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Colorado Concrete Crushing  
Transportation Memorandum  
PCD File No.: PPR2241  
(LSC #S224330)  
January 31, 2023

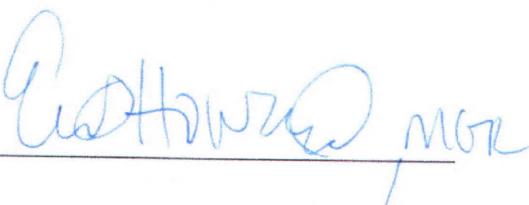
**Traffic Engineer's Statement**

This traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.



**Developer's Statement**

I, the Developer, have read and will comply with all commitments made on my behalf within this report.



1/31/2023  
Date

# Colorado Concrete Crushing Transportation Memorandum

Prepared for:

Colorado Concrete Crushing, LLC  
20 Boulder Crescent, Suite 100  
Colorado Springs, CO 80903

Contact: Mr. Eric S. Howard, Manager

JANUARY 30, 2023

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LSC Transportation Consultants

Prepared by: Kirstin D. Ferrin, P.E.

Reviewed by: Jeffrey C. Hodsdon, P.E.

PCD FILE NO.: PPR2241

LSC #S224330



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January 30, 2023

Mr. Eric S. Howard, Manager  
Colorado Concrete Crushing, LLC  
20 Boulder Crescent, Suite 100  
Colorado Springs, CO 80903

RE: Colorado Concrete Crushing  
Transportation Memorandum  
El Paso County, Colorado  
PCD FILE NO.: PPR2241  
LSC #S224330

Dear Mr. Howard:

LSC Transportation Consultants, Inc. has prepared this updated transportation memorandum for the asphalt and concrete recycling operation currently located east of Vollmer Road and south of the future extension of Marksheffel Road in El Paso County, Colorado. The site location is shown in Figure 1.

## REPORT CONTENTS

The preparation of this report included the following:

- A summary of the existing land use and access;
- The existing roadway and traffic conditions in the site's vicinity, including the roadway widths, surface conditions, lane geometries, traffic controls, and posted speed limits; and in-progress changes to the existing conditions, based on the design plans and construction of Vollmer Road improvements, as shown on the approved Vollmer Road construction plans by Sterling Ranch;
- Existing (2022) traffic-volume data;
- Estimates of projected short-term traffic volumes; the projected average weekday and peak-hour vehicle trips generated by the concrete recycling operation during the design hour;
- The assignment of the estimated design-hour site-generated traffic volumes to the site-access intersection on Vollmer Road;
- The projected short-term total design-hour traffic volumes;

- The projected levels of service at the site-access intersection on Vollmer Road; and
- Recommendations for auxiliary turn lanes at the site access. These recommendations include associated recommendations for modifications to the approved Vollmer Road striping plan and recommendations for the section of Vollmer Road to the south to the Dry Needle Place intersection ("**Segment V1**" – northbound and southbound – Short Term) as shown in the Sterling Ranch Improvements Table.

## **LAND USE AND ACCESS**

### **Land Use**

The 32.4263-acre parcel (EPC Parcel No. 5300000743) is currently being used for an asphalt and concrete recycling operation. Operating hours are Monday through Friday from 7:00 a.m. to 5:30 p.m. and one Saturday per month from 7:00 a.m. to noon. The operation currently has four employees but that may increase to up to six in the future.

Tandem trucks and semi-trucks that are owned by third parties transport materials on and off the site throughout the operating hours. No trucks are stored on-site overnight, so each truck load results in one entering truck trip and one exiting truck trip.

LSC was provided with information on the truck operations at the current facility from March 1, 2022, to December 31, 2022. The number of truck loads per day varies throughout the year based on construction activity in the Colorado Springs metropolitan area with the heaviest activity occurring from June to September. The applicant has noted a recent slowdown in demand for recycled materials product due to rising interest rates and reduced housing starts. The applicant anticipates that the summer 2022 traffic likely represents peak demand and resulting production with low probability/potential for future increases in production and associated truck traffic in the foreseeable future.

The maximum number of truck loads on a single day during that time period was 135 (127 tandem trucks and seven semi-trucks). The 85<sup>th</sup>-percentile weekday (Monday through Friday) number of truck loads was 61 loads per day (47 tandem trucks and 15 semi-trucks).

### **Access**

The site is located just north of the Pioneer Landscape Center. The recycling operation shares the existing Pioneer access to Vollmer Road located about 905 feet southwest of the future Marksheffel alignment in the jurisdiction of the City of Colorado Springs.

In the long-term, this site is planned to be incorporated into the Rhetoric site. See [PCD File Number P2216](#) for details.

LSC conducted a site visit to field-check the existing sight distance to the north and south. The existing sight distance exceeds a quarter mile in each direction for passenger vehicles.

Based on the criteria contained in the *El Paso County Engineering Criteria Manual (ECM)* access points are allowed to Minor Arterials as long as they meet the Entering Sight Distance criteria shown in Table 2-35. Based on a posted speed limit of 40 mph, the required intersection sight distance for a multi-unit truck is 765 feet. As shown in Figure 2, the existing access meets this criterion. The sight distance to the south also meets the sight distance requirements contained in the *City Traffic Criteria Manual*.

Currently, vehicles arriving from the south use the right shoulder (or lack thereof) on the approach to the access when completing a northbound right-turn movement.

## **EXISTING ROAD AND TRAFFIC CONDITIONS**

The adjacent streets are shown in Figure 1 and are described below. Copies of the *2016 El Paso County Major Transportation Corridors Plan (MTCP)*, *2040 Roadway Plan*, and *2016 MTCP 2060 Corridor Preservation Plan* with the site location identified on them have been attached to this report.

**Vollmer Road** is currently a five-lane urban street within the City of Colorado Springs limits between Black Forest Road and Cowpoke Road; and a two-lane, rural, paved roadway north of Cowpoke Road extending to north of Hodgen Road. In the southbound direction, Vollmer Road has a posted speed limit of 45 mph. South of the site access, Vollmer Road is within the City limits and has a 40-mph posted speed limit. The *2040 El Paso County Major Transportation Corridors Plan (MTCP)* and the Sterling Ranch master traffic study show Vollmer Road as a four-lane Urban Minor Arterial just north of the site access. South of the site access, Vollmer is classified as a Minor Arterial (including four through lanes, a center turn lane, bicycle lanes in each direction, and a detached sidewalk). The Sterling Ranch development is currently working on improvements to Vollmer Road north of the site access. A copy of the approved construction documents has been attached, which show changes underway. The section south of the site access to Dry Needle Place is a three-lane cross section (two southbound travel lanes and one northbound travel lane) with a striped bicycle lane in the southbound direction. South of Dry Needle Place, the cross section has been completed to the full City cross section.

### **Existing Traffic Volumes**

Figure 2 shows the existing peak-hour traffic volumes at the Pioneer access to Vollmer Road. The traffic volumes shown are based on peak-period traffic counts conducted by LSC on May 24, 2022. The traffic-count sheets are attached. These peak-period counts include the combined traffic from this recycling operation **and** the adjacent Pioneer business. As shown in Appendix Table 1, on that day the operational data showed 24 recorded truck loads, which would have resulted in 24 trucks entering the **recycling operation** site and 24 trucks exiting the site during

the operating hours (Concrete recycling trips only, not including the adjacent Pioneer operation, which also uses the access).

### Existing Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from “A” to “F.” LOS A represents control delay of less than 10 seconds for unsignalized intersections. LOS F represents control delay of more than 50 seconds for unsignalized intersections. Table 1 shows the level of service delay ranges.

**Table 1: Intersection Levels of Service Delay Ranges**

Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	Average Control Delay (seconds per vehicle) <sup>(1)</sup>
A	10.0 sec or less	10.0 sec or less
B	10.1-20.0 sec	10.1-15.0 sec
C	20.1-35.0 sec	15.1-25.0 sec
D	35.1-55.0 sec	25.1-35.0 sec
E	55.1-80.0 sec	35.1-50.0 sec
F	80.1 sec or more	50.1 sec or more

(1) For unsignalized intersections, if V/C ratio is greater than 1.0 the level of service is LOS F, regardless of the projected average control delay per vehicle.

The Pioneer access to Vollmer Road has been analyzed based on the unsignalized intersection analysis procedures from the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. All movements at this stop-sign-controlled intersection are currently operating at LOS B or better during the peak hours.

### TRIP GENERATION

LSC conducted the traffic counts at the existing access to Vollmer Road that Colorado Concrete Crushing shares with Pioneer Sand on May 25, 2022. As the count data did not identify the portion related to the site operations, LSC has estimated the number of trips based on the number of employees and operation data provided by Colorado Concrete Crushing. Table 2 shows the trip-generation estimates. The estimated trips on May 24, 2022 due to the employees was based on the number of existing employees and the nationally published trip-generation rates for ITE Land Use 110 – Light Industrial from *Trip Generation, 11th Edition, 2021* by the Institute of Transportation Engineers (ITE). The number of truck trips during the peak hours was estimated by LSC by assuming that trucks arrive and depart from the site evenly throughout the operating hours.

As shown in Appendix Table 1, the truck activity on the site varies throughout the year with peak activity occurring from July to September. As traffic counts were conducted in May, LSC has selected a “design” day to use for this analysis. The “design” day selected was the 85<sup>th</sup> percentile from the weekday truck-load data for 2022 provided by Colorado Concrete Crushing. The “design” day also assumes two additional employees in the future. Based on the existing economic conditions, no increases in truck traffic from what was recorded in 2022 are anticipated in the short-term/intermediate-term future. Table 2 shows the projected “design day” traffic volumes and the difference between the May 24, 2022 traffic volumes and the “design day” volumes.

### **TRIP DISTRIBUTION AND ASSIGNMENT**

The directional distribution of the site-generated traffic volumes on the street and roadway system serving the site is one of the most important factors in determining the site’s traffic impacts. Based on information provided by Colorado Concrete Crushing, about 95% of the trucks will arrive from and depart to the south on Vollmer Road and 5 percent will arrive from and depart to the north on Vollmer Road. Figure 3 shows the proposed haul route, as well as the “design day” site-generated traffic volume estimate at the shared access point to Vollmer Road.

### **BACKGROUND TRAFFIC**

Background traffic is the traffic estimated to be on the adjacent roadways and at adjacent intersections without the proposed development’s trip generation of site-generated traffic volumes. Background traffic includes the through traffic and the traffic generated by nearby developments but assumes zero traffic generated by the site.

Figure 4 shows the projected short-term background traffic volumes. The background traffic volumes are estimates by LSC, based on the existing volumes shown in Figure 2 with the portion of traffic estimated to have been generated by the site on the day of the counts removed (see Table 1) plus increases in through traffic. The short-term increases in through traffic were estimated based on work completed by LSC in the area including Sterling Ranch East Filings 1 and 2, The Village at Sterling Ranch East, and FourSquare at Sterling Ranch.

In the long-term, this site is planned to be incorporated into the Rhetoric site. See [PCD File Number P2216](#) for details.

### **TOTAL TRAFFIC**

Figure 5 shows the sum of the short-term background traffic volumes from Figure 4 plus the site-generated traffic volumes from Figure 3.



## LEVEL OF SERVICE ANALYSIS

The site access to Vollmer has been analyzed to determine the projected short-term total intersection levels of service based on the unsignalized intersection analysis procedures from the *Highway Capacity Manual 6th Edition*. Figure 5 shows the level of service analysis results. The level of service reports are attached. All movements at this stop-sign-controlled access intersection are projected to operate at LOS D or better during the peak hours, based on the projected short-term total traffic volumes.

## FINDINGS & RECOMMENDATIONS

- Please refer to the trip generation of this report for details regarding the estimated site trip-generation estimate used in the access design volumes. The trip-generation estimate has been based on actual daily load data for the concrete recycling operation.
- Colorado Concrete Crushing is currently operating on the site. Truck activity on the site varies based on daily demand and overall construction activity in the Colorado Springs metropolitan area. Based on current economic conditions it is not anticipated that activity will increase significantly from the activity levels in 2022 in the foreseeable future. In the long-term, this site is planned to be incorporated into the Rhetoric site. See [PCD File Number P2216](#) for details.
- Based on the design volumes, the criteria contained in the City of Colorado Springs Traffic Manual and site-specific requirements by City Traffic Engineering, a northbound right-turn deceleration lane is required on Vollmer Road approaching the existing shared access with Pioneer Sand. This lane should be 155 feet long plus a 160-foot taper.
- Based on the design traffic volumes and the criteria contained in the El Paso County *Engineering Criteria Manual (ECM)*, the City of Colorado Springs Traffic Manual, and site-specific requirements by City Traffic Engineering, a southbound left-turn lane will be required on Vollmer Road approaching the existing site/Pioneer Sand access. This will likely only require striping modifications to the approved CDs for Vollmer Road, however, as Sterling Ranch is currently working on improvements to Vollmer Road just north of the access and the new pavement has not yet been installed. These improvements include the addition of a second southwest-bound through lane for a short section from just north of Alzada Drive to the site access. The proposed additional pavement for the second through lane could be reutilized in the short/intermediate term to provide a southbound left-turn lane for the shared site and Pioneer Sand Access. LSC's recommendations for plan revisions are shown on the attached previously-approved construction documents.
- Per direction from the City of Colorado Springs Traffic Engineering, an outside paved shoulder will need to be added along the east side of Vollmer Road from Dry Needle Place up to the site access. Potentially, the shoulder would only be necessary up to the point of widening for the right-turn lane at the site access. This improvement should not be the responsibility of this applicant, but rather by others. This improvement should be reflected in a modification to Sterling Ranch Improvements Table for

segment V1-Northbound/southbound - Short Term. This assumes that the adjacent Pioneer site does not redevelop with another land use in the foreseeable future. If that occurs, such a redevelopment project would be responsible for the upgrade to the full minor arterial cross section, per city land-use code.

