# MEMORANDUM

To: Ashley Koza, P.E.
David Warthen, P.E.

From: Kellie Clark, P.E.
Alyssa Ford, E.I.

Cc: Timothy Gard
Phil Gillogly

Date: June 9, 2023

**RE:** ***Larry Kiker Preserve***
***Alternatives Analysis Memo***
***Kimley-Horn Project No: 148220024***

## Introduction

Kimley-Horn is working with Lee County on the planning phase for the Larry Kiker and Hidden Cypress Preserves, which comprise a 4,430-acre area in southern Lee County. The Preserve will be designed to provide education, recreation, and stormwater mitigation opportunities. This planning phase requires modeling of the stormwater components to determine the optimal design to meet each of the County's goals for the Preserve. Kimley-Horn has retained a subconsultant, Singhofen and Associates, Inc. (SAI), to model the existing system and potential alternatives. Based on the modeling results, Kimley-Horn will make a recommendation for the stormwater design of the Preserve, including a recommendation for the perimeter berm. The stormwater design will be the basis of the layout of the site as some of the internal stormwater features will also serve as roads and trails. This memorandum provides a summary of the alternatives that have been modeled to date for the County to use in decision making.

## Design Alternatives Modeling

SAI began by updating the existing model to include the Preserve area. This resulted in upstream and downstream stage increases or decreases. Using the updated existing conditions model, design alternatives were developed in an iterative process to determine which scenarios allowed for storage onsite and reduced stage increases offsite. **Attachment A** includes schematics provided by SAI for each alternative. **Table 1** lists each of the design alternatives and the resulting stage differences between the design alternative and the existing condition model in the upstream and downstream areas from the Preserve. The alternatives are listed in a way that each alternative builds on the previous alternative described unless otherwise stated. A single node was chosen for each location and the difference in stage between the alternative and the existing condition is provided, so these alternatives can be reviewed and compared to each other. Rises in stage are shown in red, decreases in stage are shown in green and changes less than 0.1' between the existing condition and the design alternative are shown in black.

***Table 1.*** *Design Alternative Modeling Results for the 25-year, 72-hour storm*

| Design Alternative Name | Model Scenario Name | Model Scenario Description | Summary of Results and Conclusions | Stage Difference between Design Alternative and Existing Condition (ft) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Corkscrew Rd (SLT-WildCat005) | Estero River (ERSB-N45) | Halfway Creek (HC-N94) | Spring Creek (NG0216) | Imperial River (NE0139) | Residential West of Bonita Grand Mine (LMK_00245) | Residential South of Bonita Beach Road (WORTH-15) |
| **DA1** | Preserve Model | Larry Kiker Preserve proposed project added into the 1D model (fully isolated system inside Preserve) | Caused rises in areas upstream and Estero River and decreases in areas downstream of the Preserve; continued moving forward with integrating the project into the model | 0.1 | 0.3 | -0.2 | 0.0 | 0.0* | -0.1 | 0.0 |
| **DA2** | Preserve with Flow | Preserve area split into stormwater cells with overland flow weirs connecting them | Caused rises in areas upstream and to the west of the Preserve; caused decreases in areas downstream of the Preserve; this alternative was not acceptable due to short circuiting of Preserve and staging up in adjacent flow ways | 0.1 | 0.3 | 0.1 | 0.0 | -0.1 | 0.0 | 0.0 |
| **DA3** | Berm and Flow In/Out | Berm at 16’ added to north to prevent flow into the Estero River; pipes added to allow flow in from the east and out to the west | Caused rises in the Estero River and Halfway Creek; flow through the Preserve or around berm caused unacceptable stage increases | 0.0* | 0.1 | 0.13 | 0.0 | 0.0* | 0.0 | 0.0 |
| **DA4** | Positive East Pipes | Two pipes added to the northeast for a total of four positive pipes only allowing flow into the Preserve | Caused rises in the Estero River and Halfway Creek; flow through the Preserve caused unacceptable stage increases | 0.0 | 0.1 | 0.2 | 0.0 | -0.1* | 0.0 | 0.0 |
| **DA5** | No Pipe Flow West | Pipe links flowing west out of the Preserve were turned off; one pipe to the east side allowed flow in and out while the others only allowed flow into Preserve | Caused rises in areas upstream and to the west of the Preserve and Bonita Grande Mine; caused decreases in some areas downstream of Preserve; berm height was not effective at blocking flow | 0.0* | 0.1 | -0.4 | 0.0 | 0.0* | 0.1 | 0.0 |
| **DA5-2** | Berm at 16.4’ | North berm elevation increased to 16.4’ | Caused decreases in some areas downstream of the Preserve; the only rise was in one of the Residential areas to the west of Bonita Grande Mine; this scenario is acceptable other than the rise in the residential area; it is assumed that rises could be addressed during model refinement | 0.0 | -0.1 | -0.2 | 0.0 | 0.0* | 0.1 | 0.0 |

| Design Alternative Name | Model Scenario Name | Model Scenario Description | Summary of Results and Conclusions | Stage Difference between Design Alternative and Existing Condition (ft) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Corkscrew Rd (SLT-WildCat005) | Estero River (ERSB-N45) | Halfway Creek (HC-N94) | Spring Creek (NG0216) | Imperial River (NE0139) | Residential West of Bonita Grand Mine (LMK_00245) | Residential South of Bonita Beach Road (WORTH-15) |
| **DA5-3** | All East Pipes Positive | The pipe to the east that allowed flow in or out of the Preserve was set to only allow flow into the Preserve | Caused rises upstream of the Preserve and in one of the Residential areas to the west of Bonita Grande Mine; caused decreases in some areas downstream of the Preserve; this scenario is acceptable other than the rises in the residential areas; it is assumed that rises could be addressed during model refinement | 0.1 | 0.0* | -0.4 | 0.0 | 0.0* | 0.1 | 0.0 |
| **DA5-4** | North Community Flow Directed West | The north berm was adjusted to direct the flow in the community north of the Preserve to the west | Caused rises in the Estero River and in one of the residential communities west of Bonita Grande Mine; caused decreases upstream of the Preserve and in one of the residential communities west of Bonita Grande Mine; the rises in the Estero River caused by the adjusted berm were determined to be unacceptable | -0.2 | 0.3 | -0.4* | 0.0 | 0.0 | 0.1 | 0.0 |
| **DA6** | Berm Adjusted to Protect North Community | The north berm was extended fully between the Preserve and the communities to the north | Caused rises in the Estero River and in one of the residential communities west of Bonita Grande Mine; caused decreases in the Imperial River, Spring Creek, and in one of the residential communities west of Bonita Grande Mine; the rises in the Estero River caused by the adjusted berm were determined to be unacceptable | 0.0 | 0.5 | -0.4 | 0.0 | 0.0* | 0.1 | 0.0 |
| **DA7** | Linear Pond | DA5-3 Scenario with a linear pond along the border of the Preserve to allow flow around the Preserve | Caused rises upstream of the Preserve and in the Estero River and Halfway Creek; caused decreases in the Imperial River and south of Bonita Beach Road; the rises in this scenario were determined to be unacceptable | 0.0* | 0.2 | 0.4 | 0.0 | -0.1 | 0.0 | 0.0 |

| Design Alternative Name | Model Scenario Name | Model Scenario Description | Summary of Results and Conclusions | Stage Difference between Design Alternative and Existing Condition (ft) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Corkscrew Rd (SLT-WildCat005) | Estero River (ERSB-N45) | Halfway Creek (HC-N94) | Spring Creek (NG0216) | Imperial River (NE0139) | Residential West of Bonita Grand Mine (LMK_00245) | Residential South of Bonita Beach Road (WORTH-15) |
| **DA8** | Berm Along Mine | A berm was added from the south of the Preserve along the east side of Bonita Grande Mine to the southernmost point of the mine | Caused rises in the Estero River and Halfway Creek; caused decreases in the Imperial River and in one of the communities west of Bonita Grande Mine; the increases in this scenario were determined to be unacceptable | 0.0 | 0.2 | 0.3 | 0.0 | -0.2 | 0.0 | 0.0 |
| **DA9** | Flow Through Preserve with Berm Along Mine | DA3 Scenario with the berm along the east side of Bonita Grande Mine | Caused rises in Halfway Creek; caused decreases in the Imperial River and in one of the communities west of Bonita Grande Mine; the rises in Halfway Creek were determined to be unacceptable | 0.0 | 0.1* | 0.1 | 0.0 | -0.1 | 0.0 | 0.0 |
| **DA5-2a** | Berm extended at 999’ | North berm extended further south toward center of preserve and elevation raised to 999’ | Caused rises upstream of the Preserve and in one of the communities west of Bonita Grande Mine; caused decreases in Estero River, Halfway Creek, and one of the communities to the west of Bonita Grande Mine; it is assumed that rises could be addressed during model refinement | 0.1 | -0.4 | -0.3 | 0.0 | 0.1* | 0.1 | 0.0 |
| **DA5-2b** | Berm extended south | Berm extended at 999’ to south similar to full B1 Alignment | Caused rises upstream of the Preserve and in one of the communities west of Bonita Grande Mine; caused decreases in some flow ways west of the Preserve, and two areas to the west of Bonita Grande Mine; it is assumed that rises could be addressed during model refinement | 0.3 | -0.4 | -0.3 | 0.0 | -1.2 | 0.1 | -0.1 |
| **DA5-2c** | Blocked Connection | Blocked existing connection from Preserve south toward residential areas | Caused rises upstream of the Preserve and one of the areas west of Bonita Grande Mine; caused decreases in some flow ways west of the Preserve and the residential areas west of Bonita Grande Mine; it is assumed that rises could be addressed during model refinement | 0.4 | -0.4 | -0.3 | 0.0 | -1.2 | -0.1 | -0.1 |

| Design Alternative Name | Model Scenario Name | Model Scenario Description | Summary of Results and Conclusions | Stage Difference between Design Alternative and Existing Condition (ft) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Corkscrew Rd (SLT-WildCat005) | Estero River (ERSB-N45) | Halfway Creek (HC-N94) | Spring Creek (NG0216) | Imperial River (NE0139) | Residential West of Bonita Grand Mine (LMK_00245) | Residential South of Bonita Beach Road (WORTH-15) |
| **DA5-2d** | Adjusted Southern Berm | The berm was adjusted south of Bonita Grande Mine to prevent the rise occurring to the west | Caused rises upstream of the Preserve; caused decreases in some flow ways west of the Preserve and the areas west and south of Bonita Grande Mine; it is assumed that rises could be addressed during model refinement | 0.2 | -0.4 | -0.2 | 0.0 | -0.2 | -0.2 | 0.0 |
| **DA5-2d(FullB1)** | Full B1 Berm Alignment | DA5-2d Scenario with the full B1 Berm Alignment included | Caused rises upstream of the Preserve and one of the areas west of Bonita Grande Mine; causes decreases in some of the flow ways west of the Preserve and in some areas south of the Preserve; it is assumed that the rises can be addressed during refinement | 0.4 | -0.4 | -0.3 | 0.0* | -1.1 | -0.2 | -0.1 |
| **DA5-2d(B2)** | B2 Berm Alignment | DA5-2d Scenario with the B2 Berm Alignment included | Caused rises upstream of the Preserve and one of the areas west of Bonita Grande Mine; causes decreases in some of the flow ways west of the Preserve and in some areas south of the Preserve; it is assumed that the rises can be addressed during refinement | 0.4 | -0.4 | -0.3 | 0.0* | -1.6 | -0.2 | -0.1 |
| **DA5-2d(ShortB1)** | Shortened B1 Berm Alignment | DA5-2d Scenario with a shortened B1 Berm Alignment ending at the intersection of Poor Man's Pass Road and the road North of Flint Pen Strand | Caused rises upstream of the Preserve and one of the areas west of Bonita Grande Mine; causes decreases in some of the flow ways west of the Preserve and in some areas south of the Preserve; it is assumed that the rises can be addressed during refinement | 0.4 | -0.4 | -0.3 | 0.0* | -1.1 | -0.2 | -0.1 |

* The exhibits in **Attachment A** show the general trend of each area while the results in **Table 1** shows the results from the single node specified. For any difference indicated with an asterisk, the general trend of the data was not well represented by the specific node difference shown.

The final three model design alternatives in the **Table 1** met the desired outcome to decrease flood stages in the Estero and Imperial Rivers. It is anticipated that the remaining rises in the model will be addressed during the refinement process.

