DRAINAGE LETTER

PONDEROSA PINE ESTATES

A REPLAT OF LOTS 1 AND 2, MORGAN SUBDIVISION NO. 1
18810 and 18820 CLOVEN HOOF DRIVE

PCD File: VR2324

December 7, 2023

Revised

January 25, 2024

prepared for
Joiner Construction Company, Inc.
1270 Fawnwood Road
Monument, CO 80132

Oliver E. Watts, Consulting Engineer, Inc.
Colorado Springs, Colorado

OLIVER E. WATTS, PE-LS
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Celebrating over 44 years in business

January 25, 2024

El Paso County Planning and Community Development
2880 International Circle
Colorado Springs, CO 80910

ATTN: *Joshua Palmer, P.E.*

SUBJECT: Drainage Letter
Ponderosa Pine Estates

Gentlemen

Transmitted herewith for your review and approval is the drainage letter for the Ponderosa Pine Estates, which is a replat of Lots 1 and 2, Morgan Subdivision Filing No. 1. This report has been revised in accordance with your review comments.

There will be minor increases in the approved runoff as a result of this subdivision. Please contact our office if we may provide any further information.

Oliver E. Watts, Consulting Engineer, Inc.

BY: _____
Oliver E. Watts, President

Encl:
Drainage Letter 2 pages
Computations, 2 pages
Soils Map and Interpretation Sheet
Backup Information
FEMA Flood Panel 08041C0257G, December 7, 2018
Drainage Plan, Dwg 23-5960-05

1. 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 County for drainage reports and said report is in conformity with the applicable 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.

Oliver E. Watts, Consulting Engineer, Inc.

OLIVER E. WATTS REGISTERED 9853 STATE OF COLORADO P.E. & L.S.

Oliver E. Watts Colo. PE/LS No. 9853

2. OWNERS / DEVELOPER'S STATEMENT:

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

Joiner Construction Company, Inc.

By: _____
Clifford A. Joiner
1270 Fawnwood Road
Monument, CO 80132
719-481-6196

3. EL PASO COUNTY:

Filed in accordance with the requirements of the El Paso Land Development Code, Drainage Criteria Manual Volumes 1 and 2, and the Engineering Criteria Manual, as amended.

Gilbert LaForce, P.E.

Digitally signed by Gilbert LaForce, P.E.
Reason: On Behalf of the County Engineer
Date: 2024.06.26 14:54:31-06'00'

06/26/2024

Joshua Palmer, P.E. date
County Engineer / ECM Administrator

Conditions:

4. LOCATION AND DESCRIPTION:
The Ponderosa Pine Subdivision is located northwest of the intersection of Highway 105 and Cloven Hoof Drive, northwest of the Town of Palmer Lake, in El Paso County, as shown on the enclosed site plan. The addresses are 18810 and 18820 Cloven Hoof Drive. It is a replat of Lots 1 and 2, Morgan Subdivision No. 1, in a portion of the Section 9, Township 11 South, Range 67 West of the 6th P.M. in El Paso County, Colorado. El Paso County Assessors Parcel numbers are; 71090-02-018 for Lot 1, and 71090-02-019 for Lot 2. The original subdivision contains 3 lots. The total size of the subdivision is 3.07 acres. Four lots are proposed: Lots 1A and 1B on the existing Lot 1, and Lots 2A and 2B on the existing Lot 2, with minor adjustments to accommodate the resubdivision. Basically Lot 2 is currently developed and has two dwelling units. Lot 1 is undeveloped. Two lots are proposed, along with a proposed new access road on current Lot 1. This is a residential subdivision, having a number of "no-build" areas due to steepness of slope (over 30%). The sites are heavily vegetated; lots of pine trees. It lies in the Palmer Lake drainage basin, which is unstudied.

5. FLOOD PLAIN STATEMENT:
This subdivision is not within the limits of a designated flood plain or flood hazard area, as identified on FEMA panel no. 08041C0257 G, dated December 7, 2018, a copy of which is enclosed for reference.

