August 6, 2025

Andrew van Doorn, PE,
Chief Operating Officer
Solarbank Corp.
Unit 803 – 505 Consumers Road
Toronto, ON, M2J 4V8

Emailed to: andrew.vandoorn@solarbankcorp.com

Subject: **Peer Review Response for Storm Water Management - FINAL**
219 Peggs Mountain Road, Armour Township, ON
PRI Project No.: 25-253

Dear Mr. van Doorn,

As requested, PRI Engineering has prepared a Storm Water Management Report to determine the impact of the proposed development of a 20 MWhr Battery Energy Storage System facility to be located at 219 Peggs Mountain Road in the Townhip of Armour on stormwater generated from the proposed development. The location of the proposed development is shown in Figure 1 along with the catchment area. In general, the intent of this report is to address the following, primary comments made by TULLOCH Engineering (TULLOCH) dated May 13, 2025.

1) Existing and Proposed Conditions of the site including soil conditions
2) Rainfall Analysis and expected runoff for the 2, 5, 10, 25, 50 and 100 year storm events.
3) Stormwater Management and Proposed Control Methods
4) Water Quality Controls
5) Proposed Erosion and Sediment Controls

1 Existing and Proposed Site Conditions

The proposed development site is located at 219 Peggs Mountain Road, approximately 3.3 kilometers SW of Burks Falls. Access to the site will be from an existing gravel road on the south side of Peggs Mountain Road that services the existing solar PV array area. The proposed battery storage facility will be located immediately to the southwest of the solar PV array area. The site is currently woodland and open grassland with moderately steep slopes in the range of 15%. Most of the disturbed areas will consist of re-grading approximately 1.06 Ha of the site for the installation of the battery storage facility itself as well as the new gravel ring road around the perimeter.

The site slopes in a south to north direction towards Peggs Mountain Road. The total catchment area for the site is approximately 2.79 Ha. The only disturbance to this land is the construction of the gravel access road and battery storage facility.

The size of the proposed battery facility itself is approximately 0.1 Ha and consists of a concrete slab-on-grade for the E-House with other structures, most notably the battery energy storage system (BESS) placed on concrete pedestals. Upon completion of the facility, it is expected that all

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remaining disturbed areas will be treated with hydroseed and mulch to reestablish vegetation over the site. It is anticipated that the access road will be constructed of 150 mm crushed gravel (to be included if deemed necessary during construction inspections) with shallow roadside ditches and 450 mm diameter CSP or HDPE culverts to direct runoff to the proposed detention facility.

The subsurface conditions at the site consists primarily of 200 mm of topsoil and organics overlying sand and gravels of varying thickness of between 100 to 200 mm underlain by loose to compact sandy silts. The underlying sandy silt soil has low hydraulic conductivity which will impede the movement of water in a vertical direction.

2 Rainfall Analysis and Expected Runoff

Due to the relatively small area of the sub-watersheds (< 5Ha), we have carried out these calculations using the Rational method. Rainfall intensities were derived from the Government of Ontario IDF Curve lookup tool and were increased by 15% to account for climate change. The pre-development runoff coefficients of 0.35 was used for natural woodland / grassland areas on loam or silt loam soils. A runoff coefficient of 0.5 was used for gravel roads and 0.9 for the battery storage facility itself. The time of concentration was derived using the Airport Formula and due to the minor change in land use, it was determined that there would be insignificant change in terms of times of concentration between the pre and post development conditions. The results of our calculations are shown below.

Table 1: Catchment Total Area = 2.80 Ha

Design Storm	Pre-Development (m^3/s)	Post Development (m^3/s)
2 Year	0.170	0.188
5 Year	0.226	0.250
10 Year	0.266	0.294
25 Year	0.312	0.344
50 Year	0.345	0.381
100 Year	0.379	0.419

T/C = 16.3 minutes

Based on the above calculations, the results indicate that the proposed development of the site including the construction of gravel access roads and the battery storage facility itself will have a slight impact on expected runoff rates. The increase across all storm events is approximately 10 % - 11 %. Note that this is assuming that the time of concentration will remain relatively unchanged between the pre and post development conditions.

