

**ARIZONA DEPARTMENT OF TRANSPORTATION  
INFRASTRUCTURE DELIVERY AND OPERATIONS  
ROADWAY ENGINEERING GROUP  
ROADWAY DESIGN**

**040 YV 122 F0161 01C  
040-B(229)T**

**EARTHWORK REPORT**



Prepared By: ARIZONA DEPARTMENT OF TRANSPORTATION  
ROADWAY DESIGN SECTION A

8/19/2021

**EARTHWORK  
CALCULATION TABLE**

Calculated By: Alyssa Morrison  
Checked By: Marfida Blalock

<b>SUMMARY OF (Unadjusted) EARTHWORK</b>			
<b>Earthwork Section</b>	<b>Cut (Exc)</b>	<b>Fill (Emb)</b>	<b>Remarks</b>
Roadway	191	7329	
Pipe Excavation/Backfill	208	334	
Drainage Excavation	2		
Structural Excavation/Backfill	3	3	
Ground Compaction	n/a	502	

**EARTHWORK FACTORS**

10% Shrink  
0.1 ft Ground Compaction

**Adjustment Notes:**

- Asphaltic Concrete Milling not removed from Earthwork.
- Overexcavation is included in Roadway Excavation.

<b>EARTHWORK CALCULATION TABLE</b>				
<b>PRIMARY CALCULATIONS</b>				
<b>Shrink Not Applied</b>	<b>Exc(+)</b>		<b>Emb(-)</b>	
Roadway Excavation	191	CY		
Shrink (10%)			19	CY
Pipe Excavation	208	CY		
Shrink (10%)			21	CY
Structural Excavation	3	CY		
Shrink (10%)			0	CY
Drainage Excavation	2	CY		
Shrink				CY
Borrow (In-Place)	7467	CY		
Embankment (Inc GC)			7831	CY
Pipe Backfill *			334	CY
Structural Backfill *			3	CY
Waste			0	CY
	7871	CY	-7871	CY
			7871	CY
Check Balance	=		0	CY

**QC EARTHWORK CHECK**

Sum of Total Emb, Bf  
7834 CY

Sum of Total Shrink  
40 CY

Sum of Total Exc+Borrow  
7871 CY

Required Dirt to Balance Earthwork  
3 CY

Positive is borrow, negative is waste

\* Pipe and Structural BackFill quantities are assumed to be imported material

End Area Volume Report

Cross Section Sta A & C

Alignment Nam A

Input Grid Factc 1 Note: All units in this report are in feet, square feet and cubic yards unless specified otherwise.

Baseline Station	----- Station Quantities -----				----- Added Quantities -----					
	----- Cut -----		----- Fill -----		----- Mass -----					
	Factor	Area	Volume	Adjusted	Factor	Area	Volume	Adjusted	Factor	Ordnate
6396+50.00	1	0.02	0	0	1	4.13	0	0	1	0
6397+00.00	1	0.02	0.03	0.03	1	15.82	18.48	18.48	1	-18.45
6397+50.00	1	0.06	0.07	0.07	1	53.74	64.41	64.41	1	-82.79
6398+00.00	1	0	0.06	0.06	1	86.7	130.04	130.04	1	-212.77
6398+50.00	1	0.03	0.03	0.03	1	119.69	191.11	191.11	1	-403.85
6399+00.00	1	0.01	0.04	0.04	1	169.32	267.6	267.6		-671.41
6399+50.00	1	11.33	10.5	10.5	1	214.44	355.33	355.33		-1016.24
6400+00.00	1	3.09	13.35	13.35	1	223.58	405.57	405.57		-1408.46
6400+50.00	1	0	2.86	2.86	1	209.39	400.9	400.9		-1806.5
6401+00.00	1	0	0	0	1	180.04	360.59	360.59		-2167.09
6401+50.00	1	0	0	0	1	306.46	450.46	450.46	1	-2617.55
6402+00.00	1	1.27	1.18	1.18	1	238.2	504.31	504.31	1	-3120.68
6402+50.00	1	10.98	11.34	11.34	1	227.07	430.8	430.8	1	-3540.15
6403+00.00	1	7.33	16.95	16.95	1	194.56	390.4	390.4	1	-3913.6
6403+50.00	1	0	6.79	6.79	1	142.15	311.77	311.77	1	-4218.58
6404+00.00	1	0	0	0	1	86.34	211.56	211.56	1	-4430.14
6404+50.00	1	0	0	0	1	46.12	122.65	122.65	1	-4552.79
6405+00.00	1	0	0	0	1	18.95	60.25	60.25	1	-4613.03
6405+50.00	1	0.07	0.06	0.06	1	8.73	25.63	25.63	1	-4638.6
6406+00.00	1	0.04	0.1	0.1	1	4.27	12.04	12.04	1	-4650.54
Grand Total:			63.36	63.36			4713.89	4713.89		

