

**OREGON DEPARTMENT OF TRANSPORTATION
DESIGN EXCEPTION REQUEST**

For Roadway Section Office Use Only	
Control No.	

Section Name:	Pudding River (Whiskey Hill Road) Bridge #01559	Route No.:	C.R. 42036
Highway Name:	Whiskey Hill Road	Highway No.:	N/A
County Name:	Clackamas/ Marion	Region:	1 & 2
		Key No.:	17408
		EA No.:	

PROJECT DATA

Functional Classification:		Rural Major Collector			
Current ADT (Year):		1750 (2007)		Design ADT (Year): 2700 (2029)	
% Trucks:	13 %	Vertical Clearance Route:		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Posted Speed:	Basic Rule 55 mph	Design Speed:	50 mph	Bid Date:	December 2014
Funding:		HBP			
Current Estimate:		\$8,280,000	Additional Cost to Meet Standard:		\$6,000,000
Federal Highway Approval Required	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Design Category	3R <input type="checkbox"/> 4R <input checked="" type="checkbox"/>	NHS: Non NHS:	<input type="checkbox"/> <input checked="" type="checkbox"/>
		Top 10% SPIS Site:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

Design Exceptions (FHWA 13 Controlling Criteria in BOLD)		
<input type="checkbox"/> Design Speed	<input type="checkbox"/> Superelevation	<input type="checkbox"/> Design Life and V/C Ratio
<input type="checkbox"/> Lane Width	<input type="checkbox"/> Vertical Clearance	<input type="checkbox"/> Bike Lane/Multi-Use Path Width
<input checked="" type="checkbox"/> Shoulder Width/Shy Distance	<input type="checkbox"/> Structural Capacity	<input type="checkbox"/> Sidewalk Width
<input type="checkbox"/> Bridge Width	<input type="checkbox"/> Clear Zone	<input type="checkbox"/> Median Width
<input type="checkbox"/> Horizontal Alignment	<input type="checkbox"/> ADA Standards	<input type="checkbox"/> Parking Width
<input type="checkbox"/> Vertical Alignment	<input type="checkbox"/> Spiral Length	<input type="checkbox"/> Diagonal Parking
<input type="checkbox"/> Grade	<input type="checkbox"/> Superelevation Runoff	<input type="checkbox"/> Bridge Rail
<input checked="" type="checkbox"/> Stopping Sight Distance	<input type="checkbox"/> Pavement Design Life	<input type="checkbox"/> Interchange Specing
<input type="checkbox"/> Pavement Cross Slope		<input checked="" type="checkbox"/> Other) Driveway Intersection Sight Distance

Description of Exception:

Standard shoulder width per AASHTO is 8' for the given ADT and 50 mph design speed. The project proposes to stripe shoulders on 760' radius curve at 6' outside and 10' inside. Stopping sight distance should be 425' for 50 mph design but even with the 10' inside shoulder striping, only 40 mph stopping sight distance of 305' will be provided. The available stopping sight distance was calculated to be over 311' using 2004 AASHTO Formula 3-36, using a Horizontal Sightline Offset of 16 to center of inside lane, which has a radius of 756'.

The proposed curvature of the replacement structure also limits intersection sight distance for left hand movements out of one driveway. Recommended intersection sight distance for this movement is 555' whereas only 490' is achievable with the 10' inside should striping.

Description of Project :

The Pudding River (Whiskey Hill Road) Bridge #1559 is located on Whiskey Hill Road on the border of Marion and Clackamas Counties, approximately 0.4 miles to the west of the Meridian Road intersection, and near the City of Hubbard. Whiskey Hill Road is a rural major collector per ODOT functional class mapping connecting OR 99E to the west and Barlow Road, Canby-Marquam Highway, and OR 213 to the east.

OREGON DEPARTMENT OF TRANSPORTATION DESIGN EXCEPTION REQUEST

The bridge, built in 1931, is rapidly deteriorating with cracking and spalling throughout. There are also patches of exposed rebar and scour related issues. Inspectors have deemed the bridge as structurally deficient with critical scour and have rated the deck as intolerable, giving the bridge an overall sufficiency rating of 4.5.

