DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	701	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).

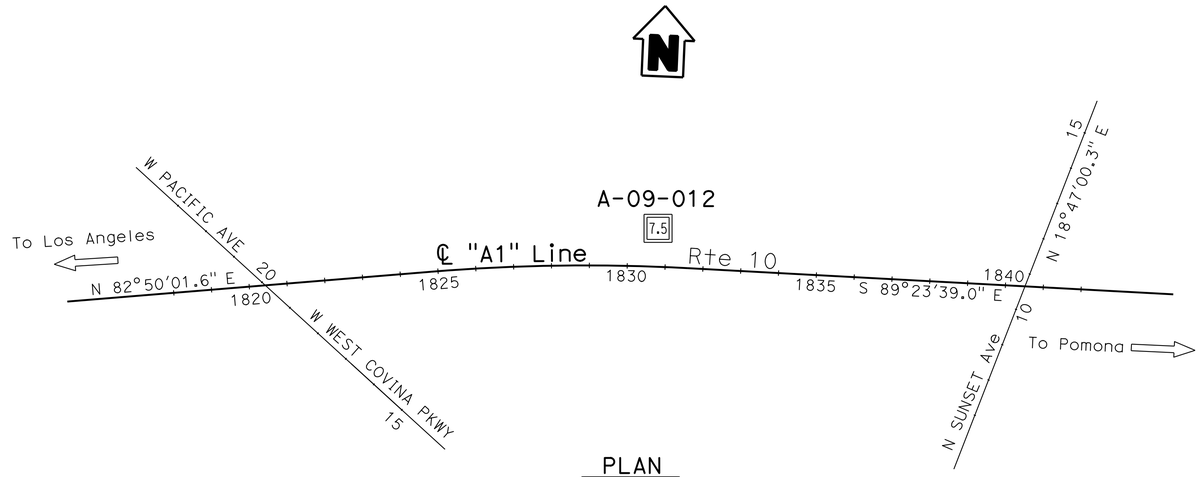
BENCH MARK

BM #11-B-43 Elev 346.47′
Lead and conc nail in sidewalk of Auto Ct. cabin #825 on N. side Gavey Ave 200′± of Puente Ave, 71′ Lt Sta 181+30.5.

BM #12-B-43 Elev 352.54′
Lead and conc nail in W. end of p.c.c. porch step to frame house on N. side Gavey Ave, 91′ Lt Sta 193+81.

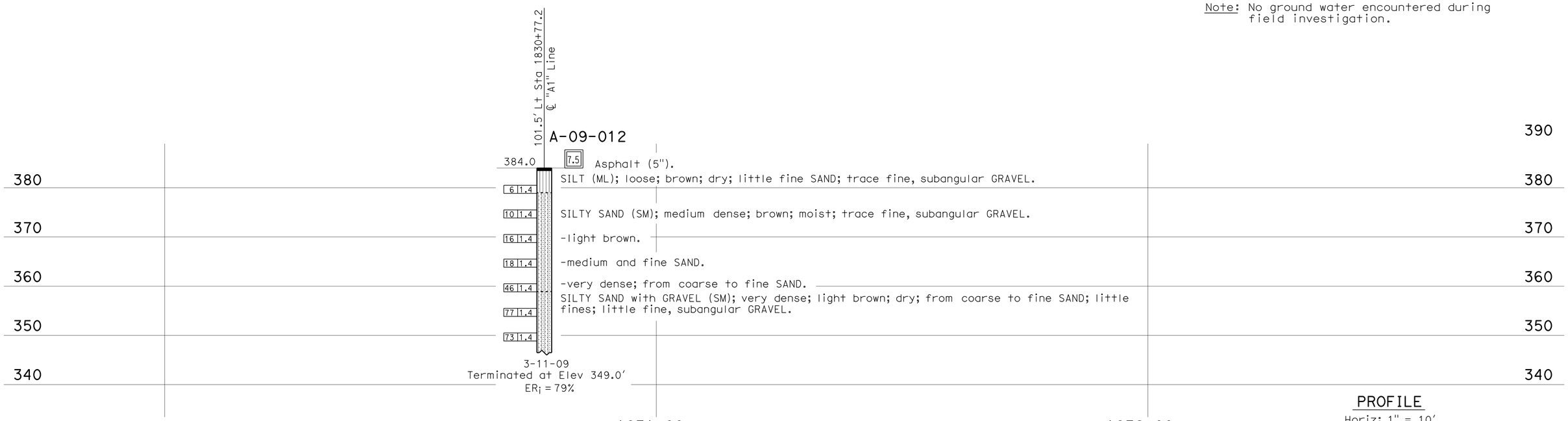
TBM Elev 341.93′
Chiseled knob on PCC wall, 33.4′ Rt Sta 168+35.

Vertical Datum: NAVD88



PLAN
1″ = 50′

Note: No ground water encountered during field investigation.



PROFILE
Horiz: 1″ = 10′
Vert: 1″ = 10′

R-84

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. RW 1822 POST MILE 33.4/37.1	RETAINING WALL NO. 1822 LOG OF TEST BORINGS 1 OF 3
FUNCTIONAL SUPERVISOR NAME: D. Jang	DRAWN BY: C. Christian, I.G-Remmen, F. Nguyen CHECKED BY: S. Han	FIELD INVESTIGATION BY: S. Cho			

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 04-17-12

REVISION DATES | SHEET X | OF X

FILE => 71170uqu034.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	702	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Sungro Cho
No. C75151
Exp. 12-31-13
CIVIL
STATE OF CALIFORNIA

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CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

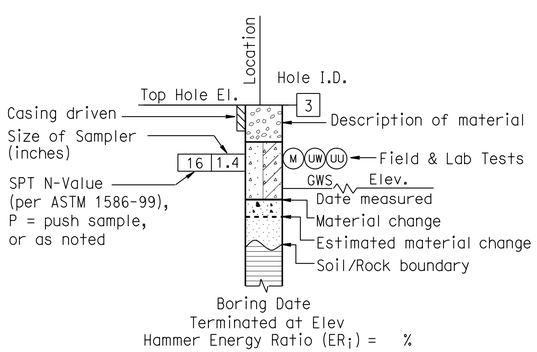
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R RC	Rotary drilled diamond core Rotary drilled rock core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
⬚	O	Other (note on LOTB)

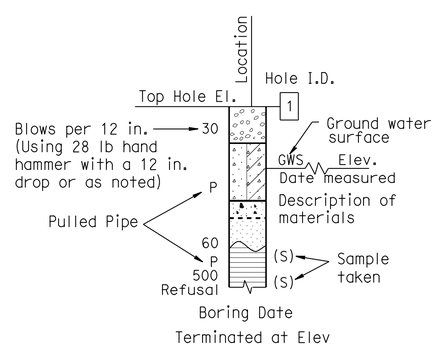
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

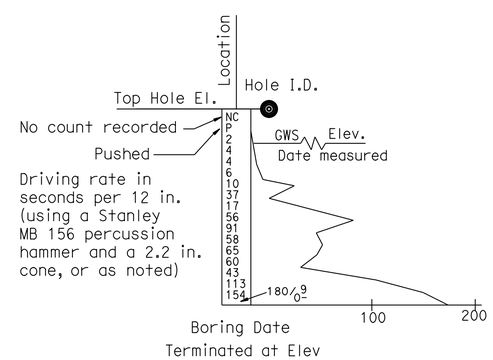
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



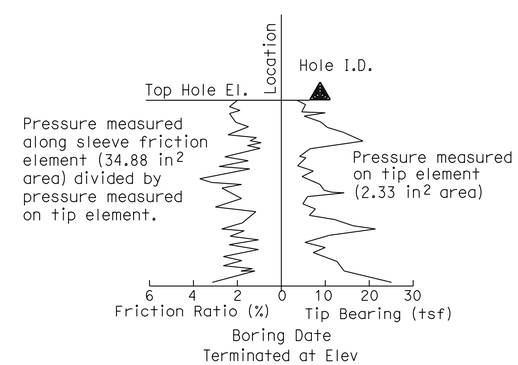
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

R-85

ENGINEERING SERVICES	MATERIALS AND GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. RW 1822 POST MILE 33.4/37.1	RETAINING WALL NO. 1822 LOG OF TEST BORINGS 2 OF 3
	PREPARED BY: F. Nguyen				

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 04-17-12 | SHEET X | OF X

FILE => 71170uqu035.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	703	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

R-86

ENGINEERING SERVICES

MATERIALS AND GEOTECHNICAL SERVICES
PREPARED BY: F. Nguyen

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH X

BRIDGE NO. RW 1822
POST MILE 33.4/37.1

RETAINING WALL NO. 1822
LOG OF TEST BORINGS 3 OF 3

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851
CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 04-17-12 | SHEET X | OF X

FILE => 71170uqu036.dgn

USERNAME => s124296 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	704	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).

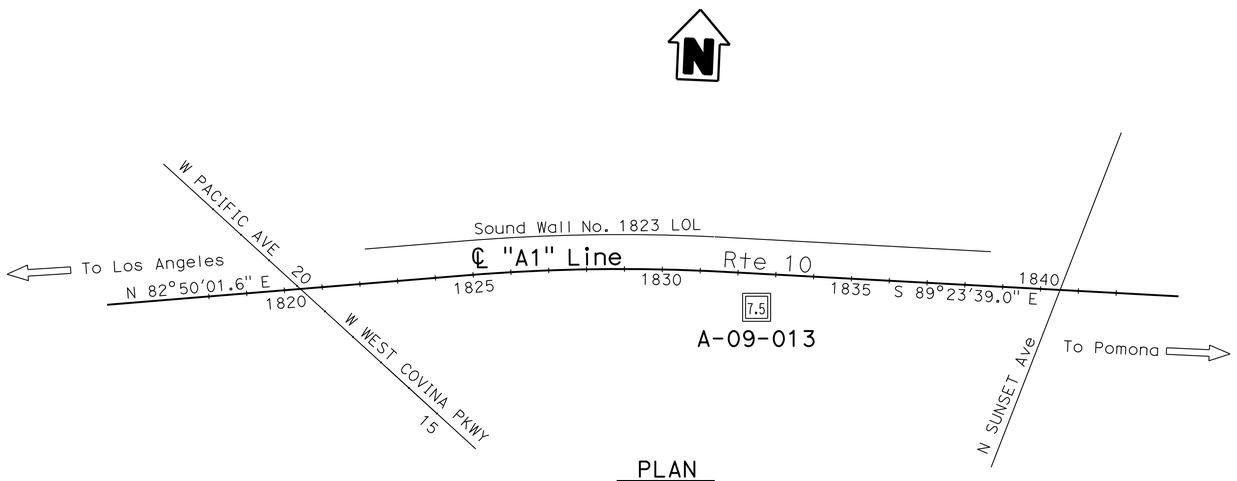
BENCH MARK

BM #11-B-43 Elev 346.47′
Lead and conc nail in sidewalk of Auto Ct. cabin #825 on N. side Gavey Ave 200′± of Puente Ave, 71′ Lt Sta 181+30.5.

BM #12-B-43 Elev 352.54′
Lead and conc nail in W. end of p.c.c. porch step to frame house on N. side Gavey Ave, 91′ Lt Sta 193+81.

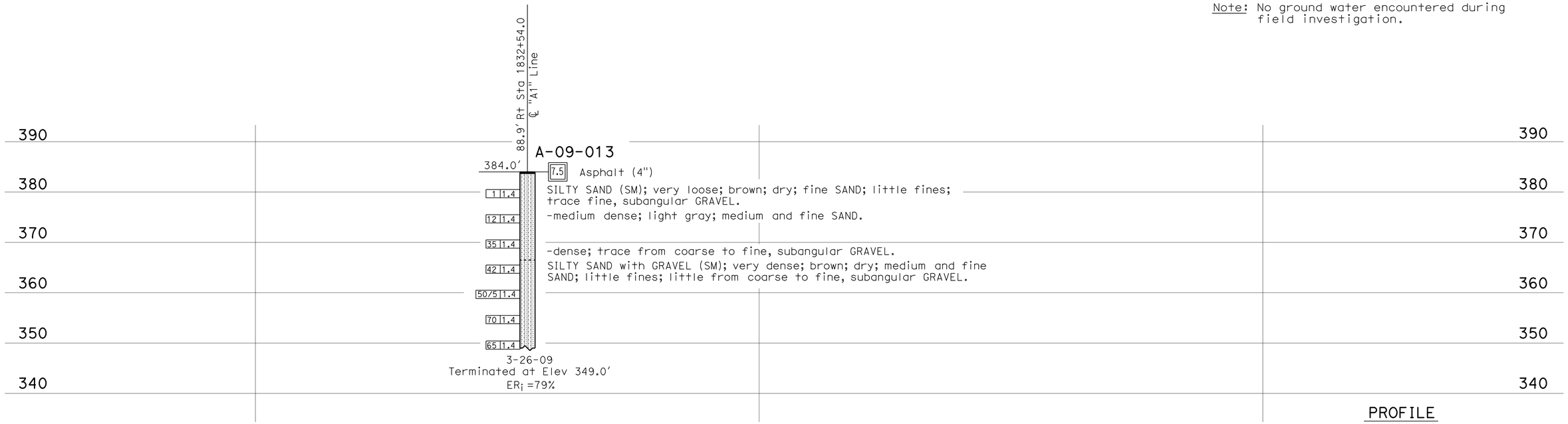
TBM Elev 341.93′
Chiseled knob on PCC wall, 33.4′ Rt Sta 168+35.

Vertical Datum: NAVD88



PLAN
1" = 50′

Note: No ground water encountered during field investigation.



PROFILE
Horiz: 1" = 10′
Vert: 1" = 10′

R-87

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. RW 1823 POST MILE 33.4/37.1	RETAINING WALL NO. 1823 LOG OF TEST BORINGS 1 OF 3
FUNCTIONAL SUPERVISOR NAME: D. Jang	DRAWN BY: C. Christian, I.G-Remmen CHECKED BY: S. Han	FIELD INVESTIGATION BY: S. Cho			

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 08-26-11 07-12-12 05-22-13

SHEET X OF X

FILE => 71170uqu037.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	705	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (JUNE 2007)

CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

CONSISTENCY OF COHESIVE SOILS

Description	Unconfined Compressive Strength (tsf)	Pocket Penetrometer Measurement (tsf)	Torvane Measurement (tsf)	Field Approximation
Very Soft	< 0.25	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	0.25 to 0.50	0.25 to 0.50	0.12 to 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 to 1.0	0.50 to 1.0	0.25 to 0.50	Penetrated several inches by thumb with moderate effort
Stiff	1 to 2	1 to 2	0.50 to 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2 to 4	2 to 4	1.0 to 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

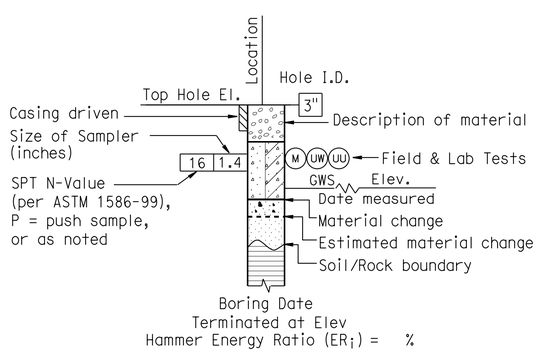
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring
Size	R P	Rotary drilled boring Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778-95)
⬚	O	Other

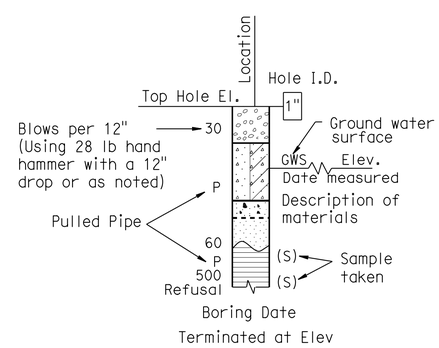
Note: Size in inches.

PLASTICITY OF FINE-GRAINED SOILS

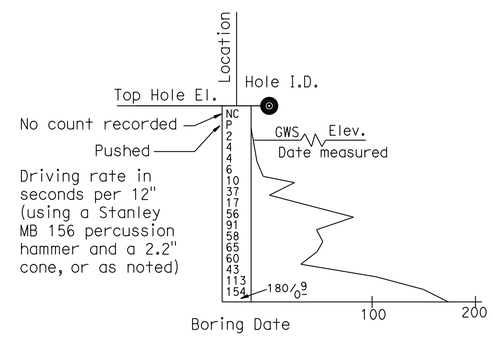
Description	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.



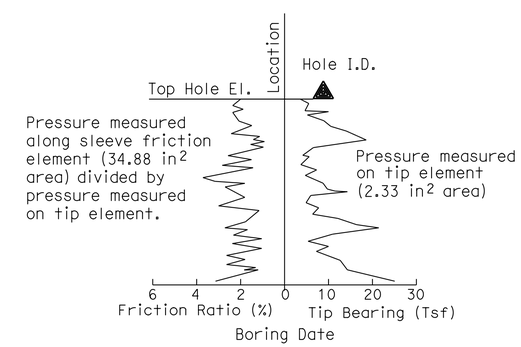
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) SOUNDING

R-88

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. RW 1823 / POST MILE 33.4/37.1	RETAINING WALL NO. 1823 LOG OF TEST BORINGS 2 OF 3
	PREPARED BY: F. Nguyen				

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
05-22-12				X	X

FILE => 71170uqu038.dgn

USERNAME => s124936 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (JUNE 2007)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	706	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND
GP	Poorly graded GRAVEL Poorly graded GRAVEL with SAND
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GP-GM	Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND
GP-GC	Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GM	SILTY GRAVEL SILTY GRAVEL with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL
SP	Poorly graded SAND Poorly graded SAND with GRAVEL
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SP-SM	Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL
SP-SC	Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SM	SILTY SAND SILTY SAND with GRAVEL
SC	CLAYEY SAND CLAYEY SAND with GRAVEL
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL
PT	PEAT
	COBBLES COBBLES and BOULDERS BOULDERS

Graphic/Symbol	Group Names
CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (PP) Pocket Penetrometer
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (TV) Pocket Torvane
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)
- (VS) Vane Shear (AASHTO T 223)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 inches)
Very loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

MOISTURE

Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

PARTICLE SIZE

Description		Size
Boulder		> 12"
Cobble		3" to 12"
Gravel	Coarse	3/4" to 3"
	Fine	No. 4 to 3/4"
Sand	Coarse	No. 10 to No. 4
	Medium	No. 40 to No. 10
	Fine	No. 200 to No. 40

R-89

ENGINEERING SERVICES

GEOTECHNICAL SERVICES
PREPARED BY: F. Nguyen

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN
DESIGN BRANCH X

BRIDGE NO. RW 1823
POST MILE 33.4/37.1

RETAINING WALL NO. 1823
LOG OF TEST BORINGS 3 OF 3

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851
CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 05-22-12 | SHEET X | OF X

FILE => 71170uqu039.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	707	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).

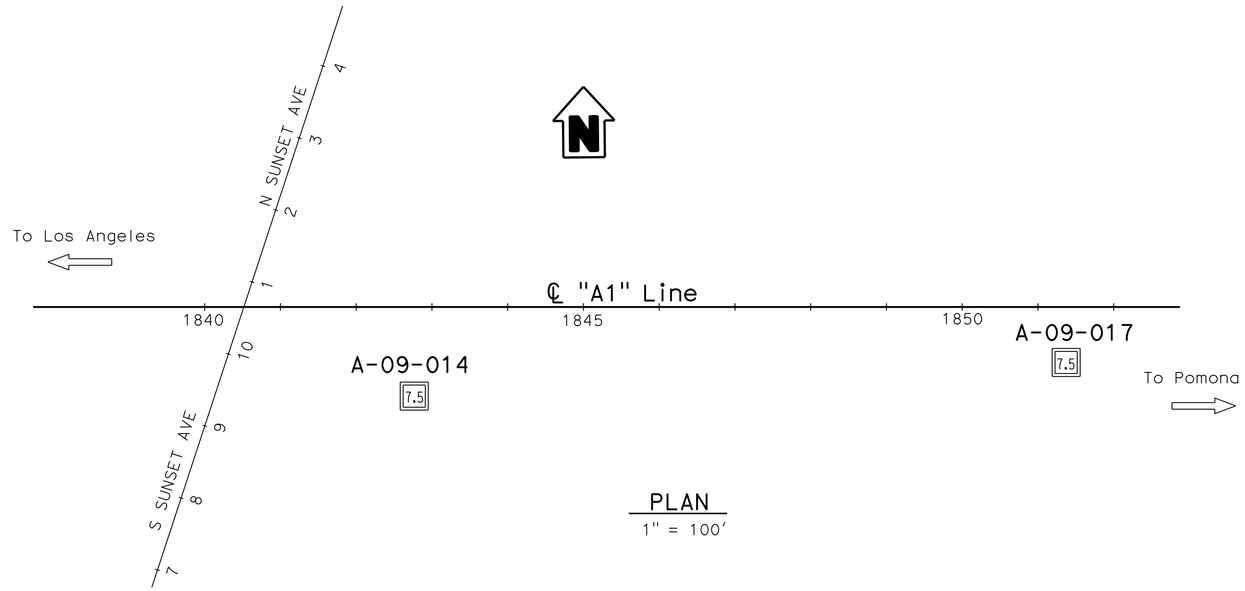
BENCH MARK

BM #11-B-43 Elev 346.47′
Lead and conc nail in sidewalk of Auto Ct. cabin #825 on N. side Gavey Ave 200′± of Puente Ave, 71′ Lt Sta 181+30.5.

BM #12-B-43 Elev 352.54′
Lead and conc nail in W. end of p.c.c. porch step to frame house on N. side Gavey Ave, 91′ Lt Sta 193+81.

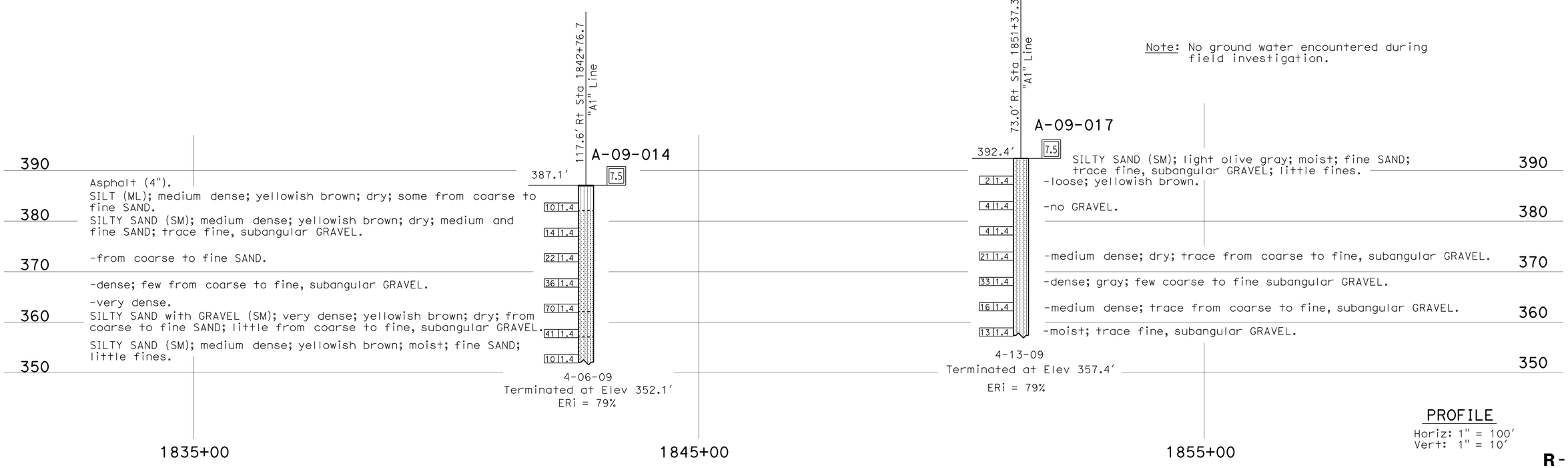
TBM Elev 341.93′
Chiseled knob on PCC wall, 33.4′ Rt Sta 168+35.

Vertical Datum: NAVD88



PLAN
1" = 100′

Note: No ground water encountered during field investigation.



PROFILE
Horiz: 1" = 100′
Vert: 1" = 10′

R-90

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. RW 1841	RETAINING WALL NO. 1841
FUNCTIONAL SUPERVISOR	DRAWN BY: F. Nguyen	FIELD INVESTIGATION BY:	DESIGN BRANCH X	POST MILE 33.4/37.1	LOG OF TEST BORINGS 1 OF 3
NAME: D. Jang	CHECKED BY: S. Han	S. Cho			

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 04-11-12 07-10-12 SHEET X OF X

FILE => 71170uqu040.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	708	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

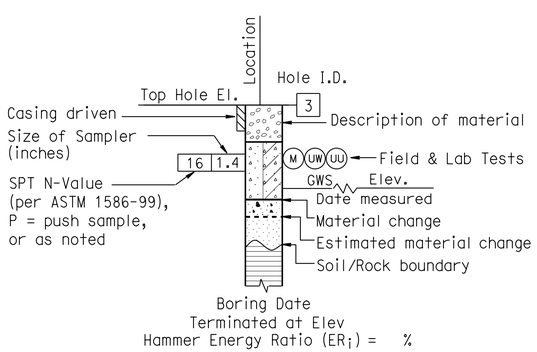
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R RC	Rotary drilled diamond core Rotary drilled rock core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
⬚	O	Other (note on LOTB)

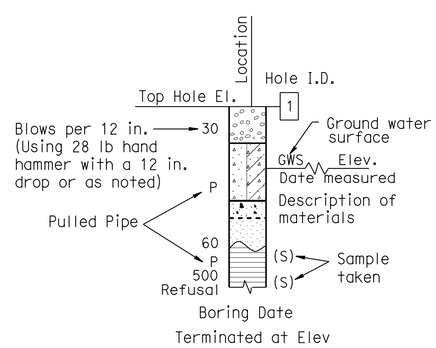
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

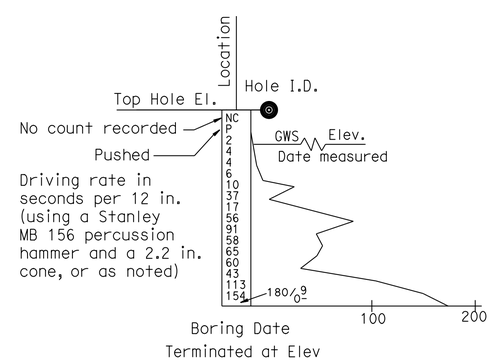
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



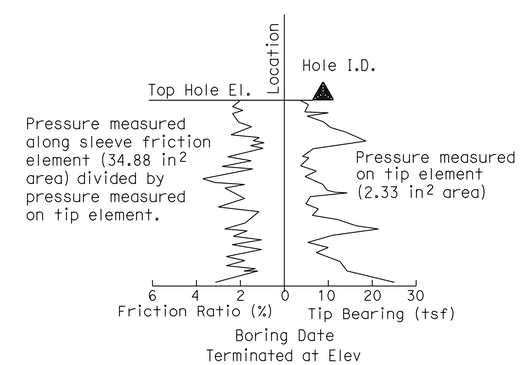
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

R-91

ENGINEERING SERVICES	MATERIALS AND GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. RW 1841 POST MILE 33.4/37.1	RETAINING WALL NO. 1841 LOG OF TEST BORINGS 2 OF 3
	PREPARED BY: F. Nguyen				

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 04-11-12 07-10-12 SHEET X OF X

FILE => 71170uqu041.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	709	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GM	SILTY GRAVEL SILTY GRAVEL with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SM	SILTY SAND SILTY SAND with GRAVEL
SC	CLAYEY SAND CLAYEY SAND with GRAVEL
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL
PT	PEAT
	COBBLES COBBLES and BOULDERS BOULDERS

Graphic/Symbol	Group Names
CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

R-92

ENGINEERING SERVICES

MATERIALS AND GEOTECHNICAL SERVICES

PREPARED BY: F. Nguyen

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X

BRIDGE NO. RW 1841

POST MILE 33.4/37.1

RETAINING WALL NO. 1841

LOG OF TEST BORINGS 3 OF 3

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851
CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES ~~04-17-12~~ 07-10-12 SHEET X OF X

FILE => 71170uqu042.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	710	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).

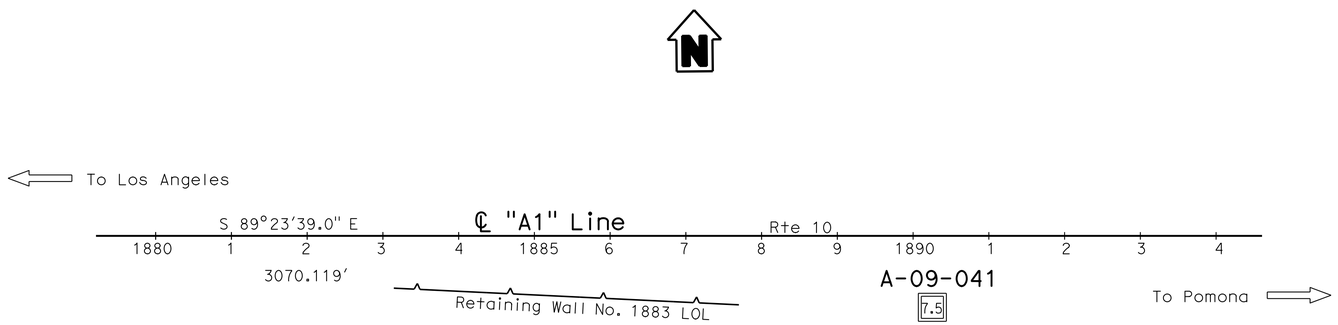
BENCH MARK

BM #11-B-43 Elev 346.47′
Lead and conc nail in sidewalk of Auto Ct. cabin #825 on N. side Gavey Ave 200′± of Puente Ave, 71′ Lt Sta 181+30.5.

BM #12-B-43 Elev 352.54′
Lead and conc nail in W. end of p.c.c. porch step to frame house on N. side Gavey Ave, 91′ Lt Sta 193+81.

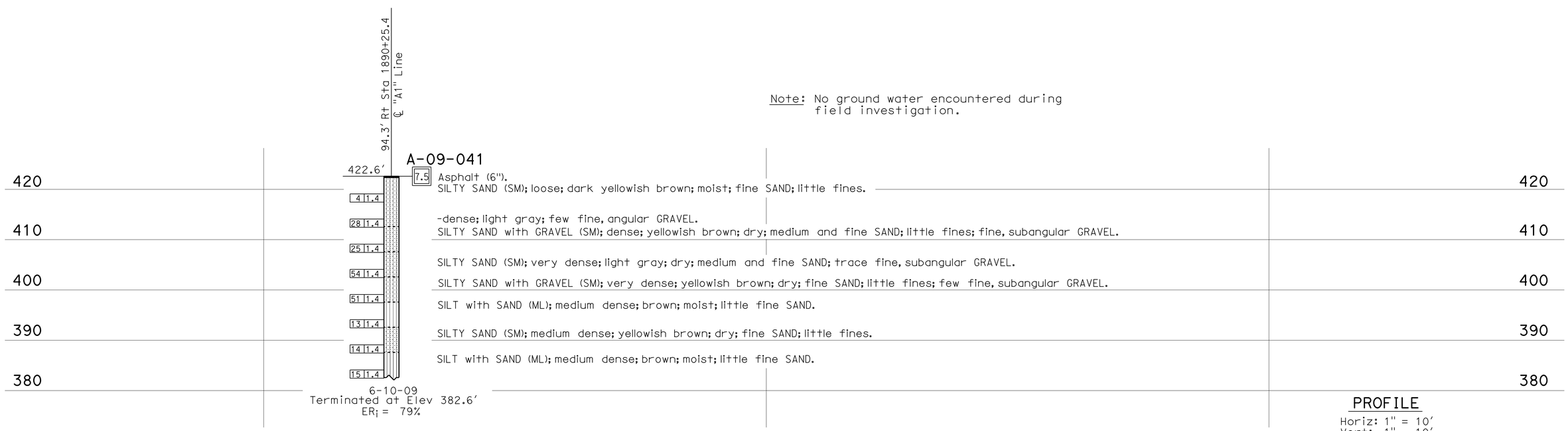
TBM Elev 341.93′
Chiseled knob on PCC wall, 33.4′ Rt Sta 168+35.

Vertical Datum: NAVD88



PLAN
1″ = 100′

Note: No ground water encountered during field investigation.



PROFILE
Horiz: 1″ = 10′
Vert: 1″ = 10′

R-93

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. RW 1883	RETAINING WALL NO. 1883
FUNCTIONAL SUPERVISOR	DRAWN BY: F. Nguyen	FIELD INVESTIGATION BY:	DESIGN BRANCH X	POST MILE 33.4/37.1	LOG OF TEST BORINGS 1 OF 3
NAME: D. Jang	CHECKED BY: S. Han	S. Cho			

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 04-17-12 07-16-12 07-13-12 SHEET X OF X

FILE => 71170uqu043.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	711	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

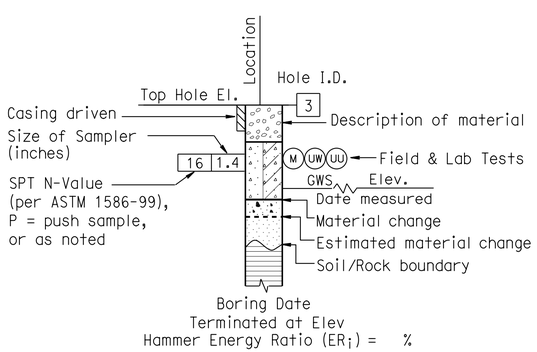
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R RC	Rotary drilled diamond core Rotary drilled rock core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
⬚	O	Other (note on LOTB)

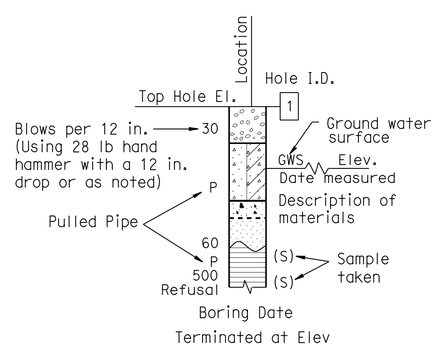
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

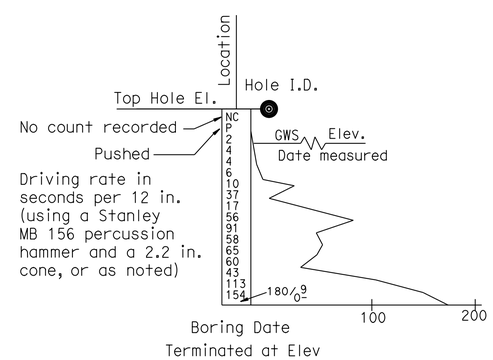
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



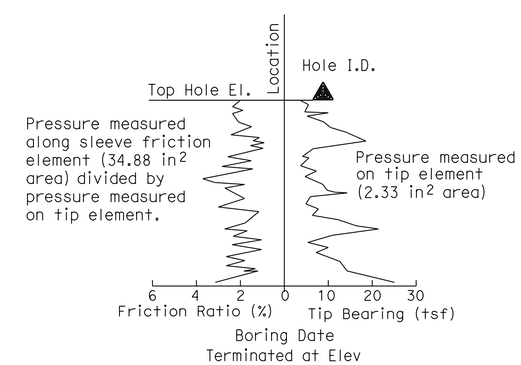
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

ENGINEERING SERVICES	MATERIALS AND GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. RW 1883 / POST MILE 33.4/37.1	RETAINING WALL NO. 1883 LOG OF TEST BORINGS 2 OF 3
	PREPARED BY: F. Nguyen				

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 04-11-12 07-10-12 SHEET X OF X

FILE => 71170uqu044.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	712	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

R-95

ENGINEERING SERVICES

MATERIALS AND GEOTECHNICAL SERVICES

PREPARED BY: F. Nguyen

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X

BRIDGE NO. RW 1883

POST MILE 33.4/37.1

RETAINING WALL NO. 1883

LOG OF TEST BORINGS 3 OF 3

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851
CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES ~~04-17-12~~ 07-10-12

SHEET X OF X

FILE => 71170uqu045.dgn

USERNAME => s124296 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	713	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).

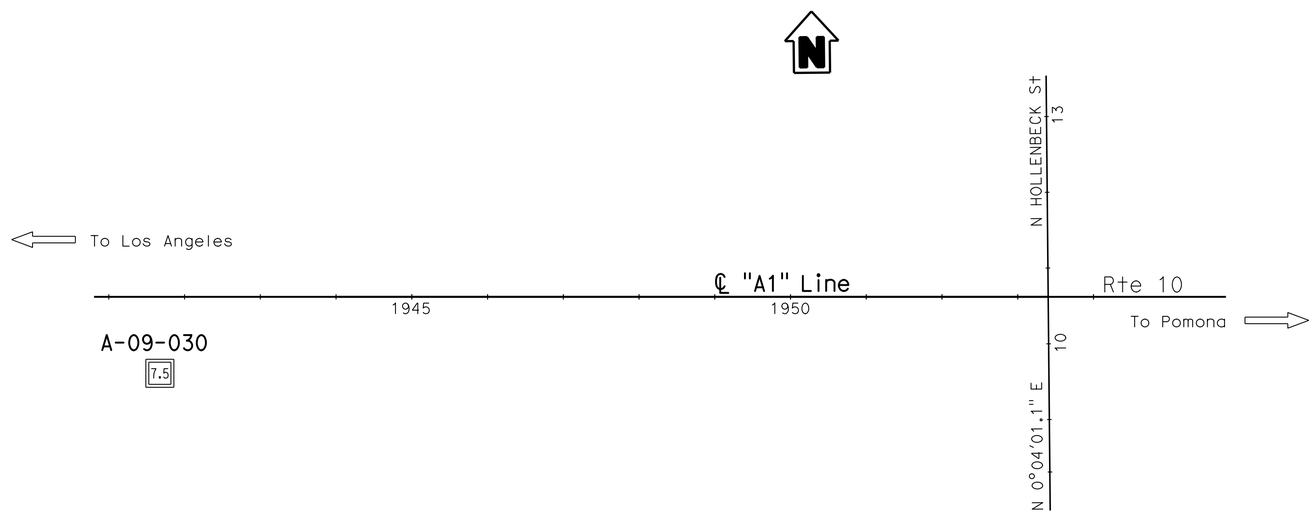
BENCH MARK

BM #11-B-43 Elev 346.47′
Lead and conc nail in sidewalk of Auto Ct. cabin #825 on N. side Gavey Ave 200′± of Puente Ave, 71′ Lt Sta 181+30.5.

BM #12-B-43 Elev 352.54′
Lead and conc nail in W. end of p.c.c. porch step to frame house on N. side Gavey Ave, 91′ Lt Sta 193+81.

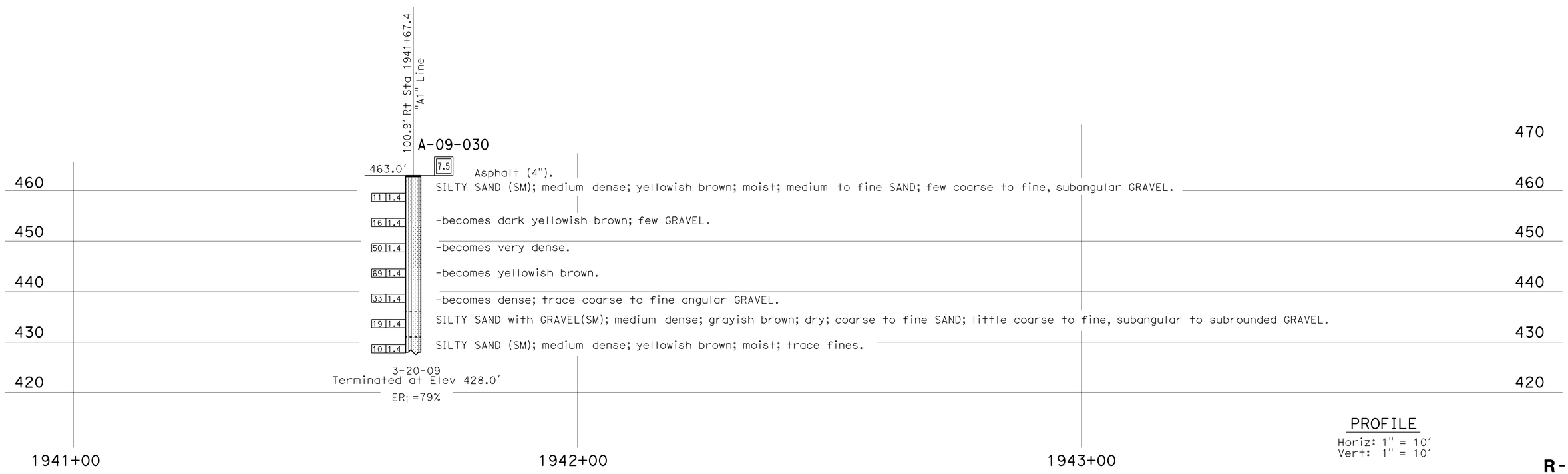
TBM Elev 341.93′
Chiseled knob on PCC wall, 33.4′ Rt Sta 168+35.

Vertical Datum: NAVD88



PLAN
1" = 100′

Note: No ground water encountered during field investigation.



PROFILE
Horiz: 1" = 10′
Vert: 1" = 10′

R-96

ENGINEERING SERVICES	MATERIALS AND GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. RW 1939 POST MILE 33.4/37.1	RETAINING WALL NO. 1939 LOG OF TEST BORINGS 1 OF 3
FUNCTIONAL SUPERVISOR NAME: D. Jang	DRAWN BY: C. Christian, F. Nguyen CHECKED BY: S. Han	FIELD INVESTIGATION BY: S. Cho			

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES 04-17-12 07-13-12 SHEET X OF X

FILE => 71170uqu046.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	714	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

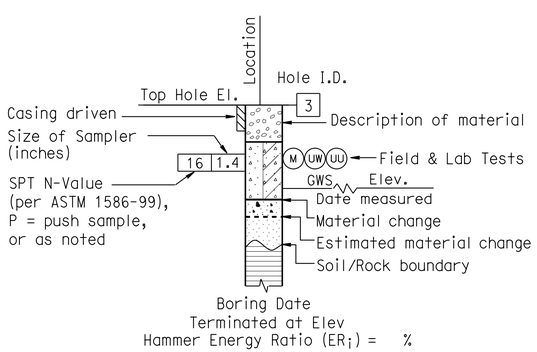
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R RC	Rotary drilled diamond core Rotary drilled rock core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
⬚	O	Other (note on LOTB)

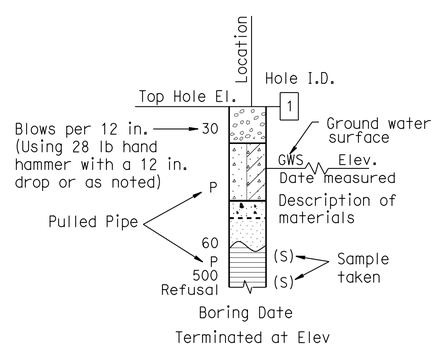
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

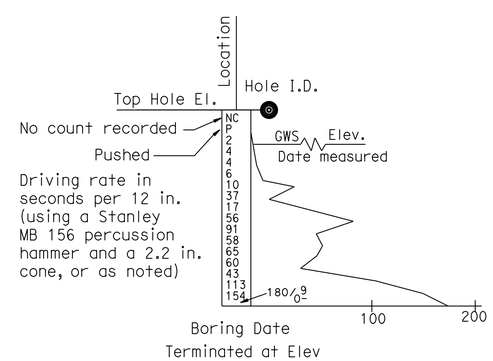
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



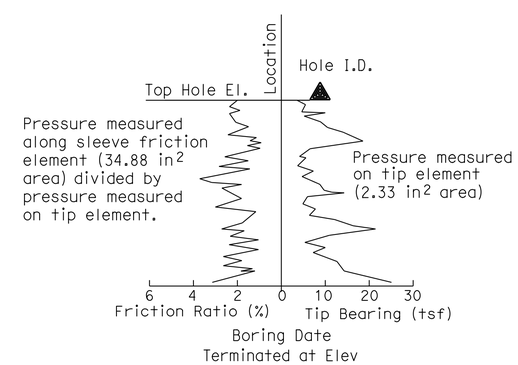
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

R-97

ENGINEERING SERVICES	MATERIALS AND GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. RW 1939 POST MILE 33.4/37.1	RETAINING WALL NO. 1939 LOG OF TEST BORINGS 2 OF 3
	PREPARED BY: F. Nguyen				

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 04-17-12 | SHEET X | OF X

FILE => 71170uqu047.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	715	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
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- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

R-98

ENGINEERING SERVICES

MATERIALS AND GEOTECHNICAL SERVICES

PREPARED BY: F. Nguyen

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X

BRIDGE NO. RW 1939

POST MILE 33.4/37.1

RETAINING WALL NO. 1939

LOG OF TEST BORINGS 3 OF 3

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851
CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 04-17-12

SHEET X OF X

FILE => 71170uqu048.dgn

USERNAME => s124296 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	716	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).

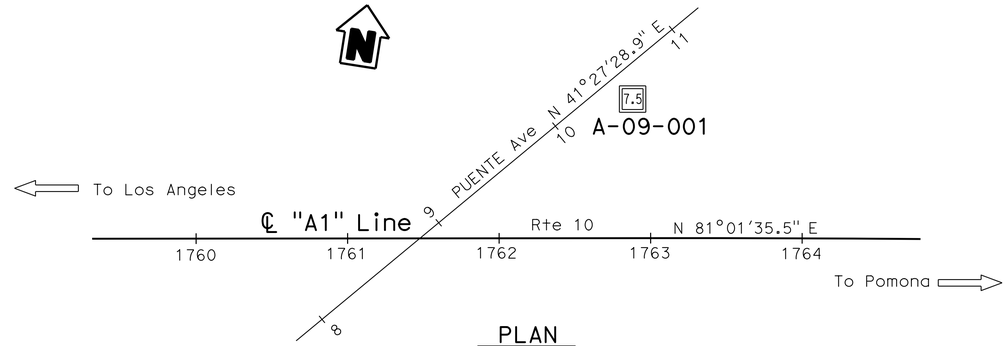
BENCH MARK

BM #11-B-43 Elev 346.47′
Lead and conc nail in sidewalk of Auto Ct. cabin #825 on N. side Gavey Ave 200′± of Puente Ave, 71′ Lt Sta 181+30.5.

BM #12-B-43 Elev 352.54′
Lead and conc nail in W. end of p.c.c. porch step to frame house on N. side Gavey Ave, 91′ Lt Sta 193+81.

TBM Elev 341.93′
Chiseled knob on p.c.c wall, 33.4/37.1′ Rt Sta 168+35.

Vertical Datum: NAVD88

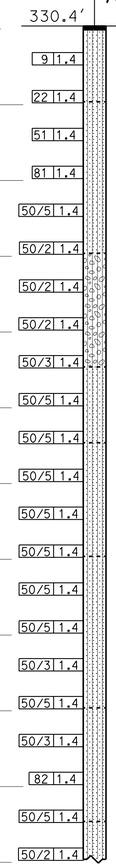


PLAN
1″ = 50′

Note: No ground water encountered during field investigation.

91.8′ Lt Sta 1762+88.2
℄ "A1" Line

A-09-001



4-7-09
Terminated at Elev 220.4′
ER_i = 79%

330 — Asphalt (6″).

SILTY SAND (SM); medium dense; yellowish brown; dry; fine SAND; little fines; trace fine, subangular GRAVEL.

320 — SILTY SAND with GRAVEL (SM); very dense; gray; dry; fine SAND; little fine, subangular GRAVEL.

310 — -from coarse to fine subangular and subrounded GRAVEL.

300 — SILTY GRAVEL with SAND (GM); very dense; gray; dry; fine, angular GRAVEL; little fine SAND; little fines.

290 — -yellowish brown.

280 — SILTY SAND with GRAVEL (SM); very dense; brown; dry; fine SAND; little fines; little fine, angular GRAVEL.

270 — SILTY SAND (SM); very dense; brown; dry; medium and fine SAND; little fines; few fine, angular GRAVEL.

260 — SILTY SAND with GRAVEL (SM); very dense; yellowish brown; dry; fine SAND; little fines; little fine angular GRAVEL.

250 — -gray.

240 — SILTY SAND (SM); very dense; brown; dry; medium and fine SAND; little fines; trace fine, subangular GRAVEL.

230 — -few fine, angular GRAVEL.

220 — SILTY SAND with GRAVEL (SM); very dense; brown; dry; fine SAND; little fines; little fine, angular GRAVEL.

