

# **Twin Tunnels Design/Construction Technical Team Meeting #9**

September 27, 2012  
9:00AM – 12:00PM

CDOT  
425 Corporate Circle  
Golden, Colorado



# Agenda

## 1. Introductions

## 2. Other Corridor Project Updates

## 3. General Project Updates

## 4. Follow-up

- Color
- Median Barrier
- Signing
- Median infrastructure
- Lighting
- Public Information (download app now)

## 5. Bridge area Aesthetics Review



### Step 1

Define Desired Outcomes and Actions

### Step 2

Endorse the Process

### Step 3

Establish Criteria

### Step 4

Develop Alternatives and Options

### Step 5

Evaluate, Select, and Refine Alternatives and Options

### Step 6

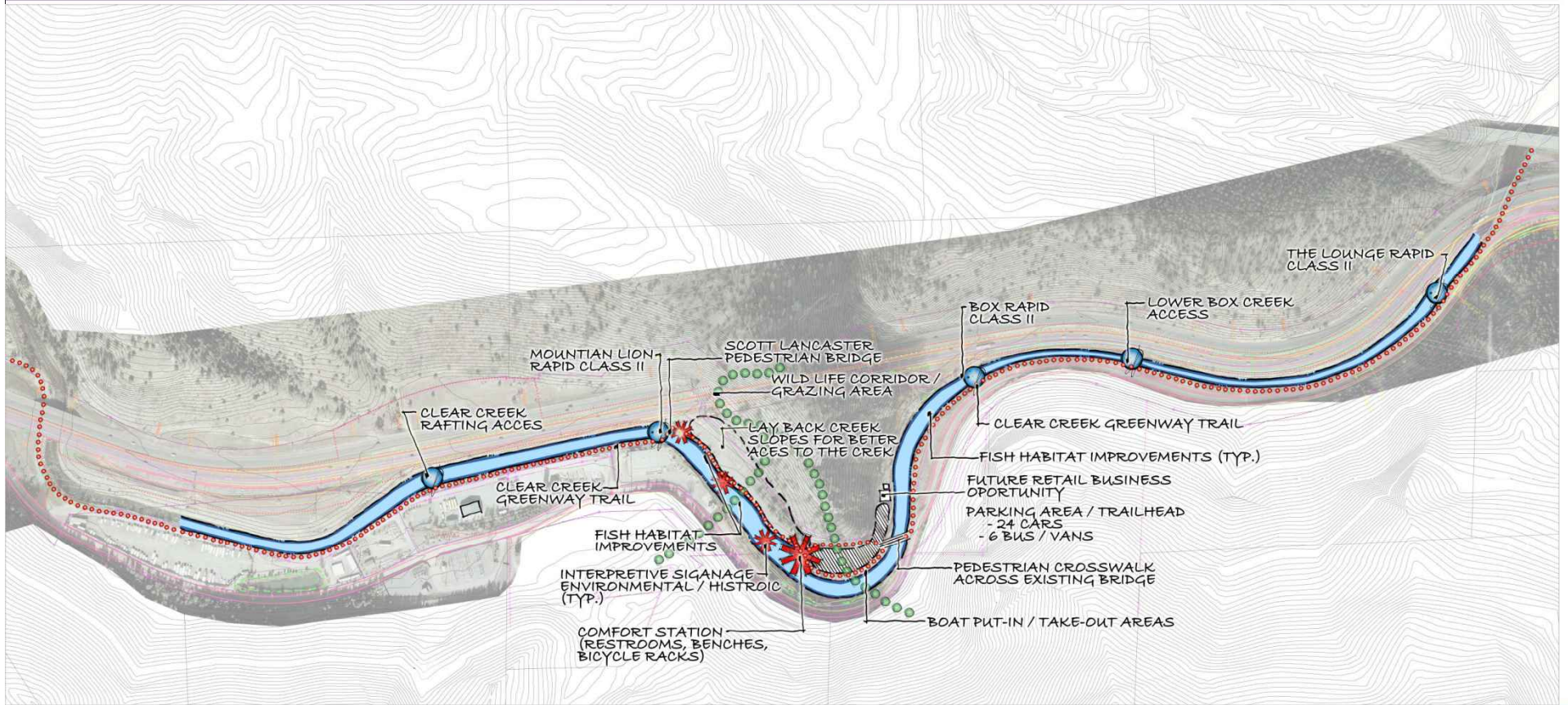
Finalize Documentation and Evaluation Process

# Other Corridor Project Updates

- Frontage Road
- Twin Tunnels EA
- Westbound Tunnel Repairs, Rockfall
- I-70 Expansion Joint Projects
- CDOT Rockfall Program
- Master I-70 Schedule
- AGS Study
- Peak Period Shoulder Lanes
- Trailhead Partnership
- Co-Development RFP



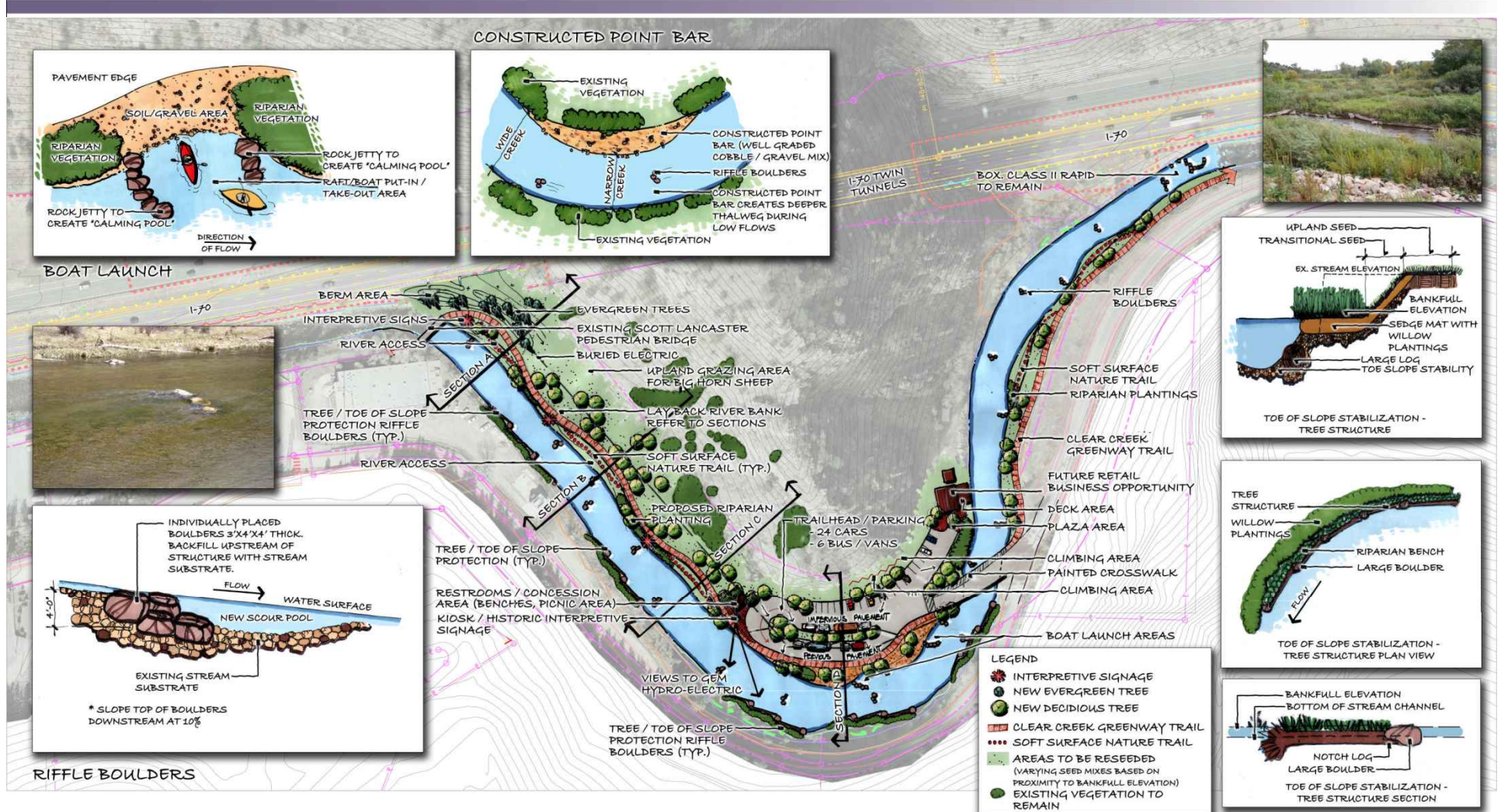
# Trailhead Concept



## OLD GAME CHECK STATION TRAILHEAD - CONCEPTUAL PLAN

Clear Creek County, Colorado

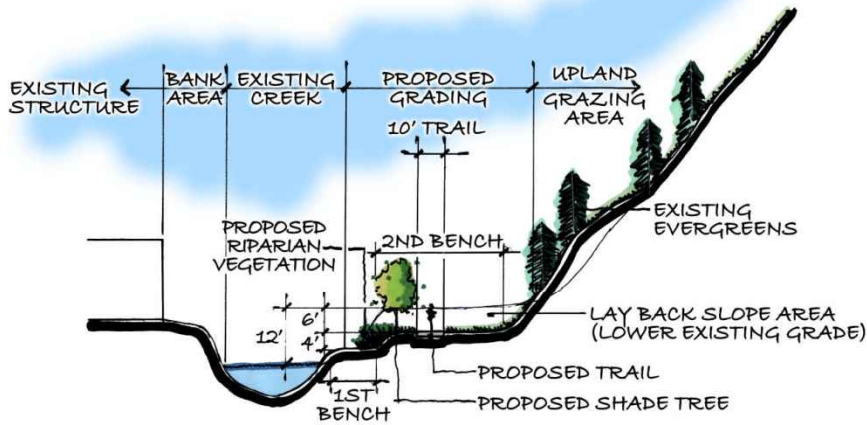
# Trailhead Concept



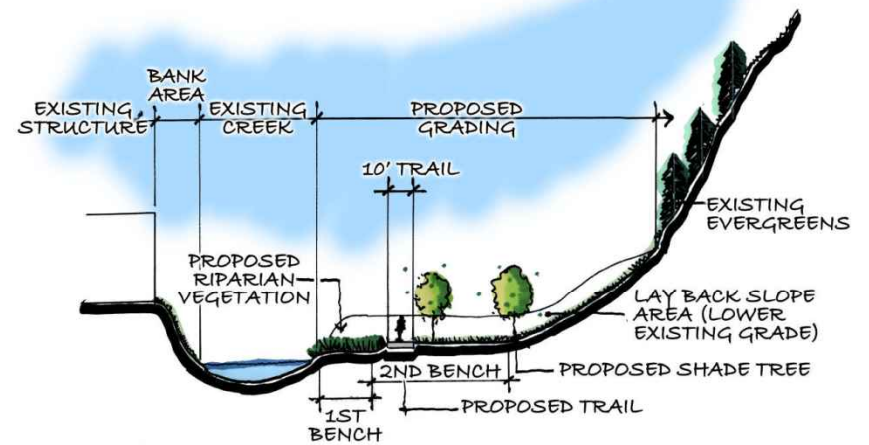
## OLD GAME CHECK STATION TRAILHEAD - CONCEPTUAL PLAN ENLARGEMENT

Clear Creek County, Colorado

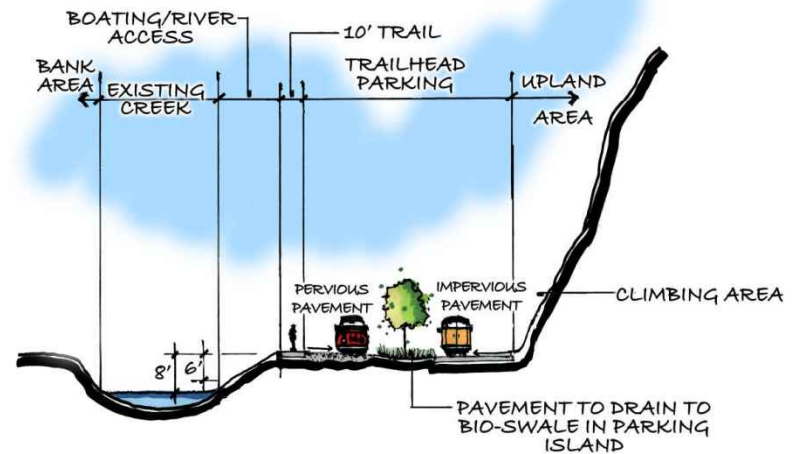
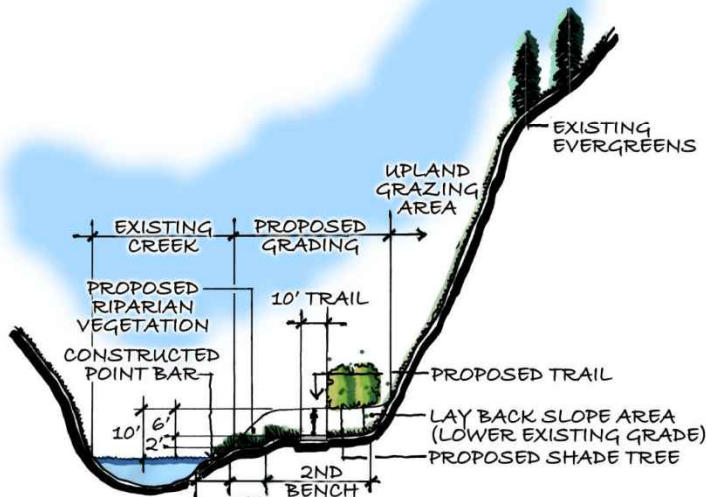
# Trailhead Concept



SECTION A  
H. SCALE: 1"=20'-0" V. SCALE: 1"=10'-0"



SECTION B  
H. SCALE: 1"=20'-0" V. SCALE: 1"=10'-0"



# Core Values

- **Safety**
- **Mobility**
- **Gateway**
- **Wildlife**
- **The Creek**
- **Destination**
- **History**
- **Constructability**
- **Inclusivity**
- **Schedule**



