Port of Whitman County

TEKOA SITE FEASIBILITY PLAN

December
2024

Facilitated by

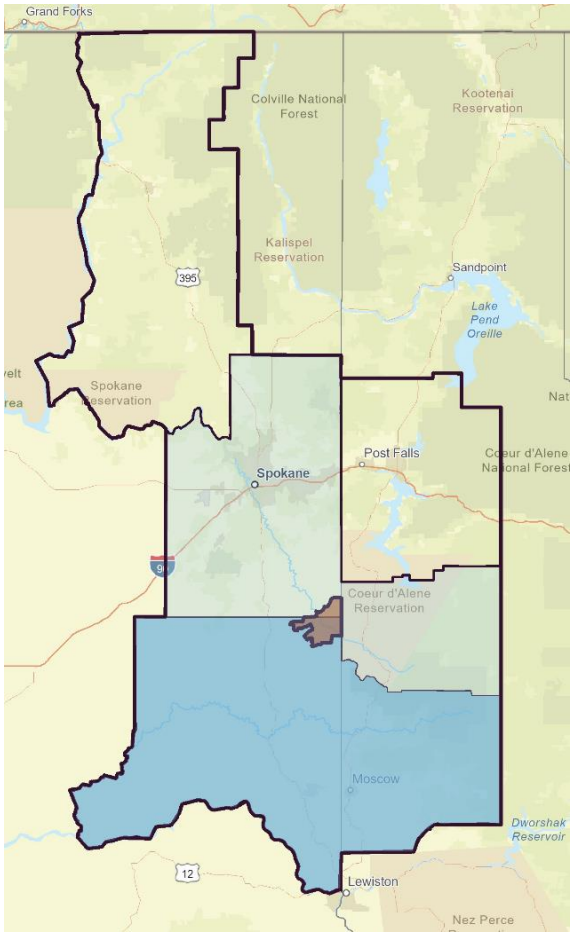
POINTS
CONSULTING

Contents

1. Report Overview and Regions of Analysis

Regions of Analysis

One of the first steps in analyzing the feasibility of a site is determining the geographic boundaries to be used for analyzing data and benchmarking. Whitman County and the State of Washington are clearly relevant geographic groups. Expanding outwards, Whitman County shares borders with the counties of Latah, Spokane, and Benewah, among others.



These regions are of particular interest to the project because they share a similar biogeography to the Tekoa Project Site owned by the Port. Kootenai and Stevens Counties were also included in the analysis due to proximity and business offering potential to the site.

- The darker blue shaded area contains the "Small Region" which consists of Whitman and Latah counties, which includes the Tekoa site. These two geographic areas are most consistent with each other, and even share two college towns within a 20-mile radius.
- The lighter shaded region is known as the "Big Region," and includes the Small Region with Benewah, and Spokane Counties.
- Lastly, the dark border around the map signifies the "Mega Region" that includes Stevens and Kootenai Counties with all the previously mentioned regions.
- The Tekoa Project Site has been designated by the red highlighted area. This region is the Tekoa Zip Code region, which crosses over from Whitman to Spokane County.

Small areas such as Tekoa often have limited data availability. Regions like this often see only a small quantity of data published, as well as infrequent updates to the data available. Hence, the project team deemed establishing a broader region of analysis to be beneficial.

Report Overview

The Port of Whitman County serves as the port authority for Whitman County. The Port operates in this area of the Palouse by overseeing not only the three ports located on the Snake River, but also the economic development of the county through various assets such as the Pullman Industrial Park. The mission of The Port is to improve the quality of life for all

citizens in the county through various initiatives such as real estate development, infrastructure, and transportation.

One such development site is in Tekoa, Washington, situated in the Northeast corner of Whitman County. Recently, the Port has obtained a 15.6-acre property previously utilized as an agricultural airstrip. The Port of Whitman County and the Points Consulting (PC) team worked together to create this development feasibility plan and are in the process of recruiting businesses to utilize the space.

The Port of Whitman County has become the "engine of growth" for the regional economy after decades of stagnation. In the last 20 years the Port of Whitman County has driven manufacturing upwards 262%. The average compensation package per job has also risen to $103,125. Telecommunications has been a large focus of the Port during this time. The Port has built over 300 miles of dark fiber in a network ranging from the City of Spokane to the City of Clarkston.[1]

The contents of this report will use the economic development goals and accomplishments of the Port of Whitman County to generate a market analysis. The market analysis will identify key industries that the Port of Whitman County specializes in, and industries that the Port can build upon with the Tekoa Industrial Park Site. This report will also include:

- A market strategy and identification of the groups responsible for implementing the marketing strategy.
- Identification of targeted industries
- The site's appropriateness by determining zoning restrictions, affect to transportation, environmental restrictions, cultural artifact investigation, and overall adequacy to support the anticipated development.
- A location analysis of Tekoa, other commercial and industrial real estate, and other properties served by the Port
- Economic outcomes and impacts, as well as diversification
- Total job creation, estimated wages, and regional economic tax impact

SynTier Engineering Incorporated has collaborated with the Port and PC to provide detailed information pertaining to the readiness of the site. During the time of writing, the Port of Whitman County was successful in changing the zoning at the site to Heavy Industrial. Data in Chapters 1-4 reflects a broad overview of all industries with some additions for the zoning changes, while Chapters 5-7 focus on Heavy Industrial business opportunities.

[1] Port of Whitman County 2022 Economic Contributions by Steven Peterson, FINAL V2 2022 Economic Contributions of the Port of Whitman County.pdf (portwhitman-web.s3-us-west-2.amazonaws.com)

Executive Summary

Site Readiness

The future Tekoa Industrial Park Site is 15.6 acres and was previously utilized as an agricultural airstrip for crop management. The Port of Whitman County recently acquired the land to bring new employment and economic development opportunities in the northeast area of the County, which has not seen significant new growth in recent years. A crucial step in preparing the land for development, construction, and occupancy was to evaluate the readiness of the site through various examinations. These evaluations included:

- Engineering Background Reports
- Transportation Impact Analyses
- Wetland Delineation Reports
- Existing Building Condition Reports
- PCS and Drum Cleanup Summaries
- Phase 1 and 2 Environmental Site Assessments
- State Environmental Policy Act (SEPA) Checklist
- Archaeology and Historic Preservation Checklist

The Port of Whitman County delegated site readiness reports to Environmental Incorporated, SynTier Engineering, GeoProfessional Innovation, and Wolfe Architectural Group. This section of the Executive Summary will highlight the findings from each of the reports relating to the development and evaluation of the future Tekoa Industrial Park. While each report may not be explicitly mentioned in this section, more information on each report and the site's readiness is provided in Appendix D: Detailed Site Analysis.

The proposed Tekoa Industrial Park presents both opportunities and challenges for development. The existing infrastructure included an airstrip and multiple existing hangar structures. This infrastructure provides a starting point, but there are several key areas that require attention before construction can commence. Initial assessments of the two existing hangars reveal that "Building A", or the southernmost building,[2] is a viable candidate for adaptive reuse. Its structure, shell, and floor are in good condition; however, the hangar doors and insulation require repair to reasonably return the building to working condition. The electrical service also has limited capacity, suitable only for residential use.

Building B in lot 5, which is deemed unusable by Wolfe Architectural Group

"Building B", or the northernmost building, is in dire condition and was deemed beyond repair during Wolfe Architectural

[2] Located in Lot 4

Group's site analysis. The exterior shell, structure, and flooring are all severely deteriorated, and the services within the building such as water and electricity are all non-functional. The estimated age of the structure is approximately greater than 40 years, and it has exceeded its normal life expectancy. Any attempts to renovate the structure will likely exceed the replacement value of the structure.

Access to the site is limited by an unpaved road that is prone to deterioration, especially during wet weather. Significant improvements to the road surface and drainage are necessary to facilitate construction for future use, as found in the SynTier's Engineering Background Evaluation. An additional right turn taper will be included in the access improvements to enhance turning movements, increase safety, and to provide better usability to traffic flow when the Industrial Park is developed. Excavations and groundwork improvements are not limited to the road either, with multiple lots needing a variety of embankments for foundations and load bearing additions. Lots 1 and 2 will require the most attention being located near the entrance of the Site which has a 100-foot gain in elevation. The Site will include asphalt roads and paved parking areas. These roads and parking areas will connect the lots, allowing for smooth and easy access to any of the lots.

Emergency vehicle access will use the same primary entrance from Highway 27 as the rest of the Industrial Park staff / visitors. However, an emergency vehicle turnaround will be implemented in the Northeast corner of the complex, as shown in Appendix D, Figure 4D. ADA access requirements will conform to standards and regulations where applicable.

The GeoTech Report by GeoProfessional Innovation highlights the site's topography, which slopes gently to moderately downwards towards Highway 27. Embankment construction will be a significant aspect of the site preparation, requiring careful consideration of soil compaction, settlement, and drainage. Proper compaction of fill material will be critical to minimize long-term settlement, and comprehensive draining measures are essential to mitigate slope instability. Specifically, construction on Lot 1 should be delayed for at least one year following site grading to allow the soil to stabilize under the new planned embankment load.

The Site possesses existing electrical transformers and panels, but overall, the capacity is limited, and a comprehensive upgrade will be required to support industrial activities. Currently, Avista will power the tenants' lots, and 3 Phase power can be requested after the service meter at each tenant's expense. Other essential utilities, including water and sewage, will need to be established. Plans call for the drilling of a new well and the installation of a septic system to serve the Industrial Park. A Group B water system approval application and site plan approval will also be necessary.

The site's history of agricultural chemical application necessitated thorough environmental assessment and potential remediation. A Phase 1 Environmental Site Assessment (ESA) conducted by GeoProfessional Innovation identified several Recognized Environmental Conditions (RECs) stemming from the past use, including soil staining inside the hangar and the presence of numerous 55-gallon drums with aboveground fuel tanks. Soil staining

observed inside the large hangar suggested potential past spills or leaks of petroleum products or other contaminants.

A subsequent Phase 2 ESA confirmed petroleum hydrocarbon contamination exceeding cleanup levels in a localized area beneath a former "Jet A" fuel tank. While the contamination was small, it required excavation and proper disposal at a permitted facility. GeoProfessional Innovation conducted a site cleanup and removed the petroleum contaminated soil, 55-gallon drums, fuel tanks, and several small containers of other products to certified environmental hazard lands for proper disposal.

One of the final elements to determine the site's readiness was an evaluation of archaeological, historic, and environmental protection requirements. The SEPA Checklist addressed a variety of environmental concerns where no issues were found. The report acknowledges that proper care and regulation of the facilities will be crucial in preserving the existing wildlife and fauna habitats. Some endangered species were found near the Site, but they were not deemed an issue to the development of the Industrial Park. No historical or archaeological issues were found pertaining to the construction of the Site as well.

Overall, the Tekoa Industrial Park site offers a high potential for development, but careful planning and execution are paramount. Addressing the highlighted challenges, especially in terms of regulatory compliance, utilities, and groundwork will be essential to ensure the long-term success and sustainability of the Site. The Port of Whitman County has demonstrated the ability to develop beneficial commercial and industrial properties in the area before, so the Tekoa Industrial Park should not be an exception to that.

Industry Patterns

To fill the future Industrial Park with tenants, it is important to evaluate the historical industry patterns of the surrounding areas to determine which industries are the strongest and weakest. This aids in finding "leakages" which the Port of Whitman County can take advantage of to facilitate the economic development of the area by searching for certain industries/tenants that will immediately make a substantial impact. Industries that fill these supply chain leakages will bring in dollars to the local economy that are otherwise outsourced to distant regions. The Port's existing assets (as well as Whitman County as a whole) are focused on manufacturing, agriculture, and technology. A recurring theme for the Port is to decrease the reliance on agricultural production due to the volatile nature of the industry with the influence of extraneous factors such as weather patterns.

In the initial stages of research, PC elected to divide the surrounding areas into separate regions to help evaluate the industry trends on both small and large scales. Referenced in the "Regions of Analysis" section in Chapter 1, these regions aided in analyzing and benchmarking the geographies surrounding the Tekoa Site, Whitman County, and broader area of Eastern Washington and Northern Idaho.

Given the geological makeup of Whitman County in the Palouse, it is no surprise that agriculture comprises a large part of the economic output in the County. The reliance on agriculture for Whitman County is expected to continue. Currently, Agricultural employment

per capita in Tekoa is 6.4X higher than the U.S. average, and 2.15X higher in the "Small Region." Agriculture is expected to increase by 23% from 2024-2029 in the Tekoa ZIP Code area. However, both Tekoa and the surrounding "Small Region" (Whitman and Latah Counties) have experienced a decline in agricultural employment over the past five years.[3]

Construction, Educational Services, Utilities, and Mining, Quarrying & Oil & Gas Extraction are the industries with the largest forecasted employment growth over the same period, while the broader regions included large projected growth in Professional, Scientific, & Technical Services, and Transportation & Warehousing Services. Transportation & Warehousing Services have increased across all identified regions from 2019-2024 and have high enough wages to create a demand for jobs within the industry. Combined with the increase of Wholesale Trade in all regions (23% in Tekoa), there is opportunity for growth in both related industries.

Future growth, aided by the Port's investments (such as the Tekoa Industrial Park), will hopefully occur across all industries for each region. The three largest growths in the "Small Region" are expected to appear in the Educational Services, Management, and Transportation & Warehousing Industries. Since the Tekoa Industrial Park will be zoned for industrial use, it is important to look at the projections for those industries as well. Manufacturing employment is expected to increase approximately 11% in the next five years, along with Utilities at 20% in the same period for all the listed regions.

Supply chain leakages are also an effective way to evaluate where in each region's economy gaps exist between imported purchases and in-region purchases. Naturally bigger regions produce more of their own needs, therefore, the "Tekoa ZIP Region" and "Small Region" were deemed to be the most important to this evaluation. The "gaps" found in the supply chain leakages can be plugged either by recruitment of businesses from out of state, or through existing businesses expanding their product lines to address demand. These leakages serve as an indicator to the Port on which industries have the highest potential for growth.

The largest supply chain leakages in the "Tekoa ZIP Region" are Crop Production, Software Publishers, HVAC Contractors, and Electrical Contractors. For the Small Region, those industries are Corporate Offices, Software Publishers, HVAC Contractors, and New Car Dealers. Realistically, only a couple of these industries meet the standards that the Port seeks for the Industrial Park. Because of this, PC elected to evaluate supply chain leakages in industries that are commonly classified as "Industrial." In the "Small Region" Automobile and Light Duty Motor Vehicle Part Manufacturing, Pharmaceutical Preparation Manufacturing, and Iron and Steel Mills Ferroalloy Manufacturing are the top industries for leakages. Each industry (found in Figure 10) is 100% imported from outside of the "Small Region", which indicates that there are many industrial gaps within Whitman County to capitalize on. These are the top 15 industrial industries in terms of output; however, many other industrial adjacent industries are not 100% imported.

[3] This projection is based on Lightcast's Industry Model, which forecasts using an optimistic growth model despite recent decline in these industries.

The large leakages in industrial industries show that the Port has an excellent opportunity to bring new businesses to the Tekoa Industrial Park to plug the existing gaps. Doing so will keep dollars within the Whitman County economy and help perpetuate growth in other economic development corners as well. As the Port seeks to reduce its reliance on agricultural industries, the Industrial Park will serve as a great first step to expanding the business portfolio of Whitman County.

Economic Impact and Diversification

Conducting an Economic Impact Analysis (EIA) is an important piece in any real estate development that involves public-private partnership. Such analyses shift the conversation from benefits appreciated by the developer to the economic benefits appreciated by the broader community. The EIA helps demonstrate the economic diversification that can derive from development projects such as the Tekoa Industrial Park. This section of the Executive Summary will summarize the findings of the EIA through the jobs, earnings, output, and tax impact. The EIA includes separate analyses for both the initial construction on the site, which will create jobs through development efforts, and the impact of the Industrial Park itself once construction has finished.

The initial site development will include many different industries through each stage of the construction process. Even though the economic impacts of a fully operational industrial park may not be fully realized until 2030, the process necessary to develop the site will bring employment opportunities and economic output through these industries:

- Site Preparation
- Water and Sewer Line Related Structures Construction
- Poured Concrete Foundation and Structure Contractors
- Engineering Services
- Landscaping

PC also evaluated each lot to determine the costs of building industrial-style structures on each lot.[4]

The site preparation, which includes excavation, piping, stripping, and sewer cleanouts, will produce approximately 17 new jobs for a median hourly wage of $28/hr. The building construction will create approximately 150 new jobs with a median hourly wage of $44/hr. Both development periods provide an hourly median wage that is above the Whitman County median hourly wage of $25.74. Together, the total economic investment created by the construction of the site will total around $26.4M.

Once the Tekoa Industrial Park is completed tenants will begin production in the space, furthering money-creating operations that will boost the economy in the surrounding areas. For the EIA, PC generated five hypothetical industries that could utilize the Industrial Park's

[4] Each building was assumed to be 1 story with metal panels and rigid steel. Costs were calculated using RSMeans.

space using both the supply chain leakages mentioned earlier in the Executive Summary,[5] as well as industries that are related to the Port's current business portfolio. These industries are:

- Highway, Street, and Bridge Construction
- HVAC
- Sheet Metal Manufacturing
- Motor Vehicle Electrical and Electronic Equipment Manufacturing
- Aircraft Engine and Engine Parts Manufacturing

Together, these five industries are expected to generate $29.97M in economic output in Whitman County from sales and other revenue generating processes. The State of Washington will experience a boost of $32.8M in output as the output generated in Whitman County ripples through the rest of the state. Employment is expected to see an immediate impact of approximately 100 jobs, or around 20 for each industry. The ripple effect across Whitman and Washington could lead to a total increase of 205 and 217 jobs respectively.

These processes will also generate tax revenue for both Whitman County and the State of Washington through sales tax, business & operations taxes (unique to the State of Washington), leasehold taxes, and others. In total, Whitman County would likely see a tax revenue increase of around $590K, while the State of Washington could exceed $2.7M with the business & operations tax revenue generated, which will go the State of Washington. All the scenarios presented here assume that each of the five lots are occupied in the Industrial Park. A detailed breakdown of a one-business scenario is included in Chapter 7, "Economic Impact and Diversification Analysis".

The aforementioned "ripple effect" occurs when revenue generating businesses bring economic expansion to the areas surrounding them. For example, an increase in Whitman County of 100 employees will also necessitate a need for more healthcare workers, grocery store sales, and other accommodations in the County. These elements promote the economic diversity of Whitman County, Washington, and the surrounding areas. To accommodate the employment increases from the Park, Tekoa will need approximately 13 healthcare workers, 9 retail workers, and 8 food service workers. Figure 34 in Chapter 7 details the remaining increases seen in other industries.

Project Success and Marketing

The success of the Tekoa Industrial Park project will be reliant on the Port's ability to bring a market strategy to life, as well as to monitor the evolution of the Industrial Park throughout its lifespan. This will be done by closely following a pre-determined plan of action and creating quality tenant-to-landlord relationships. The relationships between the Port and their tenants will be crucial in tracking the needs and successes of the Industrial Park.

While the market strategy for the Port of Whitman in relation to the Industrial Park is yet to be finalized, it is important to begin drafting a comprehensive plan that the Port can use to identify and reach its target market. The Port has many unique advantages over other vacant

[5] Also see Chapter 2, "Supply Chain Leakages"

industrial land and buildings, such as the ability to lease property at a lower rate than competitors. Much like the Port of Whitman County Business Air Center (POWBAC) and the Pullman Industrial Park, the Port will be able to collaborate closely with tenants to ensure their needs are met.

A detailed market strategy for the Industrial Park is found in Chapter 3, Figure 20. Included in the market strategy are four key elements that will be useful in promoting the Industrial Park:

- Product
  - The Industrial Park, facilities, and services offered by the Port
- Price
  - Competitive leasing rates offered by the Port
- Place
  - Location advantages such as the access to nearby cities, POWBAC, and Port sites
- Promotion
  - Digital marketing, networking, and public relations tools offered by the Port

The Port, working together with Points Consulting, plans to market the Industrial Park to future tenants using business generation tools available to PC. When the marketing stage of the project is nearing completion, the Port should aim for 80% occupancy within the first year of opening. As tenants enter the Park, the Port should focus simultaneously on balancing further marketing with tenant satisfaction. At this point, the Port will be responsible for data collection and client relations.

In terms of development, project success will be measured first by managing the site construction and ensuring the process operates smoothly and efficiently, with little interference. Delays in construction could induce tenant uncertainty. In the later stages of development, building specifications required by the tenants should be allocated and nearing completion. Contractual obligations of both the tenants and the Port, including lease agreements, should be settled. Success in this stage of the project should be indicated by job growth via construction and projected initial growth once tenants move into the Industrial Park. The final benchmark of project success will be indicated by the Park's operating efficiency. By maturity (2030-2040), the Park should operate fully with five tenants and maximum economic output being achieved.

2. Product Market Analysis

Per CERB requirements, the following narrative summarizes the product market for the Tekoa site. The analysis touches on topics such as employment, establishments, and earnings for the region, as well as detailed industry patterns. In summary:

- The Port's current assets revolve around manufacturing, agriculture, and technology. The "Small Region" has seen:
  - 1.4% decrease in agriculture over the last five years
  - 12.6% growth in manufacturing
  - Average wages in manufacturing are $98K
- The region, like many others, has rebounded since the COVID-19 Pandemic.
  - Employment has returned to pre-pandemic levels.
  - Earnings and employment are projected to continue increasing and may be boosted further by the Tekoa Industrial Park (see Chapter 7).
- Whitman County and the surrounding areas are reliant on agriculture
  - Agriculture will continue to play an influential role in the region's economy for the foreseeable future.
  - The Port wishes to diversify their portfolio with the Industrial Park.
- Supply chain leakages imply the Port may find the most benefit from tenants in these industries:
  - Transportation and Warehousing
  - Automobile Parts Manufacturing
  - HVAC
  - Electrical Contractors
- Overall, Whitman County has large supply chain gaps in industrial and commercial spaces.
  - This is particularly important for the Industrial Park, which the Port zoned for Heavy Industrial Use.
  - **Looking at the targeted industries in Chapter 7, there are large supply chain leakages, meaning that these industries could also be feasible with the industries listed above (Figures 10 and 11).**

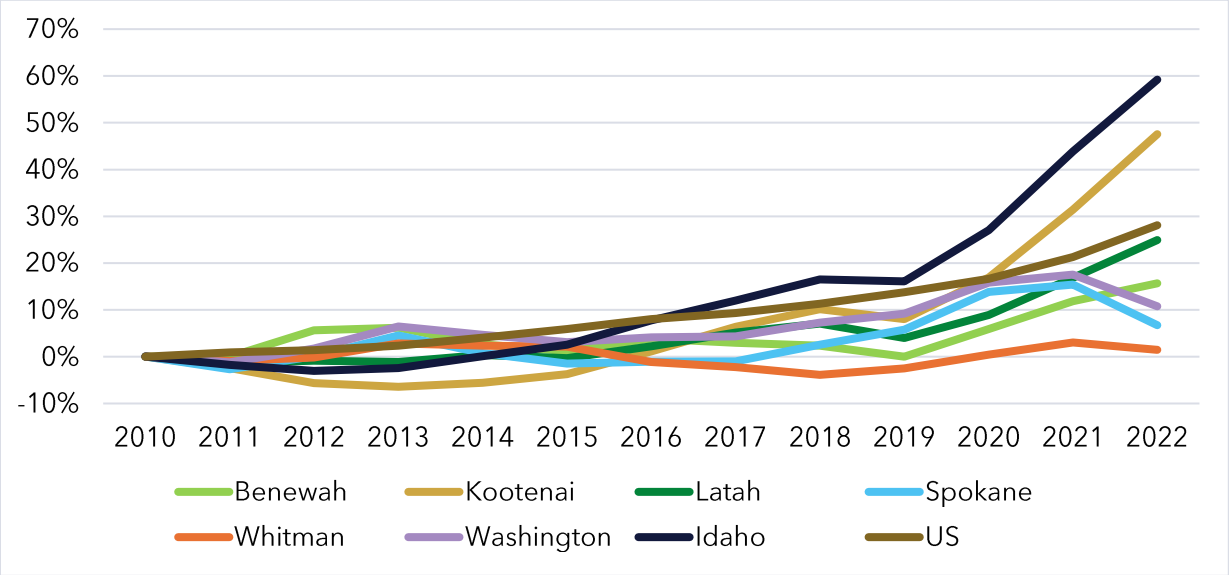
Historic Industry Patterns

Over the last 24 years, the region has seen a steady increase in wages and employment with the latter experiencing a decrease during the 2020 COVID-19 Pandemic. Employment has since returned to or surpassed pre-pandemic levels in all regions except Benewah County, as seen in Figure 3.

Figure 1 shows the growth of establishments in Whitman County and surrounding areas. It is interesting to note that starting in the 2020 pandemic, establishments in Whitman and Spokane Counties, as well as Washington State, saw a plateau and subsequent decrease (7.5% decrease in Spokane County and Washington, and a 1.6% decrease in Whitman County). Meanwhile, Idaho and all related counties continued to observe increases in the

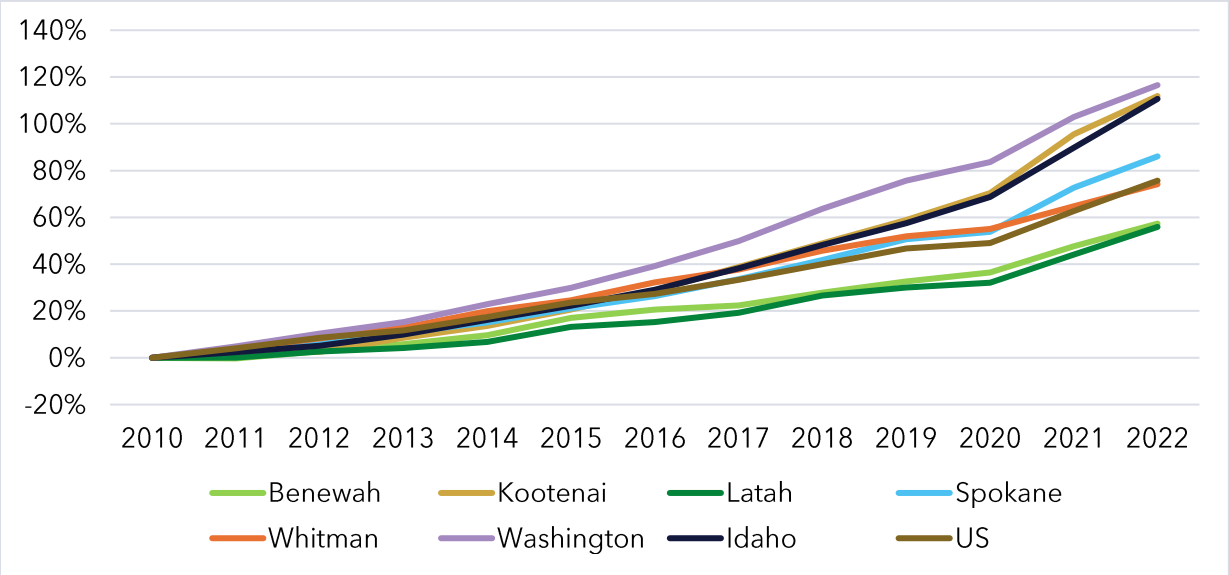
number of establishments during the same period. Despite the decrease in establishments, the wages continued to rise in all regions as seen in Figure 2.

Figure 1: Cumulative Growth of Establishments 2010-2022



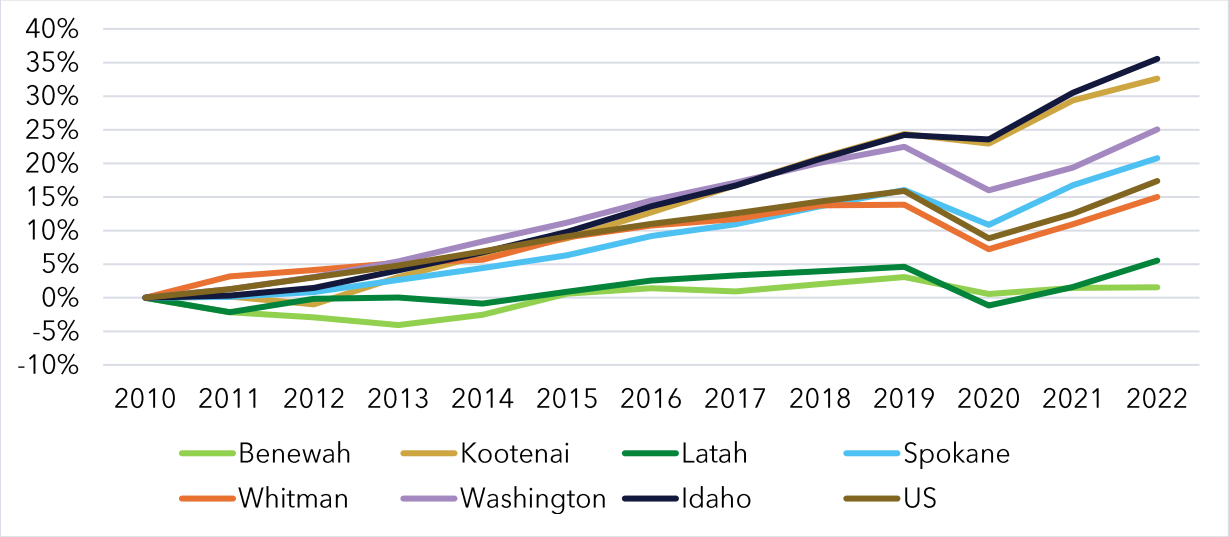
Source: Bureau of Labor Statistics QCEW

Figure 2: Percent Growth of Wages 2010-2022



Source: Bureau of Labor Statistics QCEW

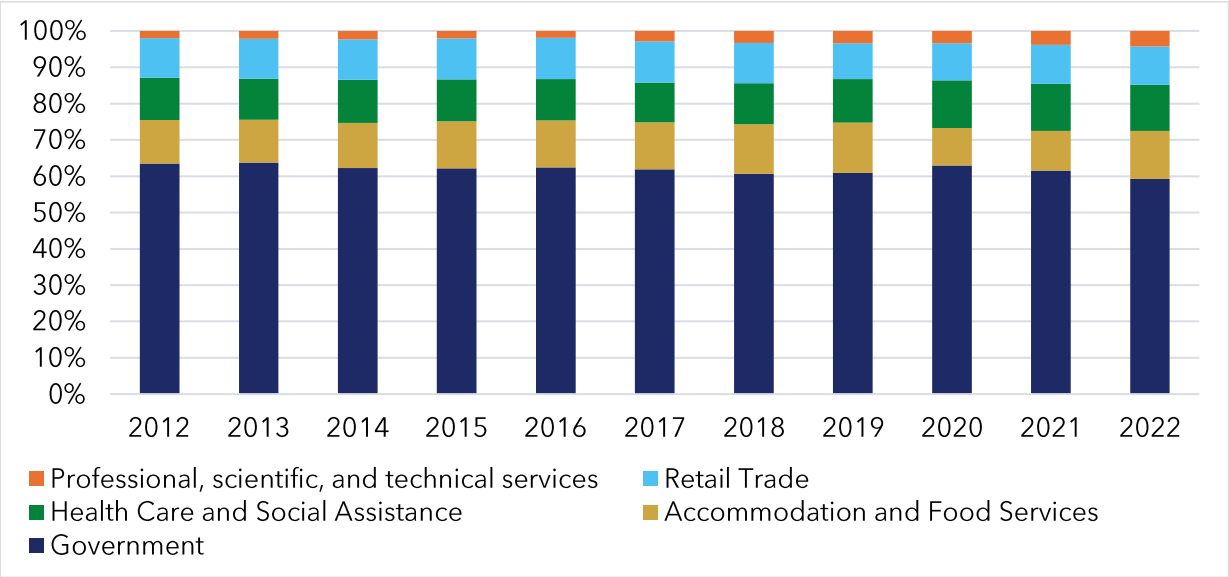
Figure 3: Percent Growth of Employment 2010-2022



Source: Bureau of Labor Statistics QCEW

Employment sector composition is often an indicator of what industries the county currently specializes in. Figure 4 shows the top five industries of employment for the residents of Whitman County. Government jobs have decreased in proportion from 2012 to 2022 (44.5% to 40.5%), but still hold the largest share of jobs in the county. One reason for this may be Washington State University, located in the Southwest corner of the county in Pullman. In conversations with the Port, the PC team learned that the population growth of the county would decrease without Pullman.

Figure 4: Top 5 Employment Sectors 2012-2022 in Whitman County



Source: Whitman County Trends, 2022

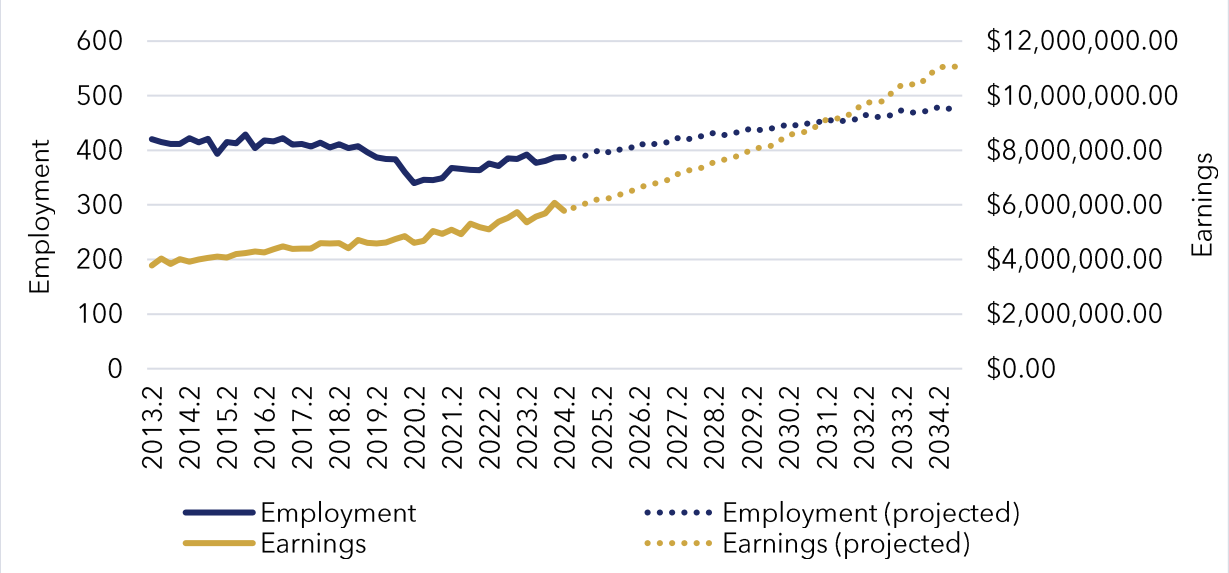
Food services, retail trade, and health care/social assistance comprise the rest of the top five employment sectors in Whitman County. These sectors include businesses such as restaurants, grocery stores, and health care facilities.

Projected Future Industry Patterns

Figure 5 shows the past and projected employment and earnings for the "Tekoa ZIP Code Region". The data shows that employment in the region peaked in 2016, before slowly declining. During the pandemic, a sharp decrease occurred, followed by a moderate increase seen from the end of 2020 to 2024. PC projects that employment may continue this trend, reaching pre-2016 levels by 2031. This projection is on the assumption that no extraneous factors affect employment in the area.

Meanwhile, earnings have seen a steady increase since 2013, which aligns with data from Figure 2. Earnings outpacing employment is a positive indicator for the region's economy. Workers in the region are earning more in addition to the steady increase in employment. Due to the "small town" nature of Tekoa, observing an increase in both employment and earnings simultaneously suggests a positive environment for economic growth.

Figure 5: Projected Earnings and Employment Growth 2013-2034 in Tekoa



Source: Data Tactical Group

Table 1 adds context to the trends displayed above. From 2019-2024, Tekoa had a compounded annual growth rate (CAGR) of -0.5% in employment, and a 5.7% growth in earnings. The projection identifies that from 2024-2029 employment will have a CAGR of 2.3% yearly, and an earnings CAGR of 5.2% yearly.

Table 1: Projected Rate of growth (CAGR) for Earnings and Employment

Year	Employment	CAGR	Earnings	CAGR
2019	397	---	$4,612,586.51	---
2024	387	(0.5%)	$6,076,412.05	5.7%
2029	433.11	2.3%	$7,839,524.94	5.2%

Source: Data Tactical Group

Tables 2-5 provide a more detailed look into how employment has changed in the past 5 years. The North American Industry Classification System (NAICS) is a system used by the federal government, which groups businesses into industries for data analysis. NAICS codes at the 2-digt level are at the highest level of summarization, while the 6-digit NAICS codes are the most specific.

The decline in employment for health care services and agriculture is notable due to the growth in the other four quantifiable industries within the "Tekoa ZIP Code Region."[6] Government jobs grew by 34.4%, while Utilities grew from 0 jobs in 2019, to 16 jobs in 2024. Wholesale and Retail Trade also saw an increase, although their average earnings per job are significantly lower than the surrounding industries. It is noteworthy that agriculture saw a decline from 2019-2024, considering the surrounding land in Tekoa. This could signify a gap in the industry that the Port can capitalize on.

Table 2: 2019-2024 "Tekoa ZIP Region" Employment Changes by Industry[7]

NAICS	Description	2019 Jobs	2024 Jobs	Past 5-years	Past 5-years % Change	Avg. Earnings Per Job
90	Government	105	141	36	34.4%	$73,797
44	Retail Trade	40	47	7	18.3%	$35,206
62	Health Care & Social Assistance	66	42	(24)	(36.7%)	$55,887
42	Wholesale Trade	28	34	7	23.4%	$84,840
11	Agriculture, Forestry, Fishing & Hunting	31	27	(4)	(14.1%)	$43,491
22	Utilities	0	16	16	N/A	$136,721
81	Other Services (except Public Administration)	10	11	1	9.7%	$27,703

Source: PC Using Lightcast Industry Tables

The top industries for growth in the "Small Region" are Construction, Educational Services, Utilities, and Mining, Quarrying & Oil & Gas Extraction. Growth in the Construction and Utilities industries exemplifies the Port's development focuses of facilitating infrastructure off-water.[8] Whitman and Latah have also experienced a decline in government jobs, unlike the "Tekoa ZIP Code Region."

The Port of Whitman County 2021-2025 Strategic Plan notes that the county wishes to pull away from its reliance on agricultural business, due to the riskier nature of the industry. The data from 2019-2024 supports this idea. Both Tekoa and Whitman County overall have decreased jobs in the agricultural sector over the previous five years. The five industries that have seen a decrease in jobs would need to increase their wages to incentivize growth.

[6] The employment data in the 'Tekoa ZIP Region' was either 0 for certain industries, or the number was so small that it was suppressed.
[7] The industry employment data for Tekoa was only identifiable to the listed six industries. This table likely remains an accurate picture of Tekoa's employment given the population size.
[8] Port of Whitman County Strategic Plan 2021-2025, portwhitman-web.s3-us-west-2.amazonaws.com/files/Strategic Plan.pdf

Table 3: 2019-2024 "Small Region" Employment Changes by Industry

NAICS	Description	2019 Jobs	2024 Jobs	Past 5-years	Past 5-years % Change	Avg. Earnings Per Job
90	Government	16,631	14,876	(1,755)	(10.6%)	$77,160
62	Health Care & Social Assistance	3,606	3,841	235	6.5%	$57,659
31	Manufacturing	3,329	3,747	418	12.6%	$98,813
72	Accommodation & Food Services	3,767	3,510	(257)	(6.8%)	$24,715
44	Retail Trade	3,199	3,441	242	7.6%	$37,350
54	Professional, Scientific, & Technical Services	1,441	1,720	279	19.3%	$82,888
23	Construction	1,221	1,647	426	34.9%	$61,473
81	Other Services (except Public Administration)	1,540	1,519	(21)	(1.4%)	$30,512
11	Agriculture, Forestry, Fishing & Hunting	1,017	1,003	(14)	(1.4%)	$55,985
42	Wholesale Trade	795	855	60	7.5%	$85,258
53	Real Estate & Rental & Leasing	672	714	42	6.2%	$56,294
56	Administrative & Support & Waste Management & Remediation Services	559	603	44	7.8%	$47,941
61	Educational Services	470	601	132	28.0%	$31,219
48	Transportation & Warehousing	465	457	(9)	(1.8%)	$62,749
52	Finance & Insurance	406	437	31	7.6%	$82,296
71	Arts, Entertainment, & Recreation	360	400	40	11.3%	$26,449
51	Information	285	306	21	7.2%	$91,369
22	Utilities	61	93	32	52.7%	$129,325
55	Management of Companies & Enterprises	36	34	(2)	(5.4%)	$103,339
21	Mining, Quarrying, & Oil & Gas Extraction	18	22	4	25.4%	$120,357

Source: PC using Lightcast Industry Tables

The "Big Region" of Whitman, Latah, Benewah, and Spokane Counties continues the trend from the "Small Region" with a few exceptions. Government and Agricultural, Forestry, Fishing & Hunting positions continue to decline even with the additional regions added to the analysis. Along with those, the "Big Region" has experienced drops in the Educational Services, Information, and Mining, Quarrying, & Oil & Gas Extraction industries.

Growth has occurred in Construction (13.7%), Professional, Scientific, & Technical Services (14.0%), Administrative & Support & Waste Management & Remediation Services (10.6%), and Transportation & Warehousing services (45.5%).

Table 4: 2019-2024 "Big Region" Employment Changes by Industry

NAICS	Description	2019 Jobs	2024 Jobs	Past 5-years	Past 5-years % Change	Avg. Earnings Per Job
90	Government	59,498	57,572	(1,926)	(3.2%)	$89,894
62	Health Care & Social Assistance	48,961	52,099	3,138	6.4%	$73,705
44	Retail Trade	31,698	31,867	169	0.5%	$48,286
72	Accommodation & Food Services	24,784	25,306	522	2.1%	$31,151
31	Manufacturing	20,999	21,522	523	2.5%	$85,793
23	Construction	17,758	20,199	2,441	13.7%	$73,162
54	Professional, Scientific, & Technical Services	14,373	16,384	2,011	14.0%	$94,696
56	Administrative & Support & Waste Management & Remediation Services	13,864	15,328	1,464	10.6%	$57,644
81	Other Services (except Public Administration)	14,763	14,699	(64)	(0.4%)	$39,684
48	Transportation & Warehousing	8,546	12,438	3,892	45.5%	$67,411
42	Wholesale Trade	11,672	12,338	666	5.7%	$88,026
52	Finance & Insurance	11,689	11,688	(1)	(0.0%)	$118,165
61	Educational Services	7,990	7,872	(119)	(1.5%)	$43,954
53	Real Estate & Rental & Leasing	5,842	6,153	311	5.3%	$70,556
71	Arts, Entertainment, & Recreation	4,166	4,606	441	10.6%	$32,599
51	Information	3,639	3,506	(133)	(3.6%)	$95,018
11	Agriculture, Forestry, Fishing & Hunting	3,315	3,218	(97)	(2.9%)	$58,794
55	Management of Companies & Enterprises	3,421	3,158	(263)	(7.7%)	$135,063
22	Utilities	414	460	47	11.3%	$146,982
21	Mining, Quarrying, & Oil & Gas Extraction	293	261	(32)	(10.9%)	$119,807

Source: PC using Lightcast Industry Tables

The "Mega Region" continues many of the trends from the ZIP, Small, and Big regions. Government and Mining, Quarrying, & Oil & Gas Extraction decreased over the 5-year period by 2.0% and 12.0%, respectively. On the other hand, Transportation & Warehousing and Professional, Scientific, & Technical Services increased by 39.7% and 17.7%, respectively.

Table 5: 2019-2024 "Mega Region" Employment Changes by Industry

NAICS	Description	2019 Jobs	2024 Jobs	Past 5-years	Past 5-years % Change	Avg. Earnings Per Job
90	Government	74,889	73,396	(1,492)	(2.0%)	$87,261
62	Health Care & Social Assistance	59,480	63,413	3,933	6.6%	$72,779
44	Retail Trade	42,336	43,574	1,238	2.9%	$48,086
72	Accommodation & Food Services	33,453	34,777	1,323	4.0%	$30,242
23	Construction	25,629	29,766	4,137	16.1%	$70,973
31	Manufacturing	27,476	28,592	1,116	4.1%	$82,031
54	Professional, Scientific, & Technical Services	17,934	21,110	3,176	17.7%	$92,899
56	Administrative & Support & Waste Management & Remediation Services	18,409	19,502	1,094	5.9%	$55,597
81	Other Services (except Public Administration)	18,574	19,043	469	2.5%	$39,274
42	Wholesale Trade	13,781	14,694	913	6.6%	$88,346
52	Finance & Insurance	14,784	14,619	(166)	(1.1%)	$112,940
48	Transportation & Warehousing	10,413	14,550	4,137	39.7%	$67,120
61	Educational Services	8,810	8,942	132	1.5%	$42,718
53	Real Estate & Rental & Leasing	7,214	7,879	665	9.2%	$69,623
71	Arts, Entertainment, & Recreation	6,515	7,419	903	13.9%	$33,868
11	Agriculture, Forestry, Fishing & Hunting	4,371	4,496	125	2.9%	$58,950
51	Information	4,396	4,396	(1)	(0.0%)	$94,915
55	Management of Companies & Enterprises	3,652	3,503	(148)	(4.1%)	$130,404
22	Utilities	778	909	131	16.8%	$142,358
21	Mining, Quarrying, & Oil & Gas Extraction	484	426	(58)	(12.0%)	$155,873

Source: PC using Lightcast Industry Tables

While not many conclusions can be drawn from employment data in the "Tekoa ZIP Region" alone, the broader industry trends in the surrounding regions can give helpful insight to the potential of industries for the Tekoa project site. The increase in Government jobs in Tekoa is not shared by any of the broader regions. Given the small population of Tekoa, it is not surprising that the industry trends in Tekoa do not align with the broader region, especially in the Government sector. It is likely that many workers in Tekoa must travel elsewhere in Whitman and Spokane Counties for employment, which can skew the industry trend data

depending on job availability elsewhere. The 34.4% increase in Government jobs in Tekoa should not indicate a need for an increase in supply of Government jobs. The shrinking government sector in surrounding areas emphasizes this idea.

Transportation & Warehousing have increased across all identified regions and have high enough wages to create a demand for jobs within the industry. Combined with the increase of Wholesale Trade in all regions (23.4% in Tekoa), there is an opportunity for growth in both industries. The "Tekoa ZIP Region" also has no Transportation & Warehousing employment, meaning that Tekoa could capitalize on the quickly expanding industry with its current background in Wholesale Trade given that the two are related industries.

Growth has also occurred in the Construction industry and the Professional, Scientific, & Technical Services industry across the small, big, and mega regions. Yet again, this shows potential opportunities for the Tekoa Industrial Park Site. With the Port's focus on infrastructure and scientific industry expansion, both industries show potential for growth.

Future Projected Growth

Tables 6-9 detail the future projected growth over the next five years by industry for the same regions. Assuming the status quo, the industries with available employment will not change in Tekoa, however, Lightcast uses an optimistic growth model. The trend over the previous five years for certain industries has been negative, but Lightcast has projected increases despite this.

In the ZIP code region, Agriculture, Forestry, and Fishing & Hunting is projected to experience an increase of 22.8% from 2024-2029, while the Health Care & Social Assistance industry is projected to increase 10.1% over the same period. Both datapoints are stark contrasts to their previous trends from 2019-2024. Assuming the Port succeeds in its economic expansion endeavors, increases across these industries may be feasible. However, the Port aspires to decrease reliance on agricultural business, meaning these projected numbers may not accurately depict the future.

Expanding to Whitman and Latah counties helps the overall accuracy of the projections that are reliant on previous local and national trends.[9] Lightcast projects that all industries will increase in employment. The largest growths will occur in the Education Services (19.1%), Management (22.5%), and Transportation & Warehousing (19.3%) industries. Double-digit percentage-point increases in many other industries accompany these large growths.

The remaining regions keep these trends largely the same. PC recognizes that a growth in all industries across all regions is improbable. However, the projected increases in the previously mentioned Transportation & Warehousing, Construction, and Professional, Scientific, & Technical industries build upon the previous 5-year trends.

[9] Lightcast Industry Projections Methodology, https://kb.lightcast.io/en/articles/6957562-industry-projections-methodology

Table 6: 2024-2029 "Tekoa ZIP Region" Employment Changes by Industry

NAICS	Description	2024 Jobs	2029 Jobs	Future 5-years	Future 5-years % Change	Avg. Earnings Per Job
90	Government	141	161	20	13.9%	$73,797
44	Retail Trade	47	50	3	6.2%	$35,206
62	Health Care & Social Assistance	42	46	4	10.1%	$55,887
42	Wholesale Trade	34	35	1	3.2%	$84,840
11	Agriculture, Forestry, Fishing & Hunting	27	33	6	22.8%	$43,491
22	Utilities	16	20	4	22.5%	$136,721
81	Other Services (except Public Administration)	11	15	4	31.7%	$27,703
72	Accommodation & Food Services	13	14	2	12.0%	$24,673

Source: PC using Lightcast Industry Tables

Table 7: 2023-2029 "Small Region" Employment Changes by Industry

NAICS	Description	2023 Jobs	2024 Jobs	Future 5-years	Future 5-years % Change	Avg. Earnings Per Job
90	Government	14,876	15,013	136	0.9%	$77,160
31	Manufacturing	3,747	4,319	572	15.3%	$98,813
62	Health Care & Social Assistance	3,841	4,318	477	12.4%	$57,659
72	Accommodation & Food Services	3,510	3,730	220	6.3%	$24,715
44	Retail Trade	3,441	3,632	191	5.6%	$37,350
54	Professional, Scientific, & Technical Services	1,720	1,999	280	16.3%	$82,888
23	Construction	1,647	1,924	277	16.8%	$61,473
81	Other Services (except Public Administration)	1,519	1,682	163	10.7%	$30,512
11	Agriculture, Forestry, Fishing & Hunting	1,003	1,077	74	7.4%	$55,985
42	Wholesale Trade	855	900	45	5.3%	$85,258
53	Real Estate & Rental & Leasing	714	827	113	15.8%	$56,294
61	Educational Services	601	716	115	19.1%	$31,219
56	Administrative & Support & Waste Management & Remediation Services	603	663	60	10.0%	$47,941
48	Transportation & Warehousing	457	545	88	19.3%	$62,749

52	Finance & Insurance	437	451	14	3.2%	$82,296
71	Arts, Entertainment, & Recreation	400	448	48	12.1%	$26,449
51	Information	306	356	50	16.4%	$91,369
22	Utilities	93	110	17	18.1%	$129,325
55	Management of Companies & Enterprises	34	42	8	22.5%	$103,339
21	Mining, Quarrying, & Oil & Gas Extraction	22	22	0	1.2%	$120,357

Source: PC using Lightcast Industry Tables

Table 8: 2023-2029 "Big Region" Employment Changes by Industry

NAICS	Description	2024 Jobs	2029 Jobs	Future 5-years	Future 5-years % Change	Avg. Earnings Per Job
90	Government	57,572	61,283	3,711	6.4%	$89,894
62	Health Care & Social Assistance	52,099	58,720	6,621	12.7%	$73,705
44	Retail Trade	31,867	32,959	1,093	3.4%	$48,286
72	Accommodation & Food Services	25,306	27,954	2,647	10.5%	$31,151
31	Manufacturing	21,522	23,796	2,275	10.6%	$85,793
23	Construction	20,199	22,766	2,567	12.7%	$73,162
54	Professional, Scientific, & Technical Services	16,384	18,651	2,268	13.8%	$94,696
56	Administrative & Support & Waste Management & Remediation Services	15,328	17,432	2,104	13.7%	$57,644
81	Other Services (except Public Administration)	14,699	16,237	1,538	10.5%	$39,684
48	Transportation & Warehousing	12,438	14,166	1,728	13.9%	$67,411
42	Wholesale Trade	12,338	13,053	715	5.8%	$88,026
52	Finance & Insurance	11,688	12,187	499	4.3%	$118,165
61	Educational Services	7,872	8,691	819	10.4%	$43,954
53	Real Estate & Rental & Leasing	6,153	6,947	794	12.9%	$70,556
71	Arts, Entertainment, & Recreation	4,606	5,458	852	18.5%	$32,599
51	Information	3,506	3,854	348	9.9%	$95,018
11	Agriculture, Forestry, Fishing & Hunting	3,218	3,575	357	11.1%	$58,794
55	Management of Companies & Enterprises	3,158	3,164	6	0.2%	$135,063

22	Utilities	460	554	93	20.2%	$146,982
21	Mining, Quarrying, & Oil & Gas Extraction	261	275	14	5.5%	$119,808

Source: PC using Lightcast Industry Tables

Table 9: 2023-2029 "Mega Region" Employment Changes by Industry

NAICS	Description	2024 Jobs	2029 Jobs	Future 5-years	Future 5-years % Change	Avg. Earnings Per Job
90	Government	73,396	78,030	4,634	6.3%	$87,261
62	Health Care & Social Assistance	63,413	71,475	8,063	12.7%	$72,779
44	Retail Trade	43,574	45,618	2,044	4.7%	$48,086
72	Accommodation & Food Services	34,777	38,216	3,439	9.9%	$30,242
23	Construction	29,766	33,648	3,882	13.0%	$70,973
31	Manufacturing	28,592	31,962	3,370	11.8%	$82,031
54	Professional, Scientific, & Technical Services	21,110	24,237	3,127	14.8%	$92,899
56	Administrative & Support & Waste Management & Remediation Services	19,502	21,477	1,975	10.1%	$55,597
81	Other Services (except Public Administration)	19,043	21,097	2,054	10.8%	$39,274
48	Transportation & Warehousing	14,550	16,546	1,996	13.7%	$67,120
42	Wholesale Trade	14,694	15,716	1,022	7.0%	$88,346
52	Finance & Insurance	14,619	15,071	452	3.1%	$112,940
61	Educational Services	8,942	9,973	1,031	11.5%	$42,718
53	Real Estate & Rental & Leasing	7,879	8,873	994	12.6%	$69,623
71	Arts, Entertainment, & Recreation	7,419	8,618	1,199	16.2%	$33,868
11	Agriculture, Forestry, Fishing & Hunting	4,496	4,995	498	11.1%	$58,950
51	Information	4,396	4,889	493	11.2%	$94,915
55	Management of Companies & Enterprises	3,503	3,570	67	1.9%	$130,404
22	Utilities	909	1,024	115	12.7%	$142,358
21	Mining, Quarrying, & Oil & Gas Extraction	426	459	33	7.8%	$155,873

Source: PC using Lightcast Industry Tables

Table 10 reports the location quotients (LQs) by industry of each sector. LQs compare relative concentrations of industries to the national average. For example, Tekoa's LQ in the Agriculture, Forestry, Fishing & Hunting is 6.41, meaning that the workforce in Tekoa has a

larger share of workers in this industry than the national average (1.0) by a magnitude of 6.41. Ultimately, LQs show which industries have clustered in the area.

The table cells highlighted in green represent regions that have an LQ higher than 2.0 in that respective industry. The black numbers show LQs that are between 1.0 and 2.0, while grey numbers are those that are below 1.0, or the national average.

Surprisingly, only six LQs for all regions surpass the 2.0 threshold, and four are located in the "Tekoa ZIP Code Region". Agriculture, Utilities, Wholesale Trade, and Government positions are all well represented in the Tekoa ZIP code, and Agriculture and Government employment is strong in the "Small Region". All other industries by region receive average or below average compositions.