The proposed solution for the Pudding River (Whiskey Hill Road) replacement bridge is a new steel multi-span structure spanning the Pudding River inside of the current curve, slightly south of the current location. Goals for the new bridge were to include improving the alignment, minimizing scour issues, providing two (2) 12-foot lanes and two (2) 8-foot shoulder/bike lanes. The travel lanes will be striped so the final outside shoulder will be 6 feet and the inside shoulder will be 10 feet to improve both stopping sight distance and intersection sight distance on the inside of the curve.

Location of Design Feature:

Majority of project is on 760' radius curve.

The driveway with impaired sight distance is located approximately 225' off the east end of the new structure.

Accident History & Potential: (Specifically as it applies to requested exception)

Between January 2008 and December 2012 there were 4 recorded accidents within the project limits. All were attributable to the existing sharp horizontal alignment that occurs on the bridge coupled with the restricted horizontal width of the bridge (20' roadway width, no shoulders). All four crashes involved driving too fast for the conditions and resulted in bridge rail impacts or run-off-the-road fixed object collisions.

The existing horizontal alignment is posted with 35 mph advisory signs, whereas the new bridge is designed with a 50 mph horizontal alignment and 6' and 10' shoulders. The improved horizontal alignment and wider shoulders will substantially improve sight distance and reduce future accident potential.

Reasons For Not Attaining Standard: (Such As Benefit/Cost, Accident History, Environmental, Etc.)

The horizontal alignment would need to be flattened to a 1625' radius curve to achieve 425' of stopping sight distance on the bridge, which would also correct the impaired access sight distance. This would result in a much longer bridge with an unacceptable skew angle across the river and require replacement of the overflow structure just west of the new bridge.

The other option to achieve design stopping and intersection sight distance would be to further widen the inside shoulder. This would require approximately a 24.5 foot shoulder. This would substantially increase the structure cost and it would be very difficult to taper out the extra width before impacting the westerly overflow structure. It would also require raising the bridge an additional 1.16' to maintain the hydraulic opening.

Effect on Other Standards:

The offset shoulder striping was incorporated to achieve the best possible stopping and intersection sight distance attainable for the proposed practical design solution.

Compatibility with Adjacent Sections:

Sections of Whiskey Hill Road to the west are fairly level. Sections of Whiskey Hill Road to the east are more rolling with some sections of substandard horizontal alignment. Adjacent sections of Whiskey Hill Road only have 1' – 3' shoulders. This section will not be incongruous with other Clackamas County sections of Whiskey Hill Road

Probable Time before Reconstruction of Section:

Unknown at this time, anticipate only preservation type work on this road for the foreseeable future

Mitigation For Exception Included In Design:

Horizontal curve warning signs with 45 mph speed riders and chevron signs facing both directions on 120' spacing on the outside of the curve are included in the construction documents.

Supporting Documentation (Include the appropriate Plan Section, Cross Section, Alignments Sheets & Plan Details): Plan Sheets 2, 3, S-1, S-2, and Intersection Sight Distance Exhibit

OREGON DEPARTMENT OF TRANSPORTATION
DESIGN EXCEPTION REQUEST

Signatures

Prepared By:  Date: 14 FEB 2014
(Engineer of Record)

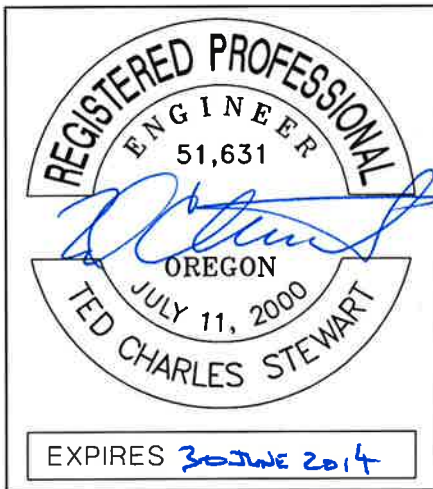
Print Name:	Ted Stewart	Phone:	503-499-0254		
Company Name:	David Evans and Associates, Inc.				
Company Address:	2100 SW River Parkway				
City:	Portland	ST:	OR	Zip:	97201