\* \* \* \* \*

Please contact me if you have any questions regarding this report.

Respectfully submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

By Jeffrey C. Hodsdon, P.E.  
Principal

JCH/KDF:jas

Enclosures: Table 2  
Figures 1-5  
Traffic Count Reports  
Level of Service Reports  
Appendix Table 1  
Vollmer Road Approved CD  
LSC Recommendations for Plan Revisions

# Table 2

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**Table 2  
Trip Generation Estimate  
Colorado Concrete Crushing**

Vehicle Type	Number of Employees or Truck Loads	Trip Generation Rates <sup>(1)</sup>							Total Trips Generated						
		Average Weekday Traffic			Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic			Morning Peak Hour		Afternoon Peak Hour	
		In	Out	Total	In	Out	In	Out	In	Out	Total	In	Out	In	Out
<b>Estimated site-generated trips on the day traffic counts were conducted at the existing site access (May 24, 2022)</b>															
Passenger Car (employee)	4	1.55	1.55	3.10	0.44	0.09	0.11	0.38	6	6	12	2	0	0	2
Tandem Truck	18	1	1	2	0.10	0.10	0.10	0.10	18	18	36	2	2	2	2
Semi-Truck	6	1	1	2	0.10	0.10	0.10	0.10	6	6	12	1	1	1	1
							<b>Total</b>		<b>30</b>	<b>30</b>	<b>60</b>	<b>5</b>	<b>3</b>	<b>3</b>	<b>5</b>
<b>Estimated site-generated trips on the "design" day (Weekday 85th Percentile)</b>															
Passenger Car (employee)	6	1.55	1.55	3.10	0.44	0.09	0.11	0.38	9	9	18	3	1	1	2
Tandem Truck	47	1	1	2	0.10	0.10	0.10	0.10	47	47	94	5	5	5	5
Semi-Truck	15	1	1	2	0.10	0.10	0.10	0.10	15	15	30	2	2	2	2
							<b>Total</b>		<b>71</b>	<b>71</b>	<b>142</b>	<b>10</b>	<b>8</b>	<b>8</b>	<b>9</b>
<b>Difference between the "counted" day and the "design" day</b>									<b>41</b>	<b>41</b>	<b>82</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>4</b>

Notes:

(1) Employee trip generation rates were based on the rates for ITE Land Use 110 - General Light Industrial from "*Trip Generation, 11th Edition, 2021*" by the Institute of Transportation Engineers (ITE)  
Truck trip generation rates assume the trucks arrive and exit evenly throughout the operating hours (7:00 am to 5:30 pm)

# Figures 1-5

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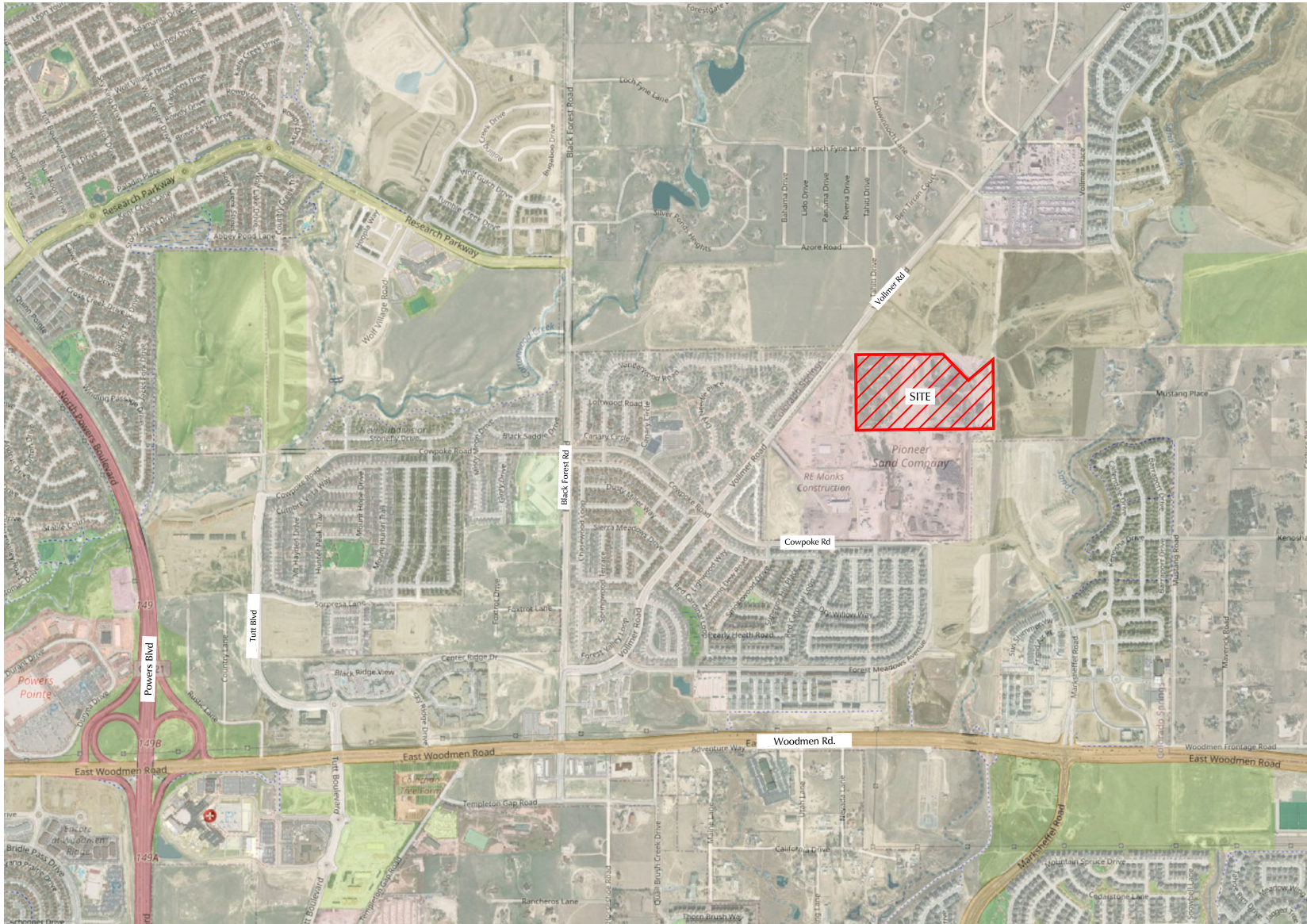


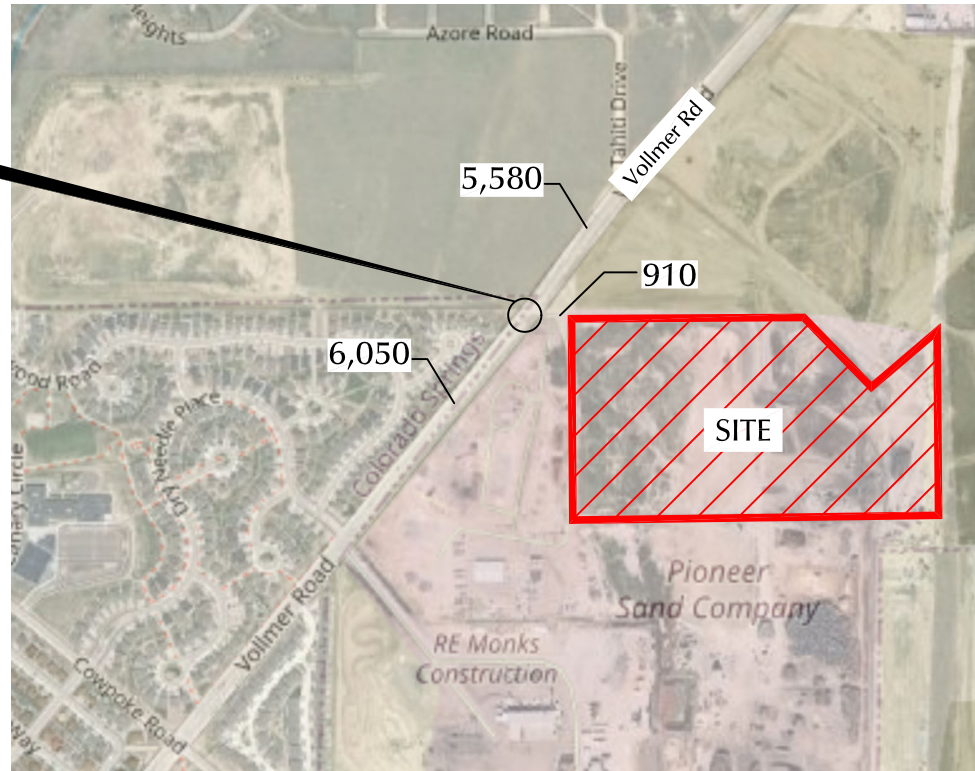
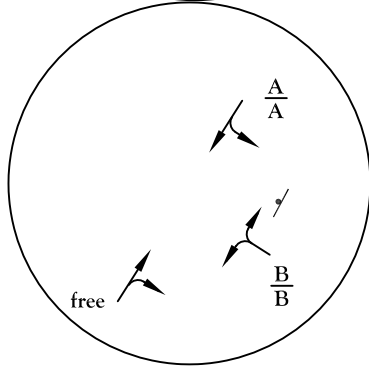
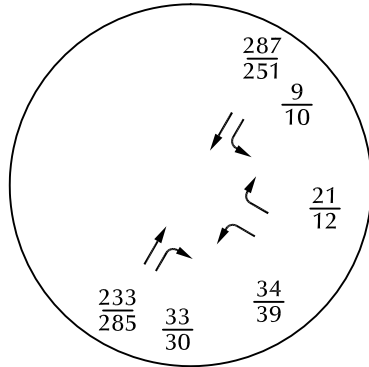
Figure 1

# Vicinity Map

Colorado Concrete Crushing (LSC# S224330)



Not to scale



LEGEND:  $\frac{XX}{XX}$  = AM Peak-Hour Traffic (veh/hr) / PM Peak-Hour Traffic (veh/hr) Based on counts by LSC May 24, 2022

$\frac{A}{B}$  = AM Individual Movement Peak-Hour Level of Service / PM Individual Movement Peak-Hour Level of Service

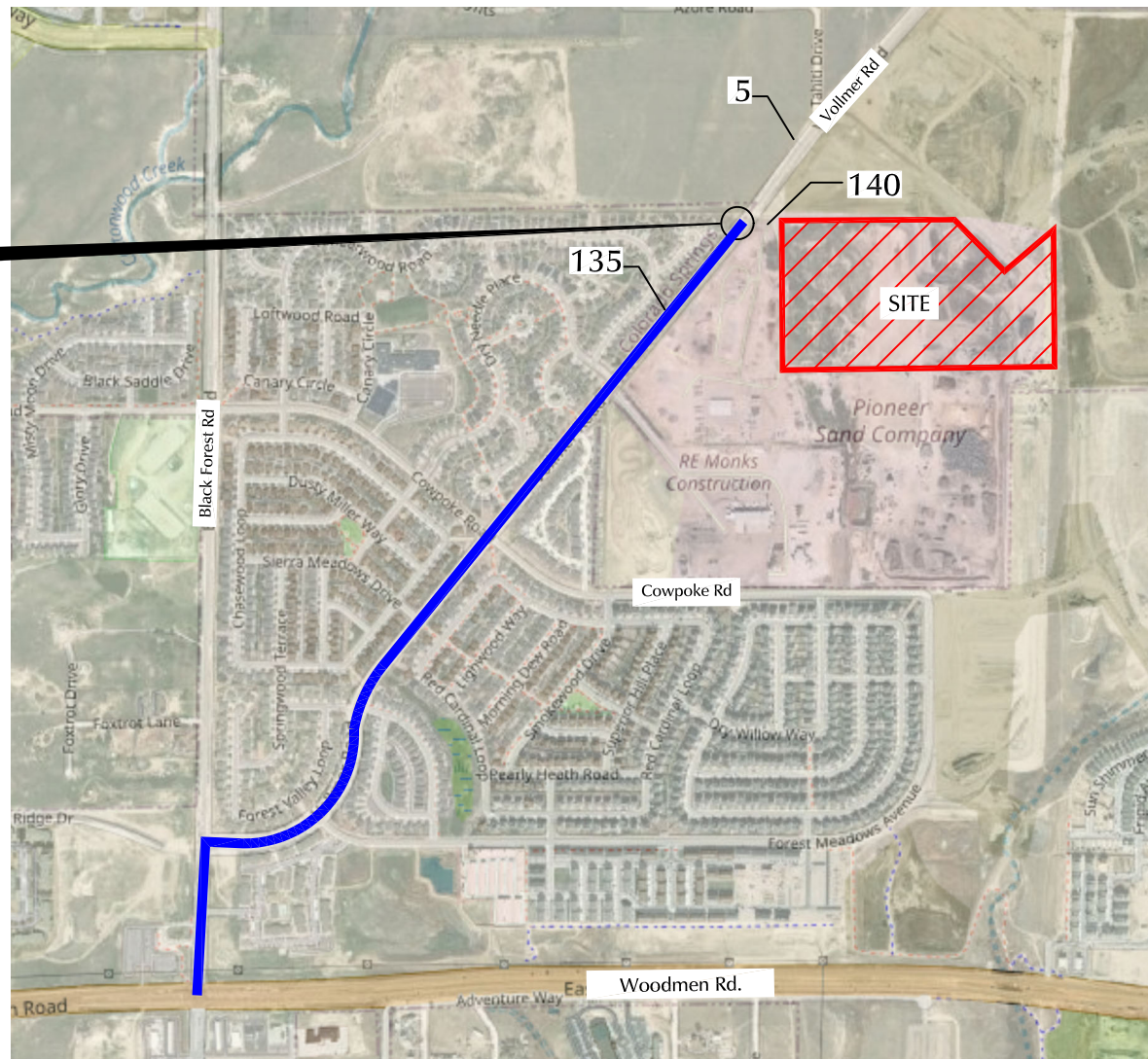
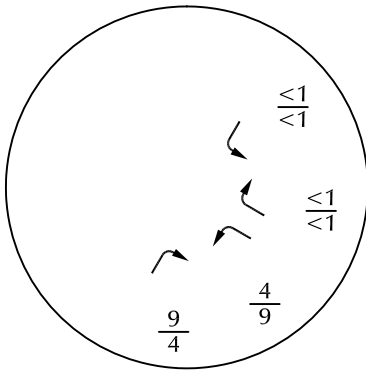
XXX = Average Weekday Traffic (vehicles per day) estimated by LSC