1762+00 1764+00 1766+00

PROFILE
Horiz: 1″ = 20′
Vert: 1″ = 10′

R-99

ENGINEERING SERVICES	MATERIALS AND GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. RW 763 / POST MILE 33.4/37.1	RETAINING WALL NO. 763 LOG OF TEST BORINGS 1 OF 3
FUNCTIONAL SUPERVISOR NAME: D. Jang	DRAWN BY: B. Huddleston, I.G-Remmen / CHECKED BY: H. Yang	FIELD INVESTIGATION BY: S. Cho			

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 10-12-11 05-18-12 07-13-12 — SHEET X OF X

FILE => 71170uqu049.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	717	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

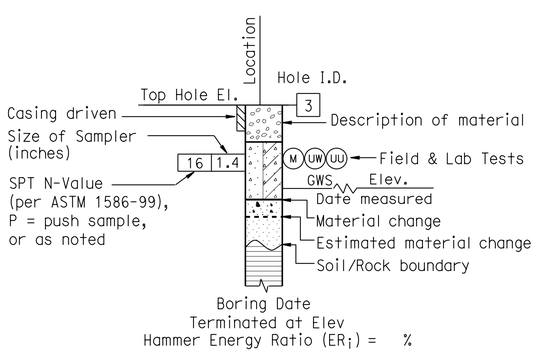
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R RC	Rotary drilled diamond core Rotary drilled rock core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
⬚	O	Other (note on LOTB)

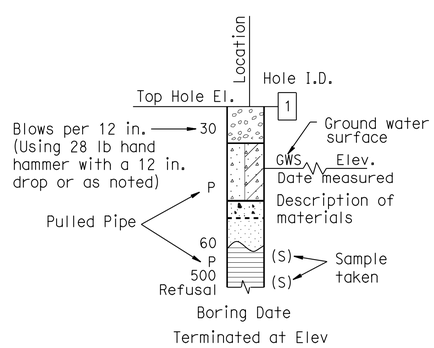
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

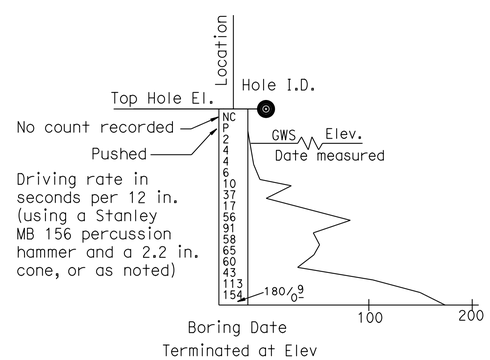
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



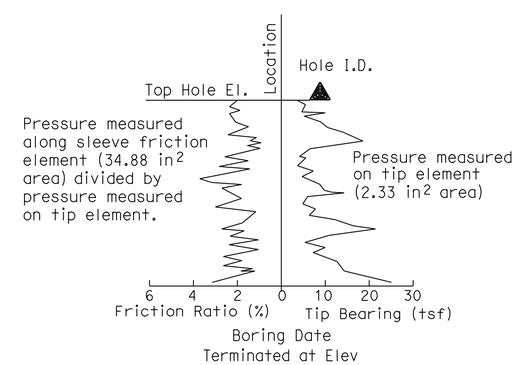
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

R-100

ENGINEERING SERVICES	MATERIALS AND GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. RW 763 POST MILE 33.4/37.1	RETAINING WALL NO. 763 LOG OF TEST BORINGS 2 OF 3
	PREPARED BY: F. Nguyen				

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 05-15-12 | SHEET X | OF X

FILE => 71170uqu050.dgn

USERNAME => s124496 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	718	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

R-101

ENGINEERING SERVICES

MATERIALS AND GEOTECHNICAL SERVICES

PREPARED BY: F. Nguyen

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X

BRIDGE NO. RW 763

POST MILE 33.4/37.1

RETAINING WALL NO. 763

LOG OF TEST BORINGS 3 OF 3

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851
CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 05-15-12

SHEET X OF X

FILE => 71170uqu051.dgn

USERNAME => s124296 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 05:57

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	719	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp 6/30/14 CIVIL STATE OF CALIFORNIA

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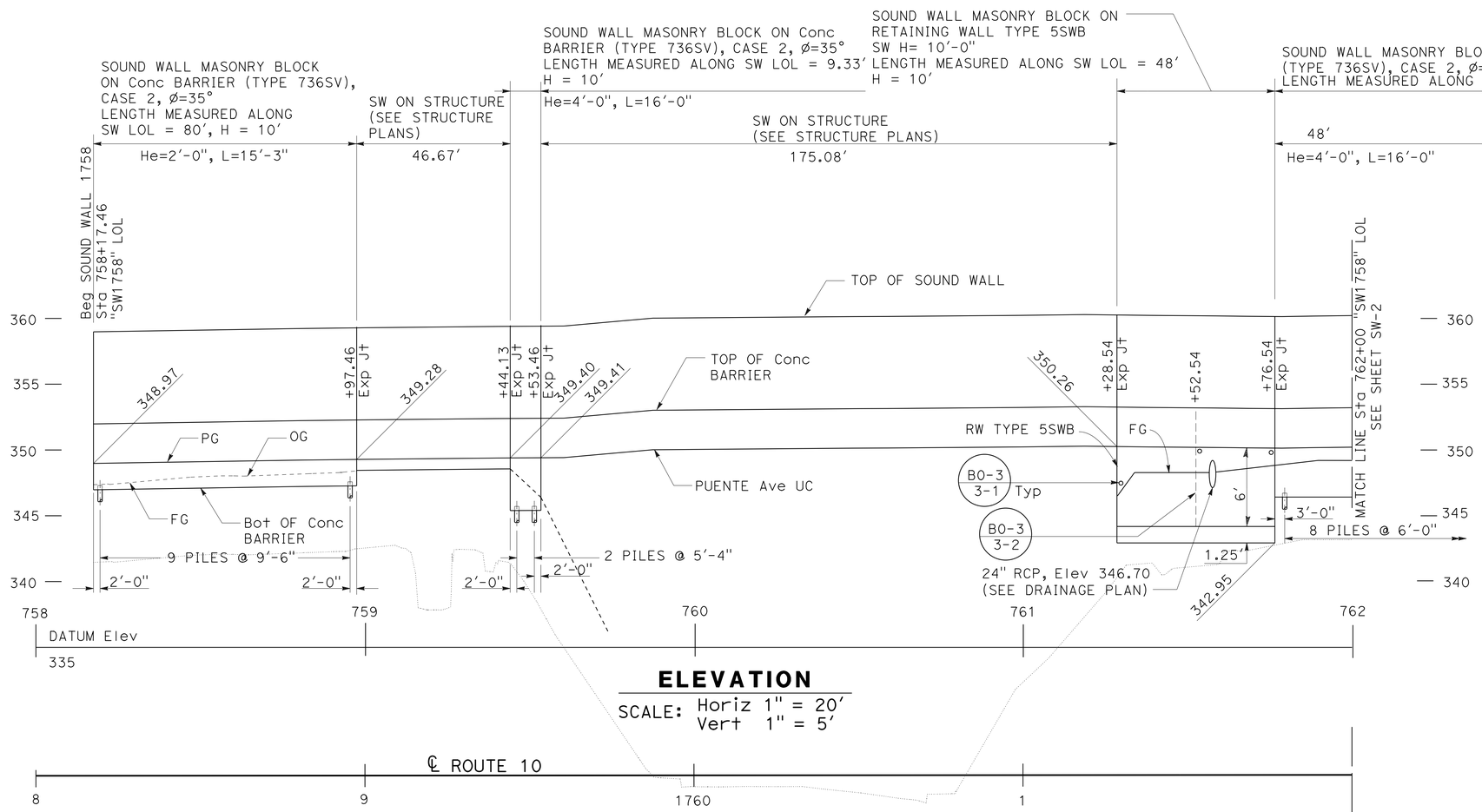
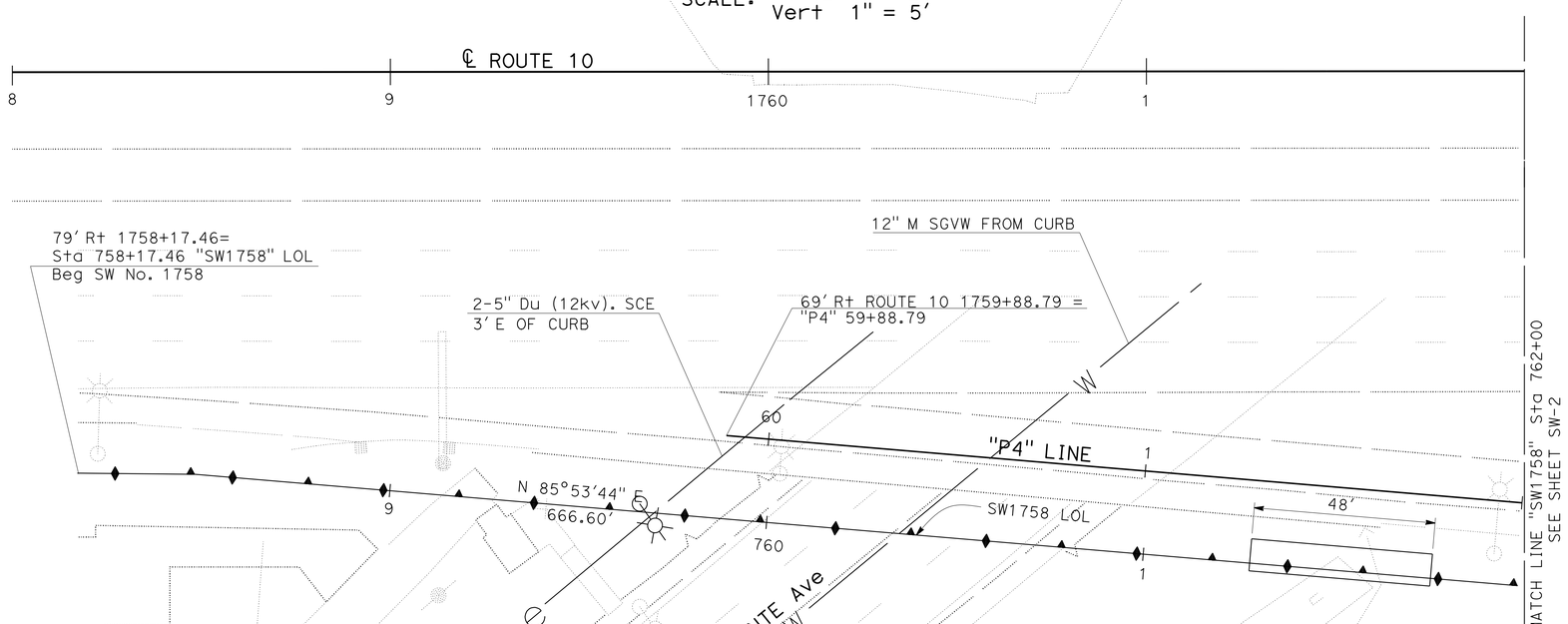


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



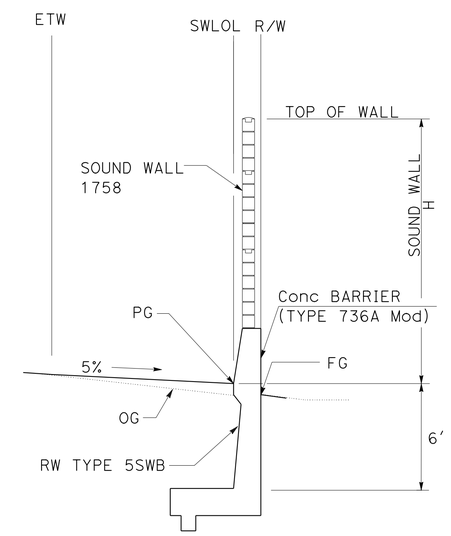
PLAN

SCALE: 1"= 20'

APPROVED FOR SOUND WALL WORK ONLY

NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. ALL PILES ARE 1'-4" IN DIAMETER, UNLESS OTHERWISE NOTED.
3. FOR LOCATION OF TYPE 21 ELECTROLIERS, SEE ELECTRICAL PLANS.
4. FOR LOCATION OF OVERHEAD SIGNS, SEE SIGN PLANS.
5. SEE LAYOUT PLANS FOR ROUTE 10 AND RAMP CONTROL LINE DATA.
6. REPLACE FOUNDATION SOIL WITH APPROVED STRUCTURE BACKFILL AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.



"SW1758" 761+28.54 TO "SW1758" 761+76.54

TYPICAL SECTION

NO SCALE

SOUND WALL PLAN

SOUND WALL No. 1758

SCALE AS SHOWN

SW-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: MINH TU
CHECKED BY: JEROME ARABE
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 05:57

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	720	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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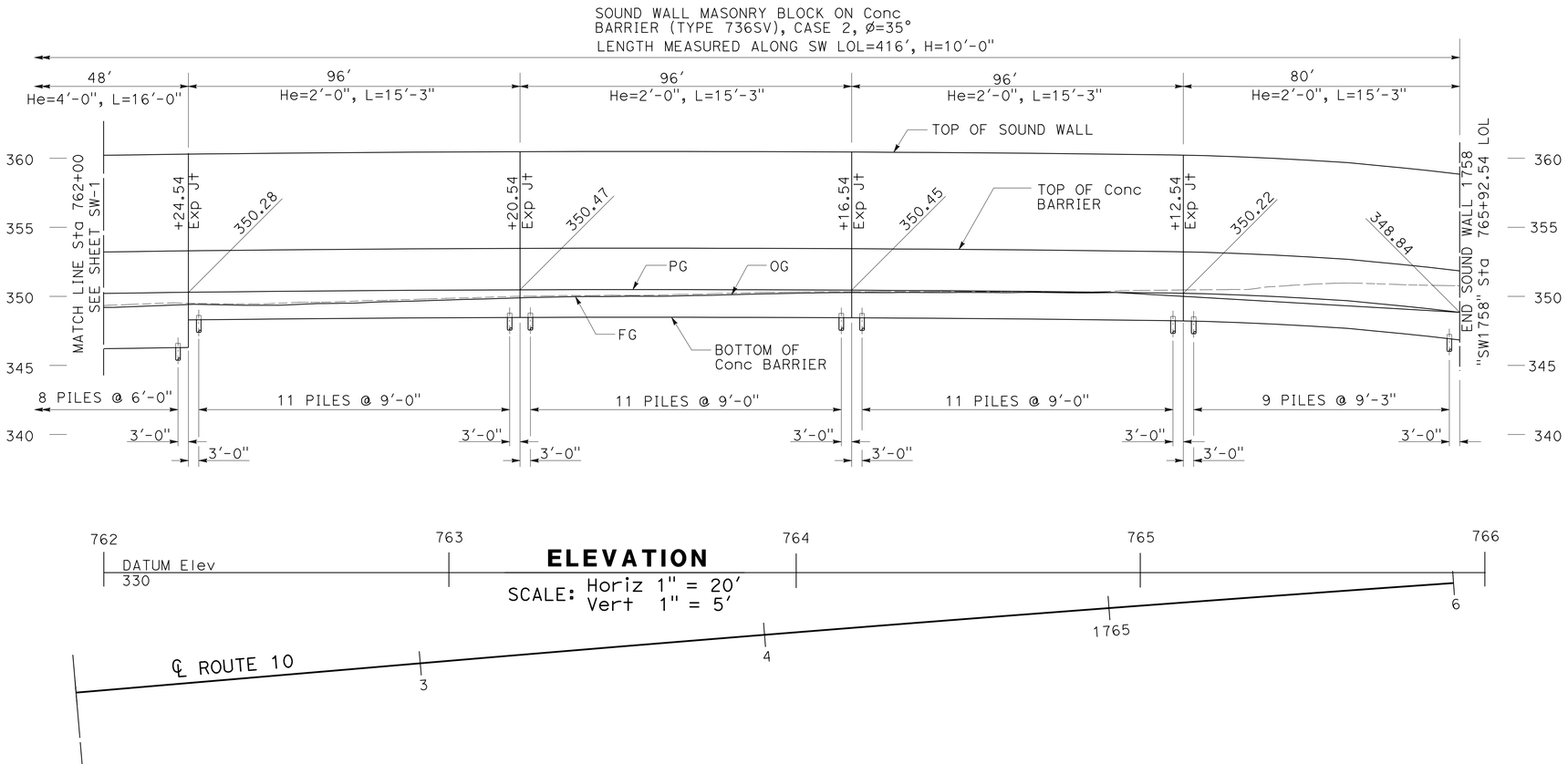
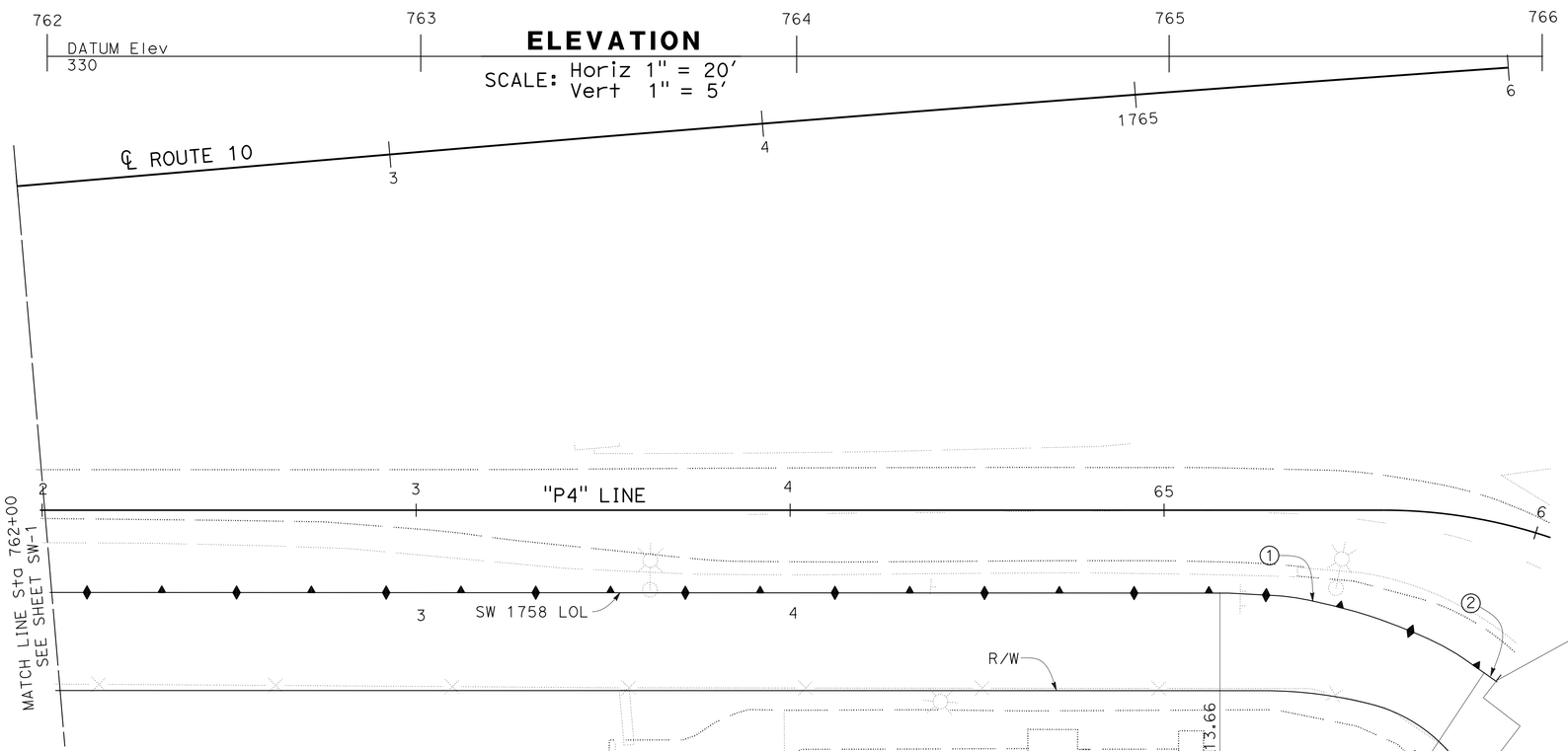


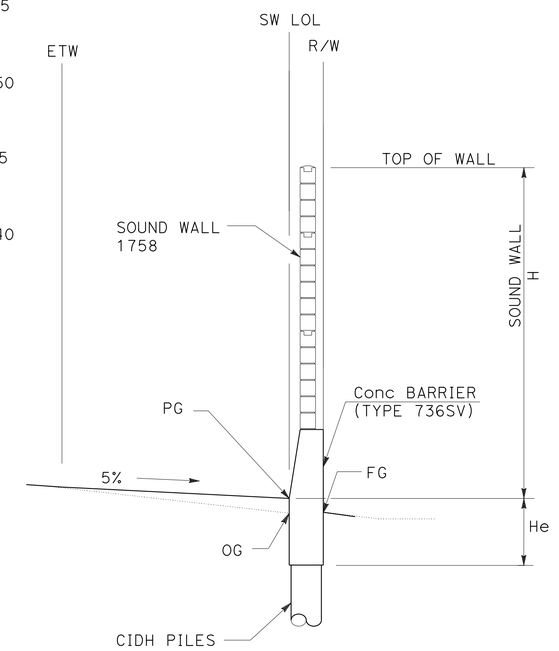
ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1"= 20'



"SW 1758" 758+17.46 TO "SW 1758" 758+97.46
"SW 1758" 759+44.13 TO "SW 1758" 759+53.46
"SW 1758" 761+76.54 TO "SW 1758" 765+92.54

TYPICAL SECTION

NO SCALE

CURVE DATA

No. (#)	R	Δ	T	L
1	128.00'	33°33'37"	38.60'	74.97'
2	55.00'	4°3'44"	1.95'	3.90'

SOUND WALL PLAN

SOUND WALL No. 1758

SCALE AS SHOWN

SW-2

APPROVED FOR SOUND WALL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 05:57

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	721	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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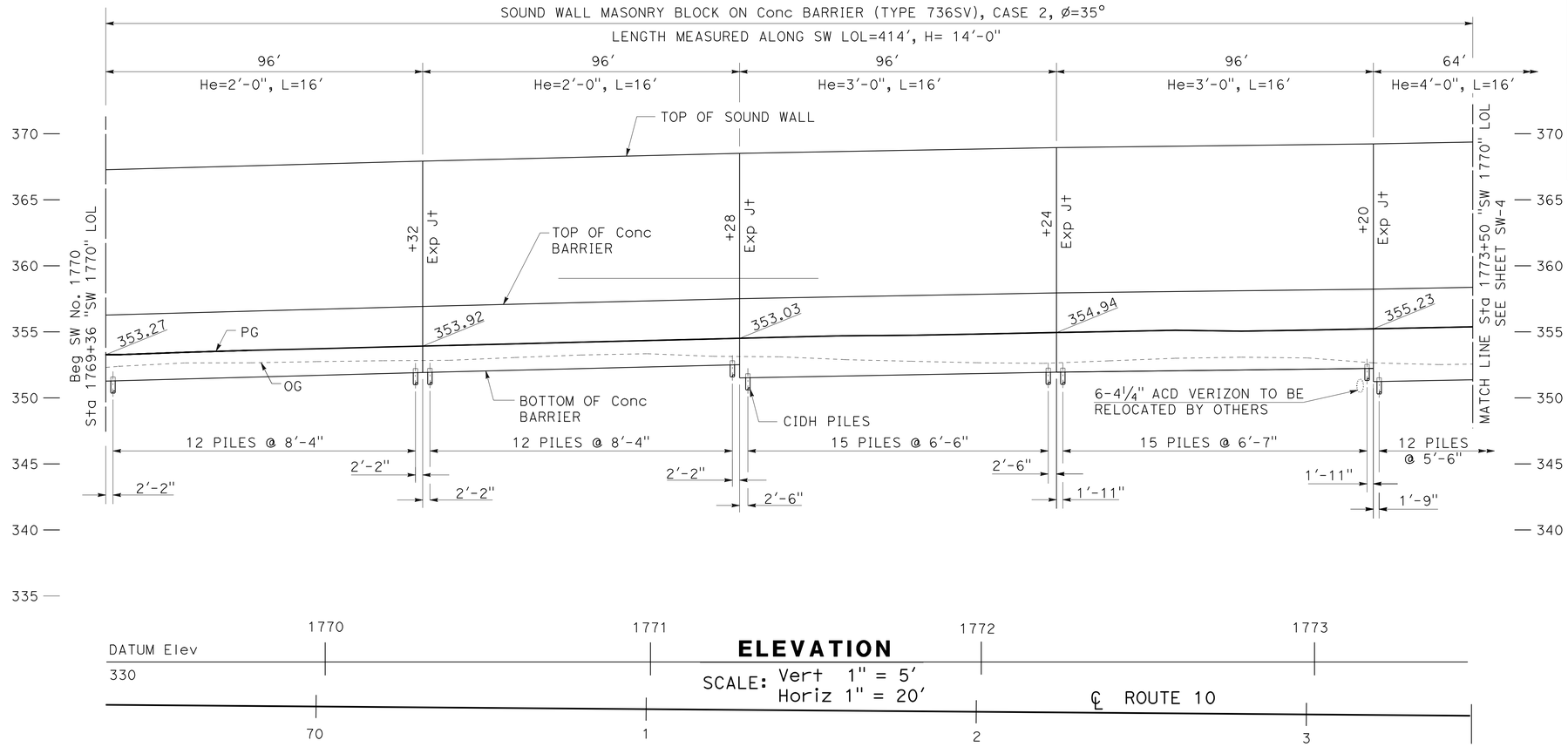
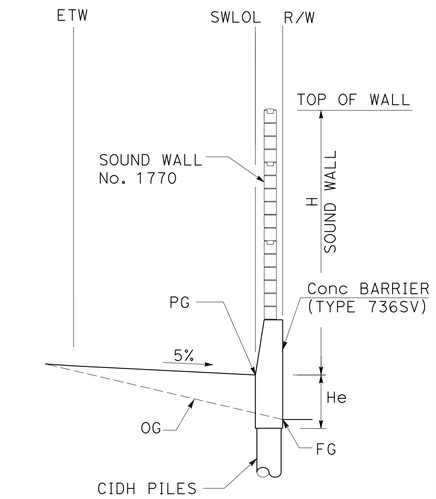
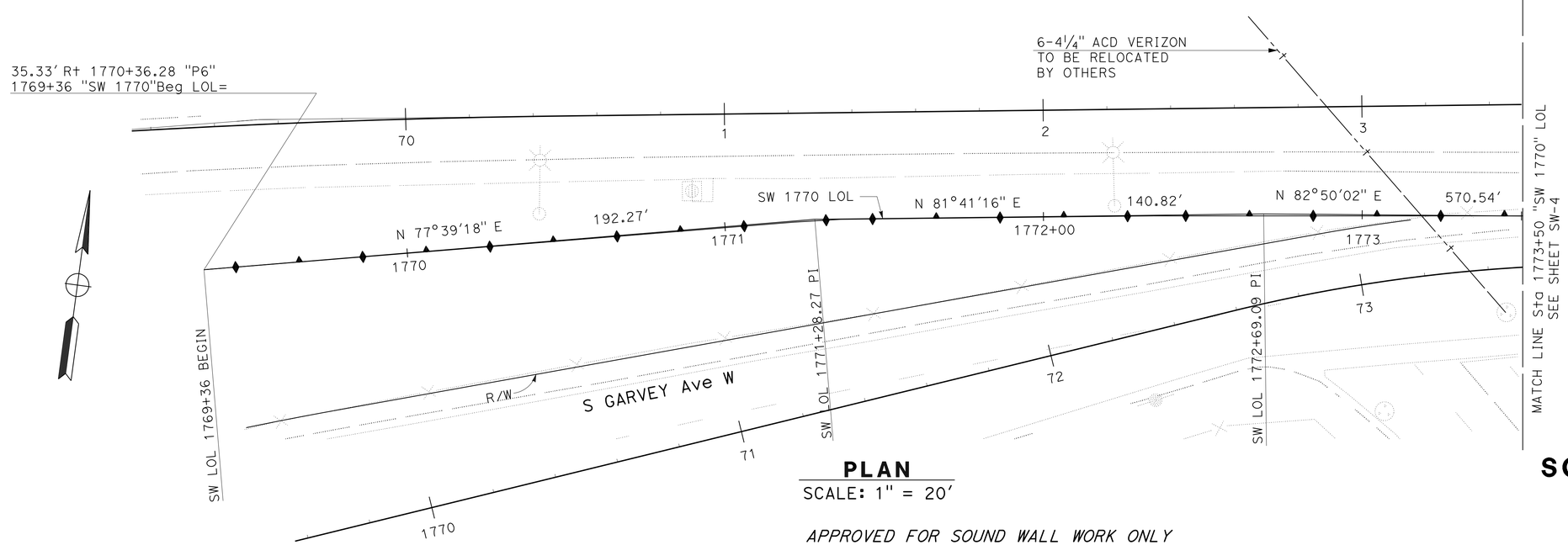




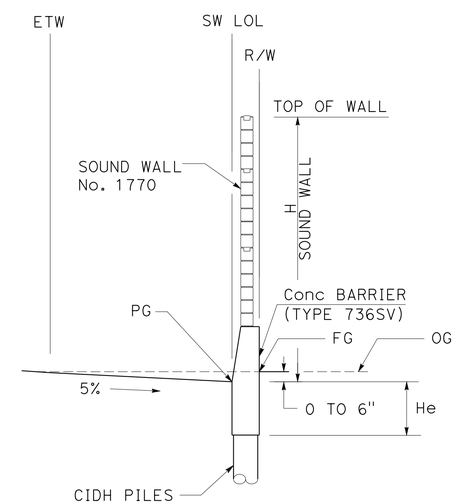
Sta 1769+36 TO 1793+72 "SW 1770" LOL
Sta 1794+42.67 TO 1806+00 "SW 1770" LOL

TYPICAL SECTION
NO SCALE

ELEVATION
SCALE: Vert 1" = 5'
Horiz 1" = 20'



PLAN
SCALE: 1" = 20'



Sta 1793+72 TO 1794+42.67 "SW 1770" LOL

TYPICAL SECTION
NO SCALE

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN
SOUND WALL No. 1770
SCALE AS SHOWN

SW-3

REVISED BY | DATE REVISED
NEIL LIANG | MOHAMED GHANNOUM
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR | NADER GOBRAN
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

LAST REVISION 00-00-00 | DATE PLOTTED => 13-JUN-2013 | TIME PLOTTED => 06:43

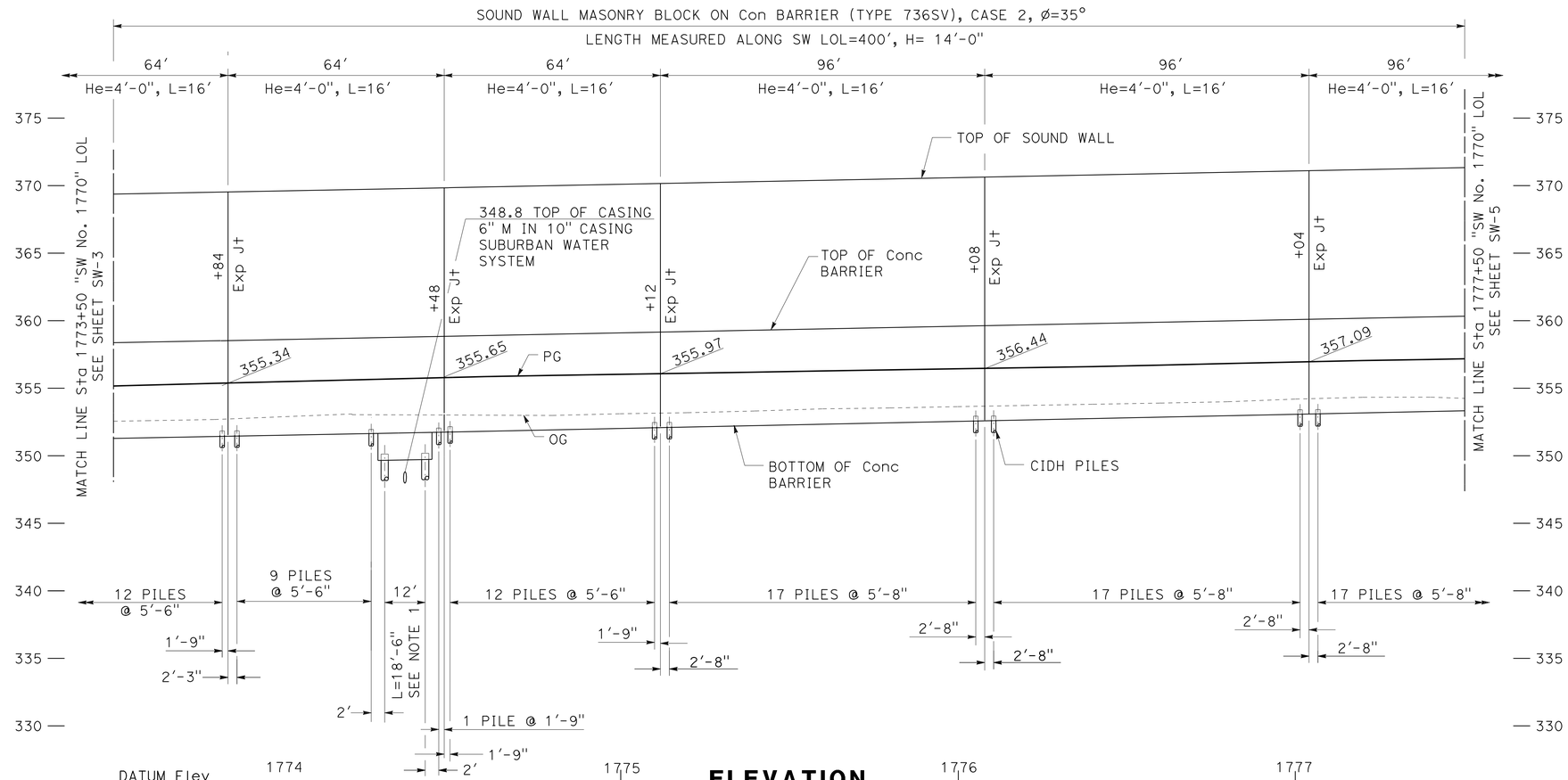
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	722	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



NOTE:

1. FOR DETAILS NOT SHOWN, SEE REVISED STANDARD PLAN RSP B15-15.

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1770

SCALE AS SHOWN

SW-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

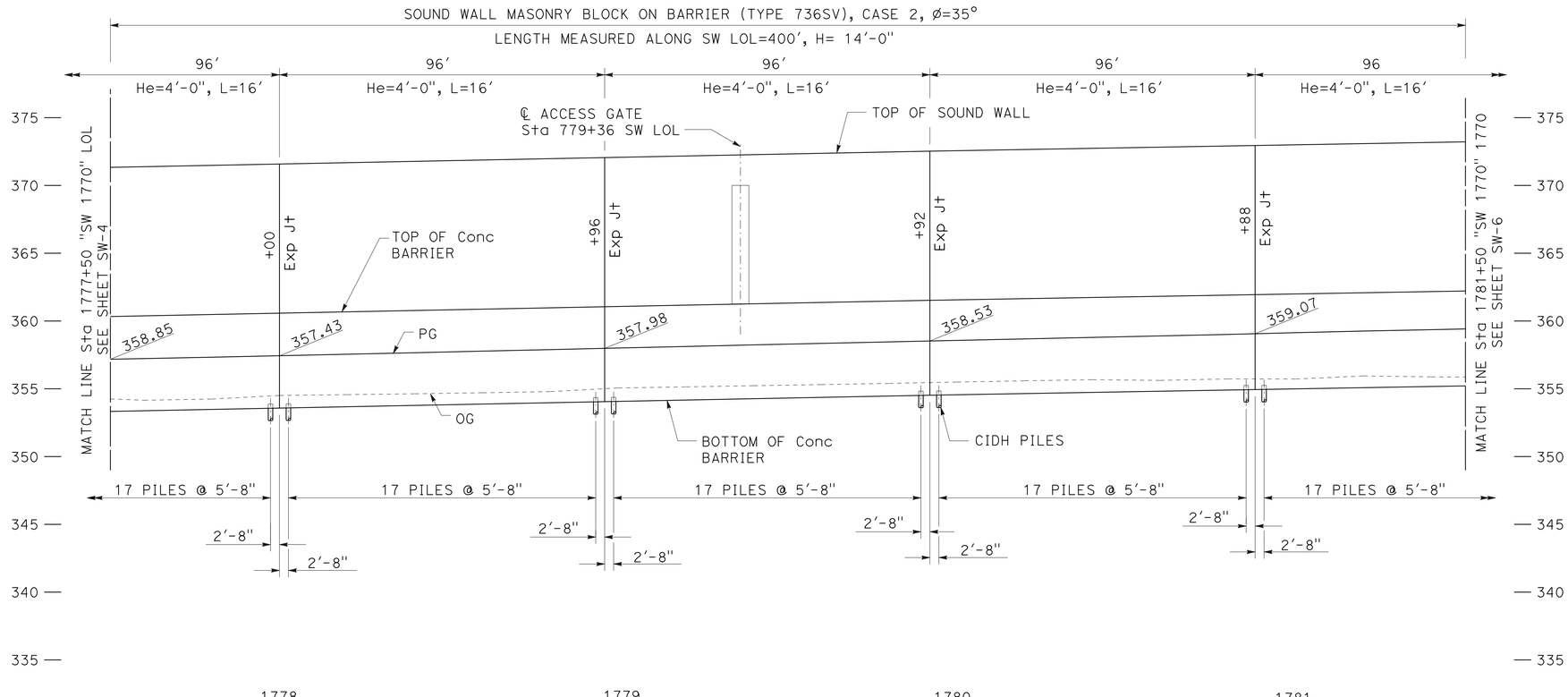
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	723	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

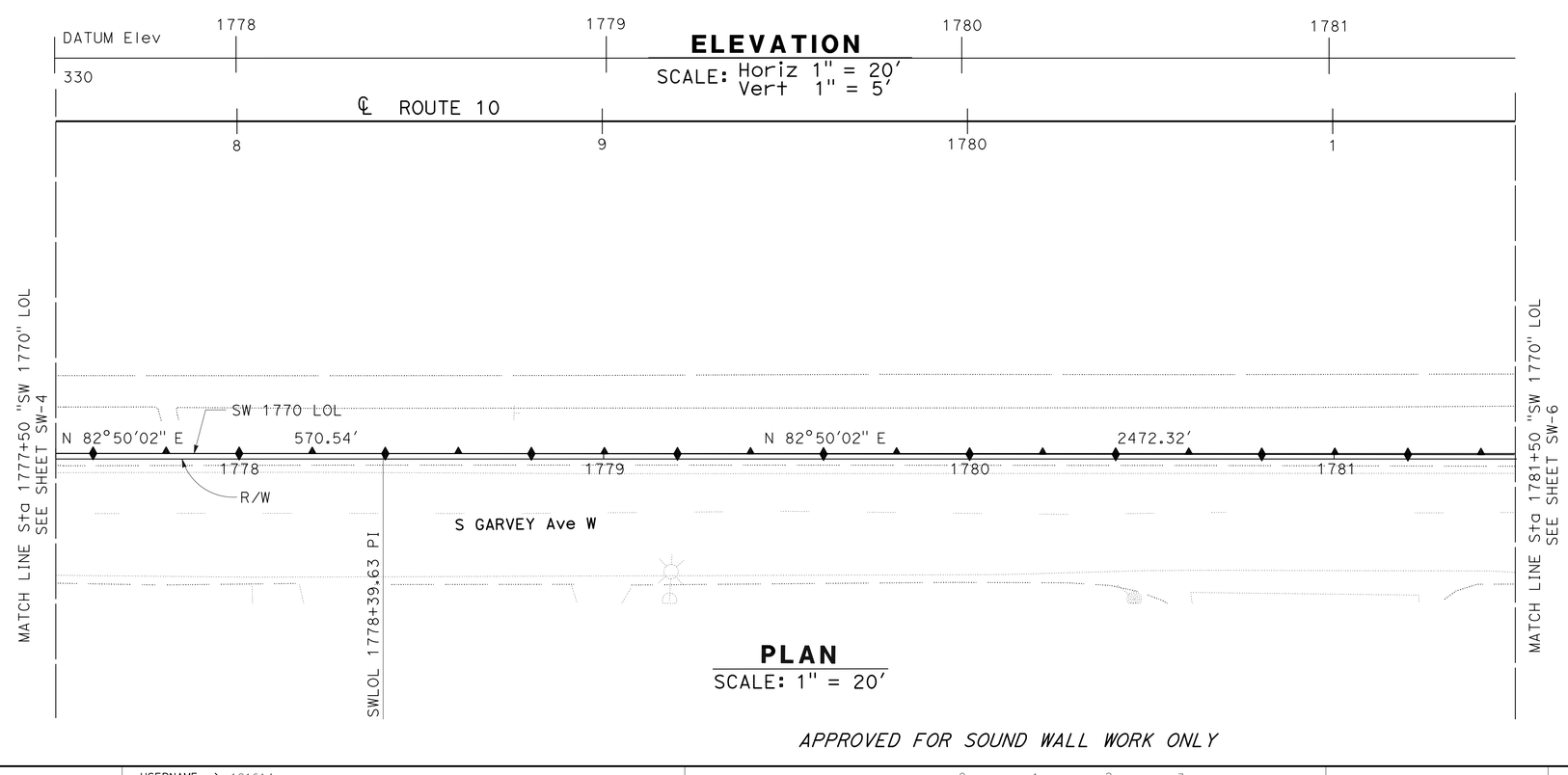
REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1770

SCALE AS SHOWN

SW-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: MINH TU
CHECKED BY: JEROME ARABE
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

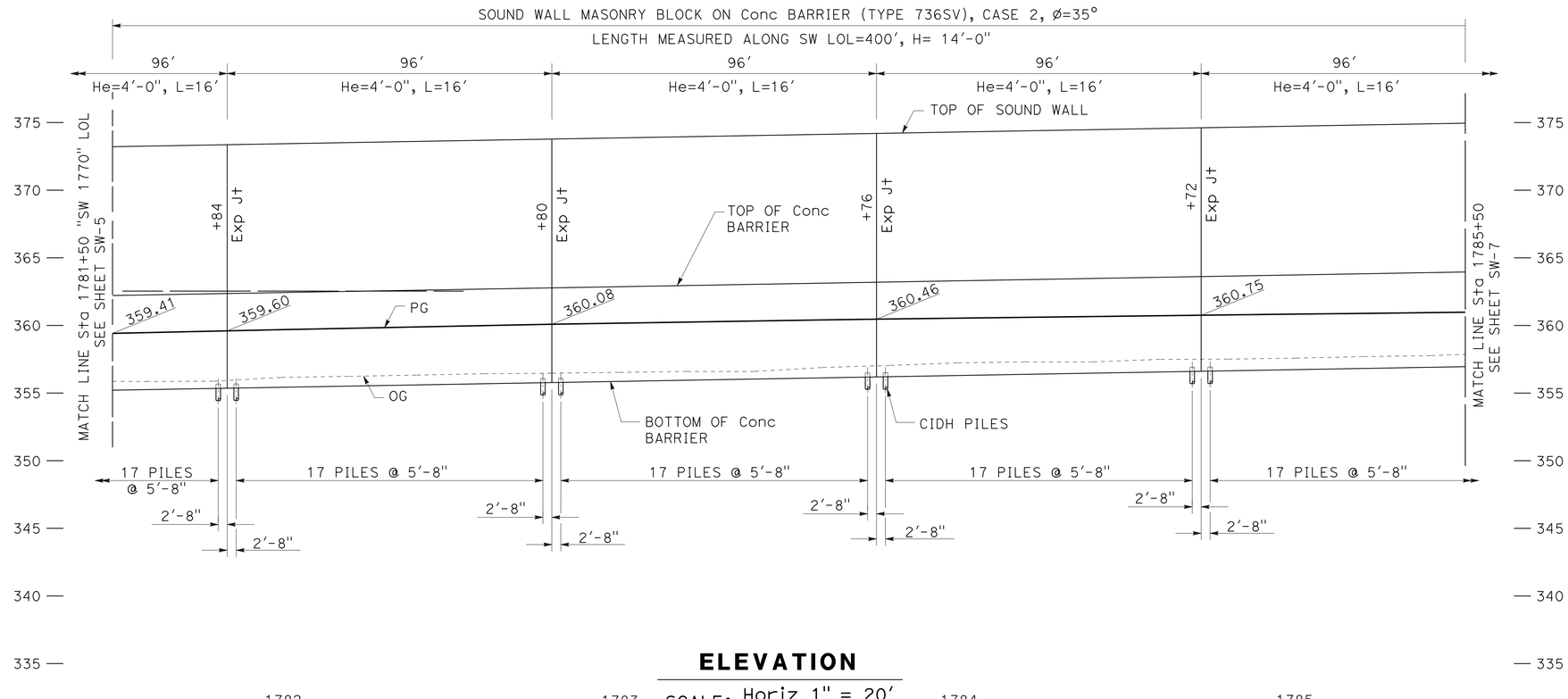
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	724	1475

4-17-12
REGISTERED CIVIL ENGINEER DATE

6-10-13
PLANS APPROVAL DATE

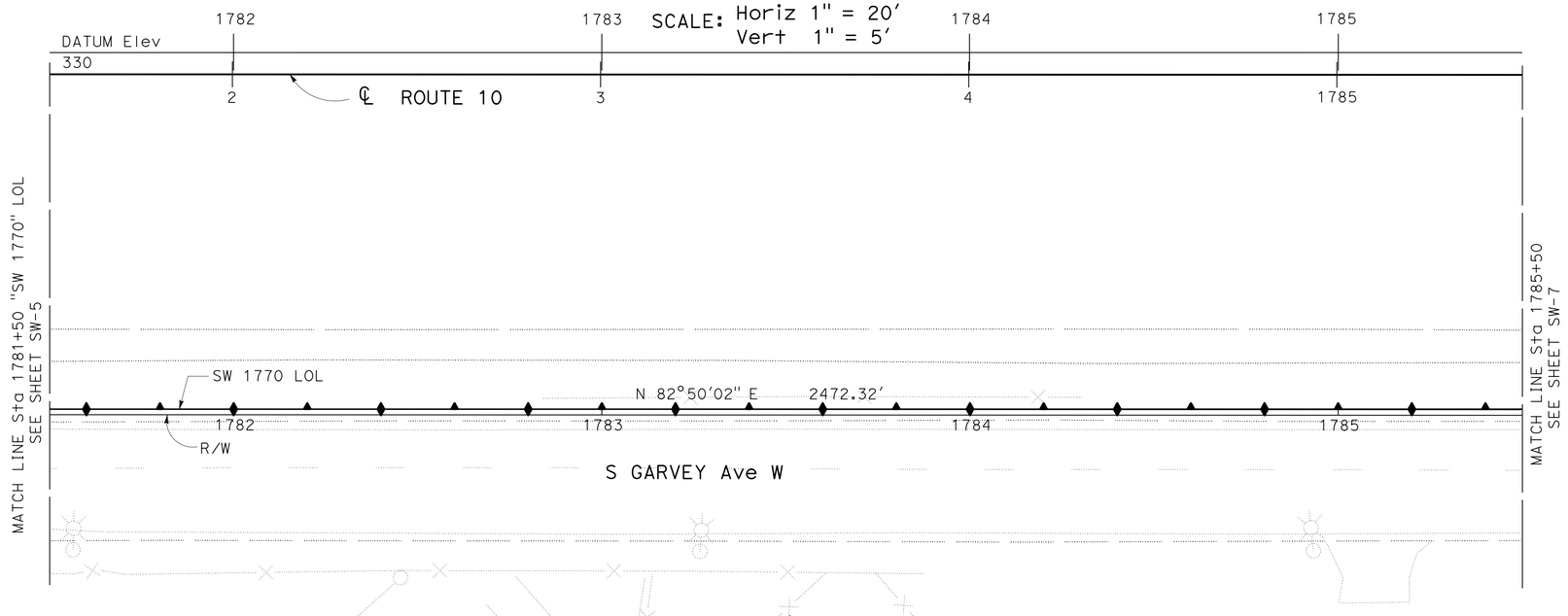
REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp 6/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1770

SCALE AS SHOWN

SW-6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	725	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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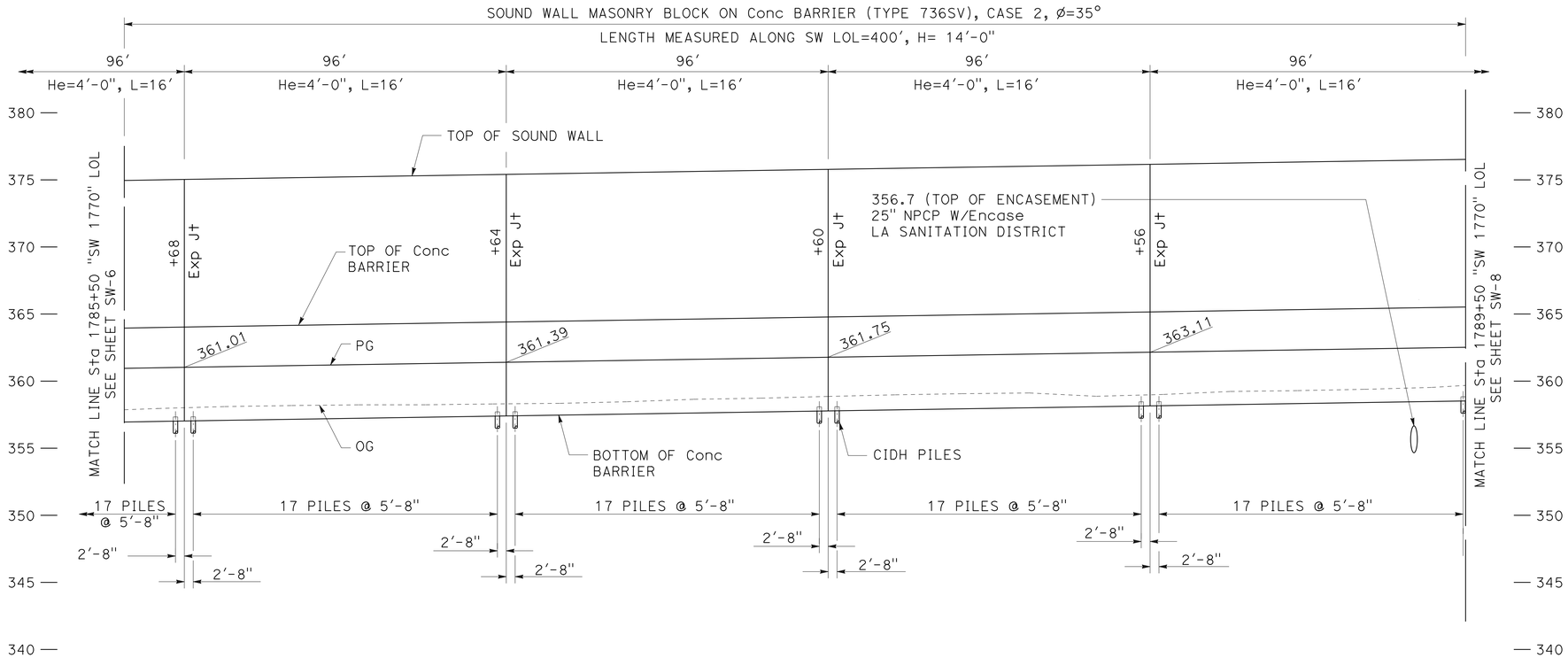
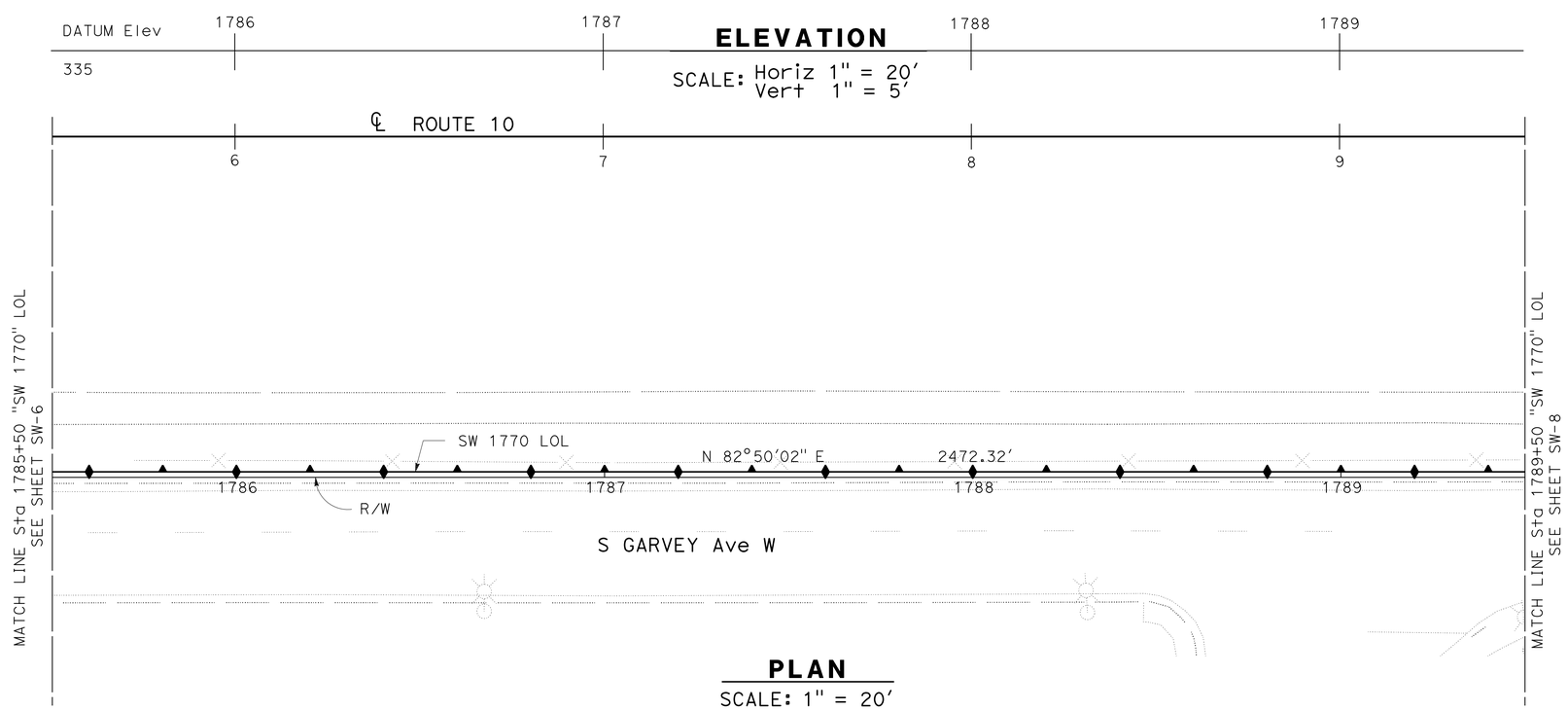


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1770

SCALE AS SHOWN

SW-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => 13-JUN-2013 | TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	726	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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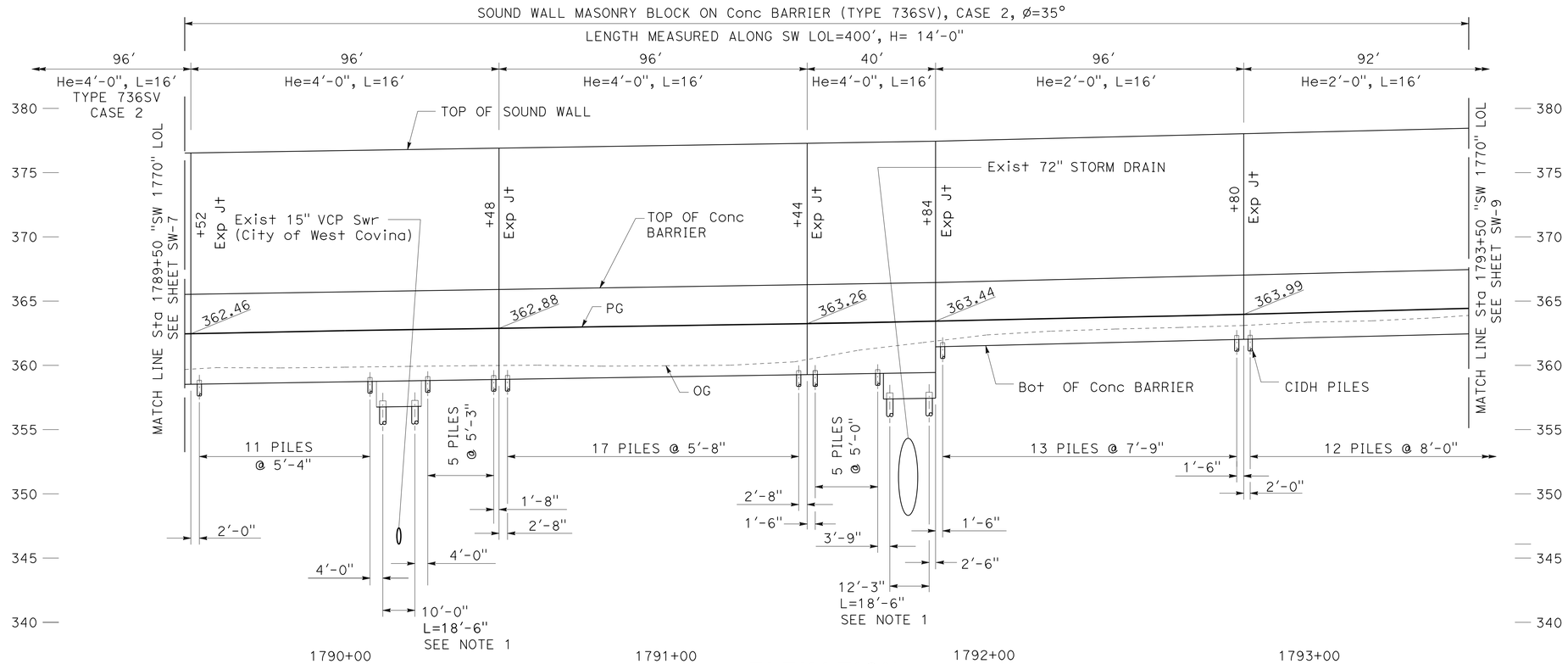
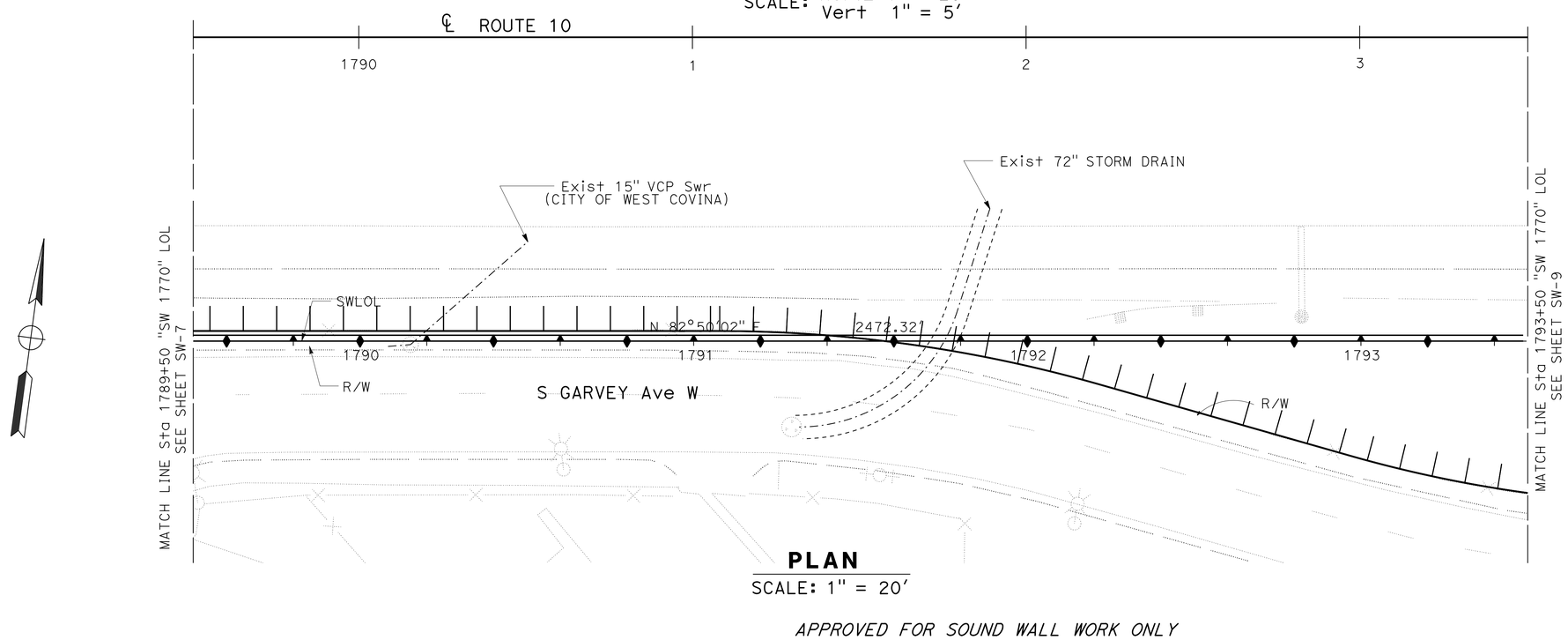


