

# STATE OF UTAH MSE WALL INSPECTION FORM

Compiled As Part of Research By The Utah Department of Transportation

**Instructions:**

1-Fill out required sections for MSE Wall Inspector and Wall Characteristics.

2-Inspect the wall using the attached form. Questions that require a 'Yes' answer should be documented by noting the extent of the problem in the right most column and photo documentation. Photo documentation should consist of wall or bridge number, nature of problem, date, photo number for wall, and a size reference, which should be indicated in the photo (white board/paper). Photos taken should be placed on the Top View layout and indicated with the appropriate number. Note should be taken by the inspector that often anomalies are due to construction and should be distinguished from those that are a result of post-construction. If it is observable that they existed at the time of construction note should be taken in the space provided for drawings.

3- Shoot digital photos of the entire wall. This may require the use of a variety of shots and angles on each wall to cover the wall in its entirety.

4- Indicate Layout of MSE Wall in respect to major intersections, roadways, potential hazards, irrigation, vegetation, locations of conditions for which 'Yes' was marked, etc. in space provided below. Also indicate approximate GPS Coordinates of Site of Interest in space provided below

	2		I-15, 600 ft, SLC
<b>Region</b>		<b>Identifying Road/Intersection</b>	

## MSE WALL CHARACTERISTICS

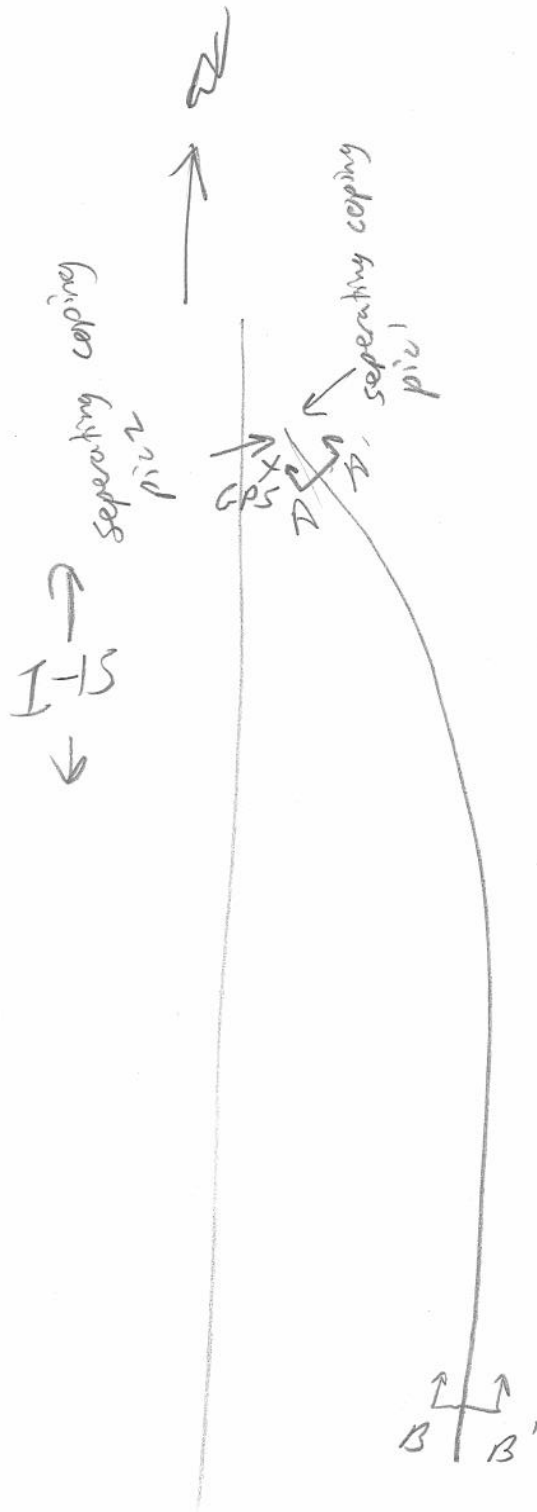
MSE Wall at Bridge	(Y) N	Bridge Number if applicable:		Wall Number	R-377-B
Surrounding Structures				Maximum Height of Wall (ft)	17 ft
Distance to Each Structure			One Stage, Two Stage or Block Wall		2-stage
State Route Number			Estimated Max Length of Wall Abutment:		170 ft
Approximate Mile Marker			Max Slope of Ground in front of wall:		0
GPS Datum	WGS/84, NAD/83, or NAD/27		Max Height of wall burial line above surrounding level ground:		20 ft
MSE Wall GPS Coordinates (Location of Measurement shown on plan view)	40°46'55.30"N 111°54'37.24"W		Please draw rough layout of panel with approximate dimensions in space provided below:		
If known, Panel or System Manufacturer	<div style="border: 1px solid black; width: 100px; height: 100px; margin: 0 auto; position: relative;"> <span style="position: absolute; top: -20px; left: 50%; transform: translate(-50%, -50%); font-size: 2em;">10'</span> <span style="position: absolute; left: -20px; top: 50%; transform: translateY(-50%); font-size: 2em;">5'</span> </div>				