6. DESCRIPTION OF RUNOFF:
As stated above, this Site was previously platted as the Morgan subdivision No. 1 in 1975. At that time a drainage report was required however a copy cannot be found in the County files. Due to changes in criteria over the years we are submitting a drainage letter for this replat. Four basins have been designated on the enclosed drainage plan. Enclosed is a SCS soils map of the area with an interpretation sheet. The subdivision is in the Kettle soils type, which is in hydrologic group "B"

A. EXISTING CONDITIONS:

There is no drainage runoff entering the subdivision area, due to its elevated condition.

Drainage basis A is a small undeveloped area in the northwest portion draining westerly into unplatted property. About half of a building site exists on the easterly boundary. The historic runoff is based on the existing forest condition, resulting in 0.1 cfs / 0.8 cfs (5-year \ 100-year runoffs).

Drainage basin B is a small north facing slope in the northwest corner of the subdivision, and is essentially un-buildable due to predominate slopes, the existing runoff is based on rangeland conditions and will be 0.2 cfs / 0.9 cfs.

Drainage basin C consists of most of existing lot 1 and should have the remaining half of the building site in basin A, an additional site in the northwest corner and the new driveway to provide access to Lot 1A. The existing runoff of 0.6 cfs\ 3.00 cfs is contained in a swale adjacent to Highway 105, terminating in the upper cul-de-sac of Cloven Hoof Drive.

Drainage basin D consists of the two existing dwellings in the subdivision. It drains to the southwest corner of the subdivision where a new access to Cloven Hoof Drive is proposed, with a runoff of 1.0 cfs / 3.7 cfs.

B: PROPOSED CONDITIONS:
Basin A is anticipated to increase due to construction of an anticipated residence, to 0.3 cfs / 0.9 cfs after completion of construction. This increase is negligible, compared to the distance to westerly parcels.

The runoff in Basin B will remain unchanged due to the lack of buildable area, and will be 0.2 cfs / 0.9 cfs.

The new construction in Basin C should increase the runoff to 1.2 cfs / 3.8 cfs. These increases are of no danger to the existing road; it's termination at Highway 105, or the large vacant parcel to the east.

The runoff in Basin D should remain unchanged at 0.1 cfs / 3.7 cfs due to an anticipated relocation of the driveway, since the impervious area and the outfall point are basically unchanged.

The above runoff increases are minor in nature and will have no adverse affect on the surrounding area.

FOUR STEP PROCESS
The following process has been followed to minimize adverse impacts of urbanization

Runoff Reduction: The scope of the development has been minimized consistent with zoning requirements to present the minimum footprint in providing a residential housing development. The undisturbed portions are to be undisturbed to maintain their attractive nature.

Treat and Slowly Release: The proposed development increases to impervious are of the site my only 0.25 acres, and water quality treatment is not required. The minor increases are distributed so that the existing terrain provides natural measures.

Channel Stabilizing: The site will have minor grading to route the runoff channel over existing improved street and driveway installations to provide channel stabilizing in the natural erosive material over the site. Discharge from the site will be into existing locations in accordance with the master drainage plan. There will be no adverse affect on downstream developments as a result of this subdivision

Source Controls: This is a residential site, so source control problems will be a minimum. During construction, standard site specific state of the art BMP's will be employed to minimize and mitigate erosive problems.

7. FEES: Palmer Lake Drainage Basin.
This Site has been previously platted; therefore fees are computed on the basis of a computed increase in impervious cover. The following is a summary of the computations:

Historic 100-year composite curve no. = 0.3601 = 1.9761 % total impervious area = 0.0615 ac.
Developed 100-year composite curve no. = 0.4016 = 10.0957 % total impervious area = 0.3143 ac.
Increase = 0.2528 acres.

Drainage fee 0.2528 acres @ $17,210.00 = $ 4350.69
No Bridge fees.

