Washington State

Point Defiance Bypass Project

Traffic and Transportation Discipline Report

Washington State Department of Transportation

August 2007, revised March 2008

Exhibit CS 01

Point Defiance Bypass Project

Traffic and Transportation Discipline Report

Prepared for the

Washington State Department of Transportation

By

HDR Engineering, Inc.

August 2007, revised March 2008

Washington State Department of Transportation

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Chapter One
Project Description

The Washington Department of Transportation (WSDOT) proposes the Point Defiance Bypass Project to improve safety and reduce rail congestion, and, as a result, to support more frequent and reliable Amtrak *Cascades* service. Freight and passenger train traffic has increased on the existing main line in the Tacoma vicinity and the rail system is operating at or near its maximum capacity. By removing the passenger traffic from the existing main line and diverting that traffic to the shorter, more direct Point Defiance Bypass route, travel times for the passenger trains will be reduced. In addition, since the Point Defiance Bypass will primarily be used by passenger trains, the reliability of the train schedules will be improved. By using this alternate route, congestion on the existing main line will be reduced, thereby freeing capacity for freight trains.

What alternatives are being considered for the Point Defiance Bypass Project?

Typically in an environmental analysis, two types of alternatives are analyzed – Build Alternatives (which can range from one alternative to many alternatives) and a No Build Alternative. A No Build Alternative represents the baseline. All other alternatives are compared to the No Build. For this document, two alternatives are being studied – a Build Alternative and the No Build Alternative.

What will happen if the project is not built?

If the Point Defiance Bypass Project is not built (No Build Alternative), Amtrak *Cascades* service will continue to operate along the existing Point Defiance route. Along the Lakeview Subdivision (Point Defiance Bypass route), Sound Transit, as track owner, will continue with its plans to increase *Sounder* commuter rail service south of Tacoma to Lakewood.

Sound Transit Improvements and Future *Sounder* Service

Sound Transit is expanding *Sounder* commuter rail service to Lakewood with new stations in South Tacoma and Lakewood. The expanded service will operate along a new 1.2-mile track extension in Tacoma, from the Tacoma Dome Station to the M Street overpass at South Tacoma Way, where it will connect to the existing Lakeview Subdivision tracks and continue south seven miles to Lakewood.

The Lakeview Subdivision track improvements will include track, signal and grade crossing improvements from M Street in Tacoma to Bridgeport Way SW in

Lakewood. In order to eliminate the need for a train to engage its horn as it nears a grade crossing, automated wayside horns will be installed at South 74th Street, 100th Street SW, and 108th Street SW.[1] The wayside horn works in conjunction with other active warning systems (such as lights and gates). **Exhibit 1.1** illustrates the general location of this work as it relates to the proposed Point Defiance Bypass Project.

Exhibit 1.1
Location of Sound Transit Track, Station, and Rail Facility Improvements

Sound Transit performed an environmental analysis in May 2002 for the *Sounder* improvements. Information and analysis is contained in their document entitled

[1] *Under normal conditions at an active crossing, the train's locomotive will normally engage its horn approximately one-quarter of a mile from the crossing. The horn will continue to sound several additional times until the train enters the crossing. The wayside horn system focuses the sound of the horn to the road user, thereby eliminating the requirement that the locomotive sound its horn from such a far distance. The wayside horn is located at the crossing on a pole near the crossbuck. Once the train has approached the crossing where the train horn would begin to blow its horn, the wayside horn is engaged. The wayside horn emits a digitized horn sound that is directed in the path of the user. Based on the location and orientation of the wayside horn, significant sound abatement is created for the general area surrounding the crossing, and provides a warning to road users approaching the crossing.*

Lakewood to Tacoma Commuter Rail and SR 512 Park- and-Ride Expansion NEPA/SEPA Final EIS. Environmental analysis for new commuter rail stations and the layover facility is also contained in that Sound Transit document. A *State Environmental Policy Act* (SEPA) *Addendum* was also prepared by Sound Transit in June 2005.

New *Sounder* Stations

The South Tacoma Station will be located just north of the Point Defiance Bypass Project area -- between South 56th and South 60th Streets at Washington Street. This station is scheduled for completion by late 2008.

The new Lakewood Station, located near 47th Avenue SW and Pacific Highway SW, will include a side platform for passengers, as well as shelters and kiosks to purchase tickets. A new parking garage near the station will provide more than six hundred parking spaces for commuters. The station will also serve as a facility for regional and local bus service.

Sound Transit is coordinating with the City of Lakewood as the City develops plans for street improvements along Pacific Highway SW near the station.

New *Sounder* Layover Facility

Another facility being built by Sound Transit in the Point Defiance Bypass Project area is a new layover facility for *Sounder* commuter trains. The layover facility will be located adjacent to the existing rail track, approximately fifty feet from the existing main line centerline. The two layover tracks will extend from Steilacoom Boulevard SW (rail milepost 8.4) to 100th Street SW (rail milepost 9.0). The layover area will serve as a place where trains are stored when not in use and where routine operations such as interior cleaning of the trains occur. The layover area will consist of two double-ended tracks for storage of five trains. The layover area will include a small office/storage building, crew parking for twenty cars, a gravel road along the tracks providing crew access to the trains, fencing, lighting, and utilities.

Amtrak *Cascades* Service along the Lakeview Subdivision

If the project is not built, Amtrak *Cascades* trains will not be transferred to Sound Transit's Lakeview Subdivision – they will remain on the existing BNSF Railway Company's (BNSF) main line route. As freight traffic increases, passenger rail service will become unreliable. In addition, given the current level of congestion along the existing route, it will be virtually impossible to increase the number of passenger trains along the route. Instead of increasing train speeds, it is likely that speeds will decrease, thus resulting in slower service and travel time for Amtrak *Cascades* trains.

How will Amtrak *Cascades* service change if the Point Defiance Project is implemented?

With implementation of the Point Defiance Bypass Project, ten Amtrak *Cascades* trains and two Amtrak *Coast Starlight* trains will travel daily along the new route. In addition, in future years, Sound Transit's *Sounder* commuter rail service will also operate along this line, traveling south from Tacoma to Lakewood. Currently, Sound Transit does not use this rail line, however, twelve trains are planned to serve this area in the future.

Freight trains, which are the only traffic that currently operate along the rail line, are expected to continue at existing levels. Freight train operators include Tacoma Rail and BNSF (for Fort Lewis rail traffic).

Exhibits 1.2 and **1.3** provide general information regarding passenger and freight rail operations within the Point Defiance Bypass Project area.

Exhibit 1.2
Existing and Future Rail Operations along the Point Defiance Bypass Project Rail Line

	South 66th Street (Tacoma) to 47th Avenue SW[1] (Lakewood)		47th Avenue SW[1] (Lakewood) to BNSF Connection	
Daily Trains	**Current**	**Future**	**Current**	**Future**
Freight[2]	2	2	2	2
Sound Transit *Sounder*	--	12	--	--
Amtrak *Cascades*	--	10	--	10
Amtrak *Coast Starlight*	--	2	--	2

[1]Sound Transit Lakewood station location.

[2]Tacoma Rail runs one round trip along this route and the BNSF occasionally operates trains for Fort Lewis.

Exhibit 1.3
Existing and Future Train Speeds along the Point Defiance Bypass Project Rail Line

	South 66th Street (Tacoma) to 47th Avenue SW[1] (Lakewood)		47th Avenue SW[1] (Lakewood) to BNSF Connection	
Train Type	**Current**	**Future**	**Current**	**Future**
Freight	10 mph	40 mph	10 mph	60 mph
Sound Transit *Sounder*	--	60 mph	--	--
Amtrak *Cascades*	--	79 mph	--	79 mph
Amtrak *Coast Starlight*	--	79 mph	--	79 mph

[1]*Sound Transit Lakewood station location.*

What are the physical characteristics of the Point Defiance Bypass Project?

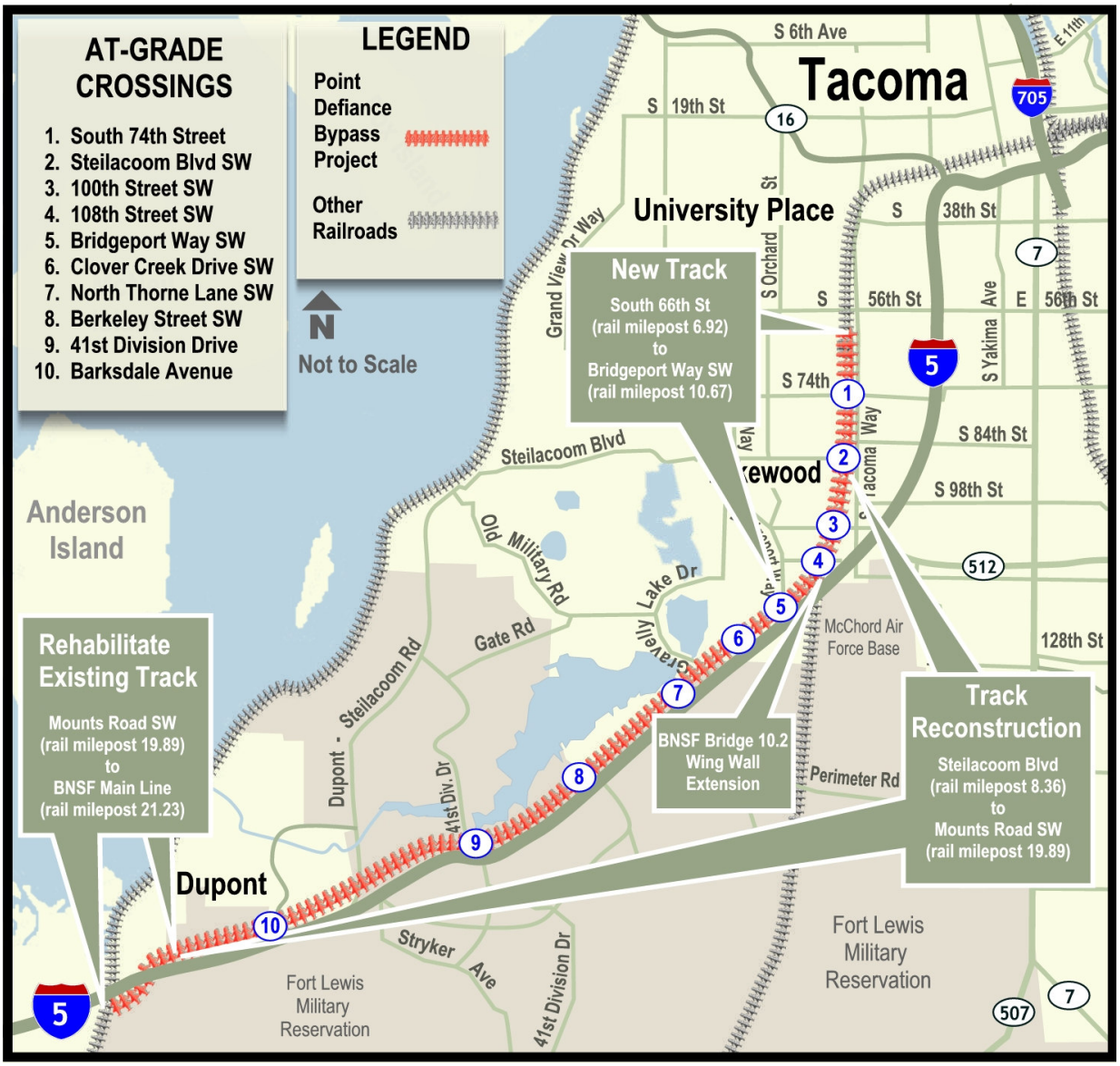
The Point Defiance Bypass Project (Build Alternative) consists of three major track elements: a new track adjacent to the existing main line; reconstruction of the existing main line track; and rehabilitation of the existing track. **Exhibit 1.4** identifies the location of these project elements. The *Conceptual Construction Plan for the Point Defiance Bypass Project* (August 2007) contains more detailed information regarding specific project elements.[2]

New Track Adjacent to the Existing Main Line

A new track adjacent to the existing main line will be constructed from South 66th Street (rail milepost 6.92) to one-quarter-mile south of Bridgeport Way SW (rail milepost 10.67). This new 2.5-mile track will be constructed parallel to and east of (with 15-foot track centers[3]) the existing Sound Transit track. In some places, due to curves, track centers may be wider, particularly in the vicinity of Lakewood Station, Bridgeport Way and Clover Creek. Sound Transit's *Sounder* trains and freight trains will predominately use the eastern main track (new track, main line 2) as it operates in its service area (northern terminus of Point Defiance Bypass Project to Bridgeport Way SW).

[2]*This document can be obtained by contacting the State Rail Office at 360-705-7902.*
[3]*The distance between the center of the existing main line track and the center of the new parallel main line track.*

Exhibit 1.4
Point Defiance Bypass Project: Location of Project Elements



The second main line will be built on new embankment. For the purpose of the project environmental document, the existing track from South 66th Street to Steilacoom Boulevard SW is assumed to have already been upgraded by Sound Transit and the new second main line to be constructed in this area will require minimal grading work. There will be no in-water work as part of this new construction. **Exhibit 1.5** presents more information about the new tracks and their location in relation to the existing main line. In addition, **Appendix A** presents the conceptual design for the proposed new tracks.

Exhibit 1.5
Point Defiance Bypass Project: Alignment for New Track

Main Line	Location of Main Lines	Distance of Shift (centerline to centerline)	Direction
1	mp 6.92 to mp 8.95	Main line 1 is on its existing alignment	--
2	mp 6.92 to mp 8.95	Main line 2 is 15 feet from existing main line 1	East side
1	mp 8.95 to 108th Street SW	By the time it reaches 108th Street, main line 1 is 105 feet east of its original alignment (At about mp 9.0, the track is about 60 feet from its original alignment)	East side
2	mp 8.95 to 108th Street SW	By the time it reaches 108th Street, main line 2 is 120 feet from the original alignment of main line 1 (At about mp 9.0, the track is about 75 feet from main line 1's original alignment)	East side
1	108th Street SW to mp 9.96	Just past 108th Street the tracks shifts off the alignment, with the new main line 1 shifting to the west approximately 20 feet from its original alignment	West side
2	108th Street SW to mp 9.96	Just past 108th Street the tracks shifts off the alignment, with main line 2 shifting approximately 50 feet to the west from the original alignment of main line 1	West side
1	mp 9.96 to one quarter mile south of Bridgeport Way SW	Main line 1 is back on its existing alignment	--
2	mp 9.96 to one quarter miles south of Bridgeport Way SW	Main line 2 is 15 feet from existing main line 1	East side

Note: refer to Exhibit 3.6 for location of rail mileposts

Reconstruction of the Existing Main Line

Starting at Steilacoom Boulevard SW (rail milepost 8.36), the existing track will be reconstructed to a location just north of Mounts Road SW (rail milepost 19.89). This will involve removal of the existing track and minor re-grading of the existing sub-grade to provide a slightly wider, re-graded and compacted, stable surface top on which to construct a new track. This reconstructed segment is approximately nine miles in length.

For a short segment, between rail milepost 8.88 and 9.96, the existing track and the new track will be on a new alignment. Therefore, the existing track will be removed and both main lines constructed on a new sub-grade alignment. Upon removal of the track structure, the existing sub-grade will be graded and cleared of debris to match existing ground conditions in the general area. There will be no in-water work as part of this reconstruction.

Rehabilitation of the Existing Line

Just north of Mounts Road SW (rail milepost 19.89), for approximately two miles (to rail milepost 21.23), the existing single main line track will be rehabilitated.

This work will consist of replacing existing, worn, or otherwise defective ties with new ties, and adding ballast. These activities are typical of the maintenance work regularly performed on most railroads and is accomplished without removing the track. Existing drainage paths will be cleared of blockages. Little or no new grading work will be required. There will be no in-water work as part of this rehabilitation.

Other Rail-Related Activities

In addition to this track work, other rail-associated activities will include:

- Two new power turnouts[4] (at rail mileposts 6.92 and 10.67).
- Grading of existing natural ground, top of existing track sub-grade, side slopes and ditches. The majority of the grading work is contained within the existing railroad right of way.
- Additional railroad train control signal system components.
- Extension of the wing walls at BNSF Bridge 10.2, which spans Interstate 5 (I-5).
- The construction by Sound Transit of two layover tracks from milepost 8.4 to milepost 9.0, which will be located approximately 65 feet from the existing main track centerline.
- Utility relocations or protection.

At-Grade Crossings

Ten at-grade crossings, listed in **Exhibit 1.6**, are located within the project area. For each crossing, specific design measures were agreed to during Grade Crossing Diagnostic meetings with WSDOT Traffic, City of Lakewood, City of Tacoma, and Pierce County Traffic (meeting notes are available at the WSDOT Rail Office to qualified reviewers). These designs have been incorporated into the project.

Details of the improvements for each crossing follow. Descriptions of the individual technologies, such as pre-signals and loop detectors, and their operation, are provided in Chapter 3. At each crossing, the warning devices (flashing lights, bell, and gates) will be configured to provide a constant warning time, independent of train speed.

[4] *A turnout is a set of tracks that connect the main line to a siding or rail yard. The switch (a set of levers and gears) that guides the train over the track can either be moved electronically (power) or manually.*

Exhibit 1.6
At-Grade Crossings within the Project Area

Jurisdiction	Location
City of Tacoma	South 74th Street
City of Lakewood	Steilacoom Boulevard SW
	100th Street SW
	108th Street SW
	Bridgeport Way SW
	Clover Creek Drive SW
	North Thorne Lane SW
	Berkeley Street SW
Fort Lewis	41st Division Drive (entrance to North Fort Lewis)
City of DuPont	Barksdale Avenue

South 74th Street

The current configuration of warning devices (gate and cantilevers) will be preserved. The following measures will be installed:

- Interconnection with the South Tacoma Way traffic signal.
- A pre-signal in the eastbound lanes to deter motorists from queuing on the tracks. The pre-signal will be coordinated with the signal at South 74th Street to help manage queue lengths.
- New channelization features, primarily medians on both sides of the crossing, to reduce the likelihood of motorists evading lowered gates.
- Pedestrian crossing.
- Improvements to roadway striping.
- "Do not stop on tracks" signage.
- "Gate Delay," which allows the flashing lights to operate and the bells to ring for a few additional seconds before the gates descend. This can help provide additional warning to vehicles which may move slowly up the hill at this location.

In addition, pre-signals will be considered during final design.

Steilacoom Blvd SW

The following measures will be installed or constructed:

- Advance pre-emption to clear the relatively short westbound queue length.
- Median in the two-way left turn lane east of the grade crossing.
- C-curb barrier (between the westbound left turn pocket and the northernmost eastbound traffic lane) extending from the west side of the crossing to the Lakeview Ave intersection.

- "Do not stop on tracks" signage.
- Relocation of the bus stop to the east side of the crossing.
- Pedestrian crossing.
- Improvements to roadway striping.

100th Street SW

The following measures will be constructed and installed:

- Crossing gates.
- Medians on both sides of the crossing, though the median on the west side of the crossing will be relatively short, tapering to a C-curb barrier to allow for the westbound left turn pocket on 100th Street.
- "Do not stop on tracks" signage.
- Widening of the roadway at the westbound right-turn lane to allow for improved drainage and WB 50 truck right-turn movements.
- Additional illumination.
- Pedestrian crossing.
- Improvements to roadway striping.

108th Street SW

The following measures will be constructed and installed:

- Cantilevers, gates, and an automated horn system.
- Interconnection with the traffic signal at 108th Street SW and Lakeview Avenue.
- Medians on both sides of the crossing, developed in conjunction with the City of Lakewood.
- Alteration of the profile of the roadway to allow for the two new tracks
- Reconstruction of the T-intersection with Halcyon Street to right-in/right-out only to keep eastbound traffic on 108th St SW from stopping on the crossing. Alternately, a "third" exit gate located on eastbound 108th Street SW could be installed. This gate would prevent left turning traffic from Halcyon Street from driving the wrong-way westbound along 108th Street SW, then changing lanes in the wide area (which lacks a median), where the two tracks cross 108th Street SW.
- "Do not stop on tracks" signage.
- Pedestrian crossing.
- Improvements to roadway striping.

All measures will match the widths and landscaping of the current lanes and medians per City of Lakewood requirements.

Bridgeport Way SW

The project will install or construct the following measures:

- Revise the roadway profile to provide a smoother surface at the tracks.
- Medians on both sides of the track.
- Crossing gates and flashing lights.
- Interconnection between the railroad signals and traffic signals.
- A pre-signal (coordinated with the signal at Pacific Highway) for southbound traffic on Bridgeport Way.
- "Do not stop on tracks" signage.

Clover Creek Drive SW

The project will install or construct the following measures:

- Widen the roadway approximately 2 feet to allow for a short median on the south and a somewhat longer median on the north side of the crossing.
- Extend C-curb northward beyond the end of the median.
- Crossing gates and flashing lights.
- "Do not stop on tracks" signage.
- Pedestrian crossing.
- Improvements to roadway striping.

North Thorne Lane SW

The project will install or construct the following measures:

- A narrow median on the north side of the crossing.
- C-curb is proposed for the south side of the crossing to help deter motorists from evading the crossing gates.
- A new traffic signal at the intersection with Union Avenue SW. That signal will act in a manner similar to a pre-signal.
- Interconnection between the railroad signals and traffic signals.
- Coordination between traffic signals on both sides of the freeway and at Union Avenue SW.
- "Do not stop on tracks" signage.
- Improvements to the existing substandard right-turn pockets to improve turning movements for large vehicles.
- At least one ADA-compliant path of travel for pedestrians to access the overpass over I-5.
- Improvements to roadway striping.

Future plans for the construction of a separated crossing at this intersection are being considered by WSDOT as part of the Cross-Base Highway project. If those plans are sufficiently developed, they will be addressed during final design.

Berkeley Street SW

The project would construct or install the following measures:

- Maintain the existing interconnection.
- Additional coordination with adjacent traffic signals.
- C-curb is proposed for the south side of the crossing to help deter motorists from evading the crossing gates.
- Interconnection between the railroad signals and traffic signals.
- The traffic signal at the Berkeley Street SW and Union Street SW intersection will be activated (it is currently operates only as a flashing red light) and coordinated with the adjacent traffic signals at Interstate 5. This signal will function as a pre-signal.
- Coordination between the traffic signals on both sides of the freeway and at Union Avenue SW.
- "Do not stop on tracks" signage.
- Improvements to existing substandard right-turn pockets to improve turning movements for large vehicles.
- At least one ADA-compliant path of travel for pedestrians to access the overpass over I-5.
- Improvements to roadway striping.

During final design, in conjunction with WSDOT's Olympic Region and with the City of Lakewood, the project team will consider reconfiguring the placement of the traffic signals at the SB I-5 ramps for better visibility; instituting a blank out sign during railroad preemption that will block the right turn off the SB off ramp to help minimize queue lengths; coordinating a no-right-on-red signal with loop detection at the crossing so that when queue lengths extend across the tracks, no additional right turns would be permitted, and relocating the southbound signals at the freeway ramp intersection in front of the cantilever. The project will also consider ways to make the crossing more pedestrian friendly.

41st Division Drive

The project will construct or install the following measures:

- New cantilevers and gates for the two southbound lanes of this crossing.
- Where the two northbound lanes of 41st Division Drive narrow to a single lane, a new right-side curb median and taper to define the free-flow right off the freeway, since the current northbound merge is defined only by traffic cones.
- New crossing gate in the right-side median to protect the northbound traffic.
- Additional flashing lights on the crossing gates, pointing toward the freeway off ramp, to provide warning to motorists exiting the freeway that a train is approaching.

- New crossing gate and flashers for motorists exiting the freeway at the free-flow right.
- A warning sign (and flashing lights) at the SB I-5 off-ramp "Prepare to stop when flashing," to provide motorists exiting I-5 advance warning if a train were approaching and the crossing gates were lowered.
- "Do not stop on tracks" signage.
- Pedestrian crossing.
- Improvements to roadway striping.
- New traffic signals for both northbound and southbound lanes, coordinated with loop detectors to deter vehicles from queuing on the tracks.

Barksdale Ave (Steilacoom – DuPont Rd)

The project will construct or install the following measures:

- Traffic signals at the off ramps will be interconnected with the railroad crossing signals.
- A short median will be added between the northbound and southbound lanes on the south side of the tracks (the side nearest the freeway).
- Sidewalks and curbs will be revised to meet current regulatory standards.
- Improvements will be made to roadway striping.

Wayside Horns

Wayside horns will be installed at nearly all the at-grade crossings along the corridor. Sound Transit's horns will remain in place at South 74th Street, 100th Street SW, and 108th Street SW. The Point Defiance Bypass Project will install wayside horns at Steilacoom, Bridgeport, Clover Creek, North Thorne, Berkeley, 41st Division, and Barksdale.

If built, how will it be constructed?

Although the components, size, and dimensions of railroad tracks are standard, construction is performed in a number of ways, depending on access to the site, environmental concerns, and geographic variables.

A conceptual construction plan[5] has been created based upon previous experience from similar projects with similar train operational requirements and geographic properties (such as urban/industrial area with good access). The discussion below does not necessarily define how the contractor will actually stage or perform the work.

[5]*The Conceptual Construction Plan for the Point Defiance Bypass Project (June 2007) can be obtained by contacting the State Rail Office.*

The contractor is likely to employ a Track Laying Machine (TLM) for most or all of the railroad track construction. In the event the contractor chooses to build the railroad on-site, most of the sequences and activities in this description will remain substantially the same. However, it is likely that short sections of new track at each grade crossing will be constructed prior to reconstructing the intermediate portions of the railroad. Although less likely, this may also be the case if the contractor uses a TLM.

Mobilization will take place at the start of the project. Construction offices (trailers), storage areas, and employee facilities will be established on the right-of-way, most likely between Steilacoom Boulevard SW and 100th Street SW, on the east side of the existing track where there is sufficient width to accommodate access and the facilities. The large quantity items such as the concrete ties and other track materials will come by rail cars and be stockpiled on the right-of-way for loading into gantry cars to be directly installed from the TLM. Signal, utility relocation, and grading work will be completed well ahead of the planned start of the TLM as the TLM's production rate is approximately one mile of track per day of completely assembled track.

Upon completion of the crossing signal warning protection, grading, and establishment of road closures, the TLM will begin constructing the new track on the graded embankment. Just prior to the TLM arriving at a crossing, the crossing will be closed (most likely on weekends or nights) and the roadway workers (gang) will saw cut and remove the street paving, thus creating a trench in which to construct the new track. The roadway gang will also install drainage and signal/communication conduits in the track trench. Following this work, the TLM will proceed through the road crossing and continue constructing track. Ballast will be dumped on the newly constructed track and the track will be raised and placed on the alignment and grade. A new concrete crossing surface will be installed and pavement tie-ins to the existing street paving will be completed. A signal gang would return to the newly completed track crossing to finish the crossing signal warning system and Centralized Traffic Control (CTC)[6] system installation. Roadway and utility crews will complete installation of the utility work, curb and gutter, median, and pavement tie-ins. This process will continue until the project is completed.

During construction, it is anticipated that the work will proceed with the existing railroad out of service for four days per week, allowing free access to the project work areas. Once the signal gangs begin relocation of the existing crossing

[6] *CTC is a signaling system used by railroads. The system consists of a centralized train dispatcher's office that controls railroad switches in the CTC territory and the signals that railroad engineers must obey in order to keep the traffic moving safely and smoothly along the railroad. In the dispatcher's office is a graphical depiction of the railroad on which the dispatcher can keep track of trains locations across the territory that the dispatcher controls.*

warning systems, many of the crossing signal warning systems will be out of service until the new track is constructed and the signal gang returns to complete the warning system installation. This will require the freight trains to stop and flag those crossings with out-of-service warning systems.

The amount of time to build the entire project has not been determined at this time. The length and complexity of the project will require extensive staging and scheduling by the contractor. WSDOT will work with Fort Lewis, Camp Murray, Pierce County, Sound Transit, and the cities of Tacoma, Lakewood, and DuPont to ensure that the public is adequately informed about the construction schedule and detours. Extensive public education will take place to ensure that minimal disruption occurs to the community and the environment.

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Chapter Two
Affected Environment

This chapter describes the traffic analysis for the Point Defiance Bypass Project. The traffic analysis includes the methodology, existing condition analysis, impacts to the study area during construction and operations, and minimization measures.

What is the study area?

The study area includes the area within the project limits from railroad engineering station 339+31 in Tacoma to railroad engineering station 616+39, just north of the Nisqually River.

What are the characteristics of the existing road network?

The roadway network within and surrounding the project area is comprised of major and secondary arterial streets and the I-5 freeway. Pierce County, City of Tacoma, City of Lakewood, and the City of DuPont all classify the road systems into categories according to the function each road serves. **Major arterials** provide service for major traffic movements within the country. They serve major centers of activity, are the highest traffic volume corridors, serve most vehicles entering and leaving urban areas and through trips, serve intra-area travel between suburban centers, between larger communities, and between major trip generators. **Secondary arterials** interconnect with and augment the major arterial system. **Collector arterials** distribute trips from major and secondary arterials to the ultimate destination. **Local roads** provide circulation and access for residential neighborhoods away from the arterial system.

The existing channelization and traffic control for the study intersections within the project area is illustrated in **Exhibits 2.1** and **2.2**.

Exhibit 2.3 presents a tabular description of the major roadways in the study area.

Exhibit 2.1
Intersection Channelization and Traffic Control

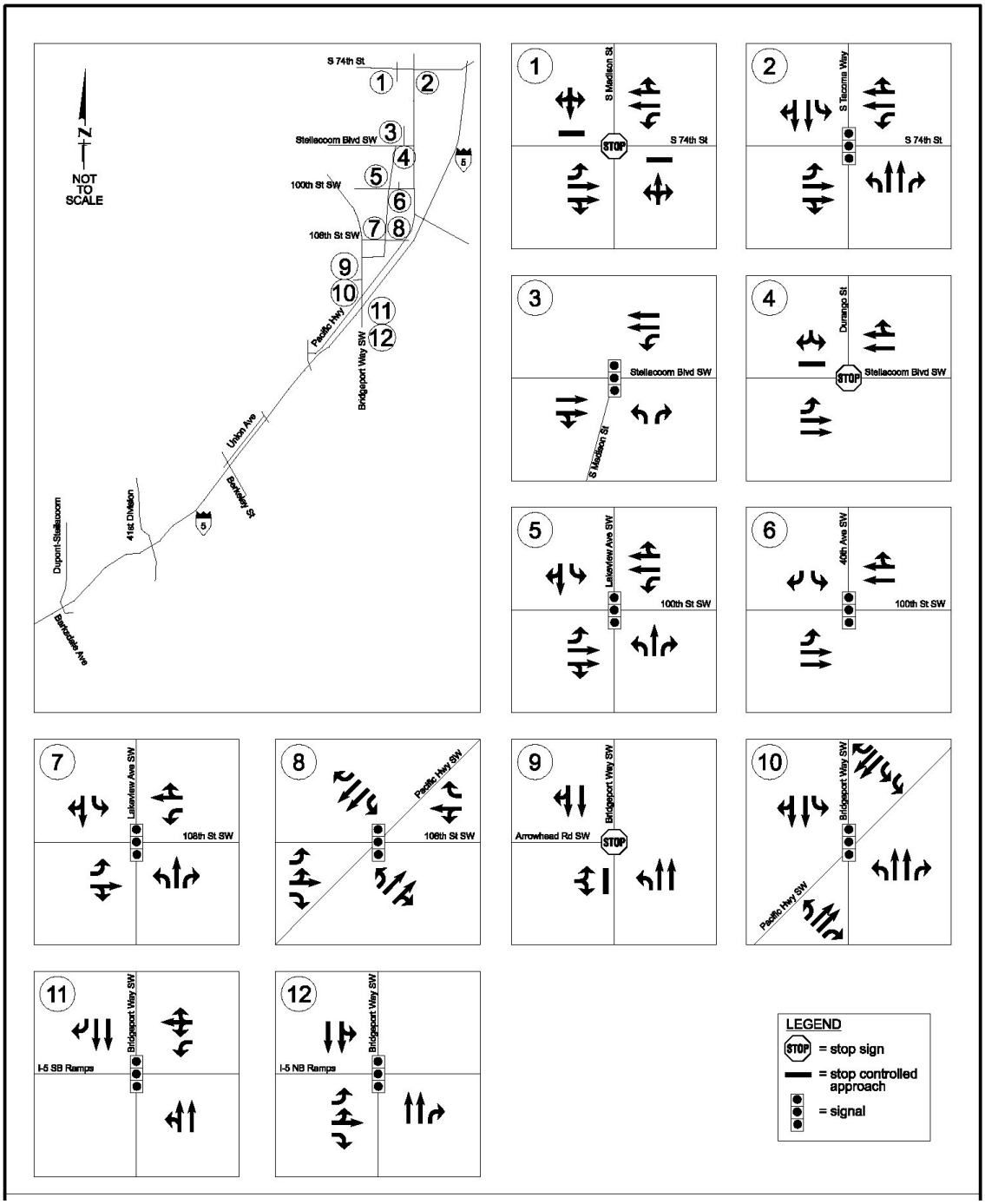


Exhibit 2.2
Intersection Channelization and Traffic Control

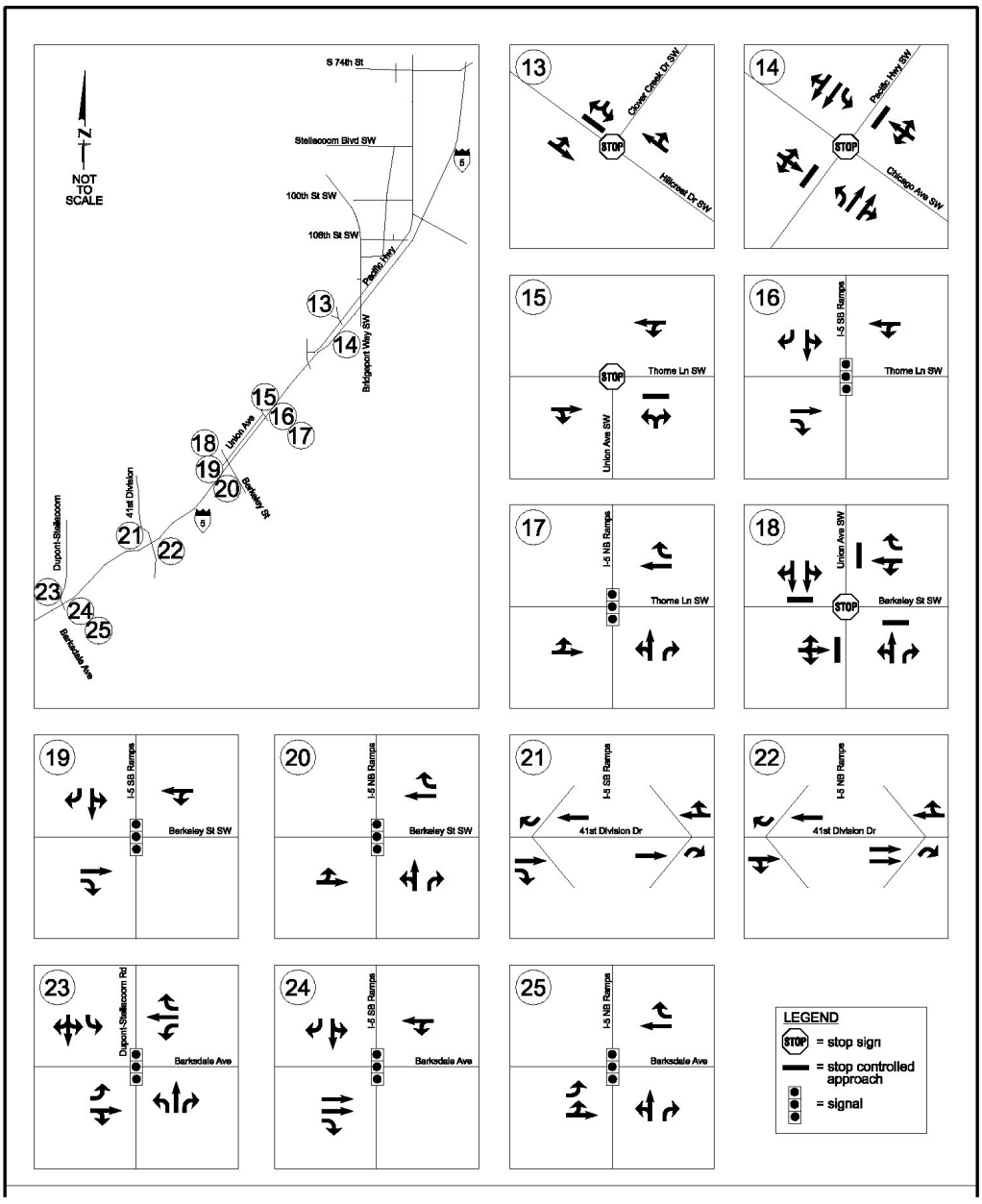


Exhibit 2.3
Transportation Facilities in the Project Area

Facility	Posted Speed Limit	Classification	Function
I-5	60	North/south freeway	Provides a connection between the states of Washington, Oregon, and California
South 74th Street	35	East/west secondary arterial	Provides a connection between I-5 and the communities to the west
Steilacoom Blvd SW	35	East/west secondary arterial	Provides a connection between I-5 and the city of Steilacoom
100th Street SW	35	East/west secondary arterial	Provides a connection between I-5 and the neighborhoods to the west
108th Street SW	25	East/west secondary arterial	Provides a connection between I-5 and the neighborhoods to the west
Bridgeport Way SW	35	North/south secondary arterial	Provides a connection between I-5 and the neighborhoods to the north
Pacific Highway SW	35	East/west secondary arterial	A local arterial that parallels I-5 and provides local access
North Thorne Lane SW	35	East/west secondary arterial	Provides a connection between I-5 and the neighborhoods to the north
Berkeley Street SW	35	East/west secondary arterial	Provides a connection between I-5 and the neighborhoods to the north
41st Division Drive	35	East/west local road	Provides access to Fort Lewis from I-5
Barksdale Avenue	35	East/west local road	Provides access between I-5 and the city of DuPont

What are the characteristics of the existing rail network?

The study area, from north to south, begins in Tacoma and extends to an area south of DuPont, just north of the Nisqually River. The rail line crosses ten roadways at-grade including: South 74th Street, Steilacoom Boulevard SW, 100th Street SW, 108th Street SW, Bridgeport Way SW, Chicago Avenue SW, North Thorne Lane NW, Berkeley Avenue SW, 41st Division Drive, and Barksdale Avenue.

The majority of the study area is railroad right of way, and is thus dedicated to transportation and industrial uses. Most of the study area is located west of I-5 and parallels the freeway. The surrounding land uses include mostly residential, industrial, commercial, and transportation, with one Country Club in Tacoma. The railroad tracks and facilities have been present in the regional landscape for over one hundred years.

A typical cross section of the proposed project includes multiple sets of railroad tracks, the supporting rock ballast, and vegetated right of way. The actual track work stands eight inches above ground and the right of way extends approximately fifty feet on either side of the rails. Warning signals, such as warning lights, crossbucks, and/or gates, are located at roadway crossings along the rail corridor.

The rail corridor is adjacent to commercial, industrial, and residential land uses for most of the corridor. The landscape along the southern stretch is slightly more rural residential as the rail approaches the Nisqually River.

Current Freight Activity

There is currently no passenger rail service on the Point Defiance Bypass line within the study area. Instead, there are freight rail activities by Tacoma Rail with three round-trip trains per week. Train crews providing freight service generally work between 7 a.m. and 7 p.m. Train activity could occur any time during that period depending on the size and schedule of deliveries.

Freight trains are approximately one thousand feet in length, and operate at a speed of ten miles per hour on the Point Defiance Bypass line.

What are the current traffic volumes?

Traffic turning movement counts were conducted in both the 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m. peak hours between August 22nd and August 24th, 2006 (Tuesday thru Thursday). Additionally, morning peak hour counts were gathered for several interchanges near the military installments between the hours of 5 a.m. to 7 a.m. These additional counts were collected to capture military heavy traffic activity. The early morning counts were conducted at the following five crossing locations:

- Bridgeport Way SW
- North Thorne Lane SW
- Berkeley Street SW
- 41st Division Drive
- Barksdale Avenue

Because overseas military deployment may have resulted in distorted data, the Pierce County transportation travel demand model was used to determine an adjustment factor for the above mentioned crossings intersections. The final a.m. and p.m. peak hour traffic volumes are illustrated in **Exhibits 2.4** and **2.5**.

A noon peak hour count was gathered for one study intersection at Berkeley Street SW and Union Avenue SW between the hours of 11 a.m. to 2 p.m. on Tuesday, November 13th, 2007. This additional count was collected to capture the heavy lunchtime traffic activity. The final noon peak hour traffic volume is illustrated in **Exhibit 2.6**.

Current Traffic Operations

The operational analysis was based on the methodologies provided in the *2000 Highway Capacity Manual* (HCM). The HCM is a publication of the Transportation Research Board. The analysis must consider a wide variety of prevailing conditions, including the amount and distribution of traffic movements, traffic composition, geometric characteristics, and details of intersection signalization. The primary output of the method is level-of-service (LOS). LOS refers to the degree of congestion at an intersection, measured in average control delay. LOS A represents free-flow conditions (motorists experience little or no delay and traffic levels are well below roadway capacity), LOS F represents forced-flow conditions (motorists experience very long delays and traffic levels exceed roadway capacity), and LOS B to E represent decreasing desirable conditions. A more detailed discussion of the LOS concept is presented in **Appendix B**.

Exhibit 2.4
Existing 2006 AM Peak Hour Traffic Volumes

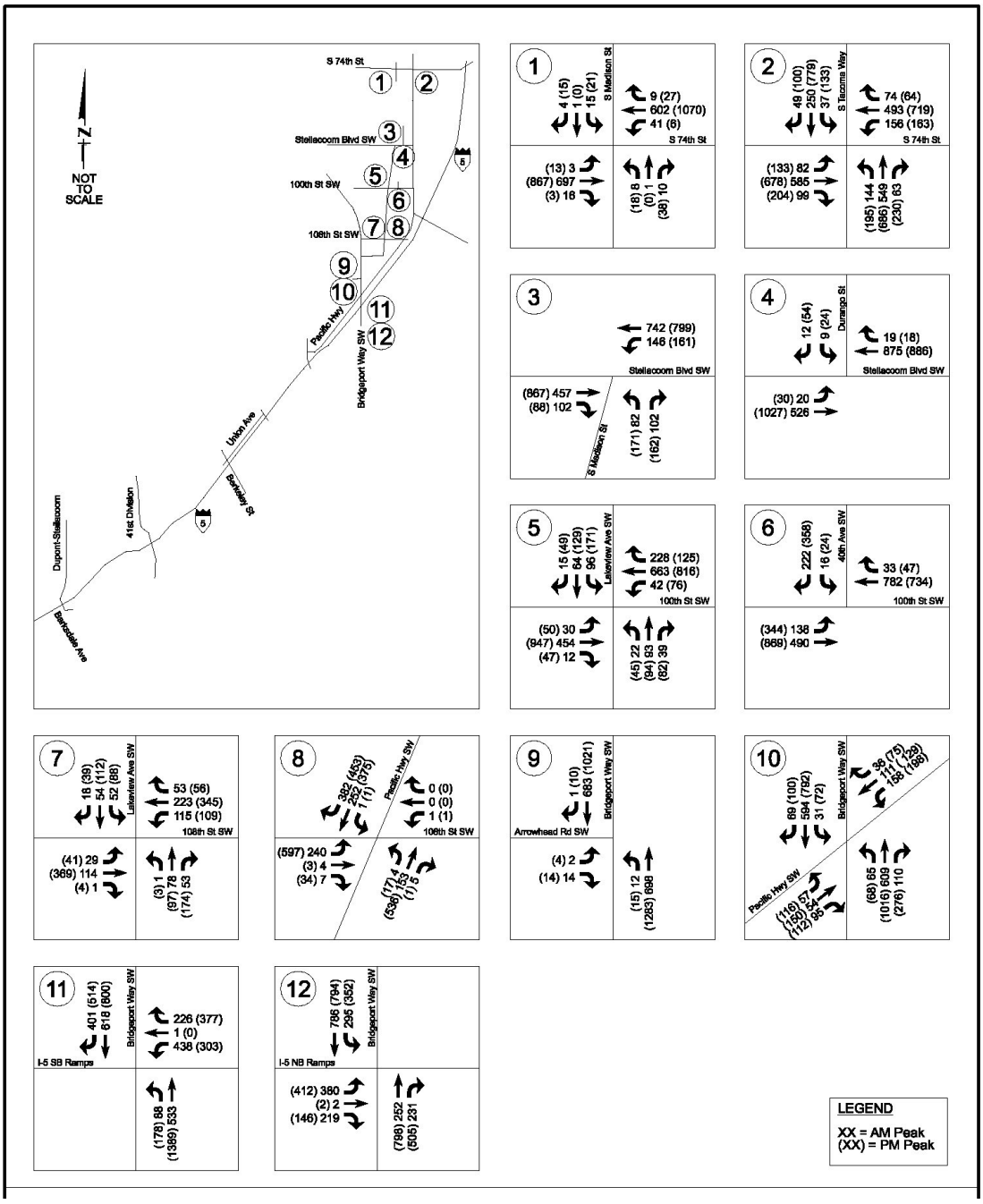


Exhibit 2.5
Existing 2006 PM Peak Hour Traffic Volumes

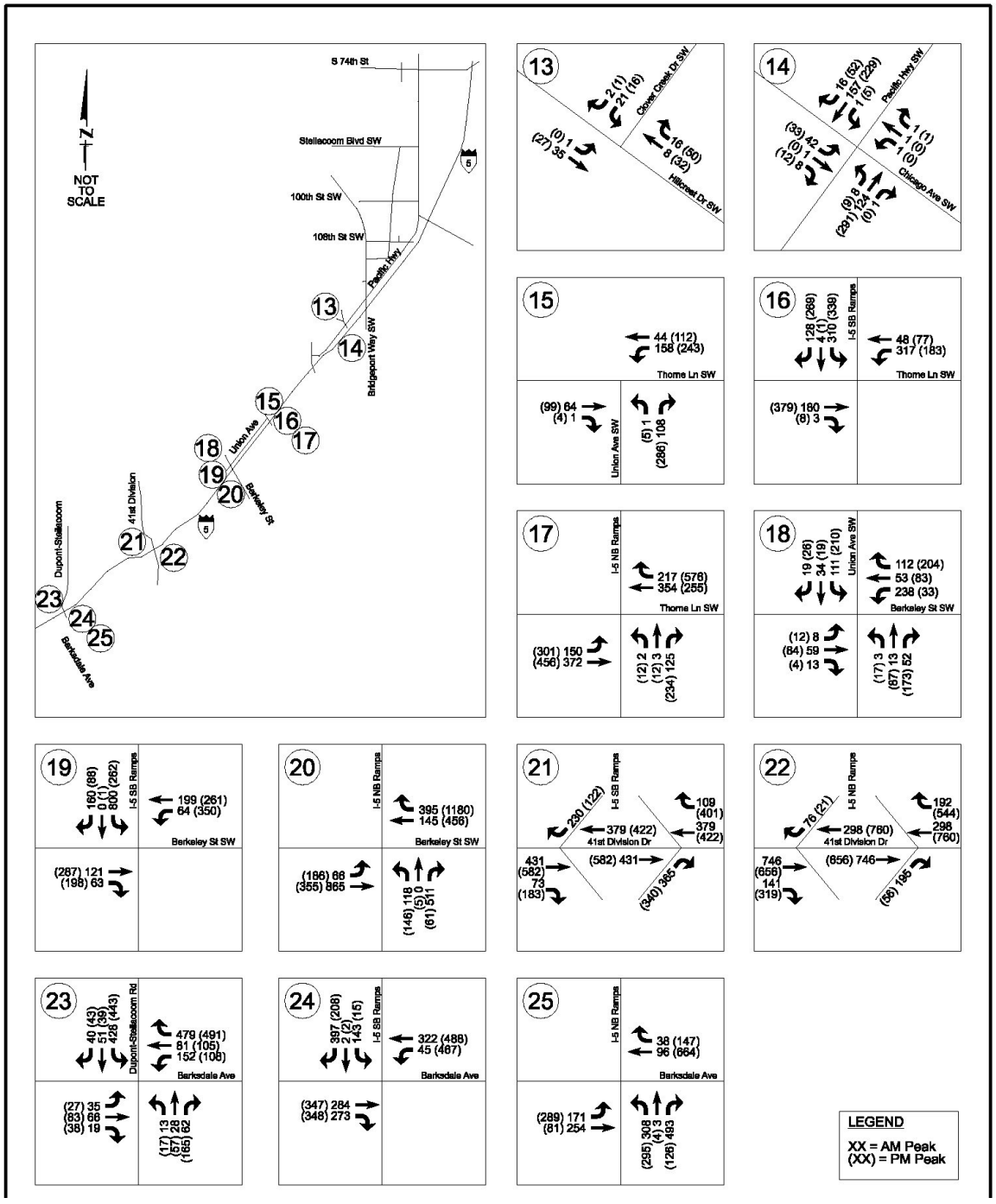
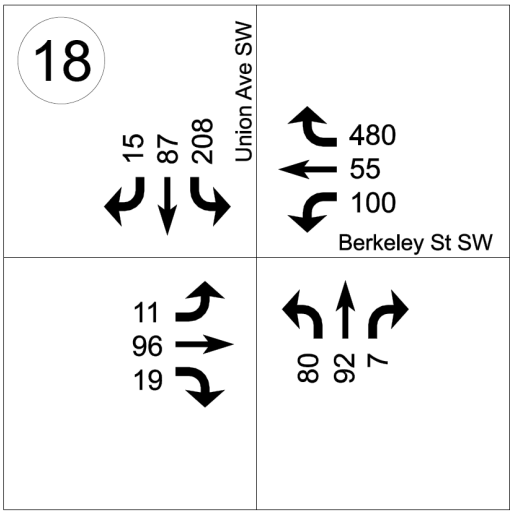


Exhibit 2.6
Existing 2007 Noon Peak Hour Traffic Volumes



A traffic operation analysis and LOS analysis of existing traffic conditions were performed at 25 existing intersections within the study area. The traffic analysis software program *Synchro* (Version 6, Build 614) was used to analyze 22 of the 25 intersections. *Synchro* is a macroscopic modeling program. The 3 intersections at the Berkeley Street crossing were analyzed using the traffic analysis software program *VISSIM* (Version 4.3, Build 3). *VISSIM* is a microscopic modeling program that can analyze the different interactions between the closely spaced unsignalized and signalized intersections, military kiosk, and railroad crossing more accurately than *Synchro*.

