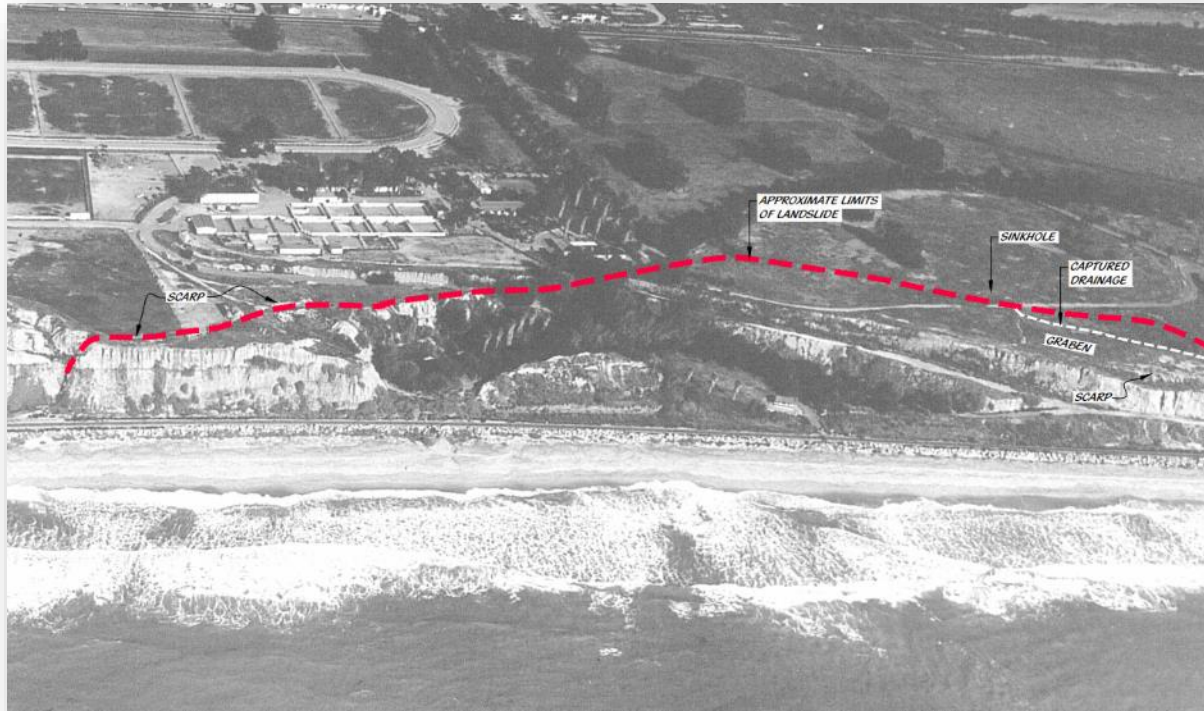


# Emergency Railroad Track Stabilization

Near Milepost 206.8 on the Orange Subdivision

# Historical Conditions

1952



1972



# Historical Conditions

**2013**



**2017**



# Recent Conditions



**September 2021 & 2022**  
Beach erosion and activation of  
ancient landslide



**November 2022**  
Beach erosion continues north  
of landslide area

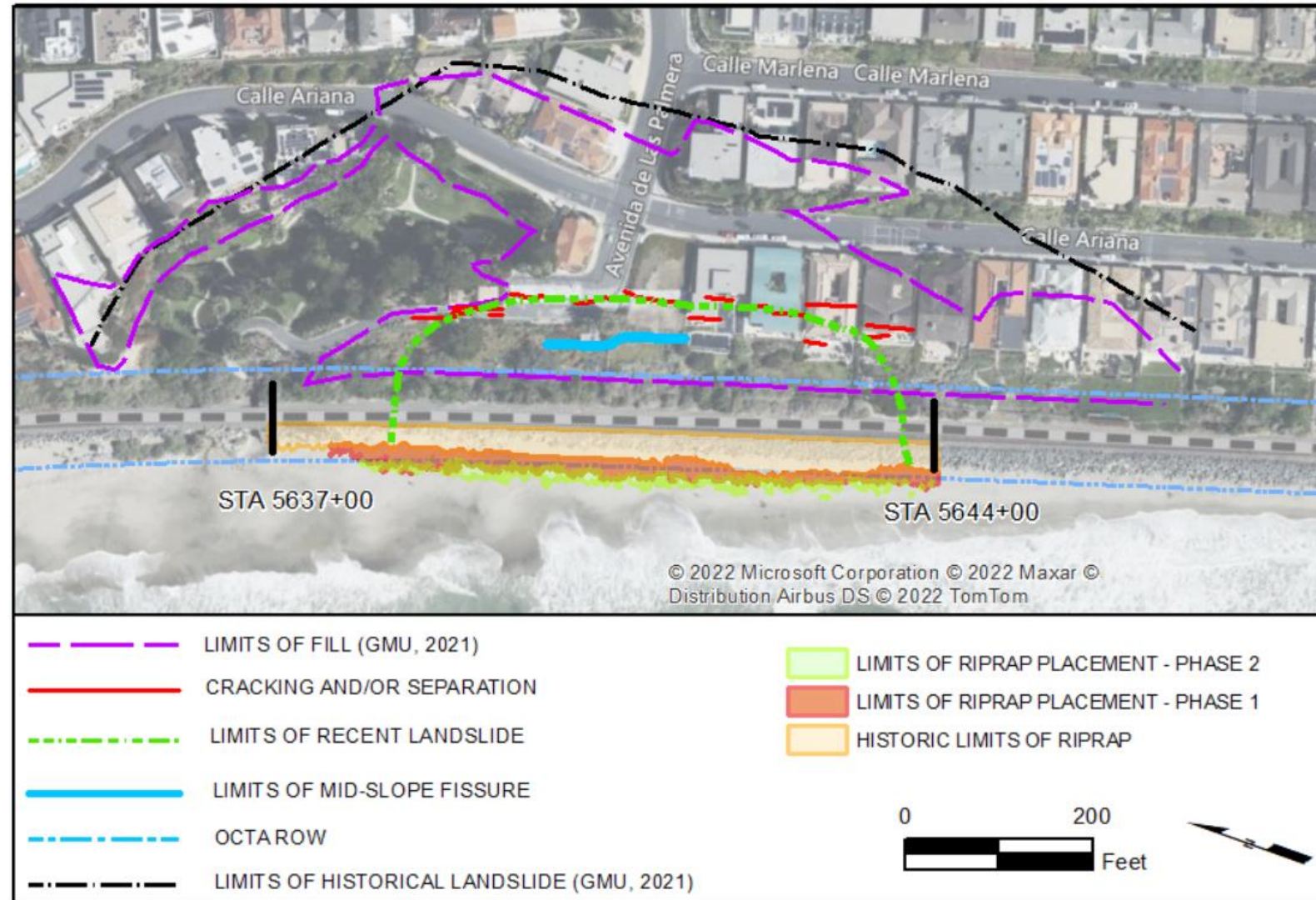
# Landslide Background

- September 2021

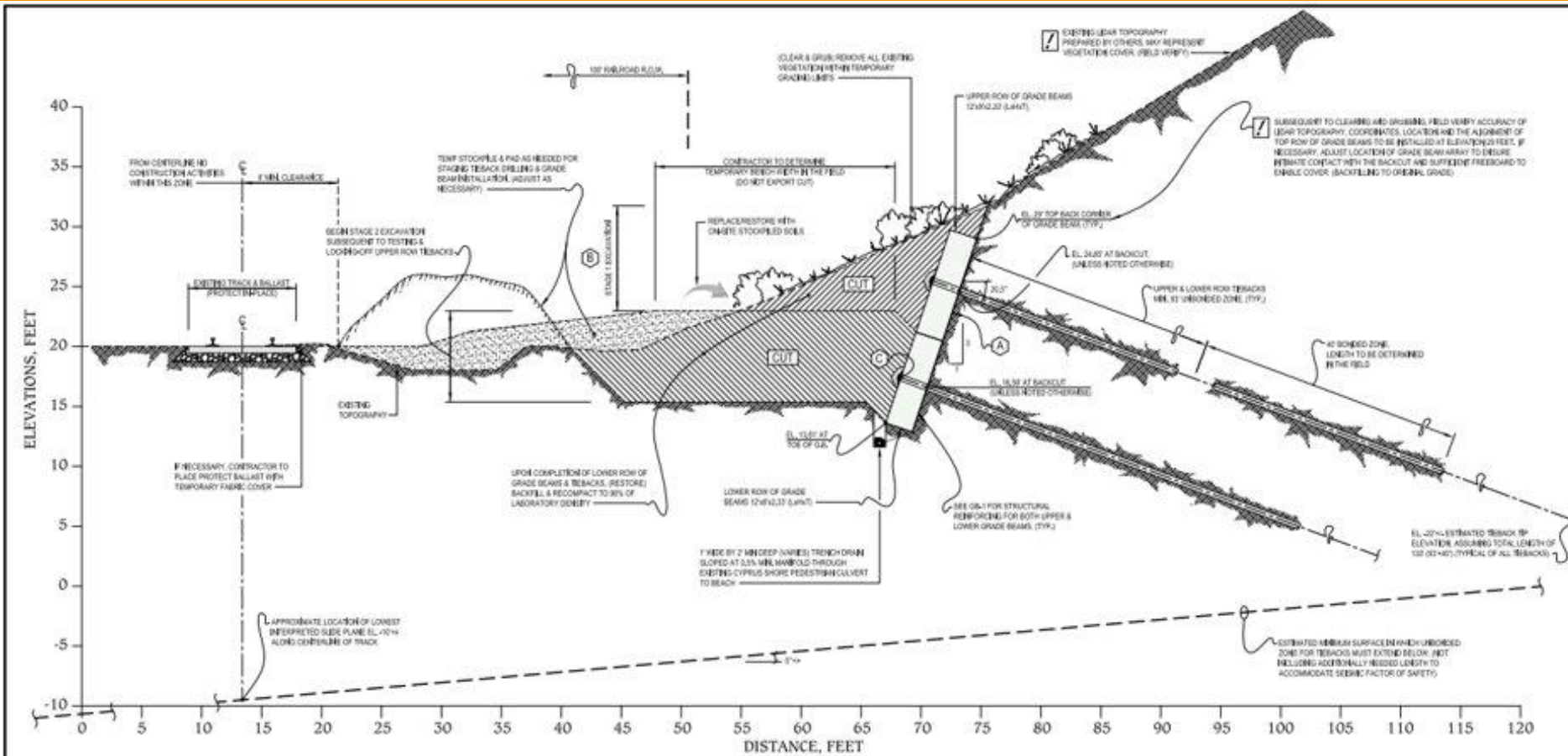
