

May 3, 2005

Basil Hamdan  
City of Fort Collins, Stormwater Utility  
700 Wood Street  
P.O. Box 580  
Fort Collins, CO 80522-0580

RE: Preliminary Drainage Letter Report  
McKinley Cottages Subdivision

Dear Basil,

The following preliminary drainage letter report addresses existing and proposed drainage conditions for the above-referenced project. The project is located in the City of Fort Collins, Colorado at the northeast corner of Laporte Avenue and McKinley Street. The project is a proposed subdivision of a single large lot (about 24,200 square feet) into four smaller lots of just more than 6,000 square feet each.

**Existing Conditions.** The property, 0.56 acres in area, and zoned N-C-L (Neighborhood Conservation, Low Density District) is located within the Old Town Basin. The property slopes from its northwest corner toward its southeast corner at an approximate average gradient of 2.4 percent. Runoff from the property enters the north gutter of Laporte Avenue and flows east toward the intersection of Laporte Avenue and Shields Street where an inlet is located. Flow ultimately discharges to the Poudre River at the Howes Street outfall.

Site soils are Fort Collins loam, as presented in the Soil Survey of Larimer County Area, Colorado, by the Soils Conservation Service. This soil is of the hydrologic group B.

Minimal, if any, off-site runoff reaches the property. The basin divide is located approximately 150 feet north of the project, at a high point in McKinley Street. Flow from this northern-most portion of the basin is directed down the gutters in McKinley to Laporte Avenue.

The project is not located within either a City of Fort Collins or a FEMA floodplain. Mountain Avenue, one block to the south, conveys flood waters eastward through Old Town via Oak Street. Laporte Avenue, beginning at a point about a mile east of the project, also conveys flood waters through Old Town via Howes Street.

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On-site runoff is conveyed toward the property's southeast corner, at Laporte Avenue, as broad, shallow, cross-lot flow.

**Proposed Drainage Plan.** The Master Drainage Study for the Old Town Basin was prepared assuming a percentage of impervious area for each subbasin defined in the hydrologic model for the Basin. The site is located within Subbasin 504, with a modeled imperviousness of 50 percent (see the attached table photocopied from the Master Drainage Study). The lot, with house and garage, currently has an imperviousness of approximately 10 percent. Subdivision of the lot as proposed into four lots, with sidewalks, houses, garages, and driveways will increase the percentage of imperviousness on the property. The following table provides an estimate of the impervious areas to be created on the property with build-out of the proposed lots.

**Table 1. Summary of Expected Impervious Areas**

Description	Estimated Area (square feet)	Estimated Percent Impervious
House footprints	4,900	20.2
Sidewalks, porches, patios	1,300	5.4
Garages	2,100	8.7
Driveways	2,300	9.5
Totals	10,600	43.8

In the calculations summarized above, 18" eaves were accounted for in the house and garage footprints; and calculations for walks included those from the front sidewalk to the front porch, as well as between proposed detached garages and the homes.

The percentage of impervious area on the lots, under the proposed subdivision and corresponding improvements, will remain under the 50 percent imperviousness modeled for the Old Town Basin. Therefore, the contribution of additional runoff from the proposed houses and related lot improvements is already considered in the modeled runoff from the Old Town Basin. No additional storm water detention on the property will be required, and none is proposed.

Drainage from the property will be enhanced using soil excavated from the basements of the three proposed home sites to raise elevations in key areas to result in two percent or greater slopes on the property. Drainage will continue to be directed primarily southward on the proposed lots with discharge to the Laporte Avenue gutter. Side-lot swales will be used to direct runoff between homes toward Laporte Avenue.

The northern most of the four proposed lots (Lot 1) will be oriented primarily east-west. The rear of this lot will drain eastward to a side-lot swale that will extend along the entire eastern perimeter of the eastern-most lot (Lot 4). The front of Lot 1 will drain to McKinley Avenue, from which the flow will be directed via the east gutter to Laporte Avenue.

