



**GODDARD
CONSULTING**
Strategic Ecological Consulting

Peer Review Comment Response

42 Mill Street, Westwood MA

Page | 1

September 8, 2023

Westwood Conservation Commission
50 Carby Street
Westwood, MA 02090

Re: Peer Review Comment Response
 42 Mill Street, Westwood MA

Dear Westwood Conservation Commission,

Goddard Consulting, LLC, (Goddard) is pleased to submit this response letter and revised site plans on behalf of Joanne Delapa of the Delapa Realty Trust (the Applicant), to provide responses to the project review comments issued by BETA Group, Inc. in regard to the Notice of Intent (NOI) filed for 42 Mill Street, Westwood MA.

Attached to this document is a response to the comments issued by BETA, supplemental information pertaining to the dam design feedback, as well as a detailed construction sequence document. Engineering design has been provided by a licensed PE with experience in dam design. The project engineer is Jeff Lebeau Jr. of JNL Civil Engineering.

If you have any questions, please feel free to contact Chris Frattaroli at (617) 620-2740.

Sincerely,
Goddard Consulting, LLC

Chris Frattaroli
Wetland Scientist

CC: Delapa Realty Trust, PO Box 277, Norwood MA, 02062
 JNL Civil Engineering, 88 Coral Road, Springfield MA, 01118

Table of Contents

- Attachment A: **Response to Review Comments for NOI**
- Attachment B: **Construction Sequence for 42 Mill Street**
Prepared by Goddard Consulting LLC, dated 9/8/23
- Attachment C: **Summary of Discharges**
- Attachment D: **National Flood Hazard Layer FIRMet**
Accessed 9/4/23
- Attachment E: **Weir Calculations – Baker's Pond**
Prepared by JNL Civil Engineering, dated 9/5/2023
- Attachment F: **Abutters Downstream Baker's Pond**
- Attachment G: **Revised Site Plans**
Prepared by JNL Civil Engineering, last revised 9/5/2023

1.0 RESPONSE TO REVIEW COMMENTS FOR NOI

Goddard and the project's engineer, Jeff Lebeau Jr., PE, of JNL Civil Engineering, reviewed the BETA Group's comments and offer the following responses.

| Peer Review Comment | Goddard Response |
|---|---|
| <p><i>Engineer needs to provide more details (dimension & sizes) to better understand the existing and proposed condition of the dam & pond. Also provide details on who is downstream and would be impacted if dam fails.</i></p> | <p>Additional details, including measurements and sizes, have been added to the site plans (titled Baker's Pond Spillway Repair Plans, last revised 9/5/23).</p> <p>Abutters impacted by a dam failure include those at 6, 12, 13, 16, 30 and 31 Mill Brook Road, and 1391 High Street. A map of impacted abutters is attached to this document.</p> |
| <p><i>This dam does not show up in the state database however regulation is based on size. Dam Safety Regulations 302CMR10 (<15ac feet or less than 6' in dam height is not subject to regulation) however the detail on this plan shows that it exceeds 6' based on proposed spillway dimension. If it is existing and being repaired or designed under the threshold then may not be regulated however the new homeowner and town will be taking on some liability either way.</i></p> | <p>Dam Safety Regulations 302 CMR 10.03 defines the height of a dam as “the vertical distance from the elevation of the dam crest to the lowest point of natural ground, including any stream channel, along the downstream toe of the dam.”</p> <p>The vertical distance between the elevation of the dam crest and the stream channel bed is 4.6ft, less than the 6' height required to be regulated.</p> <p>The applicant acknowledges the liability associated with owning a dam on their property.</p> |
| <p><i>Engineer should provide calculations for spillway dimensions and what event it is sized to pass. At a minimum the spillway should be designed to pass the 100-year storm without overtopping the dam. Design should be by a PE with experience in dam design. Design should demonstrate that Dam Safety Regulations (302 CMR 10) are being met and that it would be classified as a low hazard dam regardless of whether it requires regulation by DCR in order to protect the Town from liability.</i></p> | <p>Calculations for spillway dimensions demonstrating its capability to pass the 100-year storm are attached to this document. Failure of the dam is likely to cause localized flooding, but is not expected to cause major property damage or loss of life, and therefore would be classified as a Low Hazard Dam.</p> |



Construction Sequence
for
42 Mill Street
Westwood MA, 02090
DEP File No. 338-0756

Date:
September 8, 2023

ADDRESSED TO:
Westwood Conservation Commission
50 Carby Street
Westwood, MA 02090

PREPARED BY:
Goddard Consulting LLC
291 Main Street, Suite 8
Northborough, MA 01532

PREPARED FOR:
Joanne Delapa
Delapa Realty Trust
PO Box 277
Norwood MA, 02062

September 8, 2023

Westwood Conservation Commission
50 Carby Street
Westwood, MA 02090

Introduction

On May 22, 2023, a Notice of Intent application was submitted to the Westwood Conservation Commission for proposed repairs to the dam located at 42 Mill Street, Westwood MA. This concrete dam is dilapidated and crumbling (Photo 1). A beaver dam is present just above the concrete dam. This document details the construction activities that will be undertaken to complete these repairs. All work described in this document shall be overseen by a qualified wetland scientist. A post-construction report will be submitted to the Commission after work on the dam is complete (see step 11 of sequence below).

