NORTHERN ENGINEERING

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Drainage Letter Report

Date: August 28, 2013

Project: Meldrum Office Building
Fort Collins, Colorado

Project No. 838-007

Attn: Mr. Wes Lamarque
City of Fort Collins Stormwater Utility
700 Wood Street
Fort Collins, Colorado 80521

Dear Wes:

This letter serves to address the stormwater impacts of the above referenced project. The site currently consists of rooftop, concrete walks, asphalt parking area, and limited vegetation. The east half of the site contains a vacant 2-story office building, while the west half contains the parking lot. Roof drainage from the existing building is currently directed towards the rear parking lot. The parking lot is extremely flat with poor drainage, but does appear to eventually drain towards the alley to the west before heading north to Mountain Avenue. Gutter flows from both Mountain and Meldrum converge at two existing inlets at the southwest corner of the intersection. Historic drainage patterns will generally be preserved with the proposed redevelopment in terms of maintaining the existing outfall location at Mountain and Meldrum. The total existing impervious area (as verified by field survey) within the limits of construction is approximately 19,814 square-feet. Additionally, this parcel has historically paid monthly stormwater utility fees commensurate with a fully impervious value (0.95). Even though the site is being completely redeveloped, a variance is hereby requested to utilize the historic impervious area for which this parcel has paid into the stormwater utility system.

The proposed redevelopment will completely remove all existing structures and on-site paving. The new project will consist of a larger building, as well as streetscape improvements along Meldrum and a reconstructed parking lot west to the alley. The streetscape improvements provide significant parkway enhancements, including the replacement of existing diagonal parking spaces with a large bioretention rain garden. The total impervious area within the limits of construction of the proposed redevelopment is roughly 16,051 square-feet.

The total impervious area proposed with this project will be decreased by approximately 3,782 square-feet (19,814 – 16,051). A detailed breakdown of the existing and proposed impervious areas is attached to this letter. Since the proposed redevelopment actually results in a *lower* impervious area than the historic condition, on-site detention is not required. However, water quality requirements still apply, as do Low-Impact Development (LID) regulations pursuant to Fort Collins Ordinance No. 152, 2012. According to said ordinance, no less than fifty percent (50%) of any newly added impervious area must be treated using one or a combination of LID techniques; and no less than twenty five percent (25%) of any newly added pavement areas must be treated using a permeable pavement technology. While this proposal has *no* newly added impervious area or pavement, an attempt has been made to meet the spirit of Ordinance 152 to maximum extent feasible.

The site is divided into two primary drainage basins. The rooftop of the new office building, which will drain east to Meldrum Street, and the rear parking lot which drains north to Mountain Avenue. The existing rooftop currently discharges into the rear parking lot where it has a poor drainage path. This stormwater then collects additional surface pollutants before reaching the inlet at the southwest corner of Mountain and Meldrum. The strategy with this proposal is to ameliorate the current condition by directing the roof water towards Meldrum Street. The vast majority of the building rooftop will be routed through the new bioretention rain garden to be constructed in Meldrum. The water will be directed through roof leaders and sidewalk chases into the rain garden.

Pass through runoff will head north to the historic drainage inlet. However, the bioretention rain garden is only expected to see pass through in major storm events. Routine (first flush, 80th percentile) storms should infiltrate through the rain garden media before being intercepted by the underdrain. The new underdrain will connect into the gravity storm sewer in Meldrum Street. Additional details of the rain garden can be found on the Landscape Plans, as well as the (construction) Utility Plans to be provided during Final Design.

In addition to receiving piped roof runoff from the new office building, the bioretention rain garden will also be designed to intercept gutter flows from Meldrum Street. This will provide significant water quality enhancement to public stormwater previously reaching the Poudre River without any treatment at all. The reduced impervious area and increased water quality treatment offered with the new rain garden results in a noticeable public benefit, not only from an ecological standpoint, but from an aesthetic perspective and pedestrian experience as well.

The other drainage improvement comes by way of the reconstructed rear parking lot. Whereas this area is currently very flat with poor drainage, the new parking lot will be rebuilt with improved slope. Additionally, a new trench drain and discharge pipe will be installed to provide a better outfall path. The trench drain will discharge through an existing retaining wall to a parking lot north of the Meldrum Office Building redevelopment. Said parking lot is under common ownership with the 111 Meldrum property, and a letter of intent can be provided prior to hearing, if necessary. The need for a formal drainage easement will be explored during the Final Plan process, as will the need for a continued trench drain or similar measures north to Mountain Avenue.

In addition to the aforementioned LID rain garden, stormwater quality mitigation will be further addressed by both temporary and permanent Best Management Practices (BMPs). During construction, the Contractor will follow the appropriate and applicable City of Fort Collins standards for erosion and sediment control. A comprehensive Erosion Control Plan and Report will be provided during the Final Plan process. Post construction water quality and erosion control will be achieved by a fully established and stabilized site. All areas disturbed during construction will receive permanent hardscape, landscape, or building structure, not to mention the LID components.