⊥ = Stop Sign




Figure 2  
Existing Traffic

Colorado Concrete Crushing (LSC# S224330)



LEGEND:  $\frac{XX}{XX}$  = AM Peak-Hour Traffic (veh/hr)  
                  PM Peak-Hour Traffic (veh/hr)

 = Haul Route

XXX = Average Weekday Traffic (vehicles per day)

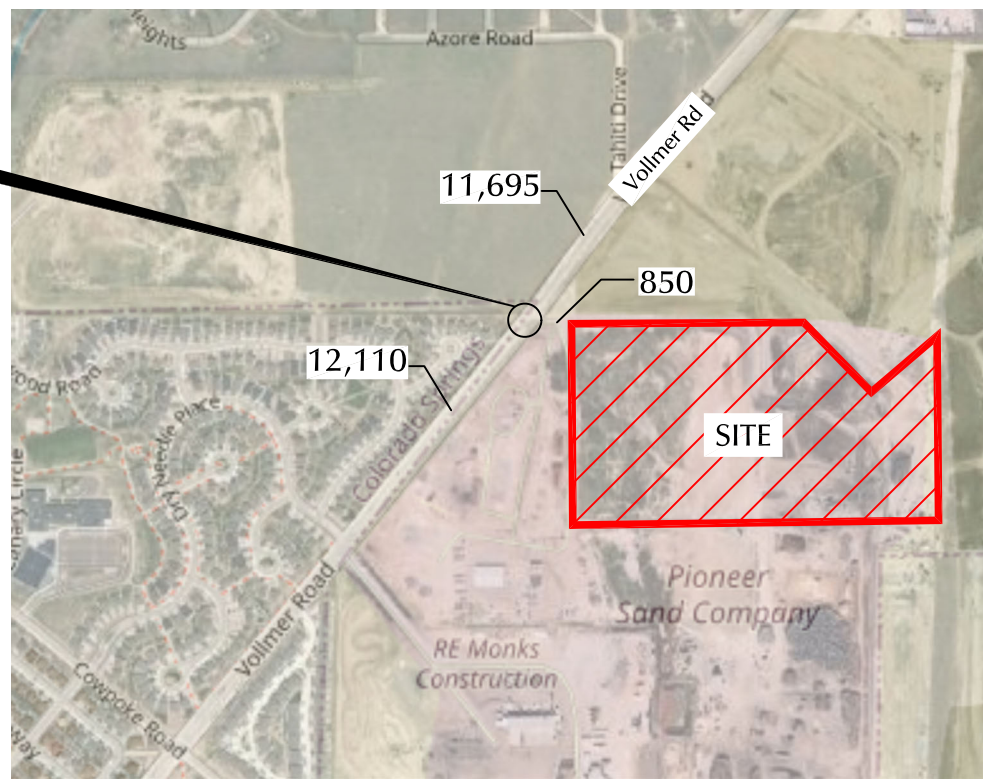
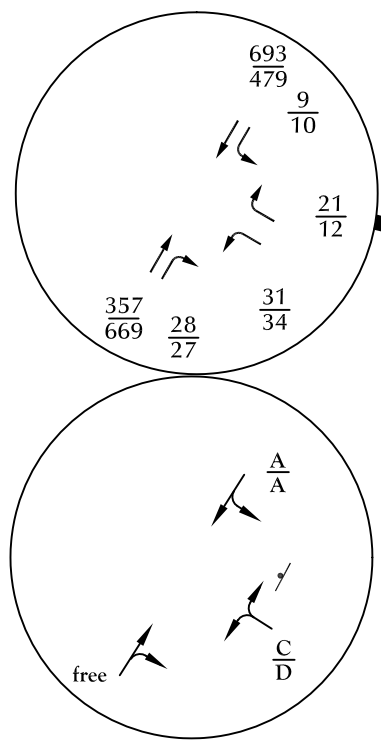
Figure 3

# "Design Day" Site-Generated Traffic

Colorado Concrete Crushing (LSC# S224330)







LEGEND:  $\frac{XX}{XX} = \frac{\text{AM Peak-Hour Traffic (veh/hr)}}{\text{PM Peak-Hour Traffic (veh/hr)}}$

$\frac{A}{B} = \frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$

XXX = Average Weekday Traffic (vehicles per day)

⊥ = Stop Sign

# Short-Term Background Traffic

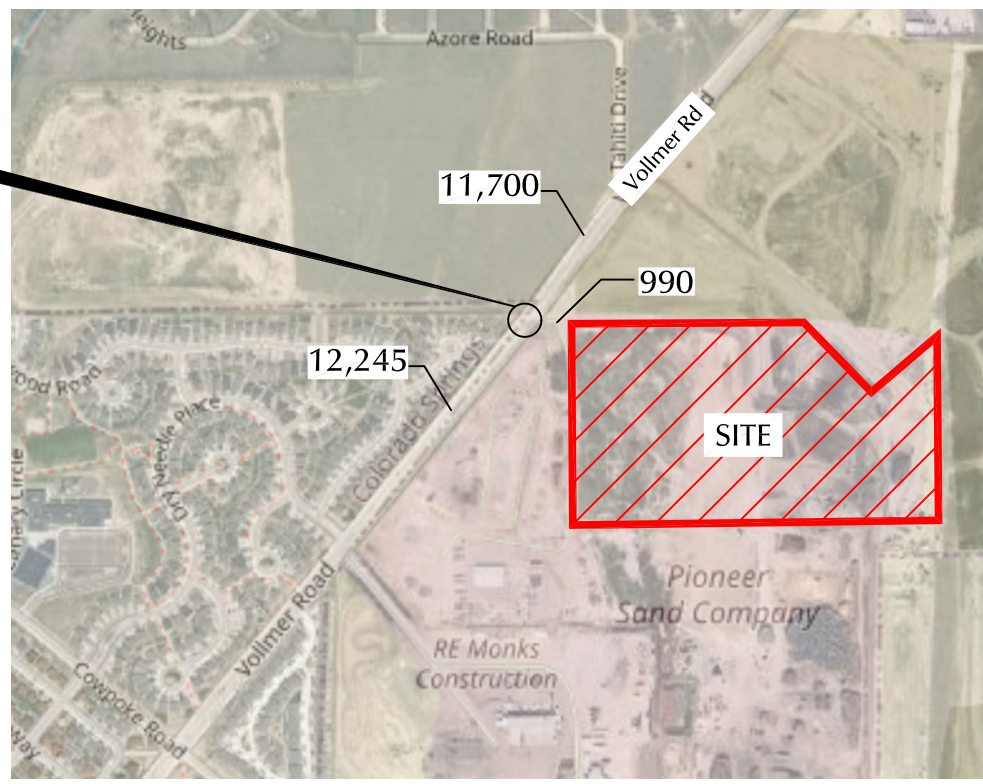
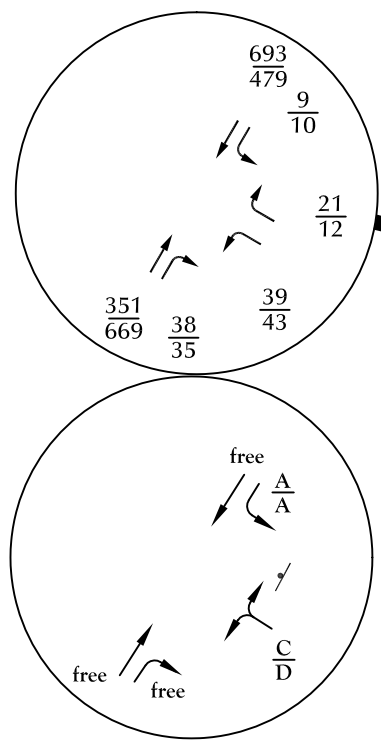
Figure 4

Colorado Concrete Crushing (LSC# S224330)





Not to scale



LEGEND:

$\frac{XX}{XX}$  = AM Peak-Hour Traffic (veh/hr)  
 $\frac{XX}{XX}$  = PM Peak-Hour Traffic (veh/hr)

$\frac{A}{B}$  = AM Individual Movement Peak-Hour Level of Service  
 $\frac{A}{B}$  = PM Individual Movement Peak-Hour Level of Service

XXX = Average Weekday Traffic (vehicles per day)

⊥ = Stop Sign

Figure 5  
**Short-Term Total Traffic**

Colorado Concrete Crushing (LSC# S224330)



# Traffic Counts

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# LSC Transportation Consultants, Inc.

2504 E. Pikes Peak Ave, Suite 304  
 Colorado Springs, CO 80909  
 719-633-2868

File Name : Vollmer Rd - Pioneer Sand Trucks AM  
 Site Code : S22433  
 Start Date : 5/25/2022  
 Page No : 1

**Passenger Cars/  
 Pickup-Trucks**

## Groups Printed- Unshifted

Start Time	Vollmer Rd Southbound					Pioneer Sand Acces Westbound					Vollmer Rd Northbound					Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:30	0	49	0	0	49	3	0	2	0	5	13	15	0	0	28	0	0	0	0	0	82
06:45	0	49	3	0	52	1	0	0	0	1	14	26	0	0	40	0	0	0	0	0	93
Total	0	98	3	0	101	4	0	2	0	6	27	41	0	0	68	0	0	0	0	0	175
07:00	0	63	1	0	64	2	0	6	0	8	5	38	0	0	43	0	0	0	0	0	115
07:15	0	68	1	0	69	8	0	8	0	16	7	44	0	0	51	0	0	0	0	0	136
07:30	0	82	2	0	84	3	0	8	0	11	9	57	0	0	66	0	0	0	0	0	161
07:45	0	79	1	0	80	2	0	2	0	4	5	68	0	0	73	0	0	0	0	0	157
Total	0	292	5	0	297	15	0	24	0	39	26	207	0	0	233	0	0	0	0	0	569
08:00	0	58	4	0	62	1	0	8	0	9	7	64	0	0	71	0	0	0	0	0	142
08:15	0	57	1	1	59	1	0	7	0	8	3	52	0	0	55	0	0	0	0	0	122
Grand Total	0	505	13	1	519	21	0	41	0	62	63	364	0	0	427	0	0	0	0	0	1008
Apprch %	0	97.3	2.5	0.2		33.9	0	66.1	0		14.8	85.2	0	0		0	0	0	0		
Total %	0	50.1	1.3	0.1	51.5	2.1	0	4.1	0	6.2	6.2	36.1	0	0	42.4	0	0	0	0	0	



# LSC Transportation Consultants, Inc.

2504 E. Pikes Peak Ave, Suite 304  
 Colorado Springs, CO 80909  
 719-633-2868

File Name : Vollmer Rd - Pioneer Sand Trucks AM

Site Code : S224330

Start Date : 5/25/2022

Page No : 1

Trucks

## Groups Printed- Bank 1

Start Time	Vollmer Rd Southbound					Pioneer Sand Acces Westbound					Vollmer Rd Northbound					Eastbound					Int. Total	
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total		
06:30	0	0	0	0	0	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	5
06:45	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	1	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	6
07:00	0	0	0	0	0	2	0	4	0	6	0	0	0	0	0	0	0	0	0	0	0	6
07:15	0	0	0	0	0	6	0	7	0	13	1	0	0	0	1	0	0	0	0	0	0	14
07:30	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2
07:45	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	2
Total	0	0	0	0	0	9	0	12	0	21	3	0	0	0	3	0	0	0	0	0	0	24
08:00	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	3
08:15	0	0	1	0	1	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	3
Grand Total	0	0	3	0	3	12	0	16	0	28	5	0	0	0	5	0	0	0	0	0	0	36
Apprch %	0	0	100	0		42.9	0	57.1	0		100	0	0	0		0	0	0	0	0	0	
Total %	0	0	8.3	0	8.3	33.3	0	44.4	0	77.8	13.9	0	0	0	13.9	0	0	0	0	0	0	

# LSC Transportation Consultants, Inc.

2504 E. Pikes Peak Ave, Suite 304  
 Colorado Springs, CO 80909  
 719-633-2868

File Name : Vollmer Rd - Pioneer Sand Trucks PM

Site Code : S224330

Start Date : 5/24/2022

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**Passenger Cars/  
 Pickup-Trucks**