# Twin Tunnels Project Updates

- Anticipated project milestones
  - » Completed Pkg 1A FOR (yesterday)
  - » WB tunnel repairs/rockfall mitigation Notice to Proceed (NTP) – Oct 3, 2012
  - » EA Decision Document signing – November 9, 2012 (maybe earlier)
  - » Pkg 1A NTP – November 12, 2012 (maybe earlier)
  - » Pkg 1B NTP – December 7, 2012
  - » Pkg 2 NTP – February 25, 2013
  - » Pkg 3 NTP – November 1, 2013
  - » Pkg 4 NTP – Spring, 2014







**TWIN TUNNELS WIDENING**  
**ISSUES FOR TECHNICAL TEAM PRELIMINARY SCHEDULE**

September 27, 2012	2012																2013									
	MAY		JUNE		JULY		AUG		SEPT		OCT		NOV		DEC		JAN		FEB		MAR		APRIL		MAY	
	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK
NOISE/ VIBRATION	■	*																								
TUNNEL LINING	■					*	●																			
RETAINING WALL RAILING	■	*																								
IMPACTS TO TRAFFIC	■	*	●		●		●																			
I-70 RETAINING WALL AESTHETICS		■	*	●	●	●																				
BRIDGE AESTHETICS		■		*		●	●																			
NEPA ANALYSIS OF CONSTRUCTION METHODS	■	*	●																							
ROCKFALL STRUCTURES		■	*	●		●																				
SIGNING			■			*			●																	
ADAPTIVE MITIGATION							*		●				●											●		
PUBLIC INFORMATION				■			*		●			●									●					
IMPACTS TO RECREATION USERS			■	*	●																●					
INFRASTRUCTURE IN MEDIAN			■							*		●														
COATINGS (COLOR)			■							*	●		●													
LIGHTING			■				*		●																	
LANDSCAPING				■			*		*	*		*	*					●								
TUNNEL PORTAL AESTHETICS				■						*		●														
INCIDENT MANAGEMENT PLAN				■			*																			
C.R. 314 FRONTAGE ROAD RETAINING WALL FASCIA					■							*	●													
SOUTH SIDE OF W.B. BRIDGE OVER CLEAR CREEK							■		*																	
TRAILHEAD IMPROVEMENTS												*	●				●						●			
ENHANCEMENT OPPORTUNITIES			■				*		*		*		*			●						*			●	

PACKAGE 1A

PACKAGE 1B

PACKAGE 2

PACKAGE 3

LEGEND:	
■ Shaded Items are Complete	* Presentation of Concepts
■ Discuss Criteria	● Follow-up (As Needed)

NOTE: FINAL DESIGN AND CONSTRUCTION WILL CONTINUE THROUGH MARCH 2014. AFTER FEBRUARY 2013, TECHNICAL TEAM MEETINGS

# Coatings and Color

## » Fill wall and pedestrian rail colors



### Color Palette



*Federal Standard 595B Color 30372:  
Application: All road structures*



*Federal Standard 595B  
Color 116329:  
Application: Accents*



*Federal Standard 595B Color 20059:  
Application: All vertical features*

# Coatings and Color



# Coatings and Color



# Median Barrier Wall

## Aesthetic recommendations

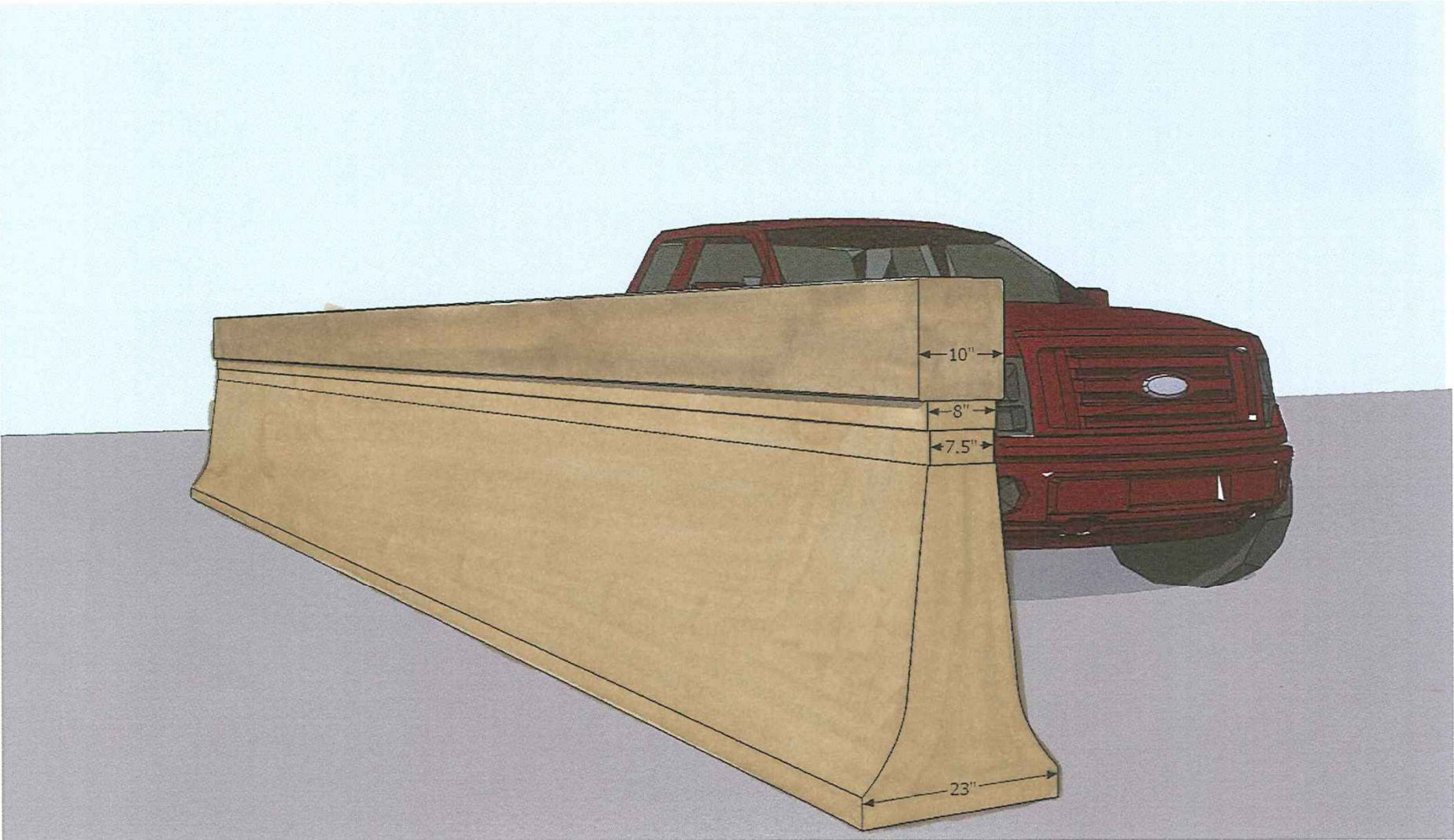
- Single color
  - Consistent with fill walls
  - Simplifies maintenance
- Five (5) design options
  - Reveal depths and locations create shadowing
  - All include sleek, horizontal lines above safety shape



