



September 27, 2023

Town of Winchendon Planning Board  
c/o Nicole Roberts, Land Use and Planning Coordinator  
109 Front Street  
Winchendon, MA 01475

**Subject: Peer Review – Sunpin Solar, Baldwinville Road**

Dear Members of the Planning Board:

On behalf of Winchendon Solar, LLC (Sunpin/Applicant), WSP USA Associates Massachusetts, Inc. (WSP, formerly Wood Massachusetts, Inc.) respectfully submits the following responses to the Tighe & Bond (TB) Peer Review Comments in a letter dated July 12, 2023. Comment numbering and responses have been maintained per the Peer Review letter for consistency of review.

***TB Comment 1: Standard 1 – The standard is met.***

**WSP Response 1:** No action needed.

***TB Comment 2: Standard 2 – The Project as presented shows that peak rates are attenuated; however, we note some of the comments in this letter may impact the peak rate calculations. We recommend the Applicant revise the design as needed to maintain compliance with Standard 2.***

**WSP Response 2:** The design has been revised to reflect the latest design revisions and the peak rates have been recalculated.

***TB Comment 3: Standard 3 – The Standard is met.***

**WSP Response 3:** No action needed.

***TB Comment 4: Standard 4 – The Standard is met.***

**WSP Response 4:** No action needed.

***TB Comment 5: Standard 5 – The Project is not a land use with higher potential pollutant loads; the Standard is not applicable.***

**WSP Response 5:** No action needed.

***TB Comment 6: Standard 6 – The Standard is met.***

**WSP Response 6:** No action needed.

***TB Comment 7: Standard 7 – The Project is not a redevelopment; the Standard is not applicable.***

**WSP Response 7:** No action needed.

***TB Comment 8: Standard 8 – A SWPPP has been provided. The Standard is met.***

**WSP Response 8:** No action needed.

WSP USA Environment & Infrastructure, Inc.  
100 Apollo Drive, Suite 302  
Chelmsford, MA 01824

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**TB Comment 9:** Standard 9 – Standard 9 requires a plan drawn to scale which shows the location of all stormwater BMPs be included with the O&M Plan. We recommend the Applicant include this information with the O&M Plan for future maintenance.

**WSP Response 9:** The O&M Plan has been revised to include a plan which shows the location of all stormwater BMPs, see Attachment C.

**TB Comment 10:** Standard 10 – The Standard is met.

**WSP Response 10:** No action needed.

**TB Comment 11:** Volume 2 of the Massachusetts Stormwater Handbook requires the following for an infiltration basin:

- a. One soil boring or test pit for every 5,000 square feet of basin area, with a minimum three borings for each basin. The Applicant did not provide test pit or boring logs as part of this submission. We recommend that this information is provided and used in the basin design.
- b. A minimum separation from seasonal high groundwater of at least 2 feet. We note the Applicant references an estimate of depth to water table provided by NRCS Web Soil Survey; however, we recommend site-specific test pits are performed in the location of the basin to confirm this depth and ensure the basin will operate as intended.
- c. The Applicant should revise the design to include an emergency spillway from the basin. If the intent is for the “overflow weir” to be used as an emergency spillway, we note the peak elevation in the 100-year storm is 963.06 and the spillway elevation is 962.50. The Handbook requires 1 foot of freeboard between the peak water surface elevation in the 100-year storm event and the emergency spillway elevation. We recommend the Applicant revise the basin to include an emergency spillway designed in accordance with the Handbook.

**WSP Response 11:**

- a. The submission has been revised to include three test pits and logs, included as Attachment D.
- b. Test pits were performed at the location of the basin and found that the 2-foot minimum separation from groundwater has been met.
- c. The proposed basin design has been revised to include 1 foot of freeboard between the peak water surface elevation in the 100-year storm event and the top of the basin embankment, which meets the requirements of the MA Stormwater Handbook Vol 2 to provide one foot of freeboard above the total required recharge volume.

**TB Comment 12:** The infiltration basin appears to be proposed in HSG C soils; however, the model uses an infiltration rate consistent with HSG B, according to the 1982 Rawls Rates table provided in Volume 3 of the Massachusetts Stormwater Handbook. We recommend the Applicant revise the model to include an infiltration rate consistent with HSG C soils and revised if needed after site-specific soil testing.

**WSP Response 12:** The model was revised to include an infiltration rate consistent with soil conditions as shown on the test pit logs.

**TB Comment 13:** We note the construction sequence includes construction of the stormwater infiltration basin prior to the remainder of site work. We recommend the Applicant add a

*note in the construction sequence that the basin is cleared of sediment and the basin bottom scarified to promote infiltration post-construction and after site stabilization.*

**WSP Response 13:** A step was added in the construction sequence to clear the basin of sediment and scarify the basin bottom after construction.

**TB Comment 14:** *Section 8(B)(2)(b) requires the Stormwater Management Plan contain contact information, including name, address, and phone number, of all persons having a legal interest in the property. The Applicant should include this information.*

**WSP Response 14:** The Operations and Maintenance Plan and the Stormwater Pollution Prevention Plan (SWPPP) contains all the above information.

**TB Comment 15:** *Section 8(B)(3)(a) requires a portion of the USGS Map indicating the site locus and properties within a minimum of 500 feet of project property line. We recommend this information is included.*

**WSP Response 15:** A locus map is included on the cover sheet of the Project Drawings showing the USGS Map. A scale has been added to show the requirements are met, included in Attachment A.

**TB Comment 16:** *Section 8(B)(3)(d) requires that the watershed plans include a breakdown summary of various surface conditions by soil hydrologic group rating. We recommend the Applicant revise the plans to include this information.*

**WSP Response 16:** The plans have been updated to include a breakdown summary of various surface conditions by soil hydrologic group rating.

**TB Comment 17:** *Section 8(F)(10) requires soil tests conducted by a registered professional engineer or Massachusetts soil evaluator performed at the location of all proposed LID techniques and BMPs to identify soil descriptions, depth to estimated seasonal high groundwater, depth to bedrock, and soil texture. We recommend the Applicant provide this information.*

**WSP Response 17:** Soil tests were performed and a test pit log with all the information stated above has been added to this letter as Attachment D and is also included in Appendix A of the Stormwater Report.

**TB Comment 18:** *Section 8(F)(11) requires the design infiltration rate be determined from the on-site soil texture and Rawls rates as published in the Massachusetts Stormwater Handbook or saturated hydraulic conductivity tests. The infiltration basin appears to be proposed in HSG C soils; however, the model uses an infiltration rate consistent with HSG B, according to the 1982 Rawls Rates table provided in Volume 3 of the Massachusetts Stormwater Handbook. We recommend the Applicant revise the model to include an infiltration rate consistent with HSG C soils and revised if needed after site-specific soil testing.*

**WSP Response 18:** The model has been updated to reflect the infiltration rates consistent with HSG C soils, as stated above.

**TB Comment 19:** *Section 8(F)(15) requires all stormwater basins are sized to accommodate the 100-year storm event with a minimum of one foot of freeboard. We recommend the Applicant revise the basin design.*

**WSP Response 19:** The basin has been revised to accommodate one foot of freeboard during the 100-year storm event.

**TB Comment 20:** Section 10(B)(2) requires the Operation and Maintenance Plan contain a map showing location of the stormwater systems and facilities requiring maintenance. The Applicant should include this as part of the O&M Plan.

**WSP Response 20:** The plans have been added as an attachment to the O&M Plan.

**TB Comment 21:** Section 10(B)(3) requires a maintenance agreement. The Applicant should provide a draft maintenance agreement for the Town's review.

**WSP Response 21:** The draft maintenance agreement has been included as part of the Operation and Maintenance Plan for the review.

**TB Comment 22:** The hydrologic calculations appear to consider the wetland areas contained within the drainage areas as HSG C. Since wetlands are poorly drained features, we recommend the Applicant consider using HSG D soils in these areas.

**WSP Response 22:** The wetland areas are within the HSG C under the NRCS map. These areas remain unchanged between existing and proposed conditions; therefore, revising these to HSG C will not affect the calculations.

**TB Comment 23:** The proposed modeling uses a curve number of 70 for the proposed gravel access road. In our experience, gravel roads provide minimal infiltration due to the nature of the material, compaction requirements, and geotextile. We recommend a curve number of 96 is used as recommended for gravel without right-of-way in HydroCAD and consistent with common engineering practice.

**WSP Response 23:** The model has been updated to change the curve number for the gravel access road from 70 to 96.

**TB Comment 24:** Detail 14 on Sheet 6 of 6 references a "paved area". The access road appears to be crushed stone in Detail 2 on Sheet 5 of 6. The Applicant should clarify what is actually proposed.

**WSP Response 24:** Detail 14 on Sheet C-502 has been updated to show that the access road is crushed stone.

Should you have any questions regarding this application, please do not hesitate to contact me at (978) 483-6771 or [andrew.vardakis@wsp.com](mailto:andrew.vardakis@wsp.com).

Yours sincerely,

**WSP USA Associates Massachusetts, Inc.**



Andrew P. Vardakis, PE  
Vice President, Civil Engineer



Olivia A. Crosby, PE  
Lead Consultant, Civil Engineer

Attachments: A – Revised Project Drawings  
B – Revised Stormwater Report and Checklist



- C – Revised Operation and Maintenance Plan
- D – Test Pit Field Report
- E – Stormwater Pollution Prevention Plan (SWPPP)

# ATTACHMENT

**A** REVISED  
PROJECT  
DRAWINGS



PROPRIETARY INFORMATION: THIS DRAWING IS THE PROPERTY OF AMEC ENVIRONMENT & INFRASTRUCTURE AND IS NOT TO BE LOANED OR REPRODUCED IN ANY WAY WITHOUT THE PERMISSION OF AMEC ENVIRONMENT & INFRASTRUCTURE

# WINCHENDON SOLAR, LLC

## 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT

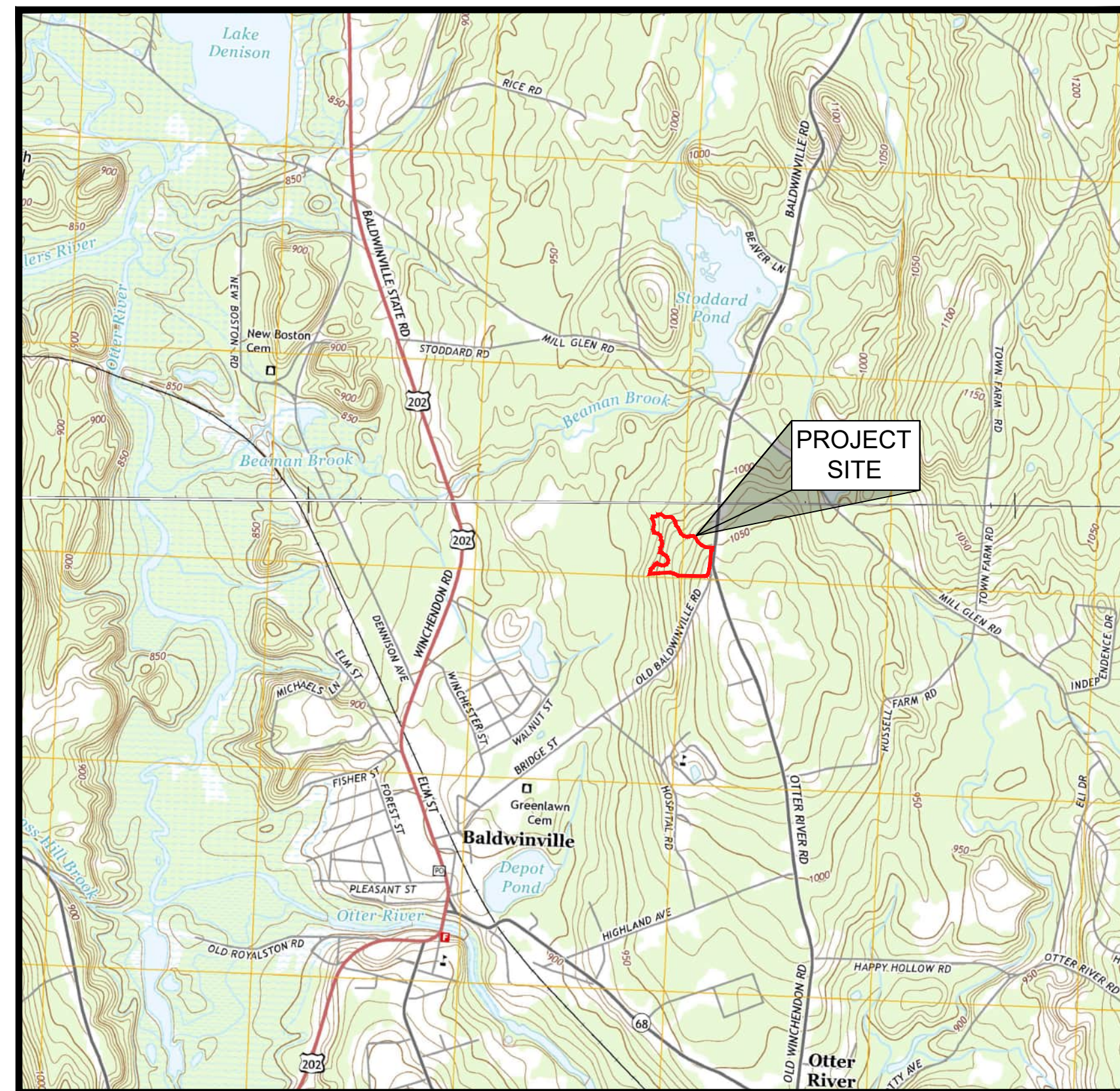
### BALDWINVILLE ROAD - PARCELS 13-0-272, 273, & 274

### WINCHENDON, MASSACHUSETTS

### DECEMBER 17, 2018

### LAST REVISED SEPTEMBER 27, 2023

### ISSUED FOR PERMITTING / NOT FOR CONSTRUCTION



LOCUS MAP  
1"=2000'



AERIAL IMAGE  
1"=500'

#### DRAWING INDEX

SHEET NUMBER	DRAWING TITLE	DRAWING NUMBER
	COVER SHEET	
1	EXISTING CONDITIONS PLAN	V-101
2	PROPOSED SITE PLAN	C-101
3	PROPOSED SITE PLAN (SITE ENTRANCE)	C-102
4	PROPOSED UTILITY, GRADING, AND DRAINAGE PLAN	C-103
5	CONSTRUCTION, EROSION, AND SEDIMENTATION CONTROL DETAILS AND NOTES	C-501
6	CONSTRUCTION, EROSION, AND SEDIMENTATION CONTROL DETAILS	C-502

#### PROPERTY OWNER

**KEVIN A. DOYLE**  
P.O. BOX 113  
WINCHENDON, MASSACHUSETTS 01475

#### DEVELOPED BY

WINCHENDON SOLAR, LLC



4 PARK PLAZA, SUITE 1250  
IRVINE, CALIFORNIA 92614

#### PREPARED BY

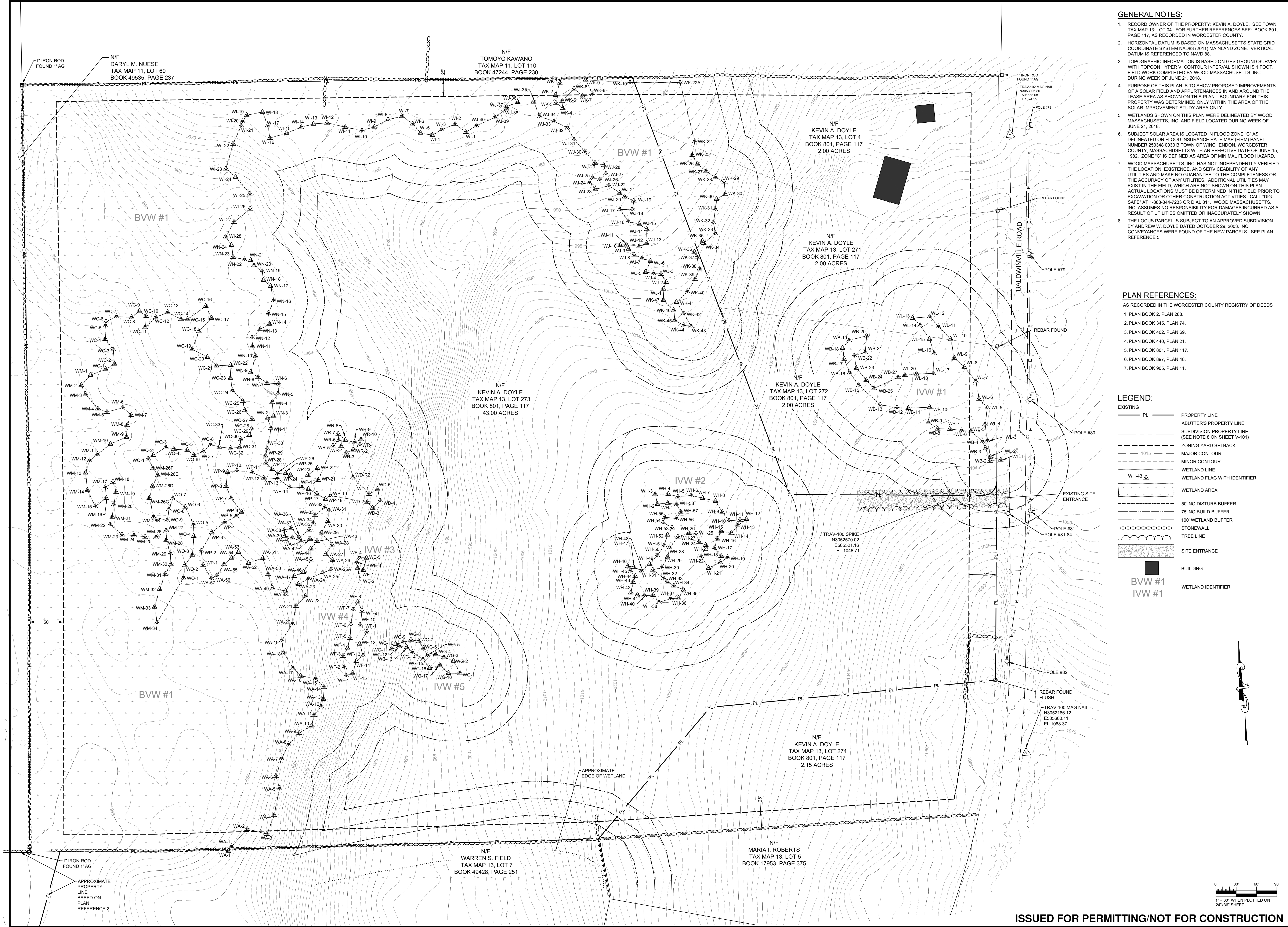


**WSP USA ENVIRONMENT & INFRASTRUCTURE, INC.**

100 APOLLO DRIVE, SUITE 302  
CHELMSFORD, MASSACHUSETTS 01824

D:\Sunpin\Winchendon - 365218015770 CAD\7.1 Design - Permitting\Sheets\0 - 3652180157 - C-500.dwg - Layout1 - Sep 28, 2023 2:28pm - velds\_mcgain.mcdonald





**GENERAL NOTES:**

- RECORD OWNER OF THE PROPERTY: KEVIN A. DOYLE. SEE TOWN TAX MAP 13, LOT 04. FOR FURTHER REFERENCES SEE: BOOK 801, PAGE 117, AS RECORDED IN WORCESTER COUNTY.
- HORIZONTAL DATUM IS BASED ON MASSACHUSETTS STATE GRID COORDINATE SYSTEM NAD83 (2011) MAINLAND ZONE. VERTICAL DATUM IS REFERENCED TO NAVD 88.
- TOPOGRAPHIC INFORMATION IS BASED ON GPS GROUND SURVEY WITH TOPCON HYPER V. CONTOUR INTERVAL SHOWN IS 1 FOOT. FIELD WORK COMPLETED BY WOOD MASSACHUSETTS, INC. DURING WEEK OF JUNE 21, 2018.
- PURPOSE OF THIS PLAN IS TO SHOW PROPOSED IMPROVEMENTS OF A SOLAR FIELD AND APPURTENANCES IN AND AROUND THE LEASE AREA AS SHOWN ON THIS PLAN. BOUNDARY FOR THIS PROPERTY WAS DETERMINED ONLY WITHIN THE AREA OF THE SOLAR IMPROVEMENT STUDY AREA ONLY.
- WETLANDS SHOWN ON THIS PLAN WERE DELINEATED BY WOOD MASSACHUSETTS, INC. AND FIELD LOCATED DURING WEEK OF JUNE 21, 2018.
- SUBJECT SOLAR AREA IS LOCATED IN FLOOD ZONE "C" AS DELINEATED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL NUMBER 250348 0300 B TOWN OF WINCHENDON, WORCESTER COUNTY, MASSACHUSETTS WITH AN EFFECTIVE DATE OF JUNE 15, 1982. ZONE "C" IS DEFINED AS AREA OF MINIMAL FLOOD HAZARD.
- WOOD MASSACHUSETTS, INC. HAS NOT INDEPENDENTLY VERIFIED THE LOCATION, EXISTENCE, AND SERVICEABILITY OF ANY UTILITIES AND MAKE NO GUARANTEE TO THE COMPLETENESS OR THE ACCURACY OF ANY UTILITIES. ADDITIONAL UTILITIES MAY EXIST IN THE FIELD, WHICH ARE NOT SHOWN ON THIS PLAN. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD PRIOR TO EXCAVATION OR OTHER CONSTRUCTION ACTIVITIES. CALL "DIG SAFE" AT 1-888-344-7233 OR DIAL 811. WOOD MASSACHUSETTS, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN.
- THE LOCUS PARCEL IS SUBJECT TO AN APPROVED SUBDIVISION BY ANDREW W. DOYLE DATED OCTOBER 28, 2003. NO CONVEYANCES WERE FOUND OF THE NEW PARCELS. SEE PLAN REFERENCE 5.

**PLAN REFERENCES:**  
AS RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS

- PLAN BOOK 2, PLAN 288.
- PLAN BOOK 345, PLAN 74.
- PLAN BOOK 402, PLAN 69.
- PLAN BOOK 440, PLAN 21.
- PLAN BOOK 801, PLAN 117.
- PLAN BOOK 897, PLAN 48.
- PLAN BOOK 905, PLAN 11.

**LEGEND:**

- EXISTING PL ——— PROPERTY LINE
- ABUTTER'S PROPERTY LINE
- SUBDIVISION PROPERTY LINE (SEE NOTE 8 ON SHEET V-101)
- ZONING YARD SETBACK
- 1015 ——— MAJOR CONTOUR
- MINOR CONTOUR
- WETLAND LINE
- WETLAND FLAG WITH IDENTIFIER
- WETLAND AREA
- 50' NO DISTURB BUFFER
- 75' NO BUILD BUFFER
- 100' WETLAND BUFFER
- STONEWALL
- TREE LINE
- SITE ENTRANCE
- BUILDING
- ▲ WETLAND IDENTIFIER

BVW #1  
IWV #1

**PROJECT:** 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
BALDWINVILLE RD  
WINCHENDON, MASSACHUSETTS

**TITLE:** EXISTING CONDITIONS PLAN

**CLIENT:** WINCHENDON SOLAR, LLC

**DESIGNED BY:** APV  
**CHECKED BY:** OAC

**DRAWN BY:** DED  
**SCALE:** AS SHOWN

**PROJECT NUMBER:** 3652180157  
**DRAWING NUMBER:** V-101  
**SHEET NUMBER:** 1 OF 6

**APPROVED:** ANDREW P. VARDAKIS, CIVIL ENGINEER, No. 52524

**ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION**

WSP USA ENVIRONMENT & INFRASTRUCTURE, INC.  
100 APOLLO DRIVE, SUITE 302  
CHELMSFORD, MASSACHUSETTS 01824  
TELEPHONE: (978) 692-9090  
FAX: (978) 692-6633  
WEB: WWW.WSP.COM

REVISED PER PEER REVIEW COMMENTS	DATE	REVISION	ISSUE / REVISION DESCRIPTION	APPROVED
ISSUED FOR PLANNING BOARD REVIEW	04/10/2023	7		APV
UPDATED PROPOSED CONDITIONS WITH NEW EQUIPMENT PADS	06/15/2021	6		APV
ADDRESSED PEER REVIEW COMMENTS	01/09/2020	5		APV
ISSUED FOR PERMITTING FOR CONSTRUCTION	09/11/2019	4		APV
ISSUED FOR PERMITTING NOT FOR CONSTRUCTION	09/12/2019	3		APV
ISSUED FOR PERMITTING NOT FOR CONSTRUCTION	07/01/2019	2		APV



REVISION	DATE	ISSUE / REVISION DESCRIPTION
1	09/27/2023	ISSUED FOR PERMITTING
2	09/27/2023	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
3	09/27/2023	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
4	09/27/2023	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
5	01/09/2024	ADDED PERMITTING COMMENTS
6	06/19/2024	UPDATED PROPOSED CONDITIONS WITH NEW EQUIPMENT PADS
7	04/10/2024	ISSUED FOR PLANNING BOARD REVIEW
8	09/27/2023	REVISOR PER PEER REVIEW COMMENTS

REVISION	DATE	ISSUE / REVISION DESCRIPTION
1	09/27/2023	ISSUED FOR PERMITTING
2	09/27/2023	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
3	09/27/2023	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
4	09/27/2023	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
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PROJECT: 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
 BALDWINVILLE RD  
 WINCHENDON, MASSACHUSETTS

TITLE: PROPOSED SITE PLAN

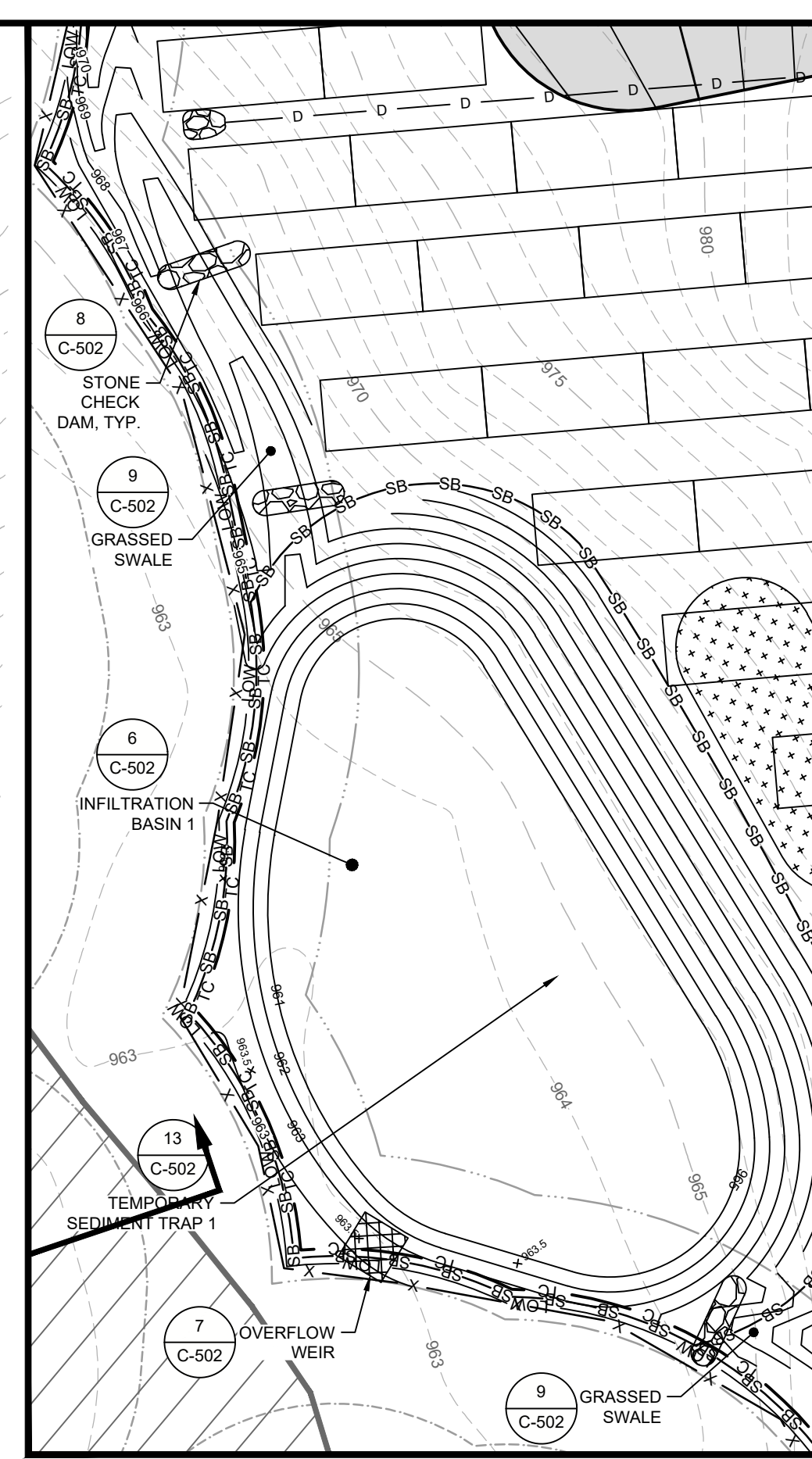
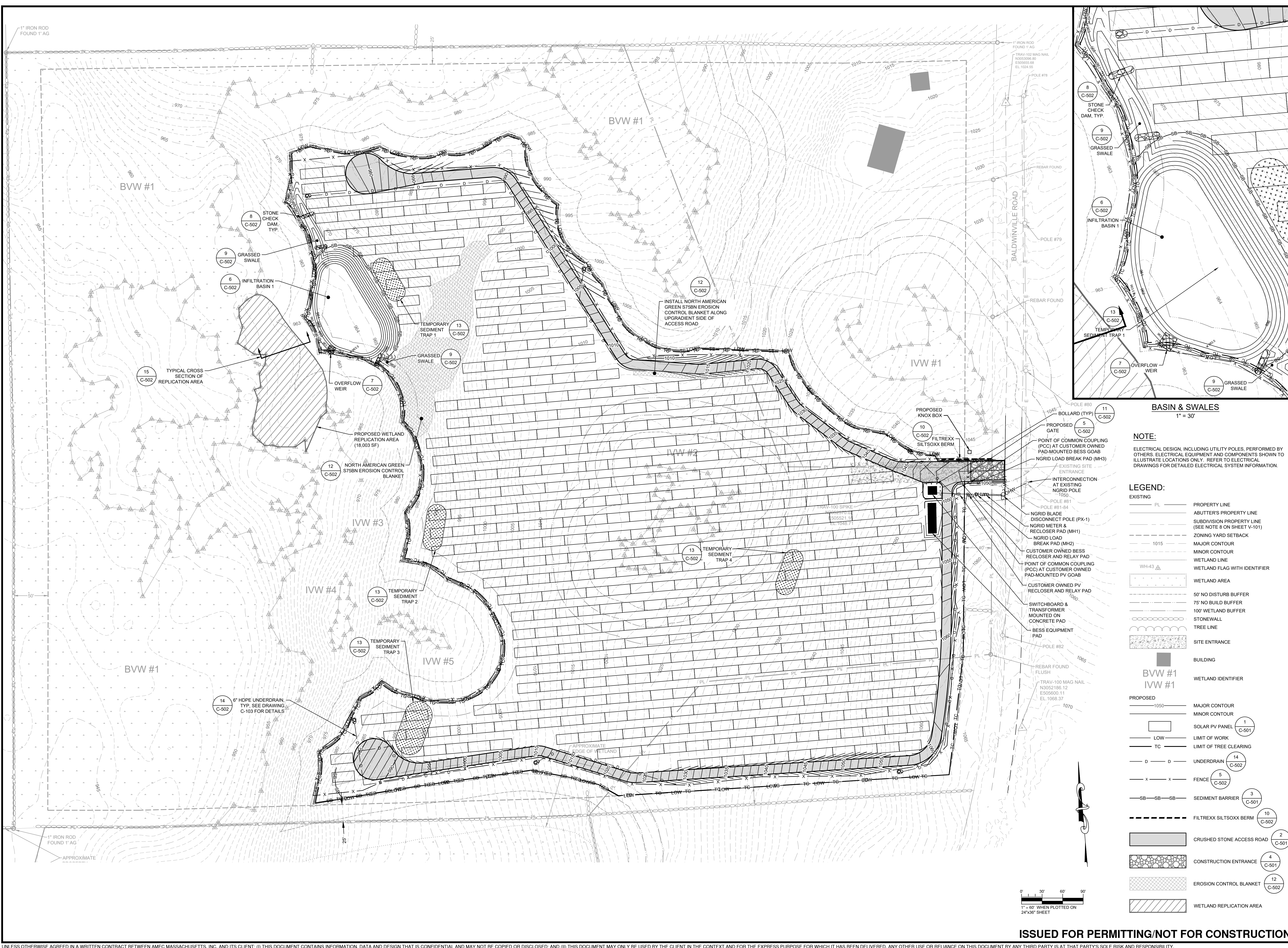
CLIENT: WINCHENDON SOLAR, LLC

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DESIGNED BY: APV  
 CHECKED BY: OAC  
 PROJECT NUMBER: 3652180157  
 DRAWING NUMBER: C-101  
 SHEET NUMBER: 2 OF 6

DRAWN BY: DED  
 SCALE: AS SHOWN

ANDREW P. VARDAKIS  
 CIVIL  
 No. 52524  
 REGISTERED PROFESSIONAL ENGINEER



**BASIN & SWALES**  
 1" = 30'

**NOTE:**  
 ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.

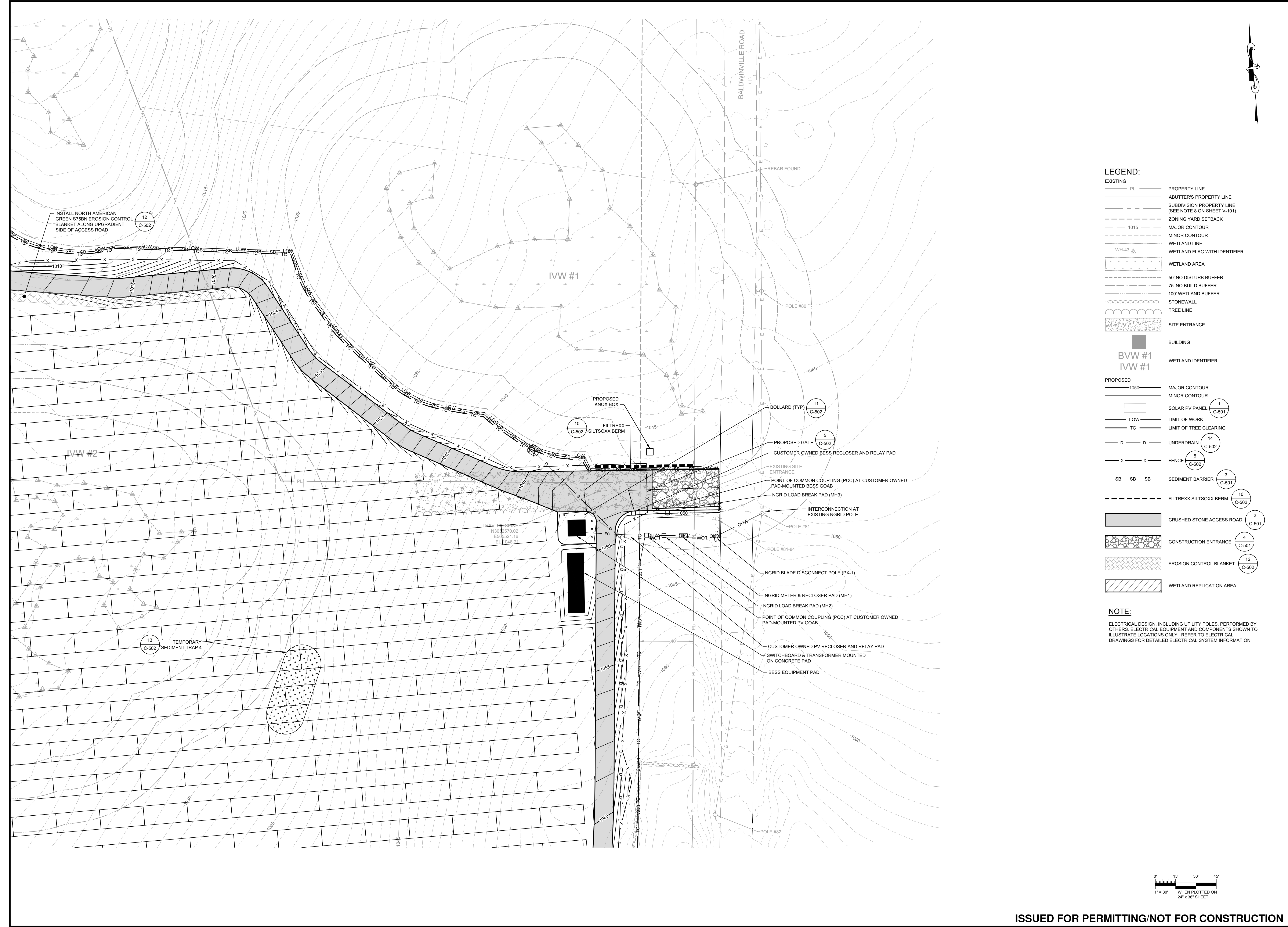
**LEGEND:**

EXISTING	PL	PROPERTY LINE
	PL	ADJUTTER'S PROPERTY LINE
	PL	SUBDIVISION PROPERTY LINE (SEE NOTE 8 ON SHEET V-101)
	1015	ZONING YARD SETBACK
	1015	MAJOR CONTOUR
	1015	MINOR CONTOUR
	WH-43	WETLAND LINE
	WH-43	WETLAND FLAG WITH IDENTIFIER
		WETLAND AREA
		WETLAND AREA
		50' NO DISTURB BUFFER
		75' NO BUILD BUFFER
		100' WETLAND BUFFER
		STONEWALL
		TREE LINE
		SITE ENTRANCE
		BUILDING
		WETLAND IDENTIFIER
PROPOSED	1050	MAJOR CONTOUR
		MINOR CONTOUR
		SOLAR PV PANEL 1 C-501
	LOW	LIMIT OF WORK
	TC	LIMIT OF TREE CLEARING
	D-D	UNDERDRAIN 14 C-502
	X-X	FENCE 5 C-502
	SB-SB	SEDIMENT BARRIER 3 C-501
		FILTREXX SILT/SOXX BERM 10 C-502
		CRUSHED STONE ACCESS ROAD 2 C-501
		CONSTRUCTION ENTRANCE 4 C-501
		EROSION CONTROL BLANKET 12 C-502
		WETLAND REPLICATION AREA



**ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION**





**LEGEND:**

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- PROPOSED**
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  - LOW — LIMIT OF WORK
  - TC — LIMIT OF TREE CLEARING
  - D — D — UNDERDRAIN (14) C-502
  - X — X — FENCE (5) C-502
  - SB — SB — SB — SEDIMENT BARRIER (3) C-501
  - — — — — FILTEREXX SILTSOXX BERM (10) C-502
  - — — — — CRUSHED STONE ACCESS ROAD (2) C-501
  - — — — — CONSTRUCTION ENTRANCE (4) C-501
  - — — — — EROSION CONTROL BLANKET (12) C-502
  - — — — — WETLAND REPLICATION AREA

**NOTE:**

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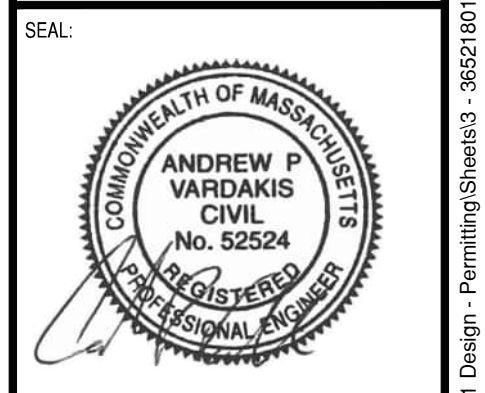
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 BALDWINVILLE RD  
 WINCHENDON, MASSACHUSETTS

**TITLE:** PROPOSED SITE PLAN (SITE ENTRANCE)

**CLIENT:** WINCHENDON SOLAR, LLC

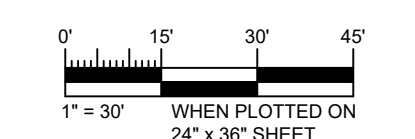
**SUNPIN**  
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**DESIGNED BY:** APV  
**CHECKED BY:** OAC

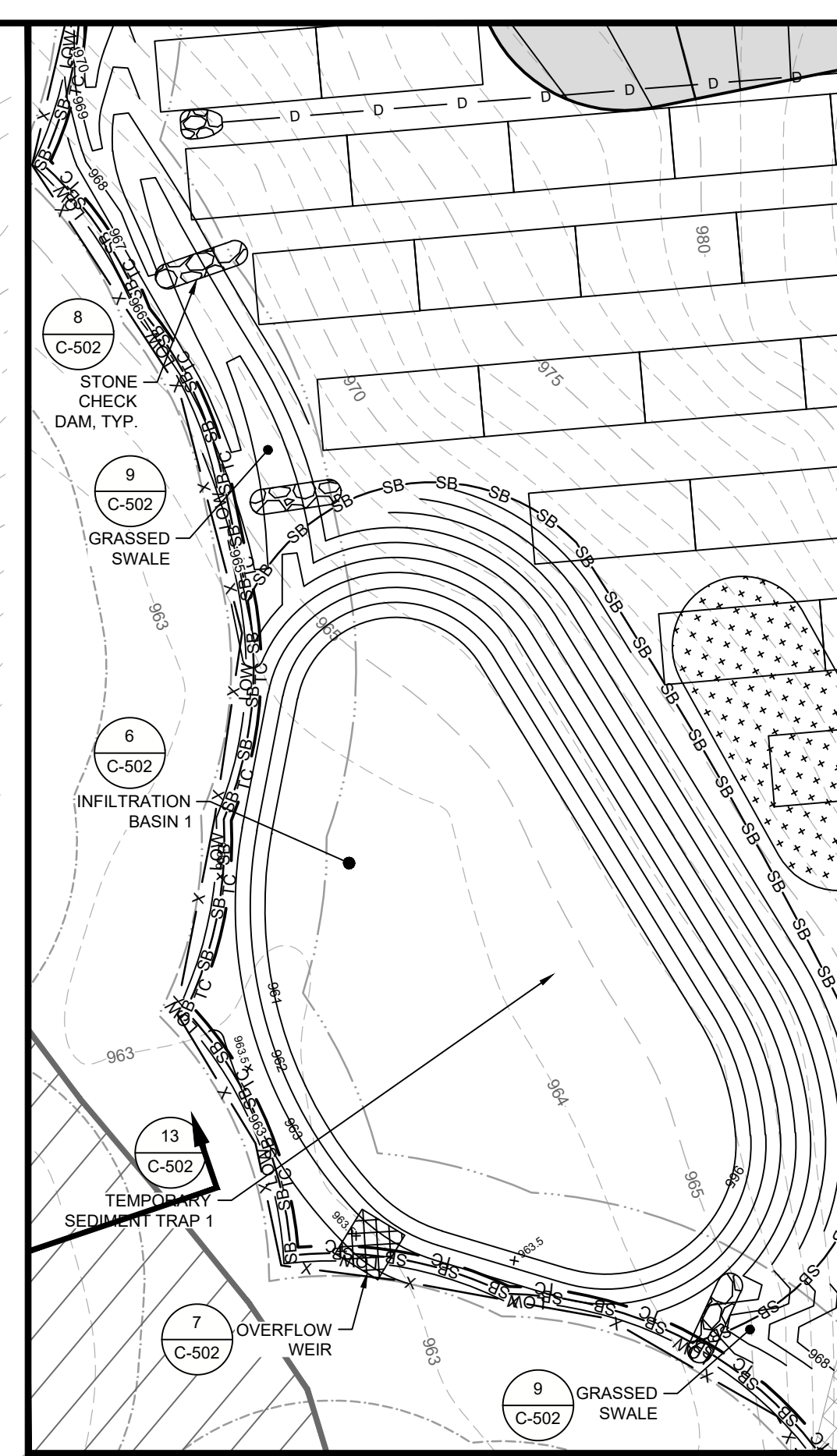
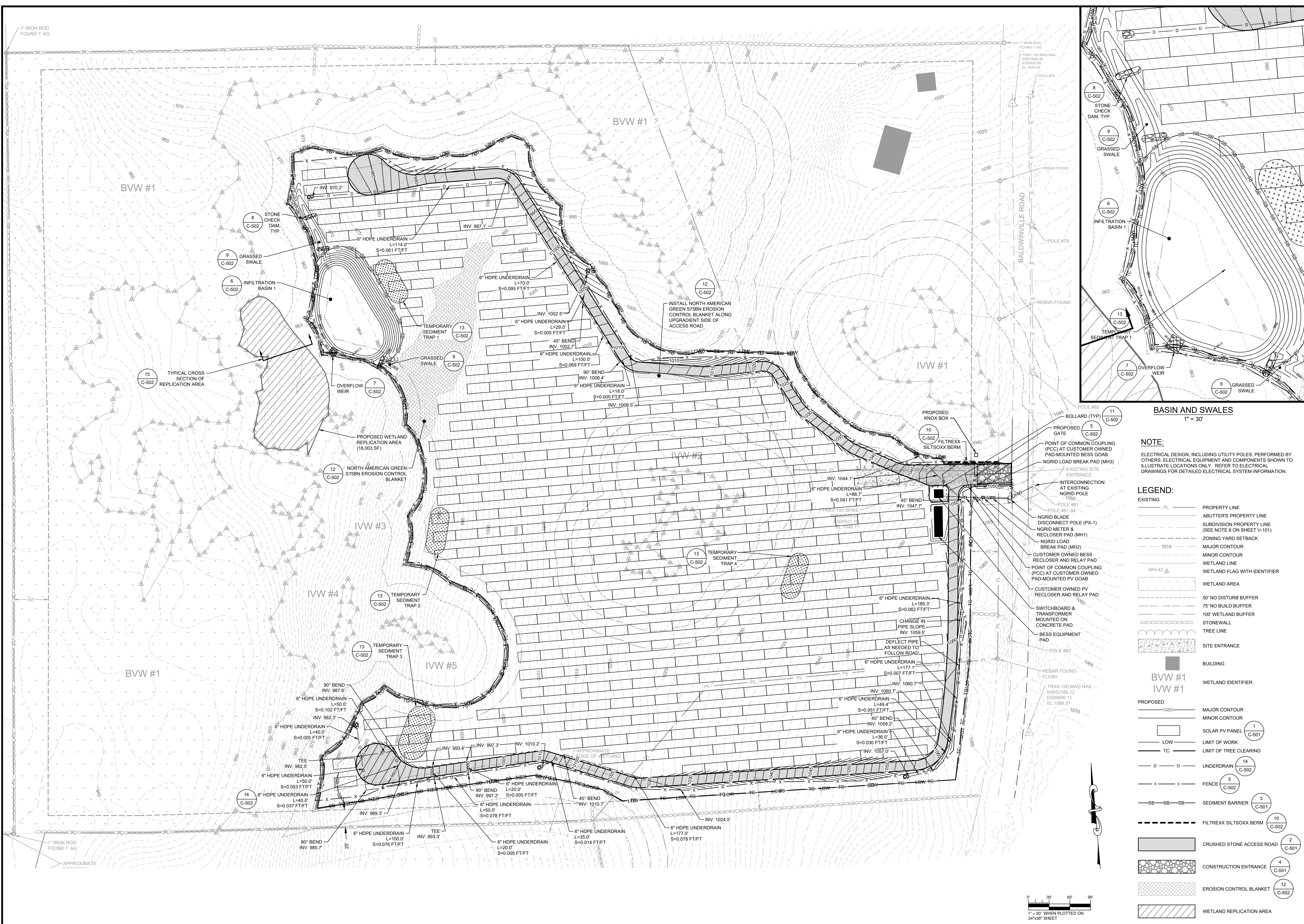
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**SCALE:** AS SHOWN

**PROJECT NUMBER:** 3652180157  
**DRAWING NUMBER:** C-102  
**SHEET NUMBER:** 3 OF 6



**ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION**





**BASIN AND SWALES**  
 1" = 30'

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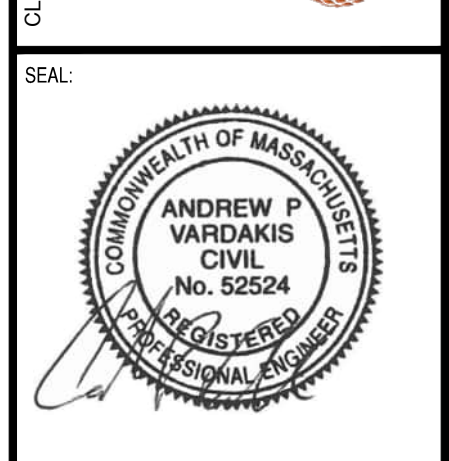
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 BALDWINVILLE RD  
 WINCHENDON, MASSACHUSETTS

**TITLE:** PROPOSED UTILITY, GRADING, AND DRAINAGE PLAN

**CLIENT:** WINCHENDON SOLAR, LLC

**SUNPIN**  
 Securing a brighter future through solar



**DESIGNED BY:** APV  
**CHECKED BY:** OAC

**DRAWN BY:** DED  
**SCALE:** AS SHOWN

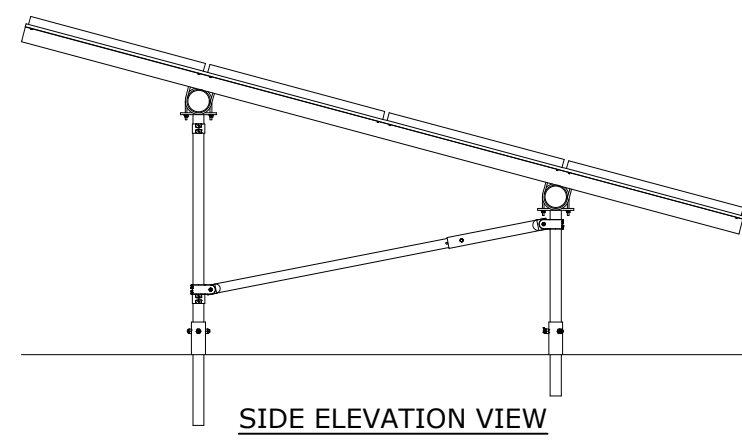
**PROJECT NUMBER:** 3652180157  
**DRAWING NUMBER:** C-103  
**SHEET NUMBER:** 4 OF 6

**ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION**

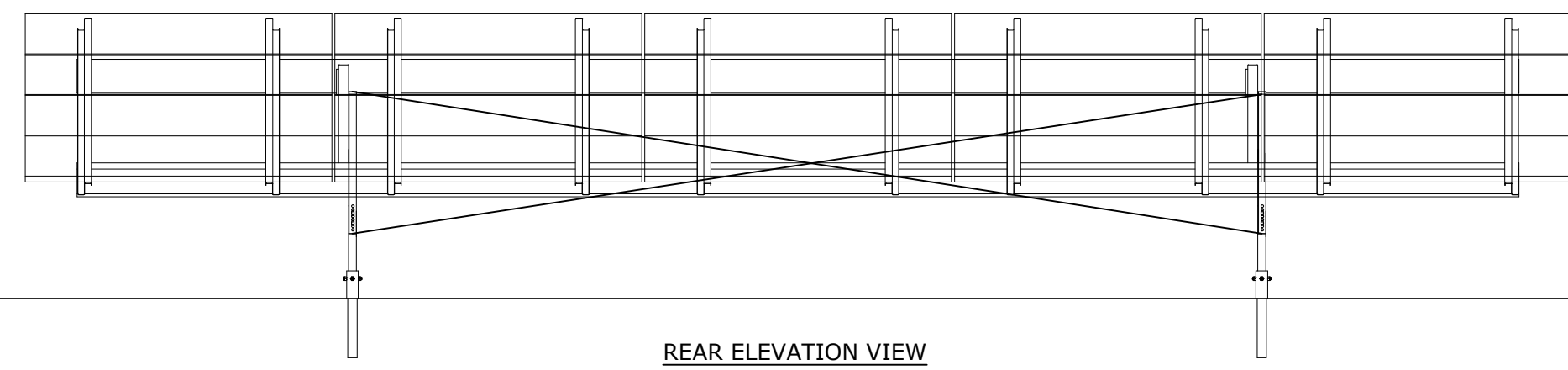


**CONCEPTUAL CONSTRUCTION SEQUENCE**

1. ESTABLISHMENT OF LIMITS OF WORK;
2. PLACEMENT OF EROSION CONTROLS;
3. CONSTRUCTION OF STORMWATER INFILTRATION BASIN;
4. CONSTRUCTION OF THE ACCESS ROADS;
5. TREE CUTTING AND TREE REMOVAL;
6. CONSTRUCTION OF THE SOLAR ARRAY AND APPURTENANT EQUIPMENT;
7. CLEARING OF SEDIMENT FROM BASIN AND SCARIFYING OF BASIN BOTTOM;
8. ERECTION OF THE PERIMETER SECURITY FENCE; AND
9. RESTORATION OF DISTURBED AREAS.



**SOLAR PV ARRAY**  
NOT TO SCALE



**NOTE:**  
1. DESIGN FOR FOUNDATIONS, RACKING, GROUND SCREWS, AND MODULES BY OTHERS. DETAILS SHOWN FOR ILLUSTRATION PURPOSES ONLY.

1

**EROSION AND SEDIMENTATION CONTROL PLAN:**

THIS PLAN HAS BEEN DEVELOPED TO PROVIDE A STRATEGY FOR CONTROLLING SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROPOSED PROJECT.

THIS PLAN IS BASED ON STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN DEVELOPING AREAS AS CONTAINED IN MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS, 2003.

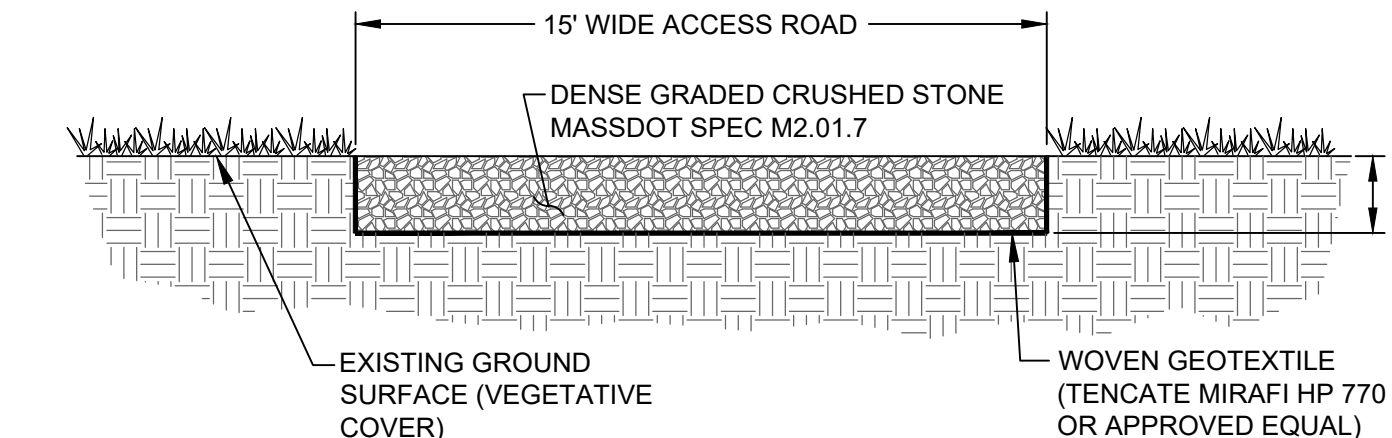
**GENERAL EROSION AND SEDIMENTATION CONSTRUCTION DETAIL NOTES:**

DURING CONSTRUCTION, THE CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO SCHEDULE EARTHWORK OPERATIONS SUCH THAT THE AREA OF EXPOSED AND DISTURBED SOIL IS MINIMIZED. CONSTRUCTION SHALL BE PHASED TO MINIMIZE THE AREA OF DISTURBED SOIL THAT IS EXPOSED AT ANY ONE TIME. UPGRADIENT STORMWATER DIVERSION AND DISPERSION MEASURES SHALL BE INSTALLED WHERE APPROPRIATE. ALL CUT AND FILL SLOPES SHALL BE STABILIZED UPON COMPLETION. THE FOLLOWING MEASURES WILL BE UNDERTAKEN TO PROVIDE MAXIMUM PROTECTION TO THE SOIL, WATER, AND ADJUTING LANDS:

1. PRIOR TO GRUBBING OR ANY EARTH MOVING OPERATION, SEDIMENT BARRIERS, OR OTHER APPROPRIATE PERIMETER CONTROL BEST MANAGEMENT PRACTICES (BMPs) SHALL BE INSTALLED ACROSS THE SLOPE ON THE CONTOUR AT THE DOWNHILL LIMIT OF THE WORK AS PROTECTION AGAINST CONSTRUCTION RELATED EROSION. INSTALL ALL NECESSARY STORMWATER DIVERSIONS AND DISPERSION MEASURES.
2. PERMANENT SOIL STABILIZATION MEASURES FOR ALL SLOPES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN FOURTEEN CALENDAR DAYS AFTER FINAL GRADING HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE OR PRACTICAL TO PERMANENTLY STABILIZE DISTURBED LAND, TEMPORARY EROSION CONTROL MEASURES SHALL BE IMPLEMENTED ON DISTURBED AREAS (INCLUDING STOCKPILES) WITHIN FOURTEEN CALENDAR DAYS OF EXPOSURE OF SOIL OR FORMATION OF PILES. UNLESS THESE AREAS ARE TO BE SUBSEQUENTLY SURFACED WITH PERMANENT STRUCTURES. ALL DISTURBED AREAS SHALL BE MULCHED FOR EROSION CONTROL UPON COMPLETION OF ROUGH GRADING.
3. ANY EXPOSED SLOPES 3:1 OR GREATER SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS (ERONET C125 BY NORTH AMERICAN GREEN, OR APPROVED EQUAL) TO PREVENT EROSION DURING CONSTRUCTION AND TO FACILITATE REVEGETATION AFTER TOPSOILING AND SEEDING.
4. IF MATERIAL STOCKPILES ARE NEEDED, SEDIMENT BARRIER SHALL BE INSTALLED AT THE BASE OF STOCKPILES AT THE DOWNHILL LIMIT TO PROTECT AGAINST EROSION. STOCKPILES ANTICIPATED TO REMAIN FOR MORE THAN FOURTEEN CALENDAR DAYS SHALL BE STABILIZED BY SEEDING AND MULCHING UPON FORMATION OF THE PILES. UPGRADIENT OF THE STOCKPILES, STABILIZED DITCHES AND/OR BERMS SHALL BE CONSTRUCTED TO DIVERT STORMWATER RUNOFF AWAY FROM THE PILES.
5. INTERCEPTED SEDIMENT SHALL BE REMOVED WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SEDIMENT BARRIER, OR AS DIRECTED IN THE DRAWING DETAILS FOR OTHER BMPs, AND SHALL BE DEPOSITED IN AN AREA THAT SHALL NOT CONTRIBUTE TO SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED. ALL DAMAGED EROSION CONTROL DEVICES SHALL BE REPAIRED AND/OR REPLACED IMMEDIATELY. DEVICES NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION SHALL ALSO BE REPAIRED AND/OR REPLACED AS REQUIRED.
6. SOIL CUTTINGS GENERATED DURING THE DRILLING OF PILOT HOLES FOR GROUND SCREWS SHALL BE REMOVED AND COLLECTED. SOIL CUTTINGS MAY BE STOCKPILED TEMPORARILY, BUT ULTIMATELY SHALL BE DISPOSED AND SPREAD IN AN AREA THAT SHALL NOT CONTRIBUTE TO OFF-SITE SEDIMENTATION, AND PERMANENTLY STABILIZED.
7. ADDITIONAL EROSION CONTROL METHODS SHALL BE IMPLEMENTED IF CONSTRUCTION OCCURS AFTER DECEMBER 15TH. ALL DISTURBED AREAS SHALL BE MINIMIZED TO THE EXTENT POSSIBLE. PRIOR TO FREEZING, ADDITIONAL EROSION CONTROL DEVICES SHALL BE INSTALLED AS APPROPRIATE. INSPECTION OF THESE EROSION CONTROL ITEMS SHALL BE FREQUENT, WITH PARTICULAR ATTENTION PAID TO WEATHER PREDICTIONS TO ENSURE THAT THESE MEASURES ARE PROPERLY IN PLACE TO HANDLE LARGE QUANTITIES OF RUNOFF RESULTING FROM HEAVY RAINS OR EXCESSIVE THAWS.
8. GENERAL EROSION AND SEDIMENTATION CONTROL ACTIONS SHALL INCLUDE THE FOLLOWING:
  - MARK SOIL DISTURBANCE LIMITS
  - INSTALL SEDIMENT BARRIERS BEFORE DISTURBING ANY SOILS
  - DIVERT AND DISPERSE STORMWATER RUNOFF TO UNDISTURBED AREAS WHEREVER POSSIBLE
  - MULCH DISTURBED AREAS
  - PROTECT STEEP SLOPES
  - INSPECT AND REPAIR EROSION CONTROLS AND SEDIMENT BARRIERS

**DUST CONTROL:**

1. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED TO MINIMIZE THE AREA OF DISTURBED SOIL THAT IS EXPOSED AT ONE TIME.
2. DUST CONTROL SHALL BE USED ON CONSTRUCTION ROUTES AND OTHER DISTURBED AREAS SUBJECT TO SURFACE DUST MOVEMENT AND DUST BLOWING.
3. MAINTAIN DUST CONTROL MEASURES PROPERLY THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
4. DUST CONTROL METHODS SHALL BE APPROVED BY THE ENGINEER AND MAY INCLUDE VEGETATIVE COVER, MULCH (INCLUDING GRAVEL MULCH), SPRAY-ON-ADHESIVE, CALCIUM CHLORIDE, SPRINKLING, STONE, AND BARRIERS.
5. VEGETATIVE COVER - FOR DISTURBED AREAS NOT SUBJECT TO TRAFFIC, VEGETATION PROVIDES THE MOST PRACTICAL METHOD OF DUST CONTROL.
6. MULCH (INCLUDING GRAVEL MULCH) - WHEN PROPERLY APPLIED, MULCH OFFERS A FAST, EFFECTIVE MEANS OF CONTROLLING DUST. SEE MANUFACTURER'S RECOMMENDATIONS OR THE MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS FOR APPLICATION RATES.
7. SPRAY-ON ADHESIVE - LATEX EMULSIONS OR RESIN IN WATER CAN BE SPRAYED ONTO MINERAL SOIL TO PREVENT PARTICLES FROM BLOWING AWAY.
8. CALCIUM CHLORIDE - CALCIUM CHLORIDE MAY BE APPLIED BY MECHANICAL SPREADER AS LOOSE, DRY GRANULES OR FLAKES AT A RATE THAT KEEPS THE SURFACE MOIST BUT NOT SO HIGH AS TO CAUSE WATER POLLUTION OR PLANT DAMAGE.
9. SPRINKLING - EXPOSED SOILS MAY BE SPRINKLED UNTIL THE SURFACE IS WET. SPRINKLING IS ESPECIALLY EFFECTIVE FOR DUST CONTROL ON HAUL ROADS AND OTHER TRAFFIC ROUTES.
10. STONE - USED TO STABILIZE CONSTRUCTION ROADS; CAN ALSO BE EFFECTIVE FOR DUST CONTROL.
11. BARRIERS - A BOARD FENCE, WIND FENCE, SEDIMENT FENCE, OR SIMILAR BARRIER CAN CONTROL AIR CURRENTS AND BLOWING SOIL. ALL OF THESE FENCES ARE NORMALLY CONSTRUCTED OF WOOD AND THEY PREVENT EROSION BY OBSTRUCTING THE WIND NEAR THE GROUND AND PREVENTING THE SOIL FROM BLOWING OFFSITE.



- NOTES:**
1. ACCESS ROAD TO BE CONSTRUCTED OF A MINIMUM 12" OF DENSE GRADED CRUSHED STONE.
  2. WOVEN GEOTEXTILE TO BE PLACED BETWEEN THE GROUND SURFACE AND THE CRUSHED STONE.
  3. CRUSHED STONE SHALL BE COMPACTED TO A FIRM AND NON-YIELDING CONDITION.

**CRUSHED STONE ACCESS ROAD**

NOT TO SCALE

2

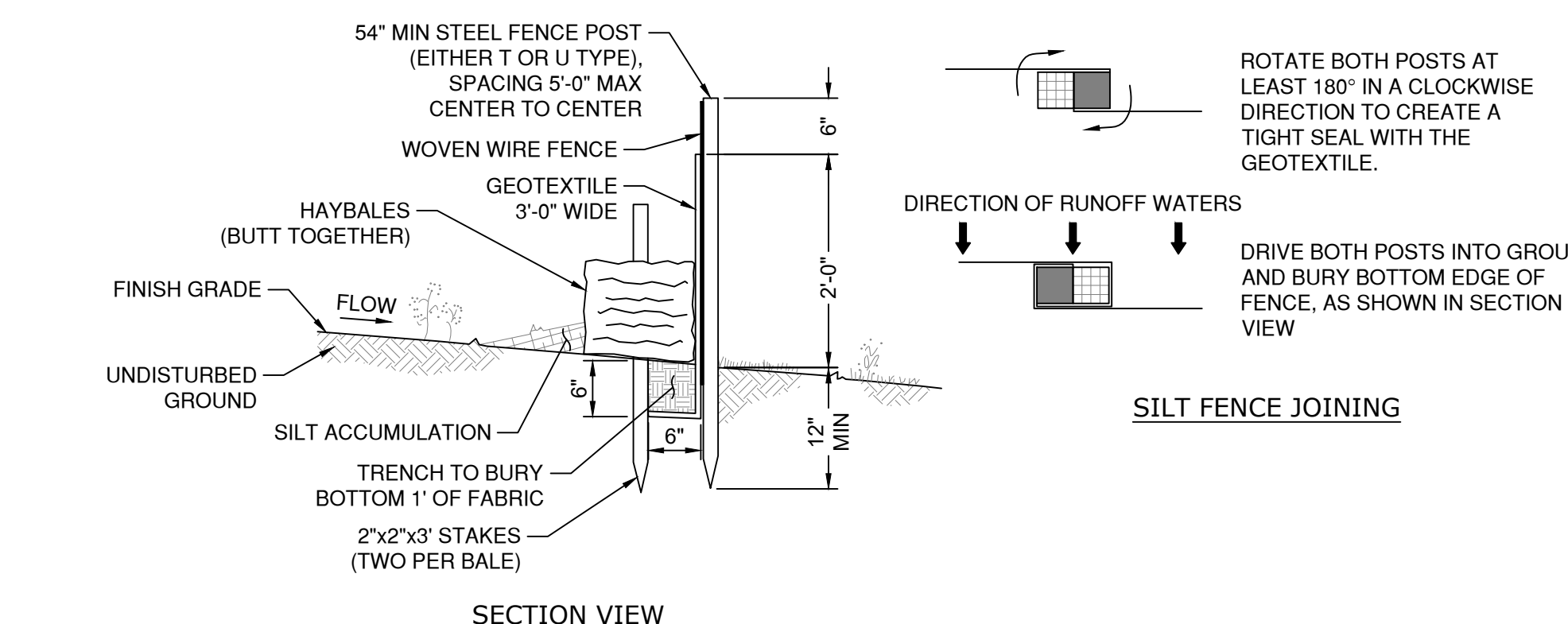
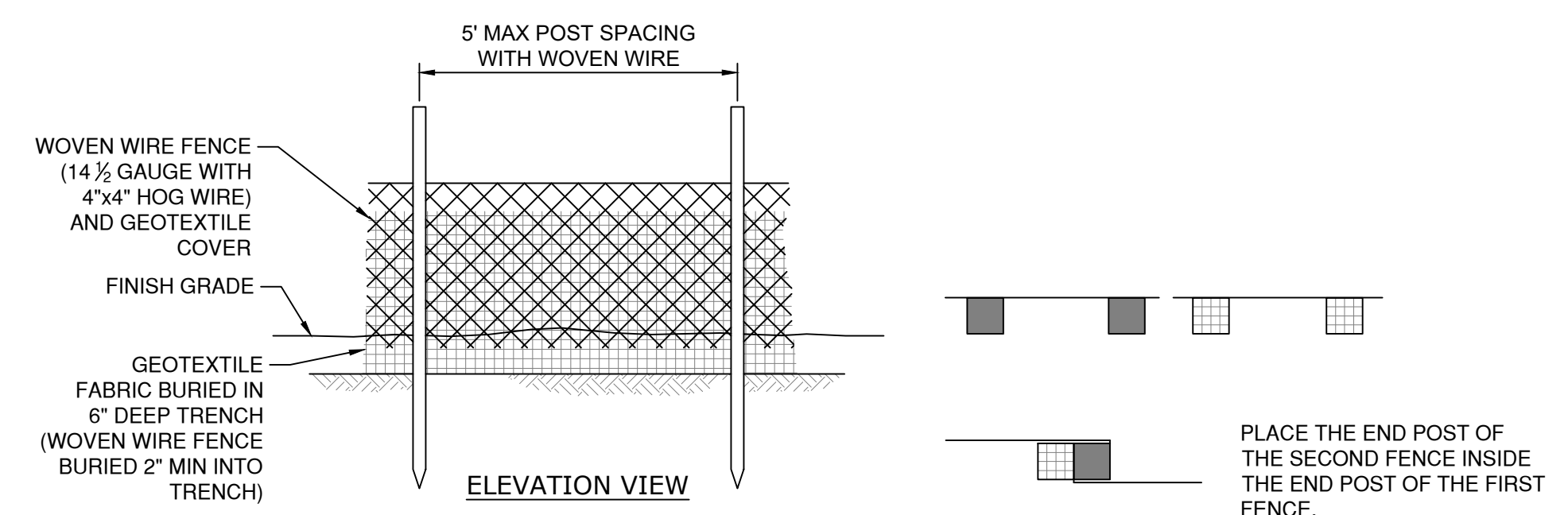
**MONITORING PROGRAM:**

1. EROSION AND SEDIMENTATION CONTROLS SHALL BE INSPECTED AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.25 INCHES OR GREATER. DAILY RAINFALL SHALL BE MONITORED AND RECORDED BY THE CONTRACTOR. ALL STRUCTURES DAMAGED BY CONSTRUCTION EQUIPMENT, VANDALS, OR THE ELEMENTS SHALL BE REPAIRED OR REPLACED IMMEDIATELY, PRIOR TO CONTINUING THE CONSTRUCTION.
2. FOLLOWING THE FINAL SEEDING, THE SITE SHALL BE INSPECTED IN ACCORDANCE WITH THE SCHEDULE OUTLINED IN #1 ABOVE, TO ENSURE THAT THE VEGETATION HAS BEEN ESTABLISHED (70% COVER ACHIEVED). IN THE EVENT OF ANY UNSATISFACTORY GROWTH, RESEEDING WILL BE CARRIED OUT, WITH FOLLOW-UP INSPECTION.
3. AFTER THE CONSTRUCTION INSPECTOR HAS DETERMINED THAT THE PROJECT AREA HAS BEEN PERMANENTLY STABILIZED (70% COVER HAS BEEN ACHIEVED OR NON-VEGETATED MEASURES HAVE BEEN IMPLEMENTED), THE CONTRACTOR SHALL REMOVE ALL SEDIMENT BARRIERS, TEMPORARY SEDIMENTATION CONTROL RISERS AND ANY OTHER TEMPORARY EROSION CONTROL MEASURES.

**SEEDING AND REVEGETATION PLAN:**

UPON COMPLETION OF SITE CONSTRUCTION, ALL AREAS PREVIOUSLY DISTURBED SHALL BE TREATED AS STATED BELOW. THESE AREAS WILL BE CLOSELY MONITORED BY THE CONTRACTOR UNTIL SUCH TIME AS A SATISFACTORY GROWTH OF VEGETATION IS ESTABLISHED. SATISFACTORY GROWTH SHALL MEAN A MINIMUM OF 70% OF THE AREA IS VEGETATED WITH VIGOROUS GROWTH.

1. TOPSOIL WILL BE SPREAD OVER ALL DISTURBED AREAS TO BE REVEGETATED AND SHALL BE GRADED TO A UNIFORM DEPTH OF FOUR (4) TO SIX (6) INCHES.
2. APPLY SEED AS DIRECTED BELOW:
  - (APRIL 1ST THROUGH OCTOBER 1ST)
    - SEED DISTURBED AREAS AT THE RATE OF 10 LBS PER 1,000 SQ. FT. OF THE FOLLOWING MIXTURE (% BY WEIGHT):
      - 30% RED FESCUE
      - 30% CANADA BLUEGRASS
      - 30% PERENNIAL RYEGRASS
      - 10% RED TOP
    - APPLY WOOD FIBER MULCH AT A RATE OF 2,000 LBS PER ACRE FOR MAXIMUM MOISTURE RETENTION.
  - (NOVEMBER 1ST THROUGH DECEMBER 15TH)
    - SEED DISTURBED AREAS AT THE RATE OF 15 LBS PER 1,000 SQ. FT. OF THE FOLLOWING MIXTURE (% BY WEIGHT):
      - 30% RED FESCUE
      - 30% CANADA BLUEGRASS
      - 30% PERENNIAL RYEGRASS
      - 10% RED TOP
    - APPLY HAY MULCH AT THE RATE OF 100 LBS PER 1,000 SQ. FT.
  - (AFTER DECEMBER 15TH)
    - DO NOT SEED.
    - APPLY HAY MULCH AT THE RATE OF 100 LBS PER 1,000 SQ. FT.
3. FERTILIZER AND LIME SELECTIONS BASED ON SOIL TESTING IS RECOMMENDED. IN ABSENCE OF A SOIL TEST, APPLY LIME AT A RATE OF 2.5 TONS PER ACRE AND 10-20-20 FERTILIZER AT A RATE OF 500 POUNDS PER ACRE. 40% OF THE NITROGEN SHALL BE IN AN ORGANIC OR SLOW-RELEASED FORM. THE TARGET PH FOR LIMED SOIL IS 5.5 - 6.0. LIME AND FERTILIZER SHALL BE INCORPORATED INTO THE TOP 2-3 INCHES OF SOIL.
4. SEEDING METHODS MAY BE DRILL SEEDINGS, BROADCASTS AND ROLLED, CULPACKED, OR TRACKED WITH A SMALL TRACK PIECE OF CONSTRUCTION EQUIPMENT, OR HYDRO-SEEDING, WITH SUBSEQUENT TRACKING.
5. WATERING MAY BE REQUIRED DURING DRY PERIODS CONSULT SEED MANUFACTURER'S INSTRUCTIONS.
6. STEEP SLOPES (3:1 AND STEEPER) SHALL BE STABILIZED BY INSTALLING EROSION CONTROL BLANKET (ERONET C125 BY NORTH AMERICAN GREEN, OR APPROVED EQUAL)
7. INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RESEED IMMEDIATELY. CONDUCT A FOLLOW-UP SURVEY AFTER ONE YEAR AND RESEED WHERE NECESSARY.
8. IF THERE ARE AREAS WITH LESS THAN 40% COVER, REEVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. IF THE SEASON PREVENTS RESOWING, MULCH OR JUTE NETTING IS AN EFFECTIVE TEMPORARY COVER.
9. SEEDED AREAS SHOULD BE FERTILIZED DURING THE SECOND GROWING SEASON.
10. LIME AND FERTILIZE THEREAFTER AT PERIODIC INTERVALS, AS NEEDED.
11. ALL SEDIMENT CONTROL STRUCTURES LOCATED DOWN GRADIENT OF SOILS STABILIZED BY VEGETATIVE MEASURES SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED. ESTABLISHED MEANS A MINIMUM OF 70% OF THE AREA IS VEGETATED WITH VIGOROUS GROWTH.

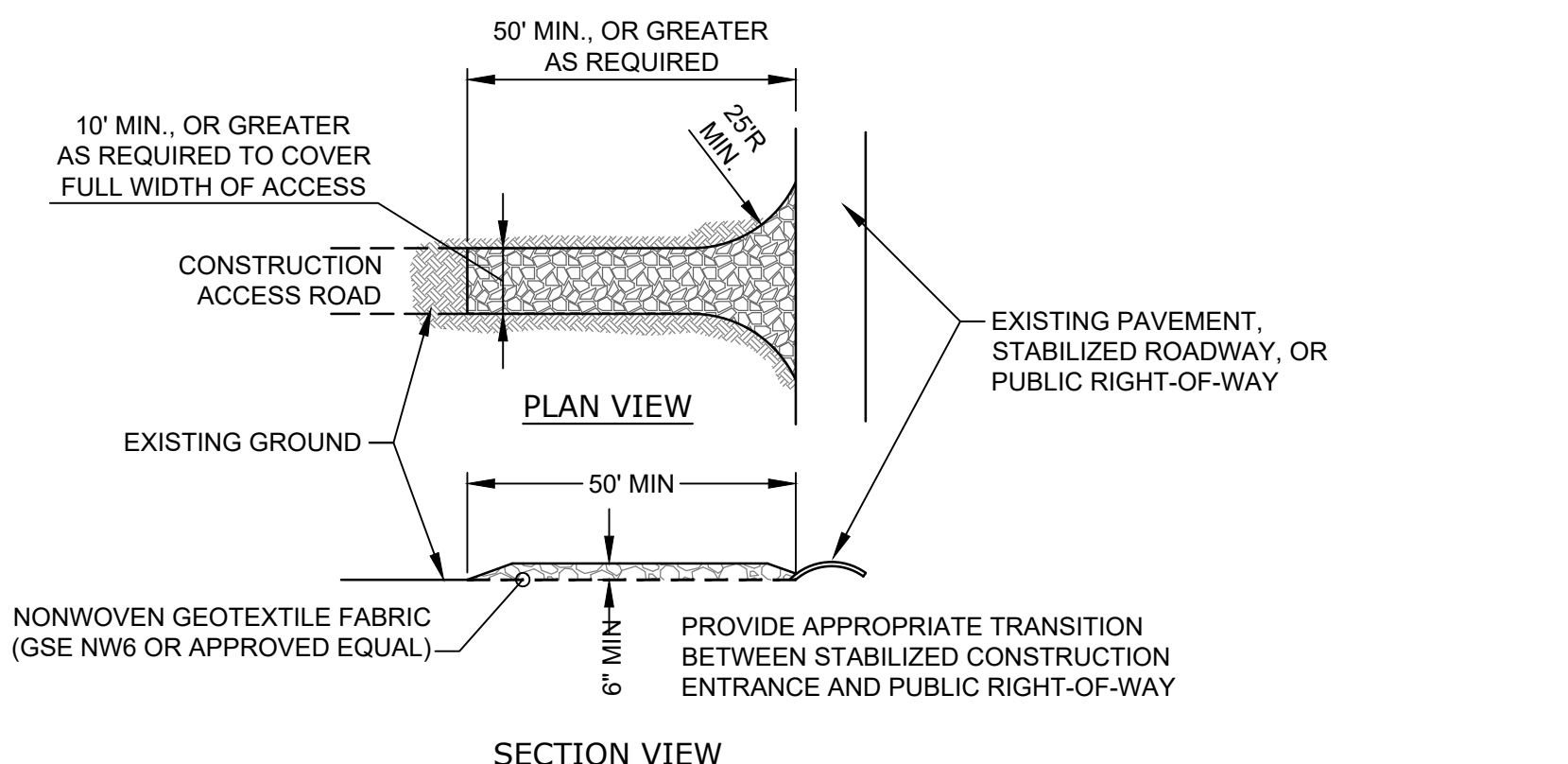


- NOTES:**
1. GEOTEXTILE TO BE FASTENED SECURELY TO FENCE POST BY USE OF WIRE TIES.
  2. GEOTEXTILE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
  3. BURY BOTTOM 1'-0" OF GEOTEXTILE IN TRENCH (6" DEEP x 6" WIDE) REPLACE SOIL AND TAMP IN PLACE.
  4. ENDS OF INDIVIDUAL ROLLS OF GEOTEXTILE SHALL BE SECURELY FASTENED TOGETHER AS SHOWN. FASTENERS SHALL BE PROVIDED AS SPECIFIED IN NOTE 1 ABOVE. SPLICING OF INDIVIDUAL ROLLS SHALL NOT OCCUR AT LOW POINTS.
  5. MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE EROSION CONTROL PLAN. COLLECTED MATERIAL SHALL BE REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
  6. ALL SILT FENCE SHALL INCLUDE WOVEN WIRE FENCE SUPPORT UNLESS INDICATED OTHERWISE.