## Groups Printed- Unshifted

Start Time	Vollmer Rd Southbound					Pioneer Sand Acces Westbound					Vollmer Rd Northbound					Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
16:00	0	72	1	0	73	2	0	8	0	10	6	69	0	0	75	0	0	0	0	0	158
16:15	0	61	2	0	63	1	0	7	0	8	11	69	0	0	80	0	0	0	0	0	151
16:30	0	64	1	0	65	2	0	8	0	10	6	75	0	0	81	0	0	0	0	0	156
16:45	0	54	2	0	56	6	0	8	0	14	2	72	0	0	74	0	0	0	0	0	144
Total	0	251	6	0	257	11	0	31	0	42	25	285	0	0	310	0	0	0	0	0	609
17:00	0	60	1	0	61	1	0	9	0	10	3	58	0	0	61	0	0	0	0	0	132
17:15	0	65	2	0	67	0	0	5	0	5	1	58	0	0	59	0	0	0	0	0	131
17:30	0	50	0	0	50	2	0	21	0	23	2	68	0	0	70	0	0	0	0	0	143
17:45	0	48	1	0	49	0	0	2	0	2	0	77	0	0	77	0	0	0	0	0	128
Total	0	223	4	0	227	3	0	37	0	40	6	261	0	0	267	0	0	0	0	0	534
Grand Total	0	474	10	0	484	14	0	68	0	82	31	546	0	0	577	0	0	0	0	0	1143
Apprch %	0	97.9	2.1	0		17.1	0	82.9	0		5.4	94.6	0	0		0	0	0	0	0	
Total %	0	41.5	0.9	0	42.3	1.2	0	5.9	0	7.2	2.7	47.8	0	0	50.5	0	0	0	0	0	





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File Name : Vollmer Rd - Pioneer Sand Trucks PM

Site Code : S224330

Start Date : 5/24/2022

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Trucks

## Groups Printed- Bank 1

Start Time	Vollmer Rd Southbound					Pioneer Sand Acces Westbound					Vollmer Rd Northbound					Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
16:00	0	0	1	0	1	1	0	2	0	3	3	0	0	0	3	0	0	0	0	0	7
16:15	0	0	1	0	1	0	0	2	0	2	5	0	0	0	5	0	0	0	0	0	8
16:30	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	4
16:45	0	0	2	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
Total	0	0	4	0	4	1	0	4	0	5	13	0	0	0	13	0	0	0	0	0	22
17:00	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	3
17:15	0	0	2	0	2	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	5
17:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
17:45	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	4	0	4	0	0	3	0	3	4	0	0	0	4	0	0	0	0	0	11
Grand Total	0	0	8	0	8	1	0	7	0	8	17	0	0	0	17	0	0	0	0	0	33
Apprch %	0	0	100	0		12.5	0	87.5	0		100	0	0	0		0	0	0	0		
Total %	0	0	24.2	0	24.2	3	0	21.2	0	24.2	51.5	0	0	0	51.5	0	0	0	0	0	

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File Name : Vollmer Rd - Pioneer Sand Trucks PM

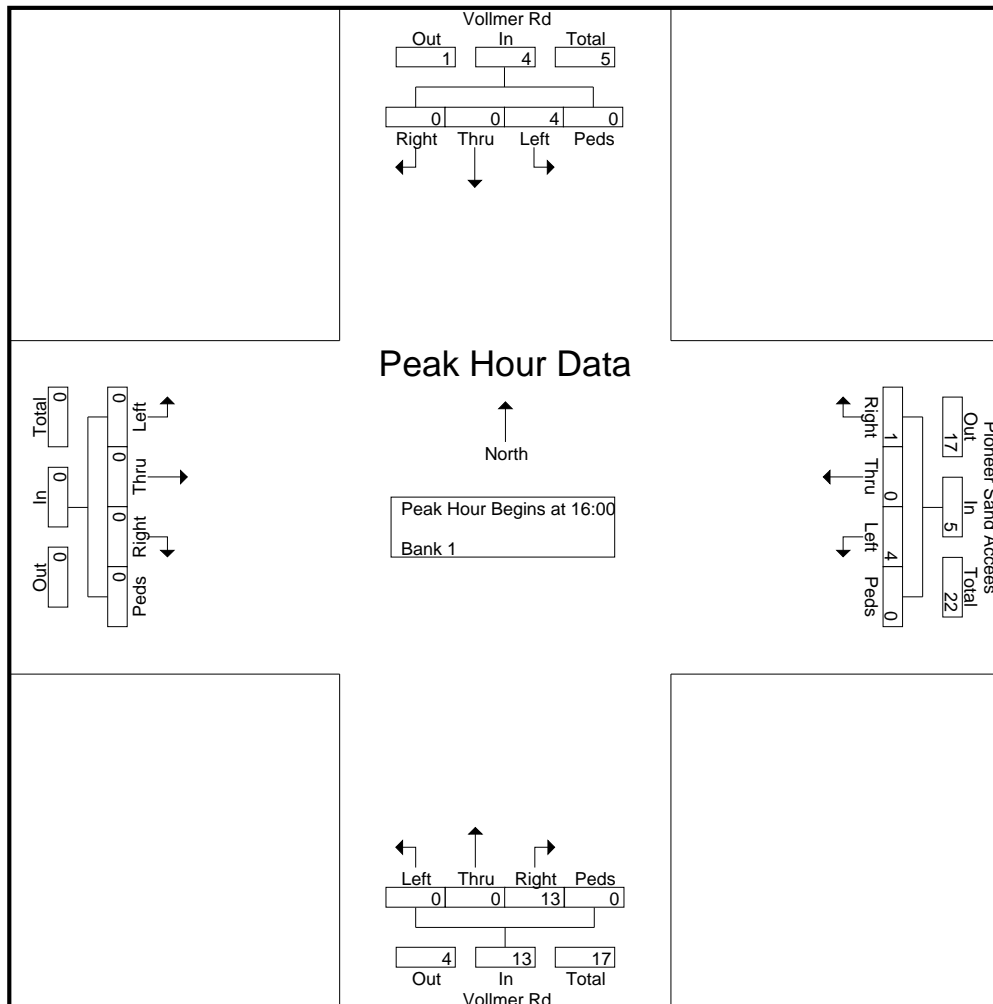
Site Code : S224330

Start Date : 5/24/2022

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## Trucks

Start Time	Vollmer Rd Southbound					Pioneer Sand Access Westbound					Vollmer Rd Northbound					Eastbound					Int. Total	
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total		
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 4:00:00 PM																						
4:00:00 PM	0	0	1	0	1	1	0	2	0	3	3	0	0	0	3	0	0	0	0	0	0	7
4:15:00 PM	0	0	1	0	1	0	0	2	0	2	5	0	0	0	5	0	0	0	0	0	0	8
4:30:00 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	4
4:45:00 PM	0	0	2	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3
Total Volume	0	0	4	0	4	1	0	4	0	5	13	0	0	0	13	0	0	0	0	0	0	22
% App. Total	0	0	100	0		20	0	80	0		100	0	0	0		0	0	0	0	0		
PHF	.000	.000	.500	.000	.500	.250	.000	.500	.000	.417	.650	.000	.000	.000	.650	.000	.000	.000	.000	.000	.000	.688



# Levels of Service

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HCM 6th TWSC  
 1: Vollmer Rd & Pioneer Sand Access

Existing Traffic  
 AM Peak Hour

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	34	21	233	33	9	287
Future Vol, veh/h	34	21	233	33	9	287
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	87	87	88	88
Heavy Vehicles, %	24	33	2	15	11	2
Mvmt Flow	44	27	268	38	10	326

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	633	287	0	0	306
Stage 1	287	-	-	-	-
Stage 2	346	-	-	-	-
Critical Hdwy	6.64	6.53	-	-	4.21
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	3.597	-	-	2.299
Pot Cap-1 Maneuver	411	684	-	-	1205
Stage 1	714	-	-	-	-
Stage 2	670	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	407	684	-	-	1205
Mov Cap-2 Maneuver	407	-	-	-	-
Stage 1	714	-	-	-	-
Stage 2	663	-	-	-	-

Approach	WB	NE	SW
HCM Control Delay, s	13.8	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NET	NERWBLn1	SWL	SWT
Capacity (veh/h)	-	-	481	1205
HCM Lane V/C Ratio	-	-	0.147	0.008
HCM Control Delay (s)	-	-	13.8	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0

HCM 6th TWSC  
 1: Vollmer Rd & Pioneer Sand Access

Existing Traffic  
 PM Peak Hour

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	39	12	285	30	10	251
Future Vol, veh/h	39	12	285	30	10	251
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	87	87	88	88
Heavy Vehicles, %	21	8	2	17	40	2
Mvmt Flow	55	17	328	34	11	285

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	652	345	0	0	362	0
Stage 1	345	-	-	-	-	-
Stage 2	307	-	-	-	-	-
Critical Hdwy	6.61	6.28	-	-	4.5	-
Critical Hdwy Stg 1	5.61	-	-	-	-	-
Critical Hdwy Stg 2	5.61	-	-	-	-	-
Follow-up Hdwy	3.689	3.372	-	-	2.56	-
Pot Cap-1 Maneuver	404	684	-	-	1014	-
Stage 1	677	-	-	-	-	-
Stage 2	705	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	399	684	-	-	1014	-
Mov Cap-2 Maneuver	399	-	-	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	696	-	-	-	-	-

Approach	WB	NE	SW
HCM Control Delay, s	14.7	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NET	NERWBLn1	SWL	SWT
Capacity (veh/h)	-	-	442	1014
HCM Lane V/C Ratio	-	-	0.163	0.011
HCM Control Delay (s)	-	-	14.7	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.6	0

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	31	21	351	28	9	693
Future Vol, veh/h	31	21	351	28	9	693
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	87	85	85	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	25	403	33	11	788

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1230	420	0	0	436
Stage 1	420	-	-	-	-
Stage 2	810	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	196	633	-	-	1124
Stage 1	663	-	-	-	-
Stage 2	438	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	193	633	-	-	1124
Mov Cap-2 Maneuver	193	-	-	-	-
Stage 1	663	-	-	-	-
Stage 2	431	-	-	-	-

Approach	WB	NE	SW
HCM Control Delay, s	22.4	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NERWBLn1	SWL	SWT
Capacity (veh/h)	-	-	268	1124
HCM Lane V/C Ratio	-	-	0.228	0.009
HCM Control Delay (s)	-	-	22.4	8.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.9	0

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	34	12	669	27	10	479
Future Vol, veh/h	34	12	669	27	10	479
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	87	85	85	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	14	769	32	12	544

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1353	785	0	0	801	0
Stage 1	785	-	-	-	-	-
Stage 2	568	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	165	393	-	-	822	-
Stage 1	449	-	-	-	-	-
Stage 2	567	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	162	393	-	-	822	-
Mov Cap-2 Maneuver	162	-	-	-	-	-
Stage 1	449	-	-	-	-	-
Stage 2	555	-	-	-	-	-

Approach	WB	NE	SW
HCM Control Delay, s	31.1	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NET	NERWBLn1	SWL	SWT
Capacity (veh/h)	-	-	191	822
HCM Lane V/C Ratio	-	-	0.283	0.014
HCM Control Delay (s)	-	-	31.1	9.4
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1.1	0

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations	Y		↑	↑	↑	↑
Traffic Vol, veh/h	39	21	351	38	9	693
Future Vol, veh/h	39	21	351	38	9	693
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	87	85	85	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	25	403	45	11	788

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1213	403	0	0	448	0
Stage 1	403	-	-	-	-	-
Stage 2	810	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	201	647	-	-	1112	-
Stage 1	675	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	199	647	-	-	1112	-
Mov Cap-2 Maneuver	199	-	-	-	-	-
Stage 1	675	-	-	-	-	-
Stage 2	434	-	-	-	-	-

Approach	WB	NE	SW
HCM Control Delay, s	23.6	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NERWBLn1	SWL	SWT
Capacity (veh/h)	-	-	263	1112
HCM Lane V/C Ratio	-	-	0.268	0.01
HCM Control Delay (s)	-	-	23.6	8.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.1	0



Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations	↘↙		↑	↗↖	↘↙	↑
Traffic Vol, veh/h	43	12	669	35	10	479
Future Vol, veh/h	43	12	669	35	10	479
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	87	85	85	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	14	769	41	12	544

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1337	769	0	0	810
Stage 1	769	-	-	-	-
Stage 2	568	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	169	401	-	-	816
Stage 1	457	-	-	-	-
Stage 2	567	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	166	401	-	-	816
Mov Cap-2 Maneuver	166	-	-	-	-
Stage 1	457	-	-	-	-
Stage 2	558	-	-	-	-

Approach	WB	NE	SW
HCM Control Delay, s	33.4	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NET	NERWBLn1	SWL	SWT
Capacity (veh/h)	-	-	190	816
HCM Lane V/C Ratio	-	-	0.341	0.014
HCM Control Delay (s)	-	-	33.4	9.5
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1.4	0

