Stantec

August 13, 2024

Project/File: CIAR# 80100

Julie Buron
Impact Assessment Agency of Canada

Dear Julie Buron,

Reference: CN Milton Logistics Hub July 15th Incident 30-Day Report

The purpose of this correspondence is to provide the Impact Assessment Agency of Canada (IAAC), in accordance with Condition 14.5.4 of the amended Decision Statement issued July 26, 2022, with the 30-day report following the incident that occurred on July 15, 2024. Notification of the incident was provided in writing (via email) to IAAC and to Fisheries and Oceans Canada (DFO) on July 16, 2024 (see **Attachment 1**).

Description of Incident and Adverse Effects

During a storm event on July 15, 2024, heavy runoff from the CN Milton Logistics Hub site caused damage to the existing surface water outlet from the Regional Diversion Ditch located downstream of Culvert 3. The storm flows caused existing rip-rap material to be displaced from the spillway and deposited within the plunge pool at the base of the slope. As a result, the geotextile filter cloth beneath was exposed, and sediment-clouded water was observed entering the backwater channel of Indian Creek. Due to wet and unsafe conditions, Dufferin Construction Company ("the Contractor") was unable to access the slope to immediately stabilize the area.

Further damage to the spillway was observed following a larger storm event the following day, on July 16, 2024, where additional rip-rap material was observed to have been displaced with additional geotextile filter fabric exposed and torn in some areas, leaving sections of exposed earth underneath.

The initial observation on July 15, 2024, was made during a routine turbidity monitoring inspection by CN's Environmental Monitor (EM). Upstream readings were recorded as 15.2 Nephelometric Turbidity Units (NTU) while the downstream readings were recorded as 48.2 NTU. This higher downstream reading prompted further investigation by the EM to determine the cause of the elevated turbidity, during which the washout to the spillway was identified. At that time, sediment-clouded water was observed entering the backwater channel of Indian Creek at the spillway before entering the main channel approximately 50 m downstream. Water quality in the receiving watercourse was also observed to be turbid at that time, as a result of non-project-related storm-induced erosion upstream.

Reference: CN Milton Logistics Hub July 15th Spill 30-Day Report

The following photographs depict the slope failure in the spillway and sediment-clouded water in the backwater channel and main channel of Indian Creek on July 15, 2024.

Photo 1: Spillway slope failure

Photo 2: Sediment-clouded water entering Indian Creek

The following photographs depict the further slope failure in the spillway and displaced rip-rap deposited in the plunge pool on July 17, 2024.

Photo 3: Exposed and torn geotextile fabric

Photo 4: Displaced rip-rap deposited in plunge pool

Description of Mitigation Measures Implemented

Dufferin Construction Company ("the Contractor") was unable to immediately access the spillway on July 15th due to wet and unsafe conditions. As an interim measure, strawbale check dams were installed upstream of the spillway, to slow the flow of water and provide additional erosion and sediment control for any sediment transfer downstream.

As soon as conditions were safe after the storm events, the contractor was able to gain access and stabilize the slope temporarily. Vegetation was cleared following a nest sweep, and temporary access to the site was constructed to enable repairs to be undertaken. A mini excavator was used to bring in rip-rap loads by the bucket on July 17th and 18th. This rip-rap was placed on the slope to stabilize the bank.

The following photos (dated July 23, 2024) depict the repaired spillway with added rip-rap material to stabilize the slope.

Photo 5: Temporary repair to the spillway

Photo 6: Sediment-clouded water in the backwater channel

Subsequent NTU readings were taken on July 18 and 22, 2024, after the temporary repairs. Both NTU readings were below the acceptable thresholds when comparing upstream to downstream readings; however, water in the backwater channel of Indian Creek still appeared to be turbid. It is anticipated that these conditions are the result of sediment-clouded water entering this backwater channel during the July 15 and 16 rain events, although turbid conditions had not yet fully settled or flushed out. Secondly, observed carp activity may also have been contributing to these continued turbid conditions.

To stabilize the site over the long-term, a redesign of the spillway and a remediation work plan have been developed (**Attachment 2**). AECOM has designed an alternate form of slope protection for this spillway to be implemented by the Contractor in August 2024. It is expected that this work will take approximately 14 working days to complete; we will provide an update on this work in the 90-day report.

The remediation plan includes the following proposed measures:

- Install silt fencing along the edge of the temporary access route, adjacent to the diversion ditch.
- Install a temporary coffer dam and pump system at the inlet of Culvert 3 to limit flow from entering the diversion ditch. Water will be diverted and pumped from Culvert 3 to Culvert 7 temporarily during the work to prevent any runoff from entering the work area. A filter bag will be installed 30m away from Culvert 7 to manage sediment transfer. The pumping system will be active 24 hours a day.
- Install a temporary meter bag coffer dam within the backwater channel at the outlet of the spillway. Dewater the area to gain access for remediation work.
- Conduct a fish rescue by Stantec's qualified biologists within the isolated portion of the backwater channel.
- Cut access ramp into the side of the spillway to allow for heavy equipment access.
- Remove existing rip-rap material down to the subgrade and reduce slope of the spillway.
- Seed ground surface and place new Terrafix Flexamats along upper portion of the spillway. Fill in gaps between existing materials and matted portions with rip-rap material.
- Reconstruct and remove all rip-rap material that has been displaced into the plunge pool.
- Reconstruct the plunge pool and place rip-rap material on the lower portion of the spillway.
- Work is expected to be completed by the end of August 2024 in accordance with design plans provided by AECOM (**Attachment 2**).