Alternatives DA1 through DA5-2d were run using the 25-yr and 100-yr design storms. Alternative DA5-2d proved to be the most effective, so this alternative was used to incorporate phase 2 of the berm alignments. At the County's direction, the models with the phase 2 berm alignments were run with rainfall data from the Invest 92L and Hurricane Irma storms in 2017. The Estero and Imperial Rivers experienced unusually high flooding during the Invest 92L/Irma storms, so this rainfall data was used as a worst-case scenario to determine the effectiveness of the berm alignments. **Table 2** shows stage differences between the design alternative and the existing condition model for three locations along the Estero and Imperial Rivers for the simulated events. Decreases in stages are shown in green.

For the Estero River, these model runs indicated no difference in node stages between the three different scenarios. However, there were differences in node stage throughout the river in each scenario. Each of these nodes has a lesser decrease in stage in the middle of the river as compared to the upstream and downstream ends. The downstream end of the river has the greatest decrease in stage when compared to the upstream and middle nodes.

The Imperial River behaves differently from the Estero River in that the results differ for each berm alignment. However, the results do show a consistent decrease in node stage difference from upstream towards downstream. Directly downstream of I-75, the model is demonstrating a decrease in stage between 2ft and 3ft for the different alignment scenarios. This decrease propagates all the way downstream to the Estero Bay, however the differences become less distinct. The locations of each of these nodes can be seen in Figure 1 on the next page.

***Table 2.*** *Berm Alignment Design Alternative River Fluctuation Results for the Invest 92L/Irma Storm*

| | | Stage Difference between Design Alternative and Existing Condition (ft) | | | | | |
|---|---|---|---|---|---|---|---|
| **Design Alternative Name** | **Model Scenario Name** | **Upstream Estero River (ERSB-N45)** | **Middle Estero River (ERSB-N1)** | **Downstream Estero River (ER-N10)** | **Upstream Imperial River (NE0139)** | **Middle Imperial River (NE0010)** | **Downstream Imperial River (NA0170)** |
| **DA5-2d(FullB1)** | Full B1 Berm Alignment | -0.4 | -0.3 | -0.7 | -2.3 | -1.2 | -0.6 |
| **DA5-2d(B2)** | B2 Berm Alignment | -0.4 | -0.3 | -0.7 | -3.1 | -1.4 | -0.7 |
| **DA5-2d(ShortB1)** | Shortened B1 Berm Alignment | -0.4 | -0.3 | -0.7 | -2.3 | -1.1 | -0.6 |


**Figure 1.** Locations of upstream, middle, and downstream nodes in the Estero and Imperial Rivers.

Based on the results for each model run, Kimley-Horn recommends moving forward with refinement with the DA5-2d (Short B1) alternative (the shortened B1 Berm Alignment or Short B1) or the DA5-2d(B2) alternative (B2 Berm Alignment or B2). The reason the full B1 berm alignment will likely not be recommended is because the increase in cost for the additional berm construction will not be worth the minimal additional decrease in the peak stages. Kimley-Horn is still reviewing which alignment of B2 and Short B1 would be most desirable. Some initial thoughts are that the B1 berm alignment may disconnect the wetlands in the CREW lands, which would be an issue from the environmental standpoint. There is also concern that the B2 berm alignment could pose a greater risk to Lee County residents if the berm were to breach and cause flooding downstream.

In addition to choosing a final berm alignment, there are other key design elements that Kimley-Horn recommends considering during model refinement. These are included below. Each of these refinement points can start with a brief sensitivity analysis to provide insight about how to refine the alternative or if further refinement is recommended.

1. **Water Management** – Two main surface water management system techniques have been proposed to date. The first involves utilizing the park roadway and trail system to create "cells" that can be managed independently of one another. This would involve connecting each cell with operable control structures. In this situation, the major control structures upstream of I-75 and under the proposed berm would still be proposed, although the final configuration and size can be worked out during model refinement. The second option would be using these major control structures under I-75 to manage the surface water in the Larry Kiker Preserve. In this scenario, the internal roadways and trails would have pipes under them only and each area would not be independently managed.

2. **Internal Roadway/Trail Layout** – Currently two park layouts (Conceptual Layouts A and B) are proposed. While the County currently prefers Conceptual Layout B, modeling both of these layouts will help to understand how sensitive the overall system is to internal roadway/network changes and provide two different options for cost/benefit considerations.

3. **Phasing of Berm** – At this time, it is understood that the County would likely phase the berm design. As such, the project will need to work with Phase 1 of the berm only and Phase 2 added. To ensure this is the case, we recommend refining alternatives with and without the Phase 2 portion of the berm completed. Prior to running these alternatives, a single berm alignment will be chosen (Short B1 or B2) and used for all Full Berm scenarios.

**Table 3** includes six alternatives with these key items considered that could be further refined. However, it is important to note, all of these alternatives have not been ran to date, so an initial model run should be completed first. If it seems like each is a viable option, then further refinement could occur.

***Table 3.*** *Proposed Refinement Alternatives*

| Alternative | Water Management | Berm Scenario | Internal Layout |
|---|---|---|---|
| **F1** | Celled Approach (Control structures throughout & under I-75) | Full Berm (Short B1 or B2) | Layout B |
| **F2 (initial run; further refinement only if effective)** | Control structures under I-75 only | Full Berm (Short B1 or B2) | Layout B |
| **F3** | Celled Approach (Control structures throughout & under I-75) | Phase 1 only | Layout B |
| **F4 (only if F2 is effective)** | Control structures under I-75 | Phase 1 only | Layout B |
| **F5** | Most effective of the two options from F1 and F2 | Phase 1 only | Layout A |
| **F6** | Most effective of the two options from F1 and F2 | Full Berm (Short B1 or B2) | Layout A |

Through the alternatives analysis completed as part of the stormwater task, it has been confirmed that constructing the berm in a phased approach will be appropriate for this project and will not cause offsite rises. However, it will be important to refine this phased approach after refinement of the water management and internal layout components to confirm that there are no issues caused by constructing the berm in two phases.

Kimley-Horn is proposing the six alternatives listed above for the refinement process. Direction will be provided to SAI to move forward with refinement pending the County's acceptance of this recommendation. Adjustments can be made to these scenarios if the County has any concerns or would like to suggest any other refinement alternatives.

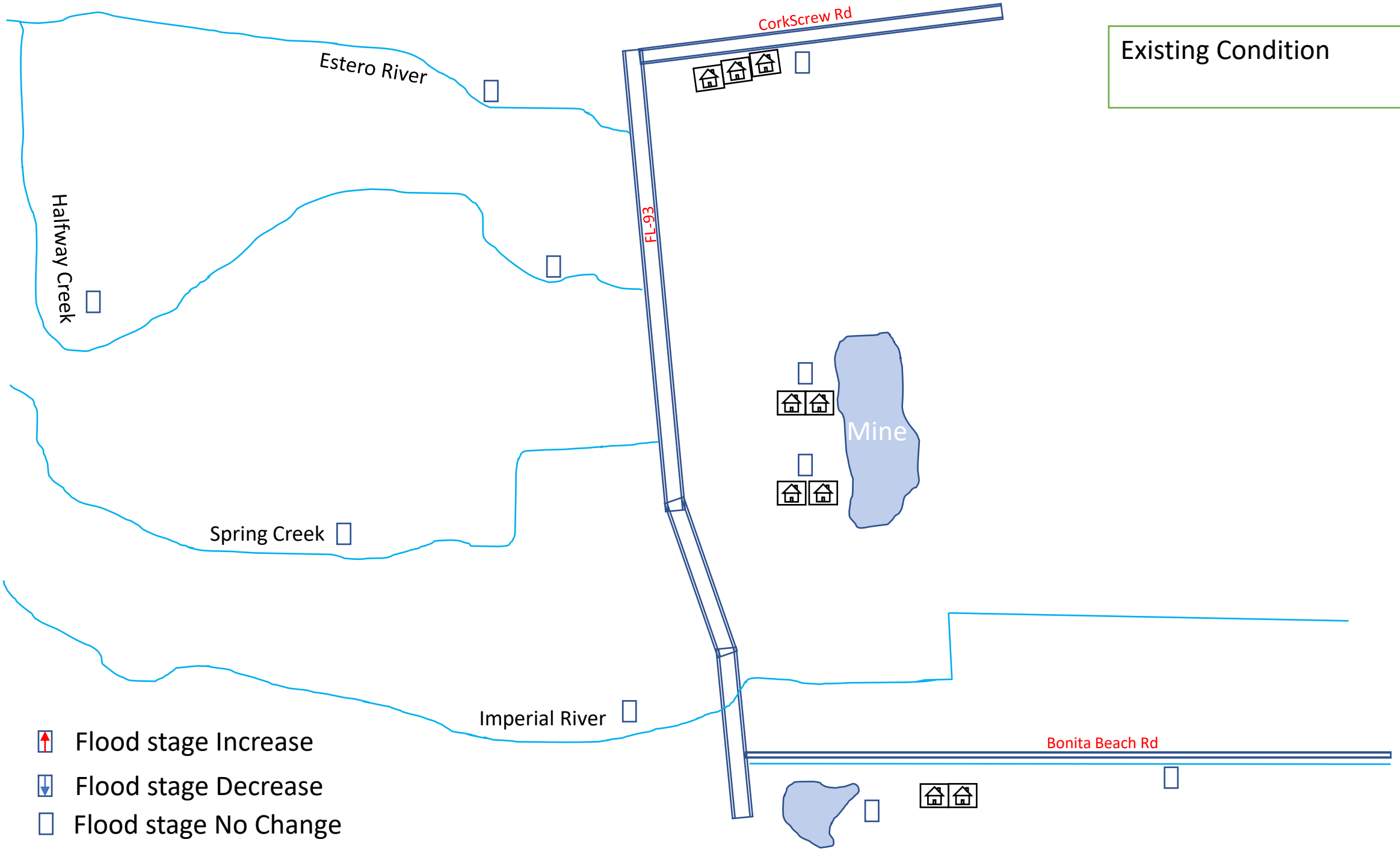
For the final berm alignment, a review is still being completed. Results of that review will be provided to the County once complete. However, it is anticipated the final recommendation will either be the B2 Alignment or the Shortened B1 Alignment.

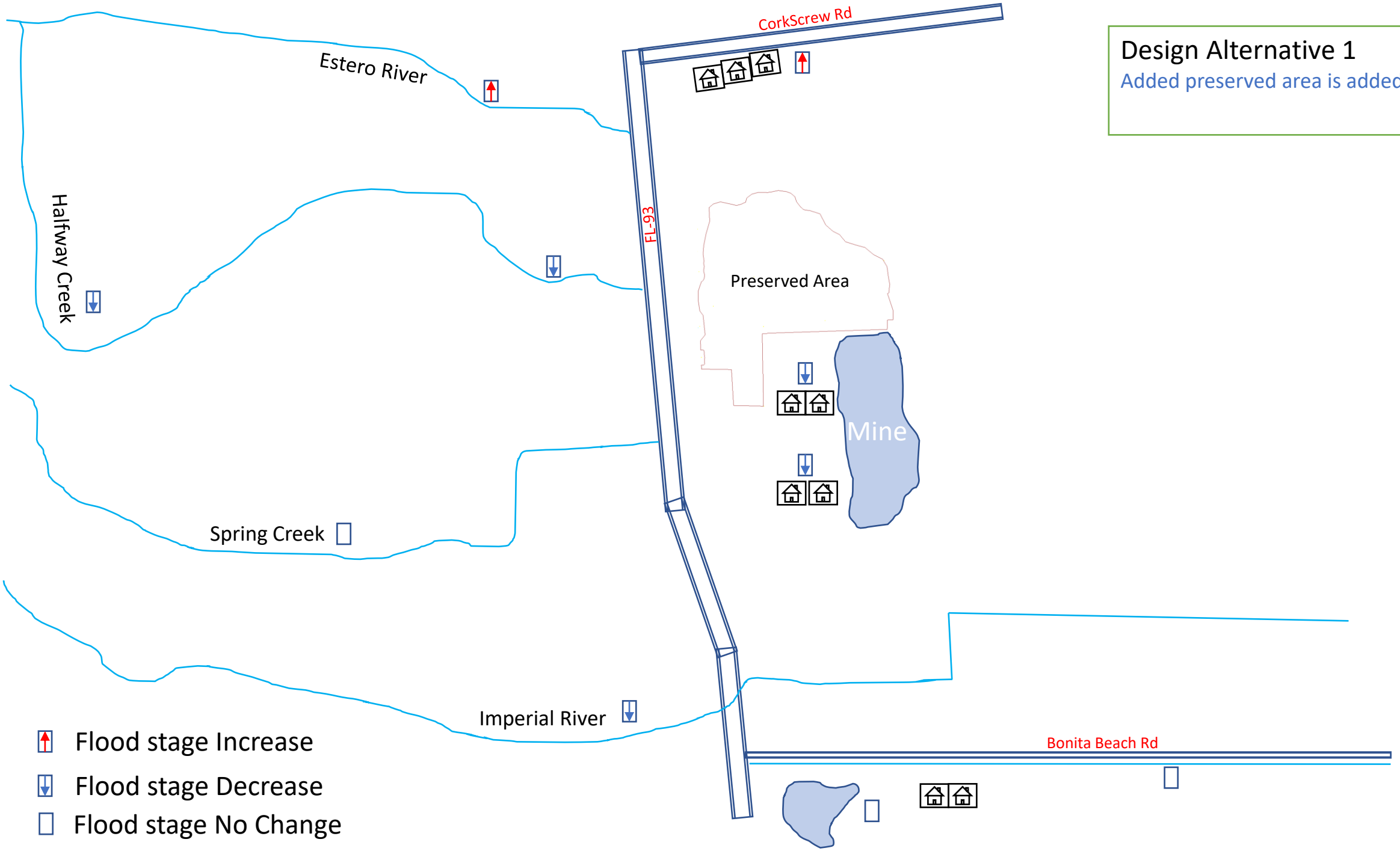
# Attachment A
# *Design Alternative Improvement Exhibits*

