WASTEWATER DISPOSAL REPORT
FOR
RIVERBEND CROSSING SUBDIVISION

September 09, 2018

Prepared for:

Avatar Fountain, LP.
6800 Jericho Tpke., Suite 120W #204
Syosset, NY 11791

Prepared By:

CATAMOUNT
ENGINEERING
321 W. Henrietta Ave
Suite A
Woodland Park, CO 80863
719-426-2124

WASTEWATER DISPOSAL REPORT FOR RIVERBEND CROSSING

A. GENERAL LOCATION AND DESCRIPTION:

Riverbend Crossing is a proposed 51.999-acre subdivision within a portion of the northeast quarter of section 14, Township 15 south, Range 66 west of the 6th P.M. in El Paso County, Colorado. The site is located southeast of the intersection of Southmoor Drive and US Highway 85-87. The parcel is bounded to the north by unplatted agricultural land, to the east by commercial parcels currently undergoing redevelopment and Southmoor Drive, to the south by Fountain Creek, and to the west by unplatted agricultural land.

The parcel is currently zoned PUD and is proposed for rezoning to RS-5000. Proposed development of the parcel includes 225 residential lots total to be developed in two phases. Phase 1 proposes development of 136 residential lots and phase 2 proposes development of 89 residential lots

Development will include public ROW residential street sections, and utility and storm system improvements. Residential lots will be served by Security Water District for domestic water service and by Security Sanitation District for sewer service. The inclusion agreement is included in the appendix of the report. Sewer service for the majority of the development requires development of a sanitary lift station to convey flows to adequate gravity outfall within Southmoor Drive.

B. OPINION OF PROBABLE POPULATION AND QUANTITY OF EFFLUENT:

Proposed development includes 225 single family residential lots. The opinion of probable population and quantity of effluent is as follows:

Population:

The new residential development is planned to include 225 single family units (SFU's) at full buildout. Of these 225 SFU, only 213 SFU will be serviced by the proposed lift station. Site topography will allow the remaining twelve (12) SFU to discharge by gravity into the existing sanitary sewer main in Southmoor Drive. The following assumptions were made in calculating the hydraulic and organic loading from the new development:

- Per SFU Average Daily Flow (ADF) = 198 gpd/SFU (Historical ADF/SFU)
- Peaking Factor (Peak Hourly Flow / Average Daily Flow) = 4.0 (SSD Standard, CDPHE referenced 10 States Standards)
- SFU Average Occupancy = 2.6 persons (US Census Data, El Paso County Design Standard)
- Per Capita BOD_5 Loading = 0.2 lb/person

These assumed values are consistent with those of similar developments in adjacent districts. The SFE unit wastewater volume contribution of 198 gal/SFE is based on a study conducted by GMS consulting Engineering (Appendix G). Based on these assumptions the projected wastewater flows are as follows:

- Service Area Population = 225*2.6 = 585 persons
- Max. Month Average Daily Flow (ADF) = 225*198 = 44,550 gpd (31 gpm)
- Peak Hourly Flow (PHF) = 44,550 *4.0 = 178,200 gpd (124 gpm)
- Max. Month Average Daily Loading (ADL) = 585*0.2 = 117 lb BOD_5/day

This opinion of probable population and quantity of effluent is made on the basis of experience and qualifications and represents Catamount Engineering's best judgement as an experienced and qualified professional firm, familiar with the construction industry. Catamount Engineering cannot and will not guarantee that the actual population and quantity of effluent will not vary from this opinion.

2. Location of Connection to Existing Wastewater System:

Riverbend Crossing will connect to the existing wastewater system near at the intersection of Southmoor Drive and proposed Booker Blvd. and outfall southwesterly within the existing 24" main that is a part of the Security Sanitation District.

3. Letter of Commitment:

Catamount Engineering understands that the Developer has obtained an inclusion agreement from the Security Sanitation District.

4. Estimate of Construction Costs:

Item:	Quantity	Unit Cost	Total Cost
1. 8" PVC Sanitary Sewer	6,888 LF	$35/LF	$ 241,080
2. Manholes	23 EA	$5,500/EA	$ 126,500
3.Lift Station and Force Main	estimate provided Site Location Application		$ 641,850
		TOTAL	**$1,009,430**

5. Creation or Annexation into Special Sewer District:

This item does not apply as this subdivision is already within the service area of the Security Sanitation District.

6. Map of Existing and Proposed Facilities:

A map of the overall utility plan for the project is included with the Preliminary Plan submittal.

SITE LOCATION APPLICATION

For

RIVER BEND CREEK LIFT STATION

SECURITY SANITATION DISTRICT
231 SECURITY BLVD
COLORADO SPRINGS, CO 80911

August 2018

Prepared By:

JDS-HYDRO

545 EAST PIKES PEAK AVENUE • COLORADO SPRINGS, CO • 80903 • (719) 227-0072 • FAX (719) 471-3401

CONSULTANTS, INC.

TABLE OF CONTENTS

Colorado Department of Public Health and Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Regulation 22 Completeness Checklist
Section 22.7 of Regulation 22: Interceptor Sewers Not Eligible for Certification and Lift Stations

Project and System Information	
Project Title	River Bend Creek Lift Station
System Name	Security Sanitation District
County	El Paso County

Regulation 22 Citation	Submittal Requirements		Included/Addressed in Site Location Submittal? Yes/No/NA	Location in Submittal (page)
22.7(1)	Site Application Forms including: - Signature of local authorities and 208 planning agency (see 22.7(2) and 22.7(3)) - Signature of responsible party of the proposed facility		Y	Appendix (App) A
22.7 (1)	Engineering Report including			
	22.7 (1)(a)	Name and Address of Applicant	Y	1
	22.7 (1)(b)	A map identifying the proposed facilities site including area topography, and neighboring land uses	Y	App B
	22.7 (1)(c)	Service Area including:	Y	Pgs 1-2
		- Existing and project population	Y	Pgs 1-2
		- 20 year flow/loading projections	Y	Pgs 1-2
	22.7 (1)(d)	Identification of the treatment entity responsible for receiving and treating the wastewater	Y	Pgs 2-3
	22.7 (1)(e)	Control of site or right of way legal arrangements for project life	Y	Pg 3
	22.7 (1)(f)	Written confirmation that the receiving wastewater treatment entity (use form page	Y	App D
	22.7 (1)(g)	Evidence that the facility will be properly operated and maintained	Y	App D
	22.7 (1)(h)	Management capabilities for controlling the wastewater loading within the capacity limitation of the proposed facility (e.g., user contracts, operating agreements)	Y	App D
	22.7 (1)(i)	Financial system which has been developed to provide for necessary capital, O&M, and replacement cost through the life of the project. This would include:	Y	App I&J
		- Anticipated annual budget	Y	App I
		- Fee and rate structure	Y	App J
	22.7 (1)(j)	Demonstration of the owner's capacity to operate and maintain the facility including	Y	Pgs 3-5
		- Emergency operations plan	Y	Pgs 4-5
	22.7 (1)(k)	Implementation plan and schedule, including:	Y	App K
		- Estimated construction time	Y	App K
		- Estimated start up date	Y	App K
	22.7 (1)(l)	Site Location Posting Documentation (e.g., photo of the public notification sign) – For New Lift Stations Only	Y	App C
22.7 (2-3)	Site Application Review and Comments from: (a) County (b) City or Town (c) Local Health (d) 208 Planning Agency (e) Other state or federal agencies			App A

SECURITY WATER AND SANITATION DISTRICT

SITE LOCATION APPLICATION

For

RIVER BEND CREEK LIFT STATION

August 2018

JDS-Hydro Project Number 296.01

Prepared For:

Secrity Water and Sanitation District
231 Security Blvd
Colorado Springs, CO 80911

Prepared By:

JDS-Hydro Consultants, Inc.
545 East Pikes Peak Avenue, Suite 300
Colorado Springs, Colorado 80903
(719) 227-0072

Table of Contents

Appendices

Site Location Application Engineering Report
River Bend Creek Lift Station

1.0 Introduction

This engineering report accompanies the Site Location Application form requesting the approval of a new sewage lift station, River Bend Creek Lift Station (see ***Appendix A***). The name of the applicant for this Site Location is Security Sanitation District (SSD), whose address is 231 Security Blvd, Colorado Springs, CO 80911. Security Sanitation District will be the long-term owner and operator of the lift station proposed in this application. The project will be completed by Avatar Equities, LLC.

The proposed lift station will be located in El Paso County in Colorado Springs, east of I25 and Fountain Creek, approximately 2,000 feet southwest of the current western terminus of Main Street into US85, approximately 1,300 feet west of the Security Mobile Home Park and 0.9 miles northwest of the Security Wastewater Treatment Facility (WWTF) - CDPS #CO0024392. The proposed lift station will be located approximately 1,000 feet north of Fountain Creek. The proposed lift station will pump wastewater collected from single-family homes planned in the River Bend Creek Development (see maps in ***Appendix B***) to an existing 12-inch gravity sewer main in Southmoor Drive, which in turn discharges to the SSD WWTF.

2.0 Service Area Definition and Loading Calculations

Figure 1 below denotes the contributing service area for the proposed River Bend Creek Lift Station, which consists of new residential development. Neighboring land uses are also depicted. The entire service area is located within unincorporated El Paso County (PUD zoning) and within the service area of Security Sanitation District.

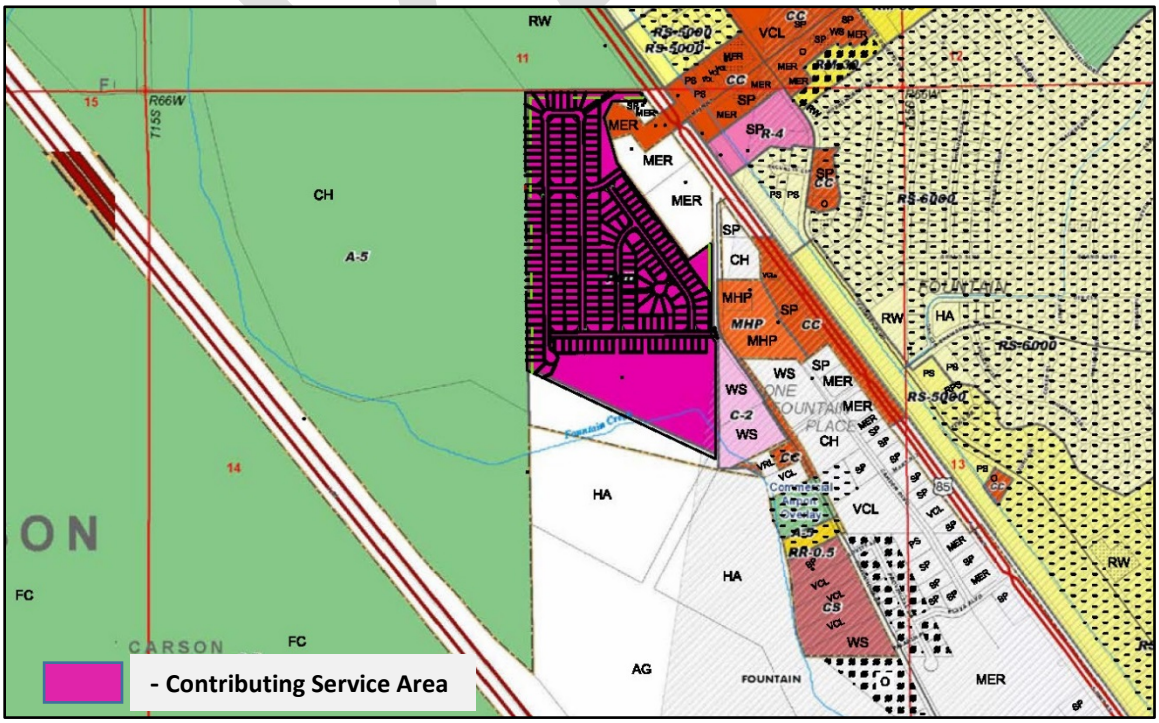


Figure 1: River Bend Creek Lift Station Service Area and Neighboring Land Uses

A map is provided in ***Appendix B*** which denotes the land uses and zoning of all land within a 1-mile radius of the lift station site. The proposed lift station is outside the designated 100-year flood plain. A copy of the current Flood Insurance Rate Map (FIRM) is attached in ***Appendix B***.

The *Office of the State Engineer, State Board of Examiners of Water Well Construction and Pump Installation Contractors, Rules and Regulations for Water Well Construction, Pump Installation, Cistern Installation, and Monitoring & Observation Hole/Well Construction - 2 CCR 402-2, Effective Date January 1, 2005, Section 12.2.2* states:

12.2.2 Wells shall not be located closer than one hundred (100) feet horizontally to the nearest existing source of contaminants or fifty (50) feet from a septic tank, sewer line or other vessel containing contaminants. A request for variance must be submitted and written approval from the Board must be obtained prior to the construction of a well that cannot meet this spacing requirement.

There are no wells within the distances specified above for this location. Maps showing existing wells, topography, and wetlands in the vicinity of the lift station site are provided in ***Appendix B***.

A photo of the posted sign for the new lift station is included in ***Appendix C.*** The sign was posted at the site on August 9, 2018 and is oriented such that it is clearly visible from the road nearest to the site.

The new residential development is planned to include 225 single family units (SFU's) at full buildout. Of these 225 SFU, only 213 SFU will be serviced by the proposed lift station. Site topography will allow the remaining twelve (12) SFU to discharge by gravity into the existing sanitary sewer main in Southmoor Drive. The following assumptions were made in calculating the hydraulic and organic loading from the new development:

- Per SFU Average Daily Flow (ADF) = 198 gpd/SFU (Historical ADF/SFU)
- Peaking Factor (Peak Hourly Flow / Average Daily Flow) = 4.0
  (SSD Standard, CDPHE referenced 10 States Standards)
- SFU Average Occupancy = 2.6 persons (US Census Data, El Paso County Design Standard)
- Per Capita BOD_5 Loading = 0.2 lb/person

These assumed values are consistent with those of similar developments in adjacent districts. The SFE unit wastewater volume contribution of 198 gal/SFE is based on a study conducted by GMS consulting Engineering (Appendix G). Based on these assumptions the projected wastewater flows are as follows:

- Service Area Population = 213*2.6 = 554 persons
- Max. Month Average Daily Flow (ADF) = 213*198 = 42,174 gpd (29 gpm)
- Peak Hourly Flow (PHF) = 42,174 *4.0 = 168,696 gpd (117 gpm)
- Max. Month Average Daily Loading (ADL) = 554*0.2 = 111 lb BOD_5/day

These projected flows and loadings represent the proposed capacity of the River Bend Creek Lift Station as described in this Site Location Application.

3.0 Identification of the Treatment Facility

The proposed River Bend Creek Lift Station will convey wastewater via a 4" force main to a manhole located approximately 1,300 ft east of the proposed lift station site. From this manhole wastewater will discharge by gravity to the existing Security Sanitation District Wastewater Treatment Facility (SSD

WWTF) - refer to map in ***Appendix B***. This Facility is owned and operated by SSD. The SSD WWTF has a permitted hydraulic capacity of 2.4 MGD and an organic capacity of 5,230 lb BOD_5/day.

The following is an excerpt from The Pikes Peak Area Council of Governments (PPACG) Water Quality Management Plan (208 Plan) approved in 2011:

> *The Security Sanitation District (Figure 8-11) is in need of plant improvements for additional treatment of many parameters for the new NPDES permit. These are metals, ammonia, nitrate removal, and sludge handling. The design capacity of 2.4 mgd for the plant should be enough for build-out of the district. The current flow is about 1.27 mgd. Plans are being made for treatment system modifications to enhance treatment capability in the exiting site. Capital improvement costs are expected to be in the range of $5–7 million. Currently, Security is in the concept and design phase, and initial phased improvements commenced in 2009. Two lift stations - River Bend development and Waterview development - are expected in Phase 2. The Waterview development has installed a 12" outfall sewer across Grinnell Blvd. and down Bradley Rd. to the existing Windmill Gulch outfall. The facility discharges to the mainstem of Fountain Creek (Segment 2a) via a discharge location 3,000 feet upstream from the Carson Boulevard Bridge.*

The proposed lift station service area is consistent with this plan in providing sewer service to the new 'River Bend' development within the established Security Sanitation District service boundary. The proposed lift station will not require an increase in the treatment capacity owned by SSD. Refer to ***Appendix D*** for the Inclusion Agreement from the SSD WWTF confirming that 100% of the wastewater from the River Bend Creek Lift Station will be accepted and treated by the SWSD WWTF. Refer to ***Appendix L*** for the Site Location Approval for the SSD WWTF.

4.0 Legal Control of Site

The property on which the River Bend Creek Development will be located (El Paso County Assessor Reception No. 6514100032) will be owned by Avatar Equities, LLC. Avatar Equities, LLC has provided a letter of intent to SSD in which Avatar Equities, LLC has agreed to deed the property of the proposed lift station site to Security Sanitation District. The final plat for the Development has been submitted to El Paso County for approval. After the final plat has been approved by the County the lift station site will be deeded to SSD. The force main alignment and access to the lift station site will both lie within public right-of-way. The submitted plat for the development, the legal description of the lift station site and letter of intent are attached in ***Appendix E.***

5.0 Lift Station and Forcemain

Design of the lift station generally consists of a single wet-well configuration, approximately 20 feet deep, which will house two submersible pumps. It is anticipated that the two pumps will each have the following specifications:

- 10.0 hp
- 160 gpm @ 60' Total Dynamic Head (TDH)
- 1,750 rpm
- Able to pass 3" solids (non-clog pumps chopper style pumps)

A magnetic flow meter will be installed in this lift station. Weather-proof enclosures will be used to house electrical and I/C equipment. Wet well level will be measured via a pressure transducer, and float switches will be provided in low and high positions for redundancy. Odor control measures will include the installation of either a liquid chemical feed system and chemical storage tank and/or a passive air filter with replaceable activated media.

A force main with an approximately 4" ID will be constructed from the lift station site to an interceptor manhole (see map in ***Appendix E***), a distance of approximately 1,300 linear feet. Design calculations used to size the sewer force main, sewage pumps, wet well, and emergency storage tanks are included in ***Appendix F.*** Security Sanitation District limits the flushing velocity to 6 ft/s. The velocity at 160 gpm for 4" DR11 HDPE is 4.35 ft/s, which is adequate to effectively flush the force main while remaining below the maximum of 6 ft/s.

RMG Engineers performed a geotechnical investigation of the River Bend Creek development site, which includes the proposed lift station site and prepared a report based on the results of the investigation. The report, dated April 2, 2018, is included as ***Appendix H.*** The geotechnical investigation included eleven (11) bore holes which were drilled to a depth of twenty (20) feet. Bore hole R-11 was located on the proposed lift station site. The R-11 bore hole and soil sampling indicated that soil at the lift station site is comprised of sand, silty to clayey to a depth of approximately ten (10) feet, and sand, silty with gravel to an approximate depth of fifteen (15) feet. Claystone and shale bedrock was encountered to a depth of fifteen (15) feet and continued through the remaining depth of the bore hole. The installation of the wet well may require minimum excavation of this bedrock. Based on geotechnical recommendations, over-excavation and replacement with compacted structural fill would be provided between unsuitable soil and foundation elements. The bore hole also revealed a ground water depth of seventeen (17) feet below the ground surface. This water table will require the wet well manhole and auxiliary storage tank to be ballasted to resist the buoyant force of the groundwater. Further evaluation of ballasting requirements will be completed and summarized in the design submittal.

A preliminary cost estimate for the lift station and force main are included in ***Appendix I***.

6.0 Operation & Management

Security Sanitation District will be the long-term owner and operator of the River Bend Creek Lift Station. A preliminary projected operating budget is attached in ***Appendix I***. SSD intends to recoup operation and maintenance costs for the proposed lift station with tap fees and sewer rates. The SSD fee and rate schedule is attached in ***Appendix J***.

7.0 Contingency Operation

The lift station has been designed with two equally-sized pumps for full redundancy, each able to handle full-flow capacity. A backup generator will be installed with the proposed lift station.

In addition to redundancy and backup power generation, emergency storage will be constructed to provide a minimum of 8 hours of storage time (maximum 8-hr flow) in the event of a failure. Maximum flow was determined using a diurnal hydrograph provided by the district. This value exceeds CDPHE requirements for overflow storage equal to eight (8) hours of average daily flow. Auxiliary storage will be provided with the available storage volume in the wet well along with an approximately 20,000-gallon storage tank buried adjacent to the wet well. An overflow line will discharge from the wet well to the

storage tank in the event of pump failure. A drain line on the auxiliary storage tank will be installed with an isolation valve to allow the storage tank to be hydraulically connected to the wet well. The storage tank will also be equipped with at least one riser pipe to allow access from the surface. In the event of a failure a vac truck will be able to access either the wet well or the storage tank to pump out stored wastewater. Lastly, the force main will be plumbed to allow for bypassing lift station pumps using a trailer mounted pump.

The lift station will be equipped with a SCADA (Supervisory Control and Data Acquisition) system which will monitor and transmit operational information to operations office. That information shall include but is not necessarily limited to:

- Failure of the pumps to start or stop
- Wet well levels
- Loss of power
- Pump run times
- Pump On/Off Status
- Flow Rate

The SCADA system will include a telephone dialer that calls out to operations staff notifying them of the alarm. The operators then may take appropriate action regarding the nature of the alarm.

The operator response time to an emergency situation would most likely be less than 1 hour, especially considering the automatic safeguards in place.

8.0 Implementation Schedule

An estimated implementation schedule is attached in ***Appendix K***. It is anticipated that bidding for the construction of this project will occur in late January 2018 and that construction will begin February 2019 (pending State and Local approvals). It is estimated that the River Bend Creek Lift Station will be on-line in July 2019.

Appendix A

Colorado Department of Public Health and Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Regulation 22 Application Form
Section 22.7 of Regulation 22: Interceptor Sewers Not Eligible for Certification and Lift Stations

A. Project and System Information			
System Name	Security Sanitation District		
Project Title	River Bend Creek Lift Station		
County	El Paso		
Date Fee Paid or payment attached		Invoice Number and Check Number	
Design Company Name	JDS-Hydro Consultants, Inc.		
Design Engineer	James Plumb-Starnes	CO License Number	52530
Address	545 E. Pikes Peak Ave. Ste. 300		
	Colorado Springs, CO 80903		
Email	jpstarnes@jdshydro.com		
Phone	719-227-0072	Fax	719-471-3401
Applicant / Entity	Security Sanitation District		
Representative Name/Title	Roy Heald		
Address	231 Security Blvd		
	Colorado Springs, CO 80911		
Email	r.heald@securitywsd.com		
Phone	719-392-3475	Fax	719-390-7252

B. Project Information			
Location (existing or proposed site)		***Proposed Project Capacity***	
Brief location description	Approx. 2,000ft. SW of the western terminus of Main Street into US85, approx. 1,300ft west of the Security Mobile Home Park, and 0.9 miles northwest of the Security Wastewater Treatment Facility (WWTF)	Maximum Month Average Hydraulic Capacity in million gallons per day (MGD)	.042 MGD
Legal Description (e.g., Township, Range)	SW 1/4 of NE 1/4 of Section S14 T15S R66W Meridian Sixth	Peak Hour Hydraulic Capacity in million gallons per day (MGD)	0.169 MGD
County	El Paso		
Latitude	38°44'51.93"N	Organic Capacity (lbs. BOD_5/day) – Treatment Facility Only	111 lbs. BOD_5/day
Longitude	104°44'48.92"W		

Funding Process	Will a State or Federal grant or loan be sought to finance any portion of the project (e.g., State Revolving Fund)?	No	☒	Yes	☐	If yes, please list project number	

Project Schedule and Cost Estimate	
Estimated Bid Opening Date	January 2019
Estimated Completion Date	June 2019
Estimated Project Cost	$750,000

Regulation 22 Application Form
Section 22.7 of Regulation 22: Interceptor Sewers Not Eligible for Certification and Lift Stations

Project and System Information	
Project Title	River Bend Creek Lift Station
System Name	Security Sanitation District
County	El Paso
Interceptor/Lift Station Design Information	
1.	a) Name and address of wastewater treatment facility providing treatment (Receiving wastewater facility must fill out "Receiving Wastewater Entity Certification")
	Security Sanitation District Wastewater Treatment Facility
Site Information	
2.	**Vicinity maps of facility location which includes the following:** a) 1 mile radius map: habitable buildings, location of public and private potable water wells, an approximate indication of the topography, and neighboring land uses
	See Appendix C
3.	***Site Location Zoning***
	a) Present zoning of the site location?
	PUD - El Paso County
	b) Zoning within a one (1) mile radius of the site? For New Lift Stations Only.
	See Appendix C
4.	**Floodplain or Natural Hazards**
	a) Is the facility located in a 100-year floodplain or other natural hazard area? If so, what precautions are being taken?
	The proposed lift station will not be located within a 100-year floodplain or other hazard area, see Appendix C.
	b) Has the floodplain been designated by the Colorado Water Conservation Board, Department of Natural Resources or other agency? If so, please list agency name and the designation.
	Not Applicable
5.	**Land Ownership**
	a) Who owns the land upon which the facility will be constructed? Please attach copies of the document(s) creating authority for the applicant to construct the proposed facility at this site.
	Avatar Equities, LLC is in works to purchase property- See Appendix F
Lift Station Facility Only	
6.	Please describe the period during which service area build-out will occur.
	Full build-out is anticipated to occur within five to ten years.
7.	Please describe the flows expected in the first five years and ten years of operation.
	The flows during the first five years are anticipated to reach approximately 80% to 90% of the design flows. The flows are not anticipated to increase beyond 10 years of operation.
8.	Will the proposed lift station replace an existing lift station?
	Yes ☐ No ☒
	If Yes, please describe the current flows and loadings that will be switched to the proposed lift station.
	Not Applicable

9.	Describe emergency back-up system in case of lift station and/or power failure.
	There will be a back-up generator dedicated to the lift station with an automatic transfer switch to power the lift station in the event of a power failure. A cam-lock connection will be provided to allow a vac truck to pump wastewater from the wet well. Additionally, 8 hours of emergency storage volume will be provided, and the lift station will be equipped with a fully redundant, built-in spare pump. Lastly, the discharge forcemain will be equipped with a bypass connection for portable pump that would pull directly out of the wet well and/or storage tank.
Project Information	
10.	a) What entity is financially responsible for the construction of the facility?
	Avatar Equities, LLC
11.	a) What entity has the financially responsibility for owning and long term operating expense of the proposed facility?
	Security Sanitation District
12.	a) What entity has the responsibility for managing and operating the proposed facility after construction?
	Security Sanitation District
Additional Factors	
13.	Please identify any additional factors that might help the Water Quality Control Division make an informed decision on your site location application.
	The receiving wastewater treatment facility is currently treating approximately 90% of its permitted organic capacity. An application for Site Location Approval has been submitted. The new design would increase the organic treatment capacity from 5,230 lbs/day to 5,985 lbs/day. The estimated completion date is December 2019. Importantly, if work is not completed, the flow from the proposed lift station would not cause loading of the receiving wastewater treatment facility to exceed its permitted capacity.

Colorado Department of Public Health and Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Applicant Certification and Review Agencies Recommendation
Section 22.7 of Regulation 22: Interceptor Sewers Not Eligible for Certification and Lift Stations

A. Project and System Information	
System Name	Security Sanitation District
Project Title	River Bend Creek Lift Station
County	El Paso

1. Applicant Certification

I certify that I am familiar with the requirement of *Regulation 22 - Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works*, and have posted the site in accordance with the Regulations. An engineering report, as described by the regulations, has been prepared and is enclosed.

Applicant Legal Representative (e.g. Public Works Director)	Date	Typed Name	Signature
District Manager		Roy Heald	

The system legal representative is the legally responsible agent and decision-making authority (e.g. mayor, president of a board, public works director, owner). The Consulting Engineer is not the legal representative and cannot sign this form.

