



## Memorandum

**To:** Bassett Creek Watershed Management Commission  
**From:** Barr Engineering Co.  
**Subject:** Item 4D – Minneapolis Impound Lot Facility Improvements – Minneapolis, MN  
BCWMC November 15, 2017 Meeting Agenda  
**Date:** November 8, 2017  
**Project:** 23270051 2017 2144

### 4D Minneapolis Impound Lot Facility Improvements – Minneapolis, MN BCWMC 2017-37

#### Summary:

**Proposed Work:** Demolition of an existing building, construction of a new building, new access road from Van White Blvd, and other site and utility improvements.

**Basis for Review at Commission Meeting:** Cut and fill in the floodplain

**Impervious Surface Area:** Decrease 0.77 acres

**Recommendation:** Conditional Approval

#### General Background & Comments

The proposed project is located in the Bassett Creek Main Stem subwatershed at 51 Colfax Avenue North in Minneapolis, MN. The project includes demolition of existing buildings, construction of a new building, parking improvements, stormwater management improvements, and other site improvements; resulting in 18.8 acres of disturbance (grading). The project creates 4.91 acres of reconstructed impervious surfaces, and results in a 0.77-acre decrease of impervious surfaces from 8.96 acres (existing conditions) to 8.19 acres (proposed conditions).

Barr Engineering Co. has been working for the City of Minneapolis to assist with evaluation of environmental impacts and geotechnical conditions for the project site. The work has consisted of conducting environmental and geotechnical investigations and preparing reports, and consulting with the City's project team with recommendations to address the contamination and poor geotechnical soils during implementation of the project. SRF is performing the site design and stormwater management for the project under a separate contract with the City. None of Barr's work requires review by the BCWMC.

#### Floodplain

The proposed project includes work in the Bassett Creek floodplain. The August 2017 BCWMC Requirements for Improvements and Development Proposals (Requirements) document states that projects within the floodplain must maintain no net loss in floodplain storage and no increase in flood level at any point along the trunk system (managed to at least a precision of 0.00 feet). The floodplain elevation of Bassett Creek at the project site is 810.9 feet NAVD88. A portion of the northwest corner of

the site is within the BCWMC floodplain, requiring the creation of compensatory storage for any proposed fill within the floodplain.

The proposed project results in 4,667 cubic yards of floodplain fill along the new access road from Van White Memorial Boulevard and other site facilities. Compensatory floodplain storage of 4,693 cubic yards is proposed by floodplain cuts to construct a filtration basin and swales to balance floodplain fill. This results in a net increase in floodplain storage of 26 cubic yards. In addition, during construction, surcharge material for the proposed Van White Memorial Boulevard access will be sourced from the proposed filtration basin area to prevent a temporary floodplain fill condition.

## Wetlands

The proposed project appears to involve work in or adjacent to wetlands. The City of Minneapolis is the local governing unit (LGU) responsible for administering the Wetland Conservation Act.

## Stormwater Management

The BCWMC Requirements document states that projects that contain more than one (1) acre of new or fully reconstructed impervious area must manage stormwater such that peak flow rates leaving the site are equal to or less than the existing rate leaving the site for the 2-, 10-, and 100-year events, based on Atlas 14 precipitation amounts and using a nested 24-hour rainfall distribution. As discussed below, the proposed peak flows meet the BCWMC requirement.

Under existing conditions, stormwater runoff from the majority of the site flows to Bassett Creek, either overland or through a stormwater pond and storm sewer under or adjacent to Van White Memorial Blvd. Additionally, stormwater runoff from a portion of the east side of the site is collected in a storm sewer and is routed to the Bassett Creek Tunnel, stormwater runoff from a portion of the southwest corner of the site flows offsite to a parcel to the west, and stormwater runoff from a portion of the southeast corner of the site flows offsite along the railroad right of way (ROW).

The proposed stormwater management system includes a filtration basin, swales with permanent rock ditch checks, and a Rain Guardian pretreatment feature. Stormwater runoff from the majority of the site will be routed through the swales (or Rain Guardian) and the filtration basin and continue on to Bassett Creek. Stormwater runoff from the same portion of the east side of the site is collected into a storm sewer and routed to the Bassett Creek Tunnel, and stormwater runoff from the same portion of the southeast corner of the site will flow offsite along the railroad ROW. Stormwater runoff from a smaller portion of the southwest corner of the site will flow offsite to a parcel to the west, although less runoff is produced than in existing conditions due to the proposed grading. The following table summarizes the existing and proposed peak discharges from the project area to Bassett Creek.