Levels-of-service were obtained from *Synchro* and *VISSIM*. One-way and two-way stop-controlled intersections offer the worst case among all of the calculated approaches for the control delay and LOS. The worst is typically one of the stop-controlled side street approaches. It is important to note that the control delay and LOS at one-way and two-way stop-controlled intersections apply only to the capacity of the worst movement, and are not typically an indicator of overall traffic operations at the intersection. Control delay is the portion of the total delay attributed to traffic signal operation for signalized intersections. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

The a.m. and p.m. peak hour intersection control delay and LOS are presented in **Exhibit 2.7**. LOS is directly related to the control delay value. LOS D is the minimum acceptable threshold for the study corridor based upon WSDOT criteria. One study intersection operates worse than

LOS D during the a.m. peak hour. That intersection is located at Berkeley Street SW and I-5 Southbound (SB) ramps. Four of the study intersections operate worse than LOS D during the p.m. peak hour. Those intersections are S 74th Street and S Madison Street, Steilacoom Boulevard SW and Durango Street SW, Bridgeport Way SW and I-5 SB Ramps, and Berkeley Street SW and Union Avenue SW.

The noon peak hour intersection control delay and LOS for the Berkeley Street SW crossing are:

- Berkeley Street SW and Union Avenue SW operates with a control delay of 13.5 / LOS B.
- Berkeley Street SW and I-5 SB Ramp operates with a control delay of 59.6 / LOS E.
- Berkeley Street SW and I-5 NB Ramp operates with a control delay of 21.0 / LOS C.

One study intersection operates worse than LOS D during the noon peak hour. That intersection is located at Berkeley Street SW and I-5 SB ramps.

Synchro and *VISSIM* outputs for LOS calculations for the intersections are provided in **Appendix C**. The calculation sheets provide additional information such as control delay and vehicle queuing by approach for most movements.

Exhibit 2.7
Existing AM and PM Peak Hour LOS Summary

Intersection	Existing Conditions					
	AM Peak Hour			PM Peak Hour		
	Control Type[1]	Control Delay/ Veh[2]	LOS[3]	Control Type[1]	Control Delay/ Veh[2]	LOS[3]
S 74th St/S Madison St	TWSC	34.4	D	TWSC	**>110**	**F**
S 74th St/S Tacoma Way	Signal	32.6	C	Signal	48.1	D
Steilacoom Blvd SW/Lakeview Ave SW	Signal	13.0	B	Signal	15.8	B
Steilacoom Blvd SW/Durango St SW	OWSC	30.1	D	OWSC	**42.4**	**E**
100th St SW/Lakeview Ave SW	Signal	22.0	C	Signal	23.8	C
100th St SW/40th Ave SW	Signal	17.1	B	Signal	22.1	C
108th St SW/Lakeview Ave SW	Signal	11.1	B	Signal	12.0	B
108th St SW/Pacific Hwy SW	Signal	25.2	C	Signal	33.2	C
Bridgeport Way SW/Arrowhead Rd SW	OWSC	13.2	B	OWSC	30.4	D
Bridgeport Way SW/Pacific Hwy SW	Signal	20.3	C	Signal	22.2	C
Bridgeport Way SW/I-5 SB Ramps	Signal	20.9	C	Signal	**55.6**	**E**
Bridgeport Way SW/I-5 NB Ramps	Signal	27.2	C	Signal	34.6	C
Clover Creek Dr SW/Hillcrest Dr SW	OWSC	9.1	A	OWSC	9.2	A
Pacific Hwy SW/Chicago Ave SW	TWSC	11.1	B	TWSC	12.6	B
N Thorne Ln SW/Union Ave SW	OWSC	9.5	A	OWSC	11.7	B
N Thorne Ln SW/I-5 SB Ramps	Signal	36.3	D	Signal	35.8	D
Murray Rd SW/I-5 NB Ramps	Signal	35.3	D	Signal	39.6	D
Berkeley St SW/Union Ave SW	AWSC	27.0	C	AWSC	**70.8**	**F**
Berkeley St SW/I-5 SB Ramps	Signal	**63.7**	**E**	Signal	22.7	C
Berkeley St SW/I-5 NB Ramps	Signal	15.7	B	Signal	25.1	C
41st Division Dr/I-5 SB Ramps	Yield	n/a	n/a	Yield	n/a	n/a
41st Division Dr/I-5 NB Ramps	Yield	n/a	n/a	Yield	n/a	n/a
Barksdale Ave/Dupont-Steilacoom Rd	Signal	43.8	D	Signal	28.0	C
Barksdale Ave/I-5 SB Ramps	Signal	10.5	B	Signal	20.6	C
Barksdale Ave/I-5 NB Ramps	Signal	13.4	B	Signal	30.5	C

Notes
1. OWSC = One-way stop controlled intersection. TWSC = Two-way stop controlled intersection. AWSC = All-way stop controlled intersection. Signal = Signalized intersection. Yield = Yield controlled intersection. Unsignalized and signalized intersections were analyzed using Synchro and VISSIM.
2. Control delay, measured in seconds per vehicle, is a measure of all the delay contributable to traffic control measures, such as traffic signals or stop signs.
3. LOS is the level of service, a concept based on the 2000 Highway Capacity Manual for unsignalized and signalized intersections

What is the existing traffic delay at railroad crossings?

The existing traffic delay at railroad at-grade crossings reflects impacts of the existing trains interrupting the roadway traffic during the a.m. and p.m. hours. Traffic delay for at-grade crossings was estimated at the following ten locations along the Point Defiance Bypass route:

- South 74th Street
- Steilacoom Boulevard SW
- 100th Street SW
- 108th Street SW
- Bridgeport Way SW
- Clover Creek Drive SW
- North Thorne Lane SW
- Berkeley Street SW
- 41st Division Drive
- Barksdale Avenue

The parameters that affect traffic delay are train frequency, train blockage time, hourly traffic volume and traffic departure capacity. Detailed derivation of delay calculation is included in **Appendix D**. Traffic delay is measured in the unit of vehicle-hours per hour (veh-hrs/hr). It quantifies the total delay occurred among all the vehicles in the analyzing hour. The average delay per vehicle can also be calculated based on the total hourly delay and expected number of arrival vehicles at the railroad crossing during the blockage time.

With only one round-trip freight train daily, it is unlikely that any train blockage will occur during the a.m. peak hour (one hour between 5 a.m. and 9 a.m.) as it takes time to load the cargos. To evaluate the worst-case condition, the project team assumed that one freight train operated during the p.m. peak hour (one hour between 4 p.m. and 6 p.m.) for all crossings except for Berkeley Street; at that location, worst case occurs during the noon peak hour. With an average speed of 10 miles per hour and the length of the freight train of 1,000 feet, the blockage time is estimated to be 100 seconds including the lowering and raising of the crossing gates. The table summarizing delays of the study locations is shown in **Appendix E**. The highest traffic delay occurs at the 100th Street SW and 108th Street SW crossings with an average of 4 seconds delay per vehicle (delay from the single train divided by the total number of vehicles using the crossing during the hour).

Queue lengths were calculated based on the estimated number of vehicles stopped during a train event. This average number of vehicles stopped was then multiplied by an average vehicle length of 20 feet to arrive at an

average queue length by direction. The table summarizing queue lengths of the study location is shown in **Appendix F**. Even with the close proximity of the tracks to the freeway, it is unlikely that vehicles will queue onto I-5 from the Bridgeport Way/Pacific Highway intersection during p.m. peak hour.

What are the parking conditions in the study area?

There is no on-street parking along the major roadways in the study area. Some on-street parking exists along minor residential roadways south of 100th Street SW, west and north of Pacific Highway SW, and east of Bridgeport Way SW, which are not within the project limits.

What transit facilities and services are in the study area?

The existing WSDOT SR-512 Park-and-Ride Lot is located southwest of the I-5/SR-512 interchange. This facility has approximately 500 parking spaces and is served by many local and regional bus routes, including the Seattle Express and Olympia Express routes (Olympia Express service is provided by both Pierce Transit and Intercity Transit buses; Pierce Transit is contracted to operate the Seattle Express routes for Sound Transit). The lot is also served by Routes 204 and 300. Another transit hub near the project study area is the Lakewood Mall Transit Center, which is served by additional transit routes. Existing bus routes traveling through the study area are summarized in **Exhibit 2.8**.

A portion of Bridgeport Way SW and 108th Street SW are served by several buses traveling among the Lakewood Mall Transit Center, Fort Lewis and SR-512 Park-and-Ride Lot. Buses indicated in **Exhibit 2.8** serving commuters are scheduled more frequently during the morning and the afternoon commute hours along with shorter headways.

Non-Motorized Transportation Facilities

There are limited sidewalks adjacent to study area roadways. Some of the major streets do have intermittent sidewalks, primarily where new development has occurred. Occasionally, pedestrians cross the railroad tracks illegally as pedestrian crossing facilities are not provided.
There are no bicycle lanes or separated bicycle facilities in the study area.

Exhibit 2.8
Summary of Existing Transit Service in Study Area

Service to SR-512 Park-and Ride Lot				
Route No.[1]	**Area Served**	**Study Area Operations**	**Service Days**	**Weekday Service Frequency**
PT 204	Lakewood to Parkland	108th Street SW	7 days/week	15-minute headways[2] weekdays from 6:00 A.M. to 6:00 P.M.; 30-minute to 1-hour headways at other times. 8 pk. hr. buses.
ST 574X	Lakewood to SeaTac	108th Street SW, and Bridgeport Way SW	Weekdays	30-minute headways 5:00 to 8:00 A.M. and 11:00 to 6:00 P.M.; 1-hour headways at other times. 4 pk. hr. buses.
IT 601X IT 603X IT 603AX IT 612X IT 620X	Olympia Transit Center to SR-512 Park-and-Ride Lot	Bridgeport Way SW	Weekdays with limited Saturday service	20- to 30-minute headways weekdays from 5:30 A.M. to 7:30 P.M. 7 pk. hr. buses.
Other Service in Vicinity				
Route No.	**Area Served**	**Study Area Operations**	**Service Days**	**Weekday Service Frequency**
PT 48	Lakewood Mall Transit Center to Downtown Tacoma	100th Street SW	7 days/week	30-minute headways weekdays from 5:30 A.M. to 10:00 P.M.; 1-hour headways at other times. 4 pk. hr. buses.
PT 206	Fort Lewis to Lakewood Mall Transit Center	Bridgeport Way SW, North Thorne Lane SW and Berkeley Street SW	7 days/week	30-minute headways weekdays from 6:00 A.M. to 7:00 P.M.; 1-hour headways at other times. 4 pk. hr. buses.

Notes: [1] PT=Pierce Transit, ST=Sound Transit, IT=Intercity Transit, and X=Express.
[2] Headways are the time between consecutive vehicle (e.g. bus or train) arrivals.

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Chapter Three
Potential Impacts

This chapter describes the potential traffic impacts and benefits for the Point Defiance Bypass Project. Impact review includes construction impacts, physical impacts, and operational impacts.

As described earlier, this project is located along the 18-mile corridor owned by Sound Transit. The project will add a new second track to the portion between South Tacoma and the city of Lakewood. It will construct new rails, ties, and ballast to the portion between the city of Lakewood and the Nisqually River. It will further improve connection to the main line near Nisqually and improve safety at ten at-grade crossings. Part of the WSDOT-proposed route is the same as the Sound Transit route that will be used to extend Sounder commuter rail to Lakewood.

Will there be any impacts to the road network?

Potential impacts were identified as construction impacts, physical impacts, or operational impacts. Construction impacts are temporary impacts that are resolved by the end of construction activity. Physical impacts involve permanent changes to the landscape—those remaining long after construction ends. Operational impacts involve those incurred by changes in passenger railroad operations—not only the logistics of train travel, but also the daily activities on, and maintenance of, railroad facilities.

Construction impacts

There will be short-term construction impacts encountered at the intersections on either side of the railroad crossing. These impacts will include the construction traffic due to the rail upgrades and the intersection improvements.

Physical impacts

The roadway network will not change within the study area compared to the existing conditions. As described in Chapter 1, improvements will be constructed at intersections on either side of the railroad crossings and at the crossings themselves as part of the project. These improvements will include modifications to channelization, turn pockets, and upgraded traffic signals. Some of the upgraded traffic signals will occur at the I-5 ramp terminals east of the interstate.

One of the more involved channelization modifications will occur at the intersection between 108th St SW and Halcyon Street. While this intersection was not a study intersection, traffic counts were collected on Thursday, March 6th, 2008 to verify that the right-in/right-out would be an acceptable solution. The traffic count showed that during the a.m. and p.m. peak hours there were only 4 vehicles turning into Halcyon Street. The number of vehicles turning left out from Halcyon Street were only slightly higher: 14 during the a.m. peak hour and 37 during the p.m. peak hour. These low volumes indicate that a right-in/right-out channelization would be preferable.

Operational impacts

Ten at-grade crossing locations identified in the previous chapter have potential for degraded traffic operations once the traffic usage in the surrounding area increases in 2020. These locations are analyzed below.

Will there be any impacts to the rail network?

The project would expand intercity rail service by adding a second main track, installing advance pre-emption and coordination to the signal system, upgrading signage, and other improvements as described in Chapter 1.

Construction impacts

There will be short-term construction impacts to the existing freight service. It may not be necessary to reroute freight trains since the project is for the construction of a new track for passenger rail service. However, freight trains will need to slow down when passing through the construction zone.

Physical impacts

A second main track will be added to the portion where only single track presently exists. This new track will be built for higher speed passenger rail services. To ensure safety under the operation of the much higher speed trains (79 miles per hour), advance pre-emption devices, interconnection devices, pre-signals, more visible crossing gates and flashers, and new signage will be installed, as described in Chapter 1.

Operational impacts

Due to the close vicinity between rail tracks and I-5 and/or other collector streets, the design of safety features is critical for operation safety. In addition to effects from train operations, unforeseeable national security

conditions may, at times, result in a queue backing up from the guard posts at various accesses of the Fort Lewis and Camp Murray military bases.

As described in Chapter 1, design features such as railroad advance pre-emption, signal interconnection, loop detection, and railroad crossing pre-signal will be provided to discourage motorists from stopping on the tracks.

How will passenger and freight train activity change in the future?

In 2020, the tracks will serve various commuter trains and intercity passenger trains, such as *Sounder*, Amtrak *Cascades* and *Coast Starlight* passenger trains. *Sounder* service will be provided to Lakewood even if the Point Defiance Bypass Project is not implemented.

There will be 12 round-trip *Sounder* commuter trains during the morning and afternoon peak hours from Monday through Friday. Based on the preliminary train schedule, there will be ten single-trip Amtrak *Cascades* passenger trains and two single-trip *Coast Starlight* passenger trains serving the study area daily. Most of the single-trip trains are scheduled to arrive in the study area in the middle of the day with a few exceptions that will arrive during the afternoon and evening hours. Only one of the 12 Amtrak trains will be scheduled during the noon peak hour and one during the afternoon peak hour; the rest will occur during off-peak hours. The preliminary schedule is included in **Appendix G**.

The *Sounder* commuter trains will operate at a maximum speed of 60 miles per hour through the majority of the study area, and will slow down to 40 miles per hour when crossing 108th Street SW because of a curve in the tracks. Sound Transit equipment trains[7] will roll out of the storage yard with a speed of 10 miles per hour when crossing 100th Street SW. Amtrak *Cascades* trains will operate at a speed of 79 miles per hour throughout the study area. The *Coast Starlight* trains will operate at 79 miles per hour through most locations, but will slow down to 63 miles per hour for the curve near 108th Street SW and 100th Street SW.

The speed of freight trains will increase from 10 miles per hour in 2007 to approximately 40 miles per hour after project construction. Although the trains will move faster, they will occupy the grade crossings for less time.

[7] Sound Transit equipment trains position empty equipment between train storage areas and passenger loading areas.

How will traffic volumes change in the future?

Forecasted year (2020) traffic volumes were developed by applying a two percent annual growth rate to existing traffic volumes. The Pierce County travel demand model was used to verify the growth percentage. The two percent rate was accurate for all of the crossings except for two locations - the Barksdale Avenue and North Thorne Lane areas. At these two locations, the travel demand model produced a greater annual growth rate of four percent; this greater rate is used in the following analysis.

The same traffic volume methodology described above was applied to the five crossing locations near the military bases to calculate the 2020 volumes. The projected a.m. and p.m. peak hour traffic volumes for the 2020 analysis are illustrated in **Exhibits 3.1** and **3.2**. Peak hours occurred during the same 5-9 a.m. and 4-6 p.m. time periods as the existing conditions.

Using the same methodology, traffic during the noon peak hour (11 a.m. to 2 p.m.) was projected for 2020 at Berkeley Street SW and Union Avenue SW, as shown in **Exhibit 3.3**.

Future Traffic Operations

Using the projected 2020 traffic, a traffic operations analysis was performed at the 25 study intersections. This analysis does not include any effects from train traffic, but is limited to vehicles using the roadways. The 2020 LOS analysis is presented in **Exhibit 3.4**.

Ten of the study intersections are predicted to operate at worse than LOS D during the 5-9 a.m. peak hour. These intersections are located at:

- South 74th Street and South Madison Street
- Steilacoom Boulevard SW and Durango Street SW
- Bridgeport Way SW and I-5 Southbound (SB) Ramps
- North Thorne Lane SW and I-5 SB Ramps
- Murray Road SW and I-5 Northbound (NB) Ramps
- Berkeley Street SW and Union Avenue SW
- Berkeley Street SW and I-5 SB Ramps
- Berkeley Street SW and I-5 NB Ramps
- Barksdale Avenue and Dupont-Steilacoom Road
- Barksdale Avenue and I-5 SB Ramps.

Fourteen of the study intersections are predicted to operate at LOS E and F during the 4-6 p.m. peak hour. These intersections are located at:

- S 74th Street and S Madison Street
- S 74th Street and S Tacoma Way
- Steilacoom Boulevard SW and Durango Street SW
- Bridgeport Way SW and Arrowhead Road SW
- Bridgeport Way SW and I-5 SB Ramps
- Bridgeport Way SW and I-5 NB Ramps
- N Thorne Lane SW and Union Avenue SW
- N Thorne Lane SW and I-5 SB Ramps
- Murray Road SW and I-5 NB Ramps
- Berkeley Street SW and Union Avenue SW
- Berkeley Street SW and I-5 SB Ramps
- Barksdale Avenue and Dupont-Steilacoom Road
- Barksdale Avenue and I-5 SB Ramps
- Barksdale Avenue and I-5 NB Ramps

The 2020 noon peak hour intersection control delay and LOS for the Berkeley Street SW crossing are:

- Berkeley Street SW and Union Avenue SW operates with a control delay of 91.1 / LOS F.
- Berkeley Street SW and I-5 SB Ramp operates with a control delay of 62.5 / LOS E.
- Berkeley Street SW and I-5 NB Ramp operates with a control delay of 35.1 / LOS D.

Two study intersections operate worse than LOS D during the 2020 noon peak hour. These two intersections are located at Berkeley Street SW and Union Avenue SW and Berkeley Street SW and the I-5 SB Ramp.

The intersection calculation sheets from *Synchro* and *VISSIM* outputs are provided in **Appendix H**. The calculation sheets provide additional information such as control delay and vehicle queuing by approach for most movements.

Exhibit 3.1
2020 Peak Hour Traffic Volumes

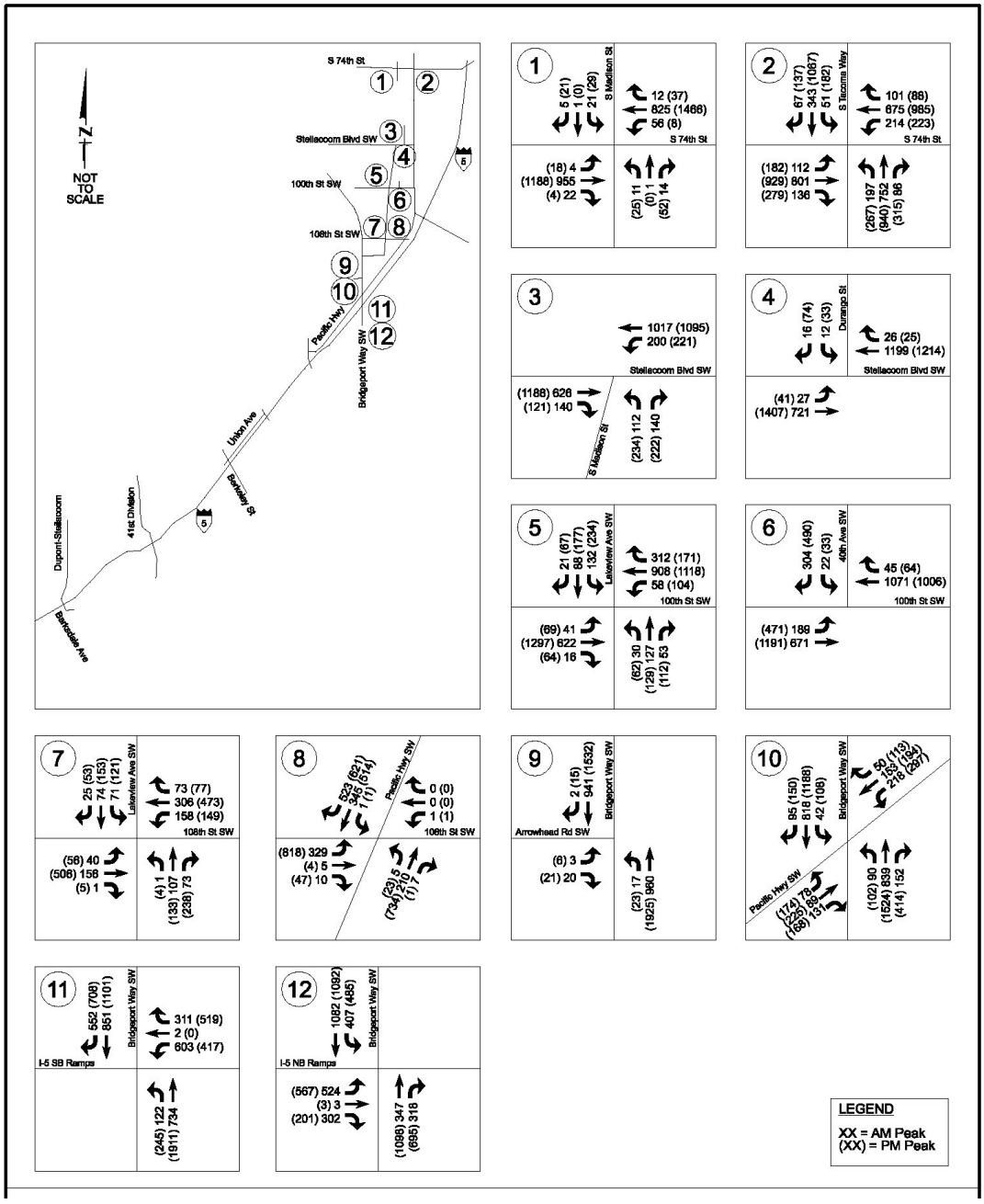

Exhibit 3.2
2020 Peak Hour Traffic Volumes

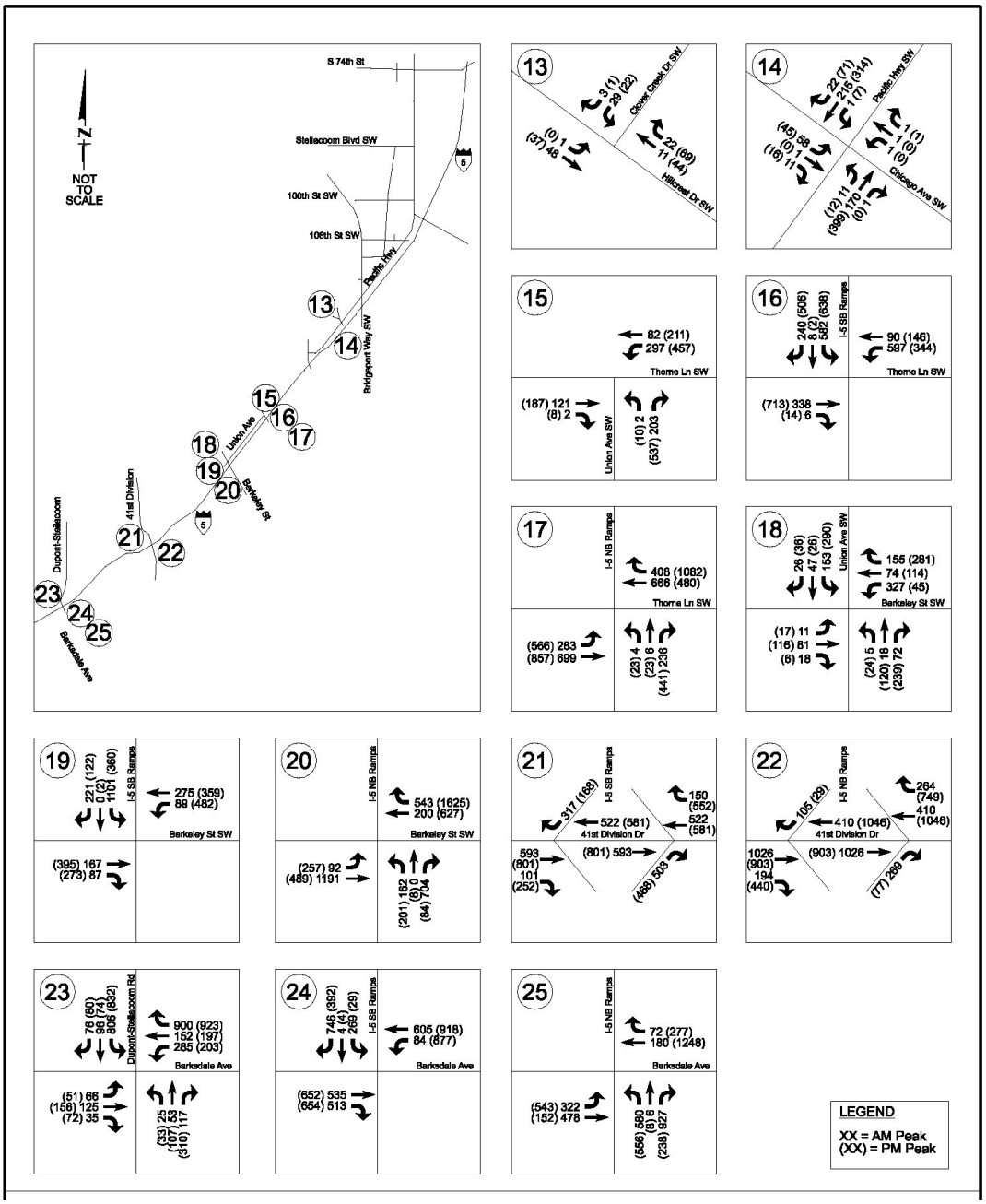

Exhibit 3.3
2020 Noon Peak Hour Traffic Volumes

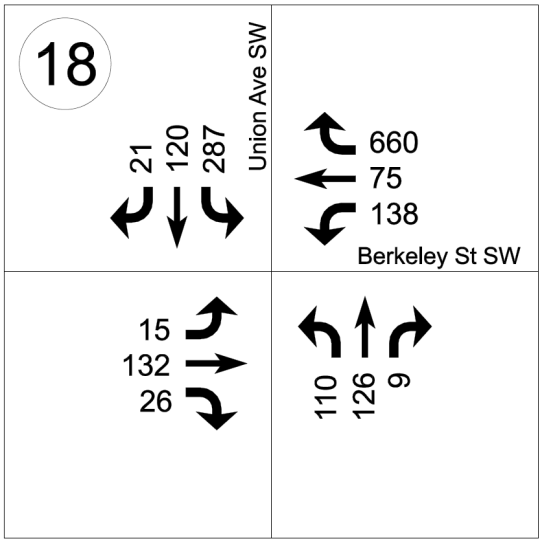

Exhibit 3.4
2020 AM and PM Peak Hour LOS Summary

Intersection	2020 Conditions					
	AM Peak Hour			PM Peak Hour		
	Control Type[1]	Control Delay/ Veh[2]	LOS[3]	Control Type[1]	Control Delay/ Veh[2]	LOS[3]
S 74th St/S Madison St	TWSC	**>110**	**F**	TWSC	**>110**	**F**
S 74th St/S Tacoma Way	Signal	47.6	D	Signal	**>110**	**F**
Steilacoom Blvd SW/Lakeview Ave SW	Signal	19.1	B	Signal	25.0	C
Steilacoom Blvd SW/Durango St SW	OWSC	**>110**	**F**	OWSC	**>110**	**F**
100th St SW/Lakeview Ave SW	Signal	13.1	B	Signal	26.3	C
100th St SW/40th Ave SW	Signal	22.7	C	Signal	25.9	C
108th St SW/Lakeview Ave SW	Signal	12.7	B	Signal	31.2	C
108th St SW/Pacific Hwy SW	Signal	26.1	C	Signal	36.3	D
Bridgeport Way SW/Arrowhead Rd SW	OWSC	19.3	C	OWSC	**>110**	**F**
Bridgeport Way SW/Pacific Hwy SW	Signal	23.6	C	Signal	28.8	C
Bridgeport Way SW/I-5 SB Ramps	Signal	**55.3**	**E**	Signal	**>110**	**F**
Bridgeport Way SW/I-5 NB Ramps	Signal	36.7	D	Signal	**106.0**	**F**
Clover Creek Dr SW/Hillcrest Dr SW	OWSC	9.3	A	OWSC	9.5	A
Pacific Hwy SW/Clover Creek Dr SW	TWSC	12.8	B	TWSC	15.8	C
N Thorne Ln SW/Union Ave SW	OWSC	11.5	B	OWSC	**51.0**	**F**
N Thorne Ln SW/I-5 SB Ramps	Signal	**>110**	**F**	Signal	**>110**	**F**
Murray Rd SW/I-5 NB Ramps	Signal	**>110**	**E**	Signal	**>110**	**F**
Berkeley St SW/Union Ave SW	AWSC	**>110**	**F**	AWSC	**>110**	**F**
Berkeley St SW/I-5 SB Ramps	Signal	**74.2**	**E**	Signal	**71.0**	**E**
Berkeley St SW/I-5 NB Ramps	Signal	**68.3**	**E**	Signal	29.6	C
41st Division Dr/I-5 SB Ramps	Yield	n/a	n/a	Yield	n/a	n/a
41st Division Dr/I-5 NB Ramps	Yield	n/a	n/a	Yield	n/a	n/a
Barksdale Ave/DuPont-Steilacoom Rd	Signal	**71.3**	**E**	Signal	**79.9**	**E**
Barksdale Ave/I-5 SB Ramps	Signal	**61.2**	**E**	Signal	**>110**	**F**
Barksdale Ave/I-5 NB Ramps	Signal	54.4	D	Signal	**>110**	**F**

Notes:

1. OWSC = One-way stop controlled intersection. TWSC = Two-way stop controlled intersection. AWSC = All-way stop controlled intersection. Signal = Signalized intersection. Yield = Yield controlled intersection. Unsignalized and signalized intersections were analyzed using Synchro and VISSIM.
2. Control delay, measured in seconds per vehicle, is a measure of all the delay contributable to traffic control measures, such as traffic signals or stop signs.
3. LOS is the level of service, a concept based on the 2000 Highway Capacity Manual for unsignalized and signalized intersections.

How will 2020 traffic at railroad crossings be affected by the project (future traffic with Amtrak only)?

The traffic delay information was calculated for the Amtrak trains only, without including the *Sounder* and freight trains.

For the design year of 2020, there are no Amtrak trains in the common morning peak hour of 7:15 to 8:15 a.m. There will be one Amtrak *Cascades* train during the noon peak hour and one Amtrak Cascades train during the common afternoon peak hour of 4:30 to 5:30 p.m. that will affect all of the crossings.

Appendix E provides more details regarding delays resulting from these single trains. The traffic volumes present at the crossings are highest during the afternoon peak hour; therefore it was selected for the analysis. In 2020, the 108th Street SW crossing will experience the highest total delay of a per vehicle average of 3 seconds during the afternoon peak hour (total delay time from the single train divided by the total number of vehicles passing through the crossing during the hour). The Bridgeport Way SW crossing will experience the longest queue length of 500 feet in the northbound direction.

What are delay and queue lengths in 2020 without Amtrak but with Sounder (future No Build)?

This analysis does not include the Amtrak *Cascades* train and freight trains.

For the design year of 2020, there will be one *Sounder* train in the common morning peak hour of 7:15 to 8:15 a.m. and two *Sounder* trains during the common afternoon peak hour of 4:30 to 5:30 p.m. The Sounder trains will affect the study crossings at S 74th Street, Steilacoom Boulevard SW, 100th Street SW, and 108th Street SW.

The average traffic delay per vehicle is measured in seconds per vehicle. With one morning *Sounder* train in 2020, vehicles passing the 100th Street SW crossing will experience an average delay of 2 seconds during the morning peak hour (total delay time for the single train divided by total number of vehicles crossing the tracks during the hour). This crossing will have the longest average delay time during morning peak hour. During the morning peak hour, the 100th Street SW crossing will also experience the longest queue length of 360 feet in the westbound direction. Vehicles at the end of this queue will experience the longest delay time.

With two afternoon *Sounder* trains in 2020, vehicles passing the 108th Street SW crossing will experience an average delay of 10 seconds during the afternoon peak hour (total delay time for the two trains divided by total number of vehicles crossing the tracks during the hour). This crossing will have the longest average delay time during the afternoon peak hour.

During the afternoon peak hour, the 100th Street SW crossing will experience the longest queue length of 420 feet in the eastbound direction. Vehicles at the end of this queue will experience the longest delay time.

Appendix E provides detailed information about delay resulting from future *Sounder* only service. **Appendix G** presents a timetable for future *Sounder* service.

What are delay and queue lengths in 2020 with both Sounder and Amtrak (future cumulative)?

Traffic delays caused by commuter rail crossing at-grade at the selected locations in the design year of 2020 are shown in **Appendix E**. Daily peak hours were identified by the collected traffic counts. The common morning peak hour is 7:15 to 8:15 a.m. and the common afternoon peak hour is 4:30 to 5:30 p.m.

No Amtrak trains will cross the study area during morning peak hour. However, there will be one *Sounder* commuter train with an average blockage time of 45 seconds/train, affecting the four crossings at S 74th Street, Steilacoom Boulevard SW, 100th Street SW, and 108th Street SW. The 45-second blockage time includes the lowering and raising of the crossing gate as well as the time for the train to pass. There will also be one Sound Transit equipment train during the morning peak hour that will pass only the 100th Street SW crossing.

During the noon and afternoon peak hour, there will be one Amtrak *Cascades* train that will affect all of the study crossings. In addition, the same four crossings will be affected by two commuter trains with the same average blockage time as for the morning peak. There will also be two equipment trains during the afternoon peak hour that will affect only the 100th Street SW and 108th Street SW crossings. (The Amtrak *Cascades* train affects all of the crossings because it passes through the entire study area on its route between Seattle and Oregon, while the *Sounder* affects only the four northern crossings because the *Sounder* terminates just south of the 108th SW crossing.)

In 2020, during morning peak hour, the crossing at 100th Street SW will experience the longest average traffic delay per vehicle of 4 seconds. As

previously stated, the traffic volumes present at the crossings are highest during the afternoon peak hour; therefore it was selected for the analysis. During the afternoon peak hour, the 108th Street SW crossing will experience the highest average delay per vehicle of 25 seconds. (Average delay per vehicle is the total delay during the peak hour divided by the total number of vehicles passing over the crossing.)

The average queue lengths for 2020 are shown in **Appendix F**. During the afternoon peak hour, the 100th Street SW crossing will experience the longest queue length of 560 feet in the eastbound direction.

Non-Peak Delay

Non-peak hour delay was calculated based upon standard FRA gate closing requirements (for at-grade crossings), as well as train speed and length. **Exhibit 3.5** presents the information used in the calculation.

The non-peak delay at the crossings will be 45 seconds per train for both the Amtrak *Cascades* and *Sounder* commuter trains. For the Amtrak *Coast Starlight*, the non-peak delay will be 50 seconds per train and for the non-peak Sound Transit equipment trains, the non-peak delay will be 75 seconds per train. These approximate delay times include the lowering and raising of the crossing gates. Actual delay to vehicles will be slightly longer, because once the crossing gates rise, it will take a few seconds for any accumulated queue to move.

Exhibit 3.5
Train Information to Calculate Non-Peak Delay

Train	Train Length (in feet)	Speed (mph)
Coast Starlight	1000	63-79*
Cascades	670	79
Sounder	660	60

**Depending upon location*

FRA regulations require that warning systems begin to operate at least 20 seconds prior to the train getting to the at-grade crossing. When the train is about 50 to 100 feet past the crossing, the system begins the sequence to raise the gates; the lights continue to flash as the gates rise.

Will parking be affected?

Because there is no on-street parking along the major roadways in the study area, the bypass project will not affect the existing parking situation.

Will other transit facilities and service be impacted?

The bypass project will not affect non-rail transit operation within the study area other than the delays at rail crossings.

Non-Motorized Transportation Facilities

The project will install non-motorized transportation facilities, such as sidewalks to provide refugee zones for pedestrians and bicyclists. A fence will be installed between the main lines at Lakewood Station to discourage pedestrians from walking around stationary trains that may block the view of oncoming trains on adjacent tracks. The existing bike lane at 108th Street will be maintained.

Will there be changes to operation of the grade crossings in the study area?

The project has incorporated design features to promote safety for trains, motor vehicles, and non-motorized users. With the increase in rail service, train speed, and traffic volume in 2020, these features will provide advanced warning of the arrival of a train at grade crossings. These features, which are described in Chapter 1, include:

- Interconnection between traffic signals and rail signals which will assist the modified signal phasing schemes to help dissipate vehicles which may be near the railroad tracks.
- Constant warning time units (also called "predictors") which will provide a consistent duration of advanced warning prior to the arrival of a train at a crossing. The predictor units control the operation of the new warning devices, including flashing lights, bells, and crossing gates. Rather than have the warning devices operate for a variable amount of time prior to the arrival of a train (i.e., provide longer warning times for slower moving trains while providing shorter warning times for faster moving trains), the predictor units will start the warning devices a consistent, predetermined amount of time prior to the arrival of a train at a crossing.
- Detection loops, which will help detect the presence of queues which may extend across the railroad tracks.
- Coordinated pre-signals to deter traffic from queuing in the crossing area.

In conjunction with new or upgraded crossing gates, flashing lights, roadway striping, and signage, the project will provide better warning to the road users of the presence of the grade crossing and the possibility of approaching trains.

Several grade crossings adjacent to Interstate 5 have roadway intersections on either side of the railroad tracks. Traffic signals at these intersections will be coordinated in a manner that discourages queues from developing in the relatively short distance between the intersections, where the tracks are also located. Detection loops, which can provide a feedback mechanism for the traffic signal system to respond to varying traffic conditions, will be installed near several grade crossings in order to help clear queues which may accumulate near the tracks.

After the improvements are competed, but before passenger train operations begin, an educational campaign will be implemented. The purpose of this campaign is to warn motorists and pedestrians about the presence of additional, higher-speed trains operating on the route. One of the purposes of the educational effort is to ensure motorists understand and obey traffic laws at grade crossings which, if followed, will ensure motorists' safety.

Construction impacts

Construction traffic may temporarily affect traffic operations due to the nature of the work and equipment involved.

Physical impacts

More devices will be installed to enhance safety at and/or near the at-grade crossings; as described in Chapter 1, such measures will include advance pre-emption devices, interconnection devices, pre-signals, loop detectors, and upgraded crossing gates and flashers. The devices for advance pre-emption and interconnection are electronic devices, which will be installed in the existing traffic signal controllers (or in new controllers which are similar in size and location to the existing hardware). Those will not create additional physical impacts to the existing environment. The pre-signals and more sturdy crossing gates and flashers, on the other hand, will create minor physical impacts.

Operational impacts

The proposed design will promote better traffic circulations at the at-grade crossings by installing interconnections between the grade crossings and the adjacent traffic signals where there are roadway intersections in close proximity to the crossing. However, when trains do approach crossings during peak-hours, it is possible that queues on side-streets or freeway off ramps may be lengthened due to the increased gate blockage time. Therefore, it will be necessary to periodically re-evaluate effects on traffic,

specifically queue lengths, in order to determine if additional future improvements might be needed or if traffic signal timing might need adjustment.

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Chapter Four
Minimization and Mitigation

The project has been designed to include measures to minimize and reduce significant traffic effects. Nevertheless, temporary impacts will occur as a result of construction. This chapter describes the efforts that will be taken to improve or reduce construction traffic impacts to acceptable levels.

How will construction impacts be minimized?

Construction duration is expected to be approximately 12 to18 months for the rail upgrades. The truck activity associated with rail construction would likely occur during daytime hours (between 8:00 a.m. and 5:00 p.m.). Stabilized construction entrances will be installed for trucks accessing the construction sites in order to protect existing roadways and railroad tracks.

Improvement of the railroad tracks may temporarily hinder freight activity on the rail line. WSDOT will work with the BNSF and Tacoma Rail to ensure that freight delivery meets their customer needs during the construction. The Point Defiance Bypass project will use the coordination framework that was established during the design and processing of the *Sounder* commuter rail project.

Improvements to at-grade crossings are likely to result in temporary traffic delays and periodic lane and/or access revisions during construction. A traffic control plan will be developed that includes (but is not limited to) the following measures:

- At least one lane will be kept open at crossings except for short periods of limited duration when new track and new crossing surface panels are being installed at the grade crossings.
- Flaggers and/or signs will be in place when lanes are closed.
- Detour signs will be placed when routes are closed.
- A uniformed officer will be required at locations where traffic signals will be countermanded.
- Traffic control plans will be developed in conjunction with the respective roadway authorities.

How will physical impacts be mitigated?

Physical impacts from the Point Defiance Bypass project are avoided through the use of the design measures at crossings listed in the project description (Chapter 2).

How will operational impacts be mitigated?

Operational impacts from the Point Defiance Bypass project are avoided through the use of the design measures at crossings listed in Chapter 2 (Project Description).