2. Recommendation of Review Agencies

As required in Section 22.7(2 and 3), the application and the engineering report must be submitted to all appropriate local governments, 208 planning agencies and State agencies for review and comment prior to submittal to the Division. By signing below, the entity or agency: 1) acknowledges receipt of the proposed site location application, 2) has reviewed the proposed site location application and may elect to provide comments, and 3) has provided a recommendation to the Division. The recommendation should be based on the consistency of the proposed site location application with the local comprehensive plan(s) as they relate to water quality and any adopted water quality management plans(s). *Please note: If a governmental authority does not recommend approval then the authority must attached a letter describing the reason for their decision or comment on the next page.*

Signature of County, if proposed facility is located in unincorporated areas of a county							
Role	Date	Typed Name / Agency	Signature				
		El Paso County					
			Recommend Approval?	*Yes*	☐	*No*	☐
Signature of City or Town, if site is located within three miles of the City/Town boundary							
Role	Date	Typed Name / Agency	Signature				
		City of Fountain					
			Recommend Approval?	*Yes*	☐	*No*	☐
Signature of Local Health Authority							
Role	Date	Typed Name / Agency	Signature				
		EPCPH					
			Recommend Approval?	*Yes*	☐	*No*	☐
Signature of 208 Planning Agency							
Role	Date	Typed Name / Agency	Signature				
		PPACG					
			Recommend Approval?	*Yes*	☐	*No*	☐

Signature of Other State or Federal Agencies, if facility is located on or adjacent to a site that is owned or managed by a federal or state agency.							
Role	**Date**	**Typed Name / Agency**	**Signature**				
			Recommend Approval?	***Yes***	☐	***No***	☐

Signature of Other Basin Water Quality Authority, Watershed Association, Watershed Authority, etc., if facility is located in a Water Quality Control Commission Watershed Protection Control Area.							
Role	**Date**	**Typed Name / Agency**	**Signature**				
		Lower Fountain WQMA					
			Recommend Approval?	***Yes***	☐	***No***	☐

Review Agency Comments:

Colorado Department of Public Health and Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Wastewater Receiving Entity Certification
Section 22.7 of Regulation 22: Interceptor Sewers Not Eligible for Certification and Lift Stations

Project and System Information	
System Name	Security Sanitation District
Project Title	River Bend Creek Lift Station
County	El Paso

Receiving Wastewater Entity – Certification of Available Treatment Capacity

Receiving wastewater treatment entity information			
Receiving wastewater treatment entity and facility	Security Sanitation District Wastewater Treatment Facility		
County	El Paso		
CDPS discharge permit number and expiration date	CO0024392	CDPS discharge permit capacity	2.4 MGD
Site location approval number and date (please attach a copy of approval letter)		Site location approved capacity	2.4 MGD

Proposed facility capacity impacts on receiving wastewater treatment facility (projected at buildout or 20-years)	
Proposed project hydraulic capacity: maximum month average	0.042 million gallons per day
Proposed project hydraulic capacity: peak hour	0.169 million gallons per day
Proposed project organic capacity: maximum month average	111.0 lbs BOD_5/day
Proposed project will increase the receiving treatment facility's hydraulic loading capacity to (% of total capacity):	0.0 %
Proposed project will increase the receiving treatment facility's organic loading capacity to (% of total capacity):	0.0 %

Treatment Certification (22.7 (1)(f) (i))

I certify that the receiving wastewater treatment facility will treat the wastewater from the proposed wastewater facility project.

Yes, will provide treatment	☒	No, will not provide treatment	☐

Capacity Certification (22.7 (1)(f) (ii))

I certify that the receiving wastewater treatment facility is not presently receiving wastes (hydraulic and organic loads) in excess of the above listed site location approval and discharge permit to treat the projected discharge from the new interceptor sewer or from the new or expanded lift station, as listed above (initial in box).	
OR	
I certify that the receiving wastewater treatment facility does not currently have the capacity to serve the proposed project flows but is under construction, or will be in a phased construction of new or expanded facilities and will have the necessary capacity to treat the projected discharge from the new interceptor sewer or from the new or expanded lift station, as listed above (initial in box).	
Estimated date capacity will be available	7/1/2018

Note: Projections of flow and loading to the treatment facility over the period during which build out of the service area will occur or twenty years, whichever is less, as well as current and future plant capacity information must be provided to demonstrate the plan for maintaining adequate treatment capacity. Any proposed treatment plant phased construction must be shown in the Water Quality Management Plan (reference, attach), or by appropriate planning and engineering studies (reference, attach).

Compliance Status Certification (22.7 (1)(f) (iii))

I certify that the receiving wastewater treatment facility has not been in violation of any effluent limitations in its discharge permit for the last two years (initial in box).	
I certify that the receiving wastewater treatment facility Is not operating under a Notice of Violation and/or Cease and Desist Order from the Division resulting from discharge permit violations (initial in box).	

Note: If there have been effluent violations or if the receiving wastewater treatment facility is operating under a Notice of Violation and/or Cease and Desist Order from the Division, please provide additional description of the situation and the treatment entity's proposed corrective measures to achieve consistent compliance. The Division will evaluate information provided and determine if approval should be granted, granted with conditions, or denied.

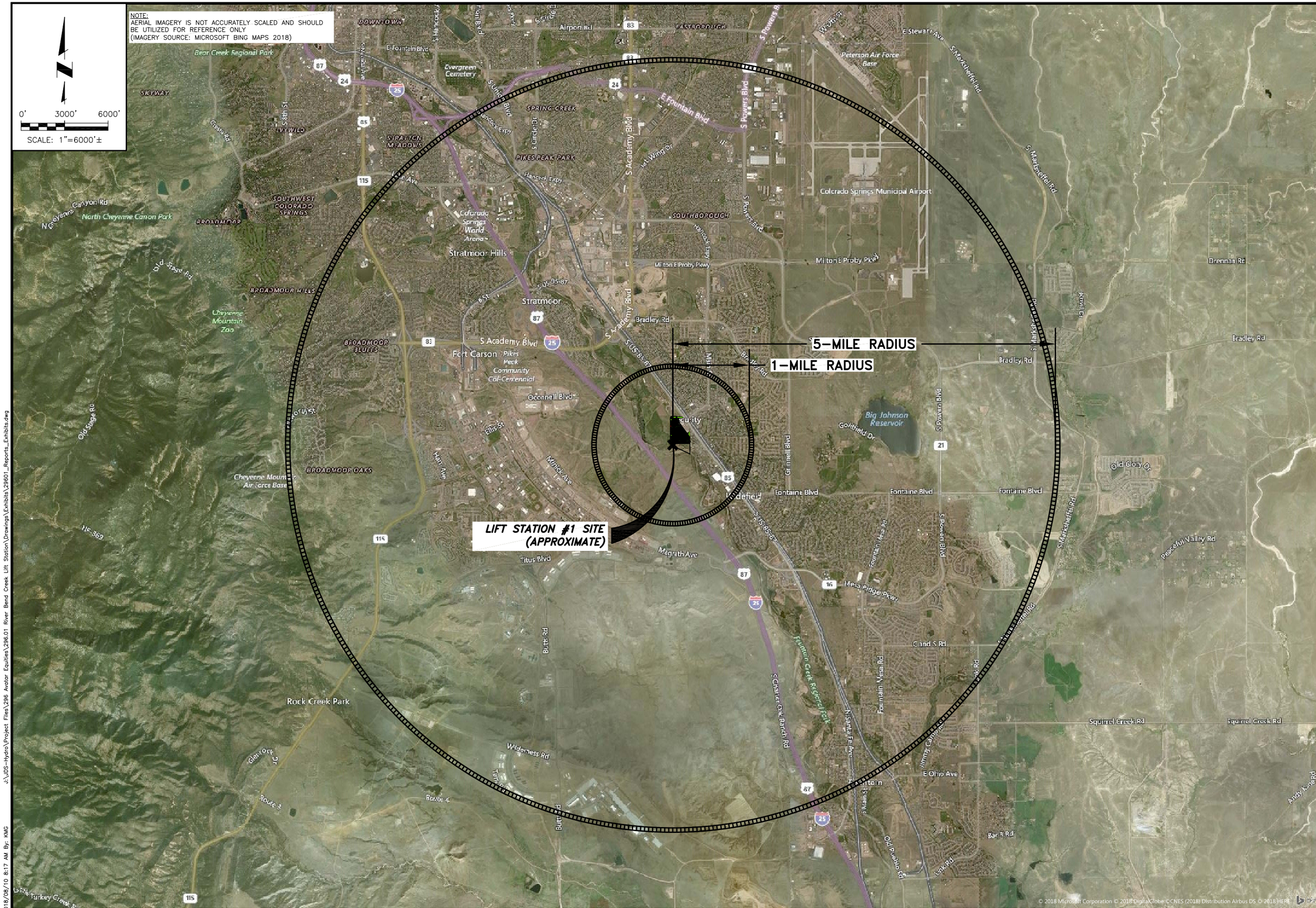
I hereby certify that the information presented above is accurate and complete.

Receiving Treatment Facility Representative	Date	Typed Name and Title	Signature

Appendix B1

NOTE:
AERIAL IMAGERY IS NOT ACCURATELY SCALED AND SHOULD BE UTILIZED FOR REFERENCE ONLY
(IMAGERY SOURCE: MICROSOFT BING MAPS 2018)

0' 3000' 6000'
SCALE: 1"=6000'±



JDS-HYDRO CONSULTANTS, INC.
545 EAST PIKES PEAK AVENUE, SUITE 300
COLORADO SPRINGS, COLORADO 80903
(719) 227-0072

DISCLAIMER: THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. ANY ERRORS OR OMISSIONS MUST BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION. JDS-HYDRO ASSUMES NO LIABILITY FOR UNAUTHORIZED CHANGES AND/OR REVISIONS MADE TO PLANS.

AVATAR EQUITIES

RIVER BEND CREEK LIFT STATION

LIFT STATION SITE MAPPING

1-MILE AND 5-MILE RADIUS AERIAL MAP

REVISIONS

NO.	DESCRIPTION	BY	APP.	DATE
1				
2				
3				
4				
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7				

EXHIBIT

Project No.: 296.01
Date: 08/07/18
Design: JPS
Drawn: ACH
Check: JPM

SHEET ----OF

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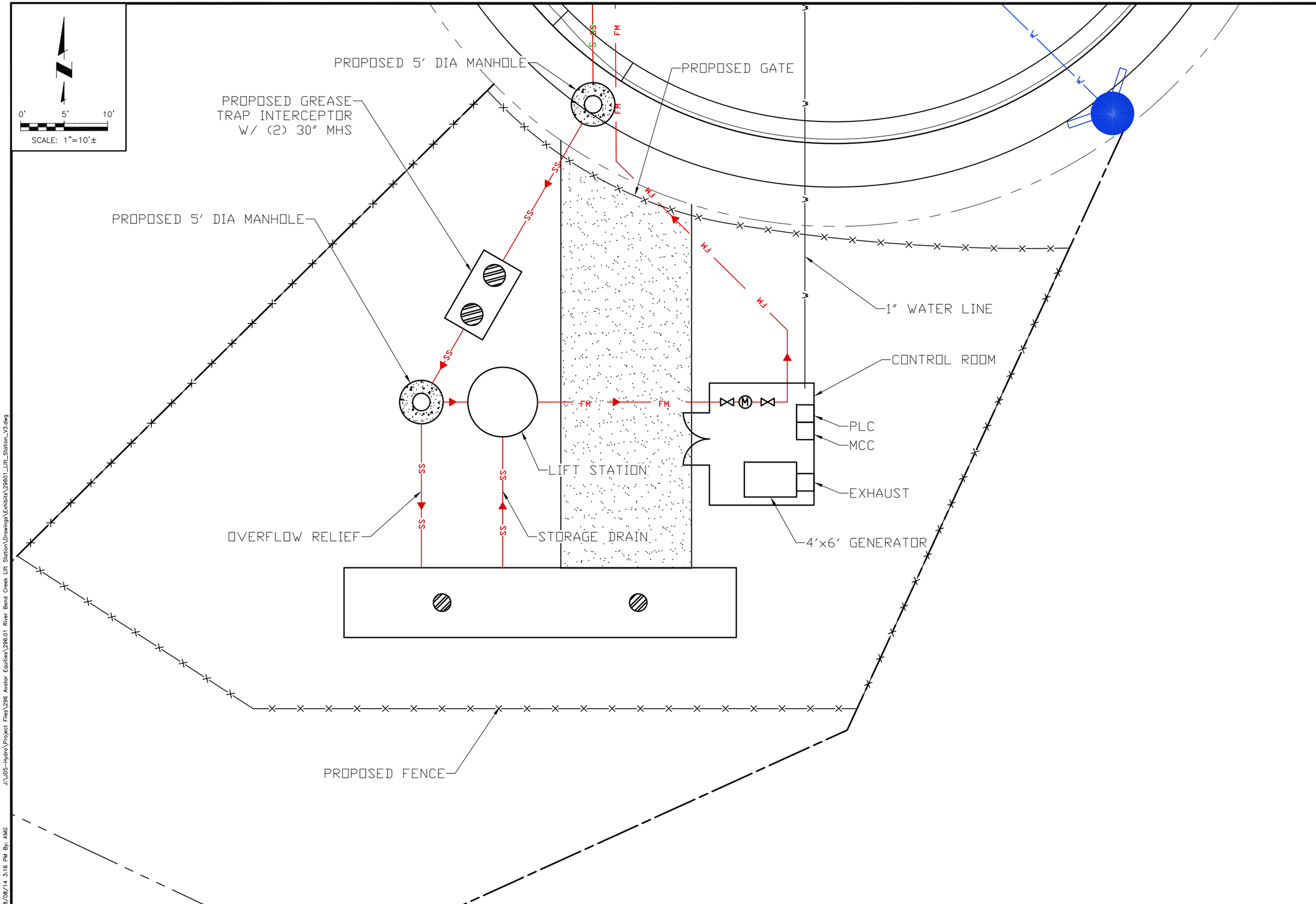
2018/08/10 8:17 AM By: KMG

Appendix B2



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COLORADO SPRINGS, COLORADO 80903
(719) 227-0072

AVATAR EQUITIES
RIVER BEND CREEK LIFT STATION

REVISIONS

NO.	DESCRIPTION	BY	APP.	DATE
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EXHIBIT

Project No.: 296.01
Date: 08/17/18
Design: JPS
Drawn: ACH
Check: JPM

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Appendix B3

NOTE:
AERIAL IMAGERY IS NOT ACCURATELY SCALED AND SHOULD BE UTILIZED FOR REFERENCE ONLY
(IMAGERY SOURCE: EL PASO COUNTY ZONING MAP BOOK)

0' 600' 1200'
SCALE: 1"=1200'±

LAND USE LEGEND
AG – AGRICULTURAL
CH – CHARITY
D&T – DUPLEXES & TRIPLEXES
FC – FORT CARSON
GVT – GOVERNMENT
HA – HOMEOWNERS ASSOCIATION
MER – MERCHANDISE
MHP – MOBILE HOME PARK

– MULTI UNIT

O – OFFICES
PS – POLITICAL SUBDIVISION
RPS – RESIDENTIAL POLITICAL SUBDIVISION
RW – RELIGIOUS WORSHIP

– SINGLE FAMILY RESIDENTIAL

SP – SPECIAL PURPOSE
VCL – VACANT COMMERCIAL LOT
VIL – VACANT INDUSTRIAL LOT
VRL – VACANT RESIDENTIAL LOT
WS – WAREHOUSE AND STORAGE
200 – CODE 200 AT PRESENT WORTH

Zone Map 552

- El Paso County -
Development Services Department

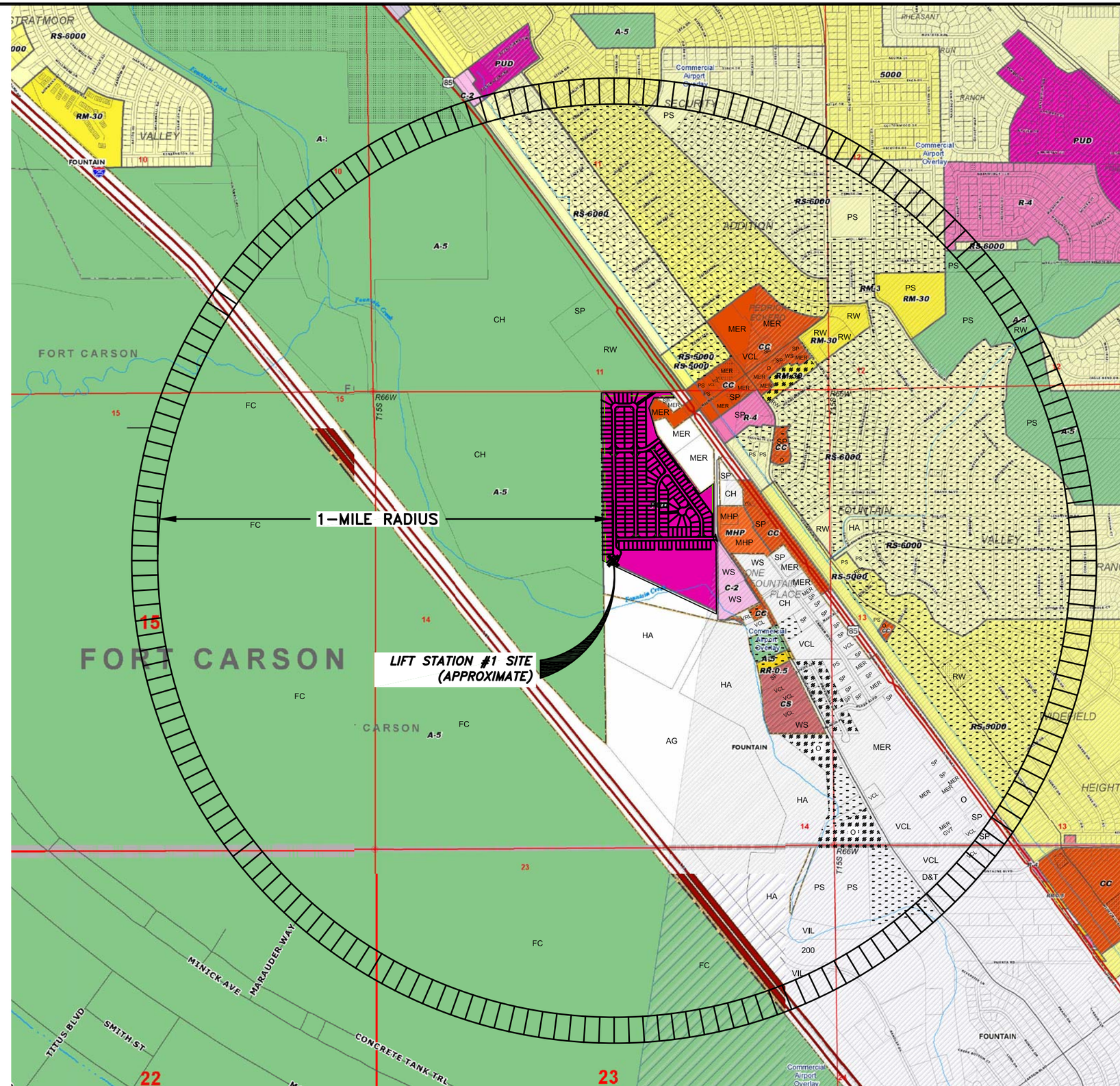
Zoning Designations

- RS-20000: Residential Suburban (20,000 sq. ft.)
- RS-6000: Residential Suburban (6,000 sq. ft.)
- RS-5000: Residential Suburban (5,000 sq. ft.)
- RM-12: Residential Multi-Dwelling (12 DU/acre)
- RM-30: Residential Multi-Dwelling (30 DU/acre)
- RR-0.5: Residential Rural (0.5 acres)
- RR-2.5: Residential Rural (2.5 acres)
- RR-5: Residential Rural (5 acres)
- R-T: Residential - Topographic
- MHP: Mobile Home Park
- MHP-R: Mobile Home Park, Rural
- MHS: Mobile Home Subdivision
- RVP: Recreational Vehicle Park
- F-5: Forest & Recreation (5 acres)
- PUD: Planned Unit Development
- CC: Commercial Community
- CR: Commercial Regional
- CS: Commercial Service
- I-2: Limited Industrial
- I-3: Heavy Industrial
- A-5: Agricultural (5 acres)
- A-35: Agricultural (35 acres)
- C-1: ** Commercial
- C-2: ** Commercial
- M: ** Industrial
- R-4: ** Planned Development

** Indicates an obsolete designation

Supporting Data

- Highways
- Major Roadways
- Creeks - Perennial
- Creeks - Intermittent
- Section Corner Nodes
- Sections
- Parcels
- Military
- Pike National Forest
- Incorporated Cities
- Zone Map Boundary
- Zoning Overlay
- Special Uses



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COLORADO SPRINGS, COLORADO 80903
(719) 227-0072

AVATAR EQUITIES
RIVER BEND CREEK LIFT STATION
1-MILE LAND USE & ZONING EXHIBIT

REVISIONS

NO.	DESCRIPTION	BY	APP.	DATE
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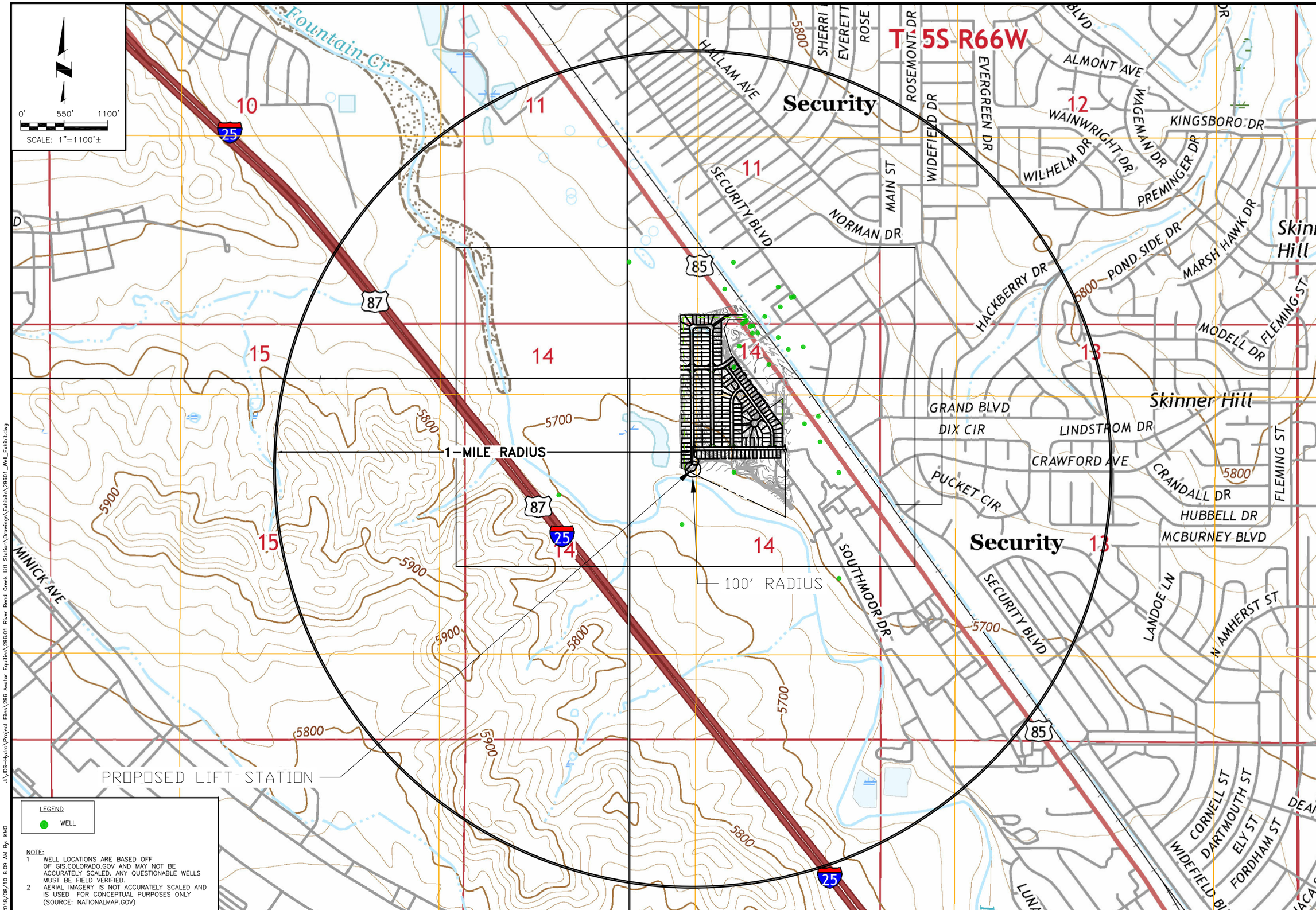
EXHIBIT

Project No.: 296.01
Date: 08/07/18
Design: JPS
Drawn: ACH
Check: JPM

SHEET ----OF

Appendix B4



LEGEND

WELL

NOTE:

1 WELL LOCATIONS ARE BASED OFF OF GIS.COLORADO.GOV AND MAY NOT BE ACCURATELY SCALED. ANY QUESTIONABLE WELLS MUST BE FIELD VERIFIED.

2 AERIAL IMAGERY IS NOT ACCURATELY SCALED AND IS USED FOR CONCEPTUAL PURPOSES ONLY (SOURCE: NATIONALMAP.GOV)

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545 EAST PIKES PEAK AVENUE, SUITE 300
COLORADO SPRINGS, COLORADO 80903
(719) 227-0072

AVATAR EQUITIES

RIVER BEND CREEK LIFT STATION

WELL LOCATION EXHIBIT

REVISIONS

NO.	DESCRIPTION	BY	APP.	DATE
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EXHIBIT

Project No.: 296.01
Date: 08/07/18
Design: JPS
Drawn: ACH
Check: JPM

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2018/08/10 8:09 AM By: KMG

Appendix B5

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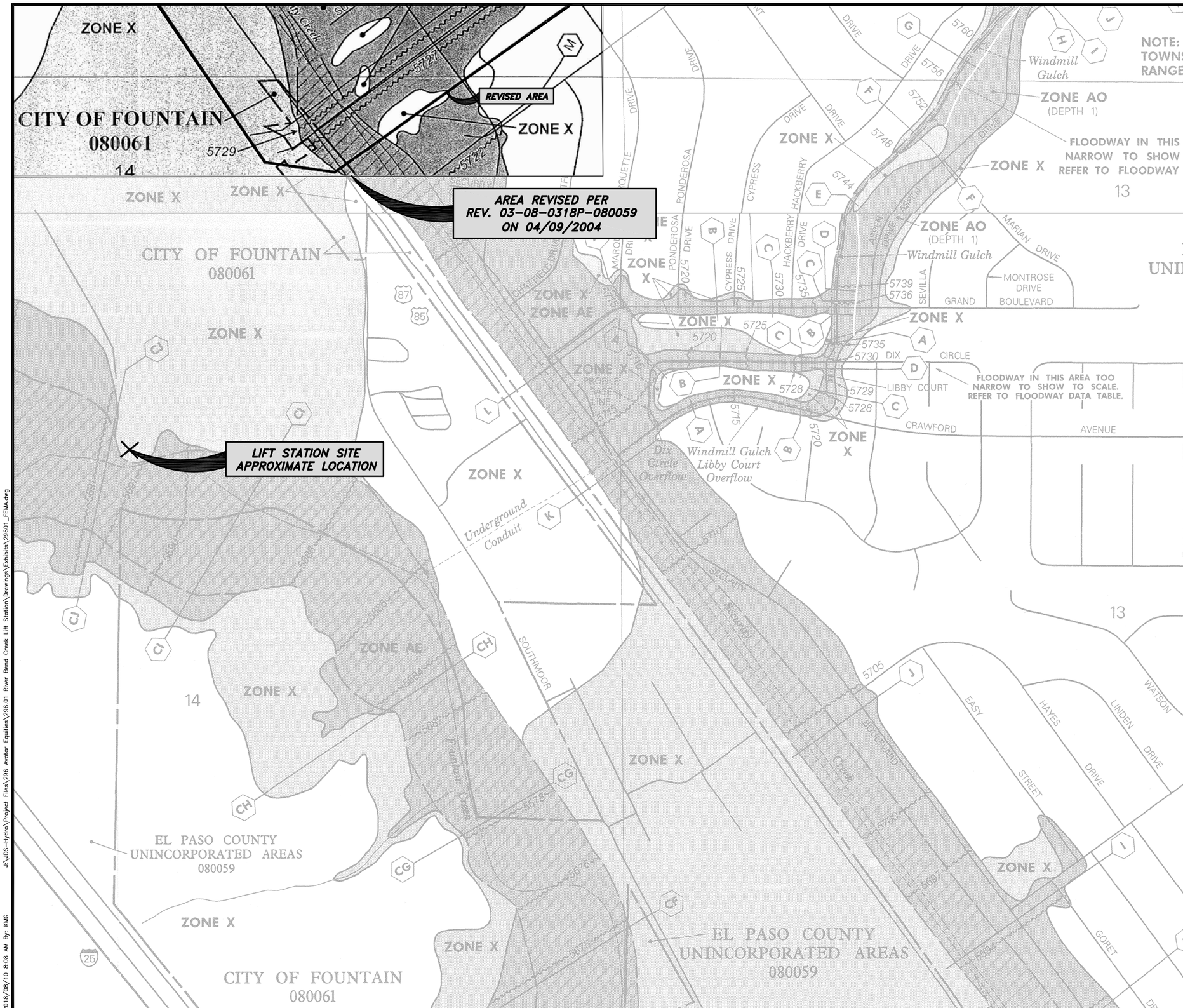

LEGEND

▨	SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD	
	ZONE A	No base flood elevations determined.
	ZONE AE	Base flood elevations determined.
	ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
	ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
▨	OTHER FLOOD AREAS	
	ZONE X	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.
☐	OTHER AREAS	
	ZONE X	Areas determined to be outside 500-year floodplain.

