

TAYLOR SPRING DETENTION BASIN PROGRESS REPORT

May 4

2023

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Director of Engineering, Rockingham County

CONTENTS

CONTENTS.....	2
I. BACKGROUND.....	3
II. PROJECT LOCATION	3
III. PROJECT DESCRIPTION.....	3
IV. PROFESSIONAL DESIGNS.....	3
V. GRANT FUNDING	3
VI. BID INVITATION AND SELECTION	4
VII. PROJECT TIMELINE.....	4
VIII. PREVIOUS INSPECTIONS AND COMPLETED TASKS.....	5
IX. CURRENT PROJECT STATUS.....	5
X. APPENDIX.....	5

I. BACKGROUND

In recent years, residential neighborhoods that border the headwaters of Congers Creek (a major tributary to Lake Shenandoah) have experienced localized flooding, some severely inundating their homes. Timmons Group was retained by Rockingham County to determine and analyze alternative solutions for improving drainage and reducing flooding within these neighborhoods.

Engineers modeled watershed hydrology and channel/culvert hydraulics to confirm areas of existing drainage problems and to determine anticipated future conditions associated with development within the upper watershed. Based on the results of this evaluation, various engineering and land-use alternatives strategies were presented to improve drainage along Conger's Creek and throughout the greater watershed of Lake Shenandoah. The first and most-beneficial solution the County elected to pursue was to construct a regional stormwater detention basin.

II. PROJECT LOCATION

The project site is located south of Taylor Spring Lane between Boyers Road and Cumberland Drive in Rockingham County. The 28.9-acre parcel was purchased from Mr. Hugh O'Donnell in October 2020.

III. PROJECT DESCRIPTION

The proposed project will be the construction of a 6.7-acre regional detention basin. Proposed work includes a 19-foot-high earth dam embankment with an emergency spillway, riser structure, and a 54-inch diameter pipe extending through the embankment. The proposed detention basin is not designed to permanently store water and is expected to drain within a few days after a rain event.

Mass grading will require cuts of up to 8 feet and fills of up to 5 feet outside the proposed embankment area. Fills of up to 20 feet will be required to construct the proposed embankment. Work will also be performed to replace approximately 300 linear feet of sanitary sewer main and to raise existing manhole lids.

Additional projects on-site may be requested such as demolition, debris and tree removal, construction of walking trails, and others. Such additional projects may be added to the project scope on a negotiated change order.

IV. PROFESSIONAL DESIGNS

Timmons Group was contracted to perform professional engineering designs and to prepare construction documents. Designs and specifications were reviewed and approved in October 2020.

V. GRANT FUNDING

On February 24, 2022, the County was awarded a Hazard Mitigation Grant (FEMA-DR-4411-VA-017) from the Federal Emergency Management Agency (FEMA) through the Virginia Department of Emergency Management (VDEM) in the total amount of \$730,000. Rockingham County's share for the grant is \$36,500.

Realizing the County would be unable to complete the project in the time frame allocated, a project extension request was submitted to VDEM on August 31, 2022. The letter called for the Period of Performance ("POP") to be extended by one full calendar year (from December 18, 2022 to December 18, 2023). Reasons for the extension requests are as follows:

1. Lateness of grant approval and announcement of award by FEMA and VDEM (February 24, 2022);
2. Market availability and considerable lead times of required construction materials; and
3. Seasonal weather (winter) conditions anticipated during current schedule and the potential impacts it may have on earthwork activities, vegetative growth, and site stabilization.

The County was notified on December 7th the POP was extended by one full calendar year to December 18, 2023.

Reviewing the project budget, the County recognized certain tasks and anticipated construction costs no longer aligned as originally requested and awarded. Therefore, a budget amendment request was submitted to VDEM on September 27, 2022. The letter did not request an increase to the overall budget – rather to shift funds from one activity line to another as follows:

Activity	Original Budget	Amended Budget
Legal Fees	\$10,000.00	\$0.00
Construction Management	\$10,000.00	\$26,889.00
Land Acquisition	\$115,000.00	\$0.00
Design	\$50,000.00	\$2,000.00
Construction	\$545,000.00	\$701,111.00
Total Budget	\$730,000.00	\$730,000.00

The County was notified on January 13th the budget was amended as requested.

VI. BID INVITATION AND SELECTION

Bid invitation documents were posted on the County's website on April 20, 2022 with a due date of May 18, 2022. The County received a single proposal for \$1,868,000. Deeming this bid higher than anticipated and significantly over budget, the Board of Supervisors rejected the bid on May 25, 2022.