The project site is located in the Old Town Basin, and meets all associated drainage master plan stipulations. There are no floodplains impacting the subject property. Additional design details will be provided during the Final Plan process. Standard Operating Procedures (SOPs) for the LID facilities will be incorporated into the Development Agreement. The drainage outfall location at the corner of Mountain and Meldrum will be preserved, and modifications only serve to improve the existing condition. Therefore, it is my professional opinion that the new building and site improvements proposed with the Meldrum Office Building redevelopment meet or exceed all applicable stormwater criteria.

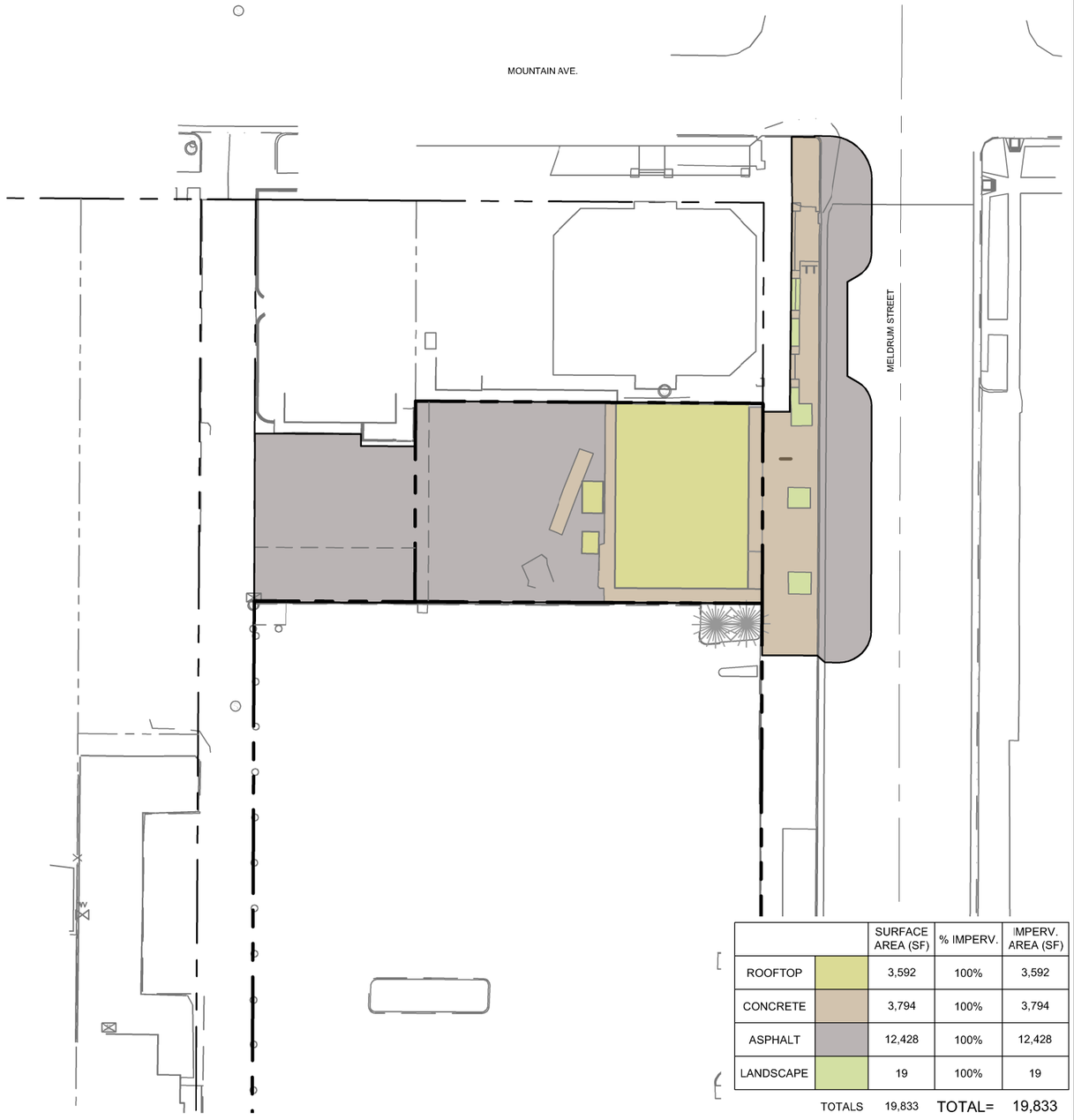
Please do not hesitate to contact me if you have questions or require additional information.