APPENDIX A

Proposed Track Conceptual Design

GENERAL NOTES

1. GEOMETRY FOR MAIN TRACK 1 IS INDICATED ON SHEETS XX.1

2. GEOMETRY FOR MAIN TRACK 2 IS INDICATED ON SHEETS XX.2

3. WHEN CONSTRUCTION OF THE POINT DEFIANCE BYPASS PROJECT BEGINS, IT IS ASSUMED THAT SOUND TRANSIT MAIN TRACK (MAIN TRACK 1) WILL HAVE ALREADY BEEN RECONSTRUCTED BETWEEN STA 339+31 (SOUTH 66TH STREET OVERPASS) AND STA 363+56 (SOUTH 74 STREET), AND BETWEEN STA 364+86 (SOUTH 74TH STREET) AND STA 415+50 (STEILACOOM BLVD SW). SOUND TRANSIT MAIN TRACK 1 HAS BEEN SCREENED IN THESE PLANS IN THE AREAS IN WHICH IT IS ASSUMED TO BE EXISTING.

4. IT IS ASSUMED THAT MAIN TRACK 1 WILL NOT HAVE BEEN RECONSTRUCTED THROUGH THE GRADE CROSSING AT SOUTH 74TH STREET. NO IMPROVEMENTS AT THE SOUTH 74TH STREET GRADE CROSSING ARE ASSUMED TO HAVE BEEN MADE BY SOUND TRANSIT.

5. THE GROUND LINES SHOWN IN BOTH THE MAIN TRACK 1 AND MAIN TRACK 2 PROFILES ARE THE EXISTING GROUND PROFILES AS OF FEBRUARY, 2007.

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REGIONAL ADM.		REVISION	DATE	BY			

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TRACK CONSTRUCTION
GENERAL INFORMATION

TRACK PLAN AND PROFILES

TA00

SHEET X OF X SHEETS

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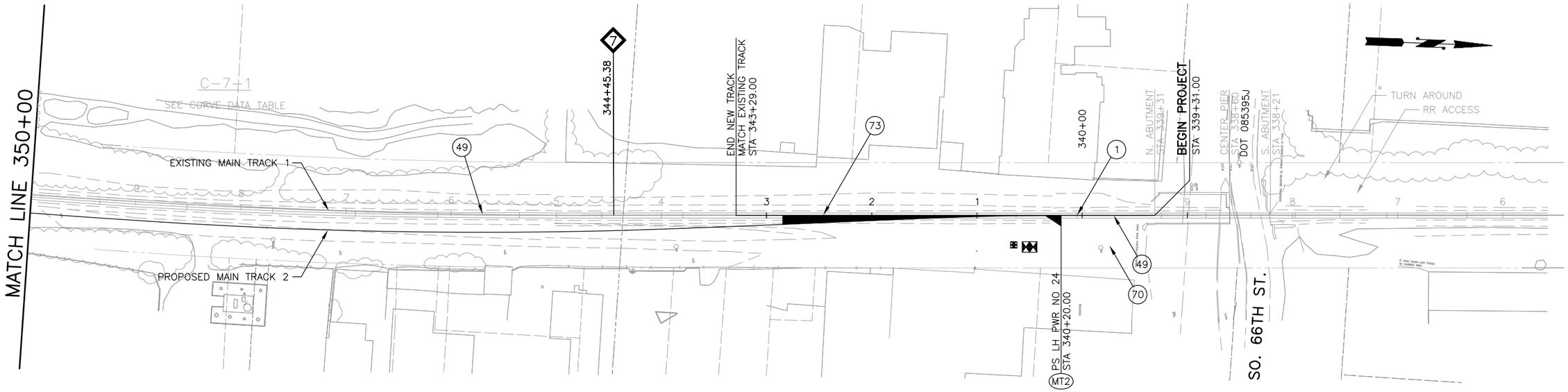

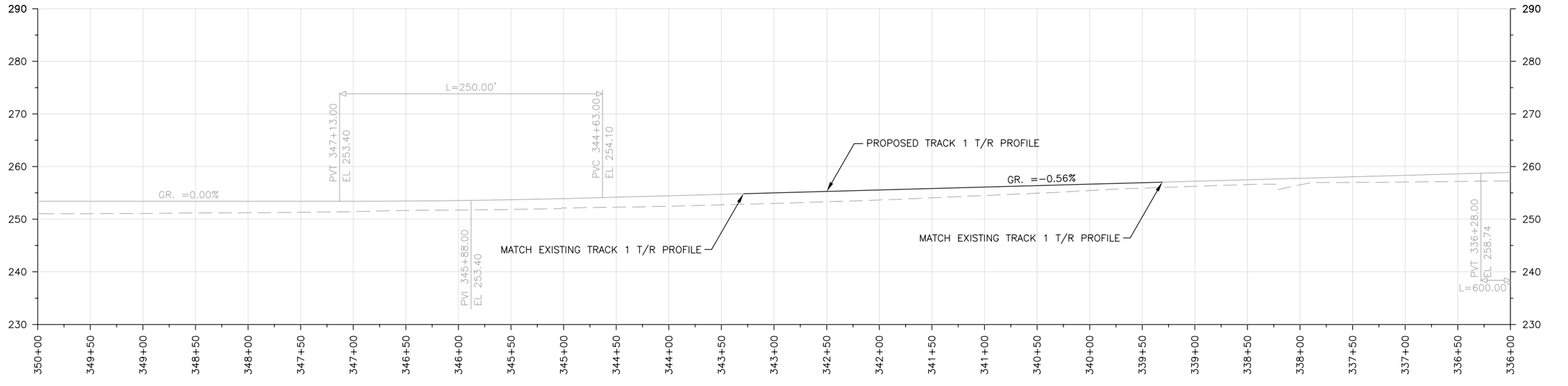

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STATION 336+00 TO 350+00
MAIN TRACK 1

TRACK PLAN AND PROFILE

CS01 - 000058

TA20.1

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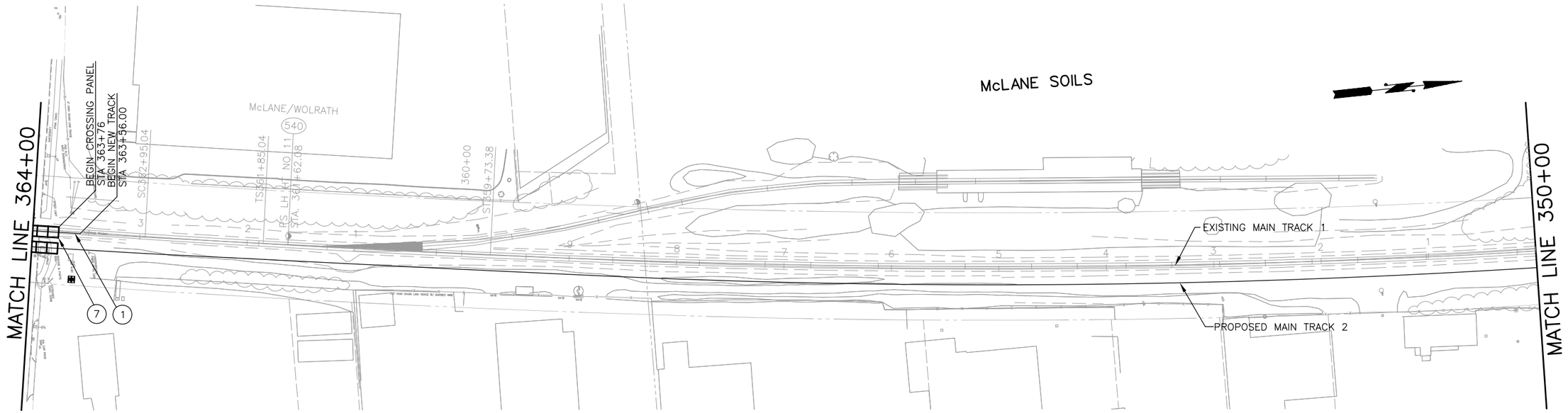

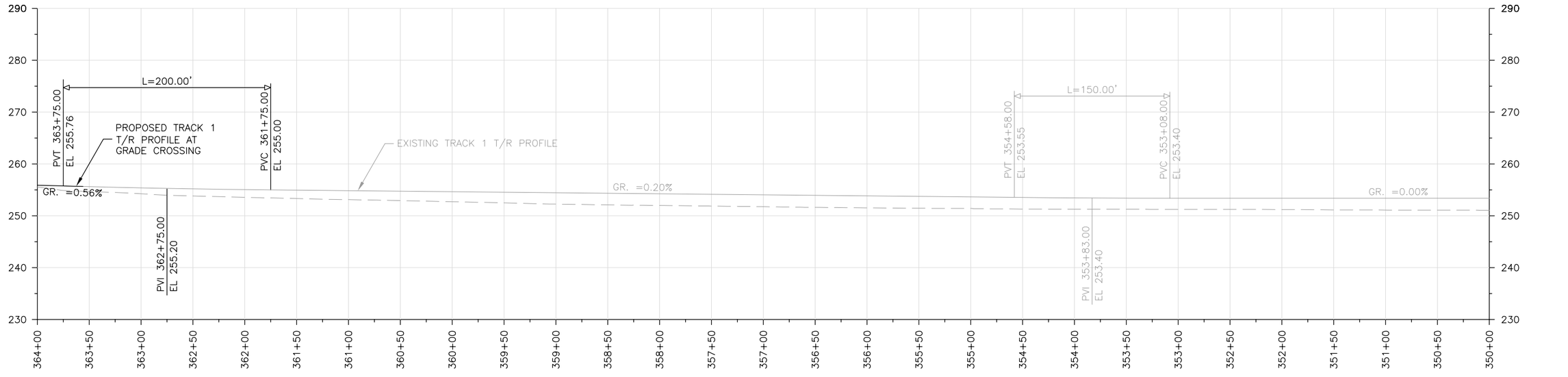

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STATION 350+00 TO 364+00
MAIN TRACK 1

TRACK PLAN AND PROFILE

TA21.1

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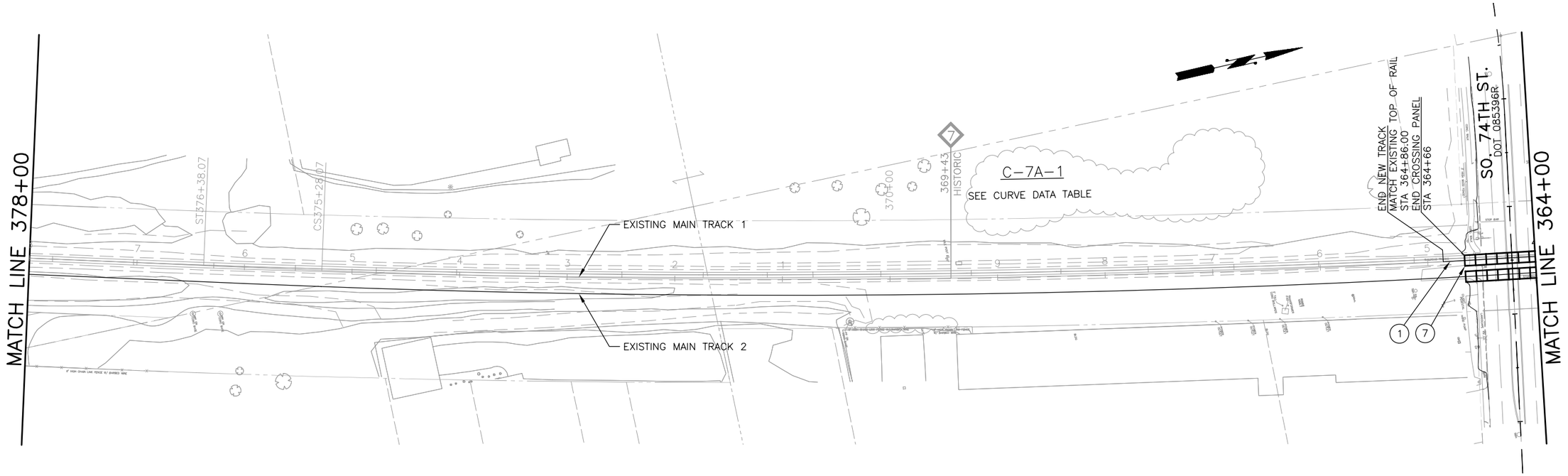

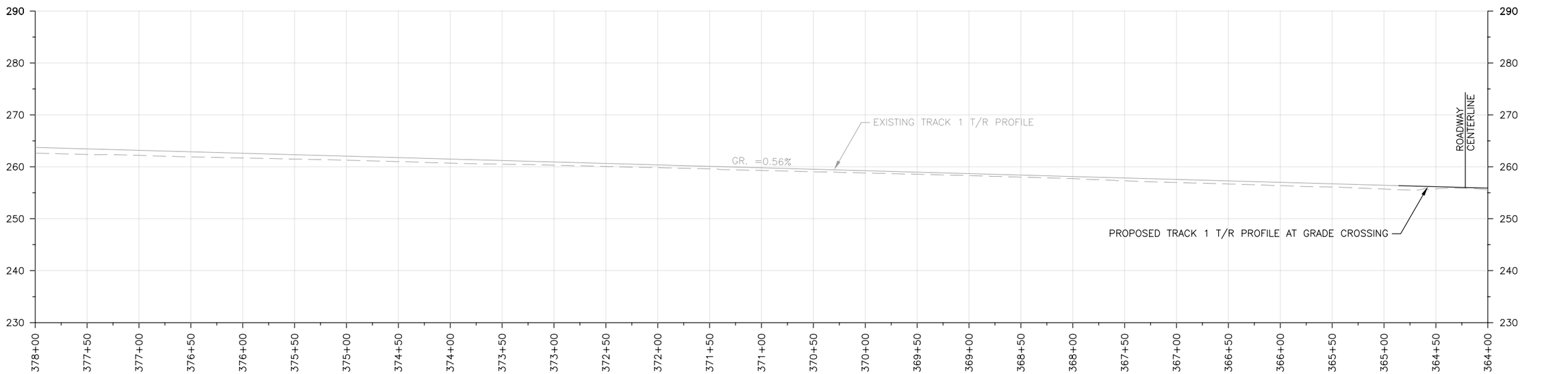

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MAIN TRACK 1

TRACK PLAN AND PROFILE

CS01 - 000060

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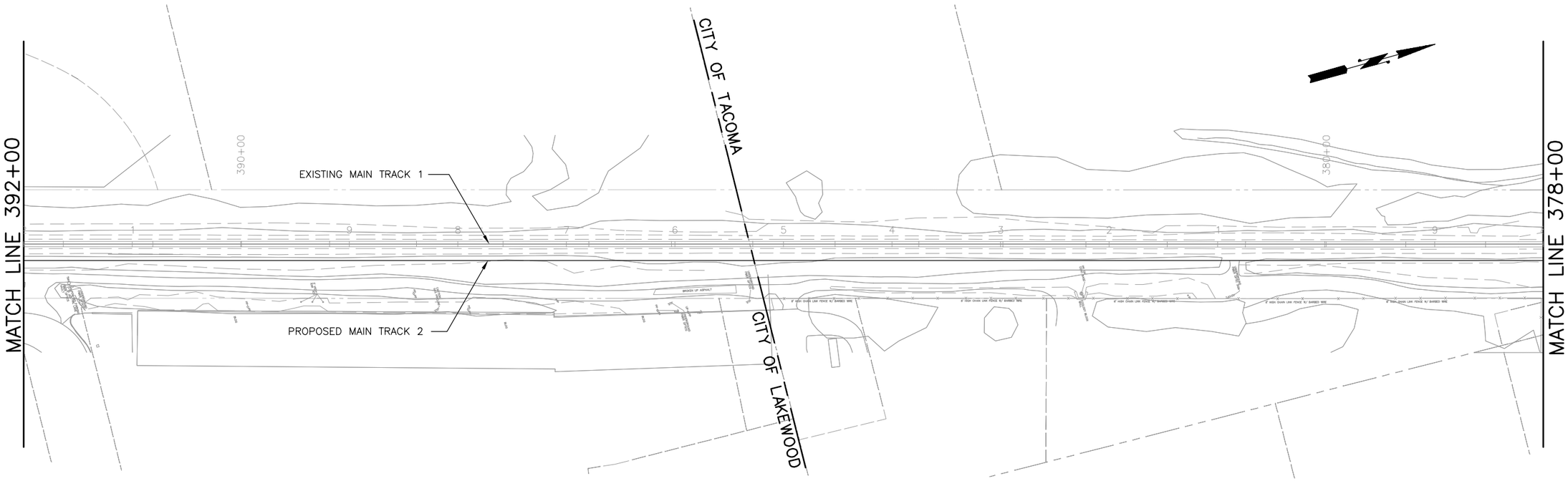

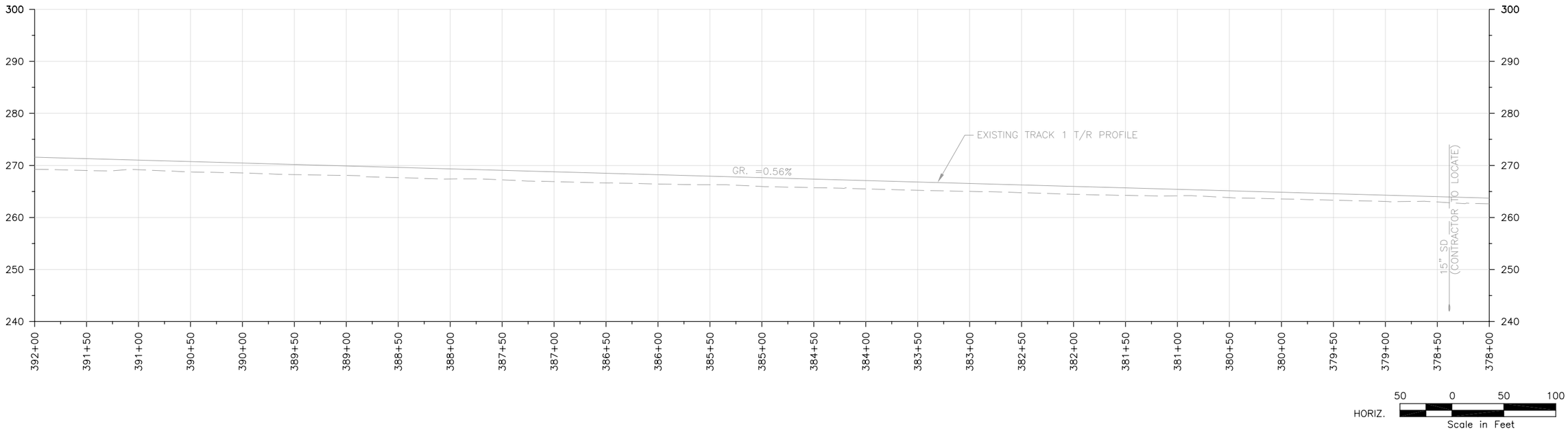

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STATION 378+00 TO 392+00
MAIN TRACK 1

TRACK PLAN AND PROFILE

TA23.1

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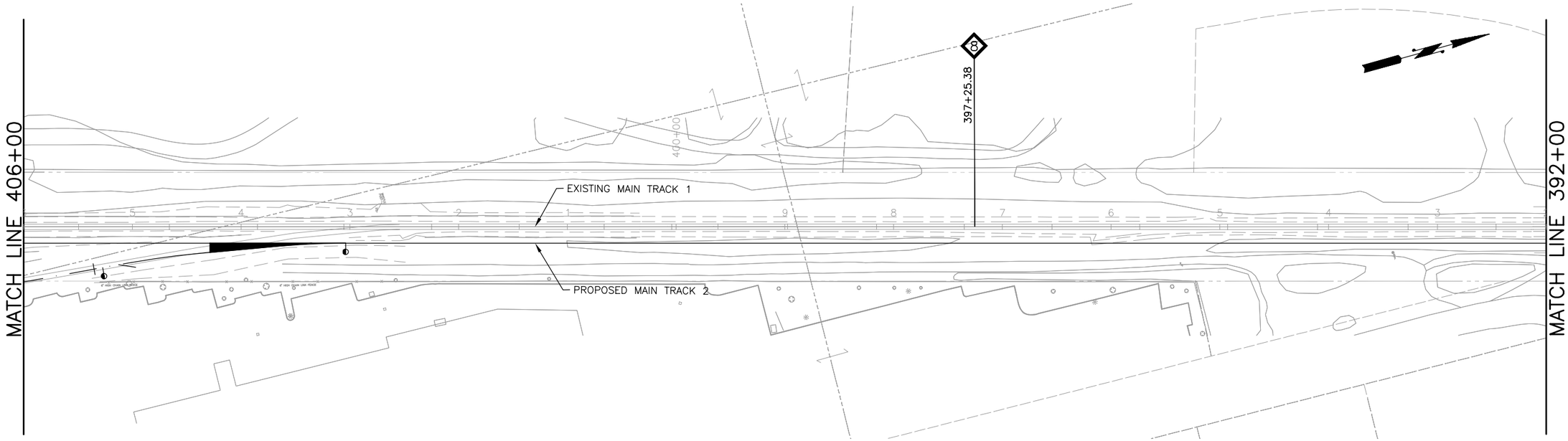

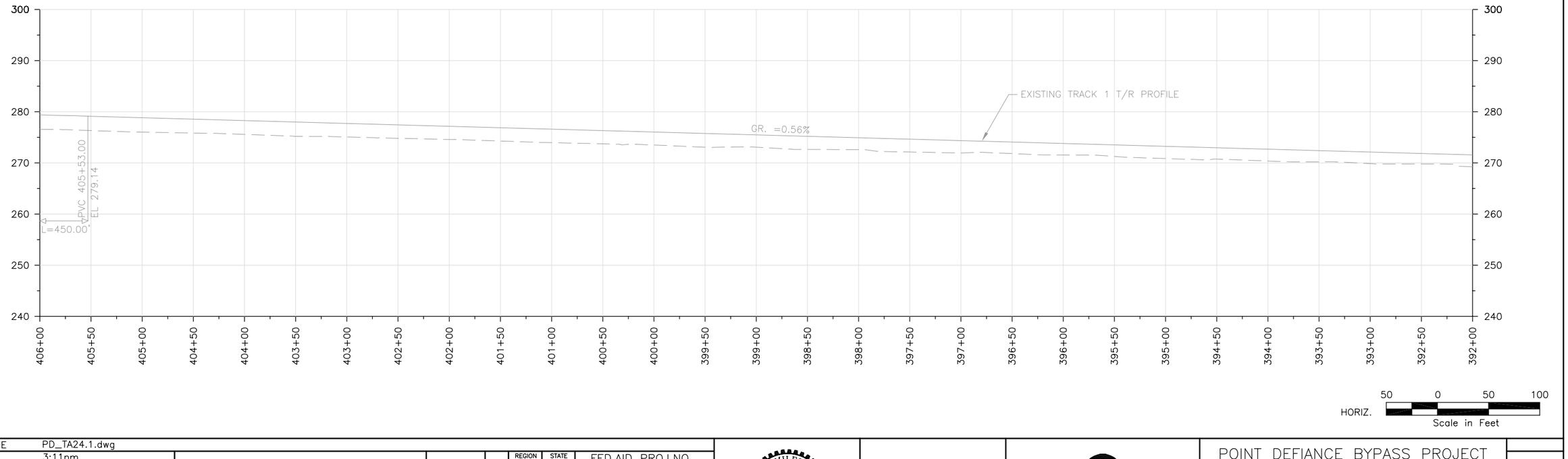

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STATION 392+00 TO 406+00
MAIN TRACK 1

TRACK PLAN AND PROFILE

CS01 - 000062

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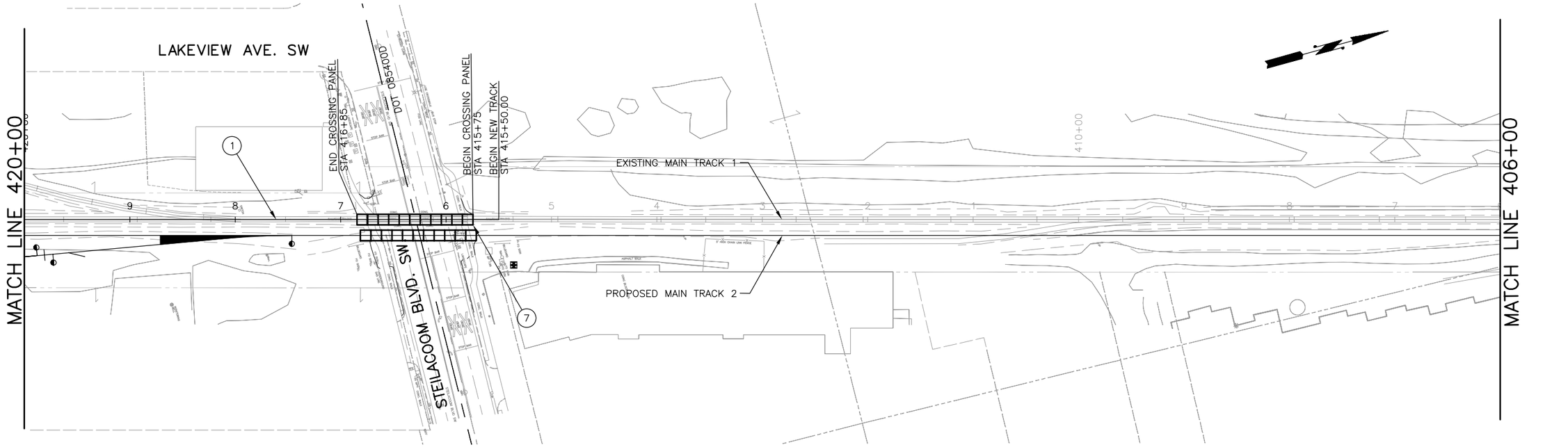

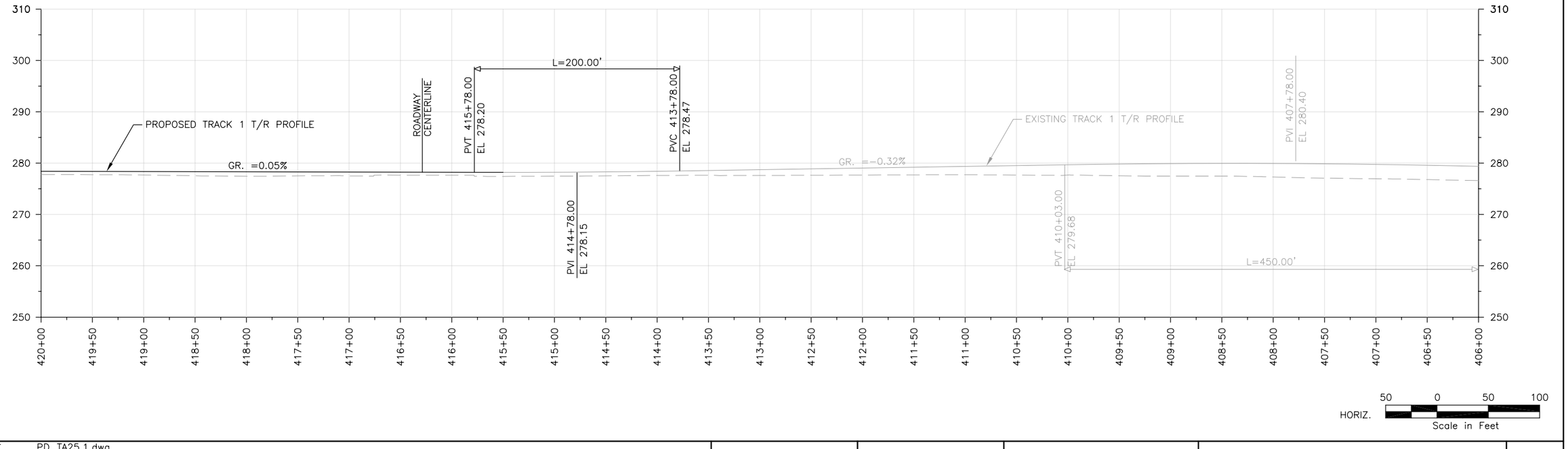

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STATION 406+00 TO 420+00
MAIN TRACK 1

TRACK PLAN AND PROFILE

TA25.1

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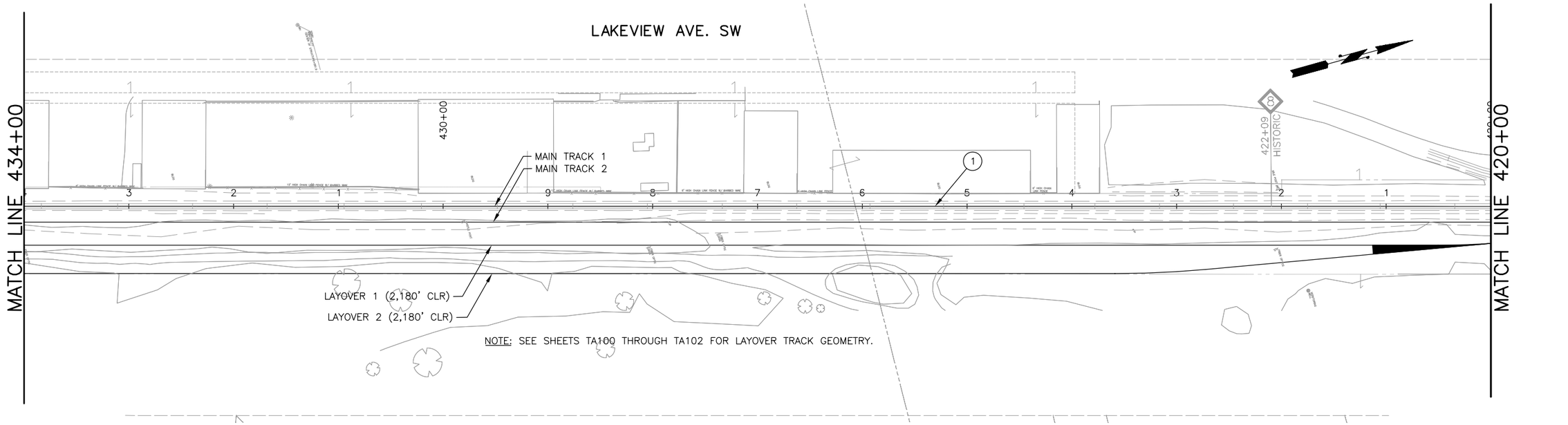

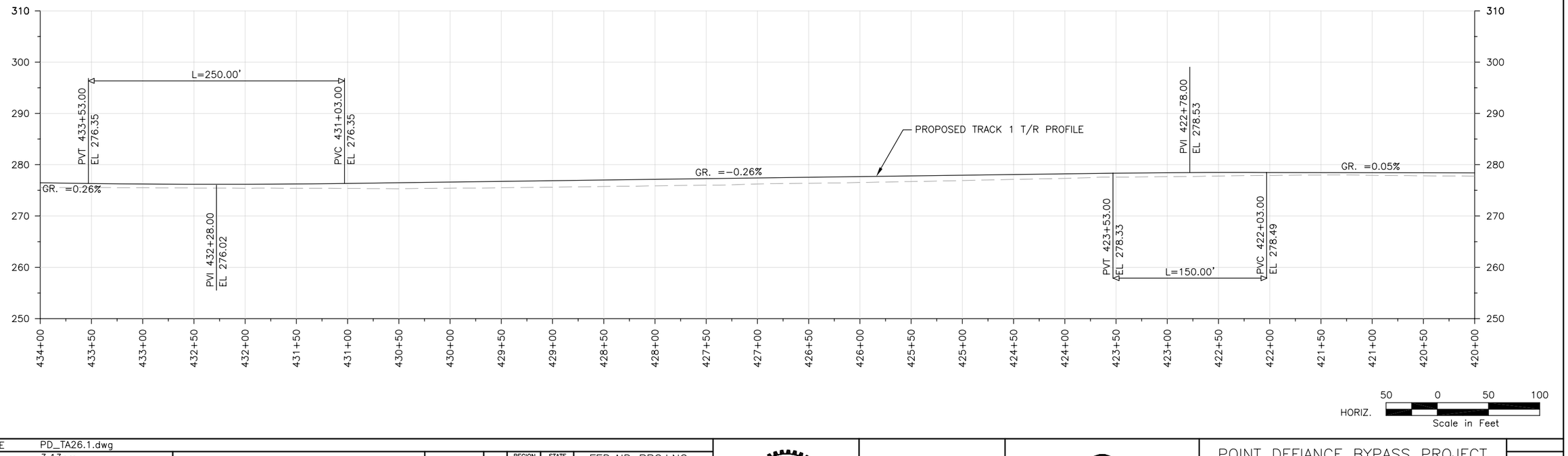

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60% PS&E SUBMITTAL
STATION 420+00 TO 434+00
MAIN TRACK 1

TRACK PLAN AND PROFILE

TA26.1

SHEET OF X SHEETS

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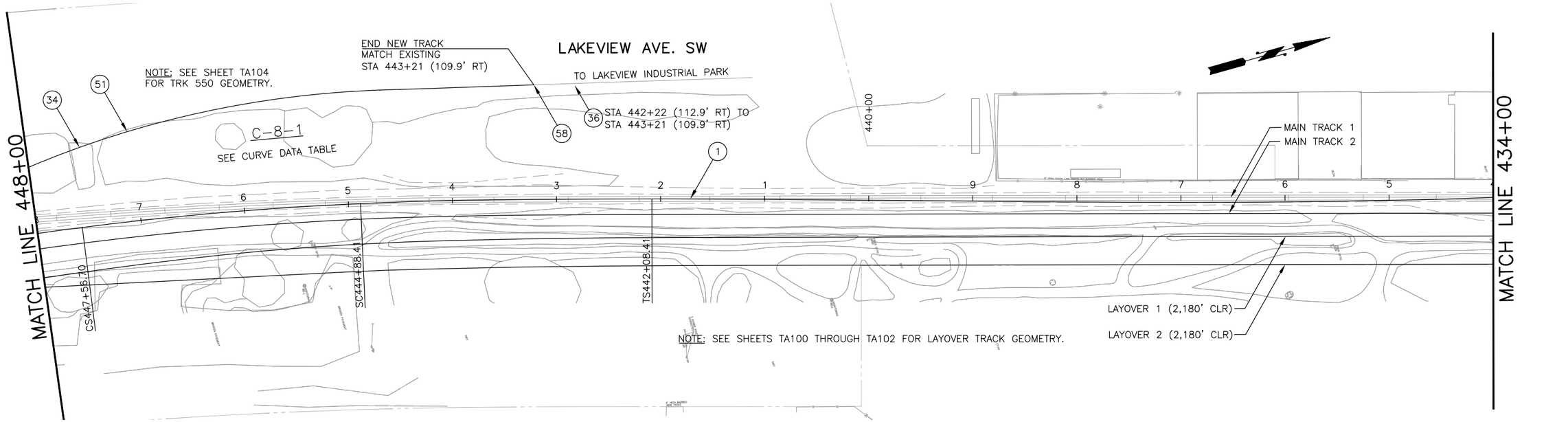

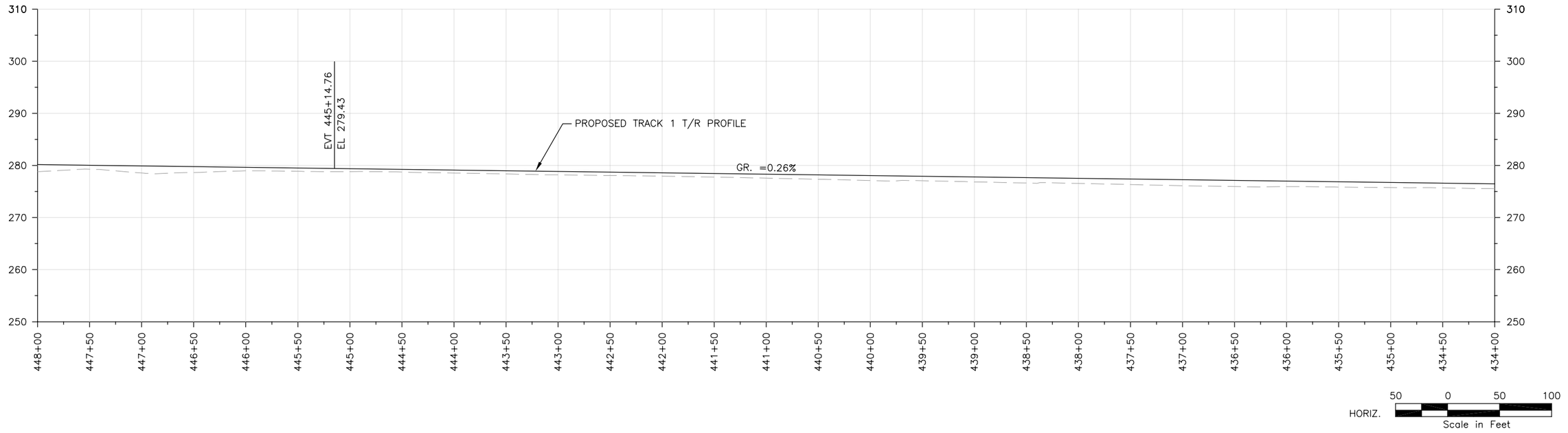

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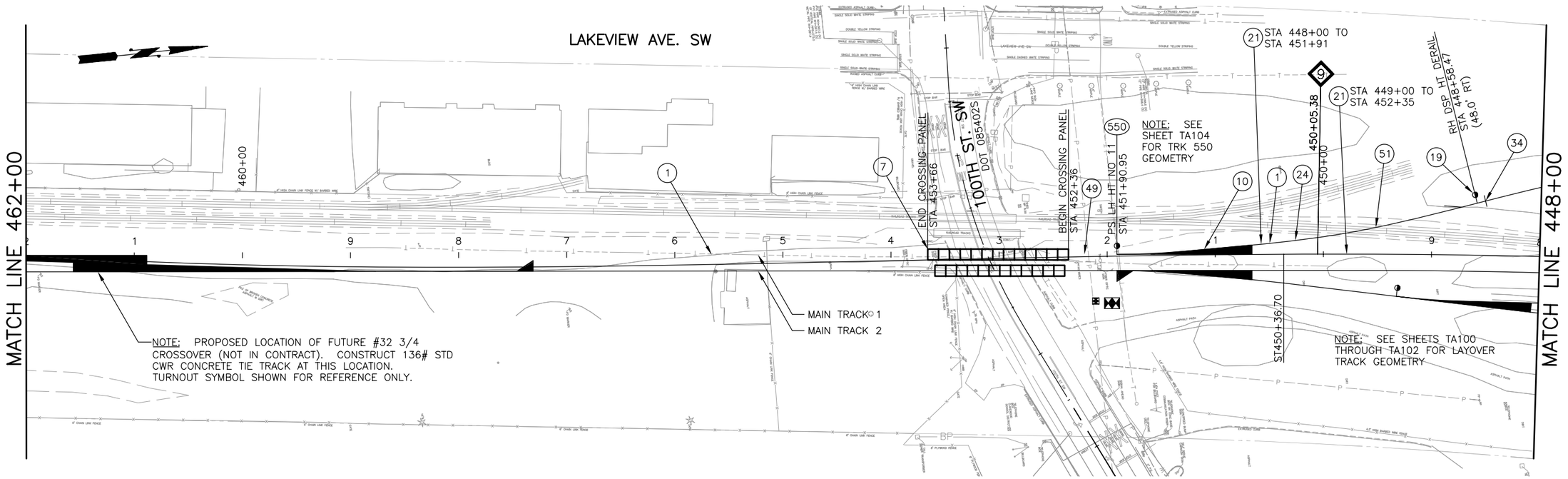
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION 434+00 TO 448+00
MAIN TRACK 1

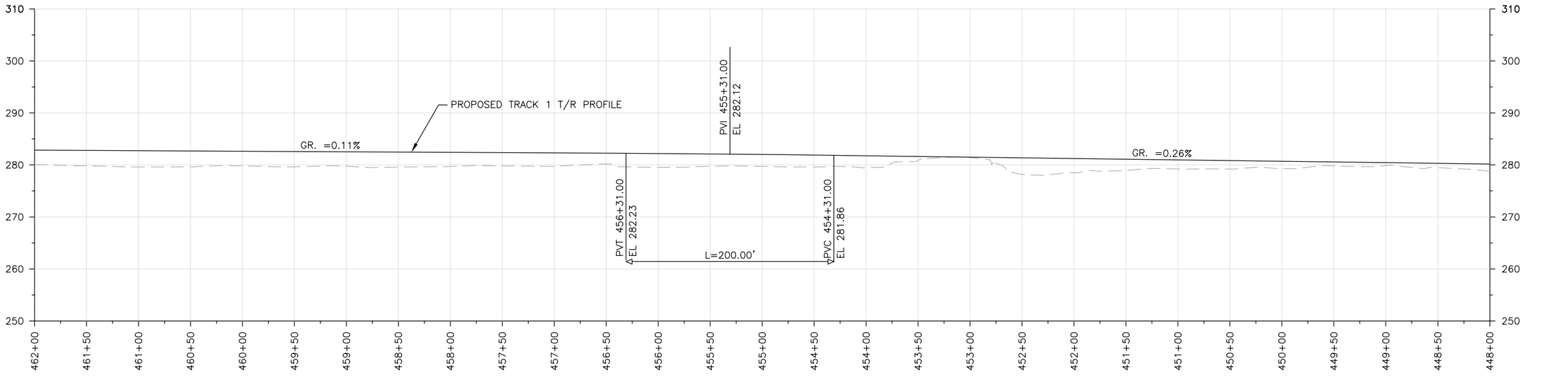
TRACK PLAN AND PROFILE

TA27.1

SHEET
OF
X
SHEETS

CS01 - 000065





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA28.1.dwg						
TIME	3:14pm						
DATE	Feb 26, 2007						
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.		LOCATION NO.
CON0010776		

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

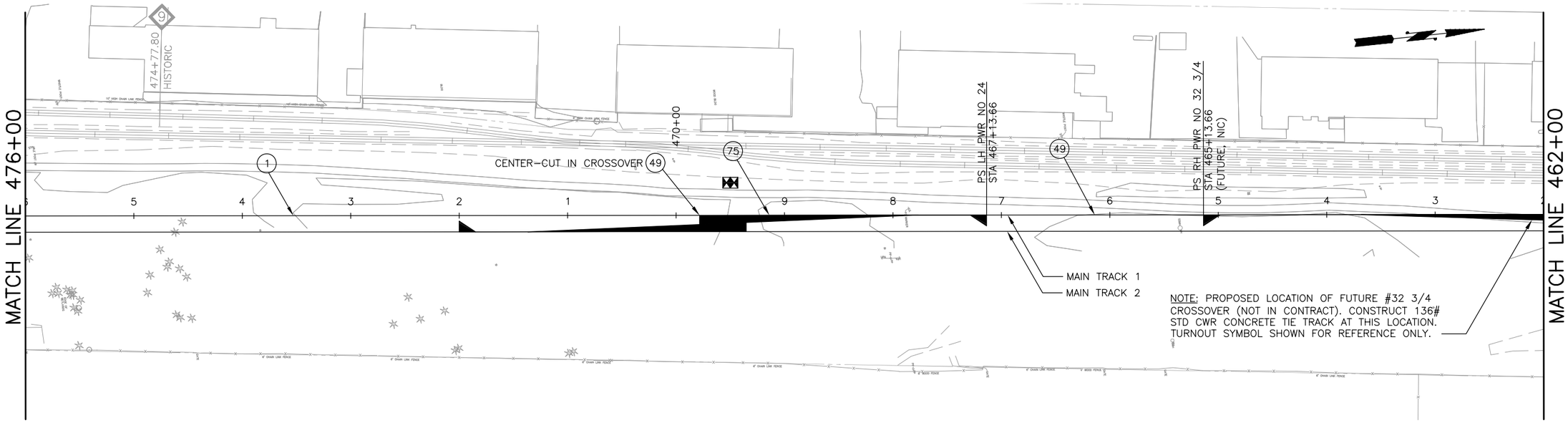
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION 448+00 TO 462+00
MAIN TRACK 1

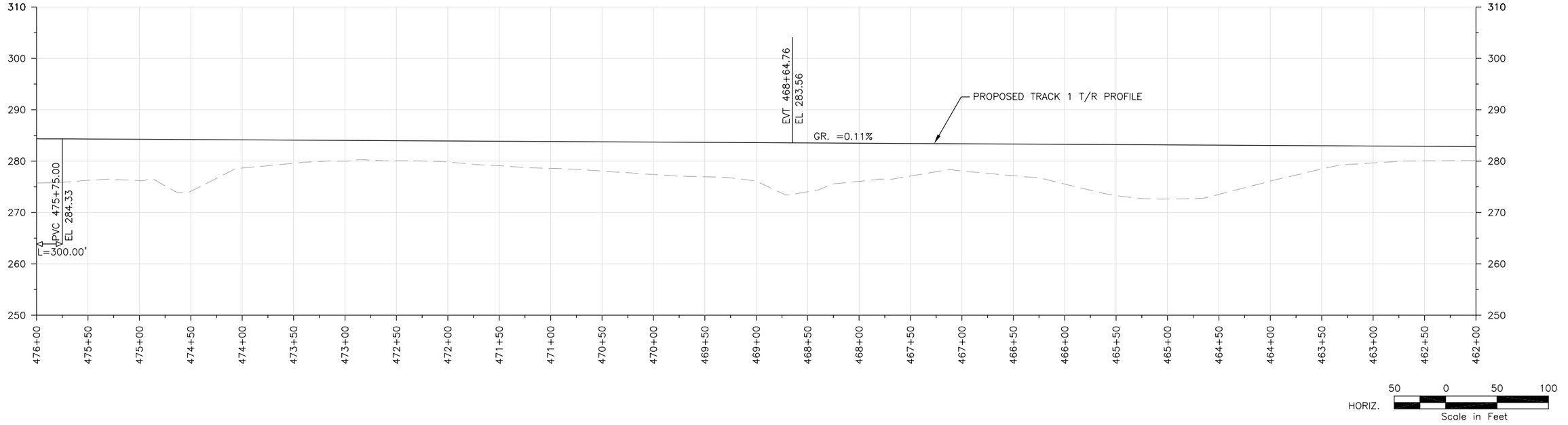
TRACK PLAN AND PROFILE

CS01 - 000066

TA28.1

SHEET OF X SHEETS





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA29.1.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:15pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX				CONTRACT NO.	LOCATION NO.	
ENTERED BY	ETP				CON0010776		
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