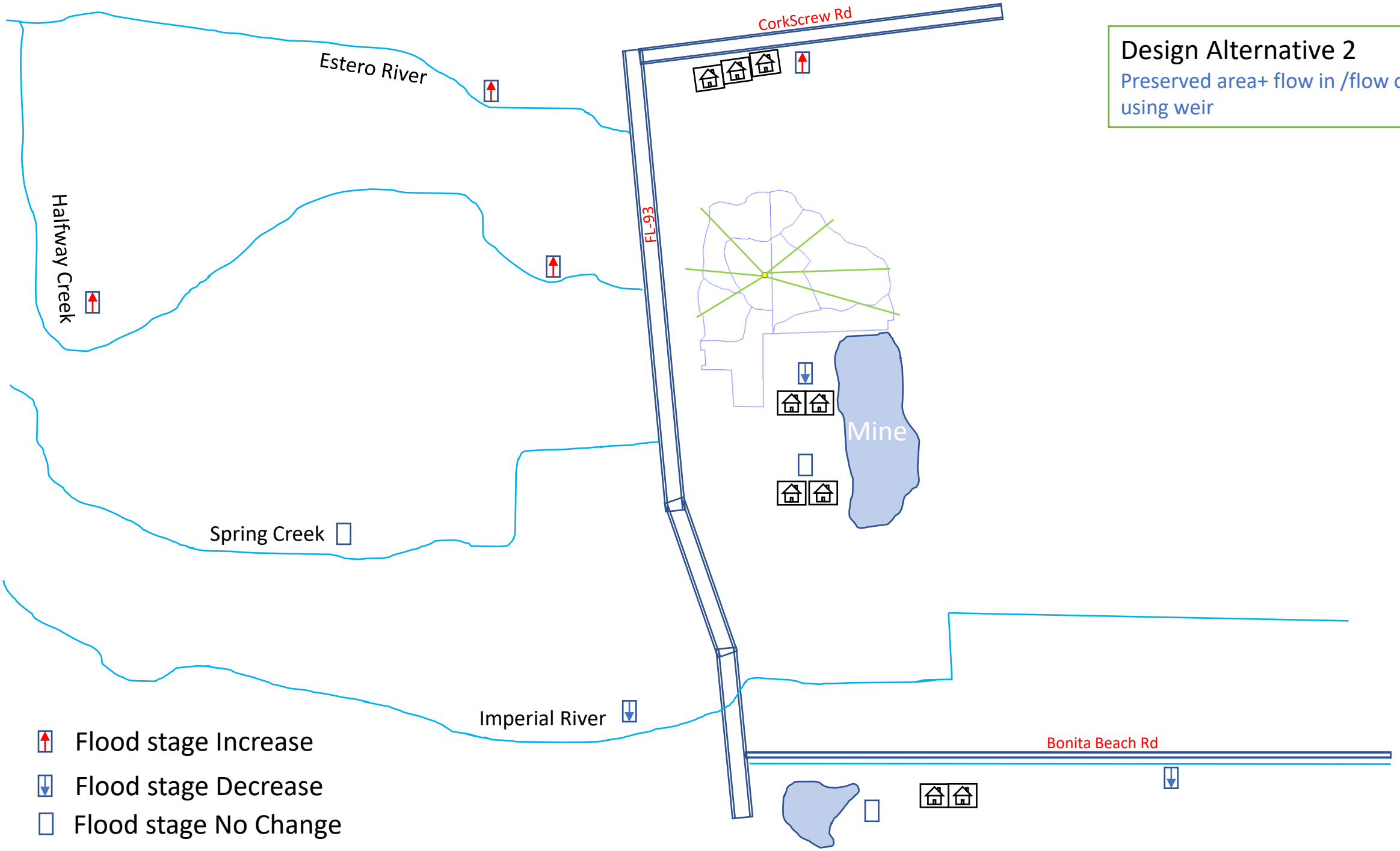
# Design Alternative Improvement

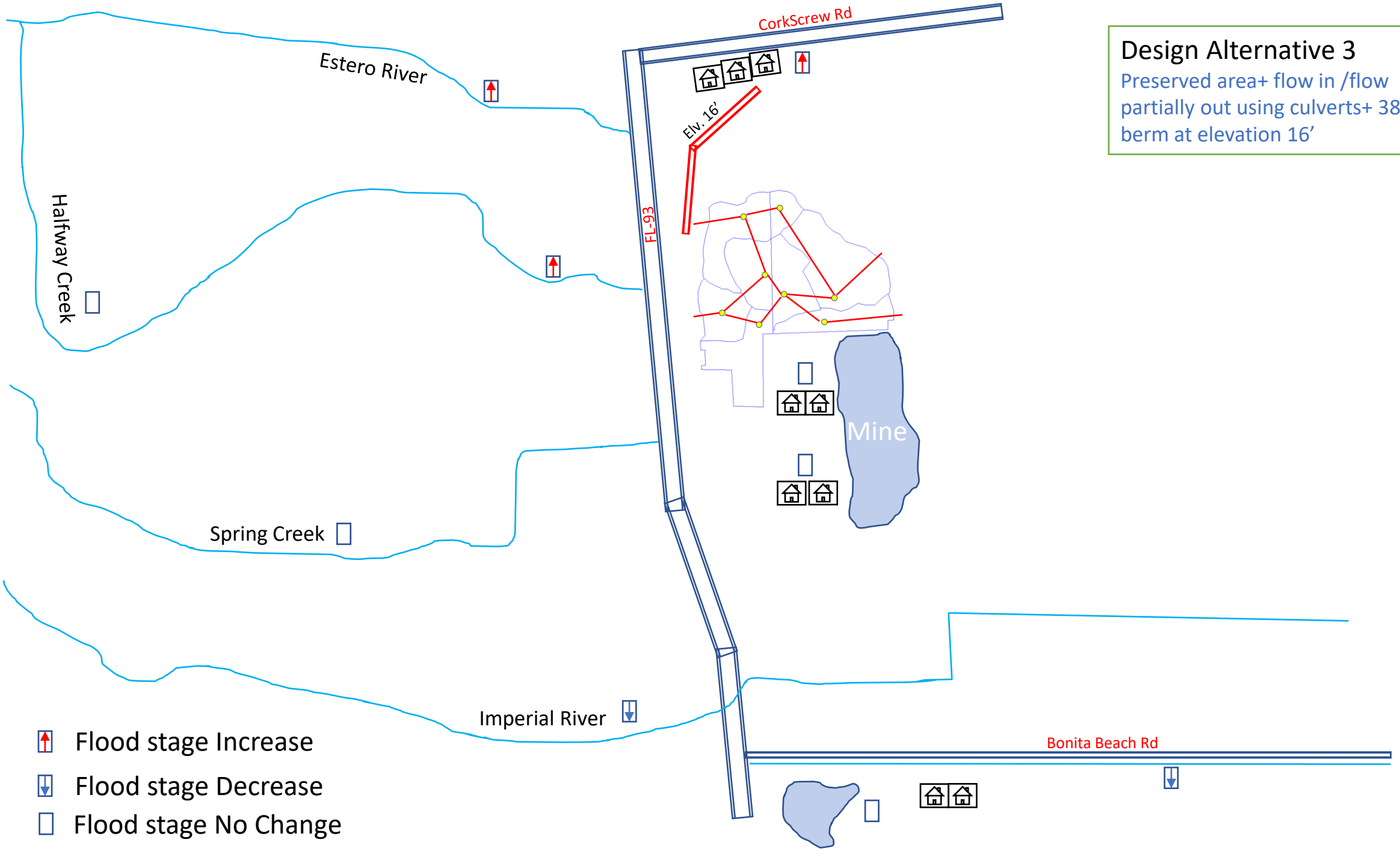
Singhofen & Associate

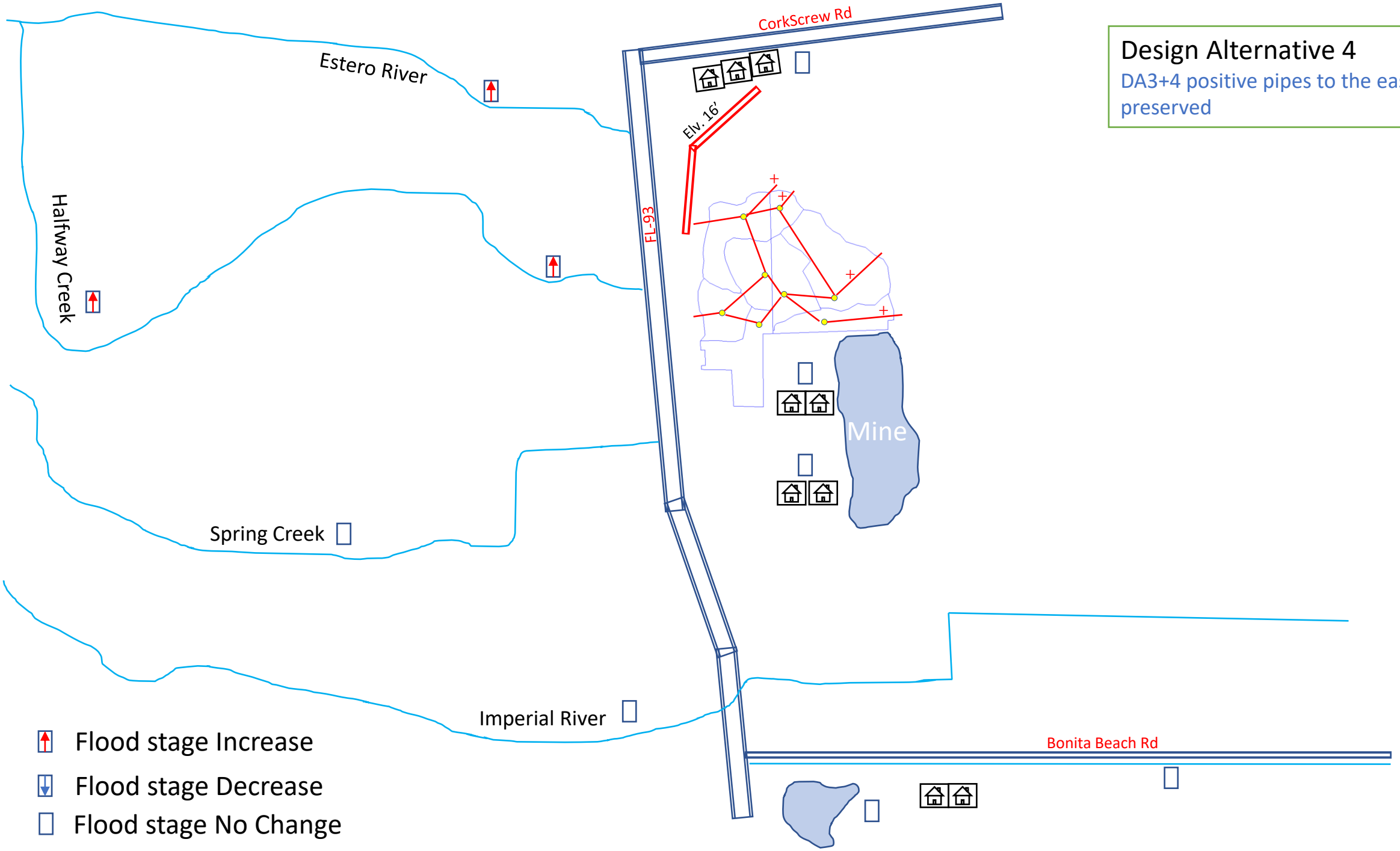
January 2023

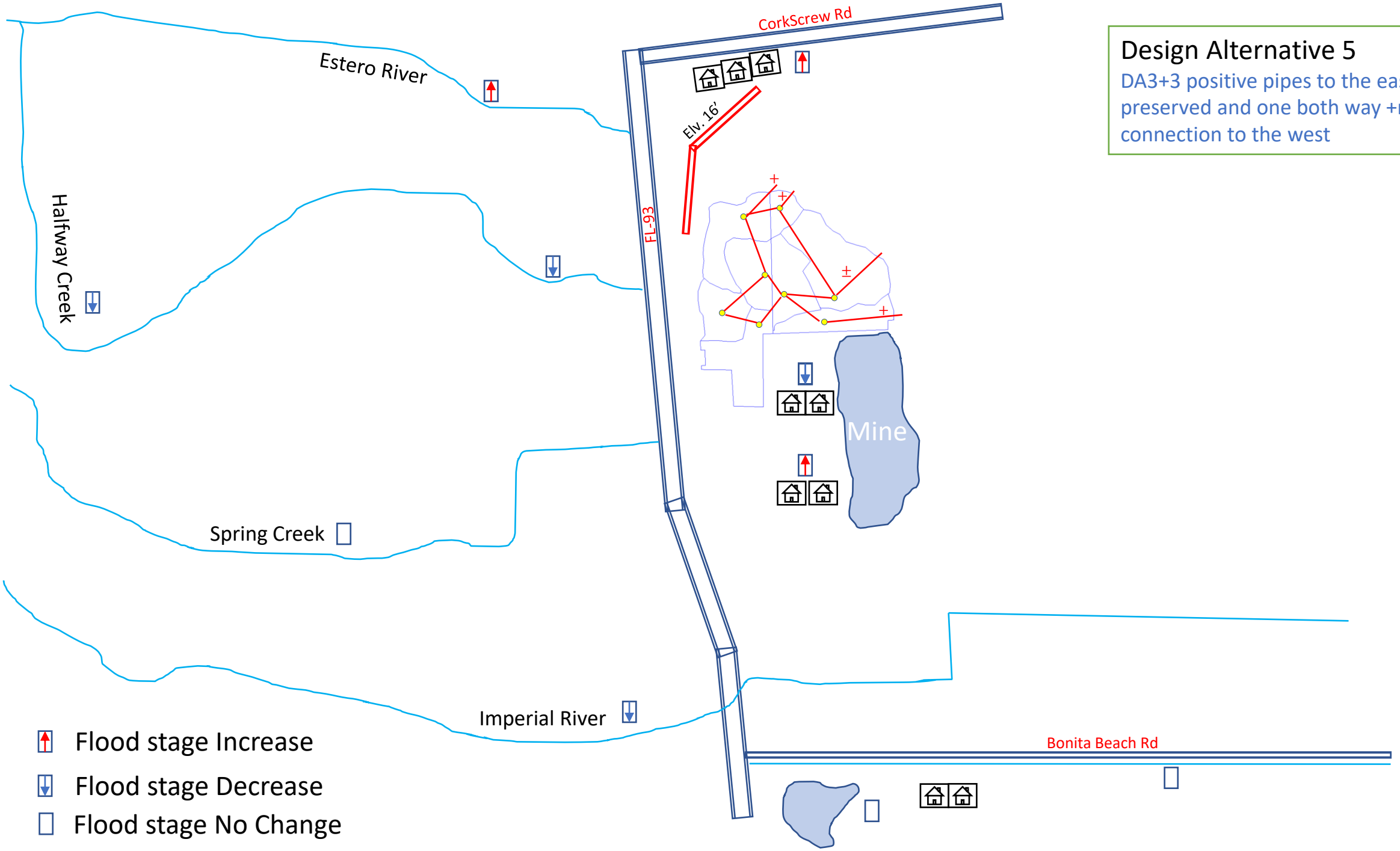

Existing Condition
CorkScrew Rd
Estero River
Halfway Creek
FL-93
Mine
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

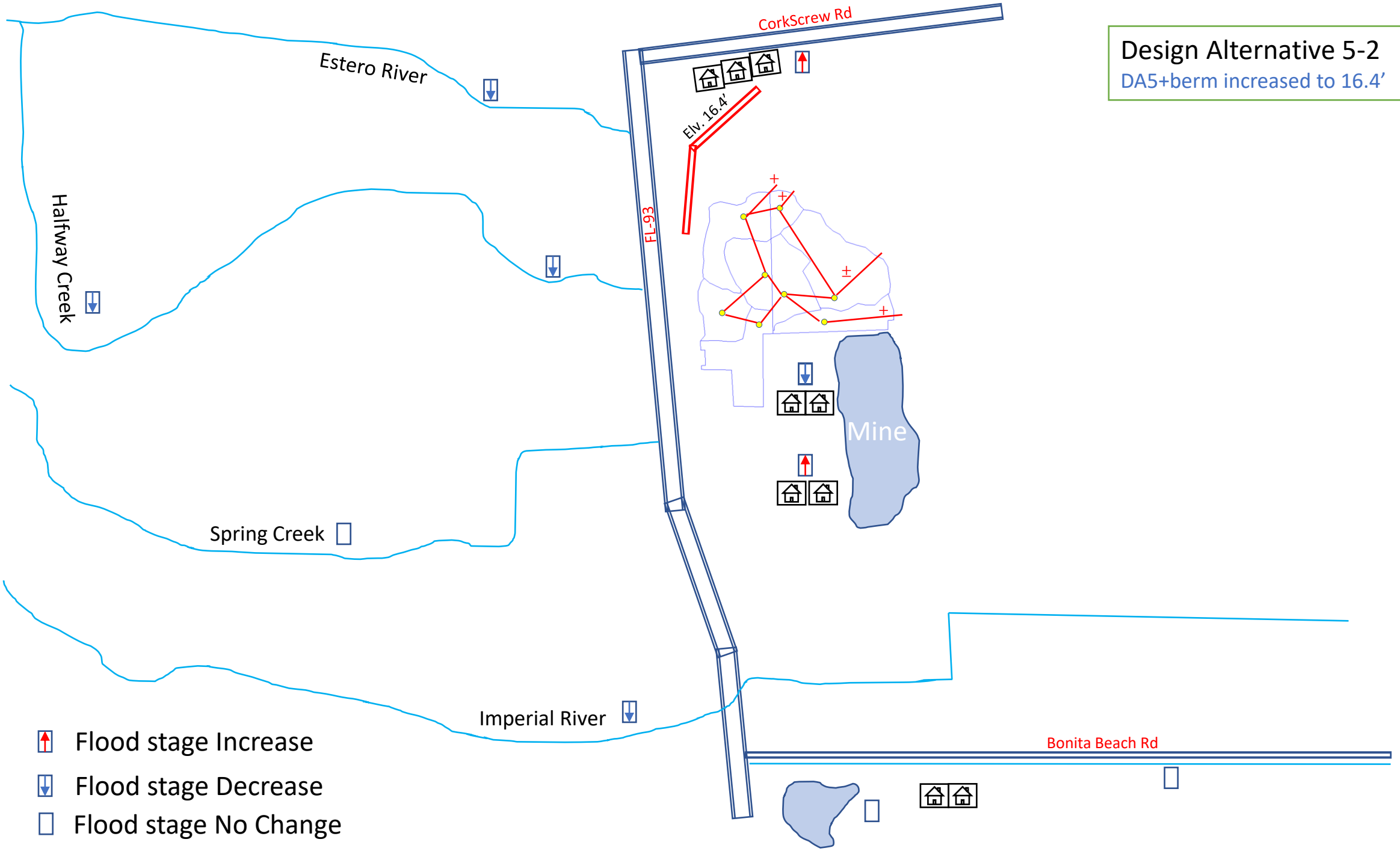

