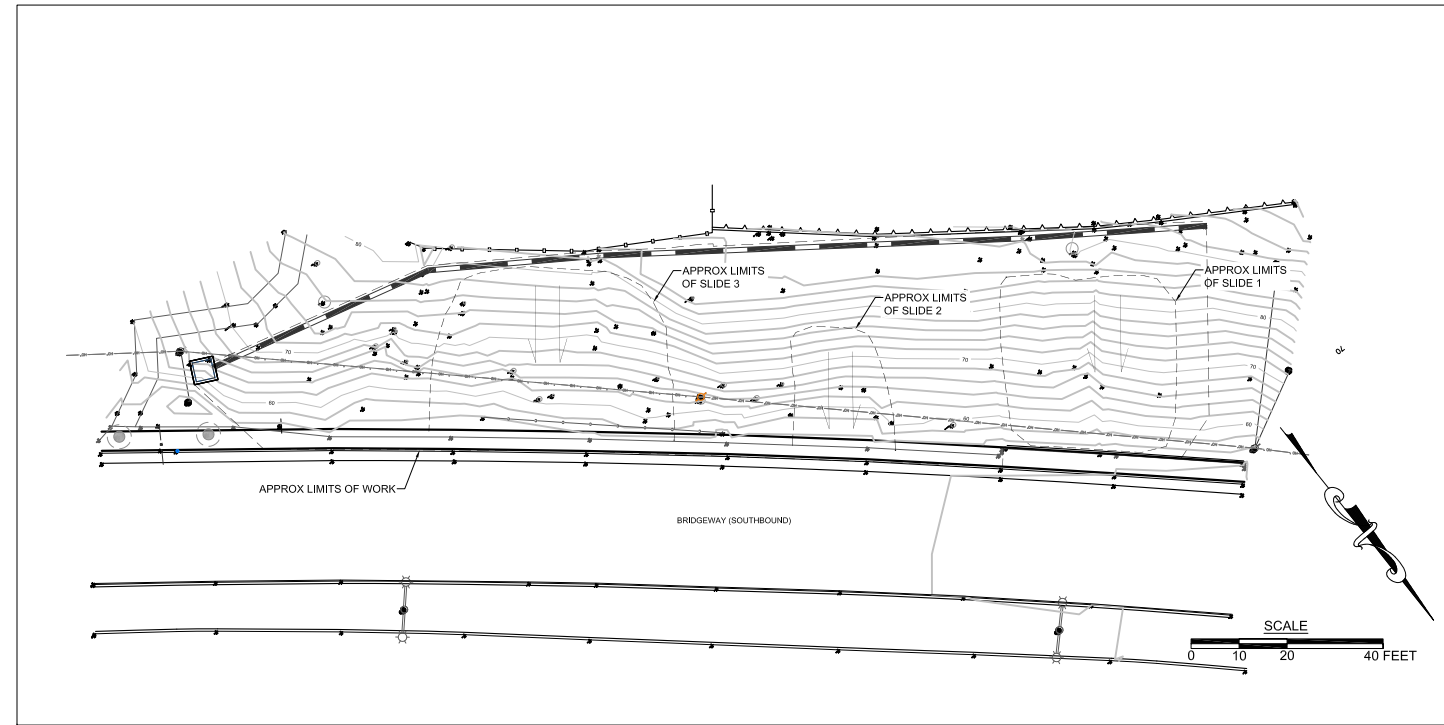


# CITY OF SAUSALITO BRIDGEWAY SLIDE REPAIR BELOW 268 WOODWARD SAUSALITO, CA



**SITE LOCATION MAP**  
(NO SCALE)



**PROPERTY MAP**  
(SCALE: 1" = 20'-0")

**ABBREVIATIONS & SYMBOLS**

APPROX	APPROXIMATELY
BW	BOTTOM OF WALL ELEVATION
COS	CITY OF SAUSALITO
(E)	EXISTING
FT	FEET
IN	INCH
LF	LINEAR FEET
(N)	NEW
STD DET	CALTRANS STANDARD DETAIL
TW	TOP OF WALL ELEVATION
UCS	MARIN CO. UNIFORM CONSTRUCTION STANDARDS
	APPROX BORING LOCATION BY MILLER PACIFIC

**GENERAL**

- ALL CONDITIONS AND DIMENSIONS SHOWN ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR. ANY DISCREPANCIES THAT REQUIRE CLARIFICATION OR REVISIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE STARTING WORK.
- THE CONTRACTOR SHALL POSSESS A CLASS "A" LICENSE.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, SAFETY, AND SEQUENCE.
- CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT PRIOR TO START OF ANY CONSTRUCTION. CONTRACTOR SHALL NOTIFY ALL PUBLIC OR PRIVATE UTILITY COMPANIES A MINIMUM OF 48 HOURS PRIOR TO COMMENCEMENT OF WORK ADJACENT TO EXISTING UTILITY LINES. CONTRACTOR SHALL BE AWARE OF OVERHEAD LINES AT THE CONSTRUCTION SITE AND SHALL MAKE EVERY EFFORT TO PROTECT UTILITIES DURING CONSTRUCTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION OF ALL EXISTING UTILITIES IN THE FIELD. ANY UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
- CITY OF SAUSALITO ENCROACHMENT PERMIT IS REQUIRED FOR ALL WORK, INCLUDING STAGING OF MATERIALS AND EQUIPMENT IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AN ENCROACHMENT PERMIT IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN TO THE ENGINEER FOR REVIEW PRIOR TO STARTING ANY WORK AT THE SITE.
- THE CONTRACTOR SHALL COORDINATE WITH ENGINEER TO ESTABLISH THE RETAINING WALL LAYOUTS PRIOR TO BEGINNING EXCAVATION AND WALL CONSTRUCTION.
- THE CONTRACTOR SHALL Haul away all unused/excess excavated material off site for legal disposal.
- NO CONSTRUCTION MATERIALS, EQUIPMENT, DEBRIS OR WASTE SHALL BE PLACED OR STORED WHERE IT MAY BE SUBJECT TO WIND OR RAIN EROSION AND DISPERSION.
- WORKMANSHIP TO BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS ALONG WITH 2018 CALTRANS STANDARD SPECIFICATIONS, MARIN COUNTY AND CITY OF SAUSALITO STANDARDS AND GENERALLY ACCEPTED CONSTRUCTION PRACTICES.

**SURVEY NOTES**

- TOPOGRAPHY BASED ON A FIELD SURVEY PERFORMED BY WILLIS SURVEYING IN 2017. CONTOURS ARE SHOWN EVERY TWO VERTICAL FEET.