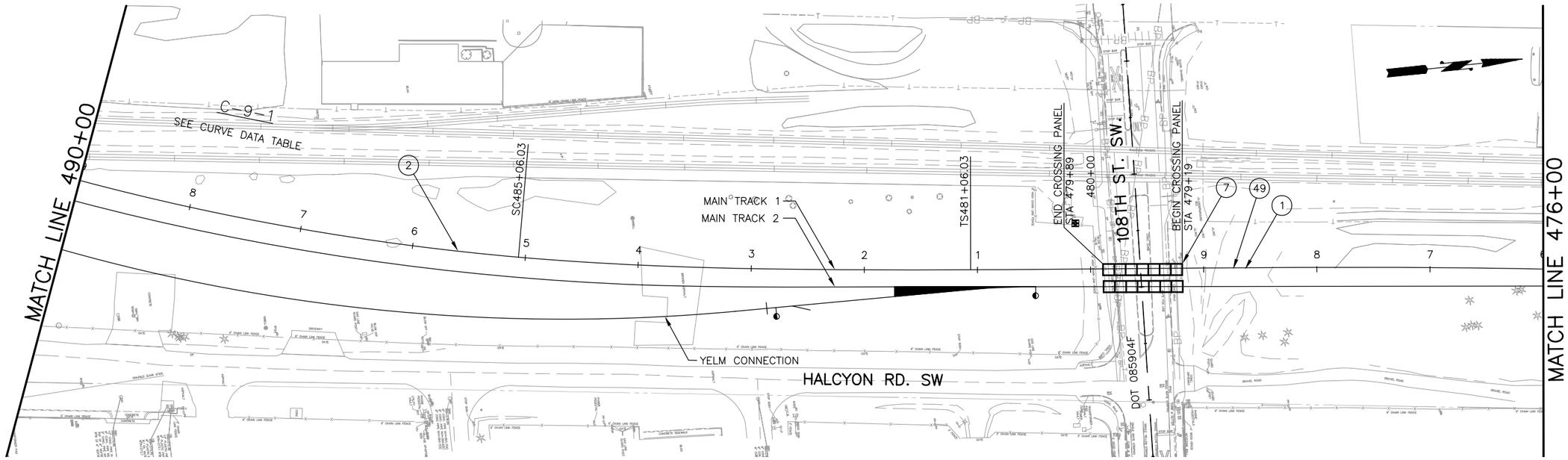
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION 462+00 TO 476+00
MAIN TRACK 1

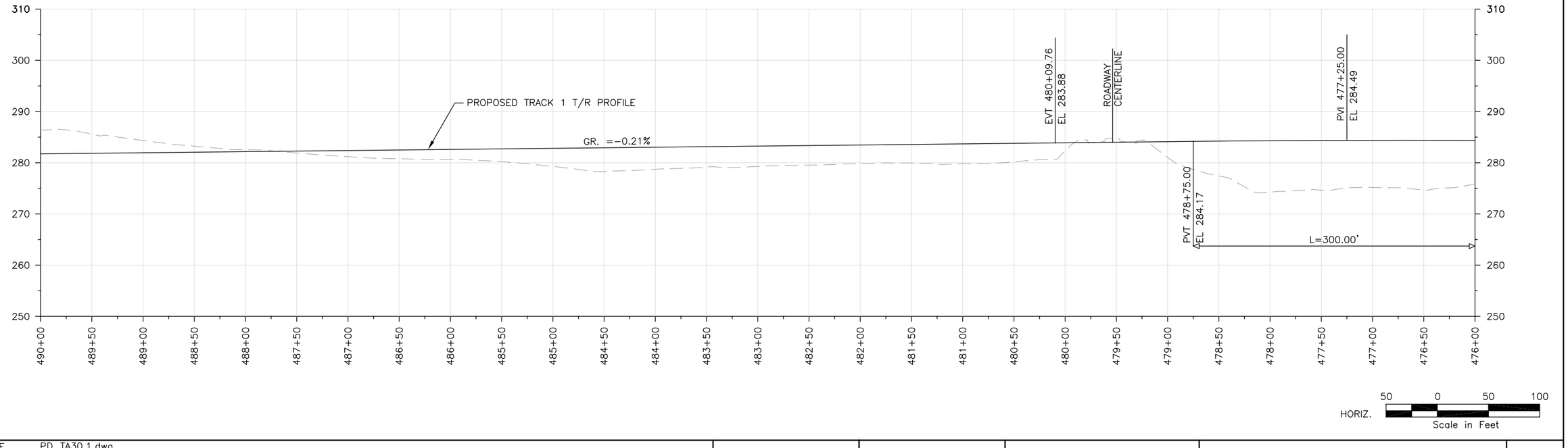
TRACK PLAN AND PROFILE

CS01 - 000067

TA29.1

SHEET OF X SHEETS





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA30.1.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:15pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BRAGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

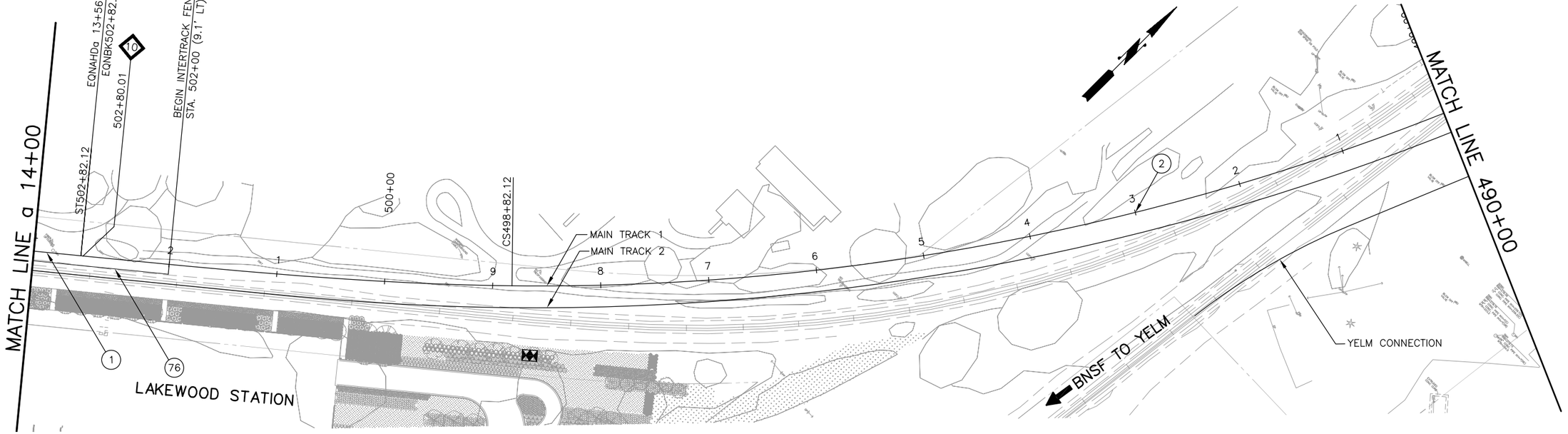
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION 476+00 TO 490+00
MAIN TRACK 1

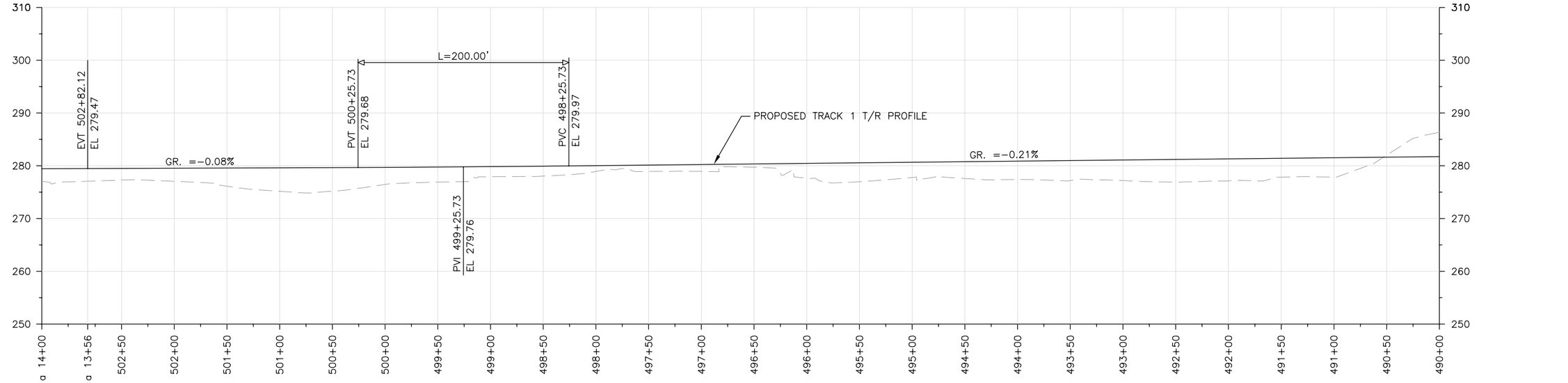
TRACK PLAN AND PROFILE

TA30.1

SHEET OF X SHEETS

CS01 - 000068





HORIZ. 50 0 50 100 Scale in Feet

FILE NAME	PD_TA31.1.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:16pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP				CONTRACT NO.		LOCATION NO.
CHECKED BY	XXX				CON0010776		
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER STATE OF WASHINGTON 42263 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

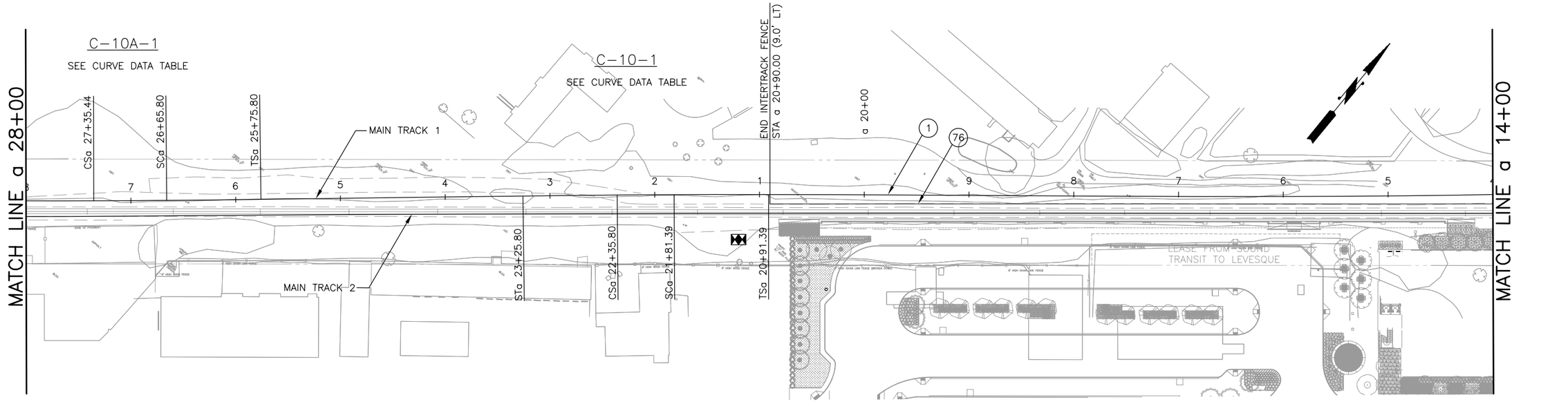
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION 490+00 TO a 14+00
MAIN TRACK 1

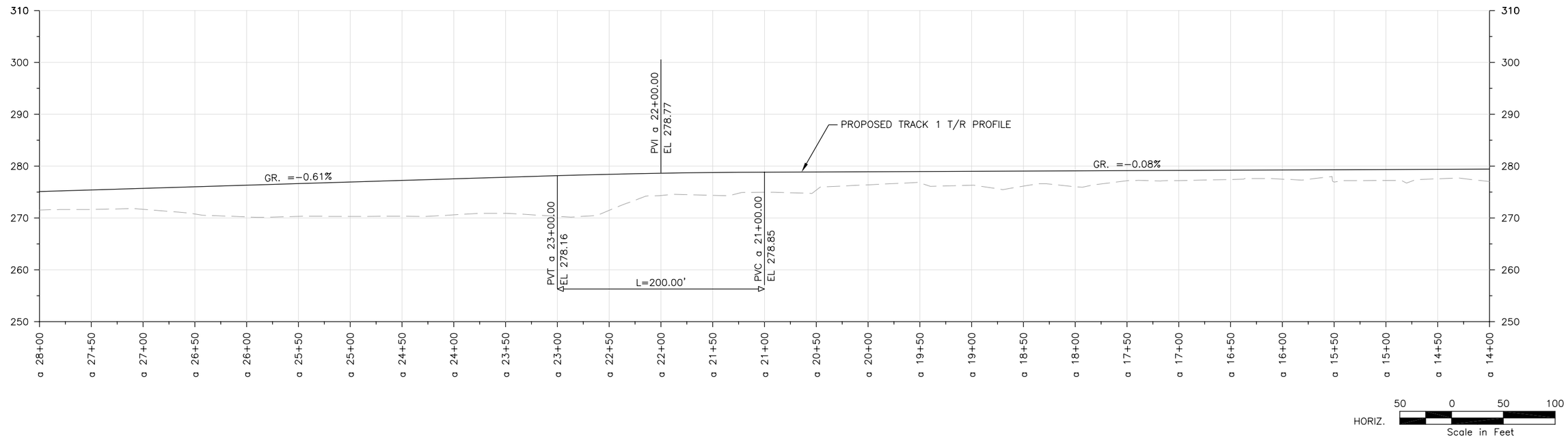
TRACK PLAN AND PROFILE

TA31.1

SHEET OF X SHEETS

CS01 - 000069





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA32.1.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:17pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

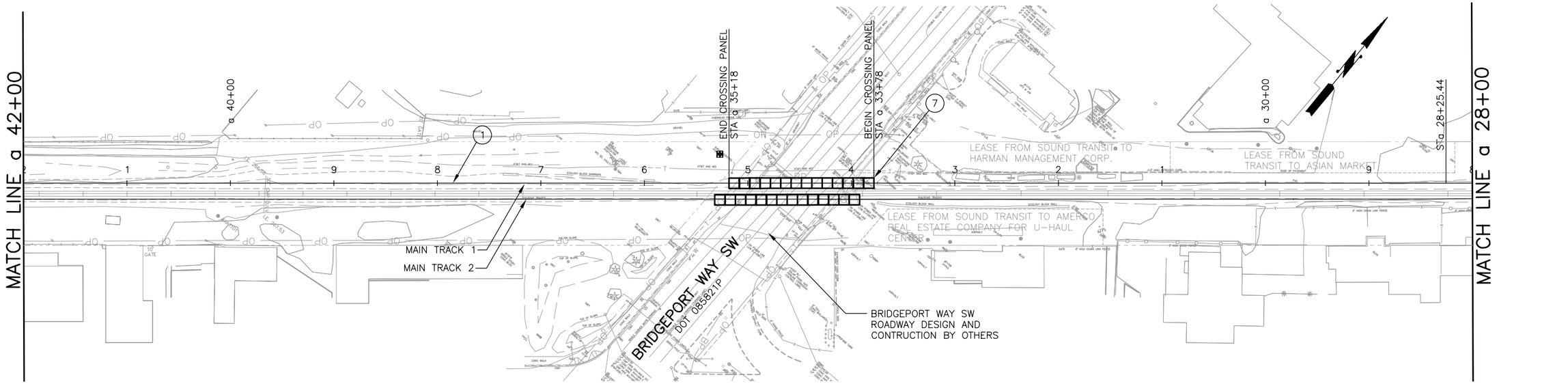
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ℄ 14+00 TO ℄ 28+00
MAIN TRACK 1

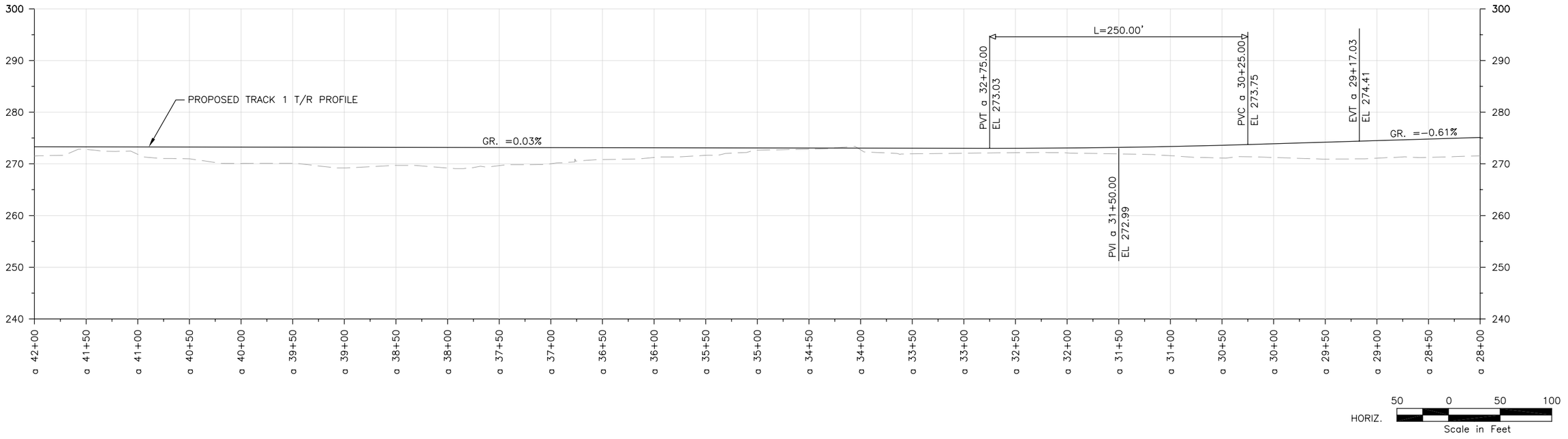
TRACK PLAN AND PROFILE

TA32.1

SHEET OF X SHEETS

CS01 - 000070





FILE NAME	PD_TA33.1.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:18pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX				CONTRACT NO.		LOCATION NO.
ENTERED BY	ETP				CON0010776		
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER
STATE OF WASHINGTON
42263
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

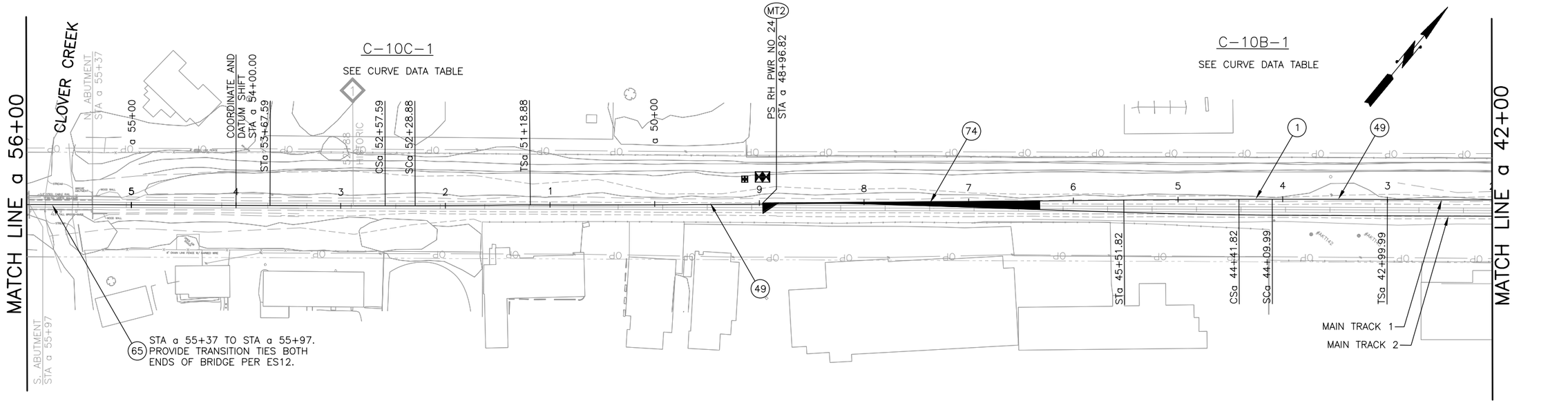
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 28+00 TO ⌀ 42+00
MAIN TRACK 1

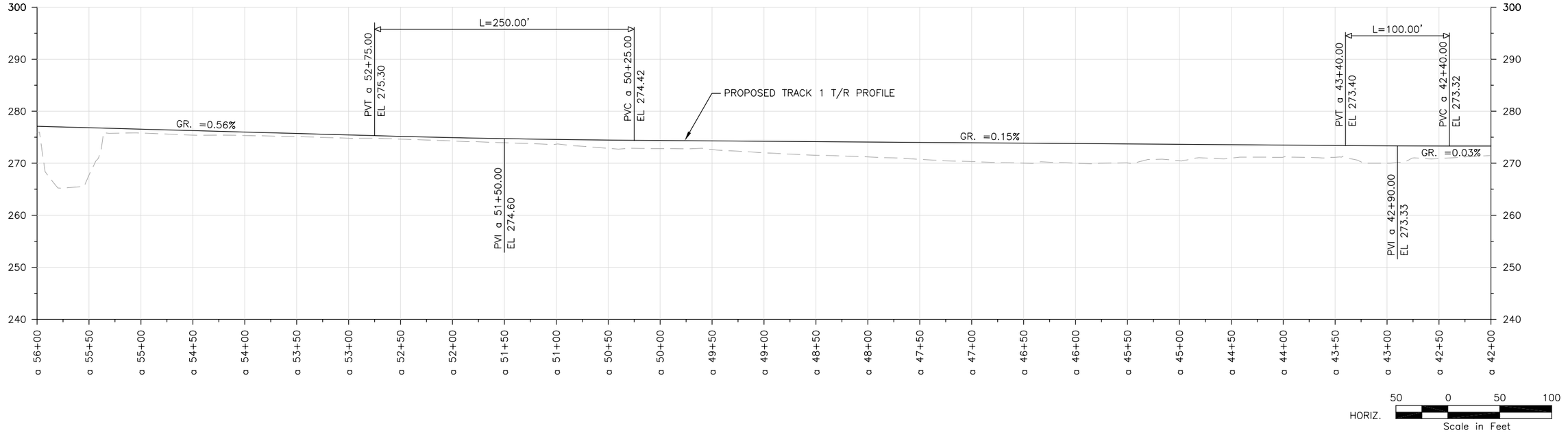
TRACK PLAN AND PROFILE

TA33.1

SHEET OF X SHEETS

CS01 - 000071





FILE NAME	PD_TA34.1.dwg						
TIME	3:18pm				REGION NO.	STATE	FED.AID PROJ.NO.
DATE	Feb 26, 2007				10	WASH	
PLOTTED BY	epeterso				JOB NUMBER		
DESIGNED BY	XXX						
ENTERED BY	ETP				CONTRACT NO.		LOCATION NO.
CHECKED BY	XXX				CON0010776		
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

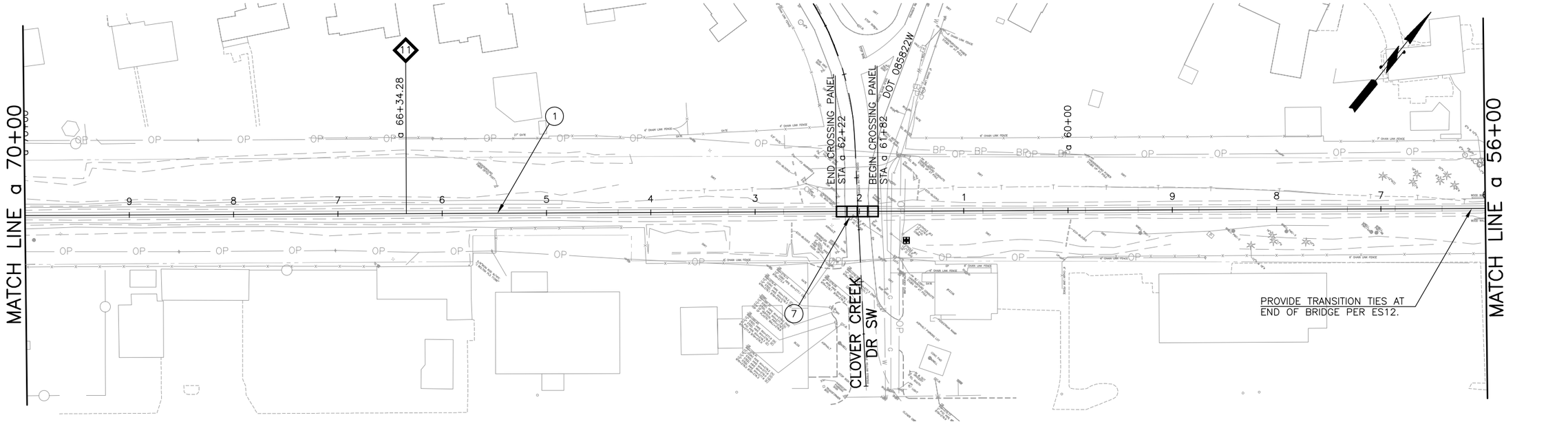
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 42+00 TO ⌀ 56+00
MAIN TRACK 1

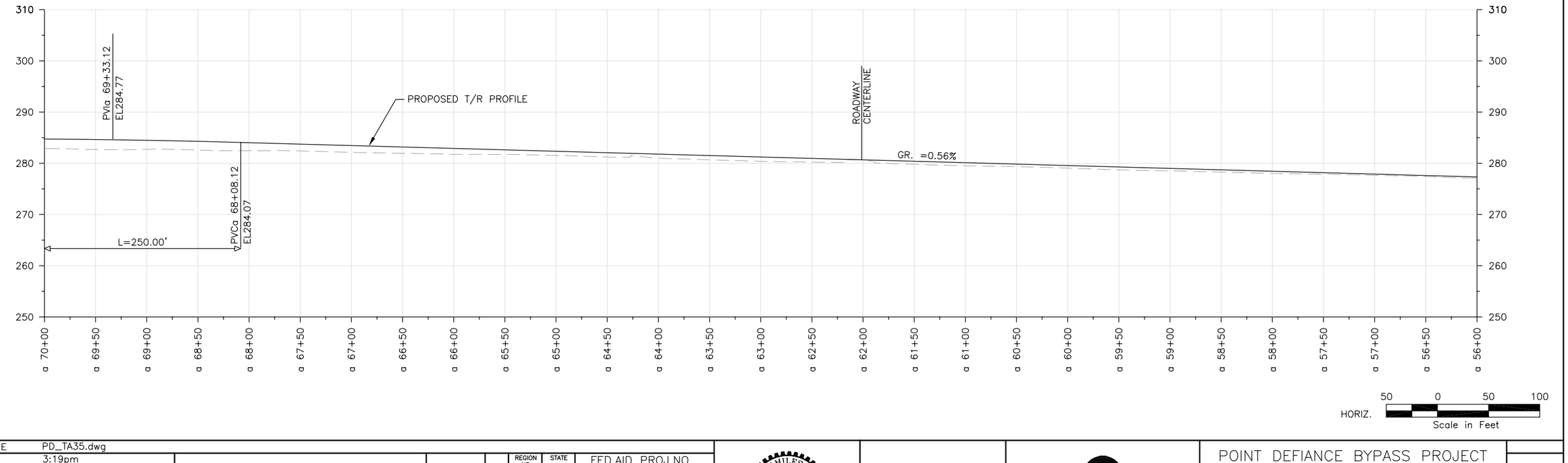
TRACK PLAN AND PROFILE

TA34.1

SHEET
OF
X
SHEETS

CS01 - 000072





FILE NAME	PD_TA35.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:19pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BADGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

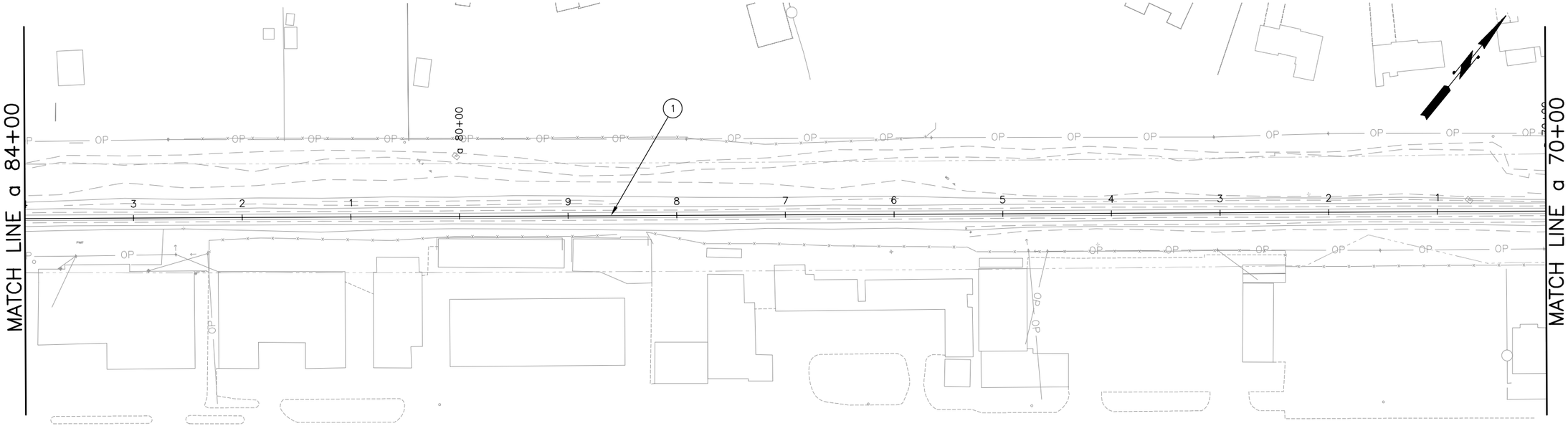
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 56+00 TO ⌀ 70+00

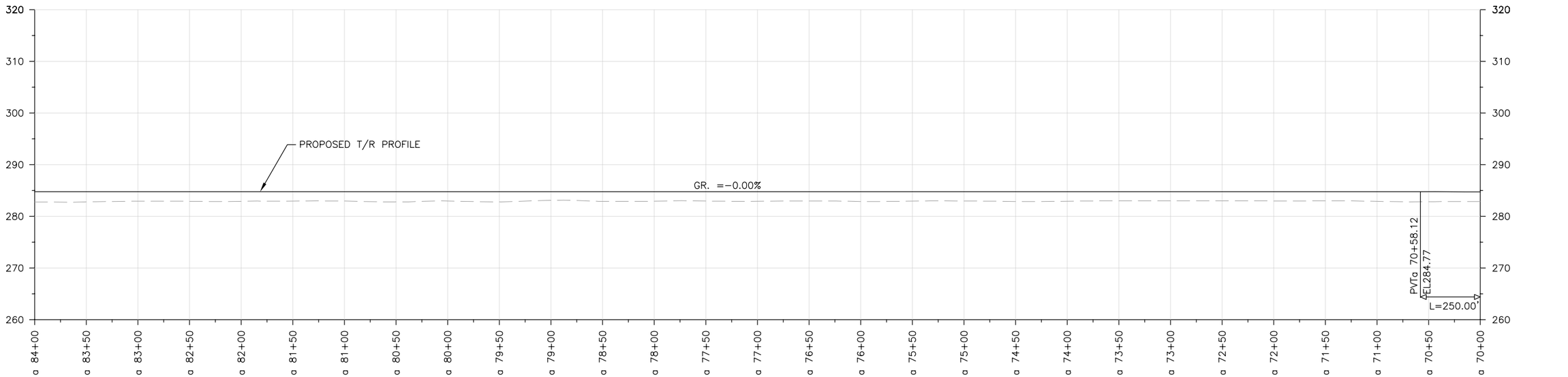
TRACK PLAN AND PROFILE

TA35

SHEET OF X SHEETS

CS01 - 000073





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA36.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:19pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX				CONTRACT NO.	LOCATION NO.	
ENTERED BY	ETP				CON0010776		
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER STATE OF WASHINGTON 42263 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

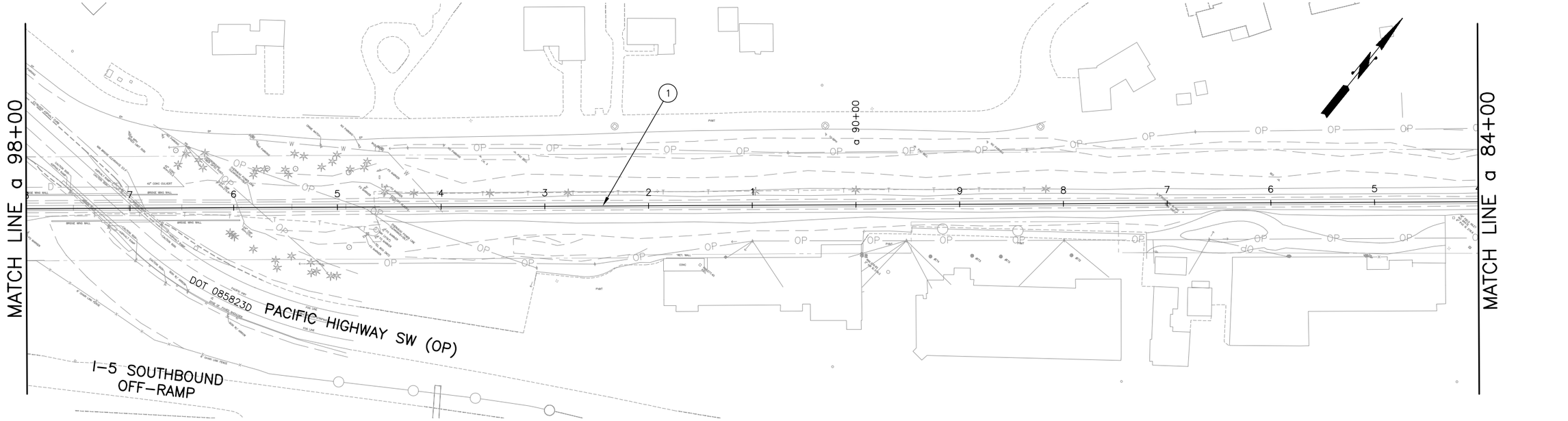
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 70+00 TO a 84+00

TA36

TRACK PLAN AND PROFILE

CS01 - 000074

SHEET OF X SHEETS



FILE NAME	PD_TA37.dwg						
TIME	3:20pm				REGION NO.	STATE	FED.AID PROJ.NO.
DATE	Feb 26, 2007				10	WASH	
PLOTTED BY	epeterso				JOB NUMBER		
DESIGNED BY	XXX						
ENTERED BY	ETP				CONTRACT NO.		LOCATION NO.
CHECKED BY	XXX				CON0010776		
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER
STATE OF WASHINGTON
42283
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

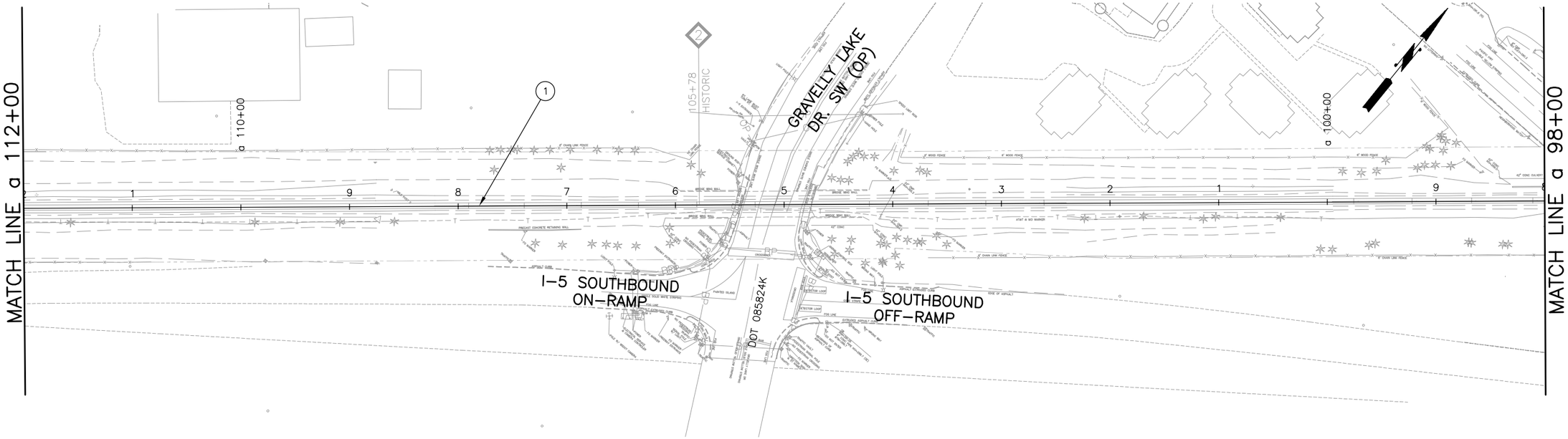
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 84+00 TO ⌀ 98+00

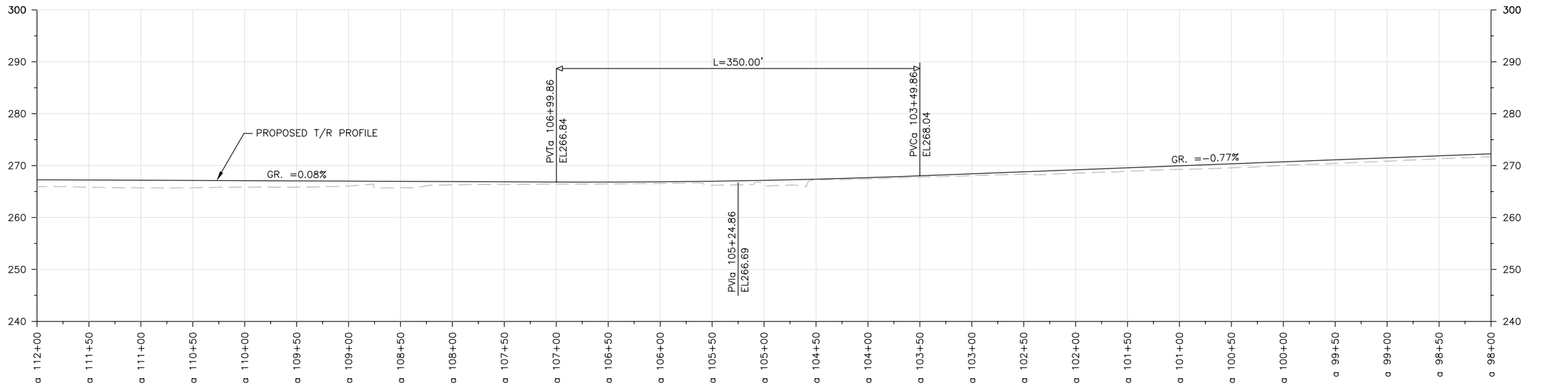
TRACK PLAN AND PROFILE

TA37

SHEET OF X SHEETS

CS01 - 000075





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA38.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:20pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX				CONTRACT NO.	LOCATION NO.	
ENTERED BY	ETP				CON0010776		
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER STATE OF WASHINGTON 42283 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

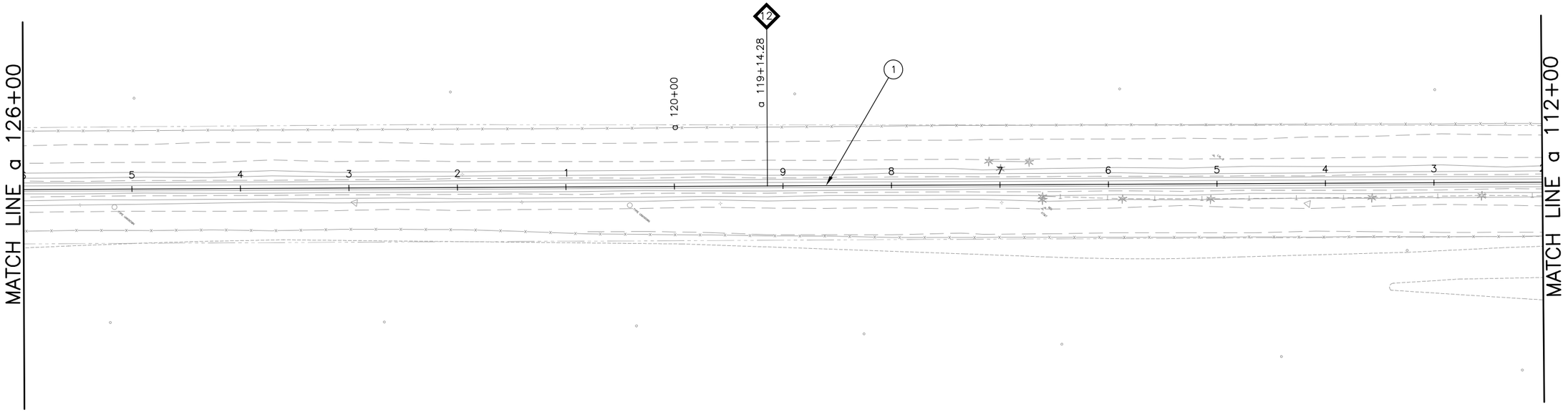
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 98+00 TO a 112+00

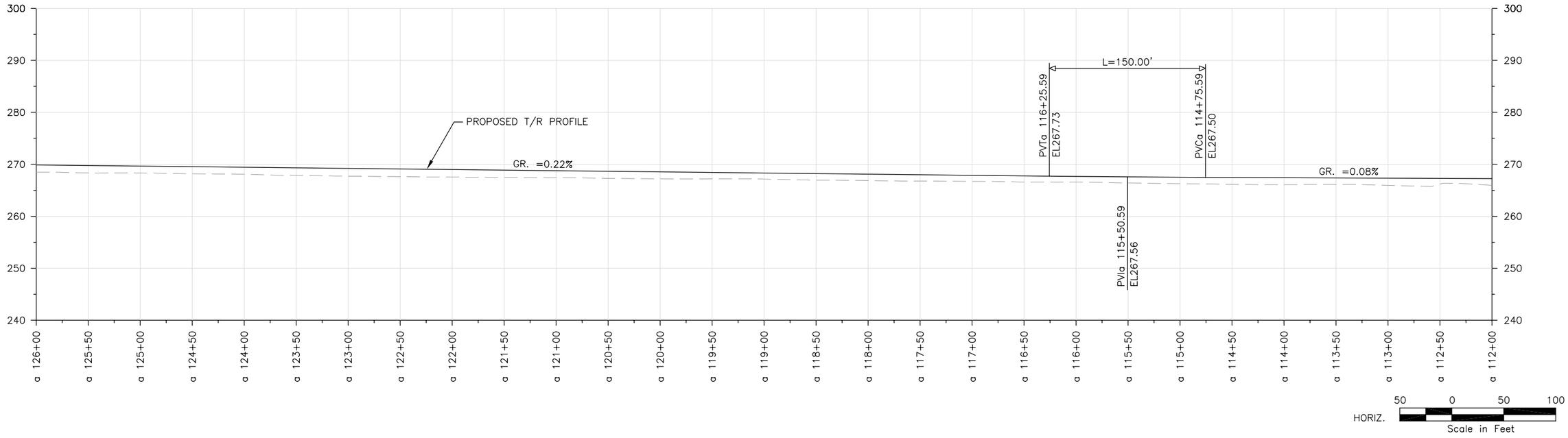
TA38

TRACK PLAN AND PROFILE

CS01 - 000076

SHEET OF X SHEETS





FILE NAME	PD_TA39.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:20pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES SCHLAGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

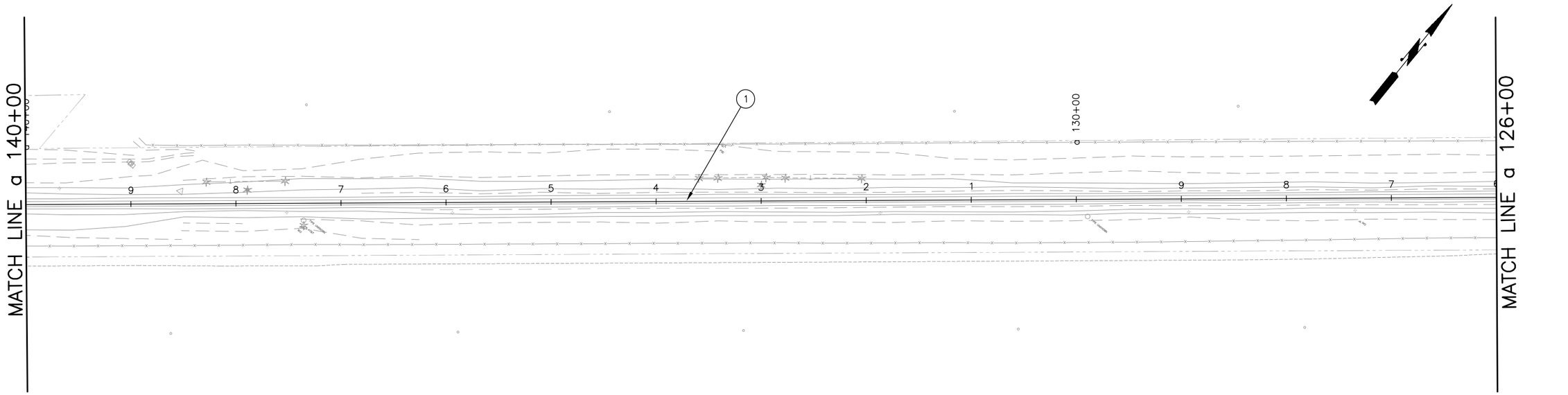
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 112+00 TO a 126+00