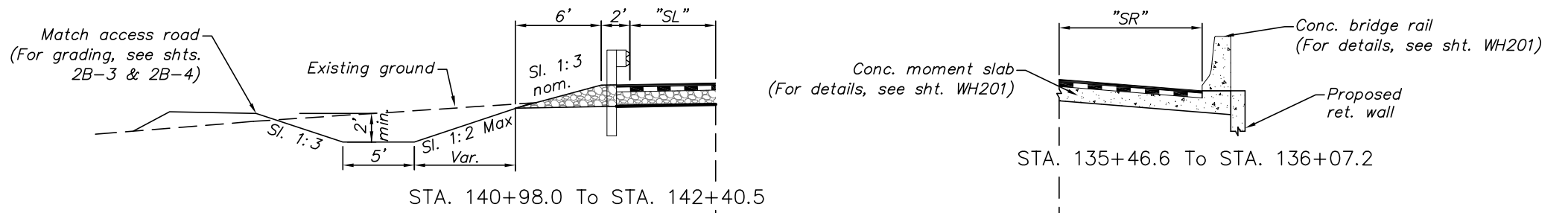
Approved By: _____ Date: _____
Clackamas County

(Print Name)

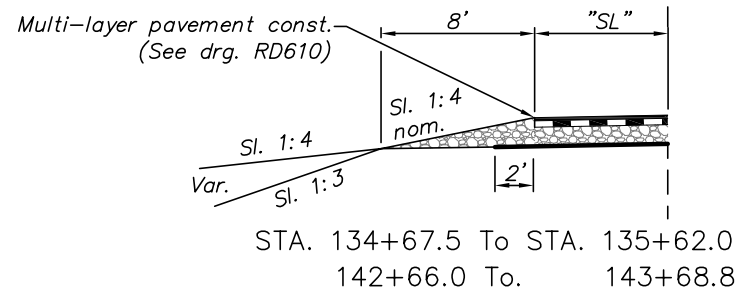
PREPARED BY:

**ENGINEER OF RECORD
PROFESSIONAL
ENGINEER STAMP**

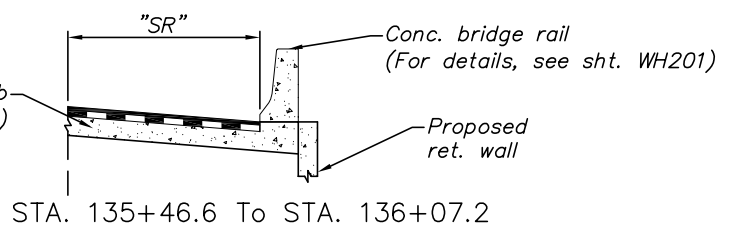




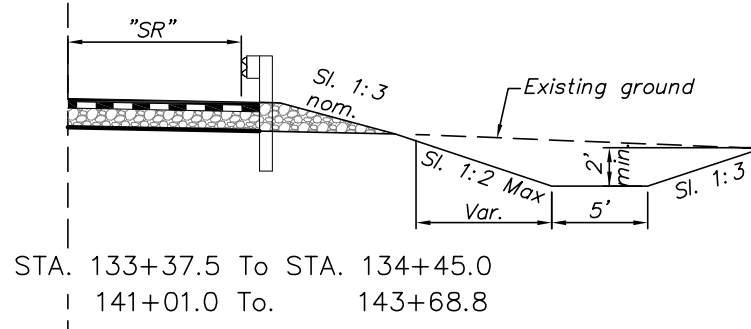
STA. 140+98.0 To STA. 142+40.5



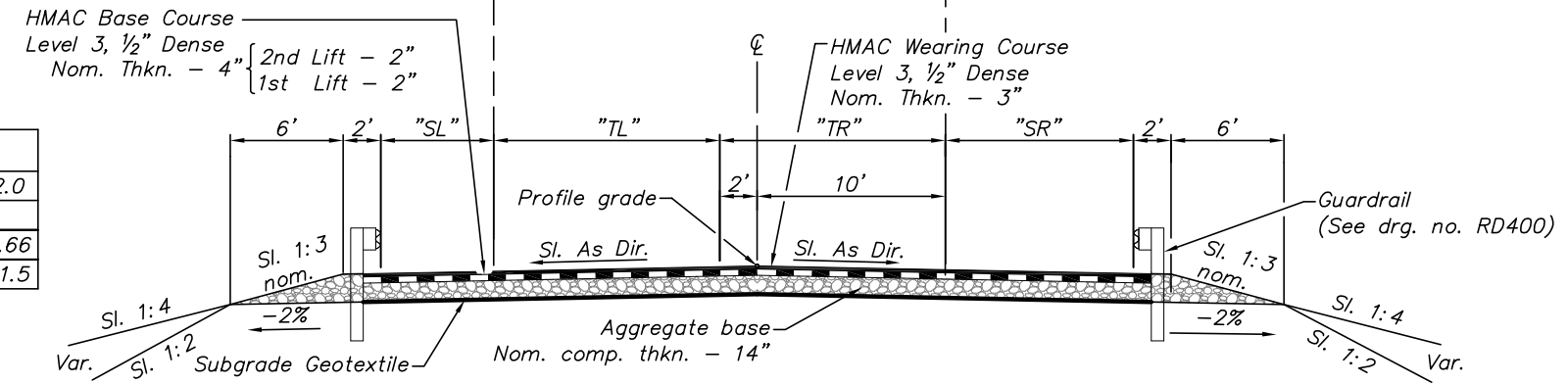
STA. 134+67.5 To STA. 135+62.0
STA. 142+66.0 To STA. 143+68.8



STA. 135+46.6 To STA. 136+07.2



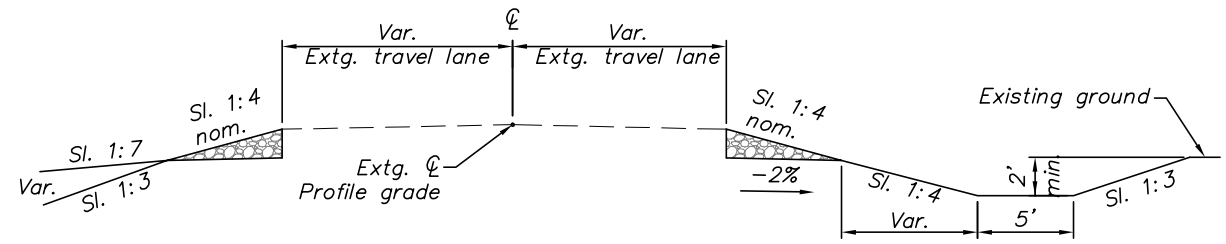
STA. 133+37.5 To STA. 134+45.0
STA. 141+01.0 To STA. 143+68.8



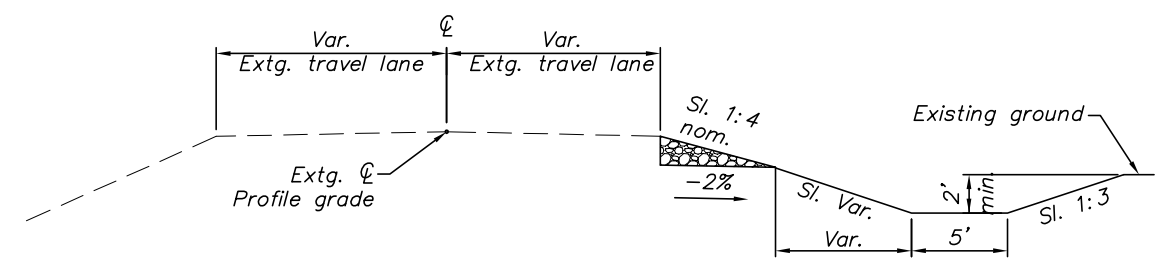
STA. 133+37.5 To STA. 136+38.0
STA. 136+38.0 To STA. 140+78.0 (Structure)
STA. 140+78.0 To STA. 143+68.8

STA.	TO STA.	"SL"	"TL"
133+37.5	134+87.5	3.0 To 6.0	11.0 To 12.0
134+87.5	142+18.7	6.0	12.0
142+18.7	143+18.7	6.0	12.0 To 11.66
143+18.7	143+68.7	6.0 To 1.0	11.66 To 11.5

STA.	TO STA.	"TR"	"SR"
133+37.5	134+87.5	11.0 To 12.0	2.5 To 10.0
134+87.5	141+13.7	12.0	10.0
141+13.7	142+18.7	12.0	10.0 To 6.5
142+18.7	143+68.7	12.0 To 11.5	6.5 To 1.5



