DRAINAGE REPORT FOR:

Belden Place PUD
1201 Main St
Minturn, Colorado

December 1, 2020

Prepared for:

Alison Perry
Vail Land Company
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Eagle CO, 81631
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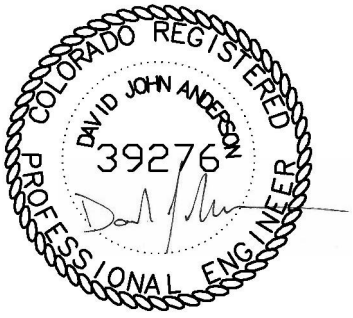
Engineers Certificate:

I hereby affirm that this report and the accompanying plans for the Belden Place PUD was prepared by me (or under my direct supervision) for the owners thereof in accordance with the provisions of the Town of Minturn Drainage Criteria and approved variances and exceptions listed thereto. I understand that it is the policy of the Town of Minturn that the Town of Minturn does not and will not assume liability for drainage facilities designed by others.

David John Anderson License No. 39276
Licensed Professional Engineer, State of Colorado



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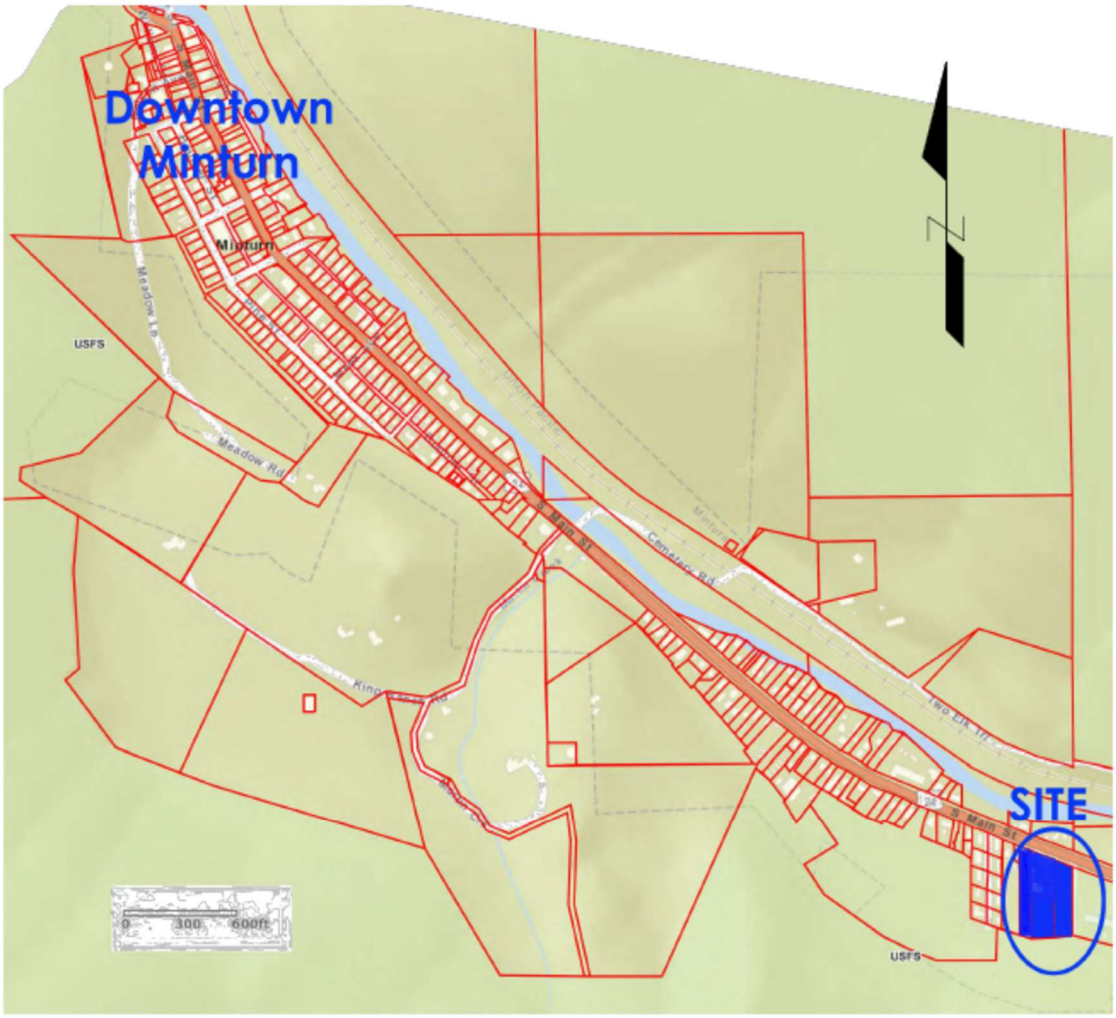


VICINITY MAP

INTRODUCTION

This drainage report is associated with the Preliminary Plat submittal and presents the results of a drainage study performed for the Belden Place PUD (PUD). The PUD is located adjacent to US Highway 24 at 1201 Main St, Minturn, Colorado. The study evaluates the existing historical and proposed post-development drainage patterns for the watershed(s) associated with this project. This study verifies the adequacy of the proposed drainage facilities within and associated with the development as well as supports the materials used in the construction drawings. This report shows a significant reduction in stormwater drainage impacts to neighboring properties and the Town of Minturn as a result of the construction of a proposed Hwy 24 culvert. This culvert installation will be used to divert historical stormwater drainage directly to the Eagle River. See Figure A7 for the proposed PUD Post Development drainage design.

Site Conditions

The site is located on the south end of the Town of Minturn in the area known as Southtown. Recently, the site was developed with single and double wide trailer homes on the eastern portion and single-family residences on the southern, central, and western portions of the site. Several of the single-family residences had basement foundations. Currently the site has been mostly demolished. One single family residence w/ ADU, referred to as the Christiansan Residence, exists at the north west corner of the proposed PUD in existing Lot 29 (north of proposed Lot 16). The proposed average site elevation is approximately 7925’ above mean sea level. Generally, the site slopes down at +/- 2% continuously from south-east, elevation 7927 to north-west, elevation 7923 with a total elevation differential of approximately 4.0’. There is an existing natural swale at the base of the mountain near the south end of the site which drains to the west. The ground surface of the site is covered in concrete pavement, grass, and weeds, and is bare in areas of demolition. Single-family residences are north, east, and west of the site. A heavily wooded slope is to the south of the site. Lands to the east and south are owned by the U.S. Forest Service. Main Street (US Highway 24) is adjacent to and north of the site.

Duran Subdivision

Within the proposed PUD exists the currently approved Duran Subdivision. The Duran Subdivision consists of 3 lots. Lot 3, which is located nearest to Highway 24, was not developed. Lots 1 & 2 previously had single-family residences but those have been demolished. The Duran Subdivision will be incorporated into the proposed Belden Place PUD and redeveloped with a different lot structure in association with the approval of the Belden Place PUD.

Other Drainage Studies

The Old Town Master Drainage Plan (2013) for the Town of Minturn (OTMDP) was reviewed as part of this study as it relates to the project. There are no other known previous site-specific drainage reports for this site. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) 08037C0658D for Eagle County, Colorado and Incorporated Areas dated December 4th, 2007, panel 658 of 1125, does not indicate a 100-year floodplain near the project site.

Proposed Drainage Infrastructure

Drainage infrastructure will be included in and associated with the PUD design in order to handle stormwater runoff for the proposed development.