SE

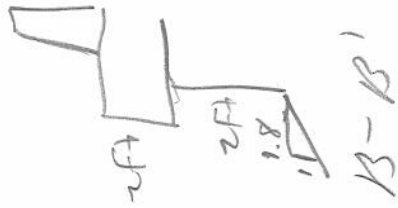
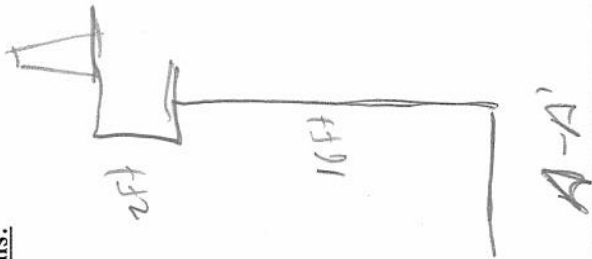
**Summary of Key Observations:**

Coping settled near bridge

Plan View/Drainage:



Cross Sections:



Cross Sections:

RISE WALL DRAINAGE

Required Item:		Yes	No	NA	UKN	Measure/Extent of Problem/Location/Photo Numbers
N/A						
1-Is there an active water source near the top of the wall (i.e. the wall near a body of water with seepage potential)?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
2-If applicable, are the catch basins at the base of the wall blocked?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
3-Are there culverts protruding through the wall?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
4-Are there vertical drains that travel through the backfill?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
5-Is there erosion at the base of the wall or leveling pad? (Photo 12)		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
6-Is there erosion along the wing wall?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
7-Are there any signs of water flow along the base of the wall?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
8-Is there less than 14 feet between irrigation sprinklers and wall?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
9-Does the backfill or joint fabric appear to be saturated?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
10-Is there vegetation growing in pond joints? (Photo 3)?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
11-Are the back drains and outlets at the top of the wall blocked? (Photo 14)		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
12-Can water enter the wall between coping and slab (i.e., drain appropiately)?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
13-Is there evidence at discharge point of fill washing through drain pipes?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

RISE WALL JOINTS

Required Item:		Yes	No	NA	UKN	Measure/Extent of Problem/Location/Photo Numbers
Long Leveling Concrete/Cure						
1-Is backfill coming out of joints or are there piles of backfill at the base of the wall? (Photos 2 & 3)		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
2-Are the joints wide enough to see fabric or backfill behind panels when looking into joints? (Photo 5) If yes, record the approximate maximum joint width in inches.		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
3-Is exposed backfill visible in the horizontal joints? (Photo 4)		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
4-Are there visible tears in the fabric? Is there evidence of backfill or water leaking through wall? (Do not include additional damage to fabric)		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
5-Do the joints have a non-uniform horizontal spacing? Are some horizontal joints larger than others? (Photo 6)		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
6-Do the joints have a non-uniform vertical spacing? Are some vertical joints larger than others? (Photo 6)		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
7-Are the joints offset at the joints either in or out of the wall? (Photo 7) If yes, record the approximate maximum offset.		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
8-Does the fabric appear brittle, or appear as if it has undergone concrete UV exposure?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

RISE WALL FACING

Required Item:		Yes	No	NA	UKN	Measure/Extent of Problem/Location/Photo Numbers
Long Leveling Concrete/Cure						
1-Is there excessive cracking in the panel?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
2-Are there cracks that combine vertically through adjacent panels? (Photos 9 & 10)? If yes, record the approximate number of panels in the wall with cracking.		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
3-Are there cracks that combine horizontally through adjacent panels? (Photos 9 & 10)? If yes, record the approximate number of panels in the wall with cracking.		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
4-Are the panel corner marking correct with each other? If yes, record the approximate number in the wall.		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
5-Are the panel corners "jagged" or clipped from contact with an adjacent panel? If yes, record the number in the wall.		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
6-Does crack spacing suggest Differential Settlement?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
7-Does the existing coping exhibit Vertical Offset?		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
8-Are the coping and panels loose or dislodged? If yes, it may be appropriate to contact UDOT if placement occurs within.		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
9-Are the panels in danger of falling off? (If potential exists contact appropriate UDOT region).		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
10-Are the panels bulging (bowing horizontally)? If so, record maximum deflection from accessible coping to leveling pad. (Photo 11)		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
11-Is there tilting at the top or bottom of the wall? (Record maximum degree of tilting from astrack using vertical level and affected area).		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