Table 10: LQ Strengths by Region

NAICS	Description	Tekoa ZIP Region	Small Region	Big Region	Mega Region
11	Agriculture, Forestry, Fishing and Hunting	6.41	2.15	0.86	0.93
21	Mining, Quarrying, and Oil and Gas Extraction	0.01	0.16	0.23	0.30
22	Utilities	13.30	0.69	0.43	0.65
23	Construction	0.14	0.72	1.09	1.25
31	Manufacturing	0.00	1.22	0.87	0.89
42	Wholesale Trade	2.67	0.59	1.06	0.98
44	Retail Trade	1.40	0.91	1.05	1.11
48	Transportation and Warehousing	0.26	0.26	0.89	0.81
51	Information	0.24	0.41	0.58	0.56
52	Finance and Insurance	0.42	0.27	0.89	0.86
53	Real Estate and Rental and Leasing	0.22	1.01	1.09	1.08
54	Professional, Scientific, and Technical Services	0.27	0.61	0.72	0.72
55	Management of Companies and Enterprises	0.00	0.06	0.66	0.57
56	Administrative and Support and Waste Management and Remediation Services	0.00	0.25	0.79	0.77
61	Educational Services	0.04	0.62	1.01	0.89
62	Health Care and Social Assistance	0.91	0.74	1.25	1.18
71	Arts, Entertainment, and Recreation	0.20	0.57	0.82	1.02
72	Accommodation and Food Services	0.43	1.06	0.95	1.01

81	Other Services (except Public Administration)	0.65	0.78	0.93	0.93
90	Government	2.78	2.61	1.25	1.24

Source: PC using Lightcast Industry Table

Figure 6 displays all industry clusters in Whitman and Latah counties and their employment totals in 2023. In addition to the number of jobs and change between 2018-2023, the size of the bubble indicates the industry's LQ. It is important to note that these LQs were calculated with 6-digit NAICS codes and are not representative of their 2-digit counterparts. Each 6-digit NAICS code is summarized by cluster names available with the U.S. Cluster Mapping Project.[10] This means that the LQs in Figure 6 are a collection of multiple 6-digit NAICS codes and do not display the same descriptors as those from previous tables. For example, in the "Small Region", NAICS code 11 (Agriculture, Forestry, and Fishing & Hunting) decreased from 2019-2024. Meanwhile, the cluster of Agricultural Services grew in employment during that time within the larger 2-digit code.

In accordance with Table 11, Electrical Equipment is responsible for 2,485 jobs and has an LQ of 72.89. The industry has been the highest in terms of net job growth over the past five years (+202 jobs). It is possible that Electrical Equipment has such high employment due to the presence of the Pullman Industrial Park, and more specifically the companies operating there such as Schweitzer Engineering Laboratories and Meter Group.

In total, the cluster produces $276M in gross regional product for the "Small Region". Leading 6-digit NAICS within the cluster include 335314: Relay and Industrial Control Manufacturing, and 335311: Power, Distribution, and Specialty Transformer Manufacturing.

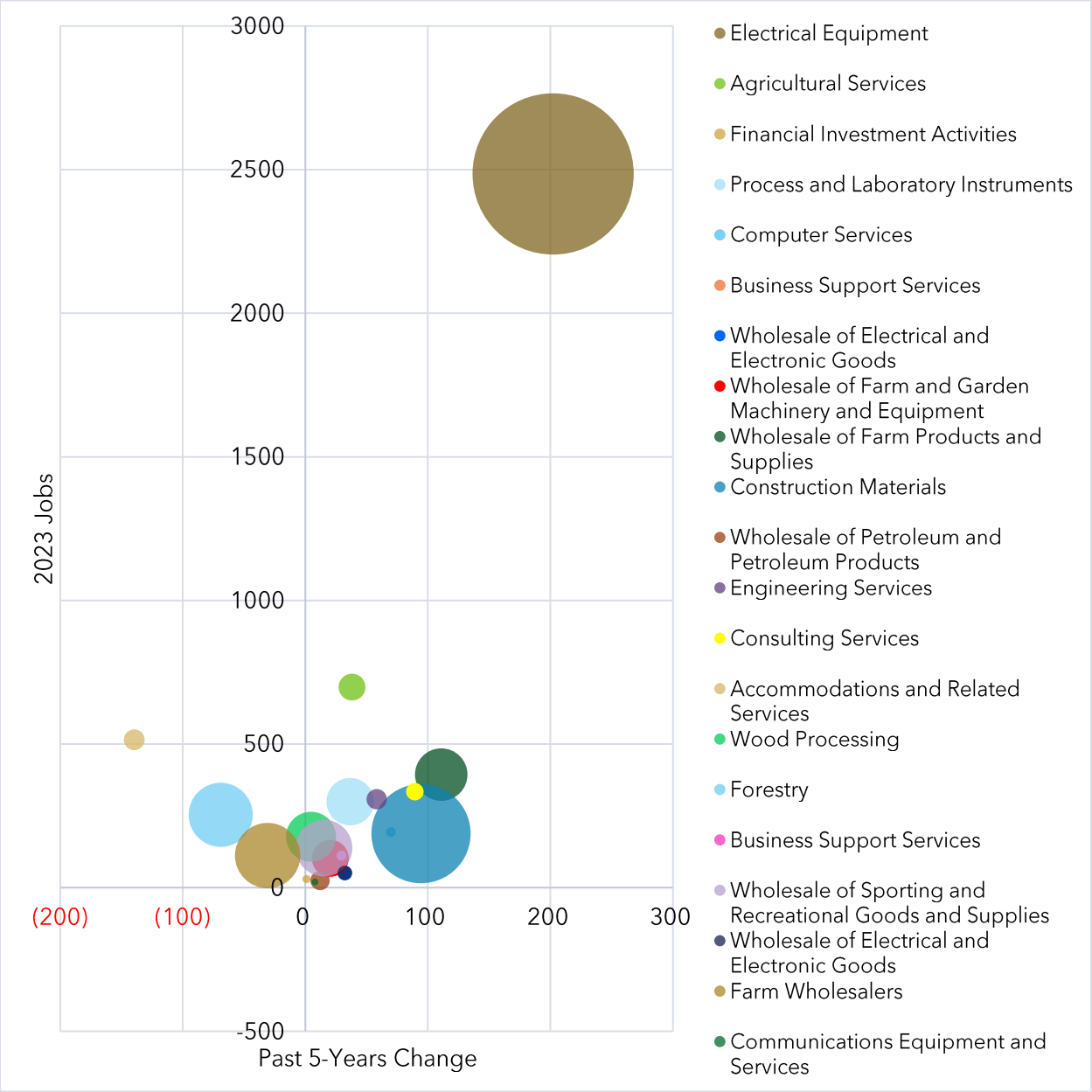
Other industries on this list worth of mention for concentration or past 5-years growth include the following:

- Wholesale of Farm Products and Supplies, LQ:7.74 | +111 jobs
- Construction Materials, LQ:27.61 | +94 jobs
- Consulting Services, LQ: 0.86 | +89 jobs
- Forestry, LQ: 11.54 | -69 jobs
- Farm Wholesalers, LQ:11.98 | -31 jobs

Large and complex businesses can often have several divisions producing different types of products, so it is possible that some of these industries are interconnected as components of the same business.

[10] U.S. Cluster Mapping Project, U.S. Economic Development Administration Coming Soon (clustermapping.us)

Figure 6: Industry Cluster Analysis for the "Small Region"



Source: PC using Lightcast Industry Tables

Table 11: Cluster Employment Analysis "Small Region"

Cluster	2023 Employment	Past 5 Yrs Change	2023 LQ
Electrical Equipment	2,485	202	72.89
Construction Materials	188	94	27.61
Farm Wholesalers	112	(31)	11.98
Forestry	254	(69)	11.54
Wholesale of Sporting and Recreational Goods and Supplies	138	15	9.03
Wholesale of Farm Products and Supplies	394	111	7.73
Wood Processing	177	5	7.01
Process and Laboratory Instruments	299	37	6.33
Wholesale of Farm and Garden Machinery and Equipment	102	20	3.81
Agricultural Services	698	38	2.02
Accommodations and Related Services	515	(140)	1.21
Engineering Services	308	58	1.16
Wholesale of Petroleum and Petroleum Products	25	12	1.05
Consulting Services	334	89	0.86
Wholesale of Electrical and Electronic Goods	51	32	0.60
Colleges, Universities, and Professional Schools	279	(16)	0.33
Business Support Services	111	30	0.28
Computer Services	194	70	0.27
Trucking	49	5	0.26
Financial Investment Activities	30	1	0.19
Communications Equipment and Services	20	8	0.13
Insurance Carriers	24	3	0.08
Corporate Headquarters	34	13	0.06

Source: PC using Lightcast Industry Tables 2024 Q2

Supply Chain Leakages[11]

Supply chain leakages are an effective way to evaluate where in each region's economy there are gaps between imported purchases and in-region purchases. In other words, the industries in Figures 7-9 show the amount of dollars leaving the region to bring products in, compared to the amount staying within the region's economy. All industries listed are ordered by demand within the region's respective economy.

Naturally bigger regions produce more of their own needs, therefore, the data in Figures 7-13 will be more balanced in larger regions than those of smaller regions. The data is also not

[11] Some industries were removed in Figures 7-9. This is because during the process of the project, the land was rezoned to Heavy Industrial. Industrial use wasn't the initial focus through the writing of Chapters 1-4. Some of the industries in Figure 10 are missing from Figure 8.

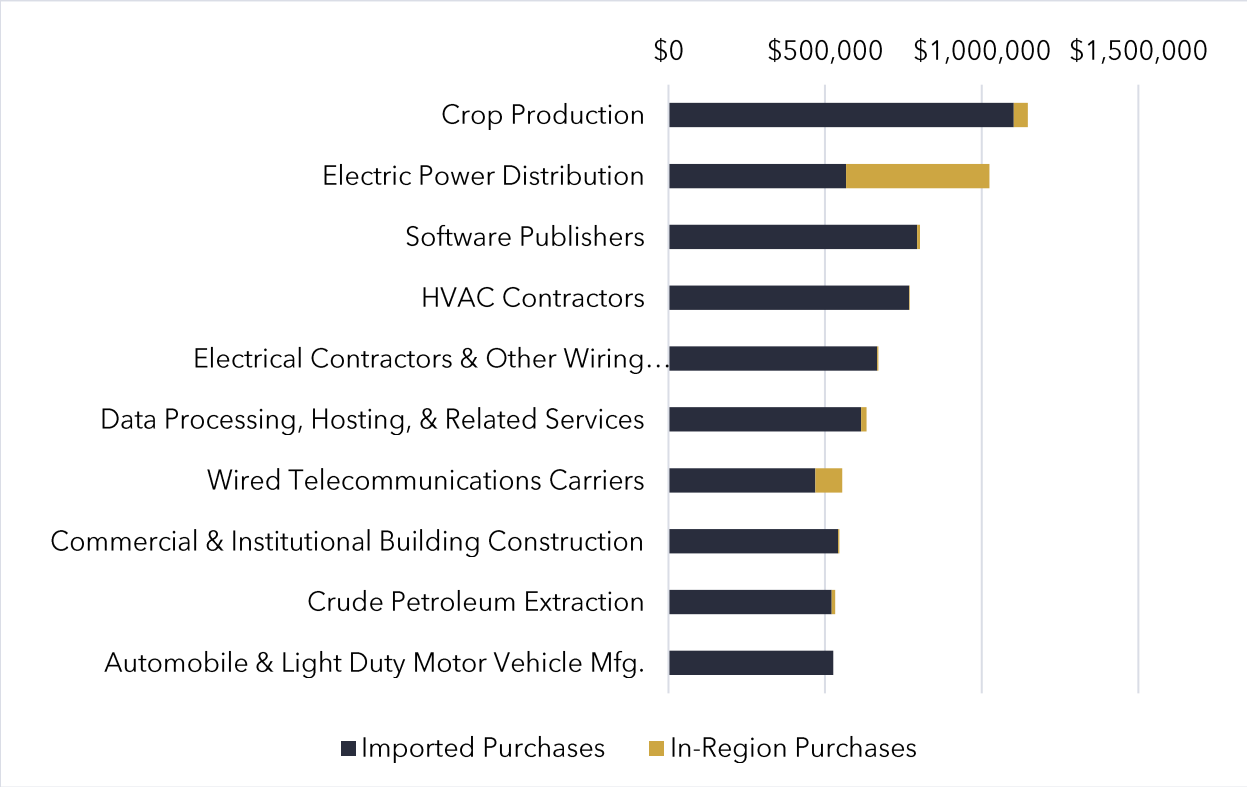
reliant on actual purchases as might be tracked by the IRS, but rather an industry concentration and gravity model.[12]

In the "Tekoa ZIP Code Region", most of the products being bought are imported rather than being manufactured and sold within the bounds of the ZIP code. The industry with the largest demand is Crop Production, and $1.1M of the demand for this industry is imported from elsewhere. The region only generates $44K on its own. The pattern holds true throughout many other of the region's industries, with Electric Power Distribution being the largest outlier. Due to the relatively small size of Tekoa, the reliance on out-of-region products is not abnormal. Tekoa is deeply reliant on the economies of surrounding areas.

These "gaps" could be plugged either by recruitment of businesses from out of state, or through existing businesses expanding their product lines to address demand. Both possibilities would need to be explored with a lens of efficiency, capital availability, and feasibility of relocation.

The "Big Region" has been excluded from these tables as the data is largely indistinguishable from the "Mega Region".

Figure 7: "Tekoa ZIP Region" Supply Chain Leakage



Source: PC using Lightcast Industry Tables

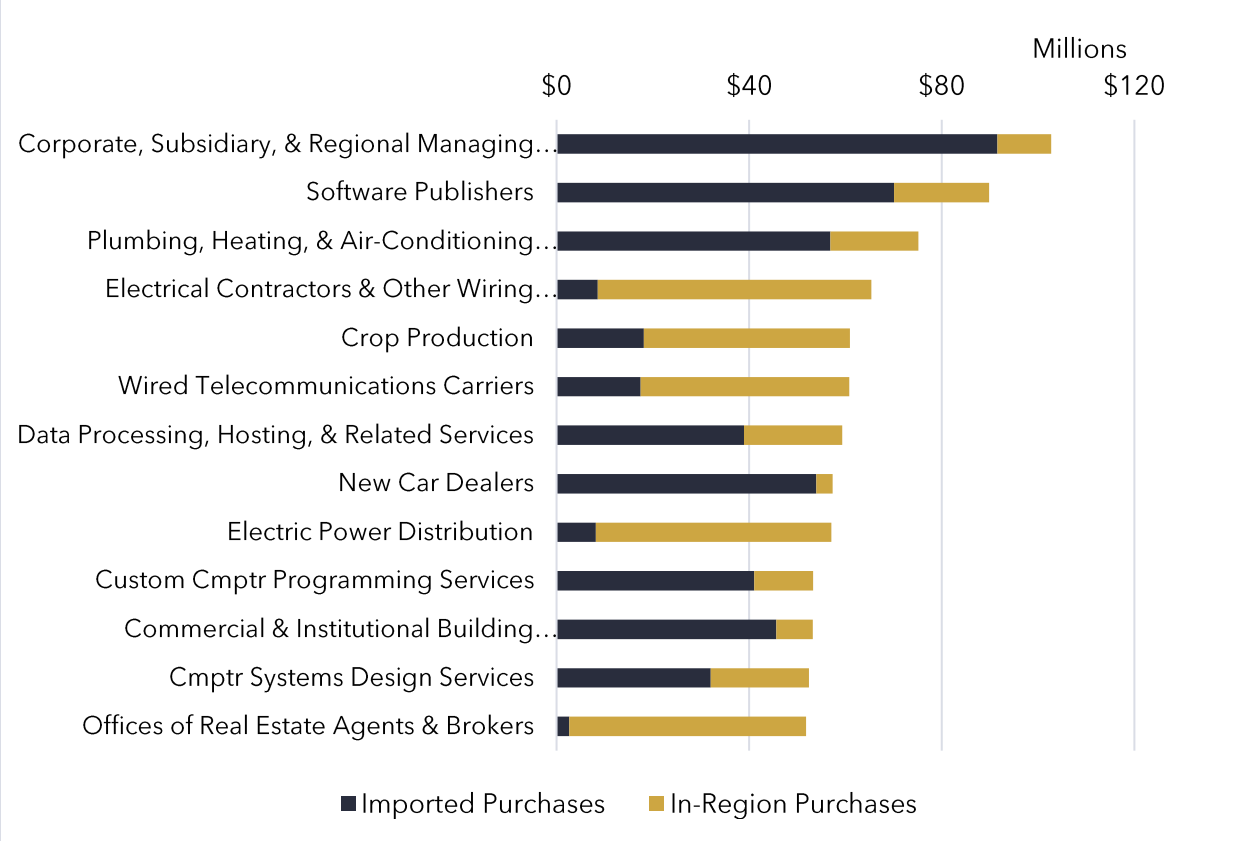
[12] IMPLAN's Gravity Model and Trade Flow RPCs, https://blog.implan.com/estimating-region-specific-foreign-trade-rates

The "Small Region" depicts different industry trends than the "Tekoa ZIP Code Region". The top 3 industries by demand are Corporate, Subsidiary, & Regional Managing Offices,[13] Software Publishers, and Plumbing, Heating, & Air Conditioning Contractors. Of those, over 75% is imported for each. Crop production is inverse of the "Tekoa ZIP Code Region", with 70.3% of the purchases coming from within the area. This is not surprising considering the geographical makeup of both Whitman and Latah Counties.

Other industries with the largest "gaps" in "Small Region" include:

- Data Processing, Hosting, & Related Services: $38.9M imported from out-of-region, 65.6%
- New Car Dealers: $53.9M imported from out-of-region, 94.1%
- Custom Computer Programing Services: $41M imported from out-of-region, 77.0%
- Commercial & Institutional Building Construction: $45.6M imported from out-of-region, 85.8%
- Computer Systems Design Services: $32M imported from out-of-region, 61.6%

Figure 8: "Small Region" Supply Chain Leakage (X1,000,000)



Source: PC using Lightcast Industry Tables

[13] The NAICS system treats HQ offices as separate from the businesses they manage. This how corporate offices can be treated as "imported".

The largest industries in the "Mega Region" by demand are commercially centered. The industries with the largest "gaps" in the "Mega Region" are:

- Corporate, Subsidiary, & Regional Managing Offices $544.8M, 39.7% imported from out-of-region
- Portfolio Management & Investment Advice: $583.5M, 50.7% imported from out-of-region
- Software Publisher: $561.7M, 54.1% imported from out-of-region
- Data Processing, Hosting, & Related Services: $501.3M, 67.6% imported from out-of-region
- Wired Telecommunications Carriers: $358.1M, 47.1% imported from out-of-region

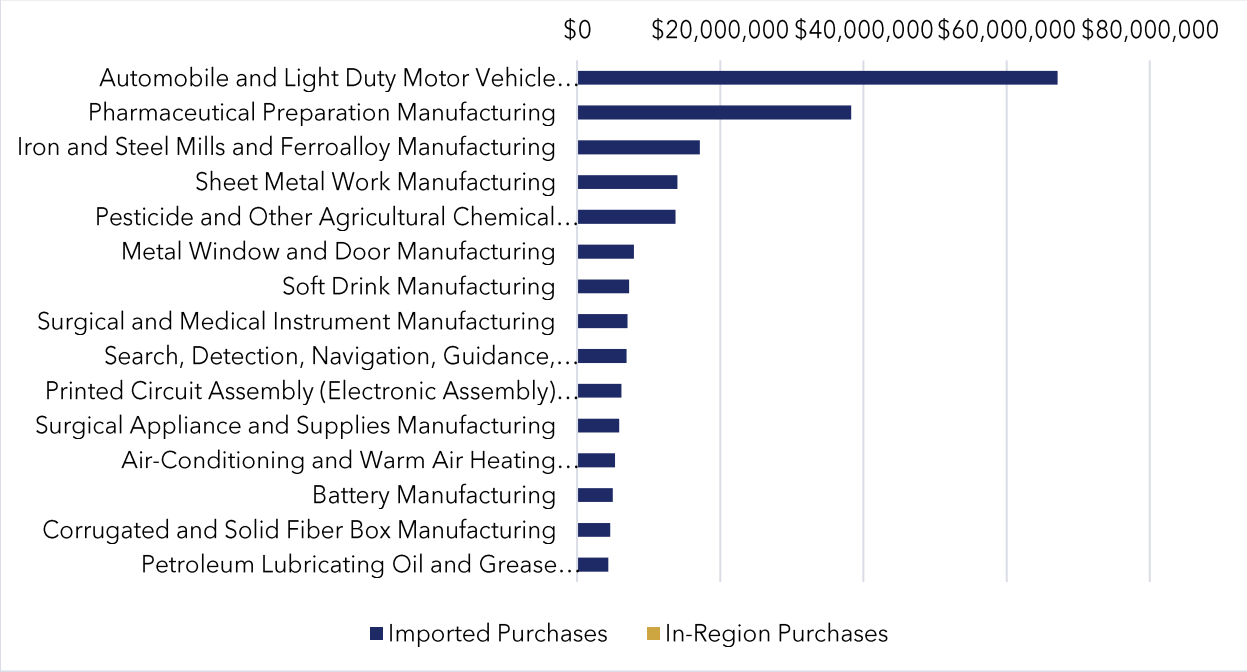
Figure 9: "Mega Region" Supply Chain Leakage (X1,000,000)

Source: PC using Lightcast Industry Tables

The Port of Whitman County has zoned the Tekoa Industrial Park for heavy industrial use, and while the industries above may be permitted to use the space with special permissions, it is important to evaluate industrial supply chain leakages as well. Figure 10 shows the top 15

industrial supply chain leakages in the "Small Region". Manufacturing from various industries make up most industrial leakages. All 15 of the industries listed in Figure 10 are 100% imported into the "Small Region", meaning that they all could be good industry candidates for the Port to consider as tenants for the Tekoa Industrial Park.

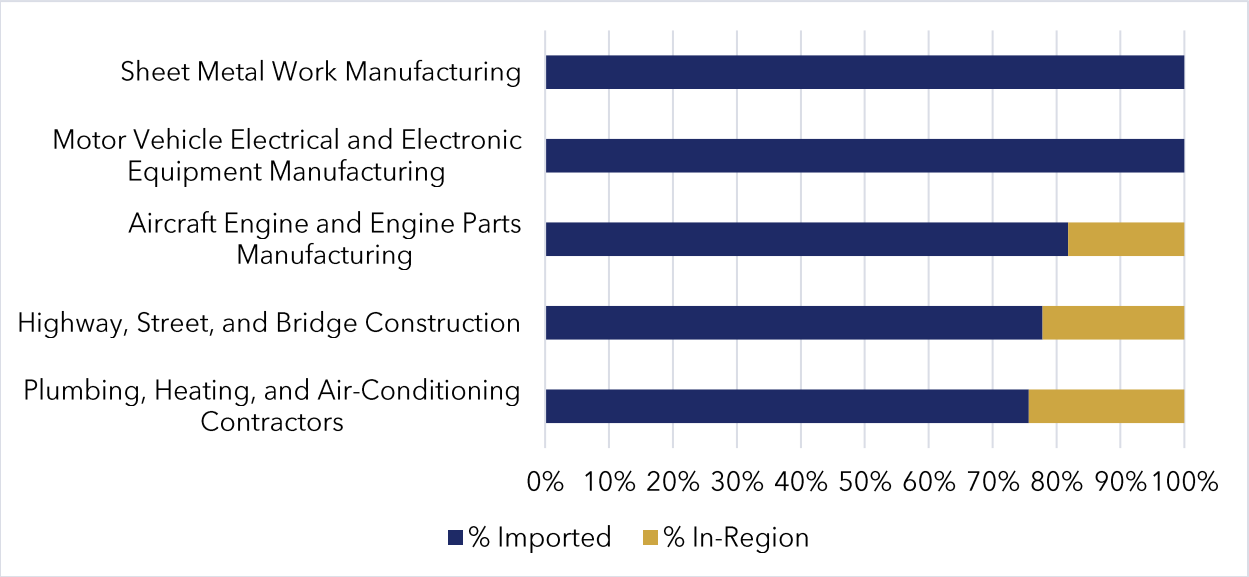
Figure 10: Industrial Supply Chain Leakages in the "Small Region"



Source: PC using Lightcast Industry Tables

Chapter 5 of this report details the economic impact of five new potential businesses inhabiting the Tekoa Industrial Park. Figure 11 shows the supply chain leakages for these selected industries. Sheet Metal Work Manufacturing and Motor Vehicle Electrical and Electronic Equipment Manufacturing both are 100% imported into the "Small Region". The remaining three potential businesses are all above 75% imported. Knowing this, it is feasible that all five of the businesses could make a positive impact in the Tekoa, Whitman, and "Small Region" communities by supplying products and services that are otherwise missing. It is also feasible that a combination of industries from Figures 10 and 11 could inhabit the Tekoa Industrial Park.

Figure 11: Targeted Industry Supply Chain Leakages in the "Small Region"



Source: PC using Lightcast Industry Tables

Supply Chain Leakage by Commercial Real Estate Typology

Each NAICS code is also associated with a land use group and can be summarized into five categories:

- Retail
- Industrial
- Commercial
- Agricultural
- Government

For the purposes of this report, the government land use group has been removed from the tables and data figures. While government industries do play a large role in employment across all identified regions, the proposed development by the Port is not focused on a government utilized site.

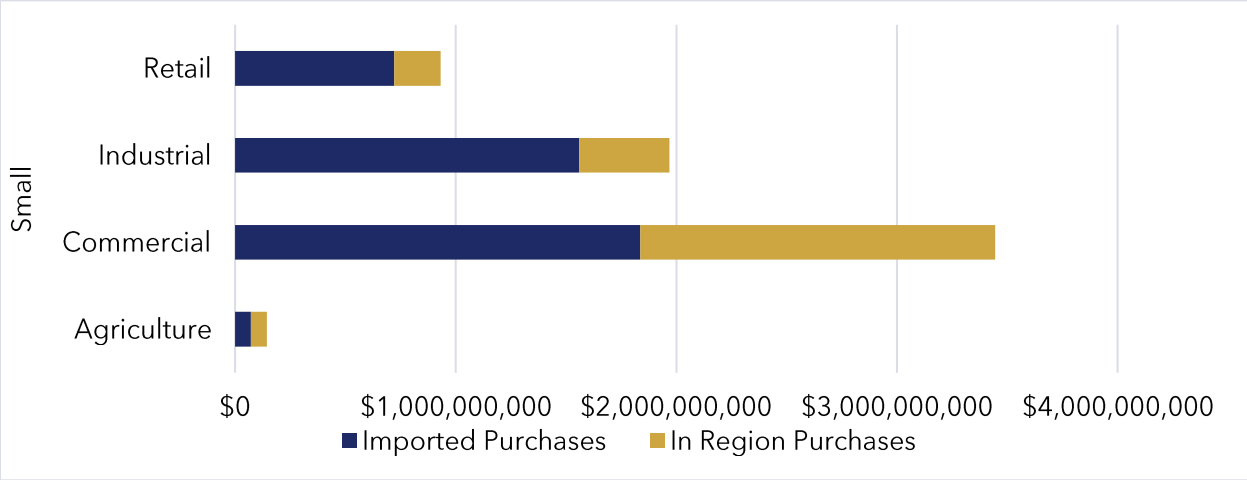
Data presented in Figures 12-14 indicate the supply chain gaps by NAICS codes grouped into land use. For example, previously mentioned Crop Production from the "Tekoa ZIP Region" is now "Agriculture" and is combined with other agricultural land uses within the region.

When looking at supply chain gaps from a land use lens, the "Tekoa ZIP Region" illustrates many of the same trends from the NAICS code gap analysis. Of all purchases across all land use groups, 90% or more is imported from an external region. In 2023, $58.4M worth of goods were purchased across all industries. Of that, $54.5M was imported, meaning that only approximately 6.8% was generated and purchased within Tekoa's local economy.

The "Small Region" benefits from a broader selection of in-region producers. $6.5B worth of goods were purchased across all industries within the "Small Region", and $4.2B were

imported from outside of the region. Compared to Tekoa, only 64.6% were imported to Tekoa's 93.2%. The retail and industrial land use groups are the "Small Regions" largest source of imports, reporting 79.3% and 77.4% respectively. Agriculture in Whitman and Latah County is only 50.3% imported, which is a staggering difference from Tekoa's 93.7%. A large portion of this can likely be attributed to farm equipment purchases.

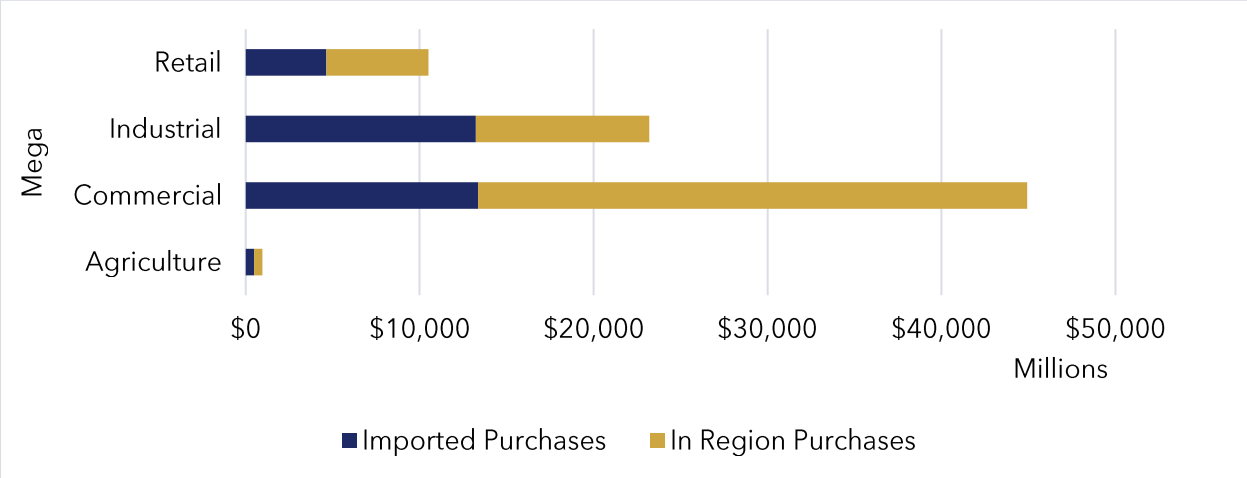
Figure 12: "Small Region" Industries by Land Use



Source: PC using Lightcast Industry Tables

The "Mega Region" benefits from an even larger supply of in-region products and services. Both retail and commercial land use purchases fall below 50%, with commercial dropping to 29.7% of goods being kept inside the region's economy. Agriculture remains consistent with the "Small Region" at only 51.5% of goods being imported. Overall, $79.6B worth of goods are demanded within the "Mega Region" and only $31.7B (39.9%) of that demand is met with imported goods.

Figure 13: "Mega Region" Industries by Land Use (X1,000,000)



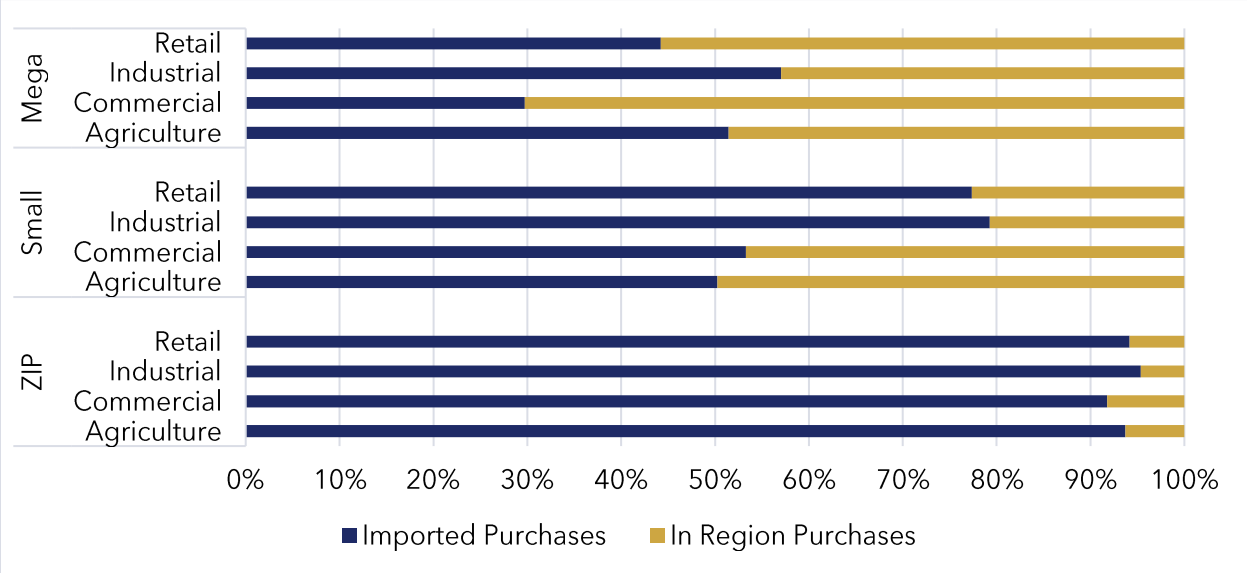
Source: PC using Lightcast Industry Tables

The supply chain gap analysis provides valuable insight into the current economic conditions of identified regions. While Tekoa's ability to create its own goods is diminished by the size of the population and workforce, looking at the surrounding economies can demonstrate the supply chain opportunities Tekoa can capitalize on. One similarity between all regions was the lack of in-region Data Processing, Hosting, & Related Services.

Particularly relevant to Tekoa is the "Small Region", which has gaps in Computer Programming and Computer Designs Services, as well as Commercial Construction Companies. These options hold potential for the Tekoa Site to fill, both helping boost its own supply chain leakages and the "Small Region" gaps as well.

Both Tekoa and the "Small Region" have large gaps in the retail, industrial, and agricultural land use groups. The broader "Mega Region" has gaps in industrial and agricultural land use groups. This means that all three land use groups have a high ceiling for growth, with particular focus on the industrial and retail groups.

Figure 14: Supply Chain Leakages by Land Use



Source: PC using Lightcast Industry Tables

Both Figures 10 and 14 detail the industrial leakages occurring in the "Small Region." Figure 14 also shows that industrial leakages are the largest source of lost dollars across all identified regions. Among these leakages, Automobile & Light Duty Motor Vehicle Manufacturing is the largest source of imported purchases. This industry is recommended as a possible candidate for tenancy in the Industrial Park, as seen in Chapter 7. Over 10 other industrial industries' demands are being met 100% by imports. The Industrial Park will fill these gaps by bringing in five new industrial businesses to both employ workers and keep the lost industrial purchases within the local economy of both Whitman County and Washington State.

Exports

Exports are a large factor for economic growth and sustainability. Nearby Metropolitan Statistical Areas (MSAs) can serve as an indicator for economic wellbeing of the region, though Whitman County contains no Metropolitan Statistical Areas. Two nearby MSAs that are both encapsulated in the "Mega Region" help determine the amount of product leaving the region.

The Coeur d' Alene (CDA) MSA increased to peak in 2013 of $742.7M before drastically reducing over the next 2 years to $203.1M. This was followed by reaching a new minimum of $201.7M in 2018, before increasing back to pre-2013 levels. The drastic changes in production and exports in the data can be reduced to the nature of CDA being a small town with inconsistent data capturing.

Meanwhile, the Spokane MSA has seen a more consistent pattern of growth, only taking dips in 2013, 2014, 2018, and 2022. It is interesting to note that Spokane had its largest year of export value during the middle of the Coronavirus Pandemic, in 2021. While no other geographical areas of interest are considered MSAs, it can be inferred that from 2009-2022 can be summarized in a linear growth pattern for most areas in the region.

Table 12: Yearly Export Values for Spokane and Coeur d' Alene

Year	Spokane Metropolitan Statistical Area	% Change	Coeur d' Alene Metropolitan Statistical Area	% Change
2009	$662.2 Million	N/A	$214.7 Million	N/A
2010	$727.4 Million	10%	$310.9 Million	45%
2011	$761.4 Million	5%	$563.5 Million	81%
2012	$873.5 Million	15%	$527.1 Million	(6%)
2013	$862.4 Million	(1%)	$742.7 Million	41%
2014	$806.3 Million	(7%)	$414.7 Million	(44%)
2015	$823.4 Million	2%	$203.1 Million	(51%)
2016	$836.5 Million	2%	$253.2 Million	25%
2017	$861.1 Million	3%	$260.4 Million	3%
2018	$730 Million	(15%)	$201.7 Million	(23%)
2019	$766 Million	5%	$234.3 Million	16%
2020	$766.3 Million	0%	$476.3 Million	103%
2021	$975.7 Million	27%	$519.9 Million	9%
2022	$815.7 Million	(16%)	$496.1 Million	(5%)

Source: International Trade Administration Metropolitan Trade Data

Occupational and Skill Trends

CERB requires explanation of how the target industries to be recruited to the Tekoa site fit the existing skill profile of the region. While the industries have not been selected in full by the Port, the PC team has been informed that various industrial businesses are likely to be future tenants. Another analysis of job creation is in Chapter 7 (Detailed Jobs & Sales Impacts). Some of the data between the "Detailed Jobs & Sales Impacts" section and this

section will be shared, but this section will be closer to a general overview of the current state of occupation and skills in the selected regions. In summary:

- The industries identified in the Economic Impact and Diversification Analysis (Chapter 7) require 62 manufacturing workers (45.4% of all jobs), 41 Construction workers, and 5 Professional, Scientific, and Technical Services Workers.
- Though the labor pool in the immediate Tekoa ZIP code is limited, the labor force in key industries pertaining to the Industrial Park have been increasing over the last 10 years.
    - For manufacturing in the "Small Region," there has been a 59.5% increase of Production Jobs, and a 31.7% increase in Construction jobs.
    - Production Jobs in the "Small Region" have an LQ of 0.47, meaning that there is an opportunity for the Port to capitalize on.
- Training programs are available at both Washington State University and University of Idaho (within 45 miles of Tekoa). Most relevant programs include engineering disciplines. North Idaho College and Walla Walla Community College both offer trade programs as well.

Another way to view trends within industries is to examine occupations that are employed within the designated regions. Along with the occupational trends, identifying which skills are demanded by those occupations helps evaluate the workforce working within specific industries. The industries in Tables 13-16 have been identified through the Standard Occupational Classification (SOC) System. While industries primarily describe what is being produced, occupations describe how the product is being produced.

Occupational Strengths

Educational, sales, and office/admin jobs are the most prominent within the ZIP code region. Sales and Related Occupations and Management Occupations saw the biggest increases by 68.2% and 40.0%, respectively. Meanwhile, the largest losses occurred in Farming, Fishing, and Forestry Occupations as well as Build and Grounds Cleaning and Maintenance Occupations.

Table 13: Top Occupations in the "Tekoa ZIP Region" by SOC Codes

Description	2023 Jobs	Change ('10-'23)	% Change ('10-'23)	% of Jobs (2023)
Educational Instruction and Library Occupations	49	(3)	(5.8%)	13.8%
Sales and Related Occupations	37	15	68.2%	10.4%
Office and Administrative Support Occupations	36	5	16.1%	10.1%
Transportation and Material Moving Occupations	32	4	14.3%	9.0%
Healthcare Support Occupations	26	(3)	(10.3%)	7.3%
Installation, Maintenance, and Repair Occupations	23	5	27.8%	6.5%
Management Occupations	21	6	40.0%	5.9%

Food Preparation and Serving Related Occupations	19	3	18.8%	5.4%
Farming, Fishing, and Forestry Occupations	16	(3)	(15.8%)	4.5%
Business and Financial Operations Occupations	13	N/A	N/A	3.7%
Protective Service Occupations	12	0	0.0%	3.4%
Building and Grounds Cleaning and Maintenance Occupations	11	(2)	(15.4%)	3.1%
Healthcare Practitioners and Technical Occupations	10	(1)	(9.1%)	2.8%

Source: PC using Lightcast Occupations Tables

Table 14: Top Occupations in the "Small Region" by SOC Codes

Description	2023 Jobs	Change ('10-'23)	% Change ('10-'23)	% of Jobs (2023)
Educational Instruction and Library Occupations	5,225	(690)	(11.7%)	13.1%
Office and Administrative Support Occupations	4,664	(219)	(4.5%)	11.7%
Food Preparation and Serving Related Occupations	3,348	25	0.8%	8.4%
Sales and Related Occupations	2,720	142	5.5%	6.8%
Management Occupations	2,667	883	49.5%	6.7%
Production Occupations	2,256	842	59.5%	5.7%
Transportation and Material Moving Occupations	2,024	356	21.4%	5.1%
Business and Financial Operations Occupations	1,916	753	64.7%	4.8%
Healthcare Practitioners and Technical Occupations	1,771	301	20.4%	4.4%
Healthcare Support Occupations	1,658	377	29.5%	4.2%
Building and Grounds Cleaning and Maintenance Occupations	1,554	(74)	(4.5%)	3.9%
Installation, Maintenance, and Repair Occupations	1,541	171	12.4%	3.9%
Construction and Extraction Occupations	1,491	359	31.7%	3.7%

Source: PC using Lightcast Occupation Tables

All occupations in the "Mega Region" by SOC codes increased from 2010-2023. Business and Financial Operations Occupations grew by 81.4%, but still only accounted for 5.7% of jobs within the region.

Table 15: Top Occupations in the "Mega Region" by SOC Codes

Description	2023 Jobs	Change ('10- '23)	% Change ('10- '23)	% of Jobs (2023)
Food Preparation and Serving Related Occupations	34,353	6,513	23.4%	8.3%
Healthcare Practitioners and Technical Occupations	25,625	5,506	27.4%	6.2%
Educational Instruction and Library Occupations	24,827	210	0.9%	6.0%
Management Occupations	23,969	9,200	62.3%	5.8%
Business and Financial Operations Occupations	23,832	10,694	81.4%	5.7%

Healthcare Support Occupations	23,227	5,571	31.6%	5.6%
Community and Social Service Occupations	9,805	1,565	19.0%	2.4%
Protective Service Occupations	8,682	2,050	30.9%	2.1%
Computer and Mathematical Occupations	8,196	2,386	41.1%	2.0%
Arts, Design, Entertainment, Sports, and Media Occupations	7,322	1,176	19.1%	1.8%
Architecture and Engineering Occupations	5,373	1,190	28.4%	1.3%
Life, Physical, and Social Science Occupations	4,484	894	24.9%	1.1%
Legal Occupations	2,785	633	29.4%	0.7%

Source: PC using Lightcast Occupation Tables

Table 16: Regional LQ Comparison by SOC Industries

Description	Tekoa ZIP Region LQ	Small Region LQ	Mega Region LQ
Management Occupations	0.79	0.91	0.78
Business and Financial Operations Occupations	0.55	0.74	0.89
Computer and Mathematical Occupations	0.63	0.71	0.62
Architecture and Engineering Occupations	0.44	1.18	0.82
Life, Physical, and Social Science Occupations	1.18	3.42	1.15
Community and Social Service Occupations	1.12	1.32	1.34
Legal Occupations	0.4	0.39	0.79
Educational Instruction and Library Occupations	2.45	2.35	1.07
Arts, Design, Entertainment, Sports, and Media Occupations	0.59	1.21	0.95
Healthcare Practitioners and Technical Occupations	0.51	0.77	1.07
Healthcare Support Occupations	1.62	0.91	1.22
Protective Service Occupations	1.56	0.57	0.98
Food Preparation and Serving Related Occupations	0.68	1.06	1.05
Building and Grounds Cleaning and Maintenance Occupations	0.86	1.14	1.08
Personal Care and Service Occupations	0.86	0.80	0.93
Sales and Related Occupations	1.2	0.78	1.05
Office and Administrative Support Occupations	0.87	1.02	1.02
Farming, Fishing, and Forestry Occupations	6.73	2.42	1.09
Construction and Extraction Occupations	0.5	0.84	1.24
Installation, Maintenance, and Repair Occupations	1.67	0.99	1.04
Production Occupations	0.47	1.05	0.94
Transportation and Material Moving Occupations	1.04	0.59	0.9

Source: PC using Lightcast Occupation Tables

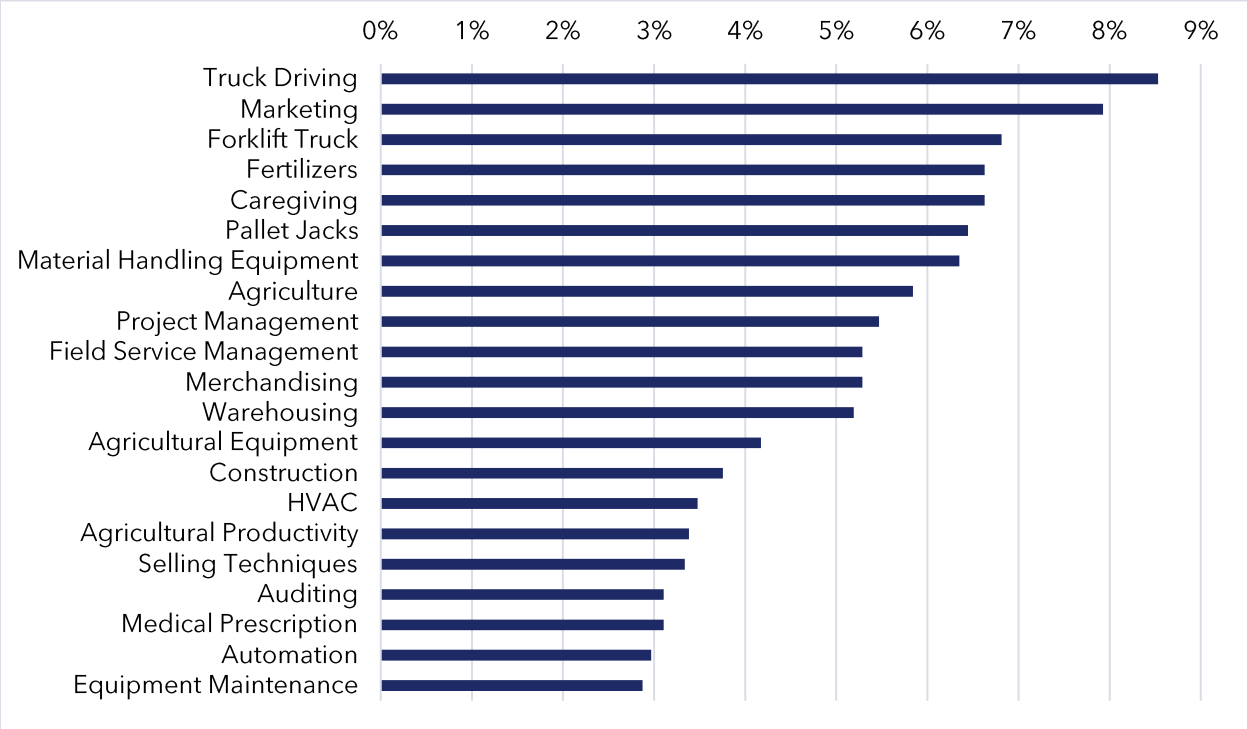
Employer Demanded Skills

Skills data are separated into Specialized Skills and Common Skills. Specialized Skills data shows what talents employers in each area are looking to acquire out of a future hire. Figure 15 displays the top Specialized Skills requested by employers over the past six months. The

data in Figure 15 has also been tailored to industries identified as suitable in the Supply Chain Leakages Section. Agriculture, Construction, Manufacturing, and Transportation and Warehousing industries were all selected as suitable industries. A broader Specialized Skills dataset will be displayed further in the report.

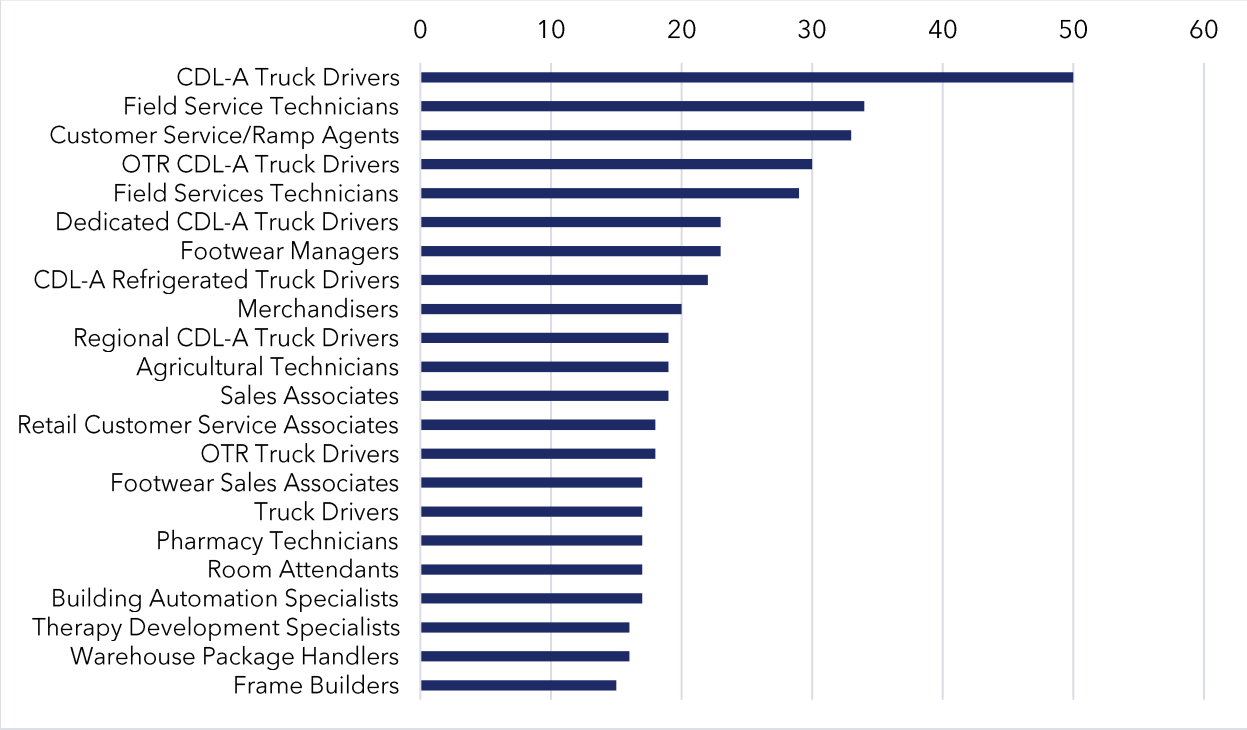
In the selected industries, Truck Driving, Marketing, Forklift Certifications, Fertilizer Knowledge, and Caregiving were among the top Specialized skills demanded in Whitman and Latah Counties. Five different agricultural Specialized Skills were also identified in the top 20 Specialized Skills for the region. Many of the Specialized Skills indicate a need for workers experienced in warehouse settings and agricultural settings.

Figure 15: Job Postings for Specialized Skills within Targeted Industries in "Small Region"



Source: PC Using Lightcast Occupation Tables

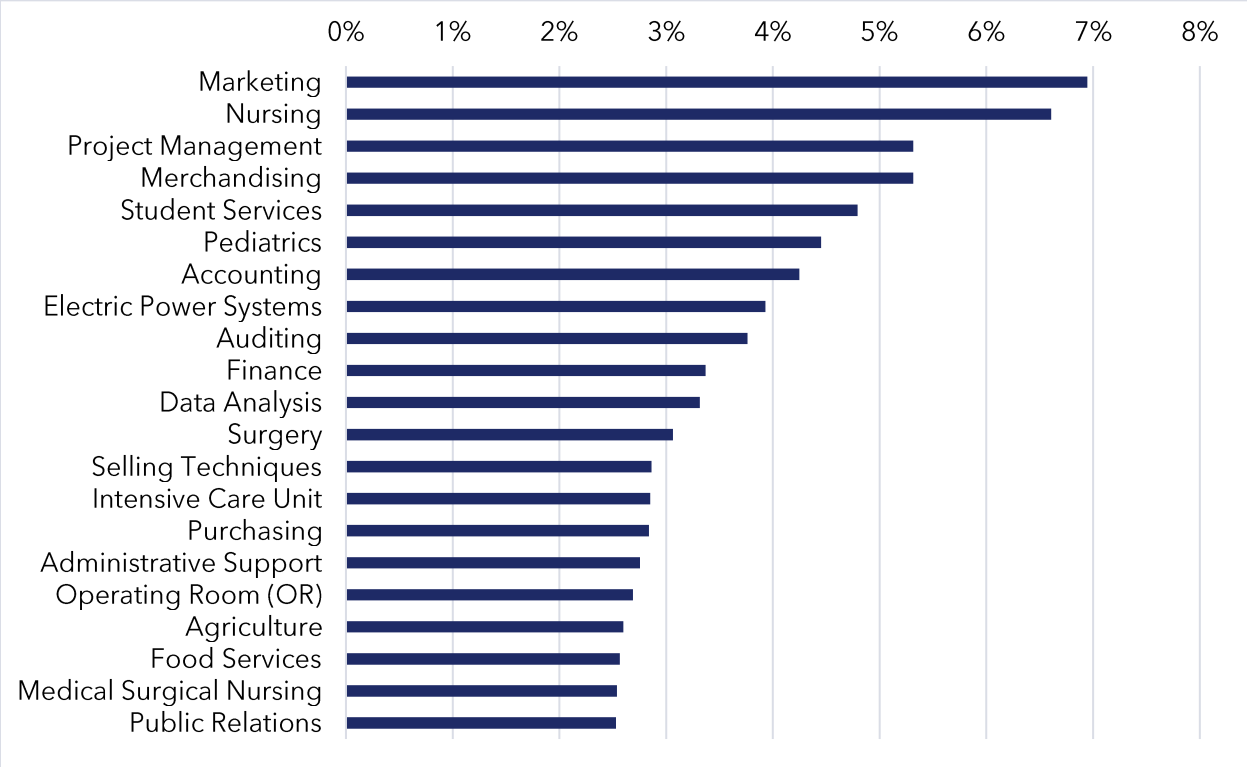
Figure 16: Job Postings by Job Titles for Targeted Industries in "Small Region"



Source: PC Using Lightcast Occupation Tables

Figure 17 shows the Specialized Skills required for all industries in the "Small Region". Marketing remains a skill in high demand, with just under 7% of job postings calling for this skill. Despite now being compared to all industries rather than targeted industries, agriculture remains in the top 20 of Specialized Skills, indicating that the need for agricultural specialists remains high, even across all job postings.