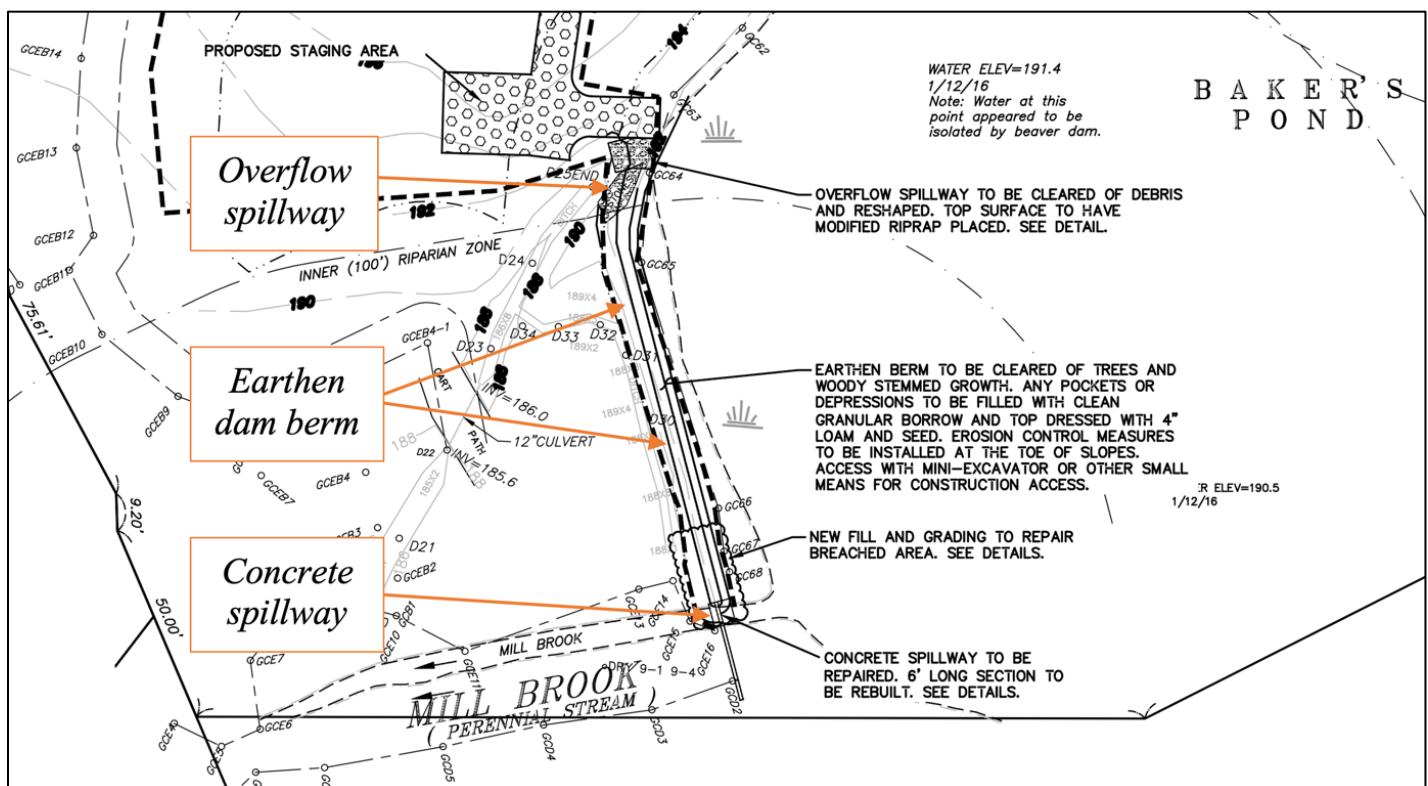


Figure 1: Excerpt of site plan identifying areas to be repaired.



Photo 1. View of dilapidated concrete spillway.

The applicant proposes to conduct repairs to the Mill Brook dam. The existing beaver dam (Photo 2), which is situated just above the concrete spillway to be repaired, in fact helps with construction because it provides most of the damming required to conduct concrete repairs. The beaver dam will be left in place during construction and supplemented with sandbags to ensure this area is sufficiently dammed. Under current conditions, very little water moves past the beaver dam and over the concrete spillway – most water flows over the emergency spillway (Photo 3). If it is necessary to fully evacuate all water, a sump pump may be utilized temporarily to pump out water from the area between the beaver dam and the concrete dam.



Photo 2. View of beaver dam above concrete spillway.

The project also proposes to clear the earthen dam berm adjacent to the concrete spillway of woody vegetation. The woody vegetation currently present on this berm poses a risk of windthrows, which could destabilize the berm and accelerate its failure. Additionally, the overflow spillway to the north of the earthen berm is proposed to be cleared of debris and reshaped with modified riprap. This will ensure that it is capable of conveying overflow water sufficiently so that the concrete spillway and earthen berm are not overwhelmed. The overflow spillway has been designed to be able to convey more water than that which would result from the occurrence of the 100-year storm.



Photo 3. View of overflow spillway, which presently conveys most flow from Baker's Pond.

Construction Sequence

The sequence of construction activities will be as follows:

1. Construction of access into the site per Superseding Order of Conditions (DEP File #338-0706)
2. Construction of access road to dam and staging area
3. Installation of erosion controls
4. Removal of woody vegetation on earthen dam berm
5. Backfilling of holes and depressions, loam and seed exposed areas on earthen dam berm
6. Install sandbags as supplementation to beaver dam
7. Concrete repairs on spillway
8. Repairs to overflow spillway
9. Removal of beaver dam
10. Restoration of access road areas
11. Report to Conservation Commission

Sequence Detail

1. Construction of access into site per Superseding Order of Conditions (DEP File #338-0706):

The first step will be to establish access as approved for the construction of the single-family home. This work is already permitted and consists of establishing access across Bordering Vegetated Wetland into the upland area, with associated clearing, grading and erosion controls.