Views from Indigenous Communities and Potentially Affected Parties

In accordance with the Accident and Malfunction Communication Plan, the incident was reported to various parties via phone call and email. Notification was provided to IAAC, DFO, Mississaugas of the Credit First Nation, Six Nations of the Grand River, Huron Wendat Nation, the Ontario Ministry of the Environment, Climate and Parks (MECP) Spills Action Centre (ECCC representative in Ontario), the Region of Halton, and the Town of Milton, as well as to the downstream landowners. **Attachment 3** provides a summary of the notifications provided and copies of email correspondence provided to the various parties. Phone calls and emails were used to notify agency staff and Indigenous communities, while downstream residents were contacted directly (i.e., door knock).

A response was provided by DFO acknowledging that CN's July 16, 2024, email notification satisfies Section 38(4) of the *Fisheries Act* and requested that DFO be updated with a repair plan and mitigation measures to be implemented. The requested information is outlined in this 30-day report, which will be circulated to DFO. Downstream landowners contacted following the incident had no issues and thanked CN for coming forward. No further responses have been received from the other notified parties.

Description of Residual Effects and Modified Mitigation Measures

Residual adverse effects to water quality, fish, and fish habitat within Indian Creek are not expected. While sediment-clouded water entered the creek causing elevated turbidity levels, Indian Creek already

Reference: CN Milton Logistics Hub July 15th Spill 30-Day Report

had sediment-clouded waters upstream and downstream of the spillway because of the storm events, and turbidity levels returned to normal when tested on July 18th.

The sediment plume was observed to extend upstream and downstream of Indian Creek within the PDA. The incident occurred outside of the restricted activities period (March 15 to June 30). No fish mortality was observed. No long-term impacts on water quality, fish, or fish habitat are anticipated.

No other valued components of the environment are expected to have been impacted by this incident as the release to the environment was minor and contained to Indian Creek.

90-Day Report

CN will be initiating work on the preparation of the 90-day report, required pursuant to Condition 14.5.5, which will be submitted to IAAC no later than October 12, 2024, providing a description of any changes made to avoid a subsequent incident and of any modified or additional mitigation measures, monitoring or progressive reclamation following the incident. Any views from the Mississaugas of the Credit First Nation, Six Nations of the Grand River, or Huron Wendat Nation and potentially affected parties and advice from relevant authorities received by CN will be considered.

Closing

We trust that the information contained in this correspondence addresses the information requirements of Condition 14.5.4 as it pertains to this incident. If you have any questions or require additional information, please do not hesitate to contact the undersigned.

Sincerely,

STANTEC CONSULTING LTD.

2024.08.13
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Digitally signed by Denis Kirchhoff
Date: 2024.08.13 16:49:01 -04'00'

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Attachment	1 – Email Notification to IAAC, DFO and other Parties
	2 – Revised Spillway Design and Remediation Work
	3 – Summary of Notifications and Communication Record
c.c.	Chris Strand and Tara Schweitzer, DFO
	Ricky Chiu, Darren Reynolds, Luanne Patterson, CN

Attachment 1: Email Notification to IAAC, DFO and other Parties

From:	Ricky Wai Kei Chiu
To:	Buron,Julie (IAAC/AEIC); Devin,Sarah (IAAC/AEIC); IAAC Project Email; Strand, Chris; Maxime Picard; Casey.Jonathan@mncfn.ca; Dawn LaForme; Tanya Hill-Montour; bob.gray@halton.ca; andrew.siltala@milton.ca; "Hassaan Basit"
Cc:	Schweitzer, Tara; Theresa Nelson; Daniel Gagne; "Northey, Rodney" Rodney.Northey@gowlingwlg.com; Rodney" Rodney.Northey@gowlingwlg.com; "Bernstein, Andrew" abernstein@torys.com; Andrew" abernstein@torys.com; Eric Harvey; Darren Reynolds; Luanne Patterson; Powell, Chris (Guelph); Manny Loureiro
Subject:	CN Milton - Regional Diversion Ditch Storm-related Erosion
Date:	Tuesday, July 16, 2024 12:48:31 PM
Attachments:	image001.png

Good afternoon all,

I am writing to advise that the existing rip rap protection along the slope draining from the regional diversion ditch was eroded during a storm event yesterday at the CN Milton Logistics Hub site. A portion of the rip rap on the slope was eroded by runoff draining from the construction site exposing the geotextile fabric beneath. Damage appears to be isolated to the main slope and the plunge pool slope leading into Indian Creek. Sediment-clouded water was observed entering Indian Creek at this location, although water quality in the receiving watercourse at the time of the incident appeared to have already been affected by storm-related erosion upstream. The contractor was unable to access the slope yesterday to make repairs due to unsafe conditions; however, the contractor installed additional strawbale check dams upstream of the site in an attempt to slow the runoff and provide additional ESC control for runoff from the construction site. We are continuing to collect information and will provide an update to you as and when appropriate. Further documentation of the incident, including any further actions taken by CN and any comments received from those notified of the incident, will be provided in the 30-day and 90-day reports.