Design Alternative 1
Added preserved area is added
CorkScrew Rd
Estero River
Halfway Creek
FL-93
Preserved Area
Mine
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

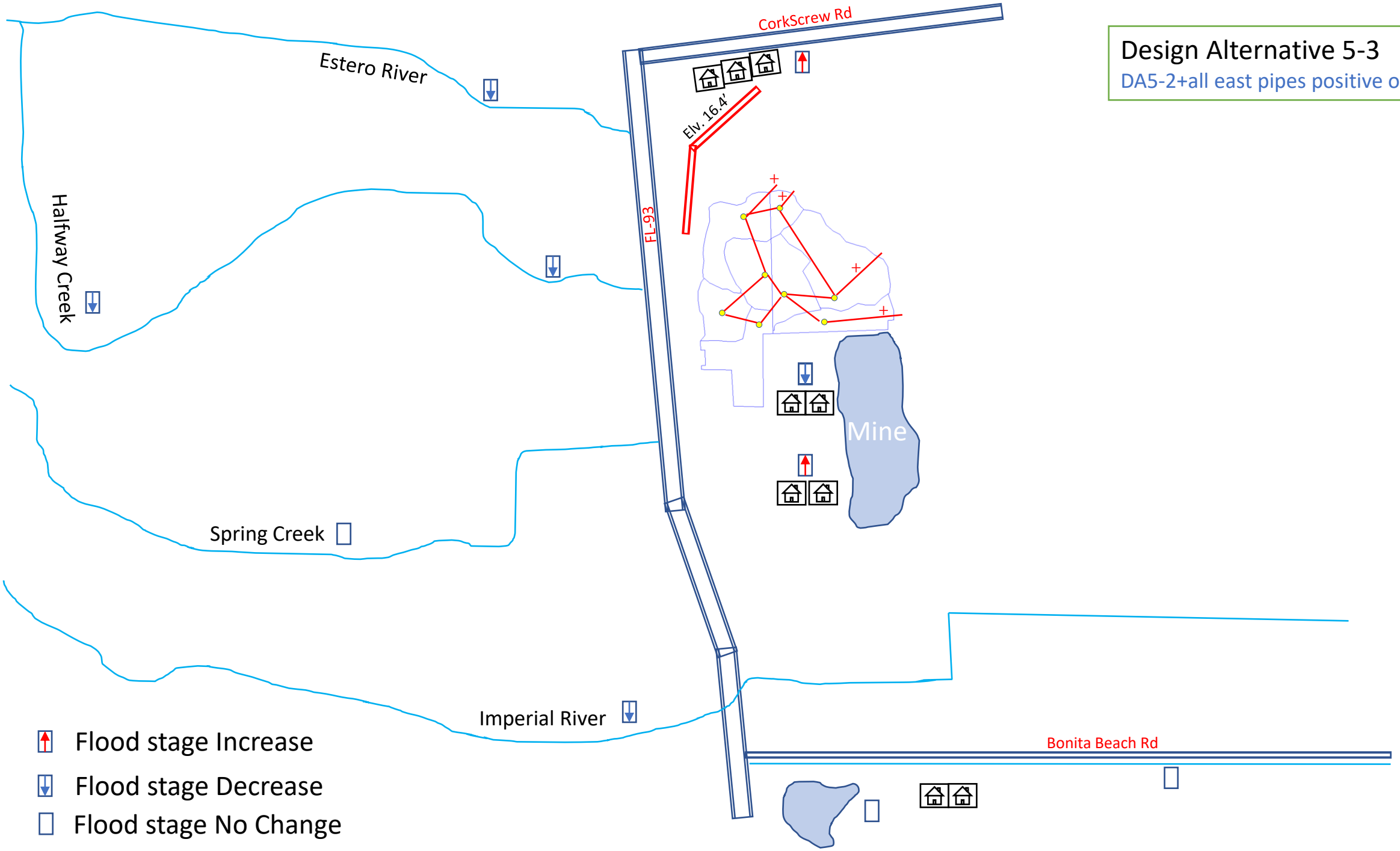

Design Alternative 2
Preserved area+ flow in /flow out using weir
CorkScrew Rd
Estero River
Halfway Creek
FL-93
Mine
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