# Appendix Table 1



Appendix Table 1  
Existing Truck Operations  
Colorado Concrete Crushing

DATE	Day of the Week	Tandem	Semi	TOTAL LOADS	DATE	Day of the Week	Tandem	Semi	TOTAL LOADS
3/6/2022	Sunday	0	0	0	5/23/2022	Monday	19	4	23
3/13/2022	Sunday	0	0	0	10/17/2022	Monday	19	4	23
3/20/2022	Sunday	0	0	0	11/3/2022	Thursday	17	6	23
3/27/2022	Sunday	0	0	0	9/30/2022	Friday	17	6	23
4/3/2022	Sunday	0	0	0	5/24/2022	Tuesday	18	6	24
4/10/2022	Sunday	0	0	0	10/13/2022	Thursday	20	4	24
4/17/2022	Sunday	0	0	0	10/21/2022	Friday	18	6	24
4/24/2022	Sunday	0	0	0	9/17/2022	Saturday	23	1	24
5/1/2022	Sunday	0	0	0	5/2/2022	Monday	25	0	25
5/8/2022	Sunday	0	0	0	11/21/2022	Monday	17	8	25
5/15/2022	Sunday	0	0	0	12/6/2022	Tuesday	23	2	25
6/12/2022	Sunday	0	0	0	10/6/2022	Thursday	12	13	25
6/19/2022	Sunday	0	0	0	10/27/2022	Thursday	21	4	25
6/26/2022	Sunday	0	0	0	12/29/2022	Thursday	25	0	25
7/3/2022	Sunday	0	0	0	5/27/2022	Friday	17	8	25
7/10/2022	Sunday	0	0	0	12/2/2022	Friday	20	5	25
7/17/2022	Sunday	0	0	0	10/31/2022	Monday	18	8	26
7/24/2022	Sunday	0	0	0	8/16/2022	Tuesday	26	0	26
7/31/2022	Sunday	0	0	0	10/12/2022	Wednesday	20	6	26
8/7/2022	Sunday	0	0	0	3/3/2022	Thursday	21	5	26
8/14/2022	Sunday	0	0	0	6/30/2022	Thursday	17	9	26
8/21/2022	Sunday	0	0	0	9/1/2022	Thursday	18	8	26
9/4/2022	Sunday	0	0	0	10/18/2022	Tuesday	21	6	27
9/11/2022	Sunday	0	0	0	10/19/2022	Wednesday	21	6	27
9/18/2022	Sunday	0	0	0	6/16/2022	Thursday	26	1	27
9/25/2022	Sunday	0	0	0	11/9/2022	Wednesday	20	8	28
10/2/2022	Sunday	0	0	0	12/28/2022	Wednesday	24	4	28
10/9/2022	Sunday	0	0	0	11/17/2022	Thursday	13	15	28
10/16/2022	Sunday	0	0	0	12/1/2022	Thursday	18	11	29
10/23/2022	Sunday	0	0	0	6/3/2022	Friday	25	4	29
10/30/2022	Sunday	0	0	0	4/12/2022	Tuesday	15	15	30
11/6/2022	Sunday	0	0	0	5/31/2022	Tuesday	23	7	30
11/13/2022	Sunday	0	0	0	12/14/2022	Wednesday	30	0	30
11/20/2022	Sunday	0	0	0	8/4/2022	Thursday	8	22	30
11/27/2022	Sunday	0	0	0	7/1/2022	Friday	14	16	30
12/4/2022	Sunday	0	0	0	12/20/2022	Tuesday	28	3	31
12/11/2022	Sunday	0	0	0	5/6/2022	Friday	31	0	31
12/18/2022	Sunday	0	0	0	12/5/2022	Monday	28	4	32
12/25/2022	Sunday	0	0	0	12/19/2022	Monday	29	3	32
3/21/2022	Monday	0	0	0	12/7/2022	Wednesday	26	6	32
7/4/2022	Monday	0	0	0	8/25/2022	Thursday	17	15	32
7/11/2022	Monday	0	0	0	6/10/2022	Friday	29	3	32
9/5/2022	Monday	0	0	0	5/17/2022	Tuesday	32	1	33
10/3/2022	Monday	0	0	0	6/15/2022	Wednesday	27	6	33
11/28/2022	Monday	0	0	0	8/30/2022	Tuesday	10	24	34
12/26/2022	Monday	0	0	0	10/25/2022	Tuesday	26	8	34
4/26/2022	Tuesday	0	0	0	12/27/2022	Tuesday	19	15	34
11/29/2022	Tuesday	0	0	0	3/30/2022	Wednesday	20	14	34
8/31/2022	Wednesday	0	0	0	5/18/2022	Wednesday	26	8	34
3/10/2022	Thursday	0	0	0	4/28/2022	Thursday	34	0	34
3/17/2022	Thursday	0	0	0	11/24/2022	Thursday	25	9	34
4/14/2022	Thursday	0	0	0	7/15/2022	Friday	26	8	34
4/21/2022	Thursday	0	0	0	8/26/2022	Friday	18	16	34
12/22/2022	Thursday	0	0	0	5/16/2022	Monday	35	0	35
4/1/2022	Friday	0	0	0	3/15/2022	Tuesday	29	6	35
4/22/2022	Friday	0	0	0	10/4/2022	Tuesday	28	7	35
11/18/2022	Friday	0	0	0	5/20/2022	Friday	27	8	35
11/25/2022	Friday	0	0	0	6/24/2022	Friday	24	11	35
12/23/2022	Friday	0	0	0	5/11/2022	Wednesday	36	0	36
12/30/2022	Friday	0	0	0	6/9/2022	Thursday	34	2	36
3/5/2022	Saturday	0	0	0	3/4/2022	Friday	36	0	36
4/2/2022	Saturday	0	0	0	9/9/2022	Friday	26	10	36
4/9/2022	Saturday	0	0	0	6/6/2022	Monday	24	13	37
4/16/2022	Saturday	0	0	0	10/24/2022	Monday	28	11	39
4/23/2022	Saturday	0	0	0	10/11/2022	Tuesday	31	8	39
4/30/2022	Saturday	0	0	0	3/2/2022	Wednesday	29	10	39
5/7/2022	Saturday	0	0	0	5/25/2022	Wednesday	38	1	39
5/14/2022	Saturday	0	0	0	10/5/2022	Wednesday	35	4	39
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6/18/2022	Saturday	0	0	0	9/6/2022	Tuesday	30	10	40
6/25/2022	Saturday	0	0	0	3/14/2022	Monday	36	5	41
7/2/2022	Saturday	0	0	0	6/1/2022	Wednesday	43	0	43
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12/24/2022	Saturday	0	0	0	9/16/2022	Friday	40	8	48
12/31/2022	Saturday	0	0	0	9/7/2022	Wednesday	39	10	49
3/7/2022	Monday	1	0	1	9/2/2022	Friday	49	0	49
5/4/2022	Wednesday	3	0	3	8/28/2022	Sunday	43	7	50
11/30/2022	Wednesday	0	3	3	9/12/2022	Monday	50	0	50
10/28/2022	Friday	3	0	3	7/26/2022	Tuesday	25	25	50
5/5/2022	Thursday	4	0	4	6/8/2022	Wednesday	34	16	50
3/19/2022	Saturday	4	0	4	11/2/2022	Wednesday	44	6	50
3/12/2022	Saturday	5	0	5	12/8/2022	Thursday	34	16	50
4/6/2022	Wednesday	6	0	6	11/5/2022	Saturday	34	16	50
11/16/2022	Wednesday	4	3	7	6/29/2022	Wednesday	48	3	51
3/26/2022	Saturday	8	0	8	5/19/2022	Thursday	39	12	51
4/7/2022	Thursday	9	0	9	6/13/2022	Monday	45	7	52
12/9/2022	Friday	7	2	9	9/28/2022	Wednesday	35	17	52
9/3/2022	Saturday	9	0	9	7/21/2022	Thursday	50	2	52
5/30/2022	Monday	10	0	10	7/27/2022	Wednesday	45	8	53
4/19/2022	Tuesday	10	0	10	8/29/2022	Monday	32	22	54
11/22/2022	Tuesday	4	6	10	9/13/2022	Tuesday	46	9	55
12/13/2022	Tuesday	10	0	10	9/23/2022	Friday	47	8	55
3/9/2022	Wednesday	10	0	10	6/20/2022	Monday	56	0	56
11/23/2022	Wednesday	3	7	10	6/22/2022	Wednesday	48	8	56
4/4/2022	Monday	9	2	11	4/8/2022	Friday	11	45	56
3/22/2022	Tuesday	11	0	11	8/6/2022	Saturday	50	7	57
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3/18/2022	Friday	11	0	11	6/23/2022	Thursday	45	14	59
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4/18/2022	Monday	12	0	12	8/9/2022	Tuesday	48	12	60
5/3/2022	Tuesday	12	0	12	7/6/2022	Wednesday	38	23	61
10/1/2022	Saturday	3	9	12	8/3/2022	Wednesday	38	23	61
4/25/2022	Monday	13	0	13	9/15/2022	Thursday	54	8	62
6/21/2022	Tuesday	9	4	13	3/25/2022	Friday	4	58	62
4/13/2022	Wednesday	13	0	13	4/11/2022	Monday	17	46	63
12/15/2022	Thursday	13	0	13	8/24/2022	Wednesday	53	10	63
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12/12/2022	Monday	11	4	15	5/10/2022	Tuesday	66	0	66
11/1/2022	Tuesday	15	0	15	7/28/2022	Thursday	51	15	66
3/24/2022	Thursday	15	0	15	8/23/2022	Tuesday	50	18	68
8/20/2022	Saturday	9	6	15	3/1/2022	Tuesday	64	6	70
11/7/2022	Monday	7	9	16	8/18/2022	Thursday	47	23	70
12/21/2022	Wednesday	12	4	16	7/29/2022	Friday	43	27	70
4/15/2022	Friday	16	0	16	11/4/2022	Friday	44	27	71
12/16/2022	Friday	16	0	16	9/26/2022	Monday	67	6	73
11/14/2022	Monday	9	8	17	6/7/2022	Tuesday	65	8	73
11/15/2022	Tuesday	11	6	17	3/28/2022	Monday	13	62	75
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3/23/2022	Wednesday	12	6	18	8/10/2022	Wednesday	47	29	76
9/8/2022	Thursday	10	8	18	6/2/2022	Thursday	72	4	76
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9/24/2022	Saturday	13	6	19	3/31/2022	Thursday	16	61	77
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9/29/2022	Thursday	20	0	20	7/18/2022	Monday	66	13	79
10/20/2022	Thursday	12	8	20	3/29/2022	Tuesday	17	68	85
11/10/2022	Thursday	12	8	20	8/11/2022	Thursday	81	8	89
4/29/2022	Friday	20	0	20	8/1/2022	Monday	75	24	99
4/5/2022	Tuesday	13	8	21	7/9/2022	Saturday	91	12	103
10/26/2022	Wednesday	1							

# Vollmer Road Approved CD

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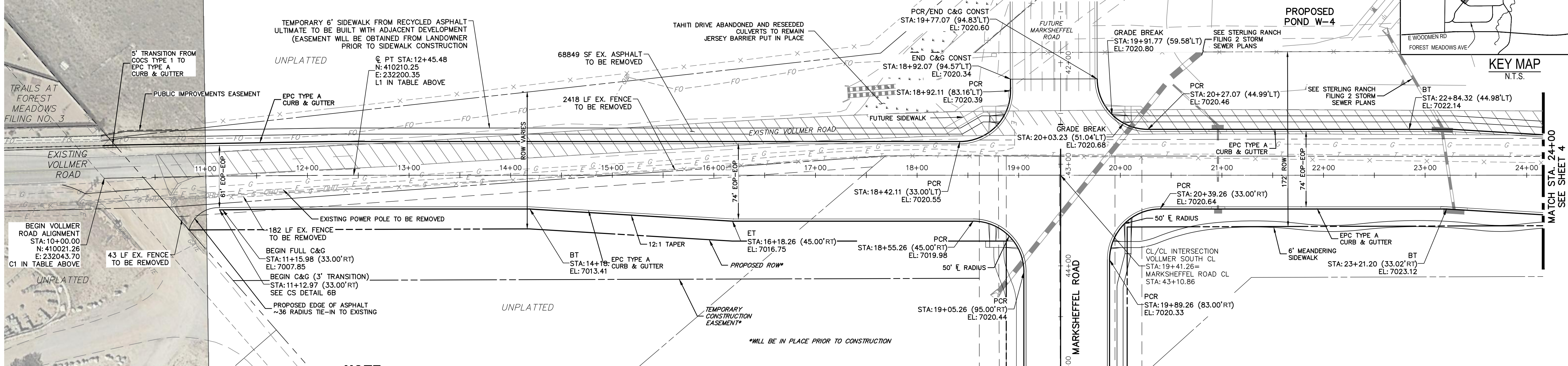
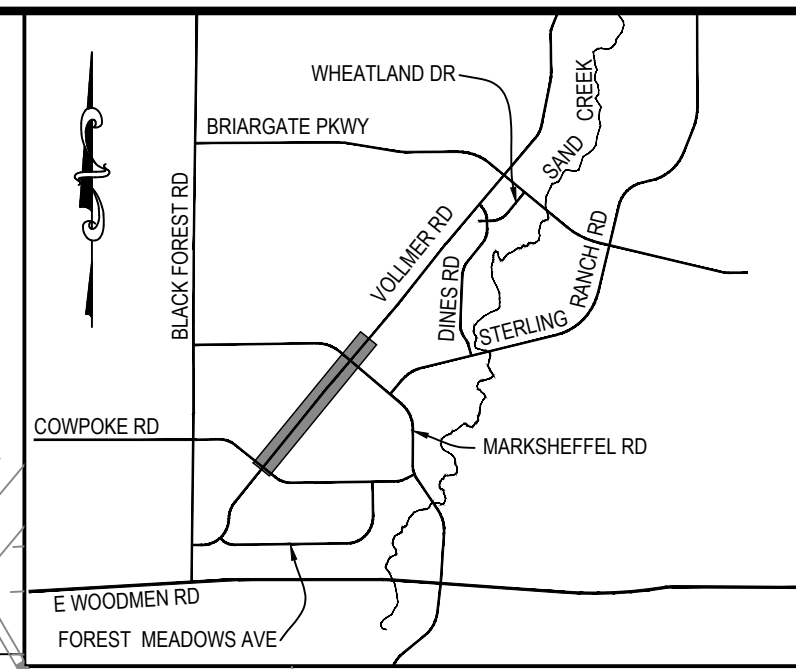