N

APPROXIMATE SCALE IN FEET

500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

EL PASO COUNTY,
COLORADO AND
INCORPORATED AREAS

PANEL 951 OF 1300

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EL PASO COUNTY, UNINCORPORATED AREAS	080059	0951	F
FOUNTAIN, CITY OF	080061	0951	F

MAP NUMBER
08041C0951 F

EFFECTIVE DATE:
MARCH 17, 1997

Federal Emergency Management Agency

JDS-HYDRO CONSULTANTS, INC.
545 EAST PIKES PEAK AVENUE, SUITE 300
COLORADO SPRINGS, COLORADO 80903
(719) 227-0072

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AVATAR EQUITIES
RIVER BEND CREEK LIFT STATION
FEMA FLOODPLAIN MAP

REVISIONS

NO.	DESCRIPTION	BY	APP.	DATE
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EXHIBIT

Project No.: 296.01
Date: 08/07/18
Design: JPS
Drawn: ACH
Check: JPM

SHEET ----OF

Security Sanitation District – River Bend Creek Lift Station

Posted Sign Photograph

Image 1: View of sign from east. Sign posted at approximate connection to existing manhole along Southmoor Drive.

Appendix C

Image 2: Sign posted at approximate connection to existing manhole in along Southmoor Drive.

Appendix D

INCLUSION AGREEMENT

This Inclusion Agreement ("Agreement") is entered into this 25th day of September, 2006, by and between Security Water and Sanitation Districts ("Districts"), whose address is 231 Security Boulevard, Colorado Springs, Colorado 80911 and Melody Homes, Inc., a Delaware corporation, d/b/a D.R. Horton – Melody Series ("Petitioner"), whose address is 11031 Sheridan Blvd., Westminster, CO 80020.

RECITALS

A. The Districts are special water and sanitation districts formed and operating under the Colorado Special District Act, and provide water and wastewater services within their boundaries in El Paso County, Colorado;

B. Petitioner is the fee owner of 100 percent of the real property described in Exhibit A ("Property") and, as assignee and purchaser of the Property from the original petitioner, has requested that the Property be included within the Districts and has submitted Petitions for Inclusion to the Districts;

C. The Districts' Boards of Directors have approved resolutions approving the inclusion of the Property within the Districts conditioned upon the execution of this Inclusion Agreement; and

D. The Districts and Petitioner wish to set forth the terms and provisions under which the Property is to be included within the Districts.

NOW THEREFORE, in consideration of the mutual promises contained herein and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties agree as follows:

1. Water Improvements. Petitioner shall construct and pay for the water delivery and distribution system as shown in schematic form on the attached Exhibit B, and as necessary to properly supply and distribute water from the Water District's facilities to the Property ("Water Utility Improvements"), the sufficiency of which shall be acceptable to the Water District in its discretion. Petitioner shall obtain final design approval of the Water Utility Improvements by the District, in writing, that such improvements are in accordance with the District's design criteria and construction standards. The Exhibit B schematic form drawings will therefore be revised, amended and/or supplemented in accordance with the final design requirements and approval of the District. The District shall approve any design plan, or provide reasons for any disapproval within 30 days of submission by Petitioner. Petitioner shall be solely responsible for ensuring that the infrastructure as designed and constructed is adequate to properly service all of the Property in accordance with the Water District's design criteria, construction standards, and construction oversight observations. As a result, the District shall bear no responsibility to the Petitioner for the adequacy of design or construction.

2. Wastewater Improvements. Petitioner shall construct and pay for the wastewater collection lines as shown in schematic form on Exhibit B, and as necessary to properly collect the wastewater from the Property and connect to the Sanitation District's wastewater main ("Wastewater Utility Improvements"), the sufficiency of which shall be acceptable to the Sanitation District in its discretion. Petitioner shall obtain final design approval of the Wastewater Utility Improvements by the District, in writing, that such improvements are in accordance with the District's design criteria and construction standards. The Exhibit B schematic form drawings will therefore be revised, amended and/or supplemented in accordance with the final design requirements and approval of the District. The District shall approve any design plan, or provide reasons for any disapproval within 30 days of submission by Petitioner. Petitioner shall be solely responsible for ensuring that the infrastructure as designed and constructed is adequate to properly service all of the property in accordance with the Sanitation District's design criteria, construction standards and construction oversight observations. As a result, the District shall bear no responsibility to the Petitioner for the sufficiency of design or construction.

3. Plan Approval. Prior to construction of any Water Utility Improvements or Wastewater Utility Improvements, Petitioner shall submit detailed construction plans to the respective District for final design approval. Construction shall not begin until Petitioner has obtained the prior written approval by the District of such final design construction plans, which approval shall be in the District's discretion as to whether such plans comply with this Agreement, the District's design criteria and construction standards, and all other rules, regulations and policies of the District. The District shall approve the final design plan, or provide reasons for any disapproval within 30 days of submission by Petitioner.

4. Design and Construction Standards. The design criteria and construction standards to be applied under this Agreement shall be guided by the Districts' applicable rules and regulations, however the parties realize that the rules and regulations will not address all of the requirements and circumstances that may arise and that the Districts' staff and engineering consultants will apply generally accepted construction and engineering standards for municipal type water and wastewater infrastructure.

5. Reimbursement. As part of the Districts' requirements for application to the Districts for inclusion, and for the actual inclusion within said Districts, the Petitioner shall reimburse the Districts for their reasonable attorneys fees, engineering fees, District staff overtime, and publication costs incurred in connection with the inclusion process of the Property, together with all other direct costs incurred by the Districts that would not have been incurred if the inclusion petition had not been submitted and the Property included in the Districts. This reimbursement shall include post-inclusion agreement inspections and also design and construction plan review and approvals by the Districts for the utility infrastructure. The Districts have each received $5,000.00 to cover such costs, and through August 31, 2006 the attorney fees incurred total $11,013.35 and engineering fees incurred total $4,593.44. Such costs and fees shall not exceed an additional $5,000.00 per District absent unforeseen and/or unanticipated matters, and only after consultation with Petitioner. All such amounts shall constitute a charge relating to the Property. Any amount not timely paid after appropriate itemized statements from the Districts shall constitute a lien upon the Property until paid, and

may be enforced in the same matter as the statutory lien upon the Property for charges and services due to the Districts under C.R.S. ' 32-1-1001(j).

6. Tap and Water Development Fees. Petitioner shall pay to the Districts tap fees for wastewater services, and tap fees and water development fees for water services, for the Property under the rate structure in place at the time when the water and wastewater services are requested to be made available to the individual lots within the Property. These fees may change over time and by resolution of the Board of Directors. The Sanitation District's current wastewater tap fee is $3,250 based on 18 fixture units with $125 per additional fixture unit. The Water District current water tap fee is $4,400 per single family residential unit (3/4" tap size) and the water development fee is currently $8,200 per single family residential unit equivalent per Resolution W-2005-02-1. The tap fee components shall be due for all development upon the Property by Petitioner. However, the Districts and Petitioner agree that a portion of the water development fees for the Property, to the extent of 216 Single Family Equivalents ("SFE's") as set forth below, shall be satisfied in exchange for certain water rights owned by Petitioner being conveyed to the Water District as provided for in paragraphs 8 and 9. The portion of the water development fees satisfied shall be the then existing water development fee except for $1,500 per SFE which unsatisfied portion shall be paid by Petitioner at the time water service is requested to be made available to the individual lots within the Property. The partial satisfaction of the water development fees shall be transferable from Petitioner to purchasers of individual lots as the Property is developed. Therefore, Petitioner or a purchaser of an individual lot shall be required to pay only $1,500 per SFE as a water development fee for up to 216 SFE's, even if said water development fee is increased prior to a request for service. Petitioner currently estimates that 205 residential taps (3/4 inch tap size) and four irrigation taps (two 1-1/2 inch tap size and two 1 inch tap size), or the equivalent of 216 SFE's, will be needed for development of the Property. The irrigation taps shall be separately metered and shall not exceed diversions of 2.58 annual acre feet. Petitioner shall not be required to purchase wastewater taps in conjunction with the purchase of the irrigation taps. The full water development fees shall be paid for any development above 216 residential tap equivalents. The Water District will also sell Petitioner temporary landscaping and construction water under the District's prevailing rates and terms.

7. Property's Water Demands. The Districts also require, as part of the inclusion of the Property into the Water District, that the Petitioner convey satisfactory water rights to the Water District for the development uses of the Property, or at the Water District's discretion, pay Water Development Fees. In this case, the Water District requires that the Petitioner convey satisfactory water rights to the District to meet or compensate for the water demands of the Property as provided for in paragraphs 8 and 9. The water demands for the development of the Property are estimated at 105.08 annual acre feet of diversions and 43.2 acre feet of depletions for the 216 SFE's. Diversions, depletions, or SFE's beyond these estimated amounts will require an amendment to this Agreement, and payment of tap and water development fees to the Districts, in order for such service to be provided. An SFE for planning purpose is considered as diverting 0.5 of an acre foot of water for residential purposes and consuming 0.2 of an acre foot. The Water District will supply those water diversions from its decreed water sources and will replace those depletions from its decreed plans for augmentation from its available water rights reserves within its existing decrees and plans for augmentation. However, this water service commitment is subject to El Paso County and the Colorado Division of Water Resources

accepting the Water District's water rights resources as sufficient for the Petitioner's development. In the event that either El Paso County or the Colorado Division of Water Resources determines that the District's water rights resources are insufficient, Petitioner shall have the right within 30 days of notice of such determination, in its sole discretion, to terminate this Agreement and the inclusion of the Property within the Districts and to then seek to obtain water and wastewater service from another entity.

8. Property's Water Rights. Petitioner owns the following water rights appurtenant to the Property: 60 shares of the Fountain Mutual Irrigation Company ("FMIC"), Bender Wells No. 1 and No. 2 (decreed originally in Case No. W-664, and changed to municipal use in Case No. 81CW225, District Court for Water Division No. 2), and the augmentation plan and water rights decreed in Case No. 81CW225 allowing use of the Bender Wells for municipal use in residential development of the Property ("Property's Water Rights"). The Bender Wells were originally decreed in Case No. W-664 on January 16, 1973. Bender Well No. 1 was decreed absolute for 630 gallons per minute for irrigation use, with a priority date of December 31, 1930. Bender Well No. 2 was originally decreed absolute for 1350 gallons per minute for irrigation use and conditional for 927 gallons per minute for domestic use, with priority dates of April 25, 1958. Diligence has been maintained on the conditional right for Bender Well No. 2 by Petitioner by Decree entered September 12, 2006 in Case No. 05CW97, District Court for Water Division 2. Petitioner shall be responsible to maintain diligence by an appropriate Water Court filing and decree. The augmentation plan in Case No. 81CW225 provides for, among other things, the Bender Wells as alternate points of diversion for each other, and the withdrawal of a base pumping level of 115 acre feet annually from the Widefield Aquifer to be used in the development. With effective recharge of the Widefield Aquifer, the withdrawals of the Bender Wells from the Widefield aquifer can be increased to 170 acre feet annually. Pursuant to the decree in Case No. 81CW225, the use of the FMIC shares includes recharge to the Widefield Aquifer and replacement of the stream depletions caused by pumping the Bender Wells.

In return for inclusion of the Property in the Water District, and the partial satisfaction of Water Development Fees in accordance with the terms of paragraph 6, Petitioner shall, upon formal inclusion of the Property into the Water District by order of the El Paso County District Court, convey to the Water District the Property's Water Rights, including the 60 FMIC shares, Bender Wells No. 1 and No. 2, and Petitioner's interest in the augmentation plan and water rights decreed in Case No. 81CW225. Said conveyance shall be by special warranty deed. Petitioner shall grant easements to the Districts for access to and from the wells and for water transmission lines from the wells to the Water Districts' facilities, as generally shown on the Exhibit C plat, in form acceptable to the District. Petitioner warrants and represents that it is the fee title owner of the water rights, with marketable title, and there will be no liens or encumbrances against the Property's Water Rights upon the conveyance. The special warranty deed shall include this warranty and representation. Petitioner shall provide to the Districts upon execution of this Agreement copies of all documents in its possession related to title to the Property and the Water Rights (i.e., deeds, title insurance commitments and policies, etc.).

This Agreement is subject to and conditional upon the Water District's acceptance of such condition of title, in its sole discretion. The Districts shall not be obligated to conclude the inclusion of the Property by order of the El Paso County District Court until the Water District is

satisfied with and accepts the condition of title to the Property's Water Rights. The Districts shall have sixty (60) days from execution of this Agreement (Diligence Deadline) to perform an inspection of the title to the Water Rights, including a review of the title abstract obtained by the Districts for the Property. If the Water District identifies an objection to the condition of title to the Property's Water Rights, it shall notify Petitioner in writing of the basis of such objections prior to the Diligence Deadline. Petitioner shall thereafter make diligent efforts to cure such title objections within 60 days and obtain the Water District's acceptance of title. If the Water District does not identify any objections prior to the Diligence Deadline or if the Water District's title objections are resolved to the District's satisfaction, the title contingency shall be satisfied. Upon expiration of the Diligence Deadline without objection by the Districts or upon cure of any title objections identified prior to the expiration of the diligence Deadline, the Districts shall apply to the El Paso County District Court for formal inclusion of the Property into the Districts. Petitioner covenants and agrees that the property historically irrigated by the Property's Water Rights has been dried up and removed from irrigation by the water rights except for application under the augmentation plan.

9. Development of the Water Rights. The Water District and Petitioner acknowledge that some water court action will be required to allow use of the Property's Water Rights by the Water District. Possible water court actions include, without limitation, modifications of the decree in Case No. 81CW225 to (i) allow a different location for augmentation releases, (ii) allow the FMIC shares to be used by the District as Widefield aquifer recharge, (iii) allow pumping of the Bender Wells Widefield Aquifer allotment from the District's existing or additional wells within the same aquifer reach as the Bender Wells, (iv) seek, as necessary, to change the type of use and place of use of the Bender Wells to municipal uses within the District, (v) incorporate Case No. 81CW225 into the Water District's plans for augmentation, and (vi) satisfy conditions in Case No. 81CW225 for inclusion of the Property into the Water District. In addition, the Water District will need to obtain approval from the users in the Widefield Aquifer for pumping the allotted amounts from the Widefield Aquifer in accordance with the decree in Case No. 81CW225 and the Widefield Aquifer Management Agreement. Following the execution of this Agreement, the Water District shall diligently proceed with this Water Court action in its name. The Petitioner shall reasonably cooperate with the Water District in the District's prosecution of the Water Court action. As part of the parties' agreement for the partial waiver of the water development fees and conveyance of the Property's Water Rights, the Water District shall be responsible for all legal and engineering costs, fees and expenses, including all attorneys and expert witness fees, incurred in connection with the process of obtaining the Widefield Aquifer Management users approval, any State Engineer's Office administrative approval, and the Water Court actions necessary for the use of the Property's Water Rights by the Water District. The process of obtaining Widefield Aquifer Management users approval and obtaining the necessary water court approvals shall be prosecuted by the Water District in a manner in its sole discretion seeking to maximize the use of the Property's Water Rights based on reasonably attainable goals in consideration of the District's engineering and legal advice. The parties acknowledge that the Water Court can only approve the Widefield aquifer diversions approved by the participants in the Widefield Aquifer Management Agreement.

The parties acknowledge that the outcome of the Water Court action is not guaranteed, and that the Widefield Aquifer diversions allowed under a change decree may be less than the currently decreed 115 annual acre feet, and less than the 105.08 annual acre feet needed to serve the Petitioner's Property as presently proposed. However, the parties acknowledge that the diversions allowed under a changed decree may be more than the 105.08 annual acre feet needed to serve the Petitioner's Property as presently proposed. The parties also acknowledge that the FMIC shares will provide an average of 42 annual acre feet of replacement water, and that as a result the diversions allowed as augmented by the FMIC shares will probably not be less than 105 annual acre feet, based upon a historical District wide depletion factor of approximately 40 percent. The parties further acknowledge that the Property's Water Rights include the potential to obtain an additional 55 annual acre feet of Widefield Aquifer diversions as a result of providing effective recharge to the Widefield Aquifer to that extent under the terms of the Widefield Aquifer Management Agreement, and that these additional aquifer diversions, if available in the future, will not be necessary to supply water to the Petitioner's Property as presently proposed. The parties agree that the value of this aquifer recharge is difficult to determine, but that the aquifer recharge represents additional value to the Water District. In consideration of this additional value, the Water District agrees to provide service to the Property as set forth in Paragraphs 6 and 7, and to consider partially satisfied the water development fee as set forth in Paragraph 6 for up to 216 single family equivalents upon conveyance of the Property's Water Rights to the Water District and upon inclusion of the Property within the Districts by order of the El Paso County District Court.

10. Property's Wastewater Requirements. The wastewater collection and treatment requirements for the development of the Property are estimated at 16.92 million gallons per year of domestic wastewater conveyance and treatment capacity. The Sanitation District will meet this requirement through its existing infrastructure which will be accessed through Wastewater Utility Improvements to be constructed by Petitioner. Delivery of domestic wastewater in excess of this estimate will require an amendment to this agreement in order for such services to be provided.

11. Main Lines. Petitioner shall be solely responsible for the construction, at its expense, of the connection to, and extension of, the Districts' existing water and wastewater main lines to and from the Property, as shown on the attached Exhibit B, as necessary for delivery of utility service to the Property. In this manner, and as discussed in paragraphs 1 and 2, Petitioner is responsible for the construction and expense of all onsite and offsite infrastructure improvements for utility service to the Property.

12. Service Lines. The cost of Petitioner's connection to the water and the wastewater main lines and the cost of the service lines from the main lines to the improvements on the Property shall be at the sole expense and obligation of the Petitioner.

13. Easements. Petitioner shall grant and provide to the Districts, at no cost to the Districts, any and all necessary licenses, permits, easements, and rights of way across the Property, and shall also pay for the acquisition of any such easement over, under and across any area required outside the limits of the Property that is necessary to service the Property. The District shall assist the Petitioner in the acquisition of any such easements required outside of the

limits of the Property. Said licenses, permits, easements, and rights of way shall be in size and location acceptable to the Districts and in accordance with the Districts' design criteria and specifications to provide for the construction, operation, maintenance, repair and replacement of the mains, pipelines, and appurtenances for the water and wastewater lines serving the Property, including with the right of ingress and egress thereto. The utility easements for main lines shall be exclusive easements to the extent reasonably possible. To the extent exclusive easements are not reasonably possible then any other neighboring utilities (i.e., natural gas, telephone, cable, etc.) shall not be located on top of the Districts' utility infrastructure within the easements or so close thereto as to interfere with or impair the Districts' access to and maintenance of the utilities within the easements. These easement requirements shall be included within the written easement documents and the subdivision plat. The location of such easements shall also be reasonably acceptable to the Petitioner, and is shown but not limited to those easement areas shown on the Exhibit C utility plans and design. This obligation shall survive the completion of the inclusion process.

14. Well Sites. The Petitioner shall convey to the Water District title to two well tracts within the Property acceptable to the Districts for a minimum size of 50 feet by 60 feet for the Bender Wells Nos. 1 and 2 ("Well Sites"). The Well Sites shall be conveyed by general warranty deed free and clear of all liens and encumbrances, except for matters shown on Petitioner's Title Insurance Policy No. 72004-3114 from Chicago Title Insurance Company issued by Land Title Guaranty Company as provided to the Water District. Petitioner shall provide a title insurance policy to the Water District for the value of the land. These Well Sites shall be platted at their present locations or within 200 feet of their existing location so that redrill permits can be issued administratively by the State Engineer's Office. The Water District intends to fence and secure the sites and to build customary well houses according to the Districts' existing policies and requirements and according to the typical standards of local municipal water providers for well houses within residential areas. Said fence and well houses shall be similar in appearance to the lift station housing constructed by Petitioner as set forth in Paragraph 15. Petitioner shall exempt the platted Well Sites from any construction approval under the Property covenants or by the homeowner's association created under the covenants. As part of the parties' agreement for the partial wavier of the water development fees and conveyance of the Property's Water Rights, the Petitioner shall not be required to redrill, construct or develop new wells and well houses for the Bender Wells Nos. 1 and 2 or to connect the wells into the Water District's delivery system in accordance with the District's design criteria and construction standards and the requirements of the Colorado Department of Health. Any such well development and connection shall be done by the District as required by the District in its sole discretion. The Bender Wells are alternate points of diversion for each other, and the Water District may only have to rebuild only one of the two Bender Wells if the first well can successfully yield the entire decreed allotment. In addition, in the Water Court action to be filed by the District under Paragraph 9, the District shall seek to change the point of diversion of the Bender Wells' Widefield Aquifer allotment to the District's other municipal wells as alternate points of diversion within the same aquifer reach as the Bender Wells. The Water Court action shall also seek, as necessary, to change the type of use to all municipal uses within the District. If such change of water right is successfully decreed by the Water Court, and the decreed allotment can physically be withdrawn through only one well, then the District shall, at its election, relinquish one of the two Bender Well sites to the Petitioner. The District shall also

reconvey one Well Site back to Petitioner if any first well drilled can successfully yield the entire decreed allotment. Any reconveyance of a Well Site to Petitioner or its designee will be by general warranty deed with title in the same condition as received from Petitioner. The Well Sites, together with the water transmission pipeline easements described in Paragraph 13, shall be sufficient in size to meet minimum contact time for disinfection treatment as required by the State of Colorado for new well construction.

15. Wastewater Lift Station. As part of the Wastewater Utility Improvements, the Petitioner shall construct a wastewater pump station upon a site having approximate dimensions of 50 feet by 100 feet and schematically shown on Exhibit B in accordance with the District's requirements for lift stations. The Petitioner shall obtain the District's pre-approval of the design and construction standards for the lift station. The Petitioner at no cost to the District shall convey to the Sanitation District title to a lift station tract within the Property. This tract shall be conveyed by general warranty deed free and clear of all liens and encumbrances, except for matters shown on Petitioner's October 6, 2005 Title Insurance Policy No. 72004-3114 from Chicago Title Insurance Company issued by Land title Guaranty Company as provided to the Sanitation District. Petitioner shall provide a title insurance policy to the Sanitation District for the value of the land and improvements. Said pump station and appurtenant equipment and facilities shall be housed within improvements to be constructed by Petitioner in accordance with plans agreed to and approved by the District. The Sanitation District intends to fence and secure the site. The Petitioner shall exempt the platted lift station site from any construction approval under the Property covenants or by the homeowner's association created under the covenants. As part of said construction obligations, the Petitioner with the involvement and co-application of the Sanitation District shall, at Petitioner's expense, obtain all necessary site location and plan and specification approvals from the Colorado Department of Public Health and Environment. Said approvals shall be without prejudice to the District's existing permits. The District shall be entitled to charge an additional component of a wastewater user charge for property served by a lift station, which charge shall be payable by the owners of properties served by the lift station and included in their usual billing statements, as may be approved by future resolution of the Board of Directors.

16. Cooperation. Petitioner and the Districts agree to cooperate with one another in the processing of the Petitions of Inclusion and Water Court action to a successful conclusion, as anticipated, the performance of the post-inclusion obligations set forth in this Agreement, and the execution of any other documents necessary to fulfill the intent and purposes of this Agreement.

17. Cost Recovery. A portion of the Water Utility Improvements includes an off site water distribution line which may be used or required to be used in the development of adjoining or neighboring properties. This water line consists of a 12 inch water main connecting to the south end of the Property and a 12 inch water main connecting to the north end of the Property and is shown on Exhibit B ("Main Line"). In the event that properties that adjoin or are to be served by the Main Line installed by the Petitioner are developed and make use of the Main Line within twelve (12) years from the date of this Agreement, and only if they are so developed and tap into the Water District service, the Water District will use reasonable, good faith efforts to collect from said developing parties a fair share allocation of the total construction costs of the Main Line. Said fair share allocation shall be reasonably determined by the Water District based

upon, without limitation, the benefit received by said other parties, the cost savings to the other parties by Petitioner's construction of the Main Line, respective size of parcels served, and the other parties' pro rata allocation of the use of the improvements. Upon collection of a fair share allocation from said other parties, the Water District shall reimburse Petitioner within thirty (30) days of such receipt.

The Water District makes no representations or warranties, and expressly disclaims any representation or warranty, that it will in fact be legally able to collect such amounts. The Water District makes no representation or warranty that this Agreement will be binding upon or enforceable against an entity that is not a party hereto. The Water District's obligation is limited to a good faith effort to collect the amount set forth above. The Water District shall have no obligation to file suit or defend a suit to determine if this Agreement may be enforced against an entity that is not a party hereto, as that obligation is solely that of Petitioner. In the event any cost recovery amount is collected and a lawsuit arises as a result of the same, Petitioner shall timely and diligently defend such action and deposit the disputed amount into the registry fund of the Court and shall further indemnify and hold harmless the Water District, its agents, employees and elected officials from any and all liability associated with such claims and the costs of collection and/or the return of any amounts collected, including, but not limited to, costs of suit and reasonable attorney's fees. As an alternative to the above defense and indemnification, Petitioner shall have the option to return the disputed cost recovery amounts upon the inception of any such disputes.

Without limiting the application of the above factors in determining the reimbursement amount, and without requiring any level of reimbursement, the total amount for which Petitioner may be reimbursed under this Agreement is limited to 50 percent of the total construction costs, and in no event shall this reimbursement exceed this amount. Total construction costs shall include legal and engineering costs directly attributable and fairly allocated to the Main Line. Interest without compounding will be charged or collected by the Water District, as allowed by law, on the amount spent by Petitioner in constructing the Main Line in an amount equal to the annual increases from the date hereof of the Bureau of Labor Statistics, Consumer Price Index for all urban consumers for the Colorado Springs geographic area. The total construction costs incurred by Petitioner shall be certified by affidavit to the Water District within sixty (60) days of the completion of construction, subject to approval and acceptance by the Water District within thirty (30) days of submission. If the Water District does not object within said thirty days, the costs shall be deemed approved. If the Water District does object, the Petitioner may at that time submit the matter for binding arbitration before the American Arbitration Association.

18. Home Construction and Building Permits. The Districts and Petitioner are currently in the process of obtaining the required permits and approvals from the State of Colorado and Burlington Northern Santa Fe Railroad ("Railroad") necessary to complete a portion of the Water Utility Improvements, including the Main Line as set forth in Paragraph 17 above. The timeframe for obtaining the required permits and approvals is not known at this time. Petitioner is also making two additional water main connections to an existing water main line on Southmore Drive as part of the Water Utility Improvements. The Districts agree to provide water and wastewater collection and treatment service, following payment of the appropriate fees, in the following amounts prior to connection of the Main Line. The Districts agree to

provide service for a maximum of five (5) model homes, and Petitioner shall be allowed to use these model homes for sales purposes with permanent water and wastewater services connected and providing service. In addition, the Districts agree to provide service to a maximum of twenty (20) production homes located south of Twisting River Trail or River Wild Street as shown on Exhibit B, but Petitioner agrees not to close sales or permit occupancy of these production homes until the Main Line has been connected to the existing water line east of the railroad tracks and found suitable for operation by the District. Upon connection of the Main Line, all services will be provided by the Districts pursuant to and subject to the terms of this Agreement.

19. Compliance. If the Property is included in the Districts by final order of the El Paso County District Court, the Districts and Petitioner shall abide by all terms of this Inclusion Agreement and comply with all applicable Federal, State, County and local statutes, laws, rules, regulations and resolutions. The Property shall be subject to the regular assessments and other charges of the Districts from the date of the inclusion, excluding the water development fees satisfied in this Inclusion Agreement. The Petitioner will comply with all lawful rules, regulations, and rate structures of the Districts, both existing and as may be enacted in the future. If any portion of the Property is sold or transferred by Petitioner prior to the time for recording of the Court order for inclusion of the Property into the Districts, the Petitioner shall obtain and provide to the Districts the consent of the transferee, in recordable form, for the inclusion of that Property into the Districts. The transferee shall also agree and consent that the Property will be subject to assessments and charges of the Districts from the date of inclusion, including tap fees, and that they shall comply with the rules, regulations and rate structures of the Districts, both existing and as may be enacted in the future. Any property not providing such consents shall not be allowed to connect into and receive service from the Districts' facilities.

