Learning Objectives, Design Criteria, Deliverables

Monday, April 8, 2024 1:48 PM

Instructions

This homework assignment requires you to design and draw a hiker/bike trail from point A to B (see next page).

The trail alignment must not extend outside of the limits shown by the red line.

Design Criteria

1. The trail shall be 8 feet (2.4 m) wide.
2. The desired grade of the trail is between 3 to 6 percent
3. The maximum grade of the trail shall not exceed 10 percent
4. The trail must have a 2 percent crown at its center to accommodate drainage
5. Ditches are required on the upslope side of the trail
6. Switchbacks curves shall have a minimum radius of 20 feet.
7. Maximum steepness of cut slope is 2H:1V
8. Maximum steepness of fill slope is 2H:1V

Deliverables

1. Plan view that includes satellite image, trail alignment and contour lines.
2. Plan view that shows trail alignment with contours and without the satellite image.
3. Profile grade line for the trail alignment.

Submit these pdf files to canvas.

Planview1.pdf
Planview2.pdf
Profile grade line.pdf

Useful information

https://www.fs.usda.gov/managing-land/trails/trail-management-tools/trailplans

Project Limits

Monday, April 8, 2024 1:48 PM

Instructions

This homework assignment requires you to design and draw a hiker/bike trail from point A to B (Fig. 1). The trail alignment must not extend outside of the limits shown by the red line.

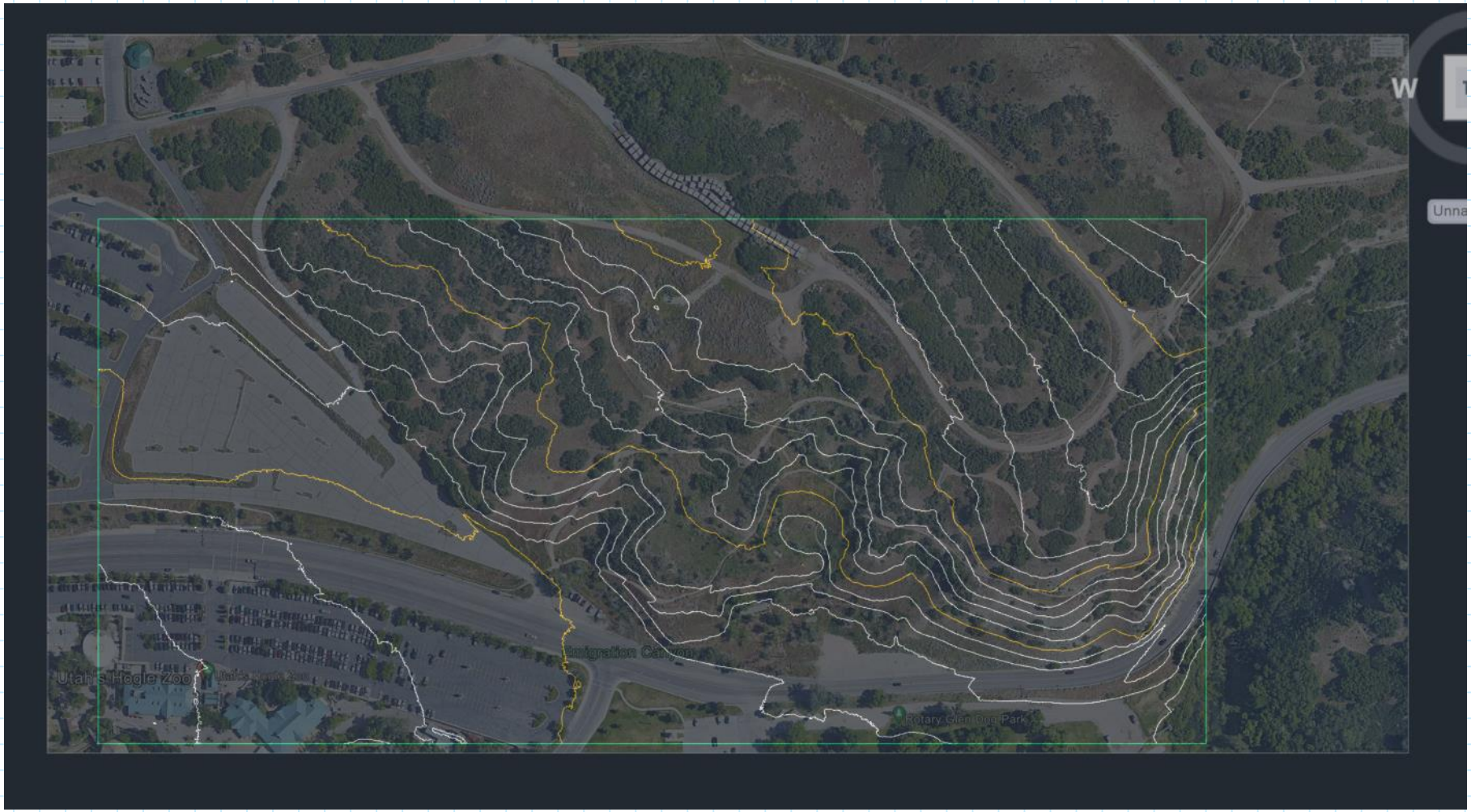
https://slco.org/assessor/new/ParcelViewer/index.html?query=Parcel_Viewer_external_3634_5,parcel_id

Trail Design - Civil 3D Drawing File - Merging files

Monday, April 8, 2024 2:48 PM

Design Inputs

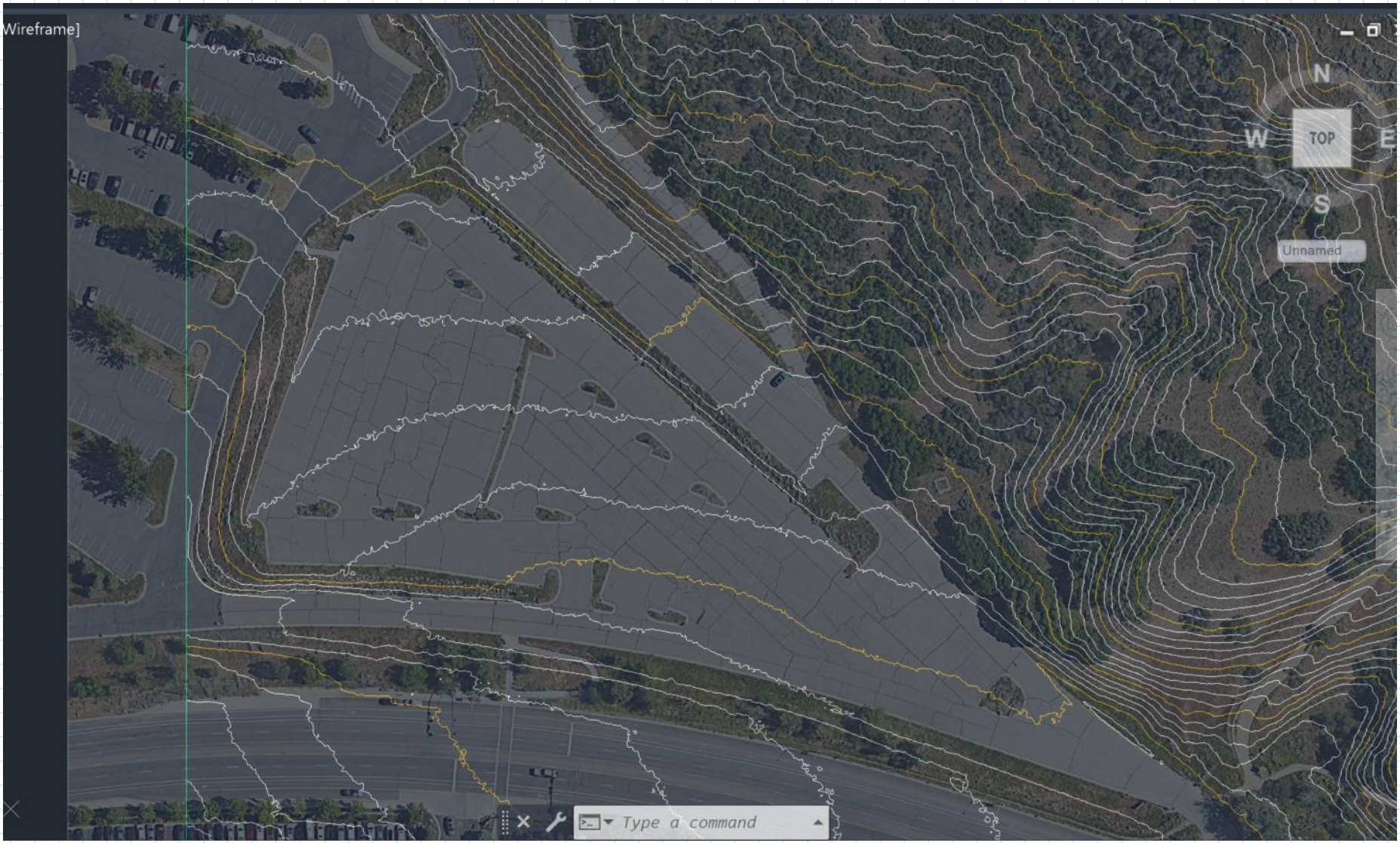
1. The file zoo.dwg is found in Canvas. You will need to download zoo.dwg. zoo.jpg and out_be.asc files from Canvas.
2. You will need to size the zoo.jpg file so it matches the contours found in out_be_asc. (see below).