2. Construction of access road to dam and staging area:

To reach the dam, access beyond the previously approved work area is needed. In order to preserve as many existing trees as possible and minimize impacts to the buffer zone and Riverfront Area, the access road was laid out to access through the area which was previously permitted for the single-family home. Work on the dam will occur during construction of the single-family home. Where the access road extends beyond the previously approved limit of work, it will be minimized to 10' wide and was laid out to avoid removal of any large trees. Some smaller trees will be removed to construct this road, which will be flush cut and not grubbed out. The road will consist of fabric, crushed stone and be pitched away from wetland areas. The location of the road is shown on the site plan.

3. Installation of erosion controls:

Erosion controls will be installed on the wetland side of the access road along its entire length, as well as around the area of dam repairs, as shown on site plans. Erosion controls will consist of 12" straw wattles, which was approved in the Superseding Order of Conditions (DEP File #338-0706). A detail is provided below.

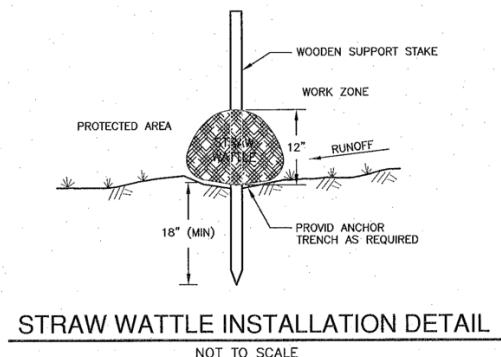


Figure 2: Site plan detail of wattle installation from Superseding Order of Conditions (DEP File #338-0706).

4. Removal of woody vegetation on earthen dam berm

Several trees on the earthen dam berm must be removed for dam safety. The continued presence of trees on the dam poses a hazard from wind-throws, which would de-stabilize the dam. All trees on the dam will be cut and removed. Grubbing or removal of roots is not recommended at this time as it would require a more intensive dam re-construction than can occur with the project budget. All woody debris will be transported to the staging area by hand and be appropriately disposed of offsite. A wooden board will be temporarily placed across the emergency spillway to allow access. No machines will access the area via the earthen berm.

5. Backfilling of holes and depressions, loam and seed exposed areas on earthen dam berm

Once trees are removed, any voids, holes or depressions in the dam will be backfilled with clean gravel borrow, and packed in. Then, the entire area that has been disturbed will be top-dressed with clean loam and seeded. No machines will access the area via the narrow earthen berm.

6. Install sandbags as supplementation to beaver dam

Once the dam is repaired and trees removed, work will commence on the spillways. These concrete structures are in disrepair and need concrete work to avoid continued deterioration or undermining. This work will be conducted in a period of low flow (i.e. between July and September) to minimize the amount of water that needs to be diverted. To conduct these repairs, sandbags will be added to supplement the existing beaver dam and prevent the flow of additional water to the concrete spillway. A sump pump may also be used in the area between the sand-bagged beaver dam and the concrete spillway to export any water that seeps through.

7. Concrete repairs on spillway:

Concrete will be prepared at the staging area and brought to the spillway for repairs by hand atop the newly cleared earthen dam berm, or via concrete pump. Concrete work will be conducted by hand per the specifications on the attached site plan's details. No machines will access the area via the narrow earthen berm.

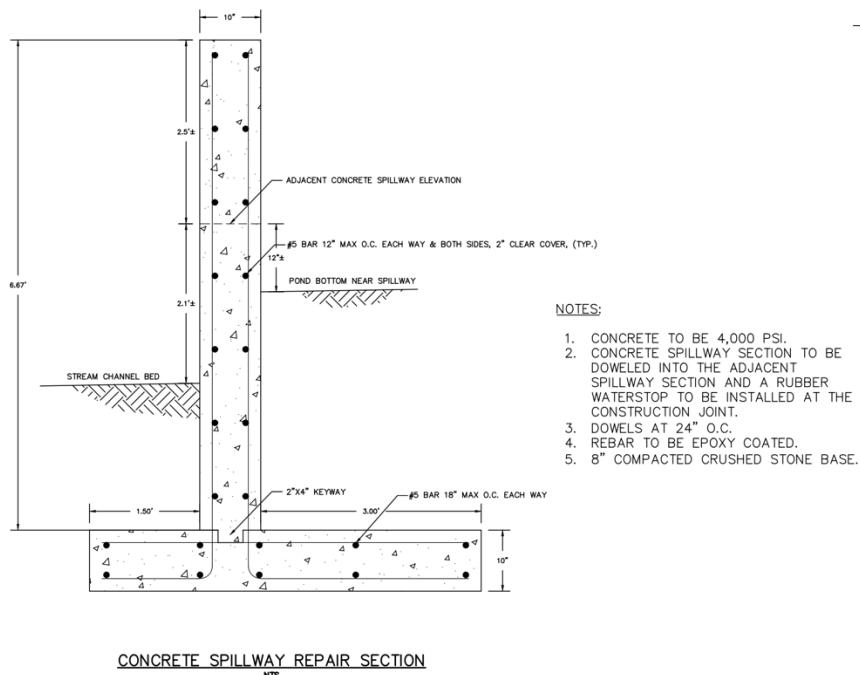


Figure 3: Site plan detail of repairs to concrete spillway.

8. Repairs to overflow spillway

The emergency spillway will be cleared of debris and reshaped with an invert of 1 foot lower than the adjacent earthen berm. This section will be constructed of modified riprap per the detail on the attached site plan.