Cross Section S1B  
 Alignment Nam B & D

Baseline Station	----- Station Quantities -----					----- Added Quantities -----				
	----- Cut -----			----- Fill -----			----- Mass -----			
Station	Factor	Area	Volume	Adjusted	Factor	Area	Volume	Adjusted	Factor	Ordnate
a 6452+29.34	1	0.51	0	0	1	2.31	0	0	1	0
a 6452+50.00	1	0.01	0.2	0.2	1	3.33	2.16	2.16	1	-1.96
a 6453+00.00	1	0.04	0.04	0.04	1	5.63	8.29	8.29	1	-10.2
a 6453+50.00	1	0.06	0.1	0.1	1	9.91	14.38	14.38	1	-24.49
a 6454+00.00	1	0.03	0.08	0.08	1	22.93	30.4	30.4	1	-54.82
a 6454+50.00	1	0	0.03	0.03	1	54.55	71.74	71.74	1	-126.53
a 6455+00.00	1	4.33	4.01	4.01	1	5.79	55.87	55.87	1	-178.39
a 6455+50.00	1	0	4.02	4.02	1	58.08	59.14	59.14	1	-233.51
a 6456+00.00	1	11.93	11.05	11.05	1	168.87	210.13	210.13	1	-432.59
a 6456+50.00	1	3.94	14.69	14.69	1	175.36	318.73	318.73	1	-736.63
a 6457+00.00	1	0.11	3.75	3.75	1	155.42	306.28	306.28	1	-1039.16
a 6457+50.00	1	0	0.1	0.1	1	133.14	267.19	267.19	1	-1306.25
a 6458+00.00	1	1.68	1.55	1.55	1	144.61	257.18	257.18	1	-1561.87
a 6458+50.00	1	6.51	7.58	7.58	1	138.35	262	262	1	-1816.28
a 6459+00.00	1	28.98	32.86	32.86	1	139.23	257.01	257.01	1	-2040.43
a 6459+50.00	1	0.03	26.86	26.86	1	102.54	223.86	223.86	1	-2237.43
a 6460+00.00	1	0.29	0.29	0.29	1	49.06	140.37	140.37	1	-2377.51
a 6460+50.00	1	1.22	1.4	1.4	1	24.39	68.01	68.01	1	-2444.12
a 6461+00.00	1	1.8	2.8	2.8	1	13.72	35.29	35.29	1	-2476.62
a 6461+50.00	1	3.8	5.19	5.19	1	5.58	17.87	17.87	1	-2489.3
a 6462+00.00	1	3.91	7.14	7.14	1	2.18	7.18	7.18	1	-2489.34
a 6462+29.34	1	3.39	3.97	3.97	1	0.81	1.63	1.63	1	-2487
Grand Total:			127.72	127.72			2614.72	2614.72		
Total			191.08				7328.61			

**GROUND COMPACTION**

Project Name: E SELIGMAN TI OP EB/WB  
 Project Number: 040 YV 122 F0161 01C  
 TRACS: F0161 01C

Date Created: 10/22/2020  
 Date Revised: 10/22/2020  
 Checked By: Jordan Kurlin  
 Designed By: Marfida Blalock

