

CHAPTER 2

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This chapter of the *Pioneer Aggregates South Parcel Project* Draft Environmental Impact Statement (DEIS) provides discussion on the following: Overviews of the *Pioneer Aggregates South Parcel Project*, the Environmental Review Process, and Previous Planning, Environmental Review and Settlement Agreement; Description of the Proposed Action; Overview of Major Elements of the EIS and Alternatives; and Discussion of Benefits and Disadvantages of Deferring the Proposed Action. A detailed description of the affected environment, environmental impacts, mitigation measures, and significant unavoidable adverse impacts is provided in **Chapter 3** of this DEIS.

2.1 Overview of the Proposed Action

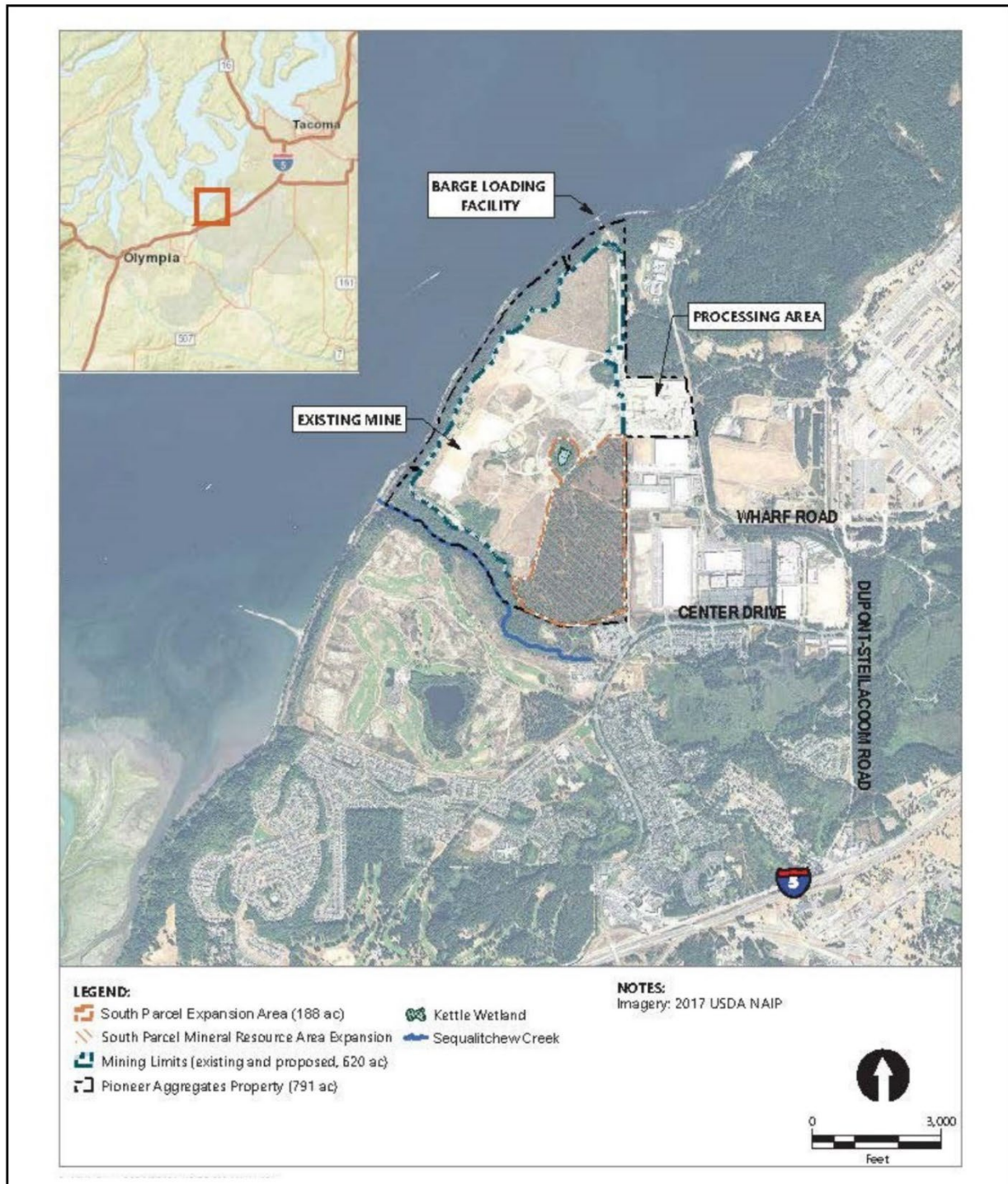
Project Location

The Pioneer Aggregates Mine is located in the City of DuPont, southwestern Pierce County, and Sections 22, 23, and 26, Township 19 North, Range 1 East of the Willamette Meridian (see **Figure 2-1 - Vicinity Map** and **Figure 2-2 – Site Map**). The mine is comprised of four areas: the Original Mine area, the North Parcel and the processing area that now comprise the Existing Mine, and South Parcel. The proposed *Pioneer Aggregates South Parcel Project* (“South Parcel Project”) is focused on the easterly portion of the Existing Mine and the South Parcel (see **Figure 2-2**). The project site is bordered to the north by the Pioneer Aggregates North Parcel; to the east by industrial/distribution facilities including Amazon, Dania, Pier 1 Imports, and FedEx; to the south by Sequelitchew Creek and the Creekside Village residential development; and to the west by Puget Sound. The South Parcel Project would occur on lands owned by Weyerhaeuser Company and leased to CalPortland¹

The South Parcel Project site includes areas previously undisturbed by mining deemed the Expansion Area. The 187.5-acre Expansion Area includes portions of the 167.5-acre South Parcel, the 10.8 acre kettle wetland and surrounding buffer and a 9.2-acre buffer strip between the Existing Mine and the south parcel property boundary. The South Parcel Project also includes a plan to mine deeper within a portion of the Existing Mine, referred to as the “Re-Mine Area”. The Expansion Area is located southeast of the Existing Mine. The Existing Mine Area and the Expansion Area are included within the Mineral Resource Overlay in the City of DuPont’s adopted Comprehensive Plan. The Re-Mine Area consists of

¹ Glacier Northwest, Inc. (Glacier NW) does business as CalPortland in the State of Washington. Glacier NW leases the proposed expansion area from Weyerhaeuser. Glacier NW also owns the Pioneer Aggregates operation and maintains the bond required under the reclamation permit. The North Parcel Property and property where the aggregate processing plant are located are owned by Northwest Aggregates Co. a Wholly owned subsidiary of Glacier Northwest, Inc.

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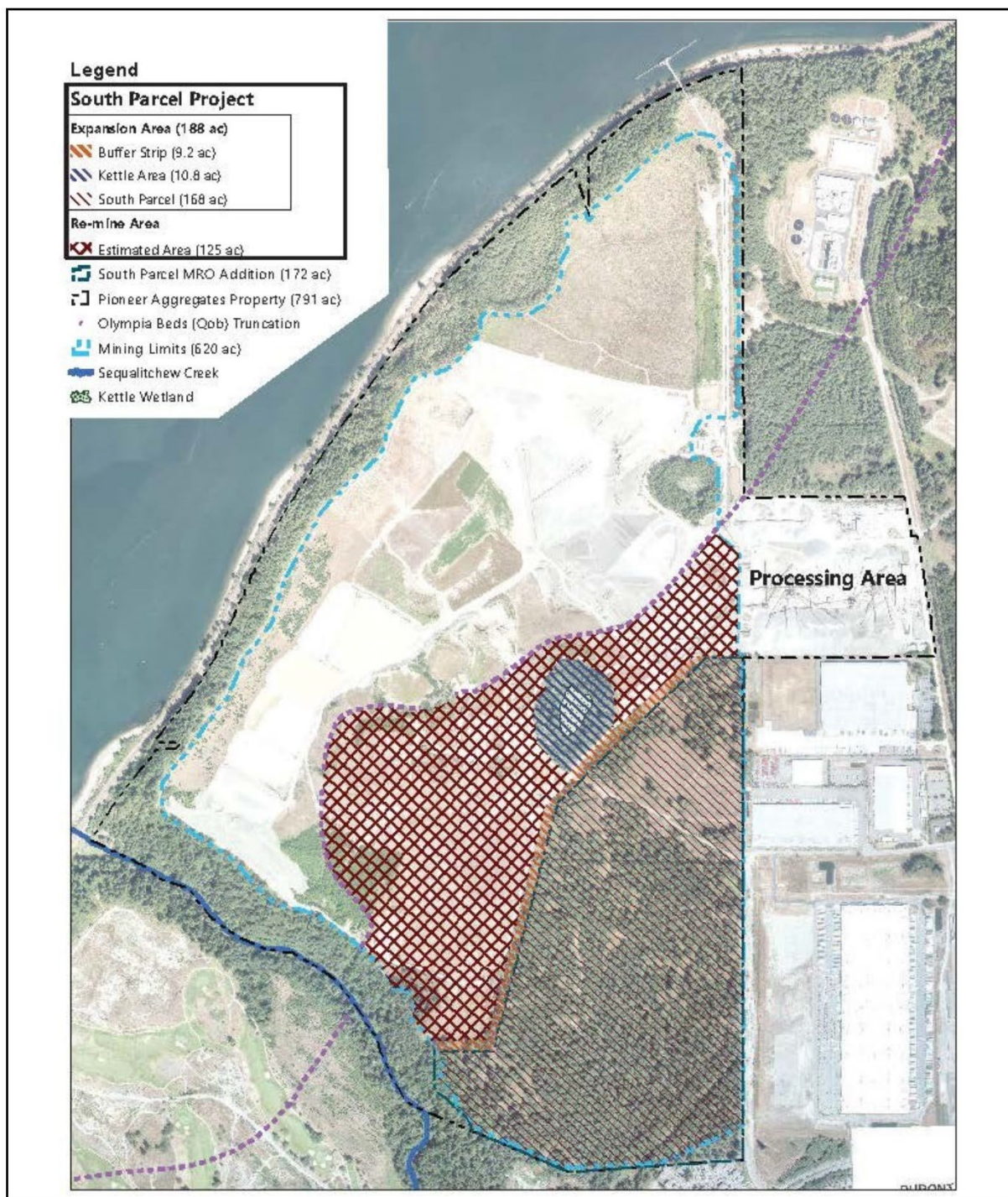


Source: Anchor QEA, 2021



Figure 2-1
Vicinity Map

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Source: Anchor QEA, 2021



Figure 2-2

Site Map

125.2 acres in the southeastern portion of the Existing Mine where current mining activities are permitted above current groundwater levels (see **Figures 2-1** and **2-2**).