*Federal Standard 595B Color 30372:  
Application: All road structures*

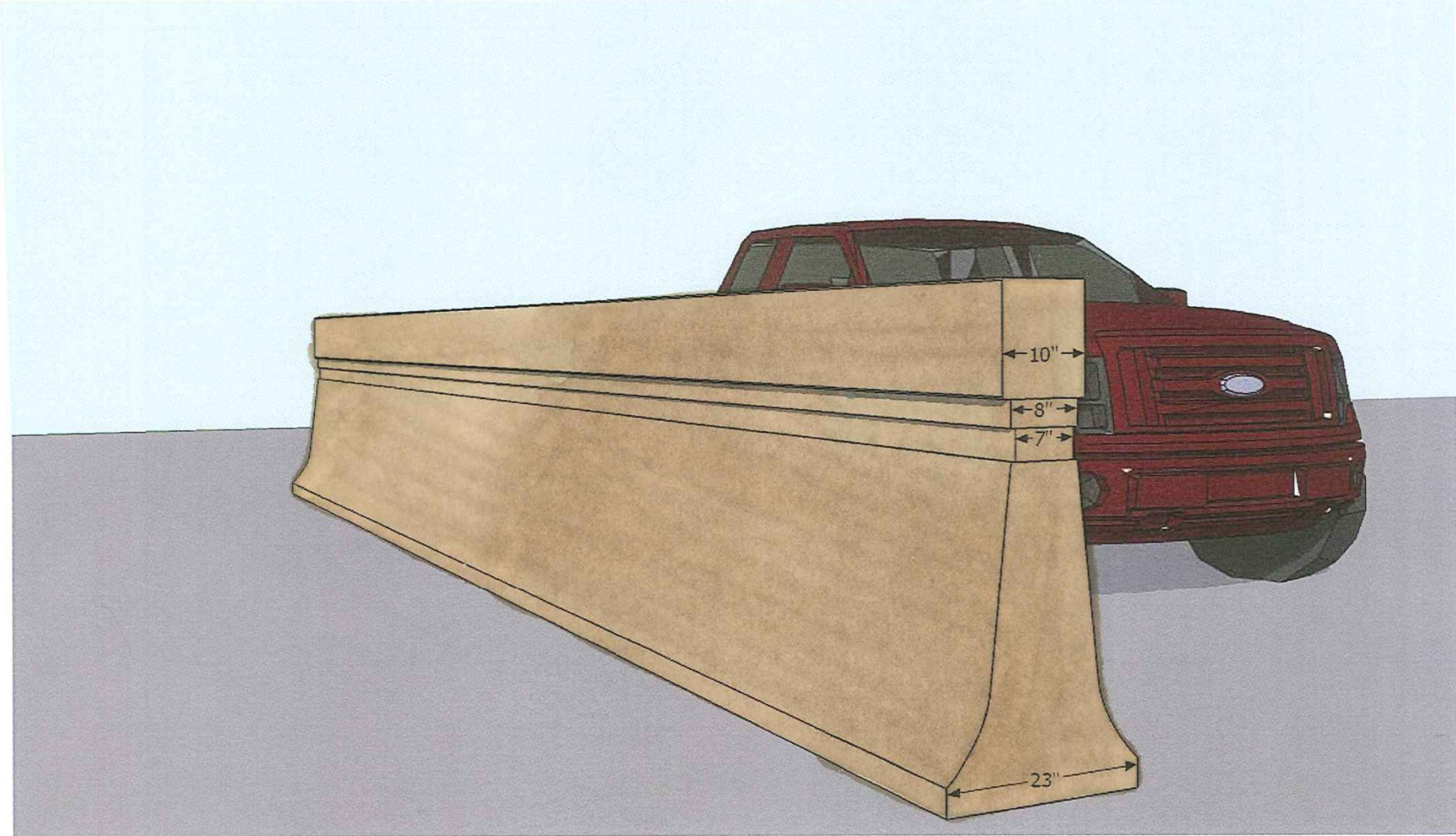


# Median Barrier Wall



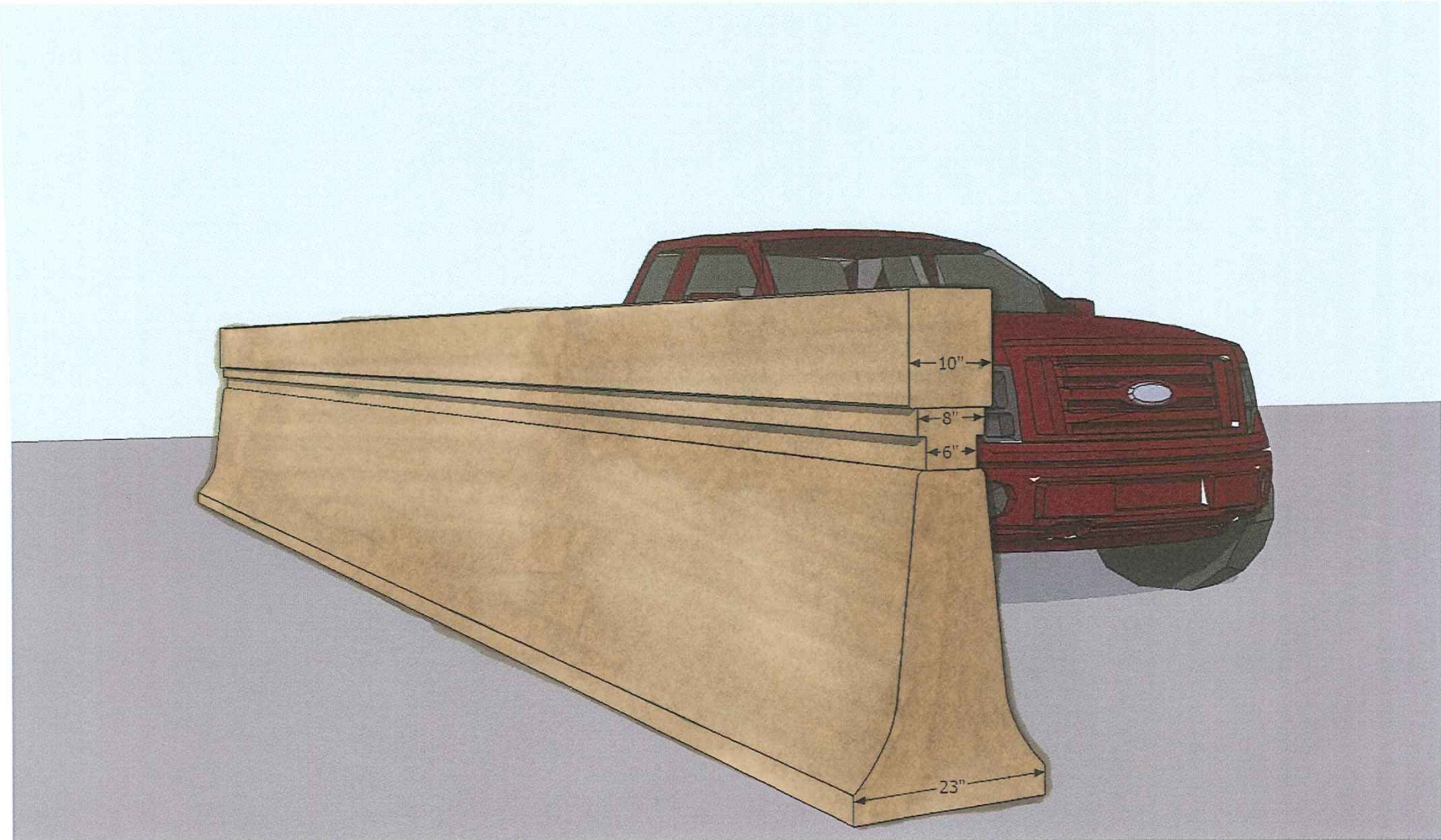
BARRIER WALL PERSPECTIVE - 1/4" Reveal

# Median Barrier Wall



BARRIER WALL PERSPECTIVE - 1/2" Reveal

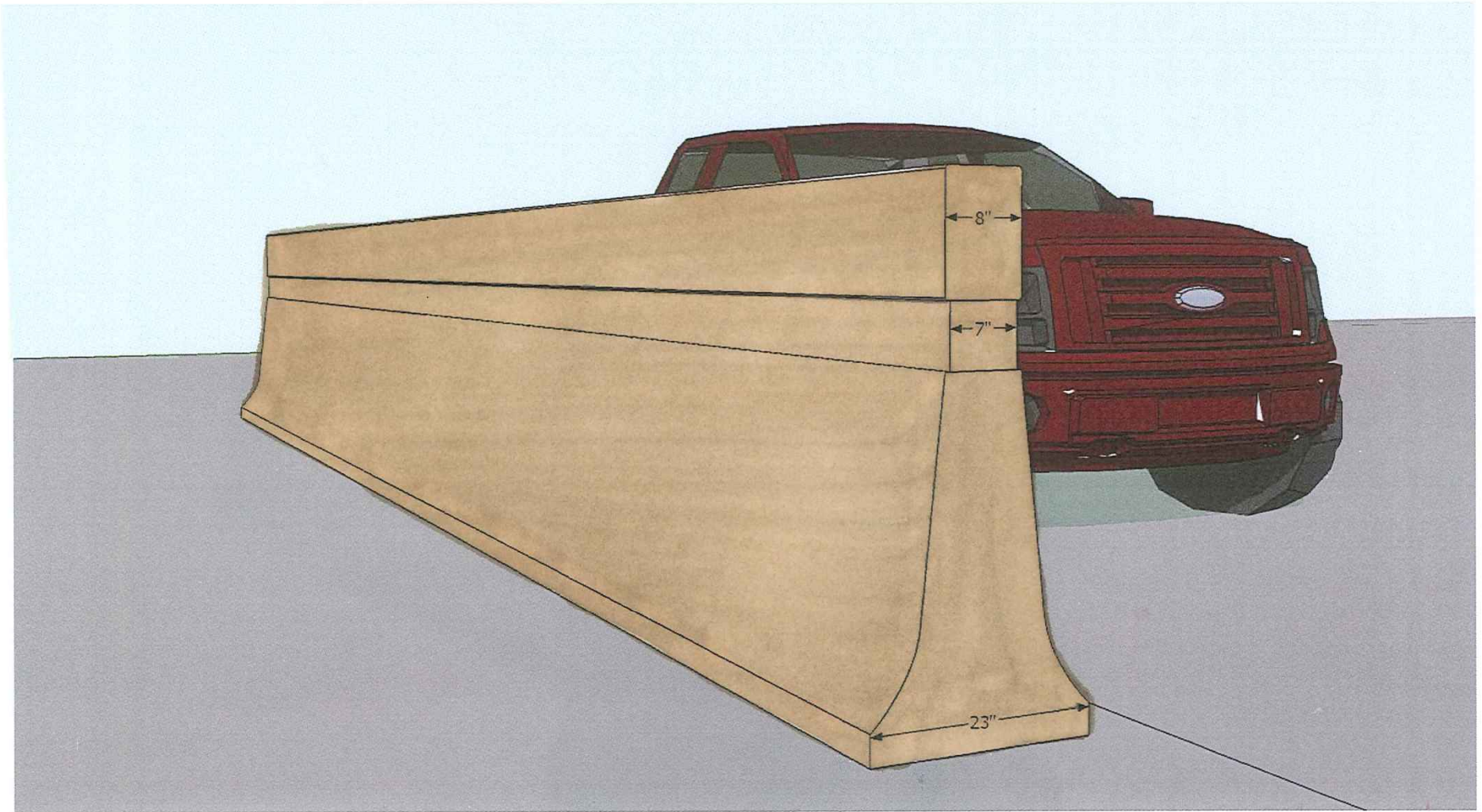
# Median Barrier Wall



BARRIER WALL PERSPECTIVE - 1" Reveal

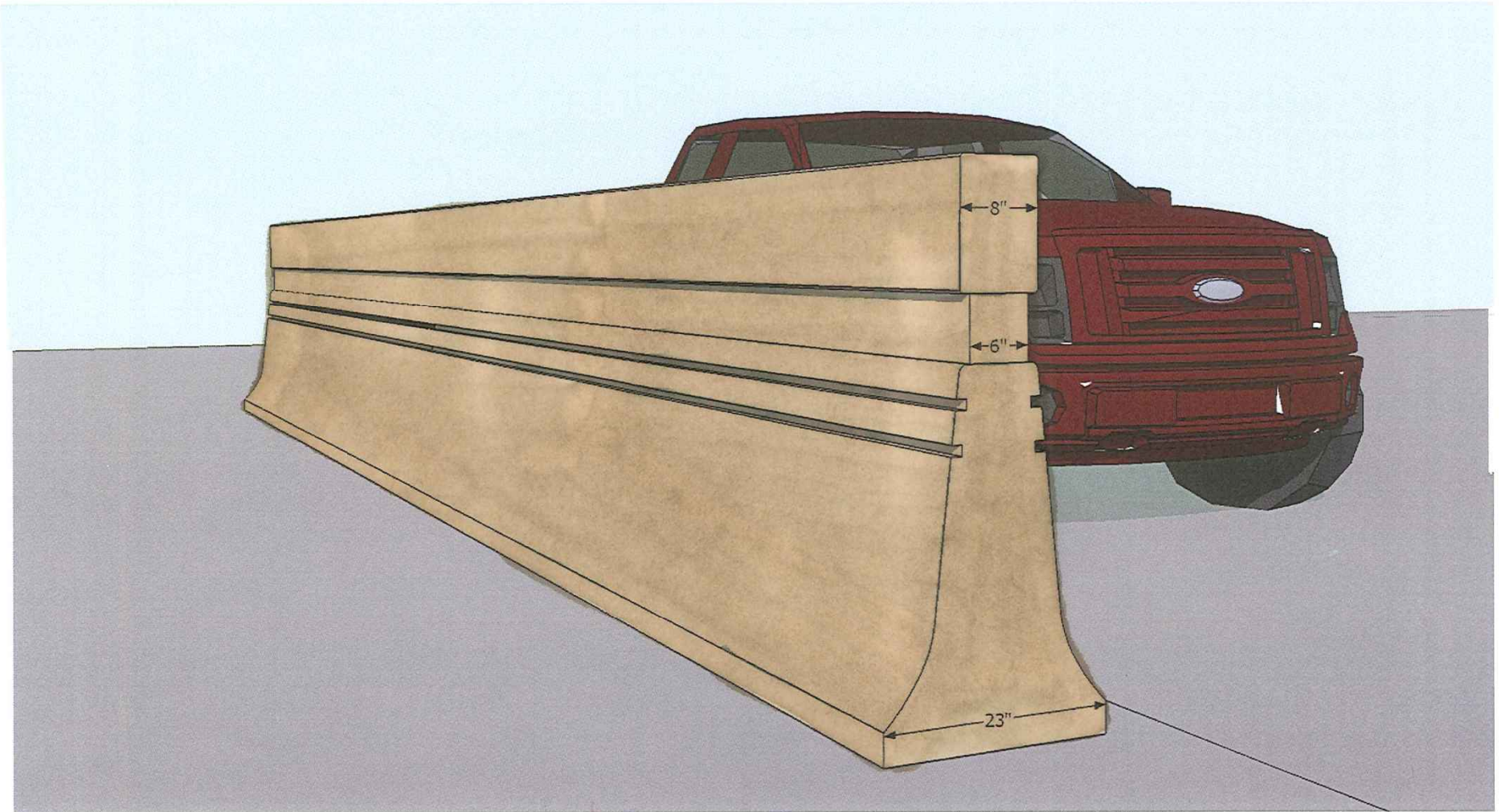


# Median Barrier Wall



BARRIER WALL OPTION 2 PERSPECTIVE - 1/2" Reveal

# Median Barrier Wall



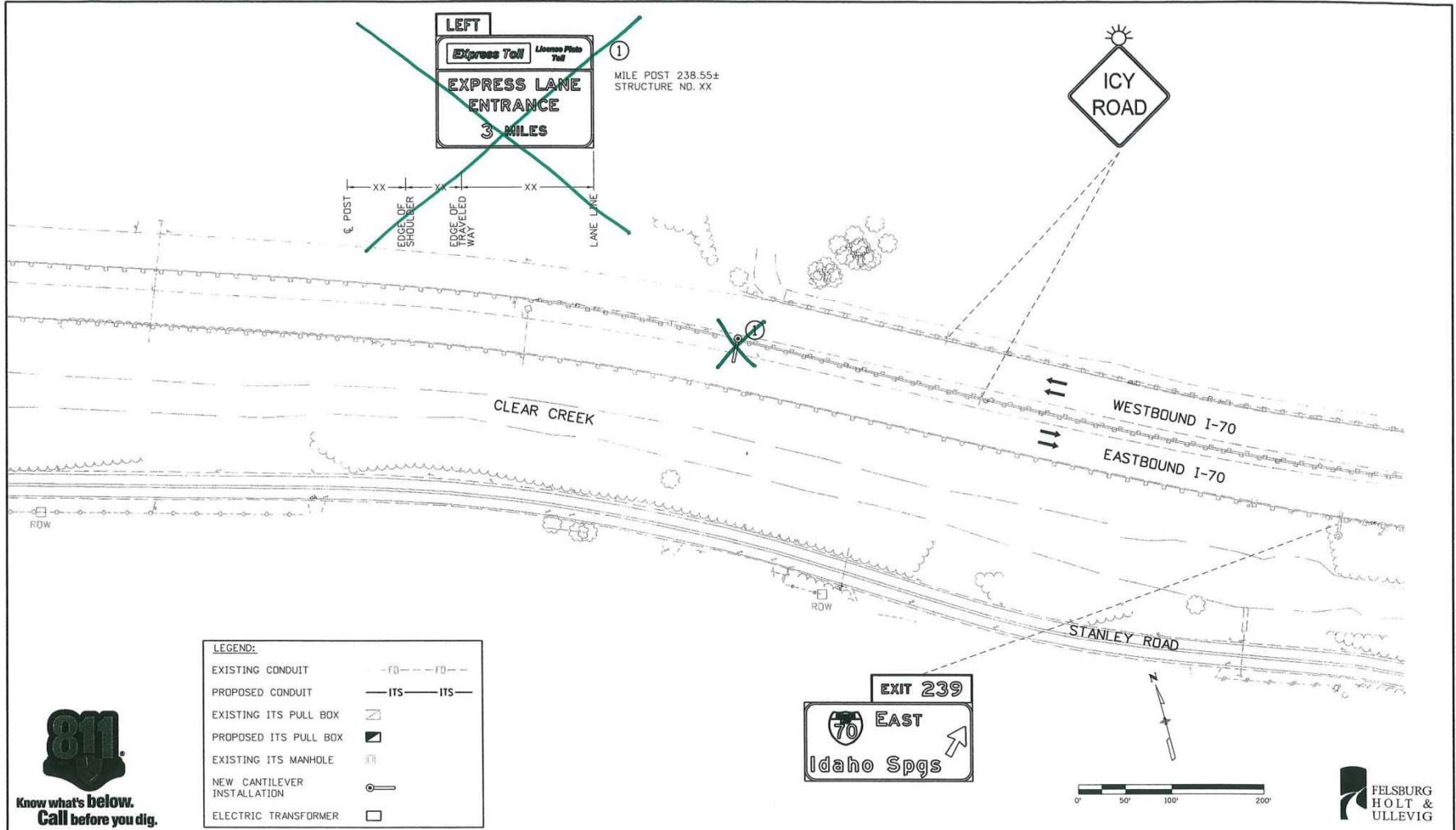
BARRIER WALL OPTION 2 PERSPECTIVE - 1" REVEAL WITH ADDITIONAL 1"  
REVEALS 3" AND 7" FROM TOP OF TYPE 7 BARRIER

# Signing

- Recommendation for 3 managed lane signs to:
  - » Provide adequate driver notice and awareness - consistent with MUTCD guidance
  - » Minimize clutter and throw-away
- Construction area signing consolidation
  - » 12 consolidations (red)
  - » 8 eliminations / removals (green)
  - » 1 relocation out of construction area (blue)