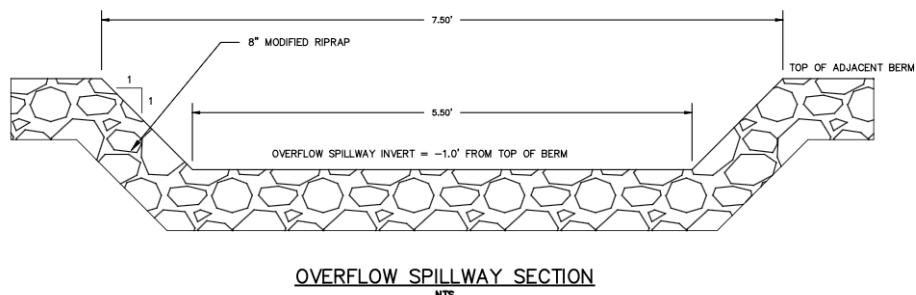


Figure 4. Figure 3: Site plan detail of repairs to overflow spillway.

9. Beaver dam removal

Following completion of dam repairs, the existing beaver dam will be removed. The applicant will contact the Town Board of Health to permit the removal of the existing beaver dams and a licensed beaver removal contractor contacted to breach and remove the dams, per BOH permits. In order to not wash out downstream areas, the beaver dam will be removed slowly and methodically, not lowering the water level of the pond by more than 6" per day.

10. Restoration

Following completion of dam repairs and beaver dam removal, the access road, where it extends beyond the single-family home limit of work, will be restored to natural conditions. Cut trees/stumps are expected to re-sprout. Conservation/Wildlife Seed Mix from New England Wetland Plants will be applied to restore ground cover at the recommended rate of 1lb per 1,750 square feet. Erosion controls will remain until the access roads are stabilized.

11. Report to Conservation Commission

Upon completion of the above-described work, a report, including photographs, will be prepared and submitted to the Westwood Conservation Commission by a qualified wetland scientist. This report will detail the construction activities that took place, the end result of the work, any unanticipated or accidental deviations from the approved plans, and, if necessary, propose additional mitigation efforts for construction impacts.

Sincerely,
Goddard Consulting, LLC



Chris Frattaroli
Wetland Scientist

Table 9: Summary of Discharges

| Flooding Source | Location | Drainage Area (Square Miles) | Peak Discharge (cfs) | | | | |
|--------------------------|--|------------------------------|----------------------|------------------|------------------|------------------|--------------------|
| | | | 10% Annual Chance | 4% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| Massapoag Brook (Sharon) | Confluence with Devil Brook | 4.73 | 233 | * | 372 | 439 | 646 |
| Massapoag Brook (Sharon) | Confluence with Sub- Branch of Massapoag Brook | 3.94 | 200 | * | 315 | 371 | 541 |
| Massapoag Brook (Sharon) | Massapoag Lake | 3.55 | 195 | * | 312 | 368 | 541 |
| Meadow Brook | Confluence with Neponset River | 1.50 | 183 | * | 249 | 278 | 359 |
| Meadow Brook | Downstream of U.S. Route 1 | 1.20 | 147 | * | 197 | 216 | 274 |
| Mill Brook | At Brook Road | 3.02 | 149 | * | 241 | 289 | 425 |
| Mill Brook | At Winslow Road | 2.03 | 115 | * | 186 | 225 | 350 |
| Mill Brook | At Tamarack Road | 1.82 | 107 | * | 174 | 210 | 332 |
| Mill Brook | At High Street | 1.33 | 87 | * | 142 | 172 | 275 |
| Mill Brook | At Hartford Street | 0.83 | 64 | * | 105 | 127 | 200 |
| Mill River (Norfolk) | At confluence with Charles River | 16.80 | 500 | * | * | 1,153 | 1,707 |
| Mill River (Norfolk) | At Miller Street | 13.40 | 249 | * | * | 580 | 877 |
| Mill River (Norfolk) | At City Mills Pond Dam (Main Street) | 10.70 | 180 | * | * | 325 | 447 |
| Mill River (Norfolk) | At Railroad Culvert | 10.40 | 290 | * | * | 685 | 1,009 |
| Mill River (Norfolk) | At Bush Pond Dam | 9.40 | 175 | * | * | 264 | 590 |
| Mill River (Norfolk) | Opposite Maple Street | 9.00 | 238 | * | * | 533 | 774 |

*Not calculated for this Flood Risk Project

National Flood Hazard Layer FIRMette



71°14'36"W 42°12'48"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X

- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS OF FLOOD HAZARD

- NO SCREEN Area of Minimal Flood Hazard Zone X
- Effective LOMRs

OTHER AREAS

- Area of Undetermined Flood Hazard Zone D
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

- Cross Sections with 1% Annual Chance
- Water Surface Elevation

- Coastal Transect

- Base Flood Elevation Line (BFE)

- Limit of Study

- Jurisdiction Boundary

- Coastal Transect Baseline

- Profile Baseline

- Hydrographic Feature

- Digital Data Available

- No Digital Data Available

- Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/4/2023 at 11:17 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Suppressed Sharp Crested Weir Equation: $Q=3.33BH^{3/2} *$

Q = flow rate (cfs)

B = width (ft)

H = height above weir crest (ft)

Baker's Pond data:

B = 14'