Bid invitation documents were reposted on the County's website on May 26, 2022 with a due date of June 16, 2022. The County received five proposals. The winning bid (based on the lowest construction cost) was Partners Excavating with a proposal of \$854,460. The Board of Supervisors approved the winning bid on June 22, 2022. A contract for construction with Partners was finalized on July 11, 2022.

VII. PROJECT TIMELINE

Task	Anticipated Completion
Survey Site and Mobilize Contractor	July 18, 2022
Site Clearing	July 22, 2022
Sanitary Sewer Upgrades & Pipe Replacement	September 23, 2022
Grading & Final Seeding Above Embankment	October 19, 2022
Storm Inlet/Outlet Structure Installation	December 13, 2022
Embankment Construction	December 23, 2022
Outlet Protection	January 13, 2023
Temporary Seeding Below Embankment	January 20, 2023
Grading & Final Seeding Below Embankment	April 21, 2023
Project Closeout	May 26, 2023

← Project on schedule

VIII. PREVIOUS INSPECTIONS AND COMPLETED TASKS

(Reports may be produced upon request)

May 26, 2021: Thorough inspection of site performed to collect data and photos for FEMA grant application.

July 29, 2022: Limits of disturbance and key project components surveyed. Site is approximately 33% cleared of vegetation in preparation for earthwork activities. Existing culvert at construction entrance to be replaced to allow for better drainage from ditch along Taylor Spring Lane.

August 22, 2022: Site is approximately 80% cleared of vegetation in preparation for earthwork activities. Replacement sanitary sewer pipe was delivered today for installation. Installation of construction entrance and graveled maintenance road began this week as well.

September 12, 2022: Clearing of site vegetation completed at the end of August (mulching and debris removal remains). Borrow area cleared and soil stockpiled the week of August 29th. Rehabilitation and upgrades of the sanitary sewer are to be completed week this week. Earthwork to grade and shape the basin in progress.

October 4, 2022: Final grading of areas above the embankment completed the week of September 26th. Excavation of the embankment cutoff trench was also started the same week. Seed and straw to stabilize the site was placed down on September 29th.

December 7, 2022: Earthwork began on the construction of the embankment base but was paused on October 14th due to the manufacturer's delay on delivery of the concrete storm pipes and outlet structure. These materials were delivered on November 17th. Installation began on November 28th and was completed on December 2nd. Construction of the embankment resumed on December 5th. Of note, the old rental property was burned by the County Fire Department as a training exercise on November 3rd.

December 22, 2022: Embankment construction was completed on December 14th. Spreading of topsoil and seeding to stabilize the site will be applied in early spring when temperatures warm. The downstream plunge pool will be constructed at that time as well. The project is currently at 90% completion.

February 1, 2023: Placement of the sanitary sewer vent corrected and anti-flotation collars placed on designated manholes as instructed by the design engineer. Construction of the plunge pool below discharge pipe underway.

February 17, 2023: Inspection performed to confirm impact of last several days of rain. Pleased to report no damage or erosion to the site observed. Site of former rental house graded and stabilized. Will address remaining site stabilization with contractor to plant grass as soon as possible.

March 22, 2023: Substantial completion inspection performed with County staff, contractor, and design engineer on March 9th to review any remaining work. Minor corrections and site stabilization (grass) issues were observed. Contractor notified to immediately resolve.