RISE TOP OF WALL OBSERVATIONS

Required Item:		Yes	No	NA	UKN	Measure/Extent of Problem/Location/Photo Numbers
Long Leveling Concrete/Cure						
1-Is there evidence of settlement at the top of the wall? ( pavement cracking, etc)		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
2-Are there any open cracks in the concrete coping (not building)? If yes record the approximate maximum crack width.		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
3-Do the connections joints in the connecting coping opened up? (Photo 6). If yes, record the maximum joint width.		Y	N	N/A	UKN	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

near bridge

Y	N	UNA	UNSN	36-Is there a large gap between the approach side and the approach pavement? (Photos 13) Or has this produced a bumping sensation as the approach is entered. Record the approximate maximum gap size.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	Y	UNA	UNSN	37-At the abutments, has the joint between the wall coping and the abutment opened up significantly? If so record maximum distance.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	Y	UNA	UNSN	38-Is the coping wall pulling away from pavement/roadway section? Please record maximum displacement for wall.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**BASE STABILITY**

Required Tests: Structural Integrity				Measurement/Extent of Problem/Location/Photo Numbers			
Y	N	UNA	UNSN	39-Has the base been depth of leveling pad? Found Cracks (Photo 14) with located 2 inches from wall to a maximum depth of 2 inches (2 inches for ASSE Walls)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	40-Is leveling pad exposed?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	41-Is there cracking in the leveling pad? If so, record maximum crack size with gauge.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	42-Is there a four foot bench (level) depth directly along the wall before the slope changes (Record width)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	43-Does a slope steeper than V:1.2 to H:1 exist in front of the wall? Please record slope and height of benchfill above top of wall.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	44-Does a slope greater than V:1.2 to H:1 below the wall? Please record slope and height of benchfill above the wall.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	45-Is there excessive degradation of ground face?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		

Too much vegetation.

0-3'

**BASE METAL CORROSION**

Required Tests: Visual Metal Corrosion (See Zip Lock Bag Test)				Measurement/Extent of Problem/Location/Photo Numbers			
Y	N	UNA	UNSN	46-Is there excessive corrosion on guardrails or other exposed metal that might indicate corrosion conditions?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	47-Are there major rust stains on the floor panels? Along joints? If so, record total number.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	48-Are any internal supports exposed? Does their appearance seem to be corrosion on these supports? If applicable please record the total number of supports.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	49-Is there any indication of rebar corrosion (swelling bars, rust, exposed metal inside epoxy coating)? If so please record the total number of panels affected.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		

**BASE IMPACT/COLLISION PROTECTION**

Required Tests: Concrete				Measurement/Extent of Problem/Location/Photo Numbers			
Y	N	UNA	UNSN	51-Are guardrails wall protrusions in place at the base of the wall (to prevent it from potential traffic bumping)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	52-Does it appear that the wall has been involved in an accident (replaced panel, recent ding in the wall)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	53-Does it appear the wall's functionality and integrity has been compromised by a collision or accident?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		

**BASE OBSTRUCTIONS IN REINFORCEMENT GEOMETRY**

Required Tests: Drawings				Measurement/Extent of Problem/Location/Photo Numbers			
Y	N	UNA	UNSN	54-Are there acute wall angles (<90°)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		

**BASE AS BUILT DIFFERENT FROM DESIGN**

Required Tests: Drawings & on-site				Measurement/Extent of Problem/Location/Photo Numbers			
Y	N	UNA	UNSN	55-Are there available drawings for the wall? Please indicate type (Situation and Layout, Design, As Built, etc.)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	56-Is the layout in general accordance with drawings?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	57-Are the panels C/P (Cast in Place) Does there appear to be excessive cracking in the panels?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	58-Was GED/Team used in the construction of the wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	59-Are there any structures on or near wall that were not included in initial drawing?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	60-Are there any impingement, obstructions, or functions that are not part of the initial drawing?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	61-Has there been any excavation or evidence of excavation near the wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	62-Have there been property owners changed the dynamics of the wall (additional structures, impingement, vegetation, etc.)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		
Y	Y	UNA	UNSN	63-Are there piles located in the wall (bridge abutment)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /		