE A (continued)

LEGAL DESCRIPTION

The Land referred to herein is located in the County of **Eagle**, State of **Colorado**, and described as follows:

Lot 5, ARLIAN RANCH, according to the Plat thereof recorded September 10, 1980 in Book 309 at Page 5 as Reception No. 205385, and Corrected Plat thereof recorded January 10, 1982 in Book 317 at Page 729 as Reception No. 214101, County of Eagle, State of Colorado.

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by Westcor Land Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; and Schedule B, Part II-Exceptions.

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COMMITMENT FOR TITLE INSURANCE

Issued by

Westcor Land Title Insurance Company

SCHEDULE B, PART I
Requirements

The following are the requirements to be complied with prior to the issuance of said policy or policies. Any other instrument recorded subsequent to the effective date hereof may appear as an exception under Schedule B of the policy to be issued. Unless otherwise noted, all documents must be recorded in the office of the clerk and recorded of the county in which said property is located.

All of the following Requirements must be met:

1. The Proposed Insured must notify the Company in writing of the name of any party not referred to in this Commitment who will obtain an interest in the Land or who will make a loan on the Land. The Company may then make additional Requirements or Exceptions.

2. Pay the agreed amount for the estate or interest to be insured.

3. Pay the premiums, fees, and charges for the Policy to the Company.

4. Documents satisfactory to the Company that convey the Title or create the Mortgage to be insured, or both, must be properly authorized, executed, delivered, and recorded in the Public Records.

5. Evidence satisfactory to the Company or its duly authorized agent that all dues and/or assessments levied by the Homeowners Association have been paid through the date of closing.

6. Release by the Public Trustee of Eagle County of the Deed of Trust from Fields Development Group, LLC for the use of Great Plains State Bank, to secure $1,424,323.00, dated September 9, 2016, and recorded September 12, 2016 at Reception No. 201614689.

7. Release by the Public Trustee of Eagle County of the Deed of Trust from Fields Development Group, LLC for the use of Steven W Rieser Revocable Trust and the Sandra S Rieser Revocable Trust, to secure $500,000.00, dated September 9, 2016, and recorded September 12, 2016 at Reception No. 201614690.

8. Release by the Public Trustee of Eagle County of the Deed of Trust from Fields Development Group, LLC for the use of Lightbox Development, LLC, to secure $182,872.00 ("Convertible Note") and $1,067,128.00 ("Line of Credit"), dated January 1, 2001, and recorded December 13,

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2019 at Reception No. 201921237.

9. Certificate of Good Standing issued by the Secretary of State or other appropriate official for the State of Colorado, and evidencing to the satisfaction of the Company or its duly authorized agent that Fields Development LLC was duly formed or registered and is currently in good standing under the laws of the State of Colorado prior to the time it conveys title to subject property.

NOTE: Statement of Authority for Fields Development, LLC, a Colorado limited liability company, recorded December 13, 2019 at Reception No. 201921236, discloses that the names and addresses of the manager(s) or member(s) authorized to act on behalf of the limited liability company are as follows: Josh Clayton, Manager

For each policy to be issued as identified in Schedule A, Item 2, the Company shall not be liable under this commitment until it receives a specific designation of a Proposed Insured, and has revised this commitment identifying that Proposed Insured by name. As provided in Commitment Condition 4, the Company may amend this commitment to add, among other things, additional exceptions or requirements after the designation of the Proposed Insured.

NOTE: EXCEPTION NO. 5 UNDER SCHEDULE B, SECTION 2 OF THIS COMMITMENT WILL NOT APPEAR IN THE POLICY OR POLICIES TO BE ISSUED PURSUANT HERETO, PROVIDED THAT (A) THE DOCUMENTS CONTEMPLATED BY THE REQUIREMENTS SET FORTH IN SCHEDULE B, SECTION 1 OF THIS COMMITMENT ARE SUBMITTED TO AND APPROVED AND RECORDED BY THE COMPANY OR ITS DULY AUTHORIZED AGENT, AND (B) AN EXAMINATION OF THE RECORDS IN THE OFFICE OF THE CLERK AND RECORDER FOR EAGLE COUNTY, COLORADO BY THE COMPANY OR ITS DULY AUTHORIZED AGENT DISCLOSES THAT NO DEFECTS, LIENS, ENCUMBRANCES, ADVERSE CLAIMS OR OTHER MATTERS HAVE BEEN RECORDED IN SUCH RECORDS SUBSEQUENT TO THE EFFECTIVE DATE HEREOF.

The Owner's Policy, when issued, will not contain Exceptions No. 1, 2, 3 and 4, provided that:

(A) The enclosed form of indemnity agreement or final affidavit and agreement is properly executed and acknowledged by the party(ies) indicated and returned to the Company or its duly authorized agent,

(B) The Company or its duly authorized agent receives and approves a Land Survey Plat, Improvement Survey Plat or ALTA survey properly certified by a registered surveyor or engineer, and

(C) Applicable scheduled charges in the amount of $75.00 are paid to the Company or its duly authorized agent.

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This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by Westcor Land Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; and Schedule B, Part II-Exceptions.

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SCHEDULE B, PART II
Exceptions

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

Schedule B of the policy or policies to be issued will contain exceptions to the following matters unless the same are disposed of to the satisfaction of the Company.

Any loss or damage, including attorney fees, by reason of the matters shown below:

1. Any facts, right, interests, or claims which are not shown by the Public Records but which could be ascertained by an inspection of said Land or by making inquiry of persons in possession thereof.

2. Easements or claims of easements, 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.

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

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

6. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.

7. Any loss or damage due to or resulting from any and all outstanding dues and/or assessments levied by the Homeowners Association.

8. The effect of inclusions in any general or specific water conservancy, fire protection, soil conservation or other district or inclusion in any water service or street improvement area.

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9. Any and all water and water rights, reservoir and reservoir rights, ditches and ditch rights, and the enlargements and extensions thereof, and all laterals, flumes and headgates used in connection therewith.

10. Right of the 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 November 26, 1894 in Book 48 at Page 195.

11. Right of the 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 January 3, 1902 in Book 48 at Page 256.

12. Covenants, conditions, restrictions and easement provisions contained in the Protective Covenants recorded September 10, 1980 in Book 309 at Page 4 as Reception No. 205384, and Amendment thereto recorded June 17, 1985 in Book 443 at Page 564 as Reception No. 339810 and Book 443 at Page 565 as Reception No. 339811.

13. Covenants, conditions, restrictions, notes, easements, reservations and rights of ways as shown on the Plat of Arlian Ranch September 10, 1980 in Book 309 at Page 5 as Reception No. 205385, and Corrected Plat thereof recorded January 10, 1982 in Book 317 at Page 729 as Reception No. 214101.

14. Covenants, conditions, restrictions and easement provisions contained in the Agreement for Easement recorded December 13, 1989 in Book 519 at Page 671 as Reception No. 415841.

15. Each and every right or rights of access to and from any part of the said right of way, from and to any part of the subject property abutting upon Colorado State Highway No. 82, as granted to the Department of Highways, State of Colorado, by Deed recorded December 7, 1992 in Book 596 at Page 91 as Reception No. 492184.

16. Covenants, conditions, restrictions and easement provisions contained in the Private Road Maintenance Agreement recorded December 31, 1992 in Book 598 at Page 77 as Reception No. 494168.

17. Covenants, conditions, restrictions and easement provisions contained in the Driveway Improvement and Maintenance Sharing Agreement recorded August 11, 1999 as Reception No. 705151.

18. Covenants, conditions, restrictions and easement provisions contained in the Mid Valley Metropolitan District Line Extension Agreement recorded October 17, 2012 as Reception No. 201220973.

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19. All mineral rights as reserved in Deed recorded September 12, 2016 as Reception No. 201614687.

20. All matters as shown on ALTA/NSPS Land Title Survey completed by SGM under Job No. 2015-329-001, dated January 18, 2018.

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by Westcor Land Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; and Schedule B, Part II-Exceptions.

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DISCLOSURE STATEMENTS

Note 1: Colorado Division of Insurance Regulations 3-5-1, Paragraph C of Article VII, requires that "Every Title entity shall be responsible for all matters which appear of record prior to the time of recording whenever the Title entity conducts the closing and is responsible for recording or filing of legal documents resulting from the transaction which was closed." (Gap Protection)

Note 2: Exception No. 4 of Schedule B, Section 2 of this Commitment may be deleted from the Owner's Policy to be issued hereunder upon compliance with the following conditions:

1. The Land described in Schedule A of this commitment must be a single-family residence, which includes a condominium or townhouse unit.
2. No labor or materials may have been furnished by mechanics or materialmen for purpose of construction on the Land described in Schedule A of this Commitment within the past 13 months.
3. The Company must receive an appropriate affidavit indemnifying the Company against unfiled mechanic's and materialmen's liens.
4. Any deviation from conditions A though C above is subject to such additional requirements or Information as the Company may deem necessary, or, at its option, the Company may refuse to delete the exception.
5. Payment of the premium for said coverage.

Note 3: The following disclosures are hereby made pursuant to §10-11-122, C.R.S.:

(i) The subject real property may be located in a special taxing district;
(ii) A certificate of taxes due listing each taxing jurisdiction shall be obtained from the County Treasurer or the County Treasurer's authorized agent; and
(iii) Information regarding special districts and the boundaries of such districts may be obtained from the County Commissioners, the County Clerk and Recorder, or the County Assessor.

Note 4: If the sales price of the subject property exceeds $100,000.00, the seller shall be required to comply with the disclosure or withholding provisions of C.R.S. §39-22-604.5 (Non-resident withholding).

Note 5: Pursuant to C.R.S. §10-11-123 Notice is hereby given:

(a) If there is recorded evidence that a mineral estate has been severed, leased or otherwise conveyed from the surface estate then there is a substantial likelihood that a third party holds some or all interest in oil, gas, other minerals, or geothermal energy in the property, and

(b) That such mineral estate may include the right to enter and use the property without the surface owner's permission.

Note 6: Effective September 1, 1997, C.R.S. §30-10-406 requires that all documents received for recording or filing in the clerk and recorder's office shall contain a top margin of at least one inch and a left, right and bottom margin of at least one-half inch the clerk and recorder may refuse to record or file any document that does not conform.

Note 7: Our Privacy Policy:
We will not reveal nonpublic personal customer information to any external non-affiliated organization unless we have been authorized by the customer, or are required by law.

Note 8: Records:
Regulation 3-5-1 Section 7 (N) provides that each title entity shall maintain adequate documentation and records sufficient to show compliance with this regulation and Title 10 of the Colorado Revised Statutes for a period of not less than seven (7) years, except as otherwise permitted by law.

Note 9: Pursuant Regulation 3-5-1 Section 9 (F) notice is hereby given that "A title entity shall not earn interest on fiduciary funds unless disclosure is made to all necessary parties to a transaction that interest is or has been earned. Said disclosure must offer the opportunity to receive payment of any interest earned on such funds beyond any administrative fees as may be on file with the division. Said disclosure must be clear and conspicuous, and may be made at any time up to and including closing."
Be advised that the closing agent will or could charge an Administrative Fee for processing such an additional services request and any resulting payee will also be subjected to a W-9 or other required tax documentation for such

purpose(s).
Be further advised that, for many transactions, the imposed Administrative Fee associated with such an additional service may exceed any such interest earned.
Therefore, you may have the right to some of the interest earned over and above the Administrative Fee, if applicable (e.g., any money over any administrative fees involved in figuring the amounts earned).

Note 10: Pursuant to Regulation 3-5-1 Section 9 (G) notice is hereby given that "Until a title entity receives written instructions pertaining to the holding of fiduciary funds, in a form agreeable to the title entity, it shall comply with the following:

1. The title entity shall deposit funds into an escrow, trust, or other fiduciary account and hold them in a fiduciary capacity.
2. The title entity shall use any funds designated as "earnest money" for the consummation of the transaction as evidenced by the contract to buy and sell real estate applicable to said transaction, except as otherwise provided in this section. If the transaction does not close, the title entity shall:
   (a) Release the earnest money funds as directed by written instructions signed by both the buyer and seller; or
   (b) If acceptable written instructions are not received, uncontested funds shall be held by the title entity for 180 days from the scheduled date of closing, after which the title entity shall return said funds to the payor.
3. In the event of any controversy regarding the funds held by the title entity (notwithstanding any termination of the contract), the title entity shall not be required to take any action unless and until such controversy is resolved. At its option and discretion, the title entity may:
   (a) Await any proceeding; or
   (b) Interplead all parties and deposit such funds into a court of competent jurisdiction, and recover court costs and reasonable attorney and legal fees; or
   (c) Deliver written notice to the buyer and seller that unless the title entity receives a copy of a summons and complaint or claim (between buyer and seller), containing the case number of the lawsuit or lawsuits, within 120 days of the title entity's written notice delivered to the parties, title entity shall return the funds to the depositing party."

Title Company of the Rockies

Disclosures

All documents received for recording or filing in the Clerk and Recorder's office shall contain a top margin of at least one inch and a left, right and bottom margin of at least one half of an inch. The Clerk and Recorder will refuse to record or file any document that does not conform to the requirements of this section. Pursuant to C.R.S. 30-10-406(3)(a).

The company will not issue its policy or policies of title insurance contemplated by this commitment until it has been provided a Certificate of Taxes due or other equivalent documentation from the County Treasurer or the County Treasurer's authorized agent: or until the Proposed Insured has notified or instructed the company in writing to the contrary. Pursuant to C.R.S. 10-11-122.

No person or entity that provides closing and settlement services for a real estate transaction shall disburse funds as a part of such services until those funds have been received and are available for immediate withdrawals as a matter of right. Pursuant to C.R.S. 38-35-125(2).

The Company hereby notifies the proposed buyer in the current transaction that there may be recorded evidence that the mineral estate, or portion thereof, has been severed, leased, or otherwise conveyed from the surface estate. If so, there is a substantial likelihood that a third party holds some or all interest in the oil, gas, other minerals, or geothermal energy in the subject property. Such mineral estate may include the right to enter and use the property without the surface owner's permission. Pursuant to C.R.S. 10-11-123.

If this transaction includes a sale of property and the sales price exceeds $100,000.00, the seller must comply with the disclosure/withholding requirements of said section. (Nonresident withholding) Pursuant to C.R.S. 39-22-604.5.

Notice is hereby given that: The subject property may be located in a special taxing district. A Certificate of Taxes due listing each taxing jurisdiction shall be obtained from the County Treasurer or the County Treasurer's authorized agent. Information regarding special districts and the boundaries of such districts may be obtained from the Board of County Commissioners, the County Clerk and Recorder, or the County Assessor. Pursuant to C.R.S. 10-11-122.

Notice is hereby given that: Pursuant to Colorado Division of Insurance Regulation 8-1-2;

> "Gap Protection" -When this Company conducts the closing and is responsible for recording or filing the legal documents resulting from the transaction, the Company shall be responsible for all matters which appear on the record prior to such time or recording or filing; and
>
> "Mechanic's Lien Protection" - If you are the buyer of a single family residence, you may request mechanic's lien coverage to be issued on your policy of Insurance. If the property being purchased has not been the subject of construction, improvements or repairs in the last six months prior to the date of this commitment, the requirements will be payment of the appropriate premium and the completion of an Affidavit and Indemnity by the seller. If the property being purchased was constructed, improved or repaired within six months prior to the date of this commitment the requirements may involve disclosure of certain financial information, payment of premiums, and indemnity, among others. The general requirements stated above are subject to revision and approval by the Company. Pursuant to C.R.S. 10-11-122.

Notice is hereby given that an ALTA Closing Protection Letter is available, upon request, to certain parties to the transaction as noted in the title commitment. Pursuant to Colorado Division of Insurance Regulation 8-1.

Nothing herein contained will be deemed to obligate the Company to provide any of the coverages referred to herein unless the above conditions are fully satisfied.

Appendix D

Vicinity & Zoning Maps

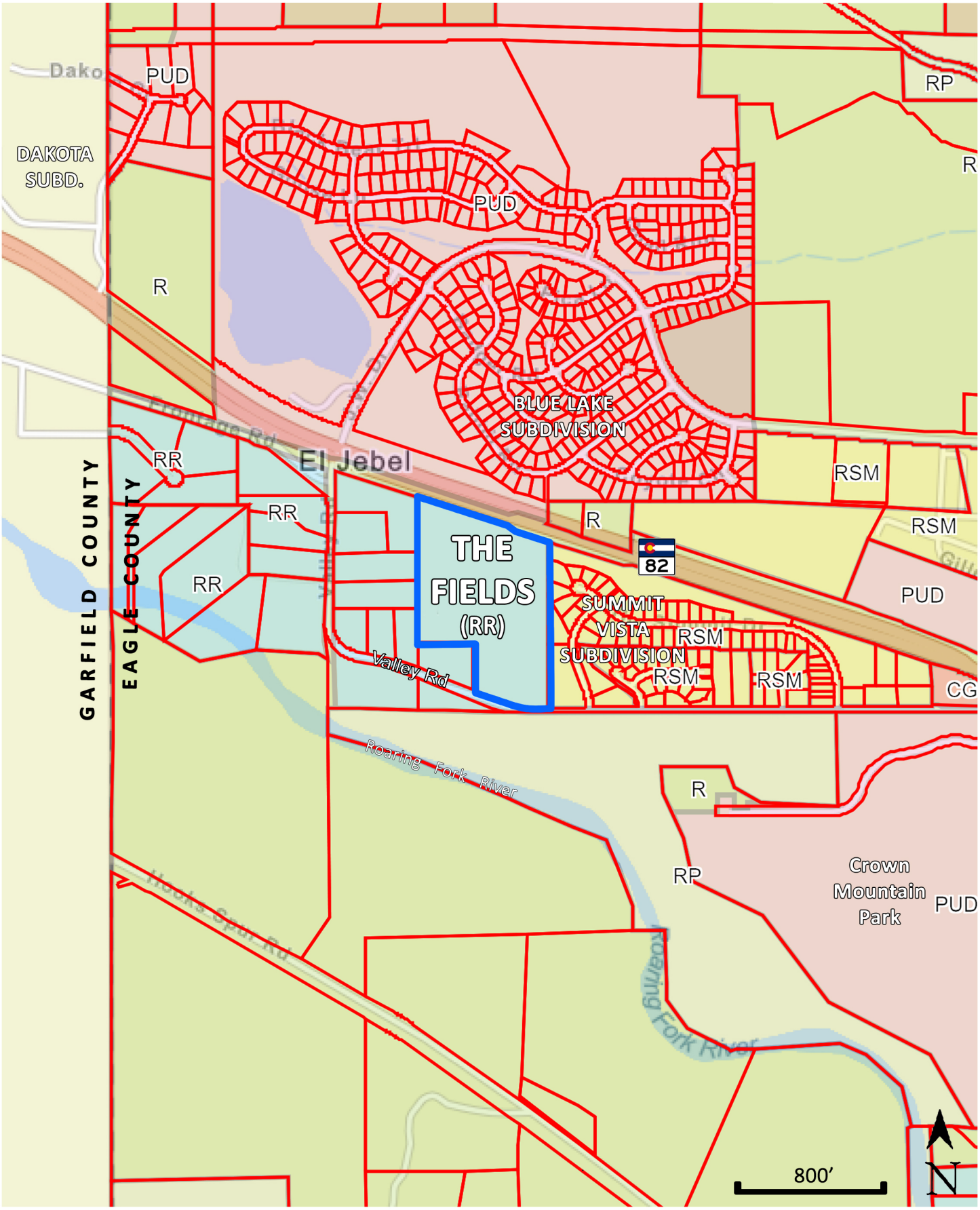
THE FIELDS
Vicinity Map

Eagle County Parcel No. 2391-334-01-003

LAND WEST PLANNING & DESIGN

THE FIELDS
Zoning Map

Eagle County Parcel No. 2391-334-01-003



Appendix E

Adjacent Property Owners

ADJACENT PROPERTY OWNERS

PARCEL NO.	ACCOUNT NO.	PHYSICAL ADDRESS	NAME	IN CARE OF	MAILING ADDRESS	CITY	STATE	ZIPCODE
239133401003	R027402	554 VALLEY RD	FIELDS DEVELOPMENT GROUP		PO BOX 4363	ASPEN	CO	81612-4363
239133401005	R044626	1053 VALLEY RD	RIVADA LLC		21 ST FINNBAR FARM RD	CARBONDALE	CO	81623-8642
239133401006	R044627	1021 VALLEY RD	RIVADA LLC		21 ST FINNBAR FARM RD	CARBONDALE	CO	81623-8642
239133401007	R048585	999 VALLEY RD	RIVADA LLC		21 ST FINNBAR FARM RD	CARBONDALE	CO	81623-8642
239133401008	R048586	979 VALLEY RD	WHITE, KEVIN C - MARBLE, RACHEL		0979 VALLEY RD	CARBONDALE	CO	81623-9712
239133401010	R050661	885 VALLEY RD	INGRAM, RAY		885 VALLEY RD	CARBONDALE	CO	81623-9712
239133401011	R050662	875 VALLEY RD	FOXTROTTER LLC		PO BOX 159	CARBONDALE	CO	81623-0159
239133407013	R031869	267 RABBIT RD	WILLIAMS, VONDA		267 RABBIT RD	CARBONDALE	CO	81623-8752
239133407014	R031877	189 JW DR	BLUE LAKE HOMEOWNERS ASSOC		189 J W DRIVE - BLUE LAKE	CARBONDALE	CO	81623-7739
239134300009	R027393		STATE DEPARTMENT OF HIGHWAYS		4201 E ARKANSAS AVE	DENVER	CO	80222-3406
239134300010	R027392		STATE OF COLORADO	C/O DEPARTMENT OF TRANSPORTATION	4201 E ARKANSAS AVE	DENVER	CO	80222-3406
239134302011	R028122	368 SUMMIT DR	0955 LITTLE WOODY CREEK LLC		9408 PALENCIA CT	FORT WORTH	TX	76126-1936
239134302012	R028121		SUMMIT VISTA HOMEOWNERS ASSOC		PO BOX 2682	BASALT	CO	81621-2682
239134302013	R028119	382 SUMMIT DR	CAREW, MAUREEN		382 SUMMIT DR	CARBONDALE	CO	81623-8746
239134302014	R028118	392 SUMMIT DR	WATSON, JOHN - BERLAMINO, LAUREN		392 SUMMIT DR	CARBONDALE	CO	81623-8746
239134302015	R028117	402 SUMMIT DR	KOENIGSKNECHT, MATTHEW JOSEPH - ESSLER, JOCELYN RAE		402 SUMMIT DR	CARBONDALE	CO	81623-8746
239134302016	R028116	412 SUMMIT DR	MYERS, MARK F.		412 SUMMIT DR	CARBONDALE	CO	81623-8746
239134302017	R028115	399 SUMMIT DR	ROBERTS, RHONDA MARIE - ETAL	ROBERTS, MARY JO	1112 N KINGSLEY DR APT 3	LOS ANGELES	CA	90029-1337
239134302018	R028114	387 SUMMIT DR	ALBERS, JONATHAN & EMILY		387 SUMMIT DR	CARBONDALE	CO	81623-8749
239134302019	R028111	85 PARKSIDE LN	CARNES, MATTHEW & AMANDA		85 PARKSIDE LN	CARBONDALE	CO	81623-8745
239134302020	R028112	103 PARKSIDE LN	LONGDEN, CHRISTOPHER & SHERRY LUSE		PO BOX 8441	ASPEN	CO	81612-8441
239134302021	R028113	119 PARKSIDE LN	SMITH, ROY A. & JUANITA ALLEN		119 PARKSIDE LN	CARBONDALE	CO	81623-8745
239134303001	R028102	118 PARKSIDE LN	GOMEZ, MANUEL P. & TINA RENEE		118 PARKSIDE LN	CARBONDALE	CO	81623-8744
239134303002	R028103	102 PARKSIDE LN	RICE, JOHN R. & CONNIE L.		102 PARKSIDE LN	CARBONDALE	CO	81623-8744
239134303003	R028104	86 PARKSIDE LN	YATER-WALLACE, TORIN R.		PO BOX 1146	BASALT	CO	81621-1146
239134311023	R030732		BLUE LAKE OWNERS ASSOC		189 J W DR UNIT A	CARBONDALE	CO	81623-7739
239134314001	R031874	205 RABBIT RD	REYES, NORMA		205 RABBIT RD	CARBONDALE	CO	81623-8752
239134314002	R031873	215 RABBIT RD	HARRINGTON, MATTHEW J. & TERRY L.		17605 HIGHWAY 82	CARBONDALE	CO	81623-9516
239134314003	R031872	227 RABBIT RD	LEDINGHAM, JOANN THIRZA		227 RABBIT RD	CARBONDALE	CO	81623-8752
239134314004	R031871	241 RABBIT RD	CAMPOS, TANIA DANEIRI GALLEGOS		241 RABBIT RD	CARBONDALE	CO	81623-8752
239134314005	R031870	251 RABBIT RD	BURNAMAN, JERRY LYNN & IDA NEOMA		0251 RABBIT RD	CARBONDALE	CO	81623-8752
246503203001	R028106	28 PARKSIDE LN	BURROW, WILLIAM & RACHEL		28 PARKSIDE LN	CARBONDALE	CO	81623-8744
246503203002	R028107	8 PARKSIDE LN	TAYLOR, ROBERT M. & LAURIE S.		8 PARKSIDE LN	CARBONDALE	CO	81623-8744
246503204001	R028108		SUMMIT VISTA HOMEOWNERS ASSOC		PO BOX 2682	BASALT	CO	81621-2682
246503209001	R052998	53 VALLEY CT	JEROME MEISTER REVOCABLE TRUST		PO BOX 10112	ASPEN	CO	81612-7314
246503209002	R052999	57 VALLEY CT	JEROME MEISTER REVOCABLE TRUST		PO BOX 10112	ASPEN	CO	81612-7314
246504101001	R027404	793 VALLEY RD	EWING, WAYNE H. & ANDREW L.		793 VALLEY RD	CARBONDALE	CO	81623-9712
246504103001	R050663		INGRAM, RAY - ETAL	GRIGGS, JEFFREY CAMPBELL - GIBBONS, JENNIFER R., et al.	885 VALLEY RD	CARBONDALE	CO	81623-9712

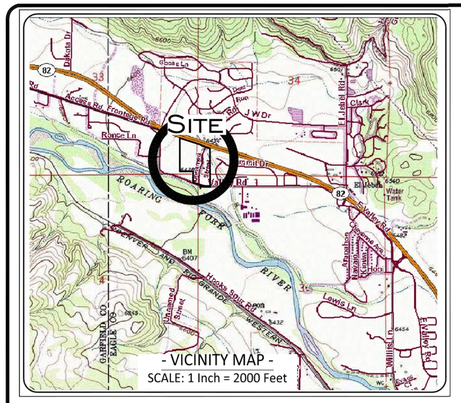
Appendix F

Boundary Survey

ALTA/NSPS Land Title Survey

Lot 5, Arlian Ranch Subdivision

Eagle County, Colorado



PROPERTY DESCRIPTION:
Lot 5, Arlian Ranch, according to the Plat thereof recorded September 10, 1980 in Book 309 at Page 5 as Reception No. 205385 and the Arlian Ranch (Corrected Final Plat) thereof recorded January 30, 1981 in Book 317 at Page 729 as Reception No. 214101.

COUNTY OF EAGLE, STATE OF COLORADO.

NOTES:

1. BASIS OF BEARINGS: BEARINGS SHOWN HEREON ARE BASED ON A BEARING OF S00°00'00"E, BETWEEN A NO. 5 REBAR AND YELLOW PLASTIC CAP, LS # 14111 FOUND AT THE NORTHWEST CORNER AND A NO. 5 REBAR FOUND AT THE SOUTHWEST CORNER OF LOT 5, AS SHOWN HEREON.
2. ELEVATIONS AND 2 FOOT CONTOUR INTERVALS SHOWN HEREON ARE BASED ON AN ACTUAL GROUND SURVEY, RELATIVE TO AN ELEVATION OF 6428.42' AT A 3" BRASS CAP STATE HWY. DEPT. R-O-W MARKER AT THE NORTHERLY PROPERTY LINE, AS SHOWN HEREON. ELEVATIONS ARE NAVD88 BASED ON REAL TIME VIRTUAL REFERENCE NETWORK AND GEOID MODEL GEOID12A.
3. THIS MAP HAS BEEN PREPARED PURSUANT TO CLIENT REQUEST FOR AN ALTA/NSPS LAND TITLE SURVEY.
4. DATE OF FIELD SURVEY : FEBRUARY, 2015, AND JANUARY, 2018.
5. UNITS OF LINEAR MEASUREMENTS ARE DISPLAYED IN US SURVEY FEET.
6. 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.
7. SUBSURFACE UTILITIES SHOWN HEREON ARE BASED ON UTILITY 'LOCATES' MARKED ON THE GROUND AT THE TIME OF THE FEBRUARY, 2015 FIELD SURVEY, AND SKETCHES PROVIDED BY PROPERTY OWNER. 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. 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.
8. FENCES SHOWN HEREON, IF ANY, HAVE BEEN SHOWN FOR GENERAL REFERENCE AND DO NOT NECESSARILY DEPICT LIMITS OF OWNERSHIP.
9. DUE TO CURRENT SNOW COVER ON THIS PROPERTY, IT IS POSSIBLE THAT SOME GROUND LEVEL FEATURES MAY NOT BE SHOWN, OR THE LOCATIONS SHOWN HEREON MAY BE APPROXIMATE (I.E. EDGE OF DRIVES, WALKS, WATER VALVES, ETC.).
10. FLOOD HAZARD ZONE INFORMATION : BASED SOLELY UPON THE FLOOD INSURANCE RATE MAP (COMMUNITY PANEL NO. 08037C0738D), DATED DECEMBER 4, 2007, PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, THE SUBJECT PROPERTY IS DESIGNATED AS BEING SITUATED IN ZONE X 'AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN'.
11. THERE WAS NO OBSERVED EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS.
12. THERE WAS NO OBSERVED EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.
13. THERE WAS NO OBSERVED EVIDENCE OF ANY WETLANDS DELINEATION MARKERS.
14. 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 COMMONWEALTH LAND TITLE INSURANCE COMPANY, COMMITMENT NO. 454-H0418793-060-TPI, AMENDMENT NO. 3, HAVING AN EFFECTIVE DATE OF APRIL 29, 2016.

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 1-10, 14, 16) IF THEY ARE STANDARD TITLE COMMITMENT EXCEPTIONS, OR IF NOT SUFFICIENTLY DESCRIBED IN RECORDED DOCUMENTS TO BE SHOWN GRAPHICALLY, OR IF THEY ARE SITUATED ON ADJACENT PROPERTIES, OR IF THEY AFFECT THE PROPERTY IN GENERAL, ETC. IN REGARDS TO OTHER SUCH ITEMS:

ITEM 11. TERMS, CONDITIONS, RESTRICTIONS, PROVISIONS, NOTES AND EASEMENTS BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH ON THE PLAT(S) OF SAID SUBDIVISION SET FORTH BELOW:

RECORDING DATE: SEPTEMBER 10, 1980, RECORDING NO: BOOK 309 AT PAGE 5 AND CORRECTED PLAT RECORDED JANUARY 30, 1981 IN BOOK 317 AT PAGE 729, SUCH ITEMS ARE SHOWN HEREON.

ITEM 12. COVENANTS, CONDITIONS AND RESTRICTIONS BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, SOURCE OF INCOME, GENDER, GENDER IDENTITY, GENDER EXPRESSION, MEDICAL CONDITION OR GENETIC INFORMATION, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH IN THE DOCUMENT

RECORDING DATE: SEPTEMBER 10, 1980
RECORDING NO: BOOK 309 AT PAGE 4 AND AS AMENDED IN INSTRUMENT RECORDED JUNE 17, 1986 IN BOOK 443 AT PAGE 564 AND BOOK 443 AT PAGE 565, EASEMENTS DESCRIBED THEREIN HAVE BEEN SHOWN HEREON.

ITEM 13: TERMS, CONDITIONS, PROVISIONS, AGREEMENTS AND OBLIGATIONS CONTAINED IN THE AGREEMENT FOR EASEMENT AS SET FORTH BELOW:

RECORDING DATE: DECEMBER 13, 1989 RECORDING NO.: BOOK 519 AT PAGE 671, AFFECTS THE SUBJECT PARCEL. THE EXTENTS OF WHICH CANNOT BE GRAPHICALLY DEPICTED, BUT HAS BEEN INDICATED BY OWNER AS BEING SITUATED IN THE NORTH-SOUTH EASEMENT ALONG THE EASTERLY PROPERTY LINE.

ITEM 15: TERMS, CONDITIONS, PROVISIONS, AGREEMENTS AND OBLIGATIONS CONTAINED IN THE DRIVEWAY IMPROVEMENT AND MAINTENANCE SHARING AGREEMENT AS SET FORTH BELOW: RECORDING DATE: AUGUST 11, 1999, RECORDING NO.: RECEPTION NO. 705151 IS SITUATED ON LOTS 4A AND 4B OF ARLIAN RANCH AND MAY AFFECT THE SUBJECT PARCEL.

SURVEYOR'S CERTIFICATION:

TO: SOUTHERN PUMA, LLC, A DELAWARE LIMITED LIABILITY COMPANY, STEVEN W. RIESER REVOCABLE TRUST AND THE SANDRAS S. RIESER REVOCABLE TRUST, AND HERITAGE TITLE COMPANY, INC.

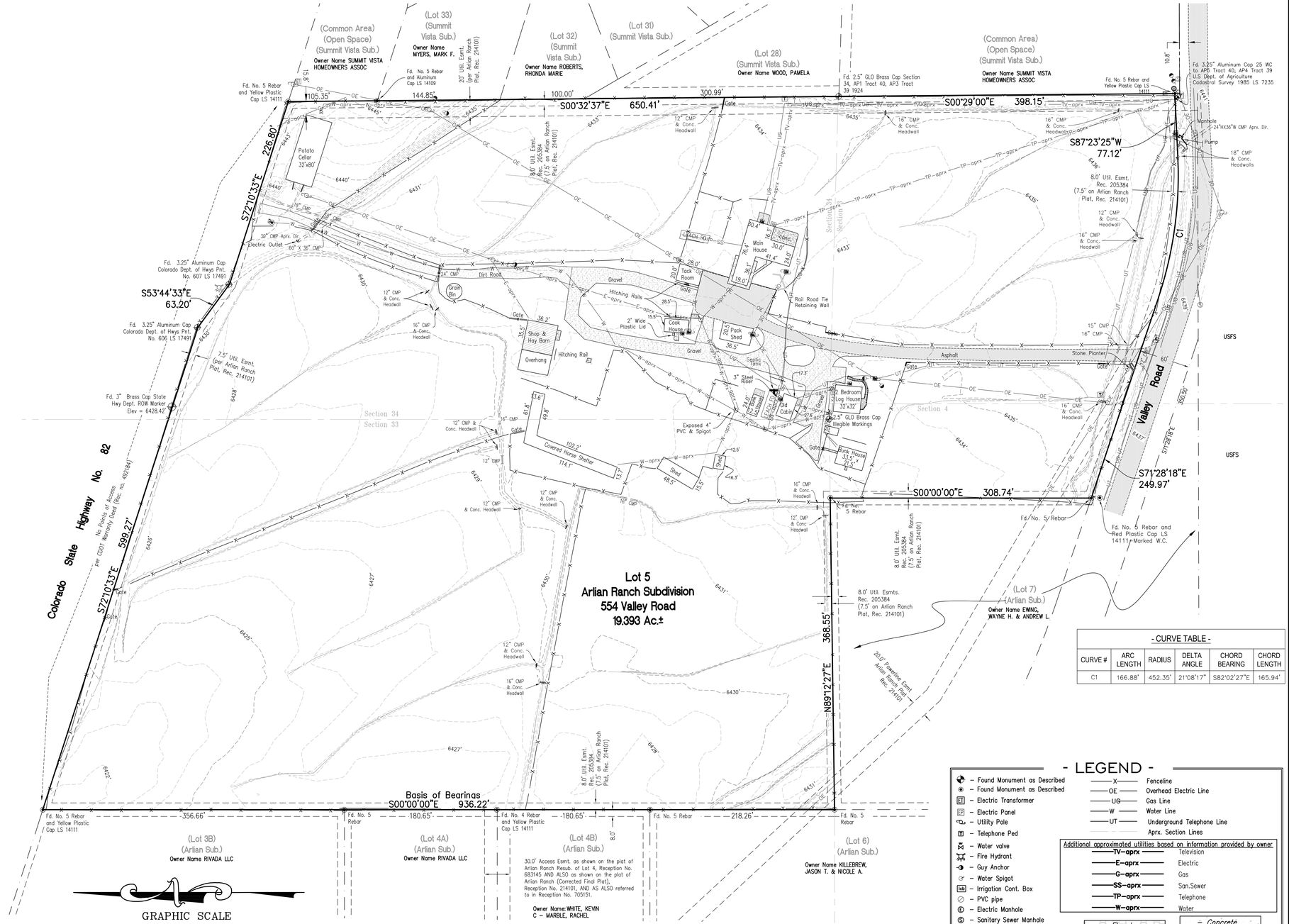
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 7(a), 8, 11,13, 14, 16, AND 18 OF TABLE A THEREOF, AS SUCH ITEMS MAY APPLY. THE FIELD WORK WAS COMPLETED ON JANUARY 17, 2018.

DATE OF PLAT OR MAP: JANUARY 18, 2018.

COLORADO LICENSED PROFESSIONAL LAND SURVEYOR BOB BRANDEBERRY NO. 38388 1/18/18

ROBERT E. BRANDEBERRY
COLORADO PLS # 38388
FOR, AND ON BEHALF OF SGM
BOBB@SGM-INC.COM

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.



- CURVE TABLE -

CURVE #	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	166.88'	452.35'	21°08'17"	S82°02'27"E	165.94'

- LEGEND -

- Found Monument as Described
- Found Monument as Described
- Electric Transformer
- Electric Panel
- Utility Pole
- Telephone Ped
- Water valve
- Fire Hydrant
- Guy Anchor
- Water Spigot
- Irrigation Cont. Box
- PVC pipe
- Electric Manhole
- Sanitary Sewer Manhole
- Electric Meter
- Gas Meter
- Water Manhole
- Mailbox

- Fenceline
- Overhead Electric Line
- Gas Line
- Water Line
- Underground Telephone Line
- Aprx. Section Lines

Additional approximated utilities based on information provided by owner

- TV-aprx — Television
- E-aprx — Electric
- G-aprx — Gas
- SS-aprx — San.Sewer
- TP-aprx — Telephone
- W-aprx — Water

- Flagstone
- Dirt Road
- Concrete
- Gravel
- Deck

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

Lot 5, Arlian Ranch Subdivision
Eagle County, CO

#	Revision	Date	By
1			
2			
3			
4			
5			

ALTA/NSPS Land Title Survey

Job No.	2015-329.001
Drawn by:	dc
Date:	1-18-18
Approved:	bb
File:	ArlianRanch-ExCon

Sheet 1 Of 1

I:\2015\2015-329-The_Fields\001-The_Fields\01-Dwgs\Surv\Dwgs\1-BaseMaps\ArlianRanch-ExCon.dwg

Appendix G

Illustrative Site Plan & Project Graphics

N
colorado state highway 82
amenity lot
berm
potential future trail connection
orchard
pond
foundation park
square
playground
valley road
arbor park
dog park
potential future trail
The Fields
Preliminary Plan
1"=150'

colorado state highway 82
potential future
trail connection
valley road
potential future trail

Appendix H

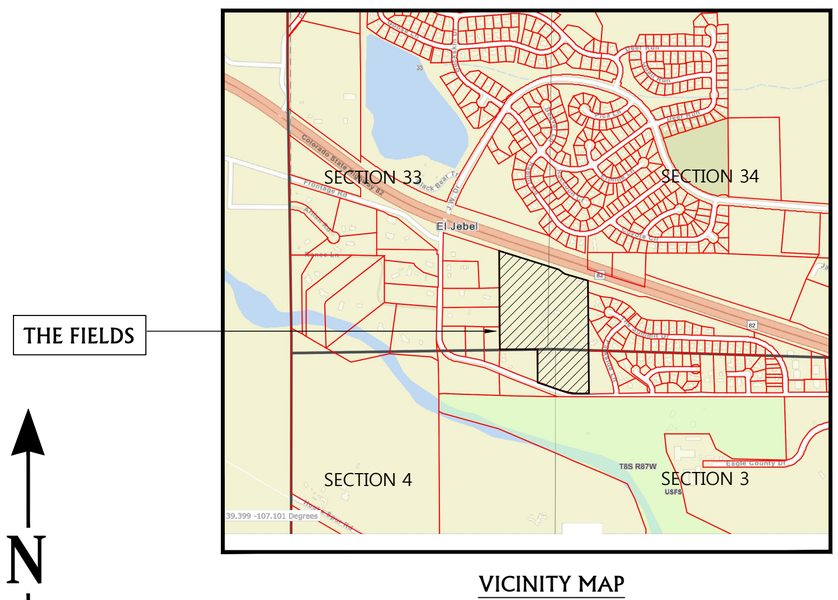
Preliminary Plan

PRELIMINARY PLAN

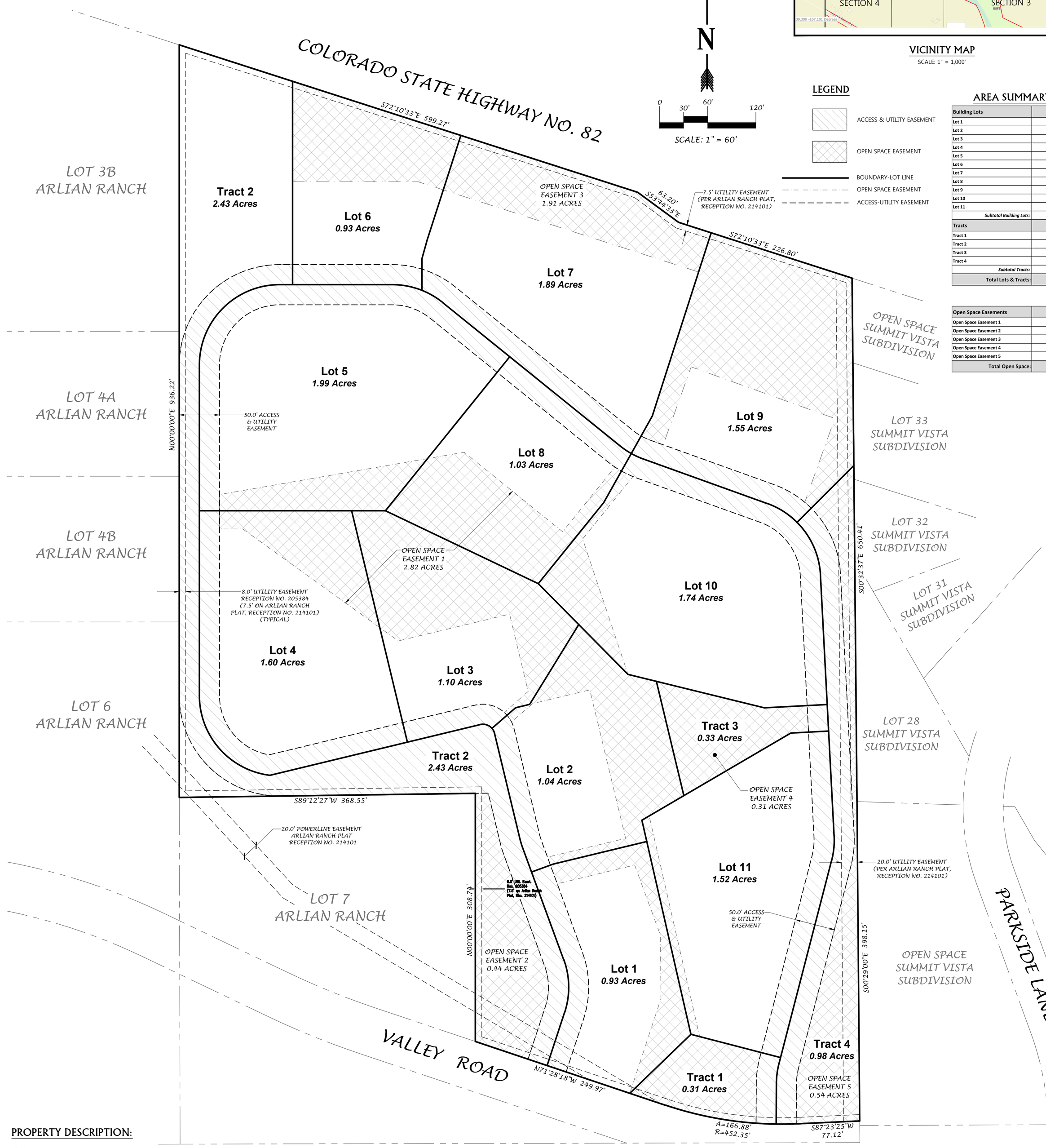
THE FIELDS

LOT 5, ARLIAN RANCH SUBDIVISION

SITUATED IN SECTIONS 33 & 34, TOWNSHIP 7 SOUTH, RANGE 87 WEST
& SECTIONS 3 & 4, TOWNSHIP 8 SOUTH, RANGE 87 WEST OF THE 6TH PM
COUNTY OF EAGLE, STATE OF COLORADO



VICINITY MAP
SCALE: 1" = 1,000'



LEGEND

- ACCESS & UTILITY EASEMENT
- OPEN SPACE EASEMENT
- BOUNDARY-LOT LINE
- OPEN SPACE EASEMENT
- ACCESS-UTILITY EASEMENT

AREA SUMMARY

Building Lots	Acres
Lot 1	0.93
Lot 2	1.04
Lot 3	1.10
Lot 4	1.60
Lot 5	1.99
Lot 6	0.93
Lot 7	1.89
Lot 8	1.03
Lot 9	1.55
Lot 10	1.74
Lot 11	1.52
Subtotal Building Lots:	*15.33*
Tracts	**Acres**
Tract 1	0.31
Tract 2	2.43
Tract 3	0.33
Tract 4	0.98
Subtotal Tracts:	*4.06*
Total Lots & Tracts:	19.39

Open Space Easements	Acres
Open Space Easement 1	2.82
Open Space Easement 2	0.44
Open Space Easement 3	1.91
Open Space Easement 4	0.31
Open Space Easement 5	0.54
Total Open Space:	6.0

PROPERTY DESCRIPTION:

LOT 5
ARLIAN RANCH SUBDIVISION
ACCORDING TO THE PLAT THEREOF RECORDED SEPTEMBER 10, 1980 IN BOOK 309 AT PAGE 5 AS RECEPTION NO. 205385 AND THE ARLIAN RANCH (CORRECTED FINAL PLAT) RECORDED JANUARY 30, 1981 IN BOOK 317 AT PAGE 729 AS RECEPTION NO. 214101.

COUNTY OF EAGLE
STATE OF COLORADO

PLAT NOTES:

1. All PORTIONS OF THE WITHIN PLAT DEPICTED AND DESCRIBED AS ACCESS AND UTILITY EASEMENTS ARE HEREBY CONVEYED AND SET APART TO THE MASTER ASSOCIATION FOR USE AS ROADS AND UTILITY EASEMENTS BY THE MEMBERS THEREOF, THEIR GUESTS, AND INVITEES, SUBJECT TO: (I) THE RIGHT OF APPROPRIATE PUBLIC AND PRIVATE UTILITY COMPANIES TO UTILIZE SAID ACCESS AND UTILITY EASEMENTS AS UTILITY EASEMENTS; AND (II) THE RIGHT OF ALL EMERGENCY VEHICLES TO MAKE USE OF SUCH ACCESS AND UTILITY EASEMENTS IN ALL REASONABLE CIRCUMSTANCES.

2. All PORTIONS OF THE WITHIN PLAT DEPICTED AND DESCRIBED AS OPEN SPACE EASEMENTS ARE HEREBY CONVEYED AND SET APART TO THE MASTER ASSOCIATION FOR USE AS PRIVATE COMMON OPEN SPACE FOR THE USE AND BENEFIT OF THE MEMBERS THEROF, THEIR GUESTS, AND INVITEES SUBJECT TO: (I) All OTHER PUBLIC AND PRIVATE EASEMENTS DEPICTED ON THE WITHIN PLAT UPON ANY OF SUCH OPEN SPACE EASEMENT; AND (II) THE RULES AND REGULATIONS OF THE MASTER ASSOCIATION.

3. A SITE SPECIFIC GEOTECHNICAL ASSESSMENT SHALL BE COMPLETED FOR EACH BUILDING SITE AT THE TIME OF BUILDING PERMIT APPLICATION.

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

TRUE NORTH
COLORADO
A LAND SURVEYING AND MAPPING COMPANY

FIELDS DEVELOPMENT GROUP
PRELIMINARY PLAN
554 VALLEY ROAD - CARBONDALE
COUNTY OF EAGLE - STATE OF COLORADO

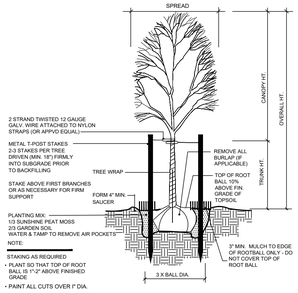
FOR PRELIMINARY REVIEW

TRUE NORTH COLORADO LLC.
A LAND SURVEYING AND MAPPING COMPANY
P.O. BOX 614 - 386 MAIN STREET UNIT 3
NEW CASTLE, COLORADO 81647
(970) 984-0474
www.truenorthcolorado.com

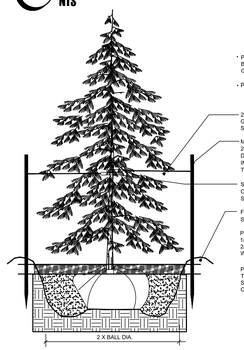
PROJECT NO: 2020-128	DRAWN: RPK	SHEET 1 OF 1
DATE: October 19, 2021	SURVEYED: LDV	

Appendix I

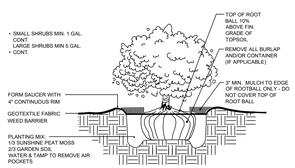
Conceptual Landscape Plans



1 Deciduous Tree Planting
NTS



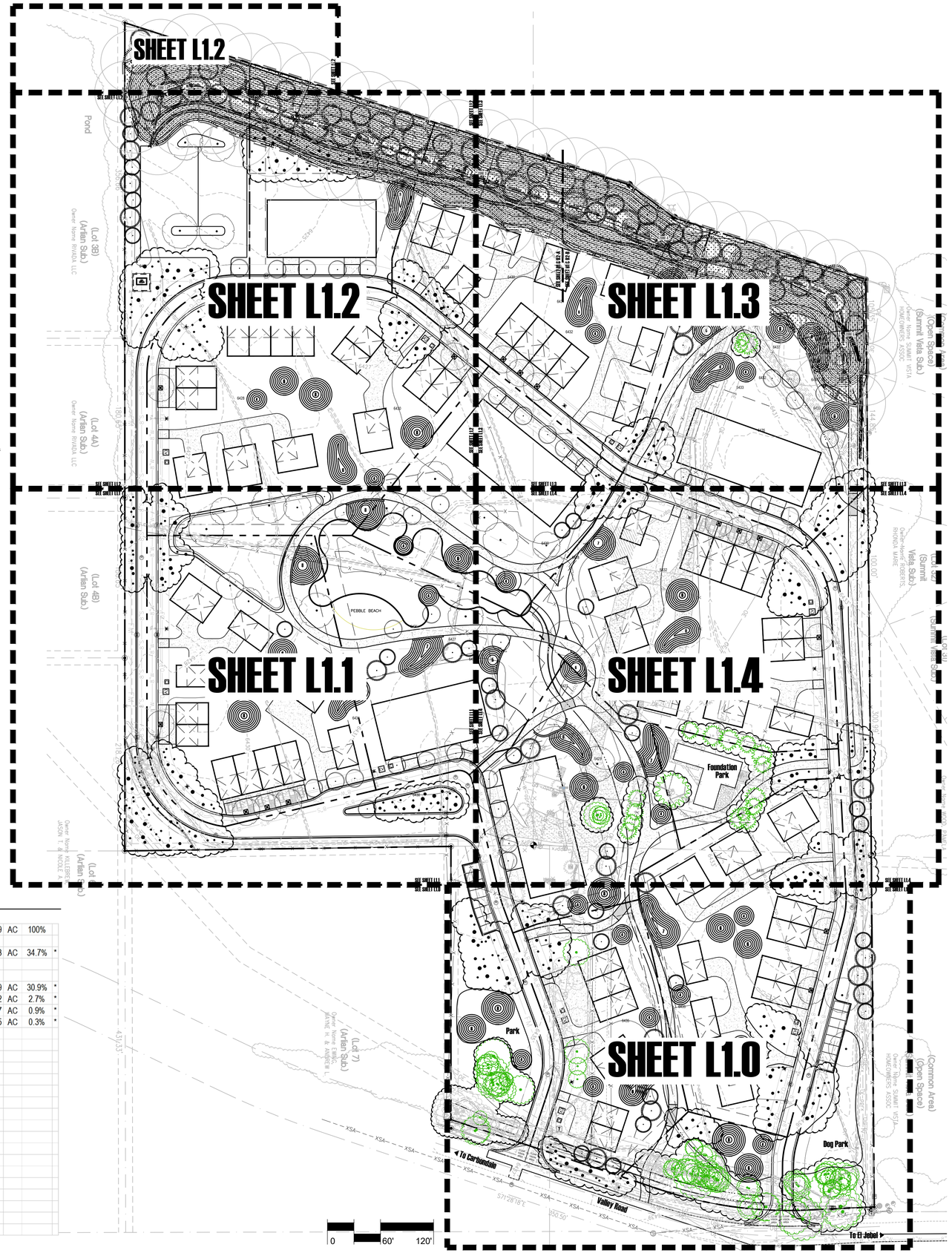
2 Evergreen Tree Planting
NTS



3 Shrub Planting
NTS

Landscape Calculations 1

TOTAL PROPERTY AREA:	844,755	SF	19.39	AC	100%
TOTAL LANDSCAPE AREA:	293,281	SF	6.73	AC	34.7% *
GRASS & ROCK MULCH:					
Meadow Grass Shown on Plan:	261,089	SF	5.99	AC	30.9% *
Sod Shown on Plan:	22,729	SF	0.52	AC	2.7% *
Rock Mulch Shown on Plan:	7,197	SF	0.17	AC	0.9% *
Pebble Beach Shown on Plan:	2,266	SF	0.05	AC	0.3% *
NOTE: * Indicates Percentage of Total Property Area					
TREES:					
Ex. Total Trees On-Site:	190	EA			
Ex. Trees Removed:	75	EA			
Ex. On-Site Trees Over 6" DBH to be Saved:	115	EA			
Ex. Tree Credit:	230	EA			
New Deciduous Trees (Single Stem) Shown on Plan:	87	EA			
New Deciduous Trees (Clumps) Shown on Plan:	141	EA			
New Evergreen Trees on Shown Plan:	111	EA			
Total New Trees:	339	EA			
Total New Trees with Ex. Tree Credit:	569	EA			
SHRUBS & BOULDERS:					
Total New Shrubs Shown on Plan:	492	EA			
Boulders Shown on Plan::	12	EA			



General Notes

1. NOTE: ALL PLANTS IN SIGHT DISTANCE EASEMENT SHALL REMAIN UNDER 30" IN HEIGHT AT ALL TIMES.
2. INSTALL ROCK MULCH IN ALL SHRUB BEDS AS INDICATED ON PLAN. INSTALL WEED BARRIER UNDERLAYMENT MATERIAL AND TOPDRESS WITH MULCH MATERIAL TO MIN. 4 INCH DEPTH.
3. LANDSCAPE ARCHITECT SHALL NOT BE HELD RESPONSIBLE FOR THE MEANS, METHODS OR APPROPRIATENESS OF CONSTRUCTION AND SAFETY PROCEDURES CHOSEN BY ANY CONTRACTOR.
4. ALL MATERIALS NOT TO BE REMOVED WILL BE MARKED CLEARLY WITH FLAGGING TAPE, PROTECTIVE FENCING, OR OTHER APPROVED BARRIER PRIOR TO CONSTRUCTION.
5. IDENTIFY LOCATIONS OF ALL UNDERGROUND UTILITIES THAT MIGHT BE DISTURBED BY LANDSCAPE ELEMENTS PRIOR TO CONSTRUCTION.
6. ALL PLANT MATERIALS SHALL MEET THE AMERICAN STANDARDS FOR NURSERY STOCK, ANSI Z60.1–2004, OR AS IT MAY BE AMENDED.
7. THE CONTRACTOR SHALL BE HELD COMPLETELY LIABLE FOR ANY DAMAGES RESULTING IN DEVIATIONS OMISSIONS, OR AMENDMENTS TO THIS PLAN. ANY CHANGES TO THIS PLAN SHALL BE DONE ONLY BY THE LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION. FIELD CHANGES BY THE CONTRACTOR SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT BY EITHER RFI OR CHANGE ORDER IN WRITING PRIOR TO CONSTRUCTION.

Maintenance Program

THE LANDSCAPING FOR THIS PROJECT SHALL BE PROFESSIONALLY MAINTAINED ON A SEASONAL BASIS AND SHALL INCLUDE THE FOLLOWING ITEMS:

1. CUTTING BACK OF CERTAIN PLANT MATERIAL ON A YEARLY BASIS WHILE SELECTIVELY HAND PRUNING THROUGHOUT THE GROWING MONTHS OF THE YEAR INCLUDING THE REMOVAL OF DEAD AND/OR DISEASED BRANCHES.
2. MOWING, FERTILIZING, AERATING, AND DE-THATCHING GRASS AT THE DESIGNATED TIMES OF YEAR WHILE TAKING STEPS TO ENSURE A MILD BUT EFFECTIVE TRANSITION FROM SUMMER TO FALL AND WINTER TO SPRING.
3. MONITORING AND ADJUSTING IRRIGATION SCHEDULES ACCORDING TO SEASONAL AND ENVIRONMENTAL NEEDS.
4. APPLYING APPROPRIATE HERBICIDES BASED ON THE TYPE OF WEED, GROWTH STAGE, AND THE ENVIRONMENT (GRANITE, GRASS, SHRUB) IN WHICH IT IS GROWING.
5. PRUNING OF MATURE TREES THRU PREDETERMINED SCHEDULES IN ORDER TO MAINTAIN THE HEALTH AND STRUCTURE OF THE TREE WHILE MINIMIZING DEBRIS AND THE CHANCE FOR PROPERTY DAMAGE.
6. LEAF LITTER SHALL BE RELOCATED FROM CRITICAL DRAINAGE PATHS TO ALLOW FOR CONTINUOUS WATER FLOW TO AREAS AT THE BASE OF SHRUBS AND TREES IN NATURALIZED AREAS TO ALLOW THE LEAF LITTER TO ACT AS A MULCH FOR WATER CONSERVATION AND TO PROVIDE A SOURCE OF CARBON AS A FOOD SOURCE FOR MICROBIOLOGICAL ACTIVITY
7. CLEAR VISION AREA IS DEFINED PER PUD GUIDE SECTION 4.1.14.4.

Landscape & Irrigation Notes

1) TREE PROTECTION
a) TREES TO REMAIN (AS SHOWN ON PLANS) SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION.
b) TEMPORARY CONSTRUCTION FENCING SHALL BE INSTALLED AROUND THE TREE, OR GROUPS OF TREES, AT THE DRIPLINE(S).
c) IF EXCAVATION IS TO OCCUR WITHIN THE DRIP LINE, ANY ROOTS OR BRANCHES TO BE REMOVED/SEVERED SHALL BE CUT WITH SHARP, CLEAN PRUNING SHEARS.
d) EXCAVATED SOIL SHALL BE BACK-FILLED WITHIN THE ROOT ZONE AS SOON AS POSSIBLE FOLLOWING THE ACTIVITY - ROOTS SHALL NOT BE LEFT EXPOSED.
e) PROTECTION FENCING SHALL BE REPLACED AT THE DRIP LINE(S) UPON COMPLETION OF THE ACTIVITY.
f) TREES SHALL BE WATERED REGULARLY FROM APRIL 15TH THROUGH OCTOBER 15TH DURING CONSTRUCTION.
g) PROVIDE MATCHING SIZES AND FORMS FOR EACH SPECIES OF TREE INSTALLED AS SHOWN ON DRAWINGS. ALIGN TREES ACROSS WALKS. ADJUST SPACING AS NECESSARY.
h) INSTALL TREES A MINIMUM OF FIVE (5) FEET FROM BACK OF CURB, EDGE OF WALL, OR PAVING. 1
i) FORM 30 INCH WATERING BASIN AROUND ALL TREES. FILL BASIN WITH 1-1/2 INCH LAYER OF WOOD CHIPS.
j) PLANT NAMES ARE ABBREVIATED ON THE DRAWINGS. SEE PLANT SCHEDULE FOR KEY AND CLASSIFICATION.
k) ALL PLANT MATERIAL OUTSIDE OF THE LIMIT OF CONSTRUCTION LINE MUST REMAIN UNDISTURBED.

2) IRRIGATION
a) ALL LANDSCAPED AREAS SHALL BE IRRIGATED.
b) DRIP OR BUBBLER-TYPE IRRIGATION IS REQUIRED FOR ALL LANDSCAPING EXCEPT FOR TURF AREAS, OPEN SPACE AREAS, OR SEEDED AREAS, WHICH MAY BE SPRAY IRRIGATED.
c) ALL IRRIGATION SYSTEMS SHALL BE EQUIPPED WITH AN AUTOMATIC RAIN SENSOR, OR OTHER SOIL MOISTURE SENSING DEVICE.
d) ALL IRRIGATION SHALL BE PROVIDED BY RAW WATER DELIVERY SYSTEM AND ALL IRRIGATION COMPONENTS SHALL BE COMPATIBLE WITH THE COMMUNITY RAW WATER SYSTEM.
e) ALL IRRIGATION SHALL BE PERMANENT, EXCEPT FOR SPECIFIED AREAS SEEDED/PLANTED WITH NATIVE PLANTS, WHICH SHALL BE IRRIGATED FOR A MINIMUM OF THREE FULL GROWING SEASONS FROM THE TIME OF INSTALLATION.
f) THE IRRIGATION SYSTEM SHALL CONSIST OF AN UNDERGROUND PRESSURIZED SYSTEM THAT WILL PROVIDE DRIP COMPONENTS TO THE SHRUBS AND TREES AND SPRAY IRRIGATION TO THE GRASS (IF APPLICABLE).
g) IRRIGATION CONTROLLER SHALL BE A "WATER SENSE" SMART IRRIGATION CONTROLLER. VERIFY EXISTING CONTROLLER AND REPLACE IF NECESSARY.
h) PROVIDE DRIP IRRIGATION TO ALL SHRUBS AND TREES (TREES-8 GPH PER TREE, SHRUBS-2 GPH PER 5 SHRUB, PERENNIALS-1 GPH PER PLANT).

3) TOPSOIL AND SOIL AMENDMENTS
a) CONTRACTOR SHALL REMOVE ALL SURFACE ROCKS LARGER THAN 2" PRIOR TO DISTRIBUTING TOPSOIL AND/OR AMENDMENTS
b) TOPSOIL SHALL BE DISTRIBUTED OVER PLANTING AREAS/BEDS TO A DEPTH OF THREE (3) INCHES PRIOR TO PLANTING AND/OR SEEDING.
c) ALL PLANTING BEDS SHALL BE AMENDED WITH A GRANULATED ORGANIC FERTILIZER AT RATES SPECIFIED BY THE MANUFACTURER.
d) ALL LANDSCAPE AREAS SHALL BE EXCAVATED DOWN TO 12" DEPTH AND NATIVE SOIL SHALL BE AMENDED WITH WITH A MIN. 4 CU YDS PER 1,000 SF WITH GOOD QUALITY COMPOSTED ORGANIC MATTER. FIRST, DECOMPACT ALL PLANTING AREA SOILS TO A MIN. DEPTH OF 12 INCHES PRIOR TO TILLING. TILL AND INCORPORATE AMENDMENT TO A MIN. DEPTH OF 12 INCHES.
e) TREE PITS SHALL BE EXCAVATED TO A MIN. DEPTH OF 24" AND AMENDED SAME AS ABOVE.
f) THE MIXTURE OF SOIL USED FOR TREES PLANTED IN A PAVED AREA WILL BE CRUSHED STONE (100 PARTS), CLAY LOAM (20 PARTS), AND HYDROGEL (0.03 PARTS) TO SUPPORT THE PAVED AREA WHILE ALLOWING FOR THE EXPANSION OF THE ROOT SYSTEM. 1

Plant Selection List

(SUBJECT TO CHANGE)

BOTANIC NAME	COMMON NAME	MIN. SIZE
Evergreen Trees		
Picea pungens	Colorado Spruce	6'
Pinus ponderosa	Ponderosa Pine	6'
Deciduous Trees		
Acer freemanii 'Autumn Blaze'	Autumn Blaze Maple	1.5"
Fraxinus americana	Autumn Purple Ash	1.5"
Malus 'Spring Snow'	Spring Snow Crabapple	1.5"
Populus angustifolia	Narrowleaf Cottonwood	1.5"
Shrubs		
Acer ginnala 'Flame'	Autumn Flame Maple	#5
Buddleja davidii 'Nanho Purple'	Purple Butterfly Bush	#5
Caryopteris x clandonensis	Blue Mist Spirea	#5
Cornus alba Ivory Halo	Variegated Dogwood	#5
Cornus sericea 'Bailey'	Bailey Redtwig Dogwood	#5
Cornus sericea 'Cardinal'	Orange Twig Dogwood	#5
Euonymus alatus	Burning Bush	#5
Forsythia x 'Northern Sun'	Northern Sun Forsythia	#5
Physocarpus opulifolius 'Darts Gold'	Gold Leaf Ninebark	#5
Physocarpus opulifolius 'Diablo'	Purple Leaf Ninebark	#5
Potentilla fruticosa 'Snowbird'	White Potentilla	#5
Potentilla fruticosa 'Kathryn Dykes'	Pale Yellow Potentilla	#5
Prunus besseyi Pawnee Buttes	Creeping Western Sand Cherry	#5
Quercus gambelii	Gambel Oak	#5
Rhus typhina Tiger Eyes'	Tiger Eyes Staghorn Sumac	#5
Spirea japonica 'Limemound'	Limemound Spirea	#5
Spirea japonica 'Neon Flash'	Neon Flash Spirea	#5
Syringa Vulgaris	Common Purple Lilac	#5
Syringa x hyacinthiflora 'Mount Baker'	Hybrid White Lilac	#5
Viburnum carlesii	Koreanspice Viburnum	#5
Riparian Plants		
Alnus tenuifolia	Thinleaf Alder	#5
Cornus sericea 'Bailey'	Bailey Redtwig Dogwood	#5
Crataegus rivularis	River Hawthorn	#5
Salix exigua	Sandbar Willow	#5
Salix monticola	Rocky Mtn. Willow	#5
Ornamental Grasses		
Calamagrostis acutiflora 'Karl Foerster'	Feather Reed Grass	#2
Helictotrichon sempervirens	Blue Avena Grass	#2

1 MEASURED FROM TOP OF ROOT BALL TO TOP OF TREE

MEASURED FROM 4' ABOVE GROUND (TOP OF ROOT BALL)

1 NOTE: ALL SHRUBS SHALL BE A MINIMUM OF 3 GALLONS AND A MINIMUM OF 1'-2' IN HEIGHT

Revegetation Notes

1) SOIL HANDLING
A) TOPSOIL TO BE USED FOR REVEGETATION SHALL BE STRIPPED, STOCKPILED, AND COVERED/PROTECTED IF STORED FOR LONGER THAN 90 DAYS.
B) CONTRACTOR SHALL RE-DISTRIBUTE STOCKPILED TOPSOIL AND REMOVE ALL SURFACE ROCKS LARGER THAN 3".
C) TOPSOIL SHALL BE DISTRIBUTED OVER REVEGETATION AREAS TO A MINIMUM DEPTH OF 3" PRIOR TO PLANTING SOD AND/OR SEEDING.
D) ALL SOD AND SEED BEDS SHALL BE AMENDED WITH A GRANULATED ORGANIC FERTILIZER AT RATES SPECIFIED BY THE MANUFACTURER.

2) IRRIGATION
A) ALL REVEGETATED AREAS SHALL BE IRRIGATED.
B) ALL IRRIGATION SHALL BE PROVIDED BY RAW WATER DELIVERY SYSTEM AND ALL IRRIGATION COMPONENTS SHALL BE COMPATIBLE WITH THE RAW WATER SYSTEM.
C) ALL IRRIGATION SHALL BE PERMANENT, EXCEPT FOR AREAS NOTED ON PLANS AS "BUILDING PADS", IN WHICH CASE IRRIGATION SHALL BE PROVIDED UNTIL SUCH TIME AS BUILDING CONSTRUCTION COMMENCES.

3) REVEGETATION

A) ALL DISTURBED AREAS WITHIN PERMIT AREA SHALL BE REVEGETATED. DISTURBANCE AREAS SHOWN ON PLANS AND QUANTITIES PROVIDED ARE APPROXIMATE; VERIFY ACTUAL QUANTITIES IN FIELD.

B) IRRIGATED TURF GRASS AREAS:
- SHALL HAVE A PREPARED BEDDING MATERIAL OF A MINIMUM 3" DEPTH OF 50% TOPSOIL/ 50% SAND BLEND.
- TURF GRASS AREAS MAY BE SEEDED OR SODDED WITH THE FOLLOWING KENTUCKY BLUEGRASS BLEND:
  33% RIDGELINE KENTUCKY BLUEGRASS
  33% WATERWORKS KENTUCKY BLUEGRASS
  33% BEWITCHED KENTUCKY BLUEGRASS

C) REVEGETATION SEEDING
- ALL DISTURBED AREAS WITHIN PROJECT AREA SHALL BE REVEGETATED. DISTURBANCE AREA SHOWN ON PLAN AND QUANTITIES PROVIDED ARE APPROXIMATE; VERIFY ACTUAL QUANTITIES IN FIELD.
- ALL DISTURBED AREAS SHALL BE SEEDED WITH THE MIX SPECIFIED ON THE PLAN SHEETS.
- A VIABLE SEEDBED SHALL BE PREPARED BY EITHER DISKING OR HAND-RAKING.
- SEED SHALL BE BROADCAST AT RATES SPECIFIED AND HAND RAKED INTO PREPARED SEEDBED.
- ALL SEEDED AREAS SHALL BE MULCHED IMMEDIATELY. EROSION CONTROL BLANKET SHALL BE INSTALLED PER THE EROSION CONTROL PLAN. IN AREAS WHERE EROSION CONTROL BLANKET IS NOT SPECIFIED, CERTIFIED WEED-FREE STRAW SHALL BE APPLIED AT A RATE OF 2 TONS PER ACRE, OR AREAS MAY BE HYDRO-MULCHED.
- FOR STRAW MULCH, APPLY PLANTAGO-BASED TACKIFIER OR SIMILAR, APPROVED PRODUCT AT A RATE OF 150 LBS PER ACRE.

D) IRRIGATED LOW GROW SEED MIX AREAS:
- A VIABLE SEED BED SHALL BE PREPARED BY EITHER DISKING OR RAKING.
- SEED SHALL BE BROADCAST AT A RATE OF ½LB PER 1,000FT² AND RAKED INTO PREPARED SEEDBED.
- ALL SEEDED AREAS SHALL BE MULCHED IMMEDIATELY. EROSION CONTROL BLANKET SHALL BE INSTALLED PER CIVIL EROSION CONTROL PLAN(S). IN AREAS WHERE EROSION CONTROL BLANKET IS NOT SPECIFIED, CERTIFIED WEED-FREE STRAW SHALL BE APPLIED AT A RATE OF 2 TONS PER ACRE, OR AREAS MAY BE HYDRO-MULCHED.
- FOR STRAW MULCH, APPLY PLANTAGO-BASED TACKIFIER OR SIMILAR, APPROVED PRODUCT AT A RATE OF 150 LBS PER ACRE.
- SEED MIX - RIVENDELL'S NATIVE LOW GROW MIX
  20% BLUE FESCUE
  15% BLUE GRAMA
  15% ROCKY MOUNTAIN FESCUE
  15% CANBY BLUEGRASS
  10% INDIAN RICEGRASS
  10% SANDBERG BLUE
  10% SIDEOATS GRAMA
  2⅔% ALPINE BLUEGRASS
  2⅔% BOTTLEBRUSH SQUIRRELTAIL

SEED MIX AVAILABLE FROM:
RIVENDELL DISTRIBUTION & SOD FARM INC.
3961 COUNTY ROAD 114
GLENWOOD SPRINGS, CO 81601
970-945-2568

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Revisions:
1 REVS PER COUNTY PLANNING COMMENTS
RB - 10/08/2021

Project Name :

The Fields

El Jebel, Colorado

Landscape Architect / Land Planner:

LAND WEST

Registration:

Robert A. Breeden
LA 462
02/11/2008
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

Sheet Title:

Sheet LD Plan

Project: The Fields	Sheet: North ID
Date: June 2, 2021	
Scale: 1" = 60'	of 6 Sheets

Project Name :

The Fields

El Jebel, Colorado

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STATE OF COLORADO
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Legend

1

EX. TREES TO BE REMOVED

EX. TREES OVER 6" DBH TO SAVE

PROPOSED SHRUBS/PERENNIALS/ ORNAMENTAL GRASSES

PROPOSED DECIDUOUS TREES

PROPOSED EVERGREEN SHRUBS

PROPOSED EVERGREEN TREES

LOCAL BOULDERS 24"-36"

TURF GRASS

MEADOW GRASS SEED MIX

RIVER COBBLE ROCK MULCH

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Revisions:

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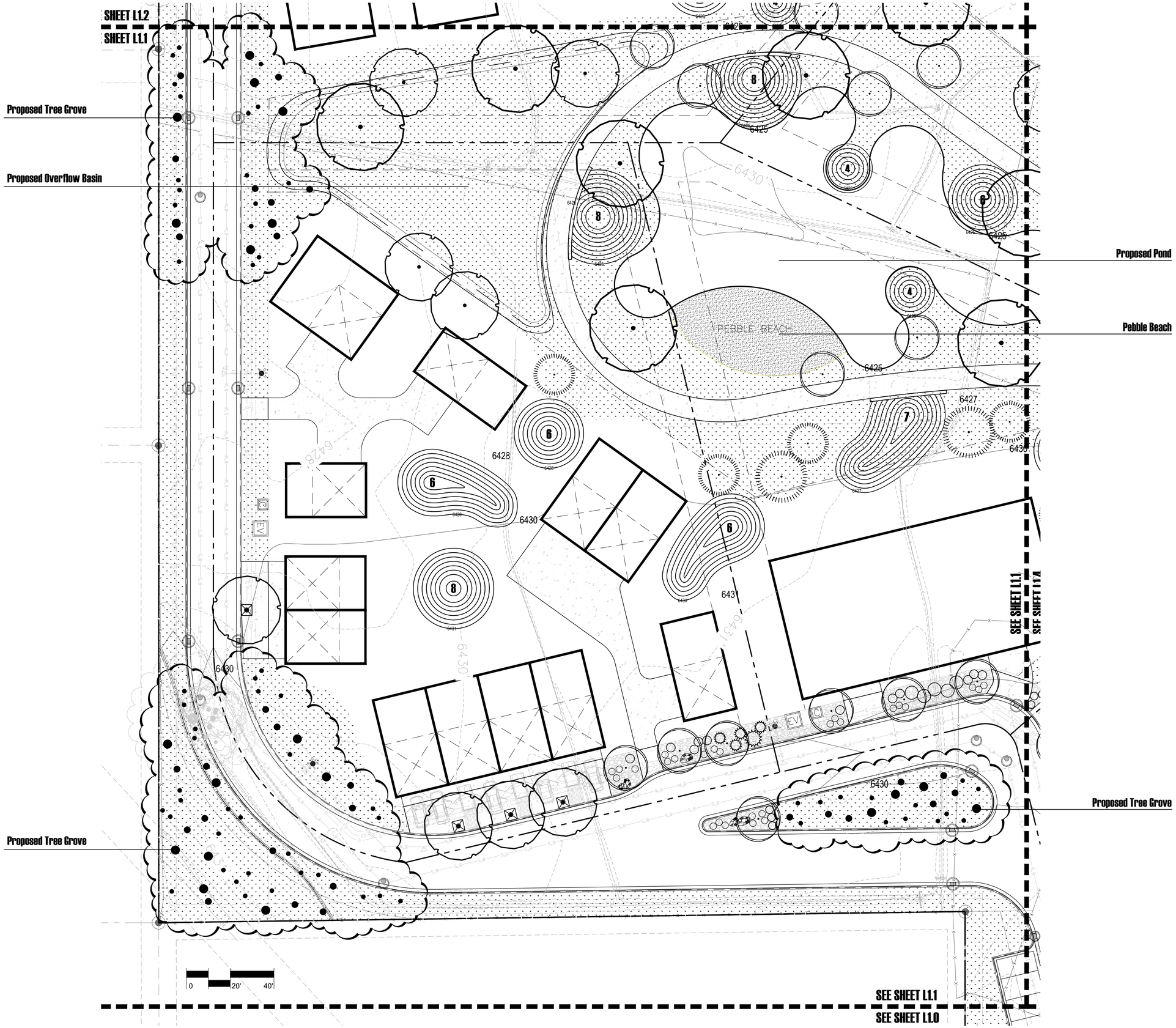
RB - 10/08/2021

Sheet Title:

Conceptual Landscape Plan

Project: The Fields	Sheet:
Date: June 2, 2021	North
Scale: 1" = 20'	L1.0 of 6 Sheets



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Sheet Title:

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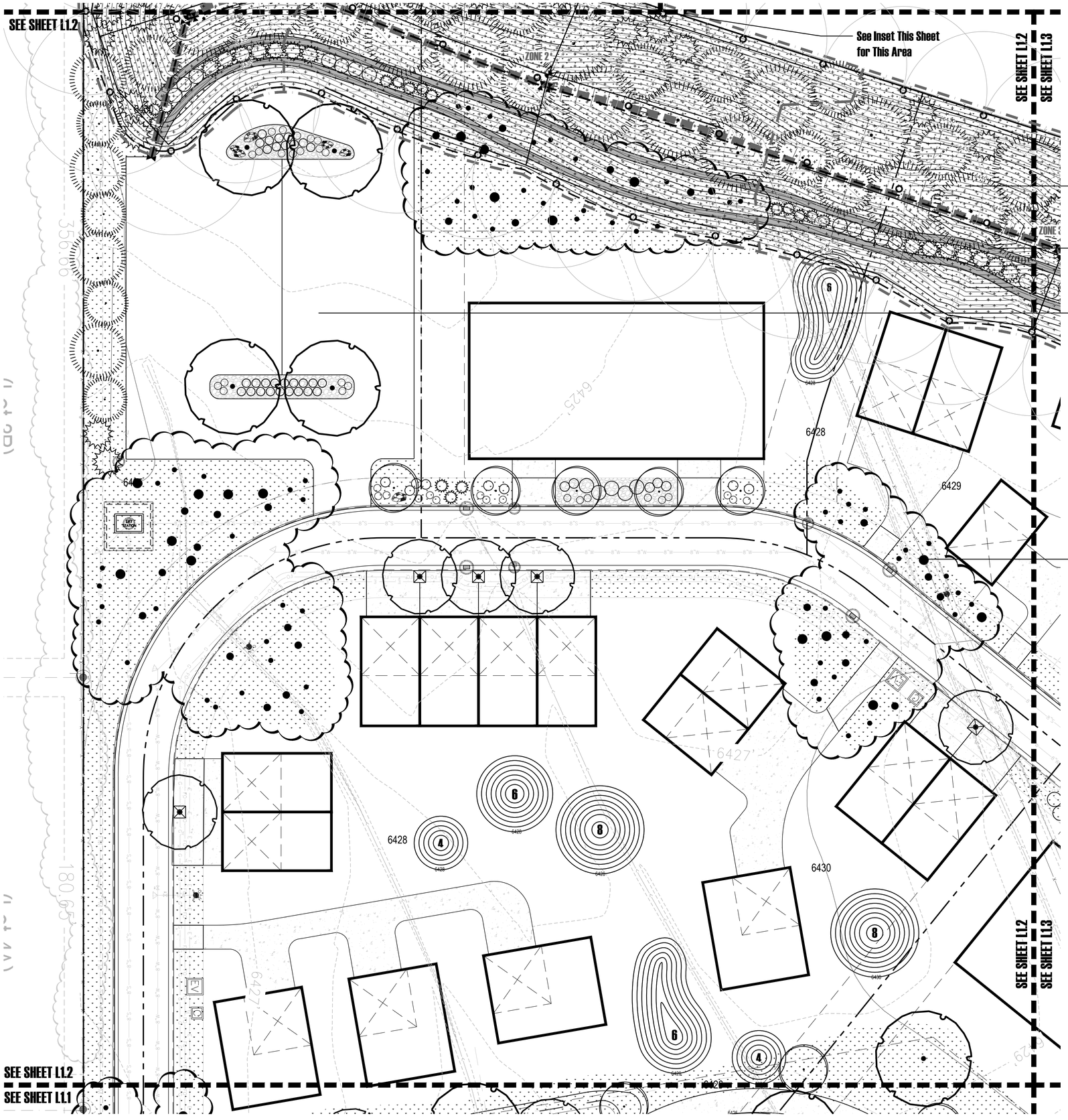
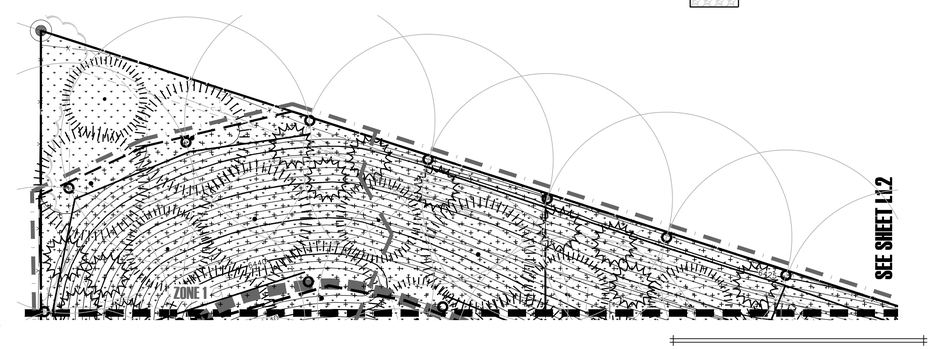
Project: The Fields	Sheet:
Date: June 2, 2021	North
Scale: 1" = 20'	L1.1 of 6 Sheets





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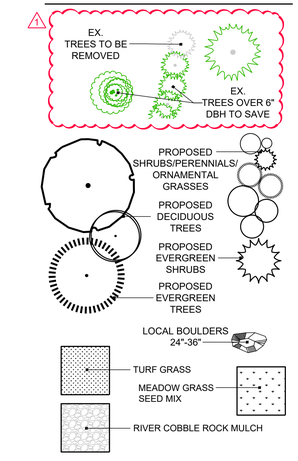

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Sheet Title:

Conceptual Landscape Plan

Project: The Fields	Sheet:
Date: June 2, 2021	North
Scale: 1" = 20'	L1.2 of 6 Sheets

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TURF GRASS

MEADOW GRASS SEED MIX

RIVER COBBLE ROCK MULCH

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Project: The Fields	Sheet:
Date: June 2, 2021	North
Scale: 1" = 20'	L1.3 of 6 Sheets

Project Name :

The Fields

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RB - 10/08/2021

Sheet Title:

Conceptual Landscape Plan

Project: The Fields

Date: June 2, 2021

Scale: 1" = 20'

Sheet: L1.4 of 6 Sheets

Appendix J

Engineering Plans

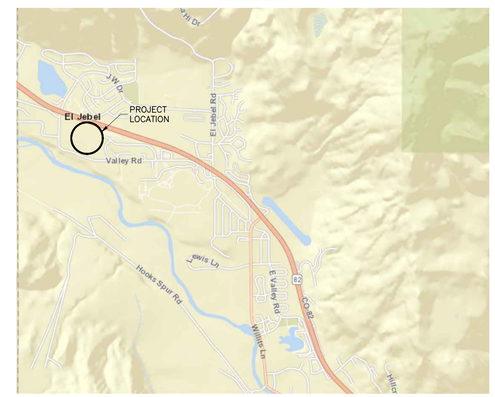
THE SUBMISSION IMPROVEMENT DRAWINGS FOR THE FIELDS SUBDIVISION ARE ACCEPTED BY THE EAGLE COUNTY ENGINEER AND THE EAGLE BOARD OF COUNTY COMMISSIONERS.

EAGLE COUNTY ENGINEER — DATE

CHAIRMAN BOARD OF COUNTY COMMISSIONERS — DATE

THE FIELDS
EAGLE COUNTY, COLORADO
PRELIMINARY ENGINEERING PLANS
12.08.2020

VICINITY MAP



Sheet List Table

Sheet Number	Sheet Title
C0	COVER SHEET
C1	NOTES
C2	LEGEND
C3	PROJECT DETAILS
C4	MCMD SEWER DETAILS
C5	MVMD WATER DETAILS
C6	EXISTING CONDITIONS
C7	DEMOLITION PLAN
C8	ROAD GEOMETRY PLAN
C9	ROAD INDEX SHEET
C10	TRAIL GEOMETRY PLAN
C11	TRAIL INDEX SHEET
C12	EAST WAVERLY P&P STA. 20+00 TO STA. 25+40
C13	EAST WAVERLY P&P STA. 25+40 TO STA. 31+40
C14	EAST WAVERLY P&P STA. 31+40 TO STA. 37+10
C15	EAST WAVERLY P&P STA. 37+10 TO STA. 42+80
C16	EAST WAVERLY P&P STA. 42+80 TO STA. 45+80
C17	WEST WAVERLY P&P STA. 10+00 TO STA. 15+70
C18	WEST WAVERLY P&P STA. 15+70 TO STA.17+60
C19	AUXILARY PARKING P&P
C20	VALLEY ROAD P&P STA. 50+00 TO STA. 55+70
C21	VALLEY ROAD P&P STA. 55+70 TO STA. 58+00
C22	TRAIL SOUTH P&P STA. 300+00 TO STA. 305+00
C23	TRAIL SOUTH P&P STA. 305+00 TO STA. 306+60
C24	POND TRAIL P&P STA. 320+00 TO STA. 325+00
C25	POND TRAIL P&P STA. 325+00 TO STA. 330+00
C26	POND TRAIL P&P STA. 330+00 TO STA. 331+20
C27	TRAIL NORTH P&P STA. 340+00 TO STA. 345+00
C28	TRAIL NORTH P&P STA. 345+00 TO STA. 348+60
C29	TRAIL WEST P&P
C30	OVERALL SITE GRADING
C31	SANITARY SEWER P&P EAST STA. 500+00 TO STA. 505+00
C32	SANITARY SEWER P&P EAST STA. 505+00 TO STA. 510+00
C33	SANITARY SEWER P&P EAST STA. 510+00 TO STA. 514+40
C34	SANITARY SEWER P&P WEST STA. 520+00 TO STA. 525+00
C35	SANITARY SEWER P&P WEST STA. 525+00 TO STA. 530+00
C36	SANITARY SEWER P&P WEST STA. 530+00 TO STA. 532+00
C37	FORCE MAIN P&P STA. 600+00 TO STA. 605+00
C38	FORCE MAIN P&P STA. 605+00 TO STA. 610+00
C39	FORCE MAIN P&P STA. 610+00 TO STA. 614+60
C40	WATER MAIN P&P STA. 700+00 TO STA. 705+00
C41	WATER MAIN P&P STA. 705+00 TO STA. 709+50
C42	WATER MAIN P&P STA. 709+50 TO STA. 715+40
C43	WATER MAIN P&P STA. 715+40 TO STA. 720+00
C44	WATER MAIN P&P STA. 720+00 TO STA. 725+00
C45	WATER MAIN P&P STA. 725+00 TO STA. 730+00
C46	WATER MAIN P&P STA. 730+00 TO STA. 735+00
C47	WATER MAIN P&P STA. 735+00 TO STA. 737+40
C48	NORTH WATER CONNECTION
C49	SHALLOW UTILITY PLAN
C50	RAW WATER PLAN
C51	DRAINAGE BASINS

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

#	DESCRIPTION	DRAWN BY	DATE

JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-COVER.DWG Plotted: 11/24/2020 3:40 PM By: Drew Whorton

1. GENERAL NOTES:

1. ALL WORK SHALL COMPLY WITH THE MOST RECENT EAGLE COUNTY AND CDOT STANDARDS IN ADDITION TO THE MID VALLEY METROPOLITAN DISTRICT RULES AND REGULATIONS.
2. LIMITS OF CONSTRUCTION SHALL BE 5 FEET BEYOND GRADING, IMPROVEMENTS AND BORROW, STOCK PILING AND STAGING AREAS SHOWN ON THESE PLANS. RESPECT ALL TREE/VEGETATION PRESERVATION ZONES (PER SPECS).
3. TEMPORARY CONSTRUCTION EASEMENTS MAY BE REQUIRED AND ARE TO BE COORDINATED WITH PROPERTY OWNER.
4. THE CONTRACTOR MUST CERTIFY THAT ALL AGGREGATES USED ON THIS PROJECT ARE FREE FROM HAZARDOUS COMPONENTS IN EXCESS OF THE THRESHOLD CONCENTRATIONS ESTABLISHED BY THE E.P.A.
5. ANY SIGNAGE REMOVED DURING CONSTRUCTION THAT IS NOT SHOWN TO BE ON THE PLANS SHALL BE REPLACED OR RETURNED TO ITS ORIGINAL LOCATION.
6. THROUGHOUT ALL PHASES OF CONSTRUCTION, UNTIL THE FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR MUST KEEP THE WORK SITE CLEAN AND FREE FROM RUBBISH AND DEBRIS. THE CONTRACTOR SHALL ALSO ABATE DUST NUISANCE AS NECESSARY. THE CONTRACTOR HAS TWENTY-FOUR (24) HOURS AFTER THE DEPOSIT OF ANY EARTH, GRAVEL OR OTHER EXCAVATED MATERIAL TO REMOVE SUCH DEPOSIT. IN THE EVENT THAT THE EARTH, GRAVEL OR OTHER EXCAVATED MATERIAL IS NOT REMOVED, THE ENGINEER OR OWNER WILL DIRECT SUCH REMOVAL AND THE COST INCURRED SHALL BE DEDUCTED FROM THE BOND. DUST CONTROL WILL ONLY BE REQUIRED IF ADJACENT PROPERTY OWNERS ARE ADVERSELY AFFECTED OR IF DUST ADVERSELY AFFECTS MAINTENANCE OF TRAFFIC DURING THE PROJECT SUCH THAT, IN THE OPINION OF ENGINEER, ADJUSTMENT OF THE CONTROL PROGRAM IS APPROPRIATE. IT IS ANTICIPATED DUST CONTROL WILL BE REQUIRED ON THIS PROJECT.
7. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SURFACES THROUGHOUT THE PROJECT TO MAINTAIN TRAFFIC AND PEDESTRIAN ACCESS. THE COST SHALL BE INCIDENTAL TO WORK.
8. CONSTRUCTION DE-WATERING IS TO BE IN ACCORDANCE WITH THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT REQUIREMENTS. CONTRACTOR IS RESPONSIBLE FOR ALL ASSOCIATED PERMITTING.
9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH APPLICABLE STANDARDS AND REGULATIONS AS SET FORTH BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.).
10. NO FIELD CHANGES SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER.
11. SUBMITTALS SHALL BE PREPARED FOR ALL MATERIALS TO BE INCORPORATED INTO THE PROJECT AND SENT TO THE ENGINEER FOR REVIEW AND APPROVAL.
12. THE PHYSICAL FEATURES WITHIN THE LIMITS OF THE PROJECT HAVE BEEN SHOWN BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE FEATURES SHOWN. THE CONTRACTOR SHALL REVIEW AND VERIFY EXISTING PHYSICAL FEATURES AND ELEVATIONS OF THE CONDITIONS TO BE ENCOUNTERED DURING CONSTRUCTION.
13. THE CONTRACTOR SHALL LIMIT ALL WORK AND STORAGE AREAS TO THE PROJECT SITE. ANY WORK INSIDE PUBLIC RIGHT-OF-WAYS WILL REQUIRE APPROVAL FROM THE JURISDICTION OF AUTHORITY PRIOR TO CONSTRUCTION. USE OF ANY PRIVATE AREAS FOR THIS PROJECT BY THE CONTRACTOR MUST BE APPROVED IN WRITING BY THE PROPERTY OWNER WITH A COPY OF THIS APPROVAL PROVIDED TO THE ENGINEER PRIOR TO USAGE.
14. ALL WORK SHALL BE DONE TO THE LINES, GRADES, SECTIONS, AND ELEVATIONS SHOWN ON THE PLANS UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER.
15. THE ENGINEER SHALL BE NOTIFIED WITHIN 48 HOUR PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
16. THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE AND/OR TOES OF SLOPE AS SHOWN ON THE PLANS. ANY DISTURBANCE BEYOND THESE LIMITS SHALL BE RESTORED TO ORIGINAL CONDITIONS BY THE CONTRACTOR AT THEIR OWN EXPENSE.
17. THE CONTRACTOR SHALL NOT REMOVE AND SHALL PROTECT FROM DAMAGE ALL TREES, BUSHES, AND EXISTING IMPROVEMENTS INSIDE AND OUTSIDE THE LIMITS OF WORK NOT CALLED OUT FOR REMOVAL OR REPLACEMENT. SPECIFIC PROVISIONS ARE SHOWN ON THE PLANS.
18. NO TREES SHALL BE REMOVED OR TRIMMED WITHOUT PRIOR ACKNOWLEDGEMENT OF THE PROPERTY OWNER AND/OR PROJECT ENGINEER. ALL APPLICABLE PERMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
19. THE CONTRACTOR SHALL PROTECT THE EXISTING DRAINAGE STRUCTURES AND REROUTE ANY RUNOFF AS NECESSARY DURING CONSTRUCTION ACTIVITIES TO PREVENT EROSION AND DAMAGE.
20. THE CONTRACTOR SHALL PROVIDE SAFE PEDESTRIAN ACCESS AT ALL TIMES DURING THE PROJECT.
21. THE PHYSICAL FEATURES REQUIRING REMOVAL OR OBLITERATION WITHIN THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE DISPOSED OF OFF-SITE UNLESS OTHERWISE NOTED.
22. THE CONTRACTOR SHALL HAVE A COPY OF ALL APPLICABLE STANDARDS AND APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS ON SITE AT ALL TIMES.
23. ANY DISCREPANCY WITHIN THESE PLANS SHOULD BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
24. TREES TO BE REMOVED BY OTHERS. CONTRACTOR IS RESPONSIBLE FOR (50x) 10 INCH DIAMETER TREE STUMPS DURING CLEARING AND GRUBBING OPERATIONS.
25. ALL SEWER MANHOLES STATION OFFSET CALLOUTS REFERENCE CENTER OF STRUCTURE LOCATION. ELEVATIONS REFERENCE THE MANHOLE LID OR FLOWLINE ON MANHOLES WITH GUTTER INLETS.

2. SANITARY GENERAL NOTES

1. ALL SANITARY SEWER CONSTRUCTION SHALL CONFORM TO THE LATEST MID VALLEY METROPOLITAN DISTRICT (MVMD) RULES AND REGULATIONS.
2. INSTALLATION OF NEW SANITARY SEWER IN AREAS WITH WATER MAIN AND SERVICE CROSSINGS MUST COMPLY WITH MVMD, AND THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT STANDARDS.
3. CONTRACTOR IS TO OBTAIN STATE DE-WATERING PERMIT IN CASE OF GROUNDWATER IN THE TRENCH.
3. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE MVMD. THE DISTRICT WILL RESERVE THE RIGHT TO ACCEPT OR REJECT ANY MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THEIR STANDARDS AND SPECIFICATIONS.
4. THE CONTRACTOR MUST NOTIFY THE MVMD AT LEAST TWO FULL WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.
5. ALL SEWER MAIN PIPES, FITTINGS, AND APPURTENANCES SHALL MEET THE CLASS CALLED OUT BY THE MVMD STANDARDS.
6. ALL SEWER MAINS SHALL HAVE A MINIMUM COVER OF 5.5 FEET. IF GRADE CONFLICTS OCCUR WITH EXISTING UTILITIES OR OTHER OBSTRUCTIONS THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
7. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF 18 INCHES OF VERTICAL SEPARATION FROM ALL WATER MAIN CROSSINGS. ONE FULL LENGTH OF WATER PIPE MUST BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. IF THIS CANNOT BE MET THE ENGINEER SHALL NE NOTIFIED IMMEDIATELY.
8. USE TIE RODS AND MEGA LUGS WHERE THRUST BLOCKS CAN'T BEAR ON NATIVE SOIL. MIN. TIE ROD LENGTH 20'.
9. ALL HORIZONTAL BENDS TO BE RESTRAINED USING MEGALUGS.
10. ALL PRIVATE SANITARY SERVICES SHALL BE SLOPE AT A MINIMUM OF 2%.
11. ALL SEWER MANHOLES STATION OFFSET CALLOUTS REFERENCE CENTER OF STRUCTURE LOCATION. ELEVATIONS REFERENCE THE MANHOLE LID.

3. WATERLINE GENERAL NOTES:

1. ALL WATERLINE CONSTRUCTION SHALL CONFORM TO THE LATEST MID VALLEY METROPOLITAN DISTRICT RULES AND REGULATIONS.
2. INSTALLATION OF NEW WATERLINE IN AREAS WITH SANITARY SEWER MAIN AND SERVICE CROSSINGS MUST COMPLY WITH MVMD, AND THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT STANDARDS.
3. CONTRACTOR IS TO OBTAIN STATE DEWATERING PERMIT IN CASE OF GROUNDWATER IN THE TRENCH.
4. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE MVMD. THE DISTRICT WILL RESERVE THE RIGHT TO ACCEPT OR REJECT ANY MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE DISTRICT'S RULES AND REGULATIONS.
5. THE CONTRACTOR MUST NOTIFY THE MID VALLEY METROPOLITAN DISTRICT THROUGH THE FRONT OFFICE (PHONE 970-927-4077) AT LEAST TWO FULL WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.
6. ALL WATER MAIN PIPES FITTING AND APPURTENANCES SHALL MEET THE CLASS CALLED OUT IN THE PLANS AND SPECIFICATIONS.
7. ALL WATERLINES SHALL HAVE A MINIMUM COVER OF 5.5 FEET. COVER GREATER THAN THE SPECIFIED MINIMUM MAY BE REQUIRED TO ACCOMMODATE EXISTING GRADES AND AVOID HIGH POINTS IN THE WATERLINE TO A MAXIMUM OF TEN FEET IF GRADE CONFLICTS OCCUR WITH EXISTING UTILITIES OR OTHER OBSTRUCTIONS, THE PROPOSED WATER MAIN GRADE CAN BE VARIED PROVIDED THE 5.5 FOOT MINIMUM DEPTH OF COVER IS MAINTAINED OR AS DIRECTED BY DISTRICT STAFF IF BEDROCK/BOULDERS ARE ENCOUNTERED. THERE SHALL BE NO LOCALIZED HIGH POINTS.
8. PRECAUTIONS MUST BE TAKEN TO PROTECT WATERLINE PIPE INTERIORS, FITTINGS AND VALVES AGAINST CONTAMINATION AND BE KEPT CLEAN AND DRY AT ALL TIMES. A WATER TIGHT PLUG SHALL BE INSTALLED IN THE OPEN END OF THE PIPE AT THE END OF EACH WORKING DAY.
9. WATERLINES WILL BE INSTALLED AT RELATIVELY STRAIGHT LINES BETWEEN FITTINGS EXCEPT WHERE SHOWN OTHERWISE ON THE PLANS. IN NO CASE SHALL THE MAXIMUM JOINT DEFLECTION AS RECOMMENDED BY THE PIPE MANUFACTURER BE EXCEEDED. PIPE CURVATURE MAY BE OBTAINED BY JOINT DEFLECTION AS RECOMMENDED AND WARRANTED BY MANUFACTURER. MANUFACTURER'S INSTALLATION GUIDELINES TO BE PROVIDED WITH MATERIALS SUBMITTAL.
10. IF HIGHLY CORROSIVE SOILS ARE ENCOUNTERED, ALL BURIED FITTINGS AND VALVES MUST BE WRAPPED IN 8 MIL POLYWRAP IN AREAS OF HIGH SOIL CONDUCTIVITY.
11. TWO FORMS OF THRUST RESTRAINT ARE REQUIRED. APPROVED FORMS ARE MEGALUGS, THRUST BLOCKS, AND TIE RODS. CONCRETE THRUST BLOCKS SHALL BE INSTALLED AT ALL HORIZONTAL AND VERTICAL BENDS, TEES, VALVES AND CAPS, ETC. IN ACCORDANCE WITH THE THRUST BLOCK TABLE SHOWN ON THE DETAIL SHEET. FOR CLARITY, ALL THRUST BLOCKS MAY NOT HAVE BEEN SHOWN ON THE DRAWINGS. FITTINGS WITH THRUST BLOCKS SHALL NOT BE BACKFILLED UNTIL THE CONCRETE HAS BEEN GIVEN SUFFICIENT TIME TO CURE.
12. HORIZONTAL SEPARATION BETWEEN THE SANITARY SEWER MAIN AND WATER MAINS SHALL BE MAINTAINED AT TEN FEET EXCEPT AT SPECIFIED CROSSINGS AND AS IDENTIFIED ON THE PLANS.
13. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF 18 INCHES OF VERTICAL SEPARATION FROM ALL SANITARY SEWER CROSSINGS. ONE FULL LENGTH OF WATER PIPE MUST BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. IF THIS CANNOT BE MET THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
14. FREEZE PROTECTION SHALL BE INSTALLED FOR ALL WATER MAIN AND SERVICES LESS THAN 5.5 FEET DEEP AND AWAY FROM STORM SEWERS, MANHOLES, VAULTS AND CULVERTS.
15. BLUE IDENTIFICATION TAPE SHALL BE INSTALLED 24 INCHES ABOVE ALL WATER MAINS.
16. ALL TRENCHES SHALL BE COMPACTED TO 95 PERCENT AS DETERMINED BY AASHTO T-99. WATER REQUIRED FOR MOISTURE CONDITIONING OF BACKFILL MATERIAL SHALL BE OBTAINED FROM AN AUTHORIZED FILLING HYDRANT. ALL NECESSARY COMPACTION TESTING SHALL BE COMPLETED THROUGH A CERTIFIED SOILS LAB.
17. A COPY OF THE COMPACTION TEST RESULTS SHALL BE PROVIDED TO THE DISTRICT AND ENGINEER DURING THE COURSE OF THE PROJECT.
18. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED WATERLINE TESTING. ALL TESTING WILL BE COMPLETED IN THE PRESENCE OF THE DISTRICT'S REPRESENTATIVE. THIS INCLUDES PRESSURE AND LEAKAGE TEST, FLUSHING AND DISINFECTION, BACTERIOLOGICAL TESTS, AND PIPE CONDUCTIVITY CONTINUITY. DISINFECTION OF THE WATERLINE SHALL BE IN ACCORDANCE WITH THE PROCEDURE SET FORTH IN AWWA C651, LATEST EDITION, DISINFECTING WATER MAINS.
19. A PRE-CONSTRUCTION MEETING WITH DISTRICT STAFF AND THE ENGINEER WILL BE REQUIRED WITH A MINIMUM OF TWO DAYS NOTICE.
20. ABANDONMENT REQUIREMENTS
    - 20.1. FIRE HYDRANTS AND ASSOCIATED VALVES SHALL NOT BE ABANDONED IN PLACE, BUT SHALL BE REMOVED. HYDRANT BRANCHES SHALL BE PLUGGED AT THE MAIN ACCORDING TO MVMD STANDARDS.
    - 20.2. COUPLINGS ARE NOT DESIRED. THE CORPORATION VALVE IS TO BE CLOSED AND THE SERVICE CUT AT THE COMPRESSION NUT. TEES SHALL BE PLUGGED AT THE SOURCE WITH AN APPROVED FITTING AND RESTRAINED. INSPECTION BY THE DISTRICT IS REQUIRED PRIOR TO BURYING THE WORK. THE CONTRACTOR SHALL NOT OPERATE EXISTING WATERLINE VALVES. CONTRACTOR SHALL NOTIFY THE DISTRICT AT (970) 927 4077 A MINIMUM OF 48 HOURS IN ADVANCE OF ANY SERVICE ABANDONMENT. PURE CORE IS ONLY ALLOWED FOR TEMPORARY SERVICES.
    - 20.3. ALL EXISTING WATER MAIN ALONG THE PROPOSED ALIGNMENT SHALL BE ABANDONED IN PLACE. ANYTIME AN EXISTING WATER MAIN IS CUT, IT SHALL BE PLUGGED WITH A MECHANICAL JOINT CAP. ANY EXISTING WATER MAIN IN CONFLICT WITH THE NEW WATER MAIN AND/OR WITHIN THREE FEET OF NEW WATER MAIN SHALL BE REMOVED AND DISPOSED OF. COSTS FOR THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT IS CONSIDERED INCIDENTAL TO THE WATER MAIN WORK AND INCLUDED IN OTHER PAY ITEMS. MAIN LINES THAT ARE TO BE LEFT IN PLACE SHALL BE CAPPED AT BOTH ENDS WITH A MECHANICAL JOINT CAP. ALL VALVES ARE TO REMAIN OPEN WITH VALVE BOXES PULLED OFF TWO FEET BELOW GRADE AND FILLED WITH DIRT.
21. SWIVEL TEES MAY BE USED FOR ALIGNING HYDRANT VALVE AND VALVE BOX WITH EXISTING GRADES OTHERWISE DETAILS SHALL BE FOLLOWED.
22. NEW SERVICE TAPS ARE TO BE PERFORMED BY MVMD WHEN CONNECTIONS ARE READY TO BE MADE. TWO DAYS NOTICE MUST BE GIVEN. NO WATER TAPS/CORPORATION STOPS SHALL BE BURIED FOR FUTURE CONNECTION. (I.E. NO PRE-TAPPING OF FUTURE LOTS IS ALLOWED WITHOUT A SIGNED PRE-TAPPING AGREEMENT). PRE-TAPPING WILL REQUIRE TESTING AND DISINFECTION ACCORDING TO MVMD.
23. ALL PIPING COMPONENTS REQUIRED FOR TIE-INS TO THE EXISTING WATERLINES MAY NOT BE SHOWN ON THE DRAWINGS. THESE SHALL BE PROVIDED AS REQUIRED BY THE CONTRACTOR AS PART OF TIE-IN TO EXISTING SYSTEM BID ITEM.
24. SOLID SLEEVES AT EXISTING CONNECTION POINTS ARE IMPLIED AND ARE NOT SPECIFICALLY CALLED OUT ON PLAN SET.
25. CONTRACTOR TO VERIFY SIZE OF ALL EXISTING SERVICES. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES.
26. USE TIE RODS AND MEGA LUGS WHERE THRUST BLOCKS CAN'T BEAR ON NATIVE SOIL. MIN. TIE ROD LENGTH 20'.

4. UTILITY GENERAL NOTES

1. ANY CONTRACTOR-CAUSED DAMAGE TO UTILITY AND/OR SERVICE LINES SHOWN OR NOT SHOWN ON THE PLANS, SHALL BE REPAIRED OR REPLACED AT NO COST TO EAGLE COUNTY AND SHALL BE ACCOMPLISHED BY THE CONTRACTOR, SUBCONTRACTOR OR AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK IN THE PROJECT AREA. LIKEWISE, THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING HIS WORK AND THAT OF THE INVOLVED UTILITIES IN THE PROJECT AREA.
2. UTILITY LINES SHOWN ON THE PLAN SHEETS ARE LOCATED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION AND PROTECTION OF ALL UTILITIES IN PLACE.
3. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 A MINIMUM OF TWO BUSINESS DAYS IN ADVANCE OF ANY EXCAVATION OR GRADING.
4. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL UTILITIES AND STRUCTURES AFFECTED BY THE WORK. ANY DAMAGE SHALL BE REPAIRED AND RESTORED TO THE SATISFACTION OF THE EAGLE COUNTY, MVMD, AND UTILITY PROVIDER. THE CONTRACTOR SHALL COORDINATE ALL UTILITY RELOCATIONS AS NECESSARY.
5. EXCAVATION AT GAS LINES: TEMPORARY COVER DURING CONSTRUCTION SHALL BE AT LEAST 18 INCHES OVER THE GAS CONDUIT. FINISH GRADE OVER THE GAS CONDUIT MUST BE AT LEAST TWO FEET AND NO MORE THAN SIX FEET.
6. EXISTING UNDERGROUND TELEPHONE, FIBER AND CABLE TELEVISION FACILITIES MAY BE LOCATED IN CLOSE PROXIMITY TO THE WORK. THE CONTRACTOR MAY, IF NECESSARY, TEMPORARILY DISPLACE THE CABLES DURING CONSTRUCTION AND REINSTALL THEM IN ACCORDANCE WITH THE APPROPRIATE TELEPHONE, FIBER OR CABLE TELEVISION COMPANY'S GUIDELINES WITH THEIR PRIOR CONSENT. COORDINATION WITH BOTH THE TELEPHONE AND CABLE TELEVISION COMPANY IS REQUIRED TO BE DONE BY THE CONTRACTOR.
7. THE CONTRACTOR SHALL AT THEIR EXPENSE, SUPPORT AND PROTECT ALL UTILITIES, SO THAT THEY WILL FUNCTION CONTINUOUSLY DURING CONSTRUCTION EXCEPT THOSE DESIGNATED TO BE TEMPORARILY SHUT DOWN. THE CONTRACTOR SHALL GET AUTHORIZATION FOR TEMPORARY SERVICE DISRUPTIONS PRIOR TO ANY UTILITY WORK AT LEAST 48 HOURS IN ADVANCE. CUSTOMERS SHALL BE NOTIFIED ACCORDING TO THE UTILITY PROVIDERS REQUIREMENTS. SHOULD A UTILITY FAIL AS A RESULT OF THE CONTRACTOR'S OPERATIONS, IT WILL BE REPAIRED IMMEDIATELY BY EITHER THE CONTRACTOR OR THE UTILITY PROVIDER AT THE FULL COST OF LABOR AND MATERIALS TO THE CONTRACTOR.
8. ALL VALVE BOXES, CLEANOUTS, MANHOLES, GUY WIRES, SHALL BE ADJUSTED TO FINAL GRADE.
9. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND ELEVATION OF ALL SANITARY SEWER SERVICES AND WATER SERVICES PRIOR TO CONSTRUCTION.
10. IRRIGATION LINES MAY EXIST WITHIN THE PROJECT BOUNDARY. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO LOCATE IRRIGATION LINES THAT MAY BE AFFECTED BY THEIR WORK. ANY DAMAGED IRRIGATION EQUIPMENT OR LINES WILL BE REPLACED AT THE COST OF THE CONTRACTOR.
11. ALL WORK DONE ON OR AROUND WATER AND SEWER FACILITIES MUST BE INSPECTED BY A MVMD INSPECTOR. THE CONTRACTOR IS REQUIRED TO NOTIFY THE MVMD TWO WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION.
12. TEMPORARY SHORING MAY BE REQUIRED FOR UTILITY INSTALLATION WORK ESPECIALLY IN AREA CLOSE TO OR IN EXISTING SLOPES. THE CONTRACTOR SHALL MAINTAIN SLOPE/TRENCH STABILITY UNTIL EXCAVATION IS BACKFILLED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING REQUESTED OR REQUIRED SHORING PLANS TO THE COUNTY AND ENGINEER FOR REVIEW AND APPROVAL PRIOR TO SHORING OPERATIONS.