# Signing



**LEGEND:**

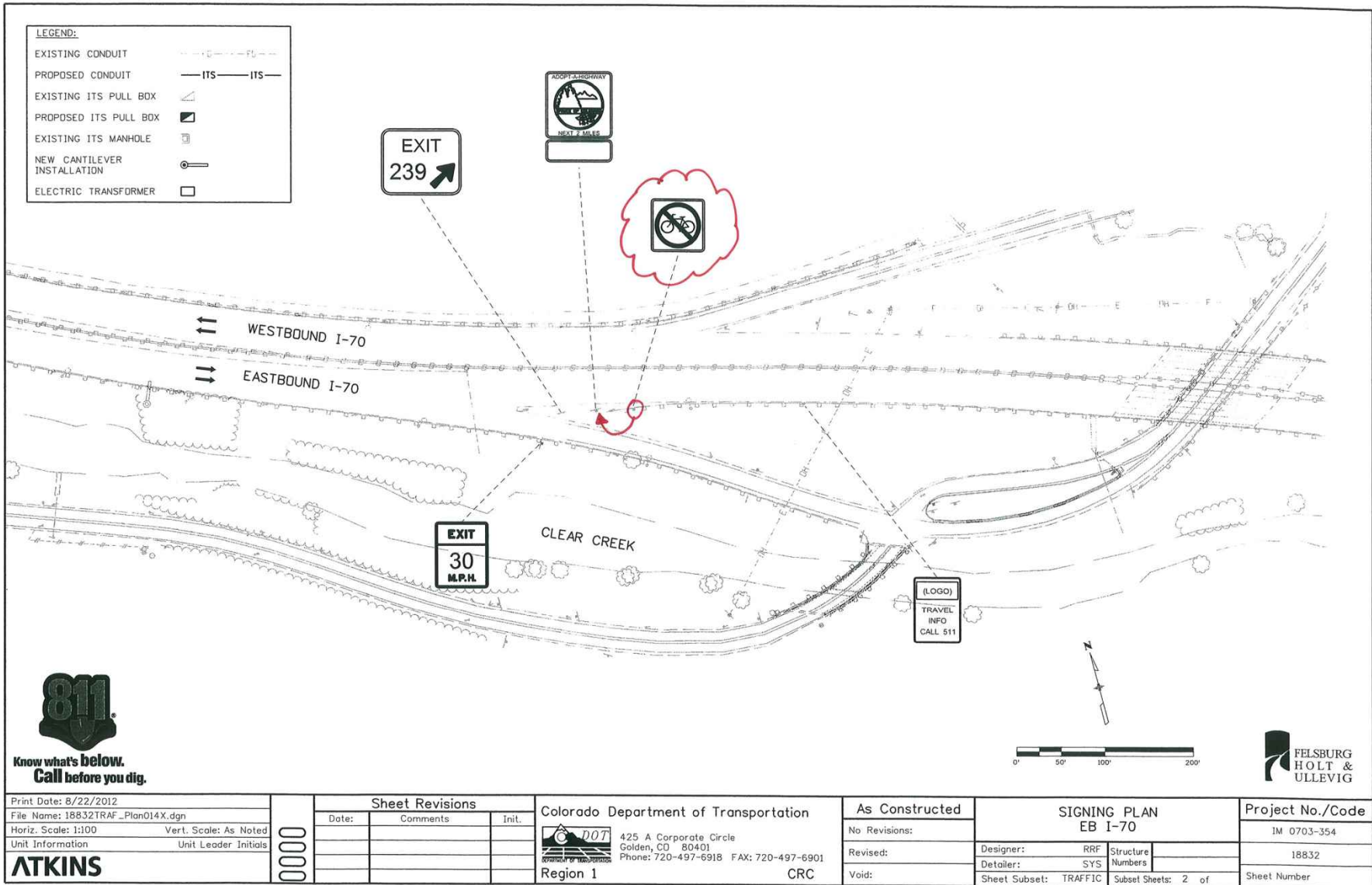
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PROPOSED CONDUIT	-ITS--ITS--
EXISTING ITS PULL BOX	☐
PROPOSED ITS PULL BOX	☑
EXISTING ITS MANHOLE	⊗
NEW CANTILEVER INSTALLATION	⊕
ELECTRIC TRANSFORMER	⊠



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Region 1 CRC

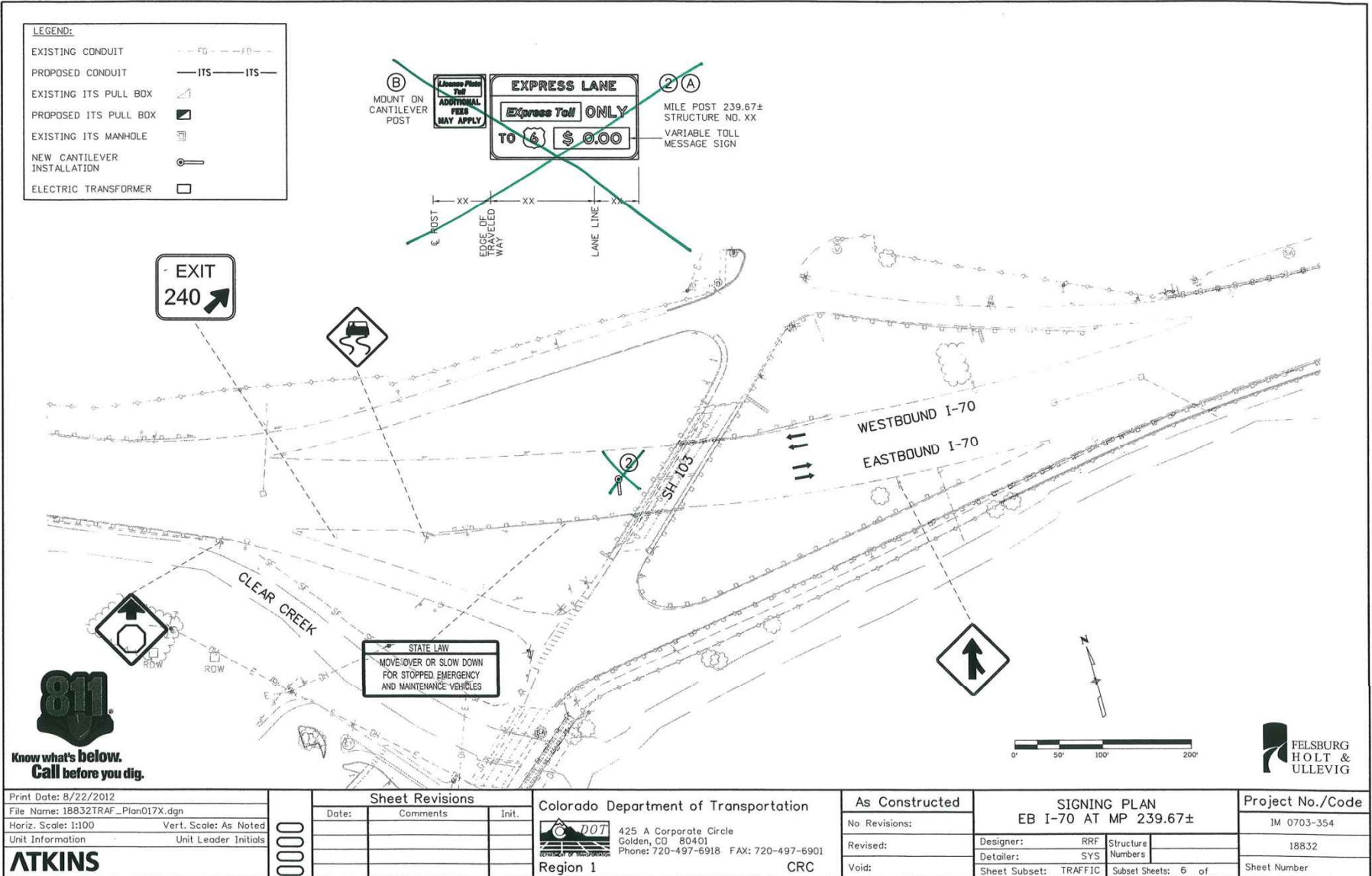
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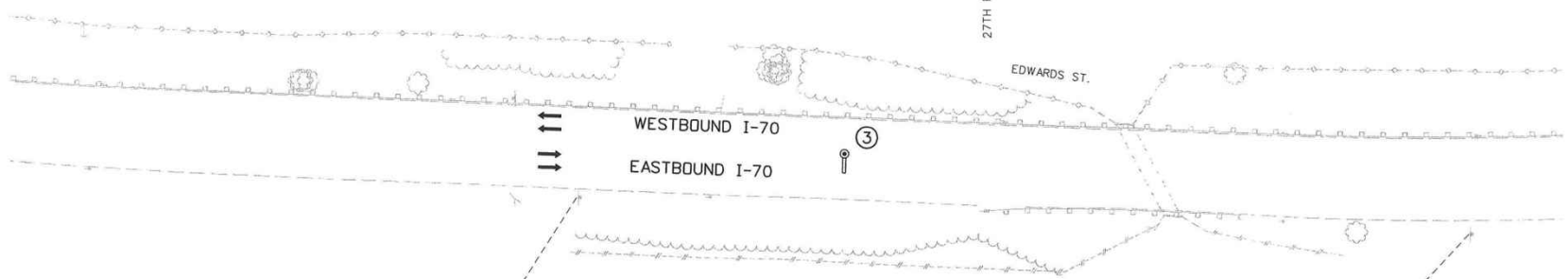
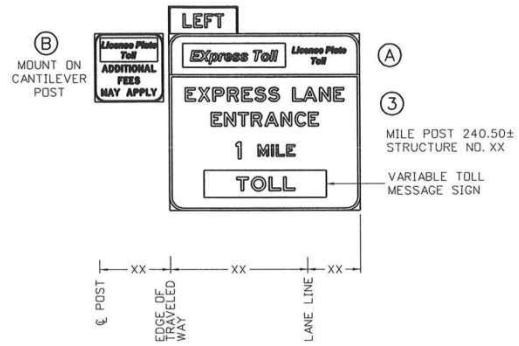
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**LEGEND:**

EXISTING CONDUIT	---FD---FD---
PROPOSED CONDUIT	---ITS---ITS---
EXISTING ITS PULL BOX	
PROPOSED ITS PULL BOX	
EXISTING ITS MANHOLE	
NEW CANTILEVER INSTALLATION	
ELECTRIC TRANSFORMER	



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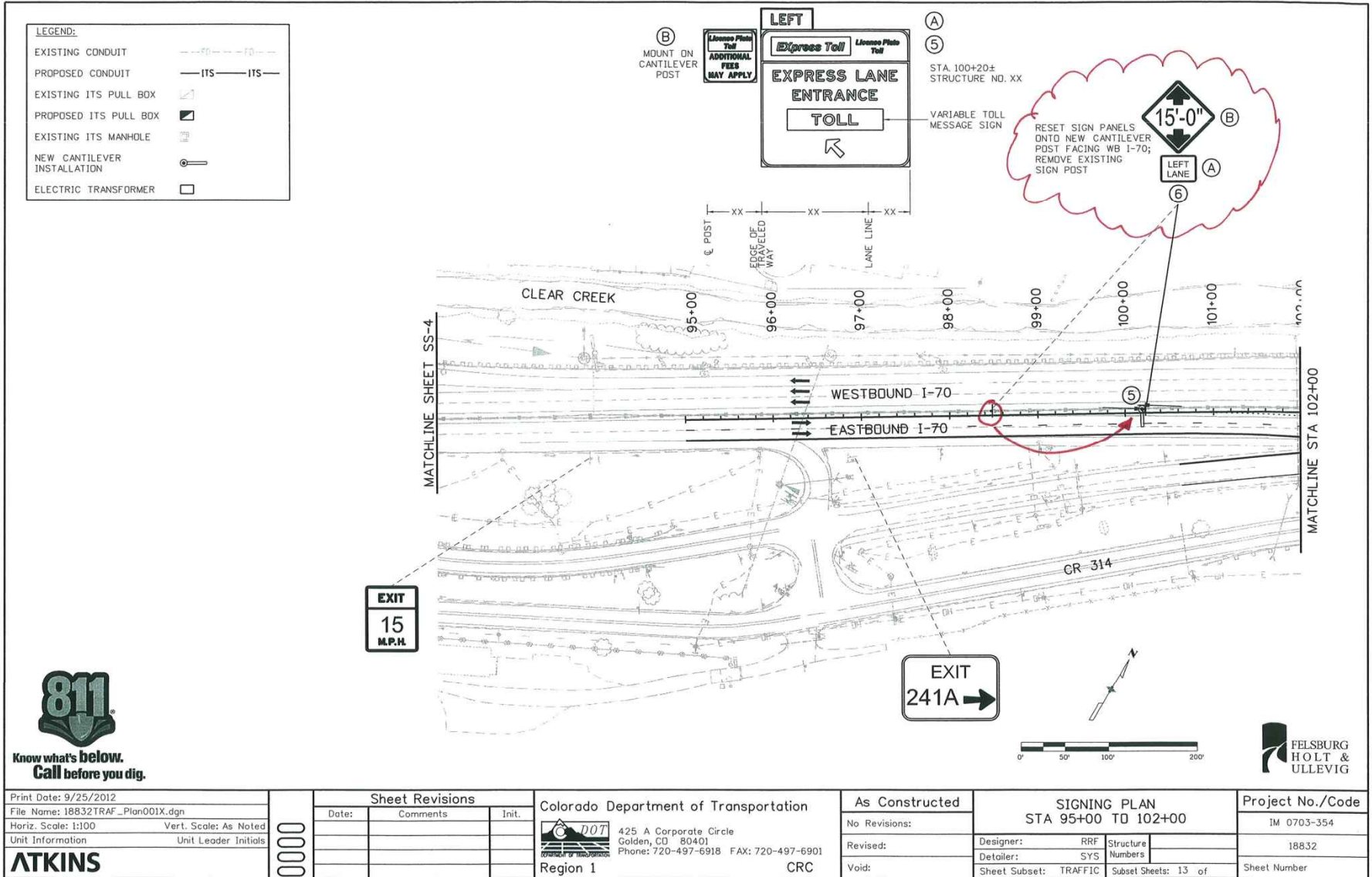
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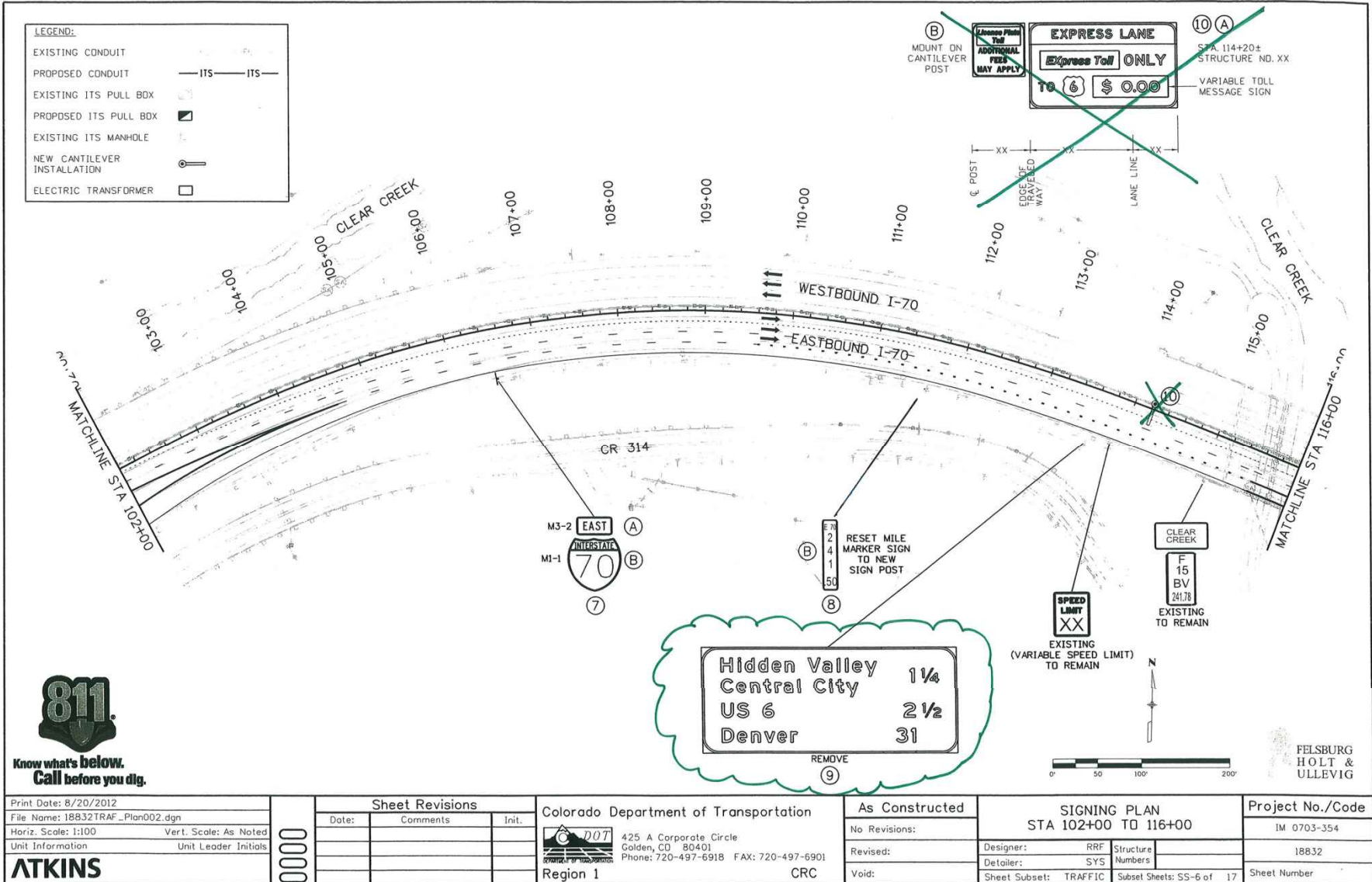