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

NOTE:

1. FOR DETAILS NOT SHOWN, SEE REVISED STANDARD PLAN RSP B15-15.

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1770

SCALE AS SHOWN

SW-8

REVISED BY | DATE REVISED
NEIL LIANG | MOHAMED GHANNOUM
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR | NADER GOBRAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

LAST REVISION 00-00-00 | DATE PLOTTED => 13-JUN-2013 | TIME PLOTTED => 06:43

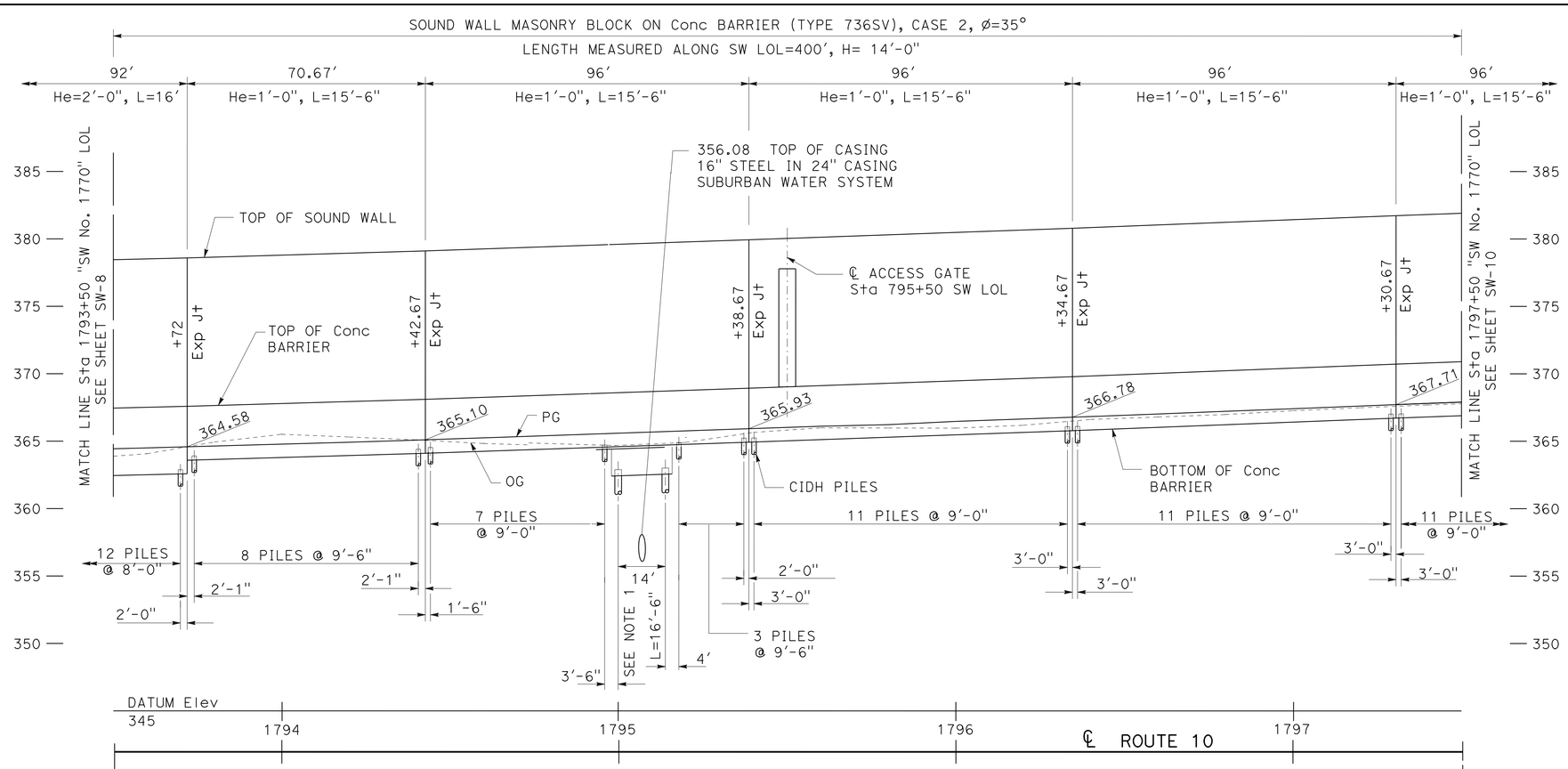
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	727	1475

4-17-12
REGISTERED CIVIL ENGINEER DATE

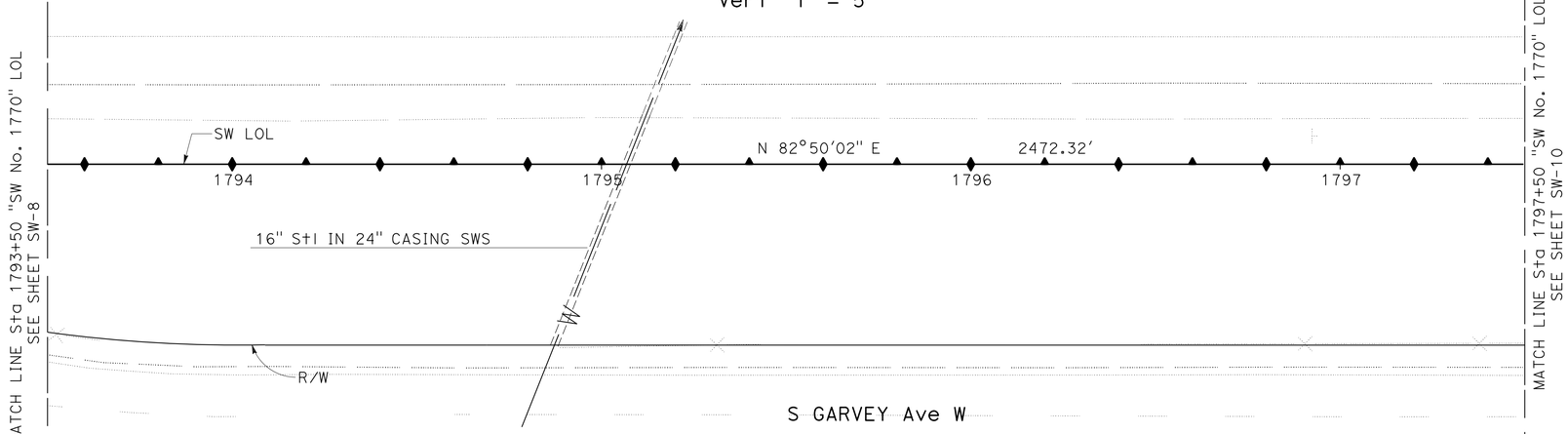
6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
MOHAMED GHANNOUM
No. 72051
Exp. 6/30/14
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ELEVATION
SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN
SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

NOTE:

FOR DETAILS NOT SHOWN, SEE REVISED STANDARD PLAN RSP B15-15.

SOUND WALL PLAN
SOUND WALL No. 1770
SCALE AS SHOWN

SW-9

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D
FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

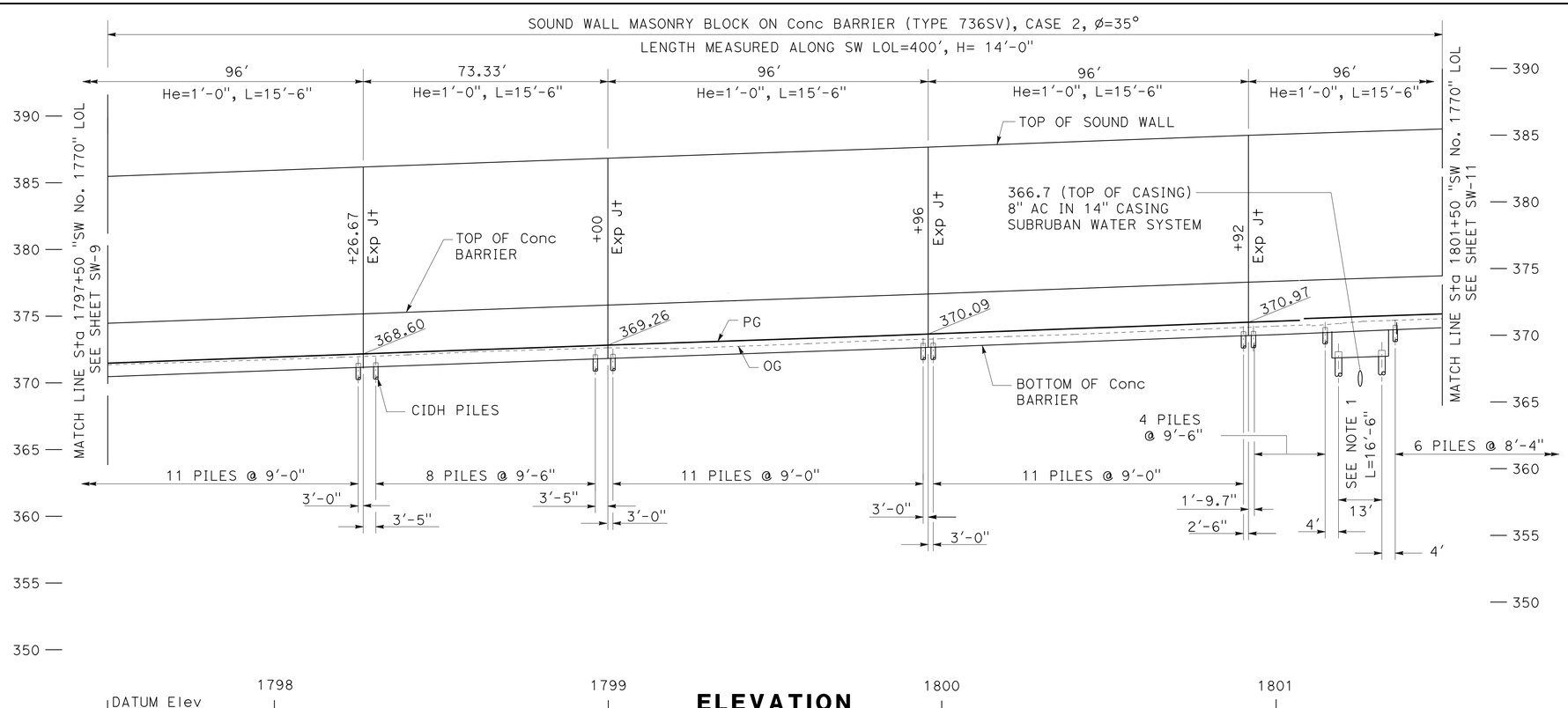
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	728	1475

4-17-12
REGISTERED CIVIL ENGINEER DATE

6-10-13
PLANS APPROVAL DATE

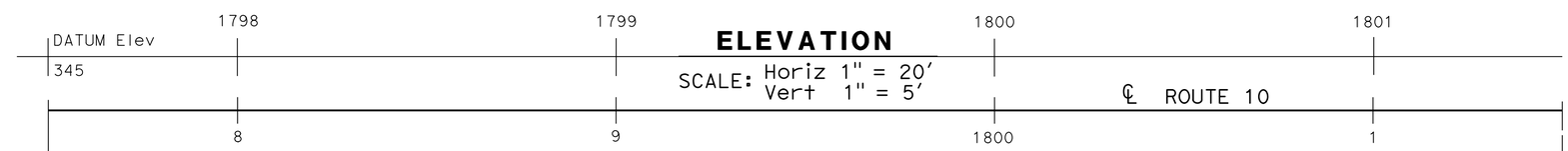
REGISTERED PROFESSIONAL ENGINEER
MOHAMED GHANNOUM
No. 72051
Exp. 6/30/14
CIVIL
STATE OF CALIFORNIA

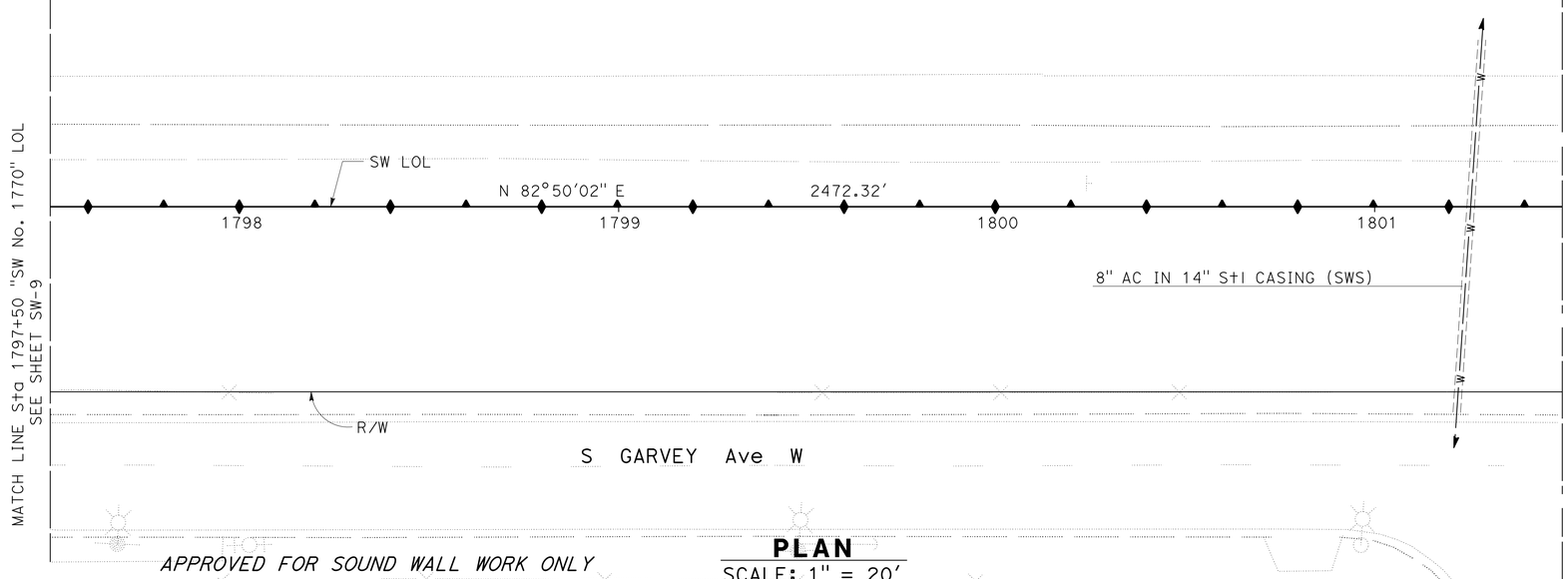
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



NOTE:

FOR DETAILS NOT SHOWN, SEE REVISED STANDARD PLAN RSP B15-15.





SOUND WALL PLAN

SOUND WALL No. 1770

SCALE AS SHOWN

SW-10

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	729	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp 6/30/14 CIVIL STATE OF CALIFORNIA

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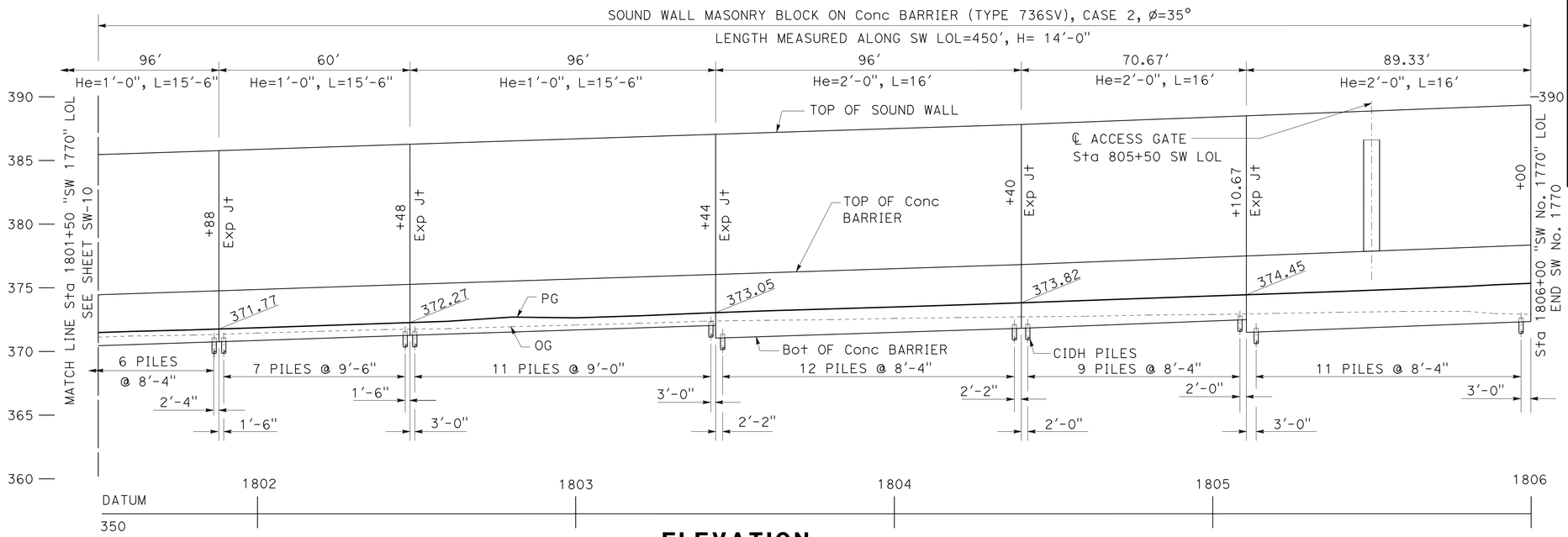
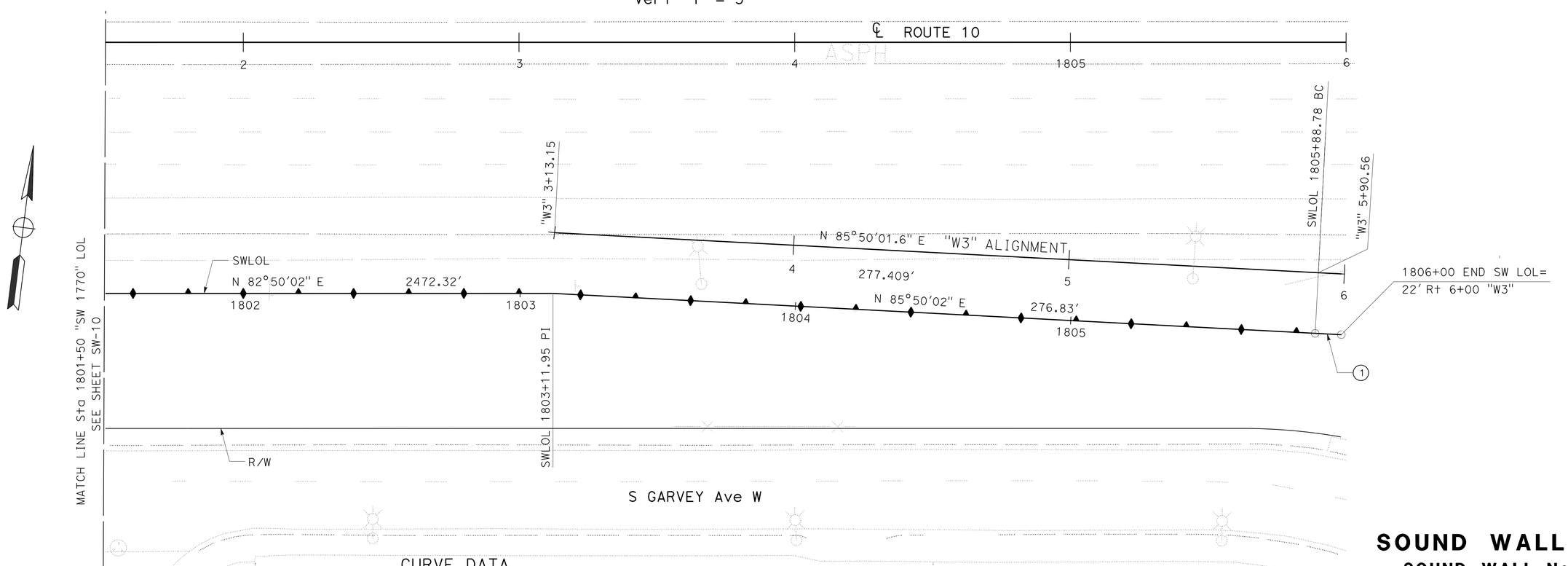


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



CURVE DATA

No. ⊕	R	Δ	T	L
1	4022.01'	0°8'07"	4.75'	9.49'

PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1770

SCALE AS SHOWN

SW-11

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY / DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:45

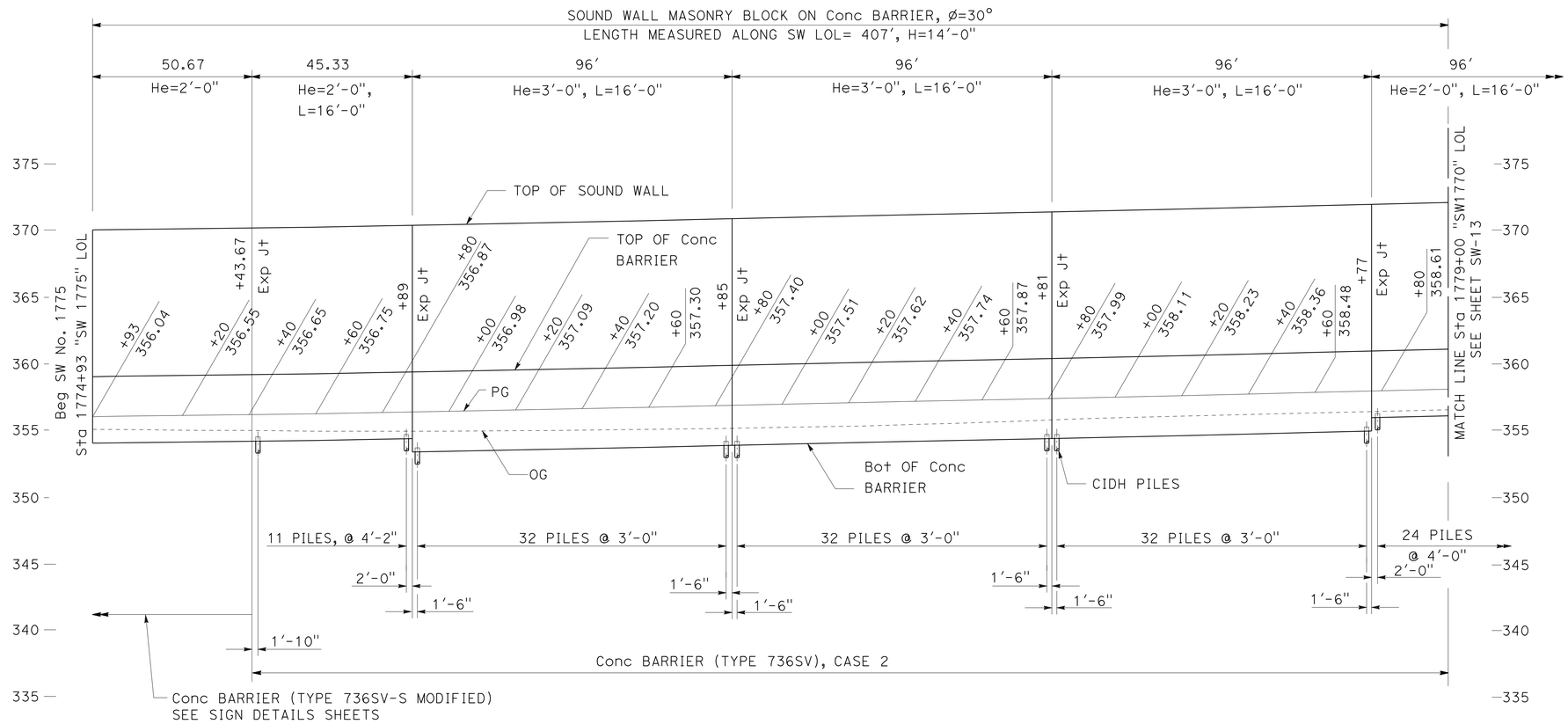
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	730	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

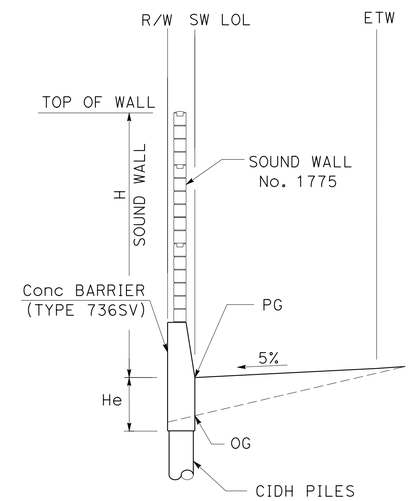
REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ELEVATION

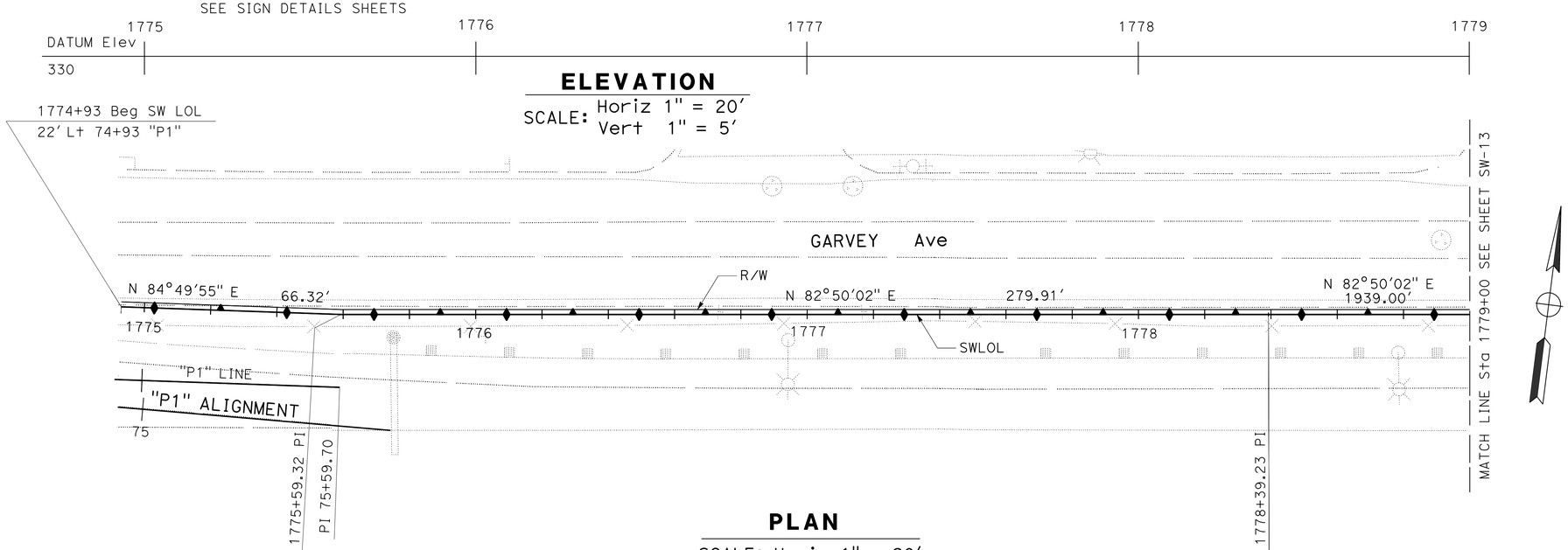
SCALE: Horiz 1" = 20'
Vert 1" = 5'



"SW 1775" 775+43.67 TO 788+77
"SW 1775" 789+73 TO 797+79

TYPICAL SECTION

NO SCALE



PLAN

SCALE: Horiz 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1775

SCALE AS SHOWN

SW-12

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	731	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp 6/30/14 CIVIL STATE OF CALIFORNIA

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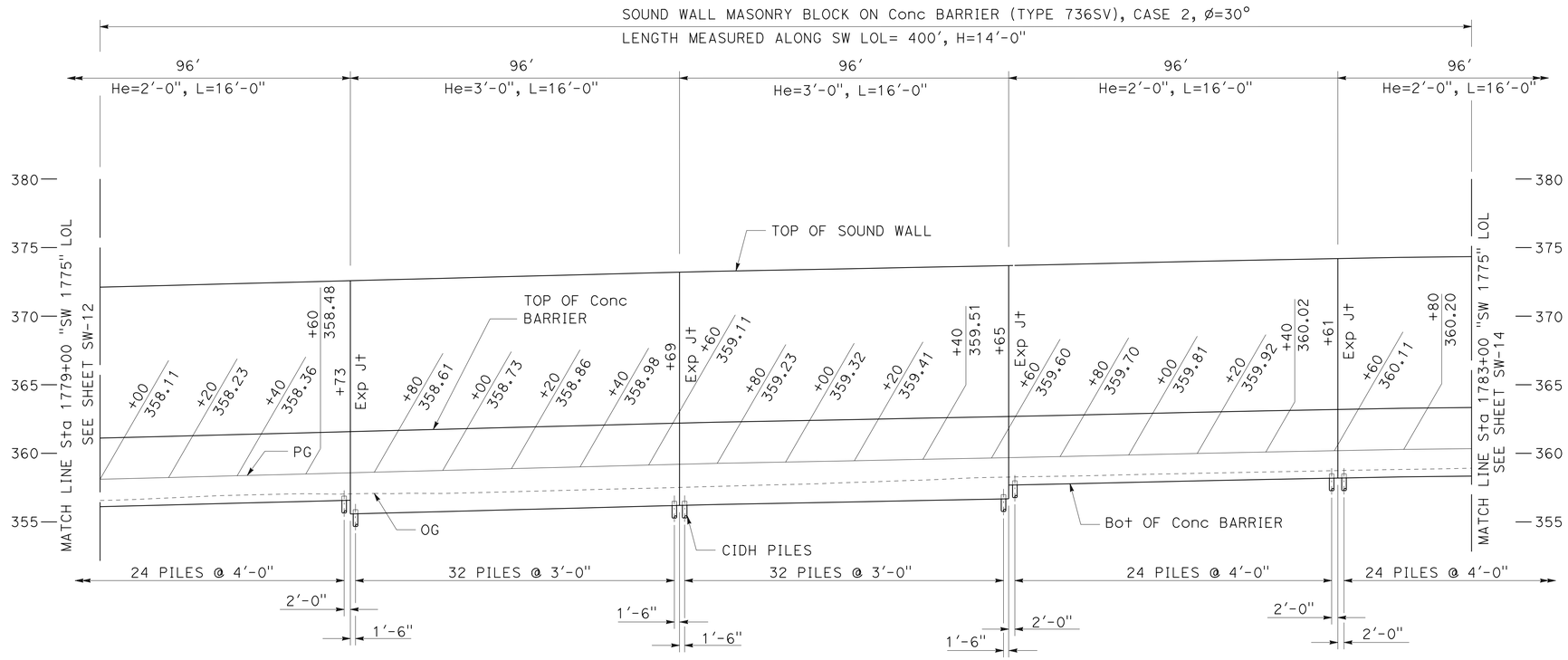

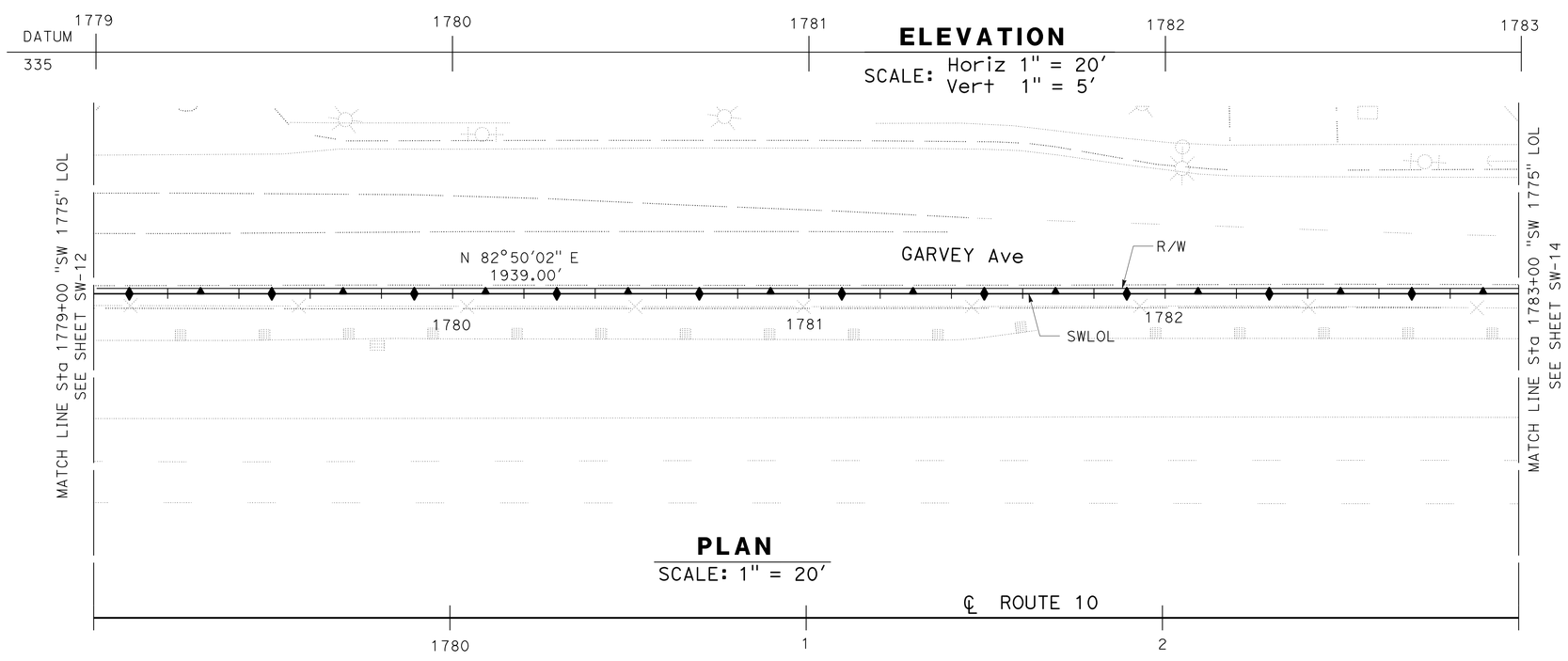

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1775

SCALE AS SHOWN

SW-13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY / DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	732	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp 6/30/14 CIVIL STATE OF CALIFORNIA

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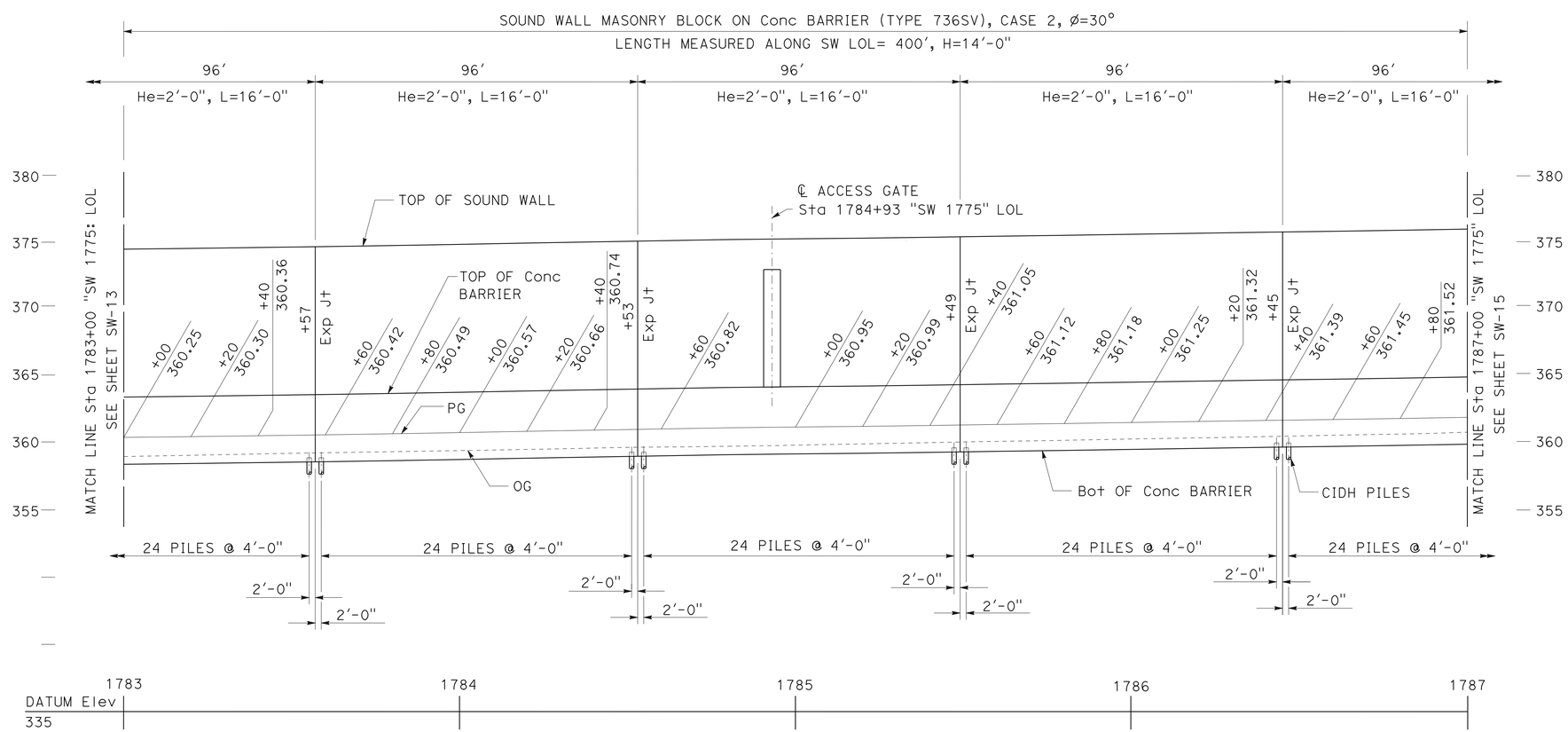
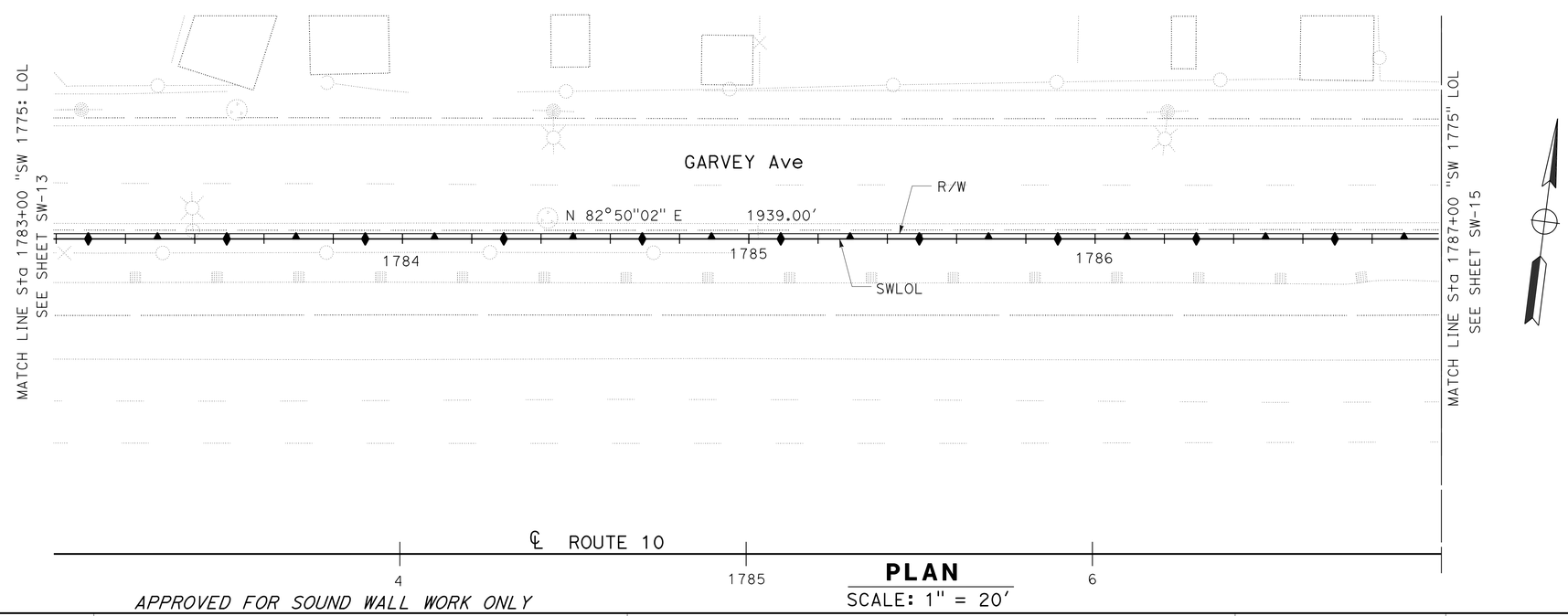


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1775

SCALE AS SHOWN

SW-14

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	733	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 06/30/14 CIVIL STATE OF CALIFORNIA

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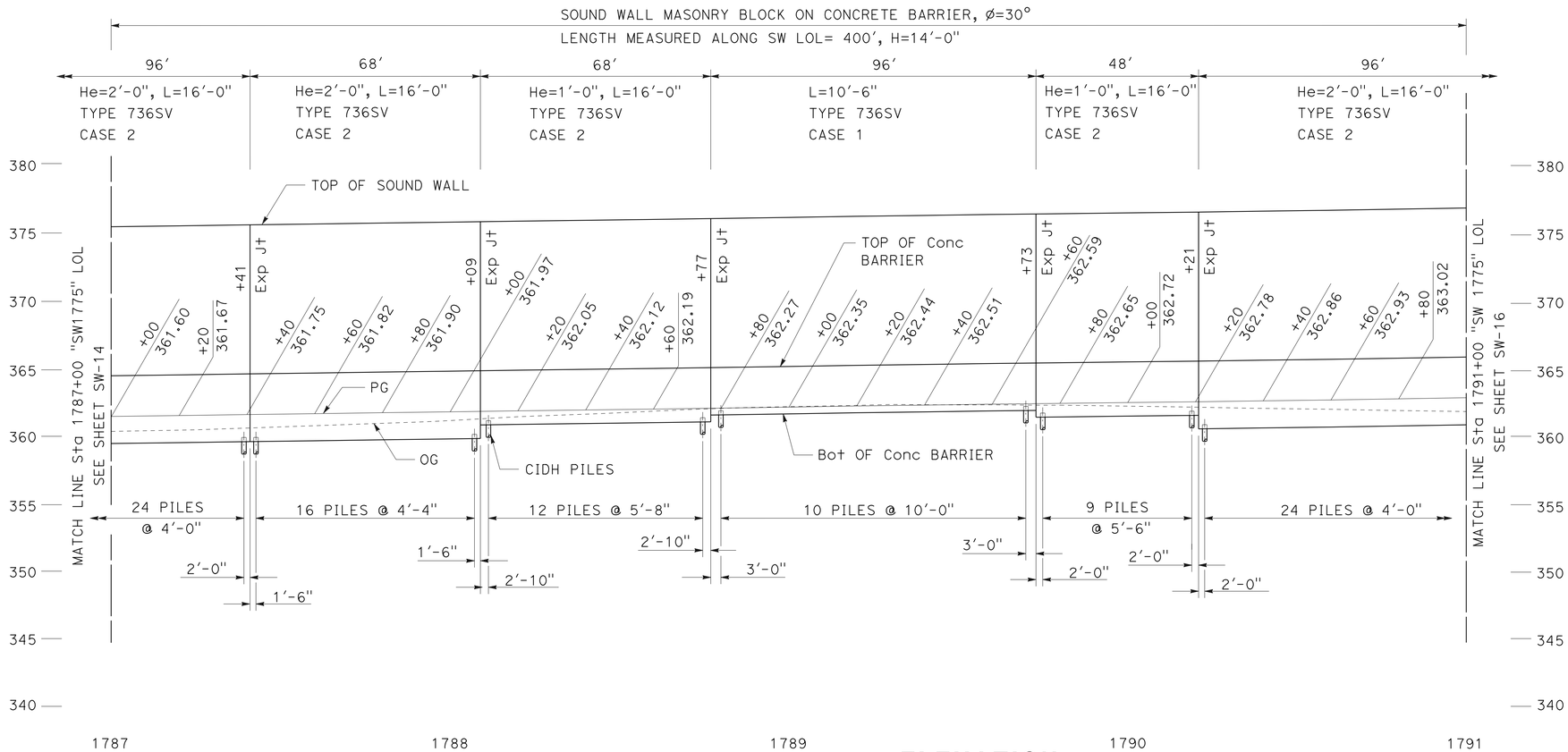
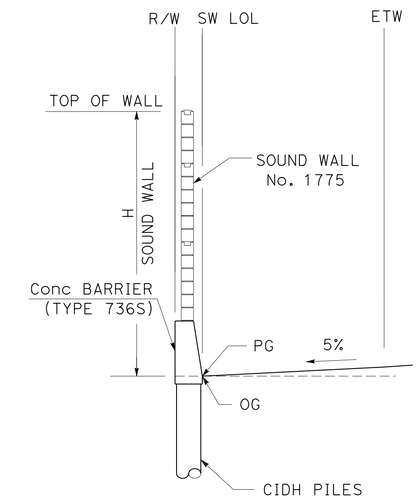


ELEVATION

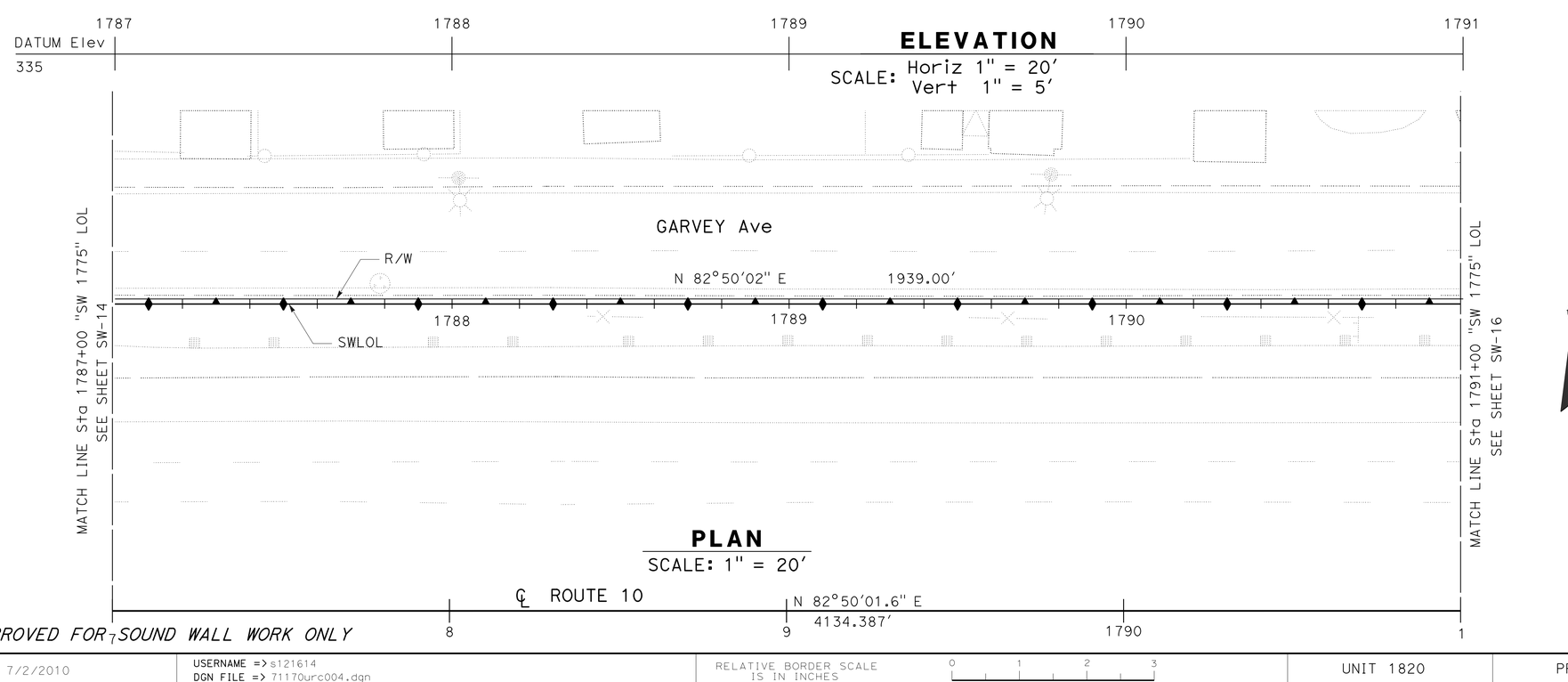
SCALE: Horiz 1" = 20'
Vert 1" = 5'