The OTMDP suggests altering existing drainage patterns with a drainage diversion channel that would be constructed across Forest Service Property at the base of the mountain in order to route stormwater south of town. The OTMDP calls for the channel to begin approximately 1330 lineal feet east of the PUD site, where the base of the mountain meets Highway 24. The OTMDP proposed drainage channel will end approximately 300' west of the PUD at the point determined in the OTMDP.
This report presents an alternative to this OTMDP drainage diversion strategy: to not construct the drainage diversion channel and alternatively install a culvert under HWY 24 that will intercept the entirety of the Forest Service stormwater drainage and send it directly to the Eagle River before this stormwater enters the Town of Minturn. This strategy provides for significant reduction in stormwater drainage that will reach the Town of Minturn from this Southtown area.

PUD construction will include the installation of retaining walls as well as modify the site grading such that drainage within the site boundaries be approximately equally split between the north and south extents. The post-development southerly-half stormwater drainage will be directed to the historical discharge point at open space in the southwest corner. The post-development northerly-half stormwater drainage will be primarily directed to the open space in the northeast corner where it will join with the Forest Service stormwater discharge and be sent to the Eagle River via a proposed culvert under Hwy 24.

Overland drainage will be routed toward the streets and then curb and gutters will carry the drainage to the respective northeast and southwest collection areas which will provide clarification by the grassy area routing.

Existing drainage patterns associated with the Christiansan parcel will remain substantially unaltered and stormwater will discharge at the historical discharge point. Stormwater flows at this historical discharge point will be significantly reduced as a result of diverting the Forest Service stormwater drainage to the Eagle River via the proposed culvert under Hwy 24. See Figure A7 for the proposed PUD Post Development drainage design.

HYDROLOGIC ANALYSIS

Criteria

Historical and post-development peak discharges were analyzed for the 2-year and the 100-year storm events. Rainfall data is derived from NOAA Atlas 14, Volume 8, Version 2. The Rational Method was used for determining runoff. Peak runoff calculations are performed using Urban Drainage and Flood Control District software UD-Rational V 2.00.xlsm, released May 2017. Detention pond calculations are not included as a result of the overall large reduction in post-development discharge rates from the PUD due to diversion of flows to the proposed culvert under Hwy. 24. All as presented in the summary below.

Drainage Basins

This report uses three (3) historical drainage basins and four (4) post-development drainage basins to encompass the study areas. Figure A1 in Appendix A illustrates the historical drainage basins and Figure A2 illustrates the post-development drainage basins. Each of these exhibits shows the direction of flow within each basin.

Historical Basins

Historical basins H1, H2, and H3 contain an area of 33.38 acres. All as shown on Figure A1.

All historical basins discharge along the western boundary of the PUD and aggregate into an existing drainage path at the base of the mountain.

Basin H1 is 23.35 acres. The area is primarily meadow with some impervious areas including half of Highway 24 and some residential development. There is an existing culvert under Highway 24 near the midpoint of the north basin line. It is apparent this culvert does not function properly and stormwater bypasses the culvert. This culvert/inlet could be reconstructed to perform better and create the stormwater diversion point intended. Impervious areas include the south side of highway 24, driveways and houses. This basin also includes areas of gravel drives and grassy meadows and the heavily wooded steep slopes to the south. Basin H1 discharges to the location shown in Figure A1 as Design Point #1 (northwest corner of PUD).

Basin H2 is 9.32 acres. Much of this basin is heavily wooded w/ steep slopes to the south and grassy meadows. It also contains a small portion of impervious areas including driveways and houses. Basin H2 discharges to the location shown in Figure A1 as Design Point #2.

Basin H3 is 0.72 acres and contains gravel drives, grassy meadows and houses and discharges to Design Point #3 as shown in Figure A1.

Proposed Basins

Proposed basins P1-P4 encompass an area of 30.66 acres.

Basin P1 will discharge across Hwy 24 to the north and flow to the Eagle River. Basins 2 through 4 discharge along the western boundary at the historical discharge locations.

Basin P1 is 19.99 acres, and is a slightly reduced version of Basin H1. The reduction has been created by the slight change in drainage patterns within the PUD boundary. Impervious areas increase slightly due to the additional impervious elements of the PUD.

Basin P1 discharges to the location shown in Figure A2 as Design Point #1 which is the entrance to the culvert that will be installed under Hwy 24. The culvert will be used to course the Basin P1 stormwater drainage flow directly to the Eagle River instead of it being directed toward its historical discharge point along the western boundary of the PUD and towards the Town of Minturn.

Basin P2 is 8.85 acres and is a slightly reduced version of Basin H2. The reduction has been created by the slight change in drainage patterns within the PUD boundary. Basin P2 discharges at the southwest corner of the PUD shown in Figure A2 as Design Point #2.

Basin P3 is 1.48 acres and contains approximately one-half of the PUD. This basin will include proposed houses, parking areas, driveways, and roads as impervious elements as well as two open space areas. The basin drains to the southwest corner of the PUD and stormwater will be routed through the grassy open space area prior to being discharged. The PUD design includes a below grade parking area at the south end of the site underneath the proposed triplexes. There is a ramp proposed for access to the parking area. The drainage basin associated with this ramp as sub-basin within Basin P3. The design will require drains, pipes, pumps, and controls to handle the stormwater generated from the ramp and enters the below grade structure. Stormwater from this area will be pumped to daylight and routed to the southwest open space via curb and gutter. Basin P3 discharges to the location at the southwest corner of the PUD as shown in Figure A2 as Design Point #3.

Basin P4 is 0.34 acres. This basin encompasses the northwest corner of the PUD including the Christiansan Residence. This basin drains to the northwest open space depression. This depression will detain the stormwater generated from the Christiansan residence w/ ADU, and one-half of the proposed entrance road adjacent to the residence. Basin P4 discharges to the historic location near the northwest corner as shown in Figure A2 as Design Point #4.

See Figure A7 for the proposed PUD Post Development drainage basins and design.

Soils

A subsoil study was performed by Kumar & Associates, Inc. The results of which are included in their soils report for Project No. 19-7-505 dated September 18, 2019. Exploratory borings were performed in multiple locations around the site. The soil profile consists of 1 to 5 feet of loose to medium density, silty sand and gravel, some of which contains topsoil, demolition debris, and concrete driveway materials. Soils below those described above are medium dense to dense sand and gravel. These soils contain cobbles and some small boulders. Borings were performed at 5 locations across the site with 11’-16’ boring depths. There was no ground water or bed rock found. A percolation test was attempted at the center of the site. The borehole was not able to maintain a head of water. A percolation rate of 1 minute per inch was recommended. Other investigations indicate the soil on the property is NRCS Soil Class B.

Ground Cover

The drainage area was divided into four (4) ground cover regions: heavily wooded, meadow, gravel and impervious. The ground cover regions were determined by aerial photography and site inspections. See Figures A3 & A4 in Appendix A for illustrations.