20. Nature of Work. All work to be performed by Petitioner under the terms of this Agreement shall be performed using quality materials and shall be performed in a workmanlike manner in compliance with the rules, regulations, specifications and requirements of the Districts. Compliance with such specifications and requirements shall be determined in accordance with standard procedures and the discretion of the Districts.

21. Water Quality. Provided that water meeting the applicable drinking water quality requirements is delivered by the Water District to the Water Utility Improvements, the Petitioner shall have the obligation to assure that the Water Utility Improvements constructed by Petitioner are able to deliver water to the development meeting all applicable drinking water quality requirements.

22. Acceptance of Work/Warranties. The construction obligations of Petitioner shall not be complete until the Water District's and the Sanitation District's respective inspection and written acceptance of the infrastructure as being in compliance with the Districts' respective specifications and this Agreement, which acceptance shall not occur sooner than one year after completion. Such acceptance shall be in accordance with the standard policies and procedures and discretion of the Districts. Petitioner guarantees all infrastructure improvements for one year after determination of final completion by the Districts and until acceptance by the Districts. Petitioner shall maintain the improvements during said period of time and until acceptance by the

Districts, and shall cure any nonconforming work or any failures in materials or workmanship. After said one year period of time and provided the improvements are in compliance with this Agreement, the Petitioner may request in writing that the Districts inspect and accept the infrastructure improvements. The Districts shall then promptly inspect the infrastructure and shall either accept the infrastructure as provided herein or detail to the Petitioner in writing the reasons why the infrastructure is not acceptable and will not be accepted. The Petitioner shall promptly cure such deficiencies and resubmit its request for inspection and acceptance. All infrastructure improvements performed by the Petitioner, once accepted by the Districts, shall become the property of the Districts and shall be maintained and operated by the Districts. Upon acceptance of the infrastructure improvements by the Districts, Petitioner shall convey good and marketable title for the utility improvements to the Districts, free and clear of all liens and encumbrances.

23. Consent to Overlapping District. The Districts acknowledge that the Petitioner intends to organize one or more special districts ("Petitioner Districts") to provide public infrastructure financing for the project, including the financing and construction of the Water Utility Improvements, the Wastewater Utility Improvements, the Main Line, and any other needed service lines, main lines, lift stations, and appurtenant facilities ("Utility Improvements"). The Districts hereby consent to the organization of a special district(s) with the power to provide the Utility Improvements, as required by C.R.S. ' 32-1-107; provided that the Petitioner Districts' powers with respect to water and sanitation are limited solely to the financing and construction of the Utility Improvements for dedication to the Districts for ownership, operation and maintenance as set forth herein; and provided the Petitioner Districts' powers to operate and maintain the Utility Improvements are limited to the period between completion of construction and final acceptance of the Utilities Improvements by the Districts. Provided, further, the Petitioner Districts shall not assess or lien the well sites or lift station site conveyed to the Districts.

24. Contingencies. This Inclusion Agreement is conditioned upon obtaining the formal inclusion of the Property into both Districts by order of the El Paso County District Court.

25. Liability of the Districts. The Districts shall not be liable for any losses or damages resulting from the inability of the Districts to supply water or wastewater services due to governmental regulations, statutes or orders, electrical or other power failures, temporary shut down due to repairs, maintenance, construction, alterations, acts of God, or other occurrences beyond the direct control of the Districts, or resulting for the lack of availability or capacity of the Districts' facilities. The Districts may impose water usage restrictions and wastewater discharge restrictions, as necessary, so long as it does so on an equitable or pro rata basis to all users within the Districts for the type of service being restricted.

26. Provision of Service. All water and wastewater service for the Property shall be subject to the rules, regulations and resolutions promulgated by the Districts from time to time. The Districts shall not be obligated to provide any utility service if Petitioner or its successors are not in compliance with this Agreement.

27. Assignment. This Inclusion Agreement shall be for the sole benefit of Petitioner and the Districts. However, Petitioner with the Districts' consent may assign it rights and obligations under this agreement to Petitioner Districts should one or more be established to service the entire Property, and provided the assignee assumes the obligations of this Agreement. The District shall not unreasonably withhold consent. Any permitted assignment shall not release the current owner and future owners of the Property and the Property itself from being bound by the obligations of this Inclusion Agreement. Petitioner may also, with the consent of the Districts, at any time assign or otherwise transfer this Inclusion Agreement to: (i) any parent, subsidiary, franchisee or affiliate corporation or entity; (ii) any entity resulting from the consolidation or merger of Petitioner into or with any other entity; any person, firm, entity or corporation acquiring a majority of Petitioner's issued and outstanding capital stock or all or substantially all of Petitioner's physical assets; (iii) any person, firm, entity or corporation acting as a land bank on behalf of Petitioner (hereinafter, "Permitted Transfer"). The Districts shall not withhold consent to a Permitted Transfer provided they are provided with reasonable advance notice of such assignment, the assignee assumes the obligations of this Agreement, and the Districts are provided with full documentation of such assignment. No partial assignments shall be allowed. No other assignments shall be permitted.

28. Default/Remedies. A party shall be in default hereunder in the event it fails to perform its obligations as required hereunder, and if such noncompliance is not cured within 15 days after written notice by the other party of the nature of the alleged noncompliance. In the event of default, the non-defaulting party shall have all remedies available under Colorado law, including that the Districts shall have the right to injunctive relief and specific performance in order to require Petitioner to perform its obligations under this Agreement.

29. Right to Cure. After construction on the Water Utility Improvements and the Wastewater Utility Improvements begins, the Districts shall have the right, but not the obligation, to cure any default by the Petitioner under this Agreement and to recover from the Petitioner the Districts' costs and expenses in curing such default and in performing Petitioner's obligations.

30. Prior Agreements. All prior agreements between the Districts and the Petitioner's predecessors in title regarding water and wastewater service and the inclusion of the Property into the Districts are superceded by this Agreement.

31. Entire Agreement. This Agreement represents the entire agreement of the parties with respect to the subject matter covered herein. All negotiations, considerations, representations and understandings between the parties are incorporated and merged herein. This Agreement may be modified or altered only by the parties' written agreement.

32. Severability. Unenforceability of any provision contained in this Agreement shall not affect or impair the validity of any other provision of this Agreement.

33. Authority/Ownership. All parties to this Agreement represent that they have the full power and authority to enter into and perform this Agreement and to bind their respective principals as indicated. Petitioner represents that it is the owner and is in title to the Property and

agrees to deliver good marketable title under its easements and conveyances to the Districts, free and clear of liens and encumbrances, subject to any existing and overlapping easements disclosed to and accepted by the Districts. Petitioner and the Districts shall provide an appropriate entity resolution authorizing the execution and performance of this Agreement. Petitioner warrants and represents that there are no liens upon the Property.

34. Attorney's Fees. In the event of any dispute between the parties concerning this Agreement or in the event of any action to enforce this Agreement or to collect damages on account of any breach of the obligations provided for herein, the prevailing party shall be entitled to recover from the other party, all costs and expenses, including reasonable attorney's fees, incurred in such litigation as well as all additional such costs and expenses incurred in enforcing and collecting any judgment rendered in such action.

35. Time is of the Essence. Time is of the essence in the performance of the parties obligations hereunder.

36. Governing Law. The laws of the State of Colorado shall govern the validity, performance, and enforcement of this Agreement. Proper venue for any action regarding this Agreement shall be in the District Court of El Paso County, Colorado.

37. No Third Party Beneficiary. This Agreement shall be for the sole benefit of the parties hereto, and no other party is entitled to have any rights or benefits by reason of this Agreement as a third party beneficiary or otherwise.

38. Survival of Provision. The terms and provisions of this Agreement shall be deemed to survive the closing of this transaction and the El Paso County District Court Order for inclusion of the Property within the Districts.

39. Recording. This Agreement shall be recorded with the El Paso County Recorder's Office.

40. Binding Effect/Covenant Upon the Property. The covenants, agreements, and obligations contained herein shall extend to, bind, and inure to the benefit of not only the parties hereto, but also their respective personal representatives, heirs, successors, and assigns. This Agreement benefits and burdens the Property and shall constitute a covenant running with the land until all obligations are fully performed hereunder.

SECURITY WATER DISTRICT

By: _____
H.E. Proal, President

Attest: (SEAL)

_____
Mary Jean Ciemiewicz, Secretary

SECURITY SANITATION DISTRICT

By: _____
H.E. Proal, President

Attest: (SEAL)

_____
Mary Jean Ciemiewicz, Secretary

MELODY HOMES, INC.,
a Delaware corporation
d/b/a D.R. Horton – Melody Series

By: _____
Name: CURT NELSON
Title: SVP PRES

STATE OF COLORADO)
) ss.
COUNTY OF EL PASO)

Subscribed and sworn to before me this 25th day of September, 2006, by H.E. Proal as President, and Mary Jean Ciemiewicz, as Secretary of the Security Water District and the Security Sanitation District.

Witness my hand and seal.
(SEAL)

My commission expires: MY COMMISSION EXPIRES 06/07/2010

NOTARY PUBLIC STATE OF COLORADO

Notary Public

STATE OF COLORADO)
) ss.
COUNTY OF ARAPAHOE)

Subscribed and sworn to before me this 25th day of September, 2006, by Curt Nelson as Division President of Melody Homes, Inc., a Delaware corporation, d/b/a D. R. Horton – Melody Series.

Witness my hand and seal.
(SEAL)

My commission expires: 5-11-2010

NOTARY PUBLIC NANCY L. VOGEL STATE OF COLORADO

My Comm. Expires 5-11-2010

Notary Public

f:\client\security water\Reynolds\INCL AGR Clean Copy 9-14-06

RIVERBEND CROSSING

LEGAL DESCRIPTION:

THAT PORTION OF THE WEST ONE-HALF OF THE NORTHEAST ONE-QUARTER (W 1/2 NE 1/4) OF SECTION 14, IN TOWNSHIP 15 SOUTH, RANGE 66 WEST OF THE 6th P.M., COUNTY OF EL PASO, STATE OF COLORADO, LYING SOUTH AND WEST OF THE RIGHT OF WAY OF THE D. & R. G. W. RAILWAY COMPANY AND LYING NORTH AND EAST OF THE CENTER LINE OF FOUNTAIN CREEK, EXCEPT PORTIONS DESCRIBED IN THE FOLLOWING RECORDED INSTRUMENTS: BOOK 752 AT PAGE 366 (UNDER RECEPTION NO. 435814); BOOK 842 AT PAGE 70 (UNDER RECEPTION NO. 467648); BOOK 1719 AT PAGE 603 (UNDER RECEPTION NO. 96524); BOOK 1763 AT PAGE 57 (UNDER RECEPTION NO. 124725), AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A 3-1/4" ALUMINUM CAP STAMPED "OLIVER E. WATTS 1/4 S11 S14 PE-LS 9853" AT THE NORTHWEST CORNER OF SAID NE 1/4 OF SECTION 14, FROM WHICH A 3-1/4" ALUMINUM CAP STAMPED "OLIVER E. WATTS C1/4 S14 PE-LS 9853" AT THE CENTER ONE-QUARTER (C1/4) OF SAID SECTION 14 BEARS S00°14'13"E, A DISTANCE OF 2640.39 FEET AND IS THE BASIS OF BEARINGS USED HEREIN; THENCE S89°58'10"E ALONG THE NORTH LINE OF SAID NORTHEAST ONE-QUARTER, A DISTANCE OF 607.65 FEET TO A 1/2" REBAR AND WASHER (ILLEGIBLE); THENCE S89°58'10"E CONTINUING ALONG SAID NORTH LINE, A DISTANCE OF 193.49 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF U.S. HIGHWAY 85-87; THENCE S35°53'17"E ALONG SAID WESTERLY RIGHT-OF-WAY LINE, A DISTANCE OF 74.09 FEET TO THE NORTHEASTERLY CORNER OF A TRACT OF LAND DESCRIBED IN BOOK 1763 AT PAGE 57 OF SAID COUNTY RECORDS; THENCE ALONG THE NORTHERLY, WESTERLY AND SOUTHERLY LINES OF SAID TRACT THE FOLLOWING SIX (6) COURSES: 1.) THENCE N89°57'48"W, A DISTANCE OF 236.81 FEET; 2.) THENCE S26°47'34"W, A DISTANCE OF 129.27 FEET; 3.) THENCE S15°33'55"E, A DISTANCE OF 166.37 FEET; 4.) THENCE S15°44'38"E, A DISTANCE OF 164.08 FEET; 5.) THENCE S35°53'21"E, A DISTANCE OF 841.05 FEET; 6.) THENCE N54°02'01"E, A DISTANCE OF 198.80 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF SOUTHMOOR DRIVE; THENCE ALONG SAID WESTERLY RIGHT-OF-WAY LINE THE FOLLOWING TWO (2) COURSES: 1) THENCE S00°01'43"W, A DISTANCE OF 645.39 FEET: 2) THENCE S34°14'17"E, A DISTANCE OF 53.41 FEET TO THE NORTHWEST CORNER OF A TRACT OF LAND DESCRIBED UNDER RECEPTION NO. 202040629 OF SAID COUNTY RECORDS; THENCE S00°01'28"E ALONG THE WESTERLY LINE OF SAID TRACT AND THE WESTERLY LINE OF A TRACT OF LAND DESCRIBED IN BOOK 2621 AT PAGE 849 OF SAID COUNTY RECORDS, A DISTANCE OF 813.74 FEET TO A POINT ON THE NORTHERLY LINE OF A TRACT OF LAND DESCRIBED IN A SURVEY BY OLIVER E. WATTS, DEPOSIT NO. 200900117 OF SAID COUNTY RECORDS; THENCE N64°37'39"W ALONG SAID NORTHERLY LINE, A DISTANCE OF 1455.02 FEET TO A POINT ON THE WESTERLY LINE OF SAID NORTHEAST ONE-QUARTER; THENCE N00°14'13"W ALONG SAID WESTERLY LINE, A DISTANCE OF 1938.33 FEET TO THE POINT OF BEGINNING. SAID TRACT CONTAINS 53.08 ACRES OF LAND, MORE OR LESS.

EXHIBIT

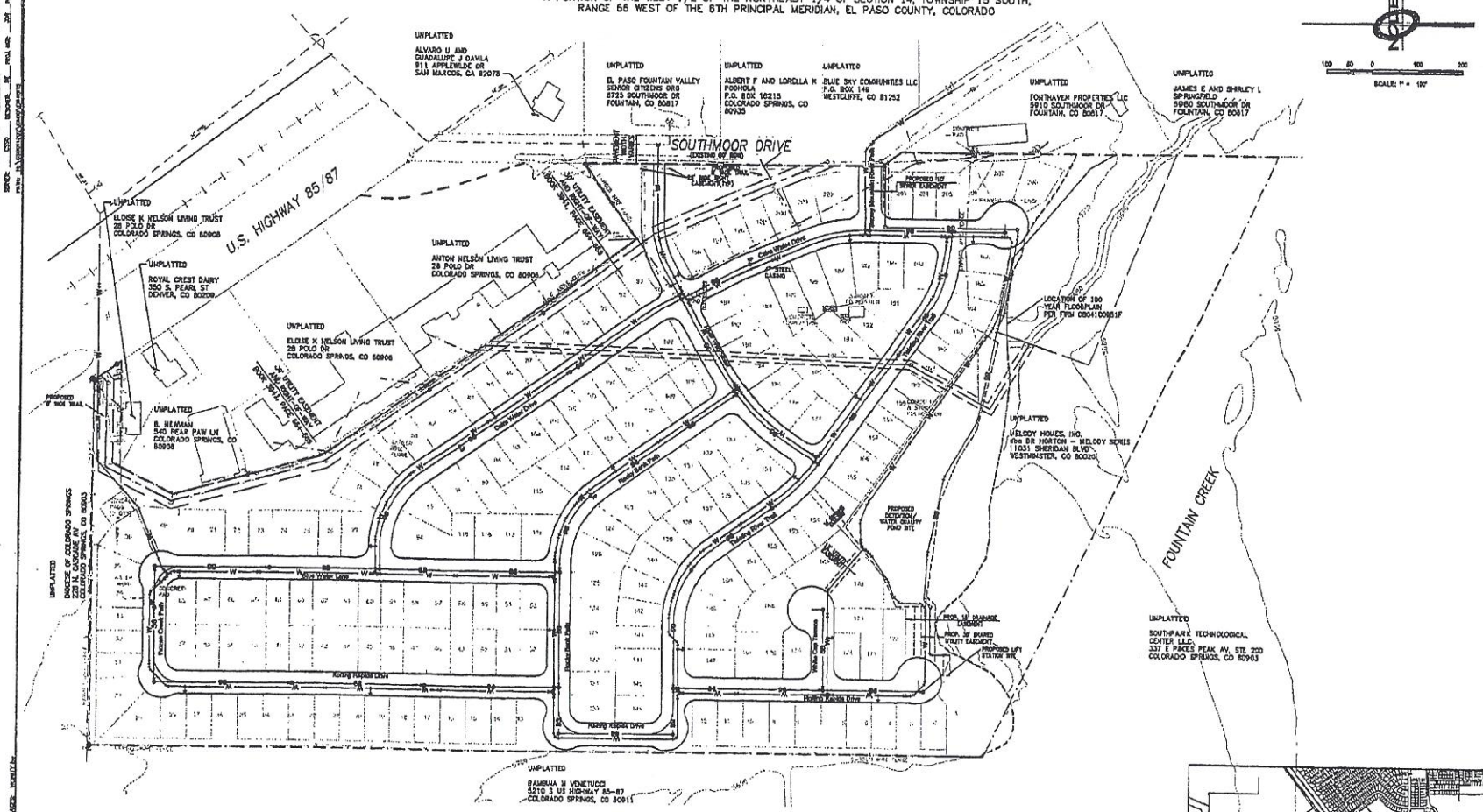
tabbies

A

RIVERBEND CROSSING

EXHIBIT B - WATER & WASTEWATER SYSTEM

A PORTION OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SECTION 14, TOWNSHIP 15 SOUTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO



OWNER:
D.R. HORTON - MELODY SERIES
11031 SHERIDAN BLVD
WESTMINSTER, CO 80020

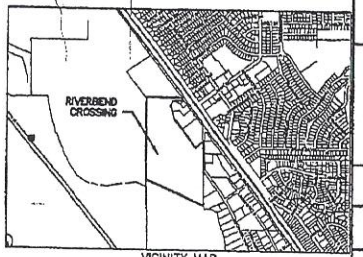
SUBDIVIDER:
D.R. HORTON - MELODY SERIES
11031 SHERIDAN BLVD
WESTMINSTER, CO 80020

PREPARER:
NOLTE ASSOCIATES, INC.
5325 N. ACADEMY BLVD.
SUITE 304
COLORADO SPRINGS, CO 80918
OCTOBER 13, 2005

LEGEND

LEGAL DESCRIPTION:

That portion of the W ½ of the NE ¼ of Section 14, in Township 15 South, Range 66 West of the 6th P.M., El Paso County, Colorado, lying south and east of the right of way of the D. & R.G.W. Railway Company and lying north and east of the center line of Fountain Creek, and except those portions described in deed recorded in Book 1719 at Page 603 of said records under Reception No. 95524, in deed records in Book 1713 at Page 87 of said records under Reception No. 124725, in deed recorded in Book 752 at Page 366 under Reception No. 436814, and in deed recorded in Book 842 at Page 70 under Reception No. 467648.



VICINITY MAP

NOLTE
BEYOND ENGINEERING
5725 N. ACADEMY BLVD, SUITE 304, COLORADO SPRINGS, CO. 80918
719-264-9200 TEL 719-264-9205 FAX
WWW.NOLTEINC.COM

RIVERBEND CROSSING
EXHIBIT B - WATER & WASTEWATER SYSTEM

PREPARED FOR: DR. HORTON - MELODY SERIES
DATE SUBMITTED: JULY 2006

SHEET NUMBER
1
1 OF 1 SHEETS

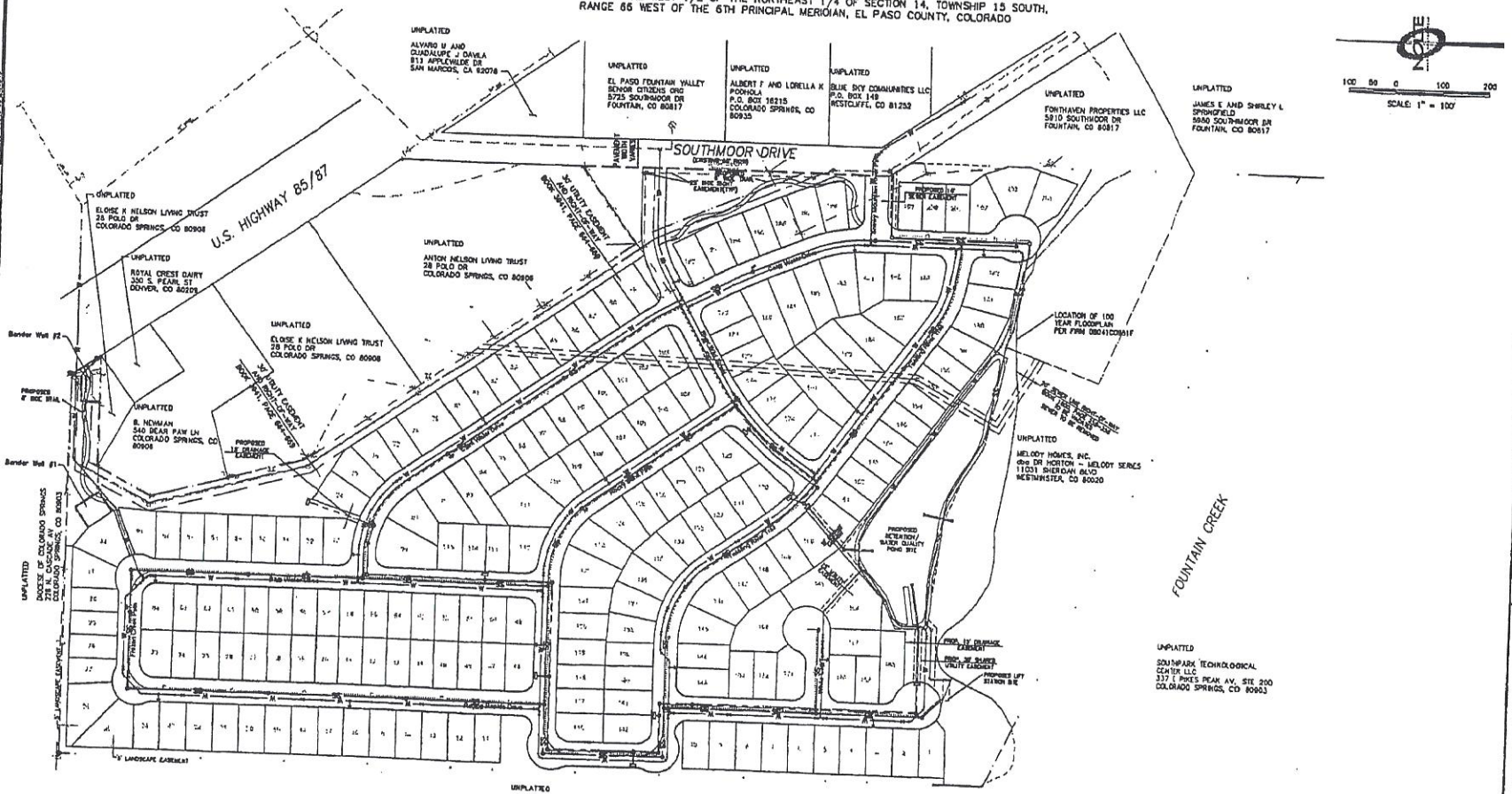
SCALE
VERTICAL: 20'
HORIZONTAL: 100'

JOB NUMBER
CSB011202

RIVERBEND CROSSING

EXHIBIT C - EASEMENTS

A PORTION OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SECTION 14, TOWNSHIP 15 SOUTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO



OWNER:
D.R. HORTON - MELODY SERIES
11031 SHERIDAN BLVD
WESTMINSTER, CO 80020

SUBDIVIDER:
D.R. HORTON - MELODY SERIES
11031 SHERIDAN BLVD
WESTMINSTER, CO 80020

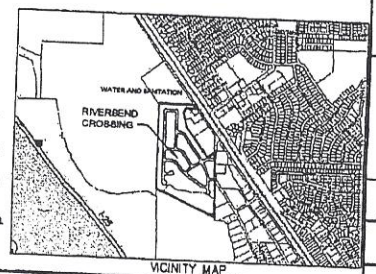
PREPARER:
NOLTE ASSOCIATES, INC.
5223 N. ACADEMY BLVD.
SUITE 304
COLORADO SPRINGS, CO 80918
OCTOBER 13, 2005

LEGEND

- BOUNDARY LINE
- PROPOSED UTILITY EASEMENT
- PROPOSED ROW
- PROPOSED TRACT BOUNDARY
- EXISTING UTILITY EASEMENT

LEGAL DESCRIPTION:

That portion of the W 1/2 of the NE 1/4 of Section 14, in Township 15 South, Range 66 West of the 6th P.M., El Paso County, Colorado, lying south and east of the right of way of the D. & R.G.W. Railway Company and lying north and west of the center line of Fountain Creek, and except those portions described in deed recorded in Book 1719 at Page 893 of said records under Reception No. 86524, in deed records in Book 1783 at Page 97 of said records under Reception No. 124723, in deed recorded in Book 702 at Page 368 under Reception No. 435814, and in deed recorded in Book 842 at Page 70 under Reception No. 467846.



VICINITY MAP

NOLTE
BEYOND ENGINEERING
5223 N. ACADEMY BLVD., SUITE 304 COLORADO SPRINGS, CO. 80918
719-266-5000 TEL 719-266-5000 FAX

RIVERBEND CROSSING
EXHIBIT C - EASEMENTS

PREPARED FOR: DR HORTON - MELODY SERIES

DATE SUBMITTED: JULY 2006

SHEET NUMBER
1
1 OF 1 SHEETS

SCALE
VERTICAL N/A
HORIZONTAL 1"=100'

JOB NUMBER
CSB011202

Appendix E1

Avatar Fountain, LP
6800 Jericho Tpke., Suite 120W #204
Syosset, NY 11791

August 21, 2018

Security Sanitation District
231 Security Blvd.
Colorado Springs, CO 80911
Attn: Roy Heald

Re: Letter of Intent for SSD Land Ownership

Dear Mr. Heald,

This letter is prepared for Security Sanitation District (the District) regarding land ownership within the tract of land described in El Paso County Reception No. 6514100032. The tract of land described therein will be deeded to Avatar Fountain, LP. This land is currently undergoing residential development planning, and a plat is currently being prepared for filing to El Paso County. The residential development includes 225 parcels for single family units. 213 of these units will contribute to a proposed sewage lift station.

This letter is written to confirm that Avatar Fountain, LP intends to dedicate a parcel of land for the proposed sewage lift station. This dedicated parcel will be deeded to the District upon filing the plat.

Please call the number below if you have any questions or concerns.

Sincerely,

Alan Toth
Avatar Fountain, LP
516.806.6400

Appendix E2

Legal Description for Tract E (Lift Station)

A tract of land being a portion of the West Half (W 1/2) of the Northeast Quarter (NE 1/4) of Section 14, Township 15 South, Range 66 West of the 6th P.M., County of El Paso, State of Colorado, described as follows:

Bearings based on the West line of the Northeast Quarter (NE 1/4) of Section 14, Township 15 South, Range 66 West of the 6th P.M., monumented at the North Quarter (N 1/4) with a 3 1/4" aluminum cap, stamped "BARRON LAND 2018 PLS 38141" and at the Center Quarter (C 1/4) corner with a 3 1/4" aluminum cap, stamped "OLIVER E. WATTS 2000 PE-LS 9853" and bears S 00°24'11" E, 2640.42 feet.

COMMENCING at said North Quarter (N 1/4) corner; thence S 00°24'11" E, along said West line, a distance of 1938.33 feet; thence S 64°47'25" E, a distance of 58.69 feet to the POINT OF BEGINNING;
thence N 45°18'53" E, a distance of 105.75 feet;
thence 79.18 feet along the arc of a 55.00 foot radius non-tangent curve to the left, having a central angle of 82°28'49" with a chord that bears S 85°55'31" E, 72.51 feet;
thence S 24°46'03" W, a distance of 75.91 feet;
thence S 65°33'36" W, a distance of 65.01 feet;
thence N 64°47'25" W, a distance of 62.48 feet to the POINT OF BEGINNING.

Containing a total calculated area of 7,736 square feet (0.178 acres) of land, more or less.

