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Clean Water Project Flood Response Survey: Guidance

Developed by the Clean Water Initiative Program

Contents

Background

The Department of Environmental Conservation (DEC) Clean Water Initiative Program (CWIP) funds, tracks, and accounts for priority clean water projects to restore Vermont's waters and communicates progress toward meeting water quality goals. Projects that are DEC-CWIP funded are tracked in the Watershed Projects Database (WPD) and used to account progress on clean water restoration plans known as Total Maximum Daily Loads (TMDLs).

Vermont has experienced catastrophic rain and flooding events statewide that severely impacted local communities, businesses, organizations, and homes. As Vermont moves into the recovery phase, DEC needs to assess the extent of damage to DEC-funded clean water projects to understand what impact these storms have had on our collective progress towards meeting Vermont's water quality goals.

The Clean Water Project Verification Program

DEC has developed tools, guidance, and training for clean water partners to perform Clean Water Project Verification, with an emphasis on verification of projects funded through the Clean Water Service Provider network. Currently available tools and trainings for Clean Water Project Verification are available on the Verification and O&M webpage. The term "verification" refers to the use of visual and measured indicators to assess the status and condition of a clean water project.

Recognizing that many of our Clean Water Partners are already out in the field assessing flood and rain impacts, the critical nature of timely photos and flood damage documentation, and the wide geographic impact of recent flooding and rain events outside the Clean Water Service Provider area, DEC has developed this guidance specifically for a statewide **Clean Water Project Flood Response Survey** (or **Flood Response Project Survey**).

About the Flood Response Project Survey

The goals of the flood response project survey are to:

1. Support partners in examining the extent of damages to clean water projects and establishing workload priorities for maintenance, repair, and/or relocation of projects,
2. Assess the extent and location of damages as it informs funding gaps and priorities,
3. Identify high priority areas for future Clean Water Project Verification visits, and
4. Learn which projects did or did not succeed and why (if determinable).

Please note that DEC welcomes all survey findings. The flood response project survey is not looking to penalize any partners or Operation and Maintenance Responsible Parties for projects that are found in need of maintenance.

DEC sets no requirement for partners to visit and assess projects for flood impacts at this time. We recognize, however, that partners may have already done this or plan to do this type of work. As part of our flood response project survey efforts, DEC is asking partners who are visiting or who have visited DEC-funded clean water projects, to share the information they have gathered on the status and condition of the project in a standard format. **The flood response project survey and protocol as outlined in this document provides DEC's standard format.**

Funding to Support Flood Response Project Survey

DEC has identified a few funding opportunities available for partners to support their time performing these site visits and reporting back to DEC. Should partners choose to use these listed funding

sources to support their flood impact assessment work, they are required to use the flood response project survey and protocol outlined in this document. For all other partners self-funding their efforts, DEC is requesting partner participation and use of these materials. Below are the available DEC funding opportunities to support this initiative:

1. **Woody Buffer Block Grants**. Woody Buffer Block Grants include enhanced survivorship treatment practices as part of their scope of work. This includes "assessing prior planting projects for condition to prioritize sites for enhanced survivorship treatment." Should sub-grantees with access to this funding perform said assessments in response to concerns about flood impacts, they should use the flood response project survey and protocol to report on findings. DEC has worked with the Woody Buffer Block Grant Funding Program Administrators to adjust for this deliverable. Partners who would like to access this funding for flood response project survey completion can learn more by contacting the Woody Riparian Buffer Planting Block Grant Funding Program Administrators. You can find their contact information on the [CWIP Funding Opportunities](#) site page. Note this funding can only be used on sites supported in whole or in part with DEC funds and registered within the [Clean Water Project Explorer](#) as a completed project with "River – Planting" project type.