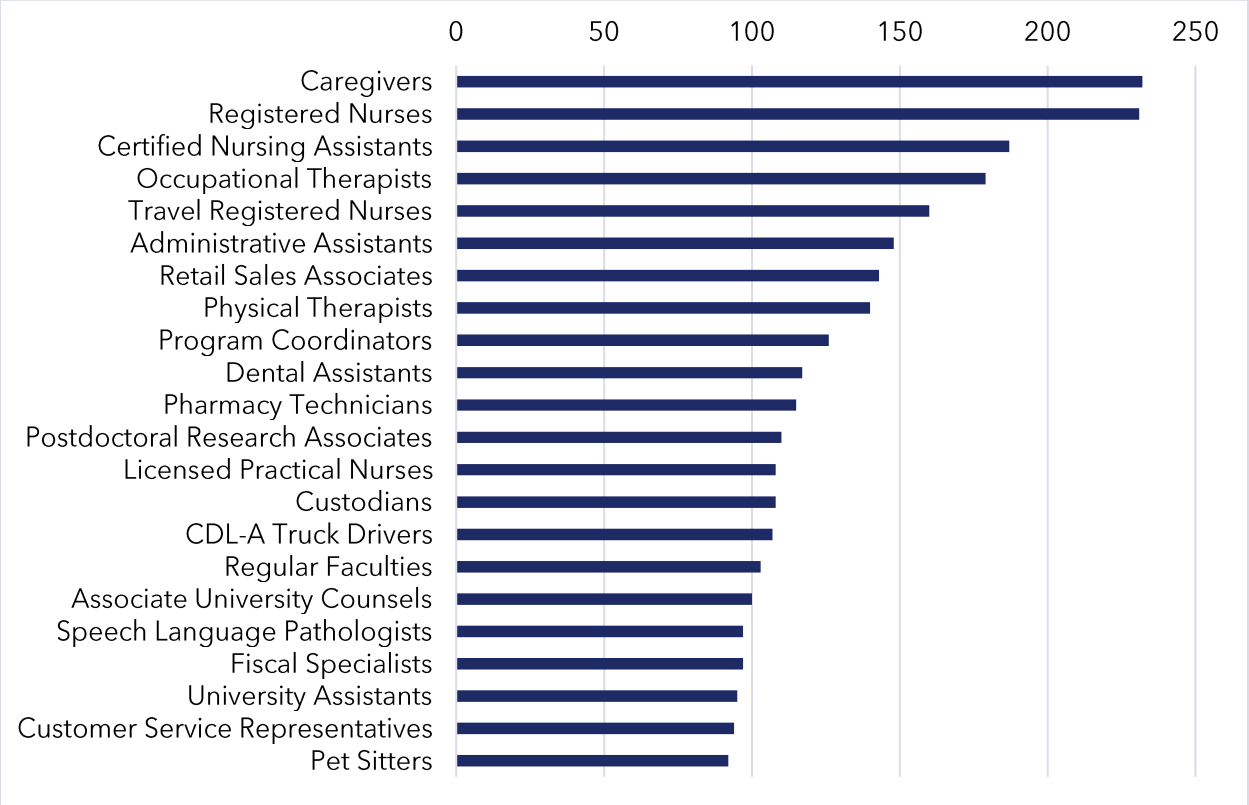
Figure 17: Job Postings for Specialized Skills within All Industries in the "Small Region"



Source: PC using Lightcast Occupation Tables

Job postings by titles in the "Small Region" heavily favor health related industries. Many of the occupations require an elevated level of education in the region.

Figure 18: Job Postings by Job Titles for All Industries in "Small Region"



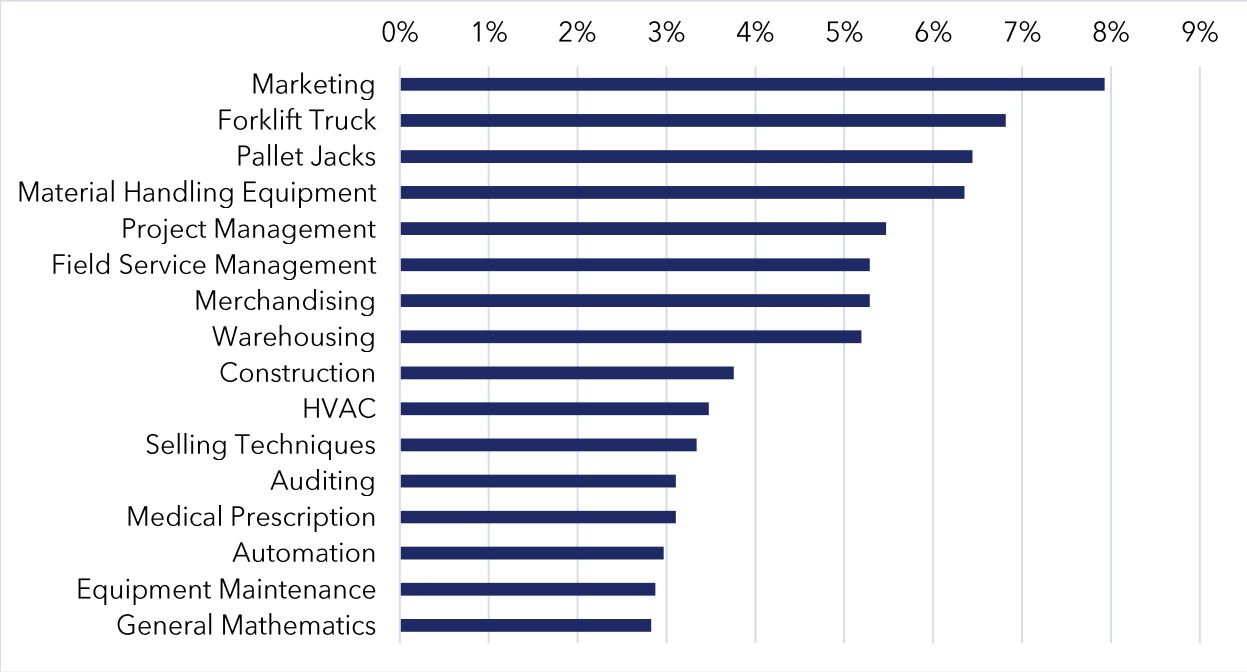
Source: PC using Lightcast Occupation Tables

Skills for the Tekoa Industrial Park

Given that the Port has authorized the Industrial Park to be zoned for heavy industrial use, it is important to analyze the skills that only pertain to manufacturing and other heavy industrial jobs. Marketing remains the top skill demanded for heavy industrial companies, closely followed by the ability to operate forklifts, pallet jacks, and material handling. Project management and field service management are also important skills in job postings relating to manufacturing. Construction and HVAC skills were featured in 3.76% and 3.48% of job postings respectively.

Knowing that these skills appear to be in high demand in the "Small Region", Table 3 from the Historic Industry Patterns Section shows that Manufacturing and Construction jobs have increased 12.6% and 34.9% respectively. Other industries that may have ties to heavy industrial zoning, such as scientific services or utilities, have also seen large increases in employment from 2019 to 2024. This means that in Latah and Whitman County, jobs in these industries are being supplied and filled faster than other industries in the "Small Region".

Figure 19: Job Postings for Specialized Skills in Heavy Industrial Businesses in the "Small Region"



Source: PC using Lightcast Occupation Tables

Table 17 shows the number of workers available to staff manufacturing jobs in the Tekoa area within a 5-, 20-, and 40-mile radius. Trades workers were also included since not every position in an industrial park will be manufacturing based. Within 20 miles from Tekoa, there are over 4,600 workers who would likely fit into an industrial role. That number expands to over 300K in a 40-mile radius.

Table 17: Available Employment Near Tekoa, Washington

Employment by Radius	5 Miles	20 Miles	40 Miles
Manufacturing	16	331	26,004
Trades Workers	154	1,743	97,488
All Employment	445	4,697	349,925

Source: ESRI Business Analyst, 2024

3. Market Strategy

A market strategy is a comprehensive plan that the Port will use to identify and reach its target market, aiming to achieve a competitive advantage. The market strategy for the Port first entails the attraction of the desired industrial industries by marketing the property. Appendix C shows an example of marketing material that the Port of Whitman could use and distribute. The Port has unique advantages over other vacant industrial land and buildings, such as the ability to lease property at a lower rate than competitors. Much like the Pullman Industrial Park and the Port of Whitman County Business Air Center (POWBAC), the Port will be able to work closely with tenants to ensure their needs are met.

"The Port of Whitman County, with Points Consulting, will be directing the marketing outreach using a variety of information acquired with Data Axle and Lightcast…"

The Port also has access to key economic assets that will prove beneficial to new tenants in the Industrial Park. Access to Pullman, Moscow, Spokane, and Coeur d' Alene all within an hour via motor vehicle will be a boon to business success and product distribution. Included in this is access to the POWBAC and port sites that allow access to the distribution channels on the Snake River.

Once development has been confirmed, the Port should look to push marketing materials quickly to prospective businesses in the desired industries. The Port of Whitman County with Points Consulting will be directing the marketing outreach using a variety of information acquired with Data Axle and Lightcast, allowing the project team to evaluate which businesses best suit the needs of the project. The PC team already has a list of potential prospects for business expansion, and the Port has already received an inquiry for the Industrial Park.

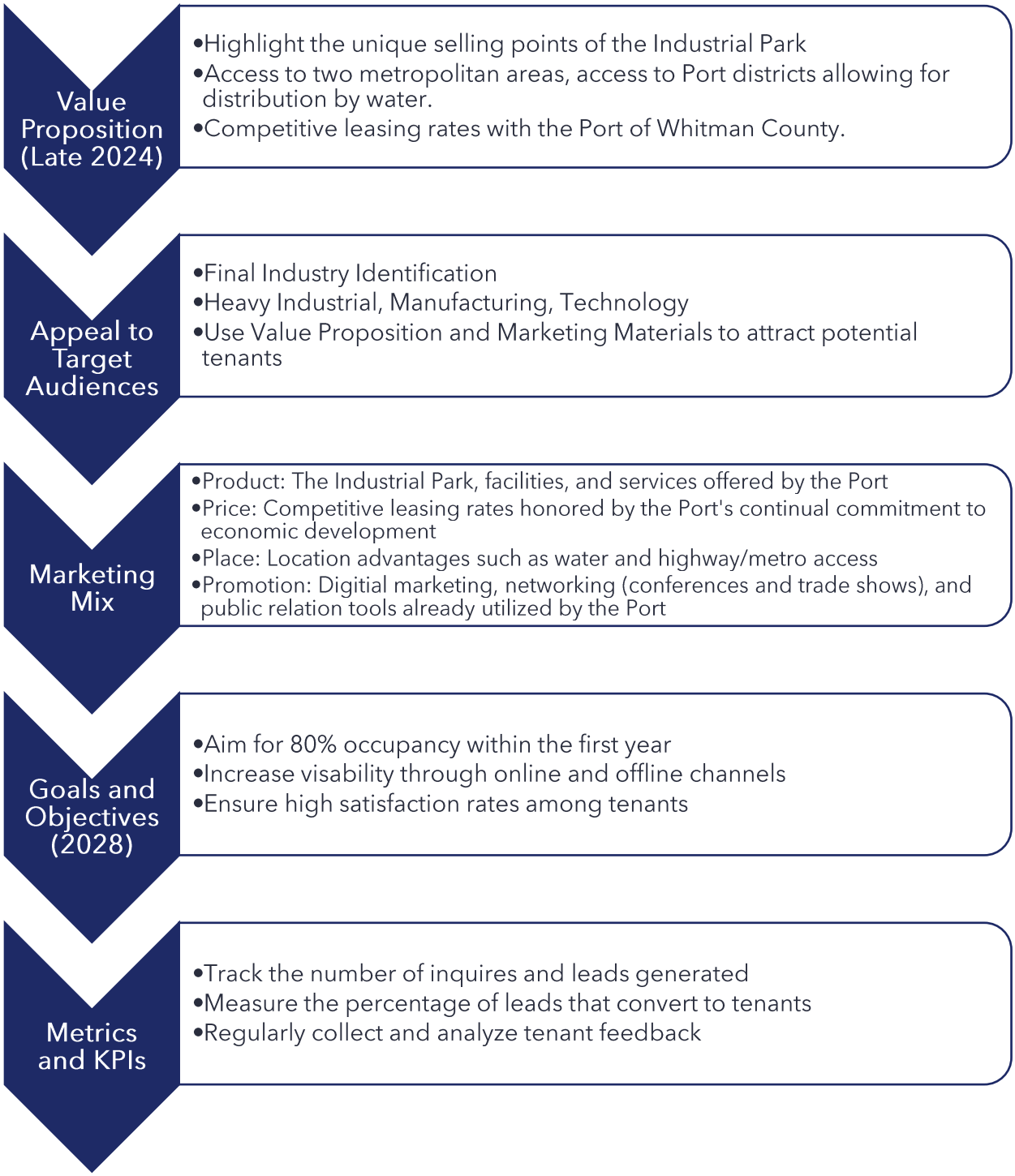
The PC team and the Port of Whitman will need to focus on these selling points:

- Product
  - The Industrial Park, facilities, and services offered by the Port
- Price
  - Competitive leasing rates offered by the Port
- Place
  - Location advantages such as the access to nearby cities, POWBAC, and Port sites
- Promotion
  - Digital Marketing, networking, and public relation tools

When the marketing stage of the project is nearing completion, the Port should aim for 80% occupancy within the first year of opening the Industrial Park. As tenants enter the Park, the Port should focus simultaneously on balancing further marketing while ensuring that there is a high rate of satisfaction among tenants. In the final stages of development with business

entities filling the Park, the Port should regularly collect and analyze feedback from tenants to ensure good relations between the Port and businesses foster economic growth.

Figure 20: Market Strategy

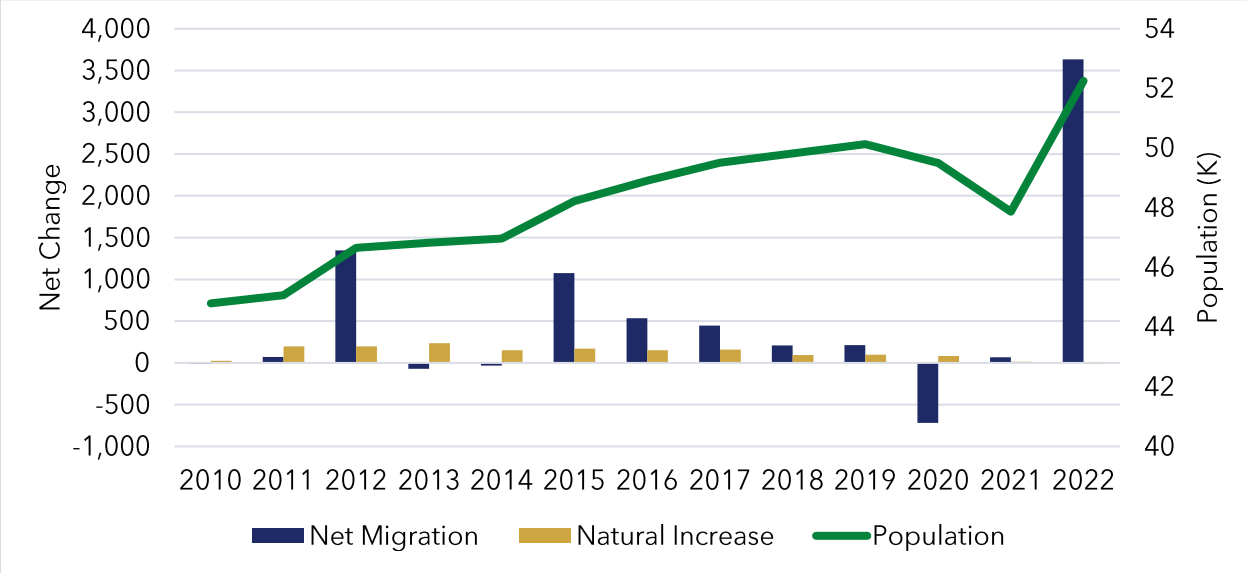


4. Population and Demographics

Sources of Population Change and Migration

A region's population is a major contributing factor to labor supply, and therefore the economic growth that can be sustained. Population growth is primarily influenced by three factors: births, deaths, and migration. Figure 21 illustrates how these sources of population change have evolved from 2010 to 2022 in Whitman County. Since 2015, migration in Whitman County has been slow but positive every year besides 2020. This phenomenon can be explained by the COVID-19 Pandemic. As mentioned in Chapter 1, Whitman County's growth is largely tied to Washington State University's enrollment and campus presence. The pandemic kept many students at home, which likely attributed to the "out-migration". Many families also moved during this period, further decreasing the population into 2021.The return of students to the area is attributed to large increase in migration and population growth in 2022.

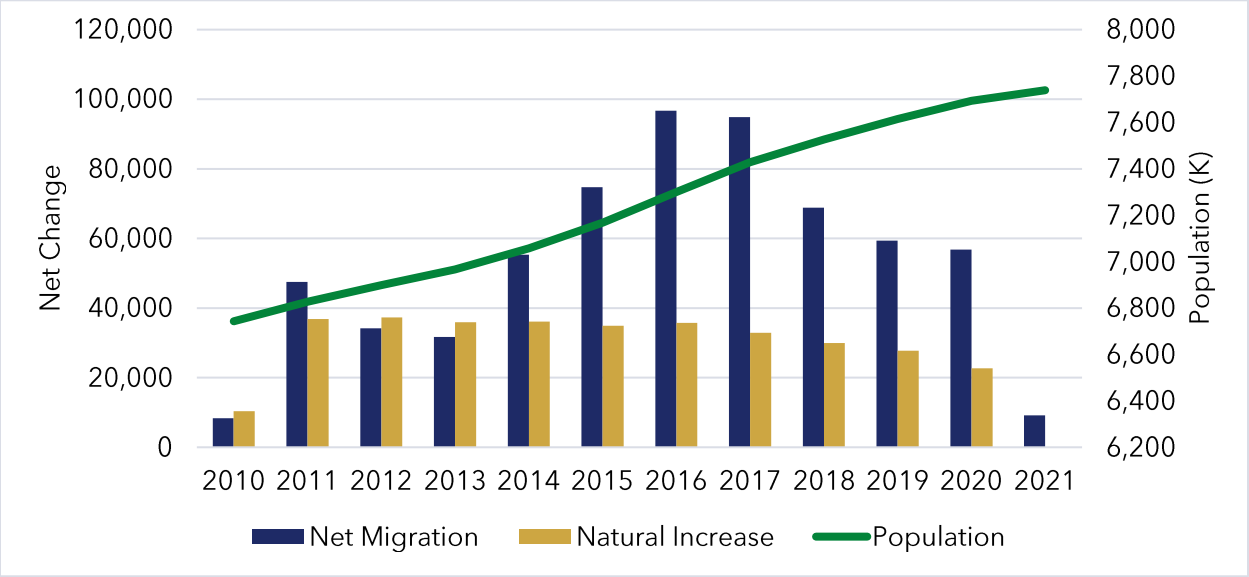
Figure 21: Whitman County Components of Population Change, 2010-2022



Source: US Census Bureau, Population Estimates, 2022

Washington state also grew in population from 2010 to 2022. Again, much of the growth was due to positive net migration, although the state did see a positive natural increase (more births than deaths) in every year except for 2021. Population growth in Washington slowed as the pandemic hit.

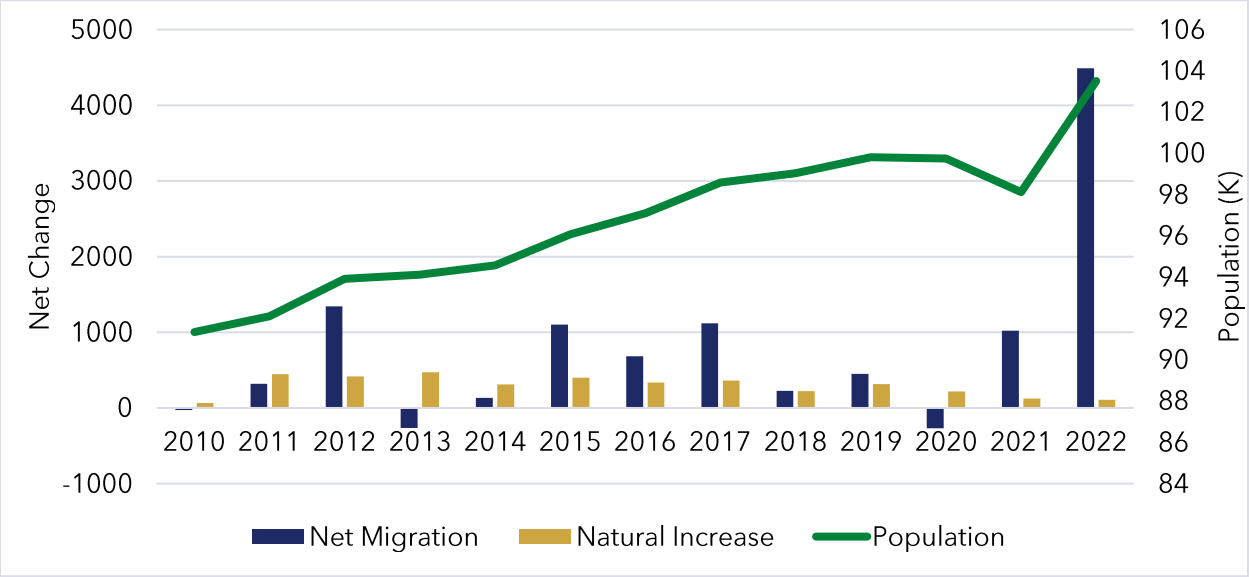
Figure 22: Washington State Components of Population Change 2010-2021



Source: U.S. Census Bureau Population Estimates 2022

Population changes in the "Small region" trended very similarly to Whitman County, a steady increase from 2010 to 2021, followed by a sharp uptick in 2022, due to positive net migration.

Figure 23: "Small Region" Components of Population Change 2010-2022

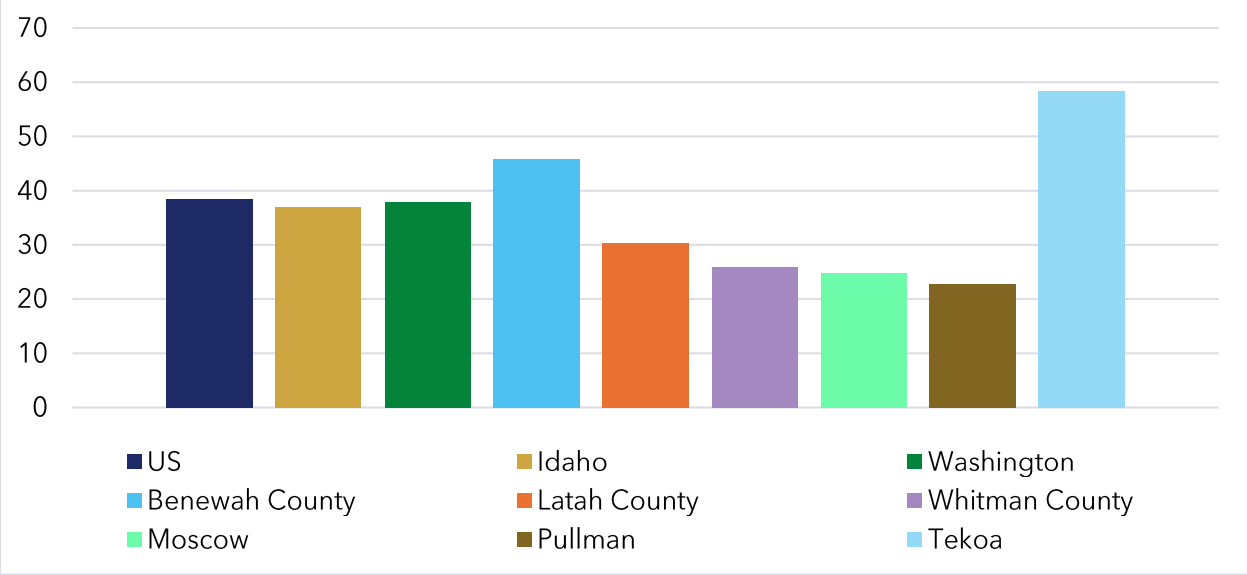


Source: U.S. Census Bureau Population Estimates, 2022

Demographics

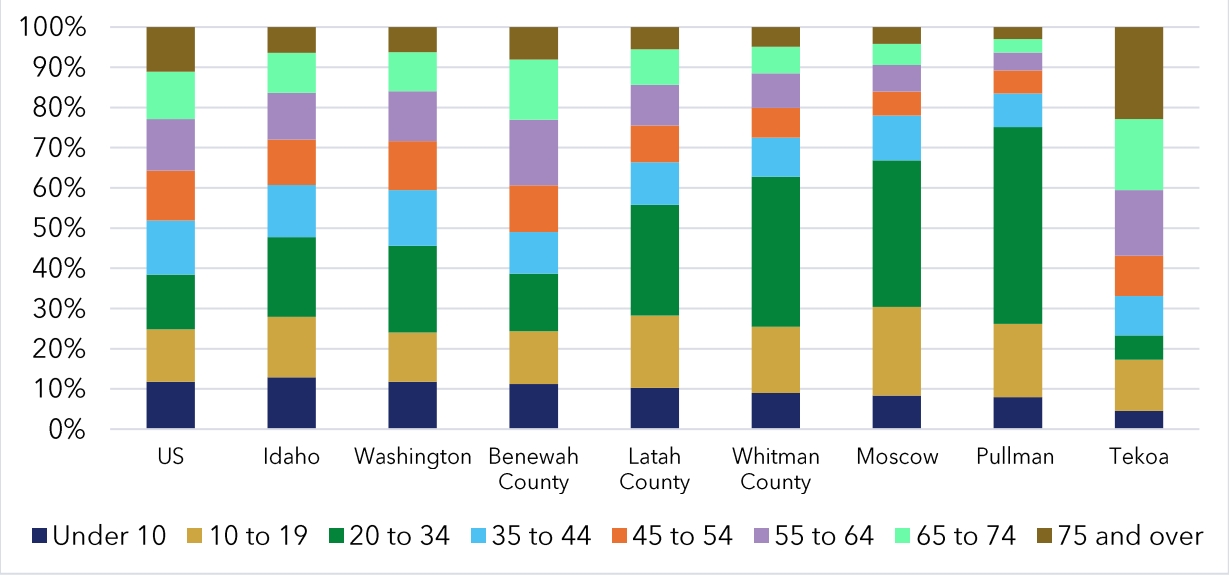
The population of Tekoa is much older than state and national demographics, as well as Tekoa's neighboring areas. The median age in Tekoa is 58, over 20 years older than the United States median age of 39. In fact, only 33% of the population is under the age of 45, as shown in Figure 25.

Figure 24: Median Age by Region 2022



Source: U.S. Census Bureau 5-year ACS 2022

Figure 25: Age Distribution by Region 2022

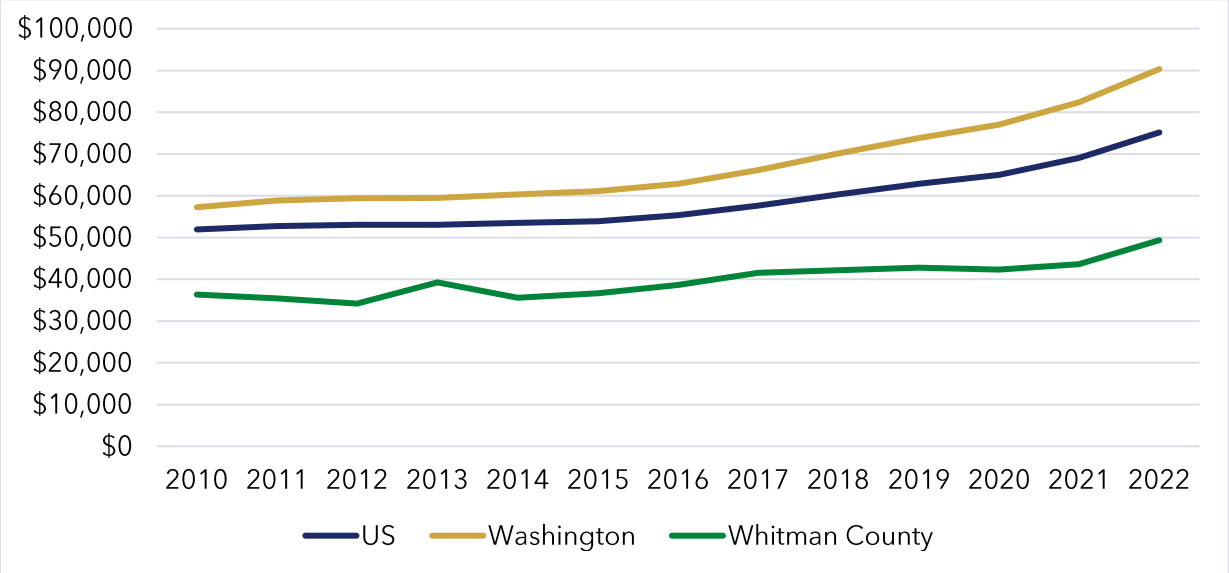


Source: U.S. Census Bureau 5-year ACS 2022

The median household income in Whitman County is consistently around $15K less per year than the median household income in United States, and there is an even greater gap

between median household income in the state of Washington and Whitman County. However, median household income in Whitman County has slowly but steadily increased since 2010, following state and national trends.

Figure 26: Median Household Income 2010-2022



Source: Whitman County Trends, 2022

Housing

When planning the development of a new industrial park, housing is a critical factor to consider. Providing adequate housing options for workers can significantly enhance the attractiveness of the industrial park to potential businesses. Companies are more likely to invest in areas where their employees can live comfortably and affordably. This proximity reduces commuting times, leading to increased productivity and job satisfaction. Moreover, it helps in attracting a skilled workforce, as employees often prefer to work in locations where they can easily access quality housing.

Workers who live close to their workplace are also more likely to engage with the local community, contributing to the social and economic development of the area. This can lead to the further creation of businesses and services, boosting the local economy. Additionally, having a stable residential base can reduce employee turnover, as workers are less likely to leave if they have established roots in the community.

Housing in the "Small Region" has generally seen increases since 2010. However, the total number of housing units in Tekoa has decreased by 6% since 2010. Housing growth in both Whitman and Latah Counties have been similar, increasing by 10.4% and 10.2% respectively. Much of the growth in Whitman County has been concentrated in Pullman, evidenced by the decrease in Tekoa, Washington. Pullman's growth of 2,131 housing units also outpaces

Whitman County's growth of 1,949, which implies that the decrease in housing units is also occurring in other Whitman County towns besides Tekoa.[14]

Table 18: "Small Region" Housing Unit Totals 2022

Year	Latah County	Whitman County	Moscow	Pullman	Tekoa
2010	15,663	19,025	9,823	11,728	368
2011	15,897	19,211	10,035	11,777	350
2012	15,963	19,308	10,063	11,783	344
2013	16,059	19,382	10,092	11,667	348
2014	16,167	19,548	10,187	11,907	399
2015	16,255	19,708	10,151	12,138	402
2016	16,331	19,886	10,083	12,395	391
2017	16,626	20,321	10,426	12,595	380
2018	16,790	20,624	10,589	13,074	312
2019	16,960	20,841	10,580	13,375	326
2020	17,132	21,078	10,688	13,680	336
2021	17,122	20,732	10,827	13,546	353
2022	17,301	20,974	10,344	13,859	345

Source: U.S. Census Bureau 5-year ACS, 2022

At the same time, the percentage of vacant units in Tekoa increased from 11.6% to 16.5% from 2017 to 2022 alone. Not only are there fewer units than there were five years ago, but there are more vacant units. These two datapoints together show that there is not a high demand for housing in the Tekoa area, but also that there is a supply of vacant housing in Tekoa that could support 57 workers and their families as of 2022. Whitman County also has a vacancy rate of 14.4%, which shows that there is housing available for prospective workers in other towns around Whitman County.

Table 19: Vacant Units 2017-2022

	Latah County	Whitman County	Moscow	Pullman	Tekoa
2017	7.1%	13.1%	5.0%	12.9%	11.6%
2018	7.0%	12.9%	4.9%	12.8%	14.7%
2019	9.1%	13.6%	6.6%	13.0%	15.3%
2020	8.1%	12.3%	5.2%	10.3%	11.6%
2021	8.3%	13.1%	5.6%	12.0%	12.7%
2022	7.9%	14.4%	5.7%	13.6%	16.5%

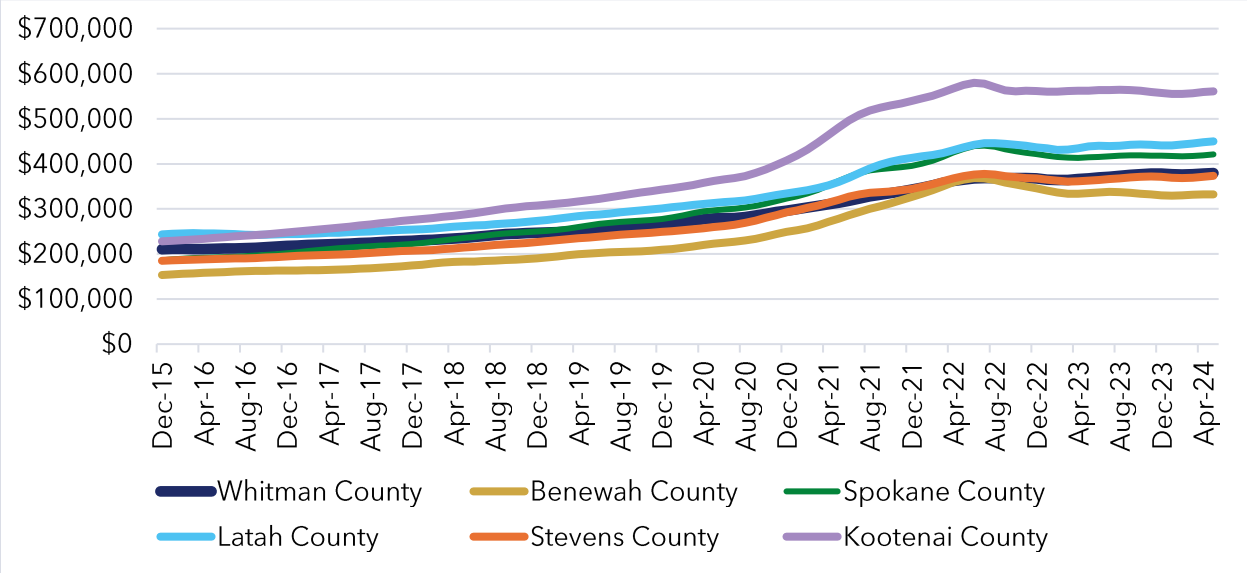
Source: U.S. Census Cureau 5-year ACS, 2022

Figures 27 and 28 report the Zillow Home Value Index (ZHVI) and how it has changed over time. This metric is different from median and average home values reported by the US Census Bureau since it represents the value of a "typical" home. It reflects the value of homes in the 35th to 65th percentile range in a region and therefore has a different dollar value.

[14] ACS 5-Year Census data is often subject to discrepancies with margin of error. PC acknowledges that another reason that Pullman has a higher increase of housing units than Whitman County could be a sampling error with the 2022 U.S. Census Bureau Survey.

Whitman County home values are in the middle when compared to its neighboring counties. All the counties shown in Figure 27 follow a similar pattern, a rise in home values that starts in 2020, and peaks mid-2022.

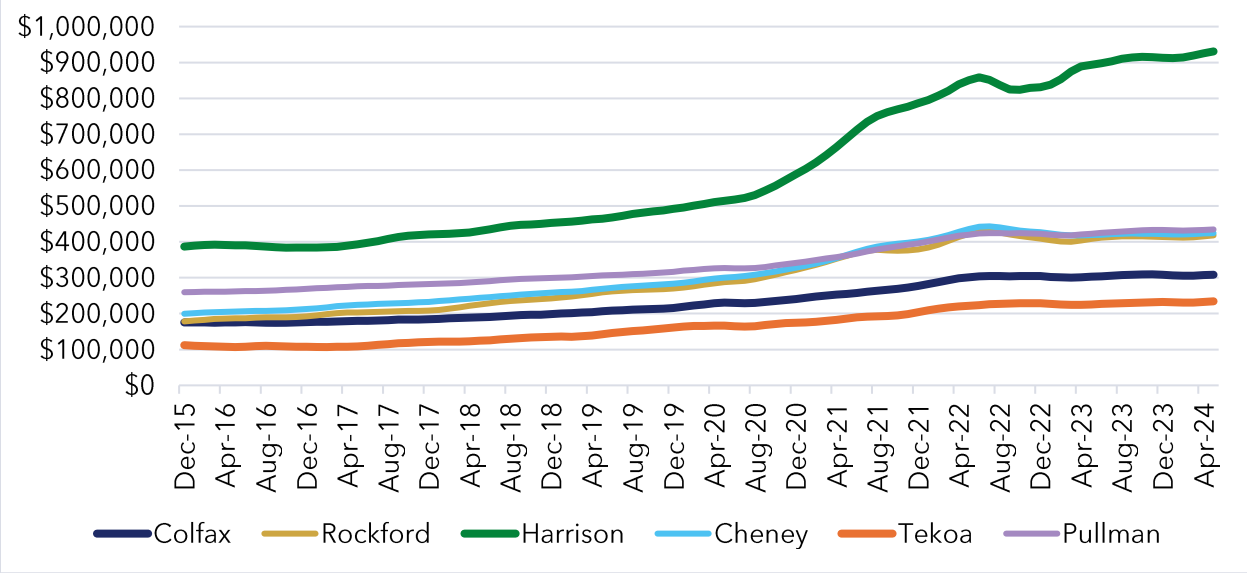
Figure 27: Single-Family Home Zillow Home Value Index by County, 2015-2024



Source: PC Using Zillow ZHVI, 2024

However, when comparing individual cities in the area, Tekoa has by far the lowest home values of its peers (Figure 28). In December 2023, the ZHVI in closest to Tekoa's was Colfax, with around $309K. In Tekoa, the ZHVI at the same time was around $232K.

Figure 28: Single-Family Home Zillow Home Value Index by City, 2015-2024

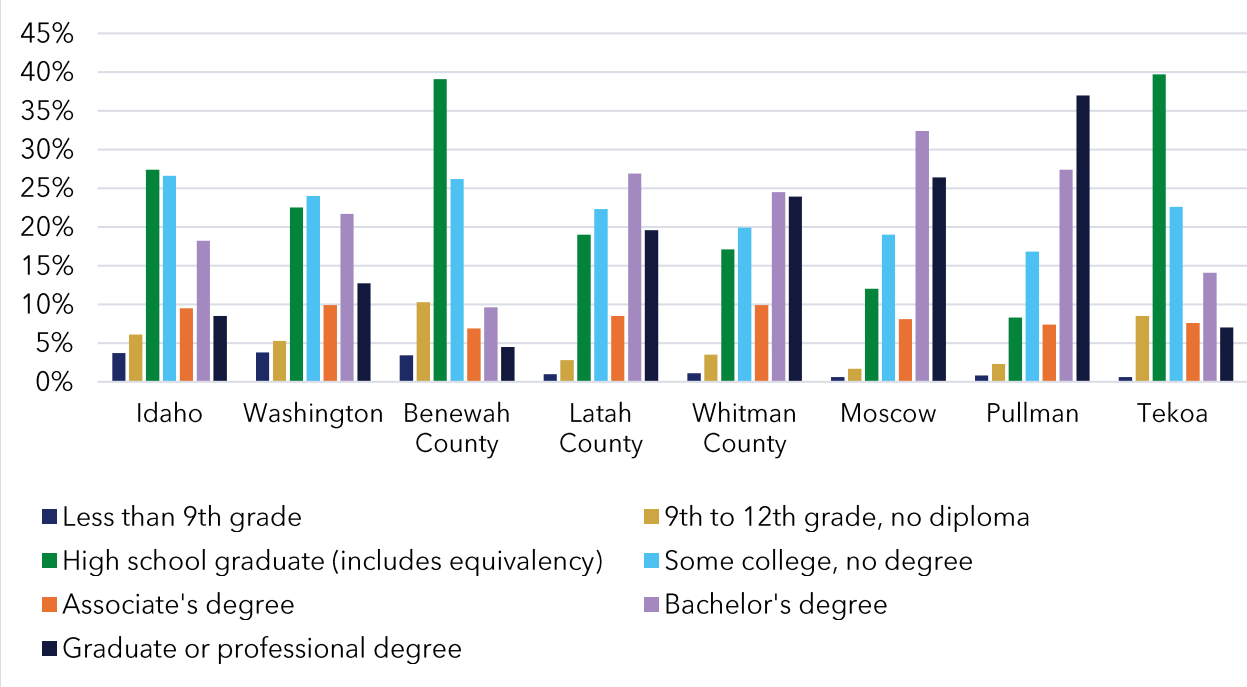


Source: PC Using Zillow ZHVI, 2024

Educational Ecosystem

The largest population group in Tekoa, in terms of educational attainment, has a high school degree or equivalent, with no college. The second largest group is those with some college, but no degree. While the percentage of those who have less than a 9th grade education is lower in Tekoa than Whitman County or Washington State, there is also a smaller percentage of the population that hold a college degree.

Figure 29: Educational Attainment



Source: U.S. Census Bureau 5-year ACS, 2022

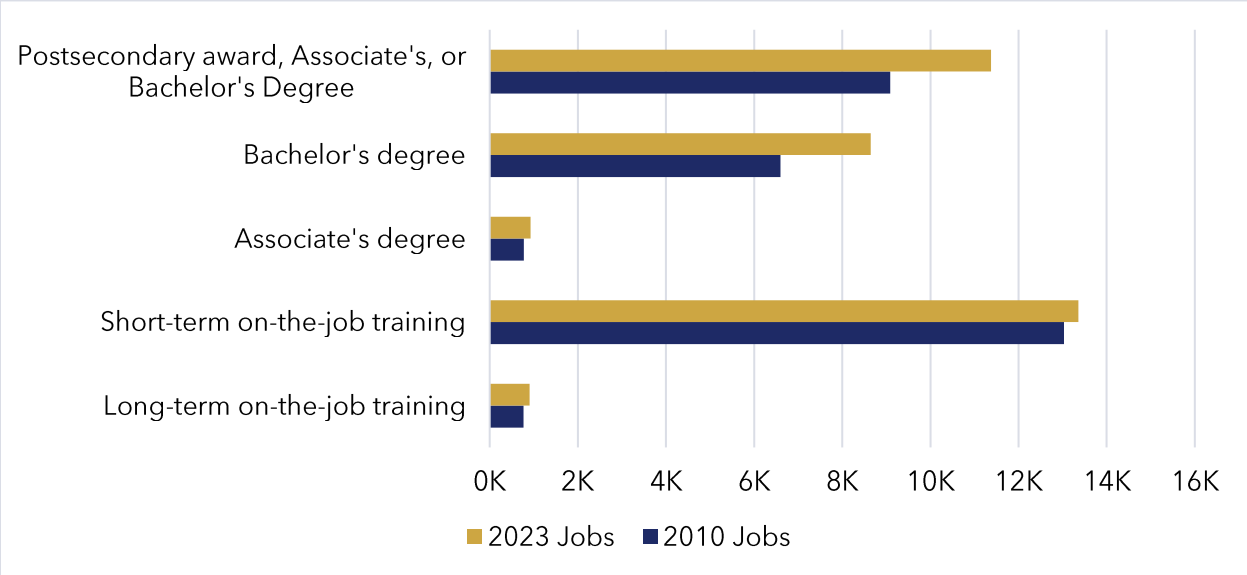
From 2010 to 2023 in the "Small Region", many jobs were added that require secondary education or additional on-the-job training (Figure 30 and Table 20). Particularly, around 2,300 jobs were added that require a post-secondary award, associate's degree, or a bachelor's degree. Additionally, about 460 jobs were added over the same time period that required some form of on-the-job training.

Table 20: 2010-2023 Changes of OJT and Educational Requirements

	2010 Jobs	2023 Jobs
Long-term on-the-job training	768	905
Short-term on-the-job training	13,034	13,356
Postsecondary award, Associate's, or Bachelor's Degree	**9,092**	**11,376**
Associate's degree	772	928
Bachelor's degree	6,601	8,647

Source: PC using Lightcast Occupation Tables

Figure 30: Changing Dynamics of OJT & Educational Requirements in the "Small Region"



Source: PC using Lightcast Occupation Tables

Available Training Programs

Education and training programs play a crucial role in shaping a skilled and adaptable workforce, as well as replacing workers approaching retirement or moving away. Tekoa is in close proximity to a vast array of universities and junior colleges that supply training programs and degrees pertaining to heavy industrial uses and the skills from Chapter 2. The development of the Tekoa Industrial Park will help keep local graduates in the economy, which will subsequently improve the decreasing population outside of Washington State University.

Washington State University and University of Idaho

Both WSU and the University of Idaho offer a variety of programs that could be utilized by businesses at the Tekoa Industrial Park. Engineering disciplines are often important for the manufacturing of certain products and heavy industrial research application. The Engineering Department at WSU offers:

- Bioengineering
- Chemical Engineering
- Computer Engineering
- Construction Engineering
- Electrical Engineering
- Materials Science and Engineering
- Mechanical Engineering

The University of Idaho offers similar engineering degrees. Both Universities are within the "Small Region" and are approximately an hour away from the Tekoa Industrial Park.

Walla Walla Community College

Community colleges often offer both associate degrees and technical programs dedicated to specific fields that are unique from two and four-year degrees. Walla Walla Community College has a specialized Manufacturing, Electrical, and Transportation program that fills many of the Specialized Skills requested by job posting for heavy industrial businesses. These include:

- Automotive Repair Technology
- Commercial Truck Driving
- Diesel Technology
- Energy Systems Technology
- Welding Technology

These programs would be critical to the success of an Industrial Park, and they are offered at a college that is 130 miles away in Washington.

North Idaho College

Like Walla Walla Community College, North Idaho College offers a selection of specialized programs at their trade school located in Rathdrum, Idaho. Programs include:

- Commercial Drivers Licensing (CDL)
- Construction Apprenticeships
- Electrician Continuing Education
- HVAC
- Welding
- Wood Products

Similar to the other programs listed, these trade programs would be beneficial to many industrial businesses. North Idaho College is located in Coeur d' Alene, Idaho, and is only 47 miles away from Tekoa.

5. Site and Regional Background

To better understand the needs of the Port and the future Industrial Park, PC conducted a review background materials. The PC team visited the site and surrounding areas to evaluate the socioeconomic context of the area in combination with the team's statistical findings. SynTier Engineering provided the Port and PC with a site evaluation that measures the feasibility of site transformation. The site evaluation report also identifies key infrastructural capacities and potential opportunities that the Town of Tekoa and the Port can utilize to their benefit.

The Port has several other properties that fit with its mission to foster economic growth. Pullman Industrial Park and the Port of Whitman Business Air Center both include industrial and agricultural businesses that enhance the Port's economic goals. The Tekoa Industrial Park is the Port's next step into furthering its portfolio of businesses and expanding employment in the region. The Industrial Park will be divided into 5 lots to be distributed to tenants via land lease agreements. Industrial industries that have high opportunities for employment are the focus of the Industrial Park.[15]

The site was previously used as an airstrip and currently has two buildings existing on the property. One building is in relatively good condition, with the other being a decommissioned hangar in poor condition. The Port's recent acquisition puts it in prime position to utilize the property at full capacity. Overall, the lots provide an excellent space for future tenants and are in good condition. Landscaping, excavation, and reworking of water/electrical will likely be needed, but the land itself should serve any tenant well. The site also gives access to State Highway 27 and U.S.-95 in Idaho. These two highways will allow tenants the ability to transport to Pullman, Moscow, Spokane, and Coeur d' Alene/Post Falls within an hour.

One goal of the Port is supporting a rise in employment not only in Tekoa, but Whitman County, which struggles with an influx of population caused by Washington State University. Taking steps to develop the Tekoa Industrial Park will increase the attractiveness to outside firms. With well-rounded leadership and expertise in previous port operations, the Port of Whitman has positioned itself to drive economic growth going forward with the Tekoa Site.

PC On-Site Visit and Site Analysis

On July 11, 2024, the PC Team with Tom Stirling of SynTier Engineering received a tour of the Tekoa Industrial Park. The site had a noticeably steep entry accompanied by an airstrip after the initial gain in elevation. The entry, along with the road driving northeast, contains the first three lots to be leased to future tenants. Land available past the entry was observed to be flat, but the strip owned by the Port is narrow. Further northeast into the property, the available land expands for lots four and five. Lots four and five have existing buildings: an airplane hangar and a decommissioned shop. The hangar is in good condition and could be

[15] Figure X displays how the space will be divided between the five parcels

utilized by a future tenant. The shop is in poor condition and has been recommended for removal by both SynTier and GeoProfessional Innovation Group.

The PC team also visited the nearby Town of Tekoa, Washington. With a population of under one thousand, the town had a notable "small town" feel. The downtown area had many commercial vacancies, and three restaurants open at the time of travel. The town also had a local farmers market, coffee shops, and the Tekoa Market grocery store. The distance between Tekoa and the Tekoa Industrial Park is comprised of agricultural fields and a low quantity of housing.

Finally, the PC team visited the Port of Whitman Business Air Center, which included an interview with Kara Riebold of the Port. The PC team learned that the air center is agri-business focused. Businesses have slowly moved into the site as opposed to an "all at once" acquisition of land. Nothing on the site was developed with certain expectations in mind of who would occupy each space. Relating to Tekoa, the Port wishes to have a more structured idea of who will be leasing the land and moving into the space.

The Town of Tekoa is a rural town with a small population and employment base. During our site visit, the team observed multiple buildings that were no longer occupied. Tekoa features multiple small-scale restaurants but does not have a thriving economy outside of local shops. The Tekoa site brings with it a goal to induce employment gain and development to Tekoa, Washington.

Real Estate Review

A comprehensive review of previously sold properties provides valuable insights into market behavior, pricing trends, and the overall economic landscape within Whitman County. Understanding the demand for industrial and commercial spaces in Whitman County may help the Port evaluate fair rental prices and assess how active the market is for the industrial spaces the Port plans to list. The PC team inquired to multiple realtors in Whitman and Latah Counties and received one response. The data in Tables 21-23 displays the data received.

Table 21 displays all commercial and industrial zoned land listed and sold in Whitman County over the last two years. In that period there were no industrial land listings, and 17 total listings for commercial spaces in the county. Two listings have sold in 2024, for an average price of $102,250. One listing sold in 2023 for $65,000. The listings sold in 2024 had an average time on the market of 8 days. However, 14 properties remain active with an average of 140 days on the market. The average price of these 14 properties is $413,971. This means that buyers in Whitman County have determined that land listed over a certain price point will not sell. PC does not have access to statistics of each property, so it can't be told whether there are other determining factors in these properties being sold or not.

Tables 22 and 23 show that listings and sales for industrial properties are limited in Whitman County. Industrial land and buildings often serve niche purposes that not all businesses can inhabit and utilize. However, the absence of industrial land for sale implies that there is a supply issue in Whitman County. A comparison to Table 21 indicates that there is a demand for industrial buildings and properties. Instead of being able to acquire property and build to

the specifications required by business type, business owners instead are being forced to buy existing property and invest in modifications for their business. Overall, having a higher quantity of industrial land available may help diversify business offerings by attracting owners looking for a blank slate.

Table 21: Land Listed and Sold in Whitman County, 2023-2024

	Class	Type	No. of Listings	Dollar Volume	Average Price	Median Price	Average Days on Market
Active Listings	Land	Comm.	14	$5,784,239	$413,160	$428,971	140
Listings Sold 2024	Land	Comm.	2	$204,500	$102,250	$102,250	8
Listings Sold Last 2 Years	Land	Comm.	3	$269,500	$89,833	$65,000	45
Total Last 2 Years			**17**	**$6,053,739**	**$251,497**	**$246,986**	**92.5**

Source: PC based on Paragon MLS

Table 22 shows all commercial and industrial building active listings in 2024. Of the 13 buildings active, five of them are office spaces with an average price of $943,600. Industrial buildings for sale are limited, with only four possible options being considered industrial. In general, commercial and industrial spaces in Whitman County are listed at an average of $1.2 million, with a median price of $695,000. Average days on the market is 208. For reference, the average days on the market in Seattle for industrial buildings is 229 days.[16]

Table 22: Commercial and Industrial Buildings Active Listings in Whitman County, 2024

	Class	Type	No. of Listings	Dollar Volume	Average Price	Median Price	Average Days on Market
Active Listings by Type	Comm/Inds.	Business Only	1	$65,000	$65,000	$65,000	363
'	Comm.	Office	5	$4.7M	$943,600	$669,000	174
'	Comm.	Retail	2	$1.6M	$799,500	$799,500	250
'	Comm./Inds.	Other	3	$8.1M	$2.7M	$3M	198
'	Comm.	Restaurant	2	$1M	$519,500	$519,500	188
Total Active Listings	Comm/Inds.	Active	13	$15.5M	$1.2M	$695,000	208

Source: PC based on Paragon MLS

Table 23 shows the commercial and industrial buildings sold in Whitman County over the last two years. In 2024, five listings were sold with an average price of $551,060 with an average of 124 days on the market. In the last two years, that number has risen to 135.7. The average

[16] The Seattle Commercial Real Estate Market by Shanti Ryle, April 29, 2024, https://www.crexi.com/blog/the-seattle-commercial-real-estate-market

prices the listings are sold at was inflated by the selling of a $1.625 million mobile home park. Overall, 15 commercial and industrial buildings have been sold in Whitman County since January of 2023, with a median price of $165,075. Comparatively, the median listing price is much higher ($695K). This could mean that low demand has brought prices down from their original asking price.

Table 23: Commercial and Industrial Buildings Sold in Whitman County, 2023-2024

	Class	Type	No. of Listings	Dollar Volume	Average Price	Median Price	Average Days on Market
Sold Listings Last 2 Years	Comm/Inds.	Business Only	1	$130,000	$130,000	$130,000	44
'	Comm/Inds.	Industrial	2	$990,000	$495,000	$495,000	141
'	Comm.	Mobile Home Park	1	$1.6M	$1.6M	$1.6M	246
'	Comm.	Office	3	$166,500	$55,000	$65,000	56
'	Comm.	Retail	4	$684,000	$171,000	$127,500	67
'	Comm./Ind.	Other	4	$3.2M	$793,825	$200,150	260
Sold Listings 2024	Comm./Ind.	Sold 2024	5	$2.8M	$551,060	$170,000	124
Total Last 2 Years			**15**	**$6.8M**	**$544,971**	**$165,075**	**135.7**

Source: PC based on Paragon MLS

While there is currently no vacant Industrial land to evaluate in Whitman County, one example of an industrial property available in Whitman County a property in La Crosse, Washington. The space is listed at 4,000 square feet, and features roll up doors in each of its four sections with a concrete flooring throughout the building. These are common practices for industrial buildings, and the Port will likely need to build similar, albeit larger structures for the Tekoa Industrial Park.

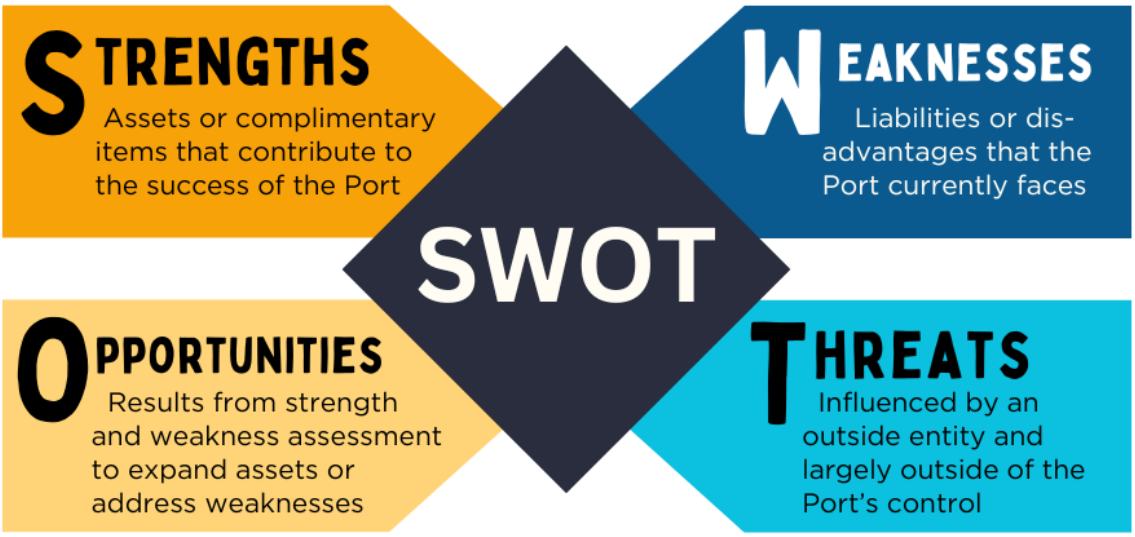
Figure 31: Industrial La Crosse Building for Lease

Source: Port of Whitman County Property Listings

SWOT Analysis

A SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis is a strategic planning tool which provides guidance for businesses, organizations, and other entities to understand their competitive advantage in the marketplace. For this particular SWOT, our focus is on the Tekoa Industrial Park Site, and not the Town of Tekoa. The project team reviewed the Tekoa Industrial Park Site to determine the position of this asset in the economic marketplace.

