

California High-Speed Train Project



Request for Proposal for Design-Build Services

**RFP No.: HSR 11-16
Design Variance Report**

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FRESNO STATION CROSSOVER DISTANCE FROM STATION
HST TRACK ALIGNMENT SPIRAL/VERTICAL CURVE OVERLAP
OCS CLEARANCE ASHLAN AVE
OCS CLEARANCE UNDER FUTURE RECONSTRUCTED FRESNO YARD OVERHEAD



California High-Speed Train Project

DESIGN VARIANCE COVER SHEET



Design Variance Request Number

0006

Design Variance Request Title

Fresno Station Crossover
Distance from Station

Prepared by:

URS/HMM/Arup
Regional Consultant

10-6-11
Date

PMT Review:

Richard Schmedes

11-8-11

Systems

Date

John Chirco

11-9-11

Infrastructure

Date

Joseph Metzler

10-21-11

Operations/Maintenance/Safety

Date

Frank Banko

10-12-11

Rolling Stock

Date

Vladimir Kanevskiy

11-4-11

Regulatory Approvals

Date

Tony Murphy

10-28-11

System Integration

Date

PMT Recommended:

Thomas Tracy

11-19-11

PMT Regional Manager

Date

PMT Approval:

Ken Jong

11-16-11

Engineering Manager

Date

Agency Concurrence:

CHSR Authority Chief Engineer

Date



CHSR Authority Chief Engineer
CHST DESIGN VARIANCE REQUEST FORM

Part 1 – Design Variance Request Information

Title/Subject: Fresno Station Crossovers' Distance from Station

Number: URS-OPS-0-0006 Revision: 0

Contract Name & Number (Final Design): HSR 06-0003

Region: Fresno - Bakersfield

Location: Fresno

Regional Consultant's / Third Party Design Drawing Reference: TT-D1011 to TT-D1016

Date Submitted to RMT & PMT

<p>PREPARED / SUBMITTED BY:</p> <p>NAME: Richard Coffin</p> <p>COMPANY: URS/HMM/Arup A Joint Venture Company</p> <p>SIGNATURE: </p> <p>DATE: 10/06/11</p>	
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**Note design variance numbers will follow the same convention: "ABC" will abbreviate the name of the firm submitting the variance, "DEF" abbreviates the name of firm receiving the variance request, "X" is the revision number starting from 0, and the last four*

numbers count the number of total submittals starting from one.

Part 2 – Design Variance Request Information

<p>CHSTP DESIGN REQUIREMENT Include reference to drawings, design criteria, technical memos, specifications</p>	<p>TM2.1.3 – Turnouts and Station Tracks Rev 0, 06/29/09 Figure 6.1.4 stipulates the desirable run time to determine the “minimum distance between the end of station turnout and crossover turnout, where they are on the same track,” should be 1.5 seconds, or a minimum of 1 second.</p> <p>Verbal advice from EMT stated that station crossovers should not be more than a mile from the station.</p>
<p>DESIGN CRITERIA REQUIRING A VARIANCE</p>	<p>Desirable run time to determine the “minimum distance between the end of station turnout and crossover turnout, where they are on the same track,” should be 1.5 seconds, or a minimum of 1 second.</p>
<p>REASON FOR REQUESTING A VARIANCE</p>	<p>Crossovers for Fresno stations at STA 10851+72.74 to 10863+11.37 and 108664+61.37 to 10876+00.00. Station platform ends are at 10970+00. This is a maximum separation of 14,127ft.</p>
<p>JUSTIFICATION FOR VARIANCE</p>	<p>Fresno Station is centered on Mariposa St and the station platform track approaches extend from Stanislaus St to the north and Santa Clara St to the south. The high-speed rail (HSR) descends into trench immediately after Stanislaus St in order to cross under abutments supporting the SR180 overcrossing of the Union Pacific Railroad (UPRR) tracks, spur tracks belonging to the San Joaquin Valley Railroad (SJVR) Company, and a canal that crosses under both the UPRR and the SJVR.</p> <p>The HSR is on a vertical curve as the tracks descend into the trench followed by a constant gradient of only 800ft at a gradient of 1.550%, followed by another vertical curve and then another section of 1,000ft at a constant gradient of -1.900%. The HSR emerges from the trench and is back at-grade on a constant gradient of 0.110% around 9,000ft (1.7 miles) to the north of the station platform turnouts. There are no sufficiently long sections at a constant gradient within the trench to accommodate a crossover with a design speed of 110mph (i.e., 1,139ft).</p>
<p>PROPOSED ALTERNATIVE DESIGN</p>	<p>Continue an at-grade alignment between W</p>

REQUIREMENT	<p>Olive and the station. This would require grade separation junction to carry the SJVR spurs (if feasible) and closure of Dry Creek. SR180 would require major works to the embankments and probable reconstruction of the abutments of the bridge crossing UPRR.</p> <p>It may be feasible to provide a crossover on the 1,000-foot section of constant gradient within the trench, but this would require the imposition of an 80mph speed restriction due the short crossover. This option was not recommended.</p>
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Part 3 – Impact Analysis

OPERATIONS	<p>Increased run time required for trains to negotiate the crossover at the northern approach to the station.</p> <p>It is believed use of crossovers would not be a normal event but probably during perturbation or maintenance.</p>
MAINTENANCE	None identified
INFRASTRUCTURE	None identified
RAILROAD SYSTEMS	None identified
RELIABILITY / FUNCTIONALITY	None identified
THIRD PARTY (Utility, Freight, Caltrans, RR, other)	<p>Consultation required with UPRR and Flood Control district regarding Dry Creek if alternative considered.</p>
SAFETY AND SECURITY	None identified
DIRECT COST	Alternative – As pre previous at grade scheme.
OTHER	Revised impact assessment will be required.

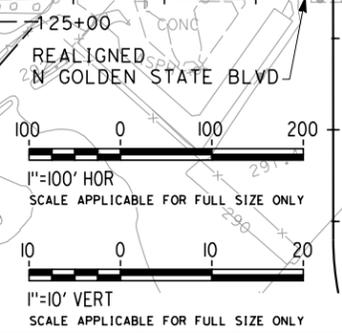
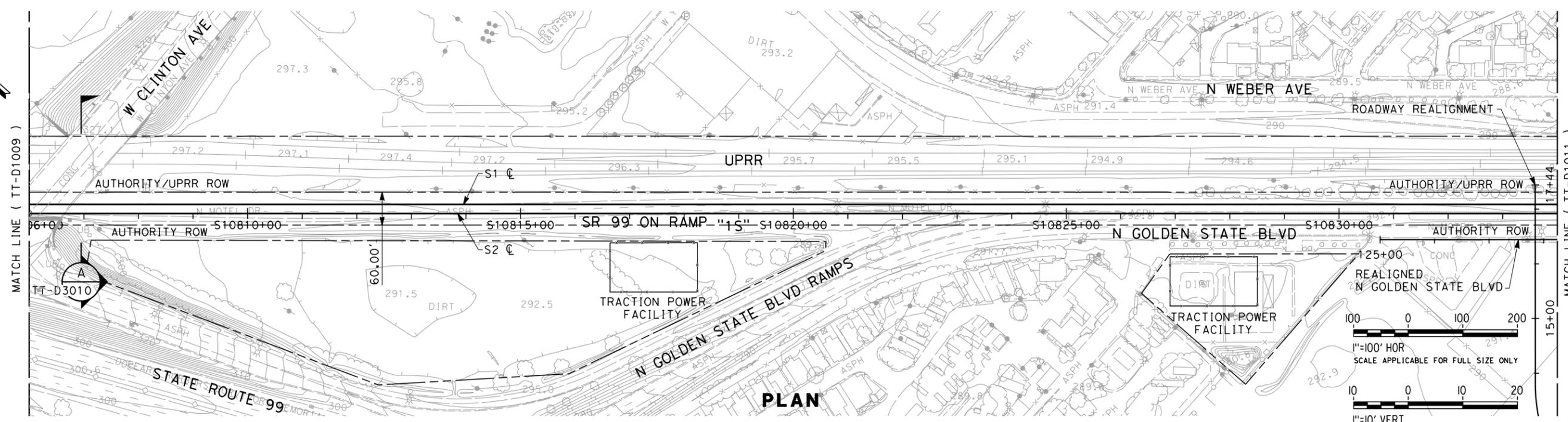
Part 4 – Mitigation measures

OPERATIONS	None identified
MAINTENANCE	None identified
INFRASTRUCTURE	None identified
RAILROAD SYSTEMS	None identified

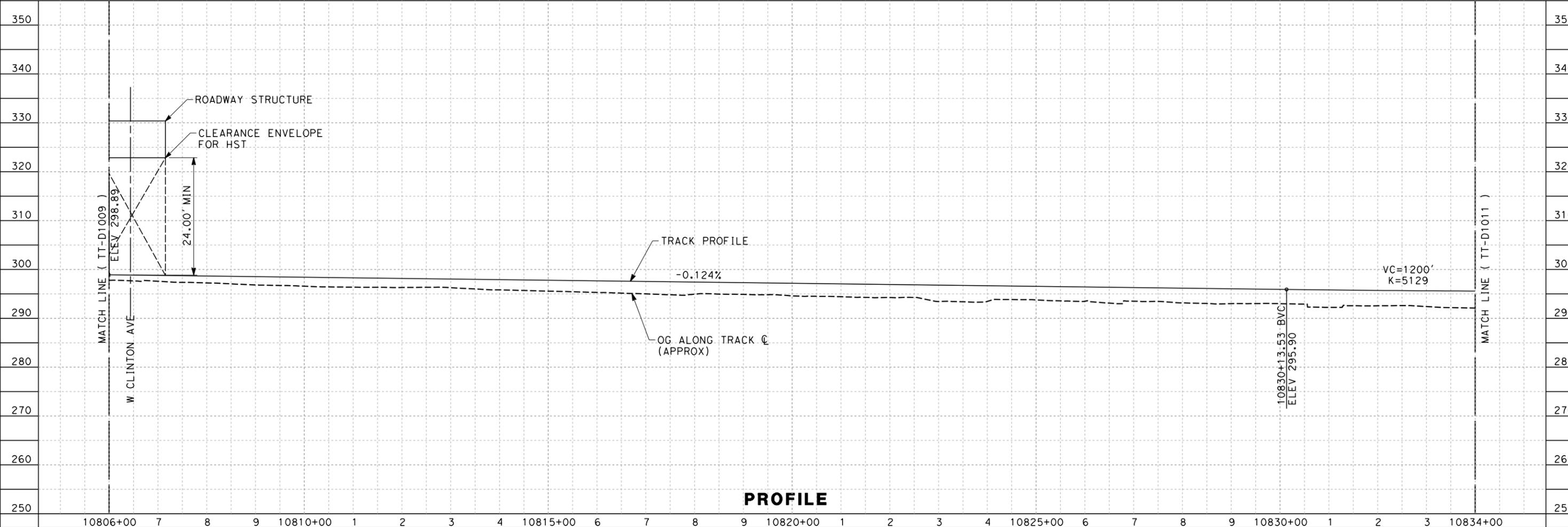
Part 5 – List of Supporting Documentation to Design Variance Request

ANALYSIS	N/A
PUBLICATION/STANDARD EXTRACTS	N/A
RISK ASSESSMENT	N/A
DRAWINGS	30% Draft TT-D1010 to TT-D1016
CALCULATIONS	N/A
EXPERT TESTIMONIALS	N/A
CORRESPONDENCE	N/A
OTHER	N/A

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PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
K. SEYMOUR
DRAWN BY
P. TONKIN
CHECKED BY
D. HUNT
IN CHARGE
R. PRUST
DATE
09/15/11

**30% DRAFT
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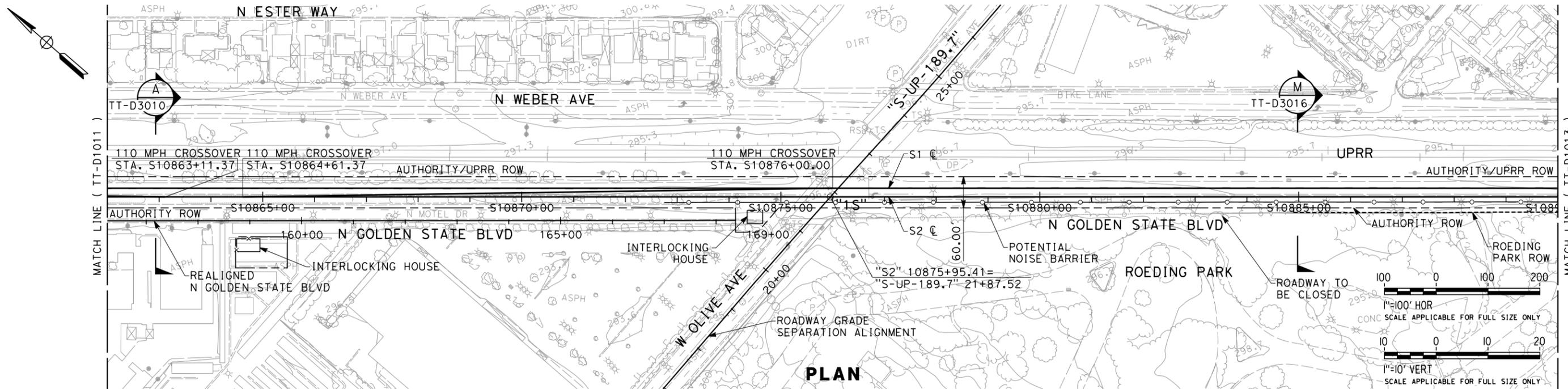
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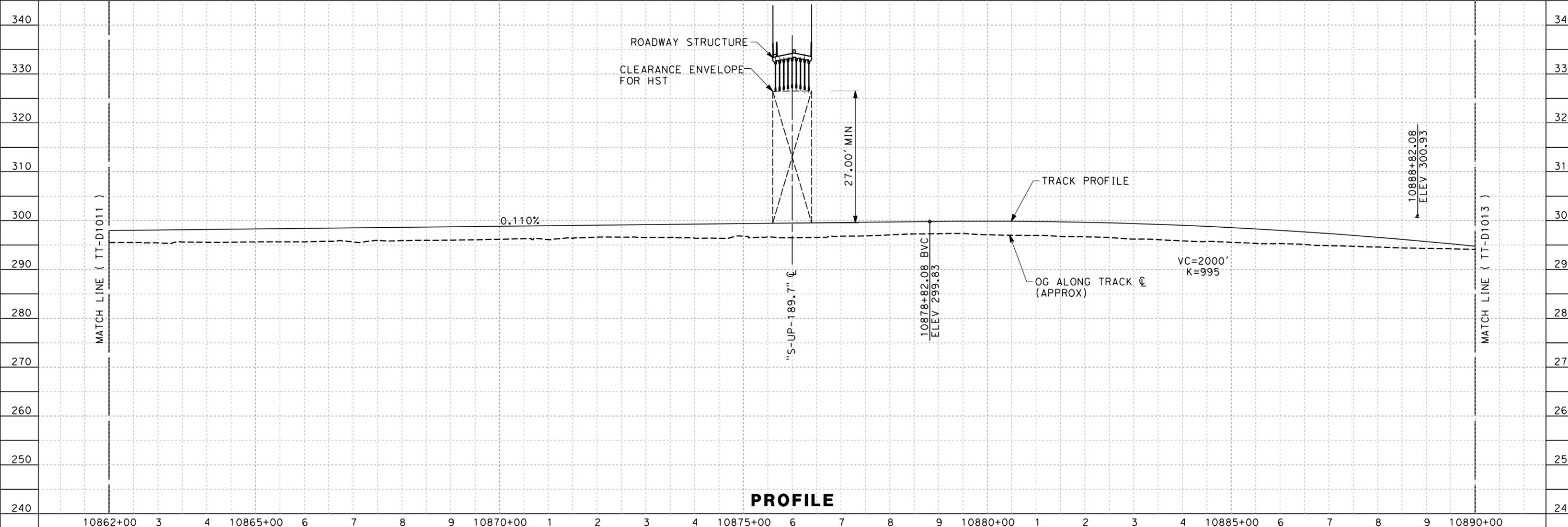
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SIERRA SUBDIVISION**
PACKAGE 1
PLAN AND PROFILE
STA. 10806+00 TO 10834+00

CONTRACT NO.
DRAWING NO.
TT-D1010
SCALE
AS SHOWN
SHEET NO.

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PLAN



PROFILE

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K. SEYMOUR
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P. TONKIN
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IN CHARGE
R. PRUST
DATE
09/15/11

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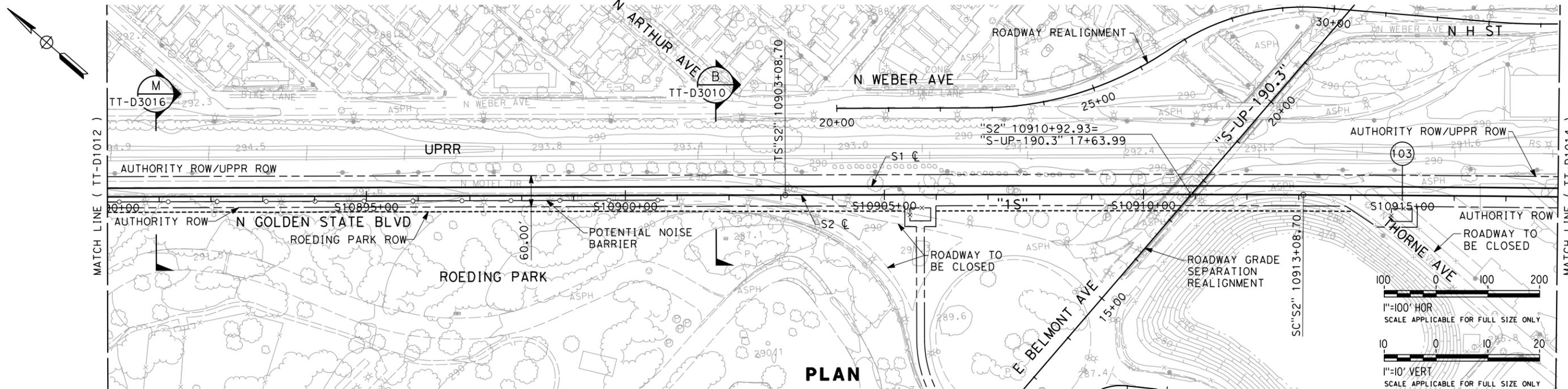
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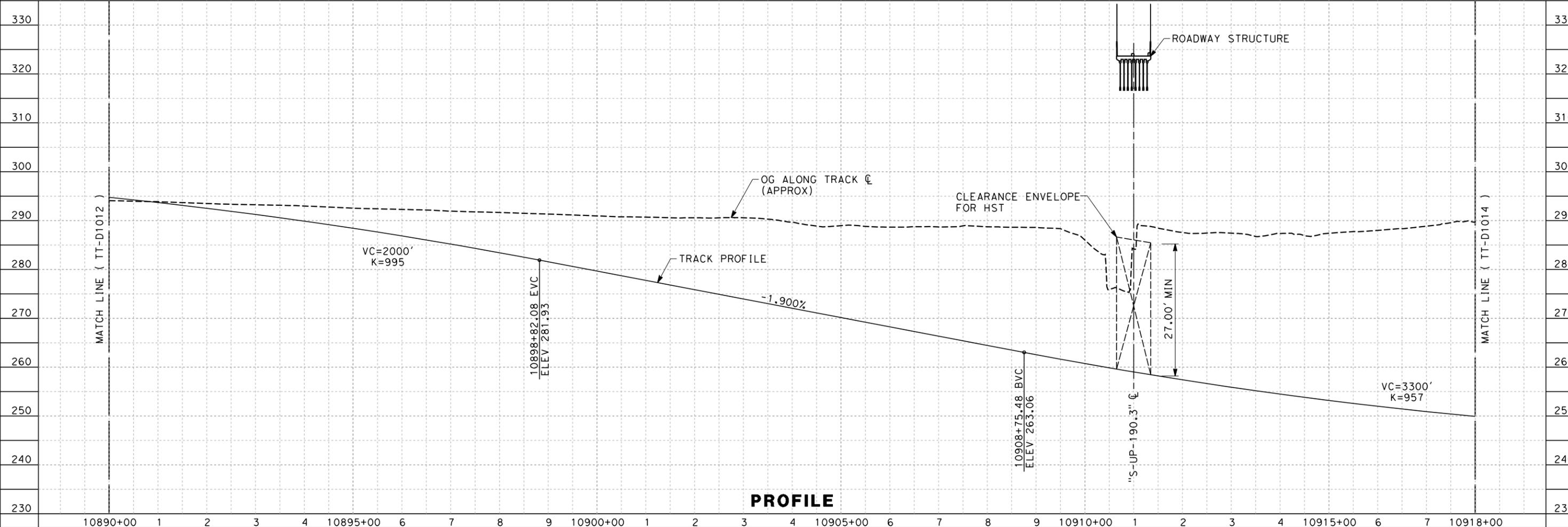
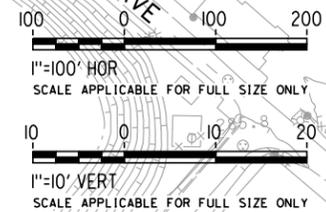
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SIERRA SUBDIVISION**
PACKAGE 1
PLAN AND PROFILE
STA. 10862+00 TO 10890+00

CONTRACT NO.
DRAWING NO.
TT-D1012
SCALE
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PLAN



PROFILE

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DESIGNED BY
K. SEYMOUR
DRAWN BY
P. TONKIN
CHECKED BY
D. HUNT
IN CHARGE
R. PRUST
DATE
09/15/11

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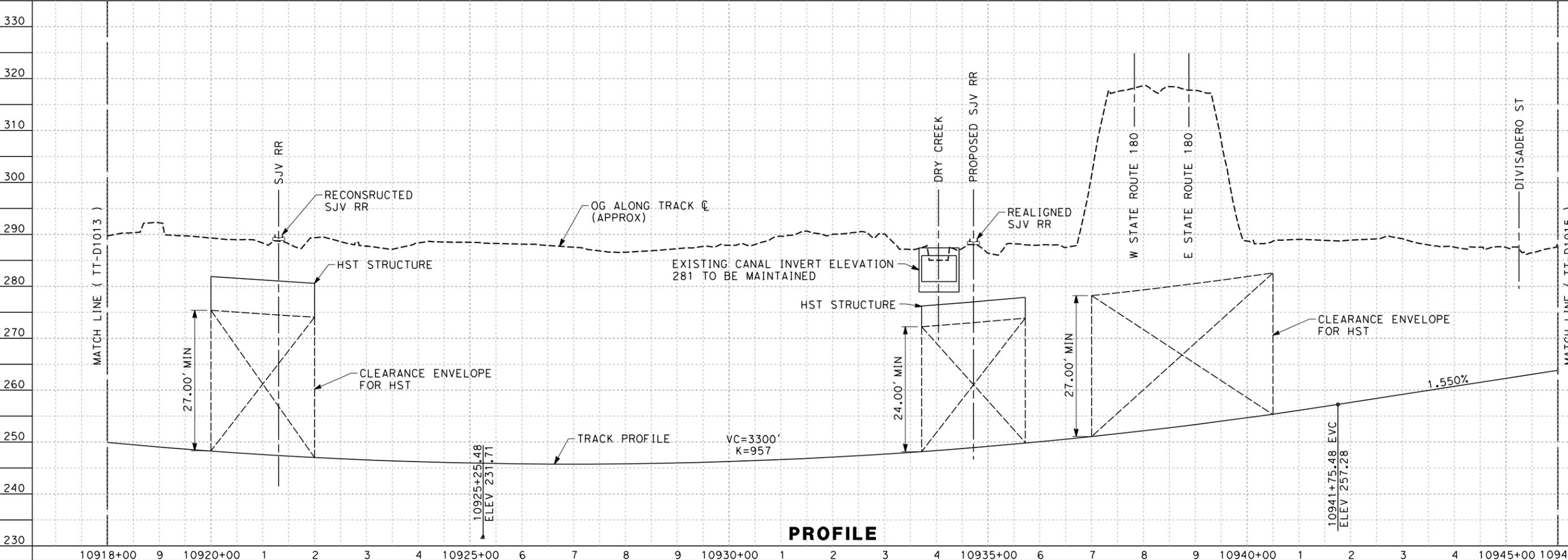
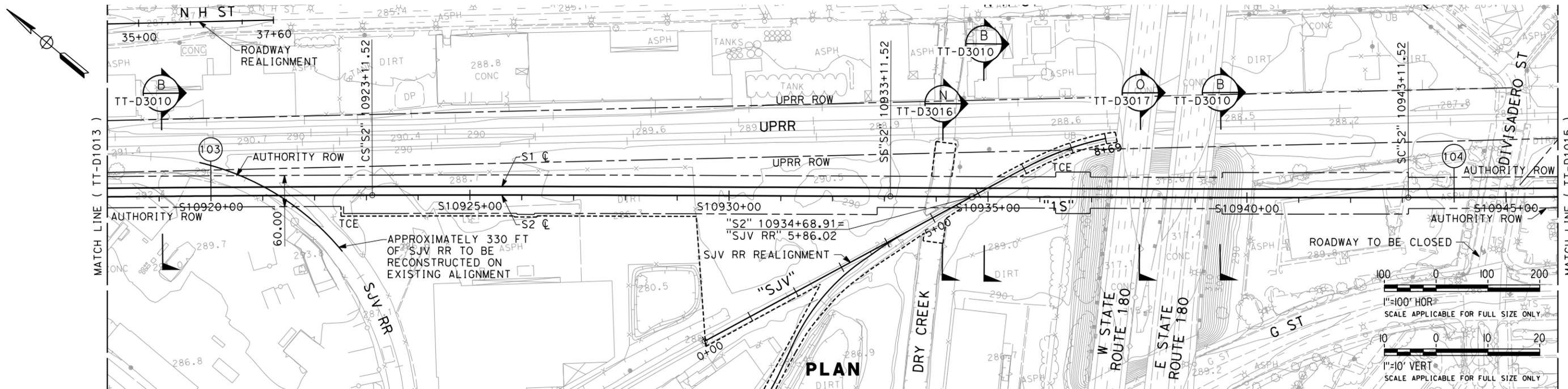
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**CALIFORNIA HIGH-SPEED TRAIN PROJECT
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PACKAGE 1
PLAN AND PROFILE
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DRAWING NO.
TT-D1013
SCALE
AS SHOWN
SHEET NO.