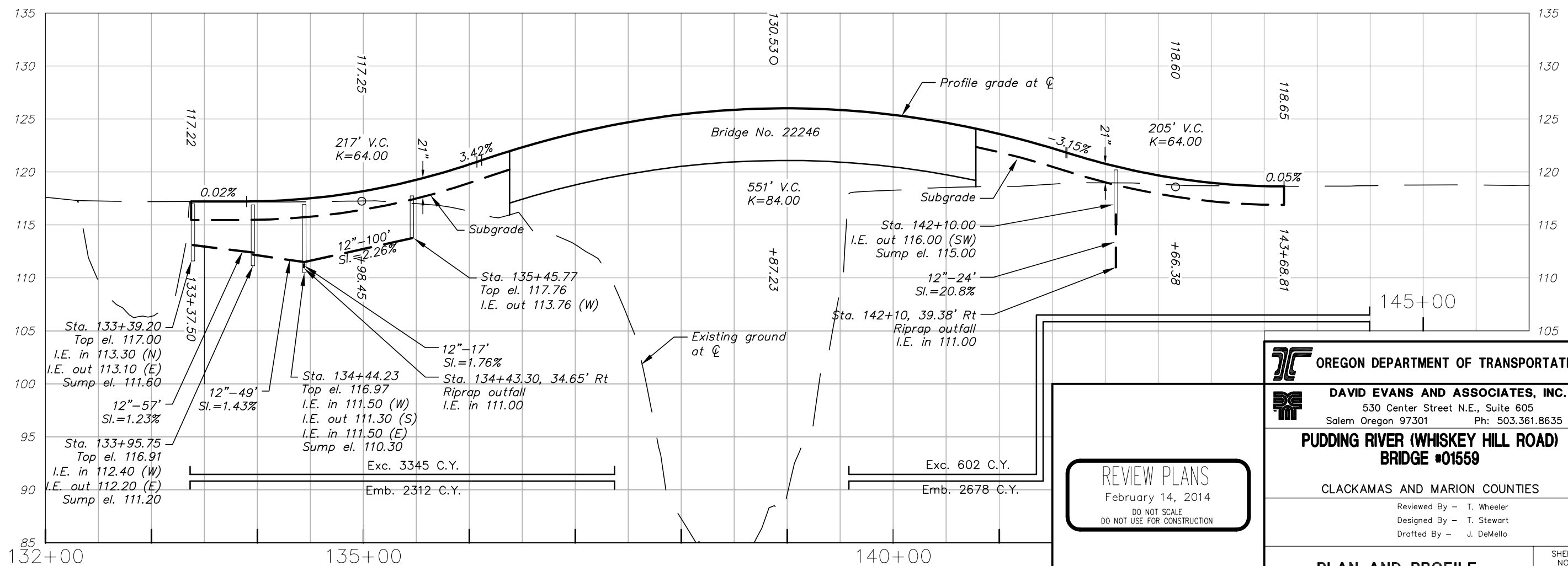
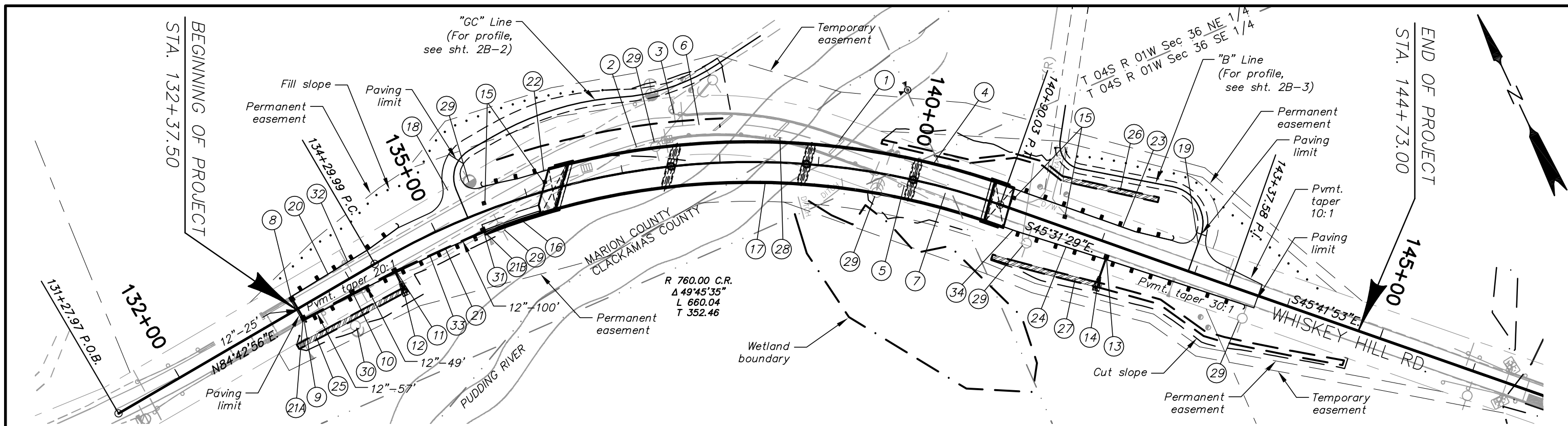
STA. 143+68.8 To STA. 144+23.0