5. EARTHWORK

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LEGAL DISPOSAL OF ANY EXCESS SOIL, DEBRIS AND WASTE MATERIAL OFF OF THE PROJECT SITE.
2. ANY MATERIAL NOT SUITABLE FOR BACKFILL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF, BY AND AT THE EXPENSE OF THE CONTRACTOR.
3. ALL EMBANKMENT MATERIAL REQUIRING COMPACTION WILL CONFORM TO CDOT/ASTM STANDARDS.
4. IF GROUNDWATER IS ENCOUNTERED CONTACT ENGINEER/COUNTY PROJECT MANAGER BEFORE PROCEEDING WITH WORK IN AREA OF GROUNDWATER.
5. IF BEDROCK IS ENCOUNTERED CONTACT ENGINEER/COUNTY PROJECT MANAGER BEFORE PROCEEDING WITH WORK IN AREA OF BEDROCK.
6. EXISTING DITCHES RUN ALONG AND WITHIN THE PROPERTY. IF DISTURBED, THE DITCH SHALL BE REPLACED IN ITS ORIGINAL LOCATION BY RE-SCARIFING MATERIAL EIGHT INCHES BELOW THE DITCH AND COMPACTING WITH A NEW THREE INCH LAYER OF BENTONITE MIXED SOIL. ONE (1) POUND OF BENTONITE PER ONE (1) SQUARE FOOT OF AREA IS REQUIRED. THE CONTRACTOR SHALL CONTACT AND COORDINATE ALL WORK WITH THE DITCH COMPANY.
7. AREAS OF HEAVY VEGETATION, TREES, ROCKS, ETC. MAY NOT ALL BE SHOWN ON PLAN SET. THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND REQUIRED CONSTRUCTION METHODS TO PERFORM THE WORK. CERTAIN AREAS MAY REQUIRE TREE REMOVAL, BOULDER RELOCATION, CLEARING AND GRUBBING, ETC. THAT MAY NOT BE SPECIFICALLY CALLED OUT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY GROUNDWATER ENCOUNTERED DURING THE CONSTRUCTION OF ANY PORTION OF THIS PROJECT. GROUNDWATER SHALL BE PUMPED, PIPED, REMOVED AND DISPOSED OF IN A MANNER WHICH DOES NOT CAUSE FLOODING OF EXISTING STREETS NOR EROSION ON ABUTTING PROPERTIES IN ORDER TO CONSTRUCT THE IMPROVEMENTS SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR ANY COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT STORM WATER DISCHARGE OR DE-WATERING PERMITS THAT CORRESPOND WITH THESE ACTIVITIES.
9. ONSITE NATIVE MATERIAL CAN BE USED FOR STRUCTURAL BACKFILL IF APPROVED BY A GEOTECHNICAL ENGINEER AND SHALL BE SCREENED TO SIX INCH MINUS, INSTALLED IN TWELVE INCH LIFTS AND COMPACTED TO 95 PERCENT WITH OPTIMUM MOISTURE CONTENT.
10. STRIPPED TOPSOIL GENERATED ONSITE TO BE STOCKPILED AND USED FOR RE-VEGETATION.

6. PAVEMENT NOTES:

1. ASPHALT PRIME COAT NOT REQUIRED UNLESS INDICATED ON DRAWINGS. PREPARED BASE COURSES SHALL BE PRIMED AT CONTRACTOR'S EXPENSE IF THE SURFACE HAS DETERIORATED DUE TO TRAFFIC, WEATHER OR TIME LAPSE BETWEEN SURFACE PREPARATION AND PLACEMENT OF BITUMINOUS MATERIALS, SUCH THAT, IN THE OPINION OF THE ENGINEER, USE OF PRIME COAT IS REQUIRED. APPLICATION RATE SHALL BE 0.3 GALS/SQ.YD.
2. BEFORE PLACEMENT OF THE TACK COAT, THE CONTRACTOR SHALL CLEAN THE PRESENT ROADWAY AS DIRECTED. CLEANING WILL NOT BE PAID FOR SEPARATELY, BUT IS CONSIDERED INCIDENTAL TO THE WORK.
3. A TACK COAT OF EMULSIFIED ASPHALT (SLOW SETTING) IS TO BE APPLIED BETWEEN PAVEMENT COURSES TO IMPROVE THE BOND. DILUTED EMULSIFIED ASPHALT FOR TACK COAT SHALL CONSIST OF 1 PART EMULSIFIED ASPHALT AND 1 PART WATER. RATES OF APPLICATION SHALL BE DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION. APPROXIMATE RATE SHALL BE 0.1 GAL./SQ.YD.
4. WHEN CONNECTING TO EXISTING PAVEMENT, ASPHALT MILLING IS REQUIRED TO A DEPTH OF TWO INCHES AND 24 INCHES WIDE. ADDITIONAL MILLING AND PAVEMENT RESTORATION IS INCIDENTAL TO PROJECT COST.
5. ANY LAYER OF BITUMINOUS PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE THE SUCCEEDING LAYER IS PLACED.
6. WHERE NEW PAVEMENT IS TO ABUT EXISTING PAVEMENT, THE EXISTING PAVEMENT SHALL BE REMOVED TO A NEAT VERTICAL LINE BY SAW CUTTING PRIOR TO PAVING OPERATIONS. VERTICAL EDGES SHALL NOT REMAIN OVERNIGHT.

7. TRAFFIC CONTROL NOTES:

1. A TRAFFIC CONTROL PLAN SHALL BE PROVIDED BY A CERTIFIED TRAFFIC CONTROL SUPERVISOR AND IMPLEMENTED BY A CERTIFIED TRAFFIC CONTROL TEAM.
2. MAINTAIN ACCESS TO RESIDENCES AT ALL TIMES. TEMPORARY CLOSURE ALLOWED FOR UTILITY WORK WITH PRIOR COORDINATION AND APPROVAL BY THE OWNER. PROVIDE FOR EMERGENCY ACCESS CONTINUOUSLY.
3. PROVIDE SAFETY CONES, FLAG PERSONS, VERTICAL PANELS WITH BEACONS, SIGNS AND BARRICADES AS NECESSARY TO PROTECT PUBLIC AND WORK SITE.
4. PROVIDE SIGNAGE AS REQUIRED BY OWNER AND LOCAL GOVERNMENT WITH JURISDICTION OVER ADJACENT ROADS.
5. PROVIDE DIRECTIONAL SIGNAGE INCLUDING BUT NOT LIMITED TO ONE-WAY SIGNS AND/OR TRAFFIC SIGNALS DURING CONSTRUCTION. JERSEY BARRIERS MAY BE REQUIRED DURING CONSTRUCTION.
6. ANY SIGNAGE REMOVED DURING CONSTRUCTION SHALL BE REPLACED OR RETURNED TO ITS ORIGINAL LOCATION.
7. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
8. THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN TEMPORARY TRAFFIC CONTROL DEVICES NECESSARY THROUGHOUT THE DURATION OF CONSTRUCTION.
9. CONTRACTOR SHALL PROVIDE A SMOOTH TEMPORARY DRIVING SURFACE UNTIL FINAL PAVING IS COMPLETE. ALL TEMPORARY DRIVING SURFACES WILL NOT BE PAID FOR SEPARATELY, BUT ARE CONSIDERED INCIDENTAL TO THE WORK.
10. THE CONTRACTOR SHALL CLOSELY MONITOR ACCESS FOR HEAVY CONSTRUCTION EQUIPMENT THROUGH THE PROJECT AND USE TRAFFIC CONTROL AS NEEDED TO ACCOMMODATE CONSTRUCTION ACTIVITY ENTERING AND LEAVING THE PROJECT SITE.

8. LANDSCAPE NOTES:

1. ALL AREAS DISTURBED BY ROAD OR UTILITY CONSTRUCTION SHALL BE FINE GRADED AND RAKED TO REMOVE ALL ROCKS OVER THREE INCHES IN DIAMETER. PLACE TOPSOIL TO A DEPTH OF SIX INCHES ON ALL DISTURBED AREAS.
2. PRIOR TO TOPSOIL PLACEMENT, ALL CUT OR FILL SLOPES WILL BE CONTOURED TO BLEND WITH ADJACENT TERRAIN. CONTRACTOR WILL USE VARIOUS SLOPE MOLDING TECHNIQUES TO ENHANCE THE AESTHETIC QUALITY OF THE SLOPE, WHILE MAXIMIZING THE REVEGETATION POTENTIAL. ALL CUT AND FILL SLOPES SHALL BE ROUNDED AT THE TOE TO BLEND WITH THE EXISTING TERRAIN. ADDITIONALLY, WHERE SOILS AND STEEPNESS OF SLOPES PERMIT, TERRACES WILL BE CONSTRUCTED TO AID THE REVEGETATION PROCESS.
3. THE CONTRACTOR SHALL NOT REMOVE AND SHALL PROTECT FROM DAMAGE ALL TREES, BUSHES, AND EXISTING IMPROVEMENTS INSIDE AND OUTSIDE THE LIMITS OF WORK. SPECIFIC PROVISIONS ARE SHOWN ON THE PLANS.
4. THE CONTRACTOR SHALL RESTORE ALL DISTURBED LANDSCAPE, HARDSCAPE, AND SNOWMELTED AREAS IN-KIND.
5. SPECIFIC HIGHLY VEGETATED AREAS AND AREAS WITH TREES IN PROXIMITY TO THE WORK ARE CALLED OUT ON THE PLANS, BUT MAY NOT INCLUDE ALL SUCH AREAS. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION CONSIDERATIONS IN HIGHLY VEGETATED AREAS. ALL DAMAGED OR REMOVED VEGETATION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

9. EROSION CONTROL NOTES:

1. THE ULTIMATE RECEIVING WATERS ARE THE ONSITE IRRIGATION POND.
2. TOPSOIL WILL BE STRIPPED AND STOCKPILED WITH REINFORCED FILTER LOGS SURROUNDING STOCKPILE AND THEN SEEDED AND STRAWED FOR STABILIZATION. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF DIRT FROM VEHICLES LEAVING THE SITE PER EAGLE COUNTY CODE.
3. EROSION AND SEDIMENT CONTROLS ARE TO BE INSPECTED EVERY FOURTEEN CALENDAR DAYS OR AFTER EVERY STORM EVENT THAT EQUALS OR EXCEEDS A HALF INCH OF PRECIPITATION.
4. CONTRACTOR IS RESPONSIBLE FOR CHECKING THAT ALL EROSION CONTROL BMPS ARE FREE OF MUD, DIRT, AND DEBRIS. ALL STRUCTURES ARE TO BE CLEANED ONCE DEPOSITED SEDIMENT REACHES ONE THIRD THE HEIGHT OF THE STRUCTURE.
5. ACTUAL LOCATIONS OF ALL EROSION AND SEDIMENT CONTROL MEASURES CAN BE FIELD MODIFIED IF NECESSARY BY ENGINEER OF RECORD AND APPROVED BY EAGLE.
6. EROSION CONTROL FENCING AND OTHER EROSION CONTROL MEASURES SHALL BE REMOVED AFTER ALL VEGETATION SEEDING IS AT LEAST 80 PERCENT GERMINATED.
7. CONSTRUCTION ROAD, STABILIZED ENTRANCE, STAGING AREA, AND PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE GRADING OR EXCAVATION ACTIVITIES.
8. STOCKPILED MATERIALS SHALL BE SURROUNDED WITH FILTER LOGS AND WEIGHED DOWN WITH SAND BAGS. LOGS MAY NOT CONTAIN STRAW. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF DIRT FROM VEHICLES LEAVING THE SITE.
9. ALL DRAINAGE STRUCTURES ARE TO BE PROTECTED BY EROSION CONTROL MEASURES.
10. IF ANY TEMPORARY FLOW LINE IS TO OCCUR DUE TO INTERMITTENT GRADE CHANGE, CHECK DAMS, SURFACE ROUGHENING AND ADDITIONAL BMPS SHOULD BE IMPLEMENTED.
11. RESURFACING OR REVEGETATION PRACTICES SHALL FOLLOW ALL LAND DISTURBING ACTIVITIES IMMEDIATELY UPON COMPLETION OF SAID ACTIVITIES. IF REVEGETATION PRACTICES ARE DELAYED, FINISHED TOPSOIL GRADE SHALL BE PROTECTED AGAINST WIND AND WATER EROSION WITH TEMPORARY EROSION CONTROL BMP'S IMMEDIATELY UPON COMPLETION.
12. WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS ORDERED. THE COST OF WATER SHALL BE INCIDENTAL TO OTHER BID ITEMS. SWEEPING AND CLEANING ADJACENT STREETS AND SIDEWALKS DURING CONSTRUCTION WILL BE PERFORMED AS NECESSARY AND AS DIRECTED BY THE ENGINEER. SWEEPING, AND DUST MITIGATION IS CONSIDERED TO BE INCIDENTAL TO THE WORK.

10. BENCHMARK AND SURVEY CONTROL

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION STAKING OF BOTH HORIZONTAL AND VERTICAL LAYOUT ON THIS PROJECT. COORDINATES ARE REFERENCED IN THE COORDINATE LIST SHOWN ON THESE PLANS. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER FOR INTERPRETATION AND INFORMATION IN STAKING OF THE PROJECT FOR CONSTRUCTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING ANY MONUMENTS, RANGE POINTS, TIES, BENCHMARKS, AND/OR SURVEY CONTROL POINTS WHICH MAY BE DISTRIBUTED OR DESTROYED BY CONSTRUCTION. SUCH POINTS SHALL BE REFERENCED AND REPLACED WITH APPROPRIATE MONUMENT BY A REGISTERED PROFESSIONAL LAND SURVEYOR AUTHORIZED TO PRACTICE LAND SURVEYING IN THE STATE OF COLORADO. PROPERTY CORNERS WHICH FALL WITHIN NEW CONCRETE FLATWORK SHALL BE DURABLE AND SET FLUSH. THIS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

ROARING FORK ENGINEERING
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CHECKED BY: DCS
DRAWN BY: ADW

#	DESCRIPTION	DATE	DRAWN BY

JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

NOTES

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CONTACTS

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GAS DEPARTMENT	DONALD GREEN BLACK HILLS GAS CO. 96 CO. RD. 160 GLENWOOD SPRINGS, CO 81601 970.255.7522
ELECTRIC DEPARTMENT	LIBBY COWLING HOLY CROSS ENERGY 3799 CO-82 GLENWOOD SPRINGS, CO 81601 970.945.5491
FIRE DEPARTMENT	BASALT AND RURAL FIRE PROTECTION DISTRICT 1089 JW DRIVE CARBONDALE, CO 81623 970.704.0625
COMCAST	MIKE JOHNSON 201 ASPEN AIRPORT BUSINESS CENTER, ASPEN, CO 81611 888.824.4010
CENTURY LINK	JASON SHARPE GLENWOOD SPRINGS, CO 81601 844.223.7997
LAND WEST	JON FREDERICKS 345 COLORADO AVE. #106 CARBONDALE, CO 81623 970.379.4155

LEGEND

	EXISTING	PROPOSED
EASEMENT LINE		
EDGE OF PAVEMENT		
EDGE OF GRAVEL		
EDGE OF WATER		
FENCE LINE	X	X
FIBER OPTIC LINE	XFO	FO
FLOW LINE		
FORCE MAIN	FM	FM
GAS LINE	XGAS	G
MAJOR CONTOUR	9105	9105
MINOR CONTOUR	9104	9104
PROPERTY LINE		
RIGHT-OF-WAY	R.O.W.	R.O.W.
SANITARY SEWER MAIN (8")	XSA	8"S
SANITARY SEWER SERVICE	XSA	SS
STORM DRAIN LINE/CULVERT/SLEEVE		
TBC/SIDEWALK/CONCRETE		
UNDERGROUND PRIMARY ELECTRIC	XEL	E
UNDERGROUND SECONDARY ELECTRIC	XEL	E2
UNDERGROUND TELEPHONE LINE	XUT	T
CABLE TV & TELE. LINE	XTV	
WATER LINE (SIZE)	XWL	8"W
WATER SERVICE LINE	WS	WS
IRRIGATION LINE	IRR	IRR
RAW WATERLINE	RAW	RAW
ROAD CENTER LINE		
LIMITS OF DISTURBED AREA	LDA	LDA

ABBREVIATIONS

A.B.C	AGGREGATE BASE COURSE
A.P.	ANGLE POINT
ASPH.	ASPHALT
BP	BEGINNING POINT
BOW	BOTTOM OF WALL
C&G	CURB AND GUTTER
C.W.	CURB AND GUTTER
C.L.	CENTER LINE
CMP	CORRUGATED METAL PIPE
CONC.	CONCRETE
C.R.	CURB RAMP
DMH	DRAINAGE MANHOLE
D.W.	DRIVEWAY
EB	EAST BOUND
E.G.	EXISTING GRADE
E.O.G.	EDGE OF GRAVEL
EL.	ELEVATION
ELEC.	ELECTRIC
EP	END POINT
EOA	EDGE OF ASPHALT
EOT	EDGE OF TRAIL
EX.	EXISTING
F.G.	FINISHED GRADE
F.L.	FLOWLINE
FT.	FEET
G.B.	GRADE BREAK
GR.	GUARDRAIL
GRAV.	GRAVEL
H.C.P.	HORIZONTAL CONTROL LINE
HDPE	HIGH-DENSITY POLYETHYLENE
H.P.	HIGH POINT
H.B.P.	HOT BITUMINOUS PAVEMENT
H.M.A.	HOT MIX ASPHALT
IN.	INCH
INV.	INVERT
L	LEFT
L.D.A.	LIMITS OF DISTURBED AREA
L.F.	LINEAL FEET
L.P.	LOW POINT
L.S.	LANDSCAPED AREA
MAX.	MAXIMUM
MH.	MANHOLE
MIN.	MINIMUM
MSE	MECHANICALLY STABILIZED EARTH
NAT.	NATIVE GRASS AREA
O/S	OFFSET
P.C.	POINT OF CURVATURE
P.C.C.	POINT OF CONSTANT CURVATURE
P.G.L.	PROFILE GRADE LINE
P.R.C.	POINT OF RETURNING CURVATURE
PNT.	POINT
P.T.	POINT OF TANGENCY
P.V.C.	POINT OF VERTICAL CURVATURE
P.V.I.	POINT OF VERTICAL INFLECTION
PVMT.	PAVEMENT
R/R	REMOVE & REPLACE
R	RADIUS, RIGHT
RCP	REINFORCED CONCRETE PIPE
REF.	REFERENCE
R.O.W.	RIGHT-OF-WAY
R.P.	RADIUS POINT
SEC.	SECTION
S.F.	SQUARE FEET
SHT.	SHEET
S.M.H.	SEWER MANHOLE
SH.	STATION
S.W.	SIDEWALK
S.Y.	SQUARE YARD
T.B.C.	TOP BACK CURB
T.B.	TOP BANK
TOC	TOP OF CONDUIT
TOP	TOP OF PIPE
TOW	TOP OF WALL
TYP.	TYPICAL
WB	WEST BOUND
V.P.	VALLEY PAN

SYMBOL LEGEND

CABLE BOX
CABLE RISER
CURB STOP
CURB INLET
DECIDUOUS TREE
ELECTRIC MANHOLE/ METER
ELECTRIC TRANSFORMER
ELECTRIC SWITCH GEAR
ELECTRIC VAULT
EVERGREEN TREE
FIBER OPTIC RISER
FIRE HYDRANT
GAS METER
GATE VALVE
GUY ANCHOR
MAILBOX
MONUMENT MARKER
POWER POLE
SEWER MANHOLE
SOIL BORING LOCATION
SIGN
SPOT ELEVATION
STORM MANHOLE
STREETLIGHT
TELEPHONE MANHOLE

HATCH LEGEND

ASPHALT DEMO
CURB AND GUTTER DEMO
ASPHALT MILL
COLORED CONCRETE DEMO
PROPOSED CONCRETE
PROPOSED LANDSCAPING
CURB RAMP WARNING STRIP
PROPOSED ASPHALT
DAVIS COLORS COCOA 6130 COLORED CONC.

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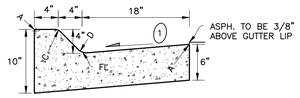
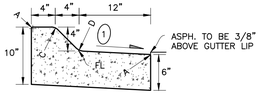
LEGEND

C2

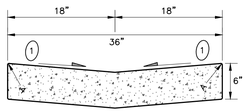
P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\S-COVER.DWG Plotted: 11/24/2020 3:15 PM By: Drew Wharton



CURB AND GUTTER TYPE 2
(SECTION I.5M)
(4" MOUNTABLE – 18" GUTTER)



CURB AND GUTTER TYPE 2
(SECTION IM)
(4" MOUNTABLE – 12" GUTTER)



GUTTER TYPE 2

GENERAL NOITES

1. ALL SUBBASE IS TO BE SCARIFIED AND COMPACTED PRIOR TO PLACEMENT OF CLASS 6. PROOF ROLL TEST ARE TO BE PERFORMED FOR EACH TRAVEL LANE & PARKING AREAS PRIOR TO PLACEMENT OF CLASS 6 ABC.

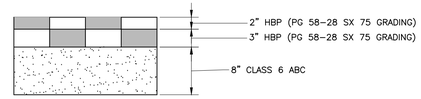
2. CONCRETE SHALL BE CLASS D.

3. A MIN. OF 4" CLASS 6 ABC SHALL BE PLACED UNDER CURB & GUTTER SECTIONS.

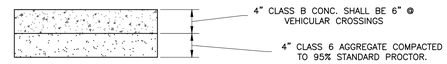
4. DUMMY JOINTS FOR GUTTER TYPE 2 & CURB & GUTTER ARE TO BE SPACED AT 10 FT. ACCORDING TO CDOT SPEC. 609

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

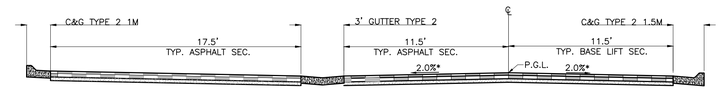
(1) GUTTER CROSS SLOPES SHALL BE 1/2 IN./FT. WHEN DRAINING AWAY FROM CURB AND 1IN./FT. WHEN DRAINING TOWARD CURB.



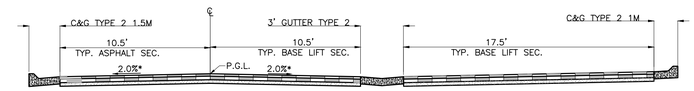
TYP ASPH. PAVEMENT SECTION
N.T.S.



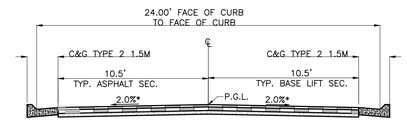
TYPICAL CONC. SIDEWALK SECTION
N.T.S.



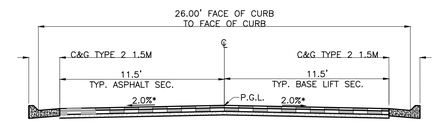
23' ROAD W/ PARKING TYPICAL SECTION
SCALE: 1" = 5'



21' ROAD W/ PARKING TYPICAL SECTION
SCALE: 1" = 5'



21' ROAD TYPICAL SECTION
SCALE: 1" = 5'



23' ROAD TYPICAL SECTION
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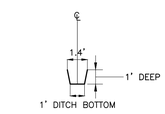
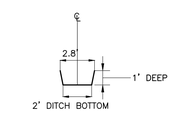
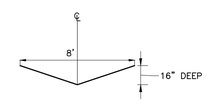


1' DITCH TYPICAL SECTION
SCALE: 1" = 5'



2' DITCH TYPICAL SECTION
SCALE: 1" = 5'



V DITCH TYPICAL SECTION
SCALE: 1" = 5'

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO, 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

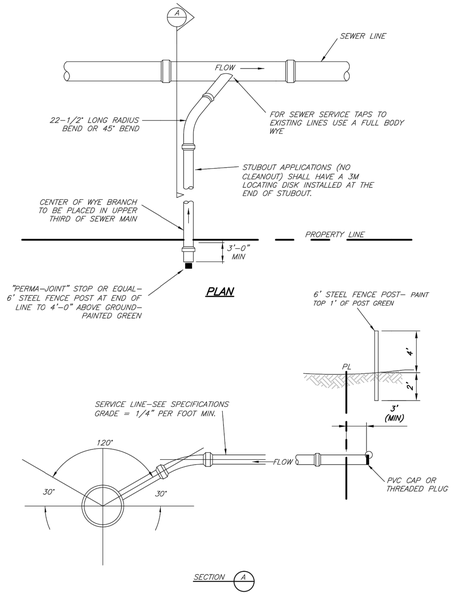
#	DESCRIPTION	DATE	DRAWN BY

JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

PROJECT DETAILS

C3

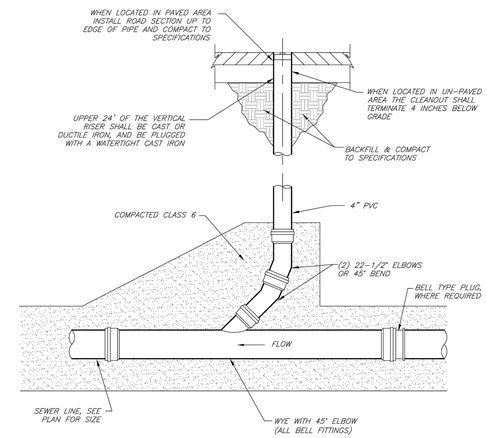


SEWER SERVICE CONNECTION

NOTES:
1. MINIMUM SEPARATION BETWEEN TAPS SHALL BE 18"
2. BACKFILL UNDER WYE TO BE CLASS 6 AGGREGATE BASE COURSE, 95% COMPACTION DENSITY PER ASTM D-698.

File: J:\1881\01501\C\004 - RULES AND REGULATIONS\DETAILS\SDR-SEWERSERVICEWYE.DP

Prepared By: SGM | MVMD STANDARD DETAILS | DETAIL "S06" | Date: 8/16/13 | By: NKONTOUR



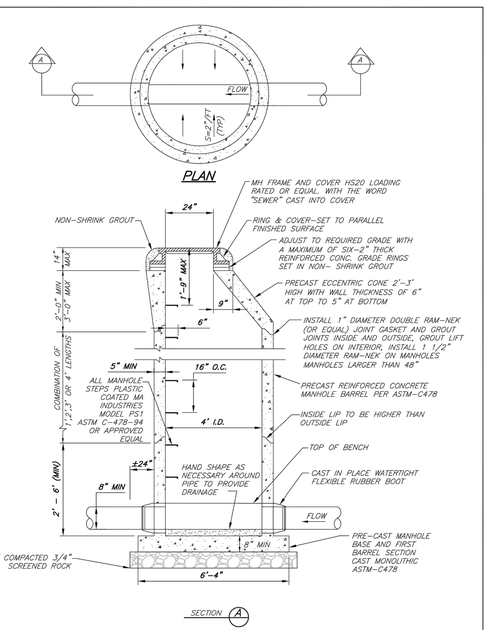
SEWER CLEAN-OUT

NOTES:
1. FOR SKIWAY APPLICATIONS WHERE MANHOLE AND RINGS ARE USED TO COVER CLEANOUT, 3M LOCATING DISK SHALL ALSO BE INSTALLED 1" TO 2" BELOW MANHOLE.

2. MUST BE TRAFFIC RATED IF INSTALLED IN TRAFFIC AREAS.

File: J:\1881\01501\C\004 - RULES AND REGULATIONS\DETAILS\SDR-SEWERCO-DP

Prepared By: SGM | MVMD STANDARD DETAILS | DETAIL "S08" | Date: 8/16/13 | By: NKONTOUR



STANDARD MANHOLE

GENERAL NOTE:
1. ALL CONCRETE WORK SHALL COMPLY WITH LATEST CI-318 SPECIFICATIONS
2. USE 5' I.D. WHEN PIPE SIZE 15"- 24".

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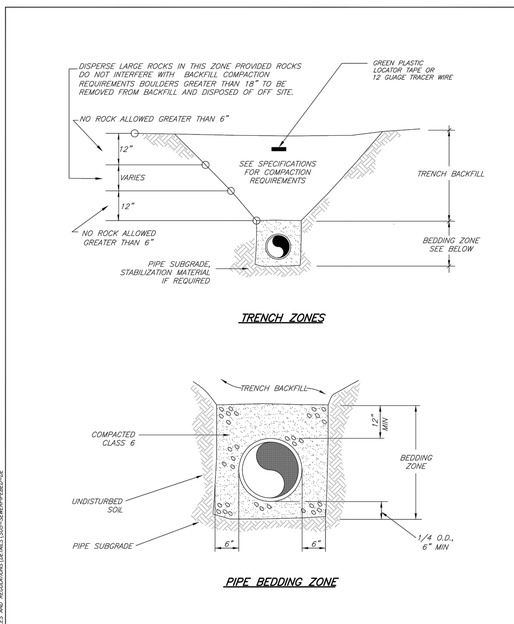
Prepared By: SGM | MVMD STANDARD DETAILS | DETAIL "S01" | Date: 8/16/13 | By: NKONTOUR



TRENCH ZONES

PIPE BEDDING ZONE

SEWER PIPE BEDDING

File: J:\1881\01501\C\004 - RULES AND REGULATIONS\DETAILS\SDR-SEWERPIPEBED-DP

Prepared By: SGM | MVMD STANDARD DETAILS | DETAIL "S05" | Date: 8/16/13 | By: NKONTOUR

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CARBONDALE COLORADO, 81623
PH: (970)340-4130 F:(866)876-5873

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#	DESCRIPTION	DATE	DRAWN BY

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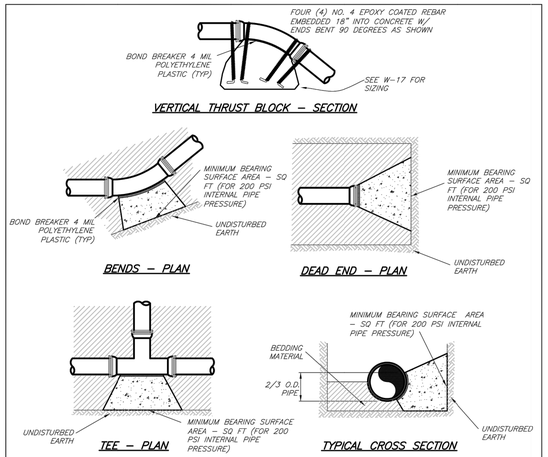
THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

MCMD SEWER DETAILS

C4



MINIMUM BEARING SURFACE (SF) FOR 200 PSI AND LESS

SIZE OF PIPE	BENDS 11-1/4°	22-1/2°	45°	90°	TEE OR DEAD END
6"	1.3	2.5	5.0	9.0	6.4
8"	1.3	2.5	5.0	9.0	6.4
10"	1.9	3.8	7.4	13.7	9.7
12"	2.7	5.4	10.5	19.3	13.7
16"	4.7	9.3	9.1	33.6	23.8
20"	7.2	14.3	28.0	51.8	36.6

MINIMUM BEARING SURFACE (SF) FOR 250 PSI AND LESS

SIZE OF PIPE	BENDS 11-1/4°	22-1/2°	45°	90°	TEE OR DEAD END
6"	1.6	3.1	6.2	11.4	8.0
8"	1.6	3.1	6.2	11.4	8.0
10"	2.4	4.7	9.25	17.1	12.0
12"	3.4	6.7	13.1	24.2	17.1
16"	5.8	11.6	22.7	42.0	29.7
20"	9.0	17.9	35.0	64.8	45.8

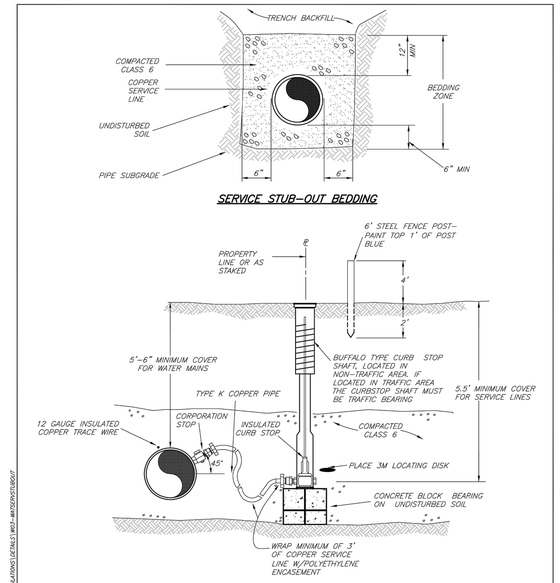
CONCRETE THRUST BLOCKS

NOTES:
1. FOR 200 PSI INTERNAL PRESSURE, INCLUDING WATER HAMMER
2. MEGALUG RESTRAINTS MAY BE USED IN CONJUNCTION WITH THRUST BLOCKS WITH PRIOR APPROVAL FROM THE DISTRICT
3. MINIMUM AREA REQUIRED WILL BE THAT OF AN 8-INCH MAIN
4. ALL THRUST BLOCKS SHALL BE FORMED. THE MINIMUM THICKNESS FORM MATERIAL SHALL BE 3/8" PLYWOOD
5. BEARING AREA BASED ON SOIL BEARING PRESSURE OF 2000 LB/SF
6. CONCRETE SHALL HAVE A 28 DAY COMPRESSION STRENGTH OF 3000 PSI

DETAIL "W02"

Prepared By: SGM — MVMD STANDARD DETAILS — Date: 8/16/13 — By: NKONTOUR

File: J:\1881\015071\C\D04 - RULES AND REGULATIONS\DETAILS\W02-CONCTHRUSTBLK



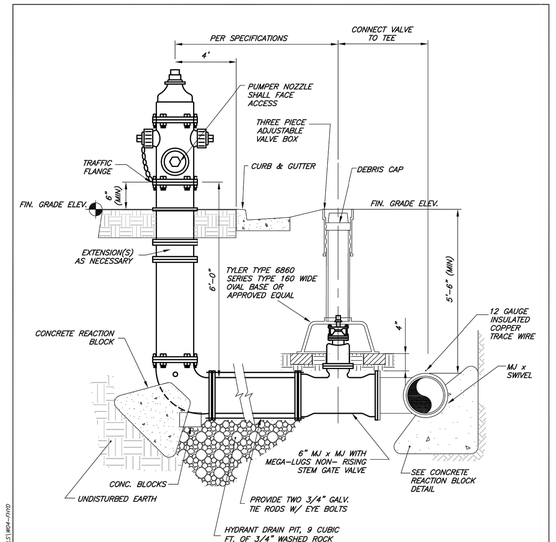
WATER SERVICE STUB OUT

GENERAL NOTES
1. CURB STOP TO BE LOCATED WITHIN THE PROPERTY LINE OR AT THE EDGE OF EASEMENT–WHICHEVER IS CLOSER TO THE MAIN.
2. CURBSTOP – ALL FITTINGS SHALL BE COMPRESSION FITTINGS.
3. CURBSTOP – MANUFACTURER REFERENCE MUELLER B25204 OR APPROVED EQUAL.
4. CURB BOX AND LID MUST BE TRAFFIC RATED NOT THE CURBSTOP SHAFT. SHAFT MUST NOT BE IN CONTACT WITH CURB BOX.

DETAIL "W03"

Prepared By: SGM — MVMD STANDARD DETAILS — Date: 8/16/13 — By: NKONTOUR

File: J:\1881\015071\C\D04 - RULES AND REGULATIONS\DETAILS\W03-WATERSERVSTUBOUT



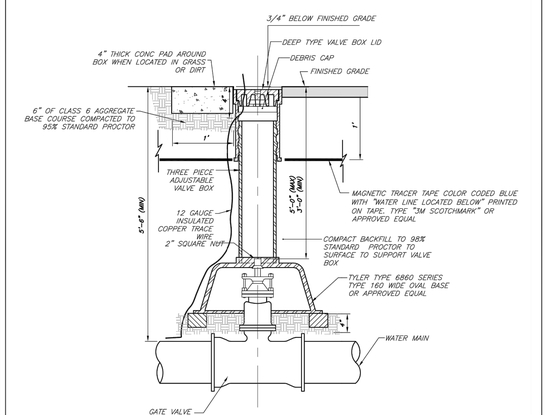
FIRE HYDRANT ASSEMBLY INSTALLATION DETAIL

NOTES:
1) ALL JOINTS FROM MAIN TO HYDRANT SHALL BE RESTRAINED MECHANICAL JOINTS.
2) HYDRANT, VALVE AND FITTINGS TO BE 250 P.S.I. RATED.
3) POLYETHYLENE WRAP SHALL COVER D.I.P. ASSEMBLY FROM HYDRANT BASE TO WATER MAIN. DO NOT BLOCK WEEP HOLE.
4) ALL HYDRANT LEAD PIPING TO BE 6" CLASS 250 D.I.P. UNLESS OTHERWISE NOTED
5) CENTERLINE OF HYDRANT TO BE 4'-0" FROM BACK OF CURB UNLESS OTHERWISE NOTED.
6) INSTALL VALVE STEM EXTENSION AS NEEDED TO INSURE THE DISTANCE FROM VALVE BOX LID TO TOP OF NUT SHALL NOT EXCEED 5'-0"

DETAIL "W04"

Prepared By: SGM — MVMD STANDARD DETAILS — Date: 8/16/13 — By: NKONTOUR

File: J:\1881\015071\C\D04 - RULES AND REGULATIONS\DETAILS\W04-HYDRANT



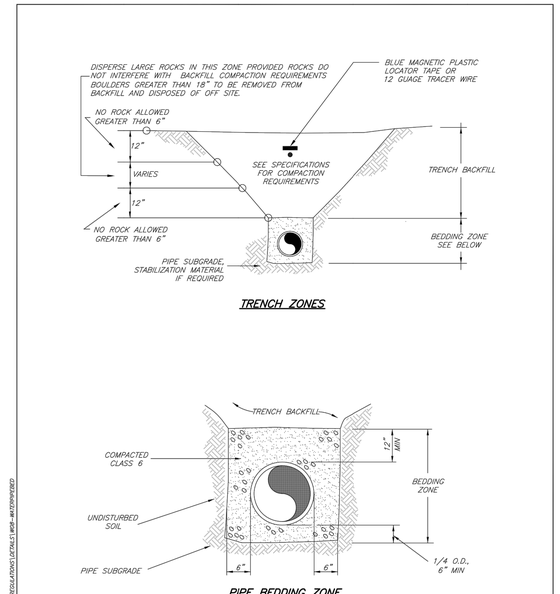
TYPICAL GATE VALVE

NOTES:
1. ALL VALVES ADJACENT TO FITTING SHALL BE MJ. IN LINE VALVES TO BE MJ x MJ. DESIGN LOCATIONS OF VALVES ARE OUTSIDE OF CONCRETE, CURB/GUTTER AND VALLEY PANS.
2. INSTALLED VALVES WHICH CONFLICT WITH CONCRETE AREAS SHALL BE RELOCATED AT THE CONTRACTOR'S EXPENSE.
3. THIS DETAIL DOES NOT APPLY TO HYDRANT ASSEMBLY VALVES.
4. INSTALL VALVE STEM EXTENSION AS NEEDED TO INSURE THE DISTANCE FROM VALVE BOX LID TO TOP OF NUT SHALL NOT EXCEED 5'-0"
5. THE TRACER WIRE SHALL BE EXTENDED TO THE SURFACE AT ALL VALVES AND FIRE HYDRANTS. THE WIRE SHALL BE EXTENDED TOWARDS THE GROUND ON THE OUTSIDE OF THE VALVE BOX UNTIL THE WIRE IS WITHIN FOUR INCHES (4") OF THE TOP OF THE LID, AT WHICH POINT IT SHALL BE BROUGHT BACK INSIDE THE BOX AND SECURELY FASTENED. SUFFICIENT SLACK IN THE OUTSIDE OF THE WIRE SHALL BE PROVIDED TO COMPENSATE FOR ANY FUTURE ADJUSTMENT TO THE VALVE BOX.

DETAIL "W05"

Prepared By: SGM — MVMD STANDARD DETAILS — Date: 8/16/13 — By: NKONTOUR

File: J:\1881\015071\C\D04 - RULES AND REGULATIONS\DETAILS\W05-GATEVALVE



WATER PIPE BEDDING

DETAIL "W08"

Prepared By: SGM — MVMD STANDARD DETAILS — Date: 8/16/13 — By: NKONTOUR

File: J:\1881\015071\C\D04 - RULES AND REGULATIONS\DETAILS\W08-WATERPIPEBED

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO, 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

#	DESCRIPTION	DRAWN BY	DATE

JOB #: 2020-08

NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

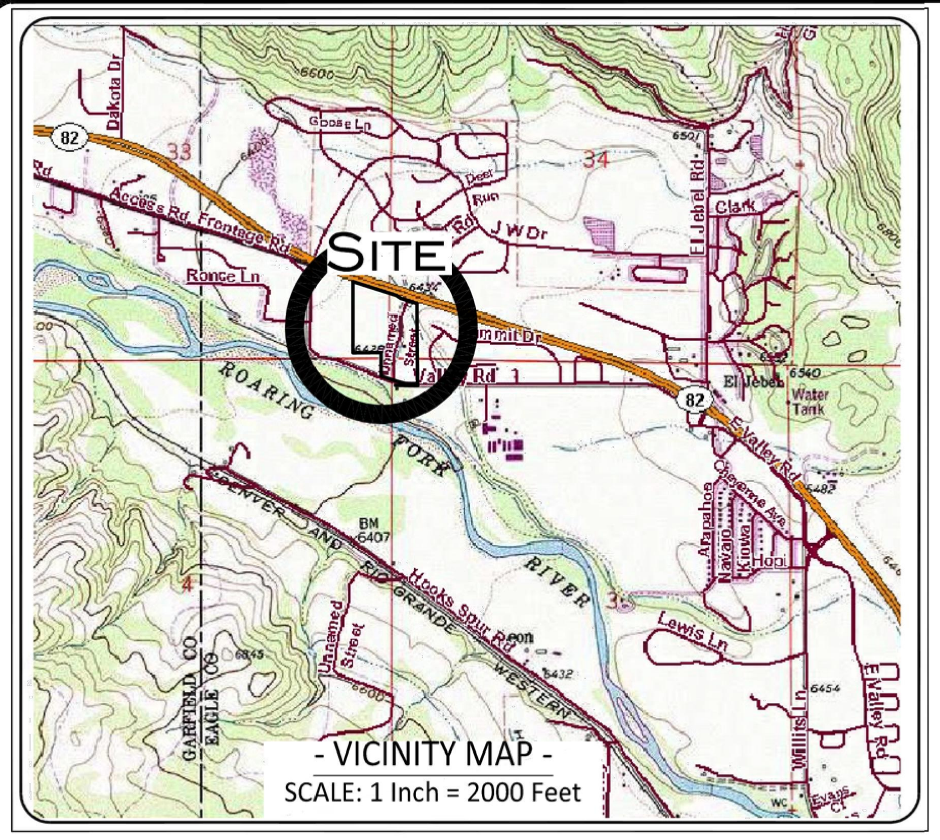
MVMD WATER DETAILS

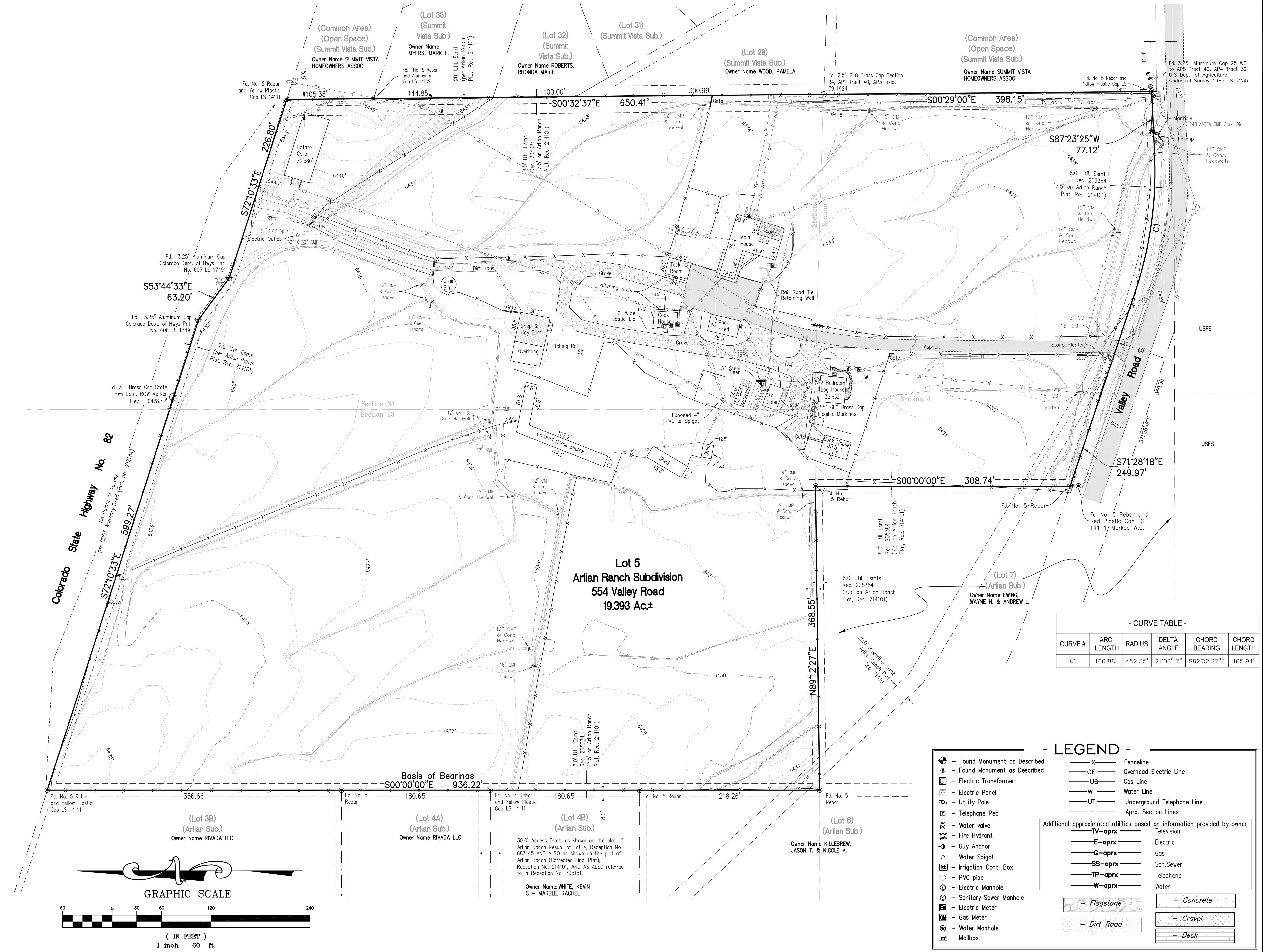
C5

ALTA/NSPS Land Title Survey

Lot 5, Arlian Ranch Subdivision

Eagle County, Colorado





- CURVE TABLE -					
CURVE #	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	166.88'	452.35'	21°08'17"	S82°02'27"E	165.94'

PROPERTY DESCRIPTION:
Lot 5, Arlian Ranch, according to the Plat thereof recorded September 10, 1980 in Book 309 at Page 5 as Reception No. 205385 and the Arlian Ranch (Corrected Final Plat) thereof recorded January 30, 1981 in Book 317 at Page 729 as Reception No. 214101.

COUNTY OF EAGLE, STATE OF COLORADO.

NOTES:

1. BASIS OF BEARINGS: BEARINGS SHOWN HEREON ARE BASED ON A BEARING OF S00°00'00"E, BETWEEN A NO. 5 REBAR AND YELLOW PLASTIC CAP, LS # 14111 FOUND AT THE NORTHWEST CORNER AND A NO. 5 REBAR FOUND AT THE SOUTHWEST CORNER OF LOT 5, AS SHOWN HEREON.
2. ELEVATIONS AND 2 FOOT CONTOUR INTERVALS SHOWN HEREON ARE BASED ON AN ACTUAL GROUND SURVEY, RELATIVE TO AN ELEVATION OF 6428.42' AT A 3" BRASS CAP STATE HWY. DEPT. R-O-W MARKER AT THE NORTHERLY PROPERTY LINE, AS SHOWN HEREON. ELEVATIONS ARE NAVD88 BASED ON REAL TIME VIRTUAL REFERENCE NETWORK AND GEOID MODEL GEOID12A.
3. THIS MAP HAS BEEN PREPARED PURSUANT TO CLIENT REQUEST FOR AN ALTA/NSPS LAND TITLE SURVEY.
4. DATE OF FIELD SURVEY : FEBRUARY, 2015, AND JANUARY, 2018.
5. UNITS OF LINEAR MEASUREMENTS ARE DISPLAYED IN US SURVEY FEET.
6. 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.
7. SUBSURFACE UTILITIES SHOWN HEREON ARE BASED ON UTILITY 'LOCATES' MARKED ON THE GROUND AT THE TIME OF THE FEBRUARY, 2015 FIELD SURVEY, AND SKETCHES PROVIDED BY PROPERTY OWNER. 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. 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.
8. FENCES SHOWN HEREON, IF ANY, HAVE BEEN SHOWN FOR GENERAL REFERENCE AND DO NOT NECESSARILY DEPICT LIMITS OF OWNERSHIP.
9. DUE TO CURRENT SNOW COVER ON THIS PROPERTY, IT IS POSSIBLE THAT SOME GROUND LEVEL FEATURES MAY NOT BE SHOWN, OR THE LOCATIONS SHOWN HEREON MAY BE APPROXIMATE (I.E. EDGE OF DRIVES, WALKS, WATER VALVES, ETC.).
10. FLOOD HAZARD ZONE INFORMATION : BASED SOLELY UPON THE FLOOD INSURANCE RATE MAP (COMMUNITY PANEL NO. 08037C0738D, DATED DECEMBER 4, 2007, PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, THE SUBJECT PROPERTY IS DESIGNATED AS BEING SITUATED IN ZONE X "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN".
11. THERE WAS NO OBSERVED EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS.
12. THERE WAS NO OBSERVED EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.
13. THERE WAS NO OBSERVED EVIDENCE OF ANY WETLANDS DELINEATION MARKERS.
14. 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 COMMONWEALTH LAND TITLE INSURANCE COMPANY, COMMITMENT NO. 454-H0418795-060-TPI, AMENDMENT NO. 3, HAVING AN EFFECTIVE DATE OF APRIL 29, 2016.

    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 1-10, 14, 16) IF THEY ARE STANDARD TITLE COMMITMENT EXCEPTIONS, OR IF NOT SUFFICIENTLY DESCRIBED IN RECORDED DOCUMENTS TO BE SHOWN GRAPHICALLY, OR IF THEY ARE SITUATED ON ADJACENT PROPERTIES, OR IF THEY AFFECT THE PROPERTY IN GENERAL, ETC. IN REGARDS TO OTHER SUCH ITEMS:

ITEM 11. TERMS, CONDITIONS, RESTRICTIONS, PROVISIONS, NOTES AND EASEMENTS BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH ON THE PLAT(S) OF SAID SUBDIVISION SET FORTH BELOW:

RECORDING DATE: SEPTEMBER 10, 1980, RECORDING NO: BOOK 309 AT PAGE 5 AND CORRECTED PLAT RECORDED JANUARY 30, 1981 IN BOOK 317 AT PAGE 729, SUCH ITEMS ARE SHOWN HEREON.

ITEM 12. COVENANTS, CONDITIONS AND RESTRICTIONS BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, SOURCE OF INCOME, GENDER, GENDER IDENTITY, GENDER EXPRESSION, MEDICAL CONDITION OR GENETIC INFORMATION, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH IN THE DOCUMENT

RECORDING DATE: SEPTEMBER 10, 1980
RECORDING NO: BOOK 309 AT PAGE 4 AND AS AMENDED IN INSTRUMENT RECORDED JUNE 17, 1986 IN BOOK 443 AT PAGE 564 AND BOOK 443 AT PAGE 565, EASEMENTS DESCRIBED THEREIN HAVE BEEN SHOWN HEREON.

ITEM 13: TERMS, CONDITIONS, PROVISIONS, AGREEMENTS AND OBLIGATIONS CONTAINED IN THE AGREEMENT FOR EASEMENT AS SET FORTH BELOW:

RECORDING DATE: DECEMBER 13, 1989 RECORDING NO.: BOOK 519 AT PAGE 671, AFFECTS THE SUBJECT PARCEL, THE EXTENTS OF WHICH CANNOT BE GRAPHICALLY DEPICTED, BUT HAS BEEN INDICATED BY OWNER AS BEING SITUATED IN THE NORTH-SOUTH EASEMENT ALONG THE EASTERLY PROPERTY LINE.

ITEM 15: TERMS, CONDITIONS, PROVISIONS, AGREEMENTS AND OBLIGATIONS CONTAINED IN THE DRIVEWAY IMPROVEMENT AND MAINTENANCE SHARING AGREEMENT AS SET FORTH BELOW: RECORDING DATE: AUGUST 11, 1999, RECORDING NO.: RECEPTION NO. 705151 IS SITUATED ON LOTS 4A AND 4B OF ARLIAN RANCH AND MAY AFFECT THE SUBJECT PARCEL.

SURVEYOR'S CERTIFICATION:

TO: SOUTHERN PUMA, LLC, A DELAWARE LIMITED LIABILITY COMPANY, STEVEN W. RIESER REVOCABLE TRUST AND THE SANDRAS S. RIESER REVOCABLE TRUST, AND HERITAGE TITLE COMPANY, INC.

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 7(a), 8, 11,13, 14, 16, AND 18 OF TABLE A THEREOF, AS SUCH ITEMS MAY APPLY. THE FIELD WORK WAS COMPLETED ON JANUARY 17, 2018.

DATE OF PLAT OR MAP: JANUARY 18, 2018.

COLORADO LICENSED PROFESSIONAL LAND SURVEYOR — ROBERT E. BRANDEBERRY — 38388 — 1/18/18

ROBERT E. BRANDEBERRY
COLORADO PLS # 38388
FOR, AND ON BEHALF OF SGM
BOBB@SGM-INC.COM

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.

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

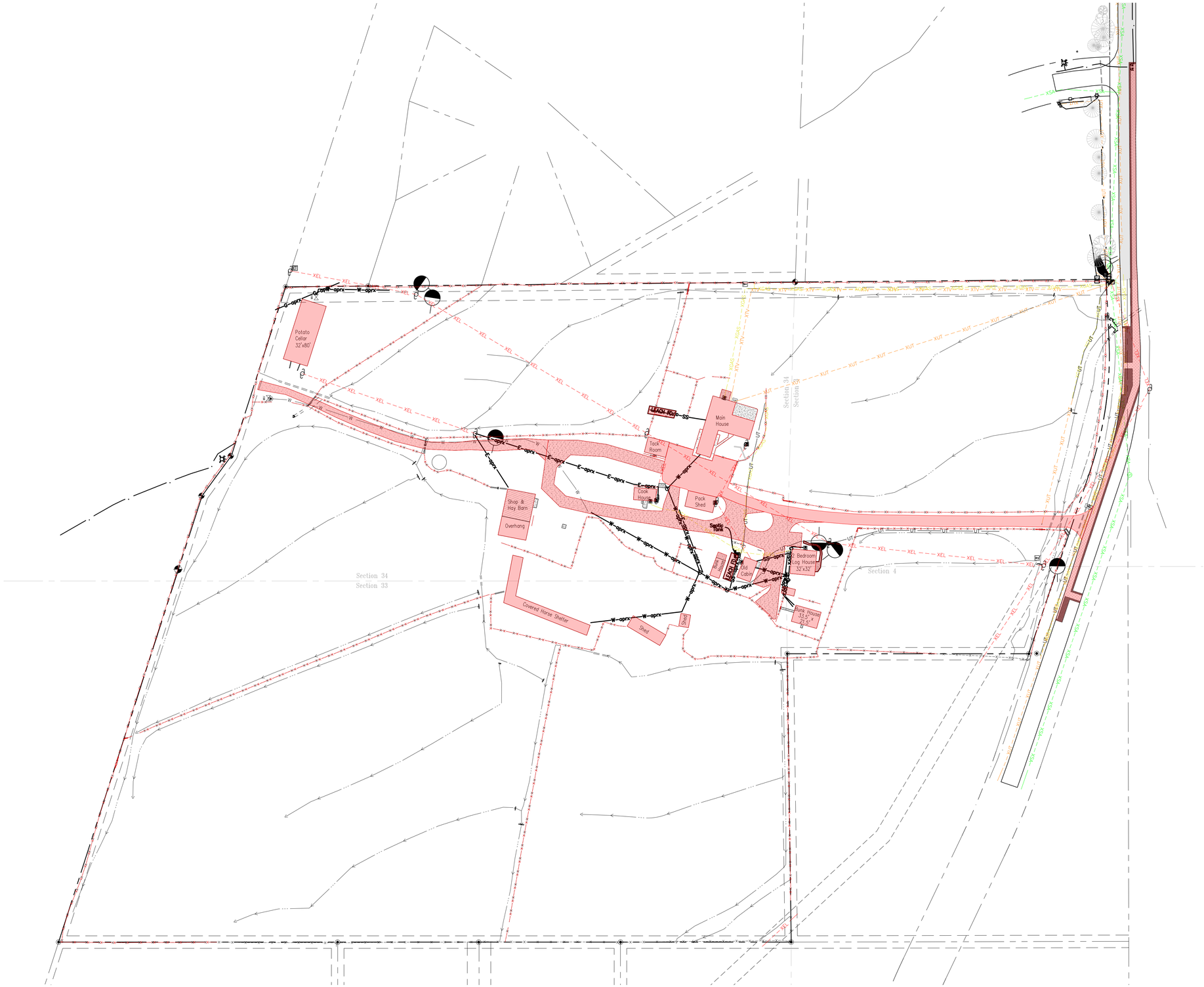
Lot 5, Arlian Ranch Subdivision
Eagle County, CO

#	Revision	Date	By
1			
2			
3			
4			
5			

ALTA/NSPS Land Title Survey

Job No.	2015-329.001
Drawn by:	dc
Date:	1-18-18
Approved:	bb
File:	ArlianRanch-ExCon

I:\2015\2015-329-The_Fields\001-The_Fields\H-Dwgs\Surv\Dwgs\1-BaseMaps\ArlianRanch-ExCon.dwg



Graphic Scale

0 30 60 120

In Feet: 1" = 60'

DEMOLITION LEGEND

- DEMO AREA
- ASPHALT MILL
- ASPHALT REMOVAL
- CONCRETE REMOVAL
- WALL REMOVAL
- SAWCUT
- FENCE TO BE REMOVED

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

#	DESCRIPTION	DRAWN BY	DATE

JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

DEMOLITION PLAN

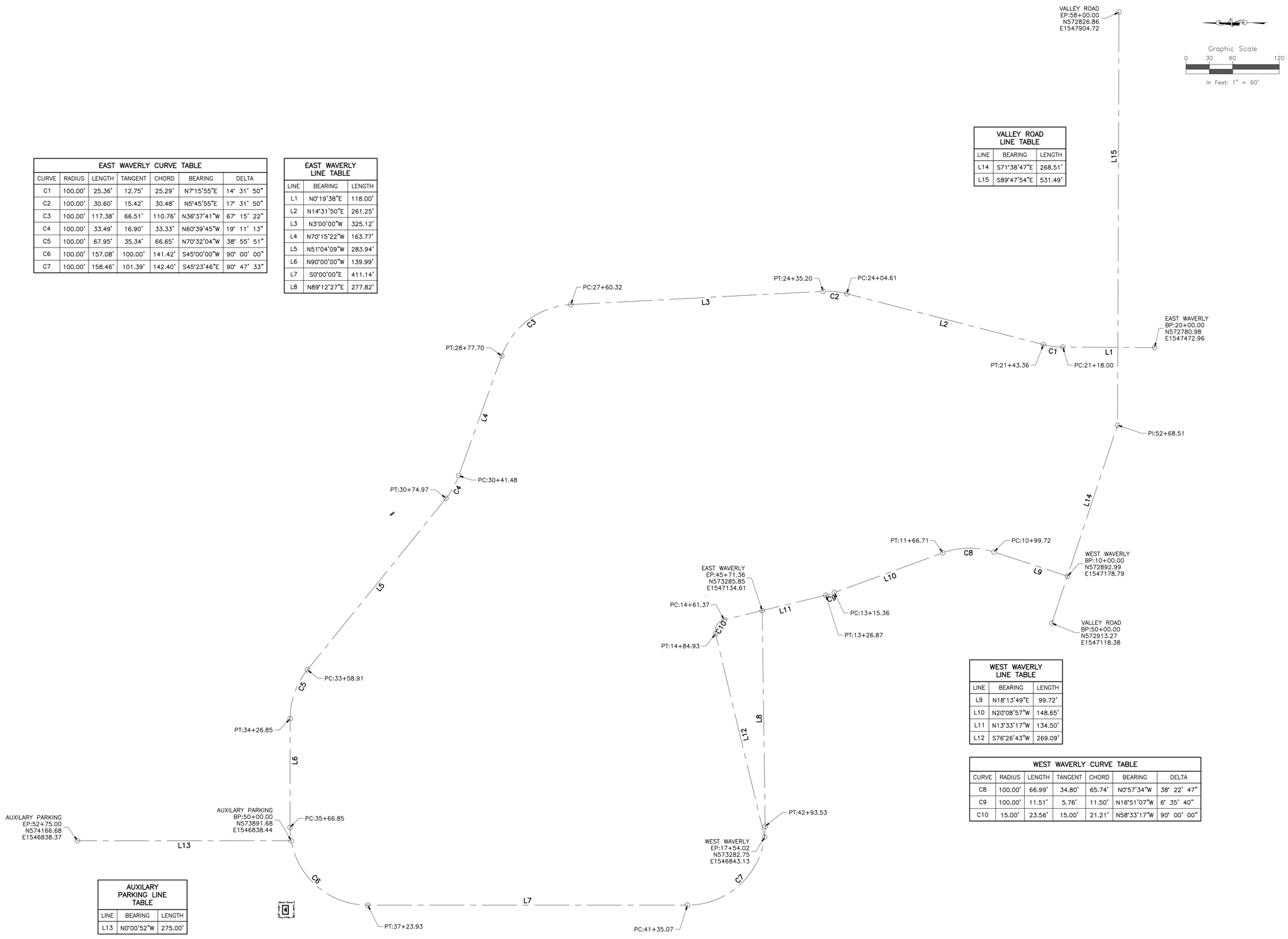
C7

P:\2020\08-THE FIELDS\04-DWG\SS-EXIST.DWG Plotted: 11/24/2020 3:22 PM By: Drew Wharton

EAST WAVERLY CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	100.00'	25.36'	12.75'	25.29'	N7°15'55"E	14° 31' 50"
C2	100.00'	30.60'	15.42'	30.48'	N5°45'55"E	17° 31' 50"
C3	100.00'	117.38'	66.51'	110.76'	N36°37'41"W	67° 15' 22"
C4	100.00'	33.49'	16.90'	33.33'	N60°39'45"W	19° 11' 13"
C5	100.00'	67.95'	35.34'	66.65'	N70°32'04"W	38° 55' 51"
C6	100.00'	157.08'	100.00'	141.42'	S45°00'00"W	90° 00' 00"
C7	100.00'	158.46'	101.39'	142.40'	S45°23'46"E	90° 47' 33"

EAST WAVERLY LINE TABLE		
LINE	BEARING	LENGTH
L1	N0°19'38"E	118.00'
L2	N14°31'50"E	261.25'
L3	N3°00'00"W	325.12'
L4	N70°15'22"W	163.77'
L5	N51°04'09"W	283.94'
L6	N90°00'00"W	139.99'
L7	S0°00'00"E	411.14'
L8	N89°12'27"E	277.82'

VALLEY ROAD LINE TABLE		
LINE	BEARING	LENGTH
L14	S71°38'47"E	268.51'
L15	S89°47'54"E	531.49'



WEST WAVERLY LINE TABLE		
LINE	BEARING	LENGTH
L9	N18°13'49"E	99.72'
L10	N20°08'57"W	148.65'
L11	N13°33'17"W	134.50'
L12	S76°26'43"W	269.09'

WEST WAVERLY CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C8	100.00'	66.99'	34.80'	65.74'	N0°57'34"W	38° 22' 47"
C9	100.00'	11.51'	5.76'	11.50'	N16°51'07"W	6° 35' 40"
C10	15.00'	23.56'	15.00'	21.21'	N58°33'17"W	90° 00' 00"

AUXILARY PARKING LINE TABLE		
LINE	BEARING	LENGTH
L13	N0°00'52"W	275.00'

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THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

ROAD GEOMETRY PLAN

C8

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-ROAD P&P.DWG Plotted: 11/24/2020 3:23 PM By: Drew Wharton

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JOB #: 2020-08
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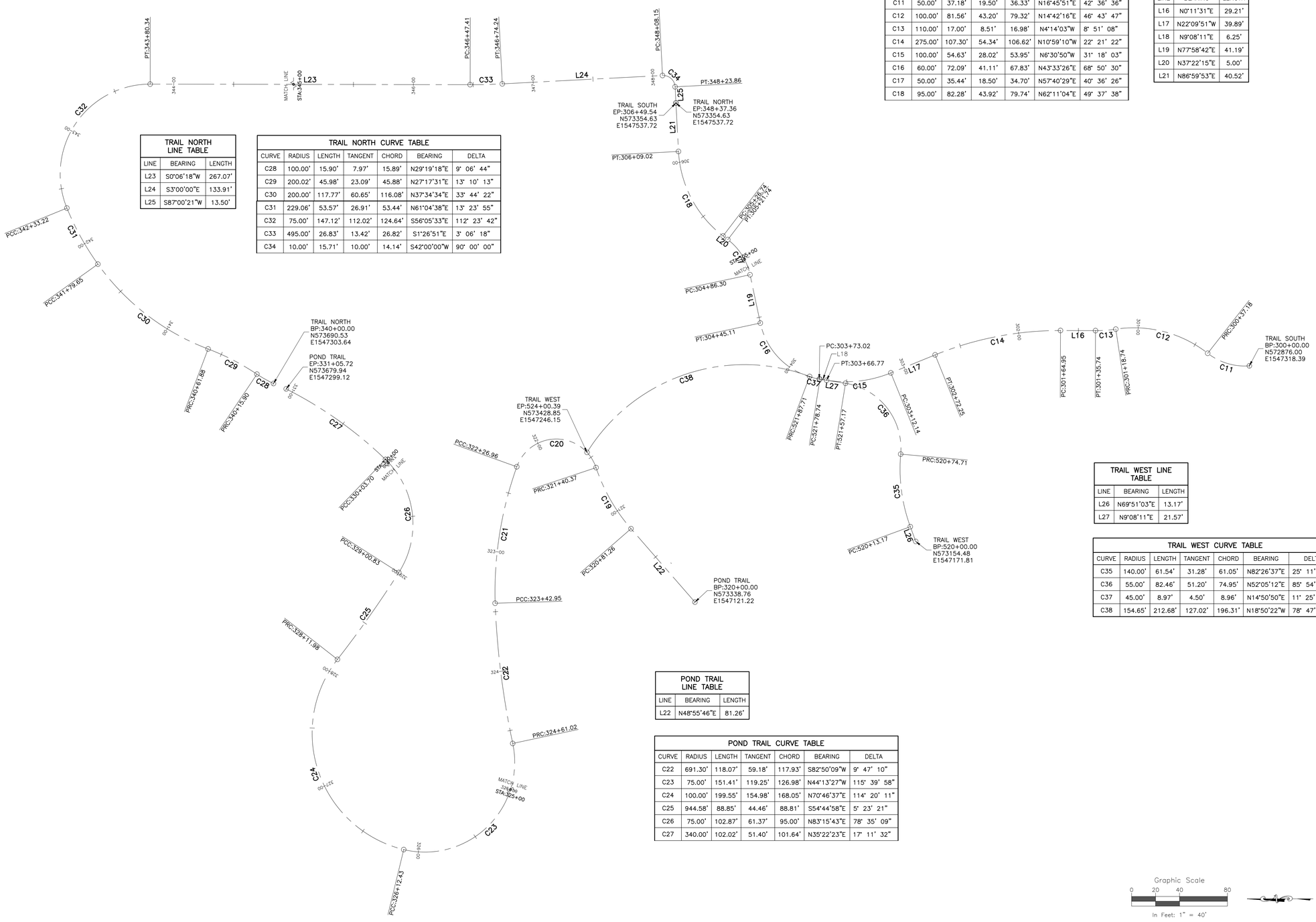
THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

ROAD INDEX SHEET

C9



TRAIL NORTH LINE TABLE		
LINE	BEARING	LENGTH
L23	S0°06'18"W	267.07'
L24	S3°00'00"E	133.91'
L25	S87°00'21"W	13.50'

TRAIL NORTH CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C28	100.00'	15.90'	7.97'	15.89'	N29°19'18"E	9° 06' 44"
C29	200.02'	45.98'	23.09'	45.88'	N27°17'31"E	13° 10' 13"
C30	200.00'	117.77'	60.65'	116.08'	N37°34'34"E	33° 44' 22"
C31	229.06'	53.57'	26.91'	53.44'	N61°04'38"E	13° 23' 55"
C32	75.00'	147.12'	112.02'	124.64'	S56°05'33"E	112° 23' 42"
C33	495.00'	26.83'	13.42'	26.82'	S1°26'51"E	3° 06' 18"
C34	10.00'	15.71'	10.00'	14.14'	S42°00'00"W	90° 00' 00"

TRAIL SOUTH CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C11	50.00'	37.18'	19.50'	36.33'	N16°45'51"E	42° 36' 36"
C12	100.00'	81.56'	43.20'	79.32'	N14°42'16"E	46° 43' 47"
C13	110.00'	17.00'	8.51'	16.98'	N4°14'03"W	8° 51' 08"
C14	275.00'	107.30'	54.34'	106.62'	N10°59'10"W	22° 21' 22"
C15	100.00'	54.63'	28.02'	53.95'	N6°30'50"W	31° 18' 03"
C16	60.00'	72.09'	41.11'	67.83'	N43°33'26"E	68° 50' 30"
C17	50.00'	35.44'	18.50'	34.70'	N57°40'29"E	40° 36' 26"
C18	95.00'	82.28'	43.92'	79.74'	N62°11'04"E	49° 37' 38"

TRAIL SOUTH LINE TABLE		
LINE	BEARING	LENGTH
L16	N0°11'31"E	29.21'
L17	N22°09'51"W	39.89'
L18	N9°08'11"E	6.25'
L19	N77°58'42"E	41.19'
L20	N37°22'15"E	5.00'
L21	N86°59'53"E	40.52'

TRAIL WEST LINE TABLE		
LINE	BEARING	LENGTH
L26	N69°51'03"E	13.17'
L27	N9°08'11"E	21.57'

TRAIL WEST CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C35	140.00'	61.54'	31.28'	61.05'	N82°26'37"E	25° 11' 10"
C36	55.00'	82.46'	51.20'	74.95'	N52°05'12"E	85° 54' 01"
C37	45.00'	8.97'	4.50'	8.96'	N14°50'50"E	11° 25' 17"
C38	154.65'	212.68'	127.02'	196.31'	N18°50'22"W	78° 47' 39"

POND TRAIL LINE TABLE		
LINE	BEARING	LENGTH
L22	N48°55'46"E	81.26'

POND TRAIL CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C22	691.30'	118.07'	59.18'	117.93'	S82°50'09"W	9° 47' 10"
C23	75.00'	151.41'	119.25'	126.98'	N44°13'27"W	115° 39' 58"
C24	100.00'	199.55'	154.98'	168.05'	N70°46'37"E	114° 20' 11"
C25	944.58'	88.85'	44.46'	88.81'	S54°44'58"E	5° 23' 21"
C26	75.00'	102.87'	61.37'	95.00'	N83°15'43"E	78° 35' 09"
C27	340.00'	102.02'	51.40'	101.64'	N35°22'23"E	17° 11' 32"

Graphic Scale

0 20 40 80

In Feet: 1" = 40'

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-TRAIL.DWG Plotted: 11/24/2020 3:23 PM By: Drew Wharton

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DATE

DESCRIPTION

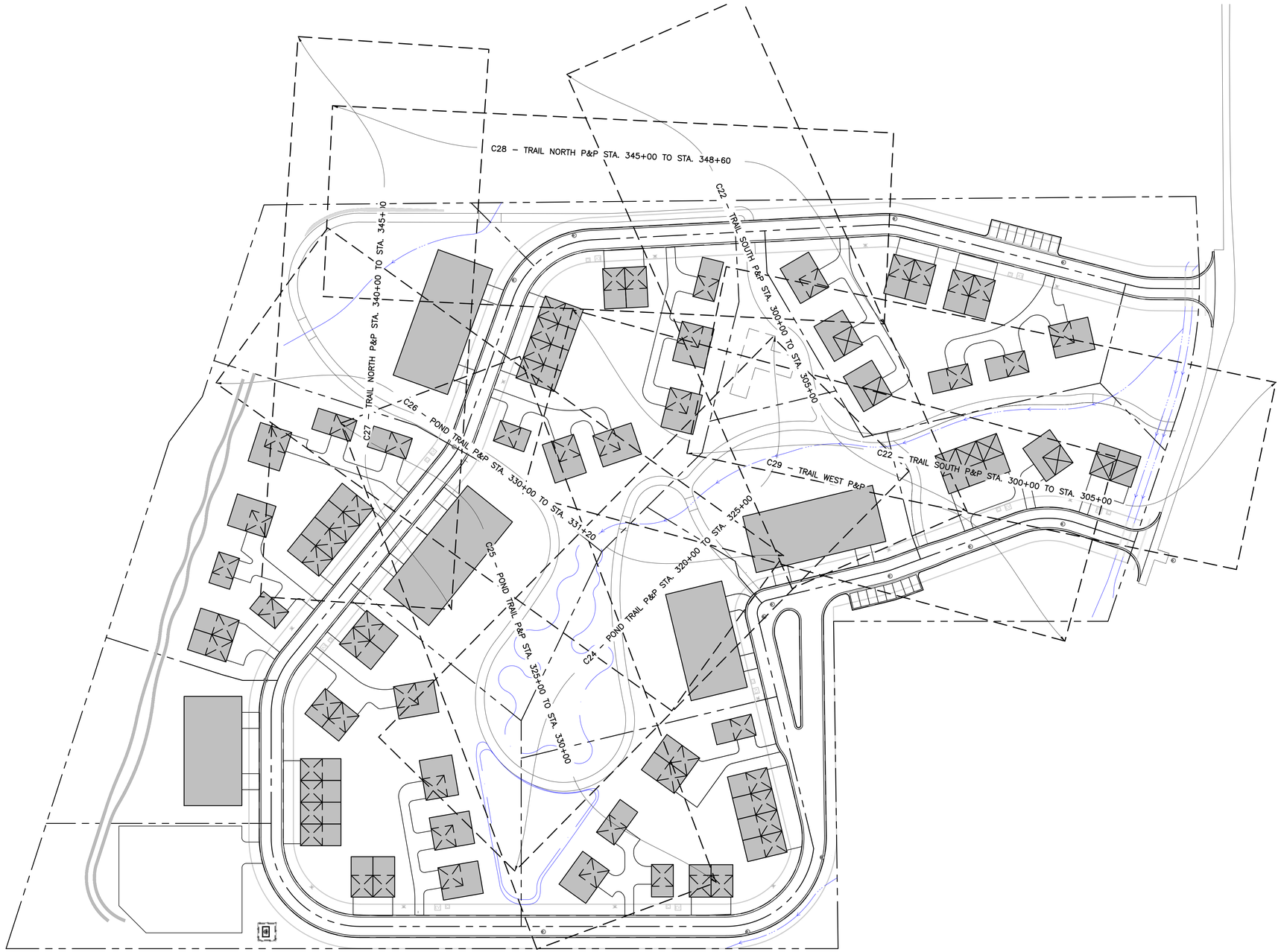
#

JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

TRAIL GEOMETRY PLAN

C10



Graphic Scale

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In Feet: 1" = 60'

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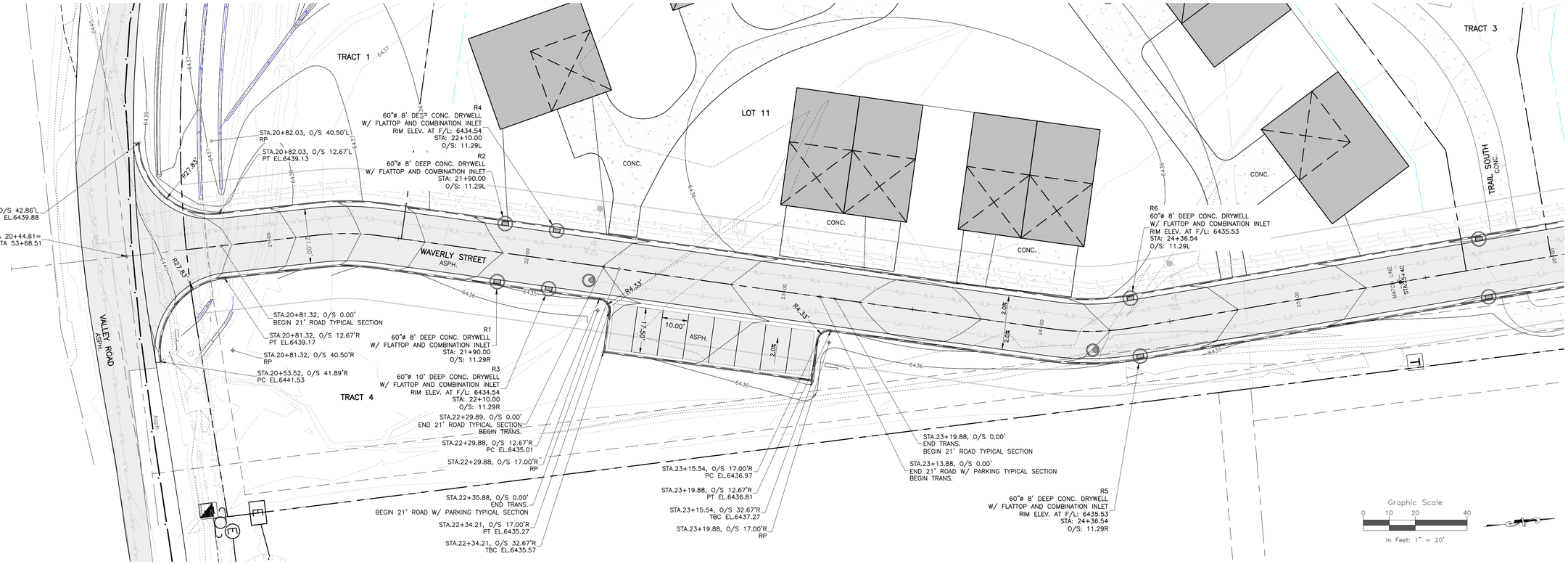
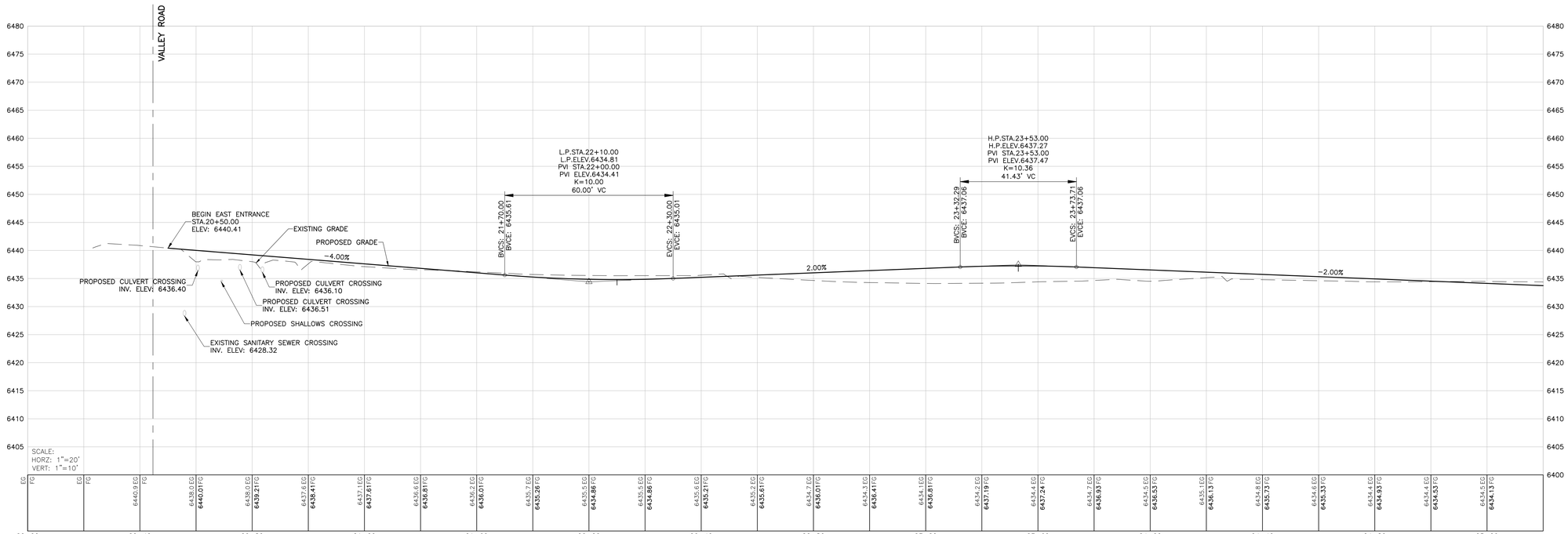
EAGLE COUNTY, CO

TRAIL INDEX SHEET

C11





EAST ENTRANCE STA. 20+00 TO STA. 25+70 PROFILE

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-ROAD P&P.DWG Plotted: 11/24/2020 3:24 PM By: Drew Wharton

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DESCRIPTION

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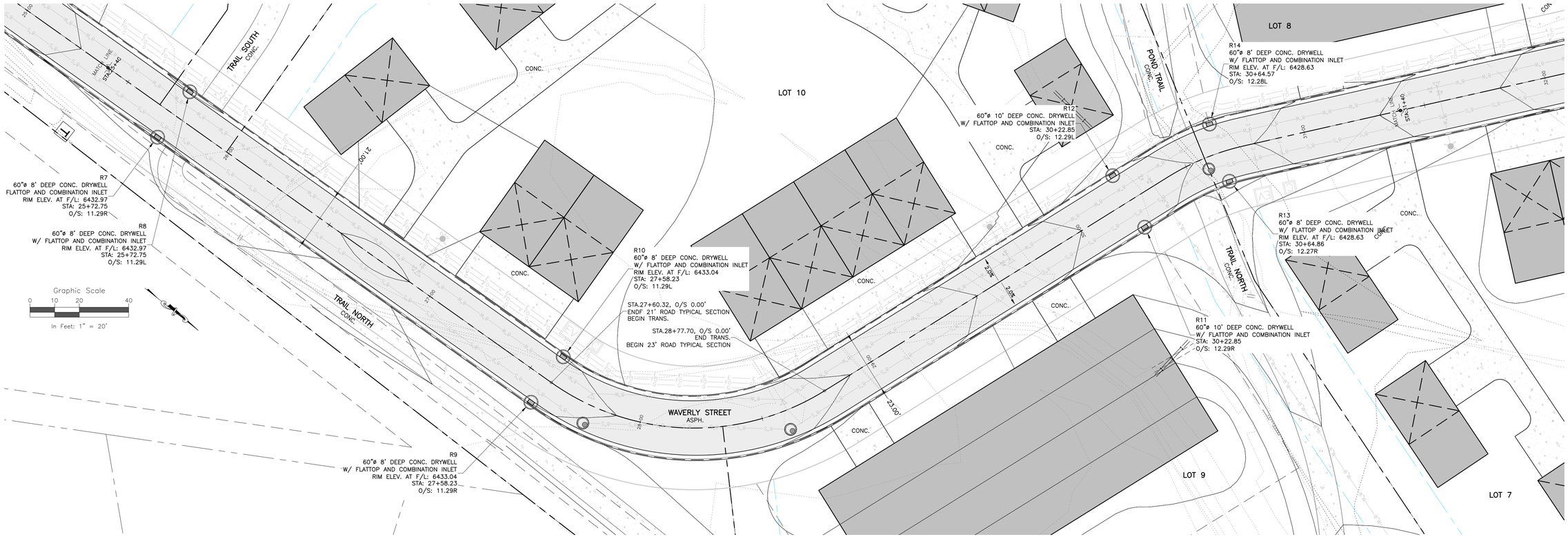
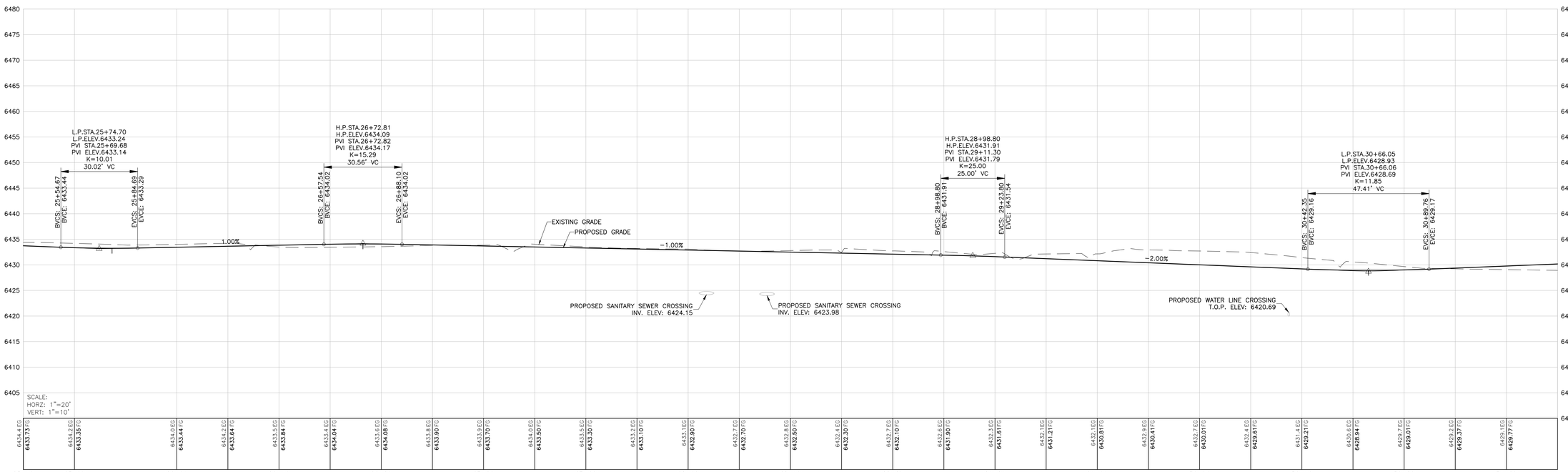
THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

EAST WAVERLY P&P STA. 20+00 TO STA. 25+40

C12





EAST ENTRANCE STA. 25+70 TOP STA. 31+40 PROFILE

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DRAWN BY	DATE	#	DESCRIPTION

JOB #: 2020-08
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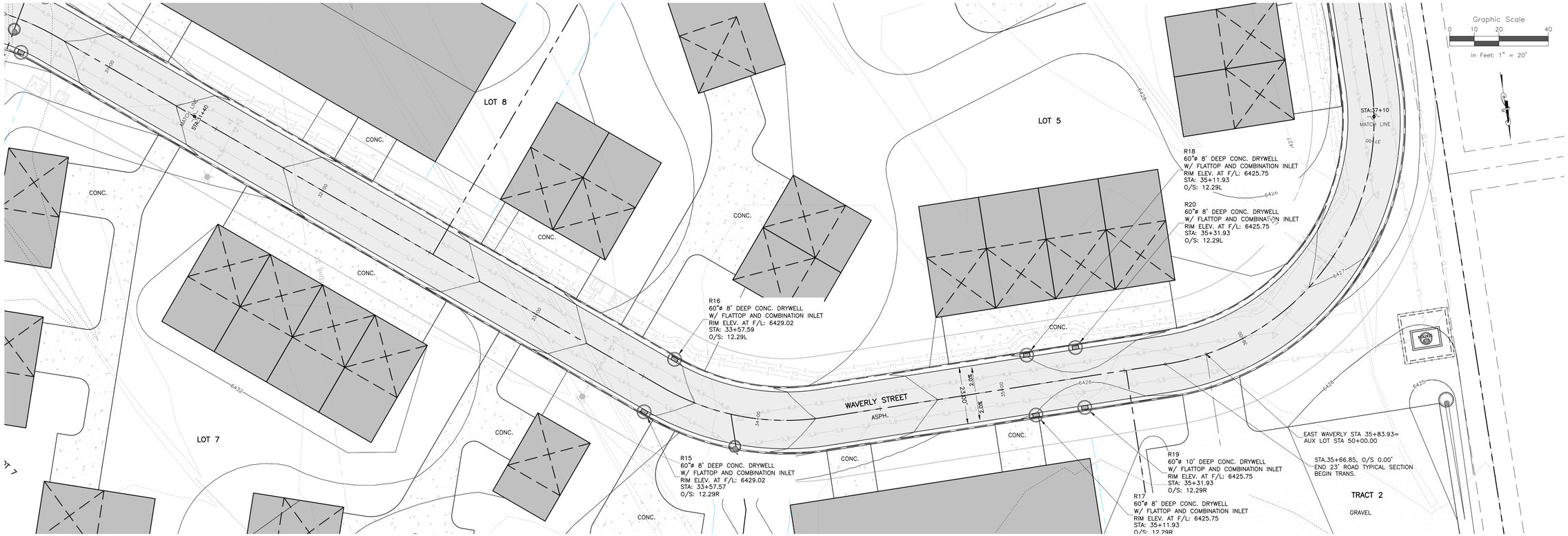
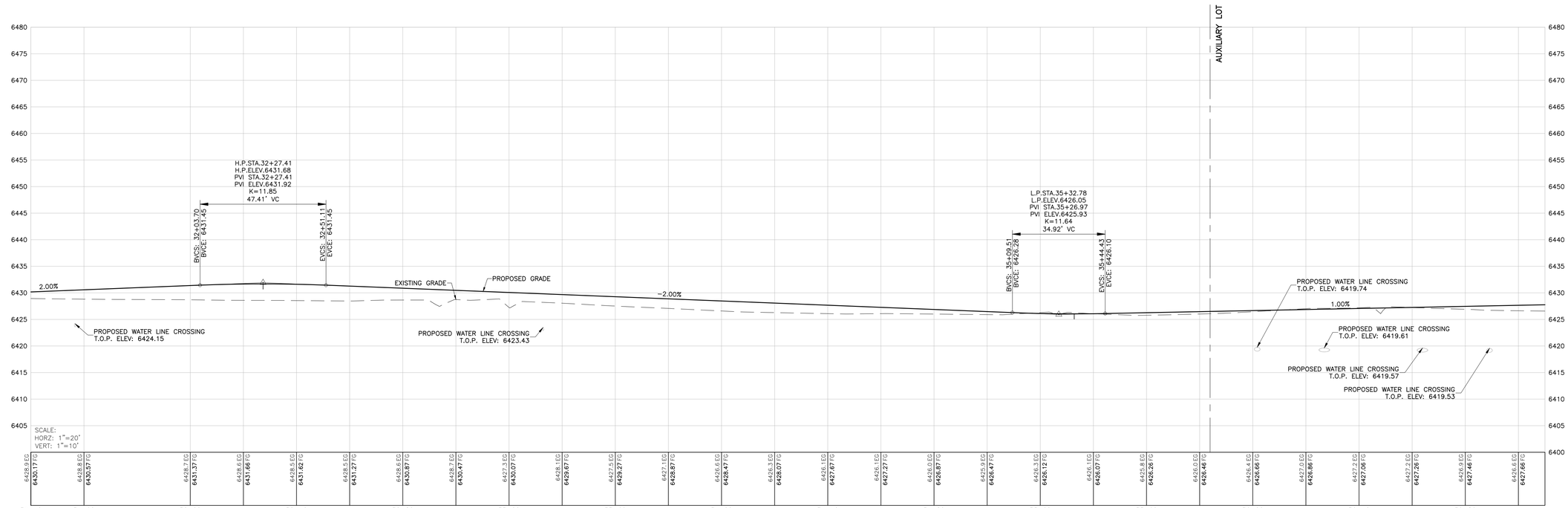
THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

EAST WAVERLY P&P STA. 25+40 TO STA. 31+40

C13





EAST ENTRANCE STA. 31+40 TO STA. 37+10 PROFILE

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DESCRIPTION

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JOB #: 2020-08

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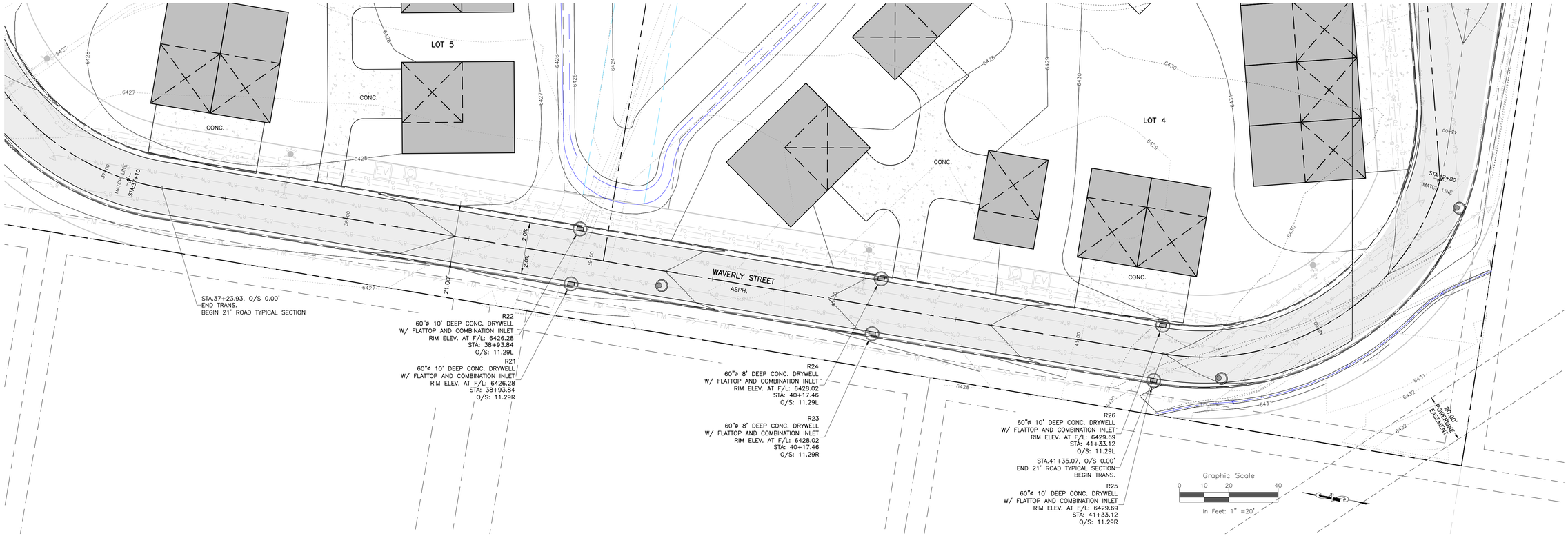
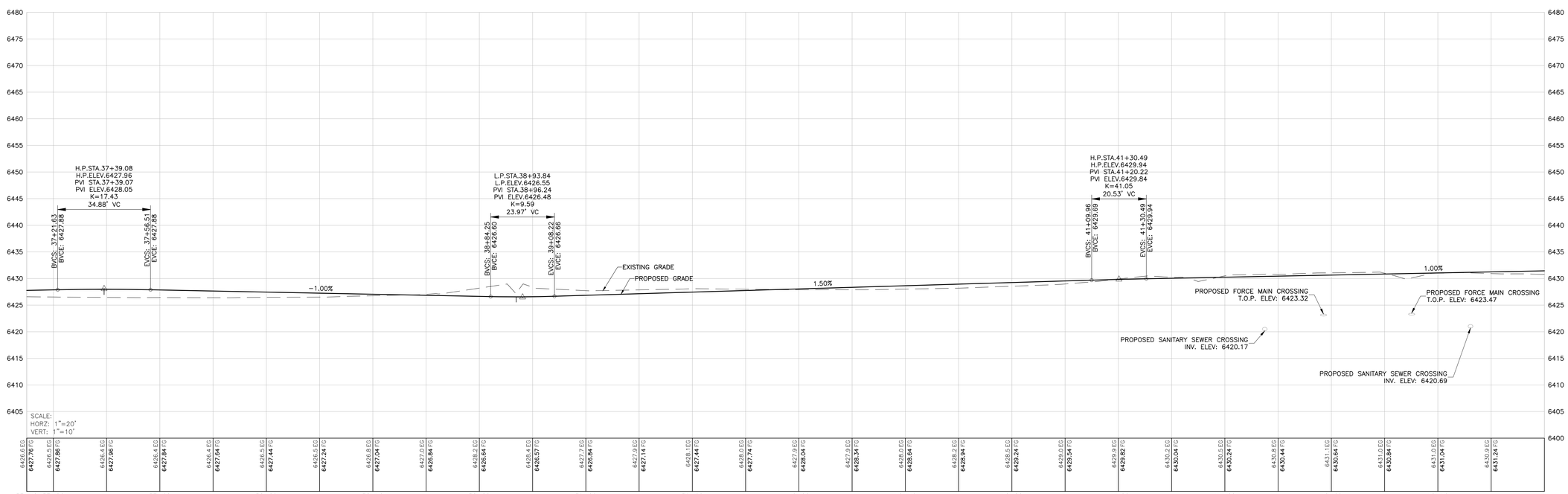
THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

EAST WAVERLY P&P STA. 31+40 TO STA. 37+10

C14





EAST ENTRANCE STA. 37+10 TO STA. 42+80 PROFILE

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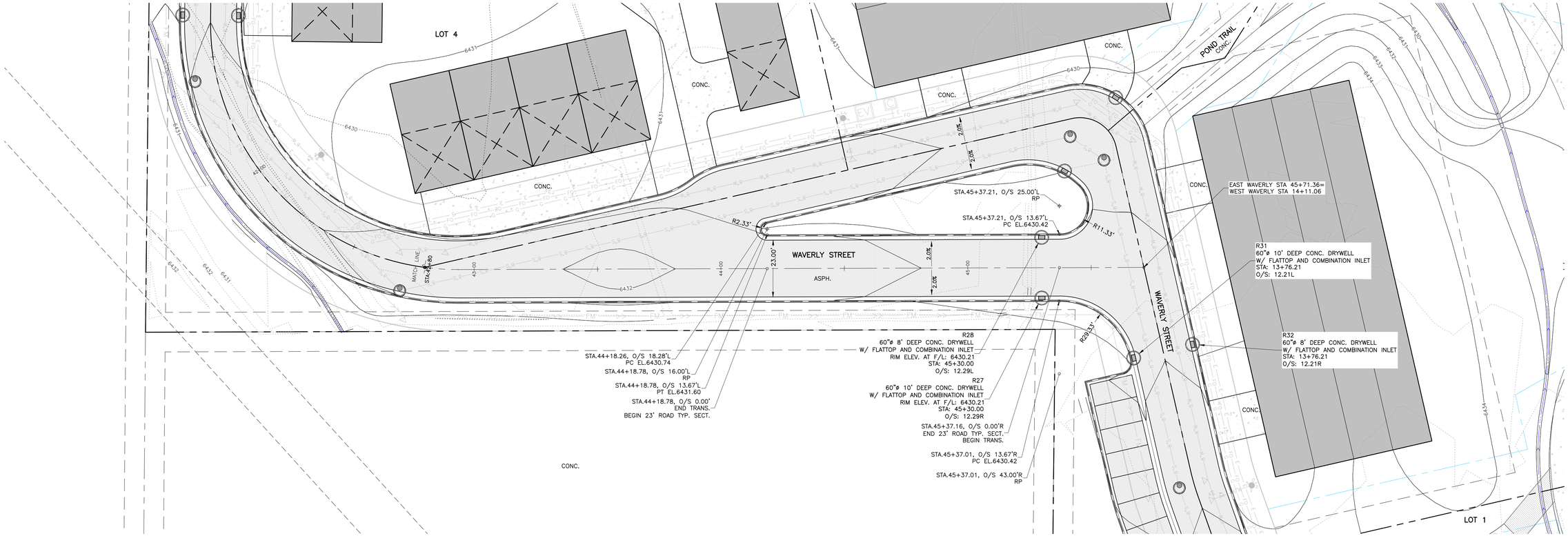
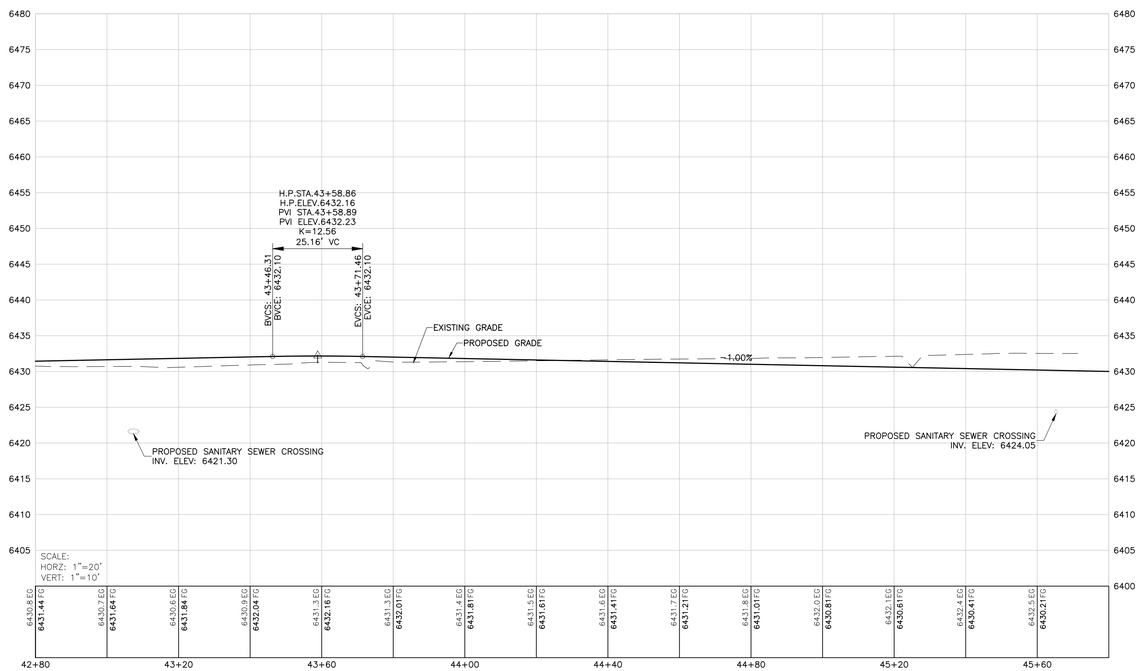
THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

EAST WAVERLY P&P STA. 37+10 TO STA. 42+80

C15





EAST ENTRANCE STA. 42+80 TO STA. 45+80 PROFILE

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

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592 HIGHWAY 133
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DESCRIPTION

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JOB #: 2020-08
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THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

EAST WAVERLY P&P STA. 42+80 TO STA. 45+80

C16

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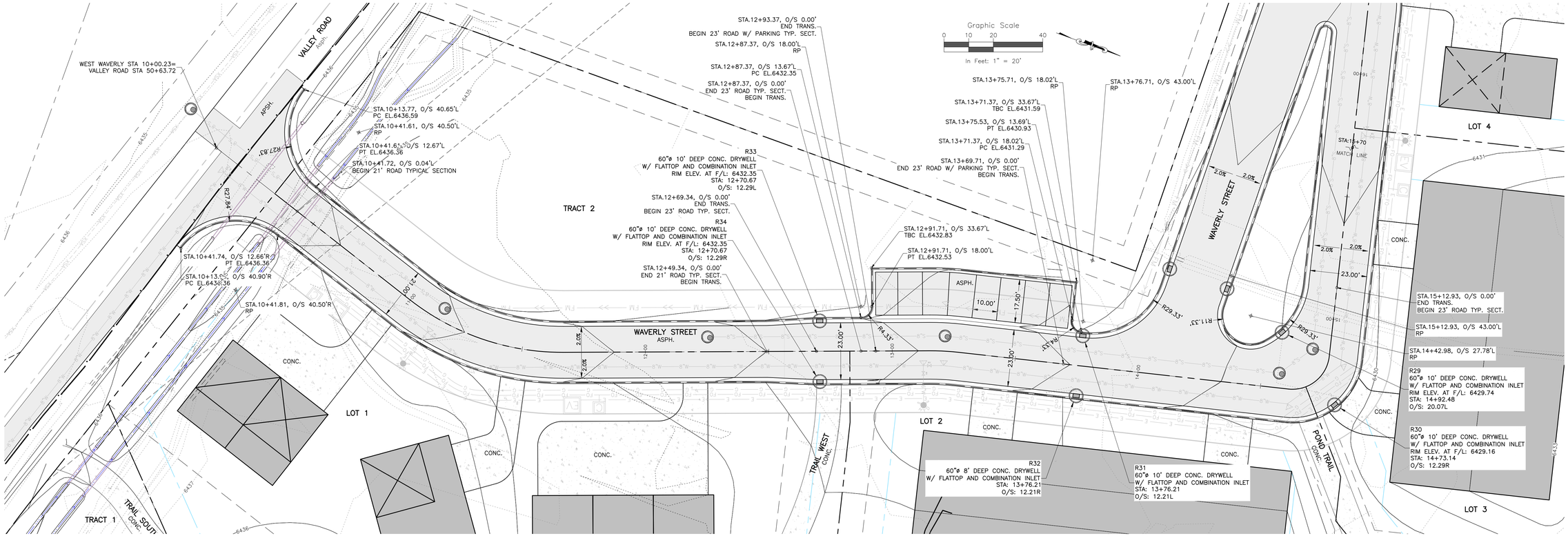
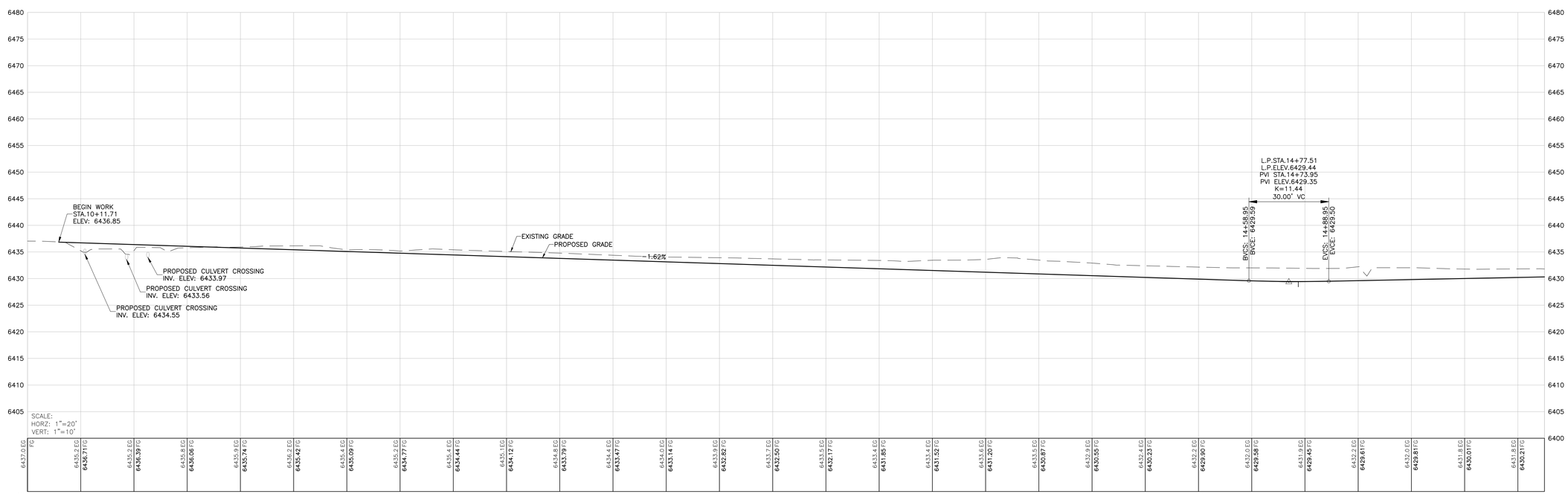




WEST ENTRANCE STA. 10+00 TO STA. 15+70 PROFILE

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-ROAD P&P.DWG Plotted: 11/24/2020 3:24 PM By: Drew Wharton

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

DRAWN BY

DATE

DESCRIPTION

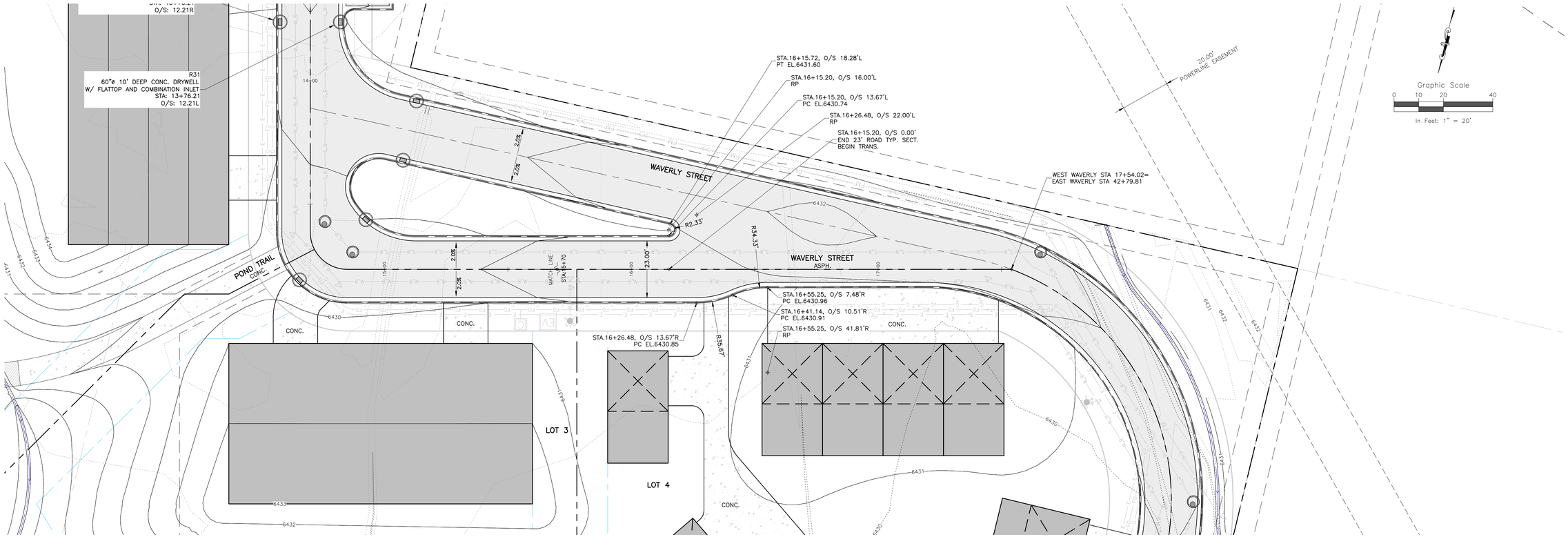
#

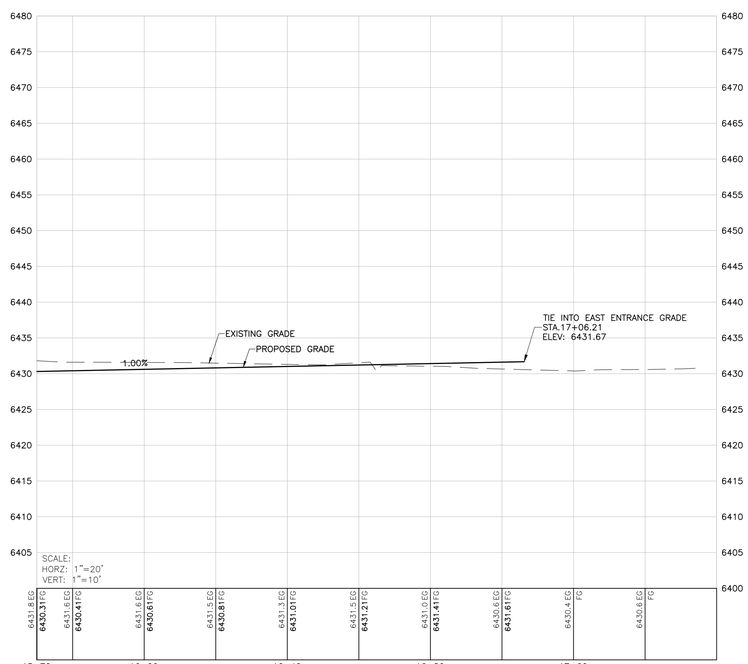
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

WEST WAVERLY P&P STA. 10+00 TO STA. 15+70

C17





WEST ENTRANCE STA. 15+70 TO STA. 17+60 PROFILE

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-ROAD P&P.DWG Plotted: 11/24/2020 3:25 PM By: Drew Wharton