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DESIGNED BY
K. SEYMOUR
 DRAWN BY
P. TONKIN
 CHECKED BY
D. HUNT
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R. PRUST
 DATE
09/15/11

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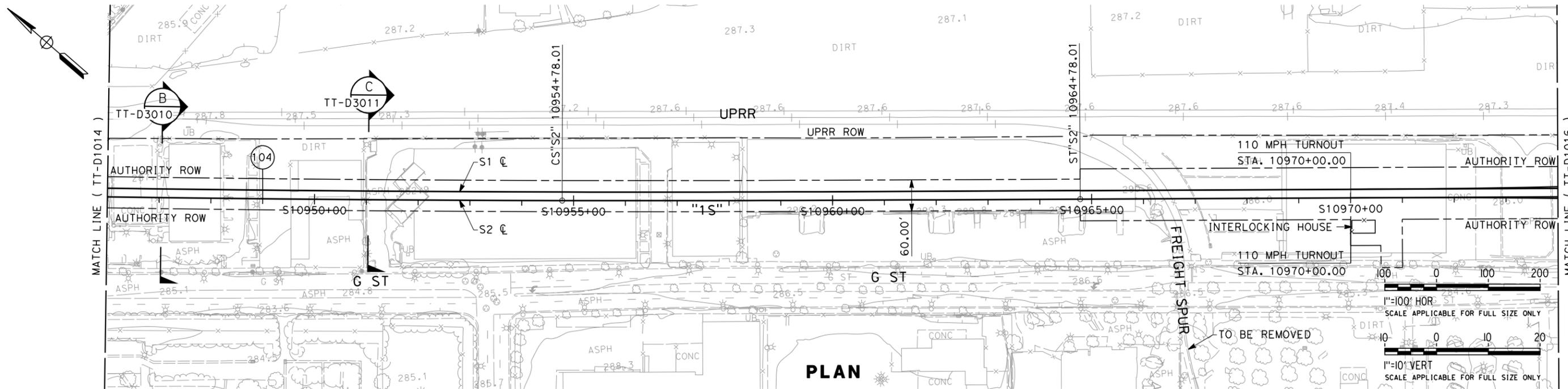
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CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION
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 PLAN AND PROFILE
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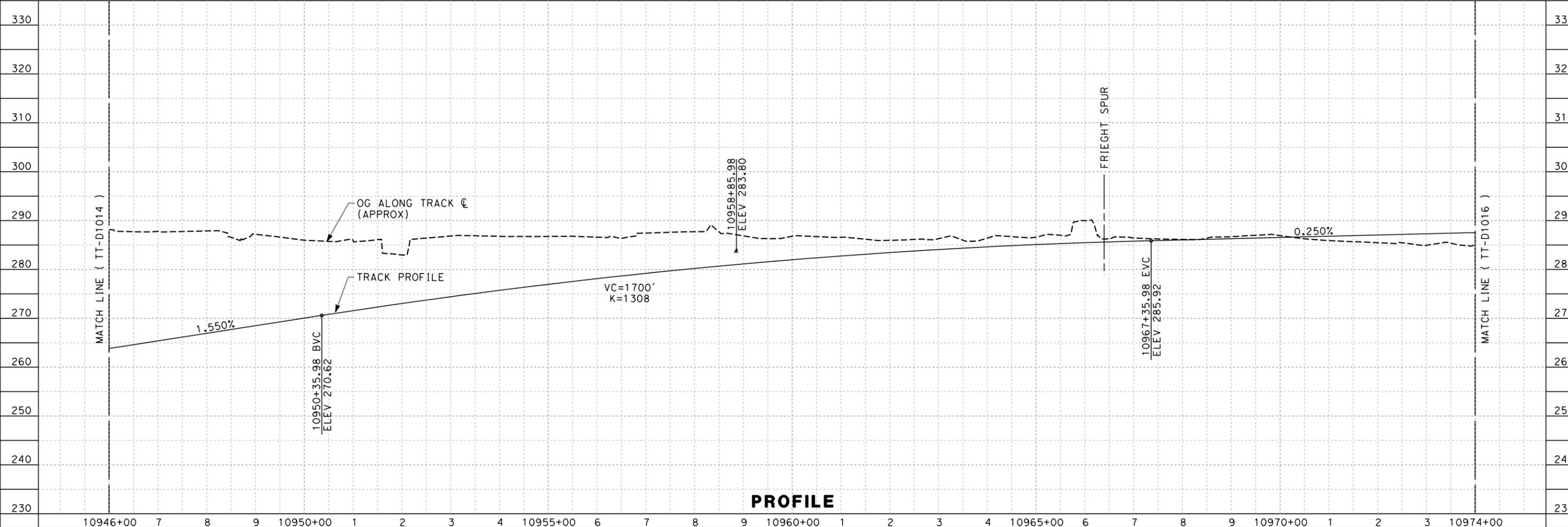
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PLAN

1"=100' HOR
 SCALE APPLICABLE FOR FULL SIZE ONLY
 1"=10' VERT
 SCALE APPLICABLE FOR FULL SIZE ONLY



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
K. SEYMOUR
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P. TONKIN
 CHECKED BY
D. HUNT
 IN CHARGE
R. PRUST
 DATE
09/15/11

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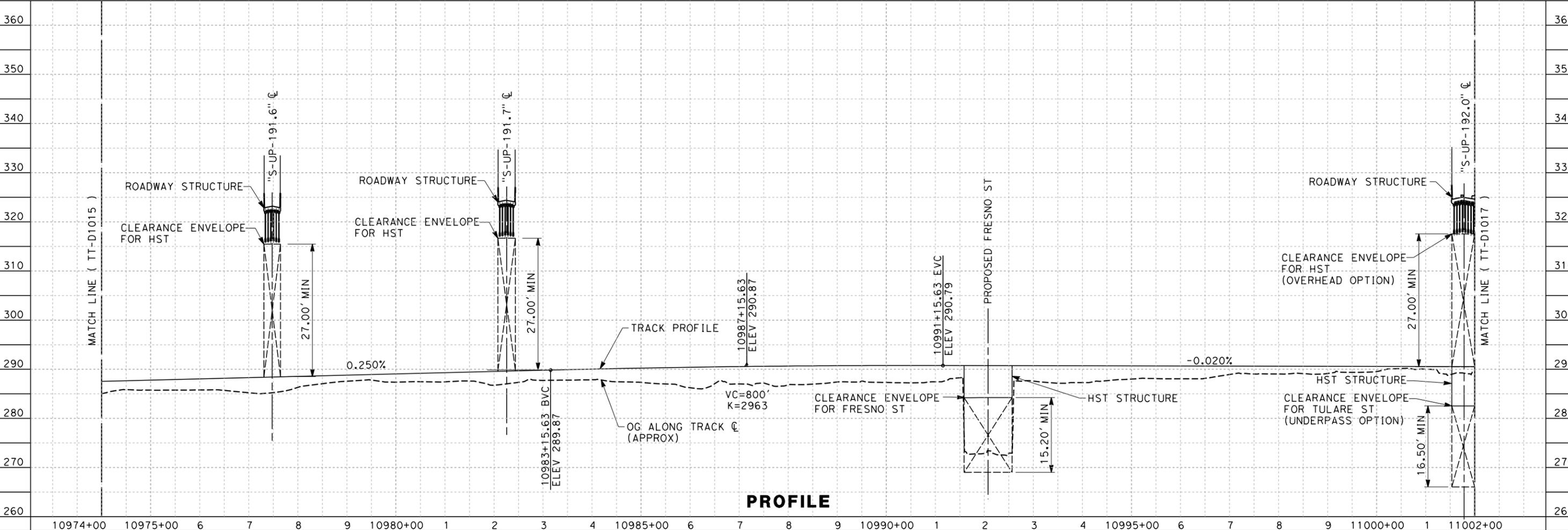
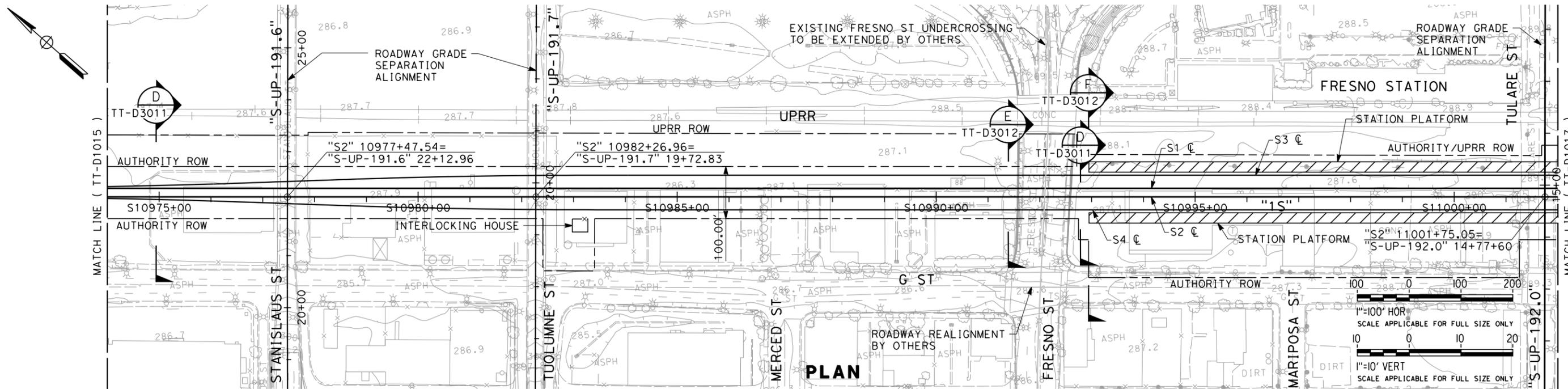
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**CALIFORNIA HIGH-SPEED TRAIN PROJECT
 SIERRA SUBDIVISION**
 PACKAGE 1
 PLAN AND PROFILE
 STA. 10946+00 TO 10974+00

CONTRACT NO.
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TT-D1015
 SCALE
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 SHEET NO.

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
K. SEYMOUR
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P. TONKIN
CHECKED BY
D. HUNT
IN CHARGE
R. PRUST
DATE
09/15/11

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT
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PACKAGE 1
PLAN AND PROFILE
STA. 10974+00 TO 11002+00

CONTRACT NO.
DRAWING NO.
TT-D1016
SCALE
AS SHOWN
SHEET NO.

California High-Speed Train Project

DESIGN VARIANCE COVER SHEET



Design Variance Request Number

0004

Design Variance Request Title

HST Track Alignment Spiral /
Vertical Curve Overlap

Prepared by:

AECOM

Regional Consultant

9-16-11

Date

PMT Review:

Richard Schmedes

Systems

John Chirco

Infrastructure

Joseph Metzler

Operations/Maintenance/Safety

Frank Banko

Rolling Stock

Vladimir Kanevskiy

Regulatory Approvals

Tony Murphy

System Integration

11-4-11

Date

10-27-11

Date

11-7-11

Date

10-12-11

Date

11-4-11

Date

11-4-11

Date

PMT Recommended:

Peter Valentine

PMT Regional Manager

11-7-11

Date

PMT Approval:

Ken Jong

Engineering Manager

11-7-11

Date

Agency Concurrence:

CHSR Authority Chief Engineer

Date



Title/Subject: HST Track Alignment Spiral/Vertical Curve Overlap

Number: AECOM-SYS-0-0004 Revision: 0

Contract Name & Number (Final Design): HSR06-007

Region: Merced - Fresno

Location: Fresno County

Regional Consultant's / Third Party Design Drawing Reference:

Date Submitted to RMT & PMT

<p>PREPARED / SUBMITTED BY:</p> <p>NAME: Alan Boone/Angela Shields</p> <p>COMPANY: AECOM</p> <p>SIGNATURE:</p> <p>DATE: (09-16-2011)</p>	
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**Note design variance numbers will follow the same convention: "ABC" will abbreviate the name of the firm submitting the variance, "DEF" abbreviates the name of firm receiving the variance request, "X" is the revision number starting from 0, and the last four numbers count the number of total submittals starting from one.*



Part 2 – Design Variance Request Information

CHSTP DESIGN REQUIREMENT Include reference to drawings, design criteria, technical memos, specifications	TM 2.1.2 Section 6.1.7
DESIGN CRITERIA REQUIRING A VARIANCE	No overlap allowed between spiral curves and vertical curves for HST track alignment.
REASON FOR REQUESTING VARIANCE	To keep the top of rail profile as close to existing ground as possible thus avoiding the need for embankment fill or retaining walls.
JUSTIFICATION FOR VARIANCE	To avoid unneeded additional capital cost to the project.
PROPOSED ALTERNATIVE DESIGN REQUIREMENT	Allow overlap of vertical curves with spiral curves.

Part 3 – Impact Analysis

OPERATIONS	N/A
MAINTENANCE	Possible slight increase in maintenance costs due to complexity of HST track alignment.
INFRASTRUCTURE	<p>General The HST alignment must pass underneath a proposed roadway overcrossing at Veterans Blvd. (station S10535+81) and a new roadway overcrossing at Shaw Ave. (station S10628+87). Between these locations the HST alignment will cross Herndon Canal on a new bridge at station 10592+66.</p> <p>The top of rail profile is designed to pass under the two roadway overcrossings and must rise to provide sufficient structure depth for the Herndon Canal bridge while maintaining proper freeboard over the water surface.</p> <p>There are three locations where the spiral/vertical curve overlaps. Location 1 is the vertical curve at station S10548+36 which overlaps the spiral on curve #101. Location 2 is the vertical curve at station S10592+66 which overlaps the spiral on curve #102. Location 3 is the vertical curve at station S10610+51 which overlaps the spiral on curve #102.</p> <p>Reason Moving the two vertical curves identified above will result in a raised the top of rail profile between the proposed vertical curve PVI locations, a distance of approximately 4,430 feet. The top of rail would be approximately 8 feet higher along this section.</p> <p>This raised profile will require additional embankment fill along the 4,430 feet to accommodate the raised track profile.</p> <p>Other Options Another option would be to introduce additional</p>



	vertical curves within this area of the alignment however this will result in a "roller coaster" type of effect for HST patrons. Justification The raised top of rail profile will require additional embankment fill, thus adding cost to the project. The increased embankment would eliminate the opportunity for open drainage ditches thus requiring a closed drainage system.
RAILROAD SYSTEMS	N/A
RELIABILITY / FUNCTIONALITY	N/A
THIRD PARTY (Utility, Freight, Caltrans, RR, other)	N/A
SAFETY AND SECURITY	N/A
DIRECT COST	No detailed cost estimate. The increased cost of the embankment and inclusion of a closed drainage system would alone will be in excess of \$500,000.
OTHER	Possible increased maintenance cost of drainage system.

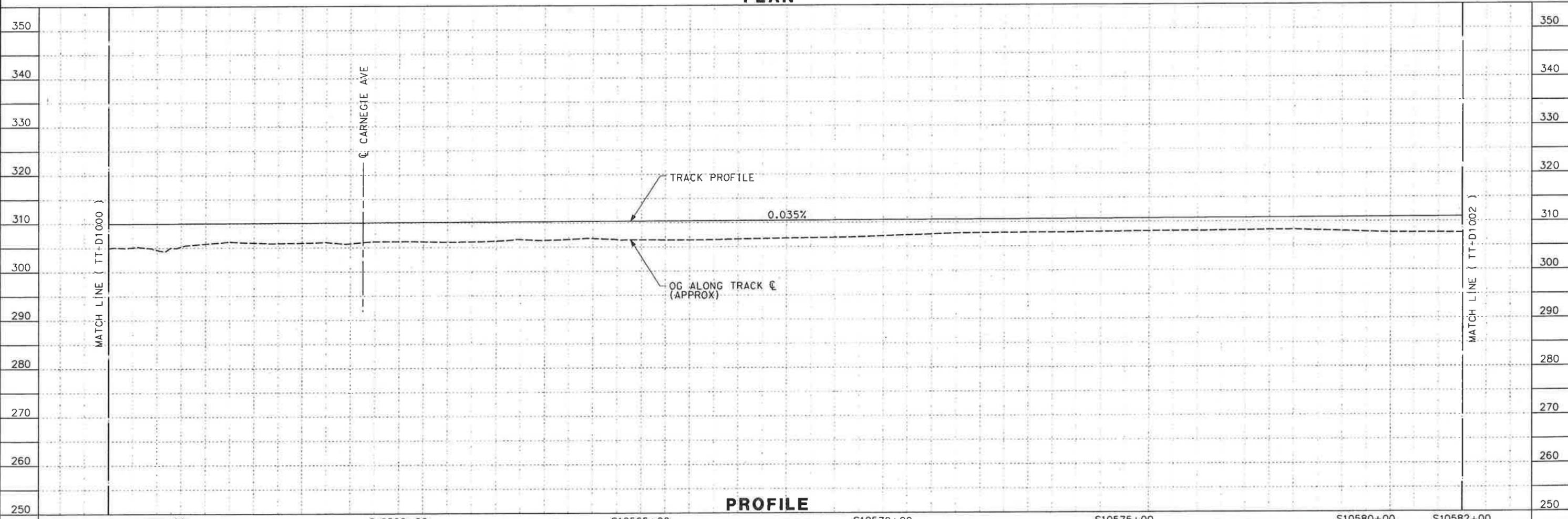
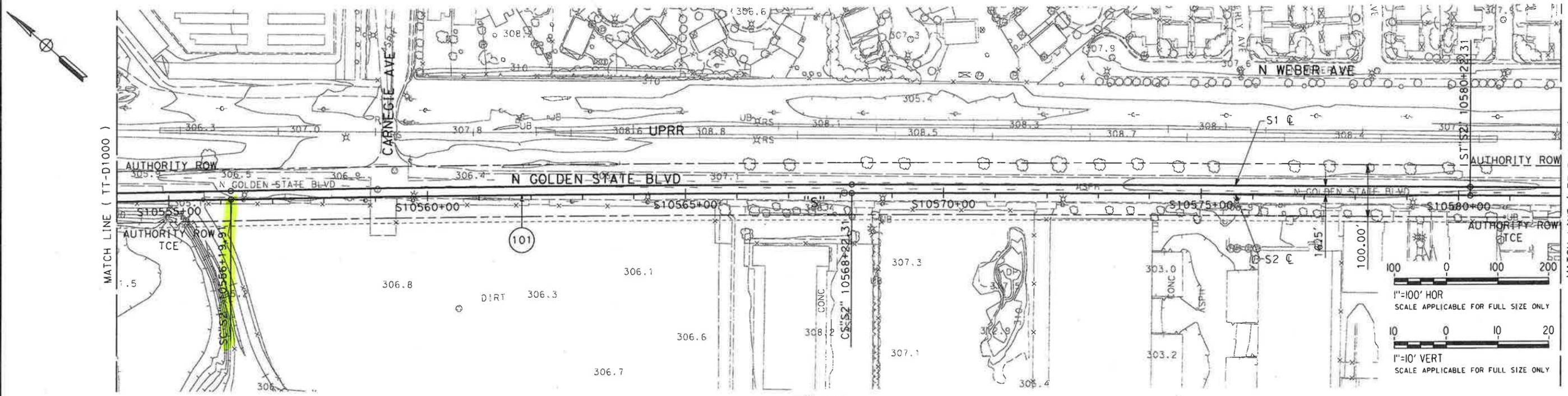
Part 4 – Mitigation Measures

Part 5 – List of Supporting Documentation to Design Variance Request

ANALYSIS	See discussion above and attached exhibits.
PUBLICATION/STANDARDS EXTRACTS	N/A
RISK ASSESSMENT	N/A
DRAWINGS	See Attached
CALCULATIONS	N/A
EXPERT TESTIMONIALS	N/A
CORRESPONDENCE	N/A
OTHER	



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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. SHIELDS
DRAWN BY
H. SULLIVAN
CHECKED BY
H. PHAN
IN CHARGE
A. BOONE
DATE
08/31/2011

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AECOM
Technical Services, Inc.
2020 L Street, Suite 300
Sacramento, CA 95811

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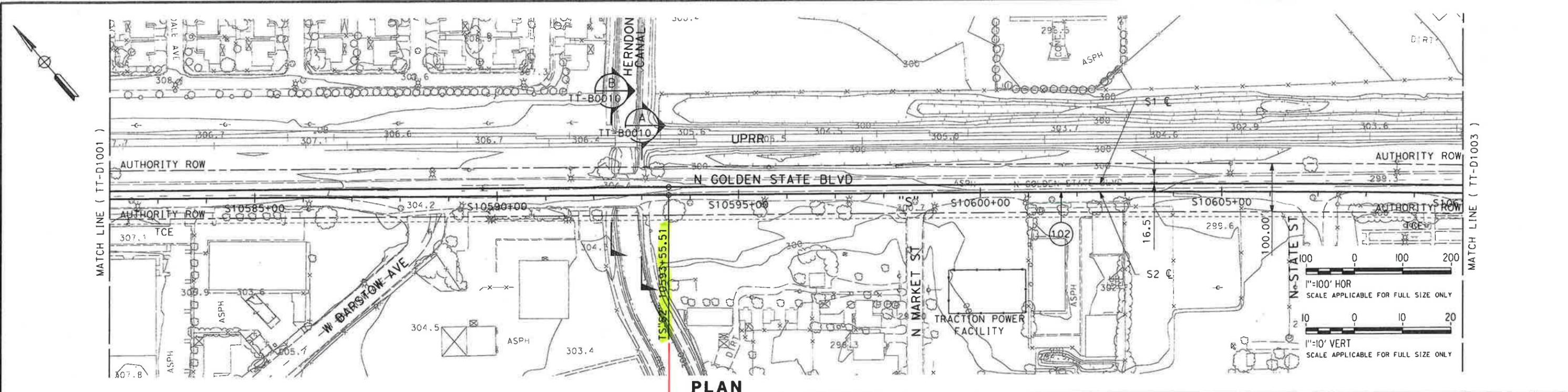


**CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION**

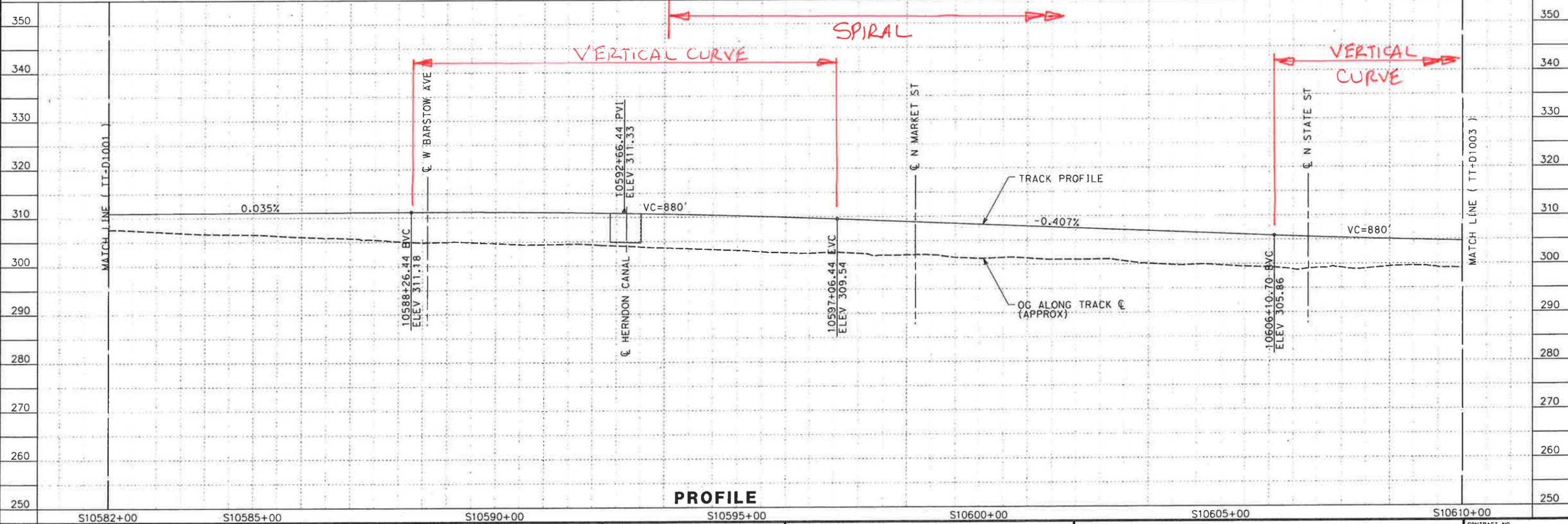
PACKAGE 1
TRACK GUIDEWAY
PLAN AND PROFILE
STA. 10555+00 TO 10582+00

CONTRACT NO.
DRAWING NO.
TT-D1001
SCALE
AS SHOWN
SHEET NO.
XX OF XX

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PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. SHIELDS
 DRAWN BY
H. SULLIVAN
 CHECKED BY
H. PHAN
 IN CHARGE
A. BOONE
 DATE
08/31/2011

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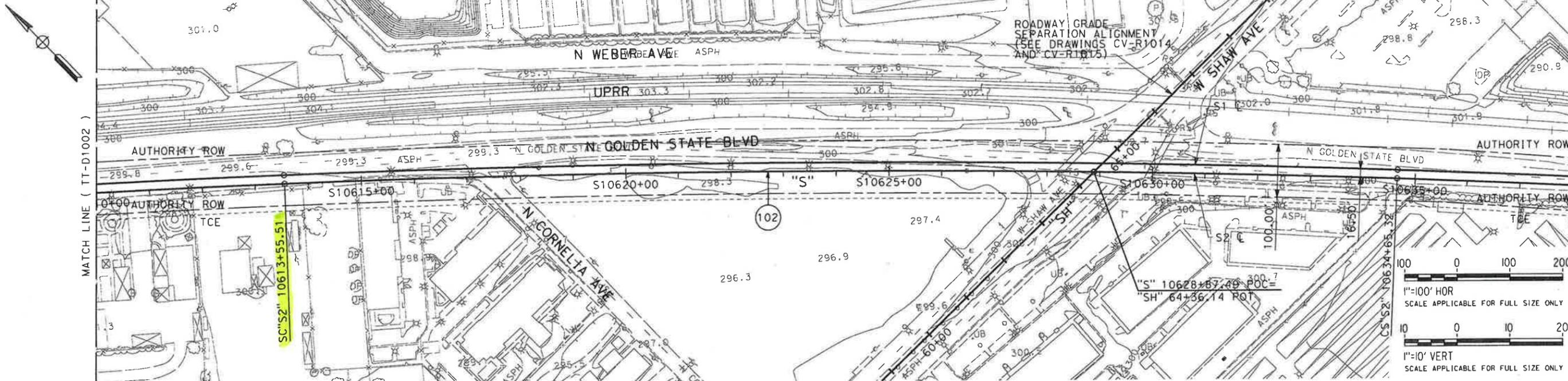
AECOM
 Technical Services, Inc.
 2020 L Street, Suite 500
 Sacramento, CA 95811
CH2MHILL



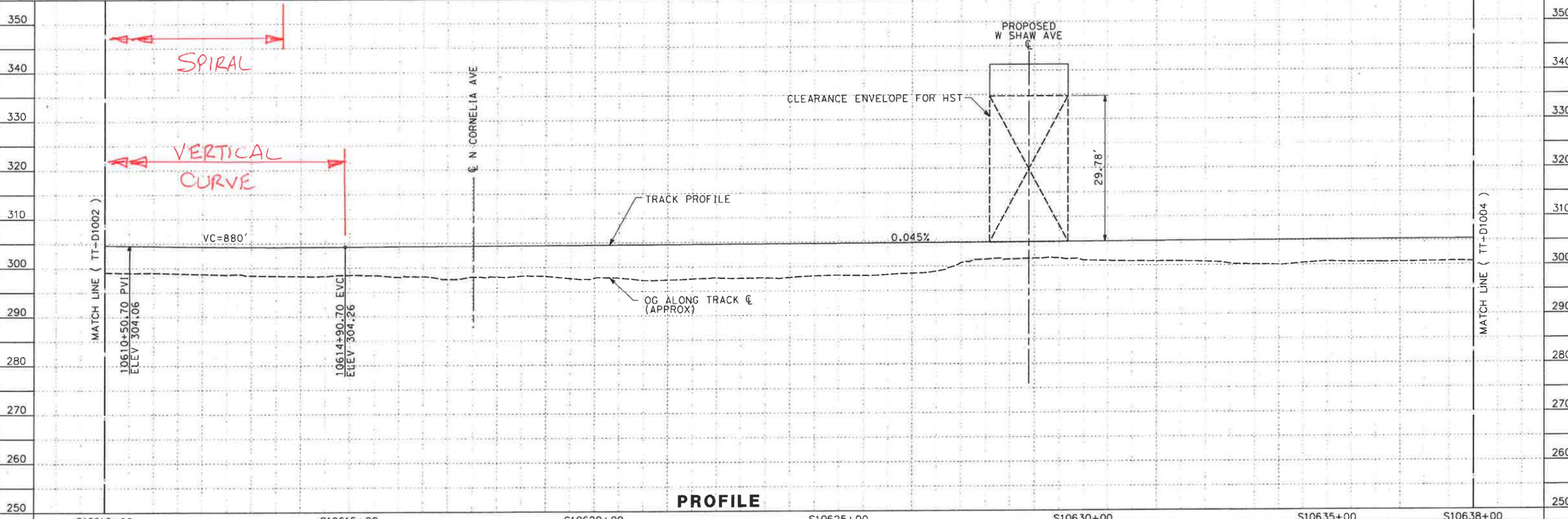
**CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION**
 PACKAGE 1
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 PLAN AND PROFILE
 STA. 10582+00 TO 10610+00

CONTRACT NO.
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 SHEET NO.
 XX OF XX

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PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. SHIELDS
DRAWN BY
H. SULLIVAN
CHECKED BY
H. PHAN
IN CHARGE
A. BOONE
DATE
08/31/2011

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION**

PACKAGE 1
TRACK GUIDEWAY
PLAN AND PROFILE
STA. 10610+00 TO 10638+00

CONTRACT NO.
DRAWING NO.
TT-D1003
SCALE
AS SHOWN
SHEET NO.
XX OF XX



MEETING SIGN - IN SHEET

SUBJECT: MF Design Variance Meeting

LOCATION: 6th Floor Main Conference Room

Date: October 4, 2011

Name Company/Affiliation Telephone Signature Cell-phone E-mail

CHSTP - EMT Infrastructure Subgroup						
<input checked="" type="checkbox"/>	Chirco	John	PB/Infrastructure Manager	415-243-4685		
<input checked="" type="checkbox"/>	Wightman	Chris	PB/Infrastructure	415-284-4602		415-284-4602
CHSTP - EMT Systems Integration Subgroup						
<input checked="" type="checkbox"/>	Murphy	Anthony	PB/Systems Integration Manager	415-243-4630		415-243-4630
CHSTP - EMT Systems Subgroup						
<input checked="" type="checkbox"/>	Schmedes	Rick	PB/Systems Manager	415-243-4621		415-243-4621
<input type="checkbox"/>	Paz	Michelle	PB/Systems	415-243-4756		415-243-4756
<input checked="" type="checkbox"/>	Hsiao	Michael	PB/Systems	415-243-4759		415-243-4759
<input type="checkbox"/>	Lau	John	PB/Systems	415-243-4612		415-243-4612
<input type="checkbox"/>	Mortlock	Ed	PB/Systems	415-243-4780		415-243-4780
<input type="checkbox"/>	Muttic	Ibrahim	PB/Systems	415-243-4794		415-243-4794
<input type="checkbox"/>	Sibal	Vinod	PB/Systems	973-565-4858		973-565-4858
CHSTP - Operations & Maintenance Team						
<input type="checkbox"/>	Meitzler	Joseph	PB/OPS Manager	415-284-4264		415-284-4264
<input type="checkbox"/>	Cockle	John	PB/OPS	415-243-4762		415-243-4762
<input type="checkbox"/>	Walker	Richard	PB/OPS	909-556-2906		909-556-2906
Name Company/Affiliation Telephone Signature Cell-phone E-mail						
<input type="checkbox"/>	FARID NOBARI	AECOM/CH2M HILL	916-563-2523		916-335-5395	fnobari@ch2m.com
<input type="checkbox"/>	ANGELA SHIELDS	AECOM/CH2M HILL	916-567-2530		916-719-0627	angshields@aecom.com
<input type="checkbox"/>	ALAN BOONE	AECOM	916-414-1558		916-203-0037	alan.boone@aecom.com
<input type="checkbox"/>	DAVE MINISTER	AECOM	916-414-1558		916-203-0037	dminister@aecom.com
<input type="checkbox"/>	HARRIS, George	PB/Infrastructure	415-243-4749		850-208-1520	g.harris@pbworld.com
<input type="checkbox"/>	WAI SUI	PB/PMT - MF	916-567-2562		916-468-8629	wsui@pbworld.com

PLEASE PRINT YOUR DETAILS. THANK YOU

Wightman, Christopher J.

From: Wightman, Christopher J.
Sent: Monday, October 03, 2011 3:19 PM
To: Recacho, Lyan; Chirco, John; Siu, Wai-on; Schmedes, Rick; Metzler, Joseph; Murphy, Anthony; Hsiao, Michael; Walker, Richard D.; Cameron, Craig; Valentine, Peter; Lau, John; Harris, George
Subject: M-F Design Variance Request Submittal
Attachments: M-F Design Variance Request Submittal - C.Wightman

See below items for discussion at tomorrow's DVR discussion. Please come prepared to discuss the following:

1. Confirm updated DVRs reflect new mapping
2. Confirm floodplain elevation
3. Confirm status of environmental documents
4. Cost avoidance is driver for these DVRs, show derivation of \$5M, \$5M, \$50M, & \$0.5M cost impact.
5. Discuss option of lowering HSR alignment
6. OCS considerations for lowered overhead clearance
7. 0001 - OCS Clearance under future Re-constructed W Clinton Ave Over-pass
https://ww3.projectsolve2.com/eRoom/SFOF7/Engineering/0_c6977
-Next action
-Next action by
8. 0002 - OCS Clearance Under Future Veterans Blvd Overpass
https://ww3.projectsolve2.com/eRoom/SFOF7/Engineering/0_c697e
-Next action
-Next action by
9. 0003 - OCS Clearance Ashlan Avenue
https://ww3.projectsolve2.com/eRoom/SFOF7/Engineering/0_c7b3e
-Next action
-Next action by
10. 0004 - HST Track Alignment Spiral/Vertical Curve Overlap
https://ww3.projectsolve2.com/eRoom/SFOF7/Engineering/0_c7b73
-Next action
-Next action by

Thanks

Chris

425-533-4146



Memorandum

To: John Popoff, Deputy Program Director

From: Peter Valentine, Regional Manager Merced to Fresno

Copy: Hans Van Winkle, Program Director
Ken Hartley, Richard Frankhuizen, Jeff Abercrombie

Date: September 16, 2011

Subject: CHSTP Merced to Fresno Section
Regional Manager Activities – August 2011

Throughout the month of August progress was made in wrapping up all required areas that would contribute to the publication of the Draft EIR/EIS on schedule.

Final 15% Engineering record set for the Hybrid 21 alternative is progressed on schedule. Preliminary 30% design progressed in parallel with PMT over-the-shoulder review.

Public Information Workshops were held in Merced, Madera and Fresno. Good response from general public. Comments received were logged using "CommentSense".

1) Key Developments and Accomplishments:

- 08/02, ROW meeting with Patricia Jones, AECOM, BRI and O'Dell Engineering on development of ROW appraisal plans. Key notes: -
 1. BRI/O'Dell expressed concern that final alignment may change total number of parcels
 2. BRI to issue notices to landowners 3 days in advance for BRI surveyors to conduct field work. Notices, door hangers and standard reply approved by Jeff Abercrombie
- 08/02, Discussion with AECOM and URS on UPRR ROW and alignment at Clinton. Key notes: -
 1. Latest topographic map indicated that the 15% design alignment at Roeding Park needs adjustment (3.4' towards UPRR). This would affect the MF design
 2. AECOM to setup discussion with EMT on all these issues such as tolerance of UPRR ROW, alignment and min. HSR ROW needed for retained fill and necessity and size of crash wall
- 08/03, Design Issues Workshop. Key notes: -
 1. EMT will not provide a typical design on crash wall (at least not in 30% stage) but advised to use a 3' thick wall in the design and develop a site specific design x-sections and plan showing best possible design within current available ROW and submit for EMT review/comment
 2. For design purposes assume ballasted track and allow 2.5' from TOR to structure
- 08/03, Weekly Progress Meeting. Key notes: -
 1. Progress of 30% design
 - a. Need procurement task force (PTF) list of deliverables. [post note - already received]
 - b. Track alignment drawings ready for OTS review on 08/08. [post note - review comment returned 08/10]
 - c. RC responded to all Caltrans comments. Meeting with Caltrans 08/11

- d. City of Fresno has not seen 15% plans but has been agreeable with process to date. Authority needs to process MOU w/ City of Fresno. RC can draft the MOU but needs a template on standard format
- e. ROW – good progress on appraisal maps. Need additional R/W to include GSB from south bank of SJR to Herndon
- f. Aerial Survey through Madera Acres began 08/08. Data should be ready middle of October
- 2. Budget
 - a. R/W has two to three weeks backlog
 - b. Engineering has 3 to 4 weeks budget remaining
 - c. AECOM to forward CR justifying FY10/11 over-spend
- 3. Status of DEIR/S
 - a. FRA signed cover sheets. Package delivered to FRA
- 08/04, AECOM/EMT/PMT meeting on 30% schedule and deliverables. Key notes: -
 - 1. RC briefed proposed delivery schedule of procurement package #1 engineering design is 09/30 with in-progress review by 08/31 for final package on 10/28. Weekly OTS review arranged between RC/PMT as the team progress. Sample sheets can be produced [Post notes – Draft In-progress submitted on 08/31]
- 08/08, RM completed HSR Energy Plan Survey
- 08/08, RM reviewed draft design variance submittal for Clinton and Veteran's Blvd, design baseline needs updating before review can be completed
- 08/08, Design Team Meeting with J Abercrombie (W Siu called in)
 - 1. To-Do Log was reviewed with URS and AECOM
 - 2. AECOM has scheduled meetings with Chowchilla re mitigation measures, 08/10
 - 3. AECOM has scheduled meetings with City of Fresno and Caltrans, 08/11
- 08/10, H van Winkle bi-weekly update meeting
 - 1. Draft EIR/EIS released and uploaded to HSR website
 - 2. Public Comment period is through 9/28/2011
 - 3. Public workshops will be held in late August and Public Hearings in September
 - 4. Meetings are scheduled with the City of Fresno re Veteran's Boulevard design and with Caltrans re SR 99 re-alignment and disposition of Caltrans review comments
- 08/10, Procurement Task Force Meeting
 - 1. Action Items - MF Team to follow up w/ J Chirco on the 15% comment resolution. RM confirmed that all 15% comments are closed
 - 2. Procurement Task Force Items
 - a. 30% design specific TM's are in final or draft format posted to PS2. Special Provisions posted on PS2 - Attorney's working on boilerplate. Draft Standard and Directive Drawings are 90% complete and available on PS2
 - b. Caltrans Special Provisions will be required in Caltrans Format. RC to forward sample for acceptance by EMT
 - c. EMT to issue Standard Drawings and Specifications as a standalone document to be referenced on RC Plans
 - d. 30% Deliverables Checklist Spreadsheet is available on PS2. MF & FB team to coordinate which special provisions each RC should provide so as to not duplicate effort
 - e. No demolition plans are scheduled to be furnished by RC. PTF to clarify and return direction
 - f. System integration and interface – RC's to comment on plans and suggest items of work that should be included to avoid rework or reconstruction

3. Merced to Fresno Items
 - a. Design Variance – update variance request forms to reflect new mapping
 - b. Mitigations - RC presented list of mitigation measures. Infrastructure related mitigation measures will be addressed in the plans. Non infrastructure related measures will be address by policy or specification
 - c. Structure complex/non complex matrix will send to EMT on 08/12 [post note – already sent]
- 08/11, Coordination Meeting with City of Fresno. Key notes: -
 1. Jeff Abercrombie briefed the team on current project status and expected local entity to be part of D/B contractor ensuring local employment. PV briefed the team on overall schedule up to RFQ/RFP. FN briefed the team on current design effort and achievements
 2. City raised concern of land use underneath aerial structures. JA advised that Authority welcome idea of land use and is open for discussion
 3. Veteran Boulevard Crossing
 - a. In response to question from RM, S. Mozier, City of Fresno, said that the consequences of raising the bridge height by 3' to accommodate a 27' HST clearance would be 2 years delay to environmental clearance and cost millions extra
 - b. CH2MHill to liaise with Mark Thomas, utilizing the latest map base, looking for opportunity to increase OCS vertical clearance as much as possible. Mark Thomas (designer of Veteran Blvd) advised that the project has already gone through EIR/S and is ready to present to Caltrans prior to public review
4. Utilities
 - a. FN advised that within a couple of weeks a set of utility plan will be submitted to the City for comment [post note – still working on it]
 - b. City advised that HSR may need to acquire land for a suitable storm water storage basin relocation due to GSB works [post note – site alternatives already identified]
- 08/11, Coordination Meeting with Caltrans District 6. Key notes: -
 1. Jeff Abercrombie briefed the team on the current project status and expected local entity to be part of D/B contractor ensuring local employment. PV briefed the team on overall schedule up to RFQ/RFP. FN briefed the team on current design effort and achievements
 2. FN advised that because of tight schedule suggested to hold routine (weekly) discussion with Caltrans. Caltrans advised because of current budget constraint it may not be possible to entertain additional work-load. Need to follow-up on progress of Caltrans/Authority MOU
 3. General discussions on designs of Shaw and Clinton. Both Caltrans and City staff suggested bike and pedestrian lane be considered in particular ADA requirements. RC will look into options but considering geographic constraints it may not be achievable
 4. Caltrans raised concern of utility arrangement and advised existence of AT&T fiber optic route along SR99. RC to note and investigate
- 08/15, 15% comments close-out, Teleconference with J Chirco/R Schmedes
 1. 75% of comments are closed with resolution; other comments are to be addressed in 30%. All comments have been accepted and signed off by AECOM PM
 2. R Schmedes suggested review of Ave 21/Hybrid TPSS package [Post note – design review arranged for 08/18 and all issues resolved]
 3. Design Variance, PV to review DVs along with new base mapping but stated that the only way to achieve 27' clearance would be depress the HSR alignment another 3ft. The existing roadway infrastructure is a limiting factor for changing bridge deck heights

4. J Chirco raised concerns about feasibility of Merced Station in particular meeting Operations and Maintenance issues. PV stated that it will be revisited when come to 30% design
- 08/16, Review of AECOM/URS interface cross-section with T Tracy and J Chirco
 1. J Chirco agreed that a 2' shift of the AECOM alignment within the 65' ROW to match the URS alignment exiting Roeding Park would be acceptable
 2. RM directed RC to make change to alignment as suggested by J Chirco
- 08/17, Weekly progress meeting with RC (PMO sat in)
 1. RW to submit formal CR for \$492K (not \$509K previously reported) within a week [post note – no action taken as of 08/31]
 2. Version 4 AWP request is forthcoming from PMO
 3. R/W Plans and acquisition plans to be extended sufficient to cover work included in the 30% package. RC estimates increased budget to be \$350K
 - a. Task 4 Budget - 22% (\$660k) spent. Burn rate \$200k per week
 - b. Task 9 Budget - 7% (\$300k) spent, Burn rate – \$80K per week
 4. Progress of 30% Design (JP sat in partly)
 - a. Geotechnical draft to be prepared and submitted in Sept with no field work included
 - b. RC reviewed status with J Popoff. J Popoff advise RC that the presented material did not convince him that they would make the 9/30 deadline
 - c. RM requested detailed sheet list. A very rough draft was presented which did not illustrate resources and % complete to give RM or J Popoff the level of comfort that RC can make the schedule
 - d. Schedule – 25% completed. On schedule to be completed by 9/30
 - e. Design Variances – PV explained that there was not enough information for EMT to make a variance determination. PV directed RC to assess the cost of achieving the 27' clearance vs. the existing design which achieves 24' clearance. For continuity PMT needs all 4 DV's submitted together. PMT to assist if necessary.
 5. PMO - No issue
- 08/18, Review of TPSS for Hybrid/Ave 21 Alignment with EMT/RC/PMT (W Siu attended)
 1. A Boone from AECOM presented plans that intended to address TPSS comments generated by EMT (Vinod Sibal and Michelle Paz)
 2. EMT/PMT concluded that all of the responses presented were acceptable with minor correction to the plan set. [post note – plans corrected and posted to PS2]
- 08/19, MF & FB Environmental Schedule review with B Porter (C Cameron attended)
 1. MF/FB Schedule consistency
 - a. End dates for both teams (NOD/ROD) consistent
 - b. Nomenclature of tasks needs to be consistent for the two teams
 - c. Checkpoint C field work to be performed in September
 2. USFWS/NMFS
 - a. One BA will be submitted for all three alternatives
 - b. Corp/EPA will not review BA until preferred Alternative is selected
 - c. Needs funding agreement with USFWS in preparation for submittal
- 08/22, Environmental Coordination Update Call
 1. Authority proposed to extend comment period by up to 15 days (to 10/13) due to impact of corrupted DVDs having been sent out with the initial distribution of documents. This extension could be an issue to overall schedule

