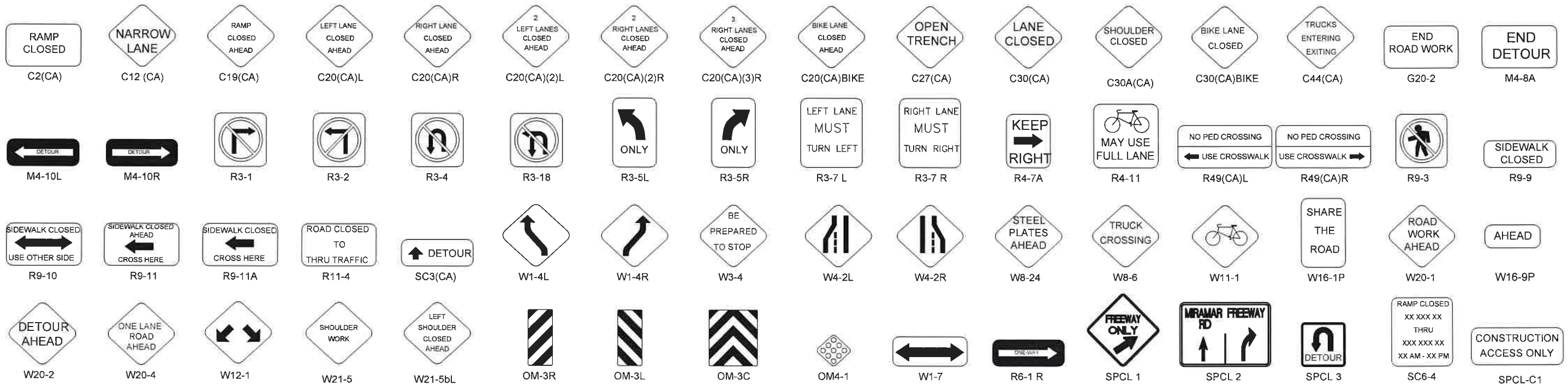


**SIGN LEGEND**



**TABLE 1**

SPEED (S)	MINIMUM TAPER LENGTH * FOR WIDTH OF OFFSET 12 FEET (W)				MAXIMUM CHANNELIZING DEVICE SPACING		
	TANGENT 2L	MERGING L	SHIFTING L/2	SHOULDER L/3	X Y Z **		
					TAPER	TANGENT	CONFLICT
20	160	80	40	27	20	40	10
25	250	125	63	42	25	50	12
30	360	180	90	60	30	60	15
35	490	245	123	82	35	70	17
40	640	320	160	107	40	80	20
45	1080	540	270	180	45	90	22
50	1200	600	300	200	50	100	25
55	1320	660	330	220	50	100	25
60	1440	720	360	240	50	100	25
65	1560	780	390	260	50	100	25
70	1680	840	420	280	50	100	25
75	1800	900	450	300	50	100	25

\* - For other offsets, use the following merging taper length formula for L:  
 For speed of 40 mph or less, L = WSA/60  
 For speed of 45 mph or more, L = WS

Where: L = Taper length in feet  
 W = Width of offset in feet  
 S = Posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

\*\* - Use for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers (CA).

**TABLE 2**

SPEED *	Min D **	DOWNGRADE Min D ***		
		-3% -6% -9%		
		ft	ft	ft
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891
75	820	866	927	1003

\* - Speed is posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

\*\* - Longitudinal buffer space or flagger station spacing

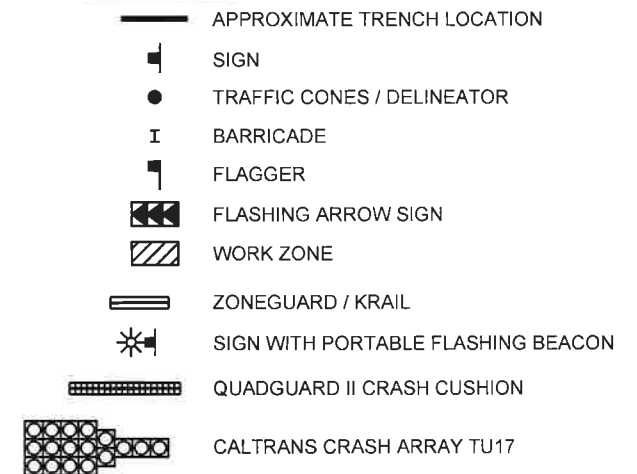
\*\*\* - Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