CASE 1
Sta 1788+77 TO 1789+73 "SW 1775" LOL

TYPICAL SECTION

NO SCALE



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1775

SCALE AS SHOWN

SW-15

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY / DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	734	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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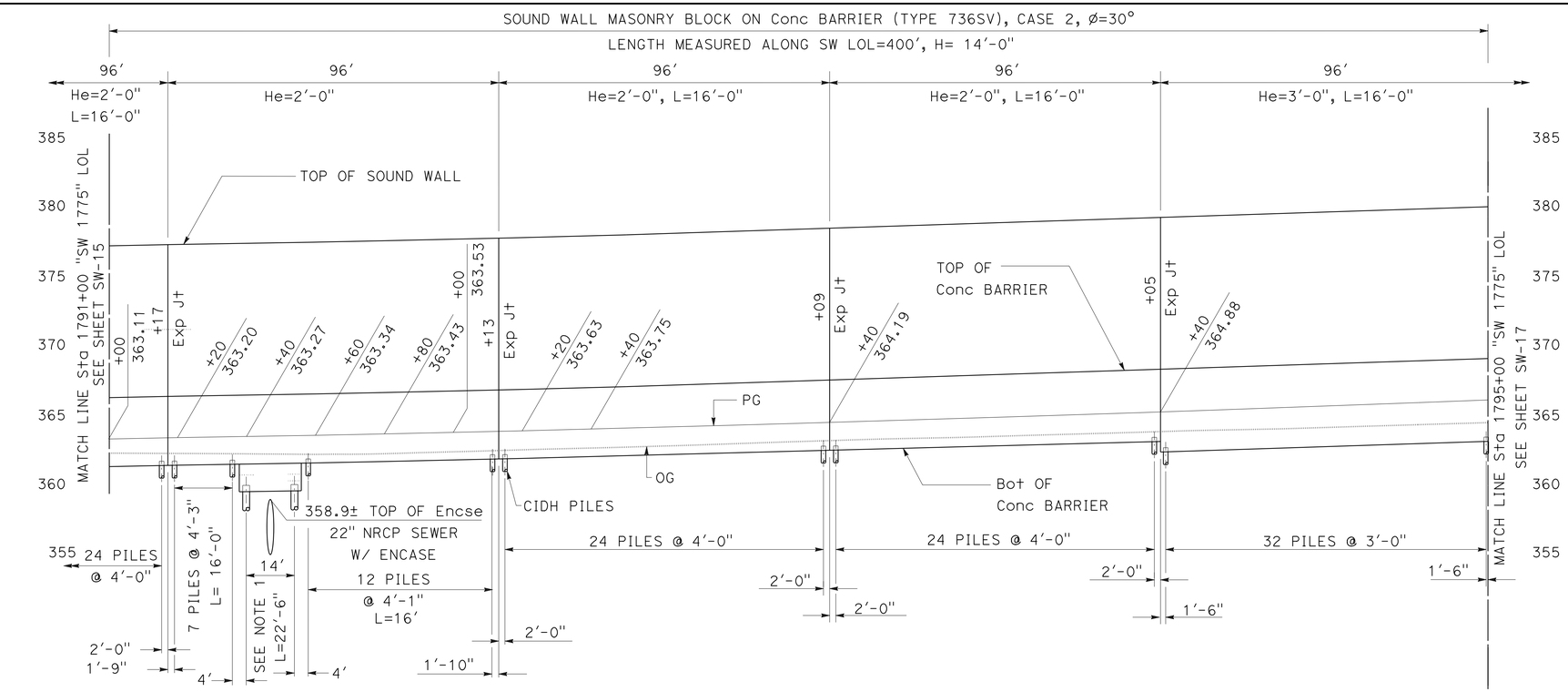
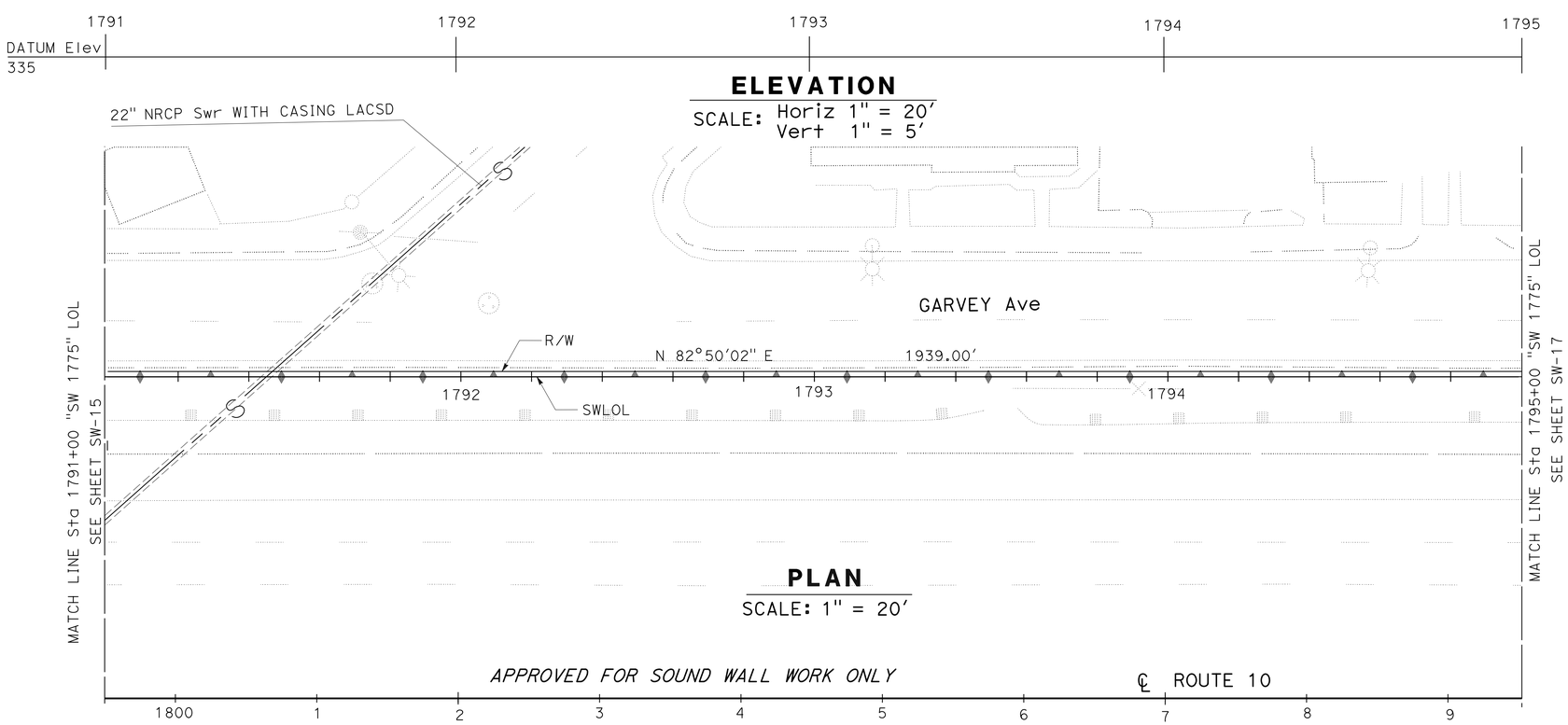


NOTE:

1. FOR DETAILS NOT SHOWN, SEE REVISED STANDARD PLAN RSP B15-15.



SOUND WALL PLAN

SOUND WALL No. 1775

SCALE AS SHOWN

SW-16

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

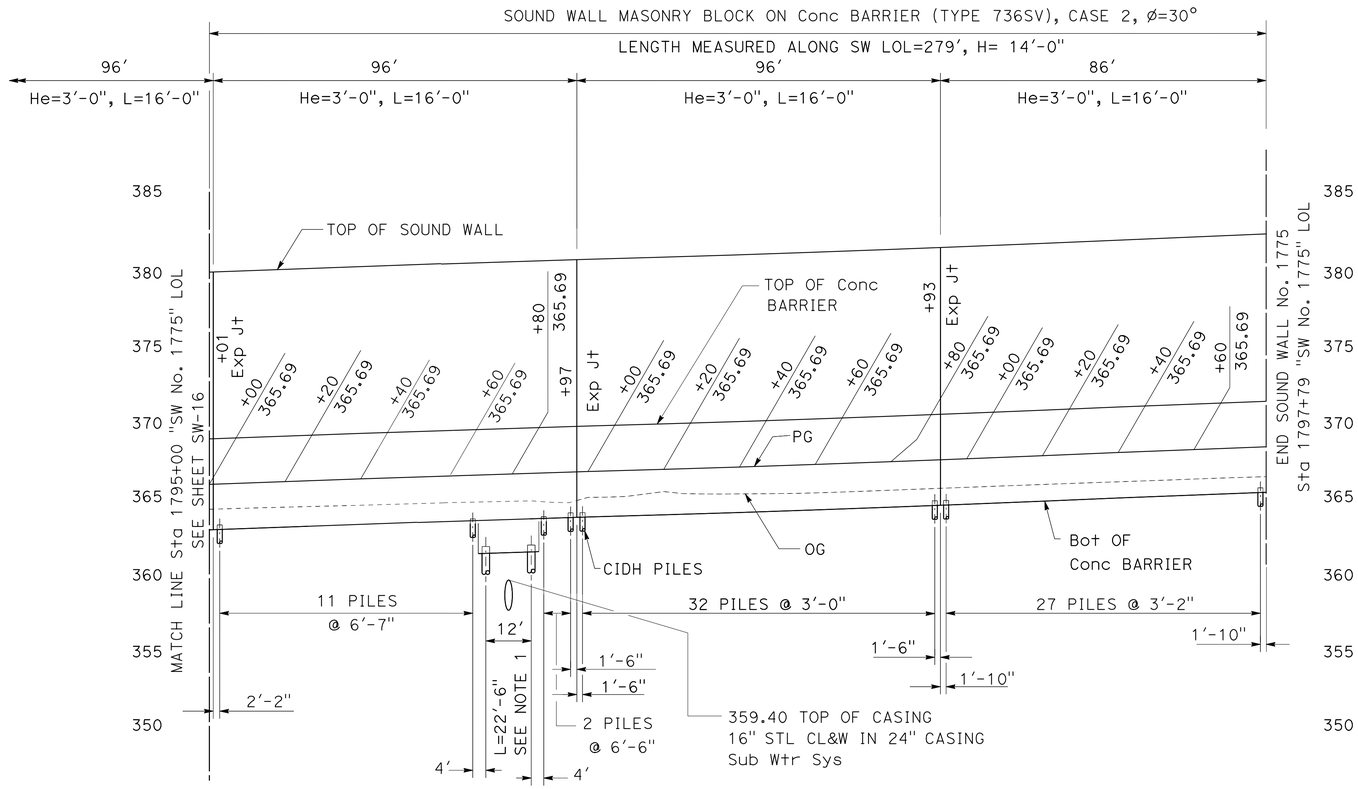
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	735	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

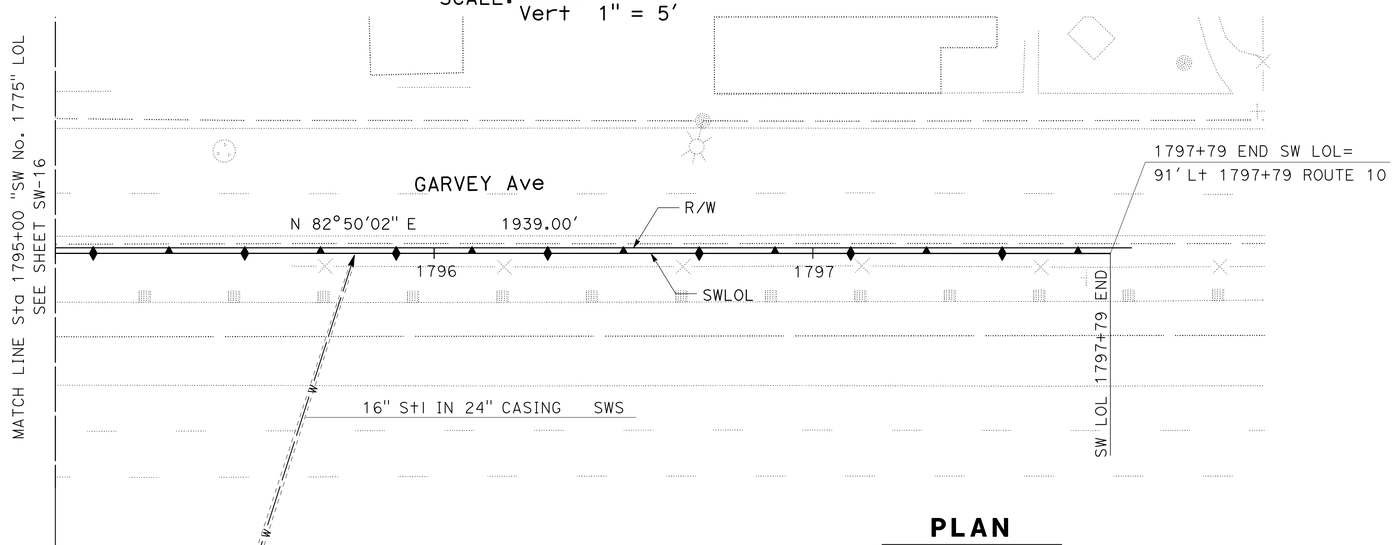
6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ELEVATION
SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN
SCALE: 1" = 20'

NOTE:

1. FOR DETAILS NOT SHOWN, SEE REVISED STANDARD PLAN RSP B15-15.

SOUND WALL PLAN
SOUND WALL No. 1775

APPROVED FOR SOUND WALL WORK ONLY

SCALE AS SHOWN

SW-17

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => 13-JUN-2013 | TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	736	1475

REGISTERED CIVIL ENGINEER 04-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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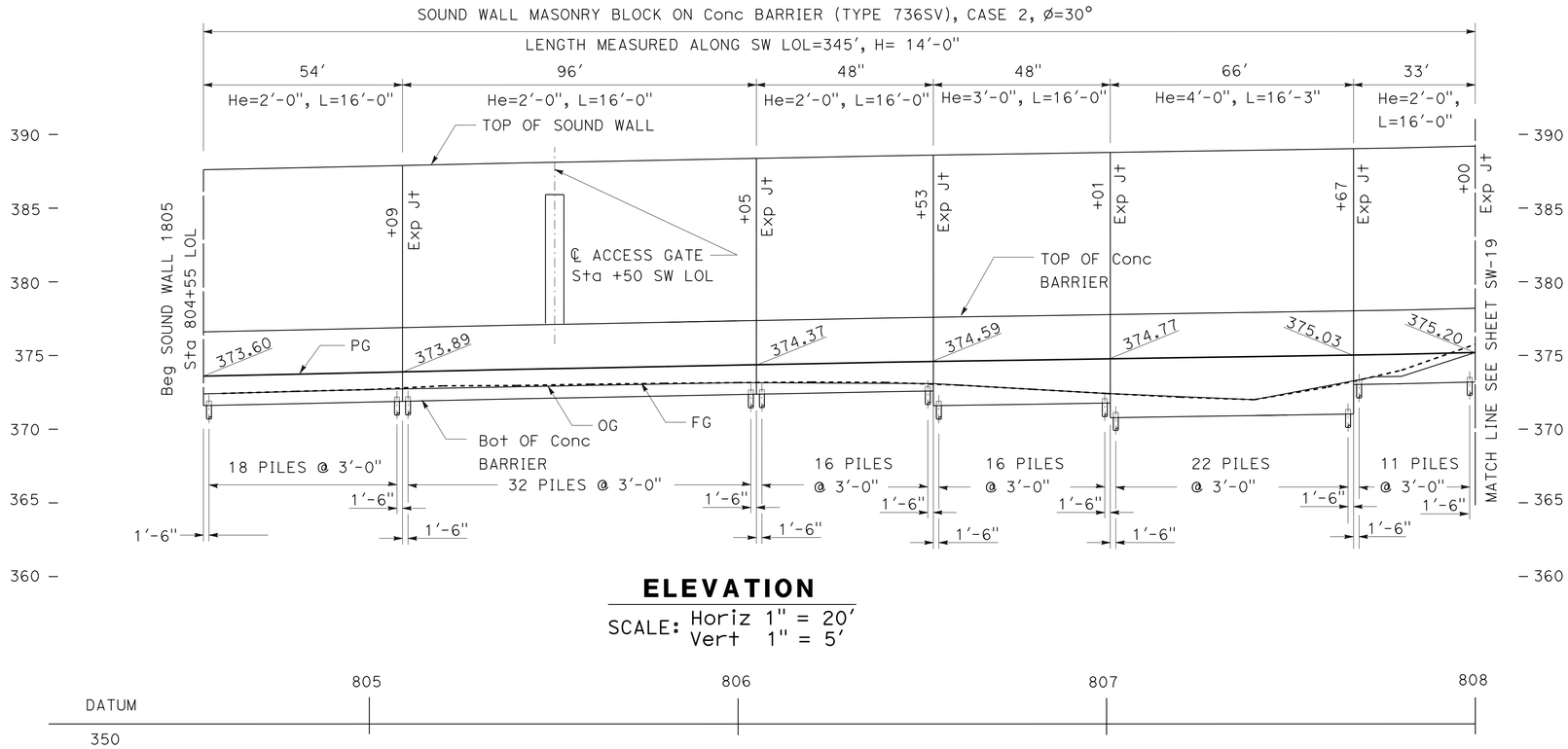
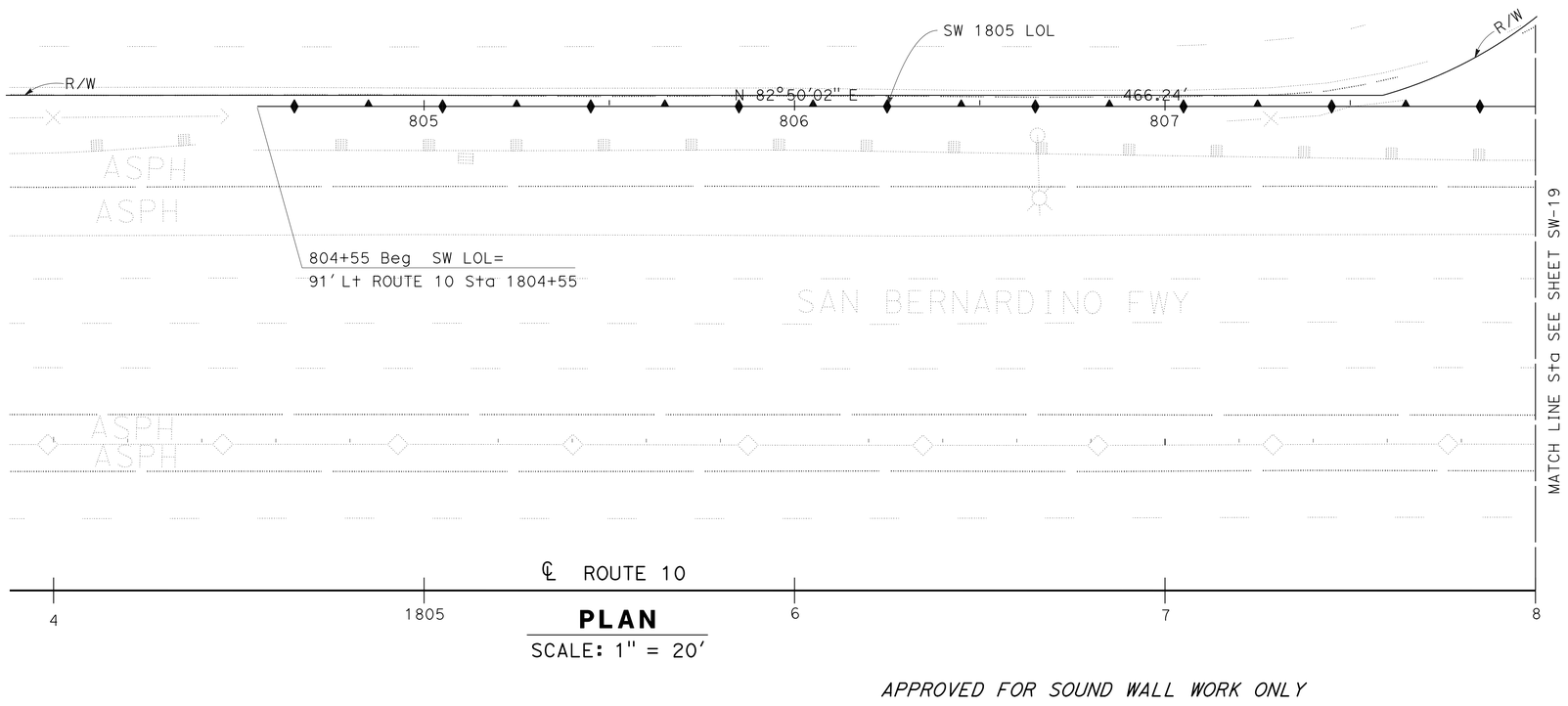


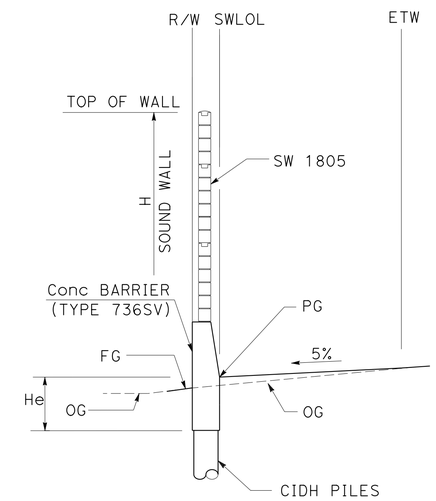
ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'



Sta 804+55 TO Sta 808+00
Sta 811+20 TO Sta 814+60

TYPICAL SECTION

NO SCALE

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1805

SCALE AS SHOWN

SW-18

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: NEIL LIANG
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	737	1475

REGISTERED CIVIL ENGINEER 04-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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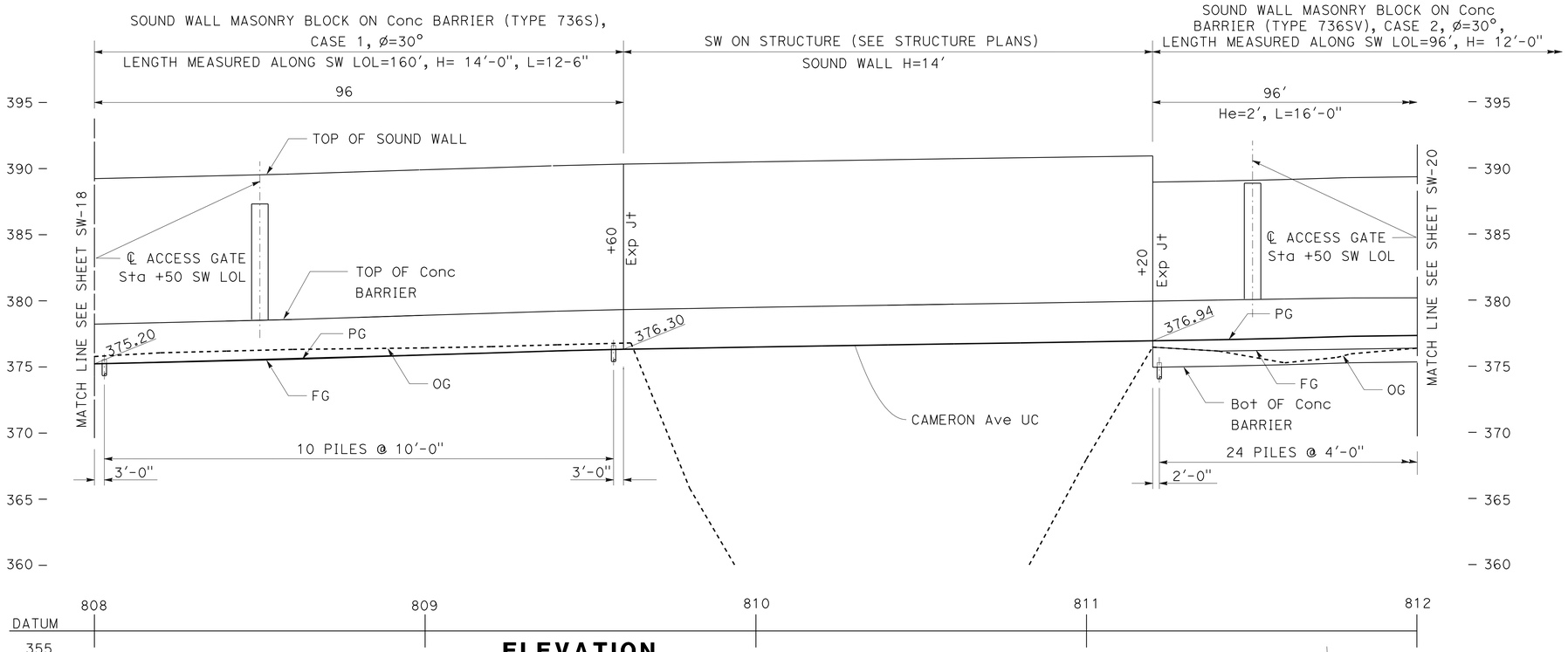
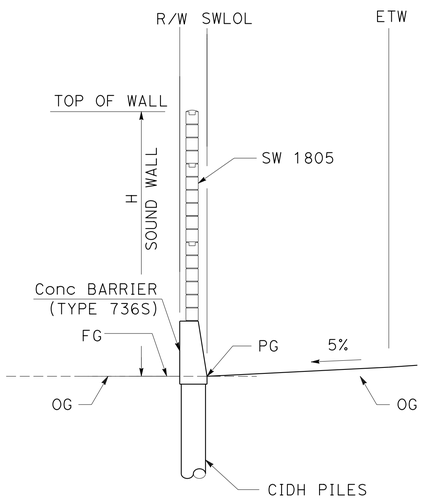


ELEVATION

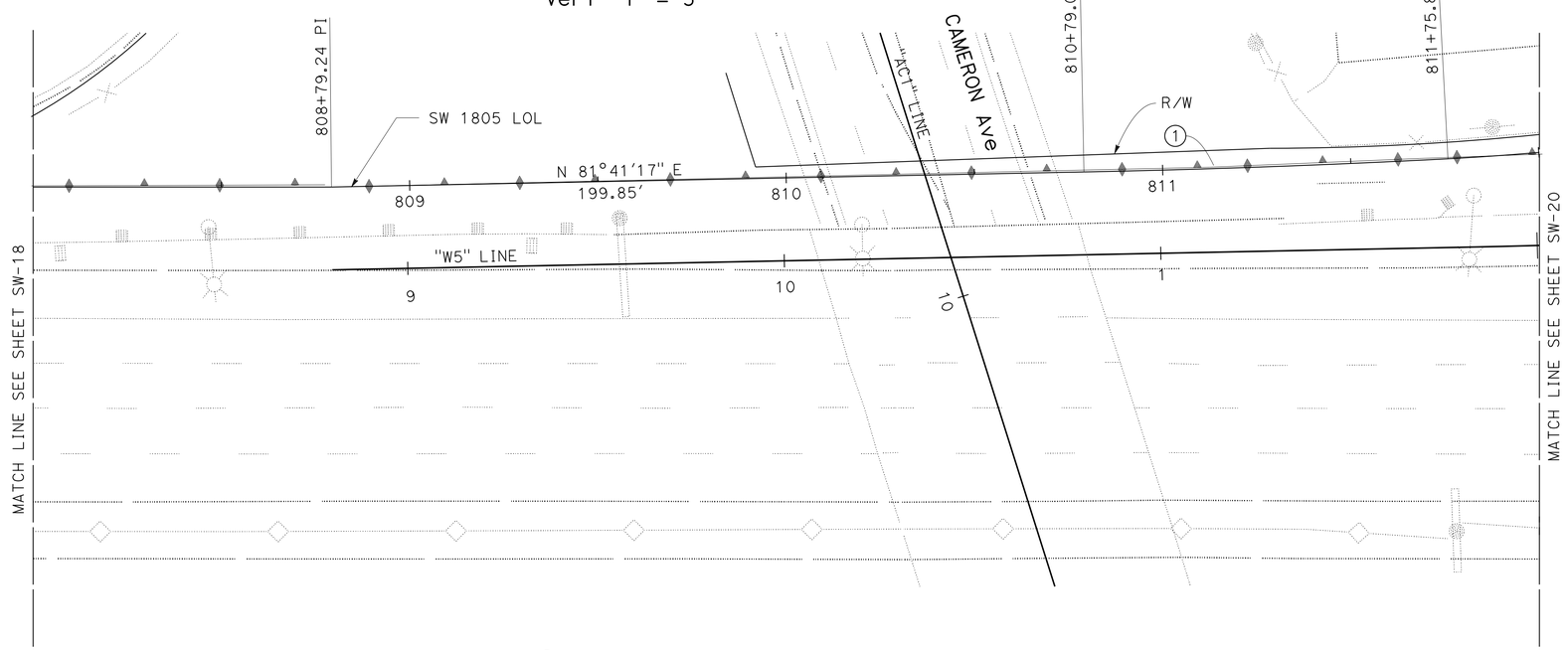
SCALE: Horiz 1" = 20'
Vert 1" = 5'



Sta 808+00 TO Sta 809+60

TYPICAL SECTION

NO SCALE



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

CURVE DATA

No. ⊕	R	Δ	T	L
1	2980'	1°51'36"	48.37'	96.73'

SOUND WALL PLAN

SOUND WALL No. 1805

SCALE AS SHOWN

SW-19

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: NEIL LIANG
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	738	1475

REGISTERED CIVIL ENGINEER 04-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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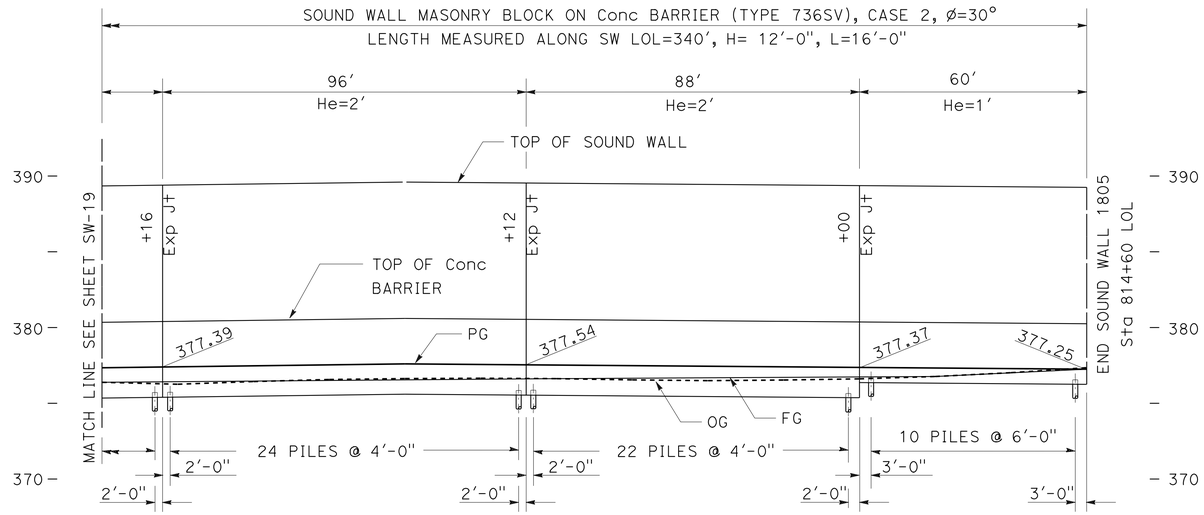
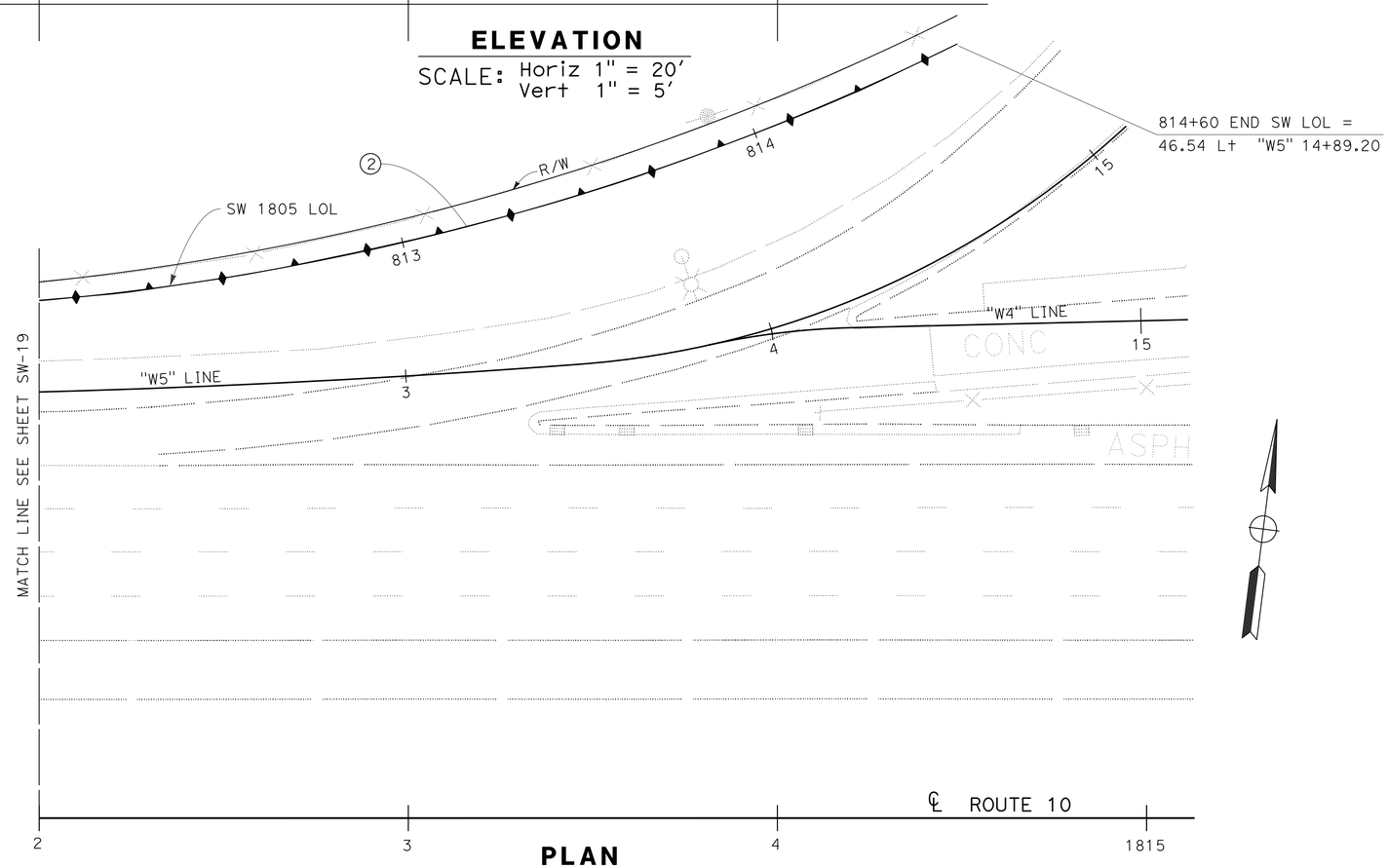


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

CURVE DATA

No. ⊕	R	Δ	T	L
2	700.00'	23°15'38"	144.07'	284.18'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1805

SCALE AS SHOWN

SW-20

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: JEROME ARABE
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	739	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp 6/30/14 CIVIL STATE OF CALIFORNIA

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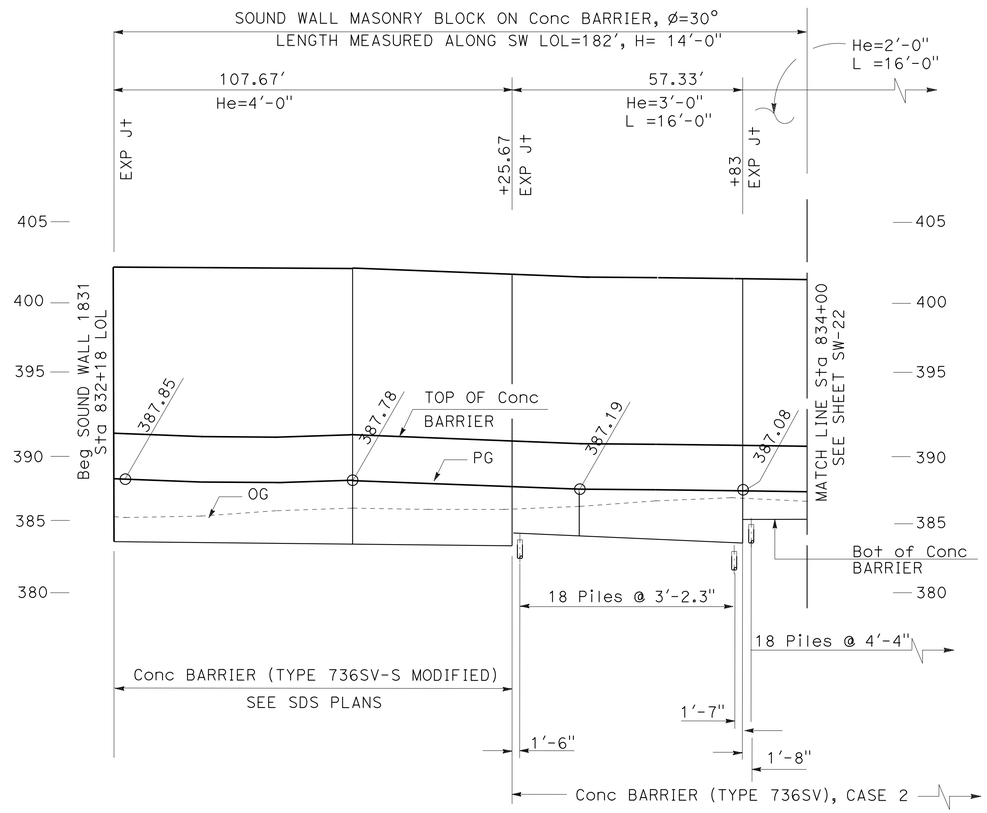
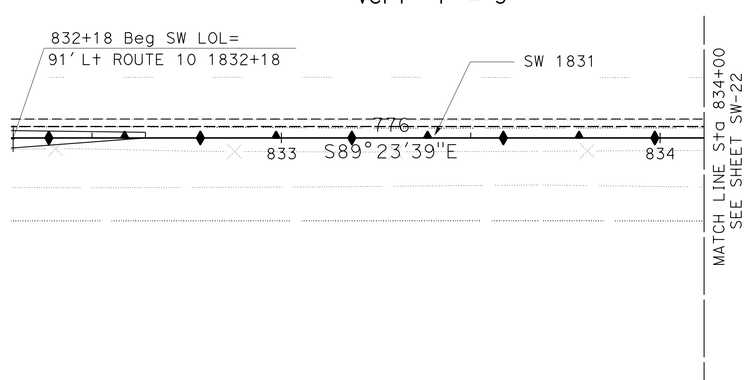


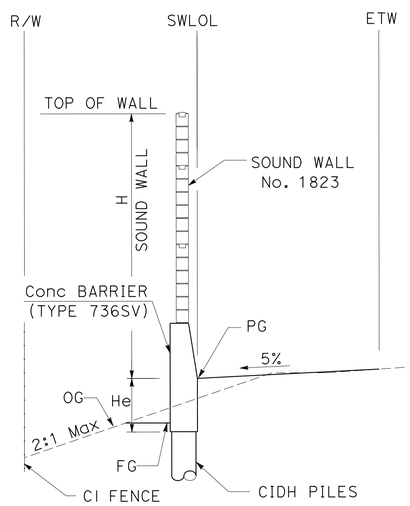
ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'



TYPICAL SECTION

NO SCALE

SOUND WALL PLAN

SOUND WALL No.1831

NO SCALE

APPROVED FOR SOUND WALL WORK ONLY

SW-21

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: MAHINDA RAM
CHECKED BY: NEIL LIANG
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	740	1475

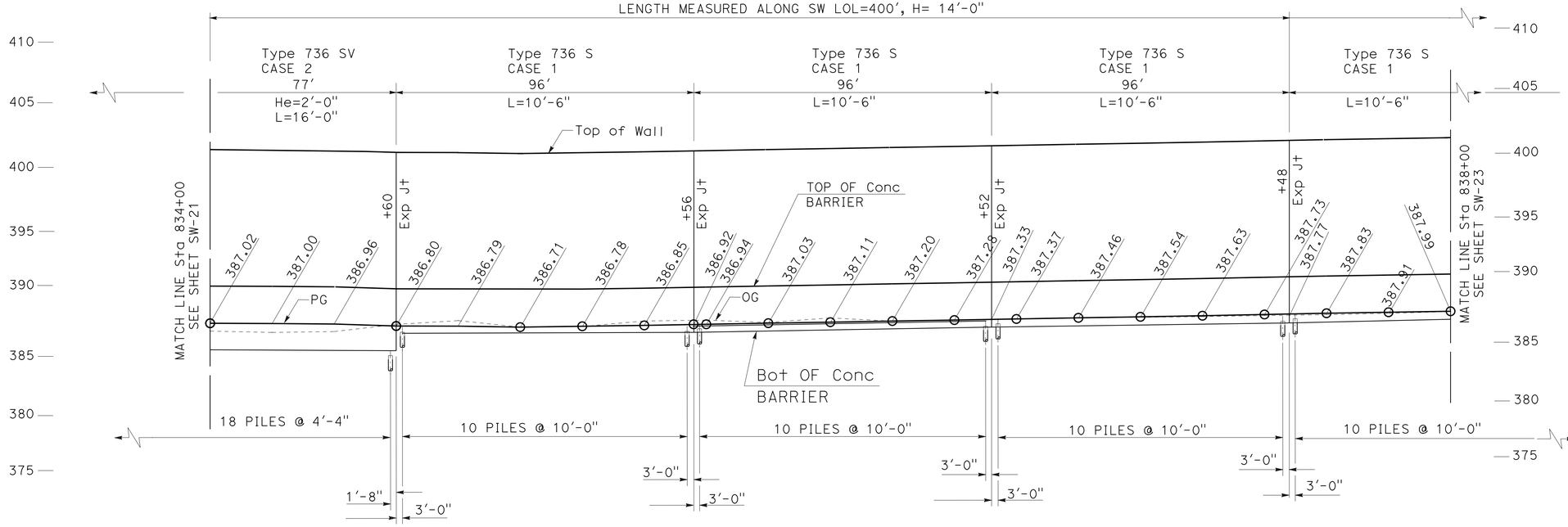
REGISTERED CIVIL ENGINEER 4-17-12 DATE

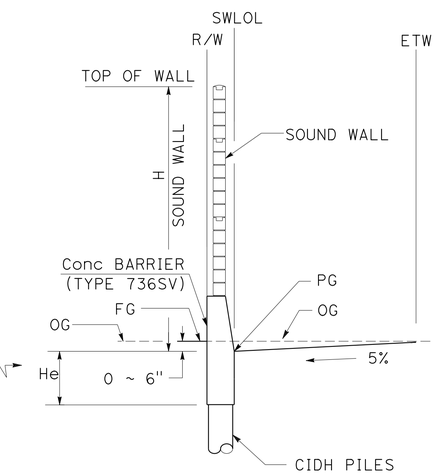
6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 06/30/14 CIVIL STATE OF CALIFORNIA

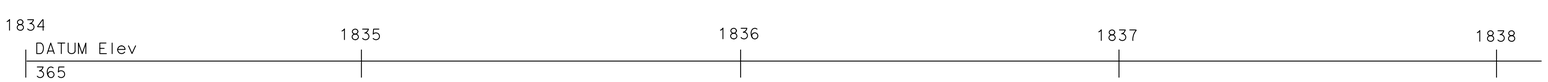
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

SOUND WALL MASONRY BLOCK ON BARRIER (TYPE 736SV.736S), CASE 1, CASE 2 ø=30°
LENGTH MEASURED ALONG SW LOL=400', H= 14'-0"

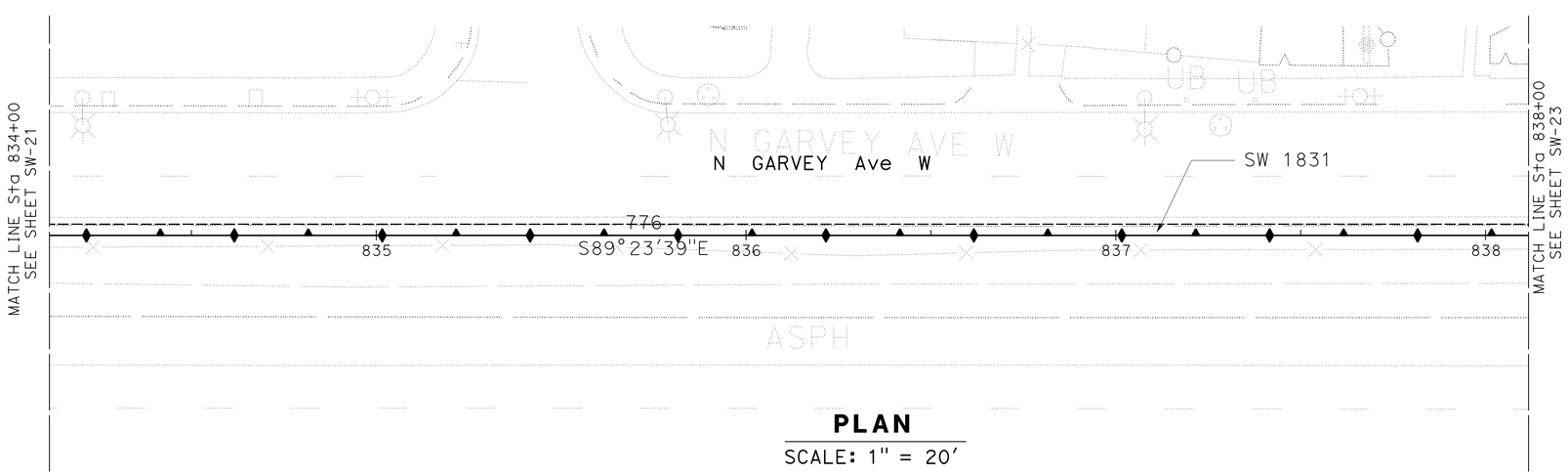




TYPICAL SECTION
NO SCALE

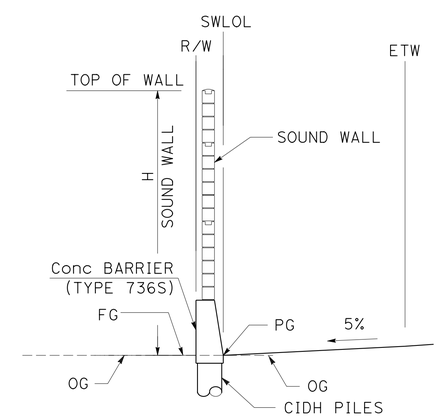


ELEVATION
SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN
SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY



TYPICAL SECTION
NO SCALE

SOUND WALL PLAN
SOUND WALL No. 1831
SCALE AS SHOWN

SW-22

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D
CONSULTANT FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MAHINDA RAM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 06:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	741	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 06/30/14 CIVIL STATE OF CALIFORNIA

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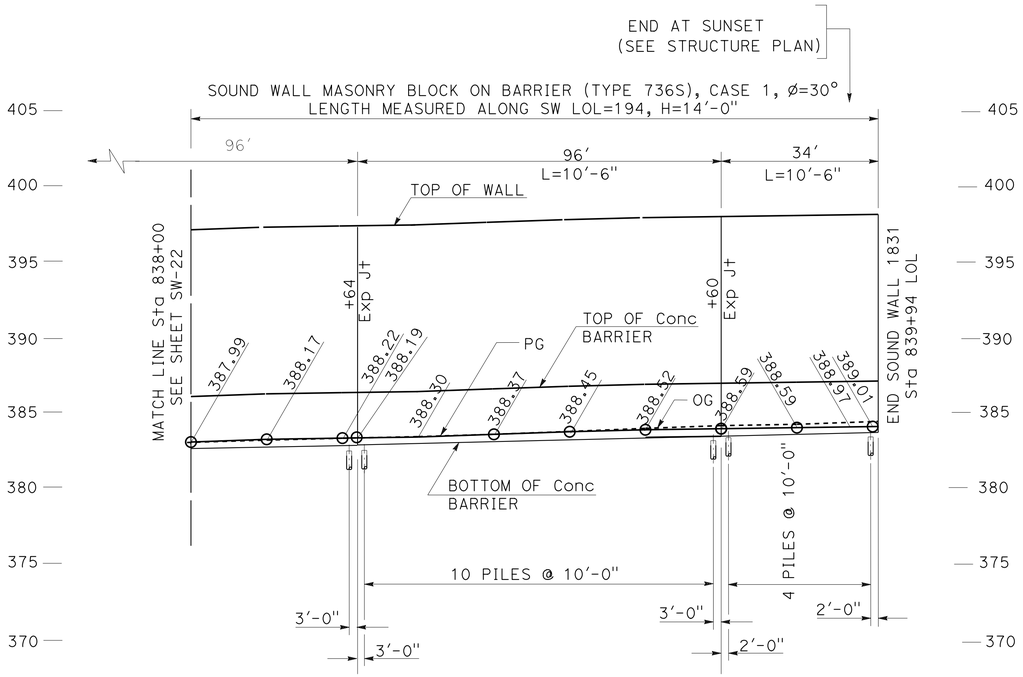
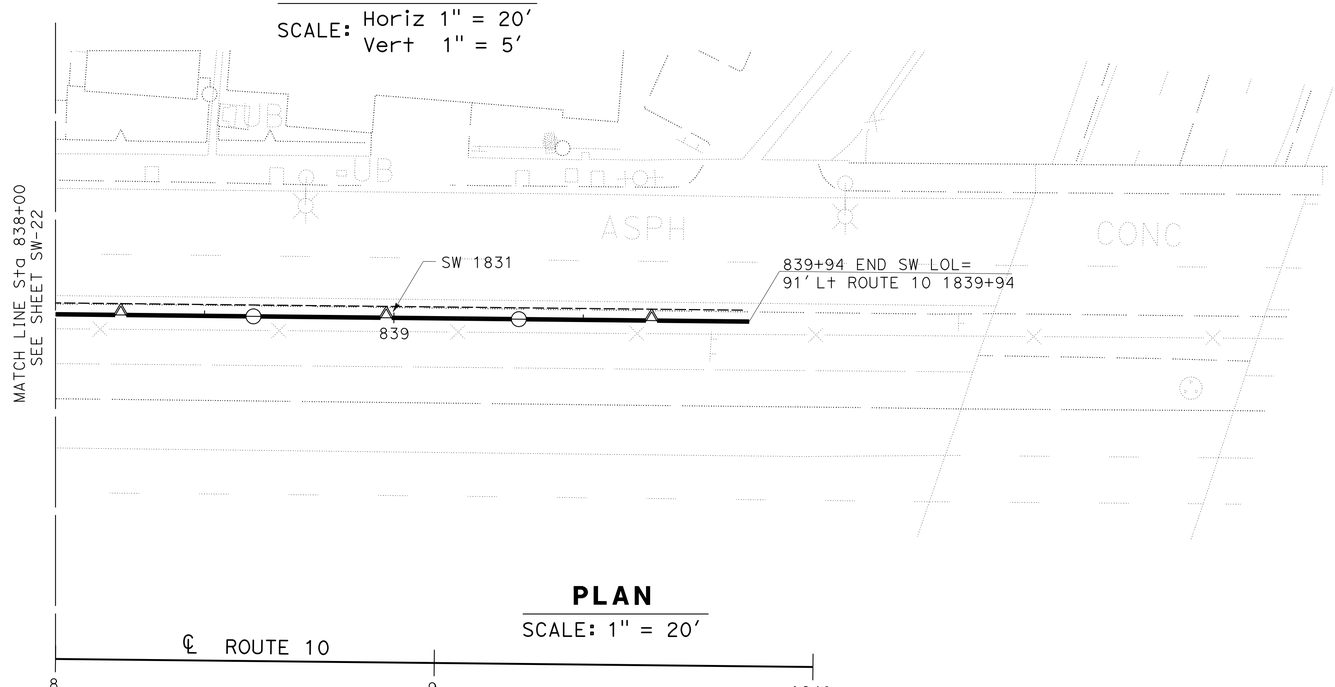


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1831

SCALE AS SHOWN

SW-23

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

CONSULTAINT FUNCTIONAL SUPERVISOR: NADER GOBRAN

CALCULATED-DESIGNED BY: MAHINDA RAM
CHECKED BY: NEIL LIANG

REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	742	1475

REGISTERED CIVIL ENGINEER 04-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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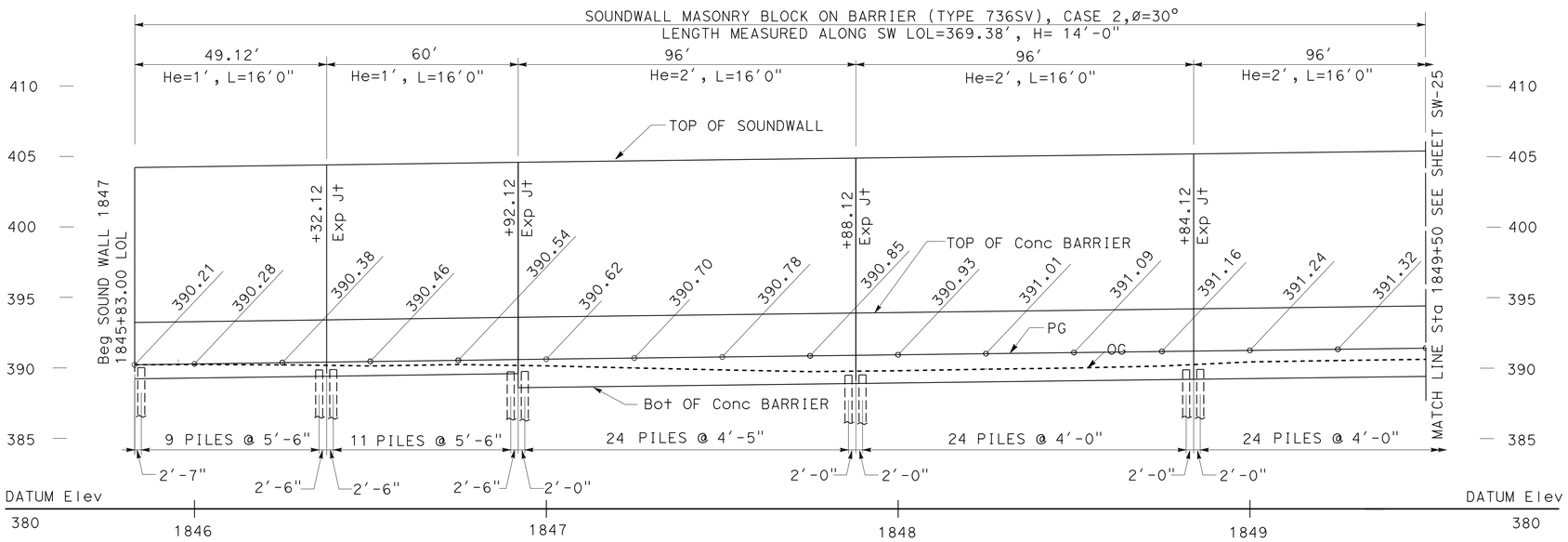
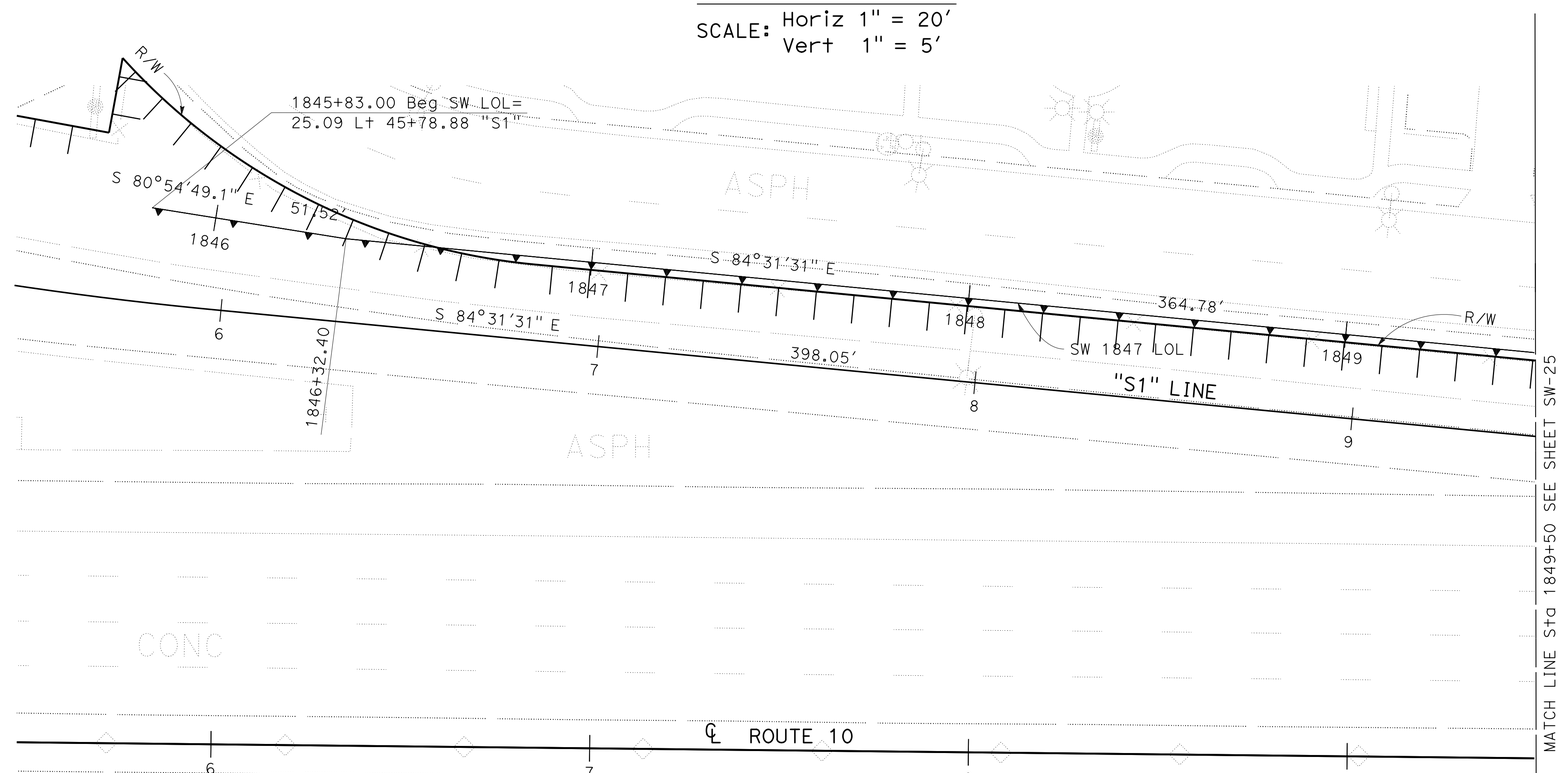


