

Memorandum

To: Bassett Creek Watershed Management Commission
From: Barr Engineering Co.
Subject: Item 6F – Consider Approval of Briarwood Dawnview Water Quality Improvement Project 90% Plans (BC-7)
BCWMC September 18, 2014 Meeting Agenda
Date: September 10, 2014
Project: 23270051 2014 629

6F Consider Approval of Briarwood Dawnview Water Quality Improvement Project 90% Plans (BC-7)

Summary:

Proposed Work: Briarwood Nature Area Water Quality Improvement Project (CIP BC-7)

Basis for Commission Review: 90% plan review

Recommendation: Conditional Approval

General Background

The Briarwood/Dawnview water quality improvement project (CIP BC-7) is being funded by the BCWMC's ad valorem levy (via Hennepin County). The plans for the improvements are at the 90% stage, and the City of Golden Valley provided the plans to the BCWMC for review and comment, as set forth in the BCWMC CIP project flow chart developed by the TAC.

Feasibility Study Summary

The City of Golden Valley completed the *Briarwood/Dawnview Water Quality Improvement Project Feasibility Report* (WSB, April 2013) to evaluate options for improving the water quality discharged from a 184-acre single family residential watershed into the Bassett Creek Main Stem. Five potential projects were identified in the feasibility study.

Selected Project

The BCWMC selected Option 5 (pond with iron enhanced sand filter) from the feasibility study for construction, because it would remove the largest amount of total suspended solids and total phosphorus per year. The goal of the selected project was to reduce the phosphorus loading to Bassett Creek downstream of Highway 100 by an estimated 94 pounds per year. The 50-percent plans for the Briarwood/Dawnview Water Quality Improvement Project included a proposed pond with an iron enhanced sand filter located south of Dawnview Terrace and east of Highway 100. As the design was

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refined, the city's consultant determined that more phosphorus could be removed using a traditional wet pond design instead of the initially proposed pond with an iron enhanced sand filter. The design including the iron enhanced sand filter was expected to remove 29 pounds of phosphorus per year. The traditional wet pond design is expected to remove 40 pounds of phosphorus per year. The 90% submittal reflects the traditional stormwater treatment (wet) pond design. The Commission Engineer recommends approval of the change from Option 5 (pond with an iron enhanced sand filter) to Option 3 (stormwater treatment pond) of the feasibility study, with a lower amount of phosphorus removal. Review of the 90% submittal indicates the project is generally consistent with the feasibility study.

90% Design

Primary design features of the proposed pond, as shown on the 90% plans include:

- An 18-inch pipe will intercept runoff from the existing storm sewer under Dawnview Terrace and direct runoff through the proposed pond.
- The proposed pond has a bottom elevation of 835.0 feet, and provides 0.39 acre-feet of water quality ("dead") storage.
- Discharge from the pond will be controlled by a weir at elevation 840.5 ft., with an overflow elevation of 843.9 feet.

According to information provided by the city's consultant, the project is anticipated to achieve reductions in total phosphorus of 40 pounds per year (34%) and reductions in total suspended solids of 23.5 tons per year (66%).