The following are the definitions of the SWOT components:



STRENGTHS

- The Port of Whitman has demonstrated the ability to develop beneficial commercial and industrial properties in Whitman County
- The site has easy access to State Highway 27, and subsequently U.S.-95 in Idaho for access to Spokane, Pullman, Moscow, and Coeur d' Alene/Post Falls
- The Port also provides access to the Snake River via one of three port sites.
- Access to strong workforce via nearby Washington State University, University of Idaho, Eastern Washington University, and Gonzaga University, among others
- The Port of Whitman County Associated Firms and Entrepreneurs produce over $1.74 billion in output and support over 5,892 jobs annually[17]

[17] Steven Peterson, "2022 Port of Whitman County Economic Contributions of the Entrepreneurial Firms and Organizations Associated with the Port of Whitman County" FINAL V2 2022 Economic Contributions of the Port of Whitman County.pdf (portwhitman-web.s3-us-west-2.amazonaws.com)

- The Port of Whitman seeks to support business ventures that will pull away from the County's reliance on agriculture. Businesses in the Industrial Park will be cared for by the Port

WEAKNESSES

- Current water availability to the site is limited. The Port of Whitman County is attempting to gain access to water from the Town of Tekoa, but this is yet to happen.
- Many important utilities to industrial companies will come at the expense of the tenants, such as access to Phase 3 power from Avista.
- There is a notable lack of housing surrounding the site, with the closest town being Tekoa. Tekoa has limited options for housing.
- The Town of Tekoa is hard to market to the working-age.

OPPORTUNITIES

- The population of educated individuals continues to increase with the support of WSU and U of Idaho. Whitman County tends to be higher educated than surrounding areas.
- The Universities have brought increases in specialized employment, such as engineering and manufacturing.
- The economic impact of five new businesses in the Industrial Park could spur further economic growth in Tekoa and Whitman County.[18]
- The tax impact from the new Industrial Park would be felt in Whitman County and at a state level. The local tax impact would allow Tekoa to reinvest in itself and expand economic opportunities.[19]

THREATS

- Lack of affordable non-farm housing may make it hard to bring in employees looking to relocate.
- An aging population outside of Pullman threatens to diminish the working age population that could be critical to the Tekoa Industrial Site.
- "Brain drain" to nearby industrial parks owned by the Port of Whitman
- Large neighboring metro areas such as Spokane and Coeur d' Alene threaten to be more attractive options for business owners.

[18] See Economic Impact and Diversification Analysis
[19] See Tables 29-32 for the tax revenue breakdown

6. Engineering Background: SynTier Tekoa Industrial Park Evaluation

SynTier Engineering has provided both PC and the Port of Whitman County with a breakdown of existing project elements pertaining to land use and restrictions, as well as a breakdown of the site's infrastructure. The information from SynTier will be important in determining which industries and businesses will be suitable for the property either before or after development has been completed. Currently, the future Tekoa Industrial Park is being upgraded by the Port in conjunction with local governments to ensure it is suitable to industrial tenants.

The existing parcel is approximately 14 acres, with an additional 1.44 acres to be added via a Boundary Line Adjustment to be approved by Whitman County. Grading of pads 1 and 2 will be part of the initial construction, and the remaining pads will be untouched to allow for future flexibility with tenants. The site is currently Zoned for agricultural use and will be rezoned to light and heavy industrial use by the Port. Current plans for the land are to make the lots available via land leases. The Port will retain ownership of the entire property and its utilities and roads. A road entering the property near State Highway 27 will serve as the main entrance.

Excavations and embankments for foundations and load bearing additions are to be based on the recommendations of a pending geographical analysis. An initial Phase I Environmental Site Assessment in May of 2023 did not find bedrock or groundwater of any significance; a Geotech report was also completed for earthwork recommendations. No wetlands have been identified on the property. Total excavation is expected to be around 32,000 cubic yards. Excavation will produce 9,000 cubic yards of excess soil, with which a portion can be stockpiled and reused for landscaping and fill for areas that will not have structural components. On-site storm sewer improvements are to conform to the latest version of the IBC and the UPC, as well as WSDOT specifications where needed. Stormwater facilities are expected to be maintained by the current or future property owner(s), and facilities on public land shall be maintained by Whitman County.

Currently, the site has two bioretention and detention ponds. Each of the ponds will have a portion of the road and designated lots that will drain into them. Lots 1 and 2 will drain to the

pond closest to State Highway 27, and lots 3 through 5 will drain to the pond located West of lot 3.

Sewer is to be constructed by the Port and distributed to each designated lot. The main sanitary lines will terminate at a common distribution box at the high end of the drain field (Northwest Site). Lots 1 and 2 are located below the elevation of the remaining lots and will need a pressure main to the distribution box; the rest will be served by a gravity mainline. Tenants will be responsible for septic tanks or pumping systems within their property. They will also need to design the drain field sizing and install the necessary infrastructure in accordance with Whitman County Health. The Port of Whitman County will maintain the sanitary main lines and drain field for a yearly fee. A design flow of 12-13 gallons per day per employee will be used as a reference for Environmental Health. For the 5 lots, 10 employees will be assumed for a total of 120-130 gallons per day.

A domestic well is available on site in the northern most section of the property. The well is regarded by SynTier as "not optimal" and will require many fixes to ensure the serviceability of the well. A reconstructed well could serve the entire industrial park with drinking water. Tenants are planned to share a 5,000 gallon per day limit and shall be individually metered. Alternatively, the Port of Whitman County desires to gain access to municipal water via the Town of Tekoa. If accomplished, the well will no longer serve the Industrial Park, and the 5,000-gallon limit will be removed.

Fire suppression will be provided by tenants according to their building size, type, and use. A reservoir and dedicated fir mainline with hydrants can be installed by the Port. The largest structure on the property will be the determinate of reservoir size and fire suppression needs.

Avista will power the property and the main feed crosses through the property. A currently standing building is currently serviced by the existing power. 3 Phase power is currently not available, but a tenant can request conversion to 3 Phase power after the service meter at their own expense. Natural gas is not provided, and tenants will be responsible for providing gas through propane or other methods at their own expense. Ziply Cable Communications will service the site as well.

The following permits have also been completed:

- Department of Ecology construction stormwater permit.
- WSDOT Application for Access Connection
- TNC Group A Water System, Through Washington State Department of Health
- Rezone completed with Whitman County

Impact to Transportation System

For the purpose of the traffic impact assessment, SynTier assumed that each lot within the Industrial Park will have a 20,000 square foot building as a placeholder. Buildings that vary in size may necessitate a reevaluation of the traffic impacts. The intent of SynTier's traffic analysis is to determine if right and/or left turn lanes will be required with the initial development.

Land Use Code 130 for an Industrial Park from the Trip Generation Manual (ITE, 11th Edition, 2021) was used to determine peak hour traffic counts for the site. Using this code, the AM Peak Hour is estimated to have 41 trips, and the PM Peak Hour is estimated to have 40 trips. Also, the Washington State Department of Transportation (WSDOT) Traffic Count Database System (TCDS) provided an existing traffic count, which found that 73 trips per day in both directions were taken on SR 27.

WSDOT's Design Manual details the evaluation of when a right turn is required (WSDOT Design Manual, Version M22-01.22, October 2023, Exhibit 1310-24). The relationship between total traffic in the peak hour (DDHV) and the number of right turns in the peak hour is critical in determining the need for a right turn lane. A direction distribution was applied for the AM and PM Peak Hour trips, which was provided by the Trip Generation Manual Land Use Codes.

Table 24 determines that the Peak Hour Approach Volume (DDHV) before a right turn pocket is required will not be reached. The total daily trips provided by the WSDOT TCDS (73 trips) is significantly less than the DDHV required for a right turn pocket (338 trips). However, even though it is not required, a right turn taper will be constructed to enhance the turning movements, increase safety, and to provide better usability to the existing traffic flow.

The evaluation of when a left turn is required is determined by the WSDOT Design Manual's Exhibit 1310-9. Using the total traffic (DHV) figure found by WSDOT TDCS (73 trips), the traffic on SR 27 does not surpass the threshold for a required left turn lane. According to the Design Manual, the total DHV would need to surpass 300 to require a left turn lane.

Table 24: Peak Hour Directional Distribution

	Land Use Code (Trips)	Entering (%)	Entering (Trips)	Exiting (%)	Exiting (Trips)
AM Peak Hour Trips	41	87	36	13	5
PM Peak Hour Trips	40	21	8	79	32

Source: SynTier Engineering Inc.

Overall, neither a left nor right turn lane will be required for the development of the Tekoa Industrial Park. A right turn taper will be constructed for general safety purposes. Additional analysis may be required in the event of higher-than-expected occupancy. Further explanatory information can be found in Tables 15A and 16A in Appendix A.

7. Economic Impact and Diversification Analysis

Introduction

An important tool in any real estate development that involves public-private partnership is an economic impact analysis (EIA). Such analyses shift the conversation from benefits appreciated by the developer to the economic benefits appreciated by the broader community. An EIA quantifies the value of an event or project to a regional economy by modeling its ripple effect on job creation, employee earnings, economic output, and tax revenue. Such analysis can also be used to compare the costs and benefits of a variety of public and private development options which would also need to be considered in light of operational capabilities, risk tolerance, and net public benefit. In this analysis, PC measures the impact of the proposed Tekoa Industrial Park on the Big Region and the State of Washington.[20]

It is important to note that in this study, PC is measuring the annual impact of the Industrial Park once it is fully operational and integrated within the regional economy. Like any new development, there is a ramp-up period during which usage and, therefore economic impacts, have not yet reached their optimal levels.

Not only will the Industrial Park increase output and earnings the region, but it will also diversify the economy by bringing employment in new industries that may or may not be related to the Tekoa Industrial Park. This data can be found in the "Detailed Jobs & Sales Impacts" Section.

Figure 31: Economic Impact Analysis Definitions

Icons by icons8.com

[20] Though most of the proposed Industrial Park's impact will be felt in Whitman County, economic impacts models function best when conducted at the county or multi-county level. In light of the nature of industry trade, it is necessary to analyze larger economic areas, as these will better represent the spending patterns of residents and the supply-chains of regional businesses.

Economic Outcomes (Economic Impact Analysis)

The Port of Whitman County plans to use the Tekoa Industrial Park for primarily heavy industrial purposes, with other uses allowed conditionally. Heavy industrial broadly means industries that require a lot of energy and cash. Oil, mining, shipbuilding, steel, chemicals, machinery, and others are considered heavy industrial types. Alternatively, light industrial involves production methods and locations that don't require costly machinery or production tools.[21] It is unlikely that the Tekoa Industrial Park could handle oil or mining operations, nor would the residents of Tekoa desire such businesses be present in the community. For this analysis, PC has identified five industries that are feasible within the realm of operations already happening in Whitman County, or that PC was informed of by the Port as desirable. The five industries are:

- Highway, Street, and Bridge Construction
- HVAC
- Sheet Metal Manufacturing
- Motor Vehicle Electrical and Electronic Equipment Manufacturing
- Aircraft Engine and Engine Parts Manufacturing

In this analysis, Direct Effects refer to spending either by the businesses themselves or by users of products generated from the businesses. Total Effects refer to the total economic impact after accounting for how direct spending will "ripple" throughout the regional economy via inter-industry spending (i.e. vendors and suppliers) and household spending (i.e. individuals spending household budgets). The multiplier effect simply divides total impact by direct impact and serves as a helpful comparison tool when determining the potency of an economic impact.

Figure 32: Annual Economic Impact of the Tekoa Industrial Park to Whitman County

Source: PC using Lightcast Input-Output Model, 2024; Icons by icons8.com

[21] "What is Industrial Zoning? Light vs. Heavy Industrial Zones", ZenaDrone, https://www.zenadrone.com/what-is-industrial-zoning-light-vs-heavy-industrial-zones/

Figure 33: Annual Economic Impact of the Tekoa Industrial Park to Washington

Source: PC using Lightcast Input-Output Model, 2024; Icons by icons8.com

Presented in the Figures above and Tables 25-29 are the results of the economic impact analysis, assuming Tekoa Industrial Park fills with tenants in the five industries noted earlier. The Tekoa Site would deliver substantial economic impact to the "Big Region" and the state of Washington. Whitman, Latah, Spokane, and Benewah Counties will benefit from operational impacts, gaining 205 jobs and $15.1 million in annual earnings. Those jobs would be supported by more than $48.8 million in increased annual economic output. As with any economic impact analysis, results are most accurately generated at the county level rather than the city level. Given that Tekoa is the host city, it is expected that much of the Industrial Park's impacts would occur there and around the region in cities such as Colfax and Pullman.

In addition to the local impact, the state of Washington would also see a net increase of 217 jobs, nearly $18.7 million in annual earnings, and $58.7 million in economic output. The overall impacts in Washington are only around 20% higher than the "Big Region". Note that the increase in Washington also includes the Whitman and Spokane sections of the "Big Region". This means that much of the economic impact will be felt within the "Big Region", with small ripples outwards into the rest of Washington and the state of Idaho.

The tax impacts shown in Tables 25 and 26 are included in Lightcast's Input-Output model. The PC team has generated a Financial Impact Analysis that breaks down increases in tax revenue for both Whitman County and Washington in the "Tax Impact Section". Discrepancies between the tax impact predicted by the Input-Output model and PC's model may be caused by the lack of Lightcast's ability to account for nuances of the Tekoa Industrial Park Project and Whitman/Washington tax codes.

Table 25: Average Annual Economic Impact in the "Big Region" and Washington

Big Region			
Category	Direct	Total	Multiplier Effect
Economic Output (or Sales)	$29,370,000	$48,810,000	1.66
Earnings	$8,330,000	$15,100,000	1.81
Jobs	100	205	2.05
Taxes			
	Local	State	Federal
	$620,000	$580,000	$310,000
Washington			
Category	Direct	Total	Multiplier Effect
Economic Output (or Sales)	$32,820,000	$58,720,000	1.79
Earnings	$9,570,000	$18,660,000	1.95
Jobs	100	217	2.17
Taxes			
	Local	State	Federal
	$860,000	$790,000	$350,000

Source: PC using Lightcast Input-Output Model, 2024

Table 26: Average Annual Economic Impact in the "Small Region" and Whitman County

Small Region			
	Direct	Total	Multiplier Effect
Economic Output (or Sales)	$29,740,000	$36,400,000	1.66
Earnings	$8,000,000	$10,520,000	1.81
Jobs	100	205	2.05
Taxes			
	Local	State	Federal
	$260,000	$250,000	$140,000.
Whitman County			
	Direct	Total	Multiplier Effect
Economic Output (or Sales)	$29,970,000	$35,170,000	1.79
Earnings	$8,080,000	$9,940,000	1.95
Jobs	100	205	2.05
Taxes			
	Local	State	Federal
	$290,000	$280,000	$170,000

Source: PC using Lightcast Input-Output Model, 2024

Tables 27-29 reflect the economic impacts if the Tekoa Industrial Park were to start with just one business.

Table 27: Single Industry Economic Impacts in "Big Region"

Sheet Metal Manufacturing Business	Direct	Total	Multiplier Effect
Economic Output (or Sales)	$4,791,175	$7,507,477	1.57
Earnings	$1,402,370	$2,367,262	1.69
Jobs	20	35	1.77

Source: PC using Lightcast Input-Output Model, 2024

Table 28: Single Industry Economic Impacts in the "Small Region"

Sheet Metal Manufacturing Business	Direct	Total	Multiplier Effect
Economic Output (or Sales)	$5,188,285	$6,264,641	1.21
Earnings	$1,531,519	$1,953,974	1.28
Jobs	20	29	1.45

Source: PC using Lightcast Input-Output Model, 2024

Table 29: Single Industry Economic Impacts in Whitman County

Sheet Metal Manufacturing Business	Direct	Total	Multiplier Effect
Economic Output (or Sales)	$5,188,285	$5,987,086	1.15
Earnings	$1,531,519	$1,831,195	1.20
Jobs	20	26	1.30

Source: PC using Lightcast Input-Output Model, 2024

Construction Impact

As noted in the "Project Success" section, the Industrial Park will likely not be fully operational until at least 2030, and potentially even longer. Even though the economic impacts may not be fully realized until that point, the process necessary to develop the site will bring employment opportunities and economic output through construction, landscaping, engineering, and more. These job opportunities will create similar "multiplier effects" in the community of Tekoa. Per CERB requirements, the estimated median hourly wage must be calculated for these new jobs that are related to the development of the Tekoa Industrial Park.

The first phase of development for the Park will be to implement the changes and improvements to the land and infrastructure recommended by SynTier.[22] This includes but isn't limited to: excavation, piping, stripping, and sewer cleanouts. To accurately identify the overall impact of this, the PC team identified five industries that will be involved with the preparation of the Site, as well as their costs:

- Site Preparation Contractors[23] ($811K)
- Water and Sewer Line Related Structures Construction ($708K)

[22] See Chapter 6 and Appendix D

[23] This NAICS Code encompasses all site preparation activities, such as excavating and grading, demolition of buildings, septic system installation, earthmoving, and equipment operation.

- Poured Concrete Foundation and Structure Contractors ($360K)
- Engineering Services ($120K)
- Landscaping ($50K)

These industries were broken down by overall costs in accordance with prices estimated by SynTier Engineering. The prices above are without taxes, but Table 30's total price includes taxes. With the overall number of sales being produced, the PC team was able to calculate the expected earnings per worker using the same methods as EIA Section earlier in this report. The findings are displayed in Table 30.

The next step of site development is the construction that will occur after building specifications are finalized. The process of constructing industrial buildings is a labor-intensive process that will produce higher levels of output than the first phase of development. To calculate the output generated by future construction, each lot was evaluated by lot size and likely building size on that lot in square feet. RSMeans, a data site for contractors, was then used to estimate the total cost of construction, including everything such as:

- Foundations
- "Shell" constructions such as roofing, walls, windows, and doors
- Interior walls, flooring, and ceiling finishes
- Services such as plumbing, electrical, and fire sprinklers
- Equipment costs

Each building was assumed to be 1 story with metal panels and rigid steel. With inflation, changing costs of materials, and building specifications likely being different, the level of construction output will likely vary by hundreds of thousands of dollars in either direction. However, these figures represent PC's current best estimate. The construction output by each lot is expected to be:

- Lot 1: $2.5M
- Lot 2: $3.5M
- Lot 3: $8.9M
- Lot 4: $8.9M
- Lot 5: $4.9M
- All 5: $23.7M

Similar to the first phase, the PC team was able to derive the estimated wages for each worker based on the estimated earnings created from the construction's output. As shown in Table 30, the construction phase of development will provide more jobs and higher wages than the preparation phase, as well as generate more revenue. Both parts of development provide an hourly median wage that is above the Whitman County median hourly wage of $25.74.

Table 30: Worker's Wages from Site Development

	Total Investment (Taxed)	New Jobs Created	Median Hourly Wage
Site Preparation	$2,722,855	17	$27.94
Building Construction	$23,689,353	154	$44.33
Total	**$26,412,208**	**171**	**$36.13**

Source: RSMeans and Lightcast Input-Output Model, 2024

Private Investment Generation

The private investment generation for the project is not expected to occur in the early stages of the project. The Port hopes to fund the initial site preparation with grant funding to cover the estimated total of $2.7M. Once the lots are prepared, the Port will lease the land to prospective businesses, likely in the form of long-term leases that allow the company to dictate the remaining construction of buildings and utilities. The remaining $23.7M is expected to be generated privately, with businesses constructing and owning their own buildings on the leased land. The Port of Whitman hopes to finalize funding initiatives for the Site by April of 2025.

Worker Benefits

Benefits to workers are an important part of attracting and retaining the talent pool available in the area. Each profession from the industries in this report offer different benefits packages. The estimated benefits in Table 31 were calculated through Lightcast's Industry Tables, which estimate the amount of "supplemental pay" that is received on average for each industry. The industry with the largest average benefits packages is Industrial Building Construction, with just over $24K in benefits offered. The lowest is Landscaping services, at around $7K. Both the highest and lowest are involved in site preparation, rather than the five selected industries that could inhabit the Industrial Park.

Specific types of benefits will be provided by the employer. On average, benefits packages from these industries likely include:

- Vacation
- Sick Pay
- 401K
- Standard Health Packages

Table 31: Estimated Worker Benefit Totals by Industry

	Estimated Wages per Worker	Estimated Benefits
Aircraft Engine and Engine Parts Mfg	$101,239	$17,723
Industrial Building Construction	$92,717	$24,276
Motor Vehicle Electrical and Electronic Equipment Mfg	$88,811	$12,944
Water and Sewer Line Related Structures Construction	$88,503	$17,312
Hwy,St, & Bridge Construction	$77,352	$21,528
Engineering Services	$76,902	$17,228

Sheet Metal Mfg	$76,576	$15,025
HVAC	$59,891	$18,409
Site Preparation Contractors	$58,110	$15,835
Poured Concrete Foundation and Structure Contractors	$45,208	$13,988
Landscaping	$30,822	$7,245

Source: PC using Lightcast Industry Tables, 2024

Tax Impact

In addition to forecasting economic impact in terms of jobs, earnings, and sales, PC has built a fiscal impact model which forecasts revenues to local and state governments caused by infusion of one to five new economic assets. The model accounts for sales tax, business and operation taxes, lodging taxes, and motor vehicle sales taxes. The model is not tuned to allocate revenue according to taxation district (e.g.: library district, highway district, county, etc.). Additionally, the model does not approximate revenue gained for each city and taxation district within the county. This final point is particularly important in relation to the Town of Tekoa and other cities within Whitman County that could benefit from the Industrial Park's presence. Shares of existing county and state taxes as well as additional taxes may accrue for each of the primary cities within the county, but these values have not been approximated here.

PC has included four different financial impact models based on the different economic impact scenarios. The two different scenarios are: five different businesses present at the Tekoa Industrial Park, and one business (Sheet Metal Manufacturing) at the park. These two scenarios have been divided into a Whitman County Impact and a Washington Impact.

Two common taxes collected that are missing from the FIA Model are income tax and property tax. The State of Washington does not collect income taxes. Instead, the state has replaced income tax with a Business and Operations Tax (B&O Tax) that is industry specific. For this analysis, PC used an average of all B&O tax rates across each industry for the five-business scenario. For the single-business scenario, PC used the Manufacturing B&O Tax at 0.484%. The B&O Tax reported in Tables 32 and 34 may be higher in practice, as a business owner that both manufactures and sells products in the State of Washington will be subject to both the Manufacturing B&O Tax and the Wholesaling or Retailing B&O Tax. A tax credit is offered for businesses that operate in both Manufacturing and Wholesaling/Retailing.[24]

The Port of Whitman County is exempt from property taxes. Given that they will continue to hold the title to the land at the Industrial Park, it is expected that no property taxes will be collected from the property. However, a leasehold tax is expected to be collected at a rate of 12.84% to each business on the property. Not all of this will be collected by one entity, with 6.84% going to the State of Washington, and 6% going to Whitman County. Factoring in the estimated building size found in Table 36, the expected collection for Washington is $104,400 and $91,900 for Whitman County.

[24] Washington State Legislature Revised Code of Washington Chapter 82.04

As shown in Table 32 and 34, the State of Washington would collect roughly $2.74 million in net new taxes because of the Tekoa Industrial Park with all five lots filled. With one lot filled, Washington would stand to gain $442 thousand in increased tax revenue. Whitman County will gain approximately $587 thousand in tax revenue with all five industries, and around $94 thousand with one.

All the assumptions in the following tables are built using the assumptions from the beginning of Chapter 7, with 20 workers per business. The economic output for each respective scenario dictated the tax base for sales and B&O taxes. The increase in sales projected for housing and vehicles informed the remaining tax bases. For example, with 20 new workers, there was an expected $33,462 growth in vehicle sales in Whitman County, which resulted in a gross tax liability of $100.39.

Table 32: Full Industrial Park Annual Fiscal Impact to Washington State

Category	Amount
Sales Tax	$2,282,000
Business and Operations Tax	$341,000
Leasehold Tax	$104,800
Lodging Tax	$16,000
Motor Vehicles Sales Tax	$590
Grand Total	**$2,744,390**

Source: PC using Lightcast Input-Output Model, 2024

Table 33: Full Industrial Park Annual Fiscal Impact to Whitman County

Category	Amount
Sales Tax	$492,000
Leasehold Tax	$91,900
Lodging Tax	$2,800
Motor Vehicles Sales Tax	$8
Grand Total	**$586,708**

Source: PC using Lightcast Input-Output Model, 2024

Table 34: Single Business Annual Fiscal Impact to Washington State

Category	Amount
Sales Tax	$394,000
Business and Operations Tax	$35,000
Leasehold Tax	$10,000
Lodging Tax	$3,000
Motor Vehicles Sales Tax	$100
Grand Total	**$442,100**

Source: PC using Lightcast Input-Output Model, 2024

Table 35: Single Business Annual Fiscal Impact to Whitman County

Category	Amount
Sales Tax	$85,000
Leasehold Tax	$8,800
Lodging Tax	$500
Grand Total	**$94,300**

Source: PC using Lightcast Input-Output Model, 2024

Detailed Jobs and Sales Impacts; Diversifying the Local Economy

Increases in employment, earnings, and output for the five identified industries will also induce a multiplier effect that directly, and indirectly creates jobs elsewhere in the Whitman County Economy. Examples of this are shown in Figures 34-37, which show all projected increases in employment within and outside of the industrial sectors. With increased production of materials and parts, it can be expected that retailing and wholesaling careers would follow closely. The increase in population from new work in Tekoa would also necessitate an increase in health care workers (+13 jobs) and food providers (+8 jobs).

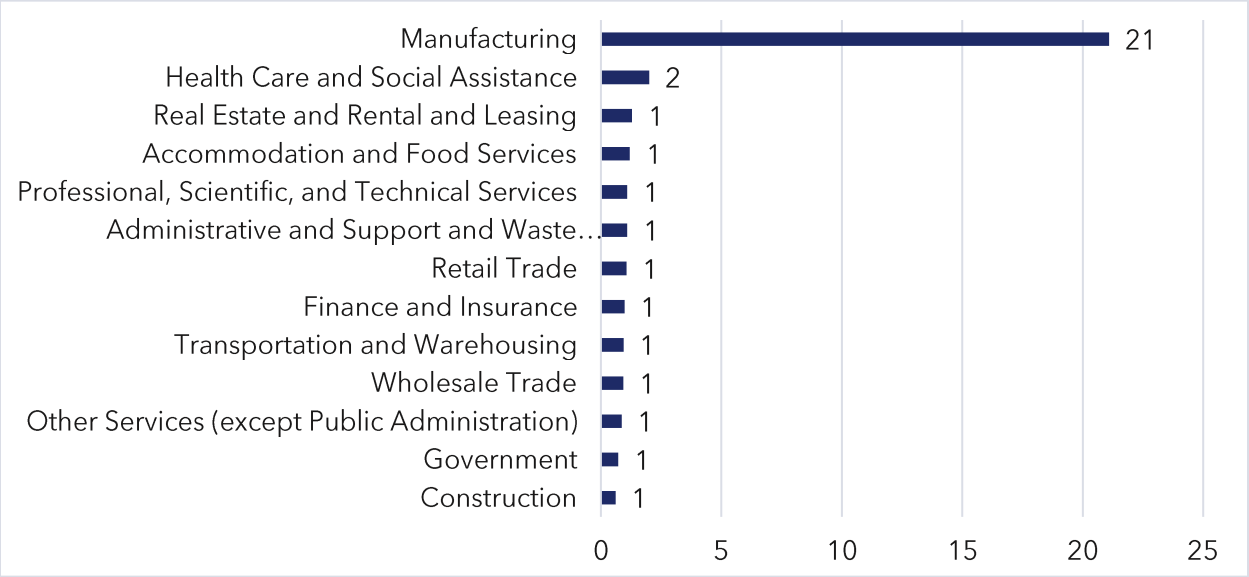
With the installation of the Tekoa Industrial Park, numerous industry sectors in the "Big Region" and Washington would be positively impacted. The largest number of jobs would be added in sectors that are to be expected including Manufacturing (+72 jobs) and Construction (+44 jobs) in the "Big Region". Additionally, increased economic output would support an added nine jobs in Retail Trade and eight jobs in Professional, Scientific, and Technical Services. Potentially less intuitive changes could be experienced including 13 jobs in Health Care and Social Assistance, and seven jobs in Real Estate and Rental Leasing.

Figure 34: "Big Region" Total Jobs Impact by Industry Sector

Source: PC using Lightcast Input-Output Model, 2024

Referring to the previous scenario in which the Port is positioned to bring in a single business, the presence of only that industry in the "Big Region" would lead to an increase of 21 Manufacturing jobs. The single business alone could also bring employment across 12 different industries.

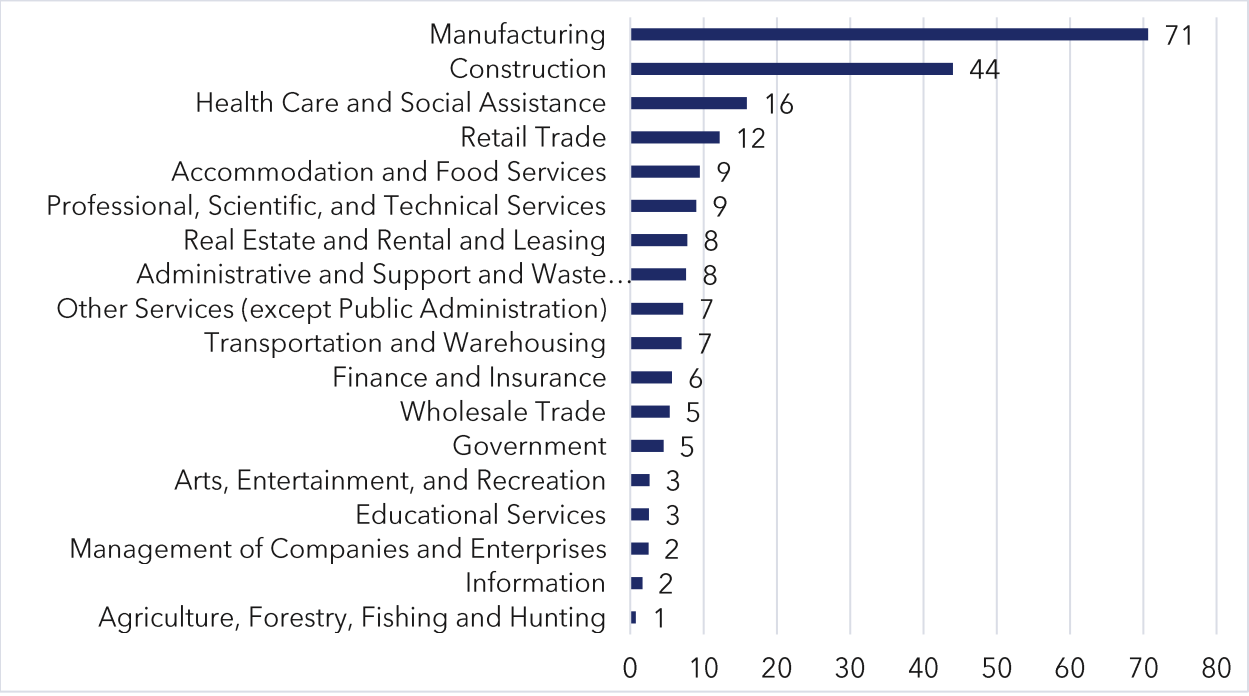
Figure 35: "Big Region" Total Jobs Impact by Industry Sector, Sheet Metal Business Scenario



Source: PC using Lightcast Input-Output Model, 2024

The State of Washington will benefit from an increase of 71 manufacturing jobs and 44 construction jobs. Whitman County will claim 62 of the manufacturing jobs, and 41 of the construction jobs. Figures 35 and 36 show that most of the impact on employment will occur in Washington, with only a few jobs spilling over to nearby Idaho counties.

Figure 36: Washington Total Jobs Impact by Industry Sector



Source: PC using Lightcast Input-Output Model, 2024

Figure 37 displays the employment impact in Washington if the Tekoa Industrial Park opens with only the Sheet Metal Manufacturing Business. Manufacturing will have the largest and most intuitive gain with an increase of 22 jobs.

Figure 37: Washington Total Jobs Impact by Sector, Sheet Metal Business Scenario

Source: PC using Lightcast Input-Output Model, 2024

PC has also created an outlook on what occupancy in the Tekoa Industrial Park could look like in the future. Table 36 shows how each lot may be occupied using the designated acreages of each lot and commonly accepted industry standards of workers per acre (by business classification). Lots were assigned based on the likely needs for each business. For example, and HVAC contracting firm is less likely to need as much space as an Aircraft Engine and Parts Manufacturing business. This table gives a more accurate snapshot of what employment increases could look like, instead of a flat rate of 100 workers.

Table 36: Lot Assignments and Workers per Acre

NAICS	Industry Description	Lot Assignment	Acreage	Estimated Building Size (sq. ft)	Workers per Acre	Total Workers per Lot
332322	Sheet Metal Mfg	Lot 1	2.45	29839	12	16
237310	Hwy,St, & Bridge Construction	Lot 2	1.37	26681	6	15
336320	Motor Vehicle Electrical and Electronic Equipment Mfg	Lot 3	2.6	56628	12	31
336412	Aircraft Engine and Engine Parts Mfg	Lot 4	2.6	56628	12	31
238220	HVAC	Lot 5	1.65	17969	6	10

Source: PC, 2024

Using the lot assignments above, it is expected that each business will hire the same number of full-time equivalents (FTEs) as the number of workers likely designated per lot. Estimated salaries have been equated using the Economic Impact Analysis of earnings, found earlier in Chapter 7. The direct earnings impact for the workers of the Tekoa Industrial Park will be a median wage of $77,352. Following a 40 hours per week schedule, this equates to a median hourly pay of $37.19, which is almost $12 above Whitman County's hourly wage of $25.74.

Table 37: Estimated Salary per Workers and Full Time Equivalents (FTEs)

Occupation	Estimated Salary per Worker	FTEs
Hwy,St, & Bridge Construction	$77,352	15.0
HVAC	$59,891	10.0
Sheet Metal Mfg	$76,576	16.0
Motor Vehicle Electrical and Electronic Equipment Mfg	$88,811	31.0
Aircraft Engine and Engine Parts Mfg	$101,239	31.0
Median per Worker	$77,352	--
Median Hourly Pay	$37.19	--

Source: PC using Lightcast Input-Output Model

Labor force is a calculation that represents the employed and unemployed population compared to the entire population. Unemployed workers are those who are available and looking for employment. With an increase of 217 jobs (using the Economic Impact Analysis), the labor force participation rate is expected to expand from 53.9% in Whitman County, to 54.4%. The increase in employment won't make a noticeable change for the State of Washington, even including the indirect employment increases. Indirect employment could increase the labor force participation rate to 54.3% in Whitman County.

Table 38: Labor Force Before and After Implementation of the Tekoa Industrial Park

	Population	Employed	Unemployed	Labor Force Participation Rate
Whitman	41,032	20,790	1,338	53.9%
Washington	6,526,200	3,978,503	187,419	63.8%
Whitman with Additional Workers	41,249	21,007	1,338	54.4%
Washington with Additional Workers	6,526,417	39,78,720	187,719	63.8%

Source: Esri Business Analyst and PC using Lightcast Input-Output Model

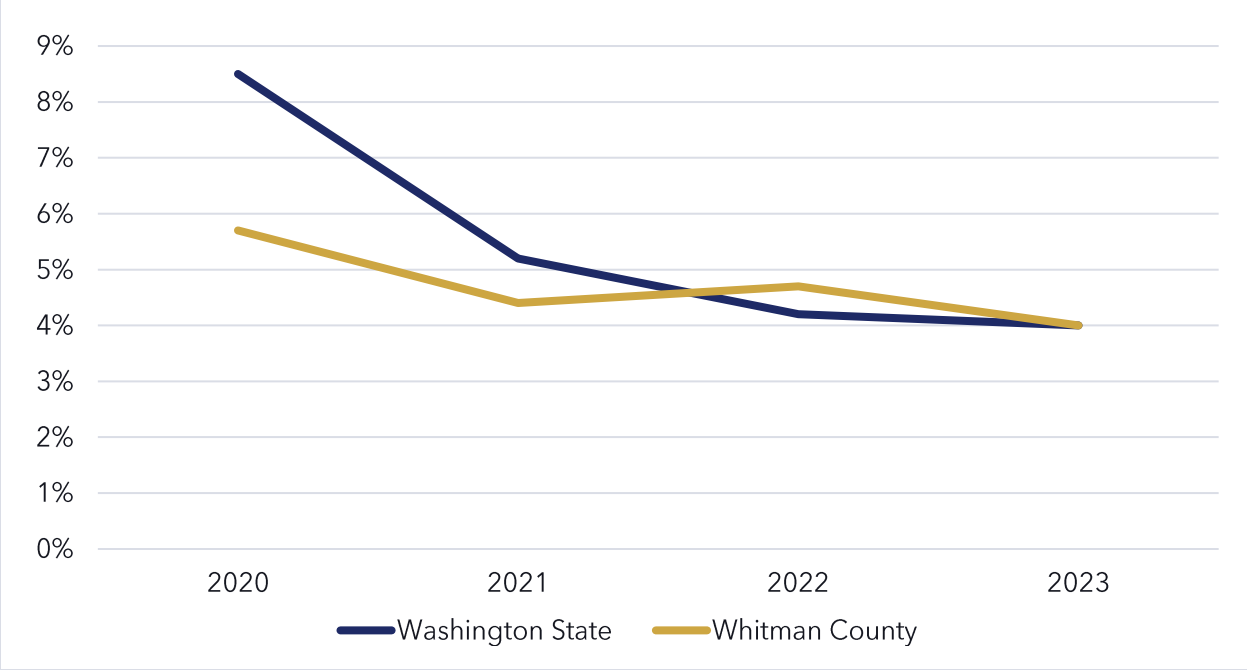
Table 39: Estimated Jobs as a Percentage of Labor Force and Unemployment

	Employed	Unemployed	New Workers	%
Estimated jobs as a % of county's labor force	20790	1338	217	1.0%
	Employed	Unemployed	New Workers	%
Estimated jobs as % of county's unemployed workers	20790	1338	217	16.2%

Source: Esri Business Analyst and PC using Lightcast Input-Output Model

The increase in employment would help push Whitman County's unemployment rate below the State of Washington. Since the pandemic, Whitman County's rate has been below Washington's until 2022, and has since decreased again to tie with Washington at 4%.

Figure 38: County and State Unemployment Rates 2020-2023



Source: Whitman County Trends Website

Project Success

The EIA projects an increase in employment, earnings, economic output, and tax revenue for Whitman County and the State of Washington. It is impossible to guarantee that the data figures in the EIA section will take place, but general increases all four of these categories will indicate that the Tekoa Industrial Park is succeeding in the Port's goal of economic growth and expansion. Once development begins, each year will bring a different set of measurable terms that indicate if the project is on track and succeeding in its goals.

In the initial stages of development, the success of the project can be measured by first ensuring that site construction operates smoothly and efficiently, with little interference.

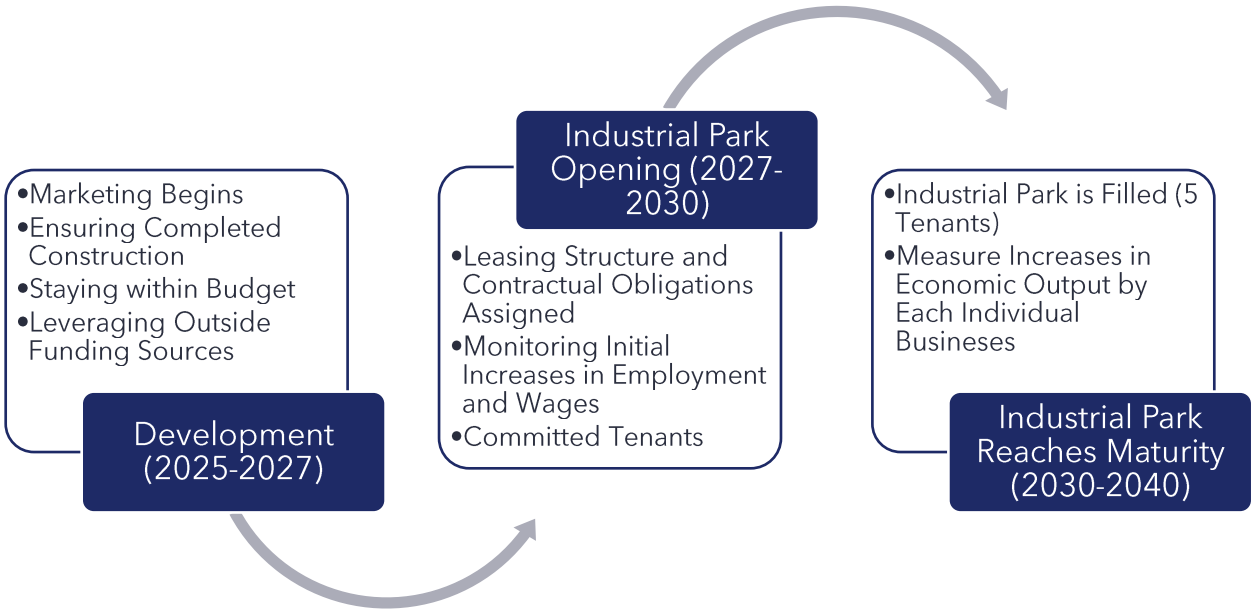
Delays in construction may induce tenant uncertainty. The Port should aim to keep construction on track. During this time, the marketing of the Industrial Park can be aided by supplementing prospective businesses with progress reports. Marketing will be important during this time, as the Industrial Park should ideally reach full capacity by 2028. Key performance indicators (KPIs) during the development stage will include construction progress, funding availability, and marketing success measured by the number of committed tenants. This also includes the KPIs from Chapter 3, "Market Strategy".

In the later stages of development, building specifications required by the tenants should be allocated and nearing completion. Contractual obligations of both the tenants and the Port, including leasing agreements, should be settled. Success in this stage of the project should be indicated by job growth caused by construction and projected initial job growth once tenants move into the Industrial Park. The State of Washington and Whitman County should also observe increases in tax revenue and economic activity during this time, although noticeable effects may be delayed until businesses have opened their doors.

Finally, project success will ultimately be indicated by whether the Industrial Park is operating at full capacity. At this stage of the project, quantifiable measurements of employment, output, and revenues can be evaluated by the Port of Whitman County. Theoretically, the housing market should also see quantifiable changes, indicating that the five businesses operating are succeeding in bringing employment to Tekoa. Minimizing the failure rate of businesses should also be important to the Port.

Data indicating project success will be collected by the Port of Whitman County. Supplemental data such as tax revenues will be collected by the State of Washington already.

Figure 39: Timeline of Project Success



Appendix A: Detailed Tables

Table 1A: Age Demographics

	US	Washington	Whitman County	Pullman	Tekoa
Under 10	11.8%	11.8%	9.0%	8.0%	4.5%
10 to 19	13.1%	12.2%	16.5%	18.2%	12.7%
20 to 34	13.6%	21.6%	37.4%	49.0%	6.1%
35 to 44	13.5%	13.9%	9.7%	8.3%	9.8%
45 to 54	12.4%	12.2%	7.4%	5.7%	10.0%
55 to 64	12.8%	12.4%	8.6%	4.4%	16.3%
65 to 74	11.8%	9.8%	6.6%	3.4%	17.7%
75 and over	11.1%	6.2%	4.9%	3.0%	22.8%
Ages 55+	35.7%	28.4%	20.1%	10.8%	56.9%
Median Age	38.5	38	26	22.8	58.4

Source: US Census Bureau 5-year ACS

Table 2A: Employment by 2-digit SOC Codes in "Small Region"

Description	2023 Jobs	Change ('10-'23)	% Change ('10-'23)	% of Jobs (2023)
Educational Instruction and Library Occupations	5,225	(690)	(11.7%)	13.1%
Office and Administrative Support Occupations	4,664	(219)	(4.5%)	11.7%
Food Preparation and Serving Related Occupations	3,348	25	0.8%	8.4%
Sales and Related Occupations	2,720	142	5.5%	6.8%
Management Occupations	2,667	883	49.5%	6.7%
Production Occupations	2,256	842	59.5%	5.7%
Transportation and Material Moving Occupations	2,024	356	21.4%	5.1%
Business and Financial Operations Occupations	1,916	753	64.7%	4.8%
Healthcare Practitioners and Technical Occupations	1,771	301	20.4%	4.4%
Healthcare Support Occupations	1,658	377	29.5%	4.2%
Building and Grounds Cleaning and	1,554	(74)	(4.5%)	3.9%

Maintenance Occupations				
Installation, Maintenance, and Repair Occupations	1,541	171	12.4%	3.9%
Construction and Extraction Occupations	1,491	359	31.7%	3.7%
Life, Physical, and Social Science Occupations	1,276	308	31.8%	3.2%
Community and Social Service Occupations	926	135	17.1%	2.3%
Computer and Mathematical Occupations	899	220	32.3%	2.3%
Arts, Design, Entertainment, Sports, and Media Occupations	888	126	16.6%	2.2%
Personal Care and Service Occupations	869	(116)	(11.8%)	2.2%
Architecture and Engineering Occupations	739	154	26.4%	1.9%
Farming, Fishing, and Forestry Occupations	650	(86)	(11.6%)	1.6%
Protective Service Occupations	490	(14)	(2.7%)	1.2%
Legal Occupations	132	4	3.2%	0.3%
Military-only occupations	122	(36)	(22.5%)	0.3%

Source: PC using Lightcast employment tables

Table 3A: On-the-Job Training Requirements since 2010

Typical On-The-Job Training	2010 Jobs	2023 Jobs	Change	% Change
Apprenticeship	437	587	150	34.3%
Internship/residency	252	317	64	25.5%
Short-term on-the-job training	13034	13356	322	2.5%
Moderate-term on-the-job training	4321	5575	1,255	29.0%
Long-term on-the-job training	768	905	137	17.9%
N/A	158	122	(36)	(22.5%)
None	15028	16889	1,862	12.4%

Source: PC using Lightcast employment tables

Table 4A: Entry Level Education Requirements since 2010

Typical Entry Level Education	2010 Jobs	2023 Jobs	Change ('10 - '19)	%Change ('10 - '19)
Associate's degree	772	928	156	20.1%
Bachelor's degree	6601	8647	2,046	31.0%
Doctoral or professional degree	3544	2949	(595)	(16.8%)
High school diploma or equivalent	11018	12804	1,786	16.2%
Master's degree	965	1278	313	32.5%
No formal educational credential	7917	8052	135	1.7%
Postsecondary nondegree award	1719	1801	82	4.8%
Some college, no degree	1305	1171	(134)	(10.2%)

Source: PC using Lightcast employment tables

Table 5A: Top Specialized Skills for Targeted Industries in "Small Region"

Skills	Postings	% of Total Postings	Profiles	% of Total Profiles	Projected Skill Growth	Skill Growth Relative to Market
Truck Driving	184	9%	23	1%	15.7%	Growing
Marketing	171	8%	118	6%	23.0%	Rapidly Growing
Forklift Truck	147	7%	20	1%	5.5%	Stable
Fertilizers	143	7%	11	1%	11.6%	Growing
Caregiving	143	7%	7	0%	23.1%	Rapidly Growing
Pallet Jacks	139	6%	0	0%	11.6%	Growing
Material Handling Equipment	137	6%	0	0%	17.1%	Growing
Agriculture	126	6%	34	2%	19.4%	Growing
Project Management	118	5%	158	8%	19.8%	Rapidly Growing
Field Service Management	114	5%	4	0%	18.2%	Growing
Merchandising	114	5%	41	2%	15.0%	Growing
Warehousing	112	5%	43	2%	13.0%	Growing
Agricultural Equipment	90	4%	0	0%	25.7%	Rapidly Growing
Construction	81	4%	56	3%	10.5%	Growing
HVAC	75	3%	20	1%	7.5%	Stable
Agricultural Productivity	73	3%	0	0%	9.4%	Growing
Selling Techniques	72	3%	21	1%	(1.2%)	Lagging
Auditing	67	3%	35	2%	21.8%	Rapidly Growing
Medical Prescription	67	3%	7	0%	8.5%	Growing

Automation	64	3%	23	1%	30.5%	Rapidly Growing
Equipment Maintenance	62	3%	7	0%	9.1%	Growing
General Mathematics	61	3%	0	0%	14.8%	Growing
Housekeeping	59	3%	7	0%	13.3%	Growing
Disabilities	57	3%	0	0%	16.8%	Growing
Accounting	56	3%	48	2%	24.0%	Rapidly Growing
Hand Tools	54	3%	11	1%	6.2%	Stable
Business Development	54	3%	37	2%	5.5%	Stable
Purchasing	54	3%	34	2%	19.6%	Rapidly Growing
Standard Operating Procedure	50	2%	4	0%	9.6%	Growing
Wholesaling	50	2%	14	1%	9.9%	Growing
Office Equipment	43	2%	2	0%	16.7%	Growing
Agronomy	43	2%	23	1%	2.9%	Lagging
Stocking Merchandise	42	2%	2	0%	18.0%	Growing
Effective Communication	42	2%	3	0%	0.0%	
Finance	42	2%	33	2%	27.3%	Rapidly Growing
Smart Buildings	40	2%	0	0%	1.2%	Lagging
Computer Reservations Systems	40	2%	0	0%	9.0%	Growing
Balancing (Ledger/Billing)	40	2%	7	0%	9.0%	Growing
Sales Management	39	2%	50	2%	(2.1%)	Lagging
Subcontracting	38	2%	21	1%	9.4%	Growing
Invoicing	35	2%	21	1%	16.2%	Growing
Point Of Sale	34	2%	0	0%	13.3%	Growing
Merchandise Displays	32	1%	0	0%	22.0%	Rapidly Growing
Furniture Cleaning	32	1%	0	0%	11.6%	Growing
Biology	32	1%	30	1%	25.7%	Rapidly Growing
Control Systems	32	1%	7	0%	17.6%	Growing
Financial Statements	32	1%	16	1%	20.1%	Rapidly Growing
Sales Territory Management	31	1%	3	0%	18.9%	Growing

Sales Support	31	1%	6	0%	1.3%	Lagging
Key Performance Indicators (KPIs)	31	1%	5	0%	16.0%	Growing

Source: PC using Lightcast employment tables

Table 6A: Top Common Skills for Targeted Industries in "Small Region"

Skills	Postings	% of Total Postings	Profiles	% of Total Profiles	Projected Skill Growth	Skill Growth Relative to Market
Customer Service	612	28%	334	16%	5.2%	Stable
Sales	485	22%	286	14%	7.8%	Stable
Communication	443	21%	142	7%	3.6%	Lagging
Operations	394	18%	147	7%	8.1%	Stable
Management	389	18%	224	11%	5.3%	Stable
English Language	231	11%	34	2%	15.3%	Growing
Leadership	179	8%	188	9%	8.5%	Stable
Detail Oriented	163	8%	18	1%	7.1%	Stable
Interpersonal Communications	159	7%	12	1%	12.5%	Growing
Lifting Ability	155	7%	1	0%	10.6%	Growing
Prioritization	144	7%	4	0%	20.5%	Rapidly Growing
Professionalism	143	7%	10	0%	15.1%	Growing
Problem Solving	139	6%	54	3%	11.3%	Growing
Writing	138	6%	34	2%	11.8%	Growing
Verbal Communication Skills	131	6%	1	0%	4.1%	Lagging
Good Driving Record	123	6%	1	0%	17.3%	Growing
Microsoft Excel	123	6%	210	10%	17.7%	Growing
Teamwork	122	6%	106	5%	16.5%	Growing
Troubleshooting (Problem Solving)	120	6%	57	3%	19.0%	Growing
Planning	118	5%	56	3%	10.9%	Growing
Accountability	111	5%	6	0%	18.7%	Growing
Microsoft Office	111	5%	251	12%	18.5%	Growing
Microsoft Outlook	109	5%	25	1%	25.0%	Rapidly Growing
Research	101	5%	275	14%	17.2%	Growing
Cleanliness	101	5%	14	1%	11.1%	Growing
Coordinating	101	5%	33	2%	14.7%	Growing
Loading And Unloading	100	5%	6	0%	8.4%	Stable
Decision Making	94	4%	6	0%	13.5%	Growing

Organizational Skills	90	4%	15	1%	14.3%	Growing
Self-Motivation	86	4%	4	0%	22.7%	Rapidly Growing
Mathematics	74	3%	25	1%	20.2%	Rapidly Growing
Multitasking	74	3%	14	1%	18.4%	Growing
Memos	70	3%	0	0%	19.5%	Rapidly Growing
Influencing Skills	68	3%	2	0%	22.4%	Rapidly Growing
Scheduling	66	3%	33	2%	16.4%	Growing
Positivity	63	3%	8	0%	18.4%	Growing
Computer Literacy	60	3%	4	0%	3.2%	Lagging
Presentations	59	3%	32	2%	23.0%	Rapidly Growing
Typing	58	3%	8	0%	4.6%	Stable
Microsoft PowerPoint	56	3%	126	6%	26.1%	Rapidly Growing
Innovation	54	3%	40	2%	25.8%	Rapidly Growing
Smartphone Operation	53	2%	3	0%	9.8%	Growing
Microsoft Word	51	2%	157	8%	7.2%	Stable
Microsoft Windows	50	2%	4	0%	2.9%	Lagging
Forecasting	48	2%	25	1%	18.2%	Growing
Time Management	45	2%	78	4%	14.5%	Growing
Clerical Works	44	2%	13	1%	19.3%	Growing
Budgeting	42	2%	28	1%	16.5%	Growing
Negotiation	41	2%	35	2%	19.1%	Growing
Record Keeping	40	2%	6	0%	9.2%	Growing

Source: PC using Lightcast employment tables

Table 7A: Tekoa Import Analysis

Industry	Imported Purchases	% Imported	In-Region Purchases	% In-Region	2023 Total Dem&
Crop Production	$1,102,661	96.1%	$44,295	3.9%	$1,146,956
Electric Power Distribution	$566,761	55.3%	$457,802	44.7%	$1,024,563
Software Publishers	$793,736	98.9%	$9,072	1.1%	$802,808
HVAC Contractors	$768,466	99.8%	$1,476	0.2%	$769,942
Electrical Contractors & Other Wiring Installation Contractors	$665,623	99.4%	$4,251	0.6%	$669,874