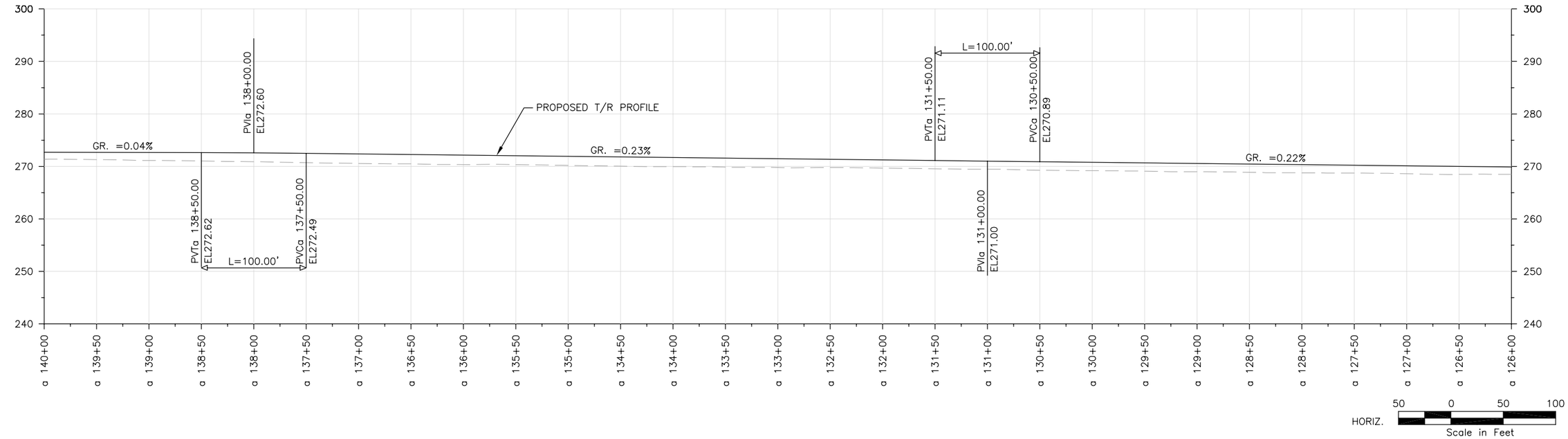
TRACK PLAN AND PROFILE

TA39

SHEET OF X SHEETS

CS01 - 000077





FILE NAME	PD_TA40.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:20pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BEAGER
STATE OF WASHINGTON
42263
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

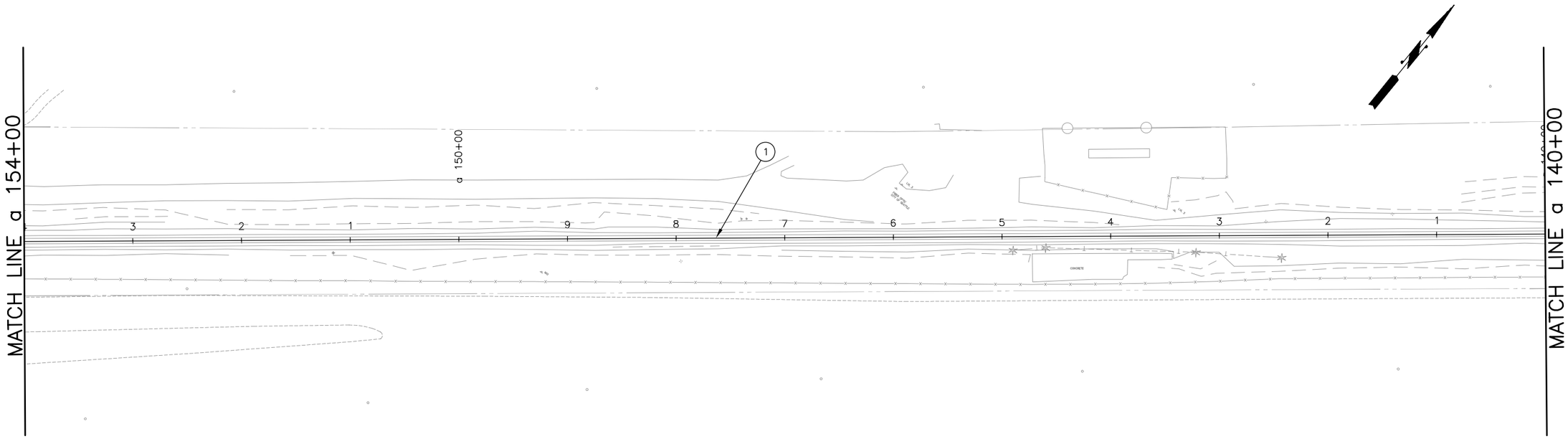
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 126+00 TO a 140+00

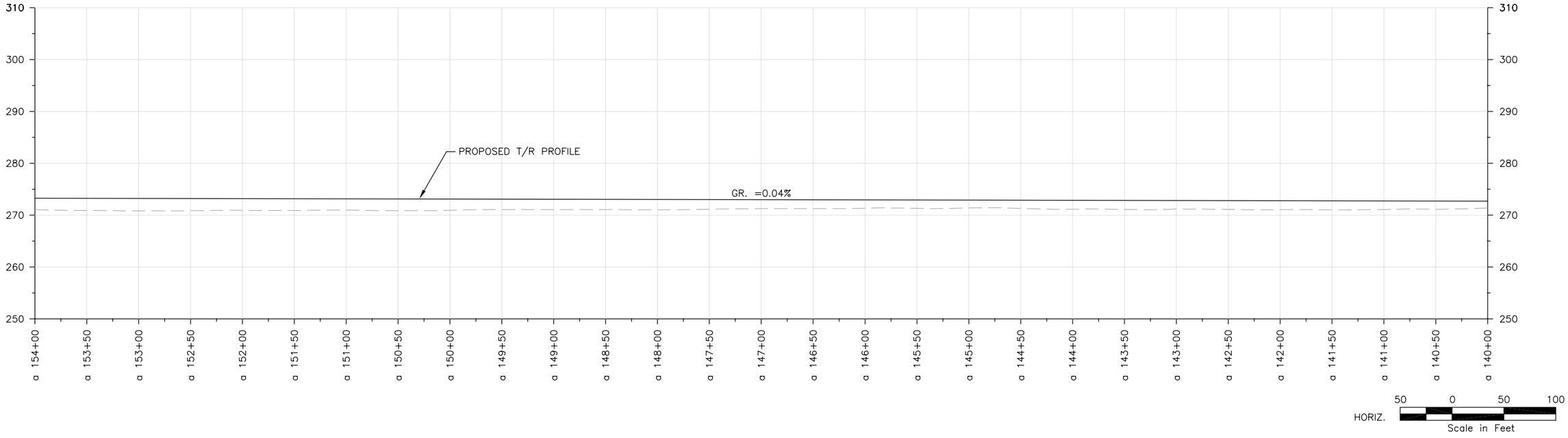
TRACK PLAN AND PROFILE

TA40

SHEET
OF
X
SHEETS

CS01 - 000078





FILE NAME	PD_TA41.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:21pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BRAGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

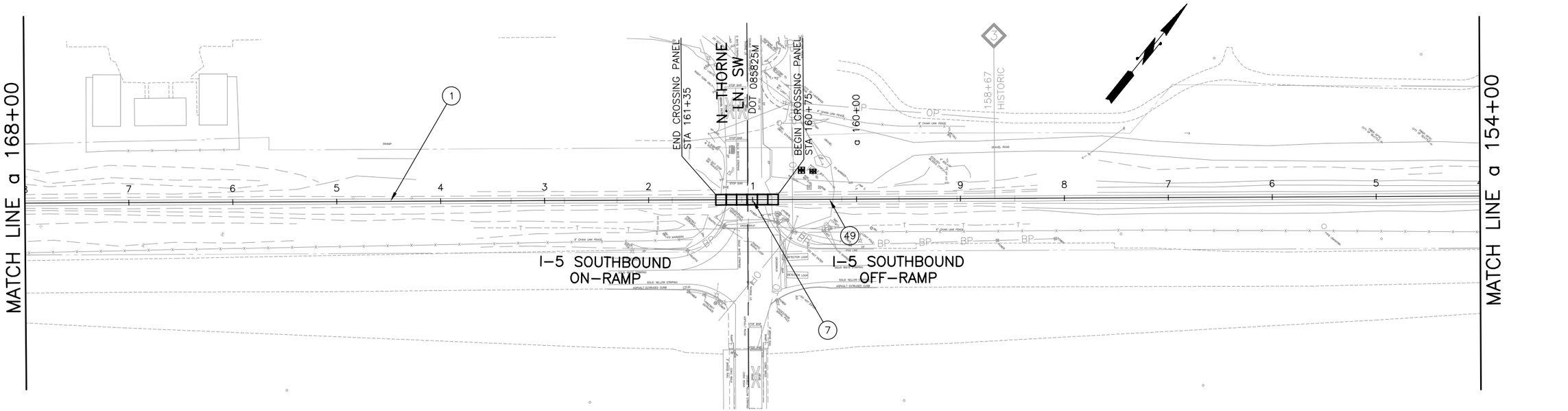
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⍺ 140+00 TO ⍺ 154+00

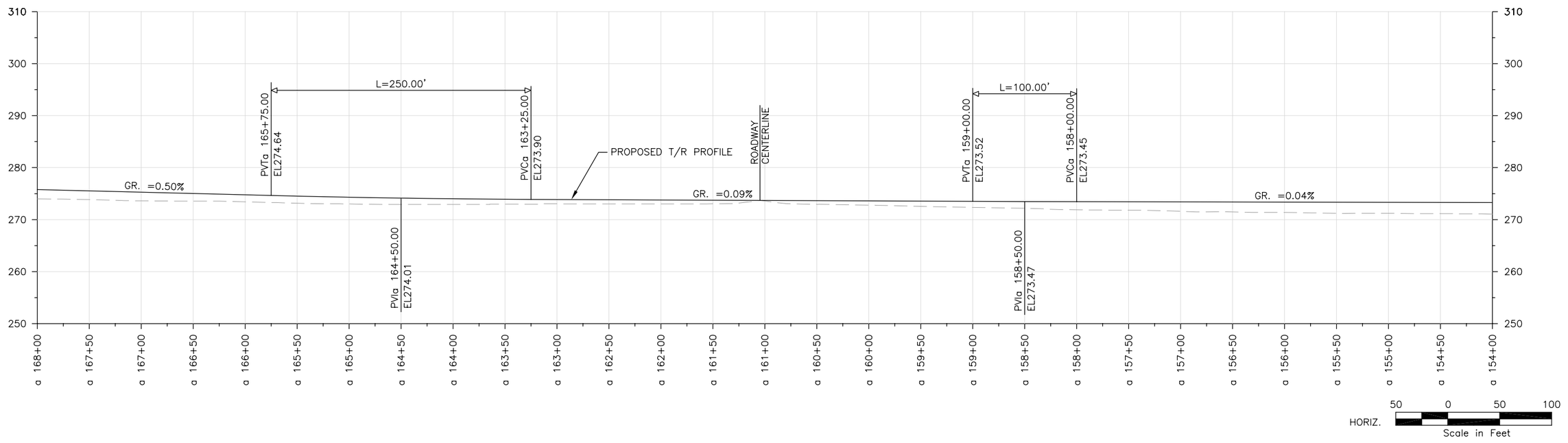
TRACK PLAN AND PROFILE

TA41

SHEET OF X SHEETS

CS01 - 000079





FILE NAME	PD_TA42.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:21pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BADGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

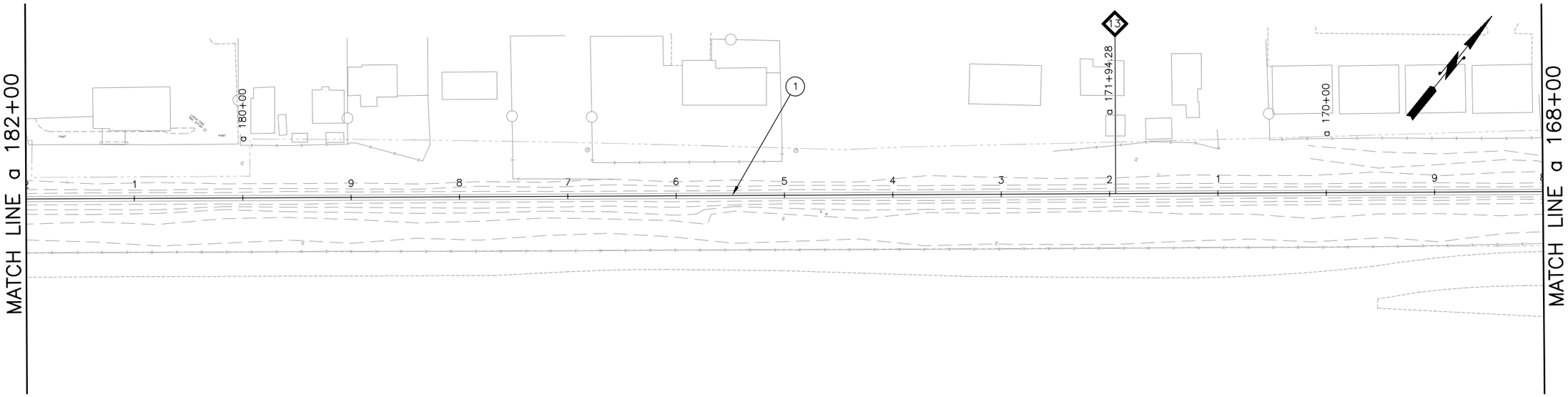
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 154+00 TO ⌀ 168+00

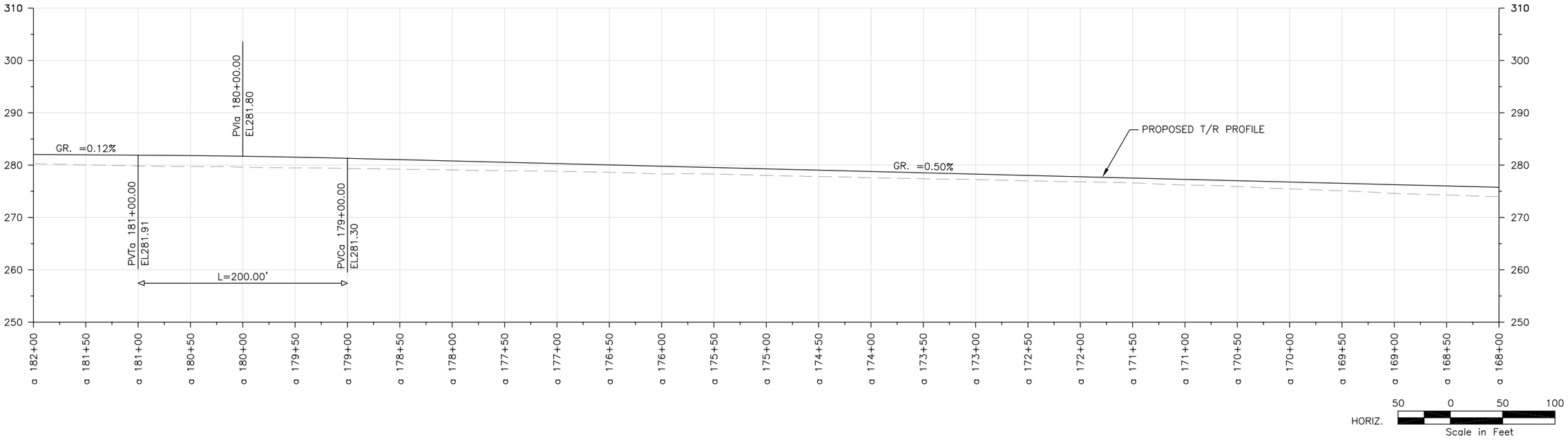
TRACK PLAN AND PROFILE

TA42

SHEET OF X SHEETS

CS01 - 000080





FILE NAME	PD_TA43.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:21pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES SEAGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

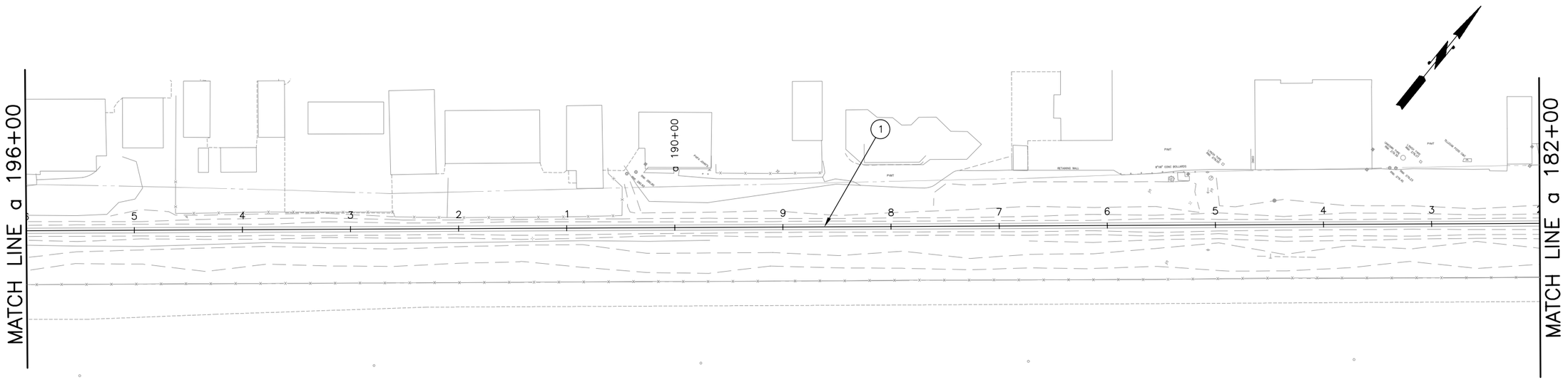
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 168+00 TO a 182+00

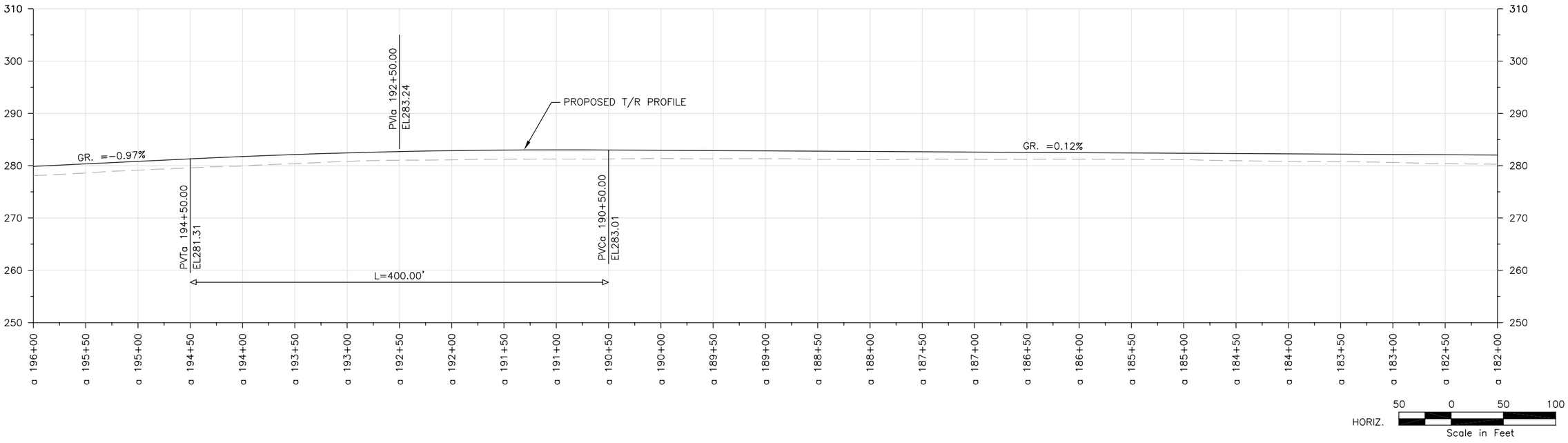
TA43

TRACK PLAN AND PROFILE

CS01 - 000081

SHEET OF X SHEETS





FILE NAME	PD_TA44.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:22pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BADGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

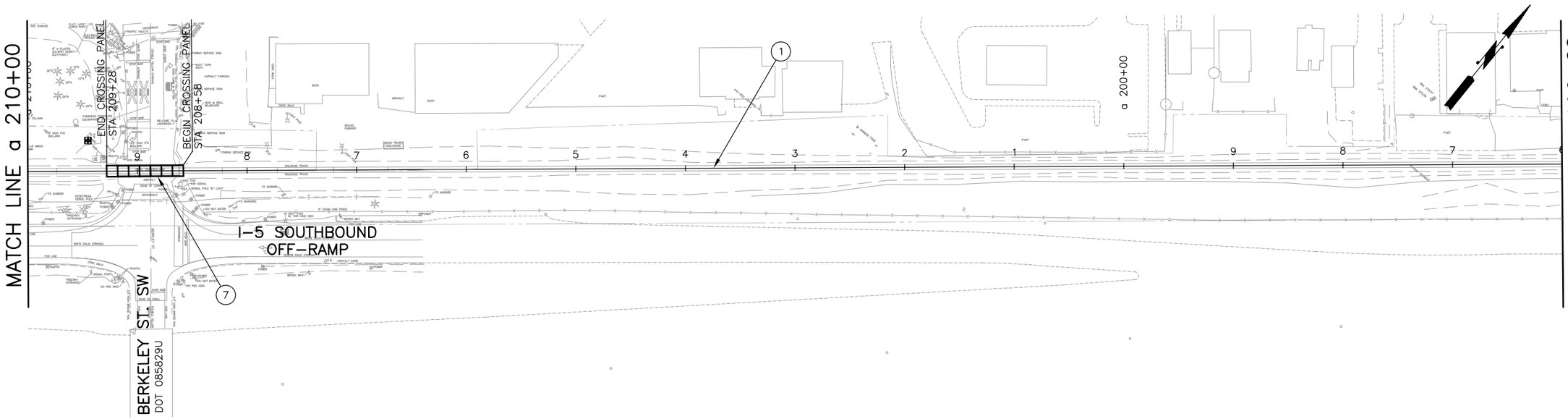
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 182+00 TO ⌀ 196+00

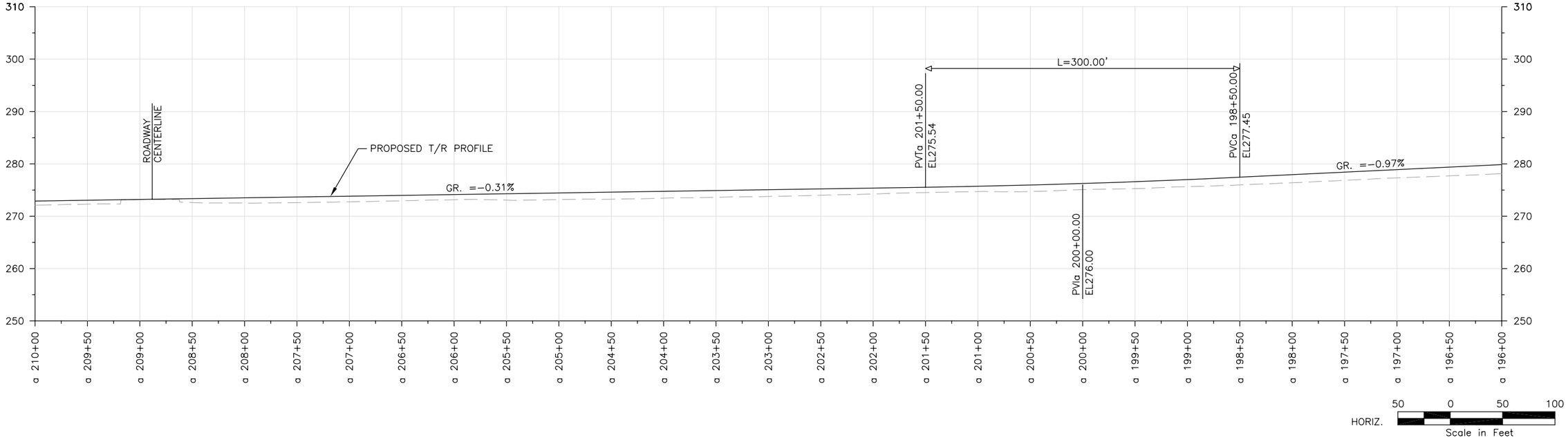
TRACK PLAN AND PROFILE

TA44

SHEET OF X SHEETS

CS01 - 000082





FILE NAME	PD_TA45.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:22pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX				CONTRACT NO.		LOCATION NO.
ENTERED BY	ETP				CON0010776		
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER
STATE OF WASHINGTON
42263
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

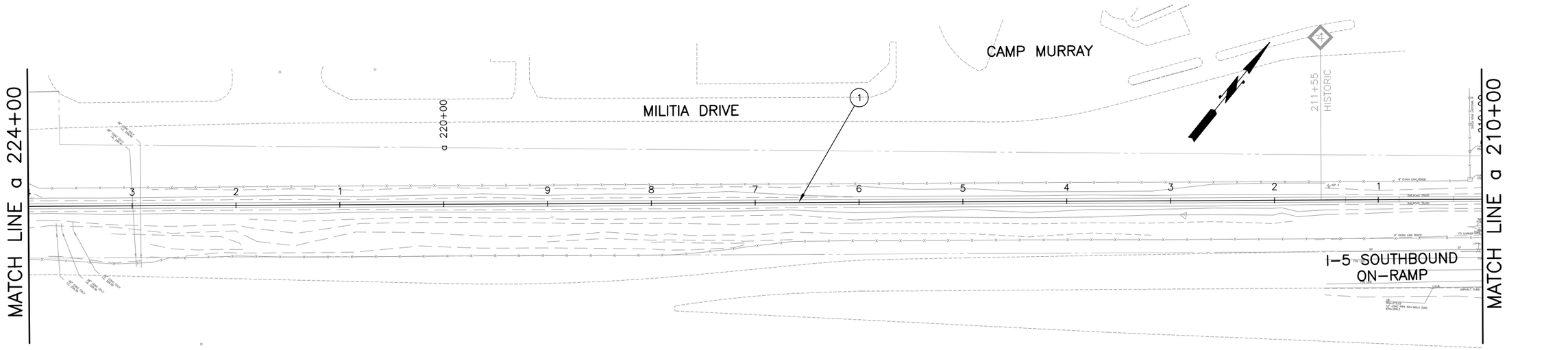
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 196+00 TO a 210+00

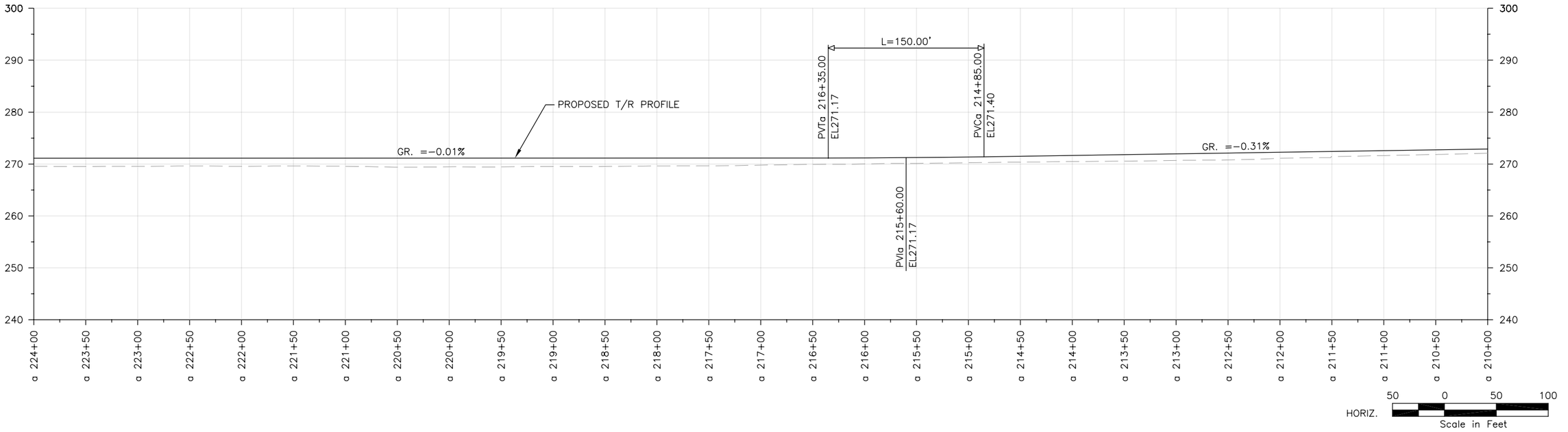
TA45

SHEET OF X SHEETS

TRACK PLAN AND PROFILE

CS01 - 000083





FILE NAME	PD_TA46.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:22pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP				CONTRACT NO.		LOCATION NO.
CHECKED BY	XXX				CON0010776		
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER
STATE OF WASHINGTON
42263
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

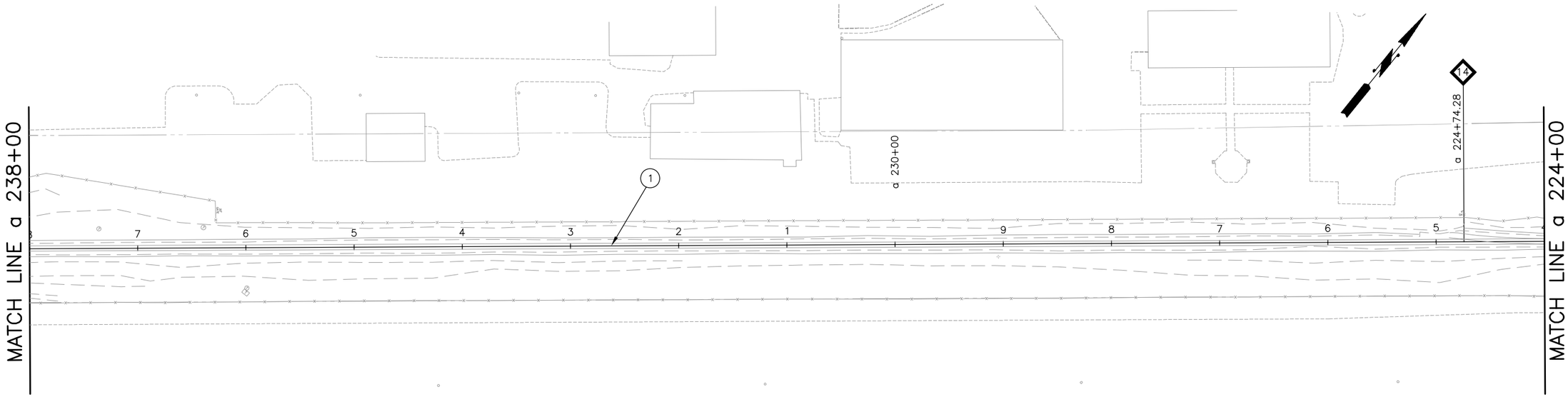
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⍺ 210+00 TO ⍺ 224+00

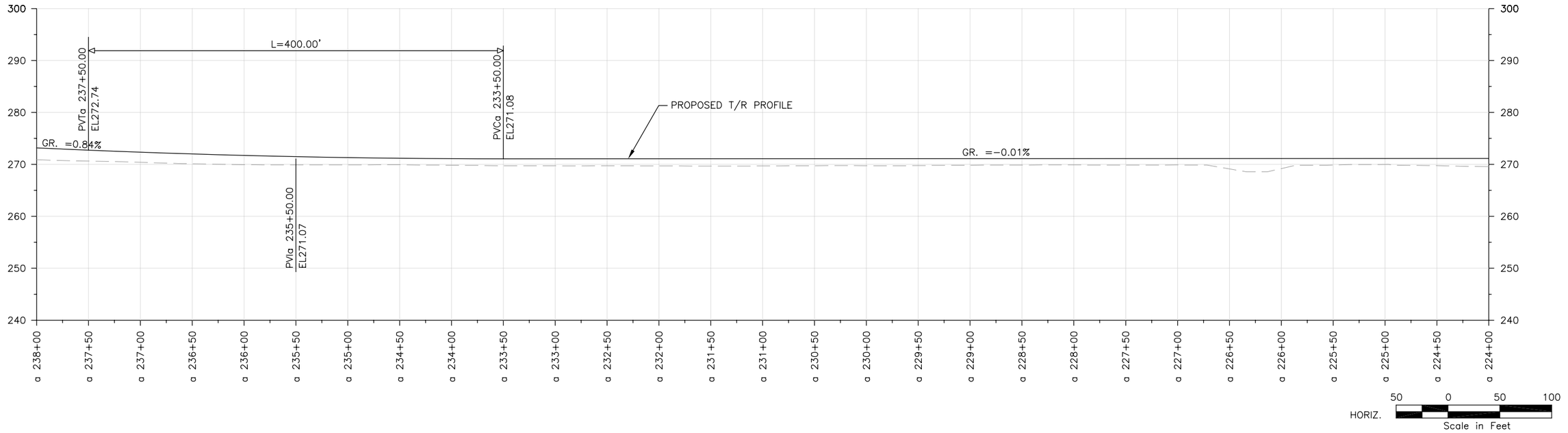
TRACK PLAN AND PROFILE

TA46

SHEET OF X SHEETS

CS01 - 000084





FILE NAME	PD_TA47.dwg						
TIME	3:22pm				REGION NO. 10	STATE WASH	FED.AID PROJ.NO.
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO. CON0010776		LOCATION NO.
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

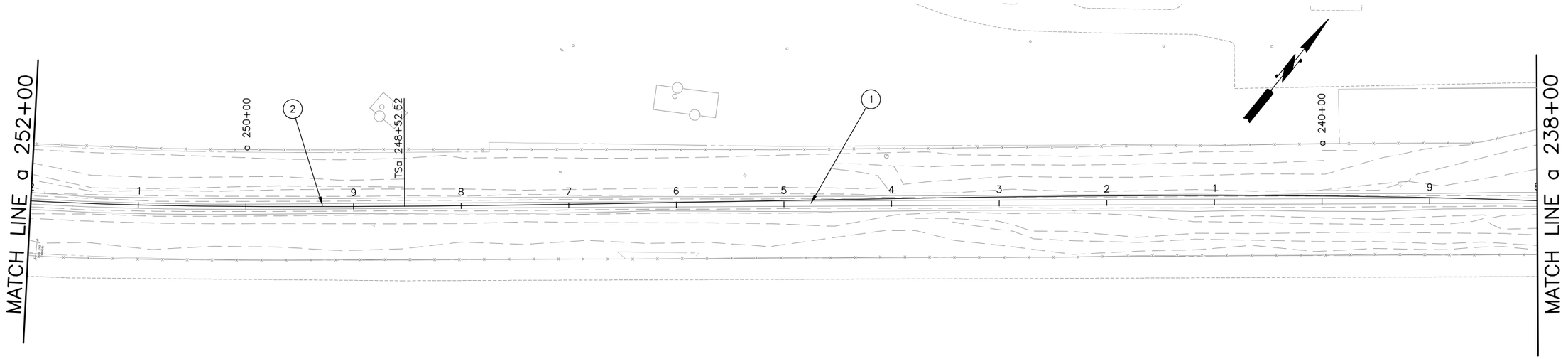
Washington State Department of Transportation

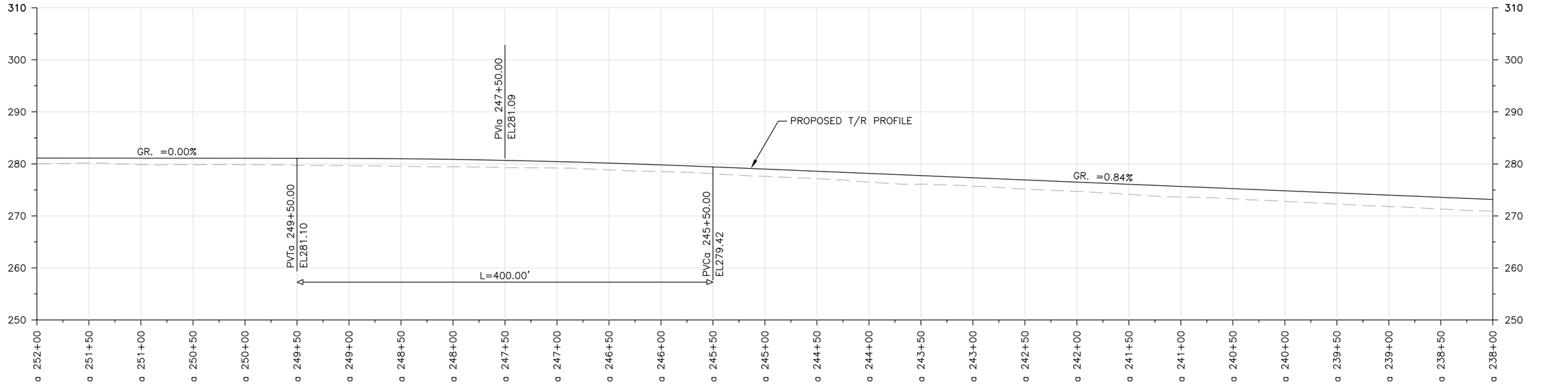
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 224+00 TO a 238+00

TRACK PLAN AND PROFILE

TA47

SHEET CS01 - 000085 OF X SHEETS





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA48.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:23pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

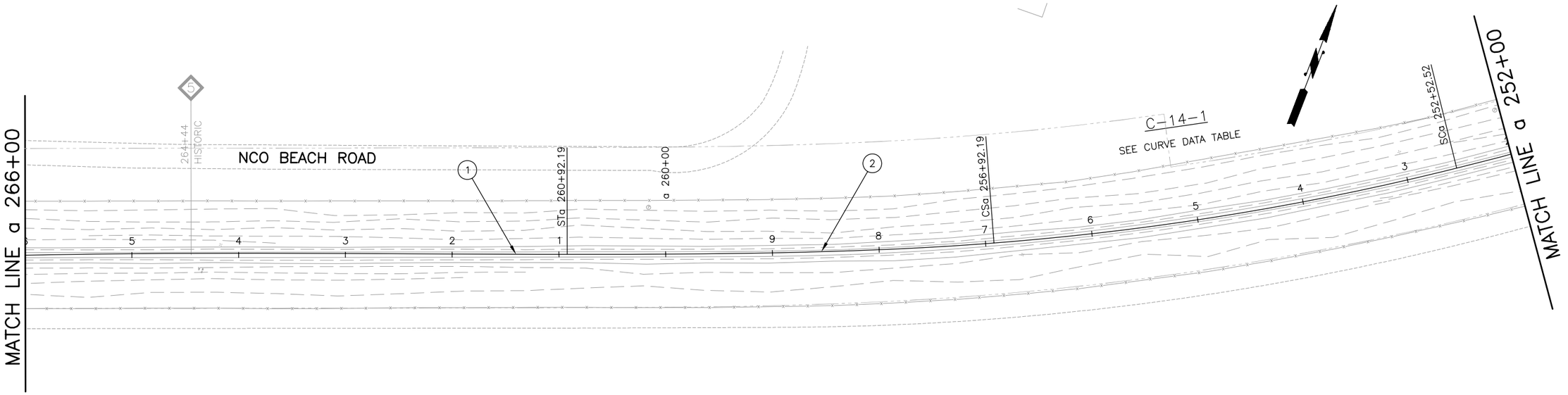
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 238+00 TO ⌀ 252+00

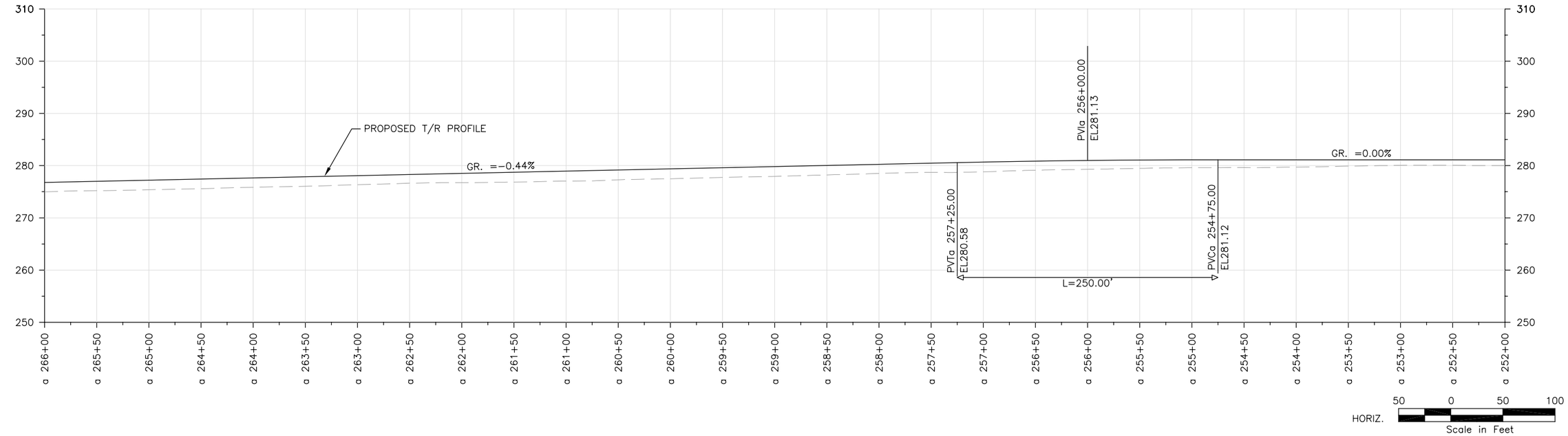
TA48

TRACK PLAN AND PROFILE

CS01 - 000086

SHEET OF X SHEETS





FILE NAME	PD_TA49.dwg						
TIME	3:23pm						
DATE	Feb 26, 2007						
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.		LOCATION NO.
CON0010776		

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

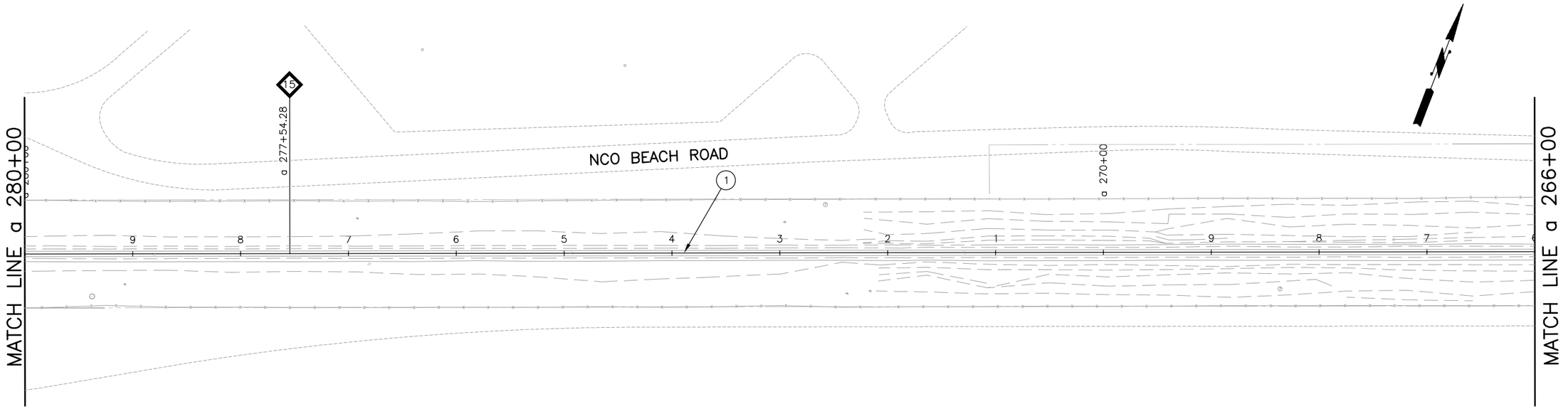
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 252+00 TO ⌀ 266+00

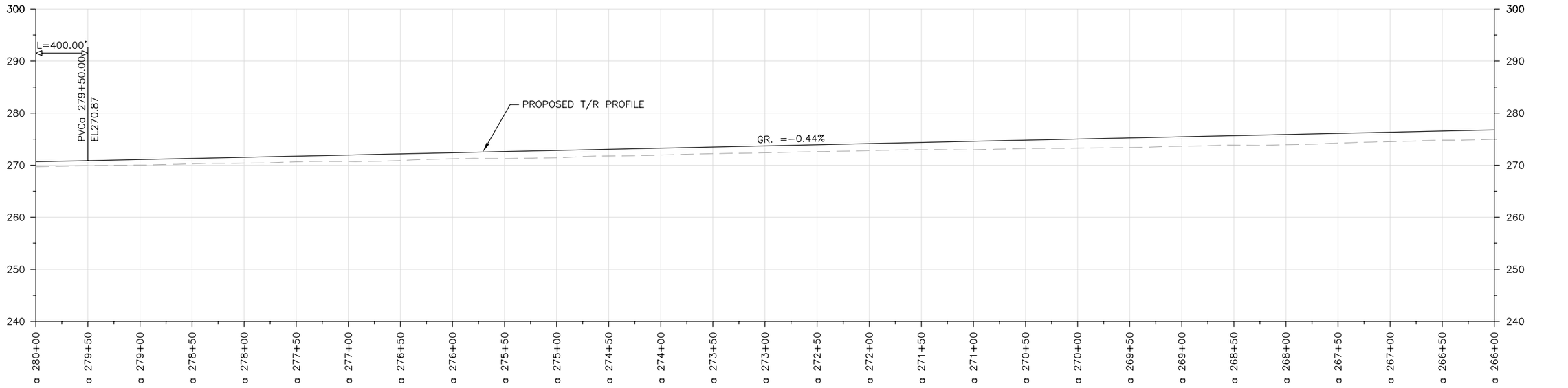
TRACK PLAN AND PROFILE

TA49

SHEET OF X SHEETS

CS01 - 000087





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA50.dwg						
TIME	3:23pm						
DATE	Feb 26, 2007						
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.		LOCATION NO.
CON0010776		

EUGENE MILES BERGER — STATE OF WASHINGTON — 42283 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

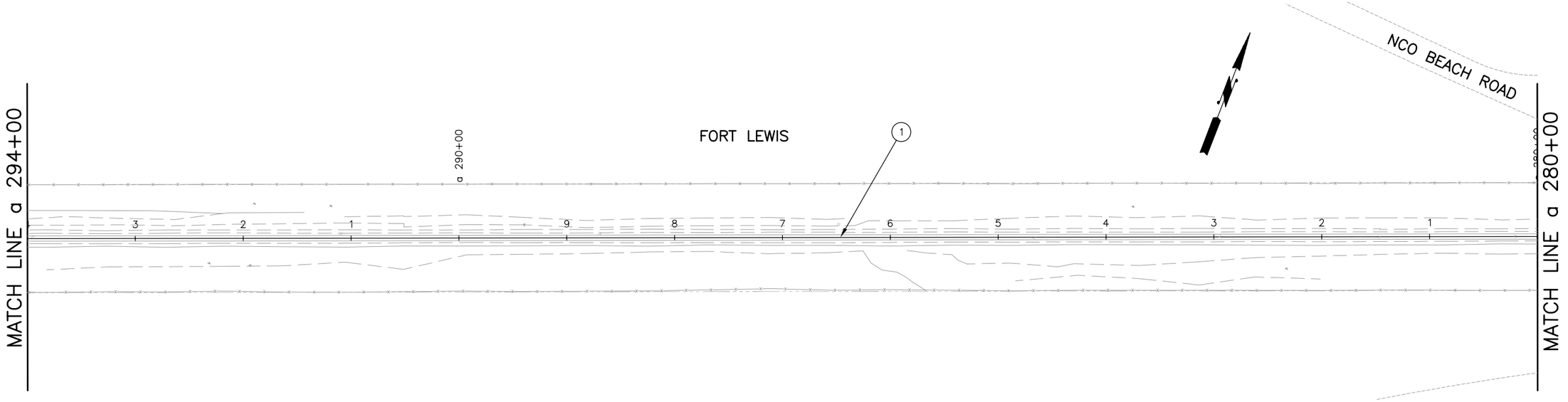
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⏀ 266+00 TO ⏀ 280+00