**MECHANICALLY STABILIZED EARTH (MSE) SLOPES & RETAINING WALLS**

- REFER TO TECHNICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR MSE SLOPES & RETAINING WALLS.
- GEOSYNTHETIC REINFORCING SHALL BE INSTALLED AS SHOWN ON THE PLANS AND SHALL CONSIST OF MIRAGRID 3XT OR APPROVED EQUAL.
- BLOCKS USED IN WALL CONSTRUCTION SHALL BE VERSA-LOK STANDARD UNITS OR APPROVED EQUAL.
- FILL USED FOR WALL BACKFILL AND FILL SLOPES SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING EIGHT INCHES IN THICKNESS. BACKFILL SHALL BE MOISTURE CONDITIONED TO AT LEAST TWO PERCENT ABOVE THE OPTIMUM MOISTURE CONTENT AND COMPACTED TO AT LEAST 90 PERCENT RELATIVE COMPACTION IN ACCORDANCE WITH ASTM D1557.

**DRAINAGE**

- PIPE USED FOR DRAINAGE SHALL CONFORM TO ASTM D3034, SDR 35 OR APPROVED EQUAL.
- USE SWEEP TYPE FITTINGS AT ALL CHANGES IN DIRECTION.
- PIPE INSTALLATION SHALL CONFORM TO ALL REQUIREMENTS OUTLINED IN THE MOST RECENT VERSION OF THE CALIFORNIA PLUMBING CODE. EACH DRAINAGE PIPE SHALL BE PROVIDED WITH A CLEANOUT AT ITS UPSTREAM END, AND EACH RUN OF PIPING THAT IS MORE THAN 100 FEET IN TOTAL LENGTH SHALL BE PROVIDED WITH A CLEANOUT FOR EACH 100 FEET OR FRACTION THEREOF. IN LENGTH OF PIPING, AN ADDITIONAL CLEANOUT SHALL BE PROVIDED IN A DRAINAGE LINE FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135 DEGREES.
- DRAIN INLETS SHALL CONSIST OF 24 IN X 24 IN DRAIN INLETS BY JENSEN PRECAST (MODEL NO. D1242436 OR D1242448) WITH ASSOCIATED RISERS AND PEDESTRIAN RATED GRATE COVERINGS OR APPROVED EQUAL.
- RECTANGULAR SIDEWALK UNDERDRAINS SHALL CONSIST OF SIZE #3 BY FOUNDRY SERVICE & SUPPLIES, INC. OR APPROVED EQUAL.

**EROSION & SEDIMENT CONTROL**

- EROSION AND SEDIMENT CONTROL MEASURES SHALL COMPLY WITH ALL REQUIREMENTS OUTLINED IN THE MARIN COUNTY STORMWATER POLLUTION PREVENTION PROGRAM (MCSTOPPP) MINIMUM CONTROL MEASURES FOR SMALL CONSTRUCTION PROJECTS AS OUTLINED IN THE MCSTOPPP CONSTRUCTION EROSION AND SEDIMENT CONTROL PLAN APPLICANT PACKAGE.
- ANY AREAS IN WHICH GROUND SURFACE AND VEGETATIVE COVER HAS BEEN DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE COVERED WITH A PRE-APPROVED SEED MIX AND BIODEGRADABLE EROSION CONTROL MATS UPON COMPLETION OF CONSTRUCTION.
- EROSION CONTROL MATS SHALL CONSIST OF BIONET SC150BN BY NORTH AMERICAN GREEN OR APPROVED EQUAL.
- STRAW WATTLES SHALL CONSIST OF GREEN SEDIMAX - SWB9 BY NORTH AMERICAN GREEN OR APPROVED EQUAL.

**SPECIAL INSPECTIONS**

- PERIODIC SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATION OF WALL CONSTRUCTION, AS REQUIRED BY THE 2019 CALIFORNIA BUILDING CODE (CBC) CHAPTER 17, SHALL BE PERFORMED BY MILLER PACIFIC OR A QUALIFIED TESTING AND INSPECTION AGENCY DURING WALL CONSTRUCTION, INCLUDING THE FOLLOWING:
  - FOUNDATION & BENCHES:** INTERMITTENT OBSERVATION OF EXCAVATED SOILS EXPOSED IN MSE WALL FOUNDATIONS AND BENCHES FOR MSE SLOPES.
  - GEOSYNTHETIC REINFORCING:** OBSERVATION OF EACH LAYER OF GEOSYNTHETIC REINFORCING FOR MSE WALLS AND SLOPES PRIOR TO COVERING WITH FILL.
  - SUBDRAINS AND WALL DRAINAGE:** OBSERVATION OF PERMEABLE MATERIAL, DRAIN PIPE, FILTER FABRIC (IF USED) AND CLEANOUTS PRIOR TO COVERING WITH FILL.
  - REINFORCED EARTHEN FILL AND BACKFILL:** INTERMITTENT OBSERVATION AND FIELD DENSITY TESTING OF COMPACTED BACKFILL, AS A MINIMUM, FIELD DENSITY SHALL BE PERFORMED FOR EVERY TWO FEET OF ELEVATION GAIN AND AT EVERY 100 FEET ALONG THE WALL OR SLOPE.

INDEX OF SHEETS	
SHEET NO.	SHEET TITLE
1	TITLE SHEET & NOTES
2	EXISTING CONDITIONS & SLOPE REPAIR PLAN
3	RETAINING WALL PROFILES
4	SECTIONS & DETAILS
5	BORING LOGS
6	EROSION & SEDIMENT CONTROL

KEVIN MCGOWAN, PUBLIC WORKS DIRECTOR/CITY ENGINEER

DATE

Revisions	Mark	Date	By
90% DESIGN SUBMITTAL		2/21/22	RCA
95% DESIGN SUBMITTAL		6/8/22	RCA
BID SET		7/11/22	RCA
Description	Mark	Date	By

504 Redwood Blvd.  
Suite 220  
Novato, CA 94947  
T 415 / 382-3444  
F 415 / 382-3450  
www.millerpac.com

**MILLER PACIFIC  
ENGINEERING GROUP**

MPEGE

A CALIFORNIA CORPORATION, © 2017, ALL RIGHTS RESERVED  
FILE: 264-046 Tiered MSE Walls, 3rd Layout, Rev. 2.dwg

