

# MENDOCINO RAILWAY

Foot of Laurel Street  
Fort Bragg, California 95437

707 964 6371 TEL  
707 964 6428 FAX

6 September 2023

Morgan Bigelow  
Department of Toxic Substances Control  
700 Heinz Avenue, Suite 100  
Berkeley, California 94710

Subject: OU-E Feasibility Study Addendum Request  
Former Georgia-Pacific Wood Products Facility (Site Code: 202276)  
KJ 1965021\*21

Dear Ms. Bigelow:

This letter is prepared in response to a Department of Toxic Substances Control (DTSC) letter dated 27 December 2022 (herein termed “December 2022 letter”; DTSC 2022) regarding the Operable Unit E (OU-E) Feasibility Study (FS) for the former Georgia-Pacific Wood Products Facility (Site; also known as the “Mill Site”), located at 90 West Redwood Avenue, Fort Bragg, Mendocino County, California. The OU-E FS was prepared under the Site Investigation and Remediation Order (Order; Docket No. HSA-RAO 06-07-150), which was issued by the DTSC and became effective on 21 February 2007. DTSC issued the First Amendment to the Site Investigation and Remediation Order (Order First Amendment) on 9 June 2022. In the December 2022 letter, DTSC requests additional alternatives analysis in an FS Addendum because the scope of the City of Fort Bragg’s (City’s) request for proposals (RFP) for the Environmental Impact Report (EIR) includes alternatives not considered in the OU-E FS. This request, as well as relevant background and related activities, is discussed herein.

## **Background**

The Final OU-E FS (Kennedy Jenks 2019) was submitted on 12 September 2019 and was approved by DTSC on 24 October 2019 (DTSC 2019). The areas of concern (AOC), constituents of concern (COC), and remedial alternatives evaluated in the OU-E FS are summarized in Table 1. AOCs and their recommended alternatives are presented below:

- Ponds 1 through 4 (Southern Ponds) Aquatic Sediment: The recommended alternative presented in the OU-E FS consisted of excavation and disposal and land use controls (LUCs). Excavation and disposal activities were implemented in 2017 under the oversight of and with approval from DTSC<sup>1</sup>.

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<sup>1</sup> In 2016, GP submitted a Remedial Action Work Plan (RAW) for OU-E that described soil and sediment removal activities to be completed prior to the construction of the next phase of the City of Fort Bragg Coastal Trail project. The RAW was approved by DTSC on 13 October 2016. The RAW removal activities were complete in 2017, as summarized in the Final Remedial Action Completion Report (RACR; Kennedy Jenks 2018). The RACR was approved by DTSC on 27 June 2018 (DTSC 2018).

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- Pond 7 Aquatic Sediment: arsenic and dioxin TEQ. The recommended alternative presented in the OU-E FS consisted of excavation and disposal and LUCs. Excavation and disposal activities were implemented in 2017 under the oversight of and with approval from DTSC (Kennedy Jenks 2018; DTSC 2018).
- North Pond and Pond 6 Aquatic Sediment: arsenic and dioxin TEQ. The recommended alternative presented in the OU-E FS consisted of institutional controls (i.e., containment, land use controls, sediment management, and long-term operations and maintenance).
- Pond 8 Aquatic Sediment: arsenic and dioxin TEQ. The recommended alternative presented in the OU-E FS consisted of institutional controls.
- OU-E Groundwater<sup>2</sup>. The recommended alternative presented in the OU-E FS consisted of monitored natural attenuation (MNA) with LUCs if needed based on monitoring results.

Following approval of the OU-E FS, additional sediment sampling activities were completed in 2019 in Pond 6, North Pond, and Pond 8 per DTSC request and results were presented in a report, which was approved by DTSC (Kennedy Jenks 2020b; DTSC 2020b). The Draft OU-E Remedial Action Plan (RAP; Kennedy Jenks 2020a) was submitted on 14 October 2020 and addressed the Southern Ponds (Ponds 1-4) AOC, Pond 7 AOC, North Pond and Pond 6 AOC, Pond 8 AOC, and the OU-E Groundwater AOC<sup>3</sup>. The preferred alternatives presented in the Draft OU-E RAP are consistent with the recommendations of the OU-E FS. DTSC has initiated internal review of the Draft OU-E RAP, but additional review is pending completion of the draft EIR by the City (DTSC 2020a).

Since the Mill Site ceased operations in 2002, the City and Mill Site property owner (formerly Georgia-Pacific, LLC [Georgia-Pacific], currently Sierra Northern Railway<sup>4</sup>) have undertaken a considerable amount of effort to envision and plan for the future redevelopment of the site, including the following:

- In 2009, the City and the Mill Site property owner worked together to complete the transaction for the public acquisition of Noyo Headland Park, which has subsequently been constructed by the City of Fort Bragg and is now open for public access. This included coordinating with DTSC to complete excavation and removal activities in OU-E in 2017 in advance of the final OU-E FS to allow the City to complete construction of the trail (Kennedy Jenks 2018; DTSC 2018).

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<sup>2</sup> OU-E Groundwater includes two areas of interest (AOIs): the Interim Remedial Measure (IRM) AOI and West of IRM AOI for Groundwater [total petroleum hydrocarbon as diesel (TPHd), total petroleum hydrocarbon as gasoline (TPHg)], and the OU-E Lowlands AOI for barium.

<sup>3</sup> DTSC clarified in a letter dated 8 December 2020 that the OU-E Lowland Terrestrial Soil AOI, Pond 8 Fill Area AOI, Ponds 5 and 9 AOI, and soil in the West of IRM AOI and IRM AOI were approved for NFA (DTSC 2020a).

<sup>4</sup> Mendocino Railway purchased approximately 75 acres of OU-C from Georgia-Pacific in June 2019 and acquired the remaining portions of OU-C as well as OU-D and OU-E in 2021. Mendocino Railway transferred ownership of these Mill Site parcels to Sierra Northern Railway in December 2022.

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- Since 2006, the City and the Mill Site property owner have worked collaboratively on the environmental remediation process for the entire Mill Site, with DTSC as the lead agency. Over 90 percent of the site is now fully remediated, leaving only portions of OU-C and OU-E that still require remediation.
- Since acquiring the property, Mendocino Railway has continued discussions with the City and demonstrated their intent to comply with applicable environmental permitting by submitting a CDP application for the Mill Pond Dam improvements.
- Significant community input has been obtained and incorporated into the feasibility process. Concerns and interests raised through the public comment process were addressed prior to approval of the OU-E FS.

Mendocino Railway seeks to continue this coordination to achieve the shared goal of addressing the remaining areas in OU-E. The focus of the December 2022 letter is on aquatic sediment, with an emphasis on Pond 8, and will therefore be the focus of this letter hereafter.

## **Division of Safety of Dams**

Separate from the site investigation and remediation process (led by DTSC), the California Department of Water Resources (DWR), Division of Safety of Dams (DSOD) notified Georgia-Pacific that modifications are needed to the existing Mill Pond Dam (Dam #2381), which is located along the northern and western perimeter of Pond 8 and the Mill Pond Dam spillway serves as the Pond 8 outlet. The Mill Pond Dam is an existing structure, legally installed prior to the California Coastal Act (City of Fort Bragg 2014), regulated by the California DWR, DSOD, and in need of modification to comply with State of California DWR, DSOD standards. Addressing DWR DSOD concerns is relevant to the OU-E FS, OU-E RAP, and the associated recommended alternative for Pond 8 because the Mill Pond Dam currently provides containment for sediment in Pond 8, and would continue to serve this function in the recommended alternative. DSOD has completed a preliminary review of modification design documents, including 60 Percent Design Drawings, and found the design acceptable to meet DWR DSOD requirements (DSOD 2023).

## **City Stormwater Treatment**

Pond 8 continues to provide treatment for Site runoff as well as City stormwater that enters Pond 8 via the Maple and Alder Creek outfalls (located in the eastern section of the pond). Stormwater sampling indicates the majority of incoming pollutants to Pond 8 originate offsite, from the drainage basins within the City of Fort Bragg that discharge to Pond 8 via Maple and Alder Creeks. Pollutants from City stormwater are generally removed by settling as water moves from the east end of the pond to the spillway at the west end of the pond. Continued treatment of stormwater is an important consideration for the California Regional Water Quality Control Board, North Coast Region (RWQCB). The RWQCB,

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as a stakeholder, has indicated potential remedies for Pond 8 sediment must continue to provide equivalent stormwater quality benefits. These benefits are primarily achieved through the current conditions in Pond 8, including reduced flow velocity, suitable residence time, and favorable wetland conditions for pollutant removal, degradation, and sequestration.

## **Coastal Development Permit**

Modifications to the Mill Pond Dam require a Coastal Development Permit (CDP), and over the years Georgia-Pacific contributed significant efforts to coordinate with the City, the California Coastal Commission (CCC), RWQCB, DWR DSOD, and DTSC regarding this project. While property ownership has changed, Mendocino Railway is committed to continuing the in-progress coordination with these regulatory agencies as it relates to site investigation and cleanup activities and Mill Pond Dam improvements. Accordingly, Mendocino Railway submitted a Coastal Development Permit (CDP) application to the City<sup>5</sup> on 13 July 2022 (CDP 9-22) to initiate the EIR process under the California Environmental Quality Act (CEQA) for the Mill Pond Dam improvements. The CDP 9-22 proposed project includes three modifications to protect this existing structure: 1) a rock slope protection (RSP) buttress at the crib wall section; 2) ground improvements and an earth-fill buttress at the eastern dam section; and 3) a cutoff wall installed near the center of the pond to divide into two smaller ponds. Additional information was provided in the CDP application. The City and the CCC provided comments on the CDP 9-22 application in a letter dated 9 August 2022 following a completeness review. Kennedy Jenks responded to the comments and provided additional documentation as Mendocino Railway's agent for CDP 9-22 on 30 January 2023 (Kennedy Jenks 2023).

The application and additional documentation provided includes a significant body of historical documents describing cultural and natural resources at the Site. Mendocino Railway understood the City was seeking a qualified consulting firm to support review of application materials and completion of the EIR. The City initiated a RFP in September 2022 and significant resources have been applied to the procurement of a consultant, including Mendocino Railway consultant review of the draft RFP at City request, Mendocino Railway participation at the 12 September 2022 City Council Meeting, Mendocino Railway consultant participation in a pre-proposal meeting and on-site site walk on 17 November 2022, and Mendocino Railway consultant support for the City by responding to RFP questions at City request. Mendocino Railway understood there was at least one qualified bidder. However, the City initiated a second RFP process to identify a CEQA consultant in May 2023, and has since issued a schedule extension for the RFP. Mendocino Railway was not notified or invited to attend the pre-proposal meeting (in contrast to the first RFP). Mendocino Railway cannot proceed with necessary work without coordination and cooperation from the City through the CEQA process for the proposed project.

Additionally, Mendocino Railway understands that updates to certain studies or surveys may be appropriate and required. However, these study/survey updates are often tied to an expiration date. For example, Georgia-Pacific completed the required mean high tide line (MHTL) and high tide line (HTL)

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<sup>5</sup> The City is the lead agency for this CDP application because the project falls within the coastal zone and therefore the City of Fort Bragg Local Coastal Program. DTSC is a Responsible Agency under CEQA.

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surveys in June 2018 and submitted a letter to the California State Lands Commission (CSLC) requesting a jurisdictional determination. Unfortunately, the project schedule was delayed, and therefore, the MHTL and HTL surveys have expired. These surveys are expected to be required to be re-completed. Mendocino Railway understands that delays may occur through this process; however, site conditions, including biological, ecological, and cultural resource surveys, are not expected to have changed significantly since the existing reports were prepared. Mendocino Railway would appreciate minimizing the need for re-work due to updating studies and/or re-completing surveys too early in the process.

## **FS Addendum Request**

DTSC issued a letter to Mendocino Railway dated 27 December 2022 stating that “additional alternatives analysis [was required] in a Feasibility Study Addendum (FS Addendum)” because “scoping exercises for the Operable Unit E Remedial Action Plan (OU-E RAP) and Coastal Development Permit (CDP) Environmental Impact Report (EIR) identified the need for the evaluation of alternatives not included in the OU-E FS.” The letter also stated that the CCC expressed a need to consider alternatives to armoring, and that “because the EIR has been scoped to include remedial alternatives not found in the OU-E FS, the OU-E FS must be updated in an addendum.” The City’s RFP released on 24 May 2023 states that the FS Addendum is needed because the EIR is required for the CDP and for DTSC approval of the RAP, and because the City would like to expand the OU-E project area. Mendocino Railway disagrees with the need for an OU-E FS Addendum and seeks to understand the change in DTSC’s perspective regarding the recommended alternatives in the OU-E FS, as the OU-E FS was approved by DTSC and the Draft OU-E RAP was preliminarily reviewed by DTSC with the understanding that a CDP and an EIR would be needed.

The underlying purpose of the project is to complete corrective actions as required by DTSC Corrective Action Consent Agreement (CACA HCWA P1-04/05-011) and DSOD per communications from 2009 and 2016. Pursuant to CEQA Section 15126.6(a)), an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. In this case, the project is location dependent as the purpose is to modify the Mill Pond Dam (to meet DSOD requirements) and support completion of corrective actions for Pond 8 (to meet DTSC requirements). While ecological objectives for the pond were identified as an objective under the Consent Agreement, it does not follow that CEQA requires an evaluation of a larger project area or specific alternatives that may have a tangential relationship to the corrective actions required by the Consent Agreement or by DSOD.

Respectfully, the CDP application proposed a project with a defined project area, and the CEQA process is intended to review the project proposed by the applicant and identify potential environmental impacts for the project proponent to address through potential modifications to components of the proposed project to mitigate those environmental impacts. For example, alternatives to armoring could be considered through the CEQA process to include different construction or stabilization methods to

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improve the crib wall; alternatively, mitigations that would account for the impact of the RSP could be added. Assertions that other alternatives are less environmentally damaging are premature at this stage because the environmental review has not been completed.

Significant effort has been spent to design a remedial alternative for Pond 8 that complies with the policies of the City, CCC, RWQCB, DSOD, and DTSC. Additionally, the City, in coordination with the CCC, previously reviewed the alternatives considered in the OU-E FS against the City's Local Coastal Program regulations and provided feedback in a letter dated 25 September 2018 (City 2018). In the letter, the City stated that alternatives including excavation and disposal, institutional controls at Pond 8 (the recommended alternative), vegetative sediment cover, and hot spot removal would require a CDP and could be found to comply with the policies of the Coastal General Plan pending additional studies and a detailed project description, which were provided in the CDP application and subsequent submittals. Further, DTSC's 2022 letter requests that the FS look at hybrid alternatives that include removal, containment, and treatment technologies. Per the City's 2018 ARARs letter, project alternatives that included such hybrid alternatives as vegetative soil cover over Pond 8 and in-situ sediment stabilization were identified as not following Coastal General Plan Policies and would not be able to secure a CDP. This review by the City was performed explicitly at DTSC's request to support the completion and approval of the OU-E FS to confirm that the OU-E FS considered coastal development Applicable Relevant and Appropriate Requirements (ARARs) and provided alternatives that comply with the City's Coastal General Plan policies. The City's letter goes on to state:

"The City's Coastal General Plan does not include policies that specifically regulate the clean up level or clean up goals for contaminated sediment. Rather the City's policies regulate the physical activities (development) associated with the remediation activities, and the City's CDP review is limited to the actual physical changes (development) which trigger the requirement for a Coastal Development Permit."