Historical and Post-Development Peak Discharges

Tables 1 & 2 illustrate the historical and post-development peak flows being routed to to historical drainage discharge zones at Design Points H1/P4 & H5/P5. Design Points H1/P4 are located at the same location, at the northwest corner of the PUD, for both the historical and proposed conditions. Design point H5/P5 is representative of the total flow west of the PUD and includes flows that are routed through or originate from the PUD. See Figures A5 & A6 in Appendix A for a visual representation of the drainage basins and flow paths. The results shown in Table 1 below indicate a significant *decrease (-95%)* in peak flow rate at Design Point H1/P4 for the major storm event, and a significant decrease (-82%) for the minor storm event. Table 2 results shown below indicate significant *decrease (-57%)* in peak flow rate at Design Point H5/P5 for the major storm event and a small *increase (+14%)* for the minor storm event. Historical discharge from the PUD at Design Point H3 will be eliminated therefore further decreasing impacts to the neighboring property to the west. The proposed Hwy 24 culvert at Design Point P1 will divert significant flows from entering the Town of Minturn storm water drainage system: a minor storm event of 0.78 cfs and a major storm event of 19.76 cfs.

Table 1: Peak Flows at Design Point H1/P4

	2-yr Storm	100-yr Storm
Historical (H1)	0.73 cfs	19.08 cfs
Post-development (P4)	0.13 cfs	0.90 cfs
Difference	***-0.60 cfs (82%decrease)***	***-18.18 cfs (95%decrease)***

Table 2: Peak Flows At Design Point H5/P5

	2-yr Storm	100-yr Storm
Historical (H5)	0.86 cfs	32.67 cfs
Post-development (P5)	0.98 cfs	13.88 cfs
Difference	***+0.12 cfs (14% increase)***	***-18.79 cfs (57%decrease)***

DETENTION PONDS

Detention ponds are not being proposed for the PUD as a result of the significant reduction in stormwater drainage impacts to neighboring properties and the Town of Minturn via the construction of the proposed Hwy 24 culvert.

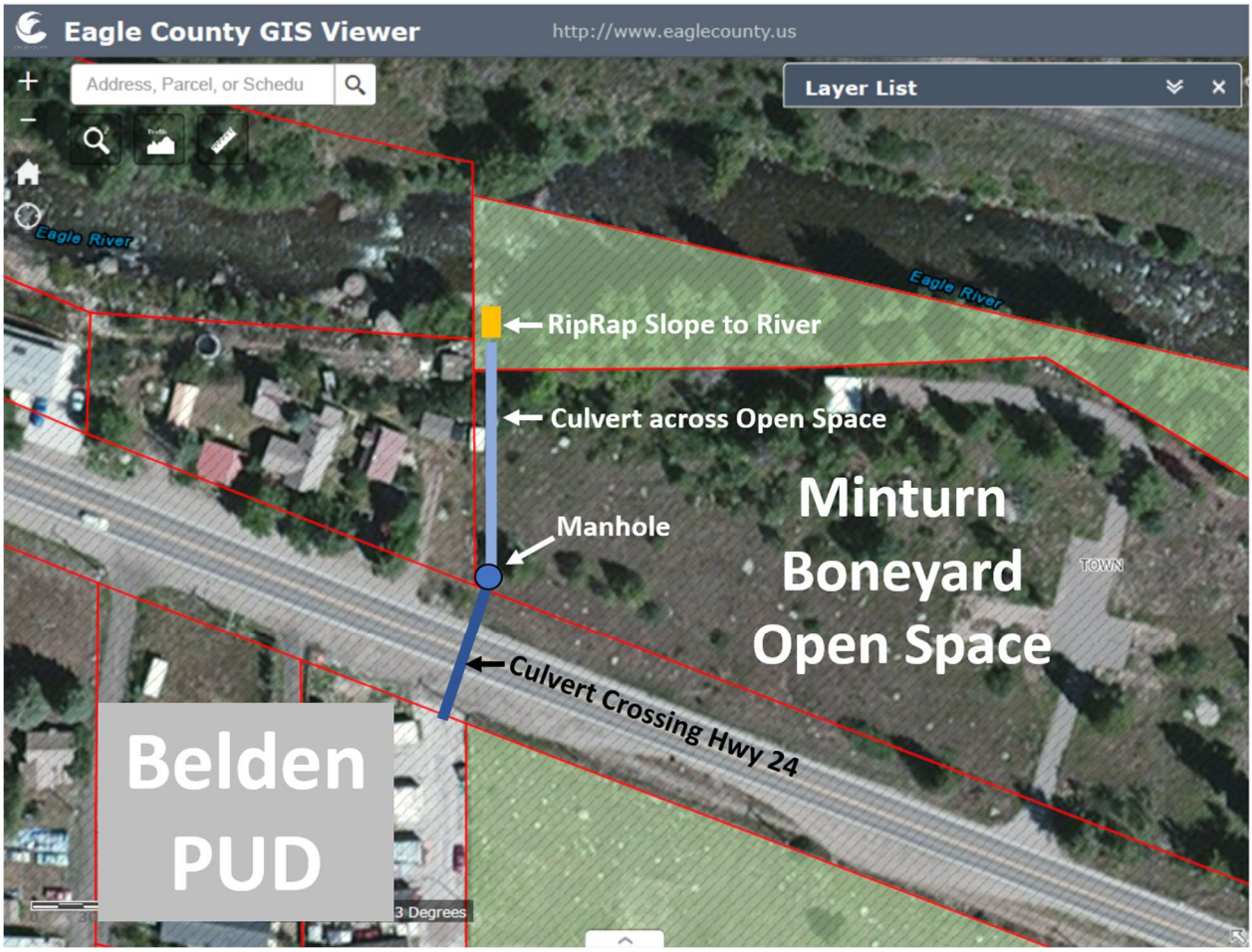
Open space landscape areas, at the northeast, northwest, and southwest corners, where the PUD discharge zones are located will provide for settlement and filtration of stormwater drainage flows prior to discharge from the PUD.

STORM WATER CONVEYANCE

The design of the storm water conveyance system within the PUD, which is primarily the streets system with curb and gutter and open space areas, are sized to convey the 2-year storm event and to hold their integrity during the 100-year storm event. The

gutter flows for the 2-year storm will be maintained within 2.5 feet of the edge of pavement. Additionally, the 100-year flows will be maintained within the right of way.

The Hwy 24 culvert sizing is determined by a larger, 500-year, stormwater drainage event which produces 33.47 cfs at the P1 design point. Below is the proposed alignment and discharge strategy.



See appendix B for storm water facility capacity calculations.

EROSION CONTROL

Silt fences will provide temporary erosion control during construction. The construction plans provide more detail on the temporary erosion control structures. Riprap at culvert outlets and critical locations, and revegetation will provide permanent erosion control. Sandbags shall be placed adjacent to roadway inlets to reduce the amount of solids entering the drainage conveyance system.