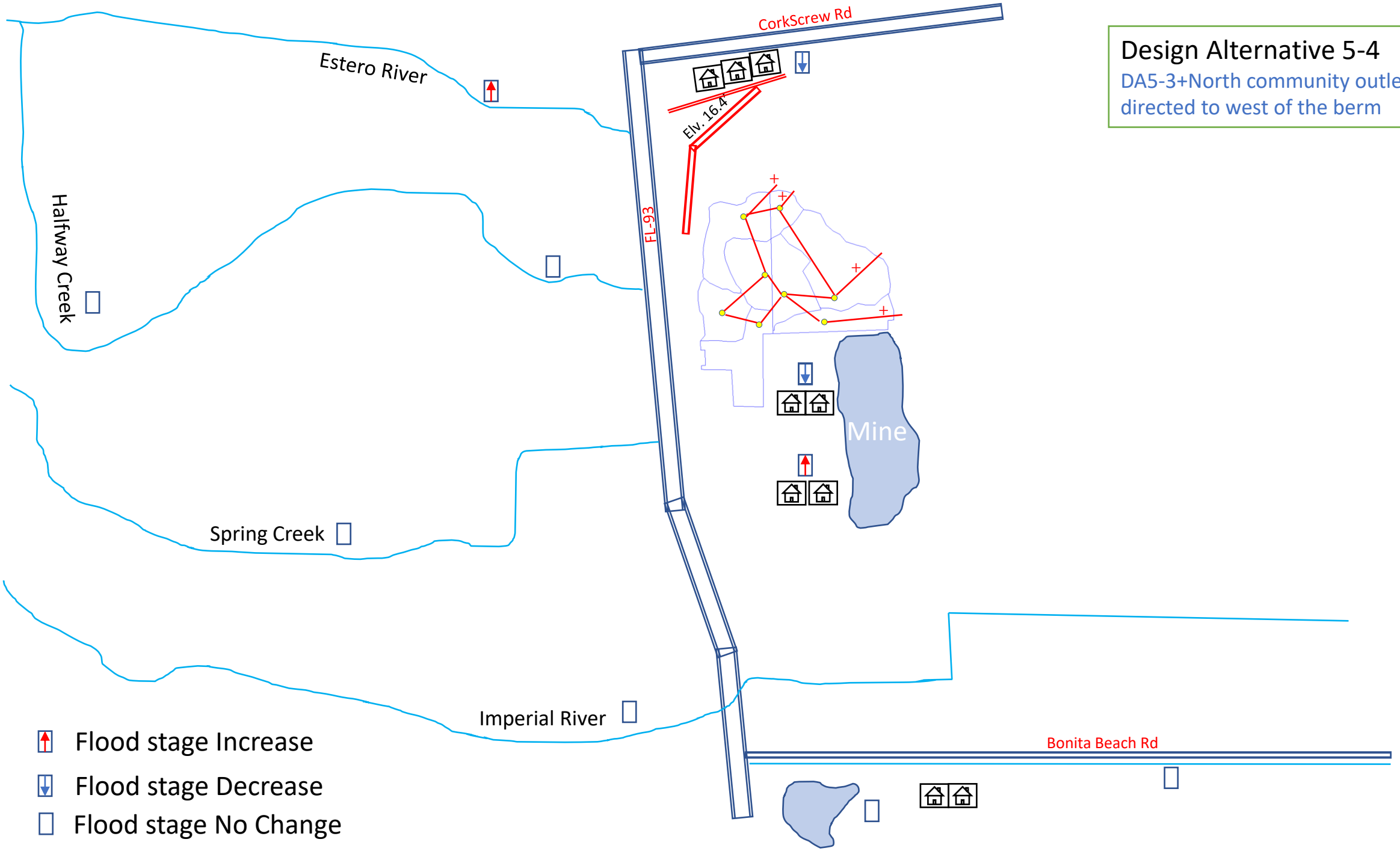

Design Alternative 3
Preserved area+ flow in /flow partially out using culverts+ 3800' berm at elevation 16'
CorkScrew Rd
Estero River
Elv. 16'
FL-93
Halfway Creek
Mine
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

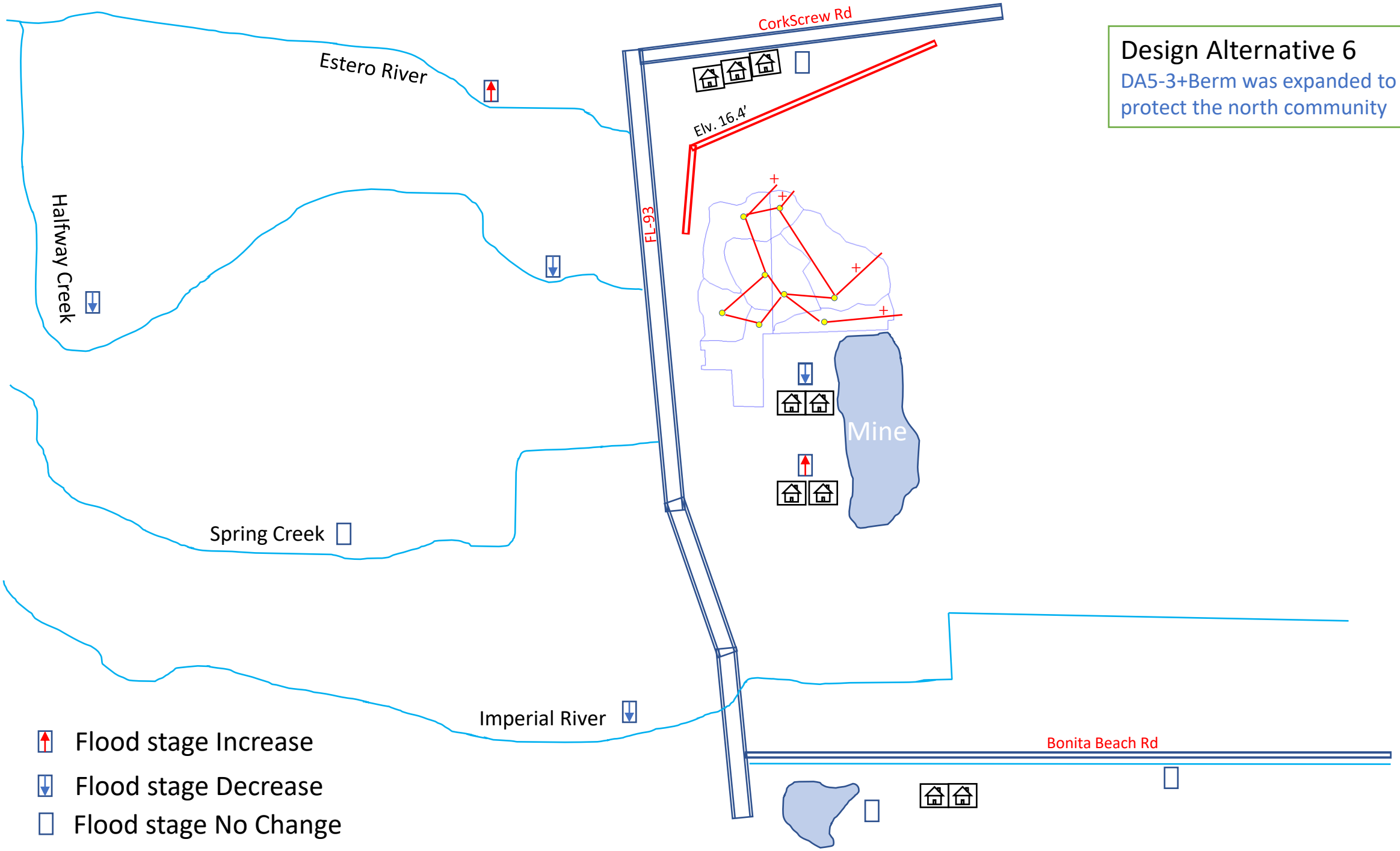

Design Alternative 4
DA3+4 positive pipes to the east of preserved
CorkScrew Rd
Estero River
Elv. 16'
FL-93
Halfway Creek
Mine
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

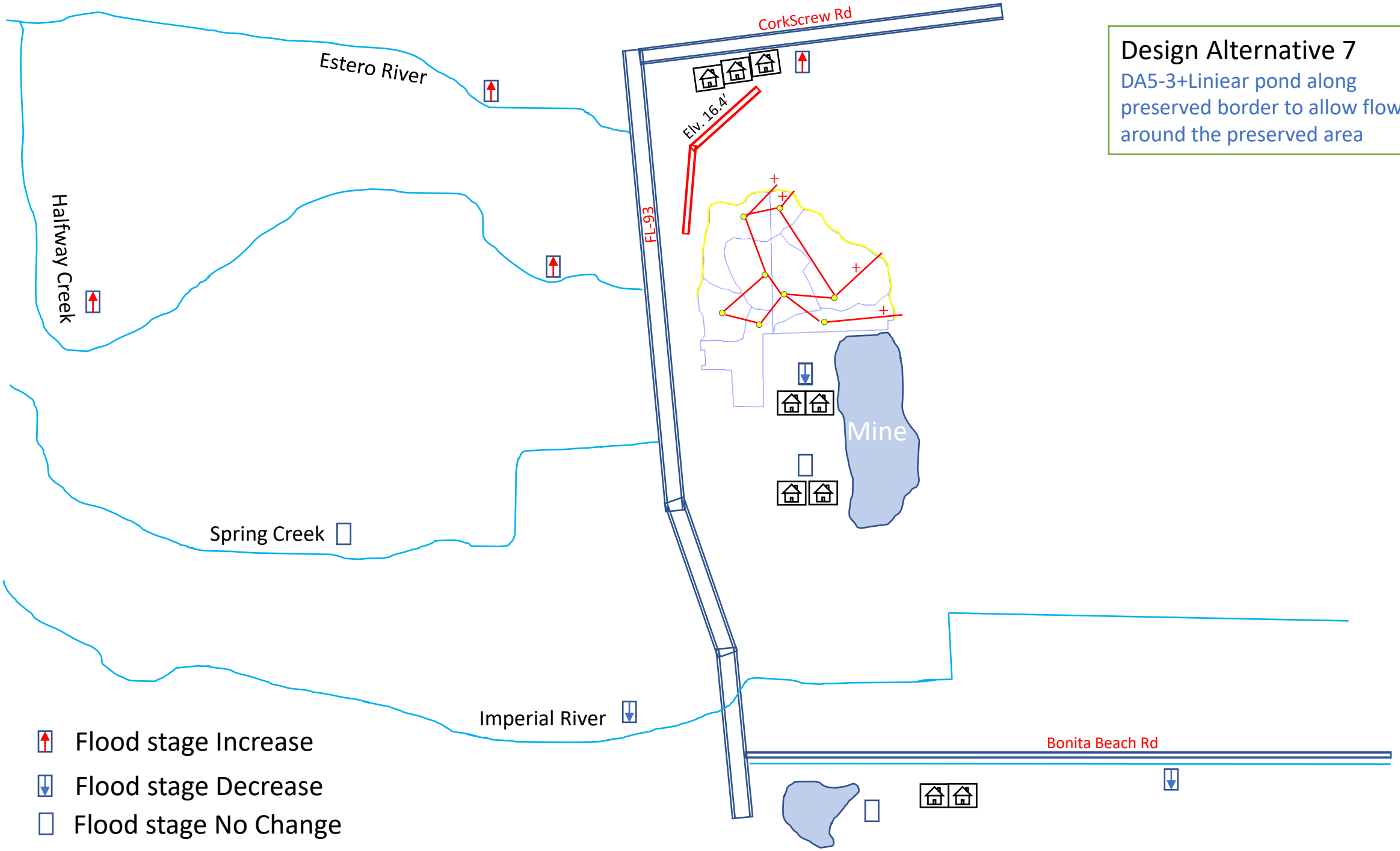

Design Alternative 5
DA3+3 positive pipes to the east of preserved and one both way +no connection to the west
CorkScrew Rd
Estero River
Elv. 16'
FL-93
Halfway Creek
Mine
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