The current proposal is for a new permit that would allow mining to occur in the Expansion Area and additional mining in the Re-Mine Area to deepen these areas to below the current groundwater level.

Current Mining Operations

CalPortland's original approximately 355-acre sand and gravel mine was permitted in 1996 and is referred to as the "Existing Mine".

In 2013 CalPortland applied for permits to allow mining of approximately 142 acres within the North Parcel; the North Parcel mining expansion was permitted in 2014.²

Current activities at the Pioneer Aggregates Mine include mining, processing, transport of sand and gravel, and manufacturing of concrete. The processing area is located adjacent to the mine site on a 52-acre parcel owned by Northwest Aggregates Co. a wholly owned subsidiary of Glacier Northwest, Inc. ("Glacier") (see **Figures 2-1** and **Figure 2-2**). Sand and gravel is removed from the mine by bull dozers and wheel loaders and transferred to the processing area by conveyor belts. At the processing facility, the material from the mine is crushed, washed, and separated into different size gradations. Aggregate products are stored in stockpiles in the processing area for distribution.

After completion of the production process, the majority (approximately 80%) of the finished aggregate products are transported from the plant area by conveyors and placed onto barges at Glacier's dock and barge-loading facility at Tatsolo Point on Puget Sound (see **Figure 2-1**). The remainder (approximately 20%) is sold as aggregate or used to make concrete onsite; in both cases it is transported by truck.

Water used to wash gravel during processing is recycled through a clarifying process to remove silt and clay. The fine sediments are then run through a belt press to remove excess water and transported by truck and placed in holding cells in the mine where it is allowed to dry for up to three years. After drying, fines may be used to raise the floor of the mine by placing the material in cells separated by rock curtains to facilitate drainage. The material is placed in approximately 6-inch lifts and compacted to a material dry density of 90% (ASTM:D-1557)³ or greater. Once filled to the desired height with fines from the belt press in this manner, a gravel cap of not less than 10 feet is placed over the compacted fines to mitigate potential for settlement and facilitate drainage.

² Consistent with applicable provisions of the 2011 Settlement Agreement (see Section 2-3 of this Chapter for detail).

³ American Society for Testing and Materials (ASTM) D-1557 provides standard test methods for laboratory compaction characteristics of soil.

Summary of Proposed Action

In May 2021, CalPortland applied for permits to allow horizontal expansion of mining into approximately 188 acres previously undisturbed by mining (the Expansion Area), and vertical deepening of approximately 125 acres where re-mining would deepen a portion of the Existing Mine (Re-Mine Area). In advance of the mining, the project proposes to install wells to intercept and pump groundwater to dry out gravels for mining. The intercepted groundwater would be conveyed by surface channels and infiltrated in ponds on the floor of the Existing Mine. As is the case currently, the pace of mining will depend on market conditions. The proposed South Parcel Project is anticipated to extend mining at the current average rate for approximately 14 additional years. Additionally, the method of mining and materials processing, and transport of materials within the South Parcel Project would not change from the methods used in the Existing Mine (see Section 2.4 of this chapter for additional detail on the Proposed Action).

2.2 Environmental Review and Purpose

Consistent with the provisions of the State Environmental Policy Act (SEPA) (RCW 43.21C and WAC 197-11-050), the City of DuPont is serving as the lead agency under SEPA and directing environmental review for the proposal.

The City of DuPont determined that the *Pioneer Aggregates South Parcel Project* may have a significant adverse impact on the environment, and that an Environmental Impact Statement (EIS) should be prepared, consistent with RCW 43.21C.030 (2)(c). Accordingly, the City of DuPont initiated the EIS scoping process for the South Parcel Project on September 17, 2021, by carrying out the following actions:

- Issued a SEPA Determination of Significance (DS)/Request for Comments on the Scope of the EIS. The DS/Request for Comments included notification of a public meeting on September 30, 2021, to provide the public with an opportunity to become more familiar with the proposal and to comment on the scope of the EIS. It also gave notice of the 30-day extended scoping period, ending on October 20, 2021 (the statutory requirement is for a 21-day scoping period). The DS/Request for Comments is available for review at:
https://www.dupontwa.gov/DocumentCenter/View/4891/Pioneer-Aggregates-So-Parcel-DS_PLNG2021-006
- Mailed copies of the DS/Request for Comments to federal, state, regional and local agencies, and tribes;
- Published the DS/Request for Comments in the Washington State Department of Ecology's (Ecology's) SEPA Register;

- Posted the DS/Request for Comments on the City of DuPont’s website;
- Published the DS/Request for Comments in the *Tacoma News Tribune* (on September 18, 2021); and,
- Posted on the City of DuPont bulletin board.

The EIS public open house was held on September 30, 2021, during the scoping period. This meeting offered an opportunity for the public to learn more about the Proposed Actions and to provide input on the scope of the EIS. A total of 21 people signed in at the meeting. An opportunity to provide written comments was provided throughout the open house. City staff and Pioneer Aggregates representatives were available throughout the open house to answer questions about the SEPA process and the proposal, respectively.

A total of 88 comment letters were received from 43 commenters during the EIS scoping period. All the comments are available for review at City of DuPont. **Appendix A** of the EIS includes a report containing a detailed summary of the EIS scoping process, comments received during the scoping period, and any revisions to the EIS scope based on public input received through the scoping process.

Based in part on the input received during the scoping period, the scope of the EIS was defined by City of DuPont. The following environmental elements were identified for analysis in the EIS.⁴

- | | |
|--|---|
| • <i>Earth</i> | • <i>Land & Shoreline Use</i> |
| • <i>Air Quality</i> | • <i>Aesthetics</i> |
| • <i>Surface Water & Groundwater</i> | • <i>Cultural Resources</i> |
| • <i>Fisheries</i> | • <i>Transportation</i> |
| • <i>Plants & Animals</i> | • <i>Economic & Fiscal Conditions</i> |
| • <i>Noise</i> | |

The EIS evaluates two alternatives:

- **Alternative 1** – No Action Alternative, and
- **Alternative 2** – Proposed South Parcel Project.

Three other possible alternatives - **1**- less mining on the South Parcel and/or at the Existing Mine, **2** - preserving the Kettle Wetland, and **3**- no dewatering by wells for mining and creation of an interceptor channel southeast of Edmond Marsh - are referenced in the EIS (see Section 2.5 later in this chapter for details on the EIS Alternatives).

⁴ Conditions associated with ground preparation, surface mine operations, and reclamation are analyzed under the EIS Alternatives.

It is assumed that the Sequelitchew Creek Restoration Plan (as discussed later in this Chapter) is not part of the Proposed Action. The Restoration Plan, in combination with the Proposed Action, is analyzed in this EIS under Cumulative Impacts in the context of mitigation for the Proposed Action.

2.3 Previous Planning, Environmental Review and Settlement Agreement

The DuPont area has been the subject of numerous proposals and environmental studies over the last 40+ years. From approximately 1909 to 1975 the DuPont de Nemours Company conducted munitions manufacturing in the area. In the 1970s, the Weyerhaeuser Company studied the area for possible construction of a log export facility. The plan for the log export facility was later dropped and Weyerhaeuser began developing Northwest Landing, a mixed-use residential, commercial and employment center.

Recognizing the value of the aggregate resources (i.e., sand and gravel) in the DuPont area, Weyerhaeuser began working with CalPortland (then Lone Star Northwest) in the late 1980s to evaluate the hydrogeologic characteristics of the general area and its suitability as a source of construction aggregate materials. The area, including the Pioneer Aggregates Existing Mine and North and South Parcels, was identified as containing substantial deposits of high-quality aggregate materials. Groundwater studies, which encompassed the North and South Parcels, included deep well and aquifer tests for mine water supply, a conceptual assessment for groundwater inflow and dewatering, and an evaluation of the quality of groundwater flowing beneath the area from the Fort Lewis Landfill No. 5, which is located approximately one-half mile to the east of the South Parcel, on Joint Base Lewis-McCord (JBLM) property. Barge loading of aggregates at Tatsolo Point was also identified as an alternative mode of transport to trucks.

A summary of the previous planning and SEPA environmental review efforts specific to the site and relevant to the Proposed Action are listed below; see Section 3.7, **Land and Shoreline Use**, of this Draft EIS for additional detail.

Summary of Previous Planning and Environmental Review

The original Lone Star NW sand and gravel mine (Existing Mine) was permitted for an approximately 355-acre site in 1997. An EIS and Supplemental EIS (SEIS) were prepared for that proposal, which included construction of a dock at Tatsolo Point for shipment of mined material by barge.

The Washington State Growth Management Act requires cities and counties to designate mineral lands of long-term commercial significance in their comprehensive plans. In the City of DuPont, such lands are included within the City's Mineral Resource Overlay zoning district. In 2006, the City amended its Comprehensive Plan to revise its overall land use plan

to expand the City's Mineral Resource Overlay. The expanded Mineral Resource Overlay included an approximately 168-acre area leased by CalPortland southeast of the Existing Mine (South Parcel) and an approximately 201-acre area located north of the Existing Mine owned by CalPortland (North Parcel). After the City issued a SEIS for the South Parcel in 2007, CalPortland submitted permit applications to mine the South Parcel.

In 2009, in response to a prior application to begin mining the South Parcel, a group of environmental and conservation organizations formally disputed the proposed South Parcel activities and mitigation measures proposed at the time. This dispute process resulted in a Memorandum of Understanding (2009) and Feasibility Study (2010), which explored alternatives for mining and restoration, and the *2011 Settlement Agreement for DuPont Mine, Restoration of Sequelitchew Creek Watershed, and Preservation of Puget Sound Shorelands and Adjacent Open Space* (2011 Settlement Agreement). The 2011 Settlement Agreement set forth a process for the submittal and review of permit applications (including SEPA review) for the North Parcel first and then the South Parcel (see *2011 Settlement Agreement Summary* below).

As provided for in the 2011 Settlement Agreement, in 2013 CalPortland applied for permits to allow mining within the North Parcel. Following publication of a Final EIS ("North Parcel EIS") in 2013, the North Parcel mining expansion was permitted in 2014. The North Parcel EIS contemplated mining the South Parcel as an independent but related proposal and evaluated the cumulative impacts of mining both the North and South Parcels.

A summary of previous key mining permits, applications, and SEPA environmental review efforts applicable to the current Proposed Action is provided below.