Designed	RCA	Date	
Drawn	RCA	Date	
Checked	SAS	Date	

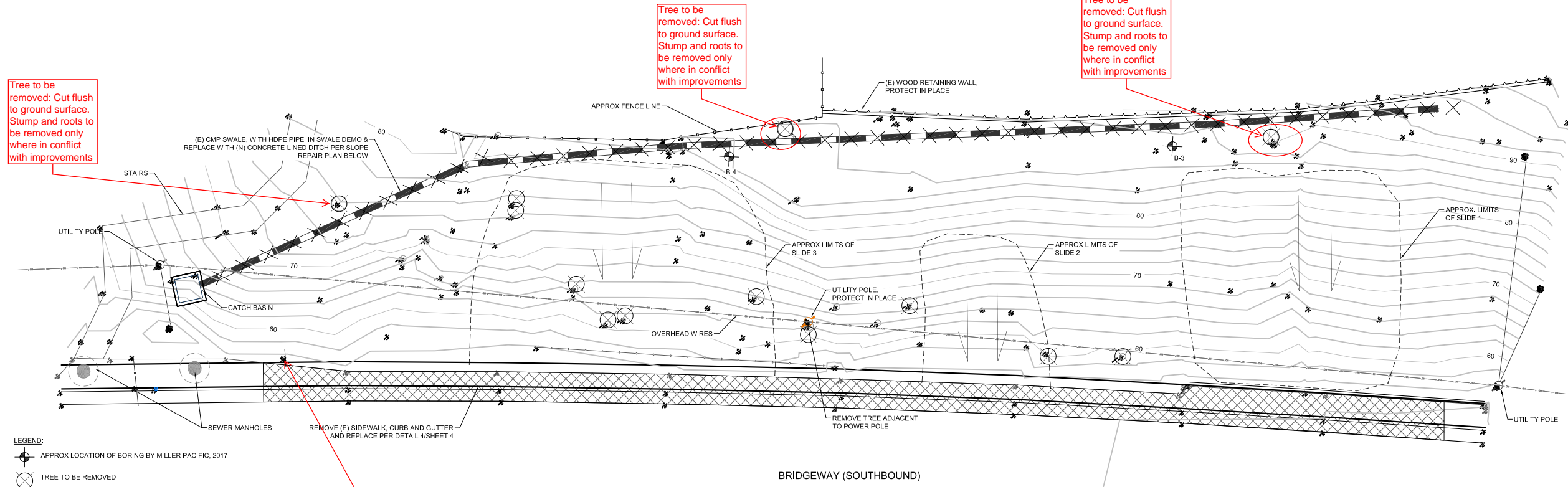
**TITLE SHEET & NOTES**

City of Sausalito Bridgeway Slide  
Repair Below 268 Woodward  
Sausalito, California

Project No. 264-046

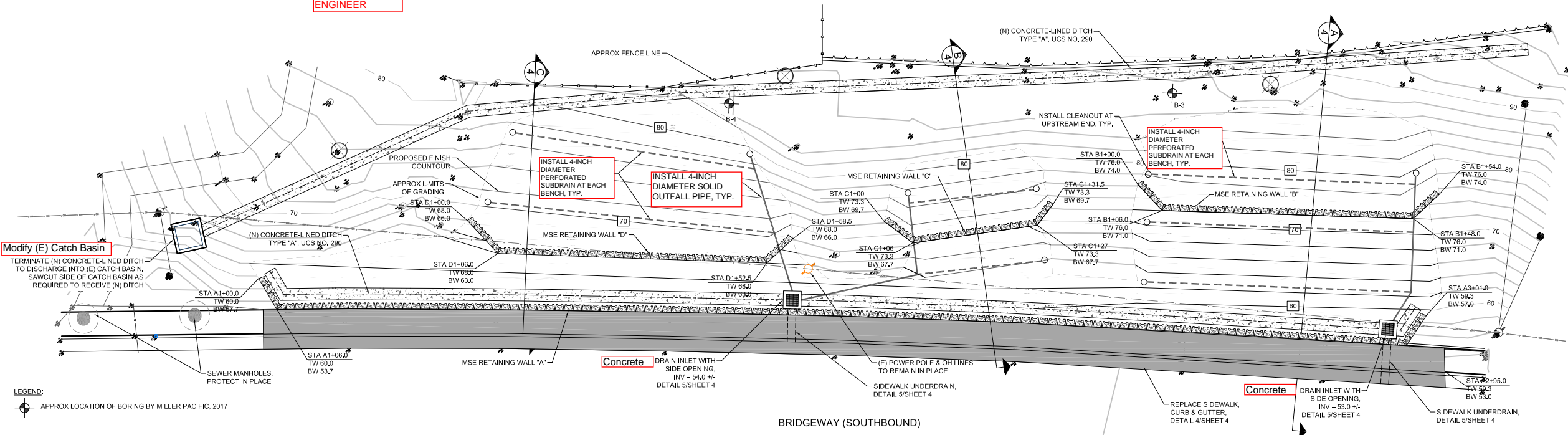


SHEET  
**1**



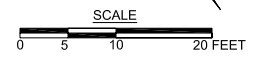
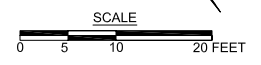
**LEGEND:**  
 ○ APPROX LOCATION OF BORING BY MILLER PACIFIC, 2017  
 ⊗ TREE TO BE REMOVED

1 EXISTING CONDITIONS & DEMOLITION PLAN  
 (SCALE: 1" = 10'-0")



**LEGEND:**  
 ○ APPROX LOCATION OF BORING BY MILLER PACIFIC, 2017

2 SLOPE REPAIR PLAN  
 (SCALE: 1" = 10'-0")



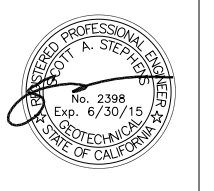
Revisions	Mark	Date	By
2/21/22	RCA		
6/8/22	RCA		
7/11/22	RCA		
90% DESIGN SUBMITTAL			
95% DESIGN SUBMITTAL			
BID SET			

504 Redwood Blvd.  
 Suite 220  
 Novato, CA 94947  
 T 415 / 382-3444  
 F 415 / 382-3450  
 www.millerpac.com

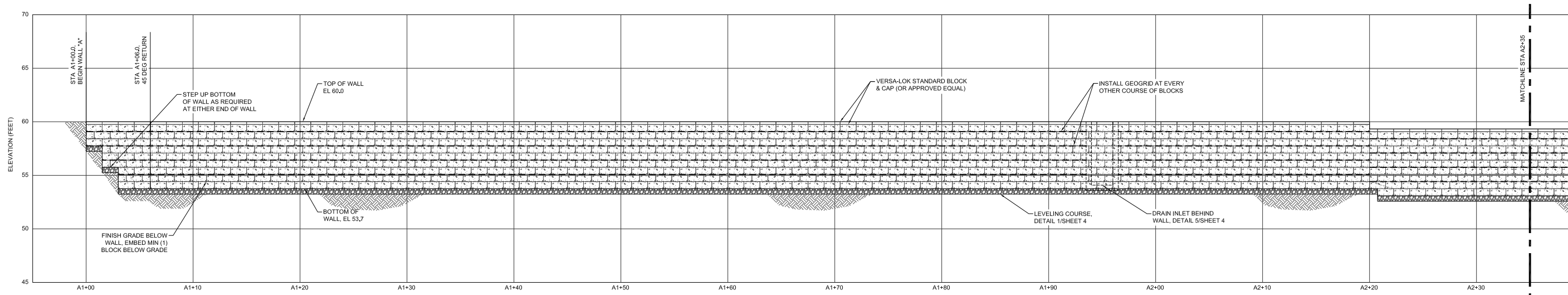


A CALIFORNIA CORPORATION, © 2017, ALL RIGHTS RESERVED  
 FILE: 264-046 Tiered MSE Walls, 3rd Layout, Rev 2.dwg