Discharge Point	Existing (cfs)			Proposed (cfs)		
	2-Year	10-Year	100-Year	2-Year	10-Year	100-Year
Bassett Creek	16.4	26.2	74.2	13.2	23.9	38.2
Bassett Creek Tunnel	8.9	13.6	23.8	8.9	13.6	23.8
West Parcel	2.3	3.8	7.1	0.5	0.8	1.4
Railroad ROW	0.1	0.1	0.2	0.1	0.1	0.2

## Water Quality Management

The BCWMC Requirements document states that redevelopment projects that create more than one (1) acre of new or fully reconstructed impervious area must treat stormwater in accordance with the BCWMC water quality standards performance goals. If the BCWMC performance goal is not feasible and/or is not allowed for a proposed project, then the applicant must implement flexible treatment options.

The proposed project results in 4.91 acres of new/fully reconstructed impervious surfaces. Due to soil contamination, no infiltration practices are allowed, and Flexible Treatment Option (FTO) #2 was selected for the proposed project. FTO #2 requires that the project provide 60% removal of total phosphorus (TP). The proposed stormwater management system was modeled with the Minimal Impact Design Standards (MIDS) calculator.

The following table summarizes the proposed TP removal rates for the proposed BMPs.

BMP	TP Load From Direct Watershed	TP Load From Upstream BMPs	TP Retained	Outflow Load	% Retained
	(lbs/year)	(lbs/year)	(lbs/year)	(lbs/year)	(%)
East Swale	2.56	0.00	1.03	1.54	40%
West Swale	6.61	0.00	2.65	3.95	40%
Filtration Basin <sup>1</sup>	1.73	5.49	4.36	2.86	60%
<b>Total</b>	<b>10.91</b>		<b>8.04</b>	<b>2.87</b>	<b>74%</b>

<sup>1</sup>Filtration Basin receives outflow from East Swale and West Swale

## Erosion and Sediment Control

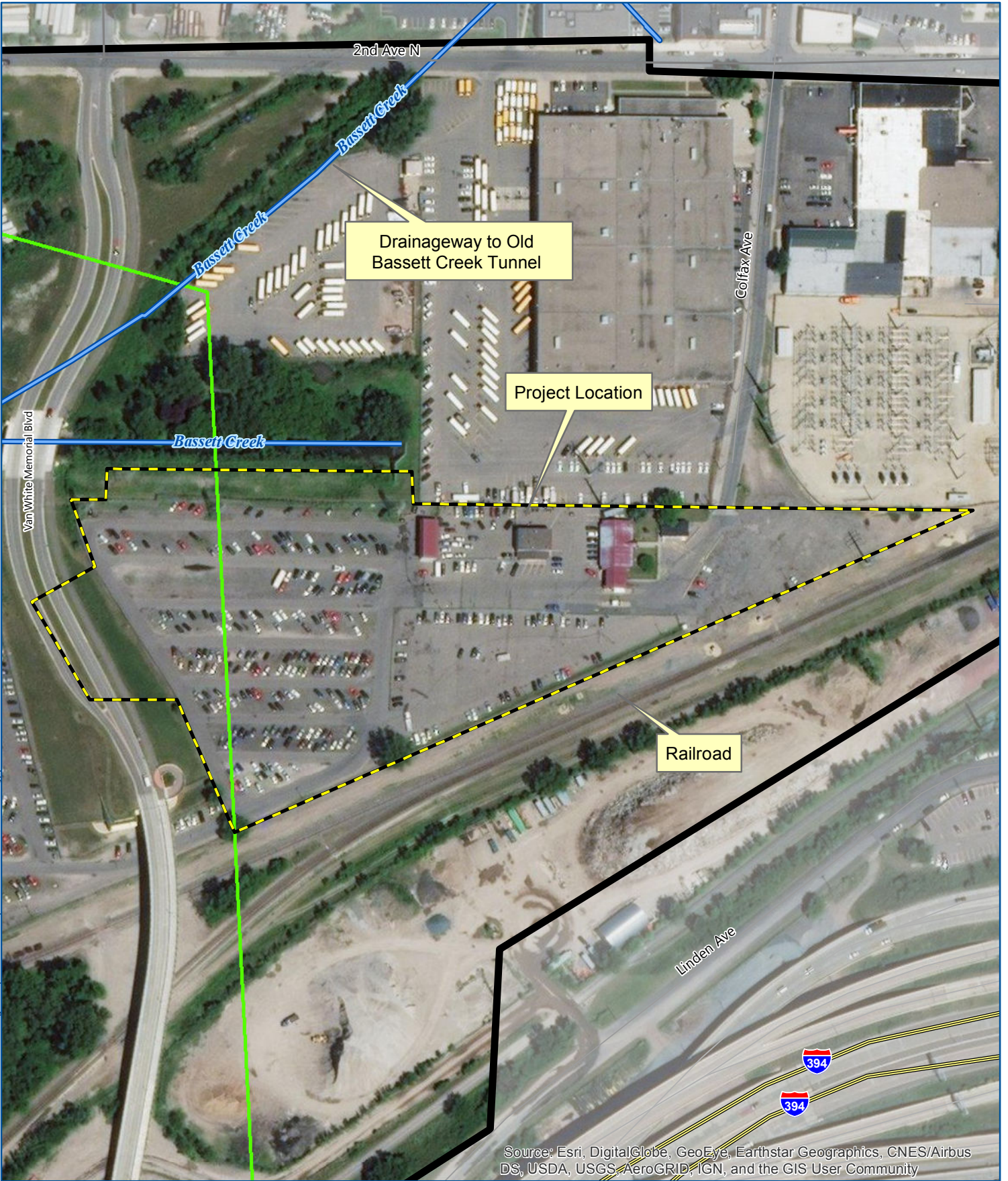
Because the proposed project involves more than 200 cubic yards of cut and fill and the area to be graded for the project is greater than 10,000 square feet, the proposed project must meet the BCWMC erosion and sediment control requirements. Proposed temporary erosion and sediment control features include silt fence, a rock construction entrance, and inlet protection. Permanent erosion and sediment control features include riprap, permanent ditch checks, and stabilization through seeding and sod.

