



Falcon Highlands South

Preliminary Drainage Report

Owner/Developer

Challenger Homes
8605 Explorer Drive Ste. 250
Colorado Springs, CO 80920
(719) 598-5192
Contact: Jim Byers

Engineer

Atwell, LLC
143 Union Blvd., Suite 700
Lakewood, CO 80228
303-462-1100
Contact: Daniel Madruga, PE

Atwell Project Number

21005234

Submitted by: Atwell, LLC

October 13, 2023

PUDSP-22-005

Engineer's Statement:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the City/County for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

D. Madruga

Daniel Madruga, PE 36834

10/13/23

Date

Seal:



Developer's Statement:

I, the developer have read and will comply with all of the requirements specified in this drainage report and plan.

Business Name: Challenger Homes

By: 

Title:

Address:

El Paso County Approval:

Filed in accordance with requirements of Section 51.1 of the El Paso Land Development Code as amended.

Joshua Palmer, P.E.,
County Engineer, ECM Administrator
Conditions:

Date

Pond 2. Culvert pipe sizing is provided in the appendix for the trail crossings across the swale and typical sections are provided on the drainage maps.

Basin C23 (1.57 ac, $Q_5 = 2.8$ cfs, $Q_{100} = 6.2$ cfs) is between Antelope Meadow Circle and **APLOMADO TRAIL** of basin C with PUD residential lots and the public right of way of **APLOMADO TRAIL** and **BIRCH HOLLOW WAY**. The runoff flows to a low point within **APLOMADO TRAIL** with a sump inlet. The runoff is collected in a Public 5' CDOT Type R Curb Sump Inlet, **Design Point 3.23**. Storm infrastructure will direct flow to outfall into a swale along the southern Site boundary. The swale will release into Pond 2. The emergency overflow would result in pooling at the sump location until overtopping the nearest high point in the roadway located to the south. The storm water would overtop prior to exceeding the roadway capacity and continue to flow due south to the downstream Tract F, at the end of the cul-de-sac along the frontage of Lot 291, which is connected to Pond 2. The swale releases into Pond 2.

Basin C24 (0.13 ac, $Q_5 = 0.3$ cfs, $Q_{100} = 0.7$ cfs) is a centrally located portion of basin C with the 50' public right of way of **APLOMADO TRAIL**. The runoff is captured in curb and gutter and flows into an inlet on **APLOMADO TRAIL**. The runoff is collected in a Public 5' CDOT Type R Curb Sump Inlet, **Design Point 3.24**. Storm infrastructure will direct flow to outfall into a swale along the southern Site boundary. The swale will release into Pond 2. The emergency overflow would result in pooling at the sump location until overtopping the nearest high point in the roadway located to the south. The storm water would overtop prior to exceeding the roadway capacity and continue to flow due south to downstream Tract F, at the end of the cul-de-sac along the frontage of Lot 291, which is connected to Pond 2. The swale releases into Pond 2.

Basin C25 (1.47 ac, $Q_5 = 2.6$ cfs, $Q_{100} = 5.8$ cfs) is the southern portion of basin C with PUD residential lots and the 50' public right of way of **BRAHMINY COURT**. The runoff is captured in curb and gutter and flows into an inlet on **BRAHMINY COURT**. The runoff is collected in a Public 5' CDOT Type R Curb Sump Inlet, **Design Point 3.25**. Storm infrastructure will direct flow to outfall into a swale along the southern Site boundary. The swale will release into Pond 2. The emergency overflow would result in pooling at the sump location until overtopping the nearest high point in the roadway located to the south. The storm water would overtop prior to exceeding the roadway capacity and continue to flow due south to the downstream F, at the end of the cul-de-sac along the frontage of Lot 291, which is connected to Pond 2. The swale releases into Pond 2. Culvert pipe sizing is provided in the appendix for the trail crossings across the swale and typical sections are provided on the drainage maps.

Basin D (7.36 ac, $Q_5 = 11.5$ cfs, $Q_{100} = 26.7$ cfs) is the northeast area of the Filing for one-eighth acre PUD residential lots at the extension of Birch Hollow Way. The basin is tributary to existing Pond WU which is an existing and recently improved pond under the jurisdiction of El Paso County. The basin drains directly to the existing pond (Design Point 4) via overland flow.

Basin D1 (1.87 ac, $Q_5 = 3.4$ cfs, $Q_{100} = 7.4$ cfs) is a centrally located portion of basin D with PUD residential lots and the 50' public right of way of **APLOMADO TRAIL, BIRCH HOLLOW WAY, and PIED HARRIER LOOP**. The runoff is captured in curb and gutter and flows into an

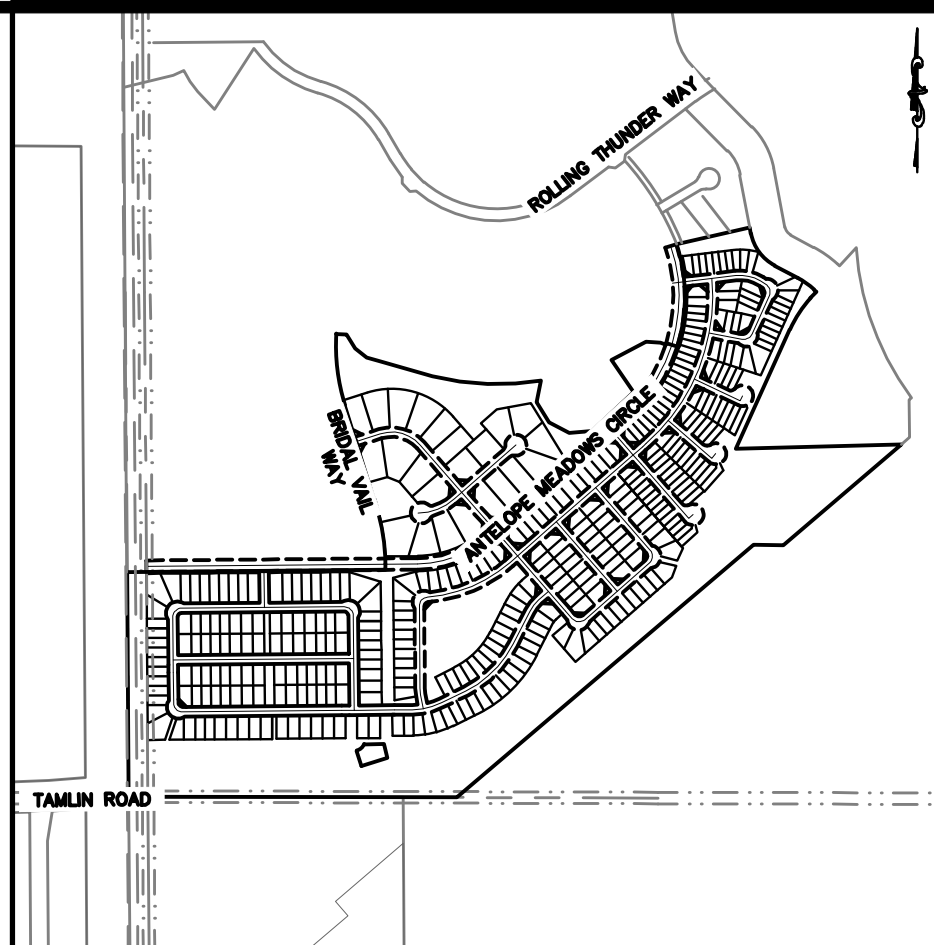
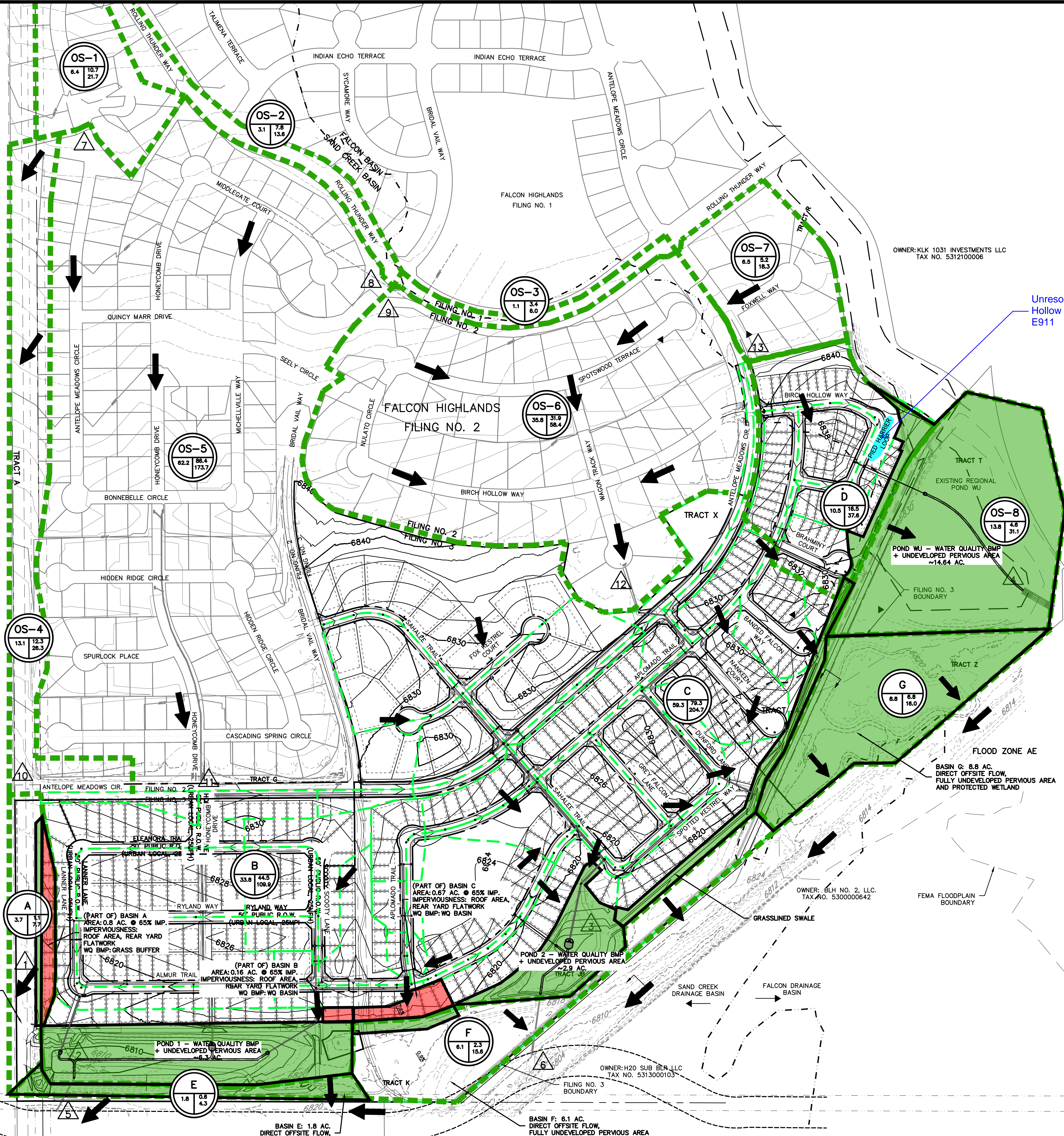
inlet on **PIED HARRIER LOOP**. The runoff is collected in a Public 5' CDOT Type R Curb Sump Inlet, **Design Point 4.1**. Storm infrastructure will direct flow to outfall in Pond WU. The emergency overflow would result in pooling at the sump location until overtopping the nearest high point in the roadway located to the south. The storm water would overtop prior to exceeding the roadway capacity and continue to flow due south to downstream Tract F, between Lots 305 and 306, which is connected to Pond WU. The inlet then outflows into Pond WU.

Basin D2 (3.90 ac, $Q_5 = 6.3$ cfs, $Q_{100} = 13.9$ cfs) is a centrally located portion of basin D with PUD residential lots and the 50' public right of way of **APLOMADO TRAIL, BIRCH HOLLOW WAY** and **PIED HARRIER LOOP**. The runoff is captured in curb and gutter and flows into an inlet on **PIED HARRIER LOOP**. The runoff is collected in a Public 10' CDOT Type R Curb Sump Inlet, **Design Point 4.2**. Storm infrastructure will direct flow to outfall in Pond WU. The emergency overflow would result in runoff overtopping the curb and entering an emergency overflow swale to be conveyed to the area inlet at **Design Point 4.3**

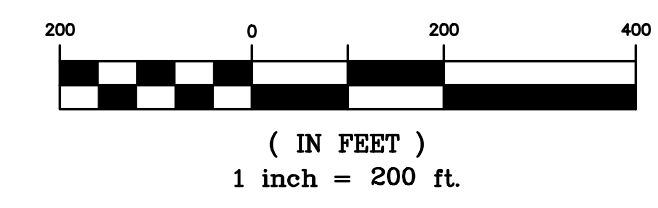
Basin D3 (1.59 ac, $Q_5 = 1.8$ cfs, $Q_{100} = 5.3$ cfs) is located along the northeast corner of the site and consists of the back half of PUD residual lots along **PIED HARRIER LOOP**. Runoff from the lots sheet flows to be collected in grass lined swales and area inlets. Upon being captured in the area inlets, **Design Point 4.3**, the runoff is conveyed southeast and discharged into Pond WU. The final calculations and grading of this swale and storm run will be completed after the final plat is approved and at the final drainage report level. A preliminary section of this swale is provided within the report appendix demonstrating adequate capacity to convey the runoff of Basin D3.

Basin E (1.77 ac, $Q_5 = 0.6$ cfs, $Q_{100} = 4.3$ cfs) is the undeveloped, natural landscaped area between Tamlin Road and existing Detention Pond 1. Runoff from Basin E flows to a ditch section at the south boundary of the site, just north of the future Tamlin Road right-of-way and ultimately sheet flows to **Design Point 5** and is directed offsite at the southwest corner of the Filing via existing topography in this area. The maintenance path along the south side of the pond follows existing elevations and contours, remaining undisturbed and allowing for the existing drainage patterns of this area to remain the as they have been in the historic condition. This design is in conformance with ECM 3.2.4 because runoff from an undisturbed area in the post development condition is being conveyed via natural topography to its historic outfall location off-site.

Basin F (6.06 ac, $Q_5 = 2.3$ cfs, $Q_{100} = 15.6$ cfs) is the area south of Basin C that is not to be disturbed and remain as open, natural landscape. The runoff from Basin F sheet flows downstream and is undetained and no water quality is provided as it is an exclusion for undisturbed and undeveloped land that historically drains offsite. There is no increase runoff and the drainage pattern remains that of its existing flow path which is to a ditch at the south of the Site, north of existing Tamlin Road right-of-way. The basin sheet flows to **Design Point 6** and is directed offsite through Tract K. This design is in conformance with ECM 3.2.4 due to the fact that in the post development condition, the natural drainage patterns are maintained and the undetained runoff leaving the site is conveyed to its historic discharge location.



KEY MAP
1" = 1000'



LEGEND

	PROPERTY BOUNDARY
	EXISTING RIGHT-OF-WAY
	PROPOSED RIGHT-OF-WAY
	EXISTING LOT LINE
	PROPOSED LOT LINE
	EXISTING SECTION LINE
	EXISTING EASEMENT
	EXISTING CONTOURS
	PROPOSED CONTOURS
	SAND CREEK / FALCON DRAINAGE BASINS DELINEATION
	FEMA FLOODPLAIN LINE
	BASIN ID
	DESIGN POINT ID
	MAJOR BASIN BOUNDARY
	MINOR BASIN BOUNDARY
	FLOW ARROW
	IMPERVIOUS BASIN AREAS NOT CAPTURED BY STORM SYSTEM
	PERVIOUS AREAS PROVIDING WATER QUALITY

811
Know what's below.
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE: CONSTRUCTION, SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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(719) 598-5192
JIM BYERS

CHALLENGER HOMES
FALCON HIGHLANDS FILING NO. 3
EL PASO COUNTY, COLORADO
DRAINAGE MAP
WATER QUALITY MAP

CLIENT: CHALLENGER HOMES

DATE: 08/26/2022

A	1st SUBMITTAL TO EPC	07/31/2022	- RBL
B	2nd SUBMITTAL TO EPC	08/28/2022	- RBL
C	3rd SUBMITTAL TO EPC	09/26/2022	- RBL
D	4TH SUBMITTAL TO EPC	07/21/2023	- DJM

REVISIONS

DR.	SLP	CH.	DJM
P.M.	DJM		
JOB	21002568		
SHEET NO.	DR-06		

CAD FILE: 21002568-DRAINAGE_MAPS-WQ.DWG