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1"= 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL 1847
SCALE AS SHOWN

SW-24

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHOMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION | DATE PLOTTED => 13-JUN-2013
06-18-12 | TIME PLOTTED => 06:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	743	1475

REGISTERED CIVIL ENGINEER DATE 04-17-12

PLANS APPROVAL DATE 6-10-13

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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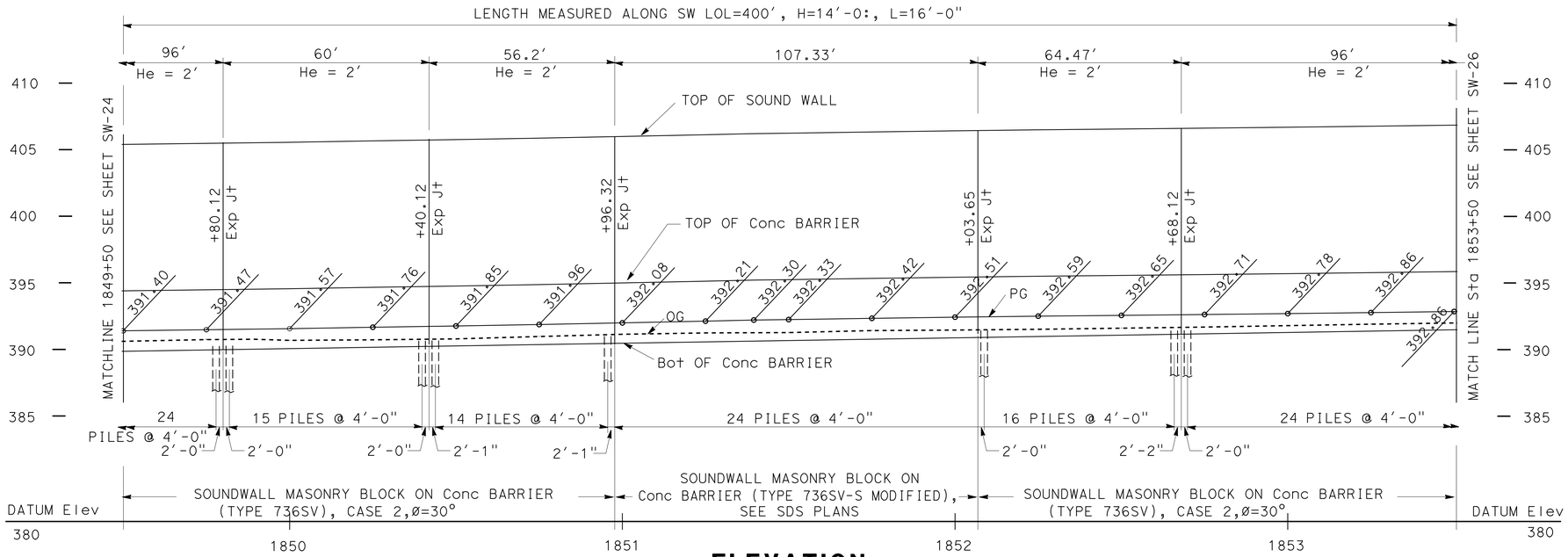
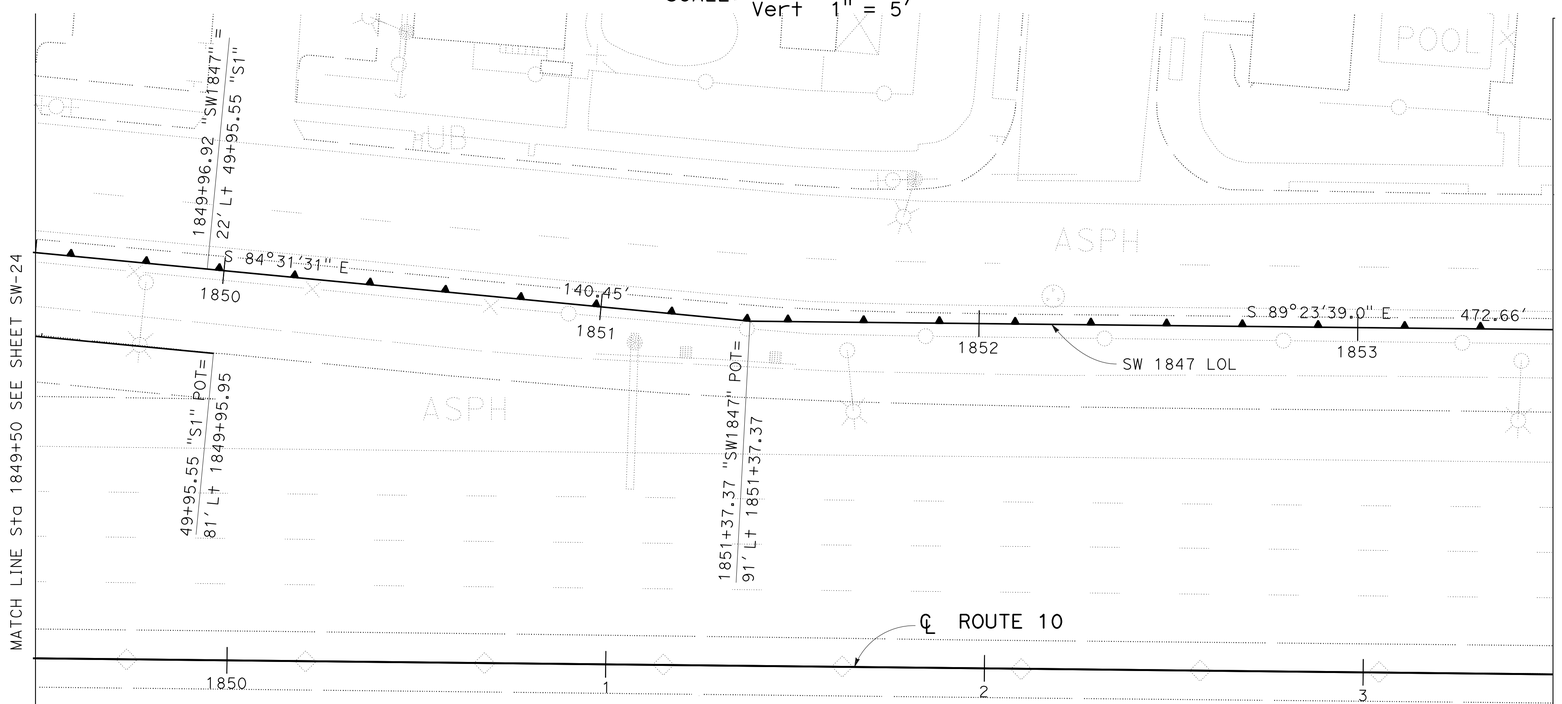


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1"= 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL 1847

SCALE AS SHOWN

SW-25

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHOMED GHANNOUM
REVISED BY / DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	744	1475

REGISTERED CIVIL ENGINEER DATE 04-17-12

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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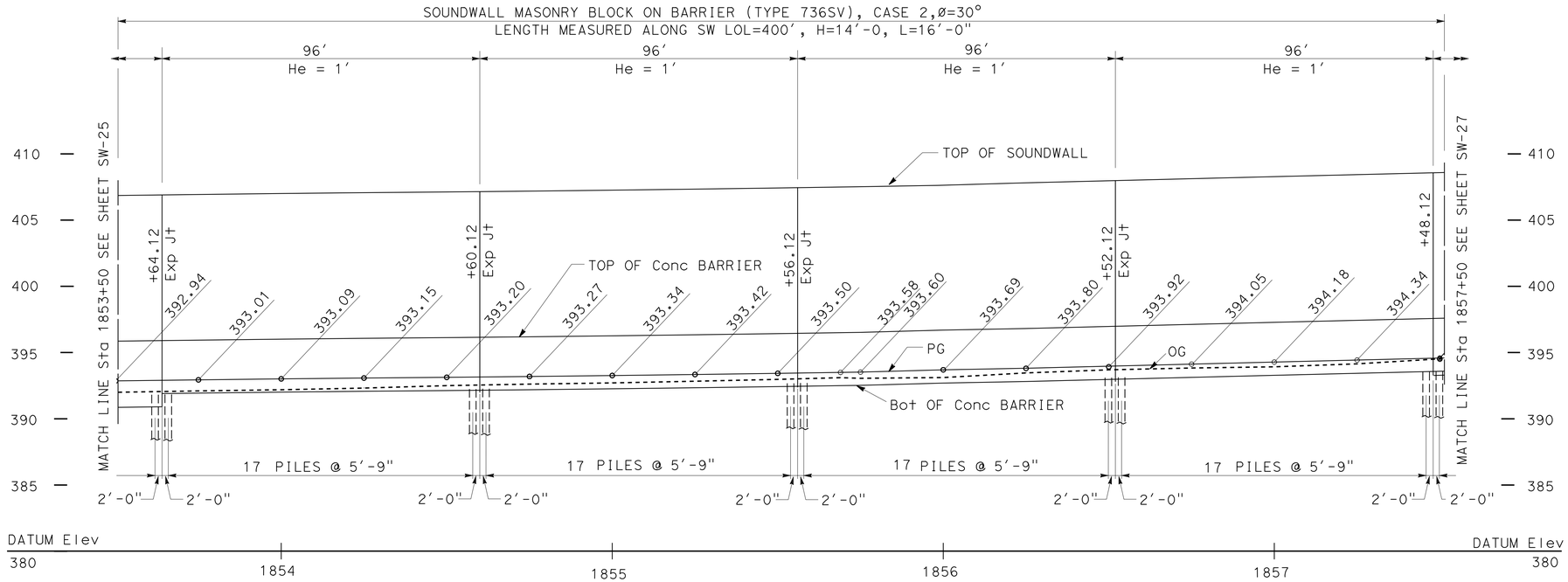
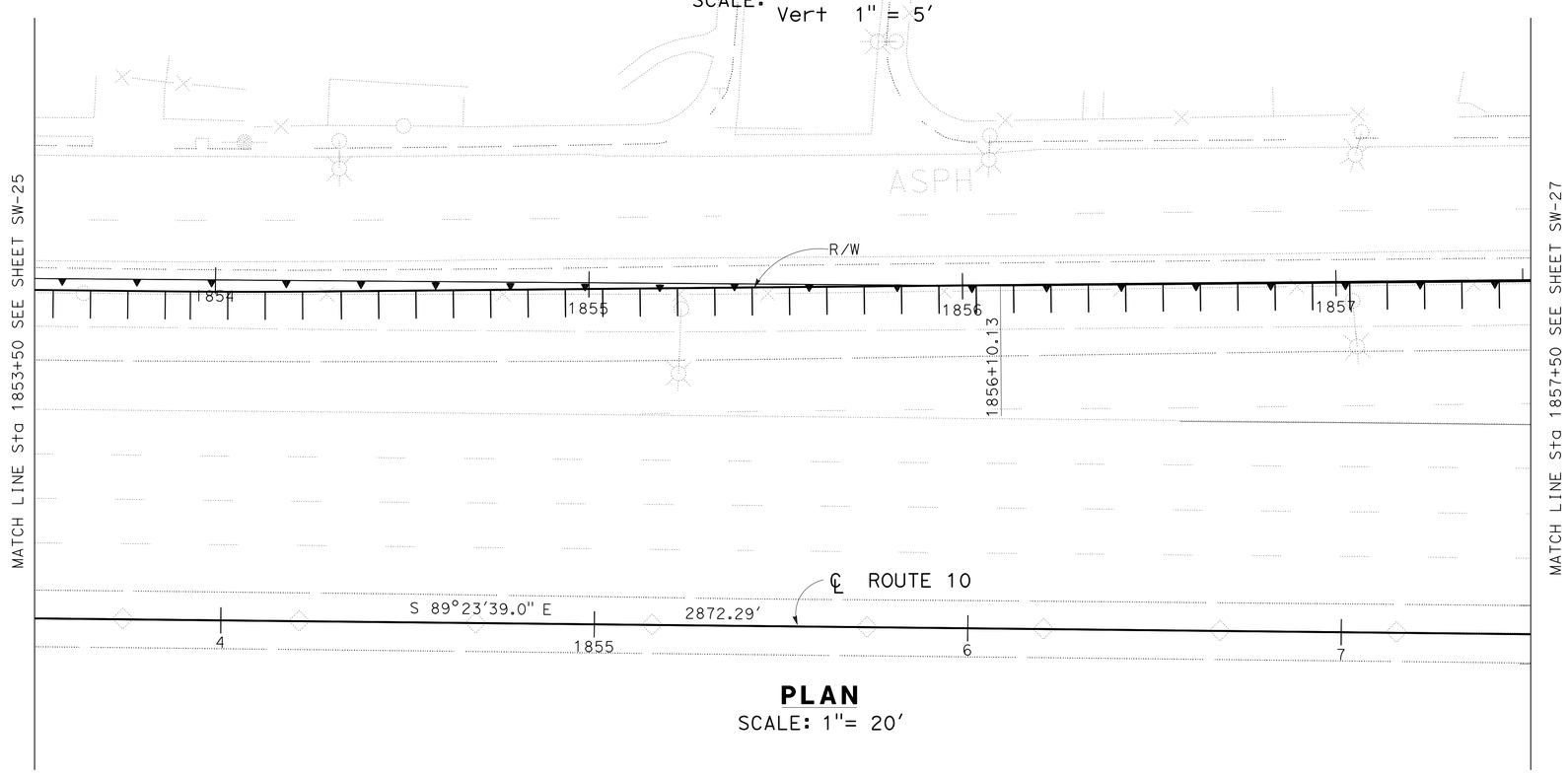


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1"= 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL 1847

SCALE AS SHOWN

SW-26

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	745	1475

REGISTERED CIVIL ENGINEER 04-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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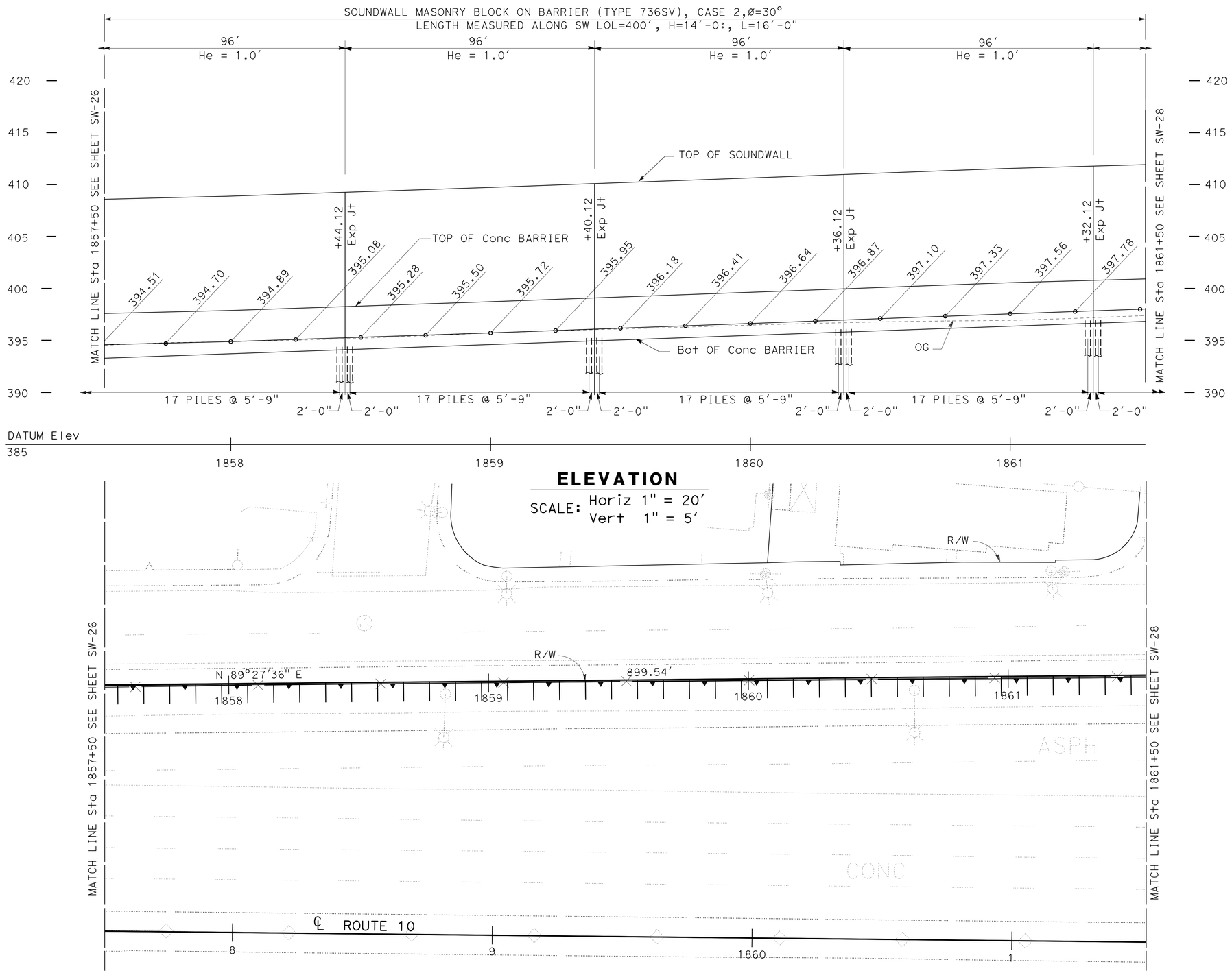


APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1847

SCALE AS SHOWN

SW-27

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN

CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMMED GHANNOUM

REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:44

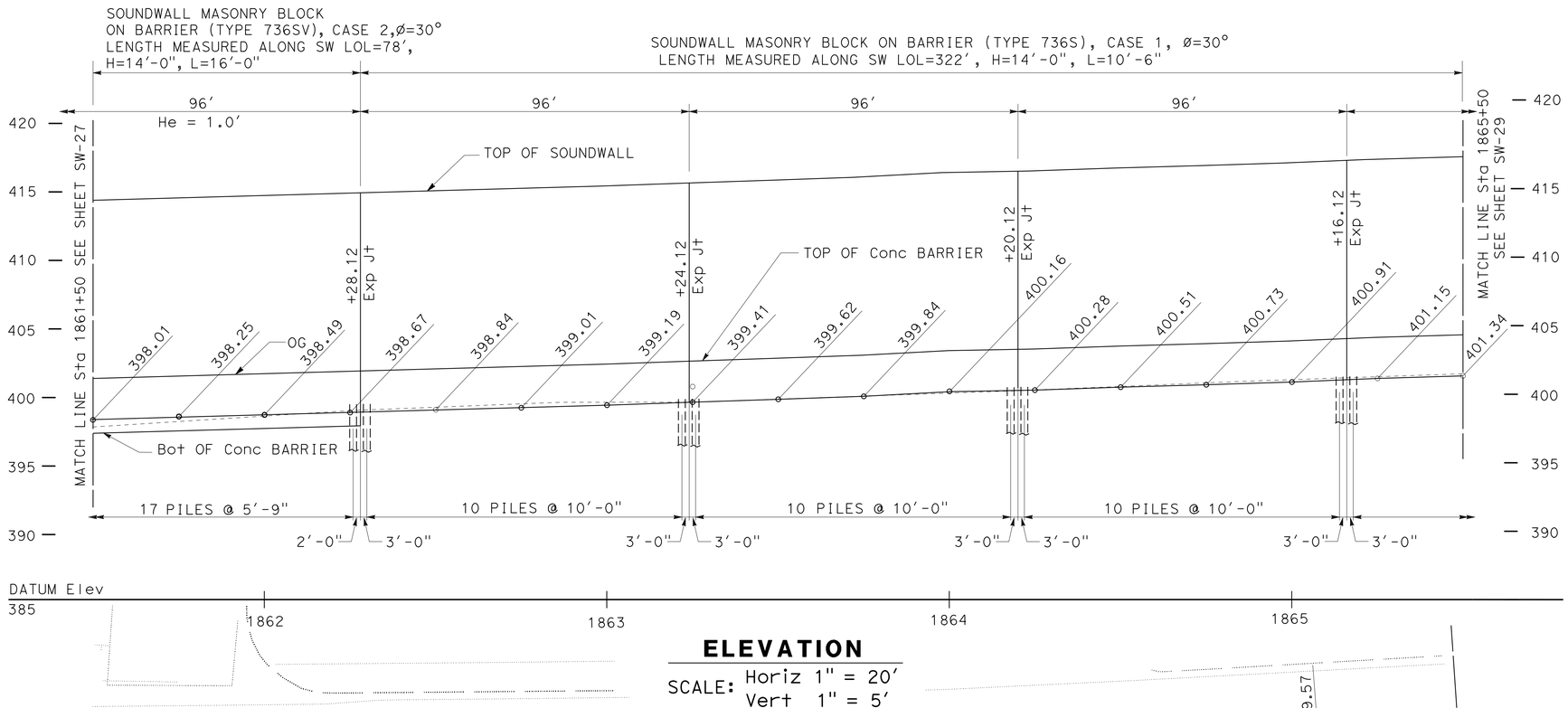
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	746	1475

REGISTERED CIVIL ENGINEER 04-17-12 DATE

6-10-13
PLANS APPROVAL DATE

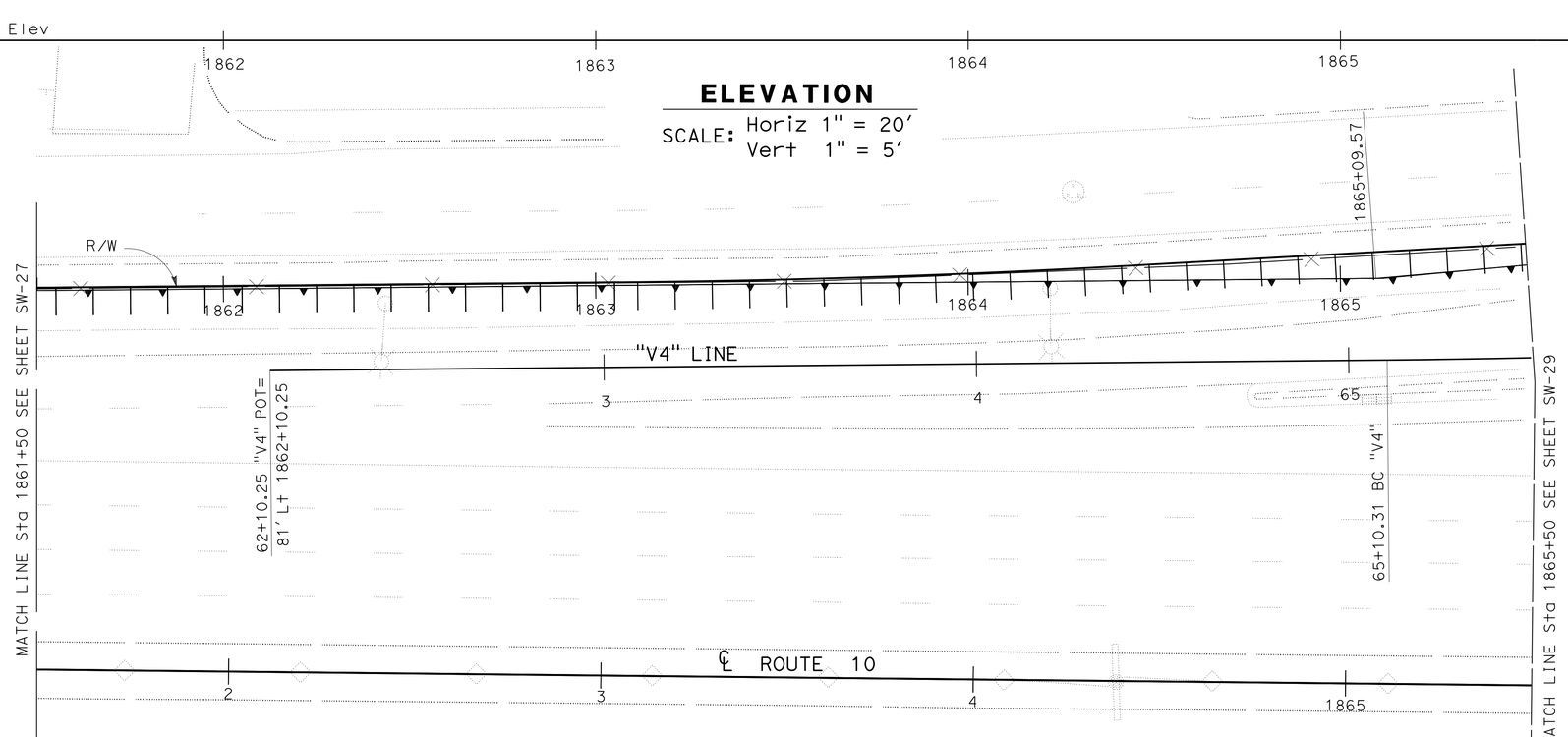
REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1"= 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1847

SCALE AS SHOWN

SW-28

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	747	1475

REGISTERED CIVIL ENGINEER 04-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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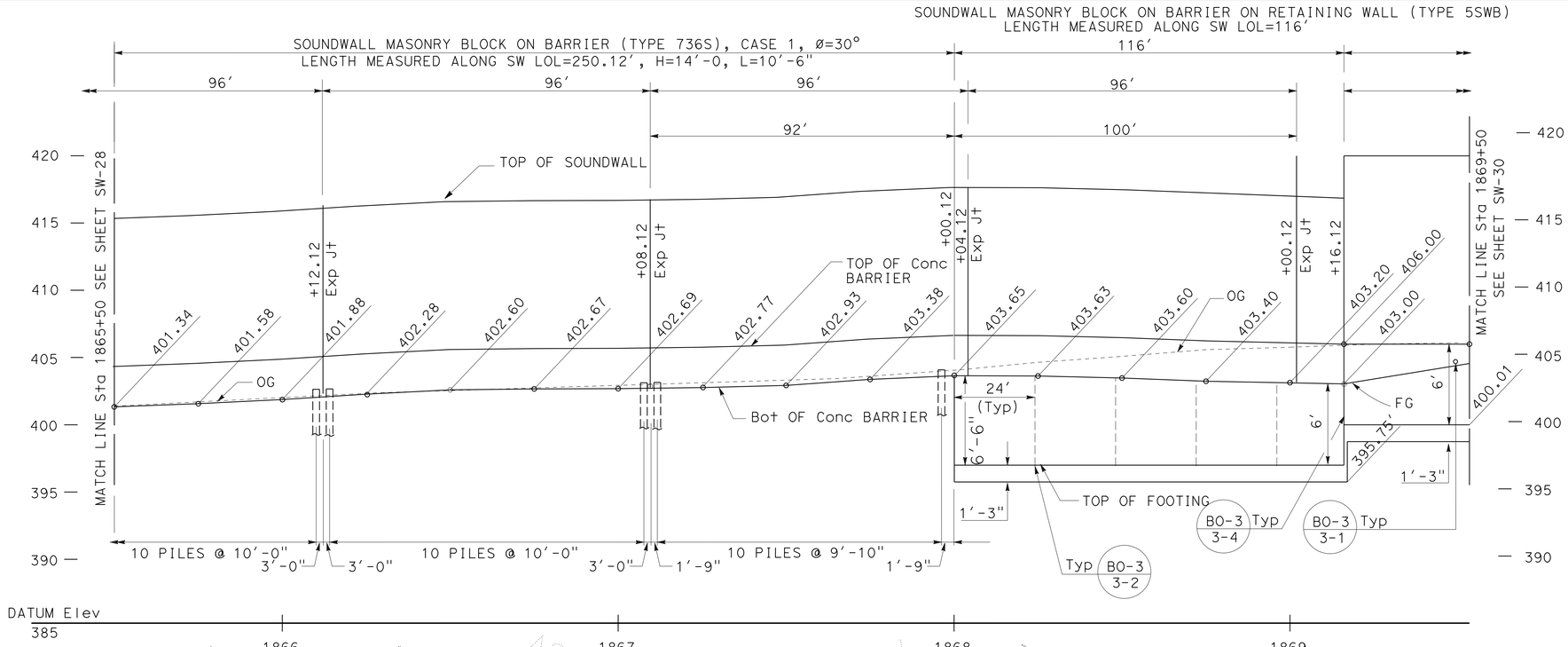
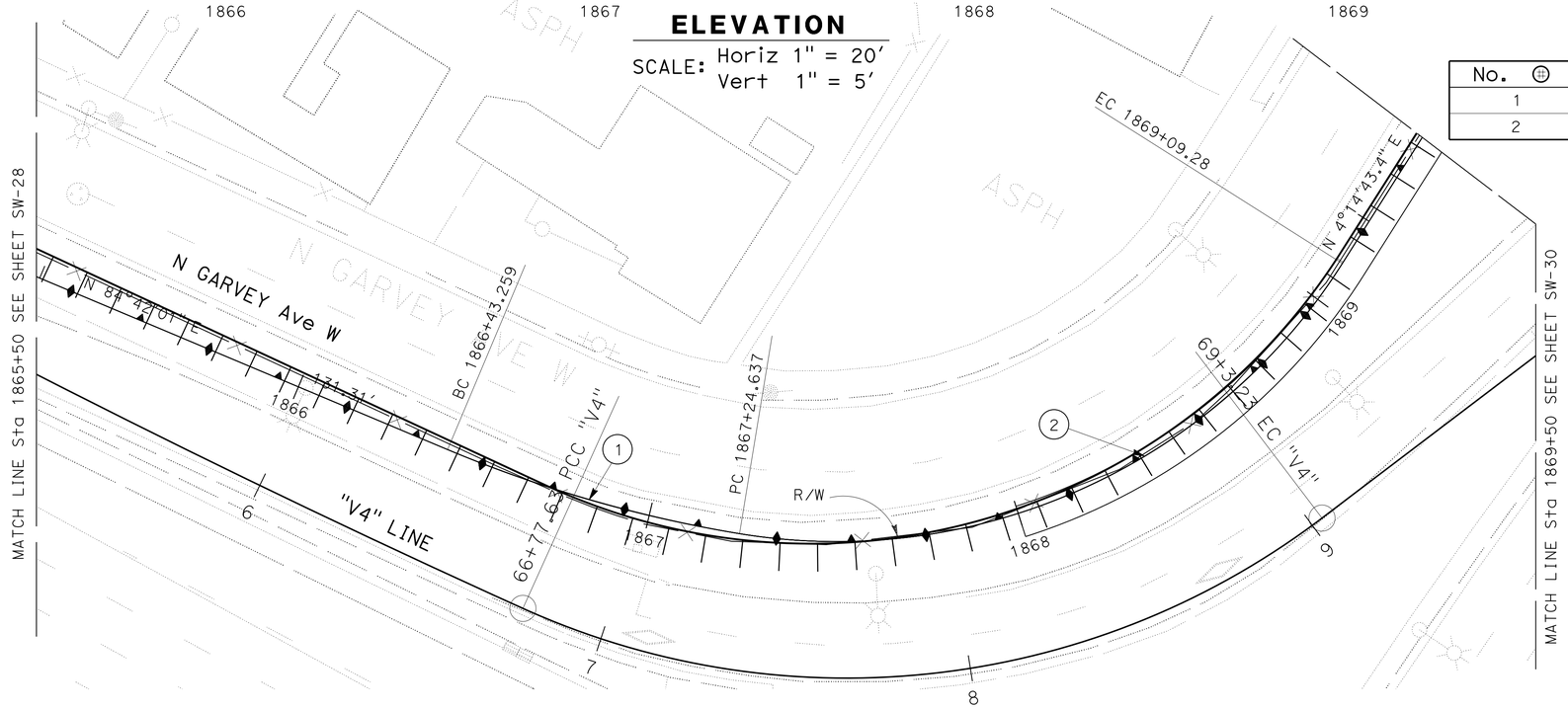


ELEVATION

SCALE: Horiz 1" = 20′
Vert 1" = 5′

CURVE DATA

No. ⊕	R	Δ	T	L
1	345.77′	13°29′05"	40.88′	81.38′
2	160.00′	66°58′13"	105.84′	187.02′



PLAN

SCALE: 1"= 20′

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1847

SCALE AS SHOWN

SW-29

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	748	1475

REGISTERED CIVIL ENGINEER DATE 04-17-12

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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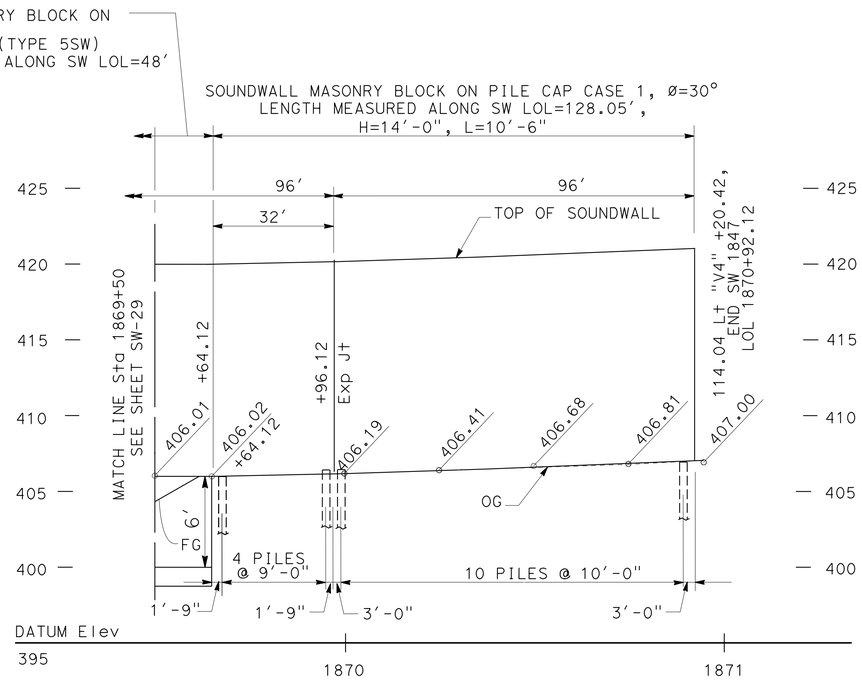
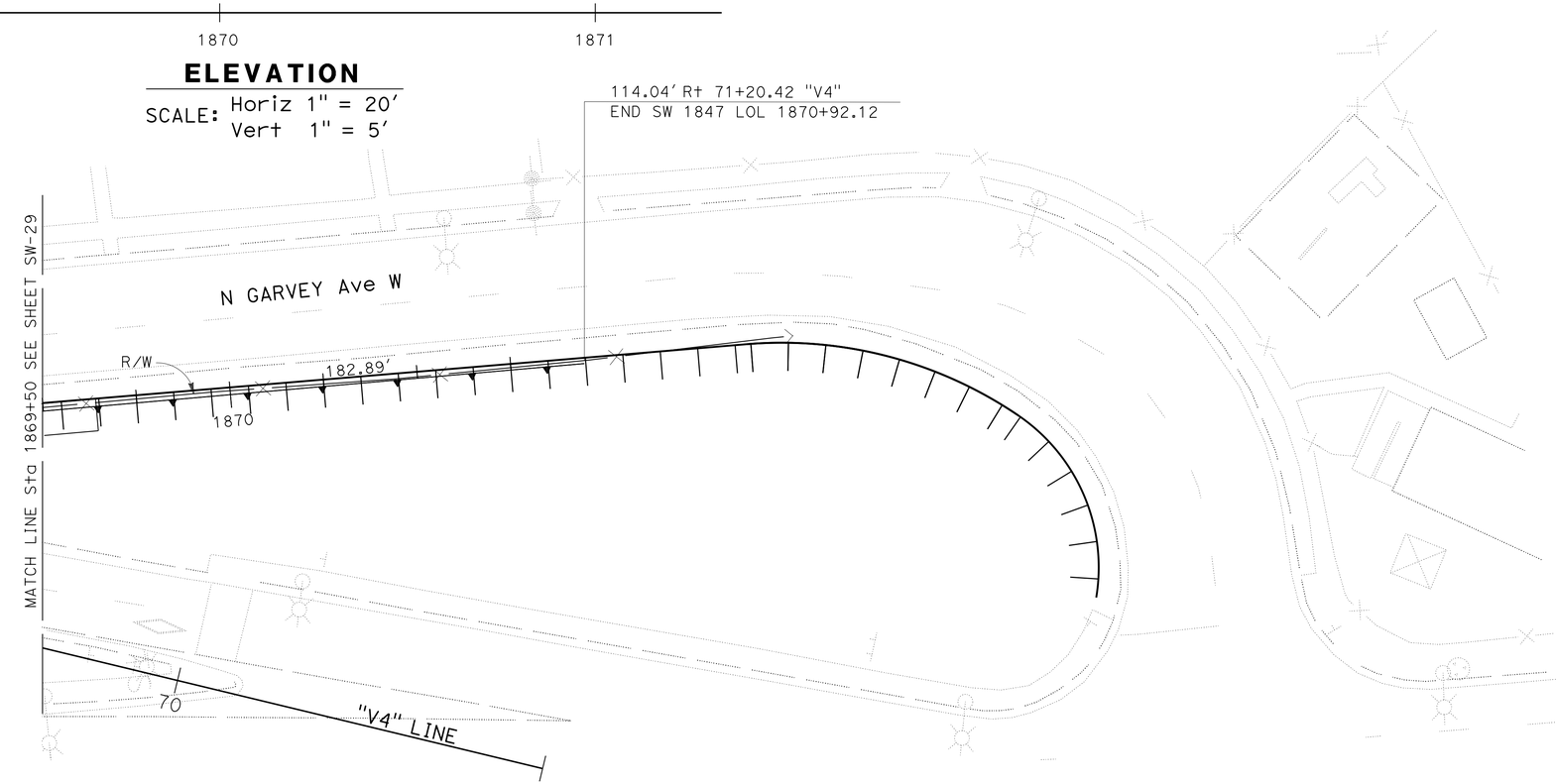


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1"= 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1847

SCALE AS SHOWN

SW-30

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: NEIL LIANG
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	749	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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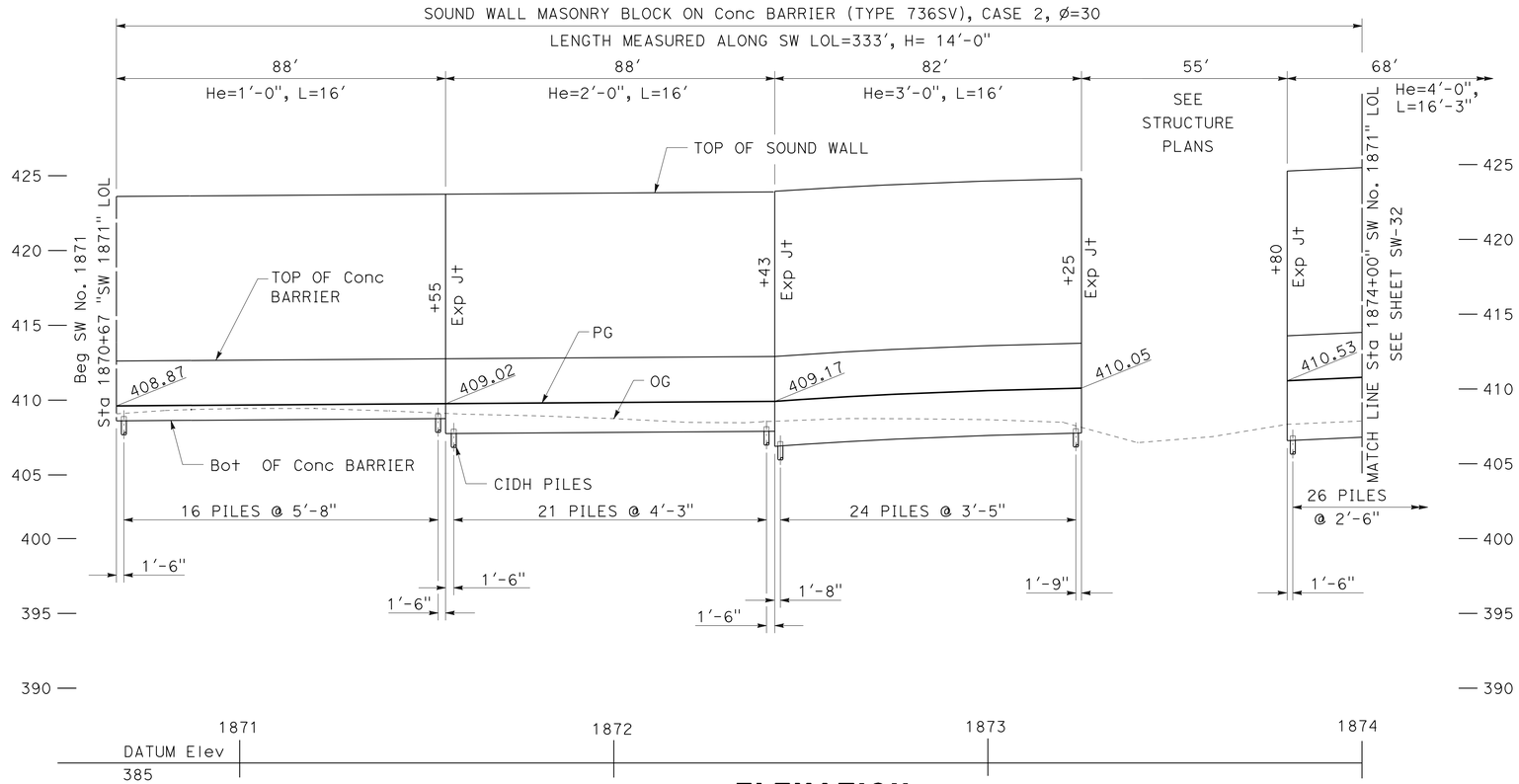
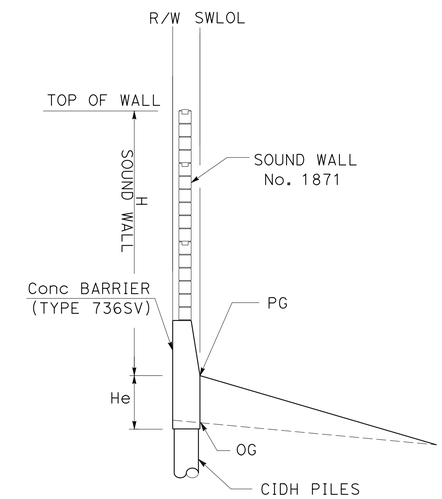


ELEVATION

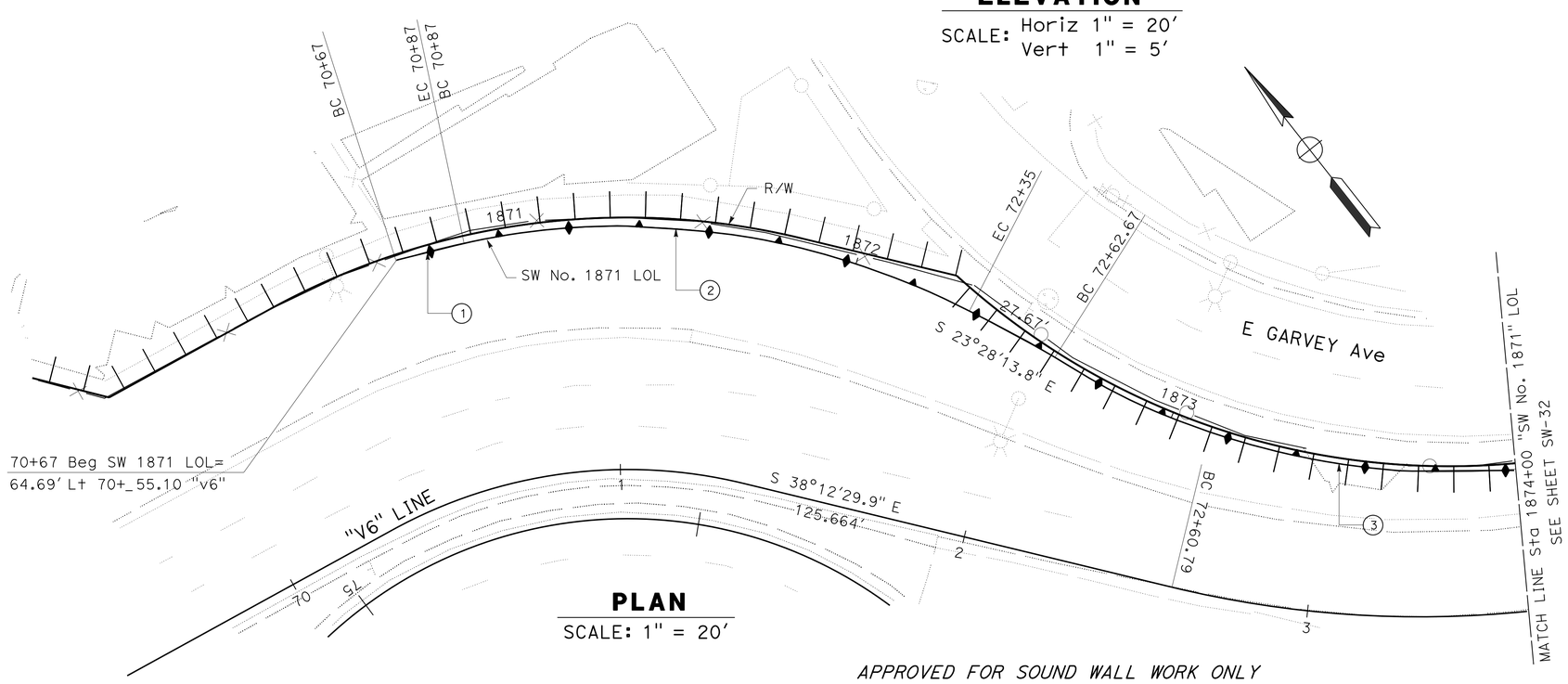
SCALE: Horiz 1" = 20'
Vert 1" = 5'



Sta 1870+67 TO 1873+25.00 "SW 1871" LOL
Sta 1873+25.00 TO 1884+57.47 "SW 1871" LOL
Sta 1890+50.85 TO 1896+06.33 "SW 1871" LOL

TYPICAL SECTION

NO SCALE



PLAN

SCALE: 1" = 20'

CURVE DATA

No. (X)	R	Δ	T	L
1	195.00'	5°52'35"	10.01'	20.00'
2	216.64'	39°8'29"	77.02'	148.00'
3	209.50'	60°40'57"	122.62'	221.88'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1871

SCALE AS SHOWN

SW-31

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:44

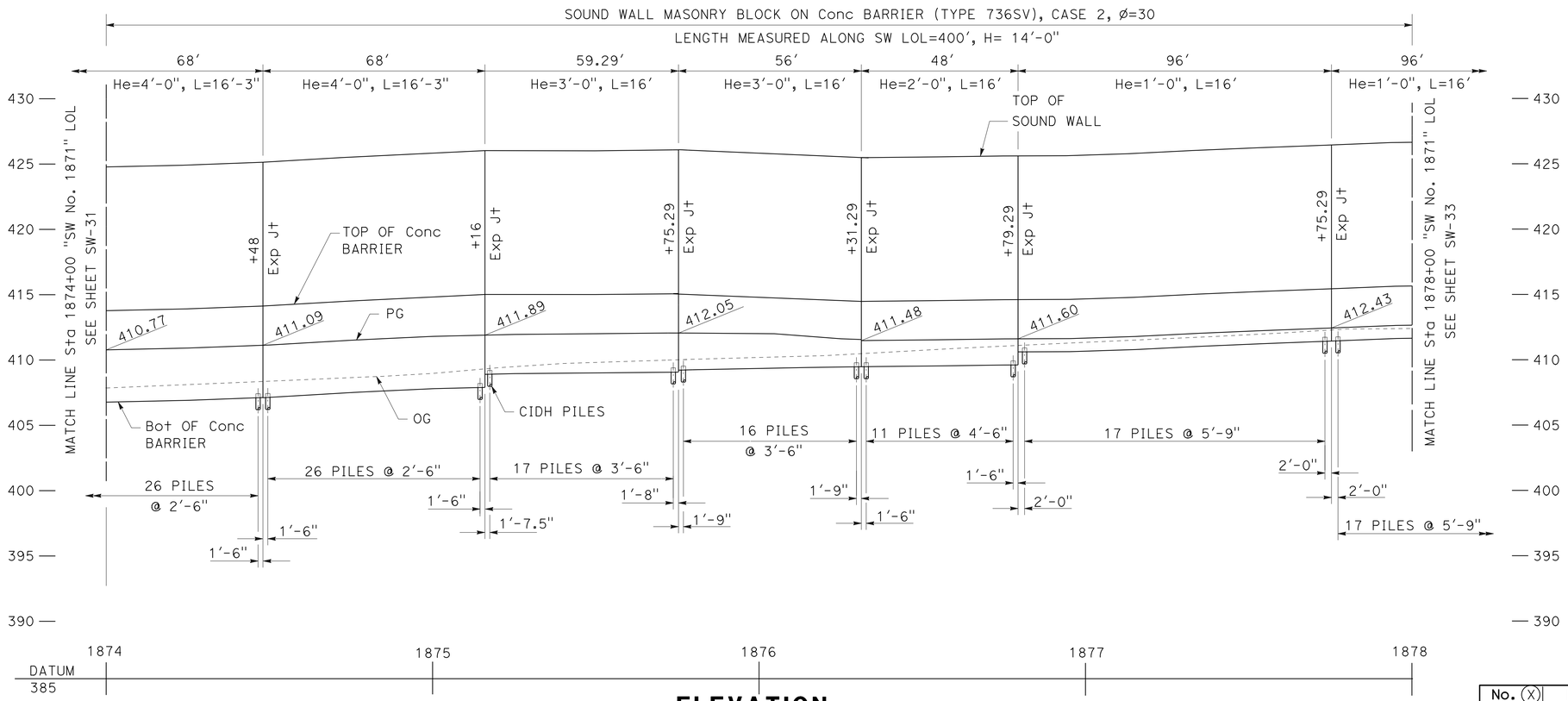
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	750	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

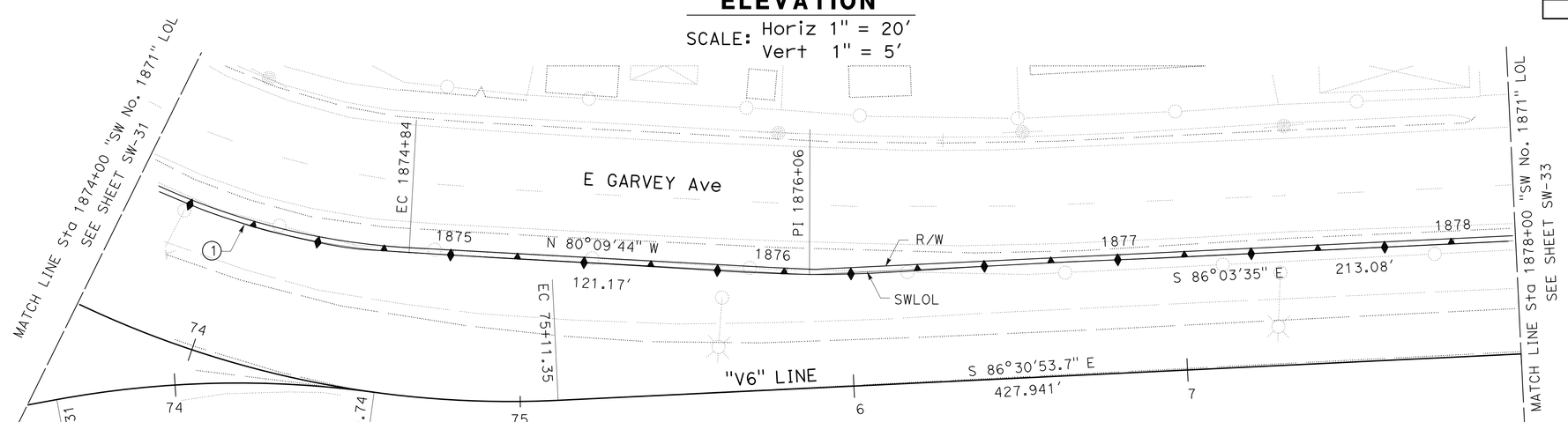


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'