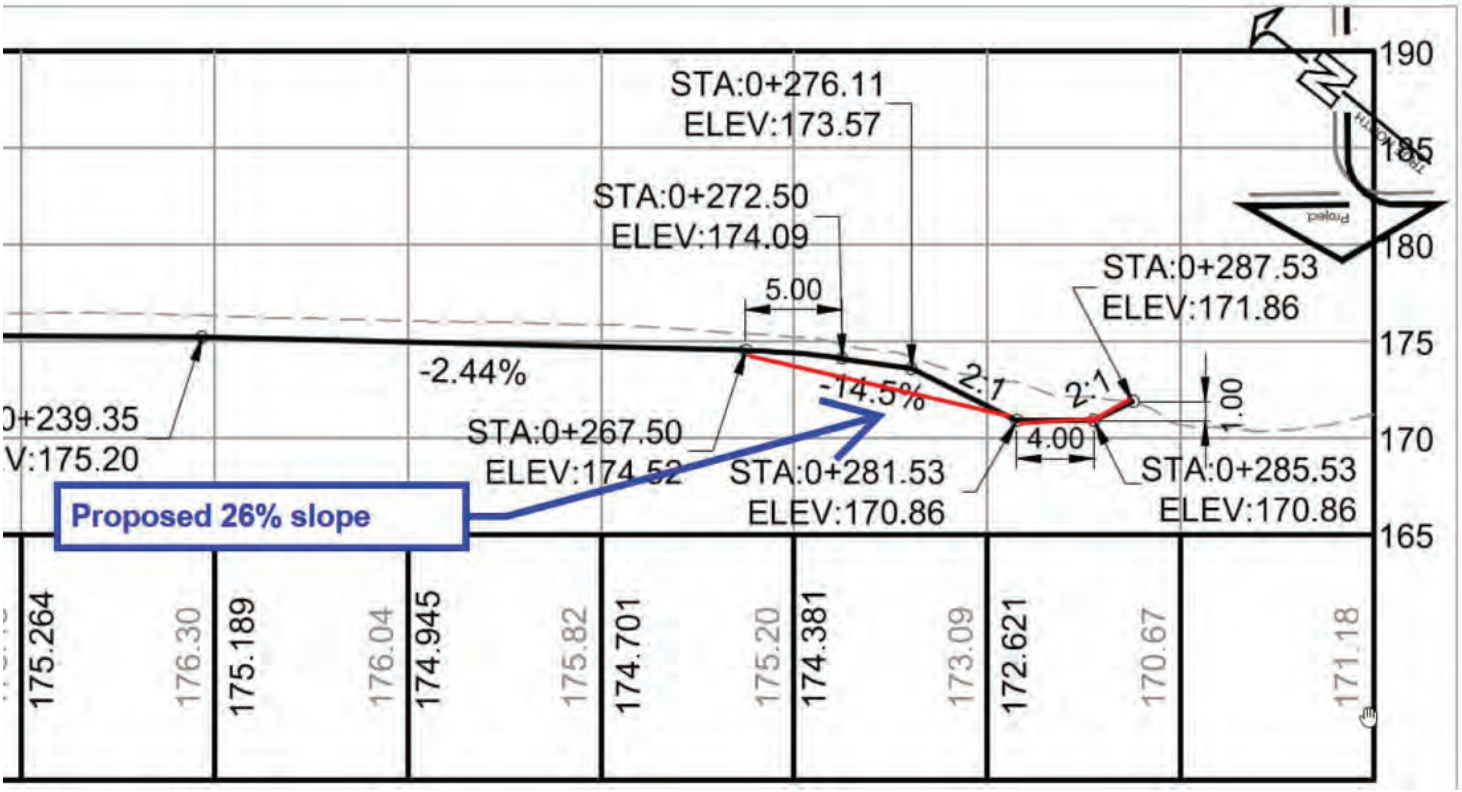
Thank you,

Ricky Chiu
Environmental Impact Officer
Safety & Environment | Network Operations
T: | C: **437-439-8843**
What's New at CN | *Quoi de neuf au CN*

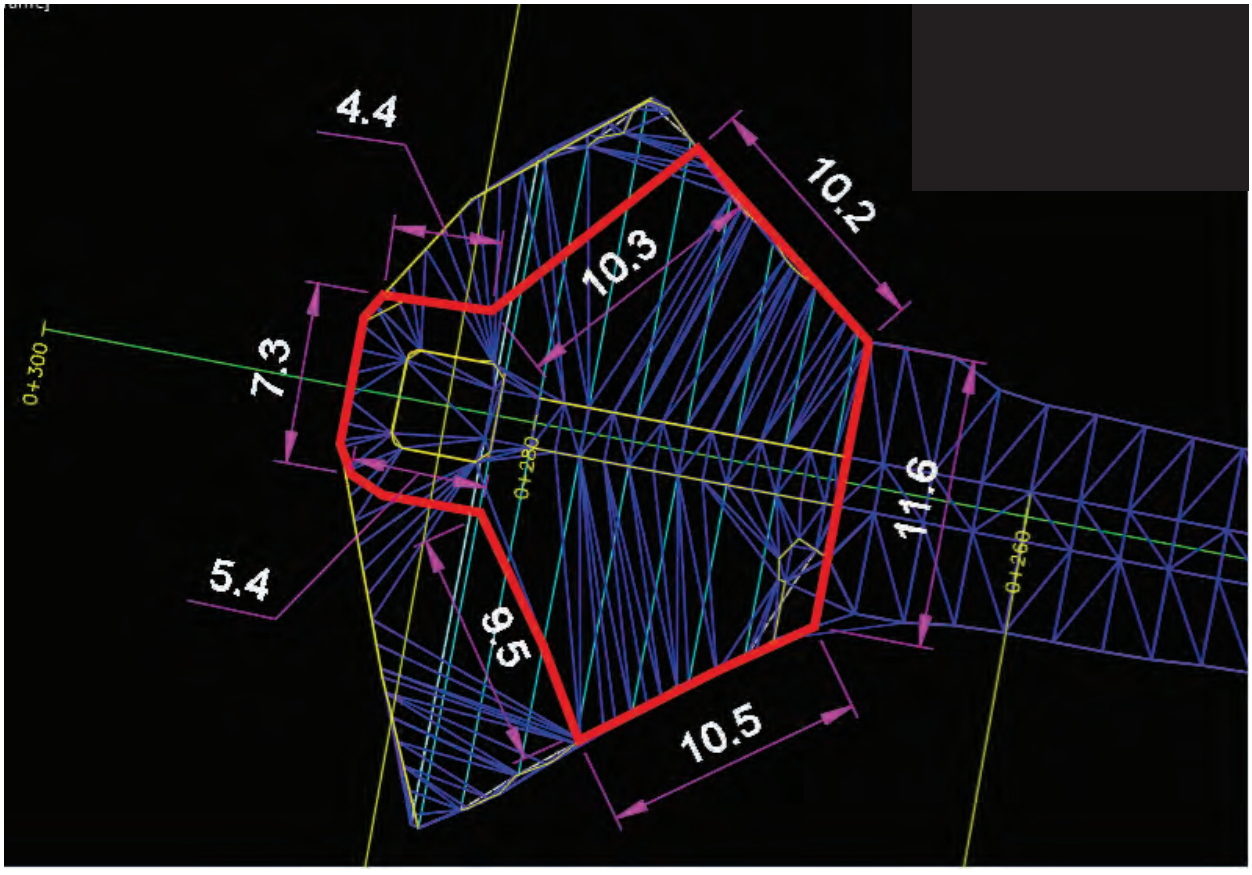
Attachment 2: Revised Spillway Design and Remediation Work

