March 3, 2025

(Drainage Letter): Attach Standard Form No. 1 Drainage Letter Checklist.

(Drainage Letter): Attach Scope Approval Form

Ms. Amber Gregory, PE
City of Steamboat Springs – Utilities
137 10th Street
Steamboat Springs, Colorado 80477

(Drainage Letter): This should be addressed to Emrick Soltis, PE, CFM or Matt Phillips, PE City of Steamboat Springs--Public Works

rainage Letter
asecamp Phase 2 Apartments, Steamboat Springs, Colorado

ber:

k Consultants, Inc. (Landmark) is providing this Drainage Letter to accompany the Development Plan application for Basecamp Phase 2 Apartments (the Project) on the subject property. The purpose of this letter is to demonstrate that proposed drainage patterns are consistent with the previously approved drainage letter for Basecamp Square Development Plans and the existing infrastructure is sufficient for the proposed development of Basecamp Phase 2 Apartments. Final calculations for all proposed storm sewer, inlets, swales, and detention will be provided with the final drainage letter with the submittal of construction drawings.

If you have any questions during your review process, feel free to contact us.

Sincerely,

Landmark Consultants, Inc.

Micah Gibbons, P.E.

INTRODUCTION AND LOCATION

The subject property, Lot's 2&3 Steamboat Basecamp, are a total of 2.01-acres of land located on the west side of Steamboat Springs. The property is bordered by US Highway 40 (Lincoln Ave) to the west, Curve Court to the south, Lot 1 Steamboat Basecamp Subdivision to the west and Elk River Road South to the north. The current access road runs along the west property boundary that is included with the development of the Steamboat Basecamp project in Lot 1.

This project is a new, multifamily residential development where townhomes were previously planned with the approved Basecamp Phase 2 Development Plans. This project will also incorporate the redevelopment of the previously planned commercial space located on Lot 2 into a parking lot, dog park, and open space. The residential, multi-family portion of the development includes one, four-story, 80-unit condo building and will be located on the southeast portion of lot 3 and will be accessed by Big Bend Drive to the west.

The property is zoned Commercial Services. There is no proposed change in zoning or use.

The location of the project is shown on Figure 1: Vicinity Map.

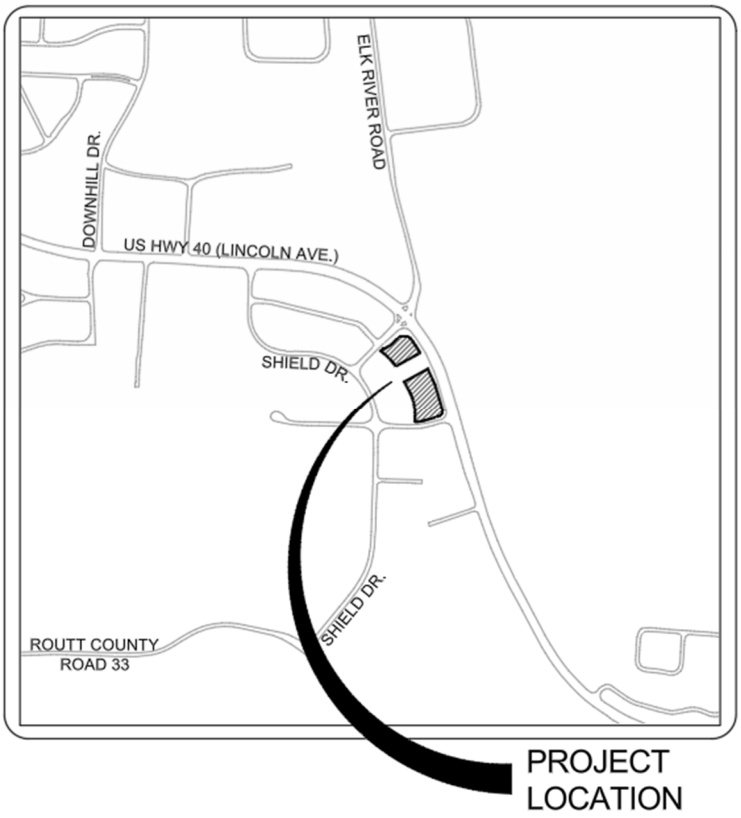

Figure 1- Vicinity Map

EXISTING SITE CONDITIONS

In this letter the term "existing condition" refers to the conditions described in the drainage letter for Basecamp Square Development Plans (the previously approved plans for the subject property). The purpose of this letter is to show that drainage patterns are consistent with Basecamp Square Development Plans and the existing infrastructure is sufficient for the proposed development of Basecamp Phase 2 Apartments. See **Appendix A** for the drainage plan for Basecamp Square Development.