CONCLUSION

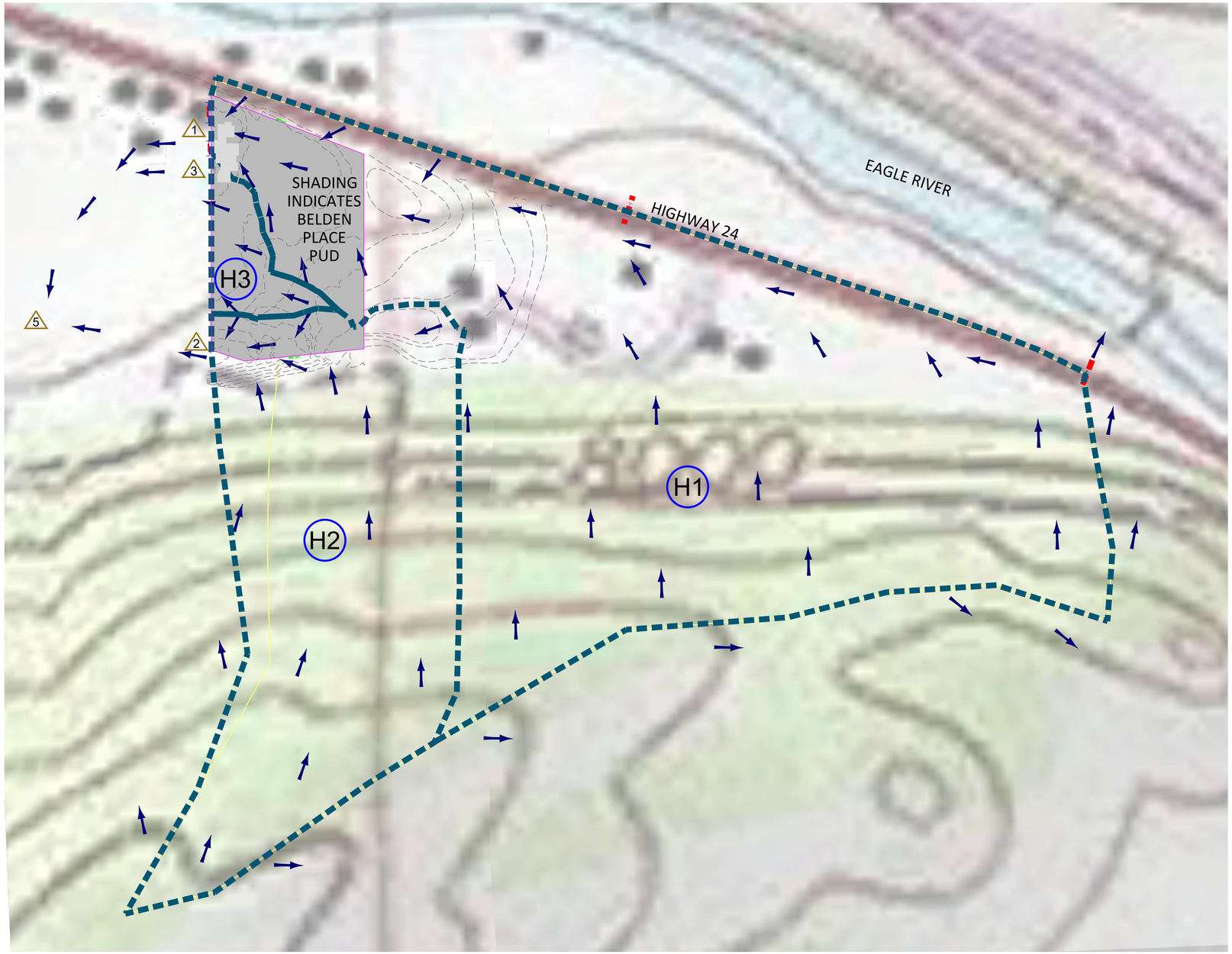
In summary, this report strives to comply with all the necessary requirements established in the region. The purpose is to estimate the existing drainage patterns, proposed drainage patterns, compare the two values and determine the necessary stormwater facilities required for conveyance and mitigation.

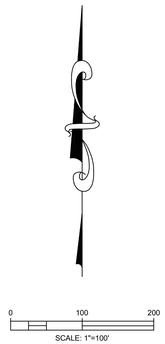
Appendix A

Figures

FIGURE A1

HISTORICAL DRAINAGE BASIN MAP





LEGEND

- H1 — DRAINAGE BASIN IDENTIFICATION NUMBER
- 1 — DESIGN POINT
- DRAINAGE BASIN BOUNDARY
- PUD BOUNDARY
- EXISTING CONTOUR
- INDICATES DIRECTION OF SURFACE DRAINAGE
- EXISTING CULVERT

DRAINAGE BASIN AREAS

- H1 — 23.350 ACRES
- H2 — 9.320 ACRES
- H3 — 0.720 ACRES

NOTES:
1. CONTOURS SHOWN REPRESENT EXISTING TOPOGRAPHY FROM USGS QUAD MAPS, GOOGLE EARTH, & SURVEYOR. CONTOUR INTERVALS VARY.

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CHECKED BY: DJA

Belden Place PUD
South Minturn Addition
Lots 29, 31 & 32
Minturn, Colorado

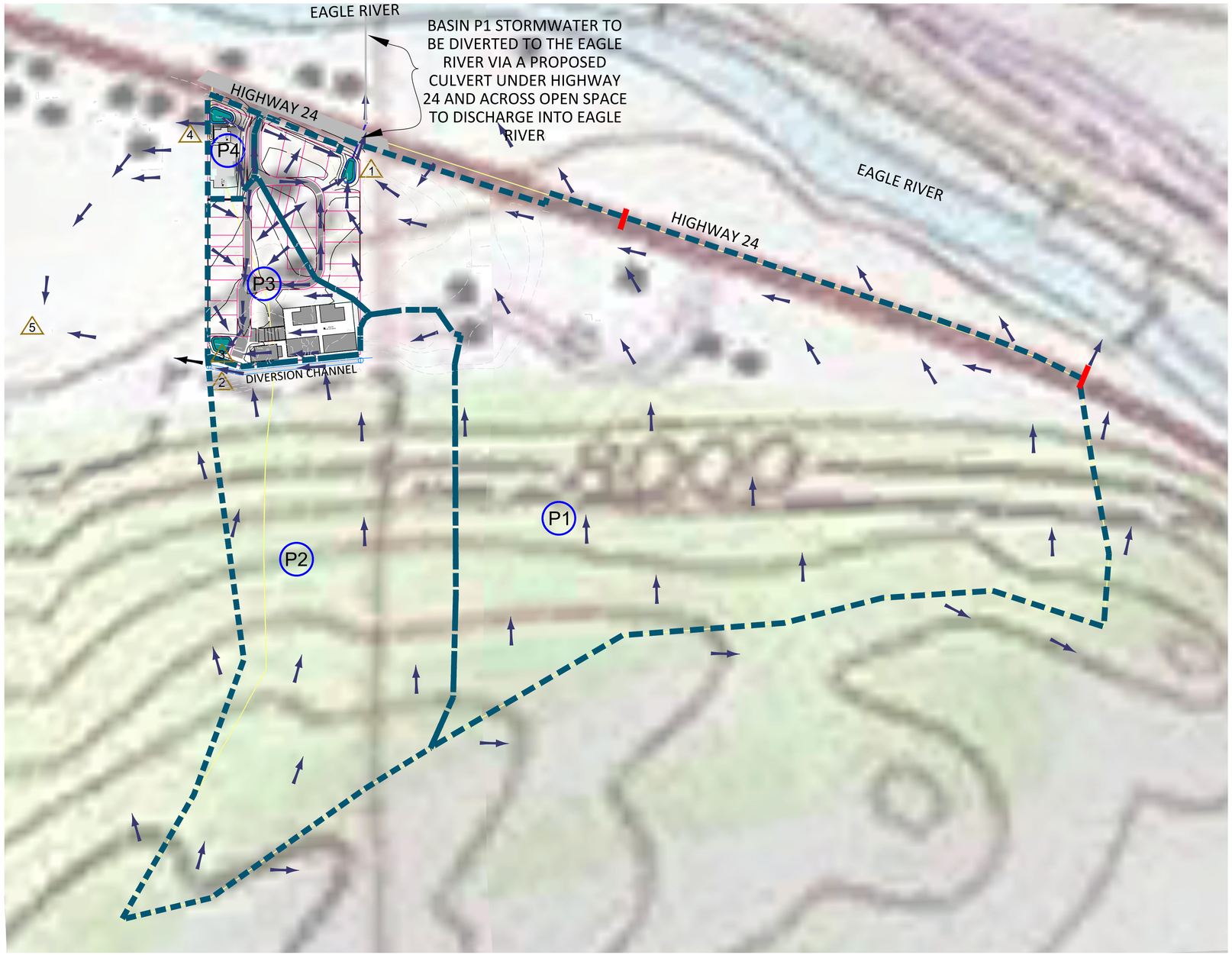
DATE	REVISION
11/9/20	Preliminary Plat Submittal