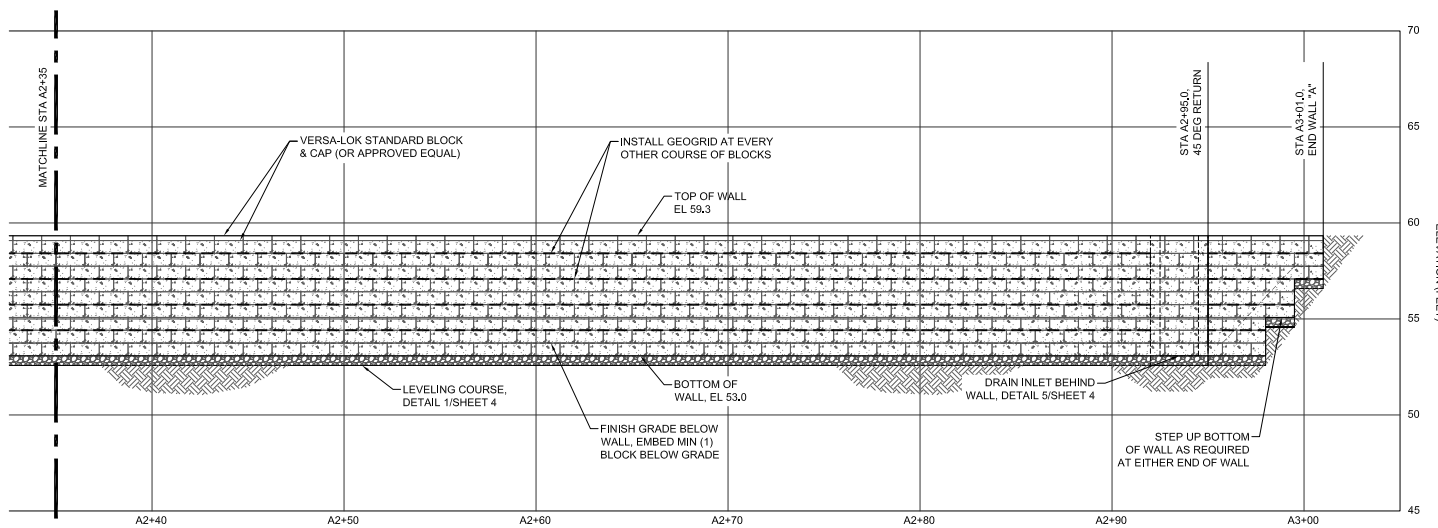
**EXISTING CONDITIONS & SLOPE REPAIR PLAN**  
 City of Sausalito Bridgeway Slide Repair Below 268 Woodward  
 Sausalito, California  
 Project No. 264-046



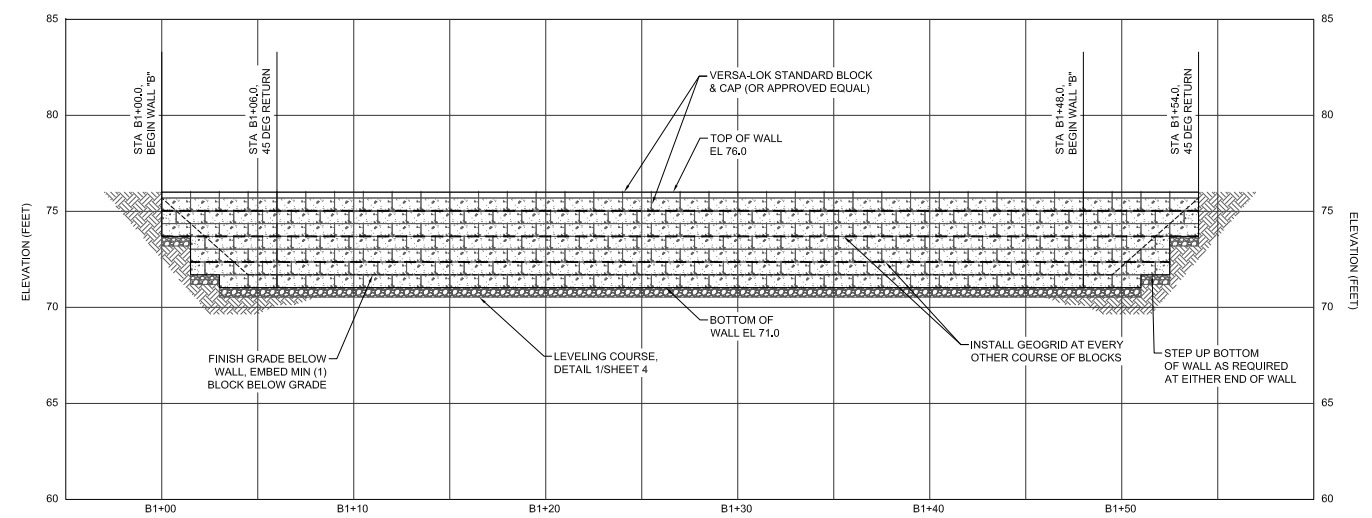
**SHEET**  
**2**



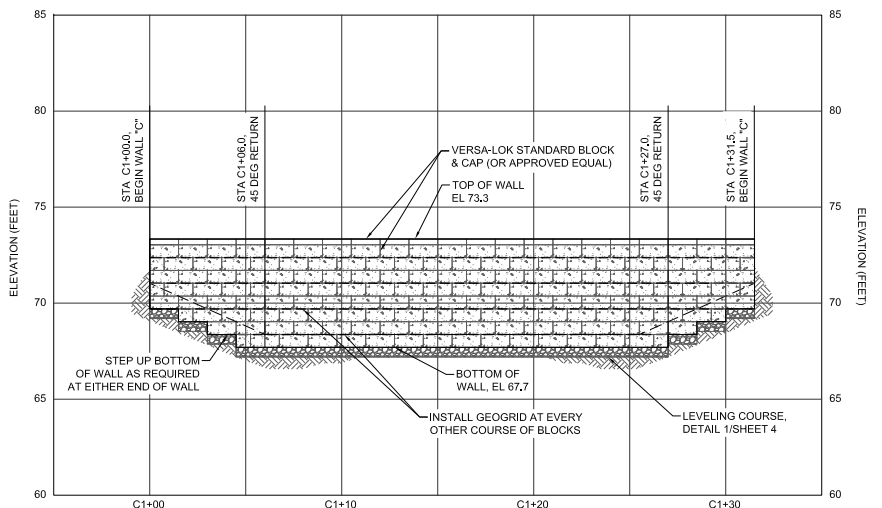
2 WALL "A" PROFILE - STA A1+00 TO A2+35  
(SCALE: 1" = 10'-0")