2. R Wenzel confirmed Authority will not be billed for remedial work in response to D Leavitt's comments
 3. L Nungesser said AECOM has not complied with requirement for only 6 topical areas
 4. After discussion about noise demonstration models, D Leavitt said not to do now for CV while in comment period. To follow at a later date
 5. KL is preparing draft letter re A3 for environmental agency. Denai concerned that it is not potentially the LEDPA. KL confirmed that AA level data only is being utilized. Dan wants farmers issues well articulated
- 08/23, Public Workshop Training Session with L Nungesser
 1. L Nungesser provided list of Q & A positions to be used at Workshops
 2. Any requests for extension will be subject to Board decision
 - 08/23, RM attended Public Information workshop in Fairmead
 1. Plant Manager for Arm and Hammer supplier expressed concern that our alignment bisects their plant. Recommended he submit comments re impact to the business. Confirmed that he will do so and speak at the Public Hearing
 - 08/23, H/H – Section 208.10 Meeting
 1. AECOM, URS, EMT, RMs participated
 2. 208/408 Permits Application
 - a. CH2MHill raised questions on 208/408 process and asked for clarifications. It is confirmed that there is no immediate need of 208/408 issue within Construction Package 1 (CP1) and the discussion is for future reference
 - b. J Chirco replied that current TMs are drafted based on the 800 miles long project. 208/408 is more environmental than technical and are geographic specific questions that should be handled case-by-case
 - c. CH2MHill stated that in order to proceed with submission additional works need to be conducted and that involves budget
 3. Flood-plain Design
 - a. CH2MHill asked about design parameters for flood-plain whether 100 years is adequate. CH2MHill further stated that DWR is working on a 200 years flood-plain database but the detail will not be available by 2015
 - b. J Chirco advised that it is not likely that the EMT could provide guidance on this matter and understand that it might need additional budget for both EMT and RC to develop this issue further
 - c. T Bernard advised that, prior to 2015, the CVFPB will accept whatever the design team may have proposed. J Chirco concurred
 - 08/24, RM attended Public Information workshop in Le Grand
 1. Spoke to Manager for Azteca Milling, he requested meeting at their plant to discuss details with their engineers. He confirmed he is submitting detailed comments
 - 08/24, Call with A Koby, G Van de Merwe, AECOM and URS re Schedule Revisions
 1. Schedule to be revised to extend comment period to 10/13/2011 (15 days)
 2. Adjustments to activities 7.2.6 through 7.2.9.1 were discussed and agreed
 3. Date for Board approval of Preferred Alternative in December was confirmed to be maintained
 4. Checkpoint C will need some adjustment when it is decided how to progress with Authority
 - 08/24, Procurement Meeting #6
 1. Briefing was given by Becky Mincio (EMT CADD Manager) on the coordination between MF & FB

2. Reviewed deliverable sheet with both teams. MF and FB teams are tasked with coordinating special provisions, details, title sheet, cover sheet etc, updating the deliverables list
 3. MF team to provide Right of Way drawings per TM 0.1.1 [Post note – PTF confirmed that ROW plans are not required for PP#1]
 4. MF team to provide sample plans for informal review 8/31 as set forth on July PTF meetings. [Post note – MF team submitted 132 sheets on 08/31 for informal review]
 5. Baseline Summary Report documenting contractor scope in bullet format, listing design assumptions and qualifications was requested by PTF. PTF to supply backbone document, RC's to flesh out after IP submittal.
 6. Demolition to be covered by specification in CP1
- 08/24, Bi weekly call with H van Winkle
 1. Business Plan will be issued 10/3/2011
 2. The next CV bidders forum will be held 10/8/2011
 3. RM reported first Public Workshop was held in Fairmead, went well, no big issues, about 100 attendees
 4. 30% design to south of SJ River is progressing on schedule, but budget will run out by 9/23, RC needs further authorization to maintain continuity
 5. RC is proceeding with 30% design for SR 99 relocation
 6. RC is revising AWP and there is no provision for any 30% design other than the ICS
 - 08/29, Environmental Coordination Update Call
 1. Selection of HMF site for MF - RM pointed out that 4 of the 5 sites were dependent upon west to east alignment decision, 2 sites work with Ave 21 only and 2 sites work with Ave 24 only. One site cannot be determined prior to ROD/NOD for M-F that does not address west to east connections
 2. Discussion and decision to send postcard mailers out re comment period extension, Rachel, Rebecca, Shay to co-ordinate
 3. DL requested AECOM and URS co-ordinate on wind/dust affects of HSR and supplement existing TMs for consistency
 4. RM raised extent of design development that could be discussed/reviewed with Caltrans or City of Fresno. JA asked AECOM to prepare Shaw Ave development as a specific example for the group to review
 - 08/30, Call with A Koby and Comment Sense staff
 1. AK concerned about lack of input to system so far, expected input by now from workshops. RW advised and requested some immediate attention
 - 08/30, AECOM Monthly Progress meeting
 1. Environmental Update
 - a. Extended Public Hearing by 15 days to 10/13/11
 - b. J Abercrombie thanked the team for the success in LeGrand re Public Information Workshop
 - c. Permitting
 - i. BA – NMFS & USFWS – Applications underway
 - ii. 404 Application Submitted
 - iii. Checkpoint C – Needs LEDPA from USACE, additional field work in September
 2. PM
 - a. AWP V4 will be submitted shortly. Needs NTP ASAP
 - b. Existing budget running low. July Invoice submitted. Change Request for AWP FY10/11 completed. [Post note – CR not submitted yet]

3. Station Area Planning
 - a. Rick Phillips – completed thorough revised plan for Site C.
 - b. Converting it into a CADD submittal
 - c. Needs to verify track alignment with Operations
4. Preliminary Engineering
 - a. Wrapping up 15 % TPSS with copies go to RM and EMT
 - b. Utility and Geotechnical reports are being reproduced
 - c. 30% - 1/3 complete, expended 1/3 budget, spending \$180k / week
 - d. On time for informal IP submission.
 - e. All plans due 9/30 – special provisions and reports included
 - f. Design Variance – in progress, anticipated mid September
 - g. Caltrans – City of Fresno meetings. Design exceptions favorable. Caltrans expressed interest in taking design roll after 30% and not go to procurement
5. Right of Way update
 - a. Survey – 25% complete for boundary
 - b. Oct 9th BRI data due, AECOM to take from there to complete plans Oct 28th.
 - c. 500K budget will be expended by mid September
6. Outreach
 - d. Postcard notifications, ad in newspapers and e-blast to stakeholders
- 08/31, Weekly Meeting
 1. Version 4 AWP will be provided today. [Post note – V4 submitted but rejected by Authority]
 2. Progress update – 30% design in progress as scheduled. Overall 33% complete. A total of 132 sheets scheduled to submit OCB. [Post note - Total 132 drawings submitted 08/31]
 3. PV directed RC to continue billing R/W work to task 9 up to \$500k after which R/W work will be billed to task 10 once budget is available
 4. FRA Comments - A Boone to review and provide response

2) Key Meetings Attended:

- 08/03, Design Issue Workshop
- 08/03, AECOM Team Weekly Progress Meeting
- 08/04, AECOM/EMT/PMT meeting on 30% schedule and deliverables
- 08/08, Design Team Meeting with J Abercrombie (W Siu called in)
- 08/08, Procurement Task Force Meeting with H van Winkle
- 08/10, H van Winkle bi-weekly update meeting
- 08/10, Procurement Task Force Meeting
- 08/11, HSR MF Weekly RC Meeting
- 08/11, Coordination Meeting with City of Fresno
- 08/11, Coordination Meeting with Caltrans District 6.
- 08/15, Design Team Meeting with J Abercrombie
- 08/15, 15% comments close-out, Teleconference with J Chirco/R Schmedes
- 08/17, In progress review of Design Plans
- 08/17, Weekly Progress meeting with RC
- 08/18, Review Meeting, TPSS for Hybrid/Ave 21 Alignment with EMT
- 08/19, Environmental Schedule review with B Porter.
- 08/22, Environmental Coordination Update Call

- 08/23, Weekly RM meeting with J Popoff
- 08/23, Public Workshop Training Session with L Nungesser
- 08/23, RM attended Public Information workshop in Fairmead
- 08/23, H/H – Section 208.10 Meeting
- 08/24, RM attended Public Information workshop in Le Grand
- 08/24, Call with A Koby, G Van de Merwe, AECOM and URS re Schedule Revisions
- 08/24, Procurement Meeting #6
- 08/24, Bi weekly call with H van Winkle
- 08/29, Environmental Coordination Update Call
- 08/30, Comment Sense discussion with A Koby
- 08/30, AECOM Monthly Progress meeting
- 08/31, AECOM weekly Progress Meeting

3) Documents Reviewed:

- 08/01, AECOM June Invoice
- 08/02, PMT Monthly Deliverable update
- 08/10, PMT Weekly schedule
- 08/11, Generated list of comments in preparation for comment resolution meeting
- 08/12, PMT Monthly Deliverable update
- 08/12, Update to RM's AWP
- 08/17, In progress review of Design Plans
- 08/18, Review Meeting, TPSS for Hybrid/Ave 21 Alignment with EMT
- 08/19, Review of AECOM staff changes with recommendation to Authority
- 08/22, In progress review and comment of CP1 Utility Plan
- 08/23, MF Sheet List
- 08/23, Hydrology/Hydraulics Memo from CH2M Hill
- 08/24, ICS Section Schedule & RC Schedule
- 08/25, RC 11/12 AWP Version 4 scope changes
- 08/30, FRA 15% Review Comments

4) Issues and Areas of Concern:

- New Issues:
 1. Authority decision to proceed with DEIR/EIS without A3 alternative (contrary to EPA and COE request) has been identified as a risk to schedule in the event the COE and EPA cannot be convinced by Authority that A3 elimination was appropriate
 2. Authority decided to extend the Public comment period by up to 15 days (from 9/28 to 10/13) driven by some distributed DVDs being corrupt in the M-F Section and requests for extension from public
- Continuing or Resolved (✓) Issues:
 1. Procedure for approval of Caltrans resources to support M-F 30% accelerated schedule needs to be finalized. The first ARRA section includes re-alignment of 9,000ft of SR 99 which needs significant Caltrans support/review. With requirement to complete the ARRA 30% PE by 10/28

2. UPRR response to HSR adjacency of at-grade alignment is needed to determine if proposed at-grade alignment is viable (north of Fresno and Merced Station traveling south). Absence of UPRR co-operation continues to be a MAJOR RISK to the currently proposed alignments. Some straddle bent columns will be on UPRR property for the south of SJ River crossing making this all the more critical. With requirement to complete the ARRA 30% PE by 10/28
3. Notified by RC that FY 2010 authorization had exceeded by \$492,000. RC to provide details and notify Authority of situation. RM will support to gain approval for payment (presumably by CR). At 8/31, RC has still not submitted request
4. RC AWP does not include any provision for response to RFIs once the RFP for Design Build Contract has been issued. Decision is needed on who has responsibility for RFI responses
5. AECOM's LNTP Authorization of \$2m for Design will be expended before the end of September. Additional Authorization is required by mid-September to maintain the 30% design schedule requirement

5) Action Items and Planned Work Next Month:

- Weekly Progress meeting with AECOM every Wednesday
- Review of AECOM schedule to ensure key activities are being met leading to ROD/NOD completion
- Attend weekly Engineering conference calls
- Attend weekly Environmental coordination conference calls
- Review comments from AECOM on FY11/12 AWP, revise, and resubmit as requested
- Attend Public Hearing in Merced 09/13. Madera 09/14 and Fresno 09/20

6) Financial Reporting:

AECOM August 2011 Monthly Progress Report received 09/16 (invoice not received yet) indicated that staff worked a total of 13,654 labor hours, which exceeded planned 13,193 by 3.5%. Expenditures were \$1,596,968 which is lower than planned \$1,829,490 by 14.5%.

It is anticipated that expenses of September and October would be around \$1.8m each month. The \$5m FY11/12 NTP#1 would be enough for the team to work until end of September.

7) Other Information:

- Nil

California High-Speed Train Project

DESIGN VARIANCE COVER SHEET



Design Variance Request Number	0003
Design Variance Request Title	OCS Clearance Ashlan Ave
Prepared by: AECOM / CH2M HILL	10-11-11
Regional Consultant	Date
PMT Review: Richard Schmedes	1-6-12
Systems	Date
John Chirco	12-30-11
Infrastructure	Date
Joseph Metzler	12-16-11
Operations/Maintenance/Safety	Date
Frank Banko	9-19-11
Rolling Stock	Date
Vladimir Kanevskiy	12-16-11
Regulatory Approvals	
Tony Murphy	1-10-12
System Integration	Date
PMT Recommended: Peter Valentine	1-11-12
PMT Regional Manager	Date
PMT Approval: Ken Jong	2-2-12
Engineering Manager	Date
Agency Concurrence:	
CHSR Authority Chief Engineer	Date



CHSR Authority Chief Engineer

Date

Part 1 – Design Variance Request Information**Title/Subject:** OCS Clearance under future reconstructed Ashlan Avenue Overhead**Number:** AECOM-SYS-0-0003 **Revision:** 3**Contract Name & Number (Final Design):** HSR06-007**Region:** Merced - Fresno**Location:** Fresno County**Regional Consultant's / Third Party Design Drawing Reference:****Date Submitted to RMT & PMT**

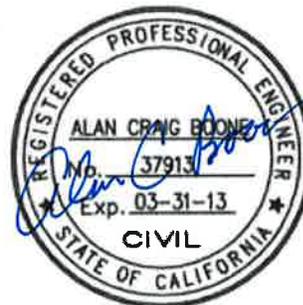
PREPARED / SUBMITTED BY:

NAME: Alan Boone/Doug Fredericks

COMPANY: AECOM/CH2M HILL

SIGNATURE:

DATE: (10-11-2011)



**Note design variance numbers will follow the same convention: "ABC" will abbreviate the name of the firm submitting the variance, "DEF" abbreviates the name of firm receiving the variance request, "X" is the revision number starting from 0, and the last four numbers count the number of total submittals starting from one.*



Part 2 – Design Variance Request Information

CHSTP DESIGN REQUIREMENT Include reference to drawings, design criteria, technical memos, specifications	TM3.2.1 – OCS requirements, Track work Flood elevation clearance
DESIGN CRITERIA REQUIRING A VARIANCE	The vertical clearance of 27 ft for installation of OCS system under new or planned over-crossing structure TOR 2.5 ft above flood elevation
REASON FOR REQUESTING VARIANCE	Any rise of profile of the new structure relative to the existing structure it replaces results in higher project impact, mitigation, delays and cost. Lowering HST will result in track work below estimated flood elevation, which may require boat-section and pump station To eliminate the requirement to lower the track work below the estimated flood elevation a variance to reduce the vertical bridge clearance to 22ft would be required
JUSTIFICATION FOR VARIANCE	To minimize the dip in the alignment under Ashlan Ave, maintain track elevation above existing ground and 2.5ft above estimated flood elevation. Achieves best possible vertical track alignment with minimum grade change, eliminates need for boat section and pumping equipment/maintenance. Provides the best track alignment profile for the least cost
PROPOSED ALTERNATIVE DESIGN REQUIREMENT	Allow minimum clearance under replacement bridge to be 22 to 24ft , this equates to TM 3.2.1 Directive Drawing for existing bridges up to 120 ft wide with free running OCS and reduced System Depth. Use Up to 2 ft of Walls/boat section for flood protection Or Allow deeper track work construction below flood elevation, while protected by a boat-section and pump station may be needed

Part 3 – Impact Analysis

OPERATIONS	N/A
MAINTENANCE	N/A
INFRASTRUCTURE	General The existing overhead structure clearance over UPRR is at 23.68 ft. This overhead will be demolished and rebuilt.



	<p>While technically the replacement bridge can be considered to be “new”, due to compatibility with other adjacent facilities that will not be replaced, the design must accommodate “existing” site conditions and profiles.</p> <p>Since replacing an existing structure which needs to conform to existing configurations and constraints on either side of the structure, it is proposed to consider clearance requirements for this location as those required for crossing under an existing overhead (i.e. 22 to 24 ft clearance), while maintaining flood elevation clearance with up to 2 ft of walls/boat section</p> <p>Raising Ashlan Ave profile to provide the 27 feet clearance over HSR will result in impacts to the approach and ramp features of Ashlan Ave and SR99 interchange, making the revisions impractical. Exhibits 1 through 5 show draft 30% design plans at Ashlan Ave. Exhibit 4 shows revised Ashlan profile grade of 6.6% to the Caltrans Ashlan/SR99 interchange ramps. This grade is already substandard, pending consideration and approval by Caltrans. Since Ashlan/SR99 interchange in its existing conditions does not meet current standards, further revisions of its configurations may lead to the requirement of replacing the interchange.</p> <p>Design options to consider at this location are:</p> <ul style="list-style-type: none">• Raising Ashlan Ave roadway Profile• Design Variance to reduce 27 ft clearance• Lowering HST profile with higher potential impact to flood elevation requirements• Combination of above <p><u>Roadway Profile Adjustments</u></p> <p>Modifying the Ashlan Ave replacement design to raise the roadway profile further so that clearance over HST can be raised to 27 ft is not feasible due to geometric factors including the following:</p> <ul style="list-style-type: none">• Raising the profile to clear 27' will extend the roadway profile closer to Caltrans interchange structure over SR 99.• Additional modifications of the interchange configuration will be required, including NB loop on-ramp and NB off-ramp.• These ramps in their existing conditions do not meet current standards. Further
--	--



	<p>revisions of these ramps for HST clearance may require major improvement or replacement of the ramp to meet current standards.</p> <ul style="list-style-type: none"> • Revisions to the ramp may quickly involve other substandard features of the interchange, and possible requirement to replace much of the interchange at an estimated cost of \$50M. • Further rise of the profile and interchange modification will impact additional ROW. • Raising Ashlan Ave profile will impact intersection with Golden State Blvd and complicate staged construction of the new Ashlan structure in halves. • None of the additional footprint or project features associated with partial or full interchange replacement have been included in project footprint or environmental documents. Re-evaluation of these additional features will delay the project and procurement of package 1 (ARRA funded) project. <p><u>Revised HSR track profile to provide 22 ft to 24 ft clearance</u></p> <p>Original HSR profile design was based on preliminary mapping. In addition, in absence of floodplain information, a conservative approach of keeping TOR 4 ft above average existing ground elevation in the vicinity was used to meet the flood elevation requirements.</p> <p>Current draft 30% design, as shown in Exhibit 4 is based on current mapping. It should be noted that as a result of the poor accuracy of the initial mapping (+/- 3 ft accuracy), much lower clearance was discovered when using the updated mapping. The current draft 30% design has already adjusted the roadway and HST profile to provide additional 2 ft clearance due to the initial mapping accuracy issues.</p> <p>Subsequent evaluation and adjustment of the 30% profile design were conducted based on :</p> <ul style="list-style-type: none"> • Updated mapping (+/- 0.5 ft accuracy) • Estimated flood elevation requirement which sets the TOR at a minimum of 3 ft above existing ground elevation <p>Based on FEMA evaluations and maps, 100 year flood event will impact regions near San Joaquin River, Herndon Canal and south of</p>
--	---



	<p>Clinton. <u>Local area adjacent to Clinton Ave, is therefore subject to only localized flooding for which flood agencies use 6 inch water elevation above existing ground/Golden State Blvd.</u> At Ashlan crossing, existing ground is at 295 ft. Allowing for 0,5 flood elevation (i.e. elevation 295.5), TOR at 2.5 ft higher will be at minimum elevation of 298 ft.</p> <p>As shown in exhibits 8 and 9, the draft 30% design HST profile (in black) will have TOR below the estimated flood elevation of 295.5 ft level, for nearly 2500 ft. This is primarily due to the HST profile adjustment required due to the initial mapping accuracy/errors, and recent determination of floodplain and local jurisdiction flood elevation estimates. To meet flood protection requirements noted above the revised track profile (blue) at 298 ft will clear flood elevation requirements, while providing minimum of 22 ft clearance to the critical point on the soffit of the new Ashlan bridge. Alternatively, a 24 ft clearance will require 2 ft walls/boat section to protect against local flooding. Note TM 3.2.1 allows 22 ft clear for similar conditions for existing bridge.</p> <p>See Exhibit 7 for vertical clearance, and flood elevation clearance options.</p> <p><u>Refined HSR track profile to provide 27 ft clearance</u></p> <p>As a basis of comparison, the draft final 30% design of HSR profile was further refined to examine conditions which can increase clearance under the new Ashlan Ave structure from to standard 27 ft. As shown in calculations in Exhibit 8, and profile design plan in Exhibit 9 (Red line), this condition will result in TOR at lower elevation than the required elevation of 298 ft to clear estimated flood conditions (TOR 293 ft). In fact, TOR under this condition will be 2 ft below existing ground elevation (2.5 ft below estimated flood elevation). To provide flood protection a 2500 long wall/boat section, 5 ft deep will be required. Additionally since the lowered HST TOR and drainage system is now lower than the existing grounds, feasibility of draining HST into nearby facilities will have to be re-examined. Lowered drainage outlet may require pump station to elevate drained storm water above the local drainage inlets and basins.</p>
--	---



	<p><u>Other requirements for Adjusted HST profile</u></p> <p>For standard 27 ft clearance the potential design issues to be considered are:</p> <ul style="list-style-type: none"> • May result in more frequent profile rise and fall at constrained locations (Veterans Blvd, Ashlan, Clinton) • Where HST tracks are below estimated flood elevation, boat-section will be needed. If available drainage facilities (i.e. inlets and basins) are above those lowered system, pump station may also be required <p>Drainage conditions of the boat-section will have to be refined to investigate feasibility of draining the boat-section into a nearby flood control facility. In absence of such options, design must consider implementation and operation of a pump station to pump storm water and/or local flood water from the boat-section.</p> <p>The boat-section unit cost is estimated at 18.5M/mile for a 7 ft deep section (\$9M for 2500 ft of 5 ft deep). Pump stations are estimated at \$3 million, with equipment replacement and O&M equivalent to \$300K over 20 year intervals.</p> <p><u>Recommendation</u></p> <p><u>Consider a variance of 24 ft clearance, along with flood protection walls/boat section of 2 ft in height. Flood elevations are based on local flood agency coordination, and are assumed to be 6 inches above existing Golden State Boulevard surface (existing ground).</u></p> <p><u>Justification</u></p> <p>Without raising the Ashlan Ave profile which has the potential to impact the SR99 interchange, refinement of the current draft 30% HST profile design provide the following options:</p> <ol style="list-style-type: none"> 1. With an approved DVR, consider 24 ft clearance, as permitted for crossing under existing structures, since the existing constraints bounding the replaced Ashlan Ave overhead are prohibitive from further adjusting the roadway profile. Provide 2 ft tall walls/boat section to protect against local flooding.
--	--