MAJOR BASIN	SUB BASIN	AREA		BASIN		T_c MIN	I in./hr.		SOIL GRP	DEV. TYPE	C		FLOW 5-ry qp -CFS-	FLOW 100-yr qp -CFS-	RETURN PERIOD -years-	
		PLANIM READ	ACRES	LENGTH -FT.-	HEIGHT -FT.-											
Palmer Lake	A	COGO`	0.279	100	17	7	4.7	7.9	B	FOREST	0.08	0.33	0.1	0.8	5	100
Historic																
	B	COGO	0.295	95	23	6	5.0	8.9	B	FOREST	0.08	0.33	0.2	0.9	5	100
	C	COGO	1.100	100	32	6			B	FOREST	0.08	0.35				
		C=5	0.076	+295	34	+2				GRAVEL	0.59	0.70				
		V=1.8	1.176			8	4.5	7.5		MIX	0.113	0.335	0.6	3.0	5	100
	D	COGO	1.1365	100	36	5.6			B	FOREST	0.08	0.35				
		C=5	0.132	+355	38	+3.6				GRAVEL	0.59	0.70				
		V=1.6	0.023			9	4.2	7.1		PAVED	0.90	0.96				
			0.073							ROOF	0.73	0.81				
			1.363							MIX	0.178	0.386	1.0	3.7	5	100

HYDROLOGICAL COMPUTATION – BASIC DATA
PROJ: PONDEROSA PINE ESTATED BY: O.E. WATTS
RATIONAL METHOD DATE: 12/7/23December 8, 2023

OLIVER E. WATTS, CONSULTING ENGINEER, INC.
614 ELKTON DRIVE COLORADO SPRINGS, CO 80907

MAJOR BASIN	SUB BASIN	AREA		BASIN		T_c MIN	I in./hr.		SOIL GRP	DEV. TYPE	C		FLOW 5-ry qp -CFS-	FLOW 100-yr qp -CFS-	RETURN PERIOD -years-	
		PLANIM READ	ACRES	LENGTH -FT.-	HEIGHT -FT.-											
PALMER LAKE	A	COGO	0.036	100	17	7	4.7	7.9	B	ROOF	0.73	0.81			5	100
DEVELOPED			0.020							PAVED	0.90	0.96				
			0.223							FOREST	0.08	0.35				
			0.279							MIX	0.223	0.421	0.3	0.9	5	100
	B	NO	CH.	SEE	P1								0.2	0.9	5	100
	C	COGO	0.861	100	32	6			B	FOREST	0.08	0.35				
			0.225	+255	34	+2				GRAVEL	0.59	0.70				
			0.049			8	4.5	7.5		ROOF	0.73	0.81				
			0.041							PAVED	0.90	0.96				
			1.176							MIX	0.233	0.428	1.2	3.8	5	100
	D	N	CH.	SE	P1								1.0	3.7	5	100

HYDROLOGICAL COMPUTATION – BASIC DATA
PROJ: PONDEROSA PINE ESTATES BY: O.E. WATTS
RATIONAL METHOD DATE: 12/7/23

OLIVER E. WATTS, CONSULTING ENGINEER, INC.
614 ELKTON DRIVE COLORADO SPRINGS, CO 80907

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

OLIVER E. WATTS
CONSULTING ENGINEER, INC.
COLORADO SPRINGS

1"=2000'

PONDEROSA PINE ESTATES
SCS SOILS MAP
1"=2000'

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			Bedrock		Potential frost action
		Frequency	Duration	Months	Depth	Hardness	
					In		
Elbeth: Pring part	B	None	---	---	>60	---	Moderate.
Ellicott: 28	A	Frequent	Brief	Mar-Jun	>60	---	Low.
Fluvaquentic Haplaquolls: 29	B/D	Frequent	Brief	Mar-Jul	>60	---	High.
Fort Collins: 30, 31	B	None to rare	---	---	>60	---	Moderate.
Fortwingate: [1]32:							
Fortwingate part	C	None	---	---	20-40	Hard	Low.
Rock outcrop part	D	---	---	---	---	---	---
Heldt: 33	C	None	---	---	>60	---	Moderate.
Holderness: 34, 35, 36	C	None	---	---	>60	---	Moderate.
Jarre: 37	B	None	---	---	>60	---	Moderate.
[1]38:							
Jarre part	B	None	---	---	>60	---	Moderate.
Tecolote part	B	None	---	---	>60	---	Moderate.
Keith: 39	B	None	---	---	>60	---	High.
Kettle: 40, 41	B	None	---	---	>60	---	Moderate.
[1]42:							
Kettle part	B	None	---	---	>60	---	Moderate.
Rock outcrop part	D	---	---	---	---	---	---
Kim: 43	B	None	---	---	>60	---	Moderate.
Kutch: 44, 45	C	None	---	---	20-40	Rippable	Moderate.
Kutler: [1]46:							
Kutler part	C	None	---	---	20-40	Rippable	Low.
Broadmoor part	C	None	---	---	20-40	Rippable	Low.
Rock outcrop part	D	---	---	---	---	---	---
Limon: 47	C	Occasional	Brief	May-Sep	>60	---	Moderate.
Louviers: 48	D	None	---	---	10-20	Rippable	Moderate.
49	D	None	---	---	10-20	Rippable	Low.