Sincerely,

Nicholas W. Haws, PE
Vice President

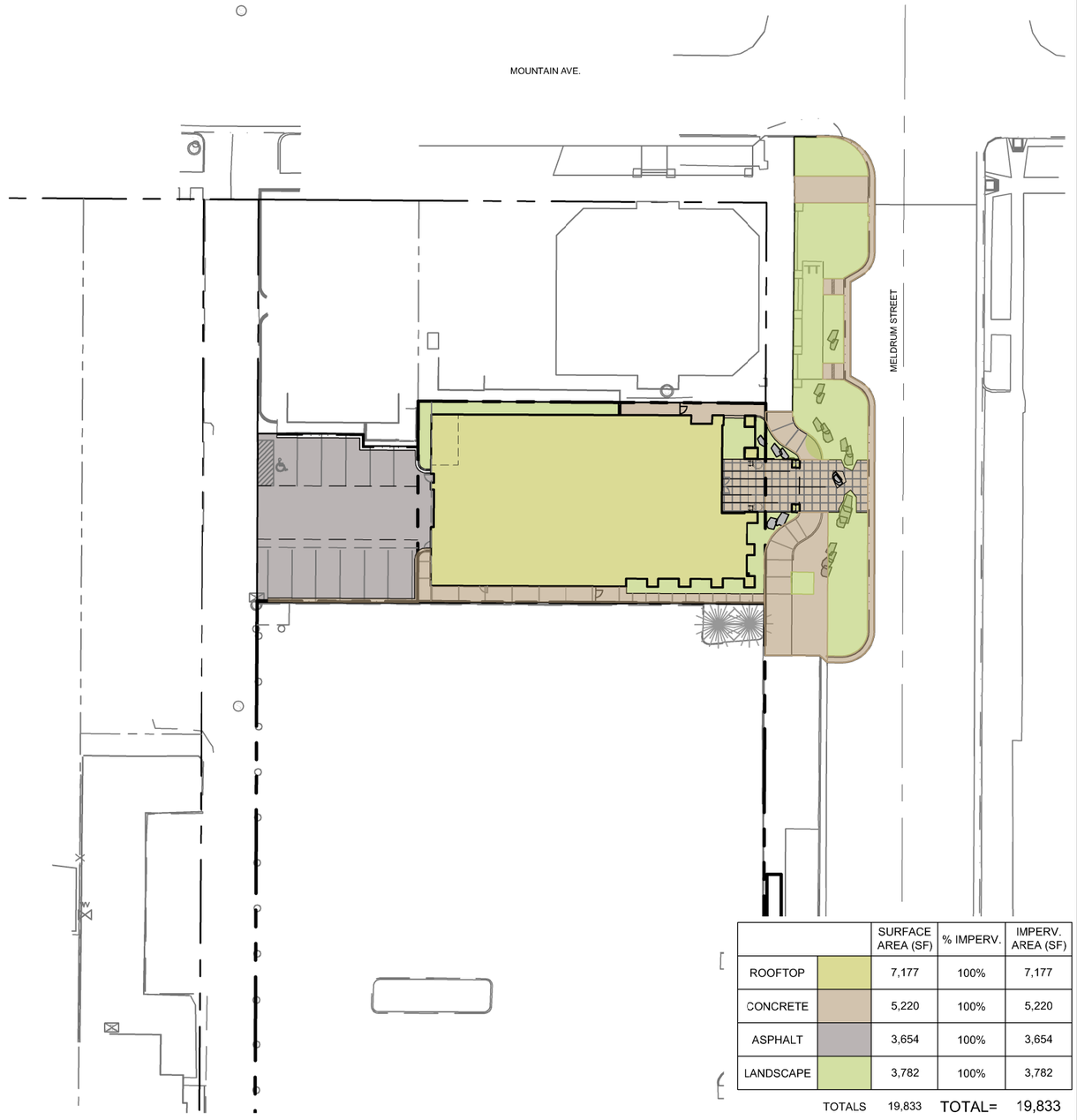
LEED AP

EXISTING



		SURFACE AREA (SF)	% IMPERV.	IMPERV. AREA (SF)
ROOFTOP		3,592	100%	3,592
CONCRETE		3,794	100%	3,794
ASPHALT		12,428	100%	12,428
LANDSCAPE		19	100%	19
TOTALS		19,833	TOTAL=	19,833

PROPOSED



		SURFACE AREA (SF)	% IMPERV.	IMPERV. AREA (SF)
ROOFTOP		7,177	100%	7,177
CONCRETE		5,220	100%	5,220
ASPHALT		3,654	100%	3,654
LANDSCAPE		3,782	100%	3,782
TOTALS		19,833	TOTAL=	19,833

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EXISTING & PROPOSED IMPERVIOUS AREAS

MELDRUM OFFICE BUILDING

DRAWN BY: C. Bowen

SCALE: 1in=50ft

ISSUED: AUGUST 28, 2013

EXHIBIT 1

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