Data Processing, Hosting, & Related Services	$615,023	97.3%	$17,176	2.7%	$632,199
Wired Telecommunications Carriers	$468,530	84.5%	$86,109	15.5%	$554,639
Commercial & Institutional Building Construction	$541,658	99.3%	$3,646	0.7%	$545,303
Crude Petroleum Extraction	$520,520	97.7%	$12,102	2.3%	$532,622
Automobile & Light Duty Motor Vehicle Mfg.	$526,229	100.0%	$0	0.0%	$526,229
Animal Production	$471,134	99.2%	$3,797	0.8%	$474,931
Drugs & Druggists' Sundries Merchant Wholesalers	$455,216	99.9%	$579	0.1%	$455,794
Media Streaming Distribution Services, Social Networks, & Other Media Networks & Content Providers	$385,060	90.2%	$41,907	9.8%	$426,968
General Warehousing & Storage	$403,396	100.0%	$0	0.0%	$403,396
New Car Dealers	$398,806	99.0%	$3,894	1.0%	$402,700
Fossil Fuel Electric Power Generation	$375,755	100.0%	$0	0.0%	$375,755
Supermarkets & Other Grocery (except Convenience) Stores	$372,804	99.6%	$1,581	0.4%	$374,384
Wireless Telecommunications Carriers (except Satellite)	$240,505	64.5%	$132,430	35.5%	$372,935
Pesticide & Other Agricultural Chemical Mfg.	$356,380	100.0%	$0	0.0%	$356,380
Residential Remodelers	$349,072	99.2%	$2,712	0.8%	$351,784
Couriers & Express Delivery Services	$347,329	100.0%	$51	0.0%	$347,380

Source: PC using Lightcast industry tables

Table 8A: "Small Region" Import Analysis

Description	Imported Purchases	% Imported	In-Region Purchases	% In-Region	2023 Total Dem&
Corporate, Subsidiary, & Regional Managing Offices	$91,578,462	89.2%	$11,132,132	10.8%	$102,710,595
Software Publishers	$70,093,955	78.0%	$19,764,267	22.0%	$89,858,222
Plumbing, Heating, & Air-Conditioning Contractors	$56,835,504	75.7%	$18,280,035	24.3%	$75,115,539
Electrical Contractors & Other Wiring Installation Contractors	$8,566,016	13.1%	$56,780,590	86.9%	$65,346,607
Crop Production	$18,102,253	29.7%	$42,791,829	70.3%	$60,894,082
Wired Telecommunications Carriers	$17,482,527	28.8%	$43,298,644	71.2%	$60,781,171
Data Processing, Hosting, & Related Services	$38,938,551	65.6%	$20,388,877	34.4%	$59,327,429
New Car Dealers	$53,942,444	94.1%	$3,407,992	5.9%	$57,350,437
Electric Power Distribution	$8,138,785	14.3%	$48,940,173	85.7%	$57,078,958
Custom Cmptr Programming Services	$41,043,091	77.0%	$12,228,829	23.0%	$53,271,921
Commercial & Institutional Building Construction	$45,617,894	85.8%	$7,578,345	14.2%	$53,196,239
Cmptr Systems Design Services	$31,983,499	61.1%	$20,401,361	38.9%	$52,384,860
Offices of Real Estate Agents & Brokers	$2,671,012	5.2%	$49,172,746	94.8%	$51,843,757
Research & Development in the Physical, Engineering, & Life Sciences (except Nanotechnology & Biotechnology)	$39,854,482	80.3%	$9,800,024	19.7%	$49,654,507
Direct Property & Casualty Insurance Carriers	$48,143,950	99.4%	$301,492	0.6%	$48,445,442
Lessors of Nonresidential Buildings (except Miniwarehouses)	$3,867,563	8.3%	$42,945,275	91.7%	$46,812,837
Engineering Services	$1,169,995	2.5%	$45,074,116	97.5%	$46,244,111
Media Streaming Distribution Services, Social Networks, & Other Media Networks & Content Providers	$40,061,174	89.6%	$4,653,897	10.4%	$44,715,071

Wireless Telecommunications Carriers (except Satellite)	$26,180,084	60.0%	$17,425,960	40.0%	$43,606,044
Direct Health & Medical Insurance Carriers	$41,452,055	100.0%	$0	0.0%	$41,452,055
Other Activities Related to Real Estate	$15,941,687	41.4%	$22,606,370	58.6%	$38,548,057
Pharmaceutical Preparation mfg.	$38,278,655	100.0%	$0	0.0%	$38,278,655
Research & Development in Biotechnology (except Nanobiotechnology)	$34,355,994	95.8%	$1,509,469	4.2%	$35,865,463
Electrical Apparatus & Equipment, Wiring Supplies, & Related Equipment Merchant Wholesalers	$34,636,140	96.8%	$1,137,686	3.2%	$35,773,826

Source: PC using Lightcast industry tables

Table 9A: "Big Region" Import Analysis

Description	Imported Purchases	% Imported	In-Region Purchases	% In-Region	2023 Total Demand
Corporate, Subsidiary, & Regional Managing Offices	$301,045,222	28%	$775,354,784	72%	$1,076,400,005
Offices of Physicians (except Mental Health Specialists)	$36,059,090	4%	$946,787,927	96%	$982,847,017
Commercial Banking	$291,207,586	31%	$647,563,410	69%	$938,770,996
Portfolio Management & Investment Advice	$483,944,366	56%	$386,145,448	44%	$870,089,814
Software Publishers	$355,672,604	44%	$445,274,443	56%	$800,947,047
Lessors of Residential Buildings & Dwellings	$1,240,675	0%	$710,987,006	100%	$712,227,681
Insurance Agencies & Brokerages	$1,477,873	0%	$666,553,405	100%	$668,031,279
Offices of Real Estate Agents & Brokers	$57,140,835	9%	$545,190,346	91%	$602,331,181
Offices of Lawyers	$245,052,416	43%	$331,111,722	57%	$576,164,138
Data Processing, Hosting, & Related Services	$389,144,240	68%	$182,834,478	32%	$571,978,718

Wired Telecommunications Carriers	$299,578,339	53%	$265,251,338	47%	$564,829,677
Plumbing, Heating, & Air-Conditioning Contractors	$86,507,100	15%	$476,969,672	85%	$563,476,772
Lessors of Nonresidential Buildings (except Miniwarehouses)	$98,076,389	18%	$445,573,543	82%	$543,649,932
Automobile & Light Duty Motor Vehicle mfg.	$543,456,177	100%	$0	0%	$543,456,177
Cmptr Systems Design Services	$62,063,029	12%	$470,455,590	88%	$532,518,619
Temporary Help Services	$269,585,468	52%	$245,975,975	48%	$515,561,443
Electric Power Distribution	$8,781,877	2%	$506,755,941	98%	$515,537,818
Engineering Services	$207,797,964	41%	$300,873,583	59%	$508,671,547
Drugs & Druggists' Sundries Merchant Wholesalers	$489,928,444	97%	$15,376,969	3%	$505,305,413
New Car Dealers	$276,095,920	56%	$218,156,522	44%	$494,252,442
Direct Property & Casualty Insurance Carriers	$51,663,478	11%	$439,061,131	89%	$490,724,609

Source: PC using Lightcast industry tables

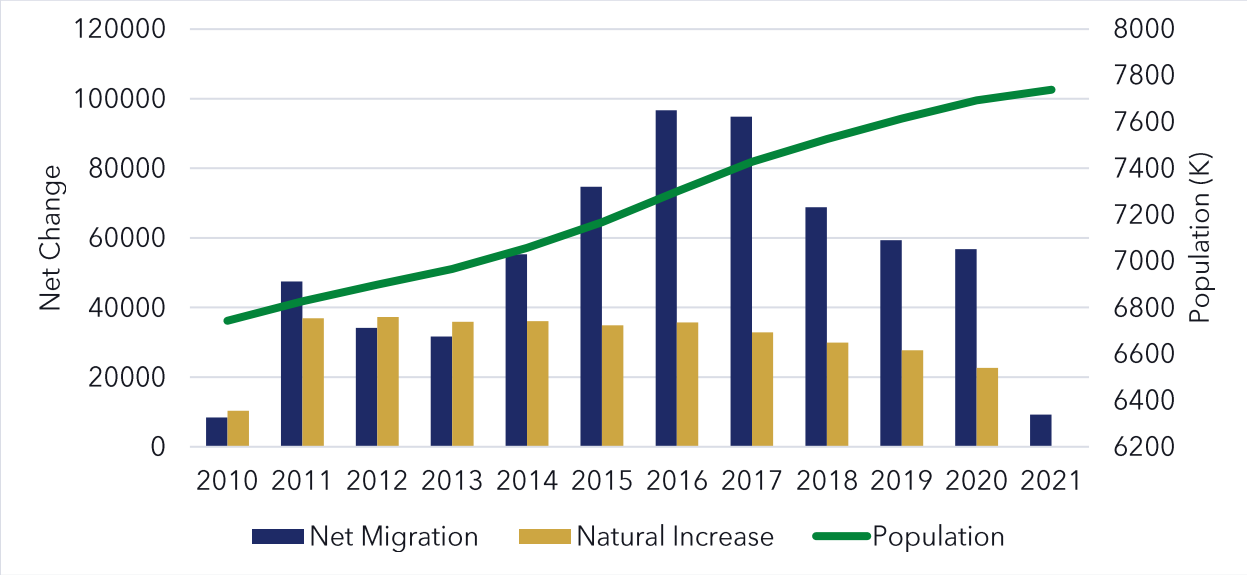
Table 10A: Employment Change and Earnings

	2018 Employment	2023 Employment	Change	% Change	Avg. Earning per Worker
NAICS 11 Agriculture, Forestry, Fishing and Hunting	1.7	2.0	0.3	19.2%	$33,544.46
NAICS 21 Mining, Quarrying, and Oil and Gas Extraction		0.3	0.3		$22,466.07
NAICS 22 Utilities	1.5	1.7	0.2	13.2%	$116,950.61
NAICS 31-33 Manufacturing	4.8	4.7	-0.1	(1.1%)	$86,317.29
NAICS 42 Wholesale Trade	22.2	22.6	0.4	1.6%	$80,115.01
NAICS 44-45 Retail Trade	90.1	68.9	-21.2	(23.5%)	$31,291.54
NAICS 48-49 Transportation and Warehousing	1.7	1.3	-0.4	(22.8%)	$64,321.65
NAICS 51 Information	0.8	0.3	-0.5	(61.8%)	$20,664.03
NAICS 54 Professional, Scientific, and Technical Services		0.4	0.4		$136,573.81

NAICS 55 Management of Companies and Enterprises	0.4	0.5	0.0	11.0%	$67,227.60
NAICS 56 Administrative and Support and Waste Management and Remediation Services	0.4	0.3	-0.1	(15.3%)	$33,530.05
NAICS 61 Educational Services	61.4	66.4	5.0	8.1%	$70,085.88
NAICS 62 Health Care and Social Assistance	13.1	16.8	3.7	28.5%	$82,388.55
NAICS 71 Arts, Entertainment, and Recreation	0.9	1.0	0.0	3.8%	$53,312.23
NAICS 72 Accommodation and Food Services	0.3	0.4	0.1	50.0%	$9,234.42
NAICS 92 Public Administration	4.4	4.4	0.0	(0.3%)	$60,133.38

Source: Data Tactical Group

Figure 1A: Washington State Components of Population Change 2010-2021[11]



Source: U.S. Census Bureau Population Estimates 2022

Table 11A : Supply Chain Leakages by Land Use

	Imported Purchases	In-Region Purchases	2023 Total Demand
Agriculture			
ZIP	$2,047,548.69	$136,871.18	$2,184,419.87
Small	$72,396,443.87	$71,665,460.72	$144,061,904.59
Mega	$488,973,202.39	$461,195,681.34	$950,168,883.72
Commercial			
ZIP	$28,731,296.69	$2,572,478.01	$31,303,774.70
Small	$1,836,408,607.73	$1,609,033,379.46	$3,445,441,987.19

Mega	$13,350,658,173.06	$31,578,669,668.94	$44,929,327,842.02
Industrial			
ZIP	$16,853,622.04	$822,181.99	$17,675,804.02
Small	$1,560,258,062.46	$408,055,846.25	$1,968,313,908.71
Mega	$13,232,826,241.14	$9,970,502,906.23	$23,203,329,147.37
Retail			
ZIP	$6,824,388.48	$422,159.10	$7,246,547.58
Small	$721,123,408.32	$211,009,045.49	$932,132,453.81
Mega	$4,642,483,853.32	$5,856,882,657.58	$10,499,366,510.90

Source: PC using Lightcast Industry Tables

Table 12A: "Tekoa ZIP Region" Top 5 Industries by Land Use

		Imported Purchases	In-Region Purchases	2023 Total Demand
Agriculture				
111000	Crop Production	$1,102,661	$44,295	$1,146,956
112000	Animal Production	$471,134	$3,797	$474,931
115115	Farm Labor Contractors and Crew Leaders	$220,039	$12,256	$232,295
115114	Postharvest Crop Activities (except Cotton Ginning)	$41,231	$61,332	$102,563
115210	Support Activities for Animal Production	$73,508	$744	$74,252
Commercial				
622110	General Medical and Surgical Hospitals	$1,336,016	$41,761	$1,377,778
522110	Commercial Banking	$789,213	$82,600	$871,813
513210	Software Publishers	$793,736	$9,072	$802,808
621111	Offices of Physicians (except Mental Health Specialists)	$785,808	$13,706	$799,514
722513	Limited-Service Restaurants	$664,670	$6,005	$670,675
Industrial				
221122	Electric Power Distribution	$566,761	$457,802	$1,024,563
238220	Plumbing, Heating, and Air-Conditioning Contractors	$768,466	$1,476	$769,942
238210	Electrical Contractors and Other Wiring Installation Contractors	$665,623	$4,251	$669,874
236220	Commercial and Institutional Building Construction	$541,658	$3,646	$545,303

236118	Residential Remodelers	$349,072	$2,712	$351,784
	Retail			
441110	New Car Dealers	$398,806	$3,894	$402,700
445110	Supermarkets and Other Grocery (except Convenience) Stores	$372,804	$1,581	$374,384
457110	Gasoline Stations with Convenience Stores	$341,984	$3,569	$345,553
455211	Warehouse Clubs and Supercenters	$251,756	$21,682	$273,438
425120	Wholesale Trade Agents and Brokers	$184,921	$37,198	$222,119

Source: PC using Lightcast Industry Tables

Table 13A: "Small Region" Top 5 Industries by Land Use

		Imported Purchases	In-Region Purchases	2023 Total Demand
	Agriculture			
111000	Crop Production	$18,102,253	$42,791,829	$60,894,082
112000	Animal Production	$22,786,382	$3,408,935	$26,195,317
115115	Farm Labor Contractors and Crew Leaders	$15,503,591	$1,432,185	$16,935,776
113310	Logging	$106,516	$13,444,673	$13,551,189
115114	Postharvest Crop Activities (except Cotton Ginning)	$6,036,701	$1,446,792	$7,483,493
	Commercial			
622110	General Medical and Surgical Hospitals	$66,544,923	$134,718,875	$201,263,798
621111	Offices of Physicians (except Mental Health Specialists)	$49,451,631	$68,278,214	$117,729,845
551114	Corporate, Subsidiary, and Regional Managing Offices	$91,578,462	$11,132,132	$102,710,595
722513	Limited-Service Restaurants	$77,878	$95,884,247	$95,962,125
513210	Software Publishers	$70,093,955	$19,764,267	$89,858,222
	Industrial			
238220	Plumbing, Heating, and Air-Conditioning Contractors	$56,835,504	$18,280,035	$75,115,539
238210	Electrical Contractors and Other Wiring Installation Contractors	$8,566,016	$56,780,590	$65,346,607
236220	Commercial and Institutional Building Construction	$45,617,894	$7,578,345	$53,196,239

236118	Residential Remodelers	$11,638,221	$22,683,580	$34,321,801
238910	Site Preparation Contractors	$4,269,084	$27,533,694	$31,802,778
	Retail			
441110	New Car Dealers	$53,942,444	$3,407,992	$57,350,437
445110	Supermarkets and Other Grocery (except Convenience) Stores	$43,282,755	$10,634,169	$53,916,924
424210	Drugs and Druggists' Sundries Merchant Wholesalers	$45,364,897	$321,908	$45,686,805
455211	Warehouse Clubs and Supercenters	$23,638,093	$15,261,081	$38,899,175
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	$34,636,140	$1,137,686	$35,773,826

Source: PC using Lightcast Industry Tables

Table 14A: "Mega Region" Top 5 Industries by Land Use

		Imported Purchases	In-Region Purchases	2023 Total Demand
	Agriculture			
111000	Crop Production	$155,667,655	$274,180,212	$429,847,868
112000	Animal Production	$193,862,118	$17,903,795	$211,765,913
113310	Logging	$2,802,109	$108,526,966	$111,329,075
115115	Farm Labor Contractors and Crew Leaders	$66,265,198	$4,077,068	$70,342,266
115114	Postharvest Crop Activities (except Cotton Ginning)	$24,663,470	$6,432,793	$31,096,263
	Commercial			
622110	General Medical and Surgical Hospitals	$152,164,635	$2,122,403,403	$2,274,568,038
551114	Corporate, Subsidiary, and Regional Managing Offices	$544,846,936	$826,366,941	$1,371,213,877
621111	Offices of Physicians (except Mental Health Specialists)	$57,813,945	$1,269,036,105	$1,326,850,050
522110	Commercial Banking	$351,982,607	$897,902,462	$1,249,885,069
523940	Portfolio Management and Investment Advice	$583,452,161	$568,474,482	$1,151,926,643
	Industrial			
238220	Plumbing, Heating, and Air-Conditioning Contractors	$82,537,112	$656,346,137	$738,883,249

336110	Automobile and Light Duty Motor Vehicle Manufacturing	$704,398,462	$19,499,088	$723,897,550
221122	Electric Power Distribution	$6,747,394	$679,139,670	$685,887,064
238210	Electrical Contractors and Other Wiring Installation Contractors	$97,539,232	$545,375,470	$642,914,702
236220	Commercial and Institutional Building Construction	$101,492,267	$421,835,667	$523,327,934
	Retail			
441110	New Car Dealers	$363,182,045	$302,837,856	$666,019,901
424210	Drugs and Druggists' Sundries Merchant Wholesalers	$621,334,788	$31,332,097	$652,666,885
445110	Supermarkets and Other Grocery (except Convenience) Stores	$293,922,913	$318,354,728	$612,277,642
455211	Warehouse Clubs and Supercenters	$43,371,270	$400,499,934	$443,871,204
457110	Gasoline Stations with Convenience Stores	$122,813,637	$248,953,344	$371,766,981

Source: PC using Lightcast Industry Tables

Table 15A: Vehicle Trips Generation per 100 Sq. Ft. GFA (AM)

Average Rate	Range of Rates	Standard Deviation
0.41	0.11 - 2.13	0.37

Source: SynTier Engineering Inc.

Table 16A: Vehicle Trips Generation per 100 Sq. Ft. GFA (PM)

Average Rate	Range of Rates	Standard Deviation
0.4	0.11 - 2.95	0.41

Source: SynTier Engineering Inc.

Appendix B: Review of Background Materials

Port of Whitman County 2022 Economic Contributions by Steven Peterson

Whitman County has become the "engine of growth" for the regional economy after decades of stagnation. Manufacturing related output has increased 262% from 2002 to 2022, and the average compensation package per job has increased to $103,125. Growth in the County has been driven by entrepreneurial firms associated with water-borne parts and industrial parks. The Port of Whitman County hosts many properties that are associated with economic development, including the Pullman Industrial Park. A rising enrollment at the local Washington State University (WSU) has helped spur economic growth as well and has helped contribute to a graduation-to-employment pipeline.

A survey conducted by the Port shows that employment has increased 368% from 1996 to 2022. The fastest growing industries are high technology services and manufacturing. This could be in part due to the Port's focus on high-speed fiber-optic manufacturing.

Agriculture continues to play a significant role in Whitman County's economy. Agricultural jobs have increased as well as agricultural output. Many firms in the water-borne ports are agriculture related. Employment in agriculture in the county is not projected to increase after 2022 though.

With the multiplier effect, the Port associated firms help create around 5,900 jobs. Of those, 82.5% originate from the Pullman Industrial Park. This means that the majority of jobs within the Port are from technological manufacturing and service-related industries. However, the Port of Whitman County also accesses other industries such as trucking, fertilizer, construction, and grain storage, among others. There is a large focus on fiber infrastructure, and the Port has partnered with private firms to accomplish the goal of connecting Whitman and Spokane Counties.

The businesses associated with the Port increase the tax base of the local economy, which helps offset resident taxes. An estimated $11.4 million annually is collected from indirect and induced taxes created by multiplier effects. In the fiscal year of 2022, a Port tax levy was $1,333,166, and for every dollar, an estimated $8.56 are created by the firms under the Port of Whitman County.

Whitman County CEDS 2022

Population in the County is heavily dependent on enrollment at Washington State University. Population growth in the County occurred 89% in the City of Pullman. From 1980-2000, WSU enrollment stagnated, which lead to flat County population growth over that period. The Washington Office of Financial Management (OFM) projects that population growth will remain slow leading into 2040. However, the City of Pullman is projected to grow at a quicker pace, with about 6,000 residents. In the 2019 5-year American Community Survey, Whitman County was estimated to have around 18,000 households.

Economic Development

Whitman County has some of the most fertile agricultural soils in the United States, and it generates a large share of America's wheat and barley. The agricultural value Whitman County provides is a key factor to employment and economic base of the County. WSU and the University of Idaho are also key contributors to the economics within Whitman County, both through tax dollar value and job creation for the area.

Slow population growth as a result of WSU's student population has brought a slow growth in employment. The drivers of employment growth have been the entrepreneurial firms situated in the Port of Whitman County's ports and industrial parks. As a result, manufacturing growth increased 322%. Whitman County's largest employment sectors are government, health care, and retail trade. Combined, they make up around 60% of employment in the County. WSU has been and remains the largest employer.

Industries expected to grow the fastest in Whitman County are construction, transportation and warehousing, information, and professional and business services. Overall, the Washington State Employment Security Department projects overall nonfarm employment in Eastern Washington to grow 1.5% annually until 2027.

On June 19, 2015, Whitman County and the City of Pullman entered into a tax sharing agreement. This agreement established Whitman County and Pullman as drivers of business promotion in unincorporated areas around Pullman. Both sides will receive an equal split of the sales tax generated from new development. The tax sharing area defined in the agreement mostly extends the range of the Pullman-Moscow Highway, to the state border.

Reliance on agriculture to drive economic development has slowly become more of a burden than a boon of success. Agriculture is undoubtedly important to the economy, but the lack of diversification has created challenges during periods of economic recession and hardship. Limited zoning for other industries may be a cause of this issue. The agriculture sector has also had an indirect impact on other jobs sectors during periods of economic downturn.

Port of Whitman County Strategic Plan 2021-2025

The Port of Whitman County operates on three lines of business:

- Industrial real estate
- Telecommunications infrastructure development
- Recreation

To accomplish these business ventures, the Port operates three properties on the Snake River (ports) and has also acquired off-water properties:

- Port of Wilma
- Port of Central Ferry
- Port of Almota
- Pullman Industrial Park
- Port of Whitman Business Air Center

The business opportunities of the Port and their coinciding locations help the Port in their goal to improve the quality of life for all citizens of Whitman County through industrial real estate development, preservation on multi-modal transportation, facilitation of economic development, and provision of on-water recreational opportunities.

Telecommunications has played an increasingly important role in the Port's business operations since the 1990's. The Port has built over 300 miles of dark fiber in a network ranging from the City of Spokane to the City of Clarkston in the span from 1990 to 2021. The Port has even funded its own broadband company, Petrichor Broadband LLC, which seeks to meet the broadband needs of Washington State.

The Port has invested in a set of goals to accomplish economic expansion and bring well-being to their constituents.

Diversify the Economy

Currently, the Port believes that agriculture is too large of a focus for the area's economy. The county wishes to pull away from this reliance, as current trends show that future advancements in robotics paired with inflation/recession cycles will make agriculture a riskier form of business than the Port would like. The Port is also concerned about the reliance on Washington State University's student population within the economy. Whitman County's population would be in constant state of decline without WSU. The Port wishes to bring in more opportunities for employment to the area to offset the out-migration of college-aged students.

To help diversify the economy, the Port has outlined these strategies:

- Assist in development of alternative products, markets, and industries
- Support the storage, handling, processing, and promotion of value-adding agricultural commodities.
- Recruitment of new economic activities
- Promote tourism and attract visitors
- Initiate dialogue without public agencies and the private sector to obtain and support industrial feasibility studies of potential regional significance.
- Partner with local, regional, and state economic development organizations to recruit, retain, enhance, and foster business and industry.
- Build telecommunications infrastructure throughout Whitman County.

Encourage Balanced & Economical Multimodal Transportation System

Water transportation access is a strength of Whitman County's agricultural sector. Despite this strength, the successes of water transportation have put stress onto the capacity of state and county roads caused by the volume of traffic to Port sites. As a result, the Port believes that advancing transportation infrastructure would benefit Whitman County. The Port plans to reach this goal by:

- Participate in State Transportation and Rail Plans on a regular basis and partner with local railroads to preserve and enhance rail service in Whitman County

- Seek establishment and recognition in the State Transportation Plan
- Maintain existing rail access at all port sites
- Acquisition and operation of short line rail facilities
- Support completion of the proposed Wawawai to Lower Granite Dam Road
- Operation and maintenance of the Pullman-Moscow Regional Airport and related public facilities
- Maintain and improve the Port of Whitman Business Air Center
- Continued economical and ecologically friendly navigation of Snake River

Collaborate to Drive Economic Growth

A successful port entity will communicate their needs and successes to the public. A goal of the Port of Whitman County is to increase community outreach about its economic development capabilities. This will increase in importance as the Port continues to see success in on-water capabilities and shifts its focus to off-water growth. The Port desires to focus on communities that are losing jobs and population. To do this, greater organizational strength in the affected communities can be achieved by developing investment groups that are dedicated to their own economic well-being and involving the greater community in these efforts. Specific plans for collaboration with the communities of Whitman County include:

- Acquire feasible sites in Whitman County for cooperative development. Push economic development dialogue with public agencies and the private sector.
- Acquire and lease feasible single or multiple-use facilities in Whitman County.
- Seek partnership with entities such as the Community Economic Revitalization Board (CERB), WSU, and the State Legislature to fund economic development.

Acquire, Develop, and Maintain Properties

The Port is interested in developing on-water and off-water sites into micro-enterprise developments, specifically in the rural communities. The Tekoa Industrial Park is a perfect example of the Port's plans to continue acquisition, development, and management of facilities. With restrictive guidelines from the ESA, the Port must be forward thinking in their development plans with their current properties. Strategic action items for this stage of the Port's development plans consist of:

- Maintain a flexible leasing policy
- Provide public port facilities as warranted by demand
- Support public safety programs at Port facilities
- Acquisition of additional acreage wherever needed
- Encourage maximum taxable tenant improvements at all Port sites
- Incorporate proactive environmental planning with industrial development

Improve the Port's Financial Position

Historically, the Port has tried to conserve money and not require taxes over what was necessary. However, to move into a phase of economic development the Port acknowledges that to maintain current facilities while also expanding, an increase in sales tax may be

necessary. Generally, populations in rural counties are especially resistant to tax increases. In turn, the Port has devised these strategies to determine the financial needs of the County for potential tax increases:

- Periodically review long-term lease rates to consider impacts of inflation, the needs of the District and the competitiveness of leases
- Periodically review the best use of excess or inactive properties and their sale
- Strive to increase the District's eligibility to procure funds under state and federal guidelines.

Expand Broadband Access

One of the Port's core competencies is its investment in communications infrastructure. Many citizens in Whitman County still lack access to reliable internet services. The Port also recognizes the value in aggregating statewide opportunities for federal and state broadband funding. Broadband access is especially important in rural communities, and with the Port's goals of increasing community outreach, enhancing access to the internet for their communities will be key to doing so. The Port plans to:

- Work within the guidelines of HB 2664, a House bill that extends existing telecommunications authority to all ports in Washington state. The bill facilitates public-private partnerships in wholesale telecommunications services and infrastructure.
- Work with Whitman County's independent telephone companies to help local providers enhance telecommunications.
- Work with public and private agencies in building telecommunications infrastructure
- Build transmission and "bricks and mortar" type facilities for lease in Whitman County to encourage telecommunication companies to provide enhanced services in rural Whitman County.
- Facilitate growth of dark fiber telecommunications network.

CERB Planning Study

The overarching objective of both PC's work and the Port of Whitman County is to be recipients of grant funding from the Washington State Department of Commerce's Community Economic Revitalization Board (CERB). The CERB funding will require a certain list of parameters to be met before funding can be allocated. The planning study must meet the following requirements:

- A product market analysis linked to economic development
- A product market analysis linked to economic development.
- A market strategy containing action elements linked to timelines.
- Identification of targeted industries.
- Identification of the group responsible for implementing the marketing strategy. Describe the group's capacity to complete the responsibility.
- The site's appropriateness by addressing, at minimum, appropriate zoning, affect to the state or local transportation system, environmental restrictions, cultural resource

review, and the site's overall adequacy to support the anticipated development upon project completion.

- A location analysis of other adequately served vacant industrial land.
- Total funding for the public facilities improvements is secured or will be secured within a given time frame.
- An analysis of how the project will assist local economic diversification efforts.
- Indicate the specific issues that will be addressed.
- List one or more economic outcomes that you expect from the proposed CERB project.
- Describe the specific, quantifiable measures of the outcome(s) that will indicate success.
- Describe in measurable terms what you expect to be able to show as progress toward the outcome for each year before the whole outcome has been achieved.
- Describe what data you will collect to determine whether the outcome is being achieved.
- Describe the data collection procedure including when data will be collected, from whom and by whom.
- The estimated median hourly wage of the jobs created when development occurs.
- If the project is determined to be feasible, the following information must be provided within the final report:
    - Total estimated jobs created (in FTEs).
    - Describe benefits offered to employees.
    - Describe the median hourly wage of the new jobs in relation to the median hourly county wage.
    - The county's three-year unemployment rate in relation to the state rate.
    - County population change in the last five years.
    - The estimated jobs created represent what percentage of the county's labor force.
    - The estimated jobs created represent what percentage of the county's unemployed workers.
    - Estimated new annual state and local revenue generated by the private business.
    - Estimated private investment generated by project.

Figure 1B: Arial Site Map

Source: PC using Google Earth

Figure 2B: Satellite Site Picture

Source: PC using Esri Business Analyst

Appendix C: Marketing Materials

Tekoa Industrial Park – Tekoa, Washington

The Port of Whitman County is developing a new 15.6-acre industrial site in Tekoa, Washington. The project is located approximately 2.5 miles northwest of the town of Tekoa. The site includes 5 separate pads of various sizes to be rented via land lease. Current zoning permits Agriculture use while the Port is in the process of rezoning for Heavy or Light Industrial use. Though currently served by an on-site well with limited capacity, municipal water via the City of Tekoa will be provided in 2025. The property provides convenient access to both State Highway 27 and US Highway 95, with access to Southeast Washington, Idaho, and the Spokane Metro Region, including developing submarkets such as Pullman, Moscow, and Coeur d'Alene/Post Falls. All locations are within a 60-mile radius.

Total Acreage: 15.44 Acres

- Lot 1: 1.37 Acres
- Lot 2: 2.45 Acres
- Lot 3: 2.60 Acres
- Lot 4: 2.60 Acres
- Lot 5: 1.65 Acres
- Shared: 4.77 Acres

Zoning: Heavy Industrial (lower impact industrial allowed via conditional use)

Electrical: Avista Power (Conversion to 3-phase power available)

Water: Shared Well[1]

Gas: None

Communications: High-Speed Broadband Ziply Cable Communications

Transportation: direct access to state Highway 27, ~10 miles to Highway 95, Spokane Internation Airport (GEG) (45.6 miles)

[1] The Tekoa Industrial Site currently uses a well and pump for water access. The Port of Whitman is working with the City of Tekoa to access city water. The process is expected to be completed in 2025.

The Tekoa Industrial Park is conveniently located between four thriving economies. Pullman, Moscow, Spokane, and Coeur d' Alene all fall within a 40-mile radius from the project site. Within 40-miles are 26,000+ manufacturing workers, and 97K+ trades workers.

Employers who would support a sufficient number of permanent jobs and investment could be eligible for Department of Commerce's Community Economic Revitalization Board (CERB) financing in partnership with the Port.

Employment by Radius	5 Miles	20 Miles	40 Miles
Manufacturing	16	331	26,004
Trades Workers	154	1,743	97,488
All Employment	445	4,697	349,925

Source: ESRI Business Analyst, 2024

Contact Kara Riebold, Port of Whitman Executive Director

Phone: 509-288-0179 Email: kara@portwhitman.com

Port of Whitman County

Appendix D: Detailed Site Analysis

This section includes documents detailing the analysis completed for the Tekoa Industrial Park Site, beginning on the next page.

SynTier Site Analysis

Figure 1D: SynTier Site Analysis (1/8)

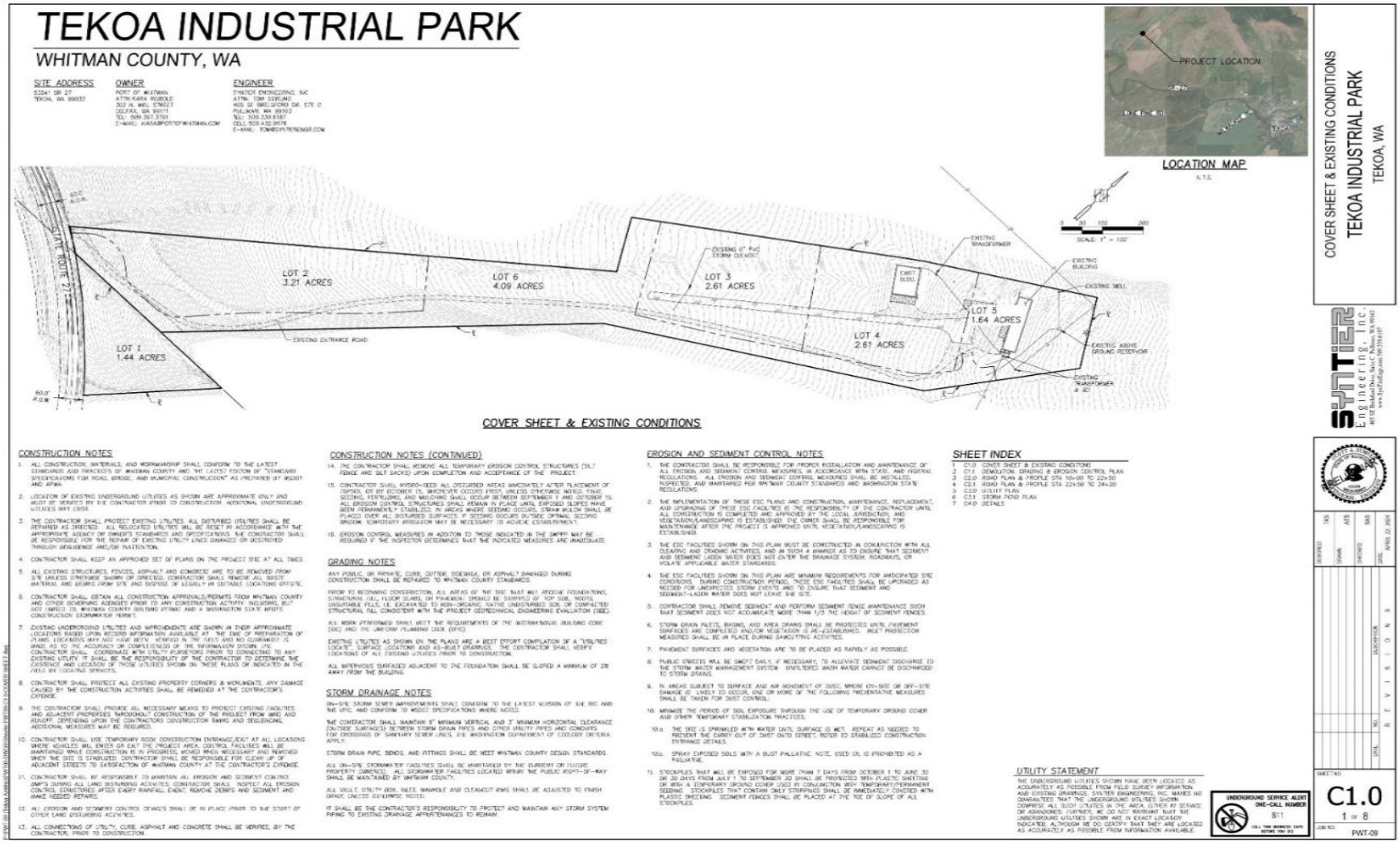


Figure 2D: SynTier Site Analysis (2/8)

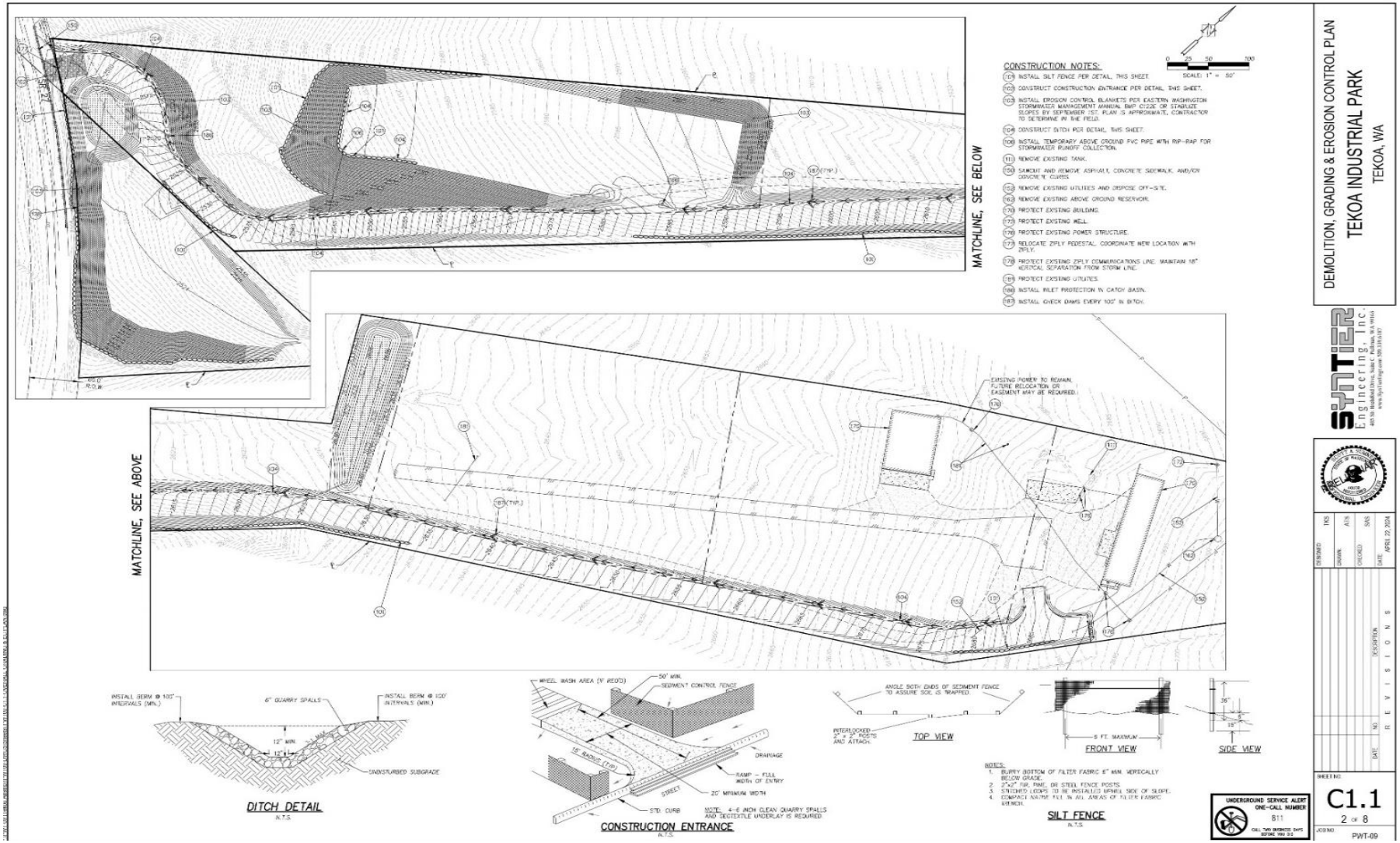


Figure 3D: SynTier Site Analysis (3/8)

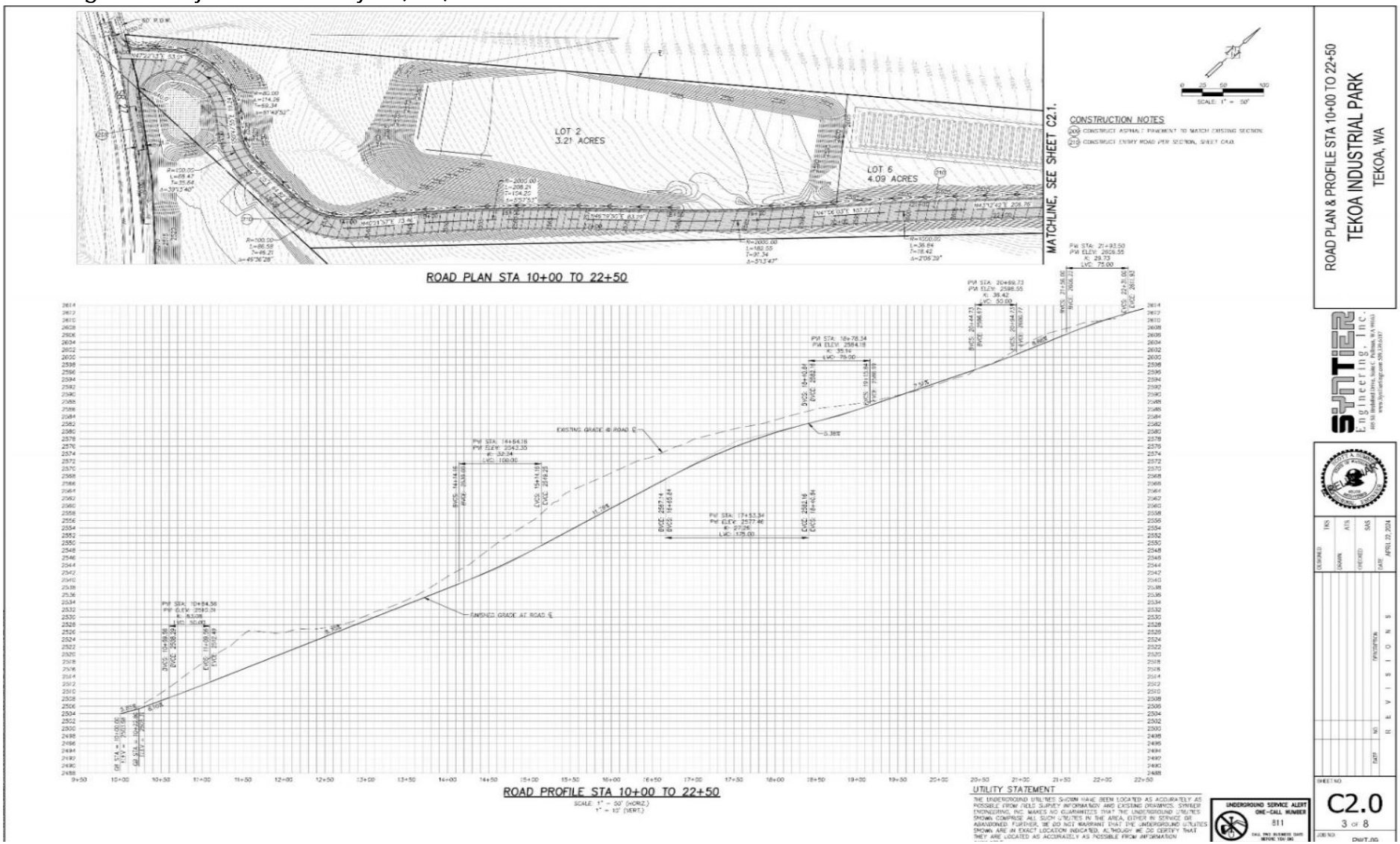


Figure 4D: SynTier Site Analysis (4/8)

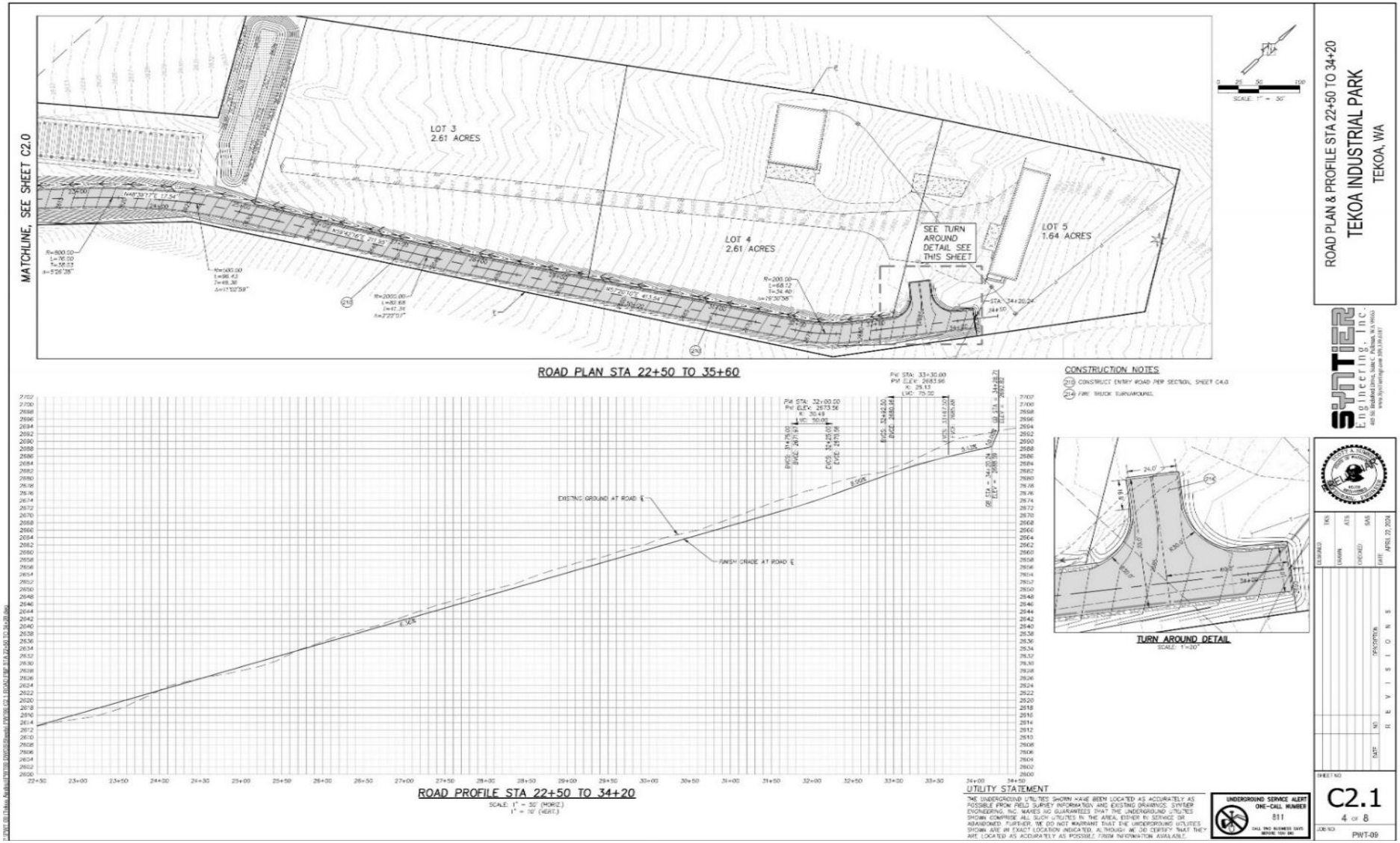


Figure 5D: SynTier Site Analysis (5/8)

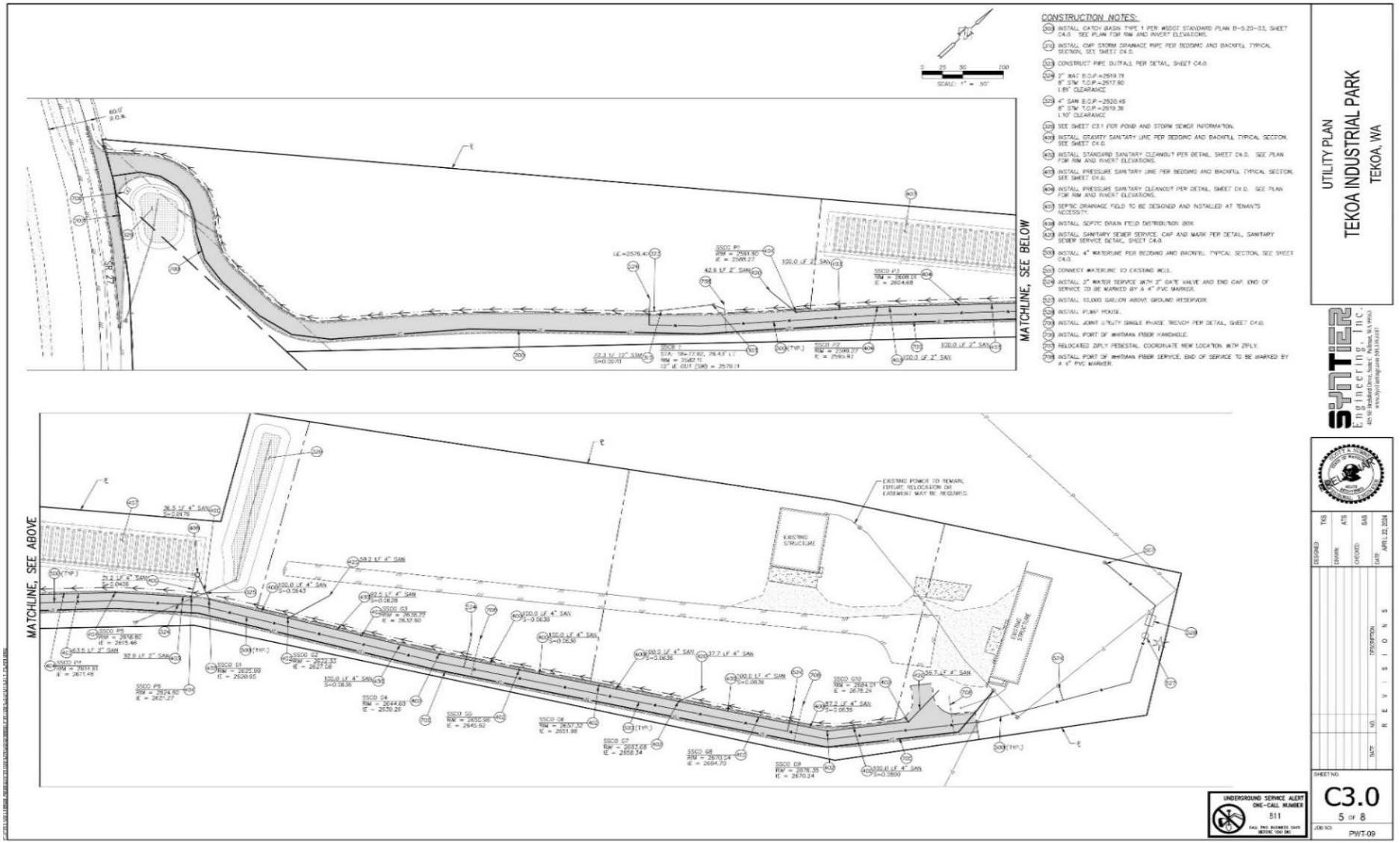


Figure 6D: SynTier Site Analysis (6/8)

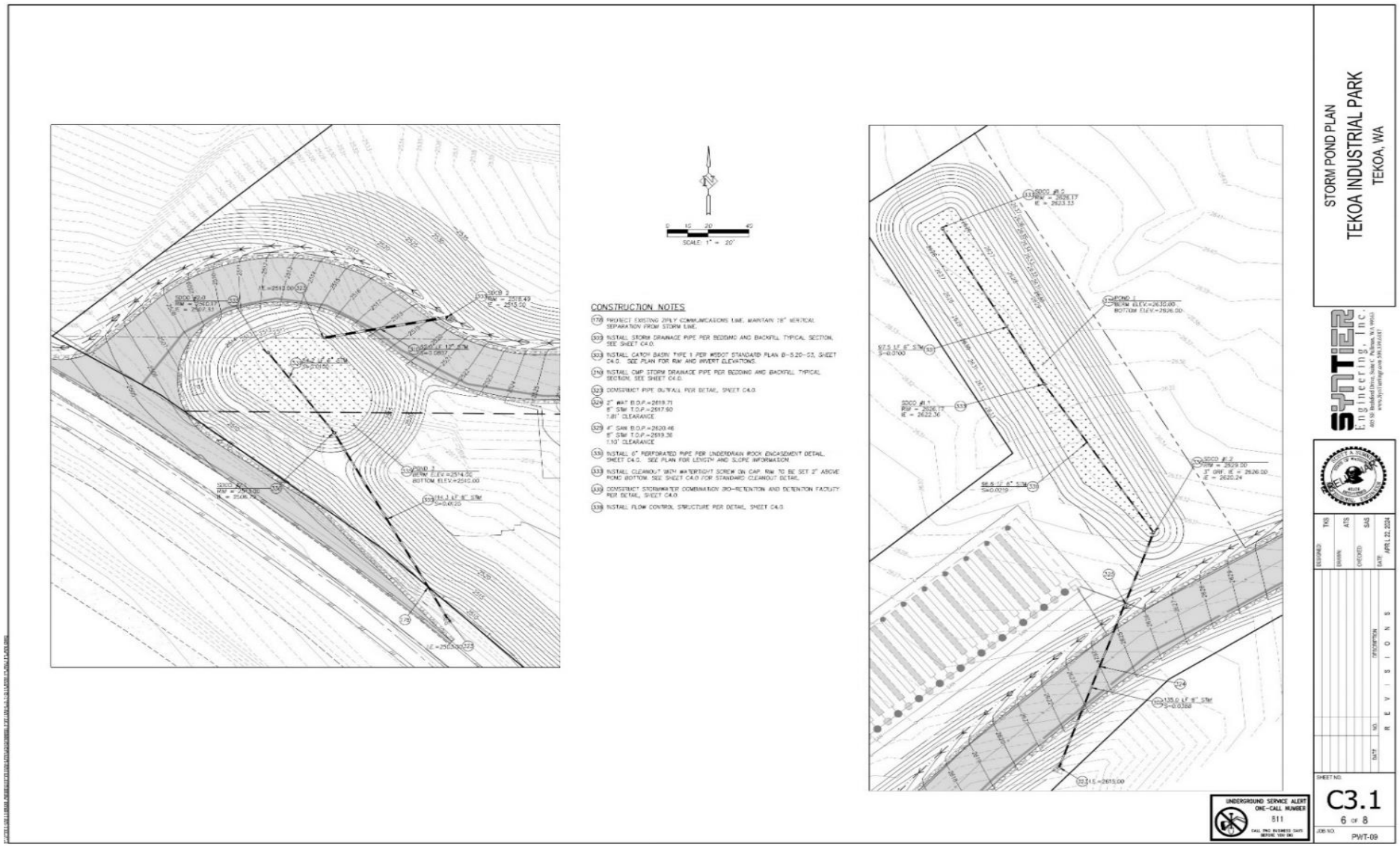


Figure 7D: SynTier Site Analysis (7/8)

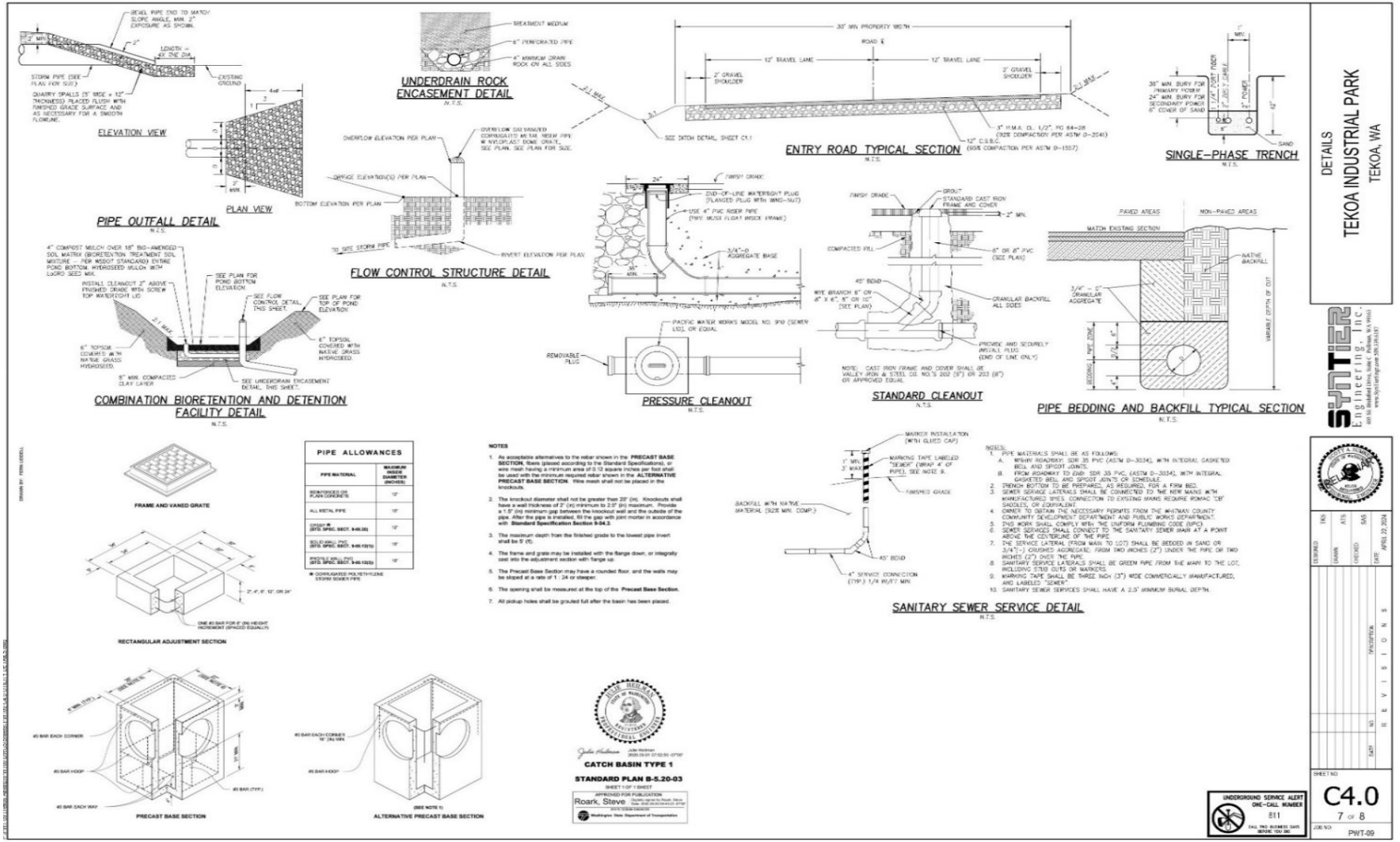
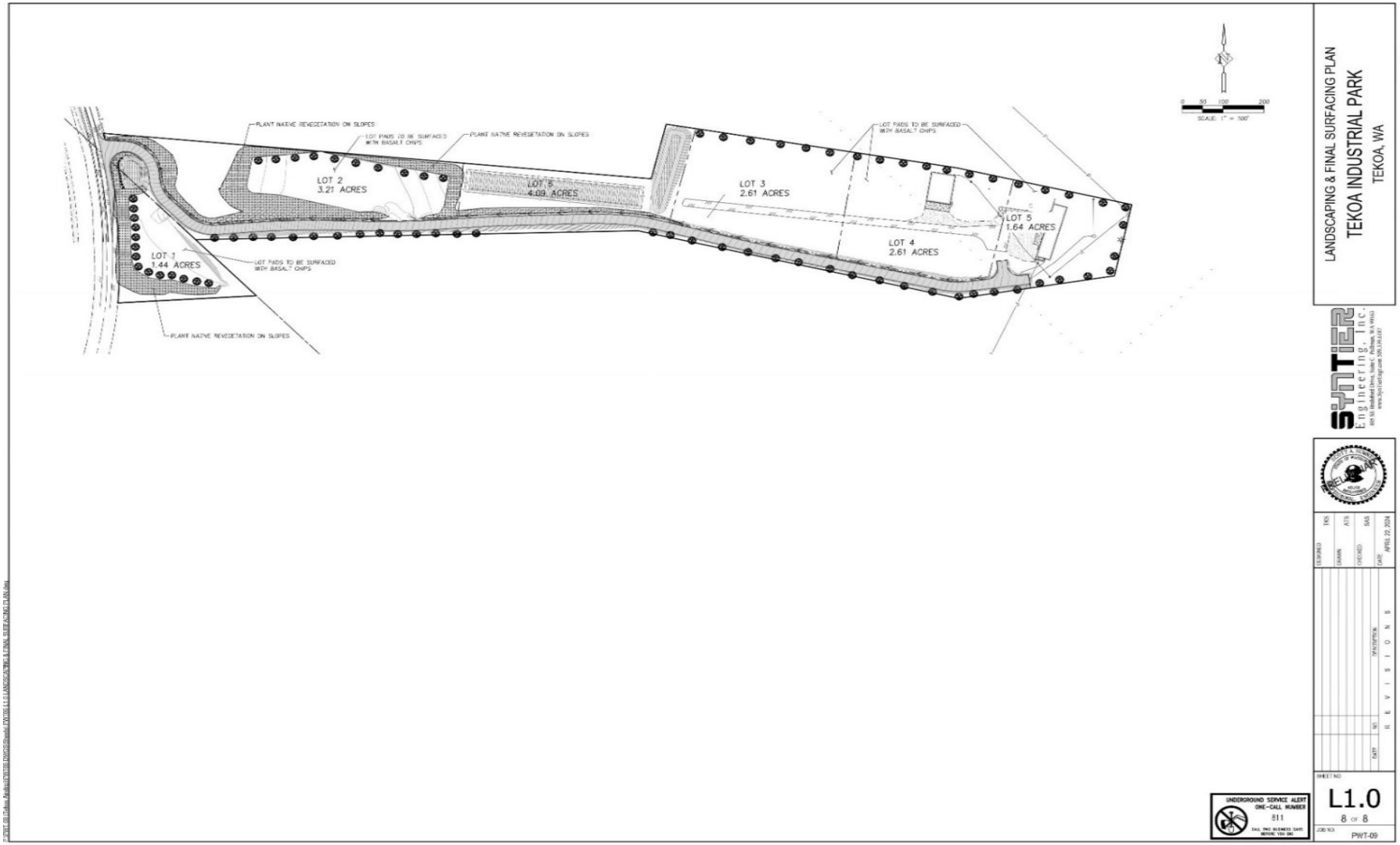


Figure 8D: SynTier Site Analysis (8/8)



WETLAND DELINEATION REPORT AND SURFACE WATER EVALUATION

Whitman County Parcel Number
2-0000-45-20-10-8900
Whitman County, Washington
S10, T20N, R45E

December 2023

Prepared by:
Environmental Inc.
/Advanced Wetland Studies
Rathdrum, ID 83858
208.651.4536
davidAarmes@gmail.com

EXECUTIVE SUMMARY AND FINDINGS

Environmental Inc. completed this Wetland Delineation Report and Surface Water Evaluation (Report) for Whitman County Parcel Number 2-0000-45-20-10-8900 (Property). No wetlands or regulated surface waters were identified on the Property.