- 1992, 1993 – *Pioneer Aggregates Mining Facility and Reclamation Plan EIS* issued.
- 1994 – *Settlement Agreement* between Ecology, City of DuPont, CalPortland, Weyerhaeuser Real Estate Company, Nisqually Delta Association, Black Hills Audubon Society, and the Anderson Island Quality of Life Committee. The 1994 Settlement Agreement includes agreements related to shoreline improvements, including aggregate dock facility at Tatsolo Point, Sequelitchew Creek/shoreline protection measures, and a process for resolving disputes related to enforcement of the Agreement's terms through consultation, mediation, or arbitration.
- 1995 – *Pioneer Aggregates Barge-Loading Facility and DuPont Shoreline Master Program Amendment SEIS* issued.
- 1996 – The original 355-acre sand and gravel mine (Existing Mine) permitted.
- 2001 – 1st *City of DuPont Comprehensive Plan EIS Addendum* issued.

- 2004 – Settlement Agreement between Quadrant Corporation, Weyerhaeuser Real Estate Company, the City of DuPont and the Nisqually Tribe, resulting in agreements for requirements that address archeological monitoring and inadvertent discovery of cultural resources or human remains prior to ground disturbance or during mining.
- 2005 – 2nd *City of DuPont Comprehensive Plan EIS Addendum* issued.
- 2006 – The City’s Mineral Resource Overlay expanded to 201-acre area north of the Existing Mine (North Parcel) and 168-acre area south of Existing Mine (South Parcel)
- 2007 – *Glacier Northwest DuPont Mining Area Expansion and North Sequelitchew Creek Project SEIS* issued.
- 2007 – CalPortland submitted applications to permit mining on the South Parcel along with additional areas within the Existing Mine (including a proposal to collect groundwater in a new tributary to Sequelitchew Creek). A Final SEIS was issued for this proposal. Following issuance of the Final SEIS and preparation of the City of DuPont Staff Report, the Nisqually Delta Association invoked settlement discussions regarding potential impacts to Sequelitchew Creek (see below). After initiating settlement discussions, no further action was taken by the City or CalPortland on the 2007 South Parcel application.
- 2008 – The Nisqually Delta Association formally invoked the dispute resolution process under the 1994 Settlement Agreement.
- 2009 – A memorandum of understanding (MOU) was executed in November among the interested environmental organizations (Environmental Caucus non-governmental organizations), Washington Department of Ecology, City of DuPont and the applicant for the development of a feasibility study to evaluate various alternatives for expansion of the mine, and actions to improve water flows and habitat in the Sequelitchew Creek watershed. The MOU also established a process, including SEPA review, for separately considering future mining applications for the North Parcel and South Parcel, and for a settlement agreement.
- 2010 – Final Feasibility Study completed, analyzing 24 alternatives for mining of the North and South Parcels, dewatering options and actions to enhance and restore regional environmental resources.
- 2011 – The studies and deliberations initiated in 2009 resulted in tentative agreement among the negotiating parties in June of 2011 who then presented the *2011 Settlement Agreement for DuPont Mine, Restoration of Sequelitchew Creek Watershed, and Preservation of Puget Sound Shorelands and Adjacent Open Space* to the DuPont City Council for consideration. Several town hall meetings and

hearings were held by the Council that included opportunities for citizens and interested stakeholders to provide verbal and written comments on the proposal. The Council ultimately approved the settlement agreement and it was finally executed on February 12, 2012 (see discussion below under *2011 Settlement Agreement Summary*).

- 2013 – *CalPortland DuPont North Parcel Mining Final EIS* issued.⁵
- 2014 – North Parcel Mining permitted.
- 2017 – CalPortland worked with the Environmental Caucus non-governmental organizations to develop the South Parcel Monitoring Plan. (The “Environmental Caucus” comprises the non-governmental environmental organizations listed in the Settlement Agreement Summary below.)
- 2018 – The non-governmental organizations who are parties to the 2011 Settlement Agreement incorporated input from JBLM and finalized the Sequelitchew Creek Watershed Restoration Plan.
- August 2020 – A Memorandum of Agreement (MOA) was executed by Joint Base Lewis-McChord (JBLM), CalPortland, the City of DuPont, the Environmental Caucus non-governmental organizations and the South Puget Sound Salmon Enhancement Group (SPSSEG) defining roles and responsibilities for Restoration Plan actions on JBLM.
- September 2020 – Application including Cleanup Action Plan (CAP) submitted to Washington State Department of Ecology for review under the Voluntary Cleanup Program for remediation of Asarco Tacoma Smelter Plume related contaminants in surface soils of the South Parcel property.
- February 2021 – Washington State Department of Ecology issued Opinion that implementation of Cleanup Action Plan would be likely to result in “no further action” being necessary to clean up the DuPont South Parcel Property.
- March 2021 – CalPortland and Environmental Caucus non-governmental organizations finalized the Sequelitchew Creek Restoration Plan Funding Agreement and CalPortland funded the Restoration Plan Permit Fund per the terms of the agreement.

⁵ The CalPortland DuPont North Parcel EIS included discussion and analysis of mining on the South Parcel as a Potential Similar Action.

- May 2021 – CalPortland applied for permits to allow mining in the Expansion Area (including the South Parcel) and vertical extension within the Existing Mine (Re-Mine Area); the 2021 application is referred to as the Proposed Action.

The 1992/93, 1995, 2001, 2005, 2007 and 2013 EISs, Supplemental EISs, and EIS Addendums listed above are hereby incorporated by reference into this EIS, in accordance with WAC 197-11-625 and 754. Accordingly, all or part of the incorporated documents, including any studies or reports that provide information relevant to the proposal, become part of the City of DuPont’s environmental documentation for the current proposal.

2011 Settlement Agreement Summary

The 2011 *Settlement Agreement for DuPont Mine, Restoration of Sequelitchew Creek Watershed, and Preservation of Puget Sound Shorelands and Adjacent Open Space*, was signed by CalPortland; the Nisqually Delta Association, the Black Hills Audubon Society, the Tahoma Audubon Society, the Seattle Audubon Society, the Anderson Island Quality of Life Committee, the Washington Environmental Council, and People for Puget Sound (collectively known as the “Environmental Caucus”); the Washington Department of Ecology; and the City of DuPont. The 2011 Settlement Agreement was also signed by WPP LLC who owned the property for a period of time and is both a successor and a predecessor in interest to Weyerhaeuser.

The 2011 Settlement Agreement set forth a process for the submittal and review of permit applications for the North Parcel first, and then the South Parcel. As a preferred alternative to the mitigation CalPortland had originally proposed in 2007 for the South Parcel, the Settlement Agreement also prescribed the process for the development, funding, and implementation of a Sequelitchew Creek Restoration Plan to help restore and enhance the Sequelitchew Creek watershed, including flows along the length of the Sequelitchew Creek. The Restoration Plan process provided for the approval of a separate Monitoring Plan for the South Parcel Mine by CalPortland and the Environmental Caucus non-governmental organizations. Further, the Agreement ensured that buffers along Puget Sound and Sequelitchew Creek would be maintained at a prescribed distance. To achieve these goals, the Settlement Agreement set forth a detailed series of mining and restoration actions to occur in a prescribed sequence over several years. See Section 3.3, **Surface Water**, Section 3.4, **Groundwater**, and Section 3.7, **Land and Shoreline Use**, for additional detail on the Settlement Agreement and relationship to the EIS Alternatives.

Sequelitchew Creek Restoration Plan

The Sequelitchew Creek Restoration Plan is sponsored by the South Puget Sound Salmon Enhancement Group (SPSSEG) which is one of 14 Regional Enhancement Groups (RFEs) state-wide established by the Washington Legislature through RCW 77.95.060 as nonprofit corporations with state grant support with the mission of involving local citizens and agencies in salmon enhancement efforts. The plan is the result of a 2011 Settlement

Agreement for DuPont Mine, Restoration of Sequalitchew Creek Watershed, and Preservation of Puget Sound Shorelands and Adjacent Open Space which provides for (SPSSEG) to lead a multi-stakeholder effort to develop a restoration plan for the Sequalitchew Creek Watershed.

This agreement was the result of the CalPortland 2007 application to expand their aggregate mine and the resulting 2009 action by a group of environmental and conservation organizations to invoke a dispute resolution process with regard to a previous settlement agreement for the first phase of the mine. This dispute resolution process resulted in a mediation process that led to the 2011 Settlement Agreement between the environmental and conservation organizations, CalPortland, the Washington State Department of Ecology and the City of DuPont. This agreement described five major elements to be incorporated into a plan to restore flows to Sequalitchew Creek and directed the non-governmental parties to the agreement to execute a stakeholder process in order to receive input for development of a restoration plan. That stakeholder process was facilitated by the South Puget Sound Salmon Enhancement Group and involved a “Core Group” of representatives including: CalPortland Company, who operates and proposed to expand the aggregate mine on the north side of Sequalitchew Creek; the Nisqually Tribe; the Sequalitchew Creek Watershed Council, a non-profit organization; the Environmental Caucus which represents a number of non-profit organizations including the Nisqually Delta Association (NDA), the Black Hills Audubon Society, Washington Environmental Council (WEC), the National Audubon Society, People for Puget Sound, the Tahoma Audubon Society, the Seattle Audubon Society, and the Anderson Island Quality of Life Committee; Joint Base Lewis-McChord which controls the headwaters of Sequalitchew Creek; Pierce County; the City of DuPont; and the Washington Department of Ecology.

The Settlement Agreement directed the non-governmental entities involved to develop the restoration plan to sequentially restore flows in the creek, improve the sustainability of flows through the system, and restore aquatic habitat by removing flow-related fish passage barriers and increasing the habitat available to aquatic species through the restoration and enhancement of flows. The Agreement established a stakeholder “Core Group” of representatives to provide input.⁶ The Core Group examined a number of alternatives with technical assistance provided by CalPortland consultants. In June, 2013 the group adopted a set of recommended restoration actions and solicited comments through August 30, 2013. The stakeholders adopted the final set of recommendations in December 2013 and prepared a Final Briefing Memo in January 2014. In March 2018 the Restoration Plan, Sequalitchew Creek Watershed, was released. That plan contains a set of

⁶ The “Core Group” includes representatives from CalPortland Company, who operates and proposed to expand the aggregate mine on the north side of Sequalitchew Creek; the Nisqually Tribe; the Sequalitchew Creek Watershed Council, a non-profit organization; the Environmental Caucus (non-governmental organizations) which represents a number of non-profit organizations including the Nisqually Delta Association (NDA), the Black Hills Audubon Society, Washington Environmental Council (WEC), the National Audubon Society, People for Puget Sound, the Tahoma Audubon Society, the Seattle Audubon Society, and the Anderson Island Quality of Life Committee; Joint Base Lewis McChord which controls the headwaters of Sequalitchew Creek; Pierce County; the City of DuPont; and the Washington Department of Ecology.

goals and objectives with defined quantified performance standards, tied to each objective, together with an adaptive management process for determining if and when the goals and objectives have been achieved.

