Port of Longview

Industrial Rail Corridor

an entry in the 2005 AAPA Annual Awards Competition

Facilities Engineering Category

Submitted by:

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Introduction
Port of Longview Industrial Rail Corridor

The Industrial Rail Corridor is the Port of Longview's largest infrastructure development project. It was developed over a 9-1/2 year period and formally dedicated in October 2004. The design engineer was HNTB of Bellevue, Washington. The total cost came to $21 million. The project consisted of two phases: Phase 1 - construction of a vehicular overpass at Fibre Way and Phase 2 - construction of 3.2 miles of rail track directly connecting the BNSF Railway (BNSF) and Union Pacific (UP) main lines to the Port's marine terminal complex and industrial park.

Prior to the project, unit trains were unable to access the Port and any increase in rail traffic would cause unacceptable levels of traffic congestion. The new rail corridor provides uncongested rail access into and out of the Port, enhances existing rail service to the marine terminal complex, and provides rail access to a 300-acre industrial park. It is an excellent market return on taxpayer investment because it improves rail transportation to employers at the Port as well as other industries in the port area. It also maintains capacity and access for vehicular traffic on the state highway connecting the Port to the interstate system (SR 432).

Two innovative construction features set this project apart from other public works projects. The first was the use of Geofoam as an alternative fill for the Fibre Way Overpass (Phase 1). The second was use of the Port's own labor force to construct the rail portion of the project (Phase 2). Both features contributed towards overall cost savings, allowed the Port to take advantage of existing resources, and produced a public works project that was completed within budget, on time, and of excellent quality.

The Industrial Rail Corridor was introduced to the public in 1996 and formally dedicated in October 2004. It officially opened for business in January 2005. The first operational test was a resounding success when more than 2,500 UP rail cars coupled into 100-car unit trains traveled across it to deliver 225,000 metric tons of soda ash for export at the Port's Berth 2 bulk facility. It was the busiest month at the Port in 10 years. Without the new rail corridor, the Port would have been unable to handle a cargo shipment of this size.

Project Description
Phase 1: Fibre Way Overpass

The first phase consisted of constructing a vehicular overpass at Fibre Way, a busy two-lane roadway leading directly to Longview Fibre (one of Cowlitz County's largest employers with over 2,000 employees). In order to cross Fibre Way, trains would need to travel under the roadway without obstructing traffic.

Construction began with the building of a temporary roadway around the construction area to carry the Fibre Way traffic. Next, utilities consisting of electrical, water, telephone and natural gas lines were relocated by utility owners.

An embankment made of Geofoam (lightweight expanded polystyrene) was used as an alternative fill (see Project Highlights), then foundations, substructure and bridge superstructure were constructed. The embankment was capped with a concrete load distribution slab and the sides were protected by precast concrete panels.

Overpass construction began in 2001 and took two years. Design engineering was provided by HNTB of Bellevue, Washington. The Port hired sub-consultant Jacobs Civil, Inc. of Lake Oswego, Oregon to manage the project. The general contractor was Ostrander Rock and Construction of Longview, Washington. Local sub-contractors were used, providing construction employment in the local community during the typically slower winter months.

By building the overpass first, the Port ensured that vehicles traveling to/from Longview Fibre would never encounter an at-grade crossing, even while the new track was under construction.

Phase 1 was formally dedicated to the public on March 18, 2003. In 2003 the Washington State Department of Transportation Highways and Local Programs, and the U.S. Department of Transportation Federal Highway Administration, presented the Port with the 2003 Award of Excellence for the Fibre Way Overpass.

The cost to construct the Fibre Way Overpass totaled $6.9 million.

Project Description
Phase 2: Rail Line Construction

The second phase consisted of constructing 3.2 miles of rail track (9,450 feet of main track and 7,500 feet of siding track). The track originates at the BNSF and UP main lines and extends to the Port of Longview.