2. **Clean Water Workforce Capacity Development Initiative Block Grant Pilot**. DEC added a fourth priority goal to this pilot block grant initiative that supports organizational or community-level flood relief and recovery efforts. This includes supporting entities who are performing preliminary assessments of clean water project losses and workload planning/priority setting in response to the flooding events. More information on this can be found in the Flood Response and Recovery Addendum to the Clean Water Workforce Capacity Development Initiative Summary Document found on the [CWIP Grants landing page](#). The Clean Water Workforce Capacity Development Initiative Block Grant will be executed allowing pre-award costs starting on July 10, 2023. The pre-award cost eligibility is restricted to activities and expenses targeting priority goal 4. Note that while the Funding Program Administrator is awarded this pre-award cost eligibility, potential sub-grantees for this block grant would still need to apply and be selected for funding to be able to request reimbursement on expenses related to completing the flood response project survey and reporting.

Prioritizing Flood Response Visits

Partners may choose whether or not to use DEC funding to support this work and which projects to verify. Below are suggested considerations and resources to assist with locating clean water projects and prioritizing visits:

1) Prioritize projects in locations that received flooding or heavy rainfall.
2) Prioritize newer projects over older projects that may or may not have already been failing prior to the flooding events.
3) Prioritize projects that are geographically clustered for efficiency.
4) Prioritize project types most at risk during flooding events.
5) Prioritize sites or projects that are accessible and safe to visit.

The table below provides more resources and tips on how to perform this prioritization.

Prioritize:	Resources/Tips:
Projects in locations that received flooding or heavy rainfall.	- USGS Stream Flow Data: look up any USGS gage for the real time hydrograph/flow (CFS) and/or also show a definable time period. - NOAA Meteorological stations: use the "observed weather" tab for daily precipitation levels (need to click on preliminary monthly climate data and then a station).
Newer projects over older projects that may or may not have already been failing prior to the flooding events.	- Watershed Projects Database - Clean Water Project Explorer
Projects that are geographically clustered for efficiency.	- Clean Water Project Explorer - Mapping Resource
Projects most at risk during flooding events.	- Gully Stabilization projects - Stream and Floodplain restorations - Dam removal projects - Wetland Restorations - Strategic woody addition projects
Sites or projects that are accessible and safe to visit.	Obtain landowner permission to access project

Flood Response Project Survey Protocol

Roles and Responsibilities

In order not to overwhelm landowners, DEC strongly suggests that the entity who led the installation of the clean water project or who is listed as a responsible party on the Operation and Maintenance (O&M) Agreement be the primary point of contact (or if not feasible, coordinate with the primary point of contact) with the current landowner of the project site location, to coordinate and/or perform the flood response project survey.

Flood Response Project Survey Tools

DEC is providing a couple tools to assist partners in conducting the flood response project survey. One is the Survey123 checklist to collect data in the field. The Survey123 checklist is used to gather images and information on the condition and impact of flooding on clean water projects. The other is mapping resources to help partners find projects that they or their organization implemented and identify projects for a visit.

Mapping Resources

- Flood Response Project Survey Dashboard: DEC created a mapping resource using ArcGIS Dashboard that shows completed clean water project's location with filters to aid prioritization of projects for site visits. Included in this resource are projects that have been identified as existing in flood prone areas that can assist with prioritizing which projects to visit. *Note: this resource may not have up to date information from the Watershed Projects Database.*
    - To access, you will need to log into ArcGIS. Use the login information found in Accessing Tools and Setup section.

- [Clean Water Project Explorer](#): an interactive application that displays clean water project information, including funding, results, and nutrient reductions from the State of Vermont's clean water tracking database. Users can search clean water project data from six state agencies and download individual project reports.

Accessing Tools and Setup

The ESRI Survey123 application is used to conduct the flood response project survey to gather information and images about the project's condition and details on flooding impacts.

Follow the instructions listed below to access the Survey123 application. The ArcGIS DEC partner field account login can also be used to access the ArcGIS Flood Response Project Survey Dashboard

1) Download Survey123 onto the phone or tablet (ensure the device is camera and GPS empowered) that you will be using to conduct the survey.

ArcGIS Survey123
Utilities
Designed for iPad. Not verified for macOS.

Get
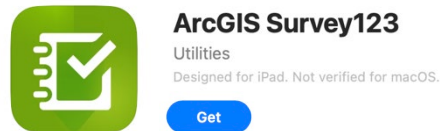
- Android users, download [Survey123](#) from the Google Play Store.
- Apple users, download [Survey123](#) from Apple Store.