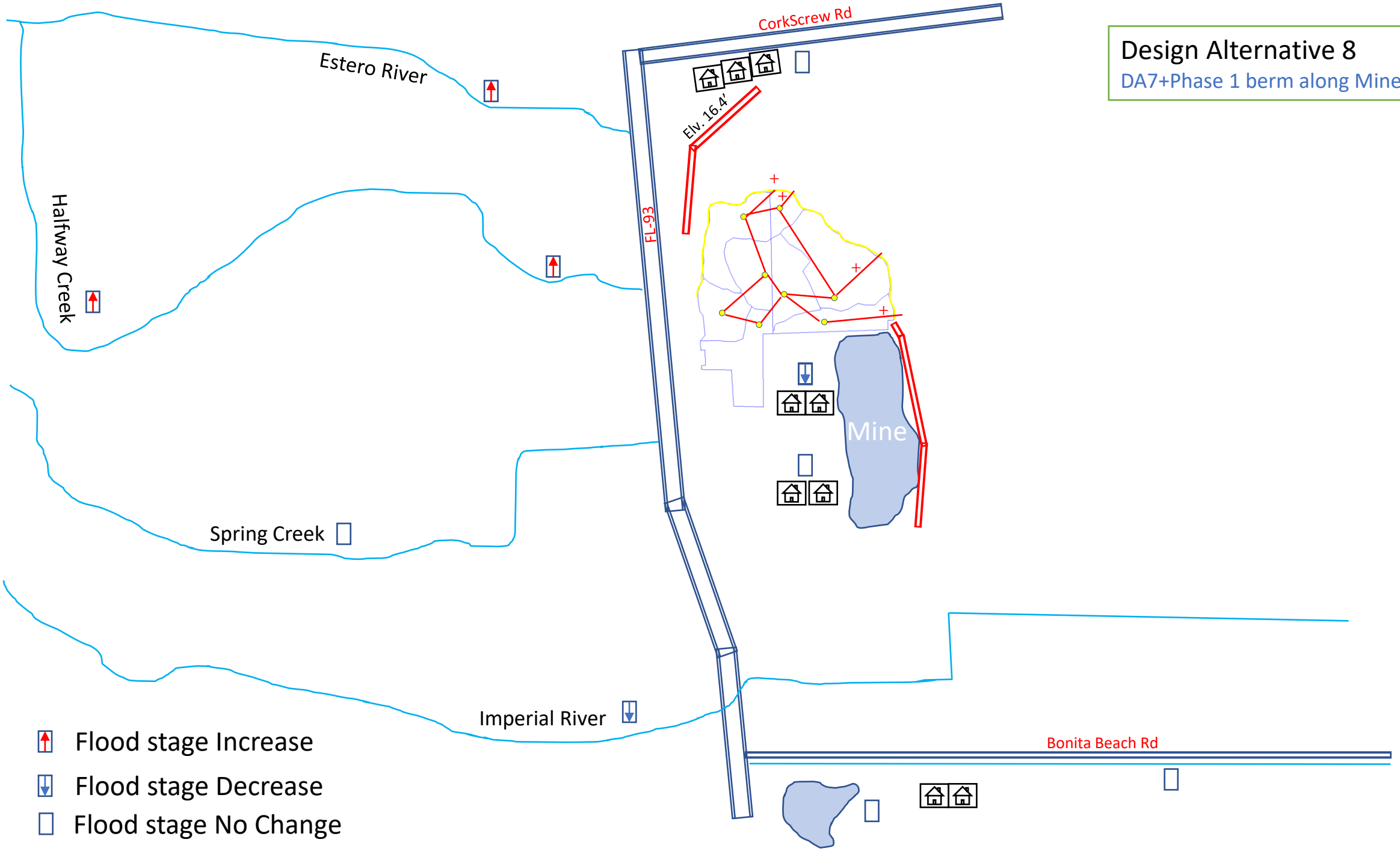

Design Alternative 5-2
DA5+berm increased to 16.4'
CorkScrew Rd
Estero River
Halfway Creek
Elv. 16.4'
FL-93
Mine
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

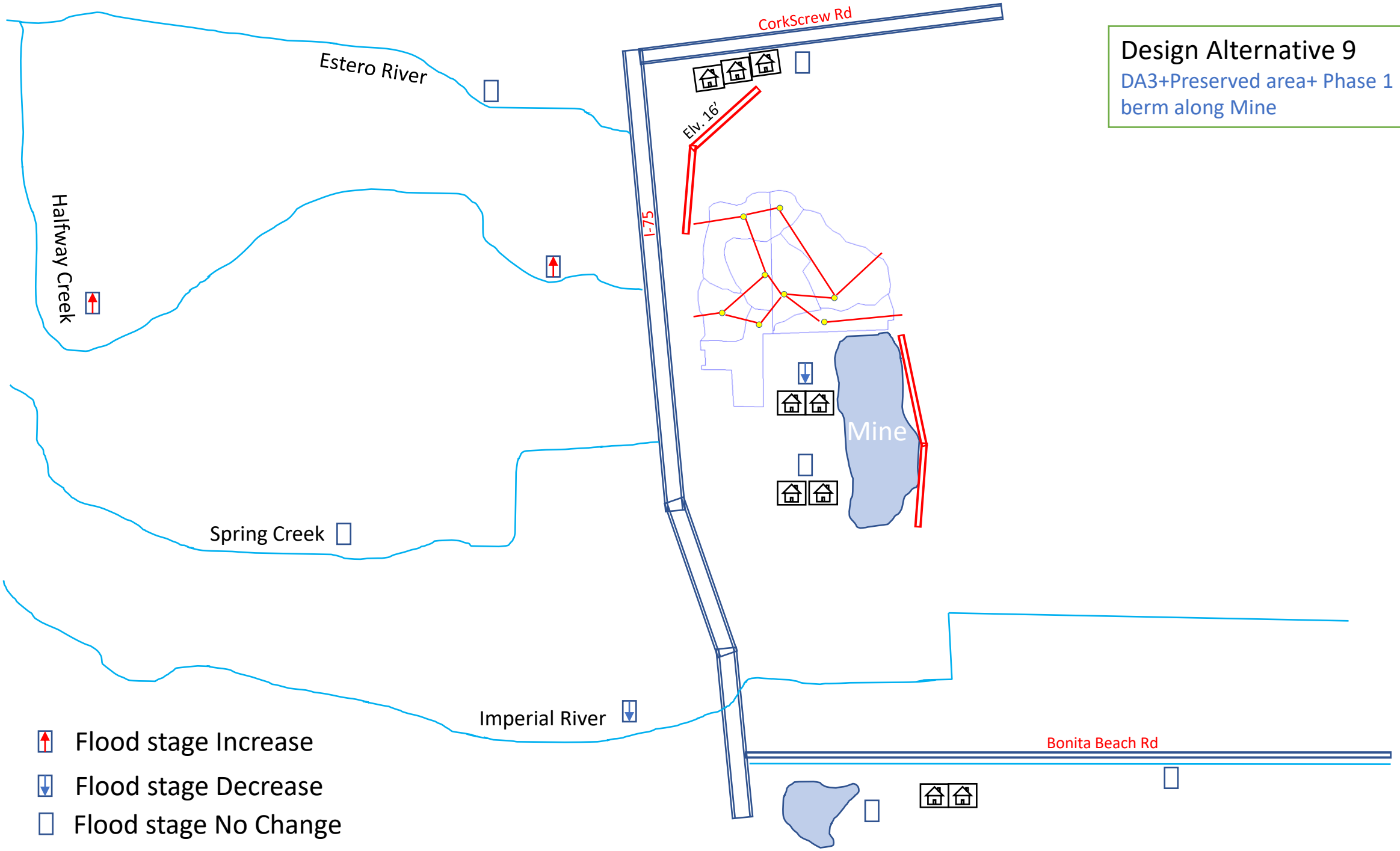

Design Alternative 5-3
DA5-2+all east pipes positive only
CorkScrew Rd
Estero River
Elv. 16.4'
FL-93
Halfway Creek
Mine
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

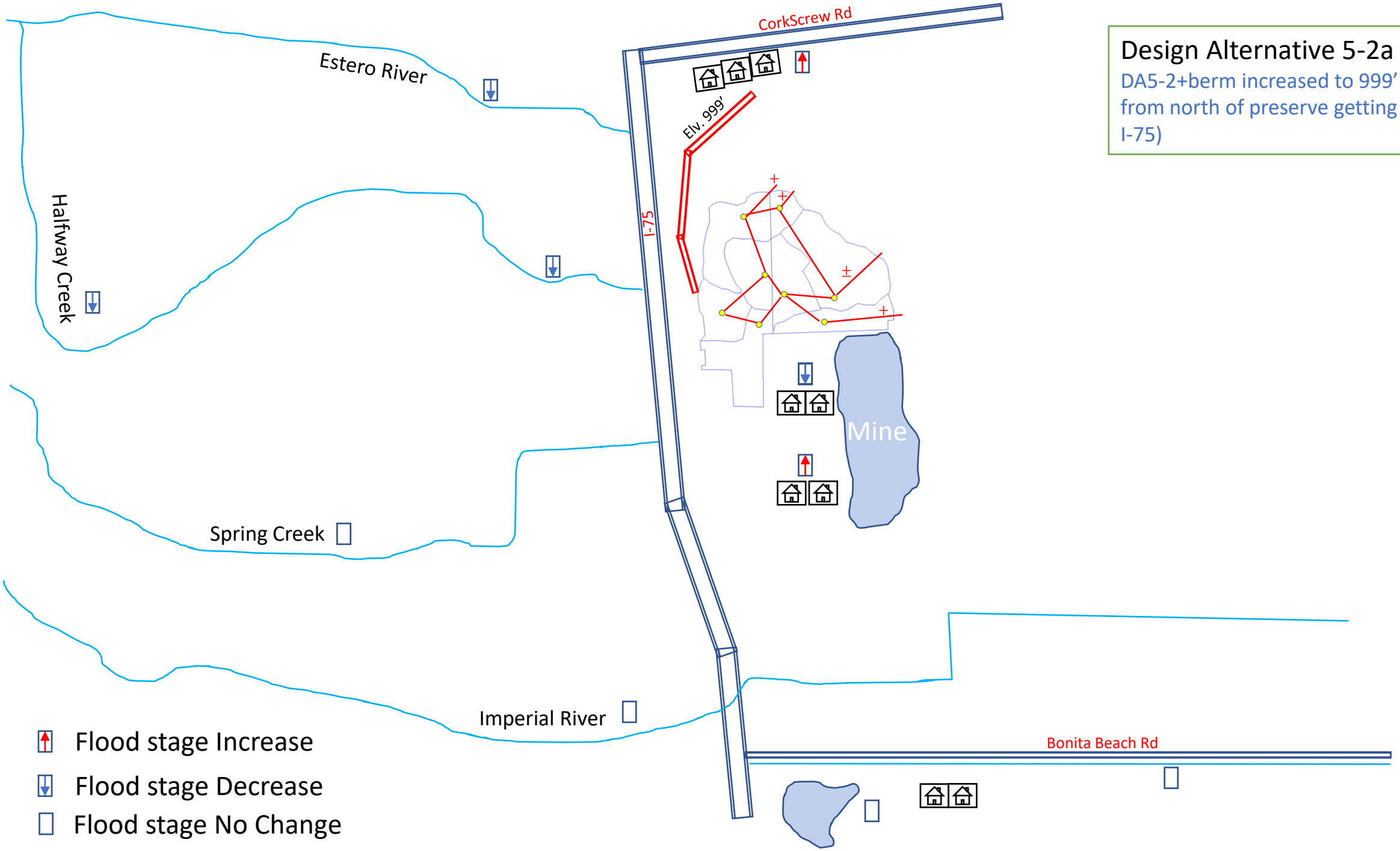

Design Alternative 5-4
DA5-3+North community outlet directed to west of the berm
CorkScrew Rd
Estero River
Elv. 16.4
FL-93
Halfway Creek
Mine
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