Please note that the image and contour map are rectified. You will have to do this yourself as shown above by adjusting the size of the photo. Use the parking lot as a guide (see next page).
The drawing units are meters. The major contour interval is 6m (20 feet) (orange lines), and the minor contour interval is 0.6 m (2 ft) (white lines). Contour labels are provided in the lower right-hand part of the drawing.

Trail Design - Civil 3D Drawing File - Merging files (cont.)

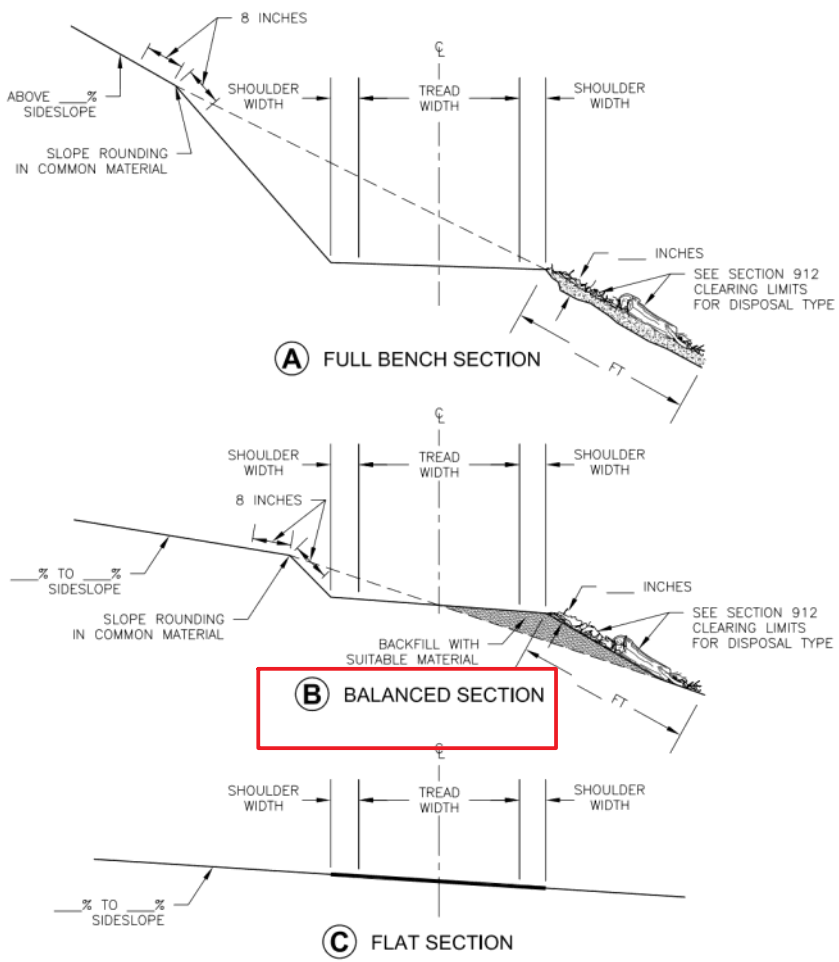
Monday, April 8, 2024 2:48 PM



Cross-Section

Monday, April 10, 2023 2:48 PM

TYPICAL TRAIL CROSS SECTIONS



TYPICAL TRAIL TREAD AND SHOULDER WIDTH

TYPICAL ID	SECTION TYPE	TREAD FINISH	TREAD WIDTH	SHOULDER WIDTH		COMMENTS
				UPHILL	DOWNHILL	
TSF–1		T				

TREAD CROSS SLOPE

TYPICAL ID	OUTSLOPE	INSLOPE	CROWNED SECTION	COMMENTS
	%	%	%	

SLOPE AND TRAILBED FINISH

TREAD FINISH	ROOTS	LOOSE ROCK	EMBEDDED ROCK	COMMENTS
T1				
T2				
T3				
T4				
T5				
T6				

TRAILBED AND SLOPE FINISH

SLOPE FINISH

REMOVE ROOTS THAT PROTRUDE FROM THE BACKSLOPE WITH DIAMETERS GREATER THAN SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