Attachment 2 – Revised Spillway Design and Remediation Work

1- Remove existing material and re-grade the area shown in the sketch below using a 26% slope instead of 14.5%



2- Apply Flexamat on the new re-graded area. The specification of the Flexamat is attached.



Flexamat Standard Specification

1. DESCRIPTION

A Tied Concrete Block Mat with Doubled Layered Underlayment. This work shall consist of furnishing and placing the system in accordance with this specification and conforming with the lines, grades, design, and dimensions shown on the plans.

2. MATERIALS

Flexamat Standard is manufactured from individual concrete blocks tied together with high strength knitted polypropylene bi-axial geogrid. Each block is tapered, beveled and interlocked and includes connections that prevent lateral displacement of the blocks within the mats when they are lifted for placement.

Tied Concrete Block Mat with Doubled Layered Underlayment shall be Flexamat Standard, manufactured by Motz Enterprises, Inc.

2.1. **Blocks.** Furnish blocks manufactured with concrete conforming to the cement requirements of ASTM C150 and to the aggregate requirements of ASTM C33. Blocks shall have a minimum weight of 3 lb. per block and placed no further than 2 in. apart. Material weight per square foot shall not exceed 10 lbs. Blocks shall have a 2.25" profile, a flat-top pyramid shape, and a coarse finish without protrusions. Concrete shall have a minimum compressive strength requirement of Table1 and certified by a third party.

Table 1
Concrete Compressive Strength Requirements

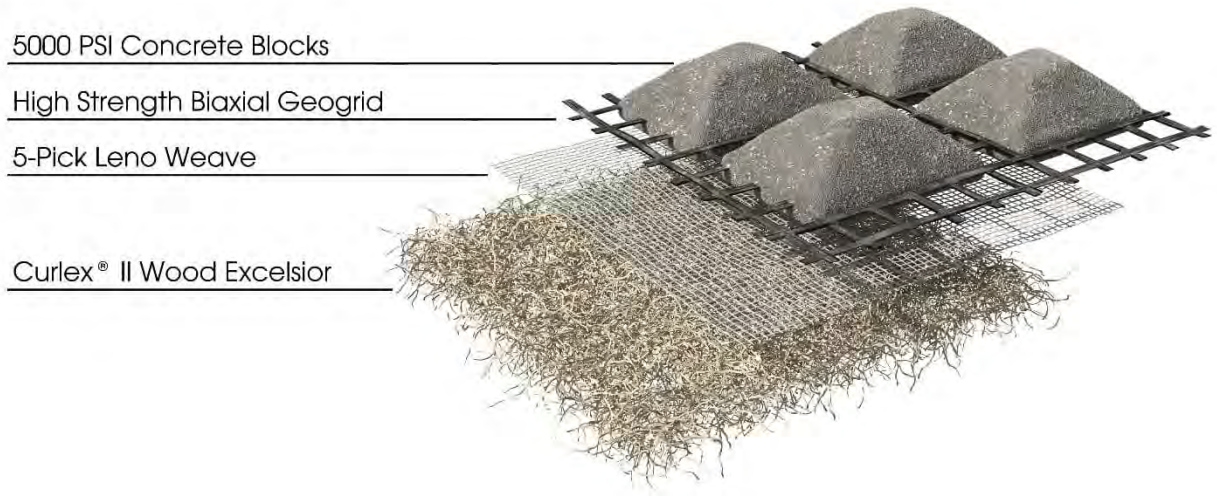
Age	Required Compressive Strength psi
7 - Day	5000 psi
14 – Day	6000 psi
28 - Day	6900 psi

2.2. **Polypropylene Bi-Axial Geogrid.** The interlocking geogrid shall be an open knitted fabric composed of high tenacity, multifilament polypropylene yarns knitted and coated in tension with an acrylic based coating which is designed to resist degradation in environments with exposure to water and low pH (,4 pH) and high pH (>9 pH). When combined with the revetment mat, this will yield a high tenacity, low elongating, and continuous filament polypropylene geogrid that is embedded within the base of the concrete blocks. Ensure the geogrid meets the requirements of Table 2.