Mining of the South Parcel and the Restoration Plan for Sequalitchew Creek are separate, but interacting, projects. Each project is anticipated to have its own monitoring and adaptive management process tailored to achieving the goals and objectives of that project. The interaction between the two adaptive management processes include: 1) project schedules that encourage restoration in advance of the potential impacts from mining; 2) development of performance thresholds for mining that support restoration; this includes a monitoring plan for the South Parcel, which was drafted with the input of the Environmental Caucus non-governmental organizations; and, 3) coordinated monitoring and open sharing of information. The Settlement Agreement also specifies that mining permits will not be legally effective unless and until permits for the Restoration Plan are issued by the responsible government agencies.

Consistent with the 2011 Settlement Agreement, the Restoration Plan was developed by the non-governmental parties to the Settlement Agreement (CalPortland and the Environmental Caucus). Although it builds upon the five components of Sequalitchew Creek restoration identified in the Settlement Agreement and involved input from both the non-governmental and governmental members of the Core Group, the Plan has not been formally reviewed and approved by any governmental agency. The Settlement Agreement references the understanding that State Environmental Policy Act (SEPA) review will be required at the time specific implementation actions are pursued. Under Section 4.5.3 of the Agreement, CalPortland and the Environmental Caucus agreed that CalPortland's commitments regarding the Restoration Plan "shall be deemed, adequate mitigation of all direct and indirect impacts of mining on Sequalitchew Creek" and that implementation of the plan is intended to constitute "more than 'mitigation'" as defined in WAC 197-110-768 and other similar definitions. This part of the agreement is binding only on the non-governmental entities. The agreement also acknowledges that further mitigation measures may be suggested and implemented through the applicable permit processes.

2.4 Description of the Proposed Action

The following identifies the Applicants Objectives for the *Pioneer Aggregates South Parcel Project* and describes the Proposed Actions necessary to implement these objectives.

Applicant's Objectives

The Applicant's goals and objectives for the South Parcel Project are as follows:

- Extract and utilize mineral resources of long-term commercial significance, consistent with the Growth Management Act and DuPont Comprehensive Plan.

- Continue to meet the Puget Sound regional demand for high-quality aggregates from designated mineral resource lands, including the existing mine and the South Parcel site in DuPont, using existing processing and transport facilities, and to achieve consistency with the terms of the 2011 Settlement Agreement.
- Expand mining horizontally into approximately 188 acres previously undisturbed by mining (including South Parcel), and vertical expansion of the depth of mining on approximately 125 acres where re-mining will deepen a portion of the Existing Mine to:
 - Fully utilize the site's high-quality reserves of sand and gravel that exists below the current permitted depth on the Existing Mine and under the surface of the South Parcel.
 - Extend the useful life of the existing processing and transport facilities by providing a reliably supply of quality aggregates for processing and transport.
 - Continue to provide the quality product mix to the sand and gravel market.
- Maintain barge export of the majority of mined aggregate materials to continue to limit the amount of export by truck and to maximize the environmental and other benefits associated with marine transport.
- Carry out a mine plan for the site that minimizes environmental impacts associated with mining activity, adheres to state and local regulations, and maximizes the economic value of the site;
- Ultimately, reclaim the site, including regrading, replacement of topsoil, and revegetation.
- Implement applicable provisions of the 2011 Settlement Agreement

Description of the Proposed Actions

To implement the Applicants Objectives for the site, the Proposed Actions for the Pioneer Aggregates South Parcel Project includes the following reviews and approvals:

- City of DuPont Community Development – Site Plan Review, Tree Modification Review, Critical Areas Permit, Determination of Transportation Concurrency.
- Washington State Dept. of Natural Resources - Reclamation Permit, and Forest Practices Permit.

The need for additional permits or approvals could be identified during the project review process.

2.5 Description of EIS Alternatives

Consistent with the September 2021 EIS Scoping Summary (see **Appendix A**), and to conduct a comprehensive environmental review, the alternatives analyzed in the Draft EIS include: Alternative 1 - Proposed Action and Alternative 2 - No Action. Other possible alternatives are also discussed.

Alternative 1 - Proposed Action

Overview

The proposed South Parcel Project includes horizontal expansion of the mine footprint by approximately 188 acres onto the Expansion Area (including the South Parcel), vertical deepening on the approximately 125-acre Re-Mine Area where re-mining would deepen a portion of the Existing Mine, and extension of the existing rate of mining for an additional approximate 14-year period (depending on market conditions), increasing the available sand and gravel resources by 30 to 40 million tons. The Expansion Area is located within a Mineral Resource Overlay applied by the City of DuPont's Comprehensive Plan. The purpose of the overlay is to conserve mineral resources of long-term commercial significance for eventual extraction, as required by the Grown Management Act.

The geologic character of the site (and the Existing Mine) follows the configuration of geological features that determine the location of high-quality aggregate resources. The aggregate proposed to be mined is part of a geologic deposit known as the Steilacoom gravels that were deposited in the waning years of the last ice glaciations in the area. The Steilacoom gravels were deposited as a result of a glacial outburst, probably the failure of an ice dam that previously impounded a large lake. The resulting flood carried sands and gravels some distance and the associated transport, rework, and sorting washed much of the silt and clay out of the gravels. That makes this source of aggregate particularly well suited to a variety of applications, particularly as a component of concrete. In this area, the Steilacoom gravels were deposited over older Vashon outwash and Olympia Beds (Qob) deposits. The Steilacoom gravels are deepest in the western portion of the site and become increasingly shallower to the east, as shown in the geologic cross section in **Figure 2-3**.

Mining on the site would generally proceed from north to south and east to west in the same manner as occurs in the Existing Mine. Annual mining quantities would be similar to quantities from the current mine as shown in **Table 2-1** (provided later in this Chapter) and would be extracted after groundwater flowing into the materials is intercepted. A 20-foot high noise berm would be constructed along the southern boundary of the site; the noise berm would be located behind existing vegetation on the site.

The South Parcel Project would involve seven primary activities: logging, clearing and topsoil removal, groundwater management, stormwater management, mining, processing & transport, and reclamation. These activities would overlap, with multiple actions occurring at any one time, as described below.

Logging

Timber was last logged from the South Parcel several decades ago, but tree cutting would be required on the majority of the South Parcel prior to clearing and mining in the Expansion Area. A substantial portion of the proposed mining would occur in areas where logging is not required, for example within previously reclaimed areas of the Existing Mine (i.e., the Re-Mine Area) or in previously unmined areas of the Existing Mine where Scot's broom shrub dominates the landscape.

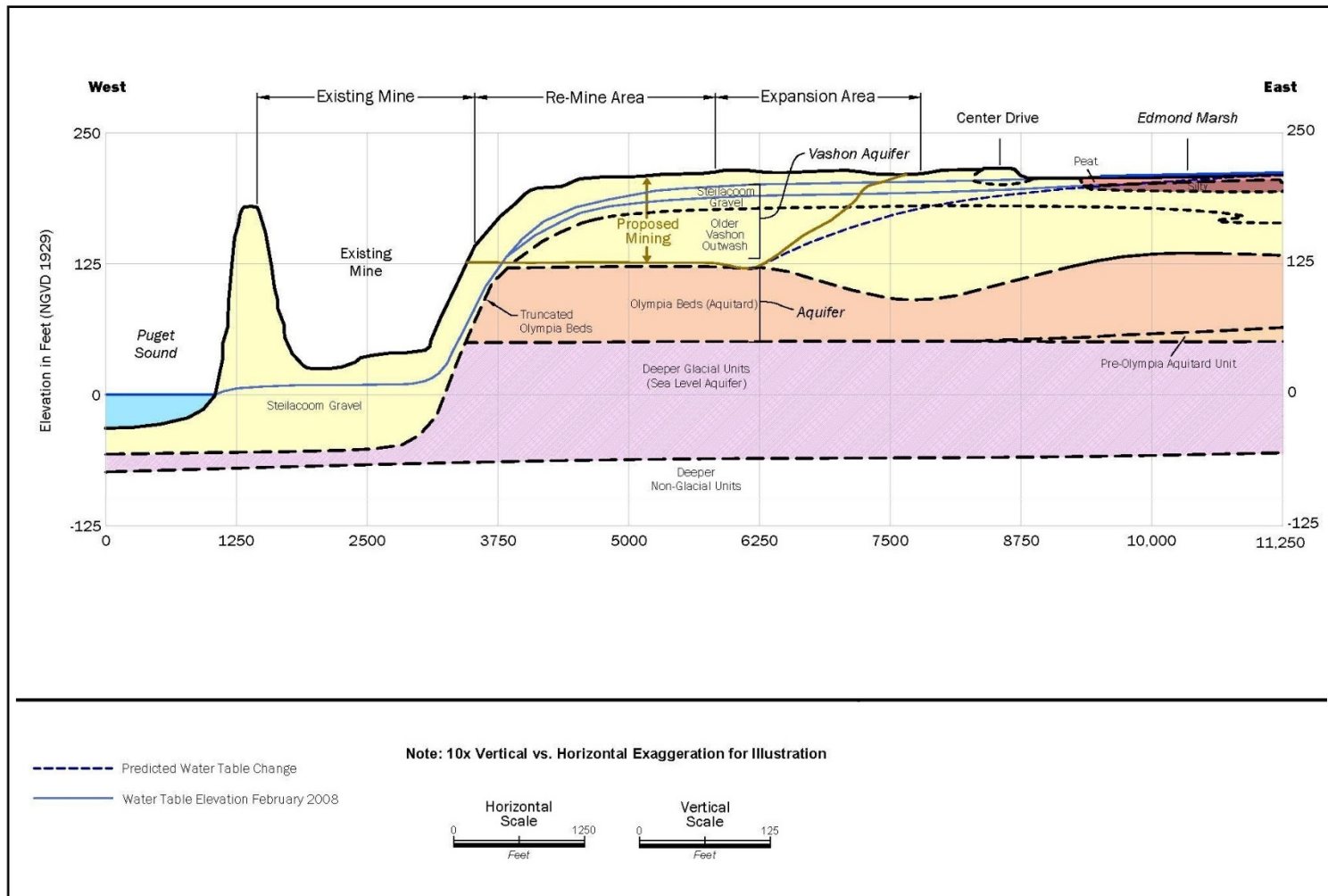
The Expansion Area (including South Parcel, kettle wetland and buffer strip) would be logged at a single time prior to initiating mining, including proposed removal of trees meeting the definition of Landmark trees (DMC 25.10.120.005) within the mine footprint such as Oregon white oak, Douglas fir, western red cedar, Pacific madrone, and Pacific yew.