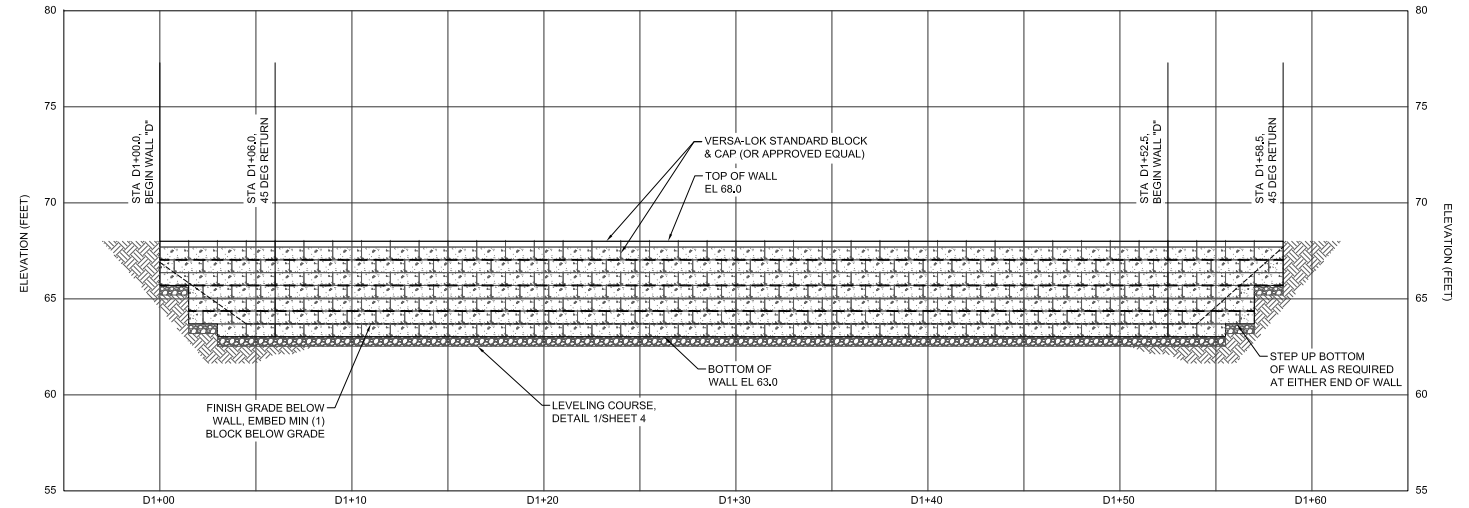
3 WALL "A" PROFILE - STA A2+35 TO A3+01.0  
(SCALE: 1" = 10'-0")



4 WALL "B" PROFILE  
(SCALE: 1" = 10'-0")



5 WALL "C" PROFILE  
(SCALE: 1" = 10'-0")



6 WALL "D" PROFILE  
(SCALE: 1" = 10'-0")

Revisions	By	Date	Mark	Description
22122	RCA			90% DESIGN SUBMITTAL
6/8/22	RCA			95% DESIGN SUBMITTAL
7/11/22	RCA			BID SET

504 Redwood Blvd.  
Suite 220  
Novato, CA 94947  
T 415 / 382-3444  
F 415 / 382-3450  
www.millerpac.com

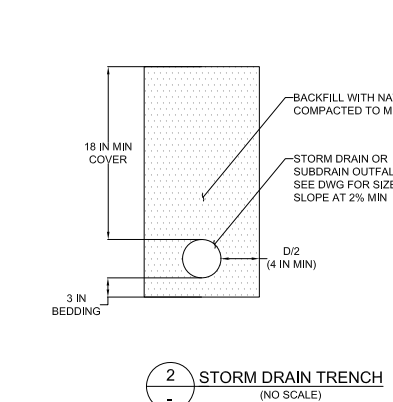
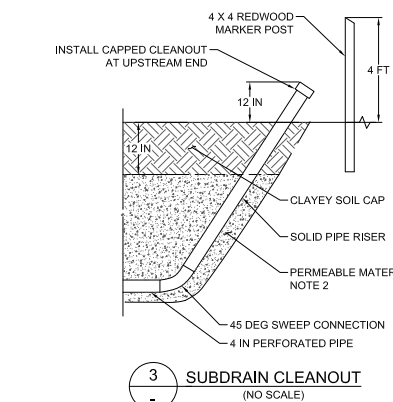
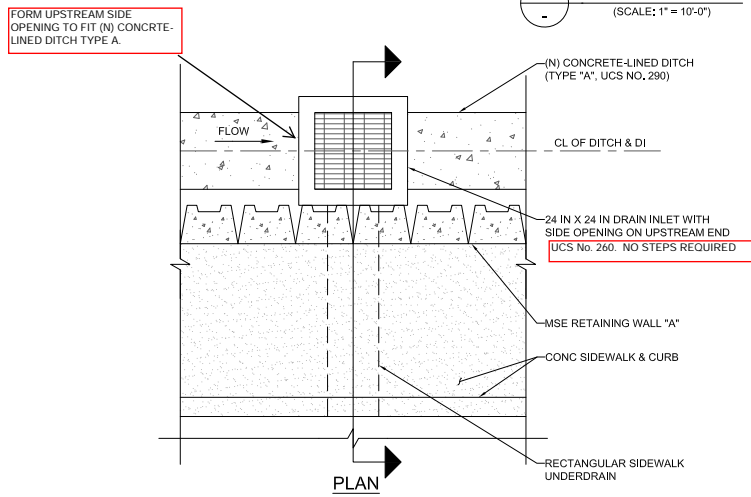
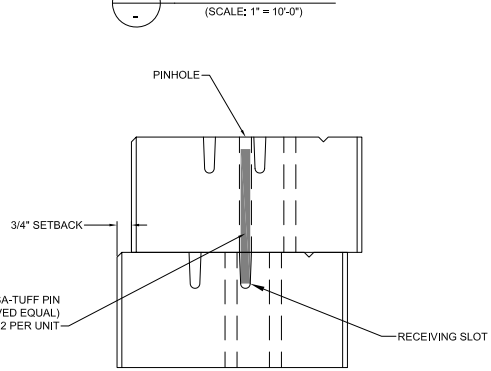
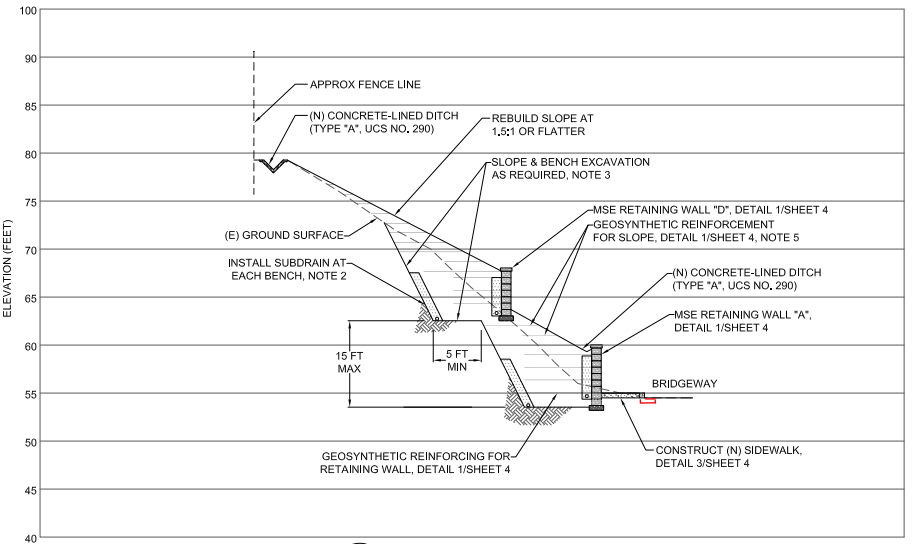
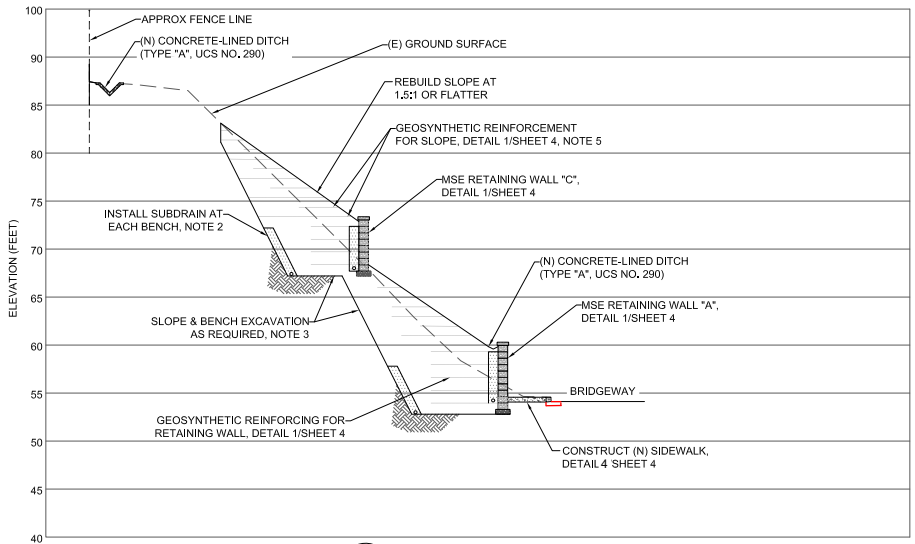
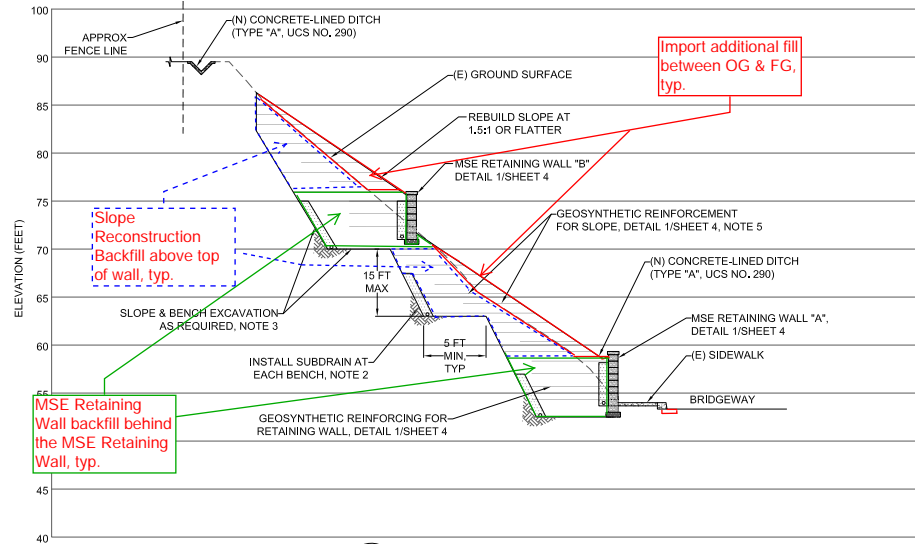
**MILLER PACIFIC ENGINEERING GROUP**  
A CALIFORNIA CORPORATION, © 2017, ALL RIGHTS RESERVED  
FILE: 264-046 Tiered MSE Walls, 3rd Layout, Rev 2.dwg