Vollmer South CL										
Point	Design Pt	Station	Distance	Bearing	Northing	Easting	Radius	Delta	Length	Tangent
C1	PC	10+00.00			410021.2566	232043.6991				
	PI	11+22.75			410116.7139	232120.8669	10000	1'24'23"	245.48	122.75
	PT	12+45.48			410210.2482	232200.3545				
L1	Begin Line	12+45.48	1304.444	N40° 21' 27.79"E	410210.2482	232200.3545				
	End Line	25+49.93			411204.2559	233045.0573				

ASPHALT TO BE REMOVED



HORIZONTAL ORIGINAL SCALE: 1" = 50'  
VERTICAL ORIGINAL SCALE: 1" = 5'

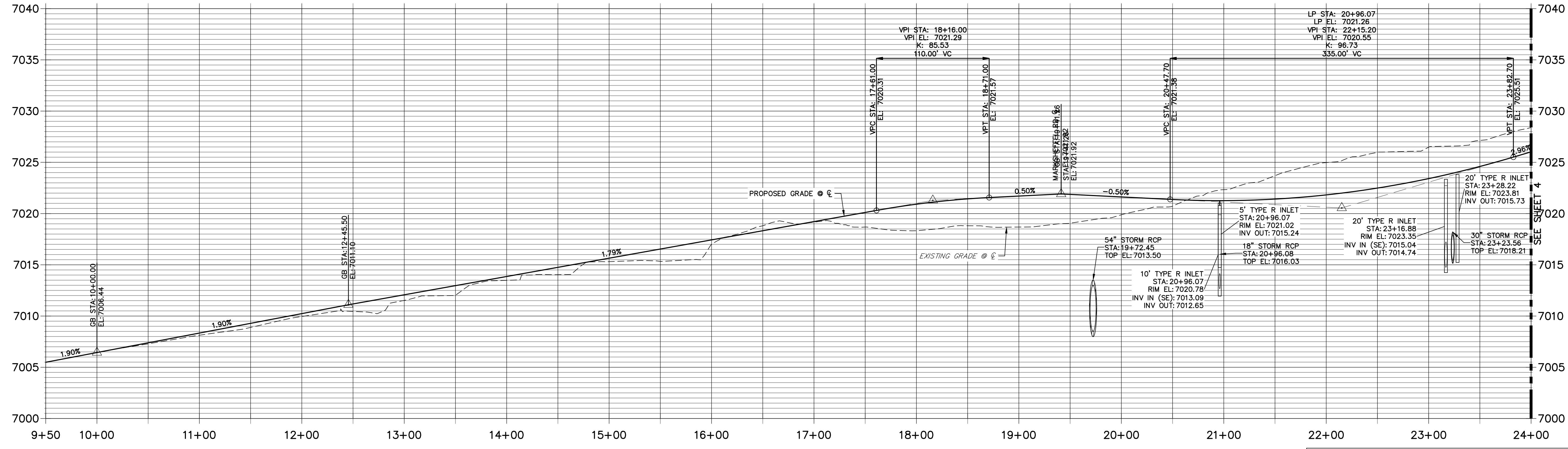


**NOTE**  
OVERHEAD ELECTRIC LINE TO BE PLACED UNDERGROUND AT POLE SOUTH OF PIONEER DRIVE. CONTRACTOR TO COORDINATE WITH MVEA FOR ROUTING.  
CONTRACTOR TO COORDINATE WITH BLACK HILLS AND OTHER EXISTING UTILITIES WITHIN PROJECT LIMITS TO COORDINATE RELOCATION IF NECESSARY

**VOLLMER ROAD**  
**STA 10+00.00 TO STA 24+00.00**

SEE STERLING RANCH-MARKSHEFFEL ROAD STREET IMPROVEMENT PLANS

**VOLLMER SOUTH CL PROFILE**  
**STA 9+50.00 TO 24+00.00**



**VOLLMER ROAD**  
**STA 10+00.00 TO STA 23+50.00**

**ENGINEER'S STATEMENT**  
PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING  
*Mike A. Bramlett*  
MIKE A. BRAMLETT, P.E.  
COLORADO P.E. 32314  
FOR AND ON BEHALF OF JR ENGINEERING, LOCAL ENGINEER  
DATE 3/7/22

EPC 4/5/2022

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE FOR PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR  
**SR LAND, LLC**  
20 BOULDER CRESCENT SUITE 201  
COLORADO SPRINGS, CO 80903  
JAMES F. MORLEY  
(719) 471-1742

**J.R. ENGINEERING**  
A Westman Company  
Central 303-740-9888 • Colorado Springs 719-583-2583  
Fort Collins 970-491-9888 • www.jrengineering.com

BY	DATE	REVISION

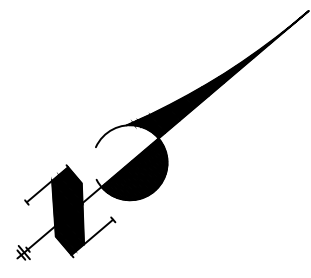
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V-SCALE 1"=5'  
DATE 3/7/22  
DESIGNED BY RAB  
DRAWN BY KRW  
CHECKED BY

STERLING RANCH - VOLLMER ROAD FILING 2  
PLAN & PROFILE

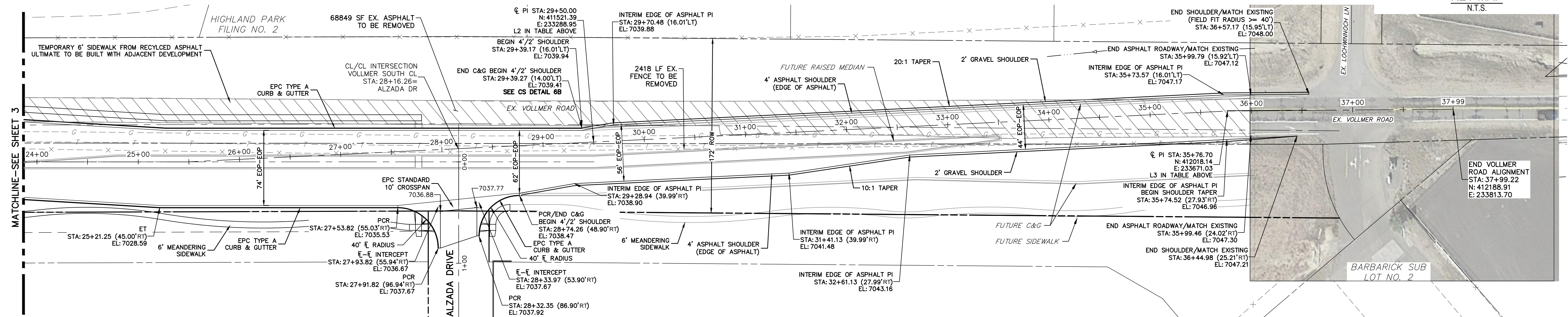
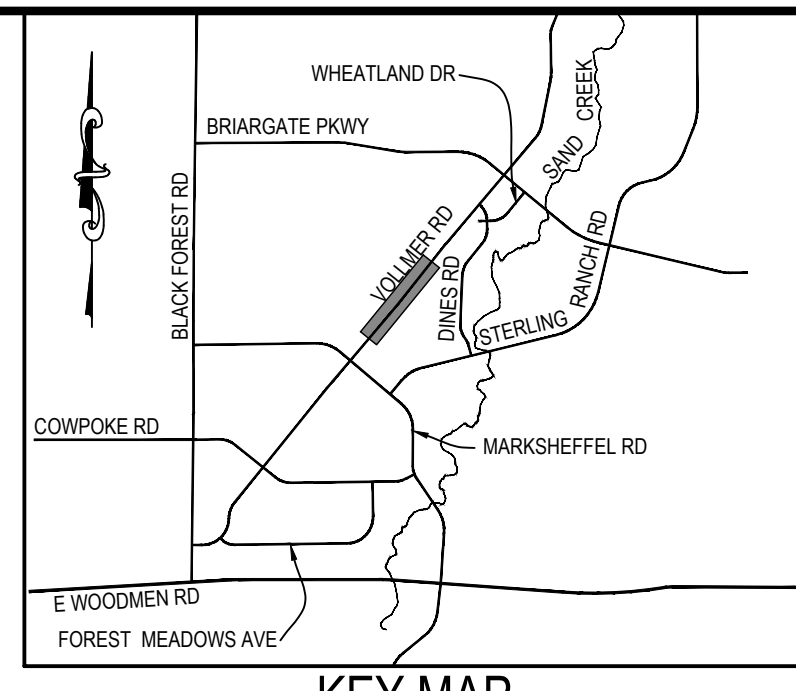
SHEET 3 OF 11  
JOB NO. 25188.01

Vollmer South CL										
Point	Design Pt	Station	Distance	Bearing	Northing	Easting	Radius	Delta	Length	Tangent
L2	Begin Line	25+49.93	1025.900	N37° 33' 44.75"E	411204.2559	233045.0573				
	End Line	35+75.83			412017.4765	233670.4724				
L3	Begin Line	35+75.83	223.394	N39° 52' 40.53"E	412017.4765	233670.4724				
	End Line	37+99.22			412188.9114	233813.7020				

ASPHALT TO BE REMOVED

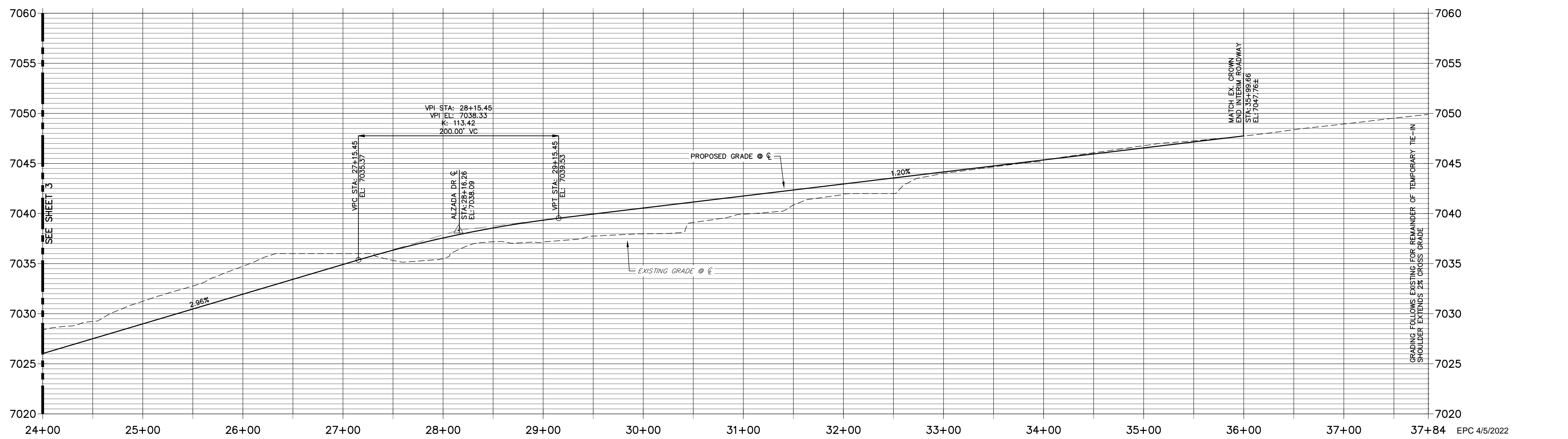


HORIZONTAL ORIGINAL SCALE: 1" = 50'  
VERTICAL ORIGINAL SCALE: 1" = 5'



SEE STERLING RANCH-ALZADA DRIVE STREET IMPROVEMENT PLANS

**VOLLMER ROAD**  
**STA 24+00.00 TO STA 38+00.00**  
**VOLLMER SOUTH CL PROFILE**  
**STA 24+00.00 TO 37+84.39**



**ENGINEER'S STATEMENT**  
PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING  
*Mike A. Bramlett*  
MIKE A. BRAMLETT, P.E.  
COLORADO P.E. 32314  
FOR AND ON BEHALF OF JR ENGINEERING, LLC  
DATE: 3/7/22

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE AGENCIES, JR ENGINEERING APPROVES THEIR USES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR  
**SR LAND, LLC**  
20 BOULDER CRESCENT SUITE 201  
COLORADO SPRINGS, CO 80903  
JAMES F. MORLEY (719) 471-1742

**J.R. ENGINEERING**  
A Westman Company  
Central 303-740-9383 • Colorado Springs 719-583-2593  
Fort Collins 970-491-9888 • www.jrengineering.com

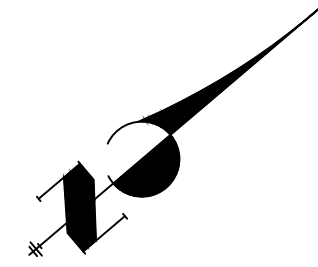
BY	DATE	No.	REVISION

H-SCALE 1"=50'  
V-SCALE 1"=5'  
DATE 3/7/22  
DESIGNED BY RAB  
DRAWN BY KRW  
CHECKED BY

STERLING RANCH -  
VOLLMER ROAD FILING 2  
PLAN & PROFILE

SHEET 4 OF 11  
JOB NO. 25188.01

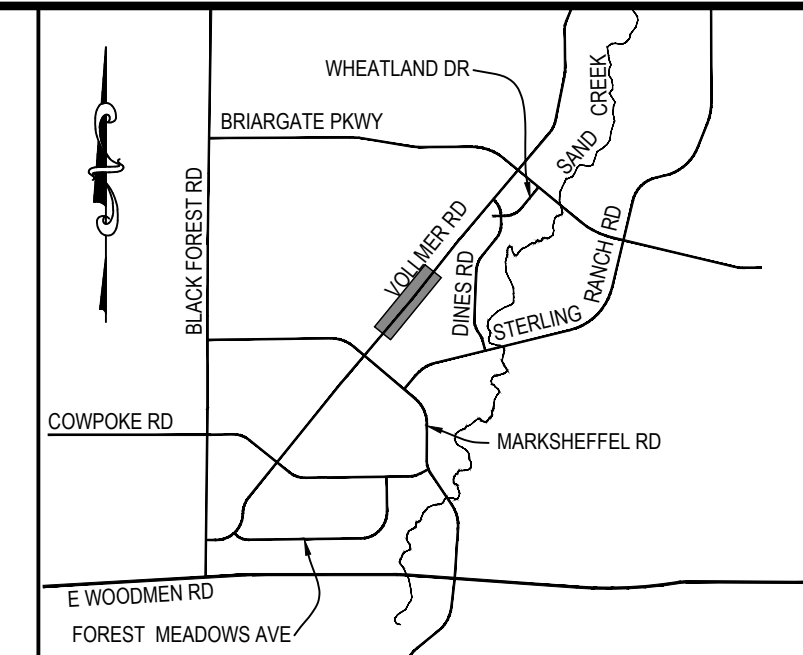




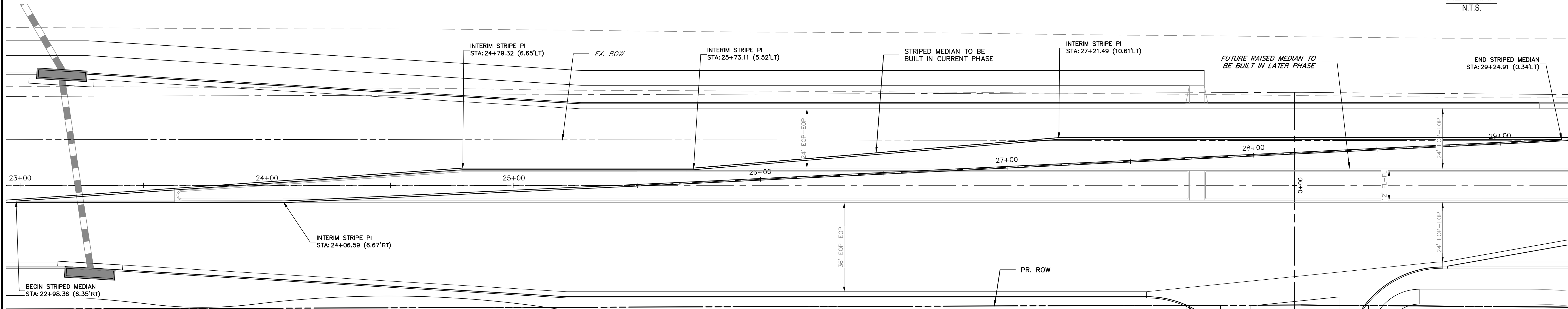
20 10 0 20 40  
ORIGINAL SCALE: 1" = 20'



Know what's below.  
Call before you dig.



KEY MAP  
N.T.S.



**VOLLMER ROAD INTERIM STRIPED MEDIAN  
(AND FUTURE RAISED MEDIAN)  
STA 22+98.00 TO STA 29+25.00**

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY AS DESIGNATED BY WRITTEN AUTHORIZATION.  
PREPARED FOR  
**SR LAND, LLC**  
20 BOULDER CRESCENT  
SUITE 201  
COLORADO SPRINGS, CO 80903  
JAMES F. MORLEY  
(719) 471-1742

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BY	DATE	No.	REVISION

STERLING RANCH -  
VOLLMER ROAD FILING 2  
MEDIAN DETAILS  
SHEET 5 OF 11  
JOB NO. 25188.01

EPC 4/5/2022

**ENGINEER'S STATEMENT**  
PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

*Mike A. Bramlett*  
MIKE A. BRAMLETT, P.E.  
COLORADO P.E. 32314  
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE 3/7/22

DESIGNED BY RAB  
DRAWN BY KRW  
CHECKED BY

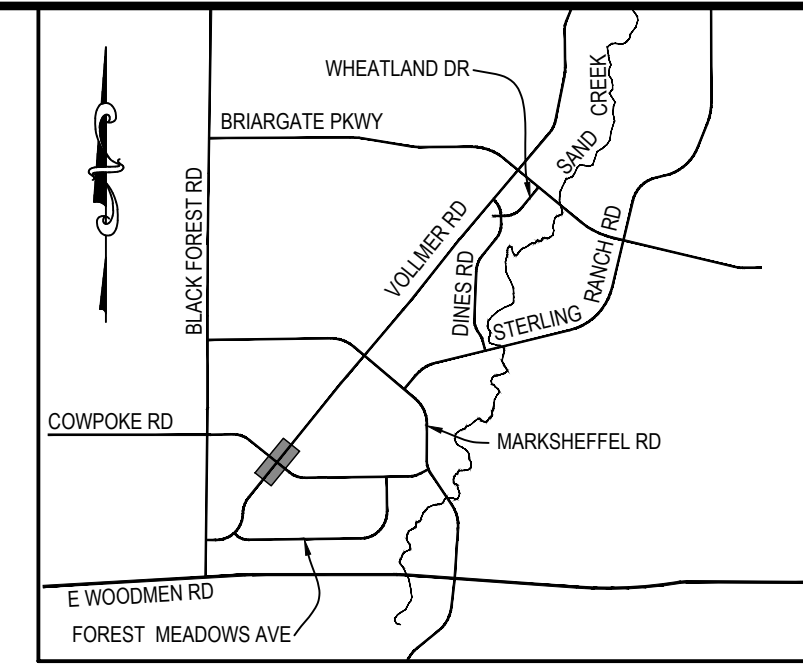
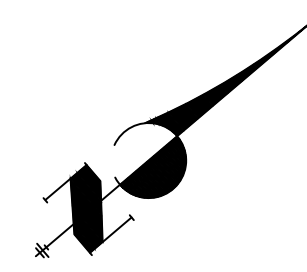


STRIPING LEGEND		
STRIPE	PAVEMENT MARKINGS	MARKING DESCRIPTION
②	DOUBLE CENTERLINE LANE MARKINGS (EPOXY)	PARALLEL SOLID YELLOW, 4" WIDE, 12" APART
③	LANE LANES (EPOXY)	BROKEN WHITE, 4" WIDE, 10' SEGMENTS WITH 30" GAPS
④	BROKEN EDGE/BIKE LANE LINES (EPOXY)	BROKEN WHITE, 4" WIDE, 5' SEGMENTS WITH 15" GAPS
⑤	EDGE/BIKE LANE LINES (EPOXY)	SOLID WHITE, 4" WIDE
⑥	CHANNELIZING LINES (EPOXY)	SOLID WHITE, 8" WIDE
⑦	STOP LINES (THERMO PLASTIC)	SOLID WHITE, 24" WIDE

NOTE: ALL STRIPING INSTALLATION SHALL BE PER COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) "M&S STANDARDS" STANDARD PLAN NO. S-627-1.

**NOTE TO CONTRACTOR:**

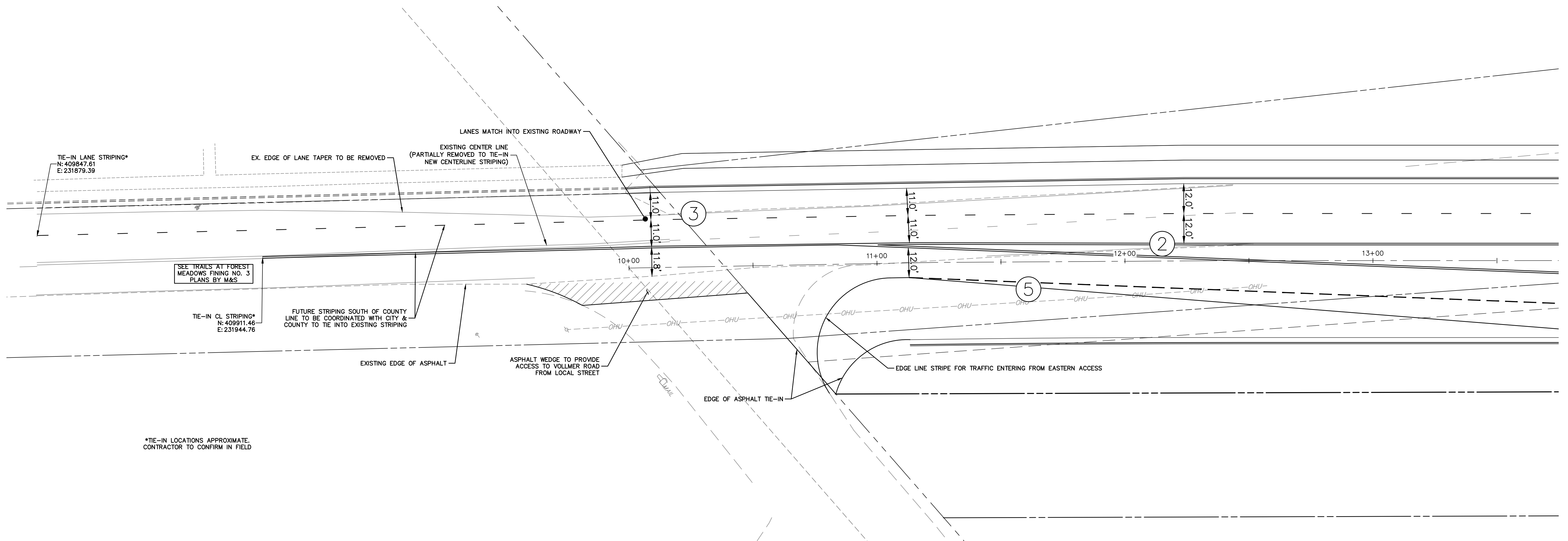
- ALL 4" AND 8" SOLID OR SKIP PAVEMENT MARKINGS ARE TO BE EPOXY.
- SIGNS AND POLES SHALL BE PER CDOT STANDARDS S-614-8, S-1614-2, AND S-614-3, LATEST REVISION.
- ALL SIGNAGE INSTALLATION IS TO BE IN COMPLIANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).



KEY MAP  
N.T.S.

PREPARED FOR  
**SR LAND, LLC**  
20 BOULDER CRESCENT  
SUITE 201  
COLORADO SPRINGS, CO 80903  
JAMES F. MORLEY  
(719) 471-1742

**J.R. ENGINEERING**  
A Westman Company  
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Fort Collins 970-491-9888 • www.jrengineering.com



**VOLLMER ROAD SOUTHERN TIE-IN TO EXISTING**

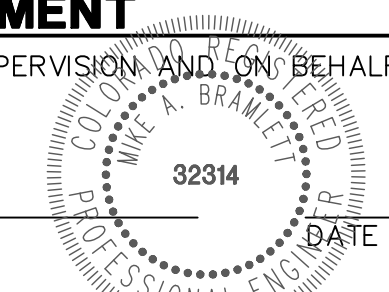
EPC 4/5/2022

**ENGINEER'S STATEMENT**

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

*Mike A. Bramlett*

MIKE A. BRAMLETT, P.E.  
COLORADO P.E. 32314



DATE 3/7/22

FOR AND ON BEHALF OF JR ENGINEERING, A LOCAL ENGINEERING FIRM

H-SCALE	V-SCALE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	No.	REVISION	BY	DATE

STERLING RANCH -  
VOLLMER ROAD FILING 2  
SIGNAGE & STRIPING

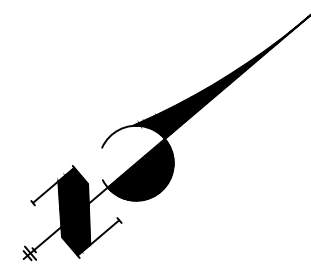
SHEET 7 OF 11

JOB NO. 25188.01

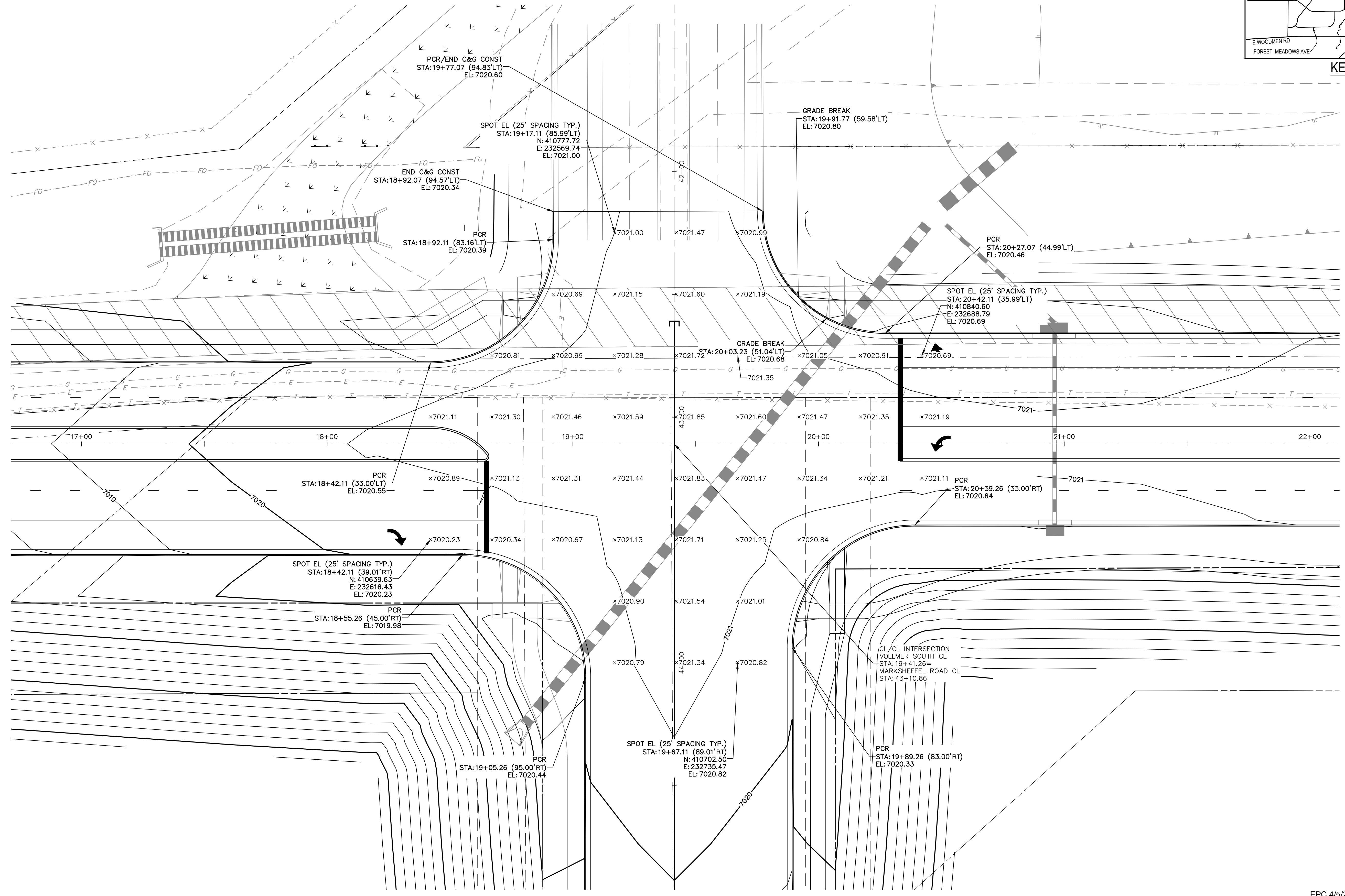
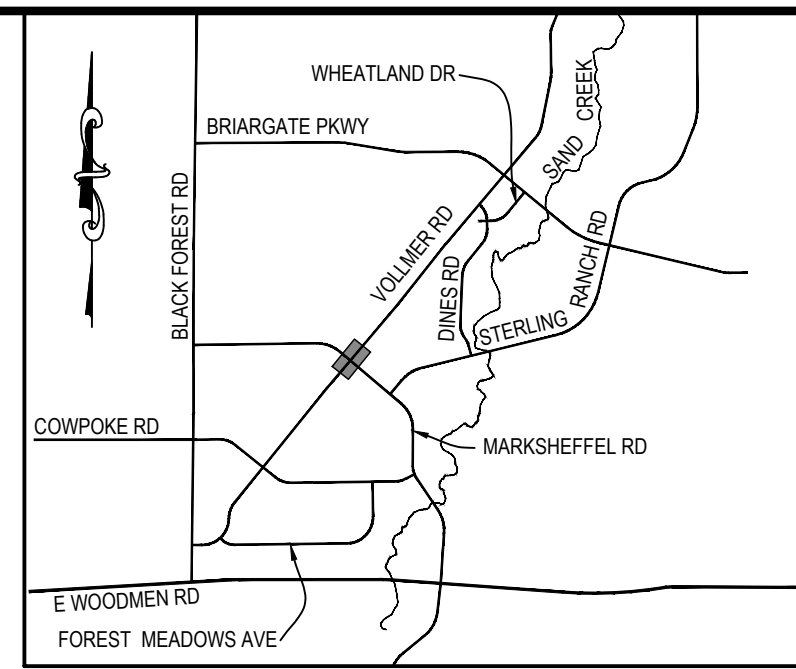








20 10 0 20 40  
ORIGINAL SCALE: 1" = 20'



**VOLLMER ROAD  
INTERSECTION AT MARKSHEFFEL ROAD DETAIL**

EPC 4/5/2022

**ENGINEER'S STATEMENT**

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING  
*Mike A. Bramlett*  
MIKE A. BRAMLETT, P.E.  
COLORADO P.E. 32314  
DATE 3/7/22  
FOR AND ON BEHALF OF JR ENGINEERING, A LOCAL ENGINEERING FIRM

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USES DESIGNATED BY WRITTEN AUTHORIZATION.  
PREPARED FOR  
**SR LAND, LLC**  
20 BOULDER CRESCENT  
SUITE 201  
COLORADO SPRINGS, CO 80903  
JAMES F. MORLEY  
(719) 471-1742

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BY	DATE	No.	REVISION

H-SCALE 1"=50'	V-SCALE 1"=5'	DATE 3/7/22	DESIGNED BY RAB	DRAWN BY KRW	CHECKED BY
STERLING RANCH - VOLLMER ROAD FILING 2 INTERSECTION DETAIL					
SHEET 11 OF 11					
JOB NO. 25188.01					

# LSC Recommendations for Plan Revisions

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STRIPING LEGEND		
STRIPE	PAVEMENT MARKINGS	MARKING DESCRIPTION
②	DOUBLE CENTERLINE LANE MARKINGS (EPOXY)	PARALLEL SOLID YELLOW, 4" WIDE, 12" APART
③	LANE LANES (EPOXY)	BROKEN WHITE, 4" WIDE, 10' SEGMENTS WITH 30" GAPS
④	BROKEN EDGE/BIKE LANE LINES (EPOXY)	BROKEN WHITE, 4" WIDE, 5' SEGMENTS WITH 15" GAPS
⑤	EDGE/BIKE LANE LINES (EPOXY)	SOLID WHITE, 4" WIDE
⑥	CHANNELIZING LINES (EPOXY)	SOLID WHITE, 8" WIDE
⑦	STOP LINES (THERMO PLASTIC)	SOLID WHITE, 24" WIDE

NOTE: ALL STRIPING INSTALLATION SHALL BE PER COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) "M&S" STANDARDS STANDARD PLAN NO. S-627-1.

**NOTE TO CONTRACTOR:**

- ALL 4" AND 8" SOLID OR SKP PAVEMENT MARKINGS ARE TO BE EPOXY.
- SIGNS AND POLES SHALL BE PER CDOT STANDARDS S-614-8, S-1614-2, AND S-614-3, LATEST REVISION.
- ALL SIGNAGE INSTALLATION IS TO BE IN COMPLIANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

50 25 0 50 100  
ORIGINAL SCALE: 1" = 50'



Know what's below.  
Call before you dig.

UNTIL SUCH TIME AS THE PROJECT IS APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, THE USER APPROVES THEIR USE. THE USER'S USE OF THESE SERVICES IS DESIGNATED BY WRITTEN AUTHORIZATION.

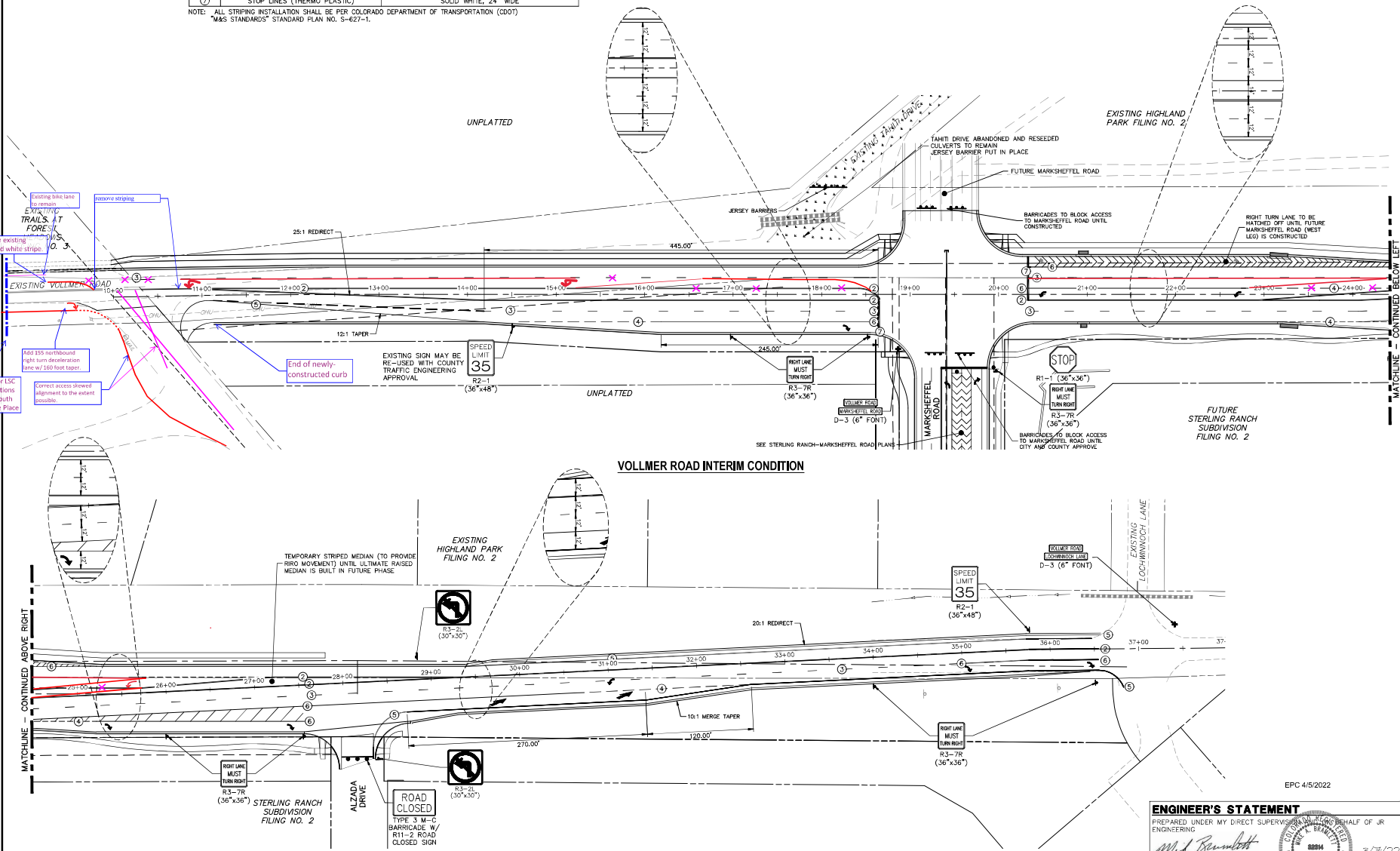
PREPARED FOR  
**SR LAND, LLC**  
20 BOULDER CRESCENT  
COLORADO SPRINGS, CO 80903  
JAMES F. MORLEY  
(719) 471-1742

**JR ENGINEERING**  
A WATKINS COMPANY  
Colorado 833-742-6888 • Colorado Symp: 761-591-2688  
For Color: 970-491-9888 • www.jrengineering.com

NO.	REVISION	DATE

STERLING RANCH -  
VOLLMER ROAD FILING 2  
SIGNAGE & STRIPING

SHEET 6 OF 11  
JOB NO. 25188.01



EPC 4/5/2022

**ENGINEER'S STATEMENT**  
PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING  
*Mike A. Bramlett*  
MIKE A. BRAMLETT, P.E.  
COLORADO P.E. 32314  
FOR AND ON BEHALF OF JR ENGINEERING

3/7/22

Existing bike lane to remain  
EXISTING TRAILS AT FORE  
Match existing dashed white stripe  
Add 15' northbound right turn deceleration lane w/ 100' foot taper  
See Exhibit for LSC recommendations for Vollmer south to Dry Needle Place  
Correct access skewed alignment to the extent possible

EXISTING SIGN MAY BE RE-USED WITH COUNTY TRAFFIC ENGINEERING APPROVAL  
SPEED LIMIT 35  
R2-1 (36"x48")  
RIGHT LINE MUST TURN RIGHT  
R3-7R (36"x36")  
VOLLMER ROAD  
D-3 (6" FONT)MARKSHEFFEL ROAD

STOP  
R1-1 (36"x36")  
RIGHT LINE MUST TURN RIGHT  
R3-7R (36"x36")  
BARRICADES TO BLOCK ACCESS TO MARKSHEFFEL ROAD UNTIL CITY AND COUNTY APPROVE

ROAD CLOSED  
TYPE 3 M-C BARRICADE W/ R11-2 ROAD CLOSED SIGN



