APPENDIX B
Site survey plans

Table B.1. Summary of data acquisition for the Siskiyou Pass Site.

Survey	6/1/2023	10/2023	6/2024	11/2024	10/2025
GNSS	Leica GS14 base and rover. GNSS for all scans.				
GCPS	None				
Targets	None				
Total Station	None				
Scanner	Leica P50				
GNSS Mount	0.1175 m				
Scan Resolution	(1) 360° scan (6.3mm@10 m ~2 min) without images (2) Focused ~180° scan at higher resolution on cliff with photographic images (0.02 m @100 m sampling ~12 min).				
Scan Range Mode	270 m. At a few locations in the center with a wide viewpoint of the site a 570 m range scan (6.3 mm at 10 m) was used in place of scan (1).				
#Scan Locations	11	12	12	8	11
Scan Spacing	~45 m	~45 m	~45 m	~45 m	~45 m
Issues encountered	Parked trucks obscure cliff in some localized areas. Unsafe to set up targets and GCPs given high traffic levels and trucks pulling out.				

Table B.2. Summary of data acquisition for the Green Spring (OR66 MP13) field site.

Survey	5/31/2023	10/12/2023	4/2024	10/2024	10/2025
GNSS	Leica GS14 base and rover. GNSS for most scans.				
GCPS	None.				
Targets	None				
Total Station	None				
Scanner	RTC360 + P50	RTC360			
GNSS Mount	Prototype, 3D printed mount (offset ~0.09 m)	Aluminum mount, offset (0.1125 m)			
Scan Resolution	High resolution 360° scan (Resolution Setting = 3.1 mm@10m ~3 min) with images. Periodic medium resolution scans with the RTC360.				
Scan Range Mode	65 (high)-130 (medium) m*				
#Scans	39	36	34	40	35
Scan Spacing	~30 m	~30 m	~35 m	~30 m	~35 m
Issues encountered	Unsafe to set up targets and GCPs given limited road width.				

**Note that for the first survey a few P50 scans were completed at the start and end points of the survey primarily in order to verify the offset height for the prototype GNSS mount. These were not completed on the other surveys.*

Table B.3. Summary of data acquisition for Yellow Jacket Creek field site.

Survey	2017	2018	2022	2023	2024	2025
GNSS	Leica GS14 base and rover. GNSS for all scans.		Leica GS18	Leica GS14 base and rover. GNSS for all scans.		
GCPS	5 GCPs. GNSS +TS		TS only	TS only		
Targets	Clipboard, 1.428 m and 2.120 m pole targets					
Total Station	1 setup.					
Measurement Mode	Single measurements typically			10 direct/10 reverse- prism. 1 direct/1reverse target.	None	10 direct/10 reverse- prism. 1 direct/1reverse target.
Scanner	Leica P50	Leica P50	Leica P50	RTC360 + Leica P50		
GNSS mount	0.1175 m	0.1175 m	0.1175 m	Aluminum mount RTC: 0.1125 m P50: 0.1175 m		
Scan Resolution	0.015 m @50 m	0.015 m @50 m	0.02 m @50 m	RTC360: Medium resolution (6.3 mm @10 m). P50: 0.02 m @50 m		
Scan Range Mode	270 m		120 m	RTC360: 130 m P50: 270 m		
#Scans	11	13	12	28	9	24
Scan Spacing	~35 m	~30 m	~33	~14 m	~49 m	~15
Issues encountered	N/A	N/A	N/A	N/A	Only P50 scans. Weather conditions were poor so the total station work was not completed.	RTC360 scans were high resolution (3.1 mm @ 10 m).

Table B.4. Summary of data acquisition for Eddyville field site.

Survey	01/2013	05/2013	2017	2018	8/2022	10/2023	10/2024	10/2025
GNSS	ORGN GNSS rover		Base station, rover for each scan					
GCPS	None		5 GCPs.					
Targets	None		Clipboard, 1.428 m and 2.120 m pole targets					
Total Station	None		1 setup.		No total station	1 incomplete setup	1 setup	1 setup
Measurement Mode	N/A		Single measurements typically		N/A	N/A	10 direct/10 reverse- prism. 1 direct/1reverse target.	
Scanner	Riegl VZ-400		Leica P50			RTC360		
GNSS mount	0.29 m		0.1175 m			0.1125 m (aluminum mount)		
Scan Resolution	0.02 m @50 m	0.02 m @50 m	0.015 m @50 m	0.015 m @50 m	0.02 m @50 m	Mix of medium and high resolution (2 H, 1 M, 2 H, 1 M, etc.)		
Scan Range Mode	400 m	400 m	270 m*	270 m*	120 m*	130 m (medium), 65 m (high)		
#Scans	11	14	5	7	11	22	30	21
Scan Spacing	~50 m	~35 m	~30 m	~26 m	~30 m	~15 m	~11 m	~16 m
Issues encountered	* a few unstable setups identified. Data transformed from NAD83(CORS96) to NAD83(2011)		GCPs repeated given measurements originally obtained on the outside of mark.		No total station acquired.	Hardware failure with total station.		

Table B.5. Summary of data acquisition for SR14 MP73 field site.

Survey	2/2022	8/2022	10/2023	10/2024	10/2025
GNSS	Leica GS18 base + rover		Leica GS14 base + rover		
GCPS	None	25 GCPs.			
Targets	None	Clipboard, 1.428 m and 2.120 m pole targets			
Total Station	None	1 setup			
Measurement Mode	N/A	Single measurements typically.	10 direct/10 reverse- prism. 1 direct/1 reverse reflectorless on targets.		No Total Station.
Scanner	Maptek LR3	Leica P50	RTC360		Leica P50 + RTC360
GNSS mount	RAPID	N/A	0.1125 m (aluminum mount)		
Scan Resolution	0.025°	0.02 m @50 m	Medium resolution (6.3 mm @10 m)		Medium resolution (6.3 mm @10 m) + High resolution (3.1 mm @ 10 m) Pattern of MMHMMH P50: 0.02 m @50 m
Scan Range Mode	500 m	270 m	130 m		130 m, 120 m
#Scans	11	15	39	49	51
Scan spacing	~60 m	~45 m	~17m	~15 m	~15 m
Issues encountered		No GNSS on scans.	N/A	N/A	Total station had incorrect lens configuration.