

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

Region	4	Identifying Road/Intersection	Miltford, SR-21, UPRR, east
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MSE WALL CHARACTERISTICS

MSE Wall at Bridge	(Y) N	Bridge Number if applicable:		Wall Number	R-447-B
Surrounding Structures				Maximum Height of Wall (ft)	22 Ft
Distance to Each Structure				One Stage, Two Stage or Block Wall	1-stage
State Route Number				Estimated Max Length of Wall Abutment:	155 ft
Approximate Mile Marker				Max Slope of Ground in front of wall:	1.5:1, 32°
GPS Datum	WGS/84, NAD/83, or NAD/27			Max Height of wall burial line above surrounding level ground:	13 ft

MSE Wall GPS Coordinates (Location of Measurement shown on plan view) 38° 23' 15.47" N 113° 0' 51.24" W	Please draw rough layout of panel with approximate dimensions in space provided below: <div style="text-align: center; border: 1px solid black; width: 100px; height: 100px; margin: 20px auto;"> 18" 8" </div>
If known, Panel or System Manufacturer	

Summary of Key Observations:

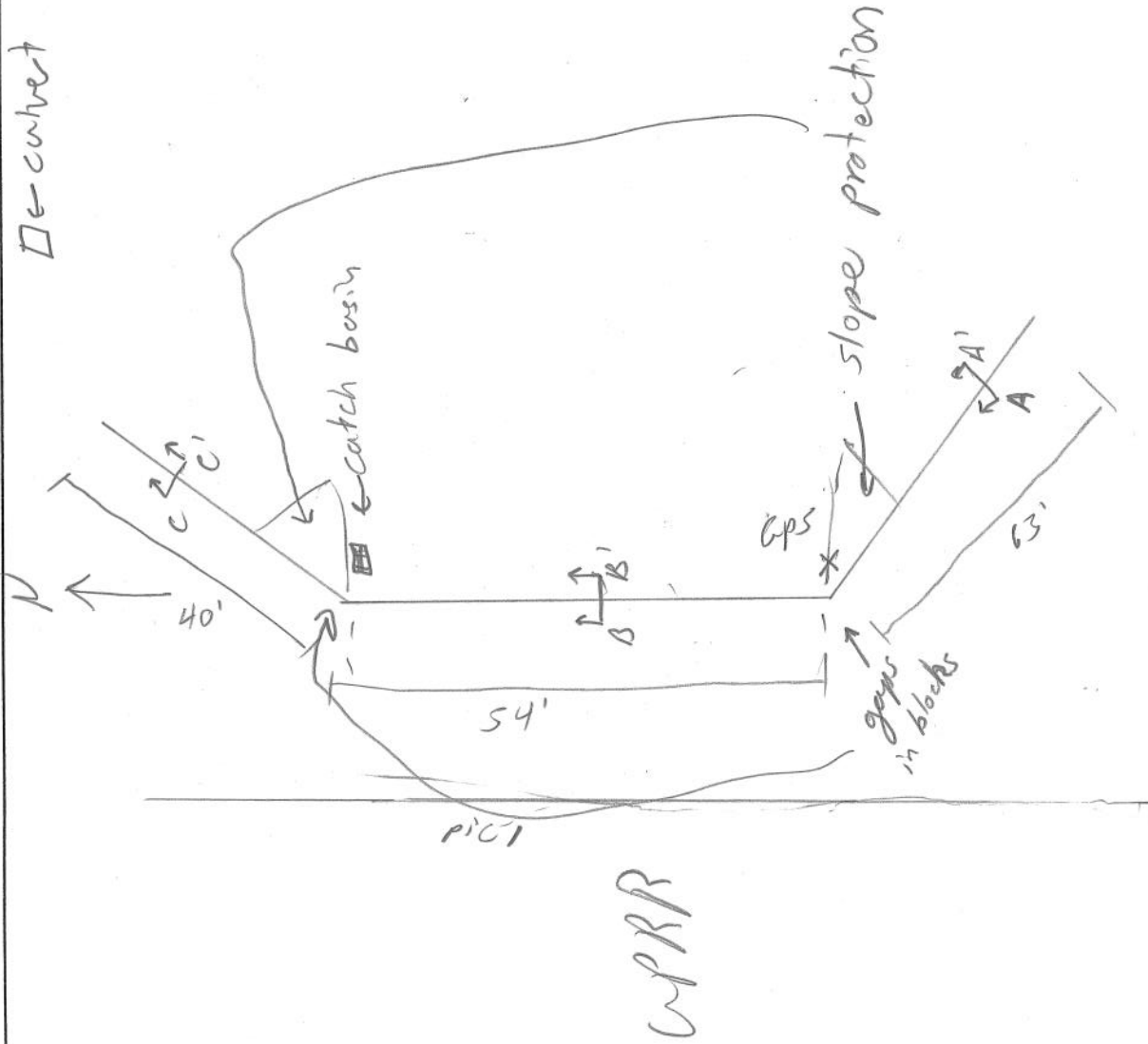
loose joints in corners
minimal slope protection