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The existing gravel alley will be improved to a concrete section, sloped without a crown to drain to a curb and gutter along the southern edge of the alley. The curb and gutter will connect with the side-lot swale to be constructed along the east edge of Lots 1 and 4.

**Proposed Erosion Control Plan.** As an infill project, no street construction or overlot grading is proposed. The developer will provide utility service connections, and sidewalk, alley, and lot drainage improvements. Construction erosion control will be provided by the following two measures:

- 1) A silt fence will be installed around the perimeter of the project to limit the transport of sediment off-site, and
- 2) Two construction vehicle access points will be allowed: one off the existing gravel alley at the rear of the property, and a second at the location of the proposed driveway off McKinley Avenue. Vehicle tracking control will be installed at these locations to limit the transport by tire of soil onto the City street system.

Construction erosion control details will be presented with the Final Drainage Report and Final Plat utility plans. Long-term erosion control will be provided via lot landscaping.

**Water Quality.** Water quality will be provided using Best Management Practices (BMPs) to filter storm runoff prior to discharging to the street system. These BMPs, to be presented with the Final Drainage Report, will likely include grass swales and/or porous landscape detention.

**Variations.** No variations are requested with this Preliminary Drainage Letter Report.

Should you have any questions or require additional information please do not hesitate to contact us.

Best regards,

**QED Associates**



Kent Bruxvoort, P.E.

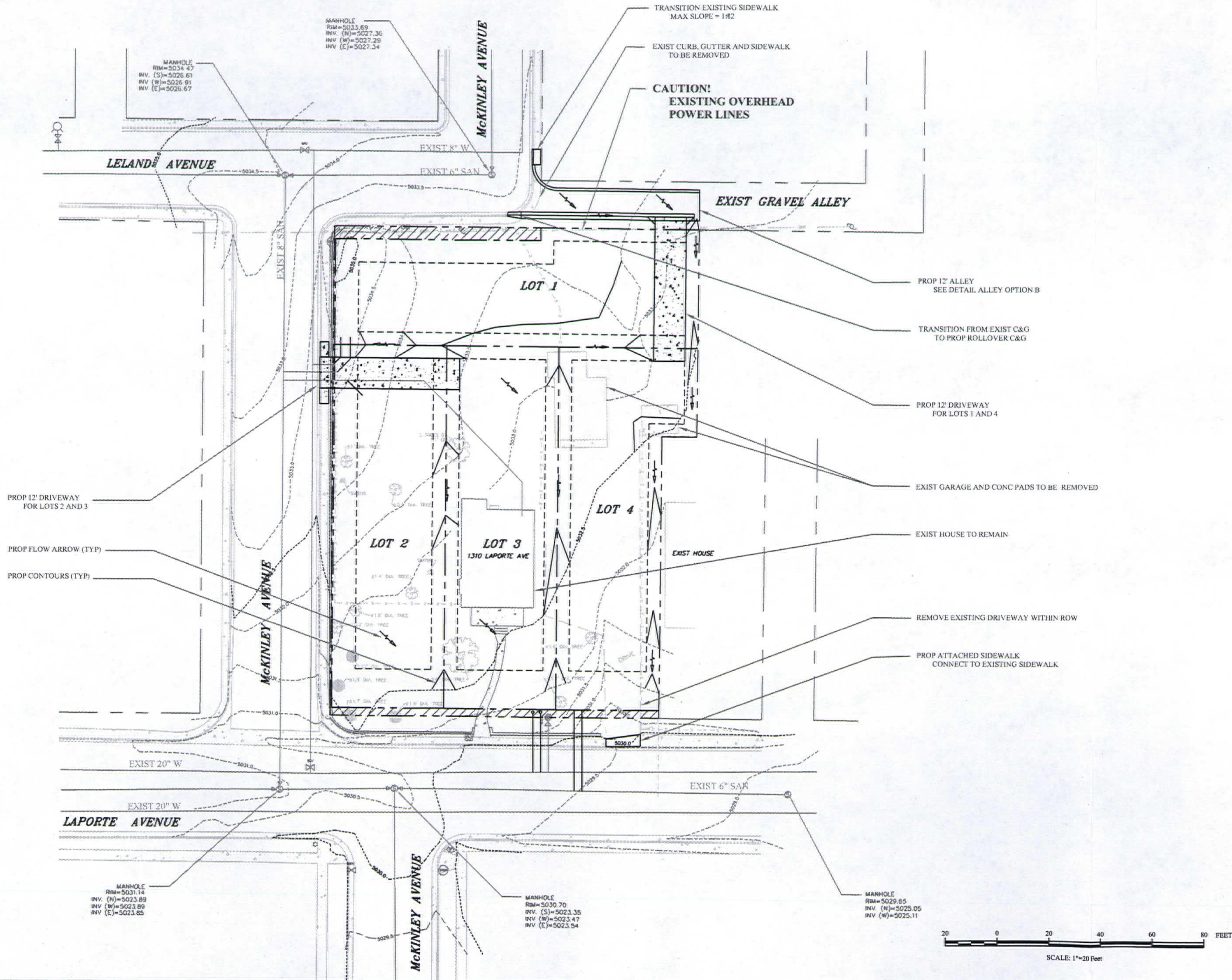
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**Old Town Subbasin Parameters**