STA. 144+23.0 To STA. 144+73.0

REVIEW PLANS
 February 11, 2014
 DO NOT SCALE
 DO NOT USE FOR CONSTRUCTION

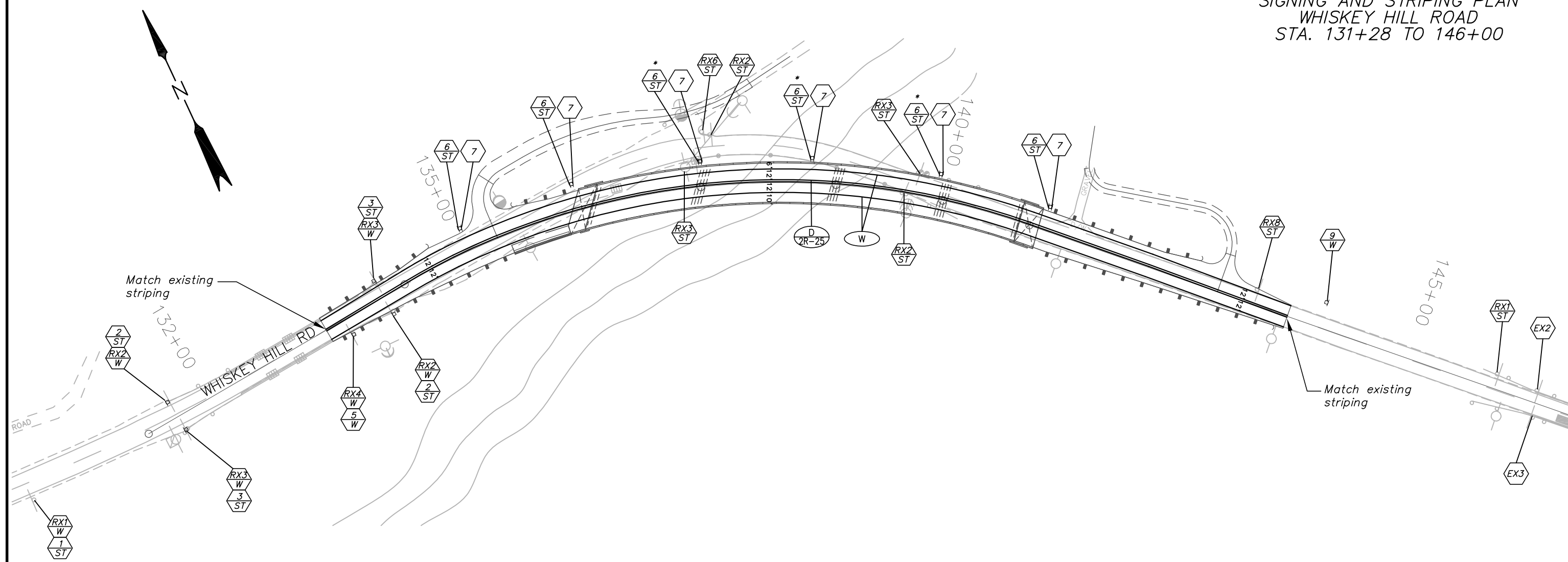
OREGON DEPARTMENT OF TRANSPORTATION	
DAVID EVANS AND ASSOCIATES, INC. 2100 Southwest River Parkway Portland Oregon 97201 Ph: 503.223.6663	
PUDDING RIVER (WHISKEY HILL ROAD) BRIDGE #01559	
CLACKAMAS AND MARION COUNTIES Reviewed By - T. Wheeler Designed By - T. Stewart Drafted By - J. DeMello	
TYPICAL SECTION	SHEET NO. 2



