

# Moga Back Channel Construction Project - Summary of changes to Specifications and Engineered Drawings:

**Date: 11-8-2016**

## **Prepared by:**

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1. Revisions and Changes in Quantities for Specifications 2-03, 7-08.3(3) Excavation and Embankment Backfill (Item 8) and West Culvert (Item 14), and 9-03.11(1) Streambed Sediment (Item 18): Pipe Zone Bedding and Streambed Sediment (Dan Elefant, 9/8/16; I attached the 2 revised drawing pages):

“Attached are the new sheets 5 and sheet 10 with redlines indicating improvements for the culverts. In general we plan to do the following to account for the soft soils beneath the culverts:

1. Increase depth of bedding material from 1’ to 2’ minimum
2. Raise WEST culvert invert up 2’ and maintain the same channel inverts
3. Road surface of the WEST culvert will also come up 2’ and we’d like a nice gently graded transition over that culvert. No speed bump please.

This will change a few quantities:

1. We’ll need 40 CY more bedding material beneath the culverts.
2. We’ll need less streambed sediments in the WEST culvert because of the increase in invert elevation – I calculate 110 TON WEST and 175 TON for the EAST.”

**Note: Sky Miller inspected and approved on 9/19/2016; 9/20/16 and 9/29/16**

2. Revisions to Specifications 2-03, 7-08.3(3) Excavation and Embankment Backfill (Item 8) and West Culvert (Item 14)

Pipe zone bedding material substitution (Dan Elefant, email 9/16/16 of his 9/15/16 field report):

Pea gravel is approved as a substitution for the pipe zone bedding material at no extra cost to SCD... Soils below culverts are fine sands with less than ~3% organics, silts, clays. Contractor is to backfill culverts based on a neatline quantity of 1200 CY – see bid schedule. Contractor may open culvert trenches to a larger extent to facilitate ease of installation, but 1200 CY remains the measured and paid quantity for the backfill bid task.

**Note: Sky Miller inspected and approved on 9/19/2016 and 9/20/2016.**

3. Revision to Specifications 7-02, 7-08.3(3) West Culvert (Item 14) and 8-01.3(1)C Water Management (Item 16):

Dewatering recommendation for west culvert (Sky Miller and Don Clabaugh, emails 9/19/16 and 9/20/16)

(Clabaugh 9/19/16): At the site visit today the culvert locations were inspected. Elevated groundwater levels and silty sediments have made excavation to foundation levels impossible at the east culvert location. The contractor should install a trench in the middle of the channel for the length of the culvert and fill with pea gravel to facilitate drainage to a large diameter sump (or, if necessary, multiple sumps). The trench should not exceed two feet beneath the foundation level. Following excavation a layer of quarry spalls

should be laid on the silty sediments, and then pea gravel should overlay the quarry spalls. Thickness of the foundation material is not a concern for the west culvert; sufficient pea gravel should be used to fill voids in the quarry spall layer and provide a foundation of rounded gravel beneath the culvert.

Dewatering does not appear to be a concern for the east culvert because a clay layer is present at the foundation level. Quarry spalls with a pea gravel cover is sufficient for the east culvert.

(Miller 9/20/16 field report notes):

McClung will reinforce the haunches prior to backfill with 4-8 inch quarry spalls.

**Note: Sky Miller observed and approved these changes on 9/20/2016 and 9/26/2016**



**West Culvert Installation 9/20/2016**



**East Culvert Installation 9/26/2016**

- Revision to quantity of Gravel Borrow (Item 19), Specification 9-03.14 : Import of additional gravel borrow for west culvert (Sky Miller, email 9/27/16):  
You are authorized to import 200 cubic yards of gravel borrow to finish the bench on the upstream side of the west culvert, and to put local topsoil on it before seeding.

**Note: Sky Miller observed and approved on 9/29/2016**



- Change in quantity to Type 3 Log Jam (Item 12), Specification 6-04: Build one additional jam (Sky Miller, email 9/20/16, from 9/20/16 field report):  
Build an additional Type 3 LWD Jam in Northeast Channel. Material is present at this site to construct it: three 14 inch diameter willow trees already down, and 7 half pieces of timber piles.

**Note: Sky Miller observed and approved on 9/29/2016**



6. Revision to Spec 8-01.3(2)B – Seeding, Fertilizing, and Mulching (Kristin Marshall, emails 9/28/16 and 9/30/16):
  - a. Fill Spread Zone (9/28/16): SCD (Kristin Marshall) approved the following change/clarification: Proceed with the Fill and Spread ~~9.8 acres~~ 10 acres at 20 lbs/acre of inoculated red clover, harrowed, with a 10-20-20 fertilizer at 200 lbs/acre (seed rate and fertilization rate not previously specified).
  - b. Zone 1 hydroseeding: change hydroseed mulch rate and fertilization rate. SCD (Kristin Marshall) approved the following change: Bonded Fiber Matrix at a rate of 3,000 lbs per acre in substitution of the Short Term Mulch at a rate of 250 lbs per acre as written in the specs. This will come at no additional cost and will ensure the seed remains firmly attached to the channel slopes. Additionally, she's recommending a 20-0-10 fertilizer applied at 200 lbs per acre.