## Recommendation

Conditional approval based on the following comments:






1. The narrative of the Stormwater Management Report indicates that no infiltration is proposed for the site due to the site contamination; however, the MIDS Calculator file shows that the swales and filtration basins provide infiltration. The MIDS Calculator file should be revised to match site plan. Applicant should describe how contaminated soils will be separated from new engineered soils.
2. We recommend using Dynamic Storage Indication for the Reach and Pond Routing Methods in HydroCAD to account for tailwater conditions.

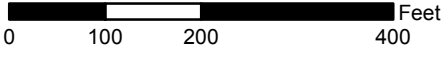
3. In HydroCAD, the invert out and diameter of the pipe from the Filtration Basin to Bassett Creek should be revised to match the plans.
4. The 2-Year and 10-Year proposed conditions HydroCAD outputs must be provided for verification of the runoff values.
5. The outlet velocity at FES 120 exceeds 11 feet per second when the pipe is flowing full. Modifications must be made to reduce outlet velocities to less than 8 feet per second if riprap is used or less than 4 feet per second if no riprap is used.
6. FES 301 should be lowered to discharge at or below the normal water level of Bassett Creek. As an alternative, adequate erosion protection must be provided between FES 301 and the creek to prevent channelization and erosion. FES 301 must also discharge in a downstream direction along Bassett Creek to minimize erosion. This work should be coordinated with the City's stream restoration project.
7. Inlet protection must be shown on Sheet C4.1 of the plans for the catch basin on the east side of the site.
8. Silt fence must be placed on the southwest corner of the site to intercept sediment-laden runoff to the west. Additionally, the rock construction entrance detail on Sheet C8.1 must be modified to include a wash-off berm a minimum height of 2 feet above the adjacent roadway to intercept runoff through the construction entrance.
9. Modify *City of Minneapolis Erosion Control Note #9* on Sheet C5 and Sheet C5.1 to require that all exposed soil areas be stabilized in no case later than 7 days, due to the project's location within 1 mile of a special or impaired water.
10. An inspection and maintenance plan must be established for the filtration basin.
11. An outdated BCWMC Application Form was submitted, therefore the current BCWMC Application Form must be provided. In addition, based on the new fee schedule, the review fees for this project are \$1,500. The applicant paid \$1,400 for the project review. The applicant must provide the outstanding review fee amount of \$100.
12. Revised Drawings (paper copy and final electronic files) and a revised Stormwater Management Report must be provided to the BCWMC Engineer for final review and approval.



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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

-  Project Location
-  Municipality
-  Bassett Creek
-  WMC Boundary
-  Major Subwatershed



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**LOCATION MAP**