TRAILBED FINISH

REMOVE LOOSE ROCK ON THE TRAILBED WITH A DIMENSION GREATER THAN SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

REMOVE OR REDUCE EMBEDDED ROCK THAT PROTRUDES MORE THAN THE DIMENSIONS SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

NOTES:

1. SLASH CONSISTS OF LOGS, LIMBS, BRUSH, AND ROCKS PLACED RANDOMLY IN A WAY TO CATCH SEDIMENT MOVEMENT.
2. LIMB ALL TREES AND SHRUBS AND TAMP SLASH INTO GROUND SO THAT 80% OF SLASH IS IN CONTACT WITH THE GROUND.

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
STANDARD TRAIL PLAN

PROJECT NAME & LOCATION

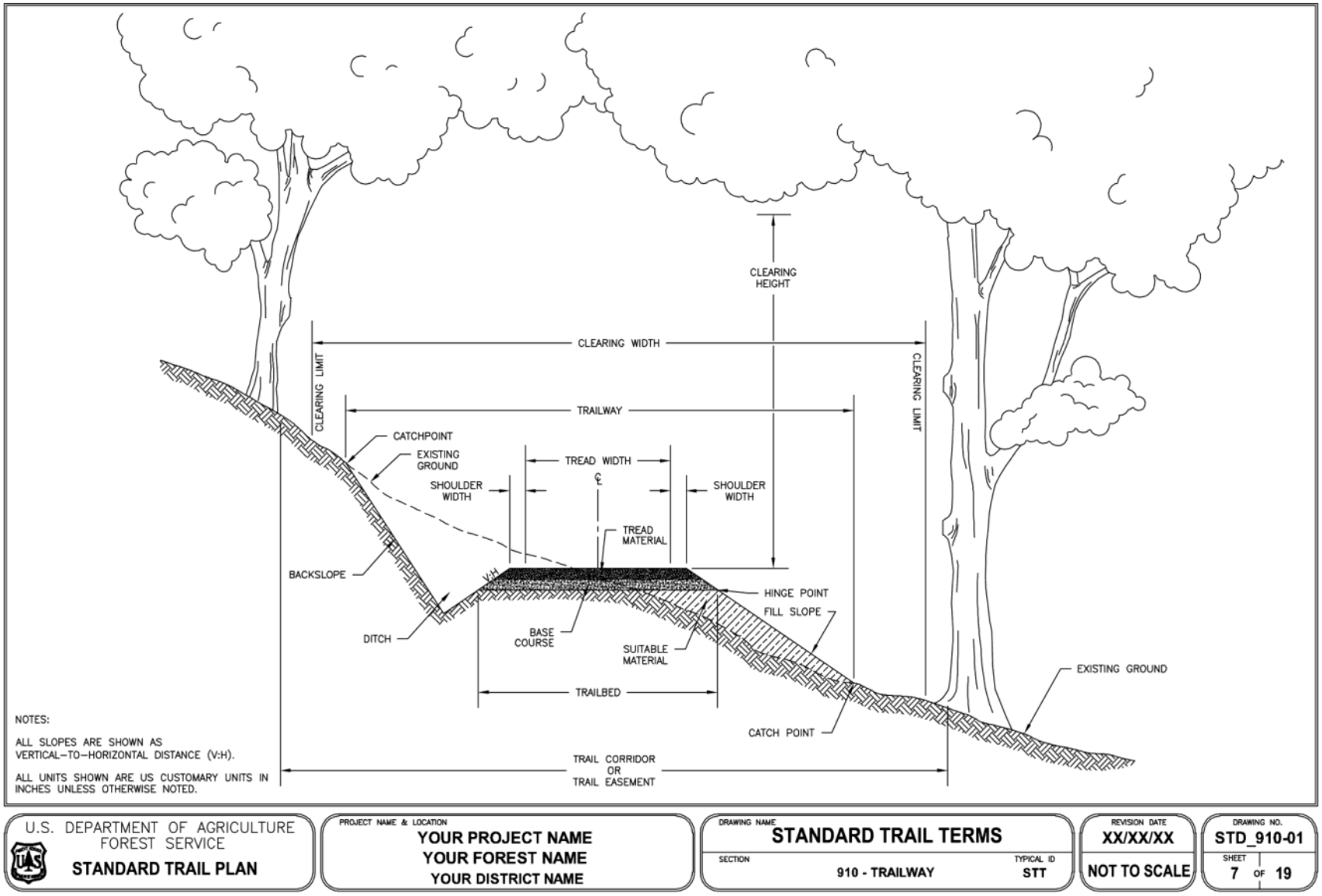
DRAWING NAME **TYPICAL CROSS SECTION & SLOPE FINISH**
SECTION **911 - TREAD AND PRISM** TYPICAL ID **TSF/TCS**