**TABLE 3**

ROAD TYPE	DISTANCE BETWEEN SIGNS *		
	A	B	C
	ft	ft	ft
URBAN - 25 mph OR LESS	100	100	100
URBAN - MORE THAN 25 mph TO 40 mph	250	250	250
URBAN - MORE THAN 40 mph	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1000	1500	2640

\* - The distances are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommended distances.

**LEGEND**



**PROJECT NAME:** TL23071 - Sycamore Canyon Substation To Penasquitos Substation - 230 KV Underground

**AIRX** SURVEYORS, INC.  
 Gail McMorran  
 President  
 2534 EAST EL NORTE PARKWAY, SUITE C  
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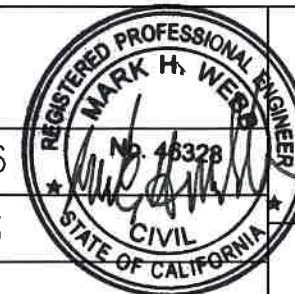
AIRX JOB#: X160218

MISC/POTHOLE#: \_\_\_\_\_

TYPE OF WORK: TRENCHING / CONDUIT

THOMAS GRID#: 1209-F6

DRAWN FOR: CALTRANS



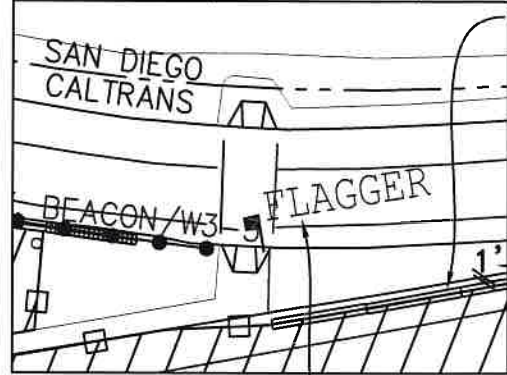
DATE: 2/22/2018

DESIGNED: Clint Jones

CHECKED BY: Mark Webb

**SHEET 1 OF 48**

RAMP DETAIL: (NOT TO SCALE)



275' LENGTH OF ZONEGUARD WITH YELLOW REFLECTIVE TAGS SPACED AT 25' O.C. FACING ONCOMING TRAFFIC WITH 6' TALL CHAINLINK FENCE WITH GREEN MESH (PINNED)

KEEP ZONEGUARD MINIMUM OF 1' FROM CURB

FLAGGERS AND STEEL PLATES WILL BE USED WHEN WORK ON SIDEWALK IS BEING PERFORMED

FENCE WILL NOT BE PLACED ON SIDEWALK SIDEWALK WILL BE FREE OF DEBRIS AND EQUIPMENT THROUGH WORK AREA

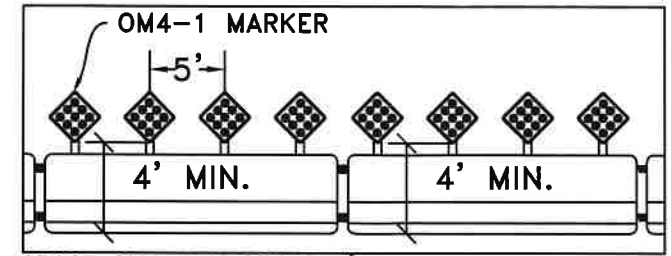
NOTE: ZONEGUARD WILL BE INSTALLED AFTER 10PM AND REMOVED BY 5AM

INSTALL CORRUGATED STEEL PANEL AND GRAVEL PER CALTRANS PLAN T58

6' TALL CHAINLINK FENCE WITH GREEN MESH

330' LENGTH OF KRAIL WITH YELLOW REFLECTIVE TAGS SPACED AT 25' O.C. FACING ONCOMING TRAFFIC WITH 6' TALL CHAINLINK FENCE WITH GREEN MESH (PINNED)