**SEDIMENT BARRIER - DOUBLE STAKED HAY BALE WITH HOG WIRE BACKED SILT FENCE**

NOT TO SCALE

3



- NOTES:**
1. STONE TO BE 1"-3" STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
  2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FT.
  3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
  4. WIDTH - TEN (10) FT. MIN, BUT NOT LESS THAN THE FULL TRAVELED WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
  5. FILTER CLOTH - SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
  6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED ACROSS OR BENEATH THE ENTRANCE.
  7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANUP OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
  8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. IF WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
  9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

**STABILIZED CONSTRUCTION ENTRANCE**

NOT TO SCALE

4

**wsp**  
WSP USA ENVIRONMENT & INFRASTRUCTURE, INC.  
100 APOLLO DRIVE, SUITE 302  
CHELMSFORD, MASSACHUSETTS 01824  
TELEPHONE: (978) 692-9090  
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REVISION	DATE	ISSUE / REVISION DESCRIPTION
8	09/27/2023	REVISED PER PEER REVIEW COMMENTS
7	04/10/2023	ISSUED FOR PLANNING BOARD REVIEW
6	06/15/2021	UPDATED PROPOSED CONDITIONS WITH NEW EQUIPMENT PADS
5	01/06/2020	ADDRESSED PEER REVIEW COMMENTS
4	09/11/2019	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
3	09/12/2019	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
2	07/01/2019	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
		ISSUE / REVISION DESCRIPTION
		APPROVED

PROJECT: 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
BALDWINVILLE RD  
WINCHENDON, MASSACHUSETTS

TITLE: CONSTRUCTION, EROSION, AND SEDIMENTATION CONTROL DETAILS AND NOTES

CLIENT: WINCHENDON SOLAR, LLC

**SUNPIN**  
Securing a brighter future through solar

SEAL: ANDREW P. VARDAKIS  
CIVIL  
No. 52524  
REGISTERED PROFESSIONAL ENGINEER

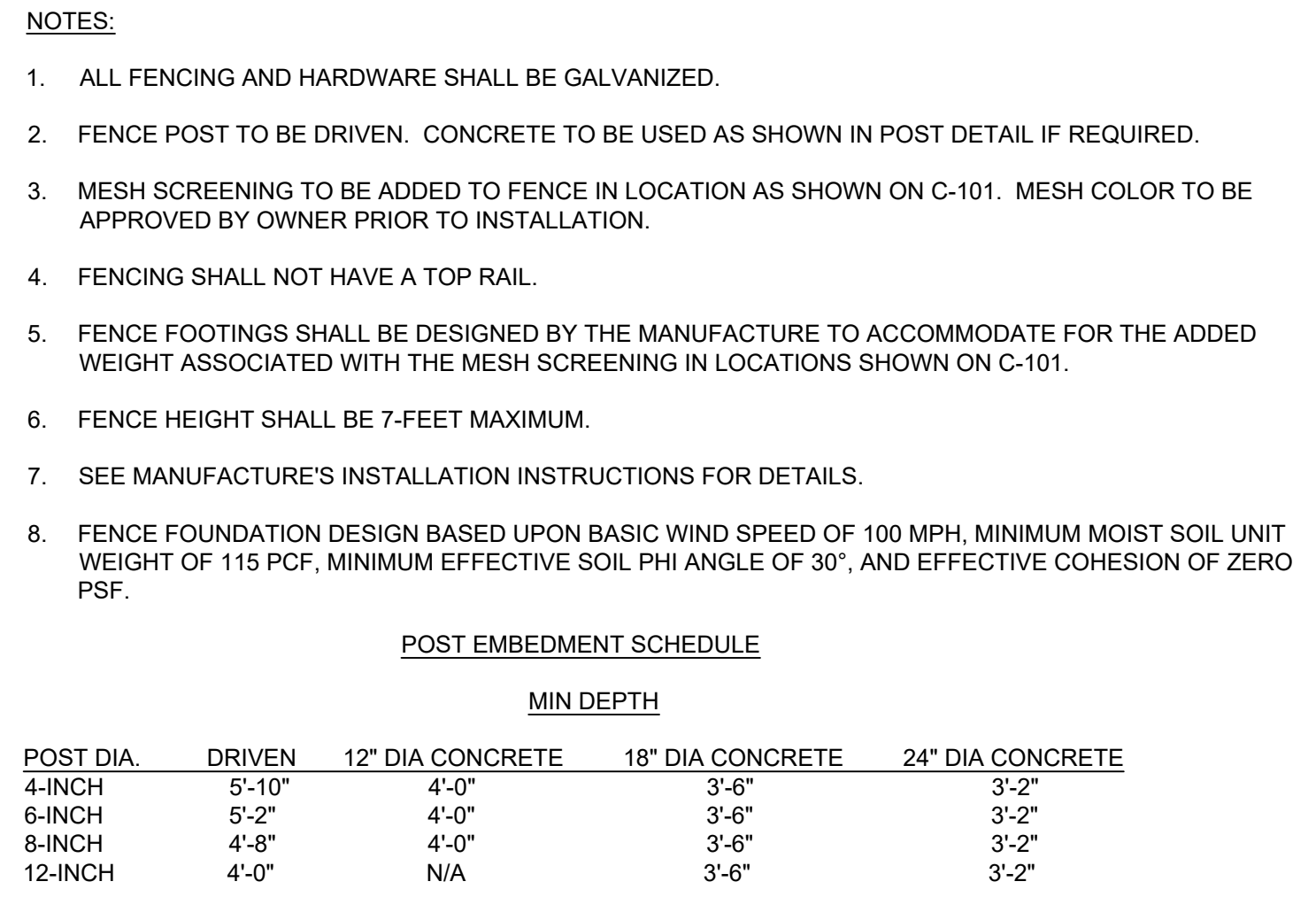
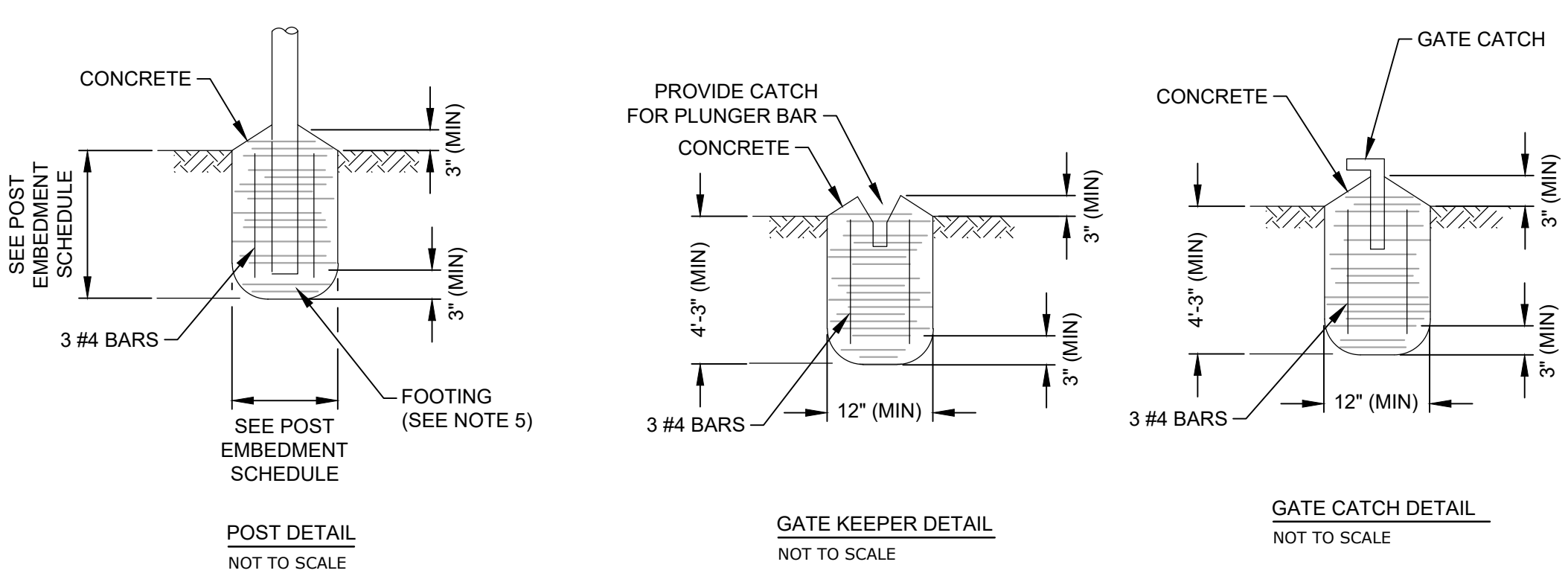
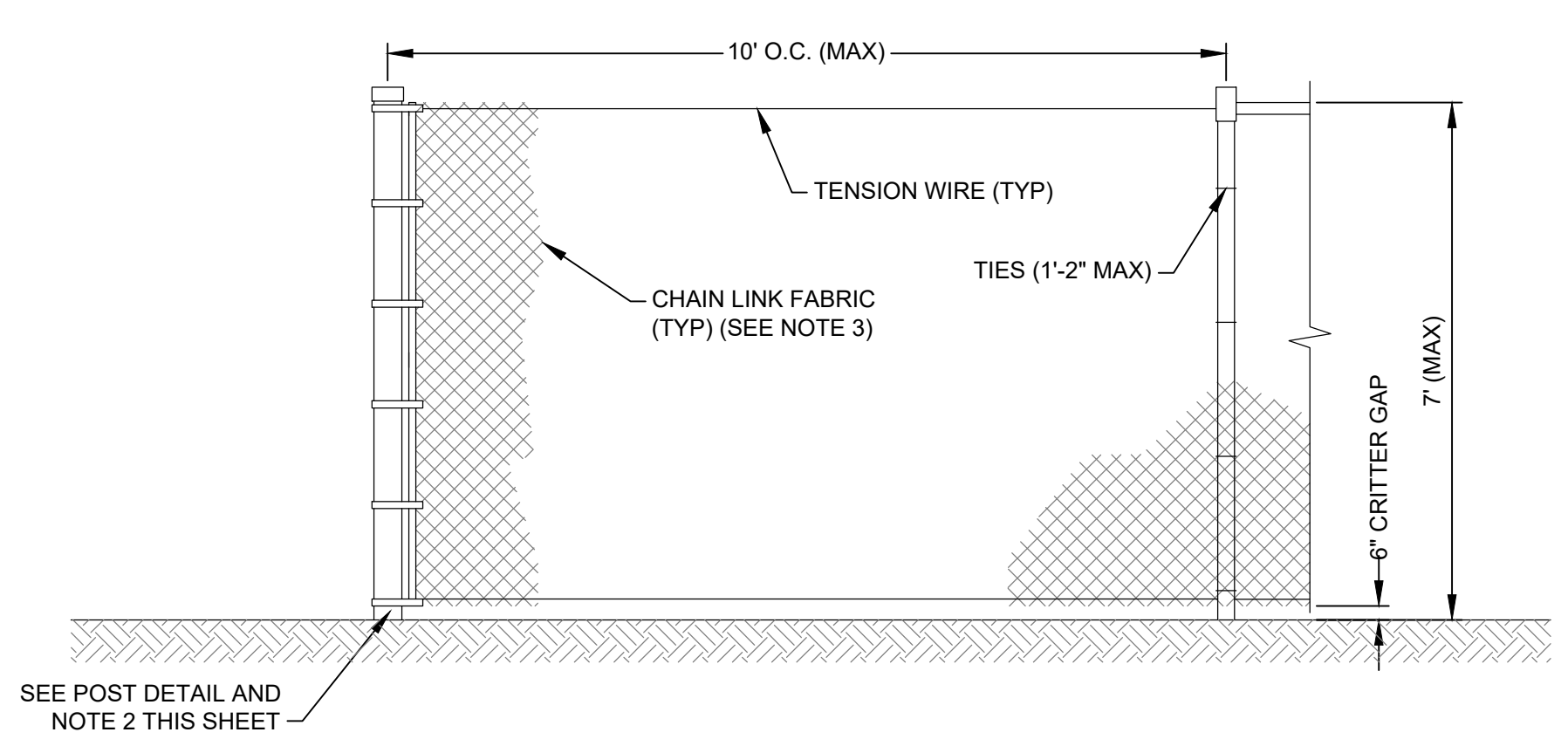
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PROJECT NUMBER: 3652180157  
DRAWING NUMBER: C-501  
SHEET NUMBER: 5 OF 6

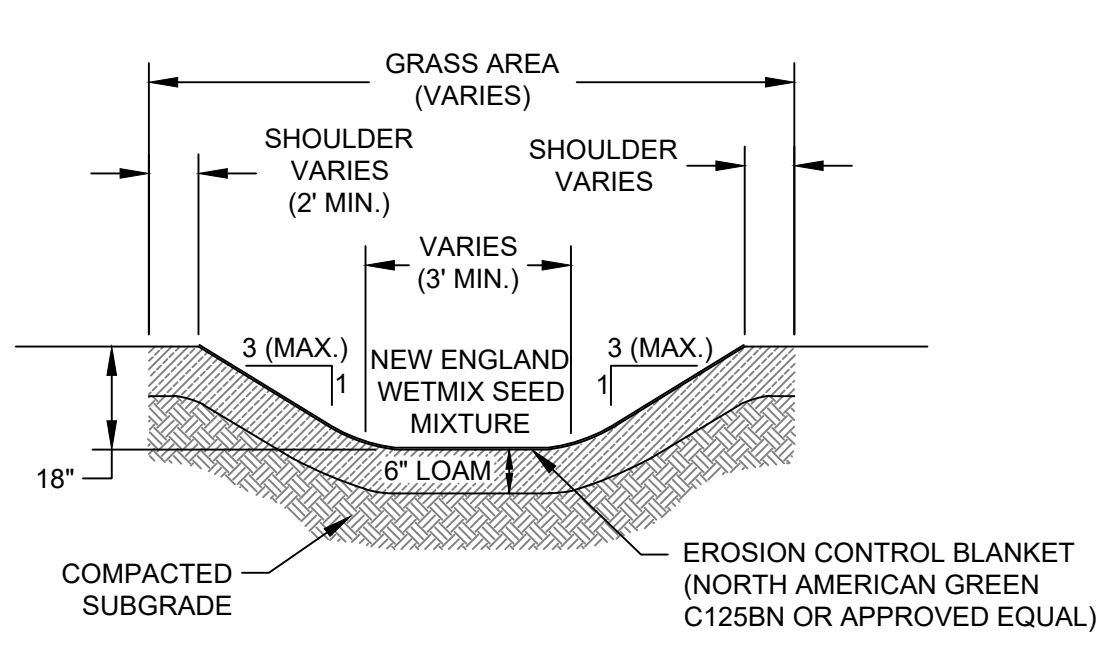
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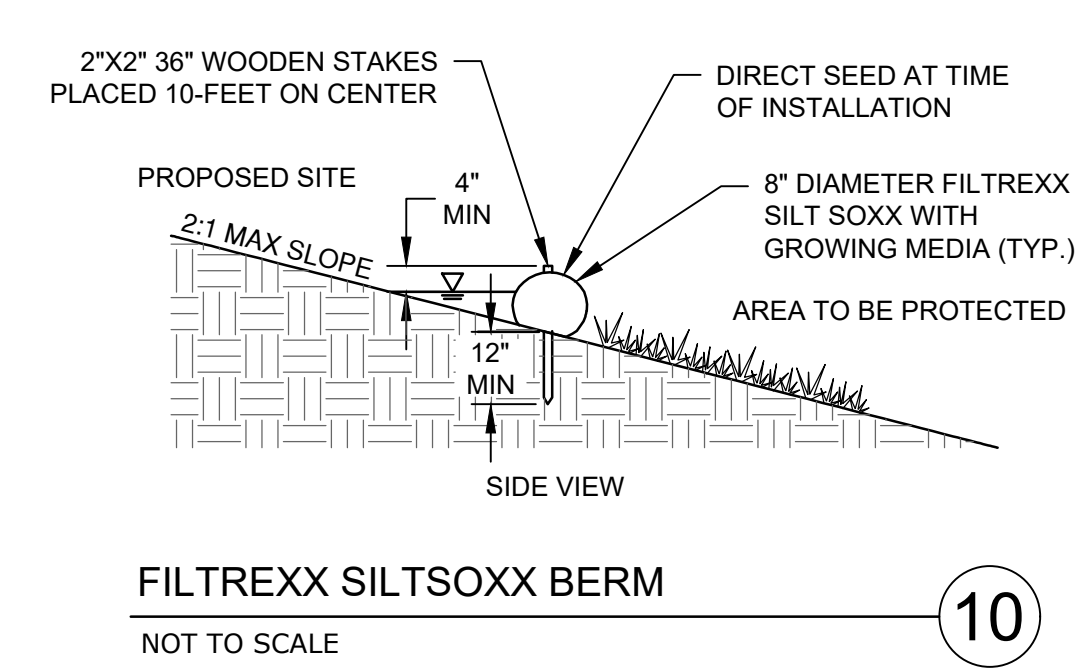
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REVISED PER PEER REVIEW COMMENTS										
ISSUED FOR PLANNING BOARD REVIEW										
UPDATED PROPOSED CONDITIONS WITH NEW EQUIPMENT PADS										
ADDRESSED PEER REVIEW COMMENTS										
ISSUED FOR PERMITTING NOT FOR CONSTRUCTION										
ISSUED FOR PERMITTING NOT FOR CONSTRUCTION										
ISSUED FOR PERMITTING NOT FOR CONSTRUCTION										
09/27/2023	04/10/2023	06/15/2021	01/09/2020	09/11/2019	09/12/2019	07/01/2019	07/01/2019	07/01/2019	07/01/2019	DATE



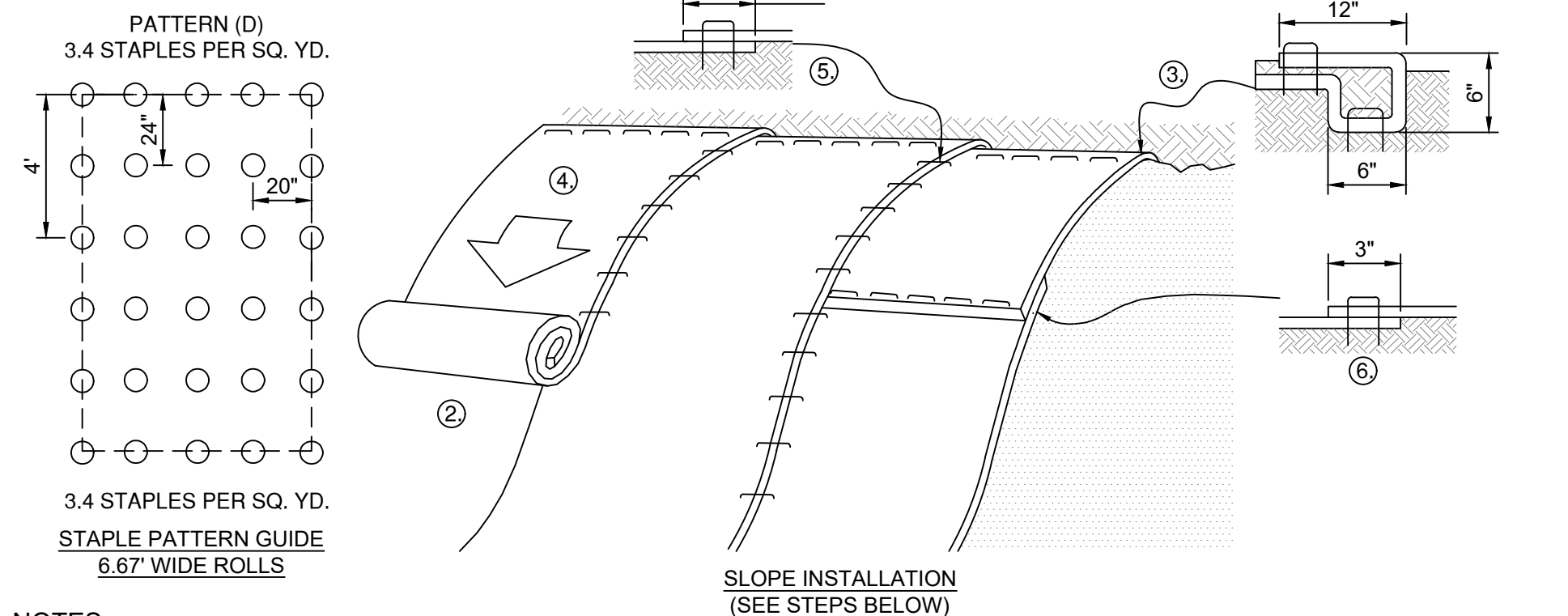
**TYPICAL CHAIN LINK FENCE AND GATE DETAIL**  
 NOT TO SCALE



**GRASSED SWALE**  
 NOT TO SCALE

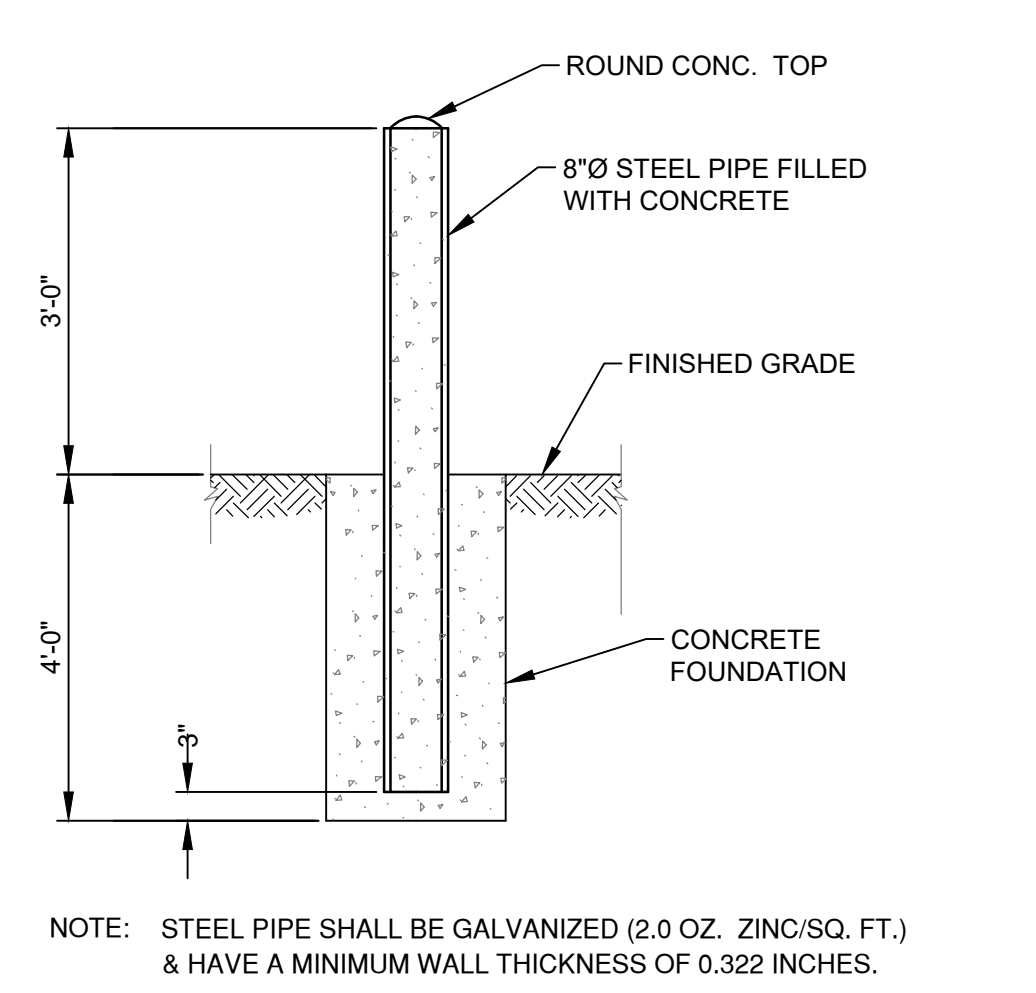


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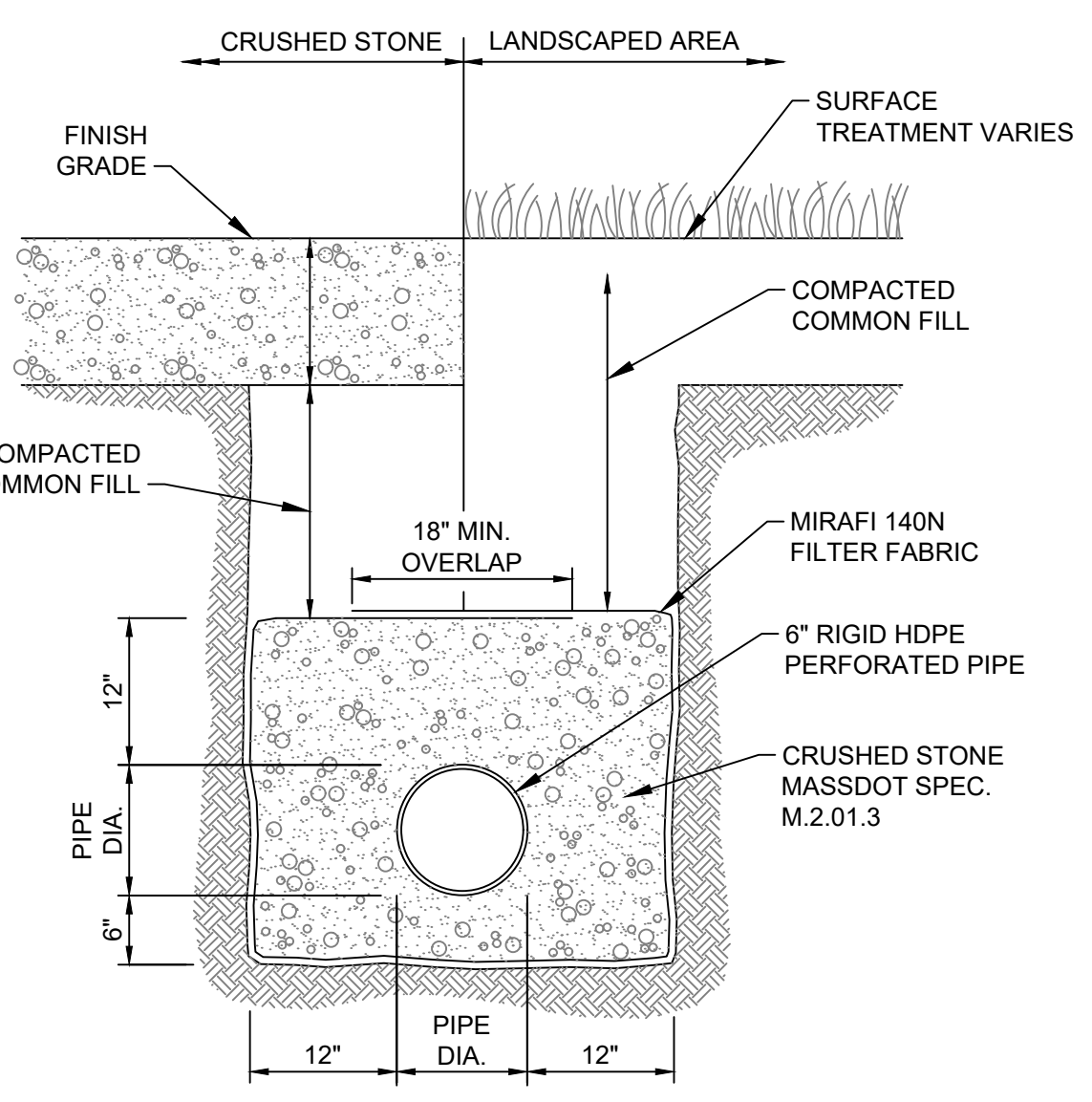


- NOTES:**
- THIS DETAIL REFERENCES PRODUCTS BY NORTH AMERICAN GREEN. EQUIVALENT PRODUCTS MAY BE USED AS APPROVED BY THE ENGINEER. EROSION CONTROL BLANKETS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS.
  - EROSION CONTROL MATTING TO BE PLACED ON SLOPES OF 3:1 WHERE MEADOW SEED MIX IS PROPOSED (SEE C-109).
  - EROSION CONTROL MATTING TO BE NORTH AMERICAN GREEN S75BN OR APPROVED EQUAL. INSTALL USING STAPLE PATTERN D.
  - PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPs), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED (SEE DRAWING G-001).
  - BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPs IN A 6\"/>

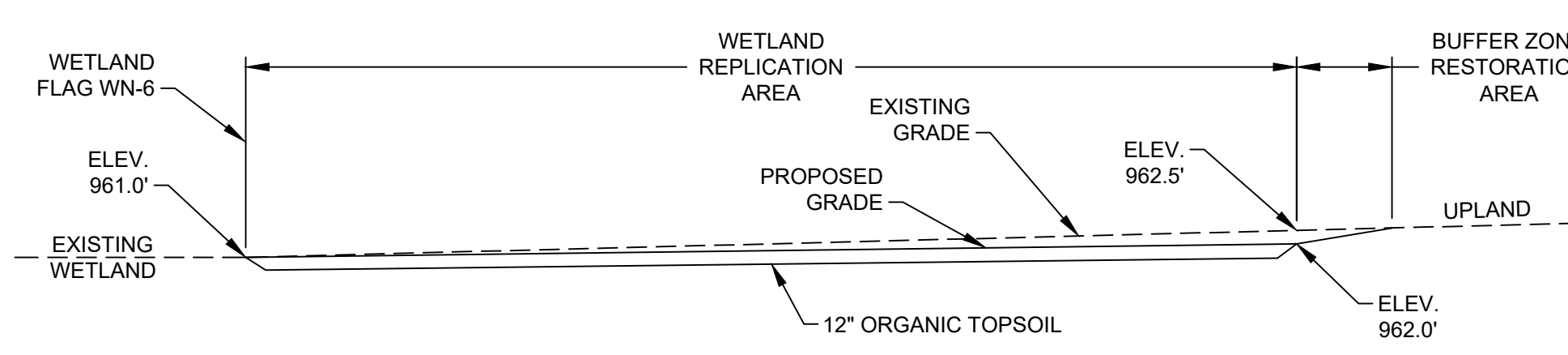
**EROSION CONTROL BLANKET INSTALLATION**  
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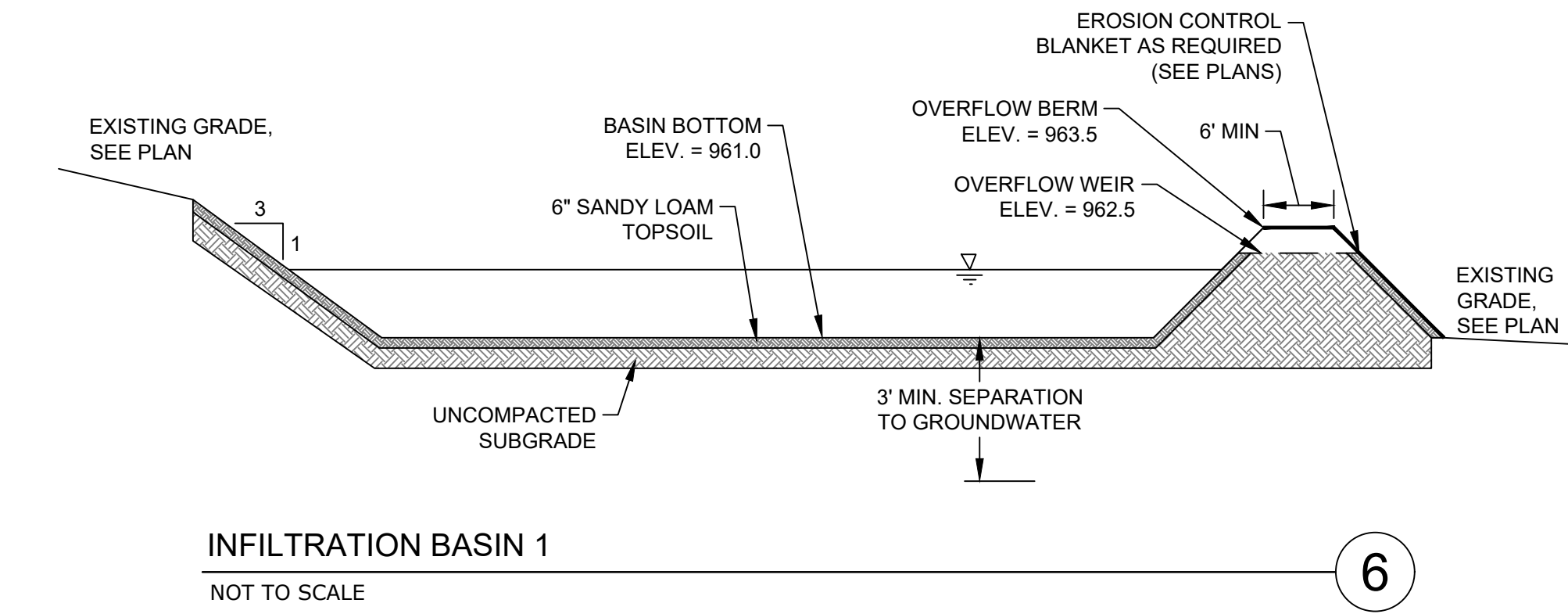
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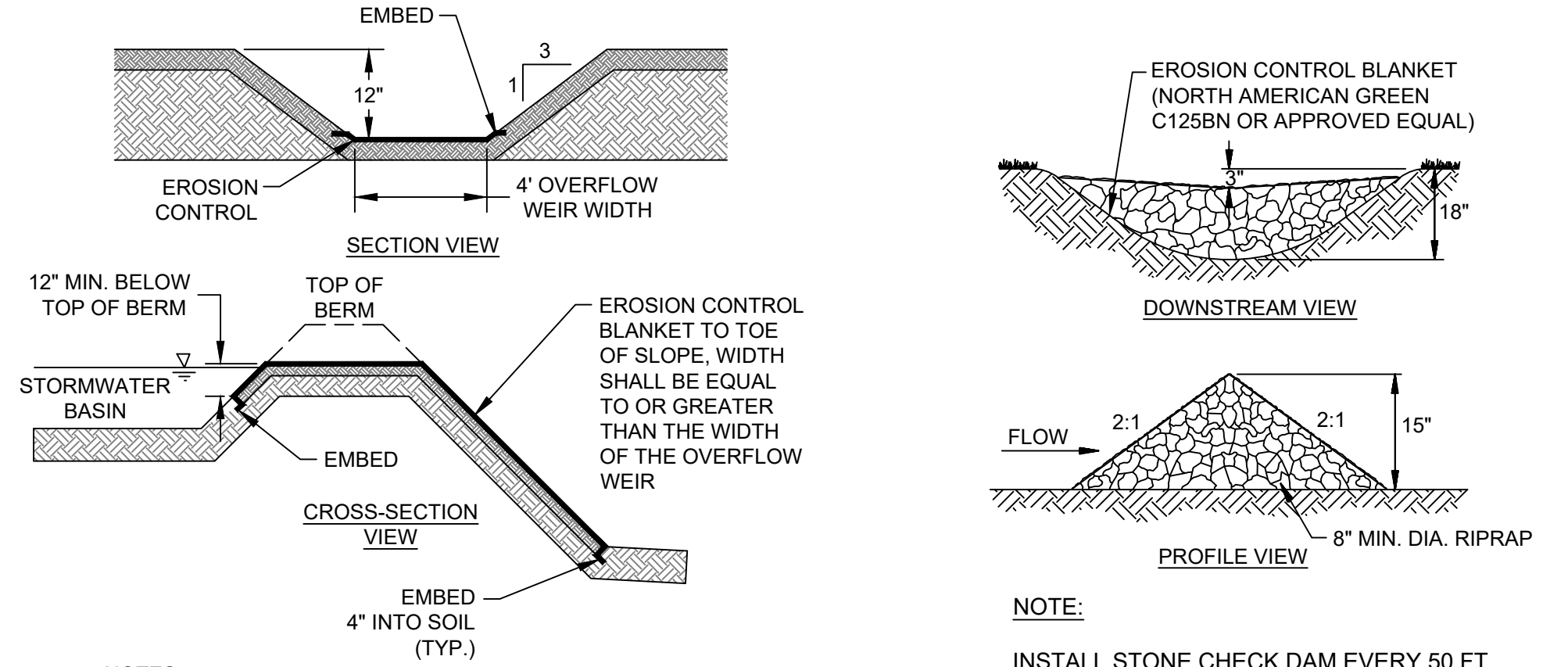
**UNDERDRAIN**  
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**TYPICAL CROSS SECTION AT WETLAND REPLICATION AREA**  
 NOT TO SCALE

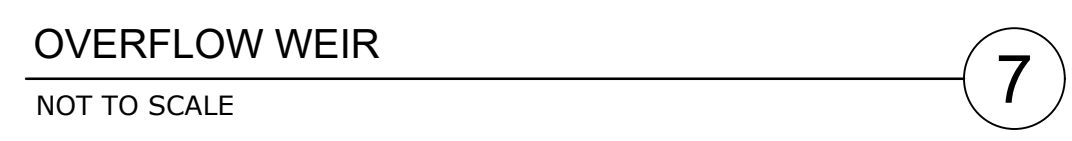


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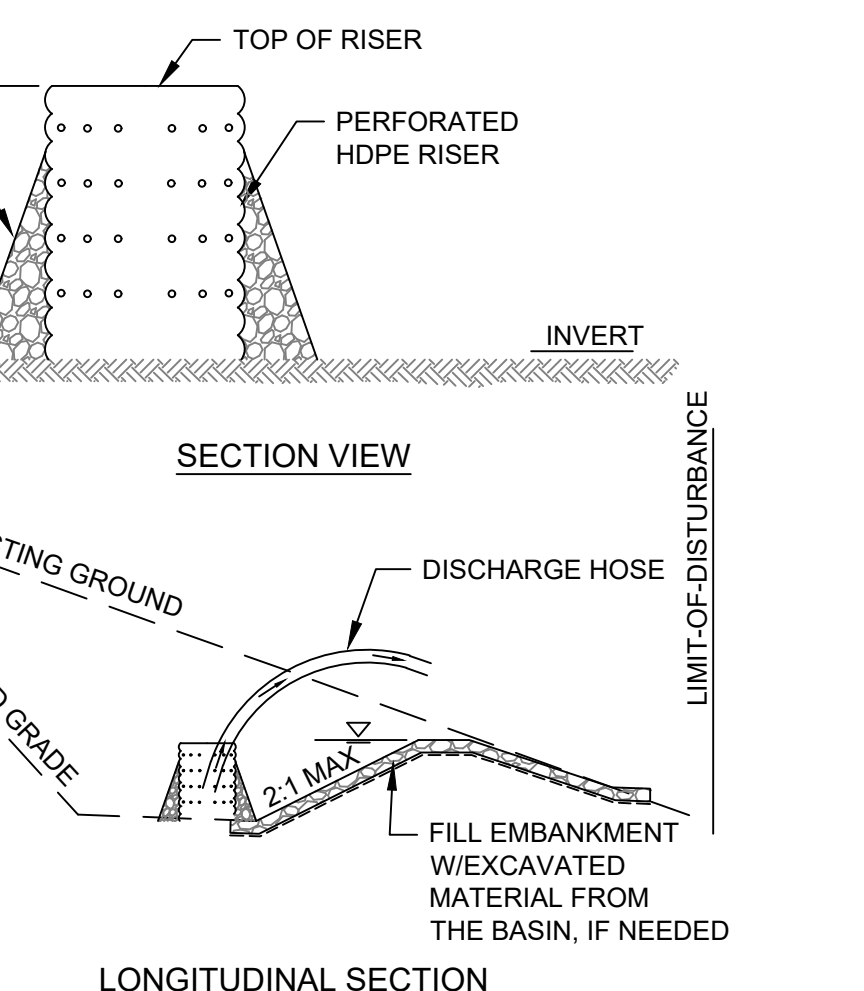


- NOTES:**
- EROSION CONTROL BLANKET SHALL BE NORTH AMERICAN GREEN PRODUCTS P300 OR APPROVED EQUIVALENT.
  - EROSION CONTROL BLANKET SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS.

**STONE CHECK DAM**  
 NOT TO SCALE



**OVERFLOW WEIR**  
 NOT TO SCALE



- NOTES:**
- TRAP CAPACITY: TEMPORARY SEDIMENT TRAP 134 CY/CONTRIBUTING ACRE AND 50% OF THIS VOLUME SHALL BE WET STORAGE.
  - TOTAL MIN. STORAGE VOLUME = 1\"/>

**TEMPORARY SEDIMENT TRAP SIZING**

SEDIMENT TRAP ID	SEDIMENT TRAP 1	SEDIMENT TRAP 2	SEDIMENT TRAP 3	SEDIMENT TRAP 4
DRAINAGE AREA, SQ.FT.	51,872	56,217	107,992	39,672
DRAINAGE AREA, AC.	1.19	1.29	2.48	0.91
REQUIRED STORAGE VOLUME, CU.FT. (1/2-INCH PER ACRE OF DRAINAGE AREA)	2,161	2,342	4,500	1,653
PROPOSED TEMPORARY SEDIMENT TRAP BOTTOM AREA, SQ.FT.	841	841	1,735	841
PROPOSED TEMPORARY SEDIMENT TRAP TOP AREA, SQ.FT.	1,735	1,735	2,856	1,735
PROPOSED TEMPORARY SEDIMENT TRAP DEPTH, FT.	2	2	2	2
PROPOSED TEMPORARY SEDIMENT TRAP STORAGE VOLUME, CU.FT.	2,576	2,576	4,591	2,576

**TEMPORARY SEDIMENT TRAP**  
 NOT TO SCALE

PROJECT: 5,154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
 BALDWINVILLE RD  
 WINCHENDON, MASSACHUSETTS  
 TITLE: CONSTRUCTION, EROSION, AND SEDIMENTATION CONTROL DETAILS

CLIENT: WINCHENDON SOLAR, LLC  
 SUNPIN  
 Securing a brighter future through solar

SCALE: AS SHOWN  
 PROJECT NUMBER: 3652180157  
 DRAWING NUMBER: C-502  
 SHEET NUMBER: 6 OF 6

DESIGNED BY: APV  
 CHECKED BY: OAC  
 DRAWN BY: DED  
 SCALE: AS SHOWN  
 PROJECT NUMBER: 3652180157  
 DRAWING NUMBER: C-502  
 SHEET NUMBER: 6 OF 6



# ATTACHMENT

# **B** REVISED STORMWATER REPORT AND CHECKLIST

WINCHENDON SOLAR, LLC

**STORMWATER MANAGEMENT REPORT  
FOR SOLAR PHOTOVOLTAIC  
DEVELOPMENT  
BALDWINVILLE ROAD**

SEPTEMBER 13, 2023



STORMWATER  
MANAGEMENT  
REPORT FOR THE  
SOLAR  
PHOTOVOLTAIC  
DEVELOPMENT  
BALDWINVILLE ROAD

WINCHENDON SOLAR, LLC

PROJECT NO.: 3652180157  
SEPTEMBER 13, 2023

WSP  
100 APOLLO DRIVE  
CHELMSFORD, MA 01824

T: +1 (978) 692-9090  
WSP.COM

---

# SIGNATURES

PREPARED BY



---

**Kinina Kong**  
Lead Consultant, Civil Engineer

APPROVED<sup>1</sup> BY *(must be reviewed for technical accuracy prior to approval)*



---

**Andrew Vardakis**  
Vice President, Civil Engineer

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## *APPENDICES*

APPENDIX A	SOILS INFORMATION
APPENDIX B	HYDROCAD ANALYSES
Appendix B-1	Existing HydroCAD Analysis
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APPENDIX D	STAGE STORAGE DATA FOR BMPS
APPENDIX E	EXISTING AND PROPOSED DEVELOPMENT DRAINAGE FIGURES



# 1 INTRODUCTION

---

## 1.1 PROJECT DESCRIPTION

On behalf of the Winchendon Solar LLC (Sunpin/Applicant), WSP USA Environment & Infrastructure, Inc. (WSP) has prepared this Stormwater Management Report in support of a proposed ground-mounted solar photovoltaic (PV) development (the Project) on parcels 13-0-272, 13-0-273, and 13-0-274 on Baldwinville Road in Winchendon, MA (the Site). The Site includes a total of 47.1 acres across three parcels and is located within the Rural Residential (R80) Zoning District. The Project is located in a primarily wooded and logged portion of the property.

The existing and proposed site plans are shown on the Drainage Figures included in Appendix E. The proposed fenced area of the solar PV array occupies approximately 12.8 acres and consists of approximately 9,300 PV modules (555 watts each), which are mounted on a racking system supported by ground-mounted posts that will be embedded into the existing ground surface. A 15-foot wide crushed stone access road will be constructed along the northern and southern sides of the array inside the fence line to accommodate maintenance vehicles.

This Stormwater Management Report has been prepared to describe the existing and proposed conditions drainage patterns. The analysis explained in detail below is provided to show the stormwater management system has been designed to comply with best practices.

# 2 EXISTING CONDITIONS

---

## 2.1 GROUNDWATER AND SOILS

Based on Natural Resources Conservation Service (NRCS) Web Soil Survey mapping, soils within the development areas of the Site are: (See Appendix A for NRCS Web Soil Survey Map).

Map Symbol	Soil Type	Hydrologic Soil Group
908C	Becket-Skerry association, 0-15% slopes, extremely stony	C
924C	Turnbridge-Lyman-Berkshire association, 3-15% slopes, extremely stony	C
59A	Bucksport and Wonsqueak mucks, 0-2% slopes	B/D
282B	Colton gravelly loamy sand, 3-8% slopes	A

Based on Natural Resources Conservation Service (NRCS) Web Soil Survey mapping, the depth to water table in the area of proposed development is 6.56 feet or greater. Furthermore, the location of the proposed infiltration BMP is situated in this area. (See Appendix A for NRCS Web Soil Survey Map).

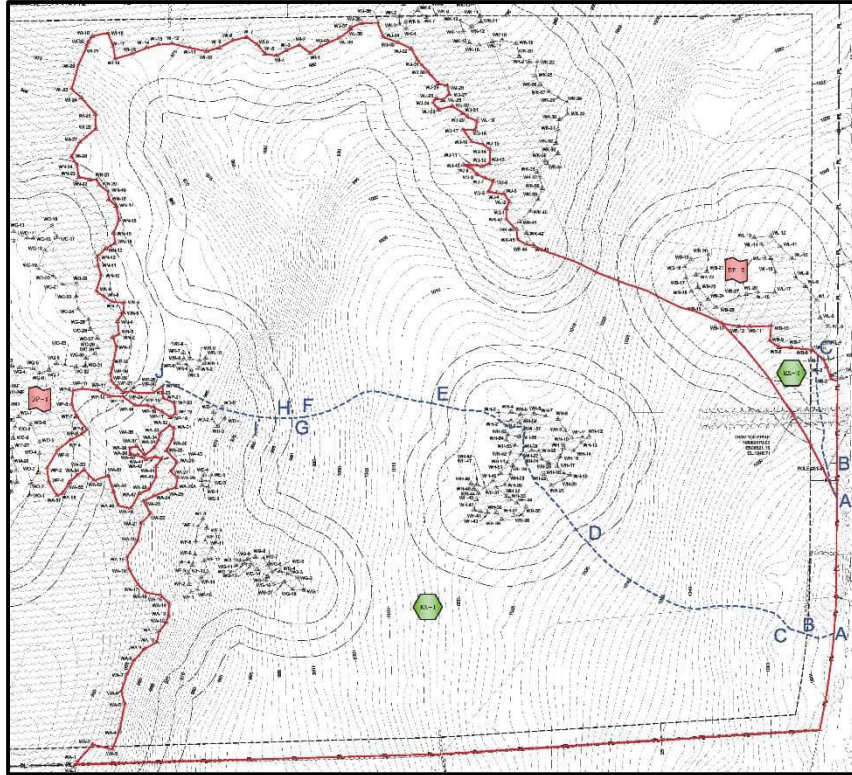
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## 2.2 PRE-DEVELOPMENT ANALYSIS

Under pre-development conditions, the Site was analyzed as two sub-watersheds, EX-1 and EX-2 (total study area of 21.23± acres or 924,894± square feet) contributing to the following Design Points:

- Design Point “DP-1” is the flagged wetland area in the western and northern portions of the site.
- Design Point “DP-2” is the flagged wetland area in the northeast section of the site. This design point ultimately discharges to DP-1 and was modeled as such in the analysis.

Peak discharge rates were evaluated for the 2-year, 10-year, 25-year and 100-year storm events. See Appendix B.1 for Existing HydroCAD Calculations and Appendix E for an Existing Drainage Figure.



- Sub-watershed “EX-1” is comprised of a vast majority of the analysis area and is 20.90± acres. It consists entirely of woods in good condition. Runoff from EX-1 flows overland generally from east to west to an existing wetland to the west of the analysis area (Design Point DP-1).
- Sub-watershed “EX-2” is 0.34± acres and is comprised entirely of woods in good condition. Runoff from EX-2 flows overland generally from south to north to an existing wetland in the northeast section of the site (Design Point DP-2).

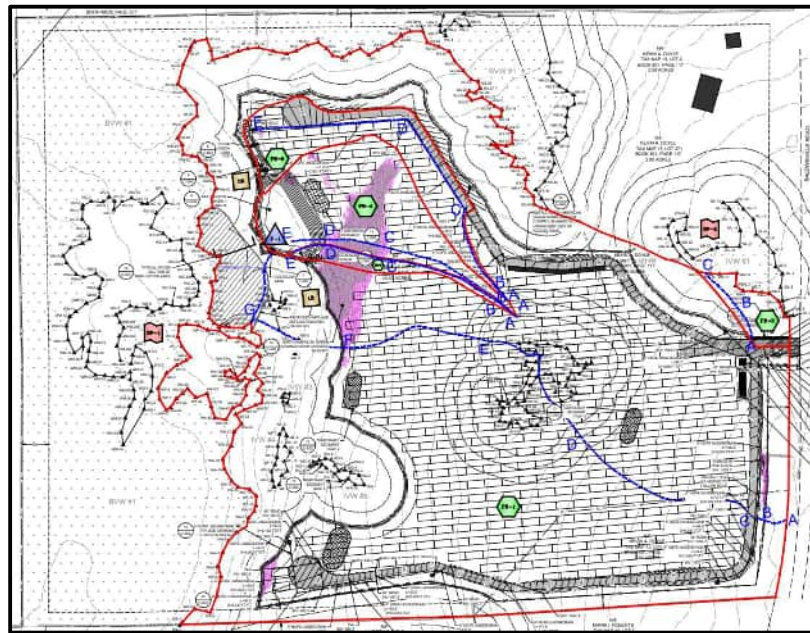
# 3 PROPOSED CONDITIONS

The proposed development consists of a 3.135 MW ground-mounted solar PV array and associated site access drive off of Baldwinville Road in Winchendon, Massachusetts. Proposed development impacts have been minimized to the maximum extent practicable by incorporating an infiltration basin.

In aggregate, the project has been designed to provide required controls for post-development peak rates at or below pre-development rates for the 2-year, 10-year, 25-year and 100-year storm events, and mechanisms to safely convey higher intensity storm events towards the wetlands and away from developed properties.

## 3.1 POST-DEVELOPMENT ANALYSIS

Under post-development conditions, the Site was divided into three sub-watersheds (total study area of 21.23± acres or 924,894± square feet) contributing to the previously described Design Points DP-1 and DP-2, where peak discharge rates were evaluated for the 2-year, 10-year, 25-year and 100-year storm events. See Appendix B.2 for Proposed HydroCAD calculations and Appendix E for a Proposed Drainage Figure.



- Sub-watershed “PR-1” is 18.41± acres and represents a large majority of the solar field area, access road, and wooded wetland buffers. Ground cover within the perimeter fence is to be seeded and periodically mowed. Areas outside of the perimeter fence but within the limits of clearing will be cleared with stumps remaining. These areas were modeled as brush as it is likely that low-laying vegetation will be predominant. In addition to brush, this sub-watershed includes meadow and woods in good

condition as well as the crushed stone access road. This sub-watershed drains generally to the west to the wetlands previously described as design point (DP-1).

- Sub-watershed “PR-2” is 0.26± acres and is comprised entirely of undisturbed woods in good condition. It is located just to the north of the site’s access from Baldwinville Road. A Filtrexx Siltsoxx Berm will be installed adjacent to the site entrance to direct runoff from the entrance road towards DP-1. The runoff from PR-2 flows overland generally from south to north to an existing wetland in the northeast section of the site (Design Point DP-2).
- Sub-watershed “PR-3” is 0.19± acres and is comprised almost entirely of meadow solar panel area with small areas of brush and woods in good condition. This sub-watershed drains west to a grassed swale (1R) that flows to proposed Infiltration Basin 1 (P-1) before discharging overland through PR-1 and eventually design point DP-1.
- Sub-watershed “PR-4” is 1.41± acres and is comprised almost entirely of meadow solar panel area with small areas of woods in good condition. This sub-watershed drains west to proposed Infiltration Basin 1 (P-1) before discharging overland through PR-1 and eventually design point DP-1.
- Sub-watershed “PR-5” is 0.97± acres and is comprised almost entirely of meadow solar panel area with small areas of brush in good condition and crushed stone access road. This sub-watershed drains west a grassed swale (2R) that flows to proposed Infiltration Basin 1 (P-1) before discharging overland through PR-1 and eventually design point DP-1.

# 4 HYDROLOGIC ANALYSIS

The hydrologic analysis was performed using HydroCAD software for a 24-hour, Type III rainfall event for Winchendon according to NOAA Atlas 14, Volume 10, Version 2 (2-year: 2.89 inches, 10-year: 4.39 inches, 25-year: 5.33 inches 100-year: 6.78 inches) and two overall points of analysis, “Design Point 1 (DP-1)” and “Design Point 2 (DP-2)”, the wetland areas that receive all runoff from the site.

Table 1 provides a summary of this analysis, which shows that post-development peak discharge rates will be less than pre-development peak discharge rates for all calculated storms up to and including the 100-year event, except for the 2-year storm for DP-1. DP-1 shows an increase of 0.11 cfs, which is negligible.

**Table 1 - Hydrologic Analysis Summary**

Design Point	Description	Design Storm	Peak Flow (cfs)	
			EX	PR
1	North and West Wetlands	2-YEAR	9.12	9.23
		10-YEAR	25.27	24.63
		25-YEAR	36.98	35.67
		100-YEAR	56.37	53.86
2	Northeast Wetlands	2-YEAR	0.20	0.20
		10-YEAR	0.54	0.49
		25-YEAR	0.79	0.70
		100-YEAR	1.20	1.03

As shown above, peak rates of runoff for the proposed solar field development are anticipated to be reduced from existing conditions.



# 5 CONCLUSION

This project has been designed in accordance with the latest edition of the *Massachusetts Stormwater Handbook*, Chapter 1 Stormwater Management Standards, as summarized below and provided in other submission documents.

---

## 5.1 MASSACHUSETTS STORMWATER MANAGEMENT STANDARDS

### 1. Standard 1: No New Untreated Discharges

*“No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.”*

#### **Standard Met**

The proposed development includes a negligible new impervious surface (concrete transformer pad) to the property. The runoff from each solar panel will flow overland underneath any downhill panels and eventually a discharge point. Proposed access roads will be constructed of angular crushed stone to maintain infiltration capacity. Because there are insignificant proposed impervious surfaces, there is no associated Water Quality Volume requiring stormwater treatment.

### 2. Standard 2: Peak Rate Attenuation

*“Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.”*

#### **Standard Met**

The stormwater management system has been designed to attenuate the post-development peak discharge rates to pre-development levels for the 2-, 10-, 25-, and 100-year storm events in accordance with the requirements of Standard 2. (See Table 1 for the Hydrology Analysis Summary).

### 3. Standard 3: Recharge

*“Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management*



*practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.”*

**Standard Not Applicable**

The proposed design includes an insignificant impervious area (concrete transformer pad), so the required groundwater recharge volume will be zero. Groundwater recharge on Site is not expected to change. See Appendix D for stage storage data for the proposed BMP demonstrating it will drain within the required 72 hours.

**4. Standard 4: Water Quality**

*“Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:*

- a. Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;*
- b. Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and*
- c. Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.”*

**Standard Not Applicable**

In accordance with Volume 1 Chapter 1 of the Massachusetts Stormwater Handbook under Standard 4, the proposed development only adds a negligible impervious area to the Site. Therefore, the required water quality volume is zero, and Standard 4 is not applicable.

**5. Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)**

*“For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater*

*BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.”*

### **Standard Not Applicable**

In accordance with the MassDEP definition, the project is not considered a “land use with higher potential pollutant loads” therefore Standard 8 is not applicable to this project.

### **6. Standard 6: Critical Areas**

*“Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A “storm water discharge” as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.”*

### **Standard Met**

This project does not discharge stormwater to a critical area. There is a negligible impervious area proposed (concrete transformer pad), there will be no salting or sanding for de-icing, limited fertilizing to establish vegetation, and upon completion of construction there will be extremely limited access to the site (quarterly inspections and mowing).

### **7. Standard 7: Redevelopments and Other Projects Subject to the Standards Only to the Maximum Extent Practicable**

*“A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2,*

*Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.”*

**Standard Not Applicable**

This project is not considered a redevelopment or infill project; therefore, Standard 7 is not applicable to this project.

**8. Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control**

*“A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.”*

**Standard Met**

Pollution prevention is addressed in the Stormwater Pollution Prevention Plan (SWPPP) provided under separate cover, which confirms the requirements of Standard 8 have been met.

**9. Standard 9: Operation and Maintenance Plan**

*“A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.”*

**Standard Met**

A long-term operation and maintenance plan has been provided under separate cover. Thus, Standard 9 is met.

**10. Standard 10: Prohibition of Illicit Discharges**

*“All illicit discharges to the stormwater management system are prohibited.”*

**Standard Met**

There are no existing or proposed illicit discharges from the Site; therefore, Standard 10 has been met.

---

## 5.2 WINCHENDON LID DESIGN CRITERIA

### 1. Standard 7.2.2: No Untreated Discharges

*“Stormwater shall not be discharged directly to a wetland, local water body, municipal drainage system or abutting property without adequate treatment.”*

#### **Standard Met**

The proposed development includes a negligible new impervious surface (concrete transformer pad) to the property. The runoff from each solar panel will flow overland underneath any downhill panels and eventually a discharge point. Proposed access roads will be constructed of angular crushed stone to maintain infiltration capacity.

### 2. Standard 7.2.3: Construction/Land Disturbance

*“A sediment and erosion control plan shall show best management practices for site conditions and minimize the area of the land disturbance. The plan shall also establish requirements for the control of wastes, including discarded building materials, concrete truck washout, chemicals, litter and sanitary wastes. BMPs shall be in conformity with the most recent version of the Massachusetts Erosion & Sediment Control Guidelines for Urban & Suburban Areas.”*

#### **Standard Met**

Construction and land disturbance are addressed in the Stormwater Pollution Prevention Plan (SWPPP) provided under separate cover, which confirms the requirements of Standard 7.2.3 have been met.

### 3. Standard 7.2.4: Channel Protection

*“The post-development peak discharge rate from the 2-year, 24-hour storm event shall be equal to the pre-development rate in order to prevent stream bank erosion and channel degradation.”*

#### **Standard Met**

The post-development peak discharge rate from the 2-year, 24-hour storm event is similar to the pre-development rate. See Table 1 for the Hydrologic Analysis Summary and Appendix B for the detailed HydroCAD analysis.

### 4. Standard 7.2.5: Flood Protection

*“The post-development peak discharge rate for the 10-year, 24-hour frequency storm event shall be equal to the pre-development rate in order to protect downstream property. The 100-year, 24-hour return frequency storm event shall be controlled and conveyed to prevent extreme flooding and protect public safety.”*

#### **Standard Met**

The stormwater management system has been designed to attenuate the post-development peak discharge rates to pre-development levels for the 2-, 10-, 25-, and 100-year storm events in accordance with the requirements of Standard 7.2.5. (See Table 1 for the Hydrology Analysis Summary).

**5. Standard 7.2.6: Groundwater Recharge**

*“Post-development recharge rates shall equal pre-development conditions. Annual groundwater recharge rates shall be maintained by use of structural and nonstructural management practices. The stormwater runoff volume to be recharged to groundwater shall be determined using the methods in the latest version of the Massachusetts DEP Stormwater Management Standards and Handbook. The LID Authority may relax or eliminate the recharge requirement if the site is an area where contaminated soils are documented.”*

**Standard Not Applicable**

The proposed design includes an insignificant impervious area, so the required groundwater recharge volume will be zero. Groundwater recharge on Site is not expected to change. Therefore, Standard 7.2.6 is not applicable.

**6. Standard 7.2.7: Structural Practices for Water Quality**

*“All structural Stormwater Management devices shall be based on design criteria from the most recent version of the Massachusetts DEP Stormwater Management Standards and Handbook and shall remove at least 80% of total suspended solids (TSS).”*

**Standard Met**

There is a negligible impervious surface proposed on the Site, and the Site will be fully stabilized upon completion of construction, which indicates that the 80% TSS removal requirement is met.

**7. Standard 7.2.8: Water Quality Volume**

*“The volume for sizing a structural stormwater management device shall be designed according to criteria specified by the Massachusetts DEP Stormwater Management Standards and Handbook.”*

**Standard Met**

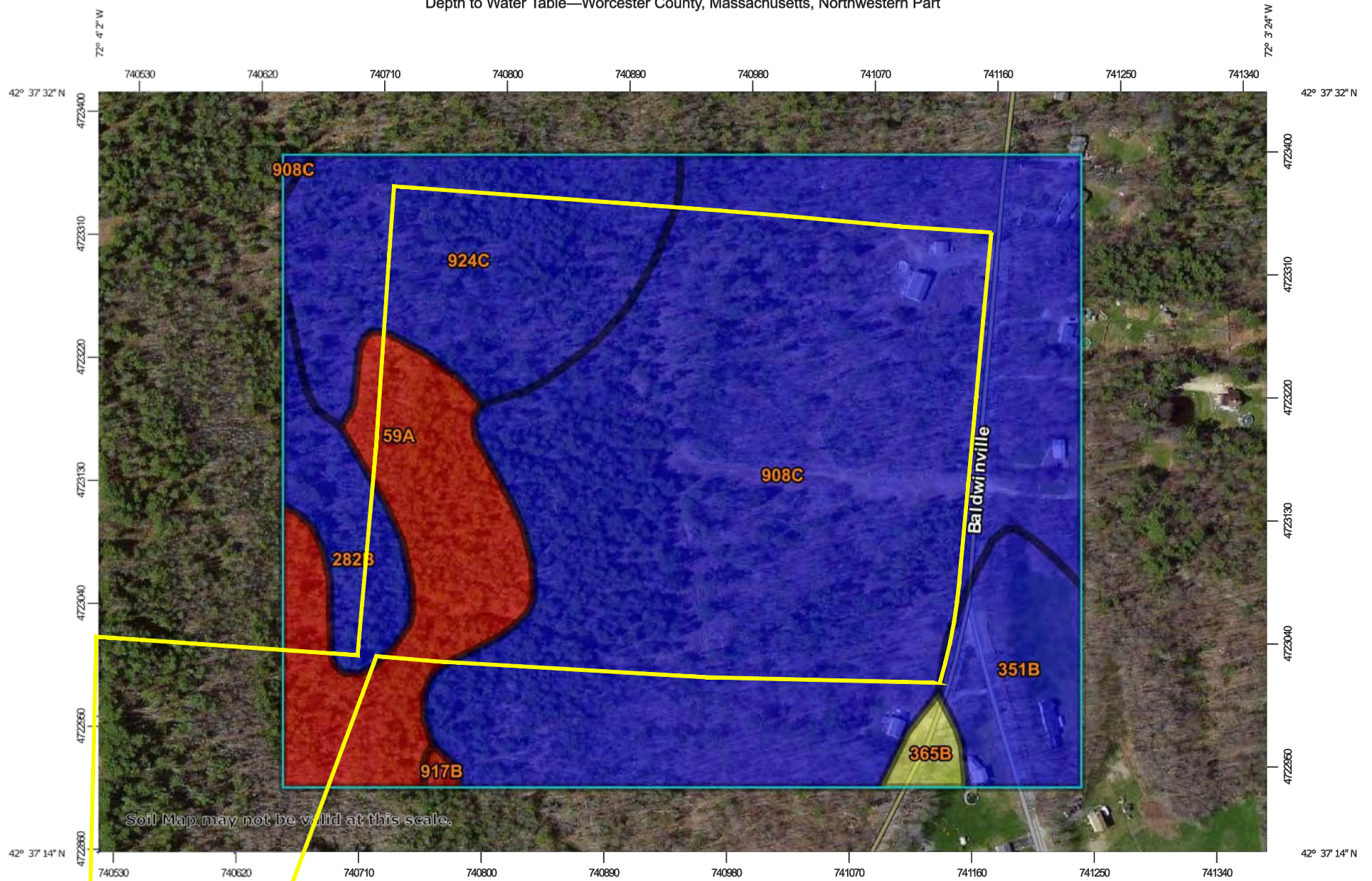
In accordance with Volume 1 Chapter 1 of the Massachusetts Stormwater Handbook under Standard 4, the proposed development adds an insignificant impervious area to the Site. Therefore, proposed BMPs need only be designed to attenuate peak rates of runoff rather than the required water quality volume (zero for the proposed development). The proposed infiltration basin has been sized to meet the criteria of the Massachusetts Stormwater Handbook.

# APPENDIX

## **A** SOILS INFORMATION

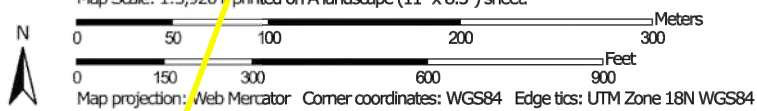


Depth to Water Table—Worcester County, Massachusetts, Northwestern Part
































Soil Map may not be valid at this scale.

Map Scale: 1:3,920 if printed on A landscape (11" x 8.5") sheet.





## MAP LEGEND

<b>Area of Interest (AOI)</b>	 Not rated or not available
 Area of Interest (AOI)	
<b>Soils</b>	<b>Water Features</b>
<b>Soil Rating Polygons</b>	 Streams and Canals
 0 - 25	<b>Transportation</b>
 25 - 50	 Rails
 50 - 100	 Interstate Highways
 100 - 150	 US Routes
 150 - 200	 Major Roads
 > 200	 Local Roads
 Not rated or not available	<b>Background</b>
	 Aerial Photography
<b>Soil Rating Lines</b>	
 0 - 25	
 25 - 50	
 50 - 100	
 100 - 150	
 150 - 200	
 > 200	
 Not rated or not available	
<b>Soil Rating Points</b>	
 0 - 25	
 25 - 50	
 50 - 100	
 100 - 150	
 150 - 200	
 > 200	

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

**Warning:** Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Worcester County, Massachusetts, Northwestern Part  
 Survey Area Data: Version 12, Sep 11, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 11, 2014—Apr 19, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
59A	Bucksport and Wonsqueak mucks, 0 to 2 percent slopes	0	8.2	12.1%
282B	Colton gravelly loamy sand, 3 to 8 percent slopes	>200	2.9	4.3%
351B	Becket fine sandy loam, 3 to 8 percent slopes	>200	4.0	5.9%
365B	Skerry fine sandy loam, 3 to 8 percent slopes	51	0.6	1.0%
908C	Becket-Skerry association, 0 to 15 percent slopes, extremely stony	>200	41.1	61.1%
917B	Pillsbury-Peacham association, 0 to 8 percent slopes, extremely stony	23	0.1	0.2%
924C	Tunbridge-Lyman-Berkshire association, 3 to 15 percent slopes, extremely stony	>200	10.4	15.5%
<b>Totals for Area of Interest</b>			<b>67.3</b>	<b>100.0%</b>

## Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

## Rating Options

*Units of Measure:* centimeters

*Aggregation Method:* Dominant Component

*Component Percent Cutoff:* None Specified

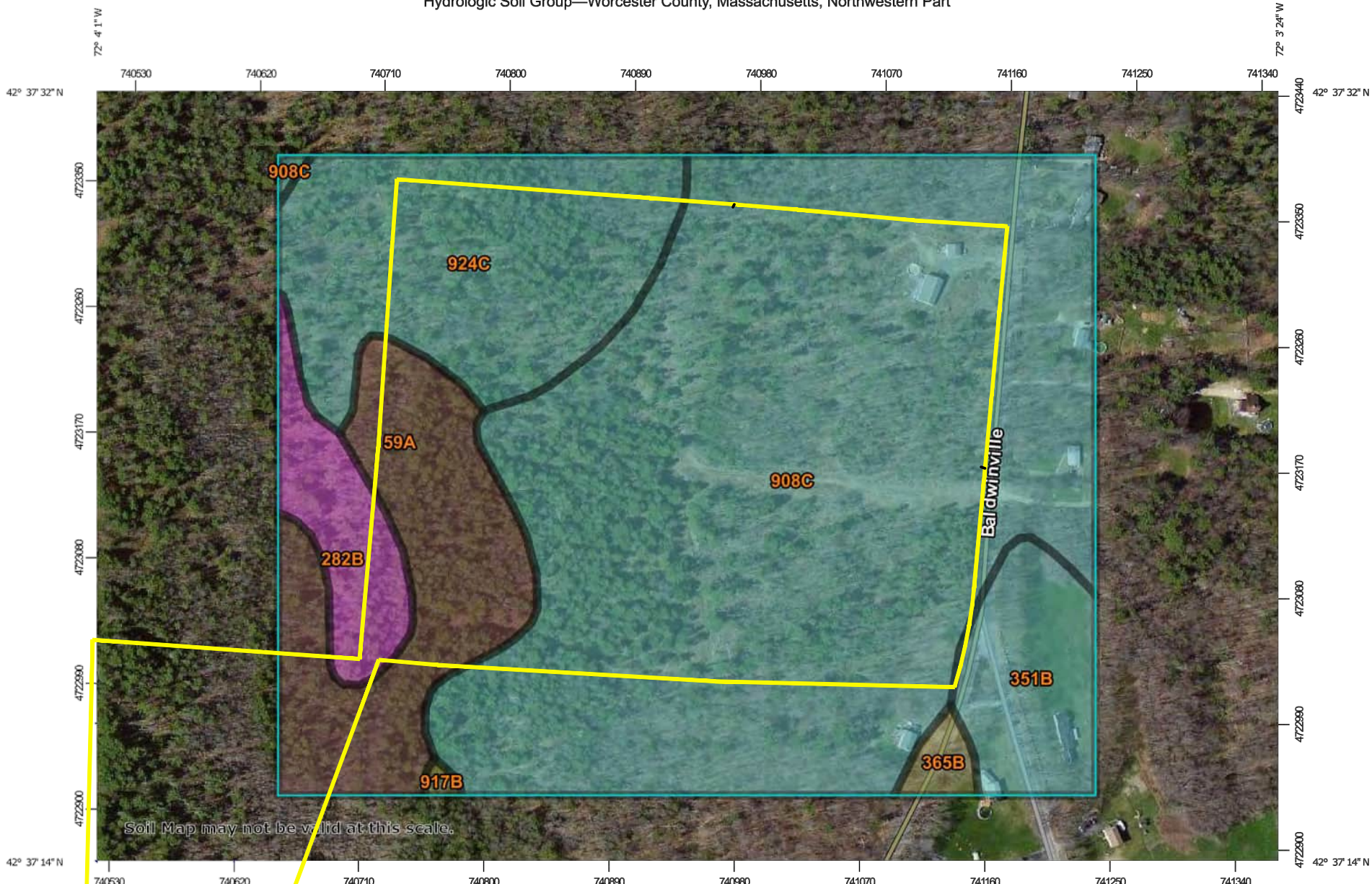
*Tie-break Rule:* Lower

*Interpret Nulls as Zero:* No

*Beginning Month:* January

*Ending Month:* December

Hydrologic Soil Group—Worcester County, Massachusetts, Northwestern Part



Map Scale: 1:3,880 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 150 300 600 900 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

## MAP LEGEND

### Area of Interest (AOI)









 Area of Interest (AOI)

### Soils

#### Soil Rating Polygons





 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Lines


 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Points






 A  
 A/D  
 B  
 B/D

 C  
 C/D  
 D  
 Not rated or not available

### Water Features

 Streams and Canals

### Transportation

 Rails  
 Interstate Highways  
 US Routes  
 Major Roads  
 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

**Warning:** Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Worcester County, Massachusetts, Northwestern Part  
 Survey Area Data: Version 12, Sep 11, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 11, 2014—Apr 19, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
59A	Bucksport and Wonsqueak mucks, 0 to 2 percent slopes	B/D	8.2	12.2%
282B	Colton gravelly loamy sand, 3 to 8 percent slopes	A	3.0	4.5%
351B	Becket fine sandy loam, 3 to 8 percent slopes	C	3.8	5.7%
365B	Skerry fine sandy loam, 3 to 8 percent slopes	C/D	0.6	0.9%
908C	Becket-Skerry association, 0 to 15 percent slopes, extremely stony	C	40.7	60.9%
917B	Pillsbury-Peacham association, 0 to 8 percent slopes, extremely stony	C/D	0.1	0.2%
924C	Tunbridge-Lyman-Berkshire association, 3 to 15 percent slopes, extremely stony	C	10.5	15.7%
<b>Totals for Area of Interest</b>			<b>66.9</b>	<b>100.0%</b>



## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher



September 12, 2023

Mr. Sam Dionne, Business Development Manager - NE  
Sunpin Solar  
2020 Main Street, Suite 300  
Irvine, CA 92614

**Subject: Geotechnical Investigation Report  
Ground-Mount Solar PV Development  
Baldwinville Road, Winchendon, Massachusetts**

Dear Mr. Dionne:

WSP USA Associates Massachusetts, Inc. ("WSP") is pleased to provide this Geotechnical Investigation Report (Report) in support of Sunpin Solar's proposed ground-mount solar photovoltaic (PV) development (the Project) located at Baldwinville Road in Winchendon, Massachusetts (the Site). We understand that subsurface information proximate to the infiltration basin is required to confirm the soil types, infiltration rates, and estimated seasonal high groundwater elevation used in the drainage design and to meet the requirements of the Massachusetts Stormwater Handbook.

The Site is a wooded parcel. Existing grades on the property vary significantly and generally slope downward from east to west. Elevation changes more than 100-feet over the Site.

Elevations reported herein are reported in units of feet (ft) and based on the North American Vertical Datum of 1988 (NAVD88), unless otherwise noted. The horizontal datum is the North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Mainland Zone.

WSP completed three (3) test pit excavations at the Site, designated TP-1, TP-2, and TP-3, all at approximately elevation 963.5 ft, on August 18, 2023. Test pit locations were selected in relation to existing and proposed Site features and under the constraints of excavator access and utility conflicts. The test pit locations are depicted in **Figure 1**.

A WSP representative directed the test pit operations, collected soil samples, and logged subsurface conditions encountered. Drilex Environmental of Auburn, Massachusetts provided excavation services using a SK85CS Kobelco compact excavator, under contract with WSP. Each test pit was advanced to approximately 10 ft below ground surface (bgs) or refusal (i.e., inability to advance the excavation deeper), whichever was encountered first.



Soil samples were collected in approximately one-foot depth intervals for the full depth of each test pit. Soil samples were described in the field by the WSP representative based on procedures outlined in ASTM D 2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Soil samples were sealed in moisture-tight containers (i.e., one-gallon ziplock bags) and stored at WSP's office for potential geotechnical laboratory testing in the future (not part of this scope).

Upon completion, each test pit was backfilled with soil cuttings and compacted to the extent practicable by tamping each lift with the excavator bucket.

Test pit logs and photos are provided in **Attachment 1**.

The overburden soils encountered at the exploration locations are interpreted to be native glacial deposits. Overburden soils encountered generally consist of brown silty sand, silty sand with gravel, sand with silt, sand with silt and gravel, or sand with trace amounts of silt and gravel. The soil is visually classified as SP, SP-SM, or SM in accordance with the Unified Soil Classification System (USCS). The soil was generally described as moist to wet with depth bgs. Occasional cobbles and boulders were encountered in the test pits.

Bedrock was interpreted, but not confirmed, due to refusal to further penetration of the excavator bucket at approximately 6 ft bgs (elevation 957.5 ft) at TP-2.

Sidewall seepage was observed in the test pits at approximately 4.4 to 4.7 ft bgs (elevation 959.1 to 958.8 ft). Groundwater levels are subject to fluctuation due to seasonal precipitation, temperature, snow melt, and/or construction conditions, and therefore may vary from those observed at the time of this investigation.

The findings presented herein were prepared in accordance with generally accepted geotechnical engineering principles and professional engineering practice, consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. We make no other warranty, either expressed or implied. The findings presented herein are based on the results of the geotechnical explorations combined with an interpolation of soil and groundwater conditions between and beyond the widely spaced explorations. If conditions are observed or encountered subsequent to this report that appear to be different from those presented herein, we request that we be notified. Important information from the Geoprofessional Business Association regarding the limitations of this Report is provided in **Attachment 2**.



Thank you for the continued opportunity to support your project in Winchendon, Massachusetts. Should you have any questions, please contact Drew Vardakis at (978) 483-6771 or at [andrew.vardakis@wsp.com](mailto:andrew.vardakis@wsp.com).

Yours sincerely,

WSP USA Associates Massachusetts, Inc.

A handwritten signature in black ink that reads "Nicholas D. Langlais".

Nicholas D.  
Langlais, PE (ME)  
Lead Consultant,  
Geotechnical  
Engineer

A handwritten signature in black ink that reads "Andrew P. Vardakis".

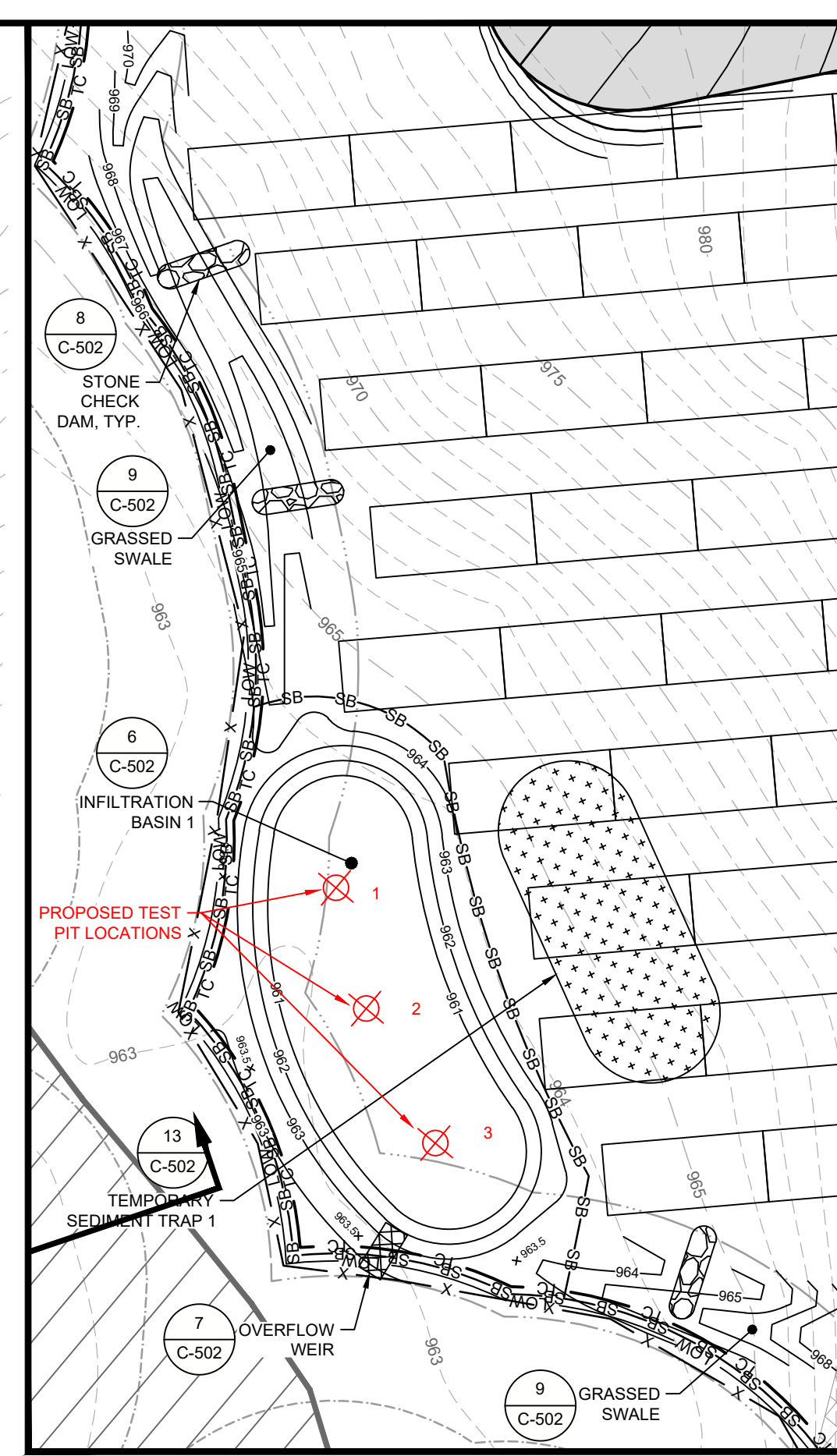
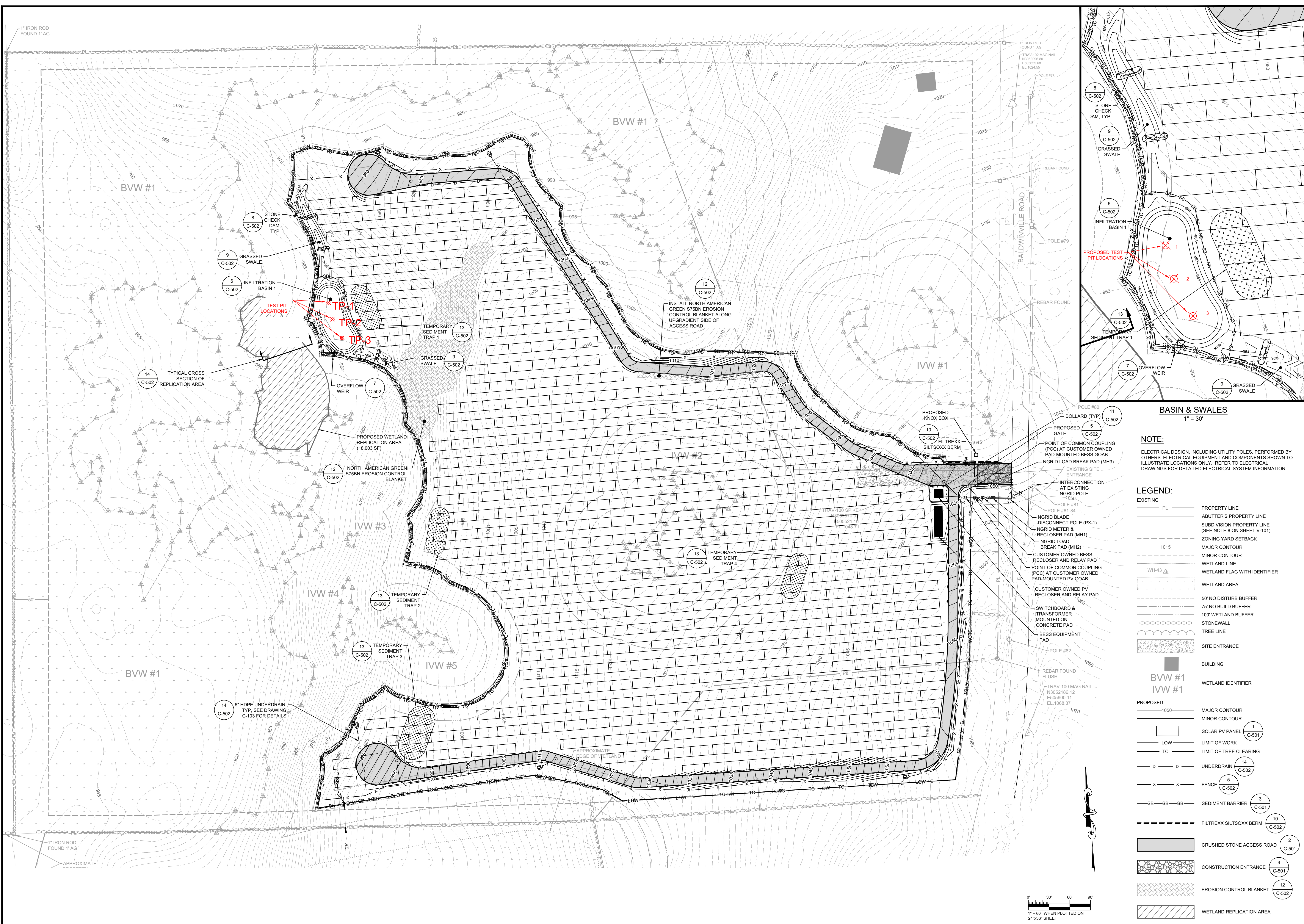
Andrew P. Vardakis, PE  
VP, Civil Engineer

Encl. Figure 1 – Site Plan  
Attachment 1 – Test Pit Logs and Photos  
Attachment 2 – Information from the Geoprofessional Business  
Association

# FIGURES





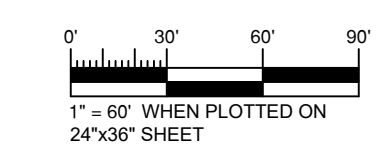


**BASIN & SWALES**  
 1" = 30'

**NOTE:**  
 ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.

**LEGEND:**

- EXISTING
  - PL ————— PROPERTY LINE
  - ABUTTER'S PROPERTY LINE
  - SUBDIVISION PROPERTY LINE (SEE NOTE 8 ON SHEET V-101)
  - ZONING YARD SETBACK
  - 1015 ————— MAJOR CONTOUR
  - MINOR CONTOUR
  - WH-43 ▲ WETLAND LINE
  - ▲ WETLAND FLAG WITH IDENTIFIER
  - WETLAND AREA
  - 50' NO DISTURB BUFFER
  - 75' NO BUILD BUFFER
  - 100' WETLAND BUFFER
  - STONEWALL
  - TREE LINE
  - SITE ENTRANCE
  - BUILDING
  - WETLAND IDENTIFIER
- PROPOSED
  - 1050 ————— MAJOR CONTOUR
  - MINOR CONTOUR
  - SOLAR PV PANEL 1 C-501
  - LOW ————— LIMIT OF WORK
  - TC ————— LIMIT OF TREE CLEARING
  - D — D — UNDERDRAIN 14 C-502
  - X — X — FENCE 5 C-502
  - SB—SB—SB— SEDIMENT BARRIER 3 C-501
  - FILTREXX SILT/SOXX BERM 10 C-502
  - CRUSHED STONE ACCESS ROAD 2 C-501
  - CONSTRUCTION ENTRANCE 4 C-501
  - EROSION CONTROL BLANKET 12 C-502
  - WETLAND REPLICATION AREA



DATE	REVISION	ISSUE / REVISION DESCRIPTION
04/10/2023	7	ISSUED FOR PLANNING BOARD REVIEW
06/15/2021	6	UPDATED PROPOSED CONDITIONS WITH NEW EQUIPMENT PADS
01/28/2020	5	ADRESSED PEER REVIEW COMMENTS
09/11/2019	4	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION
08/12/2019	3	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION
07/01/2019	2	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION
02/04/2019	1	REVISED PEET TOWN COMMENTS

PROJECT: 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
 BALDWINVILLE RD  
 WINCHENDON, MASSACHUSETTS

TITLE:  
**PROPOSED SITE PLAN**

CLIENT:  
**WINCHENDON SOLAR, LLC**

SCALE:

DESIGNED BY: APV  
 CHECKED BY: OAC  
 PROJECT NUMBER: 3652180157  
 DRAWING NUMBER:  
**FIGURE 1**  
 SHEET NUMBER:

DRAWN BY: DED  
 SCALE: AS SHOWN



# ATTACHMENTS

- 1.** TEST PIT LOGS AND PHOTOS

MAJOR DIVISIONS			GROUP SYMBOLS	GENERAL DESCRIPTIONS	TYPICAL SYMBOLS																									
<b>COARSE GRAINED SOILS</b> (More than 50% RETAINED on No. 200 sieve)	<b>GRAVELS</b> (More than 50% of coarse fraction RETAINED on No. 4 sieve)	<b>CLEAN GRAVELS</b> (Less than 5% fines)	GW	Well graded gravels or gravel-sand mixtures; trace or no fines.		Shelby Tube		Auger Cuttings																						
		<b>GRAVELS WITH FINES</b> (More than 12% fines)	GP	Poorly graded gravels or gravel-sand mixtures; trace or no fines.		Standard Split Spoon Sample		3" Split Spoon Sample																						
		<b>SANDS</b> (50% or more of coarse fraction PASSES the No. 4 sieve)	<b>CLEAN SANDS</b> (Less than 5% fines)	GM	Silty gravels or gravel-sand-silt mixtures.		Rock Core		Dynamic Cone Penetrometer																					
			<b>SANDS WITH FINES</b> (More than 12% fines)	GC	Clayey gravels or gravel-sand-clay mixtures.		Vane Shear		Bulk/Grab Sample																					
	<b>FINE GRAINED SOILS</b> (50% or more PASSES the No. 200 sieve)	<b>SILTS AND CLAYS</b> (Liquid Limit LESS than 50)	<b>CLEAN SANDS</b> (Less than 5% fines)	SW	Well graded sands or sand-gravel mixtures; trace or no fines.		Geoprobe Sample		Sonic or Vibro-Core Sample																					
			<b>SANDS WITH FINES</b> (More than 12% fines)	SP	Poorly graded sands or sand-gravel mixtures, trace or no fines.		Water Table at time of drilling		Water Table after 24 hours																					
			<b>SILTS AND CLAYS</b> (Liquid Limit of 50 or GREATER)	SM	Silty sands or sand-gravel-silt mixtures.	<b>CORRELATION OF STANDARD PENETRATION TEST (SPT) WITH RELATIVE DENSITY AND CONSISTENCY</b>																								
				SC	Clayey sands or sand-gravel-clay mixtures.																									
							GRAVEL, SAND, & SILT (NON-PLASTIC)		SILT (PLASTIC) & CLAY																					
							N or N <sub>60</sub>	Relative Density	N or N <sub>60</sub>	Su (psf)	Consistency																			
					0 - 4	Very Loose	0 - 2	0 - 250	Very Soft																					
					5 - 10	Loose	3 - 4	250 - 500	Soft																					
					11 - 30	Medium Dense	5 - 8	500 - 1000	Medium Stiff																					
					31 - 50	Dense	9 - 15	1000 - 2000	Stiff																					
					Over 50	Very Dense	16 - 30	2000 - 4000	Very Stiff																					
							Over 30	Over 4000	Hard																					
					SPT Notes: WR = Weight of Rods; WH = Weight of Hammer																									
					TERMS DESCRIBING SOILS (excludes particles > 3", organics, debris, etc.)			TERMS DESCRIBING MATERIALS (i.e. particles > 3", organics, debris, etc.)																						
					Trace: Particles present, but < 5%			Occasional: Particles present, but < 10%																						
					Few: 5% to 15%			Some: 10% to 25%																						
					Little: 15% to 25%			Frequent: > 25%																						
					Some: 25% to 50%																									
					TERMS DESCRIBING MOISTURE			TERMS DESCRIBING STRUCTURE																						
					Dry: Absence of moisture; dusty			Layer: > 3" thick																						
					Moist: Damp, but no visible water			Seam: 1/16" to 3" thick																						
					Wet: Visible/free water			Parting: < 1/16" thick																						
<b>BOUNDARY CLASSIFICATIONS:</b> Soils possessing characteristics of two groups are designated by combinations of group symbols.																														
<table border="1"> <tr> <td rowspan="2">SILT OR CLAY</td> <td colspan="3">SAND</td> <td colspan="2">GRAVEL</td> <td rowspan="2">Cobbles</td> <td rowspan="2">Boulders</td> </tr> <tr> <td>Fine</td> <td>Medium</td> <td>Coarse</td> <td>Fine</td> <td>Coarse</td> </tr> <tr> <td>No.200</td> <td>No.40</td> <td>No.10</td> <td>No.4</td> <td>3/4"</td> <td>3"</td> <td>12"</td> <td></td> </tr> </table> <p>U.S. STANDARD SIEVE SIZE</p>										SILT OR CLAY	SAND			GRAVEL		Cobbles	Boulders	Fine	Medium	Coarse	Fine	Coarse	No.200	No.40	No.10	No.4	3/4"	3"	12"	
SILT OR CLAY	SAND			GRAVEL		Cobbles	Boulders																							
	Fine	Medium	Coarse	Fine	Coarse																									
No.200	No.40	No.10	No.4	3/4"	3"	12"																								
<h1>KEY TO SYMBOLS AND DESCRIPTIONS</h1>																														
<b>References:</b> ASTM D 2487 (Unified Soil Classification System) and ASTM D 2488 (Visual-Manual Procedure).																														

TEST PIT: PID; DATA GRAPH TEST PIT LOGS\_WINCHELDON, MA.GPJ\_2007\_12-12\_PORT\_DT.MPLT.GDT\_8/24/23

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS	LEGEND	ELEV (ft)	SAMPLES			PL (%)      NM (%)      LL (%) ▲ FINES (%)      ✖ ORG (%)											DEPTH (ft)
				IDENT	TYPE	RECOV. (%)												
							10 20 30 40 50 60 70 80 90											
0	Brown to dark brown, F-C SAND, little to some silt, few gravel, SM, moist, occasional roots		963.5	GS-1	Hand													0
				GS-2	Hand													
	Orange-brown to gray-brown, F-C SAND, few silt, few gravel, SP-SM, moist, occasional cobbles			GS-3	Hand													
				GS-4	Hand													
				GS-5	Hand													
5			958.5	GS-6	Hand													5
	Gray, F-C SAND, little silt, little gravel, SM, wet, occasional cobbles and boulders			GS-7	Hand													
				GS-8	Hand													
	Gray, F-C SAND, some gravel, few silt, SP-SM, wet, occasional cobbles and boulders			GS-9	Hand													
	Gray, F-C SAND, some gravel, little silt, SM, wet, occasional cobbles and boulders			GS-10	Hand													
10	End of Test Pit at 10' bgs, no refusal		953.5															10

0 10 20 30 40 50 60 70 80 90 100

CONTRACTOR: Drilix Environmental  
 EQUIPMENT: SK85CS Kobelco  
 METHOD: Excavation  
 REMARKS: Groundwater seepage observed at 4.4' bgs. Excavation backfilled with soil cuttings.

LOGGED BY: DPJ      CHECKED BY/DATE: NDL/8-24-23

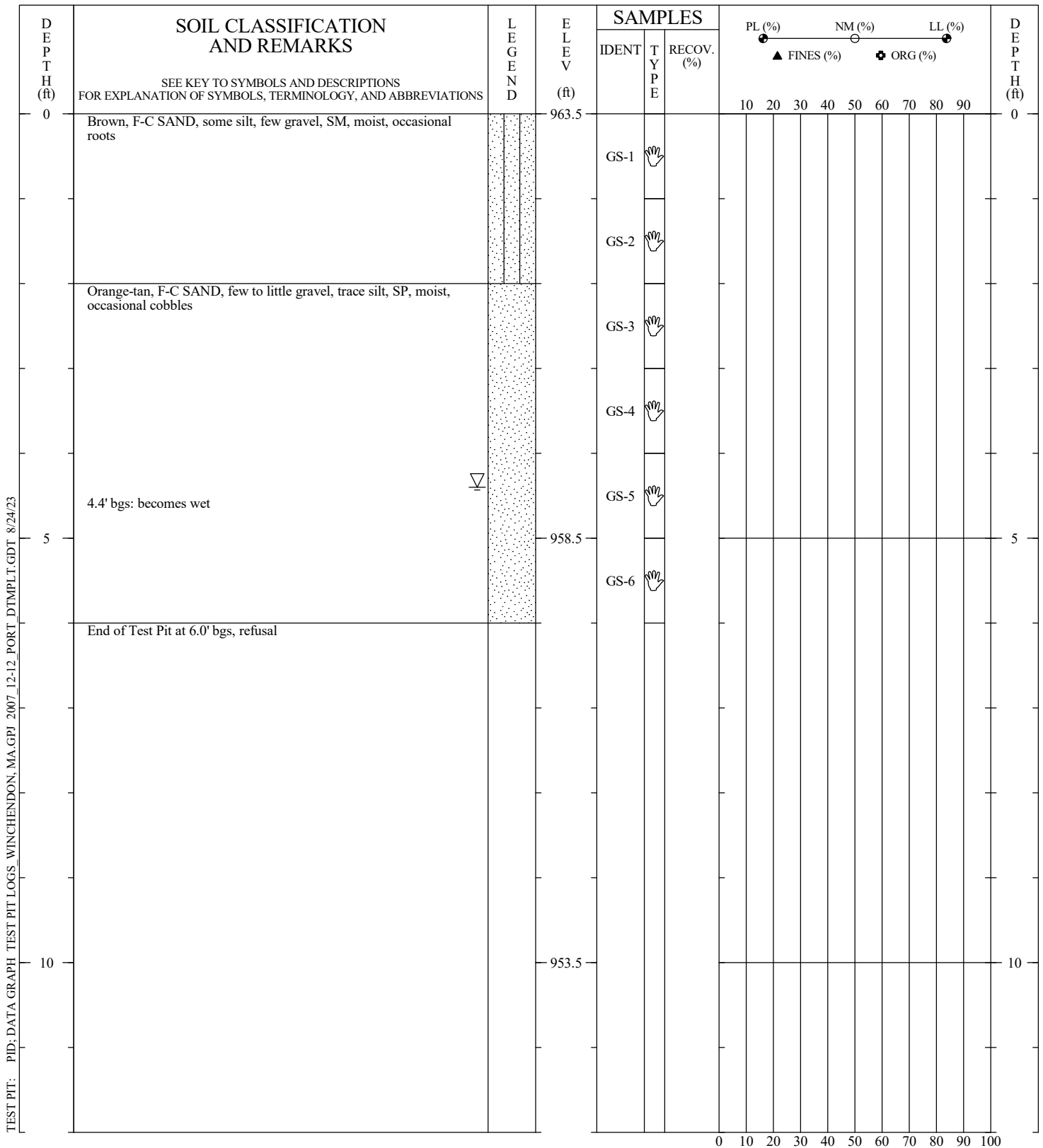
**TEST PIT RECORD**

**TEST PIT NO.:** TP-1  
**EXCAVATED:** 8/18/23  
**PROJECT:** Sunpin  
**LOCATION:** Winchendon, MA  
**PROJECT NO.:** 3652180157

**PAGE 1 OF 1**

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.





CONTRACTOR: Drilix Environmental  
 EQUIPMENT: SK85CS Kobelco  
 METHOD: Excavation  
 REMARKS: Groundwater seepage observed at 4.4' bgs. Excavation backfilled with soil cuttings.