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

DRAWN BY

DATE

DESCRIPTION

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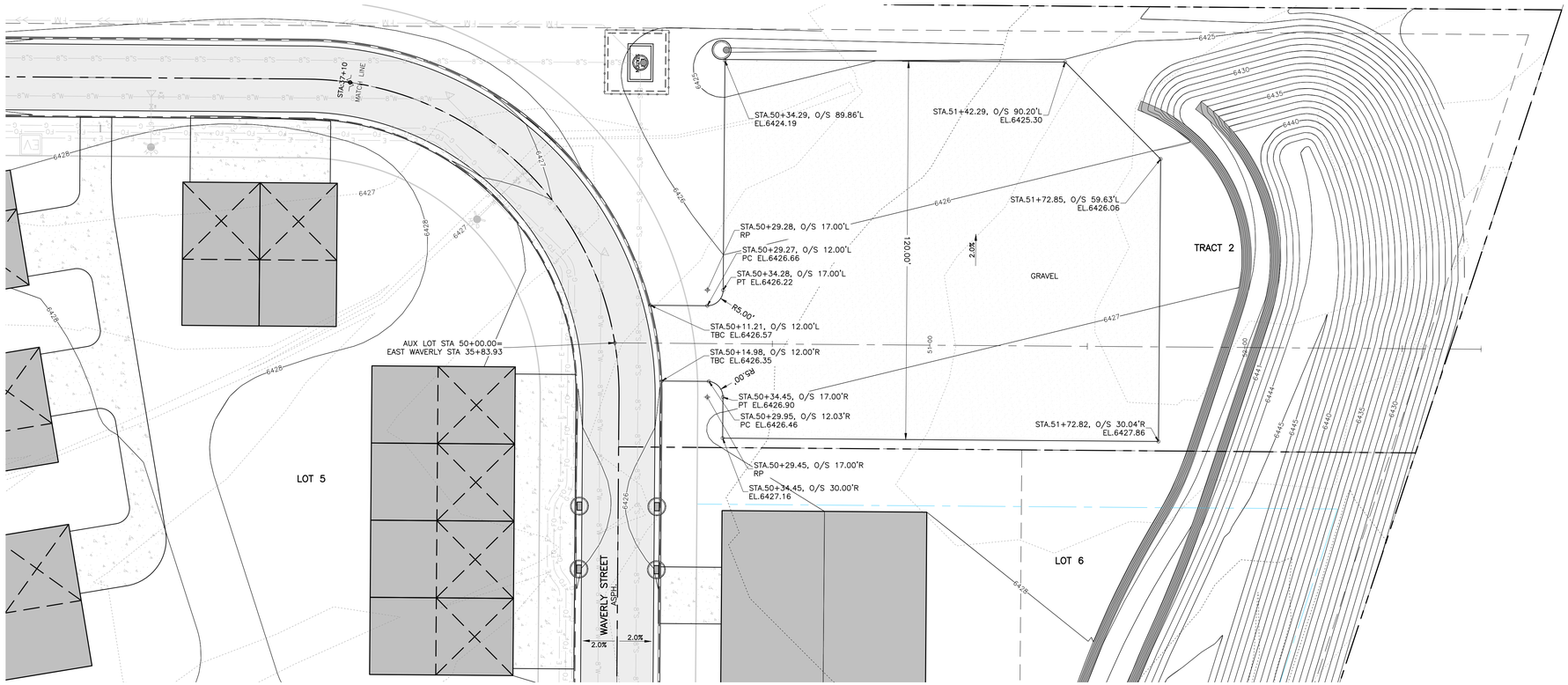
JOB #: 2020-08

NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

WEST WAVERLY P&P STA. 15+70 TO STA.17+60

C18



Graphic Scale
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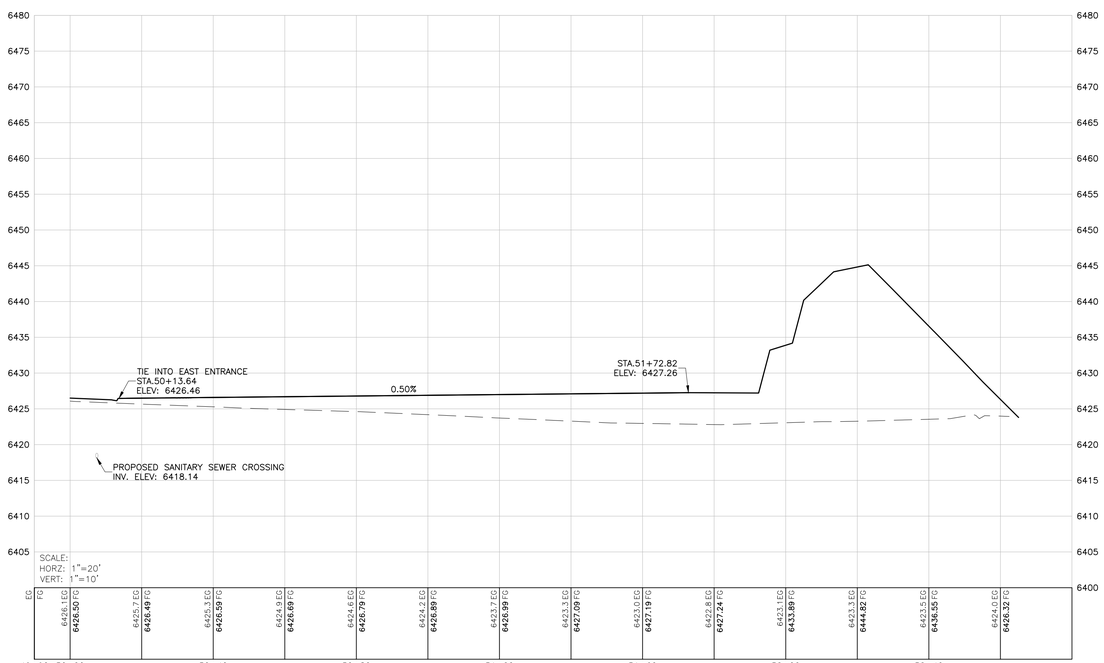
In Feet: 1" = 20'



AUXILARY LOT PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

DRAWN BY

DATE

DESCRIPTION

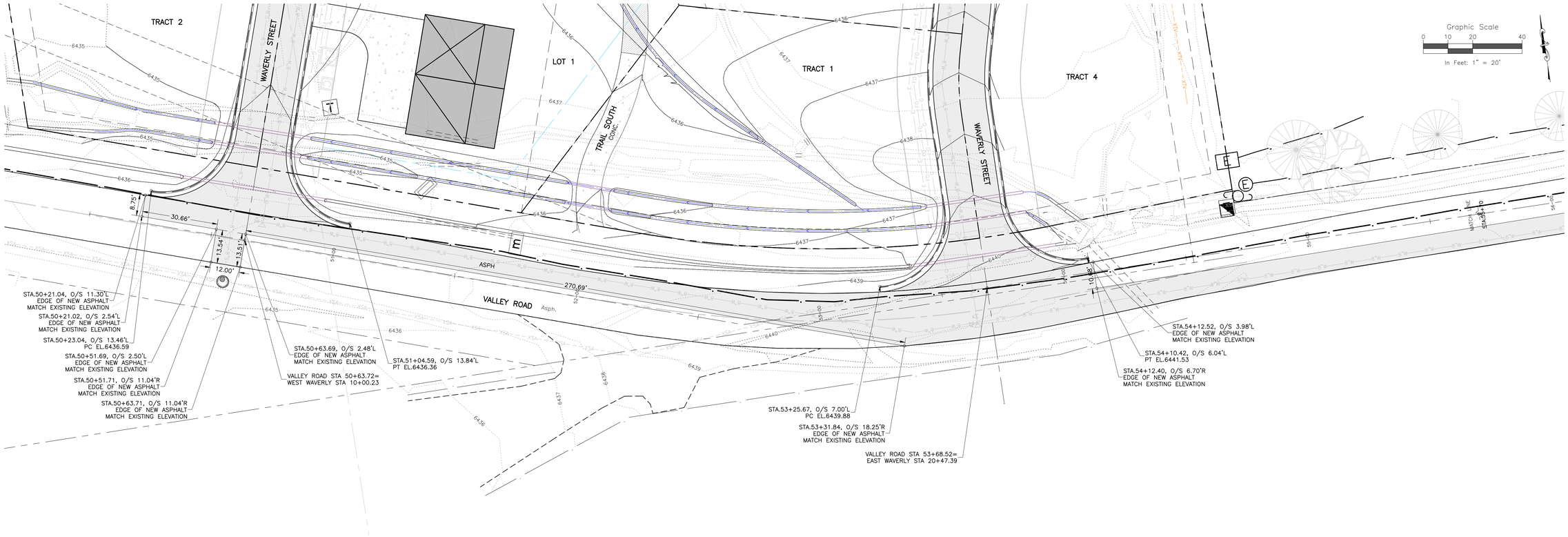
#

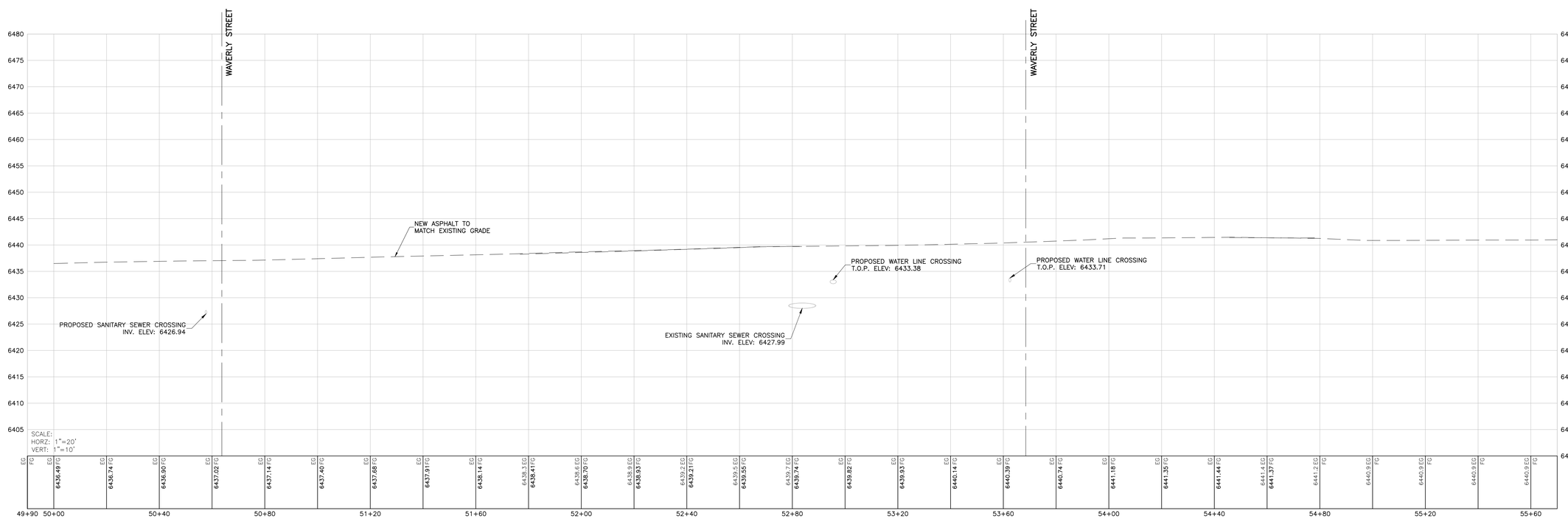
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

AUXILARY PARKING P&P

C19





VALLEY ROAD STA. 50+00 TO STA. 55+70 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO, 81623
PH: (970)340-4130 F:(866)876-5873

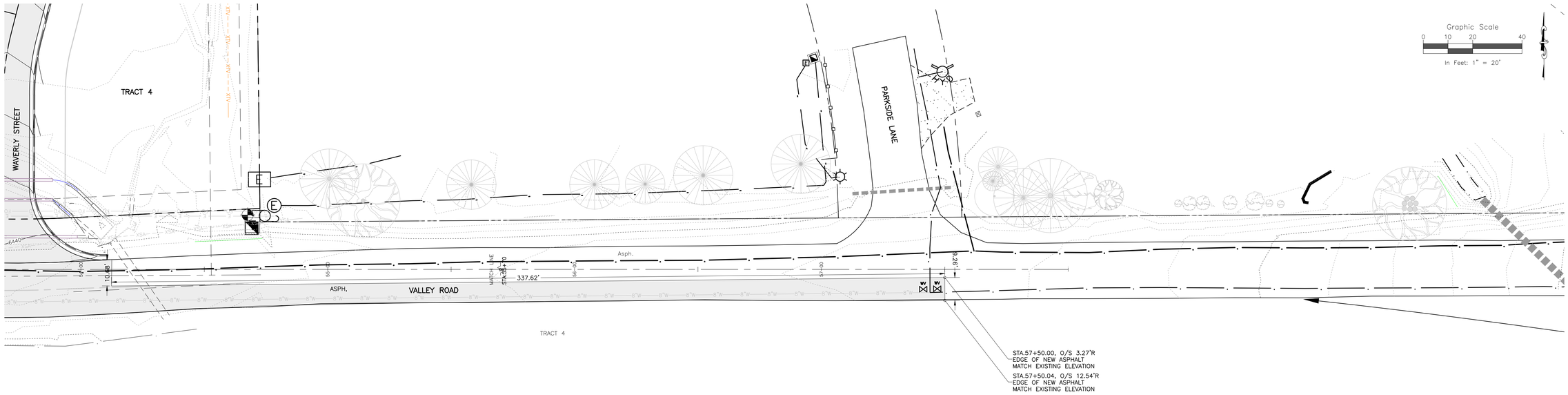
CHECKED BY: DCS
DRAWN BY: ADW

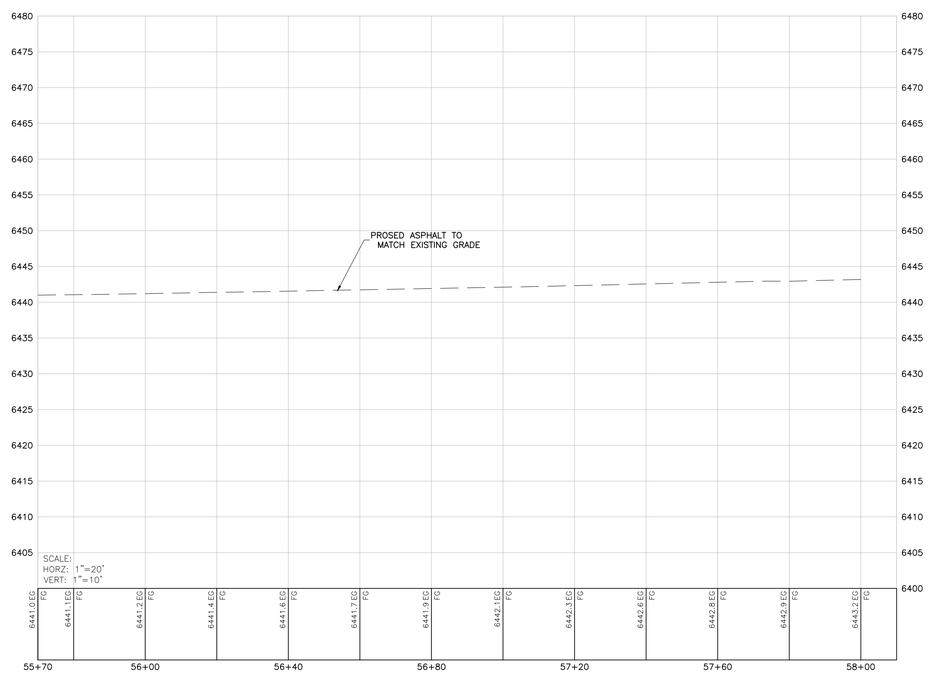
DRAWN BY
DATE
DESCRIPTION
#

JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

VALLEY ROAD P&P STA. 50+00 TO STA. 55+70





VALLEY ROAD STA. 55+70 TO STA. 58+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

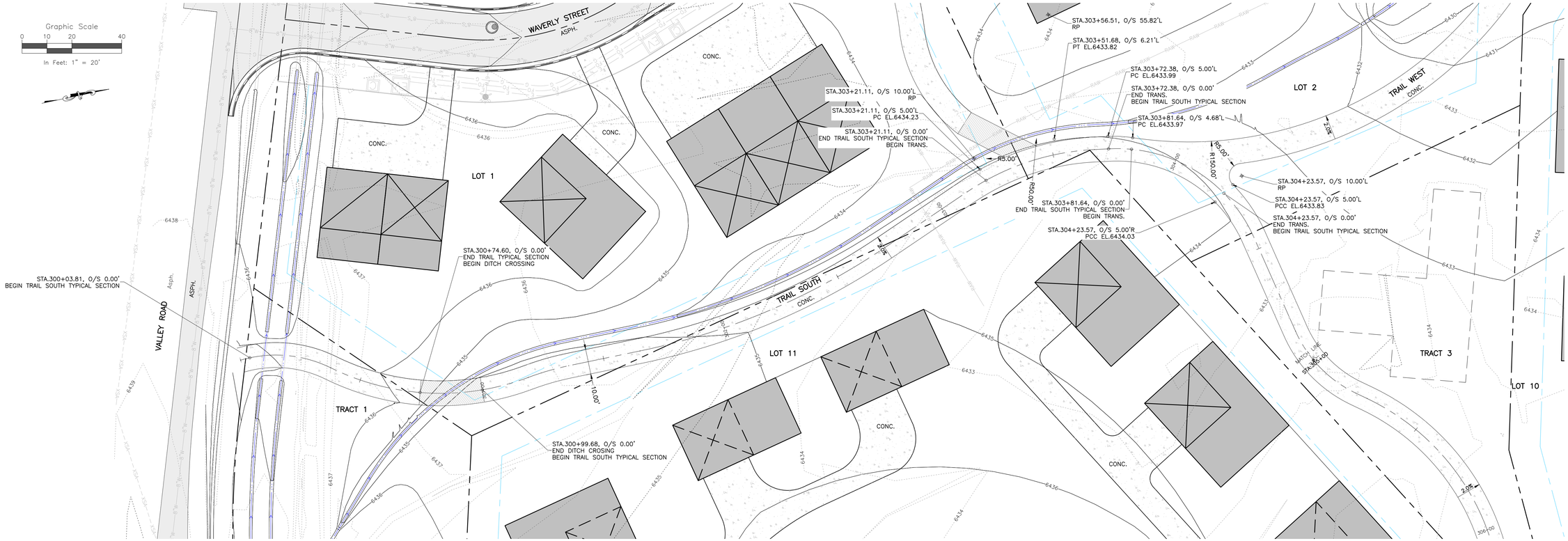
#	DESCRIPTION	DATE	DRAWN BY

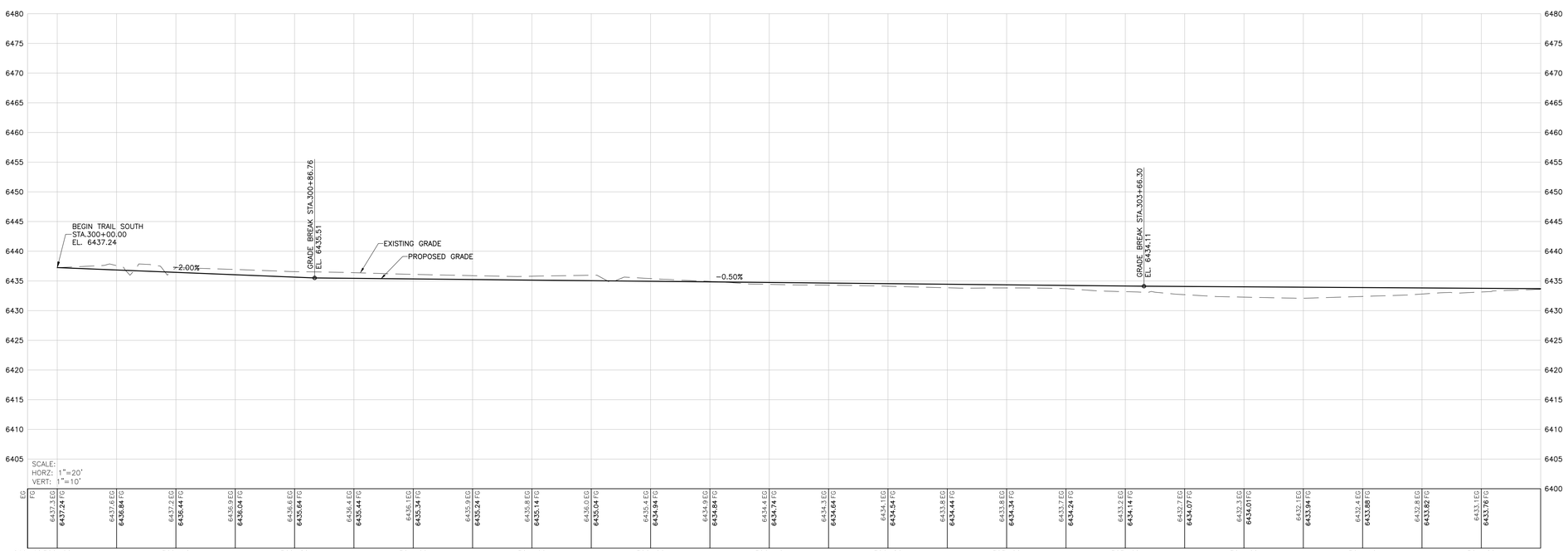
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

VALLEY ROAD P&P STA. 55+70 TO STA. 58+00

C21





TRAIL SOUTH STA. 300+00 TO STA. 305+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

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#	DESCRIPTION	DRAWN BY	DATE

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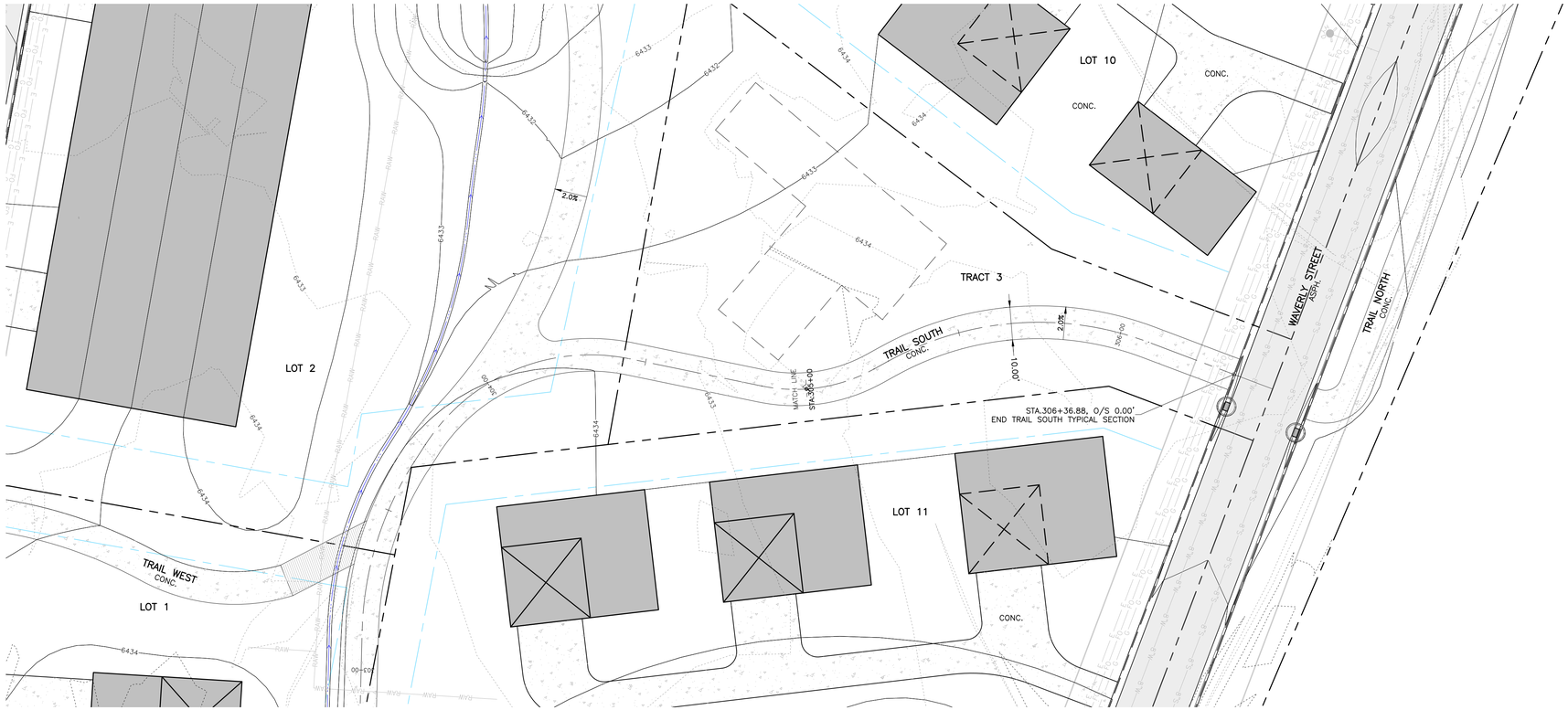
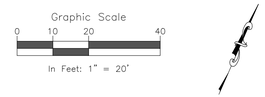
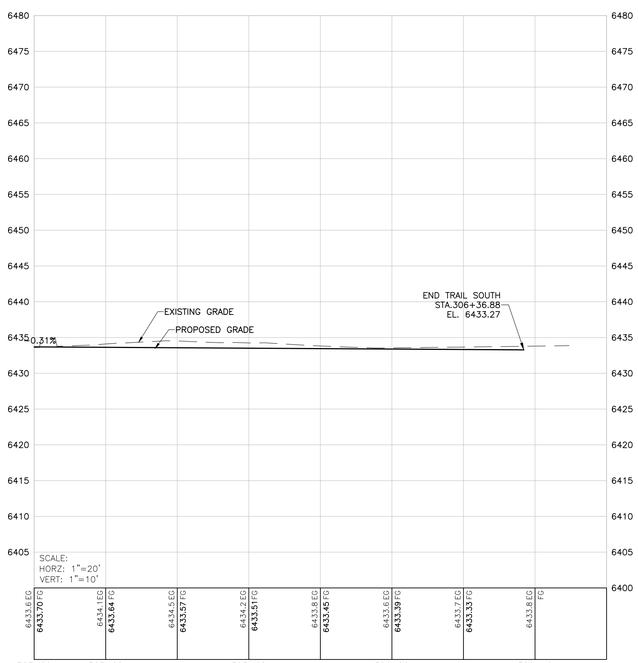
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

TRAIL SOUTH P&P STA. 300+00 TO STA. 305+00







TRAIL SOUTH STA. 305+00 TO STA. 306+60 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO, 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

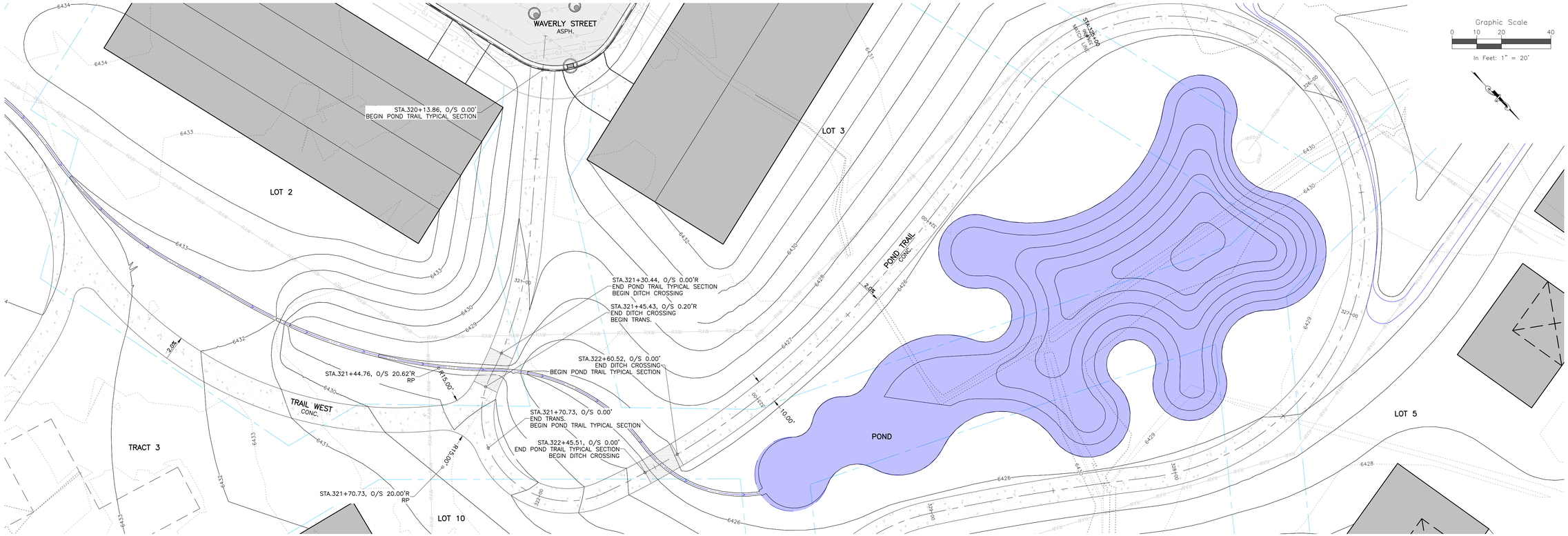
#	DESCRIPTION	DRAWN BY	DATE

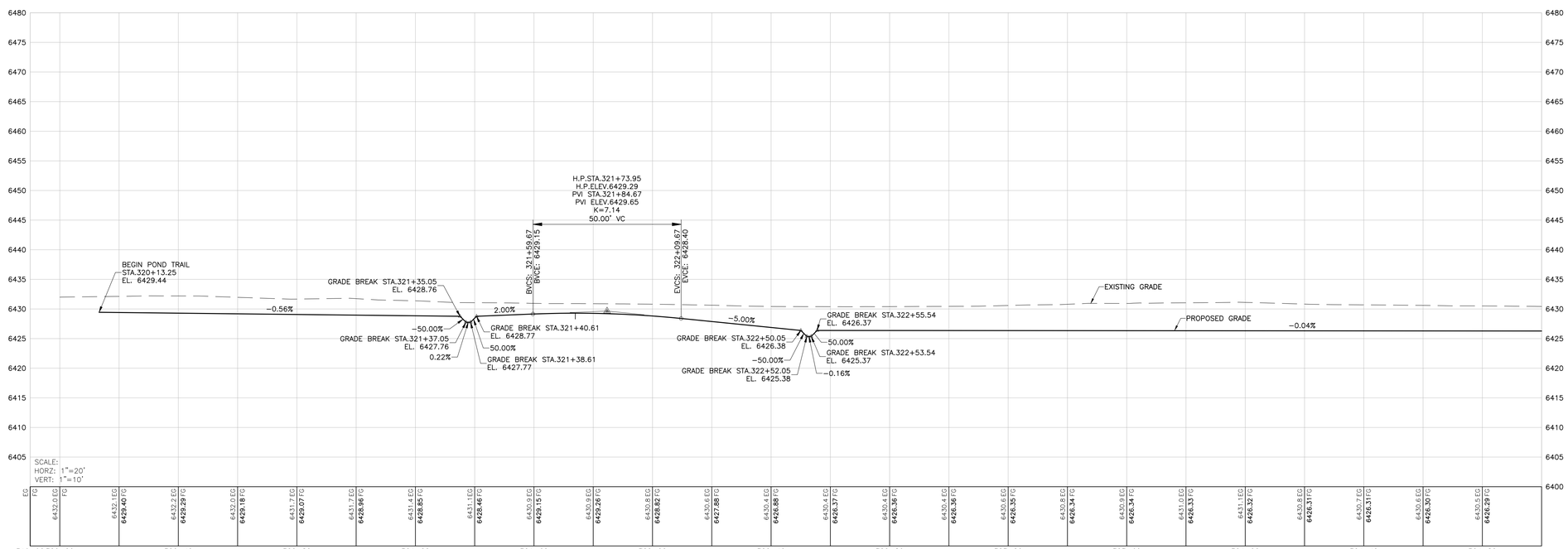
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

TRAIL SOUTH P&P STA. 305+00 TO STA. 306+60

C23





POND TRAIL STA. 320+00 TO STA. 325+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

DRAWN BY

DATE

DESCRIPTION

#

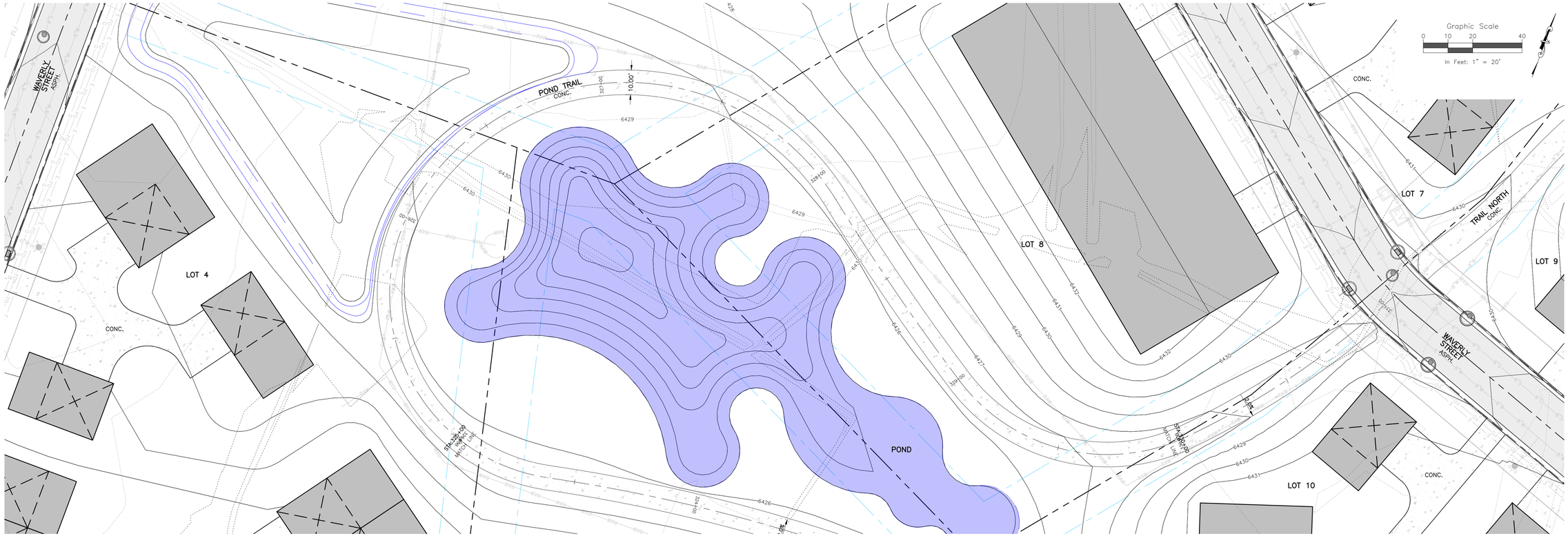
JOB #: 2020-08

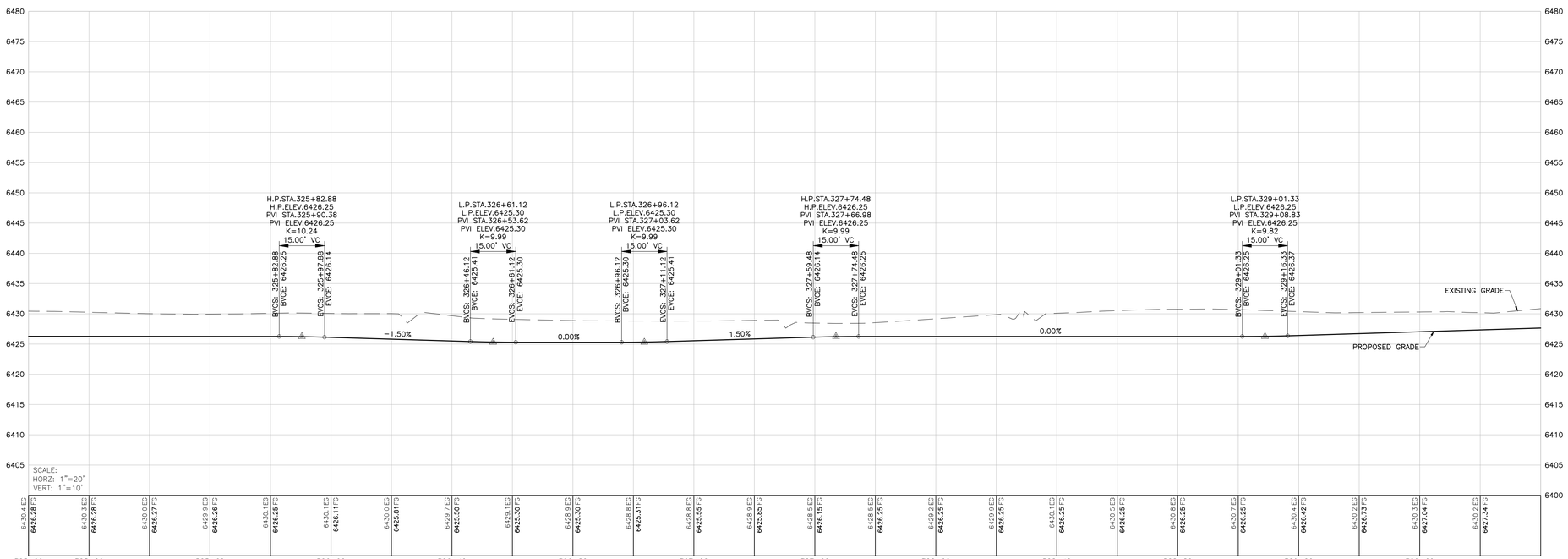
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

POND TRAIL P&P STA. 320+00 TO STA. 325+00

C24





POND TRAIL STA. 325+00 TO STA. 330+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

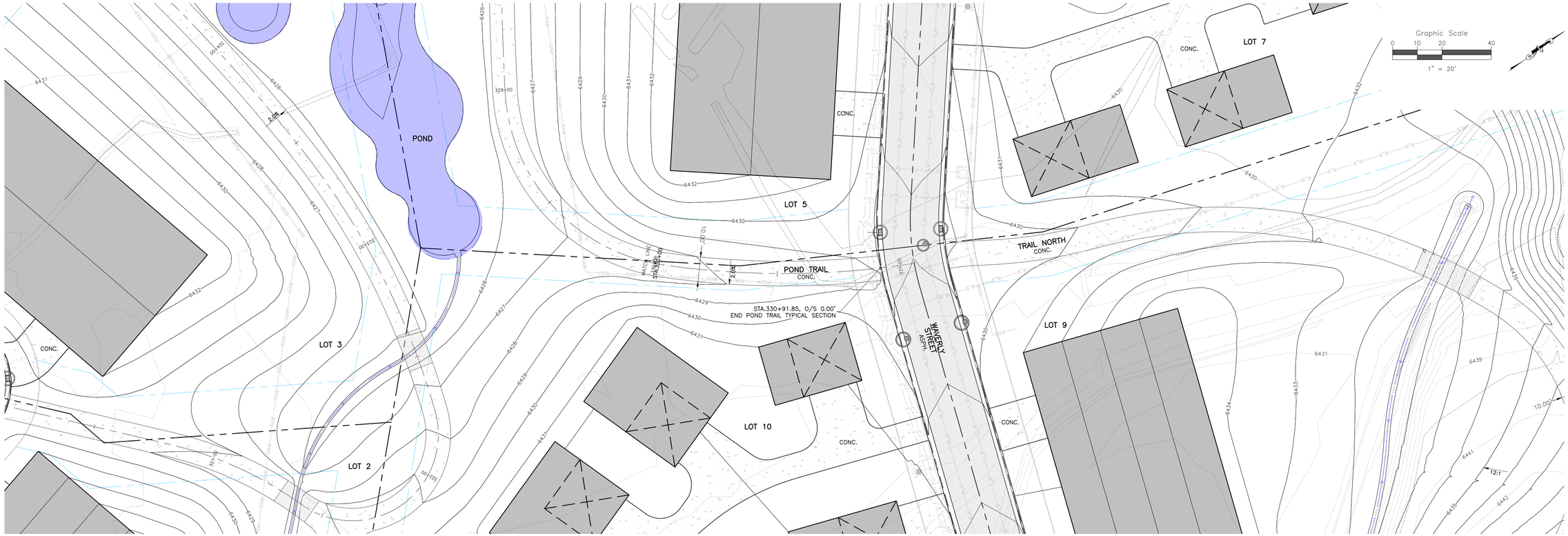
#	DESCRIPTION	DRAWN BY	DATE

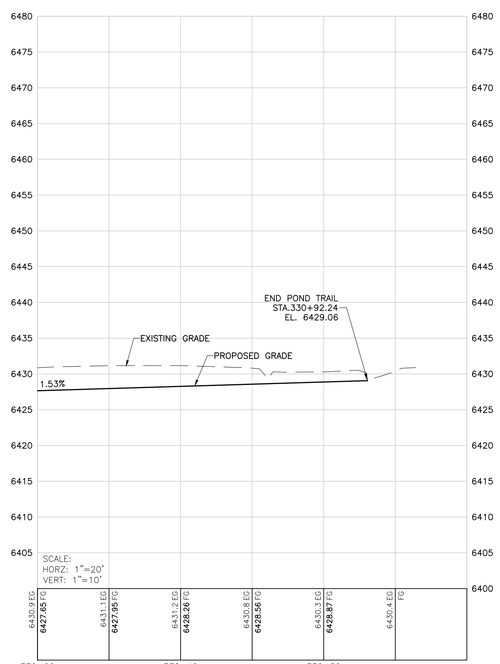
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

POND TRAIL P&P STA. 325+00 TO STA. 330+00

C25





POND TRAIL STA. 330+00 TO STA. 331+20 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

#	DESCRIPTION	DRAWN BY	DATE

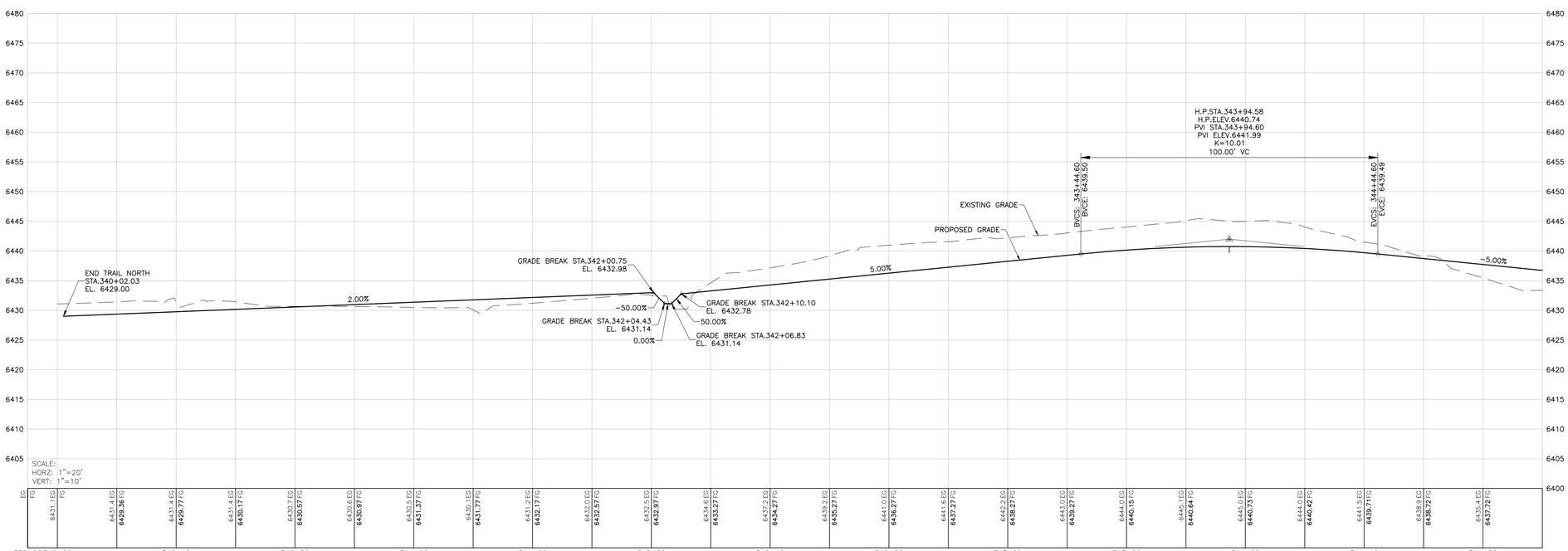
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

POND TRAIL P&P STA. 330+00 TO STA. 331+20

C26

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



TRAIL NORTH STA. 340+00 TO STA. 345+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
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PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

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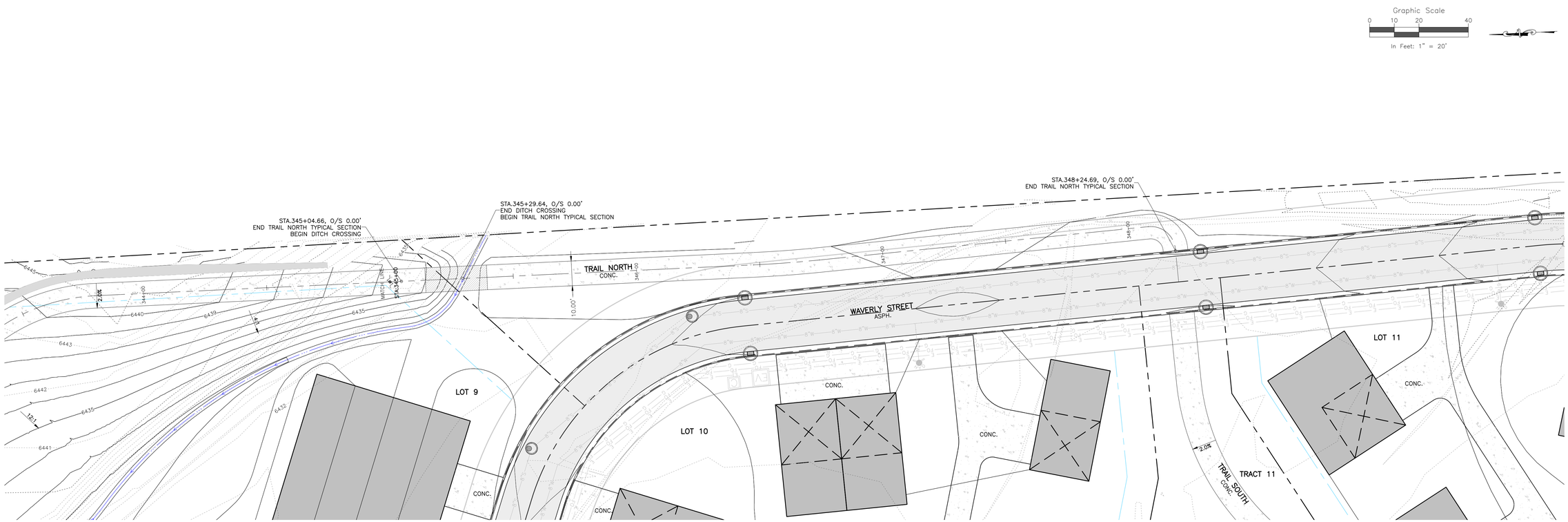
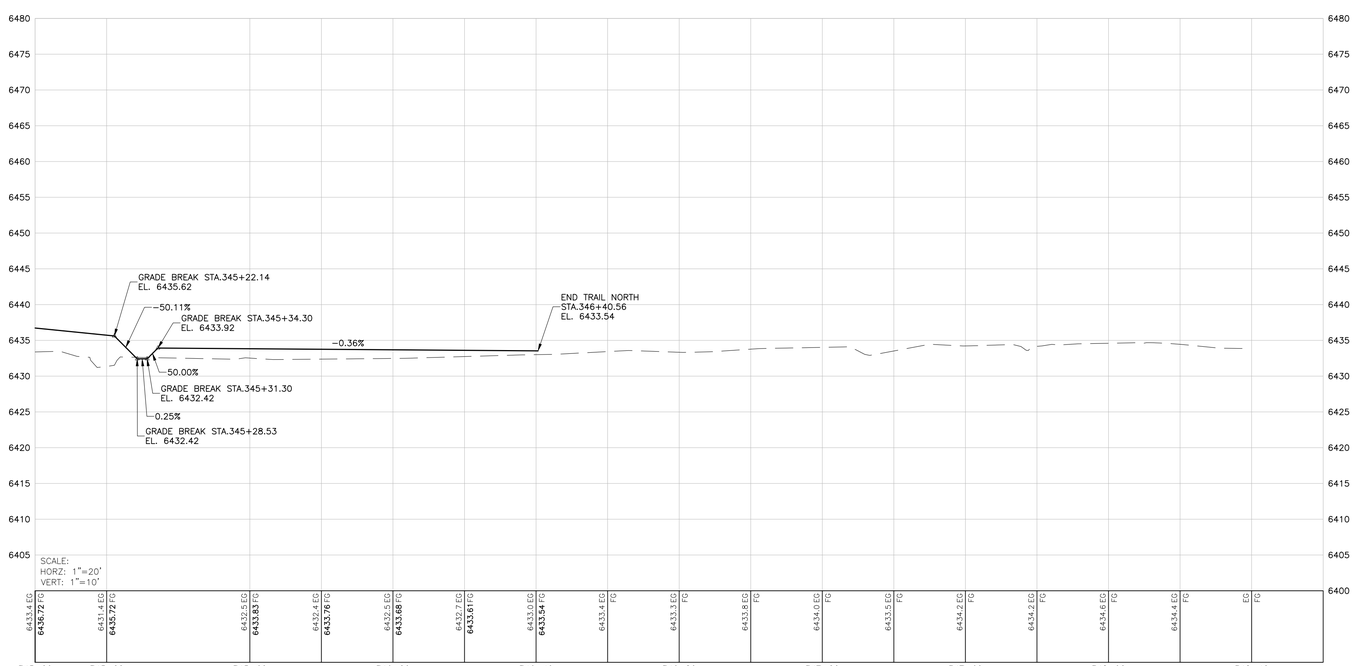
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

TRAIL NORTH P&P STA. 340+00 TO STA. 345+00





TRAIL NORTH STA. 345+00 TO STA. 348+60 PROFILE

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-TRAIL.DWG Plotted: 11/24/2020 3:26 PM By: Drew Wharton

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

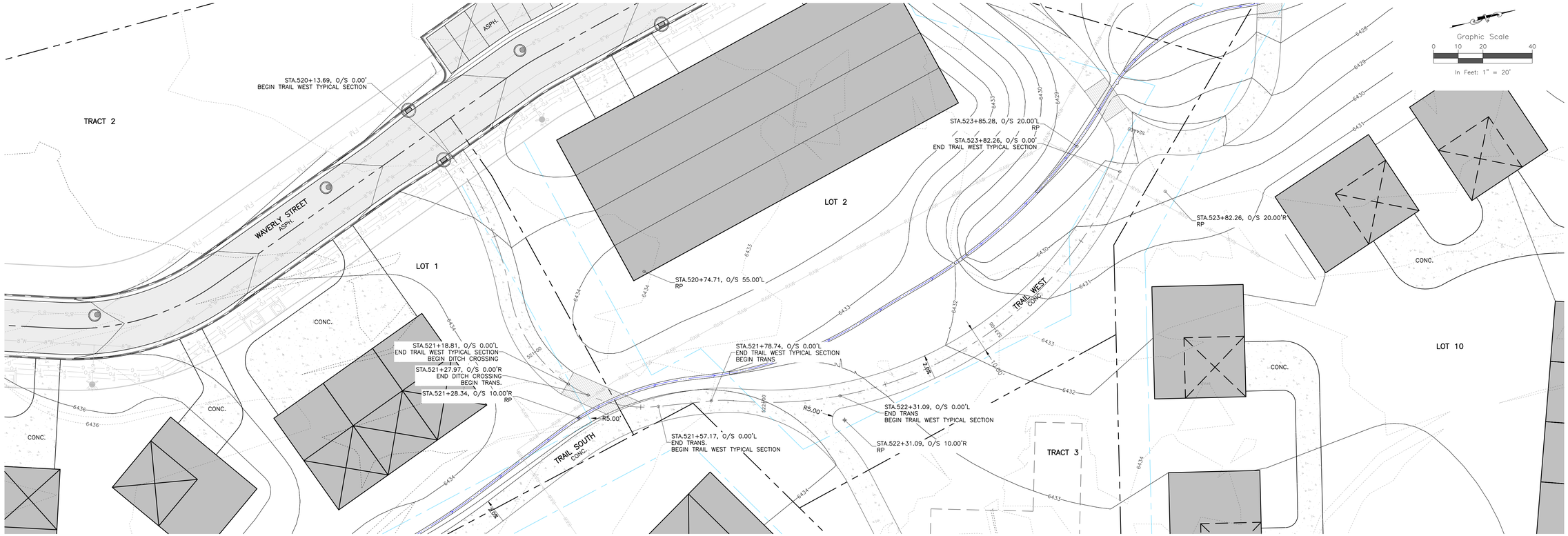
CHECKED BY: DCS
DRAWN BY: ADW

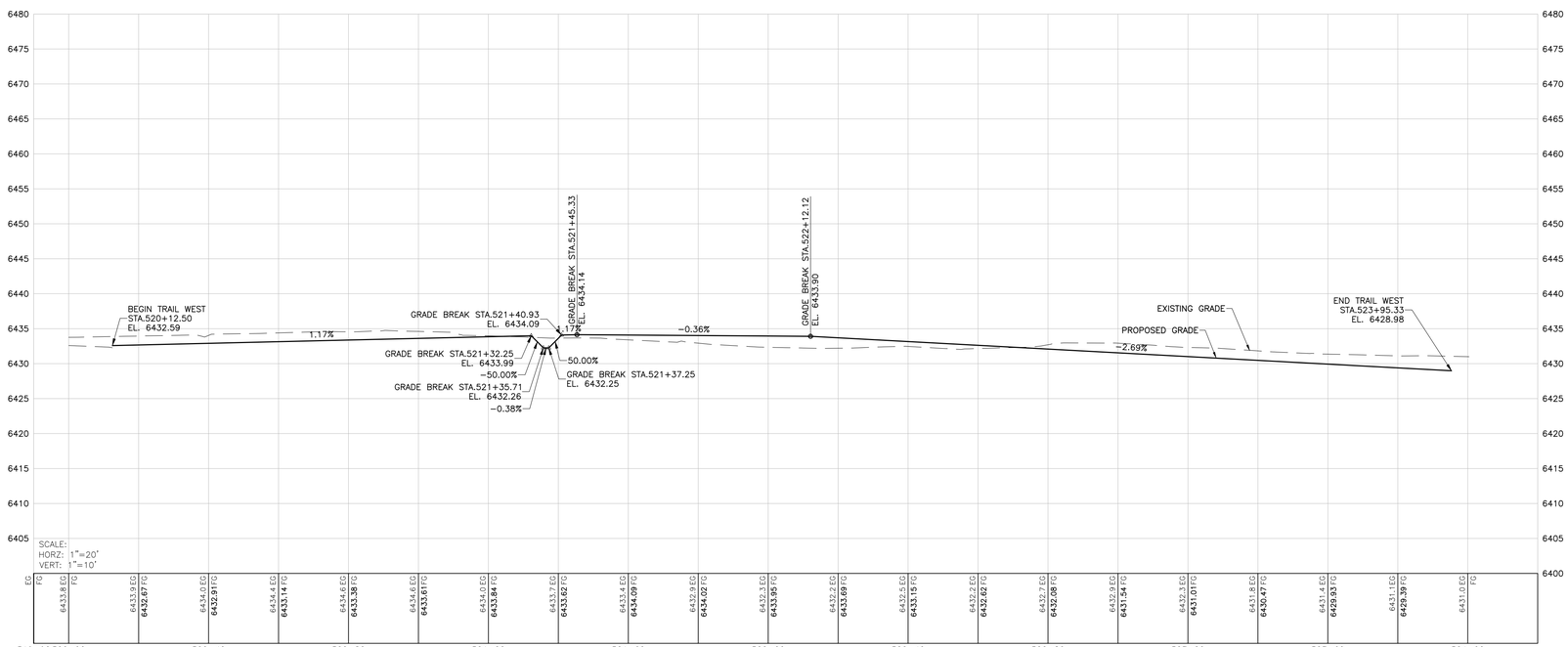
#	DESCRIPTION	DRAWN BY	DATE

JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

TRAIL NORTH P&P STA. 345+00 TO STA. 348+60





TRAIL WEST PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

DRAWN BY

DATE

DESCRIPTION

#

JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

TRAIL WEST P&P

C29

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
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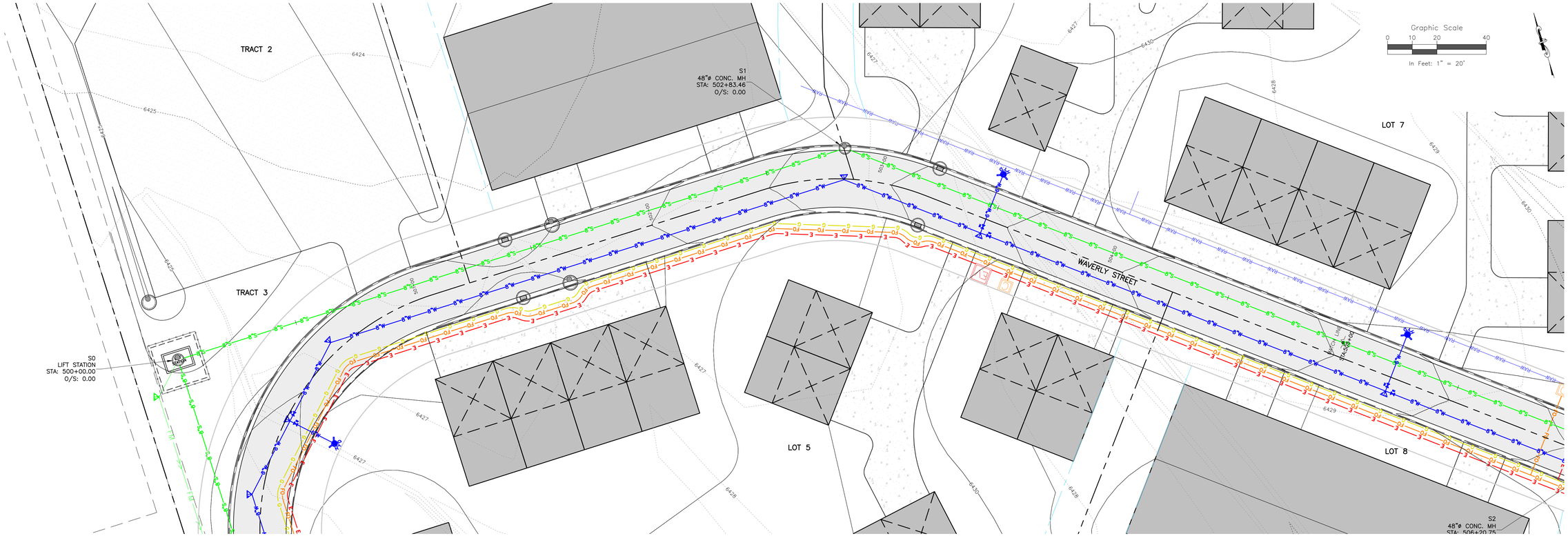
#	DESCRIPTION	DATE	DRAWN BY

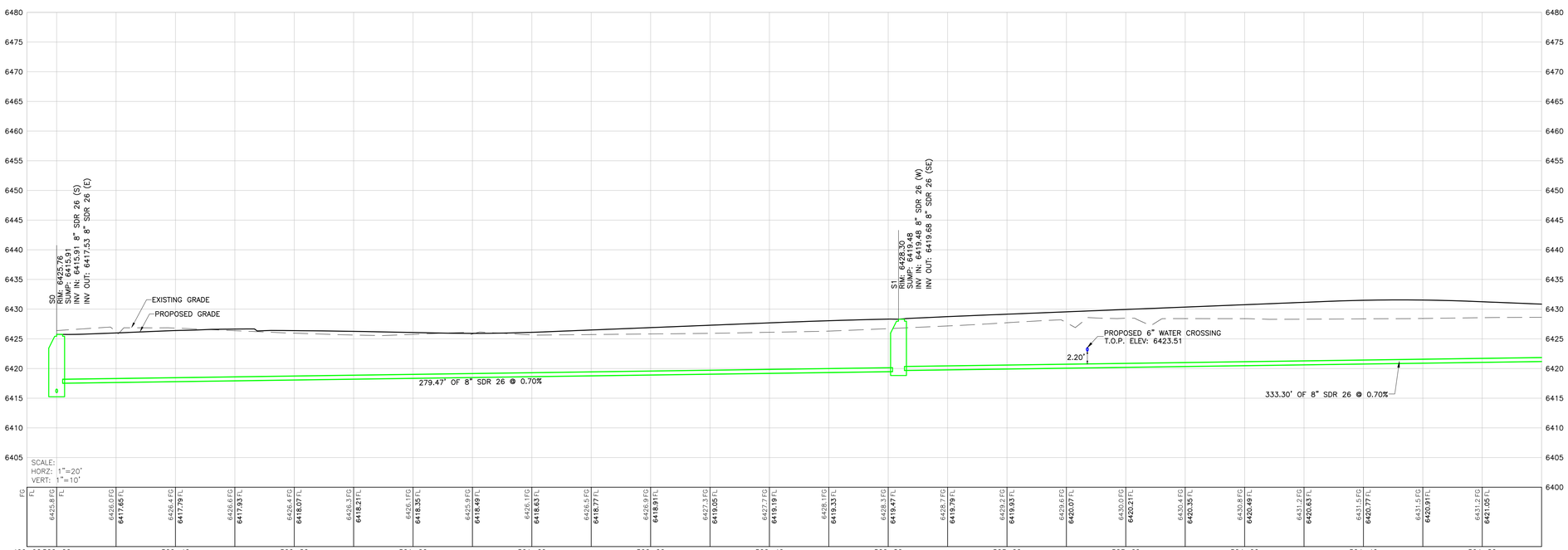
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

OVERALL SITE GRADING

C30





SANITARY SEWER EAST STA. 500+00 TO STA. 505+00 PROFILE

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-UTIL P&P.DWG Plotted: 11/24/2020 3:27 PM By: Drew Wharton

ROARING FORK ENGINEERING
592 HIGHWAY 133
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DATE

DESCRIPTION

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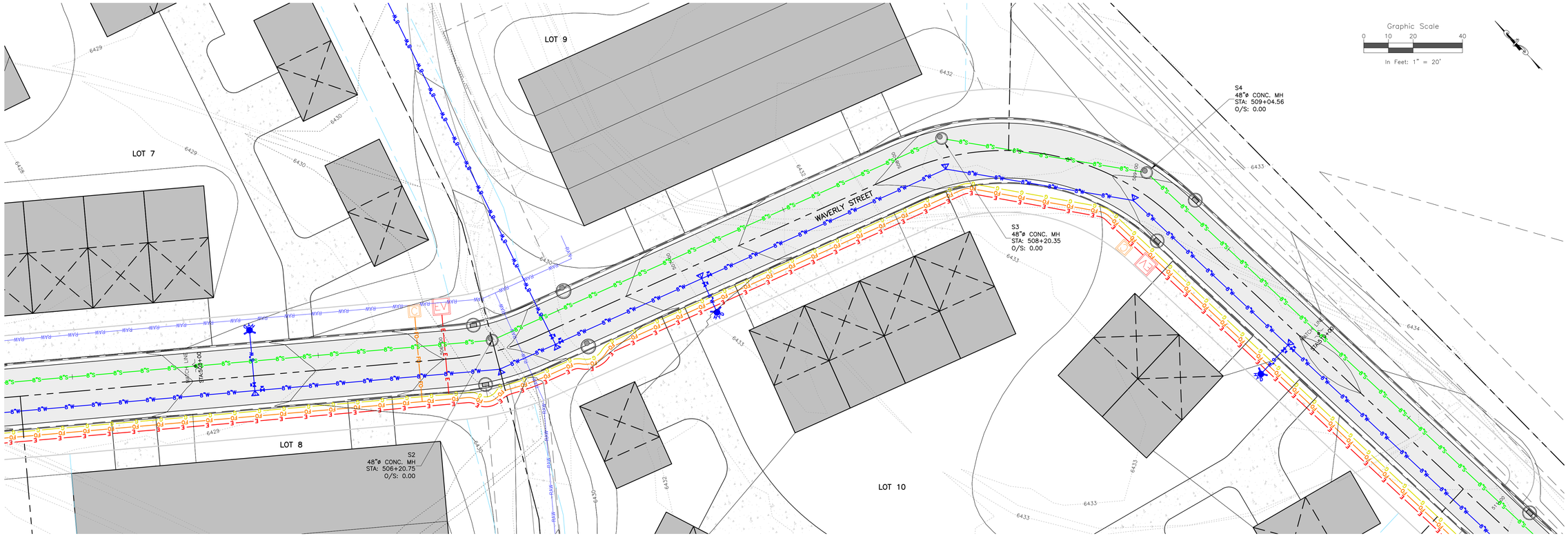
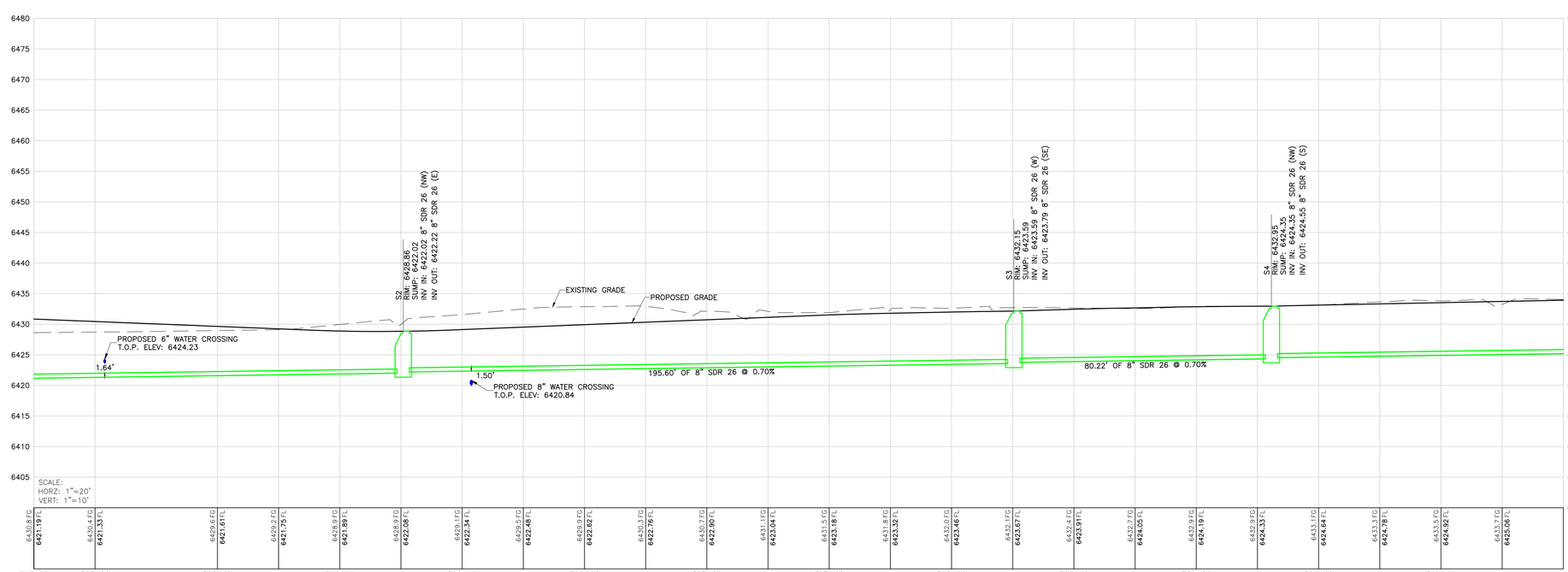
THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

SANITARY SEWER P&P EAST
STA. 500+00 TO STA. 505+00

C31





SANITARY SEWER EAST STA. 505+00 TO STA. 510+00 PROFILE

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-UTIL P&P.DWG Plotted: 11/24/2020 3:27 PM By: Drew Wharton

ROARING FORK ENGINEERING
592 HIGHWAY 133
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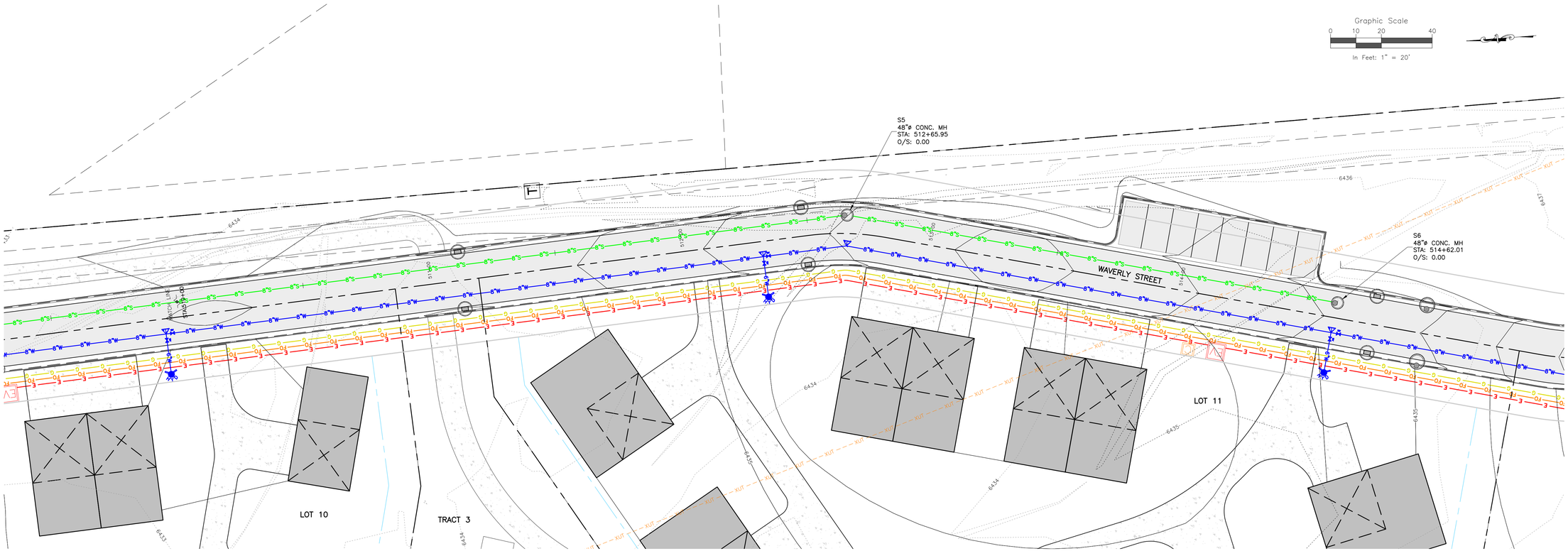
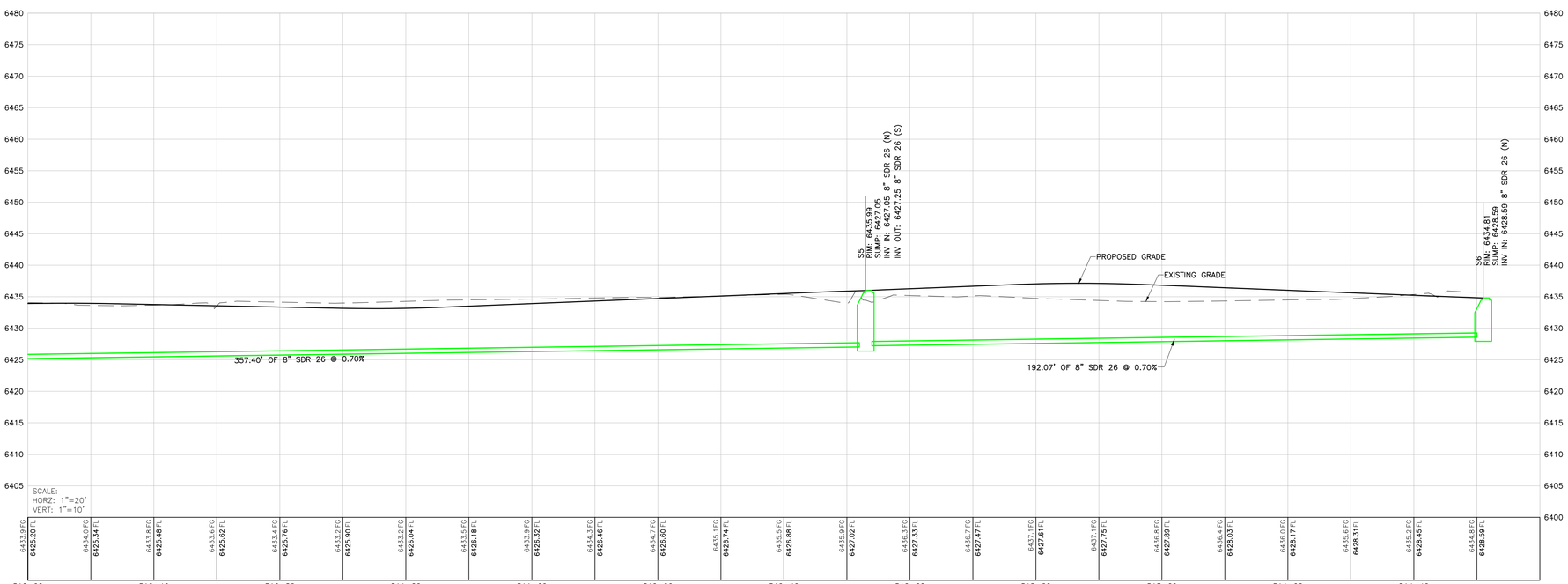
THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

SANITARY SEWER P&P EAST
STA. 505+00 TO STA. 510+00





SANITARY SEWER EAST STA. 510+00 TO STA. 514+40 PROFILE

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ROARING FORK ENGINEERING
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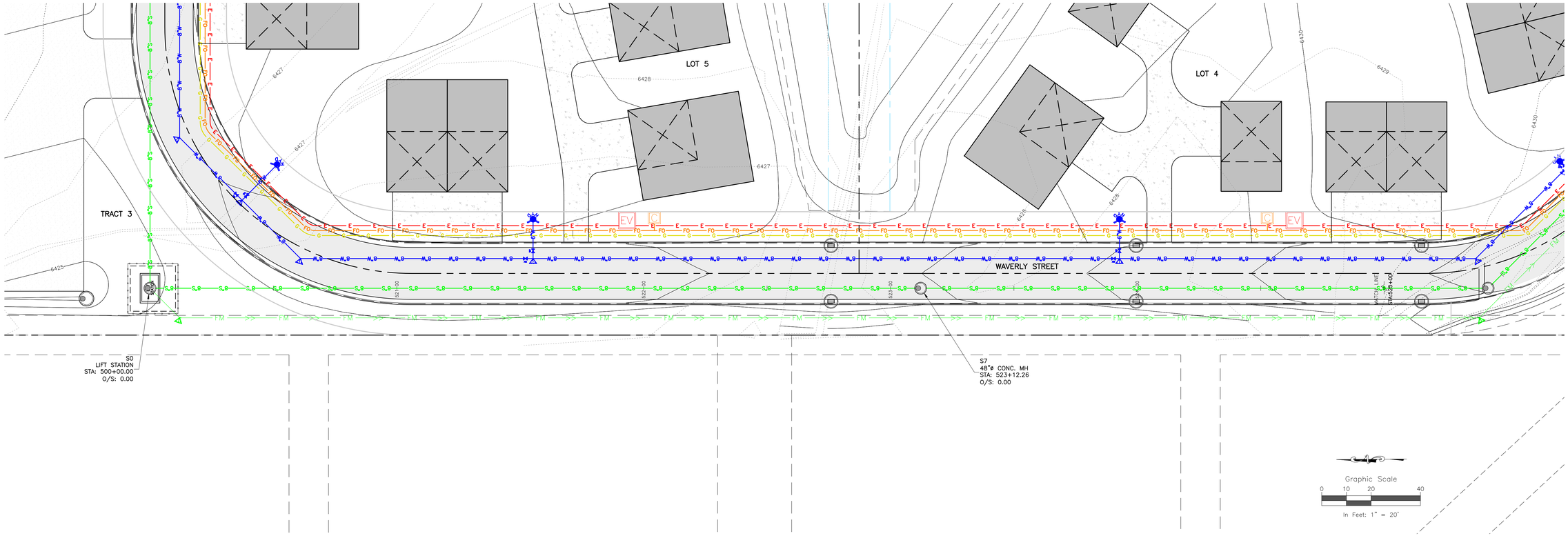
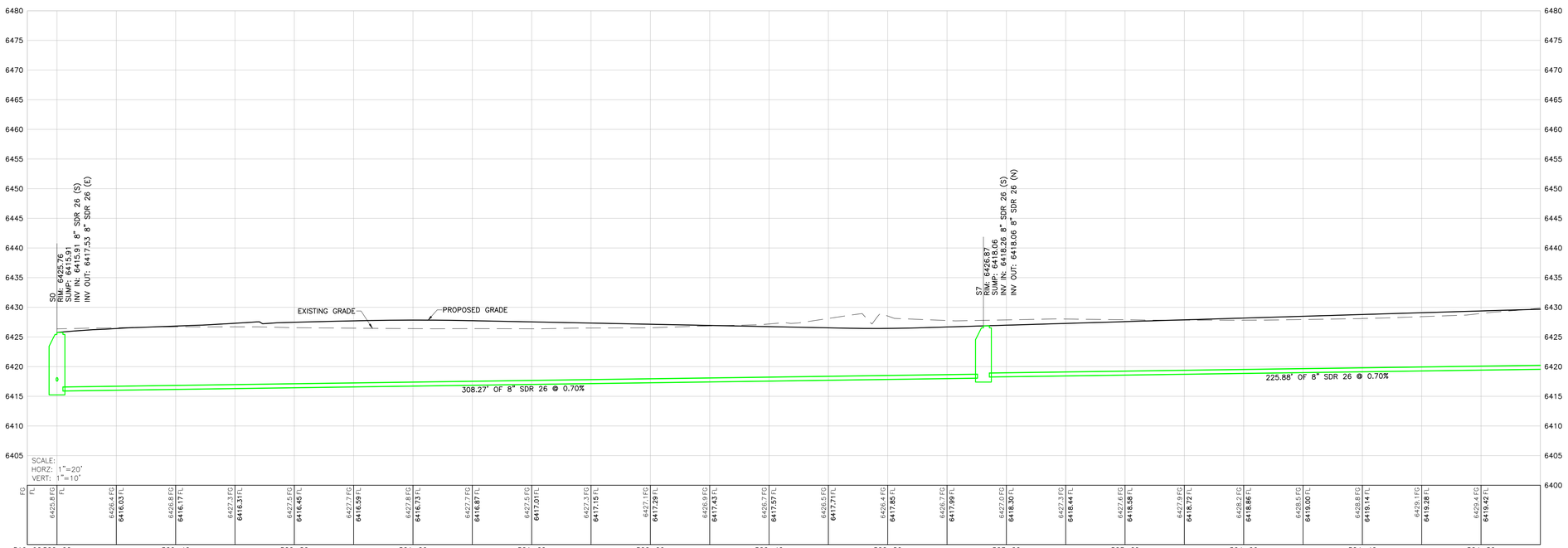
554 VALLEY ROAD
EAGLE COUNTY, CO

SANITARY SEWER P&P EAST
STA. 510+00 TO STA. 514+40





SANITARY SEWER WEST STA. 520+00 TO STA. 525+00 PROFILE

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-UTIL P&P.DWG Plotted: 11/24/2020 3:27 PM By: Drew Wharton

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

DRAWN BY

DATE

DESCRIPTION

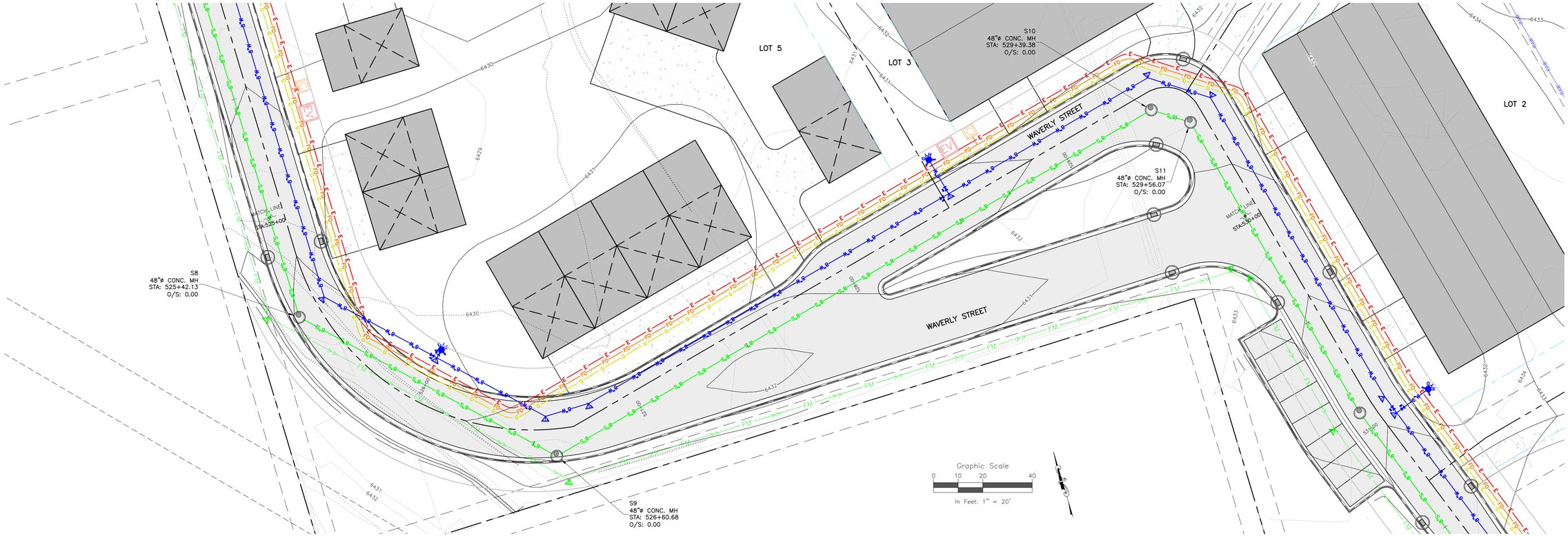
#

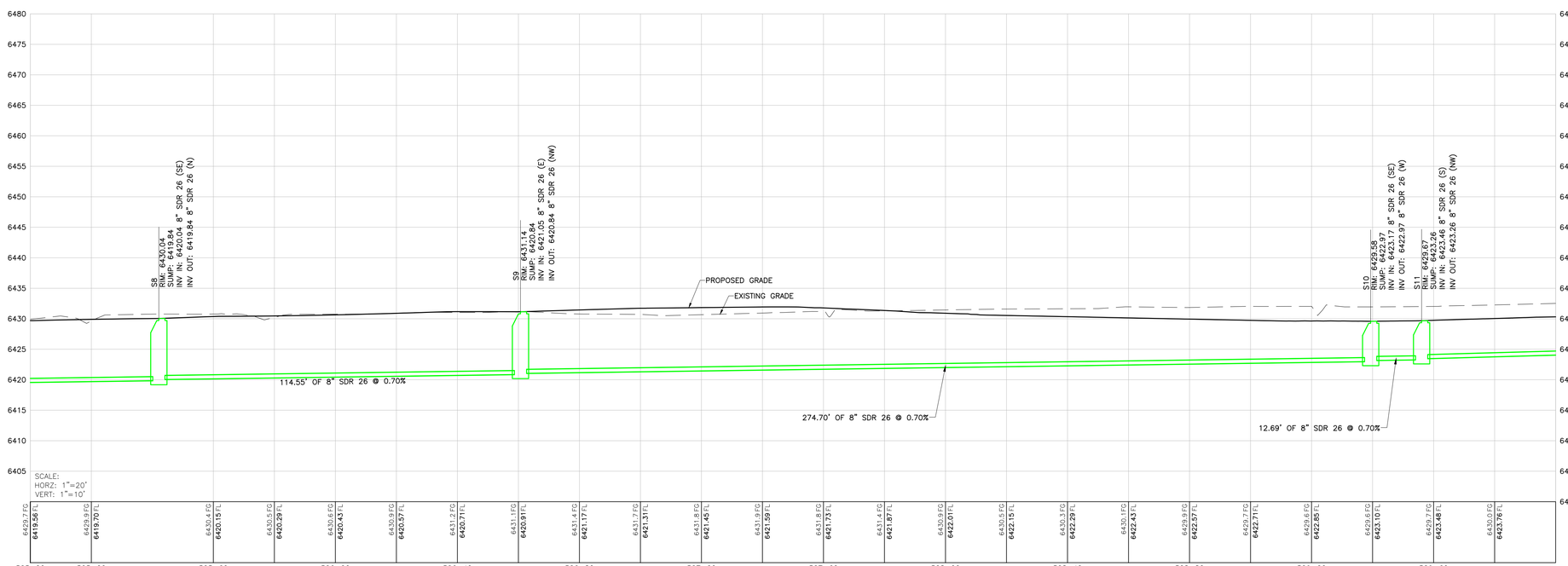
JOB #: 2020-08

NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

SANITARY SEWER P&P WEST STA. 520+00 TO STA. 525+00





SANITARY SEWER WEST STA. 525+00 TO STA. 530+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
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CHECKED BY: DCS
DRAWN BY: ADW

DRAWN BY

DATE

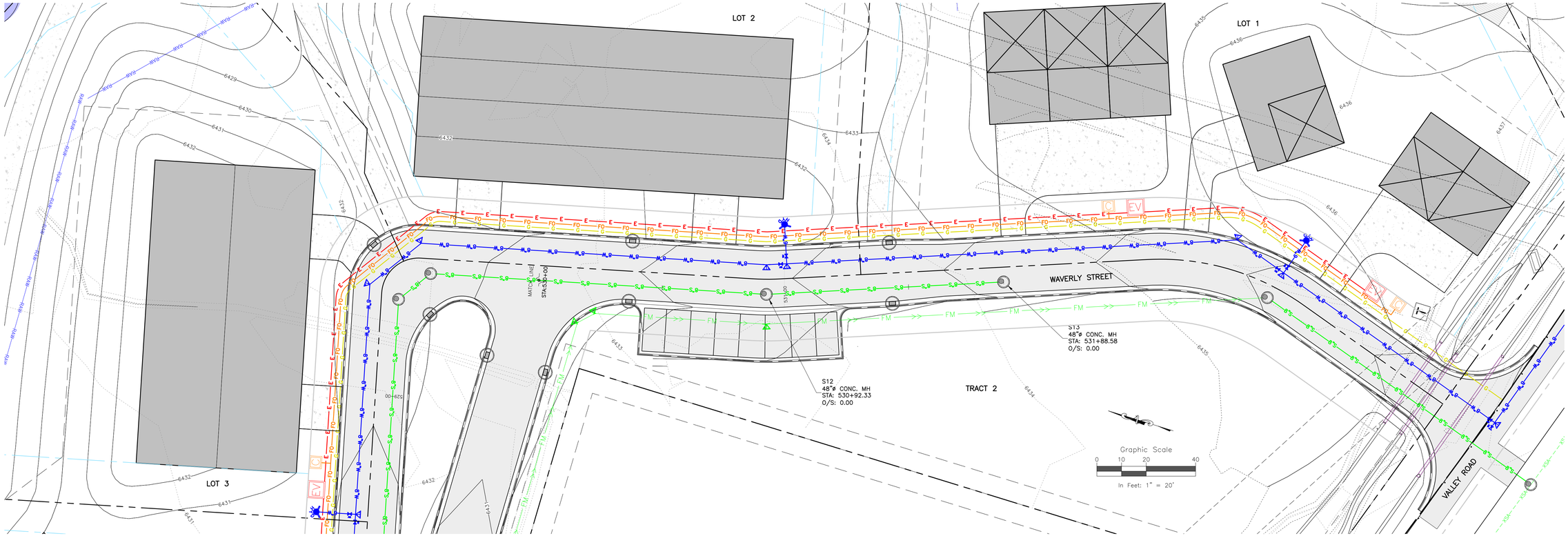
#	DESCRIPTION

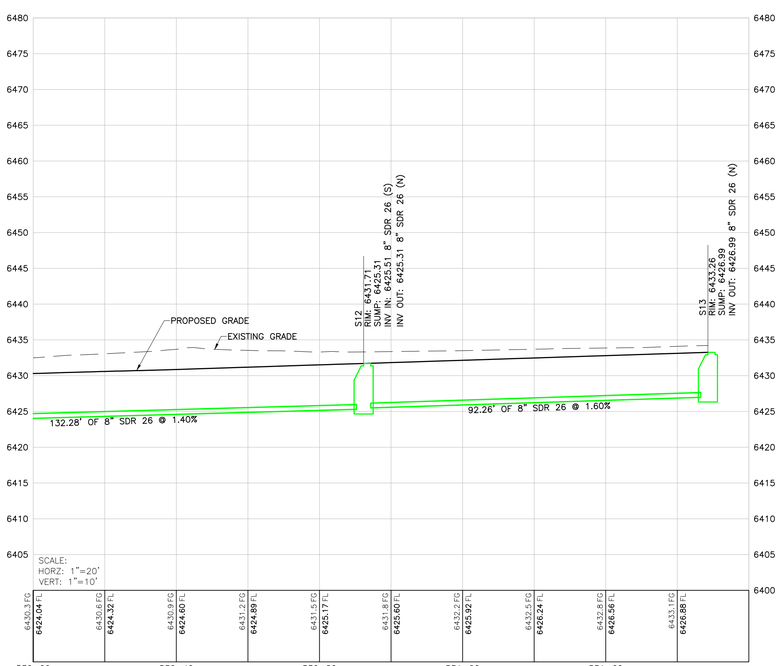
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

SANITARY SEWER P&P WEST
STA. 525+00 TO STA. 530+00

C35





SANITARY SEWER WEST STA. 530+00 TO STA. 532+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

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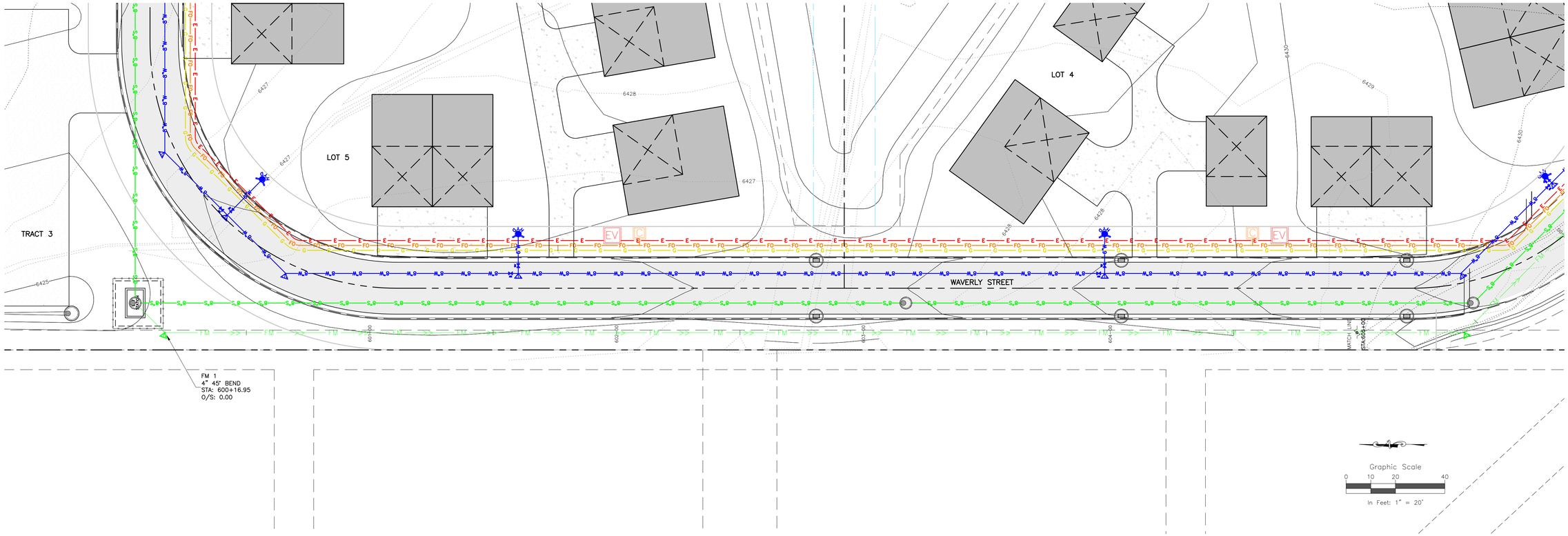
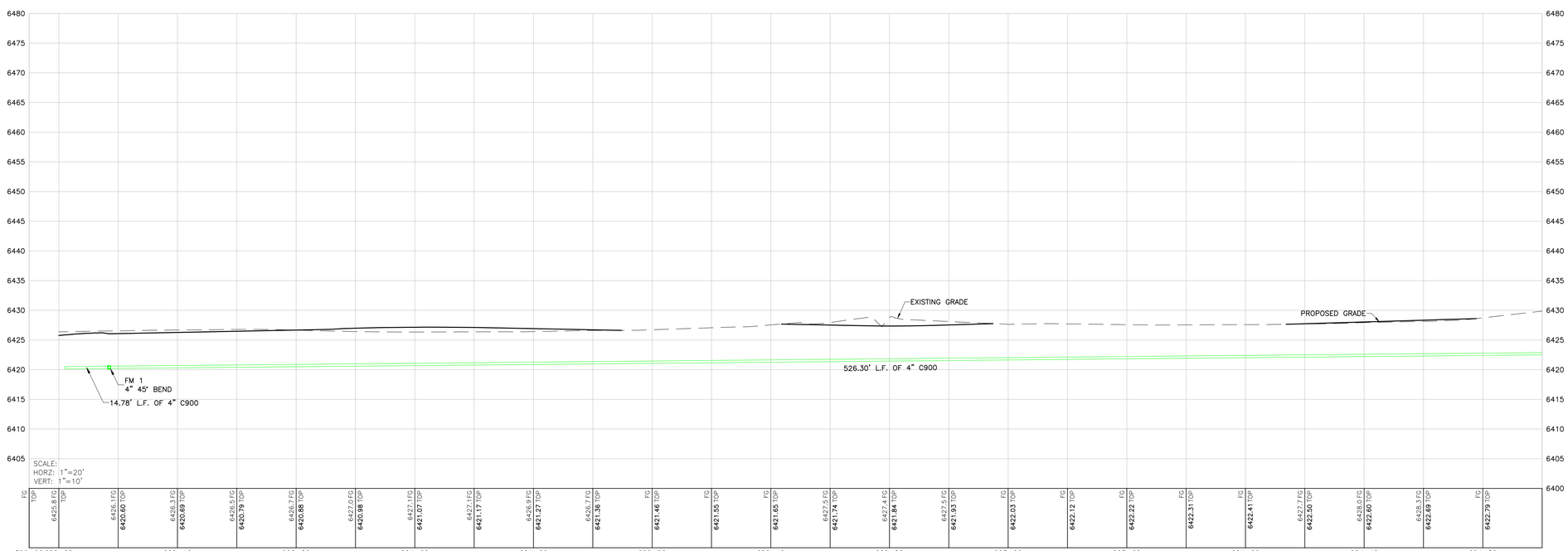
THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

SANITARY SEWER P&P WEST
STA. 530+00 TO STA. 532+00

C36





FORCE MAIN STA. 600+00 TO STA. 605+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
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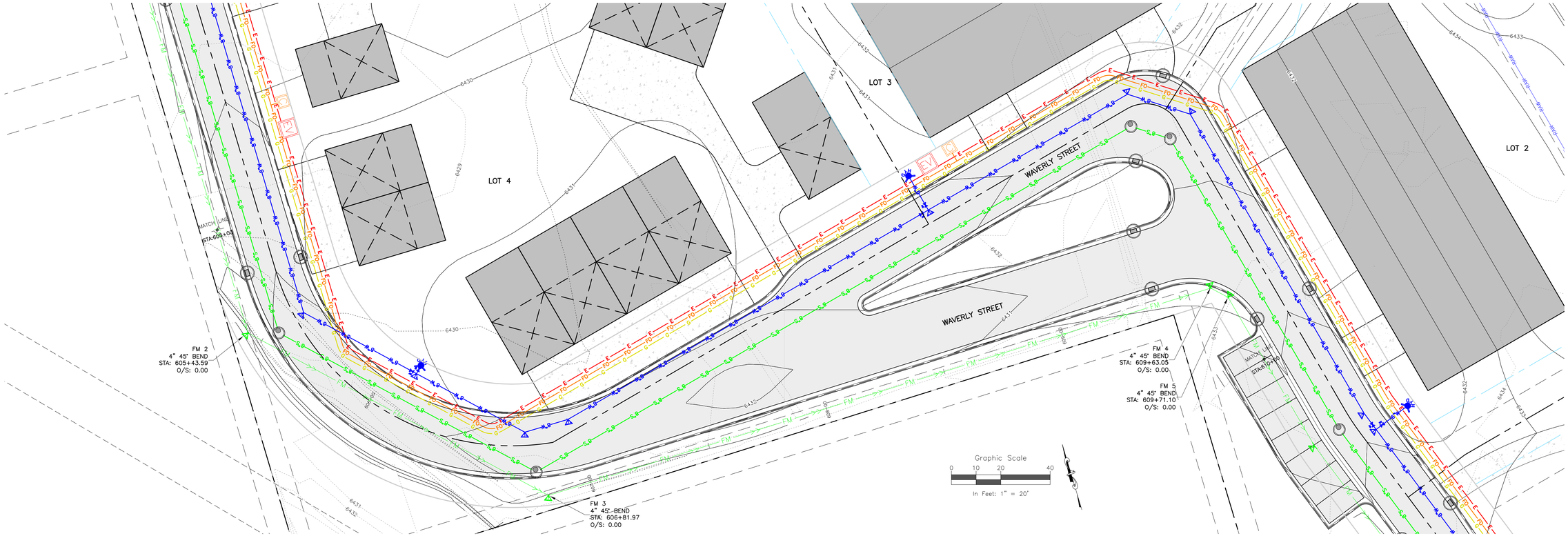
#	DESCRIPTION

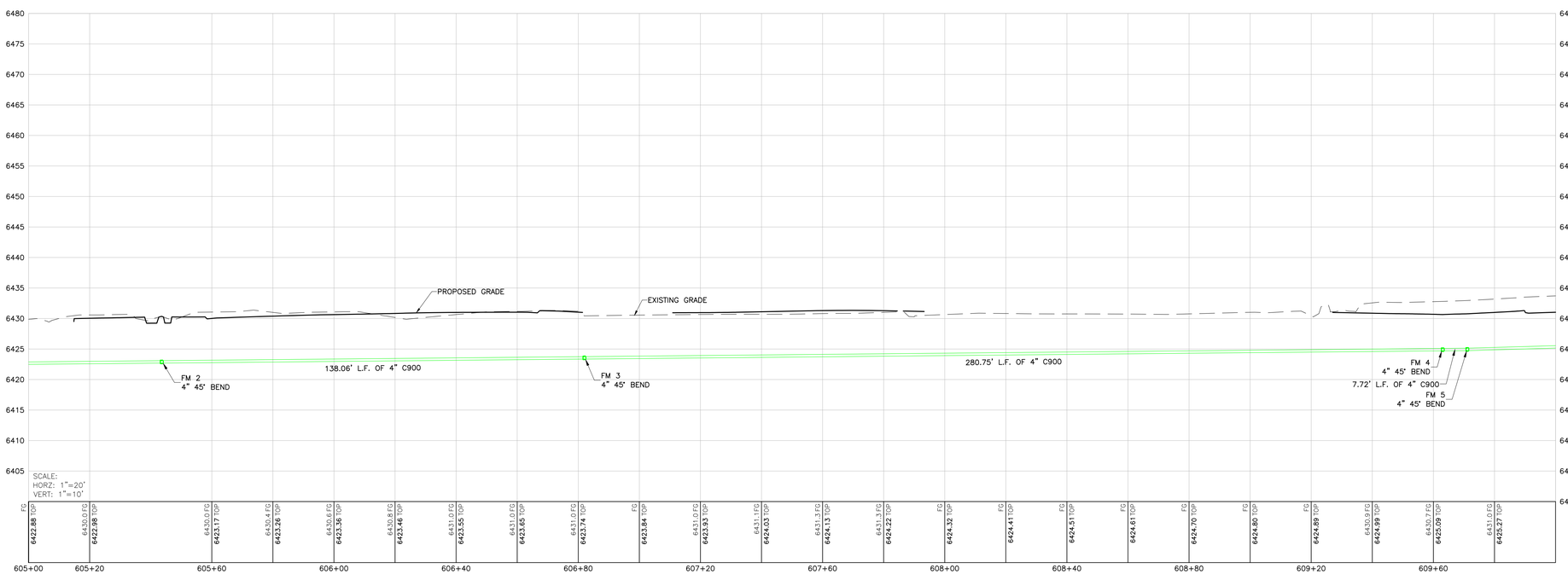
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

FORCE MAIN P&P STA. 600+00 TO STA. 605+00

C37





FORCE MAIN 605+00 TO STA. 610+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

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DRAWN BY: ADW

DRAWN BY

DATE

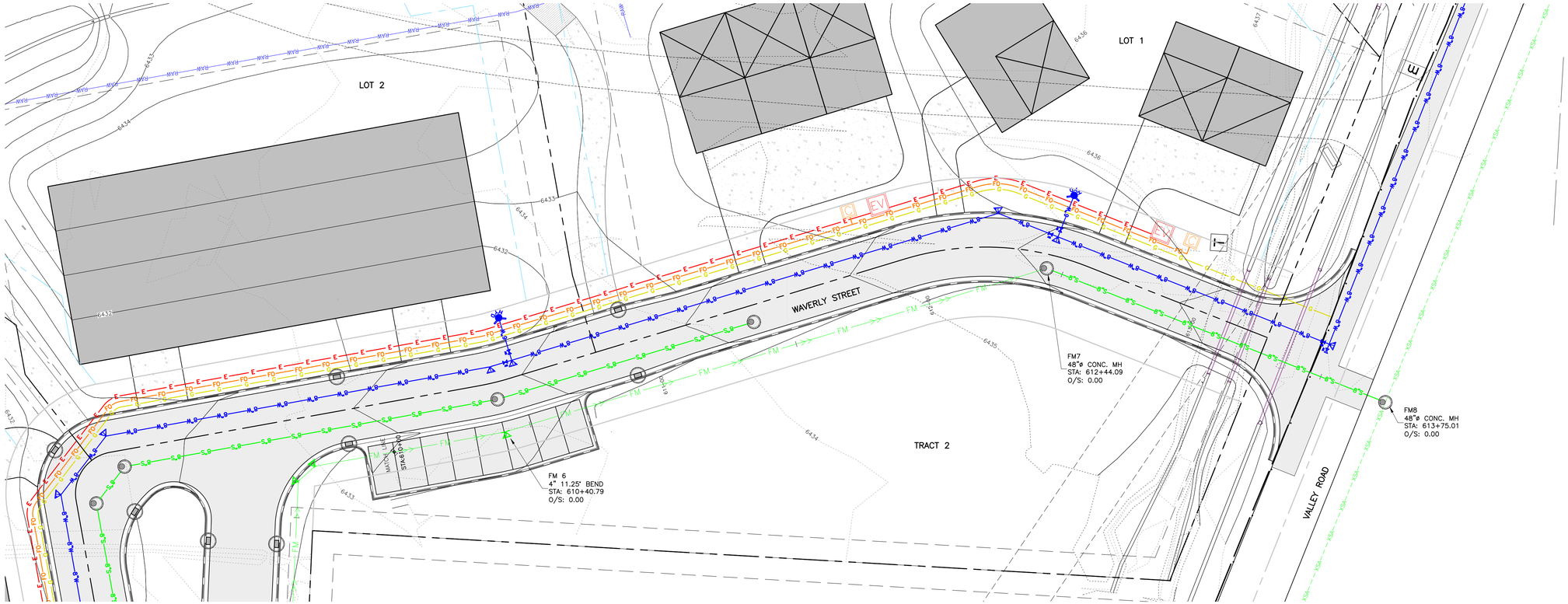
| DESCRIPTION

JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

FORCE MAIN P&P STA. 605+00 TO STA. 610+00

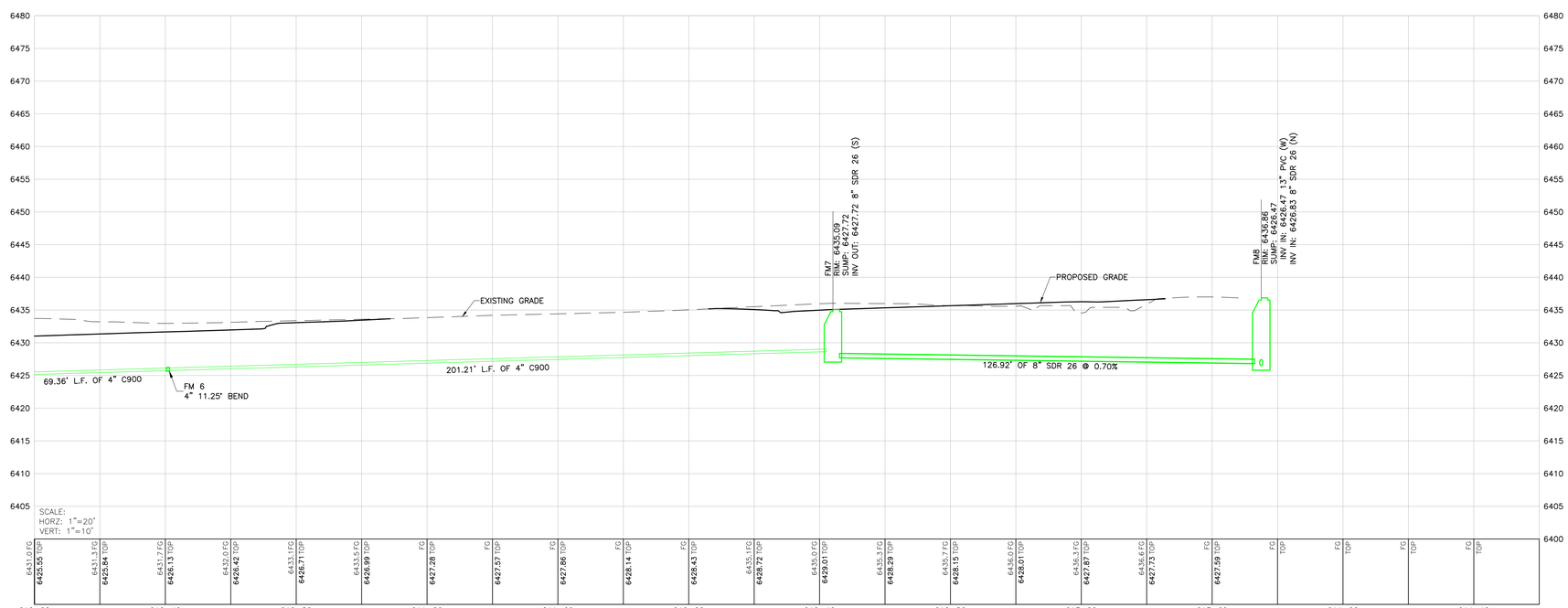
C38



Graphic Scale

0 10 20 40

In Feet: 1" = 20'



FORCE MAIN STA. 610+00 TO STA. 614+60 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
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PH: (970)340-4130 F:(866)876-5873

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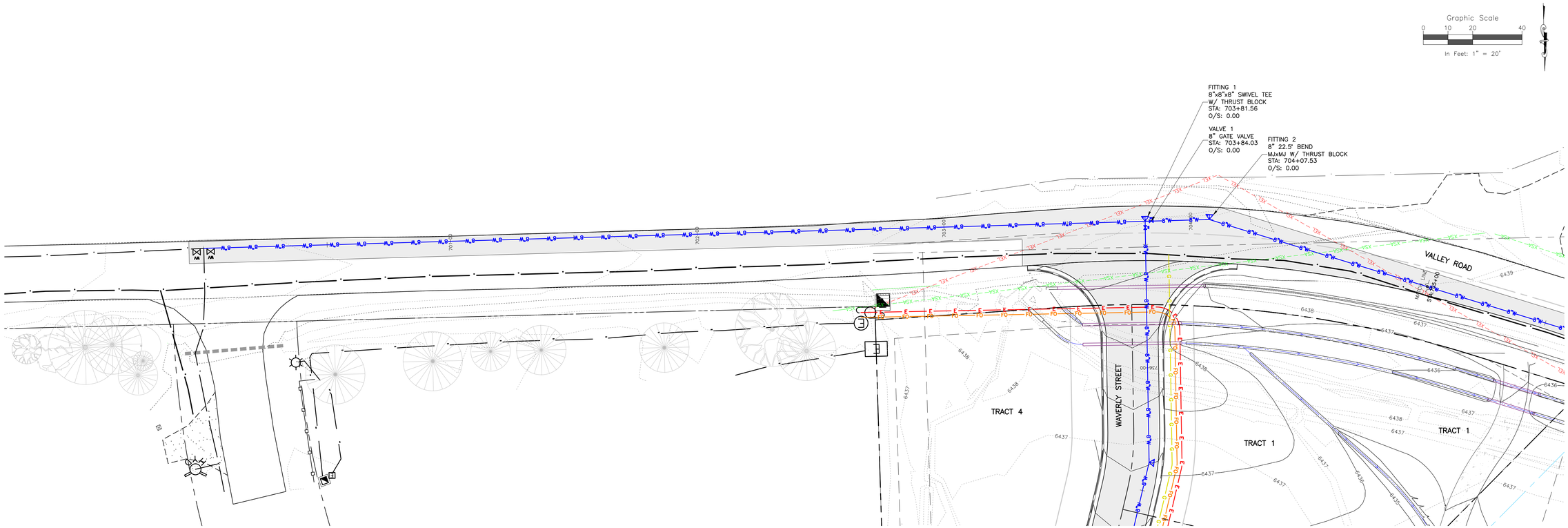
| DESCRIPTION

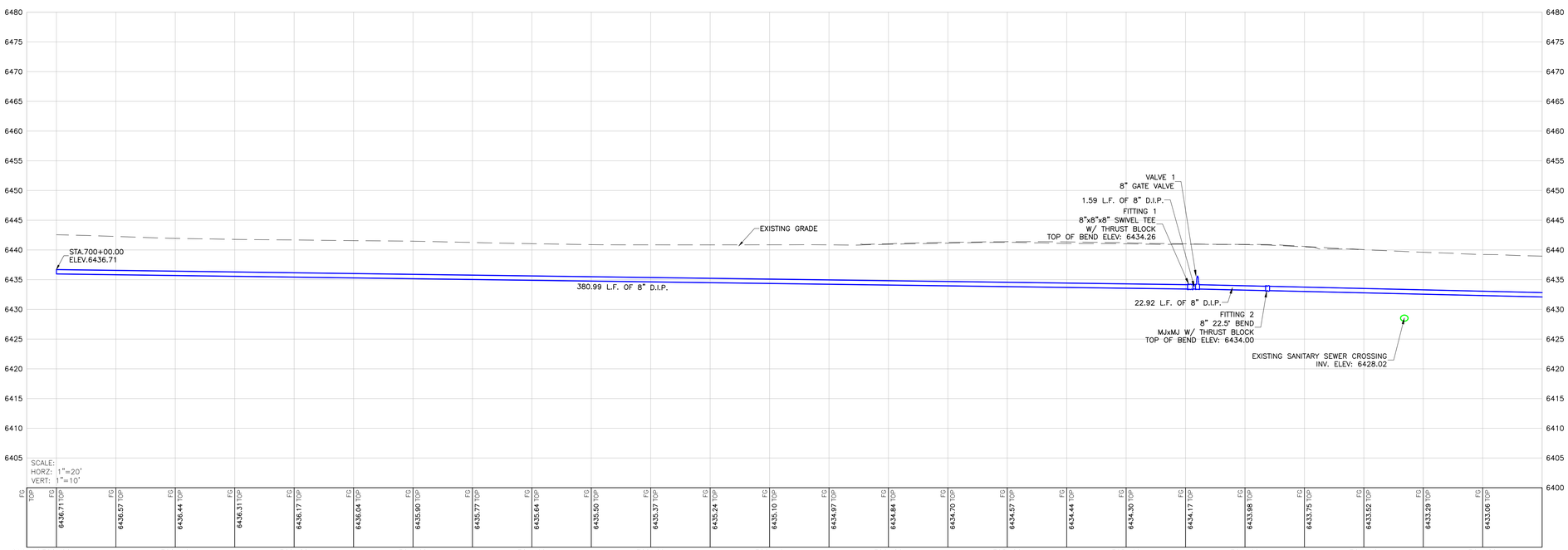
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