ZONEGUARD INTERSECTION DETAIL: (NOT TO SCALE)



SPACE OM4-1 MARKERS 4' OFF GROUND SPACED AT 5' O.C. FACING ONCOMING TRAFFIC FACING ONCOMING TRAFFIC(TYP) INSIDE INTERSECTION

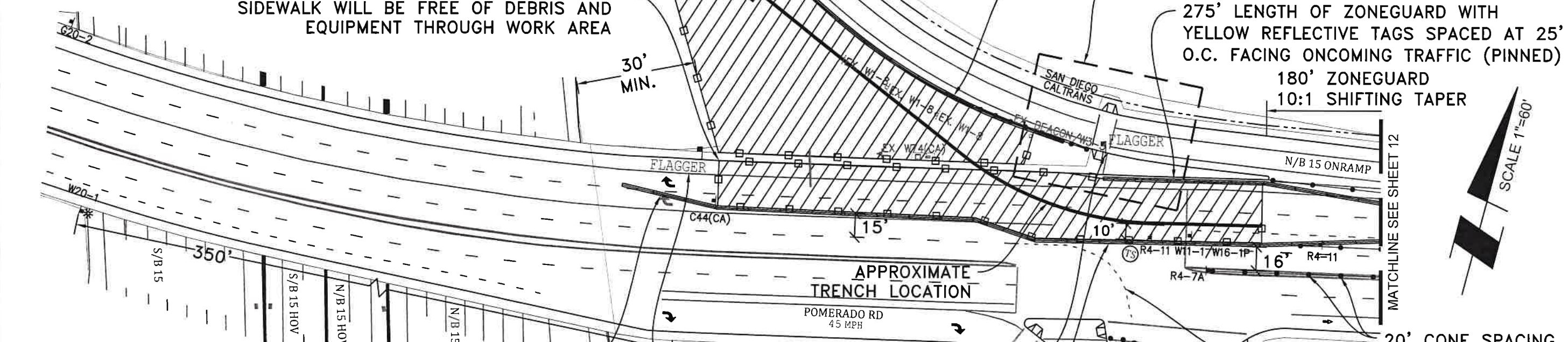
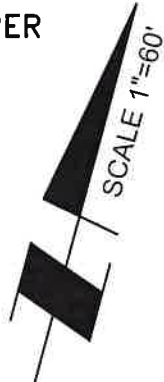
QUADGUARD II (TL-3) CRASH CUSHION ON PLATES

SEE RAMP DETAIL

275' LENGTH OF ZONEGUARD WITH YELLOW REFLECTIVE TAGS SPACED AT 25' O.C. FACING ONCOMING TRAFFIC (PINNED)

180' ZONEGUARD

10:1 SHIFTING TAPER



560' LENGTH OF ZONEGUARD WITH WHITE REFLECTIVE TAGS SPACED AT 25' O.C. FACING ONCOMING TRAFFIC (PINNED)

FLAGGERS WILL SAFELY GUIDE PEDESTRIANS THROUGH WORK AREA SEE ZONEGUARD INTERSECTION DETAIL

TYPE II BARRICADES WITH FLASHING LIGHTS (TYP)

20' CONE SPACING  
REMOVE EXISTING DETAIL 40 USE TEMPORARY TABS DURING NON-WORKING HOURS

25' CONE SPACING

NOTE: ALL CONFLICTING MARKERS AND DEVICES WILL BE REMOVED WHEN EQUIPMENT IS NOT IN USE

NOTE: W8-24 (STEEL PLATES AHEAD) SIGNS WILL REMAIN IN PLACE FOR DURATION OF WORK

NOTE: ALL TRUCKS WILL USE AMBER LIGHT BEACON WHEN ENTERING / EXITING WORK AREA

NOTE: WHEN KRAIL IS LESS THAN 2' FROM TRENCH PIN KRAIL PER CALTRANS STANDARD PLANS

PHASE C - 3

PROJECT NAME: TL23071 - Sycamore Canyon Substation To Penasquitos Substation - 230 KV Underground

DATE: 2/22/2018  
DESIGNED: Clint Jones  
CHECKED BY: Mark Webb

UTILITY SURVEYORS, INC.  
**AIRX**  
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AIRX JOB#: X160218

THOMAS GRID#: 1209-F6

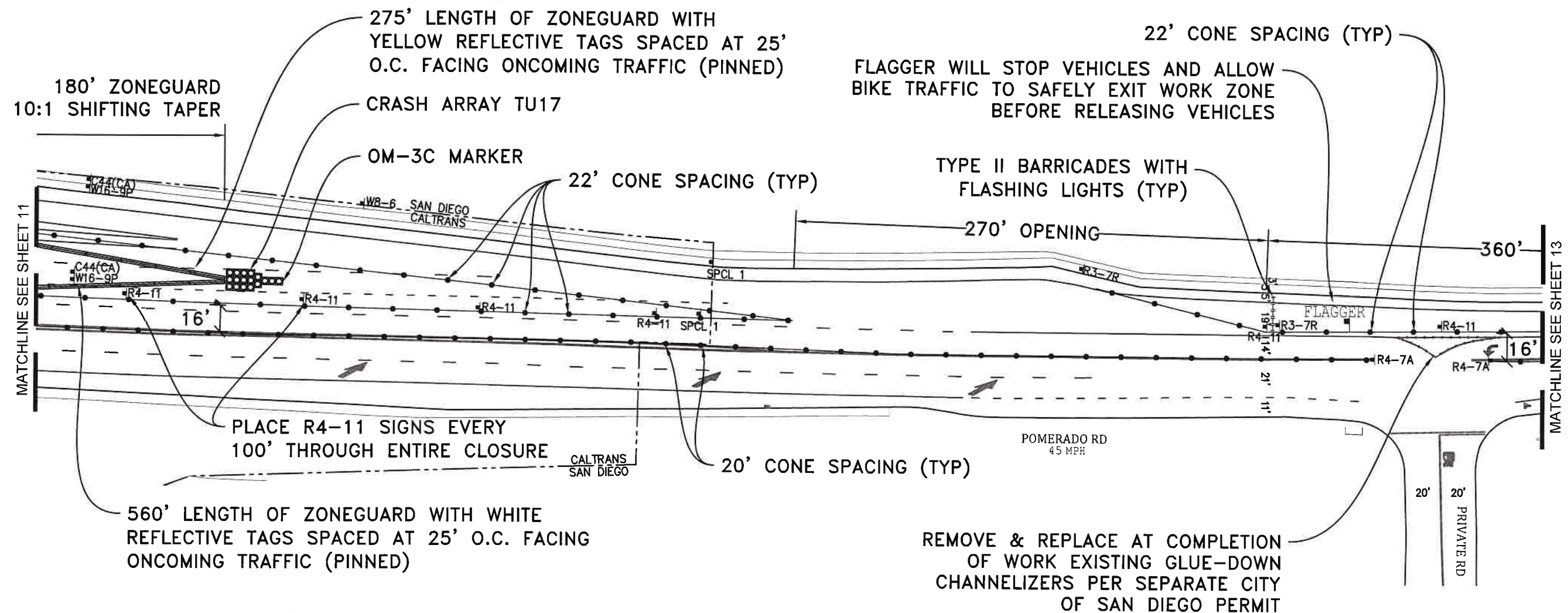
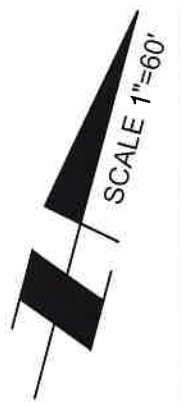
MISC/POTHOLE#:

DRAWN FOR: CALTRANS

TYPE OF WORK: TRENCHING / CONDUIT



SHEET 11 OF 48



NOTE: KEEP ZONEGUARD 1' FROM CURB

NOTE: ALL CONFLICTING MARKERS AND DEVICES WILL BE REMOVED WHEN EQUIPMENT IS NOT IN USE

NOTE: ZONEGUARD WILL BE INSTALLED AFTER 10PM AND REMOVED BY 5AM



SPCL 1

PHASE C - 3

PROJECT NAME: TL23071 - Sycamore Canyon Substation To Penasquitos Substation - 230 KV Underground

DATE: 2/22/2018  
 DESIGNED: Clint Jones  
 CHECKED BY: Mark Webb

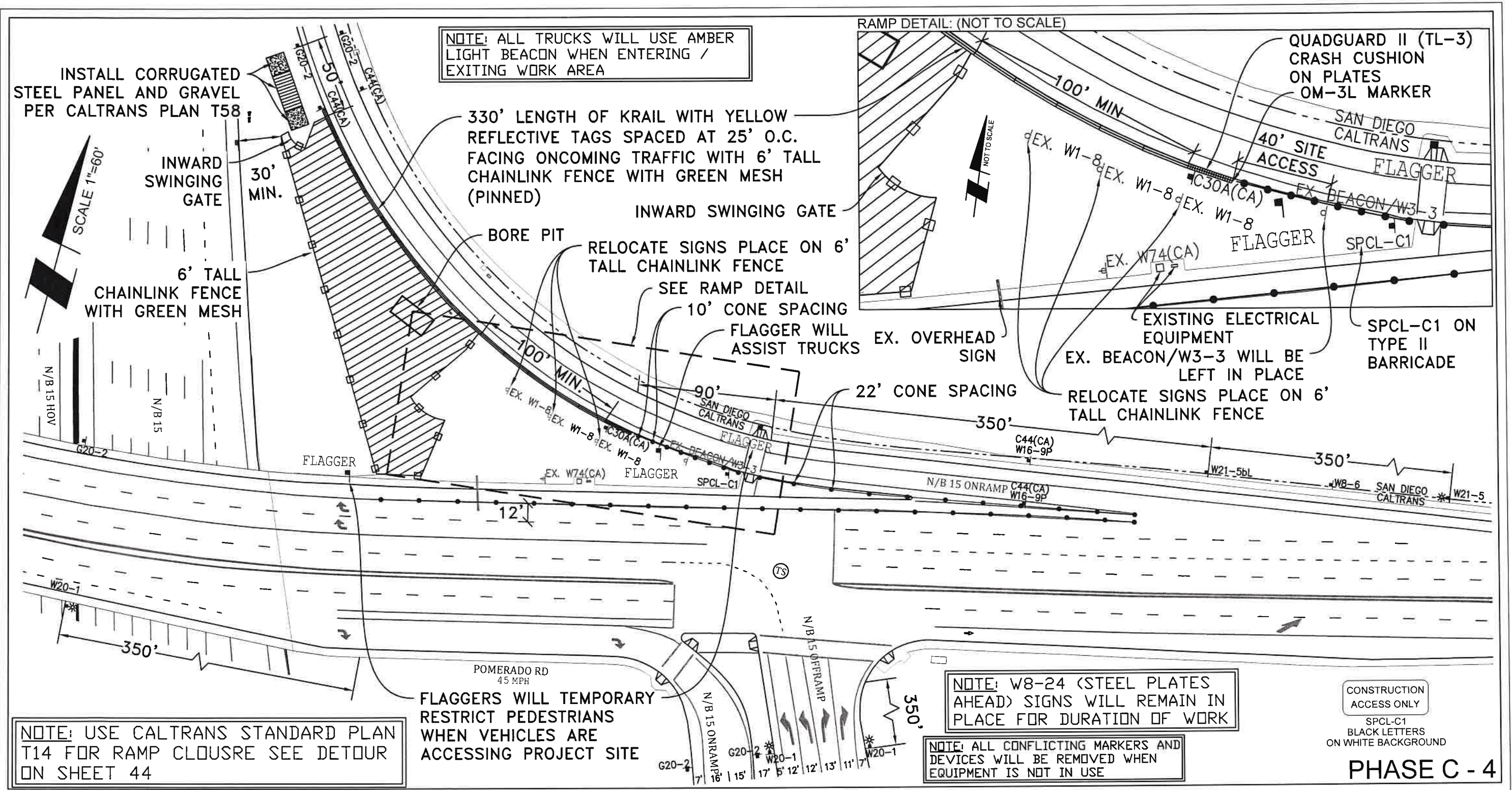
UTILITY SURVEYORS, INC.  
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AIRX JOB#: X160218  
 THOMAS GRID#: 1209-F6  
 MISC/POTHoles#:   
 DRAWN FOR: CALTRANS  
 TYPE OF WORK: TRENCHING / CONDUIT



SHEET 12 OF 48



NOTE: ALL TRUCKS WILL USE AMBER LIGHT BEACON WHEN ENTERING / EXITING WORK AREA

INSTALL CORRUGATED STEEL PANEL AND GRAVEL PER CALTRANS PLAN T58

330' LENGTH OF KRAIL WITH YELLOW REFLECTIVE TAGS SPACED AT 25' O.C. FACING ONCOMING TRAFFIC WITH 6' TALL CHAINLINK FENCE WITH GREEN MESH (PINNED)

RAMP DETAIL: (NOT TO SCALE)

QUADGUARD II (TL-3) CRASH CUSHION ON PLATES OM-3L MARKER

SCALE 1"=60'

INWARD SWINGING GATE 30' MIN.

6' TALL CHAINLINK FENCE WITH GREEN MESH

INWARD SWINGING GATE

RELOCATE SIGNS PLACE ON 6' TALL CHAINLINK FENCE

SEE RAMP DETAIL

10' CONE SPACING

FLAGGER WILL ASSIST TRUCKS

EX. OVERHEAD SIGN

EXISTING ELECTRICAL EQUIPMENT EX. BEACON/W3-3 WILL BE LEFT IN PLACE

SPCL-C1 ON TYPE II BARRICADE

RELOCATE SIGNS PLACE ON 6' TALL CHAINLINK FENCE

NOTE: USE CALTRANS STANDARD PLAN T14 FOR RAMP CLOSURE SEE DETOUR ON SHEET 44

FLAGGERS WILL TEMPORARY RESTRICT PEDESTRIANS WHEN VEHICLES ARE ACCESSING PROJECT SITE

NOTE: W8-24 (STEEL PLATES AHEAD) SIGNS WILL REMAIN IN PLACE FOR DURATION OF WORK

CONSTRUCTION ACCESS ONLY  
SPCL-C1  
BLACK LETTERS ON WHITE BACKGROUND

NOTE: ALL CONFLICTING MARKERS AND DEVICES WILL BE REMOVED WHEN EQUIPMENT IS NOT IN USE

PHASE C - 4

PROJECT NAME: TL23071 - Sycamore Canyon Substation To Penasquitos Substation - 230 KV Underground

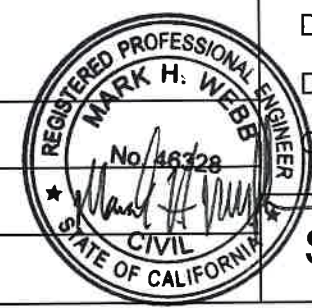
DATE: 2/22/2018  
DESIGNED: Clint Jones  
CHECKED BY: Mark Webb

UTILITY SURVEYORS, INC.  
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AIRX JOB#: X160218  
MISC/POTHOLE#:   
TYPE OF WORK: BORING

THOMAS GRID#: 1209-F6  
DRAWN FOR: CALTRANS



SHEET 15 OF 48