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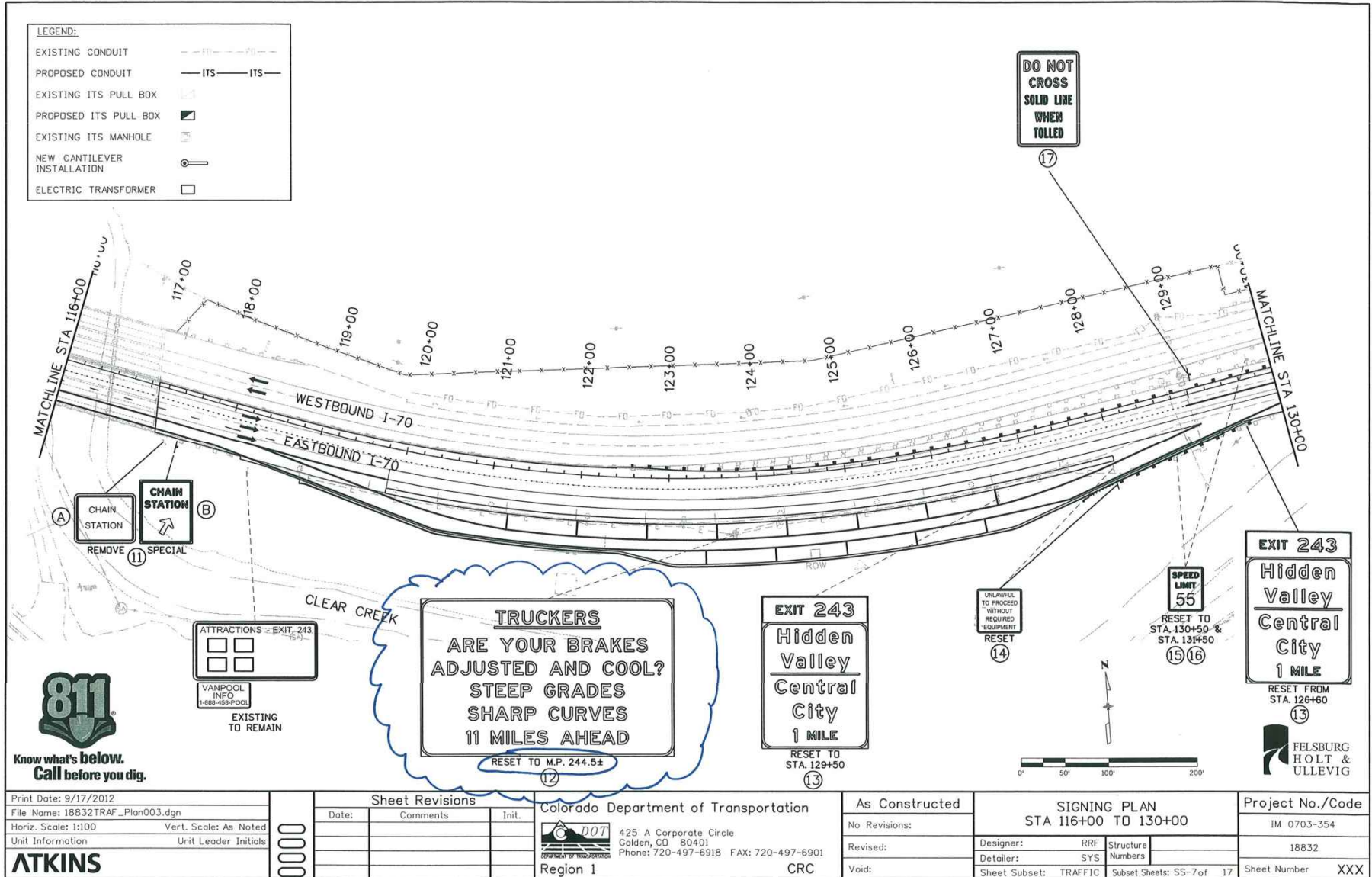


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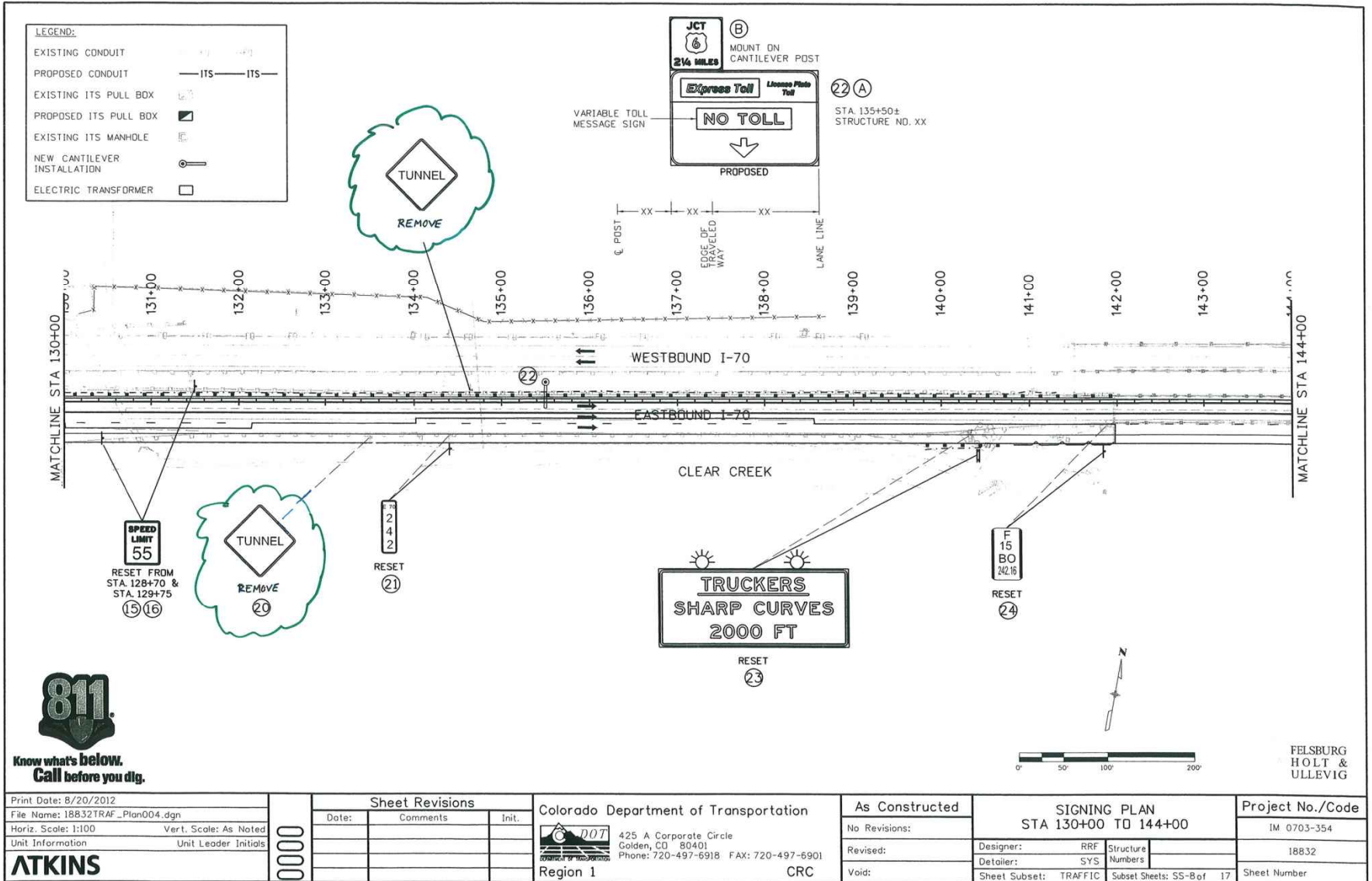
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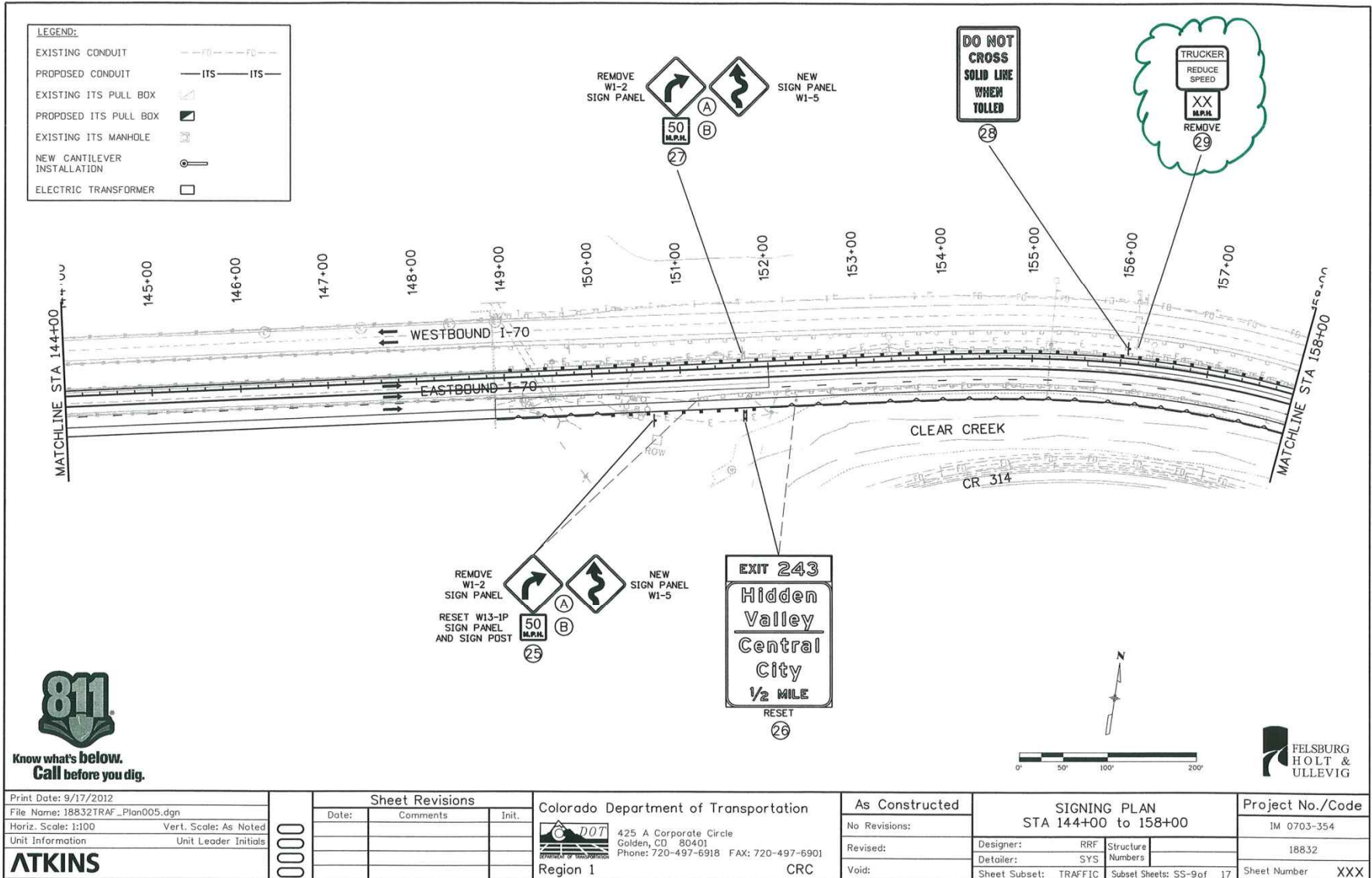
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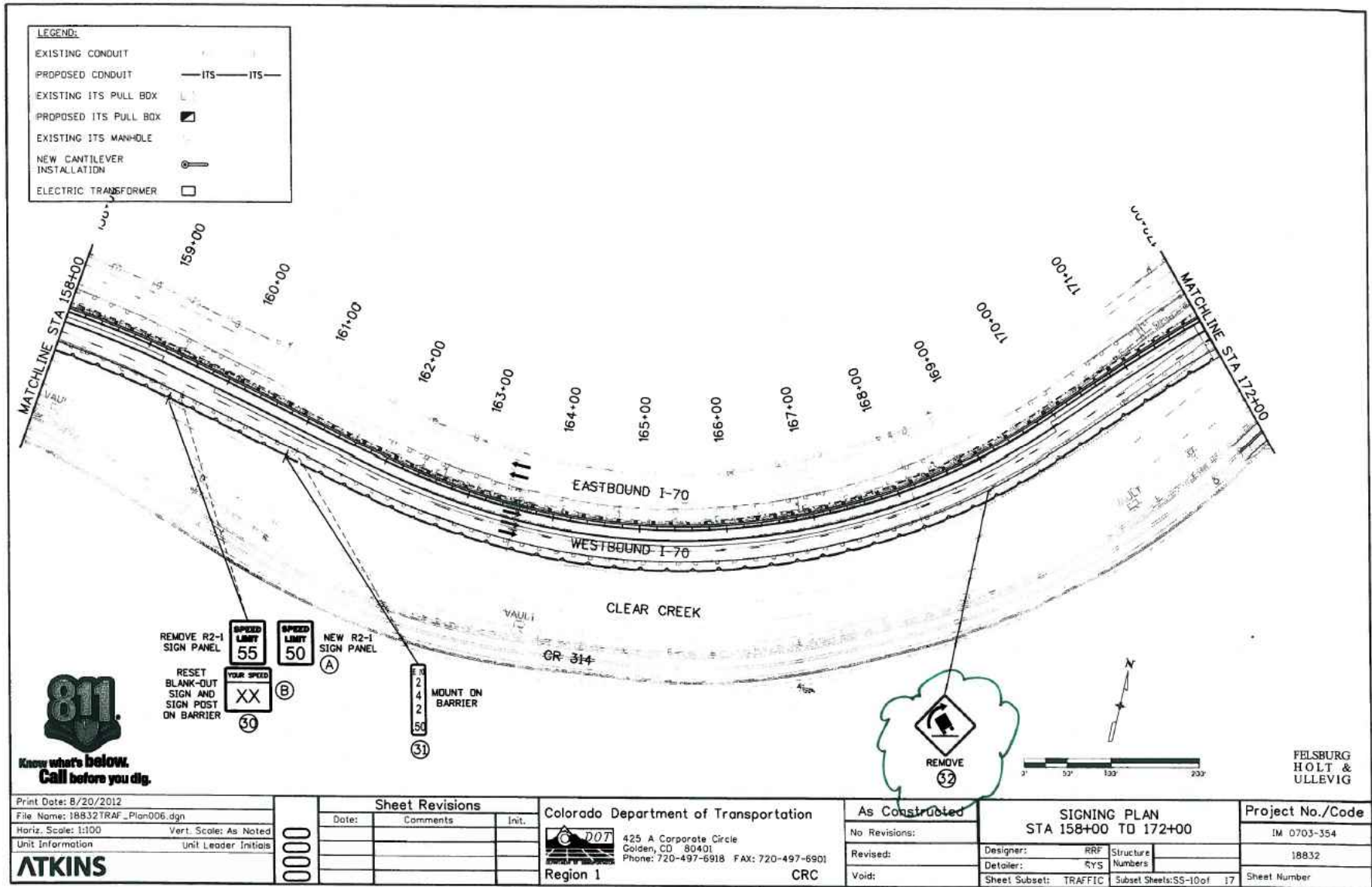
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 Region 1 CRC