REVIEW PLANS
 February 14, 2014
 DO NOT SCALE
 DO NOT USE FOR CONSTRUCTION

OREGON DEPARTMENT OF TRANSPORTATION	
DAVID EVANS AND ASSOCIATES, INC. 530 Center Street N.E., Suite 605 Salem Oregon 97301 Ph: 503.361.8635	
PUDDING RIVER (WHISKEY HILL ROAD) BRIDGE #01559	
CLACKAMAS AND MARION COUNTIES Reviewed By - T. Wheeler Designed By - T. Stewart Drafted By - J. DeMello	
PLAN AND PROFILE	SHEET NO. 3

SIGNING AND STRIPING PLAN
WHISKEY HILL ROAD
STA. 131+28 TO 146+00



STRIPING LEGEND

- Install double no-pass, 2-4" yellow lines with 2 bi-directional Type 1 reflectors (back to back or side to side as directed) on 25' spacing
- Install 4" white line

SIGNING LEGEND

- Maintain and protect existing sign (N) and support
 - Remove existing sign (N) and (M) sign support
 - Install new sign (N) on new (M) sign support
- N=Sign Number
M=Material
Material options are:
W = Wood
ST = Square Tube

- Notes:
1. See typical sections for striping taper sections.
 2. See Clackamas County std. dwg. T150 for sign post details.
 3. All striping is paint.

*Attach to bridge rail

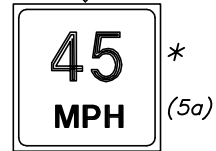
To Be Accompanied By Drg. Nos.: TM200, TM201, TM500, TM502, TM670, TM671, TM681

REVIEW PLANS
February 14, 2014
DO NOT SCALE
DO NOT USE FOR CONSTRUCTION

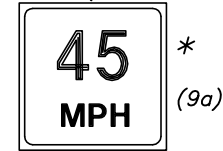
OREGON DEPARTMENT OF TRANSPORTATION TRAFFIC ROADWAY SECTION
DAVID EVANS AND ASSOCIATES, INC. 530 Center Street N.E., Suite 605 Salem Oregon 97301 Ph: 503.361.8635
PUDDING RIVER (WHISKEY HILL ROAD) BRIDGE #01559 CLACKAMAS AND MARION COUNTIES
DESIGNED BY: K. Rudill REVIEWED BY: DRAWN BY: D. Ilyn
SIGNING AND STRIPING PLAN
Str. ID. No. _____ T.R.S. DWG. NO. S-1



Sign No. 1



Sign No. 5



Sign No. 9



Sign No. 2



Sign No. 6



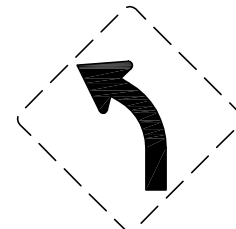
Sign No. 3



Sign No. 7




Sign No. 4



Sign No. 8

- Notes:
1. Existing signs shown with dashed borders.
 - * 2. County to confirm speed after project completion.
 3. Mount nos. 6 & 7 back to back on post using chevron bracket (Traffic Safety Supply Co. no. 16504760 or approved equal)

 OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC ROADWAY SECTION

 DAVID EVANS AND ASSOCIATES, INC.
530 Center Street N.E., Suite 605
Salem Oregon 97301 Ph: 503.361.8635

**PUDDING RIVER (WHISKEY HILL ROAD)
BRIDGE #01559**
CLACKAMAS AND MARION COUNTIES

DESIGNED BY: K. Rudisill
REVIEWED BY:
DRAWN BY: D. Ilyin

REVIEW PLANS
February 14, 2014
DO NOT SCALE
DO NOT USE FOR CONSTRUCTION

SIGN DETAILS

Str. ID. No. _____ T.R.S. DWG. NO. **S-2**