$$\begin{array}{r} 23 \\ 8 \\ \hline 264 \end{array}$$

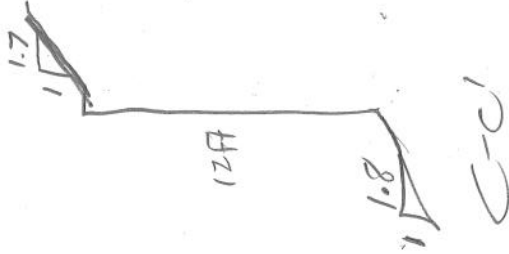
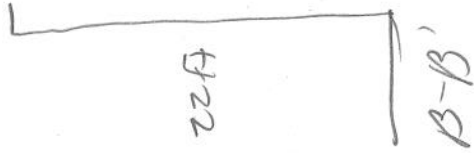
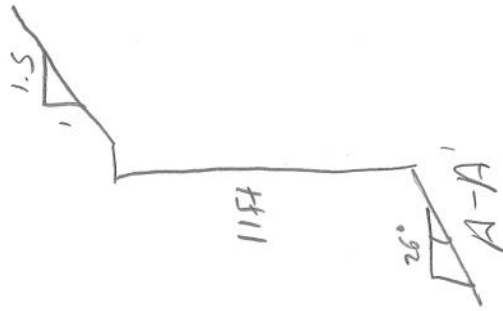
$$17 \overline{) 264}$$

$$\begin{array}{r} 22 \\ 24 \\ \hline \end{array}$$

Plan View/Drainage:



Cross Sections:



Cross Sections:

BASE WALL DRAINAGE

Required Topic	Long Level/Slung	OS-Cross	OS-Cross	Drainage	Measurement/Extent of Problem/Location/Photo Numbers
1-Is there an inlet to water source near the toe of the wall (i.e. the wall near a body of water with water present)?	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	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
3-Are there culverts protruding through the wall?	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
4-Are there vertical drains that travel through the backfill?	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
5-Is there evidence at the base of the wall of leveling pads? (Photo 12)	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
6-Is there evidence along the wing wall?	Y	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	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
8-Are there any signs of water flow between irrigation sprinklers and wall?	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
9-Does the backfill or joint fabric appear to be saturated?	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
10-Is there vegetation growing in paved joints (Photo 8)?	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
11-Are the deck drains and mold at the top of the wall blocked? (Photo 14)	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
12-Can water enter the wall between coping and deck (i.e. drain appropriately)?	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
13-Is there evidence of discharge point of fill washing through fabric pipes?	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

BASE WALL JOINTS

Required Topic	Long Level/Slung	OS-Cross	OS-Cross	Joints	Measurement/Extent of Problem/Location/Photo Numbers
14-Is backfill coming out of joints or are there piles of backfill at the base of the wall? (Photos 2 & 3)	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
15-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	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
16-Is exposed backfill visible in the horizontal joints? (Photo 3)	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
17-Are there visible tears in the fabric? Is there evidence of backfill or water backing through tears? (Do not include additional damage to fabric)	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
18-Do the joints have a non-uniform horizontal spacing? Are some horizontal joints larger/smaller than others? (Photo 5)	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
19-Do the joints have a non-uniform vertical spacing? Are some vertical joints larger/smaller than others? (Photo 6)	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
20-Are the panels offset at the joints either in or out of the wall? (Photo 7) If yes, record the approximate maximum offset.	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
21-Does the fabric appear brittle, or appear as if it has undergone excessive UV exposure?	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

MSE WALL FACING

Required Topic	Long Level/Slung	OS-Cross	OS-Cross	Wall Facing	Measurement/Extent of Problem/Location/Photo Numbers
22-Are there cracks that continue vertically to the adjacent panels? (Photos 9 & 10) If yes, record the approximate number of panels in the wall with cracking.	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
23-Are there cracks that continue vertically to the adjacent panels? (Photos 9 & 10) If yes, record the approximate number of panels in the wall with cracking.	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
24-Are there cracks that continue horizontally through adjacent panels? (Photos 9 & 10) If yes, record the approximate number of panels in the wall with cracking.	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
25-Are the panels contact making contact with each other? If yes, record the approximate number in the wall.	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
26-Are the panels contact "popped-off" or chipped from contact with an adjacent panel? If yes, record the number in the wall.	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
27-Does crack spacing suggest Differential Settlement?	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
28-Does the overlying coping exhibit Vertical Offset?	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
29-Are the coping and parapets loose or dislodged? If yes, it may be appropriate to contact LDOT if detachment seems imminent.	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
30-Are the panels in danger of falling off? (If potential, indicate contact appropriate LDOT region).	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
31-Are the panels bulging (bowing horizontally)? If so, record maximum deformation from acceptable coping to leveling pad. (Photo 11)	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
32-Is there tipping at the top or bottom of the wall? (Record maximum degree of tipping from vertical using vertical level rod affected area).	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