There are three outfall points on the site that are storm sewer stubs that were provided with Steamboat Base Camp (Phase 1). The entire site will drain to these three locations and all the existing storm sewer drains to the existing extended detention basin (EDB) built with Steamboat Basecamp (Phase 1). The existing EDB was built to account for the development of the subject property and will be reevaluated with the submittal of construction drawings. Please refer to the Steamboat Base Camp Drainage Letter and Stormwater Quality Plan for design calculations for the EDB.

PROPOSED CONDITIONS

The proposed conditions of the new Basecamp Phase 2 Apartments site plan result in lesser imperviousness than the previously approved site plan for Basecamp Square. The calculated imperviousness for Basecamp Square was 73% and the proposed imperviousness for Basecamp Phase 2 Apartments is 68%. Due to the reduction in imperviousness for an equivalent basin area, peak runoff values will be lower than the existing infrastructure was designed for. See **Appendix B** for a summary of Hydrologic Calculations.

CONCLUSIONS

The improvements proposed for Basecamp Phase 2 Apartments are a multifamily building, corresponding parking lots, dog park and public open space. All runoff will feed into the existing storm sewer and EDB that were designed to accommodate future development. The proposed improvements for Basecamp Phase 2 Apartments result in an overall imperviousness of 68%, which is less than the 73% imperviousness proposed for Basecamp Square. Due to the decrease in imperviousness compared to the previously approved Basecamp Square Development Plan and closely mimicked drainage patterns, it was determined that the existing storm infrastructure will sufficiently convey, detain, and treat proposed runoff.

LIMITATIONS

This study is intended to estimate and analyze peak stormwater runoff volumes generated by hydrologic events to evaluate existing drainage infrastructure and design new infrastructure needed to manage these flows. It does not account for groundwater, springs, or seeps and is not intended to be used for the evaluation or design of foundation drains or roof drains.

Basin delineations, areas, and soil characteristics are based on the best available information listed in the INTRODUCTION AND LOCATION section of the letter. Actual conditions may vary. Landmark's assumptions, recommendations and opinions are based on this information and the proposed site plan. If any of the data is found to be inaccurate or the proposed site plan is changed, Landmark should be contacted to review this letter and make any necessary revisions.

The 100-year event is defined as the rainfall, runoff, or flooding event which has a probability of 1-percent of occurring in any given year based on available data. The 100-year event could occur in successive years or even multiple times in a single year. Events greater than the 100-year event or lesser events combined with malfunctioning drainage works can occur on rare occasion and may cause flooding damage.

The data, opinions, and recommendations of this letter are applicable to the specific design elements and location that is the subject of this letter. The letter is not applicable to any other design elements or to any other locations. Any and subsequent users accept any and all liability resulting from any use or reuse of the data, opinions, and recommendation without the prior written consent of Landmark Consultants, Inc.

Landmark Consultants, Inc. has no responsibility for construction means, methods, techniques, sequences, or procedures, or for safety precautions or programs in connection with the construction, for the acts or omissions of the contractor, or any other person performing any of the construction, or for the failure of any of them to carry out the construction in accordance with the Final Construction Drawings and Specifications.

The only warranty or guarantee made by Landmark Consultants, Inc. in connection with the services performed for this project is that such services are performed with the care and skill ordinarily exercised by members of the profession practicing under similar conditions, at the same time, and in the same or similar locality. No other warranty, expressed or implied, is made or intended by rendering such services or by furnishing written letters of the findings.

This study is intended to estimate and analyze peak stormwater runoff volumes generated by hydrologic events in order to evaluate existing drainage infrastructure and design new infrastructure needed to manage these flows. It does not account for groundwater, springs, or seeps and is not intended to be used for the evaluation or design of foundation drains or roof drains.

APPENDIX A

DRAINAGE PLANS

NORTH

40 0 40 80 120 Feet

(IN FEET)
1 inch = 40 ft.