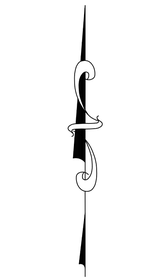
Title: HISTORICAL DRAINAGE BASIN MAP

Sheet: FIGURE A1

FIGURE A2

POST-DEVELOPMENT DRAINAGE BASIN MAP





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- P1 — DRAINAGE BASIN IDENTIFICATION NUMBER
- 1 — DESIGN POINT
- DRAINAGE BASIN BOUNDARY
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- EXISTING CONTOUR
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- EXISTING CULVERT

DRAINAGE BASIN AREAS

P1	19.99 ACRES
P2	8.85 ACRES
P3	1.48 ACRES
P4	0.34 ACRES

NOTES:
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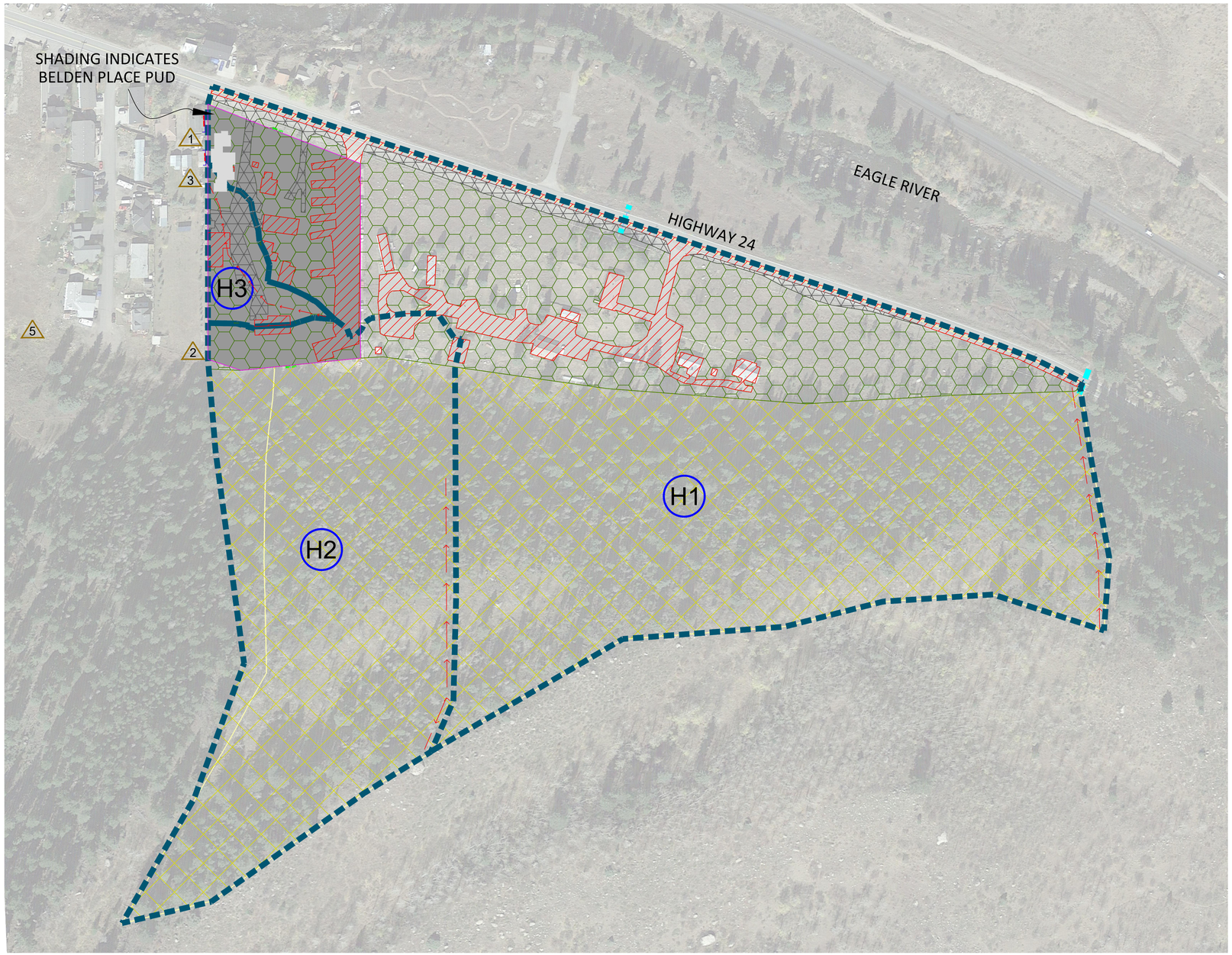
Title: POST-DEVELOPMENT DRAINAGE BASIN MAP

Sheet: FIGURE A2

FIGURE A3

HISTORICAL HYDROLOGIC SOILS & GROUND COVER MAP



0 100 200
SCALE: 1"=100'

LEGEND

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- 1 — DESIGN POINT
- DRAINAGE BASIN BOUNDARY
- PUD BOUNDARY
- EXISTING CONTOUR
- INDICATES DIRECTION OF SURFACE DRAINAGE
- EXISTING CULVERT

COVER KEY

- WOODS
- MEADOW
- GRAVEL
- IMPERVIOUS

NOTES:
1. HYDROLOGIC SOIL TYPES FOR ENTIRE STUDY AREA ARE TYPE B AND ARE BASED ON INFORMATION FROM SOIL CONSERVATION SERVICE MAPPING.
2. GROUNDCOVER IS FROM GOOGLE EARTH, & SURVEYOR.