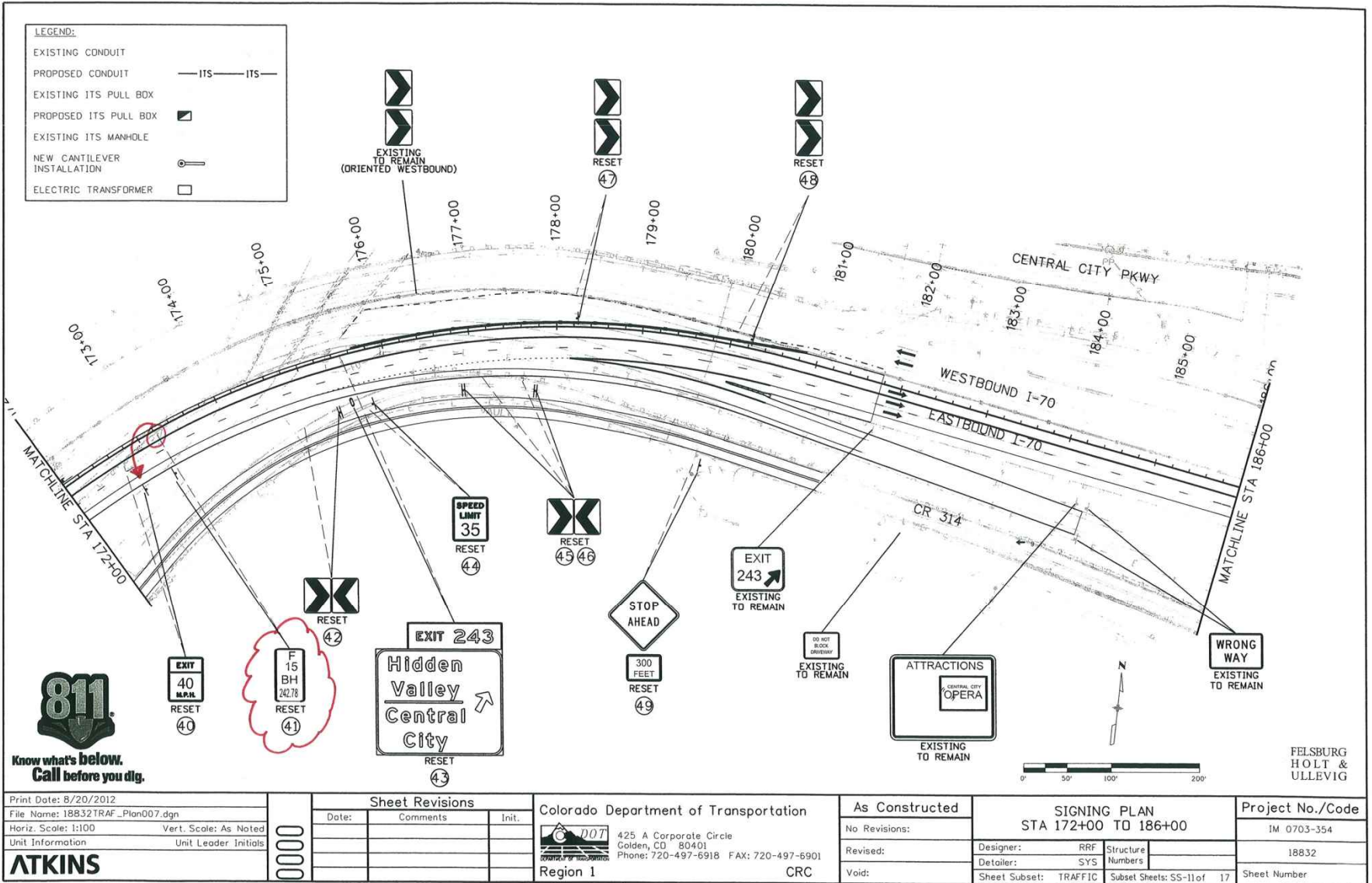
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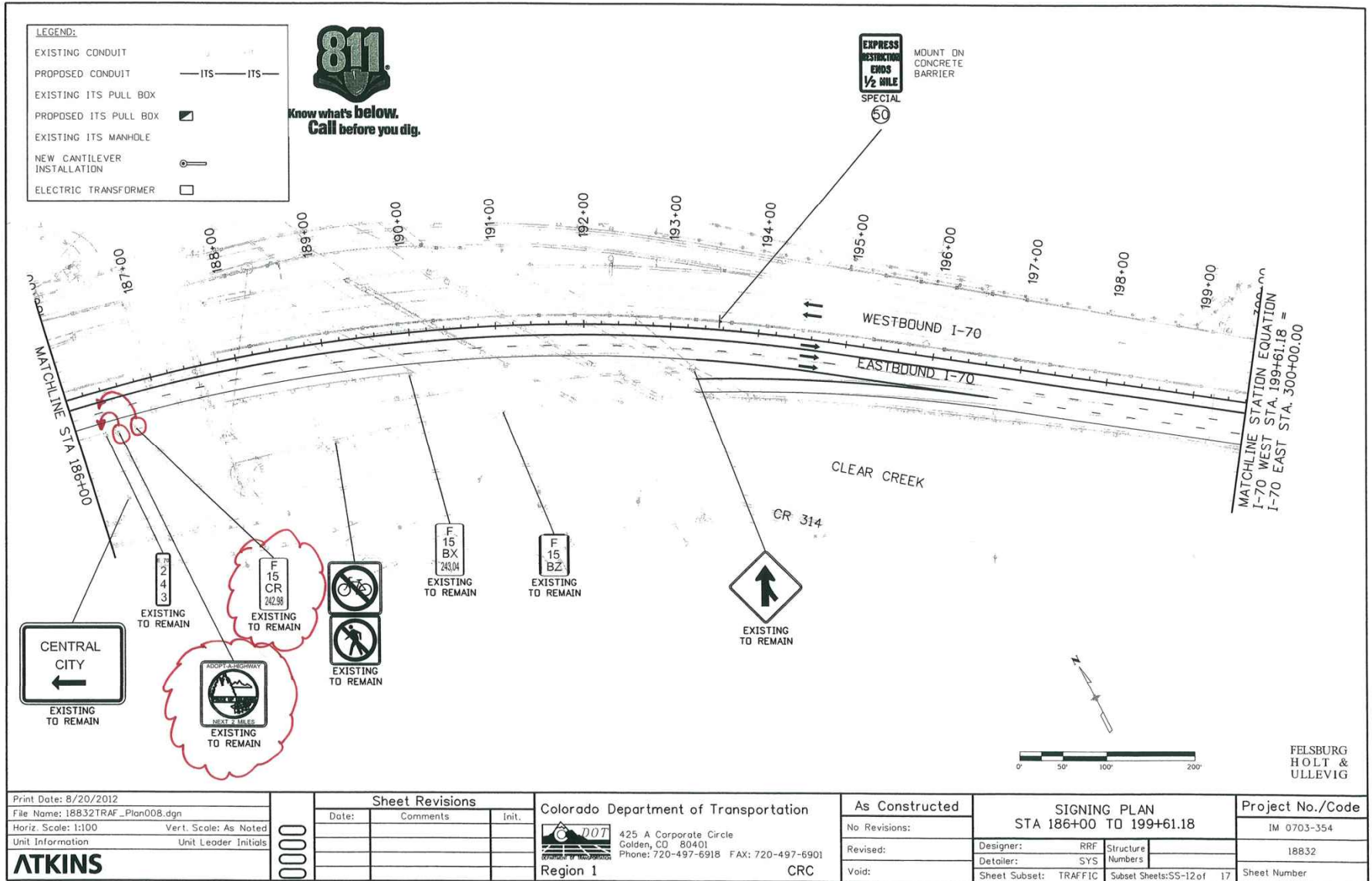
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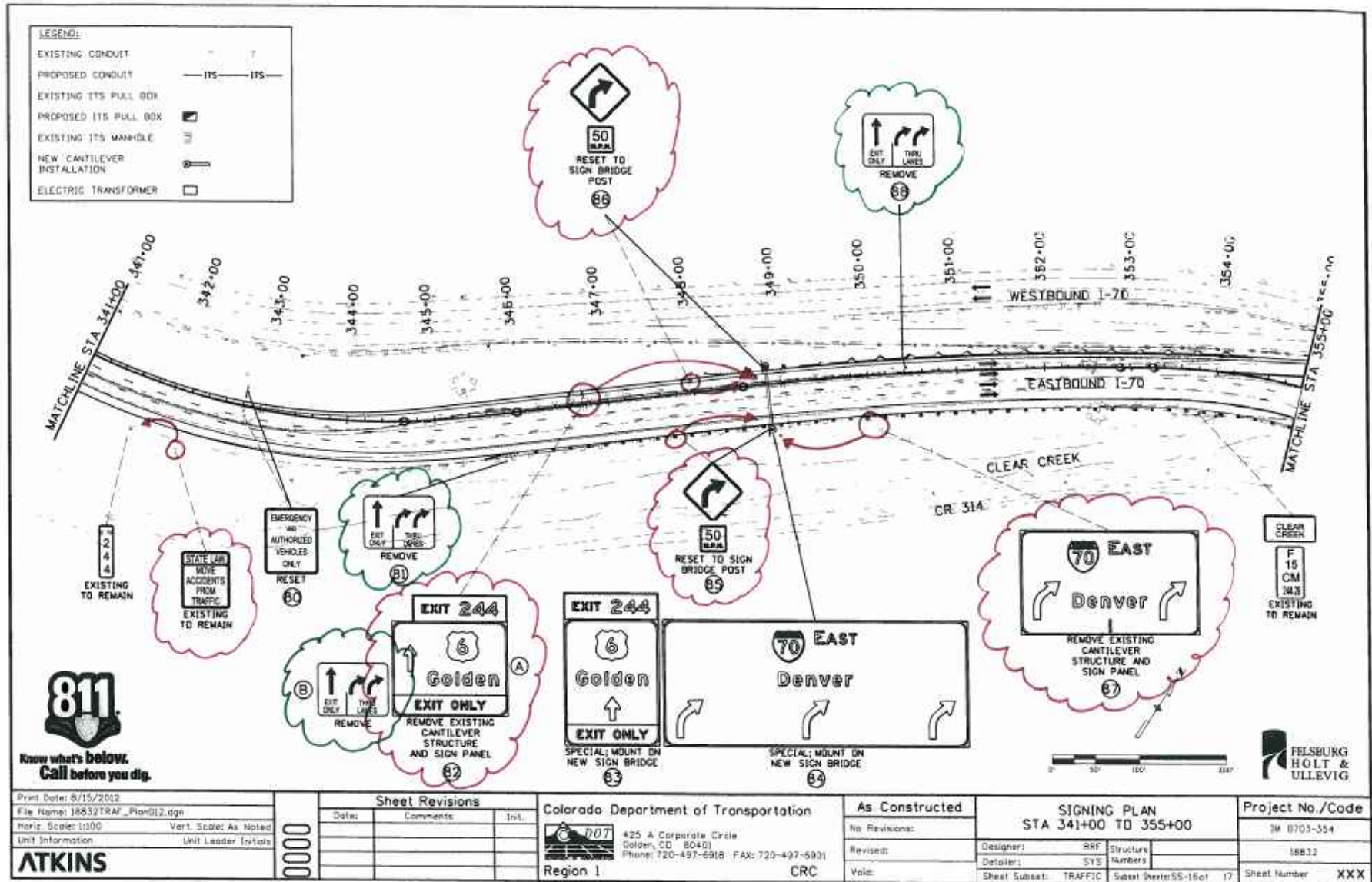
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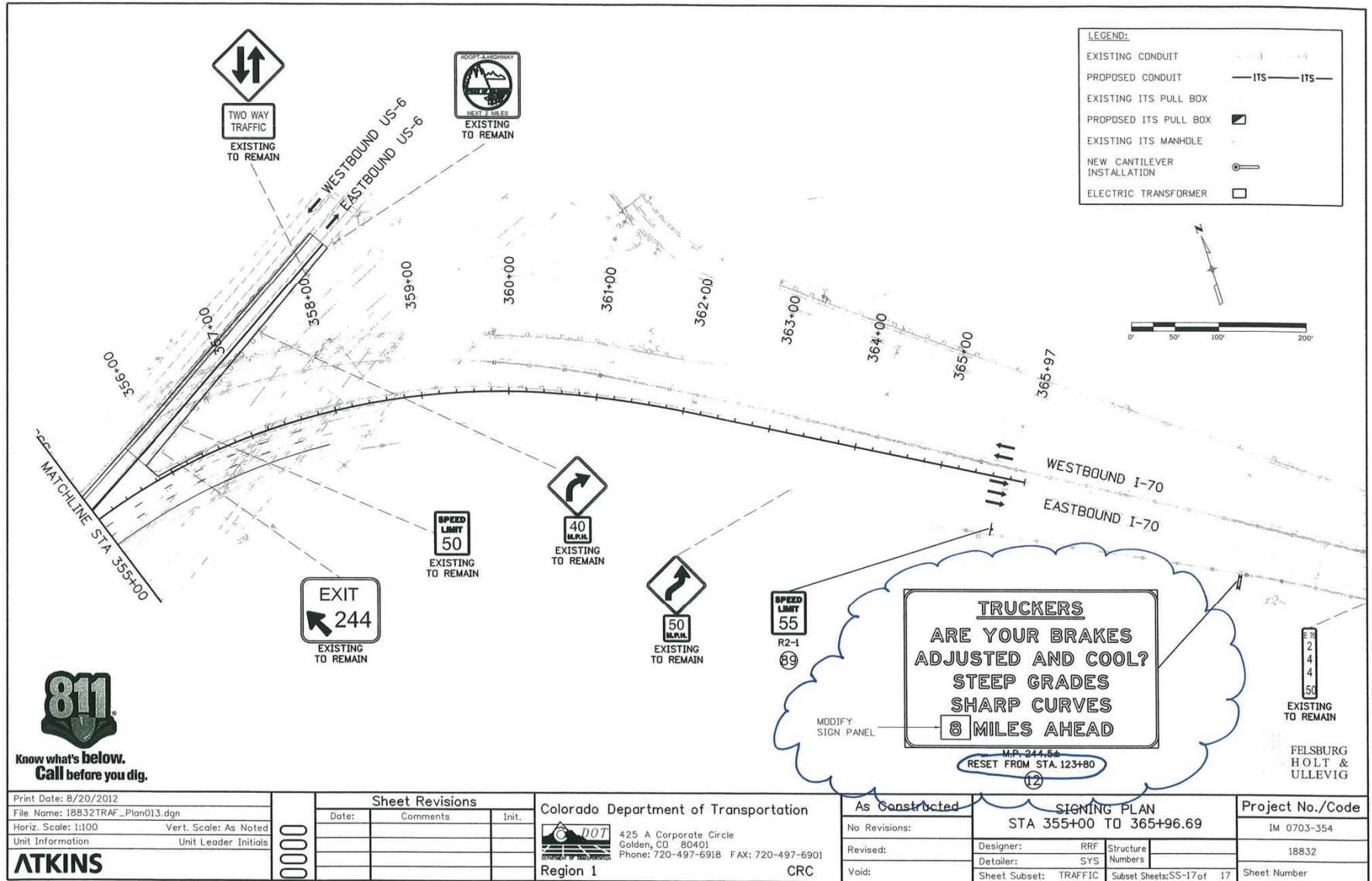
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 Region 1 CRC