MSE TOP OF WALL OBSERVATIONS

Required Topic	Long Level/Slung	OS-Cross	OS-Cross	Top of Wall	Measurement/Extent of Problem/Location/Photo Numbers
33-Is there evidence of settlement at the top of the wall? (pavement cracking, etc)	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
34-Are there any open cracks in the concrete coping (not bottom)? If yes, record the approximate maximum crack width.	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
35-Is there the construction joint in the concrete coping opened up? (Photo 6). If yes, record the maximum joint width.	Y	UKN			/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

Y	N	N/A	UKN	16-Is there a large gap between the approach slab and the approach pavement? (Photo 15) Often this produces a bumping sensation as the overlap is crossed. Record the approximate maximum gap size.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	X	UKN	17-At the minimum, has the joint between the wall coping and the abutment opened up significantly? If so for wall.	/	0-No	1% <td>5% <td>10% <td>25% <td>50% <td>75% <td>90% <td>95% <td>100%</td> </td></td></td></td></td></td></td>	5% <td>10% <td>25% <td>50% <td>75% <td>90% <td>95% <td>100%</td> </td></td></td></td></td></td>	10% <td>25% <td>50% <td>75% <td>90% <td>95% <td>100%</td> </td></td></td></td></td>	25% <td>50% <td>75% <td>90% <td>95% <td>100%</td> </td></td></td></td>	50% <td>75% <td>90% <td>95% <td>100%</td> </td></td></td>	75% <td>90% <td>95% <td>100%</td> </td></td>	90% <td>95% <td>100%</td> </td>	95% <td>100%</td>	100%
Y	N	X	UKN	18-Is the coping wall pulling away from pavement/curb by accident? Please record maximum displacement for wall.	/	0-No	1% <td>5% <td>10% <td>25% <td>50% <td>75% <td>90% <td>95% <td>100%</td> </td></td></td></td></td></td></td>	5% <td>10% <td>25% <td>50% <td>75% <td>90% <td>95% <td>100%</td> </td></td></td></td></td></td>	10% <td>25% <td>50% <td>75% <td>90% <td>95% <td>100%</td> </td></td></td></td></td>	25% <td>50% <td>75% <td>90% <td>95% <td>100%</td> </td></td></td></td>	50% <td>75% <td>90% <td>95% <td>100%</td> </td></td></td>	75% <td>90% <td>95% <td>100%</td> </td></td>	90% <td>95% <td>100%</td> </td>	95% <td>100%</td>	100%

RISE STABILITY

Required Tests:	Drawings/Current/OPS	Measurement/Extent of Problems/Location/Photo Numbers	
Yes	No	UKN	Structural Integrity
Y	N	UKN	19-What is the location depth of leveling mat? Found One Probe into wall located 2 inches from wall to a maximum depth of 24 inches (24 inches is the minimum depth for MSE Wall)
Y	N	UKN	40-Is leveling pad exposed?
Y	N	UKN	41-Is there cracking in the leveling pad? If so, record maximum crack size with gage.
Y	N	UKN	42-Is there a four foot bend (level slope) directly along the wall before the slope changes? (Record Width)
Y	N	UKN	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	UKN	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	UKN	45-Is there excessive degradation of panel face?

RISE METAL CORROSION

Required Tests:	Drawings/Current/OPS	Zip Lock Bag/Insulated	Metal Corrosion	Measurement/Extent of Problems/Location/Photo Numbers										
Y	N	UKN	46-Is there excessive corrosion on garburator or other exposed metal that might indicate concrete condition?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	47-Are there major rust stains on the face panel? Along joint? If so, record total number.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	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.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	49-Do you see any signs of exposed steel? If so, please indicate depth in inches.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	50-Is there any indication of other 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%

RISE IMPACT/COLLISION PROTECTION

Required Tests:	Drawings/Current/OPS	Impact/Collision	Measurement/Extent of Problems/Location/Photo Numbers											
Y	N	UKN	51-Are guardrails wall protrusions in place at the base of the wall (to protect it from potential traffic hazard)?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	52-Does it appear that the wall has been involved in an accident (replaced panel, recess dips in the wall)?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	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%

RISE OBSTRUCTIONS IN REINFORCEMENT GEOMETRY

Required Tests:	Drawings/Current/OPS	Obstructions in Reinforcement Geometry	Measurement/Extent of Problems/Location/Photo Numbers											
Y	N	UKN	54-Are there extra wall angles (90°)?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%

RISE AS BUILT DIFFERENT FROM DESIGN

Required Tests:	Drawings/Current/OPS	NSE as built different than design	Measurement/Extent of Problems/Location/Photo Numbers											
Y	N	UKN	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	N	UKN	56-Is the layout in general accordance with drawings?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	57-Are the panels C/P (Cut in Place)? Does there appear to be excessive cracking in the panel?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	58-Was GFD/foam used in the construction of the wall?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	59-Are there any structures on or near wall that were not included in field drawings?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	60-Are there any irrigation, utilities, or foundations that are not part of the initial drawings?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	61-Have there been any excavations or evidence of excavations near the wall?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	62-Have local property owners changed the dynamics of the wall (additional structures, irrigation, vegetation, etc.)?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N	UKN	63-Are there piles located in the wall (bridge abutment)?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%

likely