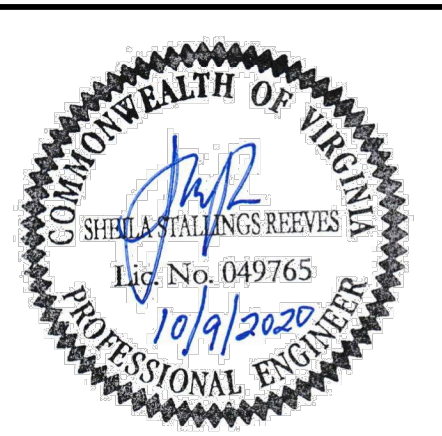
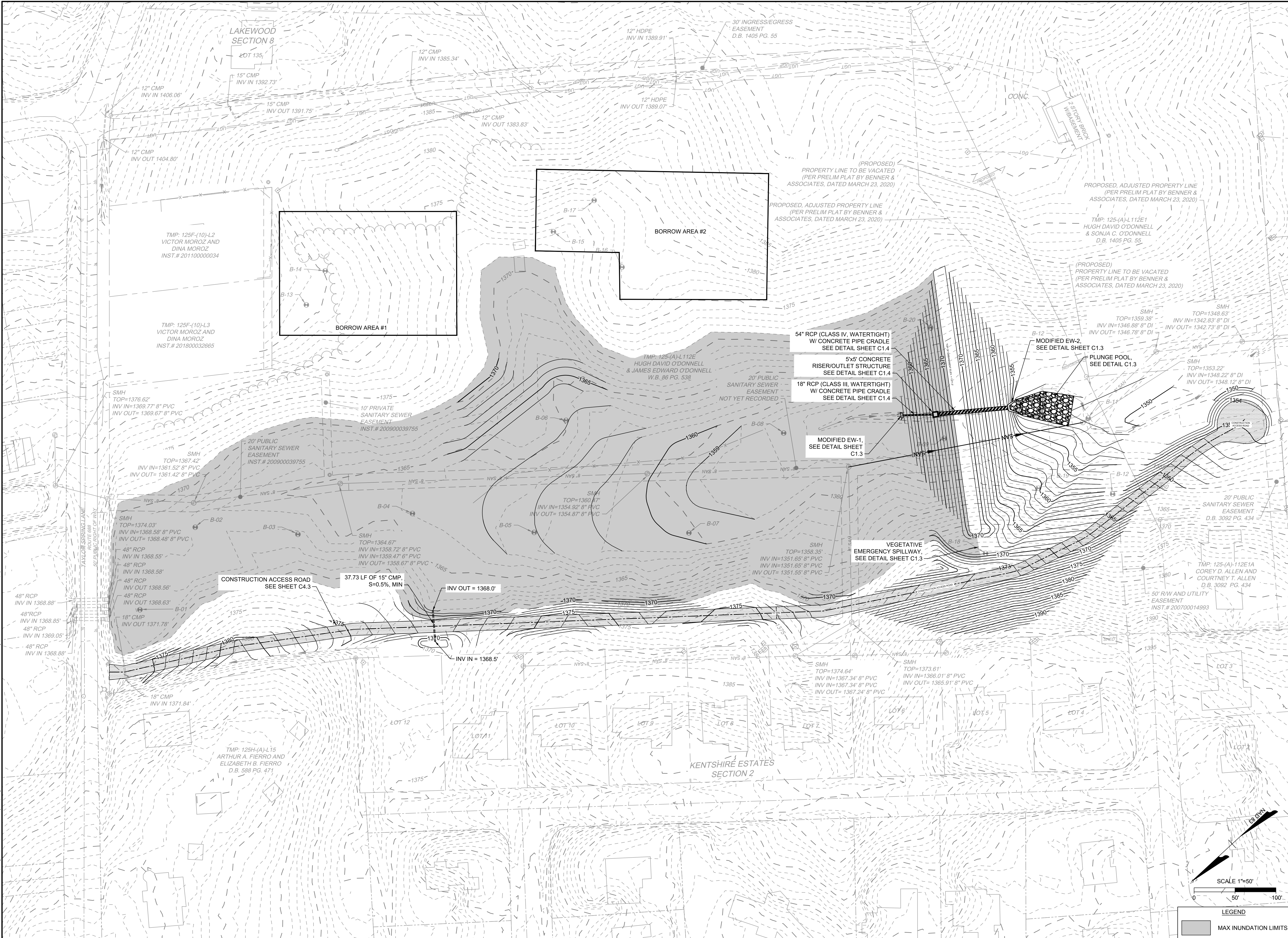
IX. CURRENT PROJECT STATUS

May 4, 2023: Site continues to stabilize with growth of grass. County staff working with contractor to reseed and improve denuded areas. Beginning to close out project and process final grant reimbursements with FEMA.

X. APPENDIX

- A. PROJECT DESIGNS
- B. CONSTRUCTION INSPECTION PHOTOS

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APPROVED
BY ROCKINGHAM COUNTY
DEPARTMENT OF
COMMUNITY DEVELOPMENT

YOUR VISION ACHIEVED THROUGH OURS.