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# Infrastructure in Median

- Median Barrier
- Type 3 Guard rail
- Drainage inlets and outlets
- Resetting 3 existing lights
- 3 new lights
- Wall L
- Spill control
- Water Quality pond
- Managed Lane signing
- Misc signing
- New sign bridge
- Native Grasses



# Native Grass Seed Mix

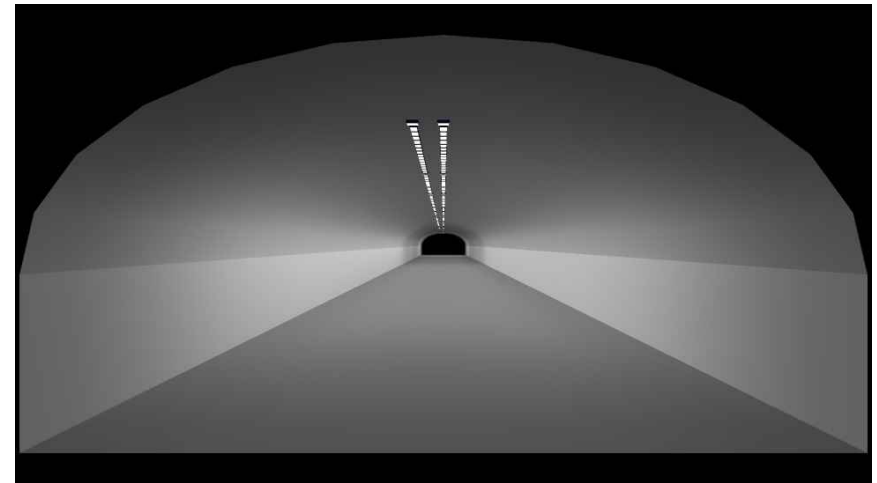
COMMON NAME	BOTANICAL NAME	LBS. PLS / ACRE
Blue grama	<i>Bouteloua gracilis</i> 'Hachita'	0.5
Arizona fescue	<i>Festuca arizonica</i> 'Redondo'	1.0
Sheep fescue	<i>Festuca ovina</i>	0.6
Canada wildrye	<i>Elymus canadensis</i>	6.2
Sandberg bluegrass	<i>Poa sandbergii</i>	0.2
Western wheatgrass	<i>Pascopyrum smithii</i> 'Rosanna'	6.5
Mountain brome	<i>Bromus marginatus</i> 'Bromar'	4.0
Prairie junegrass	<i>Koeleria macrantha</i>	0.1
Slender wheatgrass	<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i> 'Pryor'	1.0
Oats	<i>Avena sativa</i>	3.0
Blue flax	<i>Linum lewisii</i>	0.5
Rocky Mountain penstemon	<i>Penstemon strictus</i>	1.0
Yarrow	<i>Achillea millefolium</i>	0.1
Sulfur flower	<i>Eriogonum umbellatum</i>	1.0
<b>TOTAL</b>		<b>25.7</b>



# Lighting

## Roadway Lighting

- For the 3-5 reset lights and the new lights on the curve will be installed with LED luminaires
- CDOT will also have contractor replace all HPS lights in the project area with LED once a standard light is selected
- Tunnel will have two rows of center mounted LED lights
- Confirmed that CDOT maintenance policy is to do annual cleaning and replace luminaires as needed.



# Public Information

- PI Theme decision
- Outreach tasks
- PI Issues Task Force

- General Public Members?
- Idaho Springs Chamber
- Idaho Springs Visitor Center
- Georgetown Gateway Visitor Center
- Margaret Bowes, I-70 Coalition
- Peggy Stokstad, Clear Creek, Economic Development Corporation
- Winter Park / Grand County

IT'S ABOUT:TIME.



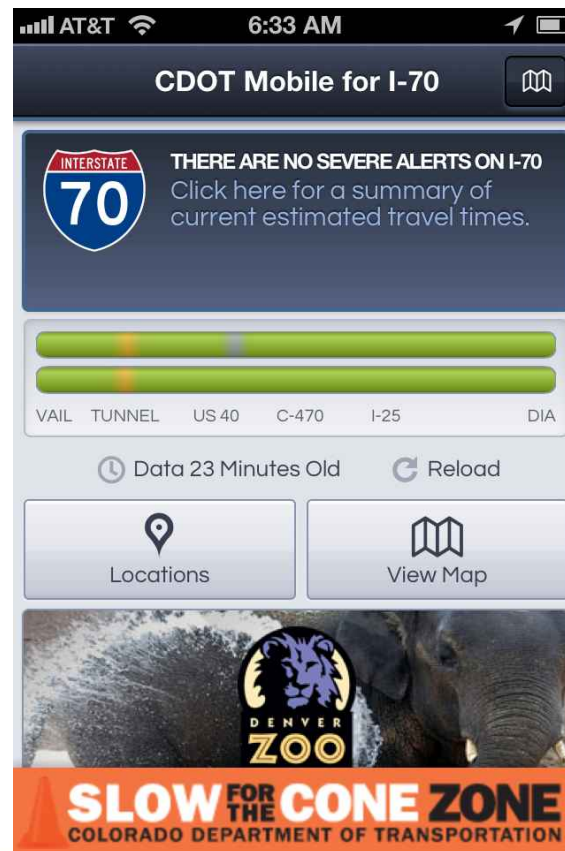
TWIN TUNNELS EASTBOUND  
Idaho Springs/Clear Creek County

- John Rice, Rafting Rep
- Mark Graybill, Georgetown Loop Railroad
- Lynette Haley, Silver Dollar District (Blackhawk)
- Central City
- Mary Jane Loevlie
- Colorado Motor Carriers rep
- DRCOG PIO
- Forest Service PIO
- Northwest COG



# Follow Up: Public Information

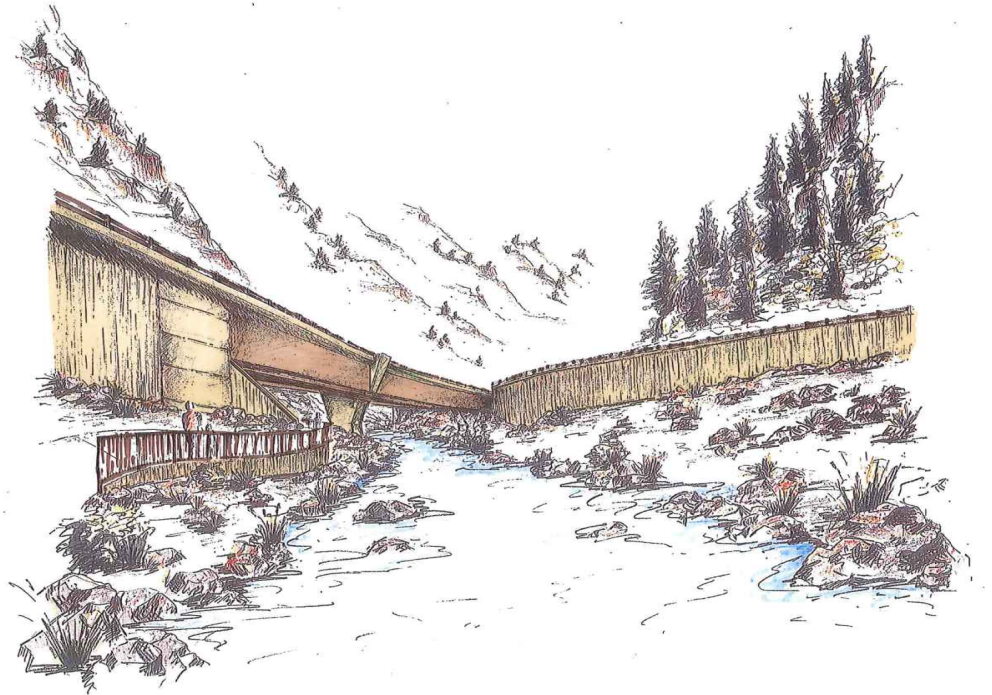
- CDOT launched new I-70 App
- [www.cotrip.mobi](http://www.cotrip.mobi)