As is described in the City's letter, the OU-E FS, and the Draft OU-E RAP, the other evaluated alternatives are associated with impacts that outweigh their potential benefits when compared to the recommended alternative (for example: greater disruption of wetlands and areas with potential cultural resources than the recommended alternative; significantly greater transportation and disposal costs [including financial, environmental impact, greenhouse gas emissions, and potential impact to communities near the disposal landfill]). The EIR process is not an opportunity for the City and CCC to revisit past state agency decisions or manipulate the process to achieve their own desired goals and outcomes for privately held property and existing legally constructed facilities, such as dam removal or creek daylighting, through retroactive modification of the approved OU-E FS.

## **Discussion**

The objectives of the project proposed in CDP 9-22, which will likely inform identification of EIR alternatives, include:

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- Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, escape of hazardous waste, hazardous constituents, leachate, contaminated rainfall or run-off, or waste decomposition products to the ground or surface waters or to the atmosphere; and comply with requirements identified in federal, state, and local hazardous waste and air quality regulations;
- Implement construction, management, and long-term monitoring programs to protect public health and ensure all remediation standards are met;
- Implement cost-effective measures to prevent destabilization of the dam embankment and to ensure dam stability; and
- Promote the ecological health of, and minimize impacts to, sensitive resources onsite.

The project proposed in CDP 9-22, which includes long-term operation and monitoring of the implemented project, is the result of significant discussion with involved agencies and designed to meet these objectives while balancing the various agency policies. While modifications to certain components of the proposed project can be discussed based on the results of the EIR, it is not appropriate to re-open the OU-E FS to consider new alternatives until the proposed project has been reviewed through the CEQA process. It is also noted that the work areas proposed in the CDP application are exclusively on property privately held by Sierra Northern Railway. Mendocino Railway respectfully requests that the proposed project be considered appropriately through the CEQA process.

As this letter was being prepared to submit, Mendocino Railway received an email from DTSC on 5 September 2023 (DTSC 2023). Mendocino Railway acknowledges this email; however, respectfully requests that DTSC respond to this letter (prepared as requested by DTSC in response to the December 2022 letter) and requests that additional action and associated deadlines as requested in the 5 September 2023 email be held to allow time to discuss the contents of this letter with DTSC and to meet in-person at the Site. Additionally, the email notes "new information that has come to light;" Mendocino Railway is unaware of new information that affects the OU-E FS.

Very truly yours,

Mendocino Railway



Mike Buck  
Project Manager

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## Enclosure

Table 1: Remedial Alternatives Evaluated in the OU-E FS for Pond 8  
Attachment 1: DSOD Letter (DSOD 2023)  
Attachment 2: City ARARs Letter (City 2018)

## References

- Arcadis. 2013. Final Remedial Investigation Report Operable Unit E (RI Report), Former Georgia-Pacific Wood Products Facility, Fort Bragg, California. Prepared for Georgia-Pacific LLC. January.
- City of Fort Bragg (City). 2014. Notice of Final Action on Administrative Coastal Development Permit 6-14. October 9.
- City. 2018. Letter from Marie Jones, City of Fort Bragg, to Mr. Tom Lanphar, DTSC, RE: City of Fort Bragg Relevant and Appropriate Requirements from the City's Local Coastal Program for Utilization by DTSC in its Consideration of Remedial Evaluation and Decision Making for Pond Sediment at the Former Georgia-Pacific Mill Site, Fort Bragg, California. 25 September.
- Department of Water Resources, Division of Safety of Dams (DSOD). 2023. Letter from Sharon K. Tapia, P.E., DSOD, to Mr. Robert Pinoli, Mendocino Railway, re: Mill Pond Dam, No. 2381. 8 May.
- DTSC. 2018. Letter from Mr. Thomas P. Lanphar, to Mr. David G. Massengill, Senior Director, Georgia-Pacific LLC, re: Final Remedial Action Completion Report for Operable Units C, D, and E, Former Georgia-Pacific Wood Products Facility, Fort Bragg, California. 27 June.
- DTSC. 2019. Letter from Ms. Juliet Pettijohn, to Mr. David G. Massengill, Senior Director, Georgia-Pacific LLC, re: Georgia-Pacific, Operable Unit E Feasibility Study, Former Georgia-Pacific Wood Products Facility, Fort Bragg, California. 24 October.
- DTSC. 2020a. Letter from Ms. Juliet Pettijohn, to Mr. David G. Massengill, Senior Director, Georgia-Pacific LLC, re: Operable Unit E Draft Remedial Action Plan and Confirmation of No Further Action for Operable Unit E Soil and Ponds 5 and 9, Former Georgia-Pacific Wood Products Facility, Fort Bragg, California. 8 December.
- DTSC. 2020b. Letter from Ms. Juliet Pettijohn, to Mr. David G. Massengill, Senior Director, Georgia-Pacific LLC, re: Pond 6, North Pond, and Pond 8 Sediment Sampling Report, Former Georgia-Pacific Wood Products Facility, Fort Bragg, California. 26 May.
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- DTSC. 2022. Letter from Thomas P. Lanphar, DTSC, to Mr. Mike Buck, Mendocino Railway, RE: Georgia-Pacific Corporation Site, 90 West Redwood Avenue, Fort Bragg, California, Operable Unit E Feasibility Study Addendum (Site Code: 202276). December 27.
- DTSC. 2023. Email from Morgan Bigelow, DTSC, to Jeremie Maehr and Rachel Morgan, Kennedy Jenks, and Michael Buck, Mendocino Railway, RE: OU-E Feasibility Study Addendum. September 5.
- Kennedy Jenks. 2018. Remedial Action Completion Report for Operable Units OU-C, OU-D, and OU-E, Former Georgia-Pacific Wood Products Facility, Fort Bragg, California. March 12.
- Kennedy Jenks. 2019. Final Feasibility Study, Operable Unit E, Former Georgia-Pacific Wood Products Facility, Fort Bragg, California. 12 September.
- Kennedy Jenks. 2020a. Draft Remedial Action Plan, Operable Unit E, Former Georgia-Pacific Wood Products Facility, Fort Bragg, California. 14 October.
- Kennedy Jenks. 2020b. Pond 6, North Pond, and Pond 8 Sediment Sampling Report, Former Georgia-Pacific Wood Products Facility, Fort Bragg, California. 8 April.
- Kennedy Jenks. 2023. Email from Jeremie Maehr, Kennedy Jenks, to Sarah McCormick, City of Fort Bragg, RE: Coastal Development Permit Application Completeness View. 30 January.

cc: Kim Walsh, DTSC  
Sarah McCormick, City of Fort Bragg  
Robert Pinoli, Mendocino Railway  
Jeremie Maehr, Kennedy Jenks  
Rachel Morgan, Kennedy Jenks

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## **Table**

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**Table 1: Remedial Alternatives Evaluated in the OU-E FS for Pond 8**

Area of Concern	Pond 8
<b>Media</b>	Aquatic Sediment
<b>Constituent(s) of Concern (COCs)</b>	arsenic, dioxin TEQ
<b>Remedial Alternatives Evaluated in OU-E FS</b>	No Action
	Institutional Controls (a)
	In-Situ Soil Mixing
	Excavation and Disposal
	Vegetated Soil Cover Vegetated Sediment Cover
<b>Recommended Alternative in OU-E FS</b>	Institutional Controls
<b>Justification of Recommended Alternative</b>	<ul style="list-style-type: none"> <li>- Requires improvements to existing Mill Pond Dam.</li> <li>- Manages potential exposure pathways without destruction of wetlands</li> <li>- Allows Pond 8 to continue receiving and treating stormwater from the Site and the City of Fort Bragg</li> <li>- Eliminates transportation, disposal, and environmental costs and disruption associated with excavation and disposal alternative</li> </ul>

**Notes:**

(a) Institutional Controls consists of the following: containment, land use controls, sediment management, and long-term operations and maintenance.

# **Attachment 1**

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DSOD Letter (DSOD 2023)

**DEPARTMENT OF WATER RESOURCES**

P.O. BOX 942836  
SACRAMENTO, CA 94236-0001  
(916) 653-5791



May 8, 2023

Mr. Robert Pinoli, President  
Mendocino Railway  
100 West Laurel Street  
Fort Bragg, California 95437

Mill Pond Dam, No. 2381  
Mendocino County

Dear Mr. Pinoli:

This is in reply to a letter from Mr. Jeremie Maehr of Kennedy Jenks dated September 7, 2022, to the Division of Safety of Dams (DSOD) transmitting the following documents for review: *60% Design Drawings* by Slate Geotechnical Consultants, dated March 29, 2022; *Basis of Design Report, Mill Pond Dam Seismic Remediation, Mendocino County, California* prepared by Sage Engineers, dated August 4, 2017; and *Wave Study* by Environmental Science Associates, dated August 11, 2017. Mr. Maehr has specifically requested that DSOD provide preliminary feedback on the information provided and the acceptability of the proposed concepts for remediating the seismic stability of the dam and removing the dam from State jurisdiction with respect to dam safety. The proposed project is associated with the alteration application filed on April 7, 2022.

The concepts proposed to address seismic stability concerns consist of constructing a rockfill buttress on the downstream face of the crib-wall section of the southern portion of the dam and cement deep soil mixing of the native materials to provide a strengthened foundation for an earthfill buttress at the northern section of the dam. Finally, a gravity wall is proposed to hydraulically divide the reservoir into two smaller non-jurisdictional reservoirs.

DSOD has completed a preliminary review of the concepts, and we find them acceptable. Acceptance of the concepts does not constitute approval of the application, and we will continue our detailed independent review of the 60-percent submittals and provide comments once that is completed.

If you have any questions or need additional information, you may contact Design Engineer Nicole Castillo at (916) 612-4771 or Project Engineer Nekane Hollister at (916) 820-7831.

Sincerely,

A handwritten signature in cursive script that reads "Sharon K. Tapia".

Sharon K. Tapia, P.E.  
Division Manager  
Division of Safety of Dams

cc: (See Attached List.)

Mr. Pinoli

May 8, 2023

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cc: Mr. Jeremie Maehr, P.E.  
Vice President  
Kennedy Jenks Consultants Inc.  
2121 North California Boulevard, Suite 810  
Walnut Creek, California 94596

## **Attachment 2**

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City ARARs Letter (City 2018)



## CITY OF FORT BRAGG

*Incorporated August 5, 1889*

416 N. Franklin Street

Fort Bragg, California

95437

tel. 707.961.2823

www.fortbragg.com

September 25, 2018

Mr. Tom Lanphar  
Senior Environmental Scientist  
Department of Toxic Substances Control  
700 Heinz Avenue  
Berkeley, California 94710-2721

REPLY: CITY OF FORT BRAGG RELEVANT AND APPROPRIATE REQUIREMENTS FROM THE CITY'S LOCAL COASTAL PROGRAM FOR UTILIZATION BY DTSC IN ITS CONSIDERATION OF REMEDIAL EVALUATION AND DECISION MAKING FOR POND SEDIMENT AT THE FORMER GEORGIA-PACIFIC MILL SITE, FORT BRAGG, CALIFORNIA

Dear Mr. Lanphar;

Thank you for your August 23, 2018 letter requesting City of Fort Bragg input regarding potential compliance of various remedial alternatives with the City of Fort Bragg's Local Coastal Program regulations.

As you are aware, the City of Fort Bragg has jurisdiction over Coastal Development Permits within City Limits. Our standard of review for a Coastal Development Permit includes both our Coastal General Plan and our Coastal Land Use and Development Code (known as our Local Coastal Program). The proposed project alternatives are defined sufficiently to provide a preliminary review of each alternative's compliance with our Coastal General Plan policies. At a later point, the City can review the specifics of a selected remedial alternative for compliance with our Coastal Land Use and Development Code, which requires much more detailed project descriptions.

As you note in your letter to the City, the draft OU-E FS includes a summary and comparison of Remedial Alternatives in Table 7-1 of the FS. The remedial alternatives in the draft OU-E FS for aquatic sediments for the South Ponds (1-4), Ponds 6, 7, 8, and the North Pond include:

1. No action;
2. Institutional controls: land use restrictions, sediment management (for Ponds 6, 7, 8 and North Pond);

3. Vegetative soil cover (dry) and institutional controls;
4. Excavation and disposal Mill Pond;
5. Vegetative sediment cover over contaminated sediment and institutional controls;
6. For Pond 8 sediment only, in-situ stabilization sediment.

The City's Coastal General Plan does not include policies that specifically regulate the clean up level or clean up goals for contaminated sediment. Rather the City's policies regulate the physical activities (development) associated with the remediation activities, and the City's CDP review is limited to the actual physical changes (development) which trigger the requirement for a Coastal Development Permit.

The applicant will be required to obtain a Coastal Development Permit from the City of Fort Bragg for development activities located above the mean high tide, and the applicant will have to obtain a separate Coastal Development Permit from the Coastal Commission for activities located below the mean high tide. In the event that the project is appealed to the Coastal Commission, the Coastal Commission will use the City's LCP as the standard of review for those portions of the project that are located above the mean high tide and will use the Coastal Act as the standard of review for those portions of the project that are located below the mean high tide.

I prepared a matrix that analyzes each remedial alternative's compliance with the City's Coastal General Plan and consulted with the North Coast District Manager, Bob Merrill, to ensure that the City of Fort Bragg and the Coastal Commission staff interpretation and application of Coastal General Plan policies is consistent, as a local decision by the City Council is very likely to be appealed to the Coastal Commission. Bob Merrill will also provide his interpretation of the application of the Coastal Act to those portions of the project that are in the area of retained jurisdiction by the Coastal Commission, which includes the areas below the mean high tide.

The review of the proposed remedial alternatives must be considered initial at this time due to the relatively limited amount of information in the project descriptions for each alternative. A more detailed project description could result in modifications to how and if the project complies with a specific policy.

Additionally, the City had to make some assumptions about some of the project descriptions in order to facilitate a realistic analysis of the alternatives, and these are outlined in this letter and the attached matrix. For example, excavation and disposal would not be feasible without a significant restoration project, and in consultation with Coastal Commission staff, staff made assumptions about what the restoration project would need to include for the project to potentially comply with the Coastal General Plan.

Please find below, the City's preliminary analysis of whether a proposed alternative may be permissible with a Coastal Development Permit and a list of the policies that would have the most significant impact on the ability of an alternative to be permissible. Please see the attached matrix for the more detailed analysis and an overview of some of the special conditions which would be applied to the project for compliance with our Coastal General Plan policies.

## **Project Alternatives Analysis**

### **1. No action**

Determination: This option would not be considered a development project under the Coastal Act or the Certified LCP and is exempt from the need to obtain a CDP.

### **2a. Institutional controls: land use restrictions, sediment management & containment for Ponds 6, 7 and North Pond.**

Project assumption: the beach berm would be the containment structure for Ponds 6, 7 and the North Pond and no changes are proposed or required for this containment structure.

Determination: This option would not be considered a development project under the Coastal Act or the Certified LCP and is exempt from the need to obtain a CDP.

### **2b. Institutional controls: land use restrictions, sediment management, and containment for Pond 8.**

Project assumptions: For purposes of this analysis this project alternative is assumed to include:

- Retention of Pond 8
- Geotechnical stabilization of the Mill Pond Dam, Crib Wall and North Wall
- Minimal fill of a small portion of Pond 8 for construction of Dam Weir
- Activities below the mean high tide

On-site Wetland Mitigation would be required and could include:

- Improve Pond 8 vegetation; and
- Improve Ponds 1-4 and 6 & 7 vegetation; and
- Establishment of new wetlands in the low land area as mitigation.

Initial Determination: This project may comply with the policies of the Coastal General Plan. Additional information is required, including a Botanical Study and a Sea Level Rise Analysis. Compliance with the following policies is not certain: Policy OS-1.6 and Policy SF-1.5.

For project compliance with many of the policies, the project would have to comply with a number of special conditions, including but not limited to the many conditions briefly described in Attachment 1.