RAILROAD SYSTEMS	N/A																																										
RELIABILITY / FUNCTIONALITY	N/A																																										
THIRD PARTY (Utility, Freight, Caltrans, RR, other)	<p>Raising Ashlan Ave profile will require coordination and approval by Caltrans on resulting impacts to the SR99 interchange</p> <p>Drainage of the boat-section storm water and flood water require coordination with local flood protection agencies</p>																																										
SAFETY AND SECURITY	N/A																																										
DIRECT COST	<table border="1"> <tr> <td colspan="2" style="text-align: center;">Raising Ashlan Roadway profile and revising Interchange *</td> </tr> <tr> <td>Interchange modification</td> <td>\$50M+/-</td> </tr> <tr> <td>Other</td> <td>Cost associated with additional engineering, environmental and delays</td> </tr> <tr> <td colspan="2">* assume profile raised so there is no boat section</td> </tr> <tr> <td colspan="2" style="text-align: center;">22 ft Clearance DVR</td> </tr> <tr> <td colspan="2">No Wall/Boat section No pump station No additional cost</td> </tr> <tr> <td colspan="2" style="text-align: center;">RECOMMENDED OPTION</td> </tr> <tr> <td colspan="2" style="text-align: center;">24 ft Clearance, No DVR + 2ft wall/boat-section and pump station*</td> </tr> <tr> <td>Wall/Boat Section</td> <td>\$8M (2 ft deep)</td> </tr> <tr> <td>Pump equipment</td> <td>\$0.5M</td> </tr> <tr> <td>Pump Station & facility</td> <td>\$2.5 Million</td> </tr> <tr> <td>Reoccurring pump replacement cost</td> <td>\$300 K/20 years</td> </tr> <tr> <td>Other</td> <td>General maintenance</td> </tr> <tr> <td colspan="2">* Pump station will be needed if lowered HST drainage cannot be drained into existing drainage facilities</td> </tr> <tr> <td colspan="2" style="text-align: center;">27 ft Clearance, No DVR + 5ft boat-section and pump station*</td> </tr> <tr> <td>Wall/Boat Section</td> <td>\$9M (5 ft deep)</td> </tr> <tr> <td>Pump equipment</td> <td>\$0.5M</td> </tr> <tr> <td>Pump Station & facility</td> <td>\$2.5 Million</td> </tr> <tr> <td>Reoccurring pump replacement cost</td> <td>\$300 K/20 years</td> </tr> <tr> <td>Other</td> <td>General maintenance</td> </tr> <tr> <td colspan="2">* Pump station will be needed if lowered HST drainage cannot be drained into existing drainage facilities</td> </tr> </table>	Raising Ashlan Roadway profile and revising Interchange *		Interchange modification	\$50M+/-	Other	Cost associated with additional engineering, environmental and delays	* assume profile raised so there is no boat section		22 ft Clearance DVR		No Wall/Boat section No pump station No additional cost		RECOMMENDED OPTION		24 ft Clearance, No DVR + 2ft wall/boat-section and pump station*		Wall/Boat Section	\$8M (2 ft deep)	Pump equipment	\$0.5M	Pump Station & facility	\$2.5 Million	Reoccurring pump replacement cost	\$300 K/20 years	Other	General maintenance	* Pump station will be needed if lowered HST drainage cannot be drained into existing drainage facilities		27 ft Clearance, No DVR + 5ft boat-section and pump station*		Wall/Boat Section	\$9M (5 ft deep)	Pump equipment	\$0.5M	Pump Station & facility	\$2.5 Million	Reoccurring pump replacement cost	\$300 K/20 years	Other	General maintenance	* Pump station will be needed if lowered HST drainage cannot be drained into existing drainage facilities	
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* Pump station will be needed if lowered HST drainage cannot be drained into existing drainage facilities																																											



OTHER	Raising the profile of the roadway will result in change of project footprint, additional ROW impact, environmental and engineering effort, delays in environmental, design as well as procurement package 1 (ARRA)
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Part 4 – Mitigation Measures

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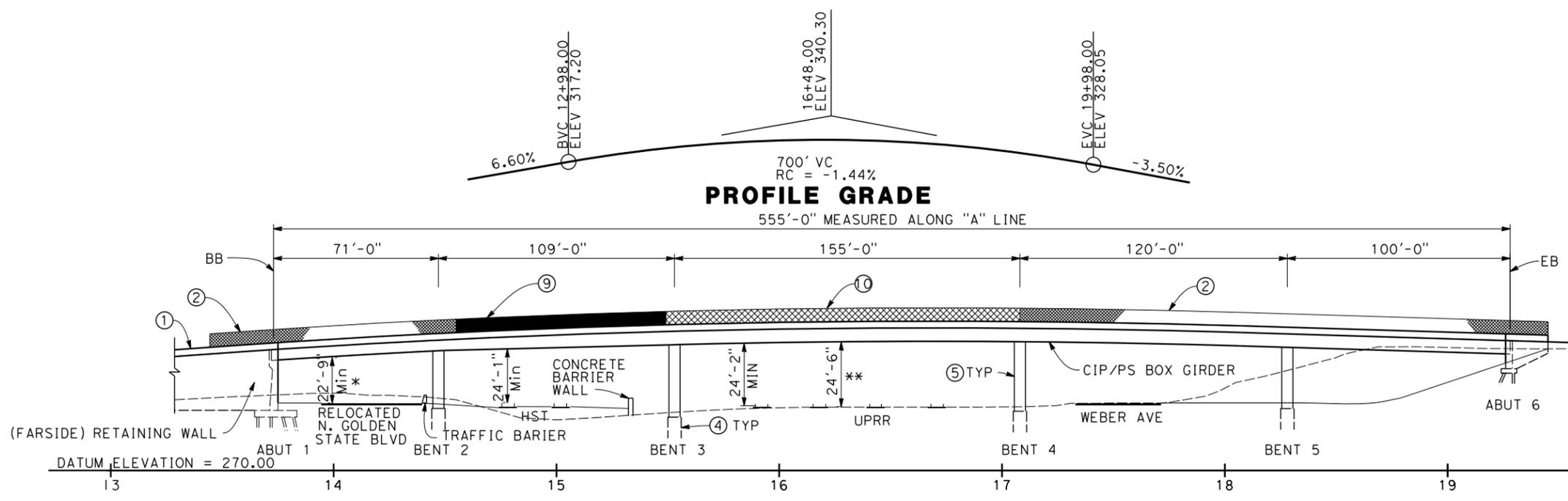
Part 5 – List of Supporting Documentation to Design Variance Request

ANALYSIS	See discussion above, attached exhibits, and draft 30% design plans.
PUBLICATION/STANDARDS EXTRACTS	N/A
RISK ASSESSMENT	N/A
DRAWINGS	See Exhibits 1 thru 7, and 9
CALCULATIONS	See Exhibit 8 for recommended option
EXPERT TESTIMONIALS	N/A
CORRESPONDENCE	N/A
OTHER	

Do not attach superfluous materials, such as complete project plan sets or engineering reports unless specifically requested.

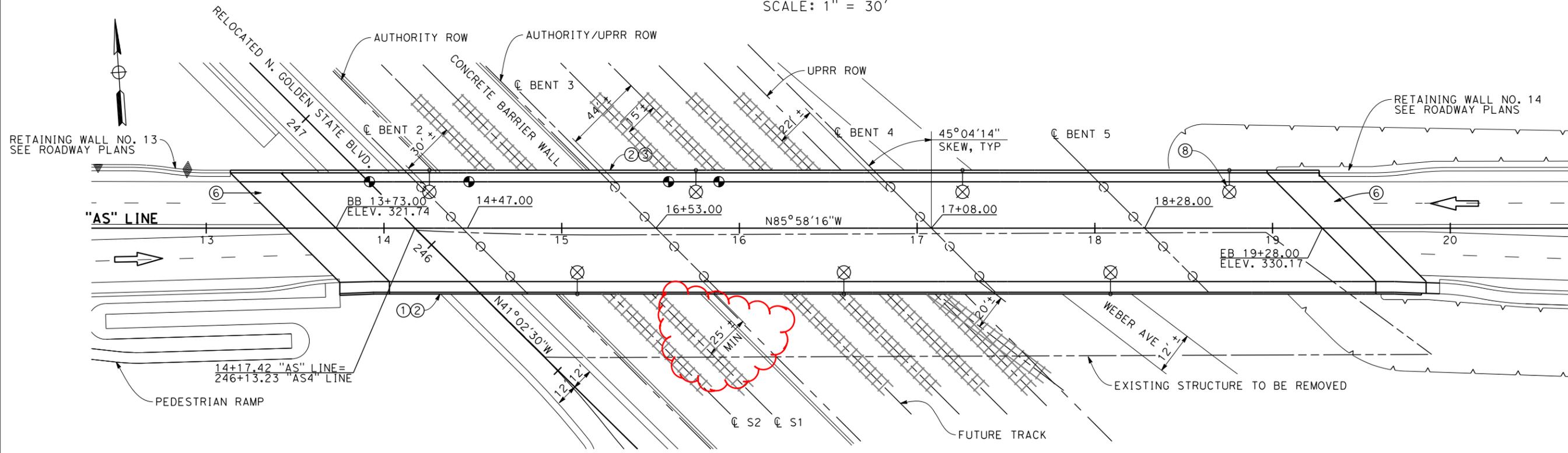


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ELEVATION
SCALE: 1" = 30'

- NOTES:**
- ① CONCRETE BARRIER (TYPE 26 MODIFIED)
 - ② CHAIN LINK RAILING (TYPE 7 MODIFIED)
 - ③ CONCRETE BARRIER (TYPE 736 MODIFIED)
 - ④ 6'-0" DIA CIDH PILE
 - ⑤ 5'-6" DIA COLUMN
 - ⑥ STRUCTURE APPROACH, TYPE N(30S)
 - ⑦ EXISTING UPRR ROW TO BE CONFIRMED ON SITE
 - ⑧ ELECTROLIERS
 - ⑨ AR FENCE WITH SOLID PLATE
 - ⑩ AR FENCE
- LEGEND:**
- ➔ INDICATES DIRECTION OF TRAFFIC
 - ⊙ INDICATES APPROXIMATE POINT OF MINIMUM VERTICAL CLEARANCE
 - ▤▤▤▤ INDICATES RAILROAD AND HIGH-SPEED TRAIN TRACK
- * TEMPORARY FALSEWORK CLEARANCE = 20'-10"
FALSEWORK DEPTH = 1'-10 1/2"
- ** TEMPORARY FALSEWORK CLEARANCE = 21'-2"
FALSEWORK DEPTH = 3'-5"



PLAN
SCALE: 1" = 30'

ASHLAND AVE. Exhibit 1

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
D. FREDERICKS
 DRAWN BY
P. WALKER
 CHECKED BY
H. STRANDGAARD
 IN CHARGE
F. NOBARI
 DATE
12/08/11

**PROPOSED
PRELIMINARY
DESIGN**

**NOT FOR
CONSTRUCTION**

AECOM
 Technical Services, Inc.
 2020 L Street, Suite 300
 Sacramento, CA 95811
CH2MHILL



CALIFORNIA HIGH-SPEED TRAIN PROJECT
MERCED TO FRESNO
 PACKAGE 1A
 ROADWAY
 ASHLAN OVERHEAD
 GENERAL PLAN

CONTRACT NO.	
DRAWING NO.	ST-11008
SCALE	AS SHOWN
SHEET NO.	

9/27/2011 4:33:18 PM CAHSR-R1-TBL CHSR_half_black.plt C:\Documents and Settings\bchan1\My Documents\NDMP\Proj_356751 - SR99 Improvements\15-CV-R1018-R99.dgn

CURVE DATA

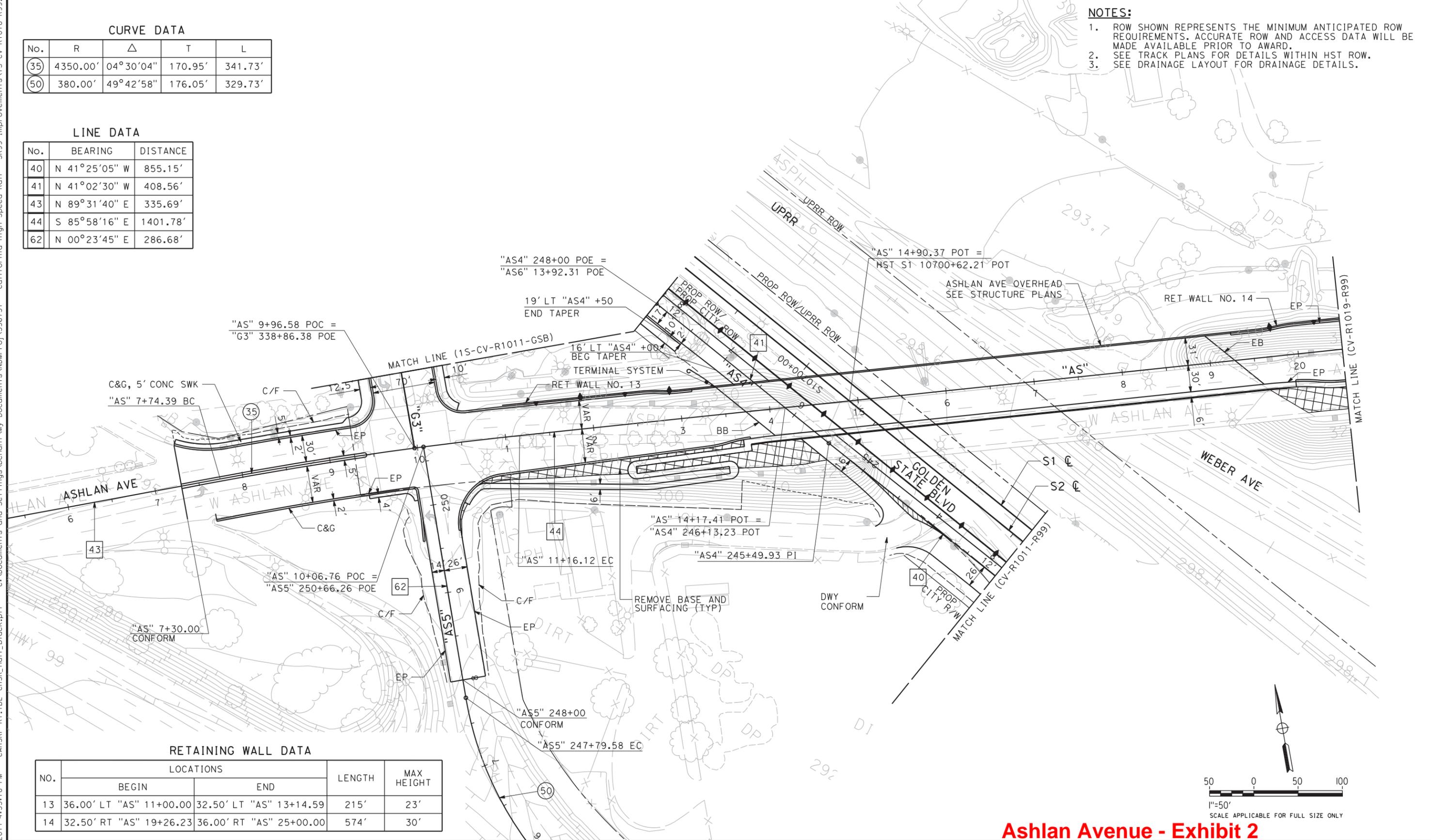
No.	R	Δ	T	L
35	4350.00'	04°30'04"	170.95'	341.73'
50	380.00'	49°42'58"	176.05'	329.73'

LINE DATA

No.	BEARING	DISTANCE
40	N 41°25'05" W	855.15'
41	N 41°02'30" W	408.56'
43	N 89°31'40" E	335.69'
44	S 85°58'16" E	1401.78'
62	N 00°23'45" E	286.68'

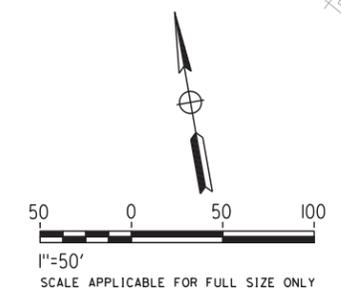
NOTES:

- ROW SHOWN REPRESENTS THE MINIMUM ANTICIPATED ROW REQUIREMENTS. ACCURATE ROW AND ACCESS DATA WILL BE MADE AVAILABLE PRIOR TO AWARD.
- SEE TRACK PLANS FOR DETAILS WITHIN HST ROW.
- SEE DRAINAGE LAYOUT FOR DRAINAGE DETAILS.



RETAINING WALL DATA

NO.	LOCATIONS		LENGTH	MAX HEIGHT
	BEGIN	END		
13	36.00' LT "AS" 11+00.00	32.50' LT "AS" 13+14.59	215'	23'
14	32.50' RT "AS" 19+26.23	36.00' RT "AS" 25+00.00	574'	30'



Ashlan Avenue - Exhibit 2

**CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION**
PACKAGE 1
ROADWAY
LAYOUTS
SR 99 RE-ALIGNMENT

CONTRACT NO.
DRAWING NO.
CV-R1018-R99
SCALE
AS SHOWN
SHEET NO.

DESIGNED BY
G. MANOREK
DRAWN BY
R. MITRY
CHECKED BY
L. HEUSTON
IN CHARGE
F. NOBARI
DATE
09/30/2011

**PROPOSED
PRELIMINARY
DESIGN**

**NOT FOR
CONSTRUCTION**



REV	DATE	BY	CHK	APP	DESCRIPTION
A	##/##/##	XX	XX	XX	

CURVE DATA

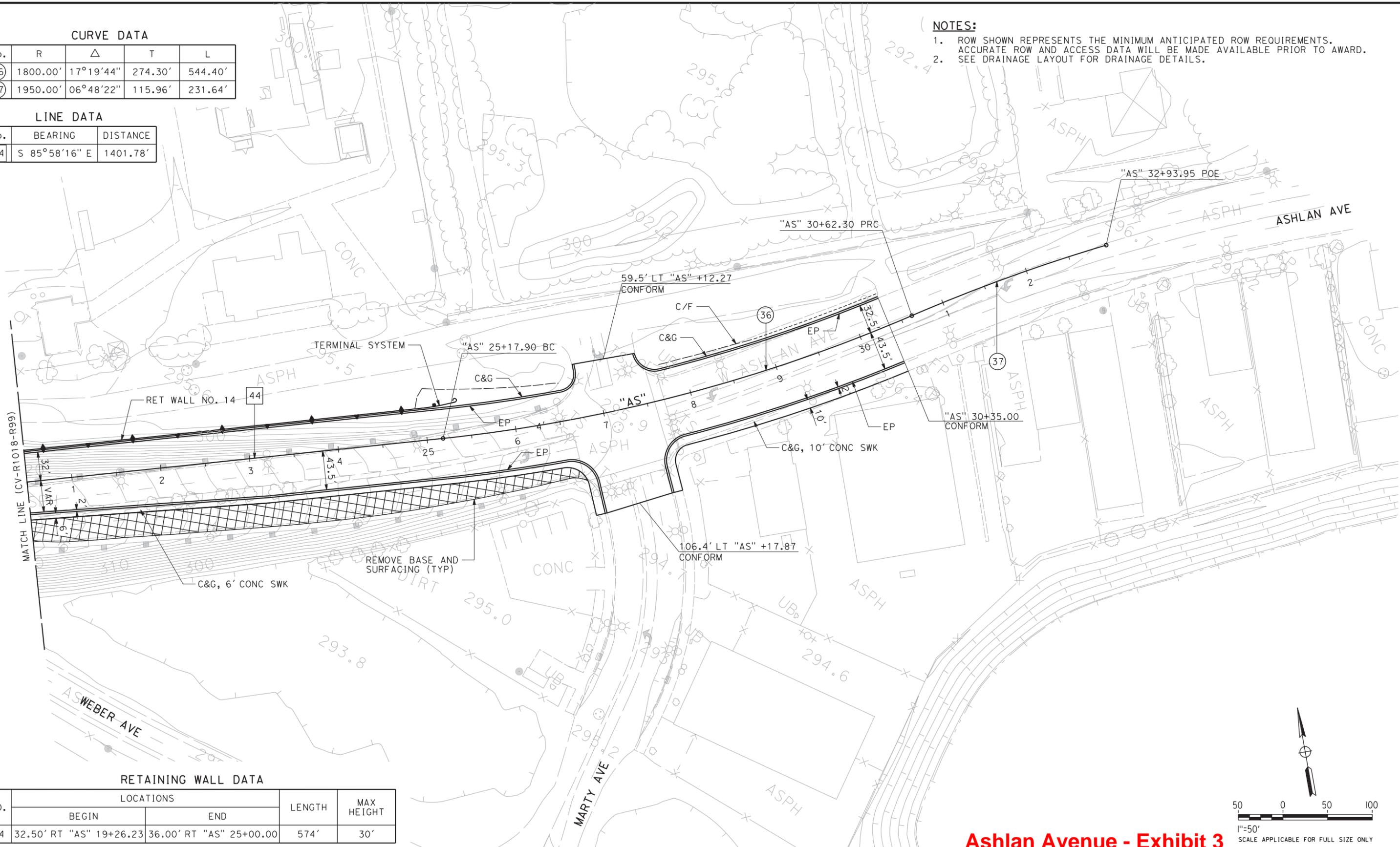
No.	R	Δ	T	L
36	1800.00'	17°19'44"	274.30'	544.40'
37	1950.00'	06°48'22"	115.96'	231.64'

LINE DATA

No.	BEARING	DISTANCE
44	S 85°58'16" E	1401.78'

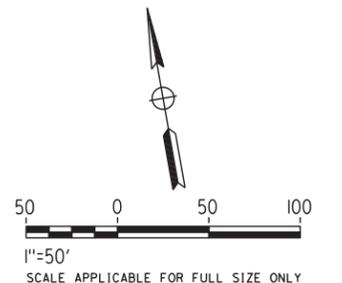
NOTES:

1. ROW SHOWN REPRESENTS THE MINIMUM ANTICIPATED ROW REQUIREMENTS. ACCURATE ROW AND ACCESS DATA WILL BE MADE AVAILABLE PRIOR TO AWARD.
2. SEE DRAINAGE LAYOUT FOR DRAINAGE DETAILS.



RETAINING WALL DATA

NO.	LOCATIONS		LENGTH	MAX HEIGHT
	BEGIN	END		
14	32.50' RT "AS" 19+26.23	36.00' RT "AS" 25+00.00	574'	30'



Ashlan Avenue - Exhibit 3

CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION
 PACKAGE 1
 ROADWAY
 LAYOUTS
 SR 99 RE-ALIGNMENT

CONTRACT NO.
DRAWING NO. CV-R1019-R99
SCALE AS SHOWN
SHEET NO.