DATE	DATE
	10/9/2020

DRAWN BY	I. GORDON
DESIGNED BY	I. GORDON
CHECKED BY	S. REEVES
SCALE	1" = 50'

TIMMONS GROUP

TAYLOR SPRINGS STORMWATER BASIN
HARRISONBURG - VA

GRADING & SITE LAYOUT PLAN

JOB NO.	39009.004
SHEET NO.	C4.0

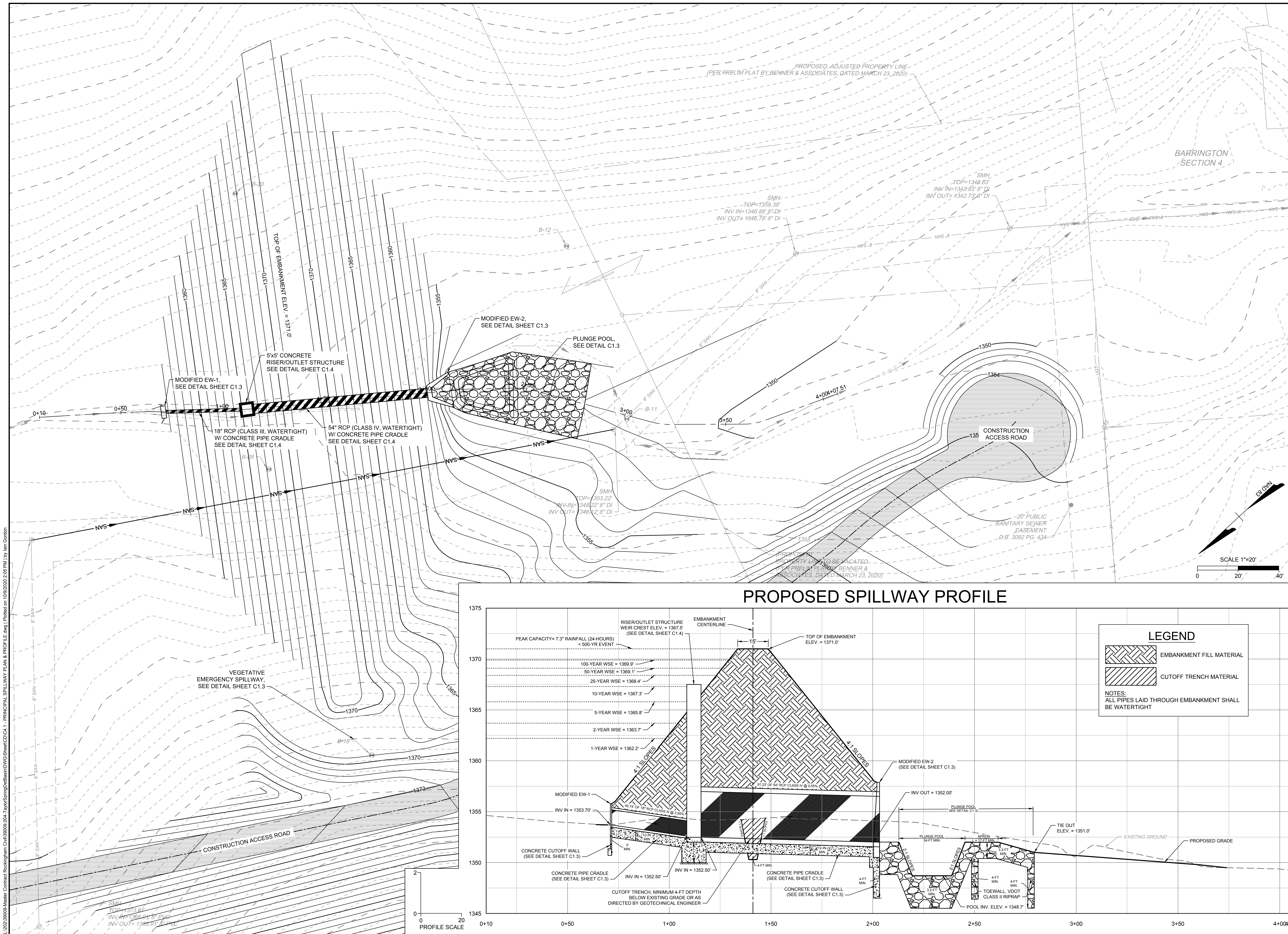
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	DATE
	DAT
10/9/2	DRAWN
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S. REE	SCALE
AS SH	

JOB NO.
39009.004

SHEET NO.
C4.1





Site of former rental house (above) and restored borrow area (below)





Completed basin area





Completed embankment (above) and access road (below)





Completed embankment and plunge pool



Project site looking southeast



Project site overview