### **3. Vegetative soil cover (dry) and institutional controls.**

Project Assumptions: For purposes of this analysis this project alternative is assumed to include:

- Retention of the dam structures
- Add 3 feet of fill (31,500 CY) over the existing sediment and vegetation of the area with upland species. The soil cover would require dewatering and compaction of the sediment to support the weight of the cover.
- Development of a new two-acre stormwater retention and treatment basin at Maple Creek.
- Rerouting of the Alder and Maple stormwater flows into a “day-lighted creek” system.

**Determination: This project does not comply with Policy OS-1.3. This alternative would not be able to secure a Coastal Development Permit.** Filling Pond 8 is not permitted by Policy OS-1.3 as this would not be considered a restoration project or an incidental public purpose project, nor is it the least environmentally damaging alternative.

If the project was somehow reconfigured as a restoration project (see Option 4b), the project would require significant wetland mitigation which could not be achieved on site. The Bolsa Chica Land Trust case requires that wetland mitigation occur on the same site as the project. The development of a 2 acre stormwater retention pond and a 2 acre creek is not sufficient mitigation to fill an 8 acre wetland. The project wetland mitigation ratio would be 0.5:1, which is significantly lower than the Coastal Act ideal of 4:1.

#### **4a. Excavation and Disposal: Ponds 6, 7 and North Pond**

Project Assumptions: For purposes of this analysis this project alternative is assumed to include:

- Remove and dispose of sediment from Ponds 6, 7 and the North Pond
- Restoration and expansion of the lowland wetlands to achieve at least a 2:1 mitigation ratio, restoration of all lowland wetlands, and removal of all concrete and metal debris from the lowland area.

Initial Determination: For this project to be feasible as a restoration project under Policy OS-1.3e, the overall project would have to provide improved habitat values, increase wetland acreage (wetland mitigation ratio of 2:1) and restore the area to its natural state as much as feasible.

Compliance with the following policies is not certain:

- Policy OS-1.6 and Policy SF-1.5: additional information is required, including a Botanical Study and a Sea Level Rise Analysis.
- Policy SF-1.2 (see analysis); Policy SF-1.7 (see analysis), Policy SF-1.10 (see analysis).

The project would have to comply with a number of special conditions, including but not limited to the many conditions briefly described in Attachment 1.

#### **4b. Excavation and Disposal: Pond 8 (aka Mill Pond)**

Project Assumptions: For purposes of this analysis this project alternative is assumed to include:

- Eliminate the Mill Pond and remove 106,000 cubic yards of sediment.
- Remove the dam, crib wall, north wall and Rip Rap beach berm.
- Reuse some of the materials graded from the north wall and berm to create a stabilized slope which has some “natural” contours between the coastal trail and the lowland area.
- Pond 8 would no longer receive flows from Maple and Alder stormwater culverts.
- Development of a new two-acre stormwater retention and treatment basin at Maple Creek.
- Rerouting of the Alder and Maple stormwater flows into a “day-lighted creek” system.
- Restoration of the site with appropriate vegetation.

Initial Determination: For this project to be feasible as a restoration project under Policy OS-1.3e, the overall project would have to provide improved habitat values and restore the site to its “pre-human contact” conditions, including the creek alignment, as much as feasible.

Compliance with the following policies is not certain:

- Policy OS-1.6 and Policy SF-1.5: additional information is required, including a Botanical Study and a Sea Level Rise Analysis.
- Policy SF-1.2 (see analysis); Policy SF-1.7 (see analysis), Policy SF-1.10 (see analysis).

The project would have to comply with a number of special conditions, including but not limited to the many conditions briefly described in Attachment 1.

## **5. Vegetative sediment cover (wet) over contaminated sediment and institutional controls**

Project Assumptions: For purposes of this analysis this project alternative is assumed to include:

- Retention of the dam structures
- Add 1 to 2 feet of fill over the existing sediment and revegetation of the area with wetland species.

Determination: This option might be approvable as filling and dredging for an incidental public service purpose if it can be demonstrated that the work in Pond 8 actually does benefit or improve the stormwater runoff treatment use of Pond 8. Additional information is required to determine if the continued use of Pond 8 as a stormwater detention basin poses a risk of mobilizing some of the contaminated sediments. If it does, then arguably partially filling the pond under policy OS-1.3 could be an incidental public service purpose of stormwater runoff management. If not, then the project would not comply with Policy OS-1.3 and would not be permissible.

- A Botanical Study and a Sea Level Rise Analysis would be required for the dam stabilization.
- Compliance with the following policies is not clear: Policy OS-1.6, Policy SF-1.5, Policy OS-2.1.

## **6. Pond 8 in-situ stabilization of sediment**

Project Assumptions: For purposes of this analysis, this project alternative includes:

- Portland cement (or similar material) would be mixed with sediment to produce an inert, geotechnically strong, and relatively less permeable material.
- The dam stabilization project would not be required.
- The Mill Pond Dam and beach berm would continue to provide sediment containment.

Determination: This project does not comply with Policy OS-1.3 as it is not a restoration project and would not be considered the least environmentally impactful alternative. This alternative would not be able to secure a Coastal Development Permit.

## **7. Hot Spot Removal from Pond 8**

While not included in the FS, staff is aware that the DTSC is considering requesting additional “hot spot” removal from pond 8 and staff has analyzed this activity as well.

For purposes of this analysis, this project alternative is assumed to include:

- Minimal dredging of a small portion of Pond 8 for removal of “hot spots” in Pond 8. Upon removal of the “hot spots” this analysis assumes that the pond would be cleaned to a residential standard and no containment of the pond would be required by DTSC.
- This analysis assumes retention of Pond 8 without geotechnical stabilization. (See alternative 1 to view policy implications for geotechnical stabilization.)
- Under this analysis, the dam would be retained under DSOD authority and beach access may be limited.

To understand the feasibility of “Hot Spot” removal with dam repairs, please see Option 2a.

Initial Determination: This project may comply with the policies of the Coastal General Plan. This project may comply with Policy OS-1.3 if it includes minimal dredging of Pond 8 to remove “hot spots” and if this dredging is part of a larger more extensive restoration strategy for the pond and a larger strategy that would result in improved stormwater treatment outcomes (incidental public service purpose) for the pond. If the hot spot removal areas were completely revegetated within a year additional wetland mitigation would not be required, otherwise the project would require 1:1 wetland mitigation for those areas where “hot spots” were removed.

Compliance with the following policies is not certain:

- Policy OS-1.6 and Policy SF-1.5: additional information is required, including a Botanical Study and a Sea Level Rise Analysis.
- Policy OS-16.1, 16.2, 16.17, 16.18 -Public access to the beach may be limited if the dam is not stabilized. Need to confirm with DSOD if the dam stays in DSOD’s jurisdiction and if it is not stabilized, can public access be safely provided to the beach, if so where.
- Policy SF-1.1 – see above.

The project would have to comply with a number of special conditions, including but not limited to the many conditions briefly described in Attachment 2.

## Conclusion

The following two project alternatives are not considered development and would not require a Coastal Development Permit.

- **No action**
- **2a. Institutional controls: land use restrictions, sediment management & containment for Ponds 6, 7 and North Pond**

The projects below would require a Coastal Development Permit and could be found to comply with the policies of the Coastal General Plan. However additional studies are required (climate change, botanical, archaeological, etc.) and detailed project descriptions are needed to make a confident determination.

- **2b. Institutional controls: land use restrictions, sediment management, and containment for Pond 8**
- **4a. Excavation and Disposal: Ponds 6, 7 and North Pond**
- **4b. Excavation and Disposal: Pond 8**

- **5. Vegetative sediment cover (wet) over contaminated sediment and institutional controls**
- **7. Hot Spot Removal: Pond 8**

The following project alternatives are not compatible with policies of the City's Coastal General Plan and Coastal Act court cases and would not be able to obtain Coastal Development Permit approval.

- **3. Vegetative soil cover (dry) and institutional controls**
- **6. Pond 8 in-situ stabilization of sediment**

**The information provided in this letter and the attached matrices represent an initial determination of potential compliance/non-compliance with the policies of the Coastal General Plan. It is based on brief project alternative descriptions. Neither engineered drawings nor coastal act resource studies have been submitted, and thus a definitive determination of compliance is not feasible.**

**It is also important to note that all Coastal Development Permits are discretionary, and they are considered, reviewed and decided by the Planning Commission and, upon appeal, by the City Council and the California Coastal Commission.**

If you have questions or concerns, please feel free to contact me at 707-961-1807.

Sincerely,



Marie Jones  
Community Development Director

cc Bob Merrill, Coastal Commission  
Tabatha Miller, Fort Bragg City Manger  
Fort Bragg City Council

Attachments

Coastal General Plan Matrix – Alternatives

**Table 1: Coastal General Plan Policies Relevant to the Mill Pond Remediation Project Date 9-25-2018**

Coastal General Plan Policy	2b. Institutional Controls, Land Use Restriction, Sediment Management, and Retention of Mill Pond & Dam Stabilization	4a. Excavation & Disposal - Pond 6, 7 and North Pond	4b. Excavation & Disposal - Pond 8
<p><b>Brief Project description</b></p>	<p>For purposes of this analysis this project alternative is assumed to include:</p> <ul style="list-style-type: none"> <li>Retention of Pond 8</li> <li>Geotechnical stabilization of the Mill Pond Dam, Crib Wall and North Wall</li> <li>Minimal fill of a small portion of Pond 8 for construction of Dam Weir</li> <li>Activities below the mean high tide</li> </ul> <p>On site Wetland Mitigation would be required and could include:</p> <ul style="list-style-type: none"> <li>Improve Pond 8 vegetation; and</li> <li>Improve Ponds 1-4 and 6 &amp; 7 vegetation</li> <li>Establishment of new wetlands in the low land area as mitigation.</li> </ul>	<p>For purposes of this analysis this project alternative is assumed to include:</p> <ul style="list-style-type: none"> <li>Remove and dispose of sediment from Ponds 6, 7 and the North Pond</li> <li>Restoration and expansion of the lowland wetlands to achieve at least a 2:1 mitigation ratio, restoration of all lowland wetlands, and removal of all concrete and metal debris from the lowland area.</li> </ul>	<p>For purposes of this analysis this project alternative is assumed to include:</p> <ul style="list-style-type: none"> <li>Eliminate the Mill Pond and remove 106,000 cubic yards of sediment</li> <li>Remove the dam, crib wall, north wall and Rip Rap beach berm.</li> <li>Reuse some of the materials graded from the north wall and berm to create a stabilized slope which has some “natural” contours between the coastal trail and the lowland area.</li> <li>Pond 8 would no longer receive flows from Maple and Alder stormwater culverts.</li> <li>Development of a new two-acre stormwater retention and treatment basin at Maple Creek.</li> <li>Rerouting of the Alder and Maple storm-water flows into a “day-lighted creek” system.</li> <li>Restoration of the site with appropriate vegetation</li> </ul>
<p><b>Open Space Element</b></p>	<p><b>Project may comply with this policy.</b></p>	<p><b>Project could comply with this policy.</b></p>	<p><b>Project could comply with this policy.</b></p>
<p>Policy OS-1.3: <u>Development in ESHA Wetlands</u>: Diking, Filling, and Dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following uses:</p> <ol style="list-style-type: none"> <li>New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.</li> <li>Maintaining existing or restoring previously dredged depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.</li> <li>New or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.</li> <li>Incidental public service purposes, including but not limited to burying cables and pipes or inspection of piers and maintenance of existing intake and outfall pipelines.</li> <li>Restoration purposes.</li> <li>Nature study, aquaculture, or similar resource dependent activities.</li> </ol>	<p>Applicant will need to provide information about feasible alternatives to the proposed project and a summary of environmental impacts of the alternatives. Potential environmental effects:</p> <ul style="list-style-type: none"> <li>Wetland fill of 0.5 acres for weir.</li> <li>Transport of concrete and materials. CO2 from concrete.</li> <li>Construction of a ramp down to the beach for heavy equipment to get to beach.</li> </ul> <p>The project will provide an incidental public service per OS-1.3 as it provides water quality benefits through the settling action of the pond and storm water conveyance through the Mill Pond.</p> <p>The project would require wetland mitigation at a ratio of 4:1 to address impacts to wetlands.</p>	<p>For this project to be feasible as a restoration project under Policy OS-1.3e. The overall project would have to provide improved habitat values, increase wetland acreage (wetland mitigation ratio of 2:1) and restore the area to its natural state as much as feasible.</p> <p>As a restoration project the quality of the proposed wetland would have to be significantly higher than the existing wetlands.</p> <p>Applicant will need to provide information about feasible alternatives to the proposed project and a summary of environmental impacts of the alternatives.</p>	<p>This project could be feasible as a restoration project under Policy OS-1.3e. The overall project would have to provide improved habitat values and restore the site to its pre-human contact conditions, including the creek alignment, as much as feasible.</p> <p>As a restoration project the quality of the proposed wetland would have to be significantly higher than the existing wetlands in order for the low mitigation ratio 0.5:1 to be acceptable (a 2 acre stormwater retention pond and a 2 acre creek would replace the 8 acre Mill Pond).</p> <p>Applicant will need to provide information about feasible alternatives to the proposed project and a summary of environmental impacts of the alternatives. Potential environmental effects:</p> <ul style="list-style-type: none"> <li>Traffic and CO2 impacts from an estimated 102,000 Cubic Yards (5,600 truckloads) of sediment that would be transported to appropriate non-hazardous waste disposal facility (100 miles away). This would generate approximately 5 million kilograms of CO2. Removal of the Crib Wall, Dam and North Wall would require removal of 27,000 cubic yards of materials. The removal of the beach berm would require removal of 9,000 cubic yards of materials. A total of 1,800</li> </ul>

**Table 1: Coastal General Plan Policies Relevant to the Mill Pond Remediation Project Date 9-25-2018**

Coastal General Plan Policy	2b. Institutional Controls, Land Use Restriction, Sediment Management, and Retention of Mill Pond & Dam Stabilization	4a. Excavation & Disposal - Pond 6, 7 and North Pond	4b. Excavation & Disposal - Pond 8
			truckloads of material and approximately 1.7 million kilograms of CO2. <ul style="list-style-type: none"> <li>o Construction of a ramp down to the beach for heavy equipment to get to beach.</li> <li>o Loss of an 8 acre wetland and replacement with 4 acres of wetland.</li> </ul>
Policy OS-1.5: <b>Development in Rivers and Streams with ESHA.</b> Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to: <ul style="list-style-type: none"> <li>a. Necessary water supply projects,</li> <li>b. Flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or</li> <li>c. Developments where the primary function is the improvement of fish and wildlife habitat.</li> </ul>	<b>Project may comply with this policy.</b> This project can be permitted as a flood control project (Policy OS1.5b). As the project is required by DSOD to minimize earthquake risk of a dam failure and the subsequent flooding of the beach and the lowland area and potential impacts to life, it is a flood control project.	No applicable to project	<b>Project may comply with this policy.</b> The project could be approved as a flood control project (OS-1.5b) as it would consist of rerouting a stream from an unstable dam, removal of the pond and establishment of an alternative stream bed.  OS-1.5c should not be used to permit this project as the primary purpose of the filling Pond 8 is not the improvement of fish and wildlife habitat. Fish habitat is not feasible within the daylighted creeks as the water source for these creeks is the culverted City storm drain system and reintroduction of fish into a culverted storm drain would result in fish death.
Policy OS-1.6: <b>Development within Other Types of ESHA</b> shall protect ESHA against any significant disruption of habitat values and shall be limited to the following uses: <ul style="list-style-type: none"> <li>a. Resource Dependent Uses. Public nature trails within riparian ESHA are considered a resource dependent use provided that: (1) the length of the trail within the riparian corridor shall be minimized; (2) the trail crosses the stream at right angles to the maximum extent feasible; (3) the trail is kept as far up slope from the stream as possible; (4) trail development involves a minimum of slope disturbance and vegetation clearing; and (5) the trail is the minimum width necessary. Interpretive signage may be used along permissible nature trails accessible to the public to provide information about the value and need to protect sensitive resources.</li> <li>b. Restoration projects where the primary purpose is restoration of the habitat.</li> <li>c. Invasive plant eradication projects if they are designed to protect and enhance habitat values.</li> <li>d. Pipelines and utility lines installed underneath the ESHA using directional drilling techniques designed to avoid significant disruption of habitat values.</li> </ul>	<b>Project could comply with this policy pending additional information.</b>  This policy is for upland ESHA and its application will depend on the results of a botanical report for the proposed work area.  If there are upland rare plants in the project area the project would have to be redesigned so that it does not impact the ESHA.	<b>Project could comply with this policy pending additional information.</b>  This policy is for upland ESHA and its application will depend on the results of a botanical report for the proposed work area.  If the project has an impact on upland ESHA habitats, through removal or destruction, the project would have to redesigned to avoid impacts to those upland ESHA habitats. There is a know ESHA on the Beach Berm.	<b>Project could comply with this policy pending additional information.</b>  This policy is for upland ESHA and its application will depend on the results of a botanical report for the proposed work area.  The project may be considered a restoration project, if it is scaled to really restore the area to pre-human biological function. Nevertheless if the project has an impact on upland ESHA habitats, through removal or destruction, the project would have to redesigned to avoid impacts to those upland ESHA habitats.
Policy OS-1.7 <b>Development in areas adjacent to Environmentally Sensitive Habitat Areas</b> shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall be	<b>Project may comply with this policy with special conditions.</b> The implementation of this policy will likely include requirements to ensure that the dam improvements are	<b>Project may comply with this policy.</b>  Wetland creation (mitigation) will occur within buffers of existing wetlands and restored wetlands would be	<b>Project may comply with this policy with special conditions.</b> The project would have to be a real restoration project see above.