Table 2
Polypropylene Bi-Axial Geogrid

Property	Unit	Test	Requirement
Mass/Unit Area	oz/yd^2	ASTM D5261	6.5 oz/yd^2
Aperture Size	English units	Measured	1.4x 1.4 inch
Ultimate Wide Width Tensile Strength (MD x CMD)	lb/ft	ASTM D6637	2,055 lb/ft
Elongation at Ultimate Tensile Strength (MD x CMD)	%	ASTM D6637	6%
Wide Width Tensile Strength @ 2% (MD x CMD)	lb/ft	ASTM D6637	822 lb/ft
Wide Width Tensile Strength @ 5% (MD x CMD)	lb/ft	ASTM D6637	1,640 lb/ft
Tensile Modulus @ 2% (MD x CMD)	lb/ft	ASTM D6637	41,100 lb/ft
Tensile Modulus @ 5% (MD x CMD)	lb/ft	ASTM D6637	32,800 lb/ft

2.3. **Underlayment Materials.** Flexamat Standard is a three-layered system, includes, in order from top to bottom, 1) Concrete block mat 2) 5-Pick Leno Weave and 3) Curlex® **II**. The underlayment materials shall be packaged within the roll of the Flexamat Standard.



Five-Pick Leno Weave:
This Five-Pick Weave provides added strength and support to the underlayments.

Index Property	Units	Value
GSM	g/m²	118 (-3~ +3)
Density	Picks/10cm	62 x 24 (+/- 2)
Warp Strength	N/5cm	≥ 350
Warp Elongation	%	20 - 50
Weft Strength	N/5cm	≥ 280
Weft Elongation	%	20 - 50
Warp Shrinkage	%	≤ 7
Weft Shrinkage	%	≤ 9

Curlex® II:

Curlex II erosion control blanket (ECB) consists of a specific cut of naturally seed free Great Lakes Aspen curled wood excelsior with 80% six-inch fibers or greater fiber length. It is of consistent thickness with fibers evenly distributed throughout the entire area of the blanket. The top and bottom of each blanket is covered with degradable polypropylene netting.

Index Property	Test Method	Value
Thickness	ASTM D 6525	0.418 in (10.62 mm)
Light Penetration	ASTM D 6567	34.6%
Resiliency	ASTM D 6524	64%
Mass per Unit Area	ASTM D 6475	0.57 lb/yd^2 (309 g/m^2)
MD-Tensile Strength Max.	ASTM D 6818	127.0 lb/ft (1.9 kN/m)
TD-Tensile Strength Max.	ASTM D 6818	50.9 lb/ft (0.7 kN/m)
MD-Elongation	ASTM D 6818	28.64%
TD-Elongation	ASTM D 6818	29.84%
Swell	ECTC Procedure	89%
Water Absorption	ASTM D 1117/ECTC	199%
Bench-Scale Rain Splash	ECTC Method 2	SLR = 6.84 @ 2 in/hr [2,3]
Bench-Scale Rain Splash	ECTC Method 2	SLR = 7.19 @ 4 in/hr [2,3]
Bench-Scale Rain Splash	ECTC Method 2	SLR = 7.56 @ 6 in/hr [2,3]
Bench-Scale Shear	ECTC Method 3	2.6 lb/ft^2 @ 0.5 in soil loss [3]
Germination Improvement	ECTC Method 4	645%

[1] Weight is based on a dry fiber weight basis at time of manufacture. Baseline moisture content of Great Lakes Aspen excelsior is 22%.

[2] SLR is the Soil Loss Ratio, as reported by NTPEP/AASHTO. [3] Bench-scale index values should not be used for design purposes.

2.4. Mats will be rolled for shipment. Upon delivery, rolls may be left exposed for up to 30 days. If exposure will exceed 30 days, cover or tarp the rolls to minimize UV exposure.

Chipping or missing concrete resulting in a weight loss exceeding 15% of the average weight of a concrete unit is grounds for rejection by the engineer. Replace, repair or patch the damaged areas per the manufacturer's recommendations.

3. PERFORMANCE

Full-Scale laboratory testing performed by an independent 3rd party testing facility with associated engineered calculations certifying the hydraulic capacity of the proposed Tied-Concrete Block Erosion Control Mat meets the following requirements:

Test	Tested Value	Bed Slope	Soil Classification	Limiting Value
ASTM 6460	Shear Stress	30%	Sandy Loam (USDA)	24lb./ft^2
ASTM 6460	Velocity	20%	Loam (USDA)	30 ft./sec

4. ALTERNATIVE PRODUCTS

Such products must be pre-approved in writing by the Engineer prior to bid date. Alternative product packages must be submitted to the Engineer a minimum of fifteen (15) days prior to bid date. Submittal packages for alternate products must include, as a minimum, the following:

4.1. Alternative Product Properties – Product must be comprised of materials as detailed in Section 2, including both in composition and performance requirements.

4.2. Full-Scale laboratory testing performed by an independent 3rd party testing facility with associated engineered calculations certifying the hydraulic capacity of the proposed Tied-Concrete Block Erosion Control Mat meets the performance requirements listed in Section 3 of this specification.

4.3. A list of 15 comparable projects in terms of project size, application and material dimensions in the United States, where the results of the specific alternative material's use can be verified and reviewed for system integrity and sustained after a minimum of 10 years of service life.

5. EQUIPMENT

Provide the proper equipment to place the mat that will not damage the mat material or disturb the soil subgrade and seed bed.

6. CONSTRUCTION

Prior to installing Flexamat Standard, prepare the subgrade as detailed in the plans. All subgrade surfaces to be smooth and free of all rocks, stones, sticks, roots, and other protrusions or debris of any kind that would result in an individual block being raised more than 3/4 in. above the adjoining blocks. When seeding is shown on the plans, provide subgrade material that can sustain growth.

Ensure the prepared subgrade provides a smooth, firm, and unyielding foundation for the mats. The subgrade shall be graded into a parabolic or trapezoidal shape to concentrate flow to middle of mat or mats.

When vegetation is required, distribute seed on the prepared topsoil subgrade before installation of the concrete mats in accordance with the specifications.

Install mats to the line and grade shown on the plans and per the manufacturer's guidelines. The manufacturer or authorized representative will provide technical assistance during preparation and installation of the concrete block mats as needed.