When the Fibre Way Overpass was nearing completion, the Port made the decision to manage and construct Phase 2 using an in-house labor crew instead of putting the project out to bid (see Project Highlights). An in-house engineer managed the project, and in-house environmental staff managed clean-up of contamination from a former trap club.

Construction began with the placement of subgrade soil along the rail corridor which was obtained from the Cowlitz Sewer Operating Board (CSOB) through a mutually beneficial arrangement. The CSOB had a nearby project in which they needed to dispose of unneeded soil, and the Port needed soil for subgrade. The CSOB contractor placed the soil on the corridor and the Port's labor crew shaped and compacted it to form the subgrade. Subballast was then placed on the subgrade and compacted. Concrete cross ties were distributed and the rails placed on top. The track was then aligned, lifted, and tamped into final position. Finally, fencing and general clean-up work was performed.

Rail track construction began in 2002 and was completed in 2004. Funding for the siding track was obtained in 2004 and the siding was constructed in 2004. The entire project was formally dedicated to the public on October 4, 2004.

In January 2005 trains crossed the new rail corridor for the first time when more than 2,500 UP rail cars coupled into 100-car unit trains delivered 225,000 metric tons of soda ash for export at the Port's Berth 2 bulk facility. It was the busiest month for the Port in 10 years. Without the new rail corridor, the Port would have been unable to handle a cargo shipment of this size.

The cost to construct the rail line totaled $5.0 million.

Project Highlights

Phase 1: Fibre Way Overpass - Innovative Fill Material

The low strength foundation soils at the Fibre Way Overpass presented a challenge for design engineers. A fill material that would not cause any settlement issues was needed due to the proximity of adjacent landowners (Cowlitz County Humane Society and Lemmons Trucking) and an existing high-pressure gas main running the length of the project.

Design engineers with HNTB of Bellevue, Washington, and Jacobs Civil, Inc., of Lake Oswego, Oregon did extensive research into alternative fill materials. They recommended using Geofoam (lightweight expanded polystyrene) with a density of 1.5 pounds per cubic foot, compared to about 120 pounds per cubic foot for earth fill. Their recommendation was accepted by the Port, Washington State Department of Transportation, and engineers from the City of Longview and Cowlitz County.

Paul DePalma of Jacobs Civil, Inc., project manager for the Fibre Way Overpass, said his company had used Geofoam successfully to widen Interstate 15 through downtown Salt Lake City, so he had experience with its value and effectiveness. But it was the first time Geofoam had been successfully used in Cowlitz County.

The advantages of using Geofoam were significant. It lowered overall project costs. Even though Geofoam costs more than earth fill, it reduced impacts to neighboring landowners and shortened the project schedule. Use of an earth embankment would have required first relocating a neighboring landowner resulting in additional right-of-way acquisition costs. Also, the time to construct the Geofoam approach was less than a soil embankment. It is estimated that use of Geofoam shortened the overall project time by three years. Geofoam is also very stable in earthquakes.

The Washington State Department of Transportation and the U.S. Department of Transportation considered use of Geofoam as fill for the Fibre Way Overpass to be a significant innovative design feature as well. They awarded the Port a 2003 Award of Excellence.

To date, there has been no settlement in or near the Fibre Way Overpass. Businesses located adjacent to the project praised it both during and after the construction process.

Project Highlights
Phase 2: Rail Line Construction - In-House Labor

As the Fibre Way Overpass construction reached completion, the Port made the decision to construct Phase 2 in-house instead of going out to bid. A number of factors contributed to this decision:

First, the Port has a history of successful completion of public works projects using its own labor. The maintenance crew has experience in all phases of rail construction from maintaining existing rail track for years.They also provide a diversified skill base from the local unions of laborers, operating engineers, pile bucks, plumbers, electricians and painters. Also, using an in-house labor crew would give the Port more efficiency and flexibility. For example, during delays caused by weather or project needs, crew members could simply be diverted to normal maintenance work.

Second, the Port had at its disposal a lot of material from which to build the subgrade. This included sand dredged from the Columbia River which had been placed on the Port's industrial property, and concrete from the foundations of several large sheds which had been demolished. The Port wished to maximize use of these materials.

Third, the preliminary design had already been completed and any necessary adjustments could be managed by Port engineering staff. Norm Krehbiel, the Port's engineer, was in charge of the project as a whole. Bruce Staggs, the Port's engineering coordinator, managed the maintenance crew. Judy Grigg, the Port's environmental manager, obtained permits. Larry Marko, the Port's environmental technician, was in charge of clean-up at the trap club.

Also, a nearby project to upgrade the Cowlitz Sewer Operating Board (CSOB) system was underway. The CSOB needed to dispose of their unneeded soil, and the Port needed soil for subgrade. By putting the in-house labor crew to work immediately, the Port was able to obtain the CSOB soil, saving both time and money.

The normal size crew working on the project was six men, with a maximum of 12 at any time. Additional day labor was hired as needed from the union halls. The work lasted from July 2002 to October 2004.

Although it is rare for a public port to construct a public works project the size of the Industrial Rail Corridor in-house, in the Port of Longview's case it made the best sense. The skills and experience of the Port's maintenance crew were put to work on a project of major significance. As a result, the workers developed a sense of pride and ownership in the project which will last throughout their working careers. Their experience building the project will also serve them well in maintaining it in the future.

In conclusion, by constructing the rail lines in-house, the Port was able to maintain control of every aspect of construction, resulting in a completed project that came in on time, within budget, and of excellent quality.

ADDITIONAL SUPPLIERS

In addition to the in-house labor crew, the Port worked with the following businesses who provided necessary services and/or supplies for Phase 2:

HNTB - preliminary design and construction support

Ostrander Rock and Construction - sleeving of sewer main

Marta Track Constructors - tamping

Stordahl and Sons - aggregate

CXT Concrete Railroad Products - concrete ties

LB Foster - rail track

Harmer Steel - turnouts and appurtances

A&K Railroad Materials - turnouts and appurtances

Hagedorn Surveyors - construction staking

Familian Northwest - culverts

Oregon Culvert - structural plate arch

Omega Industries - concrete crossing panels

Harcom Pacific - fencing

Cascade Fence and Fabrication - fencing

Project Background

For over 80 years, log and lumber exports were the region's (as well as the Port's) main book of business. Historically, forest products accounted for approximately 75% of the Port's revenue base. However, due to a decline in the industry over the past 15 years, forest products now account for only 30% of the Port's revenue base.

In order to diversify operations away from the forest products industry, in the 1990s the Port began a major capital improvement and land acquisition program to accommodate and grow new industry. 300 acres of industrial property adjacent to the marine terminal complex were purchased.

The Port is a very attractive location for new industry because it has marine deep-draft access and is located only 10 minutes from Interstate Highway 5, the major north/south transportation route on the West Coast. The property is ideally located for new manufacturing industries that require rail access and deep-draft marine terminal services.

However, the existing rail line serving the Port was not adequate to handle any projected increases in rail traffic resulting from the location of new industry at the industrial property, or any increase in cargo volume at the marine terminal complex. Unit trains would create a safety hazard. For example, unit trains entering the Port on the existing line would block emergency response vehicles from accessing critical areas. Any increase in rail traffic was projected to add to the already well established pattern of traffic delays.

Thus, in 1995 the Port began developing plans for a new rail line which would serve the industrial property and marine terminal complex. This rail line would by-pass existing at-grade crossings, relieve existing traffic congestion and improve overall safety.

The project also helps the local community, which continues to struggle with a high unemployment rate, by improving the rail infrastructure system which is essential to new industry. The county as a whole is projected to experience growth in the near future as a result of the availability of industrial land and the rail infrastructure that serves it.

Project Funding

The total cost of the Industrial Rail Corridor over a 9-1/2 year period came to $21 million and included feasibility studies, environmental mitigation, land acquisition, design engineering, permitting and both phases of construction. The cost to construct the Fibre Way Overpass (Phase 1) totaled $6.9 million. The cost to construct the rail line and siding track (Phase 2) totaled $5.0 million. The remaining costs for permitting, mitigation, property acquisition and design services brought the total to $21 million.

The project had extensive public involvement and overwhelming community support since it was first introduced at the Freight Rail Summit for Cowlitz County local transportation officials in February 1996. It was noted as a “high priority” project for Cowlitz and Lewis Counties and by the Washington Community Economic Revitalization Team’s (WACERT) list of county-wide projects. The state of Washington ranked it number 5 on its statewide Freight Mobility Plan list of over 75 transportation projects. Only the top 20 projects received state financial assistance. Subsequently, the project was awarded state and federal financial support for furthering economic and transportation benefits for the community.

FUNDING PARTNERS

FEDERAL	
Transportation Equity Act for the 21st Century (TEA 21)	$ 2.4 million
STATE	
Freight Mobility Strategic Investment Board	$ 2.8 million
Transportation Improvement Board	$ 2.0 million
Community Economic Revitalization Board	$ 1.0 million
LOCAL	
Cowlitz County	$ 2.2 million
Port	$ 10.6 million
TOTAL	**$ 21.0 million**

Project Timeline

1995 - 1998:	Feasibility studies and public hearings
1998 - 2001:	Land acquisition and permitting
1998 - 2001:	Design engineering (both Phases)
2001 - 2003:	Construction of vehicular overpass (Fibre Way Overpass)
2002 - 2004:	Construction of main rail line
2004:	Construction of siding track
2005:	Open for business - first trains cross the track

Conclusion

In January 2005 the Industrial Rail Corridor was officially opened for business. The first trains, consisting of over 2,500 UP rail cars coupled into 100-car unit trains crossed the tracks for the first time. A cargo shipment of this volume could not have been handled by the Port on its existing line. The rail cars were loaded with soda ash for export at the Port's Berth 2 bulk facility.

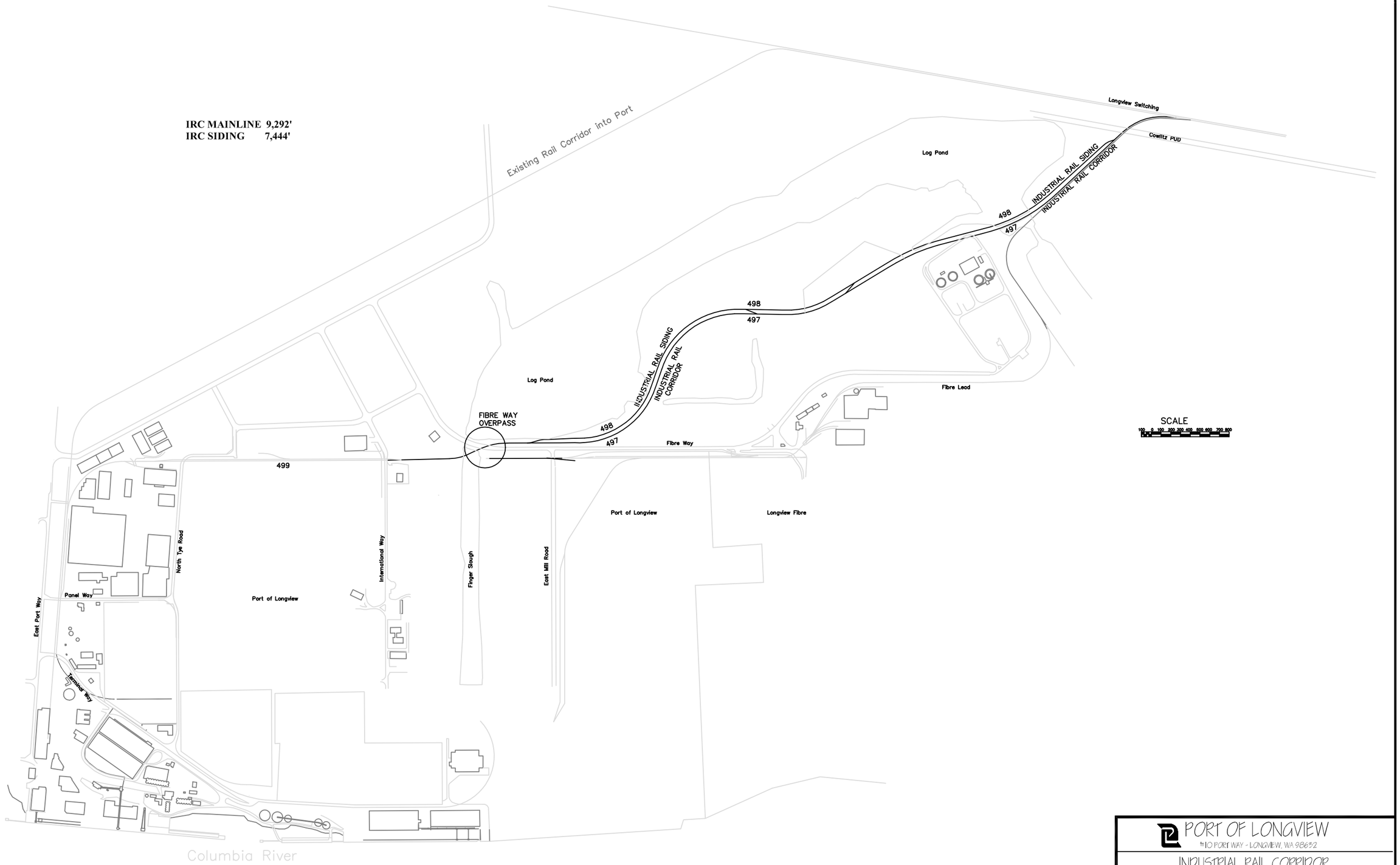
This was the largest volume of rail traffic the Port had ever handled. It was also the busiest month for the Port in over 10 years. For cargo shippers, the ability to send unit trains loaded with bulk cargo to the Port is a significant asset.

During the last quarter of 2004 and the first quarter of 2005, the Port has seen a significant increase in inquiries into the industrial park and the rail service provided by the Industrial Rail Corridor. Port officials have been working diligently with these potential new customers. The goal is to locate family-wage manufacturing industry on the industrial property which will take advantage of the rail service provided by the Industrial Rail Corridor, as well as the proximity of the marine terminal complex.

The creation, design, public involvement and partnering with federal, state and local funding agencies have made the Industrial Rail Corridor a unique project for the local community and the region. The innovative use of Geofoam in the Fibre Way Overpass, and the construction of the rail line by an in-house labor crew, are unusual aspects that set this project apart from other public works projects.

The Port's work with state and local transportation organizations to develop solutions to rail transportation issues made the project an undertaking that has resulted in an improved inland freight transportation system, serving not only the Port of Longview, but the maritime and rail industry as well.

IRC MAINLINE 9,292'
IRC SIDING 7,444'



PORT OF LONGVIEW
#10 PORT WAY - LONGVIEW, WA 98632

INDUSTRIAL RAIL CORRIDOR

DESIGN	MMB	DATE	11-19-04	SCALE	NOTED
DRAWN	B. STAGGS	PLOT	1 = 1	DWG. NO.	060605 MW
CHK'D	N. KREMBEL	REV.	1 (1-7-05)	SHEET	1 OF 1

Placement of Geofoam, an Innovative Fill Material, on the Fibre Way Overpass

An Ostrander Rock and Construction worker moves Geofoam blocks into place. Each 16 foot-long block weighs approximately 280 pounds.

Port of Longview photo

Appendix C

Fibre Way Overpass Under Construction

Jan Fardell photo

Fibre Way Overpass Completed

Jan Fardell photo

In-House Labor Crew at Work on Rail Track

Port of Longview photo

Completed Industrial Rail Corridor (January 2005)
Unit Train on Siding Track

Ackroyd Photography of Portland, OR