This Wetland Delineation Report was completed on behalf of and for the exclusive use of the client and/or its agents, consultants, and contractors. The scope of services performed to complete this report may not be appropriate to satisfy the needs of other users, and any other use or re-use of this report is at the sole risk of said user. The findings and conclusions contained in this report are based upon the currently accepted legal and regulatory requirements, agency guidance, and the best professional judgment of the preparer. The findings presented herein apply to those conditions observed on the site at the time of the evaluation. The timing of the field evaluation may not always coincide with the growing season, identifiable phenological stages of vegetation, or during the hydrological active (wet) season. Often time's secondary indicators, interpretation of vegetation and hydrology indicators and best professional judgment may be required to determine the presence or absence of wetlands.
Future environmentally significant changes may occur at the site, which could result in future findings and conclusions differing from those contained in this report.

Prepared by:
David A. Armes
Qualified Wetland Biologist
Environmental Inc.
Advanced Wetland Studies
Rathdrum, ID 83858
208.651.4536
davidAarmes@gmail.com

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1. INTRODUCTION

Environmental Inc. completed this Wetland Delineation Report and Surface Water Evaluation (Report) for Whitman County Parcel Number 2-0000-45-20-10-8900 (Property). The Property is located in Whitman County, Washington in Section 10, Township 20N, Range 45E (Figure 1 Vicinity Map). This Report is based upon the requirements and definitions contained in, and prepared in accordance with, the Whitman County Code Section 19.63.703 – Wetlands. A site visit was completed on 11/13/23.

1.1 Purpose

The purpose of this Report is to document the presence or absence, and extent of wetlands or surface waters located on the Property and determine jurisdictional status and regulatory requirements based upon the findings.

1.2 Regulatory Requirements

This Report delineates, describes, and maps the presence and extent of wetlands, jurisdictional waters of the United States and non-jurisdictional surface waters based upon definitions in the 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory. 1987); Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region V2.0 (U.S. Army Corps of Engineers. 2008); Washington State Wetlands Identification and Delineation Manual (DOE. 1997), and the Whitman County Code Section 19.63.703 – Wetlands.

Federal

The Clean Water Act is a federal act that regulates the placement of fill in jurisdictional wetlands and waters of the United States. Section 404 of the Clean Water Act requires permits for filling jurisdictional wetlands and waters of the United States. Section 404 permits must be administered by the United States Army Corps of Engineers (USACE) and certified by the state agency (as outlined in Section 401 of the Clean Water Act). Work within the boundaries of jurisdictional wetlands or the ordinary high-water mark of waters of the United States are regulated under the USACE permitting process.

The USACE defines wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Generally, this definition requires the three parameters of hydrophytic vegetation, hydric soils, and wetland hydrology be simultaneously present. The USACE only regulates jurisdictional wetlands. Wetlands are considered jurisdictional by the USACE if they are connected via surface water to jurisdictional waters of the United States.

Final determination of jurisdictional wetlands and waters of the United States is subject to approval by the USACE. Wetlands and surface waters that are not under USACE jurisdiction may still require permits for local, county, or state agencies.

State

The Washington State Department of Ecology (Ecology) defines and regulates wetlands as described in the Washington State Wetlands Identification and Delineation Manual and Wetland Rating System for Eastern Washington (Hruby, T. 2014). The Ecology wetland definition is based on the USACE wetland definition and includes areas where hydrophytic vegetation, hydric soils, and wetland hydrology are simultaneously present. Ecology may regulate wetland areas that are not considered jurisdictional under section 404 of the Clean Water Act.

Local

As defined in Whitman County Code Section 19.63.703 – Wetlands.

2. METHODOLOGY

The analysis for wetlands conducted on this site is based on the routine (on-site) methodology of the USACE Wetlands Delineation Manual (Environmental Laboratory, 1987) and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region. This method requires that evidence of three parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) be simultaneously present for a wetland determination (specific and problematic situations may not always require all three parameters to be present).

Two levels of information, preliminary research and a site-specific investigation have been gathered for this analysis for the purposes of determining the presence and extent or absence of wetlands and water bodies.

2.1 Preliminary Research

Environmental Inc. conducted a review of existing information to develop background knowledge of physical features and to identify the potential for wetland occurrence on the Property. The following information related to topography, drainage, and water features was obtained for preliminary review of the site conditions:

- National Wetland Inventory (NWI) (Figure 2. NWI),
- Washington Department of Natural Resources (DNR) Forest Practices Application Mapping Tool (Figure 3. DNR Stream Map).

2.2 Site Specific Investigation

The NWI did not identify any potential wetland areas on the Property. The DNR Stream Map did not identify and potential streams on the Property. The entire Property was visually inspected for the three wetland parameters of hydrology, hydric soils, and hydrophytic vegetation as necessary to assist in identifying and determining wetland boundaries. One Data Plot was established to evaluate the three wetland parameters (Figure 4. Data Plot Location; Photograph 1).

2.2.1 Hydrology

Wetland hydrology was evaluated at the DP 1 location as well as other locations throughout the site. · No wetland hydrology parameters were observed at DP 1.

2.2.2 Soils

In accordance with the methodology, soil samples were taken at all data plots and were examined for indicators of hydric conditions. Hydric soils are those that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth of hydrophytic vegetation. Hydric soil indicators may include thick organic layers, gleying, or low soil matrix chroma (chroma of one or less without mottles or chroma of two or less with mottles). Mottling may occur in areas of fluctuating water table levels.

· Hydric soil indicators were not present at DP 1.

2.2.3 Vegetation

Formal sampling plots were established in areas of homogenous vegetation. Plant species on the site were identified (Hitchcock and Cronquist, 1973 and Cooke, 1997). Vegetation is considered hydrophytic (adapted to wet conditions) when over 50 percent of the dominant plant species had an indicator status of facultative (FAC), facultative wetland (FACW), or obligate (OBL).

· Hydrophytic vegetation was present at DP 1.

3. RESULTS

No wetlands were identified on the Property.

No DNR streams were identified on the Property.

A natural drainage swale exists along the northwest portion of the property but does not meet the wetland definition, nor does it contain a continuous bed, bank or channel.

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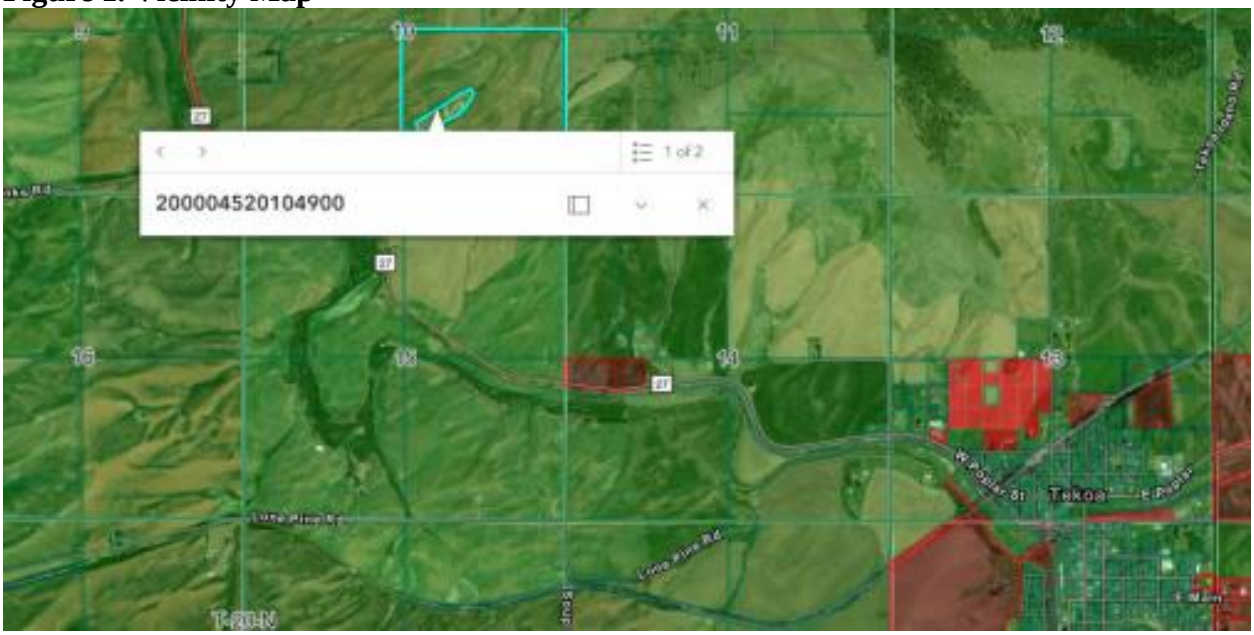
Photographs

Photograph 1. DP1 Location

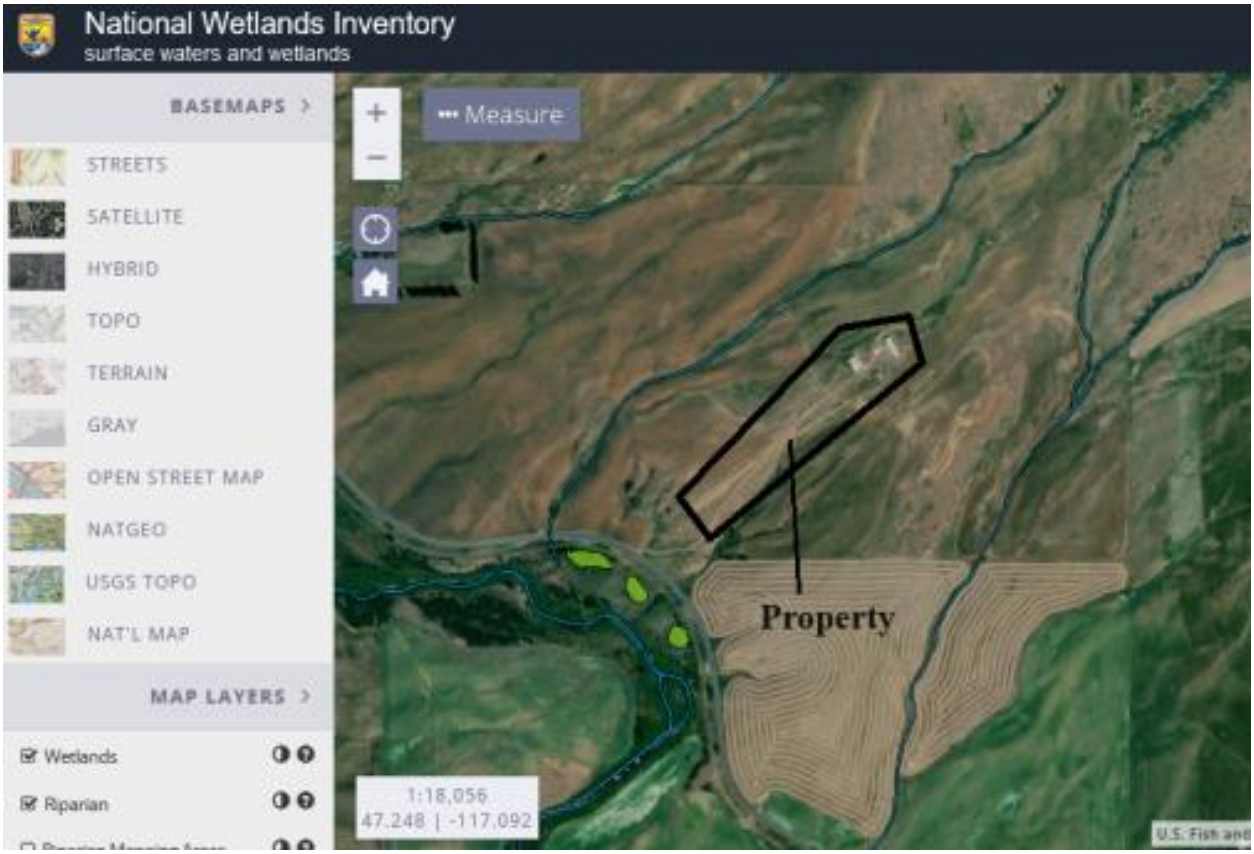
Figure 1. Vicinity Map



Wetland Delineation Report 12/5/2023

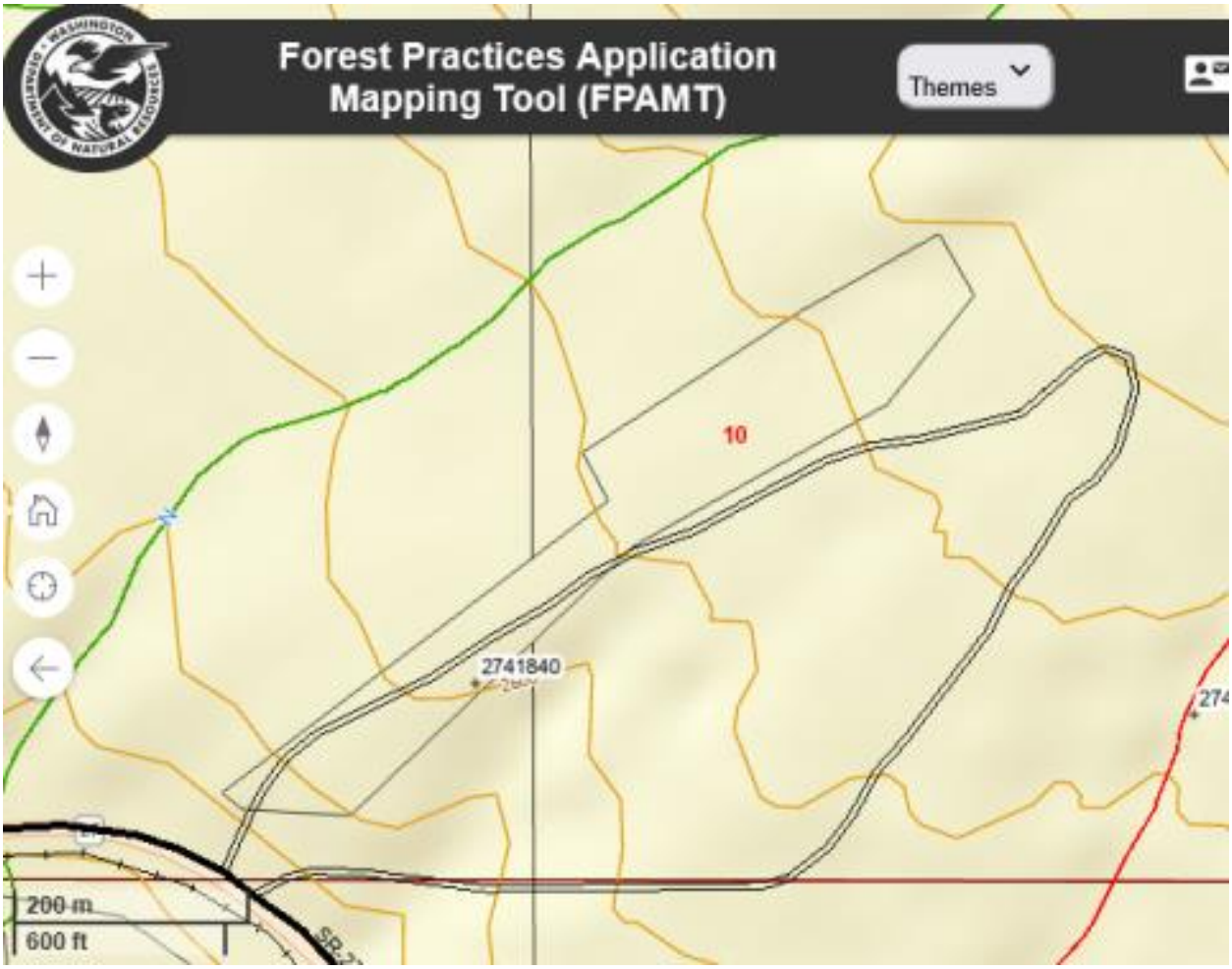
Figure 2. National Wetland Inventory/Spokane County Interactive Map

(The NWI does not show actual or regulatory wetland boundaries, rather serves as a very general guide to potential wetland locations. Property lines are approximate).



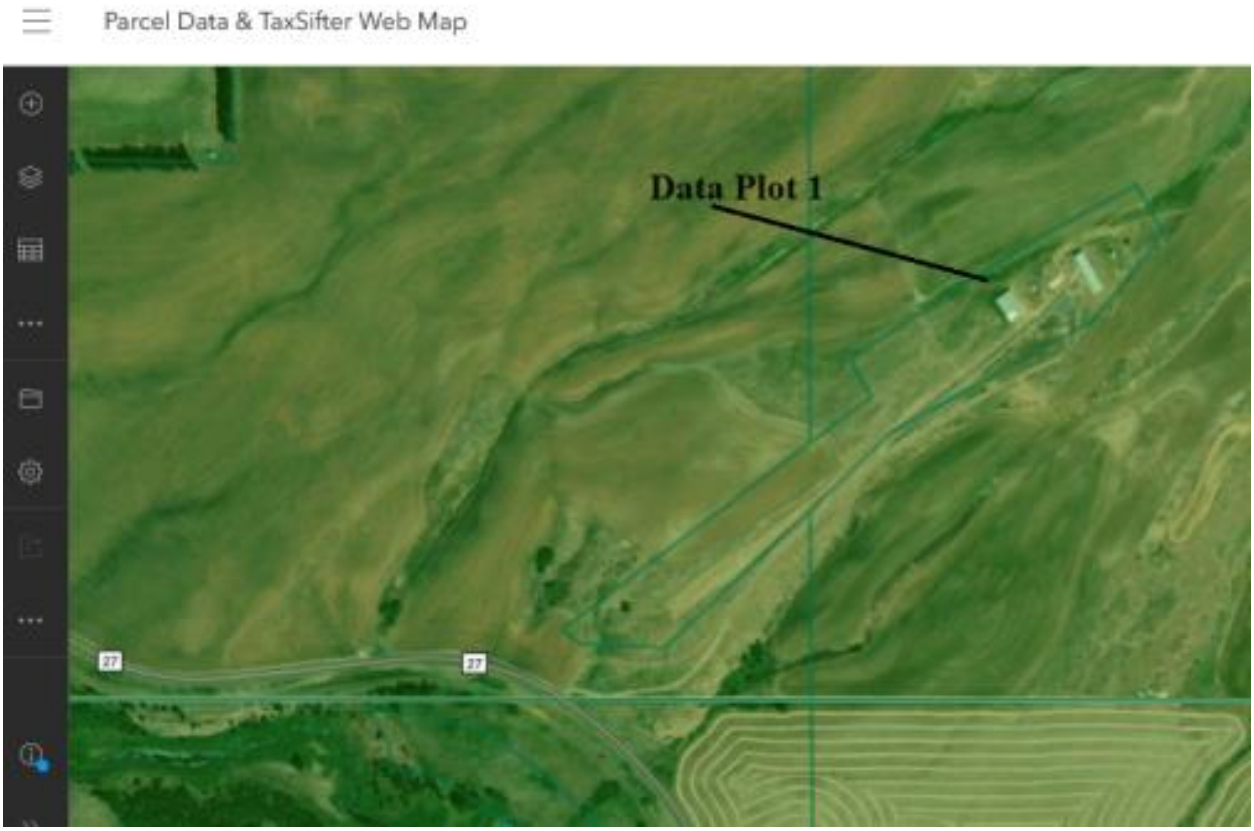
Wetland Delineation Report *12/5/2023*

Figure 3. DNR Stream Map



Wetland Delineation Report *12/5/2023*

Figures 4. Data Plot Location



Appendix A. Wetland Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Whitman County City/County: PN 200004520104900 Whitman Sampling Date: 11/13/23
Applicant/Owner: Port of Whitman County State: Sampling Point: DP1 Investigator(s): David Armes Section,
Township, Range: S10, T20N, R45ELandform (hillslope, terrace, etc.): slope Local relief (concave, convex, none):
slope Slope (%):2-3% -117.11556 Subregion (LRR): B Lat: 47.24446: Long: 117.11556 Datum:
Soil Map Unit Name: 98—Tekoa silt loam, 3 to 25 percent slopes NWI classification: Are climatic / hydrologic
conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.) ✓
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes✓ No Hydric Soil Present? Yes No✓ Wetland Hydrology Present? Yes No ✓	**Is the Sampled Area within a Wetland? Yes No ✓**
Remarks:	

VEGETATION – Use scientific names of plants.

Absolute Dominant Indicator Tree Stratum (Plot size:) % Cover Species? Status 1. 2. 3. 4. = Total Cover Sapling/Shrub Stratum (Plot size:)	**Dominance Test worksheet:** Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 3 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

1.
2.
3.
4.
5.

= Total Cover

Herb Stratum (Plot size: 144SF)

1. Bromus inermis 50% Y UPL
2. Leymus cinereus 30% Y FAC
3. Cirsium arvense 15% Y FAC
4.
5.
6.
7.
8.

= Total Cover

Woody Vine Stratum (Plot size:)

1.
2.

= Total Cover % Bare Ground in Herb Stratum % Cover of Biotic Crust

Prevalence Index worksheet:

Total % Cover of: Multiply by: OBL species x 1 =
FACW species x 2 =
FAC species x 3 =
FACU species x 4 =
UPL species x 5 =
Column Totals: (A) (B) Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

Dominance Test is >50%
Prevalence Index is ”3.0[1]
Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

Sampling Point: DP1

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Redox Features Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24	10YR4/3							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

.Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ✓ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) ___ Surface Water (A1) ___ Salt Crust (B11) (Riverine) ___ High Water Table (A2) ___ Biotic Crust (B12) (Riverine) ___ Saturation (A3) ___ Aquatic Invertebrates (B13) ___ Water Marks (B1) (Nonriverine) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) (Nonriverine) ___ Oxidized Rhizospheres along Living Roots (C3) ___ Drift Deposits (B3) (Nonriverine) ___ Presence of Reduced Iron (C4) ___ Surface Soil Cracks (B6) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Inundation Visible on Aerial Imagery (B7) ___ Thin Muck Surface (C7) ___ Water-Stained Leaves (B9) ___ Other (Explain in Remarks)	Secondary Indicators (2 or more required) ___ Water Marks (B1) ___ Sediment Deposits (B2) ___ Drift Deposits (B3) (**Riverine**) ___ Drainage Patterns (B10) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Shallow Aquitard (D3) __✓_ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe)	**Wetland Hydrology Present? Yes No ✓**
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

US Army Corps of Engineers Arid West – Version 2.0

Existing Building Condition Report by Wolfe Architectural Group (WAG)

This report focuses on evaluating the two hangars at the Port of Whitman County Airfield near Tekoa, Washington. Commissioned by Tom Stirling of SynTier Engineering, the report was created by a collaborative team consisting of architects from Wolfe Architectural Group (WAG) and a structural engineer from DCI Engineers. Mechanical, plumbing, and electrical analyses were not part of this specific evaluation.

The evaluation was conducted in January of 2024 and involved an inventory of the hangar's existing conditions and an assessment of their potential renovation. Importantly, the report acknowledges certain limitations such as not having access to original as-built drawings. While there is a brief architectural analysis and a structural assessment, the majority of the document is dedicated to a photographic appendix.

The "newer" hangar (deemed Building A in the report) is a pre-engineered metal building with roof z-purlins spanning between the pre-engineered frames. The exterior wall framing is also comprised of z-purlins spanning between the frames and the floor is a concrete slab on grade. Any new alterations that cause an increase in the existing load-carrying capacity of more than 5% shall be replaced or altered as needed to carry the required loads as required by the current International Building Code (IBC).

Overall, the estimated 20-year-old facility is in good condition, and during the site visit there were no visible signs of water intrusion, damage to exterior closure, or damaged interior framing elements. WAG could not determine what Risk Category the building was designed under. IBC Table 1604.5 lists agricultural and minor storage facilities as a Risk Category 1 Building. If the building is classified as a category 1 building, it may not meet the current code for a typical Category 2 Structure if repurposed into an office type facility.

The "older" hangar (deemed Building B in the report) is a wood framed pole building that doesn't appear to have foundations. The roof is comprised of 2x roof purlins spanning from the exterior walls to an interior post and beam line. The exterior wall framing is also comprised of 2x6 flat purlins spanning between the wood posts.

The facility is in poor condition and the estimated age of the structure is approximately greater than 40 years. There were visible signs of water intrusion and damage to the exterior closure. The building has exceeded its normal life expectancy, and any attempts to renovate the structure will likely exceed the replacement value of the structure.

GeoTech Report by GeoProfessional Innovation Summary

This comprehensive geotechnical report explores the ground conditions at the Tekoa Industrial Site. The report was prepared by GeoProfessional Innovation (GPI) for SynTier Engineering and utilizes data from subsurface explorations and laboratory tests to make recommendations for various aspects of site development.

The report acknowledges that the site's surface soil and underlying geology are not expected to undergo significant changes. However, it emphasizes the risks of extrapolating the finding to Lot 1 which has different soil characteristics.

A crucial aspect of the report is the discussion of soil settlement. The engineers predict that embankments, especially those planned to be higher, will settle over time due to the weight of the embankment itself and future building loads. This settlement process, known as consolidation, is affected by factors like soil type, moisture, and compaction. The report specifically addresses compaction requirements to mitigate settlement issues and provides recommendations for development timing based on settlement estimates. Also, the soil's limited infiltration capacity and high runoff potential necessitate careful planning to direct stormwater away from the slopes and structures to prevent instability.

An analysis of the potential for slope instability concerning the cut and fill slopes designed by SynTier was conducted. While 2H:1V cut slopes are generally stable against deep-seated failures, they present challenges for revegetation and can be susceptible to erosion. Fill slopes with the same inclination are even more prone to erosion and potential deep-seated failure if surface drainage is not properly managed. The report stresses the need for effective erosion control measures like erosion matting, revegetation, and controlled irrigation to minimize the risk of slope instability.

Structural fill, which is compacted soil used to support structured and other infrastructure, is addressed in detail. The report outlines criteria for acceptable structural fill materials, including specific requirements for different applications. It emphasizes proper compaction techniques to ensure the long-term performance of embankments and subgrades, including specifying the required compaction levels for designated project areas.

Ultimately, this report provides the following recommendations for utility trench construction, including:

- Removing loose soil, groundwater, and soft, saturated soil to create a stable foundation
- Follow pipe manufacturer's specifications for pipe placement and support. Ensure backfill material is sufficiently compacted around the pipe.
- Keying backfill into trench sidewalls

Recommendations for foundation design are based on the soil conditions encountered. These include:

- **Frost protection:** A minimum embedment depth of 2.7 feet below the finished exterior surface is recommended to protect foundations from frost heave.
- **Subgrade drainage:** The report stresses the importance of maintaining drained subgrade conditions through the use of a perimeter foundation drain. This helps to prevent water from accumulating around the foundation and causing potential damage. [13]
- **Foundation types:** The report discusses the viability of using thickened slab footings for building support. However, it cautions that these types of footings are prone to cracking at the transition between section thicknesses. The structural engineer needs to consider this risk when designing the footing reinforcement.
- **Bearing capacity:** Allowable bearing pressures are provided based on the soil conditions, and the report suggests exploring the use of granular soil improvements to achieve higher bearing pressures if needed.
- **Settlement considerations:** The report provides estimates for anticipated static vertical settlement, which is primarily influenced by embankment settlement. It suggests that individual foundation configurations for each building should be evaluated specifically based on the anticipated loading and settlement potential.

The report offers guidance on site drainage for long-term performance. This includes recommendations for:

- **Stormwater disposal:** Emphasizing the importance of preventing water from infiltrating slopes, pooling around buildings, or flowing uncontrollably over pavement. Runoff should be conveyed away from sensitive areas using ditches, swales, or other surface water management techniques.
- **Roof drainage:** Recommending that all buildings incorporate roof gutters and downspouts connected to solid pipes to direct water away from structures and prevent infiltration into the soil.
- **Stormwater management system:** The report outlines the proposed system for collecting and conveying stormwater to detention ponds, which will eventually discharge to natural drainages. It recommends lining open ditches or channels with rock if gradients exceed 10% and installing rock check dams to control erosion.

Erosion control measures are discussed in detail, including recommendations for:

- **Minimizing disturbance:** Limiting clearing and grading operations to the areas necessary for construction.
- **Protecting exposed soil:** Implementing temporary erosion control measures during construction, such as silt fencing, straw wattles, and temporary seeding.
- **Stabilizing slopes:** Utilizing techniques like hydroseeding, erosion control blankets, and landscaping to establish vegetation on slopes and reduce erosion potential.

- **Maintaining drainage:** Ensuring that surface grading does not allow water to flow over slope faces, increasing the risk of erosion and instability.

Pavement design recommendations are presented, considering traffic loading, subsurface conditions, and typical design criteria for eastern Washington. The report recommends using the AASHTO Guide for Design of Pavement Structures as a reference.

The pavement design includes specifications for:

- **Asphalt concrete pavement:** Two sections are recommended, standard-duty and heavy-duty, with different thicknesses to accommodate varying traffic loads. Material specifications conforming to WSDOT standards are provided.
- **Crushed surfacing:** This layer provides a stable base for the asphalt pavement. Material specifications conforming to WSDOT standards are given.
- **Non-woven geosynthetic fabric:** This layer is recommended to improve drainage and prevent the migration of fine soil particles into the crushed surfacing layer.
- The report also emphasizes the importance of proper pavement maintenance and drainage to ensure long-term performance.

The appendices are essential parts of the report, providing detailed information on:

- **Unified Soil Classification System (USCS) and exploration logs:** These logs provide a visual representation of the soil conditions encountered at different depths during the subsurface exploration. They describe the soil type, color, moisture content, density, and other relevant characteristics. This information is crucial for understanding the ground conditions and making appropriate design recommendations.
- **Laboratory test results:** These results provide quantitative data on the soil properties, such as moisture content, dry density, Atterberg limits (liquid limit and plasticity index), and particle size distribution. This data is used to determine the suitability of the soil for various applications, such as structural fill, embankment construction, and foundation support.
- **Slope stability analyses:** These analyses evaluate the stability of cut and fill slopes under different conditions, such as dry and wet conditions. The results help to determine the factor of safety against slope failure and guide the design of slopes to ensure stability. The analyses are conducted using specialized software, and the report provides graphical representations of the slope geometry and the potential failure surfaces.

PCS and Drum Cleanup Summary by GeoProfessional Innovation

The PCS and Drum Cleanup Summary is a summary letter prepared by GPI for the Port of Whitman County. It details the remediation efforts undertaken at the Tekoa Airstrip in October 2023. The primary objective of this work was to address identified environmental concerns related to petroleum contamination. The investigation revealed a small area of petroleum-contaminated soil (PCS) beneath a Jet A fuel tank, estimated to be between 1 and 3 cubic yards in volume. This can be excavated and disposed at a landfill permitted to accept the material

During the initial site reconnaissance for the Phase 1 ESA, several 55-gallon drums filled or partially filled with various petroleum products were found. The cleanup work began with the removal of the PCS. GPI partnered with Roach Construction, an excavation contractor licensed to transport and dispose of PCS. After excavating the PCS, Roach Constructions transported it to their Idaho Department of Environmental Quality (DEQ)-permitted land farm facility in Genesee, Idaho for proper disposal. Documentation of this can be provided.

Beyond the PCS, GPI also addressed the 55-gallon drums containing petroleum products. These drums, along with an aboveground storage tank (AST) holding approximately 150 gallons of aviation gasoline and several small containers of petroleum products, were transported to Roach Construction's facility in Genesee, Idaho. Roach Construction recycled the petroleum products through a controlled burning process in their on-site waste oil furnace. GPI also collected containers of agricultural chemicals found near the overhead door of the large hangar building. These chemicals were also transported for disposal.

Phase 1 Environmental Site Assessment (ESA)

The Phase 1 Environmental Site Assessment (ESA), conducted by GPI for the Port of Whitman County, provides an initial assessment of potential environmental risks associated with the Tekoa Airstrip property. The assessment was completed on March 3, 2023, and the report was issued on May 8, 2023. The primary objective of the Phase 1 ESA was to identify any Recognized Environmental Conditions (RECs) that could impact the property's environmental liability.

The Phase 1 ESA identifies several key RECs:

- **Historical use:** The site's historical use as an agricultural airstrip, spanning approximately four decades, is a significant REC. This use involved the mixing, storage, and aerial application of agricultural chemicals, which could have led to soil or groundwater contamination.
- **Aboveground storage tanks (ASTs):** The presence of multiple ASTs used for storing petroleum products, including aviation fuel, represents another REC. These tanks could leak or spill, releasing contaminants into the environment.
- **Drums and containers:** The numerous 55-gallon drums and smaller containers observed on the site, some showing signs of past leaks or spills, contribute to the RECs. These containers may have held hazardous substances, including petroleum products and agricultural chemicals, potentially impacting the surrounding soil.

Soil staining observed inside the large hangar suggests potential past spills or leaks of petroleum products or other contaminants.

The report also presents a thorough review of the site's history using various resources:

- Historical topographic maps
- Historical aerial photographs
- Historical city directories
- Historical fire insurance maps

The ESA Phase 1 Report displays a list of observations from site visits and interviews. The following items or features were found on the property:

- Evidence of aboveground storage tanks
- Drums, barrels and/or containers greater than or equal to 5 gallons
- Cleaning and/or similar supplies
- Septic tanks and/or leach fields
- Pad- or pole-mounted transformers, capacitors, switching gear
- Stained soil
- Stained pavement or similar surface
- Trash, debris and/or other waste materials
- Strong, pungent, or noxious odors

The following items or features were **not** found on the site:

- Emergency generators
- Elevators
- Air compressors
- Hydraulic lifts
- SDS
- Evidence of underground storage tanks or ancillary UST equipment
- Sumps, cisterns, catch basins and/or dry wells
- Grease traps
- Oil/water separators
- Pipeline markers
- Interior floor drains
- Generators
- Stressed vegetation
- Dumping or disposal areas
- Construction/demolition debris and/or dumped fill dirt
- Surface water discoloration/oror/sheen and/or free-floating product
- Exterior pipe discharges and/or other effluent discharges
- Laboratory hoods and/or incinerators
- Waste treatment systems and/or water treatment systems
- Compressor blowdown
- Surface water bodies
- Quarries or pits

The following site reconnaissance was also conducted:

- **General site information:** Observations about the site's current conditions, including topography, drainage, and vegetation.
- **Site occupant and operation description:** Information about the current occupants, their operations, and any potential environmental concerns associated with their activities.
- **Site observations:** Detailed observations of potential environmental concerns, including the presence of ASTs, drums, containers, soil staining, and any other evidence of potential releases.
- **Site operations, processes, and equipment:** An assessment of the current site operations, processes, and equipment used, and their potential environmental impacts.
- **Aboveground chemical or waste storage:** An inventory of any chemicals or waste stored aboveground, including their quantities and locations.
- **Underground chemical or waste storage, drainage or collection systems:** Information about any underground storage tanks, drainage systems, or collection systems that could pose environmental risks.

- **Electrical transformers/PCBs:** A survey of any electrical transformers on the site to identify potential PCB contamination.

Ultimately, the report concludes with a recommendation for a Phase 2 ESA to investigate the RECs and assess the extent of any contamination. The report also acknowledges the limitations of the assessment, including reliance on readily available information and observations.

Phase 2 ESA Report

This document reports the findings of the Phase 2 Environmental Site Assessment (ESA) conducted by GPI at the Tekoa Airstrip in April and May of 2023. The assessment aims to evaluate the potential environmental risks stemming from the site's history as an agricultural airstrip and focus on the potential for contamination from petroleum products and hazardous substances.

More specifically, the report provides a summary of the preceding Phase 1 ESA, outlining the identified Recognized Environmental Conditions (RECs). These RECs included the historical use of the site for agricultural chemical mixing and aerial spray applications, as well as the presence of numerous empty 55-gallon drums and fuel storage tanks near the large hangar building. Based on the Phase 1 findings, GPI selected target areas for investigation during the Phase 2 ESA. These target areas included the areas around the large hangar building, where evidence of potential contamination was observed, and selected locations adjacent to the airstrip runway.

Subsurface exploration involved two methods:

- Hollow stem auger (HAS) soil borings: Two borings were advanced to depths of approximately 21 feet
- Test pits: Ten test pits were excavated using a compact excavator, reaching depths ranging from 4.5 to 8 feet

The subsurface conditions encountered during the exploration are described in detail. Topsoil, consisting of dark brown silty sand with vegetation and organic matter, was found to a depth of about 0.5 feet. Beneath the topsoil, reddish brown silty graven, ranging in density from medium to very dense, was observed. Groundwater was not encountered in any of the explorations.

Soil samples were collected from the borings and the test pits, as well as from the surface using hand tools. These samples were analyzed for various contaminants, including:

- **Petroleum constituents:** Analyzed using methods specific to identifying and quantifying different types of petroleum hydrocarbons, including BTEXN (benzene, toluene, ethylbenzene, total xylenes, and naphthalene), MTBE (methyl tert-butyl ether), EDB (1,2-dibromoethane), EDC (1,2-dichloroethane), and TPH (total petroleum hydrocarbons).
- **Agricultural chemicals:** Analyzed for the presence of chlorinated pesticides and herbicides.
- The analytical results were compared to the applicable Washington DOE Model Toxics Control Act (MTCA) cleanup levels to determine if any contamination exceeded acceptable limits for unrestricted use.

Of the 20 samples analyzed, only one showed contaminant levels exceeding the MTCA cleanup levels. This sample, collected at a depth of 1 foot beneath the valve of the 10,000-gallon Jet A fuel AST, contained elevated levels of both diesel range and gasoline-range

hydrocarbons. Based on the findings, the report concluded that the area beneath the Jet A fuel AST required remediation to address the petroleum contamination. The estimated volume of impacted soil was less than 1 cubic yard.

While no further investigation was deemed necessary for the remaining target areas, the report recommended the proper disposal of several partially full or full containers of petroleum products and unlabeled agricultural chemicals still present at the site. It suggested contacting a petroleum recycler or hazardous material transporter for the disposal or recycling of these materials. The report also advised the Port of Whitman County to address two aboveground storage tanks (ASTs) containing residual fluids. It recommended pumping or draining the tanks and properly disposing of the fluids. Once empty, the tanks could be recycled as waste steel.

SEPA Environmental Checklist

This document is an environmental checklist prepared as part of the State Environmental Policy Act (SEPA) review process for the proposed Tekoa Industrial Park project. The checklist serves as a tool to identify and evaluate the potential environmental impacts of the project and guide the decision-making process.

The checklist addresses a wide range of environmental considerations:

- Earth
  - Old crop duster air strip, rolling hills
  - Steepest slope is 40%
  - Tekoa silt loam and Tekoa stony sit loam soil types
  - Erosion is possible as a result construction activities. Exposed soil always has the potential to be carried off-site via stormwater or airborne. Erosion will be controlled by way of erosion control measures to be designed and submitted a apart of the plan review process
- Air
  - Temporary dust expected during Earth moving and windy periods
  - Vehicles using the nearby roadway and farm equipment from the surrounding properties will generate emissions
  - Seed all disturbed areas as soon as possible to reduce or control emissions
- Water
  - Surface
    - Hangman Creek is located southwest of the site
    - The project will not require any work near the Creek
    - Proposal does not require surface water withdrawals or diversions
    - Not in a floodplain
    - No discharge of waste materials to surface waters
  - Ground
    - A well will be required for drinking water and other purposes. Quantities will be determined at a later date.
    - A sceptic drain field will be required.
    - Industrial sewage will be discharged into the ground from septic tanks
  - Water Runoff
    - Stormwater will be collected in a roadside swale and in intermediate detention ponds and then will discharge into an existing ditch located at the south side of the property
    - Waster materials can only enter ground water or surface water through an accidental or deliberate spill or through the sceptic drain field
    - The project does not alter drainage patters in the vicinity of the site

        - Planting and seeding and/or mulching of disturbed surfaces and other construction and post-construction erosion control measures (BMPs) will reduce surface runoff during and after construction
- Plants
    - Plants present:
        - Evergreen tree: fir, cedar, pine, other
        - Shrubs
        - Pasture
        - Crop or grain
    - The existing vegetation will be removed, and it is made up of pasture grasses
    - Endangered species:
        - Spalding's Catchfly
    - No proposed landscaping or use of native plants
    - No noxious weeds or invasive species
- Animals
    - Observed animals include:
        - Hawks
        - Deer
        - Bass
        - Trout
    - Endangered species near the site:
        - Yellow-billed Cuckoo
        - Bull Trout
        - Monarch Butterfly
    - Site is not part of a migration route
    - No measures to preserve or enhance wildlife
    - No invasive animal species known to be on or near site
- Energy and Natural Resources
    - Petroleum fuels will be used in the construction process by construction equipment. The industrial services will use electrical energy. Future facilities will utilize electrical energy and natural gas.
    - Project does not use solar energy or affect solar energy of adjacent properties
    - No other kinds of energy conservation plans proposed
- Environmental Health
    - Will not create any environmental hazards. However, improper actions by equipment operators with respect to petroleum products could produce hazards
    - No hazardous chemicals/conditions that might affect project development and design.

    - Some products and materials stored within these facilities may store hazardous materials. Proper containment and handling of these materials will be implemented.
    - No special emergency services required
    - Under present conditions, the only noises which exist at the proposal site are those of periodic farm operations.
    - Construction equipment will operate between 7 a.m. and 7 p.m. and the noise will temporarily high (55 to 90 dBA) during the course of the project.
    - Current noise rules, standards, and regulations will be met
- Land and Shoreline Use
    - Zone for agricultural purposes, but the project will affect the use of the site as a zone change will be required. Property will now be heavy industrial
    - Previously used the 14.5 acres for agricultural purposes, surrounding farms will not be affected
    - Two existing buildings
    - One of buildings will remain, one will have potential to be destroyed but will be decided upon by the lot tenant and their design
    - Current comprehensive plan designation of the site is Agricultural
    - Approximately 1-5 workers will work in the completed project facilities, with potential for an office building
    - The project will displace nobody
- Housing
    - No housing units will be built or affected by this
- Aesthetics
    - The tallest building height will be determined further on in the site design process. The tallest building will adhere to zoning code requirements.
    - No views will be obstructed.
- Light and Glare
    - Vehicle headlights will produce light within the proposal during the evening.
    - No light or glare from the project will be a safety hazard.
    - No off-site sources of light affect the proposal.
    - No proposed measures to reduce or control light and glare impacts
- Recreation
    - No designated and informal recreational opportunities are in the immediate vicinity.
    - Project will not displace recreational attractions.
    - No proposed measures to reduce or control impacts to recreation.
- Historic and Cultural Preservation
    - No historical buildings, structures, or sites located on or near the site that are over 45 years old and listed in or eligible for preservation registers.
    - No landmarks, features, or other evidence of Indian or historic use or occupation.

    - No proposed measures pertaining to historic and cultural preservation
- Transportation
    - Site will be accessed off SR 27 and a common road will be built to access the lots.
    - Site is not currently served by public transit
    - Potential for a right turn lane to enter the site on SR 27
    - Project will not occur in the vicinity of water, rail, or air transportation
    - 3 tips per day will be generated
    - Proposal will not interfere with agricultural and forest products on roads or streets in the area.
- Public Services
    - Project will not result in an increased need for public services.
    - No proposed measures to reduce or control impacts to public services
- Utilities
    - Single phase power available
    - A well will need to be drilled to provide water and septic fields will be needed for sewage.

EZ-1 Form GEO 21-02, Department of Archaeology and Historic Preservation

DAHP USE ONLY	
Date Received:	
DAHP Log #:	
Reviewer(s):	
☐ ARCHY ☐ BEU	

dahp — DEPT OF ARCHAEOLOGY + HISTORIC PRESERVATION

EZ-1 FORM
Request to initiate consultation for Governor's Executive Order 21-02 (GEO 21-02) projects

GEO 21-02

New Consultation? ■ YES ☐ NO ☐ ADDITIONAL INFORMATION PROVIDED PER REQUEST

Questions? *Contact DAHP at 2102@dahp.wa.gov or (360) 586-3065. You may also find answers to your questions online at www.dahp.wa.gov/2102.*

Please be aware that this form may only initiate consultation. For some projects, DAHP may require additional information to complete our review. A historic property inventory form or archaeological survey may need to be completed by a qualified cultural resource professional.

NOTE: To save this fillable form you must fill it out in Adobe Acrobat or use the PRINT to PDF function in Acrobat Reader. In Reader choose File > Print and choose Adobe PDF as the printer. The file will save to your computer.
NOTE: The form will automatically adjust to fit all your information.

SECTION 1: PROJECT INFORMATION

Project Title:	Tekoa Site Development	*Provide 1-2 sentence summary of the project.*	The proposed project consists of a 6 lot industrial park development that will incorporate 5 building lease pads for future tenants.
Property Name: *If applicable*			
Project Address:	53541 SR 27		
City / State / Zip:	Tekoa, WA 99033	County: Whitman	Township / Range / Section: *leave blank if unsure* T20N R45E S10

SECTION 2: PROJECT DESCRIPTION

Project includes (check all that apply): ☑ NEW CONSTRUCTION ☐ DEMOLITION ☑ GROUND DISTURBANCE ☐ REHABILITATION / RENOVATION ☐ ACQUISITION

Are any buildings 45 years or older going to be impacted in any of the above ways by this project? ○ YES ◉ NO ○ NOT SURE ☐ Check here if the project involves multiple resources. If so, attach a table including all information in Sections 1 and 2 for each resource.

If you do not know the age of the building(s) this is usually available through the county assessor web parcel search. To find this page put in the name of the county, Washington assessor property search into your web search engine of choice. I.e., Adams county Washington assessor property search.

Are there any Federal funds, lands, permits, or licenses involved in/required by this project? YES NO ◉ NOT SURE If Yes, what Federal Agency?

Have you already received a grant? YES NO, WE ARE APPLYING NOW ◉ NO, WE HAVE NOT APPLIED YET NOT SURE

SECTION 3: STATE AGENCY INFORMATION

Leave blank if unknown

State Agency:		Grant / Loan Program Name:		Direct Appropriation?	☐
Contact Person:		Phone:		e-mail:	
Funding biennium?		Requested grant / loan amount:		Total project amount:	

SECTION 4: CONTACT INFORMATION

If different from State Agency contact person.

Submitter Name:	Kara Riebold	Submitter Organization:	Executive Director
Submitter Address:	302 N Mill St	City / State / Zip:	Colfax, WA 99163
Submitter Phone:	509-288-0179	Submitter e-mail:	kara@portwhitman.com

DAHP DETERMINATION (DAHP USE ONLY)

☐ **EXEMPT** from GEO 21-02 review.
☐ The project will have an **ADVERSE IMPACT** on historic properties.
☐ There are **NO HISTORIC PROPERTIES IMPACTED** by the proposed project.
☐ DAHP requires **ADDITIONAL INFORMATION** in order to complete review (see attached).
☐ The project will have **NO ADVERSE IMPACT** on historic properties.
☐ SURVEY REQUIRED ☐ MONITORING REQUIRED
☐ INADVERTENT DISCOVERY PLAN REQUIRED

DAHP REVIEWER

DATE

GEO 21-02 **EZ-1 FORM** 2

Instructions: Please describe the type of work to be completed. Be as detailed as possible to avoid a request for additional information. Be sure to describe all ground disturbing activities in the appropriate box below and provide photos of areas of work.

DEPT OF ARCHAEOLOGY + HISTORIC PRESERVATION

SECTION 5: ATTACHMENTS

Please email completed form and all attachments to:
2102@dahp.wa.gov

- [x] MAP - Be sure to show the project boundary and location of property(ies). *See Section 7 on Page 3 for optional template. May also submit online through WISAARD using eAPE.*
- [ ] DESCRIPTION / SCOPE OF WORK - Describe the project, including any ground disturbance. *See Section 8 for an optional template.*
- [ ] SITE PLAN / DRAWINGS - Indicate location and dates of resources, proposed improvements and ground disturbance, etc.
- [ ] PHOTOGRAPHS - Attach digital photographs showing the project site, including images of all resources. *Photos submitted through WISAARD map surface.*

SECTION 6: ADD'L PROJECT INFORMATION

Provide a detailed description of the proposed project:

The Port of Whitman is proposing a new industrial development in Tekoa, Washington. The development encompasses 6 proposed lots with 5 building lease pads for future tenants. Building pads 1 and 2 will be part of the initial construction while pads 3-5 will remain untouched to allow for flexibility for future tenants. The site will have two combination bioretention and detention ponds located throughout the site to mitigate for the quality and quantity of the stormwater that is associated with the number of impervious surfaces added to the construction of the tenant's site.