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3 Stormwater Management and Proposed Control Methods

To maintain the 100-year storm event post development flows from the site at pre-development levels, the storage required is approximately 43 cu.m including a 10% safety factor. All roadside ditches should be directed to the pond via 450 mm dia. culverts as shown on the SWMP. We recommend that a detention facility be constructed in the flatter area closer to Peggs Mountain Road, near the intersection with the existing access road as shown on the attached SWMP which will detain the required volume. Outflow from the pond will be controlled through a control manhole built into the pond and release through an orifice plate at the pre-development flow levels. An emergency overflow rip rapped on nonwoven geotextile fabric spillway should be constructed to ensure a safe outlet from the pond in an emergency. Details of the *Proposed Overall Drainage Plan* based on the SWMP and study are attached as **Figure 1**.

4 Water Quality Controls

Once construction is completed, and all disturbed areas are revegetated, it is not anticipated that the site will be source of significant water quality issues. The detention facility could include a forebay in the design to prevent the potential for re-suspension and scour of previously settled pollutants. Alternatively, a floating device could be added to the pond such as Rymar Marlee float control skimmer. Thes devices float up with incoming runoff allowing sediments to sink to the bottom of the pond.

The roads side ditches proposed should be protected with biodegradable erosion control blankets in combination with seeding to reestablish vegetation and protect the ditches until the vegetation has been established.

5 Erosion and Sediment Control

A *Proposed Erosion and Sediment Control Plan* is attached as **Figure 3** in **Appendix B** Prior to construction, we recommend that silt fence be installed as per the detail on the SWMP around the downhill perimeter of the site. The silt fence should be inspected and maintained throughout the life of the project and until the site has been successfully revegetated.

A mud mat should be installed at the construction entrance to the site to prevent mud from the site being deposited on Peggs Mountain Road.

All disturbed areas should be treated with 100 mm (minimum) topsoil and hydroseeded and mulched immediately following construction of the access roads and battery storage facility.

Class 25 rip rap should be installed at culverts inlets and outlets.

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6 Conclusions & Recommendations

Based on the results of this Storm Water management Study, we make the following conclusions and recommendations:

1) The impact of the proposed development on post development flows coming from the site will be in the order of 10 % - 11%.
2) Existing drainage patterns from the site will generally be maintained.
3) Once vegetation is reestablished, long term quality from stormwater discharge from the site should not be significant.
4) Roadside ditches should be established with the construction of the new access road including 450 mm diameter culverts at locations as shown on the SWMP to ensure that all flows are properly picked up and directed to the proposed detention facility.
5) A detention pond with a total volume of approximately 43 cu.m should be constructed near the intersection of the new gravel road with the existing gravel road to maintain post-development flows at pre-development levels. Outflow from the pond should be controlled through a control manhole and a rip rapped overflow should be included to ensure safe overflow of runoff in the event of an emergency.
6) Erosion and sedimentation control measures, both before and after construction, should be carried out as detailed herein and should be subject to professional inspection and maintenance during the life of the project.

We trust this meets your current requirements, please contact the undersigned if you have any questions.

Sincerely,
PRI Engineering Corp.

Michael Young, P.Eng.
Senior Civil Engineer

Reviewed by:

Arash Yazdani, FEC, CED, P.Eng.
Chief Operating Officer

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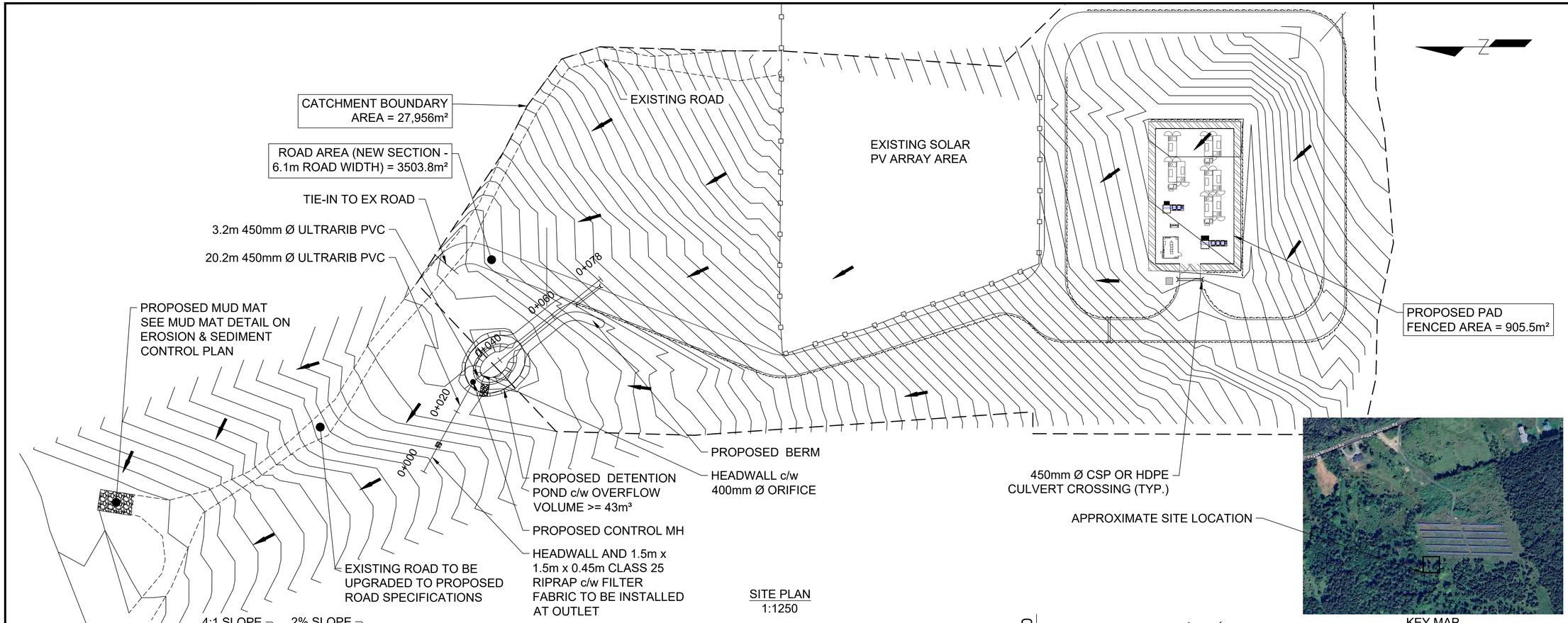
Appendix A

Proposed Overall Drainage Plan



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REV NO.	ISSUANCE	DATE
00	ISSUED FOR REVIEW	24DEC24

PROJECT NAME:
SOLARBANK
SITE 903 - BESS SITE
221 PEGGS MOUNTAIN RD

DRAWING NAME:
PROPOSED OVERALL
DRAINAGE PLAN

PROJ. NO.:	DWG. BY:	CHKD. BY:	APPR. BY:
23-153-01	AY.Jr.	-	-

DRAWING NUMBER: FIGURE 1

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Appendix B

Stormwater Drainage Calculations

STORM DRAINAGE CALCULATIONS **(MODIFIED RATIONAL METHOD)**

DEVELOPMENT LOCATION

Armour Township - BESS Site 903
Ontario

Catchment Area # 1

PRE DEVELOPMENT FLOW RATES

Q=0.0028CIACa

WHERE
Q=FLOWRATE
C=WEIGHTED RUNOFF COEFFICIENT
I=RAINFALL INTENSITY
A=AREA
Ca=ANTECEDENT PRECIPITATION COEFFICIENT

Assuming	28000	m2	Woodland -Silty Loam	C=	0.35
	0	m2	Landscaping	C=	0.3
	0	m2	Asphalt/Concrete	C=	0.95
	0	m2	Building	C=	0.95
			Weighted	C=	0.35

Area= 2.80 Ha

CALCULATING THE TIME OF CONCENTRATION USING THE AIRPORT FORMULA AS FOLLOWS:

$$T_c = \frac{3.26\,(1.1 - C)\,L^{0.5}}{S_w^{0.33}}$$

WHERE
C=WEIGHTED RUNOFF COEFFICIENT
L=WATERSHED LENGTH
S_W=WATERSHED SLOPE

L= 267 m
S_w= 15 %
T_c= 16.3 min.