Spencer J. Barron
State of Colorado Professional Land Surveyor No. 38141
For and on behalf of Barron Land, LLC

Appendix E3

RIVERBEND RESIDENTIAL FILING NO. 1

A PORTION OF THE NORTHEAST QUARTER OF SECTION 14, TOWNSHIP 15 SOUTH, RANGE 66 WEST OF THE 6TH P.M. COUNTY OF EL PASO, STATE OF COLORADO

SURVEYOR'S NOTES

1. NOTICE: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

2. Any person who knowingly removes, alters or defaces any public land survey monument or land boundary monument or accessory commits a class 2 misdemeanor pursuant to the Colorado Revised Statute 18-4-508.

3. The lineal units used in this drawing are U.S. Survey Feet.

4. This survey was performed in the field on November 21, 2017.

5. The overall subject parcel contains a calculated area of 1,591,293 square feet (36.531 acres) of land, more or less.

6. This survey does not constitute a title search by Barron Land, LLC to determine ownership or easements of record. For information regarding easements, rights-of-way and title of record, Barron Land, LLC relied upon Title Commitment File Number 45253ECS Amendment No. 2, with an effective date of November 14, 2017 at 7:30 A.M. as provided by Empire Title of Colorado Springs, LLC as agent for Westcor Land Title Insurance Company.

7. Bearings based on the West line of the Northeast Quarter (NE 1/4) of Section 14, Township 15 South, Range 66 West of the 6th P.M., monumented at the North Quarter (N 1/4) corner with a 3 1/4" aluminum cap, stamped "BARRON LAND 2018 PLS 38141" and at the Center Quarter (C 1/4) corner with a 3 1/4" aluminum cap, stamped "OLIVER E. WATTS 2000 PE-LS 9853" and bears S 00°24'11" E, 2640.42 feet.

8. The following reports have been submitted in association with the Preliminary Plan or Final Plat for this subdivision and are on file at the County Development Services Department: "Avatar River Bend Crossing Commercial and Residential Development Fountain, Colorado", prepared by RMG Engineers, dated April 2, 2018

9. All property owners are responsible for maintaining proper storm water drainage in and through their property. Public drainage easements as specifically noted on the plat shall be maintained by the individual lot owners unless otherwise indicated. Structures, fences, materials or landscaping that could impede the flow of runoff shall not be placed in drainage easements.

10. Unless otherwise indicated, all side, front, and rear lot lines are hereby platted on either side with a 5 foot public utility and drainage easement unless otherwise indicated. All exterior subdivision boundaries are hereby platted with a 7 foot public utility and drainage easement. The sole responsibility for maintenance of these easements is hereby vested with the individual property owners.

11. Developer shall comply with federal and state laws, regulations, ordinances, review and permit requirements, and other agency requirements, if any, of applicable agencies including, but not limited to, the Colorado Division of Wildlife, Colorado Department of Transportation, U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service regarding the Endangered Species Act.

12. The addresses exhibited on this plat are for informational purposes only. They are not the legal description and are subject to change.

13. No driveway shall be established unless an access permit has been granted by El Paso County.

14. No lot or interest therein, shall be sold, conveyed, or transferred whether by deed or by contract, nor shall building permits be issued, until and unless either the required public and common development improvements have been constructed and completed and preliminarily accepted in accordance with the Subdivision Improvements Agreement between the applicant/owner and El Paso County as recorded under Reception Number _____, _____, _____ in the Office of the Clerk and Recorder of El Paso County, Colorado or, in the alternative, other collateral is provided to make provision for the completion of said improvements in accordance with the El Paso County Land Development Code and Engineering Criteria Manual. Any such alternative collateral must be approved by the Board of County Commissioners or, if permitted by the Subdivision Improvements Agreement, by the Development Services Department Director and meet the policy and procedure requirements of El Paso County prior to the release by the County of any lots for sale, conveyance or transfer.
This plat restriction may be removed or rescinded by the Board of County Commissioners or, if permitted by the Subdivision Improvements Agreement, by the Development Services Department Director upon either approval of an alternative form of collateral or completion and preliminary acceptance by the El Paso Board of County Commissioners of all improvements required to be constructed and completed in accordance with said Subdivision Improvements Agreement. The partial release of lots for sale, conveyance or transfer may only be granted in accordance with any planned partial release of lots authorized by the Subdivision Improvements Agreement.

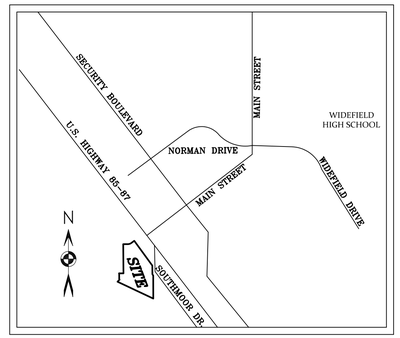
15. Individual lot purchasers are responsible for constructing driveways, including necessary drainage culverts from _____ Road per Land Development Code Section 6.3.3.C.2 and 6.3.3.C.3. Due to their length, some of the driveways will need to be specifically approved by the Security Fire Protection District.

16. Individual wells are the responsibility of each property owner. Permits for individual wells must be obtained from the State Engineer who by law has the authority to set conditions for the issuance of these permits.
Water in the Denver Basin Aquifers is allocated based on a 100-year aquifer life; however, for El Paso County planning purposes, water in the Denver Basin Aquifers is evaluated based on a 300-year aquifer life. Applicants and all future owners in the subdivision should be aware that the economic life of a water supply based on wells in a given Denver Basin Aquifer may be less than either the 100 years or 300 years indicated due to anticipated water level declines. Furthermore, the water supply plan should not rely solely upon non-renewable aquifers. Alternative renewable water resources should be acquired and incorporated in a permanent water supply plan that provides future generations with a water supply. **ISECURITY WATER**

17. Sewage treatment is the responsibility of each individual property owner. The El Paso County Department of Health and Environment must approve each system and, in some cases the Department may require an engineer designed system prior to permit approval. These systems may cost more to design, install, and maintain. **SECURITY SANITATION**

18. No structures or fences are permitted within designated "Floodplain" or "Park and Open Space" areas. The Federal Emergency Management Agency, Flood Insurance Rate Map No. 08041C0951F, effective date March 17, 1997, indicates this parcel of land to be located in Zone X (Areas determined outside the 500-year floodplain).

19. **Tract _____ shall be utilized as _____(park, neighborhood park, school site, fire station, drainage tract, etc). Ownership and maintenance of Tract _____ shall be vested to (name the entity: El Paso County, Special District, Homeowners Association, etc.) (Where multiple tracts are included in a single PUD plan or plat, the use of a tract table is encouraged.)**
Lot ____ (or Tract ____) (or entire property) of this property is subject to a Private Detention Basin/Stormwater Quality BMP Maintenance Agreement and Easement as recorded at Reception No._____ of the records of El Paso County. The _____ HOA (or Owner or District) is responsible for maintenance of the subject drainage facilities.



VICINITY MAP
(NOT TO SCALE)

LEGAL DESCRIPTION

A tract of land being a portion of the West Half (W 1/2) of the Northeast Quarter (NE 1/4) of Section 14, Township 15 South, Range 66 West of the 6th P.M., County of El Paso, State of Colorado, described as follows:

Bearings based on the West line of the Northeast Quarter (NE 1/4) of Section 14, Township 15 South, Range 66 West of the 6th P.M., monumented at the North Quarter (N 1/4) corner with a 3 1/4" aluminum cap, stamped "BARRON LAND 2018 PLS 38141" and at the Center Quarter (C 1/4) corner with a 3 1/4" aluminum cap, stamped "OLIVER E. WATTS 2000 PE-LS 9853" and bears S 00°24'11" E, 2640.42 feet.

COMMENCING at said North Quarter (N 1/4) corner; thence S 00°24'11" E, along the West line of the Northeast Quarter (NE 1/4), a distance of 638.79 feet; thence N 89°35'49" E, a distance of 265.00 feet to the POINT OF BEGINNING.
Thence N 89°35'49" E, a distance of 175.85 feet;
Thence 105.86 feet along the arc of a 170.00 foot radius tangent curve to the left, having a central angle of 35°40'40" with a chord that bears N 71°45'30" E, 104.16 feet;
Thence N 53°55'10" E, a distance of 142.46 feet to a point on the Southwest line of the land described in Warranty Deed recorded in Book 2472 at Page 228, El Paso County Records;
Thence S 36°04'35" E, along said Southwest line and its Southeasterly extention, a distance of 1,081.86 feet to a point on the West right of way line of Southmoor Drive;
Thence S 00°07'59" E, along said West line, a distance of 306.67 feet to an angle point in said Southmoor Drive;
Thence S 34°27'20" E, along the Southwest line of said Southmoor Drive, a distance of 53.43 feet to the Northwest corner of a tract of land described at Reception No. 202040629, El Paso County Records;
Thence S 00°11'18" E along the West line of said tract of land, a distance of 813.74 feet to the Southeasterly end of the common boundary line described in the Boundary Agreement and Quit Claim deed recorded at Reception No. 206153355, El Paso County Records;
Thence N 64°47'25" W, along said boundary line, a distance of 1,396.33 feet;
Thence N 45°18'53" E, a distance of 105.75 feet;
Thence 54.46 feet along the arc of a 55.00 foot radius non-tangent curve to the right, having a central angle of 56°44'10" with a chord that bears N 16°19'02" W, 52.26 feet;
Thence 6.52 feet along the arc of a 30.00 foot radius reverse curve to the left, having a central angle of 12°27'13" with a chord that bears N 05°49'26" E, 6.51 feet, to a point 115.00 feet East of the West line of said Northeast Quarter;
Thence N 00°24'11" W, parallel with and 115.00 feet East of said West line, a distance of 164.35 feet;
Thence N 89°35'49" E, a distance of 150.00 feet to a point 265.00 feet East of said West line;
Thence N 00°24'11" W, parallel with and 265.00 feet East of said West line, a distance of 1,030.00 feet to the POINT OF BEGINNING.

Containing a total calculated area of 1,591,293 square feet (36.531 acres) of land, more or less.

PRELIMINARY

OWNERS CERTIFICATE

Owners Certificate
The undersigned, being all the owners, mortgagees, beneficiaries of deeds of trust and holders of other interests in the land described herein, have laid out, subdivided, and platted said lands into lots, tracts, streets, and easements (use which are applicable) as shown hereon under the name and subdivision of _____. All public improvements so platted are hereby dedicated to public use and said owner does hereby covenant and agree that the public improvements will be constructed to El Paso County standards and that proper drainage and erosion control for same will be provided at said owner's expense, all to the satisfaction of the Board of County Commissioners of El Paso County, Colorado. Upon acceptance by resolution, all public improvements so dedicated will become matters of maintenance by El Paso County, Colorado. The utility easements shown hereon are hereby dedicated for public utilities and communication systems and other purposes as shown hereon. The entities responsible for providing the services for which the easements are established are hereby granted the perpetual right of ingress and egress from and to adjacent properties for installation, maintenance, and replacement of utility lines and related facilities.

_____
Owners/Mortgagee (Signature)

By: _____

Title: _____

ATTEST: (if corporation)

Secretary/Treasurer

STATE OF COLORADO)
) ss.
COUNTY OF _____)

Acknowledged before me this _____ day of _____, 20_____ by

_____ as _____.

My commission expires _____

Witness my hand and official seal _____
Notary Public

BOARD OF COUNTY COMMISSIONERS CERTIFICATE

This plat for (name of subdivision or plat) was approved for filing by the El Paso County, Colorado Board of County Commissioners on the day of _____, 20____, subject to any notes specified hereon and any conditions included in the resolution of approval. The dedications of land to the public (streets, tracts, easements: list those applicable) are accepted, but public improvements thereon will not become the maintenance responsibility of El Paso County until preliminary acceptance of the public improvements in accordance with the requirements of the Land Development Code and Engineering Criteria Manual, and the Subdivision Improvements Agreement.

_____ _____
Chair, Board of County Commissioners Date

SURVEYOR'S STATEMENT

I Spencer J. Barron, a duly registered Professional Land Surveyor in the State of Colorado, do hereby certify that this plat truly and correctly represents the results of a survey made on date of survey, by me or under my direct supervision and that all monuments exist as shown hereon; that mathematical closure errors are less than 1:10,000 ; and that said plat has been prepared in full compliance with all applicable laws of the State of Colorado dealing with monuments, subdivision, or surveying of land and all applicable provisions of the El Paso County Land Development Code.

I attest the above on this ____ day of _____, 20____.

_____
Spencer J. Barron
State of Colorado Professional Land Surveyor No. 38141
For and on behalf of Barron Land, LLC

CLERK AND RECORDER

STATE OF COLORADO
COUNTY OF EL PASO
I hereby certify that this instrument was filed in my office on this _____ day of _____, 200___, and was recorded at Reception Number _____ of the records of El Paso County

_____
El Paso County Clerk and Recorder

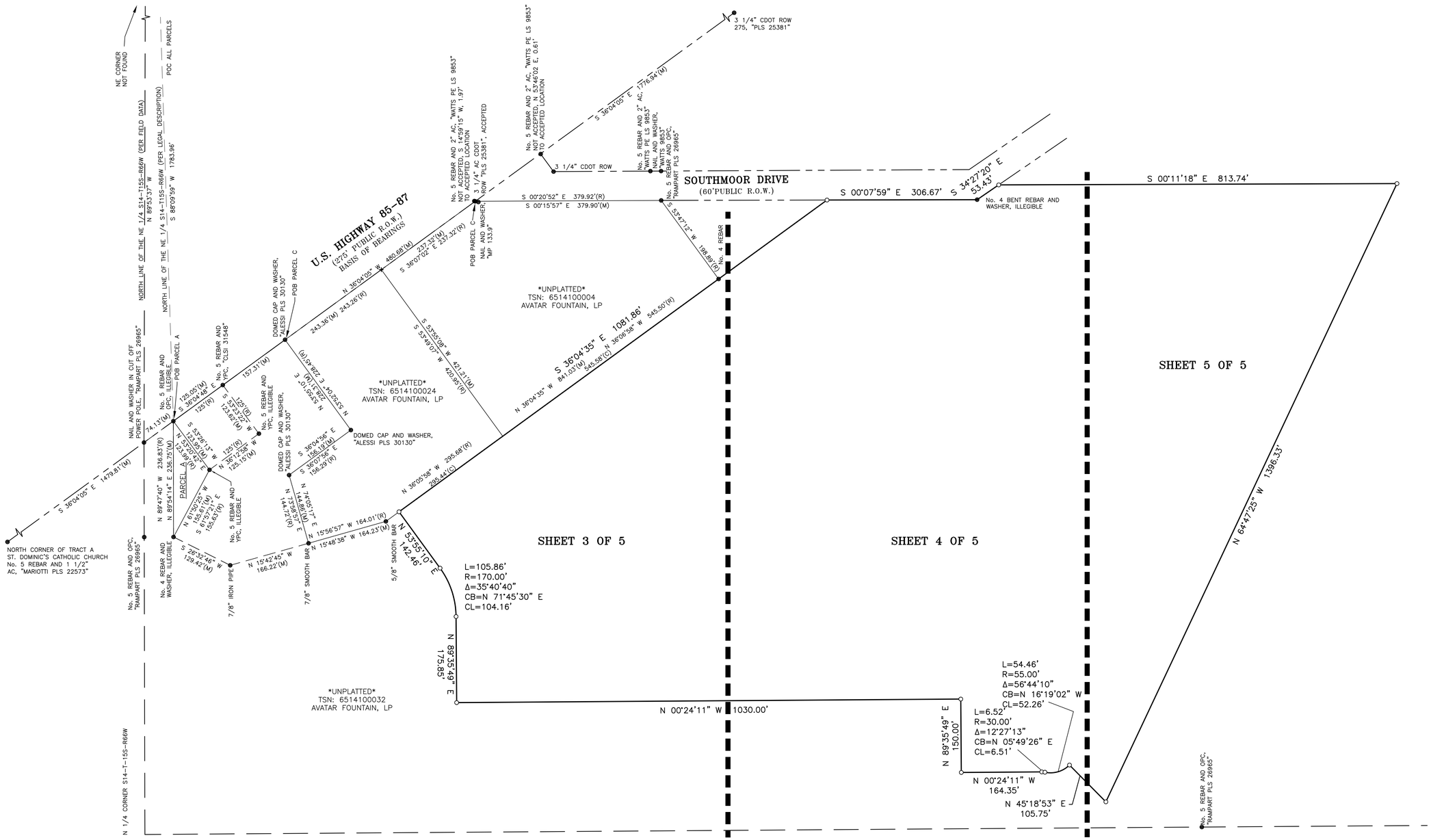
DATE: XX/XX/2018	REVISIONS		
No.	Remarks	Date	By

BARRON LAND
BOUNDARY △ MAPPING △ SURVEYING △ CONSTRUCTION
2790 N. Academy Blvd. Suite 311 P: 719.360.6827
Colorado Springs, CO 80917 F: 719.466.6527
www.BarronLand.com

PROJECT No.: XX-XXX SHEET 1 OF 1

RIVERBEND RESIDENTIAL FILING NO. 1

A PORTION OF THE NORTHEAST QUARTER OF
SECTION 14, TOWNSHIP 15 SOUTH, RANGE 66 WEST OF THE 6TH P.M.
COUNTY OF EL PASO, STATE OF COLORADO



N

1" = 100'

100 0 100 200

PRELIMINARY

DATE: XX/XX/2018	REVISIONS		
No.	Remarks	Date	By

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PRELIMINARY

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PRELIMINARY

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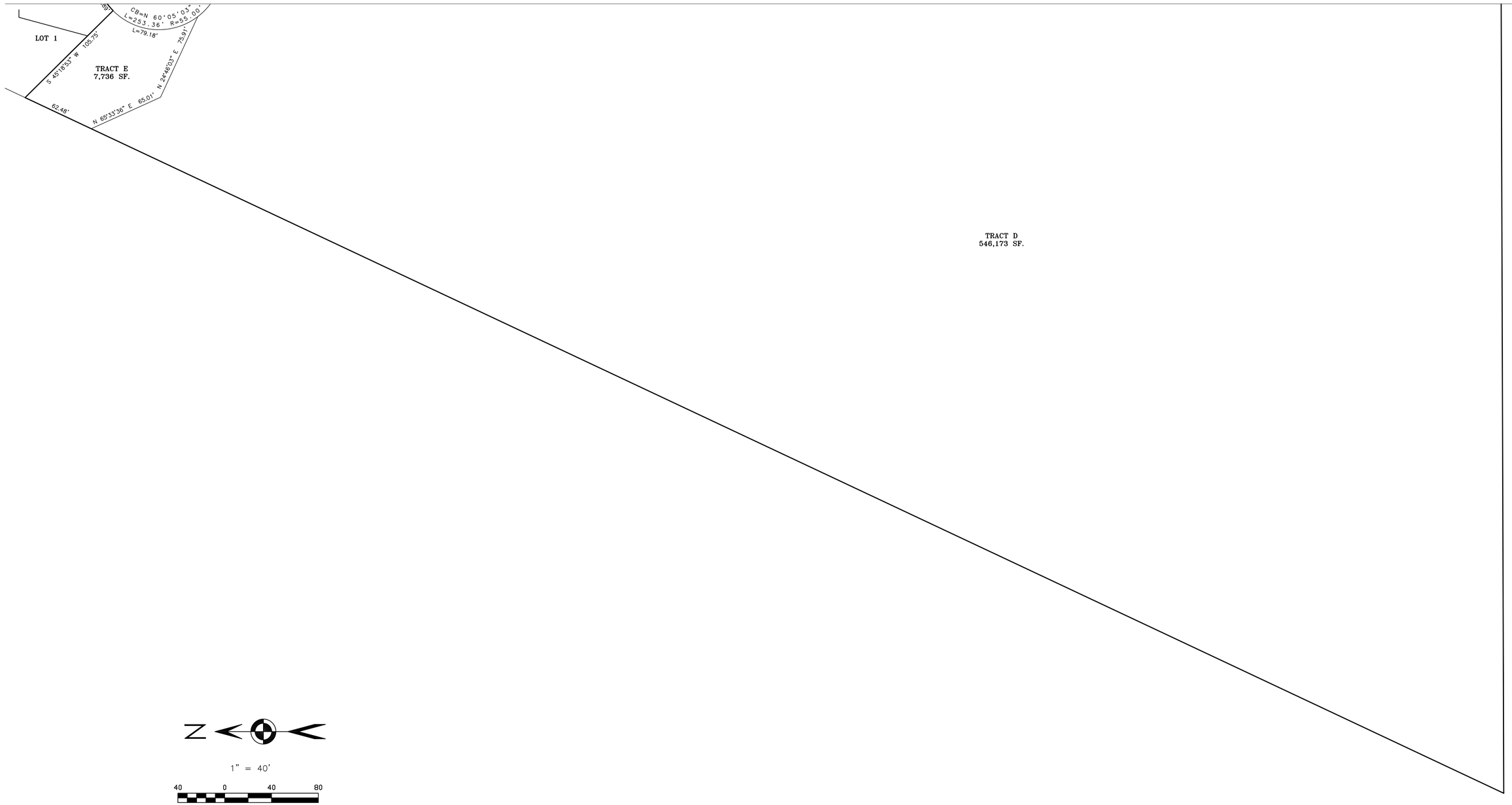

PRELIMINARY

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BARRON LAND
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2790 N. Academy Blvd. Suite 311
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P: 719.360.6827
F: 719.466.6527
www.BarronLand.com

PROJECT No.: XX-XXX

SHEET 1 OF 1

Appendix F

SSD River Bend Creek Lift Station
Hydraulic Calculations

Pump Calculations

Surface Elevation @ Lift Station (Source - Topo)		5695	feet	
Pump "Off" Elevation		5675	feet	
Elevation @ High Point (Source - Topo)		5711	feet	
Depth of Force Main @ High Point		8	feet	
Length of Pipe (ft)		1400	feet	
Internal Pipe Diameter (in)		3.875	inches	4" HDPE DR 11 (200 psi)
Peak Flow Rate (gpm)		160	gpm	Basis of Design
Type of Pipe	Polyethylene			
Hazen-Williams Coefficient		140		
Scour Velocity (ft/sec)		4.35	ft/s	
Velocity Head		0.294	feet	
# of 90 deg elbows		12		
# of 45 deg elbows		2		
# of other minor elbows		4		
# of isolation valves		6		
# of check valves		2		
Entrance Loss Coeff.		0.5		
Static Head		28	feet	
Friction Head		25.6	feet	
Minor Losses		3.6	feet	
TDH =		57.16	feet	

Meets SSD maximum scour velociy of 6.0 ft/sec and minimum CDPHE scour velocity of 2.5 ft/sec

Appendix G

GMS, INC.
CONSULTING ENGINEERS
611 NORTH WEBER, SUITE 300
COLORADO SPRINGS, COLORADO 80903-1074

TELEPHONE (719) 475-2935
TELEFAX (719) 475-2938

EDWARD D. MEYER, P.E.
ROGER J. SAMS, P.E.
GREGORY R. WORDEN, P.E.

KEN L. WHITE, P.L.S.
DAVID R. FRISCH, P.L.S.
THOMAS A. McCLERNAN, P.E.

MEMORANDUM

TO: Mr. Rich Muzzy, Environmental Coordinator
Pikes Peak Area Council of Governments

DATE: August 17, 2006

FROM: Roger J. Sams, P.E.
GMS, Inc.

RE: Security Sanitation District
Single Family Equivalent (SFE) Unit Wastewater Volume Contribution

During the presentation of the proposed Riverbend Subdivision wastewater pump station at the Site Application Review Committee (SARC), it was requested that there be some verification provided as to the SFE unit volume contribution utilized in the Site Location Approval Application. GMS, INC. and the Security Sanitation District provided the SFE contribution of 198 gallons per day to the applicant for use in their documents.

This unit contribution has been a reasonable design criteria utilized by the District for several years. It was originally developed several years ago in the evaluation of user charges that included a detailed evaluation of unit contributions from all classes of users in the District. The basic methodology in developing this value was as follows:

1. Metered water use records were evaluated for a random sampling of single family detached residential users in the District.

2. The in-house use only was evaluated by considering the water supply delivered to the customer during the months of December, January and February.

3. Based on that analysis, it was found that the average contribution over the random sampling (approximately 100 customers) was 5,719 gallons per billing period, approximately one month.

4. It has been accepted that approximately 95% of in-house water use is returned to the wastewater system. This results in approximately 5,433 gallons per month or 178.6 gallons per day (gpd) being returned to the wastewater system.

5. Based on the observed ratio of maximum month flow volume or rate to annual average flow volume or rate, the average annual unit volume is increased by 10.5% to 197.4 gpd. This has been rounded up to 198 gallons per day per SFE.

We trust that you will find this statement as to the origin of the SFE unit contribution value sufficient for your records. We will encourage the applicant to include this memorandum with their final submittal to the Colorado Department of Public Health and Environment, Water Quality Control Division, in support of the unit flow contribution used in the design of the pump station. Should you have any questions or desire additional information, please contact us at your convenience.

cc: Mr. Roy Heald, Manager, Security Sanitation District
Mr. Jay Adriansen, Superintendent, Security Sanitation District
Mr. Chuck Ritter, P.E., Nolte Associates, Inc.

Appendix H

Architecture
Structural
Geotechnical

ROCKY MOUNTAIN GROUP

Materials Testing
Forensic
Civil/Planning

GEOTECHNICAL REPORT

Avatar River Bend Crossing
Commercial and Residential Development
Fountain, Colorado

PREPARED FOR:

Avatar Fountain, LP
P.O. Box 927215
San Diego, CA 92192

JOB NO. 161921

April 2, 2018

Respectfully Submitted,

RMG – Rocky Mountain Group

Kelli Zigler
Project Geologist

Reviewed by,

RMG – Rocky Mountain Group

Geoff Webster, P.E.
Sr. Geotechnical Project Manager

COLORADO LICENSED
GEOFF WEBSTER
4/2/18
45046
PROFESSIONAL ENGINEER

TABLE OF CONTENTS

FIGURES

APPENDIX A

GENERAL SITE AND PROJECT DESCRIPTION

Project Description and Scope of Work

RMG has completed a geotechnical investigation for the Avatar Riverbend development in Fountain, Colorado. The purpose of the investigation was to evaluate the subsurface soil conditions and provide geotechnical design and construction criteria for the project. These services were provided in accordance with our Proposal and Project Contract No. 161921 dated February 3, 2018.

The Riverbend development consists of two distinct portions, a new residential development of single family homes, and redevelopment of an adjacent commercial strip mall. We understand the commercial strip mall will be rehabilitated and reconfigured to provide dedicated access to the residential development. This report provides roadway and pavement recommendations for the commercial redevelopment, and foundation and earthwork recommendations for the residential development.

The commercial site is located at approximately 5680 S US Hwy 85/87 in El Paso County near the city limits of Fountain, Colorado. The site consists of several retail businesses in a strip mall configuration. We understand existing buildings may be demolished and the site reconfigured to accommodate access to the residential development. The parking area pavement may be rehabilitated or rebuilt.

The residential development is comprised of two parcels. Parcel A is 34 acres of relatively flat land, and Parcel B is 19 acres bordering Fountain Creek and includes a portion of the Fountain Creek floodplain. The site is proposed to be developed in two filings. Filing 1 will include 136 residential lots, and Filing 2 will include 89 residential lots. A full spectrum stormwater detention will most likely be required for this development, as will a sanitary lift station. The location of the site is shown on the Site Vicinity Map, Figure 1.

Existing Site Conditions

The residential site is currently undeveloped land situated between US highway 85/87 and Fountain Creek. It sits behind the commercial strip mall development and appears to have no developed roadway access. The site is vacant and currently vegetated with native shrubs, grass, and weeds. The southern extent of the site drops down to the floodplain of Fountain Creek.

FIELD INVESTIGATION AND LABORATORY TESTING

Drilling

The subsurface conditions on the site were investigated by drilling eleven (11) exploratory test borings to 20 feet depth within the residential property, and five (5) exploratory test borings to 20 feet depth within the boundary of the commercial parcel. In this report commercial borings carry a C-xx designation, while the residential borings carry an R-xx designation. The approximate locations of the test borings are presented in the Test Boring Location Plan, Figure 2.

The test borings were advanced with a power-driven, continuous-flight auger drill rig. Soil samples were obtained in general accordance with ASTM D-1586 utilizing a 2-inch OD split-barrel sampler or in general accordance with ASTM D-3550 utilizing a 2½-inch OD modified California sampler. Samples

were returned to RMG's materials testing laboratory for testing and analysis. An Explanation of Test Boring Logs is presented in Figure 3. The Test Boring Logs are presented in Figures 4 through 11.