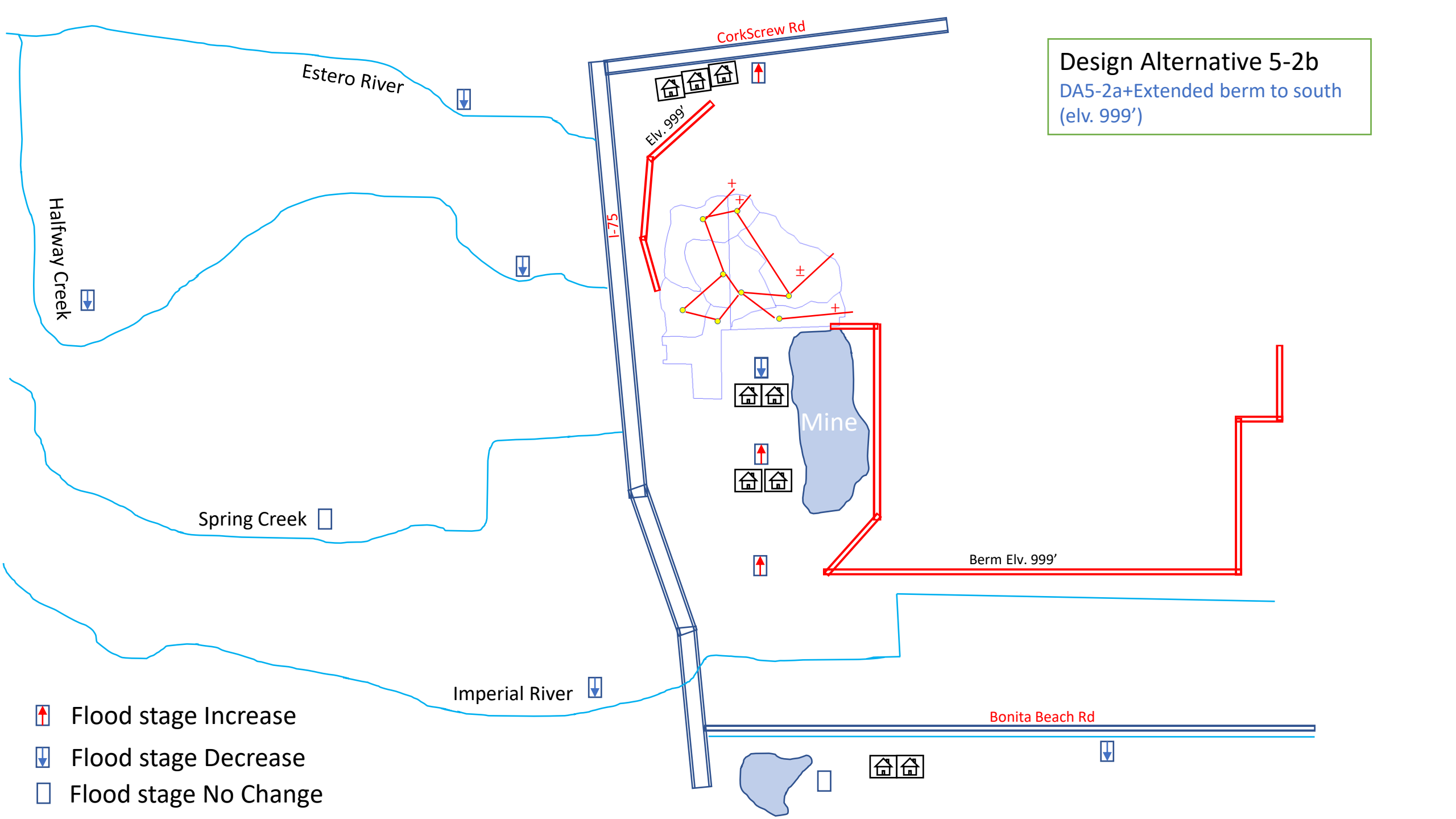

Design Alternative 6
DA5-3+Berm was expanded to protect the north community
CorkScrew Rd
Elv. 16.4'
FL-93
Estero River
Halfway Creek
Spring Creek
Imperial River
Mine
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

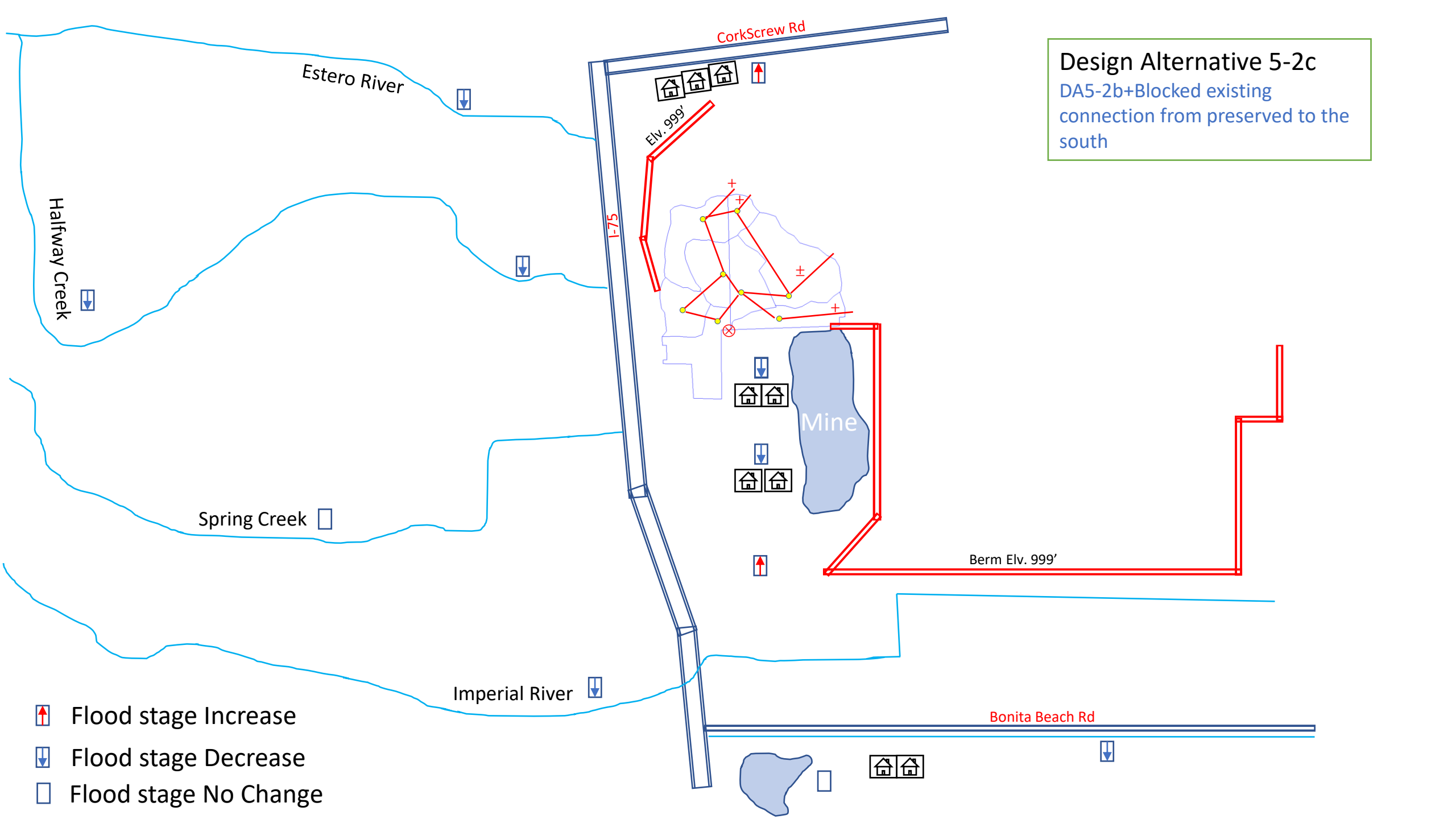

Design Alternative 7
DA5-3+Liniear pond along preserved border to allow flow around the preserved area
CorkScrew Rd
Estero River
Elv. 16.4'
FL-93
Halfway Creek
Mine
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

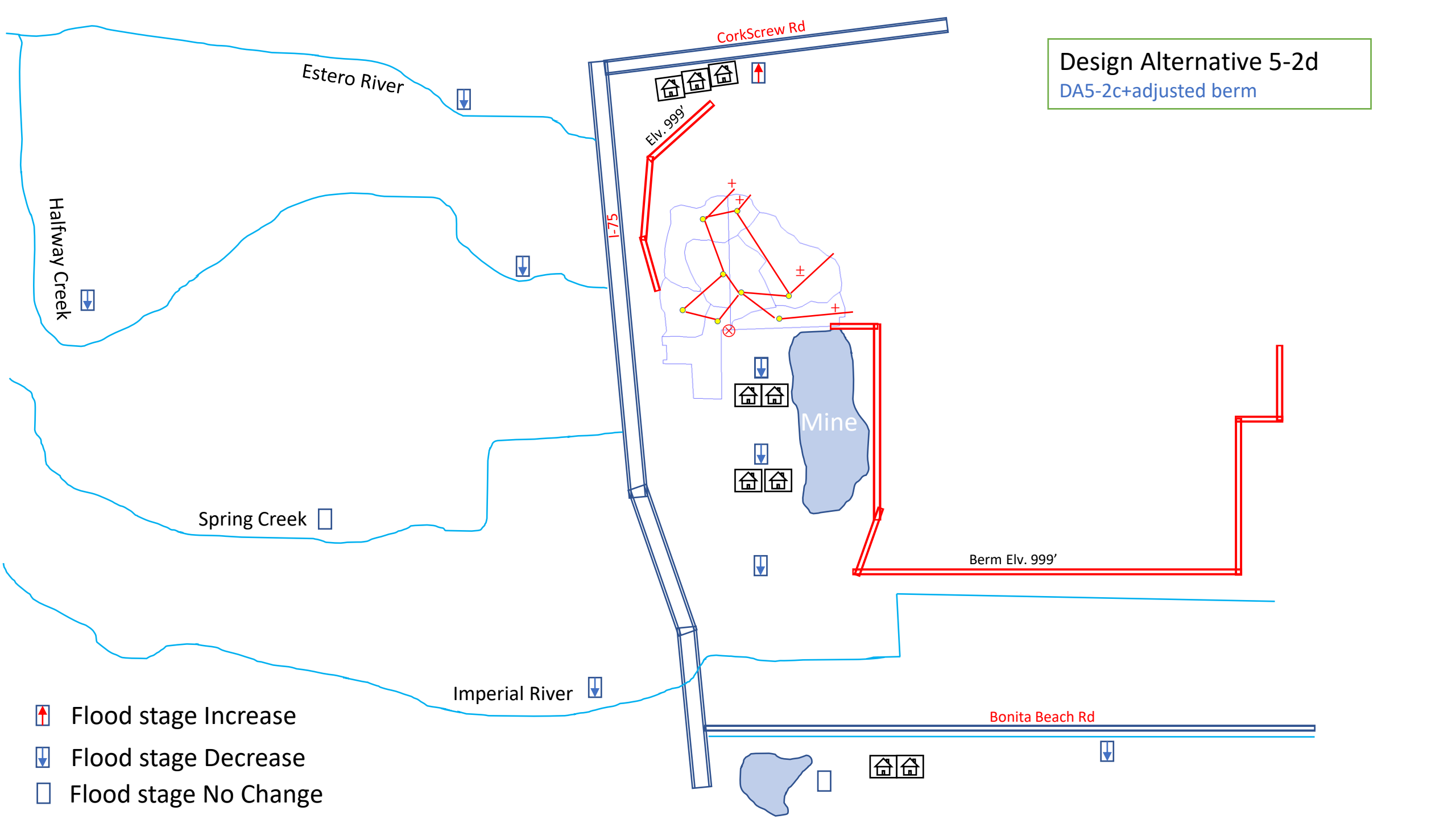

Design Alternative 8
DA7+Phase 1 berm along Mine
CorkScrew Rd
Estero River
Elv. 16.4'
FL-93
Halfway Creek
Mine
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