LEGEND:

EXISTING STORM SEWER
PROPOSED STORM SEWER
PROPOSED STORM INLET (CURB & AREA)
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
PROPOSED SWALE
PROPOSED CURB & GUTTER
PROPERTY BOUNDARY
PROPOSED LOT LINE
EXISTING RIGHT OF WAY
PR DRAINAGE EASEMENT

PROPOSED OVERLAND FLOW DIRECTION
PROPOSED CHANNELIZED FLOW DIRECTION
EXISTING CHANNELIZED FLOW DIRECTION

DEVELOPED BASIN HYDROLOGY SUMMARY

Basecamp Square (SQ)						
Basin	Total Area (acres)	C_5	C_{100}	Q_5 (cfs)	Q_{100} (cfs)	%Imp
1	1.88	0.69	0.81	3.71	9.52	79%
2.1	0.85	0.86	0.89	2.81	6.41	100%
SQ1	0.34	0.72	0.83	0.94	2.35	84%
SQ2	0.65	0.59	0.76	1.48	4.16	68%
SQ3	0.25	0.78	0.86	0.76	1.81	90%
SQ4	0.19	0.64	0.79	0.47	1.25	73%
SQ5	0.27	0.72	0.83	0.76	1.89	83%
SQ6	0.13	0.44	0.68	0.22	0.74	49%
SQ7	0.15	0.83	0.88	0.50	1.15	97%
SQ8	0.17	0.66	0.80	0.43	1.14	75%
2.2						
2.3	NA	NA	NA	NA	NA	NA
2.4	0.29	0.05	0.49	0.06	1.18	2%
2	NA	NA	NA	NA	NA	NA
3	0.79	0.67	0.80	1.54	4.05	76%
4	0.24	0.49	0.71	0.42	1.32	55%
P-203R	0.71	0.81	0.87	2.21	5.21	94%
P-114R	0.89	0.76	0.85	2.63	6.36	89%

DEVELOPED DESIGN POINT HYDROLOGY SUMMARY

Basecamp Square (SQ)						
Design Point	Total Area (acres)	C_5	C_{100}	Q_5 (cfs)	Q_{100} (cfs)	%Imp
0	6.21	0.67	0.80	12.43	32.56	76%
1	3.29	0.67	0.80	5.53	14.49	76%
off	1.60	0.78	0.86	4.82	11.55	91%
ud	2.92	0.67	0.80	5.03	13.18	76%

CIVIL ENGINEERS | SURVEYORS
141 9th Street ~ P.O. Box 774943
Steamboat Springs, Colorado 80477
(970) 871-9494
www.LANDMARK-CO.com

LANDMARK CONSULTANTS, INC.

DESCRIPTION: | BY: | DATE: | NO.

REVIEW SET
NOT FOR CONSTRUCTION
XX/XX/XX

PROJECT: 2387-004
DATE: 8/2/2021
DRAWN BY: DCS
CHECKED BY:

Base Camp Square Dev. Plan
Figure 3: Proposed Drainage Plan

SHEET 1 Of 2 Sheets

DRAWING FILENAME: P:\2387-004\Engineering\Drainage\Modeling\2387-004 - DRAIN-SQUARE.dwg LAYOUT NAME: PR-SQUARE DP 34x22 DATE: Aug 02, 2021 - 6:02pm CAD OPERATOR: deb
LIST OF XREFS: [2387-004-xBORDER-11x17] [2387-004-xExist-Ph2] [2387-004-xSite-Ph2] [2387-004-xUtil-Ph2] [2387-004-xSite-PP] [2387-004-xBndy-DEMO]

NORTH

40 0 40 80 120

(IN FEET)
1 IN. = 40 FT.