<b>Subbasin ID</b>	<b>To Conveyance Element</b>	<b>Width (ft)</b>	<b>Area (acres)</b>	<b>Percent Impervious</b>	<b>Overland Slope (ft/ft)</b>	<b>Overland Flow Length (ft)</b>
401	422	2150	14.7	80	0.006	300
402	421	2050	9.3	90	0.010	200
405	405	1100	5.1	90	0.006	200
501	501	1150	9.3	25	0.010	350
502	502	2600	12.0	40	0.020	200
503	503	5050	28.9	50	0.020	250
504	504	4500	36.1	50	0.008	350
505	575	3000	27.4	50	0.006	400
506	576	3100	24.8	50	0.007	350
507	507	4150	35.6	50	0.008	375
508	508	2650	15.1	50	0.020	250
509	463	3750	26.0	50	0.010	300
510	475	4750	38.0	60	0.020	350
511	472	3050	21.1	50	0.020	300
512	512	2400	16.6	50	0.020	300
513	464	1650	13.3	50	0.010	350
514	434	1300	7.5	50	0.006	250
515	485	3700	25.3	50	0.008	300
516	516	5650	38.8	50	0.009	300
517	477	2000	16.1	50	0.015	350
518	518	1900	15.4	50	0.015	355
519	519	2300	14.5	30	0.065	275
520	570	2400	12.9	20	0.010	235
521	573	2450	22.0	20	0.010	390
522	522	1550	12.4	50	0.006	350
523	523	6650	45.7	50	0.010	300
524	524	5750	26.4	50	0.010	200
525	454	2200	12.5	50	0.020	250
526	490	2900	16.6	50	0.010	250
527	413	3700	25.4	55	0.010	300
528	419	5100	29.3	55	0.008	250
529	604	3450	37.6	75	0.010	475
531	479	2300	18.5	50	0.010	350
532	424	1750	10.0	50	0.013	250
533	425	1850	10.5	50	0.010	250
534	426	4200	29.0	55	0.013	300
535	430	4800	34.5	90	0.005	315
536	811	2350	8.1	90	0.005	150



NO.	DATE	BY	REVISION
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PRELIMINARY

NOT FOR CONSTRUCTION

DESIGNED: KB  
DRAWN: LN  
CHECKED: SJG  
PROJECT NO.: 10-101  
DATE: MAY 4, 2005  
FILENAME: MCKINLEY COTTAGES

204 Walnut St, Suite G  
Fort Collins, CO 80524  
970-416-6600 fax: 416-6601

QED Associates

MCKINLEY COTTAGES SUBDIVISION

PRELIM GRADING AND DRAIN PLAN

Fort Collins, Colorado

This official copy was downloaded on Aug 21, 2010 from the City of Fort Collins Public Works Website. For additional information or a full copy, please contact Customer Planning 251 North College, Fort Collins, CO 80513 USA.