Designed	Drawn	Checked	SAS
RCA	RCA	RCA	SAS

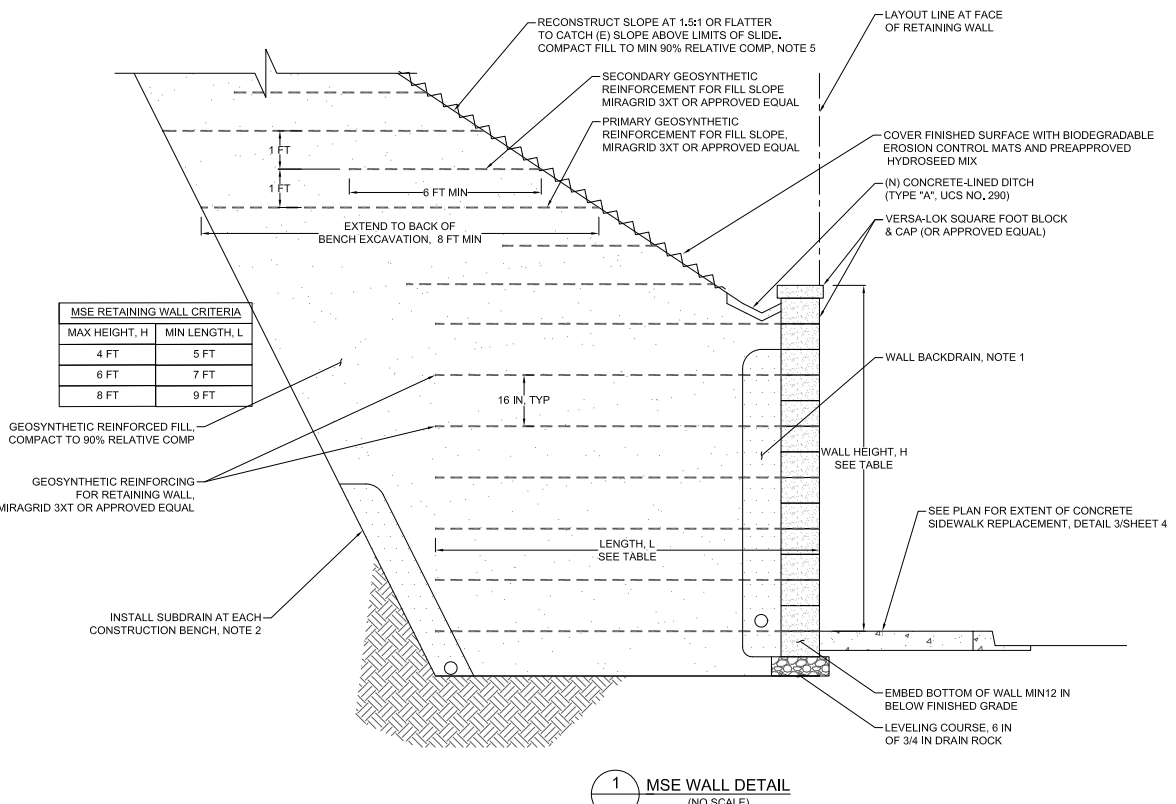
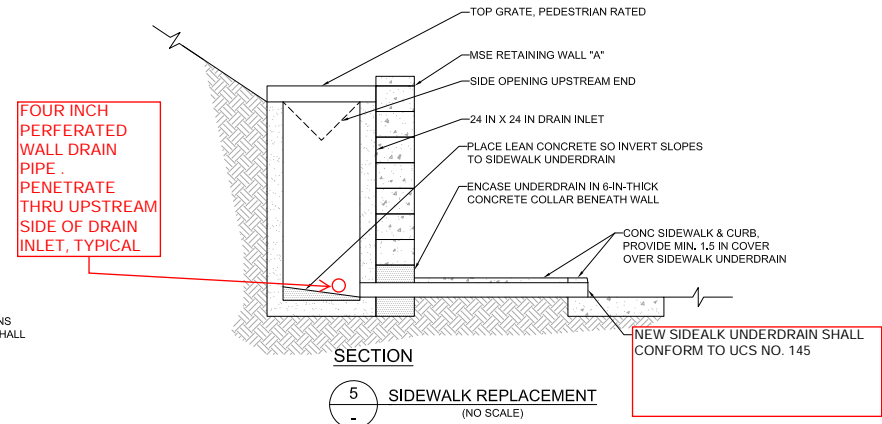
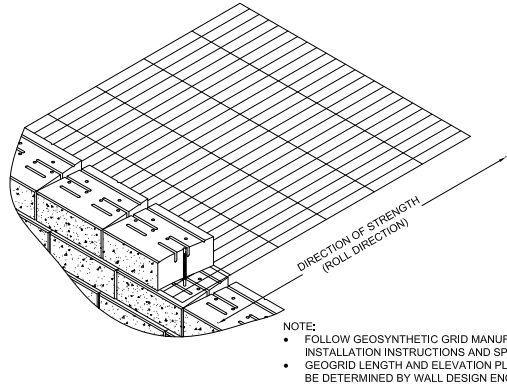
**RETAINING WALL PROFILES**  
City of Sausalito Bridgeway Slide Repair Below 268 Woodward  
Sausalito, California  
Project No. 264-046