- Significant beach erosion activated historical landslide
- Tracks moved +28 inches laterally toward ocean
- Passenger train service suspended to stabilize tracks
- Placed +18,000 tons of riprap along 700 feet of track (counteracts mass of slide)
- Monitoring track and slope movement

- September 2022

- Additional slope movement due to high tides, waves, and storm surge
- Placed more riprap
- Operating speed reductions
- Assessment of slope movement indicates larger mass of historic slide is beginning to move
- Passenger train service suspended due to continued incremental movement
- Assessed alternatives to stop slide movement



# Tiebacks/Grade Beam Section and Elevation



**NOTES:**

- EXCEPT FOR OBJECTIBLE AND DELETERIOUS MATERIALS RESULTING FROM CLEARING & GRUBBING, ALL EXCAVATED SOILS TO REMAIN ON-SITE FOR BACKFILL (NO EXPORT).
- SUBSEQUENT TO COMPLETION OF STABLE TRENCH MEASURES, RESTORE SLOPE FACE BY MEASURE, COMPACT AND RECOMPACT THE APPROVED STOCKPILED SOILS TO A MINIMUM OF 90% OF THE MAXIMUM DRY DENSITY, AS DETERMINED BY THE MOST RECENT VERSION OF ASTM D-1557 OR AN APPROVED ALTERNATE STANDARD.