CURVE DATA

No. (X)	R	Δ	T	L
1	209.50'	60°40'57"	122.62'	221.88'



PLAN

SCALE: 1" = 20'

SOUND WALL PLAN

SOUND WALL No. 1871

SCALE AS SHOWN

SW-32

APPROVED FOR SOUND WALL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 06:44

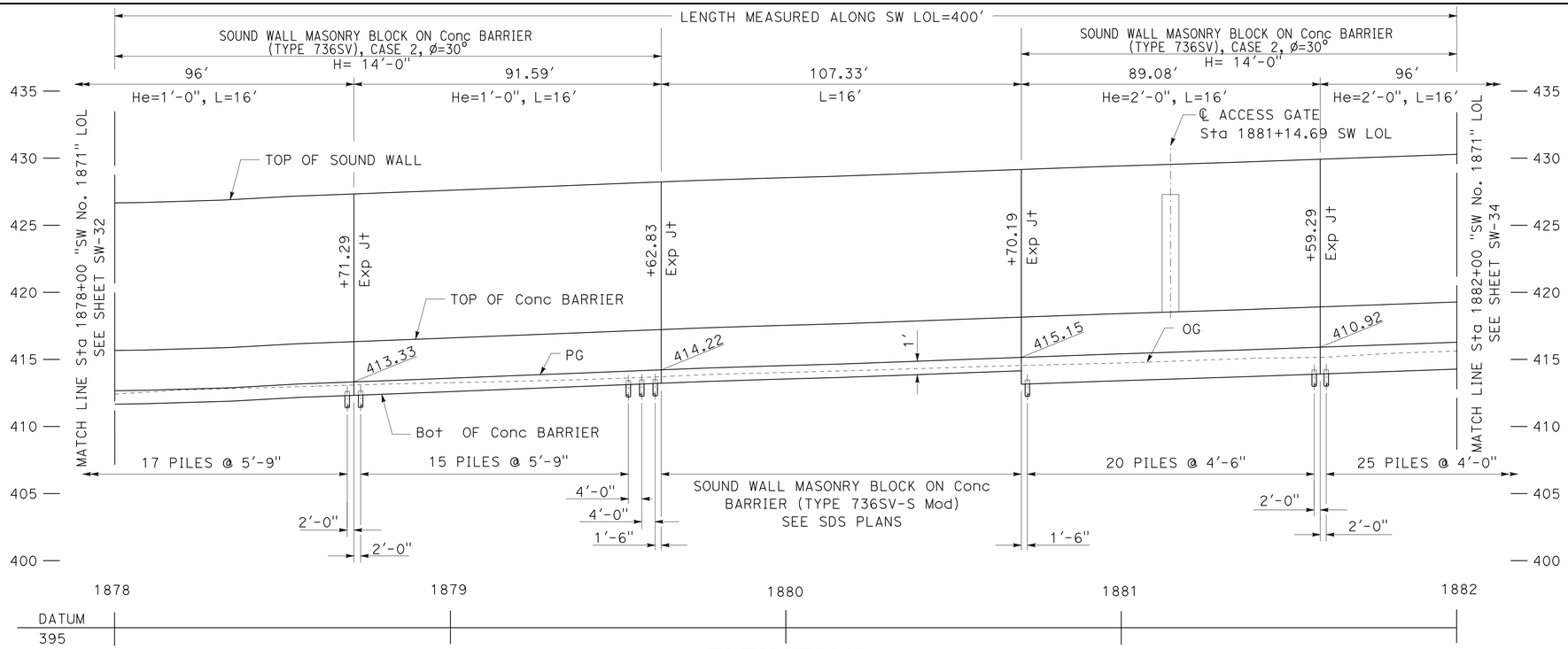
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	751	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

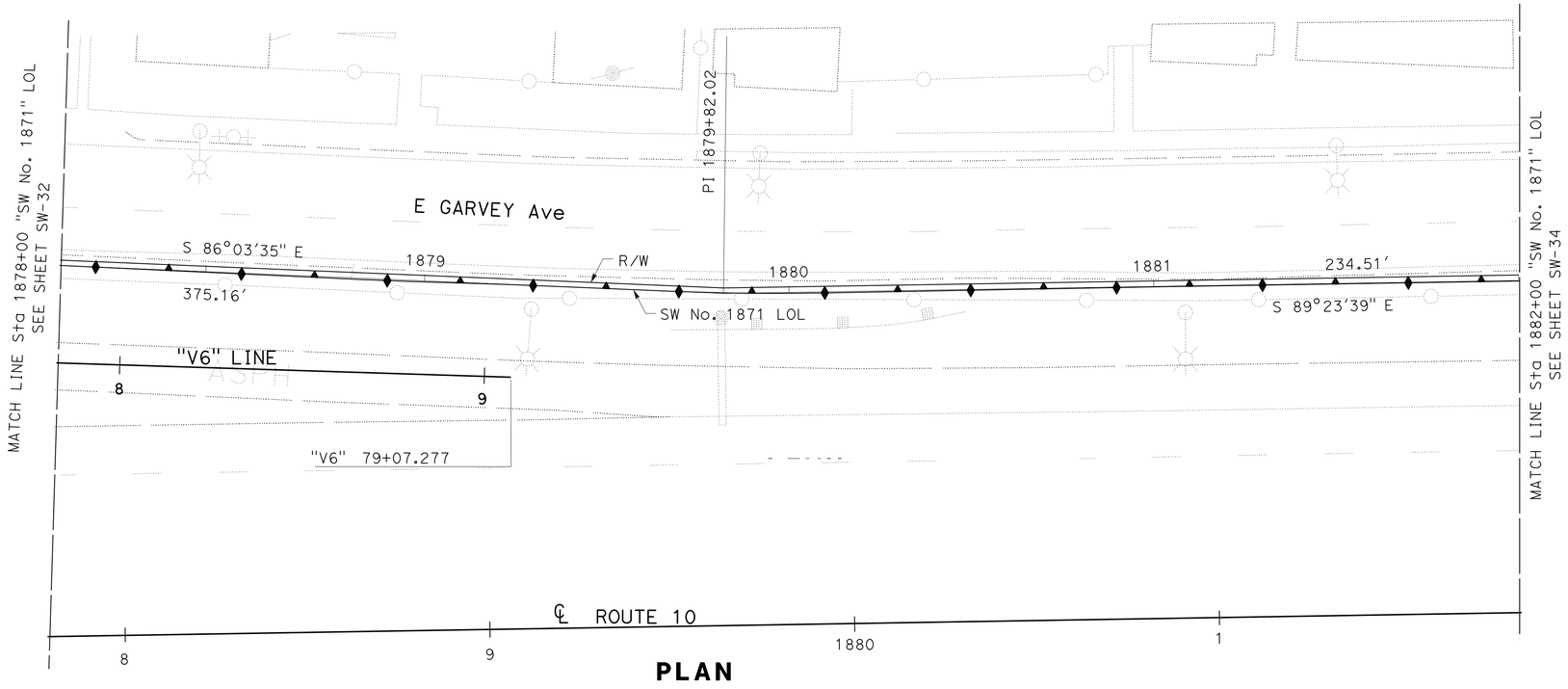
REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

SOUND WALL PLAN

SOUND WALL No. 1871

SCALE AS SHOWN

APPROVED FOR SOUND WALL WORK ONLY

SW-33

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	752	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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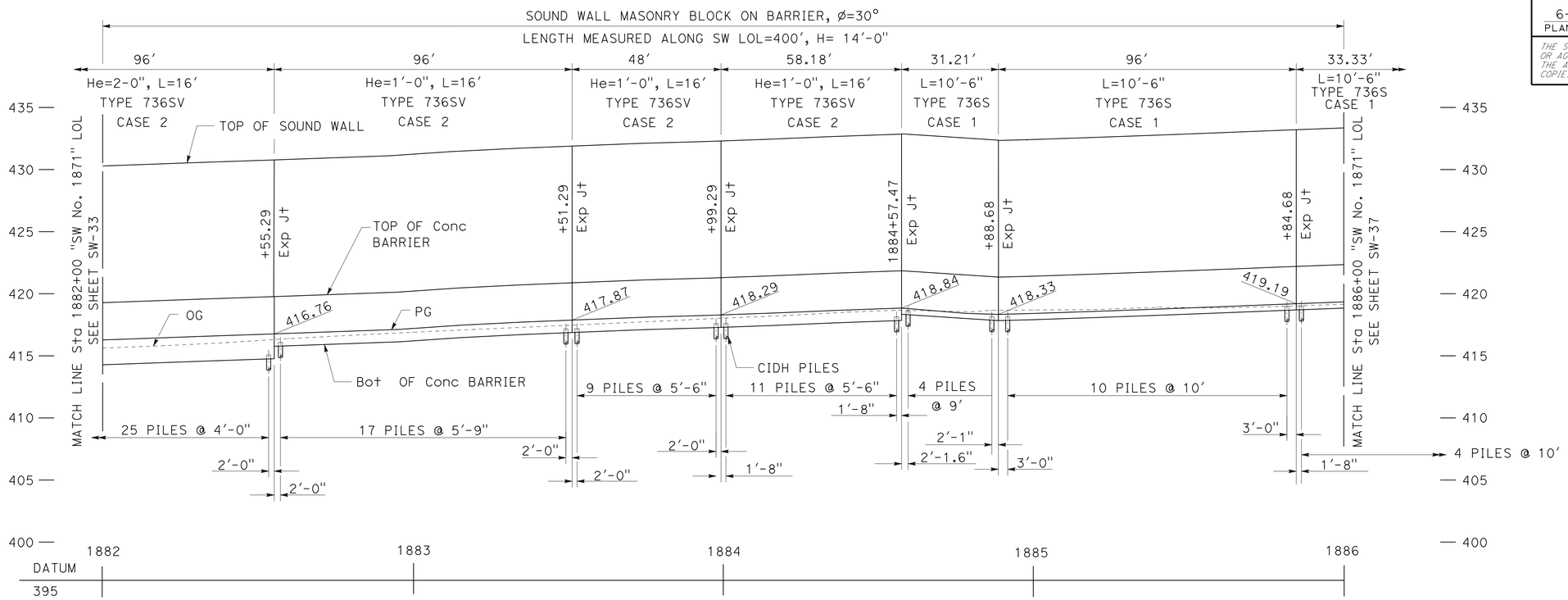
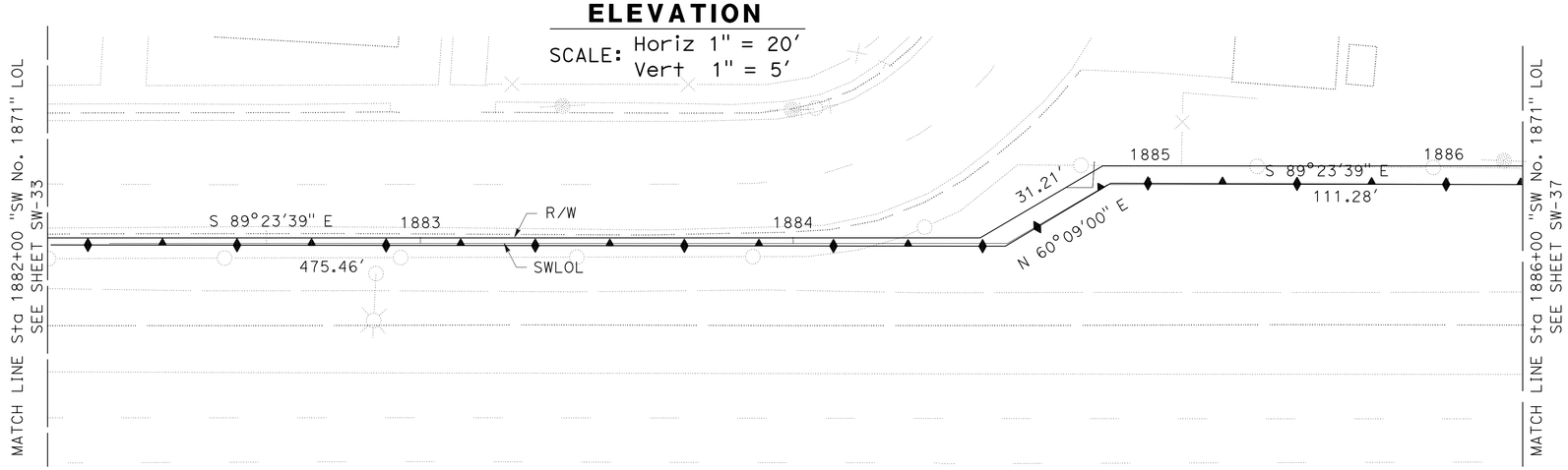


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1871

SCALE AS SHOWN

SW-34

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY / DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:13

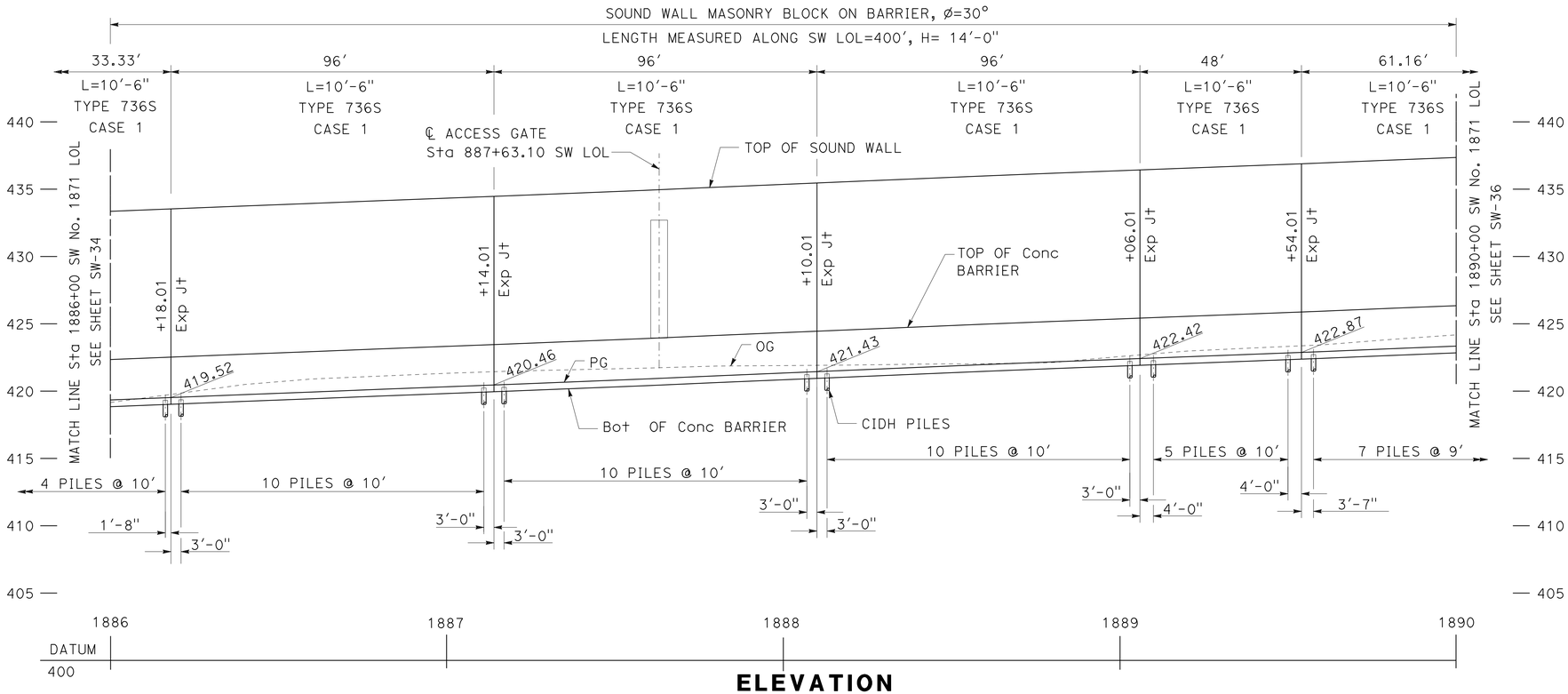
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	753	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

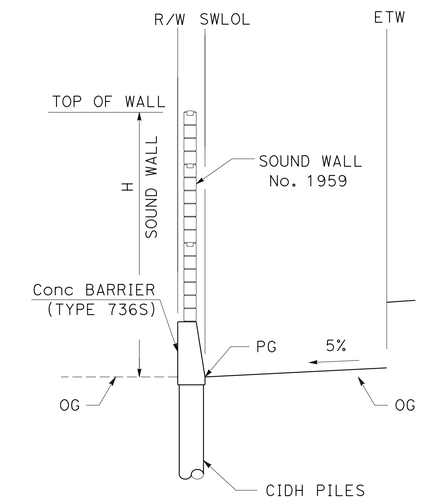
REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ELEVATION

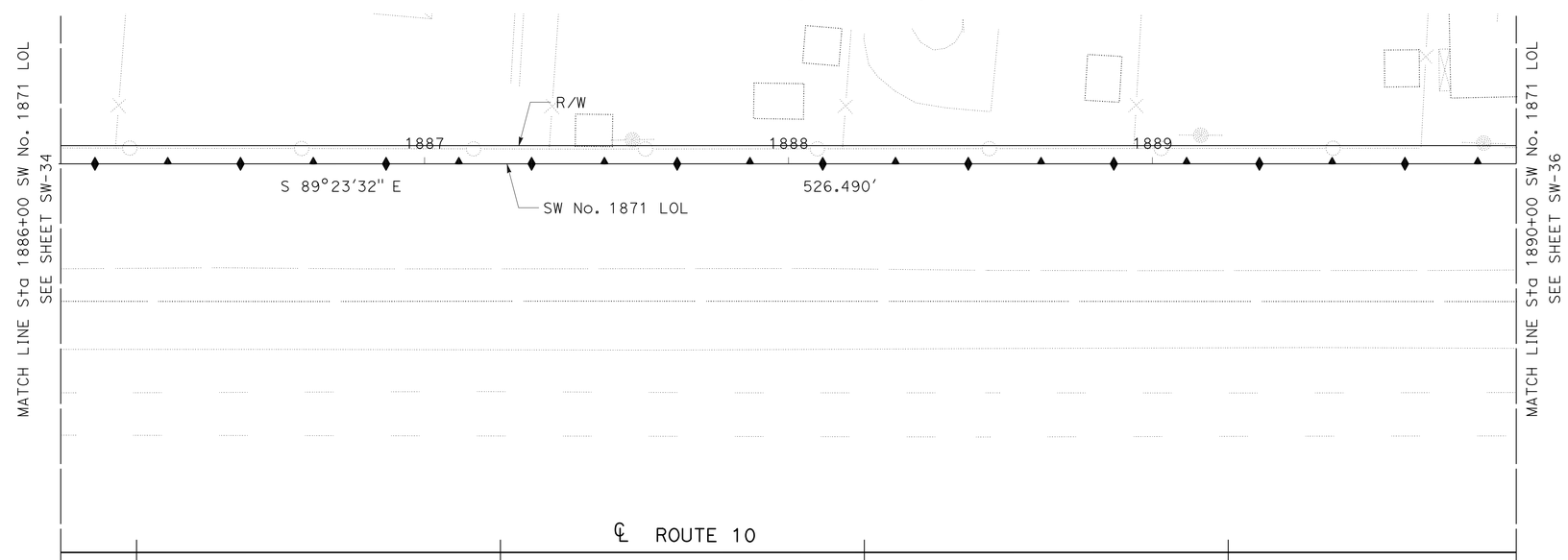
SCALE: Horiz 1" = 20'
Vert 1" = 5'



Sta 886+18.01 TO Sta 890+50.85

TYPICAL SECTION

NO SCALE



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1871

SCALE AS SHOWN **SW-35**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	754	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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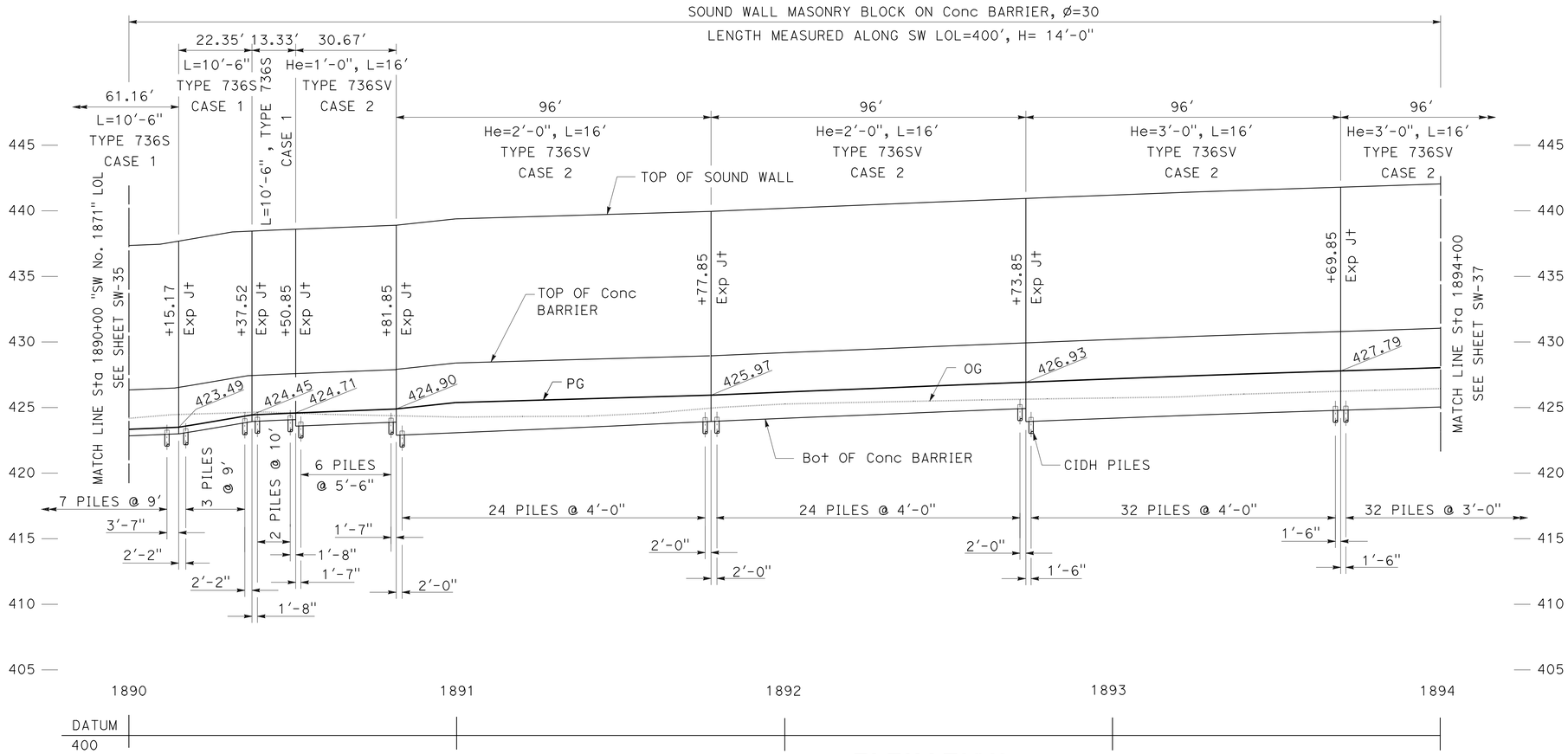
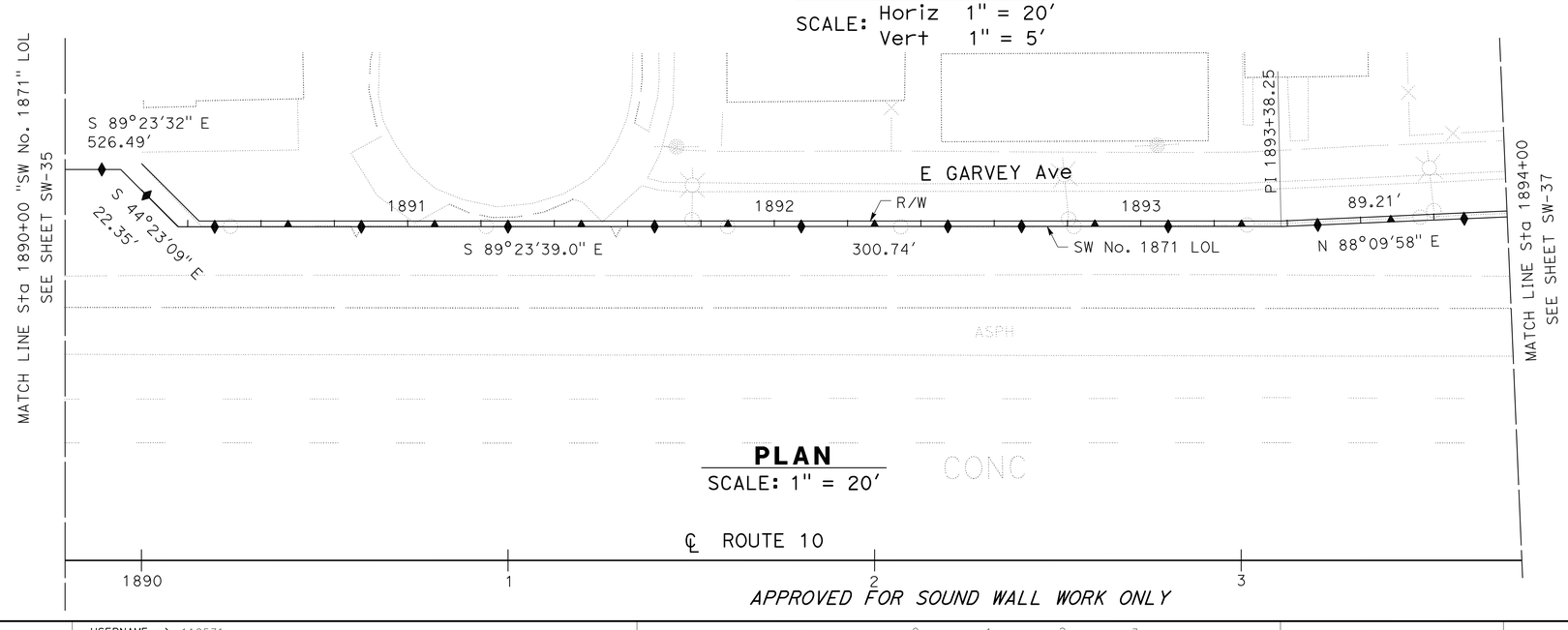


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1871

SCALE AS SHOWN

SW-36

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY / CHECKED BY
JEROME ARABE / MOHAMED GHANNOUM
REVISED BY / DATE REVISED

LAST REVISION 06-18-12
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	755	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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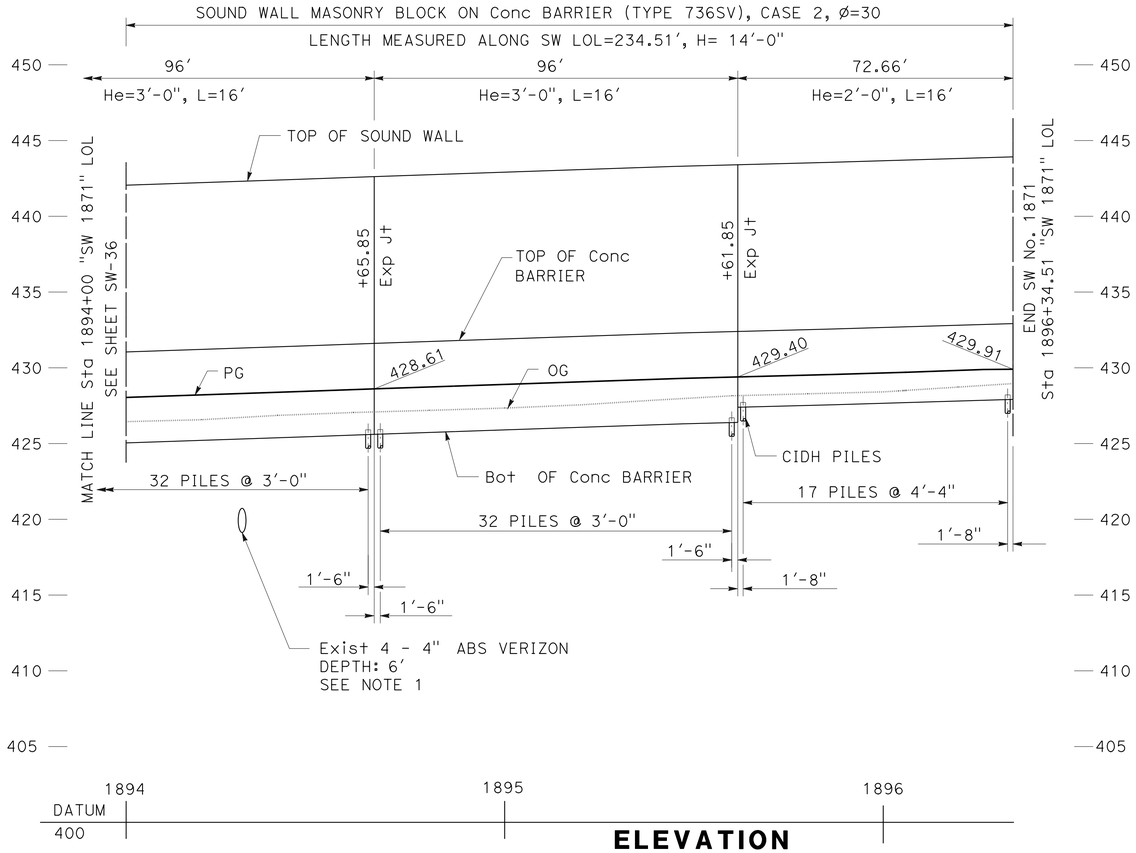
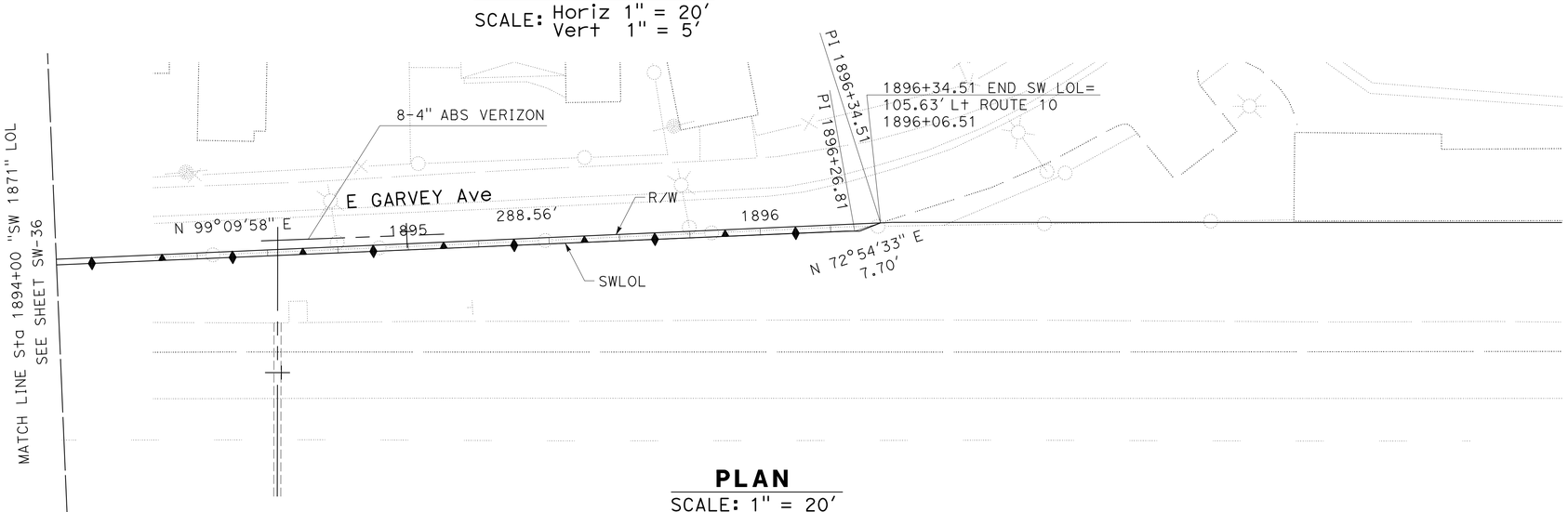


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1871

SCALE AS SHOWN

SW-37

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	756	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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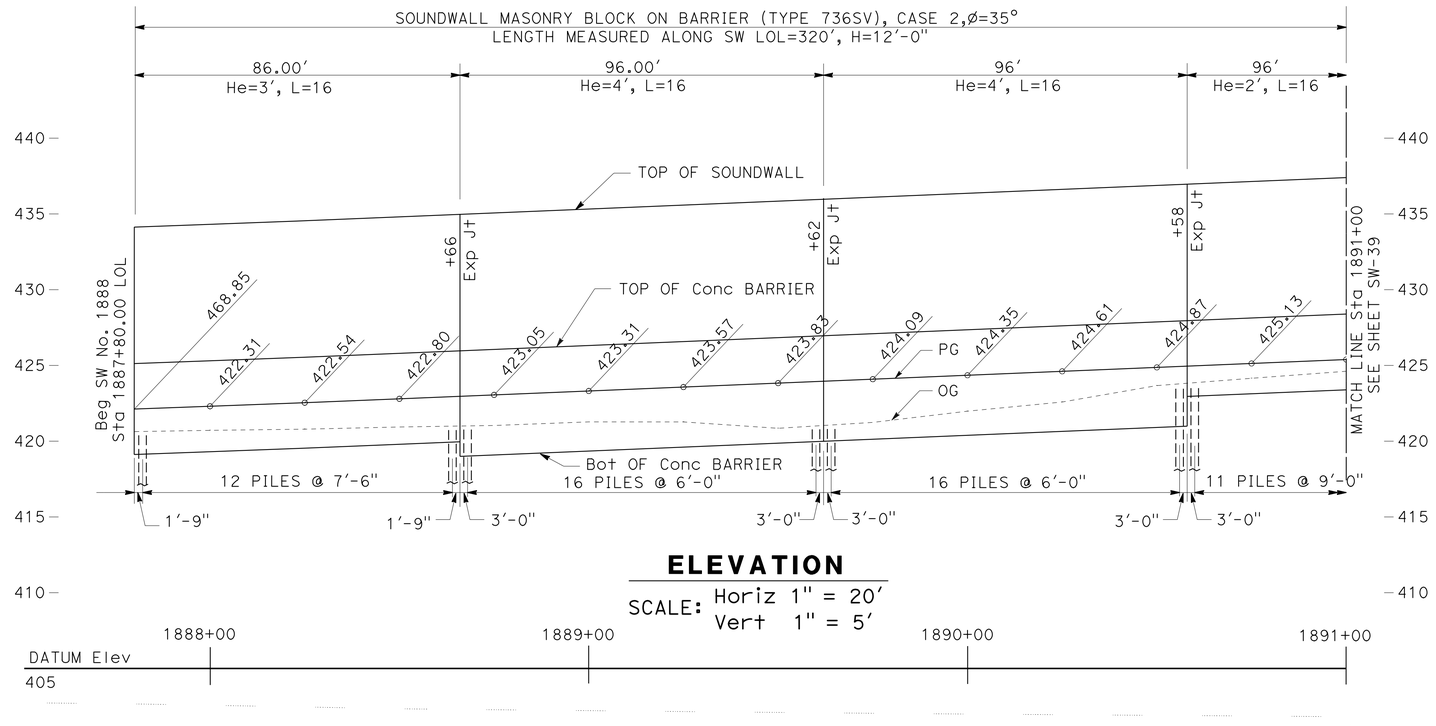
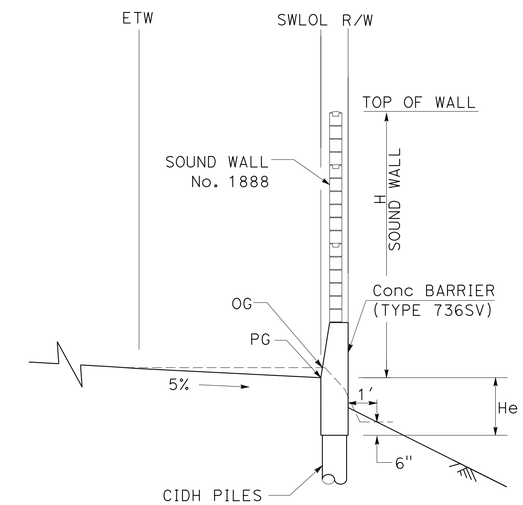


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'

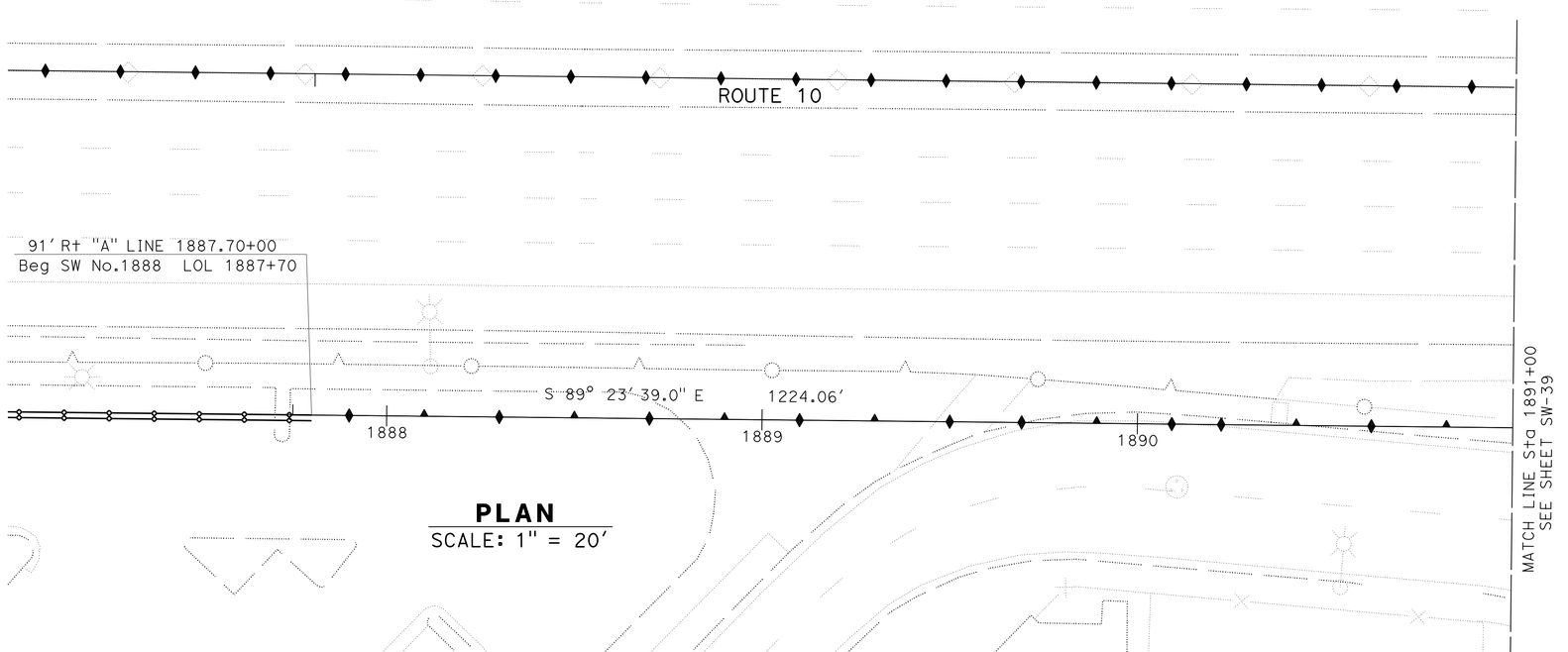


SW ON CONCRETE BARRIER
(TYPE 736S/SV) (CASE 2)

"SW1888" 1887+80.00 TO 1921+78

TYPICAL SECTION

NO SCALE



PLAN

SCALE: 1" = 20'

SOUND WALL PLAN

SOUND WALL No. 1888

SCALE AS SHOWN

APPROVED FOR SOUND WALL WORK ONLY

SW-38

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: JEROME ARABE
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	757	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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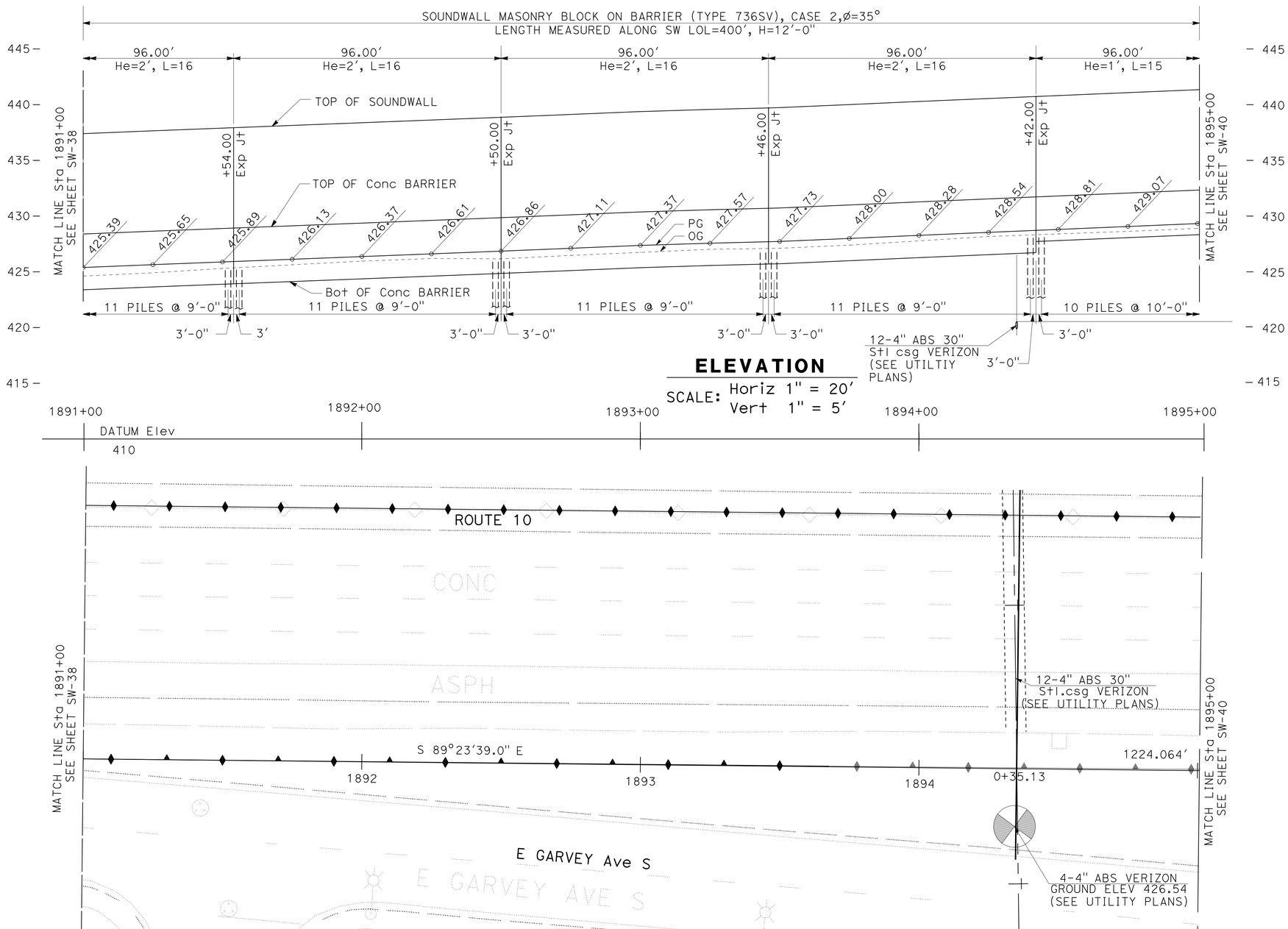


ELEVATION
SCALE: Horiz 1" = 20'
Vert 1" = 5'

PLAN
SCALE: 1" = 20'

SOUND WALL PLAN

SOUND WALL No. 1888

SCALE AS SHOWN

APPROVED FOR SOUND WALL WORK ONLY

SW-39

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® **OFFICE OF DESIGN D**

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: JEROME ARABE
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:13

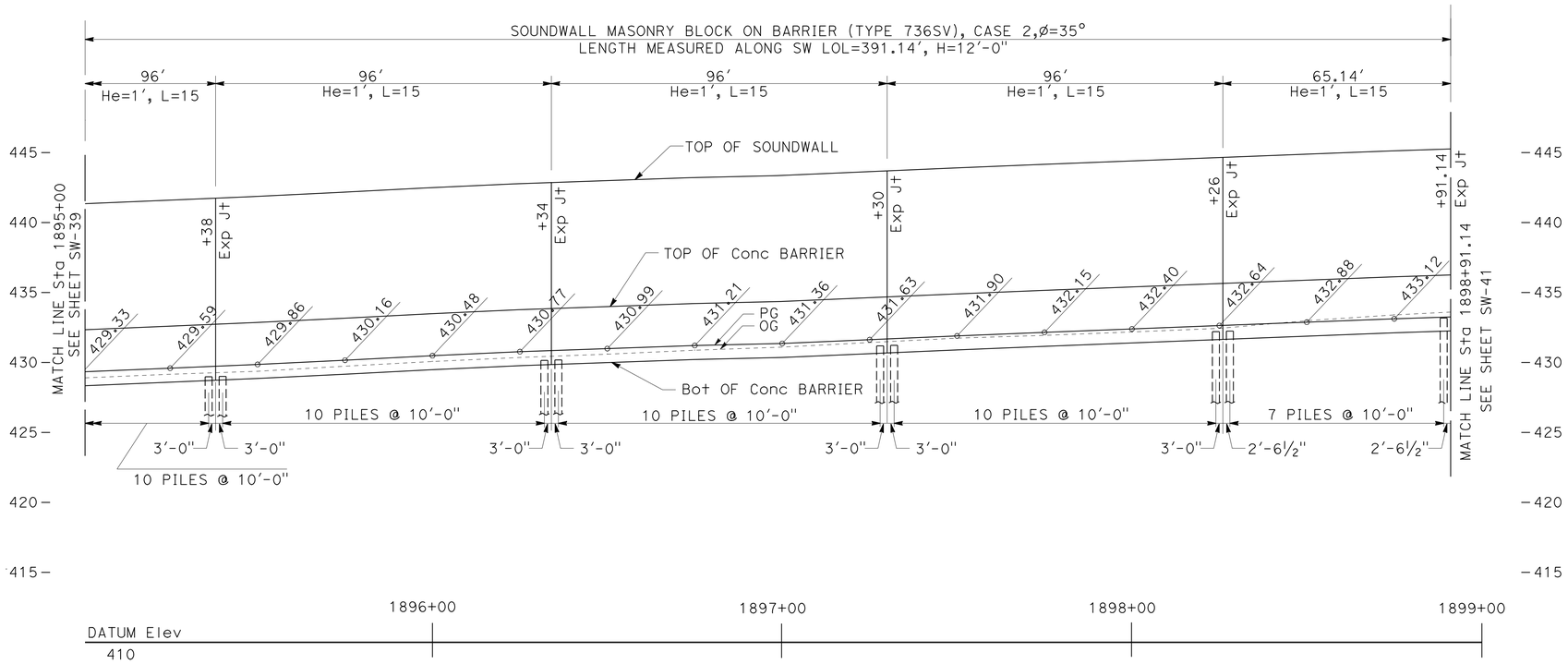
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	758	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

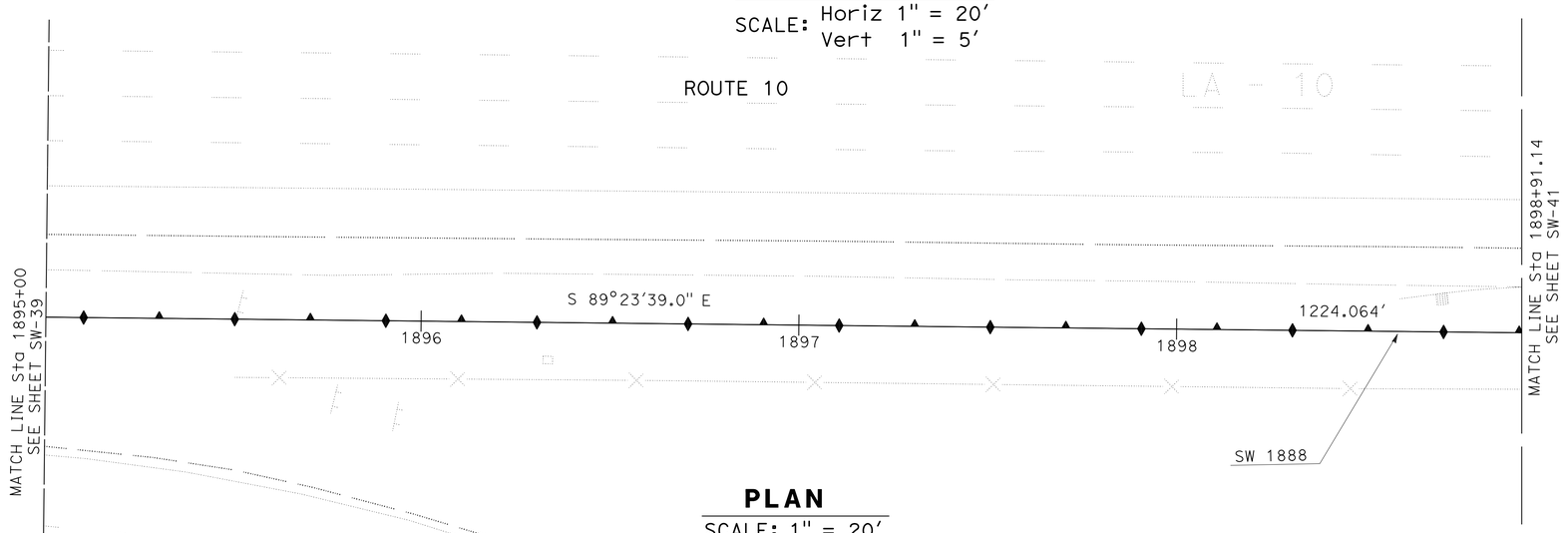
REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

SOUND WALL PLAN

SOUND WALL No. 1888

SCALE AS SHOWN

SW-40

APPROVED FOR SOUND WALL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: JEROME ARABE
REVISED BY / DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	759	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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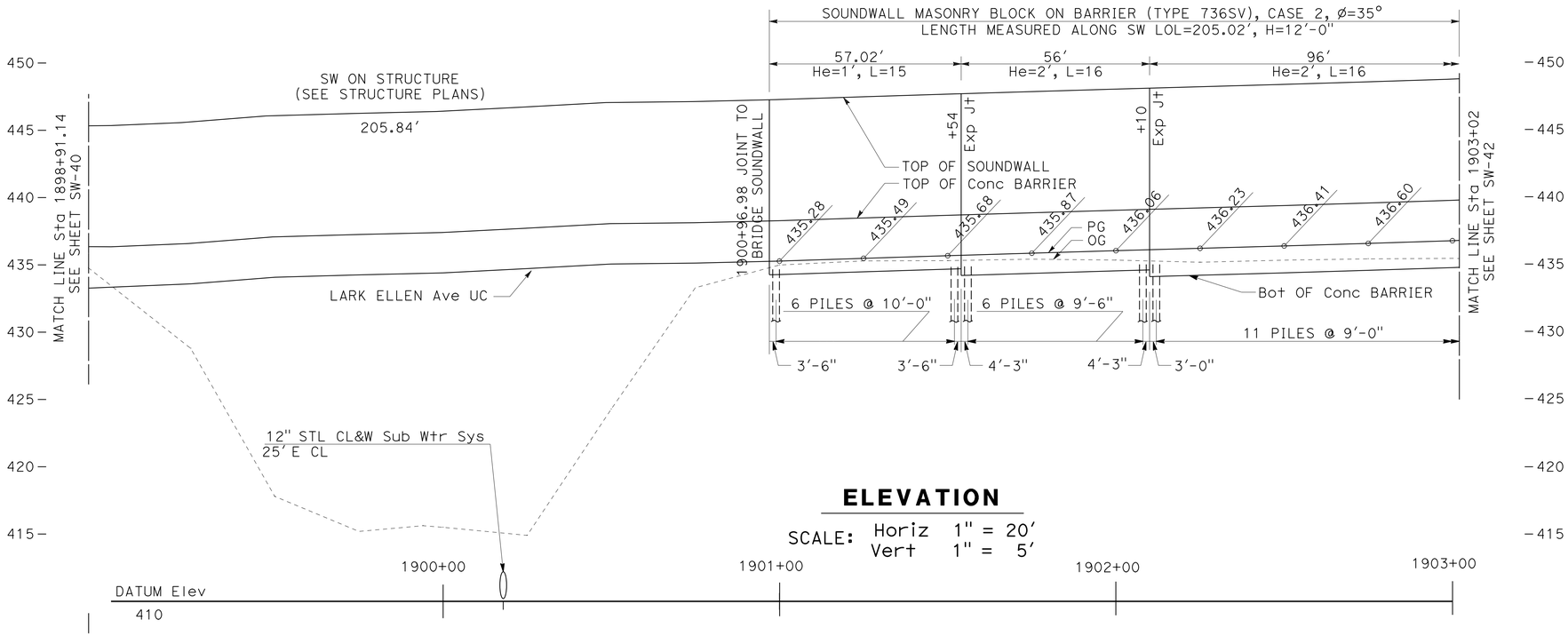
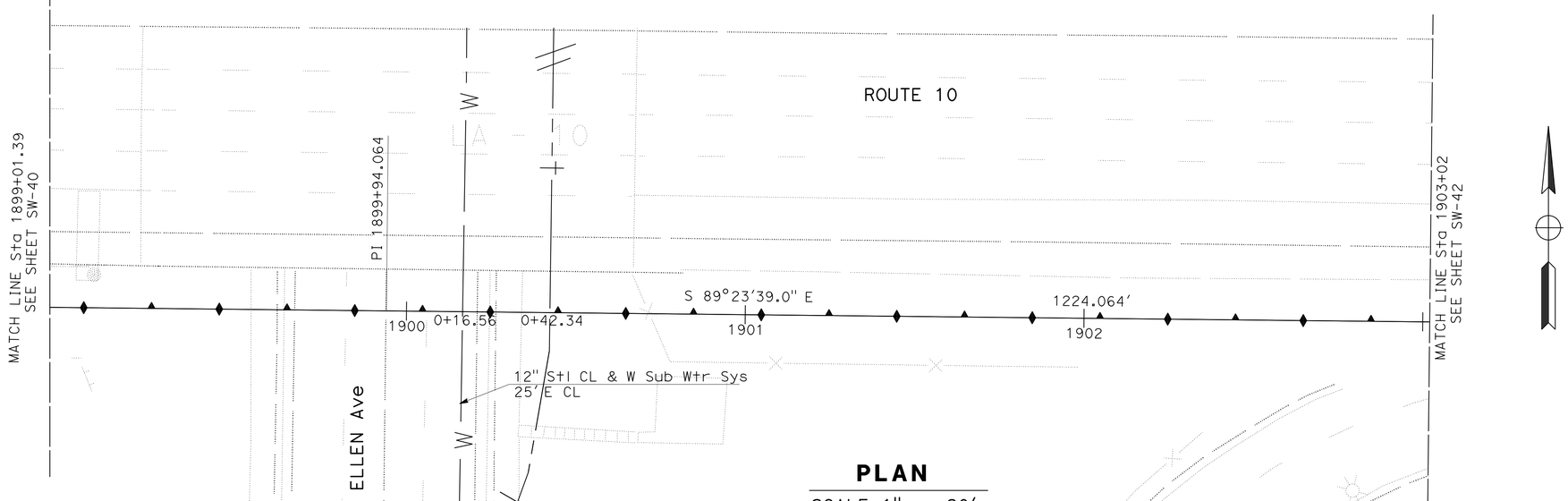


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1888

SCALE AS SHOWN

SW-41

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

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CHECKED BY: NEIL LIANG
REVISED BY / DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:45

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	760	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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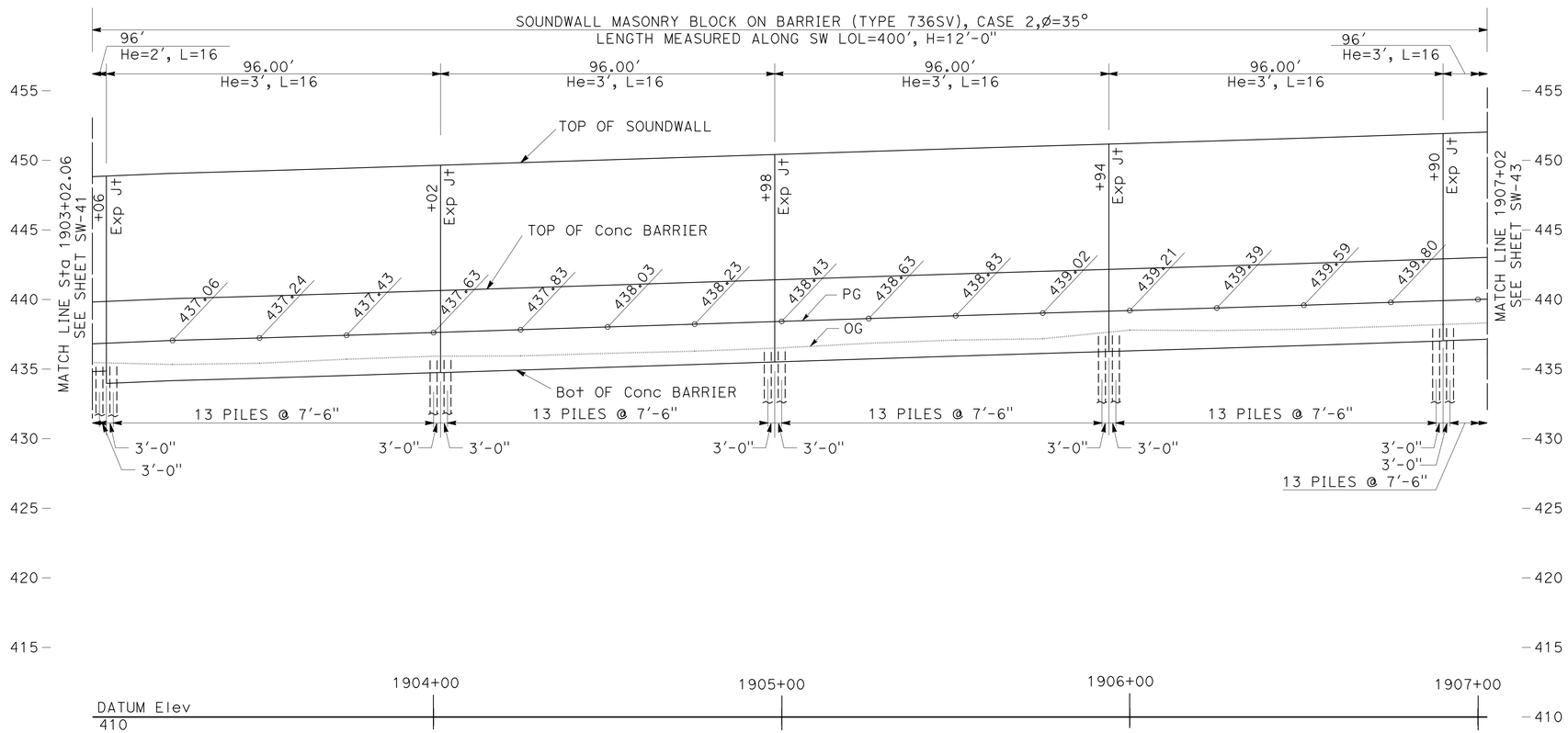
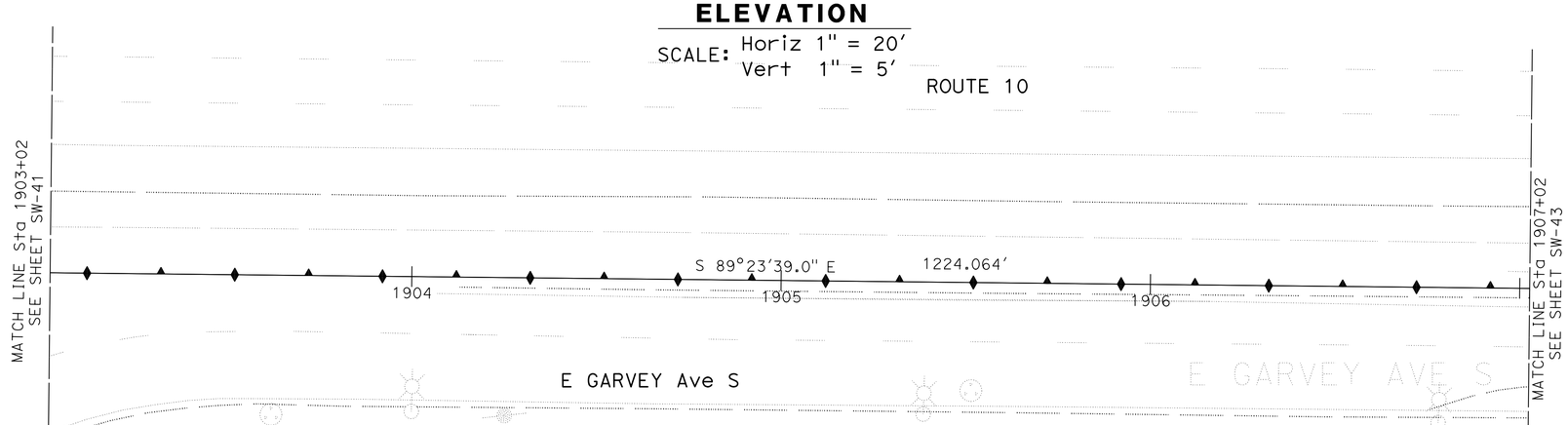


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1888

SCALE AS SHOWN

SW-42

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

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CALCULATED-DESIGNED BY: NEIL LIANG
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REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	761	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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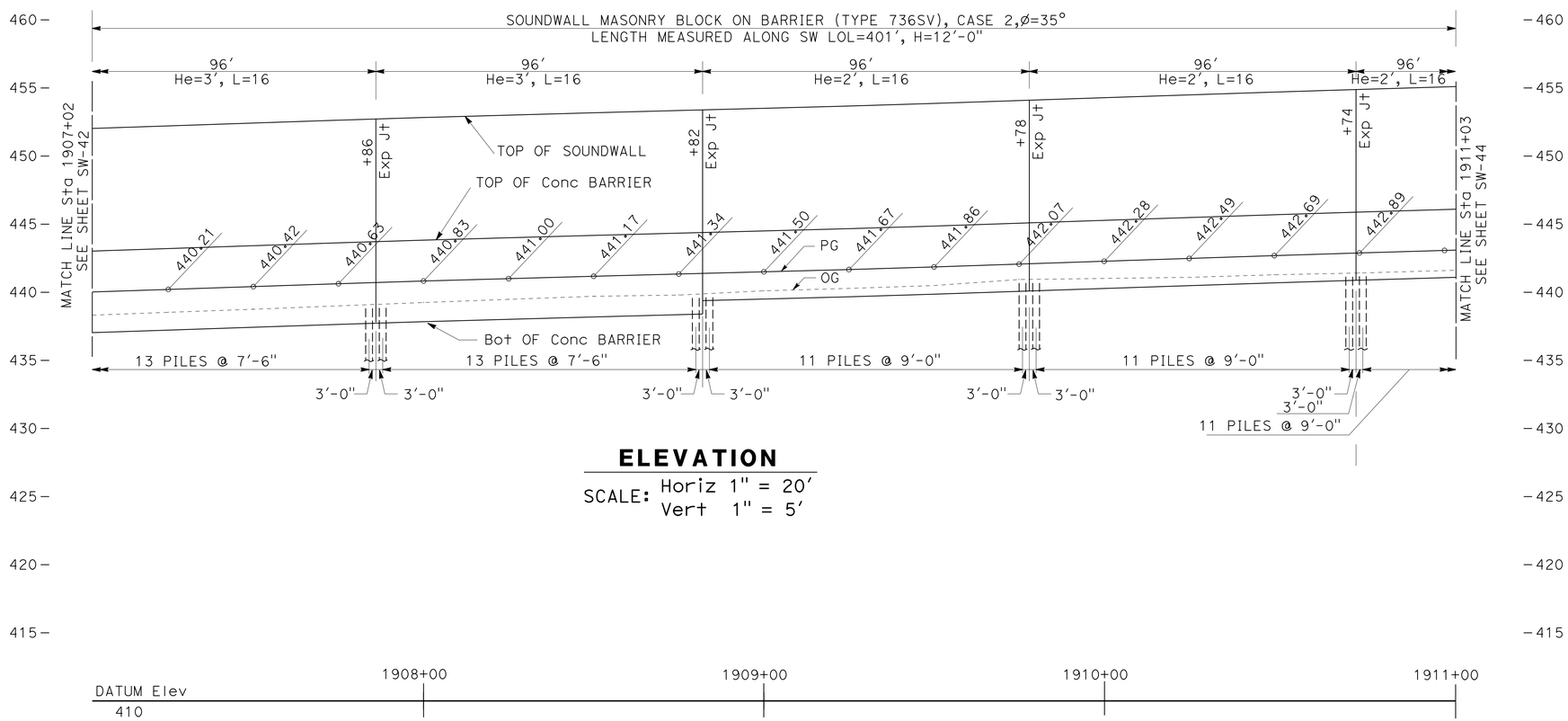
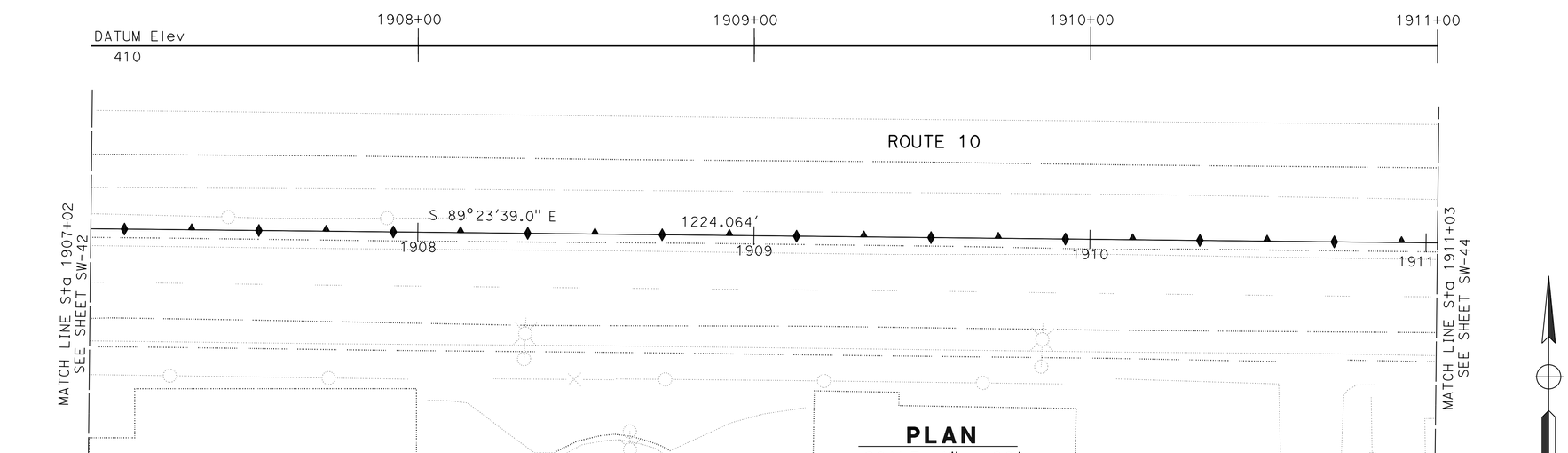


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1888

SCALE AS SHOWN

SW-43

REVISED BY | DATE REVISED
NEIL LIANG | JEROME ARABE
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR
NADER GOBRAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

LAST REVISION 00-00-00 | DATE PLOTTED => 13-JUN-2013 | TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	762	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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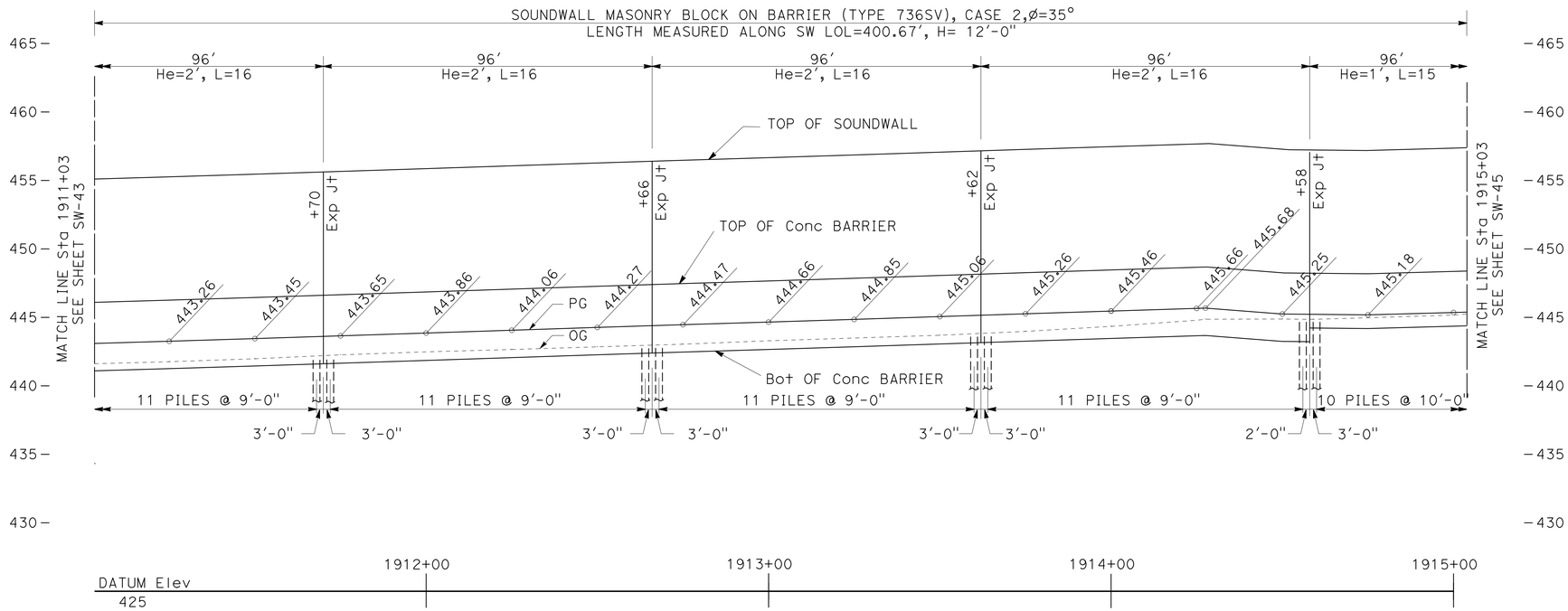
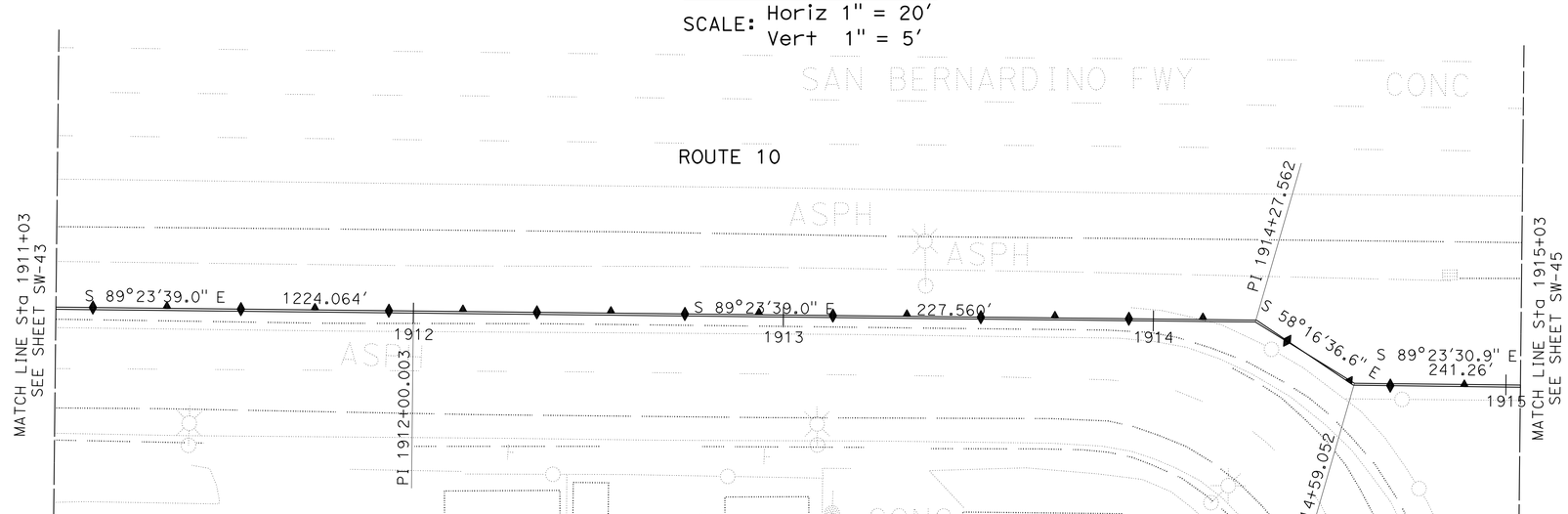


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1888

SCALE AS SHOWN

SW-44

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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CALCULATED-DESIGNED BY: NEIL LIANG
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DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	763	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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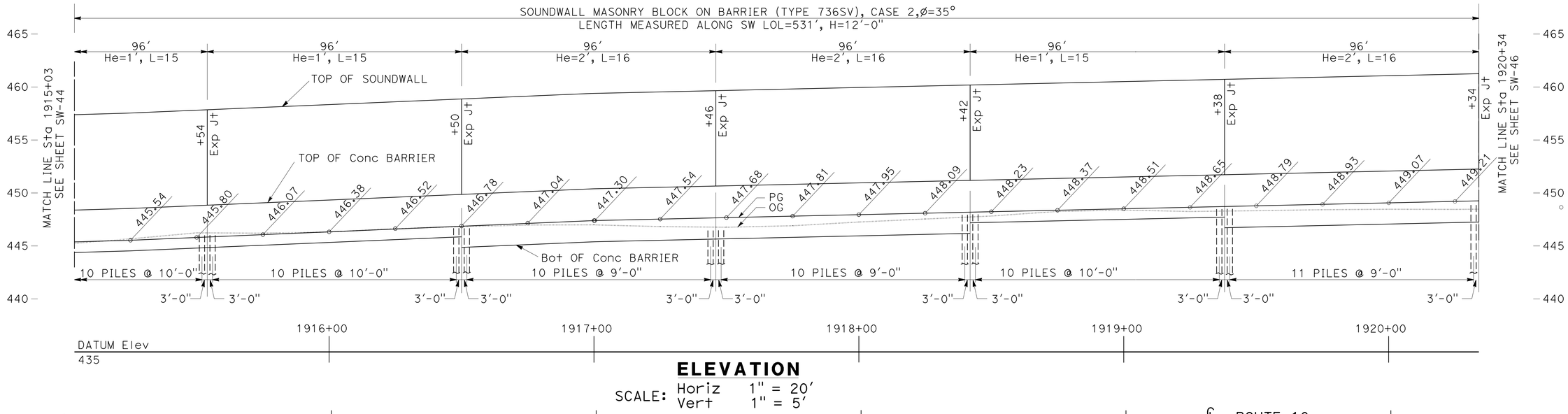
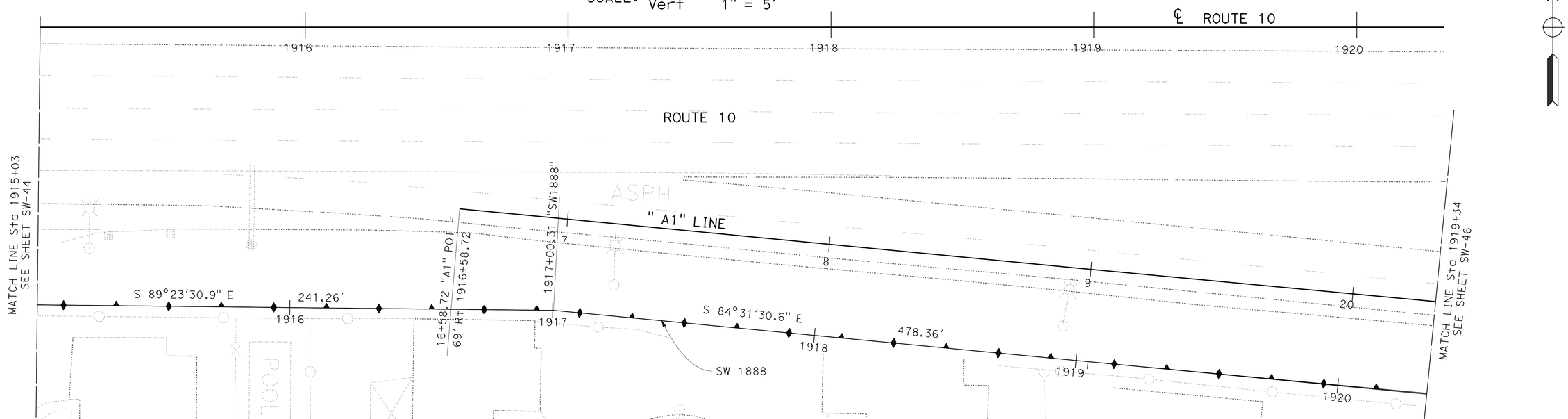


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1888

SCALE AS SHOWN

SW-45

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

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LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	764	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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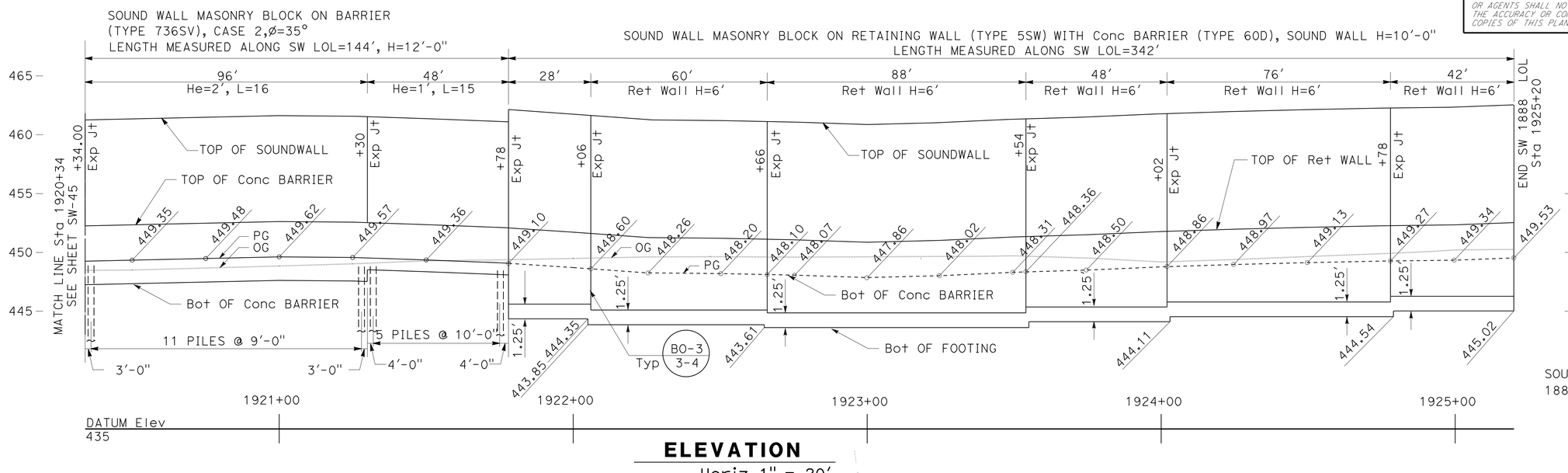
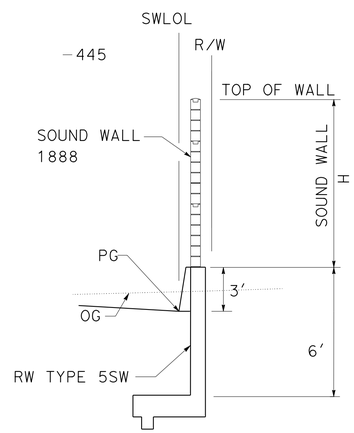


ELEVATION

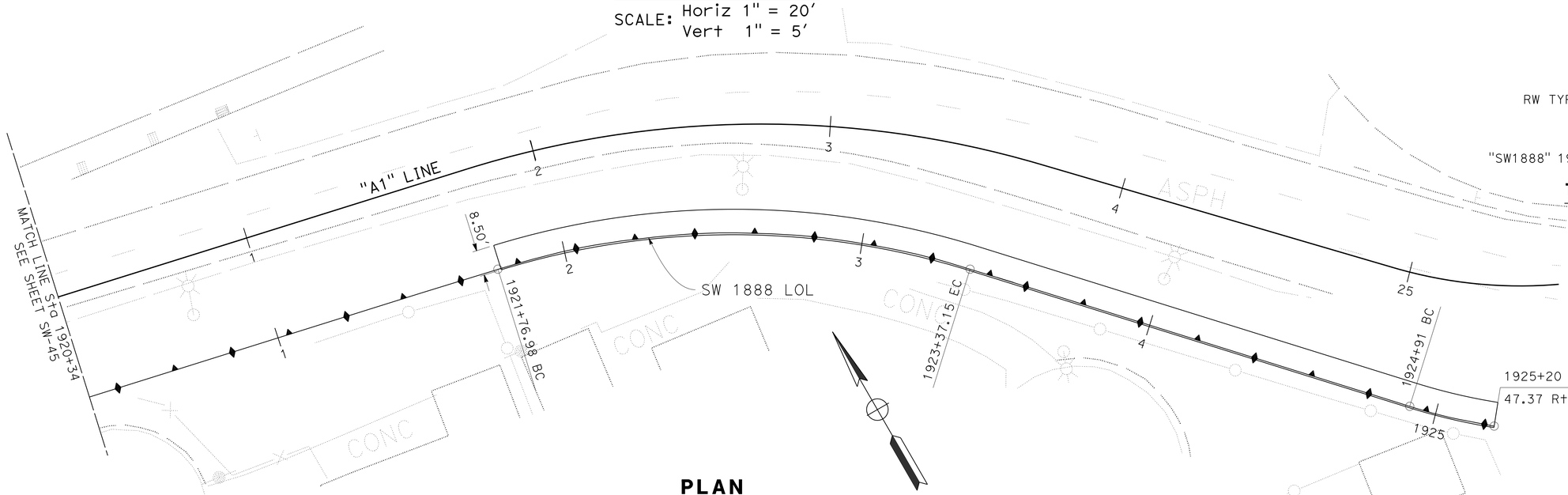
SCALE: Horiz 1" = 20'
Vert 1" = 5'



"SW1888" 1921+78 TO "SW1888" 1925+20

TYPICAL SECTION

NO SCALE



PLAN

SCALE: Horiz 1" = 20'

SOUND WALL PLAN

SOUND WALL No. 1888

SCALE AS SHOWN

SW-46

APPROVED FOR SOUND WALL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: JEROME ARABE
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	765	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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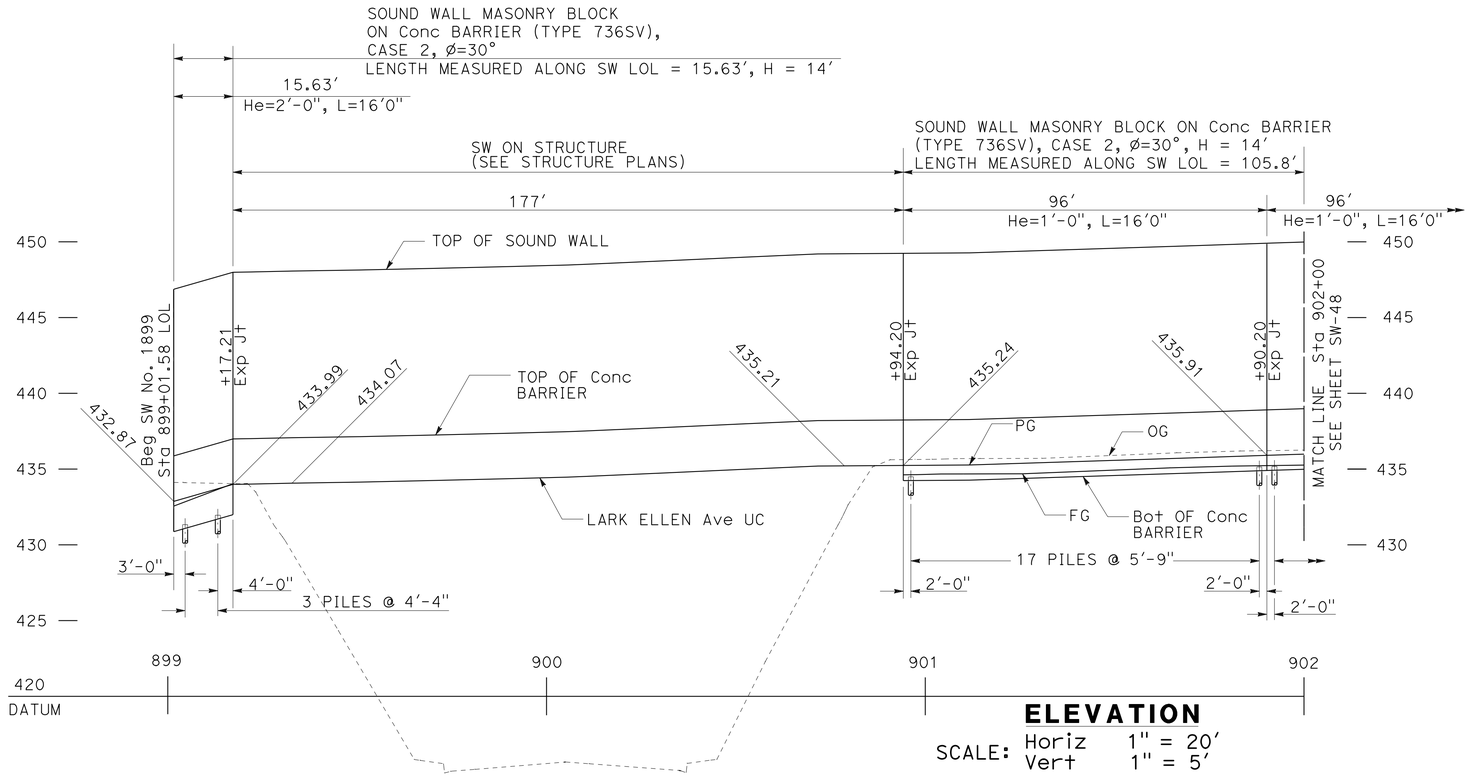
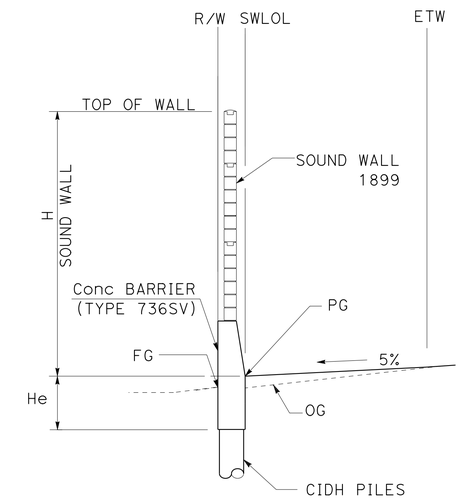


ELEVATION

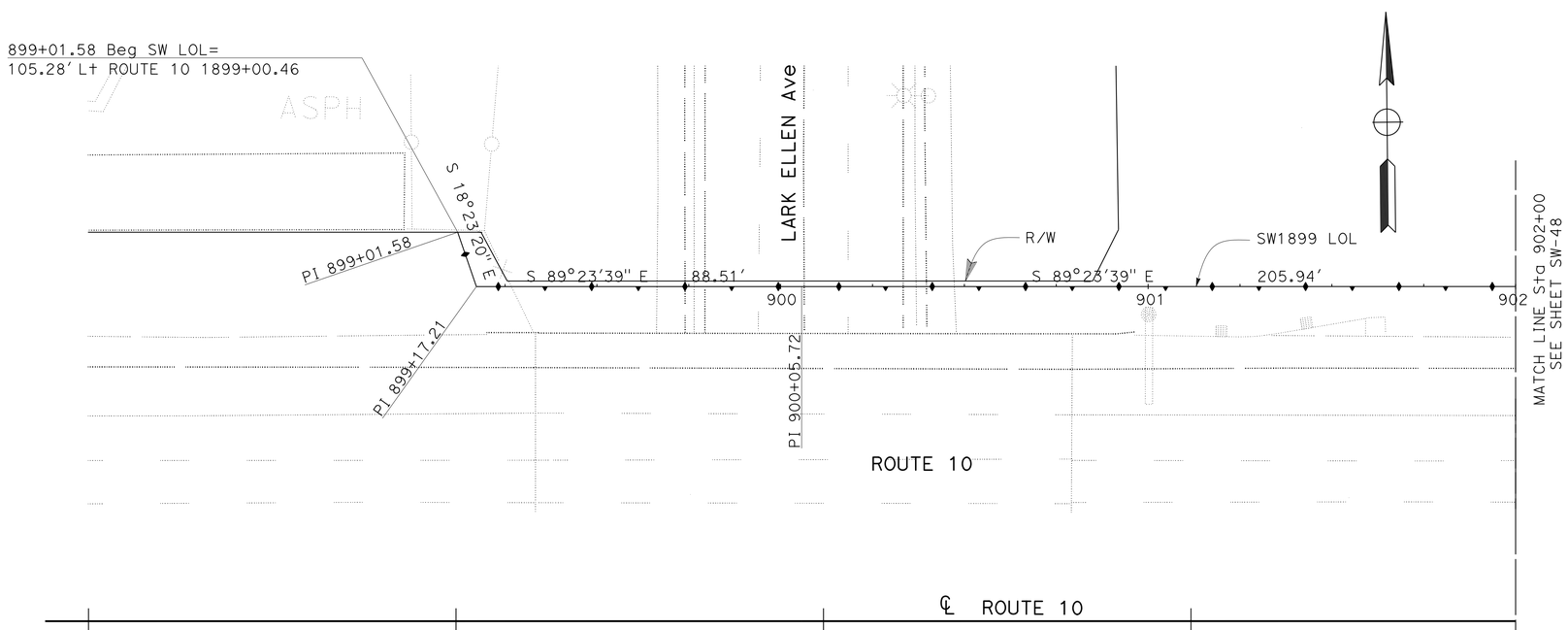
SCALE: Horiz 1" = 20'
Vert 1" = 5'



"SW1899" 899+01.58 TO "SW1899" 899+17.21
"SW1899" 900+81.64 TO "SW1899" 923+02.20

TYPICAL SECTION

NO SCALE



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1899

SCALE AS SHOWN

SW-47

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MINH TU
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	766	1475

6-4-12
REGISTERED CIVIL ENGINEER DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
MOHAMED GHANNOUM
No. 72051
Exp. 6/30/14
CIVIL
STATE OF CALIFORNIA

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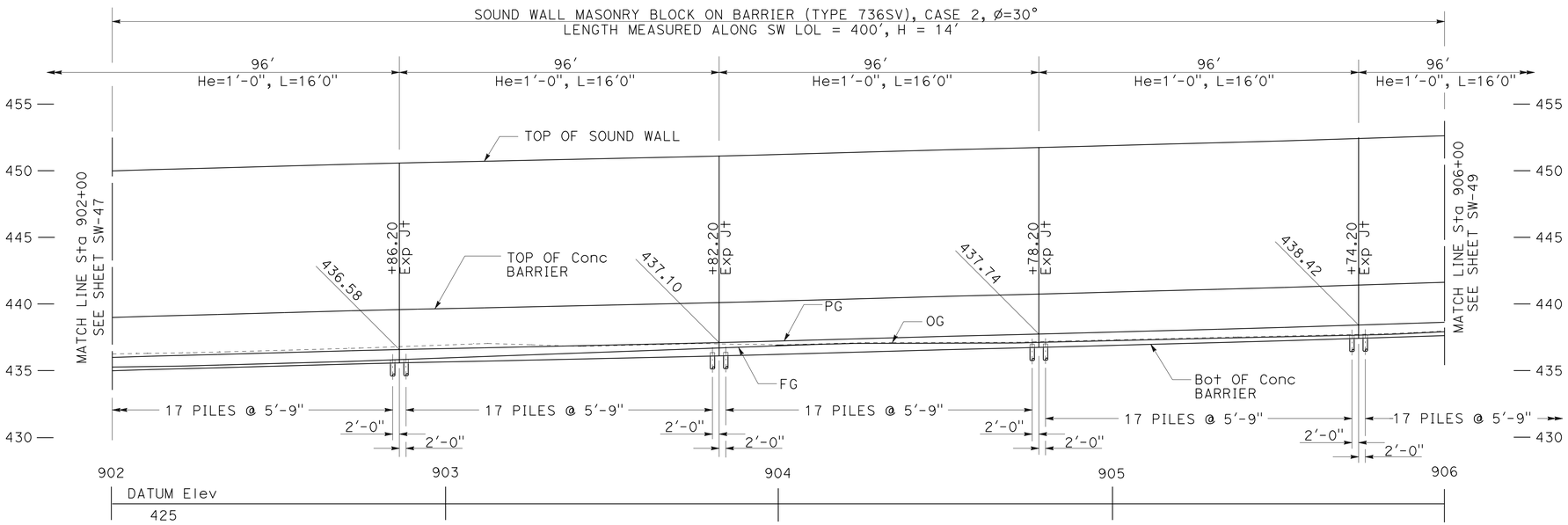
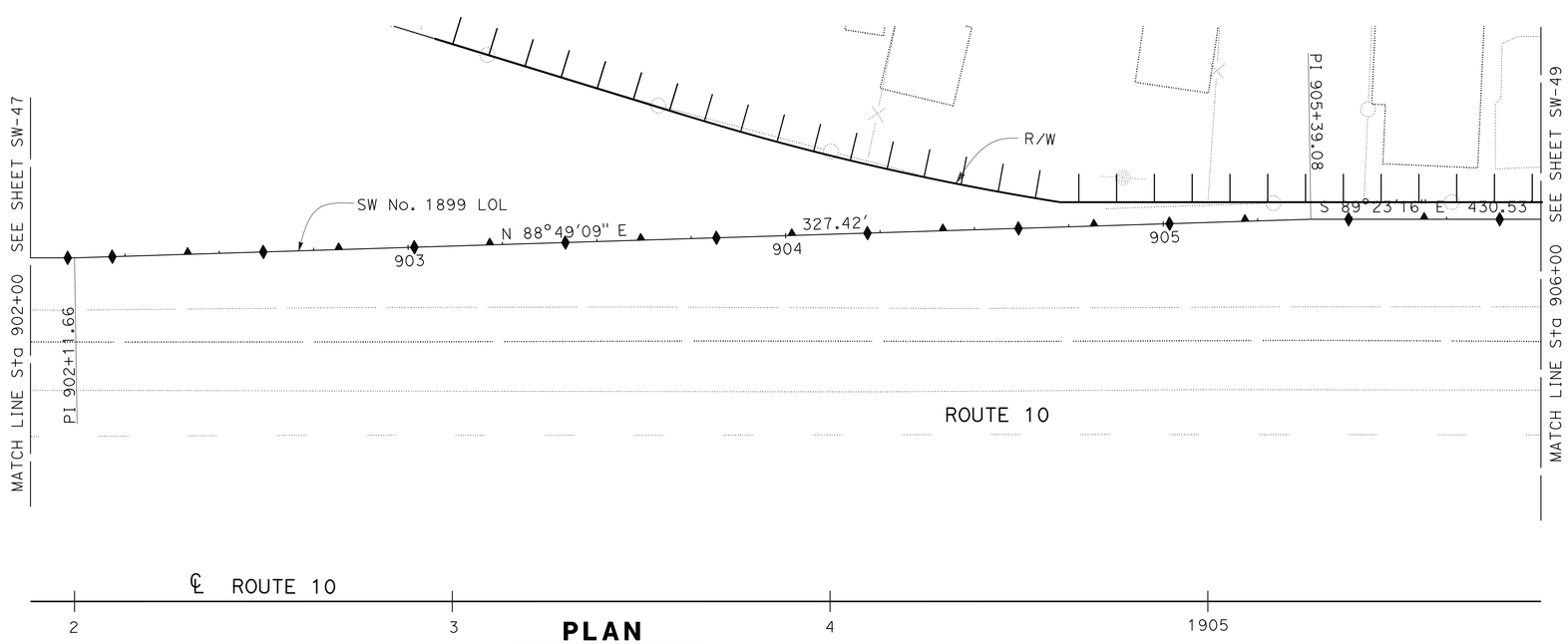


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1899

SCALE AS SHOWN

SW-48

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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CALCULATED-DESIGNED BY: MINH TU
CHECKED BY: JEROME ARABE
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	767	1475

REGISTERED CIVIL ENGINEER 04-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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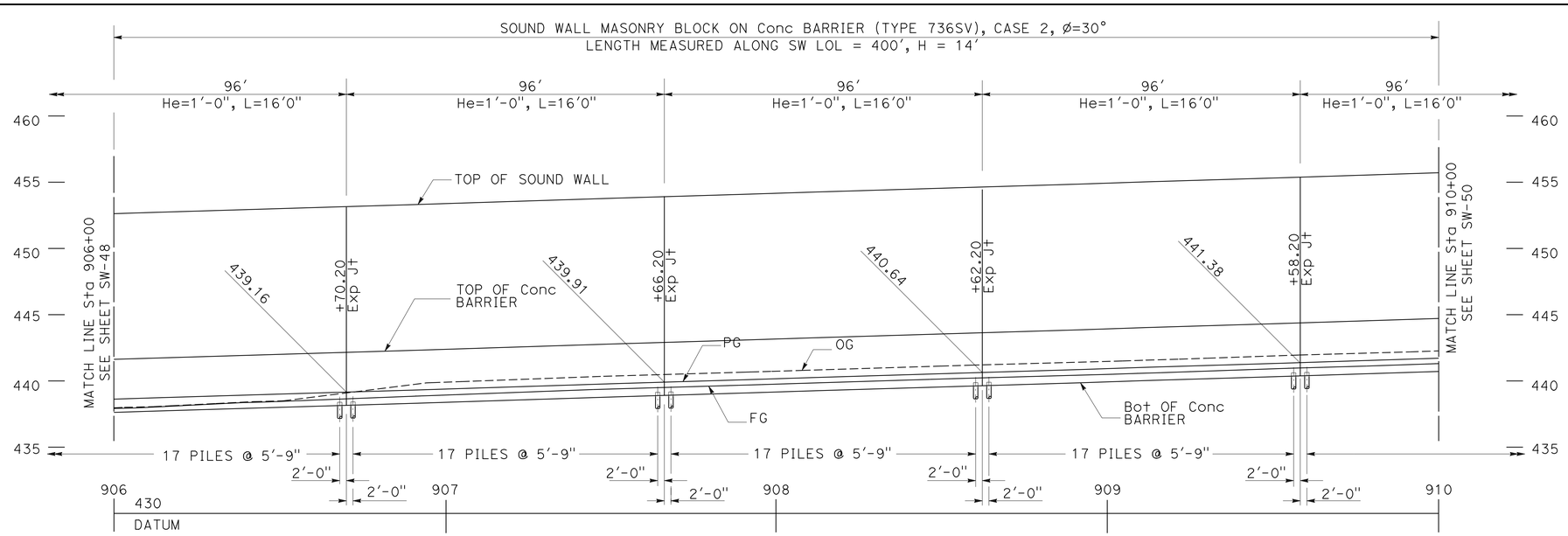
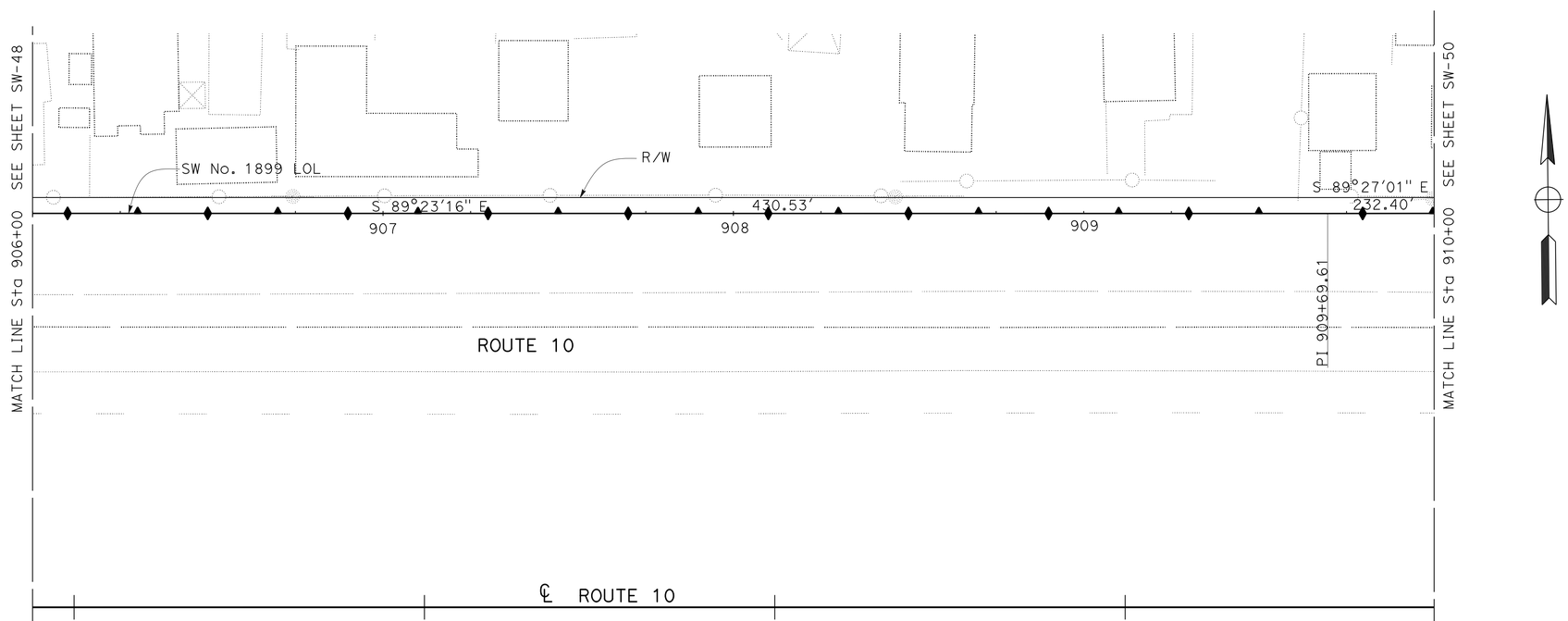


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

SOUND WALL PLAN

SOUND WALL No. 1899

SCALE AS SHOWN

APPROVED FOR SOUND WALL WORK ONLY

SW-49

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: MINH TU
CHECKED BY: JEROME ARABE
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	768	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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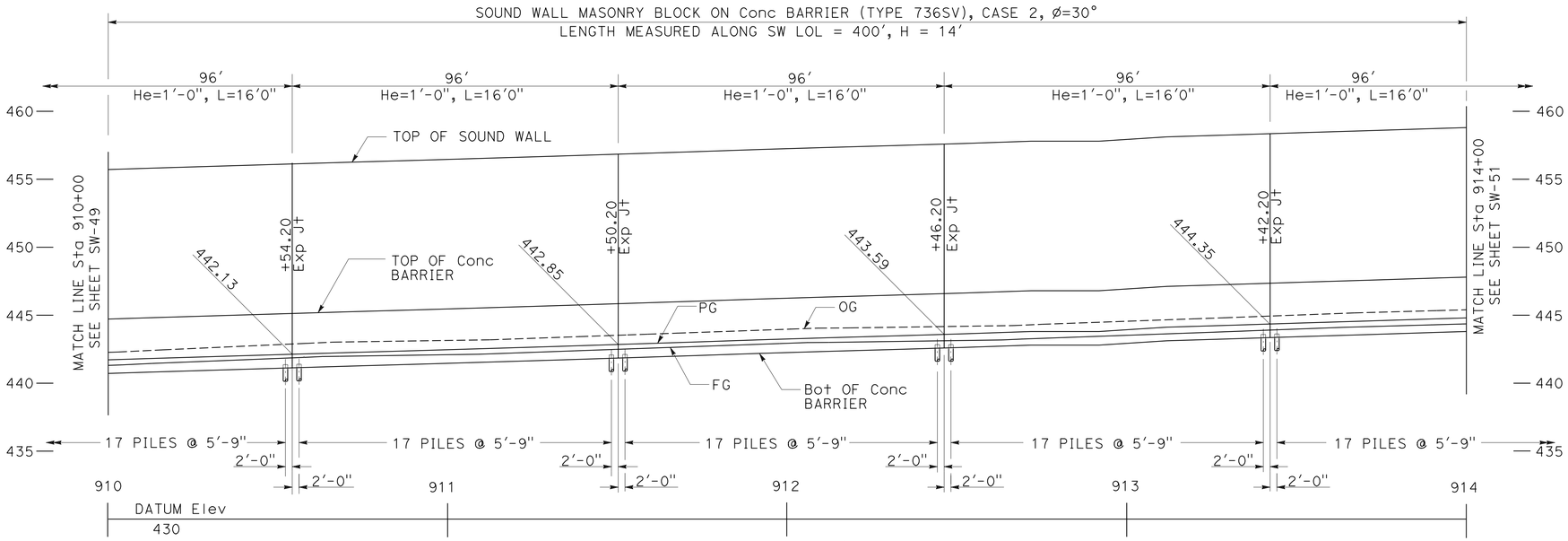
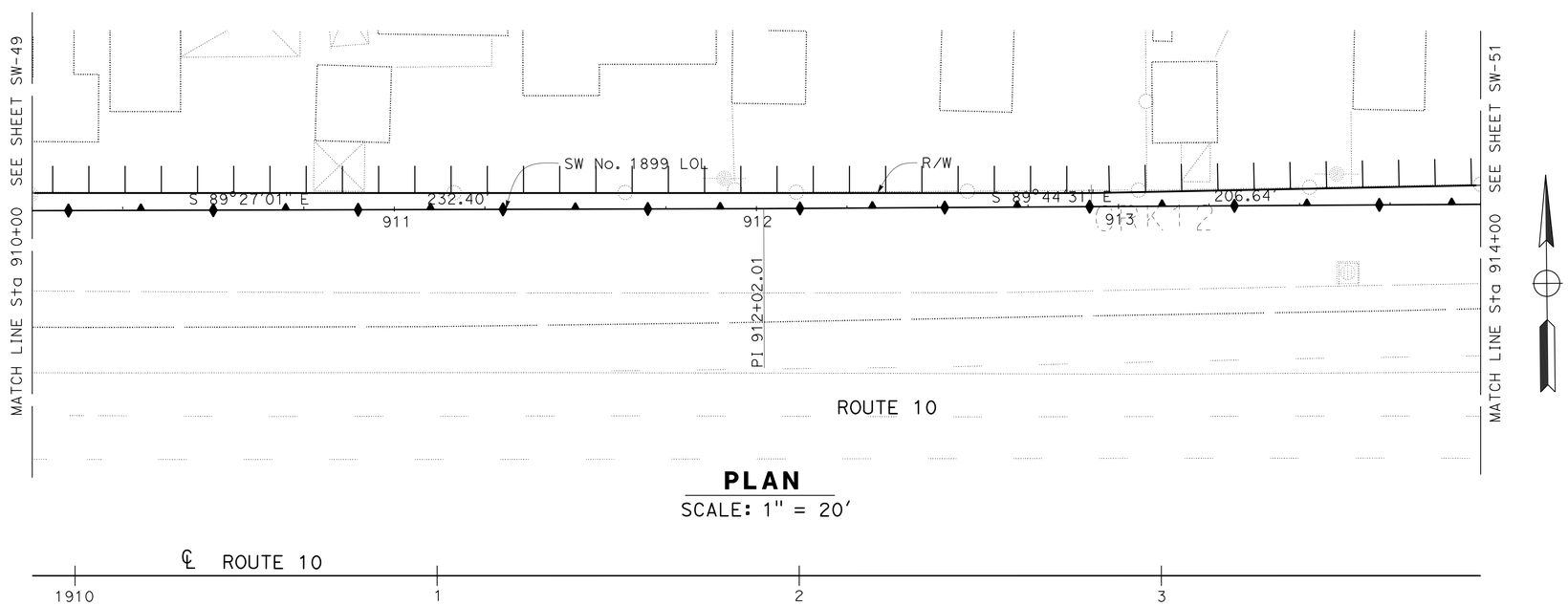