LOGGED BY: DPJ      CHECKED BY/DATE: NDL/8-24-23

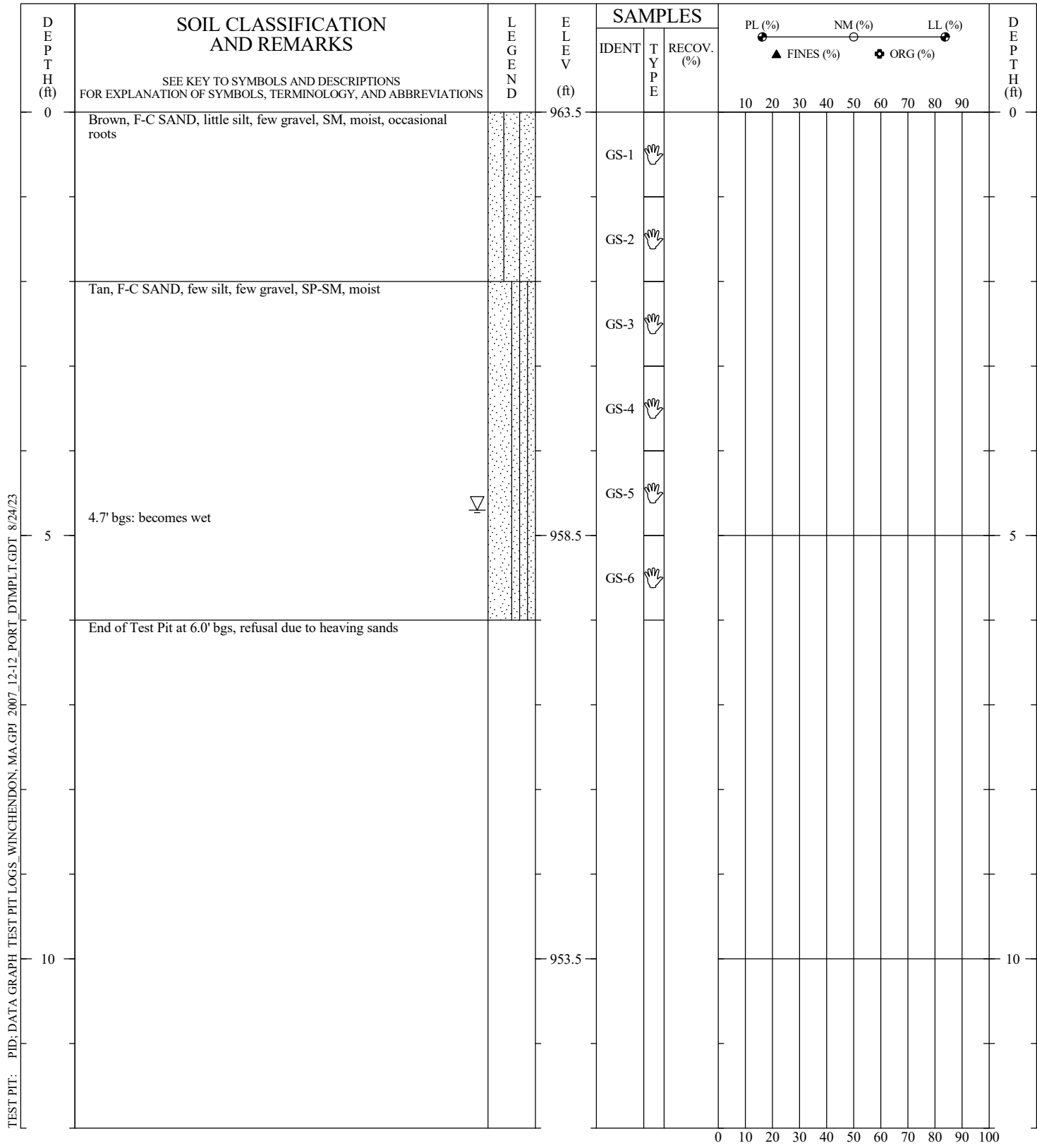
**TEST PIT RECORD**

**TEST PIT NO.:** TP-2  
**EXCAVATED:** 8/18/23  
**PROJECT:** Sunpin  
**LOCATION:** Winchendon, MA  
**PROJECT NO.:** 3652180157

**PAGE 1 OF 1**

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.





TEST PIT: PID: DATA GRAPH TEST PIT LOGS\_WINCHENDON, MA.GPJ\_2007\_12-12\_POKT\_DT/PLT.GDT 8/24/23

**CONTRACTOR:** Drilix Environmental  
**EQUIPMENT:** SK85CS Kobelco  
**METHOD:** Excavation  
**REMARKS:** Groundwater seepage observed at 4.7' bgs. Excavation backfilled with soil cuttings.  
  
 LOGGED BY: DPJ      CHECKED BY/DATE: NDL/8-24-23

TEST PIT RECORD	
<b>TEST PIT NO.:</b>	TP-3
<b>EXCAVATED:</b>	8/18/23
<b>PROJECT:</b>	Sunpin
<b>LOCATION:</b>	Winchendon, MA
<b>PROJECT NO.:</b>	3652180157
<b>PAGE 1 OF 1</b>	

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.





Photographic Log



Project: Sunpin  
Project No.: 3652180157  
Address: Baldwinville Road - Winchendon, MA  
Date: 8/18/2023  
Field Technician(s): Dallin Jenson



Photo 1: TP-1  
8/18/2023

Photo 2: TP-1  
8/18/2023



Photo 3: TP-1  
8/18/2023

Photo 4: TP-1  
8/18/2023



Photographic Log



Project: Sunpin  
Project No.: 3652180157  
Address: Baldwinville Road - Winchendon, MA  
Date: 8/18/2023  
Field Technician(s): Dallin Jenson



Photo 5: TP-2  
8/18/2023



Photo 6: TP-2  
8/18/2023



Photo 7: TP-2  
8/18/2023



Photo 8: TP-2  
8/18/2023



Photographic Log



Project: Sunpin  
Project No.: 3652180157  
Address: Baldwinville Road - Winchendon, MA  
Date: 8/18/2023  
Field Technician(s): Dallin Jenson



Photo 5: TP-3  
8/18/2023



Photo 6: TP-3  
8/18/2023



Photo 7: TP-3  
8/18/2023



Photo 8: TP-3  
8/18/2023

# **ATTACHMENTS**

**2.**

**INFORMATION  
FROM THE  
GEOPROFESSIONAL  
BUSINESS  
ASSOCIATION**

# Important Information about This

# Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

**The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.**

## **Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects**

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

## **Read this Report in Full**

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

## **You Need to Inform Your Geotechnical Engineer about Change**

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

## **This Report May Not Be Reliable**

*Do not rely on this report* if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it.* A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

## **Most of the "Findings" Related in This Report Are Professional Opinions**

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.



## This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

## This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

## Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

## Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

## Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old*.

## Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration*. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists*.




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# APPENDIX

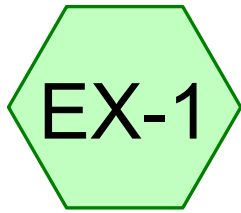
## **B** HYDROCAD ANALYSES



# APPENDIX

## **B1** EXISTING HYDROCAD ANALYSIS

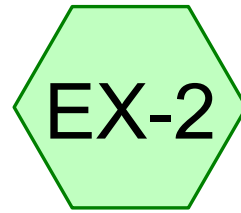




Subcatchment-1



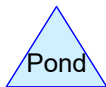
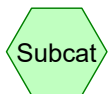
N&W Wetlands



Subcatchment-2



NE Wetlands





**EX**

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Type III 24-hr 2-YR Rainfall=2.89"

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**Summary for Subcatchment EX-1: Subcatchment-1**

Runoff = 8.94 cfs @ 12.35 hrs, Volume= 1.139 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-YR Rainfall=2.89"

Area (sf)	CN	Description
910,274	70	Woods, Good, HSG C
910,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0600	0.10		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
12.8	1,142	0.0884	1.49		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
21.1	1,192	Total			

**Summary for Subcatchment EX-2: Subcatchment-2**

Runoff = 0.20 cfs @ 12.14 hrs, Volume= 0.018 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-YR Rainfall=2.89"

Area (sf)	CN	Description
14,620	70	Woods, Good, HSG C
14,620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	50	0.1100	0.13		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
1.9	166	0.0813	1.43		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
8.4	216	Total			

**Summary for Link DP-1: N&W Wetlands**

Inflow Area = 21.233 ac, 0.00% Impervious, Inflow Depth = 0.65" for 2-YR event

Inflow = 9.12 cfs @ 12.34 hrs, Volume= 1.157 af

Primary = 9.12 cfs @ 12.34 hrs, Volume= 1.157 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**EX**

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*Type III 24-hr 2-YR Rainfall=2.89"*

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### **Summary for Link DP-2: NE Wetlands**

Inflow Area = 0.336 ac, 0.00% Impervious, Inflow Depth = 0.65" for 2-YR event  
Inflow = 0.20 cfs @ 12.14 hrs, Volume= 0.018 af  
Primary = 0.20 cfs @ 12.30 hrs, Volume= 0.018 af, Atten= 1%, Lag= 9.2 min

Primary outflow = Inflow delayed by 9.2 min, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**EX**

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Type III 24-hr 10-YR Rainfall=4.39"

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**Summary for Subcatchment EX-1: Subcatchment-1**

Runoff = 24.75 cfs @ 12.31 hrs, Volume= 2.780 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-YR Rainfall=4.39"

Area (sf)	CN	Description
910,274	70	Woods, Good, HSG C
910,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0600	0.10		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
12.8	1,142	0.0884	1.49		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
21.1	1,192	Total			

**Summary for Subcatchment EX-2: Subcatchment-2**

Runoff = 0.55 cfs @ 12.13 hrs, Volume= 0.045 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-YR Rainfall=4.39"

Area (sf)	CN	Description
14,620	70	Woods, Good, HSG C
14,620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	50	0.1100	0.13		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
1.9	166	0.0813	1.43		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
8.4	216	Total			

**Summary for Link DP-1: N&W Wetlands**

Inflow Area = 21.233 ac, 0.00% Impervious, Inflow Depth = 1.60" for 10-YR event

Inflow = 25.27 cfs @ 12.31 hrs, Volume= 2.825 af

Primary = 25.27 cfs @ 12.31 hrs, Volume= 2.825 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**EX**

*Type III 24-hr 10-YR Rainfall=4.39"*

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### **Summary for Link DP-2: NE Wetlands**

Inflow Area = 0.336 ac, 0.00% Impervious, Inflow Depth = 1.60" for 10-YR event  
Inflow = 0.55 cfs @ 12.13 hrs, Volume= 0.045 af  
Primary = 0.54 cfs @ 12.28 hrs, Volume= 0.045 af, Atten= 1%, Lag= 9.3 min

Primary outflow = Inflow delayed by 9.2 min, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



**EX**

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Type III 24-hr 25-YR Rainfall=5.33"

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**Summary for Subcatchment EX-1: Subcatchment-1**

Runoff = 36.21 cfs @ 12.30 hrs, Volume= 3.978 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-YR Rainfall=5.33"

Area (sf)	CN	Description
910,274	70	Woods, Good, HSG C
910,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0600	0.10		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
12.8	1,142	0.0884	1.49		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
21.1	1,192	Total			

**Summary for Subcatchment EX-2: Subcatchment-2**

Runoff = 0.80 cfs @ 12.12 hrs, Volume= 0.064 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-YR Rainfall=5.33"

Area (sf)	CN	Description
14,620	70	Woods, Good, HSG C
14,620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	50	0.1100	0.13		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
1.9	166	0.0813	1.43		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
8.4	216	Total			

**Summary for Link DP-1: N&W Wetlands**

Inflow Area = 21.233 ac, 0.00% Impervious, Inflow Depth = 2.28" for 25-YR event

Inflow = 36.98 cfs @ 12.30 hrs, Volume= 4.042 af

Primary = 36.98 cfs @ 12.30 hrs, Volume= 4.042 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**EX**

*Type III 24-hr 25-YR Rainfall=5.33"*

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### **Summary for Link DP-2: NE Wetlands**

Inflow Area = 0.336 ac, 0.00% Impervious, Inflow Depth = 2.28" for 25-YR event  
Inflow = 0.80 cfs @ 12.12 hrs, Volume= 0.064 af  
Primary = 0.79 cfs @ 12.28 hrs, Volume= 0.064 af, Atten= 2%, Lag= 9.3 min

Primary outflow = Inflow delayed by 9.2 min, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**EX**

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Type III 24-hr 100-YR Rainfall=6.78"

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**Summary for Subcatchment EX-1: Subcatchment-1**

Runoff = 55.19 cfs @ 12.30 hrs, Volume= 5.984 af, Depth= 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-YR Rainfall=6.78"

Area (sf)	CN	Description
910,274	70	Woods, Good, HSG C
910,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0600	0.10		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
12.8	1,142	0.0884	1.49		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
21.1	1,192	Total			

**Summary for Subcatchment EX-2: Subcatchment-2**

Runoff = 1.23 cfs @ 12.12 hrs, Volume= 0.096 af, Depth= 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-YR Rainfall=6.78"

Area (sf)	CN	Description
14,620	70	Woods, Good, HSG C
14,620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	50	0.1100	0.13		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
1.9	166	0.0813	1.43		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
8.4	216	Total			

**Summary for Link DP-1: N&W Wetlands**

Inflow Area = 21.233 ac, 0.00% Impervious, Inflow Depth = 3.44" for 100-YR event

Inflow = 56.37 cfs @ 12.30 hrs, Volume= 6.080 af

Primary = 56.37 cfs @ 12.30 hrs, Volume= 6.080 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**EX**

*Type III 24-hr 100-YR Rainfall=6.78"*

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### **Summary for Link DP-2: NE Wetlands**


Inflow Area = 0.336 ac, 0.00% Impervious, Inflow Depth = 3.44" for 100-YR event  
Inflow = 1.23 cfs @ 12.12 hrs, Volume= 0.096 af  
Primary = 1.20 cfs @ 12.28 hrs, Volume= 0.096 af, Atten= 2%, Lag= 9.2 min

Primary outflow = Inflow delayed by 9.2 min, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

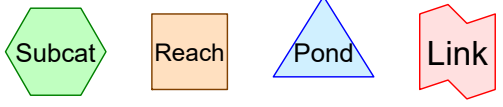
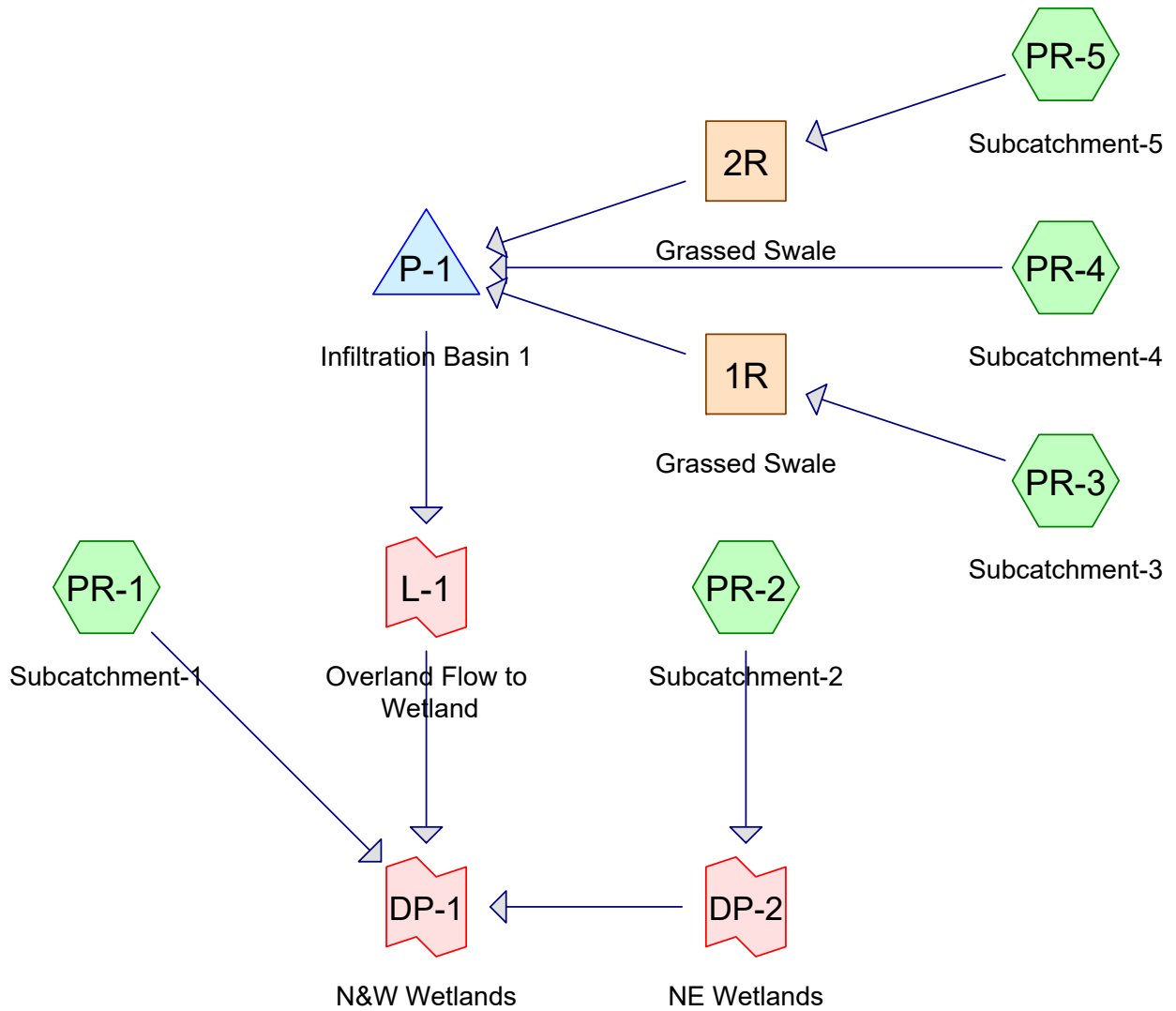


# APPENDIX

## **B2** PROPOSED HYDROCAD ANALYSIS



**PROPOSED  
CONDITIONS**



**Summary for Subcatchment PR-1: Subcatchment-1**

Runoff = 9.03 cfs @ 12.30 hrs, Volume= 1.071 af, Depth= 0.70"  
 Routed to Link DP-1 : N&W Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-YR Rainfall=2.89"

Area (sf)	CN	Description
326,043	70	Woods, Good, HSG C
433,573	71	Meadow, non-grazed, HSG C
12,109	65	Brush, Good, HSG C
* 29,916	96	Access Road
* 180	98	Concrete Transformer Pad
801,821	71	Weighted Average
801,641		99.98% Pervious Area
180		0.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0600	0.10		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
0.1	14	0.0700	4.26		<b>Shallow Concentrated Flow, B-C</b> Unpaved Kv= 16.1 fps
2.8	372	0.0968	2.18		<b>Shallow Concentrated Flow, C-D</b> Short Grass Pasture Kv= 7.0 fps
3.8	306	0.0359	1.33		<b>Shallow Concentrated Flow, D-E</b> Short Grass Pasture Kv= 7.0 fps
1.8	261	0.1149	2.37		<b>Shallow Concentrated Flow, E-F</b> Short Grass Pasture Kv= 7.0 fps
1.8	189	0.1217	1.74		<b>Shallow Concentrated Flow, F-G</b> Woodland Kv= 5.0 fps
18.6	1,192	Total			

**Summary for Subcatchment PR-2: Subcatchment-2**

Runoff = 0.20 cfs @ 12.13 hrs, Volume= 0.017 af, Depth= 0.79"  
 Routed to Link DP-2 : NE Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-YR Rainfall=2.89"

Area (sf)	CN	Description
9,907	70	Woods, Good, HSG C
* 1,287	96	Access Road
11,194	73	Weighted Average
11,194		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.1000	0.12		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
1.2	101	0.0792	1.41		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
7.9	151	Total			

**Summary for Subcatchment PR-3: Subcatchment-3**

Runoff = 0.11 cfs @ 12.17 hrs, Volume= 0.011 af, Depth= 0.70"  
Routed to Reach 1R : Grassed Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-YR Rainfall=2.89"

Area (sf)	CN	Description
8,122	71	Meadow, non-grazed, HSG C
40	65	Brush, Good, HSG C
105	70	Woods, Good, HSG C
8,267	71	Weighted Average
8,267		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	32	0.0313	0.07		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
2.4	237	0.0550	1.64		<b>Shallow Concentrated Flow, B-C</b> Short Grass Pasture Kv= 7.0 fps
0.5	113	0.3450	4.11		<b>Shallow Concentrated Flow, C-D</b> Short Grass Pasture Kv= 7.0 fps
0.5	71	0.1260	2.48		<b>Shallow Concentrated Flow, D-E</b> Short Grass Pasture Kv= 7.0 fps
10.9	453	Total			

**Summary for Subcatchment PR-4: Subcatchment-4**

Runoff = 0.85 cfs @ 12.17 hrs, Volume= 0.082 af, Depth= 0.70"  
Routed to Pond P-1 : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-YR Rainfall=2.89"

Area (sf)	CN	Description
61,079	71	Meadow, non-grazed, HSG C
177	70	Woods, Good, HSG C
61,256	71	Weighted Average
61,256		100.00% Pervious Area



Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	32	0.0313	0.07		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
2.2	220	0.0550	1.64		<b>Shallow Concentrated Flow, B-C</b> Short Grass Pasture Kv= 7.0 fps
0.6	131	0.2600	3.57		<b>Shallow Concentrated Flow, C-D</b> Short Grass Pasture Kv= 7.0 fps
0.4	58	0.1034	2.25		<b>Shallow Concentrated Flow, D-E</b> Short Grass Pasture Kv= 7.0 fps
10.7	441	Total			

**Summary for Subcatchment PR-5: Subcatchment-5**

Runoff = 0.75 cfs @ 12.24 hrs, Volume= 0.076 af, Depth= 0.94"  
 Routed to Reach 2R : Grassed Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-YR Rainfall=2.89"

Area (sf)	CN	Description
32,867	71	Meadow, non-grazed, HSG C
798	65	Brush, Good, HSG C
* 8,707	96	Access Road
42,372	76	Weighted Average
42,372		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	32	0.0313	0.07		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
7.1	163	0.0030	0.38		<b>Shallow Concentrated Flow, B-C</b> Short Grass Pasture Kv= 7.0 fps
0.4	196	0.0950	8.81	1.73	<b>Pipe Channel, HDPE Pipe</b> 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Corrugated PE, smooth interior
0.7	283	0.0610	7.06	1.39	<b>Pipe Channel, HDPE Pipe</b> 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Corrugated PE, smooth interior
15.7	674	Total			

**Summary for Reach 1R: Grassed Swale**

Inflow Area = 0.190 ac, 0.00% Impervious, Inflow Depth = 0.70" for 2-YR event  
 Inflow = 0.11 cfs @ 12.17 hrs, Volume= 0.011 af  
 Outflow = 0.11 cfs @ 12.20 hrs, Volume= 0.011 af, Atten= 2%, Lag= 1.8 min  
 Routed to Pond P-1 : Infiltration Basin 1

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 1.26 fps, Min. Travel Time= 0.8 min  
Avg. Velocity = 0.65 fps, Avg. Travel Time= 1.5 min

Peak Storage= 5 cf @ 12.19 hrs  
Average Depth at Peak Storage= 0.03' , Surface Width= 3.17'  
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 60.66 cfs

3.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding  
Side Slope Z-value= 3.0 '/' Top Width= 9.00'  
Length= 60.0' Slope= 0.0750 '/'  
Inlet Invert= 968.00', Outlet Invert= 963.50'



**Summary for Reach 2R: Grassed Swale**

Inflow Area = 0.973 ac, 0.00% Impervious, Inflow Depth = 0.94" for 2-YR event  
Inflow = 0.75 cfs @ 12.24 hrs, Volume= 0.076 af  
Outflow = 0.74 cfs @ 12.27 hrs, Volume= 0.076 af, Atten= 1%, Lag= 2.0 min  
Routed to Pond P-1 : Infiltration Basin 1

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 2.17 fps, Min. Travel Time= 1.1 min  
Avg. Velocity = 0.76 fps, Avg. Travel Time= 3.2 min

Peak Storage= 50 cf @ 12.25 hrs  
Average Depth at Peak Storage= 0.10' , Surface Width= 3.62'  
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 46.74 cfs

3.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding  
Side Slope Z-value= 3.0 '/' Top Width= 9.00'  
Length= 146.0' Slope= 0.0445 '/'  
Inlet Invert= 970.00', Outlet Invert= 963.50'



**Summary for Pond P-1: Infiltration Basin 1**

Inflow Area = 2.569 ac, 0.00% Impervious, Inflow Depth = 0.79" for 2-YR event  
 Inflow = 1.60 cfs @ 12.22 hrs, Volume= 0.169 af  
 Outflow = 0.09 cfs @ 17.04 hrs, Volume= 0.169 af, Atten= 94%, Lag= 289.5 min  
 Discarded = 0.09 cfs @ 17.04 hrs, Volume= 0.169 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link L-1 : Overland Flow to Wetland

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 961.49' @ 17.04 hrs Surf.Area= 8,756 sf Storage= 4,192 cf

Plug-Flow detention time= 509.7 min calculated for 0.169 af (100% of inflow)  
 Center-of-Mass det. time= 509.3 min ( 1,389.2 - 879.9 )

Volume	Invert	Avail.Storage	Storage Description		
#1	961.00'	24,024 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
961.00	8,227	353.0	0	0	8,227
962.00	9,315	372.0	8,765	8,765	9,382
963.00	10,459	391.0	9,881	18,647	10,597
963.50	11,052	400.0	5,377	24,024	11,197

Device	Routing	Invert	Outlet Devices												
#1	Discarded	961.00'	<b>0.450 in/hr Exfiltration over Wetted area</b>												
#2	Primary	962.20'	<b>10.0' long x 3.0' breadth Broad-Crested Rectangular Weir</b>												
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00												
			2.50 3.00 3.50 4.00 4.50												
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68												
			2.72 2.81 2.92 2.97 3.07 3.32												

**Discarded OutFlow** Max=0.09 cfs @ 17.04 hrs HW=961.49' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 0.09 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=961.00' (Free Discharge)  
 ↑2=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

**Summary for Link DP-1: N&W Wetlands**

Inflow Area = 21.233 ac, 0.02% Impervious, Inflow Depth = 0.61" for 2-YR event  
 Inflow = 9.23 cfs @ 12.30 hrs, Volume= 1.088 af  
 Primary = 9.23 cfs @ 12.30 hrs, Volume= 1.088 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link DP-2: NE Wetlands**

Inflow Area = 0.257 ac, 0.00% Impervious, Inflow Depth = 0.79" for 2-YR event  
Inflow = 0.20 cfs @ 12.13 hrs, Volume= 0.017 af  
Primary = 0.20 cfs @ 12.28 hrs, Volume= 0.017 af, Atten= 1%, Lag= 9.3 min  
Routed to Link DP-1 : N&W Wetlands

Primary outflow = Inflow delayed by 9.2 min, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link L-1: Overland Flow to Wetland**

Inflow Area = 2.569 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-YR event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
Routed to Link DP-1 : N&W Wetlands

Primary outflow = Inflow delayed by 5.5 min, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



**Summary for Subcatchment PR-1: Subcatchment-1**

Runoff = 24.14 cfs @ 12.27 hrs, Volume= 2.557 af, Depth= 1.67"  
 Routed to Link DP-1 : N&W Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-YR Rainfall=4.39"

Area (sf)	CN	Description
326,043	70	Woods, Good, HSG C
433,573	71	Meadow, non-grazed, HSG C
12,109	65	Brush, Good, HSG C
* 29,916	96	Access Road
* 180	98	Concrete Transformer Pad
801,821	71	Weighted Average
801,641		99.98% Pervious Area
180		0.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0600	0.10		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
0.1	14	0.0700	4.26		<b>Shallow Concentrated Flow, B-C</b> Unpaved Kv= 16.1 fps
2.8	372	0.0968	2.18		<b>Shallow Concentrated Flow, C-D</b> Short Grass Pasture Kv= 7.0 fps
3.8	306	0.0359	1.33		<b>Shallow Concentrated Flow, D-E</b> Short Grass Pasture Kv= 7.0 fps
1.8	261	0.1149	2.37		<b>Shallow Concentrated Flow, E-F</b> Short Grass Pasture Kv= 7.0 fps
1.8	189	0.1217	1.74		<b>Shallow Concentrated Flow, F-G</b> Woodland Kv= 5.0 fps
18.6	1,192	Total			

**Summary for Subcatchment PR-2: Subcatchment-2**

Runoff = 0.50 cfs @ 12.12 hrs, Volume= 0.039 af, Depth= 1.81"  
 Routed to Link DP-2 : NE Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-YR Rainfall=4.39"

Area (sf)	CN	Description
9,907	70	Woods, Good, HSG C
* 1,287	96	Access Road
11,194	73	Weighted Average
11,194		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.1000	0.12		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
1.2	101	0.0792	1.41		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
7.9	151	Total			

**Summary for Subcatchment PR-3: Subcatchment-3**

Runoff = 0.30 cfs @ 12.16 hrs, Volume= 0.026 af, Depth= 1.67"  
Routed to Reach 1R : Grassed Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-YR Rainfall=4.39"

Area (sf)	CN	Description
8,122	71	Meadow, non-grazed, HSG C
40	65	Brush, Good, HSG C
105	70	Woods, Good, HSG C
8,267	71	Weighted Average
8,267		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	32	0.0313	0.07		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
2.4	237	0.0550	1.64		<b>Shallow Concentrated Flow, B-C</b> Short Grass Pasture Kv= 7.0 fps
0.5	113	0.3450	4.11		<b>Shallow Concentrated Flow, C-D</b> Short Grass Pasture Kv= 7.0 fps
0.5	71	0.1260	2.48		<b>Shallow Concentrated Flow, D-E</b> Short Grass Pasture Kv= 7.0 fps
10.9	453	Total			

**Summary for Subcatchment PR-4: Subcatchment-4**

Runoff = 2.26 cfs @ 12.16 hrs, Volume= 0.195 af, Depth= 1.67"  
Routed to Pond P-1 : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-YR Rainfall=4.39"

Area (sf)	CN	Description
61,079	71	Meadow, non-grazed, HSG C
177	70	Woods, Good, HSG C
61,256	71	Weighted Average
61,256		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	32	0.0313	0.07		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
2.2	220	0.0550	1.64		<b>Shallow Concentrated Flow, B-C</b> Short Grass Pasture Kv= 7.0 fps
0.6	131	0.2600	3.57		<b>Shallow Concentrated Flow, C-D</b> Short Grass Pasture Kv= 7.0 fps
0.4	58	0.1034	2.25		<b>Shallow Concentrated Flow, D-E</b> Short Grass Pasture Kv= 7.0 fps
10.7	441	Total			

**Summary for Subcatchment PR-5: Subcatchment-5**

Runoff = 1.71 cfs @ 12.22 hrs, Volume= 0.166 af, Depth= 2.04"  
Routed to Reach 2R : Grassed Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-YR Rainfall=4.39"

Area (sf)	CN	Description
32,867	71	Meadow, non-grazed, HSG C
798	65	Brush, Good, HSG C
* 8,707	96	Access Road
42,372	76	Weighted Average
42,372		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	32	0.0313	0.07		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
7.1	163	0.0030	0.38		<b>Shallow Concentrated Flow, B-C</b> Short Grass Pasture Kv= 7.0 fps
0.4	196	0.0950	8.81	1.73	<b>Pipe Channel, HDPE Pipe</b> 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Corrugated PE, smooth interior
0.7	283	0.0610	7.06	1.39	<b>Pipe Channel, HDPE Pipe</b> 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Corrugated PE, smooth interior
15.7	674	Total			

**Summary for Reach 1R: Grassed Swale**

Inflow Area = 0.190 ac, 0.00% Impervious, Inflow Depth = 1.67" for 10-YR event  
Inflow = 0.30 cfs @ 12.16 hrs, Volume= 0.026 af  
Outflow = 0.30 cfs @ 12.18 hrs, Volume= 0.026 af, Atten= 2%, Lag= 0.9 min  
Routed to Pond P-1 : Infiltration Basin 1

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 1.83 fps, Min. Travel Time= 0.5 min  
Avg. Velocity = 0.70 fps, Avg. Travel Time= 1.4 min

Peak Storage= 10 cf @ 12.17 hrs  
Average Depth at Peak Storage= 0.05' , Surface Width= 3.31'  
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 60.66 cfs

3.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding  
Side Slope Z-value= 3.0 '/' Top Width= 9.00'  
Length= 60.0' Slope= 0.0750 '/'  
Inlet Invert= 968.00', Outlet Invert= 963.50'



**Summary for Reach 2R: Grassed Swale**

Inflow Area = 0.973 ac, 0.00% Impervious, Inflow Depth = 2.04" for 10-YR event  
Inflow = 1.71 cfs @ 12.22 hrs, Volume= 0.166 af  
Outflow = 1.69 cfs @ 12.25 hrs, Volume= 0.166 af, Atten= 1%, Lag= 1.7 min  
Routed to Pond P-1 : Infiltration Basin 1

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 2.88 fps, Min. Travel Time= 0.8 min  
Avg. Velocity = 0.94 fps, Avg. Travel Time= 2.6 min

Peak Storage= 86 cf @ 12.23 hrs  
Average Depth at Peak Storage= 0.17' , Surface Width= 4.01'  
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 46.74 cfs

3.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding  
Side Slope Z-value= 3.0 '/' Top Width= 9.00'  
Length= 146.0' Slope= 0.0445 '/'  
Inlet Invert= 970.00', Outlet Invert= 963.50'





### Summary for Pond P-1: Infiltration Basin 1

Inflow Area = 2.569 ac, 0.00% Impervious, Inflow Depth = 1.81" for 10-YR event  
 Inflow = 4.02 cfs @ 12.19 hrs, Volume= 0.387 af  
 Outflow = 0.26 cfs @ 15.64 hrs, Volume= 0.387 af, Atten= 94%, Lag= 207.1 min  
 Discarded = 0.10 cfs @ 15.64 hrs, Volume= 0.350 af  
 Primary = 0.16 cfs @ 15.64 hrs, Volume= 0.037 af  
 Routed to Link L-1 : Overland Flow to Wetland

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 962.23' @ 15.64 hrs Surf.Area= 9,577 sf Storage= 10,974 cf

Plug-Flow detention time= 1,018.2 min calculated for 0.387 af (100% of inflow)  
 Center-of-Mass det. time= 1,017.9 min ( 1,871.9 - 854.0 )

Volume	Invert	Avail.Storage	Storage Description		
#1	961.00'	24,024 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
961.00	8,227	353.0	0	0	8,227
962.00	9,315	372.0	8,765	8,765	9,382
963.00	10,459	391.0	9,881	18,647	10,597
963.50	11,052	400.0	5,377	24,024	11,197

Device	Routing	Invert	Outlet Devices												
#1	Discarded	961.00'	<b>0.450 in/hr Exfiltration over Wetted area</b>												
#2	Primary	962.20'	<b>10.0' long x 3.0' breadth Broad-Crested Rectangular Weir</b>												
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00												
			2.50 3.00 3.50 4.00 4.50												
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68												
			2.72 2.81 2.92 2.97 3.07 3.32												

**Discarded OutFlow** Max=0.10 cfs @ 15.64 hrs HW=962.23' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

**Primary OutFlow** Max=0.15 cfs @ 15.64 hrs HW=962.23' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.15 cfs @ 0.45 fps)

### Summary for Link DP-1: N&W Wetlands

Inflow Area = 21.233 ac, 0.02% Impervious, Inflow Depth = 1.49" for 10-YR event  
 Inflow = 24.63 cfs @ 12.27 hrs, Volume= 2.633 af  
 Primary = 24.63 cfs @ 12.27 hrs, Volume= 2.633 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link DP-2: NE Wetlands**

Inflow Area = 0.257 ac, 0.00% Impervious, Inflow Depth = 1.81" for 10-YR event  
Inflow = 0.50 cfs @ 12.12 hrs, Volume= 0.039 af  
Primary = 0.49 cfs @ 12.27 hrs, Volume= 0.039 af, Atten= 1%, Lag= 9.2 min  
Routed to Link DP-1 : N&W Wetlands

Primary outflow = Inflow delayed by 9.2 min, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link L-1: Overland Flow to Wetland**

Inflow Area = 2.569 ac, 0.00% Impervious, Inflow Depth = 0.17" for 10-YR event  
Inflow = 0.16 cfs @ 15.64 hrs, Volume= 0.037 af  
Primary = 0.16 cfs @ 15.74 hrs, Volume= 0.037 af, Atten= 0%, Lag= 5.5 min  
Routed to Link DP-1 : N&W Wetlands

Primary outflow = Inflow delayed by 5.5 min, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Subcatchment PR-1: Subcatchment-1**

Runoff = 34.98 cfs @ 12.27 hrs, Volume= 3.634 af, Depth= 2.37"  
 Routed to Link DP-1 : N&W Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 25-YR Rainfall=5.33"

Area (sf)	CN	Description
326,043	70	Woods, Good, HSG C
433,573	71	Meadow, non-grazed, HSG C
12,109	65	Brush, Good, HSG C
* 29,916	96	Access Road
* 180	98	Concrete Transformer Pad
801,821	71	Weighted Average
801,641		99.98% Pervious Area
180		0.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0600	0.10		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
0.1	14	0.0700	4.26		<b>Shallow Concentrated Flow, B-C</b> Unpaved Kv= 16.1 fps
2.8	372	0.0968	2.18		<b>Shallow Concentrated Flow, C-D</b> Short Grass Pasture Kv= 7.0 fps
3.8	306	0.0359	1.33		<b>Shallow Concentrated Flow, D-E</b> Short Grass Pasture Kv= 7.0 fps
1.8	261	0.1149	2.37		<b>Shallow Concentrated Flow, E-F</b> Short Grass Pasture Kv= 7.0 fps
1.8	189	0.1217	1.74		<b>Shallow Concentrated Flow, F-G</b> Woodland Kv= 5.0 fps
18.6	1,192	Total			

**Summary for Subcatchment PR-2: Subcatchment-2**

Runoff = 0.70 cfs @ 12.12 hrs, Volume= 0.054 af, Depth= 2.54"  
 Routed to Link DP-2 : NE Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 25-YR Rainfall=5.33"

Area (sf)	CN	Description
9,907	70	Woods, Good, HSG C
* 1,287	96	Access Road
11,194	73	Weighted Average
11,194		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.1000	0.12		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
1.2	101	0.0792	1.41		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
7.9	151	Total			

**Summary for Subcatchment PR-3: Subcatchment-3**

Runoff = 0.44 cfs @ 12.16 hrs, Volume= 0.037 af, Depth= 2.37"  
Routed to Reach 1R : Grassed Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-YR Rainfall=5.33"

Area (sf)	CN	Description
8,122	71	Meadow, non-grazed, HSG C
40	65	Brush, Good, HSG C
105	70	Woods, Good, HSG C
8,267	71	Weighted Average
8,267		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	32	0.0313	0.07		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
2.4	237	0.0550	1.64		<b>Shallow Concentrated Flow, B-C</b> Short Grass Pasture Kv= 7.0 fps
0.5	113	0.3450	4.11		<b>Shallow Concentrated Flow, C-D</b> Short Grass Pasture Kv= 7.0 fps
0.5	71	0.1260	2.48		<b>Shallow Concentrated Flow, D-E</b> Short Grass Pasture Kv= 7.0 fps
10.9	453	Total			

**Summary for Subcatchment PR-4: Subcatchment-4**

Runoff = 3.27 cfs @ 12.16 hrs, Volume= 0.278 af, Depth= 2.37"  
Routed to Pond P-1 : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-YR Rainfall=5.33"

Area (sf)	CN	Description
61,079	71	Meadow, non-grazed, HSG C
177	70	Woods, Good, HSG C
61,256	71	Weighted Average
61,256		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	32	0.0313	0.07		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
2.2	220	0.0550	1.64		<b>Shallow Concentrated Flow, B-C</b> Short Grass Pasture Kv= 7.0 fps
0.6	131	0.2600	3.57		<b>Shallow Concentrated Flow, C-D</b> Short Grass Pasture Kv= 7.0 fps
0.4	58	0.1034	2.25		<b>Shallow Concentrated Flow, D-E</b> Short Grass Pasture Kv= 7.0 fps
10.7	441	Total			

**Summary for Subcatchment PR-5: Subcatchment-5**

Runoff = 2.37 cfs @ 12.22 hrs, Volume= 0.228 af, Depth= 2.81"  
 Routed to Reach 2R : Grassed Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 25-YR Rainfall=5.33"

Area (sf)	CN	Description
32,867	71	Meadow, non-grazed, HSG C
798	65	Brush, Good, HSG C
* 8,707	96	Access Road
42,372	76	Weighted Average
42,372		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	32	0.0313	0.07		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
7.1	163	0.0030	0.38		<b>Shallow Concentrated Flow, B-C</b> Short Grass Pasture Kv= 7.0 fps
0.4	196	0.0950	8.81	1.73	<b>Pipe Channel, HDPE Pipe</b> 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Corrugated PE, smooth interior
0.7	283	0.0610	7.06	1.39	<b>Pipe Channel, HDPE Pipe</b> 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Corrugated PE, smooth interior
15.7	674	Total			

**Summary for Reach 1R: Grassed Swale**

Inflow Area = 0.190 ac, 0.00% Impervious, Inflow Depth = 2.37" for 25-YR event  
 Inflow = 0.44 cfs @ 12.16 hrs, Volume= 0.037 af  
 Outflow = 0.43 cfs @ 12.17 hrs, Volume= 0.037 af, Atten= 1%, Lag= 0.7 min  
 Routed to Pond P-1 : Infiltration Basin 1



Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 2.10 fps, Min. Travel Time= 0.5 min  
Avg. Velocity = 0.74 fps, Avg. Travel Time= 1.4 min

Peak Storage= 13 cf @ 12.16 hrs  
Average Depth at Peak Storage= 0.07' , Surface Width= 3.39'  
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 60.66 cfs

3.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding  
Side Slope Z-value= 3.0 '/' Top Width= 9.00'  
Length= 60.0' Slope= 0.0750 '/'  
Inlet Invert= 968.00', Outlet Invert= 963.50'



**Summary for Reach 2R: Grassed Swale**

Inflow Area = 0.973 ac, 0.00% Impervious, Inflow Depth = 2.81" for 25-YR event  
Inflow = 2.37 cfs @ 12.22 hrs, Volume= 0.228 af  
Outflow = 2.34 cfs @ 12.24 hrs, Volume= 0.228 af, Atten= 1%, Lag= 1.5 min  
Routed to Pond P-1 : Infiltration Basin 1

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 3.21 fps, Min. Travel Time= 0.8 min  
Avg. Velocity = 1.03 fps, Avg. Travel Time= 2.4 min

Peak Storage= 107 cf @ 12.23 hrs  
Average Depth at Peak Storage= 0.20' , Surface Width= 4.22'  
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 46.74 cfs

3.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding  
Side Slope Z-value= 3.0 '/' Top Width= 9.00'  
Length= 146.0' Slope= 0.0445 '/'  
Inlet Invert= 970.00', Outlet Invert= 963.50'



**Summary for Pond P-1: Infiltration Basin 1**

Inflow Area = 2.569 ac, 0.00% Impervious, Inflow Depth = 2.54" for 25-YR event  
 Inflow = 5.74 cfs @ 12.18 hrs, Volume= 0.543 af  
 Outflow = 0.95 cfs @ 12.97 hrs, Volume= 0.543 af, Atten= 83%, Lag= 47.2 min  
 Discarded = 0.10 cfs @ 12.97 hrs, Volume= 0.360 af  
 Primary = 0.85 cfs @ 12.97 hrs, Volume= 0.183 af  
 Routed to Link L-1 : Overland Flow to Wetland

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 962.31' @ 12.97 hrs Surf.Area= 9,658 sf Storage= 11,669 cf

Plug-Flow detention time= 757.0 min calculated for 0.543 af (100% of inflow)  
 Center-of-Mass det. time= 756.7 min ( 1,600.7 - 844.0 )

Volume	Invert	Avail.Storage	Storage Description		
#1	961.00'	24,024 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
961.00	8,227	353.0	0	0	8,227
962.00	9,315	372.0	8,765	8,765	9,382
963.00	10,459	391.0	9,881	18,647	10,597
963.50	11,052	400.0	5,377	24,024	11,197

Device	Routing	Invert	Outlet Devices											
#1	Discarded	961.00'	<b>0.450 in/hr Exfiltration over Wetted area</b>											
#2	Primary	962.20'	<b>10.0' long x 3.0' breadth Broad-Crested Rectangular Weir</b>											
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00											
			2.50 3.00 3.50 4.00 4.50											
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68											
			2.72 2.81 2.92 2.97 3.07 3.32											

**Discarded OutFlow** Max=0.10 cfs @ 12.97 hrs HW=962.31' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

**Primary OutFlow** Max=0.84 cfs @ 12.97 hrs HW=962.31' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.84 cfs @ 0.79 fps)

**Summary for Link DP-1: N&W Wetlands**

Inflow Area = 21.233 ac, 0.02% Impervious, Inflow Depth = 2.19" for 25-YR event  
 Inflow = 35.67 cfs @ 12.27 hrs, Volume= 3.872 af  
 Primary = 35.67 cfs @ 12.27 hrs, Volume= 3.872 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link DP-2: NE Wetlands**

Inflow Area = 0.257 ac, 0.00% Impervious, Inflow Depth = 2.54" for 25-YR event  
Inflow = 0.70 cfs @ 12.12 hrs, Volume= 0.054 af  
Primary = 0.70 cfs @ 12.27 hrs, Volume= 0.054 af, Atten= 1%, Lag= 9.2 min  
Routed to Link DP-1 : N&W Wetlands

Primary outflow = Inflow delayed by 9.2 min, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link L-1: Overland Flow to Wetland**

Inflow Area = 2.569 ac, 0.00% Impervious, Inflow Depth = 0.86" for 25-YR event  
Inflow = 0.85 cfs @ 12.97 hrs, Volume= 0.183 af  
Primary = 0.85 cfs @ 13.06 hrs, Volume= 0.183 af, Atten= 0%, Lag= 5.6 min  
Routed to Link DP-1 : N&W Wetlands

Primary outflow = Inflow delayed by 5.5 min, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



**Summary for Subcatchment PR-1: Subcatchment-1**

Runoff = 52.83 cfs @ 12.26 hrs, Volume= 5.429 af, Depth= 3.54"  
 Routed to Link DP-1 : N&W Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100-YR Rainfall=6.78"

Area (sf)	CN	Description
326,043	70	Woods, Good, HSG C
433,573	71	Meadow, non-grazed, HSG C
12,109	65	Brush, Good, HSG C
* 29,916	96	Access Road
* 180	98	Concrete Transformer Pad
801,821	71	Weighted Average
801,641		99.98% Pervious Area
180		0.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0600	0.10		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
0.1	14	0.0700	4.26		<b>Shallow Concentrated Flow, B-C</b> Unpaved Kv= 16.1 fps
2.8	372	0.0968	2.18		<b>Shallow Concentrated Flow, C-D</b> Short Grass Pasture Kv= 7.0 fps
3.8	306	0.0359	1.33		<b>Shallow Concentrated Flow, D-E</b> Short Grass Pasture Kv= 7.0 fps
1.8	261	0.1149	2.37		<b>Shallow Concentrated Flow, E-F</b> Short Grass Pasture Kv= 7.0 fps
1.8	189	0.1217	1.74		<b>Shallow Concentrated Flow, F-G</b> Woodland Kv= 5.0 fps
18.6	1,192	Total			

**Summary for Subcatchment PR-2: Subcatchment-2**

Runoff = 1.04 cfs @ 12.11 hrs, Volume= 0.080 af, Depth= 3.75"  
 Routed to Link DP-2 : NE Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100-YR Rainfall=6.78"

Area (sf)	CN	Description
9,907	70	Woods, Good, HSG C
* 1,287	96	Access Road
11,194	73	Weighted Average
11,194		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.1000	0.12		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
1.2	101	0.0792	1.41		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
7.9	151	Total			

**Summary for Subcatchment PR-3: Subcatchment-3**

Runoff = 0.66 cfs @ 12.16 hrs, Volume= 0.056 af, Depth= 3.54"  
Routed to Reach 1R : Grassed Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-YR Rainfall=6.78"

Area (sf)	CN	Description
8,122	71	Meadow, non-grazed, HSG C
40	65	Brush, Good, HSG C
105	70	Woods, Good, HSG C
8,267	71	Weighted Average
8,267		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	32	0.0313	0.07		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
2.4	237	0.0550	1.64		<b>Shallow Concentrated Flow, B-C</b> Short Grass Pasture Kv= 7.0 fps
0.5	113	0.3450	4.11		<b>Shallow Concentrated Flow, C-D</b> Short Grass Pasture Kv= 7.0 fps
0.5	71	0.1260	2.48		<b>Shallow Concentrated Flow, D-E</b> Short Grass Pasture Kv= 7.0 fps
10.9	453	Total			

**Summary for Subcatchment PR-4: Subcatchment-4**

Runoff = 4.94 cfs @ 12.15 hrs, Volume= 0.415 af, Depth= 3.54"  
Routed to Pond P-1 : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-YR Rainfall=6.78"

Area (sf)	CN	Description
61,079	71	Meadow, non-grazed, HSG C
177	70	Woods, Good, HSG C
61,256	71	Weighted Average
61,256		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	32	0.0313	0.07		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
2.2	220	0.0550	1.64		<b>Shallow Concentrated Flow, B-C</b> Short Grass Pasture Kv= 7.0 fps
0.6	131	0.2600	3.57		<b>Shallow Concentrated Flow, C-D</b> Short Grass Pasture Kv= 7.0 fps
0.4	58	0.1034	2.25		<b>Shallow Concentrated Flow, D-E</b> Short Grass Pasture Kv= 7.0 fps
10.7	441	Total			

**Summary for Subcatchment PR-5: Subcatchment-5**

Runoff = 3.43 cfs @ 12.22 hrs, Volume= 0.329 af, Depth= 4.06"  
Routed to Reach 2R : Grassed Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-YR Rainfall=6.78"

Area (sf)	CN	Description
32,867	71	Meadow, non-grazed, HSG C
798	65	Brush, Good, HSG C
* 8,707	96	Access Road
42,372	76	Weighted Average
42,372		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	32	0.0313	0.07		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 2.95"
7.1	163	0.0030	0.38		<b>Shallow Concentrated Flow, B-C</b> Short Grass Pasture Kv= 7.0 fps
0.4	196	0.0950	8.81	1.73	<b>Pipe Channel, HDPE Pipe</b> 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Corrugated PE, smooth interior
0.7	283	0.0610	7.06	1.39	<b>Pipe Channel, HDPE Pipe</b> 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Corrugated PE, smooth interior
15.7	674	Total			

**Summary for Reach 1R: Grassed Swale**

Inflow Area = 0.190 ac, 0.00% Impervious, Inflow Depth = 3.54" for 100-YR event  
Inflow = 0.66 cfs @ 12.16 hrs, Volume= 0.056 af  
Outflow = 0.66 cfs @ 12.17 hrs, Volume= 0.056 af, Atten= 1%, Lag= 0.6 min  
Routed to Pond P-1 : Infiltration Basin 1



Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 2.45 fps, Min. Travel Time= 0.4 min  
Avg. Velocity = 0.79 fps, Avg. Travel Time= 1.3 min

Peak Storage= 16 cf @ 12.16 hrs  
Average Depth at Peak Storage= 0.08' , Surface Width= 3.50'  
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 60.66 cfs

3.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding  
Side Slope Z-value= 3.0 '/' Top Width= 9.00'  
Length= 60.0' Slope= 0.0750 '/'  
Inlet Invert= 968.00', Outlet Invert= 963.50'



**Summary for Reach 2R: Grassed Swale**

Inflow Area =	0.973 ac,	0.00% Impervious,	Inflow Depth = 4.06"	for 100-YR event
Inflow =	3.43 cfs @ 12.22 hrs,	Volume=	0.329 af	
Outflow =	3.38 cfs @ 12.24 hrs,	Volume=	0.329 af,	Atten= 1%, Lag= 1.3 min

Routed to Pond P-1 : Infiltration Basin 1

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 3.62 fps, Min. Travel Time= 0.7 min  
Avg. Velocity = 1.14 fps, Avg. Travel Time= 2.1 min

Peak Storage= 138 cf @ 12.22 hrs  
Average Depth at Peak Storage= 0.25' , Surface Width= 4.51'  
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 46.74 cfs

3.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding  
Side Slope Z-value= 3.0 '/' Top Width= 9.00'  
Length= 146.0' Slope= 0.0445 '/'  
Inlet Invert= 970.00', Outlet Invert= 963.50'



### Summary for Pond P-1: Infiltration Basin 1

Inflow Area = 2.569 ac, 0.00% Impervious, Inflow Depth = 3.74" for 100-YR event  
 Inflow = 8.55 cfs @ 12.18 hrs, Volume= 0.800 af  
 Outflow = 4.16 cfs @ 12.49 hrs, Volume= 0.800 af, Atten= 51%, Lag= 18.9 min  
 Discarded = 0.10 cfs @ 12.49 hrs, Volume= 0.369 af  
 Primary = 4.06 cfs @ 12.49 hrs, Volume= 0.431 af  
 Routed to Link L-1 : Overland Flow to Wetland

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 962.50' @ 12.49 hrs Surf.Area= 9,875 sf Storage= 13,533 cf

Plug-Flow detention time= 526.8 min calculated for 0.799 af (100% of inflow)  
 Center-of-Mass det. time= 527.7 min ( 1,360.4 - 832.7 )

Volume	Invert	Avail.Storage	Storage Description		
#1	961.00'	24,024 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
961.00	8,227	353.0	0	0	8,227
962.00	9,315	372.0	8,765	8,765	9,382
963.00	10,459	391.0	9,881	18,647	10,597
963.50	11,052	400.0	5,377	24,024	11,197

Device	Routing	Invert	Outlet Devices												
#1	Discarded	961.00'	<b>0.450 in/hr Exfiltration over Wetted area</b>												
#2	Primary	962.20'	<b>10.0' long x 3.0' breadth Broad-Crested Rectangular Weir</b>												
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00												
			2.50 3.00 3.50 4.00 4.50												
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68												
			2.72 2.81 2.92 2.97 3.07 3.32												

**Discarded OutFlow** Max=0.10 cfs @ 12.49 hrs HW=962.50' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

**Primary OutFlow** Max=4.05 cfs @ 12.49 hrs HW=962.50' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 4.05 cfs @ 1.37 fps)

### Summary for Link DP-1: N&W Wetlands

Inflow Area = 21.233 ac, 0.02% Impervious, Inflow Depth = 3.36" for 100-YR event  
 Inflow = 53.86 cfs @ 12.26 hrs, Volume= 5.940 af  
 Primary = 53.86 cfs @ 12.26 hrs, Volume= 5.940 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link DP-2: NE Wetlands**

Inflow Area = 0.257 ac, 0.00% Impervious, Inflow Depth = 3.75" for 100-YR event  
Inflow = 1.04 cfs @ 12.11 hrs, Volume= 0.080 af  
Primary = 1.03 cfs @ 12.27 hrs, Volume= 0.080 af, Atten= 1%, Lag= 9.2 min  
Routed to Link DP-1 : N&W Wetlands

Primary outflow = Inflow delayed by 9.2 min, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link L-1: Overland Flow to Wetland**

Inflow Area = 2.569 ac, 0.00% Impervious, Inflow Depth = 2.01" for 100-YR event  
Inflow = 4.06 cfs @ 12.49 hrs, Volume= 0.431 af  
Primary = 4.04 cfs @ 12.59 hrs, Volume= 0.431 af, Atten= 0%, Lag= 5.5 min  
Routed to Link DP-1 : N&W Wetlands

Primary outflow = Inflow delayed by 5.5 min, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



# APPENDIX

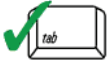
## **C** MASSDEP CHECKLIST FOR STORMWATER REPORT



# Checklist for Stormwater Report

## A. Introduction

**Important:** When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.<sup>1</sup> This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8<sup>2</sup>
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

<sup>1</sup> The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

<sup>2</sup> For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



# Checklist for Stormwater Report

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## B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

*Note:* Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

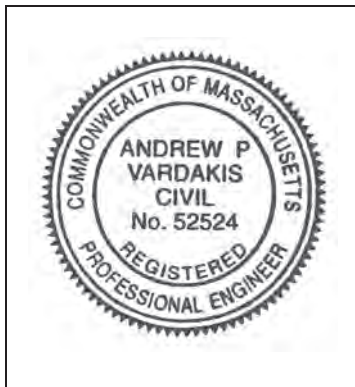
A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

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### Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



andrew.vardakis  
vardakis

Digitally signed by  
andrew.vardakis  
Date: 2023.02.13  
18:38:06 -05'00'

2/13/2023

Signature and Date

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## Checklist

**Project Type:** Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment





# Checklist for Stormwater Report

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## Checklist (continued)

**LID Measures:** Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
  - Credit 1
  - Credit 2
  - Credit 3
- Use of "country drainage" versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe):           Crushed stone access road

### Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

### Standard 3: Recharge Recharge calculations not applicable. No new impervious area added.

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
  - Static
  - Simple Dynamic
  - Dynamic Field<sup>1</sup>
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
  - Site is comprised solely of C and D soils and/or bedrock at the land surface
  - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
  - Solid Waste Landfill pursuant to 310 CMR 19.000
  - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

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<sup>1</sup> 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

### Standard 4: Water Quality **Water quality volume calculations not applicable. No new impervious area added.**

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
  - Provisions for storing materials and waste products inside or under cover;
  - Vehicle washing controls;
  - Requirements for routine inspections and maintenance of stormwater BMPs;
  - Spill prevention and response plans;
  - Provisions for maintenance of lawns, gardens, and other landscaped areas;
  - Requirements for storage and use of fertilizers, herbicides, and pesticides;
  - Pet waste management provisions;
  - Provisions for operation and management of septic systems;
  - Provisions for solid waste management;
  - Snow disposal and plowing plans relative to Wetland Resource Areas;
  - Winter Road Salt and/or Sand Use and Storage restrictions;
  - Street sweeping schedules;
  - Provisions for prevention of illicit discharges to the stormwater management system;
  - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
  - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
  - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
  - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
    - is within the Zone II or Interim Wellhead Protection Area
    - is near or to other critical areas
    - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
    - involves runoff from land uses with higher potential pollutant loads.
  - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
  - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
  - The ½" or 1" Water Quality Volume or
  - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

### Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs) **Not applicable. Not a LUHPPL.**

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does **not** cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

### Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.





# Checklist for Stormwater Report

## Checklist (continued)

### Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable **Not applicable. Not a redevelopment.**

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
  - Limited Project
  - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
  - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
  - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
  - Bike Path and/or Foot Path
  - Redevelopment Project
  - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

### Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
  - Construction Period Operation and Maintenance Plan;
  - Names of Persons or Entity Responsible for Plan Compliance;
  - Construction Period Pollution Prevention Measures;
  - Erosion and Sedimentation Control Plan Drawings;
  - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
  - Vegetation Planning;
  - Site Development Plan;
  - Construction Sequencing Plan;
  - Sequencing of Erosion and Sedimentation Controls;
  - Operation and Maintenance of Erosion and Sedimentation Controls;
  - Inspection Schedule;
  - Maintenance Schedule;
  - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



# Checklist for Stormwater Report

## Checklist (continued)

### Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- The project is **not** covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

### Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
  - Name of the stormwater management system owners;
  - Party responsible for operation and maintenance;
  - Schedule for implementation of routine and non-routine maintenance tasks;
  - Plan showing the location of all stormwater BMPs maintenance access areas;
  - Description and delineation of public safety features;
  - Estimated operation and maintenance budget; and
  - Operation and Maintenance Log Form.
- The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
  - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
  - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

### Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached; **Illicit Discharge Compliance Statement included in Stormwater Management Report.**
- NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

# APPENDIX

## **D** STAGE STORAGE DATA FOR BMPS

**Hydrograph for Pond P-1: Infiltration Basin 1**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	961.00	0.00	0.00	<b>0.00</b>
2.50	0.00	0	961.00	0.00	0.00	0.00
5.00	0.00	0	961.00	0.00	0.00	0.00
7.50	0.00	0	961.00	0.00	0.00	0.00
10.00	<b>0.00</b>	0	961.00	0.00	0.00	0.00
12.50	<b>0.97</b>	2,290	961.27	0.09	0.09	0.00
15.00	0.16	<b>3,984</b>	<b>961.47</b>	<b>0.09</b>	<b>0.09</b>	0.00
17.50	0.08	<b>4,185</b>	<b>961.49</b>	<b>0.09</b>	<b>0.09</b>	0.00
20.00	0.06	3,961	961.47	0.09	0.09	0.00
22.50	0.05	3,610	961.43	0.09	0.09	0.00
25.00	0.00	3,060	961.36	0.09	0.09	0.00
27.50	0.00	2,255	961.27	0.09	0.09	0.00
30.00	0.00	1,460	961.18	0.09	0.09	0.00
32.50	0.00	675	961.08	0.09	0.09	0.00
35.00	0.00	47	961.01	0.02	0.02	0.00
37.50	0.00	1	961.00	0.00	0.00	0.00
40.00	0.00	0	961.00	0.00	0.00	0.00
42.50	0.00	0	961.00	0.00	0.00	0.00
45.00	0.00	0	961.00	0.00	0.00	0.00
47.50	0.00	0	961.00	0.00	0.00	0.00
50.00	0.00	0	961.00	0.00	0.00	0.00
52.50	0.00	0	961.00	0.00	0.00	0.00
55.00	0.00	0	961.00	0.00	0.00	0.00
57.50	0.00	0	961.00	0.00	0.00	0.00
60.00	0.00	0	961.00	0.00	0.00	0.00
62.50	0.00	0	961.00	0.00	0.00	0.00
65.00	0.00	0	961.00	0.00	0.00	0.00
67.50	0.00	0	961.00	0.00	0.00	0.00
70.00	0.00	0	961.00	0.00	0.00	0.00



**Hydrograph for Pond P-1: Infiltration Basin 1**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	961.00	0.00	0.00	0.00
2.50	0.00	0	961.00	0.00	0.00	0.00
5.00	0.00	0	961.00	0.00	0.00	0.00
7.50	0.00	0	961.00	0.00	0.00	0.00
10.00	<b>0.02</b>	13	961.00	0.01	0.01	0.00
12.50	<b>2.09</b>	6,652	961.77	0.09	0.09	0.00
15.00	0.31	<b>10,853</b>	<b>962.22</b>	<b>0.18</b>	<b>0.10</b>	<b>0.08</b>
17.50	0.16	<b>10,851</b>	<b>962.22</b>	<b>0.18</b>	<b>0.10</b>	<b>0.08</b>
20.00	0.11	10,699	962.21	0.12	0.10	0.02
22.50	0.09	10,628	962.20	0.10	0.10	0.00
25.00	0.00	10,225	962.16	0.10	0.10	0.00
27.50	0.00	9,333	962.06	0.10	0.10	0.00
30.00	0.00	8,452	961.97	0.10	0.10	0.00
32.50	0.00	7,582	961.87	0.10	0.10	0.00
35.00	0.00	6,722	961.78	0.09	0.09	0.00
37.50	0.00	5,872	961.68	0.09	0.09	0.00
40.00	0.00	5,032	961.59	0.09	0.09	0.00
42.50	0.00	4,203	961.50	0.09	0.09	0.00
45.00	0.00	3,384	961.40	0.09	0.09	0.00
47.50	0.00	2,575	961.31	0.09	0.09	0.00
50.00	0.00	1,776	961.21	0.09	0.09	0.00
52.50	0.00	987	961.12	0.09	0.09	0.00
55.00	0.00	208	961.03	0.09	0.09	0.00
57.50	0.00	5	961.00	0.00	0.00	0.00
60.00	0.00	0	961.00	0.00	0.00	0.00
62.50	0.00	0	961.00	0.00	0.00	0.00
65.00	0.00	0	961.00	0.00	0.00	0.00
67.50	0.00	0	961.00	0.00	0.00	0.00
70.00	0.00	0	961.00	0.00	0.00	0.00

**Hydrograph for Pond P-1: Infiltration Basin 1**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	961.00	0.00	0.00	0.00
2.50	0.00	0	961.00	0.00	0.00	0.00
5.00	0.00	0	961.00	0.00	0.00	0.00
7.50	0.00	0	961.00	0.00	0.00	0.00
10.00	<b>0.07</b>	74	961.01	0.03	0.03	0.00
12.50	<b>2.85</b>	<b>10,055</b>	<b>962.14</b>	<b>0.10</b>	<b>0.10</b>	<b>0.00</b>
15.00	0.41	<b>11,208</b>	<b>962.26</b>	<b>0.45</b>	<b>0.10</b>	<b>0.35</b>
17.50	0.21	10,934	962.23	0.23	0.10	0.13
20.00	0.14	10,789	962.21	0.16	0.10	0.06
22.50	0.11	10,706	962.21	0.12	0.10	0.02
25.00	0.00	10,377	962.17	0.10	0.10	0.00
27.50	0.00	9,484	962.08	0.10	0.10	0.00
30.00	0.00	8,601	961.98	0.10	0.10	0.00
32.50	0.00	7,729	961.89	0.10	0.10	0.00
35.00	0.00	6,867	961.79	0.10	0.10	0.00
37.50	0.00	6,016	961.70	0.09	0.09	0.00
40.00	0.00	5,174	961.61	0.09	0.09	0.00
42.50	0.00	4,343	961.51	0.09	0.09	0.00
45.00	0.00	3,522	961.42	0.09	0.09	0.00
47.50	0.00	2,712	961.32	0.09	0.09	0.00
50.00	0.00	1,911	961.23	0.09	0.09	0.00
52.50	0.00	1,121	961.14	0.09	0.09	0.00
55.00	0.00	340	961.04	0.09	0.09	0.00
57.50	0.00	9	961.00	0.00	0.00	0.00
60.00	0.00	0	961.00	0.00	0.00	0.00
62.50	0.00	0	961.00	0.00	0.00	0.00
65.00	0.00	0	961.00	0.00	0.00	0.00
67.50	0.00	0	961.00	0.00	0.00	0.00
70.00	0.00	0	961.00	0.00	0.00	0.00

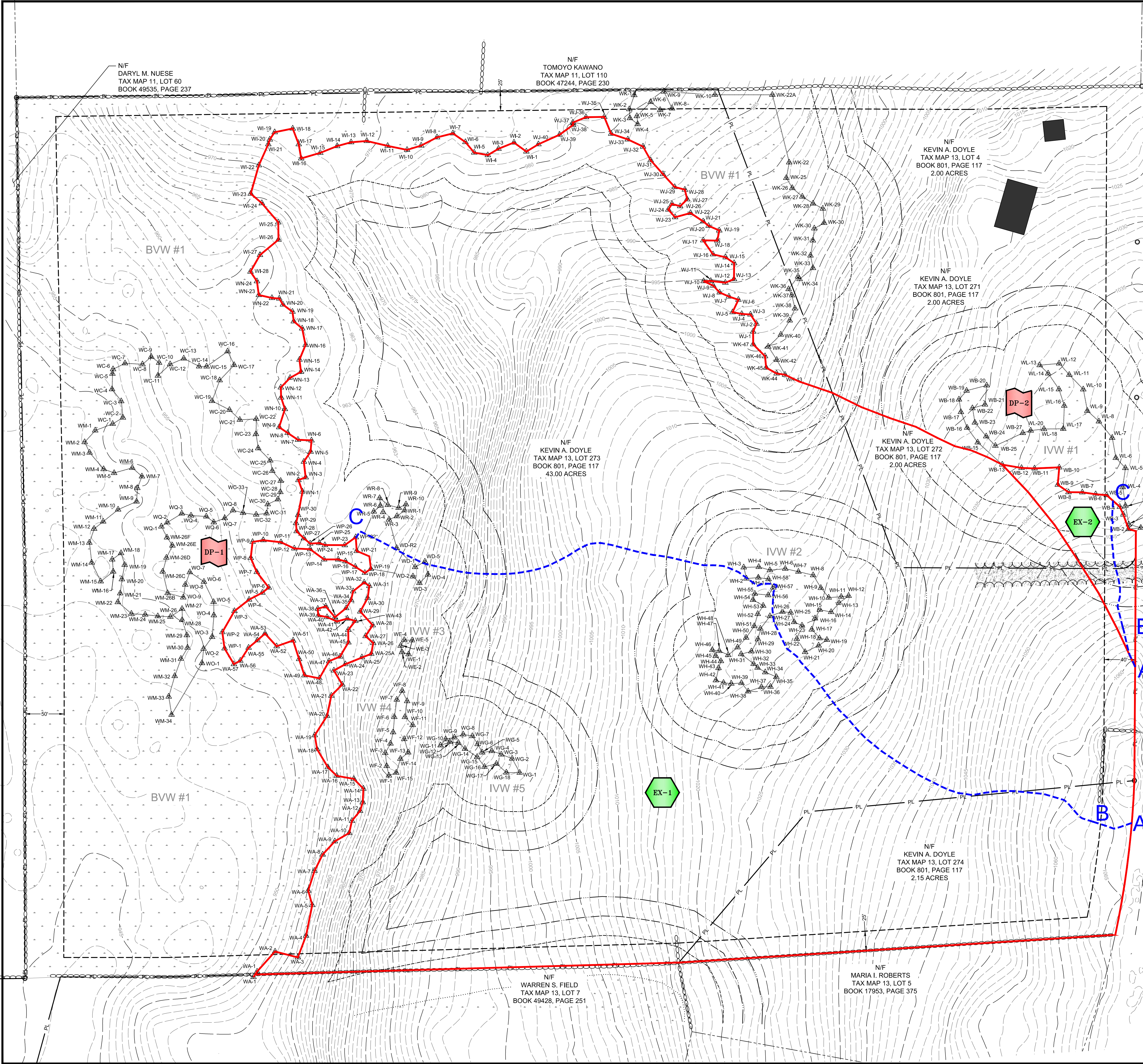
**Hydrograph for Pond P-1: Infiltration Basin 1**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	961.00	0.00	0.00	0.00
2.50	0.00	0	961.00	0.00	0.00	0.00
5.00	0.00	0	961.00	0.00	0.00	0.00
7.50	0.00	0	961.00	0.00	0.00	0.00
10.00	<b>0.17</b>	256	961.03	0.09	0.09	0.00
12.50	<b>4.04</b>	<b>13,532</b>	<b>962.50</b>	<b>4.16</b>	<b>0.10</b>	<b>4.06</b>
15.00	0.57	11,379	962.28	0.61	0.10	0.51
17.50	0.29	11,048	962.24	0.31	0.10	0.21
20.00	0.20	10,901	962.23	0.21	0.10	0.11
22.50	0.16	10,815	962.22	0.17	0.10	0.07
25.00	0.00	10,455	962.18	0.10	0.10	0.00
27.50	0.00	9,561	962.08	0.10	0.10	0.00
30.00	0.00	8,677	961.99	0.10	0.10	0.00
32.50	0.00	7,804	961.90	0.10	0.10	0.00
35.00	0.00	6,941	961.80	0.10	0.10	0.00
37.50	0.00	6,089	961.71	0.09	0.09	0.00
40.00	0.00	5,247	961.61	0.09	0.09	0.00
42.50	0.00	4,415	961.52	0.09	0.09	0.00
45.00	0.00	3,593	961.43	0.09	0.09	0.00
47.50	0.00	2,782	961.33	0.09	0.09	0.00
50.00	0.00	1,980	961.24	0.09	0.09	0.00
52.50	0.00	1,189	961.14	0.09	0.09	0.00
55.00	0.00	407	961.05	0.09	0.09	0.00
57.50	0.00	13	961.00	0.01	0.01	0.00
60.00	0.00	0	961.00	0.00	0.00	0.00
62.50	0.00	0	961.00	0.00	0.00	0.00
65.00	0.00	0	961.00	0.00	0.00	0.00
67.50	0.00	0	961.00	0.00	0.00	0.00
70.00	0.00	0	961.00	0.00	0.00	0.00

# APPENDIX

## **E** EXISTING AND PROPOSED DEVELOPMENT DRAINAGE FIGURES





**GENERAL NOTES:**

1. RECORD OWNER OF THE PROPERTY: KEVIN A. DOYLE. SEE TOWN TAX MAP 13, LOT 04. FOR FURTHER REFERENCES SEE BOOK 47372, PAGE 168, AS RECORDED IN WORCESTER COUNTY.
2. HORIZONTAL DATUM IS BASED ON MASSACHUSETTS STATE GRID COORDINATE SYSTEM NAD83 (2011) MAINLAND ZONE. VERTICAL DATUM IS REFERENCED TO NAVD 88.
3. TOPOGRAPHIC INFORMATION IS BASED ON GPS GROUND SURVEY WITH TOPCON HYPER V. CONTOUR INTERVAL SHOWN IS 1 FOOT. FIELD WORK COMPLETED BY WOOD MASSACHUSETTS, INC. DURING WEEK OF JUNE 21, 2018.
4. PURPOSE OF THIS PLAN IS TO SHOW PROPOSED IMPROVEMENTS OF A SOLAR FIELD AND APPURTENANCES IN AND AROUND THE LEASE AREA AS SHOWN ON THIS PLAN. BOUNDARY FOR THIS PROPERTY WAS DETERMINED ONLY WITHIN THE AREA OF THE SOLAR IMPROVEMENT STUDY AREA ONLY.
5. WETLANDS SHOWN ON THIS PLAN WERE DELINEATED BY WOOD MASSACHUSETTS, INC. AND FIELD LOCATED DURING WEEK OF JUNE 21, 2018.
6. SUBJECT SOLAR AREA IS LOCATED IN FLOOD ZONE "C" AS DELINEATED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL NUMBER 250348 0030 B TOWN OF WINCHENDON, WORCESTER COUNTY, MASSACHUSETTS WITH AN EFFECTIVE DATE OF JUNE 15, 1982. ZONE "C" IS DEFINED AS AREA OF MINIMAL FLOOD HAZARD.
7. WOOD MASSACHUSETTS, INC. HAS NOT INDEPENDENTLY VERIFIED THE LOCATION, EXISTENCE, AND SERVICEABILITY OF ANY UTILITIES AND MAKE NO GUARANTEE TO THE COMPLETENESS OR THE ACCURACY OF ANY UTILITIES. ADDITIONAL UTILITIES MAY EXIST IN THE FIELD, WHICH ARE NOT SHOWN ON THIS PLAN. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD PRIOR TO EXCAVATION OR OTHER CONSTRUCTION ACTIVITIES. CALL "DIG SAFE" AT 1-888-344-7233 OR DIAL 811. WOOD MASSACHUSETTS, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. SEE DETAIL.
8. THE LOCUS PARCEL IS SUBJEC TO AN APPROVED SUBDIVISION BY ANDREW W. DOYLE DATED OCTOBER 29, 2003. NO CONVEYANCES WERE FOUND OF THE NEW PARCELS. SEE PLAN REFERENCE 5.

**PLAN REFERENCES:**

- AS RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS
1. PLAN BOOK 2, PLAN 288.
  2. PLAN BOOK 345, PLAN 74.
  3. PLAN BOOK 402, PLAN 69.
  4. PLAN BOOK 440, PLAN 21.
  5. PLAN BOOK 801, PLAN 117.
  6. PLAN BOOK 897, PLAN 48.
  7. PLAN BOOK 905, PLAN 11.

**LEGEND:**

- EXISTING
- PL ————— PROPERTY LINE
  - ABUTTER'S PROPERTY LINE
  - SUBDIVISION PROPERTY LINE (SEE NOTE 8 ON SHEET V-101)
  - - - - - ZONING YARD SETBACK
  - 1015--- MAJOR CONTOUR
  - MINOR CONTOUR
  - WETLAND LINE
  - WETLAND FLAG WITH IDENTIFIER
  - WETLAND AREA
  - 50' NO DISTURB BUFFER
  - 75' NO BUILD BUFFER
  - 100' WETLAND BUFFER
  - STONEWALL
  - TREE LINE
  - SITE ENTRANCE
  - █ BUILDING
  - SUB-CATCHMENT AREA BOUNDARY
  - TIME OF CONCENTRATION
  - EX-1 SUB-CATCHMENT AREA
  - DP-1 DESIGN POINT

WATERSHED	ACRES	COMPOSITE CN#	SOIL GROUP
EX-1	20.9	70	C
EX-2	0.336	70	C



RESPONSES TO TOWN COMMENTS	HPB	APV	APV	APV	APV	GAA	APPROVED
ISSUED FOR PLANNING BOARD REVIEW	HPB	APV	APV	APV	APV	GAA	APPROVED
NO CHANGES THIS SHEET	OAC	MUV	MUV	MUV	MUV	GAA	ISSUED
RESPONSE TO TOWN COMMENTS	MUV	MUV	MUV	MUV	MUV	GAA	ISSUED
ISSUED FOR PERMITTING	MUV	MUV	MUV	MUV	MUV	GAA	ISSUED
ISSUE / REVISION DESCRIPTION	DATE	DATE	DATE	DATE	DATE	DATE	DATE
	9/12/2023	4/10/2023	2/13/2023	9/10/2019	11/02/2018		
	4	3	2	1	0		
	REVISION						

PROJECT: 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT BALDWINVILLE RD WINCHENDON, MASSACHUSETTS

TITLE: EXISTING WATERSHED MAP

CLIENT: WINCHENDON SOLAR, LLC

SUNPIN Securing a brighter future through solar

DESIGNED BY: APV  
DRAWN BY: DED  
CHECKED BY: OAC  
SCALE: AS SHOWN  
PROJECT NUMBER: 3652180157  
DRAWING NUMBER: W-1  
SHEET NUMBER: 1 OF 2

**ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION**



APV	APV	GAA	GAA	GAA	APPROVED
HPB	OAC	MPS	MJW	GAA	ISSUED
RESPONSES TO TOWN COMMENTS	NO CHANGES THIS SHEET	UPDATED PANEL LAYOUT AND STORMWATER DESIGN	RESPONSE TO TOWN COMMENTS	FOR PERMITTING	REVISION
9/12/2023	2/19/2023	1/2/2020	1/11/2019	9/10/2019	DATE
5	4	3	2	1	0

PROJECT: 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
 BALDWINVILLE RD  
 WINCHENDON, MASSACHUSETTS  
 TITLE: PROPOSED WATERSHED MAP

CLIENT: WINCHENDON SOLAR, LLC  


DESIGNED BY: APV	DRAWN BY: DED
CHECKED BY: OAC	SCALE: AS SHOWN
PROJECT NUMBER: 3652180157	DRAWING NUMBER: W-2
SHEET NUMBER: 2 OF 2	

**LEGEND:**

EXISTING  
 PL PROPERTY LINE  
 ABUTTER'S PROPERTY LINE  
 SUBDIVISION PROPERTY LINE (SEE NOTE 8 ON SHEET 14-101)  
 ZONING YARD SETBACK  
 1015 MAJOR CONTOUR  
 MINOR CONTOUR  
 WETLAND LINE  
 WETLAND FLAG WITH IDENTIFIER  
 WH-43 WETLAND AREA  
 50' NO DISTURB BUFFER  
 75' NO BUILD BUFFER  
 100' WETLAND BUFFER  
 STONEWALL  
 TREE LINE  
 SITE ENTRANCE  
 BUILDING  
 WETLAND IDENTIFIER

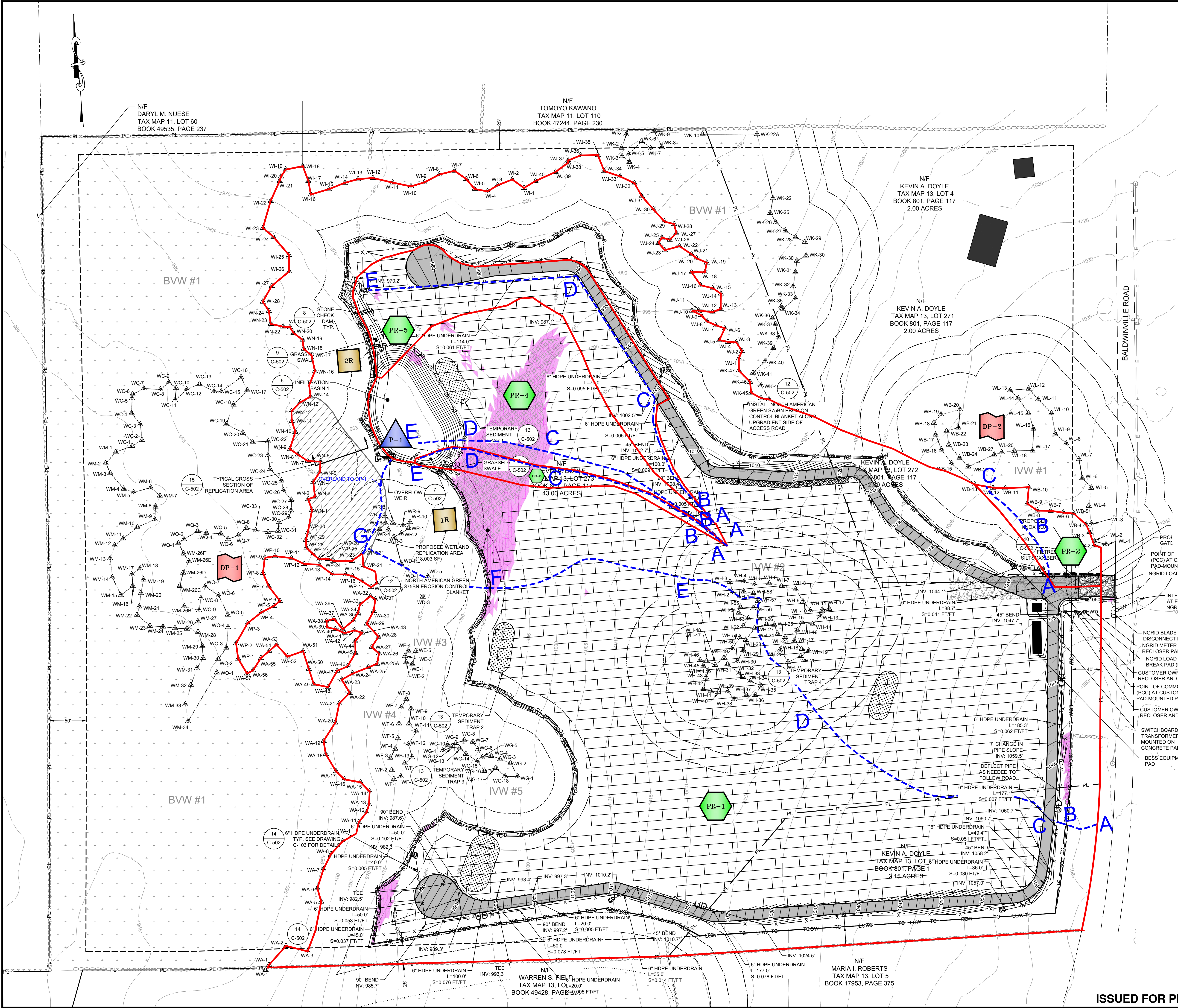
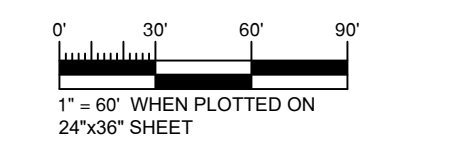
PROPOSED  
 1050 MAJOR CONTOUR  
 MINOR CONTOUR  
 SOLAR PV PANEL  
 LOW LIMIT OF WORK  
 TC LIMIT OF TREE CLEARING  
 D-D UNDERDRAIN  
 X-X FENCE  
 SB-SB-SB SEDIMENT BARRIER  
 FILTREXX SILTSOXX BERM  
 CRUSHED STONE ACCESS ROAD  
 CONSTRUCTION ENTRANCE  
 EROSION CONTROL BLANKET  
 WETLAND REPLICATION AREA  
 FILTREXX SILTSOXX FLOW DIVERSION BERM  
 SLOPES GREATER THAN 20% EROSION CONTROL BLANKET REQUIRED  
 TEMPORARY SEDIMENT TRAP

**NOTES:**

1. ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.

— SUB-CATCHMENT AREA BOUNDARY  
 - - - TIME OF CONCENTRATION  
 S-1 SUB-CATCHMENT AREA  
 P-1 STORMWATER BMP  
 1R STORMWATER CONVEYANCE  
 DP-1 DESIGN POINT

WATERSHED	ACRES	CN	SOIL GROUP
PR-1	18.41	71	C
PR-2	0.26	73	C
PR-3	0.19	71	C
PR-4	1.41	71	C
PR-5	0.97	76	C



ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION

UNLESS OTHERWISE AGREED IN A WRITTEN CONTRACT BETWEEN AMEC MASSACHUSETTS, INC. AND ITS CLIENT: (I) THIS DOCUMENT CONTAINS INFORMATION, DATA AND DESIGN THAT IS CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (II) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.



# ATTACHMENT

# C REVISED OPERATION AND MAINTENANCE PLAN

WINCHENDON SOLAR, LLC

OPERATION AND MAINTENANCE  
PLAN AND LONG-TERM POLLUTION  
PREVENTION PLAN

BALDWINVILLE ROAD, WINCHENDON, MA

SEPTEMBER 15, 2023







OPERATION AND  
MAINTENANCE  
PLAN FOR THE  
SOLAR  
PHOTOVOLTAIC  
DEVELOPMENT  
BALDWINVILLE ROAD

WINCHENDON SOLAR, LLC

PROJECT NO.: 3652180157  
DATE: SEPTEMBER 13, 2023

WSP USA ENVIRONMENT & INFRASTRUCTURE, INC.  
100 APOLLO DRIVE, SUITE 302  
CHELMSFORD, MA 01824

T: +1 (978) 692-9090  
WSP.COM

---

# SIGNATURES

PREPARED BY



---

**Kinina Kong, PE**  
**Senior Civil Engineer**

OWNER MAINTENANCE AGREEMENT (LESSEE)

---

**Winchendon Solar, LLC**  
**4 Park Plaza, Suite 1250**  
**Irvine, CA 92614**

LESSOR MAINTENANCE AGREEMENT

---

**Kevin A. Doyle**  
**PO Box 113**  
**Winchendon, MA 01475**

APPROVED<sup>1</sup> BY



---

**Andrew Vardakis, PE**  
**Vice President, Civil Engineer**

WSP USA Environment & Infrastructure, Inc. prepared this report solely for the use of the intended recipient, Winchendon Solar, LLC, in accordance with the professional services agreement. The intended recipient is solely responsible for the disclosure of any information contained in this report. The content and opinions contained in the present report are based on the observations and/or information available to WSP USA Environment & Infrastructure, Inc. at the time of preparation. If a third party makes use of, relies on, or makes decisions in accordance with this report, said third party is solely responsible for such use, reliance or decisions. WSP USA Environment & Infrastructure, Inc. does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken by said third party based on this report. This limitations statement is considered an integral part of this report.

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<sup>1</sup> Approval of this document is an administrative function indicating readiness for release and does not impart legal liability on to the Approver for any technical content contained herein. Technical accuracy and fit-for-purpose of this content is obtained through the review process. The Approver shall ensure the applicable review process has occurred prior to signing the document.



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2.3	<b>Post-Construction.....</b>	<b>3</b>
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---

## *APPENDICES*

APPENDIX A	PROJECT DRAWINGS
APPENDIX B	MAINTENANCE AGREEMENT

# 1 INTRODUCTION

WSP USA Environment & Infrastructure, Inc. (WSP) has prepared this Operations and Maintenance Plan and Long-Term Pollution Prevention Plan as a combined document to ensure that the stormwater best management practices (BMPs) designed and constructed as part of the proposed ground-mounted solar photovoltaic (PV) project (the Project) located at Baldwinville Road in Winchendon, MA (the Site) continue to function as designed. The elements of this plan were developed in accordance with the Standards 4 and 9 of the Massachusetts Stormwater Standards and the requirements of the Massachusetts Stormwater Handbook.



# 2 OPERATION AND MAINTENANCE PLAN

The BMPs designed and constructed as part of the Project shall be operated and maintained in accordance with the requirements identified on the drawings submitted with the Notice of Intent and this Operations and Maintenance Plan.

---

## 2.1 STORMWATER MANAGEMENT SYSTEM OWNERS AND RESPONSIBLE PARTY

The owner of the stormwater management system at the Site and the party responsible for operation and maintenance of the stormwater BMPs according to Section 10(B)(3) of the Winchendon Stormwater Management Regulations is:

Winchendon Solar, LLC  
4 Park Plaza, Suite 1250  
Irvine, CA 92614

---

## 2.2 CONSTRUCTION PERIOD EROSION AND SEDIMENTATION CONTROLS

Stormwater inspections during construction through project completion (final site stabilization) will be performed under the EPA NPDES Construction General Permit. Each of the following areas must be inspected by or under the supervision of the owner and operator at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event, which generates at least 0.25 inches of rainfall per twenty-four (24) hour period and/or after a significant amount of runoff or snowmelt:

- All areas that have been cleared, graded, or excavated and where permanent stabilization has not been achieved;
- All stormwater erosion, runoff, and sediment control measures (including pollution prevention control measures) installed at the site;
- Construction material, unstabilized soil stockpiles, waste, borrow, or equipment storage and maintenance areas that are covered by this permit and are exposed to precipitation;
- All areas where stormwater typically flows within the site, including temporary drainage ways designed to divert, convey, and/or treat stormwater;
- All points of discharge from the site;
- All locations where temporary soil stabilization measures have been

- implemented;
- All locations where vehicles enter or exit the site.

Additional provisions include:

- Sediment shall be removed before it accumulates to one-half foot deep at the installed sediment barrier;
- Sediment barrier shall be replaced where it is worn, torn, or otherwise damaged;
- Any part of the sediment barrier that is not properly installed on the ground shall be re-anchored or replace.

---

## 2.3 POST-CONSTRUCTION

Following construction completion and final site stabilization, Winchendon Solar, LLC and their Contractors will perform stormwater inspections as follows:

- Remove temporary erosion and sediment controls (sediment barrier);
- Inspect site for stability and any evidence of erosion or sedimentation;
- Inspect the lower “drip edge” of the solar PV panels for erosion. If erosion along the drop edge is observed erosion control matting shall be installed along the length of the edge;
- As part of bi-annual facility inspection and maintenance, the Site will be inspected for general site stability and function/sedimentation of the infiltration basin.

---

## 2.4 MAINTENANCE TASKS

### 2.4.1 GENERAL O&M REQUIREMENTS

The BMPs specified for this Project are designed to attenuate runoff from the Project in areas located upgradient of the existing surrounding wetlands. These BMPs will be most effective if properly maintained. This section describes the general maintenance concepts that must be implemented in order to extend the lifespan of the BMPs and maximize their ability to minimize accelerated erosion and sediment pollution.

In general, maintenance of BMPs requiring earth disturbance should occur in late spring or summer, after spring rains have diminished, drier weather has set in, and when vegetation can re-establish itself through the growing season. Other times may be suitable if weather permits or if the potential for sediment transport is low. Any maintenance should occur with the intent to limit earth disturbance during times of high erosion potential.

If earth disturbance occurs as part of maintenance activities, appropriate erosion and



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4 Park Plaza, Suite 1250  
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---

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In general, maintenance of BMPs requiring earth disturbance should occur in late spring or summer, after spring rains have diminished, drier weather has set in, and when vegetation can re-establish itself through the growing season. Other times may be suitable if weather permits or if the potential for sediment transport is low.

Any maintenance should occur with the intent to limit earth disturbance during times of high erosion potential.

If earth disturbance occurs as part of maintenance activities, appropriate erosion and sediment controls shall be implemented. Fertilizer should not be applied, as this will result in an export of nitrogen and phosphorus from the BMP; with an exception for initial vegetation establishment.