2) Sign into ArcGIS Survey123 mobile application using ArcGIS account. If you are a member of the Clean Water Project Verification Group, then you can use that account to access the tool.[1] If you are not a member, you can use the following DEC partner field account to access Survey123.
- Username: DECpartner
- Password: Env1r0nment@vt

Your device is online
Sign in

Settings

About
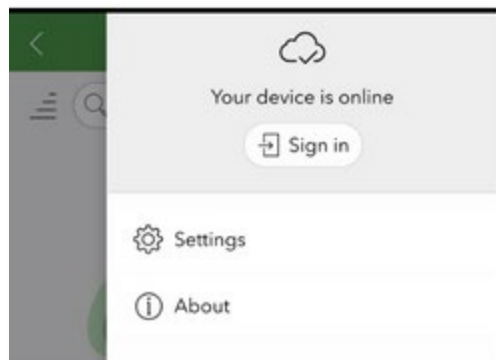
3) Once signed in, select 'Download Surveys' and search for Flood Response Project Survey and select download. If you have already downloaded surveys you may need to select your login icon and then download surveys. Below are some helpful images to direct you.

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[1] Under the Clean Water Project Verification Program, clean water partners have access to the Clean Water Project Verification Group that allows DEC to give permission to partners to access Verification checklists and resources. If you are already a member of the Group, you can login using the credentials you used to request membership. If you are not currently a member but would like to be, see Page 10 of the [Clean Water Project Verification SOP](#) for instructions.
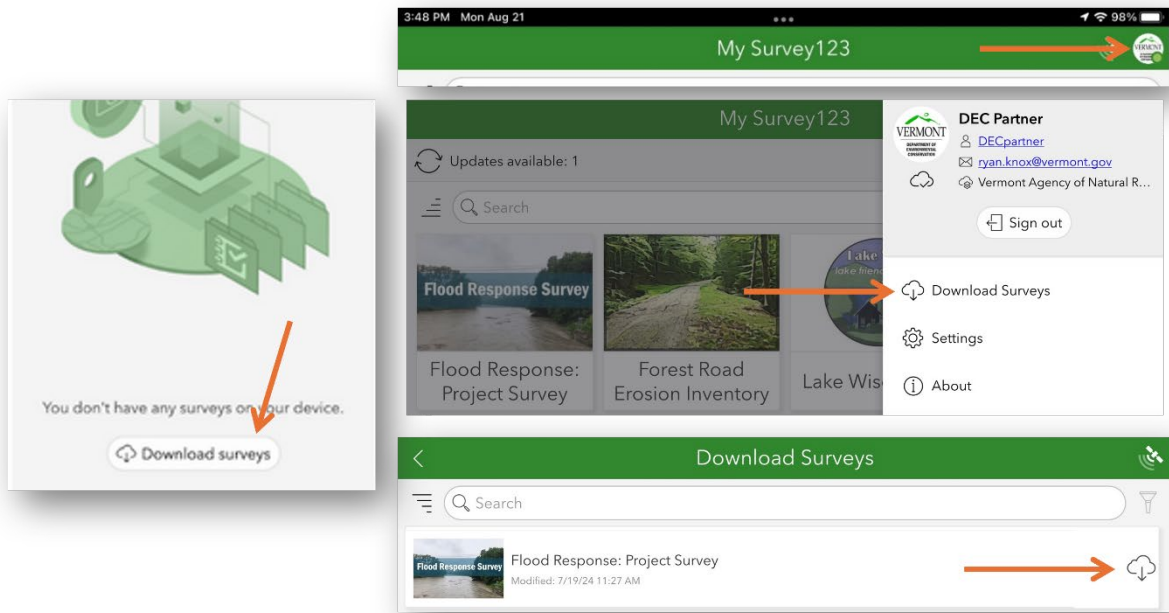
4) If you are having difficulties accessing the tools, reach out to Rachel Wood at Rachel.wood@vermont.gov for assistance.
5) If the Survey123 application does not work for you, the alternative method is to collect and submit data using an excel spreadsheet. The spreadsheet is titled Flood Response Project Survey Submissions and can be found here (https://dec.vermont.gov/water-investment/cwi/grants/resources). Submit completed spreadsheet to Rachel Wood at Rachel.wood@vermont.gov.