**Table 1: Coastal General Plan Policies Relevant to the Mill Pond Remediation Project Date 9-25-2018**

Coastal General Plan Policy	2b. Institutional Controls, Land Use Restriction, Sediment Management, and Retention of Mill Pond & Dam Stabilization	4a. Excavation & Disposal - Pond 6, 7 and North Pond	4b. Excavation & Disposal - Pond 8
<p>compatible with the continuance of such habitat areas.</p>	<p>covered with fill dirt and restored with native plants. Some thought should also be given to contouring the dam improvement areas so that they have as natural a look as possible.</p> <p>The North Dam improvement encroaches on a couple of small coastal act wetlands. Wetland mitigation will be required to mitigate for impacts to wetlands. Additionally, the hydrology that feeds these wetlands will need to be maintained. If seepage from the dam is supporting existing wetlands, than the wetlands that will be dried out by the improvements will need to be replaced or mitigated in another location. Ratio of mitigation will need to be determined, but could be as much as 4:1.</p> <p>The South dam improvement will cover areas of rocky and sandy beach and appear to extend below the mean high tide, which is in the jurisdiction of the Coastal Commission and must follow the requirements of the Coastal Act. The applicant will also need a permit to use this property from the Tidelands Trust. The placement of stone and concrete armoring at this location will require mitigation elsewhere on the property. Specifically the City is likely to require the removal/replacement of some of the armoring on the beach berm, which is highly degraded.</p> <p>The south dam project will also impact a number of wetland seeps. Impacts to these seeps will also need to be mitigated for onsite.</p> <p>Suitable BMPs will be required to prevent sedimentation below and degradation of habitat.</p>	<p>compatible with the continuance of wetland habitat.</p> <p>Suitable BMPs will be required to prevent sedimentation below and degradation of habitat.</p>	<p>The daylighting of the creek(s) would be adjacent to a number of lowland ESHAs (wetlands), and in some cases would result in the replacement of some existing wetlands with the creek corridor. These wetland would have to be mitigated for on site.</p> <p>The removal of the dam, crib wall and rip rap wall will include significant work in intertidal areas and rocky and sandy beach areas (ESHAs) and may extend below the mean high tide, which is in the jurisdiction of the Coastal Commission and must follow the requirements of the Coastal Act. The applicant will also need a permit to use this property from the Tidelands Trust.</p> <p>Suitable BMPs will be required to prevent sedimentation below and degradation of habitat.</p>
<p>Policy OS-1.10: Permitted Uses within ESHA Buffers. Development within an Environmentally Sensitive Habitat Area buffer shall be limited to the following uses:</p> <p>a. Wetland Buffer.</p> <p>i. Uses allowed within the adjacent Wetland ESHA pursuant to Policy OS-1.3.</p> <p>ii. Nature trails and interpretive signage designed to provide information about the value and protection of the resources</p> <p>iii. Invasive plant eradication projects if they are designed to protect and enhance habitat values.</p> <p>b. Riparian Buffer.</p> <p>i. Uses allowed within the adjacent River and Stream ESHA pursuant to Policy OS-1.5.</p> <p>ii. Uses allowed within the adjacent ESHA pursuant</p>	<p><b>Project may comply with this policy with special conditions.</b></p> <p>Uses permitted within the Wetland ESHA buffer, are limited in scope. As noted above under OS-1.3 the project will need to provide an incidental public service which includes stormwater treatment, stormwater quality enhancements and stormwater conveyance.</p>	<p><b>Project may comply with this policy.</b></p> <p>The mitigated wetlands would be permitted in riparian buffers and other ESHA buffers per OS-1.3e.</p>	<p><b>Project may comply with this policy.</b></p> <p>The mitigated wetlands would be permitted in riparian buffers and other ESHA buffers per OS-1.3e.</p> <p>The daylighted creek would be permitted in riparian buffers and other ESHA buffers per OS-10.b.v and c.iv.</p>

**Table 1: Coastal General Plan Policies Relevant to the Mill Pond Remediation Project Date 9-25-2018**

Coastal General Plan Policy	2b. Institutional Controls, Land Use Restriction, Sediment Management, and Retention of Mill Pond & Dam Stabilization	4a. Excavation & Disposal - Pond 6, 7 and North Pond	4b. Excavation & Disposal - Pond 8
<p>to Policy OS-1.6.</p> <p>iii. Buried pipelines and utility lines.</p> <p>iv. Bridges.</p> <p>v. Drainage and flood control facilities.</p> <p>c. <u>Other types of ESHA Buffer.</u></p> <p>i. Uses allowed within the adjacent ESHA pursuant to Policy OS-1.6.</p> <p>ii. Buried pipelines and utility lines.</p> <p>iii. Bridges.</p> <p>iv. Drainage and flood control facilities.</p>			
<p>Policy OS-1.14: <u>Vegetation Removal in ESHA.</u> Prohibit vegetation removal in Environmentally Sensitive Habitat Areas and buffer areas except for:</p> <p>a) <u>Vegetation removal authorized through coastal development permit approval to accommodate permissible development,</u></p> <p>b) Removal of trees for disease control,</p> <p>c) <u>Vegetation removal for public safety purposes to abate a nuisance consistent with Coastal Act Section 30005, or</u></p> <p>d) Removal of firewood for the personal use of the property owner at his or her residence to the extent that such removal does not constitute development pursuant to Coastal Act Section 30106.</p> <p>Such activities shall be subject to restrictions to protect sensitive habitat values.</p>	<p><b>Project may comply with this policy.</b></p> <p>All three components of the project will require vegetation removal from ESHAs, due to the impact of all three project components on wetlands. This work will only be permissible if the project as a whole complies with OS-1.3 above.</p>	<p><b>Project may comply with this policy.</b></p> <p>Removal of the pond sediment will require vegetation removal from ESHAs. This work will only be permissible if the project as a whole complies with OS-1.3e above and if the project is a comprehensive restoration project.</p> <p>Quality of habitat will be important. Existing wetlands have low quality and new wetlands will need to have significantly better quality given the low wetland mitigation ratio of the project.</p>	<p><b>Project may comply with this policy.</b></p> <p>Removal of the pond sediment, crib wall, beach berm, dam and north wall and construction of the creeks will require vegetation removal from ESHAs. This work will only be permissible if the project as a whole complies with OS-1.3e above and if the project is a comprehensive restoration project.</p> <p>Quality of habitat will be important. Existing wetlands have low quality and new wetlands will need to have significantly better quality given the low wetland mitigation ratio of the project.</p>
<p>Policy OS-2.1 Riparian Habitat: <u>Prevent development from destroying riparian habitat to the maximum feasible extent. Preserve, enhance, and restore existing riparian habitat in new development unless the preservation will prevent the establishment of all permitted uses on the property.</u></p> <p><u>Program OS-2.1.1: To the maximum extent feasible, preserve, protect, and restore streams and creeks to their natural state.</u></p> <p><u>Program OS-2.1.2: Work with organizations and private property owners to enhance the City's watercourses for habitat preservation and recreation.</u></p> <p>Program OS-2.1.3: Develop additional guidelines for the maintenance of watercourses to further assure that native vegetation is not unnecessarily removed and that maintenance minimizes disruption of wildlife breeding activities and wildlife movement. Incorporate these guidelines, where appropriate, into the City's maintenance procedures.</p>	<p><b>Project may comply with this policy with special conditions.</b></p> <p>The proposed project is fairly limited in the scope in its impacts on riparian areas (arguably the areas on the bank of the pond and adjacent to the spillway which might be impacted by the project. The City will require the applicant to "restore riparian habitat" due to the policy language. Restoration of riparian habitat, in the case of this project, would apply to restoration of the area around the crib wall riparian area, the spill way and other riparian areas impacted by the project.</p> <p>While Program OS-2.1.1 calls for "restore streams and creeks to their natural state", program language is not used to govern the approval of Coastal Development Permits. Please note that the Coastal General Plan defines a Policy and Program as follows:</p> <ul style="list-style-type: none"> <li>• Policy - A specific mandatory statement binding the City's action and establishing the standard of review to determine whether land use and development decisions, zoning changes or other</li> </ul>	<p><b>Project may comply with this policy.</b></p> <p>Wetland mitigation requirements would result in the creation of additional riparian habitat sufficient to mitigate against any loss in riparian habitat through the project.</p>	<p><b>Project may comply with this policy.</b></p> <p>Creek daylighting may be sufficient wetland mitigation for riparian impacts.</p> <p>The programs do not have any legal weight for the review and consideration of Coastal Development Permits. Only the policies may be applied to the review of a CDP.</p>

**Table 1: Coastal General Plan Policies Relevant to the Mill Pond Remediation Project Date 9-25-2018**

Coastal General Plan Policy	2b. Institutional Controls, Land Use Restriction, Sediment Management, and Retention of Mill Pond & Dam Stabilization	4a. Excavation & Disposal - Pond 6, 7 and North Pond	4b. Excavation & Disposal - Pond 8
<p>Program OS-2.1.4: Seek Federal and State funding for the repair of streambank erosion, planting of riparian vegetation to stabilize creek banks, and removal of debris obstructing waterflow.</p>	<p>City actions are consistent with the General Plan.</p> <ul style="list-style-type: none"> <li>• Program - An action, activity, or strategy carried out in response to adopted policy to achieve a specific goal. The City's "Programs" shall not govern the review and approval of coastal development permits.</li> </ul>		
<p>Policy OS-9.5. <b>Maintain and Restore Biological Productivity and Water Quality.</b> The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.</p>	<p><b>Project may comply with this policy with special conditions.</b></p> <p>This project would comply with Policy OS 9.5, per DTSC confirmation that the Mill Pond does not pose a health risk to coastal waters, streams, wetlands or estuaries and marine organisms.</p> <p>The list of techniques to restore biological productivity is primarily focused on pollution control. The applicant may need to install new storm water pollution control devices for stormwater going into the Mill Pond from the Mill Site (which is largely paved) and the City's storm water culverts.</p>	<p><b>Project may comply with this policy with special conditions.</b></p> <p>Project will need to enhance biological productivity of existing wetlands which should be an outcome of an effective wetland restoration and mitigation project in the lowland area.</p>	<p><b>Project may comply with this policy with special conditions.</b></p> <p>This project would comply with Policy OS 9.5 if the "daylighted creeks" and 2 acre settling pond achieve water quality objectives. The applicant may need to install new storm water pollution control devices for stormwater going into the Mill Pond from the Mill Site (which is largely paved) and the City's storm water culverts.</p>
<p>Policy OS-16.2 <b>Right of Public Access:</b> Development in the Coastal Zone shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation. Public prescriptive rights must be protected wherever they exist.</p>	<p><b>Project may comply with this policy with special conditions.</b></p> <p>The project will have a direct impact on access to the beach because it will cover a portion of the beach with the new buttress. The City will require the dedication of a shoreline lateral and/or vertical access from the California Coastal Trail (Fort Bragg Coastal Trail) to the beach as part of the approval for this project.</p>	<p><b>Project may comply with this policy.</b></p> <p>The proposed project will not have an impact on beach access during construction. No public access would be required as a result of the implementation of this project</p>	<p><b>Project may comply with this policy.</b></p> <p>The proposed project will have a temporary impact on beach access during construction. The City may be able to require the dedication of a shoreline lateral and/or vertical access from the California Coastal Trail (Fort Bragg Coastal Trail) to the beach as part of the approval for this project.</p>
<p>Policy OS-16.17 <b>Coastal Trails:</b> Develop a continuous trail system throughout the City which connects to the California Coastal Trail system.</p>	<p><b>Project may comply with this policy.</b></p> <p>See above</p>	<p><b>Project may comply with this policy.</b></p> <p>See above</p>	<p><b>Project may comply with this policy.</b></p> <p>See above</p>
<p>Policy OS-16.18 <b>General Standards:</b> Require that all public access easements offered for dedication to public use be a minimum of 25 feet wide. The area where public access is allowed within the easement may be reduced to the minimum necessary to avoid:</p> <ol style="list-style-type: none"> <li>adverse impacts on sensitive environmental areas;</li> <li>encroachment closer than 20 feet from an existing residence; and/or</li> <li>hazardous topographic conditions.</li> </ol>	<p><b>Project may comply with this policy.</b></p> <p>The City will require a dedication of a shoreline lateral access of 25 feet in width from the California Coastal Trail to the beach as part of the approval for this project.</p>	<p><b>Project may comply with this policy.</b></p> <p>See above</p>	<p><b>Project may comply with this policy.</b></p> <p>The City will require a dedication of a shoreline lateral access of 25 feet in width from the California Coastal Trail to the beach as part of the approval for this project.</p>