Provide a minimum 18 in. deep concrete mat embedment toe trench at all edges exposed to concentrated flows. Recess exterior edges subject to sheet flow a minimum of 6 in.

Provide fastening or anchoring as recommended by the manufacturer or engineer for the site conditions.

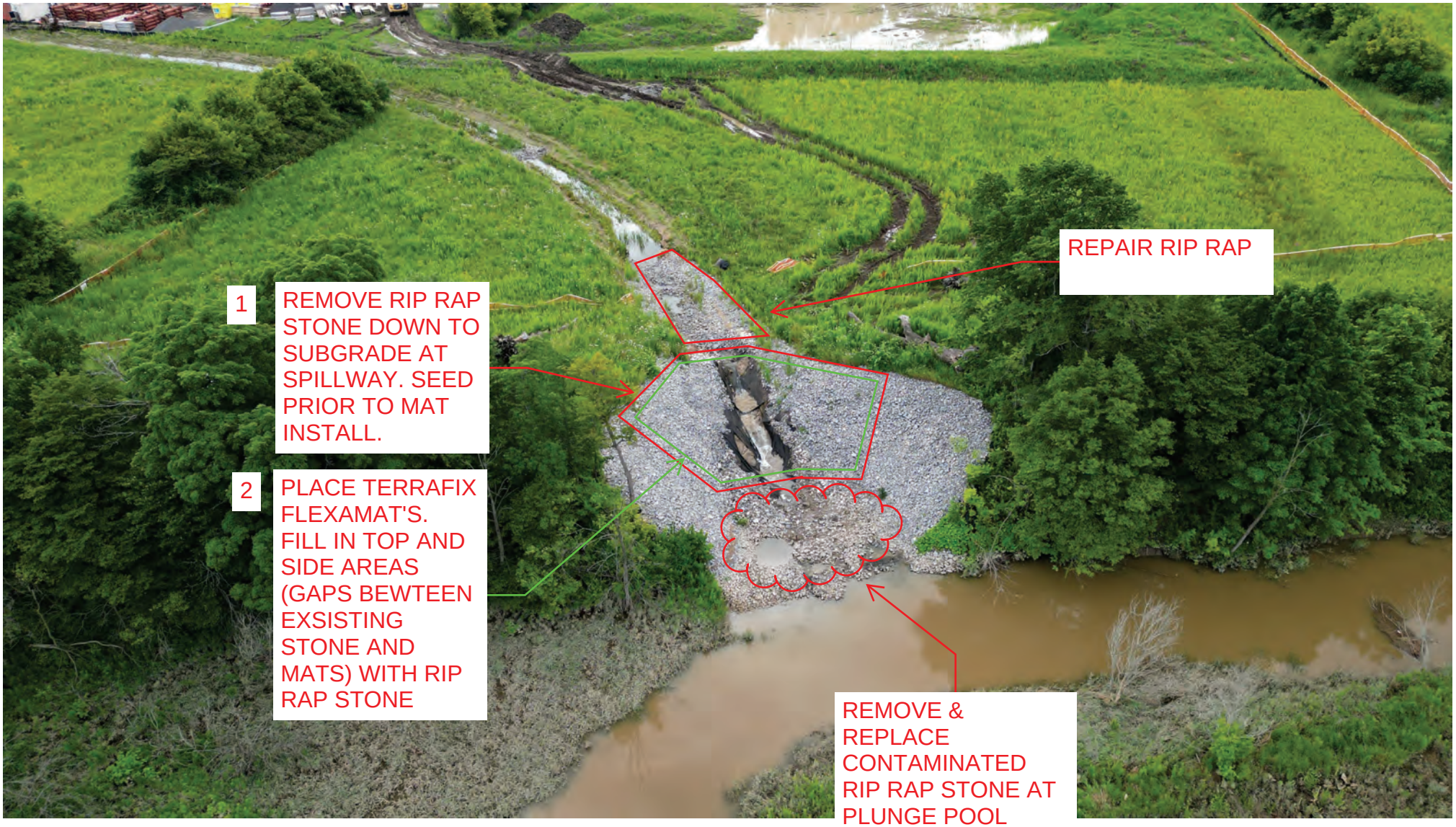
7. MEASUREMENT

This Item will be measured by the square foot as shown on the plans, complete in place.