Flood Response Project Survey Steps

1) Identify and prioritize project sites to visit.
2) Review the project's O&M agreement information. If you are unable to access your O&M agreement for a particular project, please contact DEC. Submit request to Rachel Wood at Rachel.wood@vermont.gov and provide WPD ID and Title of the project.
3) Track down landowner contact information. If the implementing organization no longer has a record of the landowner contact information they may find mailing information on the parcel layer data in ANR Online or consider other resources to get in contact with the landowner.
4) Schedule visit(s) with landowner (suggest at least 48 hours in advance).
5) Use desktop resources to fill out Section 1: Project Information in the flood response project survey.
   a. Watershed Projects Database Search
   b. Clean Water Project Explorer
   c. ANR Atlas
6) Visit site and complete remaining sections of the survey.
7) Review Next Steps Decision Table section of this document to follow up on projects depending on findings.

Instructions on answering the survey questions:

Question Number	Survey Question	Tips, Tricks, and Considerations when completing the Flood Response Project Survey
1	Organization	List the organization that is conducting this visit.
2	Name	List the name of the main person conducting the site visit, if multiple people are assisting, please only list a main point of contact in case of follow up questions about the data provided. If you would like the others who were in attendance to be included, please add this note to Question 20.
3	Watershed Projects Database (WPD) ID	If the project was implemented using DEC- Clean Water Fund dollars, the project should have a Watershed Projects Database (WPD) ID. To find the WPD ID number, you can key word search the Watershed Projects Database or use the Clean Water Projects Explorer If you are unable to find your project's WPD-ID please speak with your Watershed Planner.
4	Clean Water Project (BMP) ID	Some projects have multiple/distinct practices, such as a bioretention and subsurface infiltration, that were installed under the same WPD ID. If this is the case, please include the BMP ID in the survey and fill out separate collection forms for each practice. The Clean Water Project (aka Best Management Practice or BMP) ID can be found by searching for the WPD-ID number in the WPD, clicking on "Project Details" and scrolling to the BMP System section.
5	Project Name	Project names can be found in WPD. (This question is not required since this information is available in our database if you opt not to include it. Project name will allow us to cross reference and QA/QC our database to ensure correct project updates based on survey findings.)
6	Watershed Basin ID	To determine which Watershed Basin your project is located in, search here: Basins and Planners | Department of Environmental Conservation (vermont.gov)
7	Please describe the current status of the landowner relationship:	These are some topics we would like you to address in response to this question. Consider exploring these when you reach out to the landowner to obtain permission to access their property to verify the project. • Has the landowner or organization staff changed since the project was implemented? • Is the current landowner aware of the project and existing O&M responsibilities? • Is the current landowner willing to uphold the O&M agreement terms? • Does the O&M plan need to be updated? (See Decision Table for more information/suggested next steps.).
8	Will the landowner allow access to verify the project?	If the landowner does not allow access to the property, select no for question #8, record any notes from your conversation with the landowner in Question #7, complete the rest of the questions as best you can, and submit the survey. Even though you couldn't verify the projects' function post flooding event, the information on access to property is helpful to collect.