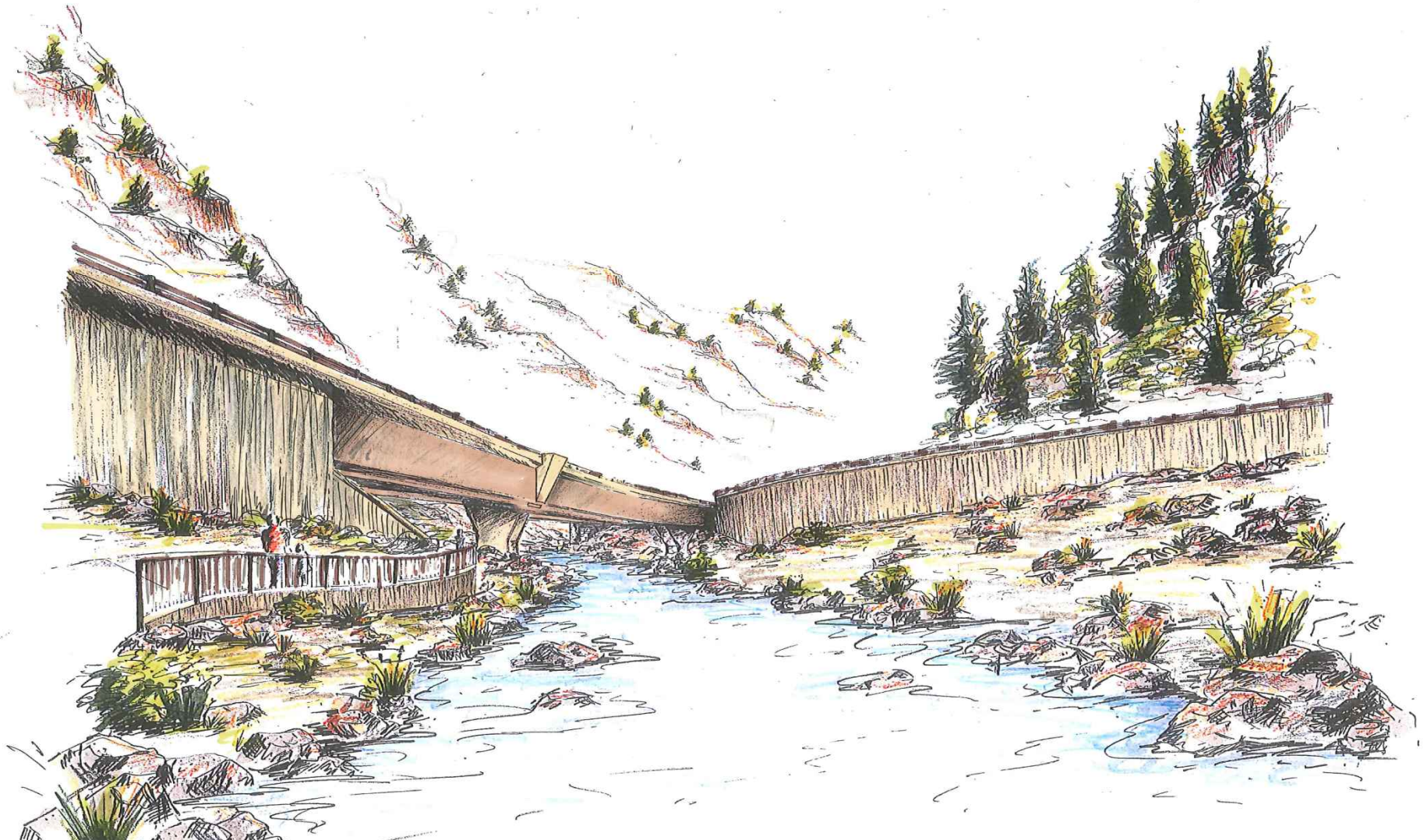
# Aesthetics Review: Bridge Area

- Bridge Structure
- Walls
- Colors
- Landscape / seeding mix
- Gap
- Future Trail

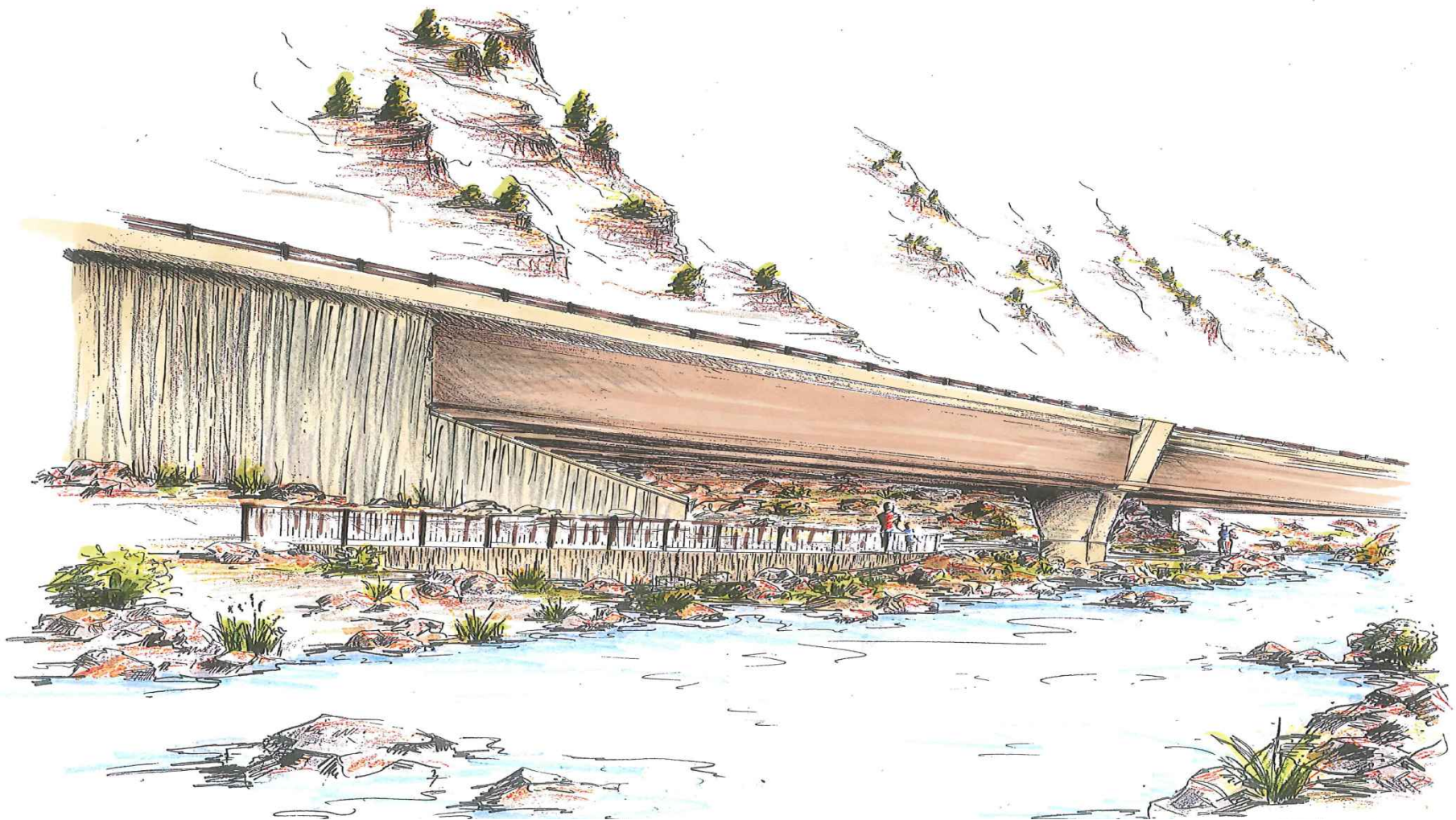


*Previous abutment wall concept*

# Aesthetics Review: Bridge Area

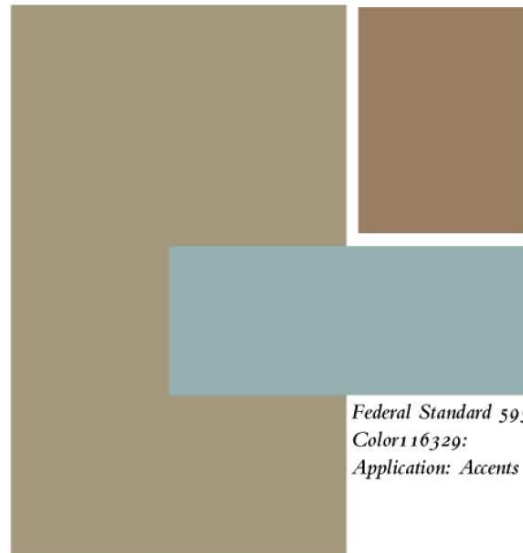


# Aesthetics Review: Bridge Area



# Aesthetics Review: Bridge Area

## Color Palette



*Federal Standard 595B  
Color: 30219  
Application: Bridge Girder*

***Federal Standard 595B  
Color: 30219  
Application: Bridge Girder***



*Federal Standard 595B  
Color 116329:  
Application: Accents*

*Federal Standard 595B Color 30372:  
Application: All road structures*



*Federal Standard 595B Color 20059:  
Application: All vertical features*

# Enhancements list review – from EA

ISSUE	Enhancement Opportunities	Activity
<i>Completion of the Phase II Frontage Road Project</i>	<ul style="list-style-type: none"> <li>Construct additional segments of the Phase II Frontage Road Project</li> </ul>	<ul style="list-style-type: none"> <li>TBD</li> </ul>
<i>Extension/enhancement of the Clear Creek Greenway</i>	<ul style="list-style-type: none"> <li>Greenway trailhead improvements at the gamecheck area</li> <li>Greenway bike path extension across the river and under the new bridge immediately west of the new Hidden Valley bridge.</li> </ul>	<ul style="list-style-type: none"> <li>Conceptual trailhead design completed. Partners convened and seeking additional funding</li> <li>Bridge designed to accommodate bike path extension</li> </ul>
<i>Fish habitat improvements in the creek bed</i>	<ul style="list-style-type: none"> <li>Additional rock/boulder placement at various locations in the creek to provide aquatic fish habitat enhancements</li> <li>Colorado Parks and Wildlife proposal to narrow the creek downstream of the dog house rail bridge and expand the wetlands area west of the narrowed creekbed.</li> </ul>	<ul style="list-style-type: none"> <li>Coordinating with CPW on additional rock/boulder placement</li> <li>Coordinating with CPW on proposal to narrow the creek and expand the wetlands</li> </ul>
<i>Barrier separation along Clear Creek Greenway</i>	<p><b>Wildlife Connectivity</b></p> <ul style="list-style-type: none"> <li>Extend bench beneath Hidden Valley Bridge with the Twin Tunnels preferred alternative as an opportunity to improve wildlife movement</li> <li>Spaces between cut walls along the frontage road in the Hidden Valley Bridge area.</li> <li>Barrier between greenway/frontage road/Clear Creek to be removed</li> <li>Frontage road preferred alternative design accommodates wildlife permeability</li> </ul>	<ul style="list-style-type: none"> <li>Bridge designed to accommodate wildlife movement</li> <li>Design allows spaces between walls near Hidden Valley Bridge.</li> <li>Pedestrian rail will be the only barrier between the greenway and creek</li> <li>Frontage road design accommodates wildlife permeability</li> </ul>



Twin Tunnels Design/Construction  
Idaho Springs/Clear Creek County



DEPARTMENT OF TRANSPORTATION

# Enhancements list review – from EA

ISSUE	Enhancement Opportunities	Activity
<i>Need to provide pathway for deer and elk under Hidden Valley bridge over Clear Creek</i>	<b>Wildlife Connectivity</b> <ul style="list-style-type: none"> <li>Extend bench beneath Hidden Valley Bridge with the Twin Tunnels preferred alternative as an opportunity to improve wildlife movement</li> <li>Spaces between cut walls along the frontage road in the Hidden Valley Bridge area</li> </ul>	<ul style="list-style-type: none"> <li>Bridge designed to accommodate wildlife movement</li> <li>Design allows spaces between walls near Hidden Valley Bridge</li> </ul>
<i>Aquatic and fish permeability and passage</i>	<b>Fish Population Monitoring</b> <ul style="list-style-type: none"> <li>As a baseline/monitoring for the Twin Tunnels and Frontage Road projects, the Colorado Parks &amp; Wildlife tentatively agrees to conduct fish survey in the fall of 2012.</li> </ul>	<ul style="list-style-type: none"> <li>CPW has a REDD survey scheduled for October 2012</li> </ul>
<i>Coordinate between the two projects (Twin Tunnels Project and I-70 Frontage Road Improvement Project) to enhance connectivity</i>	<b>Wildlife Connectivity</b> <ul style="list-style-type: none"> <li>Extend bench beneath Hidden Valley Bridge with the Twin Tunnels preferred alternative as an opportunity to improve wildlife movement</li> <li>Spaces between cut walls along the frontage road in the Hidden Valley Bridge area</li> </ul>	<ul style="list-style-type: none"> <li>Bridge designed to accommodate wildlife movement</li> <li>Design allows spaces between walls near Hidden Valley Bridge</li> </ul>
<i>Spill control</i>	<b>Spill Control</b> <ul style="list-style-type: none"> <li>Install hazardous spill containment structures at locations identified during the environmental assessment/Sediment Control Action Plan development and as part of the proposed action</li> </ul>	<ul style="list-style-type: none"> <li>One spill containment structure is being constructed</li> </ul>

# Enhancements list review – added in D/C

ISSUE	Enhancement Opportunities	Activity
Gap in bridge over Clear Creek after removal of portion of EB structure	<ul style="list-style-type: none"> <li>Provide enhanced aesthetics in bridge gap area</li> </ul>	<ul style="list-style-type: none"> <li>Design provides additional sunlight on creek between spans, seeded embankment, maintains creek wall and adds aesthetic cap on removed pillars</li> </ul>



# Next Steps

- Recap Action Items from Today's Discussion
- October 25th 9-11 Technical Team Meeting in Golden
  - Tunnel Portal
  - CR 314 cut wall fascia process
- October 25th 11-12 Technical Team Trailhead Meeting in Golden
- Upcoming meetings – only one per month:
  - » November 7<sup>th</sup> Rafting bicycling coordination meeting - 9am Dumont
  - » November 15<sup>th</sup> (3<sup>rd</sup> Thursday)
  - » December 27<sup>th</sup> (4<sup>th</sup> Thursday) – cancel or reschedule?





# END OF PRESENTATION