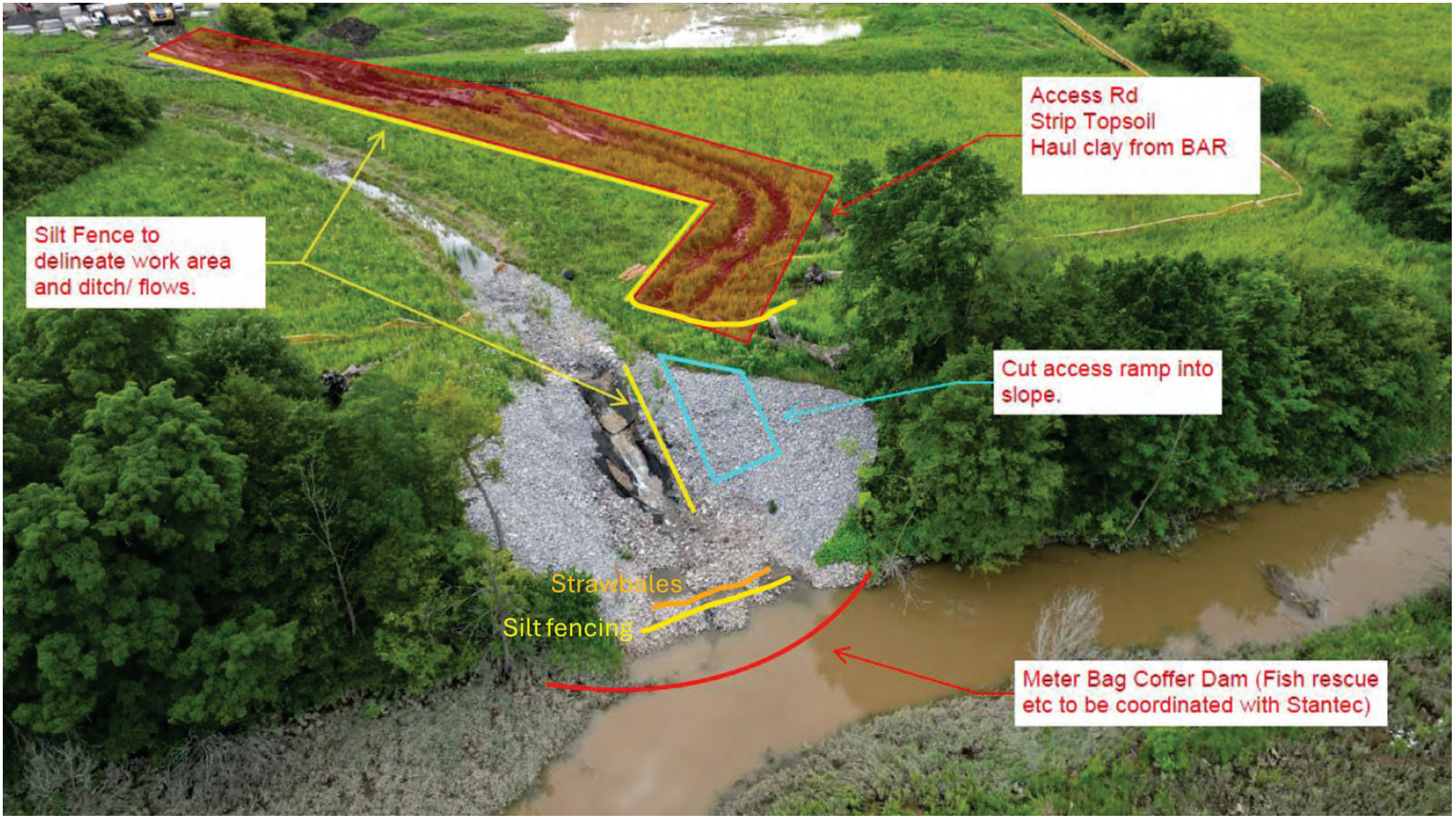
8. PAYMENT

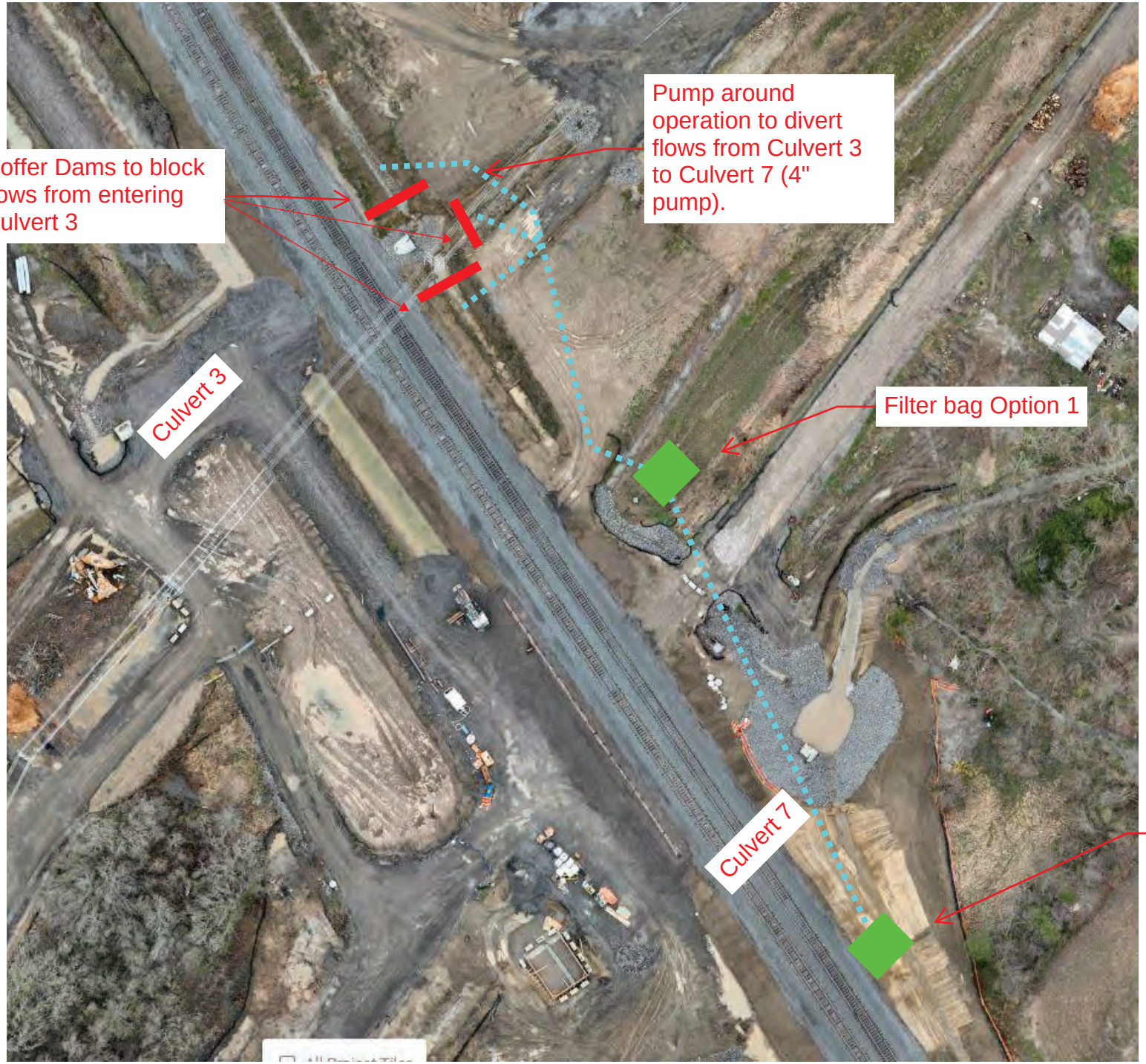
The work performed, and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Flexamat Standard". This price is full compensation for loading and transporting, placing concrete block mats; excavation and disposal; furnishing topsoil and bedding; and equipment, labor, materials, tools, and incidentals.