Laboratory Testing

The moisture content for the recovered samples was obtained in the laboratory. Grain-size analysis, Atterberg Limits, and Denver Swell/Consolidation tests were performed on selected samples for purposes of classification and to develop pertinent engineering properties. A Summary of Laboratory Test Results is presented in Figure 12. Soil Classification Data are presented in Figures 13 through 16. Swell/Consolidation Test Results are presented in Figure 17.

SECTION 1 – RESIDENTIAL DEVELOPMENT

Subsurface Materials

Commercial Soil Test Borings (C-01 through C-05) were performed through the existing pavement of the commercial area and will be discussed in **Section 3 - Commercial Development** of this report. Residential Soil Test Borings (R-01 through R-11) were performed in the undeveloped parcels and are discussed below. The subsurface materials were classified by laboratory testing in accordance with the Unified Soils Classification System (USCS).

Referring to Figure 2, Test Boring Location Plan, clay, claystone and shale bedrock were encountered in Test Borings R-05, R-06, R-08, R-10 and R-11 in the southwest portion of the site. Silty sand was encountered in the other residential borings throughout the 20-foot depth tested across the north and eastern portions of the site.

<u>Soil Test Borings: R-01, R-02, R-03, R-04, R-07, R-09</u>

<u>0 to 20-feet:</u> Tan to brown, loose to medium dense, moist (wet below the water table), Silty Sand. This soil classifies primarily throughout its depth as SW-SM, well-graded silty sand with gravel.

<u>Soil Test Borings: R-05, R-06, R-08, R-10, R-11</u>

<u>0 to 5-14-feet</u>: Tan to brown, loose to medium dense, moist (wet below the water table), Silty Sand. This soil classifies primarily throughout its depth as SW-SM, well-graded silty sand with gravel.

<u>5-14 to 20-feet</u>: Gray, hard to very hard, moist claystone and shale bedrock. These soils classify primarily as CL, lean clay, and CH, fat sandy clay.

Additional descriptions and the interpreted distribution (approximate depths) of the subsurface materials are presented on the Test Boring Logs. The descriptions shown on the logs are based upon the engineer's classification of the samples at the depths indicated. Stratification lines shown on the logs represent the approximate boundaries between material types and the actual transitions may be gradual and vary with location.

Groundwater

Groundwater was encountered intermittently across the site. The well-graded sand appears to be well-draining with groundwater encountered at 13 to19-feet depth. In those borings where claystone and shale bedrock were encountered, groundwater was perched as high as 6-feet below ground surface elevation. Depending upon final site grading and finished floor elevations, groundwater may influence the feasibility of certain structures, particularly basement construction. Fluctuations in groundwater and subsurface moisture conditions may occur due to seasonal variations in rainfall and other factors not readily apparent at this time.

CONCLUSIONS AND RECOMMENDATIONS

The following discussion is based on the subsurface conditions encountered in the test borings and on the project characteristics previously described. If conditions are different from those described in this report or the project characteristics change, RMG should be retained to review our recommendations and adjust them, if necessary.

Geotechnical Considerations

Overall, the subsurface soil conditions are favorable for residential development on shallow foundation systems. The well-graded silty sand can be prepared to provide adequate bearing capacity. Claystone and shale are not considered suitable for direct foundation bearing. In those locations where claystone and shale are present overexcavation and replacement with compacted structural fill will be necessary to provide for a minimum of 4-feet of separation between unsuitable soil and foundation elements. The area of the site that may require overexcavation and replacement can be described as the southwest portion of the site roughly defined by Soil Test Borings R-05, R-06, R-08, R-10, and R-11.

The preliminary site plan provided to RMG shows the far southern end of the site reserved for a full spectrum stormwater detention area. Soil Test Borings R-09 and R-10 were performed in this region. Detention area considerations are discussed in **Section 2 – Full Spectrum Detention Area**. The site plan also shows proposed lift station at the extreme southwestern part of the site. Soil Test Boring R-11 was performed in this location.

Site Preparation

Final grading plans were not available for review. In general, the following site preparation procedures are recommended.

Standard Penetration Test blow counts vary across the site and with depth. Due to this variability we recommend improving the soil under foundations by overexcavating the foundation areas and backfilling with compacted structural fill. The on-site silty sand soil is suitable as structural backfill. The clay and claystone is not recommended as structural backfill. Site preparation should include clearing and grubbing the site of all vegetation, topsoil, and any other deleterious material within the construction area and disposing this material appropriately. Following clearing and grubbing, the area within the foundation footprint, under basements, and a 2-foot perimeter beyond should be overexcavated two (2) feet below the bottom of footing elevation. Excavated sand soil may be stockpiled for reuse as structural backfill. An Open Excavation Observation should be made at this point to verify soil conditions are as reported in the soil boring logs herein.

Upon verification, the upper 6 inches of the exposed subsurface soils should then be scarified and moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content) and compacted to a minimum of 95 percent of the maximum dry density as determined by the Modified Proctor test (ASTM D-1557) prior to placing structural fill.

After compaction of the subgrade, the native material previously removed may be used as structural backfill to bring the site to bottom of footing grade. The material should not be excessively wet, should be free of organic matter and construction debris, and contain no rock fragments greater than 3-inches in any dimension. Fill material should be placed in ten-inch loose lifts with moisture content within 2 percent of optimum as determined by ASTM D-1557. Each loose lift should be compacted to a minimum of 95 percent of Modified Proctor maximum dry density as determined by ASTM D-1557. Backfill soil should be density tested to verify compaction meets these requirements.

Foundation Recommendations

Structures may be supported on shallow foundations bearing on the onsite soils when prepared in accordance with the recommendations above. When so prepared, a maximum allowable bearing pressure of 2,500 psf with no minimum dead load requirement may be used for design. The foundation design should be prepared by a qualified Colorado Registered Professional Engineer using the recommendations presented in this report. This foundation system should be designed to span a minimum of 10 feet under the design loads. The bottoms of exterior foundations should be at least 30 inches below finished grade for frost protection. When prepared and properly compacted, total settlement of 1-inch or less with differential settlement on the order of ½ inch or less is estimated. Settlement in granular material will occur relatively rapidly with construction loads. Long term consolidation settlement should not be an issue in the site material if prepared as recommended above.

All foundation and site preparation recommendations contained herein apply equally to the proposed sanitary lift station.

Open Excavation Observations

As referenced above, foundation excavations should be observed by RMG prior to placing structural fill, forms, or concrete to verify the foundation bearing conditions for each structure. Based on the conditions observed in the foundation excavation, the recommendations made at the time of construction may vary from those contained herein. In particular if claystone is encountered within 4-feet of foundation elements, additional overexcavation will be recommended. In the case of differences, the Open Excavation Observation report shall be considered to be the governing document to be used to modify the site preparation recommendations as necessary.

Floor Slabs

The in-situ silty sand soil is non-plastic and should be stable at its natural moisture content. The onsite soil is suitable as backfill material. Any fill material from outside sources used to bring the site to grade should be non-expansive granular material to control slab movement.

Soil for interior floor slabs should be prepared in a manner similar to foundations above. Areas under floor slabs should be overexcavated a minimum of 1-foot and the upper 6 inches of the exposed subsurface soils should then be scarified and moisture conditioned to facilitate compaction (usually

within 2 percent of the optimum moisture content) and compacted to a minimum of 95 percent of the maximum dry density as determined by the Modified Proctor test (ASTM D-1557) prior to placing structural fill. Floor slabs should bear upon a minimum of 1-foot of structural backfill compacted to a minimum of 95 percent of Modified Proctor maximum dry density as determined by ASTM D-1557. Non-structural slabs should be isolated from foundation members with expansion material. To reduce the possibility of capillary rise of groundwater into the floor slab, and to reduce the potential for concrete curling, a minimum 3-inch layer of ¾-inch crushed stone may be placed atop the compacted structural fill. A 6-mil vapor retarder may be installed above the crushed stone.

Exterior Concrete Flatwork

Reinforced concrete exterior slabs should be constructed similarly to floor slabs on compacted structural fill, with the additional caveat they be isolated from the building with expansion material, and have a downturned reinforced thickened edge.

Lateral Earth Pressures

Foundation and basement walls should be designed to resist lateral pressures. For non-expansive backfill materials, we recommend an equivalent fluid pressure of 40 pcf for design. Expansive soils or bedrock should not be used as backfill against walls. The above lateral pressure applies to level, drained backfill conditions. Equivalent Fluid Pressures for sloping/undrained conditions should be determined on an individual basis.

CONSTRUCTION CONSIDERATIONS

Surface Grading and Drainage

A contributing factor to foundation settlement and floor slab heave in Colorado Front Range soils is the introduction of excess water. Improper site grading and irrigation water are respectively the most common cause and source of excess water. The ground surface should be sloped from the building with a minimum gradient of 10 percent for the first 10 feet. This is equivalent to 12 inches of fall across this 10-foot zone. If a 10-foot zone is not possible on the upslope side of the structure, then a well-defined swale should be created a minimum 5 feet from the foundation and sloped parallel with the wall with a minimum slope of 2 percent to intercept the surface water and transport it around and away from the structure. Roof drains should extend across backfill zones and landscaped areas to a region that is graded to direct flow away from the structure. Future homeowners should be informed to maintain the surface grading and drainage recommendations herein to help prevent water from being directed toward and/or ponding near the foundations.

Landscaping should be selected to reduce irrigation requirements. Plants used close to foundation walls should be limited to those with low moisture requirements and irrigated grass should not be located within 5 feet of the foundation. To help control weed growth, geotextiles should be used below landscaped areas adjacent to foundations. Impervious plastic membranes are not recommended. Irrigation devices should not be placed within 5 feet of the foundation. Irrigation should be limited to the amount sufficient to maintain vegetation. Application of excess water will increase the likelihood of slab and foundation movements.

Perimeter Drain

The overburden site soil is well draining, but groundwater was encountered at varying depths across the site. A subsurface perimeter drain is recommended around portions of structures which will have habitable or storage space located below the finished ground surface. This includes crawlspace areas if applicable. Where main level slab-on-grade foundation systems are utilized, a subsurface perimeter drain will not be required around the foundation.

Underslab Drain

Shallow groundwater conditions were encountered in Test Borings R-06 and R-10, and may be present at other locations. Depending on the conditions observed at the time of the Open Excavation Observation, an underslab drainage layer may also be recommended to help intercept groundwater before it enters the slab area should the groundwater levels rise. In general, if groundwater was encountered within 4 to 6 feet of the proposed basement slab elevation, an underslab drain should be anticipated. Careful attention should be paid to grade and discharge of the drain pipe.

Concrete

Type I/II cement is recommended for concrete in contact with the subsurface materials. Calcium chloride should be used with caution for soils with high sulfate contents. The concrete should not be placed on frozen ground. If placed during periods of cold temperatures, the concrete should be kept from freezing. This may require covering the concrete with insulated blankets and heating. Concrete work should be completed in accordance with the latest applicable guidelines and standards published by ACI.

Exterior Backfill

Backfill around foundation stemwalls and other buried structures should be placed in loose lifts of 10-inches, moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content) and compacted to 85 percent of the maximum dry density as determined by the Modified Proctor test, ASTM D-1557 on exterior sides of walls in landscaped areas. In areas where backfill supports pavement and concrete flatwork, the materials should be compacted to 95 percent of the maximum dry density. Fill placed on slopes should be benched into the slope. Maximum bench heights should not exceed 4 feet, and bench widths should be wide enough to accommodate compaction equipment.

The appropriate government/utility specifications should be used for fill placed in utility trenches. If material is imported for backfill, the material should be approved by the Geotechnical Engineer prior to hauling it to the site.

The backfill should not be placed on frozen subgrade or allowed to freeze during moisture conditioning and placement. Backfill should be compacted by mechanical means, and foundation walls should be braced during backfilling and compaction.

Structural Fill - General

Except as discussed above for foundations and slab support, areas to receive structural fill should have topsoil, organic material, or debris removed. The upper 6 inches of the exposed surface soils should be

scarified and moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content) and compacted to a minimum of 95 percent of the maximum dry density as determined by the Modified Proctor test (ASTM D-1557) prior to placing structural fill. Structural fill placed on slopes should be benched into the slope. Maximum bench heights should not exceed 4 feet, and bench widths should be wide enough to accommodate compaction equipment.

Structural fill should be placed in loose lifts of 10-inches, moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content) and compacted to a minimum of 95 percent of the maximum dry density as determined by the Modified Proctor test (ASTM D-1557). The materials should be compacted by mechanical means.

Materials used for structural fill should be approved by the RMG prior to use. Structural fill should not be placed on frozen subgrade or allowed to freeze during moisture conditioning and placement.

To verify the condition of the compacted soils, density tests should be performed during placement. The first density tests should be conducted when 24 inches of fill have been placed.

SECTION 2 - FULL SPECTRUM DETENTION AREA

Full spectrum detention ponds are typically designed and constructed with embankments and control structures to store stormwater above the natural grade of the land. Our investigation included two Soil Test Borings in this region to characterize the subsurface soils pertinent to embankment construction, and to provide recommendations regarding embankment construction. These recommendations have been prepared in accordance with the requirements outlined in the El Paso County Land Development Code (LDC), the Engineering Criteria Manual (ECM) Section 2.2.6 and Appendix C.3.2.B, and the El Paso County (EPC) Drainage Criteria Manual, Volume 1 Section 11.3.3.

Detention Storage Criteria

Detention pond embankments that impound water above the natural grade of the land are considered dams under rules and regulation promulgated by the State of Colorado Department of Natural Resources. Rules and Regulations for Dam Safety and Dam Construction have been developed to provide guidance to design engineers and constructors. Dams are regulated as jurisdictional dams or non-jurisdictional dams. In accordance with El Paso County Drainage Criteria Manual, Volume 1, Section 6.6, embankments in this development will most likely qualify as **non-jurisdictional, minor dams, with a Class III hazard rating.**

The purpose of our recommendations is to provide information to comply with the referenced guidelines and provide pertinent geotechnical information upon which to base the design and construction of pond embankments. This section presents the findings of the investigation performed by RMG and our recommendations regarding detention pond construction.

General Physiographic Setting

The site is located within the western flank of the Colorado Piedmont section of the Great Plains physiographic province. The Colorado Piedmont which formed during Late Tertiary and Early Quaternary time (approximately 2,000,000 years ago) is a broad, erosional trench which separates the Southern Rocky Mountains from the High Plains. During the Late Mesozoic and Early Cenozoic

Periods (approximately 70,000,000 years ago), intense tectonic activity occurred, causing the uplifting of the Front Range and associated downwarping of the Denver Basin to the east. Relatively flat uplands and broad valleys characterize the present-day topography of the Colorado Piedmont in this region. More particularly, the site is located on alluvial deposits with bedrock intrusions above Fountain Creek.

Topography

The ground surface generally slopes gently down to the south and southwest across the entire site and drops precipitously into Fountain Creek at the south end. Fountain Creek is adjacent to and forms the western property line.

Vegetation

Vegetation across the site generally consists of native grasses, shrubs, and weeds.

General Soil Types

The general geology of the area is typically stream terrace deposits and alluvium soils overlying the Pierre Shale. Samples from each Soil Test Boring exhibited characteristics of the general geology. The subsurface conditions can be characterized by describing two geologic units that were mapped in the vicinity of the site identified (Morgan, et al., 2003) as:

- al: alluvium is loose, unconsolidated (not cemented together into a solid rock) soil or sediments, which has been eroded, reshaped by water in some form, and redeposited in a non-marine setting. Alluvium is typically made up of a variety of materials, including fine particles of silt and clay and larger particles of sand and gravel.

- Kp: Pierre Shale – (Upper Cretaceous) Underlain by the Piney Creek Alluvium. Permeability is generally low, excavation and compaction generally easy. Foundation stability is less than fair. The majority of the formation has low to high swell potential. Slope stability is generally poor and slopes steeper than 5 degrees may slide, if the toe of the slope is removed.

Subsurface Materials

The subsurface materials encountered in Test Borings R-09 and R-10 were classified using the Unified Soils Classification System (USCS) and the materials were grouped into the general categories of silty sand and shale. These soils classify as SW-SM, well-graded silty sand, and CH, sandy fat clay. It is anticipated that subgrade foundations for embankments will be in alluvial material, and that the embankments themselves will be constructed from on-site alluvial material. Embankments are not anticipated to be constructed directly upon or built up from shale bedrock.

Groundwater

Groundwater was not encountered in R-09. Groundwater was encountered in R-10 at 6-feet below the existing ground surface. Groundwater may influence detention pond embankment design and construction.

CONCLUSIONS AND RECOMMENDATIONS

Soil and Rock Design Parameters

RMG has performed numerous laboratory tests of soil similar to the soils encountered in the Soil Test Borings. Based upon field and laboratory testing, the following soil and rock parameters are typical for the soils likely to be encountered, and are recommended for use in detention pond embankment design.

Soil Description	Unit Weight (lb/ft^3)	Friction Angle (degree)	Active Earth Pressure, Ka	Passive Earth Pressure, Kp	At Rest Earth Pressure, Ko	Unconfined compressive Strength (kip/ft^2)
Alluvial Soil SW-SM	115	30	0.33	3.0	0.50	-
Shale Bedrock CH	124	-	-	-		72

6.2 Seismic Design

In accordance with the International Building Code, 2012/2015, seismic design parameters have been determined for this site. The Seismic Site Class has been interpreted from the results of the soil test borings drilled within the project site. The USGS seismic design tool has been used to determine the seismic response acceleration parameters. USGS output is presented in Appendix B. The soil on this site is not considered susceptible to liquefaction. The following recommended Seismic Design Parameters are based upon Seismic Site Class D, and a 2 percent probability of exceedance in 50 years. The Seismic Design Category is "B".

Period (sec)	Mapped MCE Spectral Response Acceleration (g)		Site Coefficients		Adjusted MCE Spectral Response Acceleration (g)		Design Spectral Response Acceleration (g)	
0.2	S_s	0.175	F_a	1.6	S_{ms}	0.280	S_{ds}	0.187
1.0	S_1	0.060	F_v	2.4	S_{m1}	0.145	S_{d1}	0.097

Notes: MCE = Maximum Considered Earthquake
g = acceleration due to gravity

6.3 Embankment Recommendations

Development plans providing detention pond details were not available. In general, embankments should be constructed with 4:1 slopes. Embankments should be constructed in accordance with applicable sections of the El Paso County Engineering Criteria Manual, the El Paso County Drainage Criteria Manual, and the El Paso County Land Development Manual. The following recommendations are in accordance with the El Paso county DCM Volume 2, Extended Detention Basin (EDB), Design Procedure and Criteria, paragraph 8.

The ground area to receive embankments should be cleared and grubbed to a minimum depth of two-feet to remove grass, shrubs, trees, roots, stumps, and other organic material. The exposed soil should be moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content) and compacted to a minimum of 95 percent of the maximum dry density as determined by the Modified Proctor test (ASTM D-1557). The prepared surface should present a firm and stable condition.

Embankment should be constructed as structural fill on a prepared stable base. On-site native soil when screened of all deleterious material and cobbles greater than 6-inches in any dimension is suitable for embankment construction. Structural fill should be placed in 10-inch loose lifts and moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content) and compacted to a minimum of 95 percent of the maximum dry density as determined by the Modified Proctor test (ASTM D-1557).

Structural fill placed on slopes should be benched into the slope. Maximum bench heights should not exceed 4 feet, and bench widths should be wide enough to accommodate compaction equipment. Structural fill should not be placed on frozen subgrade or allowed to freeze during moisture conditioning and placement. To verify the condition of the compacted soils, density tests should be performed during placement. The first density tests should be conducted when 24 inches of fill have been placed.

SECTION 3 - COMMERCIAL DEVELOPMENT

The discussion presented below is based on the subsurface conditions encountered in the Soil Test Borings performed through the existing pavement in the commercial development area. These borings are designated C-01 through C-05. During development if the subsurface conditions are different from those described in this report or the project characteristics change, RMG should be retained to review our recommendations and modify them, if necessary. The conclusions and recommendations presented in this report should be verified by RMG during construction.

SUBSURFACE CONDITIONS

Subsurface Materials

Commercial Soil Test Borings (C-01 through C-05) were performed through the existing pavement of the commercial area. The subsurface materials were classified by laboratory testing in accordance with the Unified Soils Classification System (USCS).

Similar soil conditions were encountered in each of the five borings.

<u>0 to 2-inches:</u> Asphalt Pavement

<u>2” to 20-feet:</u> Tan to brown, loose to medium dense, moist, Silty Sand. This soil classifies primarily throughout its depth as SW-SM, well-graded silty sand with gravel.

Additional descriptions and the interpreted distribution (approximate depths) of the subsurface materials are presented on the Test Boring Logs. The descriptions shown on the logs are based upon the engineer’s classification of the samples at the depths indicated. Stratification lines shown on the logs represent the approximate boundaries between material types and the actual transitions may be gradual and vary with location.

Groundwater

Groundwater was not encountered in any of the borings through the depths investigated. Fluctuations in groundwater and subsurface moisture conditions may occur due to seasonal variations in rainfall and other factors not readily apparent at this time.

CONCLUSIONS AND RECOMMENDATIONS

Based upon preliminary site plans provided to RMG, we understand some of the existing structures in the commercial strip mall area may be demolished or reconfigured to construct a roadway leading to the residential development. We also understand the existing pavement may be rehabilitated or reconstructed. New buildings may also be constructed on the site. Recommendations for commercial building foundations and for pavement design are presented below.

Geotechnical Considerations

Overall, the subsurface soil conditions are favorable for commercial development on shallow foundation systems. The well-graded silty sand found throughout the site can be prepared to provide adequate bearing capacity. Claystone and shale were not encountered in any of the test borings. Development recommendations are similar to those above for residential, but will be re-stated below.

Site Preparation

Final grading plans were not available for review. In general, the following site preparation procedures are recommended.

Standard Penetration Test blow counts indicate the in situ soil is in a relatively dense condition, but this can change with demolition and other development activities. We recommend improving the soil under foundations by overexcavating the foundation areas and backfilling with compacted structural fill. The on-site material is suitable as structural backfill. Site preparation should include clearing and grubbing the site of all vegetation, topsoil, pavement, old foundation elements, and any other deleterious material within the construction area and disposing this material appropriately. Following clearing and grubbing, the area within the foundation footprint and a 2-foot perimeter beyond should be overexcavated two (2) feet below the bottom of footing elevation. The excavated material may be stockpiled for reuse as structural backfill. An Open Excavation Observation should be made at this point to verify soil conditions are as reported in the soil boring logs herein.

Upon verification, the upper 6 inches of the exposed subsurface soils should then be scarified and moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content) and compacted to a minimum of 95 percent of the maximum dry density as determined by the Modified Proctor test (ASTM D-1557) prior to placing structural fill.

After compaction of the subgrade, the native material previously removed may be used as structural backfill to bring the site to bottom of footing grade. The material should not be excessively wet, should be free of organic matter and construction debris, and contain no rock fragments greater than 3-inches in any dimension. Fill material should be placed in ten-inch loose lifts with moisture content within 2 percent of optimum as determined by ASTM D-1557. Each loose lift should be compacted to a

minimum of 95 percent of Modified Proctor maximum dry density as determined by ASTM D-1557. Backfill soil should be density tested to verify compaction meets these requirements.

Foundation Recommendations

Commercial structures may be supported on shallow foundations bearing on the onsite soils when prepared in accordance with the recommendations above. When so prepared, a maximum allowable bearing pressure of 2,500 psf with no minimum dead load requirement may be used for design. The foundation design should be prepared by a qualified Colorado Registered Professional Engineer using the recommendations presented in this report. This foundation system should be designed to span a minimum of 10 feet under the design loads. The bottoms of exterior foundations should be at least 30 inches below finished grade for frost protection. When prepared and properly compacted, total settlement of 1-inch or less with differential settlement on the order of ½ inch or less is estimated. Settlement in granular material will occur relatively rapidly with construction loads. Long term consolidation settlement should not be an issue in the site material if prepared as recommended above.

Open Excavation Observations

As referenced above, foundation excavations should be observed by RMG prior to placing structural fill, forms, or concrete to verify the foundation bearing conditions for each structure. Based on the conditions observed in the foundation excavation, the recommendations made at the time of construction may vary from those contained herein. In the case of differences, the Open Excavation Observation report shall be considered to be the governing document to be used to modify the site preparation recommendations as necessary.

Floor Slabs

The in-situ silty sand soil is non-plastic and should be stable at its natural moisture content. The onsite soil is suitable as backfill material. Any fill material from outside sources used to bring the site to grade should be non-expansive granular material to control slab movement.

Soil for interior floor slabs should be prepared in a manner similar to foundations above. Areas under floor slabs should be overexcavated a minimum of 1-foot and the upper 6 inches of the exposed subsurface soils should then be scarified and moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content) and compacted to a minimum of 95 percent of the maximum dry density as determined by the Modified Proctor test (ASTM D-1557) prior to placing structural fill. Floor slabs should bear upon a minimum of 1-foot of structural backfill compacted to a minimum of 95 percent of Modified Proctor maximum dry density as determined by ASTM D-1557. Non-structural slabs should be isolated from foundation members with expansion material. To reduce the possibility of capillary rise of groundwater into the floor slab, and to reduce the potential for concrete curling, a minimum 3-inch layer of ¾-inch crushed stone may be placed atop the compacted structural fill. A 6-mil vapor retarder may be installed above the crushed stone.

Exterior Concrete Flatwork

Reinforced concrete exterior slabs should be constructed similarly to floor slabs on compacted structural fill, with the additional caveat they be isolated from the building with expansion material, and have a downturned reinforced thickened edge.

Lateral Earth Pressures

Foundation and basement walls should be designed to resist lateral pressures. For non-expansive backfill materials, we recommend an equivalent fluid pressure of 40 pcf for design. Expansive soils or bedrock should not be used as backfill against walls. The above lateral pressure applies to level, drained backfill conditions. Equivalent Fluid Pressures for sloping/undrained conditions should be determined on an individual basis.

SECTION 4 - PAVEMENT RECOMMENDATIONS

Pavement Design

The development area appears to be just beyond the City of Fountain city limits in El Paso County. Presuming the development will be annexed into the City of Fountain, the governing specification for roadway design will be The City of Colorado Springs Engineering Criteria Manual (if the development remains in the County, the El Paso County Engineering Manual will govern; the two documents produce similar pavement designs).

The following information is provided for general consideration and applicable to residential roadways serving the subdivision, commercial roadways providing access to the subdivision, and commercial parking pavements. Final pavement designs will be required for jurisdictional acceptance, and are typically performed with soil samples obtained from roadway areas after the deepest public utilities have been installed. Typical pavement sections based upon RMG's experience with the soils encountered on this site are presented below.

The silty sand encountered in the Test Borings will form the subgrade of pavement sections, and its stability and strength are critical to pavement design. The soil consists of well-graded silty sand. This material will typically classify as A-1 or A-2 soils in accordance with the American Association of State Highway and Transportation Officials (AASHTO) classification system. These soils are considered "excellent to good" as subgrade material.

The California Bearing Ratio, CBR, is an indication of the mechanical strength of pavement subgrades and is a key factor in determining pavement section thicknesses. A-1 and A-2 soils will typically produce CBR's of 10 or higher. At these values the minimum pavement sections prescribed in the Engineering Criteria Manuals will be sufficient for expected traffic loading in the proposed developments.

Pavement Thickness

Assuming an adequate subgrade CBR, typical pavement sections for residential roadways, paved parking areas, and for heavy vehicle loading areas are presented below, where HMA is Hot Mix Asphalt, and ABC is Aggregated Base Course.

Typical Hot-Mix Asphalt Pavement Section	
Traffic Level	**HMA over ABC (inches)**
Moderate Traffic / Some Trucks	4.0 / 6.0
Heavy Vehicles with Turning Motions	6.0 / 6.0

As an alternative to the HMA section above, Rigid Concrete Pavements are often employed in areas where heavy vehicle loading is expected. These areas include drop-off/pick-up areas, loading docks, trash pick-up areas, and other locations where heavy trucks will be making frequent turning and braking movements. Rigid pavements may be constructed directly on proof-rolled non-expansive granular subgrade, the top one foot of which has been compacted to a minimum of 95% of maximum dry density as determined by ASTM D1557.

Typical Rigid Concrete Pavement Section	
Traffic Level	**Portland Cement Concrete (in.)**
Heavy Vehicles with Turning Motions	5.0 in.

This pavement information is for preliminary planning purposes only. CBR values will be based on the materials encountered at the time of development and will be dependent upon the soil material used for site fill and subgrade construction. We suggest evaluating the soil conditions after site grading and pavement layout to perform a proper design.