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Coastal General Plan Policy	2b. Institutional Controls, Land Use Restriction, Sediment Management, and Retention of Mill Pond & Dam Stabilization	4a. Excavation & Disposal - Pond 6, 7 and North Pond	4b. Excavation & Disposal - Pond 8
<b>Safety Element</b>			
<p>Policy SF-1.1 Minimize Hazards: New development shall: (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard; and (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.</p>	<p><b>Project may comply with this policy with special conditions.</b></p> <p>See Policy SF 1-10 which is an override policy and provides property owners with the right to protect development that was built prior to adoption of the Coastal Act.</p> <ul style="list-style-type: none"> <li>The policy requires structural stability and the project will need to comply with DSOD requirements.</li> <li>The proposed project would include construction of South Dam Improvements to the existing crib wall, which is not a natural land form. Rebuilding it would not be considered substantial.</li> <li>The applicant will need to look at implication of sea level rise as a potential hazard to the dam, e.g. the erosional impacts or waves and sea level rise.</li> </ul>	<p><b>Project may comply with this policy.</b></p> <p>Wetlands mitigation would not be considered development and restored wetland would not need to be protected from natural acts (earthquake, tsunami, etc.)</p>	<p><b>Project may comply with this policy with special conditions.</b></p> <p>The new bank between the Coastal Trail and the new lowland area will have to stable and free from hazards.</p> <p>The wave impacts on the low land area could have an impact on erosional forces if the beach berm is removed. A new beach berm would probably have to be constructed.</p> <p>The “daylighted creeks” could be more flood prone than the existing Mill Pond. The creeks would have to be designed and constructed to accommodate and withstand a 100 year storm event (400 cubic feet per second of flow).</p> <p>The new water quality settling pond (2 acre pond) would have to designed and sized to accommodate flows from a 100 year storm event without over toping.</p>
<p>Policy SF-1.2: All ocean-front and blufftop development shall be sized, sited and designed to minimize risk from wave run-up, flooding, and beach and bluff erosion hazards, and avoid the need for a shoreline protective structure at any time during the life of the development.</p>	<p><b>Project may comply with this policy with special conditions.</b></p> <p>See Policy SF 1-10 which is an override policy and provides property owners with the right to protect development that was built prior to adoption of the Coastal Act.</p> <p>The new dam stabilization project must be designed to minimize risk of flooding, beach and bluff erosion.</p>	<p><b>Project may comply with this policy.</b></p> <p>Wetlands mitigation would not be considered development and would not need to be protected from beach or bluff erosion.</p>	<p><b>Project may not comply with this policy even with special conditions.</b></p> <p>The existing beach berm protects a series of perched freshwater wetlands (at elevation from 16’ -30’) and a low coastal bluff from ocean encroachment and creek erosion. The removal of the beach berm could result in wave run up and very significant amounts of coastal erosion into the ocean. The project would have to propose a replacement berm to protect the lowland area from erosion or remove the soil from this area, the policy appears to prohibit a project that requires a new shoreline protective structure (berm) at any time of the life of the development.</p> <p>If the Coastal Commission consolidates this permit on appeal, it could look at this issue and use a balancing process which may determine that the environmental benefits of berm removal and replacement outweighed the environmental costs of removal of the berm (including disturbance to upland ESHA).</p> <p>It may be preferable to retain the existing beach berm, in which case the project would comply with this policy.</p>

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Coastal General Plan Policy	2b. Institutional Controls, Land Use Restriction, Sediment Management, and Retention of Mill Pond & Dam Stabilization	4a. Excavation & Disposal - Pond 6, 7 and North Pond	4b. Excavation & Disposal - Pond 8
			The Council/Commission would have to decide if it is preferable to have beach ESHA habitat or upland wetland habitat.
<p>Policy SF-1.5: Siting and design of new blufftop development and shoreline protective devices shall take into account anticipated future changes in sea level. In particular, an acceleration of the historic rate of sea level rise shall be considered. Development shall be set back a sufficient distance landward and elevated to a sufficient foundation height to eliminate or minimize to the maximum extent feasible hazards associated with anticipated sea level rise over the expected 100-year economic life of the structure.</p>	<p><b>It is uncertain if this project will comply with Policy SF 1.5, more information is needed.</b></p> <p>The applicant will need to include an analysis that considers the impact of sea level rise on storm surge forces on the dam and ensure that the existing structure will have a 100 year life.</p>	<p><b>Project may comply with this policy.</b></p> <p>Wetlands mitigation would not be considered development and would not need to be protected from sea level rise.</p>	<p><b>It is uncertain if this project will comply with Policy SF 1.5</b></p> <p>The applicant will need to include an analysis that considers the impact of sea level rise on storm surge forces on the replacement beach berm and ensure that the structure will have a 100 year life.</p>
<p>Policy SF-1.7 <u>Alterations to Landforms</u>: Minimize, to the maximum feasible extent, alterations to cliffs, bluff tops, faces or bases, and other natural land forms in the Coastal Zone. Permit alteration in landforms only if erosion/runoff is controlled and either there exists no other feasible environmentally superior alternative or where such alterations re-establish natural landforms and drainage patterns that have been eliminated by previous development activities.</p>	<p><b>Project may comply with this policy with special conditions.</b></p> <p>This option includes changes to manmade landforms, namely the Crib Wall and the North embankment. As these are not natural landforms they are exempt from this policy.</p> <p>This option also includes some changes to natural landforms below the mean high tide, and these changes will need to be analyzed relative to the Coastal Act not the City's LCP.</p> <p>A through exploration of other environmentally alternatives is required.</p>	<p><b>Project may comply with this policy.</b></p> <p>This project will comply with Policy SF 1.7 as no landforms will be modified as part of the project. .</p>	<p><b>Project may comply with this policy with special conditions.</b></p> <p>This project may comply with Policy SF 1.7 as both man-made and natural landforms will be significantly modified as part of the project. The removal of the crib wall, north wall and dam will effect natural land forms.</p> <p>The project would be conditioned to require grading, and restoration of the final site to match grades and vegetation in the area.</p> <p>The project would be conditions to require implementation of pre and post construction BMPs</p>

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Coastal General Plan Policy	2b. Institutional Controls, Land Use Restriction, Sediment Management, and Retention of Mill Pond & Dam Stabilization	4a. Excavation & Disposal - Pond 6, 7 and North Pond	4b. Excavation & Disposal - Pond 8
<p>Policy SF-1.9 <u>Bluff Face and Bluff Retreat Setback</u>: Prohibit development on the bluff face and within the bluff retreat setback because of the fragility of this environment and the potential for resultant increase in bluff and beach erosion due to poorly-sited development—except that the following uses may be allowed with a conditional use permit:</p> <p>(1) engineered accessways or staircases to beaches, boardwalks, viewing platforms, and trail alignments for public access purposes;</p> <p>(2) pipelines to serve coastal dependent industry;</p> <p>(3) habitat restoration;</p> <p>(4) hazardous materials remediation; and</p> <p>(5) landform alterations where such alterations re-establish natural landforms and drainage patterns that have been eliminated by previous development activities.</p> <p>Findings shall be made that no feasible, less environmentally damaging, alternative is available and that feasible mitigation measures have been provided to minimize all adverse environmental impacts. Require as a part of the conditional use permit, a full environmental, geological, and engineering study as specified in Policy LC-6.1. Such structures shall be constructed and designed so as to neither create nor contribute to erosion of the bluff face and to be visually compatible with the surrounding area to the maximum extent feasible.</p>	<p><b>Project could comply with this policy with special conditions.</b></p> <p>Development within the bluff face is permitted with a Condition Use Permit for hazardous materials remediation.</p> <p>Feasible environmentally less damaging alternatives will need to be explored.</p> <p>The final design will need to be supported with evidence from a geological and engineering study.</p> <p>The final design will need to be visually compatible with the surrounding area. The City will require renderings of the proposed design in full color and in relationship to the existing cliff face.</p>	<p><b>Project could comply with this policy.</b></p> <p>Removal of sediment from Ponds 6, 7 and North Pond conform with policy SF-1.9 because development within the bluff face is permitted with a Condition Use Permit for hazardous materials remediation.</p> <p>Wetlands mitigation would not be considered development.</p>	<p><b>Project could comply with this policy with special conditions.</b></p> <p>Removal of Pond 8 and associated structures and the development of a sloped soil embankment between the Coastal Trail and the low land area appear to conform with policy SF-1.9 because development within the bluff face is permitted with a Condition Use Permit for hazardous materials remediation.</p> <p>Feasible environmentally less damaging alternatives will need to be explored.</p> <p>The final design will need to be supported with evidence from a geological and engineering study.</p> <p>The final design will need to be visually compatible with the surrounding area. The City will require renderings of the proposed design in full color and in relationship to the existing cliff face.</p>
<p>Policy SF-1.10 <u>Seawalls, Breakwaters and Other Shoreline Structures</u>: Prohibit construction of seawalls, breakwaters, revetments, groins, harbor channels, retaining walls, and other structures altering the natural shoreline processes unless a finding is made that such structures are required: (1) to serve coastal-dependent uses; or (2) to protect public beaches in danger from erosion; or (3) to protect existing structures that were legally constructed prior to the effective date of the Coastal Act; or (4) that were legally permitted prior to the effective date of this Coastal General Plan provided that the CDP did not contain a waiver of the right to a future shoreline or bluff protection structure; or (5) for a development consistent with Section 30233(a) of the Coastal Act and only when it can be demonstrated that said existing structures are at risk from identified hazards if no feasible or less environmentally damaging alternative is available and the structure has been designed to eliminate or mitigate adverse</p>	<p><b>Project may likely comply with this policy.</b></p> <p>The finding for construction of “retaining walls” for the South Dam and North Wall as required by Policy SF 1.1 can be made: (3) the proposed project would protect a structure (dam and Mill Pond) that was legally constructed prior to the effective date of the Coastal Act.</p> <p>In order for the structure to “respect natural landforms” the final design should blend into the existing bluff face as much as possible.</p> <p>Need to determine if no feasible or less environmentally damaging alternative is available and if the structure has been designed to eliminate or mitigate adverse environmental impacts, including impacts upon local shoreline sand supply.</p>	<p><b>Project complies with this policy.</b></p> <p>No improvements are proposed for the beach berm. If improvements are required for the Beach Berm they can be as permitted and the findings can be made for Policy SF 1.1: (3) the proposed project would protect a structure (beach Berm) that was legally constructed prior to the effective date of the Coastal Act.</p> <p>In order for any improvements to the beach berm to “respect natural landforms” the final design should blend into the existing bluff face as much as possible and unsightly rip rap should be removed and replaced with natural boulders where feasible. .</p>	<p><b>Project may not comply with this policy even with special conditions.</b></p> <p>This project complies with Policy SF 1.10 as it may result in the replacement of some type of protective structure per Policy SF-1.2 in order to minimize the potential for extensive low land erosion into the ocean.</p> <p>If the Coastal Commission consolidates this permit on appeal, it could look at this issue and use a balancing process which may determine that the environmental benefits of berm removal and replacement outweighed the environmental costs of removal of the berm (including disturbance to upland ESHA).</p>

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Coastal General Plan Policy	2b. Institutional Controls, Land Use Restriction, Sediment Management, and Retention of Mill Pond & Dam Stabilization	4a. Excavation & Disposal - Pond 6, 7 and North Pond	4b. Excavation & Disposal - Pond 8
environmental impacts, including impacts upon local shoreline sand supply. The design and construction of allowed protective structures shall respect natural landforms and provide for lateral beach access.			
Policy SF-2.1 <u>Seismic Hazards</u> : Reduce the risk of loss of life, personal injury, and damage to property resulting from seismic hazards.	<b>Project would likely comply with this policy.</b> The project would implement this policy.	<b>Project would likely comply with this policy.</b>	<b>Project would likely comply with this policy.</b> The project would implement this policy.
Policy SF-2.4 Tsunami: Minimize development in areas subject to tsunami.	<b>Project could comply with this policy with special conditions.</b> The project would include development around the crib wall that would be subject to Tsunami.  The development and hazards would need to be minimized by ensuring a public evacuation route and signage from the beach and lowland area to safe ground.	<b>Project would likely comply with this policy.</b>  Wetlands mitigation would not be considered development.	<b>Project would likely comply with this policy with special conditions.</b>  Removal of the beach berm would expose the daylighted creek (which is development) and soil and sediment to tsunami run-up, risk of tsunami would need to be minimized by ensuring a public evacuation route and signage from the beach and lowland area to safe ground.
Policy SF-2.5: Review development proposals to ensure that new development is not in an area subject to tsunami damage and if such development is otherwise allowable that it is designed to withstand tsunami damage.	<b>Project would likely comply with this policy.</b> See above. The project will need to be designed to withstand tsunami damage.	<b>Project would likely comply with this policy.</b>  Wetlands mitigation would not be considered development.	<b>Project would likely comply with this policy.</b> See above. The project will need to be designed to withstand tsunami damage.
<b>Community Design Element</b>			
Policy CD-1.1: Visual Resources: Permitted development shall be designed and sited to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance scenic views in visually degraded areas.	<b>Project could comply with this policy with special conditions.</b>  The final design should blend into the existing bluff face as much as possible.		
Policy CD-1.3: Visual Analysis Required. A Visual Analysis shall be required for all development located in areas designated "Potential Scenic Views Toward the Ocean or the Noyo River" on Map CD-1 except development listed in below.	<b>Project could comply with this policy with special conditions.</b>  A visual analysis will be required and special conditions may be required to reduce visual impacts.		
Policy CD-1.4: New development shall be sited and designed to minimize adverse impacts on scenic areas visible from scenic roads or public viewing areas to the maximum feasible extent.	<b>Project could comply with this policy with special conditions.</b>  The final design will need to conform with all the requirements of the policy.		

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<p>Policy CD-1.5: All new development shall be sited and designed to minimize alteration of natural landforms by:</p> <ol style="list-style-type: none"> <li>1. Conforming to the natural topography.</li> <li>2. Preventing substantial grading or reconfiguration of the project site.</li> <li>3. Minimizing flat building pads on slopes. Building pads on sloping sites shall utilize split level or stepped-pad designs.</li> <li>4. Requiring that man-made contours mimic the natural contours.</li> <li>5. Ensuring that graded slopes blend with the existing terrain of the site and surrounding area.</li> <li>6. Minimizing grading permitted outside of the building footprint.</li> <li>7. Clustering structures to minimize site disturbance and to minimize development area.</li> <li>8. Minimizing height and length of cut and fill slopes.</li> <li>9. Minimizing the height and length of retaining walls.</li> <li>10. Cut and fill operations may be balanced on-site, where the grading does not substantially alter the existing topography and blends with the surrounding area. Export of cut material may be required to preserve the natural topography.</li> </ol>	<p><b>Project could comply with this policy with special conditions.</b></p> <p>This policy applies to the south dam improvement area as it is a natural landform. The design will need to be contoured to match the surrounding topo. Slopes will need to blend. Retaining walls should be covered with soil and revegetated if feasible, If not feasible than the concrete should be colored so that it does not stand out.</p> <p>This policy may apply to the North embankment area even though it is not a natural landform. The design will need to be contoured to match the surrounding topo. Slops should blend.</p>	<p><b>Project would likely comply with this policy.</b></p> <p>Project would not result in the alteration of nature land forms.</p>	<p><b>Project could comply with this policy with special conditions.</b></p> <p>This project would result in significant alterations of landforms composed of both natural and man-made features.</p> <p>The new slope between the Coastal Trail and the low land area should be contoured to a more natural slope that mimics natural land forms and blends with the lowland area and the Coastal Trail.</p>
<p>Policy CD-2.5 Scenic Views and Resource Areas: Ensure that development does not adversely impact scenic views and resources as seen from a road and other public rights-of-way.</p>	<p>See above</p>		

**Table 2: Coastal General Plan Policies Relevant to the Mill Pond Remediation Project** Sept 25, 2018

Coastal General Plan Policy	5. Vegetative sediment cover (wet) over contaminated sediment and institutional controls & Dam Repair	6. In-Situ Soil Mixing without Dam Stabilization.	7. Mill Pond “Hot Spot” Removal without Dam Stabilization.
<p><b>Brief Project description</b></p>	<p>For purposes of this analysis this project alternative is assumed to include:</p> <ul style="list-style-type: none"> <li>Retention of the dam structures</li> <li>Add 2 feet of fill over the existing sediment and retention of a wetland cap within the existing mill pond.</li> </ul>	<p>For purposes of this analysis this project alternative is assumed to include:</p> <ul style="list-style-type: none"> <li>ISM technology would be used to immobilize organic and inorganic compounds in saturated sediments, using reagents to produce an inert, geotechnically strong, and relatively less permeable material, such as Portland cement.</li> <li>The dam stabilization project would not be required.</li> <li>The Mill Pond Dam and beach berm would continue to provide sediment containment.</li> </ul>	<p>For purposes of this analysis this project alternative is assumed to include:</p> <ul style="list-style-type: none"> <li>Minimal dredging of a small portion of Pond 8 for removal of “hot spots” in Pond 8. Upon removal of the “hot spots” this analysis assumes that the pond would be cleaned to a residential standard and no containment of the pond would be required.</li> <li>This analysis assumes retention of Pond 8 without geotechnical stabilization. (See alternative 1 to view policy implications for geotechnical stabilization.)</li> <li>Under this analysis the dam would be retained under DSOD authority and beach access may not be feasible.</li> </ul> <p>To determine the feasibility of Hot Spot Removal with dam repairs, please see Option 2a.</p>
<p><b>Open Space Element</b></p>			
<p>Policy OS-1.3: <u>Development in ESHA Wetlands:</u> Diking, Filling, and Dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following uses:</p> <ol style="list-style-type: none"> <li>New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.</li> <li>Maintaining existing or restoring previously dredged depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.</li> <li>New or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.</li> <li>Incidental public service purposes, including but not limited to burying cables and pipes or inspection of piers and maintenance of existing intake and outfall pipelines.</li> <li>Restoration purposes.</li> <li>Nature study, aquaculture, or similar resource dependent activities.</li> </ol>	<p><b>Project may comply with this policy.</b></p> <p>This option might be approvable as filling and dredging for an incidental public service purpose if it can be demonstrated that the work in Pond 8 actually does benefit or improve the stormwater runoff treatment use of Pond 8.</p> <ul style="list-style-type: none"> <li>If the continued use of Pond 8 as a stormwater detention basin poses the risk of mobilizing some of the contaminated sediments, then arguably partially filling the pond under could be for an incidental public service purpose of stormwater runoff management</li> <li>If not, and if there is no other legitimate basis to state that dredging and filling for the option is for an incidental public service purpose, then the project would not comply with Policy OS-1.3.</li> </ul>	<p><b>Project would not comply with this policy. This alternative would not be able to secure a Coastal Development Permit.</b></p> <p>This project would be considered a combination of dredging and fill as sediment would be treated and retained in place in a solid form.</p> <p>The incidental public service would be stormwater quality benefits and conveyance, however do to the scale of disturbance to the Pond 8 ESHA this project would not be considered the least environmentally damaging alternative.</p>	<p><b>Project may comply with this policy.</b></p> <p>If this project includes minimal dredging of Pond 8 to remove “hot spots” and if this dredging is part of a larger more extensive restoration strategy for the pond and a larger strategy that would result in improved stormwater treatment outcomes (incidental public service purpose) for the pond.</p> <p>This project would require significant in pond wetland restoration that improves wetland function, vegetation and water quality outcomes for stormwater treatment.</p>
<p>Policy OS-1.5: <u>Development in Rivers and Streams with ESHA.</u> Channelizations, dams, or other</p>	<p><b>Project may comply with this policy</b> Compliance with policy OS-1.5 is feasible if this</p>	<p><b>Project may comply with this policy</b> Compliance with policy OS-1.5 is feasible if this</p>	<p><b>Project may comply with this policy with special conditions.</b></p>

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<p>substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to:</p> <ul style="list-style-type: none"> <li>a. Necessary water supply projects,</li> <li>b. Flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or</li> <li>c. Developments where the primary function is the improvement of fish and wildlife habitat.</li> </ul>	<p>project is considered a flood control project through the dam stabilization project. This project would not be able to improve sufficient habitat, given its large scope to qualify as a habitat improvement project.</p>	<p>project is considered a flood control project, which it could be as it contributes to dam stabilization.</p>	<p>This project could possibly be permitted as a habitat improvement project (Policy OS1.5b) if the project includes significant habitat restoration activities within the Mill Pond.</p>
<p>Policy OS-1.6: Development within Other Types of ESHA shall protect ESHA against any significant disruption of habitat values and shall be limited to the following uses:</p> <ul style="list-style-type: none"> <li>a. Resource Dependent Uses. Public nature trails within riparian ESHA are considered a resource dependent use provided that: (1) the length of the trail within the riparian corridor shall be minimized; (2) the trail crosses the stream at right angles to the maximum extent feasible; (3) the trail is kept as far up slope from the stream as possible; (4) trail development involves a minimum of slope disturbance and vegetation clearing; and (5) the trail is the minimum width necessary. Interpretive signage may be used along permissible nature trails accessible to the public to provide information about the value and need to protect sensitive resources.</li> <li>b. Restoration projects where the primary purpose is restoration of the habitat.</li> <li>c. Invasive plant eradication projects if they are designed to protect and enhance habitat values.</li> <li>d. Pipelines and utility lines installed underneath the ESHA using directional drilling techniques designed to avoid significant disruption of habitat values.</li> </ul>	<p><b>Project could comply with this policy.</b></p> <p>This policy is for upland ESHA and its application will depend on the results of a botanical report for the proposed work area.</p> <p>If there are upland rare plants in the project area the project would have to be redesigned so that it does not impact the ESHA.</p>	<p><b>Project complies with this policy.</b></p> <p>If no development is proposed within other ESHA, the project complies with policy. A complete botanical survey will be required.</p>	<p><b>Project complies with this policy.</b></p> <p>No development proposed within other ESHA, project complies with policy. A complete botanical survey will be required.</p>
<p>Policy OS-1.7 Development in areas adjacent to Environmentally Sensitive Habitat Areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall be compatible with the continuance of such habitat areas.</p>	<p>See answer for option 2b</p>	<p><b>Project complies with this policy.</b> No development in areas adjacent to ESHA, project complies with policy.</p>	<p><b>Project complies with this policy.</b> No development in areas adjacent to ESHA, project complies with policy.</p>

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<p>Policy OS-1.10: <b>Permitted Uses within ESHA Buffers.</b> Development within an Environmentally Sensitive Habitat Area buffer shall be limited to the following uses:</p> <ul style="list-style-type: none"> <li>a. <b>Wetland Buffer.</b> <ul style="list-style-type: none"> <li>i. <b>Uses allowed within the adjacent Wetland ESHA pursuant to Policy OS-1.3.</b></li> <li>ii. Nature trails and interpretive signage designed to provide information about the value and protection of the resources</li> <li>iii. Invasive plant eradication projects if they are designed to protect and enhance habitat values.</li> </ul> </li> <li>b. <b>Riparian Buffer.</b> <ul style="list-style-type: none"> <li>i. Uses allowed within the adjacent River and Stream ESHA pursuant to Policy OS-1.5.</li> <li>ii. Uses allowed within the adjacent ESHA pursuant to Policy OS-1.6.</li> <li>iii. Buried pipelines and utility lines.</li> <li>iv. Bridges.</li> <li>v. <b>Drainage and flood control facilities.</b></li> </ul> </li> <li>c. <b>Other types of ESHA Buffer.</b> <ul style="list-style-type: none"> <li>i. Uses allowed within the adjacent ESHA pursuant to Policy OS-1.6.</li> <li>ii. Buried pipelines and utility lines.</li> <li>iii. Bridges.</li> <li>iv. <b>Drainage and flood control facilities.</b></li> </ul> </li> </ul>	<p>See answer for option 2b</p>	<p><b>Project complies with this policy.</b> No development proposed within ESHA buffers, project complies with policy.</p>	<p><b>Project complies with this policy.</b> No development proposed within ESHA buffers, project complies with policy.</p>
<p>Policy OS-1.14: <b>Vegetation Removal in ESHA.</b> Prohibit vegetation removal in Environmentally Sensitive Habitat Areas and buffer areas except for:</p> <ul style="list-style-type: none"> <li>a) <b>Vegetation removal authorized through coastal development permit approval to accommodate permissible development,</b></li> <li>b) Removal of trees for disease control,</li> <li>c) <b>Vegetation removal for public safety purposes to abate a nuisance consistent with Coastal Act Section 30005, or</b></li> <li>d) Removal of firewood for the personal use of the property owner at his or her residence to the extent that such removal does not constitute development pursuant to Coastal Act Section 30106.</li> </ul> <p>Such activities shall be subject to restrictions to protect sensitive habitat values.</p>	<p><b>Depending on the project scope the project may not comply with this policy.</b></p> <p>The project will require significant wetland vegetation removal from ESHAs, due to the impact of placing fill into the wetland. This work would only be permissible if the project as a whole complies with OS-1.3 above, which is unlikely.</p> <p>Mitigation measures will include extensive restoration of pond 8 wetlands and other wetlands on site for impacts to wetlands.</p>	<p><b>Project will probably not comply with this policy.</b></p> <p>The project will require 8 acres of wetland vegetation removal from ESHAs, due to the impact of in-situ soil mixing on wetlands. This work would only be permissible if the project as a whole complies with OS-1.3 above, which is unlikely.</p> <p>Mitigation measures will include extensive restoration of pond 8 wetlands and other wetlands on site for impacts to wetlands.</p>	<p><b>Project may comply with this policy.</b></p> <p>The project will require vegetation removal from ESHAs, due to the impact of hot spot removal on wetlands. This work will only be permissible if the project as a whole complies with OS-1.3 above.</p> <p>Wetland mitigation will require extensive restoration of pond 8 wetlands.</p>

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<p>Policy OS-2.1 <u>Riparian Habitat</u>: Prevent development from destroying riparian habitat to the maximum feasible extent. Preserve, enhance, and restore existing riparian habitat in new development unless the preservation will prevent the establishment of all permitted uses on the property.</p> <p>Program OS-2.1.1: To the maximum extent feasible, preserve, protect, and restore streams and creeks to their natural state.</p> <p>Program OS-2.1.2: Work with organizations and private property owners to enhance the City’s watercourses for habitat preservation and recreation.</p> <p>Program OS-2.1.3: Develop additional guidelines for the maintenance of watercourses to further assure that native vegetation is not unnecessarily removed and that maintenance minimizes disruption of wildlife breeding activities and wildlife movement. Incorporate these guidelines, where appropriate, into the City’s maintenance procedures.</p> <p>Program OS-2.1.4: Seek Federal and State funding for the repair of streambank erosion, planting of riparian vegetation to stabilize creek banks, and removal of debris obstructing waterflow.</p>	<p><b>Depending on the project scope the project may not comply with this policy.</b></p> <p>This project appears to conflict with Policy OS-2.1 as it would require the temporary destruction of riparian habitat, and there are project alternatives which would not require habitat destruction, thus it would not comply with the “maximum extent feasible” caveat.</p>	<p><b>Project will probably not comply with this policy.</b></p> <p>This project appears to conflict with Policy OS-2.1 as it would require the temporary destruction of riparian habitat, and there are project alternatives which would not require habitat destruction, thus it would not comply with the “maximum extent feasible” caveat.</p>	<p><b>Project may comply with this policy.</b></p> <p>The proposed project may be fairly limited in the scope of impacts on riparian areas, depending on the size of the “hot spot” removal projects.</p> <p>The City will require the applicant to “restore riparian habitat” due to the policy language. Restoration of riparian habitat, in the case of this project, would apply to restoration of the mill pond vegetation.</p> <p>While Program OS-2.1.1 calls for “restore streams and creeks to their natural state”, program language is not used to govern the approval of Coastal Development Permits. Please note that the Coastal General Plan defines notes that City’s “Programs” shall not govern the review and approval of coastal development permits.</p>
<p>Policy OS-9.5. <u>Maintain and Restore Biological Productivity and Water Quality</u>. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.</p>	<p><b>Depending on the project scope the project may comply with this policy.</b></p> <p>A case would need to be made that the layer of fill would increase the biological productivity of Pond 8 and that the layer of fill is necessary to protect human health.</p>	<p><b>Project will probably not comply with this policy.</b></p> <p>The project would likely reduce the biological productivity and quality of Pond 8 as it would take organically active sediment and turn it into concrete.</p>	<p><b>Project would likely comply with this policy.</b></p> <p>This policy may be interpreted to apply to “hot spot” removal. The removal of “hot spots” could improve the biological productivity and quality of Pond 8 and would be more protective of human health.</p> <p>The list of techniques to restore biological productivity is primarily focused on pollution control. This policy might require the applicant to install new storm water pollution control devices for stormwater going into the Mill Pond from the Mill Site (which is largely paved) and the City’s storm water culverts.</p>
<p>Policy OS-16.1 <u>Coastal Access</u>: Maximum access and recreational opportunities shall be provided consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.</p>	<p><b>Project would likely comply with this policy.</b></p> <p>The City would require the dedication of a shoreline lateral access from the California Coastal Trail (Fort Bragg Coastal Trail) to the beach as part of the</p>	<p><b>Project would likely comply with this policy.</b></p> <p>The City would require the dedication of a shoreline lateral access from the California Coastal Trail (Fort Bragg Coastal Trail) to the beach as part</p>	<p><b>Project will probably not comply with this policy.</b></p> <p>The project would conflict with this policy as it would make shoreline access infeasible, unless</p>

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Provide public open space and shoreline access in the Coastal Zone. Acquisitions for coastal access shall not preclude the potential development of necessary infrastructure to support coastal-dependent uses.	approval for this project.	of the approval for this project.	the DSOD decides that retaining the pond within its jurisdiction and the associated required O&M would result is safe access by the public to a portion of the beach.
Policy OS-16.2 Right of Public Access: Development in the Coastal Zone shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation. Public prescriptive rights must be protected wherever they exist.	See above	See above	See above
Policy OS-16.17 Coastal Trails: Develop a continuous trail system throughout the City which connects to the California Coastal Trail system.	See above	See above	See Above
Policy OS-16.18 General Standards: Require that all public access easements offered for dedication to public use be a minimum of 25 feet wide. The area where public access is allowed within the easement may be reduced to the minimum necessary to avoid: a) adverse impacts on sensitive environmental areas; b) encroachment closer than 20 feet from an existing residence; and/or c) hazardous topographic conditions. Policy OS-16.19 Standards for Lateral Shoreline Access Easements: Lateral shoreline access easements shall extend landward 25 feet from mean high tide to the toe of the bluff or the first line of terrestrial vegetation if the width of the beach is greater than 25 feet. Lateral blufftop easements shall be at least 25 feet in width. The area where public access is allowed within the easement may be reduced consistent with Policy OS-16.18 above. The average annual bluff retreat (erosion) shall be taken into account when planning lateral accesses. Shoreline and blufftop trail segments that may not be passable at all times shall provide inland alternative routes.	See above	See above	See above
<b>Safety Element</b>			
Policy SF-1.1 Minimize Hazards: New development shall: (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard; and (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding	Project could comply with this policy with special conditions.  See Policy SF 1-10 which is an override policy and provides property owners with the right to protect development that was built prior to adoption of the	This project may comply with this policy as the concretization could stabilize soils sufficiently so that the existing dam would withstand a maximum credible earthquake.	The project might conflict with this policy as structural stability of the dam would be suspect in a maximum credible earthquake. Need to confirm with DSOD if the dam stays in DSOD’s jurisdiction and if it is not stabilized, would the dam provide sufficient structural stability.

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<p>area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.</p>	<p>Coastal Act.</p> <ul style="list-style-type: none"> <li>The policy requires structural stability and the project will need to comply with DSOD requirements.</li> <li>The proposed project would include construction of South Dam Improvements to the existing crib wall, which is not a natural land form. Rebuilding it would not be considered substantial.</li> </ul> <p>The applicant will need to look at implication of sea level rise as a potential hazard to the dam, e.g. the erosional impacts or waves and sea level rise.</p>		
<p>Policy SF-1.2: All ocean-front and blufftop development shall be sized, sited and designed to minimize risk from wave run-up, flooding, and beach and bluff erosion hazards, and avoid the need for a shoreline protective structure at any time during the life of the development.</p>	<p><b>Project could comply with this policy with special conditions.</b></p> <p>See Policy SF 1-10 which is an override policy and provides property owners with the right to protect development that was built prior to adoption of the Coastal Act.</p> <p>The new dam stabilization project must be designed to minimize risk of flooding, beach and bluff erosion.</p>	<p><b>This project may comply with this policy</b></p> <p>The in-situ soil mixing would be bluff top development. Applicant will need to provide evidence that the existing dam provides sufficient protection of the development during the life of the development.</p>	<p><b>This project may comply with this policy</b></p> <p>If hot spot removal would result in a project that requires a structurally improved dam, please see the analysis for Option 1.</p> <p>If hot sport removal does not require a structurally improved dam, Policy SF 1-10 is an override policy and provides property owners with the right to protect development that was built prior to adoption of the Coastal Act. The dam was built prior to the Coastal Act so it could be retained.</p>
<p>Policy SF-1.5: Siting and design of new blufftop development and shoreline protective devices shall take into account anticipated future changes in sea level. In particular, an acceleration of the historic rate of sea level rise shall be considered. Development shall be set back a sufficient distance landward and elevated to a sufficient foundation height to eliminate or minimize to the maximum extent feasible hazards associated with anticipated sea level rise over the expected 100-year economic life of the structure.</p>	<p><b>It is uncertain if this project will comply with Policy SF 1.5</b></p> <p>The applicant will need to include an analysis that considers the impact of sea level rise on storm surge forces on the dam and ensure that the existing structure will have a 100 year life.</p>	<p><b>It is uncertain if this project will comply with Policy SF 1.5</b></p> <p>The applicant will need to include an analysis that considers the impact of sea level rise on storm surge forces on the existing dam and ensure that the new soil mixed sediment will have a 100 year life.</p>	<p><b>It is uncertain if this project will comply with Policy SF 1.5</b></p> <p>Project does not include bluff top development. The applicant will need to include an analysis that considers the impact of sea level rise on storm surge forces on the existing dam and ensure that the dam will have a 100 year life.</p>
<p>Policy SF-1.7 Alterations to Landforms: Minimize, to the maximum feasible extent, alterations to cliffs, bluff tops, faces or bases, and other natural land forms in the Coastal Zone. Permit alteration in landforms only if erosion/runoff is controlled and either there exists no other feasible environmentally superior alternative or where such alterations re-establish natural landforms and drainage patterns that have been eliminated by previous development activities.</p>	<p><b>Project may comply with this policy with special conditions.</b></p> <p>This option includes changes to manmade landforms, namely the Crib Wall and the North embankment. As these are not natural landforms they are exempt from this policy.</p> <p>This option also includes some changes to natural landforms below the mean high tide, and these changes will need to be analyzed relative to the Coastal Act not the City’s LCP.</p> <p>A through exploration of other environmentally alternatives is required.</p>	<p><b>This project would comply with this policy</b></p> <p>Project does not include alterations to landforms.</p>	<p><b>This project would comply with this policy</b></p> <p>Project does not include alterations to landforms.</p>

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<p>Policy SF-1.9 <b>Bluff Face and Bluff Retreat Setback:</b> Prohibit development on the bluff face and within the bluff retreat setback because of the fragility of this environment and the potential for resultant increase in bluff and beach erosion due to poorly-sited development—except that the following uses may be allowed with a conditional use permit:</p> <ul style="list-style-type: none"> <li>(1) engineered accessways or staircases to beaches, boardwalks, viewing platforms, and trail alignments for public access purposes;</li> <li>(2) pipelines to serve coastal dependent industry;</li> <li>(3) habitat restoration;</li> <li>(4) hazardous materials remediation; and</li> <li>(5) landform alterations where such alterations re-establish natural landforms and drainage patterns that have been eliminated by previous development activities.</li> </ul> <p>Findings shall be made that no feasible, less environmentally damaging, alternative is available and that feasible mitigation measures have been provided to minimize all adverse environmental impacts. Require as a part of the conditional use permit, a full environmental, geological, and engineering study as specified in Policy LC-6.1. Such structures shall be constructed and designed so as to neither create nor contribute to erosion of the bluff face and to be visually compatible with the surrounding area to the maximum extent feasible.</p>	<p><b>Project could comply with this policy with special conditions.</b></p> <p>Development within the bluff face is permitted with a Condition Use Permit for hazardous materials remediation.</p> <p>Feasible environmentally less damaging alternatives will need to be explored.</p> <p>The final design will need to be supported with evidence from a geological and engineering study.</p> <p>The final design will need to be visually compatible with the surrounding area. The City will require renderings of the proposed design in full color and in relationship to the existing cliff face.</p>	<p><b>This project would comply with this policy</b></p> <p>The in site soil mixing concretization appears to conform with this policy because it is allowed with a Condition Use Permit for hazardous materials remediation.</p>	<p><b>This project would comply with this policy</b></p> <p>The hot spot removal appears to conform with this policy because it is allowed with a Condition Use Permit for hazardous materials remediation.</p>
<p>Policy SF-1.10 <b>Seawalls, Breakwaters and Other Shoreline Structures:</b> Prohibit construction of seawalls, breakwaters, revetments, groins, harbor channels, retaining walls, and other structures altering the natural shoreline processes unless a finding is made that such structures are required: (1) to serve coastal-dependent uses; or (2) to protect public beaches in danger from erosion; or (3) to protect existing structures that were legally constructed prior to the effective date of the Coastal Act; or (4) that were legally permitted prior to the effective date of this Coastal General Plan provided that the CDP did not contain a waiver of the right to a future shoreline or bluff protection structure; or (5) for a development consistent with Section 30233(a) of the Coastal Act and only when it can be demonstrated that said existing structures are at risk from identified hazards if no feasible or less environmentally damaging alternative is available</p>	<p><b>Project would likely comply with this policy.</b></p> <p>The finding for construction of “retaining walls” for the South Dam and North Wall as required by Policy SF 1.1 can be made: (3) the proposed project would protect a structure (dam and Mill Pond) that was legally constructed prior to the effective date of the Coastal Act.</p> <p>In order for the structure to “respect natural landforms” the final design should blend into the existing bluff face as much as possible.</p> <p>Need to determine if no feasible or less environmentally damaging alternative is available and if the structure has been designed to eliminate or mitigate adverse environmental impacts, including impacts upon local shoreline sand supply.</p>	<p><b>This project would comply with this policy</b></p> <p>The finding for construction of other structures (in-situ soil mixing) as required by Policy SF 1.1 can be made: (3) the proposed soil mixing may help protect a structure that was legally constructed prior to the effective date of the Coastal Act.</p>	<p><b>This project would comply with this policy</b></p> <p>The proposed project does not include modifications to structures that alter shoreline processes.</p>

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and the structure has been designed to eliminate or mitigate adverse environmental impacts, including impacts upon local shoreline sand supply. The design and construction of allowed protective structures shall respect natural landforms and provide for lateral beach access.			
Policy SF-2.1 <u>Seismic Hazards</u> : Reduce the risk of loss of life, personal injury, and damage to property resulting from seismic hazards.	<b>Project complies with this policy.</b> The project would implement this policy.	<b>The project would implement this policy.</b>	<b>The project may comply with this policy.</b> Additional information is needed from DSOD. If the dam stays within DSOD jurisdiction is the O&M requirements sufficient to ensure seismic safety?
Policy SF-2.4 Tsunami: Minimize development in areas subject to tsunami.	<b>Project could comply with this policy with special conditions.</b> The project would include development around the crib wall that would be subject to Tsunami. The development and hazards would need to be minimized by ensuring a public evacuation route and signage from the beach and lowland area to safe ground.	The project would implement this policy.	The project would implement this policy.
Policy SF-2.5: Review development proposals to ensure that new development is not in an area subject to tsunami damage and <b>if such development is otherwise allowable that it is designed to withstand tsunami damage.</b>	<b>Project complies with this policy.</b> See above. The project will need to be designed to withstand tsunami damage.	<b>The project may comply with this policy.</b> Project with need to withstand maximum credible tsunami.	<b>The project complies with policy.</b> No new development proposed in a tsunami run up area.
<b>Community Design Element</b>			
Policy CD-1.1: Visual Resources: Permitted development shall be <b>designed and sited to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance scenic views in visually degraded areas.</b>	<b>Project could comply with this policy with special conditions.</b> The final design should blend into the existing bluff face as much as possible.	<b>Project complies with policy.</b> The project would not have impacts on visual resources.	<b>Project complies with policy.</b> The project would not have impacts on visual resources.
Policy CD-1.3: Visual Analysis Required. <b>A Visual Analysis shall be required</b> for all development located in areas designated "Potential Scenic Views Toward the Ocean or the Noyo River" on Map CD-1 except development listed in below.	<b>Project could comply with this policy with special conditions.</b> A visual analysis will be required and special conditions may be required to reduce visual impacts.	See above	See above
Policy CD-1.4: New development shall be sited and designed to <b>minimize adverse impacts on scenic areas visible from scenic roads or public viewing areas to the maximum feasible extent.</b>	See above	See above	See above
Policy CD-1.5: All new development shall be <b>sited and designed to minimize alteration of natural landforms by:</b> 1. <b>Conforming to the natural topography.</b>	<b>Project could comply with this policy with special conditions.</b> The final design will need to conform with all the	See above	See above

**Table 2: Coastal General Plan Policies Relevant to the Mill Pond Remediation Project** Sept 25, 2018

Coastal General Plan Policy	5. Vegetative sediment cover (wet) over contaminated sediment and institutional controls & Dam Repair	6. In-Situ Soil Mixing without Dam Stabilization.	7. Mill Pond “Hot Spot” Removal without Dam Stabilization.
<ul style="list-style-type: none"> <li>2. Preventing <b>substantial</b> grading or <b>reconfiguration</b> of the project site.</li> <li>3. Minimizing flat building pads on slopes. Building pads on sloping sites shall utilize split level or stepped-pad designs.</li> <li>4. Requiring that <b>man-made contours mimic the natural contours</b>.</li> <li>5. Ensuring that <b>graded slopes blend with the existing terrain of the site and surrounding area</b>.</li> <li>6. Minimizing grading permitted outside of the building footprint.</li> <li>7. Clustering structures to minimize site disturbance and to minimize development area.</li> <li>8. <b>Minimizing height and length of cut and fill slopes.</b></li> <li>9. Minimizing the height and length of retaining walls.</li> <li>10. Cut and fill operations may be balanced on-site, where the grading does not substantially alter the existing topography and blends with the surrounding area. Export of cut material may be required to preserve the natural topography.</li> </ul>	<p>requirements of the policy.</p>		
<p>Policy CD-2.5 Scenic Views and Resource Areas: Ensure that development does not adversely impact scenic views and resources as seen from a road and other public rights-of-way.</p>	<p>See above</p>	<p>See above</p>	<p>See above</p>



## Department of Toxic Substances Control

**Matthew Rodriguez**  
Secretary for  
Environmental Protection

Barbara A. Lee, Director  
700 Heinz Avenue  
Berkeley, California 94710-2721

**Edmund G. Brown Jr.**  
Governor

August 23, 2018

Tabatha Miller, City Manager  
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### SOLICITATION OF APPLICABLE RELEVANT AND APPROPRIATE REQUIREMENTS, CONSIDERATION FOR LONG-TERM EFFECTIVENESS OF REMEDIES EVALUATED & IDENTIFICATION OF AGENCY DATA NEEDS FOR DECISION MAKING, FORMER GEORGIA-PACIFIC MILL SITE, FORT BRAGG, CALIFORNIA

Dear Ms. Miller,

#### Applicable Relevant and Appropriate Requirements

The Department of Toxic Substances Control (DTSC) as lead agency for the investigation and remediation of the former Georgia-Pacific Mill Site (Site) in Fort Bragg California is soliciting Applicable Relevant and Appropriate Requirements (ARARs)<sup>1</sup> for the Operable Unit E of the Georgia-Pacific Mill Site. DTSC is currently reviewing the draft Feasibility Study (FS) for the cleanup of Operable Unit E (OU-E). The FS describes remedial action objectives, ARARs, and a preliminary screening of potentially feasible options to address sediment and groundwater contamination concerns at OU-E.

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<sup>1</sup> The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and its regulations (40 [Code of Federal Regulations] CFR 300 et seq., referred to as the NCP) provide an established, and generally accepted, framework for evaluating and remediating industrial sites. Under the NCP, remedial actions must attain (or justify the waiver of) any federal or more stringent state environmental standards and facility citing laws that are "applicable or relevant and appropriate." These regulatory requirements are known as ARARs. The ARARs are used to develop quantitative Remedial Action Objectives, determine the extent of site cleanup, and govern the implementation and operation of the selected alternatives.

Although some ARARs have been identified in the draft FS, DTSC is sending this solicitation letter to ensure that all ARARs which may potentially relate to eventual sediment and groundwater remedial action at the Site have been correctly identified in the FS. A table of the current ARARs is attached to this letter (Table 3-1 of the draft Feasibility Study). Federal, state, and local ARARs can be divided into the following categories:

Chemical-specific ARARs: Chemical-specific or ambient requirements include those laws and regulations that govern the release to the environment of materials possessing certain chemical or generally set health- or risk-based concentration limits, or discharge limitations for specific hazardous substances that may be found in, or discharged to, the ambient environment. If, in a specific situation, a chemical is subject to more than one discharge or exposure limit, the more stringent of the requirements should generally be applied.

Performance, design, or action-specific ARARs: Action-specific ARARs consist of requirements that define acceptable handling, treatment, and disposal procedures for hazardous substances. These ARARs generally set performance, design, or other similar action-specific controls or restrictions on particular kinds of activities related to management of hazardous substances or pollutants. These requirements are triggered by the particular remedial activities that are selected to accomplish the cleanup remedy.

Location-specific ARARs: Location-specific ARARs are those requirements that relate to the geographical or physical position of the site, rather than the nature of the contaminants or the proposed site remedial actions. These requirements may limit the type of remedial action that can be implemented and may impose additional constraints on the cleanup action.

A requirement may not meet the definition of an ARAR but may still be useful in determining whether to take action at a site or to what degree action is necessary. Some requirements are called to-be-considered (TBC) criteria. The TBC requirements are non-promulgated advisories or guidance issued by federal, state, or local government that are not legally binding, but may provide useful information or recommend procedures for remedial action.

Related to the identification of ARARs, DTSC seeks specific information on the application of ARARs for the different alternatives included in the FS. For example, what are the ARARs and how might they apply for alternatives that include excavation of contaminated sediment, but no loss of wetland area? Another example, what are the ARARs and how might they apply to sediment containment remedies, such as covers or dams, for sites located at or near the ocean?

Second, DTSC is also seeking information from your Agency on considerations related to long-term effectiveness of the remedies evaluated in the FS, as further described

below. Finally, the third purpose of this letter is to better understand your Agency data needs for decision-making related to the Site, as described in greater detail below.

#### Site Background

OU-E is one of five operable units on the site (see attached Figure 1-2) and consists of approximately 12 acres of man-made ponds and seasonal wetland areas and 45 terrestrial acres divided into eight areas of interest (AOIs) (see attached Figure 1-3). Aquatic areas evaluated in the FS include Ponds 1-4 (South Ponds), 6-8, and the North Pond. Ponds 5 and 9 were investigated and not contaminated; therefore, these ponds not evaluated in the FS. A Removal Action, completed in 2017, for OU-E soils meet unrestricted cleanup goals; therefore, soil is not included in the FS. OU-E groundwater contains barium and petroleum hydrocarbons. Groundwater remedies are evaluated in the FS.

#### Remedial Alternatives Evaluated for the Pond Sediments

The primary contaminants in pond sediment are dioxin and arsenic. The OU-E FS includes several alternatives to address the risks to a recreational visitor to the ponds. The draft OU-E FS includes a summary and comparison of Remedial Alternatives in Table 7-1 of the FS (attached). The remedial alternatives in the draft OU-E FS for aquatic sediments for the South Ponds (1-4), Ponds 6, 7, 8, and the North Pond include:

- No action;
- Institutional controls: land use restrictions, sediment management, and containment (for Ponds 6, 7, 8 and North Pond),
- Vegetative soil cover (dry) and institutional controls;
- Excavation and disposal;
- Vegetative sediment cover over contaminated sediment and institutional controls;
- For Pond 8 sediment only, in-situ stabilization sediment.

#### Remedial Alternatives Evaluated for the Groundwater

Table 7-1 of the FS contains a comparison of groundwater alternatives (attached). Groundwater in the Interim Remedial Measure (IRM) AOI and the West of IRM AOI contains fuel related constituents. Groundwater in the OU-E Lowlands AOI contains barium and petroleum hydrocarbons are present in IRM AOI and West of IRM AOI. The remedial alternatives for groundwater include;

- No action;
- Restricted use: land use controls (restricted use of groundwater) and long-term operations and management;
- Monitored natural attenuation and institutional controls (restricted use of groundwater);

- Enhanced aerobic bioremediation, monitored natural attenuation, and institutional controls;
- Enhanced anaerobic bioremediation, monitored natural attenuation, and institutional controls;

#### Long-Term Effectiveness of Remedial Action Alternative

DTSC must evaluate the long-term effectiveness of each remedial alternatives in the draft FS. DTSC is therefore interested in the possible impacts of sea level rise, earthquakes and tsunamis on the remedy alternatives evaluated (as described above) that involve leaving contaminated sediment in place. These remedies involve containment of sediment through use of the Mill Pond Dam, Beach Berm, covers, or in-situ stabilization at locations near the ocean. Failure of the containment structures could result in a release of contaminated pond sediment to the ocean.

#### Identification of Agency Data Needs for Decision-Making

It is our understanding that the ARARs applicable to your Agency and longer-term actions related to remedy implementation may require additional data for your decision-making process related to the Mill Site. The third purpose of this letter is to inquire about these data needs and timing so that we can work collaboratively with the Responsible Party and consultants to ensure that this data is available at the most opportune time for your Agency's decision-making.

For example, the Mill Pond Dam and Beach Berm are within the Coastal Zone; therefore, repairs and enhancements of these structures will require a Coastal Development Permit. DTSC would appreciate information related to the application of the Coastal Act and other Coastal Commission policy or guidance that might apply to the remedial alternatives for Ponds 6, 7, 8 and the North Pond that include containment of sediment.

DTSC has truly appreciated all of your Agency's work on this project, and looks forward to continuing working with you collaboratively in the future.

Ms. Tabatha Miller  
August 23, 2018  
Page 5

Please provide information requested in this letter to DTSC by September 24, 2018. If your agency requires additional information regarding the alternatives evaluated in the FS or has questions regarding this request for information, please contact me at 510-540-3776 or [Tom.Lanphar@dtsc.ca.gov](mailto:Tom.Lanphar@dtsc.ca.gov).

Sincerely,



Tom Lanphar  
Senior Environmental Scientist  
Department of Toxic Substances Control

Enclosures: Figures 1-3, draft FS  
Table 3-1, draft FS  
Table 7-1, draft FS

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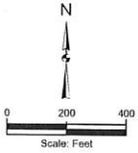
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- Legend**
- SITE BOUNDARY
  - AOI BOUNDARY
  - OU-E BOUNDARY
  - OU-A BOUNDARY
  - APPROXIMATE CENTRAL COASTAL TRAIL PROPERTY (CITY OF FORT BRAGG)
  - PONDS
  - AREA OF CONCERN BOUNDARY

- AREAS OF CONCERN:**
- A OUE LOWLAND
  - B SOUTHERN PONDS
  - C POND 5
  - D POND 6
  - E POND 7
  - F NORTH POND
  - G POND 8
  - H POND 9

**ACRONYMS:**  
 AOI - AREA OF INTEREST  
 OU - OPERABLE UNIT



**Kennedy/Jenks Consultants**

Former Georgia-Pacific Wood Products Facility  
 Fort Bragg, California

**OU-E Area of Interest Map  
 and Associated Features**

**Table 3-1: Applicable or Relevant and Appropriate Requirements (ARARs) and "To be Considered" (TBC) Factors**

Standard, Requirement, Criteria, Limitation	Citation	Description	Type of ARARs
<b>Federal</b>			
Clean Air Act	42 USC 7401-7642	Emission standards from stationary and mobile sources	Chemical
Clean Water Act	33 USCA 1251-1376 40 CFR 100-149	Regulations requiring development and implementation of a storm water pollution prevention plan	Action
National Archaeological and Historical Preservation Action	16 USC 469 36 CFR 65	Provides requirements if significant scientific/cultural/historical artifacts are found	TBC
Occupational Health and Safety	29 CFR 1910.120	Establishes requirements for health and safety training	Action
Regional Screening Levels	USEPA Region 9, 2015	Risk-based concentrations that are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements.	TBC
Resource Conservation and Recovery Act (RCRA)	42 USC 6901 et. seq. 40 CFR 258	Establishes criteria for generation, management, and disposal of non-hazardous solid waste	Chemical/ Action
	42 USC 6901 et. seq. 40 CFR 261	Establishes criteria to determine whether solid waste exhibits characteristics that makes it a regulated hazardous waste	Chemical/ Action
	42 USC 6901 et. seq. 40 CFR 263	Standards applicable to transporters of hazardous waste	Chemical/ Action
Risk Assessment Guidance for Superfund; Ecological Risk Assessment Guidance for Superfund; Ecological Soil Screening Levels	USEPA, 1989, 1997, 2010	Guidance and framework to assess human and ecological risks	TBC
Toxic Substances Control Act	40 CFR 761.60, 761.61, 761.75	Regulations that determine the appropriate characterization, cleanup, and disposal requirements for PCBs	Chemical/ Action
<b>State and Local</b>			
Ambient Air Quality Standards	HSC 39000-44071 MCAQMD Regulations 1-5	Establishes standards for emissions of chemical vapors and dust	Chemical
California Coastal Act	Public Resources Code Division 20	Establishes permitting requirements and conditions for any "development" which remedial activities qualify as.	Location/ Action
California Environmental Quality Act	PRC Division 13	Mandates environmental impact review of projects approved by governmental agencies	Action
California Hazardous Substances Account Act	HSC 25300-25395.15	Establishes site mitigation and cost recovery programs	Action
California Hazardous Waste Control	HSC 5100-25250.26	Establishes hazardous waste control measures	Action
California Human Health Screening Levels (CHHSLs)	CalEPA, 2010	Risk-based concentrations for human receptors that are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements.	TBC
City of Fort Bragg Grading Permit Requirements and Procedures	Title 18, Chapter 18.60 et. seq.	Establishes requirements for excavation and grading.	Location/ Action
Cover, grading, and alternative design requirements	27 CCR 21090(a)(1) through (3) and (b)(1)	Establishes criteria for cover and grading. Alternative cover designs are also acceptable.	Action
Discharges of Hazardous Waste to Land	Title 23, California Code of Regulations, Division 3, Chapter 15	Applies to discharge of waste	Action
Emission Standard	MCAQMD Regulation 1 Chapters 1, 2 and 4.	Establishes emission standards and permitting requirements for equipment and dust.	Action
Identification and listing of hazardous waste	HSC 25100 et. seq. 22 CCR 66261	Establishes criteria for characterization and classification of remediation waste.	TBC
Manifest System, Record-Keeping, Reporting and Transportation of Hazardous Waste	22 CCR Chapter 13	Governs transportation of hazardous materials	Action
Occupational Health and Safety	8 CCR GISO 5192	Establishes worker health and safety requirements	Action
Porter-Cologne Water Quality Control Act	California Water Code, Section 13000	Establishes policy for preservation and enhancement of the beneficial uses of the waters of the state	SWRCB



**Table 7-1: Comparison of Remedial Alternatives**

Media	AOC	Risk Summary	Alternative	Description	Threshold (Yes or No) Criteria		Balancing (Low, Moderate, or High) Criteria				
					Overall Protection of Human Health and the Environment	Compliance with ARARs	Long Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, or Volume Through Treatment	Short Term Effectiveness	Implementability	Cost
Aquatic Sediment	Ponds 1-4 (Southern Ponds)	Arsenic and dioxin TEQ are the primary risk drivers in Pond 1-4 sediment. Risks evaluated in the BHHERA indicate ELCR of 9E-06 for sediments 0-0.5 feet in depth and 7E-06 for sediments 0-2 feet in depth.	No Action	Site remains as is; provide no additional control or action to protect human health or the environment from affected sediment.	No	No	Low	Low	High	High	\$0
			Institutional Controls	Restrict future land use via deed restriction and implement risk management plan for soil/sediment based on COIs and associated risks.	Yes	Yes	Moderate	Low	High	High	\$143,000
			Vegetative Soil Cover and Institutional Controls	Provide an upland vegetative cover to cover each individual pond. Eliminate exposure pathways through vegetative containment, and implementation of a deed restriction and risk management plan for soil/sediment based on COIs and associated risks.	Yes	Yes	Moderate	Low	High	Moderate	\$4,616,226
			Excavation and Disposal	Eliminate exposure pathways through soil excavation and disposal offsite at a permitted landfill.	Yes	Yes	High	High	Low	Moderate	\$2,516,640
			Vegetative Sediment Cover and Institutional Controls	Provide a vegetative wetland cover to cover each individual pond. Eliminate exposure pathways through vegetative containment, and implementation of a deed restriction and risk management plan for soil/sediment based on COIs and associated risks.	Yes	Yes	Moderate	Low	High	Moderate	\$2,471,340
	Pond 7	Arsenic and dioxin TEQ are the primary risk drivers in Pond 7 sediment. Risks evaluated in the BHHERA indicate ELCR of 2E-05.	No Action	Site remains as is; provide no additional control or action to protect human health or the environment from affected sediment. Existing beach berm would continue to provide sediment containment.	No	No	Low	Low	High	High	\$0
			Institutional Controls	Restrict future land use via deed restriction and implement risk management plan for soil/sediment based on COIs and associated risks. Beach berm repairs provide improved sediment containment.	Yes	Yes	Moderate	Low	High	High	\$161,000
			Vegetative Soil Cover and Institutional Controls	Provide an upland vegetative cover to cover the pond. Eliminate exposure pathways through vegetative containment, and implementation of a deed restriction and risk management plan for soil/sediment based on COIs and associated risks. Beach berm repairs provide improved sediment containment.	Yes	Yes	Moderate	Low	High	Moderate	\$610,020
			Excavation and Disposal	Eliminate exposure pathways through soil excavation and disposal offsite at a permitted landfill. Beach berm repairs provide improved sediment containment.	Yes	Yes	High	High	Low	Moderate	\$525,720
			Vegetative Sediment Cover and Institutional Controls	Provide a vegetative wetland cover to cover the pond. Eliminate exposure pathways through vegetative containment, and implementation of a deed restriction and risk management plan for soil/sediment based on COIs and associated risks. Beach berm repairs provide improved sediment containment.	Yes	Yes	Moderate	Low	High	Moderate	\$481,020



**Table 7-1: Comparison of Remedial Alternatives**

Media	AOC	Risk Summary	Alternative	Description	Threshold (Yes or No) Criteria		Balancing (Low, Moderate, or High) Criteria				
					Overall Protection of Human Health and the Environment	Compliance with ARARs	Long Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, or Volume Through Treatment	Short Term Effectiveness	Implementability	Cost
Groundwater	IRM and West of IRM TPHd and Lowland Barium	Fuel-related constituents (TPHd) and Barium are the residual COCs. Concentrations of Barium show downward trends near the WQO, which is also the MCL. Concentrations of TPHd show downward trends near the WQO, which is based on the taste and odor threshold.	No Action	Site remains as is; provide no additional control or action to protect human health or the environment from affected groundwater.	No	No	Low	Moderate	High	High	\$0
			Restricted Use	A deed restriction on the AOC, prohibiting the use of groundwater to eliminate exposure to COIs.	Yes	Yes	Moderate	Moderate	High	High	\$65,000
			Monitored Natural Attenuation and Institutional Controls	Periodic sampling of groundwater to evaluate natural biological and chemical remediation of COIs with contingency for potential future remedial actions, and restrict future groundwater use by establishing a deed restriction prohibiting use of onsite groundwater.	Yes	Yes	Moderate	Moderate	High	High	\$73,000
	IRM and West of IRM TPHd and Lowland Barium	Fuel-related constituents (TPHd) and Barium are the residual COCs. Concentrations of Barium show downward trends near the WQO, which is also the MCL. Concentrations of TPHd show downward trends near the WQO, which is based on the taste and odor threshold.	Enhanced Aerobic Bioremediation, MNA, and Institutional Controls	Injection of calcium peroxide solution for treatment of contaminants followed by periodic groundwater sampling to confirm that WQOs will be reached within a reasonable timeframe. Periodic sampling of groundwater to evaluate natural biological and chemical remediation of COIs with contingency for potential future remedial actions, and restrict future groundwater use by establishing a deed restriction prohibiting use of onsite groundwater. Only effective for petroleum related compounds.	Yes	Yes	High	High	Moderate	Moderate	\$211,000
			Enhanced Anaerobic Bioremediation, MNA, and Institutional Controls	Anaerobic bio-oxidation of COIs followed by treatment through natural attenuation mechanisms. Periodic sampling of groundwater to evaluate natural biological and chemical remediation of COIs with contingency for potential future remedial actions, and restrict future groundwater use by establishing a deed restriction prohibiting use of onsite groundwater. Only effective for petroleum related compounds.	Yes	Yes	High	High	Moderate	Moderate	\$201,100

**Notes:**

Recommended alternatives are outlined with bold lines.

Green shading indicates that the screening criteria is met or has a high ranking in preference.

Yellow shading indicates that the screening criteria is likely met or has a moderate ranking in preference.

Red shading indicates that the screening criteria may not be met or has a low ranking in preference.

**Acronyms:**

- AOC - area of concern
- AOI - area of interest
- ARARs - Applicable or Relevant and Appropriate Requirements
- B(a)P - benzo(a)pyrene
- bgs - below ground surface
- BHHERA - Baseline Human Health and Ecological Risk Assessment - Operable Unit E (ARCADIS, 2015)
- COI - chemical of interest
- cy - cubic yard
- dioxin - polychlorinated dibenzo-p-dioxin (in case of TEQ, 2,3,7,8-tetrachlorodibenzo-p-dioxin [2,3,7,8-TCDD] in particular)
- ELCR - excess lifetime cancer risk
- ERA - ecological risk assessment
- IRM - interim remedial measure
- NCP - National Oil and Hazardous Substances Pollution Contingency Plan
- PAH - polycyclic aromatic hydrocarbon
- PRA - presumptive remedy area
- sf - square feet
- TEQ - toxic equivalent
- TPHd - total petroleum hydrocarbons as diesel
- WQO - Water Quality Objective

**Reference:**

ARCADIS, 2015. *Baseline Human Health and Ecological Risk Assessment – Operable Unit E, Former Georgia-Pacific Wood Products Facility, Fort Bragg, California*. Prepared for Georgia-Pacific LLC, August.