Clearing and Topsoil Removal

Prior to mining, excavators would be used to remove stumps and vegetation. This material would then be processed through a portable tub grinder and used to amend topsoil for use in reclamation. Clearing and topsoil removal would occur in the mine area, in segments as mining advances into the Expansion Area, over the life of the project.

Past industrial activities have resulted in elevated metals concentrations in portions of the Expansion Area. The Former DuPont Works Site is a clean-up site associated with the historical explosives and commercial munitions facility that operated from 1909 through 1976. The primary contaminants are arsenic and lead in surface soils. Cleanup activities were completed in 1993 to address the highest concentrations of lead, generally found along the foundations of the former buildings. Weyerhaeuser entered a Consent Decree with Ecology that required implementation of a restrictive covenant limiting land use on the Former DuPont Works Site to industrial uses, which is the origin of the Manufacturing and Research Park zoning for much of the site. The Expansion Area is also located downwind of the former Asarco copper smelter and refinery in Ruston, Washington. Airborne pollution emitted from the former smelter has resulted in a 1,000-square-mile, area-wide plume of arsenic- and lead-contaminated soil known as the Tacoma Smelter Plume ("TSP"). Surficial soils in the Expansion Area that have been undisturbed since the mid-1980s may contain arsenic and lead at concentrations above cleanup levels. These soils would be cleaned up in consultation with Ecology through the Voluntary Cleanup Program ("VCP"). Under the VCP, CalPortland has submitted a Cleanup Action Plan to Ecology describing the plan to address arsenic and lead in surface soils resulting from the TSP and remaining from the Former DuPont Works Site. The plan incorporates the same process that is being implemented on

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Source: Aspect Consulting, 2022.



Figure 2-3
Hydrogeologic Cross Section

the North Parcel. Ecology has reviewed the Cleanup Action Plan and issued an opinion letter stating that after implementation of the plan “no further remedial action will likely be necessary at the Property to clean up contamination.” The letter also describes the potential steps required to remove the restrictive covenant after arsenic and lead concentration in the surface soils have been reduced on the property.

Groundwater Management

As described under “Mining” later in this chapter, mining under the Proposed Action would proceed slowly from the north to the south over a period of five to eight years, extracting gravel to create a broad trough along the eastern property boundary.

An aquifer is present in the sands and gravels proposed to be mined under the South Parcel Project. Wells would be installed and pumped in advance of mining to intercept groundwater and dry out the gravels for mining. Pumped water is proposed to be infiltrated in the Existing Mine. The purpose of mining a trough would be to minimize the amount of time that active dewatering by pumping wells is required. Once mining of each section of the trough is completed, the adjacent wells would be turned off, allowing groundwater to passively seep from the stable mine slope and flow by gravity via a surface conveyance system to an infiltration facility on the floor of the western margin of the Existing Mine. After mining the trough along the perimeter, gravel would be extracted from the interior area.

A detailed dewatering plan has been developed and involves four steps, occurring over the lifetime of the proposal (see **Figure 2-4, Groundwater Dewatering**). The four steps are:

- **The initial step** is a 60-day pumping test that would be completely reversible (i.e., no gravel would be extracted during the test). The results of that test would be analyzed to confirm predictions from the groundwater drawdown model and would be used to adjust the dewatering plan (well spacing, well screening, etc.) as necessary prior to commencing the next phase.
- **The second step** would involve installing and pumping additional dewatering wells to lower water levels in the first mine segment in preparation for mining. This step would last about six months and would function as a greatly expanded pumping test. As with the initial step, it would also be completely reversible. Groundwater observations during pumping would be compared to model predictions in order to confirm that actual changes in groundwater are within the range predicted during project planning, when potential impacts from the project are evaluated. This step would confirm model predictions before any gravel is removed from the Expansion Area.
- **The third step** – active dewatering during mining – would involve mining the trough described above. Additional dewatering wells would be installed and pumped as mining progresses. Mining would begin at the northerly location farthest from the Edmond

Marsh and Sequelitchew Creek and proceed slowly south. Completing the trough would require five to eight years depending on market conditions and the success in meeting predicted groundwater levels. The potential impact on groundwater levels would build slowly over time as wells would be added and mining would progress to the south. This would allow ample opportunity to monitor, confirm model predictions, and adapt to the conditions observed before mining proceeds into each dewatered segment.

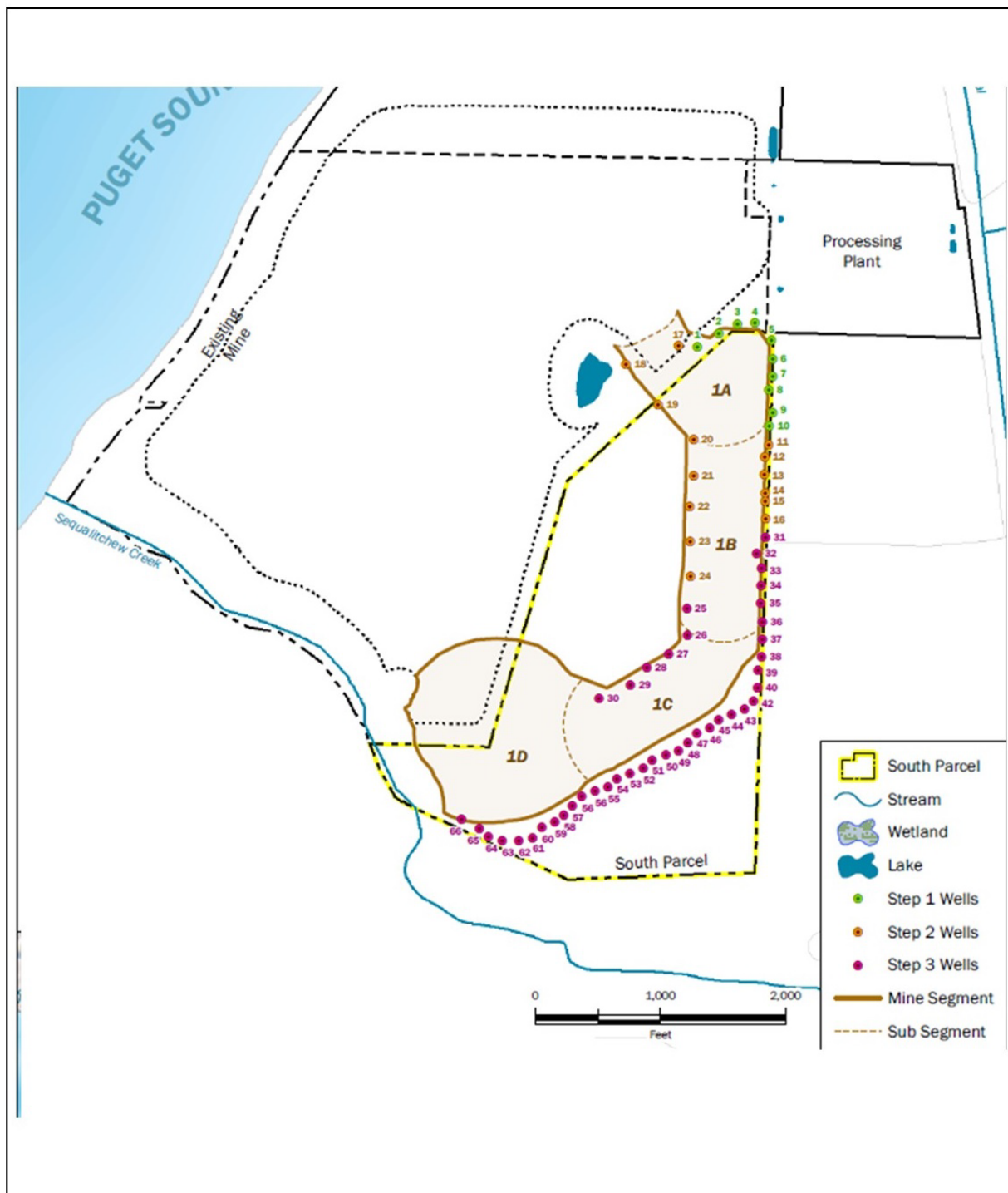
- **The final step** – passive dewatering – would begin when mining of the trough described above is complete and the last dewatering well is turned off. Passive dewatering represents the groundwater condition that would continue in perpetuity. Groundwater, no longer intercepted by wells, would form seeps at the toe of the eastern mine slope. It would flow by gravity down the slopes and into and through a conveyance ditch to newly created wetlands on the bottom of the Existing Mine and eventually to an infiltration facility at the western margin of the Existing Mine. Once this step has begun, further mining activities in the interior of the South Parcel would not have additional effects on groundwater. See Section 3.3, **Surface Water**, and Section 3.4, **Groundwater**, for additional detail.

An adaptive management plan aimed at observing and responding to changes in groundwater levels has been developed to guide dewatering activities during all four dewatering steps. The adaptive management plan, called the Monitoring Plan (Aspect Consulting, 2017), was developed in consultation with the Environmental Caucus non-governmental organizations as required by the Settlement Agreement. During dewatering, adaptive management involves the following steps: (1) monitoring at groundwater wells throughout each dewatering step; (2) comparing those monitoring results with thresholds established for each well; and (3) adapting dewatering activities if water levels are below the thresholds. The thresholds established in the Monitoring Plan were developed using a groundwater model based on 12 years (2004-2015) of data, using available data for observed groundwater levels at wells throughout the watershed. The thresholds are established for each well, in each month of the year, at each dewatering step. The Monitoring Plan also includes a process for notification of results below the thresholds and any adaptive management actions taken, and routing periodic reporting.