|		See Decision Table for more information/suggested next steps.
9	Project Location	When using the Survey123 application, your phone's GPS will provide a latitude/longitude for where you are. Complete this step while in the field at the project location. This helps to verify location data and update project locations in our database if needed. If you are completing the survey for a previously visited project, you can navigate to the project for location information or input already established location information available on the Operation & Maintenance Plan.
10	Date of Site Visit	The date you visited the project will allow us to know how long after the flooding/high rainfall event this site visit took place.
11	**Are you able to locate the project?**	If the project is locatable, that means that you can find some trace of the project even if very minimal project components remain after the flooding. If you cannot find any trace of the project, select "No", take photos of where you think the project might have once been, complete the rest of the survey as best you can, then submit. If unable to determine if the project exists, whether due to lack of landowner permission, physically unable to access site safely, or unable to find based on location description, select "Unable to determine". See Decision Table for more information/suggested next steps.
PHOTOS	Photo 1 -4	It is recommended that you take at least four photos of the project. More are welcome! <u>Using Survey123 to Capture Photos:</u> In the Survey123 application, you can either take a photo while in the application (select camera icon) or take photos on your device and upload to the survey form (folder icon). Note: best practice is to take photos on your device and upload to survey123. <u>Submitting Additional Photos in Survey123:</u> This survey is set up to allow multiple photo submissions. Once you add a photo, you can continue to capture and include multiple photos under that same submission. <u>Some Recommended Photos by Project Type:</u> For structural stormwater projects it is recommended that you take a photo of the whole project, a photo at the project inlet, photo within the project, and photo at the project outlet to get a good sense of the project's condition. For buffer plantings, try to get images of any bank erosion along the stream/river, evidence of sediment deposition, tree damage/loss, and erosion caused by flooding. For road projects include images of any culverts associated with the project, road erosion, and sediment deposition.

		How to submit photos if using the excel version: The following photo submission process and file naming procedure should be used if you are completing the survey through the excel version: please name the photo file name as WPDID_Photo# and include a description of the photo content and send to Rachel Wood at Rachel.wood@vermont.gov.
12	Please indicate which factors might be affecting the projects' function, select all that apply:	The list of factors in question 12 is not all-inclusive and you may come across unique situations that require more description to accurately describe the factors affecting the projects' function. In which case, please select "Other" and include additional context in the notes section of question 13.
13	Please elaborate on your above answer:	Space to include additional notes to describe what factors you are seeing affecting the projects' function.
14	Considering the potential causes for project impact, what is your recommended action to return project to full functionality?	Select the descriptions that best apply to the project's current situation. Intent behind and definition of question options: • No action – We want to know which projects were affected and not affected. It's okay to go out to a project and find it hasn't been impacted by the flooding/high rainfall event. Complete the survey as best you can and include notes on the condition of the project, if the project doesn't appear functional, noting this can flag the project for a follow up Clean Water Project Verification Visit (as applicable). • Standard Maintenance – Actions as outlined in Operation & Maintenance plan are adequate to return project to full functionality. • Repair – Actions above and beyond what is outlined in the Operation & Maintenance plan are needed to return the project to full functionality. Flagging projects needing repair will allow DEC to determine total need for project repair and support budget setting of one-time funds to meet this need. • Relocate – Does the location of this project no longer make sense given the changing landscape (e.g., river flooding altered floodplain). • Unable to determine - selecting this option will flag to DEC for follow up. Take as many photos as you can of the project to help depict the condition of the project and include a description in question 15 of what you are seeing and what questions you have that are making it difficult to determine. • Other – have a different suggestion for the project? For example, perhaps you think the project should be decommissioned? Or the landowner isn't currently allowing access and you have suggestions for landowner relations

		next steps? Please include additional information in the notes section question 15. See Decision Table for more information/suggested next steps.
15	Please elaborate on your above answer:	Based on answer to question 14, include additional context and notes on what you suggest needs to be done for this project specifically. Some examples of what we are looking for here are "maintenance required – some shovels and wheelbarrows needed to remove excess sediment" or "unable to determine extent of damage due to large debris blocking view of majority of the project".
16	Are repairs and/or maintenance:	Important to flag if maintenance/repairs are already planned, underway, or completed to determine prioritization of future Clean Water Project Verification visits (as applicable).
17	If repairs/maintenance are planned, underway, or completed please list who is doing the work and how the project is being repaired	Please include: • Who is doing the maintenance/repair work • Description of repair/maintenance activities • If possible – the total projected/actual cost of this work • Projected or actual date of repair/maintenance
18	Do you see potential for new projects (including reinstall or relocation of existing projects) at this site?	While you are in the field, we recognize that you may see potential areas for future clean water projects. Or you may see a preferred new location for a current project. Please use this question to record high level information on this potential project identification and see Flood Response Decision tree for more information/next steps.
19	What makes this new project a potential priority for this basin?	Please indicate your reasoning for why this project might be a priority for this location/basin? We will share this information with Watershed Planners.
20	Has the landowner applied, or do they plan to apply for any kind of FEMA reimbursement to cover any damage or repair costs associated	Select the appropriate response and include any pertinent details in the additional space for notes in question 21.

|	with this project?	
21	Additional space to provide notes from the field:	Additional space to provide any field notes or comments that you feel aren't reflected by answers to previous questions.

Survey123 Tips/Tricks

    a. How to save a "Draft" survey submission:

        i. Users can start the flood response project survey, save as a draft, then return to complete and submit later as long as they use the same method (e.g., use the same phone application to draft and submit data). To do this, open the survey and begin to fill out sections. When you go to exit the survey, a pop-up shows "Close Survey" with options below, one of which is "Save in Drafts".
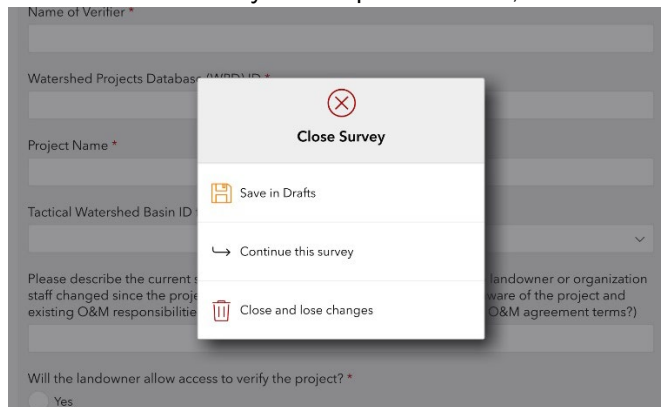

        ii. To open up a saved Draft: When you return to continue a drafted submission, users will see an orange "Drafts" option below "Collect" where you can pick up where you left off.

    b. How to save in Outbox:

        i. If you have completed the required survey questions but aren't quite ready to send (once you send, you cannot edit/only view) you can use the "Outbox" feature to then return to complete the survey. To do this, select the check mark on the bottom right as if to submit/complete the survey and "Save in Outbox". This will function similarly as the "Save in Drafts" (see above example).
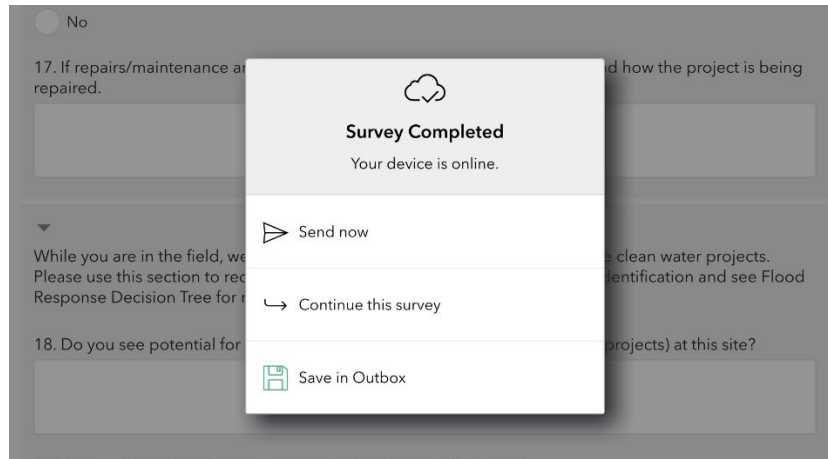
c. Viewing previously submitted surveys:
   i. Once you have "Sent" or submitted a survey, you will have a "Sent" folder where you can view your previous submissions. You cannot edit once you have sent a survey submission.
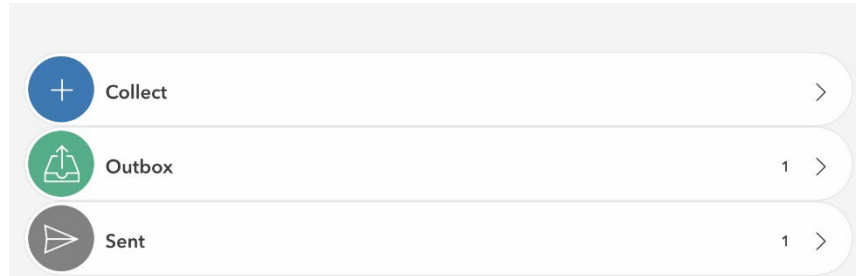
d. Survey123 with no service:
   i. Survey123 can be used when you are offline or do not have service. While in the field, complete the survey as normal, then select the bottom right check mark to complete. When offline you won't be able to send the survey, instead "Save in Outbox" so you can submit when you return to the office and have service or access Wifi.