Work Plan for Remediation Activities



Erosion and Sediment Control Measures





Note* that filter bag option 1 is preferred to filter bag option 2. Only 1 filter bag is required. To be discussed on site when pumping installation begins.

Attachment 3: Summary of Notifications and Communication Record

Attachment 3: Summary of Notifications and Communication Record

Date/time	Party	Method of Notification	Description
July 16, 2024 @ 12:45PM EST	MECP	Phone call from Aaron Stadnyk (CN) to MECP-SAC	• Provided verbal notification of the incident, summary of temporary mitigation measures implemented • Follow up phone call will be provided to MECP if needed once CN closes out the report.
July 16, 2024 @ 12:48PM EST	IAAC, DFO, Huron Wendat Nation, Mississaugas of the Credit First Nation, Six Nations of the Grand River First Nation, Region of Holton, Town of Milton, Conservation Halton (CH)	Email from Ricky Chiu (CN) to: Julie Buron (IAAC) Sarah Devon (IAAC) IAAC Project Email Chris Strand (DFO) Maxime Picard (Huron Wendat) Casey Jonathan (MCFN) Dawn Laforme (Six Nations) Tanya Hill-Montour (Six Nations) Bob Gray (Halton) Andrew Siltala (Milton) Hassan Basit (CH) CC: Tara Schweitzer (DFO) Rodney Northey (Gowling WLG) Andrew Bernstein (Torys LLP) Theresa Nelson (CN) Daniel Gagne (CN) Eric Harvey (CN) Darren Reynolds (CN) Luanne Patterson (CN) Manny Loureiro (CN) Chris Powell (Stantec)	• Provided written notification of the incident, summary of temporary mitigation measures implemented • Advised further information would be provided in 30-Day and 90-Day Reports
July 16, 2024 @ 1:11PM EST	IAAC, DFO, Huron Wendat Nation, Mississaugas of the Credit First Nation, Six Nations of the Grand River First Nation, Region of Holton, Town of Milton, Conservation Halton (CH)	Email from Chris Strand (DFO) to: Ricky Chiu (CN) Julie Buron (IAAC) Sarah Devon (IAAC) IAAC Project Email Maxime Picard (Huron Wendat) Casey Jonathan (MCFN) Dawn Laforme (Six Nations) Tanya Hill-Montour (Six Nations) Bob Gray (Halton) Andrew Siltala (Milton) Hassan Basit (CH) CC: Tara Schweitzer (DFO) Rodney Northey (Gowling WLG) Andrew Bernstein (Torys LLP) Theresa Nelson (CN) Daniel Gagne (CN) Eric Harvey (CN) Darren Reynolds (CN) Luanne Patterson (CN) Manny Loureiro (CN) Chris Powell (Stantec)	• DFO acknowledged receipt of notification and confirmed that it satisfies Section 38(4) of the *Fisheries Act*. • DFO requested they be updated with a repair plan and mitigation measures to be implemented. These items are outlined in the 30-Day report which will be circulated to DFO.
July 16, 2024, @ 3:21PM EST	DFO, CN	Call to Chris Strand (DFO) from Ricky Chiu (CN)	• Advised the rip-rap protection along the slope draining from the regional diversion ditch was eroded during the storm event yesterday. • Advised that Contractor is currently preparing to complete an interim fix to stabilize the slope, and permanent fix is upcoming. • Advised that the 30-day and 90-day report will cover the root cause, remediation, mitigation measures and

Attachment 3: Summary of Notifications and Communication Record

Date/time	Party	Method of Notification	Description
			assessment of additional impacts and potential deposit of sediment in downstream areas. • DFO requested that if there are any additional impacts in the Indian Creek, such as channel failure and deposit of sediments in downstream areas, that DFO be updated with an email, notifying a repair plan / mitigation measure to be implemented.
July 17, 2024 @ 3:55PM EST	Landowner (5116 Tremaine Road)	Site visit by Manny Loureiro (CN)	• Advised the landowner of the incident. Landowner had no concerns.
July 17, 2024 @ 4:05PM EST	Landowner (5367 No 2 Sideroad)	Site visit by Manny Loureiro (CN)	• No answer.
July 17, 2024 @ 4:20PM EST	Landowner (5275 No 2 Sideroad)	Site visit by Manny Loureiro (CN)	• No answer.
July 18, 2024 @ 9:30AM EST	Landowner (5367 No 2 Sideroad)	Site visit by Manny Loureiro (CN)	• Advised landowner of the incident. Landowner had no concerns.
July 18, 2024 @ 9:40AM EST	Landowner (5275 No 2 Sideroad)	Site visit by Manny Loureiro (CN)	• No answer
July 18, 2024 @ 3:50PM EST	Landowner (5275 No 2 Sideroad)	Site visit by Manny Loureiro (CN)	• Advised landowner if incident. They expressed understanding of the situation, had no concerns and appreciated being notified.