DESIGNED BY
G. MANOREK
 DRAWN BY
R. MITRY
 CHECKED BY
L. HEUSTON
 IN CHARGE
F. NOBARI
 DATE
09/30/2011

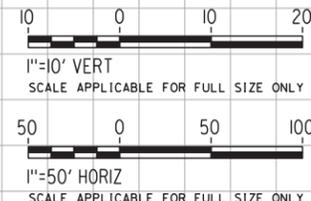
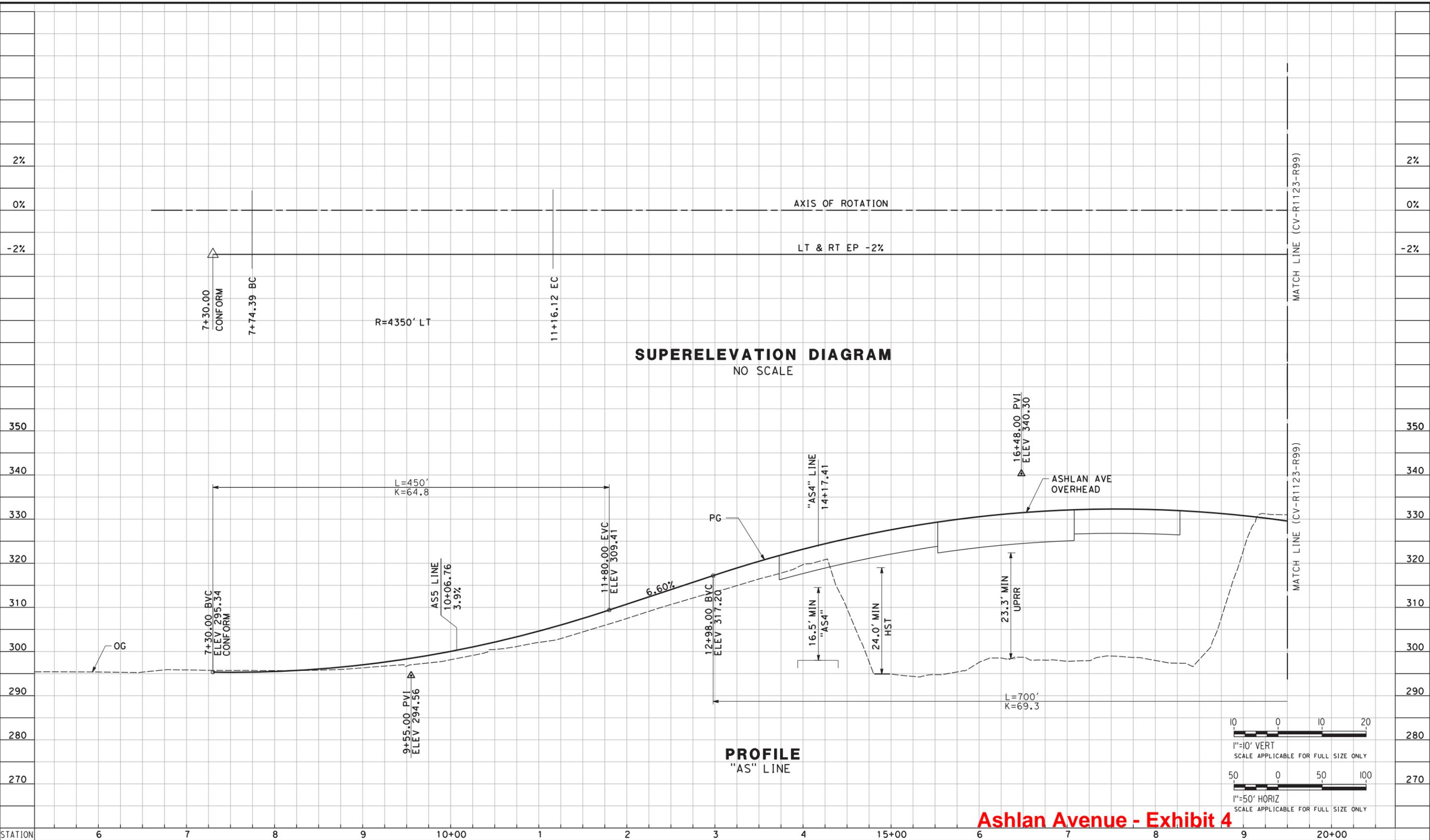
**PROPOSED
 PRELIMINARY
 DESIGN**

**NOT FOR
 CONSTRUCTION**



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Ashlan Avenue - Exhibit 4

REV	DATE	BY	CHK	APP	DESCRIPTION
A	##/##/##	XX	XX	XX	

DESIGNED BY
G. MANOREK
DRAWN BY
B. CHAN
CHECKED BY
L. HEUSTON
IN CHARGE
F. NOBARI
DATE
09/30/2011

**PROPOSED
PRELIMINARY
DESIGN**

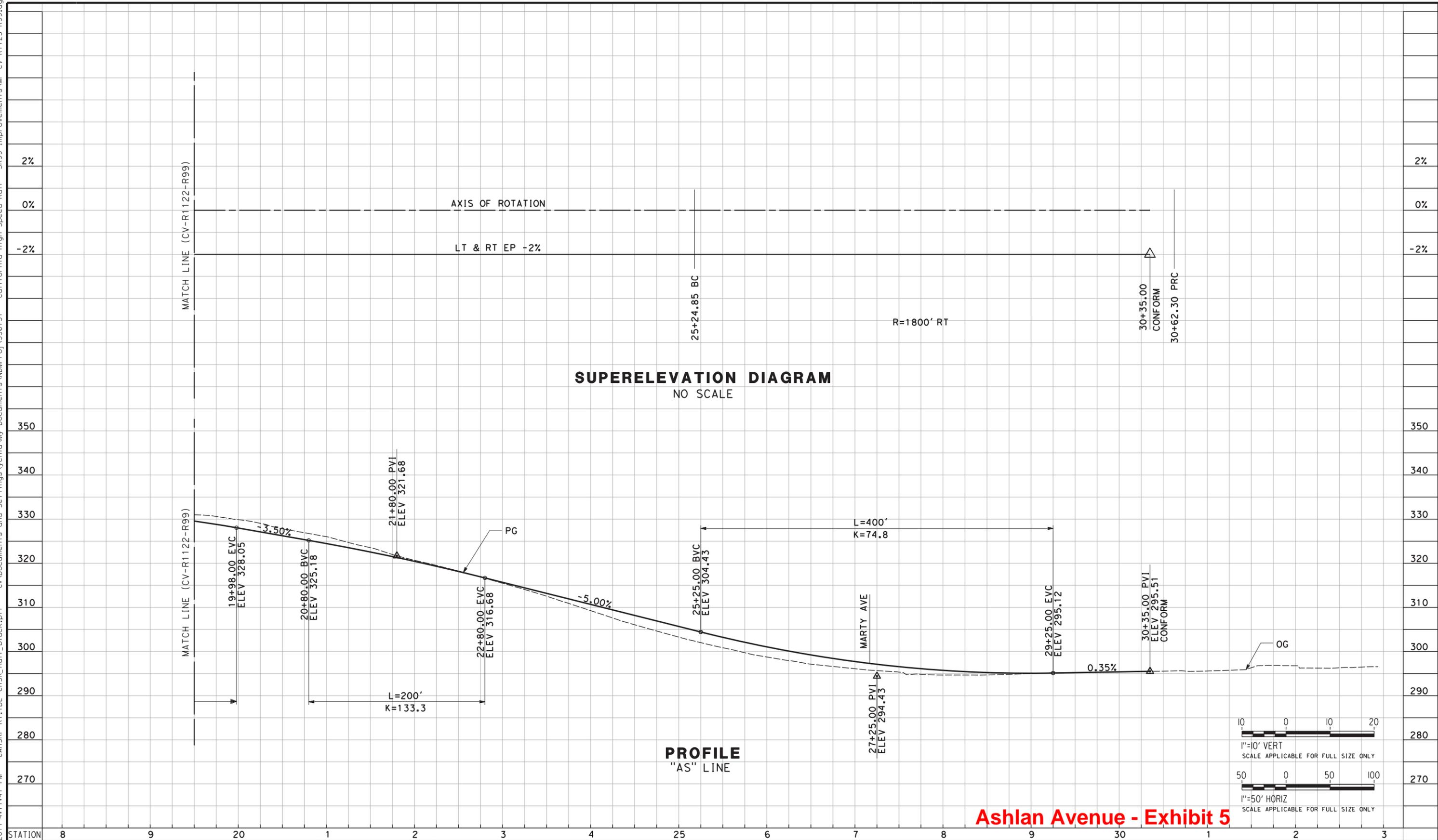
**NOT FOR
CONSTRUCTION**



CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION
PACKAGE 1
ROADWAY
PROFILE AND SUPERELEVATION
SR 99 RE-ALIGNMENT

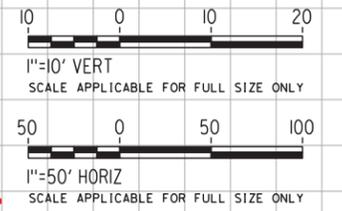
CONTRACT NO.
DRAWING NO.
CV-R1122-R99
SCALE
AS SHOWN
SHEET NO.

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SUPERELEVATION DIAGRAM
NO SCALE

PROFILE
"AS" LINE



Ashlan Avenue - Exhibit 5

REV	DATE	BY	CHK	APP	DESCRIPTION
A	##/##/##	XX	XX	XX	

DESIGNED BY
G. MANOREK
DRAWN BY
B. CHAN
CHECKED BY
L. HEUSTON
IN CHARGE
F. NOBARI
DATE
09/30/2011

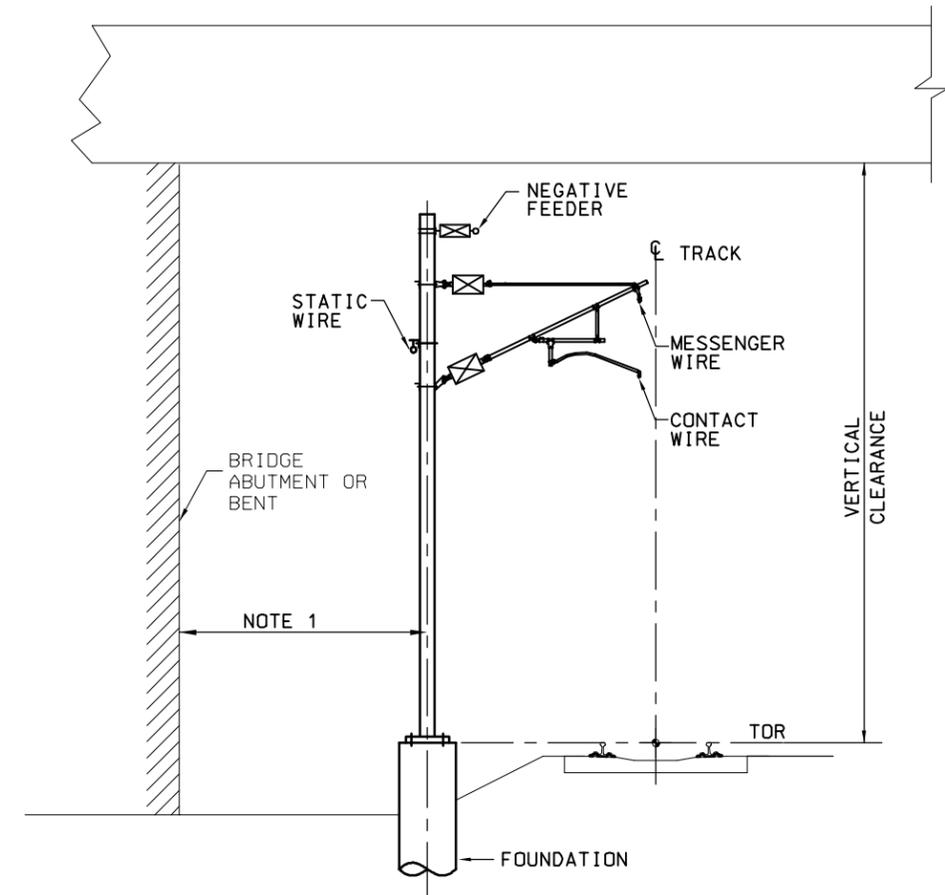
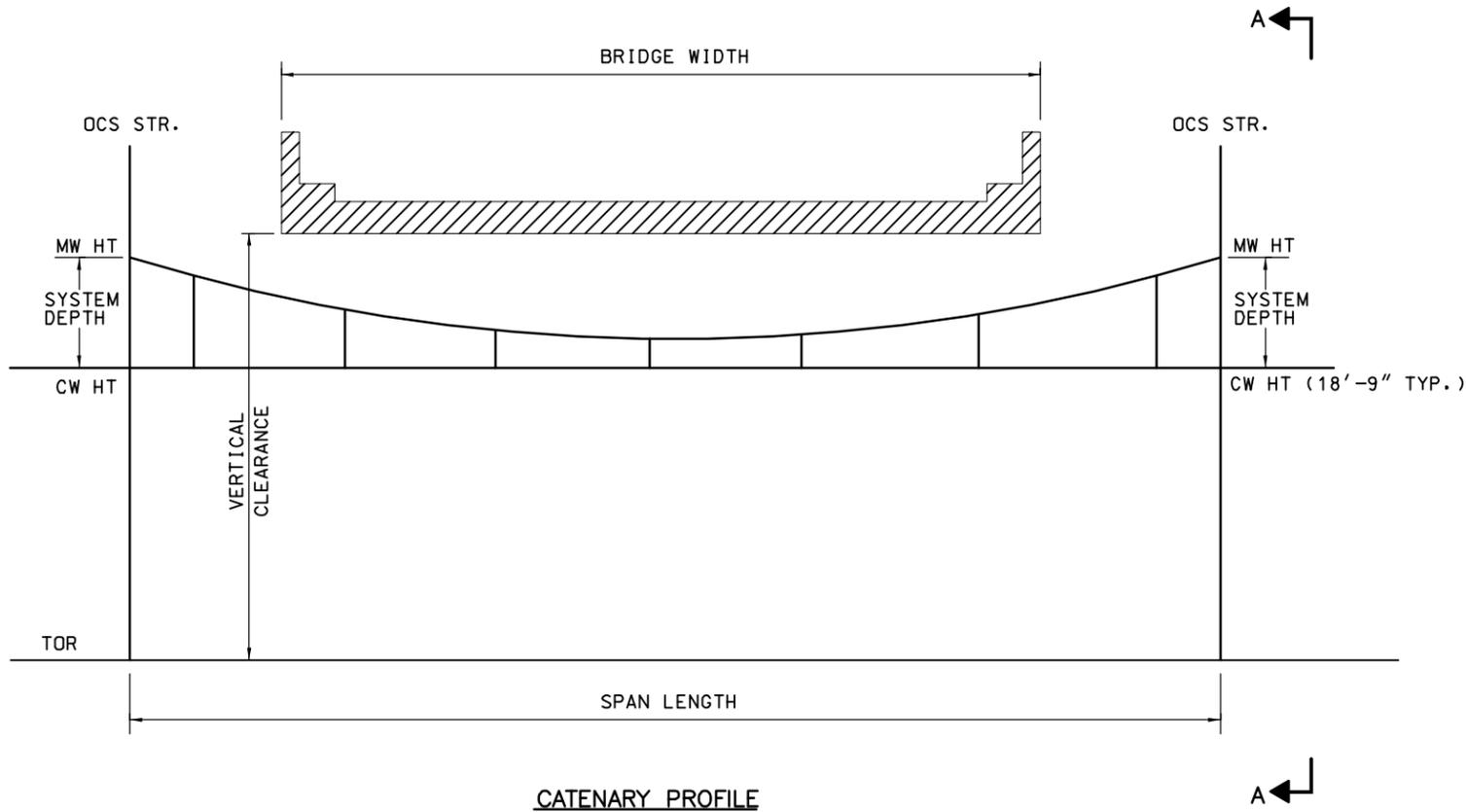
**PROPOSED
PRELIMINARY
DESIGN**

**NOT FOR
CONSTRUCTION**



CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION
PACKAGE 1
ROADWAY
PROFILE AND SUPERELEVATION
SR 99 RE-ALIGNMENT

CONTRACT NO.
DRAWING NO.
CV-R1123-R99
SCALE
AS SHOWN
SHEET NO.



VIEW A-A

NOTES:

1. WHEN THE VERTICAL CLEARANCE IS LESS THAN 27', NEGATIVE FEEDER CABLE SHALL BE INSTALLED ON THE FIELD SIDE OF THE POLE. IN THAT CASE, THE MINIMUM CLEARANCE 7'-6" FROM THE CENTER OF THE POLE TO THE BRIDGE ABUTMENT OR BENT SHALL BE MAINTAINED.
2. THESE CLEARANCES ARE BASED ON CuMg05 AC-150 CONTACT WIRE WITH 4,500LB TENSION AND 300 KCMIL MESSENGER WIRE WITH 5,000LB TENSION. THE VERTICAL CLEARANCE MIGHT BE ADJUSTED BASED ON THE FINAL WIRE TENSIONS AND MATERIALS.

MINIMUM VERTICAL CLEARANCE FOR SPEED UP TO 125 MPH					
CONDITIONS	NO BRIDGE ATTACHMENT				BRIDGE ATTACHMENT ALLOWED
	NEW BRIDGE	EXISTING BRIDGE	EXISTING BRIDGE	EXISTING BRIDGE	EXISTING BRIDGE
MAXIMUM BRIDGE WIDTH	200'	200'	120'	50'	-
OCS SPAN LENGTH	210'	210'	210'	210'	60'
OCS FREE RUNNING WITH FULL SYSTEM DEPTH (4'-0") VERTICAL HEIGHT REQ'D	27'-0"	24'-0"	23'-0"	22'-6"	-
OCS FREE RUNNING WITH REDUCED SYSTEM DEPTH (3'-0") VERTICAL HEIGHT REQ'D	-	23'-0"	22'-0"	21'-6"	-
OCS FREE RUNNING WITH REDUCED SYSTEM DEPTH (1'-0") VERTICAL HEIGHT REQ'D	-	-	-	-	21'-6"

Exhibit 6 - From TM 3.2.1/ OCS clearance options

\$USER\$ \$DATE\$ \$TIME\$ \$FILE\$

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
M. HSIAO
DRAWN BY
J. LAU
CHECKED BY
R. SCHEMES
IN CHARGE
K. JONG
DATE
OCT. 2010

PARSONS BRINCKERHOFF



CALIFORNIA HIGH-SPEED TRAIN PROJECT
OVERHEAD CONTACT SYSTEM
 DIRECTIVE DRAWING
 TYPICAL CATENARY FREE RUNNING CHART
 FOR OVERHEAD BRIDGE
 SPEED UP TO 125 MPH

CONTRACT NO.
DRAWING NO.
TM 3.2.1-U
SCALE
NTS
SHEET NO.

Exhibit 7 – Section Clearance Options

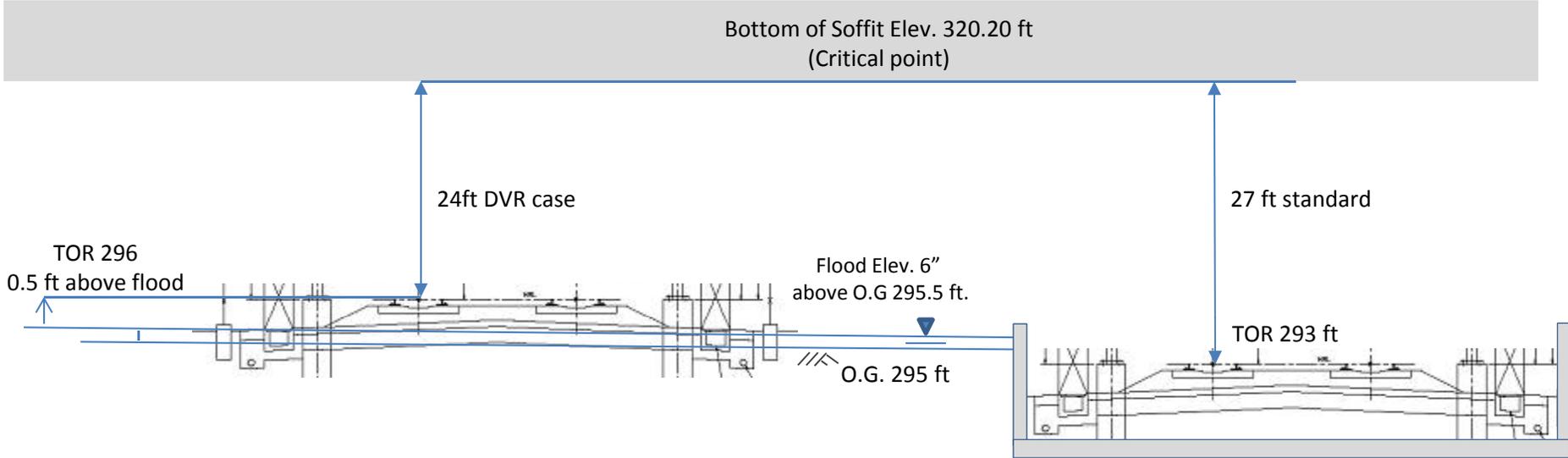
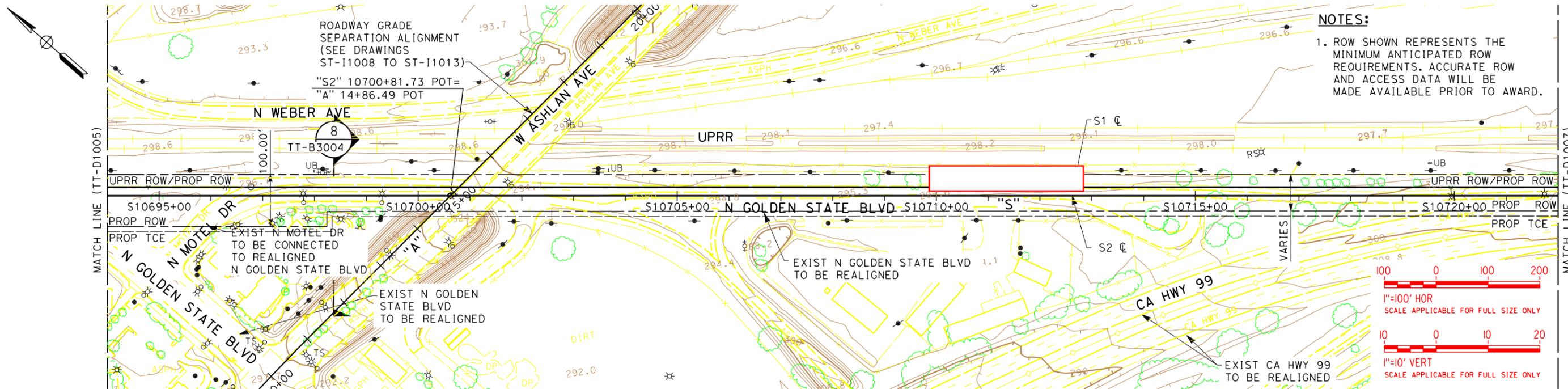


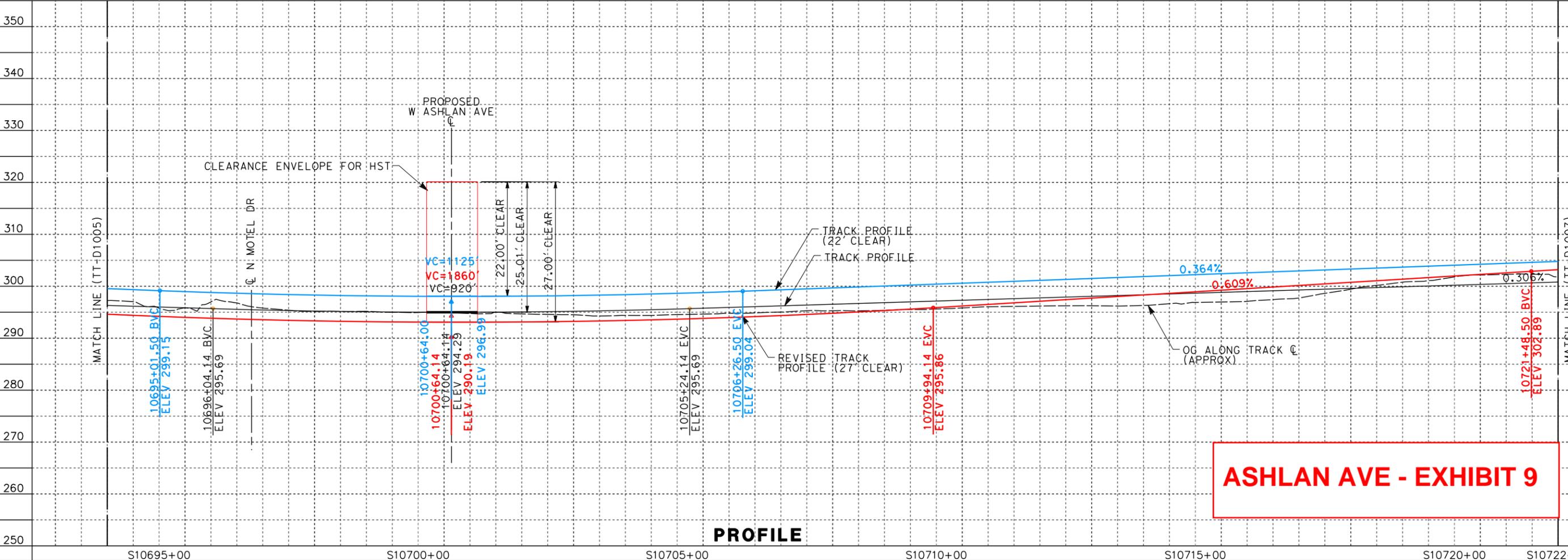
Exhibit 8

24 ft Min Vertical Clearance (Recommended)

ASHLAN BLVD					
Structure Depth =	5.14'	(@ SB Track)			
Structure Depth =	5.46'	(@ NB Track)			
Clearance Check Locations:	STA ("AS")	CL ELEV	Offset	EP ELEV	Soffit ELEV
A - NB Track	14+81.17	326.87	32.50	326.22	320.76
B - NB Track	15+50.80	329.27	37.00	328.53	323.07
C - SB Track	14+57.81	325.90	32.50	325.25	320.11
D - SB Track	15+27.45	328.54	37.00	327.80	322.66
Clearance Check Locations:	STA ("S1" or "S:TOR ELEV	Vert Clr (Soffit - TOR)			
A - NB Track	10700+32.73	296.00	24.76		
B - NB Track	10701+31.12	296.01	27.06		
C - SB Track	10700+16.20	296.00	24.11 Min		
D - SB Track	10701+14.59	296.00	26.66		



PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. SHIELDS
DRAWN BY
H. SULLIVAN
CHECKED BY
A. BOONE
IN CHARGE
A. BOONE
DATE
10/10/2011

**PROPOSED
PRELIMINARY
DESIGN**

**NOT FOR
CONSTRUCTION**

AECOM
Technical Services, Inc.
2020 L Street, Suite 300
Sacramento, CA 95811

CH2MHILL

CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

**CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION**

PACKAGE 1
TRACK GUIDEWAY
PLAN AND PROFILE
STA. 10694+00 TO 10722+00

CONTRACT NO.
DRAWING NO.
TT-D1006
SCALE
AS SHOWN
SHEET NO.