H = 2.5

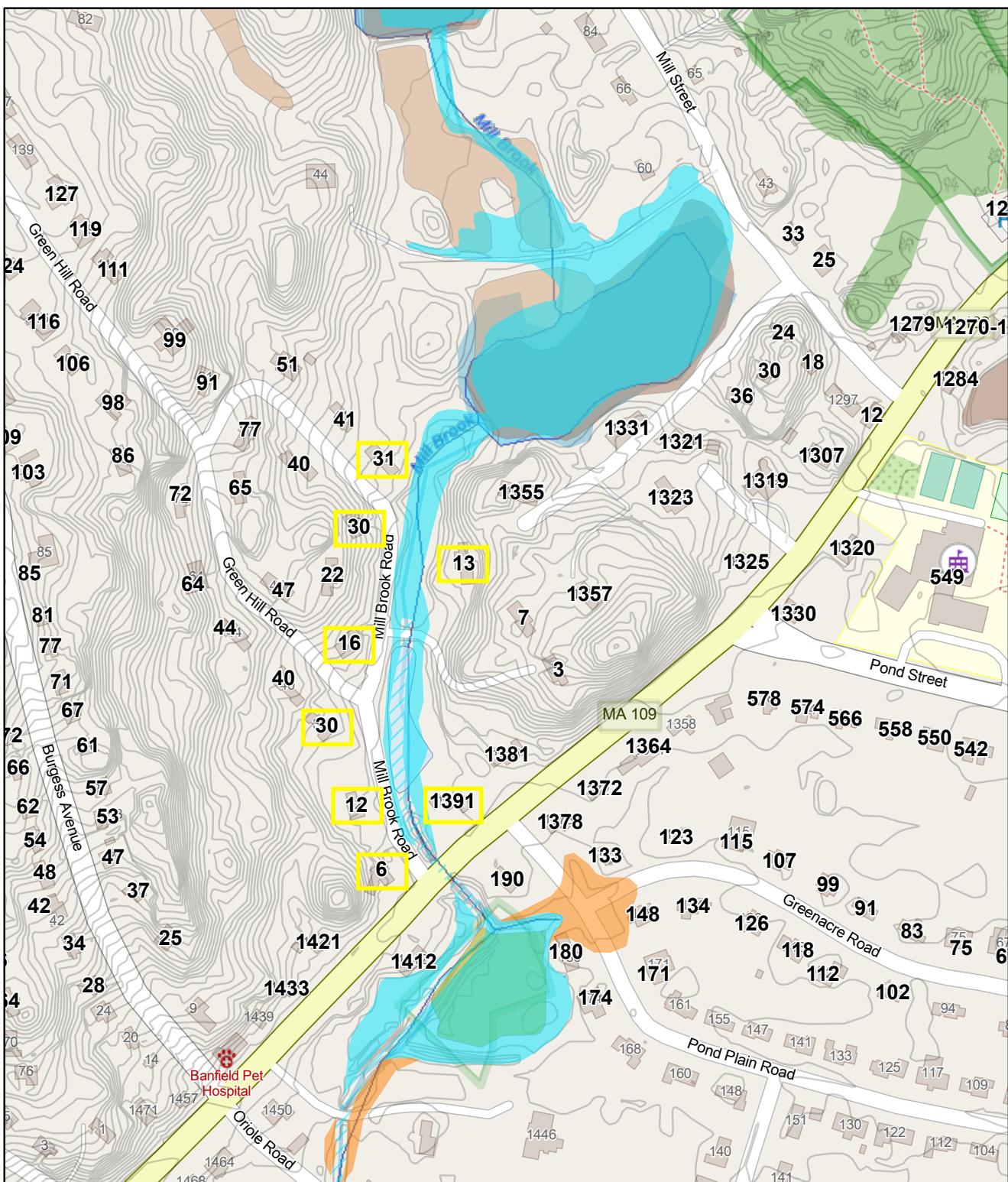
$$Q = 184 \text{ cfs} = 3.33 \times 14' \times (2.5')^{1.5}$$

Published FEMA FIS discharge just downstream of the dam for the 100-yr (1% chance) event = 172 cfs.

Conclusion is that the weir capacity can handle the 100-yr flow. Further support of this is the FEMA Firmette Flood Map, which shows consistency with observed elevations.

*The Bureau of Reclamation, in their Water Measurement Manual.