CLOSING

This report has been prepared for the exclusive purpose of providing geotechnical engineering information and recommendations for development described in this report. RMG should be retained to review the final construction documents prior to construction to verify our findings, conclusions and recommendations have been appropriately implemented.

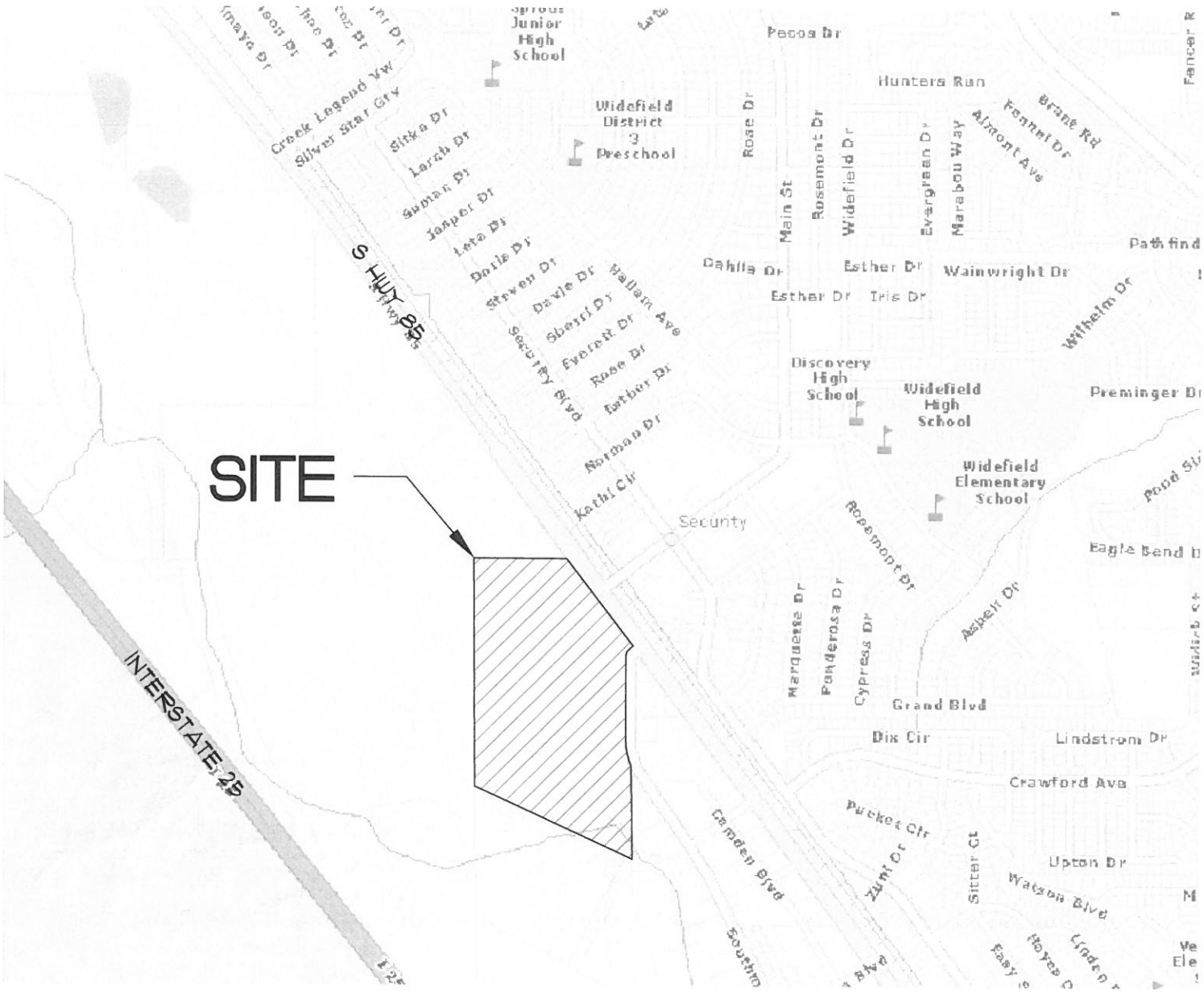
This report has been prepared for the exclusive use by **Avatar Fountain, LP** for application as an aid in the design and construction of the proposed development in accordance with generally accepted geotechnical engineering practices. The analyses and recommendations in this report are based in part upon data obtained from test borings, site observations and the information presented in referenced reports. The nature and extent of variations may not become evident until construction. If variations then become evident, RMG should be retained to review the recommendations presented in this report considering the varied condition, and either verify or modify them in writing.

Our professional services were performed using that degree of care and skill ordinarily exercised, under similar circumstances, by geotechnical engineers practicing in this or similar localities. RMG does not warrant the work of regulatory agencies or other third parties supplying information which may have been used during the preparation of this report. No warranty, express or implied is made by the preparation of this report. Third parties reviewing this report should draw their own conclusions regarding site conditions and specific construction techniques to be used on this project.

The scope of services for this project does not include, either specifically or by implication, environmental assessment of the site or identification of contaminated or hazardous materials or conditions. Development of recommendations for the mitigation of environmentally related conditions, including but not limited to biological or toxicological issues, are beyond the scope of this report. If the Client desires investigation into the potential for such contamination or conditions, other studies should be undertaken.

If we can be of further assistance in discussing the contents of this report or analysis of the proposed development, from a geotechnical engineering point-of-view, please feel free to contact us.

FIGURES



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Central Office:
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(303) 688-9475
Northern Office:
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(970) 330-1071

SITE VICINITY MAP

RESIDENTIAL / RETAIL
RIVER BEND CROSSING
FOUNTAIN, CO
AVATAR FOUNTAIN, LP

JOB No. 161921

FIG No. 1

DATE 3-21-2018

REFERENCE
NOT TO SCALE

R: RESIDENTIAL
C: COMMERCIAL

DENOTES APPROXIMATE LOCATION OF TEST BORINGS

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TEST BORING LOCATION PLAN

RESIDENTIAL / RETAIL
RIVER BEND CROSSING
FOUNTAIN, CO
AVATAR FOUNTAIN, LP

JOB No. 161921

FIG No. 2

DATE 3-21-2018

SOILS DESCRIPTION

ASPHALT

CLAYSTONE

SHALE

SILTY CLAY

SILTY SAND

SILTY TO CLAYEY SAND

UNLESS NOTED OTHERWISE, ALL LABORATORY
TESTS PRESENTED HEREIN WERE PERFORMED BY:
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2910 AUSTIN BLUFFS PARKWAY
COLORADO SPRINGS, COLORADO

SYMBOLS AND NOTES

XX — STANDARD PENETRATION TEST - MADE BY DRIVING A SPLIT-BARREL SAMPLER INTO THE SOIL BY DROPPING A 140 LB. HAMMER 30", IN GENERAL ACCORDANCE WITH ASTM D-1586. NUMBER INDICATES NUMBER OF HAMMER BLOWS PER FOOT (UNLESS OTHERWISE INDICATED).

XX — UNDISTURBED CALIFORNIA SAMPLE - MADE BY DRIVING A RING-LINED SAMPLER INTO THE SOIL BY DROPPING A 140 LB. HAMMER 30", IN GENERAL ACCORDANCE WITH ASTM D-3550. NUMBER INDICATES NUMBER OF HAMMER BLOWS PER FOOT (UNLESS OTHERWISE INDICATED).

FREE WATER TABLE

DEPTH AT WHICH BORING CAVED

BULK — DISTURBED BULK SAMPLE

AUG — AUGER "CUTTINGS"

4.5 — WATER CONTENT (%)

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EXPLANATION OF TEST BORING LOGS

JOB No. 161921

FIGURE No. 3

DATE 4/2/18

TEST BORING: **C01** DATE DRILLED: 3/12/18 ELEVATION (FT): NO GROUNDWATER ON 3/12/18	DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
2" ASPHALT					
SAND, SILTY, with gravel, brwon, medium dense to dense, moist					
	5			17	2.8
	10			20	2.1
	15			17	3.8
	20			32	4.2

TEST BORING: **C02** DATE DRILLED: 3/12/18 ELEVATION (FT): NO GROUNDWATER ON 3/12/18	DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
2" ASPHALT					
SAND, SILTY, with gravel, brown, medium dense, moist					
	5			19	2.4
BORING CAVED AT 9' DUE TO LOOSE SANDS, BULK SAMPLES TAKEN	10				3.5
	15				3.4
	20				3.4

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TEST BORING LOGS

JOB No. 161921

FIGURE No. 4

DATE 4/2/18

TEST BORING: **C03** DATE DRILLED: 3/12/18 ELEVATION (FT): NO GROUNDWATER ON 3/12/18	DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
2" ASPHALT					
SAND, SILTY, with gravel, brown, medium dense, moist					
	5			19	9.1
	10			29	2.9
	15			25	3.5
	20			28	2.6

TEST BORING: **C04** DATE DRILLED: 3/12/18 ELEVATION (FT): NO GROUNDWATER ON 3/12/18	DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
2" ASPHALT					
SAND, SILTY, with gravel, brown, medium dense, moist					
	5			18	2.1
	10			10	3.5
	15			17	2.1
	20				2.3

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TEST BORING LOGS

JOB No. 161921

FIGURE No. 5

DATE 4/2/18

TEST BORING: **C05**
DATE DRILLED:
3/12/18
ELEVATION (FT):
NO GROUNDWATER ON
3/12/18

2" ASPHALT

SAND, SILTY, with gravel, brown, loose to medium dense, moist

DEPTH (FT)	BLOWS PER FT.	WATER CONTENT %
5	8	3.4
10	24	3.4
15	21	2.9
20	25	4.3

TEST BORING: **R01**
DATE DRILLED:
3/2/18
ELEVATION (FT):
GROUNDWATER @ 19.0 '
3/2/18

SAND, SILTY TO CLAYEY, with gravel and cobbles, brown to reddish brown, medium dense to dense, moist to wet

DEPTH (FT)	BLOWS PER FT.	WATER CONTENT %
5	17	4.3
10	32	4.1
15		3.4
20	17	13.6

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TEST BORING LOGS

JOB No. 161921

FIGURE No. 6

DATE 4/2/18

TEST BORING: **R02**
DATE DRILLED:
3/2/18
ELEVATION (FT):
GROUNDWATER @ 13.0 '
3/5/18

DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
SAND, SILTY TO CLAYEY, with gravel, brown, loose, moist				
5			9	11.5
SAND, SILTY, with gravel and cobbles, tan and reddish brown to gray, medium dense, moist to wet				
10			17	1.6
BORING CAVED AT 14' DUE TO LOOSE SANDS, BULK SAMPLES TAKEN				
15				3.5
20				12.8

TEST BORING: **R03**
DATE DRILLED:
3/2/18
ELEVATION (FT):
GROUNDWATER @ 13.0 '
3/5/18

DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
SAND, SILTY TO CLAYEY, brown, loose, moist				
5			7	7.7
SAND, SILTY, with gravel and cobbles, medium dense, moist to wet				
10			19	2.4
15			15	14.4
20			19	8.2

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TEST BORING LOGS

JOB No. 161921

FIGURE No. 7

DATE 4/2/18

TEST BORING: **R04**
DATE DRILLED:
3/2/18
ELEVATION (FT):
NO GROUNDWATER ON
3/2/18

DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
	SAND, SILTY, with gravel and cobbles, brown to dark brown, loose to medium dense, moist			
5			8	3.0
10			11	1.8
15			26	3.5
20				3.0

TEST BORING: **R05**
DATE DRILLED:
3/2/18
ELEVATION (FT):
GROUNDWATER @ 12.0 '
3/5/18

DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
	SAND, SILTY TO CLAYEY, brown, medium dense, moist			
5			10	9.4
	SAND, SILTY, with gravel and cobbles, tan, loose to medium dense, moist to wet			
10			17	2.5
15	CLAY, SILTY, brown to gray with rust staining, moist to wet		9	31.4
20				29.3

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TEST BORING LOGS

JOB No. 161921

FIGURE No. 8

DATE 4/2/18

TEST BORING: **R06**
DATE DRILLED:
3/2/18
ELEVATION (FT):
GROUNDWATER @ 7.0 '
3/5/18

DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
SAND, SILTY, with gravel and cobbles, brown, medium dense, moist				
5			22	20.6
CLAYSTONE, SILTY, gray to dark gray with rust staining, firm, moist to wet				
10			27	5.3
SHALE, SILTY, gray to dark gray, very hard, moist to wet				
15				31.0
20			50/5"	20.5

TEST BORING: **R07**
DATE DRILLED:
3/2/18
ELEVATION (FT):
NO GROUNDWATER ON
3/2/18

DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
SAND, SILTY, with gravel and cobbles, brown to reddish brown, loose, moist				
5			9	3.8
BORING CAVED AT 9' DUE TO LOOSE SANDS, BULK SAMPLES TAKEN				
10				3.0
15				2.1
20				2.7

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TEST BORING LOGS

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FIGURE No. 9

DATE 4/2/18

TEST BORING: **R08**
DATE DRILLED:
3/2/18
ELEVATION (FT):
GROUNDWATER @ 19.5 '
3/1/18

DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
	SAND, SILTY, with gravel and cobbles, medium dense, moist			
			17	13.4
5	CLAYSTONE, SILTY, brown to gray, hard, moist			
10			50/11"	23.0
	SHALE, SILTY, gray to dark gray, very hard, moist to wet			
15			50/6"	13.6
20				13.1

TEST BORING: **R09**
DATE DRILLED:
3/2/18
ELEVATION (FT):
NO GROUNDWATER ON
3/2/18

DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
	SAND, SILTY, with gravel and cobbles, brown to reddish brown, loose to medium dense, moist			
5			6	1.7
10			14	3.3
15			18	3.9
20			17	2.8

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TEST BORING LOGS

JOB No. 161921

FIGURE No. 10

DATE 4/2/18

TEST BORING: **R10**
DATE DRILLED:
3/2/18
ELEVATION (FT):
GROUNDWATER @ 6.0 '
3/5/18

DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
	SAND, SILTY TO CLAYEY, with gravel and cobbles, medium dense, moist to wet			
5			10	4.0
10	SHALE, SILTY, gray to dark gray, hard moist to wet		20	17.7
15			50/7"	14.5
20				35.5

TEST BORING: **R11**
DATE DRILLED:
3/2/18
ELEVATION (FT):
GROUNDWATER @ 17.0 '
3/5/18

DEPTH (FT)	SYMBOL	SAMPLES	BLOWS PER FT.	WATER CONTENT %
	SAND, SILTY TO CLAYEY, brown, loose, moist			
5			7	11.1
10	SAND, SILTY, with gravel and cobbles, medium dense, moist		16	8.3
15	CLAYSTONE, SANDY, gray with rust staining, medium hard, moist		30	28.3
	SHALE, SILTY, gray to dark gray, very hard, moist to wet			
20			50/6"	19.1

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TEST BORING LOGS

JOB No. 161921

FIGURE No. 11

DATE 4/2/18

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	FHA Expansion Pressure (psf)	% Swell/ Collapse	USCS Classification
C01	4.0	2.8								
C01	9.0	2.1		NP	NP	44.7	3.4			SW
C01	14.0	3.8								
C01	19.0	4.2								
C02	4.0	2.4								
C02	9.0	3.5								
C02	14.0	3.4		NP	NP	21.3	7.1			SW-SM
C02	19.0	3.4								
C03	4.0	9.1		NP	NP	20.5	15.1			SM
C03	9.0	2.9								
C03	14.0	3.5								
C03	19.0	2.6								
C04	4.0	2.1								
C04	9.0	3.5		NP	NP	22.7	7.0			SW-SM
C04	14.0	2.1								
C04	19.0	2.3								
C05	4.0	3.4								
C05	9.0	3.4								
C05	14.0	2.9		NP	NP	28.3	3.3			SW
C05	19.0	4.3								
R01	4.0	4.3								
R01	9.0	4.1		NP	NP	34.8	3.1			SP
R01	14.0	3.4								
R01	19.0	13.6								
R02	4.0	11.5								
R02	9.0	1.6								
R02	14.0	3.5		NP	NP	33.4	8.7			SP-SM
R02	19.0	12.8								
R03	4.0	7.7		NP	NP		79.6			ML
R03	9.0	2.4								
R03	14.0	14.4								
R03	19.0	8.2								
R04	4.0	3.0		NP	NP	23.5	3.7			SW
R04	9.0	1.8								

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SUMMARY OF LABORATORY TEST RESULTS

JOB No. 161921
FIGURE No. 12
PAGE 1 OF 2
DATE 4/2/18

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	FHA Expansion Pressure (psf)	% Swell/ Collapse	USCS Classification
R04	14.0	3.5								
R04	19.0	3.0								
R05	4.0	9.4								
R05	9.0	2.5								
R05	14.0	31.4		55	37		56.9			CH
R05	19.0	29.3								
R06	4.0	20.6								
R06	9.0	5.3								
R06	14.0	31.0		53	33		88.5			CH
R06	19.0	20.5								
R07	4.0	3.8								
R07	9.0	3.0		NP	NP	48.9	3.9			GP
R07	14.0	2.1								
R07	19.0	2.7								
R08	4.0	13.4								
R08	9.0	23.0	105.2	53	29		91.6		3.0	CH
R08	14.0	13.6								
R08	19.0	13.1								
R09	4.0	1.7								
R09	9.0	3.3								
R09	14.0	3.9		NP	NP	20.4	5.7			SW-SM
R09	19.0	2.8								
R10	4.0	4.0								
R10	9.0	17.7	109.6	43	30		85.6		- 0.1	CL
R10	14.0	14.5								
R10	19.0	35.5								
R11	4.0	11.1		37	23		66.2			CL
R11	9.0	8.3								
R11	14.0	28.3								
R11	19.0	19.1								

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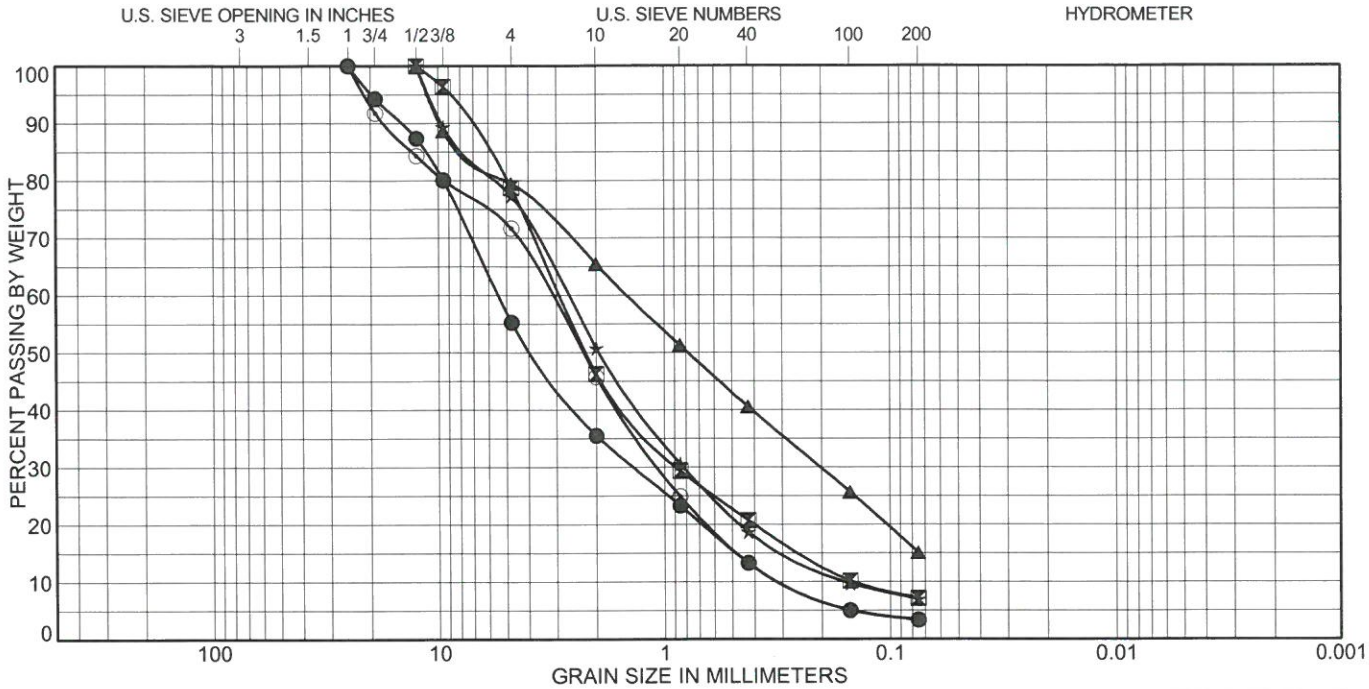
SUMMARY OF LABORATORY TEST RESULTS

JOB No. 161921
FIGURE No. 12
PAGE 2 OF 2
DATE 4/2/18



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Test Boring		Depth (ft)	Classification	LL	PL	PI
●	C01	9.0	WELL-GRADED SAND with GRAVEL(SW)	NP	NP	NP
⧗	C02	14.0	WELL-GRADED SAND with SILT and GRAVEL(SW-SM)	NP	NP	NP
▲	C03	4.0	SILTY SAND with GRAVEL(SM)	NP	NP	NP
★	C04	9.0	WELL-GRADED SAND with SILT and GRAVEL(SW-SM)	NP	NP	NP
⊙	C05	14.0	WELL-GRADED SAND with GRAVEL(SW)	NP	NP	NP

Test Boring		Depth (ft)	%Gravel	%Sand	%Silt	%Clay
●	C01	9.0	44.7	51.9	3.4	
⧗	C02	14.0	21.3	71.6	7.1	
▲	C03	4.0	20.5	64.4	15.1	
★	C04	9.0	22.7	70.3	7.0	
⊙	C05	14.0	28.3	68.4	3.3	

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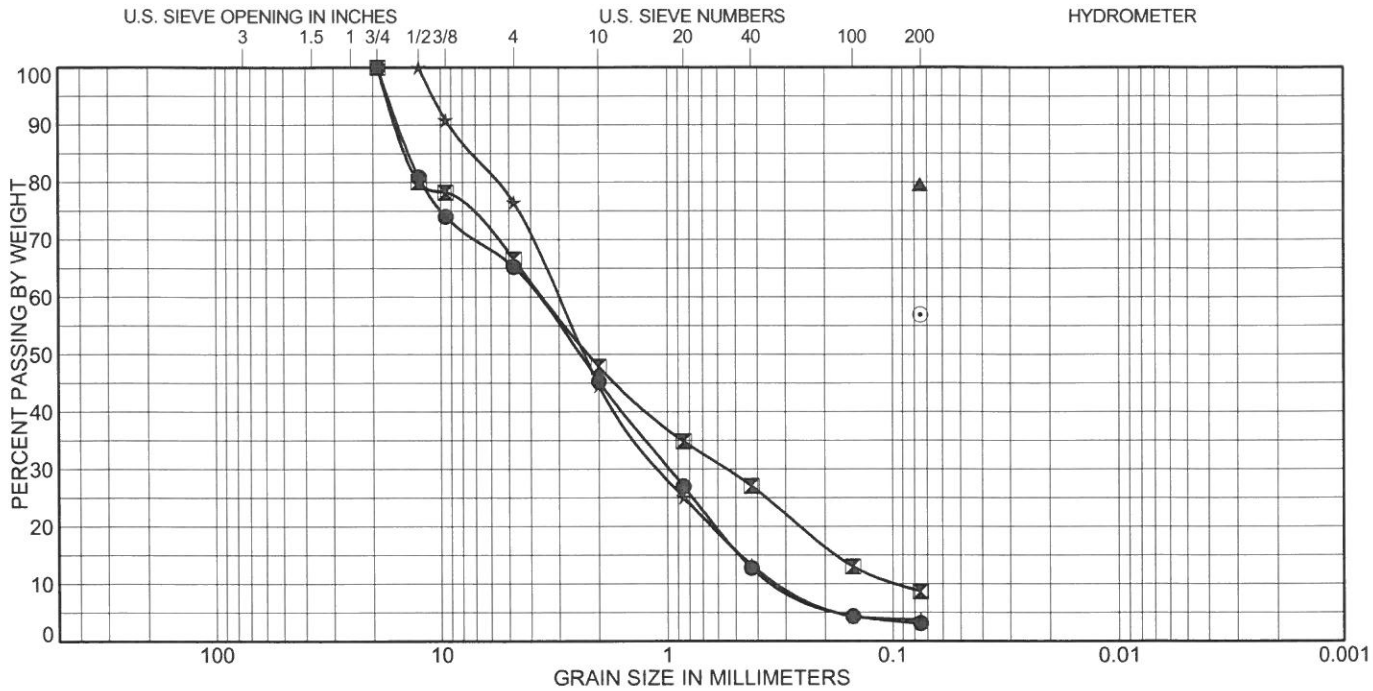
SOIL CLASSIFICATION DATA

JOB No. 161921

FIGURE No. 13

DATE 4/2/18



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Test Boring	Depth (ft)	Classification	LL	PL	PI
●	R01	9.0	POORLY GRADED SAND with GRAVEL(SP)	NP	NP	NP
⧗	R02	14.0	POORLY GRADED SAND with SILT and GRAVEL(SP-SM)	NP	NP	NP
▲	R03	4.0	SILT with SAND(ML)	NP	NP	NP
★	R04	4.0	WELL-GRADED SAND with GRAVEL(SW)	NP	NP	NP
⊙	R05	14.0	SANDY FAT CLAY(CH)	55	18	37

	Test Boring	Depth (ft)	%Gravel	%Sand	%Silt	%Clay
●	R01	9.0	34.8	62.1	3.1	
⧗	R02	14.0	33.4	57.9	8.7	
▲	R03	4.0			79.6	
★	R04	4.0	23.5	72.8	3.7	
⊙	R05	14.0			56.9	

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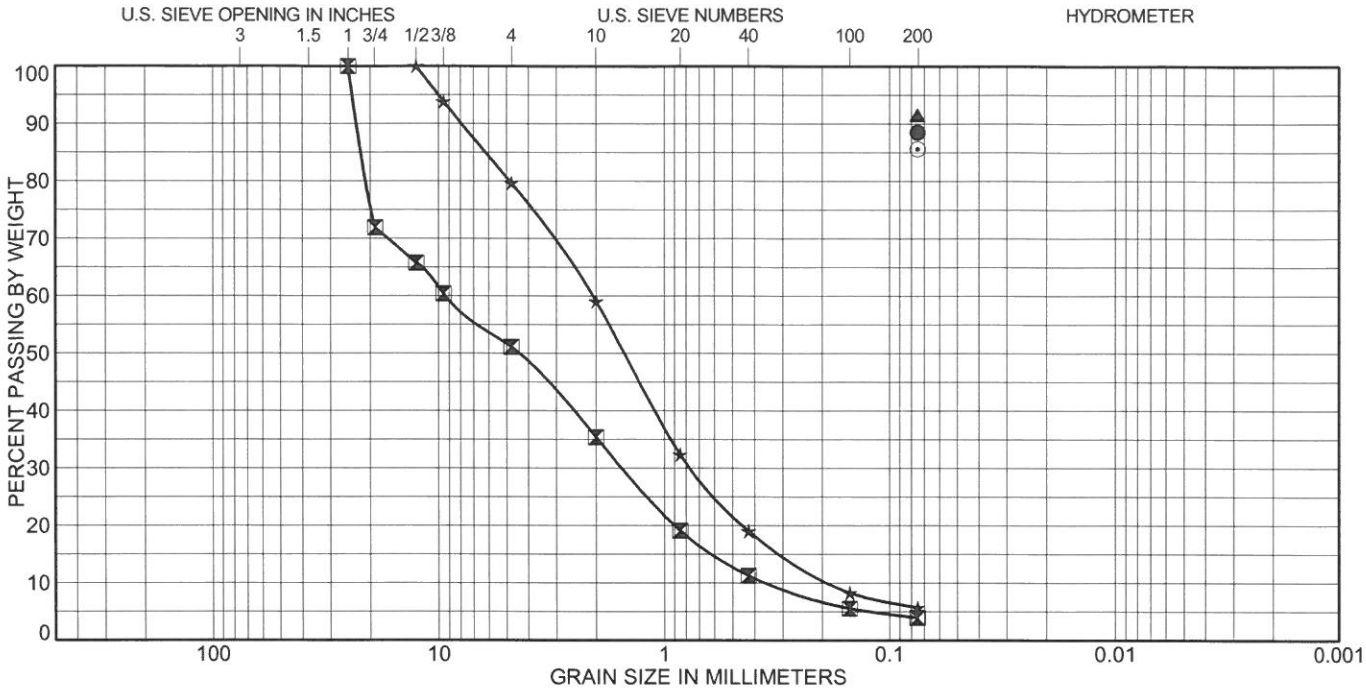
SOIL CLASSIFICATION DATA

JOB No. 161921

FIGURE No. 14

DATE 4/2/18



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Test Boring		Depth (ft)	Classification	LL	PL	PI
●	R06	14.0	FAT CLAY(CH)	53	20	33
⧗	R07	9.0	POORLY GRADED GRAVEL with SAND(GP)	NP	NP	NP
▲	R08	9.0	FAT CLAY(CH)	53	24	29
★	R09	14.0	WELL-GRADED SAND with SILT and GRAVEL(SW-SM)	NP	NP	NP
⊙	R10	9.0	LEAN CLAY(CL)	43	13	30

Test Boring		Depth (ft)	%Gravel	%Sand	%Silt	%Clay
●	R06	14.0			88.5	
⧗	R07	9.0	48.9	47.2	3.9	
▲	R08	9.0			91.6	
★	R09	14.0	20.4	73.9	5.7	
⊙	R10	9.0			85.6	

ROCKY MOUNTAIN GROUP

Architectural
Structural
Forensics

ARCHITECTS
RMG
ENGINEERS

Geotechnical
Materials Testing
Civil, Planning

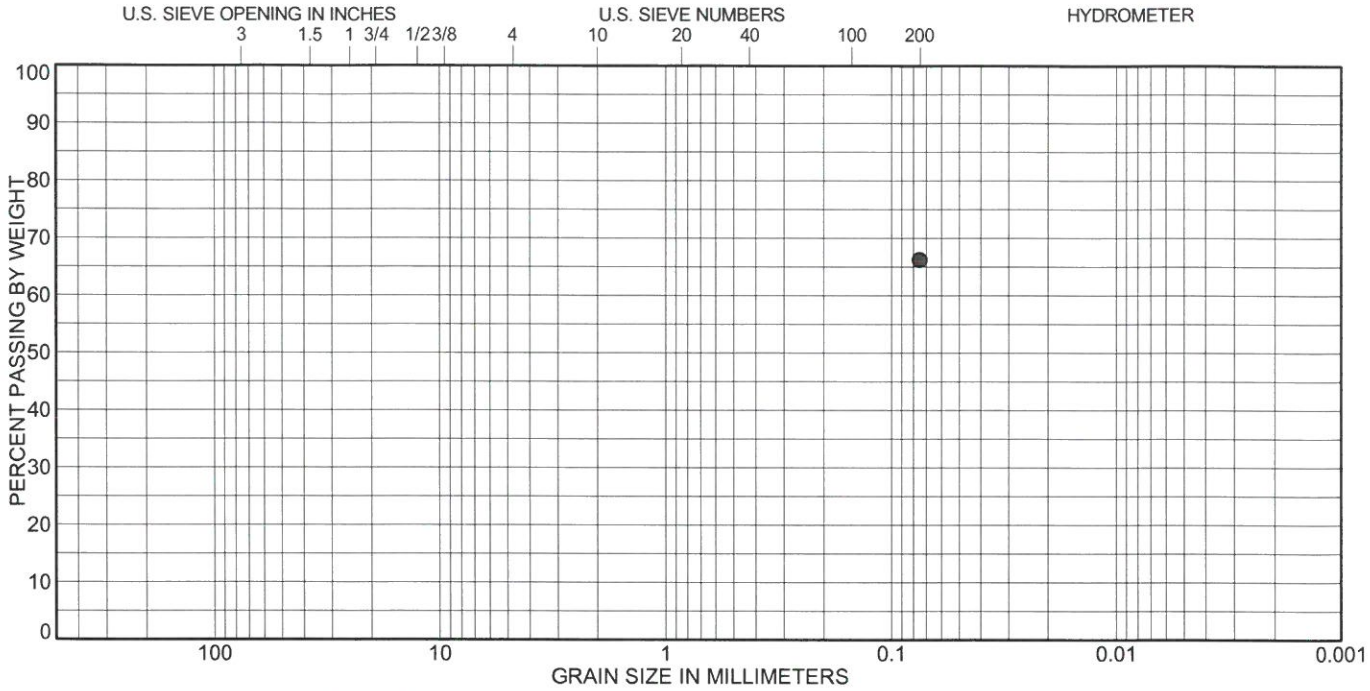
Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Spings, CO 80918
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

SOIL CLASSIFICATION DATA

JOB No. 161921

FIGURE No. 15

DATE 4/2/18



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Test Boring	Depth (ft)	Classification	LL	PL	PI
●	**R11**	**4.0**	**SANDY LEAN CLAY(CL)**	**37**	**14**	**23**

	Test Boring	Depth (ft)	%Gravel	%Sand	%Silt	%Clay
●	**R11**	**4.0**			**66.2**	

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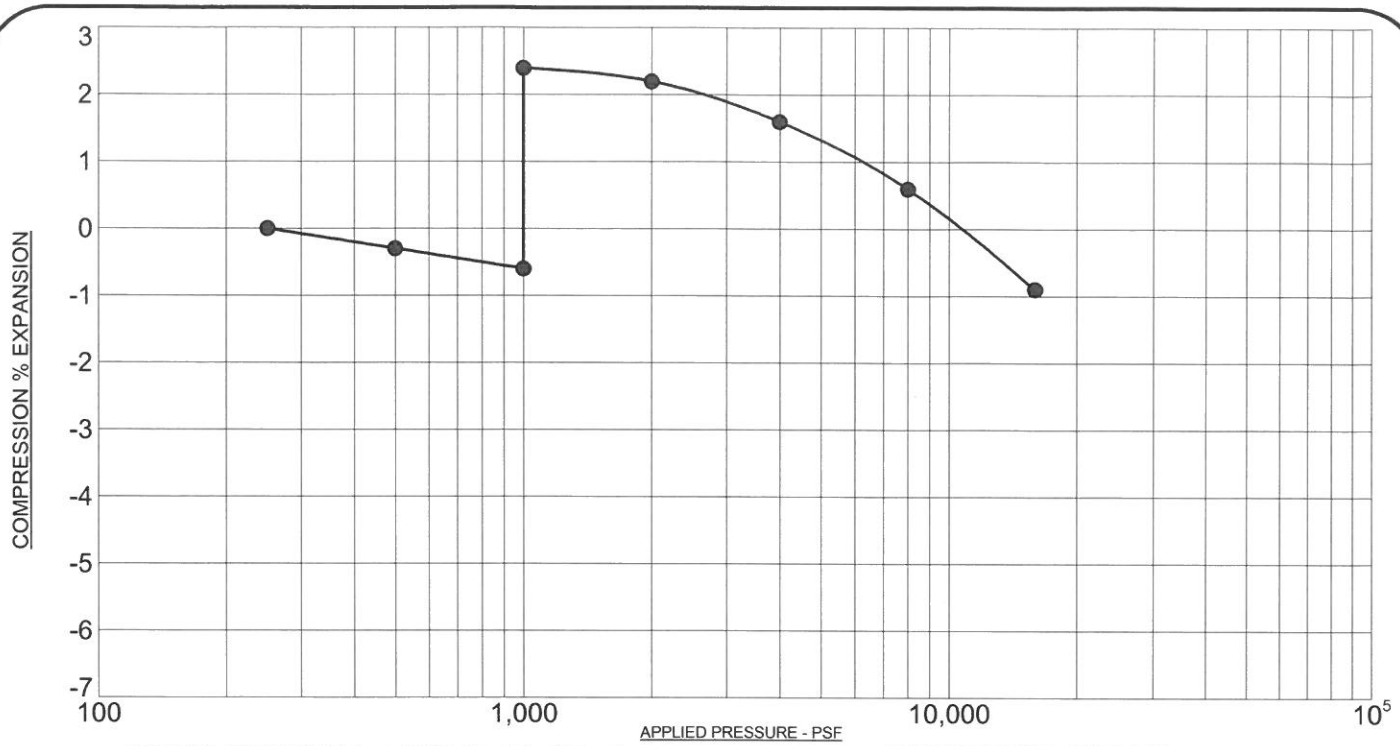
SOIL CLASSIFICATION DATA

JOB No. 161921

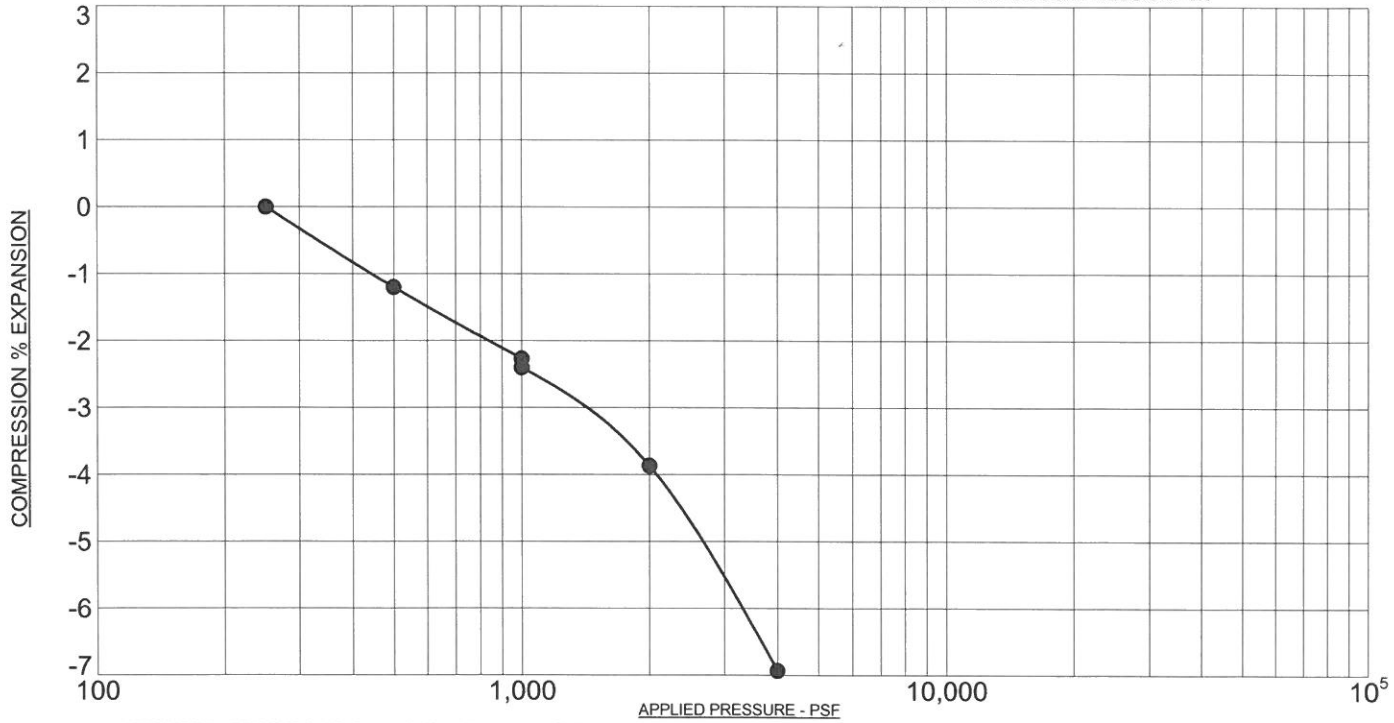
FIGURE No. 16

DATE 4/2/18



PROJECT: **5680 S U.S. Highway 85/87, Fountain, Colorado**
SAMPLE DESCRIPTION: **CLAYSTONE, SILTY**
NOTE: SAMPLE WAS INUNDATED WITH WATER AT 1,000 PSF

SAMPLE LOCATION: **R08 @ 9 FT**
NATURAL DRY UNIT WEIGHT: **105.2 PCF**
NATURAL MOISTURE CONTENT: **23.0%**
PERCENT SWELL/COMPRESSION: **3.0**



PROJECT: **5680 S U.S. Highway 85/87, Fountain, Colorado**
SAMPLE DESCRIPTION: **SAND, SILTY TO CLAYEY**
NOTE: SAMPLE WAS INUNDATED WITH WATER AT 1,000 PSF

SAMPLE LOCATION: **R10 @ 9 FT**
NATURAL DRY UNIT WEIGHT: **109.6 PCF**
NATURAL MOISTURE CONTENT: **17.7%**
PERCENT SWELL/COMPRESSION: **- 0.1**

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SWELL/CONSOLIDATION TEST RESULTS

JOB No. 161921

FIGURE No. 17

DATE 4/2/18

APPENDIX A

USGS Design Maps Summary Report

User-Specified Input

Report Title Avatar - Riverbend Fountain
Sat March 31, 2018 19:11:19 UTC

Building Code Reference Document 2012/2015 International Building Code
(which utilizes USGS hazard data available in 2008)

Site Coordinates 38.74696°N, 104.74483°W

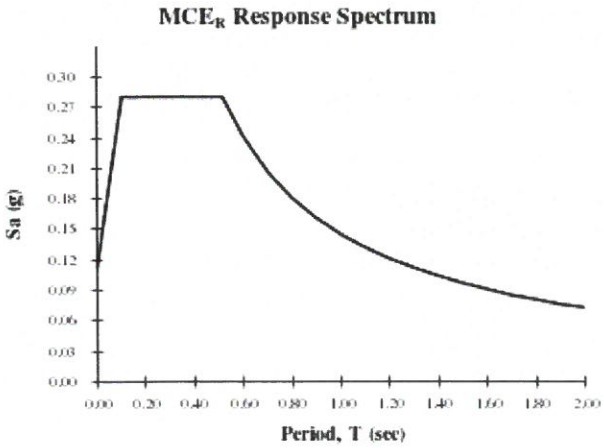
Site Soil Classification Site Class D – "Stiff Soil"

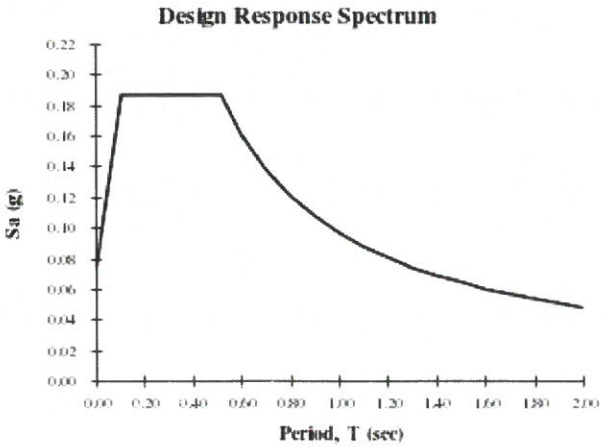
Risk Category I/II/III

USGS-Provided Output

S_S =	0.175 g	S_{MS} =	0.280 g	S_{DS} =	0.187 g
S_1 =	0.060 g	S_{M1} =	0.145 g	S_{D1} =	0.097 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





Appendix I

Preliminary Cost Estimate
Client: Avatar Equities, LLC
Project: River Bend Creek Lift Station
Project #: 296.01

Item #	Item Desciption	Unit	Quantity	Unit Cost	Amount
	Lift Station				
1	Mobilization	LS	1	$ 45,500.00	$ 45,500.00
2	Site Work	LS	1	$ 75,000.00	$ 75,000.00
3	Base Course Surfacing	LS	1	$ 5,000.00	$ 5,000.00
4	10 HP Centrifugal Pump	EA	2	$ 25,000.00	$ 50,000.00
5	6' ID Wet Well Manhole	LS	1	$ 30,000.00	$ 30,000.00
6	Odor Control System	LS	1	$ 17,500.00	$ 17,500.00
7	Generator	EA	1	$ 35,000.00	$ 35,000.00
8	Valves and Piping	LS	1	$ 20,000.00	$ 20,000.00
9	Auxillary Storage (20,000 gal. tank)	EA	1	$ 80,000.00	$ 80,000.00
10	Pre-Cast Grease Interceptor	EA	1	$ 12,500.00	$ 12,500.00
11	Vertical Structure (Approx. 15' x 20')	EA	1	$ 90,000.00	$ 90,000.00
12	Vegetation/Erosion Control/Landscaping	LS	1	$ 10,000.00	$ 10,000.00
12	Electrical and Controls*	LS	1	$ 30,000.00	$ 30,000.00
				Lift Station Subtotal	$ 500,500.00
	Forcemain				
13	4" PVC - Trench Installation	LF	1,500	$ 45.00	$ 67,500.00
14	Air/Vac Vault	EA	1	$ 6,000.00	$ 6,000.00
15	Tie-in to Gravity System	LS	1	$ 7,500.00	$ 7,500.00
16	Construction Surveying	LS	1	$ 2,000.00	$ 2,000.00
				Forcemain Subtotal	$ 83,000.00
	*Developer to supply 3-phase power to site			**Subtotal**	**$ 583,500**
				10% Contingency	**$ 58,350**
				Construction Total	**$ 641,850**

Annual Operating Budget - Lift Station #1

Item #	Item Desciption	Monthly Cost	Annual Cost
17	Power	$ 200.00	$ 2,400.00
18	Labor	$ 522.00	$ 6,264.00
19	Repairs	$ 416.67	$ 5,000.00
	Total	**$ 1,138.67**	**$ 13,664.00**

Appendix J

SERVICE POLICY LETTER – EFFECTIVE FEBRUARY 17, 2018

SECURITY WATER AND SANITATION DISTRICTS/ENTERPRISES

Waterview Lift Station Residents

231 SECURITY BLVD. * COLORADO SPRINGS, CO 80911 * 719-392-3475

WATER

Residential Service Charge $16.63 for 3/4" – $21.32 for 1" meters – Higher service charges apply to larger meter sizes

Volume Charge	**0-5000 gals**	**5001-15000 gals**	**15001-25000 gals**	**25001 + gals**
	$3.62 / 1000 gals	**$4.53 / 1000 gals**	**$5.67 / 1000 gals**	**$8.51 / 1000 gals**

Commercial Service Charge $17.78 for 3/4", $22.47 for 1" – Higher service charges apply to larger meter sizes

Volume Charge	**0-25000 gals**	**25001-50000 gals**	**50001 + gals**
	$4.42 / 1000 gals	**$4.42 / 1000 gals**	**$4.42 / 1000 gals**

Commercial Irrigation Service Charge $17.78 for 3/4", $22.47 for 1" – Higher service charges apply to larger meter sizes
Volume Charge $5.58 / 1000 gallons

SEWER

WV Lift Station: $8.48 Service Charge plus $6.54 Volume Charge per 1000 gals of averaged water use during Dec, Jan, & Feb (approximately November 19th through February 19th)

NEW CUSTOMERS
$37.91 per month for WV Lift Station (based on 4500 gals x $6.54 volume charge per 1000 gals + $8.48 base charge)
Beginning with the April bill of each year, the sewer charge will be recalculated based on the previous December, January, and February water usage.

Commercial: $8.48 Service Charge plus $6.54 Volume Charge per 1000 gallons of actual monthly water usage
*****Irrigation accounts may be set up without incurring sewer charges by purchasing and paying to install a separate irrigation meter*****

1. Monthly bills for water and sewer are due on the 24th of every month. If the bill is not paid by 8:00 a.m. on the 25th day of the month, a $11.00 administrative fee will be assessed and added to the next billing. There shall be only one administrative fee charged per billing. A shut-off notice will be sent to all customers whose unpaid balance is for 90 days or more of service and the notice will state when turnoff is scheduled. **The shut-off date overrides the regular due date of the 24th**. If service is shut off, the total amount owing **PLUS** a $27.00 reconnect fee will be collected before water service is resumed as recovery of the Districts' costs of collection. Tenants will need to have the owner/landlord's ok to have an extension granted. Any extension of the shut-off date is in the sole discretion of the District Manager or their designate.
2. Online payments using credit or debit cards are accepted; just go to our website at www.securitywsd.com and follow the link. A $2.50 convenience fee will be charged by the payment service provider.
3. All charges for service are against the property and the owner and/or tenant of the property is responsible for arrangement for payment of these charges. Such charges shall constitute a perpetual and continuing lien upon such property until such charges have been paid in full. (C.R.S. 32-1-1001(j)). It is very important that each new occupant sign for service in order to keep our records accurate. The account holder must request a final. Once requested, a final reading will be taken and the water turned off. Service will not be reinstated until the account has been paid in full in cash, credit/debit card or certified funds, not a personal check. All prorating is between owners, property managers, renters, etc., and not the Districts.
4. All meters must be located so as to allow free and non-hazardous access at reasonable times for reading, removal, inspection and replacement. The meter will measure the entire supply of water to the premises. If the meter needs to be replaced due to negligence, such as freezing, damage, or theft, the owner will be charged for the replacement of that meter plus labor. Backflow devices must be accessible by District personnel for purposes of inspections and cross-connection surveys.
5. Metered water users who violate the irrigation regulations or waste water will be issued a written notice of violation. A water user who receives two or more notices of violation within a twelve-month period shall pay a $50.00 charge for each violation after the first violation. If the $50.00 charge is not paid within ten (10) days after the written notice is given, the service will be discontinued until the charge is paid. Also, a $27.00 reconnect fee will be collected before water service is resumed.
6. A $44.00 fee shall be charged for any returned/declined payments. This charge will be assessed, plus any other charge that the District incurs for handling the returned/declined item.
7. When hard material such as concrete is placed over the Security Water lines, water meters or curb stops, the cost of removal shall be passed onto the user. Refer to "Chapter 4 – Security Water District Regulations, "Service Lines". The cost of moving vehicles to gain access shall be charged to the user.
8. In the event that a user disputes the accuracy or amount of a billing, the user shall notify the District of the nature and details of the dispute, within thirty (30) calendar days of mailing of the billing in dispute. Any failure to provide a notice of dispute within a timely manner may be considered waived at the District's discretion. Assuming a dispute is brought in a timely manner, the dispute will first be addressed by the District's staff members in an effort to resolve the issue in an expedient manner. If the District's staff cannot resolve the dispute, the matter shall be referred to the District Manager upon written request by the user. If the District Manager cannot resolve the dispute, it shall then be referred to the Boards of Directors, upon written request by the user, to be heard as an agenda item at the next regularly scheduled Board meeting. The user shall be notified of the Board meeting and allowed an opportunity to briefly present their position on the disputed bill to the Board. The determination by the Board of the accuracy and amount of the billing will be final.
9. In the event any user violates any of the rules and/or regulations of the Districts, the Boards of Directors, in addition to all other legal remedies available to them, may order the user disconnected from the water and sanitation systems.

10. The Districts specifically reserve the right to use any and all available means to collect any delinquent amounts owed to the Districts. This may include, but is not limited to, certifying the delinquent amounts to the county treasurer and collecting said amounts as taxes, pursuant to C.R.S. 32-1-1101(1)(e). The District may also pursue collection efforts against the user or property owner for any delinquent water or sewer charges due. In addition to all bills due, the Districts shall also be due and entitled to recovery of all costs of collection so incurred including, without limitation, court costs, filing fees and attorneys' fees and costs. All such amounts shall be considered as a charge of the Districts and shall constitute a perpetual lien on and against the property served.
11. Refunds will not be made; however, in certain circumstances, a credit may be given. It is suggested that, when closing on the sale or purchase of a home, all charges for water and sewer be settled at the closing.
12. The Districts may charge interest on amounts due at the annual percentage rate of twelve percent per annum for the time outstanding; however no interest shall be charged on a delinquency charge.

The above rates, rules, and regulations are effective February 17, 2018 and the Board of Directors may change these rates and regulations from time to time. A tampering fee of $500.00 may be levied to persons tampering with district equipment.

SECURITY WATER OUTDOOR WATERING RESTRICTIONS

April 1, 2018 to October 1, 2018

READ THIS AND SAVE FOR FUTURE REFERENCE

We are asking for our customers to follow voluntary watering restrictions from April 1, 2018 to October 1, 2018. While these rules are voluntary, it will be critical that all customers cooperate to ensure we have adequate water to meet our high demand water months.

From April 1, 2018 through October 1, 2018, we are asking all customers to:

- Water no more than three times per week.
- **Please follow this simple watering schedule.** Homes/businesses with addresses ending in **even** numbers may water on Monday, Wednesday and Saturdays. Homes/businesses with addresses ending in **odd** numbers may water on Tuesday, Thursday and Sunday. All customers should avoid watering on Fridays.

MON	TUES	WED	THUR	FRI	SAT	SUN
EVEN	ODD	EVEN	ODD	NO WATERING	EVEN	ODD

Use only the water you need. Conserve water both indoors and outdoors. More than 50 percent of water use goes to water yards.

WATER CONSERVATION TIPS

Saving water helps ensure we have an adequate water supply for our customers and saves you money on your water bill. Here are some simple tips of how to conserve water both inside and outside the home. Our water is precious. Live Like You Love It!

OUTDOOR CONSERVATION TIPS	INDOOR CONSERVATION TIPS
Water during the cooler times of the day – do not water your lawn between 10 a.m. and 6 p.m. Avoid over-watering.	Always wash full loads in the clothes washer and dish washer.
Do not allow water to pool in gutters, streets and alleys.	Shortening a shower by only 1-2 minutes saves up to 700 gallons per year.
Do not waste water by letting it spray on concrete and asphalt.	A WaterSense labeled showerhead can reduce the average family's annual water use by 2,900 gallons and saves more than $70 per year in energy and water costs.
Repair leaking sprinkler systems immediately.	To check for toilet leaks, add a couple drops of food color to back tank. If color appears in the bowl, you have a leak.
Do not irrigate while it is raining or during high winds.	Replace washers in dripping faucets. One drop per second wastes 2,700 gallons of water per year.
Use a hose nozzle to shut-off value when washing your car or use a commercial car wash. There are many easy ways to conserve water both indoors and outdoors.	Using the compost bin or garbage to dispose of food rather than the garbage disposal can save 50 to 150 gallons per month.

For more simple tips, visit the Security Water Facebook page, our website www.securitywsd.com or www.LoveColoradoWater.org.

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Commercial Irrigation Service Charge $17.78 for 3/4", $22.47 for 1" – Higher service charges apply to larger meter sizes
Volume Charge $5.58 / 1000 gallons

SEWER

Residential: **$6.50 Service Charge plus $6.54 Volume Charge per 1000 gals of averaged water use during Dec, Jan, & Feb (<u>approximately</u> November 19th through February 19th)**

<u>NEW CUSTOMERS</u>
$35.93 per month sewer charge (based on 4500 gals x $6.54 volume charge per 1000 gals + $6.50 base charge)
Beginning with the April bill of each year, the sewer charge will be recalculated based on the previous December, January, and February water usage.

Commercial: **$6.50 Service Charge plus $6.54 Volume Charge per 1000 gallons of actual monthly water usage**
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Do not waste water by letting it spray on concrete and asphalt.	A WaterSense labeled showerhead can reduce the average family's annual water use by 2,900 gallons and saves more than $70 per year in energy and water costs.
Repair leaking sprinkler systems immediately.	To check for toilet leaks, add a couple drops of food color to back tank. If color appears in the bowl, you have a leak.
Do not irrigate while it is raining or during high winds.	Replace washers in dripping faucets. One drop per second wastes 2,700 gallons of water per year.
Use a hose nozzle to shut-off value when washing your car or use a commercial car wash. There are many easy ways to conserve water both indoors and outdoors.	Using the compost bin or garbage to dispose of food rather than the garbage disposal can save 50 to 150 gallons per month.

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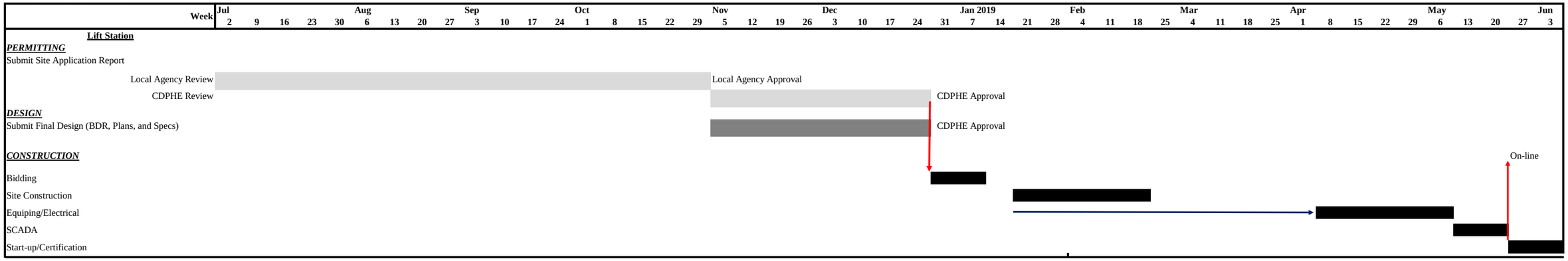
Appendix K

Implementation Schedule
Security Sanitation District
River Bend Creek Lift Station



JDS-Hydro Consultants, Inc.

Appendix L