

# 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

<b>Region</b>	~	<b>Identifying Road/Intersection</b>	I-15, 600 N, SLC
---------------	---	--------------------------------------	------------------

## MSE WALL CHARACTERISTICS

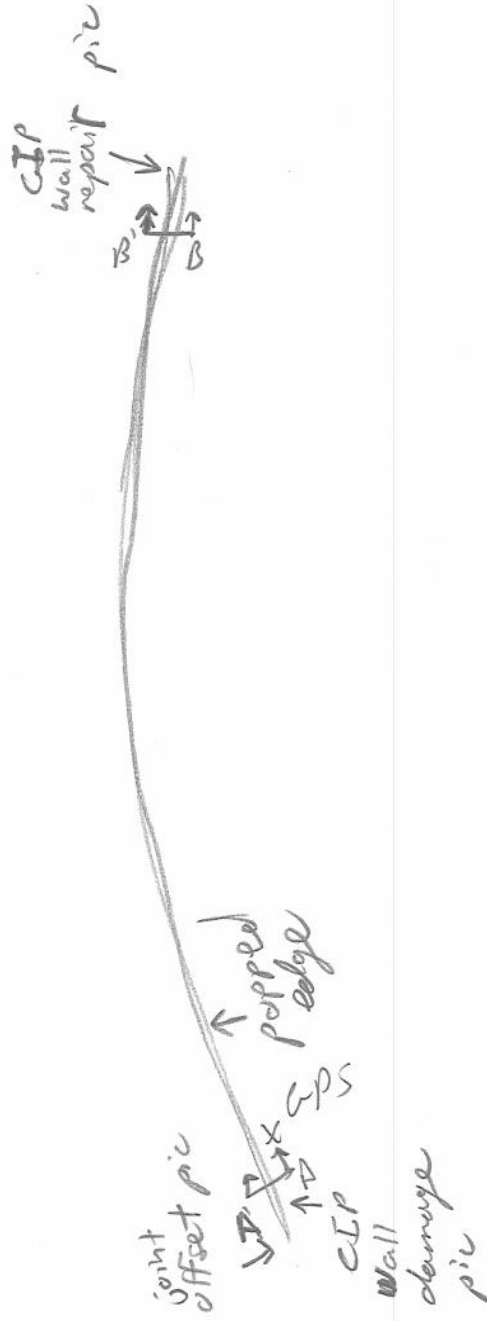
MSE Wall at Bridge	(Y) N	Bridge Number if applicable:		Wall Number	R-337-C
Surrounding Structures				Maximum Height of Wall (ft)	22ft
Distance to Each Structure			One Stage, Two Stage or Block Wall		2-stage
State Route Number			Estimated Max Length of Wall Abutment:		120 FT
Approximate Mile Marker			Max Slope of Ground in front of wall:		C
GPS Datum	WGS/84, NAD/83, or NAD/27		Max Height of wall burial line above surrounding level ground:		12ft
MSE Wall GPS Coordinates (Location of Measurement shown on plan view)	40°46'58.36"N 110°54'40.70"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: 200px; height: 100px; margin: 0 auto; position: relative;"> <span style="position: absolute; top: -20px; left: 50%; transform: translate(-50%, -50%); font-size: 24px;">10'</span> <span style="position: absolute; left: -20px; top: 50%; transform: translateY(-50%); font-size: 24px;">5'</span> </div>				

NW

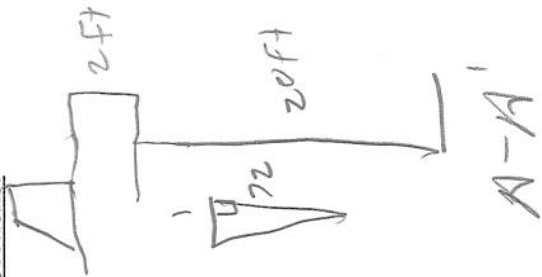
**Summary of Key Observations:**

Large chunk of concrete popped off from concrete barrier suggesting that soil is unable to support the load placed on it