FORCE MAIN P&P STA. 610+00 TO STA. 614+60

C39





WATER MAIN STA. 700+00 TO STA. 705+00 PROFILE

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-WATER P&P.DWG Plotted: 11/24/2020 3:29 PM By: Drew Wharton

ROARING FORK ENGINEERING
592 HIGHWAY 133
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PH: (970)340-4130 F:(866)876-5873

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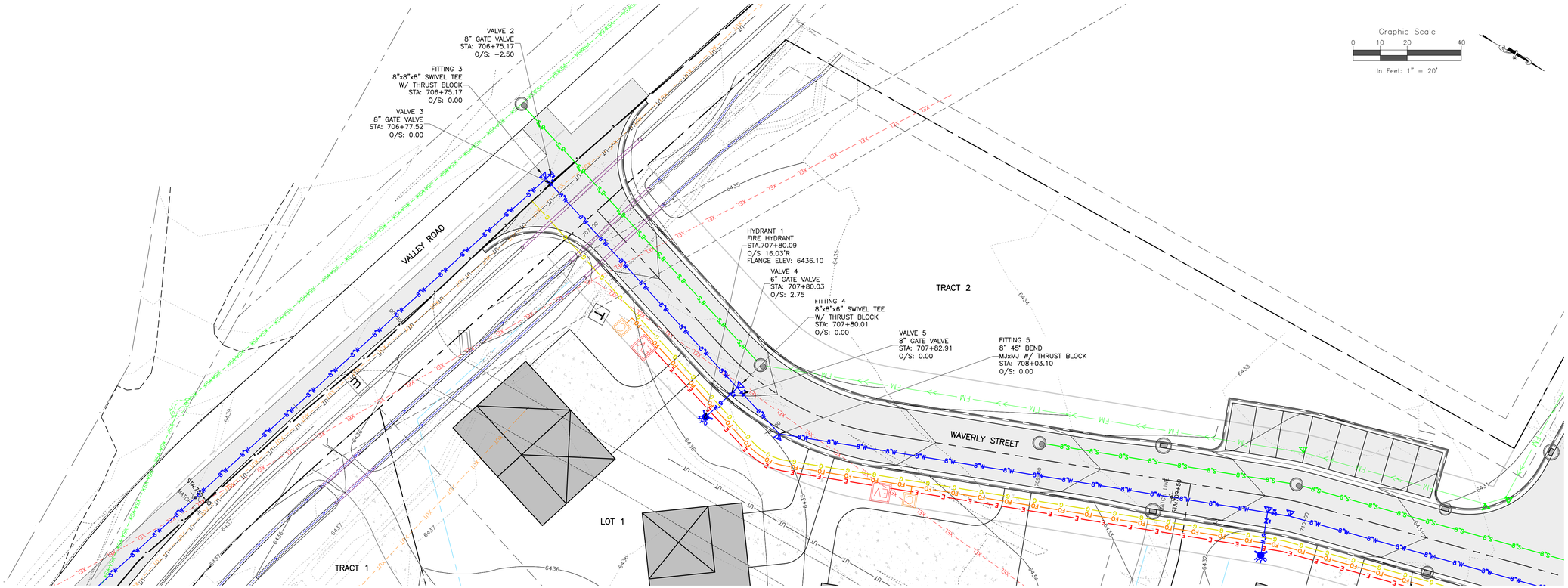
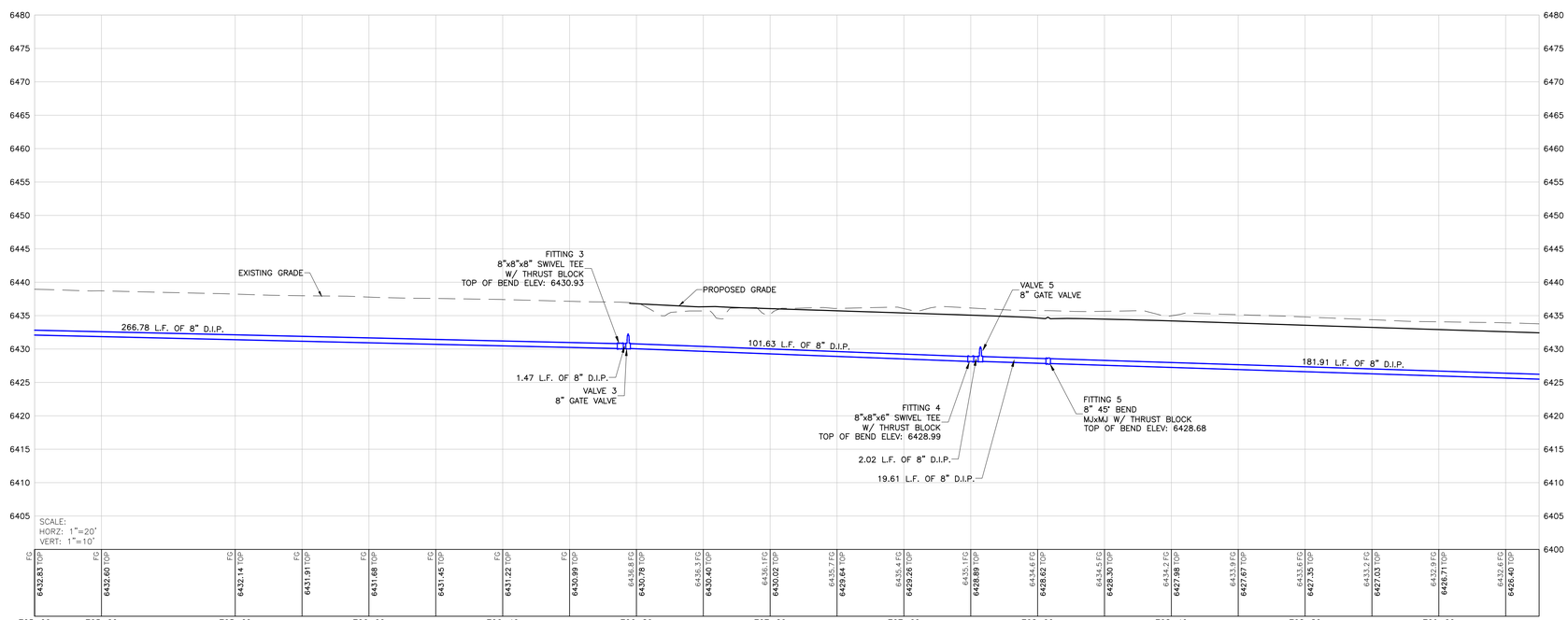
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

WATER MAIN P&P STA. 700+00 TO STA. 705+00

C40





WATER MAIN STA. 705+00 TO STA. 709+50 PROFILE

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-WATER P&P.DWG Plotted: 11/24/2020 3:29 PM By: Drew Wharton

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO, 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

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DESCRIPTION

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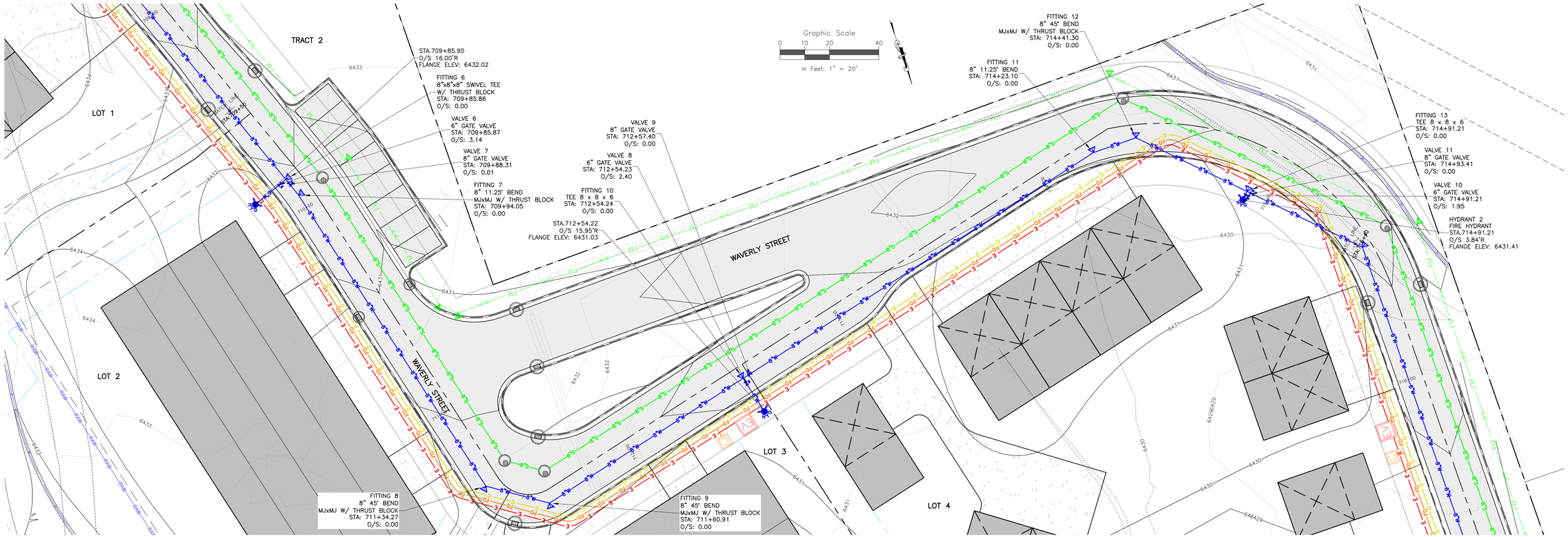
JOB #: 2020-08

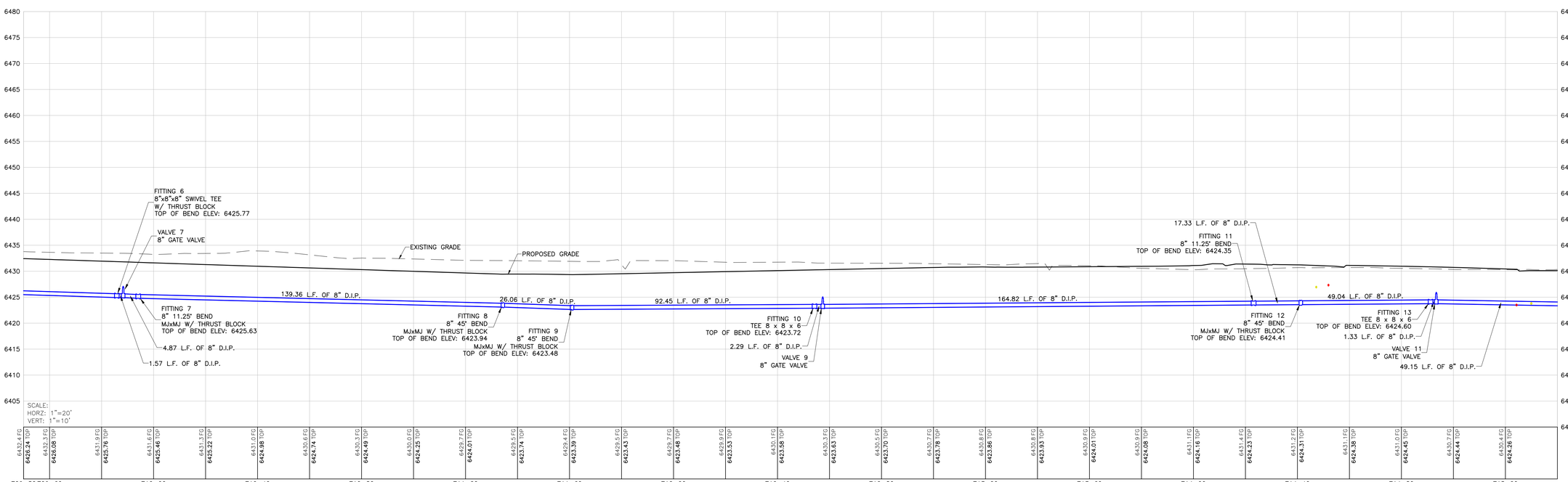
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

WATER MAIN P&P STA. 705+00 TO STA. 709+50

C41





WATER MAIN STA. 709+50 TO STA. 715+40 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
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PH: (970)340-4130 F:(866)876-5873

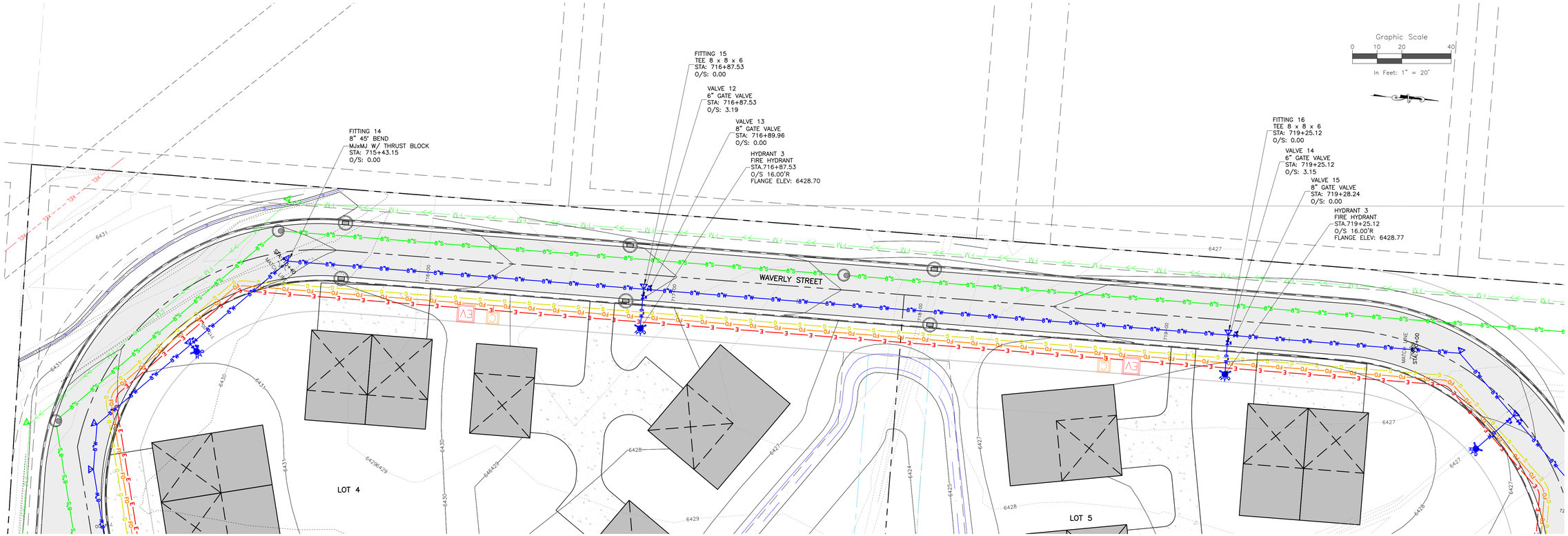
CHECKED BY: DCS
DRAWN BY: ADW

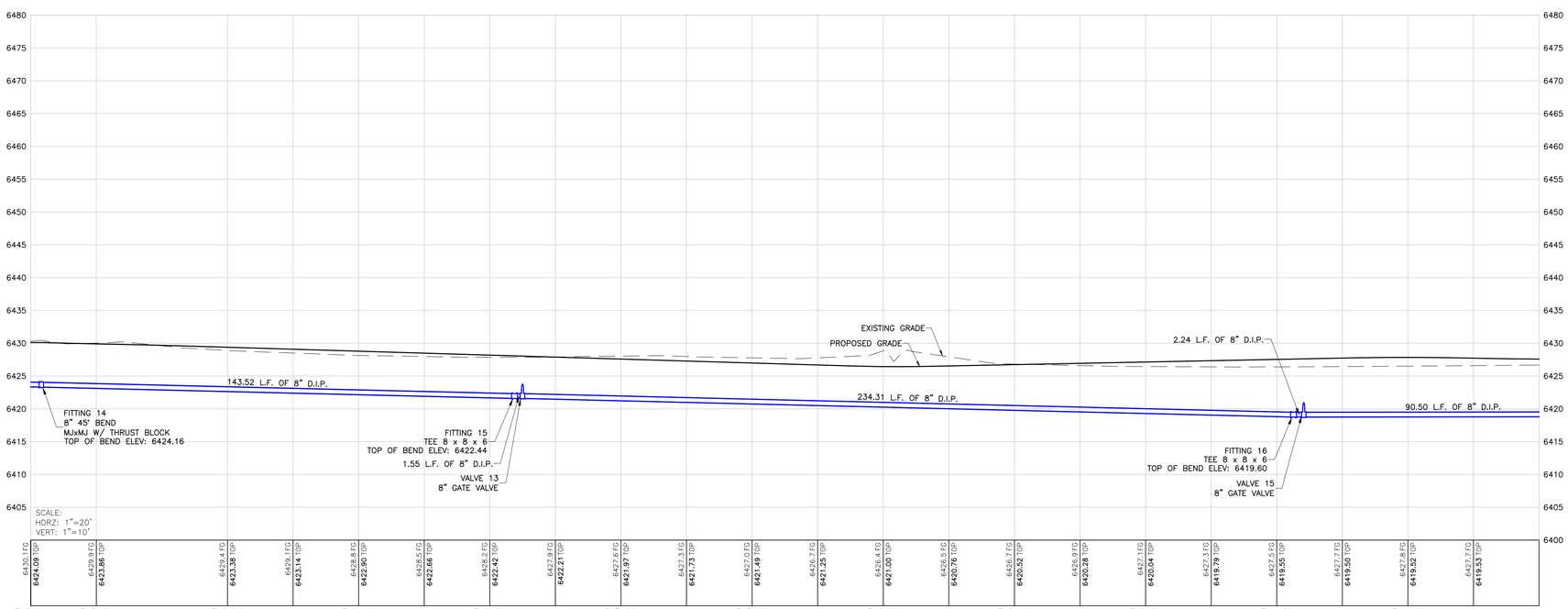
#	DESCRIPTION	DATE

JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

WATER MAIN P&P STA. 709+50 TO STA. 715+40





WATER MAIN STA. 715+40 TO STA. 720+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

DRAWN BY

DATE

DESCRIPTION

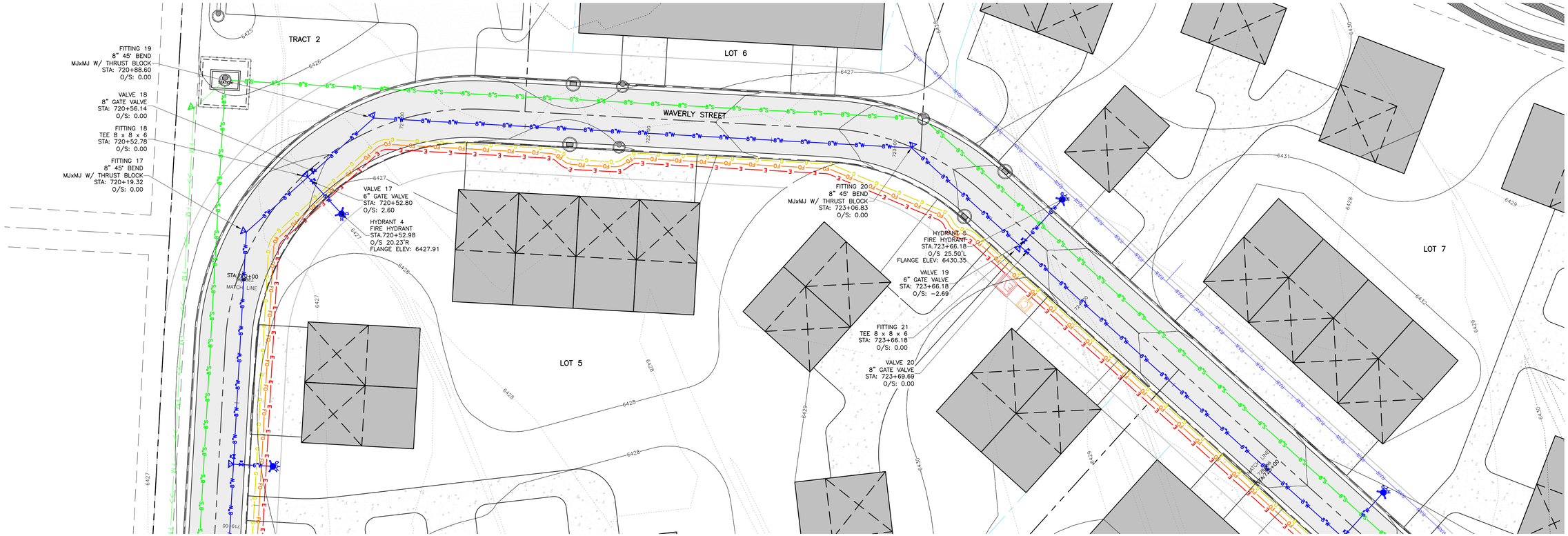
#

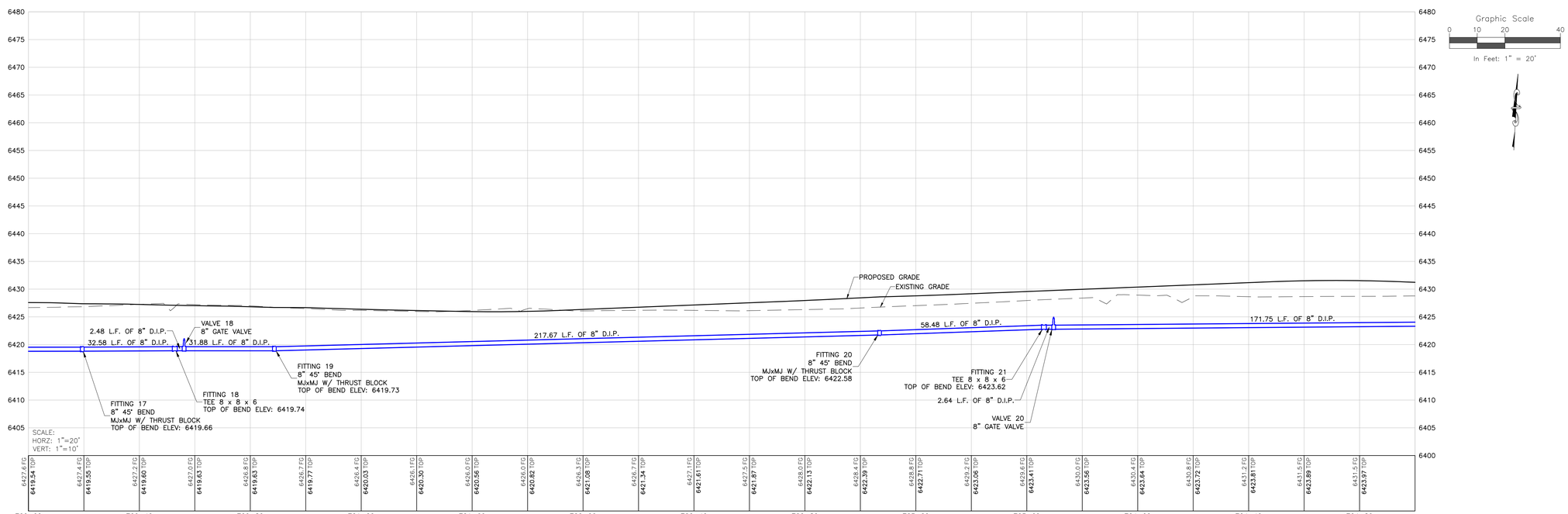
JOB #: 2020-08

NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

WATER MAIN P&P STA. 715+40 TO STA. 720+00





WATER MAIN STA. 720+00 TO STA. 725+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
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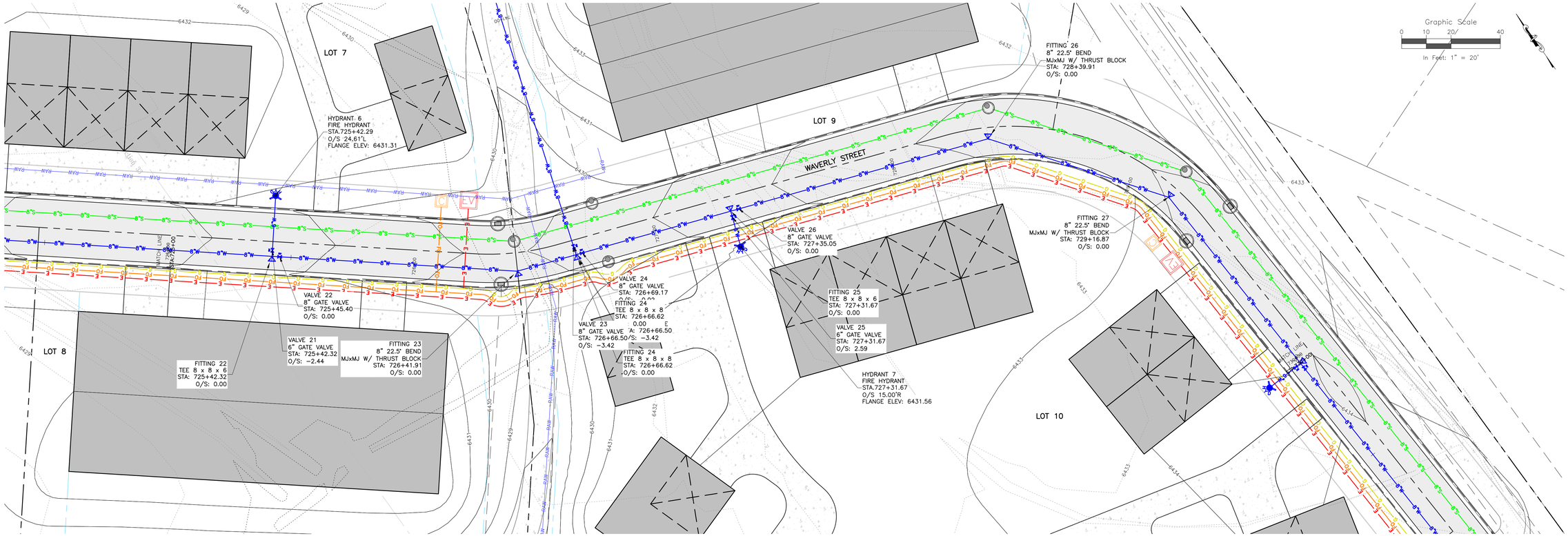
#	DESCRIPTION	DRAWN BY	DATE

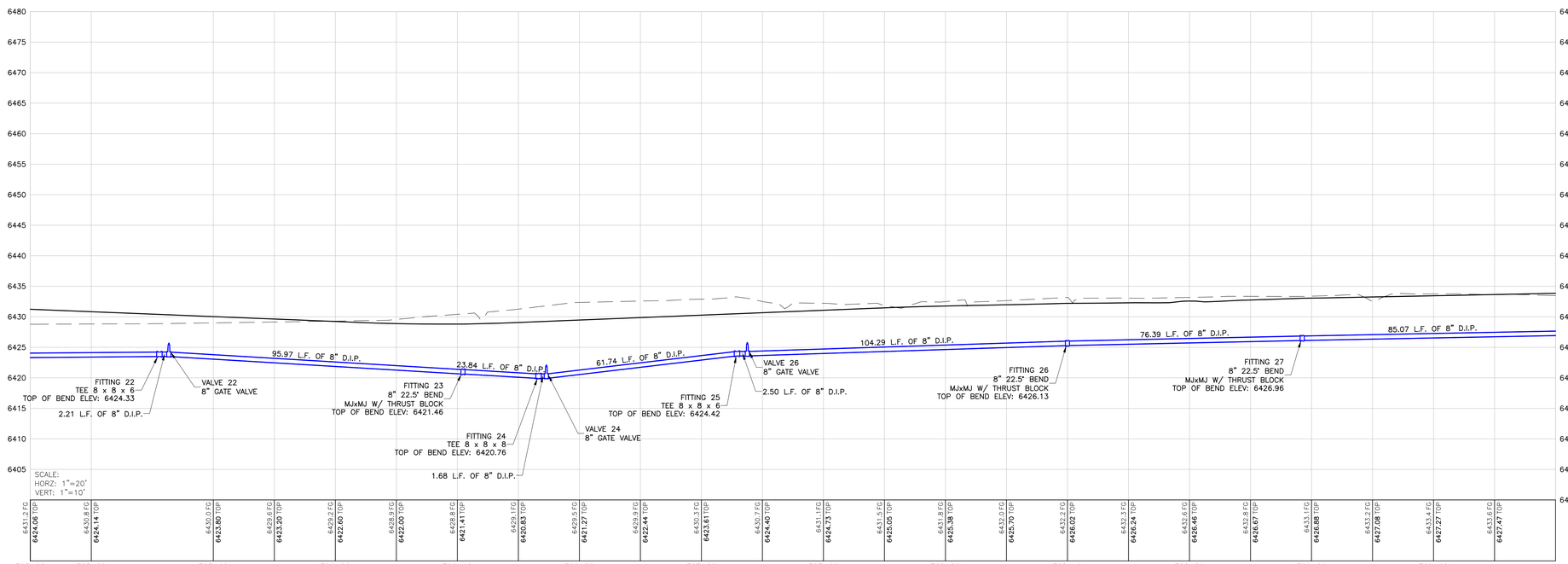
JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

WATER MAIN P&P STA. 720+00 TO STA. 725+00

C44





WATER MAIN STA. 725+00 TO STA. 730+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
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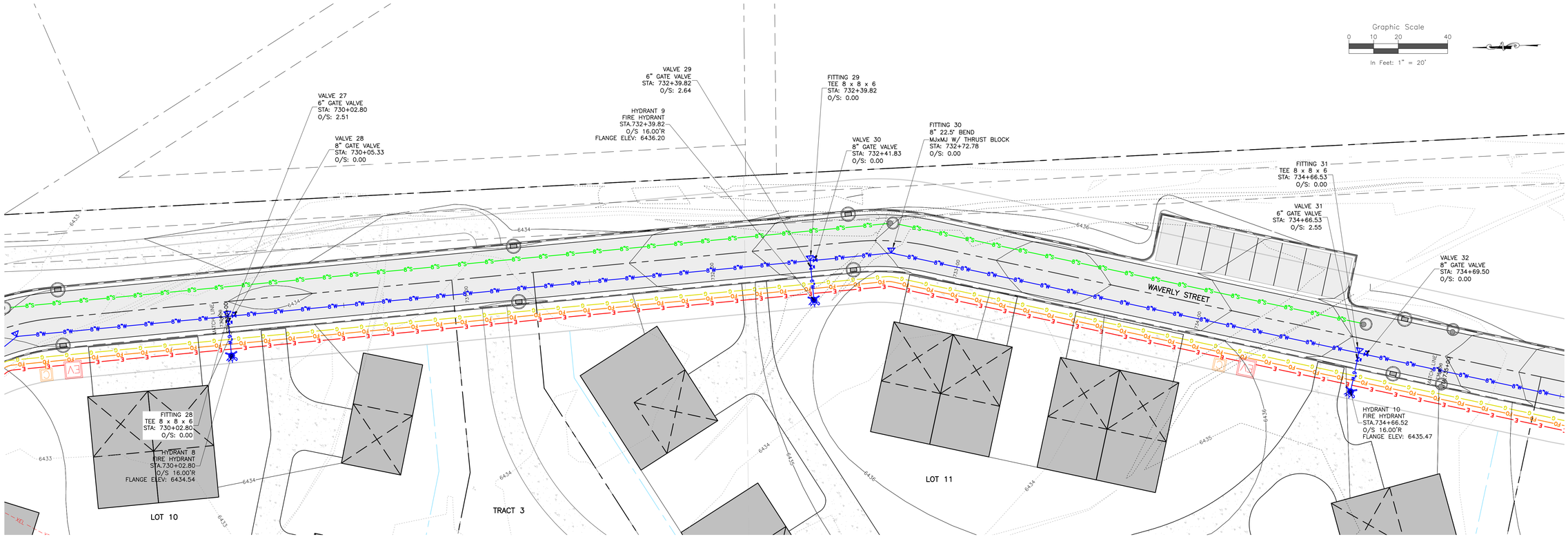
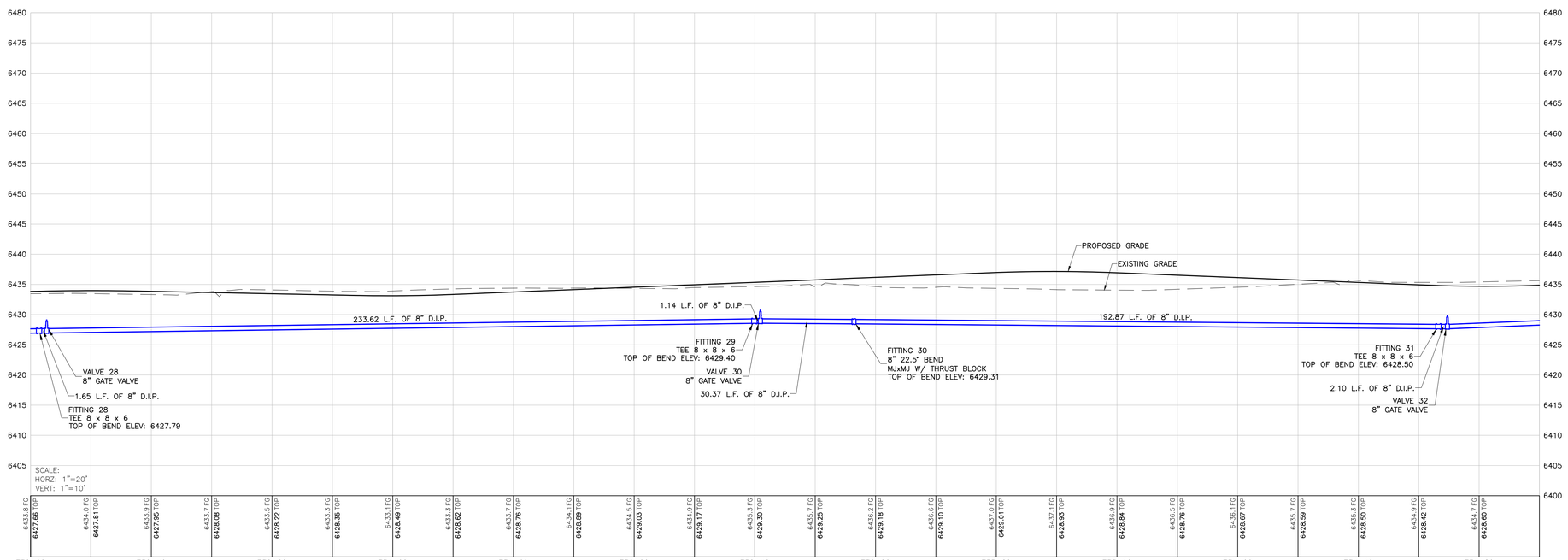
#	DESCRIPTION	DATE	DRAWN BY

JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

WATER MAIN P&P STA. 725+00 TO STA. 730+00





WATER MAIN STA. 730+00 TO STA. 735+00 PROFILE

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ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

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DESCRIPTION

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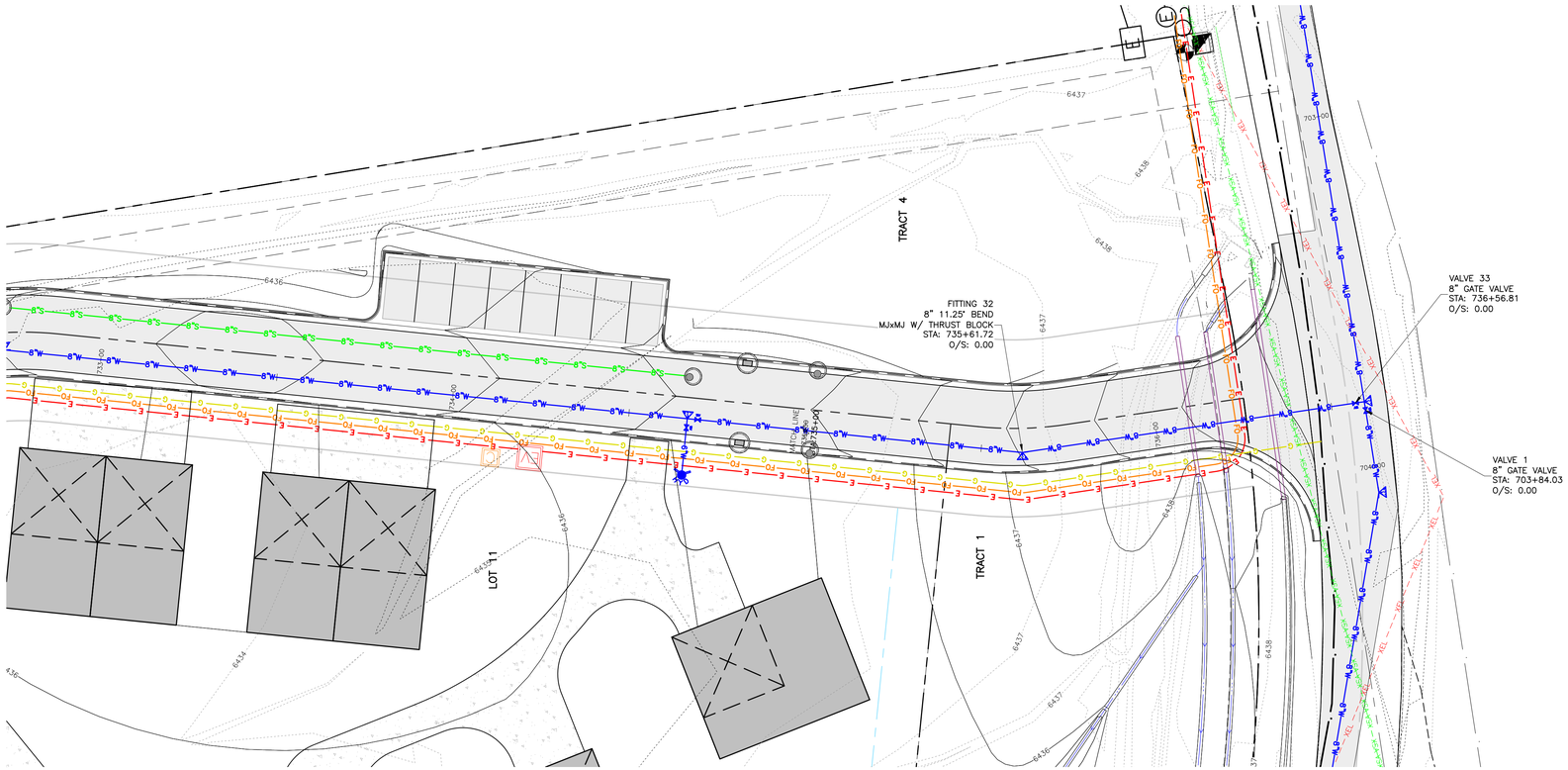
JOB #: 2020-08

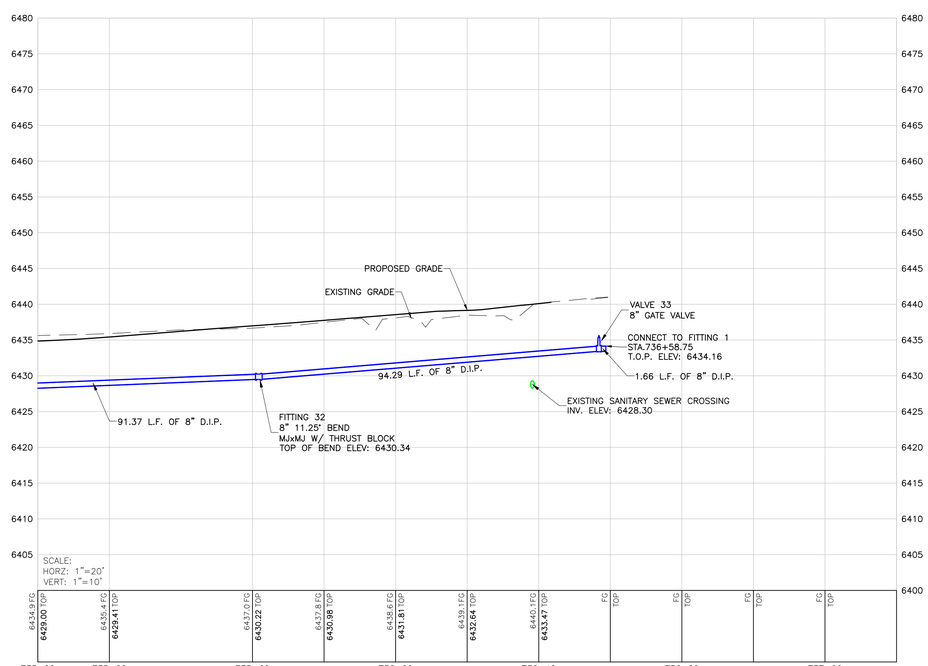
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

WATER MAIN P&P STA. 730+00 TO STA. 735+00

C46





WATER MAIN STA.735+00 TO STA. 737+40 PROFILE

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

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

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DESCRIPTION

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JOB #: 2020-08
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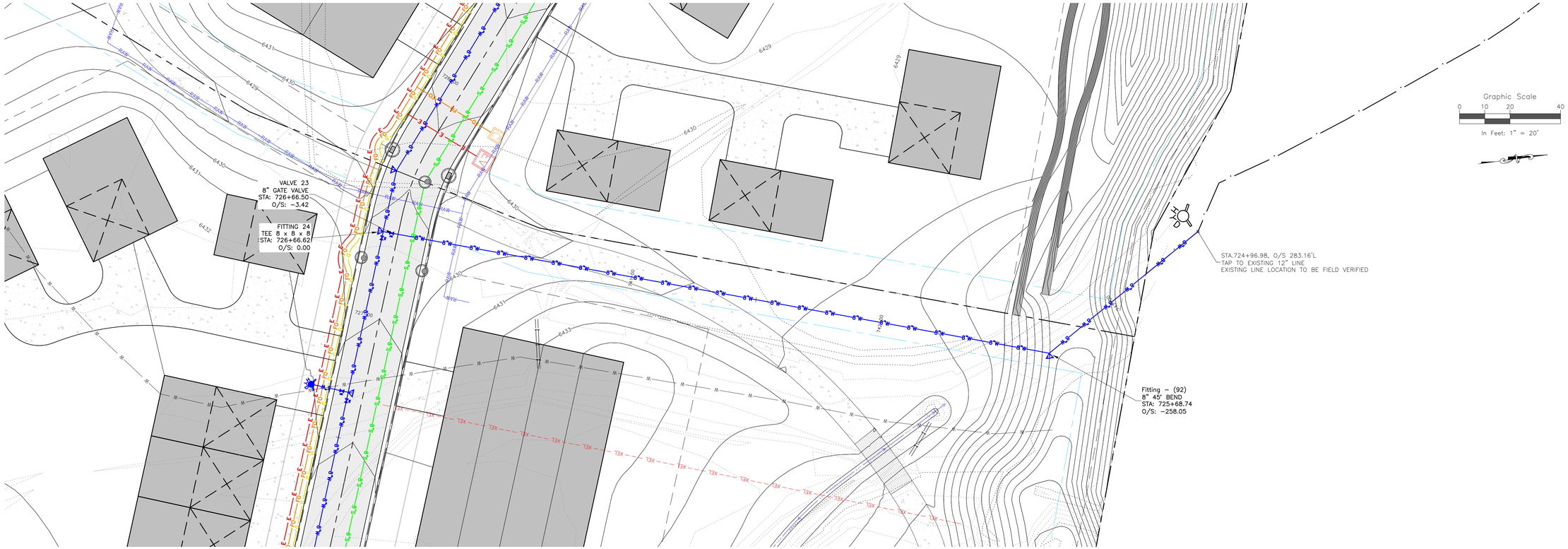
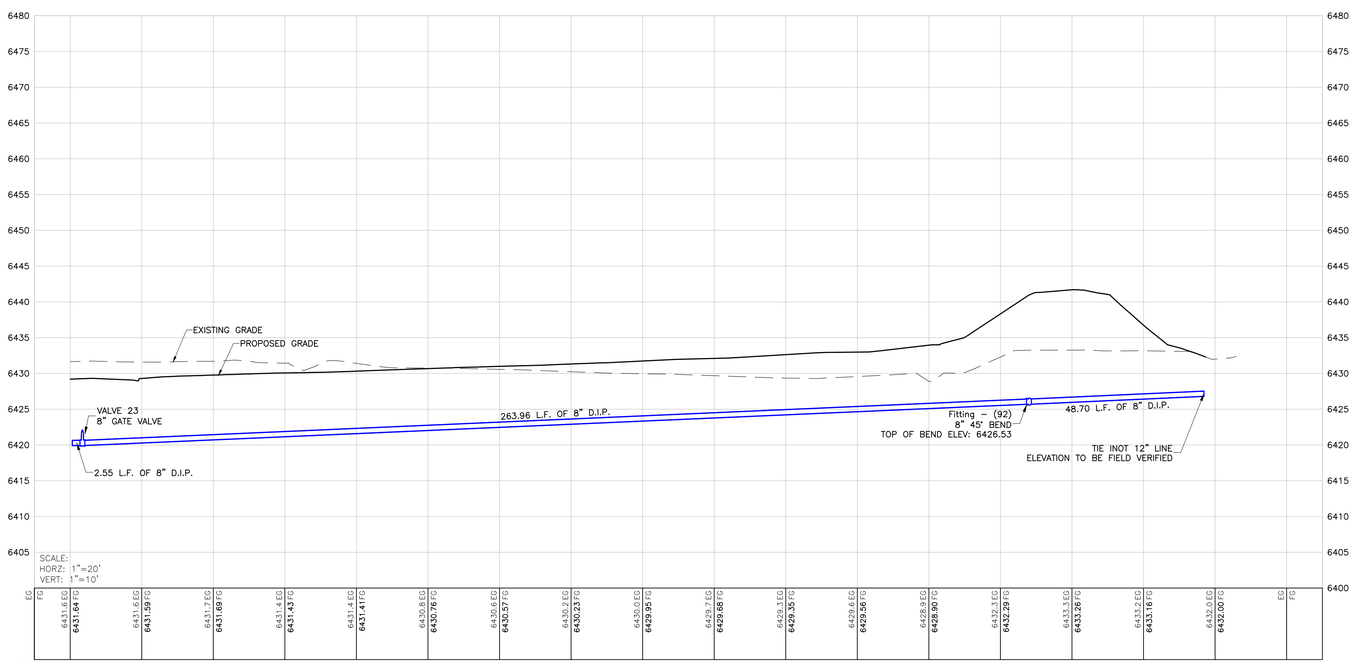
THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

WATER MAIN P&P STA. 735+00 TO STA. 737+40

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-WATER P&P.DWG Plotted: 11/24/2020 3:30 PM By: Drew Wharton





NORTH WATER CONNECTION PROFILE

P:\2020\08-THE FIELDS\04-DWG\04-SHEETSET\SS-WATER P&P.DWG Plotted: 11/24/2020 3:31 PM By: Drew Wharton

ROARING FORK ENGINEERING
592 HIGHWAY 133
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#	DESCRIPTION	DRAWN BY	DATE

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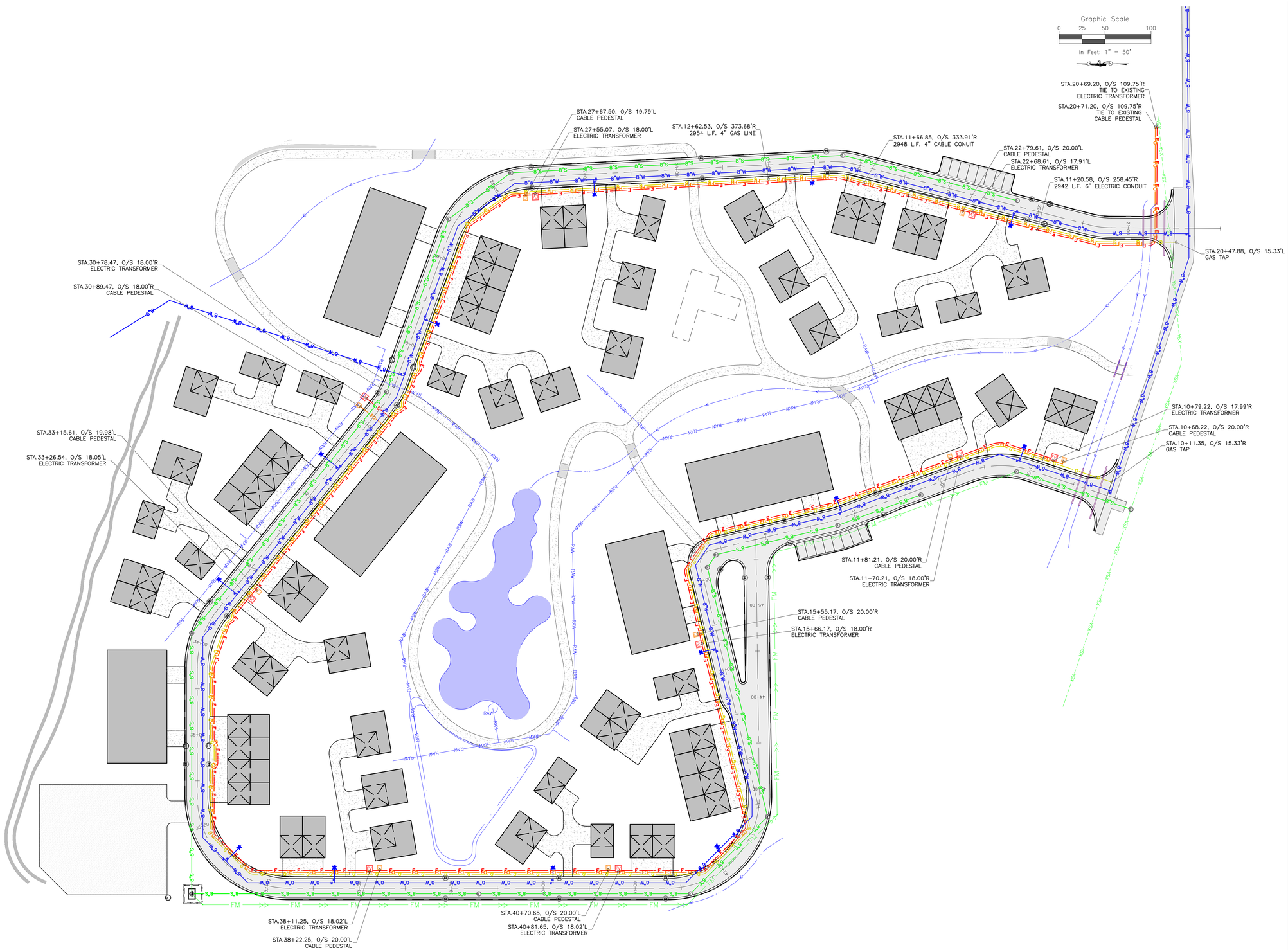
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

NORTH WATER CONNECTION

C48



ROARING FORK ENGINEERING
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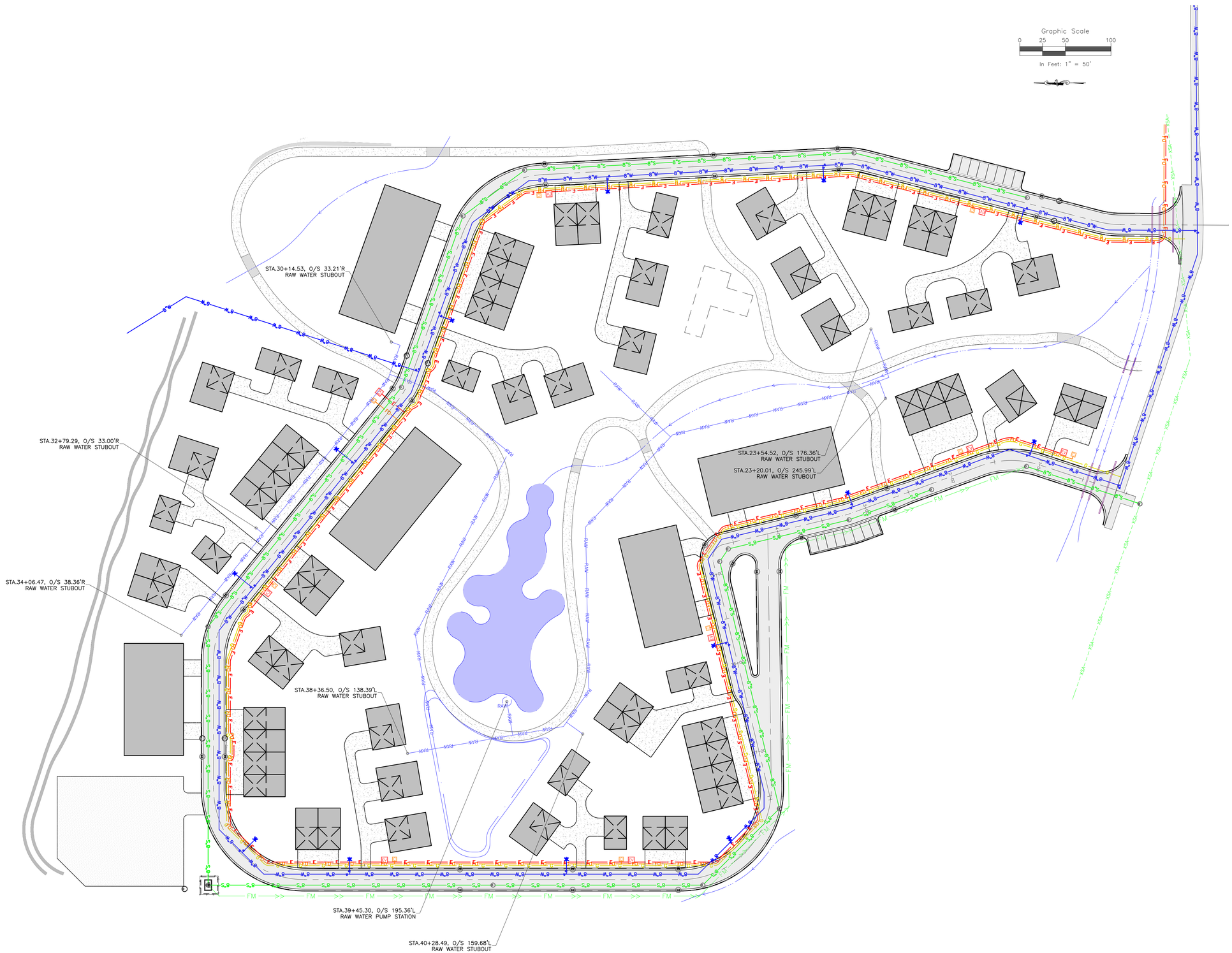
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

SHALLOW UTILITY PLAN



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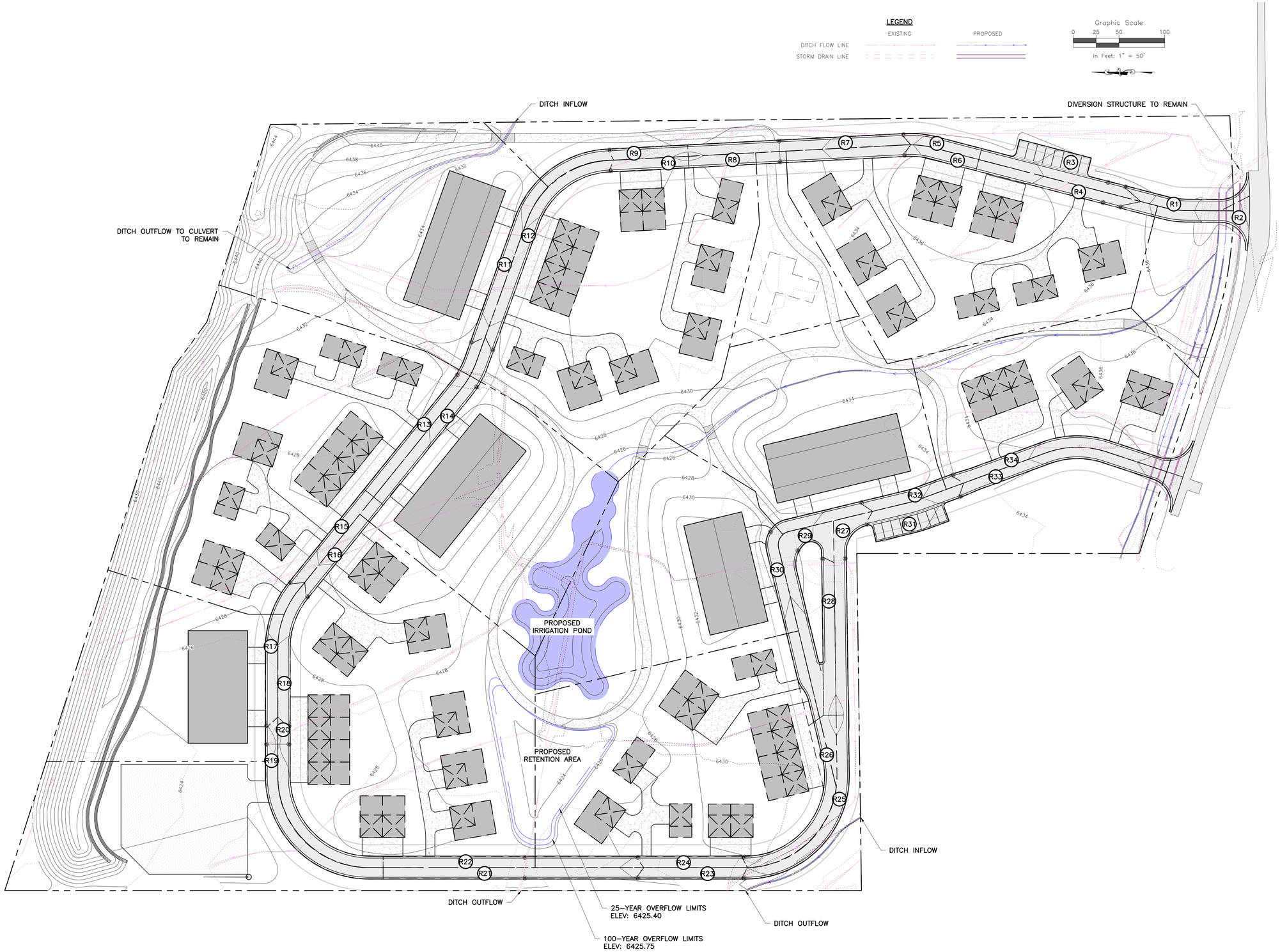
THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

RAW WATER PLAN

C50



P:\2020\08-THE FIELDS\04-DWG\BASINS-FIELDS.DWG Plotted: 11/24/2020 3:31 PM By: Drew Whorton

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO 81623
PH: (970)340-4130 F:(866)876-5873

CHECKED BY: DCS
DRAWN BY: ADW

#	DESCRIPTION	DRAWN BY	DATE

JOB #: 2020-08
NOT FOR CONSTRUCTION

THE FIELDS
554 VALLEY ROAD
EAGLE COUNTY, CO

DRAINAGE BASINS

C51

Appendix K

Engineering Report

ROARING FORK ENGINEERING

Preliminary Engineering Design Report

THE FIELDS DEVELOPMENT
554 VALLEY ROAD
EAGLE COUNTY, CO

December 8th, 2020

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OVERVIEW

This report presents the preliminary plan level design of propose roadway, circulation, grading and drainage, and utility improvements for The Fields Subdivision development. This report shows that the said development is in accordance with Eagle County Land Use Regulations, the Mid Valley Metropolitan District Rules and Regulations, and the Basalt & Rural Fire Department Standards.

Location

The site is located within a portion of Section 33, T7S, R 87W, Section 8, T8S, R87W, Section 3, T8S, R87W, and Section 34, T7S, R87W in Eagle County, Colorado. The site is located south of Highway 82 and north of Valley Road, between residential lots to the east and west.

Figure 1.1 Site Vicinity

Site Description

Existing Site

This existing site contains gravel and asphalt driveways leading to several residences, sheds and barns. Irrigation ditches run through the site to provide onsite flood irrigation. The site majority of the site remains undeveloped. The site is solely accessed through an existing driveway from Valley Road. Several existing ditches run through the site.

Proposed Site

The Fields development consists of approximately 19 acres with 7 acres being dedicated open space. The development consists of a mixture of single and multi-family residences, separated into distinct “villages” accessed through a looped road, Waverly Street. The residences will be

accessed via shared driveways within each village. A screening berm will be constructed on the north side of the site along Highway 82. An Exhibit of the berm can be found in Appendix A.

An irrigation pond is proposed inside the Waverly Street loop. The pond will be fed by a rerouted irrigation ditch, provided raw water to the development. The pond is designed to store any onsite generated runoff. A retention area is proposed to the west of the pond that has the capacity for the one-hundred-year storm.

A. UTILITY DESIGN

General Concept

The proposed development is within the established service area of local utility providers. The developer has received will-serve letters from each of the local providers, these letters have been provided in the submittal documents. Proposed utility designs can be found in the Preliminary Engineering Plans and outlined below.

Domestic Water Supply

The Mid Valley Metropolitan District has indicated the project is within the water service area and can and will be served by extending the domestic water supply system.

The proposed water main layout creates a loop within the Tree Fields Development. An existing 8-inch water main and point of connection is located at the south end of the project in Valley Road. A second point of connection is proposed at the north end of the project along Highway 82 and will require an 8-inch tap to an existing 12-inch main extension. A copy of the will-serve letter is included in the Appendix B.

Raw Water Supply

The current water rights from the Arlian Ditch, which supplies the proposed onsite pond will provide for irrigation needs of the development. A proposed raw water pump station and raw water distribution main are included in the Preliminary Engineering Plan.

Per the Mid Valley Metropolitan District Rules and Regulations, the domestic water supply will not be used for irrigation. The raw water supply and distribution will be designed per MVMD standards for dual water systems. A proposed raw water pump at the west end of the proposed pond will be used to provide irrigation water during construction.

Fire protection Water Supply

The Mid Valley Metropolitan District has indicated the project is within the water service area and can and will be served by extending the domestic water supply system to provide fire protection supply.

Sanitary Sewer

The Mid Valley Metropolitan District has indicated the project is within the District sanitation service area, and has sufficient capacity at the wastewater treatment plant and in the existing 8-inch sewers main to serve the Tree Fields Development. A copy of the will-serve letter is included in the Appendix B.

The point of connection for the project is an existing 8-inch sewer main located to the south of the site in Valley Road. A proposed lift station is required to pump sewer effluent to the existing sanitary sewer and will be designed such that the discharge rate would not exceed the existing capacity of the 8-inch gravity sewer.

The lift station which discharges to the existing offsite sanitary sewer in Valley Road will be located near the low point of the development in the Northwest corner and will be accessible from Waverly Street for maintenance. The proposed lift station will be sized to provide required pumping capacity with the largest pump out of service and a backup power supply connection to protect the development in the event of a power failure.

Dry Utilities

Electric Service

Holy Cross Energy has indicated the project is within the certified service area, and adequate power supply is available for the proposed development. A copy of the will-serve letter is included in Appendix B.

Telephone Service

Comcast has indicated they will provide telephone service for the proposed development. A copy of the will-serve letter is included in Appendix B.

Cable TV Service

Comcast has confirmed the ability to provide cable service for the proposed development. A copy of the will-serve letter is included in Appendix B.

Gas Service

Black Hills Energy has indicated the project is within the certified service area, and adequate supply is available to serve for the proposed development. A copy of the will-serve letter is included in the Appendix B.

B. Roadway & Parking Design

Roadway Classification

Waverly Street is classified as a Suburban Residential Roadway with variable lane widths. Portions of the road are twenty-four feet curb face to curb face, while the remainder has a twenty-six-foot curb face to curb face section to satisfy the Basalt & Rural Fire District Access for buildings greater than thirty feet in height. Provided on street parking has a ten-foot stall width and twenty-foot depth. A four-inch mountable curb will be utilized for the entirety of Waverly Street.

Circulation Plan

Pedestrian Circulation

The Circulation Plan was developed to provide an interconnected system of trails consisting of sidewalks and multi-use bicycle and pedestrian hard surface paths, throughout the community. Pedestrian access continues to Valley Road to the south and is extended to the southern property line of the development.

Emergency Vehicle Access

Emergency vehicle access is provided for all proposed building parcels according to the Basalt & Rural Fire Department Access Information Packet. The project is accessible from the primary access located at the intersection Valley Road and Waverly Street.

Vertical clearance of 13-foot 6-inches will be provided throughout the entire street network. The proposed roadway widths for all street classifications meet the requirements of the Basalt & Rural Fire Department.

Typical Roadway Sections

All Typical Road Section details can be found in the Engineering Plans.

C. Grading and Drainage Design

Major Basin Description

Existing Drainage Pattern

The existing site consists of one major drainage basin and generally flows from the southeast to the northwest. Several offsite irrigation ditches enter and leave the site as well as onsite flood irrigation ditches. The Arlian Ditch runs parallel to valley Road in the southern portion of the site. No underground drainage facilities are located within the existing site.

No floodplains exist onsite. A Firm map can be found in Appendix C.

Proposed Drainage Pattern

The proposed development consists of a single major drainage basin with all runoff being directed to a proposed onsite retention pond and closed collection system with the proposed Waverly Street access easement. The areas to the north of Waverly Street will be collected in a separate drywell system sized for each Lot. Several irrigation ditches flow through the site. These ditches will be rerouted to work with proposed development but be sized to maintain the existing flow. The existing flood irrigation ditches will be abandoned and water will be routed to the proposed onsite irrigation pond. Storm runoff will be collected in the irrigation pond for treatment with a designed overflow to a retention pond sized for the 100-year event. All drainage features leaving the site will be maintained to existing flows. Irrigation water rights will be used for a ditch running from south to north supplying the proposed pond.

An exhibit showing proposed and existing flow patterns can be found in the engineering plans.

Peak Discharge Calculations

Peak flows were calculated for 10-, 25- and 100-year storm events. Rainfall intensity was calculated using a Time of Concentration (Td) of 5 minutes, the smallest valid time of concentration value was used. The 1-hour NOAA Rainfall depth (P1), given as 0.76 inches for the 10-year event, 0.94 for the 25-year event, and 1.19 inches for the 100-year event.

The following equations was used to calculate intensity.

$$I = 88.8P_1/(10+T_d)^{1.052}$$

Runoff coefficients (C), a function of the hydrologic soil group (in this case, B) and the percentage of impervious area within each sub basin were developed. The runoff coefficient was then multiplied by the rainfall intensity (I) and the acreage of each major basin (A) to determine the peak discharge for the Major Basin. Q allowable was calculated the same way, except the basin was treated as undeveloped, or 100% pervious. The Peak Discharge (Q_p) in cubic feet per second (cfs) is given by the equation below.

$$Q_p = CIA$$

Q_p= Peak Discharge (cfs)
A= Area (acres)
I= Rainfall intensity (inches per hour)
C= Runoff Coefficient (unitless)

Calculations for the peak flows for developed and undeveloped conditions can be found in Appendix D.

Proposed Facilities

Overview

The onsite drainage facilities for the development were designed to convey the onsite and offsite while maintaining flows leaving the site to maintain existing offsite drainage patterns and flows. Sizing of retention and infiltration facilities can be found in this section. A summary of temporary and permanent erosion control measures is also included.

Stormwater Management

Onsite flows will be retained or infiltrated onsite. On street flows will be collected in a series of drywells and infiltrated. Runoff within the loop created by Waverly Street will be directed to the onsite irrigation ditch ultimately to the proposed pond or directly into the pond. All historic flows offsite will be maintained.

Street Facilities

The following table summarizes the limits for flow depths in the street.

Allowable Runoff Encroachment	Limits
Minor Event (25-year)	No curb overtopping
	No flow depth at crown of street
Major Event (100-year)	Depth of flow shall not exceed 6”
	Depth as flow line shall not exceed 12”

Actual design gutter spread for the largest gutter flow onsite for can be found in Appendix E.

All street runoff will be collected in five-foot diameter, eight to ten-foot-deep drywells. No storm piping is required.

Retention Pond

All runoff within the Waverly Street loop will be directed to the proposed irrigation pond. In the event of a storm larger than the capacity of the pond, a retention area is designed to the west of the pond. Runoff will enter the retention area by an engineered weir and has the capacity to store the 100-year storm. Storage calculations can be found in Appendix F. Storage elevations can be found in the Drainage map in the engineering plans.

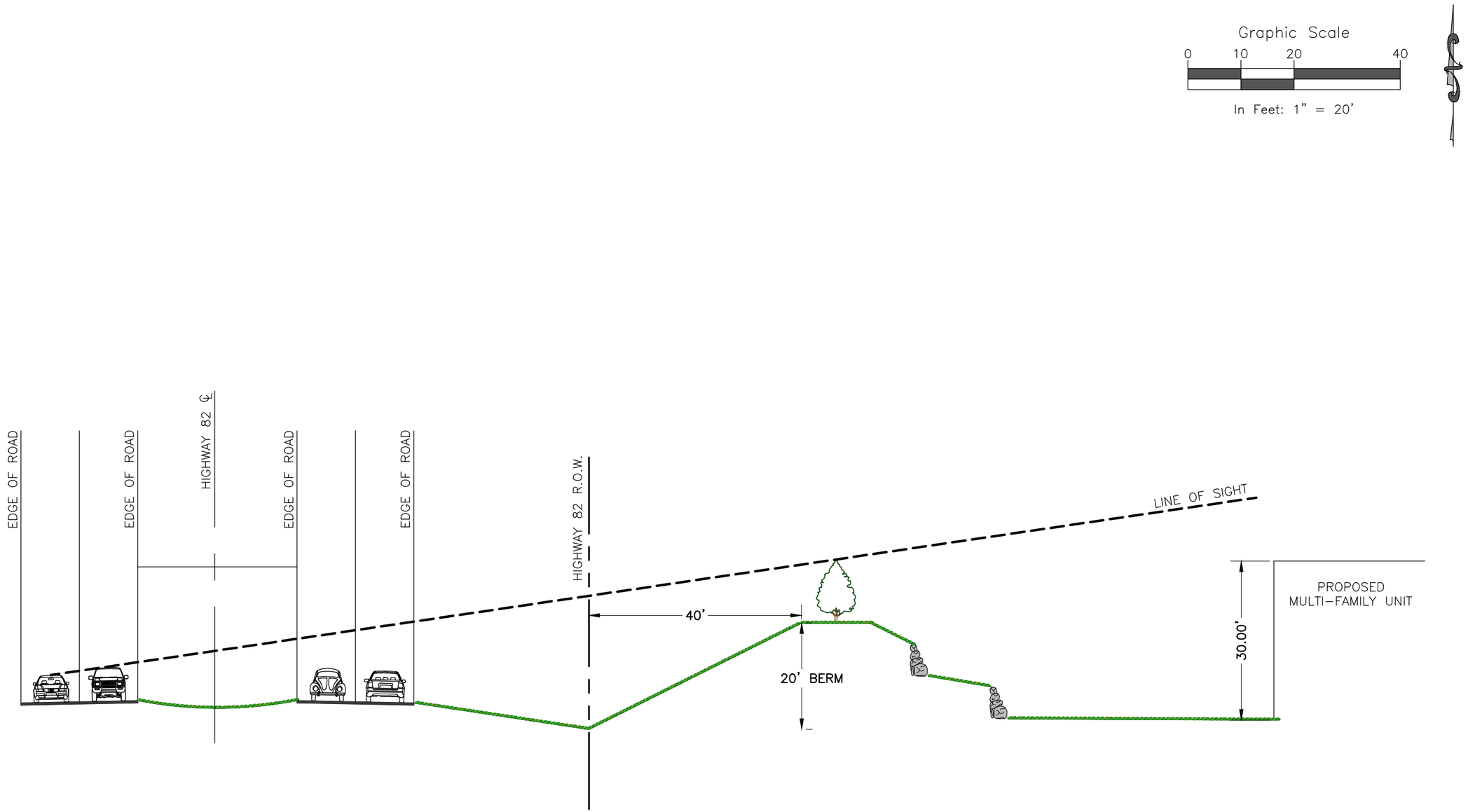
Erosion Control Water Quality Control

Erosion control measures will be installed during construction to control runoff and sediment form leaving the site. Permanent erosion control measures will be installed where necessary for final site protection. Erosion control devices may include but not limited to; erosion logs, silt fence, storm drain protection, check dams, erosion matting, sediment traps and concrete washouts. An Erosion Control Plan will be provided with the Final Engineering Plans for the Fields Development. All stormwater will be treated onsite with drywells and the retention pond, no further water treatment will be needed.

D. Conclusions

This report has shown that The Fields Development will be in accordance with Eagle County Land Use Regulations, the Mid Valley Metropolitan District Rules and Regulations, and the Basalt & Rural Fire Department Standards.

Appendix A – Berm Section



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Computer File Information	
Print Date: 11/23/2020	
Drawing File Name:	GRADE-FIELDS
Project No.: 2020-08	

Sheet Revisions

Rev.	Date	Comments	Init.

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO, 81623
PH: (970)340-4130
F:(866)876-5873

THE FIELDS

PROPOSED HIGHWAY 82 BERM

Engineer: DCS | Drawn By: ADW

Sheet Number:
1
Of:
1

Appendix B – Will Serve Letters

October 8, 2020

Via E-mail: jon@landwestcolorado.com

Mr. Jon Fredericks
Land West

RE: Fields Development - Mid Valley Metropolitan District Commitment to Serve

Dear Jon:

SGM is consulting engineer for the Mid Valley Metropolitan District (the "District"). The District received your request for a commitment to serve a proposed residential development known as the Fields Development with water and sanitary sewer services. The subject property is located within the District's service area at 0554 Valley Road, Carbondale, CO 81623, off Highway 82 near the Valley Road intersection. Based on information you provided, the current development proposal is for one hundred and thirty-five (135) residential dwelling units, which would equate to 135 EQRs of water and sewer service. The District can and will serve the proposed Fields Development with water and sewer services, subject to the following conditions:

1. The Applicant shall comply with all Rules and Regulations of the District currently in effect and as may be amended from time to time.

2. The Applicant shall enter into a Line Extension Agreement with the District regarding the requirements for extending District water and sewer services to the property.

3. The District's 1041 Permit with Eagle County will have to be amended for the development.

4. The Applicant shall pay all applicable water and sewer tap fees to the District prior to receiving a building permit from Eagle County and prior to physical connection to the District's lines.

5. The Applicant shall comply with the District's water rights dedication requirements set forth in Article X of the District's Rules and Regulations.

6. The Applicant shall dedicate or convey to the District all easements necessary for the provision of District services to the development, which easements shall be free and clear of all liens and encumbrances.

I:\1981\01501\C\227 - Fields Development\Agreements\L 20201008 Jon Fredericks.DOC

7. The Applicant shall prepare and submit engineering designs for the construction and installation of District water and sewer services to the development, and engineering designs for a pressurized raw water irrigation system to serve the development, which designs shall conform with the Rules and Regulations and Technical Specifications of the District and which shall be subject to the review and approval of the District's engineer.

8. Raw water irrigation will be required for this project. The raw water irrigation requirements will be spelled out in the line extension agreement.

9. Pursuant to the District's Rules and Regulations, the Applicant shall reimburse the District for all costs incurred by the District regarding this project, including but not limited to legal and engineering fees and costs.

On behalf of the Mid Valley Metropolitan District, thank you for the opportunity to review and provide comments regarding the Fields Development.

Sincerely,

SGM

Chris Lehrman, PE
District Engineer

Cc e-mail: MVMD Staff

3799 HIGHWAY 82 · P.O. BOX 2150
GLENWOOD SPRINGS, COLORADO 81602
(970) 945-5491 · FAX (970) 945-4081

August 31, 2020

Jon Fredericks
345 Colorado Ave. #106
Carbondale, CO 81623

RE: Fields housing power

Dear Mr. Fredricks,

The above mentioned development is within the certified service area of Holy Cross Energy.

Holy Cross Energy has adequate power supply to provide electric power to the development, subject to tariffs, rules and regulations on file. Any power line enlargements, relocations, and new extensions necessary to deliver adequate power to and within the development will be undertaken by Holy Cross Energy upon completion of appropriate contractual agreements and subject to necessary governmental approvals.

Additionally, due to current economic conditions, Holy Cross Energy is not stocking the quantity of construction materials as in past years. If your project is slated for construction this year, please advise us as soon as possible. You will need to enter into agreements with Holy Cross Energy, and pay for the project, sufficiently in advance of construction to avoid possible delays while materials are procured. The currently estimated lead time for procurement of materials is around 12 weeks.

Please advise when you wish to proceed with the development of the electric system for this project.

Sincerely,
HOLY CROSS ENERGY

Kenton Berner,
Engineering Department
kberner@holycross.com
(970) 947-5497

Fields Housing Development – 66-49- W/O 23974

Jason Cox
Utility Construction Planner
Colorado Gas
Jason.cox@blackhillscorp.com

Black Hills Energy
0096 C.R. 160
Glenwood Springs,co.81601

September 15, 2020

Re: for Eagle County parcel No. 2391-334-01-003

To Whom It May Concern:

This letter will confirm that Black Hills Energy will provide Natural Gas Distribution service to the development. Black Hills Energy will install a distribution system capable of serving the demand of the development that lies within the BHE certificated service territory.

This service will be subject to Black Hills Energy tariffs filed with the Colorado Public Utilities Commission and the Black Hills Energy Gas Network Main Extension Policy.

If you have any questions please feel free to contact me.

Sincerely,

Jason Cox
Utility Construction Planner
Black Hills Energy
Jason.cox@blackhillscorp.com
Cell: 970-309-2432

COMCAST

9/17/2020

Attn: Land West Development
Jon Fredericks

RE: Fields

Please accept this letter as confirmation that Comcast of Colorado has the ability to provide cable, telephone, internet and home security services to the above captioned location. The provision of service is contingent upon successful negotiations of an Agreement between the developer and Comcast Cable Communications, Inc.

Should you require additional information, please contact Miguel Flores at (303) 603-6709.

Sincerely,

Michael Johns0n

Michael Johnson
Construction Specialist
Comcast

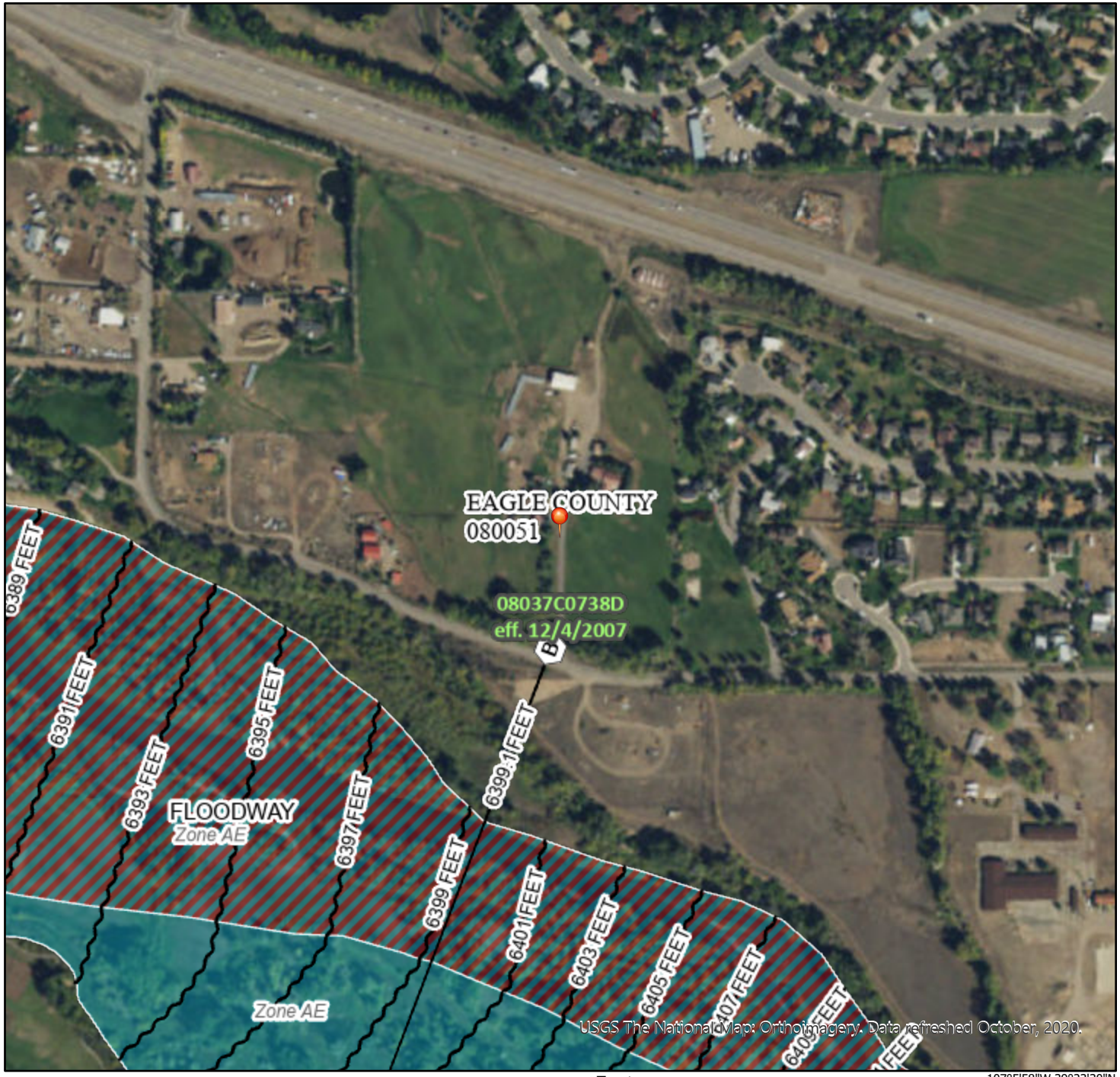
This letter is not intended to give rise to binding obligations for either party. Any contractual relationship between the parties will be the result of formal negotiations and will only become effective upon execution of the contract by representatives of the parties authorized to enter into such agreements. During any negotiations, each party will bear its own costs and will not be responsible for any costs or expenses of the other party, unless separately agreed to in writing.

Appendix C – Floodplain Map

National Flood Hazard Layer FIRMette

FEMA

107°6'35"W 39°23'58"N



107°5'58"W 39°23'30"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS

- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/23/2020 at 9:51 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix D – Peak Flow Calculations

25 Year Peak Discharge Developed Calculations

					1 Hour(P_1)	0.94	
					Return Period	25	
Basin ID	**Total Area**	**Imp. Area**	**Impervious**	**C Value**	**Time of C**	**Intensity**	**Q Max**
See(D1)	**(ft^2)**	**(ft^2)**	**(%)**	**From Table**	**(T_d)**	**$I=88.8P_1/(10+T_d)^{1.052}$**	**(ft^3/sec)**
R1	1642.00	1642.00	100.00%	0.896	5	4.83	0.16
R2	2219.00	2219.00	100.00%	0.896	5	4.83	0.22
R3	3796.00	3796.00	100.00%	0.896	5	4.83	0.38
R4	2162.00	2162.00	100.00%	0.896	5	4.83	0.21
R5	1056.00	1056.00	100.00%	0.896	5	4.83	0.10
R6	1004.00	1004.00	100.00%	0.896	5	4.83	0.10
R7	3013.00	3013.00	100.00%	0.896	5	4.83	0.30
R8	3028.00	3028.00	100.00%	0.896	5	4.83	0.30
R9	1071.00	1071.00	100.00%	0.896	5	4.83	0.11
R10	1071.00	1071.00	100.00%	0.896	5	4.83	0.11
R11	3566.00	3566.00	100.00%	0.896	5	4.83	0.35
R12	3467.00	3467.00	100.00%	0.896	5	4.83	0.34
R13	2811.00	2811.00	100.00%	0.896	5	4.83	0.28
R14	2883.00	2883.00	100.00%	0.896	5	4.83	0.29
R15	1731.00	1731.00	100.00%	0.896	5	4.83	0.17
R16	1731.00	1731.00	100.00%	0.896	5	4.83	0.17
R17	2174.00	2174.00	100.00%	0.896	5	4.83	0.22
R18	2048.00	2048.00	100.00%	0.896	5	4.83	0.20
R19	3140.00	3140.00	100.00%	0.896	5	4.83	0.31
R20	2921.00	2921.00	100.00%	0.896	5	4.83	0.29
R21	3551.00	3551.00	100.00%	0.896	5	4.83	0.35
R22	3551.00	3551.00	100.00%	0.896	5	4.83	0.35
R23	1451.00	1451.00	100.00%	0.896	5	4.83	0.14
R24	1451.00	1451.00	100.00%	0.896	5	4.83	0.14
R25	3182.00	3182.00	100.00%	0.896	5	4.83	0.32
R26	3511.00	3511.00	100.00%	0.896	5	4.83	0.35
R27	3380.00	3380.00	100.00%	0.896	5	4.83	0.34
R28	2324.00	2324.00	100.00%	0.896	5	4.83	0.23
R29	3908.00	3908.00	100.00%	0.896	5	4.83	0.39
R30	3856.00	3856.00	100.00%	0.896	5	4.83	0.38
R31	3100.00	3100.00	100.00%	0.896	5	4.83	0.31
R32	1425.00	1425.00	100.00%	0.896	5	4.83	0.14
R33	3427.00	3427.00	100.00%	0.896	5	4.83	0.34
R34	3541.00	3541.00	100.00%	0.896	5	4.83	0.35

25 Year Peak Discharge Pre Development Calculations

					1 Hour(P_1)	0.94	
					Return Period	25	
Basin ID	**Total Area**	**Imp. Area**	**Impervious**	**C Value**	**Time of C**	**Intensity**	**Q Max**
See(D1)	**(ft^2)**	**(ft^2)**	**(%)**	**From Table**	**(T_d)**	**$I=88.8P_1/(10+T_d)^{1.052}$**	**(ft^3/sec)**
R1	1642.00	0.00	0.00%	0.080	5	4.83	0.01
R2	2219.00	0.00	0.00%	0.080	5	4.83	0.02
R3	3796.00	0.00	0.00%	0.080	5	4.83	0.03
R4	2162.00	0.00	0.00%	0.080	5	4.83	0.02
R5	1056.00	0.00	0.00%	0.080	5	4.83	0.01
R6	1004.00	0.00	0.00%	0.080	5	4.83	0.01
R7	3013.00	0.00	0.00%	0.080	5	4.83	0.03
R8	3028.00	0.00	0.00%	0.080	5	4.83	0.03
R9	1071.00	0.00	0.00%	0.080	5	4.83	0.01
R10	1071.00	0.00	0.00%	0.080	5	4.83	0.01
R11	3566.00	0.00	0.00%	0.080	5	4.83	0.03
R12	3467.00	0.00	0.00%	0.080	5	4.83	0.03
R13	2811.00	0.00	0.00%	0.080	5	4.83	0.02
R14	2883.00	0.00	0.00%	0.080	5	4.83	0.03
R15	1731.00	0.00	0.00%	0.080	5	4.83	0.02
R16	1731.00	0.00	0.00%	0.080	5	4.83	0.02
R17	2174.00	0.00	0.00%	0.080	5	4.83	0.02
R18	2048.00	0.00	0.00%	0.080	5	4.83	0.02
R19	3140.00	0.00	0.00%	0.080	5	4.83	0.03
R20	2921.00	0.00	0.00%	0.080	5	4.83	0.03
R21	3551.00	0.00	0.00%	0.080	5	4.83	0.03
R22	3551.00	0.00	0.00%	0.080	5	4.83	0.03
R23	1451.00	0.00	0.00%	0.080	5	4.83	0.01
R24	1451.00	0.00	0.00%	0.080	5	4.83	0.01
R25	3182.00	0.00	0.00%	0.080	5	4.83	0.03
R26	3511.00	0.00	0.00%	0.080	5	4.83	0.03
R27	3380.00	0.00	0.00%	0.080	5	4.83	0.03
R28	2324.00	0.00	0.00%	0.080	5	4.83	0.02
R29	3908.00	0.00	0.00%	0.080	5	4.83	0.03
R30	3856.00	0.00	0.00%	0.080	5	4.83	0.03
R31	3100.00	0.00	0.00%	0.080	5	4.83	0.03
R32	1425.00	0.00	0.00%	0.080	5	4.83	0.01
R33	3427.00	0.00	0.00%	0.080	5	4.83	0.03
R34	3541.00	0.00	0.00%	0.080	5	4.83	0.03

100 Year Peak Discharge Developed Calculations

					1 Hour(P_1)	1.19	
					Return Period	100	
Basin ID	**Total Area**	**Imp. Area**	**Impervious**	**C Value**	**Time of C**	**Intensity**	**Q Max**
See(D1)	**(ft^2)**	**(ft^2)**	**(%)**	**From Table**	**(T_d)**	**$I=88.8P_1/(10+T_d)^{1.052}$**	**(ft^3/sec)**
R1	1642.00	1642.00	100.00%	0.950	5	6.12	0.22
R2	2219.00	2219.00	100.00%	0.950	5	6.12	0.30
R3	3796.00	3796.00	100.00%	0.950	5	6.12	0.51
R4	2162.00	2162.00	100.00%	0.950	5	6.12	0.29
R5	1056.00	1056.00	100.00%	0.950	5	6.12	0.14
R6	1004.00	1004.00	100.00%	0.950	5	6.12	0.13
R7	3013.00	3013.00	100.00%	0.950	5	6.12	0.40
R8	3028.00	3028.00	100.00%	0.950	5	6.12	0.40
R9	1071.00	1071.00	100.00%	0.950	5	6.12	0.14
R10	1071.00	1071.00	100.00%	0.950	5	6.12	0.14
R11	3566.00	3566.00	100.00%	0.950	5	6.12	0.48
R12	3467.00	3467.00	100.00%	0.950	5	6.12	0.46
R13	2811.00	2811.00	100.00%	0.950	5	6.12	0.38
R14	2883.00	2883.00	100.00%	0.950	5	6.12	0.38
R15	1731.00	1731.00	100.00%	0.950	5	6.12	0.23
R16	1731.00	1731.00	100.00%	0.950	5	6.12	0.23
R17	2174.00	2174.00	100.00%	0.950	5	6.12	0.29
R18	2048.00	2048.00	100.00%	0.950	5	6.12	0.27
R19	3140.00	3140.00	100.00%	0.950	5	6.12	0.42
R20	2921.00	2921.00	100.00%	0.950	5	6.12	0.39
R21	3551.00	3551.00	100.00%	0.950	5	6.12	0.47
R22	3551.00	3551.00	100.00%	0.950	5	6.12	0.47
R23	1451.00	1451.00	100.00%	0.950	5	6.12	0.19
R24	1451.00	1451.00	100.00%	0.950	5	6.12	0.19
R25	3182.00	3182.00	100.00%	0.950	5	6.12	0.42
R26	3511.00	3511.00	100.00%	0.950	5	6.12	0.47
R27	3380.00	3380.00	100.00%	0.950	5	6.12	0.45
R28	2324.00	2324.00	100.00%	0.950	5	6.12	0.31
R29	3908.00	3908.00	100.00%	0.950	5	6.12	0.52
R30	3856.00	3856.00	100.00%	0.950	5	6.12	0.51
R31	3100.00	3100.00	100.00%	0.950	5	6.12	0.41
R32	1425.00	1425.00	100.00%	0.950	5	6.12	0.19
R33	3427.00	3427.00	100.00%	0.950	5	6.12	0.46
R34	3541.00	3541.00	100.00%	0.950	5	6.12	0.47

100 Year Peak Discharge Pre Development Calculations

					1 Hour(P_1)	1.19	
					Return Period	100	
Basin ID	**Total Area**	**Imp. Area**	**Impervious**	**C Value**	**Time of C**	**Intensity**	**Q Max**
See(D1)	**(ft^2)**	**(ft^2)**	**(%)**	**From Table**	**(T_d)**	**$I=88.8P_1/(10+T_d)^{1.052}$**	**(ft^3/sec)**
R1	1642.00	0.00	0.00%	0.354	5	6.12	0.08
R2	2219.00	0.00	0.00%	0.354	5	6.12	0.11
R3	3796.00	0.00	0.00%	0.354	5	6.12	0.19
R4	2162.00	0.00	0.00%	0.354	5	6.12	0.11
R5	1056.00	0.00	0.00%	0.354	5	6.12	0.05
R6	1004.00	0.00	0.00%	0.354	5	6.12	0.05
R7	3013.00	0.00	0.00%	0.354	5	6.12	0.15
R8	3028.00	0.00	0.00%	0.354	5	6.12	0.15
R9	1071.00	0.00	0.00%	0.354	5	6.12	0.05
R10	1071.00	0.00	0.00%	0.354	5	6.12	0.05
R11	3566.00	0.00	0.00%	0.354	5	6.12	0.18
R12	3467.00	0.00	0.00%	0.354	5	6.12	0.17
R13	2811.00	0.00	0.00%	0.354	5	6.12	0.14
R14	2883.00	0.00	0.00%	0.354	5	6.12	0.14
R15	1731.00	0.00	0.00%	0.354	5	6.12	0.09
R16	1731.00	0.00	0.00%	0.354	5	6.12	0.09
R17	2174.00	0.00	0.00%	0.354	5	6.12	0.11
R18	2048.00	0.00	0.00%	0.354	5	6.12	0.10
R19	3140.00	0.00	0.00%	0.354	5	6.12	0.16
R20	2921.00	0.00	0.00%	0.354	5	6.12	0.15
R21	3551.00	0.00	0.00%	0.354	5	6.12	0.18
R22	3551.00	0.00	0.00%	0.354	5	6.12	0.18
R23	1451.00	0.00	0.00%	0.354	5	6.12	0.07
R24	1451.00	0.00	0.00%	0.354	5	6.12	0.07
R25	3182.00	0.00	0.00%	0.354	5	6.12	0.16
R26	3511.00	0.00	0.00%	0.354	5	6.12	0.17
R27	3380.00	0.00	0.00%	0.354	5	6.12	0.17
R28	2324.00	0.00	0.00%	0.354	5	6.12	0.12
R29	3908.00	0.00	0.00%	0.354	5	6.12	0.19
R30	3856.00	0.00	0.00%	0.354	5	6.12	0.19
R31	3100.00	0.00	0.00%	0.354	5	6.12	0.15
R32	1425.00	0.00	0.00%	0.354	5	6.12	0.07
R33	3427.00	0.00	0.00%	0.354	5	6.12	0.17
R34	3541.00	0.00	0.00%	0.354	5	6.12	0.18

Drywell Storage

Drywell	Basins	Diameter	Storage Depth	Perforated Depth	Internal Volume	External (18" of Screened Rock) Volume	Total Capacity	Required Capacity
(Name)	(#)	D (ft)	H (ft)	P (ft)	$\pi*H*(D/2)^2$) (ft^3)	$0.3*\pi*P*((D/2)+1.5)^2 - (D/2)^2$) ($ft^3$)	(ft^3)	(ft^3)
R1	**R1**	**5**	**8**	**4**	157	37	194	**105**
R2	**R2**	**5**	**8**	**4**	157	37	194	**142**
R3	**R3**	**5**	**10**	**6**	196	55	251	**244**
R4	**R4**	**5**	**8**	**4**	157	37	194	**139**
R5	**R5**	**5**	**8**	**4**	157	37	194	**68**
R6	**R6**	**5**	**8**	**4**	157	37	194	**64**
R7	**R7**	**5**	**8**	**4**	157	37	194	**193**
R8	**R8**	**5**	**8**	**4**	157	37	194	**194**
R9	**R9**	**5**	**8**	**4**	157	37	194	**69**
R10	**R10**	**5**	**8**	**4**	157	37	194	**69**
R11	**R11**	**5**	**10**	**6**	196	55	251	**229**
R12	**R12**	**5**	**10**	**6**	196	55	251	**222**
R13	**R13**	**5**	**8**	**4**	157	37	194	**180**
R14	**R14**	**5**	**8**	**4**	157	37	194	**185**
R15	**R15**	**5**	**8**	**4**	157	37	194	**111**
R16	**R16**	**5**	**8**	**4**	157	37	194	**111**
R17	**R17**	**5**	**8**	**4**	157	37	194	**139**
R18	**R18**	**5**	**8**	**4**	157	37	194	**131**
R19	**R19**	**5**	**10**	**6**	196	55	251	**201**
R20	**R20**	**5**	**8**	**4**	157	37	194	**187**
R21	**R21**	**5**	**10**	**6**	196	55	251	**228**
R22	**R22**	**5**	**10**	**6**	196	55	251	**228**
R23	**R23**	**5**	**8**	**4**	157	37	194	**93**
R24	**R24**	**5**	**8**	**4**	157	37	194	**93**
R25	**R25**	**5**	**10**	**6**	196	55	251	**204**
R26	**R26**	**5**	**10**	**6**	196	55	251	**225**
R27	**R27**	**5**	**10**	**6**	196	55	251	**217**
R28	**R28**	**5**	**8**	**4**	157	37	194	**149**
R29	**R29**	**5**	**10**	**6**	196	55	251	**251**
R30	**R30**	**5**	**10**	**6**	196	55	251	**247**
R31	**R31**	**5**	**10**	**6**	196	55	251	**199**
R32	**R32**	**5**	**8**	**4**	157	37	194	**91**
R33	**R33**	**5**	**10**	**6**	196	55	251	**220**
R34	**R34**	**5**	**10**	**6**	196	55	251	**227**

Appendix E – Gutter Spread Calculations

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Nov 23 2020

THE FIELDS MAX 25-YEAR GUTTER SPREAD

Gutter

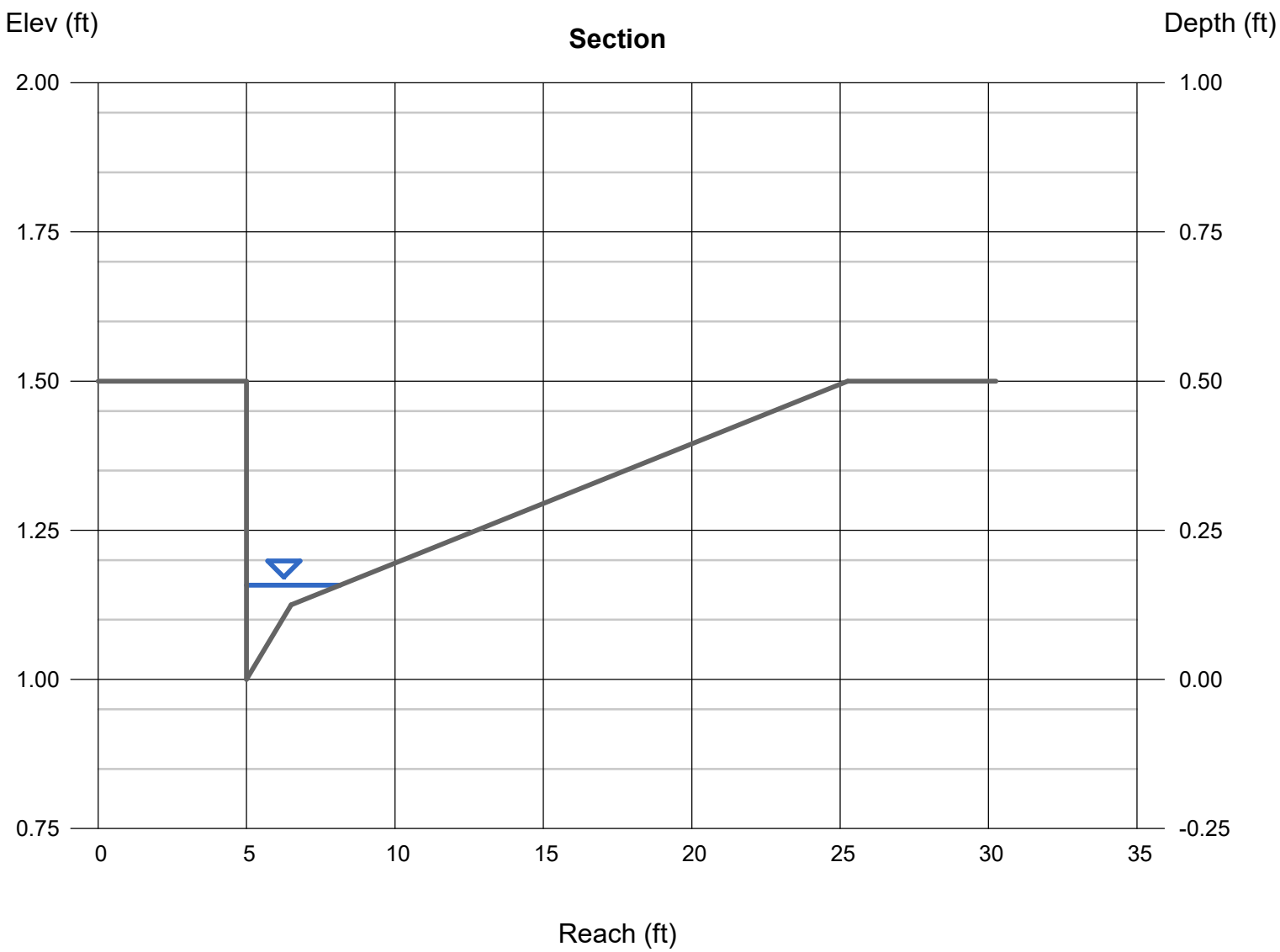
Cross Sl, Sx (ft/ft)	= 0.020
Cross Sl, Sw (ft/ft)	= 0.083
Gutter Width (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 1.00
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.39

Highlighted

Depth (ft)	= 0.16
Q (cfs)	= 0.390
Area (sqft)	= 0.17
Velocity (ft/s)	= 2.29
Wetted Perim (ft)	= 3.31
Crit Depth, Yc (ft)	= 0.19
Spread Width (ft)	= 3.15
EGL (ft)	= 0.24



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Nov 23 2020

THE FIELDS MAX 100-YEAR GUTTER SPREAD

Gutter

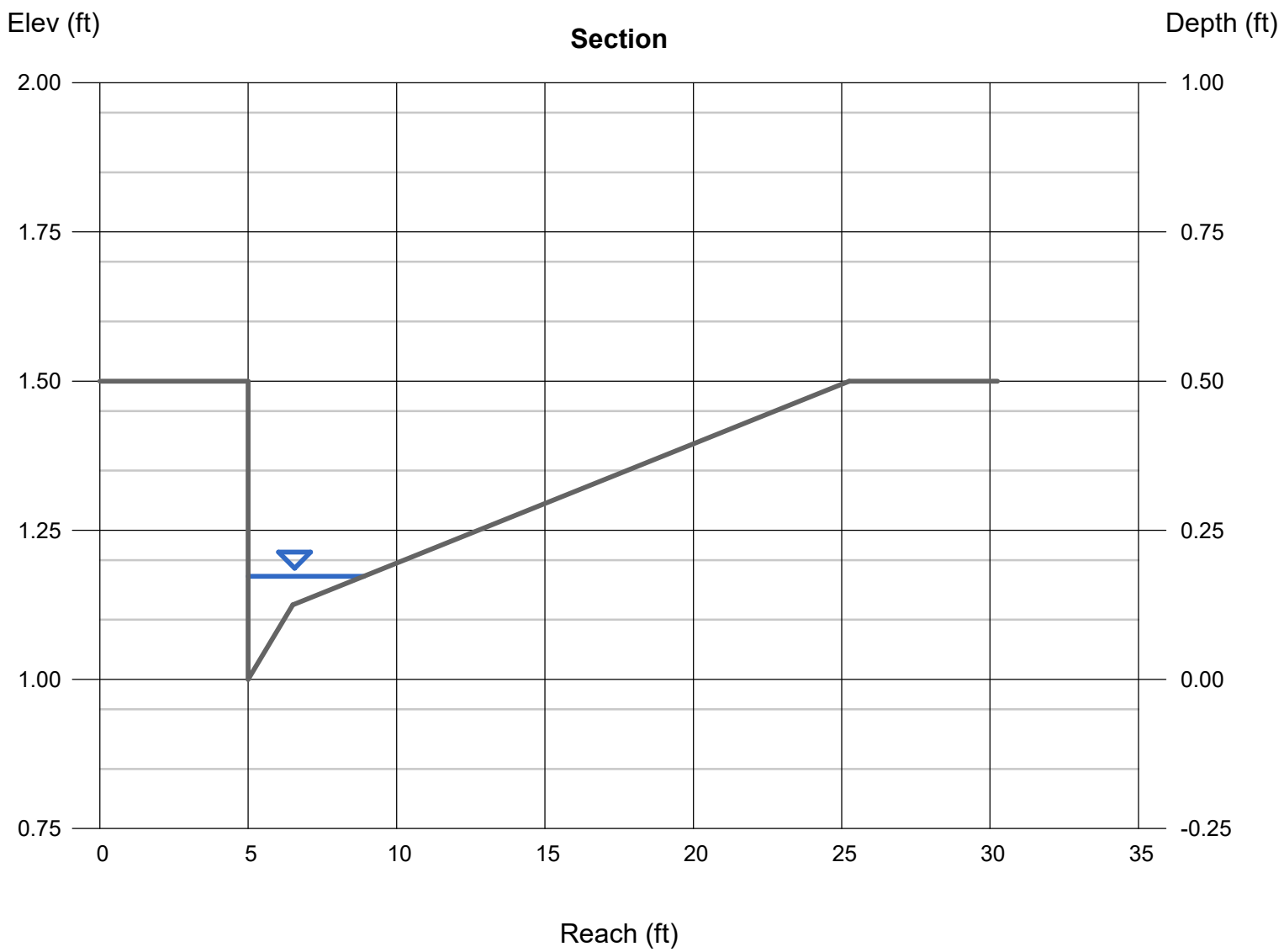
Cross Sl, Sx (ft/ft)	= 0.020
Cross Sl, Sw (ft/ft)	= 0.083
Gutter Width (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 1.00
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.52

Highlighted

Depth (ft)	= 0.17
Q (cfs)	= 0.520
Area (sqft)	= 0.22
Velocity (ft/s)	= 2.33
Wetted Perim (ft)	= 4.08
Crit Depth, Yc (ft)	= 0.21
Spread Width (ft)	= 3.90
EGL (ft)	= 0.26



Appendix F – Storm Storage Calculations

Full Detention Storage

STORM	Total Area	Impervious Area	Impervious	Full Detention Depth	Factor of Safety	Required Storage	Provided Storage
	(ft^2)	(ft^2)	(%)	(in)	F.O.S.	(ft^3)	Acre-ft
25-YEAR	467473.00	152078.00	32.53%	0.94	1	11913	0.27
100-YEAR	467473.00	152078.00	32.53%	1.19	1	15081	0.35

Appendix L

Transportation Impact Study

Transportation Impact Study

for

The Fields

El Jebel, CO

Revised November 3, 2021

PREPARED FOR:
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PREPARED BY:
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Project Number: M1434

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 this Transportation Impact Study for a proposed residential development on Valley Road in El Jebel, Colorado. The purpose of this study is to forecast and analyze the impacts of the additional traffic volumes associated with this project on the surrounding roadway network. Recommendations to mitigate traffic impacts are also included. The analysis complies with Eagle County and Colorado Department of Transportation standards.

The proposed project is located at 554 Valley Road. The 19.39-acre site currently has five residential dwelling units. The proposed project is a residential development consisting of multifamily, duplex, and single-family homes. The project location is depicted in **Figure 1**. Refer to **Figure 2** for a conceptual site plan. Parking will be located at each dwelling.

The project will have two full movement site accesses to Valley Road.

The project is proposing two trail connections. The first connection will be a multi-use trail from the project site across Valley Road. The second connection is a potential trail connection from the development to the existing Summit Vista Trail. The proposed trails will provide connectivity to Crown Mountain Park, Roaring Fork Transportation Authority's (RFTA's) Park n' Ride and nearby commercial developments.

Traffic analysis has been performed for existing conditions, background and total conditions for the anticipated buildout Year 2021 and long-range planning Year 2045.

Figure 1: Vicinity Map

Figure 2: Site Plan

Not to Scale

2.0 Existing Conditions

2.1 Project Analysis Scope

A meeting was held with CDOT and Eagle County to determine the analysis scope and methodology. CDOT has jurisdiction on State Highway 82 (SH 82) and all appurtenances in the highway right of way. Eagle County's purview is the local roadway network: Valley Road, East Valley Road, etc. El Jebel is an unincorporated community in Eagle County, Colorado.

There are four roadways that were included in the analysis scope: SH 82, Valley Road, East Valley Road and the SH 82 South Frontage Road (aka "Old Highway 82") east of Valley Road.

Traffic data was collected to determine the current (existing) conditions of the roads near the proposed development. The following types of traffic data were collected:

1. Intersection Turning Movement Counts (TMCs): TMCs are collected during peak hour of operations. This type of traffic data collection is performed by using specialized weatherproof video cameras that record the intersection operations. Each "movement" is counted, including all left turns, through movements, and right turns for each travel direction. U-turns are also counted if they are allowed. The video cameras are programmed to automatically turn on and off during the preset counting period. The resulting video is viewed by an analyst. Typically, a 2-hour window is counted in the morning from 7am to 9am, and again from 4pm to 6pm during the evening. An analyst logs each movement into 15 minute "bins." From this data, the peak hour (greatest 60 minutes of operations) can be determined for both the morning and evening timeframes. The video resolution is not detailed enough to identify license plates or other personalized information of the vehicles.

2. Average Daily Traffic Counts (ADT): ADT counts are taken on road segments by placing pneumatic "tubes" across the roadway. These tubes are made of rubber and are connected to a counting logging device that is secured with a chain and padlock to a nearby utility pole or signpost. When a vehicle passes over the tubes, it is deformed and the internal air pressure is detected by a pressure sensor in the logging device. Two tubes are placed in close proximity to each other, perpendicular to the roadway and traffic stream. Both tubes allow for the counting logging device to record direction, speed, and vehicle types. After the counting period is completed, typically 24 to 72 hours, the counting logging device is connected to a computer, and specialized software analyzes each detection. The software, using advanced algorithms, deduces the direction, travel speed and the type of the vehicle. A report is provided that summarizes this data which is gathered into hourly "bins."

3. Queuing Data: Using the videos produced during the TMC operations, the analyst will also count the number of vehicles are that not moving during a red signal, or any other "blocking" event where vehicles cannot travel their desired speed. During these events, a queue, or backlog, may form. The analyst will count the number of vehicles in the queue and log the time that it occurred. A report is provided listing the direction of the queue, the number of vehicles in the queue, and the time the queue occurred.

4. Adjustment of Traffic Counts: The summer months are busier than the winter months, and the counts need to be adjusted to best represent the busiest time of the year. An adjustment factor is applied to the winter counts to convert them into equivalent summer counts. The adjustment factor is calculated by analyzing historic continuous average daily traffic counts that are available from CDOT and using this calculated factor to properly adjust the counts to the busiest time of the year.

A copy of the meeting documentation for the scoping and methodology is included in the **Appendix**.

2.2 Description of Existing Transportation System

State Highway 82: State Highway 82 (SH 82) is one of the Roaring Fork Valley's major roadways, connecting Glenwood Springs and Aspen. This roadway is classified by the Colorado Department of Transportation (CDOT) as an E-X, Expressway (Major Bypass).

SH 82 is a four-lane highway with a posted speed limit of 55 to 65 miles per hour (mph) near the vicinity of the site. Heading eastbound, the posted speed limit is 65mph to mile marker 18.1, where the speed drops to 55mph through the SH82 and El Jebel Road intersection. Heading westbound the posted speed is 55mph through the SH82 and El Jebel Road intersection, changing to 65mph at mile marker 18.7.

SH 82 is generally east-west through the region. **Figure 3** clarifies the roadway network's designated orientation. This was provided because SH 82 and East Valley Road's diagonal orientation can be confusing.

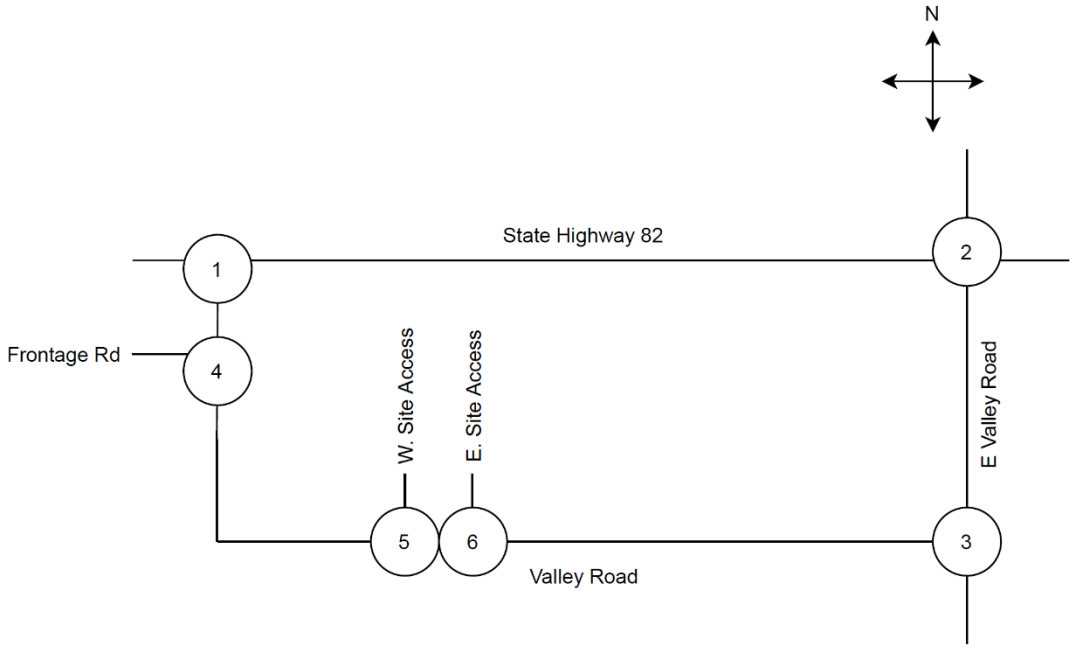
Valley Road: Valley Road is a two-lane, east-west roadway connecting the residential developments, Crown Mountain Park, and the Eagle County Community Center to SH 82, East Valley Road, and the SH 82 South Frontage Road. It is classified by Eagle County as a collector roadway. Valley Road has a posted speed limit of 25mph near the vicinity of the site.

East Valley Road: East Valley Road is a two-lane, east-west roadway connecting Valley Road and SH 82 to the Roaring Fork Transportation Authority (RFTA) Bus Rapid Transit (BRT) park n' ride and several commercial shopping complexes including the Willits

Town Center. It is classified by Eagle County as a collector roadway. It has a posted speed limit of 25mph near the vicinity of the site.

SH 82 South Frontage Road: The SH 82 South Frontage Road is also known as the Highway 82 Access Road. It is a two-lane, east-west roadway located west of Valley Road. This roadway parallels SH 82 and connects Valley Road to the Catherine Store at County Road 100. It is classified as a F-R, Frontage Road by CDOT and has a posted speed limit of 45mph near the project site.

Figure 3: Roadway Network Orientation for Study Analyses



2.3 Project Background

The Fields previously obtained sketch plan approval from Eagle County in 2017. The previous approval included 26 single-family units and 72 duplex units situated on a looping road system with two access points to Valley Road. One provision in the approval was the construction of a 10-foot wide public trail.

2.4 Traffic Data Collection

Existing weekday morning and evening peak hour turning movement counts were collected at the intersections of:

1. Valley Road/JW Drive & SH 82
2. Valley Road/El Jebel & SH 82
3. Valley Road & East Valley Road

Turning movement count data was collected on Tuesday, February 11th, 2020. Turning movement counts were collected from 7:00–9:00 AM and 4:00–6:00 PM. School was in session and the weather was clear. Traffic data was collected before the Covid-19 pandemic reached and impacted Colorado in early March 2020. The morning peak hour traffic volumes occurred between 7:15-8:15 AM. The evening peak hour traffic volumes occurred between 5:00-6:00 PM.

Turning movements for the intersection of SH 82 South Frontage Road and Valley Road were extrapolated from existing traffic.

Additionally, 24-hour daily traffic data was collected at the following locations: SH 82 South Frontage Road west of Valley Road, Valley Road east of Summit Loop, JW Drive West south of Buckskin Drive, and JW Drive east of Coyote Circle.

Queuing data was collected at the intersections of SH 82 and Valley Road/El Jebel Road and Valley Road and East Valley Road. Queuing data was collected from 7:00-9:00 AM and 4:00-6:00 PM. Maximum queue lengths were collected in 5-minute bins.

CDOT provided signal timing data for the intersection of SH 82 and Valley Road/El Jebel Road. This information is included in the **Appendix**.

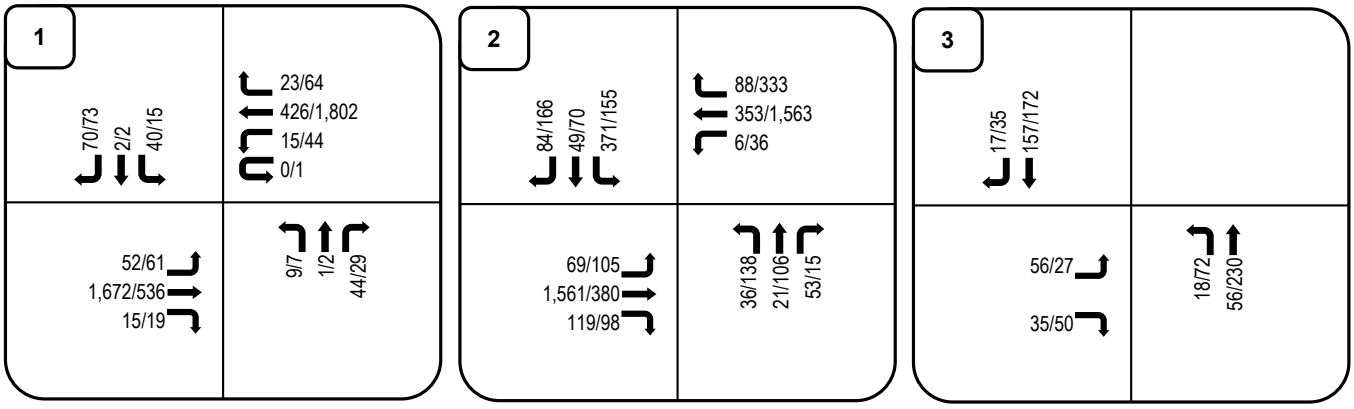
All raw peak hour turning movement, 24-hour, and queuing data can be found in the **Appendix**.

2.5 Seasonal Adjustment Factor

The peak traffic in El Jebel occurs during the summer months. Traffic counts were taken in February. Therefore, a seasonal adjustment factor of 1.20 was applied to all traffic counts to adjust February counts to typical July volumes. The seasonal adjustment factor was calculated from CDOT's historic seasonal data[10] on SH 82 and is included in the **Appendix**.

The raw February traffic volumes are shown in **Figure 4**. No seasonal adjustment factor has been applied to this data.

Figure 4: Year 2020 Existing Traffic



This is the raw February 2020 traffic data. No seasonal adjustment factor is applied to these volumes.

LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM Volumes = XX/XX VPH (in PCEs)
Turning Movements

McDowell Engineering, LLC
Transportation Engineering Consultants

Project Number	M1434
Prepared By	KJS
	10/14/2021

The Fields
EL Jebel, CO

3.0 Background Traffic Projections

3.1 Background Traffic Summary

The Background Traffic analysis uses the current number of vehicles on the roads near the development and estimates what traffic is expected to be in the future (Years 2021, 2025 and 2045). This analysis does not include traffic estimated from The Fields subdivision. This is an estimation of what will occur without the project being constructed.

Currently, two nearby intersections are nearing max capacity: the intersection of SH 82 and El Jebel/East Valley Road and SH 82 and JW Drive/Valley Road. Several alternative solutions to mitigate future traffic conditions were analyzed.

3.2 Planned or Existing Land Development Projects

There are no projects that are currently under construction or planned developments in the vicinity of the project site.

3.3 Background Traffic Growth

Historic annual background growth rates for SH 82 were calculated using data provided by CDOT's OTIS[10] system. SH 82's annual growth rate east of the intersection of El Jebel Road/Valley Road was calculated to be 0.96% per year using CDOT's 20-year growth factor of 1.21. SH 82's annual growth rate west of the intersection of El Jebel Road/Valley Road was calculated to be 1.20% per year using CDOT's 20-year growth factor of 1.27. The growth rates were applied to the through movements on SH 82.

The annual growth rate used for Valley Road was 1.00%. This was based on direction from Eagle County and was applied to all side streets and turning movements.

3.4 Current CDOT State Highway Access Permit for SH 82 & El Jebel Road

Per CDOT, any increase in traffic volume on the south leg of this signalized intersection will trigger the need for a new CDOT State Highway Access Permit. The permitted volume is 448 vehicles per hour (vph). The current permit is valid for up to a 20% increase over the permitted volume. This equates to 538vph.

Current traffic volumes on the south leg of this intersection were 463vph in February 2020. This equates to a seasonally adjusted volume of 556vph in July 2020, exceeding the currently allowed volume.

Therefore, improvements are required to the south leg of the SH 82 and El Jebel Road intersection with or without the additional of any project traffic from The Fields development.

A new State Highway Access Permit requires that improvements are constructed to meet the long-term 20-year traffic projections at an intersection. However, in the case of the SH 82 and El Jebel Road intersection, the previously approved infrastructure improvements required to meet the 20-year needs are cost prohibitive without a capital expenditure by Eagle County.

Therefore, CDOT and Eagle County were interested in a short-term solution that would allow the intersection to function for the next five years. In the meantime, Eagle County will work on developing an implementable long-term plan for the south leg of this intersection.

Several alternatives, new and old, were reviewed in this analysis.

3.5 El Jebel Road and Valley Road Alternative Analyses

The intersection of SH 82 and Valley Road/El Jebel Road is nearing its maximum capacity. Over the past ten years, multiple alternatives have been developed by several agencies and consultants to address the short-term (5 year) and long-term (20 year) infrastructure needs at the SH 82 and EL Jebel Road intersection, as well as the El Jebel Road and Valley Road intersection to the south.

This study proposes a simplified approach to address the Year 2021 to Year 2025 traffic condition. Refer to **Figure 5** and the description below. It is assumed that these improvements are implemented with the proposed The Fields project construction.

The Year 2045 future traffic analysis uses a circulation solution suggested for analysis by Eagle County. Refer to **Figure 6** and the description below. It is assumed that this long-term solution is a project that will be implemented by Eagle County with other public and private partnerships.

Figure 5: Interim Year 2021 – Year 2025 Condition

McDowell Engineering identified that most of the delay at the EL Jebel Road and Valley Road intersection is from the larger traffic volume on East Valley Road originating from the commercial areas of Orchard Plaza and Willits. Therefore, an alternative was developed for a simplified interim condition that would accommodate near-term (5 year) traffic growth while Eagle County worked on funding partners for the long-term improvements.

This alternative utilizes the existing roadway network and removes the northbound stop sign from the East Valley Road leg of the intersection. To operate successfully for the next five years, the afternoon signal timing was modified to shift 10 seconds of green time to the south leg of the intersection. This green time was taken from the north leg which does not have a queuing concern in the afternoon. This will not impact the SH 82 signal timing requirements from CDOT. CDOT is supportive of this change in signal timing as it doesn't change the green time on SH 82.

Figure 6: Long-Term Year 2026 – Year 2045 Condition[14, *]

*This graphic is schematic and was produced for modeling purposes only.

Eagle County's Engineering Department provided a simplified intersection alignment for consideration in this analysis. It requires less reconstruction than the 2012 SGM alternative. It also can provide more land to expand RFTA's parking lot. This concept extends Valley Road to the east side of the RFTA Park n' Ride. Sopris Village Drive would tee -in at the south end of the RFTA lot. All traffic from Valley Road and Sopris Village Drive access East Valley Road at the northeast corner of the RFTA Park n' Ride.

The above image is a long-term design that accommodates the 20-year projected traffic.

3.6 CDOT's Operational Requirements for the SH 82 & El Jebel Road Intersection

The intersection of SH 82 and Valley Road/El Jebel Road is nearing its maximum capacity. CDOT has prioritized the flow of SH 82 over side street operations. With 110 seconds of green time on SH 82, side street movements can be expected to have very low levels of service because they are waiting for a green light for more than 80 seconds, which by definition is a LOS F.

CDOT will not allow a change to SH 82's mainline signal timing. It currently is operating with 110 seconds given to the mainline green time of the 160 second cycle length. Therefore, side street operations are anticipated to have failing LOS because they are waiting for a green light for more than 80 seconds, which by definition is a LOS F.

As CDOT and Eagle County identified, a better indicator of acceptable operations for SH 82 side streets is the ability of:

- Side streets to hold the anticipated queues during peak traffic,
- Vehicles to clear the traffic signal within one or two cycles during peak traffic.

During off-peak times, significantly better operating conditions can be expected.

Refer to the scoping and methodology meeting documentation in the **Appendix** for additional details.

3.7 SH 82 and JW Drive/Valley Road Alternative Analyses

The intersection of SH 82 and JW Road/Valley Road is experiencing excessive delays on the south leg. As traffic continues to increase on SH 82, there will be less gaps in traffic for the left and through movements from the side streets at this intersection.

There was a previous agreement that the applicant would construct a northbound right deceleration lane at the intersection of SH 82 and JW Drive/Valley Road. The northbound right turn lane is included in the analysis of total traffic conditions.

The northbound right turn lane improvement on Valley Road would require widening the pavement by approximately eight feet, the extension of the cattle guard, and striping modifications to incorporate the new left-thru and separate northbound right turn lanes.

Figure 7: SH 82 and JW Drive/Valley Road Northbound Right Turn Lane

3.8 Short-Term & Long-Term Background Traffic Conditions

The resulting Background Year 2021, Year 2025, and Year 2045 scenarios assume no modification are made to the existing geometry at Valley Road and East Valley Road.

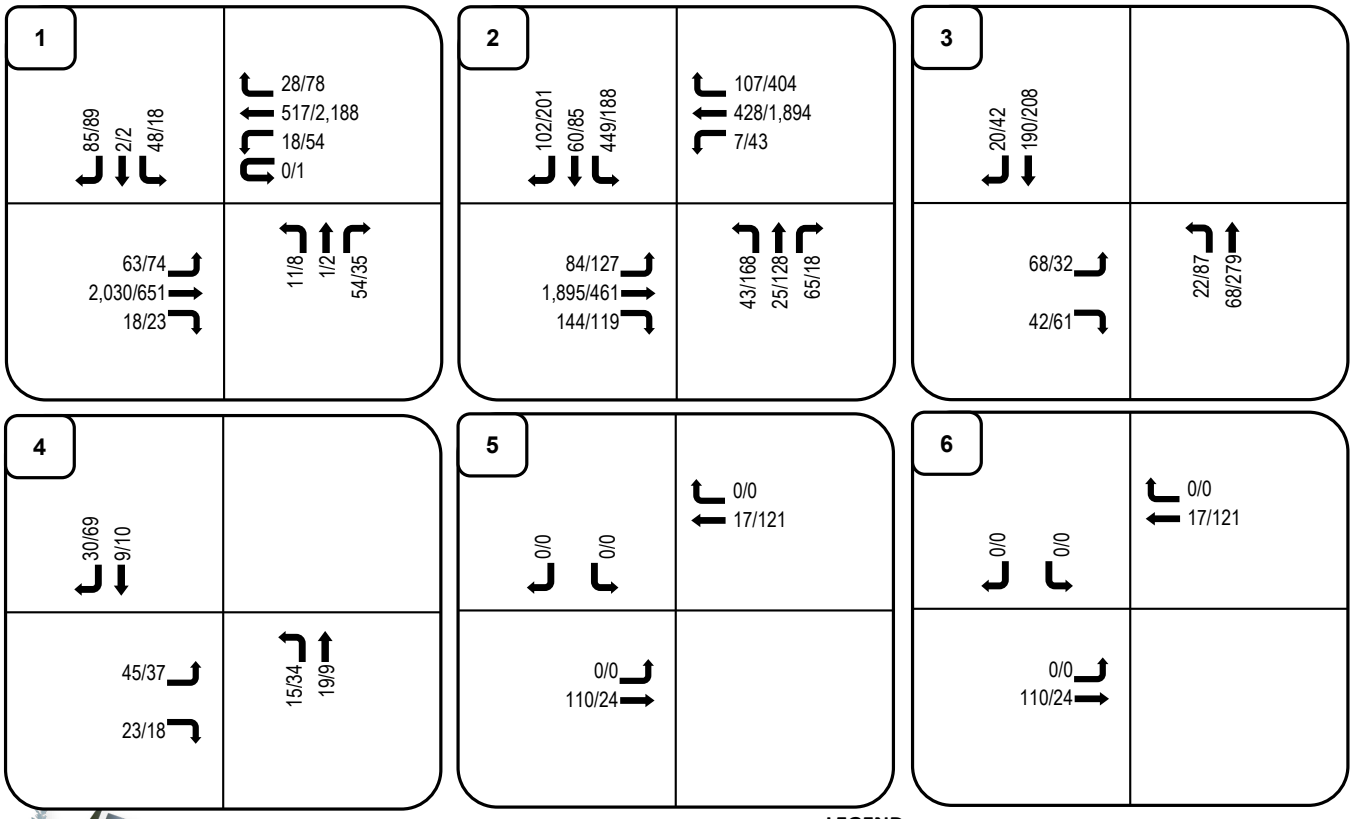
Year 2021 background traffic (without the proposed development) is depicted in **Figure 8. Figure 9** shows the anticipated Year 2025 background traffic volumes. Year 2045 background traffic is shown in **Figure 10**.

3.9 Traffic Model Assumptions

Per direction from the CDOT staff, the existing traffic signal at SH 82 and El Jebel Road was modeled to simulate the current signal timings. A cycle length of 160 seconds was used for the morning and evening peak hour. Future analysis of the SH 82 and EL Jebel Road intersection utilized the current timing settings.

Changes to the existing intersection configurations were excluded from the background analysis.

Figure 8: Year 2021 Background Traffic



LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM Volumes = XX/XX VPH (in PCEs)
Turning Movements

McDowell Engineering, LLC
Transportation Engineering Consultants

Project Number	M1434
Prepared By	KJS
	10/14/2021

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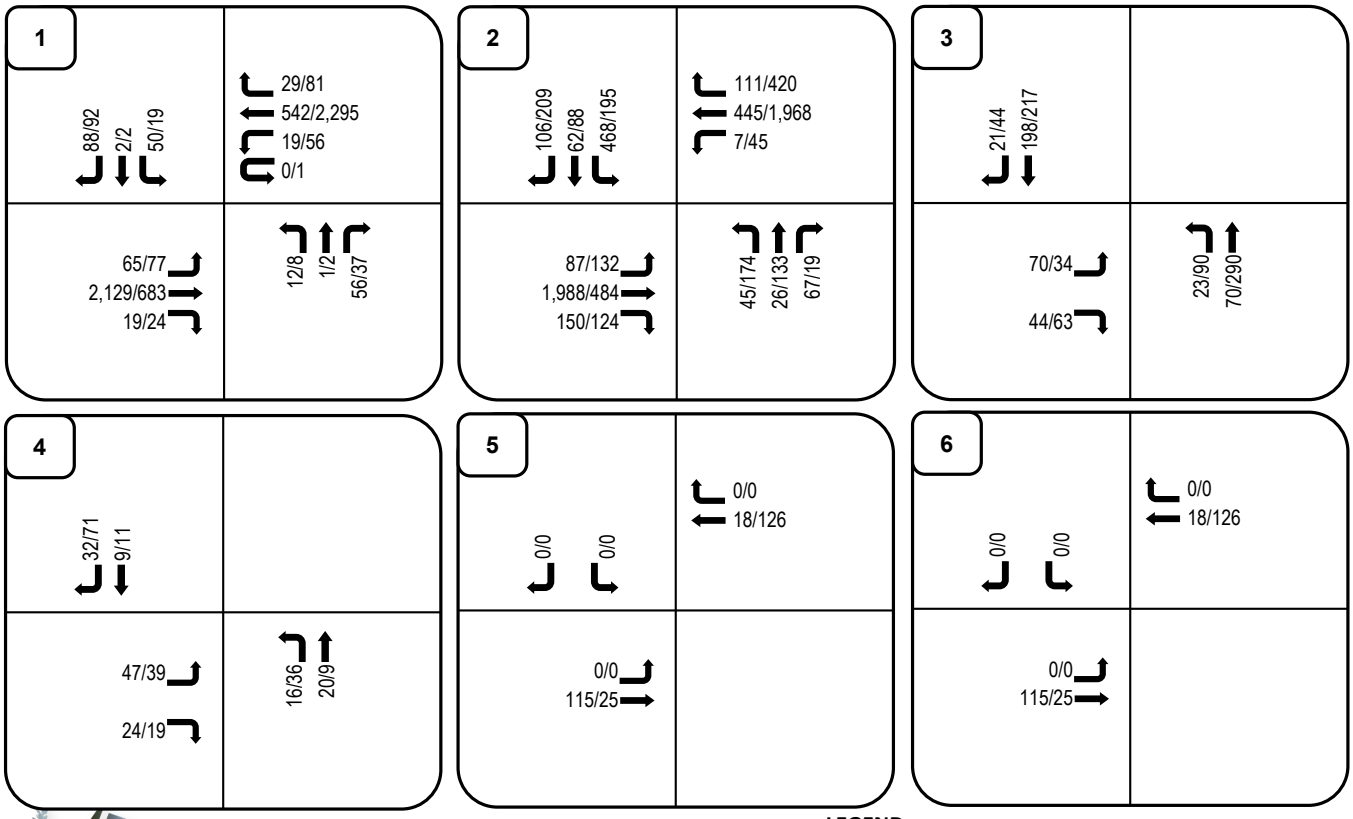
Figure 9: Year 2025 Background Traffic



LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM Volumes = XX/XX VPH (in PCEs)
Turning Movements

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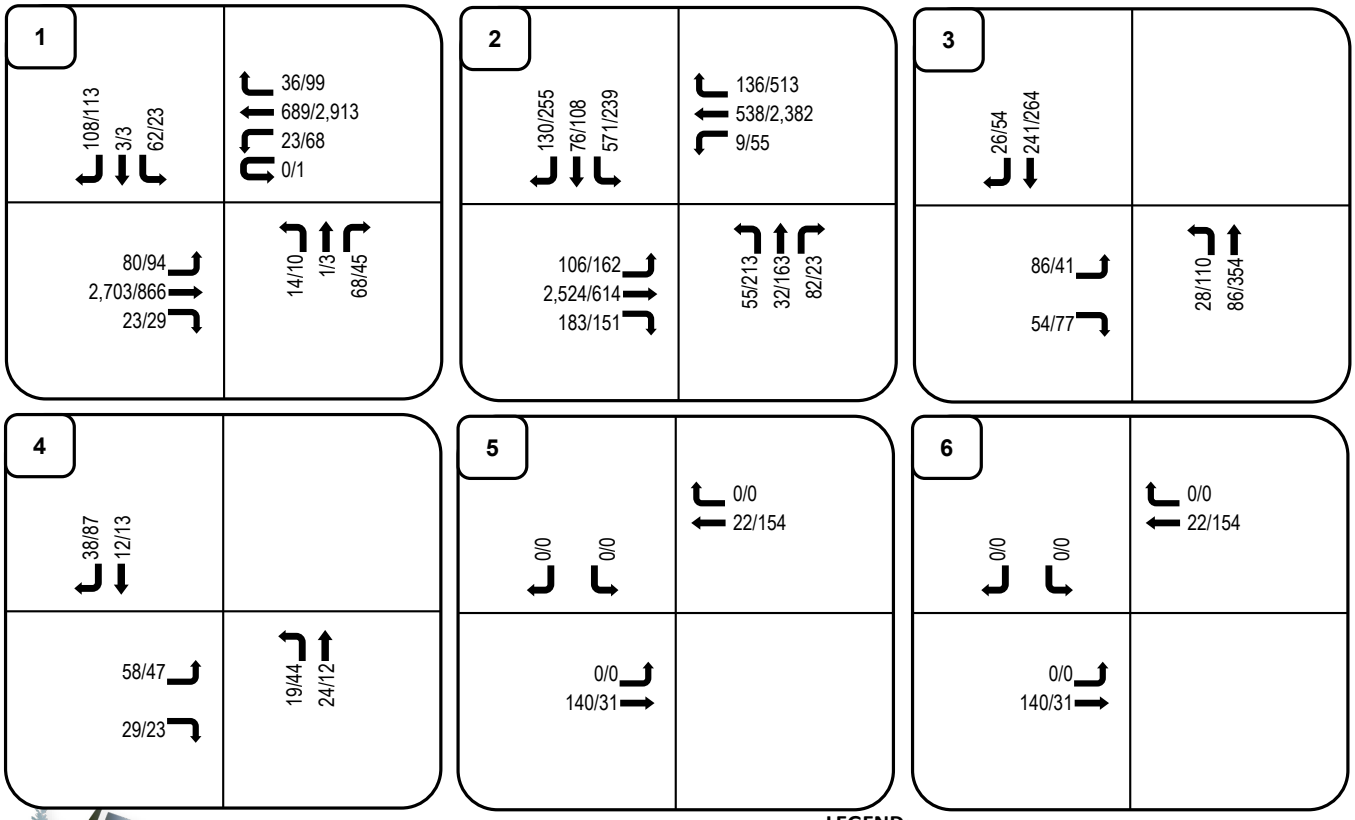
Figure 10: Year 2045 Background Traffic



LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM Volumes = XX/XX
Turning Movements

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3.10 Intersection Level of Service and Operational Analysis

Intersection Level of Service: Using *Highway Capacity Manual 2010* (HCM) methodology[1], Synchro Version 10 software was used to determine the delay and Level-of-Service (LOS) at the signalized and stop-controlled intersections on SH 82 and Valley Road.

Highway Capacity Manual Level of Service (LOS): HCM LOS is defined by the following criteria:

Table 1: HCM 2010 Level of Service Criteria

LOS	Expected Delay to Minor Street Traffic	Average Signal Delay (Seconds/Vehicle)	Average Stop-Controlled Delay (Seconds/Vehicle)
A	Little or no delay.	0-10	0-10
B	Short traffic delays.	>10-20	>10-15
C	Average traffic delays.	>20-35	>15-25
D	Long traffic delays.	>35-55	>25-35
E	Very long traffic delays.	>55-80	>35-50
F	When volume exceeds the capacity of the lane extreme delays will be encountered with queuing that may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improving the intersection.	>80	>50

For evaluation purposes, Eagle County[9] defines acceptable intersection operations as LOS D or better under peak hour conditions at signalized locations.

At stop sign controlled locations, LOS E/F is considered acceptable for side street traffic movements during urban peak hours along major arterial and expressway corridors. ***CDOT has prioritized the flow of SH 82 over side street operations. With 110 seconds of green time on SH 82 during peak traffic hours, side street movements can be expected to have very low levels of service because they are waiting for a green light for more than 80 seconds, which by definition is a LOS F***.

Therefore, side street operations are anticipated to have failing LOS, even in current Year 2020 conditions.

As CDOT and Eagle County identified, a better indicator of acceptable operations for SH 82 side streets is the ability of:

- ***Side streets to hold the anticipated queues during peak traffic,***
- ***Vehicles to clear the traffic signal within one or two cycles during peak traffic.***

During off-peak times, significantly better operating conditions can be expected.

Both peak hour periods (AM/PM) were analyzed using capacity analysis procedures resulting in the operating LOS shown in **Table 2**.

Table 2: Background HCM Level of Service

#	Int.	Traffic Control	Approach	Year 2021 Level of Service (Delay in Seconds)		Year 2025 Level of Service (Delay in Seconds)		Year 2045 Level of Service (Delay in Seconds)	
				AM	PM	AM	PM	AM	PM
1	JW Drive/Valley Rd & SH 82	NB/SB Stop	EB	A (0.3)	A (3.5)	A (0.3)	A (4.2)	A (0.3)	C (18.5)
			WB	A (0.7)	A (0.2)	A (0.8)	A (0.2)	A (1.4)	A (0.2)
			NB	F (68.3)	F (868.4)	F (87.2)	F (Err)	F (1110.1)	F (Err)
			SB	F (75.2)	F (105.3)	F (116.4)	F (141.7)	F (3787.1)	F (Err)
2	El Jebel Rd/Valley Rd & SH 82	Signal	EB	C (31.1)	D (38.9)	D (35.5)	D (40.3)	F (131.9)	D (53.7)
			WB	B (17.4)	E (70.0)	B (17.6)	F (86.1)	B (18.7)	F (188.0)
			NB	D (42.3)	F (97.8)	D (43.1)	F (102.1)	D (45.6)	F (134.0)
			SB	E (73.3)	E (58.3)	E (78.6)	E (59.2)	F (120.6)	E (64.8)
3	Valley Rd/E Valley Rd	EB/NB Stop	EB	C (16.6)	C (24.0)	C (17.3)	D (26.6)	C (23.2)	F (54.3)
			SB	A (6.9)	A (6.4)	A (6.9)	A (6.4)	A (7.0)	A (6.4)
			NB	A (9.9)	B (11.5)	A (10.0)	B (11.7)	B (10.5)	B (13.2)
4	Frontage Rd/Valley Rd	EB Stop	EB	A (9.1)	A (9.3)	A (9.1)	A (9.4)	A (9.3)	A (9.6)
			NB	A (3.2)	A (5.9)	A (3.2)	A (6.0)	A (3.3)	A (6.0)
			SB	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)

SH 82 and Valley Road/JW Drive: As can be seen in **Table 2**, this intersection is currently operating at an acceptable overall LOS D. However, side street traffic is seeing excessive delay due to the volume of traffic on SH 82 and lack of gaps to maneuver across traffic. These delays are anticipated to continue to increase with traffic growth on SH 82. By Year 2025, the afternoon peak hour is anticipated to be operating at a failing overall LOS E.

SH 82 and Valley Road/El Jebel Road: As can be seen in **Table 2**, this intersection is currently operating below an acceptable LOS. Side street traffic is seeing excessive delay due to the volume of traffic on SH 82 and lack of gaps to maneuver across traffic. These delays are anticipated to continue to increase with traffic growth on SH 82.

Current volumes (without The Fields' traffic) at this intersection require a new State Highway Access Permit, as they exceed 20% of CDOT's access permit volume. As such, CDOT standards require that Eagle County upgrades the intersection to accommodate the next 20 years of traffic growth at this intersection. This condition occurs with or without the addition of The Fields traffic.

The anticipated future El Jebel Road and Valley Road alternatives were not analyzed for background traffic conditions.

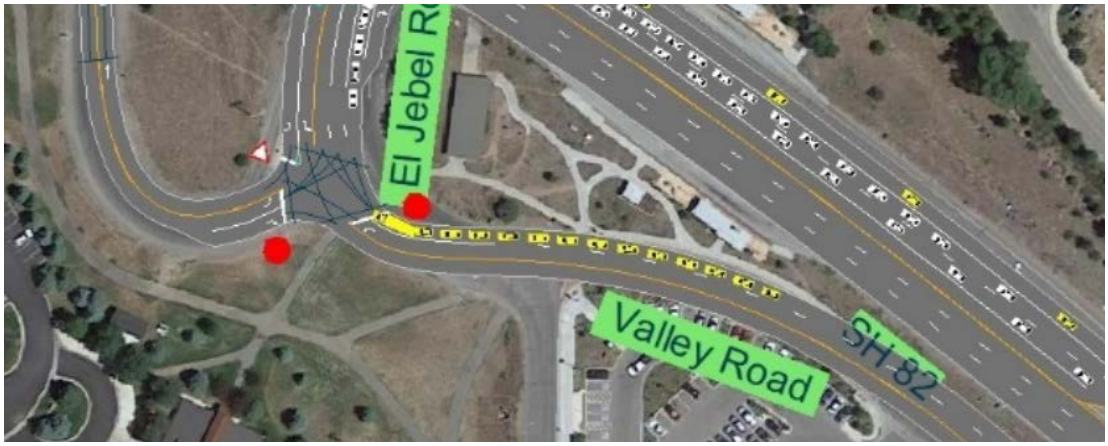
Valley Road and East Valley Road: As can be seen in **Table 2**, this intersection is currently operating at an acceptable LOS and is anticipated to continue operating acceptably through long term background traffic conditions.

During current afternoon peak traffic hours, the intersection queues up to the RFTA parking lot access on East Valley Road. This queue appears to largely consist of traffic from the east – (RFTA) Bus Rapid Transit (BRT) park n' ride and several commercial shopping complexes including the Willits Town Center.

Traffic from Valley Road is not contributing to the queue on East Valley Road.

Queues on Valley Road do not exceed 1 to 3 cars during the afternoon peak hour.

Figure 11: Existing Valley Road Queue in Afternoon Peak



This queue is anticipated to continue to grow in the future.

Figure 12: Long-Term Future Valley Road Queue in Afternoon Peak

The proposed roadway improvements for both the near-term and long-term conditions aim to remedy this existing queueing problem.

3.11 Roadway Segment Level of Service

Valley Road Level of Service: The LOS for Valley Road segments directly west and east of the project site was calculated using *Highway Capacity Manual 2010* (HCM) methodology. These calculations are included in the **Appendix.**

Table 3: Background Traffic Highway Segment Level of Service

Scenario	Evening Peak Hour Segment Level of Service (LOS)			
	LOS (Percent of Time Spent Following) Class II Highways PTSF (%)[1]		LOS (Percent of Time Free Flow Speed) Class III Highways PFFS (%)[1]	
Valley Road East of the site access				
	Eastbound	**Westbound**	**Eastbound**	**Westbound**
2021 Background Traffic	A (11%)	B (54%)	B (87%)	B (88%)
2025 Background Traffic	A (11%)	B (54%)	B (86%)	B (88%)
2045 Background Traffic	A (12%)	C (57%)	B (84%)	B (87%)

Table 3 shows the road capacity LOS analysis for Class III two-lane highways as defined in the HCM 2010, Chapter 15. Class III two-lane highways are highways serving moderately developed areas. On these segments, local traffic often mixes with through traffic, and the density of unsignalized access points is noticeably higher than in a purely rural area. Because the length of Class III segments is limited, passing restrictions are not a major concern and motorists would like to make steady progress at or near the speed limit. Therefore, percent of free flow speed (Class III) is used to define LOS on these road segments.

Valley Road: As can be seen in **Table 3**, both eastbound and westbound traffic are not experiencing delay during the peak commuting hours. The delay for both directions is anticipated to remain relatively constant through Year 2045 during background traffic conditions.

3.12 SH 82 Signal Progression Analysis

This analysis uses CDOT's current signal timing of SH 82 at the EL Jebel Road traffic signal. Therefore, SH 82's traffic signal progression is not modified and therefore, progression analysis is not included.

3.13 Queue Length

A comparison of actual queuing data collected in February compared to queuing estimates from Synchro was requested by CDOT for the intersections of SH 82 and El Jebel Road/Valley Road as well as EL Jebel Road with Valley Road and East Valley Road.

Results are shown in **Table 4.** 95th Percentile Queue lengths are detailed in the HCM reports in the **Appendix**.

Table 4: Queue Comparison

#	Int.	Movement	AM Peak Car Counts	Approximate Length (feet)	AM HCM 95th Percentile	PM Peak Car	Approximate Length (feet)	PM HCM 95th Percentile Queue
2	El Jebel Rd/Valley Rd & SH 82	EBL	3	75	111	12	300	219
		EBT	28	700	403	6	150	128
		EBR	1	25	47	0	0	46
		WBL	0	0	22	4	100	78
		WBT	9	225	159	31	775	560
		WBR	0	0	33	8	200	137
		NBL	3	75	52	5	125	137
		NBT	1	25	35	9	225	158
		NBR	4	100	0	0	0	48
		SBL	16	400	250	10	250	206
		SBTR	10	250	295	2	50	135
3	Valley Rd & E Valley Rd	EBL	2	50	57	1	25	51
		EBR	1	25	57	3	75	59
		NBT	3	75	41	6	150	113
		SBT	1	25	6	0	0	10
		SBR	0	0	0	0	0	0

The magnitude of queues observed in the field is similar to the queues estimated with SimTraffic and in some cases a variance of only a few feet is observed. Minor differences are expected in SimTraffic from what is observed in the field due to variations in actual speeds of individual vehicles, actual vehicle sizes, etc.

3.14 24-Hour Traffic Volumes

24-hour traffic volumes were collected at the following locations: SH 82 South Frontage Road west of Valley Road, Valley Road east of Summit Loop, JW Drive West south of Buckskin Drive and JW Drive east of Coyote Circle.

SH 82 South Frontage Road: An average of 528 vehicles travel in the eastbound direction and 606 in the westbound direction daily. In a seasonally adjusted comparison, this is a 3% increase (0.31% annually) since the previous 2011 count taken for the *The Fields Transportation Impact Study*[7] completed in 2016. 2% of the total traffic is heavy vehicles.

JW Drive North of SH 82: An average of 1,018 vehicles travel in the eastbound direction and 849 in the westbound direction daily. In a seasonally adjusted comparison, this is a 3% increase (0.29% annually) since the previous 2011 count taken for the TIS completed in 2016. 8% of the total traffic is heavy vehicles.

JW Drive East of Coyote Cir: An average of 1,067 vehicles travel in the eastbound direction and 893 in the westbound direction daily. In a seasonally adjusted

comparison, this is a 1% decrease (-0.07% annually) since the previous 2011 count taken for the TIS completed in 2016. 7% of the total traffic is heavy vehicles.

Valley Road: An average of 625 vehicles travel in the eastbound direction and 683 in the westbound direction daily. In a seasonally adjusted comparison, this is a 6% increase (0.63% annually) since the previous 2011 count taken for the TIS completed in 2016. 1% of the total traffic is heavy vehicles.

4.0 Project Traffic

4.1 Project Traffic Summary

The Project Traffic analysis determines the anticipated impacts of adding The Fields' project traffic is to adjacent roadway network.

By adding the background traffic from **Section 3.0** to The Fields' project—generated traffic, we arrive at the total traffic anticipated on the roadway network. This 'total traffic' is then analyzed to determine necessary mitigation to accommodate the additional traffic volume.

In the case of the SH 82 and El Jebel Road intersection, as well as the SH 82 and JW Drive intersection, existing conditions are not operating acceptably based upon CDOT and Eagle County's standards.

Total traffic conditions are analyzed with proposed intersection improvements that mitigate the current operations.

4.2 Trip Generation for Proposed Land Use

Existing Land Use: According to the Eagle County Assessor, there are currently five single family homes on the property. These homes will be removed in preparation for The Fields development.

Proposed Land Use: The applicant is proposing a residential development with 135 units. This includes 30 single family homes, 20 duplex units, 16 fourplex units, and 69 multifamily homes. The project is anticipated to be constructed in Year 2021.

The Institute of Transportation Engineers' *Trip Generation Manual*[3] was used to determine the anticipated trip generation for the proposed residential project. ITE Land Use Code (LUC) #210 was used for single-family homes. LUC #210 was used for Duplex Single-Family Housing. LUC #220 was used for multifamily housing (low-rise) and fourplex multifamily housing.

Multimodal Trip Reduction

CDOT limited site multimodal reduction to 5% for the project. However, evidence from RFTA ridership data suggests that this is a very conservative estimate and a higher percentage of multimodal travel can be anticipated from this site.

The project is proposing two trail connections providing direct and convenient access to the adjacent trail network. In additional to recreational activities, these trails also connect to RFTA's El Jebel Park n' Ride facility. Per RFTA's *2014 Regional Transportation Study,* only 47% of El Jebel's residents surveyed drive alone to work.

The remaining 53% carpool, utilize bus transportation, walk, ride bicycles, etc. Additionally, there has been a 7% increase in residents telecommuting compared to 2004. Refer to **Section 5.13** for more information on alternative modes for the proposed project.

Project Trip Generation

The current homes generate approximately 63vpd. These homes will be removed in preparation for The Fields development.

Based upon the applicant's proposed land uses, the project can be anticipated to generate 1,084 vehicle trips per day (vpd) on the average weekday. Peak hour traffic on a weekday at project buildout is anticipated to be 93 vehicles per hour (vph) during the morning peak hour and 112 vph during the evening peak hour.

This is a 4.7% increase from previously approved Eagle County sketch plan approval of 1,035vpd. The proposed project will include more multifamily units compared to previous plans. Multifamily units generate less traffic than single-family dwelling units. Based on dwelling unit types, the Sketch Plan averaged 9.4vpd per unit and the preliminary plan averages 8.0vpd per unit.

The proposed project is an increase of 1,021vpd over the current land use. This includes 87vph and 104vph in the morning and evening peak hours, respectively.

Table 5 details the total traffic volumes that are anticipated from the construction of this project.

Table 5: The Fields Project Trip Generation

ITE Code	Units		Eq. Coef	ITE Trip Generation Equation[2] 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
#210 - Single-Family Detached Housing	30	DU	Type a= b=	B 0.92 2.71	B 0.91 0.20	B 0.94 0.34	343	26%	8	74%	20	64%	22	36%	12
#210 - Duplex Single-Family Housing	20	DU	Type a= b=	B 0.92 2.71	B 0.91 0.20	B 0.94 0.34	237	26%	5	74%	14	64%	15	36%	9
#220 - Fourplex Multifamily Housing	16	DU	Type a= b=	A 7.56 -40.86	B 0.94 -0.29	A 0.66 1.41	80	28%	3	72%	8	59%	8	41%	5
#220 - Multifamily Housing (Low-Rise)	69	DU	Type a= b=	A 7.56 -40.86	B 0.94 -0.29	A 0.66 1.41	481	28%	11	72%	29	59%	28	41%	19
Multi-Modal Reduction		*-5%*					*-57*		*-1*		*-4*		*-4*		*-2*
Total Trips							**1,084**		**26**		**67**		**69**		**43**

Notes:

[1] Values obtained from *Trip Generation, 10th Edition,* Institute of Transportation Engineers, 2017.

[2] 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

4.3 Trip Distribution

The directional distribution of project-generated vehicular traffic on adjacent roadways is influenced by several factors including the following:

- The location of the site relative to other community facilities
- The configuration of the existing and proposed adjacent roadway network
- Relative location of neighboring population centers

The site will have two direct access points to Valley Road at buildout Year 2021. There will not be any site accesses directly on SH 82.

Based upon the location of the project in relation to nearby businesses, the following project-generated directional distribution is as follows:

- Fifty percent (50%) of site-generated traffic will originate/return to/from Aspen
- Forty-five percent (45%) of site-generated traffic will originate/return to/from the west towards Glenwood Springs
- Five-percent (5%) of site generated traffic will originate/return to/from north towards El Jebel

The anticipated directional distribution of project-generated traffic is depicted in **Figure 13**.

4.4 Site-Generated Traffic Assignment

When the trip generation expected for this site is applied to the estimated site-generated directional distribution, the result is the anticipated assignment of site-generated trips on the roadway system.

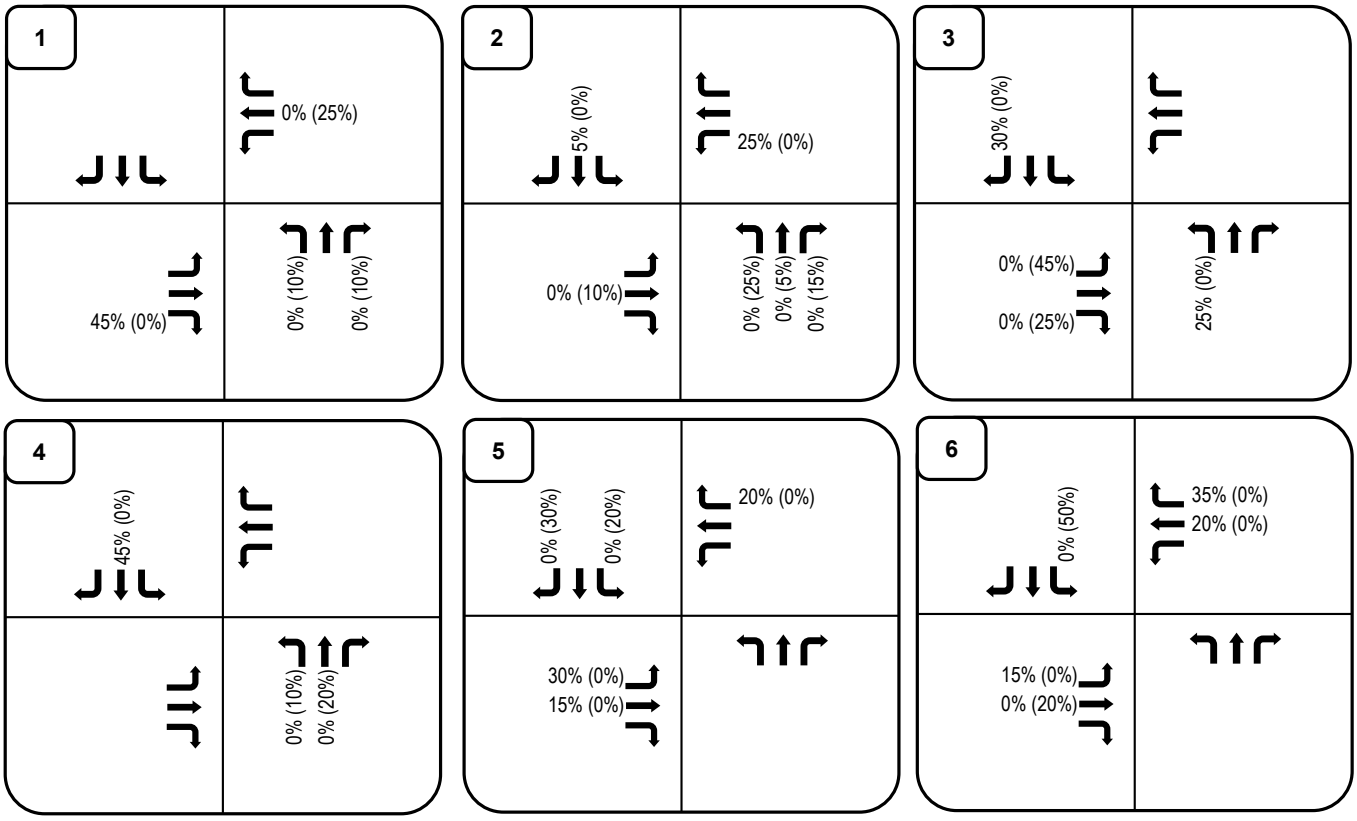
Figure 14 depicts the new vehicle trips that are anticipated from the project.

4.5 Total Traffic

The total traffic anticipated at each intersection is the sum of background traffic with the site-generated traffic.

Figure 15 depicts the anticipated Year 2025 total traffic conditions. **Figure 16** depicts the anticipated Year 2045 total traffic.

Figure 13: Site-Generated Directional Distribution



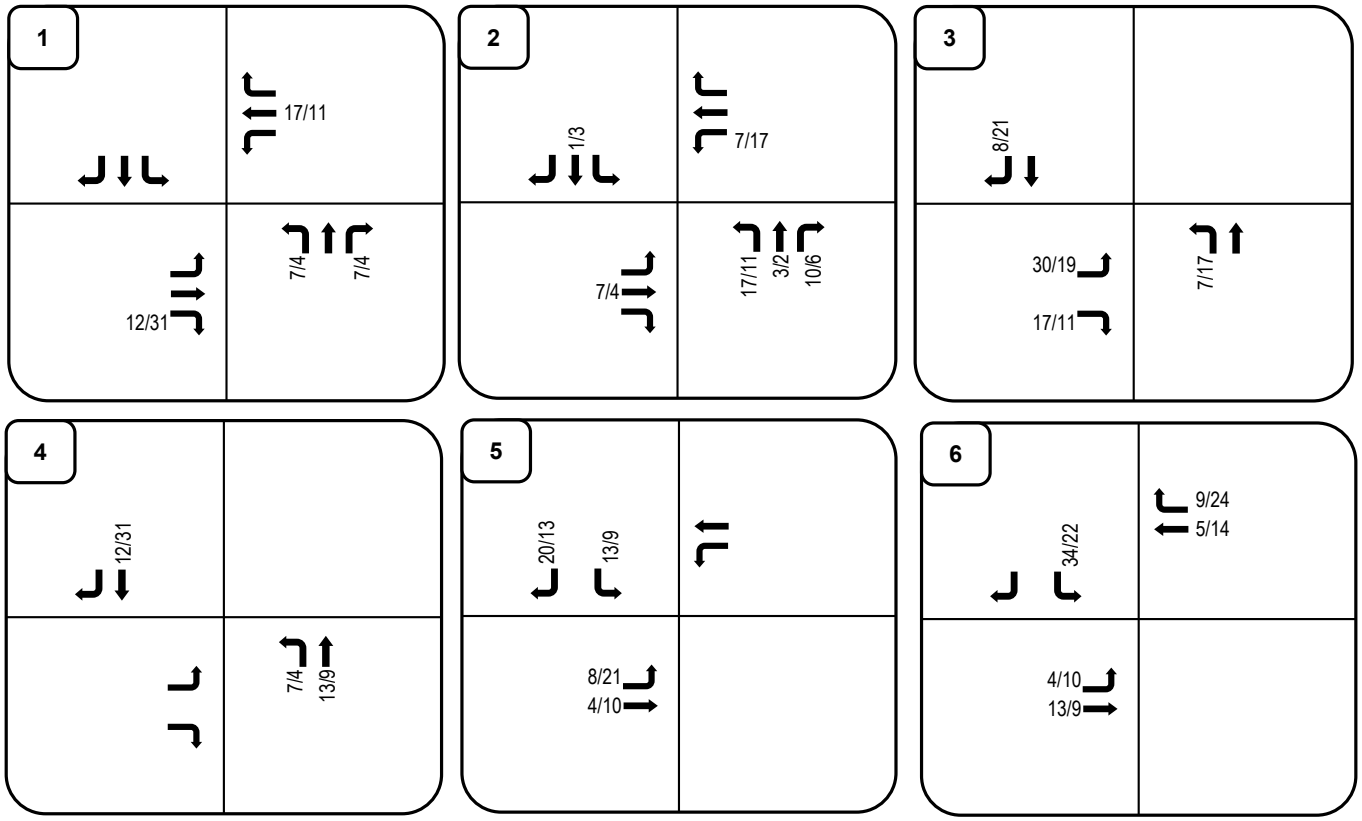
LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM Volumes = XX/XX VPH (in PCEs)
Turning Movements

McDowell Engineering LLC
Transportation Engineering Consultants

Project Number	M1434
Prepared By	KJS
	10/14/2021

The Fields
EL Jebel, CO

Figure 14: Site-Generated Traffic Assignment



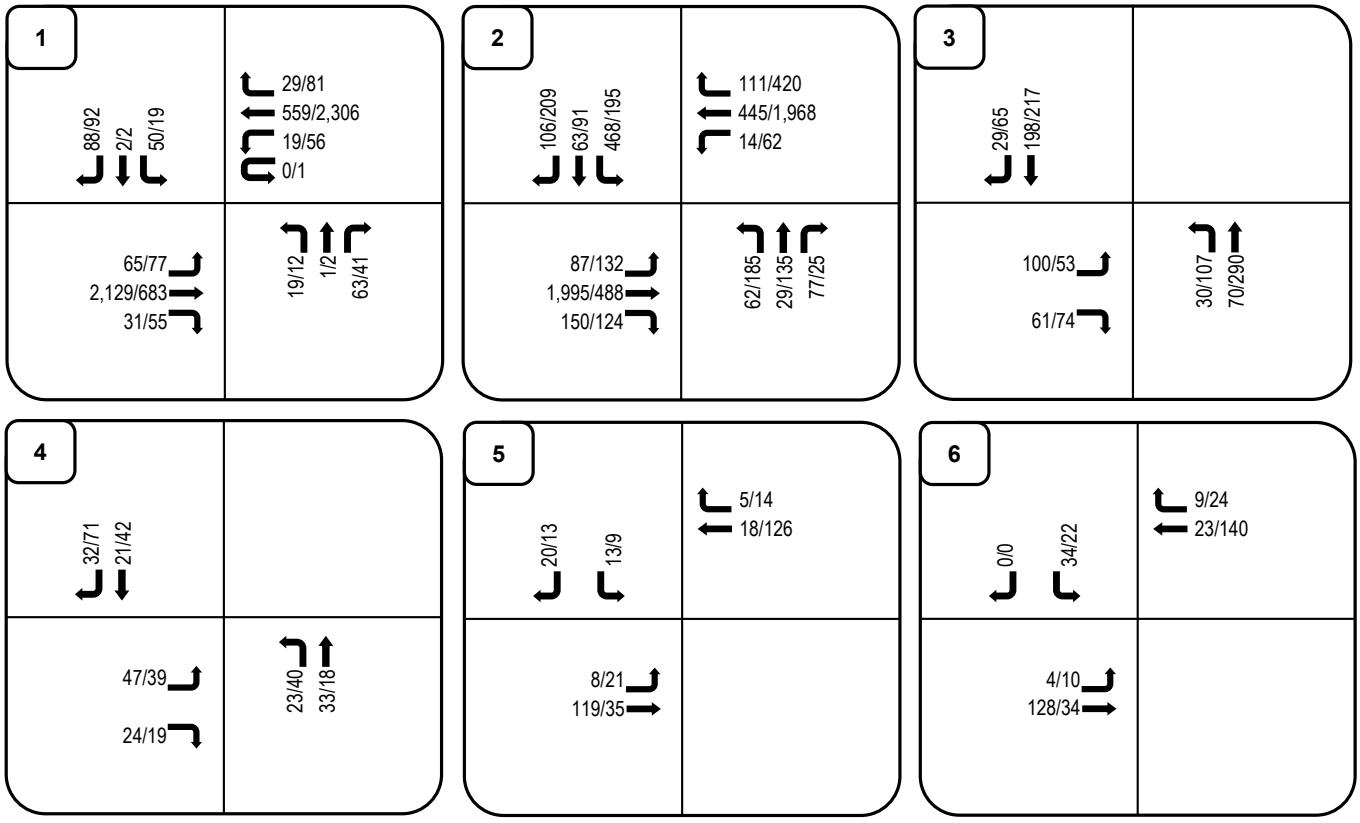
LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM Volumes = XX/XX VPH (in PCEs)
Turning Movements

McDowell Engineering LLC
Transportation Engineering Consultants

Project Number	M1434
Prepared By	KJS
	10/14/2021

The Fields
EL Jebel, CO

Figure 15: Year 2025 Total Traffic



LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM Volumes = XX/XX VPH (in PCEs)
Turning Movements

McDowell Engineering, LLC
Transportation Engineering Consultants

Project Number	M1434
Prepared By	KJS
	10/14/2021

The Fields
EL Jebel, CO

Figure 16: Year 2045 Total Traffic

1

108/113
3/3
62/23

36/99
706/2,924
23/68
0/1

80/94
2,703/866
35/60

21/14
1/3
75/49

2

130/255
77/111
571/239

136/513
538/2,382
16/72

106/162
2,531/618
183/151

72/224
35/165
92/29

4

38/87
24/44

58/47
29/23

26/48
37/21

5

20/13
13/9

5/14
22/154

8/21
144/41

6

0/0
34/22

9/24
27/168

4/10
153/40

8

53/333
36/131

231/221
45/113

146/74
74/95

7

69/202
11/38

187/148
1/4

4/2
33/21

LEGEND:
Directional Distribution = Inbound% (Outbound %)
AM/PM Volumes = XX/XX VPH (in PCEs)

Turning Movements

McDowell Engineering, LLC
Transportation Engineering Consultants

Project Number	M1434
Prepared By	KJS
	10/14/2021

The Fields
EL Jebel, CO

5.0 Transportation Impact Analysis

5.1 Total Traffic Analysis Summary

The impact on the surrounding roadways from The Fields' traffic is analyzed in this section. Additionally, mitigation measures are evaluated, and final recommendations are given.

5.2 Traffic Model Assumptions

Analysis of total traffic conditions (background + project-generated traffic) assumed that several infrastructure improvements were constructed at certain timeframes.

SH 82 and Valley Road/El Jebel Road: CDOT and Eagle County were interested in a short-term solution that would allow the intersection to function for the next five years. In the meantime, Eagle County will work on developing an implementable long-term plan for the south leg of this intersection.

This study proposes a simplified approach to address the Year 2021 to Year 2025 traffic condition. It is assumed that these improvements are implemented with the proposed The Fields project construction. Refer to **Section 3.5**. This alternative utilizes the existing roadway network and removes the northbound stop sign from the East Valley Road leg of the intersection. To operate successfully for the next five years, the afternoon signal timing was modified to shift 10 seconds of green time to the south leg of the intersection. This green time was taken from the north leg which does not have a queuing concern in the afternoon. This will not impact the SH 82 signal timing requirements from CDOT. CDOT is supportive of this change in signal timing as it doesn't change the green time on SH 82.

The Year 2045 future traffic analysis uses a circulation solution suggested for analysis by Eagle County. It is assumed that this long-term solution is a project that will be implemented by Eagle County with other public and private partnerships.

Eagle County's Engineering Department provided a simplified intersection alignment that requires less reconstruction than the 2012 SGM alternative. It also can provide more land to expand RFTA's parking lot. This concept extends Valley Road to the east side of the RFTA Park n' Ride. Sopris Village Drive would tee -in at the south end of the RFTA lot. All traffic from Valley Road and Sopris Village Drive access East Valley Road at the northeast corner of the RFTA Park n' Ride.

SH 82 and Valley Road/J W Drive: There was a previous agreement that the applicant would construct a northbound right turn deceleration lane at the intersection of SH 82 and JW Drive/Valley Road. The northbound right turn lane is included in the analysis of total traffic conditions for Year 2025 and Year 2045.

5.3 Intersection Level of Service and Operational Analysis

Intersection Level of Service: Using *Highway Capacity Manual 2010* (HCM) methodology[2], Synchro Version 10 software was used to determine the delay and Level-of-Service (LOS) at the signalized and stop-controlled intersections on SH 82 and Valley Road.

Highway Capacity Manual Level of Service (LOS): HCM LOS is defined by the criteria in **Table 1**.

For evaluation purposes, Eagle County[9] defines acceptable intersection operations as LOS D or better under peak hour conditions at signalized locations.

At stop sign controlled locations, LOS E/F is considered acceptable for side street traffic movements during urban peak hours along major arterial and expressway corridors. ***CDOT has prioritized the flow of SH 82 over side street operations. With 110 seconds of green time on SH 82 during peak traffic hours, side street movements can be expected to have very low levels of service because they are waiting for a green light for more than 80 seconds, which by definition is a LOS F***.

Therefore, side street operations are anticipated to have failing LOS, even in current Year 2020 conditions.

As CDOT and Eagle County identified, a better indicator of acceptable operations for SH 82 side streets is the ability of:

- ***Side streets to hold the anticipated queues during peak traffic,***
- ***Vehicles to clear the traffic signal within one or two cycles during peak traffic.***

During off-peak times, significantly better operating conditions can be expected.

Both peak hour periods (AM/PM) were analyzed using capacity analysis procedures resulting in the operating LOS shown in **Table 6**.

Table 6: Total Traffic Level of Service

#	Int.	Traffic Control	Approach	Year 2025 Level of Service (Delay in Seconds)		Year 2045 Level of Service (Delay in Seconds)	
				AM	PM	AM	PM
1	JW Drive/Valley Rd & SH 82	NB/SB Stop	EB	A (0.3)	A (4.1)	A (0.3)	C (22.4)
			WB	A (0.8)	A (0.2)	A (1.3)	A (0.2)
			NB	F (294.1)	F (Err)	F (417.2)	F (Err)
			SB	F (140.5)	F (145.5)	F (3750.6)	F (Err)
2	El Jebel Rd/Valley Rd & SH 82	Signal	EB	D (44.8)	D (41.6)	F (154.1)	D (54.3)
			WB	B (18.7)	F (93.7)	B (19.2)	F (169.4)
			NB	D (46.6)	E (69.8)	D (47.2)	E (70.8)
			SB	E (78.6)	E (69.2)	F (105.4)	F (82.8)
3	Valley Rd/E Valley Rd	EB Stop	EB	B (11.5)	B (14.1)		
			NB	A (2.3)	A (2.2)		
			SB	A (0.0)	A (0.0)		
4	Frontage Rd/Valley Rd	EB Stop	EB	A (9.3)	A (9.7)	A (9.5)	A (10.0)
			NB	A (3.1)	A (5.2)	A (3.1)	A (5.3)
			SB	A (0.0)	A (0.0)	A (0.0)	A (0.0)
5	Valley Rd/W Site Access	SB Stop	NB	A (0.5)	A (2.9)	A (0.4)	A (2.7)
			WB	A (0.0)	A (0.0)	A (0.0)	A (0.0)
			SB	A (9.0)	A (9.5)	A (9.0)	A (9.7)
6	Valley Rd/E Site Access	SB Stop	EB	A (0.2)	A (1.8)	A (0.2)	A (1.6)
			WB	A (0.0)	A (0.0)	A (0.0)	A (0.0)
			SB	A (9.7)	A (9.9)	A (9.9)	B (10.2)
7	Valley Rd/Sopris Village Dr	NB Stop	EB			A (0.0)	A (0.0)
			WB			A (1.1)	A (1.4)
			NB			A (9.6)	A (9.4)
8	E Valley Rd/Sopris Village Dr[1]	EB Stop	EB			A (6.4)	A (5.0)
			WB			B (11.4)	B (13.4)
			NB			C (20.9)	D (27.0)

5.4 Roadway Segment Level of Service

Valley Road Level of Service: The Level of Service for the Valley Road segments directly east of the project site were calculated using *Highway Capacity Manual 2010* (*HCM 2010*) methodology. The segment's LOS is defined in Exhibit 15-3 of *HCM 2010*.

The section of Valley Road meets the criteria for an HCM Class II roadway. Class II two-lane highways are highways where motorists do not necessarily expect to travel at high speeds, and most often serve relatively short trips. On Class II highways, travel

speed is not a significant issue to drivers. Therefore, LOS is defined based upon percent time spent following only.

These calculations are included in the **Appendix.** They are summarized in **Table 7.**

Table 7: Total Traffic Highway Segment Level of Service

Scenario	Evening Peak Hour Segment Level of Service (LOS)			
	LOS (Percent of Time Spent Following) Class II Highways PTSF (%)[1]		LOS (Percent of Time Free Flow Speed) Class III Highways PFFS (%)[1]	
Valley Road East of the site access				
	Eastbound	**Westbound**	**Eastbound**	**Westbound**
2021 Total Traffic	A (19%)	B (54%)	C (83%)	B (86%)
2025 Total Traffic	A (19%)	B (55%)	C (82%)	B (86%)
2045 Total Traffic	A (19%)	C (56%)	C (80%)	B (85%)

Valley Road: As can be seen in **Table 7**, both eastbound and westbound traffic is not experiencing delay during the peak commuting hours. For a Class II roadway, this is anticipated to be the case through the long-range planning horizon.

5.5 SH 82 Signal Progression Analysis

This analysis uses CDOT's current signal timing of SH 82 at the EL Jebel Road traffic signal. Therefore, SH 82's traffic signal progression is not modified and progression analysis was not included.

5.6 Queue Lengths

The 95th Percentile Queues for Year 2045 Total Traffic conditions must be accommodated by the roadway network. 95th Percentile Queue lengths are detailed in the HCM reports in the **Appendix**.

SH 82 and Valley Road/El Jebel Road: The northbound left queue length in Year 2021 Background Traffic conditions is 185 feet. By Year 2045 total traffic conditions, the northbound right queue is anticipated to reach 220 feet. The 95th percentile queue exceeds capacity and the queue may be longer.

Changes to the configuration at the intersection of East Valley Road and Valley Road are recommended to accommodate the queue at SH 82 and Valley Road/El Jebel Road.

The simplest solution is to remove the stop sign for the East Valley Road leg of the El Jebel Road and Valley Road intersection. For this scenario to work through Year 2025,

the PM signal timing would need to be revised to shift 10 seconds of green time from the north leg of the SH 82 signal to the south leg. This works well, as the southbound movement peaks in the morning commute hours and the northbound movement is the opposite. This timing modification does not require a change to SH 82's 110 seconds of green time.

5.7 Site Circulation

The Fields will have bi-directional internal roadways. Parking will be provided at each residence. Additionally, off street/visitor parking will be constructed.

5.8 Traffic Calming

The two site accesses are on Valley Road. Valley Road has a speed limit of 25 mph and has long straight sections and lacks natural traffic calming qualities. Per memorandum File # SUS-5557 The Fields Subdivision[8] dated 2016, speeding on Valley Road has been observed.

It is recommended to add a radar speed display in two locations (both eastbound and westbound) along Valley Road to slow drivers down.

Alternate implementations could include the construction of a chicane(s) to horizontally deflect the roadway and slow drivers.

5.9 Site Access Spacing on Valley Road

Eagle County Land Use Regulations Table 4-620J[9] requires 300 feet of minimum separation between adjacent accesses on a collector street. The proposed access spacing is 305 feet between the east and west site accesses will need to be confirmed with the site's Civil Engineer.

5.10 Sight Distance Evaluation

<u>Sight Distance Along Highway:</u> Table 4-1 of the *State Highway Access Code*[4] states that the design sight distance along the highway shall be 150' for a 25mph posted speed. No grade adjustment is required. Sight distance is in excess of 150' for the east and westbound approach of the west site access (intersection 5) and for the westbound approach of the east site access (intersection 6). Large trees and shrubs line the road near both entrances and hinder the sight distance approaching the east site access (intersection 6) from the eastbound direction. Removal of this vegetation will facilitate adequate sight distance for the southbound approach.

<u>Entering Sight Distance:</u> Table 4-2 of the *State Highway Access Code* states that 250' of entering sight distance is required for a roadway posted speed of 25mph to accommodate passenger cars and pick-up trucks. No grade adjustment is required.

Sight distance is in excess of the 250' in the east and westbound directions for the east site access (intersection 6). Sight distance is less than 250' for the east and westbound directions for site the west site access (intersection 5) due to roadside vegetation. Removal of this vegetation will facilitate adequate sight distance for the southbound approach.

5.11 Auxiliary Turn Lane Requirements and Recommendations

The *State Highway Access Code*[4] establishes the need for auxiliary turn lanes on Colorado's highway network. Several criteria apply when determining the traffic volume thresholds such as highway classification, posted speed limit, and turning traffic volumes. SH 82 defers to the *Access Code*[4] for turn lane criteria such as turn lane lengths, storage requirements, etc. East Valley Road, Valley Road and SH 82 South Frontage Road are local roads. The *Access Code*[7] was used to analyze the local streets for turn lane criteria.

<u>SH 82 Recommendations</u>: SH 82 is categorized as an expressway by CDOT. The posted speed limit is 65mph near the intersection of SH 82 and JW Drive/Valley Road. It decreases to 55mph near SH 82 and El Jebel/Valley Road. The current auxiliary turn lanes at the SH 82 intersections with Valley Road/J W Drive and El Jebel Road are maximized for the distance available. No auxiliary modifications to the current auxiliary turn lanes are required.

<u>Valley Road Recommendations</u>: Valley Road is Categorized as a NR-C, non-rural arterial highway by CDOT. The posted speed limit is 25mph. Per Section 3.11(4) of the *Access Code*[4], auxiliary turn lanes for Valley Road are required for more than 25vph making a left turn movement and 50vph making a right turn movement. A right turn acceleration lane is required if there are operational or safety concerns at the access.

SH 82 South Frontage Road is a two-lane, east-west roadway. It is categorized as a F-R, frontage road by CDOT. The posted speed limit is 45mph. Per Section 3.11(4) of the Access Code[4], auxiliary turn lanes for SH 82 South Frontage Road are required for more than 10vph when making a left turn movement and 25vph making a right turn movement when the speed limit is greater than 40mph. A right turn acceleration lane is required if the right turning volume is greater than 50vph and the speed limit is above 40mph. It is not required if the roadway has multiple lanes. A left turn acceleration lane is required if there are operational or safety concerns at the access.

A summary of the turn lane analysis is shown in **Table 8**.

Table 8: Auxiliary Turn Lane Requirements

#	Int.	Mvmt	Accel or Decel	Posted Speed Limit (MPH)	Road Classification	SHAC Trigger Volume (VPH)	Year 2020 Existing		Year 2021 BG		Year 2025 BG		Year 2045 BG		Year 2025 Total		Year 2045 Total		Existing Turn Lane	*Access Code* Required Turn Lane	Trigger Year & Condition
							AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM			
1	JW Dr/Valley Rd & SH 82	WBL	Decel	65	E-X	>10	15	44	18	54	19	56	23	68	19	56	23	68	850' (incl taper)	1,170' (incl 25:1 taper)	Existing Year 2020
		EBR	Decel	65	E-X	>10	15	19	18	23	19	24	23	29	31	55	35	60	720' (incl taper)	1,100 ' (incl 25:1 taper)	Existing Year 2020
		NBR	Decel	25	NR-C	>50	44	29	54	35	56	37	68	45	63	41	75	49	None	170' (incl 7.5:1 taper)	Existing Year 2020
		NBL	Accel	65	E-X	N/A	9	7	11	8	12	8	14	10	19	12	21	14	770'	None	
		NBR	Accel	65	E-X	>10	44	29	54	35	56	37	68	45	63	41	75	49	760'	1,680' (incl 25:1 taper)	Existing Year 2020
2	El Jebel Rd/Valley Rd & SH 82	WBL	Decel	55	E-X	>10	6	36	7	43	7	45	9	55	14	62	16	72	580' (incl taper)	900' (incl 18.5:1 taper)	Existing Year 2020
		EBR	Decel	55	E-X	>10	119	98	144	119	150	124	183	151	150	124	183	151	640' (incl taper)	410' (incl 18.5:1 taper)	Existing Year 2020
		NBL	Decel	25	NR-C	>25	36	138	43	168	45	174	55	213	62	185	72	224	130' (2 lanes)	315' (incl 7.5:1 taper)	Existing Year 2020 (sufficient for existing traffic; by year 2021 it needs to be lengthened)
		NBR	Accel	55	E-X	>10	53	15	65	18	67	19	82	23	77	25	92	29	500'	1,185' (incl 25:1 taper)	Existing Year 2020
3	Valley Rd & E Valley Rd	EBL	Decel	25	NR-C	>25	56	27	68	32	70	34	86	41	100	53	0	0	50'	190' (inc 7.5:1 taper)	Existing Year 2020
		EBR	Decel	25	NR-C	> 50	35	50	42	61	44	63	54	77	61	74	0	0	50'	170' (incl 7.5:1 taper)	Existing Year 2020
		NBL	Decel	25	NR-C	>25	18	72	22	87	23	90	28	110	30	107	0	0	None	200' (incl 7.5:1 taper)	Existing Year 2020
4	Frontage Rd & Valley Rd	NBL	Decel	25	NR-C	>25	12	28	15	34	16	36	19	44	23	40	26	48	None	140' (incl 7.5:1 taper)	Existing Year 2020
		SBR	Decel	25	NR-C	>50	25	56	30	69	32	71	38	87	32	71	38	87	None	180' (incl 7.5:1 taper)	Existing Year 2020
		EBL	Decel	45	F-R	>25	38	31	45	37	47	39	58	47	47	39	58	47	None	220' (incl 13.5:1 taper)	Existing Year 2020
		EBR	Decel	45	F-R	>50	19	15	23	18	24	19	29	23	24	19	29	23	None	None	
5	W Site Access &	EBL	Decel	25	NR-C	>25	0	0	0	0	0	0	0	0	8	21	8	21	None	None	
		WBR	Decel	25	NR-C	> 50	0	0	0	0	0	0	0	0	5	14	5	14	None	None	
6	E Site Access & Valley Rd	EBL	Decel	25	NR-C	>25	0	0	0	0	0	0	0	0	4	10	4	10	None	None	
		WBR	Decel	25	NR-C	> 50	0	0	0	0	0	0	0	0	9	24	9	24	None	None	
7	Valley Road & Sopris Village Dr	EBL	Decel	25	NR-C	>25									149	107.6	0	0	None	240' (incl 7.5:1 taper)	Year 2025 Total
		EBR	Decel	25	NR-C	>50									12.2	14.4	1	4	None	None	
		NBL	Decel	25	NR-C	>25									12.2	14.4	4	2	None	None	
		SBR	Decel	25	NR-C	>50									59	172	0	0	None	265' (incl 7.5:1 taper)	Year 2025 Total
8	Valley Road & E Valley Road	WBL	Decel	25	NR-C	>25									30	107	36	131	None	225' (inc 7.5:1 taper)	Year 2025 Total
		EBR	Decel	25	NR-C	> 50									68.6	108.4	45	113	None	205' (incl 7.5:1 taper)	Year 2025 Total
		NBL	Decel	25	NR-C	>25									100	50	146	74	None	240' (incl 7.5:1 taper)	Year 2025 Total
		NBR	Decel	25	NR-C	>50									48.8	57.6	74	95	None	185' (incl 7.5:1 taper)	Year 2025 Total

[1]Based upon *State Highway Access Code* requirements for an E-X, NR-C, F-R roadway with posted speeds of 65mph, 25mph and 45mph, respectively.

Triggered by State Highway Access Code Volumes

Triggered by State Highway Access Code Safety and Operations

5.12 State Highway Access Permits

Section 2.6(3) of the *State Highway Access Code*[4] requires a new access permit when there is a land use change, and/or the volume is anticipated to increase by more than twenty percent (20%).

El Jebel/Valley Road & SH 82: The existing permitted volume is 448vph at the intersection. Current traffic volumes on the south leg of the intersection were 463vph in February 2020. This equates to a seasonally adjusted volume of 556vph in July 2020, exceeding the currently allowed volume. The proposed site accesses will add 45 vph. Project traffic will increase traffic volume by approximately 10%. Existing traffic volumes currently exceed permitted volumes. Therefore, a new access permit is required for the south leg of El Jebel Road/Valley Road onto SH 82.

JW Dr/Valley Road & SH 82: Current traffic volumes on the south leg of the intersection were 103vph in February 2020. This equates to a seasonally adjusted volume of 123vph in July 2020. The proposed site accesses will add 50 vph. Project traffic will increase traffic volume by approximately 49%. Therefore, a new access permit is required for the south leg of JW Drive/Valley Road onto SH 82.

5.13 Alternative Modes Summary

There is an existing park 'n ride facility and bus stop located on SH 82, within one mile of the proposed development. Per the *2014 Regional Travel Patterns Study Roaring Fork and Colorado River Valley*[5] study, the average distance from home to the nearest bus stop is 1.7 miles and 34% of residents in the survey live more than a mile from the nearest bus stop. The ridership is high in this area and distance to the bus stop has not deterred riders. The *2014 Regional Travel Patterns* study also concludes that 72% of winter commuters in Eagle County walked to the bus stop from home.

El Jebel offers an excellent sidewalk and trail network, both paved and unpaved. Additionally, the applicant is proposing two trail connections. The first trail connection will be a multi-use trail from the project site across Valley Road. The second trail connection is from the property to the existing Summit Vista Trail.

Many of the future residents of The Fields will have employment up-valley towards Aspen. This is supported by the *Regional Travel Patterns* study, "Most workers living in Carbondale, El Jebel and Basalt work in Aspen or Snowmass." Parking is difficult to find and expensive in Aspen and Snowmass. Additionally, parking is limited at the local Park N' Ride facility. Aspen promotes alternative modes of transportation in the community and those utilizing the Roaring Form Transportation Authorities Bus Rapid Transit system have the ability to easily travel once in Aspen. Alternative modes of transportation in Aspen include The Downtowner, a free transportation service, the WE-cycle bike sharing program and electric scooters (currently in a trial period). The alternative modes of transportation in Aspen and Snowmass, RFTA's transportation

network and work trends support a multimodal reduction for The Fields subdivision. Per the *Regional Travel Patterns* study, only 47% of El Jebel residents drove alone in the winter, the remaining 53% carpooled, took the bus, walked, or biked to their destinations.

5.14 Road Impact Fees

Eagle County adopted Road Impact Fees in 2001[6]. According to Eagle County, "the purpose of the Road Impact Fee is for the development to contribute its proportionate share of the cost of providing provisions identified in the Road Capital Improvement Plan". Each dwelling constructed in The Fields subdivision will pay a Road Impact Fee towards improvements in the greater transportation network. As detailed in Section 4-710 of the current *ECLUR*[9]

Table 9: Eagle County Road Impact Fees[6]

Land Use	Dwelling Units	Cost per Dwelling Units	Road Impact Fee by Land Use
Single Family (<5,000sf)	30du	$4,378/du	$131,340
Duplex (<4,000sf)	20du	$2,678/du	$53,560
Multi-Family	85du	$3,034/du	$257,890
Total	135du		$442,790

5.15 Project Impact on Transportation Network

The Fields project will have a minor impact the adjacent roadway network. Measures of this impact were calculated for Valley Road, east of the project site and for the SH 82 and El Jebel Road intersection.

Valley Road Capacity per Eagle County Roadway Classification: Eagle County has classified Valley Road as a suburban residential collector. Per Table 4-620 J of the ECLUR[9], Valley Road has a roadway capacity of 3,000vpd. This is based more upon the 'characteristic feel' of the road than the actual operational capacity of the roadway. Based upon this very conservative estimation of West Valley Road's capacity, the proposed project is anticipated to use 23% (677vpd) of Eagle County's stated 3,000vpd capacity for a suburban residential collector roadway. There is still capacity for an additional unrealized traffic.

Figure 17: Valley Road Capacity per Eagle County[9]

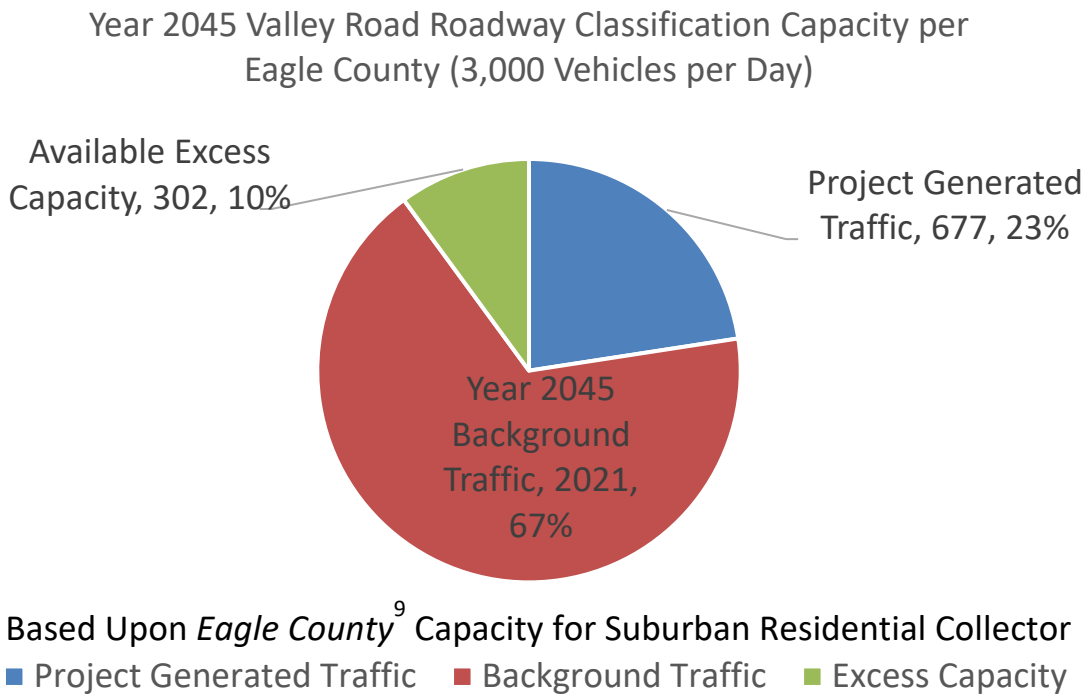
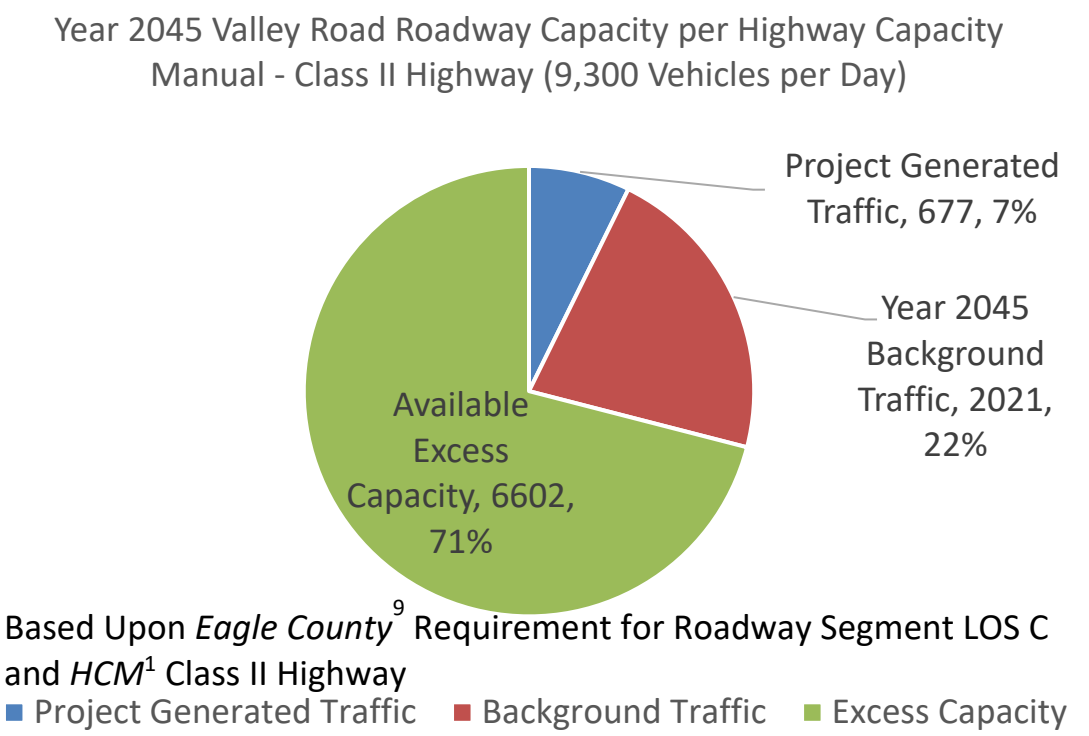


Figure 18: Valley Road Capacity per Highway Capacity Manual[1]



Valley Road Operational Capacity per *Highway Capacity Manual*[1]: From an operational perspective, an HCM calculation of the actual roadway characteristics is more accurate than a general roadway classification capacity. Eagle County[9] sets an HCM[1] LOS C or better threshold for roadway segments. This is a more accurate, detailed calculation based upon approximately 30 inputs of Valley Road's actual conditions, such as lane width, shoulders, access points, passing locations, etc.

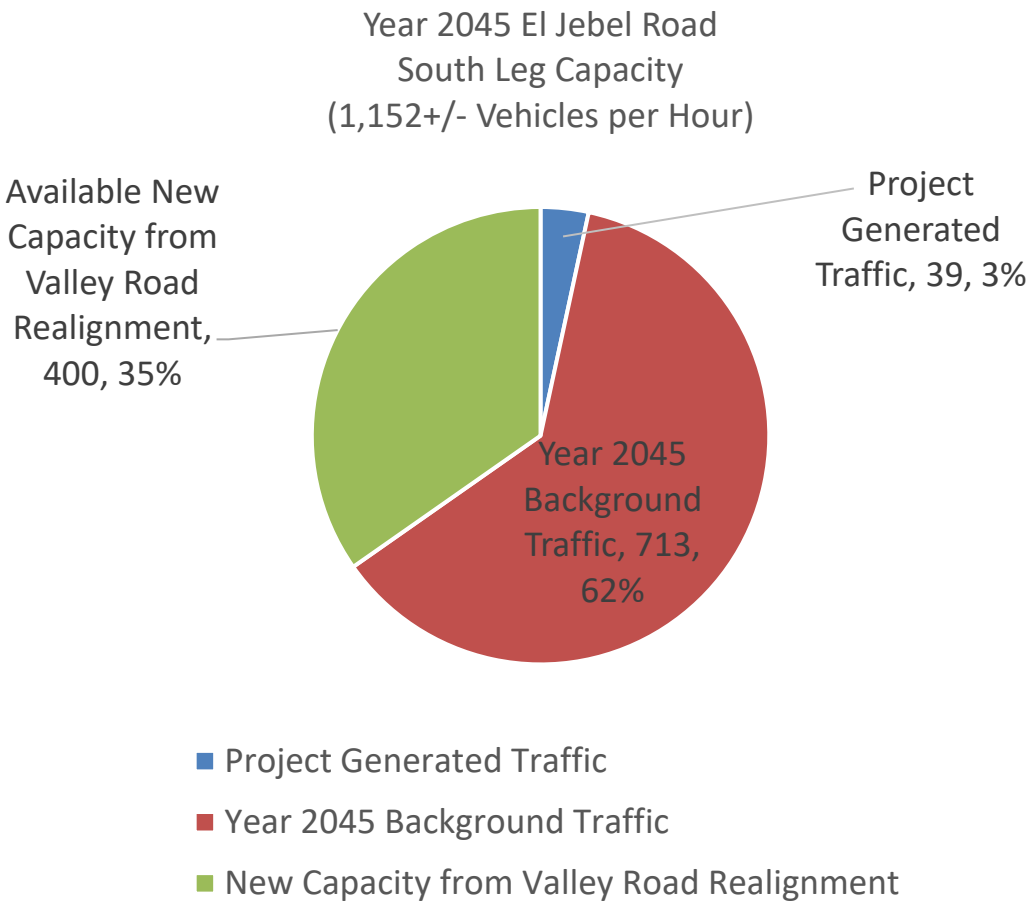
Based upon this more accurate industry accepted method of calculating Valley Road's capacity, the proposed project is anticipated to use 7% (677vpd) of the roadway's available 9,300vpd operational capacity. A large portion of the available capacity (71%) is unused. Detailed calculations of the HCM segment analyses are included in the **Appendix**.

El Jebel Road (South Leg) Capacity: Similarly, The Fields' impact on El Jebel Road and the SH 82/ El Jebel Road intersection was calculated. These calculations are included in the **Appendix**.

The new interim configuration (**Figure 5**) is anticipated to add capacity to the south leg of the SH 82 and El Jebel Road intersection. With Eagle County's planned Valley Road realignment (**Figure 6**), more additional capacity will be added. This equates to an additional 591vph capacity over current conditions. This capacity was determined through a methodology discussion with CDOT and Eagle County. The metrics for this capacity are discussed in **Section 5.3**.

With the construction of Eagle County's planned Valley Road realignment, The Fields' traffic is anticipated to comprise 7% of the new capacity of the south leg of El Jebel Road. The Fields' traffic is only 3% of the total available capacity of the south leg of El Jebel Road. The Fields' traffic is less than one percent of the overall intersection capacity of the SH 82/El Jebel Road intersection.

Figure 19: El Jebel Road (South Leg) Capacity



6.0 Summary and Recommendations

The Fields subdivision project is located at 554 Valley Road. The 19.39-acre site currently has one single family home. The proposed project is a residential development consisting of multifamily, duplex, and single-family homes. Valley Road provides connectivity to the project site.

Trip Generation: The proposed project is an increase of 1,021vpd over the current land use. This includes 87vph and 104vph in the morning and evening peak hours, respectively. These volumes include a multimodal reduction of 5%.

State Highway Access Permit: Per CDOT, any increase in traffic volume on the south leg of the SH 82 and EL Jebel Road signalized intersection will trigger the need for a new CDOT State Highway Access Permit. The permitted volume is 448 vehicles per hour (vph). The current permit is valid for up to a 20% increase over the permitted volume. This equates to 538vph.

Current traffic volumes on the south leg of this intersection were 463vph in February 2020. This equates to a seasonally adjusted volume of 556vph in July 2020, exceeding the currently allowed volume.

Therefore, improvements are required to the south leg of the SH 82 and El Jebel Road intersection with or without the additional of any project traffic from The Fields development.

HCM Level of Service: Two intersections are currently operating below an acceptable LOS. A new State Highway Access Permit requires that improvements are constructed to meet the long-term 20-year traffic projections at an intersection. However, in the case of the SH 82 and El Jebel Road intersection, the previously approved infrastructure improvements required to meet the 20-year needs are cost prohibitive without a capital expenditure by Eagle County.

Therefore, CDOT and Eagle County were interested in a short-term solution that would allow the intersection to function for the next five years. In the meantime, Eagle County will work on developing an implementable long-term plan for the south leg of this intersection.

Infrastructure Recommendations: The applicant will construct intersection improvements at SH 82 and Valley Road / J W Drive as well at the intersection of Valley Road and East Valley Road.

A northbound right turn lane will be constructed at the intersection of SH 82 and J W Drive.

At the intersection of Valley Road and East Valley Road, the northbound stop sign will be removed from the East Valley Road leg of the intersection. Signal timing will need to be modified as discussed in **Section 5.2**.

Vegetation will need to be removed at the site accesses to meet minimum sight distance requirements.

Long-Term Infrastructure Recommendations: Eagle County has provided a solution to the El Jebel Road configuration with Valley Road and East Valley Road that accommodates anticipated future Year 2045 traffic conditions. Refer to **Figure 6**. It requires less reconstruction than the 2012 SGM alternative. It also can provide more land to expand RFTA's parking lot. This concept extends Valley Road to the east side of the RFTA Park n' Ride. Sopris Village Drive would tee -in at the south end of the RFTA lot. All traffic from Valley Road and Sopris Village Drive access East Valley Road at the northeast corner of the RFTA Park n' Ride. It is assumed that this long-term solution is a project that will be implemented by Eagle County with other public and private partnerships.

Summary: Based upon the analysis and recommendations presented in this report, The Fields residential development will be successfully incorporated in the existing roadway network. The applicant shall incorporate the interim recommendations included in this report into the project design plans. The applicant should use this information to inform Eagle County on ultimate design solutions for the SH 82 intersections with El Jebel Road and JW Drive.

7.0 Appendix

Reference Documents

1. *Highway Capacity Manual.* Transportation Research Board, 2010.
2. *SH 82/El Jebel Road Intersection – Baseline Interim Analysis.* McDowell Engineering, May 2018.
3. *Trip Generation Manual, 10th Edition*. Institute of Transportation Engineers, 2017.
4. *State Highway Access Code.* State of Colorado, 2002.
5. *2014 Regional Travel Patterns Study Roaring Fork and Colorado River Valley,* 2014.
6. Road Impact Fee FAQ. Eagle County, Engineering Department. Search conducted 8/20/2020. https://www.eaglecounty.us/Engineering/Road_Impact_Fee_FAQ/.
7. *The Fields Traffic Impact Study*. SGM, 2016.
8. Memorandum *RE: BoCC Sketch Referral-Engineering Comments*. File # SUS-5557 The Fields Subdivision. June 28, 2016.
9. *Eagle County Land Use Regulations*, Eagle County, July 2019.
10. *Online Transportation Information System (OTIS)*. Colorado Department of Transportation, 2020.
11. *El Jebel / Crown Mountain Traffic Analysis*. Stolfus & Associates, January 2012.
12. 2012 *El Jebel Road Improvements.* SGM, 2012.
13. *The Fields Traffic Impact Study.* SGM, June 2016.
14. 2020 *Eagle County Alternative El Jebel Road Alignment.* Eagle County Engineering, May 2020.
15. 2020 *Eagle County Alternative Interim El Jebel Road Alignment.* Eagle County Engineering, May 2020.

Included Documents

1. Scoping Form and Correspondence, Meeting Documentation
2. Traffic Collection Data
3. CDOT Historic OTIS Data
4. Seasonal Adjustment Factor Matrix
5. Signal Timing Reports
6. El Jebel Road (South Leg) Capacity Calculations
7. HCM Roadway Segment Reports
8. HCM/Rodel Reports
    1) JW Drive/Valley Rd & SH 82
    2) El Jebel Road/Valley Rd & SH 82
    3) East Valley Road & Valley Road (Ult-Alternate 1 Rodel)
    4) SH 82 South Frontage Road & Valley Road
    5) W. Site Access & Valley Road
    6) East Site Access & Valley Road
    7) Valley Road & Sopris Village Drive
    8) East Valley Road & Sopris Village Drive

MEETING DOCUMENTATION

***PROJECT*:**	El Jebel The Fields	***DATE:***	January 13, 2020
MEETING LOCATION:	CDOT, Glenwood Springs	***PROJECT NO.:***	M1434
SUBJECT:	The Fields Project		
ATTENDEES:	Ben Gerdes, Eagle County Evan Schreiber, Lightbox Development Kari McDowell Schroeder, McDowell Engineering Rebecca Atkins, Colorado Department of Transportation Mark Bunnell, Colorado Department of Transportation		

DISCUSSION:

1. The purpose of today's discussion is to review the project history and determine the necessary steps for Eagle County and CDOT moving forward. This conversation is specific to the traffic and transportation-related issues.
2. The developer is considering increasing the density to a range between 110 - 135 multifamily dwelling units.
3. The Fields development currently has County 'Sketch Plan' approval for 110 units, including 27 single family homes, 58 duplex units, and 25 multifamily units.
4. SH 82 background comments made by Mark:
    a. Signal timing:
        i. 120 second green time for SH 82 was set 3-4 years ago
        ii. Current timing on the corridor has been lowered to 110 seconds since the spring of 2019.
        iii. Total cycle length is between 160 to 180 seconds.
        iv. The north and south legs of Valley Road are split-phased due to the geometry of the intersection.
        v. McDowell will request the latest signal timing from David Oldham, CDOT.
    b. Connect Mid-Valley signals by fiber
        i. The six Mid-Valley signals do not have connectivity and are currently timed on a fixed-time basis. The coordination and signal experience drift, requiring regular maintenance and updates.
        ii. Fiber Connectivity along the SH 82 corridor is the ultimate goal. This may not be feasible in the short term. CDOT needs to develop a long-term plan of the SH 82 corridor.
        iii. The County required the Tree Farm development to provide conduit for future fiber from Willits to El Jebel Road.
        iv. An interim solution may include the use of radio control or cell modem for remote access.
    c. Mark is not convinced that Synchro could replicate field conditions.
        i. Mark is requesting that the modeling is validated by observing queues in the field and comparing them to the Synchro modeling.
        ii. Mark is recommending that the TIS does not recommend signal timing modifications. If it did, signal timing modifications would be needed to the entirety of the Mid-Valley SH 82 corridor.

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iii. The applicant could look at the benefits of modifying the intersection to remove the NBL/SBL left turn overlap for large trucks. This would allow the split phase to be removed and the north and southbound traffic to flow simultaneously.

5. Eagle County's discussion on the intersection improvement timing
    a. Improvements to this intersection are a priority for the County.
    b. There is currently no funding budgeted for any County improvements at the SH 82 & Valley Road intersection.
    c. Would it be possible for project to move through CDOT with the interim design and then if the County is able to allocate future funding, construct the ultimate configuration?
        i. CDOT responded yes. The details of the Valley Road construction are to be determined by Eagle County. The details can be worked out in CDOT's NTP (construction plan) process.
        ii. Ben also stated that Eagle County will not hold up the project if the County cannot find funding for the ultimate configuration project.
        iii. The development can proceed without delay whether the County provides additional funding towards the ultimate configuration or not.
    d. Eagle County would tie the developer's infrastructure improvements to the projects' construction occupancy.
    e. Eagle County will be looking for the Valley Road design to maximize the storage efficiency with SH 82's green times.
        i. Eagle County will require a variance for ECLUR for LOS F. Ben understands that a LOS F is caused by CDOT's green time requirements for the SH 82 corridor. It is not possible to obtain an acceptable LOS with CDOT's green time requirements.
        ii. Instead, the design criteria for the Valley Road design will be the ability to store the queue during the peak traffic hours.
    f. CDOT does not have funding available to help with the reconstruction of Valley Road.
6. Previous approvals for The Fields
    a. Eagle County approved the 'Sketch Plan'. Next steps are preliminary plan and final plan. Eagle County will sign State Highway Access Permit application for Valley Road after Preliminary Plan submittal to the County.
    b. CDOT had previously reviewed the TIS in 2016. They were ready to issue an Access Permit for Valley Road based upon the interim and ultimate plans. However, Eagle County did not sign the SHAP application because the project was at the Sketch Plan level.
7. Interim and Ultimate Valley Road Plans
    a. The interim design provides 250' of storage on the south leg of Valley Road.
    b. The ultimate design provides 500' of storage on the south leg of Valley Road. It also constructs a roundabout at the Valley Road and East Valley Road intersection. This design did not address changing the NB/SB split phase.
    c. CDOT is reviewing the operations of the intersection within the SH 82 ROW.
    d. Per CDOT, it will be Eagle County's responsibility to require appropriate infrastructure to accommodate traffic queues on the Valley Road that are caused by the long green time on SH 82.
8. Future SH 82 Growth
    a. Rebecca would like to see a comparison between 2015 counts versus 2020 counts and compare growth rates to OTIS.
9. Trip Generation
    a. Per Rebecca, trip generation rates are best from ITE's Trip Generation Manual, not local data. The comparison between different projects is difficult. Local data could be used to inform distribution, traffic reductions, etc. There have been multiple studies showing that multimodal transportation

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appurtenances reduce vehicular traffic. The Tree Farm recently was approved with a 15% multimodal reduction.

b. RFTA may have applicable usage and ridership information

10. Capacity Analysis
    a. Eagle County would like the TIS analysis to include a determination of the max number of dwelling units/growth that the interim solution would handle. This will be based upon the northbound queue storage on Valley Road.
    b. If the improvements will hold more than The Fields' traffic, this may hold more weight for Eagle County's 'public benefit.'
11. Next Steps
    a. McDowell Engineering will submit a scoping form to both Eagle County and CDOT that summarizes this conversation and proposes the TIS methodology.
    b. McDowell will collect traffic counts and queue data at the analysis intersections in February 2020. CDOT agreed that the same count locations as the previous TIS were acceptable if there are no recommended changes to CDOT's SH 82 signal timing.
    c. Upon submittal of the preliminary plans (including TIS) to Eagle County, Ben will sign the Access Permit Application for SH 82 & Valley Road.
    d. Submittal of the application will begin a 45-day clock for CDOT's review.
    e. If the applicant desires to have the TIS reviewed by CDOT without the application signed by the County, the review is not held to the same 45-day window. Projects with signed applications will take priority in CDOT's review time.

AUTHORED BY: Kari McDowell Schroeder

DISTRIBUTION TO: Attendees

ISSUE DATE: January 28, 2019

Please reply with any comments or clarifications on a timely basis. Without any revisions, it will be considered that all attendees are in agreement with the above description of the meeting decisions.

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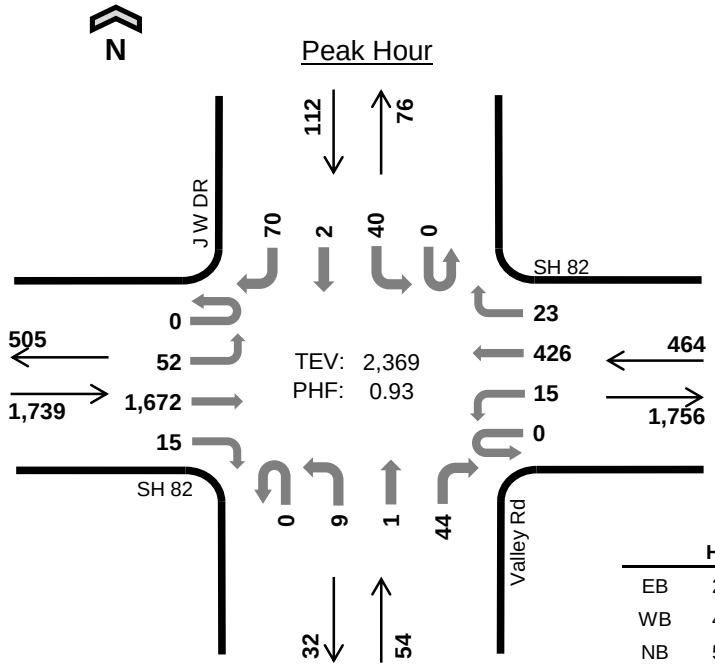
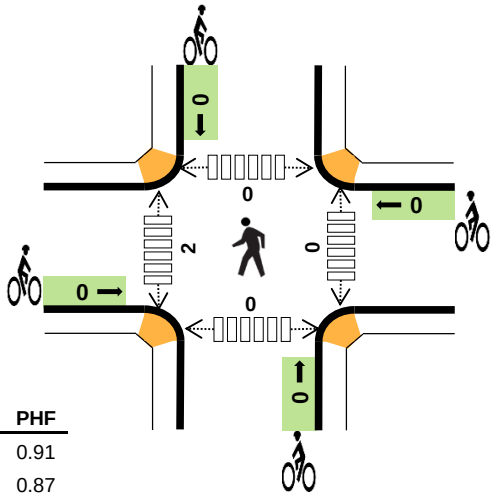
Valley Rd
SH 82

Date: Tue, Feb 11, 2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	2.9%	0.91
WB	4.1%	0.87
NB	5.6%	0.71
SB	2.7%	0.88
TOTAL	3.2%	0.93

Two-Hour Count Summaries

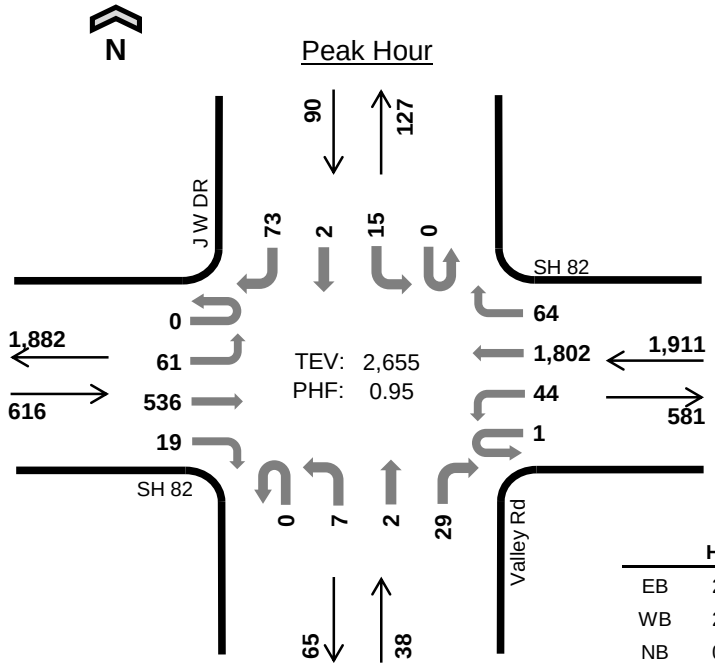
Interval Start	SH 82 Eastbound				SH 82 Westbound				Valley Rd Northbound				J W DR Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	12	351	3	0	2	85	5	0	0	1	4	0	11	0	8	482	0
7:15 AM	**0**	**15**	**457**	**4**	**0**	**1**	**86**	**4**	**0**	**2**	**0**	**15**	**0**	**4**	**0**	**13**	**601**	0
7:30 AM	**0**	**13**	**459**	**4**	**0**	**4**	**103**	**6**	**0**	**2**	**1**	**16**	**0**	**13**	**0**	**19**	**640**	0
7:45 AM	**0**	**14**	**410**	**2**	**0**	**3**	**120**	**10**	**0**	**3**	**0**	**7**	**0**	**10**	**1**	**21**	**601**	2,324
8:00 AM	**0**	**10**	**346**	**5**	**0**	**7**	**117**	**3**	**0**	**2**	**0**	**6**	**0**	**13**	**1**	**17**	**527**	**2,369**
8:15 AM	0	16	396	4	0	6	124	7	0	0	0	21	0	5	0	9	588	2,356
8:30 AM	0	3	315	4	0	6	122	2	0	3	1	11	0	6	1	12	486	2,202
8:45 AM	0	6	323	3	0	4	139	2	0	2	0	12	0	3	0	7	501	2,102
Count Total	0	89	3,057	29	0	33	896	39	0	14	3	92	0	65	3	106	4,426	0
Peak Hour	**0**	**52**	**1,672**	**15**	**0**	**15**	**426**	**23**	**0**	**9**	**1**	**44**	**0**	**40**	**2**	**70**	**2,369**	**0**

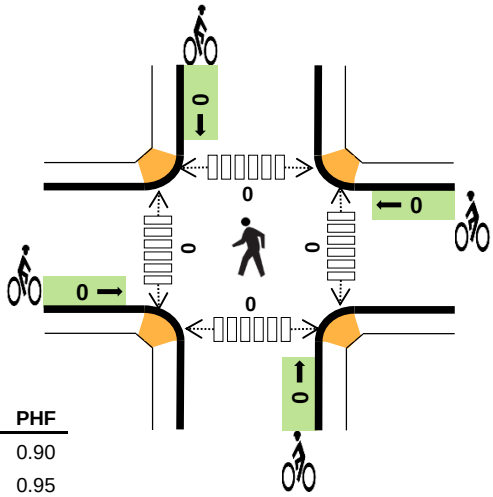
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

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	9	4	1	0	*14*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**12**	**4**	**1**	**1**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**15**	**4**	**1**	**0**	***20***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**11**	**4**	**1**	**0**	***16***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**13**	**7**	**0**	**2**	***22***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**0**	***2***
8:15 AM	17	5	0	0	*22*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	12	3	0	1	*16*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	11	8	0	0	*19*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	100	39	4	4	*147*	0	0	0	0	*0*	0	2	0	0	*2*
Peak Hour	**51**	**19**	**3**	**3**	***76***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**0**	***2***

Valley Rd
SH 82

Date: Tue, Feb 11, 2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	2.1%	0.90
WB	2.2%	0.95
NB	0.0%	0.73
SB	5.6%	0.83
TOTAL	2.3%	0.95

Two-Hour Count Summaries

Interval Start	SH 82 Eastbound				SH 82 Westbound				Valley Rd Northbound				J W DR 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	7	162	2	0	9	425	11	0	1	2	6	0	3	0	5	633	0
4:15 PM	0	16	111	3	0	9	385	9	0	5	1	3	0	2	1	8	553	0
4:30 PM	0	16	138	3	0	6	361	10	0	7	0	5	0	2	0	20	568	0
4:45 PM	0	7	151	3	0	10	368	14	0	6	0	3	0	0	0	16	578	2,332
5:00 PM	**0**	**13**	**112**	**4**	**1**	**9**	**420**	**18**	**0**	**2**	**1**	**10**	**0**	**3**	**1**	**22**	**616**	2,315
5:15 PM	**0**	**17**	**148**	**7**	**0**	**11**	**467**	**25**	**0**	**1**	**1**	**6**	**0**	**8**	**0**	**11**	**702**	2,464
5:30 PM	**0**	**17**	**145**	**4**	**0**	**14**	**458**	**8**	**0**	**1**	**0**	**5**	**0**	**2**	**1**	**24**	**679**	2,575
5:45 PM	**0**	**14**	**131**	**4**	**0**	**10**	**457**	**13**	**0**	**3**	**0**	**8**	**0**	**2**	**0**	**16**	**658**	**2,655**
Count Total	0	107	1,098	30	1	78	3,341	108	0	26	5	46	0	22	3	122	4,987	0
Peak Hour	**0**	**61**	**536**	**19**	**1**	**44**	**1,802**	**64**	**0**	**7**	**2**	**29**	**0**	**15**	**2**	**73**	**2,655**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

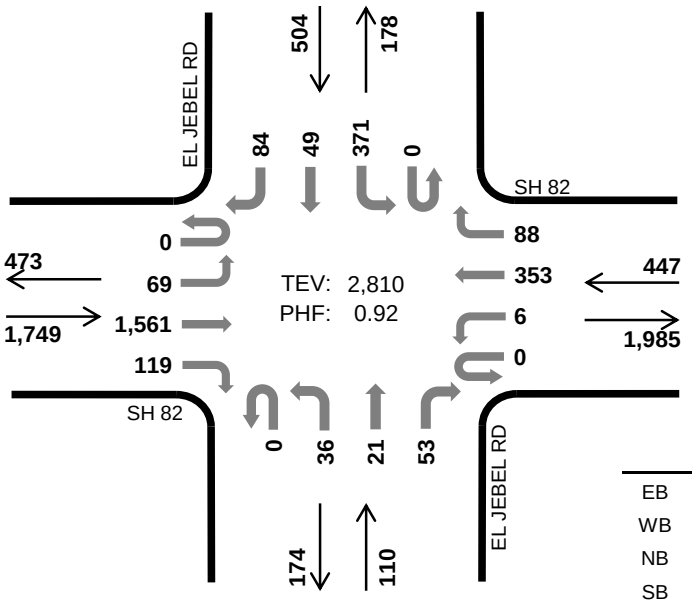
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	10	2	0	*15*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	5	9	0	1	*15*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	2	21	0	1	*24*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	5	7	0	1	*13*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	**2**	**13**	**0**	**3**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**3**	**16**	**0**	**0**	***19***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**4**	**3**	**0**	**1**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**4**	**10**	**0**	**1**	***15***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
Count Total	28	89	2	8	*127*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**13**	**42**	**0**	**5**	***60***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

EL JEBEL RD
SH 82

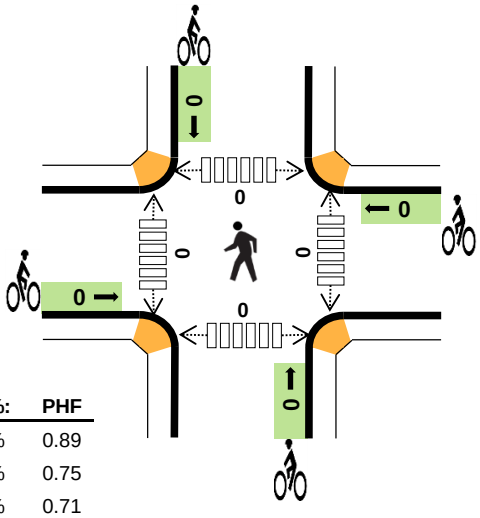
Date: Tue, Feb 11, 2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM

N

Peak Hour



	HV %:	PHF
EB	2.8%	0.89
WB	5.1%	0.75
NB	1.8%	0.71
SB	2.4%	0.71
TOTAL	3.1%	0.92



Two-Hour Count Summaries

Interval Start	SH 82 Eastbound				SH 82 Westbound				EL JEBEL RD Northbound				EL JEBEL RD 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	19	346	15	0	0	71	6	0	5	4	7	0	79	17	11	580	0
7:15 AM	**0**	**13**	**408**	**27**	**0**	**0**	**71**	**13**	**0**	**12**	**7**	**14**	**0**	**99**	**14**	**19**	**697**	0
7:30 AM	**0**	**19**	**422**	**34**	**0**	**1**	**60**	**15**	**0**	**14**	**4**	**21**	**0**	**137**	**10**	**30**	**767**	0
7:45 AM	**0**	**16**	**442**	**31**	**0**	**3**	**101**	**33**	**0**	**4**	**5**	**13**	**0**	**77**	**15**	**23**	**763**	2,807
8:00 AM	**0**	**21**	**289**	**27**	**0**	**2**	**121**	**27**	**0**	**6**	**5**	**5**	**0**	**58**	**10**	**12**	**583**	**2,810**
8:15 AM	0	23	385	23	0	6	100	30	0	4	6	14	0	58	10	18	677	2,790
8:30 AM	0	13	325	25	0	1	112	21	0	7	6	4	0	56	9	29	608	2,631
8:45 AM	0	18	278	25	0	7	101	16	0	6	5	7	0	52	9	13	537	2,405
Count Total	0	142	2,895	207	0	20	737	161	0	58	42	85	0	616	94	155	5,212	0
Peak Hour	**0**	**69**	**1,561**	**119**	**0**	**6**	**353**	**88**	**0**	**36**	**21**	**53**	**0**	**371**	**49**	**84**	**2,810**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

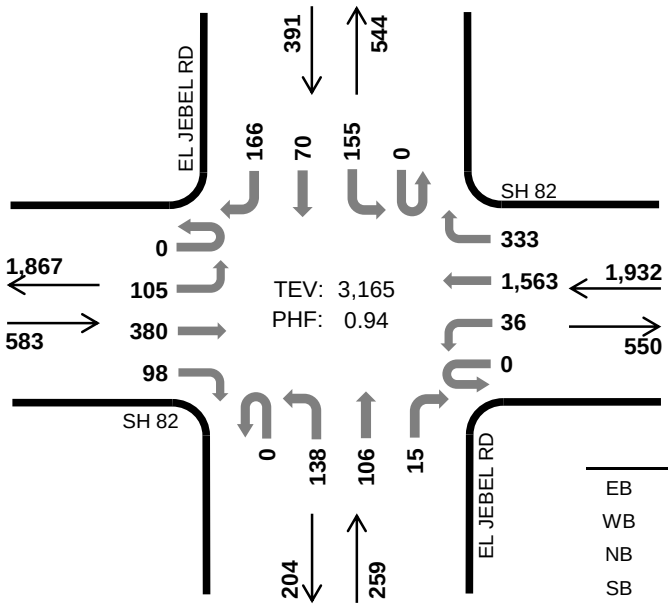
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	10	2	0	3	*15*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**8**	**5**	**2**	**3**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**16**	**2**	**0**	**7**	***25***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**15**	**7**	**0**	**0**	***22***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**10**	**9**	**0**	**2**	***21***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:15 AM	11	5	1	3	*20*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	16	3	0	1	*20*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	10	9	0	3	*22*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	96	42	3	22	*163*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**49**	**23**	**2**	**12**	***86***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

EL JEBEL RD
SH 82

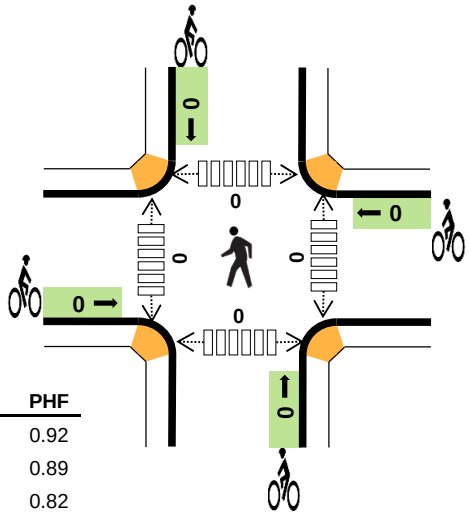
Date: Tue, Feb 11, 2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

N

Peak Hour



	HV %:	PHF
EB	1.9%	0.92
WB	2.2%	0.89
NB	0.4%	0.82
SB	0.8%	0.87
TOTAL	1.8%	0.94



Two-Hour Count Summaries

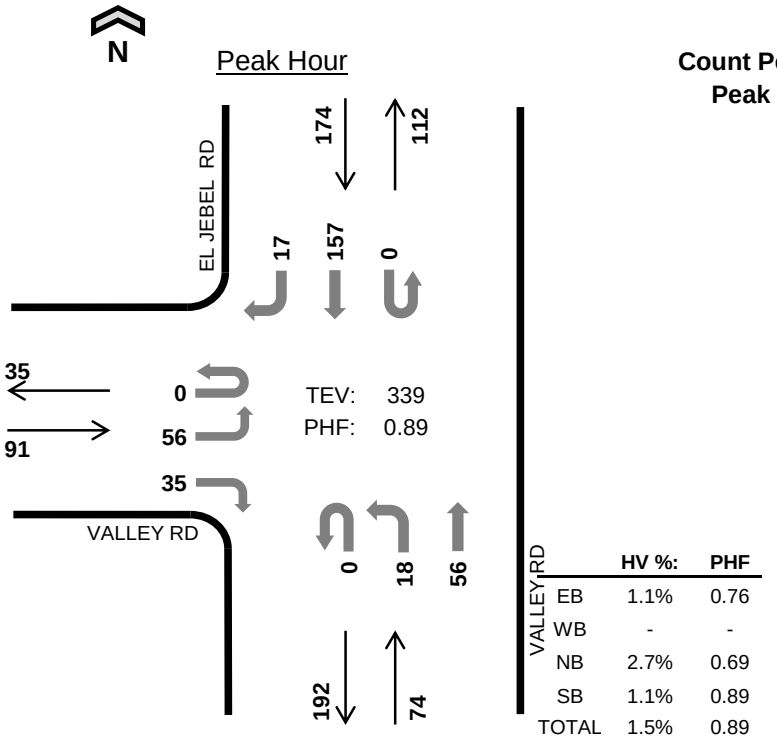
Interval Start	SH 82 Eastbound				SH 82 Westbound				EL JEBEL RD Northbound				EL JEBEL RD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	17	122	28	0	4	387	71	0	34	17	2	0	27	15	29	753	0
4:15 PM	0	16	90	21	0	8	356	71	0	22	29	3	0	24	14	40	694	0
4:30 PM	0	21	100	21	1	8	297	60	0	26	24	4	0	31	16	27	636	0
4:45 PM	0	26	92	31	0	10	373	65	0	18	17	4	0	30	17	31	714	2,797
5:00 PM	**0**	**25**	**89**	**21**	**0**	**9**	**355**	**74**	**0**	**33**	**27**	**4**	**0**	**42**	**23**	**48**	**750**	2,794
5:15 PM	**0**	**29**	**94**	**23**	**0**	**7**	**405**	**84**	**0**	**35**	**24**	**4**	**0**	**48**	**10**	**40**	**803**	2,903
5:30 PM	**0**	**28**	**104**	**26**	**0**	**9**	**441**	**90**	**0**	**28**	**19**	**6**	**0**	**30**	**17**	**42**	**840**	3,107
5:45 PM	**0**	**23**	**93**	**28**	**0**	**11**	**362**	**85**	**0**	**42**	**36**	**1**	**0**	**35**	**20**	**36**	**772**	**3,165**
Count Total	0	185	784	199	1	66	2,976	600	0	238	193	28	0	267	132	293	5,962	0
Peak Hour	**0**	**105**	**380**	**98**	**0**	**36**	**1,563**	**333**	**0**	**138**	**106**	**15**	**0**	**155**	**70**	**166**	**3,165**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

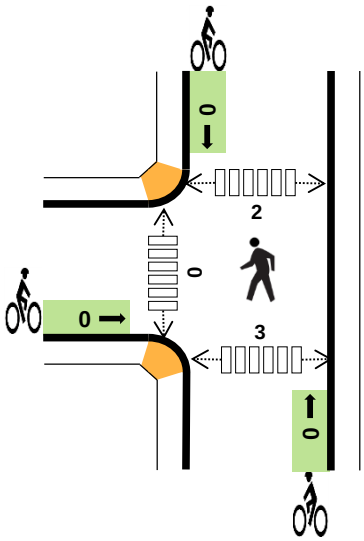
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	5	11	0	2	*18*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	3	13	0	0	*16*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	2	20	1	2	*25*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	2	10	0	3	*15*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	**4**	**15**	**0**	**1**	***20***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**2**	**13**	**0**	**1**	***16***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**2**	**6**	**0**	**1**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**3**	**8**	**1**	**0**	***12***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
Count Total	23	96	2	10	*131*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**11**	**42**	**1**	**3**	***57***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

VALLEY RD
EL JEBEL RD

Date: Tue, Feb 11, 2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM



VALLEY RD	HV %:	PHF
EB	1.1%	0.76
WB	-	-
NB	2.7%	0.69
SB	1.1%	0.89
TOTAL	1.5%	0.89



Two-Hour Count Summaries

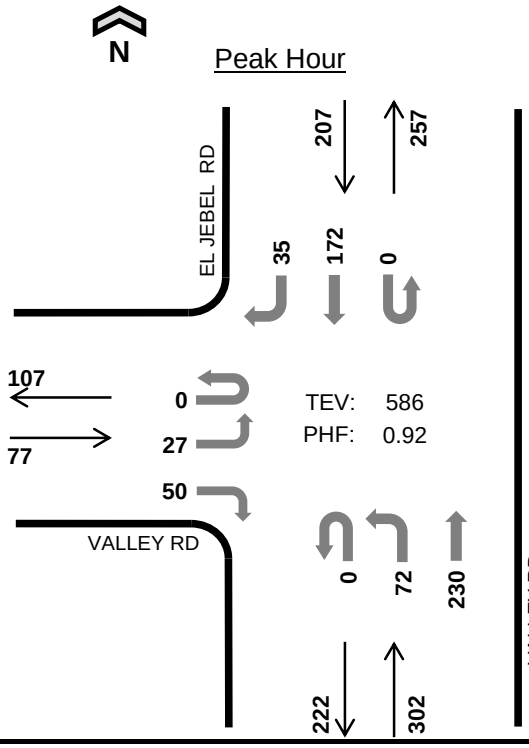
Interval Start	VALLEY RD Eastbound				0 Westbound				VALLEY RD Northbound				EL JEBEL RD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	10	0	7	0	0	0	0	0	4	8	0	0	0	32	1	62	0
7:15 AM	**0**	**13**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**5**	**22**	**0**	**0**	**0**	**37**	**3**	**86**	0
7:30 AM	**0**	**20**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**2**	**17**	**0**	**0**	**0**	**45**	**1**	**95**	0
7:45 AM	**0**	**15**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**3**	**7**	**0**	**0**	**0**	**40**	**9**	**86**	329
8:00 AM	**0**	**8**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**8**	**10**	**0**	**0**	**0**	**35**	**4**	**72**	**339**
8:15 AM	0	11	0	9	0	0	0	0	0	2	12	0	0	0	32	8	74	327
8:30 AM	0	6	0	6	0	0	0	0	0	4	11	0	1	0	28	5	61	293
8:45 AM	0	6	0	6	0	0	0	0	0	7	11	0	0	0	25	15	70	277
Count Total	0	89	0	63	0	0	0	0	0	35	98	0	1	0	274	46	606	0
Peak Hour	**0**	**56**	**0**	**35**	**0**	**0**	**0**	**0**	**0**	**18**	**56**	**0**	**0**	**0**	**157**	**17**	**339**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

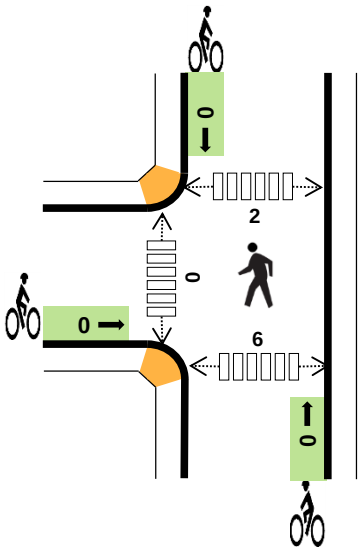
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	1	0	*1*
7:15 AM	**1**	**0**	**2**	**1**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**1**	*2*
7:30 AM	**0**	**0**	**0**	**1**	***1***	**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**	*1*
8:00 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**1**	***2***
8:15 AM	0	0	1	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	0	0	0	2	*2*	0	0	0	0	*0*	0	0	0	1	*1*
8:45 AM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	2	*2*
Count Total	1	0	3	6	*10*	0	0	0	0	*0*	0	0	3	6	*9*
Peak Hr	**1**	**0**	**2**	**2**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**3**	***5***

VALLEY RD
EL JEBEL RD

Date: Tue, Feb 11, 2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



VALLEY RD	HV %:	PHF
EB	0.0%	0.80
WB	-	-
NB	0.3%	0.90
SB	0.0%	0.89
TOTAL	0.2%	0.92



Two-Hour Count Summaries

Interval Start	VALLEY RD Eastbound				0 Westbound				VALLEY RD Northbound				EL JEBEL RD 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	9	0	11	0	0	0	0	0	14	53	0	0	0	35	11	133	0
4:15 PM	0	9	0	12	0	0	0	0	0	20	43	0	0	0	30	13	127	0
4:30 PM	0	10	0	12	0	0	0	0	0	11	41	0	0	0	32	12	118	0
4:45 PM	0	10	0	10	0	0	0	0	0	23	36	0	0	0	45	13	137	515
5:00 PM	**0**	**7**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**14**	**55**	**0**	**0**	**0**	**42**	**11**	**139**	521
5:15 PM	**0**	**8**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**23**	**56**	**0**	**0**	**0**	**36**	**7**	**140**	534
5:30 PM	**0**	**7**	**0**	**17**	**0**	**0**	**0**	**0**	**0**	**22**	**48**	**0**	**0**	**0**	**46**	**7**	**147**	563
5:45 PM	**0**	**5**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**13**	**71**	**0**	**0**	**0**	**48**	**10**	**160**	**586**
Count Total	0	65	0	95	0	0	0	0	0	140	403	0	0	0	314	84	1,101	0
Peak Hour	**0**	**27**	**0**	**50**	**0**	**0**	**0**	**0**	**0**	**72**	**230**	**0**	**0**	**0**	**172**	**35**	**586**	**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	0	0	1	1	*2*	0	0	0	0	*0*	0	0	0	2	*2*
4:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	1	4	*5*
4:30 PM	0	0	1	0	*1*	0	0	0	0	*0*	0	0	0	1	*1*
4:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	1	*1*
5:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
5:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**2**	*2*
5:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
5:45 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**3**	***4***
Count Total	0	0	3	1	*4*	0	0	0	0	*0*	0	0	3	14	*17*
Peak Hr	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**6**	***8***

Location: FRONTAGE RD W/O VALLEY RD
Count Direction: Eastbound / Westbound
Date Range: 2/11/2020 to 2/12/2020
Site Code: 1

Time	Screenline		Screenline					
	Lights		Heavies					
	EB	WB	EB	WB	EB Sum	EB Rolling Sum	WB Sum	WB Rolling Sum
0:00	0	0	0	0	0		0	
0:15	1	0	0	0	1		0	
0:30	0	0	0	0	0		0	
0:45	0	0	0	0	0	1	0	0
1:00	0	0	0	0	0	1	0	0
1:15	0	0	0	0	0	0	0	0
1:30	0	0	0	0	0	0	0	0
1:45	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0
2:15	0	0	0	0	0	0	0	0
2:30	0	0	0	0	0	0	0	0
2:45	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0
3:15	0	0	0	0	0	0	0	0
3:30	0	0	0	0	0	0	0	0
3:45	0	1	0	0	0	0	1	1
4:00	0	0	0	0	0	0	0	1
4:15	1	0	0	0	1	1	0	1
4:30	1	1	0	0	1	2	1	2
4:45	1	0	0	0	1	3	0	1
5:00	0	1	1	0	1	4	1	2
5:15	1	1	0	0	1	4	1	3
5:30	0	1	0	0	0	3	1	3
5:45	2	0	0	0	2	4	0	3
6:00	2	4	0	0	2	5	4	6
6:15	6	3	0	0	6	10	3	8
6:30	4	3	0	0	4	14	3	10
6:45	12	3	1	0	13	25	3	13
7:00	3	2	1	0	4	27	2	11
7:15	14	11	2	0	16	37	11	19
7:30	16	10	0	0	16	49	10	26
7:45	11	6	1	0	12	48	6	29
8:00	8	14	0	0	8	52	14	41
8:15	26	8	0	0	26	62	8	38
8:30	12	9	0	0	12	58	9	37
8:45	10	9	0	0	10	56	9	40
9:00	14	11	1	0	15	63	11	37
9:15	10	5	0	0	10	47	5	34
9:30	3	6	1	0	4	39	6	31
9:45	11	9	0	0	11	40	9	31
10:00	7	4	0	0	7	32	4	24
10:15	9	3	0	0	9	31	3	22
10:30	7	9	0	0	7	34	9	25
10:45	9	7	0	0	9	32	7	23
11:00	8	6	0	0	8	33	6	25
11:15	14	11	0	0	14	38	11	33
11:30	7	5	0	0	7	38	5	29
11:45	8	4	0	0	8	37	4	26
12:00	12	10	0	0	12	41	10	30
12:15	12	8	1	0	13	40	8	27
12:30	10	12	0	0	10	43	12	34
12:45	5	7	0	0	5	40	7	37
13:00	7	4	0	0	7	35	4	31
13:15	3	9	1	0	4	26	9	32
13:30	13	7	0	0	13	29	7	27

13:45	2	8	0	0	2	26	8	28
14:00	8	9	0	0	8	27	9	33
14:15	8	14	0	0	8	31	14	38
14:30	9	34	1	0	10	28	34	65
14:45	5	20	0	0	5	31	20	77
15:00	8	18	0	0	8	31	18	86
15:15	16	11	0	0	16	39	11	83
15:30	11	10	0	0	11	40	10	59
15:45	14	19	1	0	15	50	19	58
16:00	8	12	1	0	9	51	12	52
16:15	9	24	0	1	9	44	25	66
16:30	8	14	0	1	8	41	15	71
16:45	7	21	0	0	7	33	21	73
17:00	15	20	0	0	15	39	20	81
17:15	9	24	0	0	9	39	24	80
17:30	12	26	0	1	12	43	27	92
17:45	11	22	0	1	11	47	23	94
18:00	7	17	0	0	7	39	17	91
18:15	6	7	0	0	6	36	7	74
18:30	4	7	0	0	4	28	7	54
18:45	3	4	0	0	3	20	4	35
19:00	7	5	0	0	7	20	5	23
19:15	5	2	0	0	5	19	2	18
19:30	6	5	0	0	6	21	5	16
19:45	3	1	0	0	3	21	1	13
20:00	2	4	0	0	2	16	4	12
20:15	3	3	0	0	3	14	3	13
20:30	3	1	0	0	3	11	1	9
20:45	0	1	0	0	0	8	1	9
21:00	1	1	0	0	1	7	1	6
21:15	0	2	0	0	0	4	2	5
21:30	0	0	0	0	0	1	0	4
21:45	2	1	0	0	2	3	1	4
22:00	0	2	0	0	0	2	2	5
22:15	1	3	0	0	1	3	3	6
22:30	0	1	0	1	0	3	2	8
22:45	2	1	0	0	2	3	1	8
23:00	0	2	0	0	0	3	2	8
23:15	0	1	0	0	0	2	1	6
23:30	0	0	0	0	0	2	0	4
23:45	0	0	0	0	0	0	0	3
Total	515	601	13	5				
	528	606						
	1134		3%	1%				
	1194							
	5%							

Location: JW DR N/O SH82
Count Direction: Northbound/Southbound
Date Range: 2/11/2020 to 2/12/2020
Site Code: 2

Time	Screenline		Screenline	
	Lights		Heavies	
	NB	SB	NB	SB
0:00	2	0	0	1
0:15	3	0	1	0
0:30	2	0	0	1
0:45	2	0	2	0
1:00	0	0	0	1
1:15	0	0	0	0
1:30	2	0	0	1
1:45	0	1	0	0
2:00	0	0	0	1
2:15	1	0	0	1
2:30	0	1	0	0
2:45	0	1	0	0
3:00	0	0	0	1
3:15	2	0	0	0
3:30	0	0	0	0
3:45	0	0	0	0
4:00	0	3	0	0
4:15	0	1	0	0
4:30	2	0	0	0
4:45	0	0	1	0
5:00	1	6	0	0
5:15	1	3	1	0
5:30	2	6	0	0
5:45	4	4	2	0
6:00	3	8	0	0
6:15	9	2	1	0
6:30	7	14	1	0
6:45	2	11	3	1
7:00	16	19	0	0
7:15	16	16	3	1
7:30	20	32	2	1
7:45	23	32	1	0
8:00	12	32	1	2
8:15	21	11	1	0
8:30	6	18	1	1
8:45	7	11	1	0
9:00	9	14	0	1
9:15	12	19	1	0

9:30	6	10	0	1
9:45	10	9	1	1
10:00	11	14	0	0
10:15	7	10	1	0
10:30	5	9	0	1
10:45	7	9	1	0
11:00	10	8	0	1
11:15	9	7	1	0
11:30	5	18	1	2
11:45	8	8	1	1
12:00	21	12	0	0
12:15	12	7	2	1
12:30	10	11	0	0
12:45	12	4	4	0
13:00	9	12	0	2
13:15	15	11	1	1
13:30	11	7	0	2
13:45	12	9	1	0
14:00	14	13	1	1
14:15	18	8	2	0
14:30	13	17	0	2
14:45	11	14	1	0
15:00	13	14	1	2
15:15	16	13	1	0
15:30	19	9	6	2
15:45	24	20	4	1
16:00	21	8	0	3
16:15	26	10	1	1
16:30	24	21	1	1
16:45	20	15	1	1
17:00	31	24	1	3
17:15	42	20	1	0
17:30	24	24	1	1
17:45	25	17	1	1
18:00	28	16	0	1
18:15	21	14	1	0
18:30	19	9	0	2
18:45	15	4	1	0
19:00	16	5	0	2
19:15	13	7	1	0
19:30	12	8	0	1
19:45	13	3	2	0
20:00	12	0	0	0
20:15	8	4	1	0
20:30	11	3	0	1
20:45	12	2	1	0
21:00	12	5	0	1

21:15	7	3	1	0
21:30	6	0	0	1
21:45	3	7	1	0
22:00	8	2	0	0
22:15	5	1	1	0
22:30	4	1	0	2
22:45	3	1	1	0
23:00	5	4	0	1
23:15	2	2	1	0
23:30	0	1	0	1
23:45	1	1	2	0
Total	944	790	74	59

1018	849	8%	7%
1867			
1956			
5%			

Location: JW DR E/O COYOTE CIR
Count Direction: Eastbound / Westbound
Date Range: 2/11/2020 to 2/12/2020
Site Code: 3

Time	Screenline		Screenline	
	Lights		Heavies	
	EB	WB	EB	WB
0:00	2	2	0	1
0:15	1	0	1	0
0:30	0	0	0	1
0:45	1	0	2	1
1:00	0	0	0	0
1:15	0	0	0	1
1:30	0	1	0	0
1:45	0	0	0	1
2:00	0	0	0	0
2:15	1	1	0	1
2:30	0	0	0	0
2:45	0	0	0	1
3:00	0	0	0	0
3:15	2	0	0	0
3:30	0	0	0	0
3:45	0	0	0	0
4:00	0	1	0	0
4:15	1	0	0	0
4:30	4	0	0	0
4:45	2	0	1	0
5:00	4	2	0	0
5:15	4	0	1	0
5:30	9	0	0	0
5:45	13	1	2	0
6:00	16	3	0	0
6:15	21	1	1	0
6:30	15	3	0	0
6:45	27	3	4	1
7:00	32	8	0	0
7:15	35	4	3	2
7:30	35	12	1	0
7:45	38	8	3	2
8:00	31	9	0	0
8:15	21	11	2	1
8:30	29	7	0	0
8:45	16	3	4	1
9:00	22	4	0	0
9:15	18	9	1	1

9:30	8	6	0	0
9:45	15	6	1	1
10:00	9	4	0	0
10:15	16	8	1	0
10:30	8	12	0	1
10:45	10	8	1	0
11:00	7	10	0	2
11:15	13	9	1	0
11:30	12	10	1	1
11:45	9	4	1	1
12:00	15	12	0	0
12:15	9	6	1	1
12:30	12	11	0	0
12:45	13	11	2	0
13:00	11	15	0	1
13:15	10	9	1	1
13:30	8	8	0	1
13:45	12	8	1	1
14:00	10	20	0	0
14:15	10	11	1	0
14:30	12	12	0	1
14:45	8	16	2	1
15:00	16	17	0	1
15:15	17	17	1	0
15:30	6	21	3	2
15:45	16	17	4	1
16:00	16	20	2	3
16:15	16	17	1	1
16:30	15	24	0	0
16:45	14	26	1	1
17:00	21	29	1	3
17:15	19	28	1	0
17:30	21	29	1	2
17:45	20	34	1	0
18:00	25	40	0	1
18:15	17	23	1	0
18:30	11	18	0	2
18:45	10	13	1	0
19:00	12	19	0	1
19:15	12	14	1	1
19:30	12	16	0	0
19:45	7	10	1	0
20:00	7	8	0	1
20:15	8	13	1	1
20:30	4	9	0	0
20:45	4	6	1	0
21:00	3	6	0	2

21:15	4	5	1	1
21:30	8	8	0	0
21:45	7	14	1	0
22:00	3	3	0	0
22:15	1	3	1	0
22:30	0	6	0	1
22:45	4	2	1	0
23:00	2	5	0	1
23:15	1	4	1	1
23:30	0	2	0	0
23:45	2	3	2	0
Total	998	838	69	55

1067	893	7%	7%
1960			
2137			
8%			

Location: VALLEY RD E/O SUMMIT LOOP
Count Direction: Eastbound / Westbound
Date Range: 2/11/2020 to 2/12/2020
Site Code: 4

Time	Screenline Lights EB	Screenline Lights WB	Screenline Heavies EB	Screenline Heavies WB	EB		WB	
0:00	0	2	0	0	0		2	
0:15	1	1	0	0	1		1	
0:30	1	0	0	0	1		0	
0:45	0	0	0	0	0	2	0	3
1:00	0	0	0	0	0	2	0	1
1:15	0	0	0	0	0	1	0	0
1:30	0	0	0	0	0	0	0	0
1:45	0	0	0	0	0	0	0	0
2:00	0	1	0	0	0	0	1	1
2:15	0	0	0	0	0	0	0	1
2:30	1	0	0	0	1	1	0	1
2:45	0	0	0	0	0	1	0	1
3:00	0	0	0	0	0	1	0	0
3:15	0	0	0	0	0	1	0	0
3:30	0	0	0	0	0	0	0	0
3:45	1	0	0	0	1	1	0	0
4:00	0	0	0	0	0	1	0	0
4:15	0	0	0	0	0	1	0	0
4:30	1	1	0	0	1	2	1	1
4:45	1	0	0	0	1	2	0	1
5:00	1	0	0	0	1	3	0	1
5:15	2	1	0	0	2	5	1	2
5:30	2	1	0	0	2	6	1	2
5:45	5	0	0	0	5	10	0	2
6:00	6	3	0	0	6	15	3	5
6:15	15	2	0	0	15	28	2	6
6:30	17	4	0	0	17	43	4	9
6:45	10	5	0	0	10	48	5	14
7:00	16	4	0	0	16	58	4	15
7:15	24	5	1	1	25	68	6	19
7:30	26	1	0	0	26	77	1	16
7:45	25	4	0	0	25	92	4	15
8:00	13	9	0	0	13	89	9	20
8:15	17	5	0	0	17	81	5	19
8:30	8	6	0	0	8	63	6	24
8:45	11	9	0	0	11	49	9	29
9:00	12	7	0	0	12	48	7	27
9:15	9	5	0	0	9	40	5	27

9:30	6	11	1	0	7	39	11	32
9:45	11	4	0	0	11	39	4	27
10:00	8	7	0	0	8	35	7	27
10:15	6	3	0	0	6	32	3	25
10:30	7	9	0	0	7	32	9	23
10:45	15	7	0	0	15	36	7	26
11:00	7	5	0	0	7	35	5	24
11:15	9	5	0	0	9	38	5	26
11:30	6	7	0	0	6	37	7	24
11:45	8	9	0	0	8	30	9	26
12:00	12	10	0	0	12	35	10	31
12:15	4	10	1	0	5	31	10	36
12:30	8	8	0	0	8	33	8	37
12:45	12	8	0	0	12	37	8	36
13:00	3	7	0	0	3	28	7	33
13:15	9	10	1	0	10	33	10	33
13:30	14	11	0	1	14	39	12	37
13:45	7	9	0	0	7	34	9	38
14:00	10	10	0	0	10	41	10	41
14:15	6	16	0	0	6	37	16	47
14:30	9	13	0	0	9	32	13	48
14:45	14	16	0	0	14	39	16	55
15:00	11	14	0	0	11	40	14	59
15:15	8	11	0	0	8	42	11	54
15:30	11	19	0	0	11	44	19	60
15:45	6	20	1	0	7	37	20	64
16:00	13	17	0	1	13	39	18	68
16:15	7	29	0	0	7	38	29	86
16:30	9	20	0	0	9	36	20	87
16:45	7	27	0	0	7	36	27	94
17:00	15	22	0	0	15	38	22	98
17:15	9	24	0	0	9	40	24	93
17:30	16	29	0	0	16	47	29	102
17:45	15	13	0	0	15	55	13	88
18:00	11	24	0	0	11	51	24	90
18:15	7	17	0	0	7	49	17	83
18:30	7	16	0	0	7	40	16	70
18:45	6	12	0	0	6	31	12	69
19:00	5	9	0	0	5	25	9	54
19:15	6	4	0	0	6	24	4	41
19:30	1	14	0	0	1	18	14	39
19:45	1	5	0	0	1	13	5	32
20:00	4	2	0	0	4	12	2	25
20:15	5	7	0	0	5	11	7	28
20:30	0	5	0	0	0	10	5	19
20:45	3	11	1	0	4	13	11	25
21:00	6	3	0	0	6	15	3	26

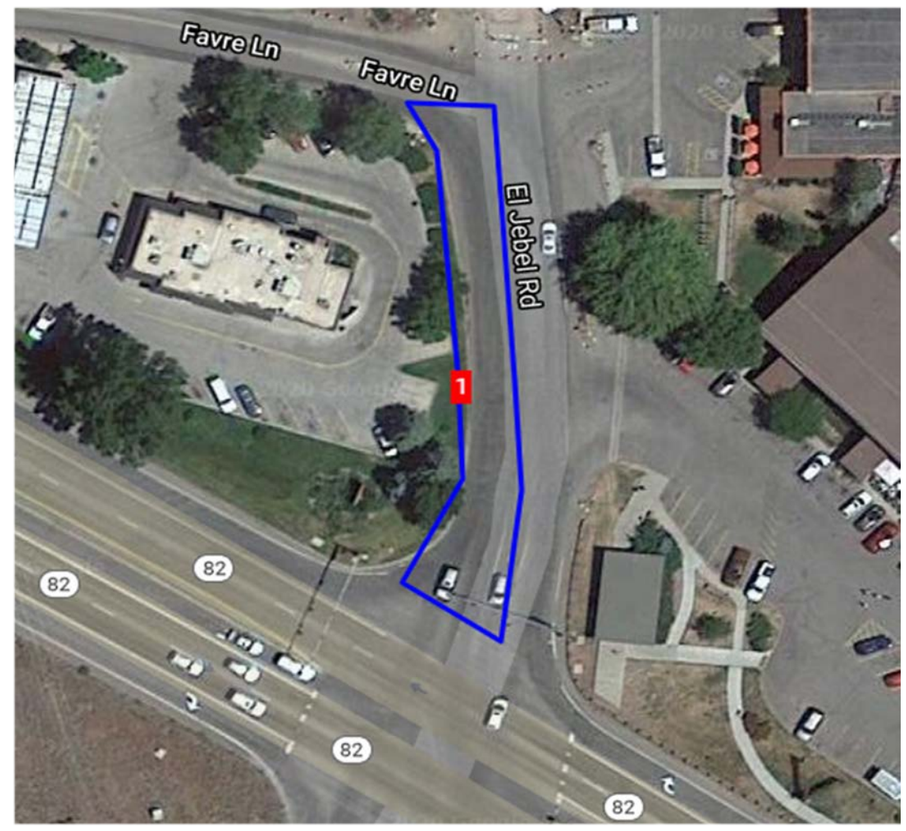
21:15	2	5	0	0	2	12	5	24
21:30	0	6	0	0	0	12	6	25
21:45	1	5	0	0	1	9	5	19
22:00	2	3	0	0	2	5	3	19
22:15	3	2	0	0	3	6	2	16
22:30	2	4	0	0	2	8	4	14
22:45	2	3	0	0	2	9	3	12
23:00	1	1	0	0	1	8	1	10
23:15	0	1	0	0	0	5	1	9
23:30	1	4	0	0	1	4	4	9
23:45	0	1	0	0	0	2	1	7
Total	619	680	6	3				

625	683	1%	0%

1308
1340
2%

Site Code: 1
Location: El Jebel Rd Southbound Traffic to Hwy 82

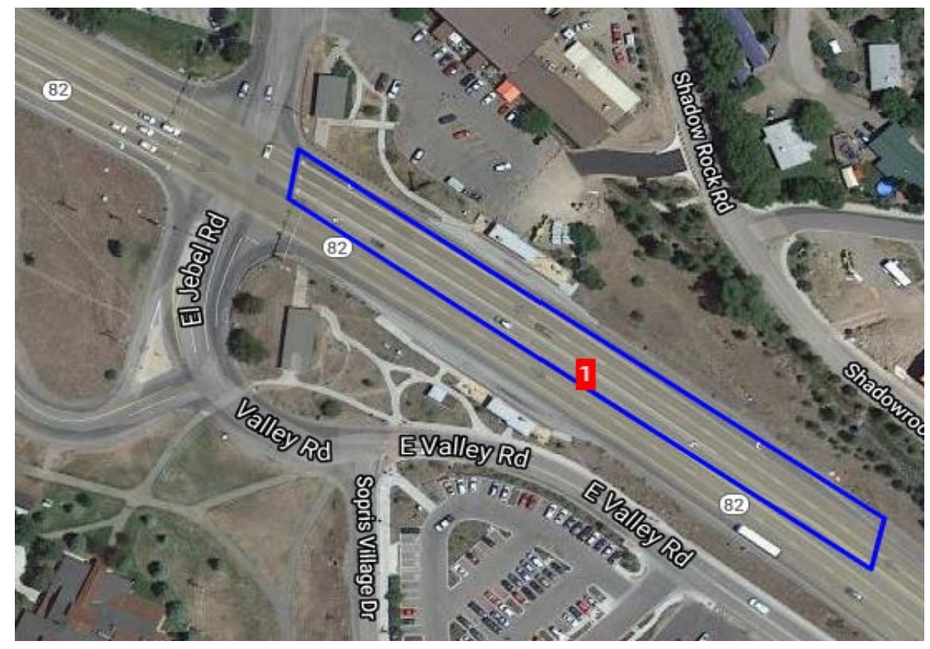
TIME	LEFT TURN	MIDDLE LEFT TURN LANE	RIGHT TURN/THROUGH LANE
7:00 AM	9	10	6
7:05 AM	7	6	2
7:10 AM	5	6	3
7:15 AM	9	9	3
7:20 AM	3	4	1
7:25 AM	1	10	8
7:30 AM	2	10	10
7:35 AM	4	12	10
7:40 AM	1	7	8
7:45 AM	1	10	9
7:50 AM	0	7	7
7:55 AM	3	6	4
8:00 AM	3	6	5
8:05 AM	3	7	3
8:10 AM	1	3	3
8:15 AM	3	6	5
8:20 AM	3	5	4
8:25 AM	1	7	2
8:30 AM	2	3	2
8:35 AM	0	2	2
8:40 AM	3	3	4
8:45 AM	0	6	4
8:50 AM	3	5	3
8:55 AM	0	1	1
4:00 PM	4	3	0
4:05 PM	2	4	4
4:10 PM	0	1	1
4:15 PM	2	3	2
4:20 PM	4	2	0
4:25 PM	2	2	4
4:30 PM	3	1	0
4:35 PM	1	3	4
4:40 PM	2	4	2
4:45 PM	2	2	0
4:50 PM	3	3	3
4:55 PM	4	6	2
5:00 PM	4	3	4
5:05 PM	1	4	3
5:10 PM	3	3	2
5:15 PM	0	4	4
5:20 PM	1	3	3
5:25 PM	3	2	0
5:30 PM	2	2	2
5:35 PM	1	3	3
5:40 PM	2	4	3
5:45 PM	5	5	2
5:50 PM	3	0	0
5:55 PM	1	5	0



Max Queue approximatley 7:35 AM

Site Code: 2
Location: Hwy 82 Westbound Traffic towards El Jebel Rd

TIME	LEFT TURN LANE	MIDDLE LEFT LANE	MIDDLE RIGHT LANE	RIGHT TURN LANE
7:00 AM	1	4	4	0
7:05 AM	0	3	5	0
7:10 AM	0	2	4	0
7:15 AM	0	2	3	0
7:20 AM	0	1	2	1
7:25 AM	0	7	5	2
7:30 AM	1	5	5	0
7:35 AM	0	3	3	1
7:40 AM	1	5	5	1
7:45 AM	0	2	1	0
7:50 AM	1	8	6	2
7:55 AM	0	2	3	1
8:00 AM	2	6	7	2
8:05 AM	0	6	9	0
8:10 AM	0	5	3	2
8:15 AM	2	8	7	0
8:20 AM	1	3	3	2
8:25 AM	1	2	6	1
8:30 AM	0	8	4	1
8:35 AM	0	3	3	0
8:40 AM	1	2	1	1
8:45 AM	2	3	4	0
8:50 AM	0	5	3	2
8:55 AM	2	2	3	0
4:00 PM	2	9	11	3
4:05 PM	1	10	12	1
4:10 PM	1	9	14	3
4:15 PM	3	12	12	3
4:20 PM	1	21	18	2
4:25 PM	2	14	16	0
4:30 PM	2	17	14	2
4:35 PM	1	16	12	0
4:40 PM	5	17	9	2
4:45 PM	4	18	12	1
4:50 PM	3	17	9	1
4:55 PM	0	16	13	3
5:00 PM	2	19	12	4
5:05 PM	2	18	12	1
5:10 PM	3	19	15	2
5:15 PM	3	19	18	2
5:20 PM	2	19	12	2
5:25 PM	1	20	13	8
5:30 PM	4	20	22	11
5:35 PM	2	26	21	3
5:40 PM	2	28	27	8
5:45 PM	1	27	26	4
5:50 PM	2	29	29	7
5:55 PM	4	31	25	8



Max Queue approximatley 5:55 PM

Site Code: 3
Location: Hwy 82 Eastbound Traffic towards El Jebel Rd

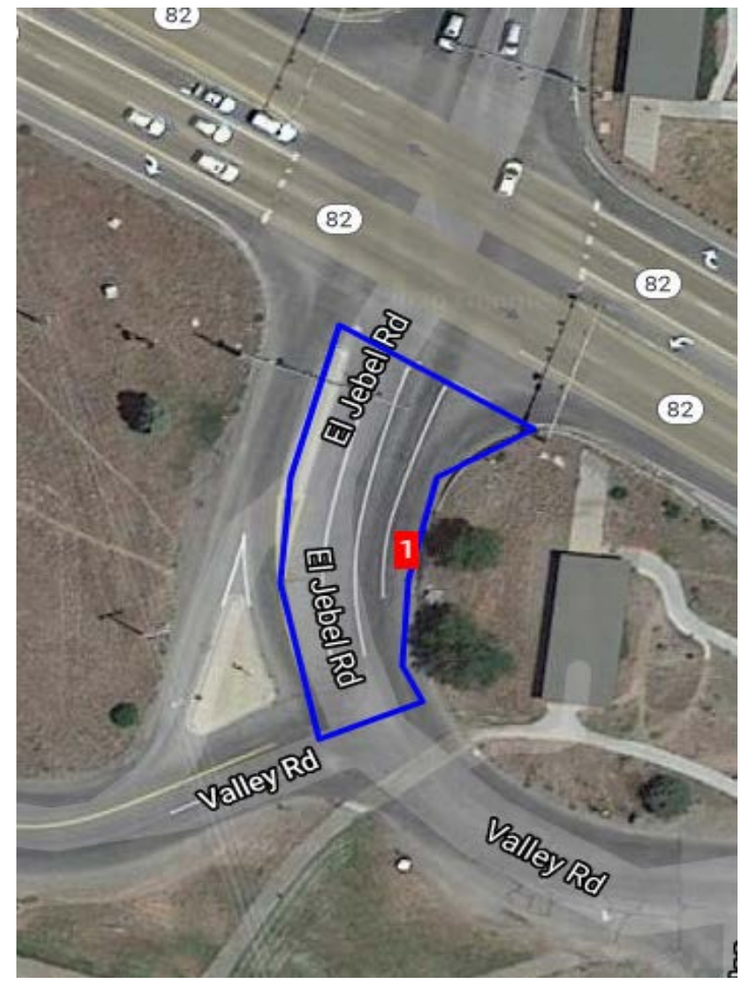
TIME	LEFT TURN LANE	MIDDLE LEFT LANE	MIDDLE RIGHT LANE	RIGHT TURN LANE
7:00 AM	2	22	27	0
7:05 AM	7	8	6	0
7:10 AM	4	21	13	1
7:15 AM	2	26	22	1
7:20 AM	4	21	20	1
7:25 AM	1	13	19	0
7:30 AM	2	28	22	2
7:35 AM	3	20	20	2
7:40 AM	4	25	14	1
7:45 AM	5	27	23	3
7:50 AM	3	28	23	1
7:55 AM	2	15	17	1
8:00 AM	1	16	12	3
8:05 AM	2	9	12	4
8:10 AM	2	9	8	7
8:15 AM	1	23	25	4
8:20 AM	2	14	16	13
8:25 AM	2	16	19	6
8:30 AM	1	11	13	2
8:35 AM	1	7	8	2
8:40 AM	0	15	16	4
8:45 AM	3	20	21	6
8:50 AM	1	19	19	3
8:55 AM	0	14	12	2
4:00 PM	2	3	2	0
4:05 PM	1	2	3	0
4:10 PM	5	7	7	0
4:15 PM	1	4	3	2
4:20 PM	5	4	6	0
4:25 PM	3	1	5	0
4:30 PM	4	0	2	2
4:35 PM	3	6	8	1
4:40 PM	4	1	11	0
4:45 PM	9	3	4	2
4:50 PM	7	2	2	0
4:55 PM	8	1	2	0
5:00 PM	4	2	2	0
5:05 PM	5	7	6	0
5:10 PM	1	6	3	2
5:15 PM	12	6	5	0
5:20 PM	8	7	7	1
5:25 PM	2	5	8	1
5:30 PM	7	3	2	1
5:35 PM	7	2	6	0
5:40 PM	9	2	5	0
5:45 PM	7	3	8	0
5:50 PM	6	2	7	0
5:55 PM	4	3	9	1

Max Queue approximatley 7:50 AM

Site Code: 4

Location: El Jebel Rd Northbound Traffic towards Hwy 82

TIME	FAR LEFT TURN	MIDDLE LEFT TURN LANE	THROUGH LANE	RIGHT TURN LANE
7:00 AM	1	0	1	0
7:05 AM	1	1	0	0
7:10 AM	0	2	1	0
7:15 AM	1	2	0	0
7:20 AM	1	2	4	0
7:25 AM	1	1	1	1
7:30 AM	2	1	2	2
7:35 AM	1	1	3	0
7:40 AM	1	2	0	4
7:45 AM	0	1	1	1
7:50 AM	1	0	1	1
7:55 AM	1	1	1	0
8:00 AM	0	0	1	0
8:05 AM	1	2	3	1
8:10 AM	0	1	1	0
8:15 AM	0	2	3	0
8:20 AM	1	1	2	1
8:25 AM	0	0	0	0
8:30 AM	1	1	0	0
8:35 AM	1	1	3	1
8:40 AM	1	1	1	0
8:45 AM	1	2	2	0
8:50 AM	0	1	1	1
8:55 AM	0	0	0	1
4:00 PM	2	3	4	0
4:05 PM	2	3	4	0
4:10 PM	3	5	7	0
4:15 PM	0	2	2	0
4:20 PM	2	4	6	0
4:25 PM	3	3	5	0
4:30 PM	2	3	3	0
4:35 PM	3	3	6	0
4:40 PM	4	3	4	1
4:45 PM	2	3	3	0
4:50 PM	2	2	4	1
4:55 PM	3	2	3	0
5:00 PM	2	2	4	1
5:05 PM	3	2	4	0
5:10 PM	5	4	8	0
5:15 PM	3	2	5	0
5:20 PM	3	2	9	0
5:25 PM	4	5	2	0
5:30 PM	2	2	5	1
5:35 PM	2	2	5	0
5:40 PM	2	3	4	0
5:45 PM	5	5	7	0
5:50 PM	1	3	8	0
5:55 PM	4	6	6	0



Max Queue approximatley 5:20 PM

Site Code: 5

Location: El Jebel Rd Southbound Traffic towards Valley Rd

TIME	THROUGH LANE	RIGHT TURN LANE
7:00 AM	1	0
7:05 AM	0	0
7:10 AM	0	0
7:15 AM	0	0
7:20 AM	0	0
7:25 AM	0	0
7:30 AM	0	0
7:35 AM	0	0
7:40 AM	0	0
7:45 AM	0	0
7:50 AM	0	0
7:55 AM	0	0
8:00 AM	0	0
8:05 AM	0	0
8:10 AM	0	0
8:15 AM	0	0
8:20 AM	0	0
8:25 AM	0	0
8:30 AM	0	0
8:35 AM	0	0
8:40 AM	0	0
8:45 AM	0	0
8:50 AM	0	0
8:55 AM	0	0
4:00 PM	0	0
4:05 PM	0	0
4:10 PM	0	0
4:15 PM	0	0
4:20 PM	0	0
4:25 PM	0	0
4:30 PM	0	0
4:35 PM	0	0
4:40 PM	0	0
4:45 PM	0	0
4:50 PM	0	0
4:55 PM	0	0
5:00 PM	0	0
5:05 PM	0	0
5:10 PM	0	0
5:15 PM	0	0
5:20 PM	0	0
5:25 PM	0	0
5:30 PM	0	0
5:35 PM	0	0
5:40 PM	0	0
5:45 PM	0	0
5:50 PM	0	0
5:55 PM	0	0

Max Queue approximatley 7:00 AM

Site Code: 6
Location: Valley Rd Eastbound Traffic towards El Jebel Rd

TIME	LEFT TURN LANE	RIGHT TURN LANE
7:00 AM	1	1
7:05 AM	1	1
7:10 AM	1	1
7:15 AM	1	1
7:20 AM	2	1
7:25 AM	2	1
7:30 AM	2	0
7:35 AM	2	1
7:40 AM	1	2
7:45 AM	2	1
7:50 AM	2	1
7:55 AM	1	2
8:00 AM	1	1
8:05 AM	1	1
8:10 AM	1	1
8:15 AM	1	0
8:20 AM	1	1
8:25 AM	1	2
8:30 AM	1	1
8:35 AM	1	1
8:40 AM	1	1
8:45 AM	1	1
8:50 AM	1	1
8:55 AM	1	2
4:00 PM	1	2
4:05 PM	1	1
4:10 PM	1	1
4:15 PM	1	1
4:20 PM	1	3
4:25 PM	1	1
4:30 PM	1	1
4:35 PM	2	2
4:40 PM	1	1
4:45 PM	2	1
4:50 PM	1	1
4:55 PM	2	1
5:00 PM	1	1
5:05 PM	2	1
5:10 PM	1	1
5:15 PM	1	1
5:20 PM	2	1
5:25 PM	1	1
5:30 PM	2	1
5:35 PM	1	2
5:40 PM	1	2
5:45 PM	1	1
5:50 PM	1	2
5:55 PM	1	1

Max Queue approximatley 4:20 PM

Site Code: 7
Location: Valley Rd Westbound Traffic towards El Jebel Rd

TIME	THROUGH LANE ZONE 1	THROUGH LANE ZONE 2	THROUGH LANE ZONE 3
7:00 AM	0	1	0
7:05 AM	0	1	0
7:10 AM	0	1	0
7:15 AM	0	1	0
7:20 AM	0	3	0
7:25 AM	0	2	0
7:30 AM	0	1	0
7:35 AM	0	1	0
7:40 AM	0	1	0
7:45 AM	0	1	0
7:50 AM	0	1	0
7:55 AM	0	1	0
8:00 AM	0	1	0
8:05 AM	0	1	0
8:10 AM	0	2	0
8:15 AM	0	1	0
8:20 AM	0	1	0
8:25 AM	0	1	0
8:30 AM	0	1	0
8:35 AM	0	1	0
8:40 AM	0	1	0
8:45 AM	0	2	0
8:50 AM	0	1	0
8:55 AM	0	1	0
4:00 PM	0	2	0
4:05 PM	0	2	0
4:10 PM	0	4	0
4:15 PM	0	3	0
4:20 PM	0	2	0
4:25 PM	0	3	0
4:30 PM	0	3	0
4:35 PM	0	2	0
4:40 PM	0	3	0
4:45 PM	0	3	0
4:50 PM	0	2	0
4:55 PM	0	3	1
5:00 PM	0	2	0
5:05 PM	3	4	0
5:10 PM	0	2	0
5:15 PM	0	3	0
5:20 PM	1	5	0
5:25 PM	2	4	0
5:30 PM	3	2	0
5:35 PM	1	2	0
5:40 PM	2	4	0
5:45 PM	2	3	0
5:50 PM	5	3	0
5:55 PM	1	4	0

ZONE 1

ZONE 2

ZONE 3

Max Queue approximatley 5:20 PM

US 82 Continuous Counter Data from Station ID 236, Northwest of Snowmass Creek Road 1/17/2020

Jan 1993 - Dec 2019 MLE

Average ADT per Month

COUNTSTA	Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
236	2019	20116	19966	19984	18414	17804	22109	23152	22780	21201	19369	17424	20402
236	2018	19621	19180	19680	18304	17765	21602	22512	21946	20849	18397	17199	19720
236	2017	18550	18921	19443	16987	16943	21253	22324	21086	19821	18048	16873	19575
236	2016	18612	18613	18878	16828	17254	21393	22397	20902	20479	18174	16340	18813
236	2015	17908	17741	18317	16451	15838	20486	22141	20765	20084	18002	16160	18790
236	2014	16786	16586	17062	15332	15302	19047	20643	19455	18461	16665	14287	17401
236	2013	16471	16387	15888	13074	14574	17789	19205	18535	16845	13969	12114	14336
236	2012	16266	15875	16306	14115	14832	17835	19174	19048	17124	15655	14824	15915
236	2011	16703	15716	16399	13695	13876	17634	18818	18620	17543	15235	14378	16553
236	2010	16309	15908	16508	14295	14115	17727	18957	18342			14489	16566
236	2009	17545	17067	16855	15097	14805	18291	19416	18236	17741	15681	14839	16267
236	2008	18043	17945	18408	16378	16098	19157	20581	19852	18648	17649	15681	16153
236	2007	18475	17921	18854	16740	16936	19847	20828	21227	18998	18296	19537	18597
236	2006	16925	17517	17585	20900	16223	19271	19695	20076	18422	16744	16081	17722
236	2005	16542	16885	17329	15008	14987	18501	19511	18953	17653	15863	15462	16004
236	2004	15436	15162	16432	14645	14291	17552	18662	18313	17147	15253	14902	17026
236	2003	15323	15142	15032	14088	13892	16483	18147	17357	15852	14843	13149	15086
236	2002	15380	15353	15607	15067	14721	16659	18206	17893	15925	14900	13701	15101
236	2001	15577	15884	16343	14956	14816	17190	18174	18152	15902	15552	14421	14725
236	2000										15727	14405	14985
236	1999	14071	14653	15639	14126	13567	15945	18030	17850	16675	15075	13560	14860
236	1998	13980	14555	14565	13773	14789	16221	17939	17116	15857	14335	13342	14621
236	1997	12665	14260	14975	13245	13020	17119	17569	16904	15308	14305	12669	14307
236	1996	12552	13486	14143	12940	12905	15130	16994	16940	14983	13652	12674	13187
236	1995	12659	12633	13298	11569	12212	15020	16118	16631	14294	13487	12782	13338
236	1994	12417	12542	13796	11727	11962	14544	15342	15753	14325	12891	11852	12973
236	1993	11220	11305	12595	10817	10720	13181	14669	14557	13431	12159	11547	12812
	Average	16006	16046	16535	14945	14779	17961	19200	18742	17343	15766	14618	16142
	SAF	1.20	1.20	1.16	1.28	1.30	1.07	1.00	1.02	1.11	1.22	1.31	1.19

(Seasonal Adjustment Factor)

MaxTime Single Timing Sheet

Intersection SH82 and El Jebel **ID** 19 **Agency** CDOT **Database** 082A_019.04@El_Jebel

Net1.IP **Net2.IP**

Action 20

Phase	1	2	3	4	5	6	7	8
Description	WBLT	EBT	EBT	SBT	EBLT	WBT	SBLT	NBT
Enable								
Startup								
Ring	1	1	0	1	2	2	0	1
Min Green	4	30	0	6	4	30	0	6
Passage	4.0	8.0	0.0	4.0	4.0	8.0	0.0	4.0
MaxII	15	120	0	30	15	120	0	30
MaxII	15	120	0	20	15	120	0	20
Yel Change	5.5	5.5	3.0	3.5	5.5	5.5	3.0	3.5
Red Clear	3.0	2.0	1.0	1.5	3.0	2.0	1.0	1.5
Delay Green	0	0	0	0	0	0	0	0
Walk	0	0	0	0	0	0	0	0
Ped Clear	0	0	0	0	0	0	0	0
Alt Walk	0	0	0	0	0	0	0	0
Alt Ped Clr	0	0	0	0	0	0	0	0
Delay Walk	0	0	0	0	0	0	0	0
Flash Entry								
Flash Exit								
Non Lock Mem								
Min Veh Recall								
Max Veh Recall								
Ped Recall								
Soft Veh Recall								
Dual Entry								
Split 1	14	79	0	32	20	73	0	15
Coord Phase								
Ref Phase								
Split 2	19	77	0	27	19	77	0	17
Coord Phase								
Ref Phase								
Split 3	19	87	0	36	25	81	0	18
Coord Phase								
Ref Phase								
Split 4	21	89	0	31	21	89	0	19
Coord Phase								
Ref Phase								
Split 5	0	0	0	0	0	0	0	0
Coord Phase								
Ref Phase								

Cycle	140
Offset	86
Seq	3
Cycle	140
Offset	110
Seq	2
Cycle	160
Offset	0
Seq	3
Cycle	160
Offset	65
Seq	2
Cycle	0
Offset	0
Seq	0

Overlaps	1	2	3	4
Description				
Type	-overlapType.1	-overlapType.2	-overlapType.3	-overlapType.4
Include Phases				
Modifier Phase				
Trl Grn	0	0	0	0
Trl Yel	0.0	0.0	0.0	0.0
Trl Red	0.0	0.0	0.0	0.0
Walk 1	0	0	0	0
Ped Clr 1	0	0	0	0
Delay	0.0	0.0	0.0	0.0
Flash	Off	Off	Off	Off

Sequence 1	
Ring	Phases
1	1,2,a,4,8,b
2	5,6,a,b
Sequence 2	
Ring	Phases
1	2,1,a,4,8,b
2	5,6,a,b
Sequence 3	
Ring	Phases
1	1,2,a,4,8,b
2	6,5,a,b

Action	
1	Pattern 1
2	Pattern 2
3	Pattern 3
4	Pattern 4
5	Pattern 5
6	Pattern 6
7	Pattern 7
8	Pattern 8
9	Pattern 9
10	Pattern 10

Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1		X	X	X	X	X	
2	X						X
3							
4							

Day 1

It	Hr	Min	Act
1	6	30	3
2	8	15	20
3	15	30	4
4	19	0	20
5	0	0	
6	0	0	
7	0	0	
8	0	0	
9	0	0	
10	0	0	

Day 2

It	Hr	Min	Act
1	8	0	1
2	10	0	20
3	14	0	2
4	19	0	20
5	0	0	
6	0	0	
7	0	0	
8	0	0	
9	0	0	
10	0	0	

Day 3

It	Hr	Min	Act
1	0	0	
2	0	0	
3	0	0	
4	0	0	
5	0	0	
6	0	0	
7	0	0	
8	0	0	
9	0	0	
10	0	0	

Day 4

It	Hr	Min	Act
1	0	0	
2	0	0	
3	0	0	
4	0	0	
5	0	0	
6	0	0	
7	0	0	
8	0	0	
9	0	0	
10	0	0	

Detectors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Decription																								
Call Phase	1	2	2	2	2	2	3	4	4	4	4	4	1	3	5	6	6	6	6	6	7	8	8	8
Call Ovlp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Additional Call PH																								
Switch Ph	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Extend	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Failed Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Passage																								
Queue																								
Call																								
Terminate																								

LS	Channel Type	Item
1	Phs Veh	1
2	Phs Veh	2
3	Phs Veh	3
4	Phs Veh	4
5	Phs Veh	5
6	Phs Veh	6
7	Phs Veh	7
8	Phs Veh	8

LS	Channel Type	Item
9	Olp	1
10	Olp	2
11	Olp	3
12	Olp	4
13	Phs Ped	2
14	Phs Ped	4
15	Phs Ped	6
16	Phs Ped	8

Signature: _____

Date: _____

SH 82 & El Jebel Road
Long Term Capacity Improvement Calculations

By: McDowell Engineering
Project: M1434
Date: 7/2/2021

		Weekday PM Peak Hour (vph)			Notes
		Northbound	Southbound	Bidirectional	
	South Leg of SH 82 & El Jebel Road Intersection:				
A	**Total Forecasted Traffic on South Leg of SH 82 & El Jebel Road Intersection**				
	Year 2045 Total Traffic	418	334	752	From Figure 16 of TIS.
B	**Total Capacity on South Leg of SH 82 & El Jebel Road Intersection After Interim Improvements**				
	Year 2045 Total Traffic	482	388	870	From Interim Calculation
C	**Available Additional Capacity on South Leg of SH 82 & El Jebel Road Intersection with Valley Road Realignment**				
	Additional Capacity with Long Term Improvements (Above Year 2045 Total Traffic)	221	177	400	Based upon SimTraffic Microsimulation Model analysis of El Jebel Road queue flushing in two cycle lengths and new road through RFTA parking lot flushing. See description of Long Term Improvements below.
D	**Total South Leg Capacity of SH 82 & El Jebel Road with Valley Road Realignment**				
	Total Capacity of South Leg	639	511	1152	A+C=D
E	**Additional South Leg Capacity of SH 82 & El Jebel Road with Valley Road Realignment (Increase Above Interim Improvements)**				
	Total Capacity of South Leg	157	123	282	D-B=E
F	**South Leg of SH 82 & El Jebel Road Existing Conditions**				
	Year 2021 Background Traffic	314	247	561	From Figure 8 of the TIS.
G	**New Capacity of South Leg**				
	New Capacity with Long Term Improvements (Above Existing Conditions)	325	264	591	D-F=G
H	**Proposed The Fields Subdivision Traffic on South Leg of SH 82 & El Jebel Road Intersection**				
	Site Traffic	19	20	39	From Figure 14 of the TIS.
I	**Percentage of The Fields Traffic vs. New Capacity on South Leg of SH 82 & El Jebel Road Intersection with Valley Road Realignment**				
	Site Traffic			7%	H/G=I
J	**Percentage of The Fields Traffic vs. Total Capacity on South Leg of SH 82 & El Jebel Road Intersection with Valley Road Realignment**				
	Site Traffic			3%	H/D=J
	Overall SH 82 & El Jebel Road Intersection:				
K	**Total Intersection Capacity with Valley Road Realignment**				
	Year 2045 Total Traffic			5321	From SimTraffic Microsimulation Model
L	**Proposed The Fields Subdivision Traffic on SH 82 & El Jebel Road Intersection**				
	Site Traffic			43	From Figure 14 of the TIS.
M	**Percentage of The Fields Traffic vs. Total Intersection Capacity at SH 82 & El Jebel Road Intersection**				
	Site Traffic			0.8%	L/K=M

Long Term El Jebel Road Improvements:

1. Realign Valley Road south of the RFTA parking lot and turn north east of theparking lot. The intersection with East Valley Road occurs northeast of the existing RFTA parking lot.
2. Extend the dual left turn lanes all the way back to the new East Valley Road intersection. See graphic.
3. Add an additional 10 seconds of green time (in the pm peak) to the northbound movement at the signal. This was taken from the southbound El Jebel Road's green time, as they don't need it as much in the afternoon as they do in the morning.
4. Add a separate 100' northbound right turn lane, 50' eastbound right turn lane, and 100' westbound left turn lane at the new intersection with W. Valley Road at Valley Road.

Capacity calculation methodology is based upon a methodology scoping with CDOT and Eagle County Engineering staff.

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE SUMMARY
The Fields

Location: Valley View Road East of Site Access (East)

		B43	B40	B43	B40	B44	B34	B44	B34
		Class II				Class III			
EB Sheet Name	**WB Sheet Name**	EB LOS	EB %	WB LOS	WB %	EB LOS	EB %	WB LOS	WB %
Valley Rd EB PM 2021 BG	Valley Rd WB PM 2021 BG	A	11%	B	54%	B	87%	B	88%
Valley Rd EB PM 2025 BG	Valley Rd WB PM 2025 BG	A	11%	B	54%	B	86%	B	88%
Valley Rd EB PM 2045 BG	Valley Rd WB PM 2045 BG	A	12%	C	57%	B	84%	B	87%
Valley Rd EB PM 2021 T	Valley Rd WB PM 2021 T	A	19%	B	54%	C	83%	B	86%
Valley Rd EB PM 2025 T	Valley Rd WB PM 2025 T	A	19%	B	55%	C	82%	B	86%
Valley Rd EB PM 2045 T	Valley Rd WB PM 2045 T	C	61%	C	61%	D	72%	D	72%

Updated with 8/6/2020 Excel File

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE CALCULATION
The Fields

Project Number:	1434
Prepared By:	MLE
Date:	2020-06-11
Revised:	

Location: Valley View East of Site Access (East)

Year 2021 Background Traffic - Eastbound PM Peak Hour

Item	Value	Unit	Name	Description	Ref
A1	0.99	unitless	$f_{HV,ATS}$	Heavy Vehicle Adjustment factor for ATS estimation	HCM 2010 Eqn. 15-4
A2	0.02	unitless	P_T	proportion of trucks in the traffic stream (decimal)	
A3	0.00	unitless	P_R	proportion of RVs in the traffic stream (decimal)	
A4	1.60	unitless	E_T	PCE for trucks from Ex 15-11, 15-12	
A5	1.00	unitless	E_R	PCE for RVs from Ex 15-11, 15-13	
A6	0.00	unitless	P_{TC}	proportion of trucks operating at crawl speed	
A7	0.00	unitless	E_{TC}	pce's for trucks operating at crawl speed	
A8	31.14	mph	FFS	Free Flow Speed (from Field Measurements at v>200vph)	HCM 2010 Eqn. 15-1
A9	30.00	mph	S_{FM}	mean speed of sample (v>200vph)	
A10	145	vph	v	total demand flow rate	
A11	30.00	mph	BFFS	Base Free Flow Speed (estimated)	
A12	4.80		f_{LS}	adjustment for lane and shoulder width	HCM 2010 Ex. 15-7
A13	4.50		f_A	adjustment for access point density	HCM 2010 Ex. 15-8
A14	20.70	mph	FFS	Free Flow Speed (from estimation)	HCM 2010 Eqn. 15-2
A15	24.00	pch	V_i	demand volume for direction i	
A16	0.92		PHF	Peak Hour factor for direction i	
A17	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A18	26.37	pch	$v_{i,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A19	121.00	pch	V_o	demand volume for direction o	
A20	0.92		PHF	Peak Hour factor for direction o	
A21	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A22	132.94	pch	$v_{o,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A23	2.74		$f_{np,ATS}$	adjustment factor for ATS determination for the % of no-passing zones in the analysis direction	HCM 2010 Ex. 15-15
A24	30.00	mph	FFS	Free flow speed (engineer discretion from above between A8 and A14)	
A25	26.03	mph	ATSd	Average Travel Speed	HCM 2010 Eqn. 15-6
A26	0.87		PFFS	Percent of FFS	HCM 2010 Eqn. 15-11, Used For Road Class III
A27	II			Road Class	HCM 2010 Pg. 15-3
A28	3	%	$BPTSF_d$	Base Percent Time-Spent-Following for direction i	HCM 2010 Eqn. 15-10
A29	-0.0014		a	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A30	0.9730		b	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A31	24	pch	v_d	demand volume for direction I (copied from above)	
A32	11	%	PTSF	Percent of Time Spent Following	HCM 2010 Eqn. 15-9, Used For Road Class II
A33	47.9		$f_{np,PTSF}$	Adjustment to PTSF for the percentage of no-passing zones in direction i	HCM 2010 Ex. 15-21
A34	83%		Dir. Split	Directional Split	HCM 2010 Ex. 15-21
A35	A		LOS	Level of Service (Class II)	HCM 2010 Ex. 15-3
A36	B		LOS	Level of Service (Class III)	HCM 2010 Ex. 15-3

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE CALCULATION
The Fields

Project Number:	1434
Prepared By:	MLE
Date:	2020-06-11
Revised:	

Location: Valley View East of Site Access (East)

Year 2021 Background Traffic - Westbound PM Peak Hour

Item	Value	Unit	Name	Description	Ref
A1	0.99	unitless	$f_{HV,ATS}$	Heavy Vehicle Adjustment factor for ATS estimation	HCM 2010 Eqn. 15-4
A2	0.02	unitless	P_T	proportion of trucks in the traffic stream (decimal)	
A3	0.00	unitless	P_R	proportion of RVs in the traffic stream (decimal)	
A4	1.60	unitless	E_T	PCE for trucks from Ex 15-11, 15-12	
A5	1.00	unitless	E_R	PCE for RVs from Ex 15-11, 15-13	
A6	0.00	unitless	P_{TC}	proportion of trucks operating at crawl speed	
A7	0.00	unitless	E_{TC}	pce's for trucks operating at crawl speed	
A8	31.14	mph	FFS	Free Flow Speed (from Field Measurements at v>200vph)	HCM 2010 Eqn. 15-1
A9	30.00	mph	S_{FM}	mean speed of sample (v>200vph)	
A10	145	vph	v	total demand flow rate	
A11	30.00	mph	BFFS	Base Free Flow Speed (estimated)	
A12	4.80		f_{LS}	adjustment for lane and shoulder width	HCM 2010 Ex. 15-7
A13	4.50		f_A	adjustment for access point density	HCM 2010 Ex. 15-8
A14	20.70	mph	FFS	Free Flow Speed (from estimation)	HCM 2010 Eqn. 15-2
A15	121.00	pch	V_i	demand volume for direction i	
A16	0.92		PHF	Peak Hour factor for direction i	
A17	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A18	132.94	pch	$v_{i,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A19	24.00	pch	V_o	demand volume for direction o	
A20	0.92		PHF	Peak Hour factor for direction o	
A21	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A22	26.37	pch	$v_{o,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A23	2.40		$f_{np,ATS}$	adjustment factor for ATS determination for the % of no-passing zones in the analysis direction	HCM 2010 Ex. 15-15
A24	30.00	mph	FFS	Free flow speed (engineer discretion from above between A8 and A14)	
A25	26.36	mph	ATSd	Average Travel Speed	HCM 2010 Eqn. 15-6
A26	0.88		PFFS	Percent of FFS	HCM 2010 Eqn. 15-11, Used For Road Class III
A27	II			Road Class	HCM 2010 Pg. 15-3
A28	14	%	$BPTSF_d$	Base Percent Time-Spent-Following for direction i	HCM 2010 Eqn. 15-10
A29	-0.0014		a	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A30	0.9730		b	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A31	121	pch	v_d	demand volume for direction I (copied from above)	
A32	54	%	PTSF	Percent of Time Spent Following	HCM 2010 Eqn. 15-9, Used For Road Class II
A33	47.9		$f_{np,PTSF}$	Adjustment to PTSF for the percentage of no-passing zones in direction i	HCM 2010 Ex. 15-21
A34	17%		Dir. Split	Directional Split	HCM 2010 Ex. 15-21
A35	B		LOS	Level of Service (Class II)	HCM 2010 Ex. 15-3
A36	B		LOS	Level of Service (Class III)	HCM 2010 Ex. 15-3

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE CALCULATION
The Fields

Project Number:	1434
Prepared By:	MLE
Date:	2020-06-11
Revised:	

Location: Valley View East of Site Access (East)

Year 2025 Background Traffic - Eastbound PM Peak Hour

Item	Value	Unit	Name	Description	Ref
A1	0.99	unitless	$f_{HV,ATS}$	Heavy Vehicle Adjustment factor for ATS estimation	HCM 2010 Eqn. 15-4
A2	0.02	unitless	P_T	proportion of trucks in the traffic stream (decimal)	
A3	0.00	unitless	P_R	proportion of RVs in the traffic stream (decimal)	
A4	1.60	unitless	E_T	PCE for trucks from Ex 15-11, 15-12	
A5	1.00	unitless	E_R	PCE for RVs from Ex 15-11, 15-13	
A6	0.00	unitless	P_{TC}	proportion of trucks operating at crawl speed	
A7	0.00	unitless	E_{TC}	pce's for trucks operating at crawl speed	
A8	31.18	mph	FFS	Free Flow Speed (from Field Measurements at v>200vph)	HCM 2010 Eqn. 15-1
A9	30.00	mph	S_{FM}	mean speed of sample (v>200vph)	
A10	151	vph	v	total demand flow rate	
A11	30.00	mph	BFFS	Base Free Flow Speed (estimated)	
A12	4.80		f_{LS}	adjustment for lane and shoulder width	HCM 2010 Ex. 15-7
A13	4.50		f_A	adjustment for access point density	HCM 2010 Ex. 15-8
A14	20.70	mph	FFS	Free Flow Speed (from estimation)	HCM 2010 Eqn. 15-2
A15	25.00	pch	V_i	demand volume for direction i	
A16	0.92		PHF	Peak Hour factor for direction i	
A17	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A18	27.47	pch	$v_{i,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A19	126.00	pch	V_o	demand volume for direction o	
A20	0.92		PHF	Peak Hour factor for direction o	
A21	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A22	138.44	pch	$v_{o,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A23	2.82		$f_{np,ATS}$	adjustment factor for ATS determination for the % of no-passing zones in the analysis direction	HCM 2010 Ex. 15-15
A24	30.00	mph	FFS	Free flow speed (engineer discretion from above between A8 and A14)	
A25	25.90	mph	ATSd	Average Travel Speed	HCM 2010 Eqn. 15-6
A26	0.86		PFFS	Percent of FFS	HCM 2010 Eqn. 15-11, Used For Road Class III
A27	II			Road Class	HCM 2010 Pg. 15-3
A28	3	%	$BPTSF_d$	Base Percent Time-Spent-Following for direction i	HCM 2010 Eqn. 15-10
A29	-0.0014		a	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A30	0.9730		b	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A31	25	pch	v_d	demand volume for direction I (copied from above)	
A32	11	%	PTSF	Percent of Time Spent Following	HCM 2010 Eqn. 15-9, Used For Road Class II
A33	47.9		$f_{np,PTSF}$	Adjustment to PTSF for the percentage of no-passing zones in direction i	HCM 2010 Ex. 15-21
A34	83%		Dir. Split	Directional Split	HCM 2010 Ex. 15-21
A35	A		LOS	Level of Service (Class II)	HCM 2010 Ex. 15-3
A36	B		LOS	Level of Service (Class III)	HCM 2010 Ex. 15-3

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE CALCULATION
The Fields

Project Number:	1434
Prepared By:	MLE
Date:	2020-06-11
Revised:	

Location: Valley View East of Site Access (East)

Year 2025 Background Traffic - Westbound PM Peak Hour

Item	Value	Unit	Name	Description	Ref
A1	0.99	unitless	$f_{HV,ATS}$	Heavy Vehicle Adjustment factor for ATS estimation	HCM 2010 Eqn. 15-4
A2	0.02	unitless	P_T	proportion of trucks in the traffic stream (decimal)	
A3	0.00	unitless	P_R	proportion of RVs in the traffic stream (decimal)	
A4	1.60	unitless	E_T	PCE for trucks from Ex 15-11, 15-12	
A5	1.00	unitless	E_R	PCE for RVs from Ex 15-11, 15-13	
A6	0.00	unitless	P_{TC}	proportion of trucks operating at crawl speed	
A7	0.00	unitless	E_{TC}	pce's for trucks operating at crawl speed	
A8	31.18	mph	FFS	Free Flow Speed (from Field Measurements at v>200vph)	HCM 2010 Eqn. 15-1
A9	30.00	mph	S_{FM}	mean speed of sample (v>200vph)	
A10	151	vph	v	total demand flow rate	
A11	30.00	mph	BFFS	Base Free Flow Speed (estimated)	
A12	4.80		f_{LS}	adjustment for lane and shoulder width	HCM 2010 Ex. 15-7
A13	4.50		f_A	adjustment for access point density	HCM 2010 Ex. 15-8
A14	20.70	mph	FFS	Free Flow Speed (from estimation)	HCM 2010 Eqn. 15-2
A15	126.00	pch	V_i	demand volume for direction i	
A16	0.92		PHF	Peak Hour factor for direction i	
A17	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A18	138.44	pch	$v_{i,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A19	25.00	pch	V_o	demand volume for direction o	
A20	0.92		PHF	Peak Hour factor for direction o	
A21	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A22	27.47	pch	$v_{o,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A23	2.40		$f_{np,ATS}$	adjustment factor for ATS determination for the % of no-passing zones in the analysis direction	HCM 2010 Ex. 15-15
A24	30.00	mph	FFS	Free flow speed (engineer discretion from above between A8 and A14)	
A25	26.31	mph	ATSd	Average Travel Speed	HCM 2010 Eqn. 15-6
A26	0.88		PFFS	Percent of FFS	HCM 2010 Eqn. 15-11, Used For Road Class III
A27	II			Road Class	HCM 2010 Pg. 15-3
A28	14	%	$BPTSF_d$	Base Percent Time-Spent-Following for direction i	HCM 2010 Eqn. 15-10
A29	-0.0014		a	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A30	0.9730		b	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A31	126	pch	v_d	demand volume for direction I (copied from above)	
A32	54	%	PTSF	Percent of Time Spent Following	HCM 2010 Eqn. 15-9, Used For Road Class II
A33	47.9		$f_{np,PTSF}$	Adjustment to PTSF for the percentage of no-passing zones in direction i	HCM 2010 Ex. 15-21
A34	17%		Dir. Split	Directional Split	HCM 2010 Ex. 15-21
A35	B		LOS	Level of Service (Class II)	HCM 2010 Ex. 15-3
A36	B		LOS	Level of Service (Class III)	HCM 2010 Ex. 15-3

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE CALCULATION
The Fields

Project Number:	1434
Prepared By:	MLE
Date:	2020-06-11
Revised:	

Location: Valley View East of Site Access (East)

Year 2045 Background Traffic - Eastbound PM Peak Hour

Item	Value	Unit	Name	Description	Ref
A1	0.99	unitless	$f_{HV,ATS}$	Heavy Vehicle Adjustment factor for ATS estimation	HCM 2010 Eqn. 15-4
A2	0.02	unitless	P_T	proportion of trucks in the traffic stream (decimal)	
A3	0.00	unitless	P_R	proportion of RVs in the traffic stream (decimal)	
A4	1.60	unitless	E_T	PCE for trucks from Ex 15-11, 15-12	
A5	1.00	unitless	E_R	PCE for RVs from Ex 15-11, 15-13	
A6	0.00	unitless	P_{TC}	proportion of trucks operating at crawl speed	
A7	0.00	unitless	E_{TC}	pce's for trucks operating at crawl speed	
A8	31.45	mph	FFS	Free Flow Speed (from Field Measurements at v>200vph)	HCM 2010 Eqn. 15-1
A9	30.00	mph	S_{FM}	mean speed of sample (v>200vph)	
A10	185	vph	v	total demand flow rate	
A11	30.00	mph	BFFS	Base Free Flow Speed (estimated)	
A12	4.80		f_{LS}	adjustment for lane and shoulder width	HCM 2010 Ex. 15-7
A13	4.50		f_A	adjustment for access point density	HCM 2010 Ex. 15-8
A14	20.70	mph	FFS	Free Flow Speed (from estimation)	HCM 2010 Eqn. 15-2
A15	31.00	pch	V_i	demand volume for direction i	
A16	0.92		PHF	Peak Hour factor for direction i	
A17	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A18	34.06	pch	$v_{i,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A19	154.00	pch	V_o	demand volume for direction o	
A20	0.92		PHF	Peak Hour factor for direction o	
A21	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A22	169.20	pch	$v_{o,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A23	3.26		$f_{np,ATS}$	adjustment factor for ATS determination for the % of no-passing zones in the analysis direction	HCM 2010 Ex. 15-15
A24	30.00	mph	FFS	Free flow speed (engineer discretion from above between A8 and A14)	
A25	25.16	mph	ATSd	Average Travel Speed	HCM 2010 Eqn. 15-6
A26	0.84		PFFS	Percent of FFS	HCM 2010 Eqn. 15-11, Used For Road Class III
A27	II			Road Class	HCM 2010 Pg. 15-3
A28	4	%	$BPTSF_d$	Base Percent Time-Spent-Following for direction i	HCM 2010 Eqn. 15-10
A29	-0.0014		a	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A30	0.9730		b	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A31	31	pch	v_d	demand volume for direction I (copied from above)	
A32	12	%	PTSF	Percent of Time Spent Following	HCM 2010 Eqn. 15-9, Used For Road Class II
A33	47.9		$f_{np,PTSF}$	Adjustment to PTSF for the percentage of no-passing zones in direction i	HCM 2010 Ex. 15-21
A34	83%		Dir. Split	Directional Split	HCM 2010 Ex. 15-21
A35	A		LOS	Level of Service (Class II)	HCM 2010 Ex. 15-3
A36	B		LOS	Level of Service (Class III)	HCM 2010 Ex. 15-3

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE CALCULATION
The Fields

Project Number:	1434
Prepared By:	MLE
Date:	2020-06-11
Revised:	

Location: Valley View East of Site Access (East)

Year 2045 Background Traffic - Westbound PM Peak Hour

Item	Value	Unit	Name	Description	Ref
A1	0.99	unitless	$f_{HV,ATS}$	Heavy Vehicle Adjustment factor for ATS estimation	HCM 2010 Eqn. 15-4
A2	0.02	unitless	P_T	proportion of trucks in the traffic stream (decimal)	
A3	0.00	unitless	P_R	proportion of RVs in the traffic stream (decimal)	
A4	1.60	unitless	E_T	PCE for trucks from Ex 15-11, 15-12	
A5	1.00	unitless	E_R	PCE for RVs from Ex 15-11, 15-13	
A6	0.00	unitless	P_{TC}	proportion of trucks operating at crawl speed	
A7	0.00	unitless	E_{TC}	pce's for trucks operating at crawl speed	
A8	31.45	mph	FFS	Free Flow Speed (from Field Measurements at v>200vph)	HCM 2010 Eqn. 15-1
A9	30.00	mph	S_{FM}	mean speed of sample (v>200vph)	
A10	185	vph	v	total demand flow rate	
A11	30.00	mph	BFFS	Base Free Flow Speed (estimated)	
A12	4.80		f_{LS}	adjustment for lane and shoulder width	HCM 2010 Ex. 15-7
A13	4.50		f_A	adjustment for access point density	HCM 2010 Ex. 15-8
A14	20.70	mph	FFS	Free Flow Speed (from estimation)	HCM 2010 Eqn. 15-2
A15	154.00	pch	V_i	demand volume for direction i	
A16	0.92		PHF	Peak Hour factor for direction i	
A17	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A18	169.20	pch	$v_{i,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A19	31.00	pch	V_o	demand volume for direction o	
A20	0.92		PHF	Peak Hour factor for direction o	
A21	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A22	34.06	pch	$v_{o,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A23	2.40		$f_{np,ATS}$	adjustment factor for ATS determination for the % of no-passing zones in the analysis direction	HCM 2010 Ex. 15-15
A24	30.00	mph	FFS	Free flow speed (engineer discretion from above between A8 and A14)	
A25	26.02	mph	ATSd	Average Travel Speed	HCM 2010 Eqn. 15-6
A26	0.87		PFFS	Percent of FFS	HCM 2010 Eqn. 15-11, Used For Road Class III
A27	II			Road Class	HCM 2010 Pg. 15-3
A28	17	%	$BPTSF_d$	Base Percent Time-Spent-Following for direction i	HCM 2010 Eqn. 15-10
A29	-0.0014		a	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A30	0.9730		b	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A31	154	pch	v_d	demand volume for direction I (copied from above)	
A32	57	%	PTSF	Percent of Time Spent Following	HCM 2010 Eqn. 15-9, Used For Road Class II
A33	47.9		$f_{np,PTSF}$	Adjustment to PTSF for the percentage of no-passing zones in direction i	HCM 2010 Ex. 15-21
A34	17%		Dir. Split	Directional Split	HCM 2010 Ex. 15-21
A35	C		LOS	Level of Service (Class II)	HCM 2010 Ex. 15-3
A36	B		LOS	Level of Service (Class III)	HCM 2010 Ex. 15-3

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE CALCULATION
The Fields

Project Number:	1434
Prepared By:	MLE
Date:	2020-06-11
Revised:	

Location: Valley View East of Site Access (East)

Year 2021 Total Traffic - Eastbound PM Peak Hour

Item	Value	Unit	Name	Description	Ref
A1	0.99	unitless	$f_{HV,ATS}$	Heavy Vehicle Adjustment factor for ATS estimation	HCM 2010 Eqn. 15-4
A2	0.02	unitless	P_T	proportion of trucks in the traffic stream (decimal)	
A3	0.00	unitless	P_R	proportion of RVs in the traffic stream (decimal)	
A4	1.60	unitless	E_T	PCE for trucks from Ex 15-11, 15-12	
A5	1.00	unitless	E_R	PCE for RVs from Ex 15-11, 15-13	
A6	0.00	unitless	P_{TC}	proportion of trucks operating at crawl speed	
A7	0.00	unitless	E_{TC}	pce's for trucks operating at crawl speed	
A8	31.68	mph	FFS	Free Flow Speed (from Field Measurements at v>200vph)	HCM 2010 Eqn. 15-1
A9	30.00	mph	S_{FM}	mean speed of sample (v>200vph)	
A10	214	vph	v	total demand flow rate	
A11	30.00	mph	BFFS	Base Free Flow Speed (estimated)	
A12	4.80		f_{LS}	adjustment for lane and shoulder width	HCM 2010 Ex. 15-7
A13	4.50		f_A	adjustment for access point density	HCM 2010 Ex. 15-8
A14	20.70	mph	FFS	Free Flow Speed (from estimation)	HCM 2010 Eqn. 15-2
A15	55.00	pch	V_i	demand volume for direction i	
A16	0.92		PHF	Peak Hour factor for direction i	
A17	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A18	60.43	pch	$v_{i,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A19	159.00	pch	V_o	demand volume for direction o	
A20	0.92		PHF	Peak Hour factor for direction o	
A21	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A22	174.69	pch	$v_{o,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A23	3.34		$f_{np,ATS}$	adjustment factor for ATS determination for the % of no-passing zones in the analysis direction	HCM 2010 Ex. 15-15
A24	30.00	mph	FFS	Free flow speed (engineer discretion from above between A8 and A14)	
A25	24.83	mph	ATSd	Average Travel Speed	HCM 2010 Eqn. 15-6
A26	0.83		PFFS	Percent of FFS	HCM 2010 Eqn. 15-11, Used For Road Class III
A27	II			Road Class	HCM 2010 Pg. 15-3
A28	7	%	$BPTSF_d$	Base Percent Time-Spent-Following for direction i	HCM 2010 Eqn. 15-10
A29	-0.0014		a	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A30	0.9730		b	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A31	55	pch	v_d	demand volume for direction I (copied from above)	
A32	19	%	PTSF	Percent of Time Spent Following	HCM 2010 Eqn. 15-9, Used For Road Class II
A33	49.0		$f_{np,PTSF}$	Adjustment to PTSF for the percentage of no-passing zones in direction i	HCM 2010 Ex. 15-21
A34	74%		Dir. Split	Directional Split	HCM 2010 Ex. 15-21
A35	A		LOS	Level of Service (Class II)	HCM 2010 Ex. 15-3
A36	C		LOS	Level of Service (Class III)	HCM 2010 Ex. 15-3

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE CALCULATION
The Fields

Project Number:	1434
Prepared By:	MLE
Date:	2020-06-11
Revised:	

Location: Valley View East of Site Access (East)

Year 2021 Total Traffic - Westbound PM Peak Hour

Item	Value	Unit	Name	Description	Ref
A1	0.99	unitless	$f_{HV,ATS}$	Heavy Vehicle Adjustment factor for ATS estimation	HCM 2010 Eqn. 15-4
A2	0.02	unitless	P_T	proportion of trucks in the traffic stream (decimal)	
A3	0.00	unitless	P_R	proportion of RVs in the traffic stream (decimal)	
A4	1.60	unitless	E_T	PCE for trucks from Ex 15-11, 15-12	
A5	1.00	unitless	E_R	PCE for RVs from Ex 15-11, 15-13	
A6	0.00	unitless	P_{TC}	proportion of trucks operating at crawl speed	
A7	0.00	unitless	E_{TC}	pce's for trucks operating at crawl speed	
A8	31.68	mph	FFS	Free Flow Speed (from Field Measurements at v>200vph)	HCM 2010 Eqn. 15-1
A9	30.00	mph	S_{FM}	mean speed of sample (v>200vph)	
A10	214	vph	v	total demand flow rate	
A11	30.00	mph	BFFS	Base Free Flow Speed (estimated)	
A12	4.80		f_{LS}	adjustment for lane and shoulder width	HCM 2010 Ex. 15-7
A13	4.50		f_A	adjustment for access point density	HCM 2010 Ex. 15-8
A14	20.70	mph	FFS	Free Flow Speed (from estimation)	HCM 2010 Eqn. 15-2
A15	159.00	pch	V_i	demand volume for direction i	
A16	0.92		PHF	Peak Hour factor for direction i	
A17	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A18	174.69	pch	$v_{i,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A19	55.00	pch	V_o	demand volume for direction o	
A20	0.92		PHF	Peak Hour factor for direction o	
A21	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A22	60.43	pch	$v_{o,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A23	2.40		$f_{np,ATS}$	adjustment factor for ATS determination for the % of no-passing zones in the analysis direction	HCM 2010 Ex. 15-15
A24	30.00	mph	FFS	Free flow speed (engineer discretion from above between A8 and A14)	
A25	25.78	mph	ATSd	Average Travel Speed	HCM 2010 Eqn. 15-6
A26	0.86		PFFS	Percent of FFS	HCM 2010 Eqn. 15-11, Used For Road Class III
A27	II			Road Class	HCM 2010 Pg. 15-3
A28	18	%	$BPTSF_d$	Base Percent Time-Spent-Following for direction i	HCM 2010 Eqn. 15-10
A29	-0.0014		a	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A30	0.9730		b	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A31	159	pch	v_d	demand volume for direction I (copied from above)	
A32	54	%	PTSF	Percent of Time Spent Following	HCM 2010 Eqn. 15-9, Used For Road Class II
A33	49.0		$f_{np,PTSF}$	Adjustment to PTSF for the percentage of no-passing zones in direction i	HCM 2010 Ex. 15-21
A34	26%		Dir. Split	Directional Split	HCM 2010 Ex. 15-21
A35	B		LOS	Level of Service (Class II)	HCM 2010 Ex. 15-3
A36	B		LOS	Level of Service (Class III)	HCM 2010 Ex. 15-3

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE CALCULATION
The Fields

Project Number:	1434
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Date:	2020-06-11
Revised:	

Location: Valley View East of Site Access (East)

Year 2021 Total Traffic - Eastbound PM Peak Hour

Item	Value	Unit	Name	Description	Ref
A1	0.99	unitless	$f_{HV,ATS}$	Heavy Vehicle Adjustment factor for ATS estimation	HCM 2010 Eqn. 15-4
A2	0.02	unitless	P_T	proportion of trucks in the traffic stream (decimal)	
A3	0.00	unitless	P_R	proportion of RVs in the traffic stream (decimal)	
A4	1.60	unitless	E_T	PCE for trucks from Ex 15-11, 15-12	
A5	1.00	unitless	E_R	PCE for RVs from Ex 15-11, 15-13	
A6	0.00	unitless	P_{TC}	proportion of trucks operating at crawl speed	
A7	0.00	unitless	E_{TC}	pce's for trucks operating at crawl speed	
A8	31.73	mph	FFS	Free Flow Speed (from Field Measurements at v>200vph)	HCM 2010 Eqn. 15-1
A9	30.00	mph	S_{FM}	mean speed of sample (v>200vph)	
A10	220	vph	v	total demand flow rate	
A11	30.00	mph	BFFS	Base Free Flow Speed (estimated)	
A12	4.80		f_{LS}	adjustment for lane and shoulder width	HCM 2010 Ex. 15-7
A13	4.50		f_A	adjustment for access point density	HCM 2010 Ex. 15-8
A14	20.70	mph	FFS	Free Flow Speed (from estimation)	HCM 2010 Eqn. 15-2
A15	56.00	pch	V_i	demand volume for direction i	
A16	0.92		PHF	Peak Hour factor for direction i	
A17	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A18	61.53	pch	$v_{i,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A19	164.00	pch	V_o	demand volume for direction o	
A20	0.92		PHF	Peak Hour factor for direction o	
A21	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A22	180.19	pch	$v_{o,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A23	3.42		$f_{np,ATS}$	adjustment factor for ATS determination for the % of no-passing zones in the analysis direction	HCM 2010 Ex. 15-15
A24	30.00	mph	FFS	Free flow speed (engineer discretion from above between A8 and A14)	
A25	24.70	mph	ATSd	Average Travel Speed	HCM 2010 Eqn. 15-6
A26	0.82		PFFS	Percent of FFS	HCM 2010 Eqn. 15-11, Used For Road Class III
A27	II			Road Class	HCM 2010 Pg. 15-3
A28	7	%	$BPTSF_d$	Base Percent Time-Spent-Following for direction i	HCM 2010 Eqn. 15-10
A29	-0.0014		a	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A30	0.9730		b	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A31	56	pch	v_d	demand volume for direction I (copied from above)	
A32	19	%	PTSF	Percent of Time Spent Following	HCM 2010 Eqn. 15-9, Used For Road Class II
A33	49.0		$f_{np,PTSF}$	Adjustment to PTSF for the percentage of no-passing zones in direction i	HCM 2010 Ex. 15-21
A34	75%		Dir. Split	Directional Split	HCM 2010 Ex. 15-21
A35	A		LOS	Level of Service (Class II)	HCM 2010 Ex. 15-3
A36	C		LOS	Level of Service (Class III)	HCM 2010 Ex. 15-3

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE CALCULATION
The Fields

Project Number:	1434
Prepared By:	MLE
Date:	2020-06-11
Revised:	

Location: Valley View East of Site Access (East)

Year 2021 Total Traffic - Eastbound PM Peak Hour

Item	Value	Unit	Name	Description	Ref
A1	0.99	unitless	$f_{HV,ATS}$	Heavy Vehicle Adjustment factor for ATS estimation	HCM 2010 Eqn. 15-4
A2	0.02	unitless	P_T	proportion of trucks in the traffic stream (decimal)	
A3	0.00	unitless	P_R	proportion of RVs in the traffic stream (decimal)	
A4	1.60	unitless	E_T	PCE for trucks from Ex 15-11, 15-12	
A5	1.00	unitless	E_R	PCE for RVs from Ex 15-11, 15-13	
A6	0.00	unitless	P_{TC}	proportion of trucks operating at crawl speed	
A7	0.00	unitless	E_{TC}	pce's for trucks operating at crawl speed	
A8	31.73	mph	FFS	Free Flow Speed (from Field Measurements at v>200vph)	HCM 2010 Eqn. 15-1
A9	30.00	mph	S_{FM}	mean speed of sample (v>200vph)	
A10	220	vph	v	total demand flow rate	
A11	30.00	mph	BFFS	Base Free Flow Speed (estimated)	
A12	4.80		f_{LS}	adjustment for lane and shoulder width	HCM 2010 Ex. 15-7
A13	4.50		f_A	adjustment for access point density	HCM 2010 Ex. 15-8
A14	20.70	mph	FFS	Free Flow Speed (from estimation)	HCM 2010 Eqn. 15-2
A15	164.00	pch	V_i	demand volume for direction i	
A16	0.92		PHF	Peak Hour factor for direction i	
A17	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A18	180.19	pch	$v_{i,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A19	56.00	pch	V_o	demand volume for direction o	
A20	0.92		PHF	Peak Hour factor for direction o	
A21	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A22	61.53	pch	$v_{o,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A23	2.40		$f_{np,ATS}$	adjustment factor for ATS determination for the % of no-passing zones in the analysis direction	HCM 2010 Ex. 15-15
A24	30.00	mph	FFS	Free flow speed (engineer discretion from above between A8 and A14)	
A25	25.72	mph	ATSd	Average Travel Speed	HCM 2010 Eqn. 15-6
A26	0.86		PFFS	Percent of FFS	HCM 2010 Eqn. 15-11, Used For Road Class III
A27	II			Road Class	HCM 2010 Pg. 15-3
A28	18	%	$BPTSF_d$	Base Percent Time-Spent-Following for direction i	HCM 2010 Eqn. 15-10
A29	-0.0014		a	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A30	0.9730		b	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A31	164	pch	v_d	demand volume for direction I (copied from above)	
A32	55	%	PTSF	Percent of Time Spent Following	HCM 2010 Eqn. 15-9, Used For Road Class II
A33	49.0		$f_{np,PTSF}$	Adjustment to PTSF for the percentage of no-passing zones in direction i	HCM 2010 Ex. 15-21
A34	25%		Dir. Split	Directional Split	HCM 2010 Ex. 15-21
A35	B		LOS	Level of Service (Class II)	HCM 2010 Ex. 15-3
A36	B		LOS	Level of Service (Class III)	HCM 2010 Ex. 15-3

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE CALCULATION
The Fields

Project Number:	1434
Prepared By:	KJS
Date:	2021-07-02
Revised:	

Location: Valley View East of Site Access (East)

Maximum Capacity Calculation based upon LOS C Threshold
PM Peak Hour

Item	Value	Unit	Name	Description	Ref
A1	0.99	unitless	$f_{HV,ATS}$	Heavy Vehicle Adjustment factor for ATS estimation	HCM 2010 Eqn. 15-4
A2	0.02	unitless	P_T	proportion of trucks in the traffic stream (decimal)	
A3	0.00	unitless	P_R	proportion of RVs in the traffic stream (decimal)	
A4	1.60	unitless	E_T	PCE for trucks from Ex 15-11, 15-12	
A5	1.00	unitless	E_R	PCE for RVs from Ex 15-11, 15-13	
A6	0.00	unitless	P_{TC}	proportion of trucks operating at crawl speed	
A7	0.00	unitless	E_{TC}	pce's for trucks operating at crawl speed	
A8	34.71	mph	FFS	Free Flow Speed (from Field Measurements at v>200vph)	HCM 2010 Eqn. 15-1
A9	30.00	mph	S_{FM}	mean speed of sample (v>200vph)	
A10	600	vph	v	total demand flow rate	
A11	30.00	mph	BFFS	Base Free Flow Speed (estimated)	
A12	4.80		f_{LS}	adjustment for lane and shoulder width	HCM 2010 Ex. 15-7
A13	4.50		f_A	adjustment for access point density	HCM 2010 Ex. 15-8
A14	20.70	mph	FFS	Free Flow Speed (from estimation)	HCM 2010 Eqn. 15-2
A15	300.00	pch	V_i	demand volume for direction i	
A16	0.92		PHF	Peak Hour factor for direction i	
A17	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A18	329.61	pch	$v_{i,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A19	300.00	pch	V_o	demand volume for direction o	
A20	0.92		PHF	Peak Hour factor for direction o	
A21	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A22	329.61	pch	$v_{o,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A23	3.35		$f_{np,ATS}$	adjustment factor for ATS determination for the % of no-passing zones in the analysis direction	HCM 2010 Ex. 15-15
A24	30.00	mph	FFS	Free flow speed (engineer discretion from above between A8 and A14)	
A25	21.53	mph	ATSd	Average Travel Speed	HCM 2010 Eqn. 15-6
A26	0.72		PFFS	Percent of FFS	HCM 2010 Eqn. 15-11, Used For Road Class III
A27	II			Road Class	HCM 2010 Pg. 15-3
A28	33	%	$BPTSF_d$	Base Percent Time-Spent-Following for direction i	HCM 2010 Eqn. 15-10
A29	-0.0018		a	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A30	0.9480		b	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A31	300	pch	v_d	demand volume for direction I (copied from above)	
A32	61	%	PTSF	Percent of Time Spent Following	HCM 2010 Eqn. 15-9, Used For Road Class II
A33	56.8		$f_{np,PTSF}$	Adjustment to PTSF for the percentage of no-passing zones in direction i	HCM 2010 Ex. 15-21
A34	50%		Dir. Split	Directional Split	HCM 2010 Ex. 15-21
A35	C		LOS	Level of Service (Class II)	HCM 2010 Ex. 15-3
A36	D		LOS	Level of Service (Class III)	HCM 2010 Ex. 15-3

HCM 2010 TWO-LANE HIGHWAY
LEVEL OF SERVICE CALCULATION
The Fields

Project Number:	1434
Prepared By:	KJS
Date:	2021-07-02
Revised:	

Location: Valley View East of Site Access (East)

Maximum Capacity Calculation based upon LOS C Threshold
PM Peak Hour

Item	Value	Unit	Name	Description	Ref
A1	0.99	unitless	$f_{HV,ATS}$	Heavy Vehicle Adjustment factor for ATS estimation	HCM 2010 Eqn. 15-4
A2	0.02	unitless	P_T	proportion of trucks in the traffic stream (decimal)	
A3	0.00	unitless	P_R	proportion of RVs in the traffic stream (decimal)	
A4	1.60	unitless	E_T	PCE for trucks from Ex 15-11, 15-12	
A5	1.00	unitless	E_R	PCE for RVs from Ex 15-11, 15-13	
A6	0.00	unitless	P_{TC}	proportion of trucks operating at crawl speed	
A7	0.00	unitless	E_{TC}	pce's for trucks operating at crawl speed	
A8	34.71	mph	FFS	Free Flow Speed (from Field Measurements at v>200vph)	HCM 2010 Eqn. 15-1
A9	30.00	mph	S_{FM}	mean speed of sample (v>200vph)	
A10	600	vph	v	total demand flow rate	
A11	30.00	mph	BFFS	Base Free Flow Speed (estimated)	
A12	4.80		f_{LS}	adjustment for lane and shoulder width	HCM 2010 Ex. 15-7
A13	4.50		f_A	adjustment for access point density	HCM 2010 Ex. 15-8
A14	20.70	mph	FFS	Free Flow Speed (from estimation)	HCM 2010 Eqn. 15-2
A15	300.00	pch	V_i	demand volume for direction i	
A16	0.92		PHF	Peak Hour factor for direction i	
A17	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A18	329.61	pch	$v_{i,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A19	300.00	pch	V_o	demand volume for direction o	
A20	0.92		PHF	Peak Hour factor for direction o	
A21	1.00		$f_{g,ATS}$	grade adjustment factor, from 15-9 or 15-10	
A22	329.61	pch	$v_{o,ATS}$	demand flow rate i for ATS estimation	HCM 2010 Eqn. 15-3
A23	3.35		$f_{np,ATS}$	adjustment factor for ATS determination for the % of no-passing zones in the analysis direction	HCM 2010 Ex. 15-15
A24	30.00	mph	FFS	Free flow speed (engineer discretion from above between A8 and A14)	
A25	21.53	mph	ATSd	Average Travel Speed	HCM 2010 Eqn. 15-6
A26	0.72		PFFS	Percent of FFS	HCM 2010 Eqn. 15-11, Used For Road Class III
A27	II			Road Class	HCM 2010 Pg. 15-3
A28	33	%	$BPTSF_d$	Base Percent Time-Spent-Following for direction i	HCM 2010 Eqn. 15-10
A29	-0.0018		a	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A30	0.9480		b	Opposing Demand Flow Coefficient	HCM 2010 Ex. 15-20
A31	300	pch	v_d	demand volume for direction I (copied from above)	
A32	61	%	PTSF	Percent of Time Spent Following	HCM 2010 Eqn. 15-9, Used For Road Class II
A33	56.8		$f_{np,PTSF}$	Adjustment to PTSF for the percentage of no-passing zones in direction i	HCM 2010 Ex. 15-21
A34	50%		Dir. Split	Directional Split	HCM 2010 Ex. 15-21
A35	C		LOS	Level of Service (Class II)	HCM 2010 Ex. 15-3
A36	D		LOS	Level of Service (Class III)	HCM 2010 Ex. 15-3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	2030	18	18	517	28	11	1	54	48	2	85
Future Volume (Veh/h)	63	2030	18	18	517	28	11	1	54	48	2	85
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.73	0.73	0.73	0.83	0.83	0.83
Hourly flow rate (vph)	70	2256	20	19	544	29	15	1	74	58	2	102
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	573			2276			2707	3007	1128	1850	2998	272
vC1, stage 1 conf vol							2396	2396		582	582	
vC2, stage 2 conf vol							311	611		1268	2416	
vCu, unblocked vol	573			2276			2707	3007	1128	1850	2998	272
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			91			46	98	63	16	94	86
cM capacity (veh/h)	996			220			28	49	198	69	35	726

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	70	1128	1128	20	19	272	272	29	90	60	102
Volume Left	70	0	0	0	19	0	0	0	15	58	0
Volume Right	0	0	0	20	0	0	0	29	74	0	102
cSH	996	1700	1700	1700	220	1700	1700	1700	164	67	726
Volume to Capacity	0.07	0.66	0.66	0.01	0.09	0.16	0.16	0.02	0.55	0.90	0.14
Queue Length 95th (ft)	6	0	0	0	7	0	0	0	70	108	12
Control Delay (s)	8.9	0.0	0.0	0.0	22.9	0.0	0.0	0.0	68.3	184.8	10.8
Lane LOS	A				C				F	F	B
Approach Delay (s)	0.3				0.7				68.3	75.2	
Approach LOS									F	F	

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	651	23	54	2188	78	8	2	35	18	2	89
Future Volume (Veh/h)	74	651	23	54	2188	78	8	2	35	18	2	89
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.73	0.73	0.73	0.83	0.83	0.83
Hourly flow rate (vph)	82	723	26	57	2303	82	11	3	48	22	2	107
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2385			749			2154	3386	362	2944	3330	1152
vC1, stage 1 conf vol							887	887		2417	2417	
vC2, stage 2 conf vol							1266	2499		527	913	
vCu, unblocked vol	2385			749			2154	3386	362	2944	3330	1152
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	59			93			0	26	92	12	95	44
cM capacity (veh/h)	199			856			7	4	635	25	40	191

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	82	362	362	26	57	1152	1152	82	62	24	107
Volume Left	82	0	0	0	57	0	0	0	11	22	0
Volume Right	0	0	0	26	0	0	0	82	48	0	107
cSH	199	1700	1700	1700	856	1700	1700	1700	28	26	191
Volume to Capacity	0.41	0.21	0.21	0.02	0.07	0.68	0.68	0.05	2.23	0.93	0.56
Queue Length 95th (ft)	46	0	0	0	5	0	0	0	185	72	74
Control Delay (s)	35.1	0.0	0.0	0.0	9.5	0.0	0.0	0.0	868.4	372.5	45.4
Lane LOS	E				A				F	F	E
Approach Delay (s)	3.5				0.2				868.4	105.3	
Approach LOS									F	F	

Intersection Summary			
Average Delay	20.5		
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	2129	19	19	542	29	12	1	56	50	2	88
Future Volume (Veh/h)	65	2129	19	19	542	29	12	1	56	50	2	88
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.73	0.73	0.73	0.83	0.83	0.83
Hourly flow rate (vph)	72	2366	21	20	571	31	16	1	77	60	2	106
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	602			2387			2836	3152	1183	1938	3142	286
vC1, stage 1 conf vol							2510	2510		611	611	
vC2, stage 2 conf vol							326	642		1328	2531	
vCu, unblocked vol	602			2387			2836	3152	1183	1938	3142	286
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			90			32	98	58	0	93	85
cM capacity (veh/h)	971			199			23	43	182	56	27	711

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	72	1183	1183	21	20	286	286	31	94	62	106
Volume Left	72	0	0	0	20	0	0	0	16	60	0
Volume Right	0	0	0	21	0	0	0	31	77	0	106
cSH	971	1700	1700	1700	199	1700	1700	1700	136	54	711
Volume to Capacity	0.07	0.70	0.70	0.01	0.10	0.17	0.17	0.02	0.69	1.15	0.15
Queue Length 95th (ft)	6	0	0	0	8	0	0	0	97	134	13
Control Delay (s)	9.0	0.0	0.0	0.0	25.1	0.0	0.0	0.0	87.2	296.8	10.9
Lane LOS	A				D				F	F	B
Approach Delay (s)	0.3				0.8				87.2	116.4	
Approach LOS									F	F	

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	683	24	56	2295	81	8	2	37	19	2	92
Future Volume (Veh/h)	77	683	24	56	2295	81	8	2	37	19	2	92
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.73	0.73	0.73	0.83	0.83	0.83
Hourly flow rate (vph)	86	759	27	59	2416	85	11	3	51	23	2	111
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2501			786			2258	3550	380	3087	3492	1208
vC1, stage 1 conf vol							931	931		2534	2534	
vC2, stage 2 conf vol							1327	2619		553	958	
vCu, unblocked vol	2501			786			2258	3550	380	3087	3492	1208
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	52			93			0	0	92	0	94	37
cM capacity (veh/h)	179			829			5	3	618	20	33	175

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	86	380	380	27	59	1208	1208	85	65	25	111
Volume Left	86	0	0	0	59	0	0	0	11	23	0
Volume Right	0	0	0	27	0	0	0	85	51	0	111
cSH	179	1700	1700	1700	829	1700	1700	1700	19	21	175
Volume to Capacity	0.48	0.22	0.22	0.02	0.07	0.71	0.71	0.05	3.48	1.19	0.63
Queue Length 95th (ft)	58	0	0	0	6	0	0	0	Err	83	90
Control Delay (s)	42.3	0.0	0.0	0.0	9.7	0.0	0.0	0.0	Err	524.2	55.6
Lane LOS	E				A				F	F	F
Approach Delay (s)	4.2				0.2				Err	141.7	
Approach LOS									F	F	

Intersection Summary			
Average Delay	185.4		
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	2129	31	19	559	29	19	1	63	50	2	88
Future Volume (Veh/h)	65	2129	31	19	559	29	19	1	63	50	2	88
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.73	0.73	0.73	0.83	0.83	0.83
Hourly flow rate (vph)	72	2366	34	20	588	31	26	1	86	60	2	106
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	619			2400			2845	3169	1183	1956	3172	294
vC1, stage 1 conf vol							2510	2510		628	628	
vC2, stage 2 conf vol							335	659		1328	2544	
vCu, unblocked vol	619			2400			2845	3169	1183	1956	3172	294
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			90			0	98	53	0	92	85
cM capacity (veh/h)	957			197			23	43	182	50	26	702

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	72	1183	1183	34	20	294	294	31	113	62	106
Volume Left	72	0	0	0	20	0	0	0	26	60	0
Volume Right	0	0	0	34	0	0	0	31	86	0	106
cSH	957	1700	1700	1700	197	1700	1700	1700	85	48	702
Volume to Capacity	0.08	0.70	0.70	0.02	0.10	0.17	0.17	0.02	1.32	1.29	0.15
Queue Length 95th (ft)	6	0	0	0	8	0	0	0	211	144	13
Control Delay (s)	9.1	0.0	0.0	0.0	25.4	0.0	0.0	0.0	294.1	361.8	11.0
Lane LOS	A				D				F	F	B
Approach Delay (s)	0.3				0.8				294.1	140.5	
Approach LOS									F	F	

Intersection Summary			
Average Delay	17.1		
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	683	55	56	2306	81	12	2	41	19	2	92
Future Volume (Veh/h)	77	683	55	56	2306	81	12	2	41	19	2	92
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.73	0.73	0.73	0.83	0.83	0.83
Hourly flow rate (vph)	86	759	61	59	2427	85	16	3	56	23	2	111
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2512			820			2264	3561	380	3098	3537	1214
vC1, stage 1 conf vol							931	931		2545	2545	
vC2, stage 2 conf vol							1332	2630		553	992	
vCu, unblocked vol	2512			820			2264	3561	380	3098	3537	1214
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	52			93			0	0	91	0	94	36
cM capacity (veh/h)	177			805			5	3	618	20	32	174

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	86	380	380	61	59	1214	1214	85	75	25	111
Volume Left	86	0	0	0	59	0	0	0	16	23	0
Volume Right	0	0	0	61	0	0	0	85	56	0	111
cSH	177	1700	1700	1700	805	1700	1700	1700	16	21	174
Volume to Capacity	0.48	0.22	0.22	0.04	0.07	0.71	0.71	0.05	4.73	1.21	0.64
Queue Length 95th (ft)	59	0	0	0	6	0	0	0	Err	84	91
Control Delay (s)	43.0	0.0	0.0	0.0	9.8	0.0	0.0	0.0	Err	540.2	56.6
Lane LOS	E				A				F	F	F
Approach Delay (s)	4.1				0.2				Err	145.5	
Approach LOS									F	F	

Intersection Summary			
Average Delay	209.9		
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	2703	23	23	689	36	14	1	68	62	3	108
Future Volume (Veh/h)	80	2703	23	23	689	36	14	1	68	62	3	108
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.73	0.73	0.73	0.83	0.83	0.83
Hourly flow rate (vph)	89	3003	26	24	725	38	19	1	93	75	4	130
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	763			3029			3594	3992	1502	2453	3980	362
vC1, stage 1 conf vol							3181	3181		773	773	
vC2, stage 2 conf vol							412	811		1680	3207	
vCu, unblocked vol	763			3029			3594	3992	1502	2453	3980	362
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			78			0	95	16	0	0	80
cM capacity (veh/h)	845			110			8	18	111	2	2	634

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	89	1502	1502	26	24	362	362	38	113	79	130
Volume Left	89	0	0	0	24	0	0	0	19	75	0
Volume Right	0	0	0	26	0	0	0	38	93	0	130
cSH	845	1700	1700	1700	110	1700	1700	1700	38	2	634
Volume to Capacity	0.11	0.88	0.88	0.02	0.22	0.21	0.21	0.02	2.97	41.90	0.20
Queue Length 95th (ft)	9	0	0	0	20	0	0	0	318	Err	19
Control Delay (s)	9.8	0.0	0.0	0.0	46.6	0.0	0.0	0.0	1110.1	Err	12.1
Lane LOS	A				E				F	F	B
Approach Delay (s)	0.3				1.4				1110.1	3787.1	
Approach LOS									F	F	

Intersection Summary			
Average Delay	217.4		
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	866	29	68	2913	99	10	3	45	23	3	113
Future Volume (Veh/h)	94	866	29	68	2913	99	10	3	45	23	3	113
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.73	0.73	0.73	0.83	0.83	0.83
Hourly flow rate (vph)	104	962	32	72	3066	104	14	4	62	28	4	136
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	3170			994			2849	4484	481	3901	4412	1533
vC1, stage 1 conf vol							1170	1170		3210	3210	
vC2, stage 2 conf vol							1679	3314		691	1202	
vCu, unblocked vol	3170			994			2849	4484	481	3901	4412	1533
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	0			90			0	0	88	0	0	0
cM capacity (veh/h)	96			692			0	0	531	0	0	105

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	104	481	481	32	72	1533	1533	104	80	32	136
Volume Left	104	0	0	0	72	0	0	0	14	28	0
Volume Right	0	0	0	32	0	0	0	104	62	0	136
cSH	96	1700	1700	1700	692	1700	1700	1700	0	0	105
Volume to Capacity	1.08	0.28	0.28	0.02	0.10	0.90	0.90	0.06	Err	Err	1.29
Queue Length 95th (ft)	168	0	0	0	9	0	0	0	Err	Err	233
Control Delay (s)	195.8	0.0	0.0	0.0	10.8	0.0	0.0	0.0	Err	Err	259.4
Lane LOS	F				B				F	F	F
Approach Delay (s)	18.5				0.2				Err	Err	
Approach LOS									F	F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	100.9%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	2703	35	23	706	36	21	1	75	62	3	108
Future Volume (Veh/h)	80	2703	35	23	706	36	21	1	75	62	3	108
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	2938	38	25	767	39	23	1	82	67	3	117
Pedestrians		2			2			2			2	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	808			2978			3551	3972	1473	2464	3971	388
vC1, stage 1 conf vol							3114	3114		819	819	
vC2, stage 2 conf vol							437	858		1646	3152	
vCu, unblocked vol	808			2978			3551	3972	1473	2464	3971	388
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			78			0	95	29	0	0	81
cM capacity (veh/h)	812			115			9	20	115	3	2	609

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	87	1469	1469	38	25	384	384	39	24	82	70	117
Volume Left	87	0	0	0	25	0	0	0	23	0	67	0
Volume Right	0	0	0	38	0	0	0	39	0	82	0	117
cSH	812	1700	1700	1700	115	1700	1700	1700	9	115	3	609
Volume to Capacity	0.11	0.86	0.86	0.02	0.22	0.23	0.23	0.02	2.62	0.71	21.71	0.19
Queue Length 95th (ft)	9	0	0	0	19	0	0	0	102	96	Err	18
Control Delay (s)	10.0	0.0	0.0	0.0	44.7	0.0	0.0	0.0	1534.7	90.1	Err	12.3
Lane LOS	A				E				F	F	F	B
Approach Delay (s)	0.3				1.3				417.2		3750.6	
Approach LOS									F		F	

Intersection Summary			
Average Delay	178.5		
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	866	60	68	2924	99	14	3	49	23	3	113
Future Volume (Veh/h)	94	866	60	68	2924	99	14	3	49	23	3	113
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	102	941	65	74	3178	108	15	3	53	25	3	123
Pedestrians		2			2			2			2	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	3288			1008			2888	4583	474	4006	4540	1593
vC1, stage 1 conf vol							1147	1147		3328	3328	
vC2, stage 2 conf vol							1740	3436		678	1212	
vCu, unblocked vol	3288			1008			2888	4583	474	4006	4540	1593
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	0			89			0	0	90	0	0	0
cM capacity (veh/h)	86			682			0	0	535	0	0	96

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	102	470	470	65	74	1589	1589	108	18	53	28	123
Volume Left	102	0	0	0	74	0	0	0	15	0	25	0
Volume Right	0	0	0	65	0	0	0	108	0	53	0	123
cSH	86	1700	1700	1700	682	1700	1700	1700	0	535	0	96
Volume to Capacity	1.18	0.28	0.28	0.04	0.11	0.93	0.93	0.06	Err	0.10	Err	1.29
Queue Length 95th (ft)	181	0	0	0	9	0	0	0	Err	8	Err	218
Control Delay (s)	242.9	0.0	0.0	0.0	10.9	0.0	0.0	0.0	Err	12.5	Err	268.0
Lane LOS	F				B				F	B	F	F
Approach Delay (s)	22.4				0.2				Err		Err	
Approach LOS									F		F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	1895	144	7	428	107	43	25	65	449	60	102
Future Volume (vph)	84	1895	144	7	428	107	43	25	65	449	60	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	650		650	600		600	0		100	220		190
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			157			120			123			123
Link Speed (mph)		55			55			25			30	
Link Distance (ft)		921			957			215			300	
Travel Time (s)		11.4			11.9			5.9			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.82	0.82	0.82	0.87	0.87	0.87
Adj. Flow (vph)	91	2060	157	8	481	120	52	30	79	516	69	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	2060	157	8	481	120	52	30	79	516	69	117
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	30.0	30.0	4.0	30.0	30.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	11.0	11.0	11.0	12.0	12.0	12.0
Total Split (s)	21.0	89.0	89.0	21.0	89.0	89.0	19.0	19.0	19.0	31.0	31.0	31.0
Total Split (%)	13.1%	55.6%	55.6%	13.1%	55.6%	55.6%	11.9%	11.9%	11.9%	19.4%	19.4%	19.4%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	3.0	2.0	2.0	3.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	7.5	7.5	8.5	7.5	7.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	11.9	103.9	103.9	7.3	87.0	87.0	9.1	9.1	9.1	26.0	26.0	26.0
Actuated g/C Ratio	0.07	0.65	0.65	0.05	0.54	0.54	0.06	0.06	0.06	0.16	0.16	0.16
v/c Ratio	0.69	0.90	0.14	0.10	0.25	0.13	0.27	0.28	0.38	0.93	0.23	0.33
Control Delay	98.0	30.4	2.3	75.3	20.0	3.2	75.0	78.4	7.1	89.2	60.6	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.0	30.4	2.3	75.3	20.0	3.2	75.0	78.4	7.1	89.2	60.6	10.4
LOS	F	C	A	E	C	A	E	E	A	F	E	B
Approach Delay		31.1			17.4			42.3			73.3	
Approach LOS		C			B			D			E	
Queue Length 50th (ft)	94	838	0	8	137	0	27	31	0	278	64	0
Queue Length 95th (ft)	#173	#1373	35	28	177	31	46	61	0	#361	111	48

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		841			877			135			220	
Turn Bay Length (ft)	650		650	600		600			100	220		190
Base Capacity (vph)	138	2298	1083	138	1923	915	300	163	250	557	302	360
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.90	0.14	0.06	0.25	0.13	0.17	0.18	0.32	0.93	0.23	0.33

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 98.5 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 37.2 Intersection LOS: D
Intersection Capacity Utilization 92.7% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: El Jebel Rd & SH 82

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	461	119	43	1894	404	168	128	18	188	85	201
Future Volume (vph)	127	461	119	43	1894	404	168	128	18	188	85	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	650		650	600		600	0		100	220		190
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			454			123			135
Link Speed (mph)		55			55			25			30	
Link Distance (ft)		921			957			215			300	
Travel Time (s)		11.4			11.9			5.9			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.82	0.82	0.82	0.87	0.87	0.87
Adj. Flow (vph)	138	501	129	48	2128	454	205	156	22	216	98	231
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	501	129	48	2128	454	205	156	22	216	98	231
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	30.0	30.0	4.0	30.0	30.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	11.0	11.0	11.0	12.0	12.0	12.0
Total Split (s)	21.0	89.0	89.0	21.0	89.0	89.0	19.0	19.0	19.0	31.0	31.0	31.0
Total Split (%)	13.1%	55.6%	55.6%	13.1%	55.6%	55.6%	11.9%	11.9%	11.9%	19.4%	19.4%	19.4%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	3.0	2.0	2.0	3.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	7.5	7.5	8.5	7.5	7.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	12.5	93.6	93.6	10.3	88.3	88.3	14.0	14.0	14.0	19.2	19.2	19.2
Actuated g/C Ratio	0.08	0.58	0.58	0.06	0.55	0.55	0.09	0.09	0.09	0.12	0.12	0.12
v/c Ratio	1.00	0.24	0.13	0.42	1.09	0.42	0.68	0.96	0.09	0.52	0.44	0.75
Control Delay	147.8	18.1	3.2	82.7	84.1	2.9	83.2	130.7	0.7	69.8	70.2	42.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	147.8	18.1	3.2	82.7	84.1	2.9	83.2	130.7	0.7	69.8	70.2	42.4
LOS	F	B	A	F	F	A	F	F	A	E	E	D
Approach Delay		38.9			70.0			97.8			58.3	
Approach LOS		D			E			F			E	
Queue Length 50th (ft)	147	135	0	49	~1307	0	109	166	0	111	97	99
Queue Length 95th (ft)	#299	194	35	94	#1497	53	141	#272	0	144	147	180

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		841			877			135			220	
Turn Bay Length (ft)	650		650	600		600			100	220		190
Base Capacity (vph)	138	2069	979	138	1952	1077	300	163	250	557	302	370
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.24	0.13	0.35	1.09	0.42	0.68	0.96	0.09	0.39	0.32	0.62

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 98.5 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 65.5 Intersection LOS: E
Intersection Capacity Utilization 93.2% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: El Jebel Rd & SH 82

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	1988	150	7	445	111	45	26	67	468	62	106
Future Volume (vph)	87	1988	150	7	445	111	45	26	67	468	62	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	650		650	600		600	0		100	220		190
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			163			125			123			123
Link Speed (mph)		55			55			25			30	
Link Distance (ft)		921			957			215			300	
Travel Time (s)		11.4			11.9			5.9			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.82	0.82	0.82	0.87	0.87	0.87
Adj. Flow (vph)	95	2161	163	8	500	125	55	32	82	538	71	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	2161	163	8	500	125	55	32	82	538	71	122
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	30.0	30.0	4.0	30.0	30.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	11.0	11.0	11.0	12.0	12.0	12.0
Total Split (s)	21.0	89.0	89.0	21.0	89.0	89.0	19.0	19.0	19.0	31.0	31.0	31.0
Total Split (%)	13.1%	55.6%	55.6%	13.1%	55.6%	55.6%	11.9%	11.9%	11.9%	19.4%	19.4%	19.4%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	3.0	2.0	2.0	3.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	7.5	7.5	8.5	7.5	7.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	12.0	103.8	103.8	7.3	86.7	86.7	9.3	9.3	9.3	26.0	26.0	26.0
Actuated g/C Ratio	0.08	0.65	0.65	0.05	0.54	0.54	0.06	0.06	0.06	0.16	0.16	0.16
v/c Ratio	0.72	0.94	0.15	0.10	0.26	0.14	0.28	0.30	0.40	0.97	0.24	0.34
Control Delay	100.3	35.1	2.3	75.3	20.3	3.2	75.0	78.6	8.0	96.2	60.7	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.3	35.1	2.3	75.3	20.3	3.2	75.0	78.6	8.0	96.2	60.7	11.4
LOS	F	D	A	E	C	A	E	E	A	F	E	B
Approach Delay		35.5			17.6			43.1			78.6	
Approach LOS		D			B			D			E	
Queue Length 50th (ft)	99	945	0	8	143	0	28	33	0	292	66	0
Queue Length 95th (ft)	#184	#1490	36	28	186	33	48	63	2	#387	113	54

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		841			877			135			220	
Turn Bay Length (ft)	650		650	600		600			100	220		190
Base Capacity (vph)	138	2295	1084	138	1918	915	300	163	250	557	302	360
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.94	0.15	0.06	0.26	0.14	0.18	0.20	0.33	0.97	0.24	0.34

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 98.5 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 40.9 Intersection LOS: D
Intersection Capacity Utilization 95.8% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: El Jebel Rd & SH 82

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	484	124	45	1968	420	174	133	19	195	88	209
Future Volume (vph)	132	484	124	45	1968	420	174	133	19	195	88	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	650		650	600		600	0		100	220		190
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			135			465			123			134
Link Speed (mph)		55			55			25			30	
Link Distance (ft)		921			957			215			300	
Travel Time (s)		11.4			11.9			5.9			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.82	0.82	0.82	0.87	0.87	0.87
Adj. Flow (vph)	143	526	135	51	2211	472	212	162	23	224	101	240
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	526	135	51	2211	472	212	162	23	224	101	240
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	30.0	30.0	4.0	30.0	30.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	11.0	11.0	11.0	12.0	12.0	12.0
Total Split (s)	21.0	89.0	89.0	21.0	89.0	89.0	19.0	19.0	19.0	31.0	31.0	31.0
Total Split (%)	13.1%	55.6%	55.6%	13.1%	55.6%	55.6%	11.9%	11.9%	11.9%	19.4%	19.4%	19.4%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	3.0	2.0	2.0	3.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	7.5	7.5	8.5	7.5	7.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	12.5	92.8	92.8	10.5	87.7	87.7	14.0	14.0	14.0	19.8	19.8	19.8
Actuated g/C Ratio	0.08	0.58	0.58	0.07	0.55	0.55	0.09	0.09	0.09	0.12	0.12	0.12
v/c Ratio	1.04	0.26	0.14	0.44	1.14	0.44	0.71	0.99	0.09	0.53	0.44	0.77
Control Delay	155.1	18.7	3.2	83.3	103.8	3.1	84.5	139.6	0.7	69.4	69.6	45.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	155.1	18.7	3.2	83.3	103.8	3.1	84.5	139.6	0.7	69.4	69.6	45.2
LOS	F	B	A	F	F	A	F	F	A	E	E	D
Approach Delay		40.3			86.1			102.1			59.2	
Approach LOS		D			F			F			E	
Queue Length 50th (ft)	~160	146	0	52	~1415	3	113	173	0	114	100	110
Queue Length 95th (ft)	#310	205	36	99	#1588	57	145	#287	0	148	151	193

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		841			877			135			220	
Turn Bay Length (ft)	650		650	600		600			100	220		190
Base Capacity (vph)	138	2053	975	138	1939	1077	300	163	250	557	302	369
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.26	0.14	0.37	1.14	0.44	0.71	0.99	0.09	0.40	0.33	0.65

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 98.5 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 75.9 Intersection LOS: E
Intersection Capacity Utilization 95.9% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: El Jebel Rd & SH 82

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	1995	150	14	445	111	62	29	77	468	63	106
Future Volume (vph)	87	1995	150	14	445	111	62	29	77	468	63	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	650		650	600		600	0		100	220		190
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			163			125			123			123
Link Speed (mph)		55			55			25			30	
Link Distance (ft)		921			957			215			300	
Travel Time (s)		11.4			11.9			5.9			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.82	0.82	0.82	0.87	0.87	0.87
Adj. Flow (vph)	95	2168	163	16	500	125	76	35	94	538	72	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	2168	163	16	500	125	76	35	94	538	72	122
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	30.0	30.0	4.0	30.0	30.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	11.0	11.0	11.0	12.0	12.0	12.0
Total Split (s)	21.0	89.0	89.0	21.0	89.0	89.0	19.0	19.0	19.0	31.0	31.0	31.0
Total Split (%)	13.1%	55.6%	55.6%	13.1%	55.6%	55.6%	11.9%	11.9%	11.9%	19.4%	19.4%	19.4%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	3.0	2.0	2.0	3.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	7.5	7.5	8.5	7.5	7.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	12.0	99.4	99.4	8.0	86.1	86.1	9.9	9.9	9.9	26.0	26.0	26.0
Actuated g/C Ratio	0.08	0.62	0.62	0.05	0.54	0.54	0.06	0.06	0.06	0.16	0.16	0.16
v/c Ratio	0.72	0.99	0.16	0.18	0.26	0.14	0.36	0.30	0.44	0.97	0.24	0.34
Control Delay	100.3	45.5	2.7	76.9	20.6	3.2	76.2	78.0	10.9	96.2	60.8	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.3	45.5	2.7	76.9	20.6	3.2	76.2	78.0	10.9	96.2	60.8	11.4
LOS	F	D	A	E	C	A	E	E	B	F	E	B
Approach Delay		44.8			18.7			46.6			78.6	
Approach LOS		D			B			D			E	
Queue Length 50th (ft)	99	970	0	16	145	0	40	36	0	292	67	0
Queue Length 95th (ft)	#184	#1518	37	43	187	33	61	67	16	#387	114	54

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		841			877			135			220	
Turn Bay Length (ft)	650		650	600		600			100	220		190
Base Capacity (vph)	138	2199	1045	138	1904	909	300	163	250	557	302	360
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.99	0.16	0.12	0.26	0.14	0.25	0.21	0.38	0.97	0.24	0.34

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 98.5 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 46.9 Intersection LOS: D
Intersection Capacity Utilization 96.0% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: El Jebel Rd & SH 82

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	488	124	62	1968	420	185	135	25	195	91	209
Future Volume (vph)	132	488	124	62	1968	420	185	135	25	195	91	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	650		650	600		600	0		100	220		190
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			135			465			123			148
Link Speed (mph)		55			55			25			30	
Link Distance (ft)		921			957			215			300	
Travel Time (s)		11.4			11.9			5.9			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.82	0.82	0.82	0.87	0.87	0.87
Adj. Flow (vph)	143	530	135	70	2211	472	226	165	30	224	105	240
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	530	135	70	2211	472	226	165	30	224	105	240
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	30.0	30.0	4.0	30.0	30.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	11.0	11.0	11.0	12.0	12.0	12.0
Total Split (s)	21.0	89.0	89.0	21.0	89.0	89.0	29.0	29.0	29.0	21.0	21.0	21.0
Total Split (%)	13.1%	55.6%	55.6%	13.1%	55.6%	55.6%	18.1%	18.1%	18.1%	13.1%	13.1%	13.1%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	3.0	2.0	2.0	3.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	7.5	7.5	8.5	7.5	7.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	12.5	87.3	87.3	11.3	86.1	86.1	20.1	20.1	20.1	15.3	15.3	15.3
Actuated g/C Ratio	0.08	0.55	0.55	0.07	0.54	0.54	0.13	0.13	0.13	0.10	0.10	0.10
v/c Ratio	1.04	0.27	0.15	0.56	1.16	0.44	0.52	0.71	0.10	0.68	0.59	0.84
Control Delay	155.1	20.7	3.3	89.1	113.2	3.2	69.3	83.1	0.6	81.1	83.3	51.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	155.1	20.7	3.3	89.1	113.2	3.2	69.3	83.1	0.6	81.1	83.3	51.9
LOS	F	C	A	F	F	A	E	F	A	F	F	D
Approach Delay		41.6			93.7			69.8			69.2	
Approach LOS		D			F			E			E	
Queue Length 50th (ft)	~160	158	0	72	~1458	3	114	167	0	118	107	97
Queue Length 95th (ft)	#310	206	36	127	#1588	57	142	222	0	160	169	#217

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		841			877			135			220	
Turn Bay Length (ft)	650		650	600		600			100	220		190
Base Capacity (vph)	138	1931	925	138	1904	1066	514	279	342	343	186	291
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.27	0.15	0.51	1.16	0.44	0.44	0.59	0.09	0.65	0.56	0.82

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 98.5 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 79.2 Intersection LOS: E
Intersection Capacity Utilization 96.0% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: El Jebel Rd & SH 82

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	2524	183	9	538	136	55	32	82	571	76	130
Future Volume (vph)	106	2524	183	9	538	136	55	32	82	571	76	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	650		650	600		600	0		100	220		190
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			171			153			123			149
Link Speed (mph)		55			55			25			30	
Link Distance (ft)		921			957			215			300	
Travel Time (s)		11.4			11.9			5.9			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.82	0.82	0.82	0.87	0.87	0.87
Adj. Flow (vph)	115	2743	199	10	604	153	67	39	100	656	87	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	2743	199	10	604	153	67	39	100	656	87	149
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	30.0	30.0	4.0	30.0	30.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	11.0	11.0	11.0	12.0	12.0	12.0
Total Split (s)	21.0	89.0	89.0	21.0	89.0	89.0	19.0	19.0	19.0	31.0	31.0	31.0
Total Split (%)	13.1%	55.6%	55.6%	13.1%	55.6%	55.6%	11.9%	11.9%	11.9%	19.4%	19.4%	19.4%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	3.0	2.0	2.0	3.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	7.5	7.5	8.5	7.5	7.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	12.4	99.8	99.8	7.5	85.7	85.7	9.9	9.9	9.9	26.0	26.0	26.0
Actuated g/C Ratio	0.08	0.62	0.62	0.05	0.54	0.54	0.06	0.06	0.06	0.16	0.16	0.16
v/c Ratio	0.84	1.24	0.19	0.12	0.32	0.17	0.32	0.34	0.47	1.18	0.29	0.39
Control Delay	114.6	141.9	3.8	75.8	21.7	3.1	75.1	79.2	12.8	153.2	61.8	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	114.6	141.9	3.8	75.8	21.7	3.1	75.1	79.2	12.8	153.2	61.8	11.2
LOS	F	F	A	E	C	A	E	E	B	F	E	B
Approach Delay		131.9			18.7			45.6			120.6	
Approach LOS		F			B			D			F	
Queue Length 50th (ft)	121	~1781	9	10	181	0	35	40	0	~421	81	0
Queue Length 95th (ft)	#238	#2150	54	32	231	36	55	73	23	#520	134	58

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		841			877			135			220	
Turn Bay Length (ft)	650		650	600		600			100	220		190
Base Capacity (vph)	138	2207	1051	138	1894	918	300	163	250	557	302	382
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	1.24	0.19	0.07	0.32	0.17	0.22	0.24	0.40	1.18	0.29	0.39

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 98.5 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 108.6 Intersection LOS: F
Intersection Capacity Utilization 113.6% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: El Jebel Rd & SH 82

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	614	151	55	2382	513	213	163	23	239	108	255
Future Volume (vph)	162	614	151	55	2382	513	213	163	23	239	108	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	650		650	600		600	0		100	220		190
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			469			123			129
Link Speed (mph)		55			55			25			30	
Link Distance (ft)		921			957			215			300	
Travel Time (s)		11.4			11.9			5.9			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.82	0.82	0.82	0.87	0.87	0.87
Adj. Flow (vph)	176	667	164	62	2676	576	260	199	28	275	124	293
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	667	164	62	2676	576	260	199	28	275	124	293
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	30.0	30.0	4.0	30.0	30.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	11.0	11.0	11.0	12.0	12.0	12.0
Total Split (s)	21.0	89.0	89.0	21.0	89.0	89.0	19.0	19.0	19.0	31.0	31.0	31.0
Total Split (%)	13.1%	55.6%	55.6%	13.1%	55.6%	55.6%	11.9%	11.9%	11.9%	19.4%	19.4%	19.4%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	3.0	2.0	2.0	3.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	7.5	7.5	8.5	7.5	7.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	12.5	89.2	89.2	11.0	84.4	84.4	14.0	14.0	14.0	23.1	23.1	23.1
Actuated g/C Ratio	0.08	0.56	0.56	0.07	0.53	0.53	0.09	0.09	0.09	0.14	0.14	0.14
v/c Ratio	1.28	0.34	0.17	0.51	1.43	0.55	0.87	1.22	0.11	0.56	0.46	0.86
Control Delay	223.2	21.4	3.1	86.5	229.4	6.6	98.4	199.2	0.9	67.6	67.8	60.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	223.2	21.4	3.1	86.5	229.4	6.6	98.4	199.2	0.9	67.6	67.8	60.9
LOS	F	C	A	F	F	A	F	F	A	E	E	E
Approach Delay		53.7			188.0			134.0			64.8	
Approach LOS		D			F			F			E	
Queue Length 50th (ft)	~232	215	0	63	~2024	58	141	~255	0	137	118	172
Queue Length 95th (ft)	#396	265	39	114	#2098	152	#186	#372	0	178	182	#288

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		841			877			135			220	
Turn Bay Length (ft)	650		650	600		600			100	220		190
Base Capacity (vph)	138	1972	954	138	1866	1056	300	163	250	557	302	365
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.28	0.34	0.17	0.45	1.43	0.55	0.87	1.22	0.11	0.49	0.41	0.80

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 98.5 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.43
Intersection Signal Delay: 143.1 Intersection LOS: F
Intersection Capacity Utilization 111.9% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: El Jebel Rd & SH 82

2: E Valley Rd/El Jebel Rd & SH 82
2045 Total AM.syn

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	2531	183	16	538	136	72	35	92	571	77	130
Future Volume (vph)	106	2531	183	16	538	136	72	35	92	571	77	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	550		550	600		600	300		200	220		190
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			106			148			123			141
Link Speed (mph)		55			55			25			30	
Link Distance (ft)		905			971			677			300	
Travel Time (s)		11.2			12.0			18.5			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	2751	199	17	585	148	78	38	100	621	84	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	2751	199	17	585	148	78	38	100	621	84	141
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	30.0	30.0	4.0	30.0	30.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	11.0	11.0	11.0	12.0	12.0	12.0
Total Split (s)	21.0	89.0	89.0	21.0	89.0	89.0	19.0	19.0	19.0	31.0	31.0	31.0
Total Split (%)	13.1%	55.6%	55.6%	13.1%	55.6%	55.6%	11.9%	11.9%	11.9%	19.4%	19.4%	19.4%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	3.0	2.0	2.0	3.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	7.5	7.5	8.5	7.5	7.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	12.4	96.0	96.0	8.1	85.5	85.5	10.0	10.0	10.0	26.0	26.0	26.0
Actuated g/C Ratio	0.08	0.60	0.60	0.05	0.53	0.53	0.06	0.06	0.06	0.16	0.16	0.16
v/c Ratio	0.84	1.30	0.20	0.19	0.31	0.16	0.36	0.33	0.47	1.11	0.28	0.38
Control Delay	114.6	166.2	8.4	77.1	21.6	3.1	76.1	78.6	12.7	132.7	61.6	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	114.6	166.2	8.4	77.1	21.6	3.1	76.1	78.6	12.7	132.7	61.6	11.3
LOS	F	F	A	E	C	A	E	E	B	F	E	B
Approach Delay		154.1			19.2			47.2			105.4	
Approach LOS		F			B			D			F	
Queue Length 50th (ft)	121	~2001	44	17	175	0	41	39	0	~381	78	0
Queue Length 95th (ft)	#238	#2170	94	45	225	37	69	79	37	#508	135	65

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		825			891			597			220	
Turn Bay Length (ft)	550		550	600		600	300		200	220		190
Base Capacity (vph)	138	2122	992	138	1891	914	300	163	250	557	302	375
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	1.30	0.20	0.12	0.31	0.16	0.26	0.23	0.40	1.11	0.28	0.38

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 98.5 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.30
Intersection Signal Delay: 120.1 Intersection LOS: F
Intersection Capacity Utilization 113.8% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: E Valley Rd/El Jebel Rd & SH 82

2: E Valley Rd/El Jebel Rd & SH 82
2045 Total PM.syn

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	618	151	72	2382	513	224	165	29	239	111	255
Future Volume (vph)	162	618	151	72	2382	513	224	165	29	239	111	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	550		550	600		600	300		200	220		190
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			450			123			142
Link Speed (mph)		55			55			25			30	
Link Distance (ft)		905			971			677			300	
Travel Time (s)		11.2			12.0			18.5			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	672	164	78	2589	558	243	179	32	260	121	277
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	672	164	78	2589	558	243	179	32	260	121	277
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	30.0	30.0	4.0	30.0	30.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.5	37.5	37.5	12.5	37.5	37.5	11.0	11.0	11.0	12.0	12.0	12.0
Total Split (s)	21.0	89.0	89.0	21.0	89.0	89.0	29.0	29.0	29.0	21.0	21.0	21.0
Total Split (%)	13.1%	55.6%	55.6%	13.1%	55.6%	55.6%	18.1%	18.1%	18.1%	13.1%	13.1%	13.1%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	3.0	2.0	2.0	3.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	7.5	7.5	8.5	7.5	7.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	12.5	85.7	85.7	11.5	84.7	84.7	20.8	20.8	20.8	16.0	16.0	16.0
Actuated g/C Ratio	0.08	0.54	0.54	0.07	0.53	0.53	0.13	0.13	0.13	0.10	0.10	0.10
v/c Ratio	1.28	0.35	0.18	0.61	1.38	0.53	0.55	0.74	0.10	0.76	0.65	0.97
Control Delay	223.2	22.5	3.1	92.4	206.8	6.6	69.5	85.2	0.7	84.8	86.3	79.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	223.2	22.5	3.1	92.4	206.8	6.6	69.5	85.2	0.7	84.8	86.3	79.4
LOS	F	C	A	F	F	A	E	F	A	F	F	E
Approach Delay		54.3			169.4			70.8			82.8	
Approach LOS		D			F			E			F	
Queue Length 50th (ft)	~232	215	0	80	~1904	57	123	181	0	139	124	150
Queue Length 95th (ft)	#396	268	39	140	#2036	158	169	267	0	#192	198	#343

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		825			891			597			220	
Turn Bay Length (ft)	550		550	600		600	300		200	220		190
Base Capacity (vph)	138	1896	924	138	1874	1050	514	279	342	343	186	286
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.28	0.35	0.18	0.57	1.38	0.53	0.47	0.64	0.09	0.76	0.65	0.97

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 98.5 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.38
Intersection Signal Delay: 128.6 Intersection LOS: F
Intersection Capacity Utilization 112.0% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: E Valley Rd/El Jebel Rd & SH 82

Intersection: 2: SH 82 & Valley Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	L	T	R
Maximum Queue (ft)	253	136	161	52	112	574	591	157	136	153	151	100
Average Queue (ft)	113	56	66	20	38	393	358	74	57	76	95	7
95th Queue (ft)	219	115	128	46	78	560	548	137	120	137	158	48
Link Distance (ft)		842	842			916	916		136	136	136	
Upstream Blk Time (%)									0	3	6	
Queuing Penalty (veh)									0	2	5	
Storage Bay Dist (ft)	650			650	600			600				75
Storage Blk Time (%)							0				24	
Queuing Penalty (veh)							0				4	

Intersection: 2: SH 82 & Valley Road

Movement	SB	SB	SB
Directions Served	L	L	T
Maximum Queue (ft)	210	245	258
Average Queue (ft)	51	134	56
95th Queue (ft)	162	206	135
Link Distance (ft)			245
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)	220	220	
Storage Blk Time (%)	0	3	
Queuing Penalty (veh)	0	6	

Intersection: 2: SH 82 & Valley Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	L	T	L
Maximum Queue (ft)	132	412	423	54	24	178	124	40	46	46	44	223
Average Queue (ft)	59	273	265	18	6	91	46	17	8	22	13	172
95th Queue (ft)	111	393	403	47	22	159	110	33	28	52	35	219
Link Distance (ft)		842	842			916	916		136	136	136	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	650			650	600			600				220
Storage Blk Time (%)												0
Queuing Penalty (veh)												0

Intersection: 2: SH 82 & Valley Rd

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (ft)	244	279	215
Average Queue (ft)	211	120	7
95th Queue (ft)	250	295	71
Link Distance (ft)		245	
Upstream Blk Time (%)	2	2	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)	220		190
Storage Blk Time (%)	14		
Queuing Penalty (veh)	19		

Movement	EBL	EBR	SBL	SBR	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	68	42	190	20	22	68
Future Volume (Veh/h)	68	42	190	20	22	68
Sign Control	Stop		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.89	0.89	0.90	0.90
Hourly flow rate (vph)	85	53	213	22	24	76
Pedestrians	6		8		8	
Lane Width (ft)	12.0		12.0		12.0	
Walking Speed (ft/s)	4.0		4.0		4.0	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type			None			
Median storage veh)						
Upstream signal (ft)			215			
pX, platoon unblocked						
vC, conflicting volume	528	440	8		440	16
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	528	440	8		440	16
tC, single (s)	7.1	6.5	4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)	3.5	4.0	2.2		4.0	3.3
p0 queue free %	76	88	87		95	93
cM capacity (veh/h)	361	438	1602		438	1049

Direction, Lane #	EB 1	EB 2	SB 1	SB 2	NW 1	NW 2
Volume Total	85	53	213	22	24	76
Volume Left	85	0	213	0	0	0
Volume Right	0	0	0	22	0	76
cSH	361	438	1602	1700	438	1049
Volume to Capacity	0.24	0.12	0.13	0.01	0.05	0.07
Queue Length 95th (ft)	23	10	11	0	4	6
Control Delay (s)	18.0	14.3	7.6	0.0	13.7	8.7
Lane LOS	C	B	A		B	A
Approach Delay (s)	16.6		6.9		9.9	
Approach LOS	C				A	

Intersection Summary			
Average Delay	10.4		
Intersection Capacity Utilization	31.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	SBL	SBR	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	32	61	208	42	87	279
Future Volume (Veh/h)	32	61	208	42	87	279
Sign Control	Stop		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.89	0.89	0.90	0.90
Hourly flow rate (vph)	40	76	234	47	97	310
Pedestrians	6		8		8	
Lane Width (ft)	12.0		12.0		12.0	
Walking Speed (ft/s)	4.0		4.0		4.0	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type			None			
Median storage veh)						
Upstream signal (ft)			215			
pX, platoon unblocked						
vC, conflicting volume	840	482	8		482	16
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	840	482	8		482	16
tC, single (s)	7.1	6.5	4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)	3.5	4.0	2.2		4.0	3.3
p0 queue free %	72	81	85		76	70
cM capacity (veh/h)	143	408	1602		408	1049

Direction, Lane #	EB 1	EB 2	SB 1	SB 2	NW 1	NW 2
Volume Total	40	76	234	47	97	310
Volume Left	40	0	234	0	0	0
Volume Right	0	0	0	47	0	310
cSH	143	408	1602	1700	408	1049
Volume to Capacity	0.28	0.19	0.15	0.03	0.24	0.30
Queue Length 95th (ft)	27	17	13	0	23	31
Control Delay (s)	39.6	15.8	7.6	0.0	16.5	9.9
Lane LOS	E	C	A		C	A
Approach Delay (s)	24.0		6.4		11.5	
Approach LOS	C				B	

Intersection Summary			
Average Delay	11.5		
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	SBL	SBR	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	70	44	198	21	23	70
Future Volume (Veh/h)	70	44	198	21	23	70
Sign Control	Stop		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.89	0.89	0.90	0.90
Hourly flow rate (vph)	88	55	222	24	26	78
Pedestrians	6		8		8	
Lane Width (ft)	12.0		12.0		12.0	
Walking Speed (ft/s)	4.0		4.0		4.0	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type			None			
Median storage veh)						
Upstream signal (ft)			215			
pX, platoon unblocked						
vC, conflicting volume	549	458	8		458	16
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	549	458	8		458	16
tC, single (s)	7.1	6.5	4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)	3.5	4.0	2.2		4.0	3.3
p0 queue free %	75	87	86		94	93
cM capacity (veh/h)	345	425	1602		425	1049

Direction, Lane #	EB 1	EB 2	SB 1	SB 2	NW 1	NW 2
Volume Total	88	55	222	24	26	78
Volume Left	88	0	222	0	0	0
Volume Right	0	0	0	24	0	78
cSH	345	425	1602	1700	425	1049
Volume to Capacity	0.25	0.13	0.14	0.01	0.06	0.07
Queue Length 95th (ft)	25	11	12	0	5	6
Control Delay (s)	19.0	14.7	7.6	0.0	14.0	8.7
Lane LOS	C	B	A		B	A
Approach Delay (s)	17.3		6.9		10.0	
Approach LOS	C				B	

Intersection Summary			
Average Delay	10.6		
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	SBL	SBR	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	34	63	217	44	90	290
Future Volume (Veh/h)	34	63	217	44	90	290
Sign Control	Stop		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.89	0.89	0.90	0.90
Hourly flow rate (vph)	43	79	244	49	100	322
Pedestrians	6		8		8	
Lane Width (ft)	12.0		12.0		12.0	
Walking Speed (ft/s)	4.0		4.0		4.0	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type			None			
Median storage veh)						
Upstream signal (ft)			215			
pX, platoon unblocked						
vC, conflicting volume	874	502	8		502	16
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	874	502	8		502	16
tC, single (s)	7.1	6.5	4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)	3.5	4.0	2.2		4.0	3.3
p0 queue free %	67	80	85		75	69
cM capacity (veh/h)	131	395	1602		395	1049

Direction, Lane #	EB 1	EB 2	SB 1	SB 2	NW 1	NW 2
Volume Total	43	79	244	49	100	322
Volume Left	43	0	244	0	0	0
Volume Right	0	0	0	49	0	322
cSH	131	395	1602	1700	395	1049
Volume to Capacity	0.33	0.20	0.15	0.03	0.25	0.31
Queue Length 95th (ft)	33	18	13	0	25	33
Control Delay (s)	45.3	16.4	7.7	0.0	17.2	9.9
Lane LOS	E	C	A		C	A
Approach Delay (s)	26.6		6.4		11.7	
Approach LOS	D				B	

Intersection Summary			
Average Delay	12.0		
Intersection Capacity Utilization	34.2%	ICU Level of Service	A
Analysis Period (min)	15		

3: E Valley Rd & Valley Rd & El Jebel Rd
2025 Total AM.syn

Movement	EBL	EBR	SBL	SBR	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	100	61	198	29	30	70
Future Volume (Veh/h)	100	61	198	29	30	70
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.89	0.89	0.90	0.90
Hourly flow rate (vph)	125	76	222	33	33	78
Pedestrians	6		8		8	
Lane Width (ft)	12.0		12.0		12.0	
Walking Speed (ft/s)	4.0		4.0		4.0	
Percent Blockage	1		1		1	
Right turn flare (veh)		2				
Median type			None		None	
Median storage veh)						
Upstream signal (ft)			215			
pX, platoon unblocked	0.97	0.97			0.97	
vC, conflicting volume	380	236			228	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	350	202			193	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	79	91			98	
cM capacity (veh/h)	608	807			1337	

Direction, Lane #	EB 1	SB 1	SB 2	NW 1	NW 2
Volume Total	201	222	33	33	78
Volume Left	125	0	0	33	0
Volume Right	76	0	33	0	0
cSH	977	1700	1700	1337	1700
Volume to Capacity	0.21	0.13	0.02	0.02	0.05
Queue Length 95th (ft)	19	0	0	2	0
Control Delay (s)	11.5	0.0	0.0	7.8	0.0
Lane LOS	B			A	
Approach Delay (s)	11.5	0.0		2.3	
Approach LOS	B				

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

3: E Valley Rd & Valley Rd & El Jebel Rd
2025 Total PM.syn

Movement	EBL	EBR	SBL	SBR	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	53	74	217	65	107	290
Future Volume (Veh/h)	53	74	217	65	107	290
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.89	0.89	0.90	0.90
Hourly flow rate (vph)	66	93	244	73	119	322
Pedestrians	6		8		8	
Lane Width (ft)	12.0		12.0		12.0	
Walking Speed (ft/s)	4.0		4.0		4.0	
Percent Blockage	1		1		1	
Right turn flare (veh)		2				
Median type			None		None	
Median storage veh)						
Upstream signal (ft)			215			
pX, platoon unblocked	0.96	0.96			0.96	
vC, conflicting volume	818	258			250	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	787	202			194	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	79	88			91	
cM capacity (veh/h)	310	793			1313	

Direction, Lane #	EB 1	SB 1	SB 2	NW 1	NW 2
Volume Total	159	244	73	119	322
Volume Left	66	0	0	119	0
Volume Right	93	0	73	0	0
cSH	747	1700	1700	1313	1700
Volume to Capacity	0.21	0.14	0.04	0.09	0.19
Queue Length 95th (ft)	20	0	0	7	0
Control Delay (s)	14.1	0.0	0.0	8.0	0.0
Lane LOS	B			A	
Approach Delay (s)	14.1	0.0		2.2	
Approach LOS	B				

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	SBL	SBR	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	86	54	241	26	28	86
Future Volume (Veh/h)	86	54	241	26	28	86
Sign Control	Stop		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.89	0.89	0.90	0.90
Hourly flow rate (vph)	108	68	271	29	31	96
Pedestrians	6		8		8	
Lane Width (ft)	12.0		12.0		12.0	
Walking Speed (ft/s)	4.0		4.0		4.0	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type			None			
Median storage veh)						
Upstream signal (ft)			215			
pX, platoon unblocked						
vC, conflicting volume	668	556	8		556	16
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	668	556	8		556	16
tC, single (s)	7.1	6.5	4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)	3.5	4.0	2.2		4.0	3.3
p0 queue free %	60	81	83		91	91
cM capacity (veh/h)	270	361	1602		361	1049

Direction, Lane #	EB 1	EB 2	SB 1	SB 2	NW 1	NW 2
Volume Total	108	68	271	29	31	96
Volume Left	108	0	271	0	0	0
Volume Right	0	0	0	29	0	96
cSH	270	361	1602	1700	361	1049
Volume to Capacity	0.40	0.19	0.17	0.02	0.09	0.09
Queue Length 95th (ft)	46	17	15	0	7	8
Control Delay (s)	27.0	17.3	7.7	0.0	15.9	8.8
Lane LOS	D	C	A		C	A
Approach Delay (s)	23.2		7.0		10.5	
Approach LOS	C				B	

Intersection Summary			
Average Delay	12.5		
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	SBL	SBR	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	41	77	264	54	110	354
Future Volume (Veh/h)	41	77	264	54	110	354
Sign Control	Stop		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.89	0.89	0.90	0.90
Hourly flow rate (vph)	51	96	297	61	122	393
Pedestrians	6		8		8	
Lane Width (ft)	12.0		12.0		12.0	
Walking Speed (ft/s)	4.0		4.0		4.0	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type			None			
Median storage veh)						
Upstream signal (ft)			215			
pX, platoon unblocked						
vC, conflicting volume	1062	608	8		608	16
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1062	608	8		608	16
tC, single (s)	7.1	6.5	4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)	3.5	4.0	2.2		4.0	3.3
p0 queue free %	33	71	81		63	63
cM capacity (veh/h)	76	330	1602		330	1049

Direction, Lane #	EB 1	EB 2	SB 1	SB 2	NW 1	NW 2
Volume Total	51	96	297	61	122	393
Volume Left	51	0	297	0	0	0
Volume Right	0	0	0	61	0	393
cSH	76	330	1602	1700	330	1049
Volume to Capacity	0.67	0.29	0.19	0.04	0.37	0.37
Queue Length 95th (ft)	77	30	17	0	41	44
Control Delay (s)	118.3	20.3	7.8	0.0	22.1	10.5
Lane LOS	F	C	A		C	B
Approach Delay (s)	54.3		6.4		13.2	
Approach LOS	F				B	

Intersection Summary			
Average Delay	16.8		
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 3: E Valley Rd & Valley Rd

Movement	EB	EB	SB	NW	NW
Directions Served	L	R	L	L	R
Maximum Queue (ft)	70	72	18	17	50
Average Queue (ft)	27	24	1	7	22
95th Queue (ft)	57	57	6	20	41
Link Distance (ft)	211		136	559	559
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		50			
Storage Blk Time (%)	1	0			
Queuing Penalty (veh)	0	0			

Intersection: 3: E Valley Road & Valley Road

Movement	EB	EB	NW	NW
Directions Served	L	R	L	R
Maximum Queue (ft)	104	78	39	177
Average Queue (ft)	15	31	16	56
95th Queue (ft)	51	59	34	113
Link Distance (ft)	211		559	559
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		50		
Storage Blk Time (%)	0	1		
Queuing Penalty (veh)	0	0		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	23	15	19	9	30
Future Volume (Veh/h)	45	23	15	19	9	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	25	16	21	10	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	80	26	43			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	80	26	43			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	98	99			
cM capacity (veh/h)	914	1049	1566			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	74	37	43
Volume Left	49	16	0
Volume Right	25	0	33
cSH	955	1566	1700
Volume to Capacity	0.08	0.01	0.03
Queue Length 95th (ft)	6	1	0
Control Delay (s)	9.1	3.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	3.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	18	34	9	10	69
Future Volume (Veh/h)	37	18	34	9	10	69
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	20	37	10	11	75
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	132	48	86			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	132	48	86			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	98	98			
cM capacity (veh/h)	840	1020	1510			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	60	47	86
Volume Left	40	37	0
Volume Right	20	0	75
cSH	893	1510	1700
Volume to Capacity	0.07	0.02	0.05
Queue Length 95th (ft)	5	2	0
Control Delay (s)	9.3	5.9	0.0
Lane LOS	A	A	
Approach Delay (s)	9.3	5.9	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	47	24	16	20	9	32
Future Volume (Veh/h)	47	24	16	20	9	32
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	51	26	17	22	10	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	84	28	45			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	84	28	45			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	98	99			
cM capacity (veh/h)	908	1048	1563			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	77	39	45
Volume Left	51	17	0
Volume Right	26	0	35
cSH	951	1563	1700
Volume to Capacity	0.08	0.01	0.03
Queue Length 95th (ft)	7	1	0
Control Delay (s)	9.1	3.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	3.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	39	19	36	9	11	71
Future Volume (Veh/h)	39	19	36	9	11	71
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	21	39	10	12	77
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	138	50	89			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	138	50	89			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	98	97			
cM capacity (veh/h)	833	1018	1506			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	63	49	89
Volume Left	42	39	0
Volume Right	21	0	77
cSH	886	1506	1700
Volume to Capacity	0.07	0.03	0.05
Queue Length 95th (ft)	6	2	0
Control Delay (s)	9.4	6.0	0.0
Lane LOS	A	A	
Approach Delay (s)	9.4	6.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	47	24	23	33	21	32
Future Volume (Veh/h)	47	24	23	33	21	32
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	51	26	25	36	23	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	126	40	58			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	126	40	58			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	97	98			
cM capacity (veh/h)	854	1031	1546			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	77	61	58
Volume Left	51	25	0
Volume Right	26	0	35
cSH	907	1546	1700
Volume to Capacity	0.08	0.02	0.03
Queue Length 95th (ft)	7	1	0
Control Delay (s)	9.3	3.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.3	3.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	20.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	39	19	40	18	42	71
Future Volume (Veh/h)	39	19	40	18	42	71
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	21	43	20	46	77
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	190	84	123			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	190	84	123			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	98	97			
cM capacity (veh/h)	775	975	1464			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	63	63	123
Volume Left	42	43	0
Volume Right	21	0	77
cSH	832	1464	1700
Volume to Capacity	0.08	0.03	0.07
Queue Length 95th (ft)	6	2	0
Control Delay (s)	9.7	5.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.7	5.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	19.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	58	29	19	24	12	38
Future Volume (Veh/h)	58	29	19	24	12	38
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	32	21	26	13	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	102	34	54			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	102	34	54			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	97	99			
cM capacity (veh/h)	885	1040	1551			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	95	47	54
Volume Left	63	21	0
Volume Right	32	0	41
cSH	932	1551	1700
Volume to Capacity	0.10	0.01	0.03
Queue Length 95th (ft)	8	1	0
Control Delay (s)	9.3	3.3	0.0
Lane LOS	A	A	
Approach Delay (s)	9.3	3.3	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	47	23	44	12	13	87
Future Volume (Veh/h)	47	23	44	12	13	87
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	51	25	48	13	14	95
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	170	62	109			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	170	62	109			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	98	97			
cM capacity (veh/h)	793	1004	1481			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	76	61	109
Volume Left	51	48	0
Volume Right	25	0	95
cSH	852	1481	1700
Volume to Capacity	0.09	0.03	0.06
Queue Length 95th (ft)	7	3	0
Control Delay (s)	9.6	6.0	0.0
Lane LOS	A	A	
Approach Delay (s)	9.6	6.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	20.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	58	29	26	37	24	38
Future Volume (Veh/h)	58	29	26	37	24	38
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	32	28	40	26	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	122	46	67			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	122	46	67			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	97	98			
cM capacity (veh/h)	844	1013	1533			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	95	41	27	67
Volume Left	63	28	0	0
Volume Right	32	0	0	41
cSH	894	1533	1700	1700
Volume to Capacity	0.11	0.02	0.02	0.04
Queue Length 95th (ft)	9	1	0	0
Control Delay (s)	9.5	5.1	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	9.5	3.1		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	19.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	47	23	48	21	44	87
Future Volume (Veh/h)	47	23	48	21	44	87
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	51	25	52	23	48	95
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	211	96	143			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	211	96	143			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	97	96			
cM capacity (veh/h)	731	942	1437			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	76	60	15	143
Volume Left	51	52	0	0
Volume Right	25	0	0	95
cSH	789	1437	1700	1700
Volume to Capacity	0.10	0.04	0.01	0.08
Queue Length 95th (ft)	8	3	0	0
Control Delay (s)	10.0	6.7	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	10.0	5.3		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	110	17	0	0	0
Future Volume (Veh/h)	0	110	17	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	120	18	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	18				138	18
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	18				138	18
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1599				855	1061

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	120	18	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1599	1700	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	24	121	0	0	0
Future Volume (Veh/h)	0	24	121	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	26	132	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	132				158	132
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	132				158	132
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1453				833	917

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	26	132	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1453	1700	1700
Volume to Capacity	0.00	0.08	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	115	18	0	0	0
Future Volume (Veh/h)	0	115	18	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	125	20	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	20				145	20
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	20				145	20
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1596				847	1058

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	125	20	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1596	1700	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	25	126	0	0	0
Future Volume (Veh/h)	0	25	126	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	27	137	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	137				164	137
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	137				164	137
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1447				827	911

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	27	137	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1447	1700	1700
Volume to Capacity	0.00	0.08	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	10.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	119	18	5	13	20
Future Volume (Veh/h)	8	119	18	5	13	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	129	20	5	14	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	25				170	22
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	25				170	22
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	98
cM capacity (veh/h)	1589				816	1054

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	138	25	36
Volume Left	9	0	14
Volume Right	0	5	22
cSH	1589	1700	947
Volume to Capacity	0.01	0.01	0.04
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.5	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	0.5	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	22.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	35	126	14	9	13
Future Volume (Veh/h)	21	35	126	14	9	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	38	137	15	10	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	152				228	144
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	152				228	144
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				99	98
cM capacity (veh/h)	1429				747	903

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	61	152	24
Volume Left	23	0	10
Volume Right	0	15	14
cSH	1429	1700	831
Volume to Capacity	0.02	0.09	0.03
Queue Length 95th (ft)	1	0	2
Control Delay (s)	2.9	0.0	9.5
Lane LOS	A		A
Approach Delay (s)	2.9	0.0	9.5
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	24.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	140	22	0	0	0
Future Volume (Veh/h)	0	140	22	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	152	24	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	24				176	24
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	24				176	24
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1591				814	1052

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	152	24	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1591	1700	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	10.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	31	154	0	0	0
Future Volume (Veh/h)	0	31	154	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	167	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	167				201	167
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	167				201	167
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1411				788	877

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	34	167	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1411	1700	1700
Volume to Capacity	0.00	0.10	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	11.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	144	22	5	13	20
Future Volume (Veh/h)	8	144	22	5	13	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	157	24	5	14	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	29				202	26
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	29				202	26
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	98
cM capacity (veh/h)	1584				783	1049

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	166	29	36
Volume Left	9	0	14
Volume Right	0	5	22
cSH	1584	1700	926
Volume to Capacity	0.01	0.02	0.04
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.4	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	24.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	41	154	14	9	13
Future Volume (Veh/h)	21	41	154	14	9	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	45	167	15	10	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	182				266	174
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	182				266	174
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				99	98
cM capacity (veh/h)	1393				712	869

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	68	182	24
Volume Left	23	0	10
Volume Right	0	15	14
cSH	1393	1700	796
Volume to Capacity	0.02	0.11	0.03
Queue Length 95th (ft)	1	0	2
Control Delay (s)	2.7	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	2.7	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	25.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	110	17	0	0	0
Future Volume (Veh/h)	0	110	17	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	120	18	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	18				138	18
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	18				138	18
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1599				855	1061

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	120	18	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1599	1700	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	24	121	0	0	0
Future Volume (Veh/h)	0	24	121	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	26	132	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	132				158	132
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	132				158	132
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1453				833	917

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	26	132	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1453	1700	1700
Volume to Capacity	0.00	0.08	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	115	18	0	0	0
Future Volume (Veh/h)	0	115	18	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	125	20	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	20				145	20
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	20				145	20
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1596				847	1058

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	125	20	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1596	1700	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	25	126	0	0	0
Future Volume (Veh/h)	0	25	126	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	27	137	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	137				164	137
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	137				164	137
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1447				827	911

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	27	137	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1447	1700	1700
Volume to Capacity	0.00	0.08	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	10.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	128	23	9	34	0
Future Volume (Veh/h)	4	128	23	9	34	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	139	25	10	37	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	35				177	30
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	35				177	30
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				95	100
cM capacity (veh/h)	1576				811	1044

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	143	35	37
Volume Left	4	0	37
Volume Right	0	10	0
cSH	1576	1700	811
Volume to Capacity	0.00	0.02	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.2	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	0.2	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	34	140	24	22	0
Future Volume (Veh/h)	10	34	140	24	22	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	37	152	26	24	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	178				224	165
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	178				224	165
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	100
cM capacity (veh/h)	1398				758	879

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	48	178	24
Volume Left	11	0	24
Volume Right	0	26	0
cSH	1398	1700	758
Volume to Capacity	0.01	0.10	0.03
Queue Length 95th (ft)	1	0	2
Control Delay (s)	1.8	0.0	9.9
Lane LOS	A		A
Approach Delay (s)	1.8	0.0	9.9
Approach LOS			A

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	140	22	0	0	0
Future Volume (Veh/h)	0	140	22	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	152	24	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	24				176	24
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	24				176	24
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1591				814	1052

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	152	24	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1591	1700	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	10.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	31	154	0	0	0
Future Volume (Veh/h)	0	31	154	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	167	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	167				201	167
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	167				201	167
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1411				788	877

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	34	167	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1411	1700	1700
Volume to Capacity	0.00	0.10	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	11.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	153	27	9	34	0
Future Volume (Veh/h)	4	153	27	9	34	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	166	29	10	37	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	39				208	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	39				208	34
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				95	100
cM capacity (veh/h)	1571				778	1039

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	170	39	37
Volume Left	4	0	37
Volume Right	0	10	0
cSH	1571	1700	778
Volume to Capacity	0.00	0.02	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.2	0.0	9.9
Lane LOS	A		A
Approach Delay (s)	0.2	0.0	9.9
Approach LOS			A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	21.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	40	168	24	22	0
Future Volume (Veh/h)	10	40	168	24	22	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	43	183	26	24	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	209				261	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	209				261	196
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	100
cM capacity (veh/h)	1362				722	845

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	54	209	24
Volume Left	11	0	24
Volume Right	0	26	0
cSH	1362	1700	722
Volume to Capacity	0.01	0.12	0.03
Queue Length 95th (ft)	1	0	3
Control Delay (s)	1.6	0.0	10.2
Lane LOS	A		B
Approach Delay (s)	1.6	0.0	10.2
Approach LOS			B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	187	1	11	69	4	33
Future Volume (Veh/h)	187	1	11	69	4	33
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	203	1	12	75	4	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			204		302	204
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			204		302	204
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	96
cM capacity (veh/h)			1368		683	837

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	204	87	40
Volume Left	0	12	4
Volume Right	1	0	36
cSH	1700	1368	819
Volume to Capacity	0.12	0.01	0.05
Queue Length 95th (ft)	0	1	4
Control Delay (s)	0.0	1.1	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	1.1	9.6
Approach LOS			A

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	148	4	38	202	2	21
Future Volume (Veh/h)	148	4	38	202	2	21
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	161	4	41	220	2	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			165		465	163
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			165		465	163
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	97
cM capacity (veh/h)			1413		540	882

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	165	261	25
Volume Left	0	41	2
Volume Right	4	0	23
cSH	1700	1413	839
Volume to Capacity	0.10	0.03	0.03
Queue Length 95th (ft)	0	2	2
Control Delay (s)	0.0	1.4	9.4
Lane LOS		A	A
Approach Delay (s)	0.0	1.4	9.4
Approach LOS			A

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	231	45	36	53	146	74
Future Volume (Veh/h)	231	45	36	53	146	74
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	251	49	39	58	159	80
Pedestrians	2				2	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)	677					
pX, platoon unblocked						
vC, conflicting volume	0		553	2	526	504
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		553	2	526	504
tC, single (s)	4.1		6.5	6.2	7.1	6.5
tC, 2 stage (s)						
tF (s)	2.2		4.0	3.3	3.5	4.0
p0 queue free %	85		90	95	55	80
cM capacity (veh/h)	1623		372	1080	354	397

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2
Volume Total	251	49	39	58	159	80
Volume Left	251	0	0	0	159	0
Volume Right	0	49	0	58	0	0
cSH	1623	1700	372	1080	354	397
Volume to Capacity	0.15	0.03	0.10	0.05	0.45	0.20
Queue Length 95th (ft)	14	0	9	4	56	19
Control Delay (s)	7.6	0.0	15.8	8.5	23.2	16.3
Lane LOS	A		C	A	C	C
Approach Delay (s)	6.4		11.4		20.9	
Approach LOS			B		C	

Intersection Summary			
Average Delay	12.6		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	221	113	131	333	74	95
Future Volume (Veh/h)	221	113	131	333	74	95
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	240	123	142	362	80	103
Pedestrians	2				2	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)	677					
pX, platoon unblocked						
vC, conflicting volume	0		605	2	555	482
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		605	2	555	482
tC, single (s)	4.1		6.5	6.2	7.1	6.5
tC, 2 stage (s)						
tF (s)	2.2		4.0	3.3	3.5	4.0
p0 queue free %	85		59	66	55	75
cM capacity (veh/h)	1623		350	1080	179	412

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2
Volume Total	240	123	142	362	80	103
Volume Left	240	0	0	0	80	0
Volume Right	0	123	0	362	0	0
cSH	1623	1700	350	1080	179	412
Volume to Capacity	0.15	0.07	0.41	0.34	0.45	0.25
Queue Length 95th (ft)	13	0	48	37	52	24
Control Delay (s)	7.6	0.0	22.1	10.0	40.3	16.6
Lane LOS	A		C	B	E	C
Approach Delay (s)	5.0		13.4		27.0	
Approach LOS			B		D	

Intersection Summary			
Average Delay	12.9		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix M

Geologic Hazard Evaluation & Geotechnical Investigation

CTL | THOMPSON INCORPORATED

GEOLOGIC HAZARD EVALUATION AND PRELIMINARY GEOTECHNICAL INVESTIGATION THE FIELDS SUBDIVISION 554 VALLEY ROAD (A.K.A. LOT 5, ARLIAN RANCH SUBDIVISION) EAGLE COUNTY, COLORADO

Prepared For:

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Project No. GS06454.000-115

May 20, 2020

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SCOPE

This report presents the results of our geologic hazard evaluation and preliminary geotechnical investigation for the Fields Subdivision proposed on an approximately 19.4-acre parcel currently addressed as 554 Valley Road in Eagle County, Colorado. Our geologic evaluation was intended to identify geologic conditions at the site and judge the possible influence on the proposed development, as well as preliminary mitigation concepts. Our preliminary geotechnical investigation involved subsurface investigation and engineering analysis to provide an overview of geotechnical considerations associated with the anticipated development and construction at the site. The scope of our services was set forth in our Proposal No. GS 20-0135.

The criteria presented in this report are intended for planning purposes only and not for design of specific structures. A design-level geotechnical engineering investigation should be performed to develop recommendations for the buildings after site grading and building construction plans are further developed. Additional subsurface investigation may be required at specific building locations (after overlot grading) as part of the design-level geotechnical engineering investigation. A summary of our conclusions is below.

SUMMARY OF CONCLUSIONS

1. We did not observe any geologic conditions or geologic hazards that would preclude development of this site for the intended usage. Our geologic study identified ground subsidence (i.e., sinkholes) as a potential geologic hazard at the site. With the available information, we rate the risk as low.

2. Subsurface conditions encountered in our exploratory pits excavated across the site consisted of about 12 inches of sandy clay "topsoil" over nil to 2 feet of natural sandy clay underlain by clean to silty gravel with cobbles and boulders to the maximum explored depth of 10 feet. Free ground water was not encountered in our exploratory pits at the time of our subsurface investigation.

3. Our initial recommended pavement section alternatives for the project include 4 inches of asphalt concrete over 8 inches of aggregate base course in roads and parking areas and 6 inches of Portland cement concrete at entrances and dumpster pads. Guidelines for construction and maintenance of pavements are in the report.

4. The natural, gravel and cobble soil at the site possesses good support properties for footings. Based on our preliminary information, the footings should generally be supported on the undisturbed, natural gravel and cobbles at this site. Depth to gravel and cobbles will vary across the site and will be affected by overlot grading.

5. The natural, gravel and cobble soil at the site possesses good support properties for slab construction. Actual subsurface conditions, including the depth to cobble and gravel, below each building will vary, depending on site grading. Some removal and recompaction/replacement could be required below slabs where unsuitable fill or natural soils are encountered.

SITE DESCRIPTION

The Fields Subdivision is proposed on an approximately 19.4-acre parcel currently addressed as 554 Valley Road (a.k.a. Lot 5, Arlian Ranch Subdivision) in Eagle County, Colorado. A vicinity map with the location of the site is shown on Figure 1. The property is bounded on the north by State Highway 82. A residential development is east of the subject parcel. Land to the west of the site is a mix of residential and agriculture. The Roaring Fork River flows from east to west about 450 feet south of the Fields property. Water level in the river generally appears to be about 30 feet below the average ground surface elevation on the subject site.

An aerial photograph of the site is included as Figure 2. Irrigation ditches trend along the south and north property boundaries and cross the southwest and northeast corners of the site. Existing residences, cabins, barns, sheds, and storage buildings are on the central part of the property. An old potato cellar is in the northeast corner of the site. Ground surface across the site generally slopes down

to the northwest at grades less than 5 percent. Total elevation change across the site is about 20 feet. Most of the subject property is hayfield that was historically flood-irrigated by water from Arlian Ditch Nos. 1 and 2. Numerous irrigation laterals cross the hayfield areas. Mature trees are along, Valley Road, the driveway and residential buildings on the site. Several inches of snow covered the ground surface at the time of our subsurface investigation. A photograph of the site at the time of our exploratory pit excavation is below.

Looking south across the site from the northeast corner of the property

PROPOSED DEVELOPMENT

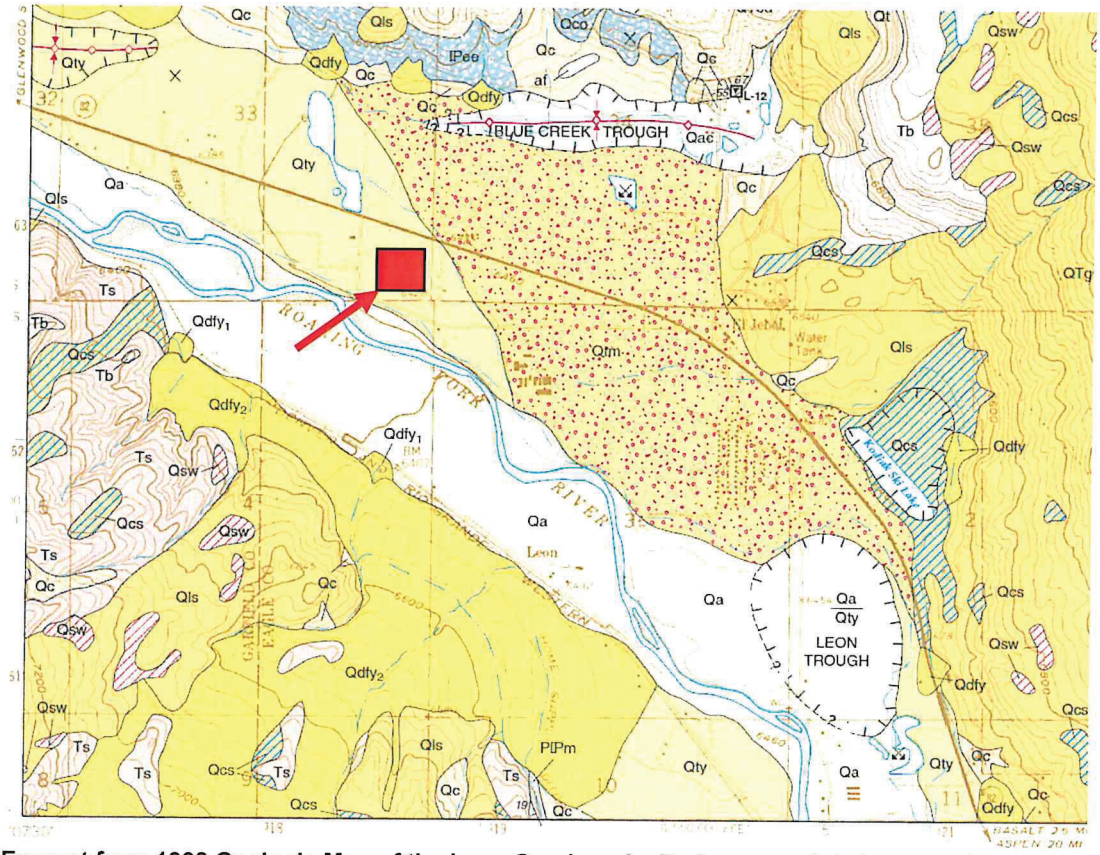
Construction plans for the Fields Subdivision project were not developed at the time of our geologic evaluation and preliminary geotechnical investigation. We understand a mix of single-family and multi-family residential construction is contemplated. A conceptual development program provided to us (dated March 25, 2020) indicates construction may consist of about 20 single-family residences, 10 to 27 multi-family, townhome buildings, and 7 or 8 multi-family, apartment-type buildings. An 8,000-15,000 square foot multi-purpose pavilion structure is also being considered. A design-level, geotechnical investigation will be required for the build-

ings after construction plans are further developed.

We expect that development of the subdivision will include deconstruction of most of the existing buildings on the property. Overall site grading will likely involve cut depths and fill thickness of less than 5 feet. Development will require construction of paved access roads, as well as paved parking areas. Civil engineering plans for the roads were being developed at the time of our preliminary geotechnical engineering investigation. Underground utilities are likely to be installed below the roads. We should be provided with grading plans, when available, so we can provide geotechnical engineering input.

GEOLOGIC CONDITIONS

As part of our geotechnical engineering investigation, we reviewed the geologic map by the Colorado Geology Survey (CGS), titled, "Geologic Map of the Leon Quadrangle, Eagle and Garfield Counties, Colorado", by Kirkham, Widmann and Streufert (dated 1998). An excerpt from the Geologic Map is shown below.



Excerpt from 1998 Geologic Map of the Leon Quadrangle. Red arrow points to approximate site location on an intermediate gravel alluvial terrace (Qty). Note mapped subsidence features (Leon Trough, etc) are about a mile east and west of the site. Permian age Eagle Valley Evaporite is known to outcrop at the ground surface on the hills north of the Roaring Fork River.

The overburden soils at the site are mapped as intermediate terrace alluvium deposits of the late Pleistocene Epoch. The deposits are described as mostly poorly-sorted, clast-supported, boulder, pebble and cobble gravel in a sand and silt matrix deposited as glacial outwash. The natural gravel and cobble soil found in our exploratory pits is consistent with the geologic description. The soils are underlain at unknown depth by bedrock of the Pennsylvanian-Permian age Maroon, Eagle Valley and/or Eagle Valley Evaporite formations. The closest outcrops on the hillsides to the north are Eagle Valley Evaporite, while most of the Paleozoic sediments are covered by Tertiary and Quaternary deposits on the hillsides south of the river. Since the site is between two recognized subsidence features, without better information it is reasonable to assume the subject site is underlain by the Eagle Valley

Evaporite. CTL/Thompson, Inc. is currently evaluating reasonable methods (e.g. exploratory drilling, geophysical studies) to obtain additional information about the depth of overburden soils and potentially the bedrock below the site.

The Eagle Valley Evaporite is the only one of the formations referenced above that is known to be susceptible to sinkhole formation. Eagle Valley Evaporite is a sequence of evaporite rocks (salts) consisting of gypsum, anhydrite, halite and sylvite interbedded with thin siltstone, sandstone and carbonate beds. Due to tectonic stresses and overburden pressures, these rocks have undergone plastic deformation resulting in highly contorted and "swirled" bedding. The evaporite minerals are susceptible to the formation of solution cavities by circulating ground water resulting in the collapse of overburden soils and subsequent surface subsidence.

GEOLOGIC HAZARDS

We reviewed the CGS map "Collapsible Soils and Evaporite Karst Hazard Map of the Roaring Fork Valley, Garfield, Pitkin and Eagle Counties", by Jonathan L. White (dated 2002). CGS has mapped a few additional sinkhole, subsidence, and soil collapse features in areas near the subject site.

Surface subsidence in the geologic environment in the area of the site is usually due to solution cavities that form in the underlying Eagle Valley Evaporite bedrock. The evaporite minerals in the bedrock formation are dissolved and removed by circulating groundwater. Most of the groundwater flow in the area of this site is subflow in the alluvium and tributary to the Roaring Fork River. Surface water percolates into the permeable alluvial terrace gravel and mixes with groundwater flow through the bedrock, ultimately forming solution cavities in the Eagle Valley Evaporite. Overburden soils collapse into the solution cavities. When caving propagates to the

ground surface, ground subsidence and/or sinkholes appear or become deeper.

Formation of sinkholes is random and can occur anywhere and at any time in the geologic environment at this site. The degree of risk related to sinkholes cannot reasonably be quantified. CTL/Thompson, Inc. has reviewed geologic mapping and multiple studies related to subsidence risk at the site. As stated in a previous letter for the nearby Tree Farm development (Project No. GS05424-145; dated April 25, 2013), we opined that the risk of subsidence at the Tree Farm site is low, in part because subsidence probably occurred in the last 1 to 2 million years and formed the mapped closed depressions along the river. Although we observed no evidence of subsidence on the subject parcel, more knowledge of the depth to bedrock and its character would allow us to provide a more definitive risk assessment of the Fields Subdivision site. CTL/Thompson, Inc. has been authorized by the client to perform electrical resistivity testing at the site that may help us determine reasonable geotechnical and/or geophysical methods to obtain information about the bedrock below the site.

Other than the potential for ground subsidence (i.e., sinkholes), we observed no geologic conditions or hazards that would preclude development of the site for the intended use. We judge the risk of subsidence and/or sinkholes is similar to and no greater than the risk at other nearby developments (e.g., Willits, Tree Farm).

The site is located in the Western Mountain Seismotectonic Province. We believe faults in the area can be grouped into two general types. One type of fault is related to the large-scale continental tectonic environment. These faults penetrate deep into the earth's crust and are on the order of 30 million years old and older. These faults are essentially dormant and unlikely to cause earthquakes. A second type of fault is related to ongoing wasting of the deep, soluble Eagle Valley Evaporite. We believe some of these faults are active and likely caused most of the historic

earthquakes in the area.

One historic earthquake centered in the Glenwood Springs area northwest of the site exhibited Modified Mercalli Intensity of V. A second earthquake with its epicenter located between Glenwood Springs and Cattle Creek had a magnitude in the range of 4.0 to 4.9. Several earthquakes have occurred with epicenters located in the Thompson Creek area south of Carbondale with magnitudes of up to 4.9. In our opinion, ground accelerations associated with an earthquake intensity of VI can be expected at this site. An intensity VI earthquake would be felt by all and may result in cracking of weak masonry structures but would cause negligible damage to structures of good design and construction.

The region is in the Uniform Building Code, Seismic Risk Zone 1, however, the Colorado Geologic Survey recommends considering all of Colorado except the northeast corner of the state to be in a Seismic Risk Zone 2. The potential is low for an earthquake of sufficient intensity to occur that causes significant damage to structures at the site during an assumed design serviceability of about 100 years. Structures in the development should be designed to withstand moderately strong ground shaking with little or no damage. We recommend anticipating horizontal ground accelerations on the order of 0.035G to 0.07G in the design of structures to be built at this site. Wind loads typically govern structural design for dynamic loads in this area. These criteria should be considered during a subsequent design-level geotechnical investigation for the buildings.

SUBSURFACE CONDITIONS

For our preliminary geotechnical engineering investigation, subsurface conditions across the site were investigated by excavating nine exploratory pits (TP-1

through TP-9) at the approximate locations shown on Figure 1. CTL/Thompson, Inc chose these locations to develop a reasonably comprehensive understanding of the surface conditions below the site. Our representative directed excavation and made observations of the pits, which were excavated with a backhoe and a trackhoe provided by the client. Our representative logged the soils encountered in the pits and obtained representative samples. Samples obtained from our pits were returned to our laboratory where they were visually classified and typical samples selected for testing. Graphic logs of the soils encountered in our exploratory pits are presented on Figure 3.

Subsurface conditions encountered in our exploratory pits generally consisted of about 12 inches of sandy clay "topsoil" over nil to 2 feet of natural sandy clay underlain by clean to silty gravel with cobbles and boulders to the maximum explored depth of 10 feet. Free ground water was not encountered in our exploratory pits. The pits were backfilled immediately after exploratory excavation was completed.

Soils exposed during excavation of TP-8

We performed gradation analysis on nine samples of the gravel and cobble soils obtained from our exploratory pits. Results indicated 52 to 73 percent gravel,

23 to 40 percent sand, and 4 to 17 percent silt and clay (passing the No. 200 sieve). The ASTM standardized test method used to analyze gradation excludes rocks larger than 5-inches in diameter, which are present in the in-situ soils. Our observations during exploratory excavation and experience at nearby sites indicate that a large percentage of the soils are cobbles and boulders larger than reflected in the gradation analyses results. Our laboratory test results are included as Appendix A.

SITE EARTHWORK

Overlot Grading

Site grading plans for the project were not developed at the time of our preliminary geotechnical engineering investigation. We anticipate overlot grading will involve cut depths and fill thickness of less than 5 feet. Areas that will receive fill should be stripped of vegetation and organic soils. Stripping depths of at least 12 inches should be expected across most of the site. Existing buildings, structures, and utilities that will be deconstructed should be completely removed. Irrigation ditch laterals that will be abandoned should be graded and filled to ensure that seepage flow does not occur.

After stripping is accomplished, the resulting ground surface in areas that will receive fill should be scarified to a depth of at least 6 inches, moisture-treated and compacted. Soft areas should be reworked or otherwise stabilized prior to placing fill. The on-site soils are suitable for reuse as overlot fill, provided organics, debris and rocks larger than 6 inches in diameter are removed. Grading fill should be placed in maximum 10-inch thick lifts, moisture-conditioned to within 2 percent of optimum moisture content, and compacted to at least 95 percent of standard Proctor (ASTM D 698) maximum dry density. Placement and compaction of fill should be

observed and tested during construction.

We expect excavations in the soils at this site can be made with conventional, heavy-duty excavation equipment. Most excavations in the planned development can likely be laid back to stable configurations without significant excavation retention systems. Excavation within close proximity of property boundaries may require retainage. Potential excavation retention systems can be evaluated when construction plans are further developed.

Excavations

Plans for building and utility construction were not developed at the time of our investigation. We expect construction will involve maximum excavation depths of less than 10 feet. Sides of foundation excavations and utility trenches should be sloped or shored to meet local, State and Federal safety regulations. The natural soils at this site will predominantly classify as Type C soils based on OSHA standards. From a "trench safety" standpoint, excavation faces in Type C soils should be no steeper than 1.5 to 1 (horizontal to vertical) based on OSHA requirements. Contractors are responsible for identifying specific soils encountered in excavations and referring to OSHA standards to determine appropriate slopes.

Groundwater was not found in our exploratory pits. We do not expect excavations to the anticipated depths (10 feet of less) at the site will penetrate a free groundwater table. Water from precipitation can be removed by sloping excavations to gravity discharges or temporary sumps where water can be removed by pumping.

Utility Trench Backfill

We expect underground utilities will be constructed below many areas of

paved roads and parking areas. Compaction of utility trench backfill will have a significant effect on the life and serviceability of overlying pavements. Improper compaction of trench backfill can cause excessive consolidation settlement of backfill soils, leading to potentially severe pavement deformity. The on-site soils free of rocks larger than 6 inches in diameter, organics, and debris can be used as utility trench backfill.

Trench backfill should be placed in loose lifts of 10 inches thick or less, moisture-conditioned to within 2 percent of optimum moisture content and compacted to at least 95 percent of standard Proctor (ASTM D698) maximum dry density. Special care is needed for backfill adjacent to manholes and vertical riser pipes. The placement and compaction of backfill should be observed and tested by our firm during construction.

Pavement Subgrade

Grading plans for roads and parking areas were not available at the time of our investigation. Variable pavement subgrade conditions, including gravel and cobbles, sandy clay, and overlot fill, will likely be encountered. We recommend that subgrade soils be proof-rolled with a heavy, pneumatic-tire vehicle prior to placing aggregate base course or pavements. Our representative should observe proof-rolling to identify soft or yielding areas. If identified, the subgrade soils in these areas should be stabilized or removed and recompacted/replaced on a case-by-case basis.

PAVEMENTS

Our subsurface information indicates the pavement subgrade soils will predominantly consist of natural, sandy clay. Overlot grading fill will likely be present at some locations. We expect these soils will generally classify as A-4 or

A-6 based on the AASHTO classification system. We estimated an R-value of 5 for these subgrade soils. Traffic numbers were not developed at the time of our investigation. As such, we utilized an Equivalent Single Axle Load (ESAL) of 73,000 for our pavement design. We should be provided with site grading plans and traffic estimates, when available, so we can check our pavement design calculations and recommendations. Based on our current information, we recommend the minimum pavement sections summarized on the Table 1 below.

Table 1
Recommended Minimum Pavement Section Alternatives

Pavement Area	Asphalt Concrete + Aggregate Base Course (AC + ABC)	Portland Cement Concrete (PCC)
Local Streets	4.0" AC + 8.0" ABC	6.0" PCC

Our experience indicates problems with asphalt pavements can occur in areas where heavy trucks drive and turn at low speeds. In areas of concentrated loading and turning movements by heavy trucks, such as entrances and dumpster pads, we recommend a rigid pavement system consisting of Portland cement concrete pavement that is at least 6-inch thick.

The performance of a pavement system is as much a function of the quality of the paving materials and construction as the support characteristics of the subgrade. If the pavement system is constructed of inferior material, then the life and serviceability of the pavement will be substantially reduced. We have included construction guidelines for flexible and rigid pavements in Appendix B.

Routine maintenance, such as sealing and repair of cracks and overlays at 5 to 7-year intervals, are necessary to achieve long-term performance of an

asphalt system. We recommend application of a rejuvenating sealant such as fog seal after the first year. Deferring maintenance usually results in accelerated deterioration leading to higher future maintenance costs. Guideline maintenance recommendations for flexible and rigid pavements are presented in Appendix C.

We recommend concrete contain a minimum of 610 pounds of cement per cubic yard and between 5 and 7 percent entrained air. A mix design should be prepared for this project using the aggregate and cement that will be used during construction. CTL/Thompson, Inc. can provide a concrete mix design, if requested. Control joints should separate concrete pavements into panels as recommended by ACI. No de-icing salts should be used on paving concrete for at least one year after placement.

A primary cause of early pavement deterioration is water infiltration into the pavement system. The addition of moisture usually results in softening of aggregate base course and subgrade soils and the eventual failure of the pavement. We recommend drainage be designed for rapid removal of surface runoff from pavement surfaces. Final grading should be carefully controlled so that design cross-slope is maintained and low spots in the subgrade, which could trap water are eliminated. Portland cement concrete drainage pans should be considered in areas where water will be flowing across pavement surfaces.

ANTICIPATED FOUNDATIONS

We judge footing foundations will be appropriate for the buildings. The natural gravel and cobble soil at the site possesses good support properties for footings. Based on our preliminary information, the footings should generally be supported on the undisturbed, natural gravel and cobbles at this site. Depth to gravel and cobbles

will vary across the site and will be affected by overlot grading. Some removal of unsuitable fill or natural soils could be required below footings for some buildings.

Recommendations for footings will need to be developed for each building after site grading and building construction plans are developed. Additional subsurface investigation may be required at specific building locations (after overlot grading) as part of the design-level geotechnical engineering investigation.

SLAB-ON-GRADE CONSTRUCTION

We expect the client will desire slab-on-grade floors for the ground level floors in many of the buildings. Exterior concrete flatwork, such as driveways, patios, and sidewalks are likely to be constructed adjacent to the buildings. The natural, gravel and cobble soil at the site possesses good support properties for slab construction. Actual subsurface conditions, including the depth to cobble and gravel, below each building will vary, depending on site grading. Some removal and recompaction/replacement could be required below slabs where unsuitable fill or natural soils are encountered.

In general, we expect slab-on-grade construction will perform well at this site, provided proper design and construction methods are utilized. Recommendations for slab-on-grade construction will need to be developed for each building after site grading and building construction plans are developed. Additional subsurface investigation may be required at specific building locations (after overlot grading) as part of the design-level geotechnical engineering investigation.

SUBSURFACE DRAINAGE

Water from rain, snow melt and surface irrigation frequently flows through

relatively permeable backfill soils placed adjacent to building foundations and collects on the surface of less permeable soils occurring at the bottom of the foundation excavation. This can cause wetting of foundation soils, hydrostatic pressures on below-grade walls, and wet or moist conditions in below-grade areas, such as basements and crawl spaces, after construction.

To mitigate problems associated with infiltration of water in backfill soils adjacent to the buildings, foundation drain systems will be required adjacent to below-grade areas in the buildings. We expect the drain systems at this site can be limited to exterior foundation drain around basement and crawl space areas. The drains should lead to positive gravity outlets, or to sump pits where water can be removed by pumping. We expect dry wells can be used successively at this site to disperse water collected by the drain systems. Additional details for the drain systems will need to be developed during the design-level geotechnical engineering investigation for the buildings.

SURFACE DRAINAGE

Surface drainage is critical to the performance of building foundations and floor slabs, as well as concrete flatwork. Infiltration of surface water into the soils adjacent to buildings can increase the potential for movement of these structures. The ground surface adjacent to buildings should be designed and constructed to rapidly convey surface water away from the buildings in all directions. We recommend that the buildings be provided with roof drains or gutters and downspouts. Roof downspouts and drains should discharge well beyond the limits of all foundation backfill soils. Landscaping should be carefully designed and maintained to minimize irrigation near foundation walls.

CONCRETE

Concrete in contact with soil can be subject to sulfate attack. We measured soluble sulfate concentrations of 0.00 and 0.02 percent in two samples of soil obtained from our exploratory pits excavated at the site (see Table A-1 in Appendix A). The American Concrete Institute indicates that for this level of sulfate concentration any type of cement can be used for concrete in contact with the subsoils.

In our experience, superficial damage may occur to the exposed surfaces of highly permeable concrete, even though sulfate levels are relatively low. To control this risk and to resist freeze-thaw deterioration, the water-to-cementitious materials ratio should not exceed 0.50 for concrete in contact with soils that are likely to stay moist due to surface drainage or high-water tables. Concrete should have a total air content of 6% +/- 1.5%.

CONSTRUCTION OBSERVATIONS

We recommend that CTL | Thompson, Inc. be retained to provide construction observation services. This would allow us the opportunity to verify whether soil conditions are consistent with those found during this investigation. If others perform these observations, they must accept responsibility to judge whether the recommendations in this report remain appropriate. It is also beneficial to projects, from cost and practical standpoints, when there is continuity between engineering consultation and the construction observation and materials testing phases.

STRUCTURAL ENGINEERING SERVICES

CTL | Thompson, Inc. is a full-service geotechnical, structural, materials, and environmental engineering firm. Our services include preparation of structural framing and foundation plans. We can also design earth retention systems. Based on our experience, CTL | Thompson, Inc. typically provides value to projects from schedule and economic standpoints, due to our combined expertise and experience with geotechnical, structural, and materials engineering. We can provide a proposal for structural engineering services for the buildings, if requested.

LIMITATIONS

Our exploratory pits were spaced across the site to obtain a reasonably accurate picture of subsurface conditions. Variations in the subsurface conditions not indicated by our pits will occur. The recommendations and criteria presented in this report are intended for design and construction of site grading, underground utilities, and roads. A design-level geotechnical engineering investigation should be performed to develop recommendations for the buildings after site grading and building construction plans are further developed. Additional subsurface investigation may be required at specific building locations (after overlot grading) as part of the design-level geotechnical engineering investigation.

This investigation was conducted in a manner consistent with that level of care and skill ordinarily exercised by geotechnical engineers currently practicing under similar conditions in the locality of this project. No warranty, express or implied,

is made. If you have questions or need additional information regarding this report, please call.

CTL | THOMPSON, INC.

James D. Kellogg, P.E.

James D. Kellogg
May 20 2020 9:45 PM

James D. Kellogg, P.E.
Division Manager

David A. Glater, P.E., C.P.G
Principal Geological Engineer

Reviewed by:

John Mechling, P.E
Senior Principal Engineer

JDK:DAG:JM:ac

0 1000 2000

SCALE: 1" = 2000'

NOTE: IMAGE FROM GOOGLE EARTH

Fields Development Group
The Fields Subdivision
Project No. GS06449.000-125

Vicinity Map

Fig. 1

LEGEND:

TP–1 ■ APPROXIMATE LOCATION OF EXPLORATORY PIT

—— APPROXIMATE PROPERTY BOUNDARY FROM EAGLE COUNTY GIS

NOTE: SATELLITE IMAGE FROM GOOGLE EARTH

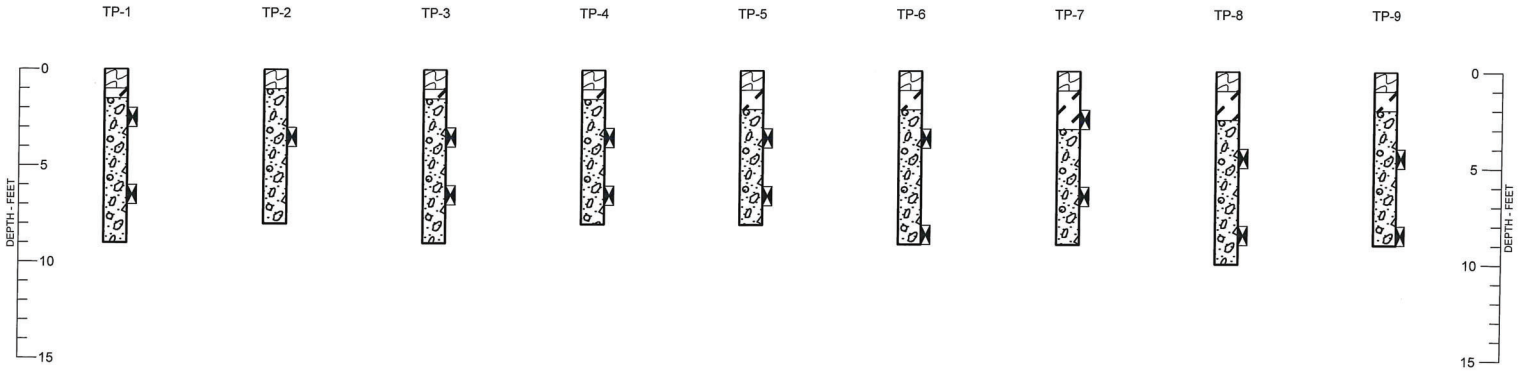
0 100 200

SCALE: 1" = 200'

Fields Development Group
The Fields Subdivision
Project No. GS06454.000-115

Aerial Photograph

Fig. 2



LEGEND:

- SANDY CLAY "TOPSOIL", BROWN, DARK BROWN.
- CLAY, SANDY, MEDIUM DENSE, MOIST, BROWN. (CL)
- GRAVEL, CLEAN TO SILTY, COBBLES, BOULDERS, MEDIUM DENSE TO DENSE, MOIST, BROWN, TAN, GRAY. (GP, GP-GM, GM)
- INDICATES BULK SAMPLE FROM EXCAVATED SOILS.

NOTES:

1. EXPLORATORY PITS WERE EXCAVATED WITH A TRACKHOE ON MARCH 19, 2020. PITS WERE BACKFILLED IMMEDIATELY AFTER EXCAVATION OPERATIONS WERE COMPLETED.
2. GROUNDWATER WAS NOT FOUND IN OUR EXPLORATORY PITS AT THE TIME OF EXCAVATION. PVC PIPE WAS PLACED IN TP-2, TP-5, TP-7, TP-8, AND TP-9, PRIOR TO BACKFILLING, TO FACILITATE FUTURE CHECKS OF GROUNDWATER.
3. LOCATIONS OF EXPLORATORY PITS ARE APPROXIMATE.
4. EXPLORATORY PITS ARE SUBJECT TO THE EXPLANATIONS, LIMITATIONS, AND CONCLUSIONS IN THIS REPORT.

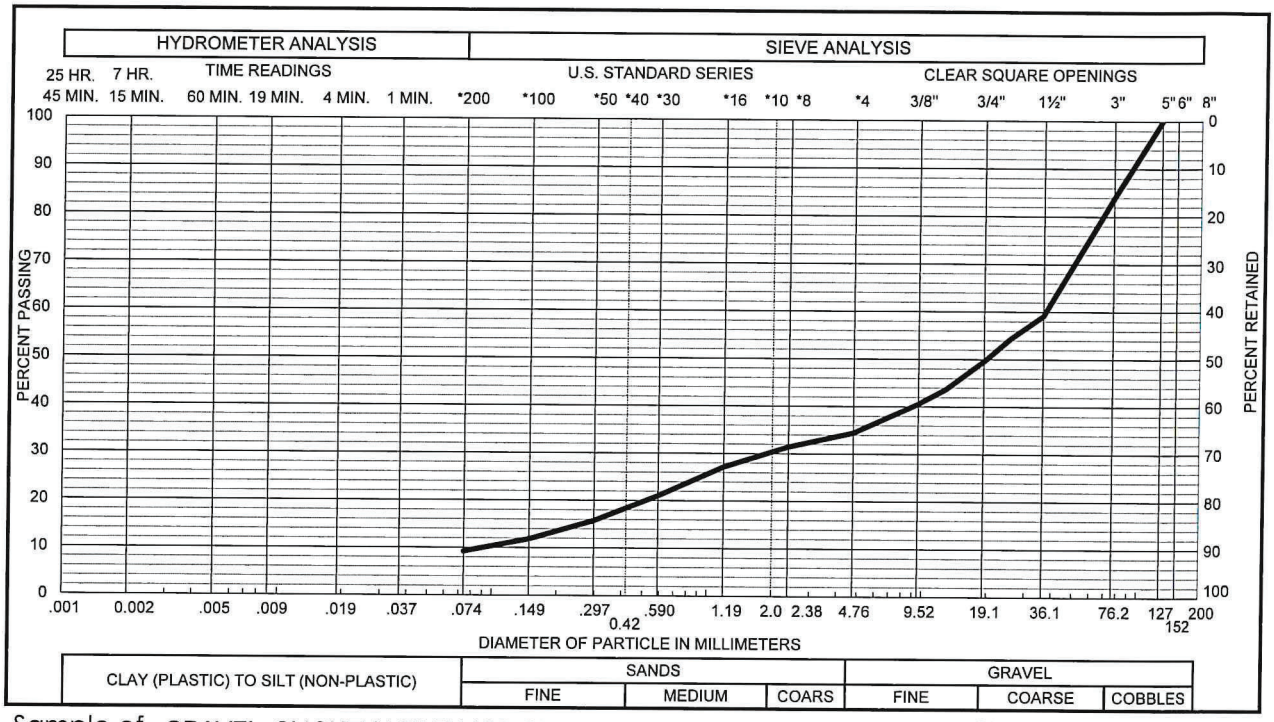
FIELDS DEVELOPMENT GROUP
THE FIELDS SUBDIVISION
PROJECT NO. GS06454.000-115

SUMMARY LOGS OF EXPLORATORY PITS

FIG. 3

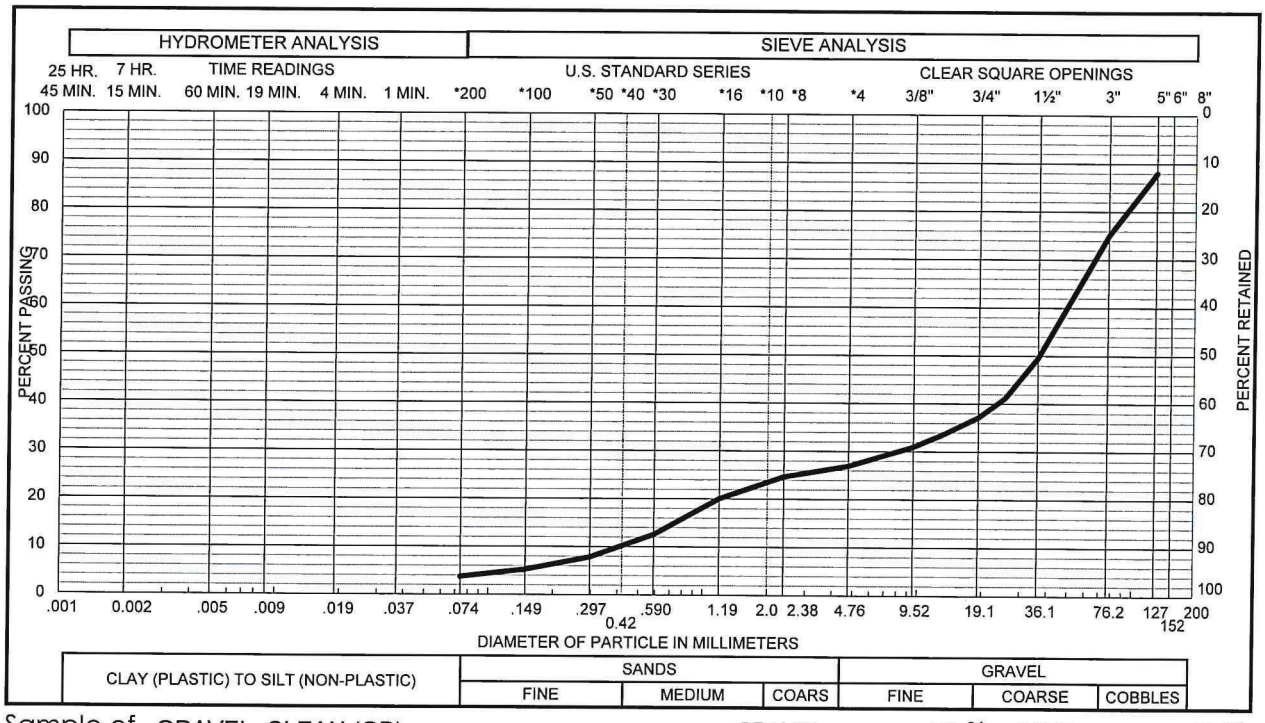
APPENDIX A

LABORATORY TEST RESULTS



Sample of GRAVEL, SLIGHTLY SILTY (GP-GM)
From TP - 1 AT 2 - 3 FEET

GRAVEL	66 %	SAND	25 %
SILT & CLAY	9 %	LIQUID LIMIT	%
PLASTICITY INDEX			%



Sample of GRAVEL, CLEAN (GP)
From TP - 2 AT 7 - 8 FEET

GRAVEL	73 %	SAND	23 %
SILT & CLAY	4 %	LIQUID LIMIT	%
PLASTICITY INDEX			%

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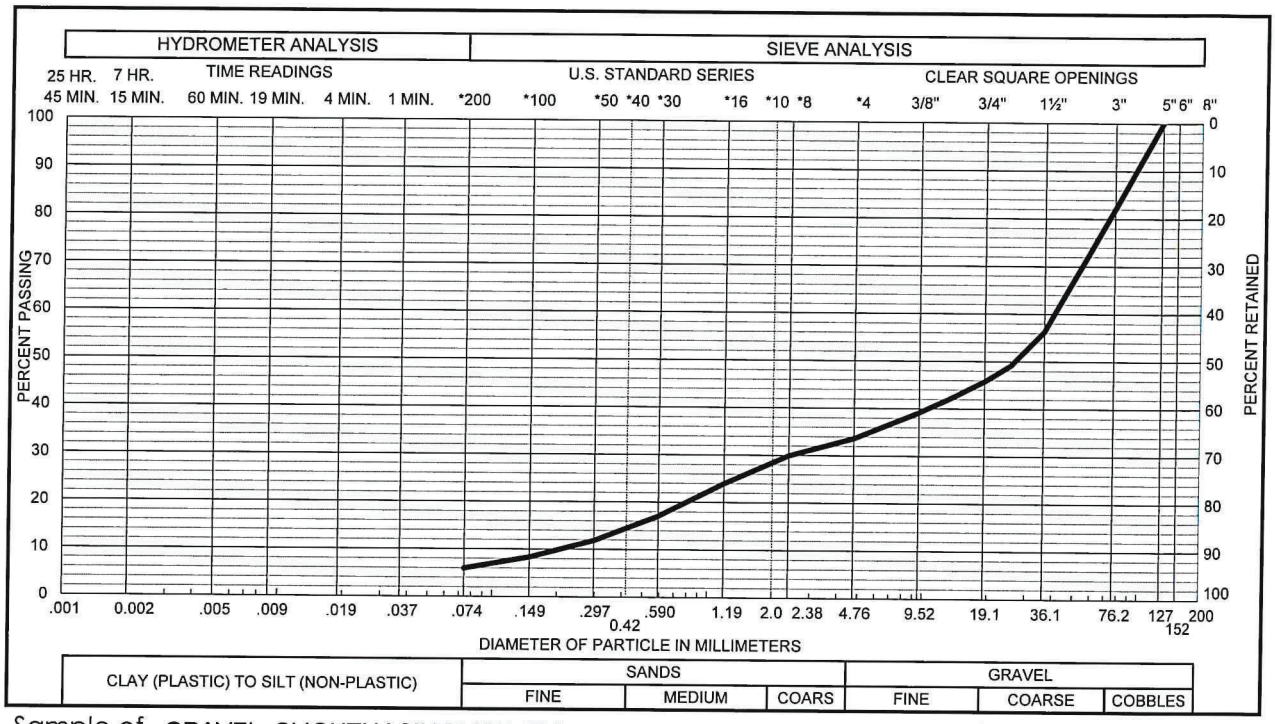
The Fields Subdivision
PROJECT NO. GS06454.000-115

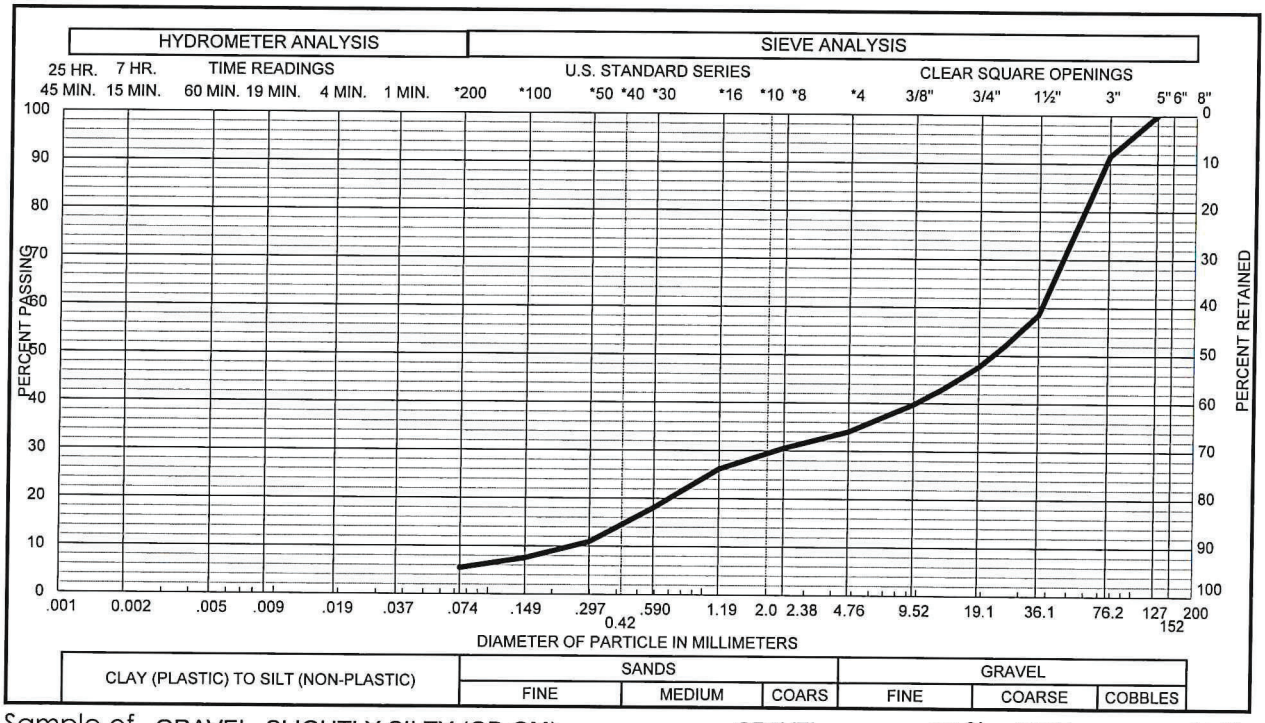
Gradation Test Results

FIG. A-1



Sample of GRAVEL, SLIGHTLY SILTY (GP-GM)
From TP - 3 AT 3 - 4 FEET

GRAVEL 66 % SAND 28 %
SILT & CLAY 6 % LIQUID LIMIT %
PLASTICITY INDEX %



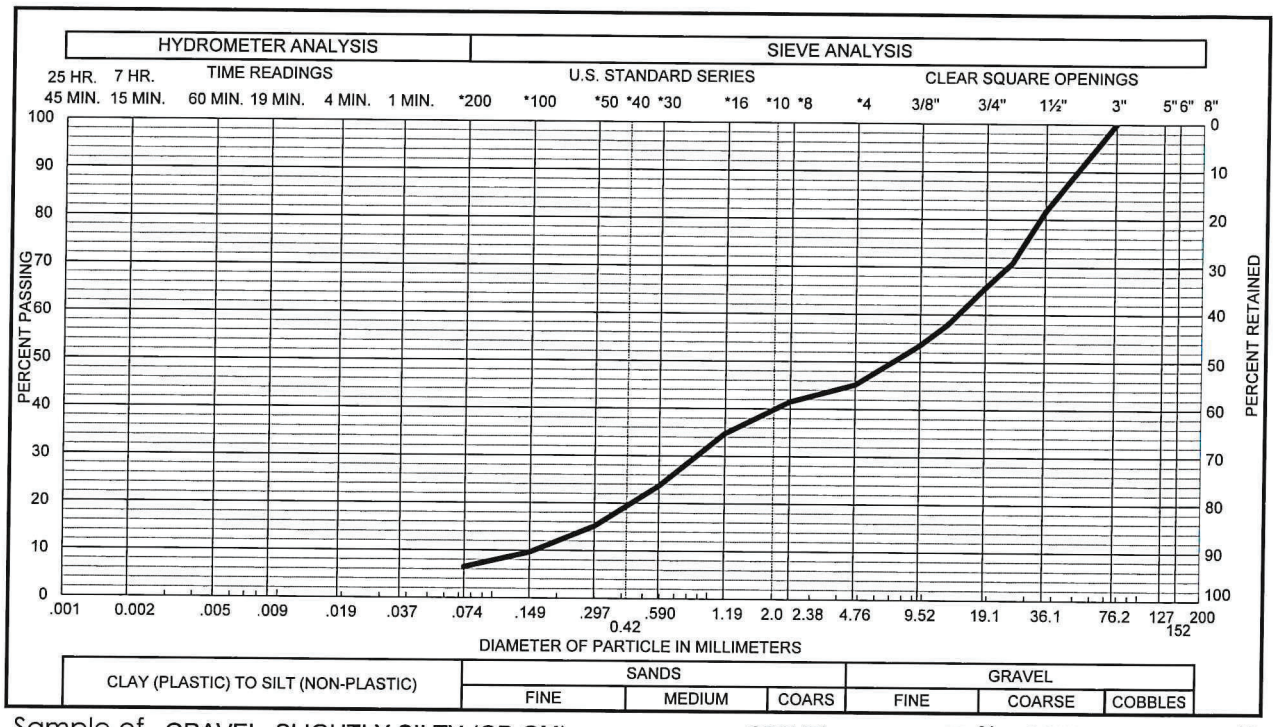
Sample of GRAVEL, SLIGHTLY SILTY (GP-GM)
From TP - 4 AT 6 - 7 FEET

GRAVEL 66 % SAND 29 %
SILT & CLAY 5 % LIQUID LIMIT %
PLASTICITY INDEX %

Fields Development Group
The Fields Subdivision
PROJECT NO. GS06454.000-115

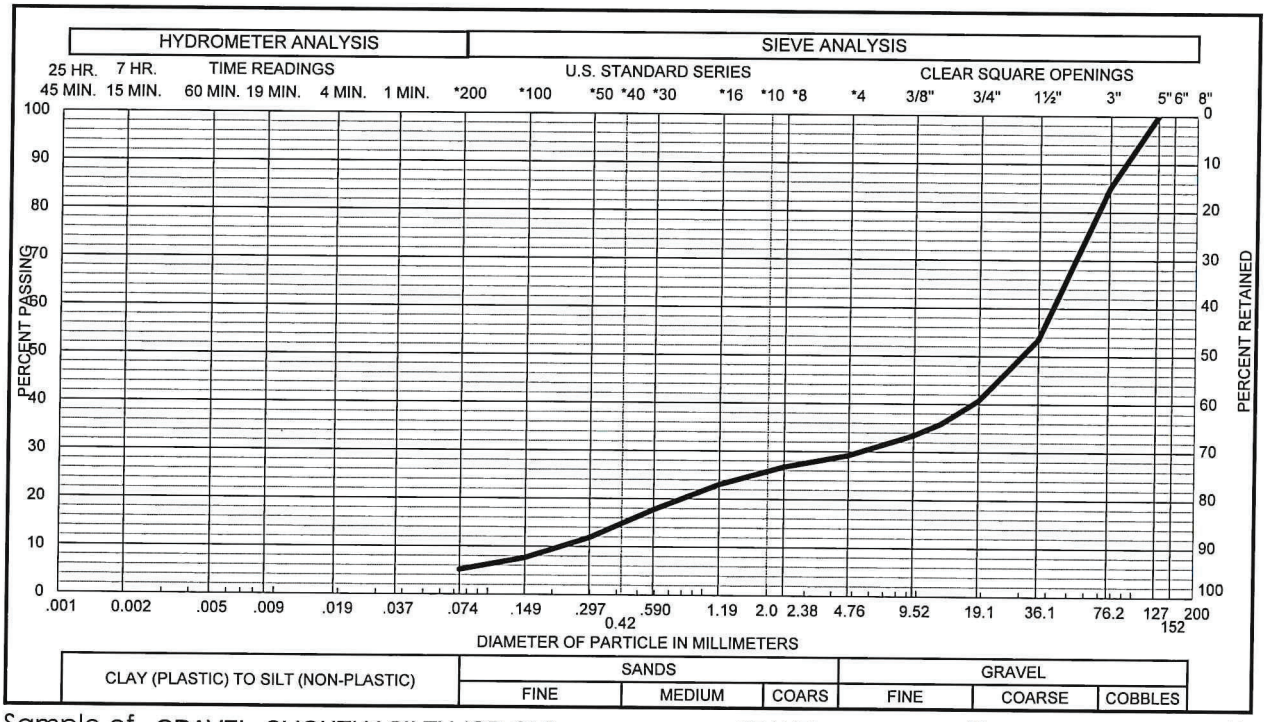
Gradation Test Results

FIG. A-2



Sample of GRAVEL, SLIGHTLY SILTY (GP-GM)
From TP - 5 AT 6 - 7 FEET

GRAVEL 55 % SAND 38 %
SILT & CLAY 7 % LIQUID LIMIT %
PLASTICITY INDEX %



Sample of GRAVEL, SLIGHTLY SILTY (GP-GM)
From TP - 6 AT 3 - 4 FEET

GRAVEL 71 % SAND 24 %
SILT & CLAY 5 % LIQUID LIMIT %
PLASTICITY INDEX %

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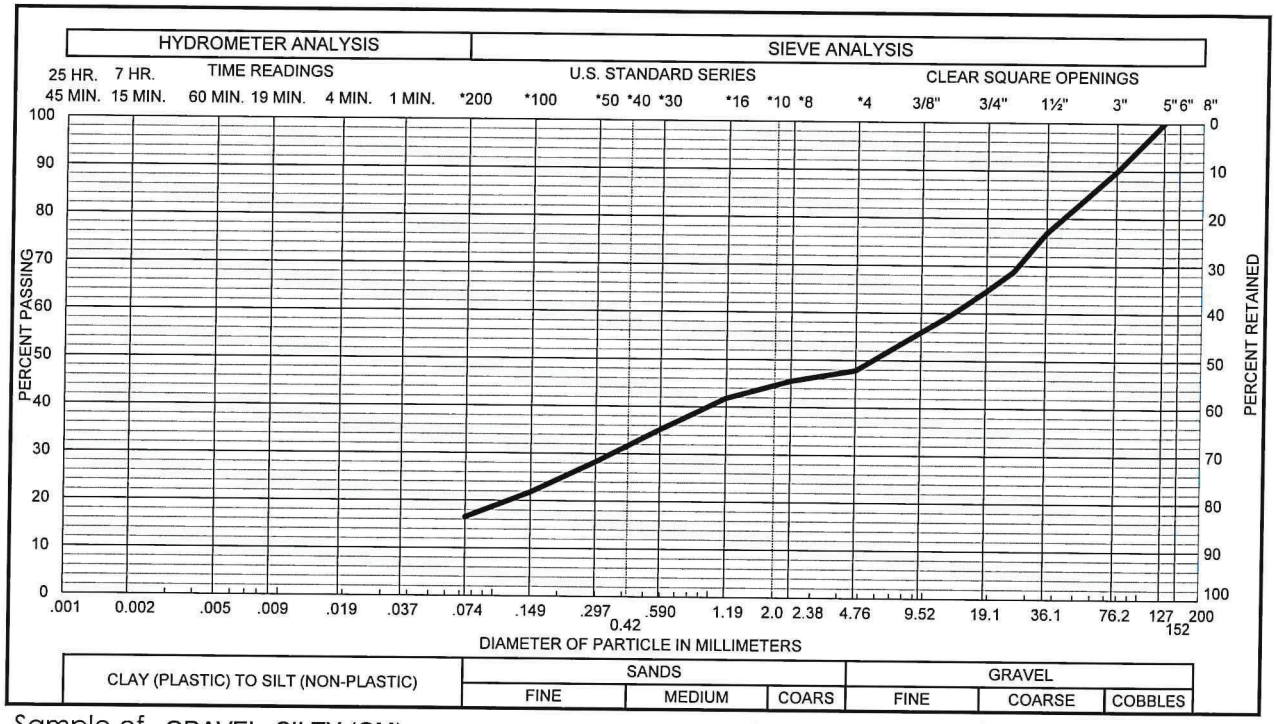
The Fields Subdivision
PROJECT NO. GS06454.000-115

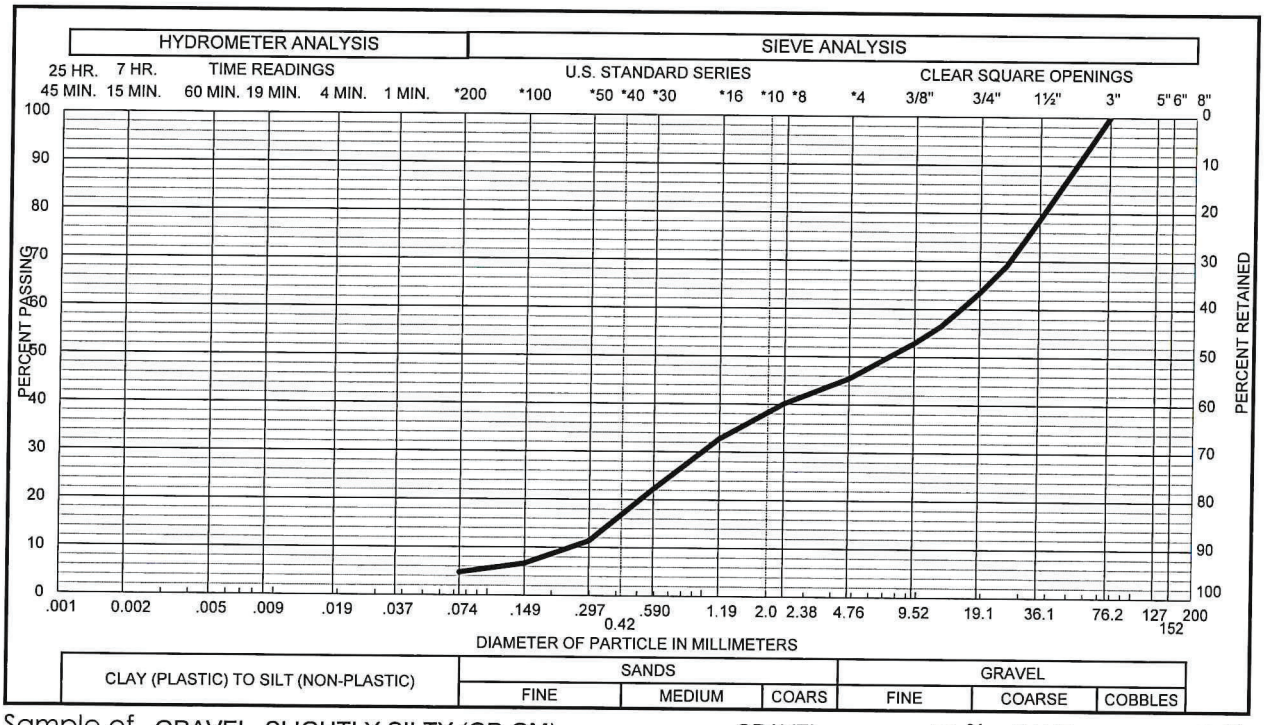
Gradation Test Results

FIG. A-3



Sample of GRAVEL, SILTY (GM)
From TP - 7 AT 2 - 3 FEET

GRAVEL 52 % SAND 31 %
SILT & CLAY 17 % LIQUID LIMIT %
PLASTICITY INDEX %



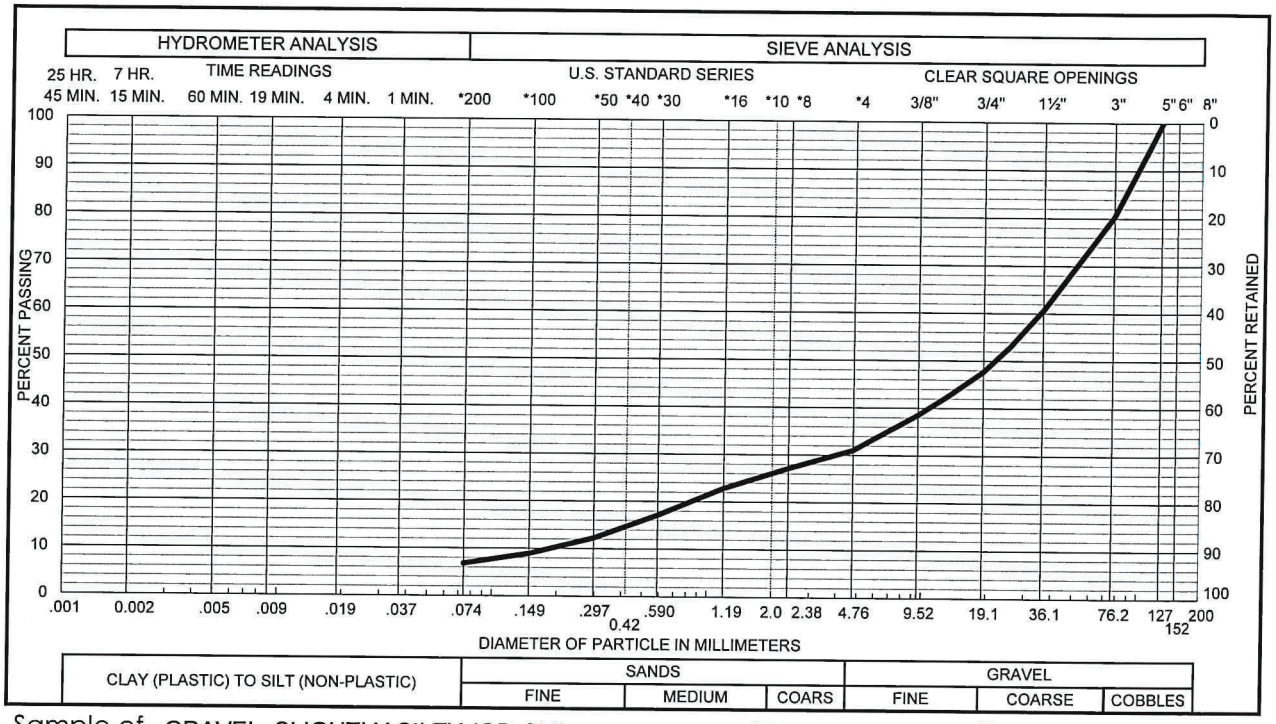
Sample of GRAVEL, SLIGHTLY SILTY (GP-GM)
From TP - 8 AT 8 - 9 FEET

GRAVEL 55 % SAND 40 %
SILT & CLAY 5 % LIQUID LIMIT %
PLASTICITY INDEX %

Fields Development Group
The Fields Subdivision
PROJECT NO. GS06454.000-115

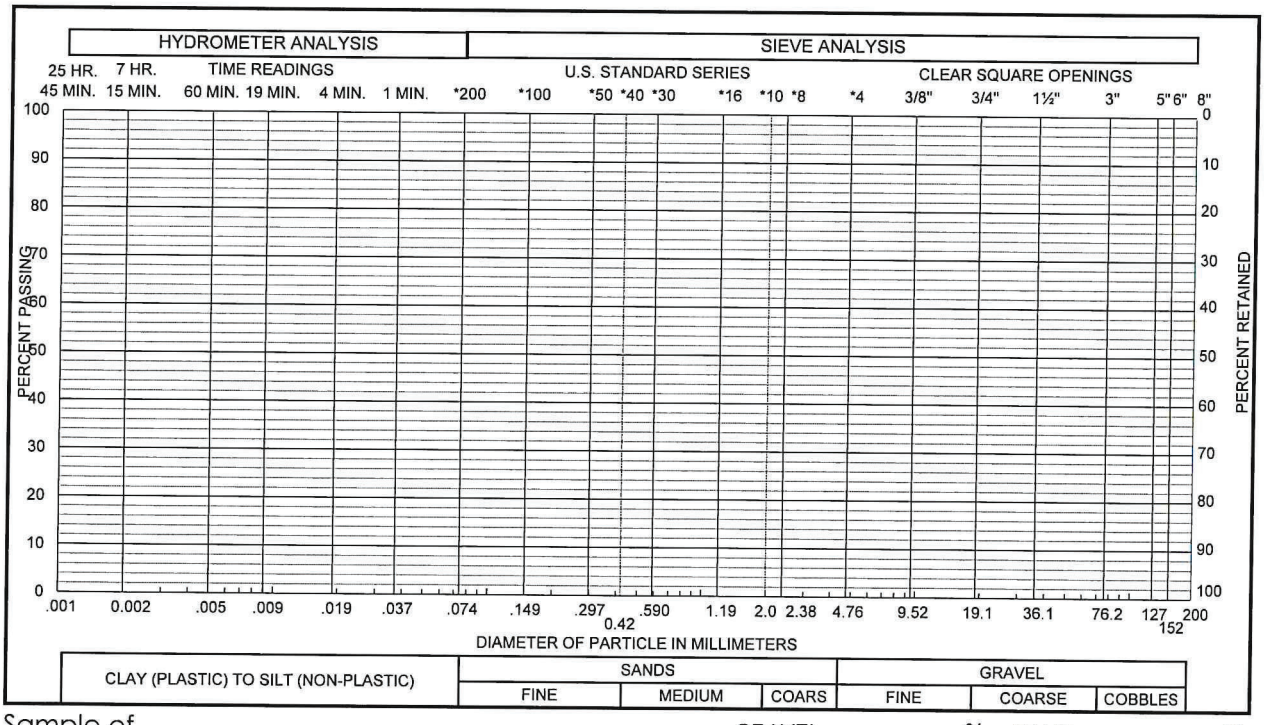
Gradation Test Results

FIG. A-4



Sample of GRAVEL, SLIGHTLY SILTY (GP-GM)
From TP - 9 AT 8 - 9 FEET

GRAVEL 69 % SAND 24 %
SILT & CLAY 7 % LIQUID LIMIT %
PLASTICITY INDEX %



Sample of
From

GRAVEL % SAND %
SILT & CLAY % LIQUID LIMIT %
PLASTICITY INDEX %

Fields Development Group
The Fields Subdivision
PROJECT NO. GS06454.000-115

Gradation Test Results

FIG. A-5

TABLE A - I

SUMMARY OF LABORATORY TESTING
PROJECT NO. GS06454.000-115

EXPLORATORY PIT	DEPTH (FEET)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	ATTERBERG LIMITS		SOLUBLE SULFATES (%)	PERCENT GRAVEL (%)	PERCENT SAND (%)	PASSING NO. 200 SIEVE (%)	DESCRIPTION
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)					
TP-1	2 - 3					0.02	66	25	9	GRAVEL, SLIGHTLY SILTY (GP-GM)
TP-2	7 - 8						73	23	4	GRAVEL, CLEAN (GP)
TP-3	3 - 4						66	28	6	GRAVEL, SLIGHTLY SILTY (GP-GM)
TP-4	6 - 7						66	29	5	GRAVEL, SLIGHTLY SILTY (GP-GM)
TP-5	6 - 7						55	38	7	GRAVEL, SLIGHTLY SILTY (GP-GM)
TP-6	3 - 4						71	24	5	GRAVEL, SLIGHTLY SILTY (GP-GM)
TP-7	2 - 3					0.00	52	31	17	GRAVEL, SILTY (GM)
TP-8	8 - 9						55	40	5	GRAVEL, SLIGHTLY SILTY (GP-GM)
TP-9	8 - 9						69	24	7	GRAVEL, SLIGHTLY SILTY (GP-GM)

APPENDIX B

PAVEMENT CONSTRUCTION RECOMMENDATIONS

FLEXIBLE PAVEMENT CONSTRUCTION RECOMMENDATIONS

Experience has shown that construction methods can have a significant effect on the life and serviceability of a pavement system. We recommend the proposed pavement be constructed in the following manner:

1. Subgrade soils should be stripped of organic matter, scarified, moisture treated, and compacted. We recommend scarification, moisture-treatment and recompaction of the subgrade soils to a depth of at least 6-inches below pavements. Subgrade soils should be moisture-treated to within 2 percent of optimum moisture content and compacted to at least 95 percent of maximum standard Proctor dry density (ASTM D 698, AASHTO T 99). Moisture treatment and compaction recommendations also apply where additional fill is necessary.