See footnote at end of table.

Table 6-6. Runoff Coefficients for Rational Method
(Source: UDFCD 2001)

Land Use or Surface Characteristics	Percent Impervious	Runoff Coefficients											
		2-year		5-year		10-year		25-year		50-year		100-year	
		HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D
Business													
Commercial Areas	95	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.87	0.87	0.88	0.88	0.89
Neighborhood Areas	70	0.45	0.49	0.49	0.53	0.53	0.57	0.58	0.62	0.60	0.65	0.62	0.68
Residential													
1/8 Acre or less	65	0.41	0.45	0.45	0.49	0.49	0.54	0.54	0.59	0.57	0.62	0.59	0.65
1/4 Acre	40	0.23	0.28	0.30	0.35	0.36	0.42	0.42	0.50	0.46	0.54	0.50	0.58
1/3 Acre	30	0.18	0.22	0.25	0.30	0.32	0.38	0.39	0.47	0.43	0.52	0.47	0.57
1/2 Acre	25	0.15	0.20	0.22	0.28	0.30	0.36	0.37	0.46	0.41	0.51	0.46	0.56
1 Acre	20	0.12	0.17	0.20	0.26	0.27	0.34	0.35	0.44	0.40	0.50	0.44	0.55
Industrial													
Light Areas	80	0.57	0.60	0.59	0.63	0.63	0.66	0.66	0.70	0.68	0.72	0.70	0.74
Heavy Areas	90	0.71	0.73	0.73	0.75	0.75	0.77	0.78	0.80	0.80	0.82	0.81	0.83
Parks and Cemeteries	7	0.05	0.09	0.12	0.19	0.20	0.29	0.30	0.40	0.34	0.46	0.39	0.52
Playgrounds	13	0.07	0.13	0.16	0.23	0.24	0.31	0.32	0.42	0.37	0.48	0.41	0.54
Railroad Yard Areas	40	0.23	0.28	0.30	0.35	0.36	0.42	0.42	0.50	0.46	0.54	0.50	0.58
Undeveloped Areas													
Historic Flow Analysis-- Greenbelts, Agriculture	2	0.03	0.05	0.09	0.16	0.17	0.26	0.26	0.38	0.31	0.45	0.36	0.51
Pasture/Meadow	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50
Forest	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50
Exposed Rock	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Offsite Flow Analysis (when landuse is undefined)	45	0.26	0.31	0.32	0.37	0.38	0.44	0.44	0.51	0.48	0.55	0.51	0.59
Streets													
Paved	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Gravel	80	0.57	0.60	0.59	0.63	0.63	0.66	0.66	0.70	0.68	0.72	0.70	0.74
Drive and Walks	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Roofs	90	0.71	0.73	0.73	0.75	0.75	0.77	0.78	0.80	0.80	0.82	0.81	0.83
Lawns	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50

3.2 Time of Concentration

One of the basic assumptions underlying the Rational Method is that runoff is a function of the average rainfall rate during the time required for water to flow from the hydraulically most remote part of the drainage area under consideration to the design point. However, in practice, the time of concentration can be an empirical value that results in reasonable and acceptable peak flow calculations.

For urban areas, the time of concentration (t_c) consists of an initial time or overland flow time (t_i) plus the travel time (t_t) in the storm sewer, paved gutter, roadside drainage ditch, or drainage channel. For non-urban areas, the time of concentration consists of an overland flow time (t_i) plus the time of travel in a concentrated form, such as a swale or drainageway. The travel portion (t_t) of the time of concentration can be estimated from the hydraulic properties of the storm sewer, gutter, swale, ditch, or drainageway. Initial time, on the other hand, will vary with surface slope, depression storage, surface cover, antecedent rainfall, and infiltration capacity of the soil, as well as distance of surface flow. The time of concentration is represented by Equation 6-7 for both urban and non-urban areas.

$$t_c = t_i + t_t \quad \text{(Eq. 6-7)}$$

Where:

t_c = time of concentration (min)

t_i = overland (initial) flow time (min)

t_t = travel time in the ditch, channel, gutter, storm sewer, etc. (min)

3.2.1 Overland (Initial) Flow Time

The overland flow time, t_i, may be calculated using Equation 6-8.

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L}}{S^{0.33}} \quad \text{(Eq. 6-8)}$$

Where:

t_i = overland (initial) flow time (min)
C_5 = runoff coefficient for 5-year frequency (see Table 6-6)
L = length of overland flow (300 ft maximum for non-urban land uses, 100 ft maximum for urban land uses)
S = average basin slope (ft/ft)

Note that in some urban watersheds, the overland flow time may be very small because flows quickly concentrate and channelize.

3.2.2 Travel Time

For catchments with overland and channelized flow, the time of concentration needs to be considered in combination with the travel time, t_t, which is calculated using the hydraulic properties of the swale, ditch, or channel. For preliminary work, the overland travel time, t_t, can be estimated with the help of Figure 6-25 or Equation 6-9 (Guo 1999).

$$V = C_v S_w^{0.5} \quad \text{(Eq. 6-9)}$$

Where:

V = velocity (ft/s)

C_v = conveyance coefficient (from Table 6-7)

S_w = watercourse slope (ft/ft)

Table 6-7. Conveyance Coefficient, C_v

Type of Land Surface	C_v
Heavy meadow	2.5
Tillage/field	5
Riprap (not buried)*	6.5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

* For buried riprap, select C_v value based on type of vegetative cover.

The travel time is calculated by dividing the flow distance (in feet) by the velocity calculated using Equation 6-9 and converting units to minutes.

The time of concentration (t_c) is then the sum of the overland flow time (t_i) and the travel time (t_t) per Equation 6-7.

3.2.3 First Design Point Time of Concentration in Urban Catchments

Using this procedure, the time of concentration at the first design point (typically the first inlet in the system) in an urbanized catchment should not exceed the time of concentration calculated using Equation 6-10. The first design point is defined as the point where runoff first enters the storm sewer system.

$$t_c = \frac{L}{180} + 10 \qquad \text{(Eq. 6-10)}$$

Where:

t_c = maximum time of concentration at the first design point in an urban watershed (min)

L = waterway length (ft)

Equation 6-10 was developed using the rainfall-runoff data collected in the Denver region and, in essence, represents regional "calibration" of the Rational Method. Normally, Equation 6-10 will result in a lesser time of concentration at the first design point and will govern in an urbanized watershed. For subsequent design points, the time of concentration is calculated by accumulating the travel times in downstream drainageway reaches.