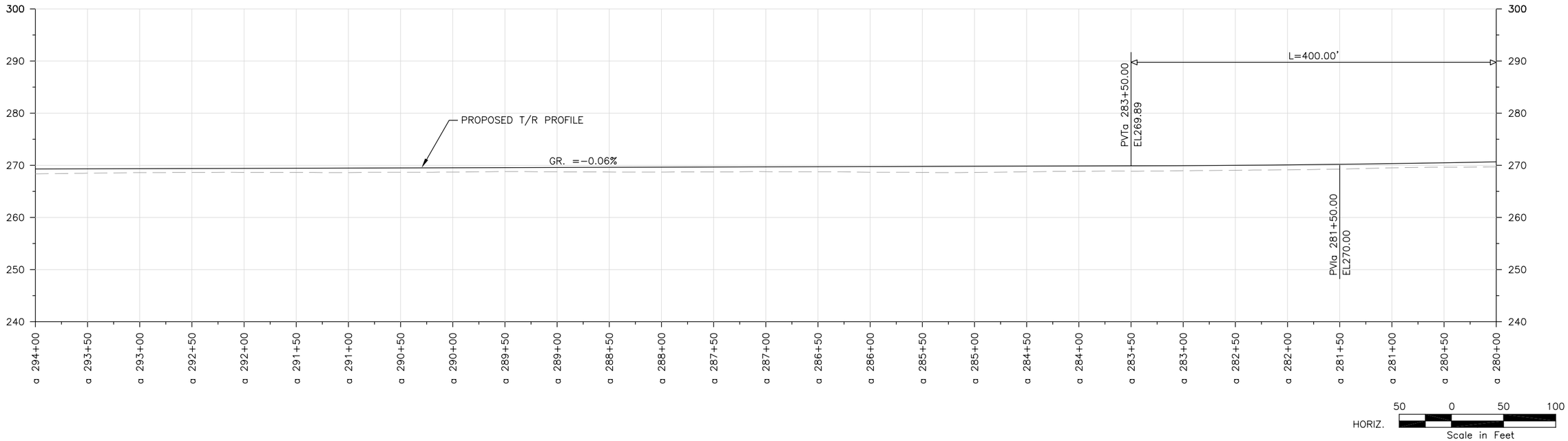
TRACK PLAN AND PROFILE

CS01 - 000088

TA50

SHEET OF X SHEETS





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA51.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:23pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX				CONTRACT NO.		LOCATION NO.
ENTERED BY	ETP				CON0010776		
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER
STATE OF WASHINGTON
42263
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

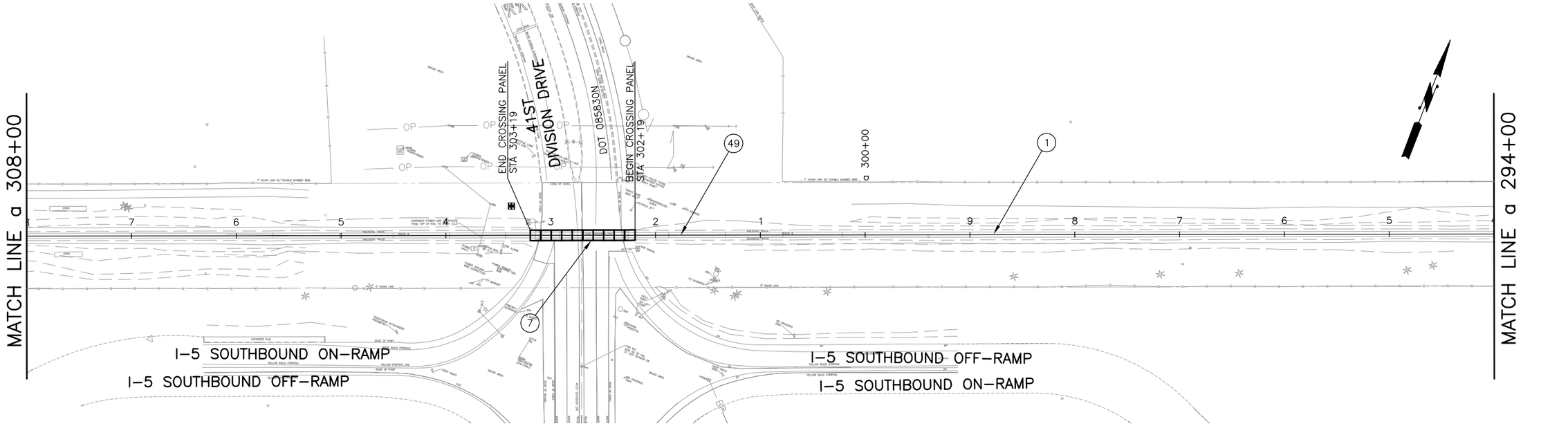
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 280+00 TO a 294+00

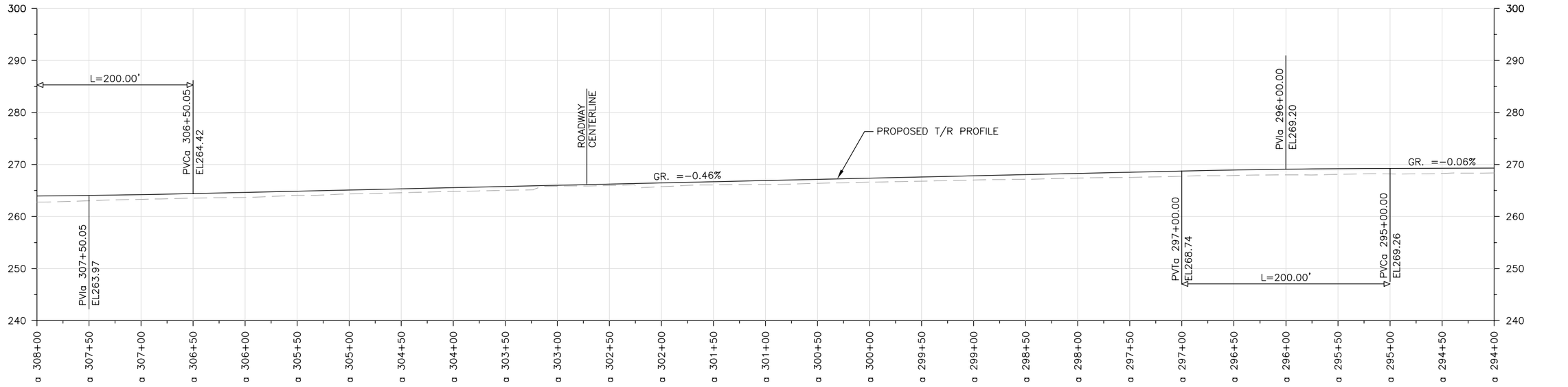
TA51

TRACK PLAN AND PROFILE

CS01 - 000089

SHEET OF X SHEETS





HORIZ. 50 0 50 100 Scale in Feet

FILE NAME	PD_TA52.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:24pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER STATE OF WASHINGTON 42263 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

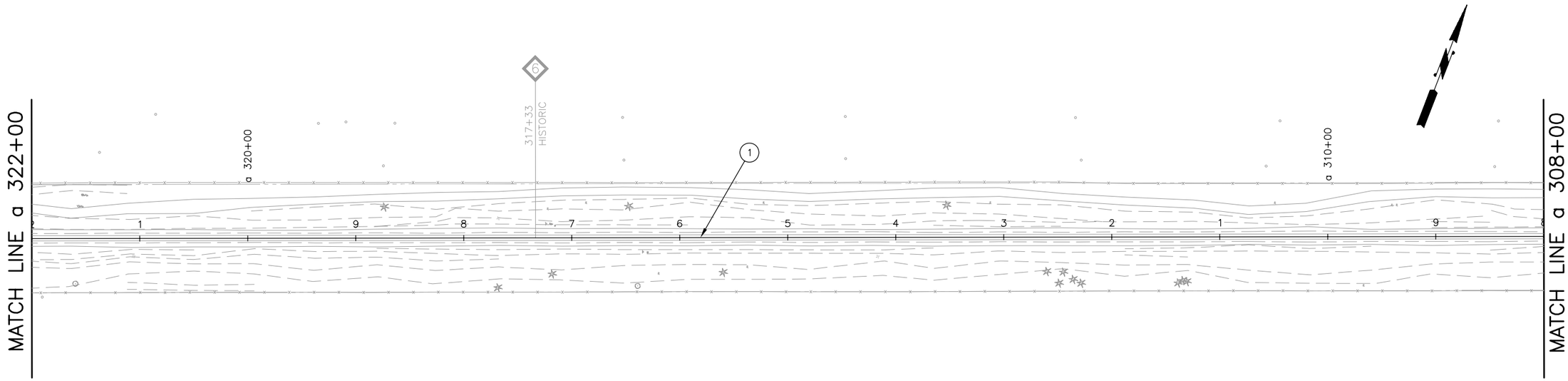
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 294+00 TO ⌀ 308+00

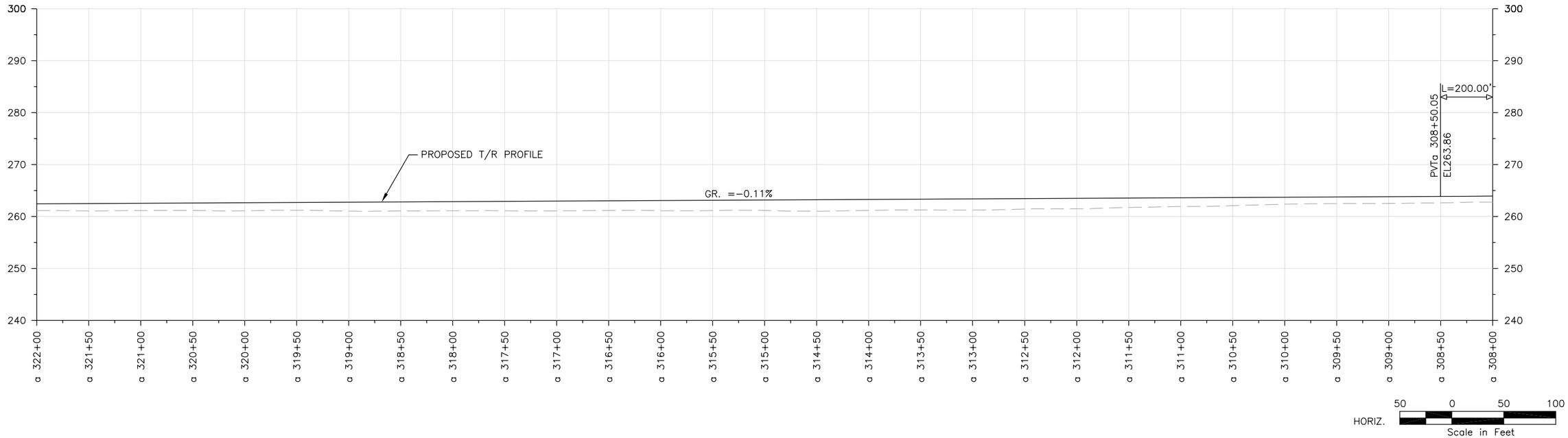
TA52

TRACK PLAN AND PROFILE

CS01 - 000090

SHEET OF X SHEETS





FILE NAME	PD_TA53.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:24pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX				CONTRACT NO.		LOCATION NO.
ENTERED BY	ETP				CON0010776		
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER
STATE OF WASHINGTON
42263
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

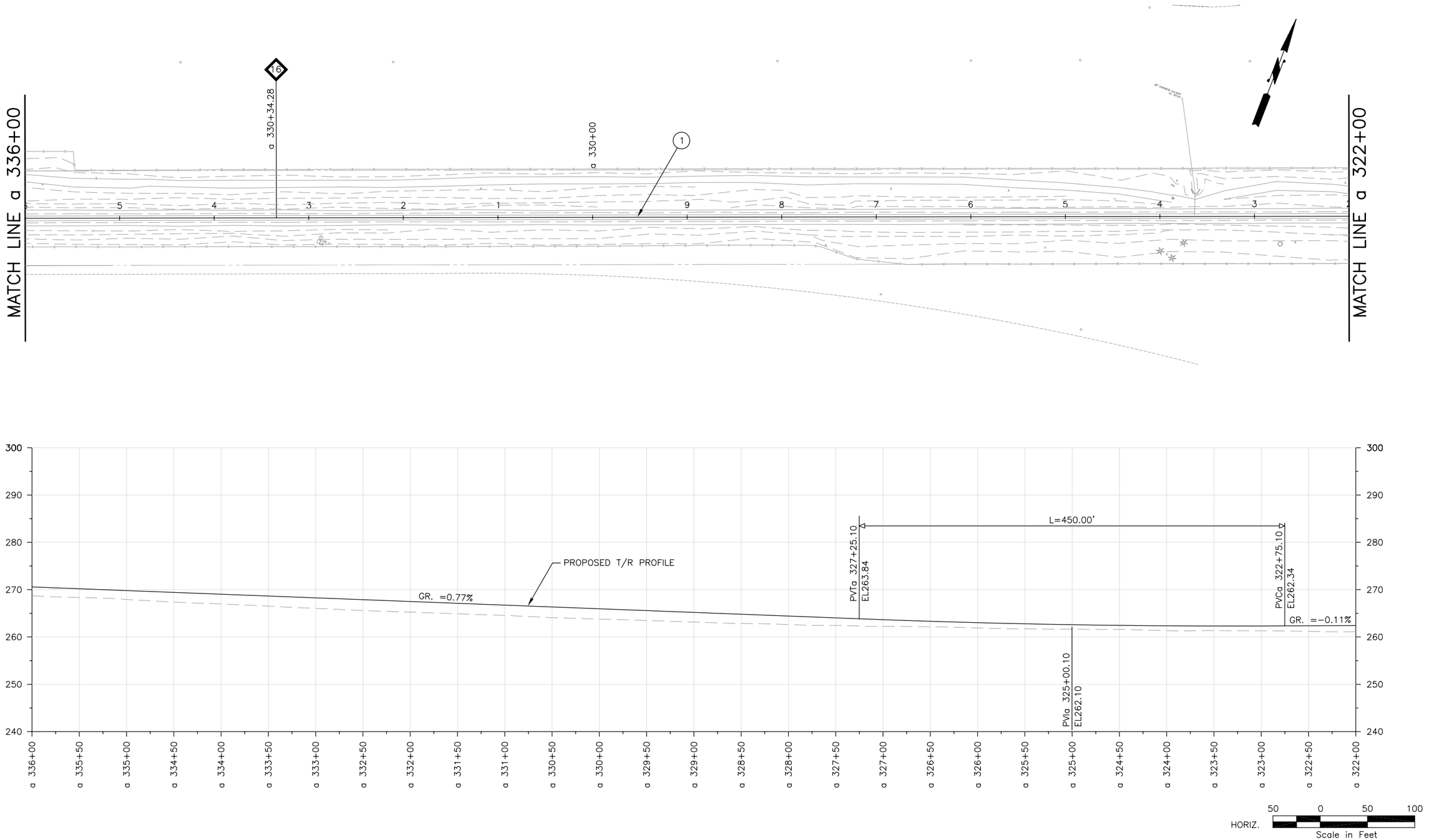
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 308+00 TO a 322+00

TA53

TRACK PLAN AND PROFILE

CS01 - 000091

SHEET OF X SHEETS



FILE NAME	PD_TA54.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:24pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP				CONTRACT NO.		LOCATION NO.
CHECKED BY	XXX				CON0010776		
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER
STATE OF WASHINGTON
42263
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

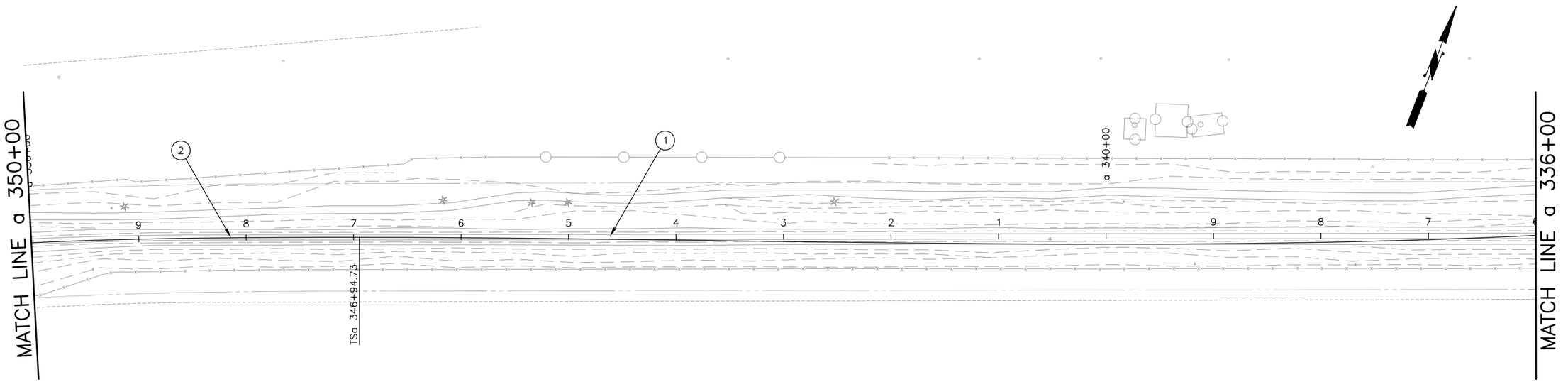
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 322+00 TO a 336+00

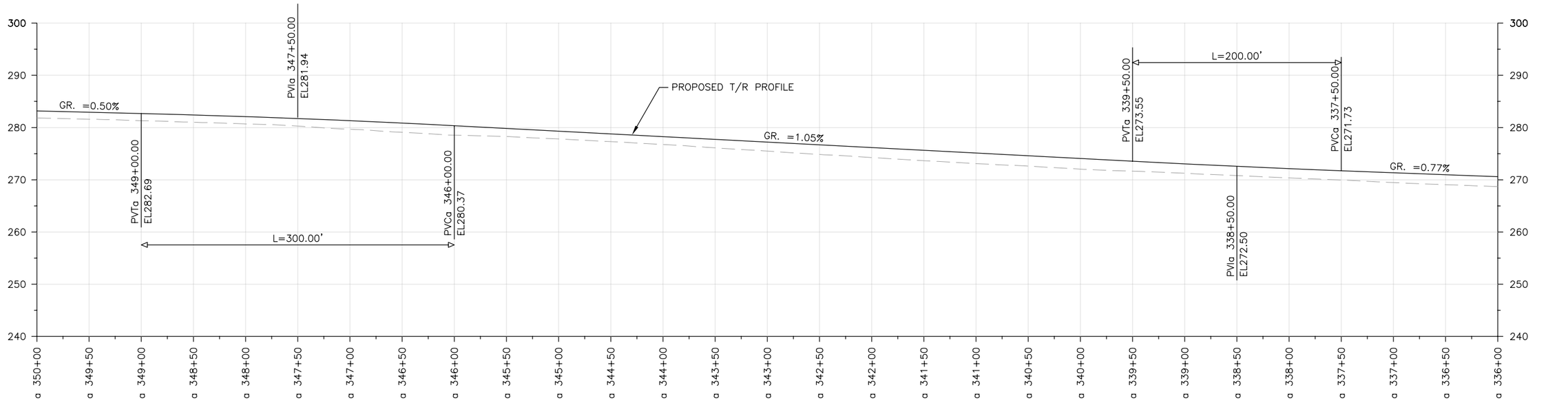
TA54

TRACK PLAN AND PROFILE

CS01 - 000092

SHEET OF X SHEETS





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA55.dwg						
TIME	3:24pm						
DATE	Feb 26, 2007						
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.		LOCATION NO.
CON0010776		

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

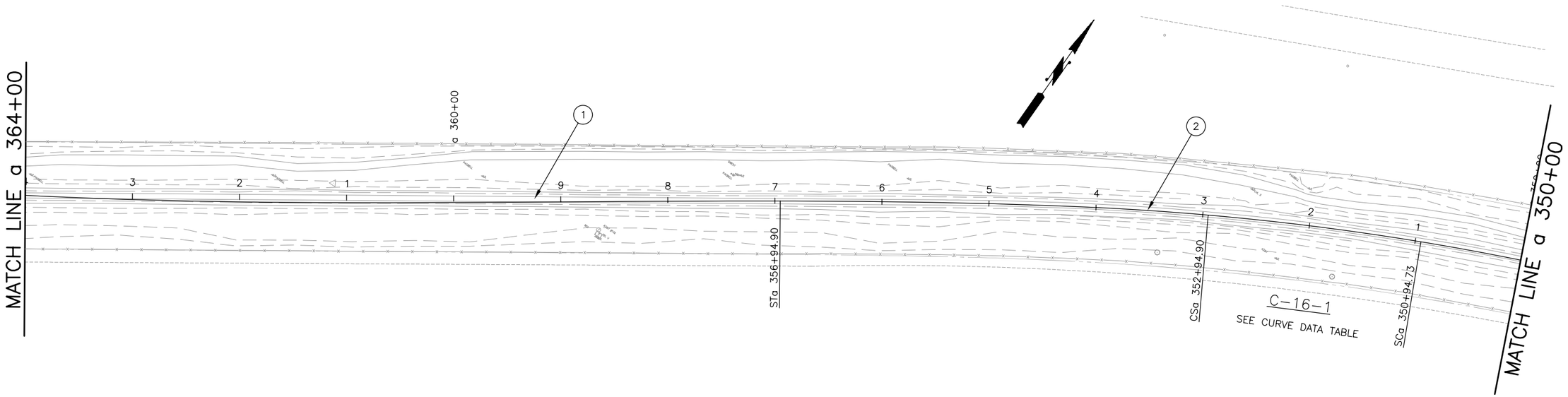
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 336+00 TO a 350+00

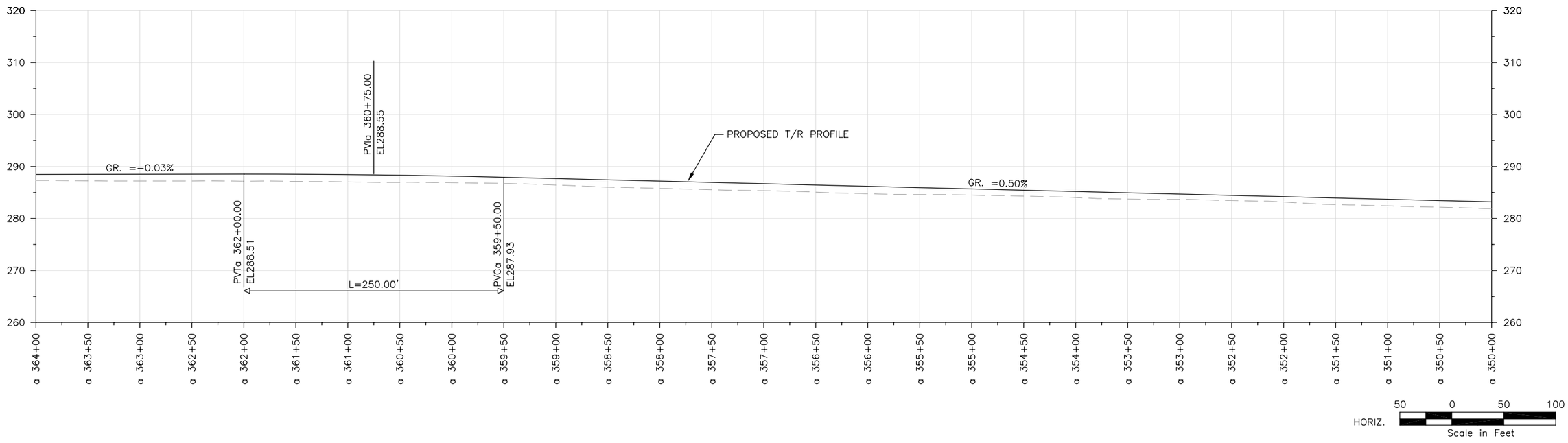
TRACK PLAN AND PROFILE

TA55

SHEET OF X SHEETS

CS01 - 000093





FILE NAME	PD_TA56.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:25pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.	LOCATION NO.	
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER
STATE OF WASHINGTON
42263
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

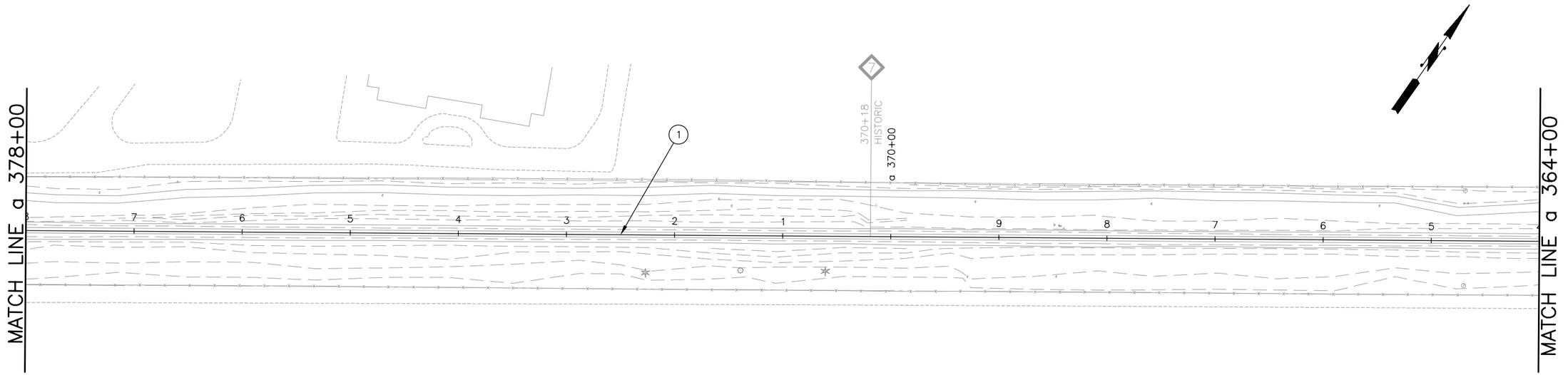
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 350+00 TO a 364+00

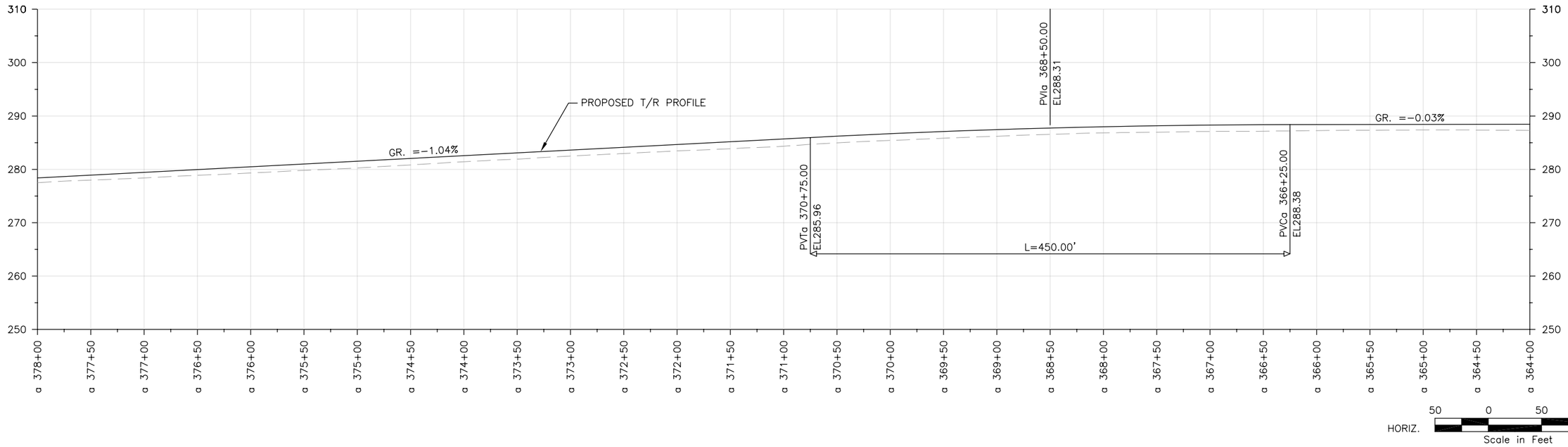
TA56

TRACK PLAN AND PROFILE

CS01 - 000094

SHEET OF X SHEETS





FILE NAME	PD_TA57.dwg						
TIME	3:25pm				REGION NO.	STATE	FED.AID PROJ.NO.
DATE	Feb 26, 2007				10	WASH	
PLOTTED BY	epeterso				JOB NUMBER		
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER
STATE OF WASHINGTON
42263
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

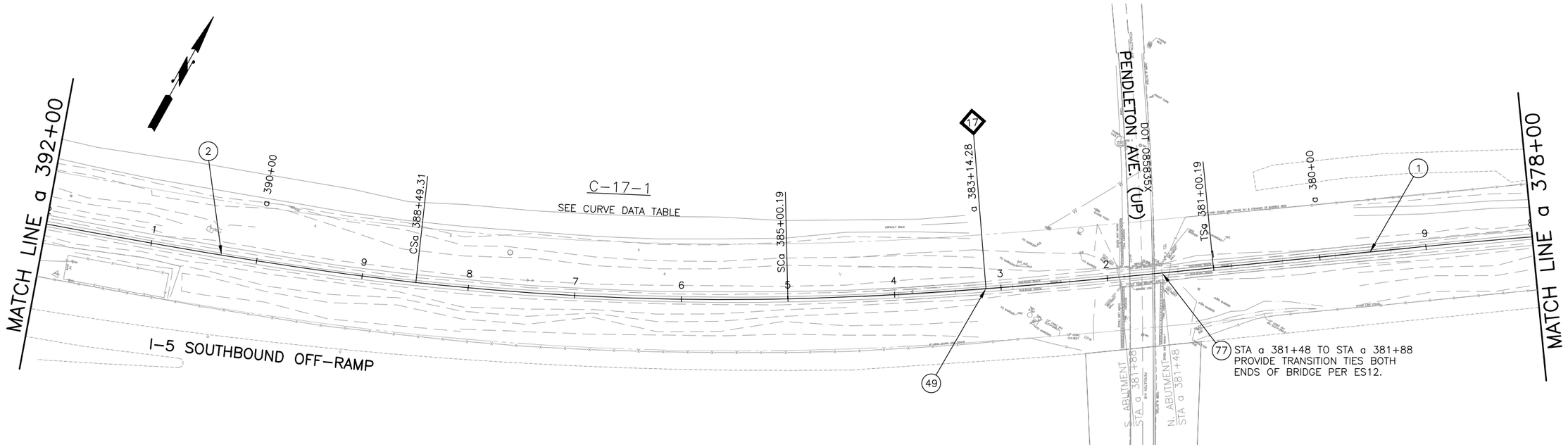
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 364+00 TO ⌀ 378+00

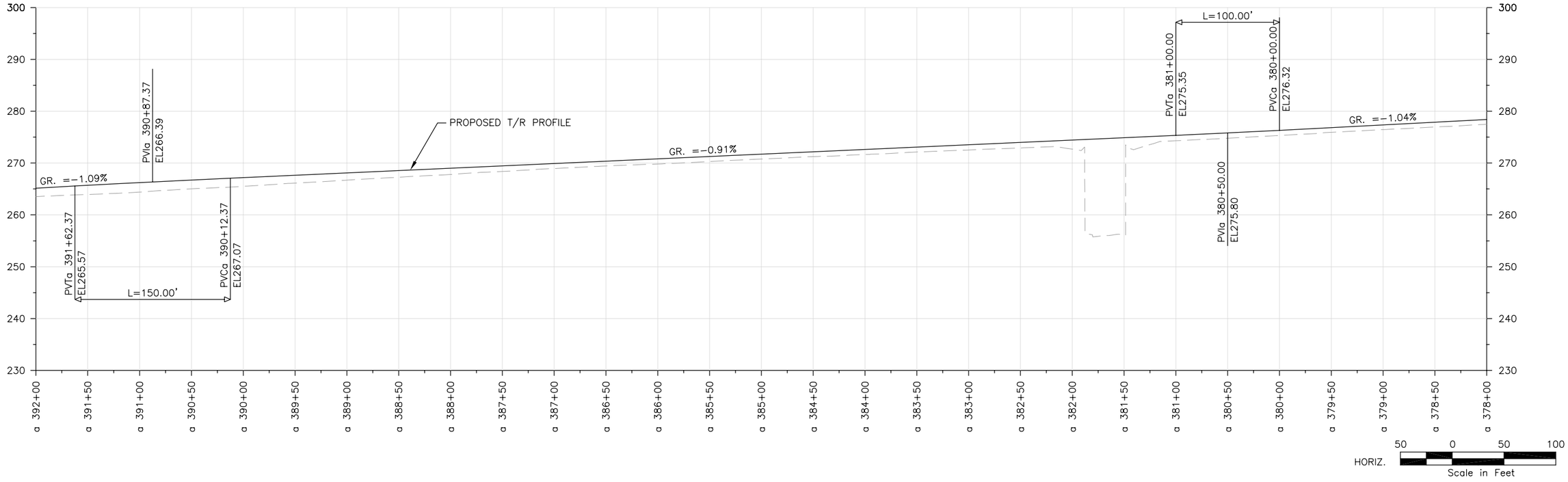
TRACK PLAN AND PROFILE

TA57

SHEET OF X SHEETS

CS01 - 000095





FILE NAME	PD_TA58.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:25pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP				CONTRACT NO.	LOCATION NO.	
CHECKED BY	XXX				CON0010776		
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

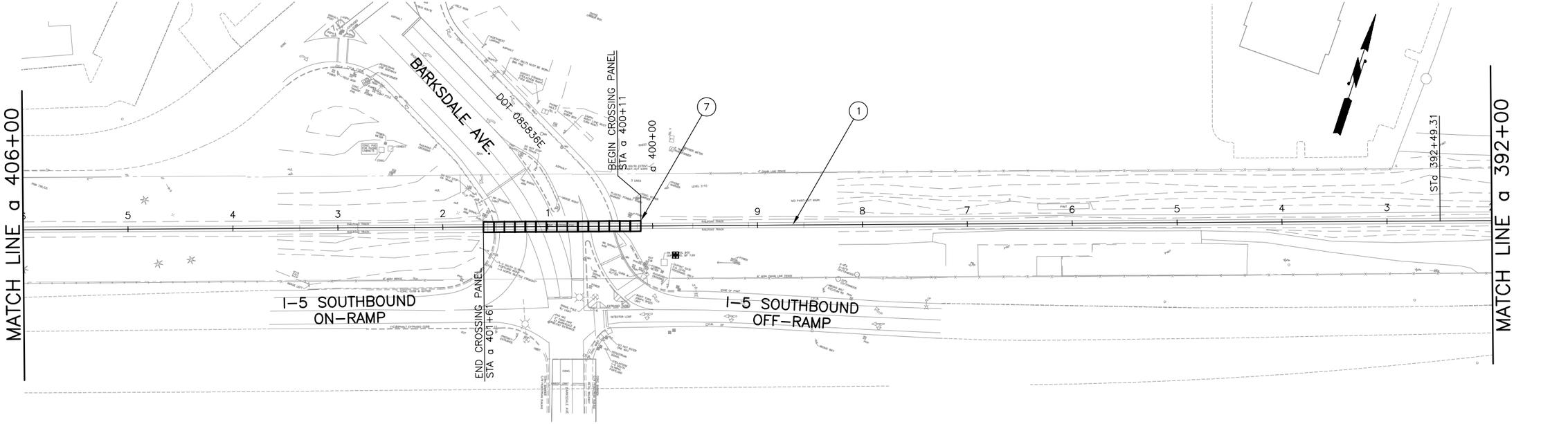
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 378+00 TO a 392+00

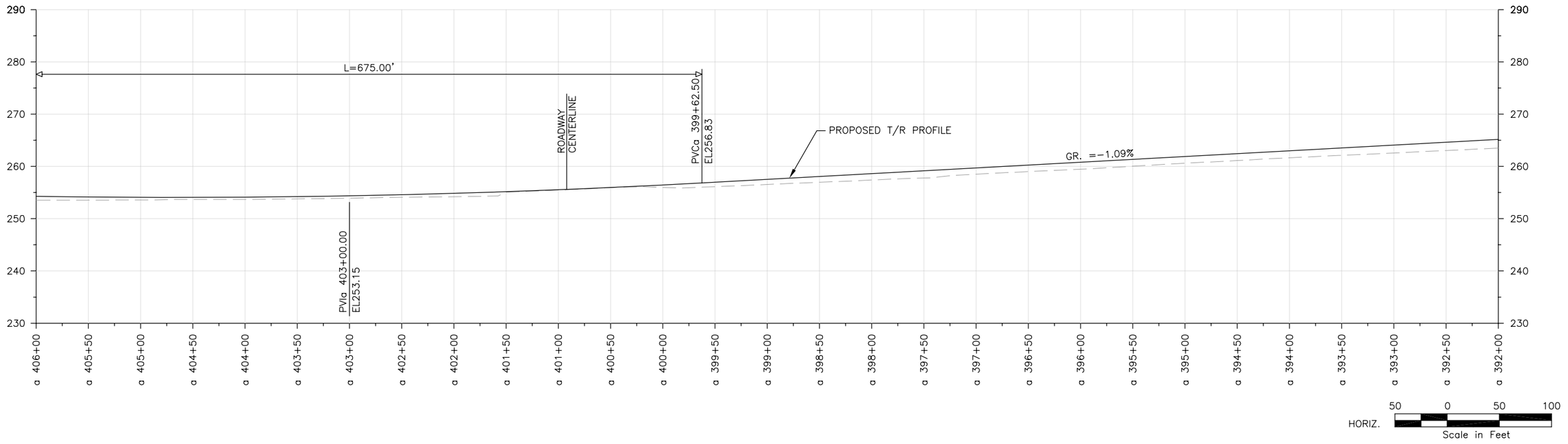
TA58

TRACK PLAN AND PROFILE

CS01 - 000096

SHEET OF X SHEETS





FILE NAME	PD_TA59.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:26pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX				CONTRACT NO.	LOCATION NO.	
ENTERED BY	ETP				CON0010776		
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

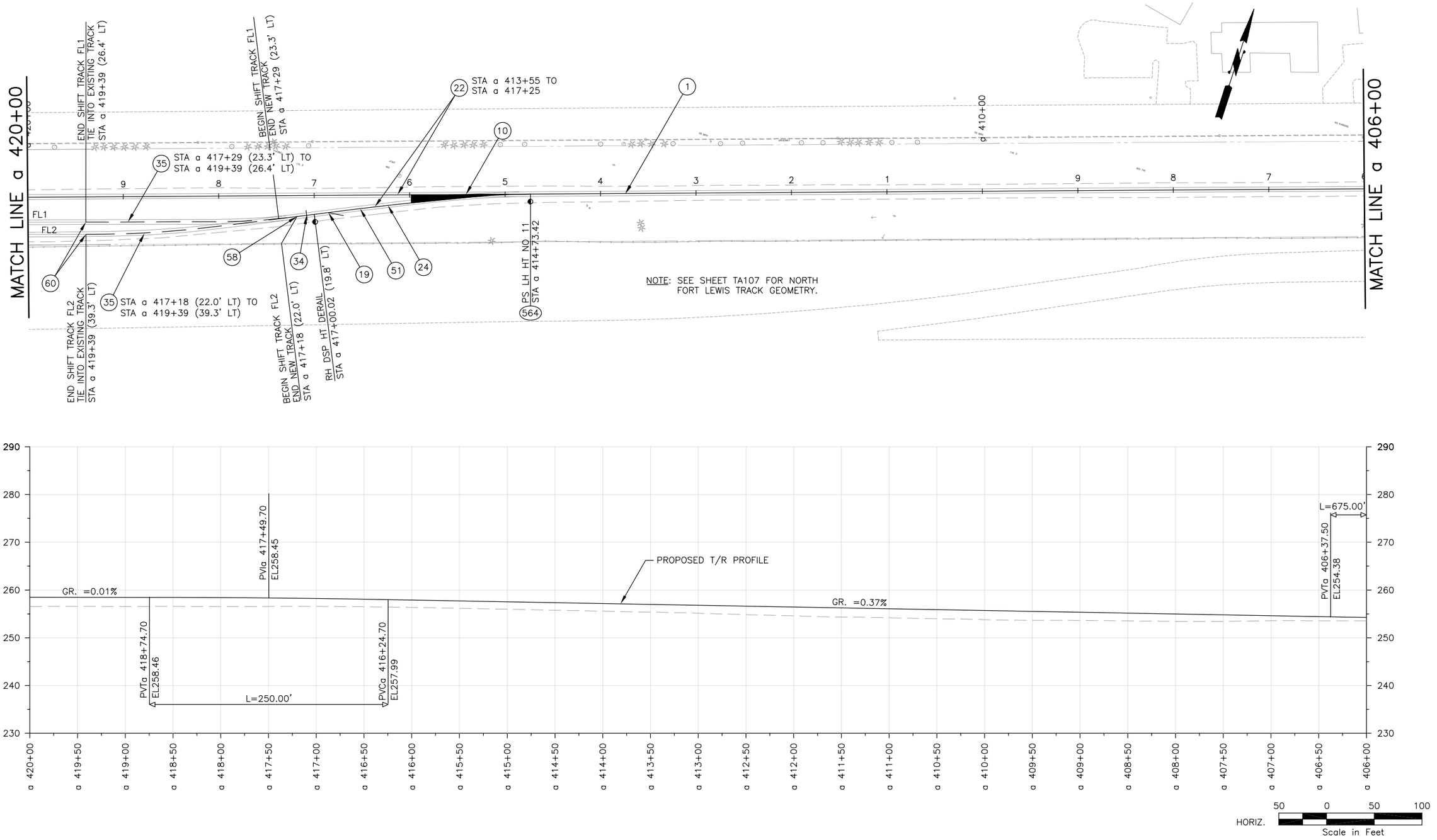
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 392+00 TO ⌀ 406+00

TRACK PLAN AND PROFILE

TA59

SHEET OF X SHEETS

CS01 - 000097



FILE NAME	PD_TA60.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:26pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.	LOCATION NO.	
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BRAGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

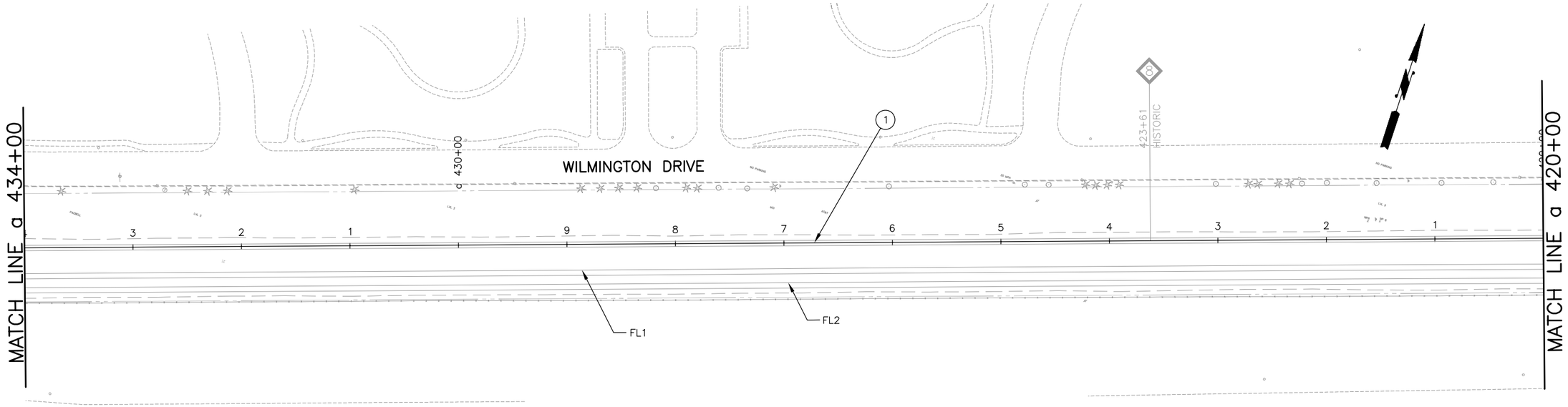
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 406+00 TO ⌀ 420+00

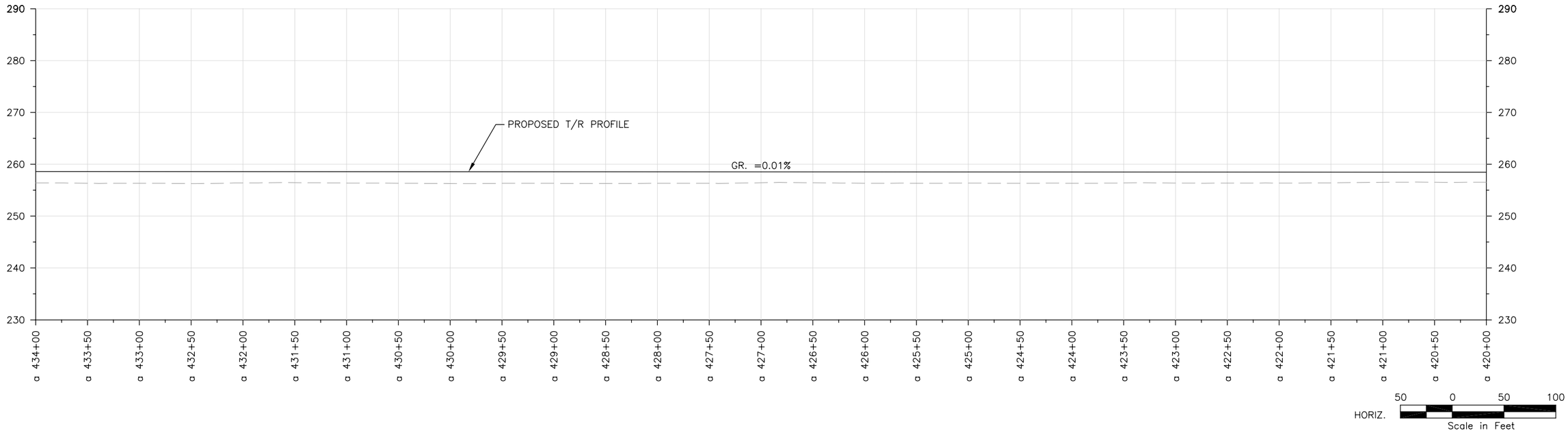
TRACK PLAN AND PROFILE

TA60

SHEET OF X SHEETS

CS01 - 000098





FILE NAME	PD_TA61.dwg						
TIME	3:26pm						
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PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
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PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.		LOCATION NO.
CON0010776		