2. Utility trenches and all subsequently placed fill should be properly compacted and tested prior to paving. As a minimum, fill should be compacted to 95 percent of maximum standard Proctor dry density (ASTM D 698, AASHTO T 99).

3. The resulting subgrade should be checked for uniformity and all soft or yielding areas should be replaced prior to paving. Pavement should not be placed on soft, spongy, frozen, or otherwise unsuitable subgrade.

4. Asphaltic concrete should be hot plant-mixed material compacted to at least 95 percent of maximum Marshall density. The temperature at laydown time should be near 275 degrees F. The maximum compacted lift should be 3.0 inches and joints should be staggered.

5. Placement and compaction of all pavement material should be observed and tested. Compaction criteria should be met prior to the placement of the next paving lift.

RIGID PAVEMENT CONSTRUCTION RECOMMENDATIONS

Due to the strength of the concrete, wheel loads from traffic are distributed over a large area and the resulting subgrade stresses are relatively low. The critical factors affecting the performance of a rigid pavement are the strength and quality of the concrete, and the uniformity of the subgrade. We recommend subgrade preparation and construction of the rigid pavement section be completed in accordance with the following recommendations:

1. Subgrade soils should be stripped of organic matter, scarified, moisture treated, and compacted. We recommend scarification, moisture-treatment and recompaction of the subgrade soils to a depth of at least 6-inches below pavements. Subgrade soils should be moisture-treated to within 2 percent of optimum moisture content compacted to at least 95 percent of maximum standard Proctor dry density (ASTM D 698, AASHTO T 99). Moisture treatment and compaction recommendations also apply where additional fill is necessary.

2. The resulting subgrade should be checked for uniformity and all soft or yielding materials should be replaced prior to paving. Concrete should not be placed on soft, spongy, frozen, or otherwise unsuitable subgrade.

3. Curing procedures should protect the concrete against moisture loss, rapid temperature change, freezing, and mechanical injury for at least 3 days after placement. Traffic should not be allowed on the pavement for at least one week.

4. A white, liquid membrane curing compound, applied at the rate of at least 1 gallon per 150 square feet, should be used within 24 hours of placement.

5. Construction joints, including longitudinal joints and transverse joints, should be formed during construction or should be sawed shortly after the concrete has begun to set, but prior to uncontrolled cracking. All joints should be sealed.

6. Construction control and inspection should be carried out during the subgrade preparation and paving procedures. Concrete should be carefully monitored for quality control.

7. The design section is based upon a 20-year Period. To avoid problems associated with scaling and to continue the strength gain, we recommend deicing salts not be used for the first year after placement.

APPENDIX C

GUIDELINE MAINTENANCE RECOMMENDATIONS

MAINTENANCE RECOMMENDATIONS FOR FLEXIBLE PAVEMENTS

A primary cause for deterioration of pavements is oxidative aging resulting in brittle pavements. Tire loads from traffic are necessary to "work" or knead the asphalt concrete to keep it flexible and rejuvenated. Preventive maintenance treatments will typically preserve the original or existing pavement by providing a protective seal or rejuvenating the asphalt binder to extend pavement life.

1. Annual Preventive Maintenance

    a. Visual pavement evaluations should be performed each spring or fall.
    b. Reports documenting the progress of distress should be kept current to provide information on effective times to apply preventive maintenance treatments.
    c. Crack sealing should be performed annually as new cracks appear.

2. 3 to 5 Year Preventive Maintenance

    a. The owner should budget for a preventive treatment at approximate intervals of 3 to 5 years to reduce oxidative embrittlement problems.
    b. Typical preventive maintenance treatments include chip seals, fog seals, slurry seals and crack sealing.

3. 5 to 10 Year Corrective Maintenance

    a. Corrective maintenance may be necessary, as dictated by the pavement condition, to correct rutting, cracking and structurally failed areas.
    b. Corrective maintenance may include full-depth patching, milling and overlays.
    c. In order for the pavement to provide a 20-year service life, at least one major corrective overlay should be expected.

MAINTENANCE RECOMMENDATIONS FOR RIGID PAVEMENTS

High traffic volumes create pavement rutting and smooth, polished surfaces. Preventive maintenance treatments will typically preserve the original or existing pavement by providing a protective seal and improving skid resistance through a new wearing course.

1. Annual Preventive Maintenance

    a. Visual pavement evaluations should be performed each spring or fall.
    b. Reports documenting the progress of distress should be kept current to provide information of effective times to apply preventive maintenance.
    c. Crack sealing should be performed annually as new cracks appear.

2. 4 to 8 Year Preventive Maintenance

    a. The owner should budget for a preventive treatment at approximate intervals of 4 to 8 years to reduce joint deterioration.
    b. Typical preventive maintenance for rigid pavements include patching, crack sealing and joint cleaning and sealing.
    c. Where joint sealants are missing or distressed, resealing is mandatory.

3. 15 to 20 Year Corrective Maintenance

    a. Corrective maintenance for rigid pavements includes patching and slab replacement to correct subgrade failures, edge damage and material failure.
    b. Asphalt concrete overlays may be required at 15 to 20-year intervals to improve the structural capacity of the pavement.

CTL | THOMPSON INCORPORATED

July 29, 2020

Fields Development Group
337 Kent Avenue, 4A
Brooklyn, NY 11249

Attention: Evan Schreiber

Subject: Field Electrical Resistivity Testing
The Fields Subdivision
554 Valley Road
(A.K.A. Lot 5, Arlian Ranch Subdivision)
Eagle County, Colorado
Project No. GS06454.000-115

CTL/Thompson, Inc. (CTL) performed a geologic hazard evaluation and preliminary geotechnical investigation for the Fields Subdivision site under our Project No. GS06454.000-115 (report dated May 20, 2020). The potential for ground subsidence (i.e., sinkholes) was identified as a potential geologic hazard at the site. This risk is directly related to the Eagle Valley Evaporite bedrock and groundwater that results in dissolution cavities within the bedrock. In our report, we stated the need for more knowledge regarding the depth and character of the bedrock in order for CTL to provide a more definitive assessment of subsidence risk at the site.

Pursuant to the Contract Modification to our Service Agreement GS 20-0135, CTL subsequently performed field electrical resistivity testing at the site. The purpose was to utilize the data obtained to evaluate potential depths of groundwater and bedrock below the property. This information was to help us determine appropriate methods (e.g. geotechnical drilling versus geophysical methods) to gather information to evaluate potential for subsidence and/or sink-holes.

CTL utilized a MiniRes electrical resistivity meter for our field electrical re-sistivity testing that was performed on July 8 & 9, 2020. We performed the test-ing in accordance with the Wenner 4-Point sounding method, which uses four probes spaced along a line, two on each side of the tester. The two outer probes

are used to inject current into the ground. The two inner probes measure the return current and determine the soil resistance. The average distance between the probes is approximately equal to the depth of the resistivity measurement.

During testing, spacing of the probes is incrementally increased to evaluate changes in the subsoil profile that occur with increasing depth. We performed electrical resistivity testing along three lines laid out across the property. Our spacing resulted in evaluation of subsurface conditions to a maximum depth of about 160 feet.

Our field electrical resistivity testing indicates that the groundwater table is 15 to 25 feet below ground surface. The bedrock surface appears to be 40 to 60 feet below the ground. Results of our field electrical resistivity testing are plotted on Figure 1 as apparent resistivity (ohm-m) versus depth (feet) below ground surface.

Based on our experience at the subject property and nearby sites, the soils above the bedrock are gravel, cobbles and boulders. We judge ODEX drilling techniques can successfully be used to advance through the gravel, cobbles, and boulders and penetrate the underlying bedrock. We judge this method of geotechnical drilling is preferable to geophysical methods because it will allow us to obtain actual bedrock samples to positively identify the bedrock formation and its susceptibility to subsidence processes.

CTL will provide a subsequent proposal for drilling four ODEX borings spaced across the site. We are available to discuss the contents of this letter. If you have questions or need additional information, please call.

CTL | THOMPSON, INC.

Reviewed by:

James D. Kellogg, P.E.

James D. Kellogg
Jul 29 2020 8:55 PM

Ryan R. Barbone, E.I.T.
Staff Engineer

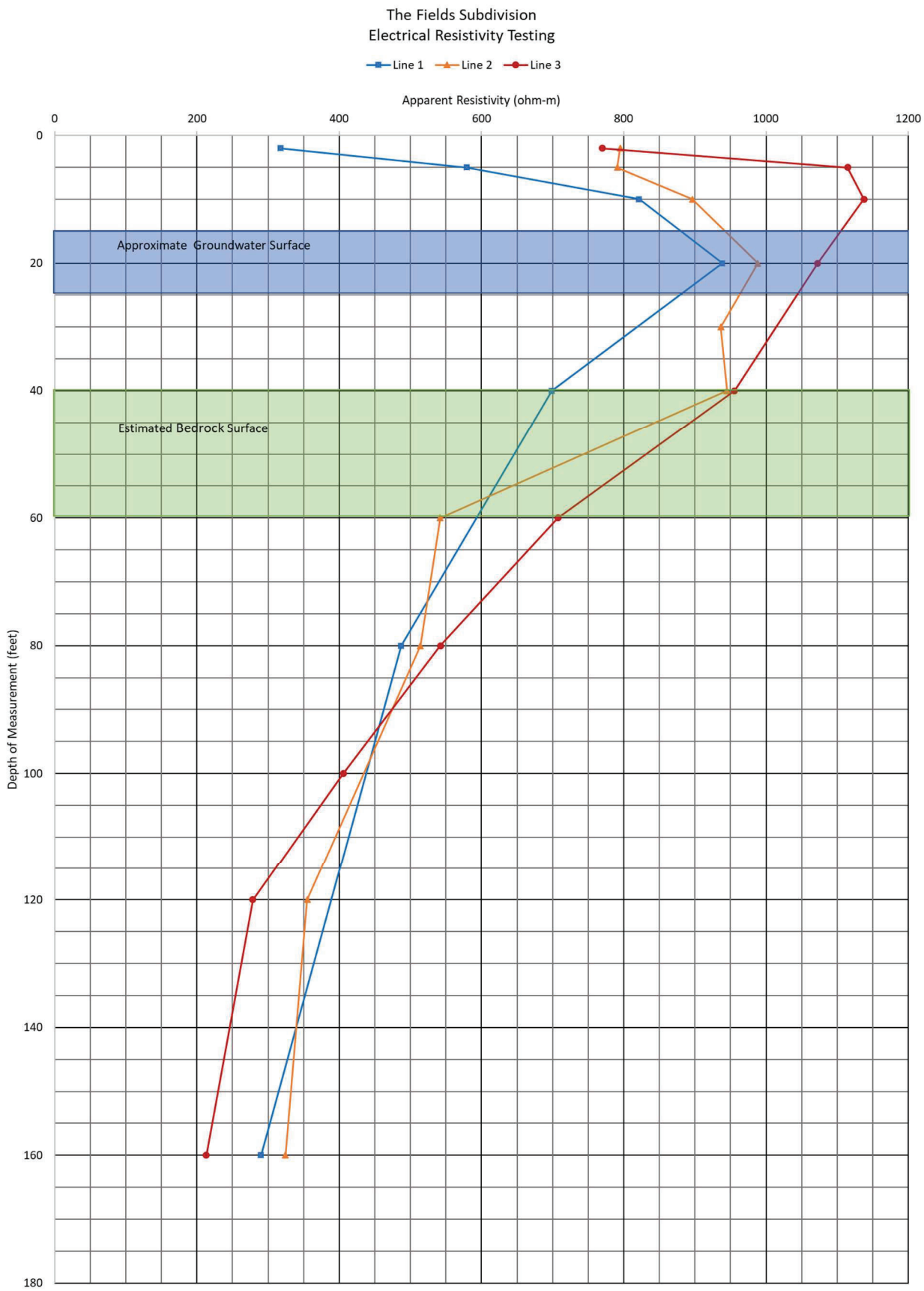
James D. Kellogg, P.E.
Division Manager

RRB:JDK:ac

COLORADO REGISTERED
JAMES D. KELLOGG
38298
PROFESSIONAL ENGINEER

James D. Kellogg
Jul 29 2020 9:01 PM

CTL | THOMPSON INCORPORATED



FIELDS DEVELOPMENT GROUP
THE FIELDS SUBDIVISION
PROJECT NO. GS06454.000-115

FIG. 1

CTL | THOMPSON
INCORPORATED

February 17, 2021

Fields Development Group
337 Kent Avenue, 4A
Brooklyn, NY 11249

Attention: Evan Schreiber

Subject: Supplemental Geotechnical Engineering Investigation
The Fields Subdivision
554 Valley Road
(A.K.A. Lot 5, Arlian Ranch Subdivision)
Eagle County, Colorado
Project No. GS06454.000-125

CTL/Thompson, Inc. (CTL) performed a geologic hazard evaluation and preliminary geotechnical investigation for the Fields Subdivision site under our Project No. GS06454.000-115 (report dated May 20, 2020). The potential for ground subsidence (i.e., sinkholes) was discussed as a potential geologic hazard in the area of the site. This risk is directly related to the Eagle Valley Evaporite bedrock and groundwater that results in dissolution cavities within the bedrock.

CTL performed a supplemental geotechnical engineering investigation at the site by directing drilling of two exploratory borings (TH-1 and TH-2) on the property. The borings were drilled with a track-mounted drill rig and ODEX drilling techniques at the approximate locations shown on the attached Figure 1. ODEX drilling utilizes a down-hole, pneumatic hammer to penetrate cobbles and boulders and advance a cased boring.

Subsurface conditions encountered in our exploratory borings were gravel, cobbles, and boulders in a sand and silt matrix to the total explored depth of 92 feet and 37 feet in TH-1 and TH-2, respectively. Multiple mechanical breakdowns of the drill rig prevented deeper advancement of TH-2. Bedrock was not found in our borings. Groundwater was measured at depths of 27 feet and 37 feet, in TH-1 and TH-2.

Based on our subsurface information at the site, we believe the bedrock is more than 92 feet below ground surface. The overburden soils consist of cobbles

234 Center Drive | Glenwood Springs, Colorado 81601
Telephone: 970-945-2809 Fax: 970-945-7411

and boulders that are dense and tightly packed and clast-supported. Our experience is that most sinkhole development in the Roaring Fork Valley involves loose, dry, colluvial deposits, as well as Eagle Valley Evaporite bedrock that is relatively close to the ground surface. Based on subsoil and groundwater conditions found in our exploratory borings, we judge the risk of subsidence or sinkholes at the subject property is low. In our opinion, the risk of sinkholes or subsidence at the Fields site is no greater than that which exists at other sites on the valley floor in the area.

We are available to discuss the contents of this letter. If you have questions or need additional information, please call.

CTL | THOMPSON, INC.

COLORADO REGISTERED
JAMES D. KELLOGG
38298
PROFESSIONAL ENGINEER
2/17/2021

James D. Kellogg, P.E.
Division Manager

JDK:abr

LEGEND:

TH–1 ● APPROXIMATE LOCATION OF EXPLORATORY BORING

0 100 200

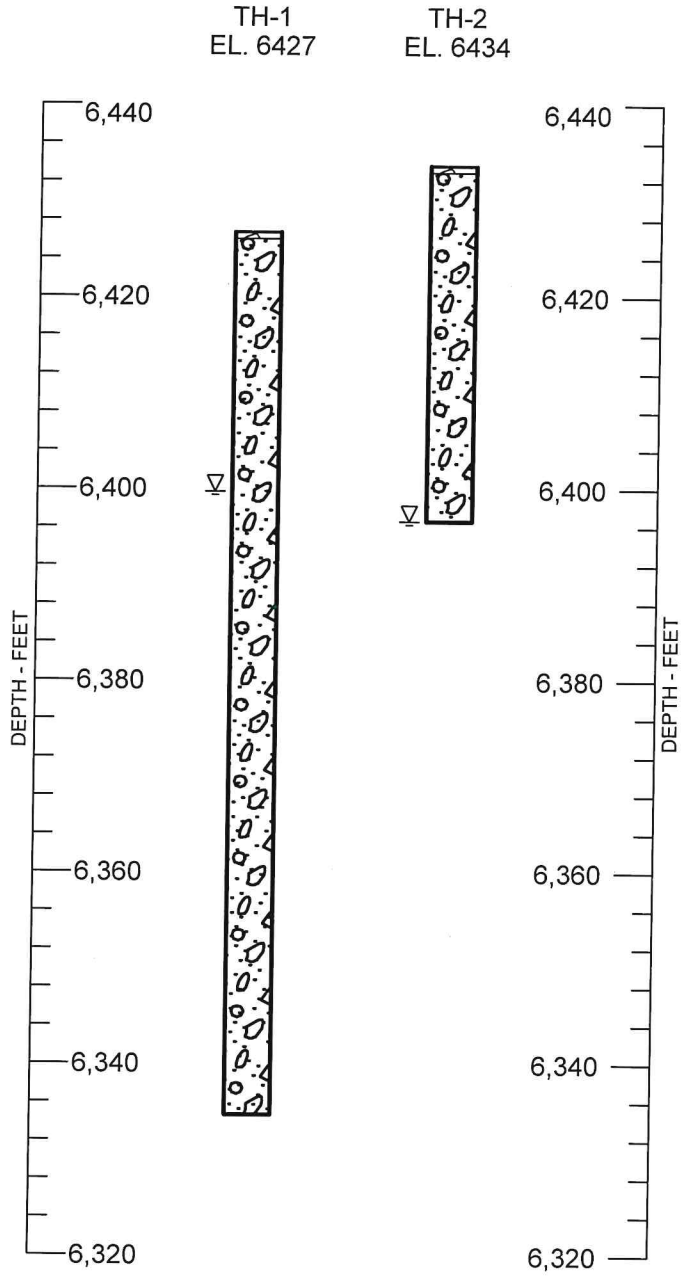
SCALE: 1" = 200'

NOTE: SATELLITE IMAGE FROM GOOGLE EARTH (DATED 6/23/2017)

Fields Development Group
The Fields Subdivision
PROJECT NO. GS06454.000-125

Aerial Photograph

Fig. 1



LEGEND:

SANDY CLAY "TOPSOIL", BROWN, DARK BROWN.

GRAVEL, COBBLES, BOULDERS, SAND AND SILT MATRIX, DENSE, MOIST, BROWN, TAN, GRAY.

WATER LEVEL MEASURED AT TIME OF DRILLING.

NOTES:

1. EXPLORATORY BORINGS WERE DRILLED ON DECEMBER 21 AND 22, 2020 AND JANUARTY 25, 2021 WITH A TRACK-MOUNTED DRILL RIG AND ODEX DRILLING TECHNIQUES THAT UTILIZE A DOWN-HOLE, PNUEMATIC HAMMER TO ADVANCE A CASED BORING.
2. PVC PIP WAS PLACED IN OUR BORINGS TO ALLOW FUTURE CHECKS OF GROUNDWATER.
3. LOCATIONS AND ELEVATIONS OF EXPLORATORY BORINGS ARE APPROXIMATE.

Summary Logs of Exploratory Borings

FIELDS DEVELOPMENT GROUP
THE FIELDS SUBDIVISION
CTL|T PROJECT NO. GS06454.000-125

FIG. 2

Appendix N

Environmental Impact Report

Environmental Impact Report
The Fields Subdivision
Eagle County, Colorado

November 26, 2020

Prepared for:

Fields Development Group, LLC
1009 Cattle Creek Ridge Road
Carbondale, CO 81623

SGM
118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
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#2018-475.001

EXECUTIVE SUMMARY

This report covers the reporting requirements for a Wildlife Analysis (§ 4-410), Vegetation Management Plan (§ 4-430), and Environmental Impact Report (§ 4-460) of the Eagle County Land Use Regulations.

Project Description: The project site is 19.39 acres of relatively level land located in El Jebel immediately west of Summit Vista Subdivision on Valley Road. The proposed residential multi-family subdivision is a 11-lot community with lots ranging from 0.93 acres to 1.99-acres, with a mix of residential housing types ranging from detached single-family homes to larger multi-family residential buildings. Seven acres of proposed open space included in the project are intended to maintain the open and rural character of this area.

Hydrologic: Agriculturally-induced wetlands occur in low-lying areas due to irrigation and would not be considered jurisdictional by the U.S. Army Corps of Engineers (USACE). The subdivision would not impact the majority of these agriculturally-induced wetlands and cessation of agricultural irrigation would likely significantly reduce their acreage. The residential lots are unlikely to substantially alter established drainage patterns. The property does not support any creeks, streams, or other natural hydrologic features. Soils and parent geology are comprised of sandy clays, gravels, cobbles and boulders, with bedrock being 40 to 60 feet below the surface. Ground water is 15 to 25 feet below the surface. While the property is underlain by Eagle Valley Evaporites, no evidence of subsidence was observed.

Atmospheric: The proposed development is unlikely to adversely affect air quality because the use is medium-density residential and wood-burning devices would be restricted. Construction of homesites, new roadways and utilities trenching would minorly increase airborne particulate matter during construction.

Biotic: The site is dominated by agricultural cultivars of grasses, various ruderal forbs and a few small patches of willows in and around the low-lying areas. There are also large areas dominated by agricultural facilities (barns, sheds, silos, storage areas). There are a few trees located along the parcel boundaries and in the interior of the parcel. The parcel may support habitat for the Federally Threatened Ute ladies-tresses orchid (*Spiranthes diluvialis*); surveys for this species have not occurred at this time, due to its very narrow blooming season and survey window (in late July and August).

> **Wildlife:** The property is outside big game ranges as mapped by Colorado Parks and Wildlife (CPW). The property is within a CPW-mapped black bear Fall Concentration Area that covers the entire Roaring Fork Valley; the presence of bears would likely persist after development, but conflicts can be minimized with responsible management. The property is within bald eagle winter range but given the parcel's distance from the Roaring Fork River and the lack of suitable roosting trees, roosting is not anticipated to occur on the parcel itself.
>
> **Wetlands:** The property has been regularly flood-irrigated for decades for grass hay production using a network of ditches. This irrigation activity supports agriculturally-induced wetlands, most notably in low-lying areas with poor drainage and immediately along ditches. These wetlands are induced by irrigation waters and therefore not regulated by the USACE nor Section 404 of the Clean Water Act.

Wildfire: The Wildfire Hazard Assessment determined that the property is dominated by Low wildfire hazards. A Vegetation Management Plan has been designed to meet County guidelines. One fire hydrant abuts this property, and thirteen more hydrants are planned within the subdivision.

Waste, Noises and Odors: The proposed medium density residential uses are not expected to produce any abnormal toxic or noxious substances, smoke, odors, gas, wastes, steam, dust or other particulate matter (other than fugitive dust from construction described above), and only noises and waste production typical for single and multi-family residences are expected once construction is complete.

Visual Resources: This development is consistent with the surrounding land uses in the area. Homesites are set far enough from property lines such that views from neighboring properties would not be blocked or significantly impacted. The development will be unnoticeable to the casual viewer and structures will be not silhouetted against the skyline when viewed from Highway 82. The development would be visible from Highway 82, however a berm will be constructed to damper noise and to provide privacy for future residents.

Circulation and Transportation: Valley Road provides access from Highway 82, from both the east and west. McDowell Engineering provided a Transportation Impact Study which states that the proposed development is expected to generate 1,021 new vehicle trips on the average weekday (McDowell 2020). A CDOT State Highway Access Permit will be required for the south leg of SH 82 and El Jebel Road intersection with the increased traffic volumes from the Fields Development, primarily because this intersection already exceeds the currently allowed volume and are operating below an acceptable Level of Service. CDOT and Eagle County are investigating short-term solutions that would allow this intersection to function for the next five years, with long-term solutions being planned for this intersection (with or without additional traffic generated from The Fields development). Additional infrastructure improvements are also recommended for SH 82 and Valley Road / J W Drive as well as the intersection of Valley Road and East Valley Road.

Access to the subdivision from Valley Road would be provided by a 24 to 26’ wide access drive. A 50’ wide access easement provides ample room for drainage and snow storage along the access drive. A RFTA transit stop is approximately 0.80-mile away at the El Jebel Park and Ride and can be accessed by a bike/pedestrian path on the west side of Valley Road.

Conclusions: The Fields Development application is consistent with the standards of the Eagle County Land Use Regulations. To the extent practicable, it minimizes impacts to wildlife and their habitats via existing site conditions and proposed development. It mitigates impacts to natural resources though the establishment of permanent open space. It is strategically located to take advantage of nearby retail resources and existing RFTA regional bus stop to further minimize traffic impacts. It also minimizes aesthetic impacts by using area-appropriate densities, home sizes, avoidance of ridgeline development, and mimicking and blending with existing developments.

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1.0 INTRODUCTION & PROJECT DESCRIPTION

This Environmental Impact Report (EIR) is being prepared and submitted pursuant to the Eagle County Land Use Regulations, in support of The Fields application. The project site is located in Sections 3 and 4 of Township 8 South, Range 87 West, and Sections 33 and 34 of Township 7 South, Range 87 West in Eagle County, Colorado, on 19.39 acres (see **Figure 1**).

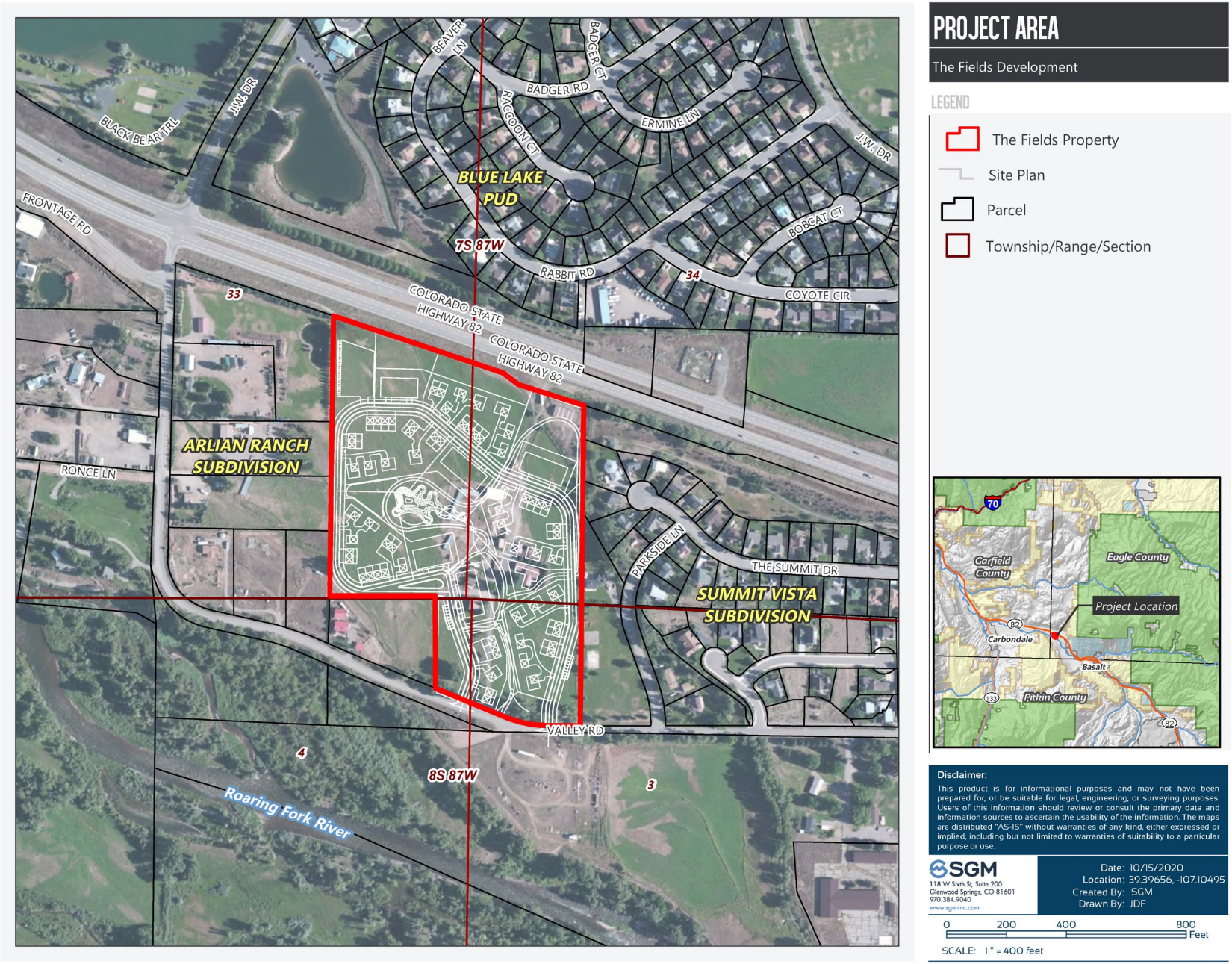
The Fields Development property is located at 554 Valley Road in Eagle County as being part of the Arlian Ranch Subdivision. The property is bounded on the north by State Highway 82. The subdivision is being designed as a medium density, 11-lot community. The residential lots would range in size from 0.93 acres to 1.99-acres, with a mix of residential housing types ranging from detached single-family homes to larger multi-family residential buildings. There are 135 dwelling units proposed; 30 single-family detached units, 36 single-family attached units, and 69 multi-family units. A total of 15.33 acres is in building lots, and 7 acres is proposed as open space with the intent to maintain the open and rural character of this part of Eagle County.

The parcel can generally be described as being adjacent to State Highway 82 on the north side and to the east of the property is the Summit Vista subdivision, a medium density subdivision supporting approximately 70 single family homes and 12 multifamily housing units; to the south are undeveloped fields owned by the U.S. Forest Service for equipment and supply storage. There is also a short trail for Roaring Fork River access through these public lands. To the west are five rural residential lots in the Arlian Ranch Subdivision. (**Figure 1**)

The parcel currently consists of residential buildings, several agricultural sheds, and storage buildings. The property has been used primarily for livestock grazing and has been historically flood-irrigated by water from the Arlian Ranch Ditch. The Harris and Reed ditch flows onto the site from the north side then bisects the northeast corner of the property. Smaller agricultural lateral ditches are in the grazed pastures.

Physiographically, the property is relatively level, with natural and constructed swales, likely due to decades of irrigation and hay production. The parcel drains primarily to the north and west towards the Roaring Fork River. The site is dominated by agricultural cultivars of grasses, various ruderal forbs and a few small patches of willows in and around the low-lying areas. There are a few trees on the property, mostly associated with ditches and ornamental trees around the existing homes.

Figure 1. The Fields Project Area



2.0 ENVIRONMENTAL IMPACT REVIEWS

2.1 Hydrologic

The Fields Development exists entirely within the bounds of the area that was evaluated in the May 2020 Geologic Hazard Evaluation and Preliminary Geotechnical Investigation, prepared by CTL Thompson. Additionally, the site was assessed in September of 2020 by SGM for potential jurisdictional wetlands and other waters of the U.S. The conclusions of these reports are summarized here.

Per the 2020 CTL Thompson report, large hydrologic basins are not tributary to the property. The tributary basins are small and located to the east of the project area, draining nearby subdivisions and relatively level agricultural pastures and hay fields. These basins only have ephemeral flows generally following unusually intense rainfall or from agricultural irrigation water. None of the ephemeral flows coincide with the area proposed for surface disturbance associated with the construction of residences or access roads. All surface flows from ephemeral drainages and from the property flow to the northwest at grades of less than 5 percent.

The 2020 CTL Thompson geotechnical report details the results of nine exploratory pits excavated on the property in 2020; the subsoils consist of about one foot of sandy clay topsoil overlaying approximately 2 feet of natural sandy clay, underlain by clean to silty gravel with cobbles and boulders to the maximum explored depth of 10 feet. A gradation analysis on nine samples of the gravel and cobble soils resulted in 52 to 73 percent gravel, 23 to 40 percent sand, and 4 to 17 percent silt and clay. These soils are not anticipated to cause hydrologic risks to development of the property.

To ascertain the potential risk of subsidence from evaporitic Eagle Valley formations, CTL Thompson conducted an electrical resistivity test in the summer of 2020. Test results revealed that the groundwater table is 15 to 25 feet below the ground surface. The bedrock surface appears to be 40 to 60 feet below the ground. Eagle Valley Evaporites are a concern for subsidence, but at this time the property does not show existing subsidence issues or notable risks due to existing hydrologic conditions.

In September 2020, SGM biologists assessed the property for potentially-jurisdictional wetlands and other waters of the U.S. Hydrology on the property was documented as being derived from irrigation ditch flows, and was supporting wetlands along the ditches, and in a few low-lying areas. Agriculturally-induced wetlands would not be considered jurisdictional by the U.S. Army Corps of Engineers (USACE). There is no evidence of ephemeral and intermittent flows entering the property from surrounding areas, and therefore there is no reasonable mechanism by which the wetlands could be supported by naturally occurring hydrology.

With development of the property, agricultural irrigation would cease, and it is likely that any wetlands on the property would be significantly reduced in extent. The applicant is not required to seek a permit from the U.S. Army Corps of Engineers for impacts to agriculturally-induced wetlands. The Fields would still need to comply with any water right decrees and delivery needs for down-gradient water users.

Grading plans have not been finalized for The Fields at this stage. However, the proposed development is expected to have little impact on the historical drainage patterns. The building envelopes are in relatively level or in gently rolling terrain with established drainage patterns that are unlikely to be substantially altered. The Harris and Reed Ditch in the northeast corner will be maintained in place; water from this ditch would be used to help fill the pond and irrigate open space areas. The Arlian Ranch Ditch abutting Valley Road would also be used to help irrigate open space areas. Both ditches would remain as-is, to maintain down-gradient water uses.

Storm drainage from all roadways and rooflines will be conveyed away from building foundations and towards naturally-occurring Topographical lows. It is expected that natural infiltration and attenuation

will be sufficient to remove any suspended sediment or other substances from stormwater. If this expectation is found to be incorrect as more detailed plans are developed, a mitigation system will be developed to prevent contaminants from reaching down-gradient waters. Typical Best Management Practices (BMPs) would be employed to ensure CDPHE stormwater management compliance.

Consistency review with §4-460 2.e. The Fields Development would not increase risks for or cause avalanches, landslides, siltation, settlement, floods, or other significant landform changes or hazard to health and safety. FEMA identifies this parcel as Zone X, which corresponds to minimal probability of flooding.

2.2 Atmospheric

The Eagle County Environmental Health Department utilizes the air quality standards set by the Environmental Protection Agency (EPA), Office of Air Quality Planning & Standards (OAQPS). According the Colorado Department of Public Health and Environment and EPA's websites, the nearest area that previously had a State Implementation Plan for achieving attainment was the City of Aspen for PM10. Since 2008, Aspen has been in attainment for PM10, and the rest of the region is in attainment for all six criteria pollutants.

From the Office of Air Quality Planning & Standards: OAQPS is responsible for setting the National Ambient Air Quality Standards (NAAQS), which controls pollutants harmful to people and the environment. There are two types of standards; primary and secondary. Primary standards protect against adverse health effects; secondary standards protect against welfare effects, such as damage to farm crops, vegetation and damage to buildings. The six criteria pollutants addressed in the NAAQS are Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), Lead (Pb), Ozone (O_3; or smog), Particulate Matter, and Sulfur Dioxide (SO_2). If the levels of these pollutants are higher than what is considered acceptable by EPA, then the area in which the level is too high is called a nonattainment area.

Air quality characteristics with the Roaring Fork Valley are generally good; however, oil and gas development to the west may result in increasing negative air quality effects on downwind locations, such as Eagle County. Recent studies in neighboring Garfield County have identified the potential for higher levels of air toxins, such as Volatile Organic Compounds (VOC's), due to oil and gas development; however, these impacts are usually close to facilities. Other off-site air quality considerations include mobile pollution sources (CO), and particulates (PM10; dust) related to vehicular traffic on Highway 82.

The proposed development is not projected to have major adverse effects on local or regional air quality. The proposed use is medium density residential and wood-burning devices would be restricted. Most of the needed access to the residential lots will be provided by one new roadway off of Valley Road, which currently provides access to the property. In addition to the new access road, only minimal additional spur driveways will need to be constructed, limiting the extent of surface disturbance and associated fugitive dust generated by the project. In addition, the residential lots are separated from adjacent developments by intervening open areas. Vegetation will provide screening and mitigation of dust impacts to surrounding property owners.

Detailed erosion control and construction plans will guide development of the site during construction, with a goal of minimizing particulate matter (PM10; fugitive dust) emissions from the project site. Nevertheless, there would likely be a minor, temporary increase in airborne particulate matter because of machinery operations producing fugitive dust during construction access improvements, vegetation clearing, and during the dirt-work phases of construction. Approximately 36 percent of the subdivision would remain as open space; therefore, a large proportion the property would not experience surface disturbance. Disturbed areas not immediately scheduled for landscaping would be stabilized and seeded as soon as possible using an interim seed mix. In the autumn following completion of construction,

disturbed areas would be reseeded with the permanent revegetation seed mix or would be landscaped. Other mitigation measures would include regular monitoring and subsequent watering of bare ground and employing temporary and/ or rapid revegetation practices throughout the duration of site improvements.

2.3 Geology

Site Characteristics. A geotechnical report was prepared by CTL Thompson for this application. CTL Thompson conducted field exploration consisting of exploratory borings to obtain information on subsurface conditions. Samples were tested using laboratory analyses to determine subsoil classification, gradation, and other engineering characteristics. These data were analyzed to develop preliminary recommendations for foundation types, depths and allowable pressures for proposed building foundations.

Near surface formation rock at the project site is the Permian-age Eagle Valley Evaporite (Kirkham, Widmann, and Streufert, 2008). The Eagle Valley Evaporite consists of gypsum and anhydrite, halite and sylvite interbedded with thin siltstone, sandstone and carbonate beds. The project site is located about a mile east and west of the Leon Trough, a broad depositional basin caused by evaporite collapse.

The overburden soils in the project area are intermediate terrace alluvium deposits of the late Pleistocene Epoch. The deposits are described as mostly poorly sorted, clast-supported, boulder, pebble and cobble gravel in a sand and silt matrix deposited as glacial outwash. The soils are underlain at unknown depth by bedrock of the Pennsylvanian-Permian age Maroon, Eagle Valley and/or Eagle Valley Evaporite formations. (CTL Thompson, 2020).

Development Considerations and Recommendations. As stated in the geotechnical report, the project site geology should not present major constraints or unusually high risks to the proposed development. There are several conditions of a geologic nature that should be considered; formation of subsidence (i.e., sinkholes) is random and can occur anywhere and at any time in the geologic environment at this site. However, there is no evidence of subsidence on the project parcel and the risk rating for subsidence is low at this project site. The risk of subsidence and/or sinkholes is similar to and no greater than the risk at other nearby developments (e.g., Willits, Tree Farm; CTL Thompson 2020).

During the subsurface exploration, groundwater was not encountered in the exploratory pits 10 feet below the ground surface. Please refer to the 2020 CTL Thompson report for additional information and a full discussion.

Consistency review with §4-460 2.e. The Fields Development would not increase risks for or cause avalanche, landslides, siltation, settlement, flood, or other significant land form change or hazard to health and safety. The Permian-age Eagle Valley Evaporite formation underlays this site and a large part of this valley.

2.4 Biotic

2.4.1 Wildlife

This section of the report was developed to meet the requirements of a Wildlife Analysis (§ 4-430) of the Eagle County Land Use Regulations. SGM conducted on-site field surveys and reviewed Colorado Parks and Wildlife (CPW) Natural Diversity Information System (NDIS) mapping for this project. The following sections present the results of these reviews.

Habitat on the property is mostly irrigated pasture, dominated by agricultural cultivars including orchard grass (*Dactylis glomerata*), Kentucky bluegrass (*Poa pratensis*), timothy (*Phleum pratense*), meadow fescue (*Festuca arvensis*), and western wheatgrass (*Pascopyrum smithii*). Swales collect irrigation waters, and in these more mesic areas, including areas immediately abutting irrigation ditches, vegetation is dominated by beaked sedge (*Carex utriculata*), Nebraska sedge (*Carex nebrascensis*), red dock (*Rumex aquaticus*), and meadow sedge (*Carex praegracilis*). Coyote willow (*Salix exigua*) is common in some areas. Trees on the property are only limited to a few ornamentals around the existing homes, and narrowleaf cottonwood (*Populus angustifolia*) along the Arlian Ranch Ditch, abutting Valley Road.

Big Game. Based on information from CPW, the property is not within any big game winter ranges, summer range, or production (calving/fawning) areas. The nearest winter range is for mule deer, and this mapped area is approximately 0.4 miles to the southwest, on the far side of the Roaring Fork River (**Figure 2**). Given the lack of trees and shrubs and proximity of existing subdivisions, use of the parcel by mule deer would be extremely unlikely; a few individual mule deer may use the parcel at any time of the year, but only on an incidental basis. Elk use of the property is even more unlikely; the location of the property away from larger and more contiguous habitats, and the presence of nearby homes, make use of the property unlikely aside from a few individuals lingering on the property in the winter months. The nearest mapped elk habitat is approximately 0.25 miles to the south, on the far side of the Roaring Fork River (**Figure 3**).

Bald Eagle. The property is within a CPW-mapped area of bald eagle Winter Range (**Figure 4**). This mapped Winter Range area follows the Roaring Fork River and extends approximately 0.25-miles on either side of the river. As the property does not support any large, suitable trees for perching or roosting, bald eagle use of the parcel would not be expected. There is a stand of large cottonwood trees to the east of the parcel, and these trees could support some bald eagle perching activity during the winter months. However, these trees currently support a red-tailed hawk nest, and the presence of these hawks would preclude any bald eagle use of these trees during the nesting season. Development of the parcel would not be expected to impact bald eagle use of the area. As the parcel is also approximately 0.10-miles north of the Roaring Fork River, development of the parcel would not impact bald eagles' continued ability to continue foraging along the Roaring Fork River. Development of the parcel is not expected to have any significant impacts to bald eagle or their habitats.

Black Bear. The property is within a CPW-mapped black bear Fall Concentration Area as is most of the Roaring Fork Valley; immediately to the north, on the north side of Highway 82 is a CPW-mapped Human Conflict Area based on activities within the Blue Lake subdivision (**Figure 5**). As the property does not support shrubby habitats, and is dominated by agricultural grasses, there is no foraging, shelter or other habitats for black bear; therefore, while black bears may incidentally or rarely pass through the property, there is no effective habitat on the property for black bear.

After development of the parcel, there is a high likelihood that black bears would show increased interest in foraging around the homes. Black bears are an existing issue in the El Jebel area, and during some years black bear activities in subdivisions in the area can be problematic. If precautions regarding mitigating bear attractants are implemented, and appropriate containment of trash is implemented, black bear conflicts can be minimized. Regardless, there is a chance that black bear activities will occur within The Fields development area after development given their propensity to forage within residential areas throughout the valley.

Consistency review with §4-460 2.b, c. The Fields Development would not directly or indirectly affect known wildlife habitat, feeding, or nesting habitats. The existing lack of more native habitats, nearby residential subdivisions, and lack of security habitats on the property means that it is mostly unsuitable habitat conditions for wildlife and species of concern, aside from likely intermittent deer use, and black bear foraging. The Fields project area is dominated by mostly non-native agricultural cultivars, and the project would not significantly alter or remove native grasses, trees, shrubs, or other vegetative cover.

Figure 2. Mule Deer Habitats

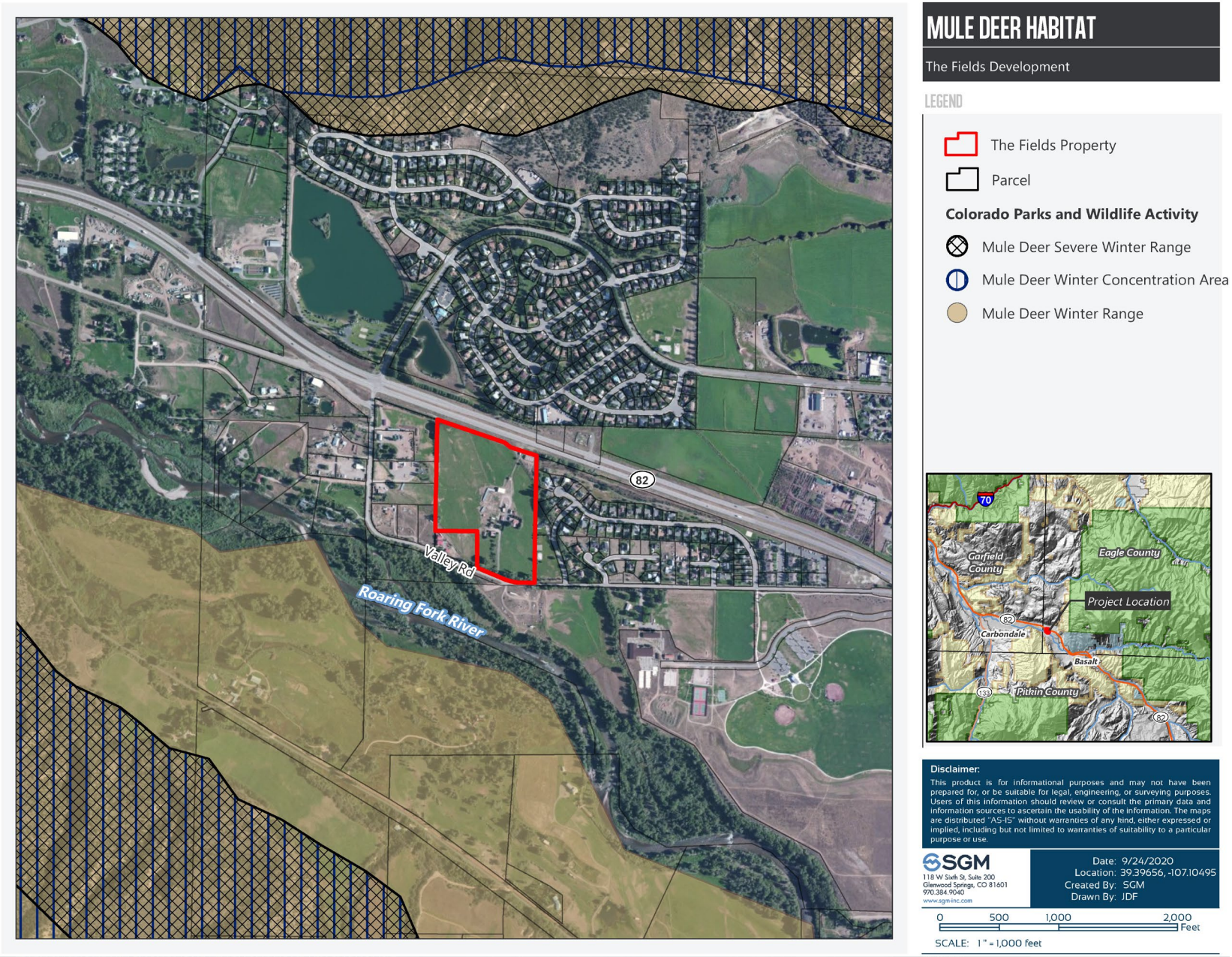


Figure 3. Elk Habitats

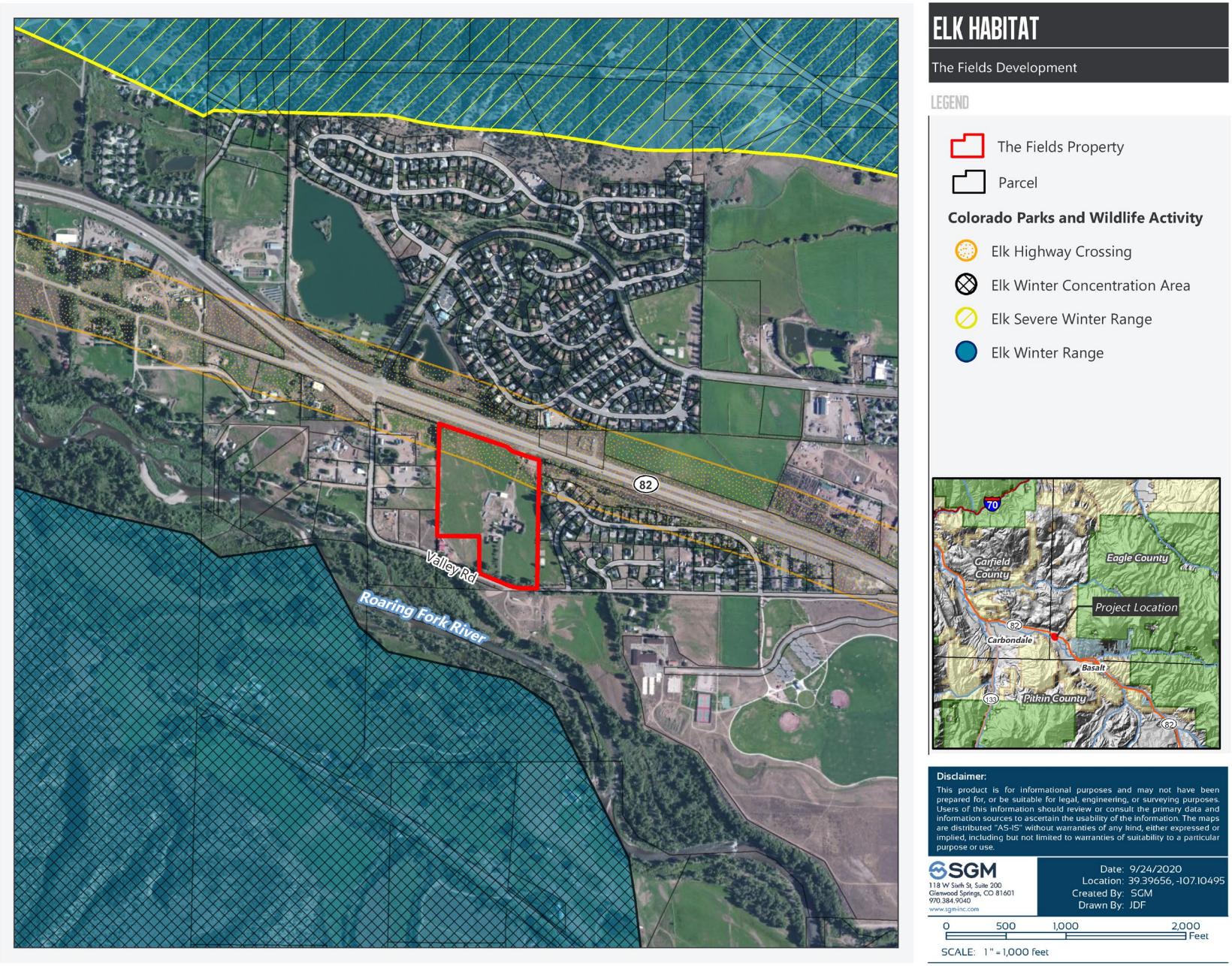


Figure 4. Bald Eagle Habitats

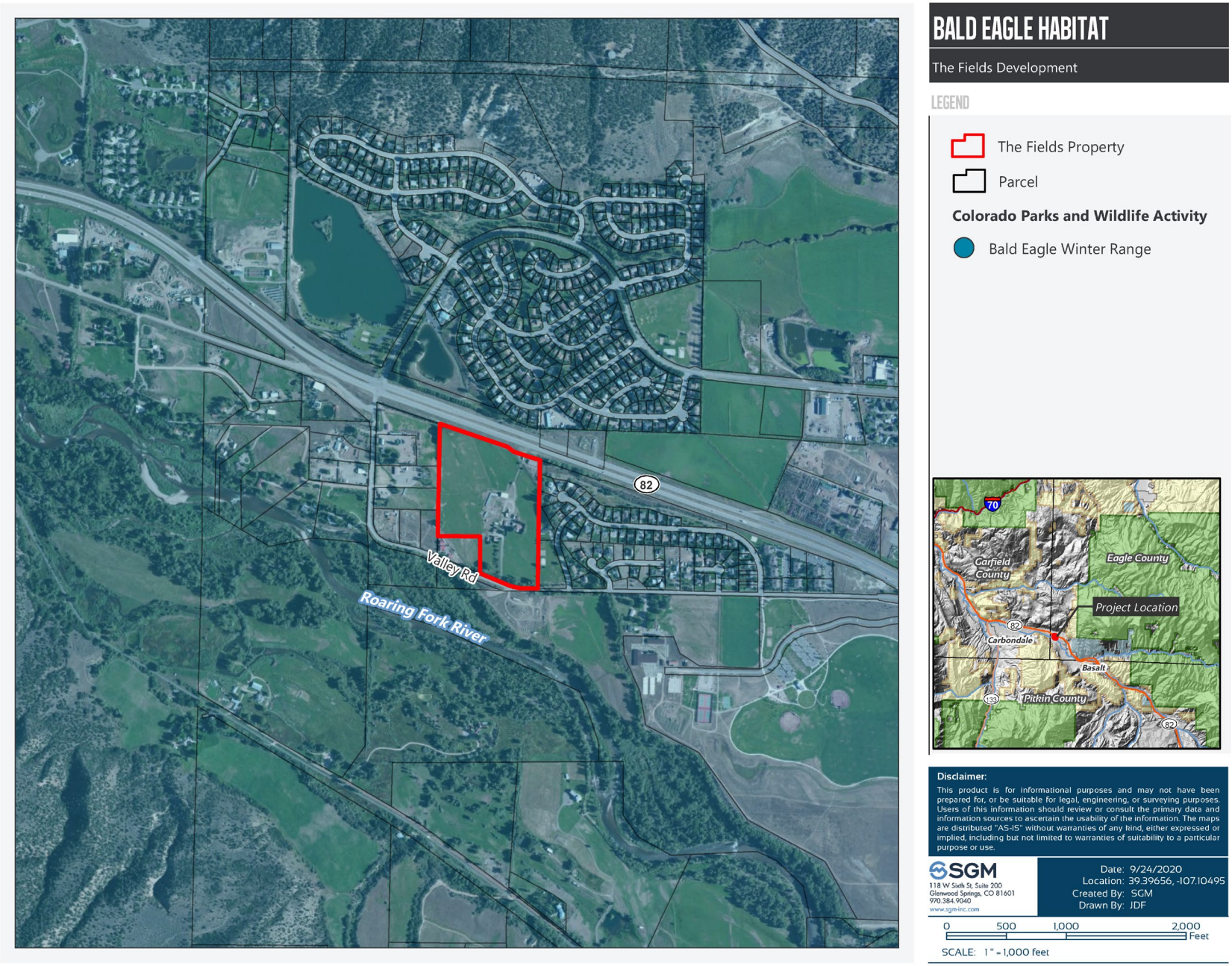


Figure 5. Black Bear Habitats

2.4.2 Endangered, Threatened, Proposed and Candidate Species

There are no known federally listed Threatened, Endangered, Proposed, or Candidate species on the site. Ute ladies-tresses orchid (*Spiranthes diluvialis*), a Threatened plant species, is known to occur in perennial wetland areas dominated by grasses, forbs, and with an open canopy along the Roaring Fork River, particularly near the Town of Carbondale. The nearby Forest Service property is known to support this species along the banks of the Roaring Fork River, approximately 0.1 miles southwest of the property. No surveys for this species have been completed at the property given the time of year of site visits; this species blooms in late August and early September and is undetectable in other times of the year. The property supports potentially suitable habitat for Ute ladies-tresses orchid along the irrigation ditches. Irrigation water management and filling of wetlands may impact this species if it occurs on site. If this orchid occurs on the property, development would likely negatively impact this species directly, as well as its habitats.

2.4.3 Wetlands

The property has a long history of flood irrigation for grass hay production and livestock grazing. Both the larger Harris and Reed Ditch and the Arlian Ranch Ditch are unlined through the property, and numerous laterals from these ditches provide flood irrigation. Saturation of nearby low areas occurs yearly. The large volumes of water used for flood irrigation have allowed for the development of agriculturally induced wetlands in low-lying areas of the property and along the ditch laterals. These agriculturally induced wetlands are typically not regulated by the USACE, and fill or other management actions are not regulated under section 404 of the Clean Water Act.

Flood irrigation waters near the Harris and Reed ditch.

As The Fields occurs in an area with no natural or reasonably foreseeable natural surface flows or natural ponding, the site would not support wetlands if not for the presence of the irrigation ditches. Therefore, a formal wetland delineation is not required. This project would have no impact on jurisdictional wetlands, or other waters of the U.S.

Figure 6. Irrigation Ditches and Local Flow Paths

2.5 Vegetation Management Plan

This section of the Environmental Impact Report was written to meet the requirements of a Vegetation Management Plan, per § 4-430 of the Eagle County Land Use Regulations.

2.5.1 Dominant Vegetation Types

As previously mentioned, the property is mostly irrigated pasture, dominated by agricultural cultivars including orchard grass, Kentucky bluegrass, timothy, meadow fescue, and western wheatgrass. Swales collect irrigation waters, and in these more mesic areas, including areas immediately abutting irrigation ditches, vegetation is dominated by beaked sedge, Nebraska sedge, red dock, and meadow sedge. Coyote willow is common in some areas. Trees on the property are only limited to a few ornamentals around the existing homes, and narrowleaf cottonwood along the Arlian Ranch Ditch, abutting Valley Road.

The Eagle County Wildfire Map Viewer lists the majority of the property as **Minimal Likely Exposure**; these areas are associated with the irrigated pastures. The cottonwood trees along the ditches, and ornamental trees around the homes elevate some areas of the property to **FireShed High** category. However, based on the relatively level topography, discontinuous fuels, and irrigated nature of the area, the property is dominated by **Low Hazard** conditions.

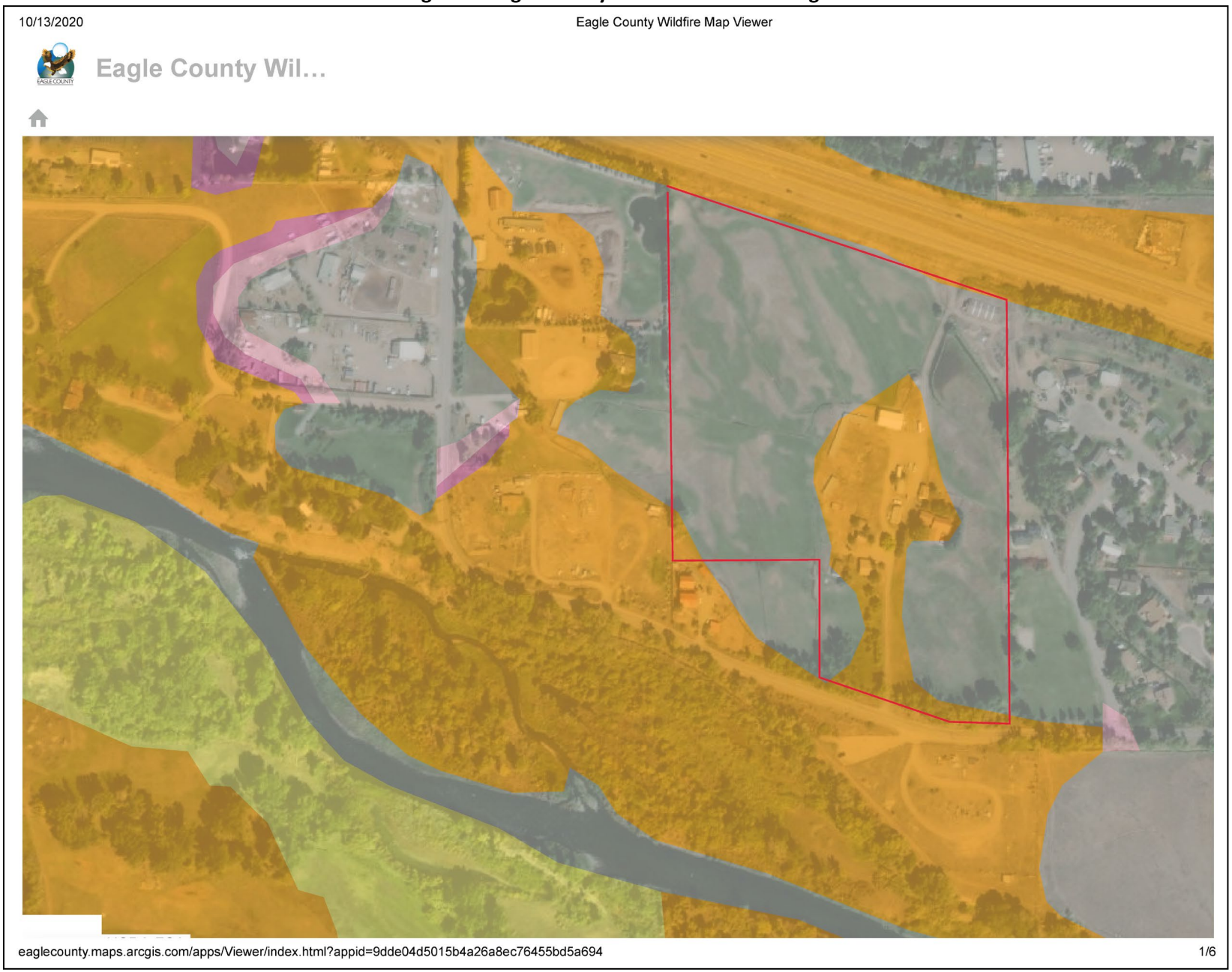
There is an existing fire hydrant along Valley Road, and Basalt and Rural Fire Protection District is requesting thirteen hydrants within the subdivision.

There are no construction materials stipulations associated with Low hazard areas, aside from avoiding shake shingle roofs (including treated wood singles). Per the Eagle County wildfire hazard guidance, new landscaping within 20 feet of homes will be limited to shrubs, perennials, or grasses. Grasses within 20 feet of the house will be kept to less than 1' in height. Irrigation will be required for each homesite. If a tree or cluster of trees must remain, it will be considered as an integral part of the structure. Future owners of the proposed lots will be responsible for any landscaping as part of construction on their lots.

Along the Arlian Ranch Ditch, remove dead and down limbs and woody fuels. Understory brush should be periodically cleared out around the trees. There are no other foreseeable fuels mitigation needs at this time.

Based on the site conditions, location of hydrants and landscaping plan, The Fields is at low risk for impacts due to wildfire.

Figure 7. Eagle County Wildfire Hazard Ratings



2.6 Waste, Noises and Odors

The proposed uses within the Fields Development are not expected to produce any abnormal toxic or noxious substances, smoke, odors, gas, wastes, steam, dust or other particulate matter, other than those indicated in **Section 2.2 – Atmospheric**. The proposed medium density residential uses will integrate well with neighboring existing land uses. Thirty-six percent of the development will be managed as open space, which will produce no waste, noises or odors and will help to maintain the open rural character of Eagle County. Noises and waste production would be typical of medium density, single-family and multi-family subdivisions.

Consistency review with §4-460 2. f, g, h, i, j and k. The Fields Development is not expected to discharge toxic or thermally abnormal substances, or involving use of herbicides or pesticides, or emitting significant smoke, gas, steam, dust, or other particulate matter. There is no part of the proposed development which will result in significant odor that may be objectionable or damaging. There are no project components that would require any waste treatment (other than domestic wastewater, as described below), cooling, or settlement pond, or require transportation of solid or liquid wastes to a treatment or disposal site. The Fields Development would not discharge significant volumes of solid or liquid wastes.

Sewage from the development would be handled by connecting to Midvalley Metro District's sewer lines, and stormwater runoff would be managed on site using Low Impact Development techniques (e.g., onsite stormwater infiltration areas, vegetated swales, etc.) and state-required Best Management Practices (BMPs). The Fields Development would not increase the demand on existing or planned sewage disposal, storm drainage, or other utility systems to a level which could cause an adverse impact on the environment.

2.7 Visual Resources

Assessing scenic values and determining visual impacts is a subjective process; thus, identifying whether effects will be objectively beneficial or detrimental is a difficult task. Objectivity can be achieved by using the basic design elements of form, line, color, and texture. These elements have been used often to describe and evaluate landscapes. Projects that repeat these design elements are usually in harmony with their surroundings; contrast is created when the elements are not repeated in the project's design. The project area was analyzed relative to how visible it is to the casual observer.

Most of the observers potentially viewing the development include the five homesites to the west in the Arlian Ranch Subdivision and four homesites to the east in the Summit Vista neighborhood, all with back yards facing The Fields development. Residents and local traffic travelling on Valley Road on the south side of the development and on State Highway 82 bordering the north side of the development will also see the development. A berm will be constructed on the north side of the parcel to help screen State Highway 82 traffic noise and add privacy for the residents. The berm will allow those traveling on State Highway 82 to see the rooflines of the development and people living in the proposed development to still see the surrounding mountains. The buildings proposed for this area will be a maximum of 35 feet tall. The limited height of the buildings, combined with the level terrain and limited number of adjacent residences, suggests that the development will be unnoticeable to the casual viewer.

The project was assessed within the greater visual context of the surrounding land and land uses. The visual context of this project consists of typical low and medium density housing. The medium density residential housing and the undeveloped open space surrounding the residential lots allow the Fields Development to blend with existing area land uses and residential developments and prevent further degradation of the overall rural visual context in this area of Eagle County.

To summarize, The Fields development is consistent with the surrounding land uses in the area, the project will not silhouette any dominant ridgelines, and is consistent with existing forms in the landscape. Homesites are set far enough from property lines such that views from other homesites in the area would not be blocked or significantly impacted. Lastly, due to sight distance, angle of view, proposed berm and vegetative screening, the casual observer will experience low exposure to the project.

Consistency review with §4-460 2.d. The Fields development would not significantly affect the appearance or character of a significant scenic area or resource or involving buildings or other structures that are of a size, bulk, or scale that would be in marked contrast to natural or existing cultural features.

The Fields development is consistent with the surrounding land uses in the area. Homesites are set far enough from property lines such that views from the four homesites in the Summit Vista neighborhood and Arlian Ranch Subdivision would not be blocked or significantly impacted. The development will be unnoticeable to the casual viewer and structures will not be silhouetted against the skyline when viewed from State Highway 82 or other major area roads.

2.8 Circulation and Transportation

Valley Road provides access from State Highway 82, which is approximately 0.10 mile to the east and south of The Fields development. McDowell Engineering provided a Transportation Impact Study which states that the proposed development is expected to generate 1,021 new vehicle trips on the average weekday. A CDOT State Highway Access Permit will be required for the south leg of SH 82 and El Jebel Road intersection with the increased traffic volumes for the Fields Development. At this time, this intersection is already functioning below required Level of Service (LOS), and CDOT and Eagle County are looking into short-term solutions to keep this intersection functional, while long-term solutions and funding are being developed (even without anticipated traffic increases from The Fields development).

Infrastructure improvements are also recommended for SH 82 and Valley Road / J W Drive as well as the intersection of Valley Road and East Valley Road. A northbound right turn late will need to be constructed at the intersection of SH 82 and J W Drive. At the intersection of Valley Road and East Valley Road, the northbound stop sign will be removed from the East Valley Road leg of the intersection. Signal timing will need to be modified. Access to the subdivision from Valley Road is provided with a 24 to 26’ wide access drive. A 50’ wide access easement provides ample room for drainage and snow storage along the access drive. A RFTA transit stop is approximately 0.75-mile away at the El Jebel Park and Ride and is accessed by a bike/pedestrian path on the west side of Valley Road.

Consistency review with §4-460 2. n. The Fields development will be successfully incorporated in the existing roadway network. The traffic study has indicated that the increase traffic volume from this development is well below 5% of the existing traffic on the adjacent roads, however, the SH 82 and El Jebel Road intersection is already functioning below LOS requirements, and CDOT and Eagle County are investigating both short- and long-term improvements. Additional access road recommendations were also made for CDOT State Highway Permitting and improvements.

2.9 Land Use

The Fields Development parcel has been used for low-intensity livestock grazing for the past 80 years. As part of the long-term use of the parcel, the site has been seasonally flood irrigated from the Harris and Reed Ditch, as well as from other smaller lateral ditches. Irrigation generally begins in the spring (April) and continues through October. Currently, the parcel sees summertime flood irrigation concurrent with horse grazing.

Ditches are maintained through intermittent cleaning (removal of accumulated silts) and burning by both the Harris and Reed Ditch Company and Arlian Ranch Ditch Company.

There is currently one larger residential home and two other smaller residential units as well as several outbuildings, all of which are in an average to dilapidated condition and are used for storage of ranch equipment and supplies.

Development of the parcel would cease the seasonal flood-irrigation of the property and remove the livestock and horse grazing activities. Given the parcel generally supports a maximum of 15 animals (with brief periods of higher stocking rates), the cessation of these agricultural activities is not expected to result in a major impact to agricultural activities or the livestock industry in western Colorado.

Local neighborhoods have experienced substantial growth in population and jobs with a resulting lack of available residential properties to meet this growth. This development adds to the inventory of available residential properties and will contribute to providing affordable housing in the immediate area based on proposed affordable housing mitigation.

3.0 Conclusion

The Fields Development application is consistent with the standards of the Eagle County Land Use Regulations. This project would have minimal impacts to wildlife and their habitats given existing site conditions are already considered poor habitat for local wildlife species. The existing residential developments adjacent to the parcel also reduce habitat effectiveness in the area and have cut-off wildlife movement corridors. The parcel is set back from the Roaring Fork River, and important riparian habitats would not be impacted.

While wetlands occur on the property, they are a result of flood irrigation practices, and these wetlands are of low quality and are apparently non-jurisdictional wetlands. The parcel is dominated by agricultural grass and forb species, and there would be no impact to large, intact, or valuable native vegetation communities.

The Fields Development is strategically located to take advantage of nearby retail resources and existing velociRFTA to further minimize traffic impacts. It also minimizes aesthetic impacts by using area-appropriate densities, home sizes, avoidance of ridgeline development, and mimicking and blending with existing developments.

The Fields Development would not significantly alter an ecological unit or landform, such as a ridgeline, saddle, draw, ravine, hillside, cliff, slope, creek, marsh, watercourse, or other natural landform feature. There would be no significant temporary, secondary or cumulative negative long-term impact to the environment. After development, the property would be used long-term as a residential development, and reuse of the property for agricultural livestock grazing purposes would be difficult. Interim livestock grazing may continue while some lots are undeveloped.

The development of the property would not result in the displacement or notable impacts to local residents.

4.0 REPORT AUTHOR

The primary author for this report was Eric Petterson, Senior Biologist and Environmental Team Leader at SGM. Mr. Petterson holds a Master of Science Degree in Ecology and a Bachelor of Science Degree in Wildlife Biology from Colorado State University. Mr. Petterson has 30 years of natural resource planning and management experience. As a professional wildlife biologist for the past 24 years working in the private sector and for the USDA Forest Service, he has authored numerous Biological Evaluations and Biological Assessments for NEPA and Endangered Species Act compliance for wildlife (and plant) species in Colorado, Utah, Wyoming, and Nebraska. He has produced management plans and impact analyses for federal, state, and private natural resource projects, and conducted numerous surveys for Threatened, Endangered, and Sensitive species in Colorado, Utah, Wyoming, New Mexico and Nebraska.

Mr. Petterson has implemented a variety of wildlife impact assessments, vegetation monitoring and vegetation management projects, wetland delineations, and research-based projects for clients including the USDA Forest Service, Bureau of Land Management, Colorado State Forest Service, Colorado State Parks, Summit County, Pitkin County Open Space & Trails, City of Aspen, Garfield County, Gunnison County, Town of Breckenridge, Town of New Castle, and various private entities within Pitkin, Eagle, Grand, Garfield, Gunnison, Mesa, Rio Blanco, Routt, Larimer, and Boulder Counties, and projects in New Mexico, Nevada, Texas and in Utah.

Wildlife and vegetation assessment reports and compliance documentation have been provided for entities such as Aspen Skiing Company, Vail Resorts, Sunlight Mountain Resort, Loveland Ski Area, ETC Canyon Pipeline, Noble Energy, SG Interests, Rio Tinto Kennecott Utah Copper LLC, Climax Molybdenum, Newmont Mining, Union Pacific Railroad, Burlington Northern Railroad, Los Alamos National Laboratory, Western Area Power Administration, Holy Cross Electric, Mountain Parks Electric Association, and the Colorado River Water Conservation District.

Mr. Petterson has been with SGM since 2018, and previous to working with SGM he was a Senior Biologist with URS Corporation and Olsson Associates, and previously was Principal Ecologist with MountainWest, LLC. for 15 years. He was the District Wildlife Biologist for the Canyon Lakes Ranger District on the Arapaho & Roosevelt National Forest from 1997-2000. Mr. Petterson was with the USDA Forest Service for 10 years.

Eric Petterson
Environmental Team Lead

5.0 CITATIONS AND SUPPORTING REPORTS

CTL Thompson. 2020. Geologic Hazard Evaluation and Preliminary Geotechnical Investigation, The Fields Subdivision 554 Valley Road (A.K.A. Lot 5, Arlian Ranch Subdivision) Eagle County, Colorado. Project No. GS0645.000-115.

Kirkham, R. M., B. L. Widmann, and R. K. Streufert., 2008, MS-40 Geologic Map of the Leon Quadrangle, Eagle County, Colorado: Colorado Geological Survey Geologic Map Series MS-40.

Lovgren, E. 2018. Eagle County Wildfire Hazard Rating assessment. Eagle County Environmental Health. Eagle, Co.

McDowell Engineering, LLC. 2020. Transportation Impact Study for The Fields, El Jebel, CO. Eagle, CO.

Appendix O

Water Supply

WATERLAW

PATRICK | MILLER | NOTO

Scott C. Miller*
Shareholder
miller@waterlaw.com

Reply to Aspen or Basalt Office
*licensed in CO

November 23, 2020

Eagle County Community Development Department
P.O. Box 179
500 Broadway
Eagle, CO 81631-179

RE: Water Supply for Fields Development (our file # 1472A)

To Whom It May Concern:

Our law firm provides water council to Fields Development Group, LLC ("Developer"). Developer owns the property located at 554 Valley Road in Eagle County (the "Property") and is in the process of developing the Property into a multi-unit development containing approximately 135 dwelling units. The purpose of this letter is to support Developer's land use application. Specifically, this letter describes the water that can and will legally and physically supply the Property in sufficient quantity for domestic and irrigation uses, as well as the planned pond.

ASPEN:
197 Prospector Dr.
Suite 2104 A
Aspen, CO 81611
T. 970.920.1030
F. 970.925.6847

BASALT:
Waterlaw Riverwalk
229 Midland Avenue
Basalt, CO 81621
T. 970.920.1030
F. 970.927.1030

DENVER:
999 18th St.
30th Floor
Denver, CO 80202
T. 303.893.9700
F. 303.893.7900

SCOTTSDALE:
16427 N. Scottsdale Rd.
Suite 410
Scottsdale, AZ 85254
T. 800.282.5458
F. 970.927.1030

www.waterlaw.com
Professional Corp.

Domestic water supply:

The Property will be supplied with domestic water from Mid Valley Metropolitan District (""MMVD"). Developer has received a Commitment to Serve letter from MMVD, attached as **Exhibit A**. The Property's existing MMVD tap allows for water service up to four EQRs. Developer plans to increase the Property's domestic water supply through either dedication of a portion of Developer's senior water rights, discussed below, to MMVD or through a cash-in-lieu payment. The expanded use of MMVD water will allow Developer to both legally and physically supply domestic water to the 135 planned dwelling units. The Property is included within the MMVD's boundaries and is eligible to receive such potable water and sanitary sewer services from MMVD.

Irrigation water supply:

The irrigation raw water supply for the Property comes from shares of stock in the Arlian Ranch Ditch Company. Developer owns 173 out of the 780 total shares in Arlian Ranch Ditch Company, or a 22.2 percent interest. That share interest translates to 112 interrupted hours of receipt of the Ditch Company's full water supply every three weeks. The Arlian Ranch Ditch Company's water supply in turn comes from shares of stock in the Harris and Reed Ditch Company.

The Arlian Ranch Ditch Company owns 3,000 shares, or 12.4 percent, of the 24,273 total shares in the Harris and Reed Ditch Company, which owns two priorities decreed to the Harris and Reed Ditch. That 12.4 percent interest equates to approximately 3.0 c.f.s. The Harris and Reed Ditch Company water rights, and the

corresponding amounts owned by the Arlian Ranch Ditch Company are summarized as follows:

Priority	Case No.	Adjudication Date	Appropriation Date	Total Decreed Amount (cfs)	Arlian Ranch Amount (cfs)
78	CA 132	5/11/1889	11/2/1883	8.734	1.082
315	CA 3082	8/25/1936	11/2/1890	14.821	1.837
TOTAL				*23.555*	*2.919*

The Harris and Reed Ditch water rights are very senior and protected from downstream calls on the Colorado River, and have never been subject to local calls on the Roaring Fork River, ensuring a continuous irrigation supply. Developer's ownership interest of 112 consecutive hours of approximately 3.0 c.f.s every three weeks is more than sufficient to irrigate the proposed green spaces on the Property.

Pond:

Developer also plans to construct a pond on the Property. The pond will have a surface area of approximately 15,000 square feet and a volume of approximately 0.9 acre-foot. The pond will be filled from the existing ditch system on the Property, with evaporation losses to be augmented with an Allotment Contract from the Basalt Water Conservancy District. The estimated evaporative depletions are 1.72 acre-feet per year. An Allotment Contract is readily available for this amount.

We hope that this information is helpful. Please contact me or John Sittler at our office if you have any questions.

Very truly yours,

Patrick | Miller | Noto
A Professional Corporation

By:_____

Scott C. Miller
miller@waterlaw.com

John M. Sittler
sittler@waterlaw.com

SCM/
cc: Client team

EXHIBIT A

October 8, 2020

Via E-mail: jon@landwestcolorado.com

Mr. Jon Fredericks
Land West

RE: Fields Development - Mid Valley Metropolitan District Commitment to Serve

Dear Jon:

SGM is consulting engineer for the Mid Valley Metropolitan District (the "District"). The District received your request for a commitment to serve a proposed residential development known as the Fields Development with water and sanitary sewer services. The subject property is located within the District's service area at 0554 Valley Road, Carbondale, CO 81623, off Highway 82 near the Valley Road intersection. Based on information you provided, the current development proposal is for one hundred and thirty-five (135) residential dwelling units, which would equate to 135 EQRs of water and sewer service. The District can and will serve the proposed Fields Development with water and sewer services, subject to the following conditions:

1. The Applicant shall comply with all Rules and Regulations of the District currently in effect and as may be amended from time to time.

2. The Applicant shall enter into a Line Extension Agreement with the District regarding the requirements for extending District water and sewer services to the property.

3. The District's 1041 Permit with Eagle County will have to be amended for the development.

4. The Applicant shall pay all applicable water and sewer tap fees to the District prior to receiving a building permit from Eagle County and prior to physical connection to the District's lines.

5. The Applicant shall comply with the District's water rights dedication requirements set forth in Article X of the District's Rules and Regulations.

6. The Applicant shall dedicate or convey to the District all easements necessary for the provision of District services to the development, which easements shall be free and clear of all liens and encumbrances.

I:\1981\01501\C\227 - Fields Development\Agreements\L 20201008 Jon Fredericks.DOC

7. The Applicant shall prepare and submit engineering designs for the construction and installation of District water and sewer services to the development, and engineering designs for a pressurized raw water irrigation system to serve the development, which designs shall conform with the Rules and Regulations and Technical Specifications of the District and which shall be subject to the review and approval of the District's engineer.

8. Raw water irrigation will be required for this project. The raw water irrigation requirements will be spelled out in the line extension agreement.

9. Pursuant to the District's Rules and Regulations, the Applicant shall reimburse the District for all costs incurred by the District regarding this project, including but not limited to legal and engineering fees and costs.

On behalf of the Mid Valley Metropolitan District, thank you for the opportunity to review and provide comments regarding the Fields Development.

Sincerely,

SGM

Chris Lehrman, PE
District Engineer

Cc e-mail: MVMD Staff

Appendix P

Utility Service Letters

October 8, 2020

Via E-mail: jon@landwestcolorado.com

Mr. Jon Fredericks
Land West

RE: Fields Development - Mid Valley Metropolitan District Commitment to Serve

Dear Jon:

SGM is consulting engineer for the Mid Valley Metropolitan District (the "District"). The District received your request for a commitment to serve a proposed residential development known as the Fields Development with water and sanitary sewer services. The subject property is located within the District's service area at 0554 Valley Road, Carbondale, CO 81623, off Highway 82 near the Valley Road intersection. Based on information you provided, the current development proposal is for one hundred and thirty-five (135) residential dwelling units, which would equate to 135 EQRs of water and sewer service. The District can and will serve the proposed Fields Development with water and sewer services, subject to the following conditions:

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On behalf of the Mid Valley Metropolitan District, thank you for the opportunity to review and provide comments regarding the Fields Development.

Sincerely,

SGM

Chris Lehrman, PE
District Engineer

Cc e-mail: MVMD Staff

3799 HIGHWAY 82 · P.O. BOX 2150
GLENWOOD SPRINGS, COLORADO 81602
(970) 945-5491 · FAX (970) 945-4081

August 31, 2020

Jon Fredericks
345 Colorado Ave. #106
Carbondale, CO 81623

RE: Fields housing power

Dear Mr. Fredricks,

The above mentioned development is within the certified service area of Holy Cross Energy.

Holy Cross Energy has adequate power supply to provide electric power to the development, subject to tariffs, rules and regulations on file. Any power line enlargements, relocations, and new extensions necessary to deliver adequate power to and within the development will be undertaken by Holy Cross Energy upon completion of appropriate contractual agreements and subject to necessary governmental approvals.

Additionally, due to current economic conditions, Holy Cross Energy is not stocking the quantity of construction materials as in past years. If your project is slated for construction this year, please advise us as soon as possible. You will need to enter into agreements with Holy Cross Energy, and pay for the project, sufficiently in advance of construction to avoid possible delays while materials are procured. The currently estimated lead time for procurement of materials is around 12 weeks.

Please advise when you wish to proceed with the development of the electric system for this project.

Sincerely,
HOLY CROSS ENERGY

Kenton Berner,
Engineering Department
kberner@holycross.com
(970) 947-5497

Fields Housing Development – 66-49- W/O 23974

Jason Cox
Utility Construction Planner
Colorado Gas
Jason.cox@blackhillscorp.com

Black Hills Energy
0096 C.R. 160
Glenwood Springs,co.81601

September 15, 2020

Re: for Eagle County parcel No. 2391-334-01-003

To Whom It May Concern:

This letter will confirm that Black Hills Energy will provide Natural Gas Distribution service to the development. Black Hills Energy will install a distribution system capable of serving the demand of the development that lies within the BHE certificated service territory.

This service will be subject to Black Hills Energy tariffs filed with the Colorado Public Utilities Commission and the Black Hills Energy Gas Network Main Extension Policy.

If you have any questions please feel free to contact me.

Sincerely,

Jason Cox
Utility Construction Planner
Black Hills Energy
Jason.cox@blackhillscorp.com
Cell: 970-309-2432

COMCAST

9/17/2020

Attn: Land West Development
Jon Fredericks

RE: Fields

Please accept this letter as confirmation that Comcast of Colorado has the ability to provide cable, telephone, internet and home security services to the above captioned location. The provision of service is contingent upon successful negotiations of an Agreement between the developer and Comcast Cable Communications, Inc.

Should you require additional information, please contact Miguel Flores at (303) 603-6709.

Sincerely,

Michael Johns0n

Michael Johnson
Construction Specialist
Comcast

This letter is not intended to give rise to binding obligations for either party. Any contractual relationship between the parties will be the result of formal negotiations and will only become effective upon execution of the contract by representatives of the parties authorized to enter into such agreements. During any negotiations, each party will bear its own costs and will not be responsible for any costs or expenses of the other party, unless separately agreed to in writing.

Appendix Q

Sustainable Communities Index

SUSTAINABLE COMMUNITY INDEX CHECKLIST

Project: The Fields

		SITE/LOCATION
	pts.	
2	**2-5**	**LOCATION INFILL/REDEVELOPMENT: Infill (4), adjacent (2), and/or previously developed (1)**
N/A	**5**	**TRANSIT: Over 50% of the development is within walking distance (1/4 mile) of transit stop (5).**
4	**2-4**	**PROXIMITY TO EXISTING WATER/WASTEWATER: ties into existing (4); public extension (2)**
5	**5**	**WILDLIFE/ECOLOGICAL COMMUNITIES: biological study with DOW compliance**
N/A	**1-3**	**RIPARIAN/WETLAND PRESERVATION: 100' setback and water quality testing**
0	**3**	**AGRICULTURAL LAND PRESERVATION: Doesn't remove historic/potential agricultural land**
2	**1-2**	**EXISTING VEGETATION PRESERVATION: <10% existing tree/shrubs impacted**
N/A	**2-3**	**BROWNFIELD/BLIGHT REDEVELOPMENT: Improves blighted lot (2), contamination cleanup (3)**
2	**2**	**STEEP SLOPES/RIDGELINES: on slopes less than 20%**
3	**1-3**	**STORMWATER MANAGEMENT: 100% of surface drainage through bioswale/vegetated system.**
18	**24**	**SUBTOTALS**
		CONNECTIONS AND USES
0	**2**	**OPEN COMMUNITY: no gates, amenities are open to the public**
N/A	**4**	**PUBLIC ACCESS: provides appropriate public access to public lands/rivers (with agency approval) 4 pts.**
4	**4**	**COMPACT DEVELOPMENT: 7 or more units/acre; commercial > .50 FAR**
2	**1-2**	**REDUCED FOOTPRINT: on previously disturbed area (1); all structures and parking < .50 lot (1)**
2	**2**	**CLUSTERING: efficient infrastructure, development concentrated in node(s), allowing for open areas.**
0	**3-18**	**OPEN SPACE: conservation easement meets components of open space criteria. See regulations.**
3	**2-7**	**REDUCED PARKING FOOTPRINT: less surface parking (2-3), carpool (1), covered bike storage (1-2)**
2	**2-4**	**PARKING LOCATION: surface parking to rear of structures only (4); to side and screened (2).**
1	**1-3**	**REDUCED PARKING: Does not exceed LURs: 1 pt. Study shows reduced on-site demand (2-3 pts.)**
0	**4**	**JOBS/HOUSING RATIO onsite housing for mixed-use non-residential (see regulations)**
N/A	**3**	**SCHOOL PROXIMITY: within a mile of a public school**
0	**1-20**	**DIVERSITY OF USES: 1 point each use category listed in regulations**
4	**1-8**	**DIVERSITY OF HOUSING TYPES 1 point each housing type listed in regulations above 2.**
0	**1-20**	**AFFORDABLE HOUSING 1 point each affordable housing unit provided above housing guidelines.**
4	**2-4**	**AFFORDABLE RENTAL HOUSING: Onsite rental housing, see regulations.**
22	**98**	**SUBTOTALS**
		TRANSPORTATION
10	**1-28**	**WALKABLE STREETS: see commentary**
2	**1-3**	**STREET NETWORK: grid small block pattern, 2 pts, pedestrian connection at cul de sacs (1)**
N/A	**2-3**	**TRANSIT FACILITIES: transit stop provided within 1/4 mile (2 pts.), covered bike storage (1 add'l pt.)**
N/A	**1-4**	**WALKABLE VICINITY: www.walkscore.com score 10-25=1pt, 26-50=2pts, 51-75=3pts, 76-100=4pts.**
3	**3**	**BICYCLE NETWORK: Connection to community center via bicycle paths/routes.**
2	**2**	**ACCESS TO PUBLIC SPACES: 90% of units within 1/4 mile of public green space**
3	**1-3**	**ACCESS TO ACTIVE SPACE: within 1/2 mile of ball field, 3-mile recreation trail, and/or dog park**
3	**1-3**	**LOCAL FOOD PRODUCTION: private garden areas (1); community garden(s) (2); local market (1)**
23	**42**	**SUBTOTALS**
		RESOURCE EFFICIENCY
2	**1-2**	**LIMITED TURF/SPECIES: <25% landscaped areas turf (1). Turf uses 25% less water than KBG (1).**
2	**1**	**DIVERSE NATIVE LANDSCAPE: Landscape plan utilizes 10 or more local native low-water species.**
0	**2**	**XERISCAPE: Landscape plan incorporates seven xeric design principles (see regulations)**
0	**5**	**SOLAR ORIENTATION: 75% of all buildings have solar orientation (see regulations)**
3	**3-30**	**RENEWABLE ENERGY 3 points for every 5% total energy offset by onsite renewable system(s).**
0	**1**	**INFRASTRUCTURE RECYCLED CONTENT: Concrete/asphalt 75% or more recycled content.**
REQUIRED		**RECYCLING: Design includes areas for recycling co-mingled, paper, and cardboard.**
REQUIRED		**LIGHT POLLUTION: Exterior lighting minimized, shielded, night sky compliant.**
25	**X**	**INNOVATION IN DESIGN: Items meeting intent not listed, case by case review**
32	**41**	**SUBTOTALS**

95	**205**	**TOTALS**

Pro-Rated Point Thresholds *(per ECLUR 4-820)*	
135	*EXCEEDS MINIMUM STANDARDS*
68	*MEETS MINIMUM STANDARDS*
0-67	*DOES NOT MEET MINIMUM STANDARDS*
25	*NOT APPLICABLE (per 4-820 due to "location or existing condition")*

Appendix R

Affordable Housing Letters of Intent

Roaring Fork Fire Rescue Authority
1089 JW Drive
Carbondale, CO 81623
970.340.7040
roaringforkfire.org

ROARING FORK FIRE RESCUE

SCOTT THOMPSON
FIRE CHIEF

Evan Schreiber
The Fields Development Group
Carbondale, Colorado

November 3, 2021

Re: Letter of Intent; The Fields Project Employee Housing

Dear Evan:

As you are aware, housing availability and cost is a major challenge for the Roaring Fork Fire Rescue Authority ("Authority") in attracting and retaining employees who are critical to provide essential emergency services within the Roaring Fork Valley. The Fire Authority has been in discussions with the Fields Development Group ("Fields") regarding a potential partnership, which would ultimately result in the Authority acquiring affordable housing units within The Fields project to house staff members. The Fire Authority is excited about this opportunity as we place a high value on being able to provide housing for our staff members in close proximity to their workplace. This housing partnership will enhance our ability to recruit and retain valuable members of our team.

The Fire Authority currently owns other employee units in the mid-valley, and these units are leased to staff members. We envision a similar scenario in the Fields. Our current needs are primarily for couples or small families, therefore we are currently interested in the acquisition of four two-bedroom units. We have found that these unit types are most beneficial and in high demand amongst our staff.

On behalf of the Authority, I am pleased to present you with the following non-binding letter of intent. The following sets for the terms and conditions on which the Authority would consider entering into a purchase agreement with Fields for the acquisition by the Authority of employee housing units within the Fields Project.

1. Units: The Authority would purchase 4 residential units to be leased to Authority employees. Units could be condominium units if agreeable terms can be reached, subject to the rules and regulations of the subsequent HOA covenants. The 4 units would have 2 bedrooms, and be approximately 1,000 sq. ft. in size.

2. Rental Terms: Authority rental terms and rates would be consistent with its existing employee housing rental program. The Authority would attempt to set rental rates in the range of 50%-80% of housing affordability rates for area median income (AMI).

3. Eligibility Verification: If required by Eligible County as a condition of entitlement approvals, the Authority will comply with requirements for participation and verification of eligible households, including income verification, and will maintain records as may be required by the Eagle County Affordable Housing Guidelines and Administrative Procedures.

Roaring Fork Fire Rescue Authority
1089 JW Drive
Carbondale, CO 81623
970.340.7040
roaringforkfire.org

ROARING FORK FIRE RESCUE

SCOTT THOMPSON
FIRE CHIEF

4. Timeline: The Fields Development Group will plan to commence vertical construction in 2023 and will endeavor to complete construction in a timely manner such that the Authority's purchase and occupancy of the units could potentially occur in 2024 or 2025.

5. Purchase Price: Based on the development costs (pro-rated land, soft costs and hard construction labor and materials) without residual Developer profit.

6. Contingencies: Awarding of entitlements and permitting approvals from Eagle County.

7. Financing Contingencies: Authority receipt of financing, including, if necessary, voter approval and debt issuance.

At any time prior to such execution and delivery of a purchase agreement by Fields and the Authority, the Authority shall have the right (without recourse) to (i) conduct simultaneous negotiations with any third party or parties for the acquisition of similar units; and (ii) enter into a purchase agreement with any third party subject to terms and conditions as deemed appropriate by the Authority, in its sole discretion. Thank you for your consideration of the Authority's acquisition of units in the Field Project. We look forward to your positive response.

Sincerely

Scott Thompson
Fire Chief

Fields Development Group

Agreed and accepted this 5 day of NOVEMBER, 2021

By: Evan Schreiber

Its: Principal

ASPEN MUSIC
FESTIVAL
AND SCHOOL

October 21, 2022

To Whom It May Concern,

The Aspen Music Festival and School (AMFS) has been in discussions with the Fields Development Group regarding a potential partnership, which would ultimately result in acquiring affordable housing units within The Fields project to house staff members. The AMFS is interested in this opportunity as we place a high value on being able to provide housing for our staff members in the Roaring Fork Valley. There is a significant lack of options when it comes to identifying housing. This housing partnership will enhance our ability to recruit and retain valuable members of our team.

We are interested in four units at the Fields consisting of three one-bedroom units and one two-bedroom unit. AMFS plans to own the units and to lease them to our staff. While we plan to rent back to staff at a significant discount, the exact AMI level will be determined with final pricing. We understand that given the current entitlements process for The Fields, these units would likely be available for tenancy sometime in 2024.

AMFS understands and will commit to the qualification of Eligible Households including income verification and will maintain records of such to the extent required by the Eagle County Affordable Housing Guidelines and Administrative Procedures.

While this letter of interest is non-binding and does not legally hold AMFS in any way, we are very interested in this project and look forward to working with the Fields Development Group as it moves forward.

Best Regards,

Alan Fletcher
President and CEO

225 Music School Road
Aspen, Colorado 81611, USA

MAIN
970 925 3254

BOX OFFICE
970 925 9042

ONLINE
AspenMusicFestival.com

Appendix S

Off-Site Improvement Exhibits

(+ Summit Vista HOA Letter)

09/22/2021

To Whom It May Concern,

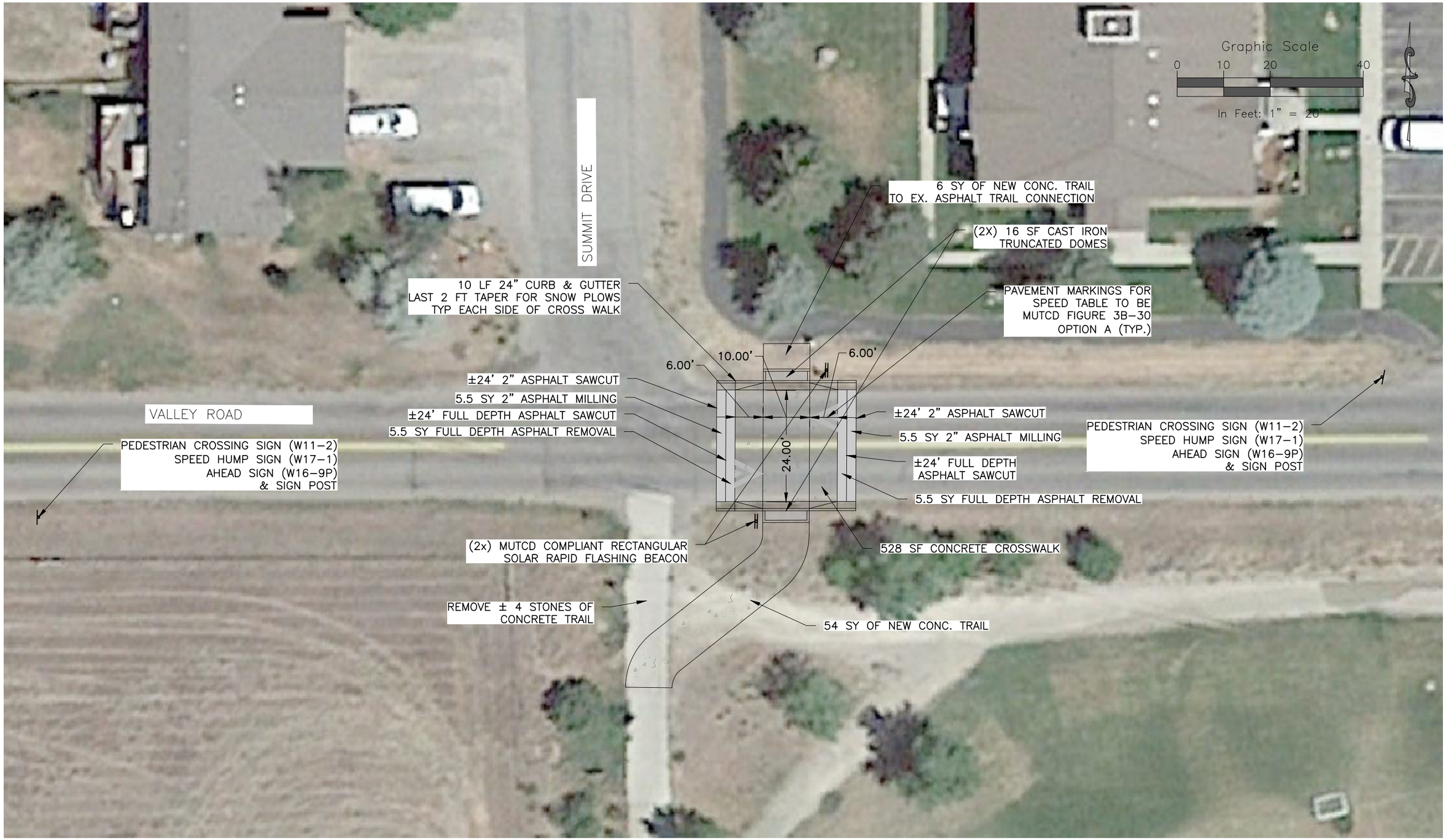
Summit Vista Homeowners Association would strongly promote the addition of a marked crosswalk and speed table at the intersection of Summit Drive and Valley Road as proposed by Evan Schreiber of The Fields. Valley Road is notorious for speeding cars who refuse to stop for pedestrians. This makes crossing the road dangerous to pedestrians. A crosswalk with an indicator light should flag vehicles to slow down and stop for those looking to cross the road. This addition to the community would be greatly appreciated.

We're also strongly encouraging Eagle County, US Forestry Service, and Crown Mountain Park to build a desperately needed pedestrian trail along Valley Road. No shoulder exists on this road so this creates a hazardous situation for bikers and foot traffic along that road. This trail has been needed for years and with the new development, it is going to be even more crucial.

We hope to draw to your attention that we would appreciate some new safety measures in our area which include the speed table at Summit Drive and Valley Road as well as a pedestrian trail along Valley Road. These enhancements would bring great value to our neighborhood and to our community. We are working with The Fields to implement these changes.

Thank you.
Summit Vista Homeowners Association

Wendy Schultz, President
William Burrow, Vice President
Juanita Allen-Smith, Treasurer



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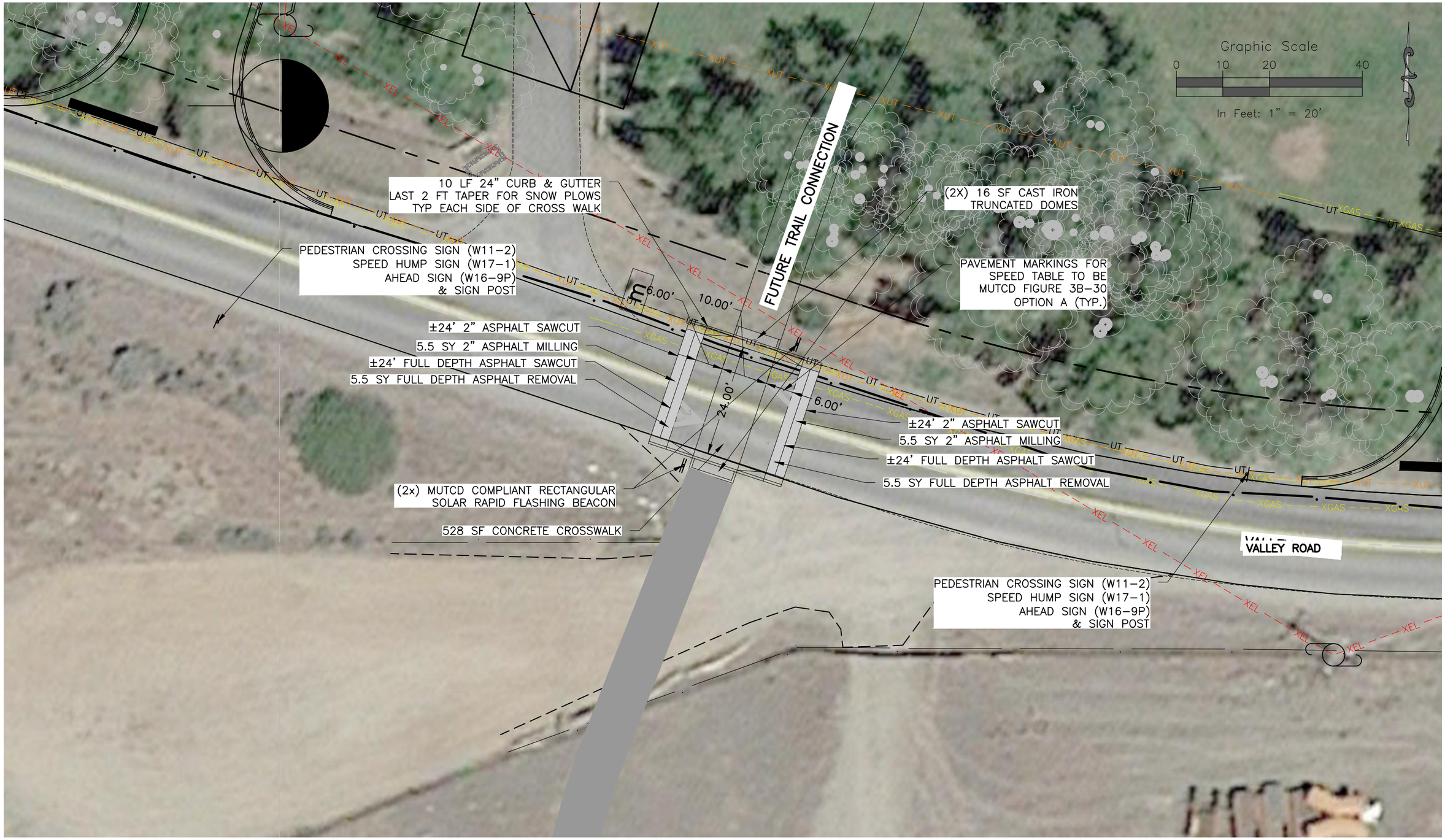
Computer File Information	Sheet Revisions			
Print Date: 07/09/2021	Rev.	Date	Comments	Init.
Drawing File Name: EXHIBITS				
Project No.: 2020.08				

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO, 81623
PH: (970)340-4130
F:(866)876-5873

THE FIELDS OFFSITE IMPROVEMENTS
SUMMIT DRIVE SPEED TABLE

Engineer: ADW | Drawn By: ADW

Sheet Number: 1 Of: 3



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Computer File Information	Sheet Revisions			
Print Date: 07.09.2021	Rev.	Date	Comments	Init.
Drawing File Name: EXHIBITS				
Project No.: 2020.08				

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO, 81623
PH: (970)340-4130
F:(866)876-5873

THE FIELDS OFFSITE IMPROVEMENT
VALLEY ROAD CROSSWALK

Engineer: ADW | Drawn By: ADW

Sheet Number: 2 Of: 3

P:\2020\08-THE FIELDS\04-DWG\EXHIBITS.DWG Plotted: 7/15/2021 11:28 AM By: Danny Stewart

Computer File Information
Print Date: 07.09.2021
Drawing File Name: EXHIBITS
Project No.: 2020.08

Sheet Revisions

Rev.	Date	Comments	Init.

ROARING FORK ENGINEERING
592 HIGHWAY 133
CARBONDALE COLORADO, 81623
PH: (970)340-4130
F:(866)876-5873

THE FIELDS OFFSITE IMPROVEMENT
VALLEY RD/ HWY 82 INTERSECTION

Engineer: ADW | Drawn By: ADW

Sheet Number: 3
Of: 3

Appendix T

CDOT Email Authorizing Interim

Intersection Improvements

STATE OF COLORADO

Bunnell - CDOT, Mark <mark.bunnell@state.co.us>

SH-82 & El Jebel - ROW at E Valley Rd & Valley Rd Intersection

Bunnell - CDOT, Mark <mark.bunnell@state.co.us> Wed, Jul 28, 2021 at 12:44 PM
To: JON FREDERICKS <jon@landwestcolorado.com>, Kari McDowell Schroeder <kari@mcdowelleng.com>, Ben Gerdes <ben.gerdes@eaglecounty.us>, evan@lightboxdevelopment.com, "Richard Davies (richard.davies@eaglecounty.us)" <richard.davies@eaglecounty.us>, TJ Dlubac <tdlubac@planstrategize.com>
Cc: Brian Killian - CDOT <brian.killian@state.co.us>

To all:

Here is the result/conclusion from the field test Monday afternoon:

* The traffic volumes on each side of SH-82 were very similar each cycle. For example, there would typically be 10-12 vehicles in the southbound left-turn and thru lanes, with 10-12 vehicles in the northbound left-turn and thru lanes. Based on this it makes sense to shift 5 seconds of green time from southbound phase to the northbound phase, thus evening out the green times for the southbound and northbound phases.

* The removal of the STOP sign on East Valley Rd seems to be going "okay". Some drivers are still stopping despite the STOP sign being removed. In the 3+ hours I observed this intersection on two different days I did see a couple of instances where a driver on Valley Rd went because they thought the driver on East Valley Rd was going to stop, but didn't. I anticipated this might occur, so we installed flags adjacent to the supplemental sign to highlight the change (see photo below). One of the days I was observing, a woman stopped to complain about the confusion created by removing the STOP sign. I am not convinced that removing the STOP sign provides a significant benefit to the signal operations, but we will leave it for now (refer to the next bullet).

* In order to test the efficiency of removing the STOP sign I had the signal electrician skip the northbound phase occasionally so that the queue would extend back beyond the Valley Rd / East Valley Rd intersection (see photo below). Under the current signal timings, there is only enough green time to clear vehicles queued in front of the Valley Rd / EastValley Rd intersection. With an extra 5 seconds of green time dedicated to northbound I anticipate only 2-3 additional vehicles will make it thru each phase.

In summary, CDOT is okay proceeding with this as an interim solution with a commitment from the County to construct the long-term solution.

Thanks,

Mark Bunnell, PE, PTOE
Resident Engineer
Region 3 Traffic and Safety

COLORADO
Department of Transportation

P 970.683.6276 | C 970.640.2677
222 6th Street, Room 100 Grand Junction, CO 81501
mark.bunnell@state.co.us | ***www.codot.gov*** | www.cotrip.org

[Quoted text hidden]