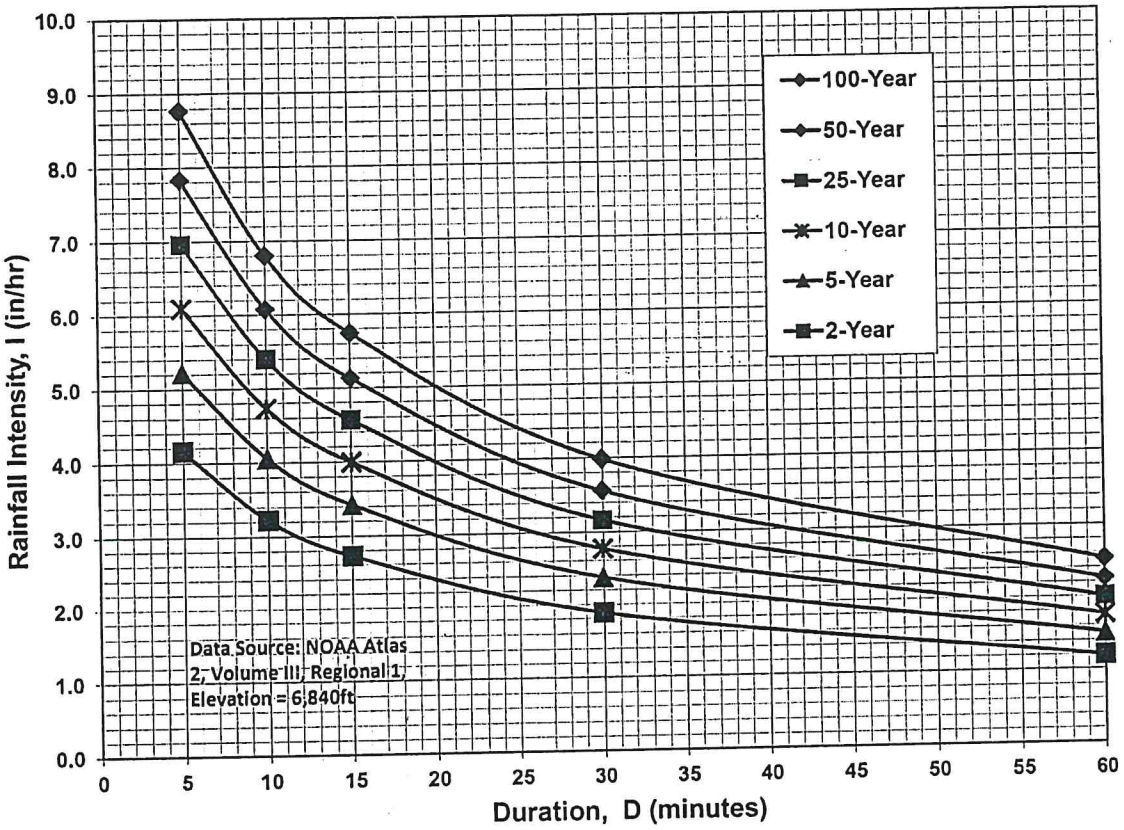
3.2.4 Minimum Time of Concentration

If the calculations result in a t_c of less than 10 minutes for undeveloped conditions, it is recommended that a minimum value of 10 minutes be used. The minimum t_c for urbanized areas is 5 minutes.

3.2.5 Post-Development Time of Concentration

As Equation 6-8 indicates, the time of concentration is a function of the 5-year runoff coefficient for a drainage basin. Typically, higher levels of imperviousness (higher 5-year runoff coefficients) correspond to shorter times of concentration, and lower levels of imperviousness correspond to longer times of