EUGENE MILES BERGER — STATE OF WASHINGTON — 42283 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

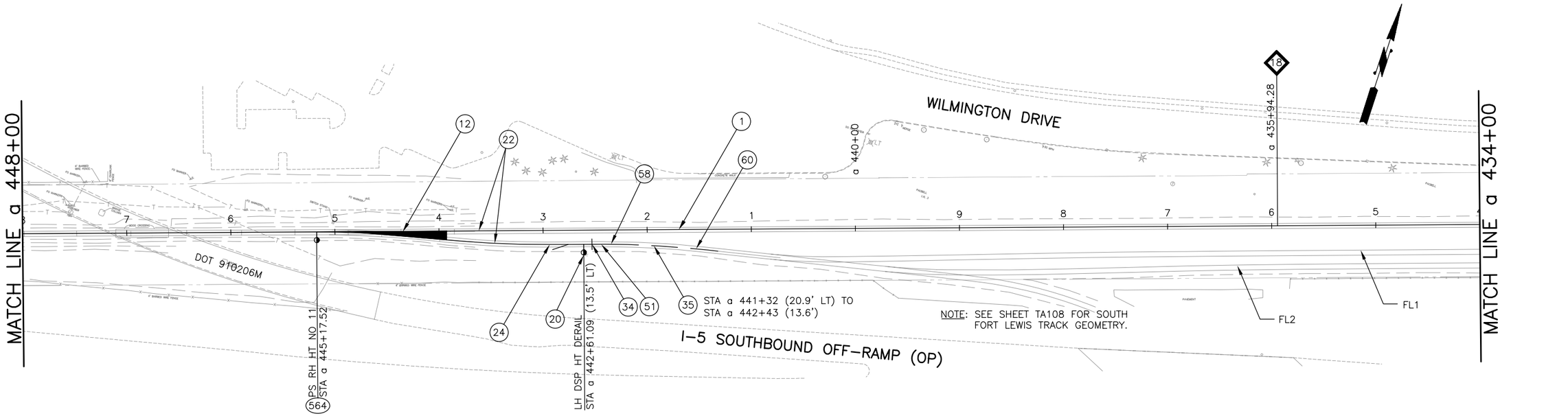
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 420+00 TO a 434+00

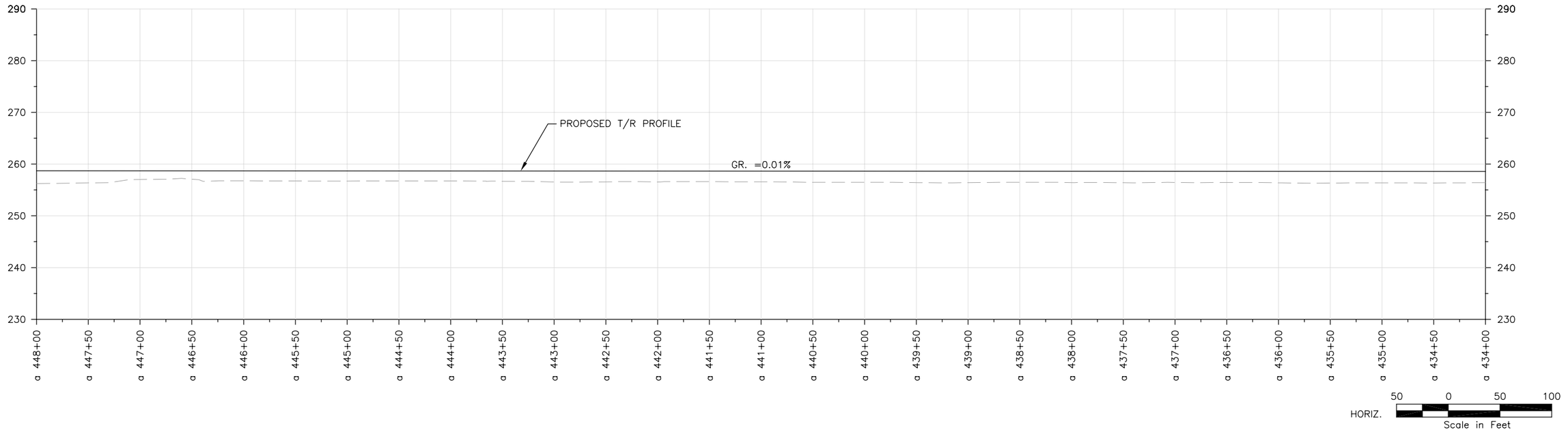
TRACK PLAN AND PROFILE

CS01 - 000099

TA61

SHEET OF X SHEETS





FILE NAME	PD_TA62.dwg						
TIME	3:26pm						
DATE	Feb 26, 2007						
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.		LOCATION NO.
CON0010776		

EUGENE MILES BERGER
STATE OF WASHINGTON
42283
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

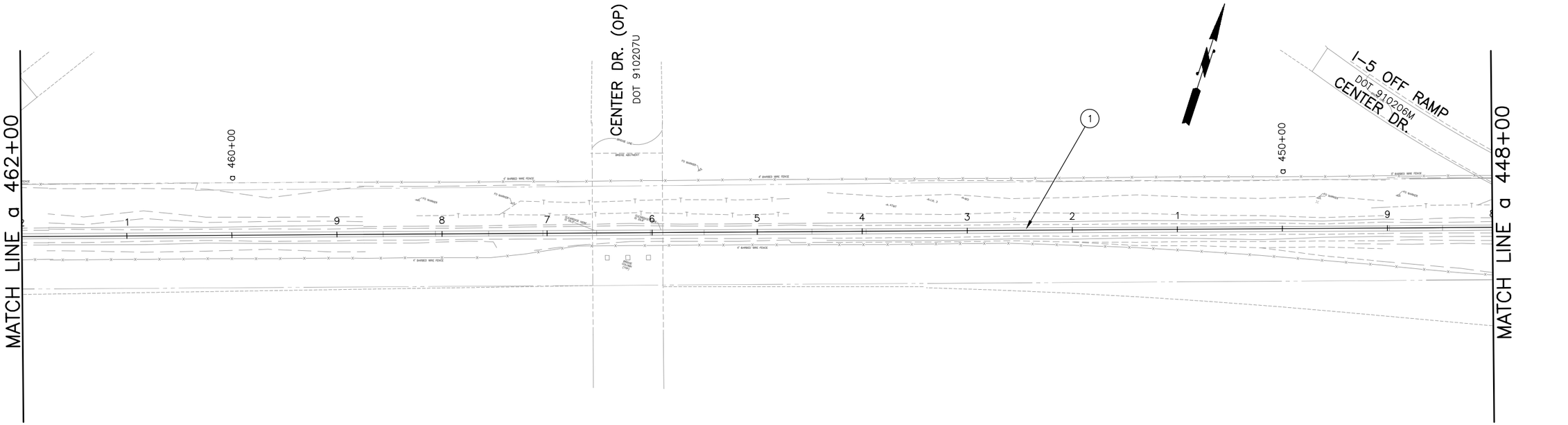
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⍺ 434+00 TO ⍺ 448+00

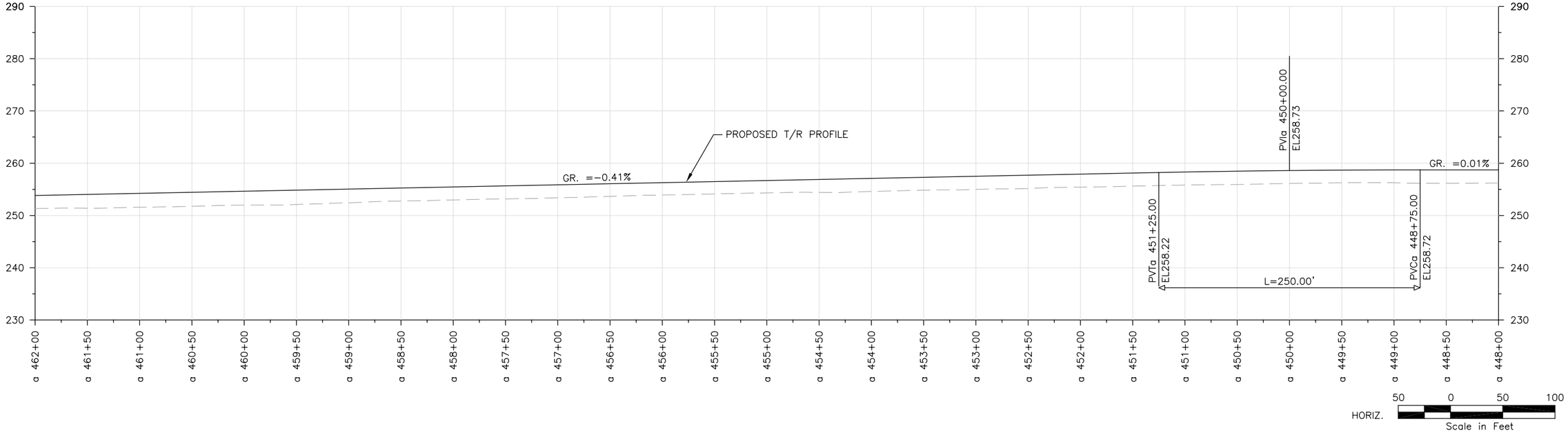
TRACK PLAN AND PROFILE

TA62

SHEET OF X SHEETS

CS01 - 000100





FILE NAME	PD_TA63.dwg						
TIME	3:27pm						
DATE	Feb 26, 2007						
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
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PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.		LOCATION NO.
CON0010776		

EUGENE MILES BERGER
STATE OF WASHINGTON
42283
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

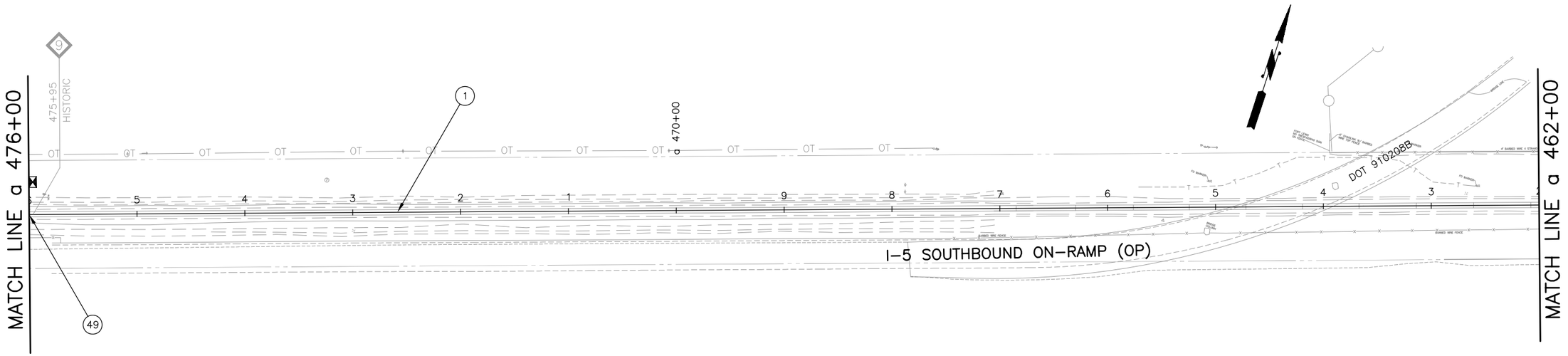
Washington State Department of Transportation

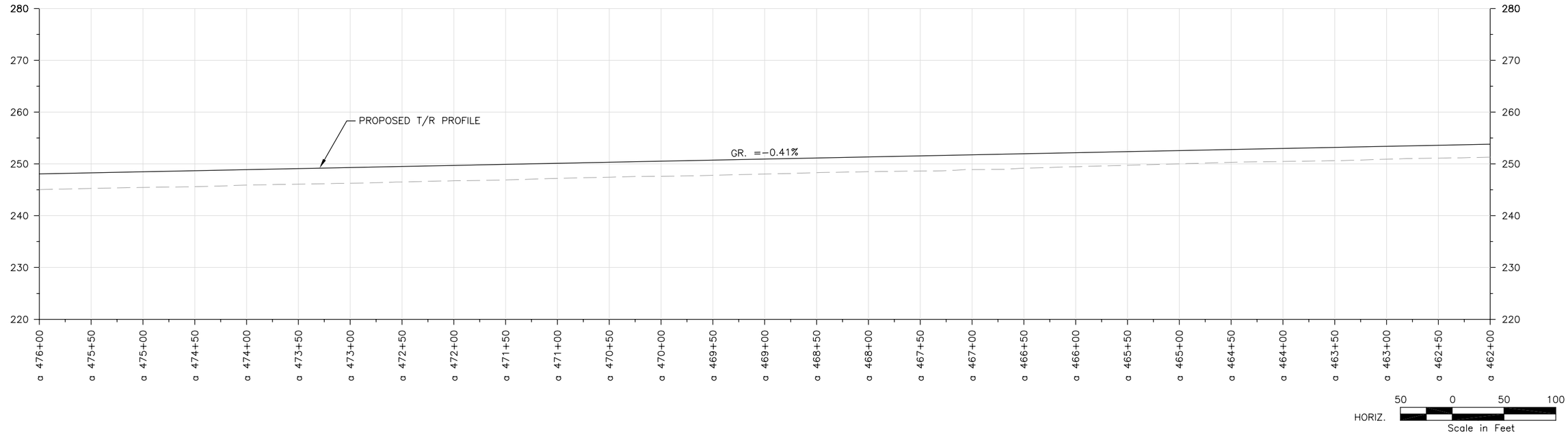
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 448+00 TO ⌀ 462+00

TRACK PLAN AND PROFILE

TA63

SHEET CS01 - 000101 OF X SHEETS





FILE NAME	PD_TA64.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:27pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
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ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BRADGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

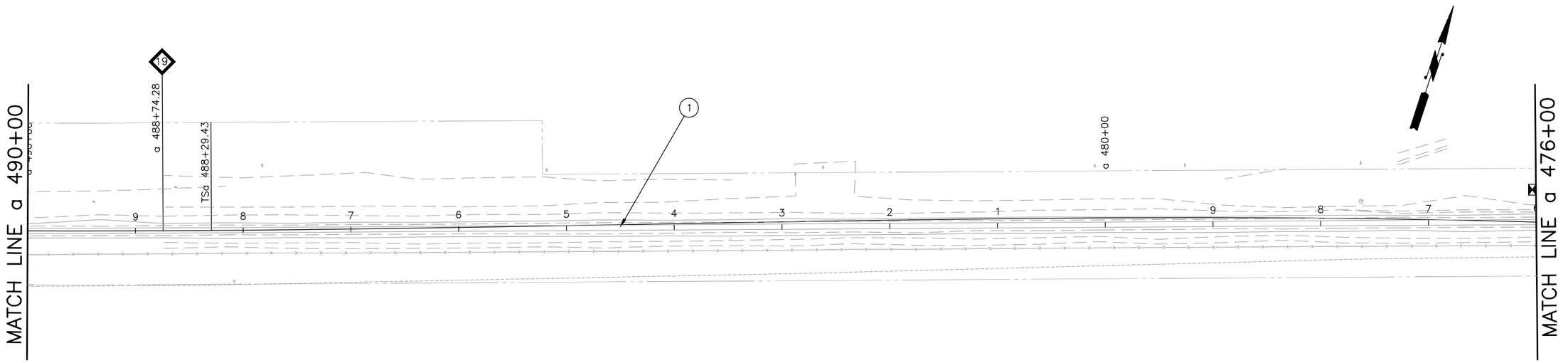
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 462+00 TO ⌀ 476+00

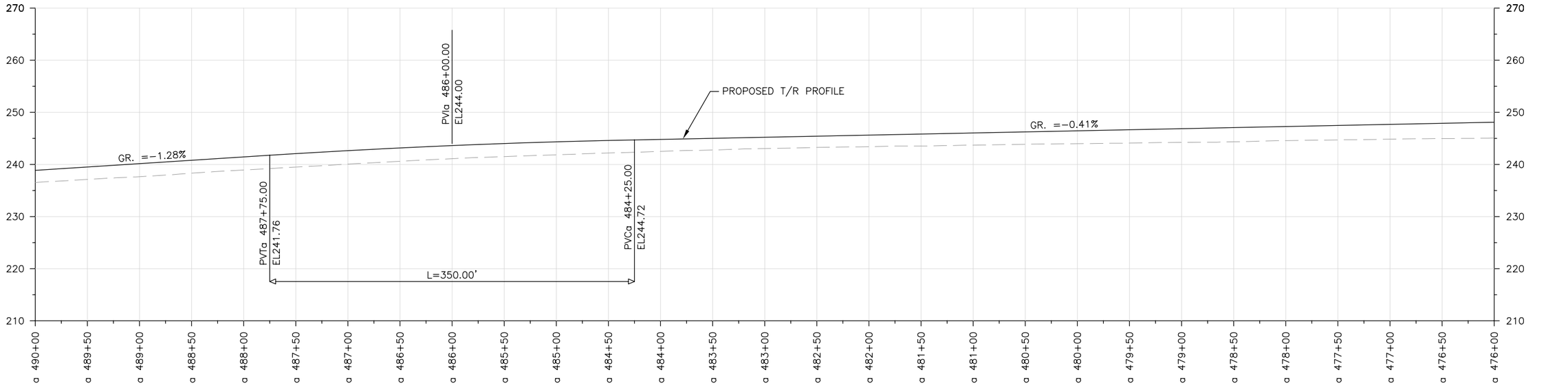
TRACK PLAN AND PROFILE

TA64

SHEET OF X SHEETS

CS01 - 000102





FILE NAME	PD_TA65.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:27pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.	LOCATION NO.	
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

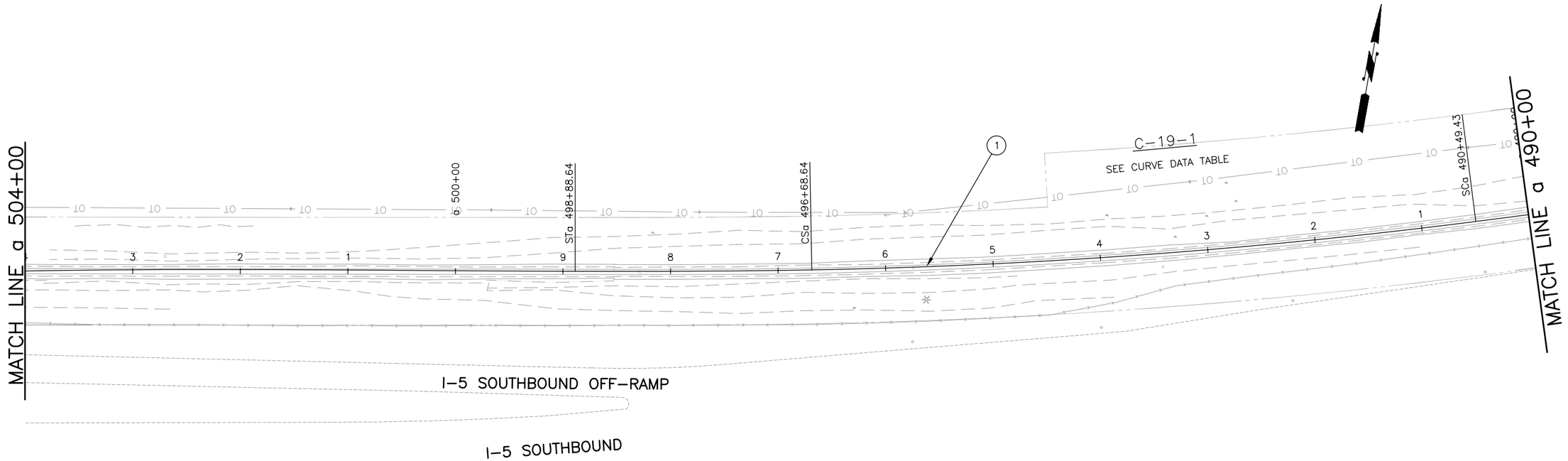
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⍺ 476+00 TO ⍺ 490+00

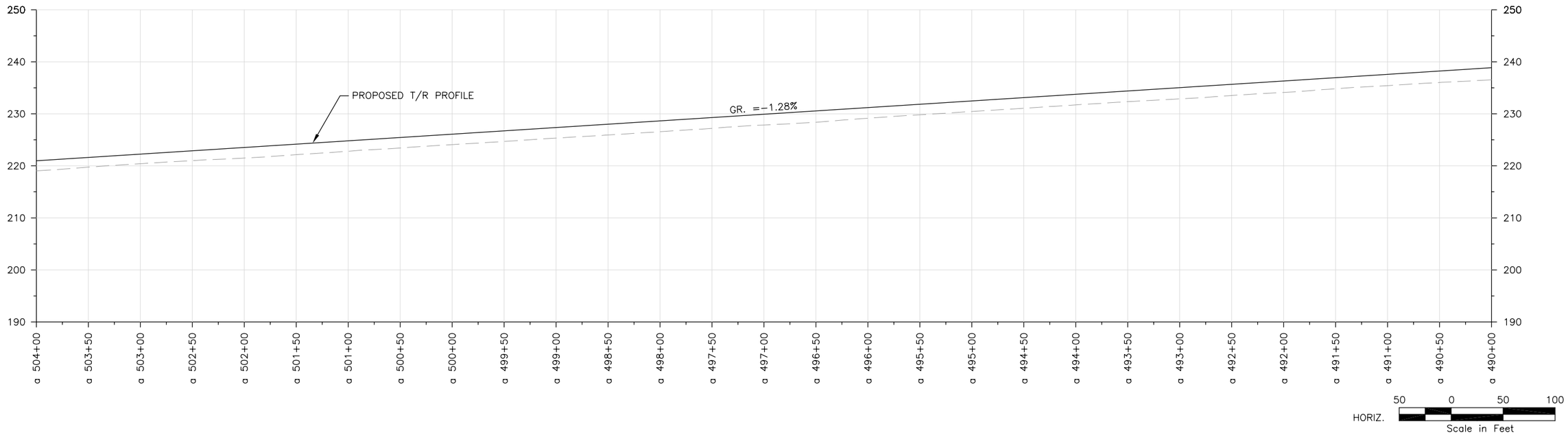
TRACK PLAN AND PROFILE

TA65

SHEET OF X SHEETS

CS01 - 000103





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA66.dwg						
TIME	3:27pm				REGION NO.	STATE	FED.AID PROJ.NO.
DATE	Feb 26, 2007				10	WASH	
PLOTTED BY	epeterso				JOB NUMBER		
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER
STATE OF WASHINGTON
42263
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

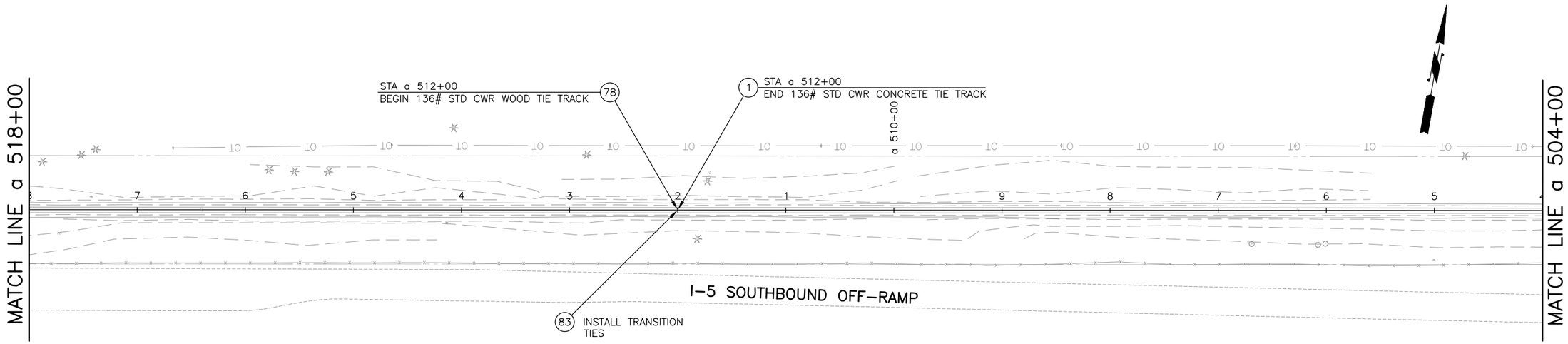
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 490+00 TO a 504+00

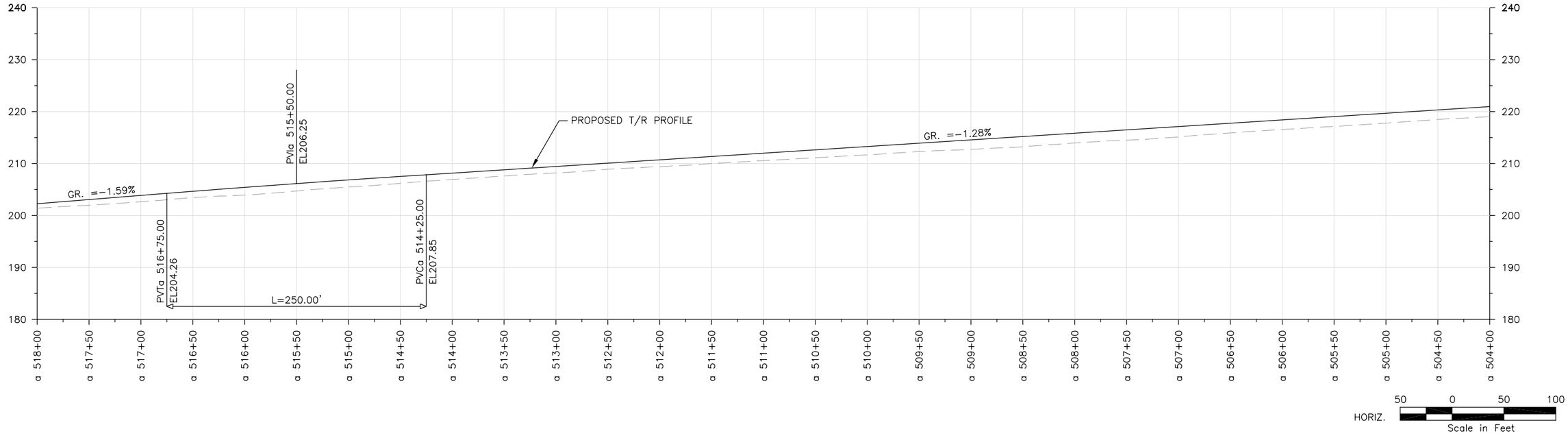
TRACK PLAN AND PROFILE

TA66

CS01 - 000104

SHEET OF X SHEETS





FILE NAME	PD_TA67.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:28pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

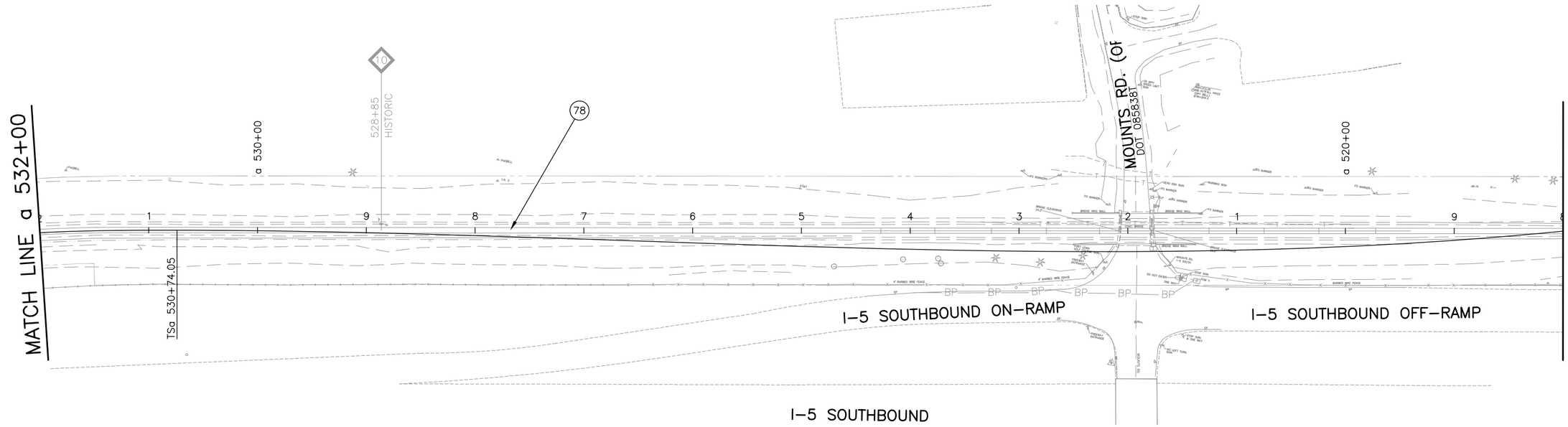
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 504+00 TO ⌀ 518+00

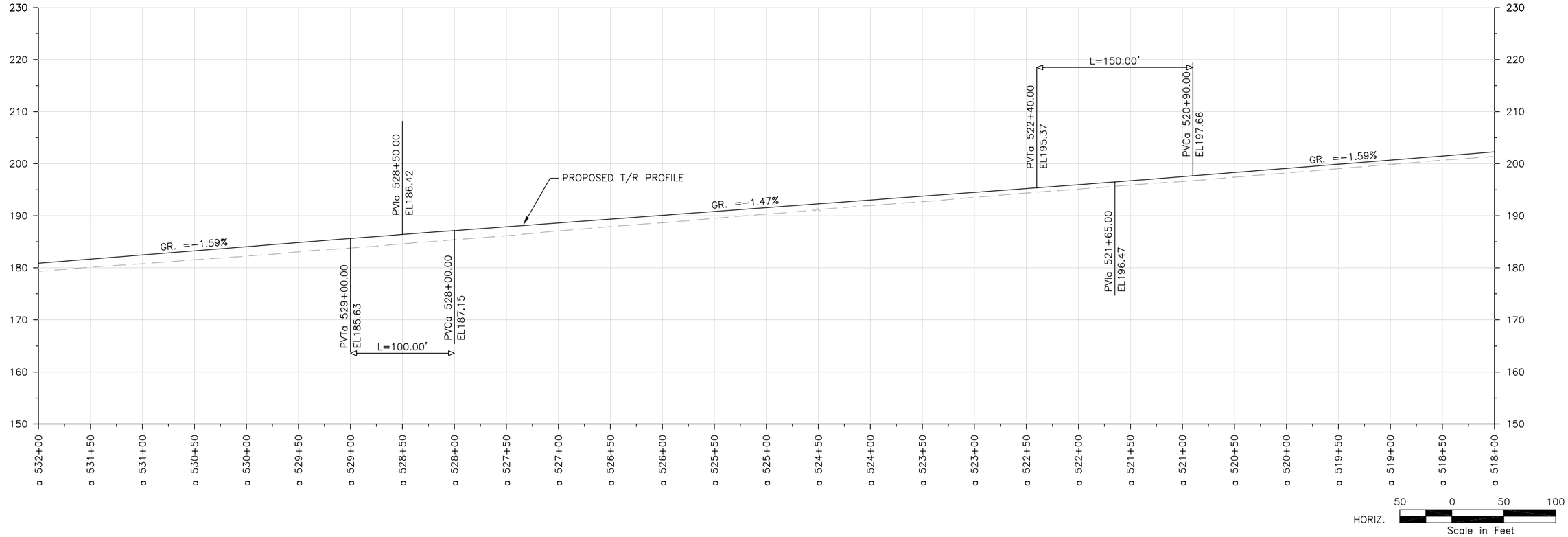
TRACK PLAN AND PROFILE

TA67

SHEET
OF
X
SHEETS

CS01 - 000105





FILE NAME	PD_TA68.dwg						
TIME	3:28pm						
DATE	Feb 26, 2007						
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.		LOCATION NO.
CON0010776		

EUGENE MILES BERGER
STATE OF WASHINGTON
42263
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

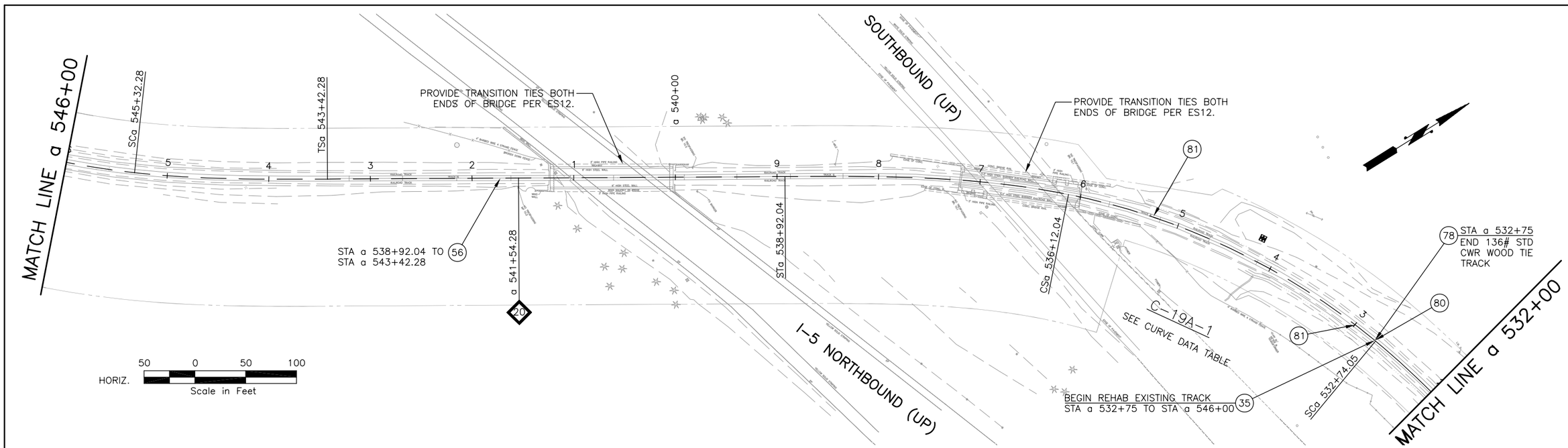
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 518+00 TO ⌀ 532+00

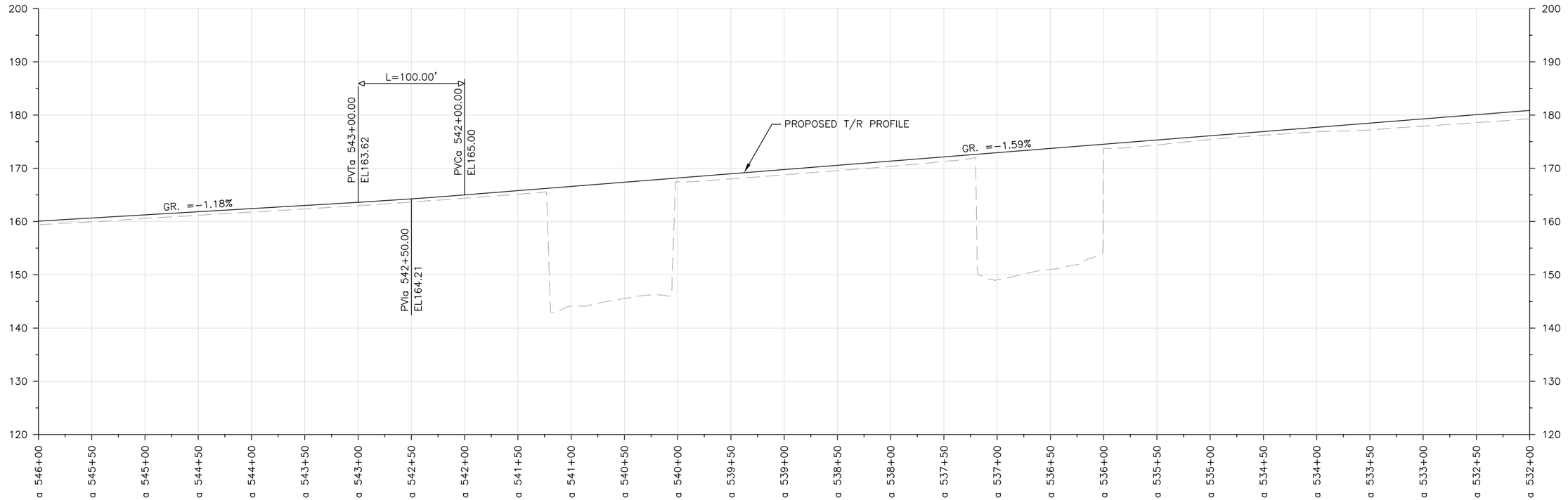
TRACK PLAN AND PROFILE

CS01 - 000106

TA68

SHEET OF X SHEETS





FILE NAME	PD_TA69.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
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PLOTTED BY	epeterso						
DESIGNED BY	XXX				CONTRACT NO.	LOCATION NO.	
ENTERED BY	ETP				CON0010776		
CHECKED BY	XXX						
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

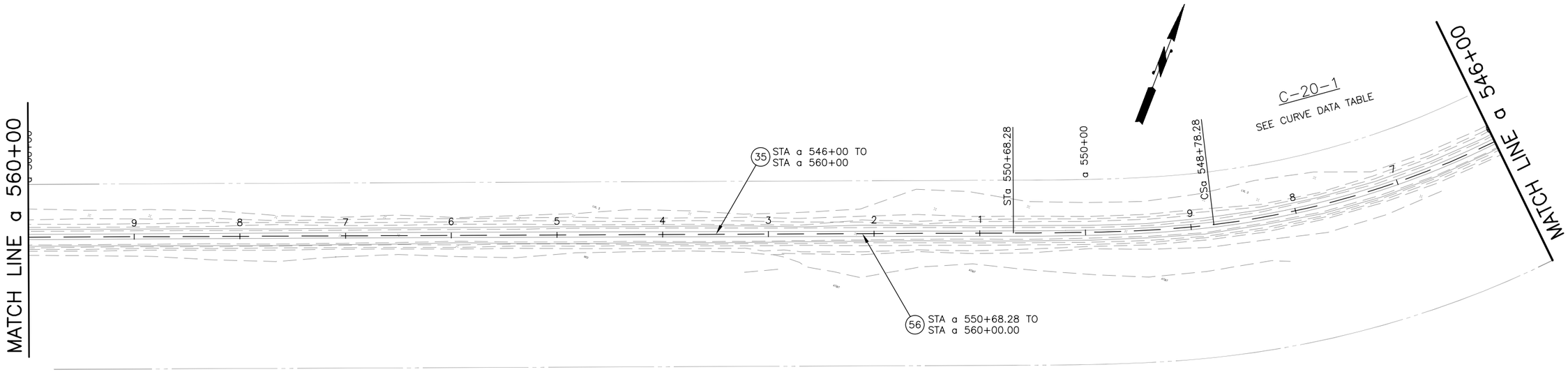
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ℄ 532+00 TO ℄ 546+00

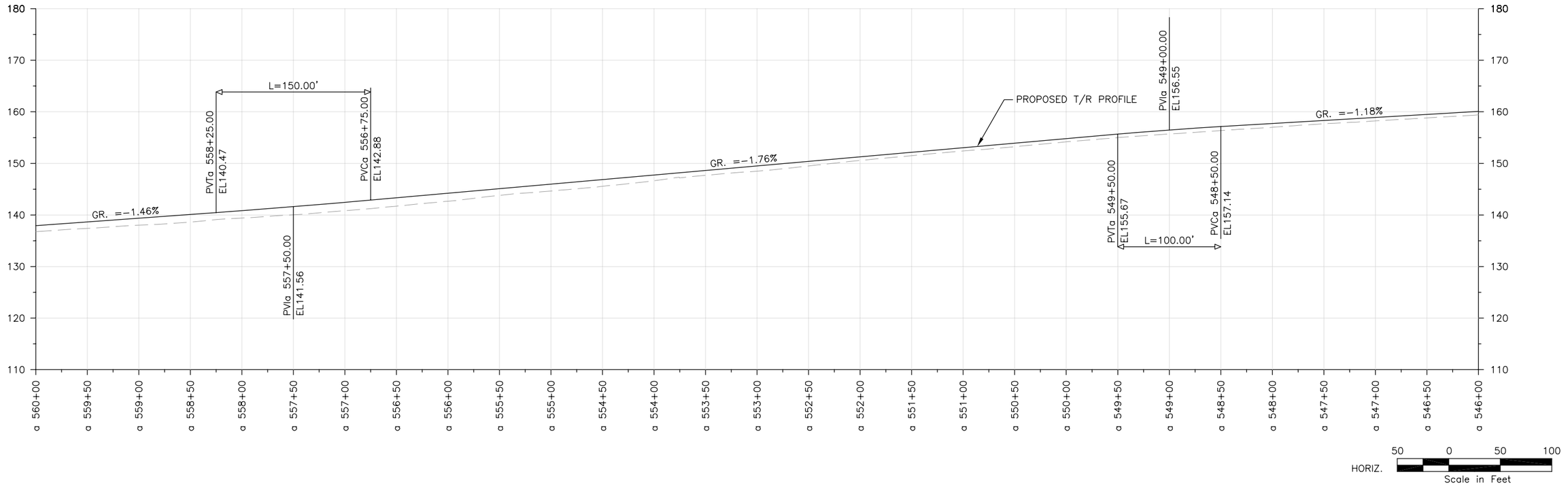
TA69

TRACK PLAN AND PROFILE

CS01 - 000107

SHEET OF X SHEETS





HORIZ. 50 0 50 100 Scale in Feet

FILE NAME	PD_TA70.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:28pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.	LOCATION NO.	
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BRAGER STATE OF WASHINGTON 42263 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

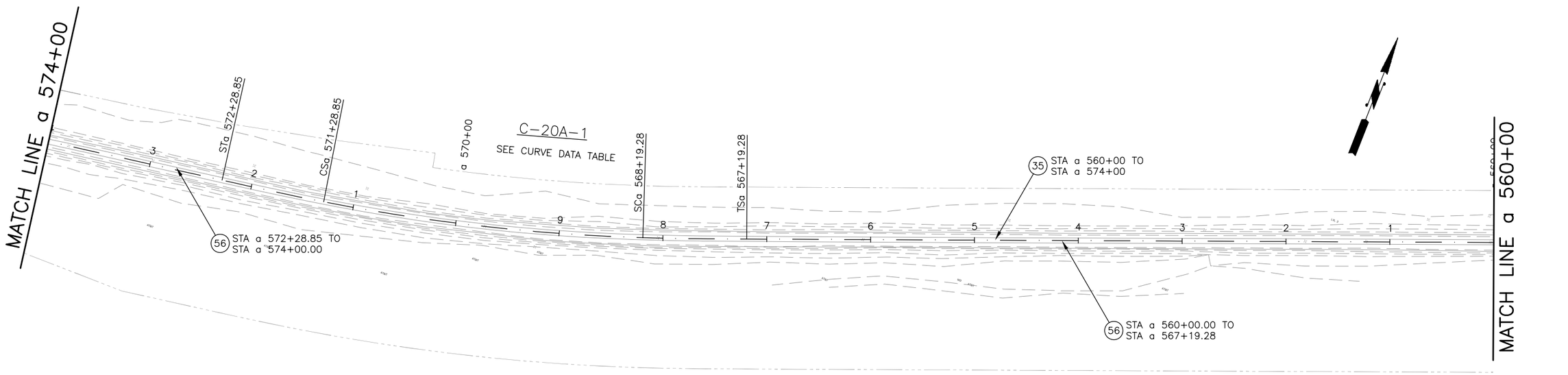
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ℄ 546+00 TO ℄ 560+00

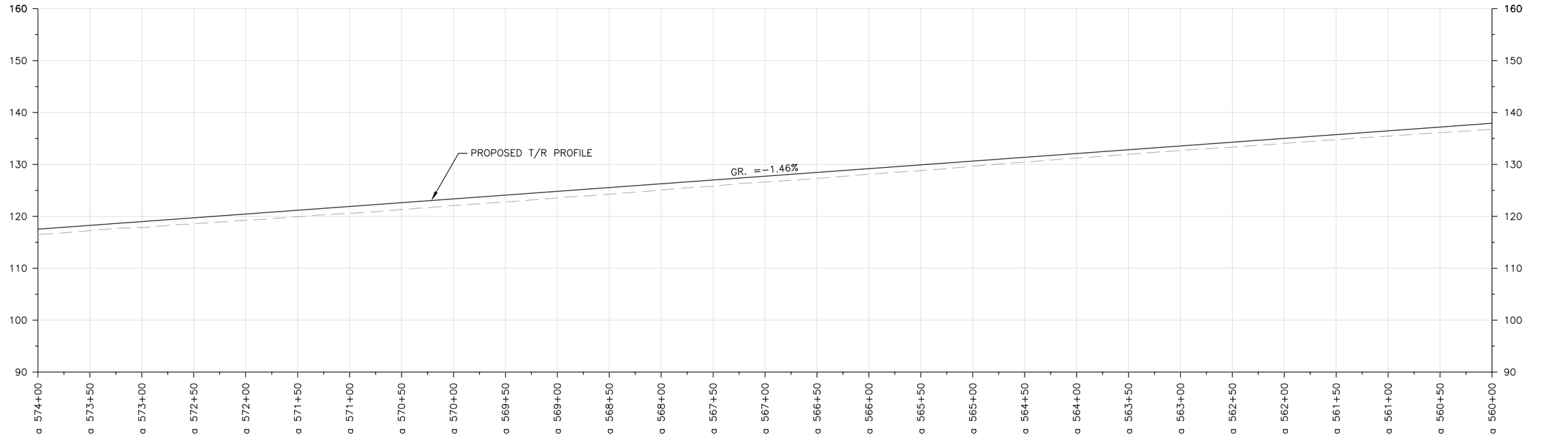
TA70

TRACK PLAN AND PROFILE

CS01 - 000108

SHEET OF X SHEETS





FILE NAME	PD_TA71.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:29pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.	LOCATION NO.	
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BEAGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