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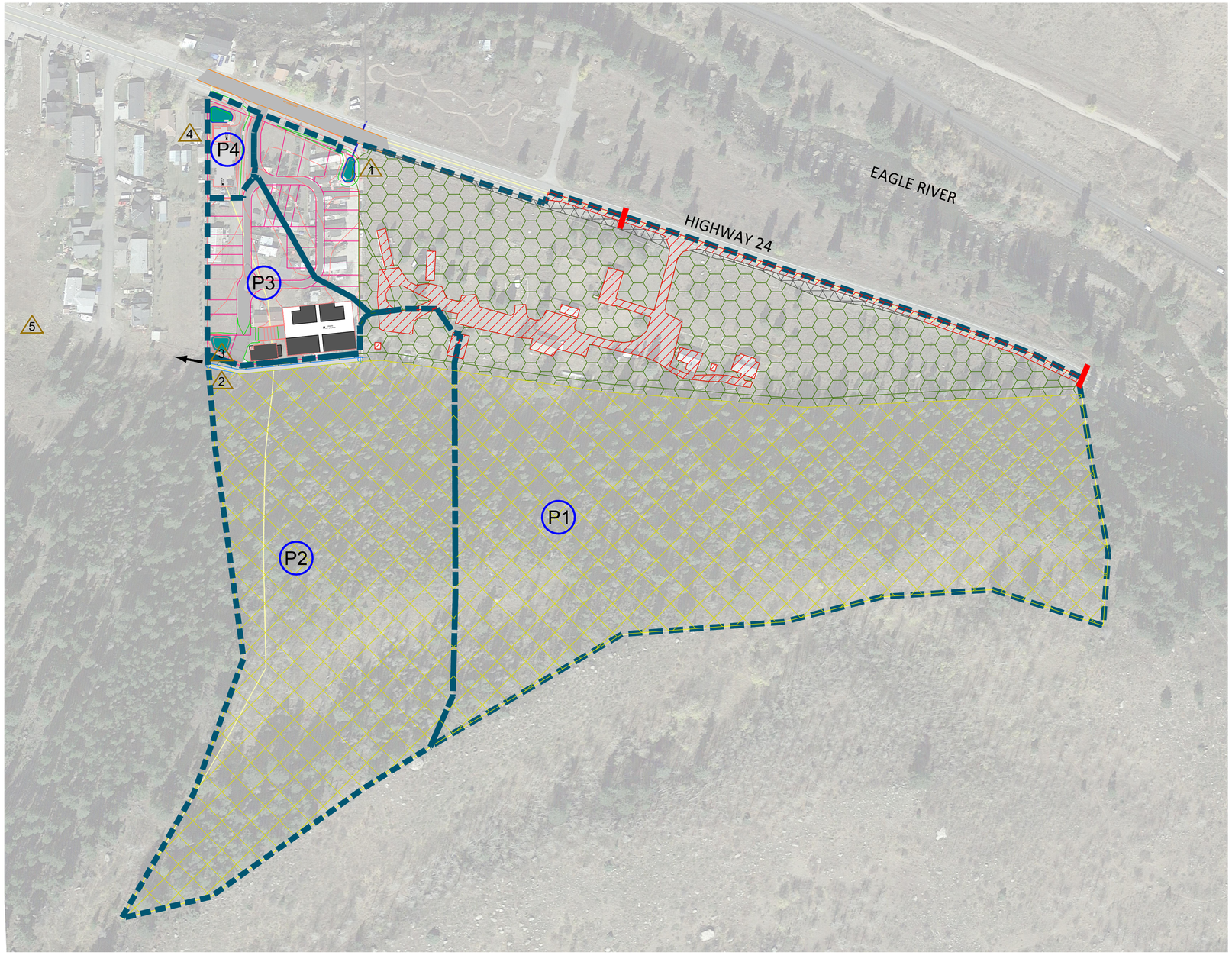
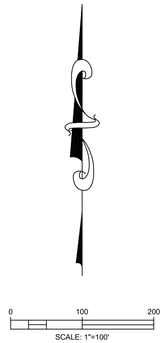
Title: HISTORICAL HYDROLOGIC SOILS & GROUND COVER MAP

Sheet: FIGURE A3

FIGURE A4

POST-DEVELOPMENT HYDROLOGIC SOILS & GROUND COVER MAP





LEGEND

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- 1 — DESIGN POINT
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- PUD BOUNDARY
- EXISTING CONTOUR
- INDICATES DIRECTION OF SURFACE DRAINAGE
- EXISTING CULVERT

COVER KEY

- WOODS
- MEADOW
- GRAVEL
- IMPERVIOUS

NOTES:

1. HYDROLOGIC SOIL TYPES FOR ENTIRE STUDY AREA ARE TYPE B AND ARE BASED ON INFORMATION FROM SOIL CONSERVATION SERVICE MAPPING.
2. EXISTING GROUND COVER IS FROM GOOGLE EARTH, & SURVEYOR.
3. BASIN P3 TO BE DETERMINED - ±45% IMPERVIOUS.

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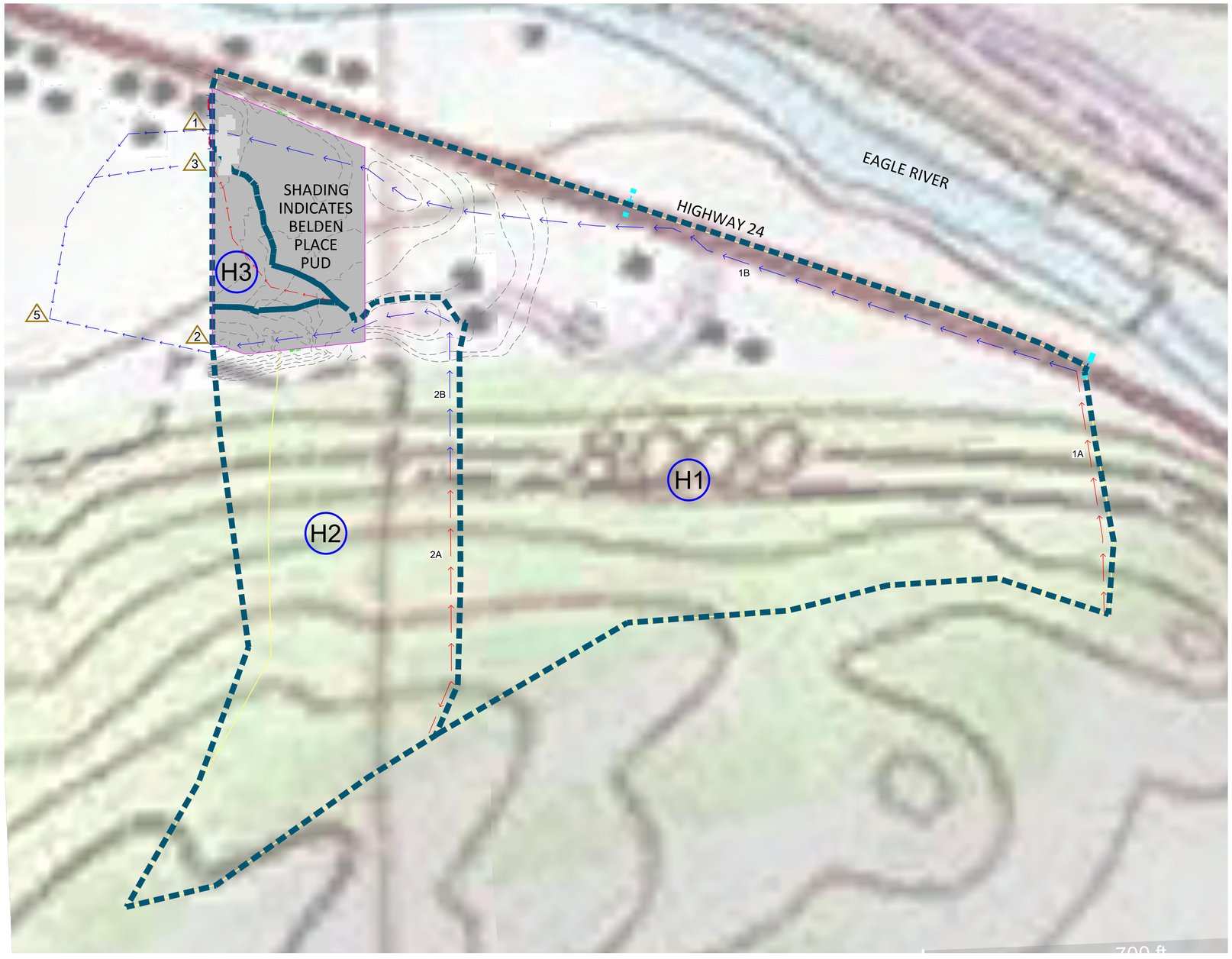
Title:
POST-DEVELOPMENT HYDROLOGIC SOILS & GROUND COVER MAP

Sheet:
FIGURE A4

FIGURE A5

HISTORICAL TIME OF CONCENTRATION FLOW PATHS MAP



0 100 200
SCALE: 1"=100'

LEGEND

- H1 — DRAINAGE BASIN IDENTIFICATION NUMBER
- 1 — DESIGN POINT
- DRAINAGE BASIN BOUNDARY
- PUD BOUNDARY
- DURAN SUBDIVISION BOUNDARY
- EXISTING CONTOUR
- 1A — FLOW PATH SEGMENT NUMBER
- EXISTING CULVERT
- FLOW PATH SHEET FLOW
- FLOW PATH CONCENTRATED FLOW

NOTES:
1. CONTOURS SHOWN REPRESENT EXISTING TOPOGRAPHY FROM USGS QUAD MAPS, GOOGLE EARTH, & SURVEYOR. CONTOUR INTERVALS VARY.