- (A) STARTING 12" BELOW TOP OF GRADE BEAM, PLACE 4" WIDE STRIP OF GEOTEXTILE DRAIN BOARD CENTERED BEHIND GRADE BEAM. 1 PANEL PER GRADE BEAM CONNECTED TO TRENCH DRAIN (TYP.).
- (B) TO THE MAXIMUM EXTENT PRACTICABLE, MINIMIZE THE EXTENT AND DEPTH OF THE NECESSARY FINAL STAGE 1 CUT. DO NOT ADVANCE STAGE 2 EXCAVATION UNTIL UPPER ROW OF GRADE BEAMS ARE LOCKED-OFF.
- (C) ALL TIEBACKS ARE CENTERED ON THE OUTSIDE FACE OF THE GRADE BEAMS (TYP.).



PRELIMINARY DRAFT 11-4-22

REVISIONS			
REF.	DATE	BY	DESCRIPTION



OCTA MP 206.8 TRACK STABILIZATION  
 SHEET TITLE: TYPICAL GRADE BEAM LAYOUT CROSS SECTION

AGREEMENT NO.: C-2-2884  
 DRAWING SCALES:  
 FULL SIZE: (TYP.) HALF SIZE: (TYP.)  
 SHEET 4 of 15

- 220 Tiebacks
- 110 Grade Beam Panels

# Completed and Upcoming Activities

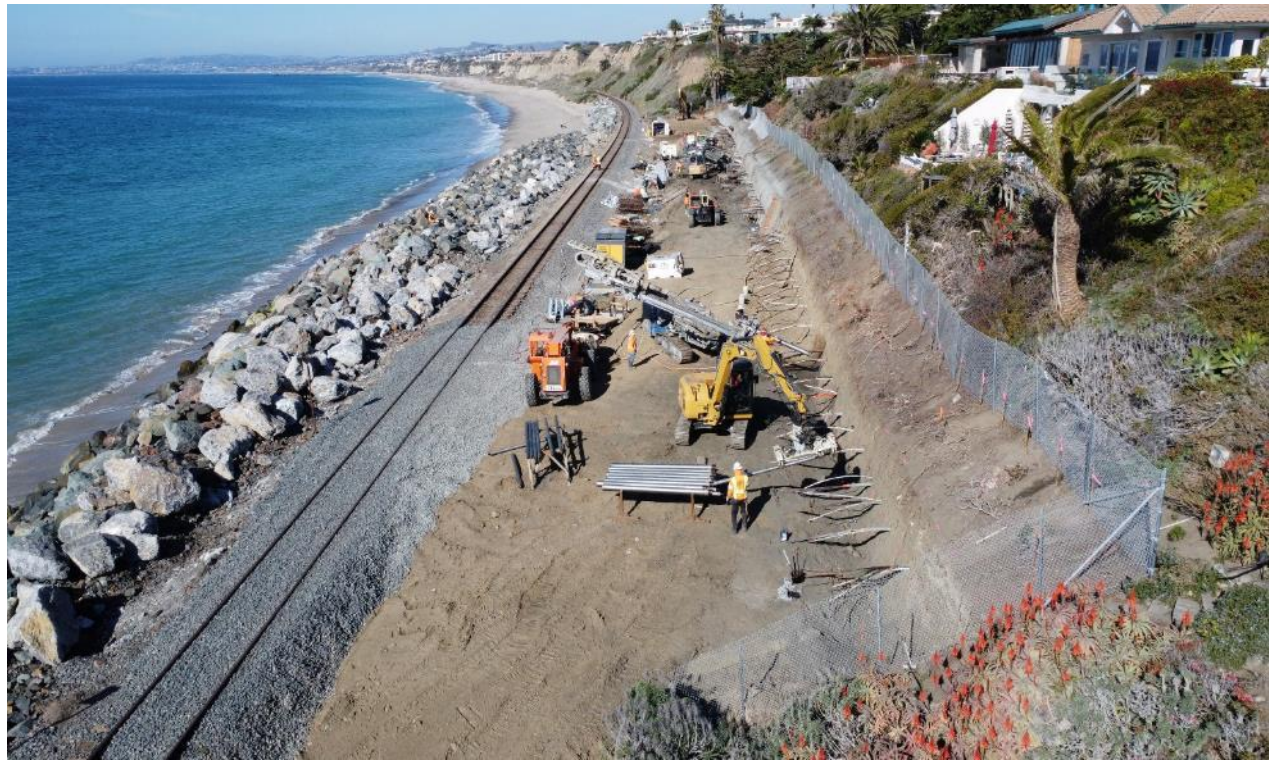
Activity	Estimated *
Excavate for 1st level anchors (Completed)	November 15, 2022
Construct 1st level grade beam panels (Completed)	November 15 – December 30, 2022
Install 1st level tiebacks (Completed)	November 21 – December 23, 2022
Test 1st level tiebacks	December 2, 2022 – January 17, 2023
Excavate for 2nd level anchors	January 18 – February 7, 2023
Construct 2nd level grade beam panels	January 25 – February 20, 2023
Install 2nd level tiebacks	February 6 – February 21, 2023
Test 2nd level tiebacks	February 10 – March 3, 2023
Construction closeout	March to July 2023
Regulatory permitting	Ongoing

*\*Dates are preliminary and subject to change*

# Tieback Installation



**December 15, 2022**



**December 19, 2022**



# First Level Grade Beams and Tiebacks Installed

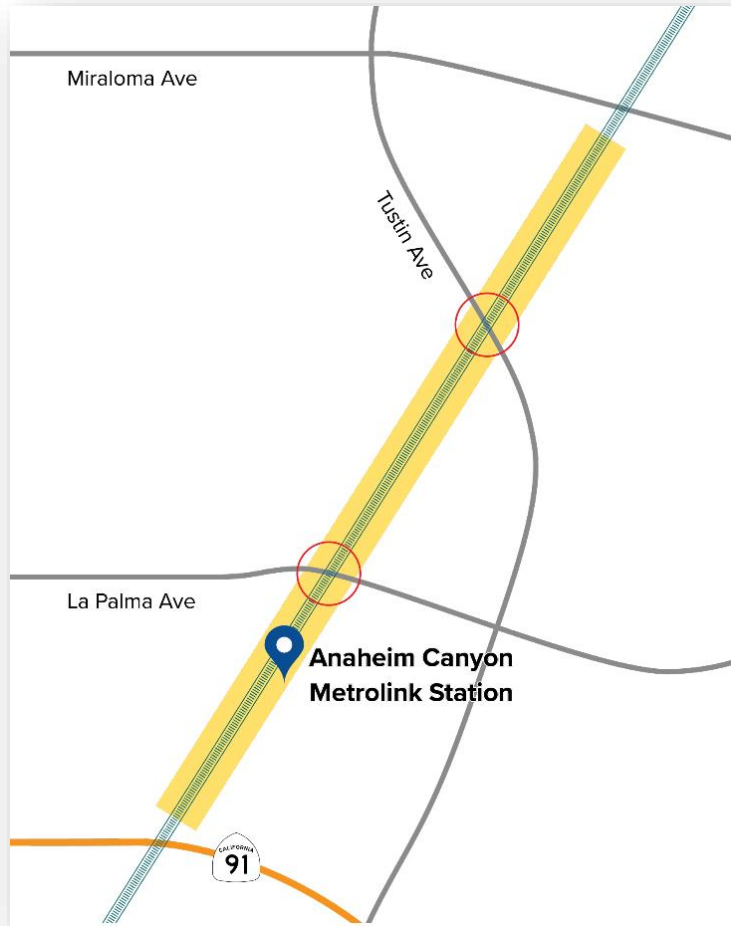


January 2, 2023

# Project Video







# Anaheim Canyon Metrolink Station Improvement Project



# Project Improvements

## Overview

-  3,400 linear feet of new track
-  New platform and extension of existing platform
-  Improvements to crossings
-  New benches, shade structures, ticket machines



Rendering of station improvements

# Project Completion



# Project Video