Figure 6-5. Colorado Springs Rainfall Intensity Duration Frequency



IDF Equations

$I_{100} = -2.52 \ln(D) + 12.735$

$I_{50} = -2.25 \ln(D) + 11.375$

$I_{25} = -2.00 \ln(D) + 10.111$

$I_{10} = -1.75 \ln(D) + 8.847$

$I_{5} = -1.50 \ln(D) + 7.583$

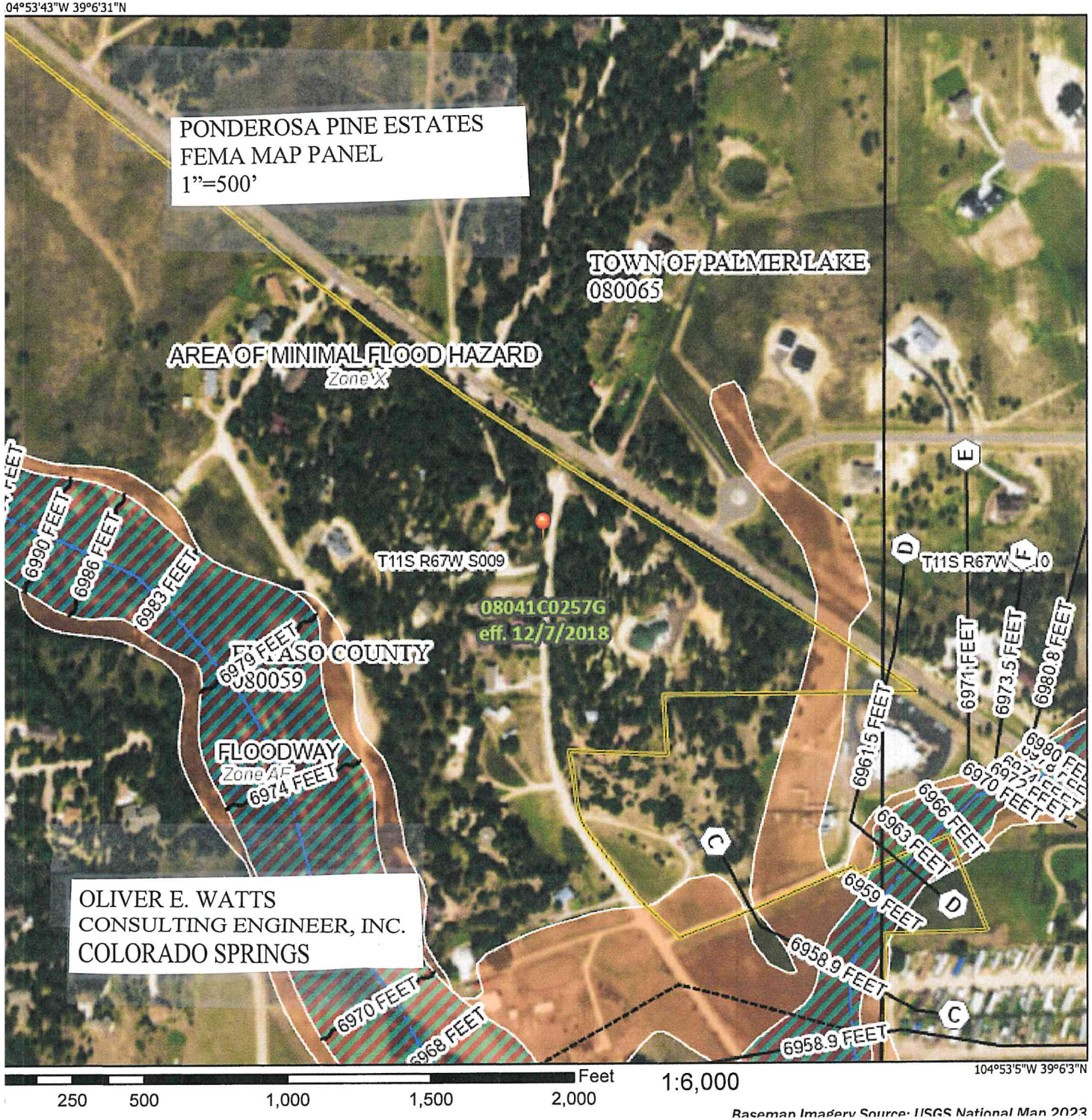
$I_{2} = -1.19 \ln(D) + 6.035$

Note: Values calculated by equations may not precisely duplicate values read from figure.

National Flood Hazard Layer FIRMette

FEMA

04°53'43"W 39°6'31"N



104°53'5"W 39°6'3"N

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

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

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

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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

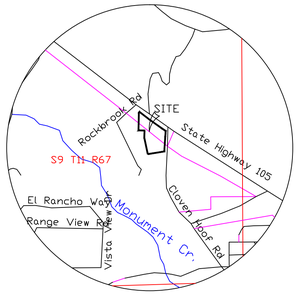
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/6/2023 at 3:18 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

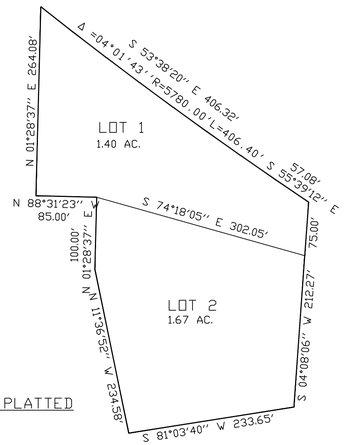
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory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