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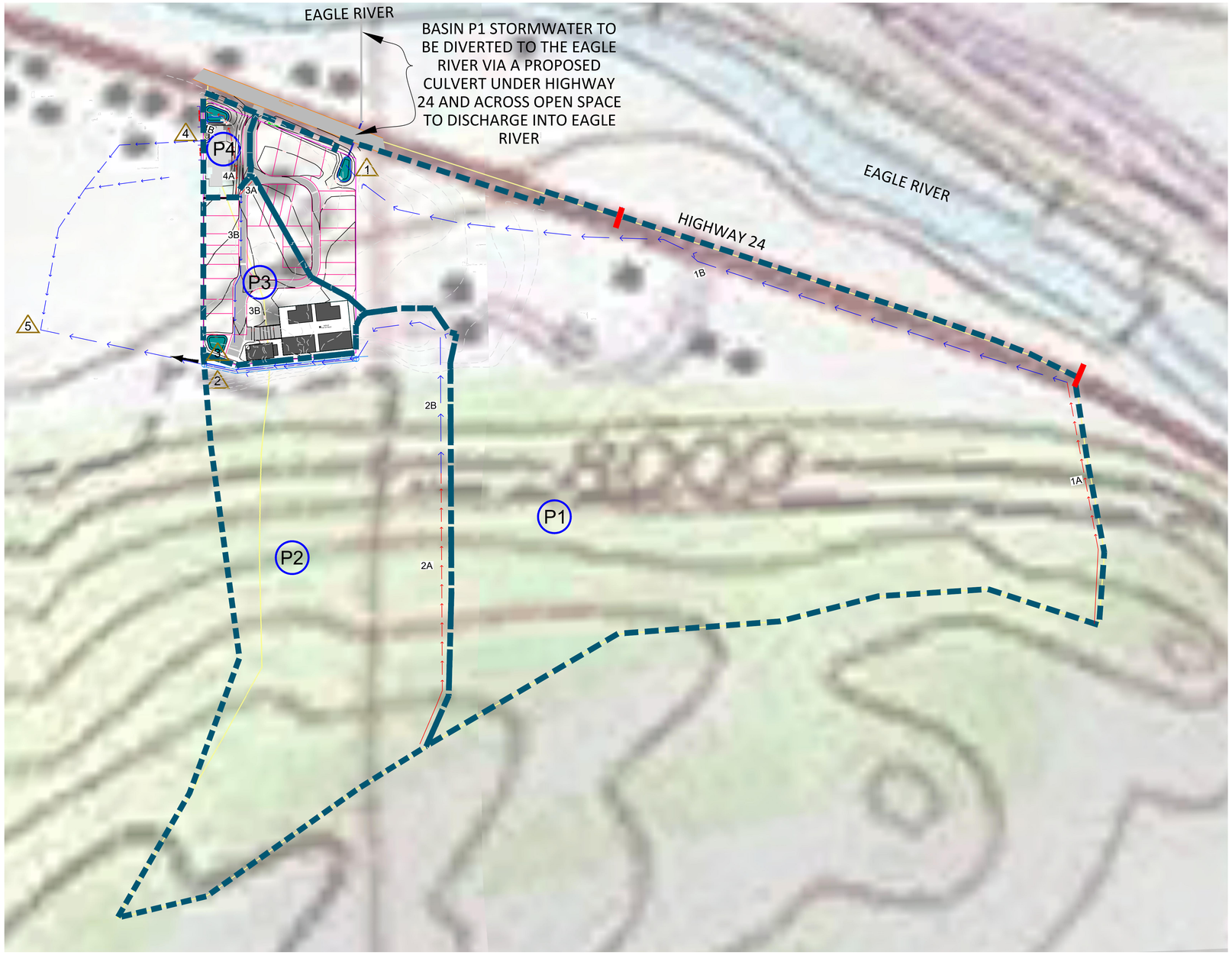
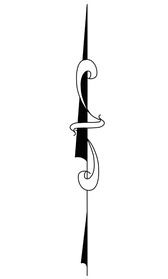
Title: HISTORICAL TIME OF CONCENTRATION FLOW PATHS MAP

Sheet: FIGURE A5

FIGURE A6

POST-DEVELOPMENT TIME OF CONCENTRATION FLOW PATHS MAP





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- P1 — DRAINAGE BASIN IDENTIFICATION NUMBER
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- DRAINAGE BASIN BOUNDARY
- PUD BOUNDARY
- EXISTING CONTOUR
- 1A — FLOW PATH SEGMENT NUMBER
- EXISTING CULVERT
- FLOW PATH SHEET FLOW
- FLOW PATH CONCENTRATED FLOW

NOTES:
1. CONTOURS SHOWN REPRESENT EXISTING TOPOGRAPHY FROM USGS QUAD MAPS, GOOGLE EARTH, & SURVEYOR. CONTOUR INTERVALS VARY.
2. PUD IS ASSUMED TO BE 45% IMPERVIOUS