Describe the existing project site conditions (include building age, if applicable):

The project is located approximately 2.5 miles Northwest of the town of Tekoa on 53541 SR 27. The existing parcel is approximately 14 acres with the addition of 1.44 acres via a Boundary Line adjustment. The site is currently zoned agriculture and will be rezoned to Heavy Industrial to meet the needs of future Port Tenants.

An Existing Building Condition report was completed for the two existing structures on the site and provided a recommendation on the likeliness of their reuse. Building A, the larger and southern most building (developed in 1980) was deemed in good condition to be reused by the Port or Tenant with minor remodeling. Building B, the northern most building (developed in 1998), would not be safe for reuse and is in poor condition.

A Geotechnical report was completed for this project and did not encounter bedrock or groundwater of any significance. Additionally, a Wetland Report was completed and determined there are no wetlands identified on the property as well as no DNR jurisdictional streams.

If there are ground disturbing activities proposed, describe them *including the approximate depth of ground disturbance*:

Excavations and embankments for building footings, foundations, and general site grading will be present for this site. Load bearing improvements are to be based on recommendations from a geotechnical analysis and evaluation. Total excavation is expected to be approximately 32,000 cubic yards with 23,000 cubic yards of total embankment, using a 20% shrink for compaction.

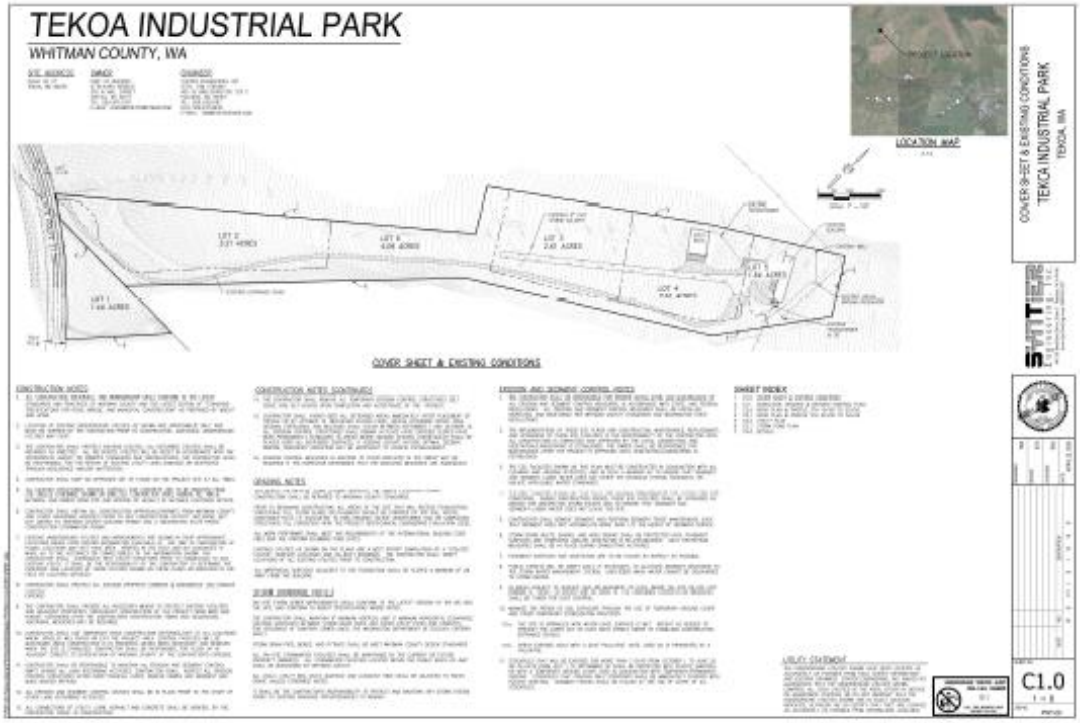
revised February 2022

GEO 21-02 **EZ-1 FORM** 3

Instructions: Please attach a MAP clearly showing the project area. Please click here for tutorial on creating a map if you don't have one clearly showing the project area.

DEPT OF ARCHAEOLOGY + HISTORIC PRESERVATION

SECTION 7: MAP / Area of Potential Effect



CLICK IN THE BOX ABOVE TO ADD A MAP
MAP MUST BE IN JPG FORMAT

revised February 2022

PioneerTitleCo.
GOING BEYOND

840 SE Bishop Blvd., Ste. 102
Pullman, WA 99163

Date: June 27, 2023

Port of Whitman County, a Municipal Corporation of the State of Washington
302 N. Mill St.
Colfax, WA 99111

File No. 824831
Property Address: 53541 SR 27, Tekoa, WA 99033

The closing of the above-noted property has now been completed. Enclosed for your records is the original recorded deed together with your final title policy.

We appreciate having had the opportunity to be of service to you. If you have questions please contact the Title Officer listed below.

Sincerely,

Tori Que, Title Officer
Ph: (509) 334-2210
Email: TQue@PioneerTItleCo.com

Enclosures

779915
Warranty/god Rec Fee: $ 204.50
06/23/2023 03:07 PM Page: 1 of 2
Sandra D. Jamison, Whitman County Auditor

When recorded return to:
Pioneer Title Company of Washington
840 SE Bishop Blvd., Ste. 102
Pullman, WA 99163

EXCISE TAX
ON REAL ESTATE SALE
Paid $ 5332.50
No. 84906
Date 6/23/23
Whitman County Treasurer
Deputy

STATUTORY WARRANTY DEED

THE GRANTOR(S) **Brian Windsor, a single man**

for and in consideration of Ten dollars and other good and valuable consideration in hand paid, conveys, and warrants to

Port of Whitman County, a Municipal Corporation of the State of Washington

the following described real estate, situated in the County of Whitman, State of Washington:

Faunce Aviation Short Plat being a portion of the south half of Section 10, Township 20 North, Range 45 East, W.M., recorded under Auditor's File No. 615074, records of Whitman County, Washington.

Also Subject to a Reservation for egress and ingress of farm machinery reserved by the Grantors in Warranty Deed recorded under Auditor's file no. 616374, recorded March 29, 1999 records of Whitman County, Washington.

"This conveyance is subject to Covenants, conditions, restrictions and easements, if any, affecting title, which may appear in the public record, including those shown on any recorded plat or survey."

Tax Parcel Number(s): 2-0000-45-20-10-8900

Dated: June 15, 2023

Brian Windsor

LPB 10-05 rev. 07.2021
Page 1 of 2

Department of Revenue
Washington State
Form 84 0001a

Real Estate Excise Tax Affidavit (RCW 82.45 WAC 458-61A)

Only for sales in a single location code on or after March 1, 2023.
This affidavit will not be accepted unless all areas on all pages are fully and accurately completed.
This form is your receipt when stamped by cashier. *Please type or print.*

☐ Check box if partial sale, indicate %_____ sold.

List percentage of ownership acquired next to each name.

1 Seller/Grantor
Name Brian Windsor, a single man
Mailing address 1002 Chambers Road
City/state/zip Colton, WA 99113
Phone (including area code) 208-301-1285

2 Buyer/Grantee
Name Port os Whitman County, a Municipal corporation of the State of Washington
Mailing address 302 N Mill Street
City/state/zip Colfax, WA 99111
Phone (including area code) 509-288-0179

3 Send all property tax correspondence to: ☑ Same as Buyer/Grantee
Name
Mailing address
City/state/zip

List all real and personal property tax parcel account numbers	Personal property?	Assessed value(s)
2-0000-45-20-10-8900	☐	$ 101,314.00
	☐	$ 0.00
	☐	$ 0.00

4 Street address of property 53541 SR 27, Tekoa, WA 99033
This property is located in Whitman County *(for unincorporated locations please select your county)*
☐ Check box if any of the listed parcels are being segregated from another parcel, are part of a boundary line adjustment or parcels being merged.
Legal description of property (if you need more space, attach a separate sheet to each page of the affidavit).
Faunce Aviation Short Plat being a portion of the south half of Section 10, Township 20 North, Range 45 East, W.M., recorded under Auditor's File No. 615074, records of Whitman County, Washington.

5 43 - Aircraft transportation
Enter any additional codes
(see back of last page for instructions)

Was the seller receiving a property tax exemption or deferral under RCW 84.36, 84.37, or 84.38 (nonprofit org., senior citizen or disabled person, homeowner with limited income)? ☐ Yes ☑ No
Is this property predominately used for timber (as classified under RCW 84.34 and 84.33) or agriculture (as classified under RCW 84.34.020) and will continue in it's current use? **If yes and the transfer involves multiple parcels with different classifications, complete the predominate use calculator (see instructions)** ☐ Yes ☑ No

6 Is this property designated as forest land per RCW 84.33? ☐ Yes ☑ No
Is this property classified as current use (open space, farm and agricultural, or timber) land per RCW 84.34? ☐ Yes ☑ No
Is this property receiving special valuation as historical property per RCW 84.26? ☐ Yes ☑ No

If any answers are yes, complete as instructed below.

(1) NOTICE OF CONTINUANCE (FOREST LAND OR CURRENT USE)
NEW OWNER(S): To continue the current designation as forest land or classification as current use (open space, farm and agriculture, or timber) land, **you must sign on (3) below**. The county assessor must then determine if the land transferred continues to qualify and will indicate by signing below. If the land no longer qualifies or you do not wish to continue the designation or classification, it will be removed and the compensating or additional taxes will be due and payable by the seller or transferor at the time of sale (RCW 84.33.140 or 84.34.108). Prior to signing (3) below, you may contact your local county assessor for more information.

This land: ☐ does ☐ does not qualify for continuance.

Deputy assessor signature _____ Date _____

(2) NOTICE OF COMPLIANCE (HISTORIC PROPERTY)
NEW OWNER(S): To continue special valuation as historic property, sign **(3) below**. If the new owner(s) doesn't wish to continue, all additional tax calculated pursuant to RCW 84.26, shall be due and payable by the seller or transferor at the time of sale.

(3) NEW OWNER(S) SIGNATURE

Signature _____ Signature _____
Print name _____ Print name _____

7 List all personal property (tangible and intangible) included in selling price.

If claiming an exemption, list WAC number and reason for exemption.
WAC number (section/subsection)
Reason for exemption

Type of document Warranty Deed
Date of document 06/15/2023

Gross selling price	395,000.00
*Personal property (deduct)	0.00
Exemption claimed (deduct)	0.00
Taxable selling price	395,000.00
Excise tax: state	
Less than $525,000.01 at 1.1%	4,345.00
From $525,000.01 to $1,525,000 at 1.28%	0.00
From $1,525,000.01 to $3,025,000 at 2.75%	0.00
Above $3,025,000 at 3%	0.00
Agricultural and timberland at 1.28%	0.00
Total excise tax: state	4,345.00
0.0025 Local	987.50
*Delinquent interest: state	0.00
Local	0.00
*Delinquent penalty	0.00
Subtotal	5,332.50
*State technology fee	5.00
Affidavit processing fee	0.00
Total due	5,337.50

A MINIMUM OF $10.00 IS DUE IN FEE(S) AND/OR TAX
*SEE INSTRUCTIONS

8 I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT

Signature of grantor or agent _____
Name (print) Brian Windsor
Date & city of signing 20 JUN 23 Pullman

Signature of grantee or agent Kara L Riebold
Name (print) Kara Riebold, Executive Director
Date & city of signing 6/13/2023 Colfax, WA

Perjury in the second degree is a class C felony which is punishable by confinement in a state correctional institution for a maximum term of five years, or by a fine in an amount fixed by the court of not more than $10,000, or by both such confinement and fine (RCW 9A.72.030 and RCW 9A.20.021(1)(c)).

To ask about the availability of this publication in an alternate format for the visually impaired, please call 360-705-6705. Teletype (TTY) users may use the WA Relay Service by calling 711.

REV 84 0001a (02/28/23)

THIS SPACE TREASURER'S USE ONLY

RECEIVED
JUN 23 2023
By

COUNTY TREASURER

WHITMAN COUNTY, WA
00084906

Print on legal size paper.
Page 1 of 6

405 SE Brelsford DR, Ste C
Pullman, WA, 99163
509-339-6187

Project Introduction

The Port of Whitman Tekoa Industrial Park project is proposing to develop 14.2 acres located northwest of Tekoa, with access off of SR27. The site was used as an airstrip for surrounding farming purposes. The proposed project will consist of the construction of five lots that will be zoned for light industrial use. Each lot is designed to have a 20,000 square foot building as a placeholder. Actual building size will vary, buildings that are significantly larger than this will need to reevaluate traffic impacts. The intent of this report is to help determine if right and left lanes will be required.

Land Use Code 130 for Industrial Park from the Trip Generation Manual (ITE, 11th Edition, 2021) was used to determine the peak hour traffic counts for this site. Based on this use code and the assumed building foot print the AM Peak Hour will have 41 trips and the PM Peak Hour will have 40 trips.

Right Turn Lane Analysis

When evaluating the necessity for a right-turn deceleration lane into the site, we assumed a 95 percent directional distribution since a majority of the traffic entering the site will be coming from the south (NB), based on connectivity to surrounding highways. With this directional distribution, during the AM Peak Hour there will be 39 trips entering the site with a right turn and the PM Peak Hour will have 38 trips entering with a right turn. Using Figure 1, we assumed there are approximately 40 peak hour right turn trips. We did not determine Peak Hour Approach Volume (DDHV), but with a volume of 40 peak hour right turns, we are anticipating our DDHV to be well below the 300 DDHV that would be required before a right turn taper or turn lane would be warranted.

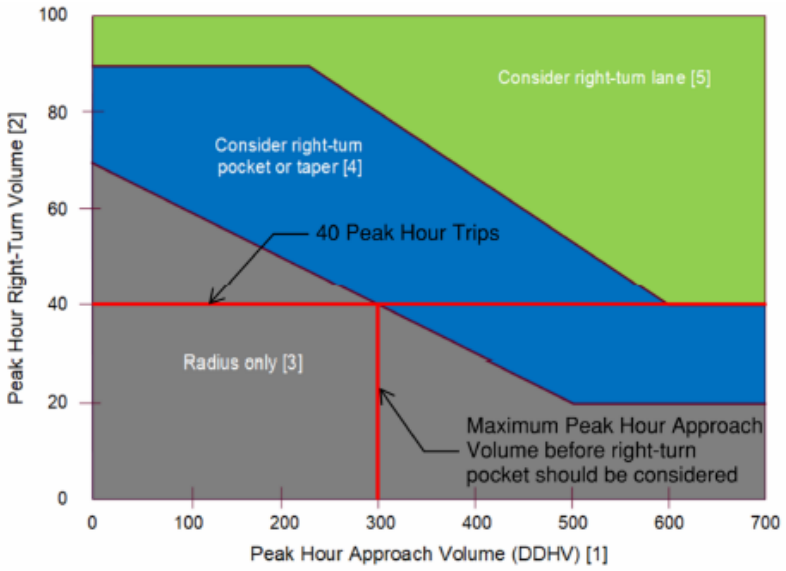


Figure 1: WSDOT Design Manual Exhibit 1310-24 Right-Turn Lane Guidelines

Left Turn Lane Analysis

When we evaluated the need for a one-way left turn lane, we utilized a 5 percent directional distribution to the south bound traffic due to the lack of connectivity to major highways north of the project. Based on this directional distribution, conservatively, we assumed that less than 5 percent of the total traffic on SR 27 will be making a left turn into the site. Using Figure 2, we determined the maximum total traffic volume before a left turn lane would be required is 620 trips. While we did not determine the total traffic volume along SR 27, we are anticipating there to be less than 620 daily trips due to the lack of connectivity to surrounding highways and the population of the towns north of the site.

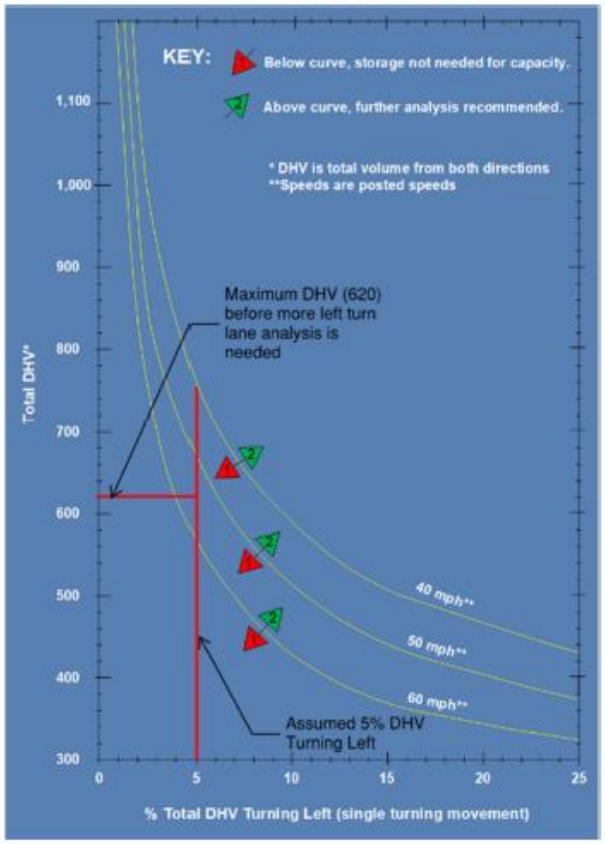


Figure 2: WSDOT Design Manual Exhibit 1310-9 Left-Turn Storage Guidelines: Two-Lane, Unsignalized

Conclusion

Based on our conservative analysis, left or right turn lanes are not required for this project. Development of the site outside of the building size assumptions or significant increase of traffic on SR27 will require additional analysis.

Job Certification

Job Certification

Identify the estimated number, occupational title, and average wages of jobs to be created upon the successful completion of this project. (5 year window)

Please use occupational titles as identified in the employment data reports on the employment security department's website at: https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupations-in-demand

Year	# of Jobs	SOC#	Occupational Title	Hourly Wage
2020	20	493011	Aircraft Mechanics and Service Technicians	$24.24
2021	15	194011	Agricultural and Food Science Technician	$19.87
2027	10	47-2211	Sheet Metal Workers	$26.91
2027	2	17-2112	Industrial Engineers	$55.34
2027	1	11-3051	Industrial Production Manager	$44.55
2027	3	51-9199	Production Workers, All Other	$16.26
2028	10	47-4051	Highway Maintenance Worker	$20.29
2028	5	17-2051	Civil Engineers	$45.36
2029	3	51-1011	First-Line Supervisors of Production and Operating Workers	$31.35
2029	1	11-3051	Industrial Production Managers	$55.34
2029	1	17-3026	Industrial Engineering Technologists and Technicians	$28.56
2029	8	51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	$18.47
2029	8	51-9199	Production Workers, All Other	$16.26
2029	2	17-2112	Industrial Engineers	$44.55
2029	9	51-9199	Team Assembers	$19.52
2030	1	11-3051	Industrial Productin Managers	$55.34
2030	3	51-1011	First-Line Supervisors of Production and Operating Workers	$31.35
2030	1	17-3026	Industrial Engineering Technologists and Technicians	$28.56
2030	4	51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	$18.47
2030	12	51-2092	Team Assembers	$19.52
2030	2	17-2112	Industrial Engineers	$44.55
2030	9	51-9199	Production Workers, All Others	$16.26
2031	6	49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	$24.72
2031	2	51-8021	Stationary Engineers and Boiler Operators	$31.71
2031	2	47-1011	First-Line Supervisors of Productions and Operating Workers	
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Appendix E: Full GeoTech Report by GeoProfessional Innovation

Geotechnical Engineering Evaluation

Tekoa Industrial Development
53541 State Route 27
Tekoa, Washington

PREPARED FOR:

Mr. Tom Stirling, Principal
SynTier Engineering, Inc.
405 SE Brelsford Dr., Ste C
Pullman, WA 99163

PREPARED BY:

GeoProfessional Innovation Corporation
6 O'Donnell Road
Pullman, WA 99163
(509) 339-2000

February 16, 2024

TABLE OF CONTENTS

Page

REPORT TABLES AND FIGURES

Geotechnical Engineering Evaluation

Tekoa Industrial Development
53541 State Route 27
Tekoa, Washington

INTRODUCTION

GeoProfessional Innovation Corporation (GPI) explored the subsurface conditions within the proposed development area and prepared geotechnical recommendations to assist project planning, design, and construction. Our geotechnical exploration and evaluation services were performed in reference to the authorized scope of services dated November 20, 2023. To accomplish our evaluation, we performed the following scope of work:

Exploration

1. Coordinated public utility locates by contacting the Washington Utility Notification Center. We also used geophysical methods to help clear explorations from private utilities.

2. Coordinated with the Port of Whitman (Port) to obtain site access permission and establish exploration locations.

3. Explored the subsurface using a combination of borings and test pits over 2 separate exploration events. Exploration locations are shown on Plate 2, *Exploration Map*. We coalesced the balance of prior boring and test pit exploration on this map as well and rely on that subsurface data herein. Our geologists visually described, classified, and logged the soil encountered in the exploration locations referencing the *Unified Soil Classification System* (USCS). The USCS and our exploration logs are provided in Appendix A.

Laboratory Testing

4. Performed laboratory testing in reference to *ASTM International* (ASTM) standards to assess soil engineering characteristics. Laboratory test results are provided in Appendix B.

Engineering Analyses & Deliverable Preparation

5. Based on our field and laboratory test results, we performed engineering analyses and provided geotechnical opinions and recommendations to aid project design and construction.

6. Provided this deliverable including exploration logs, laboratory test results, and our geotechnical opinions and recommendations.

PROJECT UNDERSTANDING

Existing Site Conditions

The site is a 14-acre parcel (200004520108900) with a 1,775-foot-long airstrip that is half paved and half gravel surfaced. Additionally, the property is developed with a 4,800-square-foot (sf) hangar and 5,250-sf hangar, shop, and office building. The property was initially developed in 1980 with the larger building and the second hangar constructed in 1998. The property has a dedicated water well, septic system, and public electric utilities. The site is currently zoned for agricultural use and past use has been for agricultural chemical application via aircraft spray operations. There is an existing concrete slab between the 2 hangar buildings that was used for parking aircraft. The site slopes down to the south and west gently to moderately.

Proposed Construction

From our discussions with Mr. Tom Stirling with SynTier Engineering, Inc. (SynTier), and reviewing preliminary grading plans prepared by SynTier, we understand the site will be graded for constructing an industrial park development with multiple tiers and building pads incorporated into the existing sloped site topography. Preliminary grading plans prepared by SynTier provided to GPI on January 25, 2024 show cuts below existing grades up to 15 feet and fill embankments up to 20 feet above existing grades on 4 separate lots. We expect soil generated from cuts will be reused on site as embankment fill to nearly balance site earthwork. Currently, no retaining walls are planned to achieve finished grades. SynTier is designing site grading to incorporate primarily 2H:1V (horizontal to vertical) cut and fill slopes.

Site infrastructure will include asphalt paved roads and parking areas, concrete hardscapes, utility installations, and stormwater management. Site drainage will be directed to various detention areas at each of the 4 tiers of graded development from the northeast at the highest elevations to the southwest toward the highway. Each of the 4 detention areas will be constructed primarily in cuts below existing grade. However, the southwest sides of the detention areas may comprise fill embankments, designed by SynTier with slopes set at 3H:1V (horizontal to vertical or flatter).

The planned improvements will include constructing 6 total building structures on 4 separate elevation tiers of development. We anticipate planned structures will comprise 1- to 2-story, steel-framed buildings supported on shallow foundations and concrete slab-on-grade floors. These buildings are not designed yet and therefore, there are no load estimates. For our analyses, we are assuming 2 to 3 kips per linear foot along walls and 20- to 30-kip column loads. Currently, buildings are planned entirely in cut, entirely in fill, and in a few locations, spanning cut and fill.

SUBSURFACE AND LABORATORY EVALUATION

Subsurface Exploration

GPI performed our initial site subsurface exploration on April 21, 2023 during a separate scope of work with the Port to investigate potential environmental concerns associated with the historic property use. This exploration included 2 soil borings extending approximately 21.5 feet below the ground surface and 10 test pits extending up to 7.0 feet deep. Our recent exploration was advanced on December 19, 2023 and included 8 test pits extending 6.5 to 10 feet below the ground surface. Plate 1 shows a vicinity map inset with SynTier's conceptual site plan overlaid on the existing parcel. Plate 2 shows exploration locations from both April and December 2023.

Soil borings advanced in April 2023 were performed with a trailer-mounted G-2400 drill rig equipped with hollow stem augers and Standard Penetration Test (SPT) sampling equipment. Test pits in April 2023 were performed with a Takeuchi 3440B track-mounted excavator and in December 2023 with a track-mounted Deere 50G excavator equipped with a 24-inch-wide bucket with standard soil excavation teeth. During exploration, our geologists visually classified, described, and logged the soil encountered in reference to the *Unified Soil Classification System* (USCS). We also collected select in-place soil samples from various depths and locations for subsequent laboratory testing. Test pits were backfilled with site soil upon completion. Exploration logs and the USCS are presented in Appendix A.

Infiltration Testing

Infiltration testing was accomplished in test pits TP-23247A-14 and TP-23247A-18, at 2.0 and 4.0 feet below the ground surface, respectively. We performed infiltration tests referencing the *Ring Infiltration Method* outlined in Appendix 6B of the Washington Department of Ecology's (WDOE) *Stormwater Management Manual for Eastern Washington*. Infiltration tests were performed in the silt (TP-23247A-14 at 2.0 feet) and

silty gravel (TP-23247A-18 @ 4.0 feet). The infiltration tests results are discussed in the *Surface Grading and Drainage* section of this letter.

Laboratory Testing

We performed laboratory testing referencing applicable ASTM International procedures. Test results are provided in Appendix B. The following laboratory tests were conducted for this project:

- **Natural moisture content**
- **Gradation**
- **Atterberg Limits**
- **In-situ Density**
- **Proctor**
- **California Bearing Ratio**

The index tests performed will be used to correlate geotechnical design parameters and used to specify earthwork requirements.

Subsurface Conditions

Across the various exploration and remediation excavations we encountered topsoil at the ground surface comprising mixed clay and silt that was dark brown, soft, and moist, and contained vegetation and organics extending 0.3 to 0.8-feet-thick. Beneath topsoil, we encountered uncontrolled fill associated with site grading in test pits TP-23247A-11 and TP-23247A-12 extending 1.0 and 1.5 feet below the ground surface, respectively. Uncontrolled fill containing various household trash and debris including books, wood, plastic debris and ash were also observed in TP-23247A-5 and extended 1.5 feet below the surface. These test pits are located between the 2 existing hangar buildings on the northeast portion of the site.

In several test pit locations, a layer of silt loess was encountered beneath the topsoil that was dark brown, firm and moist. The loess extended between 2.0 to 2.5 feet below the surface where encountered. As the explorations advanced to the southwest of the existing hangar buildings, the layer of loess became thinner and was not observed in test pits TP-23247A-17 and TP-23247A-18. Underlying the silt loess was reddish brown to orange silty gravel colluvium that was medium dense to very dense and moist. The silty gravel contained weathered rock pieces that were blocky and angular and ranged from a few inches in diameter to over 1-foot. The weathered rock particles observed in the test pits are metasedimentary rocks from the Tekoa Mountain formation outcropped to the northeast that have been mobilized by gravity. Where the silty gravel was encountered, it extended to the depths explored in test pits and borings. We expect silty gravel will grade to weathered residual bedrock at depth.

Groundwater was encountered as seeps in isolated test pits at the interface between the silt and silty gravel. Consistent perched groundwater was not encountered in the borings that extended up to 20 feet below the ground surface. Bedrock was not encountered in the depths or locations explored.

GEOTECHNICAL OPINIONS AND RECOMMENDATIONS

The planned grading combined with the site subsurface conditions led our analyses to focus on 3 primary areas of geotechnical interest: embankment settlement, slope construction, and foundation performance. There are several other geotechnical factors related to the soil encountered that can contribute to the performance of various planned improvements that we also address herein. Further, note that the overall site configuration was not defined at the time of our exploration. The collective explorations focused on planned Lots 2 through 4. Lot 1 boundaries and plans for development were not established and thus, not contemplated as part of exploration at the time of our work. Based on exploration in the remain lots and traversing Lot 1 at the surface,

4 we do not expect the site surface soil or underlying geology will realize substantial changes. However, extrapolating this report's findings to Lot 1 has some risks that must be considered by the design team, the Port, and future tenants.

The soil encountered in explorations comprises a thin (~2 feet) layer of silt overlying silty gravel with isolated areas of uncontrolled fill associated with prior site uses and development. The fines (amount of silt and clay) component of these soil units will dictate the viable time frame and applicability for reuse as part of site grading. Where large fills are planned to be constructed, these embankments and the underlying soil will settle over time due to the embankment load as well as the future building loads configured above them. Consolidation is a time dependent settlement process driven by the soil and moisture conditions at the base of embankments and the extent embankment soil is compacted. We address compaction requirements, future development timing, and consolidation potential for your consideration and planning in this report.

SynTier's grading design establishes relatively large soil cut and fill slopes at 2H:1V. While 2H:1V cut slopes generally perform without deep-seated slope failures, they are difficult to revegetate and often experience shallow to moderate erosion and sloughing during wet periods of the year. This becomes a maintenance consideration for the Port, and can impact potential tenants throughout the development's life. Fill slopes constructed at 2H:1V will experience sloughing and erosion until vegetation is established, and can experience deep seated failure where aggressive surface drainage measures are not implemented. It is important for the Port of Whitman to consider their risk and maintenance tolerance of slopes as design is finalized and construction advances. Further, communication between the Port and civil design team is critical to configuring lots and grading to meet long-term objectives.

Once exposed in either native cuts or at finished embankment elevations, the silt and clay loess and the underlying silty gravel colluvium soil allows for very little infiltration. The site soil has a low erosion potential; however, it has a very high runoff potential, which is most often realized during late winter and spring precipitation events. SynTier plans stormwater conveyance features that ultimately collect stormwater on each lot and direct detention systems positioned at the lowest elevation on each lot for ultimate disposal via overflow to natural drainages. Controlling stormwater is a critical part of reducing the potential for slope instability and embankment consolidation for long-term infrastructure performance.

The following geotechnical opinions and recommendations are provided to assist project design and construction for the Port Industrial Development in Tekoa, Washington. We base our analysis and recommendations on our site observations, specific exploration and laboratory results, engineering analyses, and experience with similar soil conditions. If design plans change substantially or subsurface conditions encountered during construction vary from what was observed in our field evaluation, notify GPI to review the report recommendations to make necessary revisions.

Embankment Design

Embankment construction and the resulting settlement impacts to the planned improvements are a primary geotechnical concern for this project. Some of the planned improvements will bear entirely on cuts into native soil. Other features will bear entirely over fill embankments. Some features will span a combination of cut and fill at finished grades. Embankment fill will settle over time. Therefore, infrastructure, buildings and other features constructed on fill or a combination of cut and fill need careful planning and consideration to reduce settlement impacts to the planned future structures.

Embankment settlement occurs as the underlying native soil comes to equilibrium with the weight of the new fill soil and as the embankment settles under its own weight. Because the site soil is fine grained or in areas, contains significant fines, the settlement process (consolidation) takes time. Embankment fill itself will settle

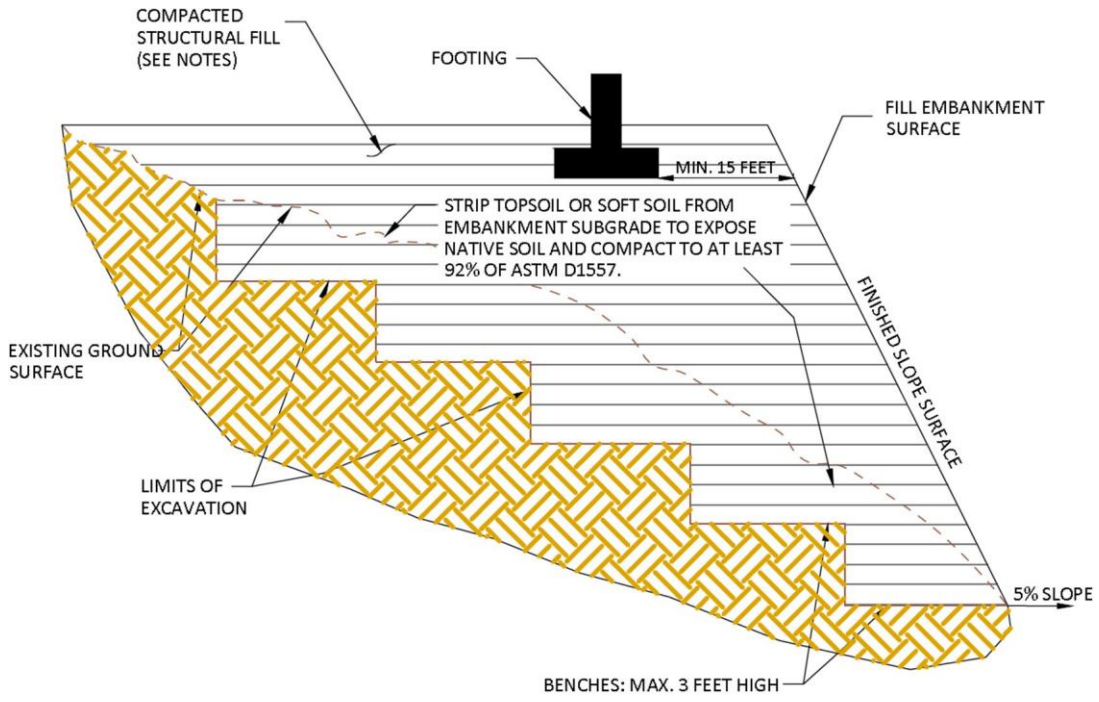
5 relative to the level of compaction specified, or more importantly, the compaction level ultimately achieved during construction. From our calculations and assuming drained conditions, we estimate embankments less than 20 feet tall will experience total consolidation ranging from 0.3 to 0.7 percent of the total embankment height. This correlates to settlement potential for the tallest planned embankments between 0.7 and 1.7 inches. Obviously, if the largest settlement estimates occurred entirely post-construction, it would be unacceptable. Fortunately, with drained subgrade conditions, at least 50 percent of this settlement will occur as fill is placed.

At this time, SynTier shows that most of the planned improvements are situated over shallow (<5') embankments or on cuts. Therefore, we do not anticipate embankment consolidation settlement will impact building development, assuming this report's recommendations are incorporated into earthwork and good construction practices are implemented. However, Lot 1 conceptually places a building over 8-foot-deep cuts at the northeast corner and 8-foot-deep fills at the southwest corner. Buildings on Lots 2, 3, and 4 are well configured either entirely on cut or entirely on shallow fill. At Lot 1, we recommend site grading commence and the underlying soil be allowed to come to equilibrium with the new embankment load for at least 1 year prior to initiating building construction.

Cut and Fill Slope Stability

Cut and fill slopes will be constructed as part of the planned development. Planned improvements must be set back from slopes in accordance with the *International Building Code* (IBC) and Whitman County requirements. In addition to these IBC requirements, GPI recommends building foundations situated atop slopes maintain at least 15 feet horizontal setback distance from any slope surface. This configuration is illustrated in Figure 1, *Embankment Construction Schematic*. From initial SynTier building layouts, this configuration requirement appears to be met with the exception of the south building foundation line on Lot 1. We recommend revising this building location to obtain adequate setback from the slope.

Figure 1: Embankment Construction Schematic



Based on the grading plan developed by SynTier, GPI analyzed the tallest cut and fill slope sections with the assumption that structures will be set back from the toe or crest of slopes per IBC Section 1808.7 and the recommendations outlined herein. We used the computer software SLOPE/W, developed by GEO-SLOPE International, Ltd. to estimate slope stability at select locations within the planned development. SLOPE/W searches for the potential failure surface with the lowest safety factor by calculating safety factors on many different potential failure surfaces using various slope stability analysis methods. Our analyses evaluated potential failure surfaces at locations we consider representative of critical (tallest) slopes to be constructed during mass grading for the project. These slopes occur on the east (cut) and west (fill) sides of Lot 1. The approximate section alignments used in our analysis are labeled A-A' (cut) and B-B' (fill) as shown on Plate 2. The cross-sectional site subsurface geometry used in our analysis is illustrated on Figures C.1 and C.4 in Appendix C. This geometry was interpolated from the conditions encountered on explorations in other site areas.

Our analyses provide estimated factor of safety (FOS) against global slope failure for the slope inclinations planned by SynTier at critical sections. The lowest FOS are estimated for circular slope failure paths. It is important to note that surface slope failures will occur and will require heightened maintenance until drainage paths and vegetation are re-established. We summarize our stability analysis results in Table 1 below as well as illustrated on Figures C.2 and C.3 and C.5 and C.6 in Appendix C.

We modeled slopes in dry conditions as well as wet conditions. Provided topography grades to direct runoff away from slopes, slopes should be dry most of the time. However, during late winter and spring months of the year, where stormwater accumulates in ponds at the toe of the slope or if septic water infiltrates laterally and daylights on slopes, wet or saturated conditions can occur. As noted in the "wet conditions" stability analyses, both cut and fill slope models predict a significant reduction in the overall FOS. Therefore, drainage is critical to slope performance. Also, if individual lot development positions structures or stormwater infiltration features closer than specified herein, instability or settlement may impact foundation or slab performance.

Table 1. Stability Analysis Results: Deep-Seated Failures

Critical Section	Slope Type	Soil Conditions	Inclination	Surcharge	Surface Moisture Conditions	FOS Dry	FOS Wet	Appendix C Figure
A-A'	Cut	Silt over Silty Gravel	2H:1V	N/A	Dry/Wet	2.76	1.36	C.2/C.3[3]
B-B'	Fill	Embankment Fill over Silt and Silty Gravel	2H:1V	250 psf[1]	Dry/Wet	1.46[2]	1.07[2]	C.5/C.6[3]

1. Estimated traffic surcharge.
2. FOS below 1.5 are below the geotechnical standard of care.
3. C(dry)/C(wet)

We correlated soil-engineering parameters for stability analyses from field observations, laboratory tests, and our experience with the site soil. Our analyses and experience with similar developments suggests that when cut slopes in native soil remain dry, they can be constructed as steep as 2H:1V with FOS substantially above 1.5, consistent with the geotechnical standard of care for similar developments. When we model cut slopes that become saturated, the FOS significantly decreases and is below 1.5 as shown on Plate C.3.

We expect site silt near the surface will be blended with the silty gravel at depth to be placed as structural embankment fill. Our experience is that when recompacted as structural fill for embankments, the soil's native structure is disturbed and the apparent cohesion and internal friction decrease; we modeled this in our analyses. Because of the reduced strength, dry fill slopes constructed at 2H:1V have FOS slightly lower than 1.5 as shown in Table 1 and on Figure C.5 and C.6 in Appendix C. If fill slopes become saturated, our models predict a high risk of slope instability at 2H:1V configurations.

Slope Maintenance Considerations

We strongly recommend SynTier plan to install erosion matting, re-establish surface vegetation, preclude long term irrigation, and other measures to reduce slope erosion and instability. This will help reduce the most probable slope failures associated with surficial sloughing. Additionally, it is critical that surface runoff be diverted away from slopes to avoid infiltration and near-surface saturation; the leading causes of fill slope instability.

It is necessary to provide appropriate erosion control measures above, on, and below slopes such as hydroseeding, erosion control blankets, or other landscaping to reduce the potential for sloughing and erosion. At a minimum, slopes must be re-seeded with an appropriate dryland seed blend at the completion of construction and during appropriate germination periods specified by an experienced Landscape Architect or hydroseeder. Typically, hydroseeding is moderately successful during spring months and between October and early November with decreasing success before or after these periods. We recommend a follow-up and/or spot hydroseeding application be specified within 6 months of the first application to improve uniform vegetative growth.

Irrigation on lots, but specifically at slope faces, should be discouraged, recognizing the risks of surface saturation or irrigation system failures that can saturate the entire slope system. Vigorously maintain slopes until vegetation has the opportunity to establish itself. Minor sloughing and surface erosion should be expected along slopes until vegetation is established. Surface grading must not allow water to drain over slope faces.

Earthwork

Site Stripping

At the onset of earthwork, locate and remediate test pits located in planned development areas. Test pits in deep cut areas do not require remediation as they will be excavated as part of the grading process. Excavate loose test pit backfill and replace it with *General Structural Fill* to the ground surface.

Remove surface soil that contains vegetation and organics to at least 5 feet horizontally outside the planned grading limits, future buildings, and roadways. In the exploration locations, GPI generally observed 0.3 to 0.8 feet of surface topsoil containing vegetation and organics. However, topsoil thickness will vary across the site. Strip and stockpile topsoil for landscaping purposes, slope dressing, or remove it from the site. For bidding purposes, we recommend an average stripping depth of at least 0.5 feet.

Uncontrolled Fill

Uncontrolled fill was encountered in isolated site areas and in some of those areas, it contained various deleterious debris. Uncontrolled fill is not suitable to remain in place below future developments. Excavate and remove all uncontrolled fill to expose native subgrades. Where uncontrolled fill does not contain debris, organics, or other deleterious material, it may be reused as *General Structural Fill*. All debris and organics shall be segregated and removed from the site.

Excavation Characteristics

From exploration and experience with earthwork operations on similar projects, we expect the on-site soil may be excavated with large, conventional equipment. Depending on the contractor's excavation approach, scrapers may be used for mass grading. Zones of stiff clay loess and relatively dense silty gravel colluvium should be expected that require ripping prior to excavation with scrapers. We recommend contractors visit the site prior to bidding to assess moisture conditions, which can impact their planned earthwork and mass grading equipment usage on the site. Contractors should maintain equipment capable of manipulating larger cobble and small boulder components encountered in the silty gravel soil unit.

Soil excavations must be sloped in accordance with *Washington Industrial State Health Act* guidelines (WISHA). When in an undisturbed and dry condition, site soil classifies as type C soil, which can be sloped as steep as 1.5H:1V under temporary and dry conditions. Specifically, where soft and wet soil exists, excavations may require flatter slopes to maintain temporary stability. Earthwork contractors must evaluate each excavation configuration specific to WISHA guidelines and seek appropriate professional guidance to help ensure the excavation safety and stability.

Bedrock and consistent groundwater were not encountered in the locations explored. However, note that the entirety of the site was not explored. Additionally, deep cut areas are planned and exploration did not extend to or beyond the depth of some of those cuts. Therefore, project earthwork specifications should consider establishing alternate unit costs for bedrock excavation, although not anticipated.

Establishing Subgrades

The project encompasses many different improvements (i.e. embankments, pavements, hardscapes, foundations, etc.), and will span various soil conditions that require attention to subgrade preparation procedures. Once topsoil is removed, expose native soil, scarify, moisture-condition, and recompact subgrades to *Structural Fill* requirements to at least 0.7 feet below the subgrade elevation. Moisture conditioning may take considerable time and effort depending on the time of year earthwork occurs. If moisture conditioning and recompaction efforts fail, or project schedules will not allow time for recompaction, over-excavate unstable, wet soil and replace it with granular structural fill as discussed in the *Wet Weather/Wet Soil and Structural Fill* sections.

The site's existing fine-grained soil is extremely moisture sensitive and subject to disturbance due to construction traffic, varying weather conditions, and other factors. Disturbance will negatively impact the soil's performance beneath and within embankments, below pavements, foundations, and other improvements. Disturbed soil shall not be allowed below or within embankments, pavements, or any other improvements. Careful earthwork construction procedures and proactive measures are critical to achieving adequate subgrade preparation and reducing over-excavation and rework. Specifically, these procedures could include, but are not limited to:

- Carefully staging equipment and/or stockpiles
- Routing construction equipment and runoff away from subgrades
- Scheduling subgrade preparations during good weather

It is the contractor's responsibility to protect subgrades throughout construction. Subgrade disturbance that occurs due to the contractor's means and methods must be repaired at no cost to the Port. We expect subgrades will be exposed to various weather conditions that will result in some rework. To reduce rework, we recommend SynTier incorporate provisions into the project specifications to require that contractors implement subgrade protection measures between construction seasons. These measures could include but are not limited to:

- Implementing aggressive site surface and subsurface drainage procedures to help reduce saturating subgrades during wet weather conditions. See the *Site Drainage* report section herein for additional recommendations.
- Leaving subgrades at least 1 foot high (above) as interim construction surfaces to reduce the risk of weather-related disturbance (freezing & saturation) extending below the next season's starting subgrade surface.

Wet Weather/Wet Soil Construction

It is important that earthwork construction take place during dry weather conditions. Successful earthwork operations can be difficult or impossible during wet or freezing seasons on the Palouse (typically November through June). The near surface fine-grained site soil will be susceptible to pumping or rutting from heavy loads such as rubber-tired equipment or vehicles any time of the year. Recompacting site soil to structural fill conditions requires considerable moisture conditioning and soil processing during warm, dry weather. Where pumping or rutting at the subgrade exists and adequate moisture conditioning does not remedy these conditions, remove soft and wet areas with smooth blade equipment at the Port's or their design team's direction. Over-excavation depths will vary with site moisture conditions. Replace these over-excavations with *Granular Structural Fill* or *Crushed Surfacing* atop *Geotextile* as described in subsequent *Structural Fill* report sections. Where soft, disturbed soil is not removed and replaced in this manner, additional settlement and instability is possible.

Earthwork should not be performed immediately after rainfall or until soil can dry sufficiently to allow construction traffic without disturbing the subgrade. Accomplish earthwork by track-mounted equipment that reduces vehicular pressure applied to the soil if construction commences in wet areas and/or before soil can dry. Depending on precipitation, runoff, and perched groundwater conditions encountered during construction, we anticipate the soil will be slightly to moderately over optimum moisture content. In some locations such as low-lying site areas, and where seeps and springs are encountered in cuts, soil may be over- optimum moisture content. These conditions require substantial effort to collect and direct water away from work areas, and preclude it from impacting soil to be used for embankment construction. Contractors should expect these conditions and be prepared to install runoff management facilities and to replace wet or disturbed soil with *Granular Structural Fill*. Drying can be accomplished by ripping and aerating the wet soil during dry weather conditions. Depending on conditions encountered at the time of construction, ripping and aeration of site soil can require several days or weeks to dry it to a moisture content suitable for compaction.

Structural Fill Criteria

Place all fill for earthwork and infrastructure construction as structural fill. The project structural fill products described in Table 2 below generally conform to the *Washington State Transportation Department* (WSDOT) *Standard Specifications for Road, Bridge and Municipal Construction* (Standards).

Table 2. Structural Fill Specifications and Allowable Use

Structural Fill Product	Allowable Use	Material Specifications
General Structural Fill	• Mass grading • Embankment fill construction • Utility trench backfill outside of the pipe bedding zone	• Soil classified as GP, GM, GW, SP, SM, SW, CL, or ML according to the USCS • May not contain particles larger than 0.7 feet in median diameter • Site soil moisture conditioned to levels appropriate for compaction • Soil consisting of inert earth materials with less than 3% organics or other deleterious substances (wood, metal, plastic, waste, etc.)
Granular Structural Fill	• Over-excavations • Embankment substrates • Temporary haul roads • Temporary platforms • *General Structural Fill* applications.	• Soil meeting requirements stated in *WSDOT Standards Section 9-03.14(1) – Gravel Borrow* • May not contain particles larger than 0.3 feet in median diameter • Ripped or shot bedrock (shotrock) meeting general structural fill requirements • Larger particles may be used for certain applications, only with GPI's prior approval.
Crushed Surfacing	• Asphalt, hardscape, and slab support aggregate • *Granular Structural Fill* applications.	• Soil meeting requirements stated in WSDOT Standards *Section 9-03.9(3) – Crushed Surfacing* • Includes top and base course
Pipe Bedding	• Trench backfill within 1 foot of utility pipes	• Soil meeting requirements in *WSDOT Section 9-03.12(3) - Gravel Backfill for Pipe Zone Bedding*
Drain Rock	• Subsurface drains • Drainage features	• Gravel meeting requirements stated in WSDOT *Section 9-03.12(4) – Gravel Backfill for Drains*

The site soil is expected to be suitable for reuse as *General Structural Fill* providing it can meet the criteria presented in Table 2. The various earthwork requirements for establishing subgrades and using site materials require a responsive contractor capable of delineating structural fill zones and appropriate material applications. Further, structural fill must be placed uniformly from the specified subgrade elevations in uniform lifts and compacted to the required density under close supervision by the Port's site representative and monitored by GPI.

Required Compaction

Appropriate embankment and subgrade compaction reduces long-term embankment consolidation potential, reduces the probability of multiple construction iterations and rework and overall improves embankment performance. Therefore, GPI recommends the compaction requirements outlined in Table 3 be specified in earthwork construction documents.

Table 3. Required Compaction and Products for Designated Project Areas

Project Area	Required Structural Fill Product	Compaction Requirement[1]
Embankment Subgrades	Native soil beneath embankments	92%[2]
Hardscape Subgrades	Native soil	95%[2]
	Structural Fill	95%[2]
Structural fill for mass grading, embankment construction, utility trench backfill	General, Granular, and Crushed Surfacing Structural Fill	95%
Foundation & slab section subgrades	Native soil or Structural Fill	95%

1. Relative compaction requirement compared to the maximum dry density of the soil as determined by ASTM D1557 (modified Proctor).
2. Coarse granular structural fill monitored via method specification; see Coarse Fill section.

Structural fill products and existing subgrades must be moisture conditioned to near optimum moisture content and placed in maximum 1-foot-thick, loose lifts. This assumes large, appropriate compaction equipment is used to attempt compaction. If smaller or lighter compaction equipment is provided, reduce the lift thickness to meet the compaction requirements presented herein.

Coarse Fill

Materials used as structural fill having more than 30 percent by weight coarser than ¾ inch are too coarse for Proctor density testing (i.e. oversized material). Provided the oversized soil is 1-foot-minus and well graded, it may be placed in lifts up to 1.5 feet thick. Larger particles may be used in certain applications only with GPI's prior approval. However, under no circumstances should site soil and oversized soil be placed in alternating layers that are subject to particle migration without separating geotextiles. Additionally, oversized soil placed as structural fill must be compacted using a "method specification" which typically requires at least 5 complete passes of a 10-ton or larger, vibratory or grid roller. A typical method specification is provided in the latest WSDOT Standards, Section 2-03.3(14) *Rock Embankment Construction.* However, it is common that method compaction specifications are developed during construction, specific to the materials and conditions encountered.

The compaction effort must create a dense and interlocking surface that does not exhibit pumping, rutting, or deflection beneath construction equipment and is free of loose soil debris and standing water. Where adequate compaction equipment cannot access oversized fill soil areas, it shall not be utilized. Method compaction and all fill placements must be observed by GPI on a near full-time basis at the onset of placement to establish final roller pass requirements and to verify the material is compacted to a dense interlocking condition that does not yield beneath heavy construction equipment.

<u>Embankment Construction</u>

The key to reusing the site soil for embankment construction is to coordinate earthwork in dry weather and to appropriately stage earthwork to facilitate moisture conditioning before attempting compaction. Further, to achieve compaction and consistent embankment performance, careful subgrade preparation is required to remove all soft, wet, pumping, or other inconsistent soil such that a firm and stable substrate exists to begin embankments. In our opinion, it is most important to:

1. Select a contractor knowledgeable of the soil conditions and local grading practices that increase the potential for success.

2. Adequately convey your objectives and a reasonable schedule at the onset of establishing earthwork contracts.

3. Prepare earthwork specifications that clearly outline the geotechnical project requirements.

Construct fill embankments with *General Structural Fill* and properly key the fill into existing slopes as illustrated on Figure 1. Where proper keying into native soil, and adequate compaction are not achieved, differential embankment performance will be realized.

Utility Trench Construction

Loose soil must be removed from the base of utility trenches prior to placing pipe bedding. If encountered, groundwater and soft, saturated soil must be removed from the bottom of the utility trench before placing pipe bedding. We recommend utility pipes be placed and supported according to the pipe manufacturer's specifications.

After bedding the pipe, place, and compact structural fill from the pipe invert to 1 foot above the top of the pipe with tamping bars and plate compactors to render the backfill in a firm and unyielding condition. Backfill must also be thoroughly placed and compacted below pipe haunches or the zone between the pipe invert and the spring line. To accomplish backfilling, the distance between the side of the pipe at the spring line and the trench wall should be at least 1 foot. The remainder of the utility trench should be backfilled in accordance with this report's *Structural Fill* section. It is important to key backfill into trench sidewalls creating a uniform transition between structural fill and adjoining native or embankment soil. Equally important is that for trench backfill on slopes, it is critical that backfill meet structural fill requirements and that drainage is directed away from trenches to reduce the potential for erosion. Steep gradient utility trenches may require specific backfill, trench plug, or collar construction as specified by SynTier to reduce pipe movement and infiltration along pipe bedding. We recommend all fill placed within 5 feet (laterally) of manholes or subsurface catch basins crushed surfacing and be separated from native or fill soil with a non-woven geosynthetic fabric.

Earthwork Shrinkage/Bulking Considerations

GPI reviewed soil bulking and shrinkage factors to assist earthwork volume estimation. As presented in the *Subsurface Conditions* section, the on-site soil is a combination of fine-grained silt and underlying silty gravel, which can vary considerably both in "in-place" density and in theoretical maximum dry density (Proctor values). In our experience, we estimate a soil *shrinkage* factor between 16 to 25 percent when the site soil is excavated from its native condition, thoroughly mixed, and placed as structural fill, referencing this report's minimum structural fill requirements. When excavated in place and wasted, we expect the site soil to bulk between 22 and 26 percent depending on moisture content.

Compaction Documentation

Successful earthwork activities are important to the project's long-term performance. Retaining experienced earthwork contractors is the first step in having confidence that earthwork will be performed referencing this report's requirements. Providing the necessary testing and engineering documentation of earthwork activities is the second step. The criteria below outline the minimum testing and observation frequencies to implement during earthwork and infrastructure construction.

1. Subgrades exposed prior to fill placement: observed by geotechnical engineer retained for construction to confirm exposed subgrade conditions meet project design requirements. Also, 1 compaction test each 10,000 square feet (sf) to document subgrade compaction requirements of 92% are met.

2. Mass grading/structural fill placement: 1 compaction test every 10,000 sf, per fill lift, minimum 3 tests per testing event to confirm fill placement meets the minimum 95% compaction requirement.

3. Utility trench backfill: 1 compaction test every 100 linear feet (lf) of trench, per fill lift; minimum 3 tests per lift, per utility alignment, whichever results in the greater number of tests, per each fill lift.

4. Foundation/Slab subgrades: 2 compaction tests per wall line and 2 compaction tests per 2,000 feet of slab area to confirm compacted conditions (min. 95% ASTM D1557).

5. Roadway and parking lot construction: 1 compaction test every 100 linear foot (lf) per lane, per fill lift; minimum 3 tests per lift, whichever results in the greater number of tests, per each fill lift to document aggregate base placement compaction (minimum 95%).

6. Asphalt Pavement Construction: 1 compaction test every 100 lf, per paving lift, minimum 3 tests per testing event. One laboratory test suite on a bulk sample of hot mix asphalt per each day's paving, including oil content, gradation and maximum theoretical (Rice) specific gravity.