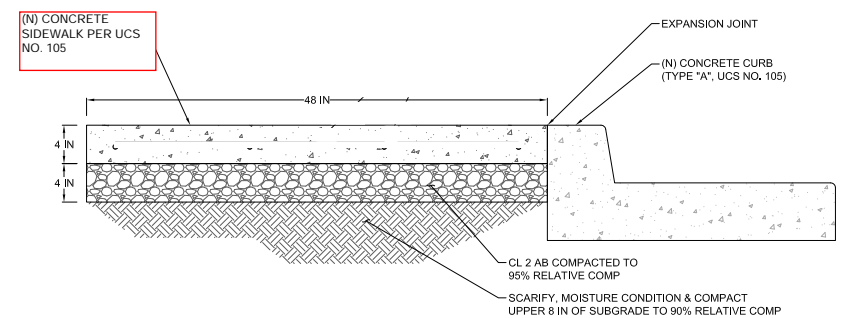
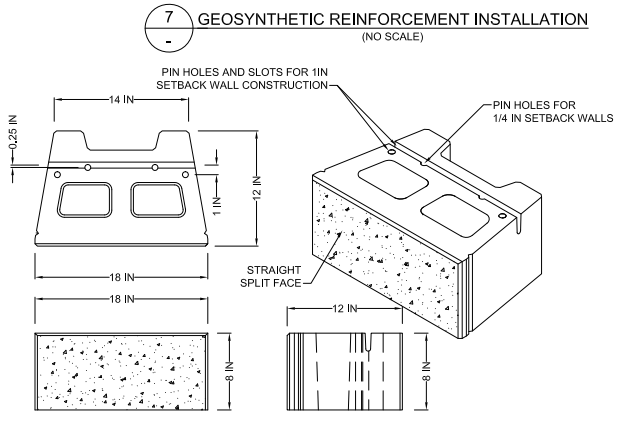
**SHEET**  
**3**



- NOTES**
- RETAINING WALL DRAIN SHALL BE AT LEAST 12-IN-WIDE AND SHALL CONSIST OF CALTRANS CLASS 2 PERMEABLE MATERIAL. WALL DRAIN SHALL EXTEND UP 12 INCHES BELOW BOTTOM OF CONCRETE-LINED DITCH.
  - SUBDRAINS SHALL BE AT LEAST 12-IN-WIDE AND SHALL CONSIST OF CALTRANS CLASS 1 PERMEABLE MATERIAL WRAPPED IN FILTER FABRIC OR CALTRANS CLASS 2 PERMEABLE MATERIAL. SUBDRAIN SHALL EXTEND AT LEAST 5 FT ABOVE CONSTRUCTION BENCH.
  - TEMPORARY SLOPING AND BENCHING FOR WALL AND SLOPE REPAIR SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM TO ALL OSHA REQUIREMENTS.
  - INSTALL GEOGRID PER MANUFACTURER'S REQUIREMENTS. THE GEOTECHNICAL ENGINEER SHALL OBSERVE PLACEMENT OF EACH GEOGRID LAYER PRIOR TO COVERING WITH FILL.
  - GEOSYNTHETIC REINFORCEMENT MAY BE OMITTED FOR SLOPES INCLINED AT 2:1 OR FLATTER.



MSE RETAINING WALL CRITERIA	
MAX HEIGHT, H	MIN LENGTH, L
4 FT	5 FT
6 FT	7 FT
8 FT	9 FT



Revisions	By	Date	Description
2/21/22	RCA		90% DESIGN SUBMITTAL
6/8/22	RCA		95% DESIGN SUBMITTAL
7/11/22	RCA		BID SET

504 Redwood Blvd.  
Suite 220  
Novato, CA 94947  
T 415 / 382-3444  
F 415 / 382-3450  
www.millerpac.com

**MILLER PACIFIC ENGINEERING GROUP**

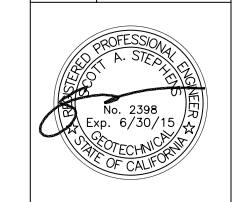
A CALIFORNIA CORPORATION, © 2017. ALL RIGHTS RESERVED  
FILE: 264-046 Tiered MSE Walls, 3rd Layout, Rev 2.dwg

Designed: RCA  
Drawn: RCA  
Checked: SAS

**SECTIONS & DETAILS**

City of Sausalito Bridgeway Slide Repair Below 268 Woodward  
Sausalito, California