Next Steps Decision Table

The below table is intended to direct you to next steps and resources based on the flood response project survey findings.

Outcome/Decision	Next Step and Resources
Landowner changed	If the landowner has changed ask if the current landowner is willing to uphold the O&M agreement. If Yes they are willing: • Complete new O&M plan found here: https://dec.vermont.gov/water-investment/cwi/grants/resources#O&M.

	• Send updated O&M plan to Rachel Wood at Rachel.wood@vermont.gov • Note the landowner changes in the flood response project survey. If No they are not willing: • Record notes on this change in flood response project survey. Complete the remaining questions in the survey as best you can and submit.
Landowner not allowing access for site visit	Record notes on landowner relationship, reason for not allowing access, and that they are not allowing access in the flood response project survey. Complete the remaining questions in the survey as best you can, note the option for NA – Landowner not allowing access for some required questions.
Project doesn't exist	Complete the remaining questions in the flood response project survey as best you can. Would you suggest the project be reinstalled or redesigned at this same location? Write some notes in Section 3: Optional Additional Information section of the flood response project survey. If yes, see "Potential for New Projects while conducting the flood response project survey" section below for next steps.
Actions to return project to full functionality	If Standard Maintenance • Defer to O&M plan for responsible party and tasks • If in Lake Champlain or Lake Memphremagog a Clean Water Service Provider may be interested in adopting the project and performing the maintenance. Consider consulting with them on the potential project adoption site. To find the Clean Water Service Provider go here: https://dec.vermont.gov/water-investment/statues-rules-policies/act-76/cwsp-network If Repair Project • Consult with technical experts to determine repair needs. This might include the consulting engineer, your Watershed Planner or other DEC staff. • If in Lake Champlain or Lake Memphremagog a Clean Water Service Provider may be interested in adopting the project and performing the repairs. Consider consulting with them on the potential project adoption site. To find the Clean Water Service Provider go here: https://dec.vermont.gov/water-investment/statues-rules-policies/act-76/cwsp-network

	• If costs are above available funding, make note of this. The Clean Water Board may make one-time funding available to support repair expenses associated with flood damage subject to any programmatic guidance and policy developed by DEC. Sign up for the CWIP Grants Notification Listserv to learn more if and when this funding is available. If Relocate Project • CWIP would define this as a new project. See "Potential for New Projects while conducting the flood response project survey" section below for next steps. If Unable to determine • Connect with the Watershed Planner for the basin the project is located for technical assistance. To find your Watershed Planner visit the Watershed Planning webpage (found here: https://dec.vermont.gov/water-investment/watershed-planning/tactical-basin-planning/findyourwatershed)
Repair of project is already underway	Fill in information/details (see protocol for questions to consider and information to collect).
Potential for New Projects while conducting the flood response project survey.	Submit proposed new projects to the ANR Online Clean Water Project – New Project Form, submissions will be reviewed by the Watershed Planner for the basin. Funding to pursue the project further may be available under CWIP's existing Project Development Block Grants or Enhancement Development, Design, and Implementation Block Grants. Visit the Clean Water Grants Funding Opportunities webpage for more details on these block grants and their Funding Program Administrators (found here: https://dec.vermont.gov/water-investment/cwi/grants/opportunities)