Removed sediment shall always be managed in such a manner that it will not erode and wash into the stormwater conveyance system or a local water body.

---

#### *2.4.2 INFILTRATION BASIN*

Inspect at least twice per year to monitor for proper function. Inspections should also occur after major storms to determine if the basin is meeting the expected infiltration rate. The basin should be inspected for subsidence, erosion, and sediment accumulation.

- Remove accumulated sediment from the basin on a bi-annual basis or sooner if noticeable clogging of the basin is observed.
- 

#### *2.4.3 CRUSHED STONE ACCESS ROAD*

Annually in the spring season the washed crushed stone shall be re-distributed and supplemented to achieve an even, compacted surface conforming to the original design grades. Snow plow damage shall be inspected throughout the winter season and repaired as needed. Any vegetation growing within the roadway is to be removed immediately upon identification. Potholes shall be repaired as required. If standing water is observed more than 48 hours after a storm event, then the crushed stone surface shall be excavated, the subsoil shall be scarified to breakup any hard-packed sediment, and the roadway shall be restored to original design specifications. Trash and debris shall be removed from the washed crushed stone surface as needed and shall be disposed of in accordance with applicable local, state and federal guidelines and regulations. The surface of the washed crushed stone access road shall not be used to store soil or other materials that could clog the permeable stone surface.

---

#### *2.4.4 GRASSED SWALE*

Minor soil erosion gullies shall be repaired when they occur, and check dams shall be added/repaired/replaced as necessary. Grass cover shall be mowed to a minimum of three times per growing season to maintain maximum grass heights less than 12".

Silt/sediment shall be removed from the channel bottom after it reaches 1" in depth. If standing water is observed more than 48 hours after a storm event, then the surface shall be rototilled or cultivated to breakup any hard-packed sediment, re-vegetated, and restored to original design specifications.

---

## 2.5 GENERAL SITE MAINTENANCE

The Site area to be occupied by the solar array will be vegetated with low-maintenance native grass species. The grass will be mowed bi-annually, and any woody vegetation not otherwise managed by mowing will be manually removed. This includes the area immediately adjacent to the perimeter fence, to prevent woody vegetation from impacting the fence. Herbicides are not proposed for use on the Site.

---

## 2.6 SCALED PLANS

Plans drawn to scale that depict the location of the stormwater features, their discharge points, and elements of the overall stormwater management system are included with the Site Plan Review. A Proposed Stormwater Conditions Plan is included in this O&M Plan.

---

## 2.7 PUBLIC SAFETY FEATURES

The Project will be surrounded by a chain link fence. The gate will be locked at all times and will need to be opened to conduct routine maintenance activities.

---

## 2.8 ESTIMATED OPERATION AND MAINTENANCE BUDGET

An estimated Operation and Maintenance budget is estimated to be approximately \$5,000 per year to perform the general maintenance described in this O&M Plan.

---

## 2.9 EASEMENTS

Winchendon Solar does not hold any easements at this project location. Winchendon Solar LLC has a leasing agreement with the property owner Kevin A Doyle. The property location where the leasing agreement applies to is:

185 Baldwinville Road – Parcels 13-0-272, 13-0-273 and 13-0-274  
Winchendon, MA 01475



# 3 LONG-TERM POLLUTION PREVENTION PLAN

In accordance with EPA Standards, the development and implementation of suitable practices for source control and pollution prevention shall be incorporated in a Long-Term Pollution Prevention Plan (LTPPP). The primary focus of the LTPPP is to establish procedures and controls for limiting the potential sources of pollutants, including nutrients that may contribute to excessive contaminant levels in the site's stormwater runoff. To this end the following sources controls and procedures will be in place at the site:

- **Good House Keeping** – The site shall be kept clean at all times. Refuse disposal and pickup shall occur on a regular basis and all material shall be disposed of in designated locations.
- **Storing Material and waste products inside or under cover** – No material storage is to take place outside at the site on either paved or lawn areas. All materials stored on-site will be in conformance with all storage requirements of local, state, and federal agencies.
- **Spill Prevention and Response** – A spill recovery kit shall be readily accessible at the facility at all times. Contact information for an emergency cleanup vendor shall be visible and apparent at the facility. All employees shall be briefed on clean-up response and procedures.
- **Maintenance of lawns and other landscaped areas** – All landscaping and maintenance shall be performed so as not to disturb stabilized surfaces.
- **Storage and use of herbicides and pesticides** – Application of herbicides or pesticides (if required) will not be applied during construction.
- **Nutrient management plan** – The goal of the nutrient management plan is to minimize the potential sources of excess nutrients on the site and the release of nutrients in the stormwater from the site. This minimization relates both to infiltrated water and runoff. In general, the nature of the site use will tend to reduce nutrients in the stormwater. Further, procedures indicated above or in the O&M Plan will act to reduce the levels of nutrients in the stormwater and the nutrients entering the groundwater.

# APPENDIX

## **A** PROJECT DRAWINGS





PROPRIETARY INFORMATION: THIS DRAWING IS THE PROPERTY OF AMEC ENVIRONMENT & INFRASTRUCTURE AND IS NOT TO BE LOANED OR REPRODUCED IN ANY WAY WITHOUT THE PERMISSION OF AMEC ENVIRONMENT & INFRASTRUCTURE

# WINCHENDON SOLAR, LLC

## 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT

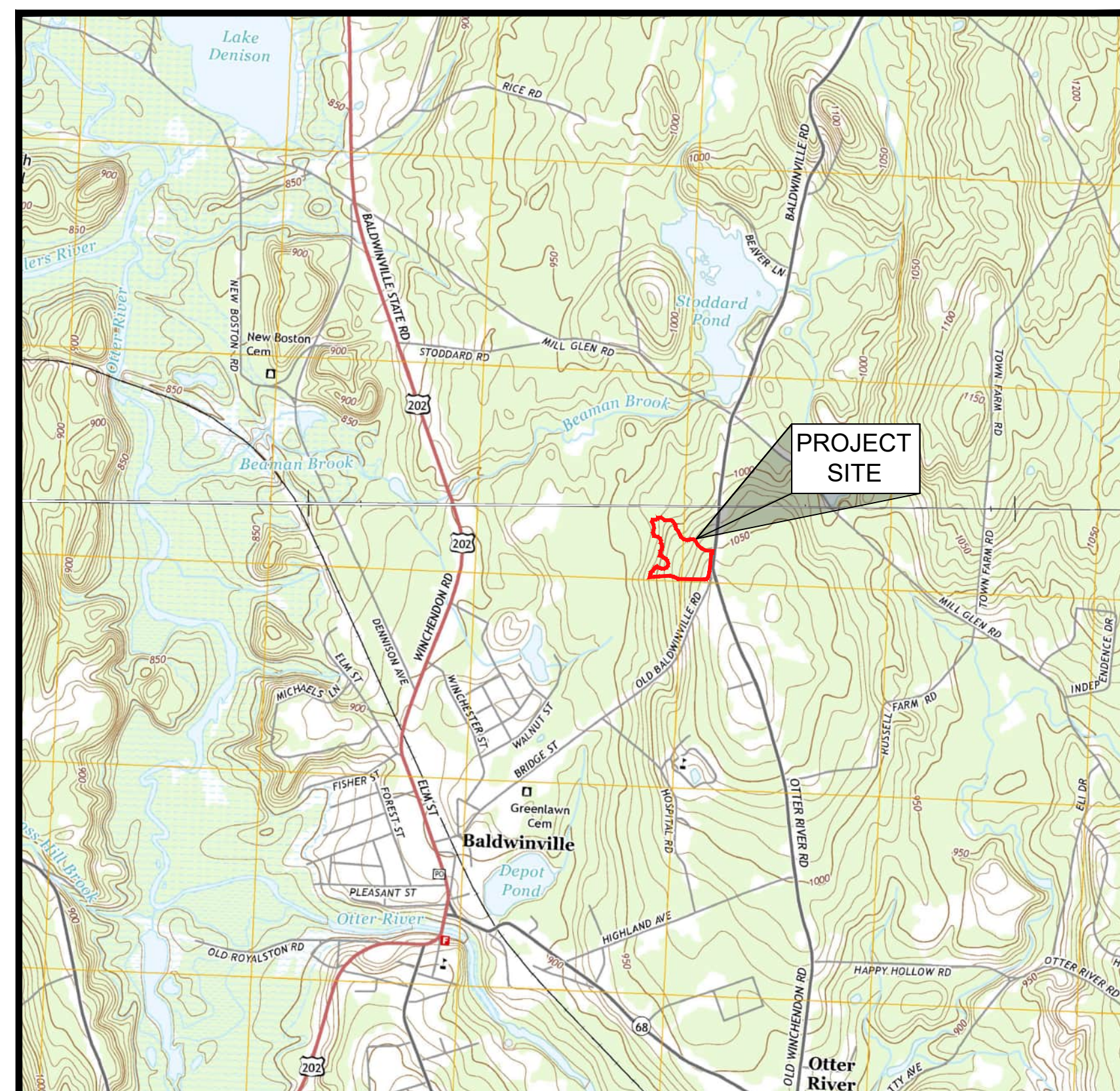
### BALDWINVILLE ROAD - PARCELS 13-0-272, 273, & 274

### WINCHENDON, MASSACHUSETTS

### DECEMBER 17, 2018

### LAST REVISED SEPTEMBER 27, 2023

### ISSUED FOR PERMITTING / NOT FOR CONSTRUCTION



LOCUS MAP  
1"=2000'



AERIAL IMAGE  
1"=500'

#### DRAWING INDEX

SHEET NUMBER	DRAWING TITLE	DRAWING NUMBER
	COVER SHEET	
1	EXISTING CONDITIONS PLAN	V-101
2	PROPOSED SITE PLAN	C-101
3	PROPOSED SITE PLAN (SITE ENTRANCE)	C-102
4	PROPOSED UTILITY, GRADING, AND DRAINAGE PLAN	C-103
5	CONSTRUCTION, EROSION, AND SEDIMENTATION CONTROL DETAILS AND NOTES	C-501
6	CONSTRUCTION, EROSION, AND SEDIMENTATION CONTROL DETAILS	C-502

#### PROPERTY OWNER

**KEVIN A. DOYLE**  
P.O. BOX 113  
WINCHENDON, MASSACHUSETTS 01475

#### DEVELOPED BY

**WINCHENDON SOLAR, LLC**



4 PARK PLAZA, SUITE 1250  
IRVINE, CALIFORNIA 92614

#### PREPARED BY

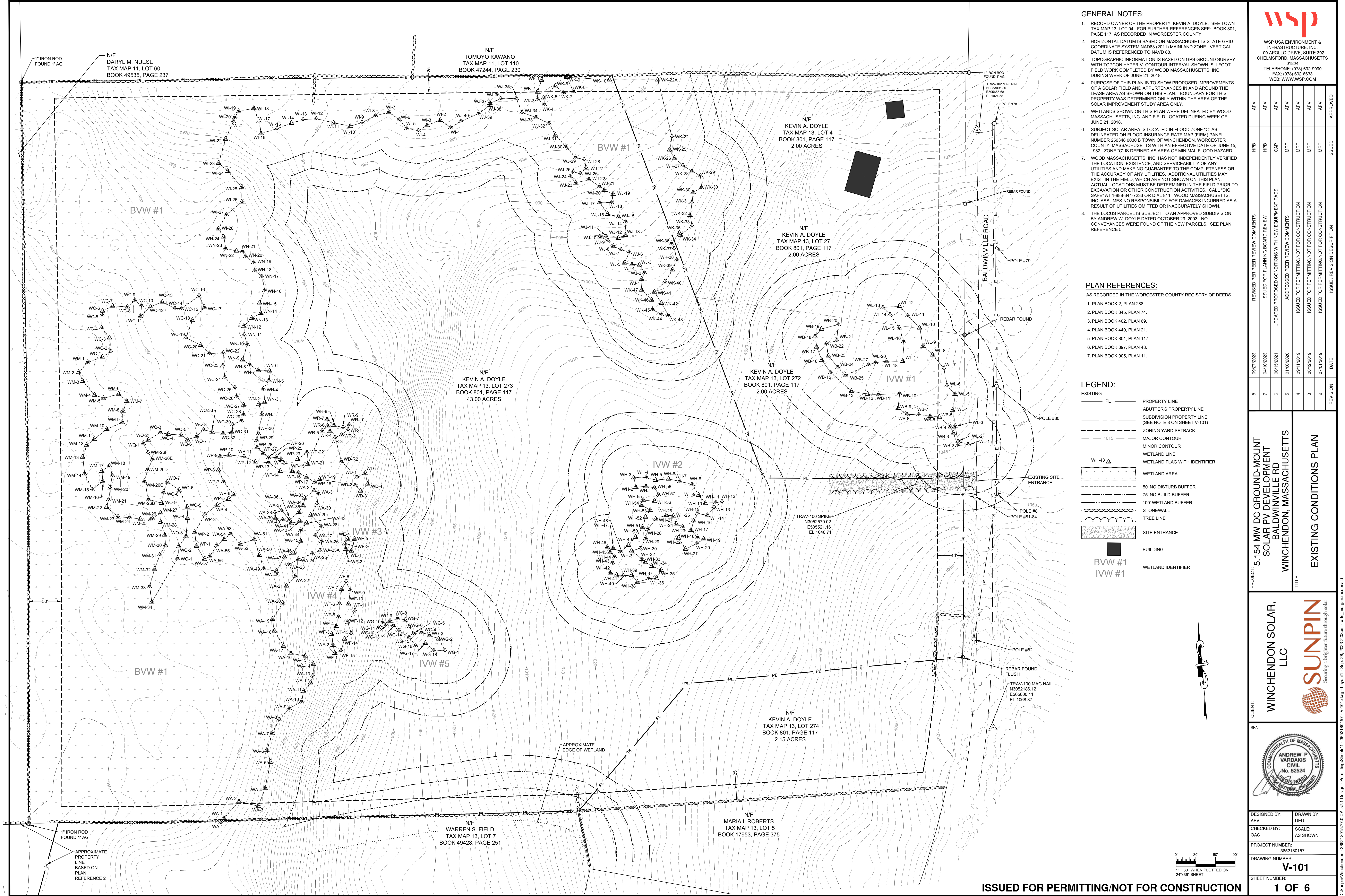


**WSP USA ENVIRONMENT & INFRASTRUCTURE, INC.**

100 APOLLO DRIVE, SUITE 302  
CHELMSFORD, MASSACHUSETTS 01824

D:\Sunpin\Winchendon - 365218015770 CAD\7.1 Design - Permitting\Sheets\0 - 3652180157 - C-500.dwg - Layout1 - Sep 28, 2023 2:28pm - velds\_mcgain.mcdonald





**GENERAL NOTES:**

- RECORD OWNER OF THE PROPERTY: KEVIN A. DOYLE. SEE TAX MAP 13, LOT 04. FOR FURTHER REFERENCES SEE: BOOK 801, PAGE 117, AS RECORDED IN WORCESTER COUNTY.
- HORIZONTAL DATUM IS BASED ON MASSACHUSETTS STATE GRID COORDINATE SYSTEM NAD83 (2011) MAINLAND ZONE. VERTICAL DATUM IS REFERENCED TO NAVD 88.
- TOPOGRAPHIC INFORMATION IS BASED ON GPS GROUND SURVEY WITH TOPCON HYPER V. CONTOUR INTERVAL SHOWN IS 1 FOOT. FIELD WORK COMPLETED BY WOOD MASSACHUSETTS, INC. DURING WEEK OF JUNE 21, 2018.
- PURPOSE OF THIS PLAN IS TO SHOW PROPOSED IMPROVEMENTS OF A SOLAR FIELD AND APPURTENANCES IN AND AROUND THE LEASE AREA AS SHOWN ON THIS PLAN. BOUNDARY FOR THIS PROPERTY WAS DETERMINED ONLY WITHIN THE AREA OF THE SOLAR IMPROVEMENT STUDY AREA ONLY.
- WETLANDS SHOWN ON THIS PLAN WERE DELINEATED BY WOOD MASSACHUSETTS, INC. AND FIELD LOCATED DURING WEEK OF JUNE 21, 2018.
- SUBJECT SOLAR AREA IS LOCATED IN FLOOD ZONE "C" AS DELINEATED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL NUMBER 250348 0300 B TOWN OF WINCHENDON, WORCESTER COUNTY, MASSACHUSETTS WITH AN EFFECTIVE DATE OF JUNE 15, 1982. ZONE "C" IS DEFINED AS AREA OF MINIMAL FLOOD HAZARD.
- WOOD MASSACHUSETTS, INC. HAS NOT INDEPENDENTLY VERIFIED THE LOCATION, EXISTENCE, AND SERVICEABILITY OF ANY UTILITIES AND MAKE NO GUARANTEE TO THE COMPLETENESS OR THE ACCURACY OF ANY UTILITIES. ADDITIONAL UTILITIES MAY EXIST IN THE FIELD, WHICH ARE NOT SHOWN ON THIS PLAN. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD PRIOR TO EXCAVATION OR OTHER CONSTRUCTION ACTIVITIES. CALL "DIG SAFE" AT 1-888-344-7233 OR DIAL 811. WOOD MASSACHUSETTS, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN.
- THE LOCUS PARCEL IS SUBJECT TO AN APPROVED SUBDIVISION BY ANDREW W. DOYLE DATED OCTOBER 28, 2003. NO CONVEYANCES WERE FOUND OF THE NEW PARCELS. SEE PLAN REFERENCE 5.

**PLAN REFERENCES:**  
AS RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS

- PLAN BOOK 2, PLAN 288.
- PLAN BOOK 345, PLAN 74.
- PLAN BOOK 402, PLAN 69.
- PLAN BOOK 440, PLAN 21.
- PLAN BOOK 801, PLAN 117.
- PLAN BOOK 897, PLAN 48.
- PLAN BOOK 905, PLAN 11.

**LEGEND:**

EXISTING PL	PROPERTY LINE
---	ABUTTER'S PROPERTY LINE
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---	SITE ENTRANCE
■	BUILDING
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**PROJECT:** 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
BALDWINVILLE RD  
WINCHENDON, MASSACHUSETTS

**TITLE:** EXISTING CONDITIONS PLAN

**CLIENT:** WINCHENDON SOLAR, LLC

**DESIGNED BY:** APV  
**CHECKED BY:** OAC  
**PROJECT NUMBER:** 3652180157  
**DRAWING NUMBER:** V-101  
**SHEET NUMBER:** 1 OF 6

**DRAWN BY:** DED  
**SCALE:** AS SHOWN

**APPROVED:** ANDREW P. VARDAKIS, CIVIL ENGINEER, No. 52524

**WSP**  
WSP USA ENVIRONMENT & INFRASTRUCTURE, INC.  
100 APOLLO DRIVE, SUITE 302  
CHELMSFORD, MASSACHUSETTS 01824  
TELEPHONE: (978) 692-9090  
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REVISED PER PEER REVIEW COMMENTS	DATE	REVISION
ISSUED FOR PLANNING BOARD REVIEW	04/10/2023	8
UPDATED PROPOSED CONDITIONS WITH NEW EQUIPMENT PADS	06/15/2021	7
ADDED PEER REVIEW COMMENTS	01/09/2020	6
ISSUED FOR PERMITTING FOR CONSTRUCTION	09/11/2019	5
ISSUED FOR PERMITTING NOT FOR CONSTRUCTION	09/12/2019	4
ISSUED FOR PERMITTING NOT FOR CONSTRUCTION	07/01/2019	3
ISSUED FOR PERMITTING NOT FOR CONSTRUCTION	07/01/2019	2

**PROJECT:** 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
BALDWINVILLE RD  
WINCHENDON, MASSACHUSETTS

**TITLE:** EXISTING CONDITIONS PLAN

**CLIENT:** WINCHENDON SOLAR, LLC

**DESIGNED BY:** APV  
**CHECKED BY:** OAC  
**PROJECT NUMBER:** 3652180157  
**DRAWING NUMBER:** V-101  
**SHEET NUMBER:** 1 OF 6

**DRAWN BY:** DED  
**SCALE:** AS SHOWN

**APPROVED:** ANDREW P. VARDAKIS, CIVIL ENGINEER, No. 52524

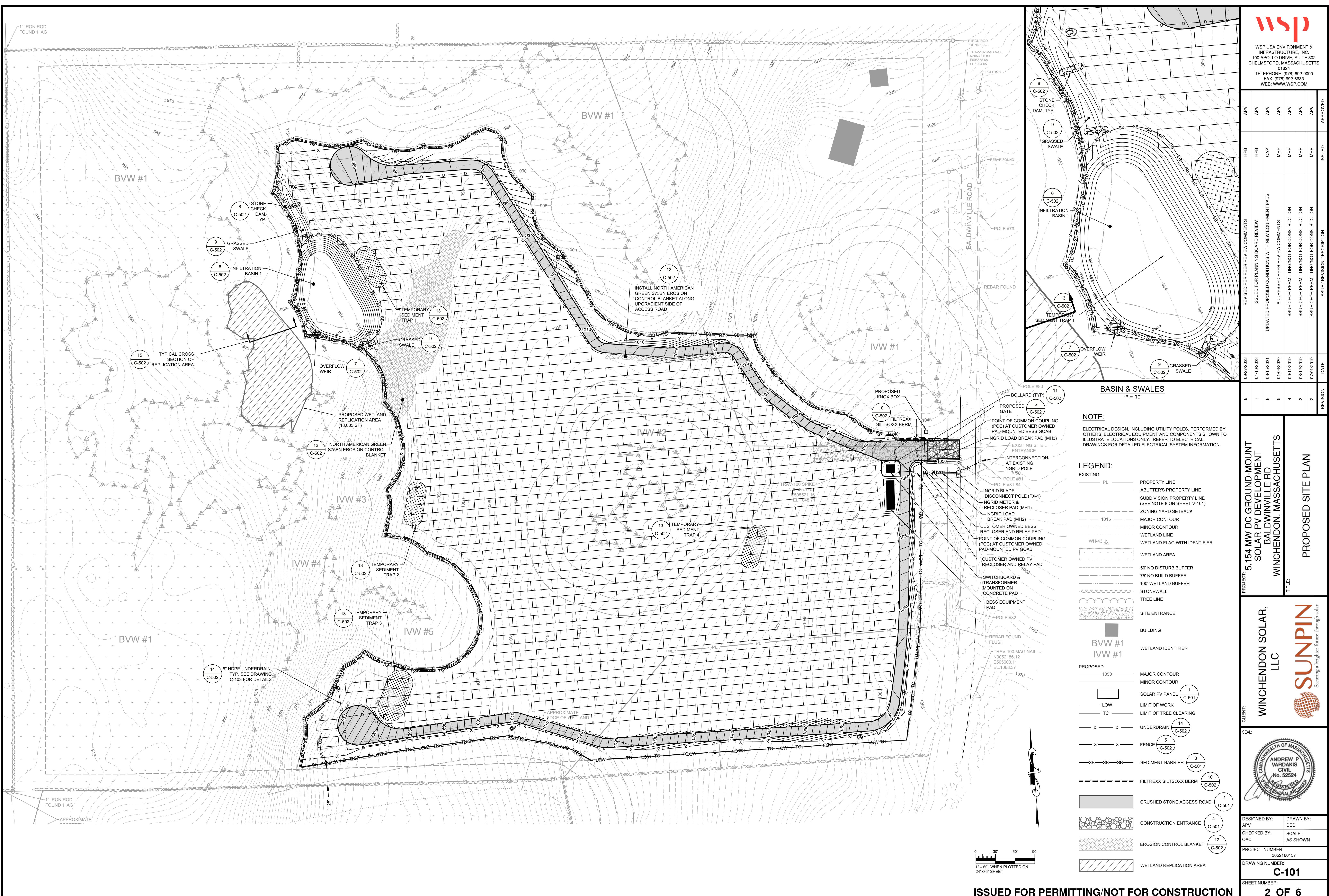
**DESIGNED BY:** APV  
**CHECKED BY:** OAC  
**PROJECT NUMBER:** 3652180157  
**DRAWING NUMBER:** V-101  
**SHEET NUMBER:** 1 OF 6

**DRAWN BY:** DED  
**SCALE:** AS SHOWN

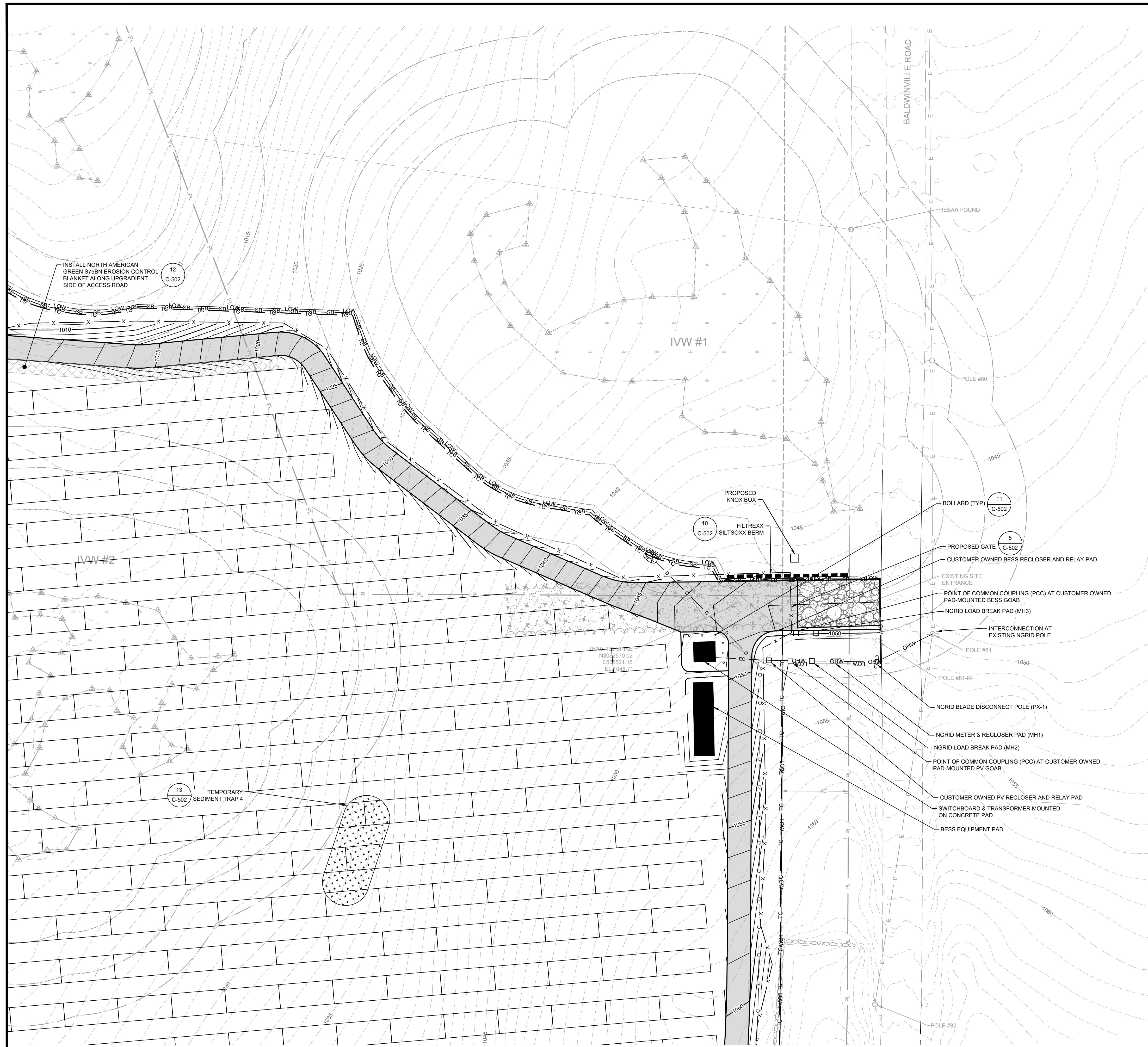
**APPROVED:** ANDREW P. VARDAKIS, CIVIL ENGINEER, No. 52524

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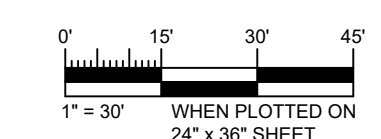


**LEGEND:**

- EXISTING**
- PL ——— PROPERTY LINE
  - ABUTTER'S PROPERTY LINE
  - SUBDIVISION PROPERTY LINE (SEE NOTE 8 ON SHEET V-101)
  - ZONING YARD SETBACK
  - 1015 ——— MAJOR CONTOUR
  - MINOR CONTOUR
  - WETLAND LINE
  - WH-43 ▲ WETLAND FLAG WITH IDENTIFIER
  - WETLAND AREA
  - 50' NO DISTURB BUFFER
  - 75' NO BUILD BUFFER
  - 100' WETLAND BUFFER
  - STONEWALL
  - TREE LINE
  - SITE ENTRANCE
  - BUILDING
  - WETLAND IDENTIFIER
- PROPOSED**
- 1050 ——— MAJOR CONTOUR
  - MINOR CONTOUR
  - SOLAR PV PANEL (1 C-501)
  - LOW ——— LIMIT OF WORK
  - TC ——— LIMIT OF TREE CLEARING
  - o — o — UNDERDRAIN (14 C-502)
  - x — x — FENCE (5 C-502)
  - SB — SB — SB — SEDIMENT BARRIER (3 C-501)
  - FILTERREXX SILTSOXX BERM (10 C-502)
  - CRUSHED STONE ACCESS ROAD (2 C-501)
  - CONSTRUCTION ENTRANCE (4 C-501)
  - EROSION CONTROL BLANKET (12 C-502)
  - WETLAND REPLICATION AREA

**NOTE:**

ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.



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REVISION	DATE	ISSUE / REVISION DESCRIPTION
8	09/27/2023	REVISED PER PEER REVIEW COMMENTS
7	04/10/2023	ISSUED FOR PLANNING BOARD REVIEW
6	06/15/2021	UPDATED PROPOSED CONDITIONS WITH NEW EQUIPMENT PADS
5	01/06/2020	ADDRESSED PEER REVIEW COMMENTS
4	09/11/2019	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
3	09/12/2019	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
2	07/01/2019	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION

**PROJECT:** 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
 BALDWINVILLE RD  
 WINCHENDON, MASSACHUSETTS

**TITLE:** PROPOSED SITE PLAN (SITE ENTRANCE)

**CLIENT:** WINCHENDON SOLAR, LLC

**SUNPIN**  
 Securing a brighter future through solar

**SEAL:**

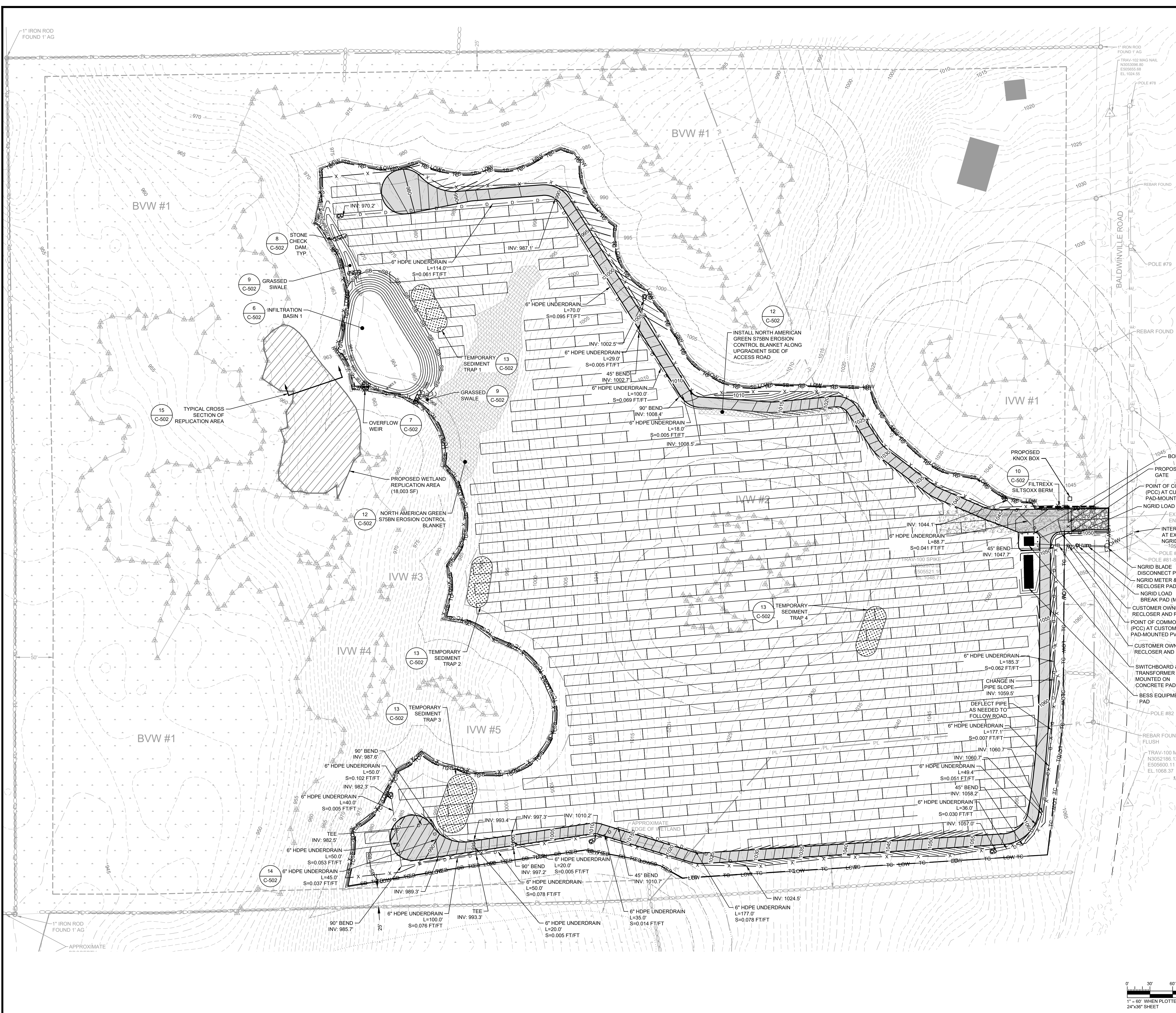
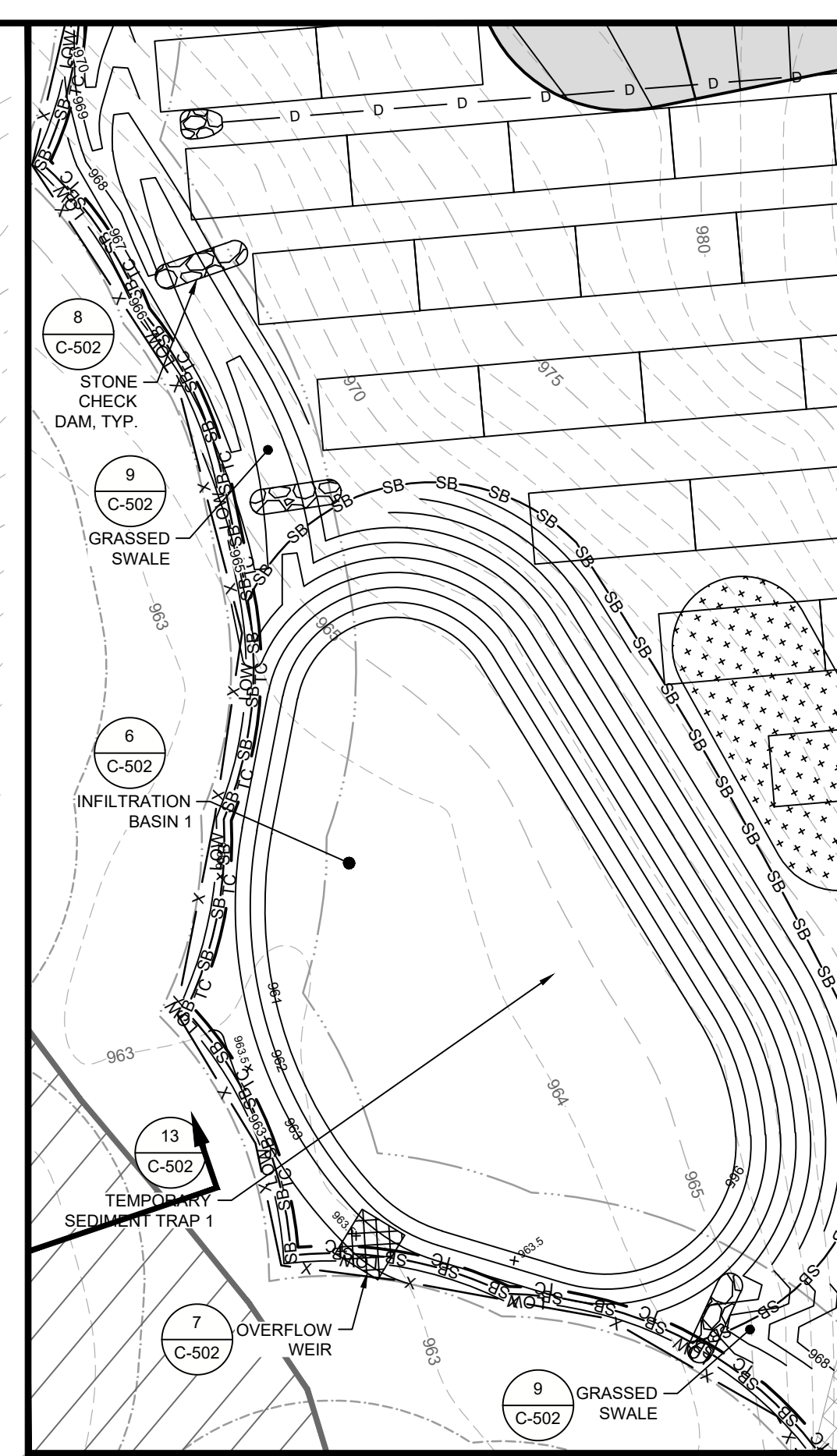
DESIGNED BY: APV	DRAWN BY: DED
CHECKED BY: OAC	SCALE: AS SHOWN
PROJECT NUMBER: 3652180157	DRAWING NUMBER: C-102
SHEET NUMBER: 3 OF 6	

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REVISION	DATE	ISSUE / REVISION DESCRIPTION
1	09/27/2023	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
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3	09/27/2023	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
4	09/27/2023	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
5	01/05/2024	ADDRESSED PEER REVIEW COMMENTS
6	06/19/2024	UPDATED PROPOSED CONDITIONS WITH NEW EQUIPMENT PADS
7	04/10/2024	ISSUED FOR PLANNING BOARD REVIEW
8	09/27/2023	REVISED PER PEER REVIEW COMMENTS

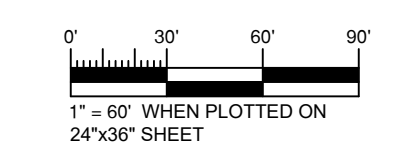


**BASIN AND SWALES**  
 1" = 30'

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**LEGEND:**

- EXISTING**
- PL — PROPERTY LINE
  - ABUTTER'S PROPERTY LINE
  - SUBDIVISION PROPERTY LINE (SEE NOTE 8 ON SHEET V-101)
  - ZONING YARD SETBACK
  - MAJOR CONTOUR
  - MINOR CONTOUR
  - 1015 — WETLAND LINE
  - WH-43 — WETLAND FLAG WITH IDENTIFIER
  - WETLAND AREA
  - 50' NO DISTURB BUFFER
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  - 100' WETLAND BUFFER
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  - TREE LINE
  - SITE ENTRANCE
  - BUILDING
  - WETLAND IDENTIFIER
- PROPOSED**
- 1050 — MAJOR CONTOUR
  - MINOR CONTOUR
  - SOLAR PV PANEL (1 C-501)
  - LIMIT OF WORK
  - TC — LIMIT OF TREE CLEARING
  - D — UNDERDRAIN (14 C-502)
  - X — FENCE (5 C-502)
  - SB — SEDIMENT BARRIER (3 C-501)
  - FILTREXX SILT/SOXX BERM (2 C-502)
  - CRUSHED STONE ACCESS ROAD (2 C-501)
  - CONSTRUCTION ENTRANCE (4 C-501)
  - EROSION CONTROL BLANKET (12 C-502)
  - WETLAND REPLICATION AREA

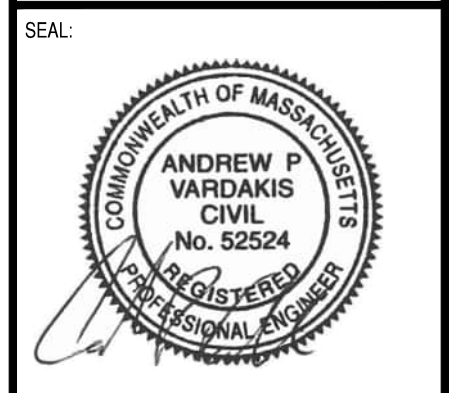


PROJECT: 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
 BALDWINVILLE RD  
 WINCHENDON, MASSACHUSETTS

TITLE:  
 PROPOSED UTILITY, GRADING, AND DRAINAGE PLAN

CLIENT: WINCHENDON SOLAR, LLC

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 Securing a brighter future through solar



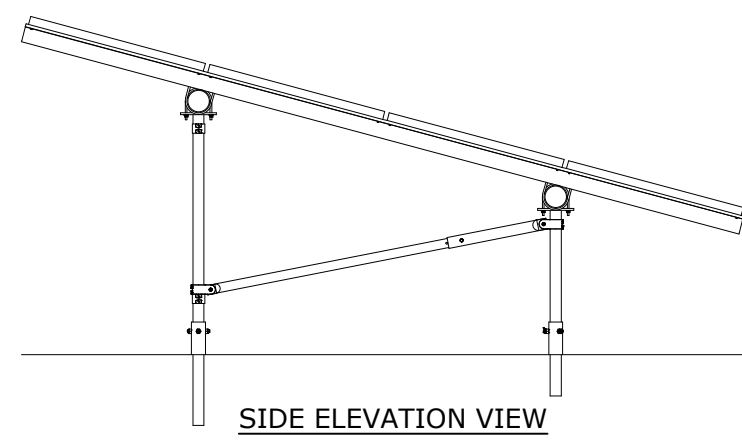
DESIGNED BY: APV  
 CHECKED BY: OAC  
 PROJECT NUMBER: 3652180157  
 DRAWING NUMBER: C-103  
 SHEET NUMBER: 4 OF 6

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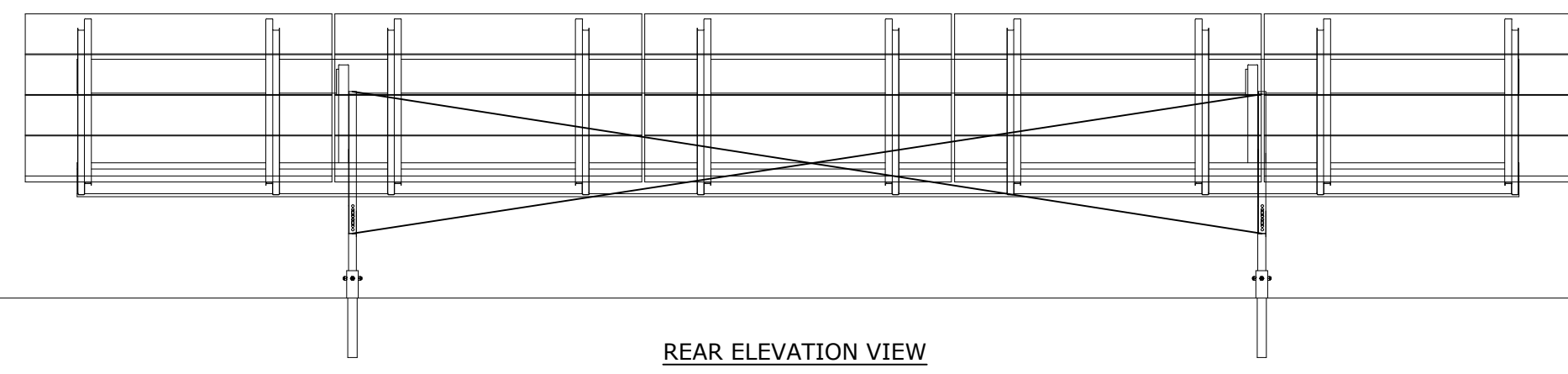


**CONCEPTUAL CONSTRUCTION SEQUENCE**

1. ESTABLISHMENT OF LIMITS OF WORK;
2. PLACEMENT OF EROSION CONTROLS;
3. CONSTRUCTION OF STORMWATER INFILTRATION BASIN;
4. CONSTRUCTION OF THE ACCESS ROADS;
5. TREE CUTTING AND TREE REMOVAL;
6. CONSTRUCTION OF THE SOLAR ARRAY AND APPURTENANT EQUIPMENT;
7. CLEARING OF SEDIMENT FROM BASIN AND SCARIFYING OF BASIN BOTTOM;
8. ERECTION OF THE PERIMETER SECURITY FENCE; AND
9. RESTORATION OF DISTURBED AREAS.



**SOLAR PV ARRAY**  
NOT TO SCALE



**NOTE:**  
1. DESIGN FOR FOUNDATIONS, RACKING, GROUND SCREWS, AND MODULES BY OTHERS. DETAILS SHOWN FOR ILLUSTRATION PURPOSES ONLY.

1

**EROSION AND SEDIMENTATION CONTROL PLAN:**

THIS PLAN HAS BEEN DEVELOPED TO PROVIDE A STRATEGY FOR CONTROLLING SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROPOSED PROJECT.

THIS PLAN IS BASED ON STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN DEVELOPING AREAS AS CONTAINED IN MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS, 2003.

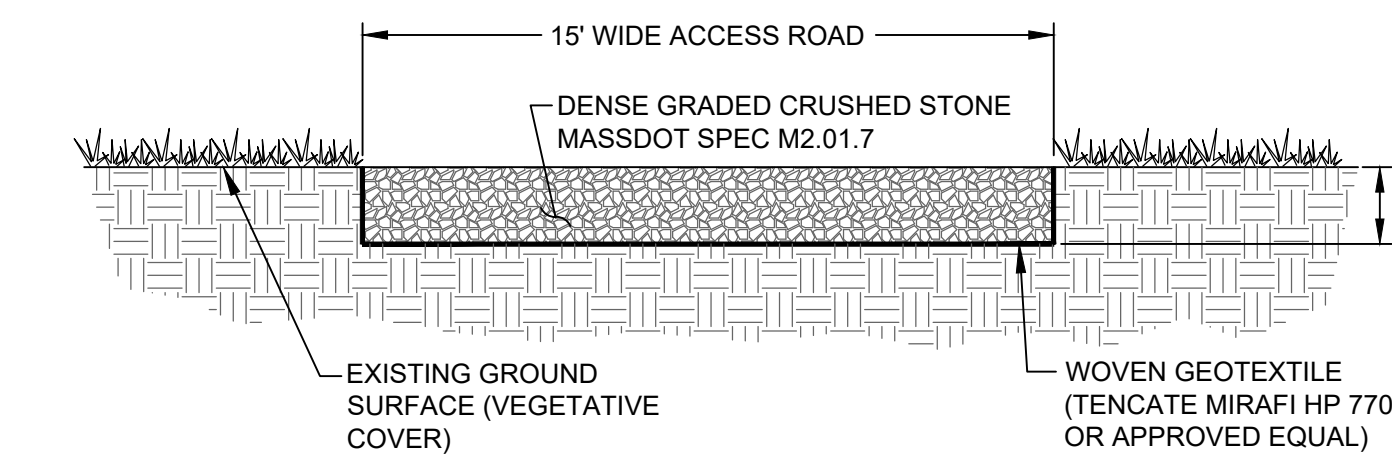
**GENERAL EROSION AND SEDIMENTATION CONSTRUCTION DETAIL NOTES:**

DURING CONSTRUCTION, THE CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO SCHEDULE EARTHWORK OPERATIONS SUCH THAT THE AREA OF EXPOSED AND DISTURBED SOIL IS MINIMIZED. CONSTRUCTION SHALL BE PHASED TO MINIMIZE THE AREA OF DISTURBED SOIL THAT IS EXPOSED AT ANY ONE TIME. UPGRADIENT STORMWATER DIVERSION AND DISPERSION MEASURES SHALL BE INSTALLED WHERE APPROPRIATE. ALL CUT AND FILL SLOPES SHALL BE STABILIZED UPON COMPLETION. THE FOLLOWING MEASURES WILL BE UNDERTAKEN TO PROVIDE MAXIMUM PROTECTION TO THE SOIL, WATER, AND ADJUTING LANDS:

1. PRIOR TO GRUBBING OR ANY EARTH MOVING OPERATION, SEDIMENT BARRIERS, OR OTHER APPROPRIATE PERIMETER CONTROL BEST MANAGEMENT PRACTICES (BMPs) SHALL BE INSTALLED ACROSS THE SLOPE ON THE CONTOUR AT THE DOWNHILL LIMIT OF THE WORK AS PROTECTION AGAINST CONSTRUCTION RELATED EROSION. INSTALL ALL NECESSARY STORMWATER DIVERSIONS AND DISPERSION MEASURES.
2. PERMANENT SOIL STABILIZATION MEASURES FOR ALL SLOPES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN FOURTEEN CALENDAR DAYS AFTER FINAL GRADING HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE OR PRACTICAL TO PERMANENTLY STABILIZE DISTURBED LAND, TEMPORARY EROSION CONTROL MEASURES SHALL BE IMPLEMENTED ON DISTURBED AREAS (INCLUDING STOCKPILES) WITHIN FOURTEEN CALENDAR DAYS OF EXPOSURE OF SOIL OR FORMATION OF PILES. UNLESS THESE AREAS ARE TO BE SUBSEQUENTLY SURFACED WITH PERMANENT STRUCTURES. ALL DISTURBED AREAS SHALL BE MULCHED FOR EROSION CONTROL UPON COMPLETION OF ROUGH GRADING.
3. ANY EXPOSED SLOPES 3:1 OR GREATER SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS (ERONET C125 BY NORTH AMERICAN GREEN, OR APPROVED EQUAL) TO PREVENT EROSION DURING CONSTRUCTION AND TO FACILITATE REVEGETATION AFTER TOPSOILING AND SEEDING.
4. IF MATERIAL STOCKPILES ARE NEEDED, SEDIMENT BARRIER SHALL BE INSTALLED AT THE BASE OF STOCKPILES AT THE DOWNHILL LIMIT TO PROTECT AGAINST EROSION. STOCKPILES ANTICIPATED TO REMAIN FOR MORE THAN FOURTEEN CALENDAR DAYS SHALL BE STABILIZED BY SEEDING AND MULCHING UPON FORMATION OF THE PILES. UPGRADIENT OF THE STOCKPILES, STABILIZED DITCHES AND/OR BERMS SHALL BE CONSTRUCTED TO DIVERT STORMWATER RUNOFF AWAY FROM THE PILES.
5. INTERCEPTED SEDIMENT SHALL BE REMOVED WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SEDIMENT BARRIER, OR AS DIRECTED IN THE DRAWING DETAILS FOR OTHER BMPs, AND SHALL BE DEPOSITED IN AN AREA THAT SHALL NOT CONTRIBUTE TO SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED. ALL DAMAGED EROSION CONTROL DEVICES SHALL BE REPAIRED AND/OR REPLACED IMMEDIATELY. DEVICES NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION SHALL ALSO BE REPAIRED AND/OR REPLACED AS REQUIRED.
6. SOIL CUTTINGS GENERATED DURING THE DRILLING OF PILOT HOLES FOR GROUND SCREWS SHALL BE REMOVED AND COLLECTED. SOIL CUTTINGS MAY BE STOCKPILED TEMPORARILY, BUT ULTIMATELY SHALL BE DISPOSED AND SPREAD IN AN AREA THAT SHALL NOT CONTRIBUTE TO OFF-SITE SEDIMENTATION, AND PERMANENTLY STABILIZED.
7. ADDITIONAL EROSION CONTROL METHODS SHALL BE IMPLEMENTED IF CONSTRUCTION OCCURS AFTER DECEMBER 15TH. ALL DISTURBED AREAS SHALL BE MINIMIZED TO THE EXTENT POSSIBLE. PRIOR TO FREEZING, ADDITIONAL EROSION CONTROL DEVICES SHALL BE INSTALLED AS APPROPRIATE. INSPECTION OF THESE EROSION CONTROL ITEMS SHALL BE FREQUENT, WITH PARTICULAR ATTENTION PAID TO WEATHER PREDICTIONS TO ENSURE THAT THESE MEASURES ARE PROPERLY IN PLACE TO HANDLE LARGE QUANTITIES OF RUNOFF RESULTING FROM HEAVY RAINS OR EXCESSIVE THAWS.
8. GENERAL EROSION AND SEDIMENTATION CONTROL ACTIONS SHALL INCLUDE THE FOLLOWING:
  - MARK SOIL DISTURBANCE LIMITS
  - INSTALL SEDIMENT BARRIERS BEFORE DISTURBING ANY SOILS
  - DIVERT AND DISPERSE STORMWATER RUNOFF TO UNDISTURBED AREAS WHEREVER POSSIBLE
  - MULCH DISTURBED AREAS
  - PROTECT STEEP SLOPES
  - INSPECT AND REPAIR EROSION CONTROLS AND SEDIMENT BARRIERS

**DUST CONTROL:**

1. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED TO MINIMIZE THE AREA OF DISTURBED SOIL THAT IS EXPOSED AT ONE TIME.
2. DUST CONTROL SHALL BE USED ON CONSTRUCTION ROUTES AND OTHER DISTURBED AREAS SUBJECT TO SURFACE DUST MOVEMENT AND DUST BLOWING.
3. MAINTAIN DUST CONTROL MEASURES PROPERLY THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
4. DUST CONTROL METHODS SHALL BE APPROVED BY THE ENGINEER AND MAY INCLUDE VEGETATIVE COVER, MULCH (INCLUDING GRAVEL MULCH), SPRAY-ON-ADHESIVE, CALCIUM CHLORIDE, SPRINKLING, STONE, AND BARRIERS.
5. VEGETATIVE COVER - FOR DISTURBED AREAS NOT SUBJECT TO TRAFFIC, VEGETATION PROVIDES THE MOST PRACTICAL METHOD OF DUST CONTROL.
6. MULCH (INCLUDING GRAVEL MULCH) - WHEN PROPERLY APPLIED, MULCH OFFERS A FAST, EFFECTIVE MEANS OF CONTROLLING DUST. SEE MANUFACTURER'S RECOMMENDATIONS OR THE MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS FOR APPLICATION RATES.
7. SPRAY-ON ADHESIVE - LATEX EMULSIONS OR RESIN IN WATER CAN BE SPRAYED ONTO MINERAL SOIL TO PREVENT PARTICLES FROM BLOWING AWAY.
8. CALCIUM CHLORIDE - CALCIUM CHLORIDE MAY BE APPLIED BY MECHANICAL SPREADER AS LOOSE, DRY GRANULES OR FLAKES AT A RATE THAT KEEPS THE SURFACE MOIST BUT NOT SO HIGH AS TO CAUSE WATER POLLUTION OR PLANT DAMAGE.
9. SPRINKLING - EXPOSED SOILS MAY BE SPRINKLED UNTIL THE SURFACE IS WET. SPRINKLING IS ESPECIALLY EFFECTIVE FOR DUST CONTROL ON HAUL ROADS AND OTHER TRAFFIC ROUTES.
10. STONE - USED TO STABILIZE CONSTRUCTION ROADS; CAN ALSO BE EFFECTIVE FOR DUST CONTROL.
11. BARRIERS - A BOARD FENCE, WIND FENCE, SEDIMENT FENCE, OR SIMILAR BARRIER CAN CONTROL AIR CURRENTS AND BLOWING SOIL. ALL OF THESE FENCES ARE NORMALLY CONSTRUCTED OF WOOD AND THEY PREVENT EROSION BY OBSTRUCTING THE WIND NEAR THE GROUND AND PREVENTING THE SOIL FROM BLOWING OFFSITE.



- NOTES:**
1. ACCESS ROAD TO BE CONSTRUCTED OF A MINIMUM 12" OF DENSE GRADED CRUSHED STONE.
  2. WOVEN GEOTEXTILE TO BE PLACED BETWEEN THE GROUND SURFACE AND THE CRUSHED STONE.
  3. CRUSHED STONE SHALL BE COMPACTED TO A FIRM AND NON-YIELDING CONDITION.

**CRUSHED STONE ACCESS ROAD**

NOT TO SCALE

2

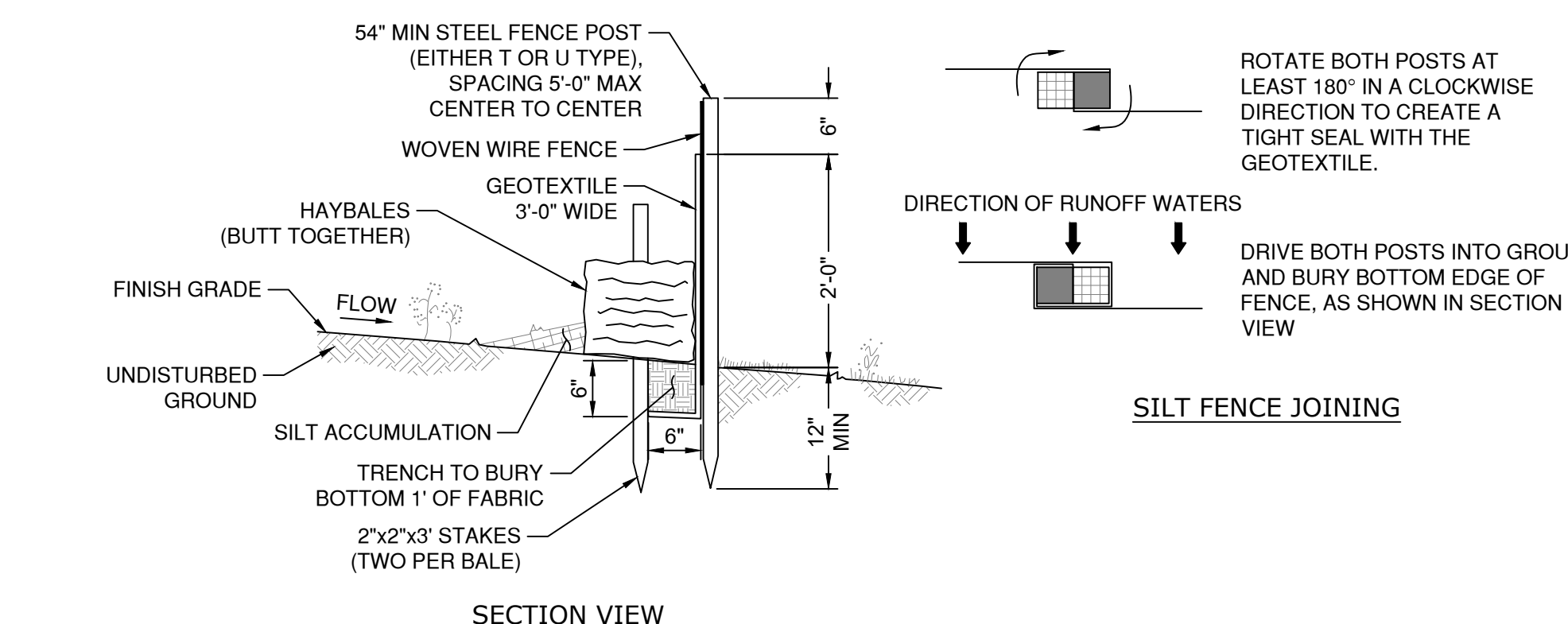
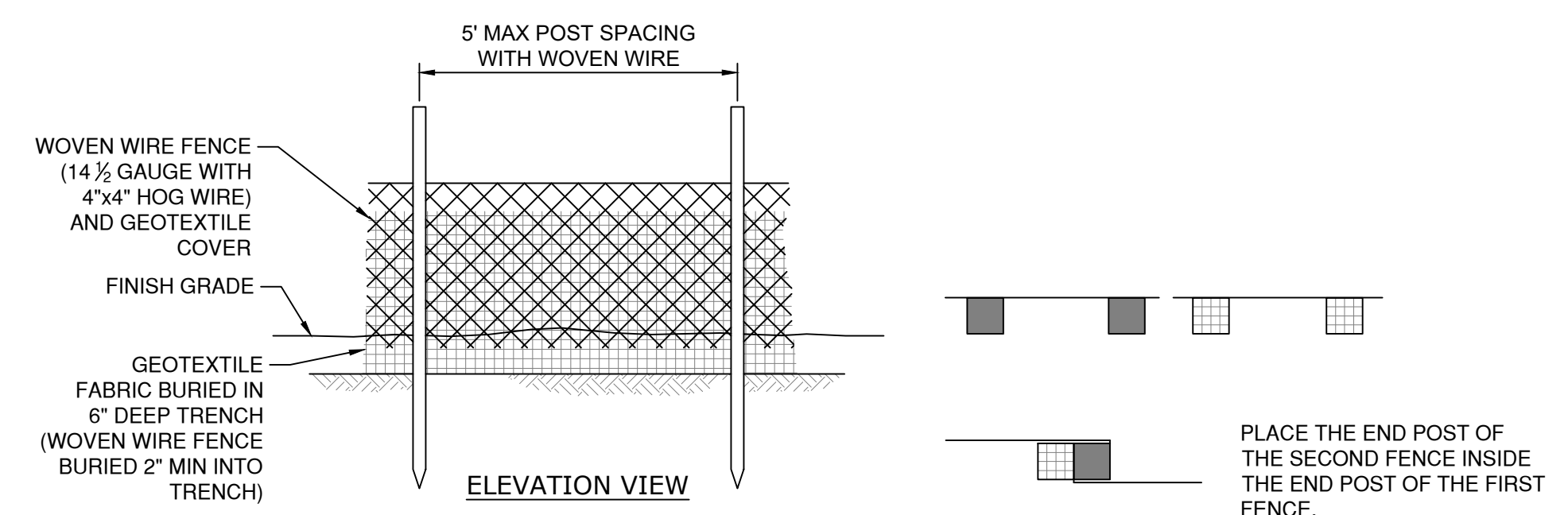
**MONITORING PROGRAM:**

1. EROSION AND SEDIMENTATION CONTROLS SHALL BE INSPECTED AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.25 INCHES OR GREATER. DAILY RAINFALL SHALL BE MONITORED AND RECORDED BY THE CONTRACTOR. ALL STRUCTURES DAMAGED BY CONSTRUCTION EQUIPMENT, VANDALS, OR THE ELEMENTS SHALL BE REPAIRED OR REPLACED IMMEDIATELY, PRIOR TO CONTINUING THE CONSTRUCTION.
2. FOLLOWING THE FINAL SEEDING, THE SITE SHALL BE INSPECTED IN ACCORDANCE WITH THE SCHEDULE OUTLINED IN #1 ABOVE, TO ENSURE THAT THE VEGETATION HAS BEEN ESTABLISHED (70% COVER ACHIEVED). IN THE EVENT OF ANY UNSATISFACTORY GROWTH, RESEEDING WILL BE CARRIED OUT, WITH FOLLOW-UP INSPECTION.
3. AFTER THE CONSTRUCTION INSPECTOR HAS DETERMINED THAT THE PROJECT AREA HAS BEEN PERMANENTLY STABILIZED (70% COVER HAS BEEN ACHIEVED OR NON-VEGETATED MEASURES HAVE BEEN IMPLEMENTED), THE CONTRACTOR SHALL REMOVE ALL SEDIMENT BARRIERS, TEMPORARY SEDIMENTATION CONTROL RISERS AND ANY OTHER TEMPORARY EROSION CONTROL MEASURES.

**SEEDING AND REVEGETATION PLAN:**

UPON COMPLETION OF SITE CONSTRUCTION, ALL AREAS PREVIOUSLY DISTURBED SHALL BE TREATED AS STATED BELOW. THESE AREAS WILL BE CLOSELY MONITORED BY THE CONTRACTOR UNTIL SUCH TIME AS A SATISFACTORY GROWTH OF VEGETATION IS ESTABLISHED. SATISFACTORY GROWTH SHALL MEAN A MINIMUM OF 70% OF THE AREA IS VEGETATED WITH VIGOROUS GROWTH.

1. TOPSOIL WILL BE SPREAD OVER ALL DISTURBED AREAS TO BE REVEGETATED AND SHALL BE GRADED TO A UNIFORM DEPTH OF FOUR (4) TO SIX (6) INCHES.
2. APPLY SEED AS DIRECTED BELOW:
  - (APRIL 1ST THROUGH OCTOBER 1ST)
    - SEED DISTURBED AREAS AT THE RATE OF 10 LBS PER 1,000 SQ. FT. OF THE FOLLOWING MIXTURE (% BY WEIGHT):
      - 30% RED FESCUE
      - 30% CANADA BLUEGRASS
      - 30% PERENNIAL RYEGRASS
      - 10% RED TOP
    - APPLY WOOD FIBER MULCH AT A RATE OF 2,000 LBS PER ACRE FOR MAXIMUM MOISTURE RETENTION.
  - (NOVEMBER 1ST THROUGH DECEMBER 15TH)
    - SEED DISTURBED AREAS AT THE RATE OF 15 LBS PER 1,000 SQ. FT. OF THE FOLLOWING MIXTURE (% BY WEIGHT):
      - 30% RED FESCUE
      - 30% CANADA BLUEGRASS
      - 30% PERENNIAL RYEGRASS
      - 10% RED TOP
    - APPLY HAY MULCH AT THE RATE OF 100 LBS PER 1,000 SQ. FT.
  - (AFTER DECEMBER 15TH)
    - DO NOT SEED.
    - APPLY HAY MULCH AT THE RATE OF 100 LBS PER 1,000 SQ. FT.
3. FERTILIZER AND LIME SELECTIONS BASED ON SOIL TESTING IS RECOMMENDED. IN ABSENCE OF A SOIL TEST, APPLY LIME AT A RATE OF 2.5 TONS PER ACRE AND 10-20-20 FERTILIZER AT A RATE OF 500 POUNDS PER ACRE. 40% OF THE NITROGEN SHALL BE IN AN ORGANIC OR SLOW-RELEASED FORM. THE TARGET PH FOR LIMED SOIL IS 5.5 - 6.0. LIME AND FERTILIZER SHALL BE INCORPORATED INTO THE TOP 2-3 INCHES OF SOIL.
4. SEEDING METHODS MAY BE DRILL SEEDINGS, BROADCASTS AND ROLLED, CULTPACKED, OR TRACKED WITH A SMALL TRACK PIECE OF CONSTRUCTION EQUIPMENT, OR HYDRO-SEEDING, WITH SUBSEQUENT TRACKING.
5. WATERING MAY BE REQUIRED DURING DRY PERIODS CONSULT SEED MANUFACTURER'S INSTRUCTIONS.
6. STEEP SLOPES (3:1 AND STEEPER) SHALL BE STABILIZED BY INSTALLING EROSION CONTROL BLANKET (ERONET C125 BY NORTH AMERICAN GREEN, OR APPROVED EQUAL)
7. INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RESEED IMMEDIATELY. CONDUCT A FOLLOW-UP SURVEY AFTER ONE YEAR AND RESEED WHERE NECESSARY.
8. IF THERE ARE AREAS WITH LESS THAN 40% COVER, REEVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. IF THE SEASON PREVENTS RESOWING, MULCH OR JUTE NETTING IS AN EFFECTIVE TEMPORARY COVER.
9. SEEDED AREAS SHOULD BE FERTILIZED DURING THE SECOND GROWING SEASON.
10. LIME AND FERTILIZE THEREAFTER AT PERIODIC INTERVALS, AS NEEDED.
11. ALL SEDIMENT CONTROL STRUCTURES LOCATED DOWN GRADIENT OF SOILS STABILIZED BY VEGETATIVE MEASURES SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED. ESTABLISHED MEANS A MINIMUM OF 70% OF THE AREA IS VEGETATED WITH VIGOROUS GROWTH.

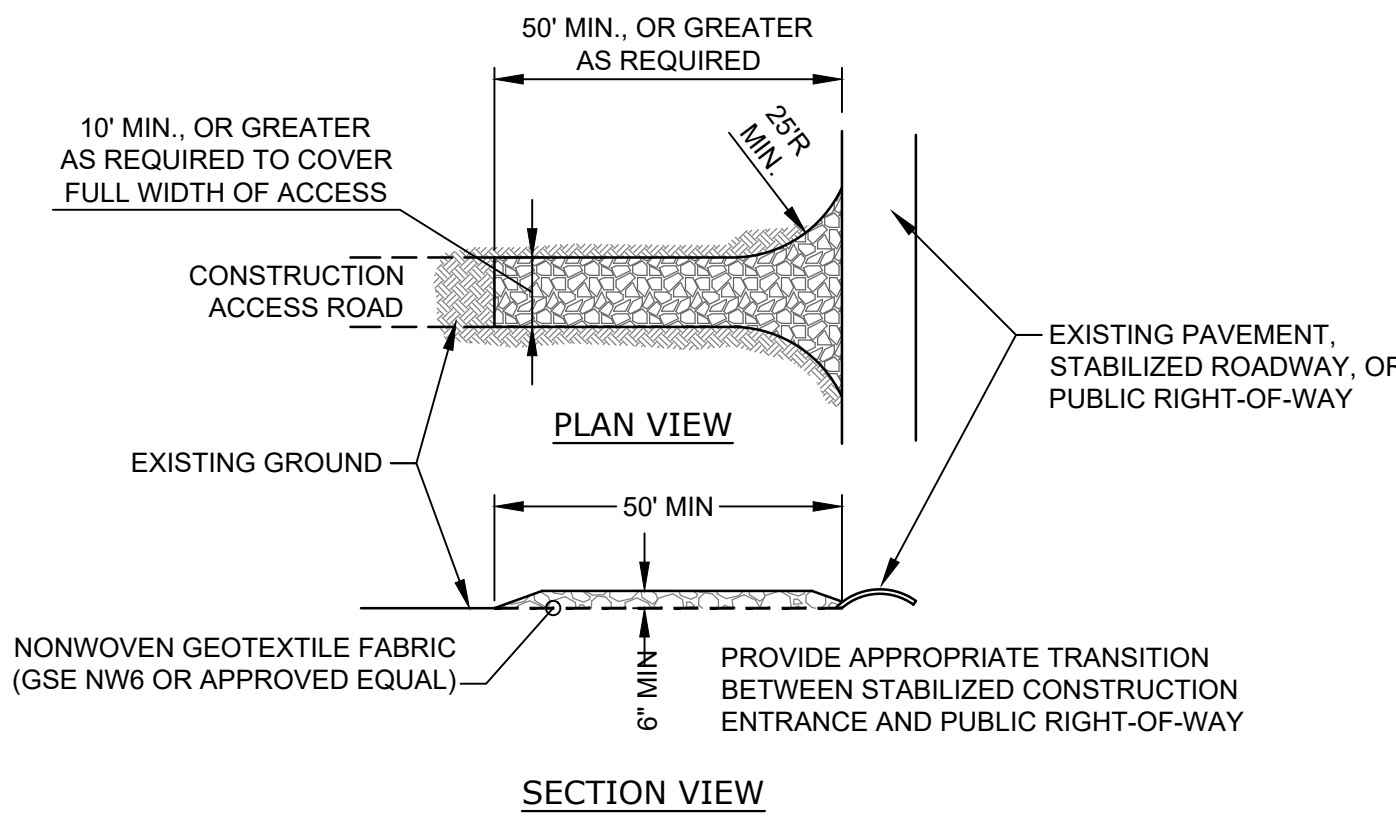


- NOTES:**
1. GEOTEXTILE TO BE FASTENED SECURELY TO FENCE POST BY USE OF WIRE TIES.
  2. GEOTEXTILE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
  3. BURY BOTTOM 1'-0" OF GEOTEXTILE IN TRENCH (6" DEEP x 6" WIDE) REPLACE SOIL AND TAMP IN PLACE.
  4. ENDS OF INDIVIDUAL ROLLS OF GEOTEXTILE SHALL BE SECURELY FASTENED TOGETHER AS SHOWN. FASTENERS SHALL BE PROVIDED AS SPECIFIED IN NOTE 1 ABOVE. SPLICING OF INDIVIDUAL ROLLS SHALL NOT OCCUR AT LOW POINTS.
  5. MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE EROSION CONTROL PLAN. COLLECTED MATERIAL SHALL BE REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
  6. ALL SILT FENCE SHALL INCLUDE WOVEN WIRE FENCE SUPPORT UNLESS INDICATED OTHERWISE.

**SEDIMENT BARRIER - DOUBLE STAKED HAY BALE WITH HOG WIRE BACKED SILT FENCE**

NOT TO SCALE

3



- NOTES:**
1. STONE TO BE 1"-3" STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
  2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FT.
  3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
  4. WIDTH - TEN (10) FT. MIN, BUT NOT LESS THAN THE FULL TRAVELED WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
  5. FILTER CLOTH - SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
  6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED ACROSS OR BENEATH THE ENTRANCE.
  7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANUP OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
  8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. IF WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
  9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

**STABILIZED CONSTRUCTION ENTRANCE**

NOT TO SCALE

4



REVISION	DATE	ISSUE / REVISION DESCRIPTION
8	09/27/2023	REVISED PER PEER REVIEW COMMENTS
7	04/10/2023	ISSUED FOR PLANNING BOARD REVIEW
6	06/15/2021	UPDATED PROPOSED CONDITIONS WITH NEW EQUIPMENT PADS
5	01/06/2020	ADDRESSED PEER REVIEW COMMENTS
4	09/11/2019	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
3	09/12/2019	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
2	07/01/2019	ISSUED FOR PERMITTING NOT FOR CONSTRUCTION
		ISSUE / REVISION DESCRIPTION
		APPROVED

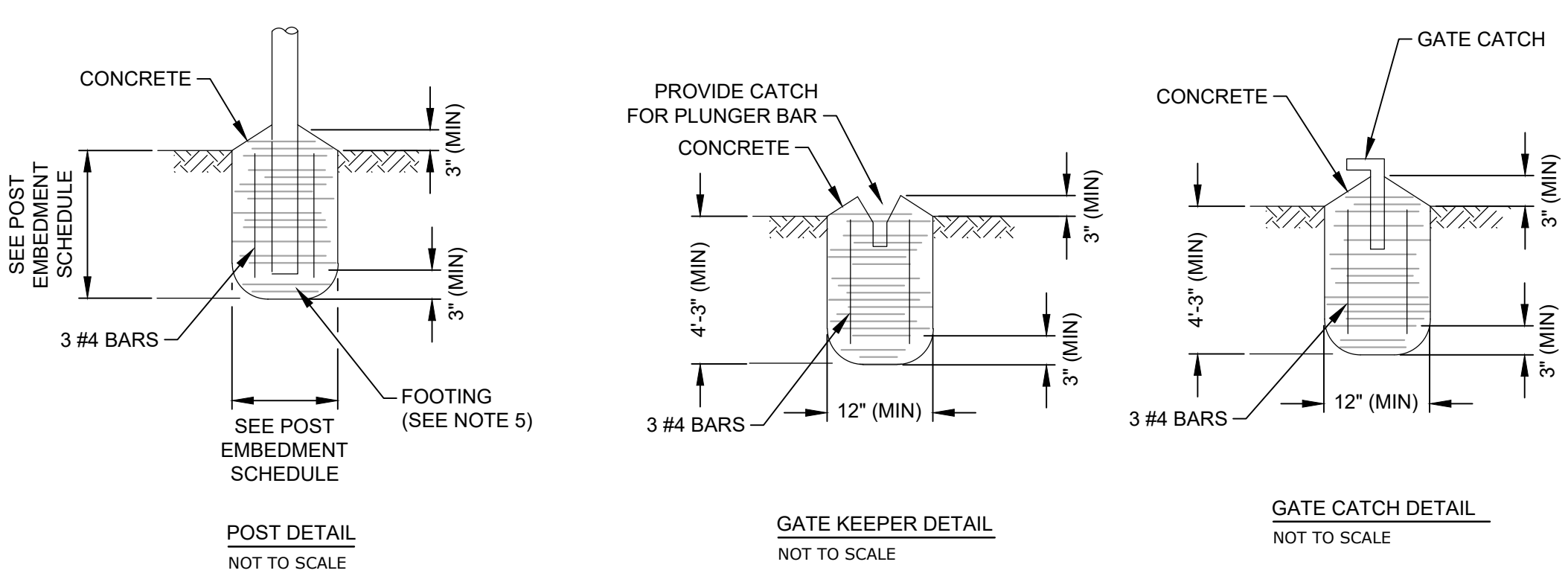
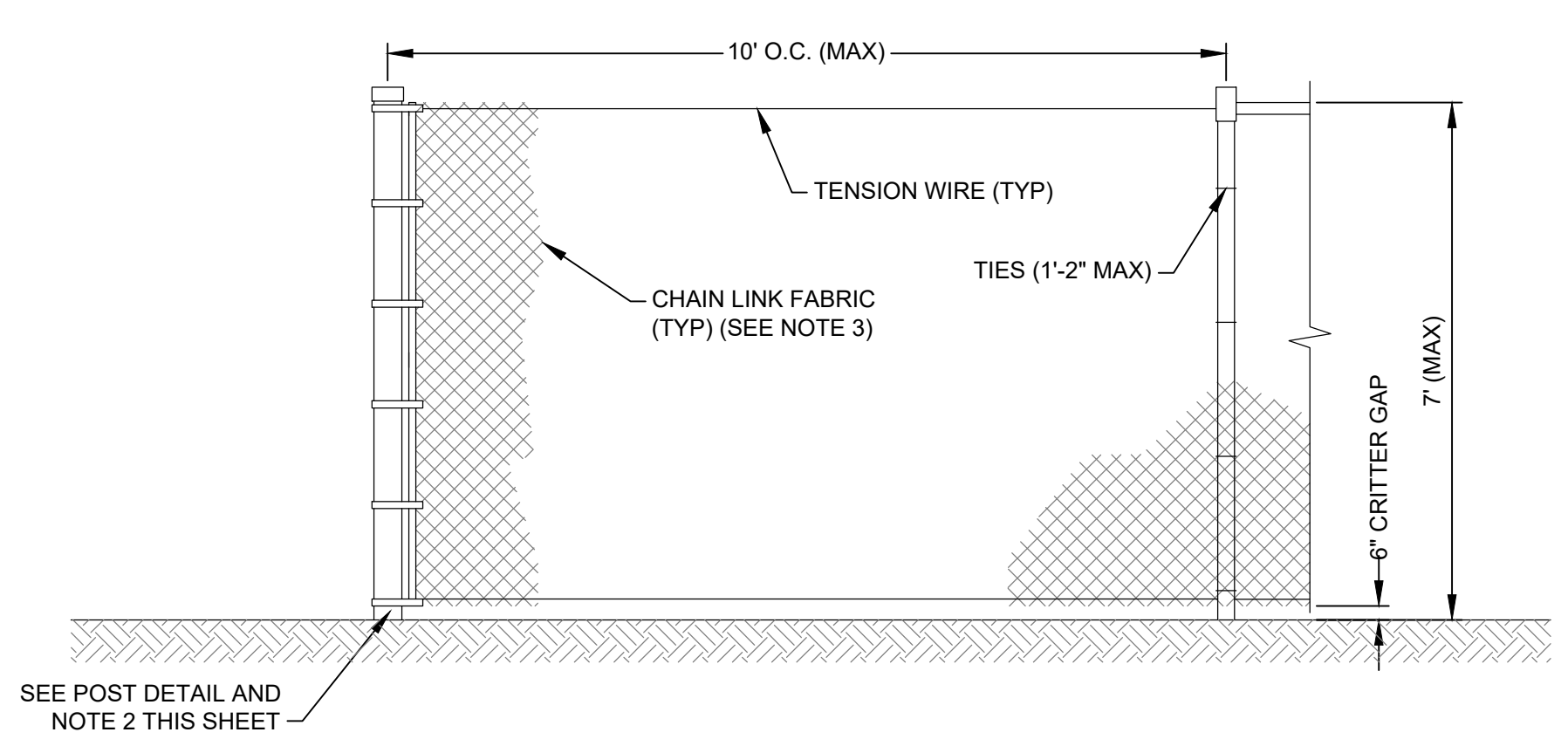
PROJECT: 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT BALDWINVILLE RD WINCHENDON, MASSACHUSETTS  
 CLIENT: WINCHENDON SOLAR, LLC  
 TITLE: CONSTRUCTION, EROSION, AND SEDIMENTATION CONTROL DETAILS AND NOTES



DESIGNED BY: APV	DRAWN BY: DED
CHECKED BY: OAC	SCALE: AS SHOWN
PROJECT NUMBER: 3652180157	
DRAWING NUMBER: C-501	
SHEET NUMBER: 5 OF 6	



APV	APV	APV	APV	APV	APV	APV	APV	APV	APV	ISSUED
HPB	HPB	OAP	MRF	MRF	MRF	MRF	MRF	MRF	MRF	REVISION
REVISED PER PEER REVIEW COMMENTS										
ISSUED FOR PLANNING BOARD REVIEW										
UPDATED PROPOSED CONDITIONS WITH NEW EQUIPMENT PADS										
ADDRESSED PEER REVIEW COMMENTS										
ISSUED FOR PERMITTING NOT FOR CONSTRUCTION										
ISSUED FOR PERMITTING NOT FOR CONSTRUCTION										
ISSUED FOR PERMITTING NOT FOR CONSTRUCTION										
09/27/2023	04/10/2023	06/15/2021	01/06/2020	09/11/2019	09/12/2019	07/01/2019	07/01/2019	07/01/2019	07/01/2019	DATE

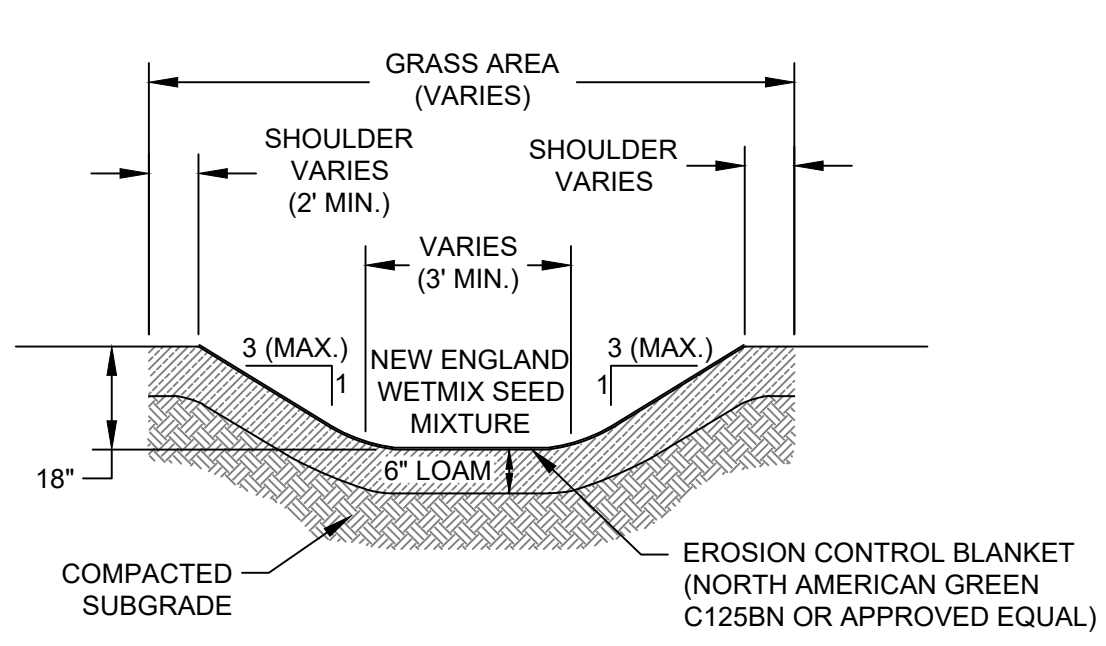


- NOTES:**
1. ALL FENCING AND HARDWARE SHALL BE GALVANIZED.
  2. FENCE POST TO BE DRIVEN. CONCRETE TO BE USED AS SHOWN IN POST DETAIL IF REQUIRED.
  3. MESH SCREENING TO BE ADDED TO FENCE IN LOCATION AS SHOWN ON C-101. MESH COLOR TO BE APPROVED BY OWNER PRIOR TO INSTALLATION.
  4. FENCING SHALL NOT HAVE A TOP RAIL.
  5. FENCE FOOTINGS SHALL BE DESIGNED BY THE MANUFACTURE TO ACCOMMODATE FOR THE ADDED WEIGHT ASSOCIATED WITH THE MESH SCREENING IN LOCATIONS SHOWN ON C-101.
  6. FENCE HEIGHT SHALL BE 7-FEET MAXIMUM.
  7. SEE MANUFACTURE'S INSTALLATION INSTRUCTIONS FOR DETAILS.
  8. FENCE FOUNDATION DESIGN BASED UPON BASIC WIND SPEED OF 100 MPH, MINIMUM MOIST SOIL UNIT WEIGHT OF 115 PCF, MINIMUM EFFECTIVE SOIL PHI ANGLE OF 30°, AND EFFECTIVE COHESION OF ZERO PSF.