California High-Speed Train Project

DESIGN VARIANCE COVER SHEET



Design Variance Request Number 0001
Design Variance Request Title OCS Clearance Under Future Re-constructed Fresno Yard Overhead (West Clinton Ave)

Prepared by: AECOM / CH2M HILL Regional Consultant	10-11-11 Date
PMT Review: Richard Schmedes Systems	1-6-12 Date
John Chirco Infrastructure	12-22-11 Date
Joseph Metzler Operations/Maintenance/Safety	12-22-11 Date
Frank Banko Rolling Stock	7-26-11 Date
Vladimir Kanevskiy Regulatory Approvals	11-4-11 Date
Tony Murphy System Integration	1-9-12 Date
PMT Recommended: Peter Valentine PMT Regional Manager	1-11-12 Date
PMT Approval: Ken Jong Engineering Manager	2-2-12 Date
Agency Concurrence: CHSR Authority Chief Engineer	Date



Part 1 – Design Variance Request Information

Title/Subject: OCS Clearance under future re-constructed
Fresno Yard Overhead (W Clinton Ave)

Number: AECOM-SYS-0-0001 **Revision:** 3

Contract Name & Number (Final Design): HSR06-007

Region: Merced - Fresno

Location: Fresno County

Regional Consultant's / Third Party Design Drawing Reference:

Date Submitted to RMT & PMT

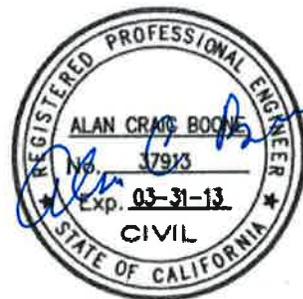
PREPARED / SUBMITTED BY:

NAME: Alan Boone/Doug Fredericks

COMPANY: AECOM/CH2M HILL

SIGNATURE:

DATE: (10-11-2011)



**Note design variance numbers will follow the same convention: "ABC" will abbreviate the name of the firm submitting the variance, "DEF" abbreviates the name of firm receiving the variance request, "X" is the revision number starting from 0, and the last four numbers count the number of total submittals starting from one.*



Part 2 – Design Variance Request Information

<p>CHSTP DESIGN REQUIREMENT Include reference to drawings, design criteria, technical memos, specifications</p>	<p>TM3.2.1 – OCS requirements, Track work Flood elevation clearance</p>
<p>DESIGN CRITERIA REQUIRING A VARIANCE</p>	<p>The vertical clearance of 27 ft for installation of OCS system under new or planned over-crossing structure</p> <p>TOR 2.5 ft above flood elevation</p>
<p>REASON FOR REQUESTING VARIANCE</p>	<p>Any further rise of profile of the new structure results in higher project impact, mitigation, delays and cost.</p> <p>Lowering HST will result in track work below estimated flood elevation, which may require boat-section and pump station</p> <p>To eliminate the requirement to lower the track work below the estimated flood elevation a variance to reduce the vertical bridge clearance to 24ft would be required</p>
<p>JUSTIFICATION FOR VARIANCE</p>	<p>To avoid additional environmental impact, mitigation, ROW, Cost, and delay</p>
<p>PROPOSED ALTERNATIVE DESIGN REQUIREMENT</p>	<p>Allow minimum clearance under the new replacement bridge to be 24 ft (DVR 24 ft) as permitted condition for existing structures *, which also will avoid the need for walls/boat-sections,</p> <p>OR</p> <p>Allow minimum clearance under the new replacement bridge to be 25.5 ft (DVR 25.5 ft) as permitted condition for existing structures *, as shown in Draft 30%, however will require a <u>1.5 ft walls/boat section</u> and potentially pumping facilities,</p> <p>OR</p> <p>Maintain standard 27 ft clearance, but provide deeper <u>3 ft walls/boat section</u> and potentially pumping facilities</p> <p>* as permitted by TM 3.2.1 for crossing under existing bridges of less than 160 ft width.</p>



Part 3 – Impact Analysis

OPERATIONS	N/A
MAINTENANCE	N/A
INFRASTRUCTURE	<p><u>General</u></p> <p>The existing overhead structure clearance over UPRR is at 22.94 ft. As part of Clinton interchange replacement, this overhead will be demolished and rebuilt.</p> <p>While technically the replacement bridge can be considered to be “new”, due to compatibility of replaced Clinton bridges and approaches with other adjacent intersections and facilities that will not be replaced, the design must accommodate “existing” site conditions and profiles.</p> <p>Since replacing an existing structure which needs to conform to existing configurations and constraints on either side of the structure, it is proposed to consider clearance requirements for this location as those required for crossing under an existing overhead (i.e. 24 ft clearance).</p> <p>Current draft 30% design has provided a transitional profile grade to the Fresno-Bakersfield (FB) design group which leads to a boat-section further south adjacent to Roeding Park. This grade provides for HST track clearance of 25.5 ft (requires DVR 25.5 ft plus 1.5 ft wall/boat section). Raising Clinton Ave profile further to provide the 27 feet clearance over HSR will result in impacts to the approach, bridge and nearby intersection and ROW, making the revisions impractical. Exhibits 1 through 5 show draft 30% design plans at Clinton Ave. Exhibit 1 and 5 show revised Clinton overhead bridge profile grade and clearance over HST. Note the profile grade of 6.0% from local Weber street intersection to the Caltrans Clinton/SR99 interchange and ramps. This grade is already substandard, pending consideration and approval by Caltrans.</p> <p>Design options to consider at this location are:</p> <ul style="list-style-type: none"> A. Raising Clinton Ave roadway Profile B. Design Variance to reduce clearance to 24 ft, with no need for flood protection walls/boat section C. Design Variance to reduce clearance to 25.5 ft, with 1.5 ft deep flood protection walls/boat section (Intermediate Option) D. Standard 27 ft clearance, requiring 3 ft deep flood protection walls/boat section



	<p><u>A- Roadway Profile Adjustments</u></p> <p>Modifying the Clinton Ave overhead replacement structure to raise the roadway profile further so that clearance over HST can be raised to 27 ft is not feasible due to geometric factors including the following:</p> <ul style="list-style-type: none">• Compared to 15% design, the roadway profile has already been raised by approximately 1.5 ft to offset clearance errors associated with the initial mapping accuracy of +/- 3 ft.• The profile rise impact already has resulted in modification of Weber/Clinton intersection by raising the intersection and tapering the effects on approach roadway (see Exhibit 3). This "refinement" which is beyond the DEIR/EIS footprint has already been noted to the agencies, and considered to be minor refinement to avoid/minimize impacts. When impacts exceed "minor" level, reevaluation and recirculation of DEIR/EIS may be required.• Further raising of Clinton Ave overhead structure to achieve 27' clearance will require profile grade modification which can impact both approaches, Weber street intersection and profile of the structure approaching the interchange, SR99 crossing and ramps.• The profile grade modification will further raise the Weber street intersection, rise the approaching roadways even further, increase the footprint impact to the intersection, further impact the adjacent parcels, and may require retaining wall which can impact property access adjacent to this intersection.• Note that geometry, and width of the structure includes several exceptions, pending review and approval of Caltrans. <p><u>B-DVR 24 ft clearance, w/ no walls/Boat Section</u></p> <p>Original HSR profile design was based on preliminary mapping. In addition, in absence of flood elevation information, a conservative approach of keeping TOR 4 ft above average existing ground elevation in the vicinity was</p>
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	<p>used to meet the flood elevation requirements.</p> <p>Current draft 30% roadway design, as shown in Exhibit 4 is based on current mapping. It should be noted that as a result of the poor accuracy of the initial mapping (+/- 3 ft accuracy), lower clearance was discovered when using the updated mapping. The current draft 30% design has already adjusted the roadway profile and HST profile to provide additional 1 ft clearance due to the initial mapping accuracy issues.</p> <p>Subsequent evaluation and adjustment of the 30% profile design were conducted based on :</p> <ul style="list-style-type: none">• Updated mapping (+/- 0.5 ft accuracy)• Estimated flood elevation requirement <p>Based on FEMA evaluations and maps, 100 year flood event will impact regions near San Joaquin River, Herndon Canal and south of Clinton. <u>Local area adjacent to Clinton Ave. is therefore subject to only localized flooding for which flood agencies use 6 inch water elevation above existing ground/Golden State Blvd..</u> At Clinton crossing, existing ground is at 297.5 ft. Allowing for 0.5 flood elevation (i.e. elevation 298), TOR at 2.5 ft higher will be at minimum elevation of 300.5 ft.</p> <p><u>A track profile with 24 ft clearance below the Clinton overhead structure, will meet flood elevation requirements with no need for boat section.</u></p> <p><u>C-DVR 25.5 ft clearance, w/ 1.5 ft deep Wall/Boat Section</u></p> <p>The draft 30% HST track profile design shown in Exhibit 4, provides for an intermediate option of 1.5 ft higher 25.5 ft clearance over HSR tracks, by lowering the profile.</p> <p><u>The estimated flood elevation will impact the current 30% design with the DVR 25.5 ft clearance condition, requiring a 1.5 ft wall/boat section.</u></p> <p>As shown in exhibit 7, the draft 30% design HST profile (in black) will have TOR below minimum 300.5 ft level to clear flood elevation requirement, for nearly 1000 ft North of Clinton. This is primarily due to the HST profile adjustment required due to the initial mapping accuracy/errors. To meet flood elevation clearance requirements, it is proposed to consider wall/boat-section to protect track work</p>
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	<p>under the estimated flood elevation condition.</p> <p>It should be noted that Clinton is the interface with Fresno-Bakersfield (FB) section to the South, and that the segment directly south of Clinton transitions to a boat-section, adjacent to Roeding Park. It is feasible to have the boat-section at Clinton transition to the FB boat-section.</p> <p><u>D-Standard 27 ft clearance (no DVR), w/ 3 ft Wall/Boat Section</u></p> <p>The current draft final 30% design of HSR profile was further refined to examine conditions which can increase clearance under the new Clinton Ave structure from 25.5 ft to the standard 27 ft clearance. As shown in profile design plan in Exhibit 7 (Red line), without increasing the length of the boat-section, the profile of HSR can be revised/steepened to sag another 1.5 ft under Clinton and meet the 27 ft clearance.</p> <p><u>The estimated flood elevation will impact the lowered track profiles to meet the standard 27 ft clearance condition, requiring a 3 ft wall/boat section.</u></p> <p><u>Other requirements for Adjusted HST profile</u></p> <p>For both the existing 30% design (25.5 ft clearance) as well as the refined profile design (27 ft clearance requiring DVR), the potential design issues to be considered are:</p> <ul style="list-style-type: none"> • May result in more frequent profile rise and fall at constrained locations (Veterans Blvd, Ashlan, Clinton) • For DVR 25.5 ft and Standard 27 ft clearance, where HST tracks are below estimated flood elevation, walls/boat-section maybe required. Additionally, drainage of the lowered HST section may require pump station <p>As shown in Exhibit 6 calculations, for clearance under the replaced Clinton Ave , the tracks below the estimated requirement for flood elevation clearance (i.e. TOR of 300.5 ft) will be 1.5 ft wall for 25.5 ft clearance. Note that the length of the required walls/boat-section however does not change since the additional clearance is providing by steepening the HST profile grade only. DVR 24 ft clearance option will clear flood elevation requirements with no need for walls/boat sections.</p>
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Drainage conditions of the low point will have to be refined to investigate feasibility of draining into a nearby flood control facility. In absence of such options, design may consider implementation and operation of a pump station to pump storm water and/or local flood water from the low point. As noted earlier, the pump station near Clinton can be considered in conjunction with the boat-section design of the FB design, adjacent to Roeding Park.

The boat-section unit cost is estimated at 18.5M/mile for a 7 ft deep section (\$2M to \$3M for 1000 ft of 1.5 to 3.0 ft deep). Pump stations are estimated at \$3 million, with equipment replacement and O&M equivalent to \$300K per 20 year intervals.

The requested DVR for 24 ft clearance under Clinton Overhead will satisfy flood elevation requirements with no need for boat sections. A 1.5 ft or 3.0 ft boat-section (with or without pump station) will be required for both conditions of 25.5 ft DVR, or 27 ft standard clearance conditions, respectively. The local topography however may be draining storm water to the south with limited chance of local flooding at Clinton. This can further be addressed, if the section is transitioned to FB boat-section with lower grade.

Recommendation

Consider a variance of 25.5 ft clearance, along with flood protection walls/boat section of 1.5 ft in height. Flood elevations are based on local flood agency coordination, and are assumed to be 6 inches above existing Golden State Boulevard surface (existing ground) .

Justification

Without raising the Clinton Ave profile which has the potential to increase project impact and footprint beyond the DEIR/EIS coverage, refinement of the current draft 30% HST profile design provide the following options:

1. With an approved DVR, consider 25.5 ft clearance, as permitted for crossing under existing structures, since the existing constraints bounding the replaced Clinton Ave overhead are prohibitive from further adjusting the roadway profile. In addition may need



	<p>to use 1.5 ft deep boat-section and pump station to protect track work from the estimated flood elevation.</p> <p>Note that since the FB section immediately south of Clinton uses a boat section adjacent to Roeding Park, this alternative will provide a compatible design, while meeting clearance requirements.</p>																														
RAILROAD SYSTEMS	N/A																														
RELIABILITY / FUNCTIONALITY	N/A																														
THIRD PARTY (Utility, Freight, Caltrans, RR, other)	<p>Raising Clinton Ave profile will require coordination and approval by Caltrans and City of Fresno.</p> <p>Drainage of the boat-section storm water and flood water may require coordination with local flood protection agencies</p>																														
SAFETY AND SECURITY	N/A																														
DIRECT COST	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">Raising Clinton Roadway profile and revising Interchange *</td> </tr> <tr> <td style="width: 50%;">Other</td> <td>Changes beyond DEIR/EIS footprint, requiring reevaluation, cost associated with additional engineering, environmental and delays</td> </tr> <tr> <td colspan="2">* assume profile raised so there is no boat section</td> </tr> <tr> <td colspan="2" style="text-align: center;">24 ft Clearance DVR (no need for boat-section/ pump station)</td> </tr> <tr> <td colspan="2">No additional cost</td> </tr> <tr> <td colspan="2" style="text-align: center;">RECOMMENDED OPTION</td> </tr> <tr> <td colspan="2" style="text-align: center;">25.5 ft Clearance DVR + 1.5 ft wall/boat-section and pump station</td> </tr> <tr> <td>Wall/Boat Section</td> <td>\$2M (1.5 ft deep)</td> </tr> <tr> <td>Pump equipment</td> <td>\$0.5M</td> </tr> <tr> <td>Pump Station & facility</td> <td>\$2.5 Million</td> </tr> <tr> <td>Reoccurring pump replacement cost</td> <td>\$300 K/20 years</td> </tr> <tr> <td>Other</td> <td>General maintenance</td> </tr> <tr> <td colspan="2" style="text-align: center;">27 ft Clearance, No DVR + 3.0 ft wall/boat-section and pump station</td> </tr> <tr> <td>Wall/Boat Section</td> <td>\$3M (3.0 deep)</td> </tr> <tr> <td>Pump equipment</td> <td>\$0.5M</td> </tr> </table>	Raising Clinton Roadway profile and revising Interchange *		Other	Changes beyond DEIR/EIS footprint, requiring reevaluation, cost associated with additional engineering, environmental and delays	* assume profile raised so there is no boat section		24 ft Clearance DVR (no need for boat-section/ pump station)		No additional cost		RECOMMENDED OPTION		25.5 ft Clearance DVR + 1.5 ft wall/boat-section and pump station		Wall/Boat Section	\$2M (1.5 ft deep)	Pump equipment	\$0.5M	Pump Station & facility	\$2.5 Million	Reoccurring pump replacement cost	\$300 K/20 years	Other	General maintenance	27 ft Clearance, No DVR + 3.0 ft wall/boat-section and pump station		Wall/Boat Section	\$3M (3.0 deep)	Pump equipment	\$0.5M
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Pump equipment	\$0.5M																														



	Pump Station & facility	\$2.5 Million
	Reoccurring pump replacement cost	\$300 K/20 years
	Other	General maintenance
OTHER	Raising the profile of the roadway will result in change of project footprint, additional ROW impact, environmental and engineering effort, delays in environmental, design as well as procurement package 1 (ARRA)	

Part 4 – Mitigation Measures

Part 5 – List of Supporting Documentation to Design Variance Request

ANALYSIS	See discussion above, attached exhibits, and draft 30% design plans.
PUBLICATION/STANDARDS EXTRACTS	N/A
RISK ASSESSMENT	N/A
DRAWINGS	See Exhibits 1 thru 5, and 7
CALCULATIONS	See Exhibit 6 for recommended case
EXPERT TESTIMONIALS	N/A
CORRESPONDENCE	N/A
OTHER	

Do not attach superfluous materials, such as complete project plan sets or engineering reports unless specifically requested.



CURVE DATA

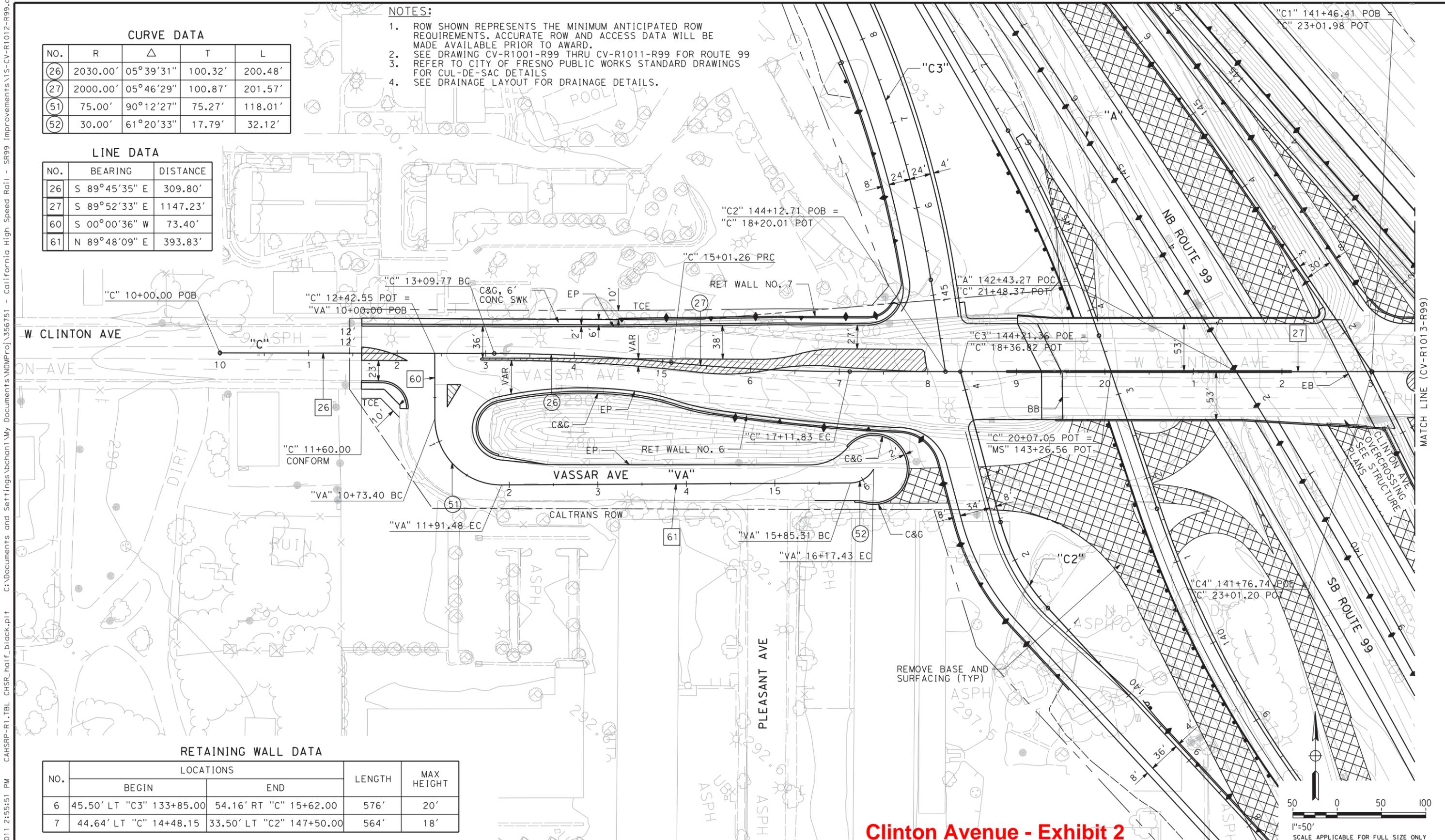
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27	2000.00'	05°46'29"	100.87'	201.57'
51	75.00'	90°12'27"	75.27'	118.01'
52	30.00'	61°20'33"	17.79'	32.12'

LINE DATA

NO.	BEARING	DISTANCE
26	S 89°45'35" E	309.80'
27	S 89°52'33" E	1147.23'
60	S 00°00'36" W	73.40'
61	N 89°48'09" E	393.83'

NOTES:

1. ROW SHOWN REPRESENTS THE MINIMUM ANTICIPATED ROW REQUIREMENTS. ACCURATE ROW AND ACCESS DATA WILL BE MADE AVAILABLE PRIOR TO AWARD.
2. SEE DRAWING CV-R1001-R99 THRU CV-R1011-R99 FOR ROUTE 99
3. REFER TO CITY OF FRESNO PUBLIC WORKS STANDARD DRAWINGS FOR CUL-DE-SAC DETAILS
4. SEE DRAINAGE LAYOUT FOR DRAINAGE DETAILS.