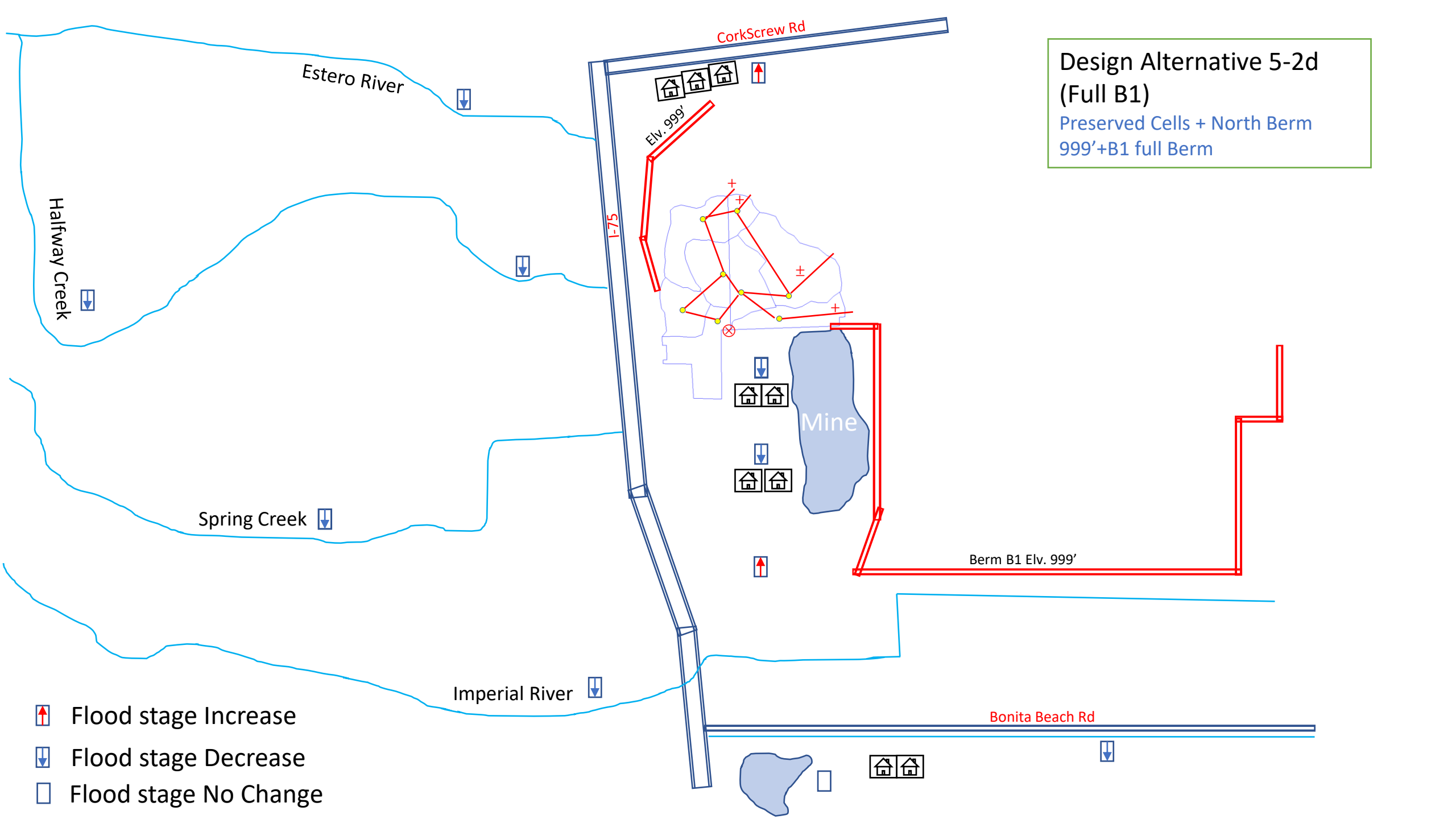

Design Alternative 9
DA3+Preserved area+ Phase 1 berm along Mine
CorkScrew Rd
Elv. 16'
I-75
Mine
Estero River
Halfway Creek
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

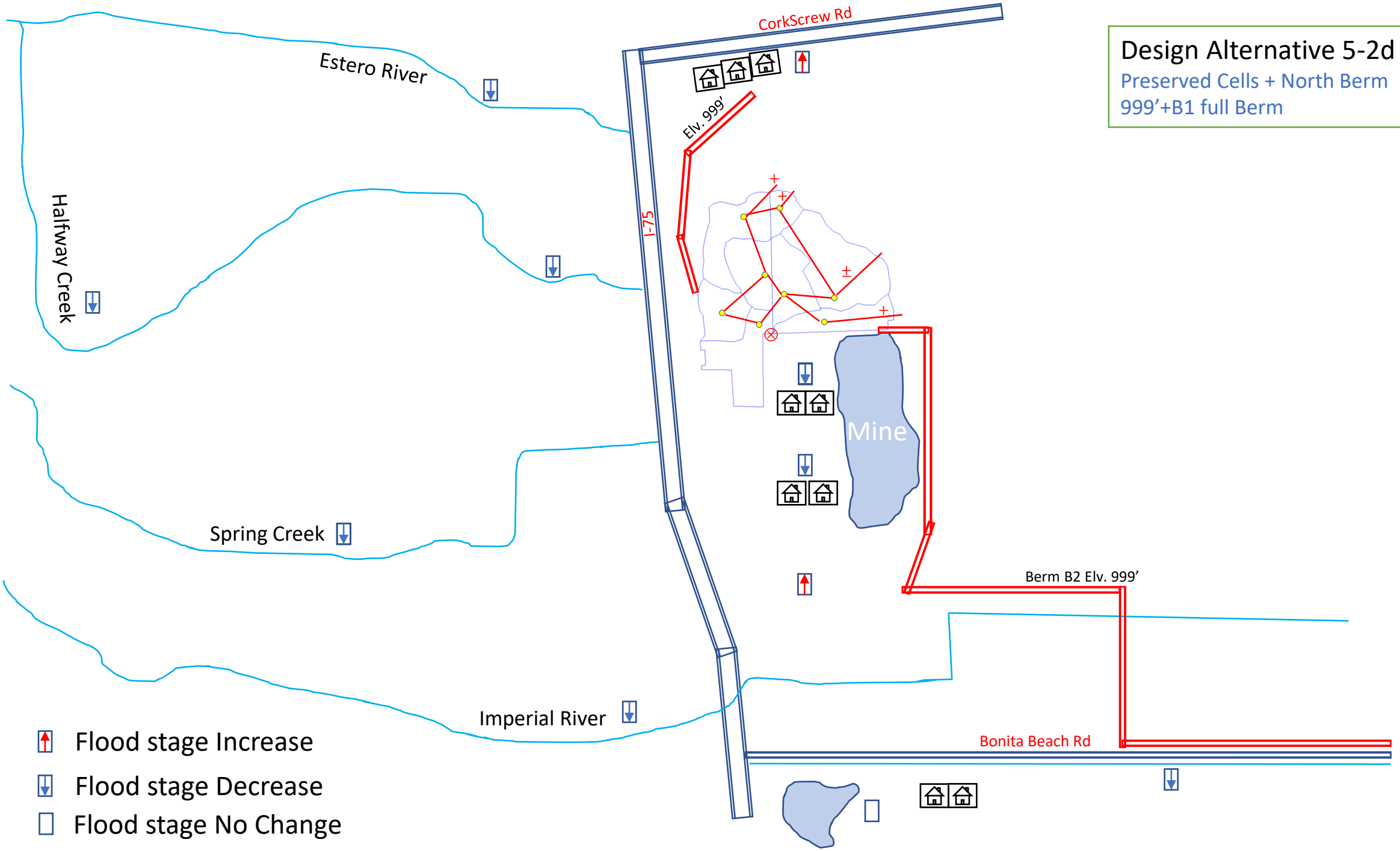

Design Alternative 5-2a
DA5-2+berm increased to 999' (no from north of preserve getting to I-75)
CorkScrew Rd
Estero River
Halfway Creek
Elv. 999'
I-75
Mine
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change

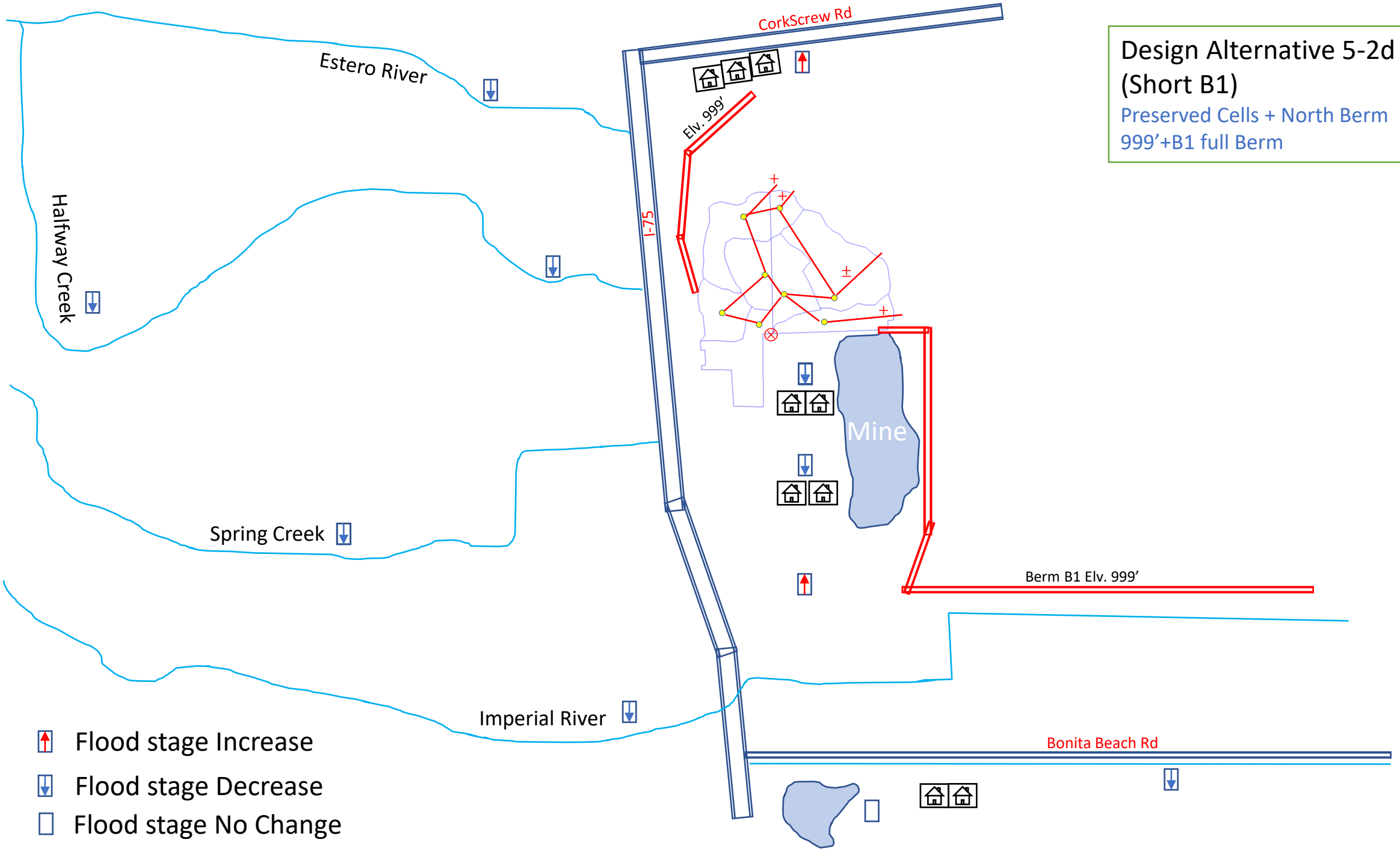

Design Alternative 5-2b
DA5-2a+Extended berm to south (elv. 999')
CorkScrew Rd
Estero River
Halfway Creek
Elv. 999'
I-75
Mine
Spring Creek
Berm Elv. 999'
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change


Design Alternative 5-2c
DA5-2b+Blocked existing connection from preserved to the south
CorkScrew Rd
Estero River
Halfway Creek
Elv. 999'
I-75
Mine
Spring Creek
Berm Elv. 999'
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change


Design Alternative 5-2d
DA5-2c+adjusted berm
CorkScrew Rd
Estero River
Elv. 999'
I-75
Halfway Creek
Mine
Spring Creek
Berm Elv. 999'
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change


Design Alternative 5-2d
(Full B1)
Preserved Cells + North Berm
999'+B1 full Berm
CorkScrew Rd
Estero River
Halfway Creek
Elv. 999'
I-75
Mine
Berm B1 Elv. 999'
Spring Creek
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change


Design Alternative 5-2d (B2)
Preserved Cells + North Berm
999'+B1 full Berm
CorkScrew Rd
Estero River
Halfway Creek
Elv. 999'
I-75
Mine
Spring Creek
Berm B2 Elv. 999'
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change


Design Alternative 5-2d
(Short B1)
Preserved Cells + North Berm
999'+B1 full Berm
CorkScrew Rd
Estero River
Halfway Creek
Elv. 999'
I-75
Mine
Spring Creek
Berm B1 Elv. 999'
Imperial River
Bonita Beach Rd
Flood stage Increase
Flood stage Decrease
Flood stage No Change