REVISION DATE **XX/XX/XX**
NO SCALE

DRAWING NO. **STD_911-01**
SHEET OF

Typical Cross Section

Monday, April 10, 2023 2:48 PM



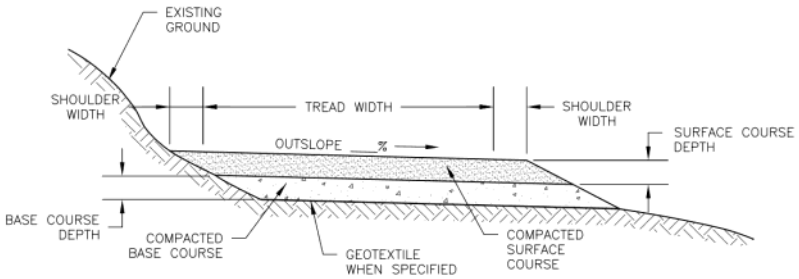
Typical Surfacing Sections (example, not required)

Monday, April 10, 2023 2:48 PM

SURFACING SECTIONS

TYPICAL ID	SECTION TYPE	TREAD WIDTH	SHOULDER WIDTH		GEOTEXTILE TYPE	BASE COURSE		SURFACE COURSE		COMMENTS
			UPHILL	DOWNHILL		TYPE	DEPTH	TYPE	DEPTH	
TSS–1						B		S		

N/A WHEN NOT APPLICABLE



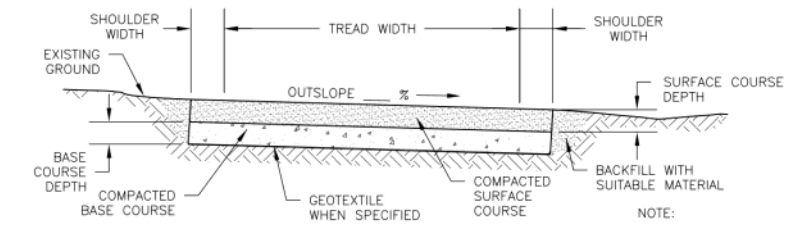
Ⓐ OUTSLOPED SECTION

BASE COURSE MATERIAL TYPE

TYPE	MATERIAL	GRADATION	COMMENTS
B1	PITRUN		
B2	AGGREGATE		
B3			

SURFACE COURSE MATERIAL TYPE

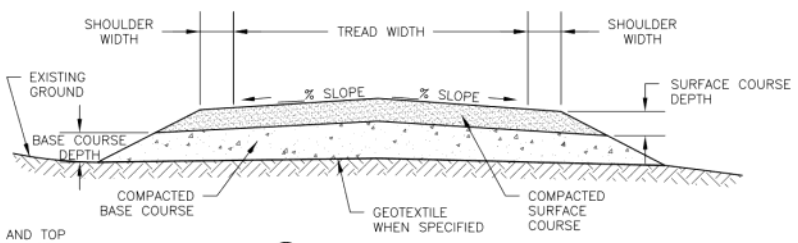
TYPE	MATERIAL	GRADATION	COMMENTS
S1	PITRUN		
S2	AGGREGATE		
S3	CLAY		
S4	WOODCHIPS		
S5			



Ⓑ EXCAVATED SECTION

NOTE:

1. REMOVE AND DISPOSE OF DUFF AND TOP ORGANIC LAYERS DOWN TO MINERAL SOIL.
2. COMPACT BACKFILL IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.