RETAINING WALL DATA

NO.	LOCATIONS		LENGTH	MAX HEIGHT
	BEGIN	END		
6	45.50' LT "C3" 133+85.00	54.16' RT "C" 15+62.00	576'	20'
7	44.64' LT "C" 14+48.15	33.50' LT "C2" 147+50.00	564'	18'

Clinton Avenue - Exhibit 2



REV	DATE	BY	CHK	APP	DESCRIPTION
A	##/##/##	XX	XX	XX	

DESIGNED BY
G. MANOREK
DRAWN BY
R. MITRY
CHECKED BY
L. HEUSTON
IN CHARGE
F. NOBARI
DATE
09/30/2011

**PROPOSED
PRELIMINARY
DESIGN**

**NOT FOR
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION**

PACKAGE 1
ROADWAY
LAYOUTS
SR 99 RE-ALIGNMENT

CONTRACT NO.
DRAWING NO.
CV-R1012-R99
SCALE
AS SHOWN
SHEET NO.

9/27/2011 2:55:51 PM CAHSR-R1-TBL CHSR_half_black.plt C:\Documents and Settings\bchan1\My Documents\NDMP\Proj_356751 - SR99 Improvements\15-CV-R1012-R99.dgn

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CURVE DATA

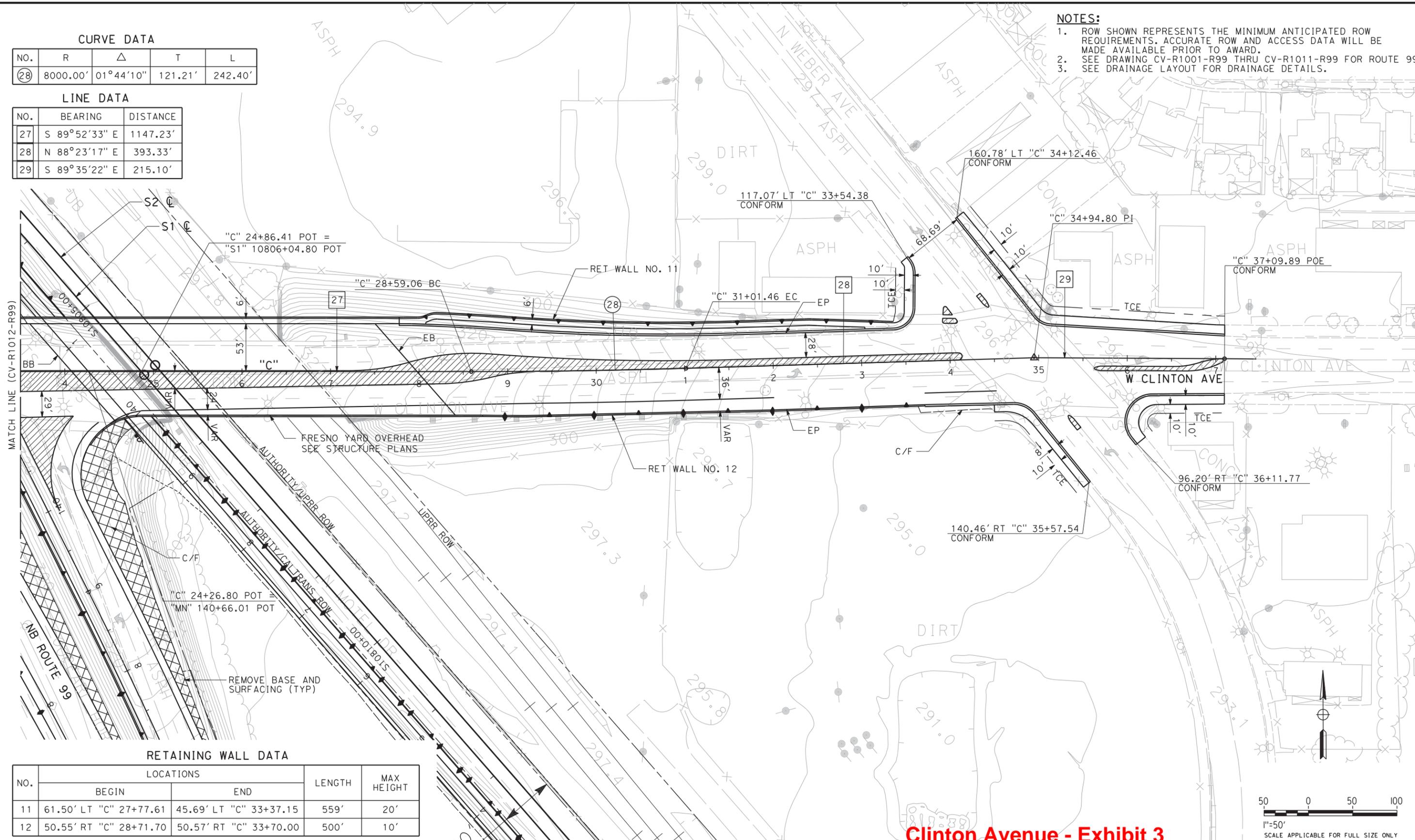
NO.	R	Δ	T	L
28	8000.00'	01°44'10"	121.21'	242.40'

LINE DATA

NO.	BEARING	DISTANCE
27	S 89°52'33" E	1147.23'
28	N 88°23'17" E	393.33'
29	S 89°35'22" E	215.10'

NOTES:

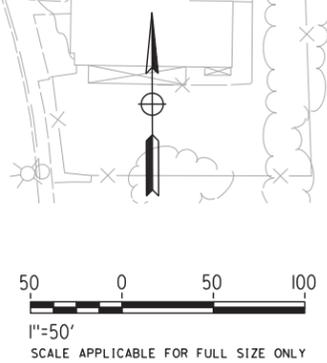
1. ROW SHOWN REPRESENTS THE MINIMUM ANTICIPATED ROW REQUIREMENTS. ACCURATE ROW AND ACCESS DATA WILL BE MADE AVAILABLE PRIOR TO AWARD.
2. SEE DRAWING CV-R1001-R99 THRU CV-R1011-R99 FOR ROUTE 99
3. SEE DRAINAGE LAYOUT FOR DRAINAGE DETAILS.



RETAINING WALL DATA

NO.	LOCATIONS		LENGTH	MAX HEIGHT
	BEGIN	END		
11	61.50' LT "C" 27+77.61	45.69' LT "C" 33+37.15	559'	20'
12	50.55' RT "C" 28+71.70	50.57' RT "C" 33+70.00	500'	10'

Clinton Avenue - Exhibit 3



REV	DATE	BY	CHK	APP	DESCRIPTION
A	##/##/##	XX	XX	XX	

DESIGNED BY
G. MANOREK
DRAWN BY
R. MITRY
CHECKED BY
L. HEUSTON
IN CHARGE
F. NOBARI
DATE
09/30/2011

**PROPOSED
PRELIMINARY
DESIGN**

**NOT FOR
CONSTRUCTION**

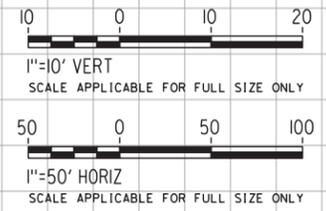
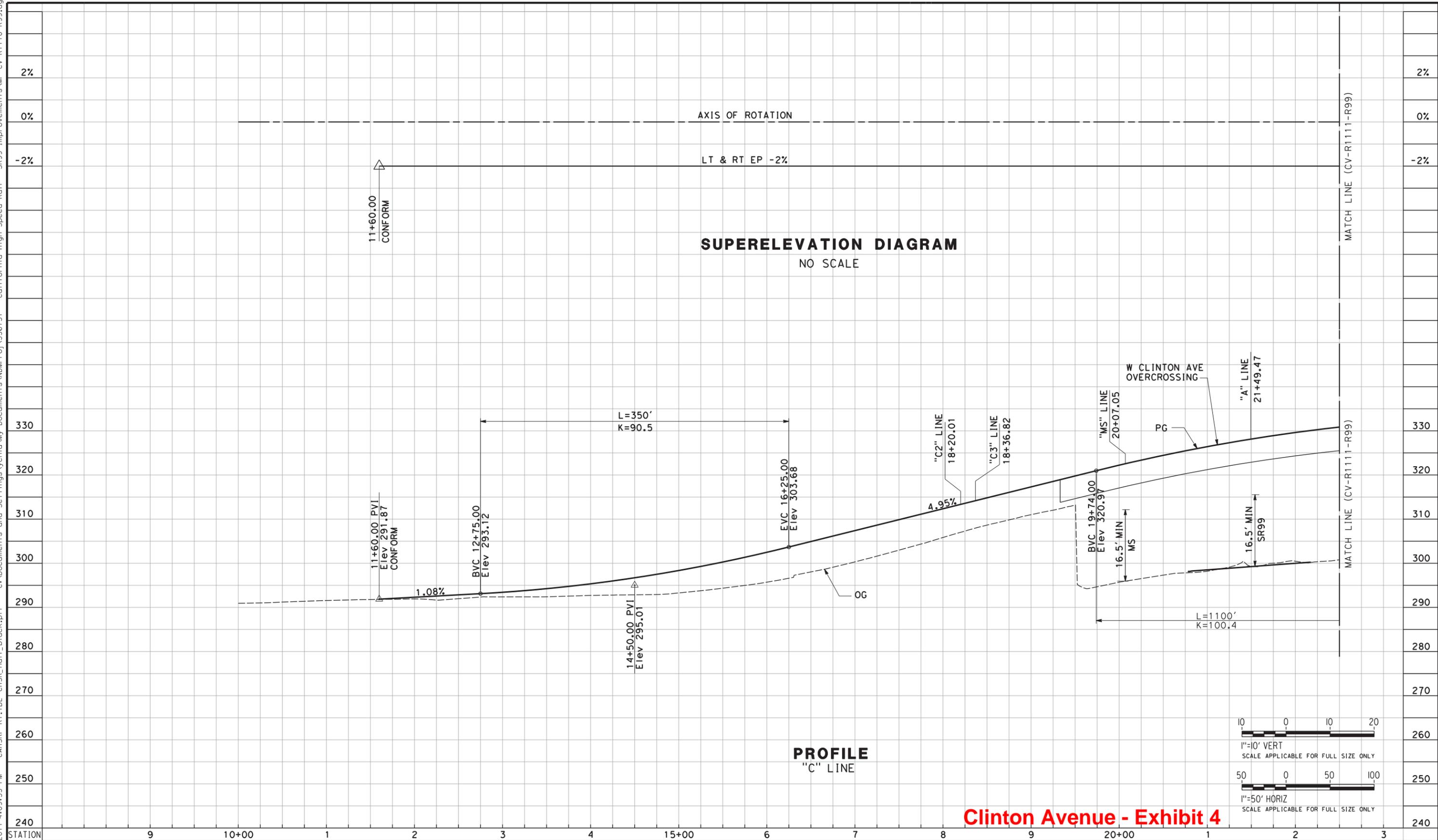


**CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION**

PACKAGE 1
ROADWAY
LAYOUTS
SR 99 RE-ALIGNMENT

CONTRACT NO.
DRAWING NO.
CV-R1013-R99
SCALE
AS SHOWN
SHEET NO.

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Clinton Avenue - Exhibit 4

REV	DATE	BY	CHK	APP	DESCRIPTION
A	##/##/##	XX	XX	XX	

DESIGNED BY
G. MANOREK
 DRAWN BY
B. CHAN
 CHECKED BY
L. HEUSTON
 IN CHARGE
F. NOBARI
 DATE
09/30/2011

**PROPOSED
 PRELIMINARY
 DESIGN**

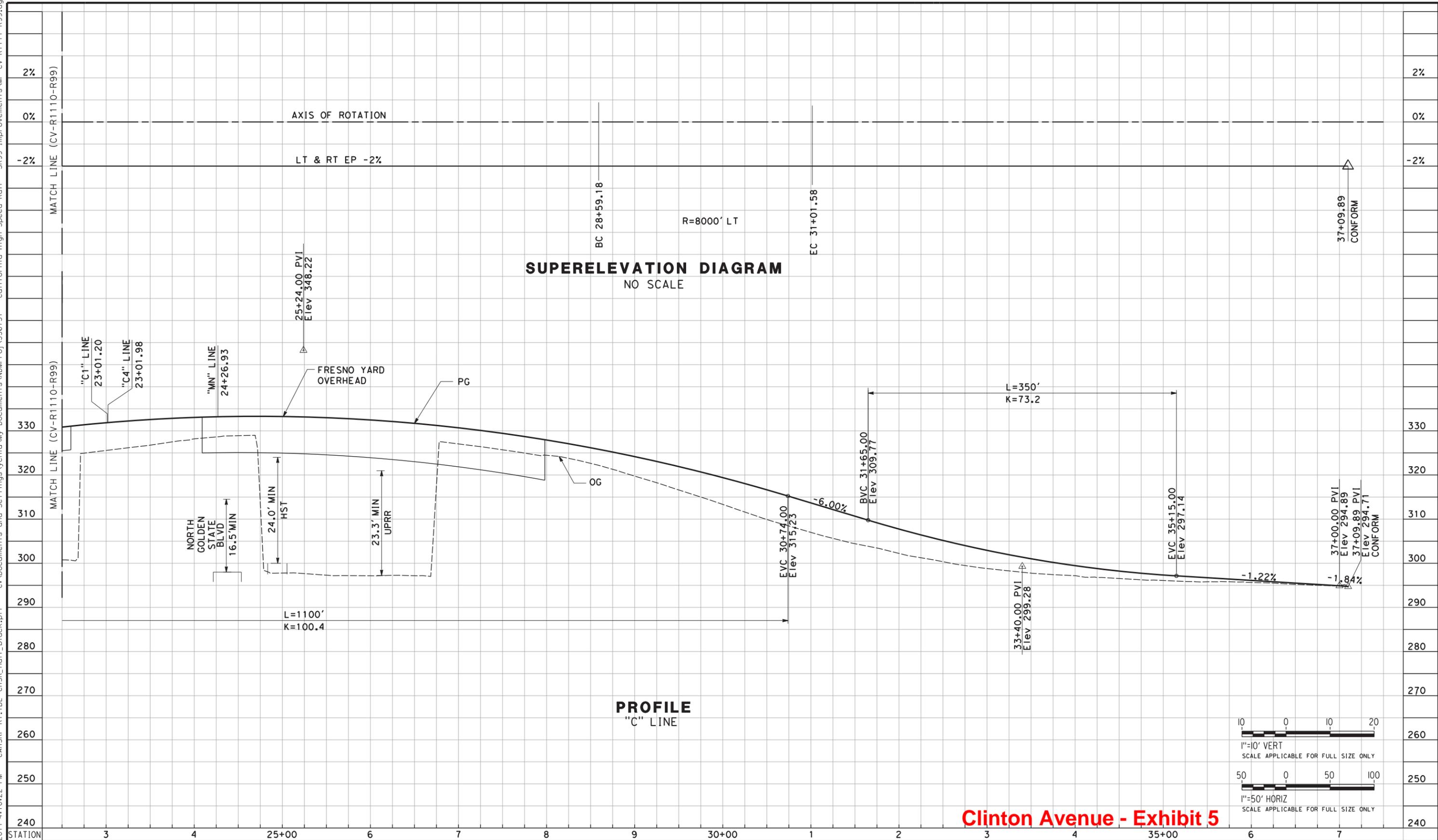
**NOT FOR
 CONSTRUCTION**



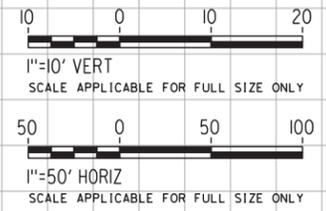
CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION
 PACKAGE 1
 ROADWAY
 PROFILE AND SUPERELEVATION
 SR 99 RE-ALIGNMENT

CONTRACT NO.
 DRAWING NO.
 CV-R1110-R99
 SCALE
 AS SHOWN
 SHEET NO.

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Clinton Avenue - Exhibit 5



REV	DATE	BY	CHK	APP	DESCRIPTION
A	##/##/##	XX	XX	XX	

DESIGNED BY
G. MANOREK
DRAWN BY
B. CHAN
CHECKED BY
L. HEUSTON
IN CHARGE
F. NOBARI
DATE
09/30/2011

**PROPOSED
PRELIMINARY
DESIGN**

**NOT FOR
CONSTRUCTION**



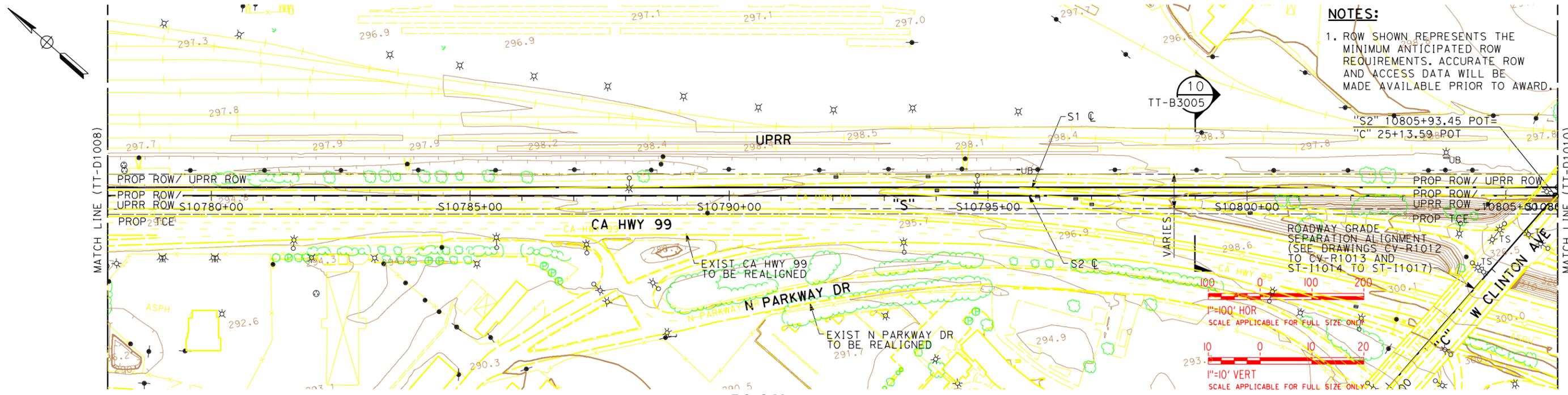
CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION
PACKAGE 1
ROADWAY
PROFILE AND SUPERELEVATION
SR 99 RE-ALIGNMENT

CONTRACT NO.
DRAWING NO.
CV-R1111-R99
SCALE
AS SHOWN
SHEET NO.

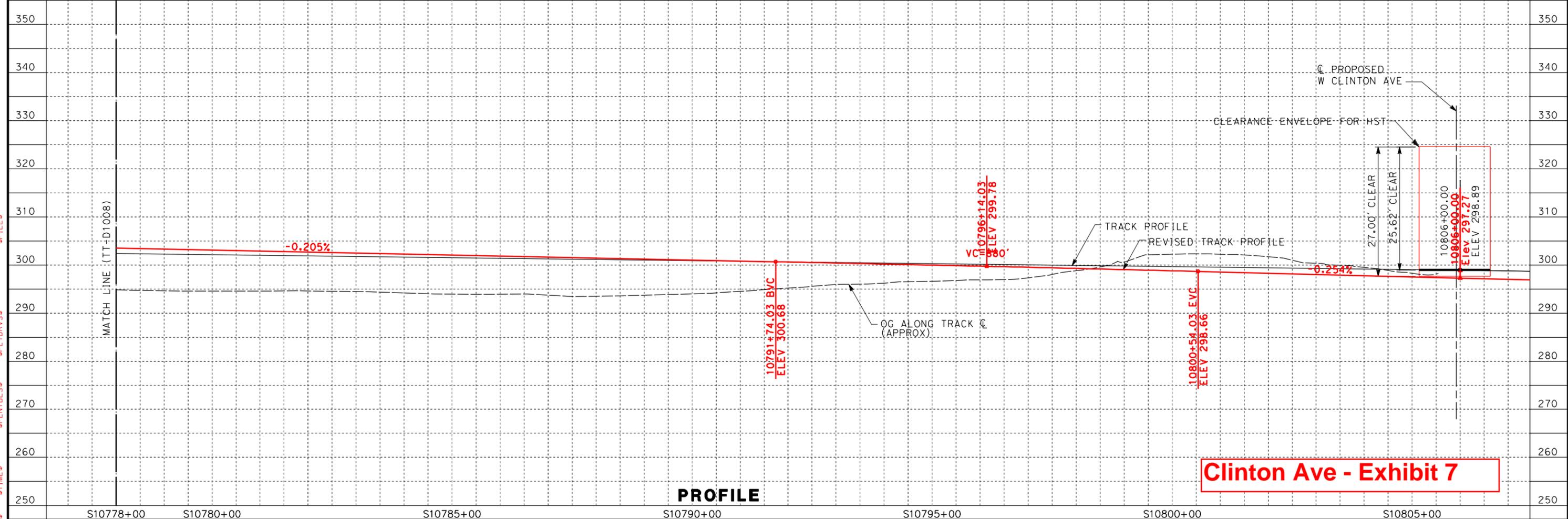
Exhibit 6

25.5' Min Vertical Clearance (Recommended)

CLINTON AVE					
Structure Depth =	7.33'				
Clearance Check Locations:	STA ("C")	CL ELEV	Offset	EP ELEV	Soffit ELEV
A - NB Track	24+54.58	333.28	61.50	332.05	324.72
B - NB Track	25+52.49	332.97	50.53	331.96	324.63
C - SB Track	24+32.67	333.22	61.50	331.99	324.66
D - SB Track	25+30.57	333.12	50.53	332.11	324.78
Clearance Check Locations:	STA ("S1" or "S2")	TOR ELEV	Vert Clr (Soffit - TOR)		
A - NB Track	10805+28.13	297.98	26.74		
B - NB Track	10806+76.72	298.80	25.83		
C - SB Track	10805+13.71	299.00	25.66 Min		
D - SB Track	10806+62.30	298.82	25.96		



PLAN



PROFILE

Clinton Ave - Exhibit 7

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY A. SHIELDS	PROPOSED PRELIMINARY DESIGN NOT FOR CONSTRUCTION	 <small>Technical Services, Inc. 2020 L Street, Suite 300 Sacramento, CA 95811</small> 	 CALIFORNIA HIGH-SPEED RAIL AUTHORITY
DRAWN BY H. SULLIVAN			
CHECKED BY A. BOONE			
IN CHARGE A. BOONE			
DATE 10/10/2011			

CALIFORNIA HIGH-SPEED TRAIN PROJECT SIERRA SUBDIVISION PACKAGE 1 TRACK GUIDEWAY PLAN AND PROFILE STA. 10778+00 TO 10806+00			CONTRACT NO. DRAWING NO. TT-D1009 SCALE AS SHOWN SHEET NO.
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