Abutter's Downstream Baker's Pond



9/5/2023, 10:08:38 PM

1:4,514

0.11 mi

Points of Interest



SCHOOL

Addresses

FEMA National Flood Hazard

AE: 1% Annual Chance of Flooding, with BFE

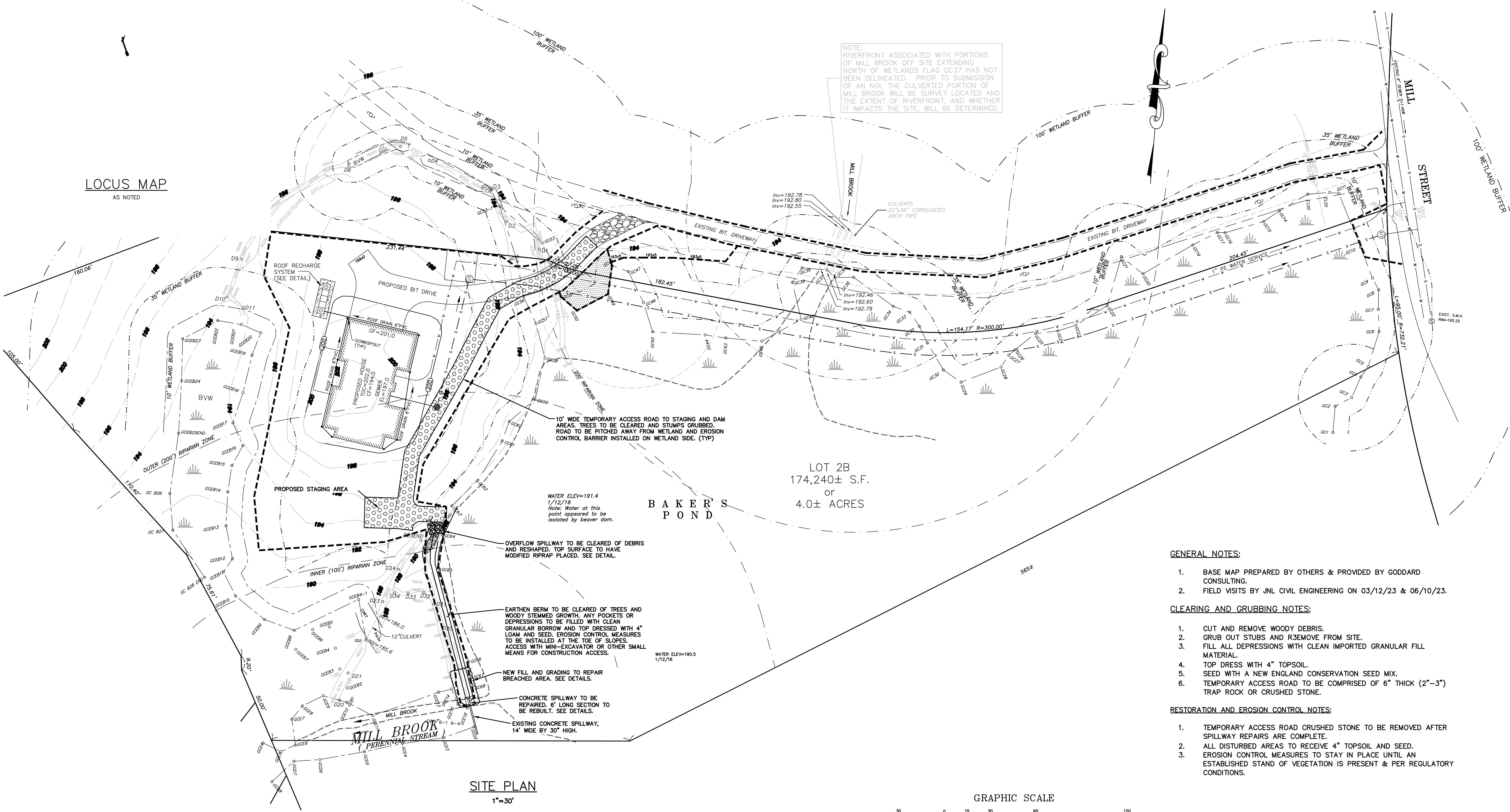
 AE: Regulatory Floodway

Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri, MassGIS, USGS

Town of Westwood
Town of Westwood

LOCUS MAP

AS NOTED



| Revisions: | | Drawn By: | App'd. By: | Date: |
|------------------------------------|--|-----------|------------|----------|
| REVISIONS PER PEER REVIEW COMMENTS | | JNL | JNL | 09/05/23 |
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| | | | | |
| | | | | |
| | | | | |



Designed By: Date:
JNL 07/23/23

Drawn By: Date:
JNL 07/23/23

Prepared By:
JNL 07/23/23

Checked By: Date:
JNL 07/23/23

JNL CIVIL ENGINEERING
88 CORAL ROAD
SPRINGFIELD, MA 01118
(413) 297-7079

PREPARED FOR:
GODDARD CONSULTING, LLC
291 MAIN STREET, SUITE 8
NORTHBOROUGH, MA 02090

LOCATION AT:

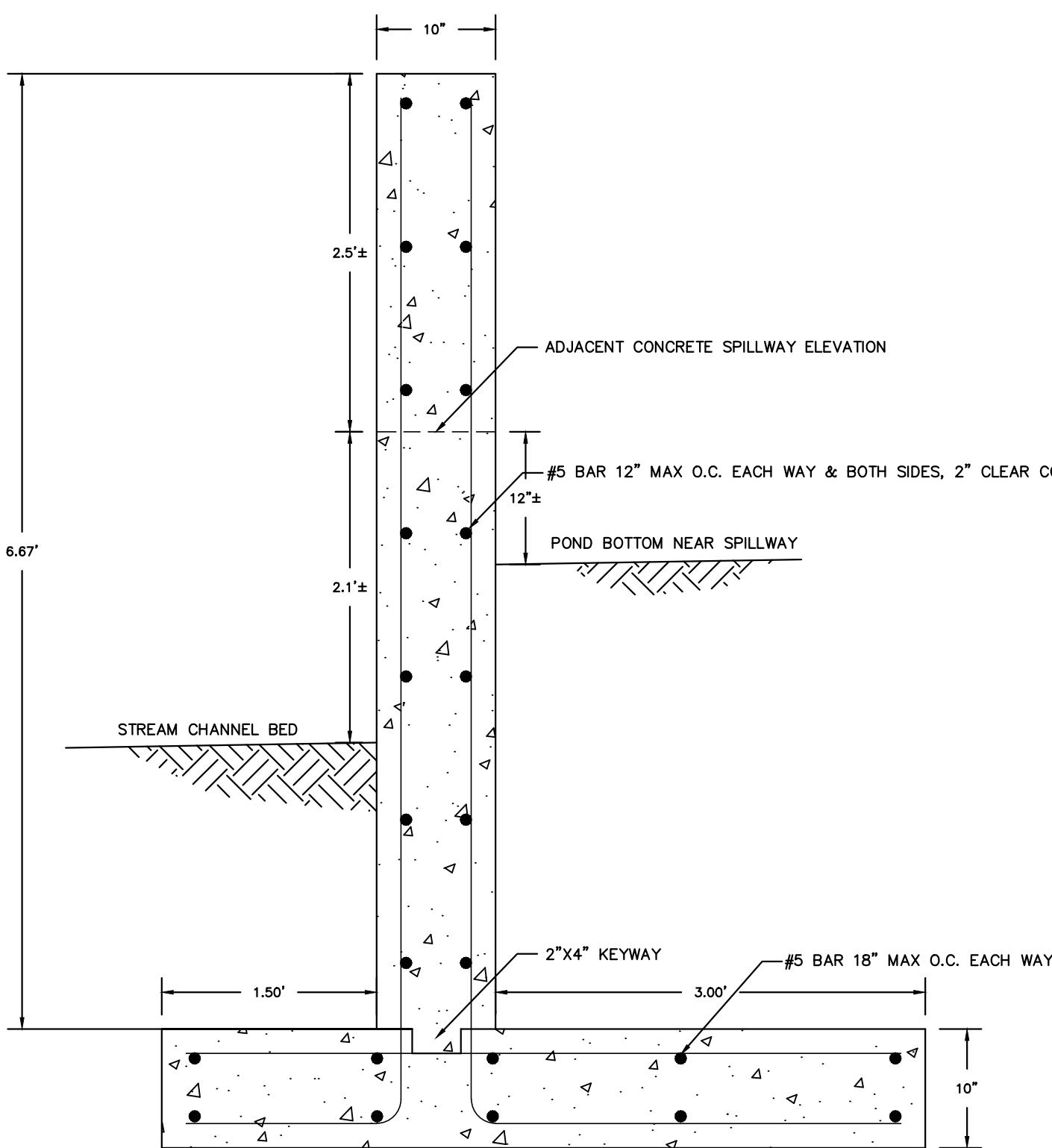
LOT 2B, ADJACENT TO 42 MILL STREET
WESTWOOD, MA 02090