Tc		0.0028 *	C *	I *	A		
16.3	2 year	0.0028	0.35	62.4	2.80	Q=	0.170 m^3/s
16.3	5 year	0.0028	0.35	83.2	2.80		0.226 m^3/s
16.3	10 year	0.0028	0.35	97.7	2.80		0.266 m^3/s
16.3	25 year	0.0028	0.35	114.5	2.80		0.312 m^3/s
16.3	50 year	0.0028	0.35	126.8	2.80		0.345 m^3/s
16.3	100 year	0.0028	0.35	139.4	2.80		0.379 m^3/s

Note: Intensities include 15% adjustment to account for climate change

POST DEVELOPMENT FLOW RATES

Q=0.0028CIA

WHERE
Q=FLOWRATE
C=WEIGHTED RUNOFF COEFFICIENT
I=RAINFALL INTENSITY
A=AREA

Assuming	23591	m2	Sandy Loan	C=	0.35
	3504	m2	Gravel Road	C=	0.5
	905	m2	Battery Facility	C=	0.9
			Weighted	C=	0.39

Area=	2.36	Ha, Pervious	84.25	%
Area=	0.44	Ha, Impervious	15.75	%
Area=	2.80	Ha, Total		

Tc		0.0028 *	C *	I *	A	
16.3	2 year	0.0028	0.39	62.4	2.8	0.188 m^3/s
16.3	5 year	0.0028	0.39	83.2	2.8	0.250 m^3/s
16.3	10 year	0.0028	0.39	97.7	2.8	0.294 m^3/s
16.3	25 year	0.0028	0.39	114.5	2.8	0.344 m^3/s
16.3	50 year	0.0028	0.39	126.8	2.8	0.381 m^3/s
16.3	100 year	0.0028	0.39	139.4	2.80	0.419 m^3/s

STORAGE VOLUME REQUIRED Q100(POST) - QN(PRE) X DURATION X 10% SAFETY FACTOR

Tc	(Post Dev Flow - Pre Dev Flow) * Duration * 10% safety Factor			
16.3	0.419 -	0.379		43.1 m^3

REQUIRED VOLUME **43.1 m^3**

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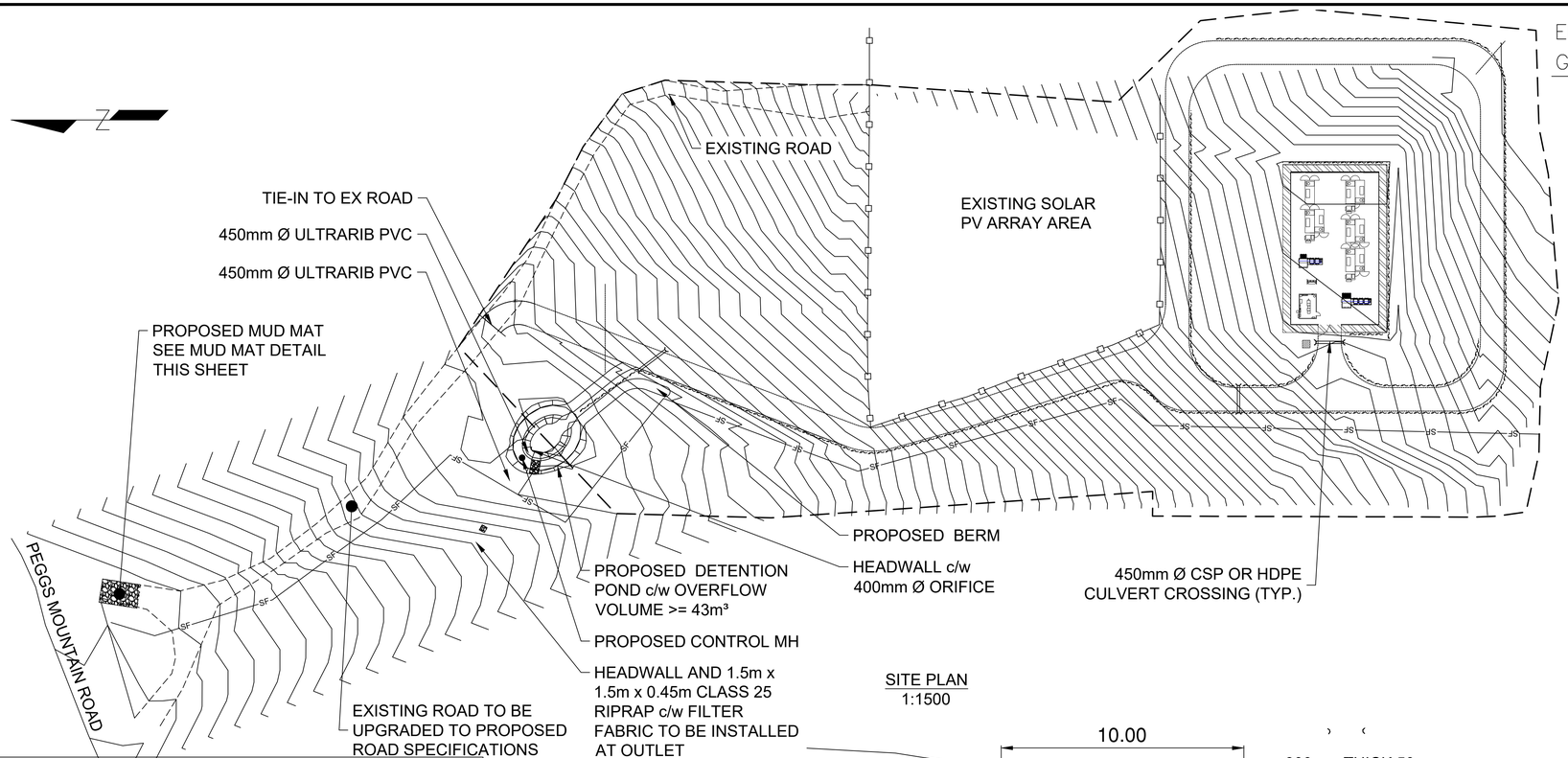
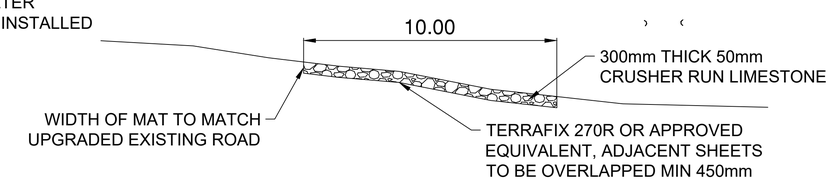
Appendix C

Erosion and Sediment Control Plan



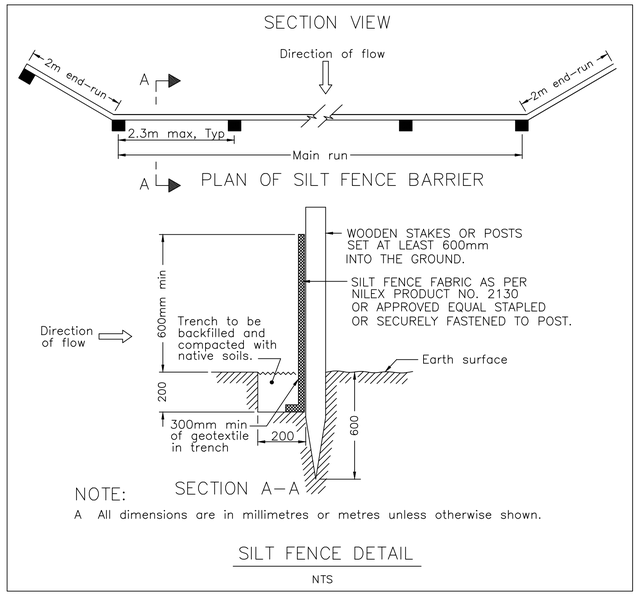
SITE PLAN
1:1500



MUD MAT DETAIL
N.T.S.

LEGEND

- EXISTING FENCELINE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- PROPOSED SILT FENCE
- PROPOSED GRAVEL ACCESS ROAD
- PROPOSED GRAVEL ACCESS ROAD
- PROPOSED CRUSHED STONE (DESIGNED BY OTHERS)
- PROPOSED SWALE
- PROPOSED POWER SUPPLY PANEL
- PROPOSED E-HOUSE
- PROPOSED LARGE INVERTER
- PROPOSED BESS CONTAINER
- PROPOSED SMALL INVERTER
- PROPOSED PAD MOUNTED UTILITY AUXILIARY TRANSFORMER (DESIGNED BY OTHERS)



SILT FENCE DETAIL
NTS

EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTES:

1. EROSION AND SEDIMENT CONTROL DRAWINGS ARE PROVIDED FOR REFERENCE ONLY. THEY MAY NOT INCLUDE ALL THE MEASURES REQUIRED. THE CONTRACTOR(S) SHALL COMPLY WITH ALL REGULATORY AUTHORITIES, MINISTRY OF THE ENVIRONMENT, DEPARTMENT OF FISHERIES AND OCEANS CANADA IN THE PROTECTION OF FISH AND RECEIVING WATERBODIES DURING THE CONSTRUCTION OF THE WORKS AND SHALL BE RESPONSIBLE FOR ALL COSTS IN COMPLYING WITH THESE REQUIREMENTS.
2. PRIOR TO, AND DURING CONSTRUCTION, THE CONTRACTOR SHALL TAKE ADEQUATE STEPS, INCLUDING BUT NOT LIMITED TO: DIVERTING FLOWS FROM EXPOSED AREAS, PROVIDING CHECK DAMS AND CHANNEL PROTECTION IN TEMPORARY AND PERMANENT ON SITE DRAINAGE COURSES, INSTALLATION OF SEDIMENT FENCES AROUND THE DEVELOPMENT PERIMETER AS SHOWN AND SOIL STOCKPILES, INSTALLATION OF FILTER OR COMPOST TUBES AROUND THE PERIMETER OF ALL CATCH BASINS, STABILIZED CONSTRUCTION ENTRANCES, POLY SHEETING, HYDRO SEEDING, STRAWING, DITCHING AND ANY OTHER MEASURES AS MAY BE NECESSARY TO PREVENT SEDIMENT AND OTHER DELETERIOUS MATERIALS FROM THE WORKS ENTERING THE STORM SEWER SYSTEM AND RECEIVING WATER COURSE.
3. ALL WORK TO BE UNDERTAKEN AND COMPLETED BY THE CONTRACTOR IN SUCH A MANNER AS TO PREVENT THE RELEASE OF TURBID AND SEDIMENT LADEN WATER INTO ANY WATER COURSE AND STORM SEWER. THE QUALITY CRITERIA FOR THE SITE IS THAT ALL RUNOFF GENERATED FROM THE SITE IS TO CONTAIN LESS THAN 75mg/L TSS AFTER SIGNIFICANT RAINFALL EVENTS. TURBIDITY TO BE 25 NTU'S OR LESS DURING NORMAL WEATHER CONDITIONS (LESS THAN 25mm OF RAIN IN A 24 HOUR PERIOD).
4. ALL SEDIMENT CONTROLS FACILITIES TO REMAIN IN PLACE UNTIL 90% OF ON-SITE CONSTRUCTION IS COMPLETE.
5. DURING CONSTRUCTION AND ONCE ALL CIVIL SITE WORKS ARE COMPLETE, THE DEVELOPER IS RESPONSIBLE FOR ENSURING THAT SEDIMENT CONTROL FACILITIES ARE MAINTAINED AND WORKING ADEQUATELY TO CONTROL ALL DISCHARGES FROM THE SITE.
6. ANY IRREGULARITIES BE SHALL BE REPORTED TO THE ENGINEER OF RECORD IMMEDIATELY.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING PAVED ROAD SURFACES ARE KEPT CLEAN OF ANY ACCUMULATIONS OF SOIL UNTIL COMPLETION OF ALL CIVIL WORKS FOLLOWING WHICH IT WILL BECOME THE DEVELOPERS RESPONSIBILITY. FLUSHING IS PROHIBITED. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR DUST CONTROL.
8. DURING CONSTRUCTION, THE CONTRACTOR MAY NEED TO EMPLOY ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, INTERCEPTOR DITCHES, SILT FENCES, ROCK CHECK DAMS, ETC TO PREVENT THE RELEASE OF SEDIMENT LADEN WATER TO THE EXISTING WATERCOURSES. THE CONTRACTOR SHALL HAVE AN EMERGENCY SUPPLY OF EROSION CONTROL MEASURES ON SITE AT ALL TIMES.
9. ALL WORK IN AND AROUND THE EXISTING WATERCOURSES SHALL BE COMPLETED FOLLOWING SPRING FRESHET.

STAGE 1-CLEARING, GRUBBING, STRIPPING & GRADING

1. CONTRACTOR TO INSTALL SILT FENCE AT LOCATIONS AS SHOWN ON THIS DRAWING.
2. CONTRACTOR TO INSTALL GRAVEL SITE ACCESS PAD AT SITE ENTRANCE. ALL VEHICLES TO ENTER AND EXIT THE SITE VIA THE GRAVEL ACCESS PAD. THE ACCESS PAD SHALL BE CONSTRUCTED WITH 150mm-, CLEAN, WELL GRADED RIP RAP 300mm THICK ON NON-WOVEN FILTER FABRIC.
3. CONTRACTOR TO PROVIDE MECHANICAL SWEEPING OF ROADS TO REMOVE ANY ACCUMULATIONS OF SEDIMENT AS A RESULT OF CONSTRUCTION ACTIVITIES. SUCH OPERATIONS TO BE CARRIED OUT ON A WEEKLY BASIS (MIN) OR AS DIRECTED BY THE ENGINEER OF RECORD OR HIS REPRESENTATIVE, PARTICULARLY IN ADVANCE OF INCLEMENT WEATHER CONDITIONS. NO FLUSHING ALLOWED.

STAGE 2-ROADWAY & FACILITY CONSTRUCTION

1. STOCKPILES OF EXCAVATED MATERIALS ARE TO BE PROTECTED WITH 6mm THICK POLYETHYLENE SHEETING (OR SIMILAR) AND SURROUNDED BY SILT FENCE TO MINIMIZE SOIL EROSION DUE TO RAINFALL EVENTS.
2. STOCKPILES OF EXCAVATED MATERIAL TO BE PROTECTED WITH 6 MIL POLYETHYLENE SHEETING (OR SIMILAR) AND SURROUNDED BY SILT FENCE TO MINIMIZE SOIL EROSION DUE TO RAINFALL EVENTS.

STAGE 3-DECOMMISSIONING

1. DECOMMISSIONING OF ALL SEDIMENT CONTROL FACILITIES: ON COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND 90% LANDSCAPING, THE CHECK DAMS, SILT TRAPS ON THE CATCHBASINS AND DITCH INLETS CAN BE REMOVED. THE BALANCE OF SILT FENCE SHALL ALSO BE REMOVED.

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REV NO.	ISSUANCE	DATE
00	ISSUED FOR REVIEW	24DEC24

PROJECT NAME:
SOLARBANK
SITE 903 - BESS SITE
221 PEGGS MOUNTAIN RD

DRAWING NAME:
PROPOSED EROSION AND SEDIMENT CONTROL PLAN

PROJ. NO.:	DWG. BY:	CHKD. BY:	APPR. BY:
23-153-01	AYJr.	-	-

DRAWING NUMBER: FIGURE 3