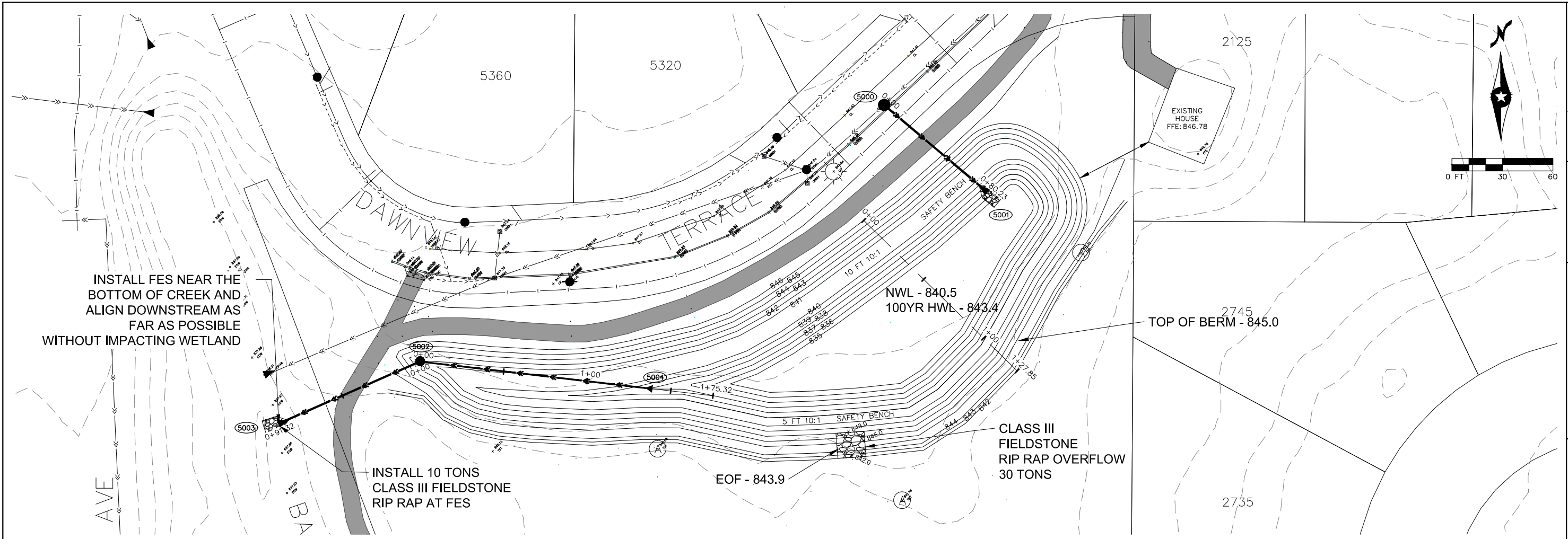
Recommendations

The Commission Engineer recommends conditional approval of the 90% drawings and that the Commission authorize the City of Golden Valley to proceed with final plans and contract documents. The following are the Commission Engineer's recommendations regarding the construction plans.

1. Pretreatment in the form of grit chambers, swales with check dams, filter strips, or sediment forebays/traps should be considered for inclusion in the plans.
2. An additional plan view detail that shows the location of the weir in CB5000 should be included on the plans for construction clarity.
3. Filter material must be included with all riprap installations. A detail for the riprap emergency overflow from the pond should be provided on the plans for construction clarity.

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4. Remove Specification Section 2502 – Drainage System Type IESF (Iron Enhanced Sand Filter) from sheet 5/11.
5. The following erosion control comments must be added to the plans:
 - a. Provide a temporary vegetative cover consisting of a suitable, fast-growing, dense grass-seeded mix spread at 1.5 times the usual rate per acre.
 - b. Temporary mulch must be uniformly applied by mechanical or hydraulic means and stabilized by disc anchoring or use of hydraulic soil stabilizers.
 - c. Provide a detail for the rock construction entrance on the plans.
 - d. Silt fences shall be supported by sturdy metal or wooden posts at intervals of 4 feet or less.
 - e. Any sediment accumulated during the pond area during construction must be removed prior to final stabilization of the pond.
6. Revised plans must be submitted to the BCWMC engineer for review and administrative approval.

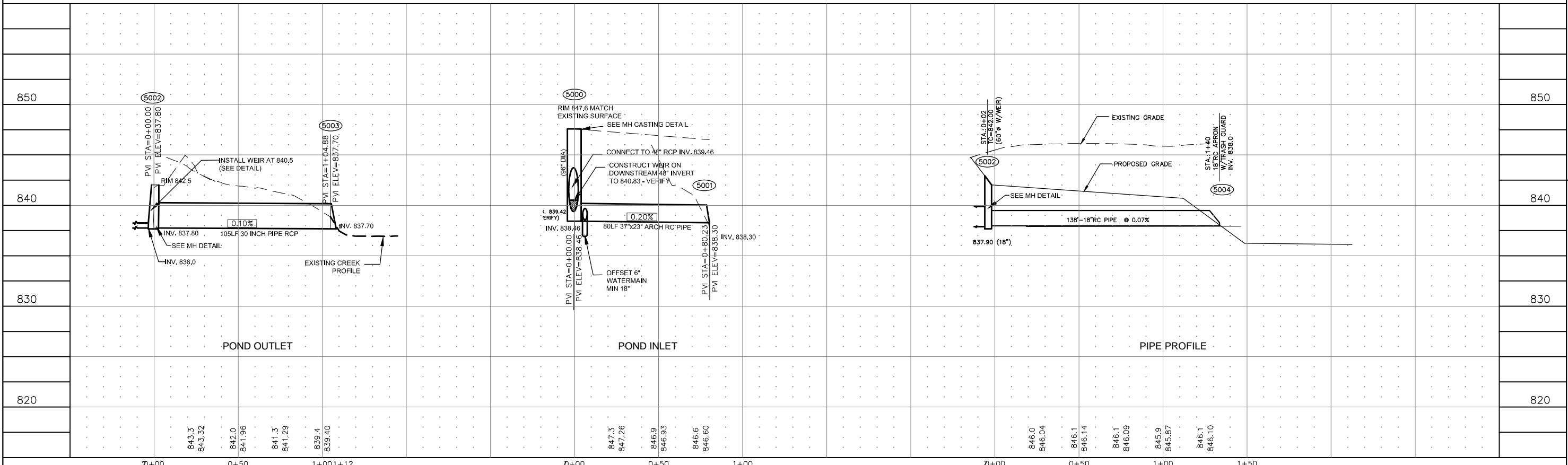


REVISION NO.	DATE	DESCRIPTION
02/18/2014		CITY COMMENTS
03/03/2014		BOWING 50% REVIEW COMMENTS
06/30/2014		FINAL REVIEW COMMENTS
09/05/2014		DESIGN REVISIONS

SCALE:	AS NOTED
PLAN BY:	ESF
CHECKED BY:	ESF
PROJECT NO.:	2032-08
DATE:	06/30/2014
RECORD COPY #:	15998

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PETER R. WILLENBRING
 DATE: 06/30/2014 LIC. NO.: 15998



BRIARWOOD WATER QUALITY IMPROVEMENT PROJECT
CITY OF GOLDEN VALLEY

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