Geosynthetics

Geosynthetic fabrics are required for pavement section construction. Geogrid can aid constructability in wet weather or wet soil conditions. Where implemented, apply geosynthetics directly on approved subgrades, taut, free of wrinkles, and overlapped at least 1 foot. GPI should be consulted to review geosynthetic applications or other subgrade improvement alternatives. Geosynthetic material requirements are outlined in Table 4.

Table 4. Geosynthetic Material Requirements

Geosynthetic Type	Use	Material Specifications
Non-Woven Geosynthetic	Subgrade preparations and pavement section separation	• Must meet *Soil Stabilization – Non-Woven* requirements in *WSDOT Standards* Section 9-33.2(1), Table 3
Triaxial or Biaxial Geogrid	Extremely soft subgrade conditions.	• 93 percent junction efficiency (GRI-GG2-05) • 6.5 kg-cm/degree Aperture Stability (U.S. Army Corp of Engineers Ref. 3.3.1.2000) • Punched and drawn polypropylene • Minimum Radial Stiffness of 15,075 lb/ft at 0.5% Strain (ASTM D6637)[1]

1. Applies only to Triaxial Geogrid products

Shallow Foundation Construction

Incorporating the subgrade preparation and perimeter drainage requirements in this report, design and construct shallow foundations for building support referencing Whitman County requirements, and the allowable bearing pressures and resistance values outlined in Section 1806.2 and Table 1806.2 of the most recent International Building Code (IBC). For the soil conditions anticipated at the Tekoa Industrial Park project, these criteria are outlined below:

1. Allowable bearing pressure: 2,000 pounds per square foot (psf).
   a. Frost protection embedment depth: 2.7 feet below finished exterior surface.
   b. Drained subgrade conditions via a perimeter foundation drain (see *Site Drainage* report section and Plate 4, *Foundation Drain Schematic*).
   c. Thickened slab footings are viable for building support. However, GPI's experience is thickened slab footings are prone to cracking at the transition between section thickness. The project structural engineer should consider this risk in establishing their footing reinforcing design and construction approach.
   d. Higher bearing pressures may be applicable through the use of granular soil improvements. These should be explored with each unique building configuration if additional capacity is warranted.

2. Anticipated static vertical settlement is expected to be largely influenced by embankment settlement. Our embankment settlement estimates are outlined in the *Embankment Design* report section. In addition to embankment settlement, building loads relying on the above allowable bearing pressure may realize:
   a. Total settlement: 1.0 inch
   b. Differential settlement: 0.7 inches
   c. Individual foundation configurations for each building should be specifically evaluated based on loading conditions and size.

3. Lateral load resistance:
   a. Coefficient of friction for allowable sliding resistance on foundation bearing surface: 0.35.
   b. Total lateral sliding resistance shall not exceed 50% of the foundation dead load.
   c. Allowable lateral passive resistance is available on foundation sides in the form of an equivalent fluid weight: 280 pounds per cubic foot (pcf).

Slab-On-Grade Support

Once subgrades are prepared as described previously in this report, support slab-on-grade floors atop a layer of *Crushed Surfacing* as structural support and capillary break. GPI recommends supporting slab-on-grade floors for residential structures with a minimum 0.5-foot-thick *Crushed Surfacing* layer, compacted to *Structural Fill* requirements in this report. With at least 0.5 feet of *Crushed Surfacing* support, concrete slab design may utilize an allowable modulus of subgrade reaction (k) of 210 pounds per cubic inch (pci). Higher subgrade modulus values are available with thicker granular sections beneath slabs-on-grade floor. Given concrete floors may experience a variety of storage and equipment loading conditions, each structure's slab should be structurally designed for the anticipated use and loading.

Slab Moisture Protection

Interior floor slabs are susceptible to moisture migration caused by subsurface capillary action and vapor pressure. This can degrade floor coverings and adhesive, damage interior furnishings, or cause various other performance problems. GPI has participated in numerous projects where inadequate vapor protection caused significant damage to moisture-susceptible building aspects. Often, these moisture problems were associated with either no moisture protection below the slab or, alternatively, with improperly sealed sub-slab penetrations that allowed vapor migration and damage to the flooring system. Plumbing penetrations are notoriously problematic for under-slab vapor protection.

Where floor coverings will be placed, or in moisture-sensitive areas, apply vapor retarder systems beneath the slab. Common construction practice at this time is to place a puncture resistant vapor retarder immediately beneath the slab, atop the aggregate support surface. Vapor retarders must consist of minimum 15-mil thick, puncture-resistant polyethylene sheeting. An example of this material is Stego Wrap®.

Form stakes, piping, or other sub-slab penetrations should not penetrate the vapor retarder. Carefully design and construct vapor retarder penetrations to reduce vapor transport through such penetrations. Even if these recommendations are used, water vapor migration through the concrete floor slab is still possible. Floor coverings should be selected accordingly. Manufacturer's recommendations must be strictly followed. vapor retarders are utilized, the flooring and concrete slab contractors, as well as the plastic sheeting manufacturer, should be consulted regarding additional slab cure time requirements and/or the potential for slab curling.

Site Drainage

Long-term embankment and slope performance will depend on maintaining existing surface and subsurface drainage patterns to reduce the potential for subgrades and embankments to become saturated. The following sections provide our site drainage recommendations.

Stormwater Disposal Considerations

Any runoff from precipitation, snowmelt, seeps, or springs must not be allowed to infiltrate slopes, run uncontrolled across subgrades, pond around buildings, or flow uncontrolled over pavement. We do not recommend water be allowed to collect at the base or crest of slopes, or adjacent building foundations. Runoff or water migrating along the ground surface must be conveyed away from slopes and undeveloped lot surfaces by an appropriately designed series of ditches, swales, or other surface water management procedures which break up sheet flow and adequately convey water in a controlled manner to the site's detention ponds.

We recommend all buildings incorporate roof gutters connected to downspouts and solid pipes to collect and direct water away from the embankments, pavements, slopes, structures, and other improvements, so as to avoid infiltration into the soil underlying these features. Ultimately, stormwater from individual structures must be directed to the subdivision's stormwater management system, and not allowed to infiltrate embankments or subgrades below improvements. During and post-earthwork construction, route stormwater away from the site and dispose it in the stormwater management system designed by SynTier. The fine-grained, near surface site soil exhibited a negligible infiltration rate and in our opinion is not suitable for stormwater discharge via infiltration swales or drywells. Additionally, the underlying silty gravel contains significant fines and illustrated a very low infiltration rate. However, swales can offer some treatment while also facilitating stormwater conveyance.

We understand stormwater will be routed through a series of pipes, ditches, and other conveyance features to stormwater detention ponds. Ponds will have overflows to natural drainages. We recommend open ditches or channels be rock lined if gradients exceed 10 percent and at a minimum, have rock check dams every 100 feet to reduce erosion. Detention ponds will perform best when lined with the site silt, a low permeable soil with high treatment capacity. Cut and fill slopes for ponds shall be designed with slopes flatter than 3H:1V unless lined.

Erosion Control

We anticipate erosion control measures including, but not limited to, hydroseeding, fiber blankets, wattles, temporary and permanent collection and detention swales and ponds are planned to help reduce the potential for erosion and turbid discharges of stormwater from the site. Erosion and sediment control measures or other stormwater *Best Management Practices* (BMP's) are also required to meet *Washington State Department of Ecology* (DOE) requirements for construction stormwater management. We anticipate these and other stormwater control measures will be presented on a stormwater pollution prevention plan (SWPPP) prepared by SynTier and modified to meet the contractor's means, methods, and staging. Throughout construction, temporary stormwater management features must preclude water from ponding or depositing sediment where future improvements will be constructed.

If adequate vegetative cover cannot be established immediately after construction is complete, we recommend erosion control measures be implemented to reduce excessive erosion and violation of local, state,

16 and federal codes. At a minimum, slopes should be track-walked and straw mulched or blanketed to facilitate seeding growth. Slope surfaces exceeding 50 feet in length should have straw wattles placed horizontally across the slope face for every 10 linear feet of exposed slope face beginning 10 feet from the top and ending not more than 10 feet from the bottom. Catch ditches at the slope toe must convey water away from slopes to temporary stormwater disposal or detention. Erosion rills must be closely monitored and backfilled with granular fill, straw, and soil mulch, with drainage patterns adjusted to reduce future erosion.

Surface Grading

Design and construct surface grades to create positive surface drainage away from planned infrastructure and structures. Water must not be allowed to pond at the subgrade, or finished surface for any site improvements, including pavements, slopes, utility alignments, and buildings. Strategic surface grading during earthwork can improve the success of future final grading activities and rapid foundation installation if the lots, especially cut lots, are left slightly high (1 to 2 feet). While it requires additional soil be removed at the time of individual lot construction, it can also drastically improve earthwork success during wet weather.

To help facilitate drained conditions in roadway asphalt pavement sections, we recommend the invert of any adjacent swales or ditches be established at least 1 foot below the pavement section subgrade elevation. Crown roadway and parking lot subgrades so that water does not accumulate in the aggregate support section and daylight the aggregate in adjacent ditches/swales. Avoid inverted crowns at the asphalt surface and do not allow pavement sheet flow to run off pavements onto slopes.

Perimeter Foundation Drainage

Foundation drains are considered a “best practice” for foundation construction on the Palouse and can be critically important for foundation performance. Foundation drains can intercept irrigation or stormwater that can infiltrate below the structure, thus reducing the potential for subgrade softening that increases the settlement potential. These drains also reduce the potential for moisture vapor migration and potential risks created by changing moisture conditions. In short, we recommend foundation drains to help maintain uniformly drained conditions is critical to long-term foundation performance.

After performing subgrade preparations and constructing foundations, install drains around the perimeter foundation alignments for each building to route water away from subgrades to dedicated stormwater disposal areas. Minimum foundation drain requirements include: 4-inch-diameter, geosynthetic fabric-wrapped, perforated drain pipe, placed at the lowest possible elevation (i.e., at the foundation subgrade surface), and sloped to daylight via gravity drainage at a location established via SynTier’s civil design. Plate 4 presents typical perimeter foundation drain construction requirements. Foundation drain outfalls must be routed away from structures, pavements, slopes, and not allowed to deposit water adjacent other structures, subgrades, embankments, or other critical site features.

Asphalt Pavement Section

The following pavement section design references the *American Association of State Highway and Transportation Officials* (AASHTO) *Guide for Design of Pavement Structures* (AASHTO Guidelines). GPI estimated traffic loading based on our experience with similar developments in the region. If anticipated traffic loads are different than those estimated herein, notify GPI so that we can make appropriate changes to our analysis. Other design parameters are based on typical pavement design criteria in the eastern Washington area, results from laboratory testing, and our understanding of the subsurface conditions. Tables 5, 6, and 7 present our design parameters and references as well as the resulting pavement section design recommendations using the AASHTO Guidelines.

Table 5. Pavement Section Design Parameters

Design Parameter	Value Used	Reference
Reliability (R)	80%	AASHTO Guidelines
Standard Deviation (S)	0.45	AASHTO Guidelines
Initial Serviceability (PSI_i)	4.2	Typical eastern Washington area values
Terminal Serviceability (PSI_z)	2.2	Typical eastern Washington area values
Traffic Loading	33,500 ESALS[1] (standard-duty) 127,000 ESALS (heavy-duty)	See Table 6 in this report
Design Life	20 years	Typical eastern Washington value
Resilient Modulus (M_r)	4,800 psi[2]	Based on California Bearing Ratio (CBR) and M_r correlations
Asphalt Layer Coefficient (a_1)	0.44	Figure 2.5 AASHTO Guidelines
Top Course Layer Coefficient (a_2)	0.12	Figure 2.6 AASHTO Guidelines
Top Course Drainage Coefficient (m_2)	1.0	Table 2.4 AASHTO Guidelines for "fair" drainage, 1 to 5 percent saturation
Drainage Coefficient (c_d)	1.0	Table 2.5 AASHTO Guidelines for "fair" drainage 5 to 2.5 percent saturation

1. Equivalent Single Axle Loads (ESALs)
2. Pounds per square inch (psi)

Table 6. Traffic Loading Assumptions

Pavement Section Area	Traffic Loading Parameters	Frequency[1] or Value Used	EALF[2]
Standard-Duty Section (Parking Areas)	Passenger Vehicles	100 trips per day	0.006
	Refuse and Delivery Trucks	6 trips per day	0.85
	Fire Apparatus	3 trips per year	3.91
Heavy-Duty Section (Drive Lanes)	Passenger Vehicles	500 trips per day	0.006
	Refuse and Delivery Trucks	20 trips per day	0.85
	Fire Apparatus	10 trips per year	3.91
	Highway legal semis	5 per week	2.20
	Annual Growth Factor	5.0%	
	Construction Traffic[3]	**None**	
	Design Life	20 years	

1. One trip is 1 pass by the vehicle.
2. Equivalent Axle Load Factor; loading by 1 vehicle trip.
3. The traffic loading estimates above do not include construction traffic or fork lift traffic. Heavy construction traffic

can damage pavements in as little as 1 pass. Care must be taken to preclude construction traffic over pavements, or accept the risk of pavement damage due to construction traffic.

18 If actual traffic loading is different, GPI must review the analysis commensurate with the actual traffic loads. Based on the above pavement design parameters, Table 7 provides the flexible pavement design recommendations for pavements.

Table 7. Flexible Pavement Section Design

Pavement Section Material	Standard-Duty Section Thickness (feet)	Heavy-Duty Section Thickness (feet)	Material Specifications
Asphalt Concrete Pavement	0.25	0.33[1]	Hot-mix asphalt (HMA) conforming to *Section 5-04* of the latest edition of WSDOT Standards. HMA should consist of Class 1/2-inch or Class 3/4-inch.
Crushed Surfacing	0.75	1.00	Top course or base course conforming to the latest WSDOT Standards *Section 9-03.9(3) Crushed Surfacing.*
Non-woven Geosynthetic Fabric	Recommended	Recommended	Conforming to *Geosynthetics* report section requirements.

1. Typically requires placement in 2 lifts

We recommend the pavement structures be planned such that the light-duty asphalt section exists only where light passenger vehicles will access parking areas. Any location that will be regularly accessed by refuse, delivery, and semi-trucks or other heavy truck traffic should be planned for heavy-duty asphalt pavement sections. Specifically, the area in front of dumpsters (i.e. dumpster pads) should receive a structurally designed, reinforced, Portland cement concrete (PCC) apron to support repeated heavy axle loads from refuse vehicles. It is important that these aprons extend 10 to 12 feet in front of dumpster areas to encompass loading from the nearest axle of refuse equipment.

Pavement Maintenance and Drainage

Crack maintenance should be accomplished on all pavement surfaces every 3 to 5 years to reduce the potential for surface water infiltration into the underlying pavement subgrade. Surface and subgrade drainage are extremely important to the performance of the pavement section. Therefore, the subgrade, crushed surfacing, and paved surfaces should slope at no less than 2 percent to an appropriate stormwater disposal system or other appropriate location that does not impact adjacent buildings or properties. Inverted crowns must be avoided. This applies to gravel-surfaced roadways as well. Pavement performance will depend upon achieving adequate drainage throughout the section and especially at the subgrade. Water ponding at the pavement subgrade surface can induce heaving during the freeze-thaw process, which can readily damage pavement. SynTier should annually review pavement surface performance to help identify and address any pavement maintenance issues. Slurry seal applications are a common maintenance procedure for owners of large pavement systems. If desired for pavement maintenance or preservation, we provide recommendations for slurry seal applications in the following items.

1. Cleaning: ensure that cracks are thoroughly clean, dry, and free of all loose and foreign material when filling with crack sealant material. Use a hot compressed air lance to dry and warm the pavement surfaces within the crack immediately prior to filling a crack with the sealant material. Do not overheat pavement. Flame dryers are not allowed.

2. Sand Slurry: for cracks greater than 1 inch in width, fill with sand slurry by thoroughly mixing the components and pour the mixture into the cracks until full. Add additional CSS-1 cationic emulsified asphalt

to the sand slurry as needed for workability to ensure the mixture will completely fill the cracks. Strike off the sand slurry, flush with the existing pavement surface, and allow the mixture to cure.

3. Hot Poured Sealant: for cracks less than 1 inch in width, fill with hot poured sealant by applying the material in accordance with these requirements and the manufacturer's recommendations. Confine hot poured sealant material within the crack. Clean any overflow sealant from the pavement surface.

GEOTECHNICAL DESIGN CONTINUITY

The information contained in this report is based on our knowledge of planned mass grading and infrastructure development and future development plans. Changes in planned grading, drainage, site configurations, loading conditions, and geometry can significantly alter our opinions and recommendations. Therefore, it is critical GPI provide geotechnical continuity through final planning and design for the project. As individual buildings are contemplated, GPI should assist the owners and designers of those structures to evaluate the applicability of the information contained here.

We recommend GPI review final earthwork grading plans and specifications. It has been our experience that having consultants from the design team review the construction documents helps reduce the potential for errors, and also reduces costly changes to the contract during construction. This can be especially important if specialized embankment construction approaches are advanced or other non-standard improvements are to be incorporated into earthwork construction. If we are not provided such opportunities, we cannot be responsible for soil-related design or construction-related errors, omissions, delays, or increased costs that are identified during construction.

Construction Observation Monitoring

SynTier plans to retain GPI to provide construction monitoring to document the soil conditions during mass grading and that report recommendations are incorporated into the actual construction. Such observation is an important part of the geotechnical design process and can help reduce the potential for soil engineering- or construction-related errors or omissions. For this project, it is especially important to maintain this geotechnical continuity during subgrade preparations, structural fill placement, and potentially embankment settlement monitoring.

If for some reason we are not retained to provide the recommended construction monitoring and design verification services, we cannot be responsible for soil-engineering-related construction errors or omissions. Further, the selected firm must be required to document in writing to SynTier and the Port that they have read and will implement this report and its recommendations in their entirety as the project geotechnical engineer-of-record for construction.

EVALUATION LIMITATIONS

This evaluation is limited to only geotechnical project aspects of the Tekoa Industrial Development in Tekoa, Washington and does not include civil or structural design, seismic analysis, or evaluation, retaining wall design, erosion control, stormwater management or monitoring, wetland delineation, environmental evaluation or any other services not explicitly discussed herein. If this information or any additional services are desired, GPI can provide them under a separate scope and fee estimate specific to those project aspects.

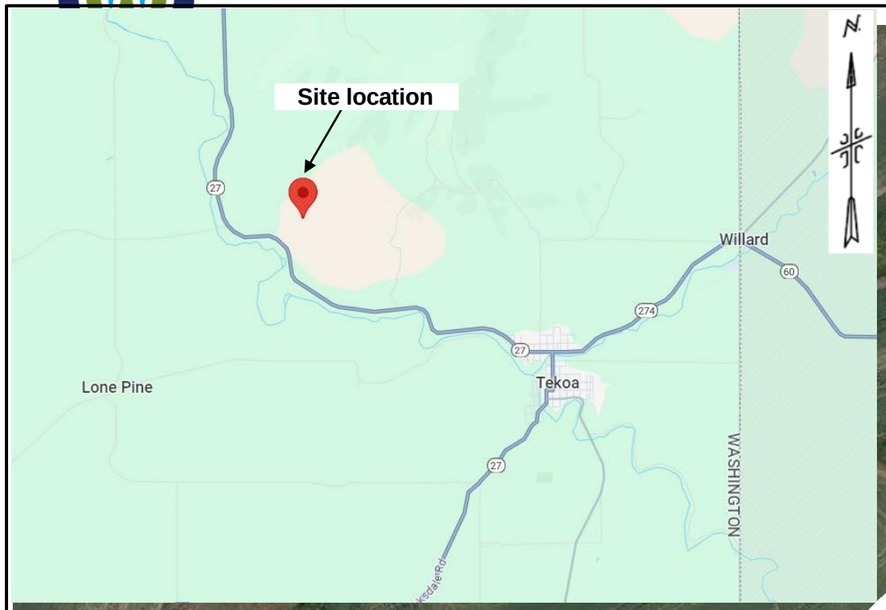
Further, our evaluation was prepared with the understanding that the Port of Whitman will retain ownership and management of the proposed development in perpetuity. Evaluation requirements and recommendations differ for developments where individual lots are sold separately. If the development or management concept changes, notify GPI to modify our scope, evaluation, and recommendations commensurate with the change in project concept. GPI entitles no future parties to rely on the geotechnical design recommendations herein.

Our services consist of professional opinions and findings made in accordance with generally accepted geotechnical engineering principles and practices in eastern Washington at the time of this report. The geotechnical recommendations provided herein are based on the premise that appropriate geotechnical consultation during subsequent design phases is implemented and an adequate program of tests and observations will be conducted by GPI during construction to verify compliance with our recommendations and to confirm conditions between exploration locations. This acknowledgment is in lieu of all warranties either express or implied.

The following plates and appendices accompany this report:

Plate 1: Vicinity Map
Plate 2: Exploration Map
Plate 3: Slope Stability Cross Section Map
Plate 4: Foundation Drain Schematic

Appendix A: Unified Soil Classification System (USCS) and Exploration Logs
Appendix B: Laboratory Test Results
Appendix C: Slope Stability Analyses



Site Vicinity Map Tekoa Industrial Site Tekoa, Washington

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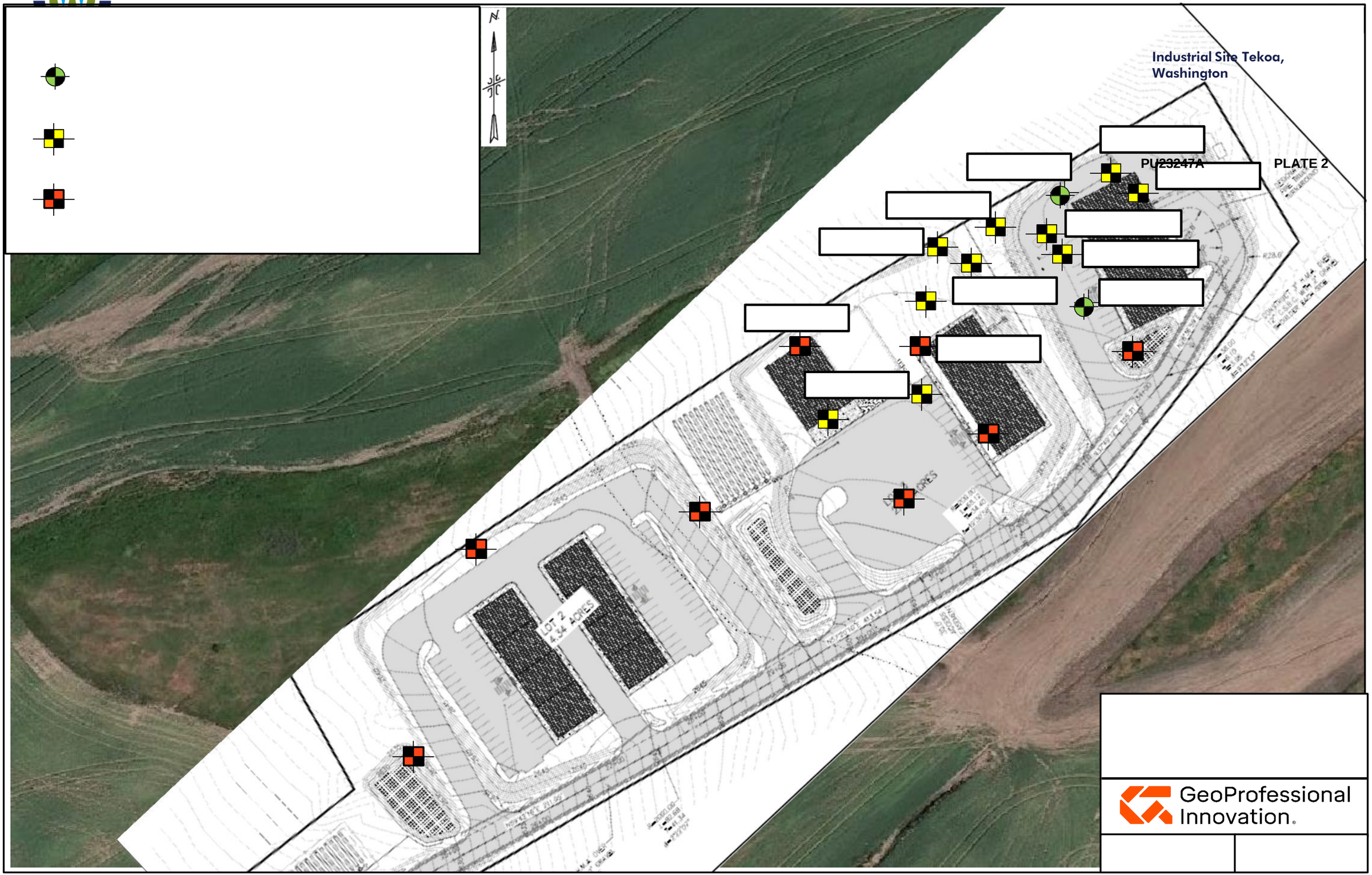
PU23247A

PLATE 1

Industrial Site Tekoa, Washington

PU23247A

PLATE 2



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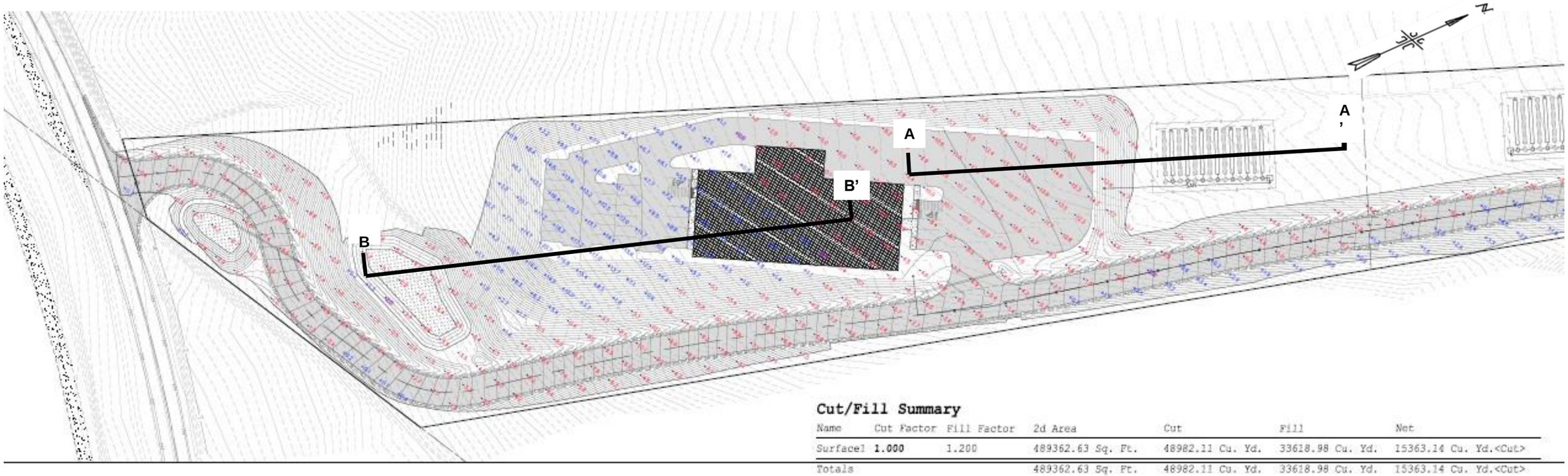

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
Surface1	1.000	1.200	489362.63 Sq. Ft.	48982.11 Cu. Yd.	33618.98 Cu. Yd.	15363.14 Cu. Yd.<Cut>
Totals			489362.63 Sq. Ft.	48982.11 Cu. Yd.	33618.98 Cu. Yd.	15363.14 Cu. Yd.<Cut>

Slope Cross Section Map Tekoa Industrial Site Tekoa, Washington

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PU23247A	PLATE 3

Foundation Drain Construction

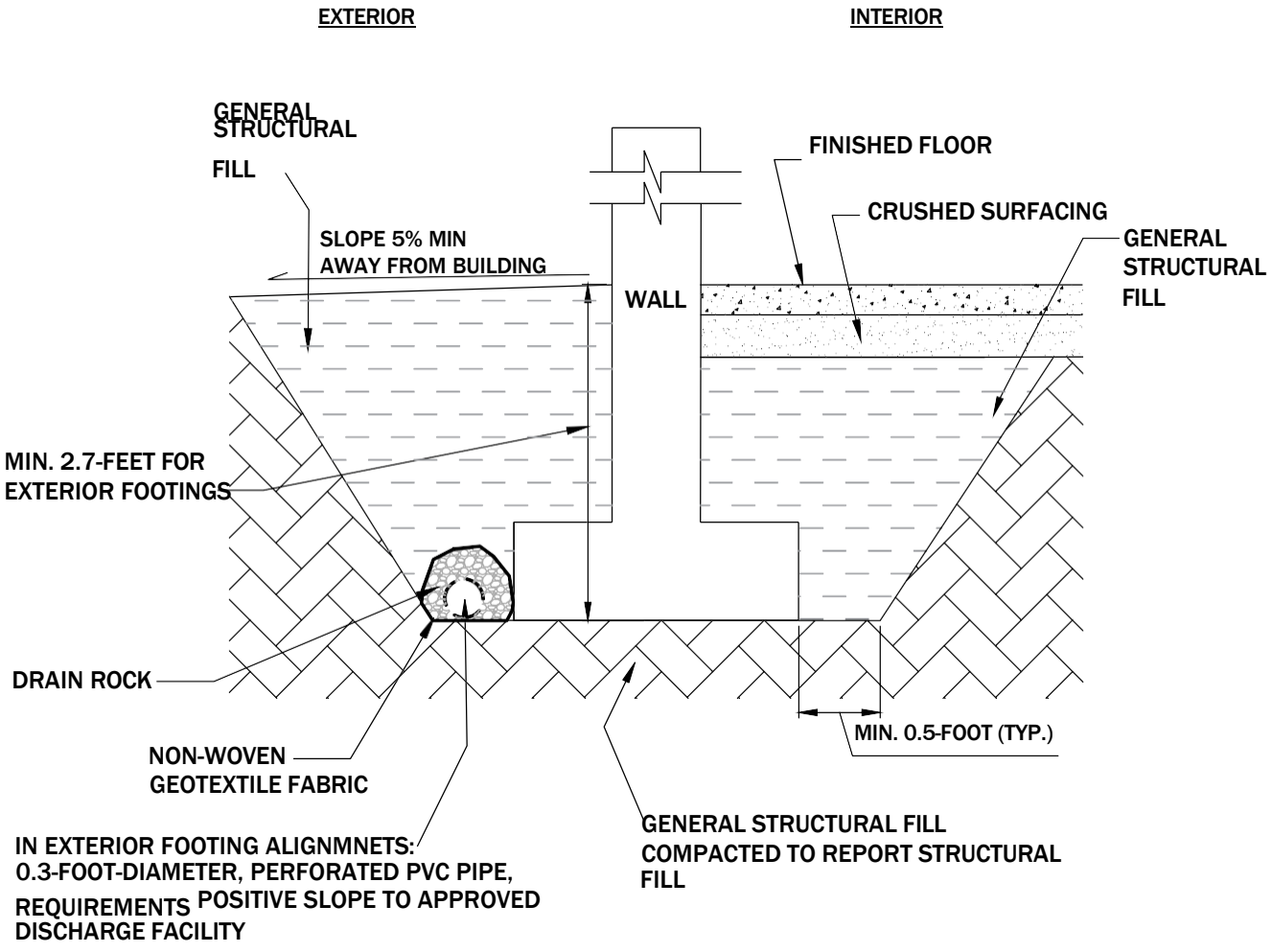
A. Excavate the subgrade to the planned foundation bearing elevation, and laterally at least 0.5-feet outside the foundation extents.

B. Prepare the exposed subgrade referencing the *Establishing Subgrades* report requirements and the City of Tekoa requirements.

C. In exterior (perimeter) foundation alignments, place 0.3-foot-diameter, perforated pipe at lowest possible elevation to maintain gravity drainage, with positive slope towards daylight or approved discharge facility. Cover pipe with drain rock and wrap with geotextile fabric. Fabric-wrapped pipe may be used in lieu of drain rock.

D. After foundation construction, backfill over-excavations with *General Structural Fill*, placed and compacted referencing the *Structural Fill* report section.

This drawing is intended for shallow foundations supporting isolated columns or walls. Foundation stemwall height will vary. This is not a structural detail.



FOUNDATION DRAIN SCHEMATIC
Tekoa Industrial Development
Tekoa, Washington

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PU23247A	PLATE: 4

	DRAWN BY: JTK	CHECKED BY: TJW

APPENDIX B

Laboratory Test Results

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Project Name.: Tekoa Industrial Development
Project Number: PU23247A
Client: SynTier Engineering

Test Results Summary

Test Pit	Depth (feet)	Lab Number	Description (U.S.C.S. Classification)	In situ Moisture, %	In situ Dry Density, pcf	Max Dry Density, pcf	Optimum Moisture, %	Atterberg Limits Liquid Limit	Atterberg Limits Plasticity Index	CBR	#200 Sieve Passing, %
TP-23247A-12	5.0-5.5	16035	Silty gravel with sand (GM)	9.4	-	-	-	-	-	-	28
TP-23247A-13	0.5-1.0	16036	Sandy Silt (ML)	23.5	-	-	-	32	1	-	63
TP-23247A-14	7.0-7.5	16037	Silty Gravel (GM)	15.0	-	-	-	-	-	-	-
TP-23247A-15	2.0-2.5	16034	Sandy Silt (ML)	30.0	91.3	115.2	10.1	36	4	4.8	67
TP-23247A-18	3.0-3.5	16038	Silty Gravel (GM)	12.8	-	-	-	-	-	-	-

Reviewed By: Campbell

MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D 1557

Method A

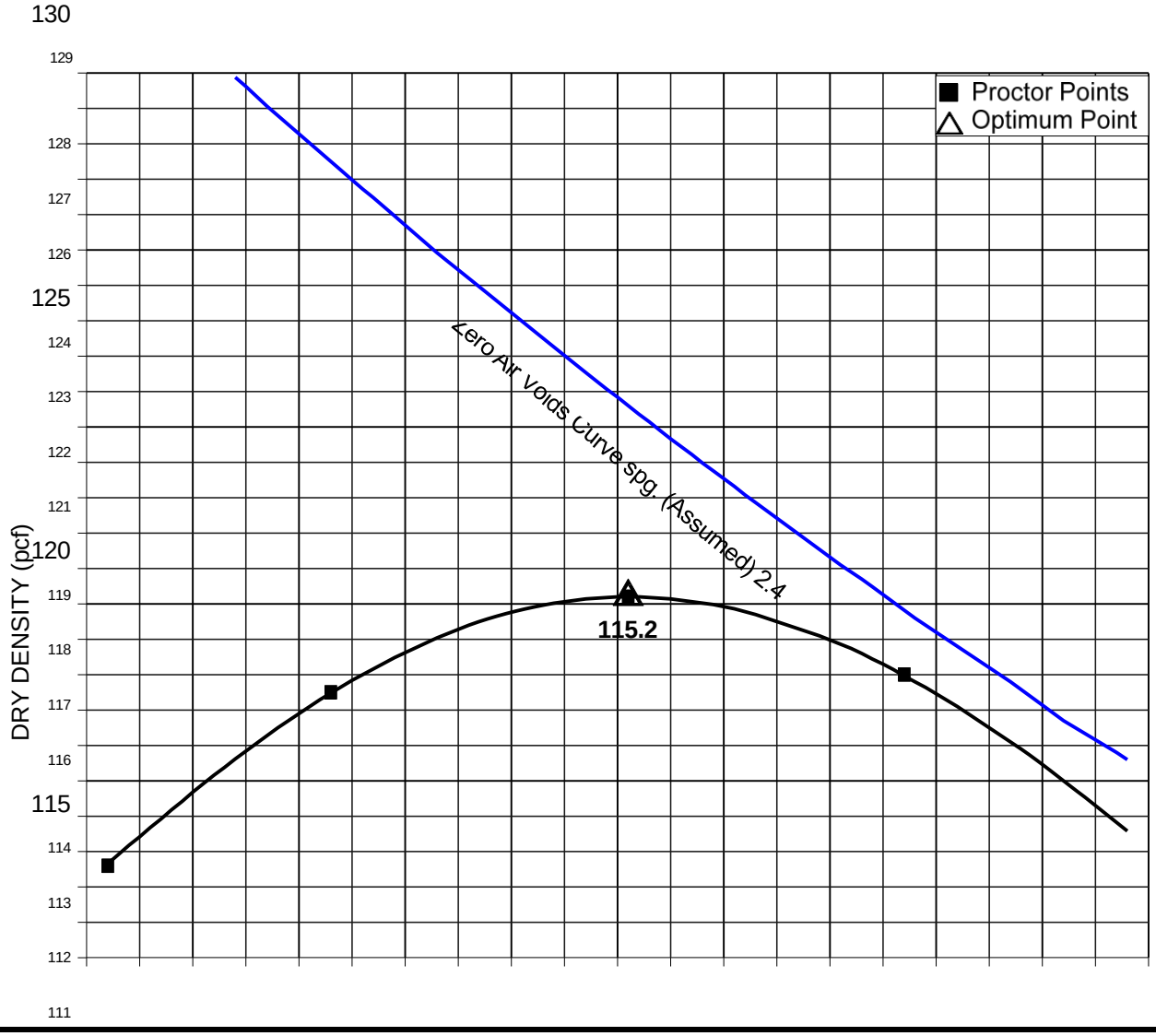
Project Name: Tekoa Industrial Development
Project Number: PU23247A

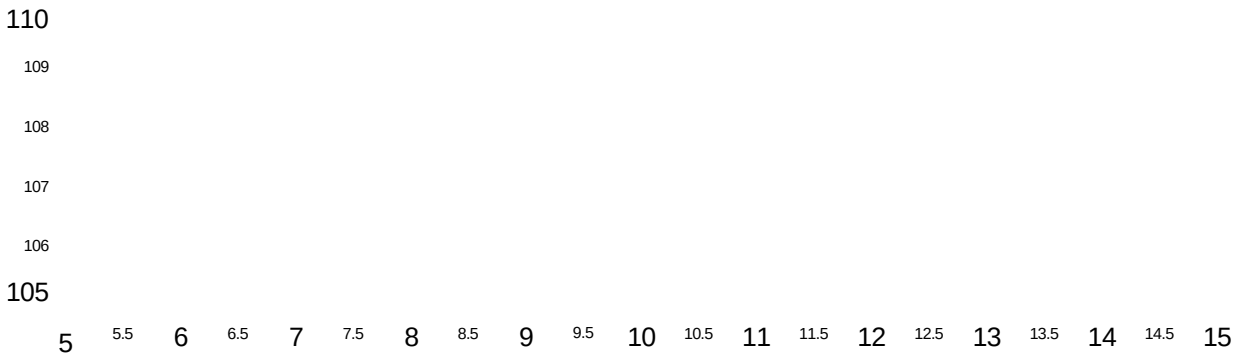
Client: SynTier Engineering
Lab Number: 16034

Sample Location: TP-23247A-5 @ 2.0-2.5 feet BGS
Sample Classification: Sandy Silt (ML)

Date Tested: 1/23/24 By: RG
Rammer Type: Manual

Maximum Dry Density, pcf : 115.2
Optimum Moisture Content, %: 10.1





Reviewed By: _____

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CALIFORNIA BEARING RATIO
ASTM D 1883

Project Name: Tekoa Industrial Development
Client: SynTier Engineering

Project Number: PU23247A
Lab Number: 16035

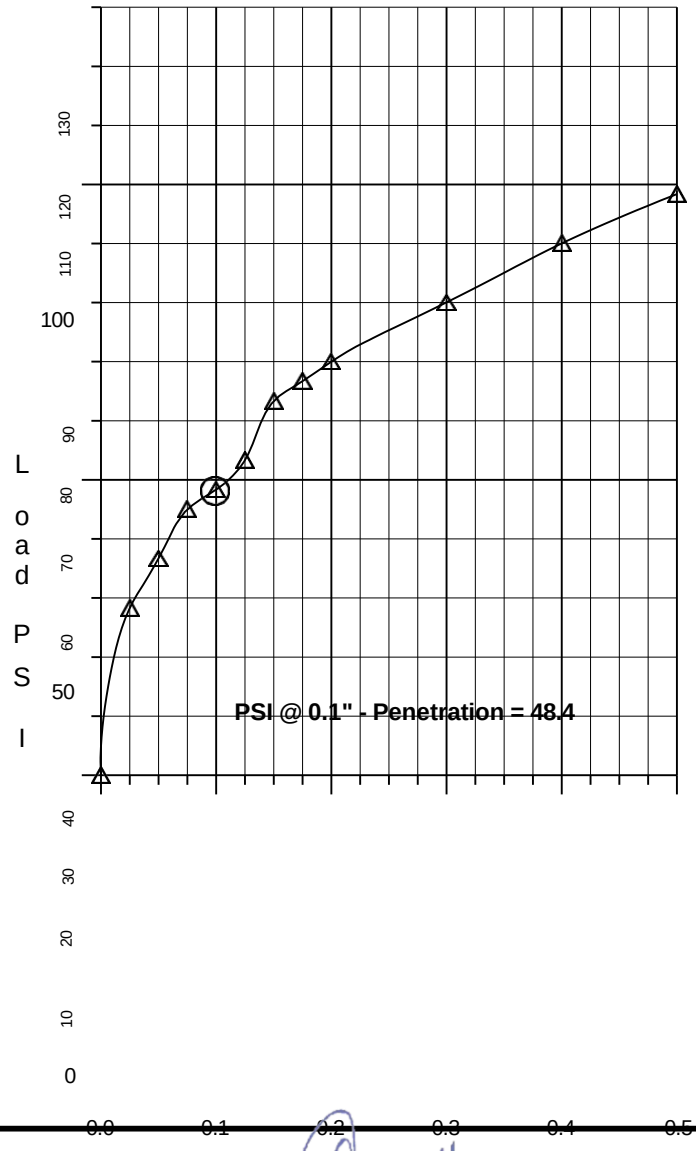
Sample Location: TP-23247A-2 @ 2.0-2.5 feet BGS
Sample Classification: Sandy Silt (ML)

Date Tested: 1/18/24 By: LMC

SOIL CONSTANTS

CBR = 4.8%
Fines Classification: Elastic Silt (MH) Test
Dry Density = 103.7 pcf
Test Specimen Remolded @ 10.1% Moisture Remold
Percentage of Proctor = 92%
Test Performed @ 18.7% Moisture (Top 1") Percent
Swell = 0.2%
Soak Time = 96 hrs Surcharge
= 50 psf

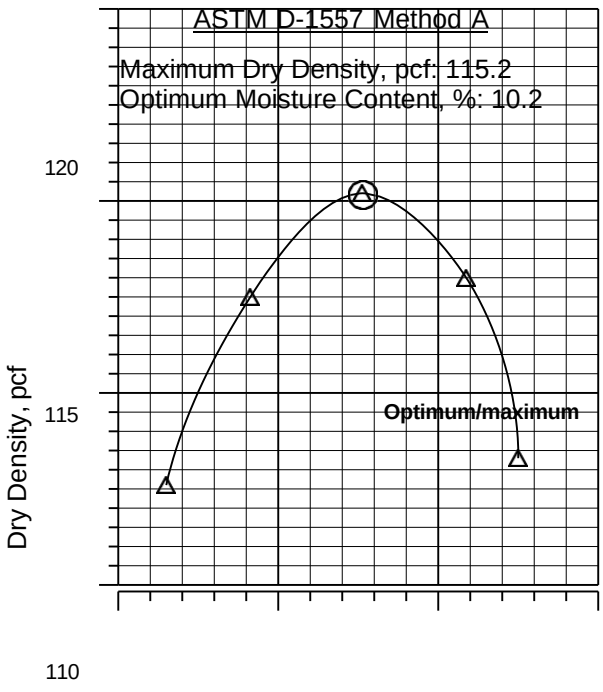
CBR CURVE



MOISTURE-DENSITY CURVE

ASTM D-1557 Method A

Maximum Dry Density, pcf: 115.2
Optimum Moisture Content, %: 10.2



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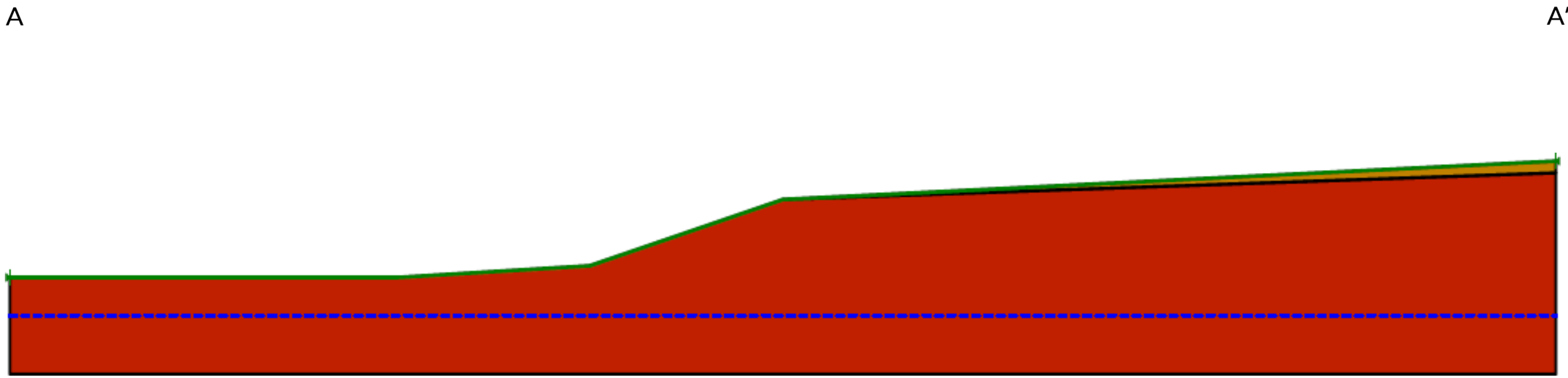
Reviewed By: _____

APPENDIX C

Slope Stability Analyses

Cross Sectional Slope Geometry Section A-A′



Notes:

1. Underlined number and bold red point indicate minimum factor of safety and center location of circular failure mass in green.

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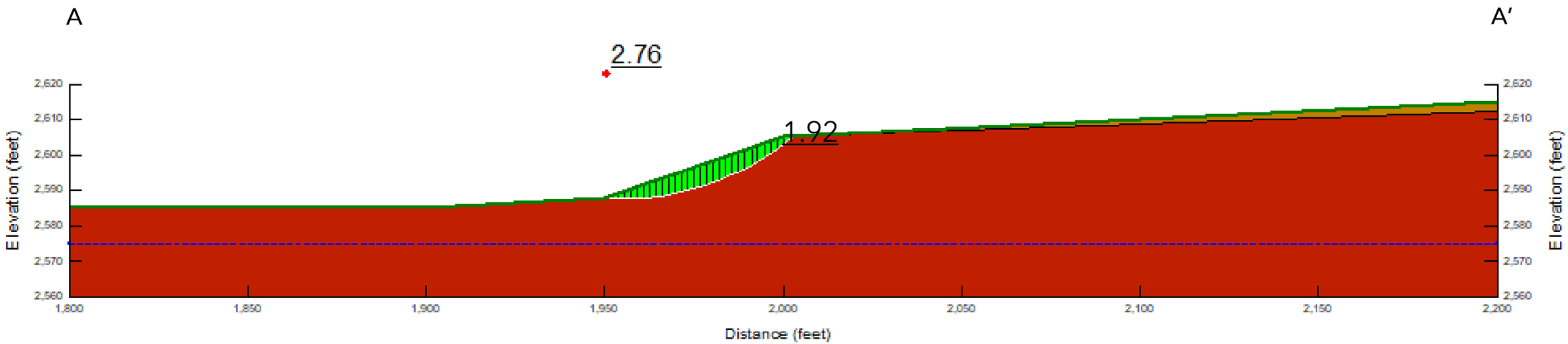
Scale as shown.

Figure C.1

Slope Stability Analysis Results Section A-A′ Dry Conditions



Notes:

1. Underlined number and bold red point indicate minimum factor of safety and center location of circular failure mass in green.

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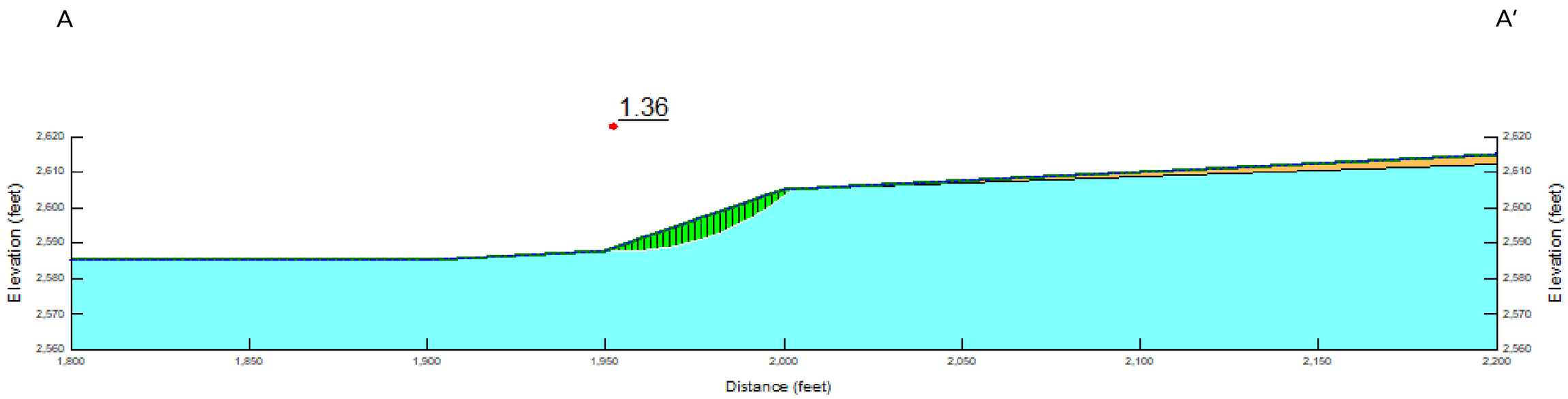
Scale as shown.

Figure C.2

Slope Stability Analysis Results Section A-A′ Wet Conditions



Notes:

1. Underlined number and bold red point indicate minimum factor of safety and center location of circular failure mass in green.

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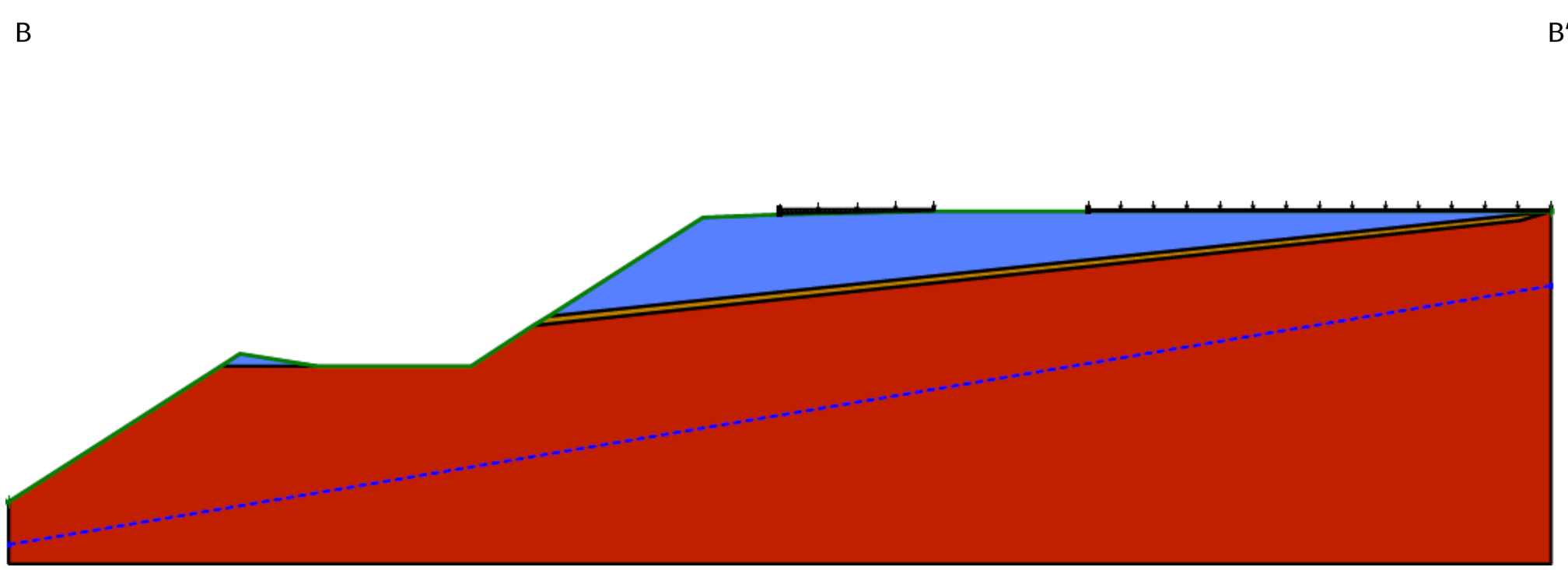
Scale as shown.

Figure C.3

Cross Sectional Slope Geometry Section B-B′ Embankment Fill



Notes:

1. Underlined number and bold red point indicate minimum factor of safety and center location of circular failure mass in green.

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Scale as shown.

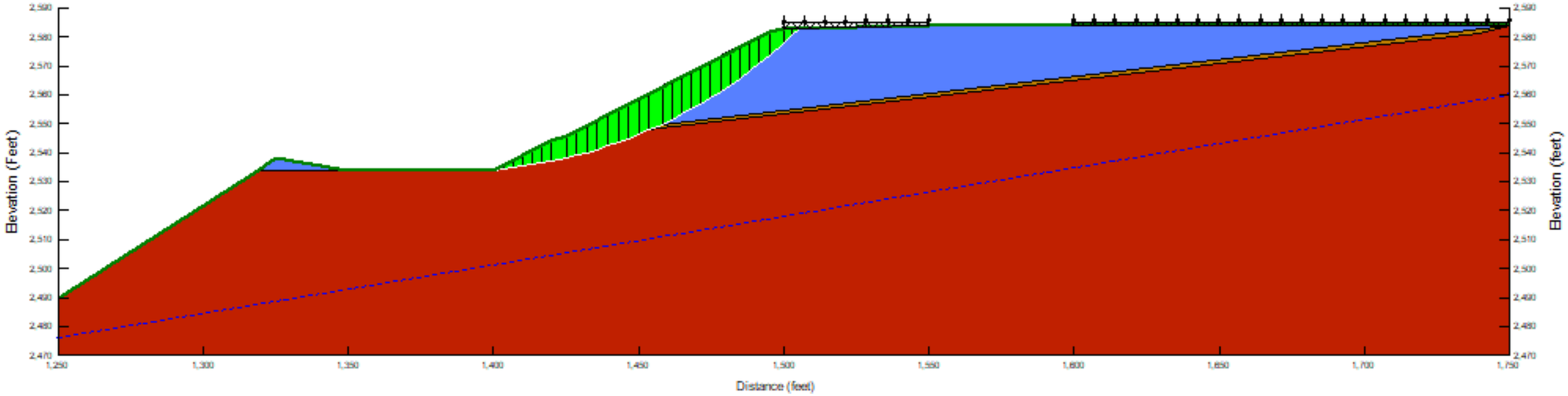
Figure C.4

Slope Stability Analysis Results Section B-B′ Dry Conditions

B

B′

1.46



Notes:

1. Underlined number and bold red point indicate minimum factor of safety and center location of circular failure mass in green

GeoProfessional Innovation.

Scale as shown.

Figure C.5