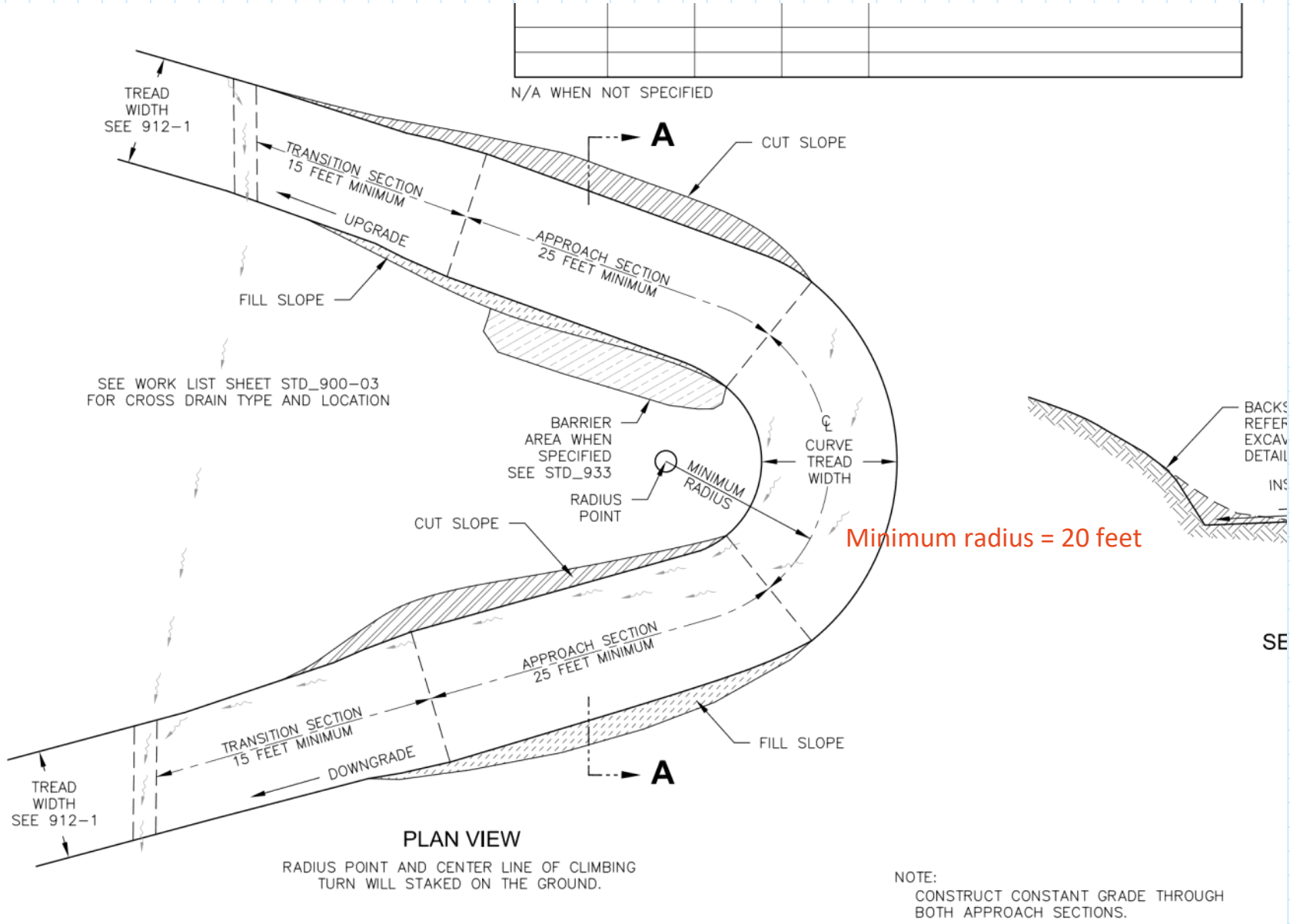


Ⓒ RAISED SECTION

U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE **STANDARD TRAIL PLAN**	PROJECT NAME & LOCATION	DRAWING NAME **TYPICAL SURFACING SECTIONS** SECTION **913 - SURFACING** TYPICAL ID **TSS**	REVISION DATE **XX/XX/XX** **NO SCALE**	DRAWING NO. **STD_913-01** SHEET OF

Climbing Curve

Monday, April 10, 2023 2:48 PM



Minimum radius = 20 feet