Stormwater Management

A stormwater management system would be installed onsite, consistent with City of DuPont's stormwater requirements which adopt the minimum requirements of the *Washington State Department of Ecology's (Ecology) Stormwater Management Manual for Western Washington* (as amended in 2014). These facilities would be constructed as mining advances and would serve the site at the completion of mining. They would also be used as the primary components of temporary stormwater management during construction. The proposed stormwater management system would preserve the natural drainage pattern of the site. Precipitation falling on the site would be collected and infiltrated internally within the site. From there it would join the sea-level aquifer beneath

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Source: CalPortland, 2021



Figure 2-4
Groundwater Dewatering Plan

the site and flow to Puget Sound, as it does currently. Once the site is reclaimed, stormwater from the eastern slope of the proposed mine expansion would be collected along with groundwater inflows and drain to a mitigation wetland to be constructed on the floor of the Existing Mine to provide hydrologic support to the wetland. There are no outfalls or other discharges of stormwater to surface water proposed. Stormwater runoff best management practices (BMPs) -- two-celled wet ponds -- would be included upstream of the proposed infiltration facilities to prevent contamination of surface or groundwaters.

A Stormwater Pollution Prevention Plan (SWPPP) developed under Ecology's Sand and Gravel General Permit would be implemented to control erosion and sedimentation. (See Section 3.3, **Surface Water**, for further details.)

Mining

Mining under the Proposed Action would begin by proceeding slowly from the north to the south over a period of five to eight years, extracting gravel to create a broad trough along the eastern property boundary (see **Figure 2-5, Mine Phasing**). The method of mining would be similar to that currently used in the permitted mine area. A dozer would push excavated material from the top of the mine face to two front-end loaders working on the mine floor. The front-end loaders would scoop up the sand and gravel and dump it into portable hoppers that would feed conveyors leading to the processing area.

The mine face would be a maximum of 80 feet high and would decrease as mining progresses east. During reclamation, as described further below, the graded side slopes and mine areas would be revegetated and stabilized in accordance with the mine reclamation plan.

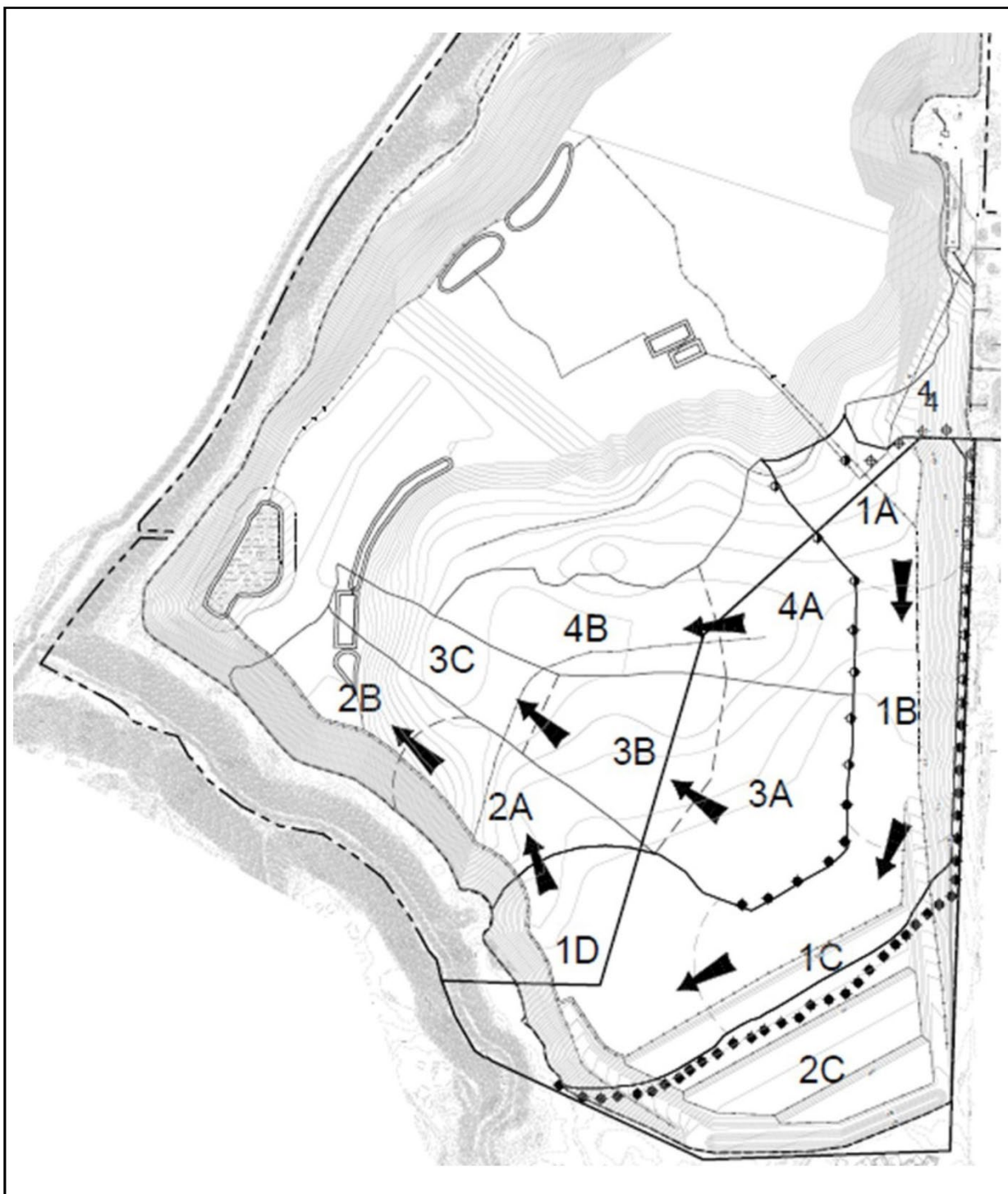
A conveyor would start at the north end of the Expansion Area and would be extended south as mining progresses. The conveyor would be comprised of a 48-inch-wide rubberized belt that would be supported by a series of rollers, called idlers, mounted on steel framed segments that would support the conveyor about five feet off the ground.

As indicated above, clearing (topsoil stripping and stump removal) of the Expansion Area would occur in sequences lasting approximately one year, in coordination with mining. Mass clearing of the site would not occur.

A 20-foot-high noise berm would be constructed along the southern boundary of the South Parcel, behind retained vegetation. The berm would help reduce potential noise associated with mining for adjacent land uses. The berm would be constructed prior to clearing in the adjacent portion of the South Parcel.

The Proposed Action would directly impact an approximately 1.78-acre kettle wetland located within the Existing Mine immediately west of the South Parcel. The kettle wetland is supported by groundwater and would be impacted by dewatering in preparation for mining,

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Source: CalPortland, 2021



Figure 2-5
Mine Phasing Plan

then removed during the initial phases of mining of the South Parcel Project. Impacts to the kettle wetland are proposed to be mitigated by creation of a larger wetland within the Existing Mine. See Section 3.5, **Plants and Animals**, for discussion on wetland impacts and mitigation under the EIS Alternatives.

Processing and Transport

Material mined with the South Parcel Project would be conveyed from the mine to the existing processing facility and would be processed in the same general manner as at present. The material extracted under the South Parcel Project is anticipated to have a higher moisture content and fines content than the aggregate currently being extracted. As a result, there may be minor adjustments to some of the equipment used in the processing area, but the overall process and most of the equipment would remain unchanged from current conditions.

Water would be used to wash the raw material conveyed from the mine to remove silt and clay. Sand and gravel smaller than 1.5 inches would pass through a screening and classifying process that would separate and convey the material to a series of stockpiles sorted by size and stacked on the south side of the processing plant. Stones larger than 1.5 inches would be crushed, sorted by size, and conveyed to a series of crushed-rock stockpiles sorted by size north of the processing plant. Screening equipment, rock crushers, and other processing equipment would be located between the stockpiles of sorted rock products. Custom blended rock products would also be made to customer specifications.

As under current conditions, approximately 95% of water used to process the mined material would be recycled through a treatment system where silt and clay would be removed so the water could be reused to process more raw material from the mine.

The mode and extent of transporting aggregate products from the site would not change relative to existing operations. Approximately 80% of the product would be loaded onto barges at the existing barge loading facility at Tatsolo Point and transported to the Puget Sound regional market by barges (refer to **Figure 2-1, Vicinity Map**). Approximately 20% of the product would be transported to the local market by truck. Some material would continue to be incorporated into concrete at the existing on-site concrete batch plant serving the local market.

Estimated Volume and Extraction Rates

Estimated mining quantities are shown in **Table 2-1**. Based on past market demand, material would be extracted at an average rate of approximately 2.8 million cubic yards per year. In total, an estimated 30 to 40 million cubic yards of material would be extracted under the South Parcel Project, which would extend the life of the current operation by approximately 14 years. The actual extraction rate and life of the mine would depend on the market demand for materials.

Table 2-1
ANNUAL AGGREGATE MINING QUANTITIES / TIMING

Timing	Existing Mine ¹ in Cubic Yards	Proposed Action in Cubic Yards
Years 1 – 14	1.4 Million	1.4 Million
Years 15 – 19	0	2.8 Million

Source: CalPortland, 2021.

¹ Includes North Parcel.

Reclamation

As mining progresses, completed mine segments would be reclaimed. The reclamation plan would be reviewed by the Washington State Department of Natural Resources (“DNR”) for consistency with the Surface Mining Act (RCW 78.44). In general, reclamation would consist of regrading, replacement of topsoil, and revegetation. CalPortland is in the process of preparing an application to revise the existing reclamation plan incorporated into the surface mining permit. DNR cannot approve the revised reclamation plan until after the City’s permits are issued. The proposed reclamation plan will be similar to the plan approved by DNR for the Existing Mine. See **Figure 2-6, Reclamation Plan** for an illustration of the reclaimed site.⁷

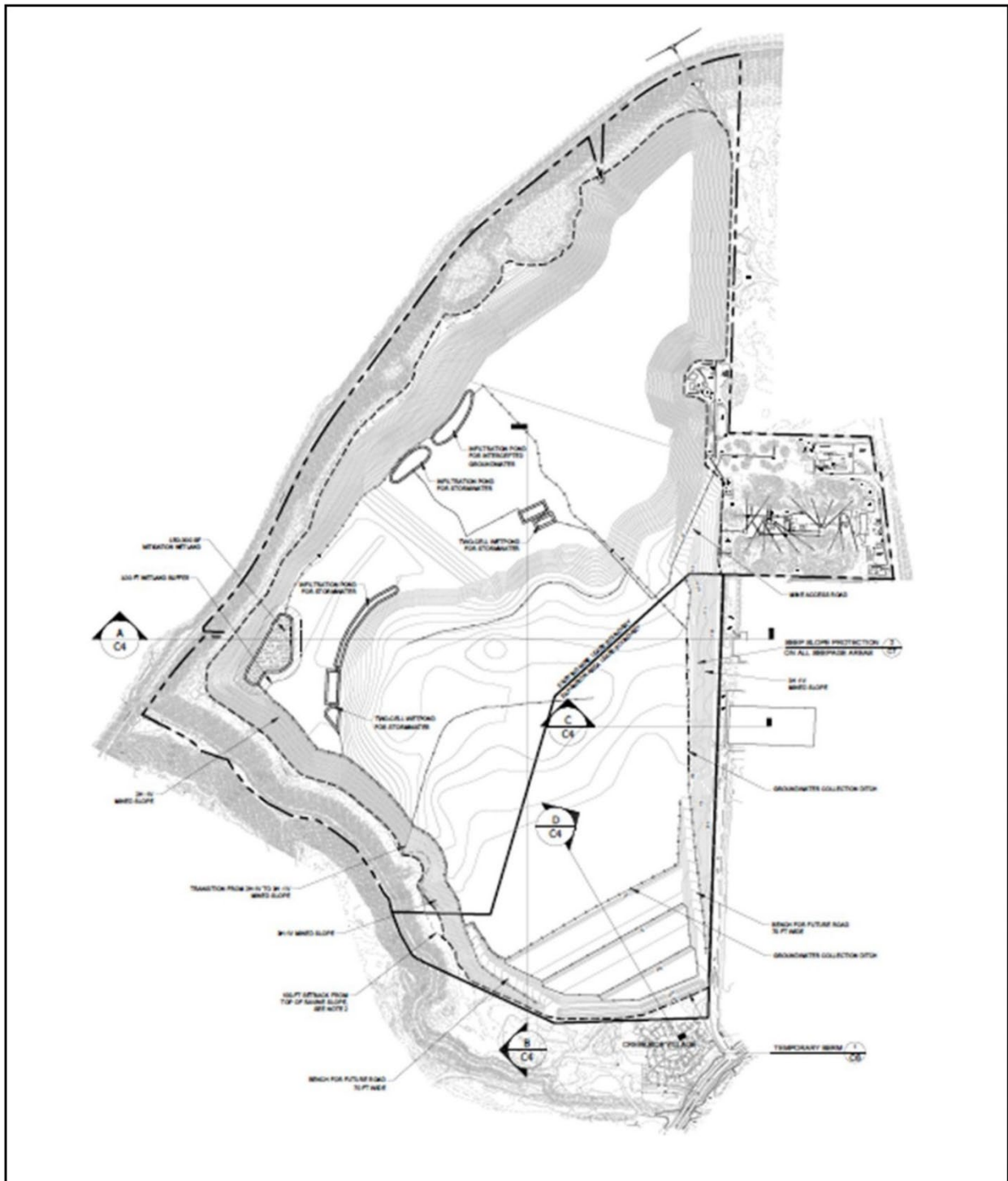
Table 2.2 provides a comparison of existing site conditions with site conditions under the Proposed Action (post-reclamation).

Alternative 2 - No Action

A No Action alternative is required by SEPA. “No action” is interpreted to mean that the South Parcel Project mining proposal would not be implemented. It does not necessarily mean that nothing would happen on the subject site. The site (including a portion of the Existing Mine and the South Parcel) could remain undeveloped or could be developed in the future in residential and manufacturing and research park uses, based on the existing zoning in this area. Accordingly, the No Action Alternative includes two scenarios: Scenario A – Continuation of Existing Site Conditions; and, Scenario B – Site Development under Existing Zoning.

⁷ Includes Existing Mine, North Parcel, and South Parcel.

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Source: CalPortland, 2021



Figure 2-6
Reclamation Plan

Table 2-2
SITE CONDITIONS COMPARISON

Land Use	Area ¹ in Acres									
	Existing Conditions					Proposed Action - Post-Reclamation				
	Expansion Area			Re-Mine Area	Total	Expansion Area			Re-Mine Area	Total
	South Parcel	Kettle Area	Buffer Strip			South Parcel	Kettle Area	Buffer Strip		
Built Areas										
Buildings	--	--	--	--	0.00	--	--	--	--	0.00
Roads, Access, and Parking	--	--	0.4	9.2	9.55	--	--	--	--	0.00
Processing Areas	--	--	0.2	17.9	18.08	--	--	--	--	0.00
Active Mining	--	--	--	--	0.00	--	--	--	--	0.00
Active Reclamation	--	--	0.2	20.5	20.62	--	--	--	--	0.00
Cleared for Mining	--	--	--	--	0.00	--	--	--	--	0.00
Water Management Ponds	--	--	--	--	0.00	--	--	--	--	0.00
Total Built Areas	0	0	0.8	47.5	48.26	0	0	0.00	0.00	0.00
Natural & Reclaimed Areas										
Areas Reclaimed as Forest	--	--	--	3.3	3.3	29.4	0.6	0.6	35.8	0.6
Areas Reclaimed as Grass	--	--	--	68.5	68.5	138.2	10.2	8.6	89.4	10.2
Wooded Areas	146.2	5.6	7.4	5.8	165.1	--	--	--	--	0.0
Grass Areas	21.3	--	1.0	0.21	22.5	--	--	--	--	0.0
Wetland	--	1.8	--	--	1.8	--	--	--	--	0.0
Wetland Buffer	--	3.4	--	--	3.4	--	--	--	--	0.0
Total Natural & Reclaimed Areas	167.5	10.8	8.4	77.7	264.5	167.5	10.8	9.2	125.2	312.7
Total	167.5	10.8	9.2	125.2	312.7	167.5	10.8	9.2	125.2	312.7

Source: CalPortland, 2022.

Notes: -- Indicates no area of this type.

1) Totals may not exactly equal the sum of their components due to rounding.

No Action Scenario A – Continuation of Existing Conditions

The No Action Alternative assumes that the South Parcel Project (including horizontal expansion into the Expansion Area and vertical deepening into the Re-Mine Area of the Existing Mine) would not occur. Mining activities associated with the Re-Mine Area of the site and the Existing Mine would continue as currently permitted. The kettle wetland within the Re-Mine Area would remain intact, the wetland buffers would remain vegetated, and mining operations would continue in other portions of the Existing Mine. The Existing Mine has an estimated remaining life of 6 to 10 years with mining currently limited to 10 feet above groundwater.⁸ For Scenario A, it is assumed that annual extraction of approximately 2.8 million cubic yards associated with the currently permitted mining activities on the Existing Mine would continue, with processing and export as at present. However, actual extraction, processing, and export would depend on market conditions.

The South Parcel portion of the site is assumed to remain undeveloped and would continue in its vegetated condition.

The Sequelitchew Creek Restoration Plan developed by CalPortland and the Environmental Caucus non-governmental organizations in accordance with the 2011 Settlement Agreement includes a commitment from CalPortland for funding, monitoring data, and advocacy. The plan also requires coordination between the Environmental Caucus non-governmental organizations, South Puget Sound Salmon Enhancement Group (SPSSEG), and Joint Base Lewis-McCord (JBLM). In the absence of CalPortland, the advocate and sponsor for the Sequelitchew Creek Restoration Plan under the No-Action Alternative would be SPSSEG.

The No-Action Alternative Scenario A includes the potential for the Sequelitchew Creek Restoration Plan to be implemented without the Proposed Action. The Restoration Plan entails Creek restoration activities both on JBLM property and outside JBLM within the City of DuPont. Funding for alterations to the diversion system on JBLM property is currently programmed by JBLM. For the portions of the plan outside JBLM, other funding sources (e.g., grants) would be required to implement the plan and may include a variety of sources of watershed restoration funds including Washington State salmon recovery funds. Such funds would likely need to be obtained through a competitive process and may or may not be at the same level of funding and/or at the same timeline as under the Proposed Action. At the present time, CalPortland is the only confirmed source of funding available to complete the portion of the work that the Restoration Plan requires outside JBLM.

No Action Scenario B – Site Development Under Existing Zoning

As indicated above, the No Action Alternative assumes that the proposal would not occur and the site (including the Re-Mine Area and South Parcel) could be developed in the future

⁸ Currently permitted mining includes mining activities on the Existing Mine and North Parcel.

in residential and manufacturing and research park uses, based on the primarily R-4, R-R, and MRP zoning in this area. Accordingly, No Action Alternative Scenario B assumes site development under existing zoning.

Portions of the site are zoned for Manufacturing and Research Park (MRP; 136.2 acres), Residential-4 (R-4; 16.1 acres), Residential Reserve (RR; 22.3 acres), and Open Space/Sensitive Area (3.8 acres) uses. The MRP zoned areas are currently subject to restrictive covenants related to the former DuPont Works Cleanup Site, which restrict use of the property to industrial uses.

The extent of development could vary considerably depending on zoning/density, site planning, economic considerations, and numerous site-specific, project-specific and regulatory requirements (e.g., setbacks, open space, and the presence of critical areas). The following is intended to be a general estimate of the possible intensity of development for purposes of analysis only and is based primarily on zoned density and permitted site coverage. Development estimates are based on assumptions of building and parking areas as a percentage of developable area and do not represent a specific or detailed development proposal.

Areas zoned MRP would be available for development of up to 112 acres of light manufacturing and research park. Buildings may be up to 65 to 70 feet tall and there are no maximum lot coverage requirements other than necessary to meet required setback (25 feet on the front property line, 15 feet on the sides and rear) and landscaping (20% of lot area) requirements. This MRP zoned area could yield approximately 109 acres of impervious area at up to 80% lot coverage. The areas of the South Parcel zoned R-4 could be developed at a density of up to 4.5 single-family residences per gross acre, resulting in a total of approximately 76 residences with 69% impervious coverage. An additional four single-family residences could be developed in the smaller portion zoned for Residential Reserve density (one dwelling unit per 5 gross acres) and 34% impervious coverage.

There would be no changes in the use of the areas of the South Parcel zoned for Open Space. These areas are currently the naturally vegetated slope of the Sequalitchew Creek ravine and the Sequalitchew Creek pedestrian trail.

The No-Action Alternative Scenario B also includes the potential for the Sequalitchew Creek Restoration Plan to be implemented without the Proposed Action. However, as described under No Action Scenario A, while it is theoretically possible that another advocate could be identified and other funding could be obtained to implement the Sequalitchew Creek Restoration Plan developed by CalPortland and the Environmental Caucus non-governmental organizations, there are no other known likely substantial funding sources.

Alternatives Considered but not Carried Forward

SEPA requires that an EIS consider “reasonable alternatives” to a proposal, in addition to “no action” (i.e., not implementing the proposed action). A reasonable alternative is defined in the SEPA rules as one that can feasibly attain the proponent’s objectives at a lower environmental cost (WAC 197-11-440(5)(b)). Existing regulations and commitments are also relevant considerations when determining whether a particular course of action is reasonable. This Draft EIS evaluates the Proposed Action and No Action. Three additional alternatives that were suggested in scoping comments are considered further below.

Prior environmental documents, including four EISs and SEISs for mining proposals within DuPont’s Mineral Resource Overlay, have considered numerous alternatives for the location, design or operation of mining plans and components, key mining facilities and modes of transporting. The range of options has included processing plant locations, dock locations, conveyor route alignments, access road locations, varied transportation modes (barge, truck and rail) and mode split options, barge staging locations, alternative process water recycling methods, mining methods and mining area boundaries, alternative dewatering methods, and mitigation actions. These options are summarized in the North Parcel Draft EIS (2013) in Table 2-4. In addition, some options, and some elements of prior proposals, have been identified or eliminated by the terms of past Settlement Agreements. The 2011 Settlement Agreement, for example, eliminated several options for mining the North Parcel and established a mining boundary that avoided mining the bluffs along Puget Sound.

The *Final Feasibility Study* (2010), which provided information for the 2011 Settlement Agreement, identified and evaluated 24 alternatives for mining, dewatering and mitigation actions within the Sequelitchew Creek Watershed. Evaluation criteria that were applied to screen the full range of alternatives included operational viability, cost, environmental effects, uncertainty and regulatory viability, as well as several others. Mining options evaluated for the South Parcel included the following: (1) Mining Above the Aquifer; (2) Subaqueous (Wet) Mining Within the Aquifer; and (3) Various Dewatering Options, a category of actions to manage groundwater that consisted of several options for conveying groundwater for discharge to Sequelitchew Creek, including creation of an open channel (North Sequelitchew Creek), micro-tunneling, or diversions by pipe using other routes. The Feasibility Study’s list of recommended options did not include alternatives that would involve conveying dewatering water to Sequelitchew Creek by gravity via tunnels or artificial structures (e.g., FS Alternatives 3.2.5) and these alternatives were not carried forward into the 2011 Settlement Agreement. The micro tunneling option of conveying groundwater to Sequelitchew Creek discussed in this EIS is among the potential mitigation measures that could be evaluated and implemented as part of adaptive management if necessary and

appropriate and would require resolution of conflicting provisions in the in the 2011 Settlement Agreement.

The Feasibility Study evaluation concluded that the mining options (wet mining or mining above the aquifer) were infeasible or unreasonable. The most salient reasons for eliminating these options included exorbitant capital and/or operational costs (wet mining in the aquifer and North Sequalitchew Creek dewatering options); and unreasonable reduction in the amount of sand and gravel that could be extracted (mining above the aquifer).

Additional Alternatives Considered

Comments received during the scoping process for the EIS suggested three possible additional alternatives which are discussed below.

1. Reduced Mining Alternative

Several comments received during EIS scoping suggested a “reduced mining” alternative. Reduced mining could be interpreted to mean a reduced area that is mined, a reduced depth of mining, and/or a reduced amount of material that is extracted by mining. The areal extent and depth of mining is based on site geology and the amount of material the Applicant proposes to extract is based on stated project objectives, the economics of mining, and the market demand for sand and gravel resources. The proposal would also maintain the same rate of mining as for the original mine and the North Parcel. The proposed area of the South Parcel Project is also based on maintaining a buffer around the active mine area to mitigate noise and visual impacts, and to maintain separation from adjacent off-site historical resources required by applicable conditions of approval. Reducing the size of the mine area by some additional amount would not, by itself, likely result in noticeable reductions in impacts to the environment that could not also be achieved through mitigation measures that are or could be incorporated into the proposal. For example, noise impacts to adjacent land uses could be effectively mitigated by the proposed noise berm as well as reducing the mine area and/or providing greater separation between uses. A smaller mining area would not, per se, result in less traffic or different impacts to land use, for example. In developing the Proposed Action, CalPortland revised the mining plan from prior submittals to increase the distance between the noise berm and the Creekside Village development to leave intact the existing vegetation. The proposed berm is set back an average of 145 feet from the property line, compared with 30 feet under earlier proposals. This change reduced the mine footprint in the shallowest portion of the mine.

“Reduced mining” could also suggest reducing the depth of mining. A potential rationale for this scenario could be to avoid mining into the aquifer. As noted in the previous discussion of this potential alternative in the 2010 Final Feasibility Study, the site’s high seasonal groundwater level would result in effectively prohibiting commercially viable mining under

this scenario. The prior analysis concluded that this alternative does not meet the criteria for reasonable alternatives because it could not feasibly attain or approximate the proposal's objectives and does not appear to reduce environmental impacts.

2. Preserve the Kettle Wetland Alternative

The 1.8-acre kettle wetland, which is discussed in Section 3.5, **Plants and Animals**, is located on the original Pioneer Aggregates mine site and was maintained pursuant to a condition of approval. The South Parcel Project proposes to remove the wetland and to mitigate for the impact by creating a 3.4-acre wetland complex off-site within the existing mine. The amount of sand and gravel material that would be extracted as a result of removing the wetland would not be significant and is not the reason for its removal. Because the kettle wetland is supported by groundwater from the site's aquifer, mining and dewatering as proposed would remove its source of water and the wetland would dry up over time. It is not feasible to retain the wetland and to mine into the aquifer. Any reduction in environmental impact from retaining the wetland would be offset by the wetland mitigation that is proposed.

3. No Dewatering for Mining Using Wells, and Creation of an Interceptor Channel

This alternative, which was suggested during the EIS scoping process, would involve construction of an interceptor channel along the western edge of Edmond Marsh. The comment hypothesized that the Olympia Beds rise to near the ground surface in the vicinity of Edmond Marsh, forming a convenient location for constructing an interceptor channel to collect groundwater flow. The interceptor channel would be an open channel, much like a ditch. To be effective at dewatering to support mining, it would need to extend vertically to the depth of the Olympia Beds and horizontally the full length of the east side of the South Parcel.

Extensive drilling conducted in the 1980s during initial geologic and groundwater studies for the Pioneer Aggregates mine indicates that the Olympia Beds are found between 87 to 139 feet below the ground surface in the borings closest to Edmond Marsh. Several of the borings closest to the marsh did not encounter the Olympia Beds at their completion depths of 65 to 103 feet. None of these borings encountered the Olympia Beds near the ground surface. These borings are located in the southeast corner of the South Parcel and in the southern portion of the parcel now occupied by the Amazon Fulfillment Center. In 2002, a boring was completed in the western end of Edmond Marsh and encountered the Olympia Beds at a depth of 84 feet. Thus, it is reasonable to expect that the Olympia Beds are present under Edmond Marsh at around 80 to 100 feet below the ground surface (see **Appendix E** for details on the borings and depth of the Olympia Beds).

The shallow interceptor channel along the western and southern perimeter of Edmond Marsh envisioned in public comment would not capture sufficient groundwater to allow for mining of the South Parcel. To be effective, an interceptor channel would need to be approximately 80 to 100 feet deep and extend several thousand feet to the north, crossing

through existing developed areas. An open channel 80 to 100 feet deep would be at least 500 to 600 feet wide at the top. Such an interceptor channel would have dramatic land use impacts, and by being closer to Edmond Marsh would likely have a greater impact on wetland water levels than the Proposed Action.

Evaluation of the interceptor channel alternative concluded the following: (1) the alternative relies on a presumed geologic structure (the rise of the Olympia Beds to near the ground surface) that is not supported by the borings completed in the vicinity; and (2) it is not feasible to construct an open channel along the western edge of Edmond Marsh that extends from the surface to the depth of the Olympia Beds and runs along the full length of the South Parcel. Therefore, this alternative was determined to be infeasible and is not carried forward for detailed analysis.

In summary, prior studies, environmental documents, feasibility analyses and the provisions of settlement agreements over a period of almost two decades have considered a wide range of options for mining, locating mining facilities, and mitigating for environmental impacts and, in combination, have narrowed the range of reasonable alternatives to the Proposed Action and No Action. The additional alternatives that were considered and are discussed in this section of the Draft EIS are not consistent with the objectives of the proponent, are not considered feasible, and are not reasonable alternatives for purposes of SEPA analysis.

2.6 Benefits and Disadvantages of Deferring Implementation of the Proposal

The benefits of deferring approval of the Proposed Action include the following:

- Potential impacts associated with vertical deepening of mining in the current mining area and horizontal expansion into the area not mined, including changed conditions associated with surface and groundwater, plants and animals, noise, air quality, and traffic.
- Alternative uses of the property allowed under the underlying zoning could provide for uses without the constraints of developing within the reclaimed mine pit.

The disadvantages of deferring the approval of the Proposed Action include the following:

- Development pressure in the City for alternative uses of the property could compromise preservation of a commercially valuable deposit of high-quality sand and gravel, which deposit is designated as Mineral Resource Land of long-term commercial significance in the City's Comprehensive Plan, in conformance with the State Growth Management Act.

- Deferring mining would limit the supply of sand and gravel material for infrastructure and building projects in the Puget Sound region. Public and private sector builders would be required to travel further distances to obtain sand and gravel, with greater impact to the regional road system, air quality, and greenhouse gas emissions.
- Diminished ability to continue to utilize water transportation of mined sand and gravel resource to the Puget Sound region from this source. The availability of alternate aggregate sources with barge access has not been documented.
- Funding for the Sequelitchew Creek Restoration Plan, pursuant to the 2011 Settlement Agreement could be deferred. Alternative funding from competitive grants likely would be required for implementation.
- Remediation of surface soil contaminants in the expansion area would occur in the future, consistent with the Cleanup Action Plan, as part of a future mining proposal or other development.
- Excise taxes and other revenues to the state and City of DuPont would be deferred.
- Jobs associated with the CalPortland's mining operation in DuPont would be reduced over time as the Existing Mine is exhausted. This reduction would also reduce indirect employment supported by the aggregate industry and associated wages and spending.