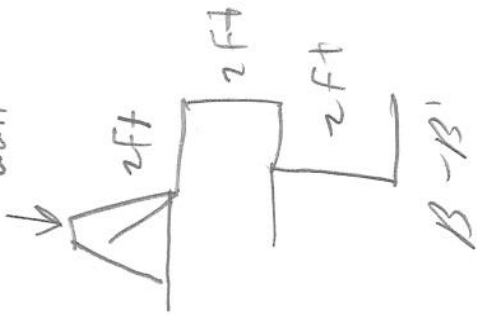
Plan View/Drainage:



Cross Sections:



CIP  
Wall



Cross Sections:

**BASE WALL DRAINAGE**

Required Tester		Long Leveling Concrete	Drainage	Measurement/Extent of Problem/Location/Photo Numbers
Yes	N/A	UKS	1-Is there an active water source near the top of the wall (if the wall were a body of water with snow possible)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	2-If applicable, are the catch basins at the base of the wall blocked?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	3-Are there culverts protruding through the wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	4-Are there vertical drains that travel through the backfill?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	5-Is there erosion at the base of the wall or leveling pad? (Photo 12)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	6-Is there erosion along the wing wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	7-Are there any signs of water flow along the base of the wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	8-Is there less than 14 feet between irrigation peripherals and wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	9-Does the backfill or joint fabric appear to be annotated?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	10-Is there vegetation growing in joint/joints (Photo 8)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	11-Are the deck drains and outlets at the top of the wall blocked? (Photo 14)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	12-Can water enter the wall between coping and slab (i.e., drain appropriately)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	13-Is there evidence of discharge point of fill washing through drain pipe?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**BASE WALL JOINTS**

Required Tester		Long Leveling Concrete	Joints	Measurement/Extent of Problem/Location/Photo Numbers
Yes	N/A	UKS	14-Is backfill coming out of joints or are there piles of backfill at the base of the wall? (Photos 2 & 3)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	15-Are the joints wide enough to see fabric or backfill behind panels when looking into joints? (Photo 2) If yes, record the approximate maximum joint width in inches.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	16-Is exposed backfill visible in the horizontal joint? (Photo 1)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	17-Are there visible tears in the fabric? Is there evidence of backfill or water leaking through wall? (Do not include additional damage to fabric)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	18-Do the joints have a non-uniform horizontal spacing? Are some horizontal joints larger than others? (Photo 6)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	19-Do the joints have a non-uniform vertical spacing? Are some vertical joints larger than others? (Photo 6)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	20-Are the panels offset at the joints either in or out of the wall? (Photo 3) If yes, record the approximate maximum offset.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	21-Does the fabric appear brittle, or appear as if it has undergone concrete UV exposure?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**BASE WALL FINISH**

Required Tester		Long Leveling Concrete	Wall Finishing	Measurement/Extent of Problem/Location/Photo Numbers
Yes	N/A	UKS	22-Are there cracks that continue vertically through adjacent panels? (Photos 9 & 10)? If yes, record the approximate number of panels in the wall with cracking.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	23-Are there horizontal cracks through adjacent panels? (Photos 9 & 10)? If yes, record the approximate number of panels in the wall with cracking.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	24-Are the panels cement making contact with each other? If yes, record the approximate number in the wall.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	25-Are the panel corners "popped-off" or chipped from contact with an adjacent panel? If yes, record the number in the wall.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	26-Does crack spacing suggest Differential Settlement?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	27-Does the overlying coping exhibit Vertical Offset?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	28-Are the coping and concrete base or detaching? If yes, it may be appropriate to contact UDOT if detachment seems imminent.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	29-Are the panels in danger of falling off? (If potential exists contact appropriate UDOT region).	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	30-Are the panels bulging (bowing horizontally)? If so, record maximum deformation from accessible coping to leveling pad. (Photo 11)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	31-Is there "flipping" at the top or bottom of the wall? (Record maximum degree of flipping from azimuth using vertical level and diffused area)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**BASE TOP OF WALL OBSERVATIONS**