BAKER'S POND
SPILLWAY REPAIR PLAN

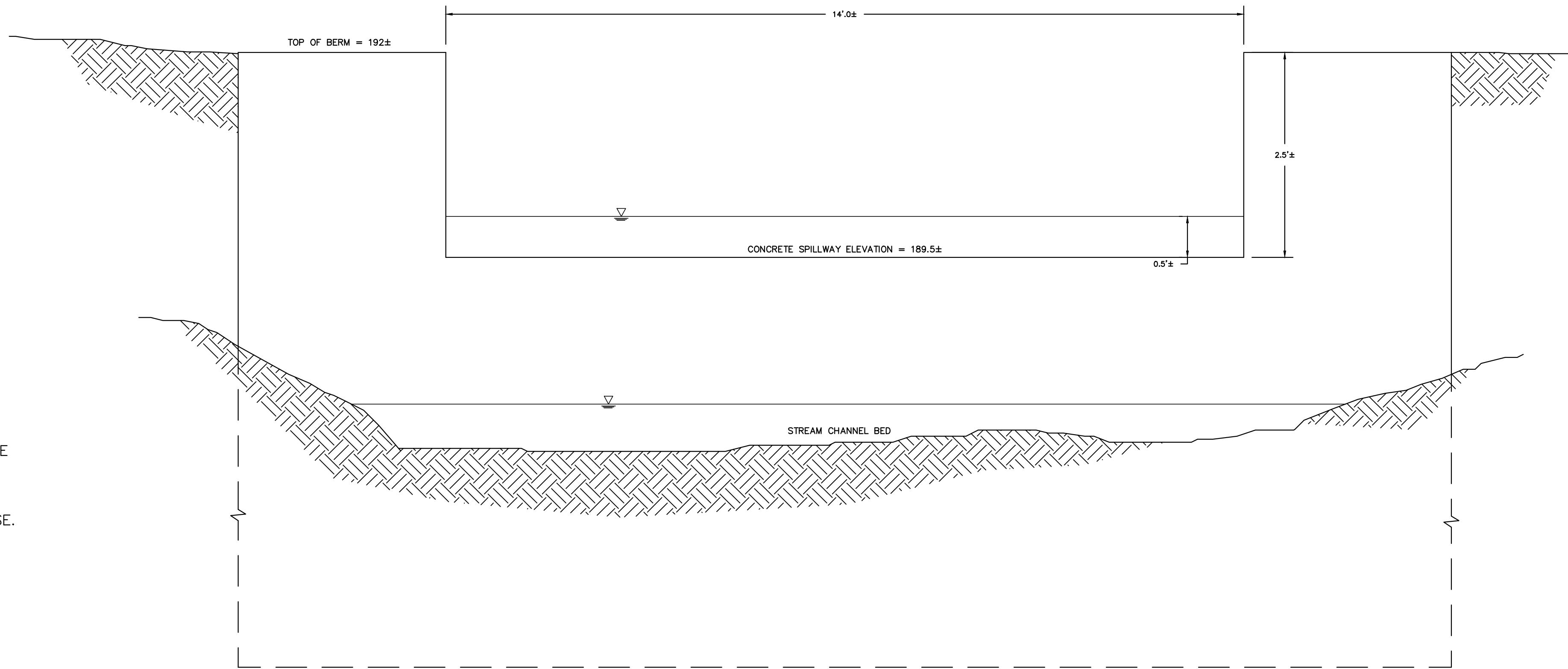
Drawing No.
C — 1

SCALE: AS NOTED DATE: 07/23/23

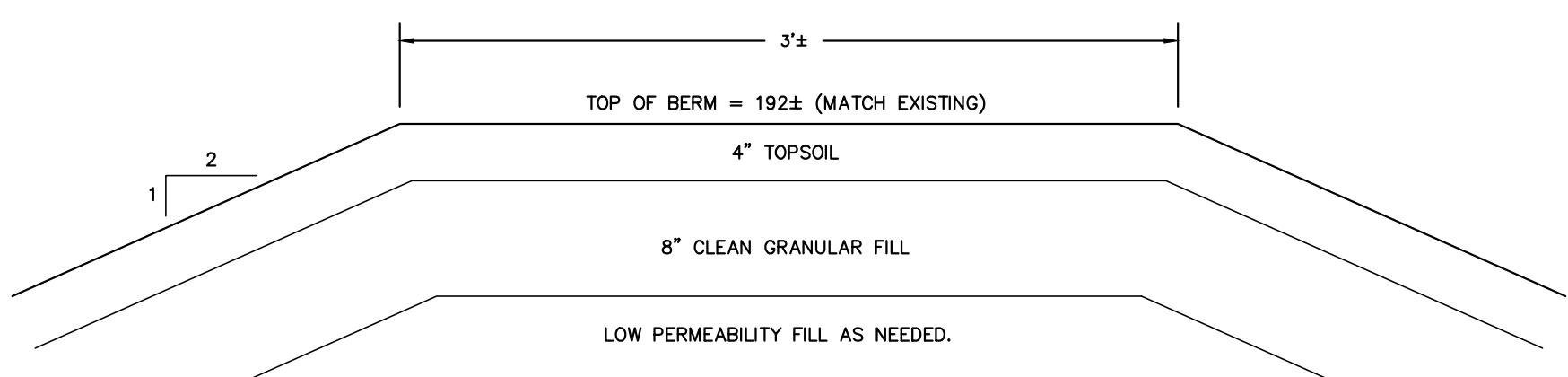
SHEET 1 OF 2



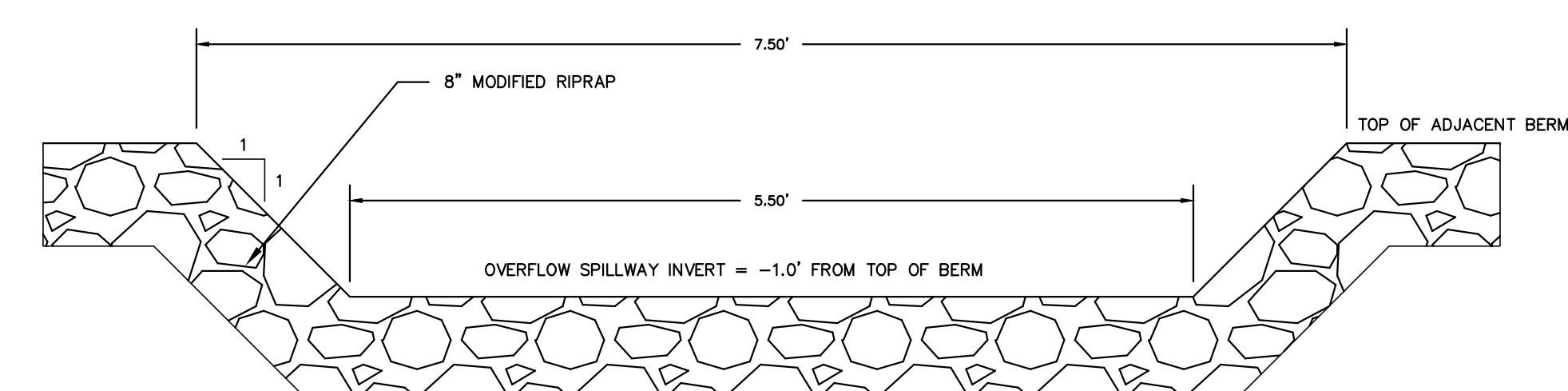
CONCRETE SPILLWAY REPAIR SECTION
NTS



EXISTING CONCRETE SPILLWAY (LOOKING UPSTREAM)
NTS

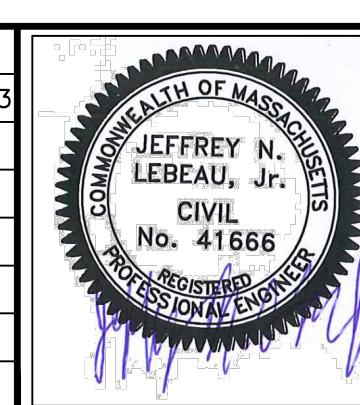


EARTHEN BERM SECTION (FILL ON EACH SIDE OF NEW CONCRETE WALL)
NTS



OVERFLOW SPILLWAY SECTION
NTS

| Revisions: | | Drawn By: | App'd. By: | Date: |
|------------------------------------|--|-----------|------------|----------|
| REVISIONS PER PEER REVIEW COMMENTS | | JNL | JNL | 09/05/23 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |



Designed By: Date:
JNL 06/30/23
Drawn By: Date:
JNL 06/30/23
Checked By: Date:
JNL 06/30/23

PREPARED BY:

JNL CIVIL ENGINEERING
88 CORAL ROAD
SPRINGFIELD, MA 01118
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PREPARED FOR:

GODDARD CONSULTING, LLC
291 MAIN STREET, SUITE 8
NORTHBOROUGH, MA 02062

LOCATION AT:

LOT 2B, ADJACENT TO 42 MILL STREET
WESTWOOD, MA 02090

BAKER'S POND
SPILLWAY REPAIR DETAILS

Drawing No.
C-2

SCALE: AS NOTED DATE: 06/30/23

SHEET 2 OF 2