Project No. 264.046



**SHEET**

**4**

MAJOR DIVISIONS	SYMBOL	DESCRIPTION
COARSE GRAINED SOILS over 50% sand and gravel	CLEAN GRAVEL	GW Well-graded gravels or gravel-sand mixtures, little or no fines
		GP Poorly-graded gravels or gravel-sand mixtures, little or no fines
	GRAVEL with fines	GM Silty gravels, gravel-sand-silt mixtures
		GC Clayey gravels, gravel-sand-clay mixtures
	CLEAN SAND	SW Well-graded sands or gravelly sands, little or no fines
	SAND with fines	SP Poorly-graded sands or gravelly sands, little or no fines
SM Silty sands, sand-silt mixtures		
SC Clayey sands, sand-clay mixtures		
FINE GRAINED SOILS over 50% silt and clay	SILT AND CLAY liquid limit <50%	ML Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL Organic silts and organic silt-clays of low plasticity
	SILT AND CLAY liquid limit >50%	MH Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
		CH Inorganic clays of high plasticity, fat clays
		OH Organic clays of medium to high plasticity
HIGHLY ORGANIC SOILS	PT Peat, muck, and other highly organic soils	
ROCK		Undifferentiated as to type or composition

KEY TO BORING AND TEST PIT SYMBOLS		
<b>CLASSIFICATION TESTS</b>		<b>STRENGTH TESTS</b>
PI PLASTICITY INDEX		TV FIELD TORVANE (UNDRAINED SHEAR)
LL LIQUID LIMIT		UC LABORATORY UNCONFINED COMPRESSION
SI SIEVE ANALYSIS		TKCU CONSOLIDATED UNDRAINED TRIAXIAL
HYD HYDROMETER ANALYSIS		TXJU UNCONSOLIDATED UNDRAINED TRIAXIAL
P200 PERCENT PASSING NO. 200 SIEVE		UC, CU, UU = 1/2 Deviator Stress
P4 PERCENT PASSING NO. 4 SIEVE		
<b>SAMPLER TYPE</b>		<b>SAMPLER DRIVING RESISTANCE</b>
MODIFIED CALIFORNIA	HAND SAMPLER	Modified California and Standard Penetration Test samplers are driven 18 inches with a 140-pound hammer falling 30 inches per blow. Blows for the initial 6-inch drive seat the sampler. Blows for the final 12-inch drive are recorded onto the logs. Sampler refusal is defined as 50 blows during a 6-inch drive. Examples of blow records are as follows:
STANDARD PENETRATION TEST	ROCK CORE	25 sampler driven 12 inches with 25 blows after initial 6-inch drive
THIN-WALLED / FIXED PISTON	DISTURBED OR BULK SAMPLE	85/7" sampler driven 7 inches with 85 blows after initial 6-inch drive
		50/3" sampler driven 3 inches with 50 blows during initial 6-inch drive or beginning of final 12-inch drive

SOIL CLASSIFICATION CHART		
	Sausalito Storm Damage Repair Bridgeway Site Sausalito, California	<b>A-1</b> FIGURE

FRACTURING AND BEDDING		
<b>Fracture Classification</b>	<b>Spacing</b>	<b>Bedding Classification</b>
Crushed	less than 3/4 inch	Laminated
Intensely fractured	3/4 to 2-1/2 inches	Very thinly bedded
Closely fractured	2-1/2 to 6 inches	Thinly bedded
Moderately fractured	6 to 24 inches	Medium bedded
Widely fractured	2 to 6 feet	Thickly bedded
Very widely fractured	greater than 6 feet	Very thickly bedded

HARDNESS	
Low	Carved or gouged with a knife
Moderate	Easily scratched with a knife, friable
Hard	Difficult to scratch, knife scratch leaves dust trace
Very hard	Rock scratches metal

STRENGTH	
Friable	Crumbles by rubbing with fingers
Weak	Crumbles under light hammer blows
Moderate	Indentations <1/8 inch with moderate blow with pick end of rock hammer
Strong	Withstands few heavy hammer blows, yields large fragments
Very strong	Withstands many heavy hammer blows, yields small fragments

WEATHERING	
Complete	Minerals decomposed to soil, but fabric and structure preserved
High	Rock decomposition, thorough discoloration, all fractures are extensively coated with clay, oxides or carbonates
Moderate	Fracture surfaces coated with weathering minerals, moderate or localized discoloration
Slight	A few stained fractures, slight discoloration, no mineral decomposition, no affect on cementation
Fresh	Rock unaffected by weathering, no change with depth, rings under hammer impact

ROCK CLASSIFICATION CHART		
	Sausalito Storm Damage Repair Bridgeway Site Sausalito, California	<b>A-2</b> FIGURE

BORING 3							
DEPTH meters feet	SAMPLE SYMBOL (4)	EQUIPMENT: Portable Hydraulic Drill Rig with 4.0-inch Solid Flight Auger	BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA
		DATE: 9/28/17					
		ELEVATION: 90 - feet*					
		*REFERENCE: Topographic Survey					
0 - 0		Sandy SILT (ML) light brown, dry, medium dense, low to medium plasticity	26	109	8.2		56% P200
1		SANDSTONE orange and brown mottled, moderate hardness, weak to moderate strength, highly to completely weathered	35	106	17.3	7350 UC	
2		harder drilling at 6.5 feet grades moderate strength	87/10"	117	14.2		
3			40		10.8		
4		Bottom of boring at 11.5 feet No groundwater encountered					

BORING LOG		
	Sausalito Storm Damage Repair Bridgeway Site Sausalito, California	<b>A-3</b> FIGURE

BORING 4							
DEPTH meters feet	SAMPLE SYMBOL (4)	EQUIPMENT: Portable Hydraulic Drill Rig with 4.0-inch Solid Flight Auger	BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA
		DATE: 9/28/17					
		ELEVATION: 83 - feet*					
		*REFERENCE: Topographic Survey					
0 - 0		Silty SAND (SM) brown, moist, medium dense, fine- to medium-grained	12	103	13.2	4050 UC	
1		harder drilling at 4 feet					
2		Sandstone yellow-brown to gray, low hardness, weak, highly to completely weathered	31	109	13.6	5500 UC	
3							
4			23		12.5		
5		Bottom of boring at 13.5 feet No groundwater encountered					

BORING LOG		
	Sausalito Storm Damage Repair Bridgeway Site Sausalito, California	<b>A-4</b> FIGURE

90% DESIGN SUBMITTAL	2/21/22	RCA
95% DESIGN SUBMITTAL	6/8/22	RCA
BID SET	7/11/22	RCA
Description	Mark	By
		Date

504 Redwood Blvd.  
Suite 220  
Novato, CA 94947  
T 415 / 382-3444  
F 415 / 382-3450  
www.millerpac.com

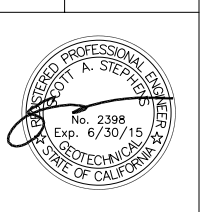
**MILLER PACIFIC ENGINEERING GROUP**

A CALIFORNIA CORPORATION © 2020. ALL RIGHTS RESERVED  
FILE: 264.046 Tiered MSE Walls, 3rd Layout, Rev 2.dwg

**BORING LOGS**

City of Sausalito Bridgeway Slide  
Bridgeway Site  
Sausalito, California  
Project No. 264.046

Designed: RCA  
Drawn: RCA  
Checked: SAS  
Date: \_\_\_\_\_



**SHEET**

**5**