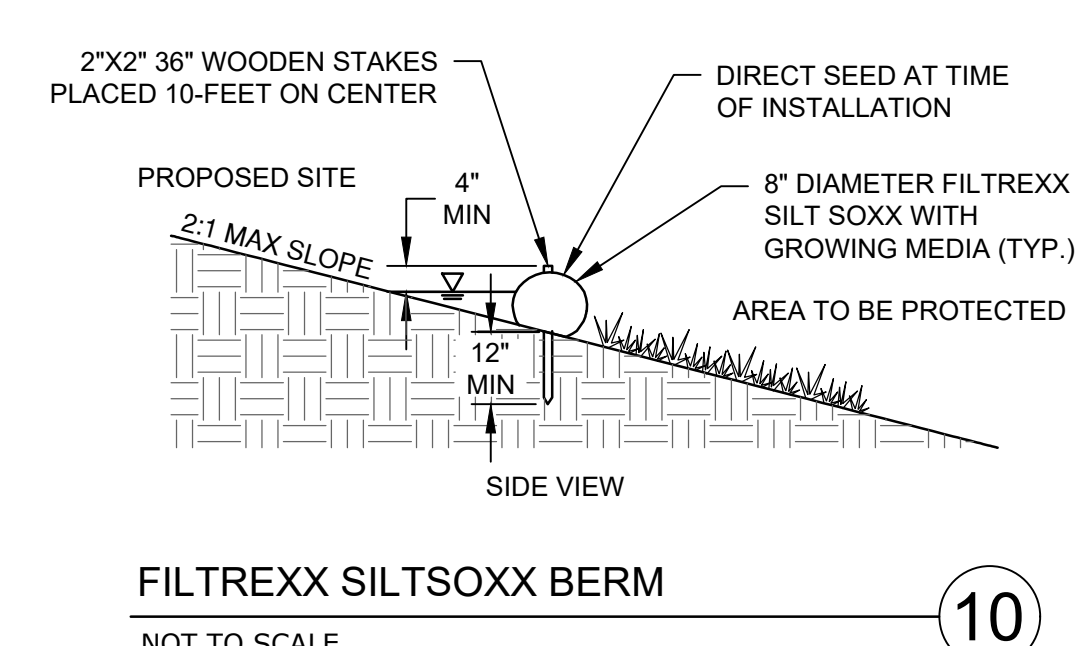
**POST EMBEDMENT SCHEDULE**

POST DIA.	DRIVEN	12" DIA CONCRETE	18" DIA CONCRETE	24" DIA CONCRETE
4-INCH	5'-10"	4'-0"	3'-6"	3'-2"
6-INCH	5'-2"	4'-0"	3'-6"	3'-2"
8-INCH	4'-8"	4'-0"	3'-6"	3'-2"
12-INCH	4'-0"	N/A	3'-6"	3'-2"

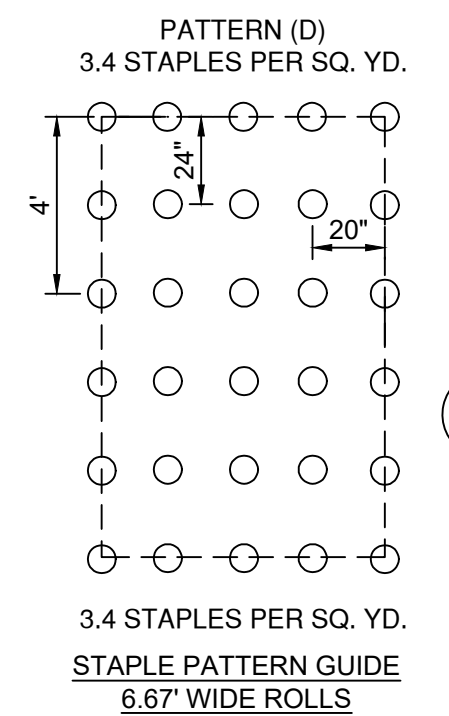
**TYPICAL CHAIN LINK FENCE AND GATE DETAIL**  
NOT TO SCALE



**GRASSED SWALE**  
NOT TO SCALE

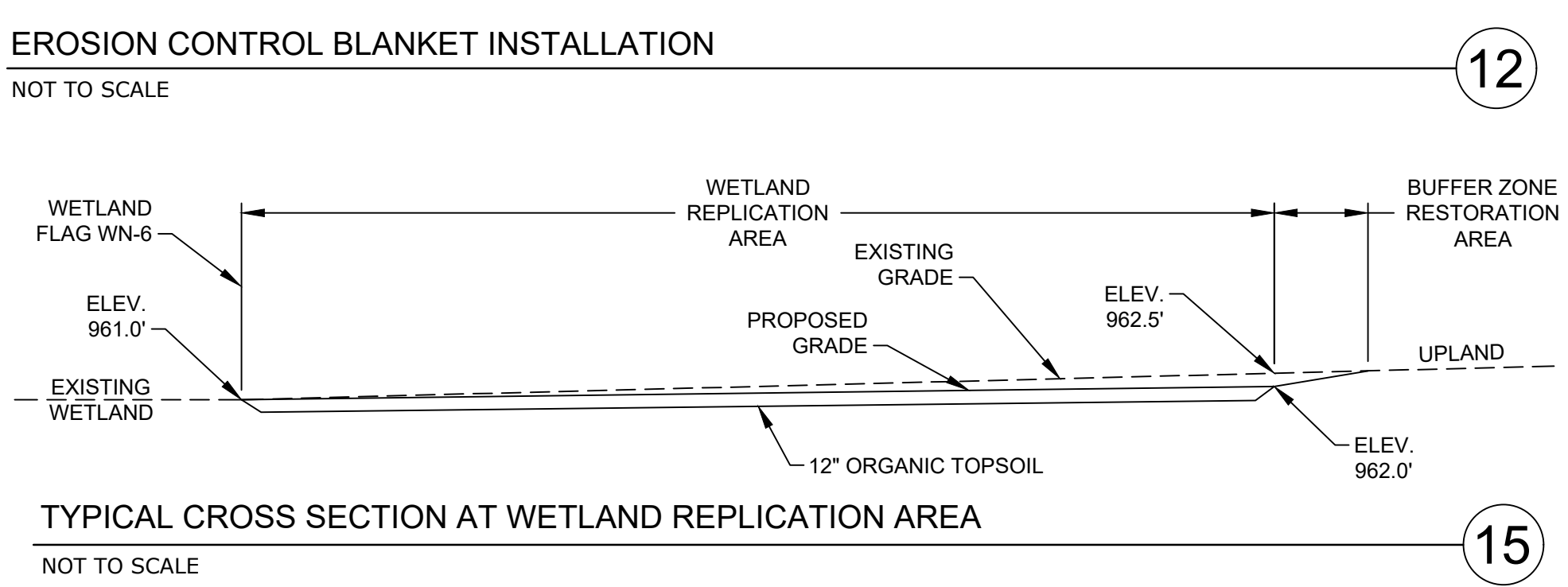


**FILTREXX SILTSOXX BERM**  
NOT TO SCALE

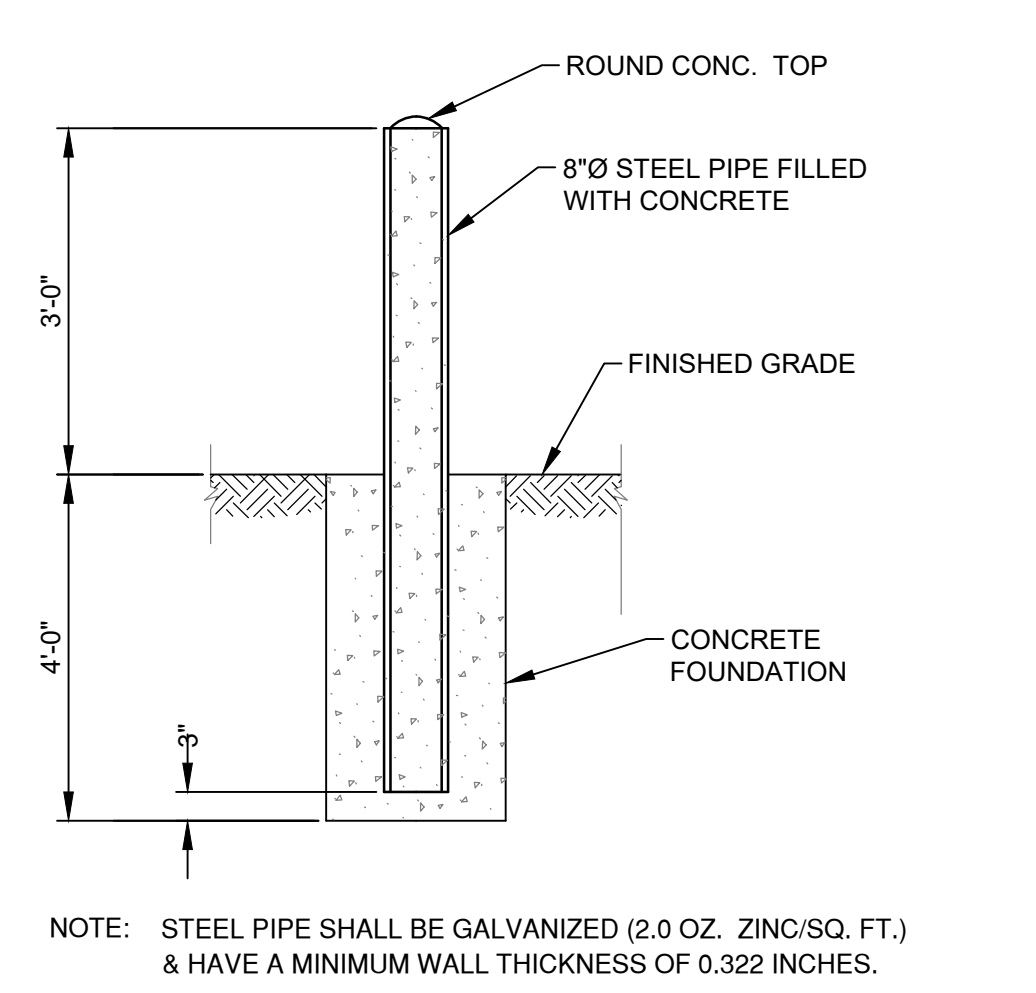


**STAPLE PATTERN GUIDE**  
6.67' WIDE ROLLS

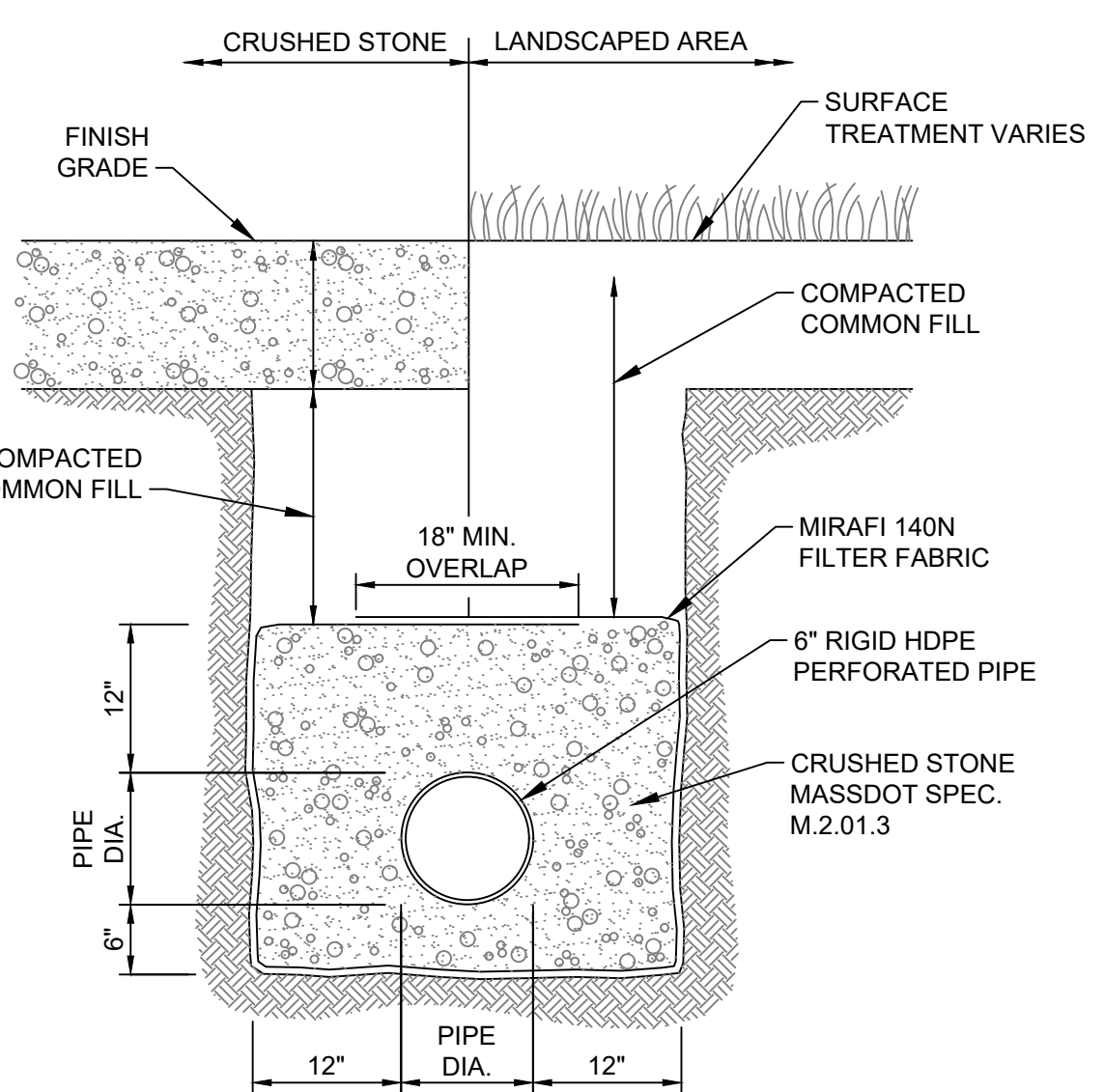
- NOTES:**
1. THIS DETAIL REFERENCES PRODUCTS BY NORTH AMERICAN GREEN. EQUIVALENT PRODUCTS MAY BE USED AS APPROVED BY THE ENGINEER. EROSION CONTROL BLANKETS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS.
  2. EROSION CONTROL MATTING TO BE PLACED ON SLOPES OF 3:1 WHERE MEADOW SEED MIX IS PROPOSED (SEE C-109).
  3. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPs), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED (SEE DRAWING G-001).
  4. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPs IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECPs EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPs WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECPs BACK OVER SEED AND COMPACTED SOIL. SECURE RECPs OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECPs.
  5. ROLL THE RECPs DOWN THE SLOPE. RECPs WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPs MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
  6. THE EDGES OF PARALLEL RECPs MUST BE STAPLED WITH AN APPROXIMATE 3" OVERLAP.
  7. CONSECUTIVE RECPs SPliced DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECPs WIDTH.



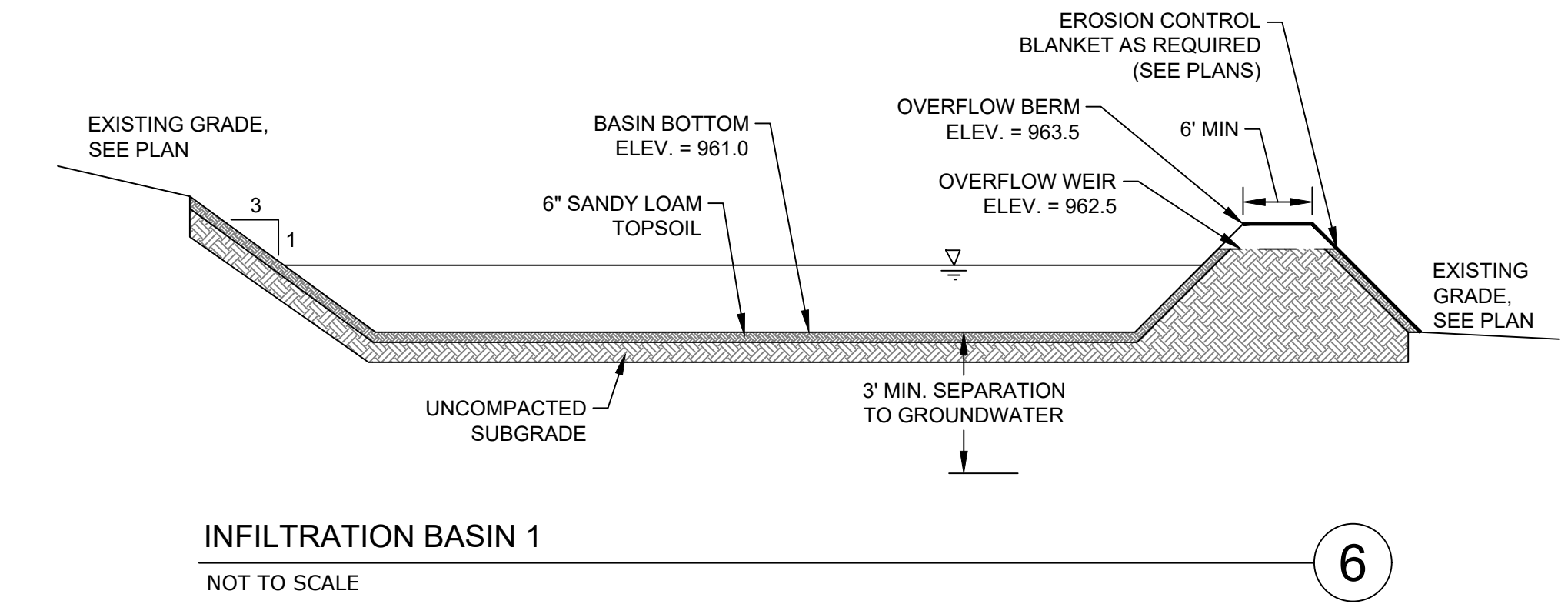
**TYPICAL CROSS SECTION AT WETLAND REPLICATION AREA**  
NOT TO SCALE



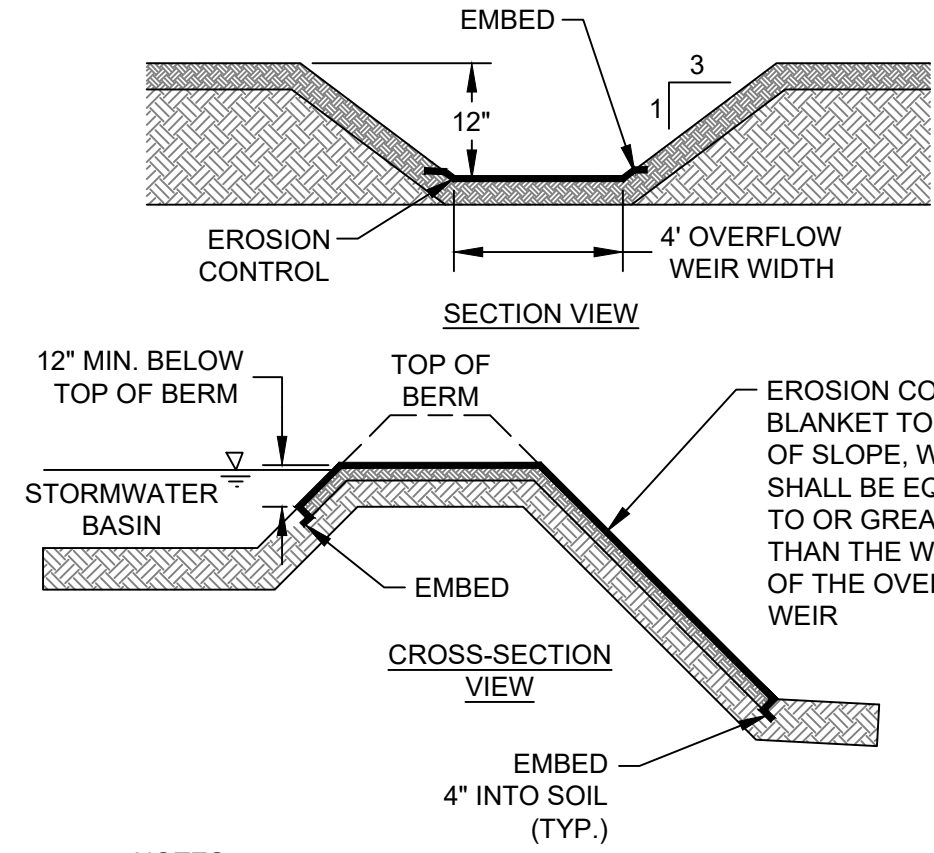
**BOLLARD**  
NOT TO SCALE



**UNDERDRAIN**  
NOT TO SCALE

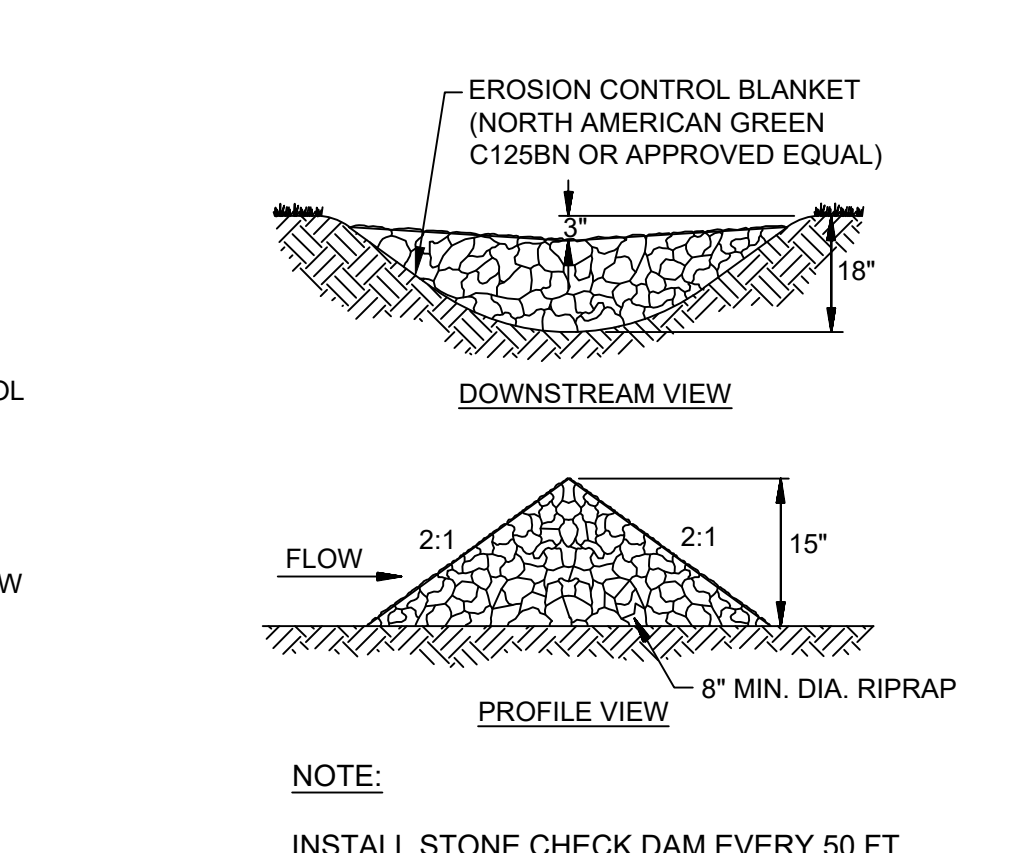


**INFILTRATION BASIN 1**  
NOT TO SCALE



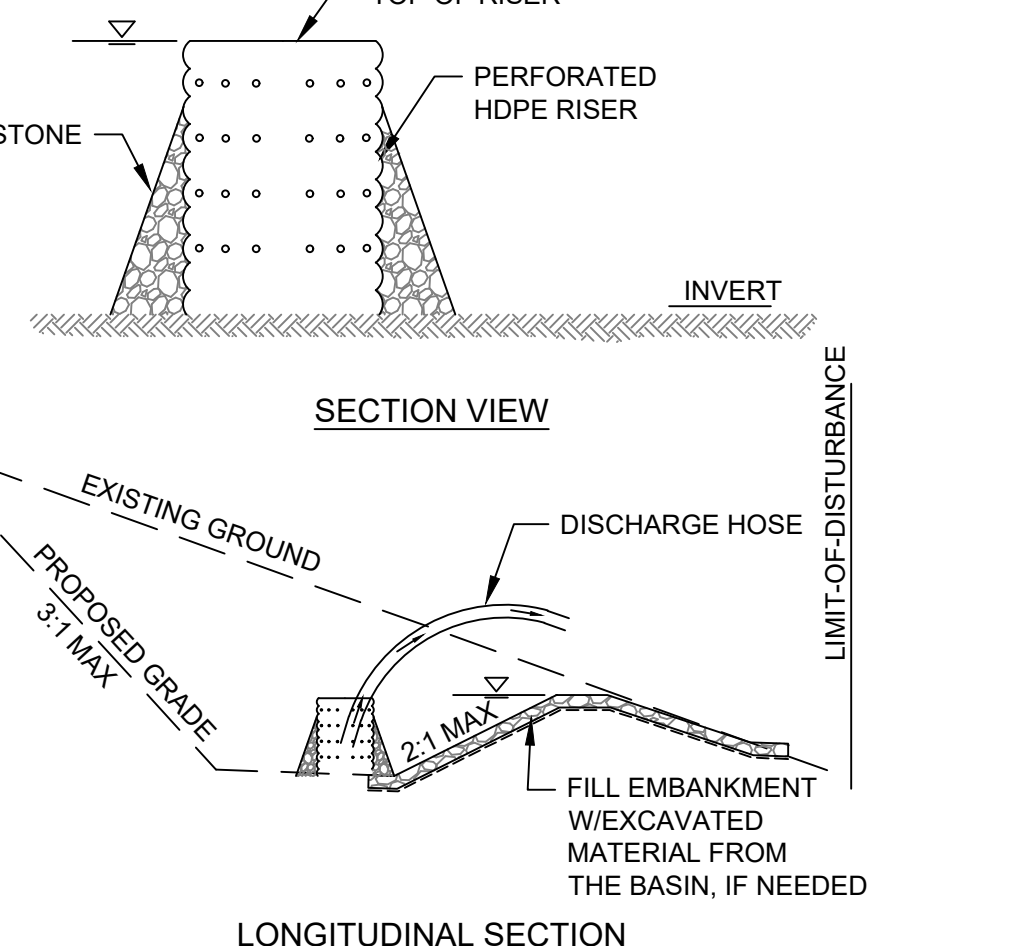
- NOTES:**
1. EROSION CONTROL BLANKET SHALL BE NORTH AMERICAN GREEN PRODUCTS P300 OR APPROVED EQUIVALENT.
  2. EROSION CONTROL BLANKET SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS.

**OVERFLOW WEIR**  
NOT TO SCALE



- NOTE:**
- INSTALL STONE CHECK DAM EVERY 50 FT WITHIN GRASSED SWALE.

**STONE CHECK DAM**  
NOT TO SCALE



- NOTES:**
1. TRAP CAPACITY: TEMPORARY SEDIMENT TRAP 134 CY/CONTRIBUTING ACRE AND 50% OF THIS VOLUME SHALL BE WET STORAGE.
  2. TOTAL MIN. STORAGE VOLUME = 1" X CONTRIBUTING AREA.
  3. SEDIMENT SHALL BE REMOVED WHEN THE BASIN IS 1/2 FULL AT A MINIMUM.
  4. THE BASIN SHALL REMAIN IN PLACE UNTIL THE SITE HAS BEEN STABILIZED WITH BUILDINGS, PAVEMENT, OR ESTABLISHED VEGETATION, AS APPLICABLE.

**TEMPORARY SEDIMENT TRAP SIZING**

SEDIMENT TRAP ID	SEDIMENT TRAP 1	SEDIMENT TRAP 2	SEDIMENT TRAP 3	SEDIMENT TRAP 4
DRAINAGE AREA, SQ.FT.	51,872	56,217	107,992	39,672
DRAINAGE AREA, AC.	1.19	1.29	2.48	0.91
REQUIRED STORAGE VOLUME, CU.FT. (1/2-INCH PER ACRE OF DRAINAGE AREA)	2,161	2,342	4,500	1,653
PROPOSED TEMPORARY SEDIMENT TRAP BOTTOM AREA, SQ.FT.	841	841	1,735	841
PROPOSED TEMPORARY SEDIMENT TRAP TOP AREA, SQ.FT.	1,735	1,735	2,856	1,735
PROPOSED TEMPORARY SEDIMENT TRAP DEPTH, FT.	2	2	2	2
PROPOSED TEMPORARY SEDIMENT TRAP STORAGE VOLUME, CU.FT.	2,576	2,576	4,591	2,576

\*MAX. ALLOWED DRAINAGE AREA TO A SEDIMENT TRAP IS 5 ACRES, PER MASSACHUSETTS EROSION AND SEDIMENTATION CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS

**TEMPORARY SEDIMENT TRAP**  
NOT TO SCALE

PROJECT: 5,154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
BALDWINVILLE RD  
WINCHENDON, MASSACHUSETTS  
TITLE: CONSTRUCTION, EROSION, AND SEDIMENTATION CONTROL DETAILS

CLIENT: WINCHENDON SOLAR, LLC  
SCALE: AS SHOWN


DESIGNED BY: APV  
CHECKED BY: OAC  
PROJECT NUMBER: 3652180157  
DRAWING NUMBER: C-502  
SHEET NUMBER: 6 OF 6

ANDREW P. VARDAKIS  
CIVIL  
No. 52524  
REGISTERED PROFESSIONAL ENGINEER



# APPENDIX

## **B** Maintenance Agreement





## Stormwater Facility Maintenance Agreement

THIS AGREEMENT, made and entered into this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_, by and between Winchendon Solar, LLC hereinafter called the "Landowner", and the Town of Winchendon, hereinafter called the "Town". WITNESSETH, that WHEREAS, the Landowner is the owner of certain real property described as Plat 13 Lot 272, Plat 13 Lot 273, and Plat 13 lot 274, as recorded by in the land records of Town of Winchendon, Deed Book 801, Page 117 hereinafter called the "Property".

WHEREAS, the Landowner is proceeding to build on and develop the property; and

WHEREAS, the Site Plan/Subdivision Plan known as 185 Baldwinville Road, hereinafter called the "Plan", which is expressly made a part hereof, as approved or to be approved by the Town, provides for detention of stormwater within the confines of the property; and

WHEREAS, the Town and the Landowner, its successors and assigns, agree that the health, safety, and welfare of the residents of the Town of Winchendon require that on-site stormwater management facilities be constructed and maintained on the Property; and

WHEREAS, the Town requires that on-site stormwater management facilities as shown on the Plan be constructed and adequately maintained by the Landowner, its successors and assigns.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The on-site stormwater management facilities shall be constructed by the Landowner, its successors and assigns, in accordance with the plans and specifications identified in the Plan.
2. The Landowner, its successors and assigns, shall adequately maintain the stormwater management facilities in accordance with the required Operation and Maintenance Plan. This includes all pipes, channels or other conveyances built to convey stormwater to the facility, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing their design functions. The Stormwater Best Management Practices Operation, Maintenance and Management Checklists are to be used to establish what good working condition is acceptable to the Town.
3. The Landowner, its successors and assigns, shall inspect the stormwater management facility as required in the Operation and

Maintenance Plan. The purpose of the inspection is to assure safe and proper functioning of the facilities. The inspection shall cover the entire facilities, berms, outlet structures, basin areas, access roads, etc. Deficiencies shall be noted in an inspection report.

4. The Landowner, its successors and assigns, hereby grant permission to the Town, its authorized agents and employees, to enter upon the Property and to inspect the stormwater management facilities whenever the Town deems necessary upon 48-hours' notice by the Town. The purpose of inspection is to follow-up on reported deficiencies and/or to respond to citizen complaints. The Town shall provide the Landowner, its successors and assigns, copies of the inspection findings and a directive to commence with the repairs if necessary.
5. In the event the Landowner, its successors and assigns, fails to maintain the stormwater management facilities in good working condition acceptable to the Town, upon 72 hours' notice the Town may enter upon the Property and take whatever steps necessary to correct deficiencies identified in the inspection report and to charge the costs of such repairs to the Landowner, its successors and assigns. This provision shall not be construed to allow the Town to erect any structure of permanent nature on the land of the Landowner outside of the easement for the stormwater management facilities. It is expressly understood and agreed that the Town is under no obligation to routinely maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the Town.
6. The Landowner, its successors and assigns, will perform the work necessary to keep these facilities in good working order as appropriate. In the event a maintenance schedule for the stormwater management facilities (including sediment removal) is outlined on the approved plans, the schedule will be followed.
7. In the event the Town pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner, its successors and assigns, shall reimburse the Town upon demand, within thirty (30) days of receipt thereof for all actual costs incurred by the City hereunder.
8. This Agreement imposes no liability of any kind whatsoever on the Town and the Landowner agrees to hold the City harmless from any liability in the event the stormwater management facilities fail to operate properly.
9. This Agreement shall be recorded among the land records of the Town of Winchendon and shall constitute a covenant running with the land, and shall be binding on the Landowner, its administrators, executors, assigns, heirs and any other successors in interests.

WITNESS the following signatures and seals:

\_\_\_\_\_  
Company/Corporation/Partnership Name (Seal)

By: \_\_\_\_\_

\_\_\_\_\_  
(Type Name and Title)

The foregoing Agreement was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by

\_\_\_\_\_

\_\_\_\_\_  
NOTARY PUBLIC  
My Commission Expires: \_\_\_\_\_

By: \_\_\_\_\_

\_\_\_\_\_  
(Type Name and Title)

The foregoing Agreement was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by

\_\_\_\_\_

\_\_\_\_\_  
NOTARY PUBLIC  
My Commission Expires: \_\_\_\_\_

Approved as to Form:

\_\_\_\_\_  
[Town/City] Attorney Date



# ATTACHMENT

# D TEST PIT FIELD REPORT



September 12, 2023

Mr. Sam Dionne, Business Development Manager - NE  
Sunpin Solar  
2020 Main Street, Suite 300  
Irvine, CA 92614

**Subject: Geotechnical Investigation Report  
Ground-Mount Solar PV Development  
Baldwinville Road, Winchendon, Massachusetts**

Dear Mr. Dionne:

WSP USA Associates Massachusetts, Inc. ("WSP") is pleased to provide this Geotechnical Investigation Report (Report) in support of Sunpin Solar's proposed ground-mount solar photovoltaic (PV) development (the Project) located at Baldwinville Road in Winchendon, Massachusetts (the Site). We understand that subsurface information proximate to the infiltration basin is required to confirm the soil types, infiltration rates, and estimated seasonal high groundwater elevation used in the drainage design and to meet the requirements of the Massachusetts Stormwater Handbook.

The Site is a wooded parcel. Existing grades on the property vary significantly and generally slope downward from east to west. Elevation changes more than 100-feet over the Site.

Elevations reported herein are reported in units of feet (ft) and based on the North American Vertical Datum of 1988 (NAVD88), unless otherwise noted. The horizontal datum is the North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Mainland Zone.

WSP completed three (3) test pit excavations at the Site, designated TP-1, TP-2, and TP-3, all at approximately elevation 963.5 ft, on August 18, 2023. Test pit locations were selected in relation to existing and proposed Site features and under the constraints of excavator access and utility conflicts. The test pit locations are depicted in **Figure 1**.

A WSP representative directed the test pit operations, collected soil samples, and logged subsurface conditions encountered. Drilex Environmental of Auburn, Massachusetts provided excavation services using a SK85CS Kobelco compact excavator, under contract with WSP. Each test pit was advanced to approximately 10 ft below ground surface (bgs) or refusal (i.e., inability to advance the excavation deeper), whichever was encountered first.



Soil samples were collected in approximately one-foot depth intervals for the full depth of each test pit. Soil samples were described in the field by the WSP representative based on procedures outlined in ASTM D 2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Soil samples were sealed in moisture-tight containers (i.e., one-gallon ziplock bags) and stored at WSP's office for potential geotechnical laboratory testing in the future (not part of this scope).

Upon completion, each test pit was backfilled with soil cuttings and compacted to the extent practicable by tamping each lift with the excavator bucket.

Test pit logs and photos are provided in **Attachment 1**.

The overburden soils encountered at the exploration locations are interpreted to be native glacial deposits. Overburden soils encountered generally consist of brown silty sand, silty sand with gravel, sand with silt, sand with silt and gravel, or sand with trace amounts of silt and gravel. The soil is visually classified as SP, SP-SM, or SM in accordance with the Unified Soil Classification System (USCS). The soil was generally described as moist to wet with depth bgs. Occasional cobbles and boulders were encountered in the test pits.

Bedrock was interpreted, but not confirmed, due to refusal to further penetration of the excavator bucket at approximately 6 ft bgs (elevation 957.5 ft) at TP-2.

Sidewall seepage was observed in the test pits at approximately 4.4 to 4.7 ft bgs (elevation 959.1 to 958.8 ft). Groundwater levels are subject to fluctuation due to seasonal precipitation, temperature, snow melt, and/or construction conditions, and therefore may vary from those observed at the time of this investigation.

The findings presented herein were prepared in accordance with generally accepted geotechnical engineering principles and professional engineering practice, consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. We make no other warranty, either expressed or implied. The findings presented herein are based on the results of the geotechnical explorations combined with an interpolation of soil and groundwater conditions between and beyond the widely spaced explorations. If conditions are observed or encountered subsequent to this report that appear to be different from those presented herein, we request that we be notified. Important information from the Geoprofessional Business Association regarding the limitations of this Report is provided in **Attachment 2**.





Thank you for the continued opportunity to support your project in Winchendon, Massachusetts. Should you have any questions, please contact Drew Vardakis at (978) 483-6771 or at [andrew.vardakis@wsp.com](mailto:andrew.vardakis@wsp.com).

Yours sincerely,

WSP USA Associates Massachusetts, Inc.

Handwritten signature of Nicholas D. Langlais in black ink.

Nicholas D.  
Langlais, PE (ME)  
Lead Consultant,  
Geotechnical  
Engineer

Handwritten signature of Andrew P. Vardakis in black ink.

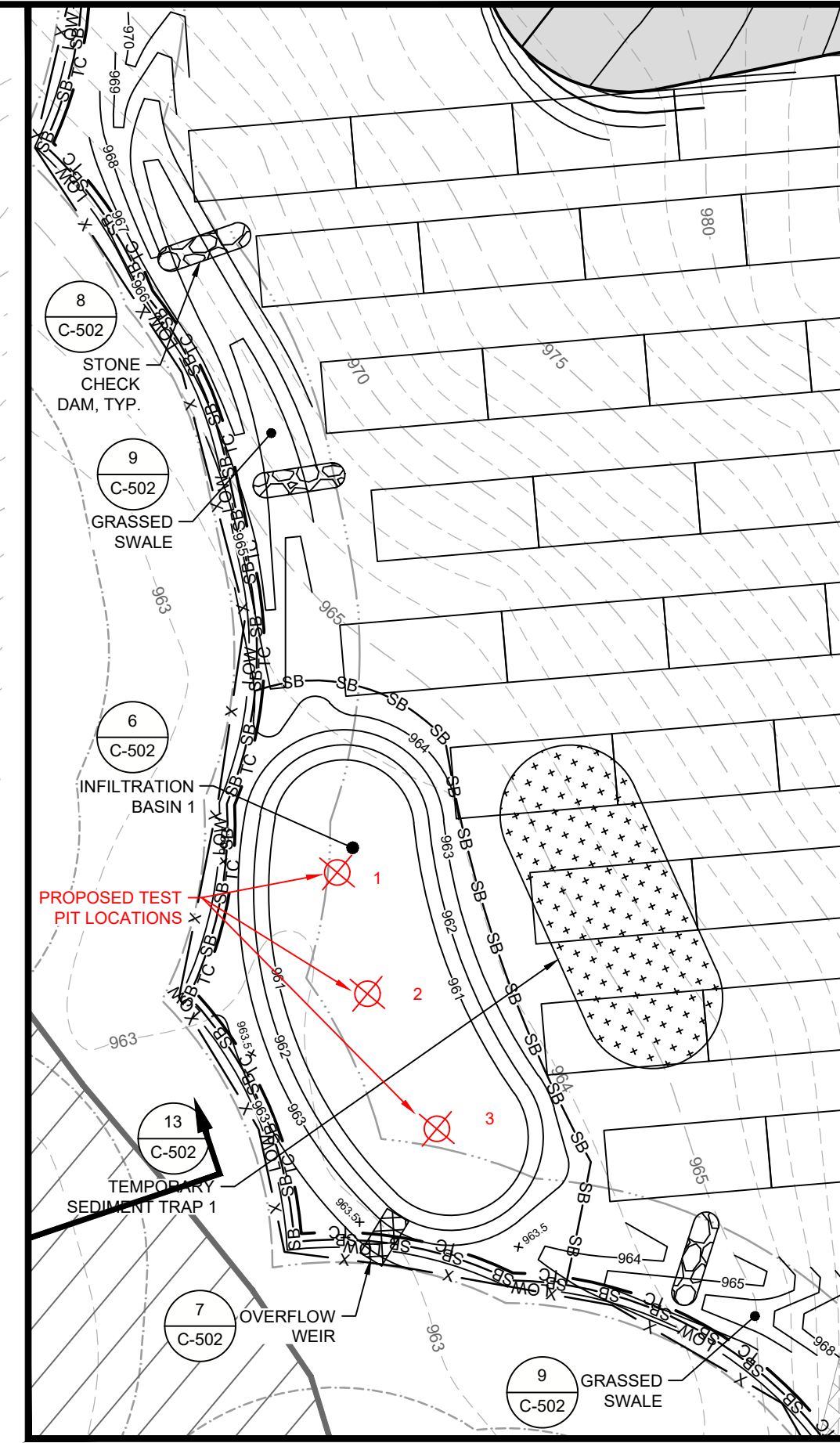
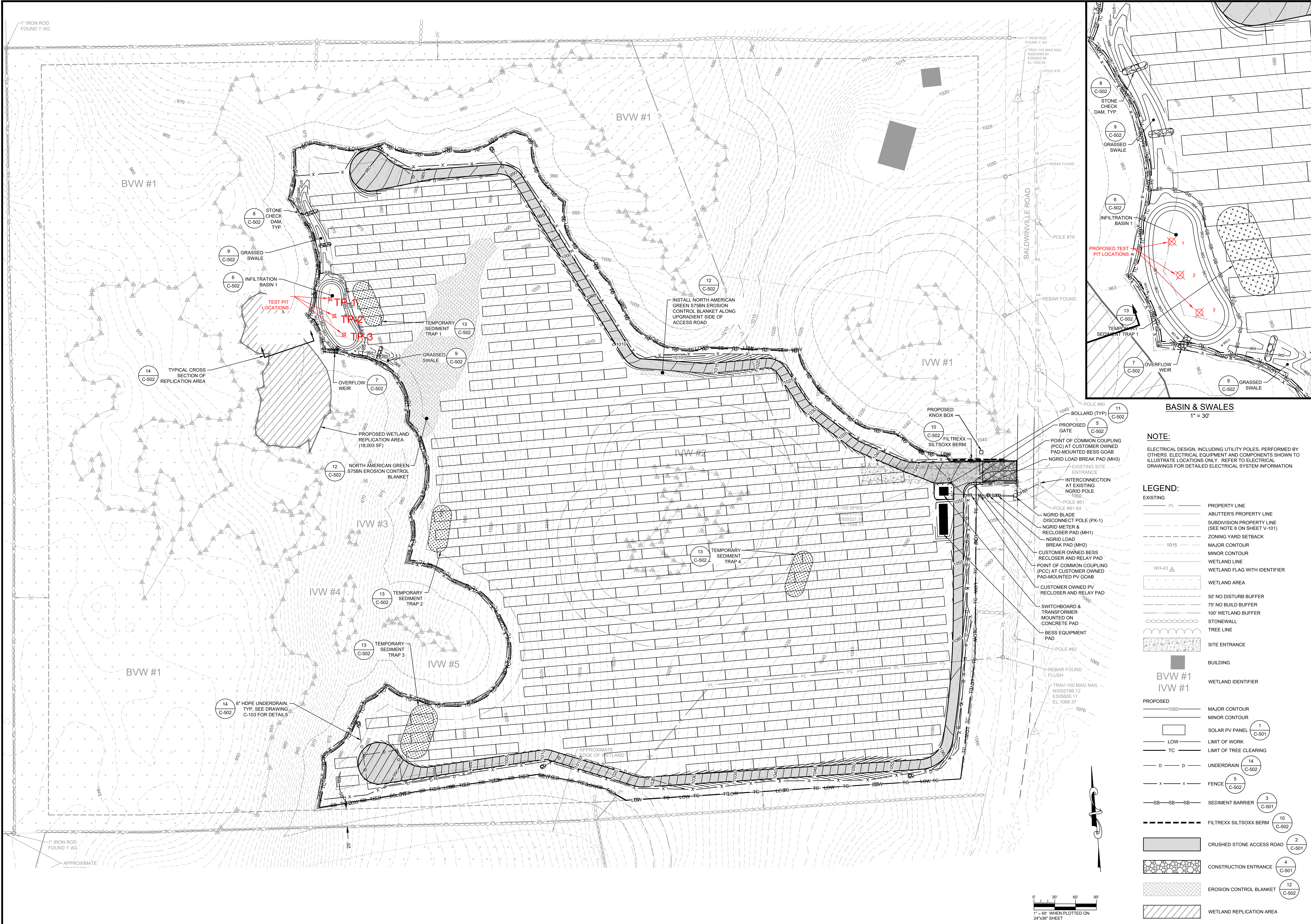
Andrew P. Vardakis, PE  
VP, Civil Engineer

Encl. Figure 1 – Site Plan  
Attachment 1 – Test Pit Logs and Photos  
Attachment 2 – Information from the Geoprofessional Business  
Association

# FIGURES







**BASIN & SWALES**  
 1" = 30'

**NOTE:**  
 ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.

**LEGEND:**

- |          |       |   |
|----------|-------|---|
| EXISTING | PL    | PROPERTY LINE   |
|          | ---   | ABUTTER'S PROPERTY LINE                               |
|          | ---   | SUBDIVISION PROPERTY LINE (SEE NOTE 8 ON SHEET V-101) |
|          | ---   | ZONING YARD SETBACK                                   |
|          | 1015  | MAJOR CONTOUR   |
|          | ---   | MINOR CONTOUR   |
|          | WH-43 | WETLAND LINE  |
|          | ---   | WETLAND FLAG WITH IDENTIFIER                          |
|          | ---   | WETLAND AREA  |
|          | ---   | 50' NO DISTURB BUFFER                                 |
|          | ---   | 75' NO BUILD BUFFER                                   |
|          | ---   | 100' WETLAND BUFFER                                   |
|          | ---   | STONEWALL   |
|          | ---   | TREE LINE   |
|          | ---   | SITE ENTRANCE   |
|          | ---   | BUILDING  |
|          | ---   | WETLAND IDENTIFIER                                    |
| PROPOSED | 1050  | MAJOR CONTOUR   |
|          | ---   | MINOR CONTOUR   |
|          | ---   | SOLAR PV PANEL 1 C-501                                |
|          | ---   | LIMIT OF WORK   |
|          | ---   | LIMIT OF TREE CLEARING                                |
|          | D-D   | UNDERDRAIN 14 C-502                                   |
|          | X-X   | FENCE 5 C-502   |
|          | SB-SB | SEDIMENT BARRIER 3 C-501                              |
|          | ---   | FILTREXX SILT/SOXX BERM 10 C-502                      |
|          | ---   | CRUSHED STONE ACCESS ROAD 2 C-501                     |
|          | ---   | CONSTRUCTION ENTRANCE 4 C-501                         |
|          | ---   | EROSION CONTROL BLANKET 12 C-502                      |
|          | ---   | WETLAND REPLICATION AREA                              |

DATE	REVISION	ISSUE / REVISION DESCRIPTION
04/10/2023	7	ISSUED FOR PLANNING BOARD REVIEW
06/15/2021	6	UPDATED PROPOSED CONDITIONS WITH NEW EQUIPMENT PADS
01/28/2020	5	ADRESSED PEER REVIEW COMMENTS
09/11/2019	4	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION
08/12/2019	3	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION
07/01/2019	2	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION
02/04/2019	1	REVISED PEET TOWN COMMENTS

PROJECT: 5.154 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
 BALDWINVILLE RD  
 WINCHENDON, MASSACHUSETTS

TITLE:  
**PROPOSED SITE PLAN**

CLIENT:  
**WINCHENDON SOLAR, LLC**

SCALE:  
 AS SHOWN

DESIGNED BY:  
 APV

CHECKED BY:  
 OAC

PROJECT NUMBER:  
 3652180157

DRAWING NUMBER:  
**FIGURE 1**

SHEET NUMBER:

**ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION**



# ATTACHMENTS

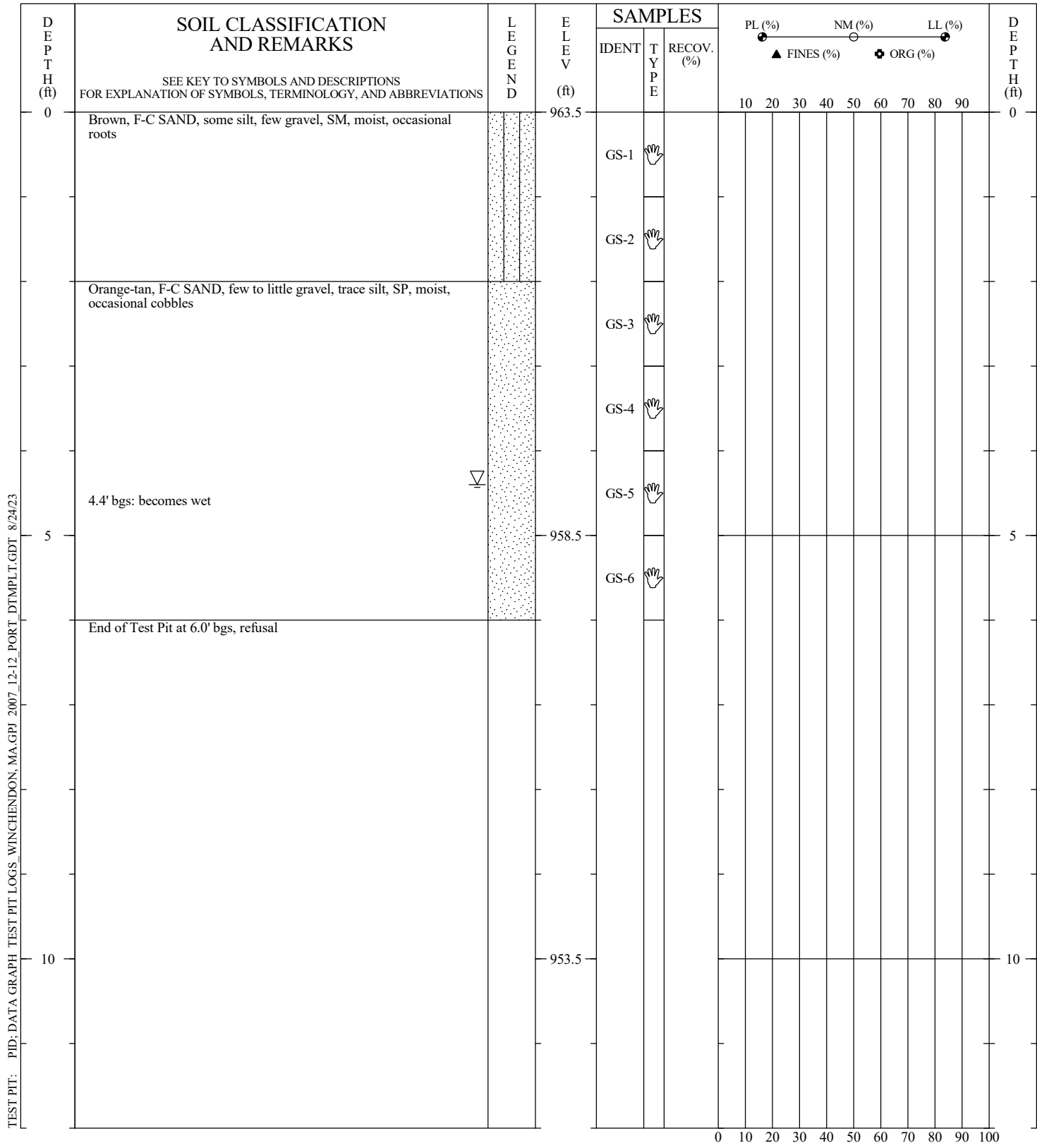
- 1.** TEST PIT LOGS AND PHOTOS

MAJOR DIVISIONS			GROUP SYMBOLS	GENERAL DESCRIPTIONS	TYPICAL SYMBOLS					
<b>COARSE GRAINED SOILS</b> (More than 50% RETAINED on No. 200 sieve)	<b>GRAVELS</b> (More than 50% of coarse fraction RETAINED on No. 4 sieve)	<b>CLEAN GRAVELS</b> (Less than 5% fines)	GW	Well graded gravels or gravel-sand mixtures; trace or no fines.		Shelby Tube		Auger Cuttings		
		<b>GRAVELS WITH FINES</b> (More than 12% fines)	GP	Poorly graded gravels or gravel-sand mixtures; trace or no fines.		Standard Split Spoon Sample		3" Split Spoon Sample		
		<b>SANDS</b> (50% or more of coarse fraction PASSES the No. 4 sieve)	<b>CLEAN SANDS</b> (Less than 5% fines)	GM	Silty gravels or gravel-sand-silt mixtures.		Rock Core		Dynamic Cone Penetrometer	
			<b>SANDS WITH FINES</b> (More than 12% fines)	GC	Clayey gravels or gravel-sand-clay mixtures.		Vane Shear		Bulk/Grab Sample	
	<b>FINE GRAINED SOILS</b> (50% or more PASSES the No. 200 sieve)	<b>SILTS AND CLAYS</b> (Liquid Limit LESS than 50)	<b>CLEAN SANDS</b> (Less than 5% fines)	SW	Well graded sands or sand-gravel mixtures; trace or no fines.		Geoprobe Sample		Sonic or Vibro-Core Sample	
			<b>SANDS WITH FINES</b> (More than 12% fines)	SP	Poorly graded sands or sand-gravel mixtures, trace or no fines.		Water Table at time of drilling		Water Table after 24 hours	
			<b>SILTS AND CLAYS</b> (Liquid Limit of 50 or GREATER)	SM	Silty sands or sand-gravel-silt mixtures.	<b>CORRELATION OF STANDARD PENETRATION TEST (SPT) WITH RELATIVE DENSITY AND CONSISTENCY</b>				
				SC	Clayey sands or sand-gravel-clay mixtures.					
		<b>HIGHLY ORGANIC SOILS</b>	<b>SILTS AND CLAYS</b> (Liquid Limit LESS than 50)	ML	Inorganic silts or rock flour. Non-plastic or very slightly plastic. PI < 4 or plots below "A" line.	GRAVEL, SAND, & SILT (NON-PLASTIC)		SILT (PLASTIC) & CLAY		
				CL	Inorganic lean clay. Low to medium plasticity. PI > 7 and plots on or above "A" line.	N or N <sub>60</sub>	Relative Density	N or N <sub>60</sub>	Su (psf)	Consistency
OL	Organic silts, clays, and silty clays. Low to medium plasticity.			0 - 4	Very Loose	0 - 2	0 - 250	Very Soft		
MH	Inorganic elastic silt. PI plots below "A" line.			5 - 10	Loose	3 - 4	250 - 500	Soft		
				11 - 30	Medium Dense	5 - 8	500 - 1000	Medium Stiff		
OH	Organic silts and clays. High plasticity.	31 - 50	Dense	9 - 15	1000 - 2000	Stiff				
		Over 50	Very Dense	16 - 30	2000 - 4000	Very Stiff				
<b>SILTS AND CLAYS</b> (Liquid Limit of 50 or GREATER)	<b>SILTS AND CLAYS</b> (Liquid Limit of 50 or GREATER)	CH	Inorganic fat clay. High plasticity. PI plots on or above "A" line.	SPT Notes: WR = Weight of Rods; WH = Weight of Hammer						
		OH	Organic silts and clays. High plasticity.	TERMS DESCRIBING SOILS (excludes particles > 3", organics, debris, etc.)		TERMS DESCRIBING MATERIALS (i.e. particles > 3", organics, debris, etc.)				
<b>BOUNDARY CLASSIFICATIONS:</b> Soils possessing characteristics of two groups are designated by combinations of group symbols.			PT	Peat and other highly organic soils. Decomposed vegetable tissue. Fibrous to amorphous texture.	Trace: Particles present, but < 5%	Occasional: Particles present, but < 10%				
					Few: 5% to 15%	Some: 10% to 25%				
					Little: 15% to 25%	Frequent: > 25%				
					Some: 25% to 50%					
					TERMS DESCRIBING MOISTURE		TERMS DESCRIBING STRUCTURE			
					Dry: Absence of moisture; dusty	Layer: > 3" thick				
					Moist: Damp, but no visible water	Seam: 1/16" to 3" thick				
					Wet: Visible/free water	Parting: < 1/16" thick				
					<b>KEY TO SYMBOLS AND DESCRIPTIONS</b>					

References: ASTM D 2487 (Unified Soil Classification System) and ASTM D 2488 (Visual-Manual Procedure).







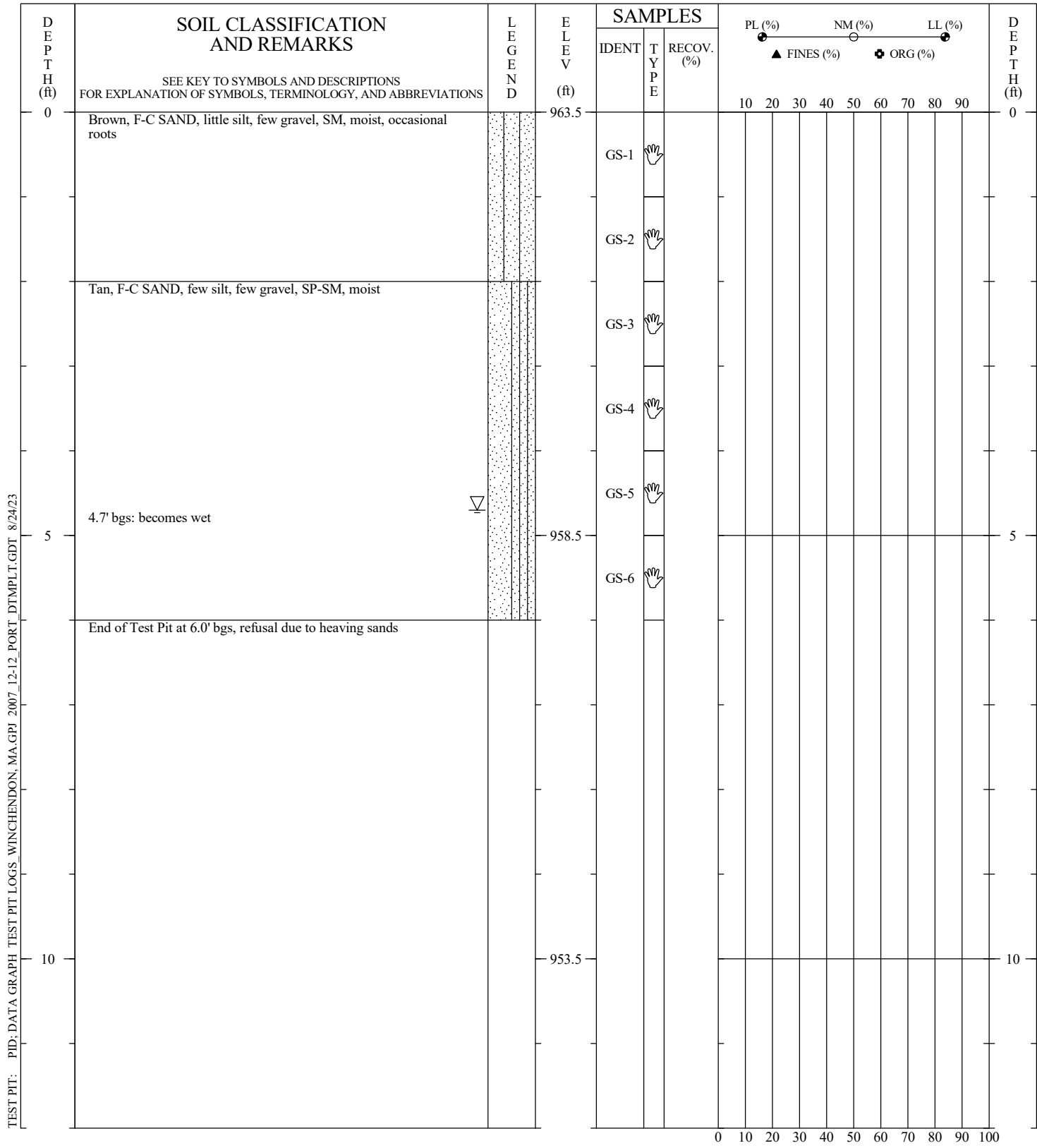
TEST PIT: PID: DATA GRAPH TEST PIT LOGS\_WINCHENDON, MA.GPJ\_2007\_12-12\_POR\_TDTMPLT.GDT\_8/24/23

**CONTRACTOR:** Drilix Environmental  
**EQUIPMENT:** SK85CS Kobelco  
**METHOD:** Excavation  
**REMARKS:** Groundwater seepage observed at 4.4' bgs. Excavation backfilled with soil cuttings.  
  
**LOGGED BY:** DPJ      **CHECKED BY/DATE:** NDL/8-24-23

<b>TEST PIT RECORD</b>	
<b>TEST PIT NO.:</b>	TP-2
<b>EXCAVATED:</b>	8/18/23
<b>PROJECT:</b>	Sunpin
<b>LOCATION:</b>	Winchendon, MA
<b>PROJECT NO.:</b>	3652180157
<b>PAGE 1 OF 1</b>	

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.





TEST PIT: PID: DATA GRAPH TEST PIT LOGS\_WINCHENDON, MA.GPJ\_2007\_12-12\_PORTR\_DT.MPLT.GDT\_8/24/23

**CONTRACTOR:** Drilix Environmental  
**EQUIPMENT:** SK85CS Kobelco  
**METHOD:** Excavation  
**REMARKS:** Groundwater seepage observed at 4.7' bgs. Excavation backfilled with soil cuttings.  
  
**LOGGED BY:** DPJ      **CHECKED BY/DATE:** NDL/8-24-23

<b>TEST PIT RECORD</b>	
<b>TEST PIT NO.:</b>	TP-3
<b>EXCAVATED:</b>	8/18/23
<b>PROJECT:</b>	Sunpin
<b>LOCATION:</b>	Winchendon, MA
<b>PROJECT NO.:</b>	3652180157
<b>PAGE 1 OF 1</b>	

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



Photographic Log



Project: Sunpin  
Project No.: 3652180157  
Address: Baldwinville Road - Winchendon, MA  
Date: 8/18/2023  
Field Technician(s): Dallin Jenson



Photo 1: TP-1  
8/18/2023

Photo 2: TP-1  
8/18/2023



Photo 3: TP-1  
8/18/2023

Photo 4: TP-1  
8/18/2023



Photographic Log



Project: Sunpin  
Project No.: 3652180157  
Address: Baldwinville Road - Winchendon, MA  
Date: 8/18/2023  
Field Technician(s): Dallin Jenson



Photo 5: TP-2  
8/18/2023



Photo 6: TP-2  
8/18/2023



Photo 7: TP-2  
8/18/2023



Photo 8: TP-2  
8/18/2023



Photographic Log



Project: Sunpin  
Project No.: 3652180157  
Address: Baldwinville Road - Winchendon, MA  
Date: 8/18/2023  
Field Technician(s): Dallin Jenson



Photo 5: TP-3  
8/18/2023



Photo 6: TP-3  
8/18/2023



Photo 7: TP-3  
8/18/2023



Photo 8: TP-3  
8/18/2023

# ATTACHMENTS

**2.**

INFORMATION  
FROM THE  
GEOPROFESSIONAL  
BUSINESS  
ASSOCIATION



# Important Information about This

# Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

**The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.**

## Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

## Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

## You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

## This Report May Not Be Reliable

*Do not rely on this report* if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it.* A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

## Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

## This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

## This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

## Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

## Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

## Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old*.

## Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration*. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists*.



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# ATTACHMENT

## **E** STORMWATER POLLUTION PREVENTION PLAN (SWPPP)



# **Stormwater Pollution Prevention Plan (SWPPP)**

*For Construction Activities At:*

**Ground-Mount Solar PV Development  
Baldwinville Road – Parcels 13-0-272, 13-0-273, and 13-0-274  
Winchendon, MA 01475**

*SWPPP Prepared For:*

**Winchendon Solar, LLC  
4 Park Plaza, Suite 1250  
Irvine, CA, 92614**

*SWPPP Prepared By:*



**WSP USA Environment & Infrastructure, Inc.  
100 Apollo Drive, Suite 302  
Chelmsford, Massachusetts 01824**

**SWPPP Preparation Date:**

**September 2019  
Last Revised April 2023**

**Estimated Project Dates:**

**Project Start Date: To Be Determined  
Project Completion Date: To Be Determined**

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***Appendix A – Site Maps and Erosion and Sediment Control Plan, Details and Notes***

***Appendix B – Copy of 2022 CGP***

***Appendix C – NOI and EPA Authorization Email***

***Appendix D – Stormwater Construction Site Inspection Form***

***Appendix E – Corrective Action Form***

***Appendix F – SWPPP Amendment Log***

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***Appendix L – Historic Preservation Documentation***

***Appendix M – Receiving Water Quality Documentation***

***Appendix N – Rainfall Data***



**SECTION 1: CONTACT INFORMATION/RESPONSIBLE PARTIES**

**1.1 Operator(s) / Subcontractor(s)**

**Operator(s):**

Winchendon Solar, LLC  
4 Park Plaza, Suite 1250  
Irvine, CA, 92614  
Phone: (508) 850-6863

**Subcontractor(s):**

To Be Determined

**Emergency 24-Hour Contact:**

Winchendon Solar, LLC  
4 Park Plaza, Suite 1250  
Irvine, CA, 92614  
San Dionne  
T: (617) 586-8468  
M: (603) 686-1750  
sdionne@sunpinsolar.us

**1.2 Stormwater Team**

**Project Manager:**

Winchendon Solar, LLC  
4 Park Plaza, Suite 1250  
Irvine, CA, 92614  
San Dionne  
T: (617) 586-8468  
M: (603) 686-1750  
sdionne@sunpinsolar.us

**SWPPP Preparer:**

WSP USA Environment & Infrastructure, Inc.  
100 Apollo Drive, Suite 302  
Chelmsford, MA 01824  
Phone: (978) 692-9090

## SECTION 2: SITE EVALUATION, ASSESSMENT, AND PLANNING

### 2.1 Project/Site Information

#### Project Name and Address

Ground-Mount Solar PV Development  
Baldwinville Road – Parcels 13-0-272, 13-0-273, and 13-0-274  
Winchendon, Massachusetts 01475  
Worcester County

#### Project Latitude/Longitude

Latitude: 42.623055 ° N (decimal)

Longitude: 72.059530 ° W (decimal)

Method for determining latitude/longitude:

USGS topographic map

EPA Web site

GPS

Other (please specify): Google Maps

Horizontal Reference Datum:

NAD 27

NAD 83 or WGS 84

Unknown

#### Additional Project Information

Is the project/site located on Indian country lands, or located on a property of religious or cultural significance to an Indian tribe?  Yes  No

Are you applying for permit coverage as a “federal operator” as defined in Appendix A of the 2022 CGP?  Yes  No

### 2.2 Discharge Information

Does your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)?

Yes  No

Are there any surface waters that are located within 50 feet of your construction disturbances?

Yes  No

**Table 1 – Names of Receiving Waters**

Name(s) of the first surface water that receives stormwater directly from your site and/or from the MS4 (note: multiple rows provided where your site has more than one point of discharge that flows to different surface waters)
1. Otter River

**Table 2 – Impaired Waters / TMDLs** (Answer the following for each surface water listed in Table 1 above)

	Is this surface water listed as "impaired"?	If you answered yes, then answer the following:			
		What pollutant(s) are causing the impairment?	Has a TMDL been completed?	Title of the TMDL document	Pollutant(s) for which there is a TMDL
1.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> <li>• Total Dissolved Solids</li> <li>• Aquatic Macroinvertebrate Bioassessments</li> <li>• Fecal Coliform</li> <li>• Fishes Bioassessments</li> <li>• Nutrient/Eutrophication Biological Indicators</li> <li>• PCB in Fish Tissue</li> <li>• Taste and Odor</li> <li>• Turbidity</li> </ul>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		

Describe the method(s) you used to determine whether or not your project/site discharges to an impaired water:

- MassDEP: Massachusetts Year 2014 Integrated List of Waters. <http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf>
- Massachusetts list of Tier 2 and 2.5 waters listed in the Massachusetts Water Quality Standards 314 CMR 4.00. Surface water qualifiers that correspond with Tier classifications are defined at 314 CMR 4.06(1)(d)m and listed in tables and figures at the end of 314 CMR 4.06 (<http://www.mass.gov/eea/agencies/massdep/water/regulations/314-cmr-4-00-mass-surface-water-quality-standards.html>).
- See Appendix M for Receiving Water Quality Documentation on the Sensitive Resources Map



**Table 3 – Tier 2, 2.5, or 3 Waters** (Answer the following for each surface water listed in Table 1 above)

	Is this surface water designated as a Tier 2, Tier 2.5, or Tier 3 water?	If you answered yes, specify which Tier (2, 2.5, or 3) the surface water is designated as?
1.	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

## **2.3 Nature of the Construction Activity**

### **General Description of Project**

The Site is identified as Parcel 13-04, encompassing 51.18 acres which is located within the R-80 Rural Residential Zoning District. The proposed ground mounted Photovoltaic (PV) Solar Development (the Project) is in a primarily wooded area of the property between Baldwinville Road, Old Baldwinville Road, and an old railroad path to the west. The proposed tree clearing consists of a total of approximately 13.9 acres as shown on the Drawings in Appendix A. The proposed tree and vegetation removal are the minimum required to construct and reduce shading on the array to make the Project viable.

The solar array consists of PV modules, mounted on a racking system, which will be supported by ground-mounted posts and be embedded into the existing ground surface. The solar panels will extend approximately 8 feet above the existing ground surface at their maximum height. The array will be surrounded by a 7-foot high chain link fence encompassing approximately 13.7 acres with a locking gate for security and electrical code purposes. Access to the Project will come from an existing site entrance from Baldwinville Road that will be reconstructed with crushed stone in accordance with the plans. The access road will have north and south branches both terminating with a cul-de-sac turnaround. The access road is designed to accommodate fire trucks and emergency vehicles. The array will be connected through a switchboard and transformer mounted on concrete pads within the array adjacent to the access road. The purpose of the transformer is to step up the voltage to match and allow for interconnection with the existing utility grid. Medium voltage power from the transformer will run in a subsurface medium voltage line to five proposed above-ground utility poles. The proposed poles will be located near the Site entrance and will connect to an existing pole on Baldwinville Road via overhead electric lines to the interconnection point.

### **Size of Construction Project**

- **SIZE OF PROPERTY:** Total of 51.2 acres (Parcel ID: 13-04, Map 13 Lot 4)
- **TOTAL AREA OF CONSTRUCTION DISTURBANCES:** Approximately 13.9 acres
- **MAXIMUM AREA TO BE DISTURBED AT ANY ONE TIME:** Approximately 13.9 acres. Note that the 13.9 acres is the entire limit of work which may receive construction traffic; however, construction will be phased to limit extents of disturbance areas.

## **2.4 Sequence and Estimated Dates of Construction Activities**

The primary construction activities will include: clearing approximately 20 acres of trees, site grading; installation of infiltration basins; the addition of gravel fill material for proposed gravel roads; installation of ground mounted solar foundations; the movement of heavy machinery; and re-vegetation of disturbed areas (as required).

- Approximate Area of Disturbance: 13.9 acres
- Estimated Start of Construction: To Be Determined
- Estimated Final Commissioning and Operations: To Be Determined
- Estimated Date of Installation of Stormwater Controls: Stormwater erosion controls will be installed prior to earth-disturbing activities.
- Estimated stabilization deadline: Stabilization efforts will be completed within 14 days of temporary or permanent cease of earth disturbing activities.
- Estimated Date of Removal of Stormwater Controls: Stormwater controls will be removed once the site is stabilized (i.e. non-vegetative stabilization or 70% vegetative cover).

**2.5 Allowable Non-Stormwater Discharges**

**List of Allowable Non-Stormwater Discharges Present at the Site**

Type of Allowable Non-Stormwater Discharge	Likely to be Present at Your Site?
Discharges from emergency fire-fighting activities	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Fire hydrant flushings	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Landscape irrigation	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Waters used to wash vehicles and equipment	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Water used to control dust	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Potable water including uncontaminated water line flushings	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Routine external building wash down	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Pavement wash waters	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Uncontaminated air conditioning or compressor condensate	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Uncontaminated, non-turbid discharges of ground water or spring water	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Foundation or footing drains	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Construction dewatering water	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

**2.6 Site Maps**

Site Maps and Erosion and Sediment Control Plans are included in Appendix A. A Sensitive Resource Area Map, also known as the Receiving Water Quality Documentation map, is included in Appendix M.



### SECTION 3: DOCUMENTATION OF COMPLIANCE WITH OTHER FEDERAL REQUIREMENTS

#### 3.1 *Endangered Species Protection*

##### Eligibility Criterion

Under which criterion listed in Appendix D are you eligible for coverage under this permit?

- A       B       C       D       E

**Criterion C.** Federally-listed threatened or endangered species or their designated critical habitat(s) are likely to occur in or near your site’s “action area,” and your site’s discharges and discharge-related activities are not likely to adversely affect listed threatened or endangered species or critical habitat.

For reference purposes, additional information regarding the eligibility criteria is located in Appendix D of the 2022 CGP found in Appendix B of this SWPPP.

##### Supporting Documentation

Information is pending for submittal to the U.S. Fish and Wildlife Service (FWS) to request a review of federally-listed endangered or threatened species that could be adversely affected by stormwater discharges from the Site. The FWS on-line mapping tool IPac (the Information, Planning, and Consultation System located at <<https://ecos.fws.gov/ipac/>>) was used to define the action area for the Site and develop an official species list. IPac showed that there is one threatened species on the list, consisting of the “northern long-eared bat (*Myotis septentrionalis*)”. Additionally, there are no critical habitats within the project area. A copy of the Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form will be filed, and documentation will be provided prior to construction and filing of the eNOI.

#### 3.2 *Historic Preservation*

Do you plan on installing any of the following stormwater controls at your site?

- Dike
- Berm
- Catch Basin
- Pond
- Stormwater Conveyance Channel (e.g., ditch, trench, perimeter drain, swale, etc.)
- Culvert
- Other type of ground-disturbing stormwater control: Infiltration Basin
- None of the above.

The site is not listed in the State of Register of Historic Places nor the Inventory of Historic and Archaeological Assets of the Commonwealth. The Massachusetts Historical Commission determined that the project is unlikely to affect significant historic or archaeological resources.

A Project Notification Form (PNF) will be submitted to the MHC for compliance with the National Historic Preservation Act (NHPA). This application will include Applicant information, project description, land use and area of disturbance.

### **3.3 Safe Drinking Water Act Underground Injection Control Requirements**

Do you plan to install any of the following controls? Check all that apply below.

- Infiltration trenches (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system)
- Commercially manufactured pre-cast or pre-built proprietary subsurface detention vaults, chambers, or other devices designed to capture and infiltrate stormwater flow
- Drywells, seepage pits, or improved sinkholes (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system)
- None of the above. No Safe Drinking Water Act Underground Injection Controls are required.

## SECTION 4: EROSION AND SEDIMENT CONTROLS

The plan for this project has been developed to provide a strategy for controlling soil erosion and sedimentation during and after construction of the proposed project. This plan is based on standards and specifications for erosion prevention in developing areas as contained in Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas, 2003.

### 4.1 *Natural Buffers or Equivalent Sediment Controls*

#### **Buffer Compliance Alternatives**

Are there any surface waters within 50 feet of your project's earth disturbances?  YES  NO

### 4.2 *Perimeter Controls*

#### **General**

Sediment controls will be installed along the perimeter area of the site that will receive stormwater from earth-disturbing activities.

#### **Specific Perimeter Controls**

##### Perimeter Control Description

- Perimeter erosion controls will be placed around all material stockpiles and limits of disturbance and will consist of straw wattles (i.e., sediment barrier) sufficient enough to contain sediment.
- Temporary sediment traps will be installed along the downgradient perimeter of the site and upgradient from the wetlands located within the proposed array.
- Prior to grubbing or any earth moving operations, sediment barriers will be installed as shown on the E&S control plans.
- Specifications are in the Erosion and Sediment Control Plan, Details and Notes (Appendix A).

##### Installation

- Straw wattle will be installed prior to starting construction.

##### Maintenance Requirements

- Sediment will be removed before it accumulates to one-half foot deep at the installed sediment barrier.
- The sediment barriers will be replaced where it is worn, torn, or otherwise damaged.
- Any part of the sediment barriers that is not properly installed on the ground will be re-anchored or replaced.
- Perimeters controls will be inspected at least once every 7 days, or once every 14 calendar days, and within 24 hours of the end of a storm event greater than 0.25 inches

### 4.3 *Sediment Track-Out*

#### **General**

Track-out of sediment onto off-site streets, other paved areas, and sidewalks from vehicles exiting the construction site will be minimized. To comply with this requirement, the following will occur:

- a. Restrict vehicle use to properly designated exit points;
- b. Use appropriate stabilization techniques at all points that exit onto paved roads so that sediment removal occurs prior to vehicle exit;
- c. Where necessary, use additional controls to remove sediment from vehicle tires prior to exit; and
- d. Where sediment has been tracked-out from the site onto the surface of off-site streets, other paved areas, and sidewalks, the deposited sediment will be removed immediately.



## Specific Track-Out Controls

### Track-Out Control Description

- A stabilized construction entrance is proposed as shown on Erosion and Sediment Control Plan, Details and Notes (Appendix A). The construction entrance is proposed to be no less than 50 feet long and 20 feet wide and consist of a non-woven geotextile filter cloth overlain by a minimum 6-inch thick layer of 1-3" stone, reclaimed stone, or recycled concrete equivalent.

### Installation

- The stabilized construction entrance will be installed prior to starting construction.

### Maintenance Requirements

- Stone will be added periodically to the stabilized construction entrance to maintain the sediment removal efficiency of the BMP.
- Complete replacement of the control may be necessary if it becomes clogged and/or ineffective.
- If track-out of sediment occurs, the track-out will be removed by sweeping, shoveling, or vacuuming, or by using other similarly effective means of sediment removal. No hosing or sweeping tracked out sediment into any stormwater conveyance, storm drain inlet, or surface water.
- The construction entrance will be inspected at least once every 7 days, or once every 14 calendar days, and within 24 hours of the end of a storm event greater than 0.25 inches.

## 4.4 *Stockpiled Sediment or Soil*

### General

Perimeter sediment controls will be placed around all material stockpiles and will consist of sediment barriers sufficient enough to contain sediment.

### Specific Stockpile Controls

#### Stockpile Control Description

- The native topsoil on the site will be preserved and re-used during final site stabilization. Material stockpiles will be maintained in one or more central locations.
- Imported topsoil for final site stabilization will be maintained in one or more locations.
- Perimeter erosion control will be placed around all stockpiles and will consist of sediment barriers sufficient enough to contain sediment.
- Where practical, stockpiles will be covered or temporarily stabilized.

#### Installation

- Perimeter erosion control will be installed prior to starting construction

#### Maintenance Requirements

- Will not hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance.
- Sediment shall be removed before it accumulates to one-half foot deep at the installed sediment barrier.
- Areas on or around the stockpile that have eroded shall be stabilized immediately with erosion controls.

#### **4.5 Minimize Dust**

##### **General**

In order to avoid pollutants from being discharged into surface waters, to the extent feasible, the generation of dust will be minimized through the appropriate application of water or other dust suppression techniques. Construction activities will be scheduled so that the smallest area of disturbed soil is exposed at one time.

##### **Specific Dust Controls**

###### Dust Control Description

- Dust control will be used on construction routes and other disturbed areas subject to surface dust movement by vehicle movement, wind or other means.
- Dust control methods will include vegetative cover, mulch (including gravel mulch), spray-on-adhesive calcium chloride, sprinkling with potable water, stone, and barriers.

###### Installation

- Dust control will be implemented as needed once site disturbance has been initiated and during windy conditions (forecasted or actual wind conditions of 20 mph or greater) while site disturbance is occurring. Spraying of potable water will be performed no more than three times a day or whenever the dryness of the soil warrants it.

###### Maintenance Requirements

- The contractor will have access to potable water or other dust suppression techniques at all times during the duration of the project.

#### **4.6 Minimize the Disturbance of Steep Slopes**

##### **General**

The proposed changes to the Project site are not expected to impact the overall stability of the site.

##### **Specific Steep Slope Controls**

###### Steep Slope Control Description

- Areas of the site within the fence limits will be graded, and topsoil placed as required prior to seeding with a low maintenance solar seed mix that resembles meadow surface conditions, in order to create a uniform slope for the solar installation and promote stormwater drainage. Once the site is regraded, the ground-screw foundations will be installed along the proposed topography of the terrain. Erosion Control matting will be installed on slopes greater than or equal to 20%.

###### Installation

- If needed, erosion control blankets, or equivalent, shall be installed as necessary to prevent erosion on steep slopes during construction and to facilitate revegetation following seeding.

###### Maintenance Requirements

- If needed, erosion control blankets shall be inspected at least once every 7 days, or once every 14 calendar days, and within 24 hours of the end of a storm event greater than 0.25 inches to determine if tears, or breaches have formed in the fabric; if so, the blanket shall be repaired or replaced immediately. Good contact with the soil shall be maintained and erosion shall not occur under the blanket. Any areas where the blanket is not in close contact with the ground shall be repaired or replaced. Upon completion of construction, all areas previously disturbed will be seeded and monitored until a satisfactory growth of vegetation is established. Satisfactory growth shall mean approximately 70% of the area is vegetated.

#### **4.7 Topsoil**

##### **General**

The native topsoil on the site will be preserved as much as possible with the exception of ground screw foundation poles for the Solar PV array. Any excess native topsoil will be used in conjunction with imported topsoil to cover and vegetate the ground surface within the Solar PV array. Upon completion of regrading and construction, all areas previously disturbed will be loamed, seeded and monitored until a satisfactory growth of vegetation is established. Satisfactory growth shall mean approximately 70% of the area is vegetated.

#### **4.8 Soil Compaction**

##### **General**

To avoid soil compaction, vehicle and equipment use should be restricted in all areas on-site undergoing vegetative stabilization. Prior to seeding or planting areas of exposed soil that has been compacted, soil roughening will be used on all surfaces.

##### **Specific Soil Compaction Controls**

###### Soil Compaction Control Description

- Soil roughening involves increasing the relief of a bare soil surface with horizontal grooves by either stair-stepping (running parallel to the contour of the land) or using construction equipment to track the surface (running perpendicular to the contour of the land). Soil roughening works especially well on slopes greater than 3:1, on piles of excavated soil, and in areas with highly erodible soils.

###### Installation

- Create a series of ridges and depressions that run across the slope along the contour. Make grooves using any appropriate equipment that can be safely operated on the slope, such as disks, tillers, spring harrows, or the teeth on a front-end loader bucket. Make the grooves less than 3 inches deep and less than 15 inches apart. Soil roughening will be done during soil amendment mixing and prior to final stabilization with seed, mulch and erosion matting.

###### Maintenance Requirements

- Roughened areas will be inspected at least once every 7 days, or once every 14 calendar days, and within 24 hours of the end of a storm event greater than 0.25 inches. If rills appear, fill, re-grade, and reseed them immediately.

#### **4.9 Storm Drain Inlets**

##### **General**

No storm drain inlets are located within limits of work or receive discharge from site stormwater.

#### **4.10 Constructed Stormwater Conveyance Channels**

###### Stormwater Conveyance Channel Description

- One (1) Stormwater Conveyance Channels will be used on this project. It has been
- Designed to direct surface runoff from storm events to the proposed infiltration basin and reduce the volume of runoff leaving the Site.



#### Installation

- To be installed prior to solar array construction.
- Upon completion of construction, the conveyance channel will be seeded and monitored until a satisfactory growth of vegetation is established. Satisfactory growth shall mean approximately 70% of the area is vegetated.

#### Maintenance Requirements

- Inspect after every major storm (2-yr storm over 24-hour period) for the first few months to ensure it is stabilized and functioning properly.
- Check dams shall be added/repaired/replaced as necessary.
- Silt/sediment shall be removed from the channel bottom after it reaches 1" in depth.
- Mow vegetation at least once per year.

### **4.11 Sediment Basins**

#### Infiltration Basin Description

- One (1) infiltration basin to be installed within a sub-catchment drainage area in the Site.
- Designed to collect surface runoff from storm events and reduce volume of runoff leaving the Site.

#### Installation

- To be installed prior to solar array construction.
- To limit smearing or compacting soils, never construct in the winter or when it is raining.
- Use light earth-moving equipment to excavate the infiltration basin because heavy equipment compacts soils beneath basin floor and side slopes and reduces infiltration capacity.
- Upon completion of construction, the infiltration basins will be loamed, seeded and monitored until a satisfactory growth of vegetation is established. Satisfactory growth shall mean approximately 70% of the area is vegetated.

#### Maintenance Requirements

- Inspect after every major storm (2-yr storm over 24-hour period) for the first few months to ensure it is stabilized and functioning properly.
- Inspect infiltration basin at least twice per year for the following; signs of differential settlement, erosion, leakage in embankments, tree growth on the embankments, sediment accumulation, and health of turf.
- Remove accumulated sediment from the basin on a bi-annual basis or sooner if noticeable clogging is observed.
- Mow vegetated infiltration basins at least once per year.

### **4.12 Chemical Treatment**

Chemical treatment will not be used on this project.

### **4.13 Dewatering Practices**

Dewatering practices will not be used on this project.

### **4.14 Site Stabilization**

**Site Stabilization Practice** (only use this if you are not located in an arid, semi-arid, or drought-stricken area)

- Vegetative*     *Non-Vegetative*  
 *Temporary*     *Permanent*

**Description of Practice**

- The array will be constructed on an area vegetated with grasses, shrubs and trees. The array will be mounted on a racking system which will be supported by ground-mounted posts that will be embedded into the existing ground surface.
- Soil cuttings that are generated during drilling of the pilot holes for the ground screws will be collected and be spread on-site. Topsoil and sand generated from other soil removal activities (e.g., trenching, inverter/transformer equipment pad installation) will be used during the regrading of the site. Following construction, topsoil will be spread throughout the disturbed areas and will be seeded.
- All disturbed areas, including trench areas, and other areas where soils remain exposed following construction activities will be seeded and mulched for erosion control upon completion of rough grading.
- The Grading/Stabilization Activities log in Appendix H will be utilized during stabilization.
- Final stabilization and removal of all temporary controls will be when all disturbed areas have been stabilized with gravel or with 70% vegetative growth (by area covered).
- See Erosion and Sediment Control Plan, Details and Notes (Appendix A).

**Installation**

- Temporary stabilization measures will be applied to portions of the site where construction activities will temporarily cease for more than 14 days, or final stabilization within 14 days.

**Maintenance Requirements**

- Stabilized areas will be inspected every 7 days, or once every 14 calendar days, and within 24 hours of the end of a storm event greater than 0.25 inches, until a dense cover (70% coverage) of vegetation becomes established.

**SECTION 5: POLLUTION PREVENTION STANDARDS**

**5.1 Potential Sources of Pollution**

**Construction Site Pollutants**

<b>Pollutant-Generating Activity</b>	<b>Pollutants or Pollutant Constituents</b> (that could be discharged if exposed to stormwater)	<b>Location on Site</b> (or reference SWPPP site map where this is shown)
Excavation/Grading	Sediment	Entire project area
Traffic	Sediment	Entire project area
Seeding for Final Stabilization	Sediment, lime, grass seed	Entire project area
Concrete	Concrete wash water	To be determined

**5.2 Spill Prevention and Response**

Liquids other than water are not going to be mobilized, used or stored on-site, therefore leaks, spills and other releases are not anticipated from anything other than the fluids associated with the equipment used on-site. In case of a leak, spill or release:

- A complete spill mitigation kit shall be on-site during construction.
- The Site Superintendent shall respond immediately to any detection of a spill or leak. The Site Superintendent shall contact the Project Manager.
- Any leak, spill or other release shall be stopped immediately upon detection. If this involves a piece of equipment, the work implements shall be lowered and the equipment stopped.
- The equipment/container shall be secured to prevent further releases. The release shall be contained and absorbed using the materials in the spill kit.
- Used materials from the spill kit and any affected soils shall be placed in sealed drums and removed from the site as soon as practicable. Waste materials shall be disposed of in accordance with all applicable local, state and federal regulation.
- The machinery shall not be allowed to operate until permanent repairs are completed. All repair of equipment shall be conducted offsite.

**5.3 Fueling and Maintenance of Equipment or Vehicles**

**General**

Fueling of vehicles/equipment on-site should be avoided but may be performed. The worker responsible for refueling vehicles/equipment on-site shall be trained in proper fueling and cleanup procedures. The nozzles used to refuel construction vehicle/equipment should be equipped with vapor recovery and automatic shutoff to control drips.



## **Specific Fueling and Maintenance of Equipment or Vehicles Controls**

### Fueling and Maintenance of Equipment or Vehicles Practice # 1

#### Description

At the point of fueling, the worker responsible for conducting the fueling activities will perform the following steps:

- Verify that a spill kit is available and appropriately stocked prior to fueling any vehicle /equipment.
- Inspect the vehicle/equipment for leaks, equipment damage, and other service problems.
- Place drip pans, drip cloths, or absorbent pads under the point of fueling to catch any drips/leaks from the fueling hose.
- Do not “top off” the tank of the vehicle/equipment.
- Never leave the fueling operation unattended.
- Remove the adsorbent materials promptly and dispose of properly.

Only minor emergency equipment maintenance (e.g., replace belt, change tire, lubricate with grease, add oil) will be allowed to occur on-site; all other maintenance must be done off-site. Any equipment fluids and rags generated from emergency maintenance activities will be disposed of into designated drums. Absorbent, spill-cleanup materials and spill kits will be available. Drip pans and plastic sheeting will be placed under all equipment receiving maintenance, and under vehicles and equipment parked overnight.

#### Maintenance Requirements:

- Inspect equipment/vehicle storage areas and fueling areas every 7 days, or once every 14 calendar days, and within 24 hours of the end of a storm event greater than 0.25 inches.
- Vehicles and equipment will be inspected on each day of use. Leaks will be repaired immediately, or the problem vehicle(s) or equipment will be removed from the project site.
- Keep ample supply of spill-cleanup materials on-site and immediately clean up spills and dispose of materials properly.

## **5.4 Washing of Equipment and Vehicles**

### **General**

No washing of equipment or vehicles shall be conducted on the project site.

## **5.5 Storage, Handling, and Disposal of Construction Products, Materials, and Wastes**

### **5.5.1 Building Products**

#### **General**

Building Materials will be stored temporarily on-site in the staging area. Concrete may be poured-in-place or pre-cast structures for equipment pads.

## **Specific Pollution Prevention Practices**

### Pollution Prevention Practice # 1

#### Description

- All building materials will be stored in a designated staging area. None of the identified building materials are considered a potential pollutant.
- All concrete shall be brought on-site and used that day, eliminating the need for storage.
- Concrete placed on-site via a ready-mix truck will require a wash out area. The washout areas will be designated, easily accessible for the delivery trucks, and placed in an area that will prevent runoff.

#### Installation

- The staging and wash out areas will be designated prior to beginning construction if cast-in-place structures will be installed.

#### Maintenance Requirements

- If building materials in the staging area are identified as potential pollutant sources, these materials shall be covered to prevent contact with stormwater. Solidified concrete shall be removed from the site and disposed of in accordance with all local, state and federal regulations.

### **5.5.2 Pesticides, Herbicides, Insecticides, Fertilizers, and Landscape Materials**

#### **General**

Soil amendments may be used to start vegetated stabilization, if required. Fertilizer and lime may be used and may be stored onsite for short periods of time. Care will be used during application to avoid mobilizing the soil amendments.

#### **Specific Pollution Prevention Practices**

##### Pollution Prevention Practice # 1

#### Description

- All soil amendments (fertilizer and lime, if required) shall be brought on-site in sealed, water tight packaging, on pallets and stored away from drainage features and surface waters.
- Soil amendments shall be covered with water tight tarps if stored on-site.
- No other chemicals are to be brought on-site.
- See Erosion and Sediment Control Plan, Details and Notes (Appendix A).

#### Installation

- Soil amendments shall be mixed or tilled into the spread topsoil per the specifications.

#### Maintenance Requirements

- Stored soil amendments shall be kept dry and kept off of the ground to prevent leaching into the soil and surface waters.

### **5.5.3 Diesel Fuel, Oil, Hydraulic Fluids, Other Petroleum Products, and Other Chemicals**

#### **General**

Petroleum products will not be stored on-site.

### **5.5.4 Hazardous or Toxic Waste**

#### **General**

Hazardous materials or toxic waste will not be stored on-site.

### **5.5.5 Construction and Domestic Waste**

#### **General**

All waste materials shall be collected and stored in accordance with state and federal law in an appropriately covered container and/or securely lidded dumpster during non-working hours.

## Specific Pollution Prevention Practices

### Pollution Prevention Practice # 1

#### Description

- All trash and construction debris from the site shall be deposited in the dumpster. No construction waste materials shall be buried on-site. All personnel shall be instructed regarding these correct procedures for waste disposal.
- To the extent practicable, all waste dumpsters and roll-off containers shall be located in an area where the likelihood of the containers contributing to stormwater discharges is negligible. If required, additional BMPs shall be implemented, such as sandbags around the base, to prevent wastes from contributing to stormwater discharges.

#### Installation

- Trash dumpsters shall be installed once the staging area has been established.

#### Maintenance Requirements

- The dumpsters shall be inspected every 7 days, or once every 14 calendar days, and within 24 hours of the end of a storm event greater than 0.25 inches. The dumpsters shall be emptied or taken to an approved landfill or recycling facility. If trash and construction debris are exceeding the dumpsters' capacity, the dumpsters shall be emptied more frequently.

## 5.5.6 Sanitary Waste

### General

Temporary sanitary facilities (portable toilets) shall be provided at the site throughout the construction. The portable toilets shall be located in the staging areas away from concentrated stormwater flow paths and traffic flows.

## Specific Pollution Prevention Practices

### Pollution Prevention Practice # 1

#### Description

- All temporary sanitary facilities shall be located in an area where the likelihood of the unit contributing to stormwater discharges is negligible. If required, additional BMPs shall be implemented, such as sandbags around the base, to prevent wastes from contributing to stormwater discharges. All temporary sanitary facilities shall be positioned so that they are secure (e.g., sandbags around the base) and shall not be tipped or knocked over.

#### Installation

- The temporary sanitary facilities shall be brought to the site once the staging area has been established.

#### Maintenance Requirements

- All sanitary waste shall be collected from the portable units on a regular basis by a licensed portable facility provider in compliance with all local and state regulations.

## 5.6 Washing of Applicators and Containers used for Paint, Concrete or Other Materials

### General

Washing of Applicators and Containers used for Paint, or Other Materials without a designated washout area will not be conducted on-site. Washing out of applicators and containers used for Ready-Mixed Concrete will be performed in a designated washout area, if required. The washout areas will be designated, easily accessible for the delivery trucks, and placed in an area that will prevent runoff.



## **Specific Pollution Prevention Practices**

### *Pollution Prevention Practice # 1*

#### Description

- The washout area will be designated prior to beginning construction.

#### Installation

- The washout area will be installed prior to beginning construction.

#### Maintenance Requirements

- Concrete washout facilities should be inspected daily and after heavy rains. When the washout container is filled over 75 percent of its capacity it should be emptied or allowed to evaporate to avoid overflows. Solidified concrete shall be removed from the site and disposed of in accordance with all local, state and federal regulations. Damages to the container should be repaired promptly. Before heavy rains, the washout container's liquid level should be lowered or the container covered to avoid overflow during the rain storm. Any areas of erosion due to the washout operations shall be repaired immediately.

## **5.7 Fertilizers**

### **General**

See 5.5.2 above for discussion of minimal potential fertilizer use.

## **5.8 Other Pollution Prevention Practices**

Not Applicable

## SECTION 6: INSPECTION AND CORRECTIVE ACTION

### 6.1 *Inspection Personnel and Procedures*

#### **Personnel Responsible for Inspections**

The Contractor shall provide a qualified person to be responsible to conduct inspection for ensuring the requirements of the SWPPP are followed.

Note: All personnel conducting inspections shall be considered a “qualified person.” CGP Part 4.1.1 clarifies that a “qualified person” is a person knowledgeable in the principles and practices of erosion and sediment controls and pollution prevention, who possesses the skills to assess conditions at the construction site that could impact stormwater quality, and the skills to assess the effectiveness of any stormwater controls selected and installed to meet the requirements of this permit.

#### **Inspection Schedule**

##### Specific Inspection Frequency

- At a minimum, inspections shall occur once every 7 calendar days or once every 14 calendar days and within 24 hours of the occurrence of a storm event of 0.25 inches or greater.

##### Rain Gauge Location (if applicable)

- A rain gauge shall be kept on-site to record daily rainfall events, or rainfall data from a nearby weather station that is representative of the Site shall be kept in the SWPPP in Appendix N.

##### Reductions in Inspection Frequency (if applicable)

- For the reduction in inspections resulting from stabilization:  
You may reduce the frequency of inspections to once per month in any area of your site where the stabilization steps have been completed. If construction activity resumes in this portion of the site at a later date, the inspection frequency immediately increases to once every 7 calendar days or once every 14 calendar days and within 24 hours of the occurrence of a storm event of 0.25 inches or greater. You must document the beginning and ending dates of this period in your records.
- For reduction in inspections due to frozen conditions:  
If you are suspending earth-disturbing activities due to frozen conditions, you may temporarily suspend inspections on your site until thawing conditions begin to occur if:
  - Runoff is unlikely due to continuous frozen conditions that are likely to continue at your site for at least 3 months based on historic seasonal averages; and
  - Land disturbances have been suspended; and
  - All disturbed areas of the site have been temporarily or permanently stabilized.

If you are still conducting earth-disturbing activities during frozen conditions, you may reduce your inspection frequency to once per month if:

- Runoff is unlikely due to continuous frozen conditions that are likely to continue at your site for at least 3 months based on historic seasonal averages; and
- Except for areas in which you are actively conducting earth-disturbing activities, disturbed areas of the site have been temporarily or permanently stabilized.

### **Inspection Report Forms**

You must document the beginning and ending dates of reduced inspection periods in your SWPPP in Appendix D.

### **6.2 Corrective Action**

Corrective actions are actions you take in compliance with this Part to:

- Repair, modify, or replace any stormwater control used at the site;
- Clean up and properly dispose of spills, releases, or other deposits; or
- Remedy a permit violation.

#### **Personnel Responsible for Corrective Actions**

The Contractor's Project Manager shall be responsible for ensuring the corrective action items are addressed within 7 calendar days from the time of discovery. If it is infeasible to complete the installation or repair within 7 calendar days, documentation in the SWPPP shall be included noting why it is infeasible and the schedule for shall be provided for installing the corrective action item.

#### **Corrective Action Forms**

Corrective actions need to be documented in a report that is maintained on-site with the SWPPP. Refer to Parts 5.4.1 and 5.4.2 of the CGP regarding the timing and content of reports. A copy of the Corrective Action Form is included in Appendix E.

SWPPP updates that are triggered due to corrective actions or other changes in site activities need to be recorded in the SWPPP Amendment Log in Appendix F.

### **6.3 Delegation of Authority**

A copy of the Delegation of Authority Form is included in Appendix J.

#### **Duly Authorized Representative(s) or Position(s):**

To Be Determined.



## **SECTION 7: TRAINING**

Prior to the commencement of earth-disturbing activities or pollutant-generating activities, whichever occurs first, the following personnel must understand the requirements of this permit and their specific responsibilities with respect to those requirements:

- Personnel who are responsible for the design, installation, maintenance, and/or repair of stormwater controls (including pollution prevention measures);
- Personnel who are responsible for conducting inspections; and
- Personnel who are responsible for taking corrective actions.

At a minimum, personnel must be trained to understand the following if related to the scope of their job duties (e.g., only personnel responsible for conducting inspections need to understand how to conduct inspections):

- The location of all stormwater controls on the site required by this permit, and how they are to be maintained;
- The proper procedures to follow with respect to the permit's pollution prevention requirements; and
- When and how to conduct inspections, record applicable findings, and take corrective actions.

Documentation of Training shall be included in Appendix I.

**SECTION 8: CERTIFICATION AND NOTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **SWPPP APPENDICES**

Attach the following documentation to the SWPPP:

***Appendix A – Site Maps and Erosion and Sediment Control Plan, Details and Notes***

***Appendix B – Copy of 2022 CGP***

***Appendix C – NOI and EPA Authorization Email***

***Appendix D – Stormwater Construction Site Inspection Form***

***Appendix E – Corrective Action Form***

***Appendix F – SWPPP Amendment Log***

***Appendix G – Subcontractor Certifications/Agreements***

***Appendix H – Grading and Stabilization Activities Log***

***Appendix I – Training Log***

***Appendix J – Delegation of Authority***

***Appendix K – Endangered Species Documentation***

***Appendix L – Historic Preservation Documentation***

***Appendix M – Receiving Water Quality Documentation***

***Appendix N – Rainfall Data***



**Appendix A – Site Maps and Erosion and Sediment Control Plan, Details and Notes**




**USGS MAP**

Winchendon Solar, LLC

Baldwinville Road  
Winchendon, Massachusetts


**Legend**


 Proposed Array  
(Fence Line)




**Notes & Sources**

0 2,000 Feet





WSP USA Environment & Infrastructure, Inc.  
100 Apollo Drive, Suite 302  
Chelmsford, MA 01824  
(978) 692-9090



**FIGURE**  
1

**Appendix B – Copy of 2022 CGP**



**National Pollutant Discharge Elimination System (NPDES)  
Construction General Permit (CGP) for Stormwater Discharges from  
Construction Activities**

In compliance with the provisions of the Clean Water Act, 33 U.S.C. § 1251 et. seq., (hereafter CWA), as amended by the Water Quality Act of 1987, P.L. 100-4, "operators" of construction activities (defined in Appendix A) that meet the requirements of Part 1.1 of this National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP), are authorized to discharge pollutants in accordance with the effluent limitations and conditions set forth herein. Permit coverage is required from the "commencement of construction activities" (see Appendix A) until one of the conditions for terminating CGP coverage has been met (see Part 8.2).

This permit becomes effective on 12:00 am, February 17, 2022.

This permit and the authorization to discharge expire at 11:59pm, February 16, 2027.

Signed and issued this 18 day of January 2022

**DEBORAH SZARO** Digitally signed by DEBORAH SZARO  
Date: 2022.01.18 08:31:14 -05'00'

Deborah Szaro,  
Acting Regional Administrator, EPA Region 1.

Signed and issued this 18 day of January 2022

**JAVIER LAUREANO** Digitally signed by JAVIER LAUREANO  
Date: 2022.01.18 11:21:16 -05'00'

Javier Laureano,  
Director, Water Division, EPA Region 2.

Signed and issued this 18 day of January 2022

**CARMEN GUERRERO PEREZ** Digitally signed by CARMEN GUERRERO PEREZ  
Date: 2022.01.18 10:19:51 -04'00'

Carmen Guerrero-Perez,  
Director, Caribbean Environmental Protection Division, EPA Region 2.

Signed and issued this 18 day of January 2022

**CATHERINE LIBERTZ** Digitally signed by CATHERINE LIBERTZ  
Date: 2022.01.18 12:05:24 -05'00'

Catherine A. Libertz,  
Director, Water Division, EPA Region 3.

Signed and issued this 18 day of January 2022

**JEANEANNE GETTLE** Digitally signed by JEANEANNE GETTLE  
Date: 2022.01.18 13:09:48 -05'00'

Jeaneanne Gettle,  
Director, Water Division, EPA Region 4.

Signed and issued this 18 day of January 2022

 Digitally signed by TERA FONG  
Date: 2022.01.18 13:03:49 -06'00'

Tera Fong,  
Director, Water Division, EPA Region 5.

Signed and issued this 18 day of January 2022

**CHARLES MAGUIRE** Digitally signed by CHARLES MAGUIRE  
DN: cn=US, o=U.S. Government, ou=Environmental Protection Agency, cn=CHARLES MAGUIRE, o.9.2342.19200300.100.1.1+68001003650036  
Date: 2022.01.18 14:06:55 -06'00'

Charles W. Maguire,  
Director, Water Division, EPA Region 6.

Signed and issued this 18 day of January 2022

**JEFFERY ROBICHAUD** Digitally signed by JEFFERY ROBICHAUD  
Date: 2022.01.18 14:41:37 -06'00'

Jeffery Robichaud,  
Director, Water Division, EPA Region 7.

Signed and issued this 18 day of January 2022

**DARCY OCONNOR** Digitally signed by DARCY OCONNOR  
Date: 2022.01.18 14:00:05 -07'00'

Darcy O'Connor,  
Director, Water Division, EPA Region 8.

Signed and issued this 18 day of January 2022

**TOMAS TORRES** Digitally signed by TOMAS TORRES  
Date: 2022.01.18 13:30:16 -08'00'

Tomás Torres,  
Director, Water Division, EPA Region 9.

Signed and issued this 18 day of January 2022

**DANIEL OPALSKI** Digitally signed by DANIEL OPALSKI  
Date: 2022.01.18 15:10:20 -08'00'

Daniel D. Opalski,  
Director, Water Division, EPA Region 10.

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## 1 HOW TO OBTAIN COVERAGE UNDER THE CONSTRUCTION GENERAL PERMIT (CGP)

To be covered under this permit, you must meet the eligibility conditions and follow the requirements for obtaining permit coverage in this Part.

### 1.1 ELIGIBILITY CONDITIONS

**1.1.1** You are an “operator” of a construction site for which discharges will be covered under this permit. For the purposes of this permit and in the context of stormwater discharges associated with construction activity, an “operator” is any party associated with a construction project that meets either of the following two criteria:

- a.** The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
- b.** The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Where there are multiple operators associated with the same project, all operators must obtain permit coverage.<sup>1</sup> Subcontractors generally are not considered operators for the purposes of this permit.

#### 1.1.2 Your site’s construction activities:

- a.** Will disturb one or more acres of land, or will disturb less than one acre of land but are part of a common plan of development or sale (as defined in Appendix A) that will ultimately disturb one or more acres of land; or
- b.** Have been designated by EPA as needing permit coverage under 40 CFR § 122.26(a)(1)(v) or 40 CFR § 122.26(b)(15)(ii);

**1.1.3** Your site is located in an area where EPA is the permitting authority and where coverage under this permit is available (see Appendix B);

#### 1.1.4 Discharges from your site are not:

- a.** Already covered by a different NPDES permit for the same discharge; or
- b.** In the process of having coverage under a different NPDES permit for the same discharge denied, terminated, or revoked.<sup>2, 3</sup>

**1.1.5** You can demonstrate you meet one of the criteria in the Endangered Species Protection section of the Notice of Intent (NOI) that you submit for coverage under this permit, per Part 1.4, with respect to the protection of Federally listed endangered or threatened species and Federally designated critical habitat under the Endangered Species Act

---

<sup>1</sup> If the operator of a “construction support activity” (see Part 1.2.1c) is different than the operator of the main site, that operator must also obtain permit coverage. See Part 7.1 for clarification on the sharing of permit-related functions between and among operators on the same site and for conditions that apply to developing a SWPPP for multiple operators associated with the same site.

<sup>2</sup> Parts 1.1.4a and 1.1.4b do not include sites currently covered under the 2017 CGP that are in the process of obtaining coverage under this permit, nor sites covered under this permit that are transferring coverage to a different operator.

<sup>3</sup> Notwithstanding a site being made ineligible for coverage under this permit because it falls under the description of Parts 1.1.4a or 1.1.4b, above, EPA may waive the applicable eligibility requirement after specific review if it determines that coverage under this permit is appropriate.

(ESA). If the EPA Regional Office grants you a waiver from electronic reporting per Part 1.4.2, you must complete the ESA worksheet in Appendix D to demonstrate you meet one of the criteria and submit it with your paper NOI (Appendix I).

- 1.1.6** You have completed the screening process in Appendix E relating to the protection of historic properties; and
- 1.1.7** You have complied with all requirements in Part 9 imposed by the applicable State, Indian Tribe, or Territory in which your construction activities and/or discharge will occur.
- 1.1.8** For “new sources” (as defined in Appendix A) only:
- a.** EPA has not, prior to authorization under this permit, determined that discharges from your site will not meet applicable water quality standards. Where such a determination is made prior to authorization, EPA may notify you that an individual permit application is necessary. However, EPA may authorize your coverage under this permit after you have included appropriate controls and implementation procedures designed to bring your discharge into compliance with this permit, specifically the requirement to meet water quality standards. In the absence of information demonstrating otherwise, EPA expects that compliance with the requirements of this permit, including the requirements applicable to such discharges in Part 3, will result in discharges that meet applicable water quality standards.
  - b.** Discharges from your site to a Tier 2, Tier 2.5, or Tier 3 water<sup>4</sup> will not lower the water quality of the applicable water. In the absence of information demonstrating otherwise, EPA expects that compliance with the requirements of this permit, including the requirements applicable to such discharges in Part 3.2, will result in discharges that will not lower the water quality of such waters.
- 1.1.9** If you plan to add “cationic treatment chemicals” (as defined in Appendix A) to stormwater and/or authorized non-stormwater prior to discharge, you may not submit your NOI until you notify your applicable EPA Regional Office (see Appendix J) in advance and the EPA Regional Office authorizes coverage under this permit after you have included appropriate controls and implementation procedures designed to ensure that your use of cationic treatment chemicals will result in discharges that meet applicable water quality standards.

---

<sup>4</sup> Note: Your site will be considered to discharge to a Tier 2, Tier 2.5, or Tier 3 water if the first receiving water to which you discharge is identified by a State, Tribe, or EPA as a Tier 2, Tier 2.5, or Tier 3 water. For discharges that enter a storm sewer system prior to discharge, the first receiving water to which you discharge is the waterbody that receives the stormwater discharge from the storm sewer system. The current list of Tier 2, Tier 2.5, and Tier 3 waters located in the areas eligible for coverage under this permit can be found at <https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates>. You can also use EPA's Discharge Mapping Tool (<https://www.epa.gov/npdes/epas-stormwater-discharge-mapping-tools>) to assist you in identifying whether any receiving waters to which you discharge are listed as impaired (and the pollutant for which it is impaired) and whether an approved total maximum daily load (TMDL) exists for that waterbody.

**1.2 TYPES OF DISCHARGES AUTHORIZED<sup>5</sup>**

- 1.2.1** The following stormwater discharges are authorized under this permit provided that appropriate stormwater controls are designed, installed, and maintained (see Parts 2 and 3):
- a.** Stormwater discharges, including stormwater runoff, snowmelt runoff, and surface runoff and drainage, associated with construction activity under 40 CFR § 122.26(b)(14) or § 122.26(b)(15)(i);
  - b.** Stormwater discharges designated by EPA as needing a permit under 40 CFR §122.26(a)(1)(v) or § 122.26(b)(15)(ii);
  - c.** Stormwater discharges from on or off-site construction support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided that:
    - i.** The support activity is directly related to the construction site required to have permit coverage for stormwater discharges;
    - ii.** The support activity is not a commercial operation, nor does it serve multiple unrelated construction sites;
    - iii.** The support activity does not continue to operate beyond the completion of the construction activity at the site it supports; and
    - iv.** Stormwater controls are implemented in accordance with Part 2 and Part 3 for discharges from the support activity areas; and
  - d.** Stormwater discharges from earth-disturbing activities associated with the construction of staging areas and the construction of access roads conducted prior to active mining.
- 1.2.2** The following non-stormwater discharges associated with your construction activity are authorized under this permit provided that, with the exception of water used to control dust and to irrigate vegetation in stabilized areas, these discharges are not routed to areas of exposed soil on your site and you comply with any applicable requirements for these discharges in Parts 2 and 3:
- a.** Discharges from emergency fire-fighting activities;
  - b.** Fire hydrant flushings;
  - c.** Landscape irrigation;
  - d.** Water used to wash vehicles and equipment, provided that there is no discharge of soaps, solvents, or detergents used for such purposes;
  - e.** Water used to control dust;
  - f.** Potable water including uncontaminated water line flushings;

---

<sup>5</sup> See "Discharge" as defined in Appendix A. Note: Any discharges not expressly authorized in this permit cannot become authorized or shielded from liability under CWA Section 402(k) by disclosure to EPA, State, or local authorities after issuance of this permit via any means, including the Notice of Intent (NOI) to be covered by the permit, the SWPPP, or during an inspection.



- g.** External building washdown, provided soaps, solvents, and detergents are not used, and external surfaces do not contain hazardous substances (as defined in Appendix A) (e.g., paint or caulk containing polychlorinated biphenyls (PCBs));
  - h.** Pavement wash waters, provided spills or leaks of toxic or hazardous substances have not occurred (unless all spill material has been removed) and where soaps, solvents, and detergents are not used. You are prohibited from directing pavement wash waters directly into any receiving water, storm drain inlet, or constructed or natural site drainage features, unless the feature is connected to a sediment basin, sediment trap, or similarly effective control;
  - i.** Uncontaminated air conditioning or compressor condensate;
  - j.** Uncontaminated, non-turbid discharges of ground water or spring water;
  - k.** Foundation or footing drains where flows are not contaminated with process materials such as solvents or contaminated ground water; and
  - l.** Uncontaminated construction dewatering water<sup>6</sup> discharged in accordance with Part 2.4.
- 1.2.3** Also authorized under this permit are discharges of stormwater listed above in Part 1.2.1, or authorized non-stormwater discharges listed above in Part 1.2.2, commingled with a discharge authorized by a different NPDES permit and/or a discharge that does not require NPDES permit authorization.

### **1.3 PROHIBITED DISCHARGES<sup>7</sup>**

The discharges listed in this Part are prohibited outright or authorized only under the identified conditions. To prevent the discharges in Parts 1.3.1 through 1.3.5, operators must comply with the applicable pollution prevention requirements in Part 2.3 or ensure the discharge is authorized by another NPDES permit consistent with Part 1.2.3 for commingled discharges.

- 1.3.1** Wastewater from washout of concrete, unless managed by an appropriate control as described in Part 2.3.4;
- 1.3.2** Wastewater from washout and/or cleanout of stucco, paint, form release oils, curing compounds, and other construction materials;
- 1.3.3** Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
- 1.3.4** Soaps, solvents, or detergents used in vehicle and equipment washing or external building washdown; and
- 1.3.5** Toxic or hazardous substances from a spill or other release.

<sup>6</sup> EPA notes that operators may need to comply with additional procedures to verify that the dewatering discharge is uncontaminated. Operators should review Part 9 to determine if any of these requirements apply to their discharge and should ensure that they have complied with any State, Tribal, or local dewatering requirements that apply.

<sup>7</sup> EPA includes these prohibited non-stormwater discharges here as a reminder to the operator that the only non-stormwater discharges authorized by this permit are at Part 1.2.2. Any unauthorized non-stormwater discharges must be covered under an individual permit or alternative general permit.

## 1.4 SUBMITTING YOUR NOTICE OF INTENT (NOI)

All “operators” (as defined in Appendix A) associated with your construction site who meet the Part 1.1 eligibility conditions, and who seek coverage under this permit, must submit to EPA a complete and accurate NOI in accordance with the deadlines in Table 1 prior to commencement of construction activities (as defined in Appendix A).

**Exception:** If you are conducting construction activities in response to a public emergency (e.g., mud slides, earthquake, extreme flooding conditions, widespread disruption in essential public services), and the related work requires immediate authorization to avoid imminent endangerment to human health, public safety, or the environment, or to reestablish essential public services, you may discharge on the condition that a complete and accurate NOI is submitted within 30 calendar days after commencing construction activities (see Table 1) establishing that you are eligible for coverage under this permit. You must also provide documentation in your Stormwater Pollution Prevention Plan (SWPPP) to substantiate the occurrence of the public emergency pursuant to Part 7.2.3i.

### 1.4.1 Prerequisite for Submitting Your NOI

You must develop a SWPPP consistent with Part 7 before submitting your NOI for coverage under this permit.

### 1.4.2 How to Submit Your NOI

You must use EPA’s NPDES eReporting Tool (NeT) to electronically prepare and submit your NOI for coverage under the 2022 CGP unless you received a waiver from your applicable EPA Regional Office.

To access NeT, go to <https://cdx.epa.gov/cdx>.

Waivers from electronic reporting may be granted based on one of the following conditions:

- a. If your operational headquarters is physically located in a geographic area (i.e., ZIP code or census tract) that is identified as under-served for broadband Internet access in the most recent report from the Federal Communications Commission; or
- b. If you have limitations regarding available computer access or computer capability.

If the EPA Regional Office grants you approval to use a paper NOI, and you elect to use it, you must complete the form in Appendix H.

### 1.4.3 Deadlines for Submitting Your NOI and Your Official Date of Permit Coverage

Table 1 provides the deadlines for submitting your NOI and the official start date of your permit coverage, which differ depending on when you commence construction activities.

**Table 1 NOI Submittal Deadlines and Official Start Date for Permit Coverage.**

Type of Operator	NOI Submittal Deadline <sup>8</sup>	Permit Authorization Date <sup>9</sup>
<b>Operator of a new site</b> (i.e., a site where construction activities commence on or after February 17, 2022)	At least 14 calendar days before commencing construction activities.	14 calendar days after EPA notifies you that it has received a complete NOI, unless EPA notifies you that your authorization is delayed or denied.
<b>Operator of an existing site</b> (i.e., a site with 2017 CGP coverage where construction activities commenced prior to February 17, 2022)	No later than May 18, 2022.	14 calendar days after EPA notifies you that it has received a complete NOI, unless EPA notifies you that your authorization is delayed or denied.  Provided you submit your NOI no later than May 18, 2022, your authorization under the 2017 CGP is automatically continued until you have been granted coverage under this permit or an alternative NPDES permit, or coverage is otherwise terminated.
<b>New operator of a permitted site</b> (i.e., an operator that through transfer of ownership and/or operation replaces the operator of an already permitted construction site that is either a “new site” or an “existing site”)	At least 14 calendar days before the date the transfer to the new operator will take place.	14 calendar days after EPA notifies you that it has received a complete NOI, unless EPA notifies you that your authorization is delayed or denied.
<b>Operator of an “emergency-related project”</b> (i.e., a project initiated in response to a public emergency (e.g., mud slides, earthquake, extreme flooding conditions, disruption in essential public services), for which the related work requires immediate authorization to avoid imminent endangerment to human health or the environment, or to reestablish essential public services)	No later than 30 calendar days after commencing construction activities.	You are considered provisionally covered under the terms and conditions of this permit immediately, and fully covered 14 calendar days after EPA notifies you that it has received a complete NOI, unless EPA notifies you that your authorization is delayed or denied.

<sup>8</sup> If you miss the deadline to submit your NOI, any and all discharges from your construction activities will continue to be unauthorized under the CWA until they are covered by this or a different NPDES permit. EPA may take enforcement action for any unpermitted discharges that occur between the commencement of construction activities and discharge authorization.

<sup>9</sup> Discharges are not authorized if your NOI is incomplete or inaccurate or if you are not eligible for permit coverage.



#### 1.4.4 Modifying your NOI

If after submitting your NOI you need to correct or update any fields, you may do so by submitting a "Change NOI" form using NeT. Waivers from electronic reporting may be granted as specified in Part 1.4.2. If the EPA Regional Office has granted you approval to submit a paper NOI modification, you may indicate any NOI changes on the same NOI form in Appendix H.

When there is a change to the site's operator, the new operator must submit a new NOI, and the previous operator must submit a Notice of Termination (NOT) form as specified in Part 8.3.

The following modifications to an NOI form will result in a 14-day review process:

- Changes to the name of the operator;
- Changes to the project or site name;
- Changes to the estimated area to be disturbed;
- Changes to the name of the receiving water<sup>10</sup>, or additions to the applicable receiving waters;
- Changes to eligibility information related to endangered species protection or historic preservation;
- Changes to information provided related to the use of chemical treatment at your site; and
- Changes to answers provided regarding the demolition of structures over 10,000 square feet of floor space built or renovated before January 1, 1980.

During the 14-day review process, you may continue to operate based on the information provided in your original NOI, but you must wait until the review period has ended before you may commence or continue activities on any portion of your site that would be affected by any of the above modifications, unless EPA notifies you that the authorization is delayed or denied.

#### 1.4.5 Your Official End Date of Permit Coverage

Once covered under this permit, your coverage will last until the date that:

- a. You terminate permit coverage consistent with Part 8; or
- b. You receive permit coverage under a different NPDES permit or a reissued or replacement version of this permit after expiring on February 16, 2027; or
- c. You fail to submit an NOI for coverage under a reissued or replacement version of this permit before the deadline for existing construction sites where construction activities continue after this permit has expired.

#### 1.5 REQUIREMENT TO POST A NOTICE OF YOUR PERMIT COVERAGE

You must post a sign or other notice of your permit coverage at a safe, publicly accessible location in close proximity to the construction site. The notice must be located so it is visible from the public road that is nearest to the active part of the construction

---

<sup>10</sup> As defined in Appendix A, a "receiving water" is "a "Water of the United States" as defined in 40 CFR §122.2 into which the regulated stormwater discharges.

site, and it must use a font large enough to be readily viewed from a public right-of-way.<sup>11</sup> At a minimum, the notice must include:

- a. The NPDES ID (i.e., permit tracking number assigned to your NOI and the EPA webpage where a copy of the NOI can be found (<https://permitsearch.epa.gov/epermit-search/ui/search>));
- b. A contact name and phone number for obtaining additional construction site information;
- c. The Uniform Resource Locator (URL) for the SWPPP (if available), or the following statement: "If you would like to obtain a copy of the Stormwater Pollution Prevention Plan (SWPPP) for this site, contact the EPA Regional Office at [include the appropriate CGP Regional Office contact information found at <https://www.epa.gov/npdes/contact-us-stormwater#regional>];" and
- d. The following statement "If you observe indicators of stormwater pollutants in the discharge or in the receiving water, contact the EPA through the following website: <https://www.epa.gov/enforcement/report-environmental-violations>."

## 2 TECHNOLOGY-BASED EFFLUENT LIMITATIONS

You must comply with the following technology-based effluent limitations in this Part for all authorized discharges.<sup>12</sup>

### 2.1 GENERAL STORMWATER CONTROL DESIGN, INSTALLATION, AND MAINTENANCE REQUIREMENTS

You must design, install, and maintain stormwater controls required in Parts 2.2, 2.3, and 2.4 to minimize the discharge of pollutants in stormwater from construction activities.<sup>13</sup> To meet this requirement, you must:

#### 2.1.1 Account for the following factors in designing your stormwater controls:

- a. The expected amount, frequency, intensity, and duration of precipitation;<sup>14</sup>
- b. The nature of stormwater runoff (i.e., flow) and run-on at the site, including factors such as expected flow from impervious surfaces, slopes, and site drainage features. You must design stormwater controls to control stormwater volume, velocity, and peak flow rates to minimize discharges of pollutants in stormwater and to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points; and
- c. The soil type and range of soil particle sizes expected to be present on the site.

<sup>11</sup> If the active part of the construction site is not visible from a public road, then place the notice of permit coverage in a position that is visible from the nearest public road and as close as possible to the construction site.

<sup>12</sup> For each of the effluent limits in Part 2, as applicable to your site, you must include in your SWPPP (1) a description of the specific control(s) to be implemented to meet the effluent limit; (2) any applicable design specifications; (3) routine maintenance specifications; and (4) the projected schedule for installation/implementation. See Part 7.2.6.

<sup>13</sup> The permit does not recommend or endorse specific products or vendors.

<sup>14</sup> Stormwater controls must be designed using the most recent data available to account for recent precipitation patterns and trends.

If your site is exposed to or has previously experienced major storms, such as hurricanes, storm surge, extreme/heavy precipitation, and flood events, you should also include consideration of and contingencies for whether implementing structural improvements, enhanced/resilient stormwater controls, and other mitigation measures may help minimize impacts from stormwater discharges from such major storm events.

**2.1.2 Design and install all stormwater controls in accordance with good engineering practices, including applicable design specifications.<sup>15</sup>**

**2.1.3 Complete installation of stormwater controls by the time each phase of construction activities has begun.**

- a.** By the time construction activity in any given portion of the site begins, install and make operational any downgradient sediment controls (e.g., buffers, perimeter controls, exit point controls, storm drain inlet protection) that control discharges from the initial site clearing, grading, excavating, and other earth-disturbing activities.<sup>16</sup>
- b.** Following the installation of these initial controls, install and make operational all stormwater controls needed to control discharges prior to subsequent earth-disturbing activities.

**2.1.4 Ensure all stormwater controls are maintained and remain in effective operating condition during permit coverage and are protected from activities that would reduce their effectiveness.**

- a.** Comply with any specific maintenance requirements for the stormwater controls listed in this permit, as well as any recommended by the manufacturer.<sup>17</sup>
- b.** If at any time you find that a stormwater control needs routine maintenance (i.e., minor repairs or other upkeep performed to ensure the site's stormwater controls remain in effective operating condition, not including significant repairs or the need to install a new or replacement control), you must immediately initiate the needed work, and complete such work by the close of the next business day. If it is infeasible to complete the routine maintenance by the close of the next business day, you must document why this is the case and why the repair or other upkeep to be performed should still be considered routine maintenance in your inspection report under Part 4.7.1c and complete such work no later than seven (7) calendar days from the time of discovery of the condition requiring maintenance.
- c.** If you must repeatedly (i.e., three (3) or more times) make the same routine maintenance fixes to the same control at the same location, even if the fix can be completed by the close of the next business day, you must either:
  - i.** Complete work to fix any subsequent repeat occurrences of this same problem under the corrective action procedures in Part 5, including keeping any records

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<sup>15</sup> Design specifications may be found in manufacturer specifications and/or in applicable erosion and sediment control manuals or ordinances. Any departures from such specifications must reflect good engineering practices and must be explained in your SWPPP. You must also comply with any additional design and installation requirements specified for the effluent limits in Parts 2.2, 2.3, and 2.4.

<sup>16</sup> Note that the requirement to install stormwater controls prior to each phase of construction activities for the site does not apply to the earth disturbance associated with the actual installation of these controls. Operators should take all reasonable actions to minimize the discharges of pollutants during the installation of stormwater controls.

<sup>17</sup> Any departures from such maintenance recommendations made by the manufacturer must reflect good engineering practices and must be explained in your SWPPP.



of the condition and how it was corrected under Part 5.4; or

- ii. Document in your inspection report under Part 4.7.1c why the specific reoccurrence of this same problem should still be addressed as a routine maintenance fix under this Part.<sup>18</sup>
- d. If at any time you find that a stormwater control needs a significant repair or that a new or replacement control is needed, you must comply with the corrective action deadlines for completing such work in in Part 5.2.1c.

## 2.2 EROSION AND SEDIMENT CONTROL REQUIREMENTS

You must implement erosion and sediment controls in accordance with the following requirements to minimize the discharge of pollutants in stormwater from construction activities.

### 2.2.1 Provide and maintain natural buffers and/or equivalent erosion and sediment controls for discharges to any receiving waters that is located within 50 feet of the site's earth disturbances.

- a. **Compliance Alternatives.** For any discharges to receiving waters located within 50 feet of your site's earth disturbances, you must comply with one of the following alternatives:
  - i. Provide and maintain a 50-foot undisturbed natural buffer; or
  - ii. Provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by erosion and sediment controls that achieve, in combination, the sediment load reduction equivalent to a 50-foot undisturbed natural buffer; or
  - iii. If infeasible to provide and maintain an undisturbed natural buffer of any size, implement erosion and sediment controls to achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

See Appendix F, Part F.2 for additional conditions applicable to each compliance alternative.

- b. **Exceptions.** See Appendix F, Part F.2 for exceptions to the compliance alternatives.

### 2.2.2 Direct stormwater to vegetated areas and maximize stormwater infiltration and filtering to reduce pollutant discharges, unless infiltration would be inadvisable due to the underlying geology (e.g., karst topography) and ground water contamination concerns, or infeasible due to site conditions.<sup>19</sup>

<sup>18</sup> Such documentation could include, for example, that minor repairs completed within the required timeframe are all that is necessary to ensure that the stormwater control continues to operate as designed and installed and that the stormwater control remains appropriate for the flow reaching it.

<sup>19</sup> Operators should consider whether factors such as specific contaminant concerns from the construction site, the underlying soils or geology, hydrology, depth to the ground water table, or proximity to source water or wellhead protection area(s) make the site unsuitable for infiltrating construction stormwater. Site conditions that may be of particular concern include proximity to: a current or future drinking water aquifer; a drinking water well or spring (including private/household wells); highly conductive geology such as karst; known pollutant hot spots, such as hazardous waste sites, landfills, gas stations, brownfields; an on-site sewage system or underground storage tank; or soils that do not allow for infiltration. Operators may find it helpful to consult EPA's [Drinking Water Mapping Application to Protect Source Waters \(DWMAPS\)](#). DWMAPS is an online mapping tool that can be used to locate drinking water providers, potential sources of contamination, polluted waterways, and information on protection initiatives in the site area.

### 2.2.3 Install sediment controls along any perimeter areas of the site that are downslope from any exposed soil or other disturbed areas.<sup>20</sup>

- a. The perimeter control must be installed upgradient of any natural buffers established under Part 2.2.1, unless the control is being implemented pursuant to Part 2.2.1a.ii-iii;
- b. To prevent stormwater from circumventing the edge of the perimeter control, install the perimeter control on the contour of the slope and extend both ends of the control up slope (e.g., at 45 degrees) forming a crescent rather than a straight line;
- c. After installation, to ensure that perimeter controls continue to work effectively:
  - i. Remove sediment before it has accumulated to one-half of the above-ground height of any perimeter control; and
  - ii. After a storm event, if there is evidence of stormwater circumventing or undercutting the perimeter control, extend controls and/or repair undercut areas to fix the problem.
- d. **Exception.** For areas at “linear construction sites” (as defined in Appendix A) where perimeter controls are infeasible (e.g., due to a limited or restricted right-of-way), implement other practices as necessary to minimize pollutant discharges to perimeter areas of the site.

### 2.2.4 Minimize sediment track-out.

- a. Restrict vehicle use to properly designated exit points;
- b. Use appropriate stabilization techniques<sup>21</sup> at all points that exit onto paved roads;
  - i. **Exception:** Stabilization is not required for exit points at linear utility construction sites that are used only episodically and for very short durations over the life of the project, provided other exit point controls<sup>22</sup> are implemented to minimize sediment track-out;
- c. Implement additional track-out controls<sup>23</sup> as necessary to ensure that sediment removal occurs prior to vehicle exit; and
- d. Where sediment has been tracked-out from your site onto paved roads, sidewalks, or other paved areas outside of your site, remove the deposited sediment by the end of the same business day in which the track-out occurs or by the end of the next business day if track-out occurs on a non-business day. Remove the track-out by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal. You are prohibited from hosing or sweeping tracked-out

<sup>20</sup> Examples of perimeter controls include filter berms; different types of silt fence such as wire-backed silt fence, super silt fence, or multi-layer geotextile silt fence; compost filter socks; gravel barriers; and temporary diversion dikes.

<sup>21</sup> Examples of appropriate stabilization techniques include the use of aggregate stone with an underlying geotextile or non-woven filter fabric, and turf mats.

<sup>22</sup> Examples of other exit point controls include preventing the use of exit points during wet periods; minimizing exit point use by keeping vehicles on site to the extent possible; limiting exit point size to the width needed for vehicle and equipment usage; using scarifying and compaction techniques on the soil; and avoiding establishing exit points in environmentally sensitive areas (e.g., karst areas; steep slopes).

<sup>23</sup> Examples of additional track-out controls include the use of wheel washing, rumble strips, and rattle plates.

sediment into any constructed or natural site drainage feature, storm drain inlet, or receiving water.<sup>24</sup>

**2.2.5 Manage stockpiles or land clearing debris piles composed, in whole or in part, of sediment and/or soil:**<sup>25</sup>

- a.** Locate the piles outside of any natural buffers established under Part 2.2.1 and away from any constructed or natural site drainage features, storm drain inlets, and areas where stormwater flow is concentrated;
- b.** Install a sediment barrier along all downgradient perimeter areas of stockpiled soil or land clearing debris piles;<sup>26</sup>
- c.** For piles that will be unused for 14 or more days, provide cover<sup>27</sup> or appropriate temporary stabilization (consistent with Part 2.2.14);
- d.** You are prohibited from hosing down or sweeping soil or sediment accumulated on pavement or other impervious surfaces into any constructed or natural site drainage feature, storm drain inlet, or receiving water.

**2.2.6 Minimize dust.** On areas of exposed soil, minimize dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged in stormwater from the site.

**2.2.7 Minimize steep slope disturbances.** Minimize the disturbance of “steep slopes” (as defined in Appendix A).<sup>28</sup>

**2.2.8 Preserve native topsoil, unless infeasible.**<sup>29</sup>

**2.2.9 Minimize soil compaction.**<sup>30</sup> In areas of your site where final vegetative stabilization will occur or where infiltration practices will be installed:

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<sup>24</sup> Fine grains that remain visible (e.g., staining) on the surfaces of off-site streets, other paved areas, and sidewalks after you have implemented sediment removal practices are not a violation of Part 2.2.4.

<sup>25</sup> The requirements in Part 2.2.5 do not apply to the storage of rock, such as rip rap, landscape rock, pipe bedding gravel, and boulders. Refer to Part 2.3.3a for the requirements that apply to these types of materials.

<sup>26</sup> Examples of sediment barriers include berms, dikes, fiber rolls, silt fences, sandbags, gravel bags, or straw bale.

<sup>27</sup> Examples of cover include tarps, blown straw and hydroseeding.

<sup>28</sup> Where disturbance to steep slopes cannot be avoided, operators should consider implementing controls suitable for steep slope disturbances that are effective at minimizing erosion and sediment discharge (e.g., preservation of existing vegetation, hydraulic mulch, geotextiles and mats, compost blankets, earth dikes or drainage swales, terraces, velocity dissipation devices). To identify slopes and soil types that are of comparatively higher risk for sediment discharge in areas of the country where the CGP is in effect, operators can use the tables in Appendix F (see Tables F-2 thru F-6).

<sup>29</sup> Stockpiling topsoil at off-site locations, or transferring topsoil to other locations, is an example of a practice that is consistent with the requirements in Part 2.2.8. Preserving native topsoil is not required where the intended function of a specific area of the site dictates that the topsoil be disturbed or removed. For example, some sites may be designed to be highly impervious after construction, and therefore little or no vegetation is intended to remain, or may not have space to stockpile native topsoil on site for later use, in which case it may not be feasible to preserve topsoil.

<sup>30</sup> Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted.



- a. Restrict vehicle and equipment use in these locations to avoid soil compaction; and
- b. Before seeding or planting areas of exposed soil that have been compacted, use techniques that rehabilitate and condition the soils as necessary to support vegetative growth.

#### 2.2.10 Protect storm drain inlets.

- a. Install inlet protection measures that remove sediment from discharges prior to entry into any storm drain inlet that carries stormwater from your site to a receiving water, provided you have authority to access the storm drain inlet.<sup>31</sup> Inlet protection measures are not required for storm drain inlets that are conveyed to a sediment basin, sediment trap, or similarly effective control; and
- b. Clean, or remove and replace, the inlet protection measures as sediment accumulates, the filter becomes clogged, and/or performance is compromised. Where there is evidence of sediment accumulation adjacent to the inlet protection measure, remove the deposited sediment by the end of the same business day in which it is found or by the end of the following business day if removal by the same business day is not feasible.

#### 2.2.11 Control stormwater discharges, including both peak flowrates and total stormwater volume, to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points.<sup>32</sup>

#### 2.2.12 If you install a sediment basin or similar impoundment:

- a. Situate the basin or impoundment outside of any receiving water, and any natural buffers established under Part 2.2.1;
- b. Design the basin or impoundment to avoid collecting water from wetlands;
- c. Design the basin or impoundment to provide storage for either:
  - i. The calculated volume of runoff from a 2-year, 24-hour storm;<sup>33</sup> or
  - ii. 3,600 cubic feet per acre drained.
- d. Utilize outlet structures that withdraw water from the surface of the sediment basin or similar impoundment, unless infeasible;<sup>34</sup>
- e. Use erosion controls and velocity dissipation devices to prevent erosion at inlets and outlets; and

<sup>31</sup> Inlet protection measures can be removed in the event of flood conditions or to prevent erosion.

<sup>32</sup> Examples of stormwater controls that can be used to comply with this requirement include the use of erosion controls and/or velocity dissipation devices (e.g., check dams, sediment traps), within and along the length of a constructed site drainage feature and at the outfall to slow down stormwater.

<sup>33</sup> Operators may refer to <https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates> for guidance on determining the volume of precipitation associated with their site's local 2-year, 24-hour storm event.

<sup>34</sup> The circumstances in which it is infeasible to design outlet structures in this manner are rare. Exceptions may include areas with extended cold weather, where using surface outlets may not be feasible during certain time periods (although they must be used during other periods). If you determine that it is infeasible to meet this requirement, you must provide documentation in your SWPPP to support your determination, including the specific conditions or time periods when this exception will apply.

- f. Remove accumulated sediment to maintain at least one-half of the design capacity and conduct all other appropriate maintenance to ensure the basin or impoundment remains in effective operating condition.

**2.2.13 If using treatment chemicals (e.g., polymers, flocculants, coagulants):**

- a. **Use conventional erosion and sediment controls before and after the application of treatment chemicals.** Chemicals may only be applied where treated stormwater is directed to a sediment control (e.g., *sediment basin, perimeter control*) before discharge.
- b. **Select appropriate treatment chemicals.** Chemicals must be appropriately suited to the types of soils likely to be exposed during construction and present in the discharges being treated (i.e., *the expected turbidity, pH, and flow rate of stormwater flowing into the chemical treatment system or area*).
- c. **Minimize discharge risk from stored chemicals.** Store all treatment chemicals in leak-proof containers that are kept under storm-resistant cover and surrounded by secondary containment structures (e.g., *spill berms, dikes, spill containment pallets*), or provide equivalent measures designed and maintained to minimize the potential discharge of treatment chemicals in stormwater or by any other means (e.g., *storing chemicals in a covered area, having a spill kit available on site and ensuring personnel are available to respond expeditiously in the event of a leak or spill*).
- d. **Comply with State/local requirements.** Comply with applicable State and local requirements regarding the use of treatment chemicals.
- e. **Use chemicals in accordance with good engineering practices and specifications of the chemical provider/supplier.** Use treatment chemicals and chemical treatment systems in accordance with good engineering practices, and with dosing specifications and sediment removal design specifications provided by the provider/supplier of the applicable chemicals, or document in your SWPPP specific departures from these specifications and how they reflect good engineering practice.
- f. **Ensure proper training.** Ensure all persons who handle and use treatment chemicals at the construction site are provided with appropriate, product-specific training prior to beginning application of treatment chemicals. Among other things, the training must cover proper dosing requirements.
- g. **Perform additional measures specified by the EPA Regional Office for the authorized use of cationic chemicals.** If you have been authorized to use cationic chemicals at your site pursuant to Part 1.1.9, you must perform all additional measures as conditioned by your authorization to ensure the use of such chemicals will not result in discharges that do not meet water quality standards.

**2.2.14 Stabilize exposed portions of the site.** Implement and maintain stabilization measures (e.g., *seeding protected by erosion controls until vegetation is established*,<sup>35</sup> *sodding, mulching, erosion control blankets, hydromulch, gravel*) that minimize erosion from any areas of exposed soil on the site in accordance with Part.

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<sup>35</sup> If you will be evaluating the use of some type of erosion control netting to the site as part of your site stabilization, EPA encourages you to consider employing products that have been shown to minimize

**a. Stabilization Deadlines:**<sup>36</sup>**Table 2 Deadlines for Initiating and Completing Site Stabilization.**

Total Amount of Land Disturbance Occurring At Any One Time <sup>37</sup>	Deadline
<p><b>i. Five acres or less (≤5.0)</b></p> <p><b>Note: this includes sites disturbing more than five acres (&gt;5.0) total over the course of a project, but that limit disturbance at any one time (i.e., phase the disturbance) to five acres or less (≤5.0)</b></p>	<ul style="list-style-type: none"> <li>Initiate the installation of stabilization measures immediately<sup>38</sup> in any areas of exposed soil where construction activities have permanently ceased or will be temporarily inactive for 14 or more calendar days;<sup>39</sup> and</li> <li>Complete the installation of stabilization measures as soon as practicable, but no later than 14 calendar days</li> </ul>

impacts on wildlife. For instance, the U.S. Fish & Wildlife Service provides recommendations on the type of netting practices that are considered “wildlife friendly,” including those that use natural fiber or 100 percent biodegradable materials and that use a loose weave with a non-welded, movable jointed netting, as well as those products that are not wildlife friendly including square plastic netting that are degradable (e.g., photodegradable, UV-degradable, oxo-degradable), netting made from polypropylene, nylon, polyethylene, or polyester. Other recommendations include removing the netting product when it is no longer needed. See [https://www.fws.gov/midwest/eastlansing/library/pdf/WildlifeFriendlyErosionControlProducts\\_revised.pdf](https://www.fws.gov/midwest/eastlansing/library/pdf/WildlifeFriendlyErosionControlProducts_revised.pdf) for further information. There also may be State, Tribal, or local requirements about using wildlife friendly erosion control products.

<sup>36</sup> EPA may determine, based on an inspection carried out under Part 4.8 and corrective actions required under Part 5.3, that the level of sediment discharge on the site makes it necessary to require a faster schedule for completing stabilization. For instance, if sediment discharges from an area of exposed soil that is required to be stabilized are compromising the performance of existing stormwater controls, EPA may require stabilization to correct this problem.

<sup>37</sup> Limiting disturbances to five (5) acres or less at any one time means that at no time during the project do the cumulative earth disturbances exceed five (5) acres. The following examples would qualify as limiting disturbances at any one time to five (5) acres or less:

1. The total area of disturbance for a project is five (5) acres or less.
2. The total area of disturbance for a project will exceed five (5) acres, but the operator ensures that no more than five (5) acres will be disturbed at any one time through implementation of stabilization measures. In this way, site stabilization can be used to “free up” land that can be disturbed without exceeding the five (5)-acre cap to qualify for the 14-day stabilization deadline. For instance, if an operator completes stabilization of two (2) acres of land on a five (5)-acre disturbance, then two (2) additional acres could be disturbed while still qualifying for the longer 14-day stabilization deadline.

<sup>38</sup> The following are examples of activities that would constitute the immediate initiation of stabilization:

1. Prepping the soil for vegetative or non-vegetative stabilization as long as seeding, planting, and/or installation of non-vegetative stabilization products takes place as soon as practicable, but no later than one (1) calendar day of completing soil preparation;
2. Applying mulch or other non-vegetative product to the exposed area;
3. Seeding or planting the exposed area;
4. Starting any of the activities in # 1 – 3 on a portion of the entire area that will be stabilized; and
5. Finalizing arrangements to have stabilization product fully installed in compliance with the deadlines for completing stabilization.

<sup>39</sup> The requirement to initiate stabilization immediately is triggered as soon as you know that construction work on a portion of the site is temporarily ceased and will not resume for 14 or more days, or as soon as you know that construction work is permanently ceased. In the context of this provision, “immediately” means as soon as practicable, but no later than the end of the next business day, following the day when the construction activities have temporarily or permanently ceased.



Total Amount of Land Disturbance Occurring At Any One Time <sup>37</sup>	Deadline
	after stabilization has been initiated. <sup>40</sup>
ii. More than five acres (>5.0)	<ul style="list-style-type: none"> <li>• Initiate the installation of stabilization measures immediately<sup>41</sup> in any areas of exposed soil where construction activities have permanently ceased or will be temporarily inactive for 14 or more calendar days;<sup>42</sup> and</li> <li>• Complete the installation of stabilization measures as soon as practicable, but no later than seven (7) calendar days after stabilization has been initiated.<sup>43</sup></li> </ul>

**b. Exceptions:**

- i. Arid, semi-arid, and drought-stricken areas** (as defined in Appendix A). If it is the seasonally dry period (as defined in Appendix A)<sup>44</sup> or a period in which drought is occurring, and vegetative stabilization measures are being used:
- (a) Immediately initiate and, within 14 calendar days of temporary or permanent cessation of work in any portion of your site, complete the installation of temporary non-vegetative stabilization measures to the extent necessary to prevent erosion;
  - (b) As soon as practicable, given conditions or circumstances on the site, complete all activities necessary to seed or plant the area to be stabilized; and
  - (c) If construction is occurring during the seasonally dry period, indicate in your SWPPP the beginning and ending dates of the seasonally dry period and your site conditions. Also include the schedule you will follow for initiating and completing vegetative stabilization.
- ii. Unforeseen circumstances.** Operators that are affected by unforeseen circumstances<sup>45</sup> that delay the initiation and/or completion of vegetative stabilization:

<sup>40</sup> If vegetative stabilization measures are being implemented, stabilization is considered “installed” when all activities necessary to seed or plant the area are completed, including the application of any non-vegetative protective cover (e.g., mulch, erosion control blanket), if applicable. If non-vegetative stabilization measures are being implemented, stabilization is considered “installed” when all such measures are implemented or applied.

<sup>41</sup> See footnote 38.

<sup>42</sup> See footnote 39.

<sup>43</sup> See footnote 40.

<sup>44</sup> The term “seasonally dry period” as defined in Appendix A refers to a month in which the long-term average total precipitation is less than or equal to 0.5 inches. Refer to EPA’s Seasonally Dry Period Locator Tool at <https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates> and supporting maps for assistance in determining whether a site is operating during a seasonally dry period for the area.

<sup>45</sup> Examples include problems with the supply of seed stock or with the availability of specialized equipment and unsuitability of soil conditions due to excessive precipitation and/or flooding.

- (a) Immediately initiate and, within 14 calendar days, complete the installation of temporary non-vegetative stabilization measures to prevent erosion;
  - (b) Complete all soil conditioning, seeding, watering or irrigation installation, mulching, and other required activities related to the planting and initial establishment of vegetation as soon as conditions or circumstances allow it on your site; and
  - (c) Document in the SWPPP the circumstances that prevent you from meeting the deadlines in Part 2.2.14a and the schedule you will follow for initiating and completing stabilization.
- iii. Discharges to a sediment- or nutrient-impaired water or to a water that is identified by your State, Tribe, or EPA as Tier 2, Tier 2.5, or Tier 3 for antidegradation purposes.** Complete stabilization as soon as practicable, but no later than seven (7) calendar days after stabilization has been initiated.
- c. Final Stabilization Criteria** (for any areas not covered by permanent structures):
- i.** Establish uniform, perennial vegetation (i.e., *evenly distributed, without large bare areas*) to provide 70 percent or more of the vegetative cover native to local undisturbed areas; and/or
  - ii.** Implement permanent non-vegetative stabilization measures<sup>46</sup> to provide effective cover of any areas of exposed soil.
  - iii. Exceptions:**
    - (a) **Arid, semi-arid, and drought-stricken areas** (as defined in Appendix A). Final stabilization is met if the area has been seeded or planted to establish vegetation that provides 70 percent or more of the vegetative cover native to local undisturbed areas within three (3) years and, to the extent necessary to prevent erosion on the seeded or planted area, non-vegetative erosion controls have been applied to provide cover for at least three years without active maintenance.
    - (b) **Disturbed areas on agricultural land that are restored to their preconstruction agricultural use.** The Part 2.2.14c final stabilization criteria do not apply.
    - (c) **Areas that need to remain disturbed.** In limited circumstances, stabilization may not be required if the intended function of a specific area of the site necessitates that it remain disturbed, and only the minimum area needed remains disturbed (e.g., *dirt access roads, utility pole pads, areas being used for storage of vehicles, equipment, materials*).

## 2.3 POLLUTION PREVENTION REQUIREMENTS<sup>47</sup>

You must implement pollution prevention controls in accordance with the following requirements to minimize the discharge of pollutants in stormwater and to prevent the discharge of pollutants from spilled or leaked materials from construction activities.

<sup>46</sup> Examples of permanent non-vegetative stabilization measures include riprap, gravel, gabions, and geotextiles.

<sup>47</sup> Under this permit, you are not required to minimize exposure for any products or materials where the exposure to precipitation and to stormwater will not result in a discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use).

**2.3.1 For equipment and vehicle fueling and maintenance:**

- a. Provide an effective means of eliminating the discharge of spilled or leaked chemicals, including fuels and oils, from these activities;<sup>48</sup>
- b. If applicable, comply with the Spill Prevention Control and Countermeasures (SPCC) requirements in 40 CFR part 112 and Section 311 of the CWA;
- c. Ensure adequate supplies are available at all times to handle spills, leaks, and disposal of used liquids;
- d. Use drip pans and absorbents under or around leaky vehicles;
- e. Dispose of or recycle oil and oily wastes in accordance with other Federal, State, Tribal, or local requirements; and
- f. Clean up spills or contaminated surfaces immediately, using dry clean up measures (do not clean contaminated surfaces by hosing the area down), and eliminate the source of the spill to prevent a discharge or a continuation of an ongoing discharge.

**2.3.2 For equipment and vehicle washing:**

- a. Provide an effective means of minimizing the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other types of wash waters;<sup>49</sup>
- b. Ensure there is no discharge of soaps, solvents, or detergents in equipment and vehicle wash water; and
- c. For storage of soaps, detergents, or solvents, provide either (1) cover (e.g., *plastic sheeting, temporary roofs*) to minimize the exposure of these detergents to precipitation and to stormwater, or (2) a similarly effective means designed to minimize the discharge of pollutants from these areas.

**2.3.3 For storage, handling, and disposal of building products, materials, and wastes:<sup>50</sup>**

- a. *For building materials and building products,*<sup>51</sup> provide either (1) cover (e.g., *plastic sheeting, temporary roofs*) to minimize the exposure of these products to

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<sup>48</sup> Examples of effective means include:

- Locating activities away from receiving waters, storm drain inlets, and constructed or natural site drainage feature so that stormwater coming into contact with these activities cannot reach waters of the U.S.;
- Providing secondary containment (e.g., *spill berms, dikes, spill containment pallets*) and cover where appropriate; and
- Having a spill kit available on site and ensuring personnel are available to respond expeditiously in the event of a leak or spill.

<sup>49</sup> Examples of effective means include locating activities away from receiving waters and storm drain inlets or constructed or natural site drainage features and directing wash waters to a sediment basin or sediment trap, using filtration devices, such as filter bags or sand filters, or using other similarly effective controls.

<sup>50</sup> Compliance with the requirements of this permit does not relieve compliance requirements with respect to Federal, State, or local laws and regulations governing the storage, handling, and disposal of solid, hazardous, or toxic wastes and materials.

<sup>51</sup> Examples of building materials and building products typically present at construction sites include asphalt sealants, copper flashing, roofing materials, adhesives, concrete admixtures, and gravel and mulch stockpiles.



precipitation and to stormwater, or (2) a similarly effective means designed to minimize the discharge of pollutants from these areas.

Exception: Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use).

- b.** *For pesticides, herbicides, insecticides, fertilizers, and landscape materials:*
- i.** In storage areas, provide either (1) cover (e.g., *plastic sheeting, temporary roofs*) to minimize the exposure of these chemicals to precipitation and to stormwater, or (2) a similarly effective means designed to minimize the discharge of pollutants from these areas; and
  - ii.** Comply with all application and disposal requirements included on the registered pesticide, herbicide, insecticide, and fertilizer label (see also Part 2.3.5).
- c.** *For diesel fuel, oil, hydraulic fluids, other petroleum products, and other chemicals:* The following requirements apply to the storage and handling of chemicals on your site. If you are already implementing controls as part of an SPCC or other spill prevention plan that meet or exceed the requirements of this Part, you may continue to do so and be considered in compliance with these provisions provided you reference the applicable parts of the SPCC or other plans in your SWPPP as required in Part 7.2.6b.viii.
- i.** If any chemical container has a storage capacity of less than 55 gallons:
    - (a) The containers must be water-tight, and must be kept closed, sealed, and secured when not being actively used;
    - (b) If stored outside, use a spill containment pallet or similar device to capture small leaks or spills; and
    - (c) Have a spill kit available on site that is in good working condition (i.e., not damaged, expired, or used up) and ensure personnel are available to respond immediately in the event of a leak or spill.
  - ii.** If any chemical container has a storage capacity of 55 gallons or more:
    - (a) The containers must be water-tight, and must be kept closed, sealed, and secured when not being actively used;
    - (b) Store containers a minimum of 50 feet from receiving waters, constructed or natural site drainage features, and storm drain inlets. If infeasible due to site constraints, store containers as far away from these features as the site permits. If site constraints prevent you from storing containers 50 feet away from receiving waters or the other features identified, you must document in your SWPPP the specific reasons why the 50-foot setback is infeasible, and how you will store containers as far away as the site permits;
    - (c) Provide either (1) cover (e.g., temporary roofs) to minimize the exposure of these containers to precipitation and to stormwater, or (2) secondary containment (e.g., curbing, spill berms, dikes, spill containment pallets, double-wall, above-ground storage tank); and
    - (d) Have a spill kit available on site that is in good working condition (i.e., not

damaged, expired, or used up) and ensure personnel are available to respond immediately in the event of a leak or spill. Additional secondary containment measures are listed at 40 CFR § 112.7(c)(1).

- iii. Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly. You are prohibited from hosing the area down to clean surfaces or spills. Eliminate the source of the spill to prevent a discharge or a furtherance of an ongoing discharge.
- d. *For hazardous or toxic wastes:*<sup>52</sup>
  - i. Separate hazardous or toxic waste from construction and domestic waste;
  - ii. Store waste in sealed containers, constructed of suitable materials to prevent leakage and corrosion, and labeled in accordance with applicable Resource Conservation and Recovery Act (RCRA) requirements and all other applicable Federal, State, Tribal, or local requirements;
  - iii. Store all outside containers within appropriately-sized secondary containment (e.g., *spill berms, dikes, spill containment pallets*) to prevent spills from being discharged, or provide a similarly effective means designed to prevent the discharge of pollutants from these areas (e.g., *storing chemicals in a covered area, having a spill kit available on site*);
  - iv. Dispose of hazardous or toxic waste in accordance with the manufacturer's recommended method of disposal and in compliance with Federal, State, Tribal, and local requirements;
  - v. Clean up spills immediately, using dry clean-up methods, and dispose of used materials properly. You are prohibited from hosing the area down to clean surfaces or spills. Eliminate the source of the spill to prevent a discharge or a furtherance of an ongoing discharge; and
  - vi. Follow all other Federal, State, Tribal, and local requirements regarding hazardous or toxic waste.
- e. *For construction and domestic wastes:*<sup>53</sup>
  - i. Provide waste containers (e.g., *dumpster, trash receptacle*) of sufficient size and number to contain construction and domestic wastes;
    - (a) For waste containers with lids, keep waste container lids closed when not in use, and close lids at the end of the business day and during storm events. For waste containers without lids, provide either (1) cover (e.g., *a tarp, plastic sheeting, temporary roof*) to minimize exposure of wastes to precipitation, or (2) a similarly effective means designed to minimize the discharge of pollutants (e.g., *secondary containment*);
    - (b) On business days, clean up and dispose of waste in designated waste

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<sup>52</sup> Examples of hazardous or toxic waste that may be present at construction sites include paints, caulks, sealants, fluorescent light ballasts, solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids.

<sup>53</sup> Examples of construction and domestic wastes include packaging materials, scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, styrofoam, concrete, demolition debris; and other trash or discarded materials.

containers; and

(c) Clean up immediately if containers overflow, and if there is litter elsewhere on the site from escaped trash.

ii. Waste containers are not required for the waste remnant or unused portions of construction materials or final products that are covered by the exception in Part 2.2.3a provided that:

(a) These wastes are stored separately from other construction or domestic wastes addressed by Part 2.3.3e.i (i.e., wastes not covered by the exception in Part 2.3.3a). If the wastes are mixed, they must be stored in waste containers as required in Part 2.3.3e.i; and

(b) These wastes are stored in designated areas of the site, the wastes are described in the SWPPP (see Part 7.2.6b.ix), and identified in the site plan (see Part 7.2.4i).

f. *For sanitary waste*, position portable toilets so they are secure and will not be tipped or knocked over, and are located away from receiving waters, storm drain inlets, and constructed or natural site drainage features.

**2.3.4 For washing applicators and containers used for stucco, paint, concrete, form release oils, curing compounds, or other materials:**

a. Direct wash water into a leak-proof container or leak-proof and lined pit designed so no overflows can occur due to inadequate sizing or precipitation;

b. Handle washout or cleanout wastes as follows:

i. For liquid wastes:

(a) Do not dump liquid wastes or allow them to enter into constructed or natural site drainage features, storm inlets, or receiving waters;

(b) Do not allow liquid wastes to be disposed of through infiltration or to otherwise be disposed of on the ground;

(c) Comply with applicable State, Tribal, or local requirements for disposal

ii. Remove and dispose of hardened concrete waste consistent with your handling of other construction wastes in Part 2.3.3e; and

c. Locate any washout or cleanout activities as far away as possible from receiving waters, constructed or natural site drainage features, and storm drain inlets, and, to the extent feasible, designate areas to be used for these activities and conduct such activities only in these areas.

**2.3.5 For the application of fertilizers:**

a. Apply at a rate and in amounts consistent with manufacturer's specifications, or document in the SWPPP departures from the manufacturer specifications where appropriate in accordance with Part 7.2.6b.x;

b. Apply at the appropriate time of year for your location, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth;

- c. Avoid applying before heavy rains that could cause excess nutrients to be discharged;
- d. Never apply to frozen ground;
- e. Never apply to constructed or natural site drainage features; and
- f. Follow all other Federal, State, Tribal, and local requirements regarding fertilizer application.

### 2.3.6 Emergency Spill Notification Requirements

Discharges of toxic or hazardous substances from a spill or other release are prohibited, consistent with Part 1.3.5. Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR part 110, 40 CFR part 117, or 40 CFR part 302 occurs during a 24-hour period, you must notify the National Response Center (NRC) at (800) 424-8802 or, in the Washington, DC metropolitan area, call (202) 267-2675 in accordance with the requirements of 40 CFR part 110, 40 CFR part 117, and 40 CFR part 302 as soon as you have knowledge of the release. You must also, within seven (7) calendar days of knowledge of the release, provide a description of the release, the circumstances leading to the release, and the date of the release. State, Tribal, or local requirements may necessitate additional reporting of spills or discharges to local emergency response, public health, or drinking water supply agencies.

## 2.4 CONSTRUCTION DEWATERING REQUIREMENTS

Comply with the following requirements to minimize the discharge of pollutants from dewatering<sup>54</sup> operations.

- 2.4.1 Route dewatering water through a sediment control (e.g., sediment trap or basin, pumped water filter bag) designed to prevent discharges with visual turbidity;<sup>55</sup>
- 2.4.2 Do not discharge visible floating solids or foam;
- 2.4.3 The discharge must not cause the formation of a visible sheen on the water surface, or visible oily deposits on the bottom or shoreline of the receiving water. Use an oil-water separator or suitable filtration device (such as a cartridge filter) designed to remove oil, grease, or other products if dewatering water is found to or expected to contain these materials;
- 2.4.4 To the extent feasible, use well-vegetated (e.g., grassy or wooded), upland areas of the site to infiltrate dewatering water before discharge.<sup>56</sup> You are prohibited from using receiving waters as part of the treatment area;
- 2.4.5 To prevent dewatering-related erosion and related sediment discharges:
  - a. Use stable, erosion-resistant surfaces (e.g., well-vegetated grassy areas, clean filter stone, geotextile underlayment) to discharge from dewatering controls;

<sup>54</sup> "Dewatering" is defined in Appendix A as "the act of draining accumulated stormwater and/or ground water from building foundations, vaults, and trenches, or other similar points of accumulation."

<sup>55</sup> For the purposes of this permit, visual turbidity is present where there is a sediment plume in the discharge or the discharge appears cloudy, or opaque, or has a visible contrast that can be identified by an observer.

<sup>56</sup> See footnote 19.



- b. Do not place dewatering controls, such as pumped water filter bags, on steep slopes (as defined in Appendix A); and
  - c. At all points where dewatering water is discharged, comply with the velocity dissipation requirements of Part 2.2.11.
- 2.4.6 For backwash water, either haul it away for disposal or return it to the beginning of the treatment process;
- 2.4.7 Replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer's specifications; and
- 2.4.8 Comply with dewatering-specific inspection requirements in Part 4.

### 3 WATER QUALITY-BASED EFFLUENT LIMITATIONS

#### 3.1 GENERAL EFFLUENT LIMITATION TO MEET APPLICABLE WATER QUALITY STANDARDS

Discharges must be controlled as necessary to meet applicable water quality standards. Discharges must also comply with any additional State or Tribal requirements that are in Part 9.

In the absence of information demonstrating otherwise, EPA expects that compliance with the conditions in this permit will result in stormwater discharges being controlled as necessary to meet applicable water quality standards. If at any time you become aware, or EPA determines, that discharges are not being controlled as necessary to meet applicable water quality standards, you must take corrective action as required in Parts 5.1 and 5.2, and document the corrective actions as required in Part 5.4.

EPA may insist that you install additional controls (to meet the narrative water quality-based effluent limit above) on a site-specific basis, or require you to obtain coverage under an individual permit, if information in your NOI or from other sources indicates that your discharges are not controlled as necessary to meet applicable water quality standards. This includes situations where additional controls are necessary to comply with a wasteload allocation in an EPA-established or approved TMDL.

If during your coverage under a previous permit, you were required to install and maintain stormwater controls specifically to meet the assumptions and requirements of an EPA-approved or established TMDL (for any parameter) or to otherwise control your discharge to meet water quality standards, you must continue to implement such controls as part of your coverage under this permit.

#### 3.2 WATER QUALITY-BASED CONDITIONS FOR SITES DISCHARGING TO CERTAIN IMPAIRED AND HIGH QUALITY RECEIVING WATERS

For any portion of the site that discharges to a sediment or nutrient-impaired water or to a water that is identified by your State, Tribe, or EPA as Tier 2, Tier 2.5, or Tier 3 for antidegradation purposes,<sup>57</sup> you must comply with the inspection frequency specified in Part 4.3 and you must comply with the stabilization deadline specified in Part 2.2.14b.iii.<sup>58</sup>

<sup>57</sup> Refer to Appendix A for definitions of "impaired water" and "Tier 2," "Tier 2.5," and "Tier 3" waters. For assistance in determining whether your site discharges to impaired waters, EPA has developed a tool that is available at <https://www.epa.gov/npdes/epas-stormwater-discharge-mapping-tools>. For assistance in determining whether your site discharges to a Tier 2, 2.5, or 3 water, refer to the list of such waters at <https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates>.

<sup>58</sup> If you qualify for any of the reduced inspection frequencies in Part 4.4, you may conduct inspections in

If you discharge to a water that is impaired for a parameter other than a sediment-related parameter or nutrients, EPA will inform you if any additional controls are necessary for your discharge to be controlled as necessary to meet water quality standards. These controls might include those necessary for your discharge to be consistent with the assumptions of any available wasteload allocation in any applicable TMDL. In addition, EPA may require you to apply for and obtain coverage under an individual NPDES permit.

In addition, on a case-by-case basis, EPA may notify operators of new sites or operators of existing sites with increased discharges that additional analyses, stormwater controls, and/or other measures are necessary to comply with the applicable antidegradation requirements, or notify you that an individual permit application is necessary.

If you discharge to a water that is impaired for polychlorinated biphenyls (PCBs) and are engaging in demolition of any structure with at least 10,000 square feet of floor space built or renovated before January 1, 1980, you must:

- a. Implement controls<sup>59</sup> to minimize the exposure of PCB-containing building materials, including paint, caulk, and pre-1980 fluorescent lighting fixtures, to precipitation and to stormwater; and
- b. Ensure that disposal of such materials is performed in compliance with applicable State, Federal, and local laws.

### **3.3 TURBIDITY BENCHMARK MONITORING FOR SITES DISCHARGING DEWATERING WATER TO PROTECT THE WATER QUALITY OF SENSITIVE WATERS**

For sites discharging dewatering water to “sensitive waters” (i.e., receiving waters listed as impaired for sediment or a sediment-related parameter (as defined in Appendix A), or receiving waters designated as a Tier 2, Tier 2.5, or Tier 3 for antidegradation purposes) you are required to comply with the benchmark monitoring requirements in this Part and document the procedures you will use at your site in your SWPPP pursuant to Part 7.2.8. A summary of these requirements is included in Table 1.

EPA notes that the benchmark threshold is not an effluent limitation, rather it is an indicator that the dewatering controls may not be working to protect water quality, which the operator must investigate and correct as appropriate. A benchmark exceedance is not a permit violation. However, if a benchmark exceedance triggers corrective action in Part 5.1.5a, failure to conduct any required action is a permit violation.

Where there are multiple operators associated with the same site, the operators may coordinate with one another to carry out the monitoring requirements of this Part in order to avoid duplicating efforts. Such coordinating arrangements must be described in the SWPPP consistent with Part 7.2.8. Regardless of how the operators divide the

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accordance with Part 4.4 for any portion of your site that discharges to a sensitive water.

<sup>59</sup> Examples of controls to minimize exposure of PCBs to precipitation and stormwater include separating work areas from non-work areas and selecting appropriate personal protective equipment and tools, constructing a containment area so that all dust or debris generated by the work remains within the protected area, and using tools that minimize dust and heat (<212°F). For additional information, refer to Part 2.3.3 of the CGP Fact Sheet.

responsibilities for monitoring and reporting, each operator remains responsible for compliance with these requirements.<sup>60</sup>

### 3.3.1 Turbidity monitoring requirements<sup>61</sup>

- a. Sampling frequency.** You must collect at least one turbidity sample from your dewatering discharge each day a discharge occurs.
- b. Sampling location.** Samples must be taken at all points where dewatering water is discharged. Samples must be taken after the dewatering water has been treated by installed treatment devices pursuant to Parts 2.4.1 and 2.4.3 and prior to its discharge off site into a receiving water, constructed or natural site drainage feature, or storm drain inlet.
- c. Representative samples.** Samples taken must be representative of the dewatering discharge for any given day as required in Appendix G (standard permit conditions), Part G.10.2.
- d. Test methods.** Samples must be measured using a turbidity meter that reports results in nephelometric turbidity units (NTUs) and conforms with a Part 136-approved method (e.g., methods 180.1 and 2130). You are required to use the meter, and conduct a calibration verification prior to each day's use, consistent with the manufacturer's instructions.

### 3.3.2 Turbidity benchmark

- a.** The benchmark threshold for turbidity for this permit is 50 NTUs (referred to elsewhere in this permit as the "standard 50 NTU benchmark") unless EPA has authorized the use of an alternate benchmark in accordance with Part 3.3.2b.
- b. Request for alternate benchmark threshold.**
  - i.** At any time prior to or during your coverage under this permit, you may request that EPA approve a benchmark for your site that is higher than 50 NTUs if you have information demonstrating the higher number is the same as your receiving water's water quality standard for turbidity. Unless EPA approves an alternate benchmark, you will be required to use the standard 50 NTU benchmark. To request approval of an alternate benchmark, you must submit the following information to your applicable EPA Regional Office (see Appendix K):
    - (a) The current turbidity water quality standard that applies to your receiving

<sup>60</sup> For instance, if Operator A relies on Operator B to meet the Part 3.3.1 turbidity monitoring requirements, the Part 3.3.4 reporting and recordkeeping requirements, and the Part 5.2.2 corrective action provisions when applicable, Operator A does not have to duplicate these same functions if Operator B is implementing them for both operators to be in compliance with the permit. However, Operator A remains responsible for complying with these permit requirements if Operator B fails to take actions that were necessary for Operator A to comply with the permit. See also footnote 83. EPA notes that both Operator A and B are required to submit turbidity monitoring reports as required under Part 3.3.4, however, Operator A's report does not need to include the data collected by Operator B as long as Operator B submits the required data and Operator A's report indicates that it is relying on Operator B to report the data. See Part 3.3.4a.

<sup>61</sup> Operators may find it useful to consult EPA's *Monitoring and Inspection Guide for Construction Dewatering*, available at <https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates>, which provides guidelines on how to correctly monitor for turbidity, determine if the weekly average exceeds the benchmark, and, if so, how to proceed with corrective action.

water and the source/citation.<sup>62</sup>

(b) If the applicable turbidity water quality standard requires information on natural or background turbidity levels (e.g., “no more than 10 NTU above natural turbidity levels”) to determine the specific standard for the receiving water, include available data that can be used to establish the natural turbidity levels of your receiving water (including literature studies or Federal, State, Tribal, or local government data). Data must be representative of the natural turbidity levels of your specific receiving water. Identify the source(s) of all data provided, including if the data are from samples you collected of the receiving water.

- ii. EPA will inform you of its decision on whether to approve the requested alternate benchmark within 30 days. EPA may approve your request, request additional time (e.g., if additional information is needed to substantiate the data you provided), or deny your request. Unless and until EPA approves your request to use an alternate benchmark, you are required to use the standard benchmark of 50 NTUs and take any required corrective actions if an exceedance occurs.

**3.3.3 Comparison of turbidity samples to benchmark.** Compare the weekly average<sup>63</sup> of your turbidity monitoring results to the standard 50 NTU benchmark, or alternate benchmark if approved by EPA.

- a. If the weekly average of your turbidity monitoring results exceeds the standard benchmark (or your approved alternate benchmark), you are required to conduct follow-up corrective action in accordance with Part 5.2.2 and document any corrective action taken in your corrective action log in accordance with Part 5.4.
- b. For averaging purposes, a “monitoring week” starts with a Monday and ends on Sunday. Once a new monitoring week starts, you will need to calculate a new average for that week of turbidity monitoring results.<sup>64</sup> A weekly average may consist of one or more turbidity monitoring results.
- c. Although you are not required to collect and analyze more than one turbidity sample per day from your dewatering discharge, if you do collect and analyze more than one sample on any given day, you must include any additional results in the

<sup>62</sup> For instance, if your site is located in Washington, DC, and you are discharging to a Class B water, for which the water quality standard is that turbidity may not increase above ambient levels by more than 20 percent, you would reference “Water Quality Standards for the District of Columbia, Chapter 11, Section 1104.8.”

<sup>63</sup> A “weekly average” is defined as the sum of all of the turbidity samples taken during a “monitoring week” divided by the number of samples measured during that week. Average values should be calculated to the nearest whole number.

<sup>64</sup> For example, if turbidity samples from your dewatering discharge in week 1 result in values of 30 NTU on Tuesday, 40 NTU on Wednesday, and 45 NTU on Thursday, your weekly average turbidity value would be 38.33 NTU  $((30+40+45) \div 3 = 38 \text{ NTU})$ . If in week 2, your turbidity samples resulted in values of 45 NTU on Monday, 30 NTU on Tuesday, 25 NTU on Wednesday, and 15 NTU on Thursday, you would calculate a new average for that week, which would yield an average turbidity value of 28.75 NTU  $((45+30+25+15) \div 4 = 29 \text{ NTU})$ . By comparison, if your samples on consecutive days from Friday to Monday were 60 NTU, 45 NTU, 40 NTU, and 43 NTU, respectively, and there are no other dewatering discharges for the remainder of the week, you would calculate one weekly average for the Friday to Sunday to be 48 NTU  $((60+45+40) \div 3 = 48 \text{ NTU})$ , and a separate weekly average for the one Monday to be 43 NTU  $(43 \div 1 = 43 \text{ NTU})$ .



calculation of your weekly average (i.e., add all individual results for that monitoring week and divide by the total number of samples).<sup>65</sup>

- d. If you are conducting turbidity monitoring for more than one dewatering discharge point, you must calculate a weekly average turbidity value for each discharge point and compare each to the turbidity benchmark.

### 3.3.4 Reporting and recordkeeping.

- a. You must submit reports of your weekly average turbidity data to EPA no later than 30 days following the end of each monitoring quarter. If there are monitoring weeks in which there was no dewatering discharge, or if there is a monitoring quarter with no dewatering discharge, indicate this in your turbidity monitoring report. If another operator associated with your same site is conducting turbidity monitoring on your behalf pursuant to Part 3.3, indicate this in your turbidity monitoring report.
- b. For the purposes of this permit, the following monitoring quarters and reporting deadlines apply:

**Table 3. Monitoring Quarters and Deadlines for Reporting Turbidity Benchmark Monitoring Data.**

Monitoring Quarter #	Months	Reporting Deadline (no later than 30 days after end of the monitoring quarter)
1	January 1 – March 31	April 30
2	April 1 – June 30	July 30
3	July 1 – September 30	October 30
4	October 1 – December 31	January 30

- c. You must use EPA’s NPDES eReporting Tool (NeT) to electronically submit your quarterly turbidity data, unless, consistent with Part 1.4.2, you received a waiver from your applicable EPA Regional Office. If the EPA Regional Office grants you approval to use a paper turbidity monitoring report form, and you elect to use it, you must complete the form in Appendix K. If EPA approves of your request to use an alternate turbidity benchmark pursuant to Part 3.3.2b, EPA will substitute the alternate benchmark in your NeT account.
- d. For each day in which you are required to monitor, you must record the monitoring information required by Appendix G, Parts G.10.2 and G.10.3 and retain all such information for a period of at least three years from the date this permit expires or from the date your authorization is terminated.

<sup>65</sup> For example, if during a monitoring week you take two turbidity samples on Tuesday with a value of 30 NTU and 35 NTU, three samples on Wednesday with a value of 40 NTU, 45 NTU, and 48 NTU, and one sample on Thursday with a value of 45 NTU, your weekly average turbidity value for this week would be 41 NTU  $((30+35+40+45+48+45) \div 6 = 41 \text{ NTU})$ .

**Table 4. Summary of Turbidity Benchmark Monitoring Requirements.**

Applicability	Sampling Requirement	Turbidity Benchmark	Corrective Action	Reporting
Sites discharging dewatering water to a sediment-impaired water or to a water designated as a Tier 2, Tier 2.5, or Tier 3 for antidegradation purposes.	Collect at least one turbidity sample per day, from each discharge point, on any day there is a dewatering discharge.  Use turbidity sampling procedures specified in Part 3.3.1.	Compare the weekly average of your turbidity monitoring results to the 50 NTU benchmark (or alternate benchmark if approved by EPA).	If the weekly average of turbidity monitoring results exceeds the 50 NTU turbidity benchmark (or alternate benchmark if approved by EPA), you are required to take follow-up corrective action in accordance with Part 5.2.2.	Report all weekly average turbidity monitoring results on a quarterly basis via NeT-CGP (unless use of the paper monitoring form in Appendix K is approved by EPA) no later than 30 days following the end of each monitoring quarter.

**4 INSPECTION REQUIREMENTS**

**4.1 PERSON(S) RESPONSIBLE FOR CONDUCTING SITE AND DEWATERING INSPECTIONS**

The person(s) inspecting your site may be a person on your staff or a third party you hire to conduct such inspections. You are responsible for ensuring that any person conducting inspections pursuant to this Part is a “qualified person.” A qualified person is someone who has completed the training required by Part 6.3.

**4.2 FREQUENCY OF INSPECTIONS.<sup>66</sup>**

At a minimum, you must conduct a site inspection in accordance with one of the two schedules listed below, unless you are subject to the Part 4.3 site inspection frequency for discharges to sediment or nutrient-impaired or high quality waters, or qualify for a Part 4.4 reduction in the inspection frequency:

**4.2.1** At least once every seven (7) calendar days; *or*

**4.2.2** Once every 14 calendar days *and* within 24 hours<sup>67</sup> of the occurrence of:

- a.** A storm event that produces 0.25 inches or more of rain within a 24-hour period.
  - i.** If a storm event produces 0.25 inches or more of rain within a 24-hour period (including when there are multiple, smaller storms that alone produce less than 0.25 inches but together produce 0.25 inches or more in 24 hours), you are required to conduct one inspection within 24 hours of when 0.25 inches of rain or more has fallen.

<sup>66</sup> Inspections are only required during the site’s normal working hours.

<sup>67</sup> For the purposes of the inspection requirements in this Part, conducting an inspection “within 24 hours” means that once either of the two conditions in Parts 4.2.2a or 4.2.2b are met you have 24 hours from that time to conduct an inspection. For clarification, the 24 hours is counted as a continuous passage of time, and not counted by business hours (e.g., 3 business days of 8 hours each). When the 24-hour inspection time frame occurs entirely outside of normal working hours, you must conduct an inspection by no later than the end of the next business day.

- ii. If a storm event produces 0.25 inches or more of rain within a 24-hour period on the first day of a storm and continues to produce 0.25 inches or more of rain on subsequent days, you must conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the last day of the storm that produces 0.25 inches or more of rain (i.e., only two inspections would be required for such a storm event).<sup>68</sup>
  - b. A discharge caused by snowmelt from a storm event that produces 3.25 inches<sup>69</sup> or more of snow within a 24-hour period. You are required to conduct one inspection once the discharge of snowmelt from a 3.25-inch or more snow accumulation occurs. Additional snowmelt inspections are only required if following the discharge from the first snowmelt, there is a discharge from a separate storm event that produces 3.25 inches or more of snow.
- 4.2.3** To determine whether a storm event meets either of the thresholds in Parts 4.2.2a or 4.2.2b:
- a. For rain, you must either keep a properly maintained rain gauge on your site, or obtain the storm event information from a weather station that is representative of your location. For any 24-hour period during which there is 0.25 inches or more of rainfall, you must record the total rainfall measured for that day in accordance with Part 4.7.1d.
  - b. For snow, you must either take measurements of snowfall at your site,<sup>70</sup> or rely on similar information from a local weather forecasting provider that is representative of your location.

#### **4.3 INCREASE IN INSPECTION FREQUENCY FOR CERTAIN SITES.**

The increased inspection frequencies established in this Part take the place of the Part 4.2 inspection frequencies for the portion of the site affected.

- 4.3.1 For any portion of the site that discharges to a sediment or nutrient-impaired water or to a water that is identified by your State, Tribe, or EPA as Tier 2, Tier 2.5, or Tier 3 for antidegradation purposes (see Part 3.2), you must conduct an once every seven (7) calendar days and within 24 hours of the occurrence of a storm event that produces 0.25 inches or more of rain within a 24-hour period, or within 24 hours of a snowmelt discharge from a storm event that produces 3.25 inches or more of snow within a 24-hour period.**

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<sup>68</sup> For example, if 0.30 inches of rain falls on Day 1, 0.25 inches of rain falls on Day 2, and 0.10 inches of rain fall on Day 3, you would be required to conduct a first inspection within 24 hours of the Day 1 rainfall and a second inspection within 24 hours of the Day 2 rainfall, but a third inspection would not be required within 24 hours of the Day 3 rainfall.

<sup>69</sup> This is the amount of snow that is equivalent to 0.25 inches of rain, based on information from the National Oceanic and Atmospheric Administration (NOAA) indicating that 13 inches of snow is, on average, equivalent to 1 inch of rain. See <https://www.nssl.noaa.gov/education/svrwx101/winter/faq/>.

<sup>70</sup> For snowfall measurements, EPA suggests use of NOAA's National Weather Service guidelines at [https://www.weather.gov/jkl/snow\\_measurement](https://www.weather.gov/jkl/snow_measurement). These guidelines recommend use of a "snowboard" (a piece of wood about 16 inches by 16 inches) that is placed in an unobstructed part of the site on a hard surface.

Refer to Parts 4.2.3a and 4.2.3b for the requirements to determine if a storm event produces enough rain or snow to trigger the inspection requirement.

- 4.3.2 For sites discharging dewatering water**, you must conduct an inspection in accordance with Part 4.6.3 during the discharge once per day on which the discharge occurs. The Part 4.2 inspection frequency still applies to all other portions of the site, unless the site is affected by either the increased frequency in Part 4.3.1 or the reduced frequency in Part 4.4.

#### 4.4 REDUCTIONS IN INSPECTION FREQUENCY

##### 4.4.1 Stabilized areas.

- a.** You may reduce the frequency of inspections to twice per month for the first month, no more than 14 calendar days apart, then once per month until permit coverage is terminated consistent with Part 8 in any area of your site where the stabilization steps in Part 2.2.14a have been completed. If construction activity resumes in this portion of the site at a later date, the inspection frequency immediately increases to that required in Parts 4.2 and 4.3, as applicable. You must document the beginning and ending dates of this period in your SWPPP.
- b. Exception.** For “linear construction sites” (as defined in Appendix A) where disturbed portions have undergone final stabilization at the same time active construction continues on others, you may reduce the frequency of inspections to twice per month for the first month, no more than 14 calendar days apart, in any area of your site where the stabilization steps in Part 2.2.14a have been completed. After the first month, inspect once more within 24 hours of the occurrence of a storm event that produces 0.25 inches of rain or more within a 24-hour period, or within 24 hours of a snowmelt discharge from a storm event that produces 3.25 inches or more of snow within a 24-hour period. If there are no issues or evidence of stabilization problems, you may suspend further inspections. If “wash-out” of stabilization materials and/or sediment is observed, following re-stabilization, inspections must resume at the inspection frequency required in Part 4.4.1a. Inspections must continue until final stabilization is visually confirmed following a storm event that produces 0.25 inches of rain or more within a 24-hour period.

- 4.4.2 Arid, semi-arid, or drought-stricken areas** (as defined in Appendix A). If it is the seasonally dry period<sup>71</sup> or a period in which drought is occurring, you may reduce the frequency of inspections to once per month and within 24 hours of the occurrence of a storm event that produces 0.25 inches of rain or more within a 24-hour period, or within 24 hours of a snowmelt discharge from a storm event that produces 3.25 inches or more of snow within a 24-hour period. You must document that you are using this reduced schedule and the beginning and ending dates of the seasonally dry period in your SWPPP. Follow the procedures in Part 4.2.3a and 4.2.3b, accordingly, to determine if a storm event occurs that produces 0.25 inches or more of rain or 3.25 inches or more of snow within a 24-hour period. For any 24-hour period during which there is 0.25 inches or more of rainfall, or 3.25 inches or more of snow, you must record the total rainfall or snow measured for that day in accordance with Part 4.7.1d.

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<sup>71</sup> See footnote 44.



**4.4.3 Frozen conditions:**

- a.** If you are suspending construction activities due to frozen conditions, you may temporarily suspend inspections on your site until thawing conditions (as defined in Appendix A) begin to occur if:
  - i.** Discharges are unlikely due to continuous frozen conditions that are likely to continue at your site for at least three (3) months based on historic seasonal averages.<sup>72</sup> If unexpected weather conditions (such as above freezing temperatures or rain events) make discharges likely, you must immediately resume your regular inspection frequency as described in Parts 4.2 and 4.3, as applicable;
  - ii.** Land disturbances have been suspended; and
  - iii.** All disturbed areas of the site have been stabilized in accordance with Part 2.2.14a.
- b.** If you are still conducting construction activities during frozen conditions, you may reduce your inspection frequency to once per month if:
  - i.** Discharges are unlikely due to continuous frozen conditions that are likely to continue at your site for at least three (3) months based on historic seasonal averages. If unexpected weather conditions (such as above freezing temperatures or rain events) make discharges likely, you must immediately resume your regular inspection frequency as described in Parts 4.2 and 4.3, as applicable; and
  - ii.** Except for areas in which you are actively conducting construction activities, disturbed areas of the site have been stabilized in accordance with Part 2.2.14a.

You must document the beginning and ending dates of this period in your SWPPP.

**4.5 AREAS THAT MUST BE INSPECTED**

During your site inspection, you must at a minimum inspect the following areas of your site:

- 4.5.1** All areas that have been cleared, graded, or excavated and that have not yet completed stabilization consistent with Part 2.2.14a;
- 4.5.2** All stormwater controls, including pollution prevention controls, installed at the site to comply with this permit;<sup>73</sup>
- 4.5.3** Material, waste, borrow, and equipment storage and maintenance areas that are covered by this permit;
- 4.5.4** All areas where stormwater typically flows within the site, including constructed or natural site drainage features designed to divert, convey, and/or treat stormwater;
- 4.5.5** All areas where construction dewatering is taking place, including controls to treat the dewatering discharge and any channelized flow of water to and from those controls;

<sup>72</sup> Use data sets that include the most recent data available to account for recent precipitation patterns and trends.

<sup>73</sup> This includes the requirement to inspect for sediment that has been tracked out from the site onto paved roads, sidewalks, or other paved areas consistent with Part 2.2.4.

4.5.6 All points of discharge from the site; and

4.5.7 All locations where stabilization measures have been implemented.

You are not required to inspect areas that, at the time of the inspection, are considered unsafe to your inspection personnel.

#### 4.6 REQUIREMENTS FOR INSPECTIONS

4.6.1 During each site inspection, you must at a minimum:

- a. Check whether all stormwater controls (i.e., *erosion and sediment controls and pollution prevention controls*) are properly installed, appear to be operational, and are working as intended to minimize pollutant discharges.
- b. Check for the presence of conditions that could lead to spills, leaks, or other accumulations of pollutants on the site.
- c. Identify any locations where new or modified stormwater controls are necessary to meet the requirements of Parts 2 and/or 3.
- d. Check for signs of visible erosion and sedimentation (i.e., *sediment deposits*) that have occurred and are attributable to your discharge at points of discharge and, if applicable, on the banks of any receiving waters flowing within or immediately adjacent to the site;
- e. Check for signs of sediment deposition that are visible from your site and attributable to your discharge (e.g., sand bars with no vegetation growing on top in receiving waters or in other constructed or natural site drainage features, or the buildup of sediment deposits on nearby streets, curbs, or open conveyance channels).
- f. Identify any incidents of noncompliance observed.

4.6.2 If a discharge is occurring during your inspection:

- a. Identify all discharge points at the site; and
- b. Observe and document the visual quality of the discharge, and take note of the characteristics of the stormwater discharge, including color; odor; floating, settled, or suspended solids; foam; oil sheen; and other indicators of stormwater pollutants. Check also for signs of these same pollutant characteristics that are visible from your site and attributable to your discharge in receiving waters or in other constructed or natural site drainage features.

4.6.3 For dewatering inspections conducted pursuant to Parts 4.3.2, record the following in a report within 24 hours of completing the inspection:

- a. The inspection date;
- b. Names and titles of personnel making the inspection;
- c. Approximate times that the dewatering discharge began and ended on the day of inspection;<sup>74</sup>
- d. Estimates of the rate (in gallons per day) of discharge on the day of inspection;

<sup>74</sup> If the dewatering discharge is a continuous discharge that continues after normal business hours, indicate that the discharge is continuous.

- e. Whether or not any of the following indications of pollutant discharge were observed at the point of discharge to any receiving waters flowing through or immediately adjacent to the site and/or to constructed or natural site drainage features or storm drain inlets:<sup>75</sup>
  - i. a sediment plume, suspended solids, unusual color, presence of odor, decreased clarity, or presence of foam; and/or
  - ii. a visible sheen on the water surface or visible oily deposits on the bottom or shoreline of the receiving water; and
- f. Photographs of (1) the dewatering water prior to treatment by a dewatering control(s) and the final discharge after treatment; (2) the dewatering control(s); and (3) the point of discharge to any receiving waters flowing through or immediately adjacent to the site and/or to constructed or natural site drainage features, storm drain inlets, and other conveyances to receiving waters.

You must also comply with the Part 4.7.2, 4.7.3, and 4.7.4 requirements for signing the reports, keeping them available on site, and retaining copies.

**4.6.4** Based on the results of your inspection:

- a. Complete any necessary maintenance repairs or replacements under Part 2.1.4 or under Part 5, whichever applies; and
- b. Modify your SWPPP site map in accordance with Part 7.4.1 to reflect changes to your stormwater controls that are no longer accurately reflected on the current site map.

**4.7 INSPECTION REPORT**

**4.7.1** You must complete an inspection report within 24 hours of completing any site inspection. Each inspection report (except for dewatering inspection reports, which are covered in Part 4.6.3) must include the following:

- a. The inspection date;
- b. Names and titles of personnel making the inspection;
- c. A summary of your inspection findings, covering at a minimum the observations you made in accordance with Part 4.6, including any problems found during your inspection that make it necessary to perform routine maintenance pursuant to Part 2.1.4b or corrective action pursuant to Part 5. Include also any documentation as to why the corrective action procedures under Part 5 are unnecessary to fix a problem that repeatedly occurs as described in Part 2.1.4c;
- d. If you are inspecting your site at the frequency specified in Part 4.2.2, Part 4.3, or Part 4.4.1b, and you conducted an inspection because of a storm event that produced rainfall measuring 0.25 inches or more within a 24-hour period, you must include the applicable rain gauge or weather station readings that triggered the inspection. Similarly, if you conducted an inspection because of a snowmelt discharge from a storm event that produced 3.25 inches or more of snow within a 24-hour period, you must include any measurements taken of snowfall at your site, or weather station information you relied on; and

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<sup>75</sup> If the operator observes any of these indicators of pollutant discharge, corrective action is required consistent with Parts 5.1.5b and 5.2.2.

- e. If you determined that it is unsafe to inspect a portion of your site, you must describe the reason you found it to be unsafe and specify the locations to which this condition applies.
- 4.7.2 Each inspection report must be signed by the operator's signatory in accordance with Appendix G, Part G.11 of this permit.
- 4.7.3 You must keep a copy of all inspection reports at the site or at an easily accessible location, so that it can be made immediately available at the time of an on-site inspection or upon request by EPA.<sup>76</sup>
- 4.7.4 You must retain all inspection reports completed for this Part for at least three (3) years from the date that your permit coverage expires or is terminated.

#### 4.8 INSPECTIONS BY EPA

You must allow EPA, or an authorized representative of EPA, to conduct the following activities at reasonable times. To the extent that you are utilizing shared controls, that are not on site, to comply with this permit, you must make arrangements for EPA to have access at all reasonable times to those areas where the shared controls are located.

- 4.8.1 Enter onto all areas of the site, including any construction support activity areas covered by this permit, any off-site areas where shared controls are utilized to comply with this permit, discharge locations, adjoining waterbodies, and locations where records are kept under the conditions of this permit;
- 4.8.2 Access and copy any records that must be kept under the conditions of this permit;
- 4.8.3 Inspect your construction site, including any construction support activity areas covered by this permit (see Part 1.2.1c), any stormwater controls installed and maintained at the site, and any off-site shared controls utilized to comply with this permit; and
- 4.8.4 Sample or monitor for the purpose of ensuring compliance.

### 5 CORRECTIVE ACTIONS

#### 5.1 CONDITIONS TRIGGERING CORRECTIVE ACTION.

You must take corrective action to address any of the following conditions identified at your site:

- 5.1.1 A stormwater control needs a significant repair or a new or replacement control is needed, or, in accordance with Part 2.1.4c, you find it necessary to repeatedly (i.e., three (3) or more times) conduct the same routine maintenance fix to the same control at the same location (unless you document in your inspection report under Part 4.7.1c that the specific reoccurrence of this same problem should still be addressed as a routine maintenance fix under Part 2.1.4); or
- 5.1.2 A stormwater control necessary to comply with the requirements of this permit was never installed, or was installed incorrectly; or

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<sup>76</sup> Inspection reports may be prepared, signed, and kept electronically, rather than in paper form, if the records are: (a) in a format that can be read in a similar manner as a paper record; (b) legally dependable with no less evidentiary value than their paper equivalent; and (c) immediately accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be, if the records were stored in paper form. For additional guidance on the proper practices to follow for the electronic retention of inspection report records, refer to the Fact Sheet discussion related to Part 4.7.3.



- 5.1.3 Your discharges are not meeting applicable water quality standards;
- 5.1.4 A prohibited discharge has occurred (see Part 1.3); or
- 5.1.5 During discharge from site dewatering activities:
  - a. The weekly average of your turbidity monitoring results exceeds the 50 NTU benchmark (or alternate benchmark if approved by EPA pursuant to Part 3.3.2b); or
  - b. You observe or you are informed by EPA, State, or local authorities of the presence of the conditions specified in Part 4.6.3e.

## 5.2 CORRECTIVE ACTION DEADLINES

- 5.2.1 If responding to any of the Part 5.1.1, 5.1.2, 5.1.3, or 5.1.4 triggering conditions, you must:
  - a. Immediately take all reasonable steps to address the condition, including cleaning up any contaminated surfaces so the material will not discharge in subsequent storm events; and
  - b. When the problem does not require a new or replacement control or significant repair, the corrective action must be completed by the close of the next business day; or
  - c. When the problem requires a new or replacement control or significant repair, install the new or modified control and make it operational, or complete the repair, by no later than seven (7) calendar days from the time of discovery. If it is infeasible to complete the installation or repair within seven (7) calendar days, you must document in your records why it is infeasible to complete the installation or repair within the 7-day timeframe and document your schedule for installing the stormwater control(s) and making it operational as soon as feasible after the 7-day timeframe. Where these actions result in changes to any of the stormwater controls or procedures documented in your SWPPP, you must modify your SWPPP accordingly within seven (7) calendar days of completing this work.
- 5.2.2 If responding to either of the Part 5.1.5 triggering conditions related to site dewatering activities, you must:
  - a. Immediately take all reasonable steps to minimize or prevent the discharge of pollutants until you can implement a solution, including shutting off the dewatering discharge as soon as possible depending on the severity of the condition<sup>77</sup> taking safety considerations into account;
  - b. Determine whether the dewatering controls are operating effectively and whether they are causing the conditions; and
  - c. Make any necessary adjustments, repairs, or replacements to the dewatering controls to lower the turbidity levels below the benchmark or remove the visible plume or sheen.

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<sup>77</sup> For instance, if the weekly average of your turbidity monitoring results or a single sample is extremely high (e.g., a single turbidity sample results in 355 NTUs or higher), you should take action to safely shut off the discharge so that you can evaluate the cause of the high turbidity. Note: A single turbidity sample of 355 NTUs or higher means that the weekly average turbidity value will exceed 50 NTU regardless of the turbidity values the other days during the week.

When you have completed these steps and made any changes deemed necessary, you may resume discharging from your dewatering activities.

### 5.3 CORRECTIVE ACTION REQUIRED BY EPA

You must comply with any corrective actions required by EPA as a result of permit violations found during an inspection carried out under Part 4.8.

### 5.4 CORRECTIVE ACTION LOG

5.4.1 For each corrective action taken in accordance with this Part, you must record the following in a corrective action log:

- a. Within 24 hours of identifying the corrective action condition, document the specific condition and the date and time it was identified.
- b. Within 24 hours of completing the corrective action (in accordance with the deadlines in Part 5.2), document the actions taken to address the condition, including whether any SWPPP modifications are required.

5.4.2 Each entry into the corrective action log, consisting of the information required by both Parts 5.4.1a and 5.4.1b, must be signed by the operator's signatory in accordance with Appendix G, Part G.11.2 of this permit.

5.4.3 You must keep a copy of the corrective action log at the site or at an easily accessible location, so that it can be made immediately available at the time of an on-site inspection or upon request by EPA.<sup>78</sup>

5.4.4 You must retain the corrective action log for at least three (3) years from the date that your permit coverage expires or is terminated.

## 6 STORMWATER TEAM FORMATION/STAFF TRAINING REQUIREMENTS

### 6.1 STORMWATER TEAM

Each operator, or group of multiple operators, must assemble a "stormwater team" that will be responsible for carrying out activities necessary to comply with this permit. The stormwater team must include the following people:

- a. Personnel who are responsible for the design, installation, maintenance, and/or repair of stormwater controls (including pollution prevention controls);
- b. Personnel responsible for the application and storage of treatment chemicals (if applicable);
- c. Personnel who are responsible for conducting inspections as required in Part 4.1; and
- d. Personnel who are responsible for taking corrective actions as required in Part 5.

Members of the stormwater team must be identified in the SWPPP pursuant to Part 7.2.2.

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<sup>78</sup> The corrective action log may be prepared, signed, and kept electronically, rather than in paper form, if the records are: (a) in a format that can be read in a similar manner as a paper record; (b) legally dependable with no less evidentiary value than their paper equivalent; and (c) immediately accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be, if the records were stored in paper form. For additional guidance on the proper practices to follow for the electronic retention of corrective action log records, refer to the Fact Sheet discussion related to Part 4.7.3.

## 6.2 GENERAL TRAINING REQUIREMENTS FOR STORMWATER TEAM MEMBERS

Prior to the commencement of construction activities, you must ensure that all persons<sup>79</sup> assigned to the stormwater team understand the requirements of this permit and their specific responsibilities with respect to those requirements, including the following related to the scope of their job duties:

- a. The permit requirements and deadlines associated with installation, maintenance, and removal of stormwater controls, as well as site stabilization;
- b. The location of all stormwater controls on the site required by this permit and how they are to be maintained;
- c. The proper procedures to follow with respect to the permit's pollution prevention requirements; and
- d. When and how to conduct inspections, record applicable findings, and take corrective actions. Specific training requirements for persons conducting site inspections are included in Part 6.3.

You are responsible for ensuring that all activities on the site comply with the requirements of this permit. You are not required to provide or document formal training for subcontractors or other outside service providers (unless the subcontractors or outside service providers are responsible for conducting the inspections required in Part 4, in which case you must provide such documentation consistent with Part 7.2.2), but you must ensure that such personnel understand any requirements of this permit that may be affected by the work they are subcontracted to perform.

## 6.3 TRAINING REQUIREMENTS FOR PERSONS CONDUCTING INSPECTIONS

For projects that receive coverage under this permit on or after February 17, 2023, to be considered a qualified person under Part 4.1 for conducting inspections under Part 4, you must, at a minimum, either:

- a. Have completed the EPA construction inspection course developed for this permit and have passed the exam; or
- b. Hold a current valid construction inspection certification or license from a program that, at a minimum, covers the following:<sup>80</sup>
  - i. Principles and practices of erosion and sediment control and pollution prevention practices at construction sites;
  - ii. Proper installation and maintenance of erosion and sediment controls and pollution prevention practices used at construction sites; and
  - iii. Performance of inspections, including the proper completion of required reports and documentation, consistent with the requirements of Part 4.

<sup>79</sup> If the person requiring training is a new employee who starts after you commence construction activities, you must ensure that this person has the proper understanding as required above prior to assuming particular responsibilities related to compliance with this permit. For emergency-related projects, the requirement to train personnel prior to commencement of construction activities does not apply, however, such personnel must have the required training prior to NOI submission.

<sup>80</sup> If one of the following topics (e.g., installation and maintenance of pollution prevention practices) is not covered by the non-EPA training program, you may consider supplementing the training with the analogous module of the EPA course (e.g., Module 4) that covers the missing topic.

For projects that receive coverage under this permit prior to February 17, 2023, any personnel conducting site inspections pursuant to Part 4 on your site must, at a minimum, be a person knowledgeable in the principles and practice of erosion and sediment controls and pollution prevention, who possesses the appropriate skills and training to assess conditions at the construction site that could impact stormwater quality, and the appropriate skills and training to assess the effectiveness of any stormwater controls selected and installed to meet the requirements of this permit.<sup>81</sup>

#### 6.4 STORMWATER TEAM'S ACCESS TO PERMIT DOCUMENTS

Each member of the stormwater team must have easy access to an electronic or paper copy of applicable portions of this permit, the most updated copy of your SWPPP, and other relevant documents or information that must be kept with the SWPPP.

### 7 STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

#### 7.1 GENERAL REQUIREMENTS

All operators associated with a construction site under this permit must develop a SWPPP consistent with the requirements in Part 7 prior to their submittal of the NOI.<sup>82, 83, 84</sup> The SWPPP must be kept up-to-date throughout coverage under this permit.

If a SWPPP was prepared under a previous version of this permit, the operator must review and update the SWPPP to ensure that this permit's requirements are addressed prior to submitting an NOI for coverage under this permit.

#### 7.2 SWPPP CONTENTS

At a minimum, the SWPPP must include the information specified in this Part and as specified in other parts of this permit.

##### 7.2.1 All Site Operators. Include a list of all other operators who will be engaged in construction activities at the site, and the areas of the site over which each operator has control.

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<sup>81</sup> If you receive coverage for a project prior to February 17, 2023, and construction activities for the same project will continue after February 17, 2023, the personnel conducting inspections do not need to take the additional training specified in Parts 6.3a and 6.3b for inspections conducted on the project site. If the same operator obtains coverage for a different project on or after February 17, 2023, personnel conducting inspections would be required to meet the requirements for a qualified person by completing the training in either Part 6.3a or Part 6.3b.

<sup>82</sup> The SWPPP does not establish the effluent limits and/or other permit terms and conditions that apply to your site's discharges; these limits, terms, and conditions are established in this permit.

<sup>83</sup> Where there are multiple operators associated with the same site, they may develop a group SWPPP instead of multiple individual SWPPPs. Regardless of whether there is a group SWPPP or multiple individual SWPPPs, each operator is responsible for compliance with the permit's terms and conditions. In other words, if Operator A relies on Operator B to satisfy its permit obligations, Operator A does not have to duplicate those permit-related functions if Operator B is implementing them such that both operators are in compliance with the permit. However, Operator A remains responsible for permit compliance if Operator B fails to take actions necessary for Operator A to comply with the permit. In addition, all operators must ensure, either directly or through coordination with other operators, that their activities do not cause a violation or compromise any other operators' controls and/or any shared controls. See also footnote 60.

<sup>84</sup> There are a number of commercially available products to assist operators in developing the SWPPP, as well as companies that can be hired to help develop a site-specific SWPPP. The permit does not state which are recommended, nor does EPA endorse any specific products or vendors. Where operators choose to rely on these products or services, the choice of which ones to use to comply with the requirements of this Part is a decision for the operator alone.



- 7.2.2 Stormwater Team.** Identify the personnel (by name and position) that you have made part of the stormwater team pursuant to Part 6.1, as well as their individual responsibilities, including which members are responsible for conducting inspections.

Include verification that each member of the stormwater team has received the training required by Part 6.2. Include documentation that members of the stormwater team responsible for conducting inspections pursuant to Part 4 have received the training required by Part 6.3. If personnel on your team elect to complete the EPA inspector training program pursuant to Part 6.3a, you must include copies of the certificate showing that the relevant personnel have completed the training and passed the exam. If personnel on your team elect to complete a non-EPA inspector training program pursuant to Part 6.3b, you must include documentation showing that these persons have successfully completed the program and their certification or license is still current. You must also confirm that the non-EPA inspector training program satisfies the minimum elements for such programs in Part 6.3b.

- 7.2.3 Nature of Construction Activities.** Include the following:

- a. A description of the nature of your construction activities, including the age or dates of past renovations for structures that are undergoing demolition;
- b. The size of the property (in acres or length in miles if a linear construction site);
- c. The total area expected to be disturbed by the construction activities (to the nearest quarter acre or nearest quarter mile if a linear construction site);
- d. A description of any on-site and off-site construction support activity areas covered by this permit (see Part 1.2.1c);
- e. The maximum area expected to be disturbed at any one time, including on-site and off-site construction support activity areas;
- f. A description and projected schedule for the following:<sup>85</sup>
  - i. Commencement of construction activities in each portion of the site, including clearing and grubbing, mass grading, demolition activities, site preparation (i.e., excavating, cutting and filling), final grading, and creation of soil and vegetation stockpiles requiring stabilization;
  - ii. Temporary or permanent cessation of construction activities in each portion of the site;
  - iii. Temporary or final stabilization of exposed areas for each portion of the site; and
  - iv. Removal of temporary stormwater controls and construction equipment or vehicles, and the cessation of construction-related pollutant-generating activities.

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<sup>85</sup> If plans change due to unforeseen circumstances or for other reasons, the requirement to describe the sequence and estimated dates of construction activities is not meant to “lock in” the operator to meeting these dates. When departures from initial projections are necessary, this should be documented in the SWPPP itself, or in associated records, as appropriate.

- g.** A list and description of all pollutant-generating activities<sup>86</sup> on the site. For each pollutant-generating activity, include an inventory of pollutants or pollutant constituents (e.g., *sediment, fertilizers, pesticides, paints, caulks, sealants, fluorescent light ballasts, contaminated substrates, solvents, fuels*) associated with that activity, which could be discharged in stormwater from your construction site. You must take into account where potential spills and leaks could occur that contribute pollutants to stormwater discharges, and any known hazardous or toxic substances, such as PCBs and asbestos, that will be disturbed or removed during construction;
  - h.** Business days and hours for the project;
  - i.** If you are conducting construction activities in response to a public emergency (see Part 1.4), a description of the cause of the public emergency (e.g., *mud slides, earthquake, extreme flooding conditions, widespread disruption in essential public services*), information substantiating its occurrence (e.g., *State disaster declaration or similar State or local declaration*), and a description of the construction necessary to reestablish affected public services.
- 7.2.4 Site Map.** Include a legible map, or series of maps, showing the following features of the site:
- a.** Boundaries of the property;
  - b.** Locations where construction activities will occur, including:
    - i.** Locations where earth-disturbing activities will occur (note any phasing), including any demolition activities;
    - ii.** Approximate slopes before and after major grading activities (note any steep slopes (as defined in Appendix A));
    - iii.** Locations where sediment, soil, or other construction materials will be stockpiled;
    - iv.** Any receiving water crossings;
    - v.** Designated points where vehicles will exit onto paved roads;
    - vi.** Locations of structures and other impervious surfaces upon completion of construction; and
    - vii.** Locations of on-site and off-site construction support activity areas covered by this permit (see Part 1.2.1c).
  - c.** Locations of any receiving waters within the site and all receiving waters within one mile downstream of the site's discharge point(s). Also identify if any of these receiving waters are listed as impaired or are identified as a Tier 2, Tier 2.5, or Tier 3 water;
  - d.** Any areas of Federally listed critical habitat within the action area of the site as defined in Appendix A;
  - e.** Type and extent of pre-construction cover on the site (e.g., vegetative cover, forest, pasture, pavement, structures);
  - f.** Drainage patterns of stormwater and authorized non-stormwater before and after major grading activities;

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<sup>86</sup> Examples of pollutant-generating activities include paving operations; concrete, paint, and stucco washout and waste disposal; solid waste storage and disposal; and dewatering activities.

- g.** Stormwater and authorized non-stormwater discharge locations, including:
  - i.** Locations where stormwater and/or authorized non-stormwater will be discharged to storm drain inlets, including a notation of whether the inlet conveys stormwater to a sediment basin, sediment trap, or similarly effective control;<sup>87</sup>
  - ii.** Locations where stormwater or authorized non-stormwater will be discharged directly to receiving waters (i.e., not via a storm drain inlet); and
  - iii.** Locations where turbidity benchmark monitoring will take place to comply with Part 3.3, if applicable to your site.
- h.** Locations of all potential pollutant-generating activities identified in Part 7.2.3g;
- i.** Designated areas where construction wastes that are covered by the exception in Part 2.3.3e.ii because they are not pollutant-generating will be stored;
- j.** Locations of stormwater controls, including natural buffer areas and any shared controls utilized to comply with this permit; and
- k.** Locations where polymers, flocculants, or other treatment chemicals will be used and stored.

**7.2.5 Non-Stormwater Discharges.** Identify all authorized non-stormwater discharges in Part 1.2.2 that will or may occur.

**7.2.6 Description of Stormwater Controls.**

- a.** For each of the Part 2.2 erosion and sediment control requirements, Part 2.3 pollution prevention requirements, and Part 2.4 construction dewatering requirements, as applicable to your site, you must include the following:
  - i.** A description of the specific control(s) to be implemented to meet these requirements;
  - ii.** The design specifications for controls described in Part 7.2.6a.i (including references to any manufacturer specifications and/or erosion and sediment control manuals/ordinances relied upon);<sup>88</sup>
  - iii.** Routine stormwater control maintenance specifications; and
  - iv.** The projected schedule for stormwater control installation/implementation.
- b.** You must also include any of the following additional information as applicable.
  - i. Natural buffers and/or equivalent sediment controls** (see Part 2.2.1 and Appendix F). You must include the following:
    - (a) The compliance alternative to be implemented;
    - (b) If complying with alternative 2, the width of natural buffer retained;

<sup>87</sup> The requirement to show storm drain inlets in the immediate vicinity of the site on your site map only applies to those inlets that are easily identifiable from your site or from a publicly accessible area immediately adjacent to your site.

<sup>88</sup> Design specifications may be found in manufacturer specifications and/or in applicable erosion and sediment control manuals or ordinances. Any departures from such specifications must reflect good engineering practice and must be explained in the SWPPP.

- (c) If complying with alternative 2 or 3, the erosion and sediment control(s) you will use to achieve an equivalent sediment reduction, and any information you relied upon to demonstrate the equivalency;
  - (d) If complying with alternative 3, a description of why it is infeasible for you to provide and maintain an undisturbed natural buffer of any size;
  - (e) For “linear construction sites” where it is infeasible to implement compliance alternative 1, 2, or 3, a rationale for this determination, and a description of any buffer width retained and/or supplemental erosion and sediment controls installed; and
  - (f) A description of any disturbances that are exempt under Part 2.2.1 that occur within 50 feet of a receiving water.
- ii. Perimeter controls for a “linear construction site”** (see Part 2.2.3d). For areas where perimeter controls are not feasible, include documentation to support this determination and a description of the other practices that will be implemented to minimize discharges of pollutants in stormwater associated with construction activities.
- Note: Routine maintenance specifications for perimeter controls documented in the SWPPP must include the Part 2.2.3c.i requirement that sediment be removed before it has accumulated to one-half of the above-ground height of any perimeter control.
- iii. Sediment track-out controls** (see Parts 2.2.4b and 2.2.4c). Document the specific stabilization techniques and/or controls that will be implemented to remove sediment prior to vehicle exit.
- iv. Inlet protection measures** (see Part 2.2.10a). Where inlet protection measures are not required because the storm drain inlets to which your site discharges are conveyed to a sediment basin, sediment trap, or similarly effective control, include a short description of the control that receives the stormwater flow from the site.
- v. Sediment basins** (see Part 2.2.12). In circumstances where it is infeasible to utilize outlet structures that withdraw water from the surface, include documentation to support this determination, including the specific conditions or time periods when this exception will apply.
- vi. Treatment chemicals** (see Part 2.2.13), you must include the following:
- (a) A listing of the soil types that are expected to be exposed during construction in areas of the project that will drain to chemical treatment systems. Also include a listing of soil types expected to be found in fill material to be used in these same areas, to the extent you have this information prior to construction;
  - (b) A listing of all treatment chemicals to be used at the site and why the selection of these chemicals is suited to the soil characteristics of your site;
  - (c) If the applicable EPA Regional Office authorized you to use cationic treatment chemicals for sediment control, include the specific controls and implementation procedures designed to ensure that your use of cationic



treatment chemicals will not lead to a discharge that does not meet water quality standards;

- (d) The dosage of all treatment chemicals to be used at the site or the methodology to be used to determine dosage;
- (e) Information from any applicable Safety Data Sheet (SDS);
- (f) Schematic drawings of any chemically enhanced stormwater controls or chemical treatment systems to be used for application of the treatment chemicals;
- (g) A description of how chemicals will be stored consistent with Part 2.2.13c;
- (h) References to applicable State or local requirements affecting the use of treatment chemicals, and copies of applicable manufacturer's specifications regarding the use of your specific treatment chemicals and/or chemical treatment systems; and
- (i) A description of the training that personnel who handle and apply chemicals have received prior to permit coverage, or will receive prior to use of the treatment chemicals at your site.

**vii. Stabilization measures** (see Part 2.2.14). You must include the following:

- (a) The specific vegetative and/or non-vegetative practices that will be used;
- (b) The stabilization deadline that will be met in accordance with Part 2.2.14;
- (c) If complying with the deadlines for sites in arid, semi-arid, or drought-stricken areas, the beginning and ending dates of the seasonally dry period (as defined in Appendix A)<sup>89</sup> and the schedule you will follow for initiating and completing vegetative stabilization; and
- (d) If complying with deadlines for sites affected by unforeseen circumstances that delay the initiation and/or completion of vegetative stabilization, document the circumstances and the schedule for initiating and completing stabilization.

**viii. Spill prevention and response procedures** (see Parts 1.3.5, 2.3.3c, 2.3.3d, and 2.3.6). You must include the following:

- (a) Procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases. Identify the name or position of the employee(s) responsible for detection and response of spills or leaks; and
- (b) Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity consistent with Part 2.3.6 and established under either 40 CFR part 110, 40 CFR part 117, or 40 CFR part 302, occurs

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<sup>89</sup> See footnote 44.

during a 24-hour period. Contact information must be in locations that are readily accessible and available to all employees.

You may also reference the existence of SPCC plans developed for the construction activity under Section 311 of the CWA, or spill control programs otherwise required by an NPDES permit for the construction activity, provided that you keep a copy of that other plan on site.<sup>90</sup>

**ix. Waste management procedures** (see Part 2.3.3). Describe the procedures you will follow for handling, storing, and disposing of all wastes generated at your site consistent with all applicable Federal, State, Tribal, and local requirements, including clearing and demolition debris, sediment removed from the site, construction and domestic waste, hazardous or toxic waste, and sanitary waste. You must also include the following additional information:

- (a) If site constraints prevent you from storing chemical containers 50 feet away from receiving waters or the other site drainage features as required in Part 2.3.3c.ii(b), document in your SWPPP the specific reasons why the 50-foot setback is not feasible, and how you will store containers as far away as the site permits; and
- (b) If there are construction wastes that are subject to the exception in Part 2.3.3e.ii, describe the specific wastes that will be stored on your site.

**x. Application of fertilizers** (see Part 2.3.5). Document any departures from the manufacturer specifications where appropriate.

**7.2.7 Procedures for Inspection, Maintenance, and Corrective Action.** Describe the procedures you will follow for maintaining your stormwater controls, conducting site inspections, and, where necessary, taking corrective actions, in accordance with Part 2.1.4, Part 4, and Part 5 of this permit, accordingly. Also include:

- a.** The inspection schedule you will follow, which is based on whether your site is subject to Part 4.2 or Part 4.3, or whether your site qualifies for any of the reduced inspection frequencies in Part 4.4;
- b.** If you will be conducting inspections in accordance with the inspection schedule in Part 4.2.2, Part 4.3, or Part 4.4.1b, the location of the rain gauge or the address of the weather station you will be using to obtain rainfall data;
- c.** If you will be reducing your inspection frequency in accordance with Part 4.4.1b, the beginning and ending dates of the seasonally defined arid period for your area or the valid period of drought;
- d.** If you will be reducing your inspection frequency in accordance with Part 4.4.3, the beginning and ending dates of frozen conditions on your site; and
- e.** Any maintenance or inspection checklists or other forms that will be used.

**7.2.8 Procedures for Turbidity Benchmark Monitoring from Dewatering Discharges (if applicable).** If you are required to comply with the Part 3.3 turbidity benchmark

<sup>90</sup> Even if you already have an SPCC or other spill prevention plan in existence, your plans will only be considered adequate if they meet all of the requirements of this Part, either as part of your existing plan or supplemented as part of the SWPPP.

monitoring requirements, describe the procedures you will follow to collect and evaluate samples, report results to EPA and keep records of monitoring information, and take corrective action when necessary. Include the specific type of turbidity meter you will use for monitoring, as well as any manuals or manufacturer instructions on how to operate and calibrate the meter. Describe any coordinating arrangement you may have with any other permitted operators on the same site with respect to compliance with the turbidity monitoring requirements, including which parties are tasked with specific responsibilities. If EPA has approved of an alternate turbidity benchmark pursuant to Part 3.3.2b, include any data and other documentation you relied on to request use of the specific alternative benchmark.

#### 7.2.9 Compliance with Other Requirements.

- a. Threatened and Endangered Species Protection.** Include documentation required in the Endangered Species Protection section of the NOI in NeT, or the ESA worksheet in Appendix D, supporting your eligibility with regard to the protection of threatened and endangered species and designated critical habitat.
- b. Historic Properties.** Include documentation required in Appendix E supporting your eligibility with regard to the protection of historic properties.
- c. Safe Drinking Water Act Underground Injection Control (UIC) Requirements for Certain Subsurface Stormwater Controls.** If you are using any of the following stormwater controls at your site, document any contact you have had with the applicable State agency<sup>91</sup> or EPA Regional Office responsible for implementing the requirements for underground injection wells in the Safe Drinking Water Act and EPA's implementing regulations at 40 CFR § 144 -147. Such controls would generally be considered Class V UIC wells:
  - i.** Infiltration trenches (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system);
  - ii.** Commercially manufactured pre-cast or pre-built proprietary subsurface detention vaults, chambers, or other devices designed to capture and infiltrate stormwater flow; and
  - iii.** Drywells, seepage pits, or improved sinkholes (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system).

**7.2.10 SWPPP Certification.** Your signatory must sign and date your SWPPP in accordance with Appendix G, Part G.11.

**7.2.11 Post-Authorization Additions to the SWPPP.** Once you are authorized for coverage under this permit, you must include the following documents as part of your SWPPP:

- a.** A copy of your NOI submitted to EPA along with any correspondence exchanged between you and EPA related to coverage under this permit;
- b.** A copy of the acknowledgment letter you receive from NeT assigning your NPDES ID (i.e., *permit tracking number*);

<sup>91</sup> For State UIC program contacts, refer to the following EPA website: <https://www.epa.gov/uic>.

- c. A copy of this permit (an electronic copy easily available to the stormwater team is also acceptable).

### 7.3 ON-SITE AVAILABILITY OF YOUR SWPPP

You must keep a current copy of your SWPPP at the site or at an easily accessible location so that it can be made available at the time of an on-site inspection or upon request by EPA; a State, Tribal, or local agency approving stormwater management plans; the operator of a storm sewer system receiving discharges from the site; or representatives of the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS).<sup>92</sup>

EPA may provide access to portions of your SWPPP to a member of the public upon request. Confidential Business Information (CBI) will be withheld from the public, but may not be withheld from EPA, USFWS, or NMFS.<sup>93</sup>

If an on-site location is unavailable to keep the SWPPP when no personnel are present, notice of the plan's location must be posted near the main entrance of your construction site.

### 7.4 SWPPP MODIFICATIONS

- 7.4.1 You must modify your SWPPP, including the site map(s), within seven (7) days of any of the following conditions:

- a. Whenever new operators become active in construction activities on your site, or you make changes to your construction plans, stormwater controls, or other activities at your site that are no longer accurately reflected in your SWPPP. This includes changes made in response to corrective actions triggered under Part 5. You do not need to modify your SWPPP if the estimated dates in Part 7.2.3f change during the course of construction;
- b. To reflect areas on your site map where operational control has been transferred (and the date of transfer) since initiating permit coverage;
- c. If inspections or investigations by EPA or its authorized representatives determine that SWPPP modifications are necessary for compliance with this permit;
- d. Where EPA determines it is necessary to install and/or implement additional controls at your site in order to meet the requirements of this permit, the following must be included in your SWPPP:
  - i. A copy of any correspondence describing such measures and requirements; and

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<sup>92</sup> The SWPPP may be prepared, signed, and kept electronically, rather than in paper form, if the records are: (a) in a format that can be read in a similar manner as a paper record; (b) legally dependable with no less evidentiary value than their paper equivalent; and (c) immediately accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be, if the records were stored in paper form. For additional guidance on the proper practices to follow for the electronic retention of the SWPPP, refer to the Fact Sheet discussion related to Part 4.7.3.

<sup>93</sup> Information covered by a claim of confidentiality will be disclosed by EPA only to the extent of, and by means of, the procedures set forth in 40 CFR part 2, Subpart B. In general, submitted information protected by a business confidentiality claim may be disclosed to other employees, officers, or authorized representatives of the United States concerned with implementing the CWA. The authorized representatives, including employees of other executive branch agencies, may review CBI during the course of reviewing draft regulations.



- ii. A description of the controls that will be used to meet such requirements.
  - e. To reflect any revisions to applicable Federal, State, Tribal, or local requirements that affect the stormwater controls implemented at the site; and
  - f. If applicable, if a change in chemical treatment systems or chemically enhanced stormwater control is made, including use of a different treatment chemical, different dosage rate, or different area of application.
- 7.4.2 You must maintain records showing the dates of all SWPPP modifications. The records must include the name of the person authorizing each change (see Part 7.2.9 above) and a brief summary of all changes.
- 7.4.3 All modifications made to the SWPPP consistent with Part 7.4 must be authorized by a person identified in Appendix G, Part G.11.b.
- 7.4.4 Upon determining that a modification to your SWPPP is required, if there are multiple operators covered under this permit, you must immediately notify any operators who may be impacted by the change to the SWPPP.

## 8 HOW TO TERMINATE COVERAGE

Until you terminate coverage under this permit, you must comply with all conditions and effluent limitations in the permit. To terminate permit coverage, you must submit to EPA a complete and accurate Notice of Termination (NOT), which certifies that you have met the requirements for terminating in Part 8.

### 8.1 MINIMUM INFORMATION REQUIRED IN NOT

- 8.1.1 NPDES ID (i.e., *permit tracking number*) provided by EPA when you received coverage under this permit;
- 8.1.2 Basis for submission of the NOT (see Part 8.2);
- 8.1.3 Operator contact information;
- 8.1.4 Name of site and address (or a description of location if no street address is available); and
- 8.1.5 NOT certification.

### 8.2 CONDITIONS FOR TERMINATING CGP COVERAGE

You may terminate CGP coverage only if one or more of the conditions in Parts 8.2.1, 8.2.2, or 8.2.3 has occurred. Until your termination is effective consistent with Part 8.5, you must continue to comply with the conditions of this permit.

- 8.2.1 You have completed all construction activities at your site and, if applicable, construction support activities covered by this permit (see Part 1.2.1c), and you have met all of the following requirements:
- a. For any areas that (1) were disturbed during construction, (2) are not covered by permanent structures, and (3) over which you had control during the construction activities, you have met the requirements for final vegetative or non-vegetative stabilization in Part 2.2.14c.

To document that you have met these stabilization requirements, you must take either ground or aerial photographs that show your site's compliance with the Part 2.2.14 stabilization requirements and submit them with your NOT. If any portion of your

site is covered by one of the exceptions in Part 2.2.14c.iii, indicate which exception applies and include a supplementary explanation with your photographs that provides the necessary context for why this portion of the site is in compliance with the final stabilization criteria even though it appears to be unstabilized. You are not required to take photographs of every distinct part of your site that is being stabilized, however, the conditions of the site portrayed in any photographs that are submitted must be substantially similar<sup>94</sup> to those of the areas that are not photographed. You must also comply with the following related to these photographs:

- i. Take photographs both before and after the site has met the final stabilization criteria in Part 2.2.14c;
  - ii. All photographs must be clear and in focus, and in the original format and resolution; and
  - iii. Include the date each photograph was taken, and a brief description of the area of the site captured by the photograph (e.g., photo shows application of seed and erosion control mats to remaining exposed surfaces on northeast corner of site).
- b. You have removed and properly disposed of all construction materials, waste and waste handling devices, and have removed all equipment and vehicles that were used during construction, unless intended for long-term use following your termination of permit coverage;
  - c. You have removed all stormwater controls that were installed and maintained during construction, except those that are intended for long-term use following your termination of permit coverage or those that are biodegradable (as defined in Appendix A); and
  - d. You have removed all potential pollutants and pollutant-generating activities associated with construction, unless needed for long-term use following your termination of permit coverage; or
- 8.2.2** You have transferred control of all areas of the site for which you are responsible under this permit to another operator, and that operator has submitted an NOI and obtained coverage under this permit; or
- 8.2.3** Coverage under an individual or alternative general NPDES permit has been obtained.
- 8.3 HOW TO SUBMIT YOUR NOT**

You must use EPA's NPDES eReporting Tool (NeT) to electronically prepare and submit an NOT for the 2022 CGP.

To access NeT, go to <https://cdx.epa.gov/cdx>.

Waivers from electronic reporting may be granted as specified in Part 1.4.2. If the EPA Regional Office grants you approval to use a paper NOT, and you elect to use it, you must complete the form in Appendix I.

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<sup>94</sup> Stabilization conditions that are substantially similar would include areas that are using the same type of stabilization measures and that have similar slopes, soils, and topography, and have achieved the same level of stabilization.

**8.4 DEADLINE FOR SUBMITTING THE NOT**

You must submit an NOT within 30 calendar days after any one of the conditions in Part 8.2 occurs.

**8.5 EFFECTIVE DATE OF TERMINATION OF COVERAGE**

Your authorization to discharge under this permit terminates at midnight of the calendar day that a complete NOT is submitted to EPA.

**9 PERMIT CONDITIONS APPLICABLE TO SPECIFIC STATES, INDIAN COUNTRY LANDS, OR TERRITORIES**

The provisions in this Part provide additions to the applicable conditions of this permit to reflect specific additional conditions required as part of the State or Tribal CWA Section 401 certification process, or the Coastal Zone Management Act (CZMA) certification process, or as otherwise established by the permitting authority. The specific additional revisions and requirements only apply to activities in those specific States, Indian country, and areas in certain States with Federal Facilities or areas subject to construction projects by Federal Operators. States, Indian country, and other areas not included in this Part do not have any additions to the applicable conditions of this permit.

**9.1 EPA REGION 1****9.1.1 NHR100000 State of New Hampshire**

- a.** Should the permit coverage for an individual applicant be insufficient to achieve water quality standards, the New Hampshire Department of Environmental Services (NHDES) may prepare additional 401 certification conditions for that applicant. Any additional 401 certification conditions will follow all required NHDES public participation requirements.
- b.** If you disturb 100,000 square feet or more of contiguous area, you must also comply with RSA 485-A:17 and Env-Wq 1500, and, unless exempt, apply for an Alteration of Terrain (AoT) permit from NHDES. This requirement also applies to a lower disturbance threshold of 50,000 square feet or more when construction occurs within the protected shoreline under the Shoreland Water Quality Protection Act (see RSA 483-B and Env-Wq 1400). A permit application must also be filed if your project disturbs an area of greater than 2,500 square feet, is within 50 feet of any surface water, and has a flow path of 50 feet or longer disturbing a grade of 25 percent or greater. Project sites with disturbances smaller than those discussed above, that have the potential to adversely affect state surface waters, are subject to the conditions of an AoT General Permit by Rule (Env-Wq 1503.03).
- c.** You must determine that any excavation dewatering discharges are not contaminated before they will be authorized as an allowable non-stormwater discharge under this permit (see Part 1.2.2 of the Construction General Permit or CGP). In the absence of information demonstrating otherwise, the water is considered uncontaminated if there is no groundwater contamination within 1,000 feet of the groundwater dewatering location. Information on groundwater contamination can be generated over the Internet via the NHDES web site <http://des.nh.gov/> by using the One Stop Data Mapper. For a toxic substance included in the New Hampshire surface water quality standards, see Env-Wq 1703.21 (see [https://www.des.nh.gov/sites/g/fi1es/ehbemt\\_341/files/documents/2020-01/Env-Wg](https://www.des.nh.gov/sites/g/fi1es/ehbemt_341/files/documents/2020-01/Env-Wg)

1700.pdf). If it is determined that the groundwater to be dewatered is near a remediation or other waste site, you must apply for the Remediation General Permit (see <https://www3.epa.gov/region1/npdes/rgp.html>)

- d.** As a minimum, you must treat any uncontaminated excavation "dewatering" discharges and "stormwater" discharges, as those terms are defined in Appendix A of the CGP, as necessary, to remove suspended solids and turbidity so that the surface waters receiving the construction discharges<sup>95</sup> meet New Hampshire surface water quality standards for turbidity (Env-Wq 1703.11 and Env-Wq 1703.03(c)(1)c), benthic deposits (Env-Wq 1703.03(c)(1)a), and Env-Wq 1703.08) and foam, debris, scum or other visible substances (i.e., plumes or visual turbidity)<sup>96</sup> (Env-Wq 1703.03(c)(1)b).
- i.** For all Construction Activities covered under this CGP, the following shall apply to ensure compliance with the aforementioned regulations for turbidity, benthic deposits and visible substances:
- Unless otherwise specified, site inspection requirements shall comply with Part 4 of the CGP. As a minimum site inspection frequency shall be in accordance with Part 4.2.2 of the CGP (and Part 4.3.2 of the CGP for sites discharging dewatering water). Site inspection frequency may be reduced in accordance with Part 4.4 of the CGP (Reductions in Inspection Frequency). Monitoring of the receiving water for visible turbidity and benthic sediment deposits shall be conducted each site inspection and results reported in the Inspection Report required in Part 4.7 of the CGP. Should visible turbidity or benthic sediment deposits attributable or partly attributable to your construction activities be present in the receiving water, the "Corrective Actions" specified in Part 5 shall be immediately implemented to correct the water quality standard violations. In addition, daily monitoring (including photographs) of the receiving water shall be conducted until there is no visible turbidity or benthic deposits. Inspection Reports required in Part 4.7 of the CGP shall include, but not be limited to, the distance downstream and the percent of the river width<sup>97</sup> where visible turbidity was observed, and the period of time that the visible turbidity persisted. A copy of the Inspection Report(s) shall be made available to NHDES within 24 hours of receiving a written request from NHDES.
- ii.** For Construction Activities, disturbing 5 acres or more of land at any one time (excluding areas that have been completely stabilized in accordance with the final stabilization criteria specified in Part 2.2.14.c of the CGP), the following shall

<sup>95</sup> Construction Discharges include uncontaminated "dewatering" and "stormwater" discharges as those terms are defined in Appendix A of the CGP. Controlled construction discharges are construction discharges where the rate of flow can be regulated such as from a construction settling basin or NHDES approved flocculation system.

<sup>96</sup> For the definition of visual turbidity, see the definition for "Non-Turbid" in Appendix A of the CGP, which states the following: "Non-Turbid" - a discharge that is free from visual turbidity. For the purposes of this permit, visual turbidity refers to a sediment plume or other cloudiness in the water caused by sediment that can be identified by an observer." [EPA interprets the text of this footnote as intending to reference the Appendix A definitions of "visual turbidity" and "non-turbid" in the final permit.]

<sup>97</sup> The distance downstream and the percent of river width where visible turbidity (i.e., plume) is observed is required to determine the extent of the river affected and to determine if there was a "zone of passage" (i.e., a portion of the receiving water where there was no visible turbidity where mobile organisms could pass without being adversely impacted). The percent of river width affected is equal 100 multiplied by the width of the plume (in feet) divided by the width of the receiving water (in feet).



apply to ensure compliance with the aforementioned regulations for turbidity, benthic deposits and visible substances.

Item 9.1.1.d.i) above shall apply to all construction discharges and the minimum site inspection frequency shall comply with Part 4.3.1 of the CGP (and Part 4.3.2 of the CGP for sites discharging dewatering water). Site inspection frequency may be reduced in accordance with Part 4.4 of the CGP (Reductions in Inspection Frequency).

With regards to controlled construction discharges, if there is no visible turbidity (i.e., plumes) or benthic deposits, and, in the absence of information demonstrating otherwise, turbidity measurements of less than or equal to 50 nephelometric turbidity units (NTU) in the controlled construction discharges at the outlet prior to mixing with the receiving surface waters, shall be presumed to meet New Hampshire surface water quality standards for the parameters listed above. As a minimum, the controlled construction discharges must be sampled at each site inspection.

If any controlled construction discharge exceeds 50 NTU, or if visible turbidity or benthic sediment deposits attributable or partly attributable to any construction discharge are observed in the receiving water, then the "Corrective Actions" specified in Part 5 of the CGP shall be immediately implemented.

In addition, should such violation occur, and, in order to determine compliance with surface water quality standards for turbidity (Env-Wq 1703.11 and Env-Wq 1703.03(c)(1)c), benthic deposits (Env-Wq 1703.03(c)(1)a), and Env-Wq 1703.08) and foam, debris, scum or other visible substances (Env-Wq 1703.03(c)(1)b)), turbidity monitoring shall be immediately implemented as specified below:

Turbidity samples of the receiving water shall be immediately taken in the receiving water upstream and beyond the influence of the construction activity, and, unless a mixing zone<sup>98</sup> is approved by NHDES, no more than 75 feet downstream of each controlled construction discharge that exceeded 50 NTU and no more than 75 feet downstream of each construction discharge that caused visible turbidity.

Downstream samples shall be taken at locations in the receiving water that are most likely influenced by the discharge (e.g., if visible turbidity (i.e., a plume) is present, the sample shall be taken in the plume). Samples shall be collected a minimum of 2 times per day during the daylight hours at times when construction activities are most likely to cause turbidity in the receiving water and shall continue until the turbidity water quality standards are met in the receiving water (i.e., the difference between the upstream and downstream turbidity level is no greater than 10 NTU).

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<sup>98</sup> Permittees may request a distance greater than 75 feet downstream of a construction discharge for determining compliance with turbidity standards in Class B surface waters, by submitting a mixing zone request to NHDES that complies with Env-Wq 1707.02. If a mixing zone is approved, NHDES is required to include conditions to ensure that the criteria on which the approval is based are met (Env-Wq 1707.03).

If water quality standards are not met during daylight hours on any day, sampling shall resume the next day and continue no fewer than 2 times per day until water quality standards are met. The date, time, location and results of turbidity measurements, as well as a summary identifying the cause of the violations, corrective actions that were implemented, the period of time that the receiving water exceeded turbidity standards and the distance downstream and the percent of the river width where visible turbidity was observed, and the period of time that the visible turbidity persisted, shall be recorded and included in the Inspection Report required in Part 4.7 of the CGP. Turbidity measurements shall be conducted via a field meter in accordance with the requirements for turbidity specified in Table 1B in 40 CFR 136.3 (see 40 CFR §136.3 Identification of test procedures - Code of Federal Regulations ecfrio). Field meters shall be calibrated every day sampling is conducted and prior to the first sample.

- e. Construction site owners and operators are encouraged to consider opportunities for post- construction groundwater recharge using infiltration best management practices (BMPs) during site design and preparation of the SWPPP in order to assure compliance with Env-Wq 1703.03 and Env-Wq 1703.11. If your construction site is in a town that is required to obtain coverage under the NPDES General Permit for discharges from Municipal Separate Storm Sewer Systems (MS4) you may be required to use such practices. The SWPPP must include a description of any on-site infiltration that will be installed as a post-construction stormwater management measure or reasons for not employing such measures such as 1) The facility is located in a wellhead protection area as defined in RSA 485- C:2; or 2) The facility is located in an area where groundwater has been reclassified to GAA, GA1 or GA2 pursuant to RSA 485-C and Env-DW 901; or 3) Any areas that would be exempt from the groundwater recharge requirements contained in Env-Wq 1507.04, including all land uses or activities considered to be a "High-load Area" (see Env-Wq 1502.30). For design considerations for infiltration measures see Env-Wq 1508.06. Note that there may be additional local requirements that fall under the NH MS4 permittee's Authorization to Discharge Permit for those regulated areas.
- f. Appendix F of the CGP contains information regarding Tier 2, or high quality waters in the various states. **[EPA notes that this information has now been moved to <https://www.epa.gov/npdes/construction-general-permit-resources-tools-and-templates>]** Although there is no official list of tier 2 waters for New Hampshire, it can be assumed that all New Hampshire surface waters are tier 2 for turbidity unless 1) the surface water that you are proposing to discharge into is listed as impaired for turbidity in the states listing of impaired waters (see <https://nhdes-surface-water-quality-assessment-site-nhdes.hub.arcgis.com/>) or 2) sampling upstream of the proposed discharge location shows turbidity values greater than 10 NTU (Env-Wq 1703.11). A single grab sample collected during dry weather (no precipitation within 48 hours) is acceptable.
- g. To ensure compliance with RSA 485-C, RSA 485-A, RSA 485-A:13, I(a), Env-Wq 1700 and Env-Wq 302, the following information may be requested by NHDES. This information must be kept on site unless you receive a written request from NHDES that it be sent to the address shown below in 9.1.1.h.

- i. A list of all non-stormwater discharges that occur at the facility, including their source locations and the control measures being used (see Part 1.2.2 of the CGP).
  - ii. Records of sampling and analysis required for construction dewatering and stormwater discharges (see 9.1.1.d above).
- h.** All required or requested documents must be sent to: NH Department of Environmental Services, Watershed Management Bureau, P.O. Box 95 Concord, NH 03302-0095.

**9.1.2 MAR100000 Commonwealth of Massachusetts (except Indian country)**

- a.** All discharges covered by the Construction General Permit shall comply with the provisions pursuant to 314 CMR 3.00, 314 CMR 4.00, 314 CMR 9.00, including applicable construction stormwater standards and 310 CMR 10.00.
- b.** Pursuant to 314 CMR 3.11 (2)(a)6., and in accordance with MassDEP's obligation under 314 CMR 4.05(5)(e) to maintain surface waters free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife, permittees are prohibited from discharging dewatering water under the CGP from sites that are designated as Superfund/CERCLA or RCRA, and must make accommodations to dispose of the dewatering discharges appropriately, such as coverage under the Remediation General Permit (RGP).
- c.** Pursuant to 314 CMR 3.11 (2)(a), and in accordance with MassDEP's obligation to protect Outstanding Resource Waters under 314 CMR 4.04(3), applicants seeking coverage under the 2022 CGP that propose to carry out construction activities near Outstanding Resource Waters as identified in 314 CMR 4.06, shall submit to MassDEP for review:
- i. a copy of the Stormwater Pollution Prevention Plan (SWPPP),
  - ii. a copy of the EPA NOI, and
  - iii. MassDEP's Stormwater BMP Checklist.

For purposes of this review, the permittee shall submit these documents to MassDEP at the same time they are submitted to EPA. Instructions on how to submit these documents to MassDEP and where to find the MassDEP Stormwater BMP Checklist and obtain authorization to discharge can be found here: <https://www.mass.gov/how-to/wm-15-npdes-general-permit-notice-of-intent>.

- d.** Pursuant to 314 CMR 3.11 (2)(a)6., and in accordance with MassDEP's obligation under 314 CMR 4.05(5)(e) to maintain surface waters free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife, applicants that propose to dewater under the 2022 CGP and plan to discharge to certain waters as described below, shall determine that any dewatering discharges are not contaminated by testing the proposed discharge as described below as part of the application for WM15 authorization. Unless otherwise specified, testing described in this section should be conducted using the methods in 40 CFR 136.
- i. Applicants for sites that plan to discharge to Outstanding Resource Waters as identified in 314 CMR 4.06 shall test one sample of the proposed dewatering discharge water for pH, E. Coli (for discharges to freshwater), fecal coliform (for

discharges to salt water), Enterococci (for discharges to salt water), total suspended solids, oil and grease, total nitrogen, total phosphorus, and all parameters with numeric criteria listed in the Massachusetts Surface Water Quality Standards at 314 CMR 4.05(e). Results shall be reported to MassDEP as part of the WM15 application. To determine if the dewatering discharge could be covered under the 2022 CGP, the effluent at zero dilution must meet numeric water quality criteria. If the effluent does not meet numeric water quality criteria, the applicant shall contact EPA Region 1 to discuss coverage under the Remediation General Permit.

- ii. Applicants for sites that propose to discharge to Public Water Supplies (314 CMR 4.06(1)(d)1) shall also test one sample of the proposed dewatering discharge water for per- and polyfluoroalkyl substances (PFAS), as outlined in the table below. Results shall be reported to MassDEP as part of the WM15 application. If any PFAS compounds are detected, the applicant shall apply for coverage under the NPDES Remediation General Permit for Massachusetts if required.

<b>PFAS Testing Parameters for Discharges to Public Drinking Water Supplies<sup>99</sup></b>	
Perfluorohexanesulfonic acid (PFHxS), grab	Report ng/L
Perfluoroheptanoic acid (PFHpA), grab	Report ng/L
Perfluorononanoic acid (PFNA), grab	Report ng/L
Perfluorooctanesulfonic acid (PFOS), grab	Report ng/L
Perfluorooctanoic acid (PFOA), grab	Report ng/L
Perfluorodecanoic acid (PFDA), grab	Report ng/L

- iii. Applicants for sites that propose to discharge to an impaired water as identified in the most recent final Massachusetts Integrated List of Waters, shall test one sample of the proposed dewatering discharge water for the parameter(s) for which the waterbody is impaired. To determine if the dewatering discharge could be covered under the 2022 CGP, the effluent at zero dilution must meet numeric water quality criteria. If the effluent does not meet numeric water quality criteria, the applicant shall contact EPA Region 1 to discuss coverage under the Remediation General Permit and shall apply for RGP coverage if required.
- iv. For dewatering discharges to all other waters, if any pollutants are known or believed present in the proposed dewatering discharge water, the applicant shall apply for coverage under the NPDES Remediation General Permit for Massachusetts if required. For the purposes of this condition, a pollutant is “known present” if measured above the analytical detection limit using a sufficiently sensitive test method in an environmental sample, and “believed present” if a pollutant has not been measured in an environmental sample but will be added or generated prior to discharge, such as through a treatment process. Consequently, a pollutant is “known absent” if measured as non-detect relative to the analytical detection limit using a sufficiently sensitive test method in an environmental sample, and “believed absent” if a pollutant has not been measured in an environmental sample but will not be added or generated prior to discharge and is not a parameter that applies to the applicable activity category for a site. If any pollutants are known or believed present in the

<sup>99</sup> PFAS testing shall follow established EPA methods 537 or 537.1 for drinking water until EPA Method 3512 for non-potable water becomes available.



proposed dewatering discharge water, the applicant shall test one sample of the proposed dewatering discharge water for the pollutants known or believed to be present. To determine if the dewatering discharge could be covered under the 2022 CGP, the effluent at zero dilution must meet numeric water quality criteria. If the effluent does not meet numeric water quality criteria, the applicant shall contact EPA Region 1 to discuss coverage under the Remediation General Permit.

- e. Pursuant to 314 CMR 3.11 (2)(a), and in accordance with MassDEP's obligation to protect Outstanding Resource Waters under 314 CMR 4.04(3), applicants that propose to dewater under the 2022 CGP and discharge to Outstanding Resource Waters as identified in 314 CMR 4.06, shall submit the SWPPP and associated documents to MassDEP to review. MassDEP shall complete review within 30 days of receipt.
- f. Pursuant to 314 CMR 3.11 (2)(a)6., and in accordance with MassDEP's obligation under 314 CMR 4.05 to maintain surface waters free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to the waterbody, permittees that have been authorized to dewater under the 2022 CGP and that discharge to Outstanding Resource Waters as identified in 314 CMR 4.06 shall carry out daily benchmark monitoring for turbidity<sup>100</sup> for the duration of dewatering. Permittees shall compare the weekly average of the turbidity monitoring results with the established benchmark turbidity value of 25 Nephelometric Turbidity Units (NTU). If a permittee's weekly average turbidity results exceed the benchmark, the operator shall conduct follow-up corrective action to determine the source of the problem and to make any necessary repairs or upgrades to the dewatering controls to lower the turbidity levels. The permittee shall document any corrective action taken in its corrective action log. Furthermore, permittees at these sites shall carry out inspections at higher frequency, specifically, daily inspections of the dewatering discharge treatment for the duration of the discharge. The permittee shall inspect the site for sediment plume or whether a hydrocarbon sheen is visible at the point of discharge, estimate the flow rate at the point of discharge, and inspect the site downstream to assess whether sedimentation is attributable to the dewatering discharges.
- g. Pursuant to 314 CMR 3.11 (2)(a)6., and in accordance with MassDEP's obligation under 314 CMR 4.05 to maintain surface waters free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to the waterbody, permittees shall store materials outside the Base Flood Elevation<sup>101</sup> when feasible to prevent displacing runoff and erosion.
- h. Pursuant to 314 CMR 3.11 (2)(a), and in accordance with MassDEP's obligation to maintain surface waters free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses under 314 CMR 4.05(5)(c), all applicants who apply for coverage under the 2022 CGP shall follow guidelines on fertilizer application, including use of fertilizer containing no phosphorus, in accordance with 330 CMR 31.00 Plant Nutrient Application Requirements for

<sup>100</sup> Applicants shall follow EPA Method 180.1 to monitor for turbidity

<sup>101</sup> Base Flood Elevation (BFE) is the elevation of surface water resulting from a flood that has a 1% chance of equaling or exceeding that level in any given year. The BFE is shown on the Flood Insurance Rate Map (FIRM) for zones AE, AH, A1-A30, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, AR/AO, V1-V30 and VE. (Source: <https://www.fema.gov/node/404233>).

Agricultural Land and Non-Agricultural Turf and Lawns. Further, fertilizer shall never be applied to a site when a rain event greater than 0.5 inches is forecast in the next 48 hours.

- i. Pursuant to 314 CMR 3.11 (2)(a), all applicants who apply for coverage under the 2022 CGP and elect to carry out site inspections every 14 days shall also inspect sites within 24 hours of 0.25 inches of precipitation events or greater over 24 hours, or within 24 hours of a discharge that occurred due to snowmelt from 3.25 inches or greater of snow accumulation.<sup>102</sup> During the high flow periods in spring (i.e., months of April to June), inspection frequency shall be increased to once per week for all sites.
  - i. To determine whether 3.25 inches or greater of snow accumulation has occurred at a site, snowfall measurements can be taken at the site,<sup>103</sup> or the operator can rely on similar information from a local weather forecast.
- j. Implementing structural improvements, enhanced/resilient pollution prevention measures, and other mitigation measures can help to minimize impacts from stormwater discharges from major storm events such as hurricanes, storm surge, extreme/heavy precipitation,<sup>104</sup> and flood events. Pursuant to 314 CMR 3.11 (2)(a), if such stormwater control measures are already in place due to existing requirements mandated by other state, local or federal agencies, the SWPPP shall include a brief description of the controls and a reference to the existing requirement(s). If the site may be exposed to or has previously experienced such major storm events<sup>105</sup>, additional stormwater control measures that may be considered, and implemented as necessary, include, but are not limited to:
  - i. Reinforce materials storage structures to withstand flooding and additional exertion of force;
  - ii. Prevent floating of semi-stationary structures by elevating to the Base Flood Elevation (BFE) level or securing with non-corrosive device;
  - iii. When a delivery of exposed materials is expected, and a storm is anticipated within 48 hours, delay delivery until after the storm or store materials as appropriate (refer to emergency procedures);

<sup>102</sup> This is the amount of snow that is equivalent to 0.25 inches of rain, based on information from the National Oceanic and Atmospheric Administration (NOAA) indicating that 13 inches of snow is, on average, equivalent to 1 inch of rain. See <https://www.nssl.noaa.gov/education/svrwx101/winter/faq/>.

<sup>103</sup> NOAA's National Weather Service has guidelines on snowfall measurements at [https://www.weather.gov/jkl/snow\\_measurement](https://www.weather.gov/jkl/snow_measurement). These guidelines recommend use of a "snowboard" (a piece of wood about 16 inches by 16 inches) that is placed in an unobstructed part of the site on a hard surface.

<sup>104</sup> Heavy precipitation refers to instances during which the amount of rain or snow experienced in a location substantially exceeds what is normal. What constitutes a period of heavy precipitation varies according to location and season. Heavy precipitation does not necessarily mean the total amount of precipitation at a location has increased— just that precipitation is occurring in more intense or more frequent events.

<sup>105</sup> To determine if your facility is susceptible to an increased frequency of major storm events that could impact the discharge of pollutants in stormwater, you may reference FEMA, NOAA, or USGS flood map products at [https://www.usgs.gov/faqs/where-can-i-find-flood-maps?qt-news\\_science\\_products=0#qtnews\\_science\\_products](https://www.usgs.gov/faqs/where-can-i-find-flood-maps?qt-news_science_products=0#qtnews_science_products).

- iv. Temporarily store materials and waste above the Base Flood Elevation [*EPA notes that it has deleted a footnote reference to the term "Base Flood Elevation" since the same footnote is already included in Part 9.1.2.g, above.*] level;
  - v. Temporarily reduce or eliminate outdoor storage;
  - vi. Temporarily relocate any mobile vehicles and equipment to higher ground;
  - vii. Develop scenario-based emergency procedures for major storms that are complementary to regular stormwater pollution prevention planning and identify emergency contacts for staff and contractors; and
  - viii. Conduct staff training for implementing your emergency procedures at regular intervals.
- k. Pursuant to 314 CMR 3.11 (2)(a)6., and in accordance with MassDEP's obligation under 314 CMR 4.05(5)(e) to maintain surface waters free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife, permittees who seek coverage under the 2022 CGP and anticipate to carry out dust control shall limit their dust control methodology to using water only and specifically avoid using other techniques, such as solutions containing calcium chloride.
  - l. If MassDEP requests a copy of the Stormwater Pollution Prevention Plan (SWPPP) for any construction site at any time, the permittee shall submit the SWPPP to MassDEP within 14 days of such a request. MassDEP may conduct an inspection of any site covered by this permit to ensure compliance with state law requirements, including state water quality standards.

**9.1.3 MTR10F000 Areas in the State of Vermont located at a federal facility**

- a. Earth disturbance at any one time is limited to five acres.
- b. All areas of earth disturbance must have temporary or final stabilization within 14 days of the initial disturbance. After this time, disturbed areas must be temporarily or permanently stabilized in advance of any runoff producing event. A runoff producing event is an event that produces runoff from the construction site. Temporary stabilization is not required if precipitation is not forecast and work is to continue in the next 24-hours or if the work is occurring in a self-contained excavation (i.e. no outlet) with a depth of two feet or greater (e.g. house foundation excavation, utility trenches). Areas of a construction site that drain to sediment basins are not considered eligible for this exemption, and the exemption applies only to the excavated area itself.
- c. Site inspections on active construction sites shall be conducted daily during the period from October 15 through April 15.
- d. The use of chemical treatments (e.g. polymers, flocculants, and coagulants) for the settling and/or removal of sediment from stormwater runoff associated with construction and construction-related activities requires prior written approval and an approved site and project-specific plan, from the Vermont Agency of Natural Resources. In addition, the use of cationic polymers is prohibited unless approved by the Vermont Agency of Natural Resources under a site and project-specific plan.
- e. Any applicant under EPA's CGP shall allow authorized Vermont Agency of Natural Resources representatives, at reasonable times and upon presentation of credentials, to enter upon the project site for purposes of inspecting the project and determining

compliance with this Certification.

- f. The Vermont Agency of Natural Resources may reopen and alter or amend the conditions of this Certification over the life of the EPA 2022 Construction General Permit when such action is necessary to assure compliance with the VWQS.

## 9.2 EPA REGION 2

### 9.2.1 NYR10I000 Indian country within the State of New York

#### a. Saint Regis Mohawk Tribe

- i. Any Responsible-Person/Decision-Maker required under the CGP to submit a Notice of Intent (NOI) to EPA for coverage under the CGP, must concurrently submit an electronic copy of the NOI to the SRMT Environmental Division, Water Resource Program Manager. Additionally, an electronic copy of the Notice of Termination (NOT) must be provided within three business days after electronic confirmation is received from EPA that the NOT has been accepted. The NOI and NOT must be electronically provided to the following addresses:

Mr. Tieman W. Smith

Water Resources Program Manager Saint Regis Mohawk Tribe

449 Frogtown Road

Akwesasne, NY 13655 Tiernan.Smith@srmt-nsn.gov 518.358.2272 ext. 5073

- ii. Any Responsible-Person/Decision-Maker that is required as part of the CGP to prepare a Discharge Management Plan (OMP) or Storm Water Management Plan (SWMP) and/or Storm Water Pollution Prevention Plan (SWPPP) must submit an electronic copy of the DMP, SWMP and/or SWPPP to the SRMT Environment Division, Water Resources Program Manager IO business days prior to the start of construction of any work to be conducted under the CGP. The applicable documents must be provided to the electronic address listed above.
- iii. Any Responsible-Person/Decision-Maker that is required under the CGP to submit an annual report to EPA must submit an electronic copy of the annual report concurrently to the SRMT Water Resource Program. Additionally, any correspondences between the applicant and EPA related to analytical data, written reports, corrective action, enforcement, monitoring, or an adverse incident must likewise be routed to the SRMT Water Resources Program at the above electronic address.
- iv. An "Authorization to Proceed Letter" with site-specific mitigation requirements may be sent out to the permittee when a review of the NOI and OMP, SWMP and /or SWPPP on a case-by-case basis, is completed by the SRMT Environment Division, Water Resource Program. This approval will allow the application to proceed if all mitigation requirements are met.

#### b. Seneca Nation

- i. Under Part 1.1.5 of the CGP, the Seneca Nation requests that an applicant must demonstrate that they meet the eligibility criteria listed in Appendix D (certify in your Notice of Intent (NOI) that you meet one of the eligibility criteria [Criterion A-F]) as well as species and critical habitats that are listed under the Seneca Nation's "Fishing and Conservation Laws" and the "Seneca Nation of Indians Comprehensive Conservation Law".



- ii. The Tribal Historic Preservation Office (THPO) was established in 2000 after the Seneca Nation received a recognition letter from the National Park Service (NPS); therefore under Part 1.1.6 of the CGP (Appendix E) and prior to submitting a Notice of Intent (NOI) operators must complete the Nation's THPO, Project Review Form (<https://sni.org/media/246603/sni-thpo-project-review-form.pdf>) and submit the completed form with associated information to the Tribal Historic Preservation Officer at 90 Ohi:yo' Way, Salamanca, NY 14779. Federal agencies engaging in construction activities must provide for construction review by a certified construction reviewer in accordance with 7 Del. C. §§4010 & 4013 and 7 DE Admin. Code 5101, subsection 6.1.6.
- iii. Under Part 1.2 of the CGP, discharges must also follow the Section 13 of the Guide for Construction (Seneca Nation of Indians Source Water Code) and respectively, Council Resolution, dated April 13, 2013 (CN: R-04-13-13-11) to ensure that the health, safety and welfare of the citizens of the Seneca Nation, and all other within the Lands and Territories of the Seneca Nation of Indians, and to facilitate the adequate provisions of water through the elimination or prevention of ground water contamination in the vicinity of wells that supply drinking water for the Nation. The area is known as the Source Water Protection Area (SWPA) and specified activities are regulated within this SWPA, as cited in Section 13 of the Guide for Construction and Section VI, of CN: R-04-13-13-11.
- iv. Under Part 1.4, any operator who seeks coverage of the CGP, and is required to submit a notice of intent NOI and Notice of Termination (NOT) (as necessary) to the EPA for coverage, under Part 1.4.2 must also submit a copy of the NOI to the Seneca Nation's Environmental Protection Department (EPD) within three business days of submittal to the EPA, (address shown below). Respectively, a copy of the NOT (as described under Part 8.3 of the CGP), which certifies that you have met the requirements of Part 8, must be provided within three business days after electronic confirmation is received from the EPA that the NOT has been accepted. In addition to a NOI and NOT, the Seneca Nation (Environmental Protection Department [EPD]) would require an Environmental Impact Assessment (EA) (Long Form), as shown in Section 2 of the Seneca Nation of Indians Laws, Ordinances & Policies (Guide for Construction), to be completed and submitted to the EPD prior to any project to determine whether the impacts from a project would create significant and detrimental effects to the Nation's lands, water (violate WQS), and environment. The NOI, NOT, and EA must be submitted electronically to [epd@sni.org](mailto:epd@sni.org) and provided to the following address:
  - Seneca Nation
  - Environmental Protection Department (EPD) Attn: Director of EPD
  - 12837 Route 438
  - Irving, NY 14081
- v. Under Part 3.0 of the CGP, discharges must be controlled as necessary to meet applicable WQS. The Seneca Nation is working actively towards finalizing and implementing the; therefore, the EPD would require an applicant to submit or grant access to the permit to obtain information on the impact of effluents on receiving waters, including the capability of receiving waters to support future designated uses and achieve the WQS of the Nation; and to advise prospective dischargers of discharge requirements, and coordinate with the appropriate

permitting agencies. As stated in the Decision Document, under Section 303(c) of the CWA, 33 U.S.C. § 1313(c), states develop, review, and revise (as appropriate) water quality standards for surface waters of the United States. At a minimum, such standards are to include designated water uses, water quality criteria to protect such uses, and an antidegradation policy. 40 C.F.R. § 131.6. In addition, under Section 401 of the CWA states may grant, condition, or deny "certification" for federally permitted or licensed activities that may result in a discharge to the waters of the United States 33 U.S.C. § 1341.

- vi. Under Part 7.2.8(a)(b)(c) and for Part 9 of the CGP, the following Sections of the Seneca Nation's Guide for Construction shall be considered, in conjunction with the CGP:
  - (a) Section 1. Executive Order - To Establish a Policy for Governing Access to Nation Territories and Facilities by Officials of Foreign Government, dated March 31, 2011
  - (b) Section 3. Natural Resources Committee, Sand and Gravel Law (CN: R-06-24-05-08)
  - (c) Section 4. Fishing and Conservation Laws - Part 1.1.5 of the CGP
  - (d) Section 5. Seneca Nation of Indians Comprehensive Conservation Law, adopted January 14, 2012
  - (e) Section 9. Food is Our Medicine (FIOM) Program/Native Planting Policy (CN: R-03-08-14-14)
  - (f) Section 10. Forestry Management Plan (CN: R-08-14-10-23)
  - (g) Section 11. Timber Ordinance #411-092, dated May 8, 1982
  - (h) Section 14. Flood Damage Prevention Local Law, dated September 27, 1988
  - (i) Section 16. Utilities Ordinance No. 87-100
  - (j) Authorizing Emergency Action and Contingency Plan to Restrain Pollution of Nations Waters, (Council Resolution: R-03-01-18-10), dated March 10, 2018  
Seneca Nation of Indians Permit Application for Construction within Waterways Permit, Form NR98-01.00

### 9.3 EPA REGION 3

#### 9.3.1 DCR100000 District of Columbia

- a. Discharges authorized by this permit shall comply with the District of Columbia Water Pollution Control Act of 1984, as amended (DC Official Code § 8-103.01 and § 8-103.06, et seq.) to ensure that District of Columbia waters, waters in adjacent and downstream states, and the beneficial uses of these waters will not be harmed or degraded by the discharges.
- b. Discharges authorized by this permit must comply with §§ 1104.1 and 1104.8 of Chapter 11 and the provisions of Chapter 19 of Title 21 of District of Columbia Municipal Regulations in order to attain and maintain designated uses of the District of Columbia waters.

- c. The permittee shall comply with the District of Columbia Stormwater Management and Soil Erosion and Sediment Control regulations in Chapter 5 of Title 21 of the District of Columbia Municipal Regulations.
- d. The permittee shall comply with the District of Columbia Flood Management Control regulations in Chapter 31 of Title 20 of the District of Columbia Municipal Regulations.
- e. The permittee shall submit a copy of the Stormwater Pollution Prevention Plan (SWPPP) to the Regulatory Review Division, Department of Energy & Environment, Government of the District of Columbia, 1200 First Street, NE, 5th Floor, Washington, DC 20002, during the review and approval of the permittee's DOEE Erosion and Sediment Control Plan in accordance with the provisions of Chapter 542 of Title 21 of the District of Columbia Municipal Regulations.
- f. Upon request, the permittee shall submit all inspection and monitoring reports as required by this permit and 40 CFR § 122.41 to the Associate Director, Inspection and Enforcement Division, Department of Energy & Environment, Government of the District of Columbia, 1200 First Street, NE, 5th Floor, Washington, DC 20002; telephone (202) 535-2226, or by email at Joshua.Rodriguez@dc.gov.
- g. In the event the permittee intends to discharge dewatering water, groundwater, or groundwater comingled with stormwater from a known contaminated site, the permittee shall contact the Regulatory Review Division, Department of Energy & Environment, Government of the District of Columbia, 1200 First Street, NE, 5th Floor, Washington, DC 20002; telephone (202) 535-2600, or by email at MS4DischargeAuthorization@dc.gov to request authorization to discharge dewatering water, groundwater, or groundwater comingled with stormwater to the District's Municipal Separate Storm Sewer System (MS4) or to a surface water body pursuant to §§ 8-103.02, 8-103.06, and 8-103.07 of the District of Columbia Water Pollution Control Act of 1984, as amended.

**9.3.2 DER10F000 Areas in the State of Delaware located at a federal facility (as defined in Appendix A)**

- a. Federal agencies must submit a sediment and stormwater management plan (SSMP) and receive Department approval prior to undertaking any land clearing, soil movement or construction activity unless conducting an exempt activity.
- b. Federal construction activities are required to have a third-party Certified Construction Reviewer (CCR) perform weekly reviews to ensure the adequacy of construction activities pursuant to the approved SSMP and regulations. Implementation of approved SSMPs requires the daily oversight of construction activity by certified responsible personnel.
- c. Implementation of approved SSMPs requires the daily oversight of construction activity by certified responsible personnel.
- d. A current copy of the SSMP must be maintained at the construction site.
- e. Unless authorized by the Department, not more than 20 acres may be disturbed at any one time.

**9.4 EPA REGION 4**

No additional conditions

## 9.5 EPA REGION 5

### 9.5.1 MIR10I000 Indian country within the State of Minnesota

#### a. Fond du Lac Reservation

- i. New dischargers wishing to discharge to an Outstanding Reservation Resource Water (ORRW)<sup>106</sup> must obtain an individual permit from EPA for storm water discharges from large and small construction activities.
- ii. A copy of the Storm Water Pollution Prevention Plan (SWPPP) must be submitted to the Office of Water Protection at least fifteen (15) days in advance of sending the Notice of Intent to EPA. The SWPPP can be submitted electronically to richardgitar@FDLREZ.com or by hardcopy sent to:
 

Fond du Lac Reservation  
Office of Water Protection  
1720 Big Lake Road  
Cloquet, MN 55720
- iii. Copies of the Notice of Intent (NOI) and the Notice of Termination (NOT) must be sent to the Fond du Lac Office of Water Protection at the same time they are submitted to EPA. [The condition helps the Office of Water Protection keep track of when a project is about to start and when it has ended. FDL Water Quality Certification Ordinance, Section 204 (a) (2)].
- iv. If the project will entail a discharge to any watercourse or open water body, the turbidity limit shall NOT exceed 10% of natural background within the receiving water(s) as determined by Office of Water Protection staff. For such discharges, turbidity sampling must take place within 24 hours of a ½-inch or greater rainfall event. The results of the sampling must be reported to the Office of Water Protection within 7 days of the sample collection. All sample reporting must include the date and time, location (GPS: UTM/Zone 15), and NTU. CGP applicants are encouraged to work with the Office of Water Protection in determining the most appropriate location(s) for sampling. [This condition helps both the Office of Water Protection and the project proponent in knowing whether or not their erosion control efforts are effective. FDL Water Quality Certification, Section 204 (b) (1)].
- v. Receiving waters with open water must be sampled for turbidity prior to any authorized discharge as determined by Office of Water Protection staff. This requirement only applies to receiving waters which no ambient turbidity data exists. [This condition allows the Office of Water Protection to obtain a baseline turbidity sample in which to compare to other samples. FDL Water Quality Certification Ordinance, Section 204 (b) (2)].
- vi. All work shall be carried out in such a manner as will prevent violations of water quality criteria as stated in the Water Quality Standards of the Fond du Lac Reservation, Ordinance #12/98, as amended. This includes, but is not limited to, the prevention of any discharge that causes a condition in which visible solids, bottom deposits, or turbidity impairs the usefulness of water of the Fond du Lac

<sup>106</sup> Although additional waters may be designated in the future, currently Perch Lake, Rice Portage Lake, Miller Lake, Deadfish Lake, and Jaskari Lake are designated as ORRWs.



Reservation for any of the uses designated in the Water Quality Standards of the Fond du Lac Reservation. These uses include wildlife, aquatic life, warm water fisheries, cold water fisheries, subsistence fishing (netting), primary contact recreation, secondary contact recreation, cultural, wild rice areas, aesthetic waters, agriculture, navigation, commercial and wetlands. It also includes the designated uses of wetlands including, but not limited to, baseflow discharge, cultural opportunities, flood flow attenuation, groundwater recharge, indigenous floral and fauna) diversity and abundance, nutrient cycling, organic carbon export/cycling, protection of downstream water quality, recreation, resilience against climactic effects, sediment/shoreline stabilization, surface water storage, wild rice, and water dependent wildlife. [In addition to listing the designated uses of waters of the Fond du Lac Reservation, this condition also limits the project proponent to discharges that will not violate our Water Quality Standards. FDL Water Quality Certification Ordinance, Section 204 (a) (7)).

- vii.** Appropriate steps shall be taken to ensure that petroleum products or other chemical pollutants are prevented from entering waters of the Fond du Lac Reservation. All spills must be reported to the appropriate emergency management Agency (National Response Center AND the State Duty Officer), and measures shall be taken immediately to prevent the pollution of waters of the Fond du Lac Reservation, including groundwater. The Fond du Lac Office of Water Protection must also be notified immediately of any spill regardless of size. [This condition helps protect water quality and also reminds project proponents of their responsibility in reporting spill events. FDL Water Quality Certification Ordinance, Section 204 (b) (3)).
- viii.** All seed mixes, whether used for temporary stabilization or permanent seeding, shall NOT contain any annual ryegrass (*Lolium* species). Wild rye (*Elymus* species) or Oats (*Avena* species) may be used as a replacement in seed mixes. [This condition prevents the use of annual ryegrass on the Reservation. Annual ryegrass is allelopathic, which means it produces biochemical in its roots that inhibit the growth of native plants. If used in seed mixes, annual ryegrass could contribute to erosion, especially on slopes. However, the condition also specifies substitute grasses that germinate almost as fast as annual ryegrass for use as a cover crop to help prevent erosion. FDL Water Quality Certification Ordinance, Section 204 (t) (1)).
- ix.** To prevent the introduction of invasive species, ALL contractors and subcontractors MUST disclose information stating prior equipment location(s) and ALL known invasive species potentially being transported from said location(s). All equipment MUST undergo a high pressure wash (including any equipment mats) BEFORE ENTERING the Fond du Lac Reservation. Personal equipment such as work boots, gloves, vest, etc. MUST be clean of debris, dirt and plant and animal material BEFORE ENTERING the Fond du Lac Reservation. Equipment being transported from known infested areas MUST undergo a high pressure wash as soon as possible after leaving the infested site and again BEFORE ENTERING the Fond du Lac Reservation, to avoid transport of invasive species into areas surrounding the Reservation. Written certification of equipment cleaning MUST be provided to the Fond du Lac Office of Water Protection. Upon arrival, ALL contractor and subcontractor equipment will be inspected by appointed Fond du Lac staff. If equipment is deemed unsatisfactory, the equipment MUST

undergo a high pressure washing until the equipment is cleared by the inspector, until such time, minimal travel will be allowed through the Reservation. The contractor shall be held responsible for the control of any invasive species introduced as a result of their project. [This condition requires the project proponent to prevent the inadvertent introduction of invasive species by taking an active role in cleaning all vehicles, equipment, and equipment mats before entering the Reservation. This condition has been placed in certifications since 2012, due to the introduction of Wild Parsnip in 2011 from a pipeline contractor. It is much easier to prevent the introduction of an invasive species than it is to eradicate it once it has been introduced. Many invasive plant species form monocultures, preventing native plants from growing. This situation often leads to cases of erosion, which in turn effects water quality. FOL Water Quality Certification Ordinance, Section 204 (g) (1)].

- x. A copy of this certification MUST be kept by the contractor on-site at all times and be available for viewing by all personnel, including inspectors. [This condition ensures that the information contained in the certification, especially the conditions, is readily available onsite for reference. FOL Water Quality Certification Ordinance, Section 204 (a) (9)].
- b. The Grand Portage Band of Lake Superior Chippewa**
- i. The CGP authorization is for construction activities that may occur within the exterior boundaries of the Grand Portage Reservation in accordance to the Grand Portage Land Use Ordinance. The CGP regulates stormwater discharges associated with construction sites of one acre or more in size. Only those activities specifically authorized by the CGP are authorized by this certification (the "Certification").
  - ii. All construction stormwater discharges authorized by the CGP must comply with the Water Quality Standards and Water Resources Ordinance, as well as Applicable Federal Standards (as defined in the Water Resources Ordinance).
  - iii. All appropriate steps must be taken to ensure that petroleum products or other chemical pollutants are prevented from entering the Waters of the Reservation. All spills must be reported to the appropriate emergency-management agency, and measures must be taken to prevent the pollution of the Waters of the Reservation, including groundwater.
  - iv. The 2022 CGP requires inspections and monitoring reports of the construction site stormwater discharges by a qualified person. Monitoring and inspection reports must comply with the minimum requirements contained in the 2022 CGP. The monitoring plan must be prepared and incorporated into the Storm Water Pollution Prevention Plan (the "SWPP"). A copy of the SWPP must be submitted to the Board at least 30 days in advance of sending the requisite Notice of Intent to EPA. The SWPP should be sent to:
    - Grand Portage Environmental Resources Board
    - P.O. Box 428
    - Grand Portage, MN 55605

Copies of the Notice of Intent and Notice of Termination required under the General Permit must be submitted to the Board at the address above at the same time they are submitted to the EPA.

- v. If requested by the Grand Portage Environmental Department, the permittee must provide additional information necessary for a case-by-case eligibility determination to assure compliance with the Water Quality Standards and any Applicable Federal Standards. The burden is on the applicant to demonstrate compliance with the Water Quality Standards, the Water Resources Ordinance, and Applicable Federal Standards whether or not the application is ultimately eligible for the CGP.
  - vi. CGP discharges must not cause nuisance conditions as defined in Grand Portage Water Quality Standards.
  - vii. The Board retains full authority to ensure compliance with and to enforce the provisions of the Water Resource Ordinance and Water Quality Standards, Applicable Federal Standards, and these Certification conditions. Nothing herein affects the scope or applicability of other controlling tribal or federal requirements, including but not limited to impacts to cultural, historical, or archeological features or sites, or properties that may be eligible for listing on the National Register of Historic Places under the National Historic Preservation Act, 54 U.S.C. §§ 300101 et seq.
  - viii. Appeals related to Board actions taken in accordance with any of the preceding conditions may be heard by the Grand Portage Tribal Court.
- c. Leech Lake Band of Ojibwe**
- i. The water quality standards that apply to the construction site are the standards at the time the operator submits its Notice of Intent (NOI) to EPA and the LLBO WRP (see conditions # 2 and # 3).
  - ii. A copy of the Stormwater Pollution Prevention Plan (SWPPP) must be submitted to the LLBO WRP at least 30 days in advance of sending the NOI for the project to EPA. See attached LLBO 401 Water Quality Certification Ordinance. Section 304(a)(1). The SWPPP should be submitted electronically to [Jeff.Harper@llojibwe.net](mailto:Jeff.Harper@llojibwe.net) and by hardcopy sent to:  
Leech Lake Band of Ojibwe  
ATTN: Water Resources Program - 401 Cert  
Division of Resource Management  
190 Sailstar Drive NW  
Cass Lake, Minnesota 56633
  - iii. Copies of the NOI and the Notice of Termination (NOT) must be submitted to the LLBO WRP at the same time they are submitted to EPA. See attached LLBO 401 Water Quality Certification Ordinance, Section 304(a)(2). The NOI and NOT should be submitted electronically to [Jeff.Harper@llojibwe.net](mailto:Jeff.Harper@llojibwe.net) and sent by hardcopy to the address cited in condition # 2.
  - iv. Any and all other conditions listed in Section 304 of the attached LLBO 401 Water Quality Certification Ordinance shall be observed unless the LLBO WRP deems that certain conditions therein are not applicable to the project in need of a permit under this certification.
  - v. A copy of this certification MUST be kept by the contractor on-site at all times and be available for viewing by all personnel, including inspectors.

- vi. Upon consideration of the NOI, if the LLBO WRP finds that the discharge will not be controlled as necessary to meet applicable water quality standards, the LLBO WRP may insist, consistent with Part 3.1 of the CGP, that additional controls are installed to meet applicable water quality standards, or recommend to EPA that the operator obtain coverage under an individual permit.
- 9.5.2 WIR10I000 Indian country within the State of Wisconsin**
- a. Bad River Band of Lake Superior Tribe of Chippewa Indians**
- i. Only those activities specifically authorized by the CGP are authorized by this Certification. This Certification does not authorize impacts to cultural properties, or historical sites, or properties that may be eligible for listing as such.
  - ii. All projects which are eligible for coverage under the CGP and are located within the exterior boundaries of the Bad River Reservation shall be implemented in such a manner that is consistent with the Tribe's Water Quality Standards (WQS). The Tribe's WQS can be viewed at: [http://www.badriver-nsn.gov/wp-content/uploads/2020/01/NRD\\_WaterQualityStandards\\_2011.pdf](http://www.badriver-nsn.gov/wp-content/uploads/2020/01/NRD_WaterQualityStandards_2011.pdf)
  - iii. Operators are not eligible to obtain authorization under the CGP for all new discharges to an Outstanding Tribal Resource Water (OTRW or Tier 3 water). OTRWs, or Tier 3 waters, include the following: Kakagon Slough and the lower wetland reaches of its tributaries that support wild rice, Kakagon River, Bad River Slough, Honest John Lake, Bog Lake, a portion of Bad River, from where it enters the Reservation through the confluence with the White River, and Potato River. OTRWs can be viewed at: <https://www.arcgis.com/apps/View/index.html?appid=6f44c371217e4ee8b5f1c2c705c7c7c5>
  - iv. An operator proposing to discharge to an Outstanding Resource Water (ORW or Tier 2.5 water) under the CGP must comply with the antidegradation provisions of the Tribe's WQS. ORWs, or Tier 2.5 waters, include the following: a portion of Bad River, from downstream the confluence with the White River to Lake Superior, White River, Marengo River, Graveyard Creek, Bear Trap Creek, Wood Creek, Brunsweller River, Tyler Forks, Bell Creek, and Vaughn Creek. ORWs can be viewed at: <https://www.arcgis.com/apps/View/index.html?appid=6f44c371217e4ee8b5f1c2c705c7c7c5>. The antidegradation demonstration materials described in provision E.4.iii., and included on the antidegradation demonstration template found at: <https://www.badriver-nsn.gov/natural-resources/projectreviews/>, must be submitted to the following address:
 

Bad River Tribe's Natural Resources Department  
Attn: Water Regulatory Specialist  
P.O. Box 39 Odanah, WI 54861  
[WaterReg@badriver-nsn.gov](mailto:WaterReg@badriver-nsn.gov)
  - v. An operator proposing to discharge to an Exceptional Resource Water (ERW or Tier 2 water) under the CGP must comply with the antidegradation provisions of the Tribe's WQS. ERWs, or Tier 2 waters, include the following: any surface water within the exterior boundaries of the Reservation that is not specifically classified as an Outstanding Resource Water (Tier 2.5 water) or an Outstanding Tribal Resource Water (Tier 3 water). ERWs can be viewed at:



<https://www.arcgis.com/apps/View/index.html?appid=6f44c371217e4ee8b5f1c2c705c7c7c5>. The antidegradation demonstration materials described in provision E.4.ii., and included on the antidegradation demonstration template found at: <https://www.badriver-nsn.gov/natural-resources/projectreviews/>, must be submitted to the following address:

Bad River Tribe's Natural Resources Department  
Attn: Water Regulatory Specialist  
P.O. Box 39 Odanah, WI 54861  
[WaterReg@badriver-nsn.gov](mailto:WaterReg@badriver-nsn.gov)

- vi.** Projects utilizing cationic treatment chemicals within the Bad River Reservation boundaries are not eligible for coverage under the CGP.
- vii.** A discharge to a surface water within the Bad River Reservation boundaries shall not cause or contribute to an exceedance of the turbidity criterion included in the Tribe's WQS, which states: Turbidity shall not exceed 5 NTU over natural background turbidity when the background turbidity is 50 NTU or less, or turbidity shall not increase more than 10% when the background turbidity is more than 50 NTU.
- viii.** All projects which are eligible for coverage under the CGP within the exterior boundaries of the Bad River Reservation must comply with the Bad River Reservation Wetland and Watercourse Protection Ordinance, or Chapter 323 of the Bad River Tribal Ordinances, including the erosion and sedimentation control, natural buffer, and stabilization requirements. Questions regarding Chapter 323 and requests for permit applications can be directed to the Wetlands Specialist in the Tribe's Natural Resources Department at (715) 682-7123 or [wetlands@badriver-nsn.gov](mailto:wetlands@badriver-nsn.gov).
- ix.** An operator of a project, which is eligible for coverage under the CGP, that would result in an allowable discharge under the CGP occurring within the exterior boundaries of the Bad River Reservation must notify the Tribe prior to the commencing earth-disturbing activities. The operator must submit a copy of the Notice of Intent (NOI) to the following addresses at the same time it is submitted to the U.S. EPA:

Bad River Tribe's Natural Resources Department  
Attn: Water Regulatory Specialist  
P.O. Box 39 Odanah, WI 54861  
[WaterReg@badriver-nsn.gov](mailto:WaterReg@badriver-nsn.gov)

Bad River Tribe's Natural Resources Department  
Attn: Tribal Historic Preservation Officer (THPO)  
P.O. Box 39 Odanah, WI 54861  
[THPO@badriver-nsn.gov](mailto:THPO@badriver-nsn.gov)

The operator must also submit a copy of the Notice of Termination (NOT) to the above addresses at the same time it is submitted to the U.S. EPA. Photographs showing the current site conditions must be included as part of the NOT to document the stabilization requirements have been met.

- x.** The THPO must be provided 30 days to comment on the project.

- xi.** The operator must obtain THPO concurrence in writing. This written concurrence will outline measures to be taken to prevent or mitigate effects to historic properties. For more information regarding the specifics of the cultural resources process, see 36 CFR Part 800. A best practice for an operator is to consult with the THPO during the planning stages of an undertaking.
- xii.** An operator of a project, which is eligible for coverage under the CGP, that would result in an allowable discharge under the CGP occurring within the exterior boundaries of the Bad River Reservation must submit a copy of the Stormwater Pollution Prevention Plan (SWPPP) to the following address at the same time as submitting the NOI:
  - Bad River Tribe's Natural Resources Department
  - Attn: Water Regulatory Specialist
  - P.O. Box 39 Odanah, WI 54861
  - [WaterReg@badriver-nsn.gov](mailto:WaterReg@badriver-nsn.gov)
- xiii.** Any corrective action reports that are required under the CGP must be submitted to the following address within one (1) working day of the report completion:
  - Bad River Tribe's Natural Resources Department
  - P.O. Box 39 Odanah, WI 54861
  - [WaterReg@badriver-nsn.gov](mailto:WaterReg@badriver-nsn.gov)
- xiv.** An operator of a project, which is eligible for coverage under the CGP, that would result in an allowable discharge under the CGP occurring within the exterior boundaries of the Bad River Reservation must submit a copies of the inspection reports (including photographs) to the following address within 24 hours of completing any site inspection required:
  - Bad River Tribe's Natural Resources Department Attn: Water Regulatory Specialist
  - P.O. Box 39 Odanah, WI 54861
  - [WaterReg@badriver-nsn.gov](mailto:WaterReg@badriver-nsn.gov)
- xv.** An operator shall be responsible for meeting any additional permit requirements imposed by the U.S. EPA necessary to comply with the Tribe's antidegradation policies if the discharge point is located upstream of waters designated by the Tribe.

## 9.6 EPA REGION 6

### 9.6.1 NMR100000 State of New Mexico, except Indian country

- a.** In Outstanding National Resource Waters (ONRWs) in New Mexico, no degradation is permitted except in limited, specifically defined instances. Therefore, Operators are not eligible to obtain authorization under this general permit for stormwater discharges to waters classified as ONRWs listed in Paragraph D of 20.6.4.9 New Mexico Administrative Code (NMAC), also referred to as "Tier 3 waters" as defined in Appendix A of this permit. Exception: When construction activities are in response to a public emergency (e.g., wildfire, extreme flooding, etc.) and the related work requires immediate authorization to avoid a threat to public health or safety.
  - i.** Operators who conduct construction activities in response to a public emergency to mitigate an immediate threat to public health or safety shall

adhere to the requirements in 20.6.4.8(A)(3)(c) NMAC, including notifying the New Mexico Environment Department (NMED) within seven days of initiation of the emergency action and providing NMED with a summary of the action taken within 30 days of initiation of the emergency action.

- ii. For all other scenarios, Operators with proposed discharges to ONRWs in New Mexico shall obtain coverage from EPA under an NPDES Individual Permit and will comply with the additional standards and regulations related to discharges to ONRWs in 20.6.4.8(A) NMAC. Additional information is available from:
  - New Mexico Environment Department Surface Water Quality Bureau
  - P.O. Box 5469
  - Santa Fe, NM 87502-5469 Telephone: 505-827-0187
  - <https://www.env.nm.gov/surface-water-quality/wqs/>
  - <https://gis.web.env.nm.gov/oem/?map=swqb>
- b. If construction dewatering activities are anticipated at a construction site and non-stormwater discharges of groundwater, subsurface water, spring water, and/or other dewatering water are anticipated, the Operators/Permittees must complete the following steps:
  - 1. Review the state's Ground Water Quality Bureau Mapper (<https://gis.web.env.nm.gov/GWQB/>) and Petroleum Storage Tank Bureau Mapper (<https://gis.web.env.nm.gov/GWQB/>).

Check if the following sources are located within the noted distance from the anticipated construction dewatering activity. At a minimum, a list of the following potential sources of contaminants and pollutants at the noted distance is to be kept in the SWPPP.

Source of Potential Contamination or Pollutants*	Constituents likely to be required for testing*
Within 0.5 mile of an open Leaking Underground Storage Tank (LUST) site	BTEX (Benzene, Toluene, Ethylbenzene, and Xylene) plus additional parameters depending on site conditions**
Within 0.5 mile of an open Voluntary Remediation site	All applicable parameters or pollutants listed in 20.6.4.13, 20.6.4.52, 20.6.4.54, 20.6.4.97 thru 20.6.4.99, 20.6.4.101 through 20.6.4.899, and 20.6.4.900 NMAC (or an alternate list approved by the NMED-SWQB)*
Within 0.5 mile of an open RCRA Corrective Action Site	
Within 0.5 mile of an open Abatement Site	
Within 0.5 mile of an open Brownfield Site	
Within 1.0 mile or more of a Superfund site or National Priorities List (NPL) site with associated groundwater contamination.	
Construction activity contaminants and/or natural water pollutants	Additional parameters depending on site activities and conditions (Contact NMED- SWQB for an alternate list)*

\*For further assistance determining whether dewatering may encounter contaminated sources, please contact the NMED Ground Water Quality Bureau at 505-827-2965 or NMED Surface Water Quality Bureau (SWQB) at 505-827-0187.

\*\* EPA approved sufficiently sensitive methods must be used. For known PCB sources and analysis, EPA Method 1668C must be used (see <https://www.epa.gov/cwa-methods>).

2. If dewatering activities are anticipated, information on the flow rate and potential to encounter contaminated groundwater, subsurface water, spring water, or dewatering water must be provided directly to NMED at the following address:

NMED Surface Water Quality Bureau  
 Program Manager, Point Source Regulation  
 Section PO Box 5469, Santa Fe, NM 87502

*Please call the SWQB to obtain the appropriate email address (505-827-0187).*

3. In addition, the Operator/Permittee must characterize the quality of the groundwater and subsurface water, spring water, or dewatering water being considered for discharge according to the table above and including dissolved hardness and pH. Considering the contaminant sources listed in the table above, water quality data may already be available. For further assistance, contact the



NMED Surface Water Quality Bureau (505-827-0187), Ground Water Quality Bureau (505-827- 2965), Petroleum Storage Tank Bureau (505-476-4397), or Hazardous Waste Bureau (505-476- 6000).

- i. The Operator/Permittee must submit recent analytical test results (i.e., within the past 5 years) according to the table above, and including dissolved hardness and pH, to the EPA Region 6 Stormwater Permit Contact and the NMED Surface Water Quality Bureau (see contact information in #2 above). If the test data exceed applicable water quality standards, then the groundwater, subsurface water, spring water, or dewatering water cannot be discharged into surface waters under this general permit. Operators/Permittees may submit an NPDES Individual Permit application to treat and discharge to waters of the U.S. or find alternative disposal measures. No discharges to surface waters are allowed until authorized.
  - ii. If the discharge has the potential to affect groundwater (e.g., land application), the Operator/Permittee must submit an NOI to the NMED Ground Water Quality Bureau (see 20.6.2.1201 NMAC – Notice of Intent to Discharge).
4. The Operator/Permittee must document any findings and all correspondence with NMED and EPA in the SWPPP.
- c.** Operators who intend to obtain authorization under this permit for new and existing storm water discharges from construction sites must satisfy the following condition:
- i. The SWPPP must include site-specific interim and permanent stabilization, managerial, and structural solids, erosion and sediment control best management practices (BMPs) and/or other controls that are designed to prevent to the maximum extent practicable an increase in the sediment yield and flow velocity from pre-construction, pre-development conditions to assure that applicable standards in 20.6.4 NMAC, including the antidegradation policy, and TMDL waste load allocations (WLAs) are met. This requirement applies to discharges both during construction and after construction operations have been completed. The SWPPP must identify and document the rationale for selecting these BMPs and/or other controls. The SWPPP must also describe design specifications, construction specifications, maintenance schedules (including a long-term maintenance plan), criteria for inspections, and expected performance and longevity of these BMPs. For sites greater than 5 acres in size, BMP selection must be made based on the use of appropriate soil loss prediction models (i.e. SEDCAD, RUSLE, SEDIMOT, MULTISED, etc.) OR equivalent generally accepted (by professional erosion control specialists) soil loss prediction tools.
  - ii. For all sites, the Operator(s) must demonstrate, and include documentation in the SWPPP, that implementation of the site-specific practices will ensure that the applicable standards and TMDL WLAs are met, and will result in sediment yields and flow velocities that, to the maximum extent practicable, will not be greater than the sediment yield levels and flow velocities from preconstruction, pre-development conditions.
  - iii. All SWPPPs must be prepared in accordance with good engineering practices by qualified (e.g., CPESC certified, engineers with appropriate training) erosion control specialists familiar with the use of soil loss prediction models and design of erosion and sediment control systems based on these models (or equivalent soil

loss prediction tools). Qualifications of the preparer (e.g., professional certifications, description of appropriate training) must be documented in the SWPPP. The Operator(s) must design, implement, and maintain BMPs in the manner specified in the SWPPP.

NMED supports the use of EPA's small residential lot template if a site qualifies to use it as explained in the permit, as long as it is consistent with the above requirements. NMED's requirement does not preclude small residential sites from using the template, but it may require an additional short paragraph to justify the selection of specific BMPs for the site.

- d. Operators must notify NMED when discharges of toxic or hazardous substances or oil from a spill or other release occurs - see Emergency Spill Notification Requirements, Part 2.3.6 of the permit. For emergencies, Operators can call 505-827-9329 at any time. For non-emergencies, Operators can call 866-428-6535 (voice mail 24-hours per day) or 505-476-6000 during business hours from 8am-5pm, Monday through Friday. Operators can also call the NMED Surface Water Quality Bureau directly at 505-827-0187.
- e. Operators of small construction activities (i.e., 1-5 acres) are not eligible to qualify for a waiver in lieu of needing to obtain coverage under this general permit based on Item C.3 of Appendix C (Equivalent Analysis Waiver) in the State of New Mexico.

**9.6.2 NMR10I000 Indian country within the State of New Mexico, except Navajo Reservation Lands that are covered under Arizona permit AZR10000I and Ute Mountain Reservation Lands that are covered under Colorado permit COR10000I.**

**a. Nambe Pueblo**

- i. The operator must provide a copy of the Notice of Intent (NOI) and Notice of Termination (NOT) to the Nambe Pueblo Governor's Office at the same time it is provided to the US Environmental Protection Agency. The NOI and NOT should be provided to the following address:
  - Office of the Governor Nambe Pueblo
  - ISA NPI02 WEST
  - Nambe Pueblo, New Mexico 87506
- ii. The operator must provide a copy of the Storm Water Pollution Prevention Plan (SWPPP) to Nambe Pueblo at the same time it is submitted to the EPA, either by email to [governor@nambepueblo.org](mailto:governor@nambepueblo.org) or mailed to the above address.
- iii. The operator must provide copies of inspection reports, a copy of the corrective action log, and modifications made to the SWPPP as a result of inspection findings, upon request by the Nambe Pueblo Department of Environmental and Natural Resources or Nam be Governor.

**b. Ohkay Owingeh Tribe**

- i. All operators obtaining permit coverage under the EPA CGP, must submit a copy of the certified (signed) Notice of Intent (NOI) to the Ohkay Owingeh Office of Environmental Affairs, a copy of NOI modifications and the Notice of Termination (NOT), must be provided within three business days after EPA provides electronic confirmation that the submission has been received. The NOI and NOT must be provided to the following address:

Naomi L. Archuleta - Environmental Programs Manager Ohkay Owingeh  
Office of Environmental Affairs  
P.O. Box 717  
Ohkay Owingeh, NM 87566  
[naomi.archuleta@ohkay.org](mailto:naomi.archuleta@ohkay.org)

Noah Kaniatobe - Environmental Specialist Ohkay Owingeh, Office of  
Environmental Affairs  
P.O. Box 717  
Ohkay Owingeh, NM 87566  
[noah.kaniatohe@ohkay.org](mailto:noah.kaniatohe@ohkay.org)

- ii. All operators obtaining permit coverage under the EPA CGP, must submit an electronic copy of the Storm Water Pollution Prevention Plan (SWPPP) to Ohkay Owingeh Office of Environmental Affairs at the same time that the NOI is submitted to the tribe (see contact information listed above).
- iii. Following each incident where the operator takes a corrective action the operator must provide the corrective action log to the Ohkay Owingeh Office of Environmental Affairs.
- iv. The operator must notify Ohkay Owingeh Office of Environmental Affairs within 24 hours, in the event of an emergency spill in addition to the notification requirements at Part 2.3.6 of the CGP. Please contact: Ohkay Owingeh Tribal Police Department at 505.852.2757.

*Please contact:  
Ohkay Owingeh  
Tribal Police Department  
505.852.2757*

**c. Pueblo of Isleta**

- i. All operators obtaining permit coverage under the EPA CGP must submit a copy of the certified Notice of Intent (NOI) to the Pueblo of Isleta at the same time it is submitted to EPA for projects occurring within the exterior boundaries of the Pueblo of Isleta. Additionally, a copy of NOI modifications and the Notice of Termination (NOT), must be provided within three business days after EPA provides electronic confirmation that the submission has been received. The Notices must be provided to the following address:  
Water Quality Control Officer Pueblo of Isleta  
Environment Department PO Box 1270  
Isleta NM 87022  
505-869-7565  
[WQCO@isletapueblo.com](mailto:WQCO@isletapueblo.com)
- ii. The operator must notify the Pueblo of Isleta's Dispatch at 505-869-3030 as soon as possible and the Pueblo of Isleta Water Quality Control Officer within 10 hours, in the event of a spill of hazardous or toxic substances or if health or the

environment become endangered in addition to the notification requirements at Part 2.3.6 and at I.12.6.1 of the CGP.

- iii. All operators obtaining permit coverage under the EPA CGP must submit an electronic copy of the Stormwater Pollution Prevention Plan (SWPPP) to the Pueblo of Isleta Water Quality Control Officer at the above address, 30 days prior to submitting the certified NOI to EPA. If the electronic file is too large to send through e-mail, a zip file or flash drive may be submitted.
  - iv. All operators obtaining permit coverage under the EPA CGP must give 2 days advance notice to the Pueblo of Isleta Water Quality Control Officer of any planned changes in the permitted activity which may result in noncompliance with permit requirements.
  - v. All operators obtaining permit coverage under the EPA CGP must post a sign or other notice of permit coverage at a safe, publicly accessible location in close proximity to the construction site. The notice must be located so that it is visible from the public road or tribal road that is nearest to the active part of the construction site. The sign must be maintained on-site from the time construction activities begin until final stabilization is met.
  - vi. Erosion and sediment controls shall be designed to retain sediment on-site and project-generated waste materials that have the potential to discharge pollutants shall not be placed on open soil or on a surface that is not stabilized. Volumes of sediment over five (5) cubic yards must be removed from the active construction site; additionally, if sediment is placed for disposal within the exterior boundaries of the Pueblo of Isleta, disposal must be within a tribally approved sediment disposal site.
- d. Pueblo of Laguna**
- i. All operators obtaining permit coverage under the EPA CGP must submit an electronic copy of the certified (signed) Notice of Intent (NOI) to the Pueblo of Laguna's Environmental & Natural Resources Department (ENRD) within three business days of submittal to the EPA. Additionally, a copy of NOI modifications and the Notice of Termination (NOT), must be provided within three business days after the EPA provides electronic confirmation that the submission has been received. The NOI and NOT must be electronically submitted to [info.environmental@pol-nsn.gov](mailto:info.environmental@pol-nsn.gov).
  - ii. All operators obtaining permit coverage under the EPA CGP must submit an electronic copy of the Stormwater Pollution Prevention Plan (SWPPP) to the Pueblo of Laguna's ENRD 14 days prior to the submittal of the NOI (see contact information listed above).
  - iii. The operator must provide copies of corrective actions logs and modifications made to the SWPPP as a result of inspection findings to the Pueblo of Laguna ENRD (see contact information above).
  - iv. In addition to the notification requirements of Part 2.3.6 of the CPG **[EPA interprets this intending to refer to the CGP]**, the operator must notify the Pueblo of Laguna ENRD at 505-552-7512 in the event of an emergency spill as soon as possible.
- e. Pueblo of Sandia. The following conditions apply only to discharges on the Pueblo of Sandia Reservation:**





provided within three business days after EPA provides electronic confirmation that the submission has been received. The NOI and NOT must be provided to the following address:

Regular U.S. Delivery Mail:

Pueblo of Santa Ana  
Department of Natural Resources Water Resources Division  
Attn: Andrew Sweetman 02 Dove Rd  
Santa Ana Pueblo, NM 87004

Electronically:

Andrew Sweetman  
Water Resources Division Manager Andrew.Sweetman@santaana-nsn.gov  
Tammy Montoya Hydrologist  
Tammy.Montoya@santaana-nsn.gov

- ii. All operators obtaining permit coverage under the EPA CGP, must submit an electronic copy of the Stormwater Pollution Prevention Plan (SWPPP) to the Pueblo's Department of Natural Resources at the same time that the NOI is submitted to the tribe (see contact information listed above).
  - iii. The operator must provide copies of inspection reports, a copy of the corrective action log, and modifications made to the SWPPP as a result of inspection findings, upon request by the Pueblo's Department of Natural Resources.
  - iv. The operator must notify the Pueblo's Department of Natural Resources within 24 hours in the event of an emergency spill, in addition to the notification requirements at Part 2.3.6 of the CGP.
- g. Pueblo of Taos**
- i. All operators obtaining permit coverage under the EPA CGP, must submit a copy of the certified (signed) Notice of Intent (NOI) to the Taos Pueblo Environmental Office and Taos Pueblo Governor's Office within three business days of submittal to EPA. Additionally, a copy of NOI modifications and the Notice of Termination (NOT), must be provided within three business days after EPA provides electronic confirmation that the submission has been received. The NOI and NOT must be provided to the following addresses:
    - Honorable Governor of Taos Pueblo PO Box 1846  
Taos, New Mexico 87571
  
    - Taos Pueblo Environmental Office PO Box 1846  
Taos, New Mexico 87571
  - ii. All operators obtaining permit coverage under the EPA CGP, must submit an electronic copy of the Stormwater Pollution Prevention Plan (SWPPP) to the Taos Pueblo Environmental Office when the NOI is submitted to the tribe. Electronic copy of SWPPP downloaded on flash drive may be sent to the above address for the Taos Pueblo Environmental Office.
  - iii. The operator must provide a copy of the corrective action log following each corrective action undertaken and modifications made to the SWPPP as a result of

a corrective action to the Taos Pueblo Environmental Office at address listed above.

**h. Pueblo of Tesuque.**

- i. All operators obtaining permit coverage under the EPA CGP, must submit a copy of the certified (signed) Notice of Intent (NOI) to the Pueblo of Tesuque Department of Environment and Natural Resources (DENR) and the Pueblo's Governor within three business days of submittal to EPA. Additionally, a copy of any NOI modifications and the Notice of Termination (NOT), must be provided within three business days after EPA provides electronic confirmation that the submission has been received. The NOI and NOT must be provided to the following address:

Governor Mark Mitchell Pueblo of Tesuque  
20 TP 828  
Santa Fe, NM 87506 governor@pueblooftesuque.org

Sage Mountain.flower Pueblo of Tesuque  
Department of Environment and Natural Resources Director  
20 TP 828

- ii. All operators obtaining permit coverage under the EPA CGP, must submit an electronic copy of the Stormwater Pollution Prevention Plan (SWPPP) to Pueblo of Tesuque DENR and the Pueblo's Governor at the same time that the NOI is submitted to the EPA (see contact information listed above).
- iii. The operator must provide a copy of the corrective action log, and any modifications made to the SWPPP as a result of inspection findings, or upon request by the Pueblo of Tesuque DENR.
- iv. The operator must notify the Pueblo of Tesuque DENR within 24 hours in the event of an emergency spill, in addition to the notification requirements at Part 2.3.6 of the CGP (see contact information listed above).

**i. Santa Clara Indian Pueblo.**

- i. All operators obtaining permit coverage under the EPA CGP, must submit a copy of the certified (signed) Notice of Intent (NOI) to the Santa Clara Pueblo Office of Environmental Affairs at the same time the NOI is submitted to the U.S. EPA. Additionally, a copy of the NOI modifications and the Notice of Termination (NOT), must be provided at the same time after electronic confirmation is received from EPA that the NOT has been accepted. The NOI and NOT shall be provided to the following address in electronic format:

Dino Chavarria,  
Santa Clara Pueblo  
Office of Environmental Affairs  
dinoc@santaclarapueblo.org

- ii. All operators obtaining permit coverage under the EPA CGP, must submit an electronic copy of the Stormwater Pollution Prevention Plan to the Santa Clara Pueblo Office of Environmental Affairs at the same time the NOI is submitted to the U.S. EPA (see contact information listed above).

- iii. The operator must notify the Santa Clara Pueblo Office of Environmental Affairs at the address above within 24 hours, in the event of an emergency spill, in addition to the notification requirements at Part 2.3.6 of the CGP

**9.6.3 OKR10I000 Indian country within the State of Oklahoma, except areas of Indian country covered by an extension of state program authority pursuant to Section 10211 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA).**

- a. **Pawnee Nation. The following conditions apply only to discharges within Pawnee Indian country:**
  - i. Copies of the Notice of Intent (NOI) and Notice of Termination (NOT) must be provided to the Pawnee Nation at the same time it is submitted to the Environmental Protection Agency to the following address:
    - Pawnee Nation Department of Environmental Conservation and Safety
    - P.O. Box 470
    - Pawnee, OK 74058
    - Or email to [dners@pawneenation.org](mailto:dners@pawneenation.org)
  - ii. An electronic copy of the Storm Water Pollution Prevention Plan (SWPPP) must be submitted to the Pawnee Nation Department of Environmental Conservation and Safety at the same time the NOI is submitted.
  - iii. The operator must provide access to the site for inspections and for copies of inspection reports, copy of the corrective action log and modifications, made to the SWPPP because of inspection findings, upon request by the Pawnee Nation DECS.
  - iv. The Pawnee Nation Department of Environmental Conservation and Safety must be notified at 918.762.3655 immediately upon discovery of any noncompliance with any provision of the permit conditions.

**9.6.4 OKR10F000 Discharges in the State of Oklahoma that are not under the authority of the Oklahoma Department of Environmental Quality, or the Oklahoma Department of Agriculture and Forestry including activities associated with oil and gas exploration, drilling, operations, and pipelines (includes SIC Groups 13 and 46, and SIC codes 492 and 5171), and point source discharges associated with agricultural production, services, and silviculture (includes SIC Groups 01, 02, 07, 08, 09).**

- a. For activities located within the watershed of any Oklahoma Scenic River, including the Illinois River, Flint Creek, Barren Fork Creek, Upper Mountain Fork, Little Lee Creek, and Lee Creek or any water or watershed designated "ORW" in Oklahoma's Water Quality Standards, this permit may only be used to authorize discharges from temporary construction activities. Certification is denied for any on-going activities such as sand and gravel mining or any other mineral mining.
- b. For activities located within the watershed of any Oklahoma Scenic River, including the Illinois River, Flint Creek, Barren Fork Creek, Upper Mountain Fork, Little Lee Creek, and Lee Creek or any water or watershed designated "ORW" in Oklahoma's Water Quality Standards, certification is denied for any discharges originating from support activities, including, but not limited to, concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, or borrow areas.



- c. Dewatering discharges into sediment or nutrient-impaired waters, and waters identified as Tier 2, Tier 2.5, or Tier 3 (OAC 785:46-13) shall be controlled to meet water quality standards for turbidity in those waters as follows:
  - i. Cool Water Aquatic Community/Trout Fisheries: 10 NTUs (OAC 785: 45-5-12(f)(7)(A)(i))
  - ii. Lakes: 25 NTUs (OAC 785: 45-5-12(f)(7)(A)(ii))
  - iii. In waters where background turbidity exceeds these values, turbidity from dewatering discharges should be restricted to not exceed ambient levels (OAC 785: 45-5-12(f)(7)(B))

## 9.7 EPA REGION 7

No additional conditions.

## 9.8 EPA REGION 8

### 9.8.1 MTR10I000 Indian country within the State of Montana

#### a. Blackfeet Nation.

- i. The Applicant and applicants for projects authorized under the NWP's should obtain all other permits, licenses, and certifications that may be required by federal, state, or tribal authority. Primary relevant tribal permit will be ALPO (Ordinance 117). Others may apply. It is the applicant's responsibility to know the tribal and local ordinances and complete all necessary permissions before they can commence work.
- ii. If a project is unable to meet the enclosed conditions, or if certification is denied for an applicable NWP, the Applicant may request an individual certification from Blackfeet. An individual certification request must follow the requirements outlined in 40 CFR 121.5 of EPA's CWA § 401 Certification Rule, effective September 11, 2020.
- iii. Copies of this certification should be kept on the job site and readily available for reference.
- iv. If the project is constructed and/or operated in a manner not consistent with the applicable NWP, general conditions, or regional conditions, the permittee may be in violation of this certification.
- v. Blackfeet and EPA representatives may inspect the authorized activity and any mitigation areas to determine compliance with the terms and conditions of the NWP.
- vi. This NWP Reissuance does not reduce Tribal authority under any other rule.
- vii. The project, including any stream relocations and restoration, must be built as shown and as otherwise described in the application, the construction plans, cross sections, mitigation plans and other supporting documents submitted to this office. Impacts to aquatic systems and restoration efforts will be monitored by an appropriate aquatic resource professional to ensure that disturbed areas are restored to at least their original condition.
- viii. All existing water uses will be fully maintained during and after the completion of the project. (If applicable)

- ix.** Where practicable, perform all in-channel and wetland work during periods of low flow or drawn—down or when dry
- x.** Equipment staging areas must be located out of all delineated wetlands
- xi.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during and immediately after construction, and all exposed soil and other fills, as well as any work below the ordinary high-water mark or in a wetland, must be permanently stabilized as soon as possible
- xii.** Materials such as piling, culverts, sandbags, fabric, mats, timbers used for temporary facilities in wetlands or below the high- water mark of Waters of the US must be free from oil, gas, excess dirt, loose paint and other pollutants.
- xiii.** Equipment staging areas in wetlands or in stream or river channels must be placed on mats, or other measures must be taken to minimize soil disturbance and compaction.
- xiv.** Clearing of riparian or wetland vegetation for the sole purpose of constructing work bridges, detours, staging areas or other temporary facilities must be limited to the absolute minimum necessary. When temporary impacts to native riparian or wetland vegetation are unavoidable, it must be mowed or cut above ground with the topsoil and root mass left intact.
- xv.** Remove all temporary fills and structures in the entirety when they are no longer needed. Restore affected areas to the appropriate original and planned contours where possible. Re-vegetate disturbed areas with appropriate native species when native species are impacted.
- xvi.** Construction methods and best management practices (BMPs) must minimize aquatic resource impacts to the maximum extent possible. Any BMPs described in the Joint Application must be followed. BMPs should include installation and maintenance of sediment control measures; separation, storage and reuse of any topsoil; and recovery of all disturbed areas where possible. All best management practices must in place prior to the onset of construction or as soon as practicable during the construction process.
- xvii.** Best available technology and/or best management practices must be utilized to protect existing water uses and maintain turbidity and sedimentation at the lowest practical level.
- xviii.** Applicant/contractor should manage disturbed streambank topsoil in a manner that optimizes plant establishment for the site.
- xix.** When operating equipment or otherwise undertaking construction in wetlands and water bodies the following conditions apply:
  - (a) Work should be done in dry conditions if possible.
  - (b) All equipment is to be inspected for oil, gas, diesel, anti-freeze, hydraulic fluid or other petroleum leaks. All such leaks will be properly repaired and equipment cleaned prior to being allowed on the project site. Leaks that occur after the equipment is moved to the project site will be fixed the same day or the next day or removed from the project area. The equipment is not allowed to continue operation once a leak is discovered.

- (c) All equipment is to be inspected and cleaned before and after use to minimize the spread or introduction of invasive or undesirable species.
  - (d) Construction equipment shall not operate below the existing water surface except as follows:
    - Impacts from construction should be minimized through the use of best management practices submitted in the permit application.
    - Essential work below the waterline shall be done in a manner to minimize impacts to aquatic system and water quality.
  - (e) Containment booms and/or absorbent material must be available onsite. Any spills of petroleum products must be reported to the Army Corps, Blackfeet Nation BEO Office and the US EPA within 24 hours.
- xx.** Upland, riparian and in-stream vegetation should be protected except where its removal is necessary for completion of work. Revegetation should be completed as soon as possible. Applicant/contractor should revegetate disturbed soil in a manner that optimizes plant establishment for the site. Revegetation must include topsoil replacement, planting, seeding, fertilization, liming and weed-free mulching as necessary. Applicant must use native plant material and soils where appropriate and feasible. This certification does not allow for the introduction of non-native flora and fauna. All disturbed surface areas must be restored to pre-construction contours and elevation.
- xxi.** Spoils piles should not be placed or stored within the delineated wetlands or streams unless protected by a temporary structure designed to divert and handle high flows that can be anticipated during permit activity. Spoils piles should be placed on landscaping fabric or some other material to separate spoils material and allow retrieval of spoils material with minimal impact.
- xxii.** Impacts to wetlands shall not exceed 4.92 acres.
- xxiii.** Any unexpected and additional impacts to waters of the US should be reported to the
- xxiv.** Army Corps, Blackfeet Environmental Office Water Quality Coordinator and the US EPA.
- xxv.** All instream and stream channel reconstruction work must be completed before the stream is diverted into the new channel.
- xxvi.** Any temporary crossings, bridge supports, cofferdams, or other structures that are necessary during permit activity should be designed to handle high flows that can be anticipated during permit activity. All temporary structures should be completely removed from the water body at the conclusion of the permitted activity and the area restored to a natural function and appearance.
- xxvii.** The certification does not authorize any unconfined discharge of liquid cement into the waters of the United States. Grouting riprap must occur under dry conditions with no exposure of wet concrete to the water body.
- xxviii.** BMPs shall include application of certified weed-free straw or hay across all disturbed wetland areas that are temporarily impacted; installation and maintenance of sediment control measures during construction and if necessary, after construction is completed; use of heavy mud mats if necessary; separation,

storage and reuse of all streambank topsoil and wetland topsoil, as appropriate; and recovery of all disturbed wetland and streambank areas where possible. All conditions set by the Blackfeet Tribe and US Army Corps must be followed.

- xxix.** All applicants, including federal agencies, must notify EPA and the Blackfeet Environmental Office of the use of all NWPs for which certification has been granted prior to commencing work on the project. Notifications must include:
- (a) project location (lat. Long., exact point on map);
  - (b) NWP that will be used and the specific activity that will be authorized under the NWP;
  - (c) amount of permanent and temporary fills;
  - (d) a short summary of the proposed activity, and all other federal, state, tribal or local permits or licenses required for the project;
  - (e) complete contact information of both the applicant and contractor (name, name of the company or property if applicable, telephone, mobile, and email); and,
  - (f) Summary of best management practices that will be used.
  - (g) A summary of communications with the affected Tribe's water quality staff regarding the project, including any concerns or issues.
  - (h) Notify Blackfeet and EPA at least 7 days before the completion of construction and operations begin.
- xxx.** Point source discharges may not occur: (1) in fens, bogs or other peatlands; (2) within 100 feet of the point of discharge of a known natural spring source; or (3) hanging gardens.
- xxxi.** Except as specified in the application, no debris, silt, sand, cement, concrete, oil or petroleum, organic material, or other construction related materials or wastes shall be allowed to enter into or be stored where it may enter into waters of the U.S.
- xxxii.** Silt fences, straw wattles, and other techniques shall be employed as appropriate to protect waters of the U.S. from sedimentation and other pollutants.
- xxxiii.** Water used in dust suppression shall not contain contaminants that could violate water quality standards.
- xxxiv.** Erosion control matting that is either biodegradable blankets or loose-weave mesh must be used to the maximum extent practicable.
- xxxv.** All equipment used in waters of the U.S. must be inspected for fluid leaks and invasive species prior to use on a project. All fluid leaks shall be repaired and cleaned prior to use or when discovered, or if the fluid leak can't be repaired, the equipment shall not be used on site. Equipment used in waters with the possibility of aquatic nuisance species infestation must be thoroughly cleaned and effectively decontaminated before they are used on the project.



- xxxvi.** Vegetation should be protected except where its removal is necessary for completion of the work. Locations disturbed by construction activities should be revegetated with appropriate native vegetation in a manner that optimizes plant establishment for the specific site.
- xxxvii.** Revegetation may include topsoil replacement, planting, seeding, fertilization, liming, and weed-free mulching, as necessary. Where practical, stockpile weed- seed-free topsoil and replace it on disturbed areas. All revegetation materials, including plants and plant seed shall be on site or scheduled for delivery prior to or upon completion of the earth moving activities.
- xxxviii.** Activities may not result in any unconfined discharge of liquid cement into waters of the U.S. Grouting riprap must occur under dry conditions with no exposure of wet concrete to the waterbody.
- xxxix.** Activities that may result in a point source discharge shall occur during seasonal low flow or no flow periods to the extent practicable.
- xl.** The placement of material (discharge) for the construction of new dams is not certified, except for stream restoration projects.
- xli.** Any decision-maker that is required under 7.0 of the CGP to prepare a Stormwater Pollution Prevention Plan (SWPPP), must submit an electronic copy of the SWPPP to the Blackfeet Environmental Office at least 30 days before construction starts for review and approval. Any modifications to the SWPPP should be submitted to the Blackfeet Environmental Office.
- xlii.** Any Decision-maker required under Part 1.4 of the CGP to submit a Notice of Intent (NOI) to EPA for coverage under the CGP, must submit a copy of the NOI to the Blackfeet Environmental Office within three business days of submittal to EPA. Additionally, a copy of the Notice of Termination (NOT) must be provided within three business days after electronic confirmation is received from EPA that the NOT has been accepted. The NOI and NOT must be provided to the following address Gerald Wagner, Blackfeet Environmental Office Director.  
62 Hospital Drive, Browning, MT 59417  
[beo.director@gmail.com](mailto:beo.director@gmail.com)
- b. Fort Peck Tribes.**
- i.** Any Decision-maker required under Part 1.4 of the CGP to submit a Notice of Intent (NOI) to EPA for coverage under the CGP, must submit a copy of the NOI to the Fort Peck Tribes Office of Environmental Protection within three business days of submittal to EPA. Additionally, a copy of the Notice of Termination (NOT) must be provided within three business days after electronic confirmation is received from EPA that the NOT has been accepted. The NOI and NOT must be provided to the following address:  
Martina Wilson, Office of Environmental Protection Director  
501 Medicine Bear Rd Poplar, MT 59255  
[martinawilson@fortpecktribes.net](mailto:martinawilson@fortpecktribes.net)
- ii.** Any Decision-maker that is required under Part 7.0 of the CGP to prepare a Stormwater Pollution Prevention Plan (SWPPP), must submit an electronic copy of the SWPPP to the Fort Peck Tribes Office of Environmental Protection at least 30 days before construction starts for review and approval. Any modifications to the

SWPPP should be submitted to the Fort Peck Tribes Office of Environmental Protection.

- iii. Any Decision-maker that is required under Part 8.0 of the CGP to submit a weekly, bi-weekly, and/or annual report to EPA, must submit an electronic copy of the annual report to the Fort Peck Tribes Office of Environmental Protection within three business days after submittal to EPA.

## 9.9 EPA REGION 9

### 9.9.1 CAR10I000 Indian country within the State of California

#### a. Morongo Band of Mission Indians

- i. A copy of the Stormwater Pollution Prevention Plan (SWPPP) must be submitted (either mailed or electronically) to the MEPD no less than thirty (30) days before commencing construction activities:
  - Morongo Band of Mission Indians
  - Environmental Protection Department
  - 12700 Pumarra Road
  - Banning, CA 92220
  - Email: epd@morongo-nsn.gov
- ii. Copies of the Notice of Intent (NOI) and the Notice of Termination (NOT) must be sent to the MEPD at the same time they are submitted to EPA.
- iii. Operators of an "emergency-related project" must submit notice to the MEPD within twenty- four (24) hours after commencing construction activities.
- iv. Spills, leaks, or unpermitted discharges must be reported to the MEPD within twenty-four (24) hours of the incident, in addition to the reporting requirements of the CGP.
- v. Projects utilizing cationic treatment chemicals (as defined in Appendix A of the CGP) within the Morongo Reservation are not eligible for coverage under this certification of the CGP.
- vi. Facilities covered under the CGP will be subject to compliance inspections by MEPD staff, including compliance with final site stabilization criteria prior to submitting an NOI **[EPA assumes this intended to refer to an NOT]**.

### 9.9.2 GUR100000 Island of Guam

- a. For purposes of this Order, the term "Project Proponent" shall mean U.S. Environmental Protection Agency, and its agents, assignees, and contractors.
- b. For purposes of this Order, the permit "Operator" shall mean any party associated with a construction project that meets either of the following two criteria:
  - i. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications (e.g. in most cases this is the owner of the site); or
  - ii. The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the permit; in most cases this is the general contractor of the project).

Subcontractors generally are not considered operators for the purposes of this permit.

- c.** The Project Proponent shall enforce the proposed 2022 CGP and ensure that the Operator complies with the conditions of the permit at all times.<sup>107</sup> (40 CFR §121.11(c))
- d.** All submittals required by this Order shall be sent to the Guam Environmental Protection Agency Attn: 401 Federal Permit Manager, Non-Point Source Program, EMAS Division, 3304 Mariner Avenue, Bldg. 17-3304, Barrigada, Guam 96913, AND via email to jesse.cruz@epa.guam.gov. The submittals shall be identified with WQC Order #2021- 04 and include the COP Permit Number, certifying representative's name, title, mailing address and phone number. (§51060)(4) 2017 GWQS)
- e.** A copy of the Operator's signed Stormwater Pollution Prevention Plan (SWPPP) and signed Notice of Intent (NOI) and Notice of Termination (NOT) submitted to EPA for review and approval, shall concurrently be submitted to Guam EPA, consistent with condition A4. Coordination with Guam EPA is encouraged when the receiving water(s) for the proposed discharge is/are being identified. (§10105.B.5.d.) GSESCR; (§51060)(4) 2017 GWQS)
- f.** The Operator must comply with the conditions and requirements set forth in 22 GAR 10, Guam Soil Erosion and Sediment Control Regulations (GSESCR).
- g.** Before submitting the NOT to EPA, Operators shall comply with GSESCR regulations at §10105.B10. (Stabilization of Affected Areas) and §10107.B. (Final Inspection and Approval)
- h.** All operators/owners shall comply with the general design criteria for best management practices (BMPs) acceptable for meeting the Construction and Post-construction stormwater criteria in the 2006 CNMI and Guam Stormwater Management Manual. (E.O. 2012-02)
- i.** Operating reports and monitoring and analytical data (e.g. Discharge Monitoring Reports (DMRs), follow-up monitoring reports, Exceedance Reports for Numerical Effluent Limits, etc.) submitted to EPA shall be concurrently submitted to Guam EPA, consistent with condition A4. §51060)(4) 2017 GWQS
- j.** The Operators who install a sediment basin or similar impoundment shall maintain the storage capacity of five thousand cubic feet (5,000 cu. ft.) per acre of project area tributary to the basin. (§10105.B.5.i.) GSESCR
- k.** (1) This Order does not authorize EPA to qualify Rainfall Erosivity Waivers to stormwater discharges associated with small construction activities (i.e. 1-5 acres). Operators are required to apply for an NOI for those projects eligible for coverage under the proposed 2022 CGP. An Erosion and Sediment Control Plan is required for every site that would be covered by the proposed 2022 CGP. (22 GAR §10104) The average annual rainfall for Guam and the CNMI exceeds 100 inches per year in many locations. These climatic conditions combined with the region's unique limestone, volcanic geologic formations, sensitive water resources and significant land

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<sup>107</sup> By incorporating this condition into the permit, EPA acknowledges receipt of Guam's certification conditions.

development forces make stormwater discharges a very significant environmental and economic issue. (2006 CNMJ/Guam Stormwater Management Manual) E.O. 2012-02

(2) This Order does not authorize EPA to approve a Sediment TMDL Waiver for the Ugum River. Operators of construction activities eligible for a TMDL Waiver in lieu of coverage under the proposed 2022 CGP, shall submit a complete and accurate waiver certification as described in C.2., Appendix C - (Small Construction Waivers) to Guam EPA per condition A4., prior to notifying EPA of its intention to obtain a waiver. §51060)(4) 2017 GWQS

- l.** The Project Proponent shall submit to Guam EPA a signed Statement of Understanding of Water Quality Certification Conditions.<sup>108</sup> (see Attachment A for an example) per condition A4. §51060)(4) 2017 GWQS
- m.** The Operator shall comply with applicable provisions of the Guam Pesticides Act of 2007 (10 GCA Chapter 50) and implementing regulations at Title 22 GAR Chapter 15 for any use and application of pesticides.
- n.** Point source discharge(s) to waterbodies under the jurisdiction of Guam EPA must be consistent with the antidegradation policy in 22 GAR §510I(b).
- o.** The operator shall carry out construction activities in such a manner that will not violate Guam Water Quality Standards (GWQS). Proposed 2022 CGP discharges are prohibited as follows:
  - i.** In Marine Waters, Category M-1 Excellent 22 GAR Chapter 5 §5102(b)(I); and
  - ii.** In Surface Waters, Category S-1 High 22 GAR Chapter 5 §5102(c)(I)
- p.** In addition to complying with construction dewatering requirements in Part 2.4 and site inspection requirements for all areas where construction dewatering is taking place in Part 4 of the proposed 2022 CGP, Operators shall comply with all dewatering conditions and requirements set forth in 22 GAR 7, Water Resources Development and Operating Regulations, to include securing Guam EPA permits prior to any dewatering activities.
- q.** The Operator shall develop and implement a Spill Prevention and Containment Plan.
- r.** The Operator shall have adequate and appropriate spill response materials on hand to respond to emergency release of oil, petroleum or any other material into waters of the territory.
- s.** Any unpermitted discharge into territorial waters or onto land with a potential for entry into territorial waters, is prohibited. If this occurs, the Operator shall immediately take the following actions:
  - i.** Cease operations at the location of the violation or spill.
  - ii.** Assess the cause of the water quality problem and take appropriate measures to correct the problem and/or prevent further environmental damage.
  - iii.** Notify Guam EPA of the failure to comply. All petroleum spills shall be reported immediately to:

<sup>108</sup> By incorporating this condition into the permit, EPA acknowledges receipt of Guam's certification conditions.



- (a) Guam's Emergency 911 system
  - (b) Guam EPA's 24-Hour Spill Response Team at (671) 888-6488 or during working hours (671) 300-4751
  - (c) US Coast Guard Sector Guam (671) 355-4824
  - (d) National Response Center 1-800-424-8802
- iv.** Submit a detailed written report to Guam EPA within five days of noncompliance that describes the nature of the event corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of any samples taken, and any other pertinent information.
- f.** Compliance with this condition does not relieve the Operator from responsibility to maintain continuous compliance with the terms and conditions of this Order or the resulting liability from failure to comply.
- u.** Submittal or reporting of any of this information does not provide relief from any subsequent enforcement actions for unpermitted discharges to waters of the United States.
- v.** This Order is valid for five (5) Years from Date of Certification, unless otherwise approved by the Guam EPA Administrator.
- w.** The Operator shall be required to adhere to the current Guam Coral Spawning Moratorium dates for both hard and soft corals where in-water activities and/or construction activity in close proximity with marine waters may impair water quality. These dates can be obtained from the Guam Department of Agriculture, Division of Aquatic and Wildlife Resources, or the NOAA NMFS Pacific Islands Regional Office Habitat Conservation Division.
- x.** The Operator shall provide notice to Guam EPA consistent with Condition A4:
- (a) Immediately upon discovery of noncompliance with the provisions of this Order.
- y.** A Notice of Violation/Work Stop Order will be issued if certification conditions are not adhered to or when significant or sustained water quality degradation occurs. Work or discharge shall be suspended or halted until the Operator addresses environmental problems/concerns to Guam EPA's satisfaction. Guam EPA may also levy penalties and fines (10 GCA §47111). Invalidity or enforceability of one or more provisions of this certification shall not affect any other provision of this certification.

## **9.10 EPA REGION 10**

### **9.10.1 IDR10I000 Indian country within the State of Idaho, except Duck Valley Reservation lands (see Region 9)**

#### **a. Shoshone-Bannock Tribes**

- i.** Copies of the following information must be sent to the SBT-WRD:
  - (a) Notice of Intent (NOI)

The Notice of Intent shall be forwarded to the SBT-WRD within thirty (30) days of receipt of submitting NOI to the USEPA.

Shoshone-Bannock Tribes Water Resources Department  
 PO Box 306 Pima Drive  
 Fort Hall, ID 83203 Phone: (208) 239-4582  
 Fax: (208) 239-4592  
 Or Email ctanaka@sbtribes.com

- b. If requested by the SBT-WRD, the permittee must submit a copy of the SWPPP to SBT-WRD within fourteen (14) days of the request.

**9.10.2 ORR10I000 Indian country within the State of Oregon, except Fort McDermitt Reservation lands (see Region 9)**

**a. Confederated Tribes of Coos, Lower Umpqua, and Siuslaw**

- i. No activities allowed under the CGP shall result in the degradation of any Tribal waters or affect resident aquatic communities or resident or migratory wildlife species at any life stage.
- ii. The operator shall be responsible for achieving compliance with CTCLUSI Water Quality Standards and all other tribal codes, regulations, and laws as they exist at the time that the permit is submitted.
- iii. The operator shall submit a copy of the Notice of Intent (NOI) to be covered by the general permit to the CTCLUSI Water Quality Program before, or at the same time as, it is submitted to EPA.
- iv. The operator shall be responsible for submitting all Stormwater Pollution Prevention Plans (SWPPP) required under this general permit to the CTCLUSI Water Quality Program for review and determination that the SWPPP is sufficient to meet Tribal Water Quality Standards, prior to the beginning of any discharge activities taking place.
- v. The operator shall be responsible for reporting an exceedance to Tribal Water Quality Standards to the CTCLUSI Water Quality Program at the same time it is reported to EPA.
- vi. The THPO will be provided 30 days to comment on the APE as defined in the permit application.
- vii. If the project is an undertaking, a cultural resource assessment must occur. All fieldwork must be permitted by the THPO (as appropriate), conducted by qualified personnel (as outlined by the Secretary of Interior's Standards and Guidelines; [http://www.nps.gov/history/local-law/arch\\_stnds\\_O.htm](http://www.nps.gov/history/local-law/arch_stnds_O.htm)) and documented according to Oregon Reporting Standards (Reporting\_Guidelines.pdf) (oregon.gov). The resulting report must be submitted to the THPO and the THPO must concur with the finding of effect and recommendations before any ground disturbing work can occur. The THPO requires 30 days to review all reports.
- viii. The operator must obtain THPO concurrence in writing. If historic properties are present, this written concurrence will outline measures to be taken to prevent or mitigate adverse effects to historic properties.

**b. Confederated Tribes of the Umatilla Indian Reservation**

- i. The operator shall be responsible for achieving compliance with the

Confederated Tribes of the Umatilla Indian Reservation's (CTUIR) Water Quality Standards.

- ii. The operator shall submit a copy of the Notice of Intent (NOI) to be covered by the general permit to the CTUIR Water Resources Program at the address below, at the same time it is submitted to EPA.
- iii. The operator shall be responsible for submitting all Stormwater Pollution Prevention Plans (SWPPP) required under this general permit to the CTUIR Water Resources Program for review and determination that the SWPPP is sufficient to meet Tribal Water Quality Standards, prior to the beginning of any discharge activities taking place.
- iv. The operator shall be responsible for reporting an exceedance to Tribal Water Quality Standards to the CTUIR Water Resources Program at the same time it is reported to EPA.

Confederated Tribes of the Umatilla Indian Reservation  
Water Resources Program  
46411 Timine Way  
Pendleton, OR 97801  
(541) 429-7200

- v. The THPO will be provided 30 days to comment on the APE as defined in the permit application.
- vi. If the project is an undertaking, a cultural resource assessment must occur. All fieldwork must be permitted by the Tribal Historic Preservation Office (as appropriate), conducted by qualified personnel (as outlined by the Secretary of Interior's Standards and Guidelines; [http://www.nps.gov/history/local-law/arch\\_stnds\\_0.htm](http://www.nps.gov/history/local-law/arch_stnds_0.htm)) and documented according to Oregon Reporting Standards (Reporting\_Guidelines.pdf (oregon.gov)). The resulting report must be submitted to the THPO and the THPO must concur with the finding of effect and recommendations before any ground disturbing work can occur. The THPO requires 30 days to review all reports.
- vii. The operator must obtain THPO concurrence in writing. If historic properties are present, this written concurrence will outline measures to be taken to prevent or mitigate adverse effects to historic properties.

**9.10.3 WAR10F000 Areas in the State of Washington, except those located on Indian country, subject to construction activity by a Federal Operator**

- a. For purposes of this Order, the term "Project Proponent" shall mean those that are seeking coverage under this permit, and its agents, assignees and contractors.
- b. The Federal Agency shall mean the US Environmental Protection Agency. The Federal Agency shall enforce the permit and ensure that the Project Proponent complies with the conditions of the permits at all times.
- c. Failure of any person or entity to comply with this Certification may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Certification.
- d. The Certification conditions within this Order must be incorporated into EPA's final NPDES permit. Per 40 CFR 121.10(a), all certification conditions herein that satisfy the

requirements of 40 CFR 121.7(d) must be incorporated into the permit. Per 40 CFR 121.10(b), the permit must clearly identify all certification conditions.

- e. This Certification does not authorize exceedances of water quality standards established in chapter 173-201A WAC.
- f. Discharges from construction activity must not cause or contribute to violations of the Water Quality Standards for Surface Water of the State of Washington (chapter 173-201A WAC), Ground Water Quality Standards (chapter 173-200 WAC), Sediment Management Standards (chapter 173-204 WAC), and standards in the EPA's Revision of certain Federal water quality criteria applicable to Washington (40 CFR 131.45). Discharges that do not comply with these standards are prohibited.
- g. Prior to discharge of stormwater and non-stormwater to waters of the State, the Permittee must apply all known, available, and reasonable methods of prevention, control, and treatment (AKART). This includes the preparation and implementation of an adequate Stormwater Pollution Prevention Plan (SWPPP), with all appropriate Best Management Practices (BMPs) installed and maintained in accordance with the SWPPP and the terms and conditions of the permit.
  - i. BMPs must be consistent with:
    - (a) The Stormwater Management Manual for Western Washington (most current approved edition at the time this permit was issued), for sites west of the crest of the Cascade Mountains; or
    - (b) The Stormwater Management Manual for Eastern Washington (most current approved edition at the time this permit was issued), for sites east of the crest of the Cascade Mountains; or
    - (c) Revisions to either manual, or other stormwater management guidance documents or manuals which provide equivalent level of pollution prevention, that are approved by Ecology and incorporated into this permit in accordance with the permit modification requirements of WAC 173-226-230. (For purposes of this section, the stormwater manuals listed in Appendix 10 of the Phase I Municipal Stormwater Permit are approved by Ecology); or
    - (d) Documentation in the SWPPP that the BMPs selected provided an equivalent level of pollution prevention, compared to the applicable stormwater management manuals, including:
      - The technical basis for the selection of all stormwater BMPs (scientific, technical studies, and/or modeling) that support the performance claims for the BMPs being selected.
      - An assessment of how the selected BMP will satisfy AKART requirements and the applicable federal technology-based treatment requirements under 40 CFR part 125.3.

The Stormwater Management Manuals for Eastern and Western Washington can be found at: <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Stormwater-manuals>.
  - ii. An adequate SWPPP must include a narrative and drawings. All BMPs must be clearly referenced in the narrative and marked on the drawings. The SWPPP



narrative must include documentation to explain and justify the pollution prevention decisions made for the project. Documentation must include:  
 (a) Information about existing site conditions (topography, drainage, soils, vegetation, etc.).

(b) Potential erosion problem areas.

(c) The 13 elements of a SWPPP, including BMPs used to address each element. Unless site conditions render the element unnecessary and the exemption is clearly justified in the SWPPP, the 13 elements are as follows:

- Preserve Vegetation/Mark Clearing Limits
- Establish Construction Access
- Control Flow Rates
- Install Sediment Controls
- Stabilize Soils
- Protect Slopes
- Protect Drain Inlets
- Stabilize Channels and Outlets
- Control Pollutants
- Control Dewatering
- Maintain BMPs
- Manage the Project
- Protect Low Impact Development (LID) BMPs

**h.** Discharges of stormwater and authorized non-stormwater must be monitored for turbidity (or transparency) and, in the event of significant concrete work or engineered soils, pH must also be monitored. As applicable based on project specifics, monitoring, benchmarks, and reporting requirements contained in Condition S.4. (pp.10-16) of the Washington State Construction Stormwater General Permit, effective January 1, 2021, shall apply.

**i.** Discharges to segments of waterbodies listed as impaired by the State of Washington under Section 303(d) of the Clean Water Act for turbidity, fine sediment, phosphorus, or pH must comply with the following numeric effluent limits:

Parameter identified in 303(d) listing	Parameter Sampled	Unit	Analytical Method	Numeric Effluent Limit
<ul style="list-style-type: none"> <li>• Turbidity</li> <li>• Fine Sediment</li> <li>• Phosphorus</li> </ul>	Turbidity	NTU	SM2130	25 NTUs at the point where the stormwater is discharged from the site.
High pH	pH	su	pH meter	In the range of 6.5 – 8.5

All references and requirements associated with Section 303(d) of the Clean Water Act mean the most current EPA-approved listing of impaired waters that exists on the

effective date of the permit, or the date when the operator's complete permit application is received by EPA, whichever is later.

The EPA approved WQ Assessment can be found at: <https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d>

- j.** Discharges to a waterbody that is subject to a Total Maximum Daily Load (TMDL) for turbidity, fine sediment, high pH, or phosphorus must be consistent with the TMDL.
  - i.** Where an applicable TMDL sets specific waste load allocations or requirements for discharges covered by this permit, discharges shall be consistent with any specific waste load allocations or requirements established by the applicable TMDL.
  - ii.** Where an applicable TMDL has established a general waste load allocation for construction stormwater discharges, but no specific requirements have been identified, compliance with this permit will be assumed to be consistent with the approved TMDL.
  - iii.** Where an applicable TMDL has not specified a waste load allocation for construction stormwater discharges, but has not excluded these discharges, compliance with this permit will be assumed to be consistent with the approved TMDL.
  - iv.** Where an applicable TMDL specifically precludes or prohibits discharges from construction activity, the operator is not eligible for coverage under this permit.

Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus which has been completed and approved by EPA as of the effective date of the permit, or prior to the date of the operator's complete application for permit coverage is received by EPA, whichever is later.

- k.** Discharges to waters of the state from the following activities are prohibited:
  - i.** Concrete wastewater.
  - ii.** Wastewater from washout and clean-up of stucco, paint, form release oils, curing compounds and other construction materials.
  - iii.** Process wastewater as defined by 40 Code of Federal Regulations (CFR) 122.2.
  - iv.** Slurry materials and waste from shaft drilling, including process wastewater from shaft drilling for construction of building, road, and bridge foundations unless managed to prevent discharge to surface water.
  - v.** Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
  - vi.** Soaps or solvents used in vehicle and equipment washing.
  - vii.** Wheel wash wastewater, unless managed to prevent discharge to surface water.
  - viii.** Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, unless managed according to appropriate controls described within the permit.
- l.** This Certification is valid until the expiration date including any administrative extension or termination date of the NPDES 2022 Construction General Permit. (40 CFR § 122.46)

- m. The Federal Agency shall enforce and the Project Proponent must comply with all the reporting and notification conditions of the NPDES 2022 Construction General Permit in order to comply with this Order and the certification conditions herein (40 CFR § 121.11).
- n. You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do all of the following within 30 days of the date of receipt of this Order:

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person (see addresses below). E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

**ADDRESS AND LOCATION INFORMATION**

Street Addresses	Mailing Addresses
<p><b>Department of Ecology</b>                      Attn: Appeals Processing Desk                      300 Desmond Drive SE                      Lacey, WA 98503</p> <p><b>Pollution Control Hearings Board</b>                      1111 Israel RD SW                      STE 301                      Tumwater, WA 98501</p>	<p><b>Department of Ecology</b>                      Attn: Appeals Processing Desk                      PO Box 47608                      Olympia, WA 98504-7608</p> <p><b>Pollution Control Hearings Board</b>                      PO Box 40903                      Olympia, WA 98504-0903</p>

**CONTACT INFORMATION**

Please direct all questions about this Order to:

Noel Tamboer  
 Department of Ecology  
 P.O. Box 47600  
 Olympia, WA 98503-7600  
 (360) 701-6171  
[noel.tamboer@ecy.wa.gov](mailto:noel.tamboer@ecy.wa.gov)

**9.10.4 WAR10I000 Indian country within the State of Washington**

**a. Lummi Nation**

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- i. This certification does not exempt and is provisional upon compliance with other applicable statutes and codes administered by federal and Lummi tribal agencies. Pursuant to Lummi Code of Laws (LCL) 17.05.020(a), the operator must also obtain a land use permit from the Lummi Planning Department as provided in Title 15 of the Lummi Code of Laws and regulations adopted thereunder.
  - ii. Pursuant to LCL 17.05.020(a), each operator shall develop and submit a Storm Water Pollution Prevention Plan to the Lummi Water Resources Division for review and approval by the Water Resources Manager prior to beginning any discharge activities.
  - iii. Pursuant to LCL Title 17, each operator shall be responsible for achieving compliance with the Water Quality Standards for Surface Waters of the Lummi
  - iv. Indian Reservation (Lummi Administrative Regulations [LAR] 17 LAR 07.010 through 17 LAR 07.210 together with supplements and amendments thereto).
  - v. Each operator shall submit a signed copy of the Notice of Intent (NOI) to the Lummi Water Resources Division at the same time it is submitted electronically to the Environmental Protection Agency (EPA) and shall provide the Lummi Water Resources Division the acknowledgement of receipt of the NOI from the EPA and the associated NPDES tracking number provided by the EPA within 7 calendar days of receipt from the EPA.
  - vi. Each operator shall submit a signed copy of the Notice of Termination (NOT) to the Lummi Water Resources Division at the same time it is submitted electronically to the EPA and shall provide the Lummi Water Resources Division the EPA acknowledgement of receipt of the NOT.
  - vii. Storm Water Pollution Prevention Plans, Notice of Intent, Notice of Termination and associated correspondence with the EPA shall be submitted to:
    - Lummi Natural Resources Department
    - ATTN: Water Resources Manager 2665 Kwina Road
    - Bellingham, WA 98226-9298
- b. Port Gamble S'Klallam Tribe**
- i. No discharge from the project site shall cause exceedances of Port Gamble S'Klallam Surface Water Quality Standards narrative or numeric criteria in Tribal waters. This includes activities outside of Tribal lands that occur upstream of Tribal waters.
    - (a) If any exceedance of these water quality standards occurred, the Natural Resources Department shall be notified immediately.
      - The Department shall additionally be provided a complete draft of the proposed corrective action within a reasonable timeframe and its approval will be required before any corrective action may be taken.
  - ii. Operators performing activities under the CGP that may affect Tribal waters will require a permit and shall submit their plans to the Port Gamble S'Klallam Natural Resources Department for review.
    - The Department has the right to require conditions outside of this Water Quality Certification prior to permit approval.



- iii. No activities allowed under the CGP shall result in the degradation of any Tribal waters or change in designated uses.
  - iv. No activities allowed under the CGP shall affect resident aquatic communities or resident/migratory wildlife species at any life stage.
    - Biological assessment methods used to determine the effect of an activity allowed under the CGP shall be approved by the PGST Natural Resources Department.
  - v. No activities allowed under the CGP shall be conducted within wetland and stream buffer zones, nor shall said activities affect in any way wetland or stream buffers, as defined by *PGST Law and Order Code 24.08.01(c)*.
  - vi. Concentrations for substances listed within the table in *Water Quality Standards for Surface Waters* sec. 7(7) shall not be exceeded by activities allowed under the CGP.
- c. Spokane Tribe of Indians**
- i. Pursuant to Tribal Law and Order Code (TLOC) Chapter 30 each operator shall be responsible for achieving compliance with the Surface Water Quality Standards of the Spokane Tribe. The operator shall notify the Spokane Tribe, Water Control Board (WCB) of any spills of hazardous material and;
  - ii. Each operator shall submit a signed hard copy of the Notice of Intent (NOI) to the WCB at the same time it is submitted to EPA.
  - iii. The permittee shall allow the Tribal Water Control Board or its designee to inspect and sample at the construction site as needed.
  - iv. Each operator shall submit a signed copy of the Notice of Termination (NOT) to the WCB at the same time it is submitted to EPA
- The correspondence address for the Spokane Tribe Water Control Board is:
- Water Control Board c/o Brian Crossley PO Box 480  
Wellpinit WA 99040  
(509)626-4409  
crossley@spokanetribe.com
- d. Swinomish Tribe**
- i. Owners and operators seeking coverage under this permit must submit a copy of the Notice of Intent (NOI) to the DEP at the same time the NOI is submitted to EPA.
  - ii. Owners and operators must also submit to the DEP changes in NOI and/or Notices of Termination at the same time they are submitted to EPA.
  - iii. Owners and operators seeking coverage under this permit must also submit a Stormwater Pollution Prevention Plan to the DEP for review and approval by DEP prior to beginning any discharge activities.
- e. Tulalip Tribes**
- i. Submission of NOI: Copies of the Notice of Intent (NOI), Certification shall be submitted to the Tribe's Natural Resources Department to notify the Tribes of the

pending project and in order for the Tribes to review the projects potential impacts to endangered or threatened species.

- ii. Submission of SWPPP: A copy of the Stormwater Pollution Plans (SWPPPs) shall be submitted to the Tribe's Natural Resources Department along with the NOI during the 30 day waiting period.
- iii. Submission of Monitoring Data and Reports: The results of any monitoring required by this permit and reports must be sent to the Tribe's Natural Resources Department,
- iv. The Tulalip Tribes are federally recognized successors in the interest to the Snohomish, Snoqualmie, Skykomish, and other allied tribes and bands signatory to the Treaty of Point Elliott.
- v. including a description of the corrective actions required and undertaken to meet effluent limits or benchmarks (as applicable).
- vi. Authorization to Inspect: The Tribe's Natural Resources Department may conduct an inspection of any facility covered by this permit to ensure compliance with tribal water quality standards. The Department may enforce its certification conditions.
- vii. Submission of Inspection Reports: Inspection reports must be sent to the Tribe's Natural Resources Department, including a description of the corrective actions required and undertaken to meet effluent limits or benchmarks (as applicable).
- viii. Permits on-site: A copy of the permit shall be kept on the job site and readily available for reference by the construction supervisor, construction managers and foreman, and Tribal inspectors.
- ix. Project Management: The applicant shall ensure that project managers, construction managers and foreman, and other responsible parties have read and understand conditions of the permit, this certification, and other relevant documents, to avoid violations or noncompliance with this certification.
- x. Emergency Spill Notification Requirements: In the event of a spill or the contractor shall immediately take action to stop the violation and correct the problem, and immediately report spill to the Tulalip Tribes Police Department (425) 508-1565. Compliance with this condition does not relieve the applicant from responsibility to maintain continuous compliance with the terms and conditions of this certification or the resulting liability from failure to comply.
- xi. Discharges to CERCLA Sites: This permit does not authorize direct stormwater discharges to certain sites undergoing remedial cleanup actions pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) unless first approved by the appropriate EPA Regional office. In the case of the Tulalip Landfill site (WAD980639256), the Tulalip Tribes also requests notification by the facility and consultation with EPA prior to discharge. Contaminants at this site may include but are not limited to: dioxins, furans, arsenic, copper, lead, zinc, 4- methyl-phenol, Hex-CB, HPAHs, PCBs, PCE, cadmium, mercury, and LPAHs.
- xii. Discharge-related Activities that have Potential to Cause an Adverse Effect on Historic Properties: Installation of stormwater controls that involve subsurface disturbances may potentially have an adverse impact on historic properties.

- xiii.** Procedures detailed in the permit shall be completed. Richard Young, of the Tulalip Tribe's Cultural Resources Department shall be contacted prior to initiating discharge-related activities that may have an impact on historic properties. His contact information is (360) 716-2652, ryoung@tulaliptribes-nsn.gov.
  - xiv.** Invalidation: This certification will cease to be valid if the project is constructed and/or operated in a manner not consistent with the project description contained in
  - xv.** the permit. This certification will also cease to be valid and the applicant must reapply with an updated application if information contained in the permit is voided by subsequent submittals.
  - xvi.** Modification: Nothing in this certification waives the Tulalip Tribes of Washington's authority to issue modifications to this certification if additional impacts due to operational changes are identified, or if additional conditions are necessary to protect water quality or further protect the Tribal Communities interest.
  - xvii.** incorporation by reference: This certification does not exempt the applicant from compliance with other statutes and codes administered by the Tribes, county, state and federal agencies.
  - xviii.** Compliance with Tribe's 1996 Water Quality Standards: Each permittee shall be responsible for controlling discharges and achieving compliance with the Tribe's Water Quality Standards.
  - xix.** Compliant with Tulalip Tribes Tidelands Management Policy: Permittee shall be responsible for achieving compliance with applicable sections of the Tulalip Tribe's Tidelands Management Policy. (Tulalip Tribal Code Title 8 Chapter 8.30).
  - xx.** Compliant with Tulalip Tribes Environmental Infractions: Permittee shall be responsible for achieving compliance with applicable sections of the Tulalip Tribe's Environmental Infractions. (Tulalip Tribal Code Title 8 Chapter 8.20).
  - xxi.** Where to Submit information and for further Coordination: All requested documents should be sent to the: Tulalip Tribes Natural Resources Environmental Department c/o Kurt Nelson and Valerie Streeter, 6704 Marine Drive, Tulalip, Washington 98271. For further 401 Certification coordination with the Tulalip Tribes Natural Resources Department, please contact Mr. Kurt Nelson (360) 716-4617 knelson@tulaliptribes-nsn.gov. 6406 Marine Dr., Tulalip WA 98271.
- f. Makah Tribe**
- i.** The permittee shall be responsible for meeting any additional permit requirements imposed by EPA necessary to comply with the Makah Tribe's Water Quality Standards if the discharge point is located within the Makah's U&A treaty reserved areas.
  - ii.** Each permittee shall submit a copy of the Notice of Intent (NOI) to be covered by the general permit to Makah Fisheries Management, Water Quality Department at the address listed below at the same time it is submitted to the EPA.
    - Makah Water Quality
    - Makah Fisheries Management (MFM)
    - ray.colby@makah.com

PO Box 115  
Neah bay, WA 98357

- iii. All supporting documentation and certifications in the NOI related to coverage under the general permit for Endangered Species Act purposes shall be submitted to the Tribe's Habitat programs for their review.
  - iv. If EPA requires coverage under an individual or alternative permit, the permittee shall submit a copy of the permit to Assistant Fisheries Director, [ray.colby@makah.com](mailto:ray.colby@makah.com).
  - v. The permittee shall submit all Stormwater Pollution Prevention plan (SWPP) to MFM for review and approval prior to beginning any activities resulting in a discharge to Makah tribal waters.
  - vi. The permittee shall notify Ray Colby, [ray.colby@makah.com](mailto:ray.colby@makah.com) (360) 645-3150 prior to conducting inspections at construction sites generating stormwater discharges to tribal waters.
  - vii. The operator shall treat dewatering discharges with controls necessary to minimize discharges of pollutants to surface waters, or ground waters, and from stormwater runoff onsite from excavations, trenches, foundations, or storage areas. To the extent feasible, at all points where dewatering is discharged, comply with the velocity dissipation using check dams, sediment traps, and grouted outlets.
- g. Puyallup Tribe of Indians**
- i. The permittee shall be responsible for meeting any additional permit requirements imposed by EPA necessary to comply with the Puyallup Tribe's antidegradation procedures.
  - ii. Each permittee shall submit a copy of the Notice of Intent (NOI) to be covered by the general permit to Char Naylor, Tribal Water Quality Manager at the following e-mail address: ([char.naylor@puyalluptribe-nsn.gov](mailto:char.naylor@puyalluptribe-nsn.gov)) at the same time it is submitted to EPA.
  - iii. All supporting documentation and certifications in the NOI related to coverage under the general permit for Endangered Species Act purposes shall be submitted to Char Naylor, Tribal Water Quality Manager/Assistant Fisheries Director ([char.naylor@puyalluptribe-nsn.gov](mailto:char.naylor@puyalluptribe-nsn.gov)) for review.
  - iv. If EPA requires coverage under an individual or alternative permit, the permittee shall submit a copy of the permit to Char Naylor at the email address listed above.
  - v. The permittee shall submit all stormwater pollution prevention plans to Char Naylor for review and approval prior to beginning any activities resulting in a discharge to Puyallup tribal waters.
  - vi. The permittee shall contact Brandon Reynon ([Brandon.reynon@puyalluptribe-nsn.gov](mailto:Brandon.reynon@puyalluptribe-nsn.gov)), Tribe's Historic Preservation Officer or Jennifer Keating ([Jennifer.keating@puyalluptribe-nsn.gov](mailto:Jennifer.keating@puyalluptribe-nsn.gov)), Tribe's Assistant Historic Preservation Officer regarding historic properties and cultural resources.
  - vii. To minimize the discharge of pollutants to groundwater or surface waters from stormwater that is removed from excavations, trenches, foundations, vaults, or



other storage areas, treat dewatering discharges with controls necessary to minimize discharges of pollutants. Examples of appropriate controls include sediment basins or sediment traps, sediment socks, dewatering tanks, tube settlers, weir tanks, and filtration systems (e.g., bag or sand filters) that are designed to remove sediment.

To the extent feasible, utilize vegetated, upland areas of the site to infiltrate dewatering water before discharge. At all points where dewatering water is discharged, utilize velocity dissipation controls. Examples of velocity dissipation devices include check dams, sediment traps, riprap, and grouted riprap at outlets.

- viii.** The permittee shall provide and maintain natural buffers to the maximum extent possible (and/or equivalent erosion and sediment controls) when tribal waters are located within 100 feet of the boundaries. If infeasible to provide and maintain an undisturbed 100 foot natural buffer, erosion and sediment controls to achieve the sediment load reduction equivalent to a 100-foot undisturbed natural buffer shall be required.

**Appendix C – NOI and EPA Authorization email**

**To be provided prior to the beginning of construction.**

**Appendix D – Stormwater Construction Site Inspection Form**

## Stormwater Construction Site Inspection Report

General Information			
<b>Project Name</b>	Ground-Mount Solar Development - Winchendon, MA		
<b>NPDES Tracking No.</b>		<b>Location</b>	Winchendon, MA
<b>Date of Inspection</b>		<b>Start/End Time</b>	
<b>Inspector's Name(s)</b>			
<b>Inspector's Title(s)</b>			
<b>Inspector's Contact Information</b>			
<b>Inspector's Qualifications</b>			
<b>Describe present phase of construction</b>			
<b>Type of Inspection:</b>			
<input type="checkbox"/> Regular <input type="checkbox"/> Pre-storm event <input type="checkbox"/> During storm event <input type="checkbox"/> Post-storm event			
Weather Information			
<b>Has there been a storm event since the last inspection?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>If yes, provide:</b>			
Storm Start Date & Time:	Storm Duration (hrs):	Approximate Amount of Precipitation (in):	
<b>Weather at time of this inspection?</b>			
<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Fog <input type="checkbox"/> Snowing <input type="checkbox"/> High Winds			
<input type="checkbox"/> Other:		Temperature:	
<b>Have any discharges occurred since the last inspection?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>If yes, describe:</b>			
<b>Are there any discharges at the time of inspection?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>If yes, describe:</b>			

### Site-specific BMPs

- *Number the structural and non-structural BMPs identified in your SWPPP on your site map and list them below (add as many BMPs as necessary). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required BMPs at your site.*
- *Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.*

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes
1	Silt Fencing	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2	Construction Entrance	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	



**Overall Site Issues**

*Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.*

	<b>BMP/activity</b>	<b>Implemented?</b>	<b>Maintenance Required?</b>	<b>Corrective Action Needed and Notes</b>
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4	Are discharge points and receiving waters free of any sediment deposits?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5	Is the construction exit preventing sediment from being tracked into the street?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6	Is trash/litter from work areas collected and placed in covered dumpsters?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
7	Are materials that are potential stormwater contaminants stored inside or under cover?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

**Non-Compliance**

Describe any incidents of non-compliance not described above:

**CERTIFICATION STATEMENT**

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

**Print name and title:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Appendix E – Corrective Action Form**



**Appendix F – SWPPP Amendment Log**





**Appendix G –Subcontractor Certifications/Agreements**

**Subcontractor Certifications/Agreements**

SUBCONTRACTOR CERTIFICATION  
STORMWATER POLLUTION PREVENTION PLAN

Project Title: Ground-Mount Solar Development - Winchendon, MA  
Operator(s): \_\_\_\_\_

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

**I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the practices described in the SWPPP.**

This certification is hereby signed in reference to the above named project:

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Type of construction service to be provided: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Appendix H –Grading and Stabilization Activities Log**



**Appendix I – Training Log**



## SWPPP Training Log

### Stormwater Pollution Prevention Training Log

Project Name: Ground-Mount Solar Development - Winchendon, MA

Project Location: 185 Baldwinville Road, Winchendon, MA

Instructor's Name(s): \_\_\_\_\_

Instructor's Title(s): \_\_\_\_\_

Course Location: \_\_\_\_\_

Date: \_\_\_\_\_

Stormwater Training Topic: *(check as appropriate)*

- Sediment and Erosion Controls**
- Emergency Procedures**
- Stabilization Controls**
- Inspections/Corrective Actions**
- Pollution Prevention Measures**

Attendee Roster:

No.	Name of Attendee	Company
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

**Appendix J –Delegation of Authority Form**

## Delegation of Authority Form

I, \_\_\_\_\_ (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the Construction General Permit, at the Ground-Mount Solar Development - Winchendon, MA construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

\_\_\_\_\_ (name of person or position)  
\_\_\_\_\_ (company)  
\_\_\_\_\_ (address)  
\_\_\_\_\_ (city, state, zip)  
\_\_\_\_\_ (phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in Appendix I of EPA's Construction General Permit (CGP), and that the designee above meets the definition of a "duly authorized representative" as set forth in Appendix I.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**Name:** \_\_\_\_\_  
**Company:** \_\_\_\_\_  
**Title:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_  
**Date:** \_\_\_\_\_

**Appendix K – Endangered Species Documentation**

**To be provided prior to the beginning of construction.**

**Appendix L – Historic Properties Documentation**

**To be provided prior to the beginning of construction.**



**Appendix M – Receiving Water Quality Documentation**

# Baldwinville Road, Winchendon, MA



## Property Tax Parcels

## Areas of Critical Environmental Concern

### ACECs Boundaries

- ROAD/RAIL BASED
- RIVER BASED
- WETLAND BASED
- FLOODPLAIN BASED
- TIDAL BASED
- CONTOUR BASED
- POLITICAL BOUNDARY
- PROPERTY LINE BASED
- OTHER
- NOT DEFINED

## NHESP Estimated Habitats of Rare Wildlife



## NHESP Priority Habitats of Rare Species



## NHESP Certified Vernal Pools



## Potential Vernal Pools



## IWPAs



## Public Water Supplies

- Community Groundwater Well
- Non-Community Groundwater Well
- Surface Water Intake
- Emergency Surface Water Intake
- Community Labels
- Non-Community Labels

## Zone Is



## Zone IIs



## Prime Forest Land

- Prime 1
- Prime 2
- Prime 3
- Statewide Importance
- Local Importance
- Prime 3 Wet
- Statewide Importance Wet
- Local Importance Wet
- Unique Wet
- Non-Forested Land

**Appendix N – Rainfall Data**



NOAA Atlas 14, Volume 10, Version 3  
 Location name: Winchendon, Massachusetts,  
 USA\*  
 Latitude: 42.6244°, Longitude: -72.0598°  
 Elevation: 1022.86 ft\*\*



\* source: ESRI Maps  
 \*\* source: USGS

**POINT PRECIPITATION FREQUENCY ESTIMATES**

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF\\_tabular](#) | [PF\\_graphical](#) | [Maps & aerials](#)

**PF tabular**

<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)<sup>1</sup></b>										
<b>Duration</b>	<b>Average recurrence interval (years)</b>									
	<b>1</b>	<b>2</b>	<b>5</b>	<b>10</b>	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>	<b>1000</b>
<b>5-min</b>	0.315 (0.252-0.392)	0.373 (0.299-0.465)	0.468 (0.373-0.587)	0.546 (0.433-0.688)	0.654 (0.500-0.862)	0.736 (0.549-0.991)	0.821 (0.592-1.15)	0.917 (0.622-1.32)	1.05 (0.685-1.57)	1.17 (0.737-1.77)
<b>10-min</b>	0.446 (0.358-0.556)	0.528 (0.423-0.659)	0.662 (0.529-0.829)	0.774 (0.614-0.974)	0.927 (0.708-1.22)	1.04 (0.778-1.41)	1.16 (0.839-1.63)	1.30 (0.883-1.87)	1.49 (0.970-2.22)	1.65 (1.04-2.51)
<b>15-min</b>	0.524 (0.421-0.654)	0.621 (0.498-0.775)	0.779 (0.622-0.976)	0.911 (0.722-1.15)	1.09 (0.833-1.44)	1.23 (0.916-1.65)	1.37 (0.987-1.92)	1.53 (1.04-2.19)	1.76 (1.14-2.61)	1.94 (1.23-2.95)
<b>30-min</b>	0.722 (0.579-0.900)	0.853 (0.683-1.06)	1.07 (0.852-1.34)	1.25 (0.987-1.57)	1.49 (1.14-1.96)	1.67 (1.25-2.26)	1.87 (1.35-2.61)	2.08 (1.42-2.99)	2.40 (1.56-3.57)	2.66 (1.68-4.04)
<b>60-min</b>	0.919 (0.737-1.15)	1.08 (0.869-1.35)	1.35 (1.08-1.70)	1.58 (1.25-1.99)	1.89 (1.44-2.49)	2.12 (1.58-2.86)	2.36 (1.71-3.31)	2.64 (1.79-3.79)	3.04 (1.98-4.52)	3.37 (2.13-5.12)
<b>2-hr</b>	1.14 (0.923-1.42)	1.37 (1.10-1.69)	1.73 (1.39-2.15)	2.03 (1.62-2.54)	2.44 (1.88-3.21)	2.75 (2.07-3.71)	3.09 (2.25-4.33)	3.48 (2.37-4.96)	4.07 (2.65-6.02)	4.57 (2.90-6.90)
<b>3-hr</b>	1.30 (1.05-1.60)	1.56 (1.26-1.92)	1.98 (1.60-2.46)	2.34 (1.87-2.92)	2.83 (2.19-3.70)	3.19 (2.41-4.28)	3.58 (2.62-5.02)	4.05 (2.77-5.76)	4.77 (3.11-7.03)	5.38 (3.42-8.09)
<b>6-hr</b>	1.61 (1.32-1.98)	1.95 (1.59-2.39)	2.50 (2.03-3.07)	2.95 (2.38-3.65)	3.58 (2.78-4.66)	4.04 (3.07-5.40)	4.54 (3.35-6.34)	5.16 (3.53-7.28)	6.10 (4.00-8.94)	6.92 (4.41-10.3)
<b>12-hr</b>	2.00 (1.64-2.44)	2.42 (1.98-2.95)	3.10 (2.53-3.79)	3.66 (2.97-4.51)	4.44 (3.47-5.75)	5.01 (3.83-6.65)	5.63 (4.18-7.81)	6.40 (4.40-8.98)	7.57 (4.98-11.0)	8.58 (5.49-12.7)
<b>24-hr</b>	2.38 (1.97-2.88)	2.89 (2.38-3.50)	3.71 (3.05-4.51)	4.39 (3.58-5.37)	5.33 (4.19-6.85)	6.02 (4.63-7.94)	6.78 (5.05-9.33)	7.69 (5.31-10.7)	9.10 (6.00-13.1)	10.3 (6.61-15.2)
<b>2-day</b>	2.73 (2.27-3.28)	3.32 (2.76-3.99)	4.29 (3.55-5.18)	5.10 (4.19-6.19)	6.21 (4.91-7.93)	7.03 (5.43-9.20)	7.92 (5.92-10.8)	9.00 (6.24-12.5)	10.7 (7.05-15.3)	12.1 (7.77-17.7)
<b>3-day</b>	2.97 (2.48-3.56)	3.62 (3.02-4.34)	4.69 (3.89-5.63)	5.57 (4.60-6.74)	6.79 (5.39-8.64)	7.69 (5.96-10.0)	8.66 (6.50-11.8)	9.84 (6.84-13.6)	11.7 (7.73-16.7)	13.2 (8.51-19.2)
<b>4-day</b>	3.20 (2.68-3.82)	3.89 (3.25-4.65)	5.02 (4.18-6.02)	5.96 (4.92-7.18)	7.24 (5.76-9.19)	8.20 (6.37-10.7)	9.23 (6.93-12.5)	10.5 (7.30-14.4)	12.4 (8.23-17.7)	14.0 (9.05-20.4)
<b>7-day</b>	3.85 (3.25-4.57)	4.61 (3.88-5.48)	5.85 (4.89-6.97)	6.87 (5.71-8.24)	8.28 (6.62-10.4)	9.33 (7.27-12.0)	10.5 (7.87-14.1)	11.8 (8.25-16.1)	13.8 (9.22-19.6)	15.6 (10.1-22.5)
<b>10-day</b>	4.50 (3.80-5.32)	5.29 (4.46-6.26)	6.57 (5.52-7.80)	7.64 (6.37-9.12)	9.10 (7.29-11.4)	10.2 (7.96-13.1)	11.4 (8.54-15.2)	12.7 (8.92-17.3)	14.7 (9.84-20.8)	16.4 (10.6-23.6)
<b>20-day</b>	6.48 (5.52-7.61)	7.30 (6.20-8.58)	8.63 (7.30-10.2)	9.74 (8.18-11.6)	11.3 (9.05-13.9)	12.4 (9.71-15.7)	13.6 (10.2-17.8)	14.9 (10.5-20.1)	16.6 (11.1-23.2)	17.9 (11.7-25.6)
<b>30-day</b>	8.13 (6.95-9.51)	8.97 (7.65-10.5)	10.3 (8.78-12.1)	11.5 (9.68-13.6)	13.0 (10.5-16.0)	14.3 (11.2-17.8)	15.5 (11.5-19.9)	16.6 (11.8-22.3)	18.1 (12.2-25.2)	19.2 (12.5-27.4)
<b>45-day</b>	10.2 (8.73-11.8)	11.1 (9.47-12.9)	12.5 (10.7-14.6)	13.7 (11.6-16.1)	15.4 (12.4-18.7)	16.7 (13.1-20.7)	17.9 (13.4-22.8)	19.0 (13.5-25.4)	20.3 (13.8-28.2)	21.2 (13.9-30.1)
<b>60-day</b>	11.9 (10.2-13.8)	12.8 (11.0-14.9)	14.4 (12.3-16.7)	15.6 (13.3-18.3)	17.4 (14.1-21.0)	18.8 (14.7-23.2)	20.1 (15.0-25.5)	21.2 (15.1-28.2)	22.5 (15.2-31.0)	23.3 (15.3-33.0)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

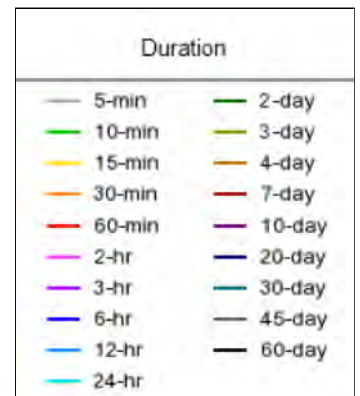
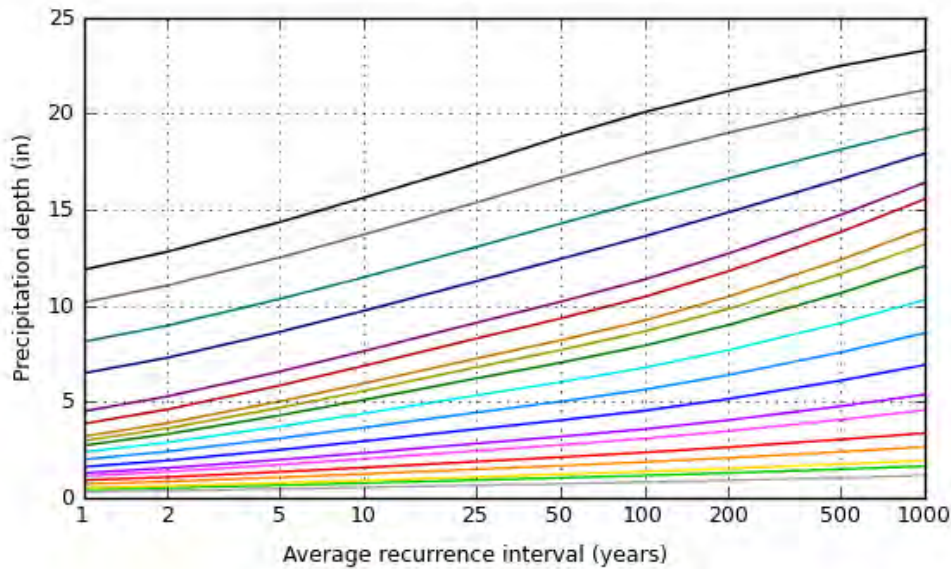
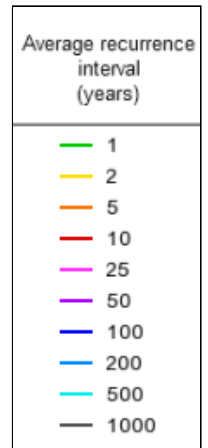
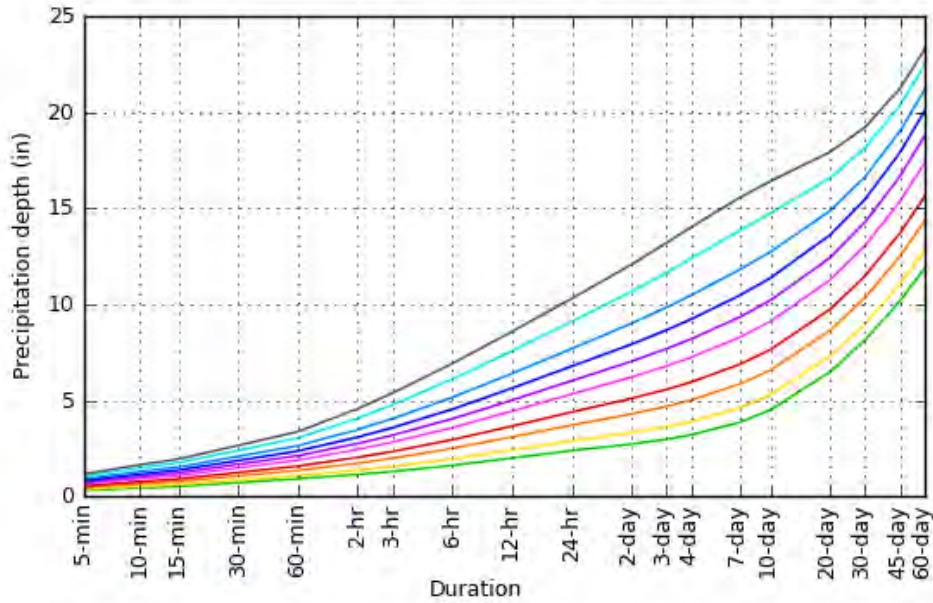
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**PF graphical**



PDS-based depth-duration-frequency (DDF) curves

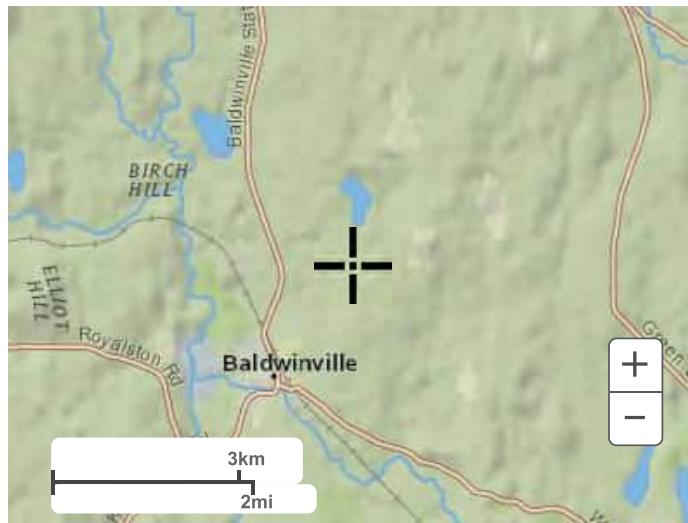
Latitude: 42.6244°, Longitude: -72.0598°



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**Maps & aerials**

**Small scale terrain**



Large scale terrain



Large scale map



Large scale aerial



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