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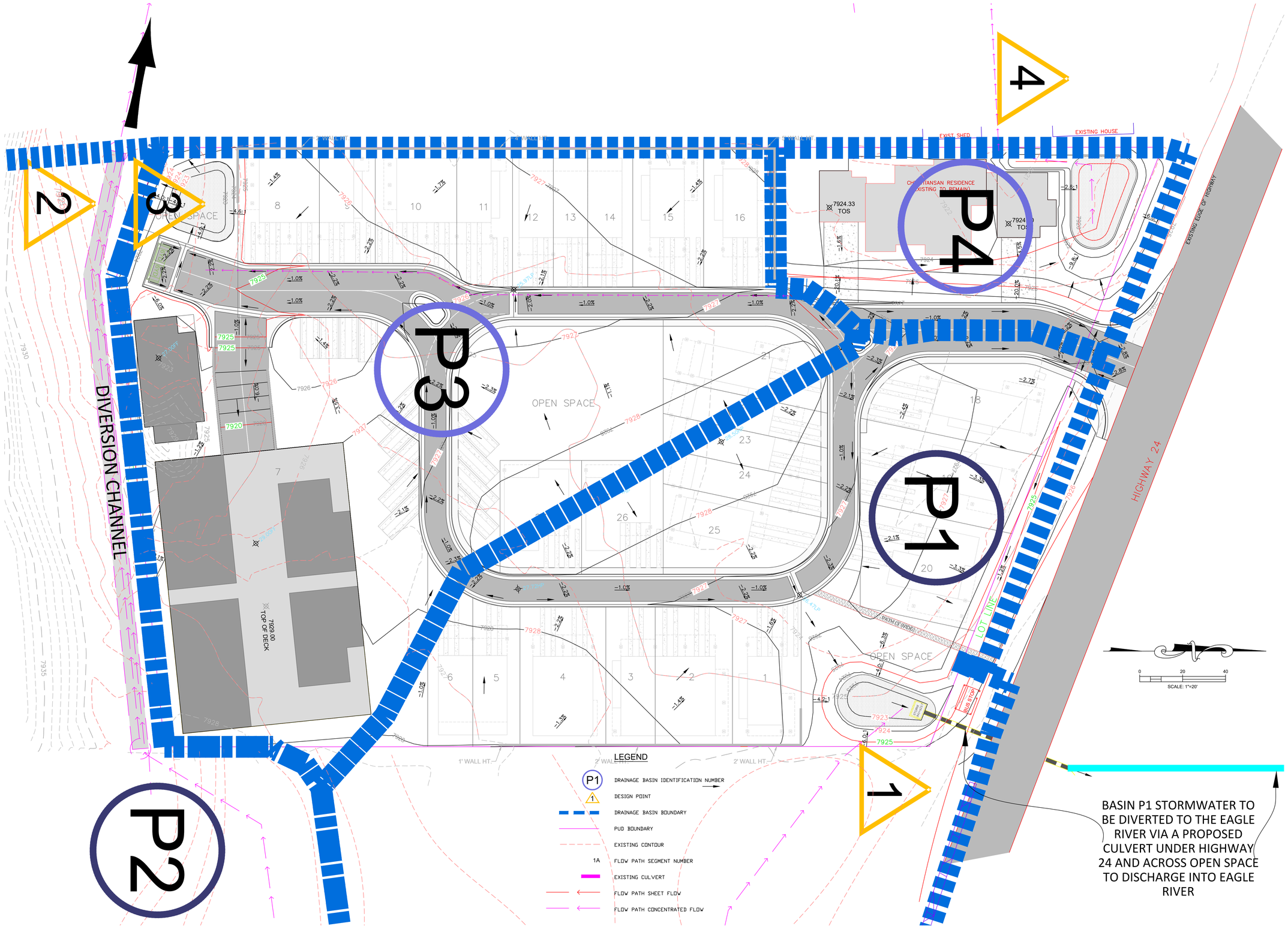
Sheet: FIGURE A6



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Title:
PUD POST-DEVELOPMENT DRAINAGE PLAN

Sheet:
FIGURE A7

Appendix B

Calculations

FIGURE B1

DRAINAGE CALCULATIONS

PEAK FLOW RATES - RATIONAL METHOD

Calculation of Peak Runoff using Rational Method

Designer: David Powell
Company: Timberline Engineering
Date: 11/8/2020
Project: MBC
Location: Minturn, Colorado

Version 2.00 released May 2017

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S^{0.33}}$$

$$t_t = \frac{L_t}{60K\sqrt{S_t}} = \frac{L_t}{60V_t}$$

Computed $t_c = t_i + t_t$

Regional $t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$

$t_{minimum}$= 5 (urban)
$t_{minimum}$= 10 (non-urban)

Selected $t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$

Select UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

1-hour rainfall depth, P1 (in) =	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
	0.53	0.69	0.83	1.06	1.26	1.47	2.05

Rainfall Intensity Equation Coefficients =	a	b	c
	88.80	10.00	1.052

$$I(in/hr) = \frac{a * P_1}{(b + t_c)^c}$$

$$Q(cfs) = CIA$$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time					Channelized (Travel) Flow Time							Time of Concentration			Rainfall Intensity, I (in/hr)							Peak Flow, Q (cfs)						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
H1	23.35	B	9.0	0.05	0.06	0.13	0.31	0.38	0.47	0.57	445.00	8100.00	7955.00	0.326	12.52	1661.00	7955.00	7937.00	0.011	7	0.73	37.99	50.51	50.39	50.39	0.63	0.81	0.99	1.26	1.50	1.75	2.44	0.73	1.19	3.00	8.98	13.22	19.08	32.35
H2	9.32	B	1.9	0.01	0.01	0.07	0.26	0.34	0.43	0.54	500.00	8218.00	8070.00	0.296	14.37	704.00	8070.00	7935.00	0.192	2.5	1.09	10.72	25.09	28.57	25.09	1.11	1.44	1.75	2.23	2.65	3.09	4.31	0.08	0.15	1.18	5.42	8.36	12.53	21.82
H3	0.72	B	9.0	0.05	0.06	0.13	0.31	0.38	0.47	0.57	356.00	7942.00	7938.50	0.010	35.55	5.00	7938.50	7937.00	0.300	7	3.83	0.02	35.57	24.48	24.48	1.13	1.47	1.78	2.27	2.70	3.15	4.39	0.04	0.07	0.17	0.50	0.73	1.06	1.79
P1	19.99	B	9.2	0.05	0.06	0.13	0.31	0.38	0.47	0.57	445.00	8100.00	7955.00	0.326	12.50	1404.00	7955.00	7935.00	0.014	7	0.84	28.01	40.51	43.49	40.51	0.76	0.98	1.19	1.52	1.81	2.11	2.94	0.78	1.25	3.13	9.32	13.70	19.75	33.47
P2	8.85	B	1.9	0.01	0.01	0.07	0.26	0.34	0.43	0.54	500.00	8218.00	8070.00	0.296	14.37	726.00	8070.00	7935.00	0.186	2.5	1.08	11.22	25.59	28.71	25.59	1.09	1.42	1.73	2.20	2.61	3.05	4.25	0.08	0.14	1.10	5.07	7.82	11.72	20.41
P3	1.48	B	45.0	0.33	0.36	0.42	0.53	0.58	0.64	0.70	73.00	7928.50	7928.00	0.007	12.94	274.00	7928.00	7922.00	0.022	20	2.96	1.54	14.49	20.37	14.49	1.62	2.10	2.56	3.26	3.87	4.51	6.30	0.79	1.12	1.59	2.56	3.31	4.24	6.52
P4	0.34	B	34.3	0.24	0.27	0.33	0.46	0.52	0.59	0.66	186.00	7927.00	7921.50	0.030	14.33	5.00	7921.50	7921.00	0.100	20	6.32	0.01	14.35	20.19	14.35	1.63	2.12	2.57	3.27	3.89	4.54	6.33	0.13	0.19	0.29	0.51	0.68	0.90	1.42

500 YR FLOW RATE USED FOR HIGHWAY 24 CULVERT SIZING

NOTES:
1. ELEVATIONS SHOWN ARE BASED ON MEASUREMENTS TAKEN FROM GOOGLE EARTH AND PUD DESIGN.
2. BASIN P.4 IMPERVIOUS AREA INCLUDES CHRISTIANSAN RESIDENCE W/ ADU AND ½ OF ENTRANCE ROAD.

TIMBERLINE ENGINEERING LLC CIVIL STRUCTURAL
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Carbondale, Colorado 81623-0842
p 970.963.9869
timberlineengineering@gmail.com

DRAWN BY: DJA
CHECKED BY: DJA

Belden Place PUD
South Minturn Addition
Lots 29, 31 & 32
Minturn, Colorado

DATE	REVISION
11/9/20	Preliminary Plat Submittal

Title: DRAINAGE CALCULATIONS

Sheet: FIGURE B1