DRAINAGE PLAN LEGEND:

- PROPOSED STORM SEWER W/ FLARED END SECTION
- PROPOSED STORM INLET (CURB & AREA)
- PROPOSED STORM MANHOLE & CLEANOUT (ST)
- EXISTING MAJOR CONTOUR (6805)
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR 6805
- PROPOSED MINOR CONTOUR
- PROPOSED SWALE
- PROPOSED CURB & GUTTER
- PROPERTY BOUNDARY
- FLOOD HAZARD LIMITS
- HISTORIC DRAINAGE BASIN
- DEVELOPED DRAINAGE BASIN
- SPOT ELEVATION 6790.50
- PROPOSED OVERLAND FLOW DIRECTION W/ SLOPE 2.0%
- STORM SEWER FLOW DIRECTION
- HISTORIC DRAINAGE BASIN LABEL: H1 (BASIN NAME), 0.11 (BASIN AREA), 90% (% IMPERVIOUSNESS)
- DEVELOPED DRAINAGE BASIN LABEL: D1 (BASIN NAME), 0.11 (BASIN AREA), 90% (% IMPERVIOUSNESS)

NOTES:

1. THE SIZE, TYPE AND LOCATION OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THESE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO VERIFY THE EXISTENCE OF ALL UNDERGROUND UTILITIES IN THE AREA OF THE WORK. BEFORE COMMENCING NEW CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR FOR ALL UNKNOWN UNDERGROUND UTILITIES.
2. PROJECT BENCHMARK: A RECOVERED NO.5 REBAR W/ YELLOW PLASTIC CAP STAMPED "LS 13221" 0.1' BELOW GROUND, HAVING AN ELEVATION OF 6784.29' BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS SHOWN HEREON.
3. SEE SOILS REPORT FOR PAVEMENT, SUBGRADE AND MATERIAL PREPARATION, DESIGN AND RECOMMENDATIONS.
4. ALL CURB SPOTS SHOWN ARE FLOWLINE ELEVATIONS, UNLESS NOTED OTHERWISE. ALL OTHER SPOTS ARE FINISHED GRADE ELEVATIONS.

CALL UTILITY NOTIFICATION CENTER OF COLORADO

811

Know what's below.
Call before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

LANDMARK CONSULTANTS, INC.
CIVIL ENGINEERS | SURVEYORS
141 9th Street ~ P.O. Box 774943, Steamboat Springs, CO 80477
(970) 871-9494 ~ www.LANDMARK-CO.com

REVIEW SET
NOT FOR CONSTRUCTION

NO.	DATE:	BY:	DESCRIPTION:

PROJECT:	2387-008
DATE:	03/03/25
CONTACT:	Erik Griepentrog
EMAIL:	erikg@landmark-co.com

Basecamp Phase 2 Apartments
Proposed Drainage Map

SHEET
1

APPENDIX B

HYDROLOGIC CALCULATIONS

LANDMARK CONSULTANTS, INC.

CIVIL ENGINEERS | SURVEYORS

141 9th Street ~ P.O. Box 774943
Steamboat Springs, Colorado 80477
(970) 871-9494
www.LANDMARK-CO.com

PROJECT: Base Camp Phase 2 Apartments
DESIGNER: Micah Gibbons
DATE: 3/3/2025
POND ID:

BASIN RUNOFF COEFFICIENT CALCULATIONS

Character of Surface	Percent Impervious
Asphalt Parking and Walkways	100%
Gravel	40%
Roof	90%
Lawns and Landscaping	2%
Hard Pack Gravel	80%
Residential Lots	85%

IDF	Soil Type
Steamboat Springs NOAA	D

Basin ID	Basin Area (sq.ft.)	Basin Area (acres)	Area of Asphalt Parking and Walkways (sq.ft.)	Area of Asphalt Parking and Walkways (acres)	Area of Gravel Surfaces (sq.ft)	Area of Gravel Surfaces (acres)	Area of Roof (sq.ft.)	Area of Roof (acres)	Area of Lawns and Landscaping (sq.ft.)	Area of Lawns and Landscaping (acres)	Area of Hard Pack Gravel (sq.ft.)	Area of Hard Pack Gravel (acres)	Area of Residential (sq.ft.)	Area of Residential (acres)	Percent Impervious	5-year Composite Runoff Coefficient	100-year Composite Runoff Coefficient
H1	110479.00	2.54	55016.00	1.26	0.00	0.00	27524.00	0.63	27939.00	0.64	0.00	0.00	0.00	0.00	73%	0.56	0.70
D1	110479.00	2.54	59928.00	1.38	0.00	0.00	15520.00	0.36	35031.00	0.80	0.00	0.00	0.00	0.00	68%	0.51	0.67

(Drainage Letter): Please show all calculations for all subbasins.