Ground Compaction 0.10 ft

**Left Side Ground Compaction**

STATION	FILL LENGTH FT	FILL WIDTH FT	FILL AREA SF	FILL VOLUME C.Y	TOTAL VOLUME C.Y
6396+50.00	0	0	0.0	0.0	0.0
6397+00.00	50	0	0.0	0.0	0.0
6397+50.00	50	2.74	0.3	0.3	0.3
6398+00.00	50	5.52	0.6	0.8	1.0
6398+50.00	50	8.01	0.8	1.3	2.3
6399+00.00	50	3.51	0.4	1.1	3.3
6399+50.00	50	5.72	0.6	0.9	4.2
6400+00.00	50	4.07	0.4	0.9	5.1
6400+50.00	50	3.44	0.3	0.7	5.8
6401+00.00	50	5.27	0.5	0.8	6.6
6401+50.00	50	4.52	0.5	0.9	7.5
6402+00.00	50	4.52	0.5	0.8	8.3
6402+50.00	50	5.08	0.5	0.9	9.2
6403+00.00	50	7.03	0.7	1.1	10.4
6403+50.00	50	6.85	0.7	1.3	11.6
6404+00.00	50	4.39	0.4	1.0	12.7
6404+50.00	50	0	0.0	0.4	13.1
6405+00.00	50	0	0.0	0.0	13.1
6405+50.00	50	0	0.0	0.0	13.1
6406+00.00	50	0	0.0	0.0	13.1
6452+29.34	0	0	0.0	0.0	0.0
6452+50.00	20.66	0	0.0	0.0	0.0
6453+00.00	50	0	0.0	0.0	0.0
6453+50.00	50	0	0.0	0.0	0.0
6454+00.00	50	0	0.0	0.0	0.0
6454+50.00	50	3.29	0.3	0.3	0.3
6455+00.00	50	0	0.0	0.3	0.6
6455+50.00	50	5.49	0.5	0.5	1.1
6456+00.00	50	3.47	0.3	0.8	1.9
6456+50.00	50	6.46	0.6	0.9	2.9
6457+00.00	50	7.36	0.7	1.3	4.1
6457+50.00	50	8.59	0.9	1.5	5.6
6458+00.00	50	8.91	0.9	1.6	7.2
6458+50.00	50	9.06	0.9	1.7	8.9
6459+00.00	50	8.3	0.8	1.6	10.5
6459+50.00	50	6.63	0.7	1.4	11.9
6460+00.00	50	0	0.0	0.6	12.5
6460+50.00	50	0	0.0	0.0	12.5
6461+00.00	50	0	0.0	0.0	12.5
6461+50.00	50	0	0.0	0.0	12.5
6462+00.00	50	0	0.0	0.0	12.5
6462+29.34	29.34	0	0.0	0.0	12.5
					<b>270.9</b>

**Right Side Ground Compaction**

STATION	FILL LENGTH FT	FILL WIDTH FT	FILL AREA SF	FILL VOLUME C.Y	TOTAL VOLUME C.Y
6396+50.00	0	0	0.0	0.0	0.0
6397+00.00	50	0	0.0	0.0	0.0
6397+50.00	50	0	0.0	0.0	0.0
6398+00.00	50	1.48	0.1	0.1	0.1
6398+50.00	50	5.26	0.5	0.6	0.8
6399+00.00	50	7.04	0.7	1.1	1.9
6399+50.00	50	5.24	0.5	1.1	3.0
6400+00.00	50	4.07	0.4	0.9	3.9
6400+50.00	50	3.44	0.3	0.7	4.6
6401+00.00	50	5.27	0.5	0.8	5.4
6401+50.00	50	4.52	0.5	0.9	6.3
6402+00.00	50	4.52	0.5	0.8	7.1
6402+50.00	50	5.08	0.5	0.9	8.0
6403+00.00	50	4.38	0.4	0.9	8.9
6403+50.00	50	6.85	0.7	1.0	9.9
6404+00.00	50	0	0.0	0.6	10.6
6404+50.00	50	0	0.0	0.0	10.6
6405+00.00	50	0	0.0	0.0	10.6
6405+50.00	50	0	0.0	0.0	10.6
6406+00.00	50	0	0.0	0.0	10.6
6452+29.34	0	0	0.0	0.0	0.0
6452+50.00	21	0	0.0	0.0	0.0
6453+00.00	50	0	0.0	0.0	0.0
6453+50.00	50	0	0.0	0.0	0.0
6454+00.00	50	0	0.0	0.0	0.0
6454+50.00	50	0	0.0	0.0	0.0
6455+00.00	50	0	0.0	0.0	0.0
6455+50.00	50	5.49	0.5	0.5	0.5
6456+00.00	50	3.47	0.3	0.8	1.3
6456+50.00	50	6.46	0.6	0.9	2.3
6457+00.00	50	7.36	0.7	1.3	3.5
6457+50.00	50	8.59	0.9	1.5	5.0
6458+00.00	50	8.91	0.9	1.6	6.6
6458+50.00	50	9.16	0.9	1.7	8.3
6459+00.00	50	8.3	0.8	1.6	9.9
6459+50.00	50	4.35	0.4	1.2	11.1
6460+00.00	50	0	0.0	0.4	11.5
6460+50.00	50	0	0.0	0.0	11.5
6461+00.00	50	0	0.0	0.0	11.5
6461+50.00	50	0	0.0	0.0	11.5
6462+00.00	50	0	0.0	0.0	11.5
6462+29.34	29	0	0.0	0.0	11.5
					<b>230.6</b>

**Total Ground Compaction 502.0**