DRAINAGE PLAN
PONDEROSA PINE ESTATES

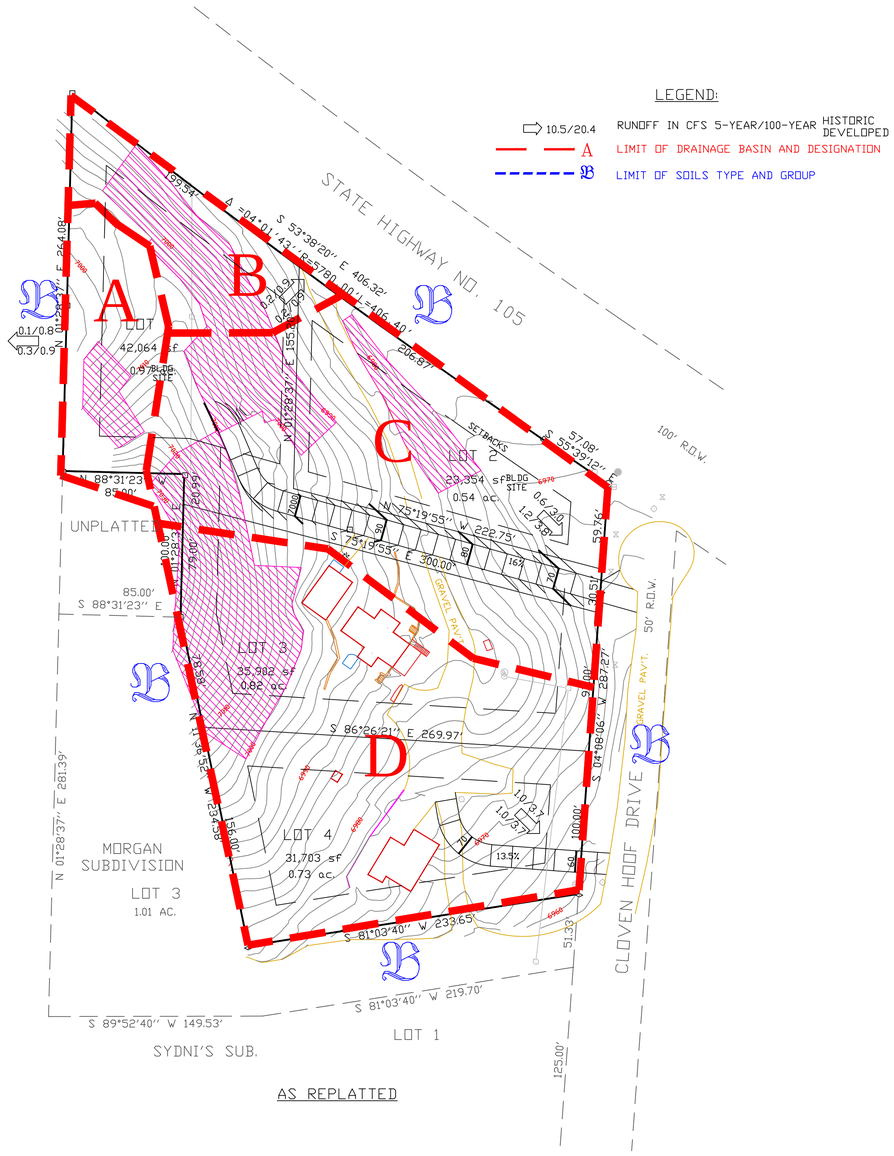
A SUBDIVISION OF LOTS 1 AND 2, MORGAN SUBDIVISION NO. 1
SECTION 9, T.11S., R.67W. OF THE 6TH P.M.
EL PASO COUNTY, COLORADO



VICINITY MAP
1"=1000'



AS CURRENTLY PLATTED
1"=100'



AS REPLATTED

LEGEND:

- 10.5/20.4 — RUNOFF IN CFS 5-YEAR/100-YEAR HISTORIC DEVELOPED
- A — LIMIT OF DRAINAGE BASIN AND DESIGNATION
- B — LIMIT OF SOILS TYPE AND GROUP

N

50 0 50 100 150

Scale 1" = 50'
Contour Interval: 2'

LEGEND:

- NO BUILD AREA - SLOPES OF OVER 30%
- ○ SET YELLOW #9853 CAP ON #4 REBAR
- □ FOUND 1/2" IRON PIN
- ◇ FOUND #4 REBAR
- ◈ FOUND 3-1/4" AL. CAP CDOT R.O.W. MARKER

DRAINAGE BASIN SUMMARY

BASIN	AREA -AC.-	HISTORIC RUNOFF IN CFS 5-YEAR	HISTORIC RUNOFF IN CFS 100-YEAR	DEVELOPED RUNOFF IN CFS 5-YEAR	DEVELOPED RUNOFF IN CFS 100-YEAR
A	0.279	0.1	0.8	0.3	0.9
B	0.295	0.2	0.9	0.2	0.9
C	1.176	0.6	3.0	1.2	3.8
D	1.363	1.0	3.7	1.0	3.7

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