Required Tester		Long Leveling Concrete	Top of Wall	Measurement/Extent of Problem/Location/Photo Numbers
Yes	N/A	UKS	32-Is there evidence of settlement at the top of the wall? (movement cracking, etc)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	33-Are there any open cracks in the concrete coping (not bedding)? If yes, record the approximate maximum crack width.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UKS	34-Do the construction joints in the remaining coping appear open? (Photo 6) If yes, record the maximum joint width.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

*popped CIP barrier pic 4*

Required Item	Issue/Defect	Observed	Assess	Measure	Location	Photo	Photo Numbers
<input checked="" type="checkbox"/>	26-Is there a large gap between the approach slab and the approach pavement? (Photo 15) Office this produces a bumping sensation as the vehicle is crossed. Record the approximate maximum gap size.	N	N/A	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
<input checked="" type="checkbox"/>	27-At the abutment, has the joint between the wall coping and the abutment opened up significantly? If so, record the approximate maximum opening.	N	N/A	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
<input checked="" type="checkbox"/>	28-Is the coping wall pulling away from pavement roadway surface? Please record maximum displacement from wall.	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**MSE STABILITY**

Required Item	Issue/Defect	Observed	Assess	Measure	Location	Photo	Photo Numbers
Y	39-What is the location depth of leveling joint? Found Geo-Probe from wall located 2 inches from wall to a maximum depth of 24 inches (24 inches in the minimum depth for MSE Wall)	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	40-Is leveling pad exposed?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	41-Is there a crack in the leveling pad? If so, record maximum crack size with page.	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	42-Is there a four foot back (level slope) directly along the wall before the slope change? (Recent Wall?)	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	43-Is there a slope steeper than V: 1.5 to H: 1 in front of the wall? Please record slope and height of backfill above top of wall.	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	44-Is there a slope greater than V: 1.5 to H: 1 below the wall? Please record slope and height of backfill below the wall.	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	45-Is there excessive degradation of post faces?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**MSE METAL CORROSION**

Required Item	Issue/Defect	Observed	Assess	Measure	Location	Photo	Photo Numbers
Y	46-Is there excessive corrosion or pitting on other exposed metal that might indicate concrete conditions?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	47-Are there major rust stains on the face panels? Along joints? If so, record total number.	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	48-Are any internal straps exposed? Does there appear to be corrosion on these straps? If applicable please record the total number of straps affected.	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	49-Was a readily visible stain of exposed soil? If so, please indicate depth in inches.	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	50-Is there any indication of other corrosion (swelling bars, rust, exposed metal inside epoxy coating)? If so, please indicate depth in inches.	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**MSE IMPACT COLLISION PROTECTION**

Required Item	Issue/Defect	Observed	Assess	Measure	Location	Photo	Photo Numbers
Y	51-Are guardrail wall protections in place at the base of the wall to prevent it from potential traffic (barrel)?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	52-Does it appear that the wall has been involved in an accident (replaced panel, recent dig in the wall)?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	53-Does it appear the walls functionality and integrity has been compromised by a collision or accident?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**MSE OBSTRUCTIONS IN REINFORCEMENT GEOMETRY**

Required Item	Issue/Defect	Observed	Assess	Measure	Location	Photo	Photo Numbers
Y	54-Are there waste wall angles (<90°)?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**MSE AS BUILT DIFFERENT FROM DESIGN**

Required Item	Issue/Defect	Observed	Assess	Measure	Location	Photo	Photo Numbers
Y	55-Is MSE as built different than design?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	56-Is there available drawing for the wall? Please indicate type (Foundation and Layout, Design, As Built, etc).	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	57-Is the layout in general accordance with drawings?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	58-Are the panels C/P (Cast in Place) Does there appear to be excessive cracking in the panels?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	59-Was C/P (Cast in Place) used in the construction of the wall?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	60-Are there any irrigation, utilities, or intrusions that are not part of the initial drawing?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	61-Have there been any excavations or evidence of excavation near the wall?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	62-Has local property owners changed the diameter of the wall (additional structures, irrigation, vegetation, etc.)?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	63-Are there piles located in the wall (bridge abutment)?	Y	N	UKS			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

*Panel replacement*