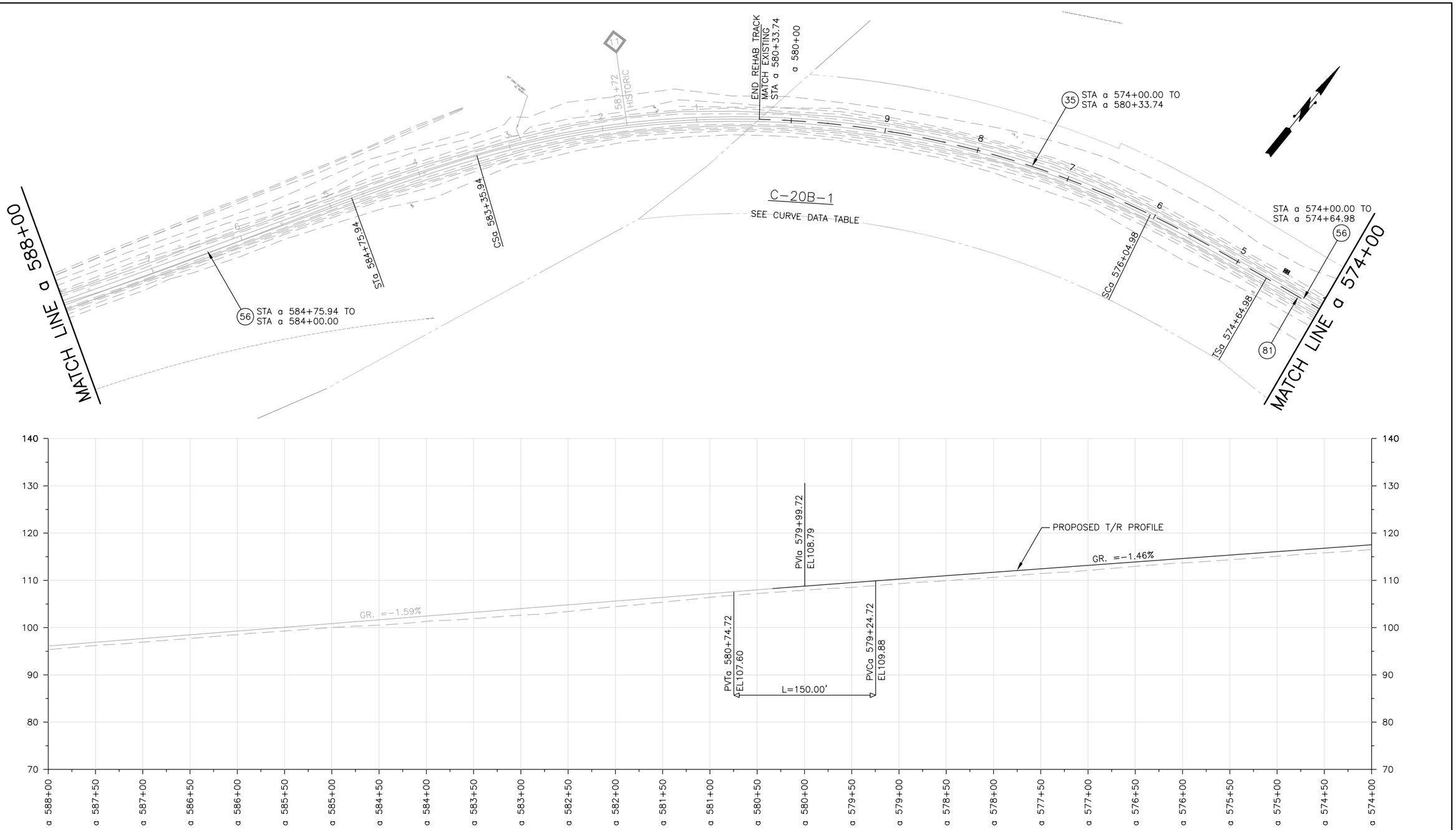
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION ⌀ 560+00 TO ⌀ 574+00

TA71

TRACK PLAN AND PROFILE

CS01 - 000109

SHEET OF X SHEETS



FILE NAME	PD_TA72.dwg						
TIME	3:29pm				REGION NO.	STATE	FED.AID PROJ.NO.
DATE	Feb 26, 2007				10	WASH	
PLOTTED BY	epeterso				JOB NUMBER		
DESIGNED BY	XXX						
ENTERED BY	ETP				CONTRACT NO.		LOCATION NO.
CHECKED BY	XXX				CON0010776		
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER
STATE OF WASHINGTON
42283
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

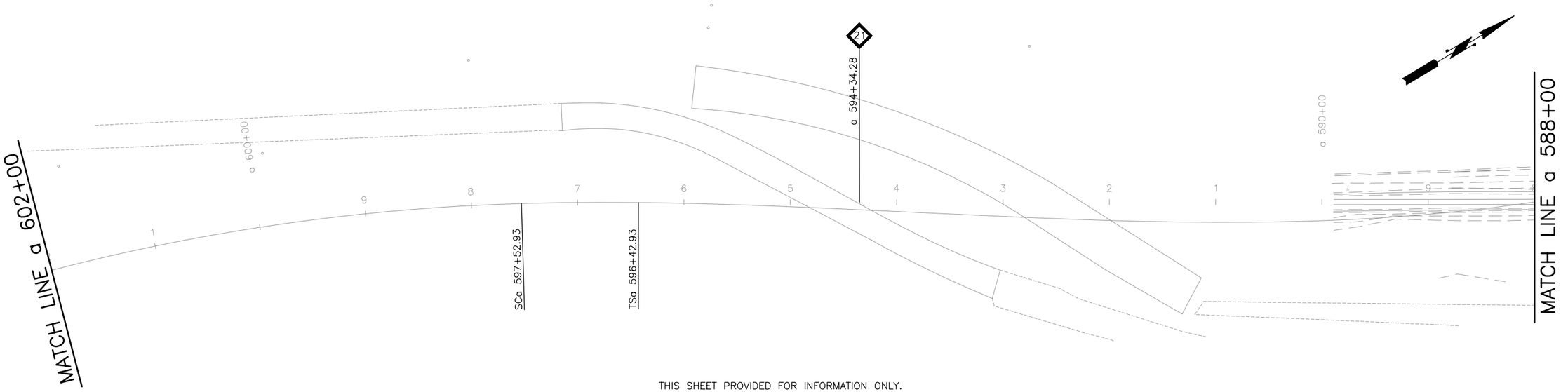
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 574+00 TO a 588+00

TRACK PLAN AND PROFILE

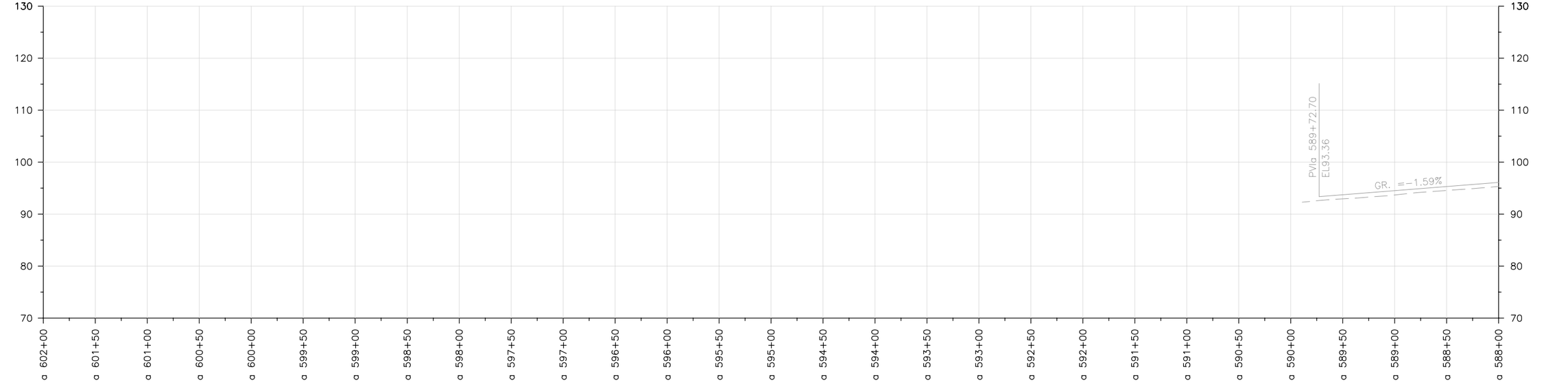
TA72

SHEET OF X SHEETS

CS01 - 000110



THIS SHEET PROVIDED FOR INFORMATION ONLY.



HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA73.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:29pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BEAGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

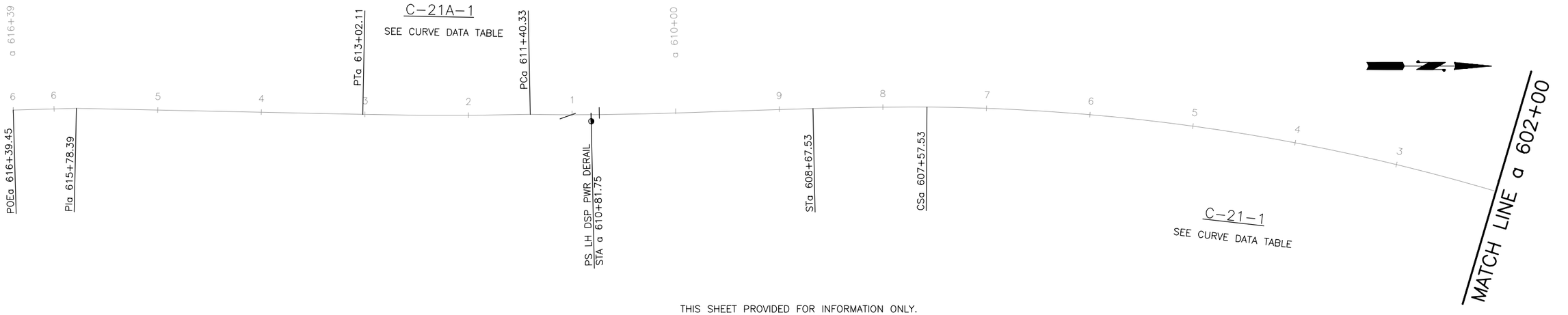
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 588+00 TO a 602+00

TRACK PLAN AND PROFILE

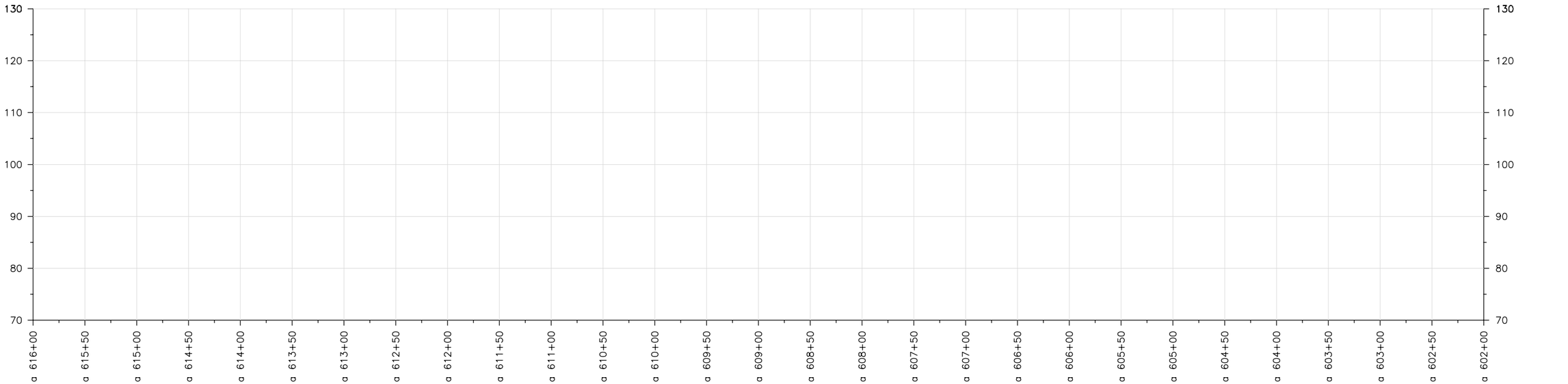
TA73

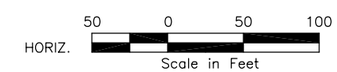
SHEET OF X SHEETS

CS01 - 000111



THIS SHEET PROVIDED FOR INFORMATION ONLY.





FILE NAME	PD_TA74.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
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PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BRAGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

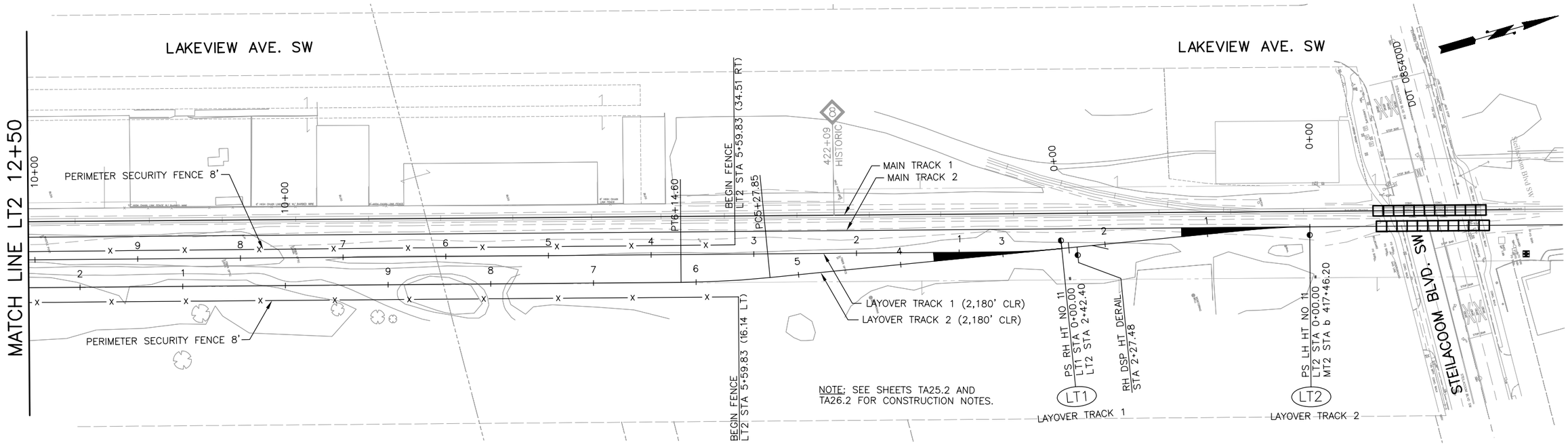
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
STATION a 602+00 TO a 616+39

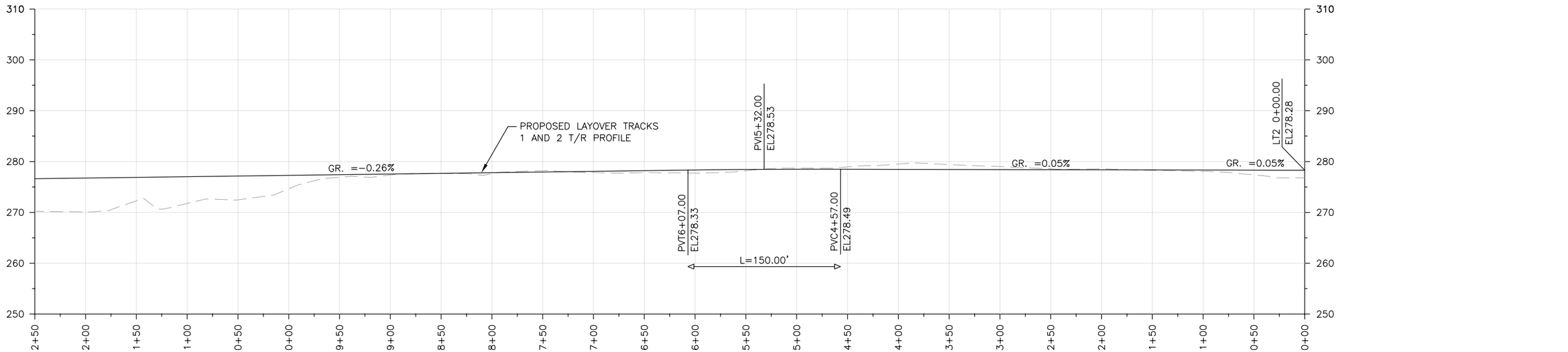
TA74

TRACK PLAN AND PROFILE

CS01 - 000112

SHEET OF X SHEETS





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA100.dwg				REGION NO.	STATE	FED.AID PROJ.NO.	
TIME	3:30pm				10	WASH		
DATE	Feb 26, 2007				JOB NUMBER			
PLOTTED BY	epeterso							
DESIGNED BY	XXX							
ENTERED BY	ETP				CONTRACT NO.		LOCATION NO.	
CHECKED BY	XXX				CON0010776			
PROJ. ENGR.	XXX							
REGIONAL ADM.	XXX	REVISION	DATE	BY				

EUGENE MILES BERGER
STATE OF WASHINGTON
42263
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

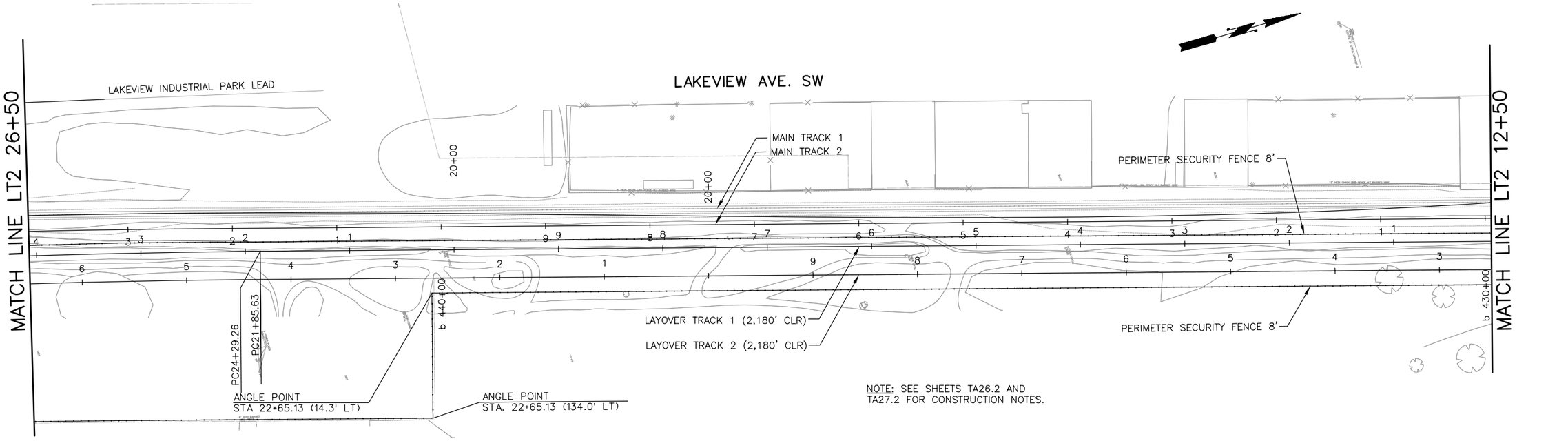
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
LAKEWOOD LAYOVER YARD

SITE PLAN AND PROFILE

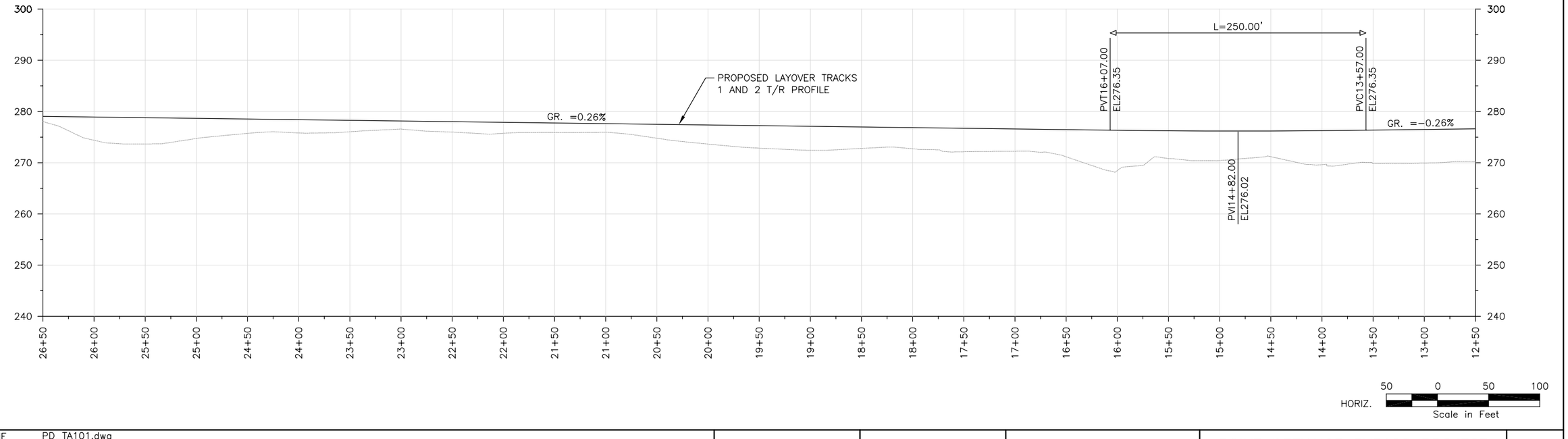
CS01 - 000113

TA100

SHEET OF X SHEETS



NOTE: SEE SHEETS TA26.2 AND TA27.2 FOR CONSTRUCTION NOTES.



HORIZ. 50 0 50 100 Scale in Feet

FILE NAME	PD_TA101.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:30pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.	LOCATION NO.	
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES SLAGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

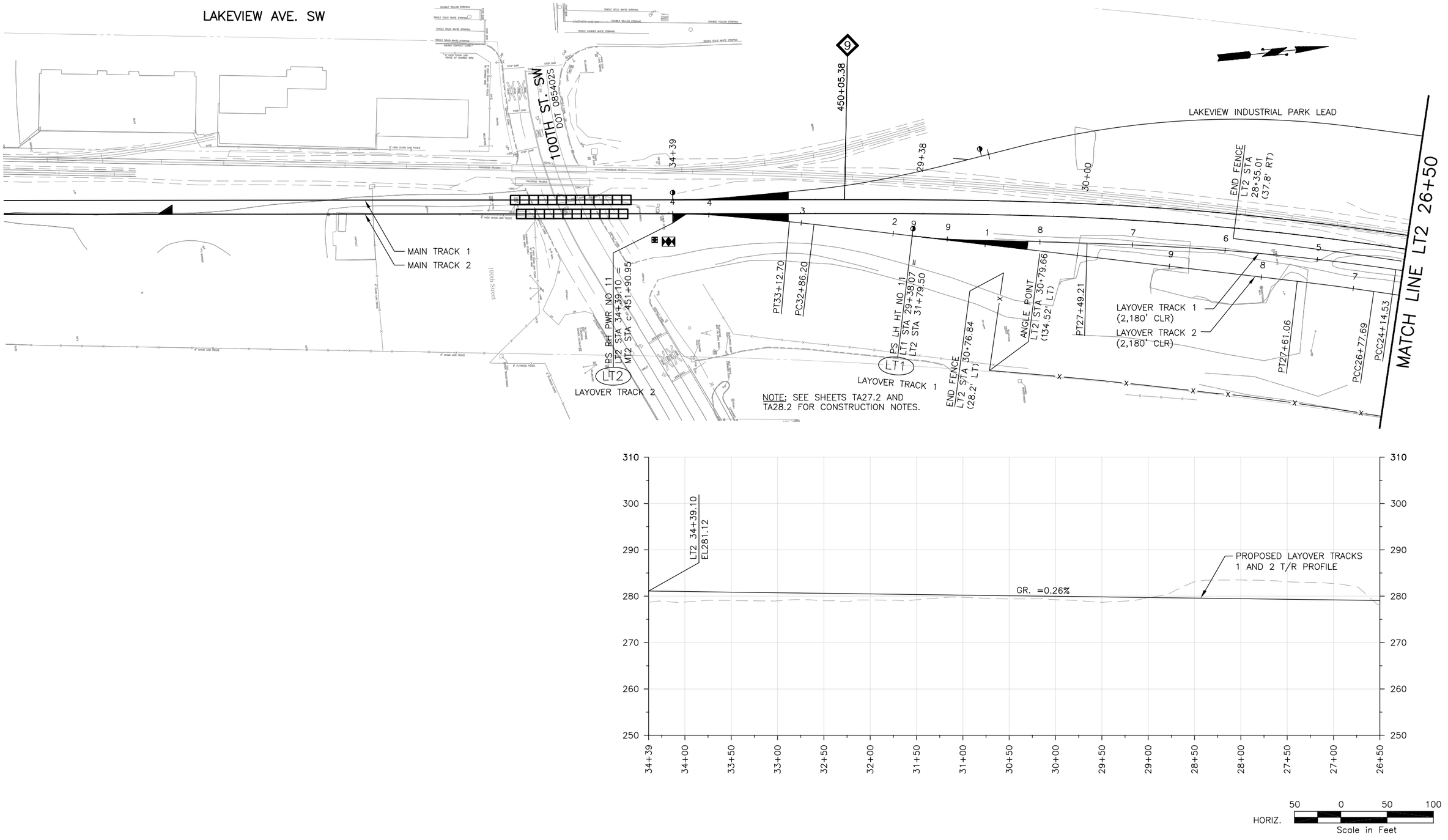
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
LAKEWOOD LAYOVER YARD

SITE PLAN AND PROFILE

TA101

SHEET OF X SHEETS

CS01 - 000114



FILE NAME	PD_TA102.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:30pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER
STATE OF WASHINGTON
42283
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

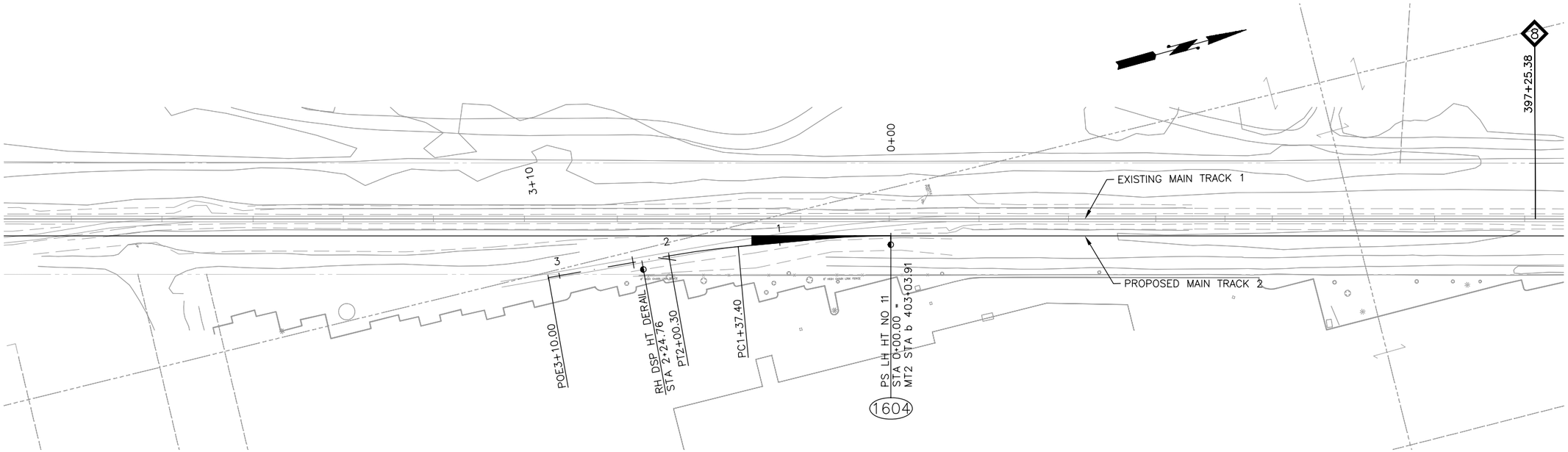
Washington State
Department of Transportation

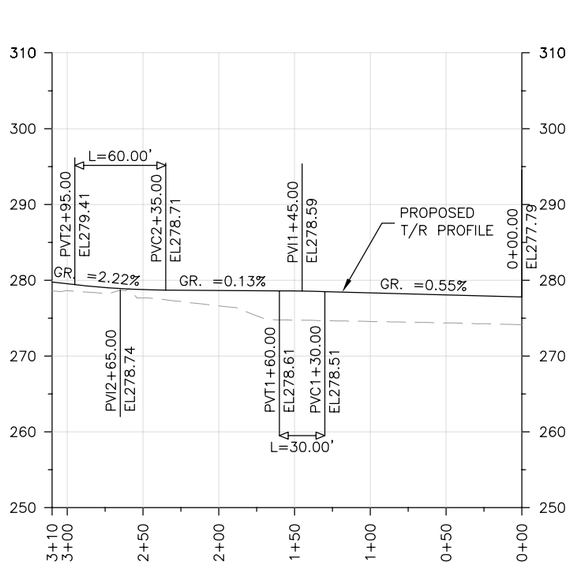
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
LAKEWOOD LAYOVER YARD

SITE PLAN AND PROFILE CS01 - 000115

TA102

SHEET
OF
X
SHEETS





VERT. 5 0 5 10 Scale in Feet

HORIZ. 50 0 50 100 Scale in Feet

FILE NAME	PD_TA103.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:31pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.	LOCATION NO.	
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES SCHLAGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

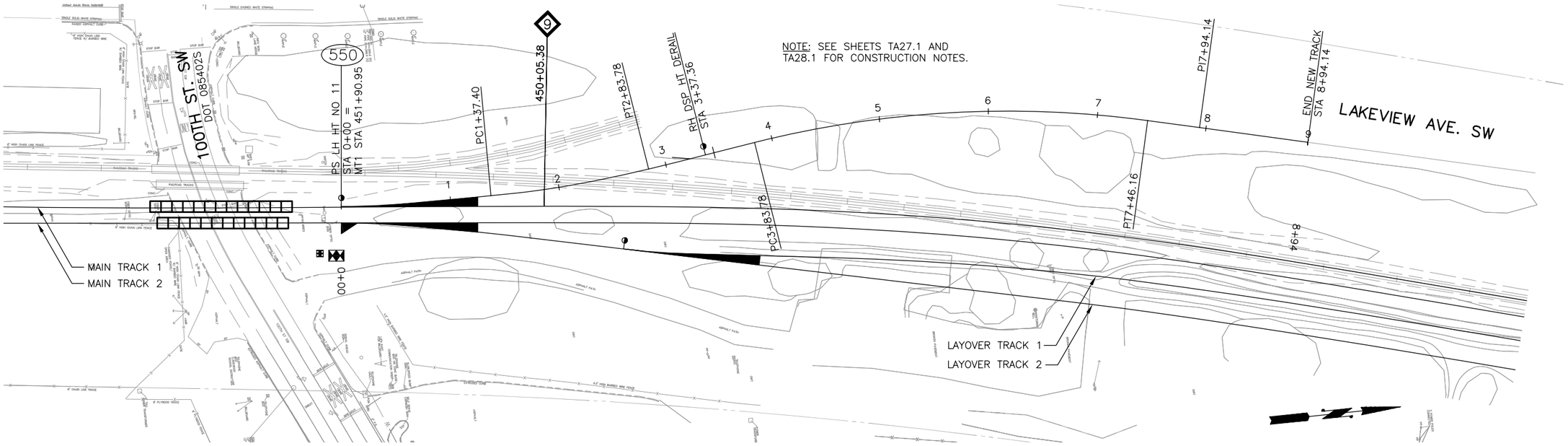
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
INDUSTRY TRACK 1604

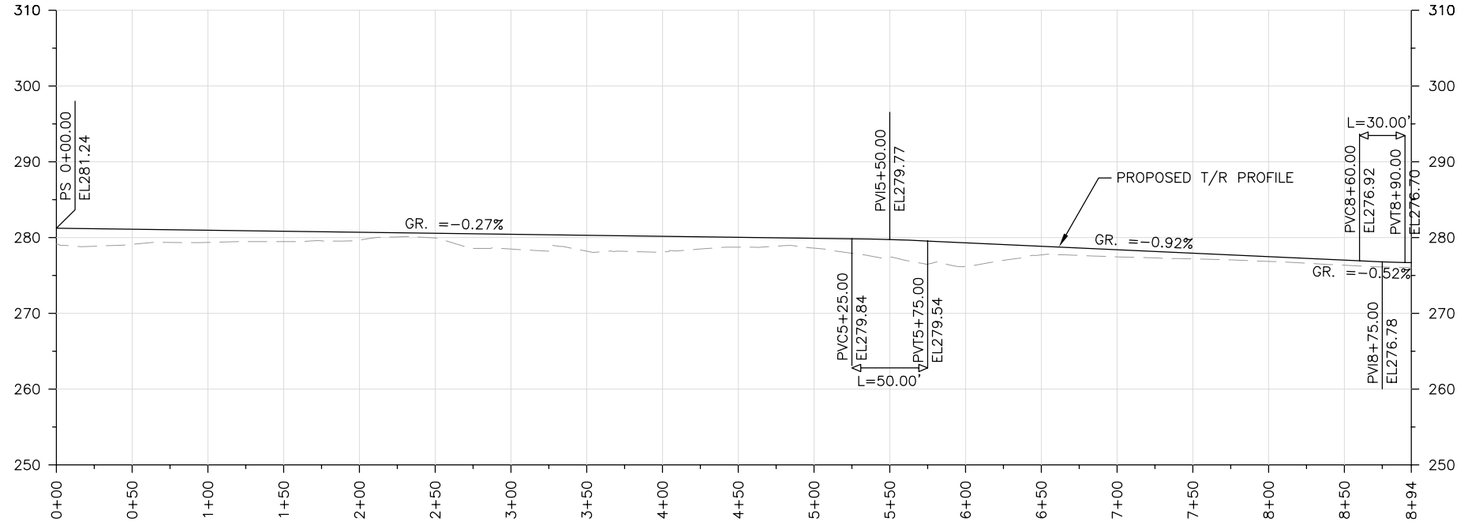
TRACK PLAN AND PROFILE

TA103

SHEET OF X SHEETS

CS01 - 000116





VERT. 5 0 5 10 Scale in Feet

HORIZ. 50 0 50 100 Scale in Feet

FILE NAME	PD_TA104.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:31pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP				CONTRACT NO.		LOCATION NO.
CHECKED BY	XXX				CON0010776		
PROJ. ENGR.	XXX						
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

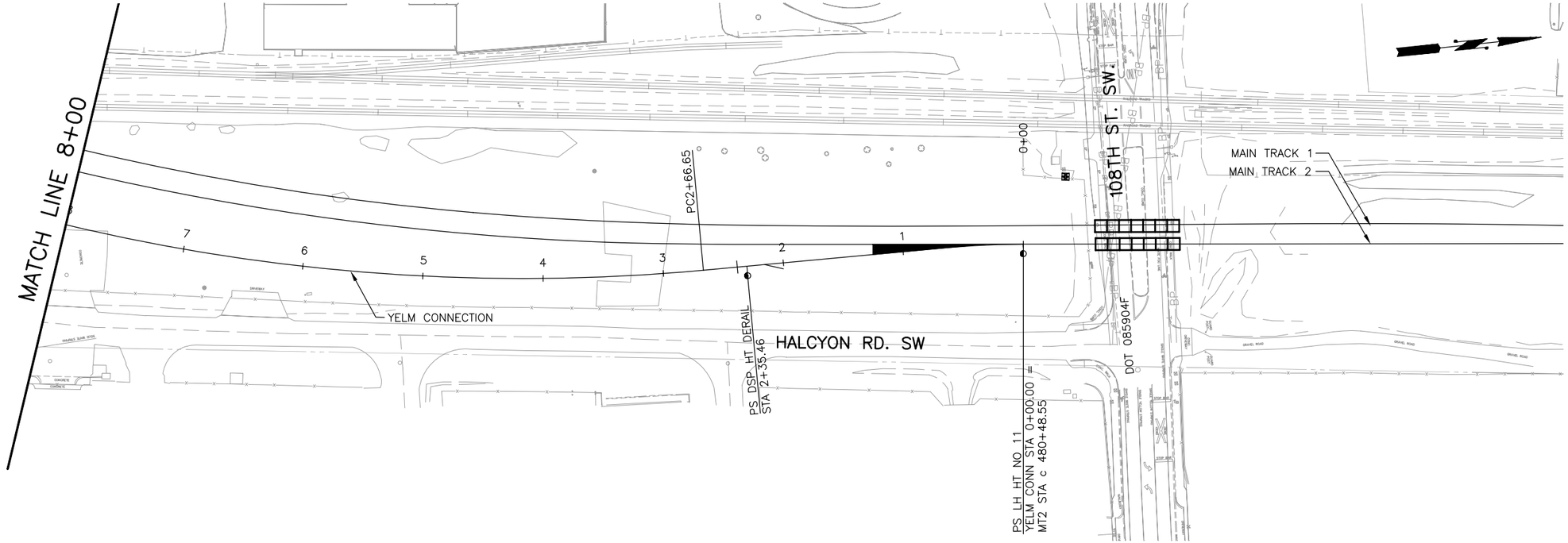
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
INDUSTRY TRACK 550

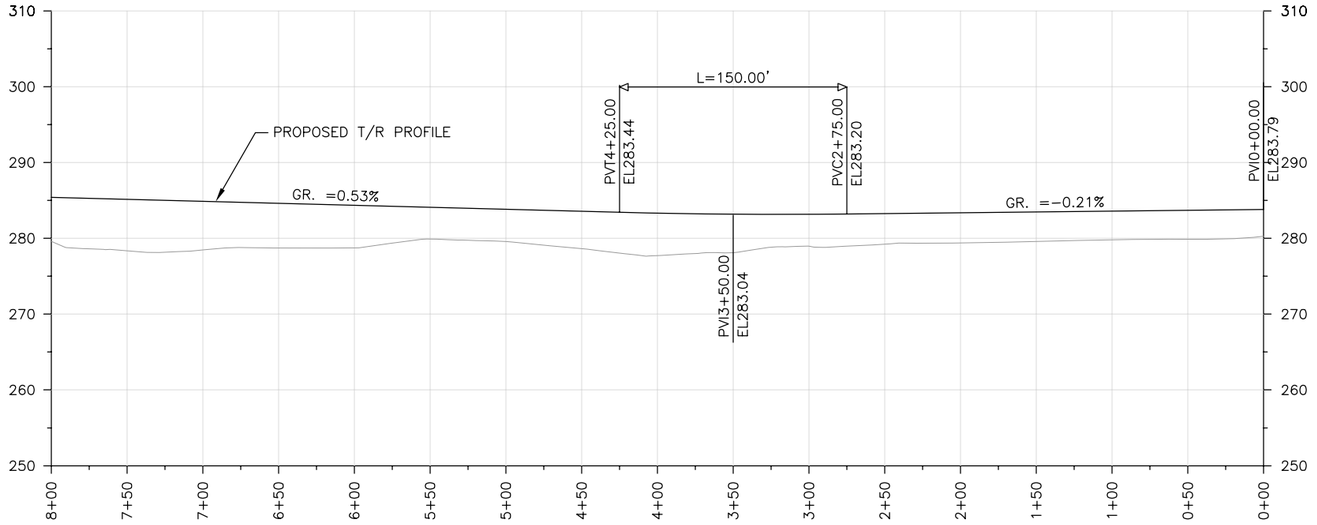
TRACK PLAN AND PROFILE

TA104

SHEET OF X SHEETS

CS01 - 000117





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA105.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:31pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

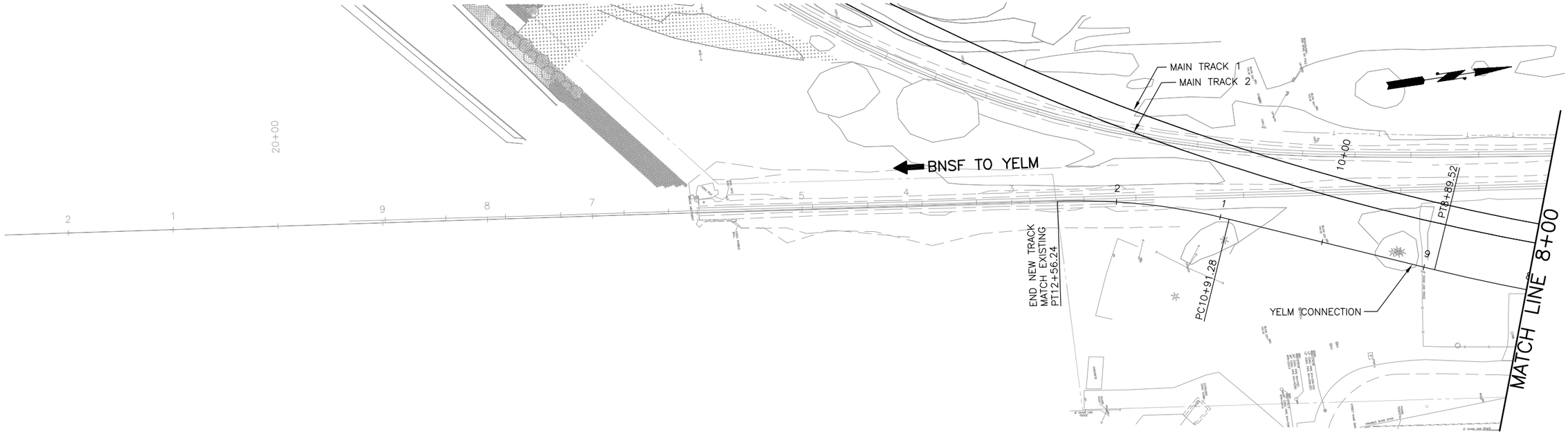
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
YELM CONNECTION

TRACK PLAN AND PROFILE

TA105

SHEET OF X SHEETS

CS01 - 000118



FILE NAME	PD_TA106.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:32pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.	LOCATION NO.	
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BERGER STATE OF WASHINGTON 42283 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

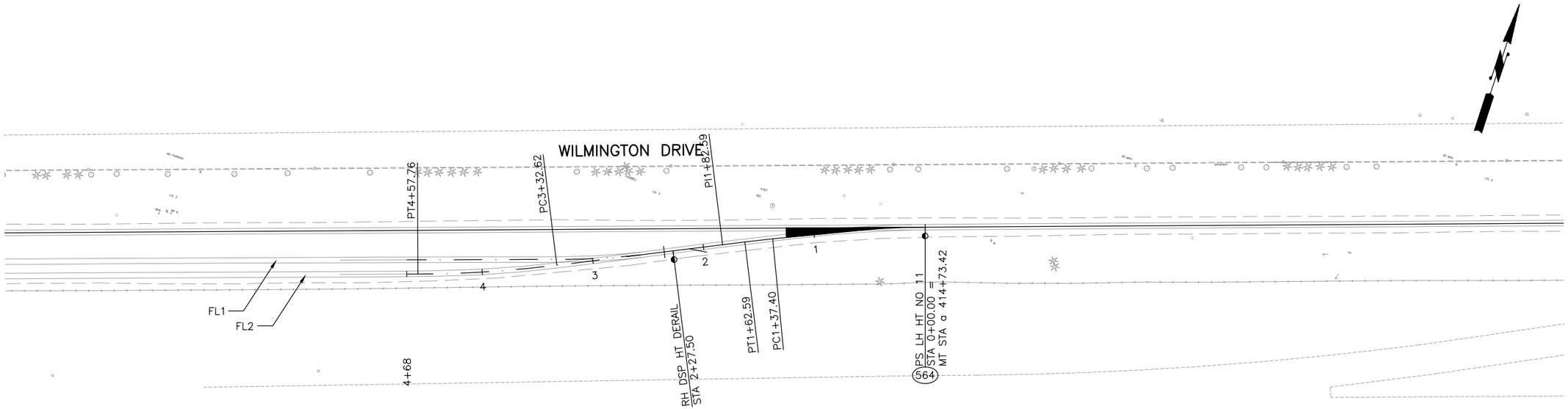
POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
YELM CONNECTION

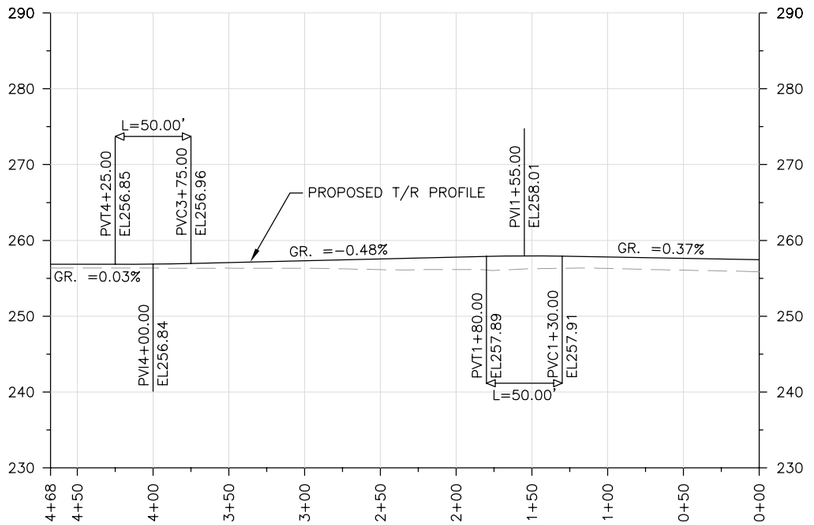
TRACK PLAN AND PROFILE

TA106

SHEET OF X SHEETS

CS01 - 000119





HORIZ. 50 0 50 100
Scale in Feet

FILE NAME	PD_TA107.dwg				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	3:32pm				10	WASH	
DATE	Feb 26, 2007				JOB NUMBER		
PLOTTED BY	epeterso						
DESIGNED BY	XXX						
ENTERED BY	ETP						
CHECKED BY	XXX				CONTRACT NO.	LOCATION NO.	
PROJ. ENGR.	XXX				CON0010776		
REGIONAL ADM.	XXX	REVISION	DATE	BY			

EUGENE MILES BRADLEY — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

POINT DEFIANCE BYPASS PROJECT
60% PS&E SUBMITTAL
FORT LEWIS YARD
NORTH CONNECTION

TRACK PLAN AND PROFILE

TA107

SHEET
OF
X
SHEETS

CS01 - 000120