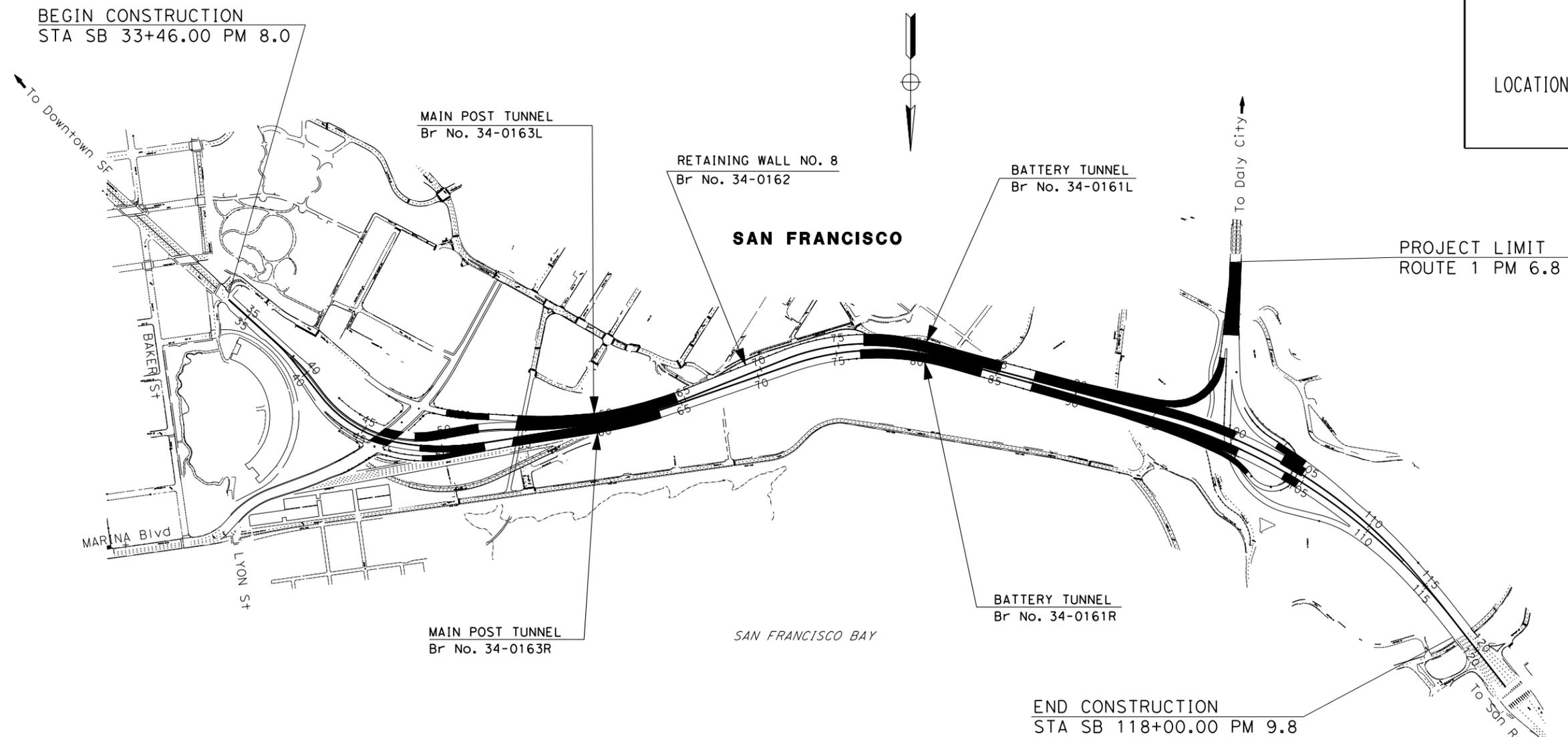


STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY

DOYLE DRIVE SOUTH ACCESS TO
THE GOLDEN GATE BRIDGE
MAIN POST TUNNELS, RETAINING WALL NO. 8,
AND BATTERY TUNNELS



PROJECT MANAGER

DESIGN ENGINEER

PROJECT ENGINEER _____ DATE _____
REGISTERED CIVIL ENGINEER



PLANS APPROVAL DATE _____
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THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO CONTRACTORS."

INDEX OF DRAWINGS

SHEET No. PAGE No. TITLE

GENERAL

- 1 X001 COVER SHEET
- 2 X002 INDEX OF DRAWINGS

STRUCTURE - Main Post Tunnel

- 3 S101 GENERAL PLAN
- 4 S102 HALLECK STREET OVERCROSSING DETAILS 1
- 5 S103 HALLECK STREET OVERCROSSING DETAILS 2
- 6 S104 TYPICAL SECTIONS 1
- 7 S105 TYPICAL SECTIONS 2
- 8 S106 DEMOLITION/CONSTRUCTION SEQUENCE
- 9 S107 CDSM GROUND IMPROVEMENT

STRUCTURE - Retaining Wall No. 8

- 10 S201 PLAN AND ELEVATION
- 11 S202 GENERAL PLAN 1
- 12 S203 GENERAL PLAN 2
- 13 S204 GENERAL PLAN 3
- 14 S205 TYPICAL WALL SECTIONS

STRUCTURE - Battery Tunnel

- 15 S301 GENERAL PLAN
- 16 S302 ELEVATIONS
- 17 S303 TYPICAL SECTIONS 1
- 18 S304 TYPICAL SECTIONS 2
- 19 S305 CONSTRUCTION SEQUENCE

GEOTECHNICAL

- 20 G101 MAIN POST TUNNEL - LOTB North Bound - Sta. 52+90 to Sta. 57+00
- 21 G102 MAIN POST TUNNEL - LOTB South Bound - Sta. 53+95 to Sta. 59+60
- 22 G201 RETAINING WALL No. 8 - LOTB - Sta. 59+75 to Sta. 66+90
- 23 G202 RETAINING WALL No. 8 - LOTB - Sta. 74+25 to Sta. 80+50
- 24 G301 BATTERY TUNNEL - LOTB North Bound - Sta.74+40 to Sta. 79+15
- 25 G302 BATTERY TUNNEL - LOTB North Bound - Sta.82+25 to Sta. 85+90
- 26 G303 BATTERY TUNNEL - LOTB South Bound - Sta.80+50 to Sta. 85+90

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	101	8.0/9.8	2	

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

No. _____

Exp. _____

CIVIL

STATE OF CALIFORNIA

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DESIGN OVERSIGHT	DESIGN BY	CHECKED	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO.	TUNNEL TYPE SELECTION INDEX OF DRAWINGS
SIGN OFF DATE	DETAILS BY	CHECKED		PROJECT ENGINEER	
	QUANTITIES BY	CHECKED		POST MILE	
DESIGN DETAIL SHEET (ENGLISH) (REV. 2/25/05)	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	CU EA	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)

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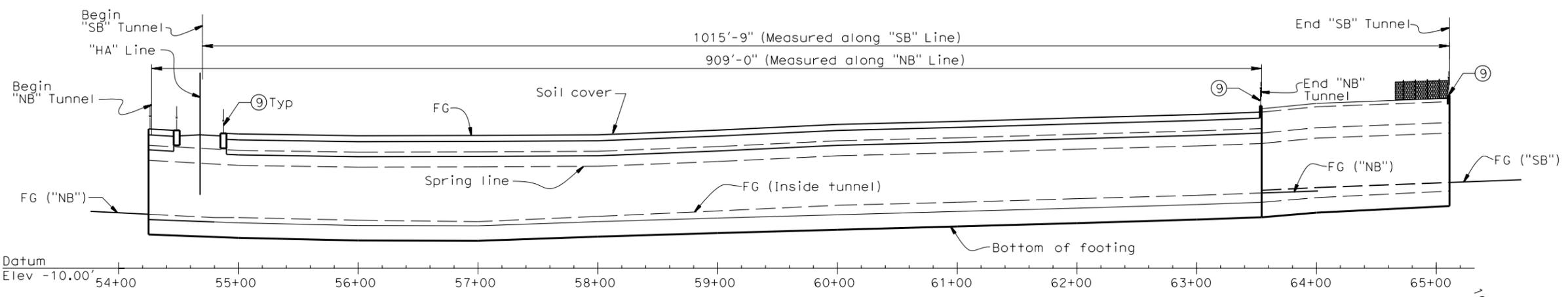
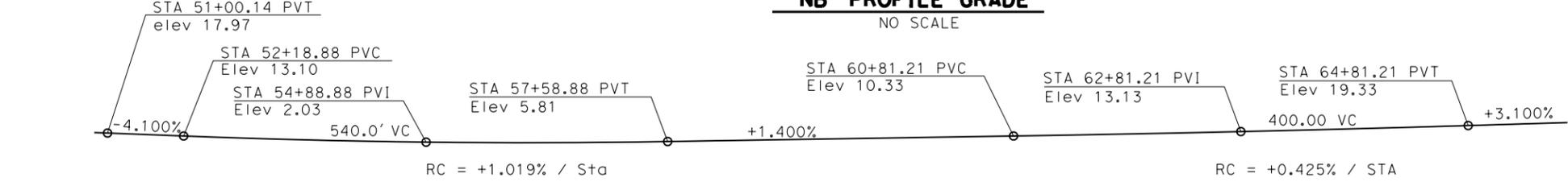
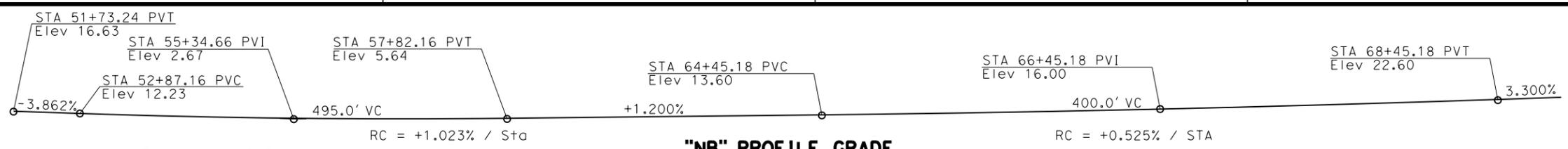
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REGISTERED CIVIL ENGINEER DATE _____

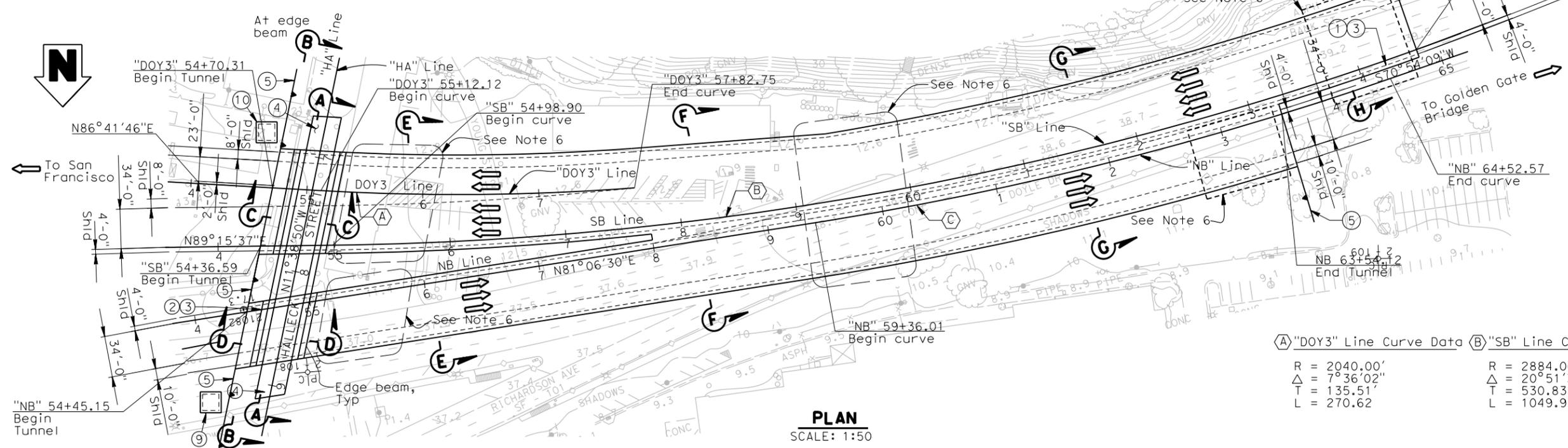
PLANS APPROVAL DATE _____

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ELEVATION
SCALE: 1" = 50' (H)
1" = 20' (V)



(A) "DOY3" Line Curve Data	(B) "SB" Line Curve Data	(C) "NB" Line Curve Data
R = 2040.00'	R = 2884.00'	R = 2900.00'
Δ = 7°36'02"	Δ = 20°51'30"	Δ = 10°12'21"
T = 135.51'	T = 530.83'	T = 258.97'
L = 270.62'	L = 1049.91'	L = 516.57'

- NOTES:**
- For Sections A-A and B-B, see "General Plan No. 2" sheet.
 - For Sections C-C and D-D, see "General Plan No. 3" sheet.
 - For Sections E-E and F-F, see "General Plan No. 4" sheet.
 - For Sections G-G and H-H, see "General Plan No. 5" sheet.
 - For "DOY3" Line and "HA" Line profile grades, see "General Plan No. 3" sheet.
 - Proposed location of mechanical jet fans, if required for ventilation. Jet fans will require a minimum 2' recess in the roof slab over an approximate length of 75'.

- LEGEND:**
- ← Direction of traffic
 - ① Paint "Bridge No. 34-0163L"
 - ② Paint "Bridge No. 34-0163R"
 - ③ Paint "Main Post Tunnel"
 - ④ Structure Approach Type N(30S)
 - ⑤ Retaining wall
 - ⑧ Architectural fence
 - ⑨ Main post drainage sump
 - ⑩ Substation

PLAN
SCALE: 1:50

DESIGN OVERSIGHT	DESIGN	BY	CHECKED	LOAD FACTOR DESIGN	LIVE LOADING: HL 93 W/ "LOW-BOY"; PERMIT DESIGN VEHICLE	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 34-0163L/R	MAIN POST TUNNEL GENERAL PLAN
SIGN OFF DATE	DETAILS	BY	CHECKED	LAYOUT	CHECKED	PROJECT ENGINEER	POST MILES	
	QUANTITIES	BY	CHECKED	SPECIFICATIONS	PLANS AND SPECS COMPARED			REVISION DATES (PRELIMINARY STAGE ONLY)

DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 2/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CU X
EA X

DISREGARD PRINTS BEARING EARLIER REVISION DATES

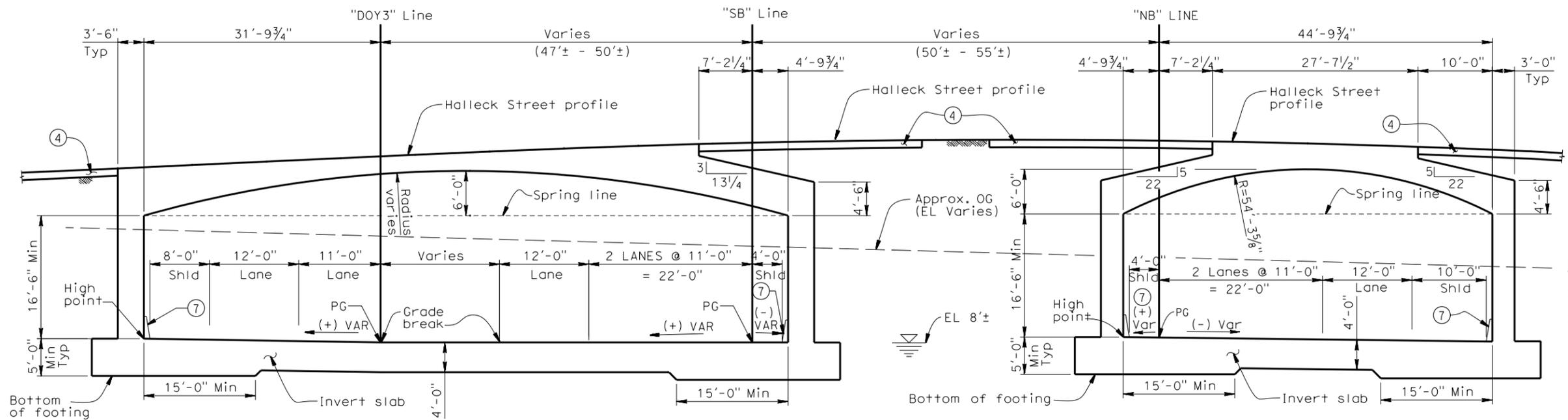
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	101	8.0/9.8	4	

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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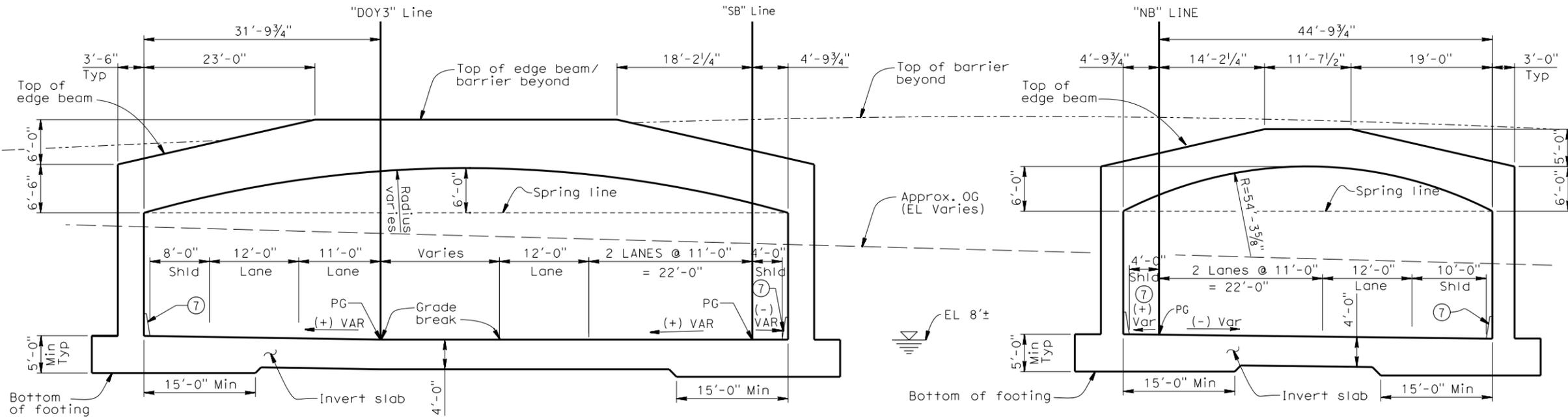
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SECTION A-A
 1/8"=1'-0"

- NOTES:**
- ④ Structure approach Type N(30S).
 - ⑦ Concrete barrier Type 60D.

LEGEND:
 WATERTABLE



ALONG EDGE BEAM
SECTION B-B
 1/8"=1'-0"

X DESIGN OVERSIGHT X SIGN OFF DATE	DESIGN	BY	CHECKED X	LOAD FACTOR DESIGN	BY	CHECKED X	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO.	34-0163L/R	MAIN POST TUNNEL HALLECK STREET OVERCROSSING DETAILS 1
	DETAILS	BY	CHECKED X	LAYOUT	BY	CHECKED X		PROJECT ENGINEER	POST MILES	
	QUANTITIES	BY X	CHECKED X	SPECIFICATIONS	BY X	CHECKED X		PLANS AND SPECS COMPARED X	CU X EA X	
DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 2/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3										
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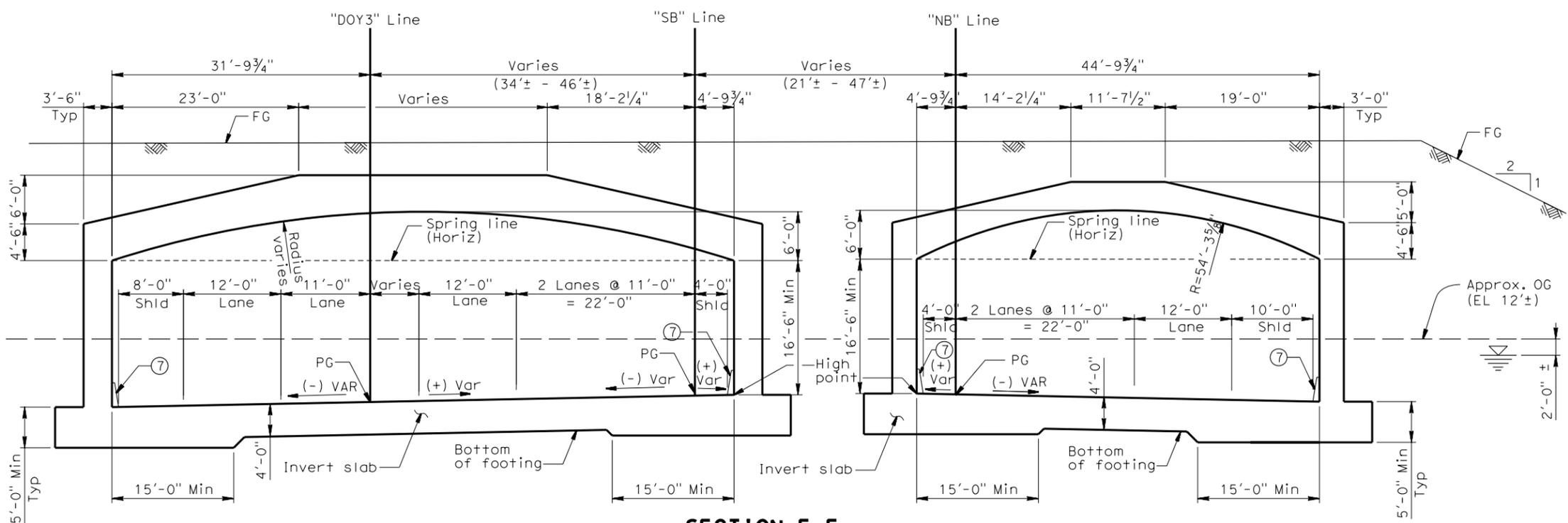
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REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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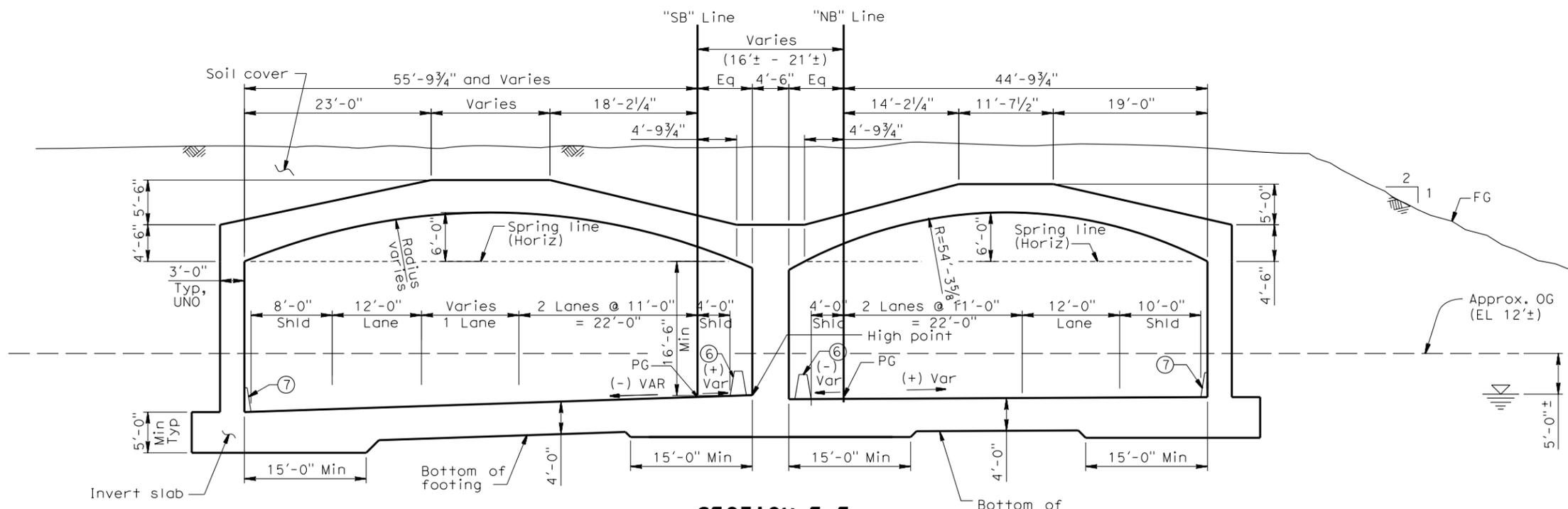
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SECTION E-E
 SCALE: 1/8" = 1'-0"

- NOTES:**
- ⑥ Concrete barrier Type 60
 - ⑦ Concrete barrier Type 60D

LEGEND:
 Watertable



SECTION F-F
 SCALE: 1/8" = 1'-0"

X DESIGN OVERSIGHT X SIGN OFF DATE	DESIGN	BY	CHECKED X	LOAD FACTOR DESIGN	BY	CHECKED X	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 34-0163L/R	MAIN POST TUNNEL TYPICAL SECTIONS 1		
	DETAILS	BY	CHECKED X	LAYOUT	BY	CHECKED X		PROJECT ENGINEER		POST MILES	
	QUANTITIES	BY X	CHECKED X	SPECIFICATIONS	BY X	CHECKED X		PLANS AND SPECS COMPARED X		CU X EA X	REVISION DATES (PRELIMINARY STAGE ONLY)
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	101	8.0/9.8	7	

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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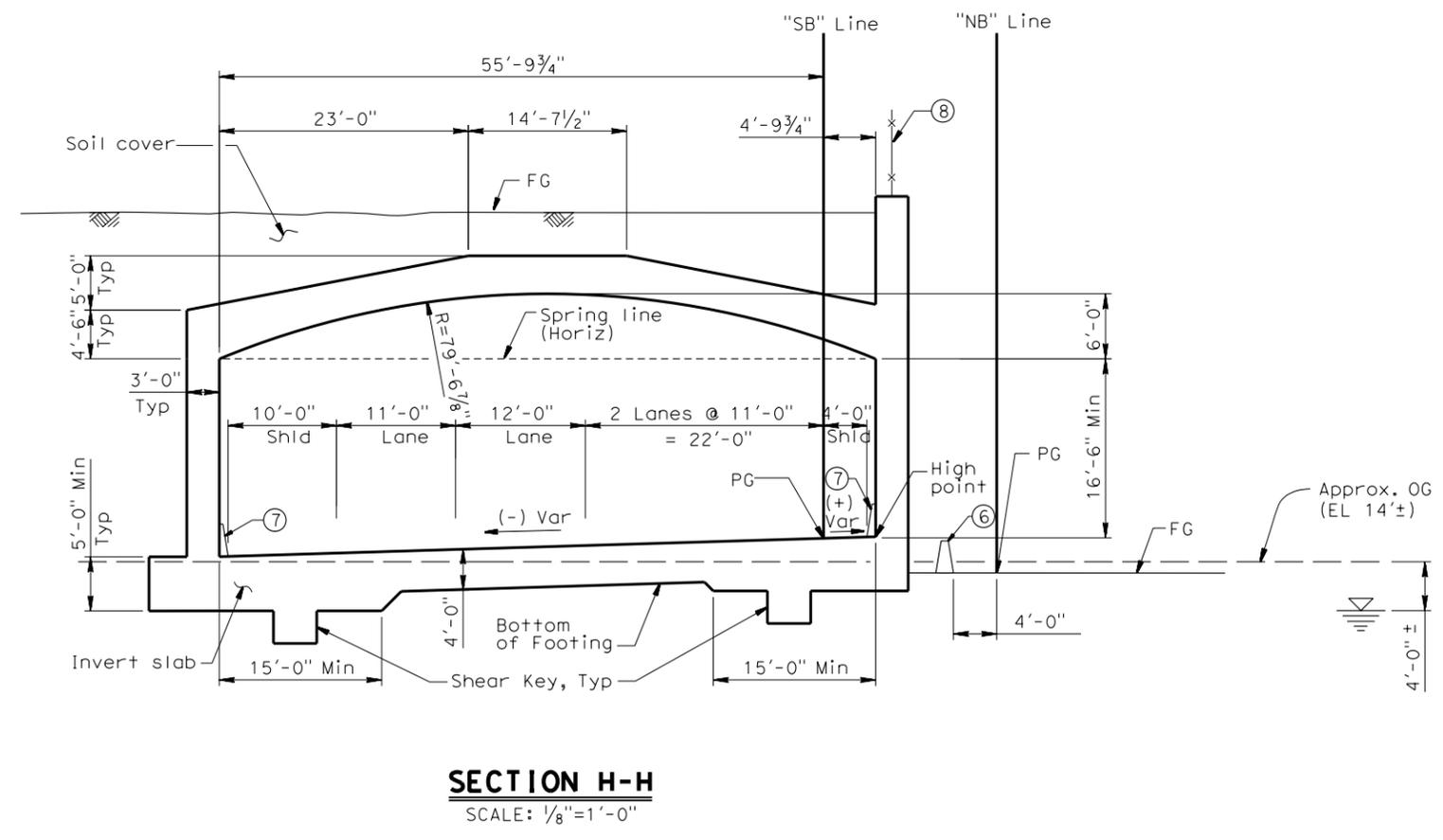
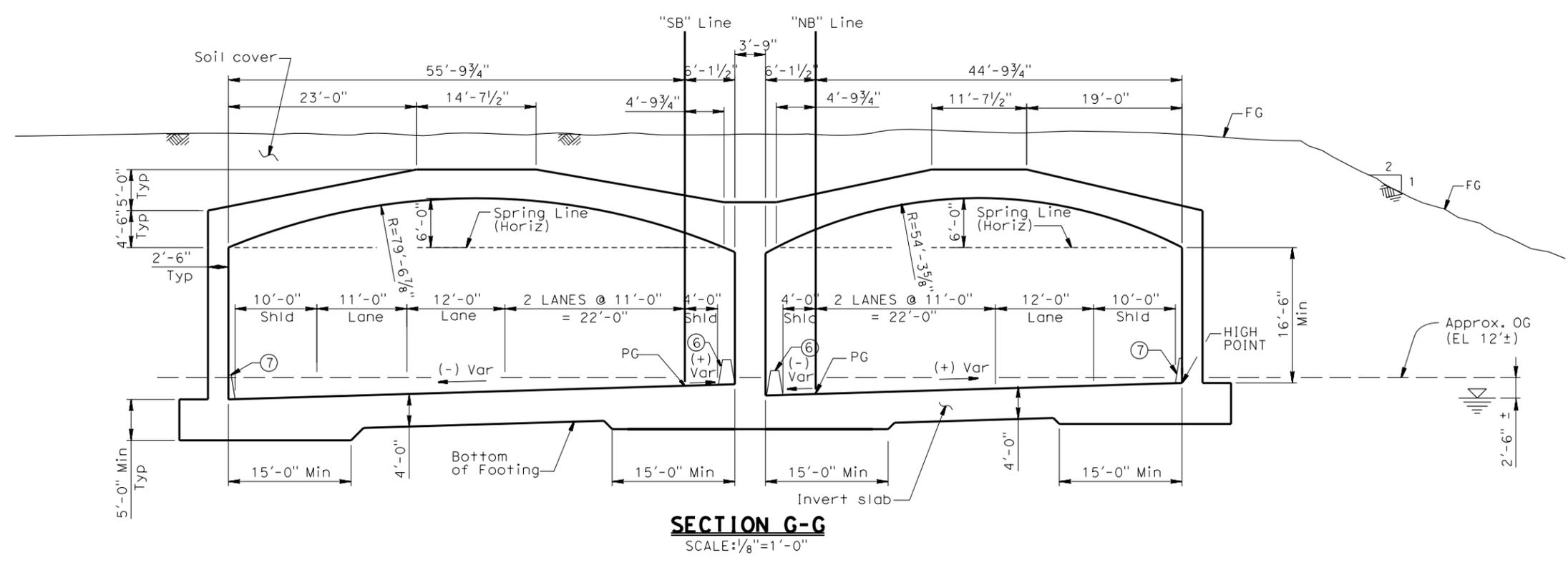


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NOTES:

- ⑥ Concrete barrier Type 60.
- ⑦ Concrete barrier Type 60D.
- ⑧ Architectural fence

LEGEND:



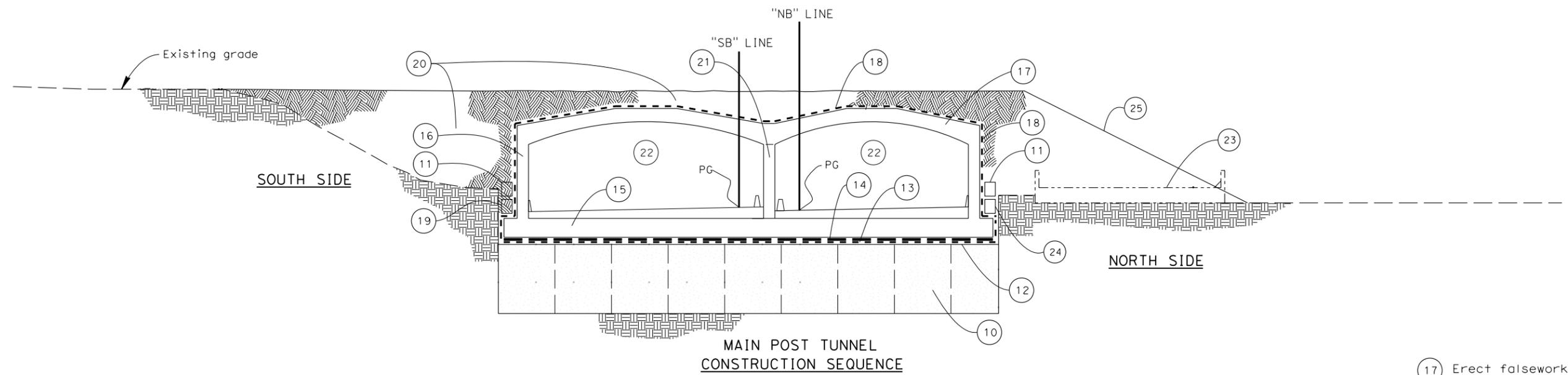
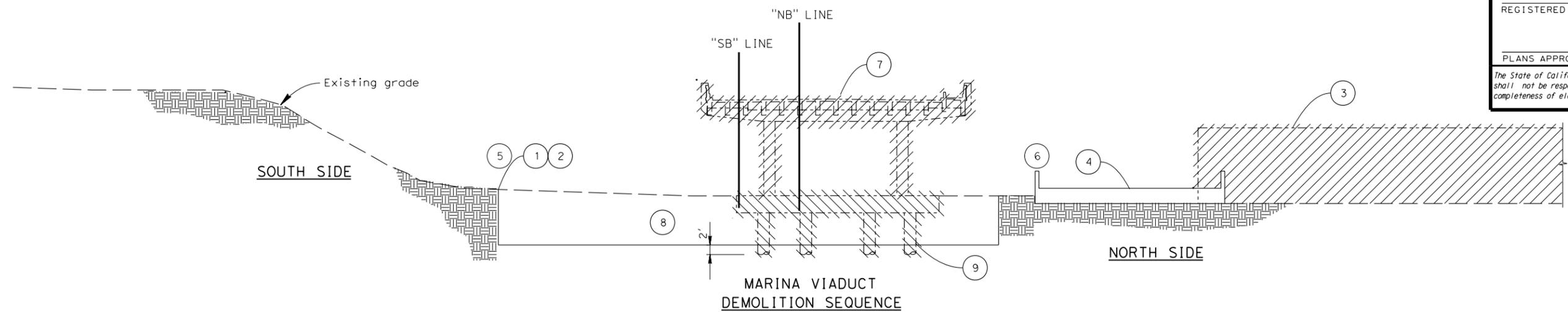
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	DETAILS BY	CHECKED X	LAYOUT BY	CHECKED X		PROJECT ENGINEER		POST MILES	
	QUANTITIES BY X	CHECKED X	SPECIFICATIONS BY X	PLANS AND SPECS COMPARED X					
DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 2/25/05)					ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU X EA X	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	101	8.0/9.8	8	

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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SECTION @ STA "NB" 60+00
NOT TO SCALE

MARINA VIADUCT BRIDGE REMOVAL SEQUENCE

- ① Access site from left lane exit/entrance to Richardson Ave or from Halleck St.
- ② Exit the site with left merge onto Richardson Ave or south on Halleck St.
- ③ Demolish building to north of Marina Viaduct between Station 59 and 62.
- ④ Construction detour to north side of NB Doyle Drive from east end of project up to Station 66.
- ⑤ Construct Retaining Wall 8 on the south side of SB Doyle Drive from Station 65+50 to Station 80. Construct SB Battery tunnel structure.

- ⑥ Complete detour in At-Grade construction in conjunction with Marina Viaduct Removal between station 66 and 71. This will require a weekend closure for removal of 500 feet of concrete viaduct, cleanup, some fill, paving and striping.
- ⑦ Demolish and remove above grade portion of Marina Viaduct.
- ⑧ Excavate to bottom grade of Main Post Tunnel. Dewater site. During excavation remove Marina Viaduct pile caps and piles.
- ⑨ Demolish pile caps and cut existing timber piles two feet below bottom of new invert concrete.
- ⑩ Construct ground improvement, impact rammed aggregate piers (RAPs) or cement deep soli mix (CDSM).

MAIN POST TUNNEL CONSTRUCTION SEQUENCE

- ⑪ Install underground utilities including drainage pipe at NB and SB sag curves (Station 55 ±).
- ⑫ Cast seal course concrete.
- ⑬ Install waterproofing on seal course.
- ⑭ Cast protective concrete on waterproofing but leave edges of waterproofing to seal against waterstops.
- ⑮ Place rebar and concrete for invert slab. Place dowels into invert for starting wall reinforcing.
- ⑯ Construct forms, place rebar and concrete for walls.

- ⑰ Erect falsework, place rebar and concrete for roof.
- ⑱ Install waterproofing around perimeter of walls and roof.
- ⑲ Install drainage system on south side walls.
- ⑳ Protect waterproofing during backfilling and complete backfill at the south side of structure and on roof.
- ㉑ Complete electrical, lighting, life-safety, and roadway items as required to make tunnel functional.
- ㉒ Move NB and SB Doyle Drive traffic to the Main Post Tunnel.
- ㉓ Remove detour.
- ㉔ Install drainage system on north side walls.
- ㉕ Protect waterproofing during backfilling and complete backfill at the north side of structure.

DESIGN OVERSIGHT	DESIGN	BY	CHECKED	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO.		MAIN POST TUNNEL DEMOLITION/CONSTRUCTION SEQUENCE
SIGN OFF DATE	DETAILS	BY	CHECKED	PROJECT ENGINEER	POST MILE		REVISION DATES (PRELIMINARY STAGE ONLY)
DESIGN DETAIL SHEET (ENGLISH) (REV. 2/25/05)				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	CU EA	DISREGARD PRINTS BEARING EARLIER REVISION DATES

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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
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REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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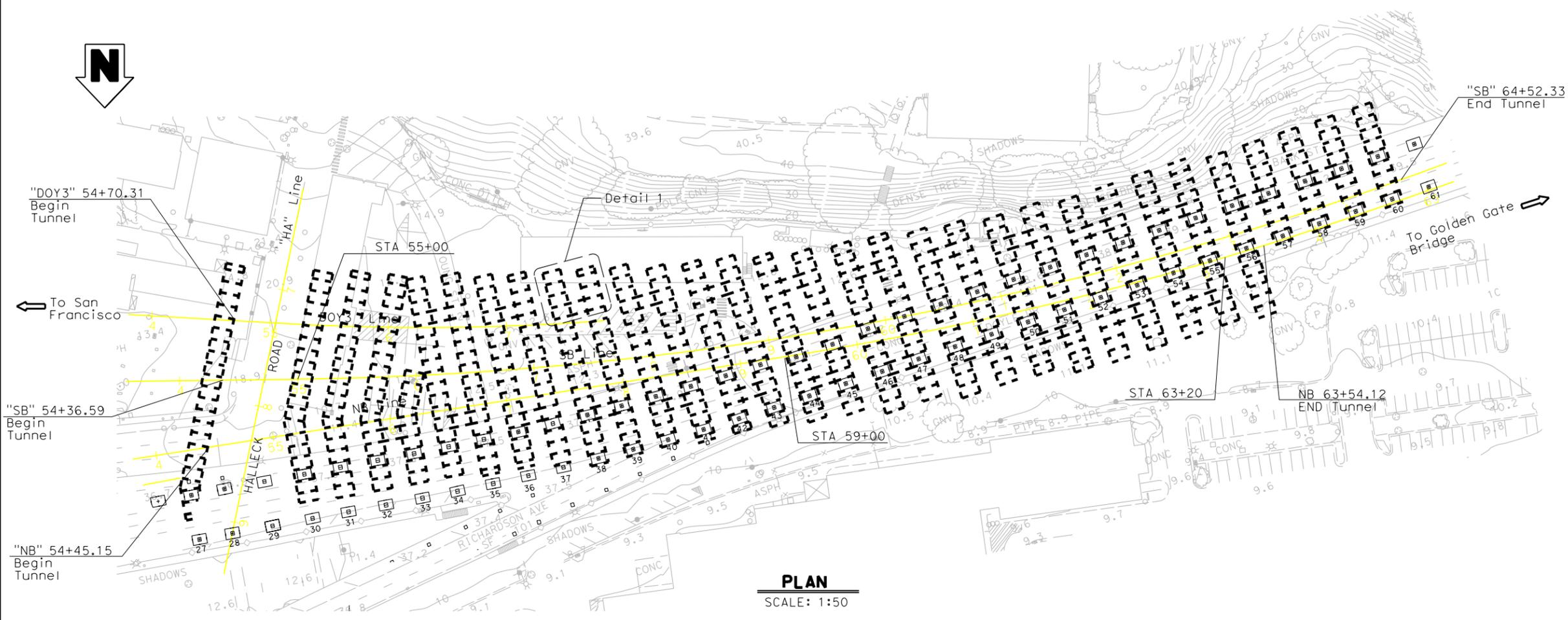
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NOTES:

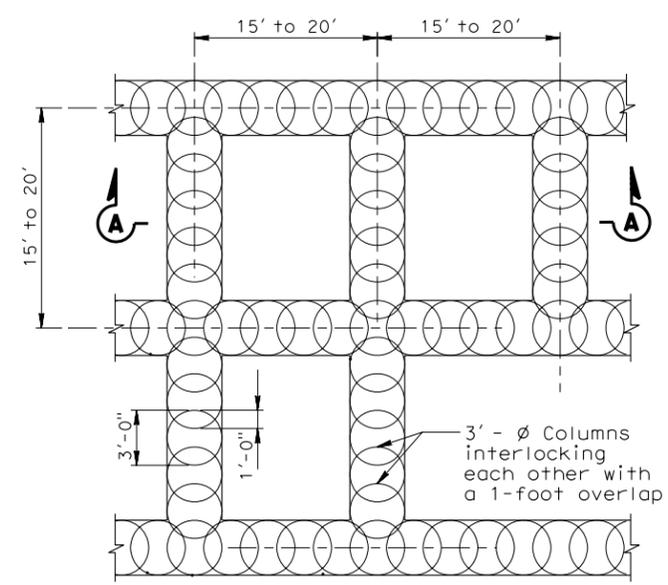
- Existing timber piles at north bound to remain after the top 2 feet of the timber pile is cut.
- Existing pile caps P1 and P2 @ north bound are of dimensions 11.5' x 11.5' and 12' x 9' respectively.
- P1 and P2 carry 13 and 12 timber piles, respectively.
- Pile caps P1 located between STA 54+75 and STA 59+00.
- Pile caps P2 located between STA 59+00 and STA 63+20.

LEGEND:

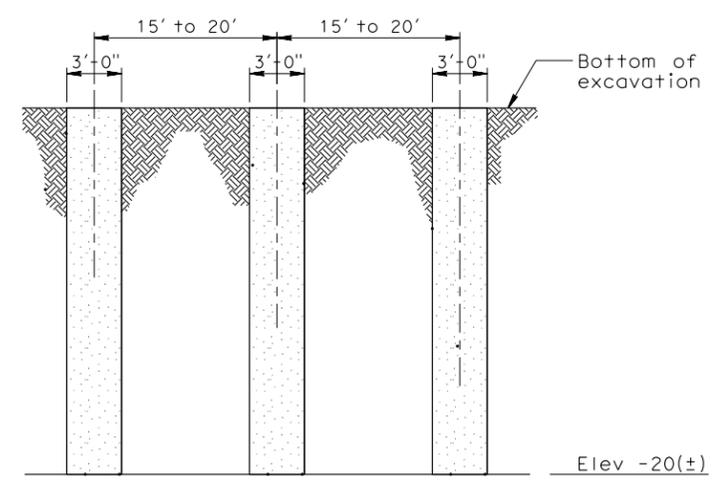
Existing viaduct footing



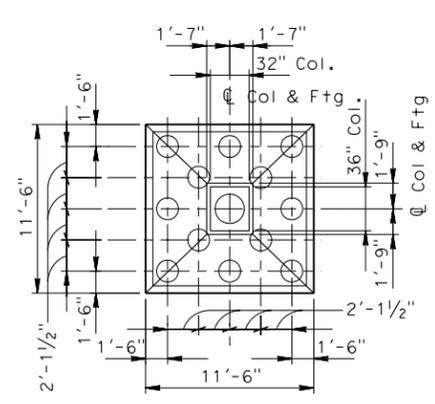
PLAN
SCALE: 1:50



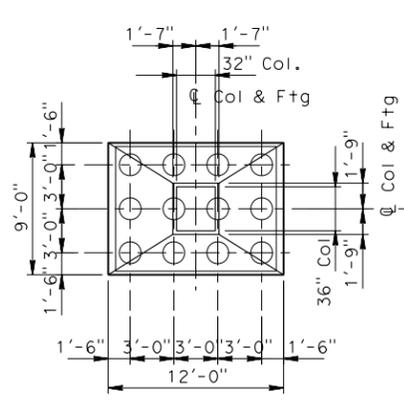
DETAIL 1
NO SCALE



SECTION A-A
NO SCALE



FOOTING P-1
NO SCALE
(13 PILES)



FOOTING P-2
NO SCALE
(12 PILES)

X	DESIGN OVERSIGHT	BY	CHECKED	X
X	DETAILS	BY	CHECKED	X
X	QUANTITIES	BY	CHECKED	X
	SIGN OFF DATE			

DESIGN	BY	CHECKED	X	LOAD FACTOR DESIGN	BY	CHECKED	X
DETAILS	BY	CHECKED	X	LAYOUT	BY	CHECKED	X
QUANTITIES	BY	CHECKED	X	SPECIFICATIONS	BY	CHECKED	X

LIVE LOADING:	HL 93 W/ "LOW-BOY"; PERMIT DESIGN VEHICLE
PLANS AND SPECS COMPARED	X

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

PROJECT ENGINEER

BRIDGE NO.	34-0163L/R
POST MILES	

MAIN POST TUNNEL CDSM GROUND IMPROVEMENT

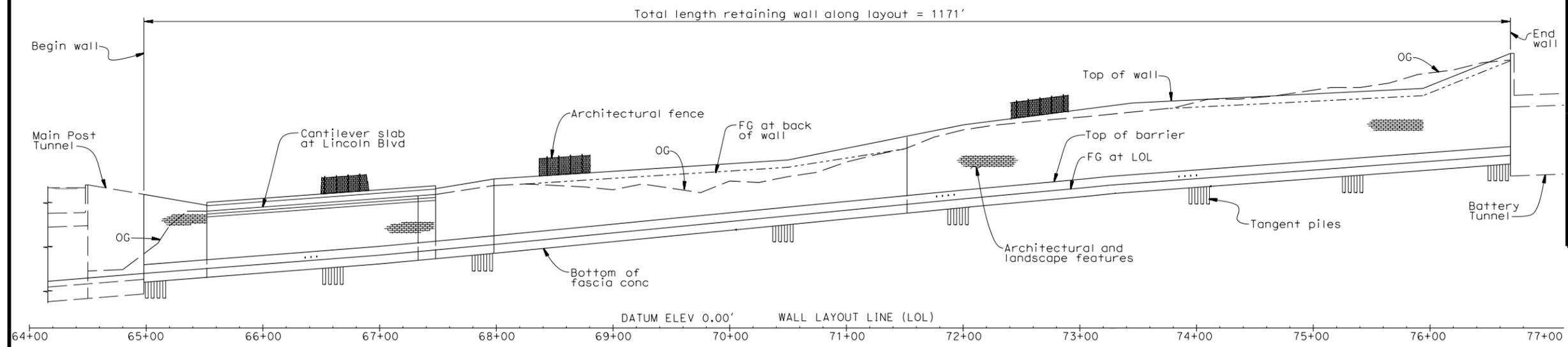
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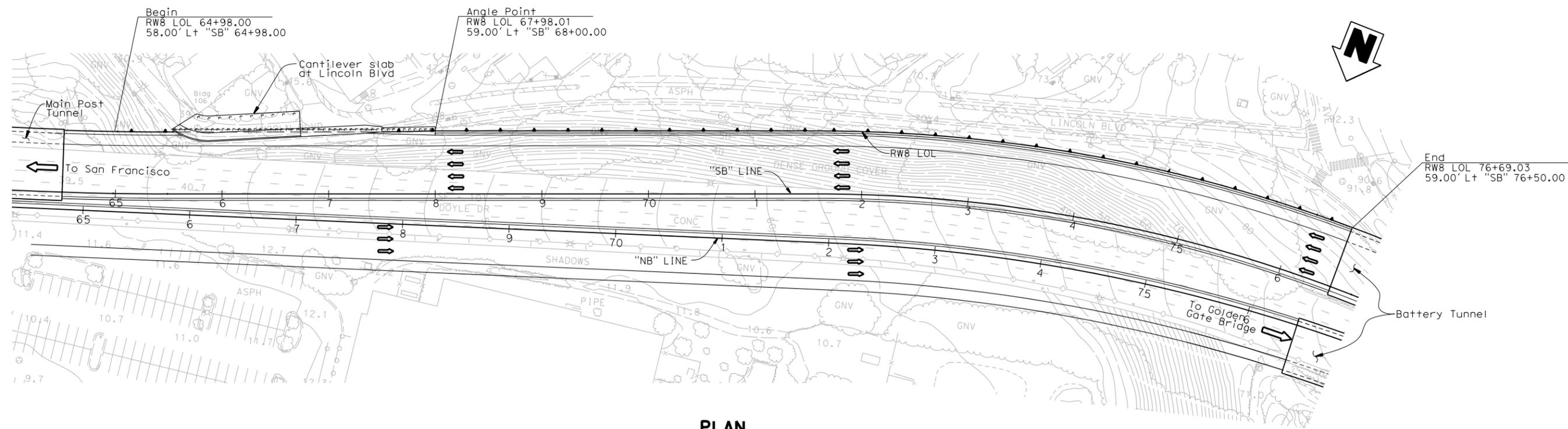
REGISTERED CIVIL ENGINEER DATE _____
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ELEVATION
 SCALE: Horiz 1:50
 Vert 1:20



PLAN
 1:50

X DESIGN OVERSIGHT X SIGN OFF DATE	DESIGN	BY	CHECKED X	LOAD FACTOR DESIGN	LIVE LOADING: HL 93 W/ "LOW-BOY"; PERMIT DESIGN VEHICLE	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 34-0162	RETAINING WALL NO.8 PLAN AND ELEVATION
	DETAILS	BY	CHECKED X	LAYOUT	BY		CHECKED X	
	QUANTITIES	BY X	CHECKED X	SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X		

DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 2/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

CU X
EA X

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

FILE => T:\13269 Doyle Dr GEC\Sheet Files\Structures\Type Selection FINAL\Ret Wall\34-0162r1-a-app05.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	101	8.0/9.8	11	

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

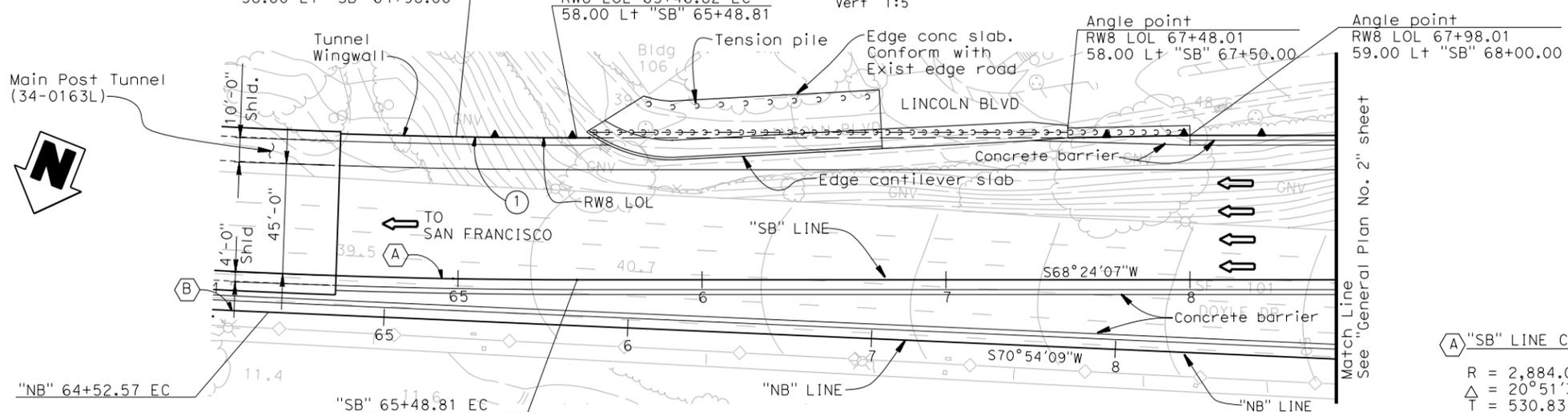
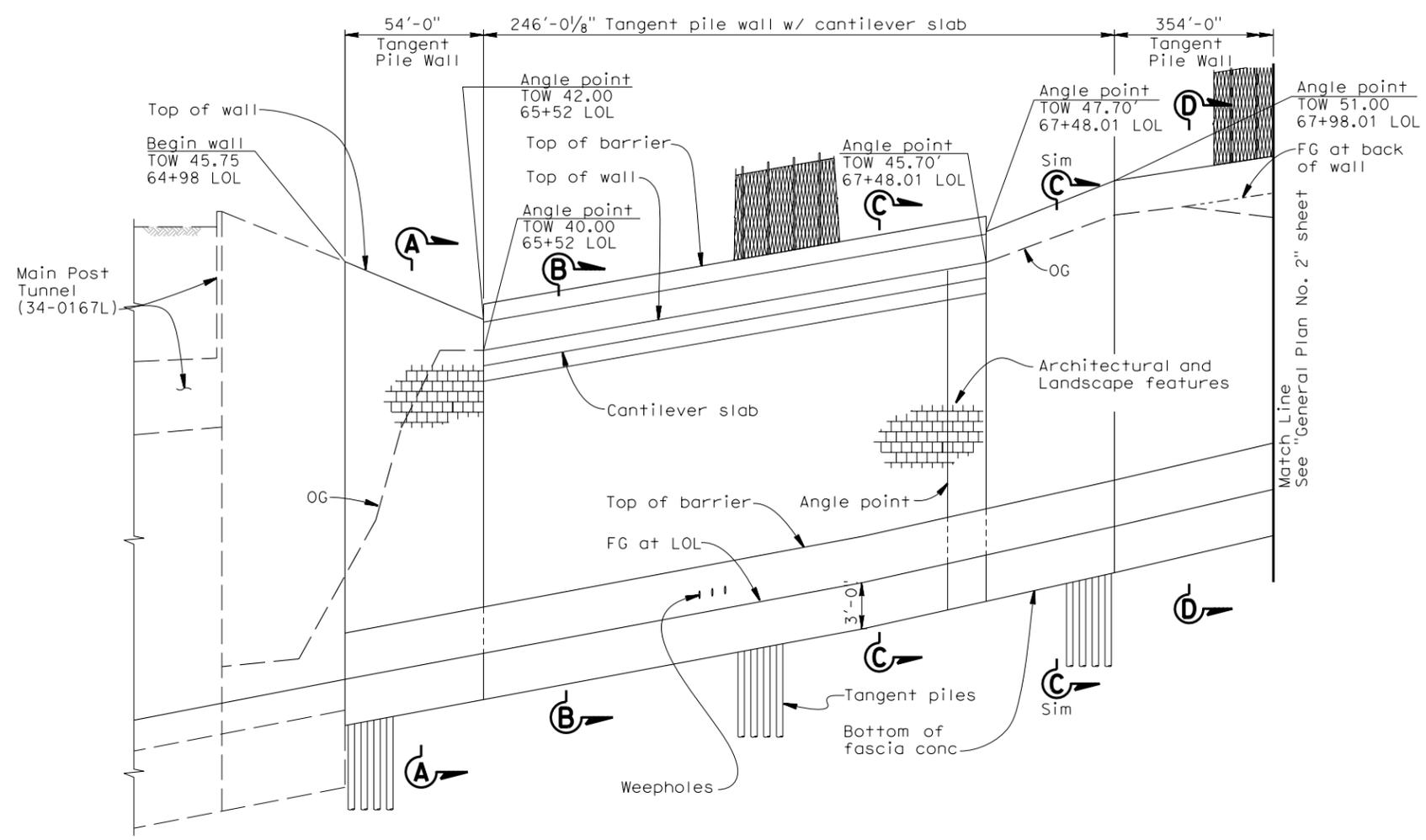
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REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____
CIVIL
STATE OF CALIFORNIA

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NOTES:

- The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.
- All Horizontal dimensions are measured along the wall (LOL).
- The contours shown on the "Plan" are existing.
- For Sections A-A, B-B, C-C and D-D, see "General Plan No.4" sheet.



LEGEND:
← Direction of traffic

A "SB" LINE CURVE DATA	B "NB" Line CURVE DATA	1 RW8 CURVE DATA
R = 2,884.00'	R = 2,900.00'	R = 2,826.00'
Δ = 20°51'30"	Δ = 10°12'21"	Δ = 0°59'23"
T = 530.83'	T = 258.97'	T = 24.41'
L = 1,049.91'	L = 516.57'	L = 48.82'

DESIGN OVERSIGHT	DESIGN	BY	CHECKED	LOAD FACTOR DESIGN	LIVE LOADING: HL 93 W/ "LOW-BOY"; PERMIT DESIGN VEHICLE	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 34-0162	RETAINING WALL NO. 8	
SIGN OFF DATE	DETAILS	BY	CHECKED	LAYOUT	CHECKED	PROJECT ENGINEER	POST MILES	GENERAL PLAN 1	
	QUANTITIES	BY	CHECKED	SPECIFICATIONS	PLANS AND SPECS COMPARED			REVISION DATES (PRELIMINARY STAGE ONLY)	

DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 2/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3 CU X EA X DISREGARD PRINTS BEARING EARLIER REVISION DATES

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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
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REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

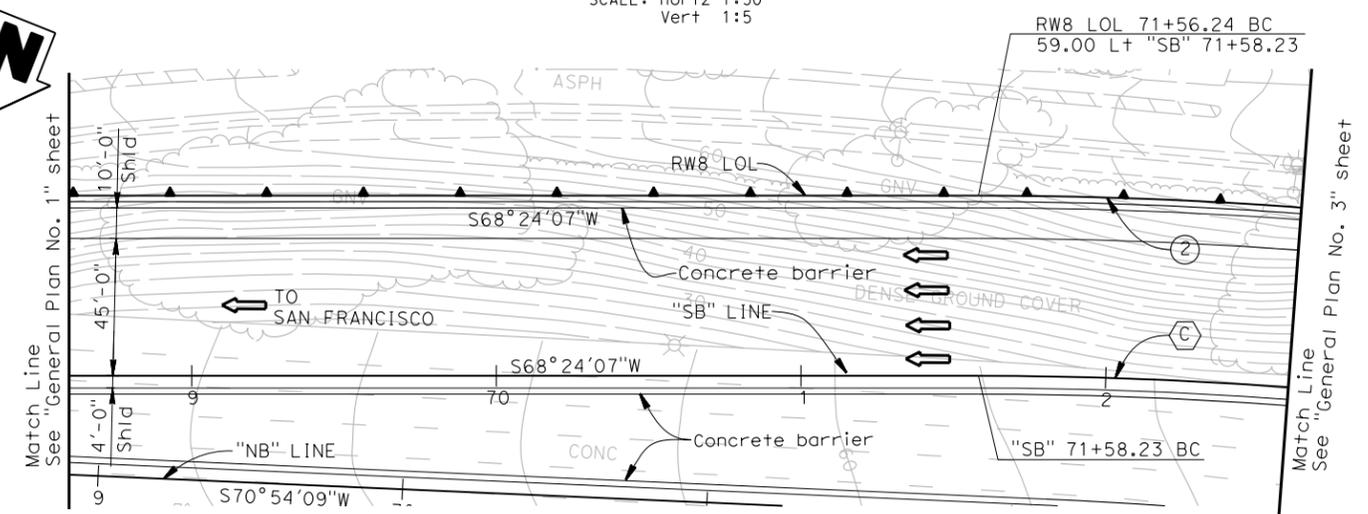
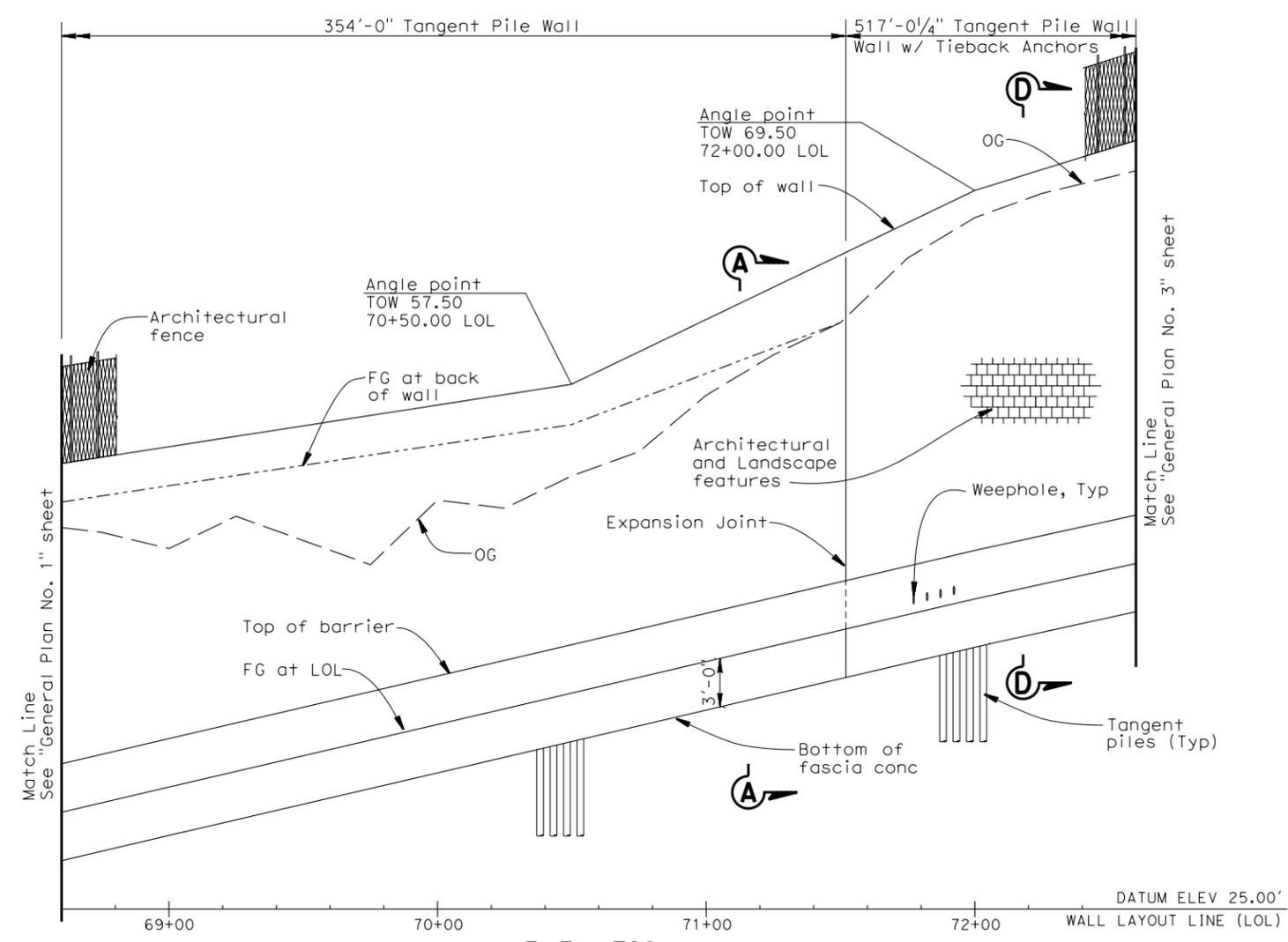
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NOTES:

1. The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.
2. All Horizontal dimensions are measured along the wall (LOL).
3. The contours shown on the "Plan" are existing.
4. For Sections A-A and D-D, see "General Plan No.4" sheet.



② RW8 CURVE DATA
R = 1,439.00'
Δ = 20°25'03"
T = 259.14
L = 512.79

Ⓒ "SB" Line CURVE DATA
R = 1,380.00'
Δ = 36°24'25"
T = 453.81
L = 876.88

LEGEND:
← Direction of traffic

PLAN
1:30

X DESIGN OVERSIGHT X SIGN OFF DATE	DESIGN	BY	CHECKED X	LOAD FACTOR DESIGN	BY	CHECKED X	LIVE LOADING: HL 93 W/ "LOW-BOY"; PERMIT DESIGN VEHICLE	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 34-0162	RETAINING WALL NO. 8 GENERAL PLAN 2
	DETAILS	BY	CHECKED X	LAYOUT	BY	CHECKED X	PLANS AND SPECS COMPARED X		POST MILES	
	QUANTITIES	BY X	CHECKED X	SPECIFICATIONS	BY X					

DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 2/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

CU X
EA X

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET OF

FILE => T:\13269 Doyle Dr GEC\Sheet Files\Structures\Type Selection FINAL\Ret Wall\34-0162r1-a-agg02.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
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REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

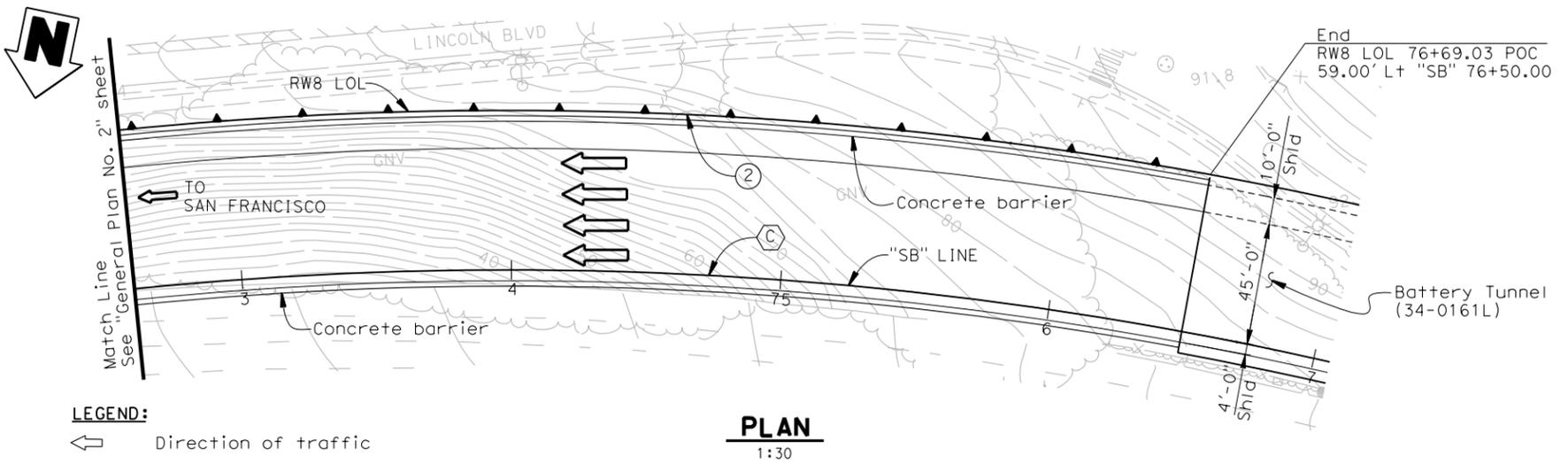
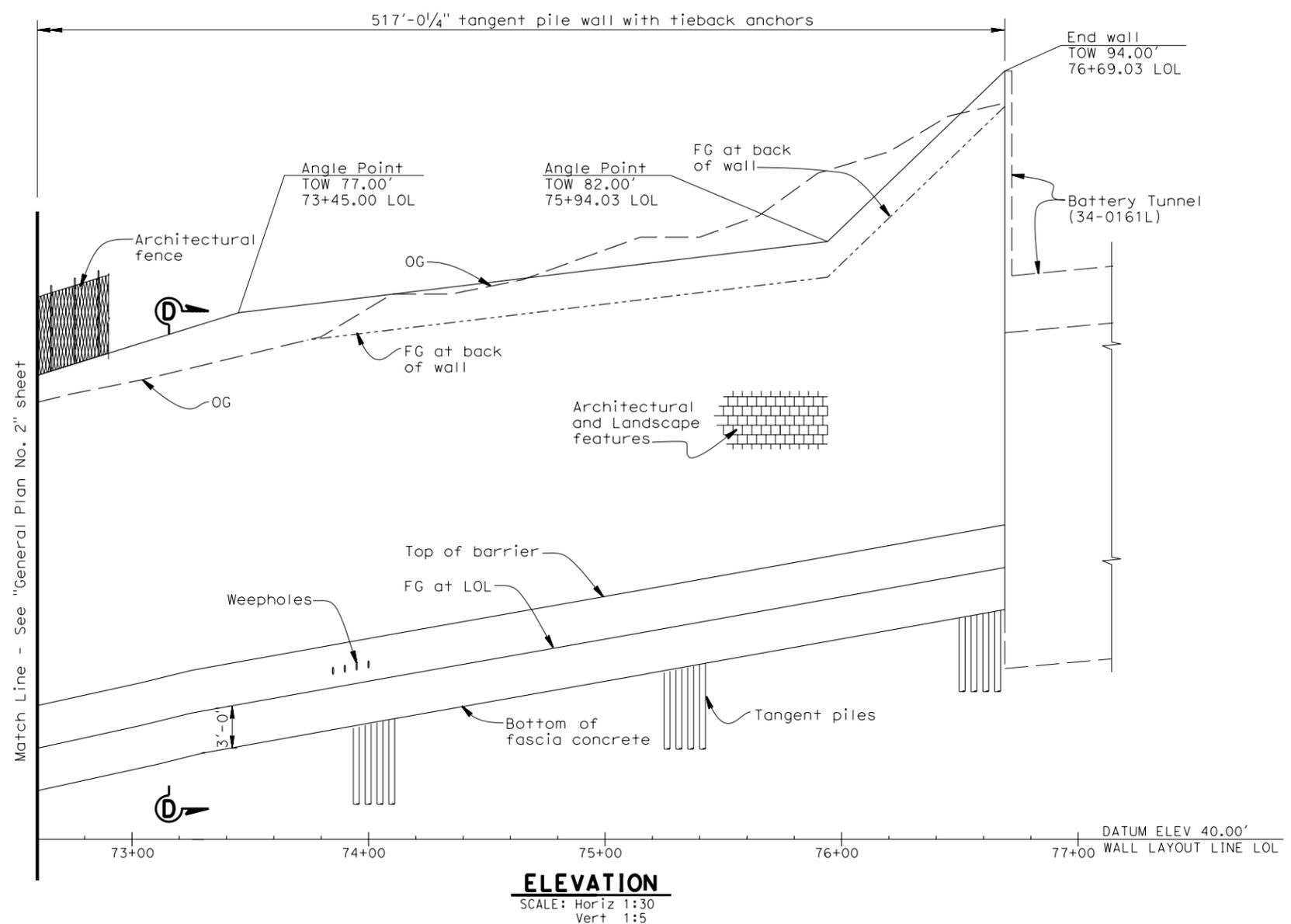
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REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____
CIVIL
STATE OF CALIFORNIA

Parsons Brinckerhoff, Inc.
303 Second Street, Suite 700N
San Francisco, CA 94107

NOTES:

1. The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.
2. All Horizontal dimensions are measured along the wall (LOL).
3. The contours shown on the "Plan" are existing.
4. For Section D-D, see "General Plan No.4" sheet.



DESIGN OVERSIGHT	DESIGN	BY	CHECKED	LOAD FACTOR DESIGN	LIVE LOADING: HL 93 W/ "LOW-BOY"; PERMIT DESIGN VEHICLE	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO.	RETAINING WALL NO. 8	
	DETAILS	BY	CHECKED	LAYOUT	BY		CHECKED		34-0162
SIGN OFF DATE	QUANTITIES	BY	CHECKED	SPECIFICATIONS	BY	PLANS AND SPECS COMPARED	POST MILES	GENERAL PLAN 3	
DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 2/25/05)							CU X EA X	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



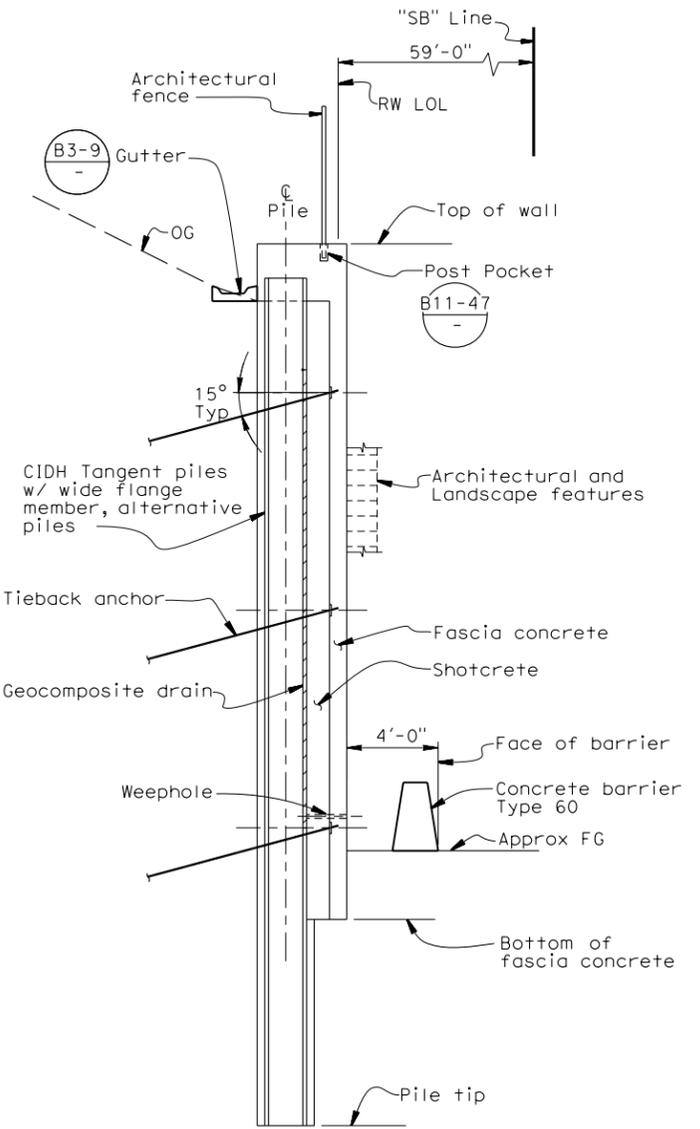
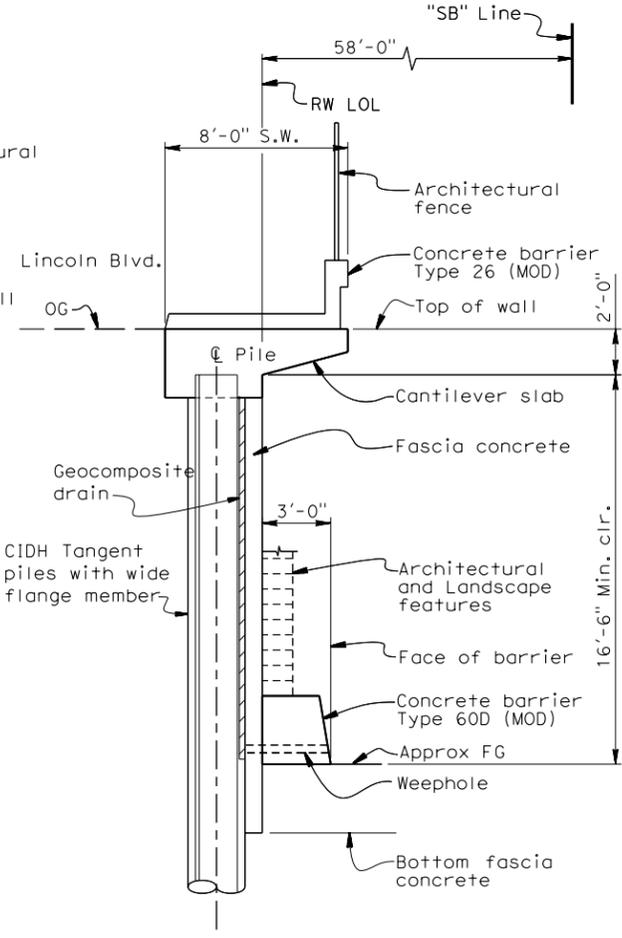
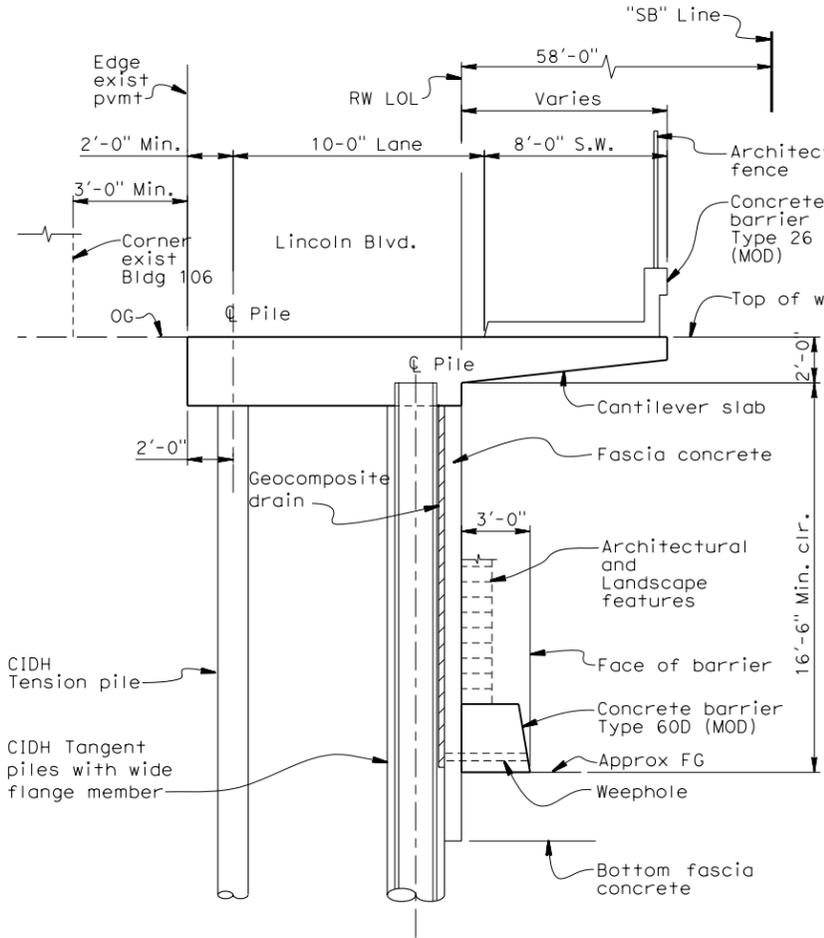
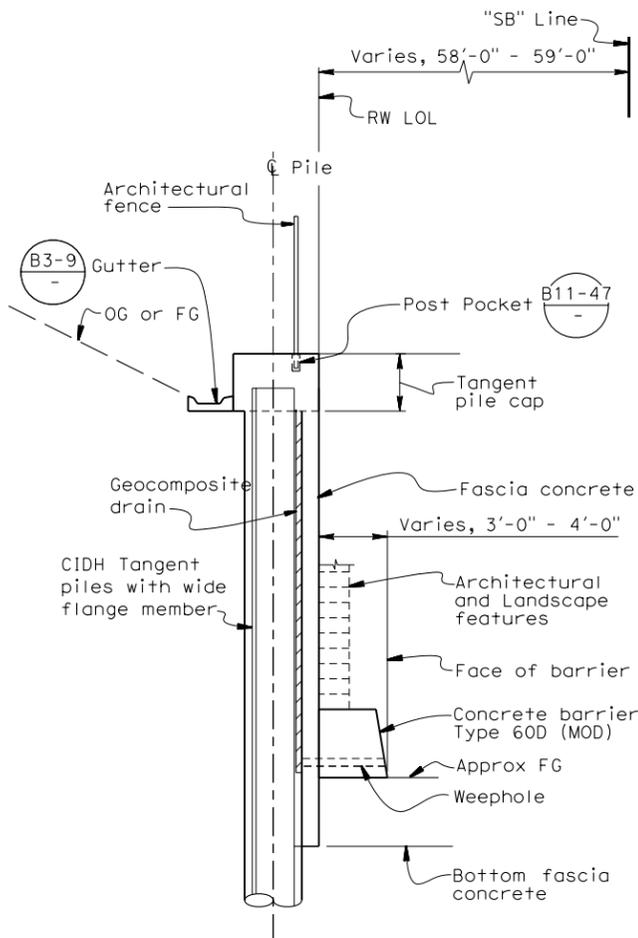
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04	SF	101	8.0/9.8	14	

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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 San Francisco, CA 94107



X	DESIGN OVERSIGHT	BY	CHECKED X
X	DETAILS	BY	CHECKED X
X	QUANTITIES	BY X	CHECKED X

DESIGN	BY	CHECKED X	LOAD FACTOR DESIGN
DETAILS	BY	CHECKED X	LAYOUT
QUANTITIES	BY X	CHECKED X	SPECIFICATIONS

CHECKED X	LIVE LOADING: HL 93 W/ "LOW-BOY"; PERMIT DESIGN VEHICLE
CHECKED X	CHECKED X
CHECKED X	PLANS AND SPECS COMPARED X

DESIGNED BY	CHECKED BY	DATE
DESIGNED BY	CHECKED BY	DATE
DESIGNED BY	CHECKED BY	DATE

PREPARED FOR THE
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

PROJECT ENGINEER

BRIDGE NO.	34-0162
POST MILES	

RETAINING WALL NO. 8
TYPICAL WALL SECTIONS

DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 2/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



CU X
EA X

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET	OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
4	SF	101		15	

NOTES:

1. For Sections A-A, B-B & C-C, see "Typical Section 1" sheet.
2. For Sections D-D & E-E, see "Typical Section 2" sheet.
3. Proposed location of mechanical jet fans, if required for ventilation. Jet fans require a minimum 2 foot recess in the roof slab over an approximate length of 75 feet.

LEGEND:

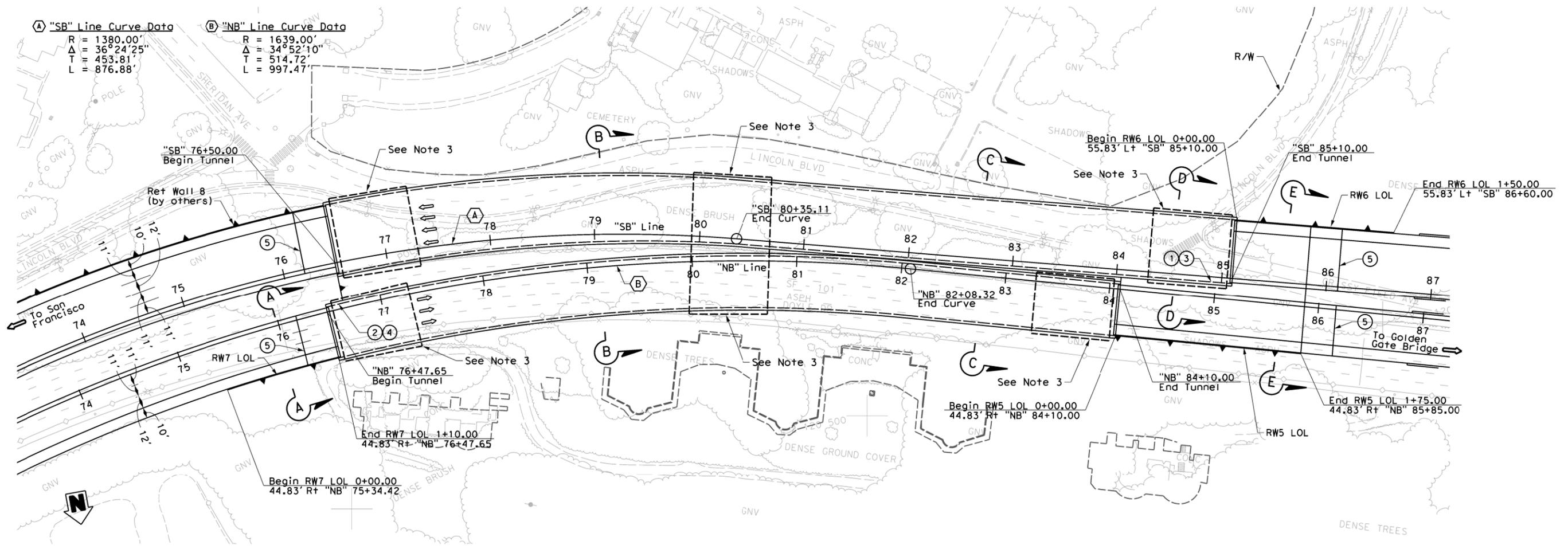
- ① Point "Bridge No. 34-0161L"
- ② Point "Bridge No. 34-0161R"
- ③ Point "Battery Tunnel SB"
- ④ Point "Battery Tunnel NB"
- ⑤ Structure Approach Type N (30D)

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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Arup North America Ltd.
560 Mission Street, Suite 700
San Francisco, CA 94105



PLAN
Scale: 1"=50'

X DESIGN OVERSIGHT X SIGN OFF DATE	DESIGN	BY	CHECKED	LOAD RESISTANCE FACTOR DESIGN	LIVE LOADING	HL 93 W/ "LOW-BOY" PERMIT DESIGN VEHICLE	BRIDGE NO.	BATTERY TUNNEL GENERAL PLAN	
	DETAILS	BY	CHECKED	LAYOUT	BY	CHECKED	34-0161L/R		
	QUANTITIES	BY	CHECKED	SPECIFICATIONS	BY	CHECKED	POST MILES		
DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 2/25/05)							PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		PROJECT ENGINEER
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS							CU 04 EA 163700		DISREGARD PRINTS BEARING EARLIER REVISION DATES
FILE => S-301_DDBT_GP.dgn							REVISION DATES (PRELIMINARY STAGE ONLY)		SHEET OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
4	SF	101		17	

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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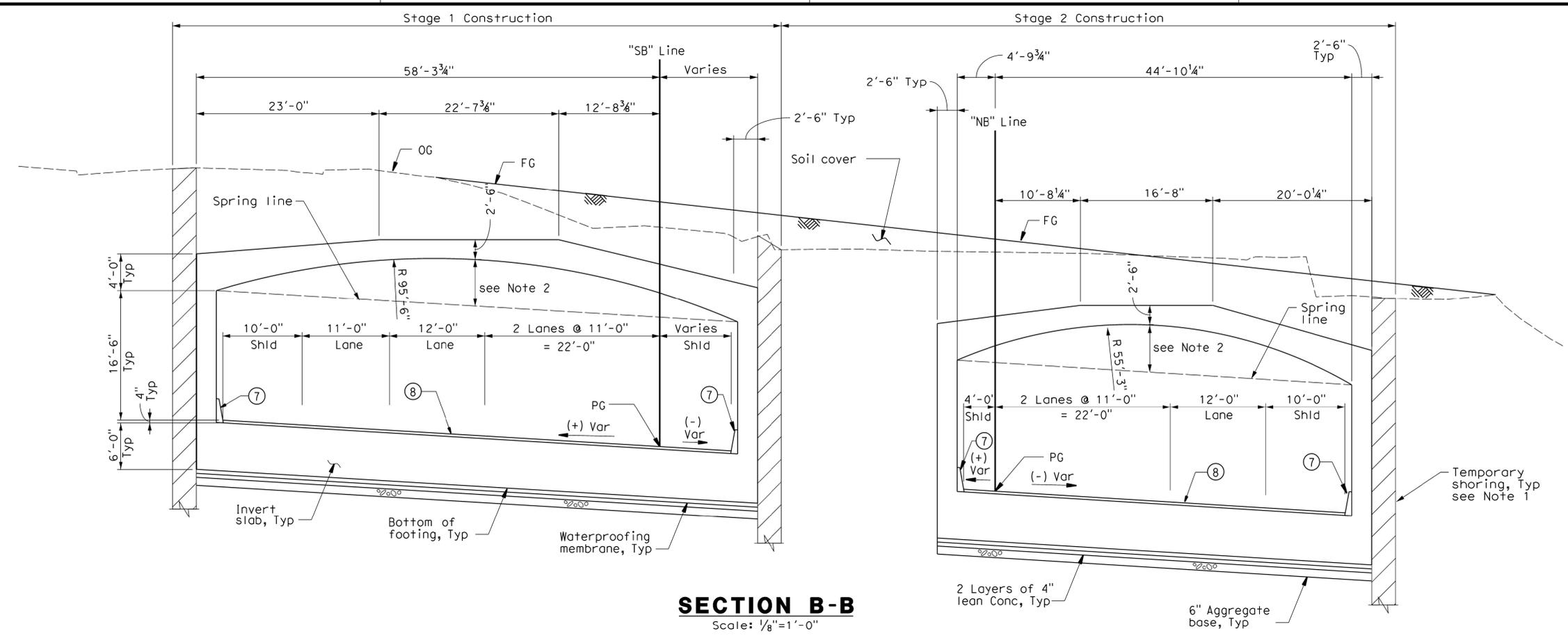
Arup North America Ltd.
 560 Mission Street, Suite 700
 San Francisco, CA 94105

LEGEND:

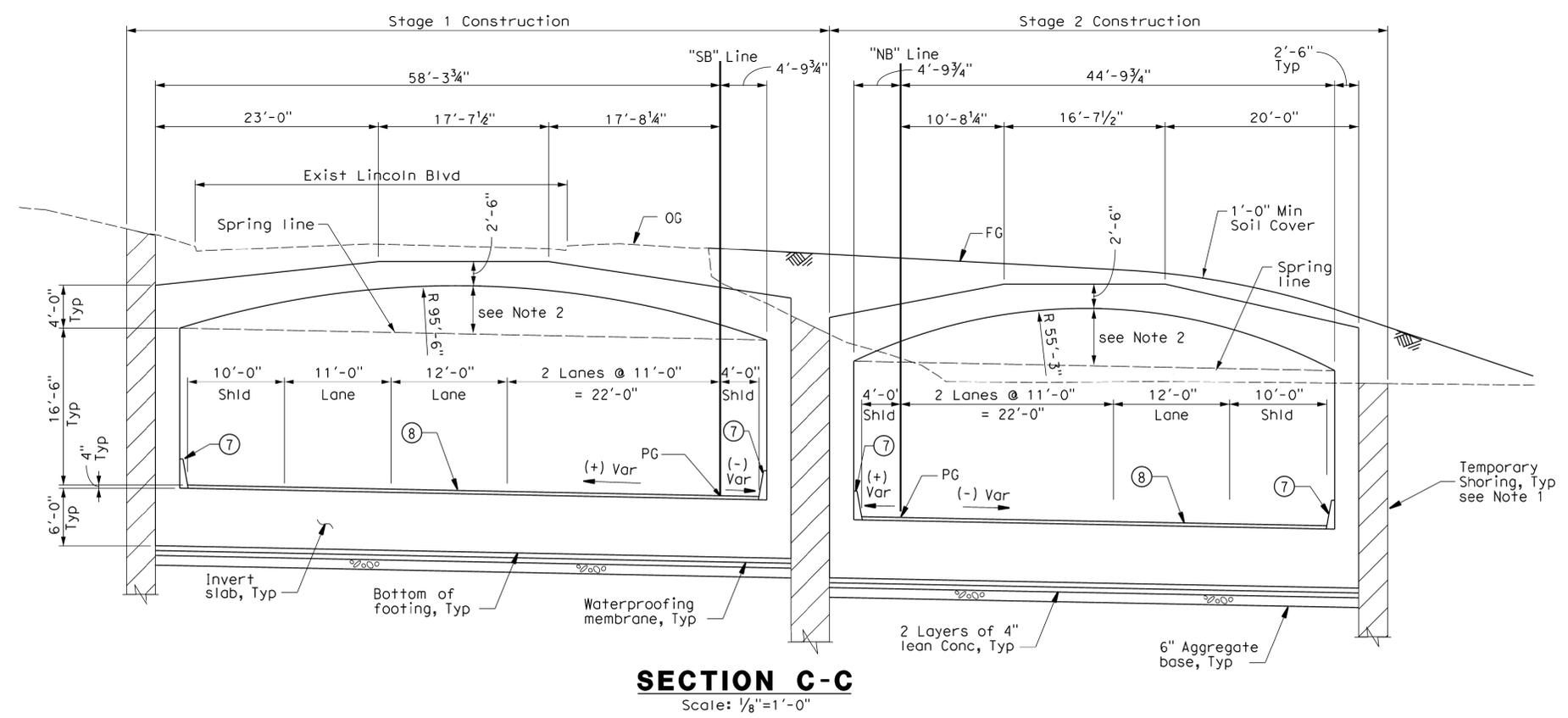
- (5) Structure approach, Type N (30D)
- (6) Architectural fence
- (7) Concrete barrier, Type 60D
- (8) Asphalt concrete pavement

NOTES:

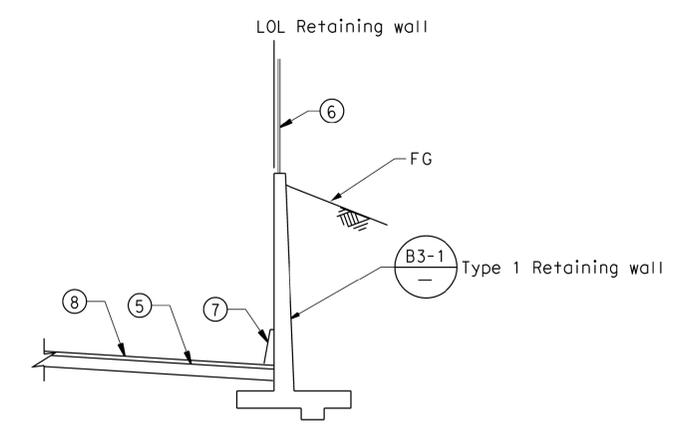
1. Temporary shoring can be soldier pile with laggings or secant pile walls.
2. Arch height is 5'-0" Min & varies above Spring line.



SECTION B-B
 Scale: 1/8"=1'-0"



SECTION C-C
 Scale: 1/8"=1'-0"



SECTION A-A
 Scale: 1/8"=1'-0"

X	DESIGN OVERSIGHT
X	SIGN OFF DATE

DESIGN	BY	CHECKED
DETAILS	BY	CHECKED
QUANTITIES	BY	CHECKED

LOAD RESISTANCE FACTOR DESIGN	CHECKED
LAYOUT	CHECKED
SPECIFICATIONS	CHECKED

LIVE LOADING:	HL 93 W/ "LOW-BOY"; PERMIT DESIGN VEHICLE
PLANS AND SPECS COMPARED	X

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

PROJECT ENGINEER

BRIDGE NO.	34-0161L/R
POST MILES	

BATTERY TUNNEL TYPICAL SECTIONS 1

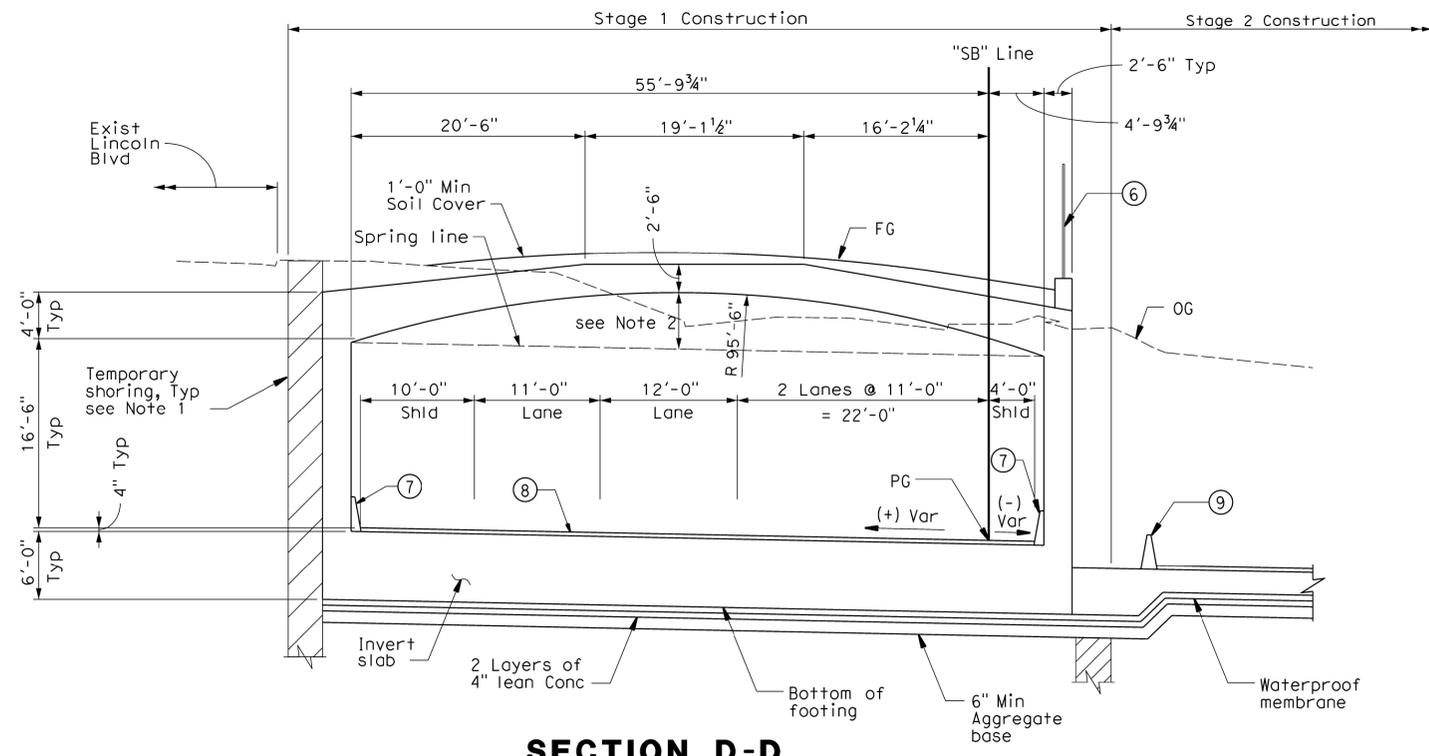
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
4	SF	101		18	

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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 560 Mission Street, Suite 700
 San Francisco, CA 94105



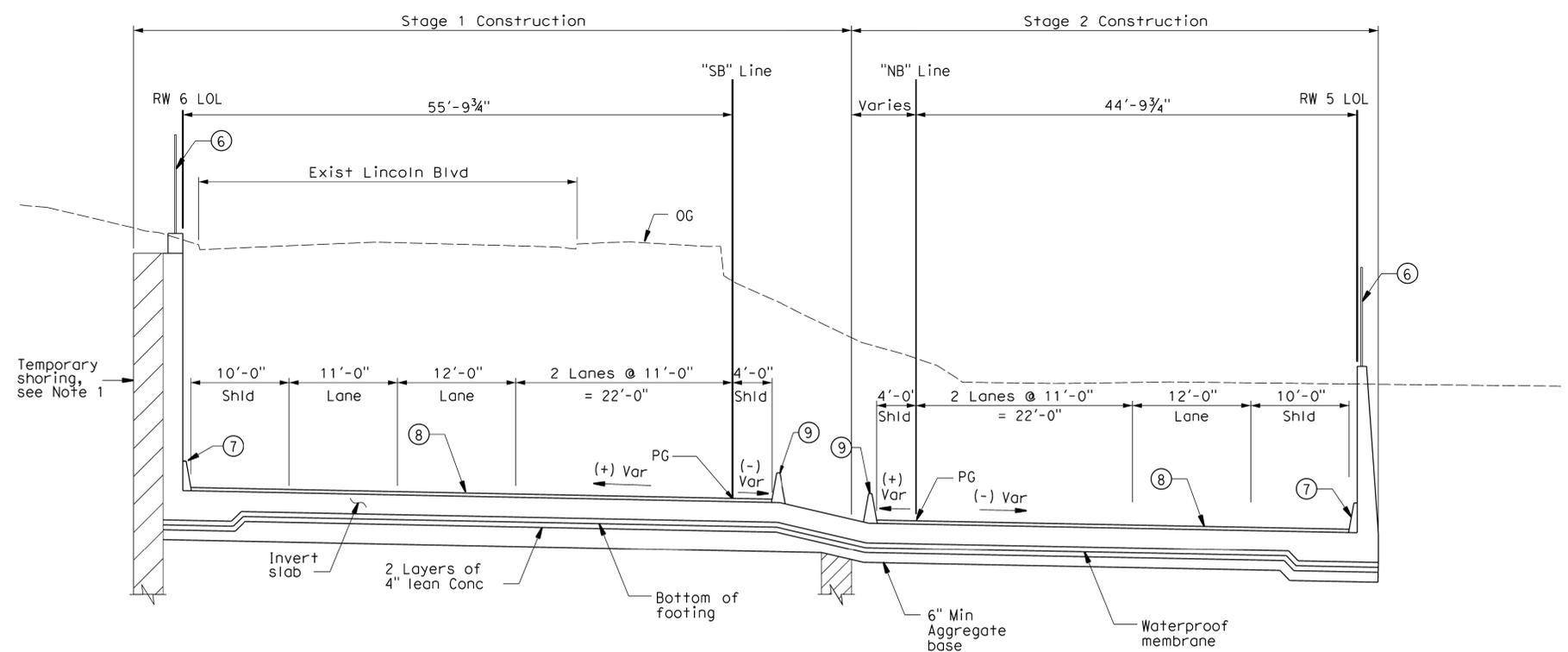
SECTION D-D
 Scale: 1/8"=1'-0"

LEGEND:

- ⑥ Architectural fence
- ⑦ Concrete barrier, Type 60D
- ⑧ Asphalt concrete pavement
- ⑨ Concrete barrier, Type 60

NOTES:

1. Temporary shoring can be soldier pile with loggins or secant pile walls.
2. Arch height is 5'-0" Min & varies above Spring line.



SECTION E-E
 Scale: 1/8"=1'-0"

X	DESIGN OVERSIGHT	BY	CHECKED X
X	DETAILS	BY	CHECKED X
X	QUANTITIES	BY	CHECKED X
	SIGN OFF DATE		

LOAD RESISTANCE FACTOR DESIGN	BY	CHECKED X	LIVE LOADING: HL 93 W/ "LOW-BOY"; PERMIT DESIGN VEHICLE
LAYOUT	BY	CHECKED X	PLANS AND SPECS COMPARED X
SPECIFICATIONS	BY X	CHECKED X	

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 34-0161L/R
 PROJECT ENGINEER

BATTERY TUNNEL TYPICAL SECTIONS 2

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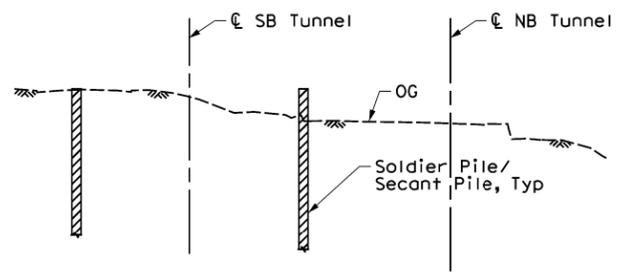
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
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REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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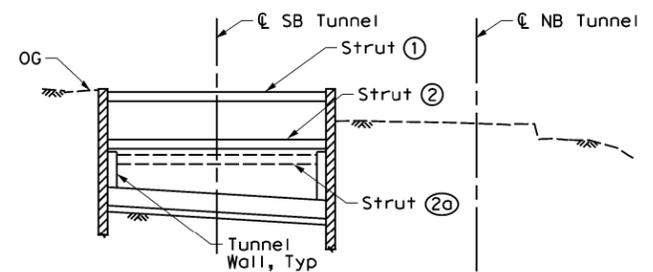
Arup North America Ltd.
 560 Mission Street, Suite 700
 San Francisco, CA 94105

* Strut ② and Strut ④ can be reused for Strut ②① and Strut ④①.



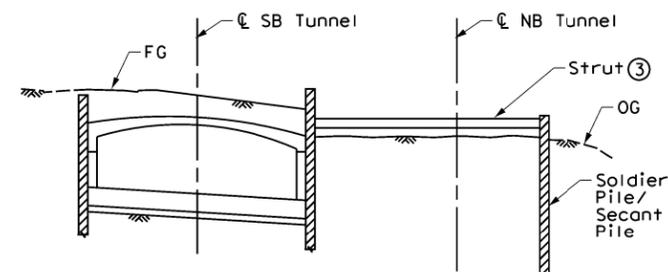
STAGE 1

- A. Install temporary shoring (Soldier piles/Secant piles) for Southbound



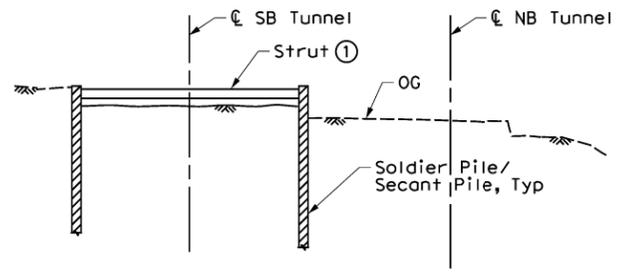
STAGE 4

- A. Cast tunnel walls to bottom of strut ②.
- B. Install strut ②①*.



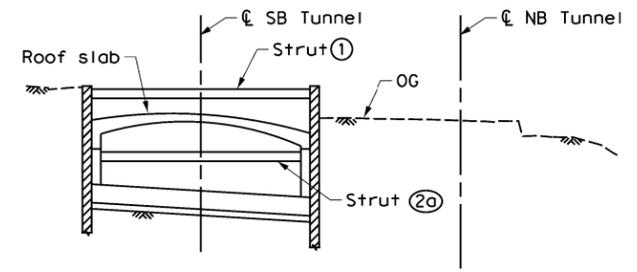
STAGE 7

- A. Excavate 5 feet below grade.
- B. Install strut ③.



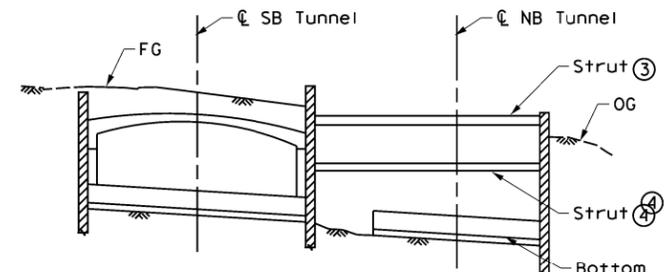
STAGE 2

- A. Excavate 5 feet below grade.
- B. Install strut ①.



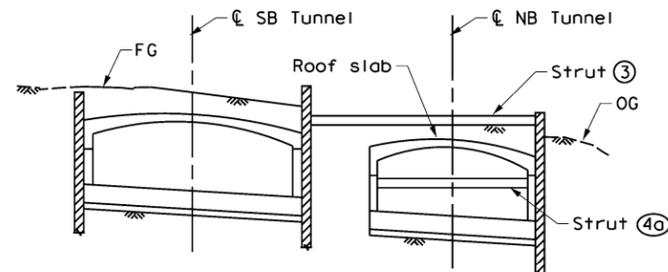
STAGE 5

- A. Remove strut ②*.
- B. Cast rest of tunnel walls and tunnel roof slab.
- C. Backfill to bottom of strut ①.



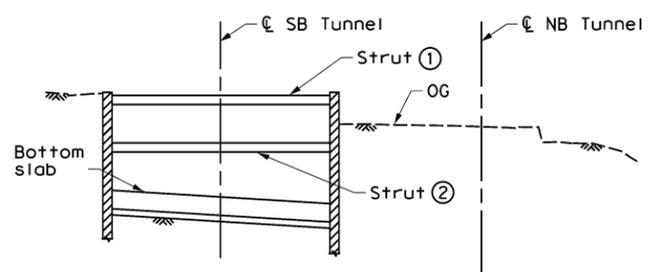
STAGE 8

- A. Excavate to bottom of strut ④.
- B. Install strut ④.
- C. Excavate to bottom of tunnel.
- D. Construct bottom slab.



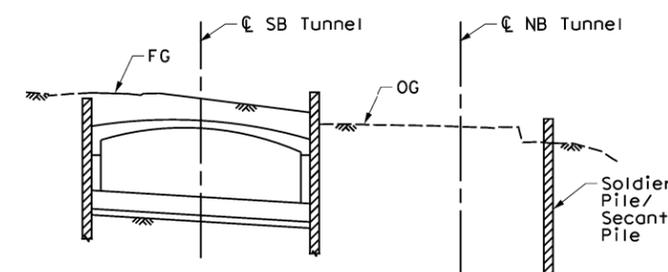
STAGE 10

- A. Remove strut ④*.
- B. Cast NB tunnel roof slab.
- C. Backfill to bottom of strut ③.



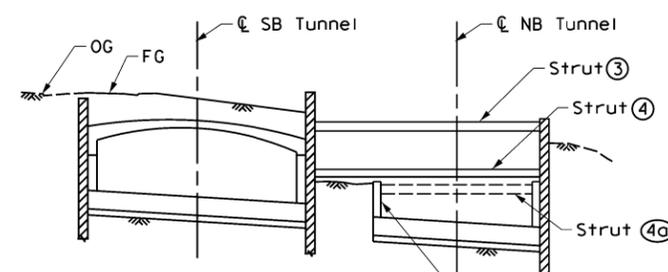
STAGE 3

- A. Excavate to bottom of strut ②.
- B. Install strut ②.
- C. Excavate to bottom of tunnel.
- D. Construct bottom slab.



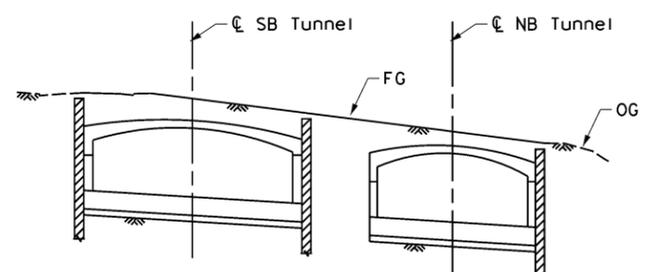
STAGE 6

- A. Remove strut ②①.
- B. Remove strut ①.
- C. Backfill to FG.
- D. Install temporary shoring (Soldier pile/Secant pile) for Northbound.



STAGE 9

- A. Cast tunnel walls to bottom of strut ④.
- B. Install strut ④①*.
- C. Backfill to tunnel wall level.



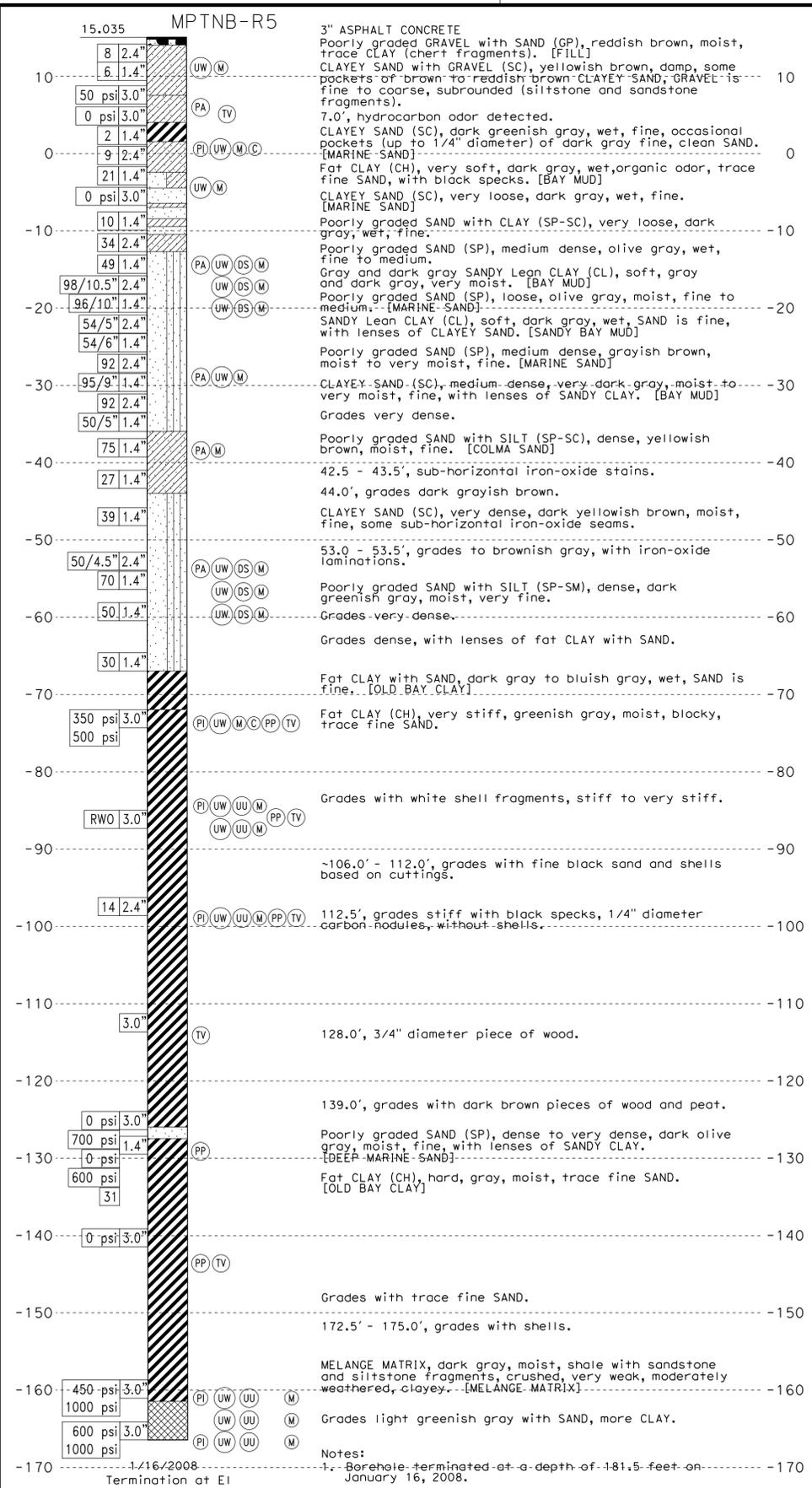
STAGE 11

- A. Remove strut ④①.
- B. Remove strut ③.
- C. Backfill to FG.
- D. Final condition.

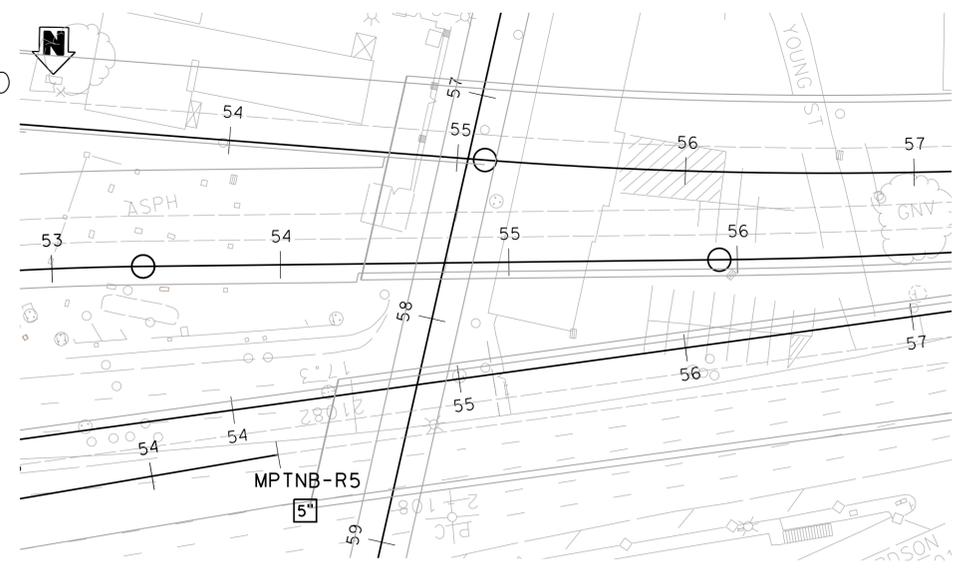
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	DETAILS	BY	CHECKED X	LAYOUT	BY	PROJECT ENGINEER	POST MILES	
	QUANTITIES	BY	CHECKED X	SPECIFICATIONS	BY X	CU 04 EA 163700	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF

DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 2/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	101	8.0/9.8	20	
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
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← TO SAN FRANCISCO



TO GOLDEN GATE BRIDGE →

BENCH MARK
BM PRHV 26 Elev 53.3'

NOTES:- This LOTB sheet was prepared in accordance with the CALTRANS Soil & Rock Logging, Classification, and Presentation Manual (June 2007).

DRAFT

PROFILE
HOR. 1"=20'
VER. 1"=10'

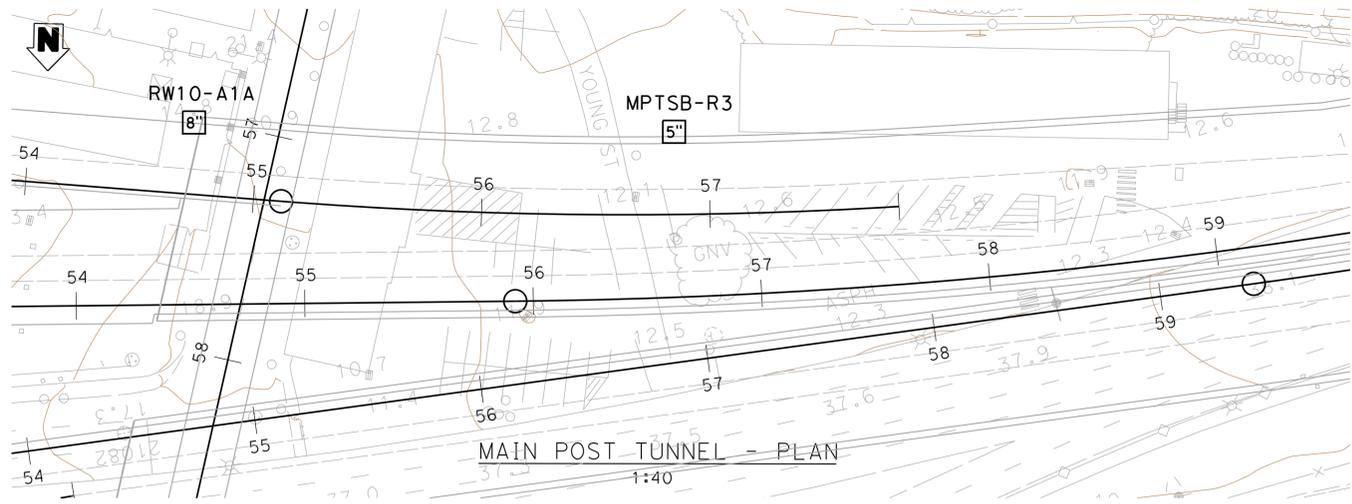
PAGE G101

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA		DIVISION OF ENGINEERING SERVICES		BRIDGE NO.		MAIN POST TUNNEL - NORTHBOUND				
FUNCTIONAL SUPERVISOR		DRAWN BY:		DEPARTMENT OF TRANSPORTATION		STRUCTURE DESIGN		POST MILES						
NAME:		CHECKED BY:		FIELD INVESTIGATION BY:		DESIGN BRANCH				REVISION DATES				
065 CIVIL LOG OF TEST BORINGS SHEET				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		CU EA		DISREGARD PRINTS BEARING EARLIER REVISION DATES		SHEET OF				
				0 1 2 3		FILE => \$REQUEST				1 5				

TIME PLOTTED => \$TIME
DATE PLOTTED => \$DATE
USERNAME => \$USER

DRAFT

TO SAN FRANCISCO



NOTE:- This LOTB sheet was prepared in accordance with the CALTRANS Soil & Rock Logging, Classification, and Presentation Manual (June 2007).

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
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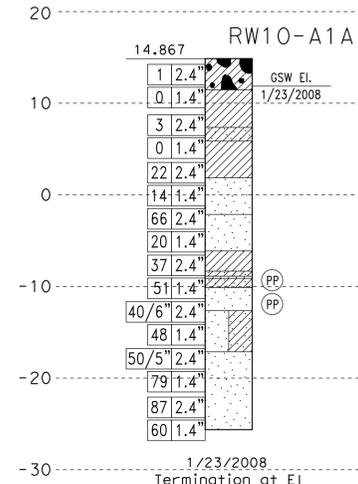
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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BENCH MARK
BM PRHV 26 Elev 53.3'

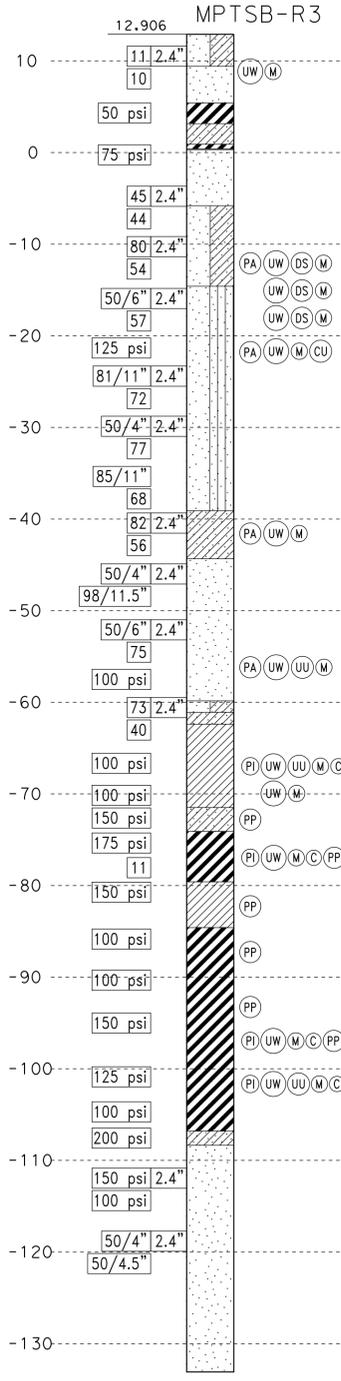
PROFILE
HOR. 1"=20'
VER. 1"=10'



CLAYEY GRAVEL (GC), poorly compacted, dark greenish gray, dry, with pieces of brick. [FILL]
Grades moist.
Lean CLAY with SAND (CL); very soft, greenish gray, moist, trace of gravel. 5.0', horseshoe.
CLAYEY SAND (SC), very loose, dark brown, wet, fine, trace of fine GRAVEL.
Lean CLAY with SAND (CL), soft, greenish gray, moist.
Pieces of treated wood at about 11' to 12' in cuttings.
13.0', 1" chert rock fragment.
Poorly graded SAND (SP), medium dense, dark grayish brown, moist, fine to medium, with decayed vegetation. [MARINE SAND]
Poorly graded SAND (SP), dense, reddish brown, wet, medium grained, with trace fines. [COLMA SAND]
21', cutting show silt/clay lenses.
Lean CLAY with SAND (CL), medium stiff, yellowish brown, moist, SAND is fine, with iron-oxide mottling. [COLMA FORMATION]
CLAYEY SAND (SC), medium dense, yellowish brown, moist, fine, with iron-oxide mottling. [COLMA SAND]
SILT (ML), hard, yellowish brown, moist, with iron-oxide mottling. [COLMA FORMATION]
CLAYEY SAND (SC), medium dense, yellowish brown, moist, fine to medium, with iron-oxide staining. [COLMA SAND]
Poorly graded SAND (SP), very dense, olive brown, moist, fine, trace fines.
Poorly graded SAND with CLAY (SP-SC), very dense, yellowish brown, wet, fine. 29.5' - 30.0', grades weakly cemented, with less fines.
Poorly graded SAND (SP), very dense, dark yellowish brown, wet, fine to medium, trace fines.

Notes:
1. Borehole terminated at a depth of 40.5' on January 23, 2008.

TO GOLDEN GATE BRIDGE



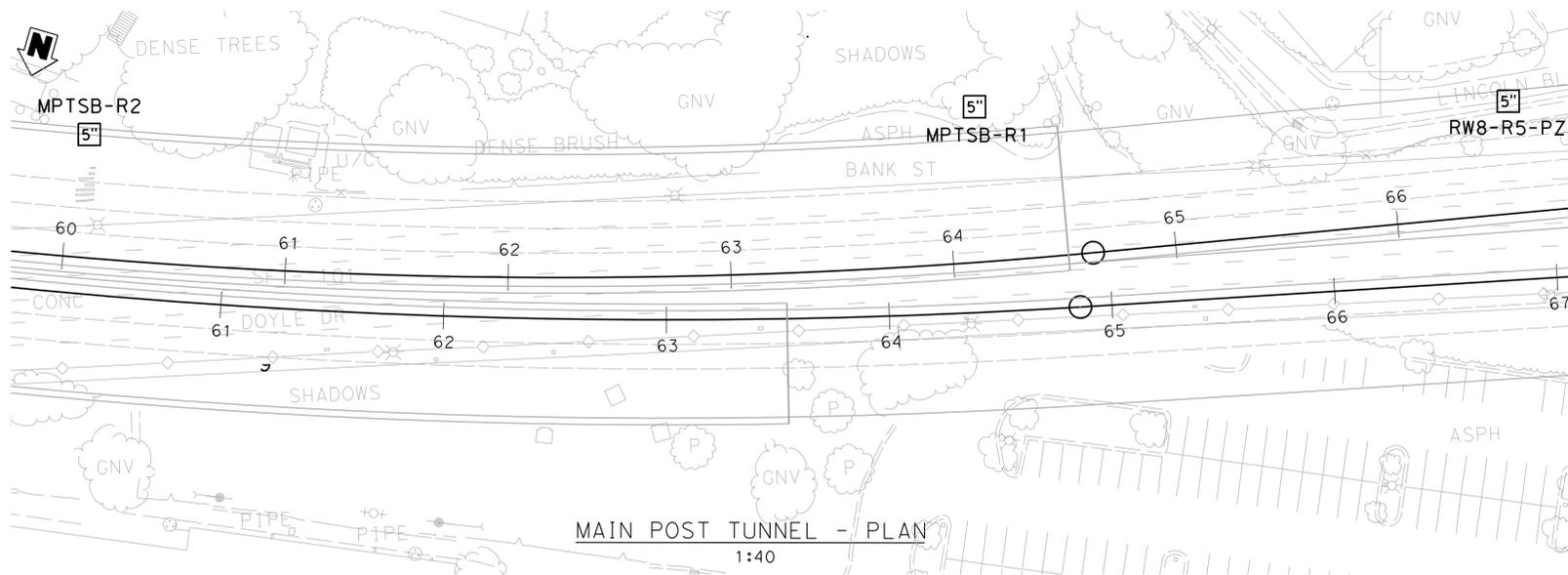
Poorly graded SAND with CLAY and GRAVEL (SP-SC), loose, dark brown, dry, SAND is fine, GRAVEL is angular, with clumps of CLAY. [FILL]
Grades moist.
Poorly graded SAND (SP), loose, dark yellowish brown, moist, SAND is fine. 7.5', wood pieces and plant material.
Fat CLAY (CH), soft, dark brown, wet, with some organic odor. [BAY MUD]
CLAYEY SAND (SC), dark bluish gray, wet, fine, with lenses of SANDY CLAY and decayed vegetation. [MARINE SAND]
Fat CLAY (CH), found in drill cuttings. [BAY MUD]
Poorly graded SAND (SP), dark bluish gray, wet, fine, with trace fines. [MARINE SAND]
Poorly graded SAND (SP), medium dense, light yellowish brown, wet, fine, with trace fines. [COLMA SAND]
Grades with iron-oxide mottling and with black specks.
Poorly graded SAND with CLAY (SP-SC), medium dense, light yellowish brown, moist, SAND is fine with iron-oxide mottling.
Grades less CLAY content and grades dense.
Grades yellowish brown, wet.
Grades very dense.
Poorly graded SAND with SILT (SP-SM), very dense, dark yellowish brown, wet, SAND is fine with iron-oxide staining.
Grades olive brown.
CLAYEY SAND (SC), very dense, dark yellowish brown, moist to wet, fine, stratified, with iron-oxide partings which appear to be vertical.
Poorly graded SAND (SP), very dense, dark yellowish brown, wet, fine, with iron-oxide mottling.
Grades with trace fines.
Grades dense, bluish gray.
Poorly graded SAND with CLAY (SP-SC), dense, bluish gray, moist, fine, with pieces of GRAVEL, and with black specks, organic odor detected.
CLAYEY SAND (SC), dense, bluish gray, moist, fine.
Lean CLAY (CL), very stiff, greenish gray, moist. [OLD BAY CLAY]
79.8', CLAY is horizontally fissured with very dark gray lenses of fine SAND up to 1/4" thick, with pockets of light olive gray hard lean CLAY up to 1/2" diameter.
Grades with up to 3/4" thick very dark gray lenses of fine SAND.
CLAYEY SAND (SC), bluish gray, wet, fine.
Fat CLAY (CH), very stiff, bluish gray, moist.
Lean CLAY (CL), very stiff, bluish gray, moist.
Fat CLAY (CH), very stiff, bluish gray, moist.
Grades with increased SAND content with lenses of CLAYEY SAND.
Grades with trace SAND.
CLAYEY SAND (SC), bluish gray, moist, SAND is fine to medium. [DEEP MARINE SAND]
Poorly graded SAND (SP), very dense, dark greenish gray, moist, fine, weakly to moderately cemented, with small pockets of CLAYEY SAND up to 1/8" diameter.

Notes:
1. Borehole terminated at a depth of 146.0 feet on December 10, 2007.

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA		DIVISION OF ENGINEERING SERVICES		BRIDGE NO.		MAIN POST TUNNEL - SOUTHBOUND	
FUNCTIONAL SUPERVISOR		DRAWN BY:		DEPARTMENT OF TRANSPORTATION		STRUCTURE DESIGN		POST MILES			
NAME:		CHECKED BY:		FIELD INVESTIGATION BY:		DESIGN BRANCH				LOG OF TEST BORINGS	
065 CIVIL LOG OF TEST BORINGS SHEET						CU EA		DISREGARD PRINTS BEARING EARLIER REVISION DATES			
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3				REVISION DATES			
				FILE => \$REQUEST				SHEET 1 OF 2			

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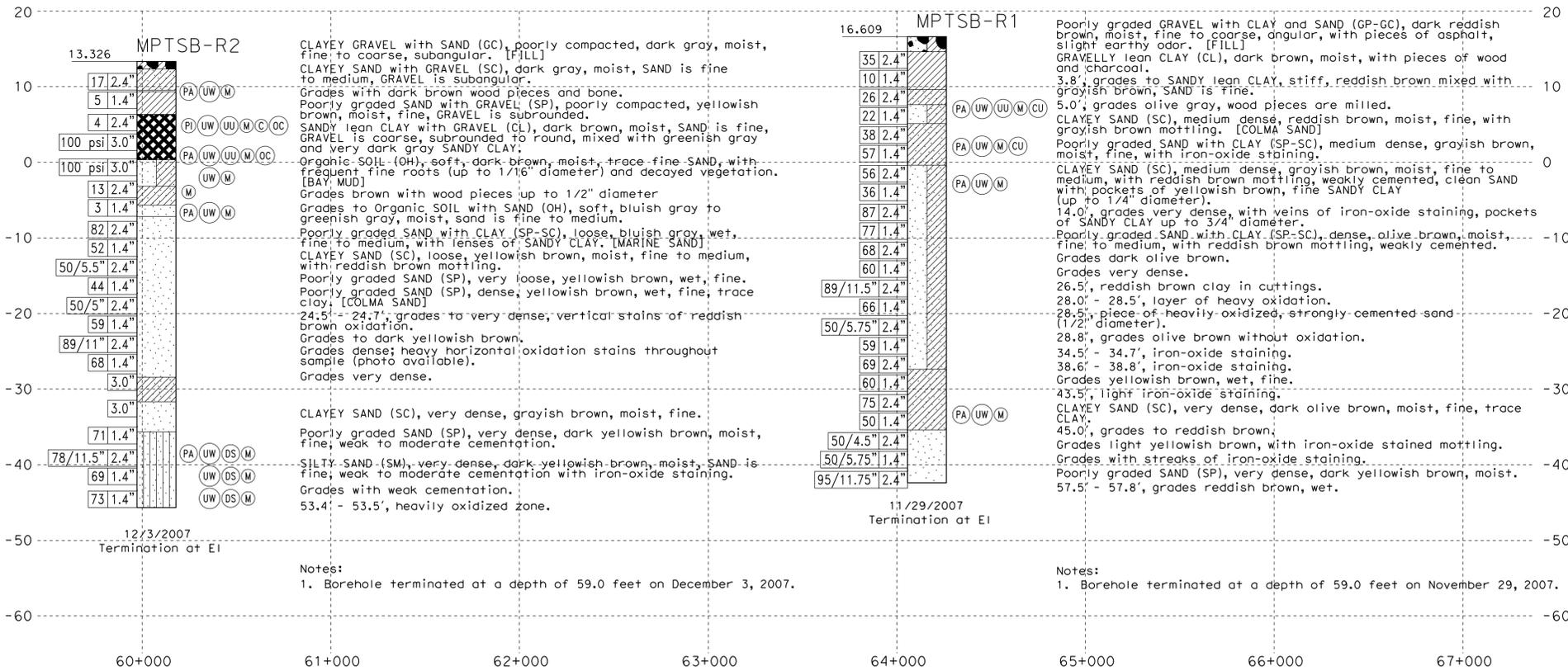
TO SAN FRANCISCO



BENCH MARK
BM PRHV 26 Elev 53.3'

PROFILE

HOR. 1"=20'
VER. 1"=10'



Notes:
1. Borehole terminated at a depth of 59.0 feet on December 3, 2007.

Notes:
1. Borehole terminated at a depth of 59.0 feet on November 29, 2007.

Notes:
1. Borehole terminated at a depth of 147.5 feet on January 8, 2008.

NOTE:- This LOTB sheet was prepared in accordance with the CALTRANS Soil & Rock Logging, Classification, and Presentation Manual (June 2007).

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	101	8.0/9.8	22	

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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TO GOLDEN GATE BRIDGE

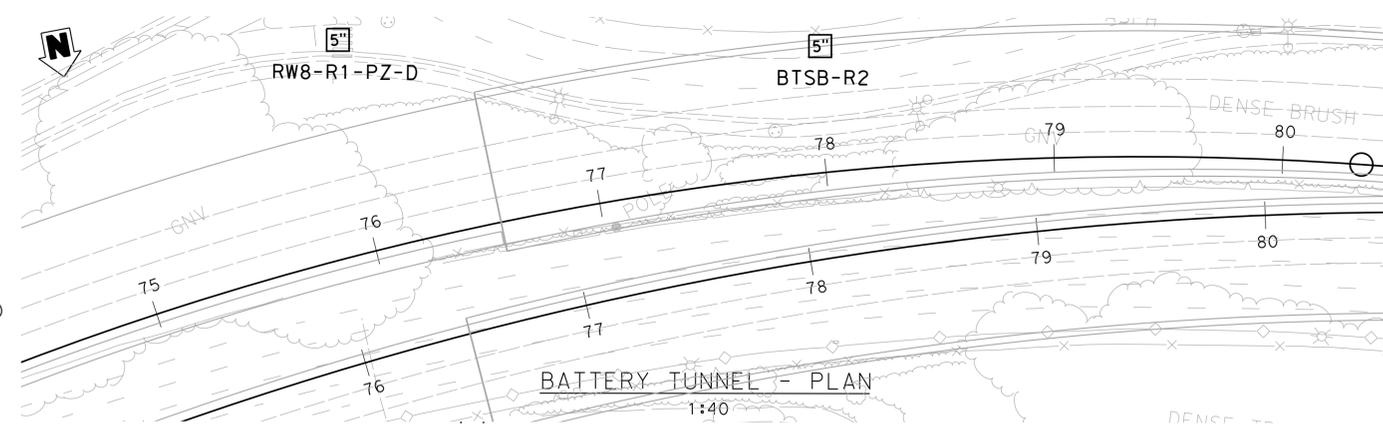
ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA		DIVISION OF ENGINEERING SERVICES		BRIDGE NO.		RETAINING WALL No. 8	
FUNCTIONAL SUPERVISOR		DRAWN BY:		DEPARTMENT OF TRANSPORTATION		STRUCTURE DESIGN		POST MILES			
NAME:		FIELD INVESTIGATION BY:		CU		DESIGN BRANCH		REVISION DATES		SHEET OF	
065 CIVIL LOG OF TEST BORINGS SHEET		1. Borehole terminated at a depth of 59.0 feet on December 3, 2007.		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		EA		DISREGARD PRINTS BEARING EARLIER REVISION DATES		2 2	

DRAFT

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	101	8.0/9.8	23	

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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BENCH MARK
BM PRHV 16 Elev 60.6'

PROFILE
HOR. 1"=10'
VER. 1"=10'



NOTES:-This LOTB sheet was prepared in accordance with the CALTRANS Soil & Rock Logging, Classification, and Presentation Manual (June 2007).

Notes:
1. Borehole terminated at a depth of 115.0 feet on February 29, 2008.

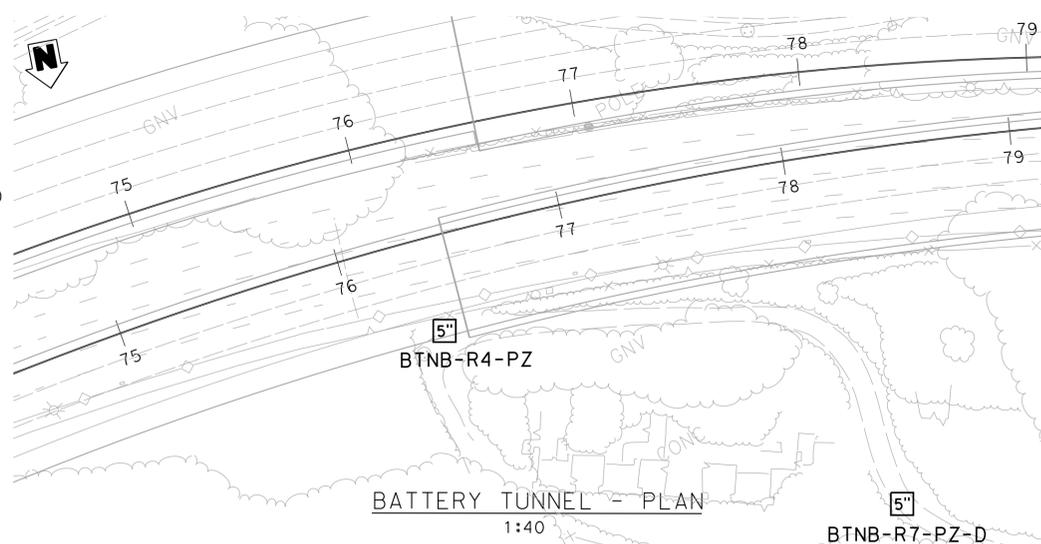
ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA		DIVISION OF ENGINEERING SERVICES		BRIDGE NO.		RETAINING WALL No.8	
FUNCTIONAL SUPERVISOR		DRAWN BY:		DEPARTMENT OF TRANSPORTATION		DESIGN BRANCH		POST MILES		LOG OF TEST BORINGS	
NAME:		CHECKED BY:		FIELD INVESTIGATION BY:		CU EA		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES	
065 CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		0 1 2 3		FILE => \$REQUEST		SHEET 1 OF 2			

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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	101	8.0/9.8	24	

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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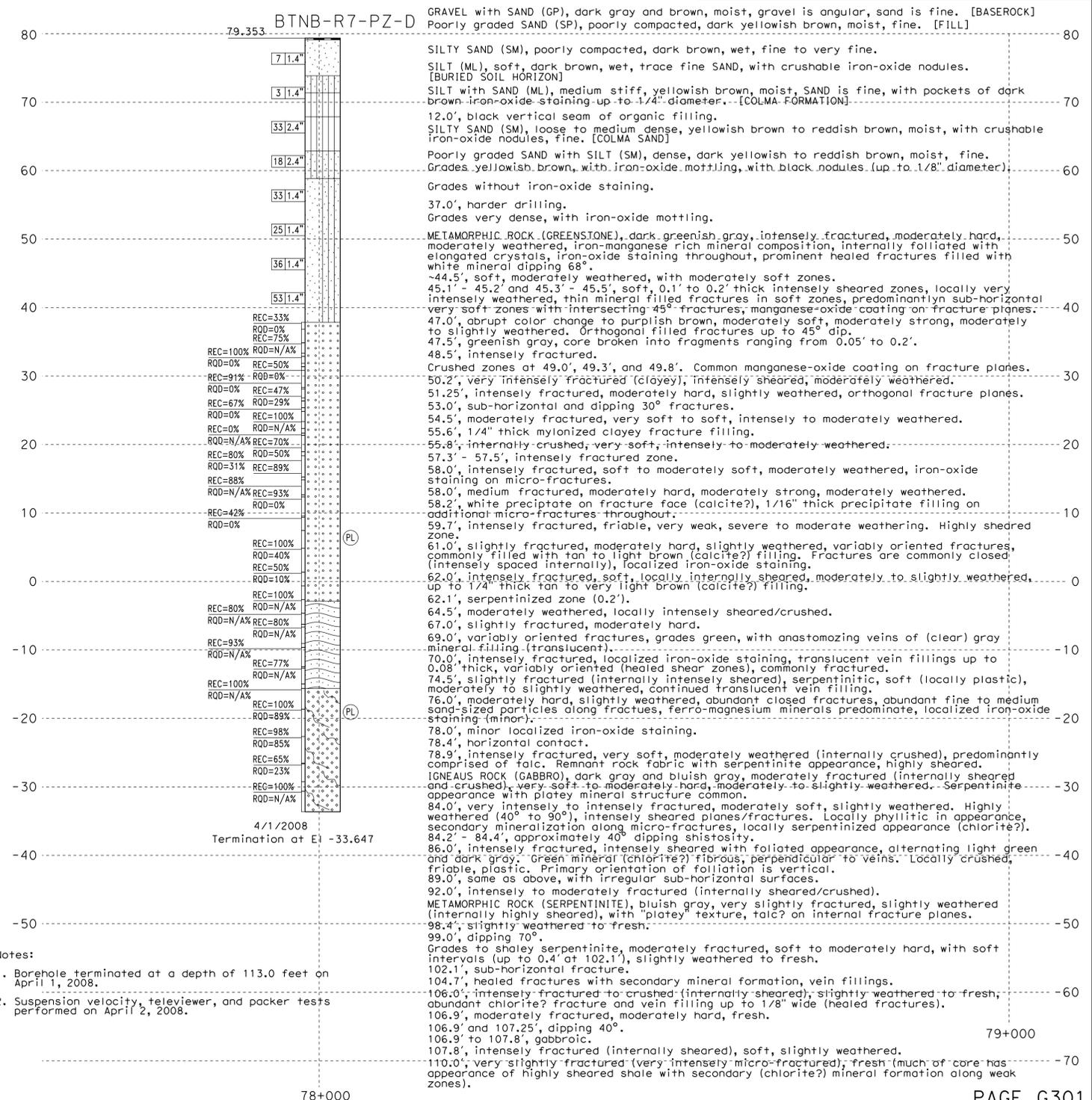
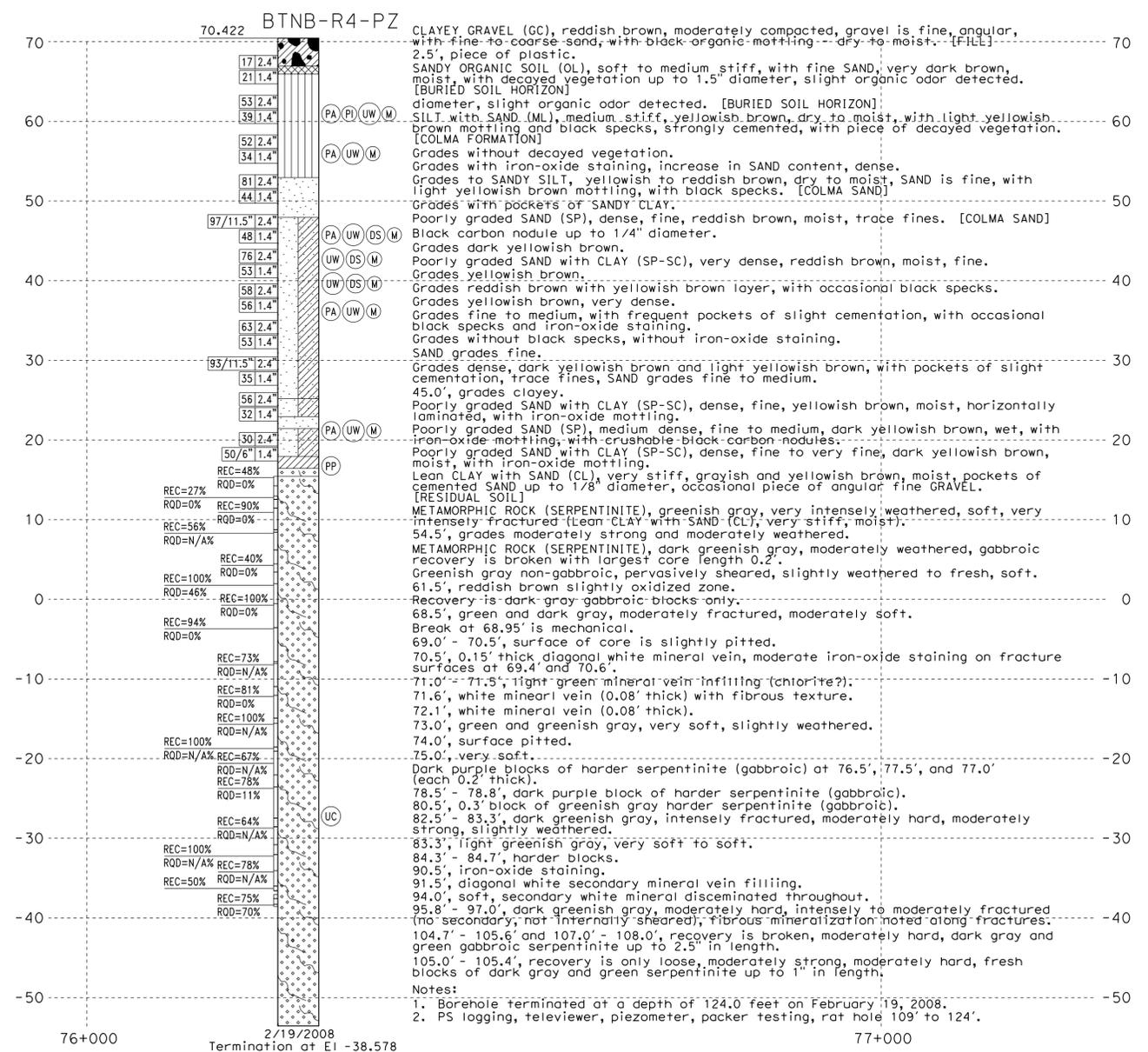


NOTE:- This LOTB sheet was prepared in accordance with the CALTRANS Soil & Rock Logging, Classification, and Presentation Manual (June 2007).

TO GOLDEN GATE BRIDGE →

BENCH MARK
BM PRHV 16 Elev 60.6'

PROFILE
HOR. 1"=10'
VER. 1"=10'



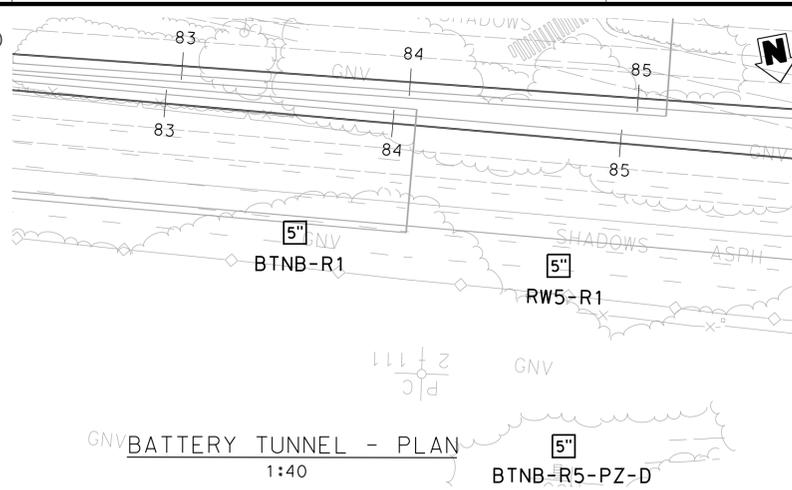
- Notes:
- Borehole terminated at a depth of 113.0 feet on April 1, 2008.
 - Suspension velocity, televiwer, and packer tests performed on April 2, 2008.

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH		BRIDGE NO. POST MILES		BATTERY TUNNEL - NORTHBOUND LOG OF TEST BORINGS	
FUNCTIONAL SUPERVISOR	DRAWN BY:	FIELD INVESTIGATION BY:	CU EA		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES		SHEET 1 OF 3		
NAME:	CHECKED BY:	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		FILE => \$REQUEST		DATE PLOTTED => \$DATE		USERNAME => \$USER			

NOTE:- This LOTB sheet was prepared in accordance with the CALTRANS Soil & Rock Logging, Classification, and Presentation Manual (June 2007).

DRAFT

← TO SAN FRANCISCO



TO GOLDEN GATE BRIDGE →

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	101	8.0/9.8	25	

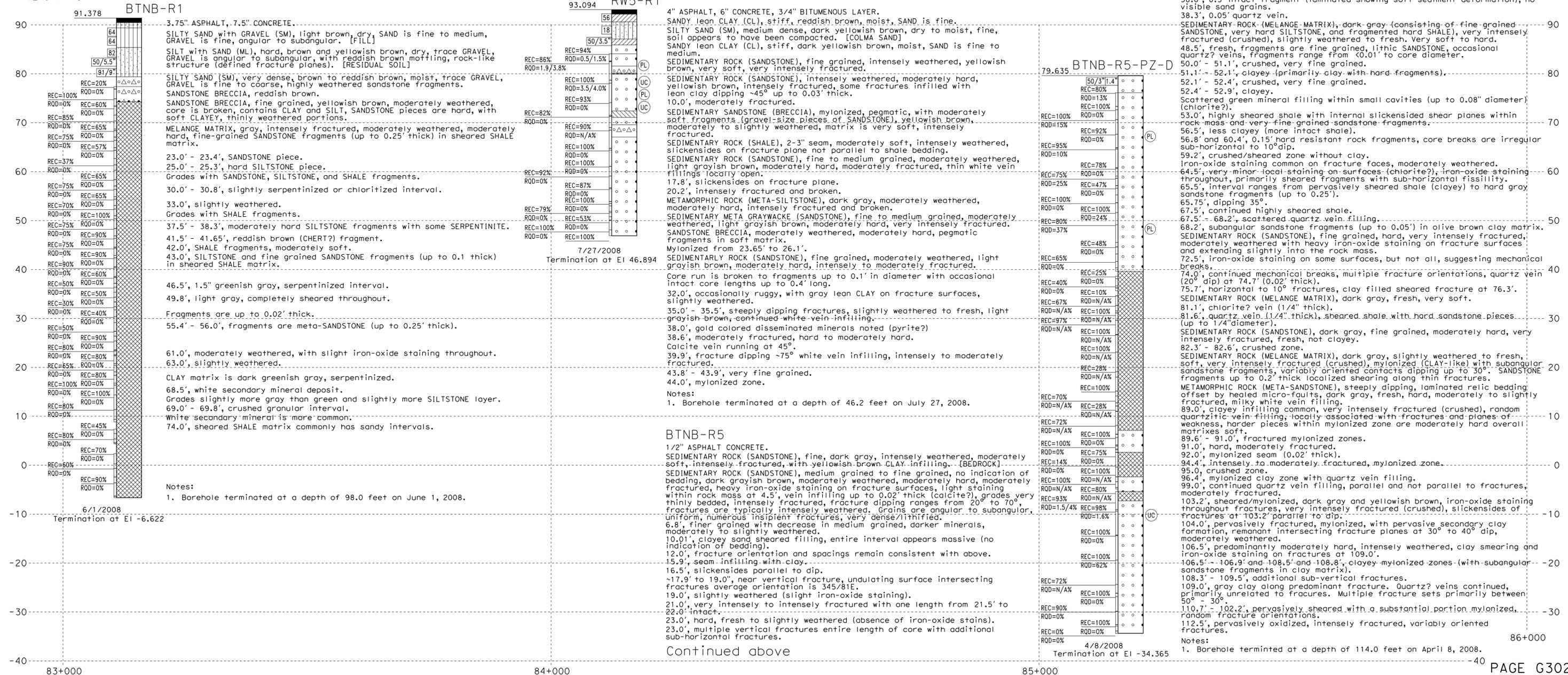
REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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BENCH MARK
BM PRHV 16 Elev 60.6'

PROFILE

HOR. 1"=10'
VER. 1"=10'



Continued from below

23.4', white mineral, vein, hard (non-quartz).
 23.6', CLAY seam infilling.
 27.0' - 28.0', white mineral vein fillings (unrelated to fracturing) pervasively fractured (from fragments to 0.2').
 28.0', intensely fractured, fractures dipping commonly 60° to 70°, continued localized white mineral vein fillings.
 30.9', 0.08' thick shear zone (light gray, silty, fine sand).
 31.0', contact to fine grained SAND (medium grained above).
 33.4', fine to medium grained (core broken with silty fine SAND fragments <0.01' to 0.2').
 36.4', very intensely fractured (crushed) (silty, fine SAND shear zone).
 38.0', 0.3' intact fragment (laminated showing soft sediment deformation), no visible sand grains.
 38.3', 0.05' quartz vein.
 SEDIMENTARY ROCK (MELANGE MATRIX), dark gray (consisting of fine grained SANDSTONE, very hard SILTSTONE, and fragmented hard SHALE), very intensely fractured (crushed), slightly weathered to fresh. Very soft to hard.
 48.5', fresh, fragments are fine grained, lithic SANDSTONE, occasional quartz? veins, fragments range from <0.01' to core diameter.
 50.0' - 51.1', crushed, very fine grained.
 51.1' - 52.1', clayey (primarily clay with hard fragments).
 52.1' - 52.4', crushed, very fine grained.
 52.4' - 52.9', clayey.
 Scattered green mineral filling within small cavities (up to 0.08" diameter) (chlorite?).
 53.0', highly sheared shale with internal slickensided shear planes within rock mass and very fine grained sandstone fragments.
 56.5', less clayey (more intact shale).
 56.8' and 60.4', 0.15' hard resistant rock fragments, core breaks are irregular sub-horizontal to 10° dip.
 59.2', crushed/sheared zone without clay.
 Iron-oxide staining common on fracture faces, moderately weathered.
 64.5', very minor local staining on surfaces (chlorite?), iron-oxide staining throughout, primarily sheared fragments with sub-horizontal fissility.
 65.5', interval ranges from pervasively sheared shale (clayey) to hard gray sandstone fragments (up to 0.25').
 65.75', dipping 35°.
 67.5', continued highly sheared shale.
 67.5' - 68.2', scattered quartz vein infilling.
 68.2', subangular sandstone fragments (up to 0.05') in olive brown clay matrix.
 SEDIMENTARY ROCK (SANDSTONE), fine grained, hard, very intensely fractured, moderately weathered with heavy iron-oxide staining on fracture surfaces and extending slightly into the rock mass.
 72.5', iron-oxide staining on some surfaces, but not all, suggesting mechanical breaks.
 74.0', continued mechanical breaks, multiple fracture orientations, quartz vein (20° dip) at 74.7' (0.02' thick).
 75.7', horizontal to 10° fractures, clay filled sheared fracture at 76.3'.
 SEDIMENTARY ROCK (MELANGE MATRIX), dark gray, fresh, very soft.
 81.1', chlorite? vein (1/4" thick).
 81.6', quartz vein (1/4" thick), sheared shale with hard sandstone pieces (up to 1/4" diameter).
 SEDIMENTARY ROCK (SANDSTONE), dark gray, fine grained, moderately hard, very intensely fractured, fresh, not clayey.
 82.3' - 82.6', crushed zone.
 SEDIMENTARY ROCK (MELANGE MATRIX), dark gray, slightly weathered to fresh, soft, very intensely fractured (crushed), mylonized (CLAY-like) with subangular sandstone fragments, variably oriented contacts dipping up to 30°. SANDSTONE fragments up to 0.2' thick localized shearing along thin fractures.
 METAMORPHIC ROCK (META-SANDSTONE), steeply dipping, laminated relic bedding offset by healed micro-faults, dark gray, fresh, hard, moderately to slightly fractured, milky white vein infilling.
 89.0', clayey infilling common, very intensely fractured (crushed), random quartzitic vein filling, locally associated with fractures and planes of weakness, harder pieces within mylonized zone are moderately hard overall matrixes soft.
 89.6' - 91.0', fractured mylonized zones.
 91.0', hard, moderately fractured.
 92.0', mylonized seam (0.02' thick).
 94.4', intensely to moderately fractured, mylonized zone.
 95.0', crushed zone.
 96.4', mylonized clay zone with quartz vein infilling.
 99.0', continued quartz vein infilling, parallel and not parallel to fractures, moderately fractured.
 103.2', sheared/mylonized, dark gray and yellowish brown, iron-oxide staining throughout fractures, very intensely fractured (crushed), slickensides of fractures at 103.2' parallel to dip.
 104.0', pervasively fractured, mylonized, with pervasive secondary clay formation, remnant intersecting fracture planes at 30° to 40° dip, moderately weathered.
 106.5', predominantly moderately hard, intensely weathered, clay smearing and iron-oxide staining on fractures at 109.0'.
 106.5' - 106.9' and 108.5' and 108.8', clayey mylonized zones (with subangular sandstone fragments in clay matrix).
 108.3' - 109.5', additional sub-vertical fractures.
 109.0', gray clay along predominant fracture. Quartz? veins continued, primarily unrelated to fractures. Multiple fracture sets primarily between 50° - 30°.
 110.7' - 102.2', pervasively sheared with a substantial portion mylonized, random fracture orientations.
 112.5', pervasively oxidized, intensely fractured, variably oriented fractures.

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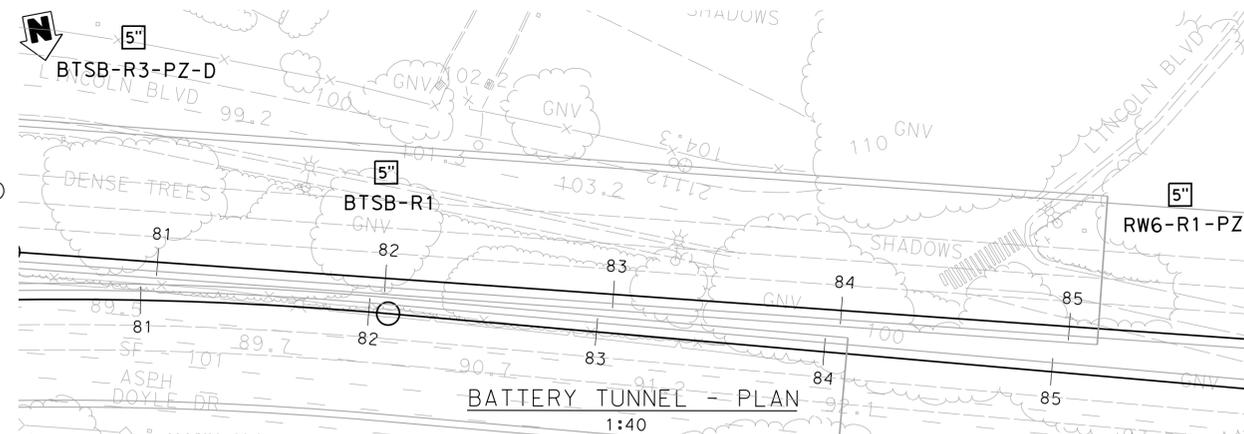
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ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA		DIVISION OF ENGINEERING SERVICES		BRIDGE NO.		BATTERY TUNNEL - NORTHBOUND	
FUNCTIONAL SUPERVISOR		DRAWN BY:		DEPARTMENT OF TRANSPORTATION		STRUCTURE DESIGN		POST MILES		LOG OF TEST BORINGS	
NAME:		CHECKED BY:		FIELD INVESTIGATION BY:		DESIGN BRANCH				REVISION DATES	
065 CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		CU EA		DISREGARD PRINTS BEARING EARLIER REVISION DATES		SHEET 3		OF 3	

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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	101	8.0/9.8	26	
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE			REGISTERED PROFESSIONAL ENGINEER		
			No. _____		
			Exp. _____		
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TO SAN FRANCISCO



TO GOLDEN GATE BRIDGE

BENCH MARK
BM PRHV 16 Elev 60.6'

PROFILE

HOR. 1"=20'
VER. 1"=10'



Continued on next column.

NOTE:- This LOTB sheet was prepared in accordance with the CALTRANS Soil & Rock Logging, Classification, and Presentation Manual (June 2007).

DATE PLOTTED => \$DATE USERNAME => \$USER

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN		BRIDGE NO.		BATTERY TUNNEL - SOUTHBOUND	
FUNCTIONAL SUPERVISOR		DRAWN BY:		FIELD INVESTIGATION BY:		DESIGN BRANCH		POST MILES		LOG OF TEST BORINGS	
NAME:		CHECKED BY:				CU EA		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES	
065 CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		0 1 2 3		FILE => \$REQUEST		SHEET 2		OF 2	