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

SOUND WALL PLAN

SOUND WALL No. 1899

SCALE AS SHOWN

APPROVED FOR SOUND WALL WORK ONLY

SW-50

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: MINH TU
CHECKED BY: JEROME ARABE
REVISED BY / DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:45

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	769	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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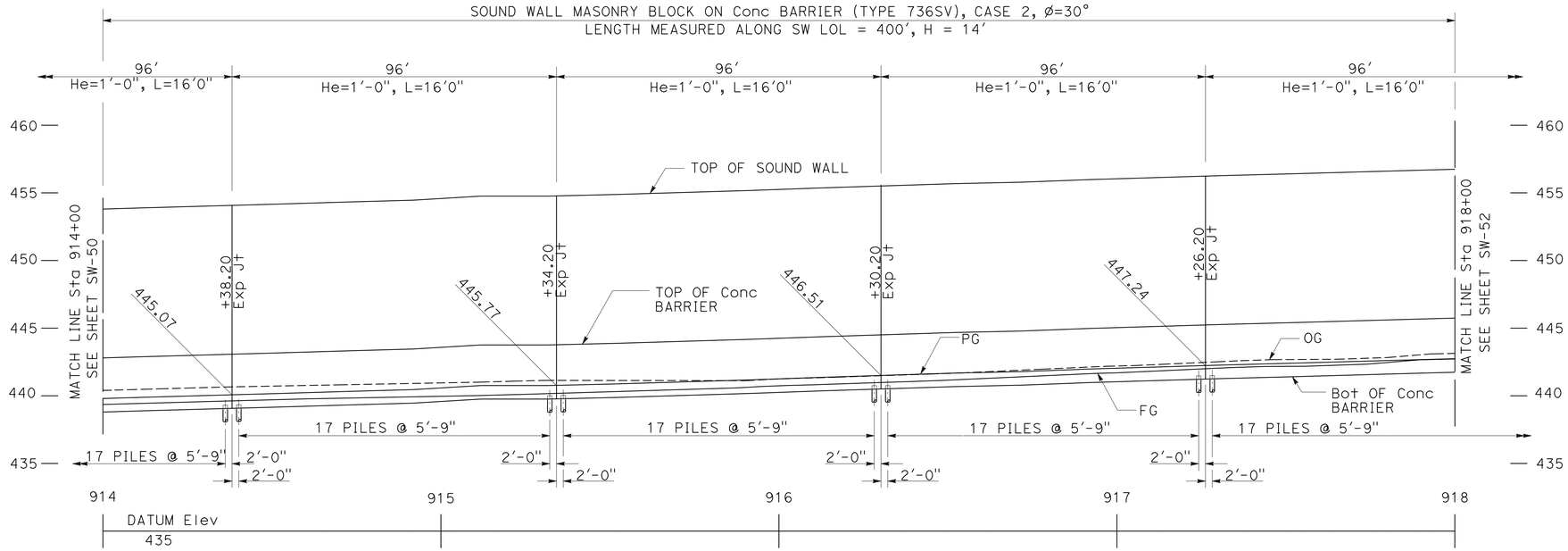
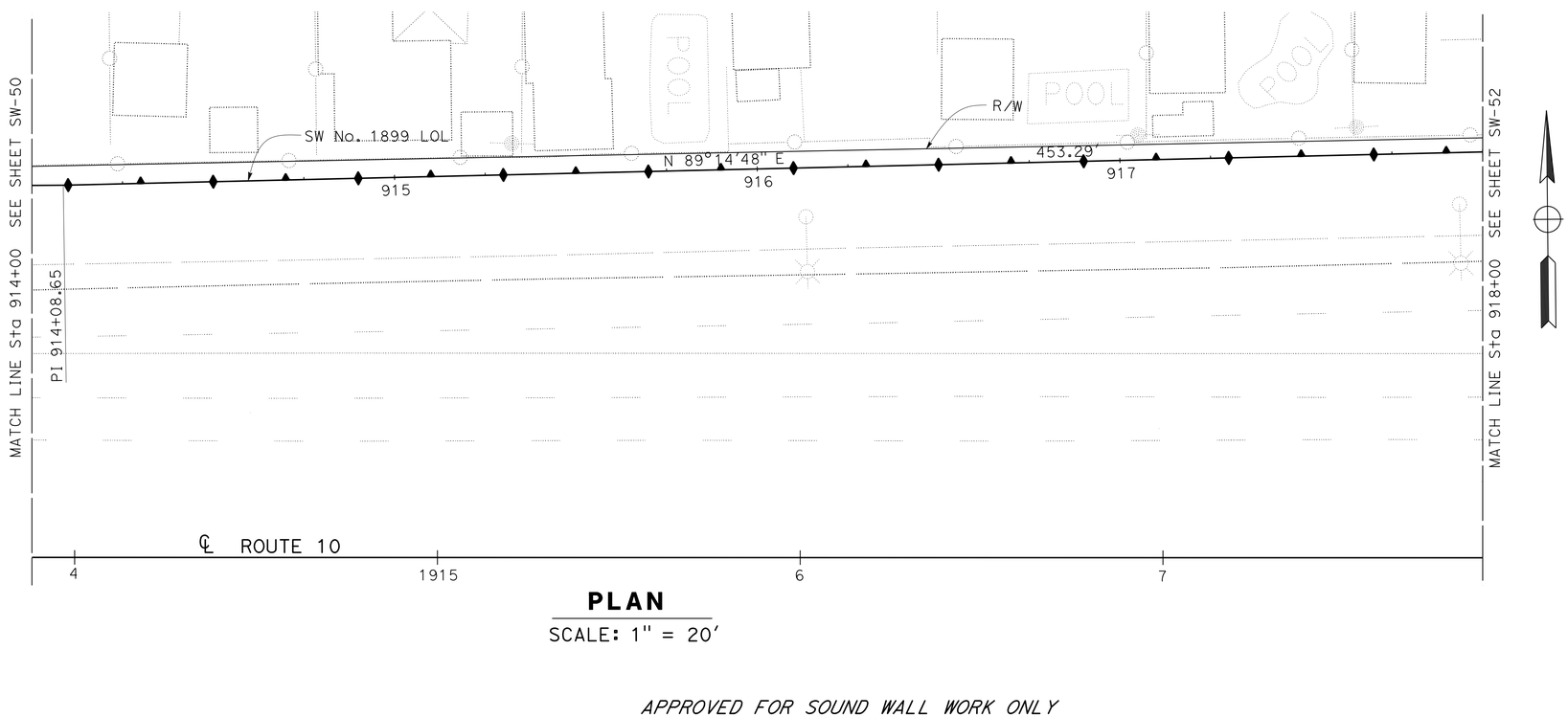


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

SOUND WALL PLAN

SOUND WALL No. 1899

SCALE AS SHOWN

APPROVED FOR SOUND WALL WORK ONLY

SW-51

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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FUNCTIONAL SUPERVISOR: NADER GOBRAN
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	770	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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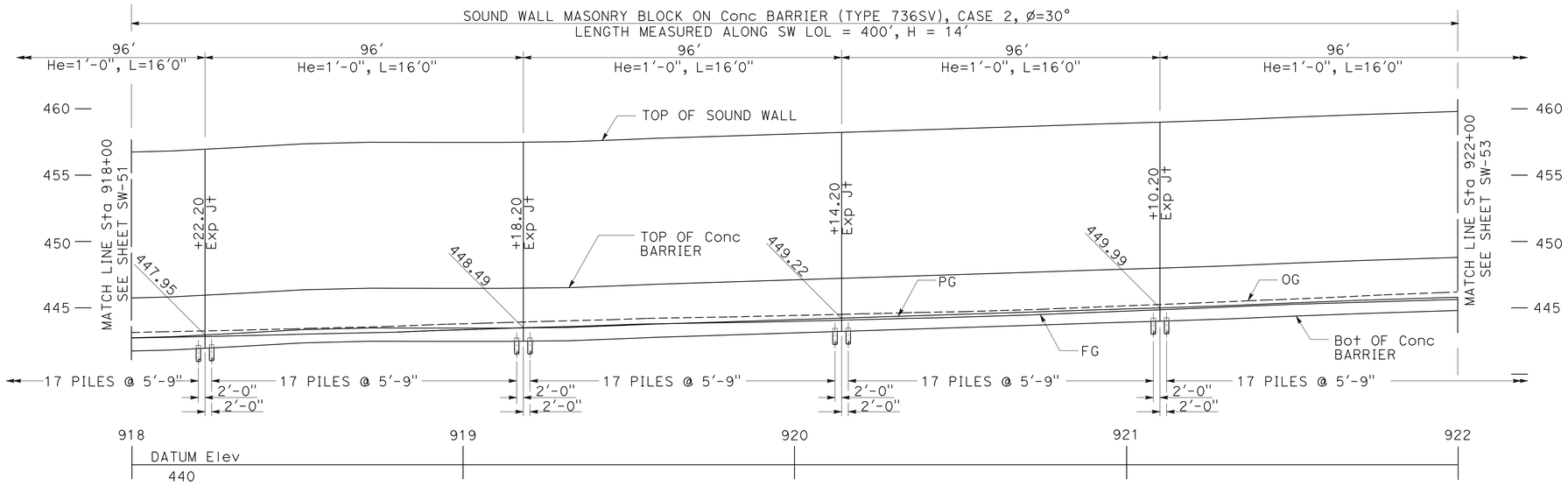
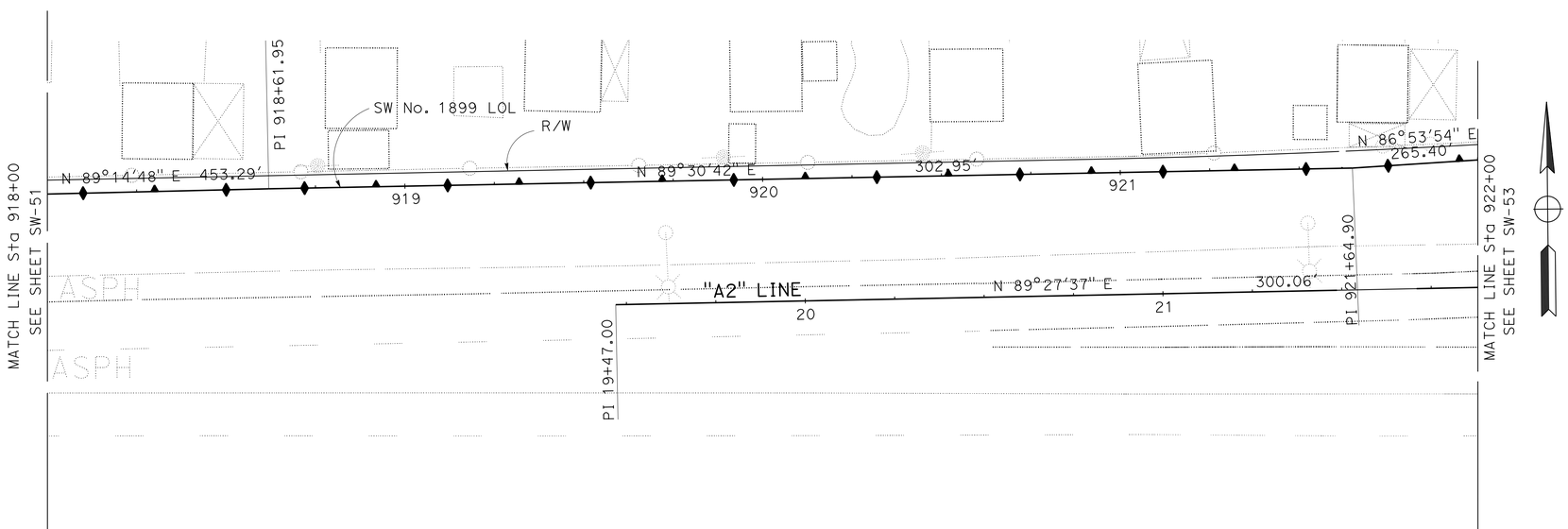


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1899

SCALE AS SHOWN

SW-52

REVISED BY | DATE REVISED
MINH TU | JEROME ARABE
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR
NADER GOBRAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

LAST REVISION 00-00-00 | DATE PLOTTED => 13-JUN-2013 | TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	771	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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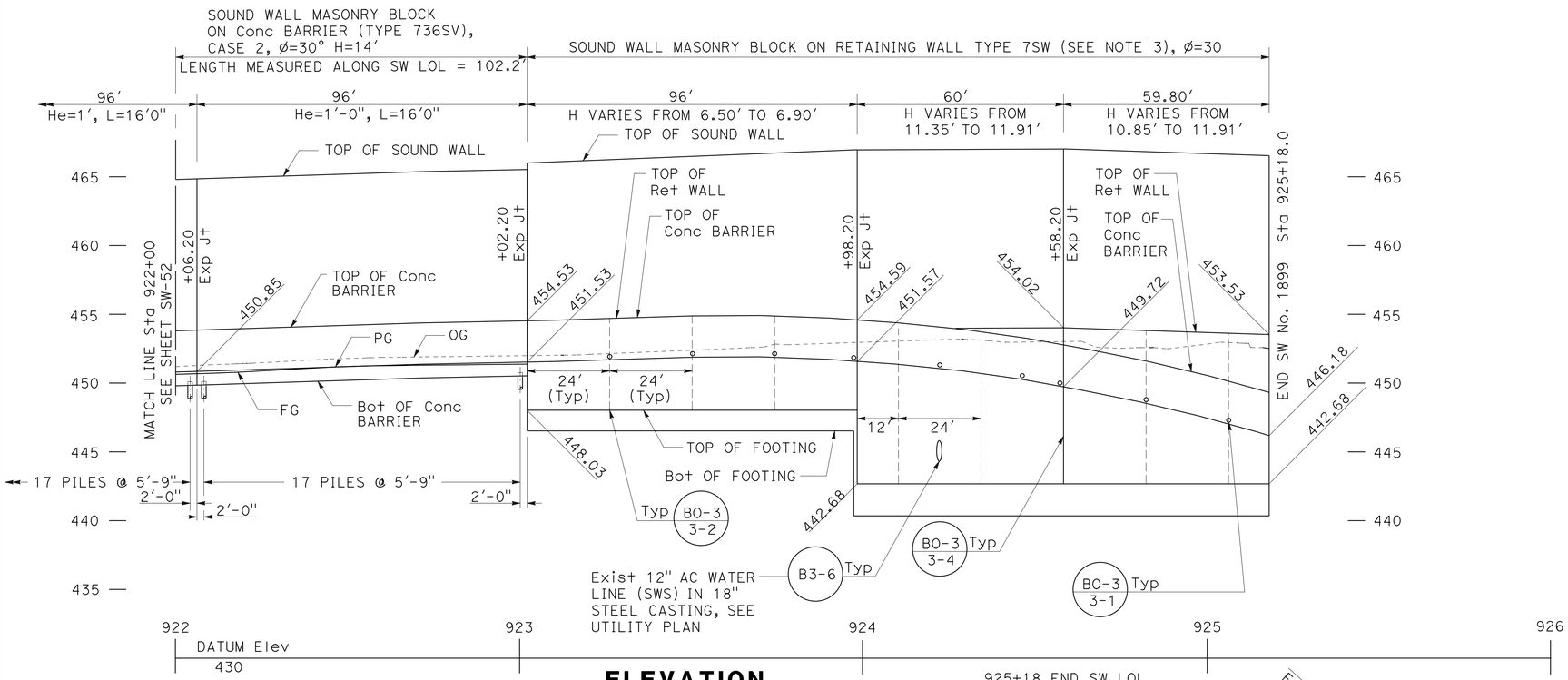
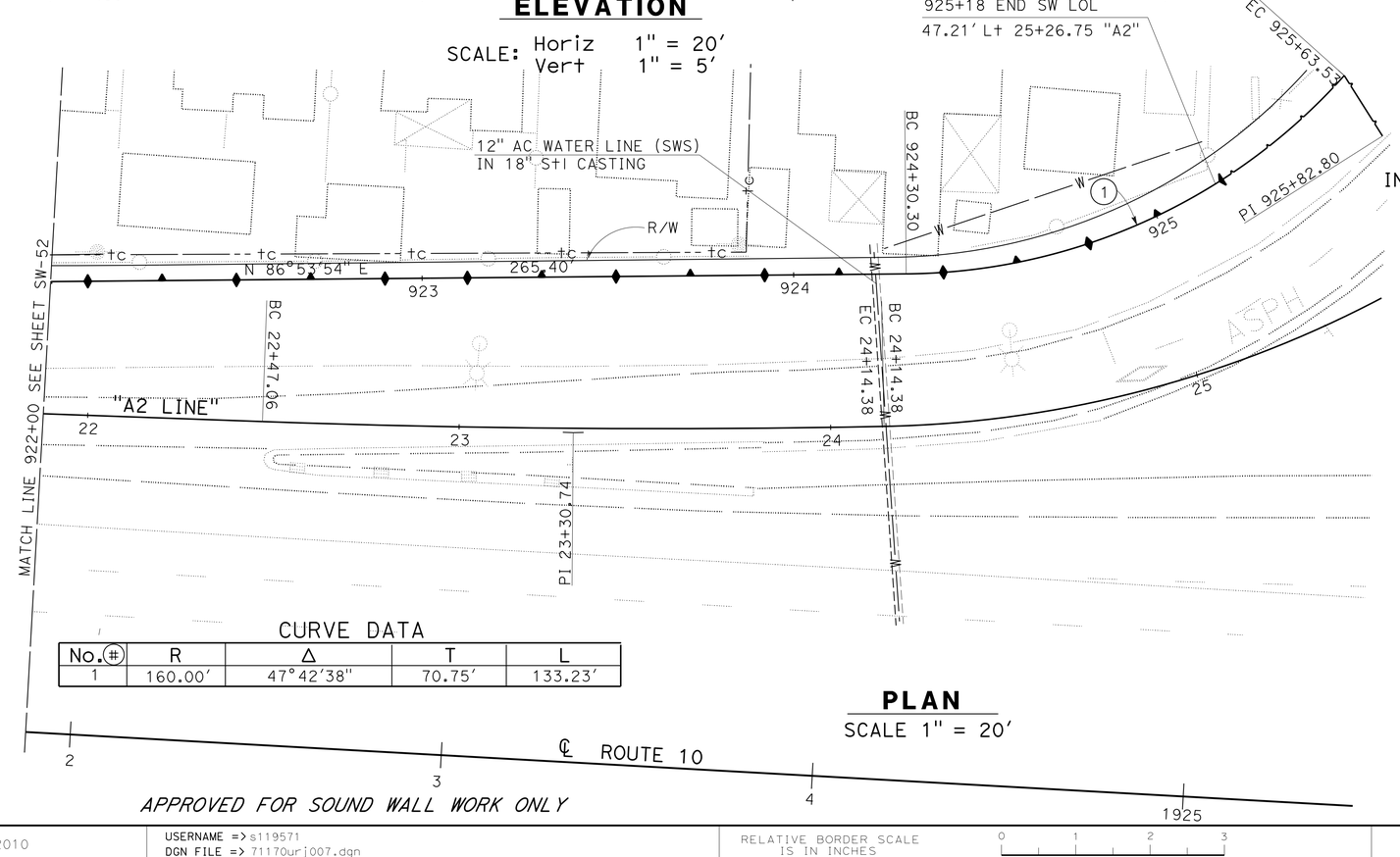


ELEVATION

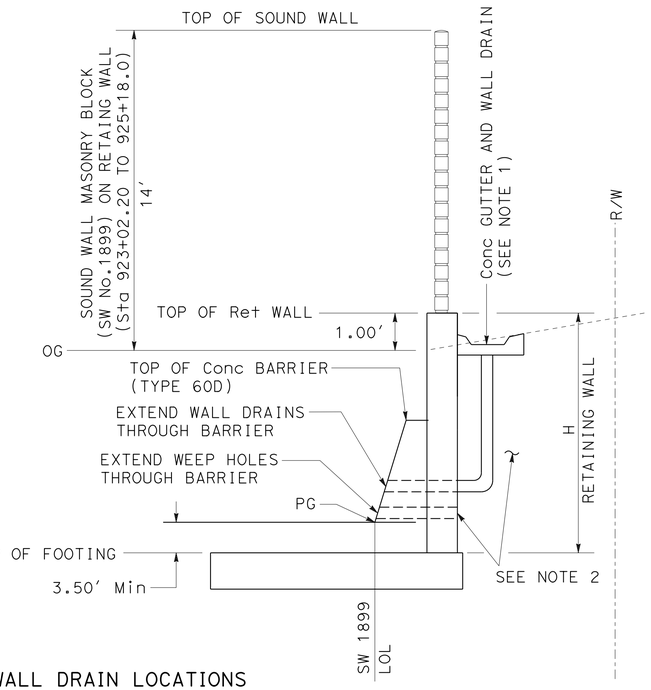
SCALE: Horiz 1″ = 20′
Vert 1″ = 5′



PLAN

SCALE 1″ = 20′

APPROVED FOR SOUND WALL WORK ONLY



INTERMEDIATE WALL DRAIN LOCATIONS
Sta 924+46.2
Sta 924+82.2
Sta 925+42.0

END WALL DRAIN LOCATION
Sta 923+03.2

"RW No. 1923 LOL" Sta 923+02.00 TO 925+82.8

TYPICAL SECTION

NO SCALE

NOTES:

1. FOR DETAILS NOT SHOWN, SEE STANDARD PLAN B3-9.
2. FOR DETAILS NOT SHOWN, SEE STANDARD PLAN BO-3 (BRIDGE DETAIL 3-1).
3. FOR DETAILS NOT SHOWN, SEE RETAINING WALL TYPE 7SW DETAILS NO.1 AND NO.2 IN STANDARD DRAWING FILE NO. XS14-380-1.

SOUND WALL PLAN

SOUND WALL No. 1899

SCALE AS SHOWN

SW-53

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MINH TU
REVISED BY / DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	772	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp 6/30/14 CIVIL STATE OF CALIFORNIA

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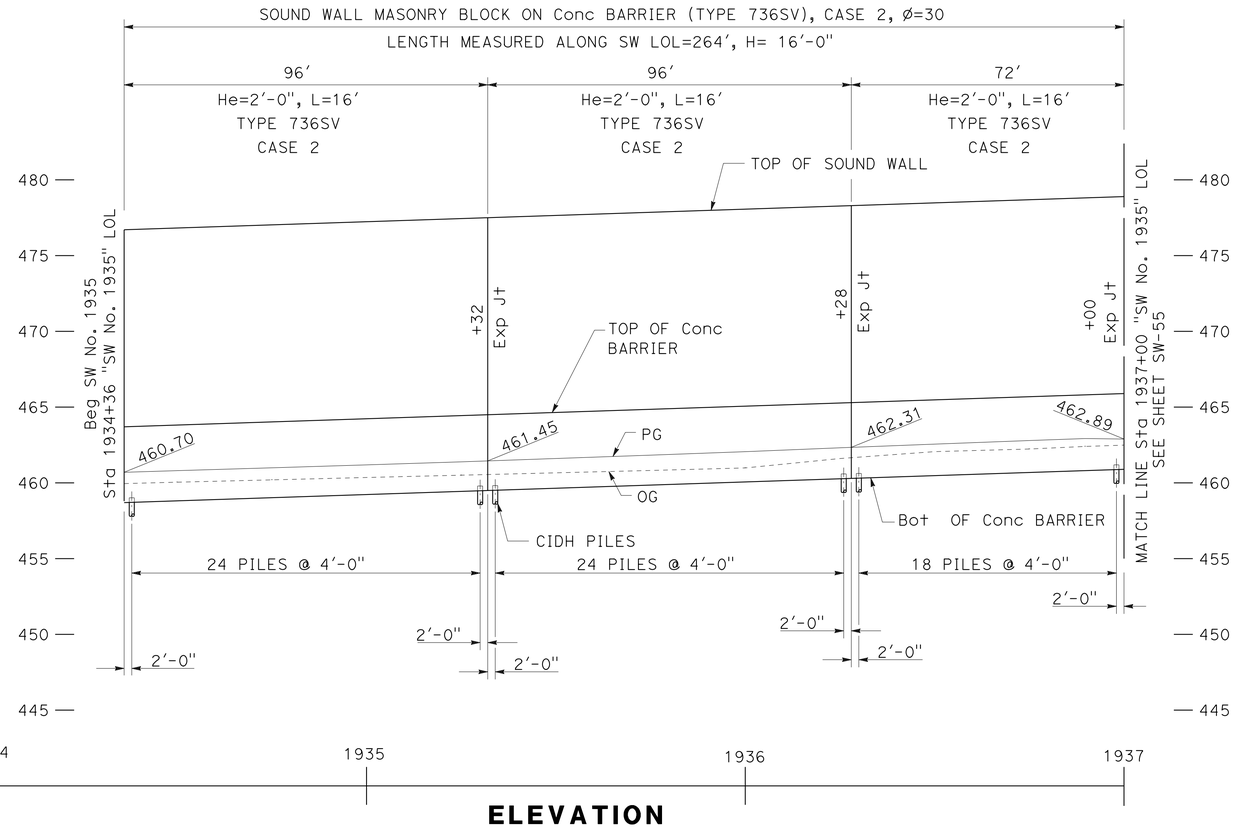
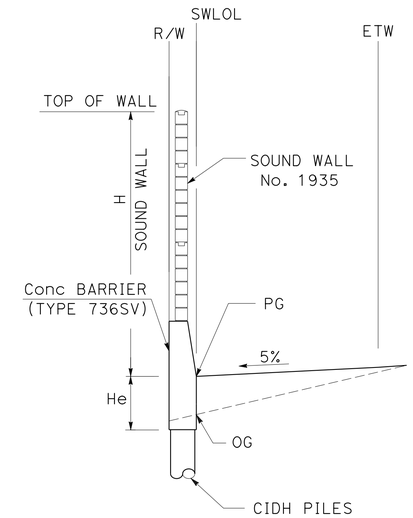


ELEVATION

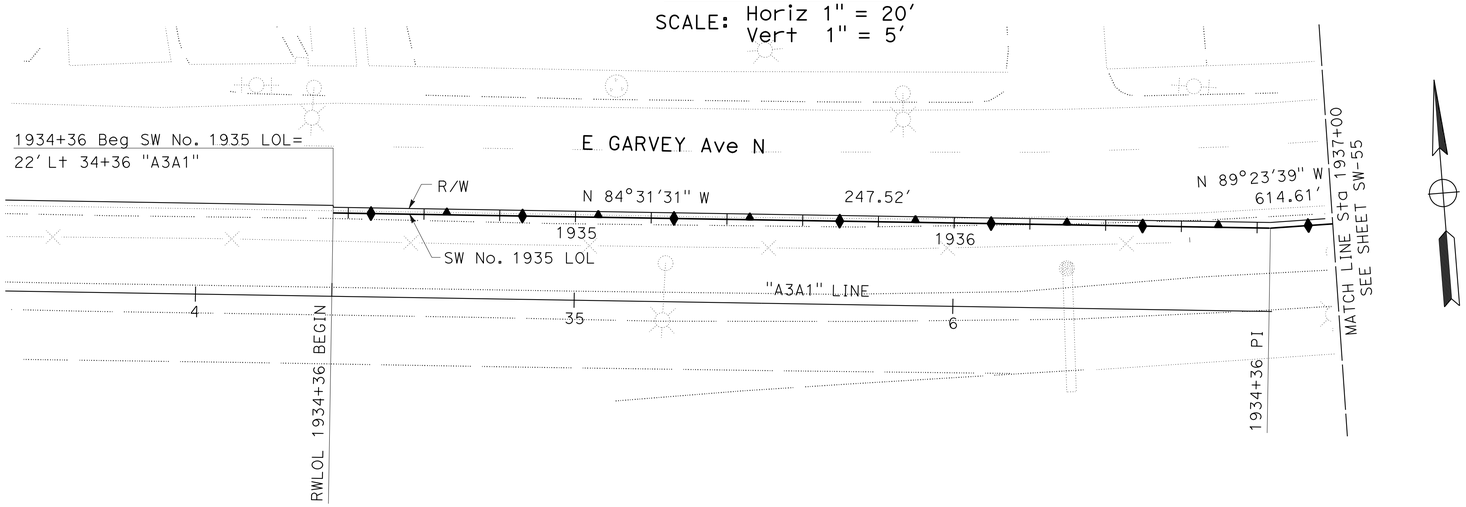
SCALE: Horiz 1" = 20'
Vert 1" = 5'

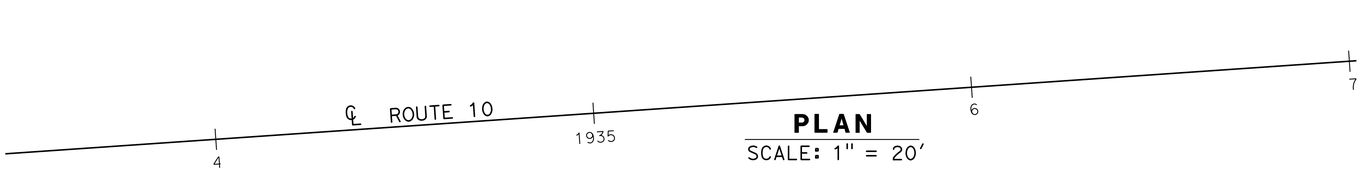


Sta 1934+36.00 TO 1938+20.00 "SW 1935" LOL
Sta 1943+00.00 TO 1951+40.00 "SW 1935" LOL

TYPICAL SECTION

NO SCALE





PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1935

SCALE AS SHOWN

SW-54

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 06-04-12
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

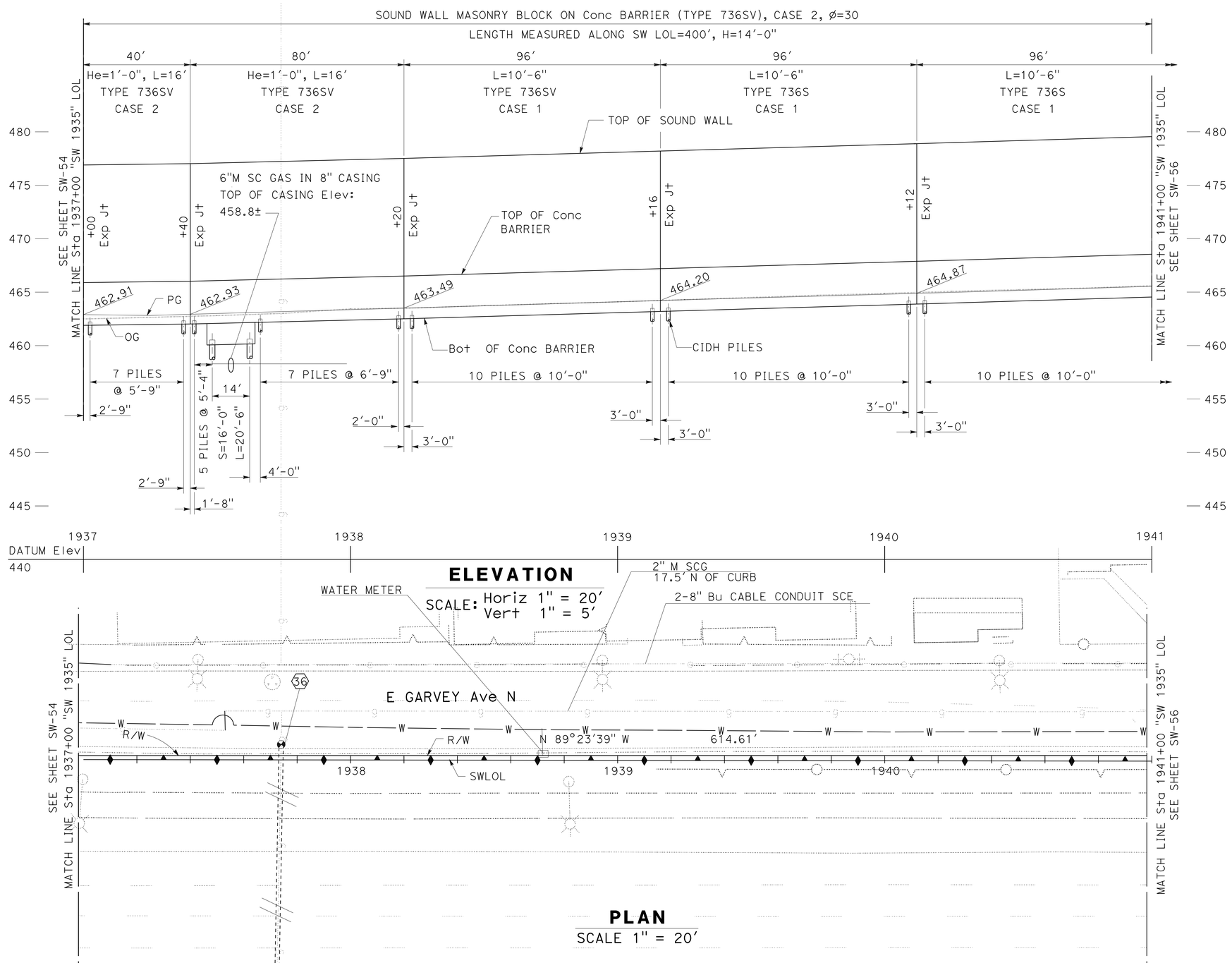
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	773	1475

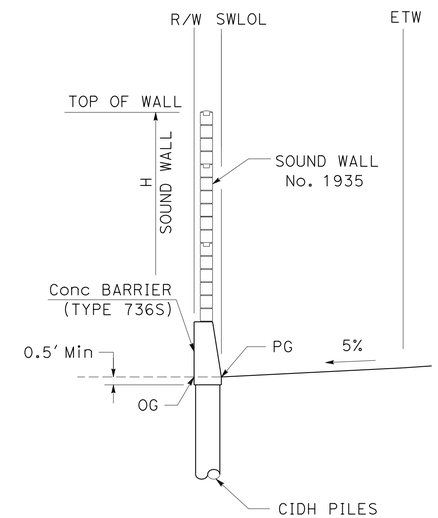
REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 06/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.





Sta 1938+20.00 TO 1943+00.00 "SW 1935" LOL
Sta 1951+40.00 TO 1952+36.37 "SW 1935" LOL

TYPICAL SECTION
NO SCALE

SOUND WALL PLAN
SOUND WALL No. 1935
SCALE AS SHOWN

SW-55

APPROVED FOR SOUND WALL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 06-04-12
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

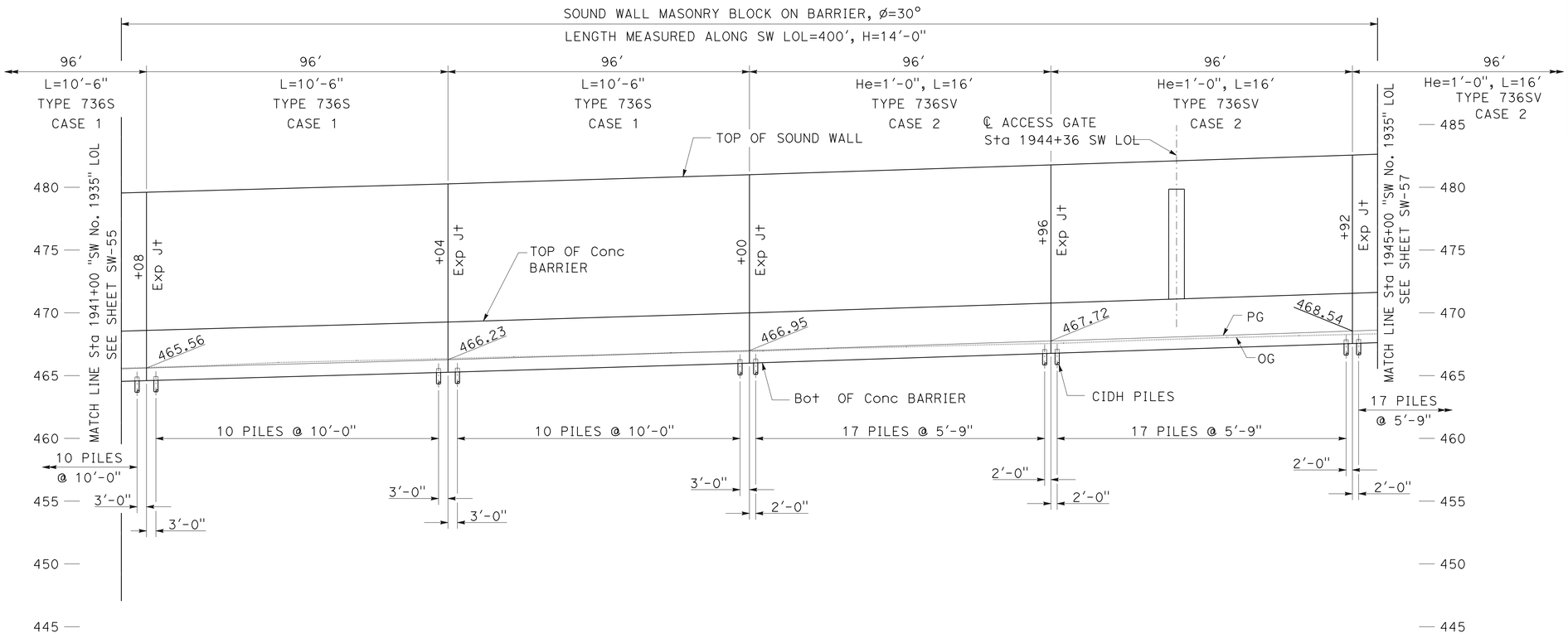
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	774	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

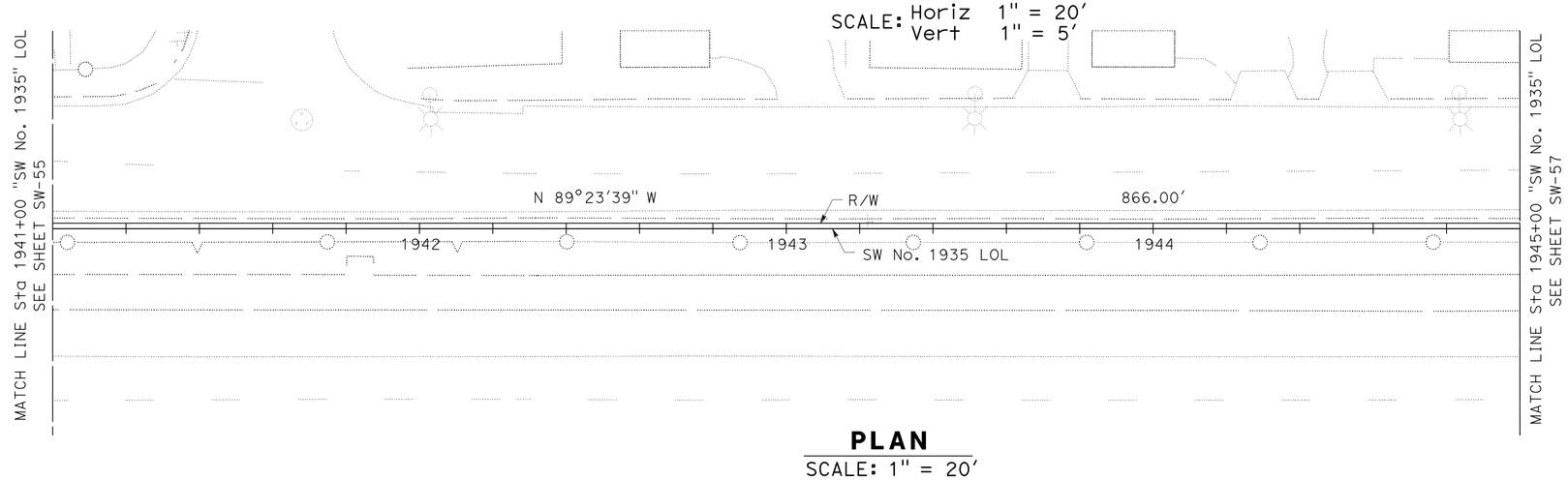
REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1935

SCALE AS SHOWN

SW-56

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY / DATE REVISED

LAST REVISION 06-04-12
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

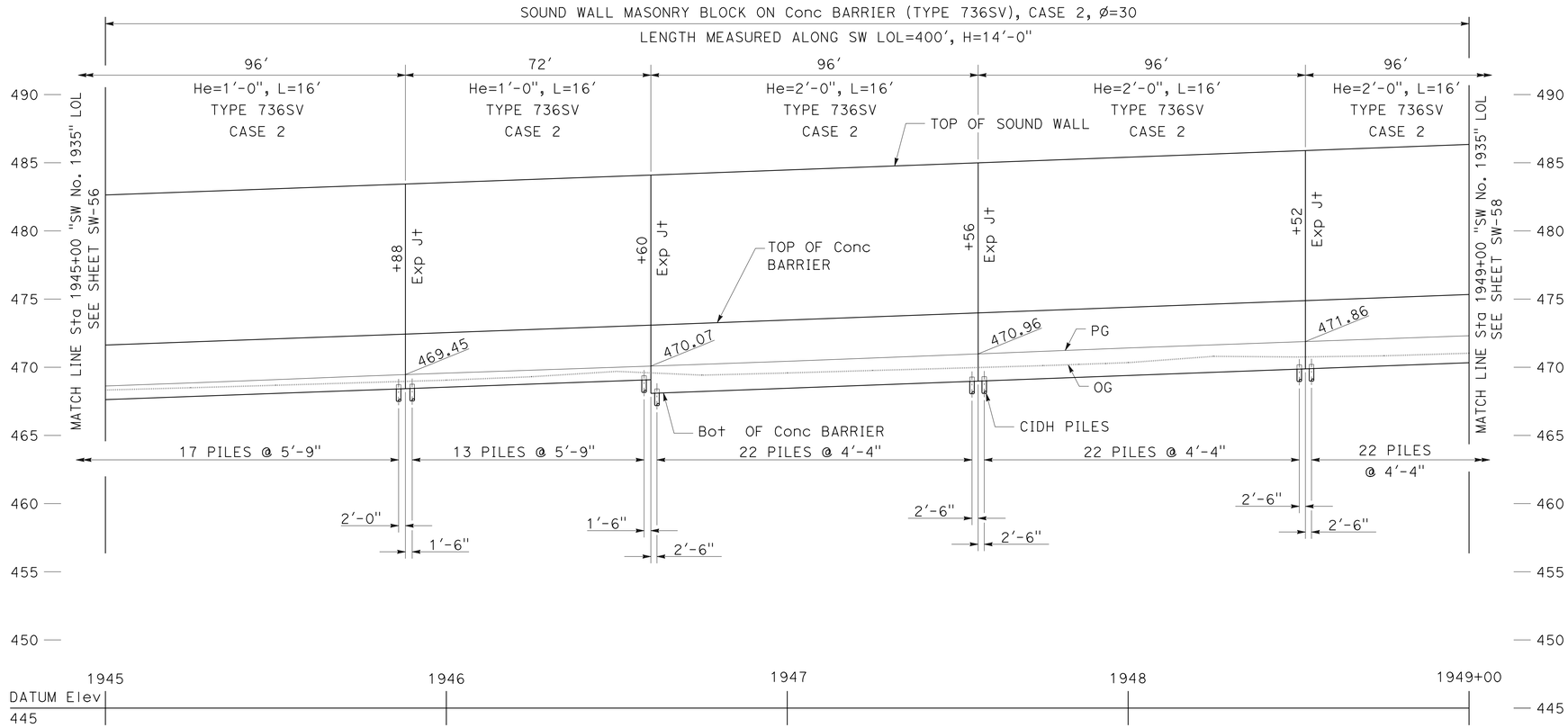
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	775	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

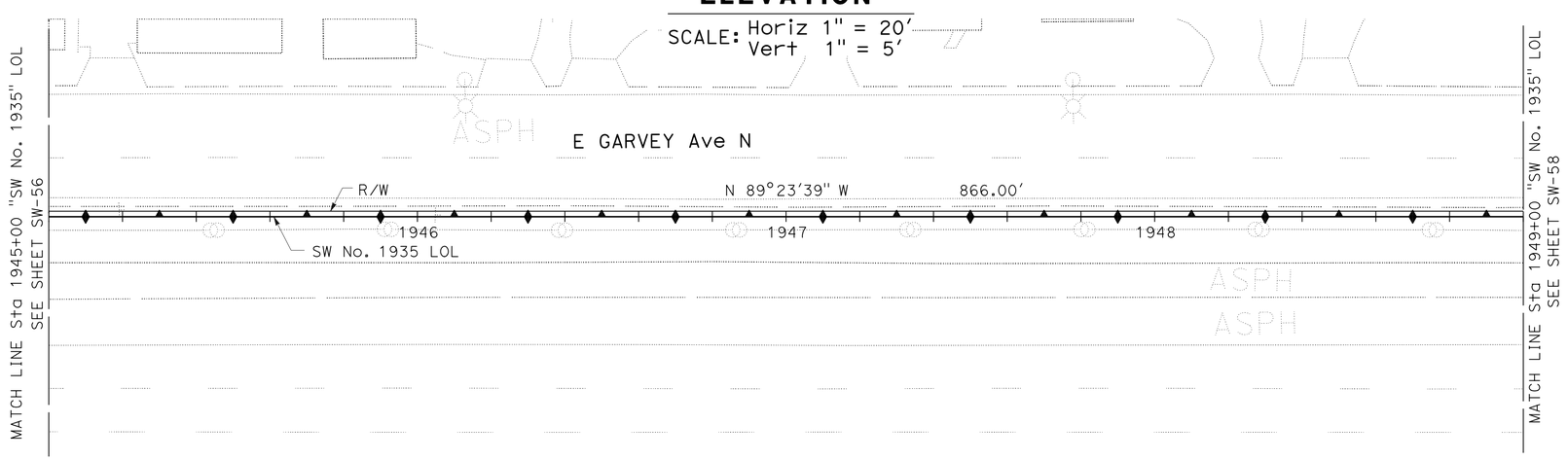
REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1935

SCALE AS SHOWN

SW-57

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 06-04-12
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	776	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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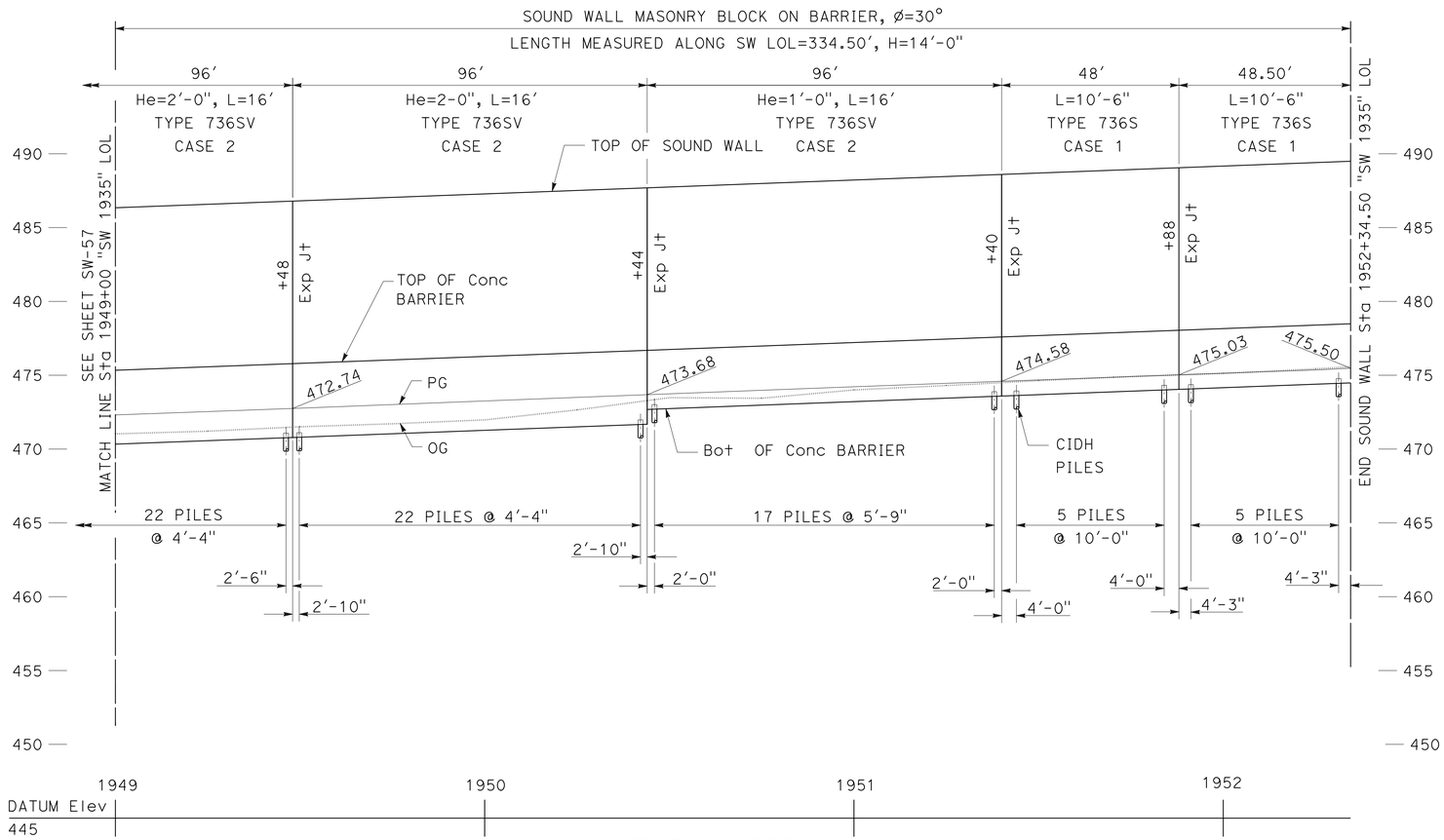
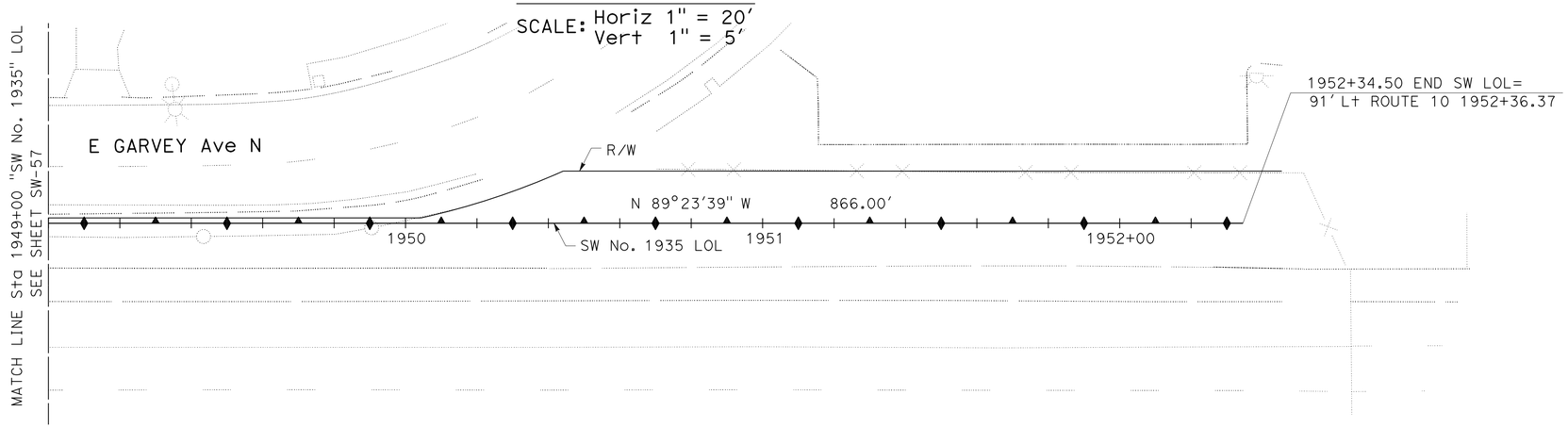


ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

℄ ROUTE 10

9 1950 1 2 3

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1935

SCALE AS SHOWN

SW-58

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 06-04-12 | DATE PLOTTED => 13-JUN-2013 | TIME PLOTTED => 08:14

BORDER LAST REVISED 7/2/2010 | USERNAME => s119571 | DGN FILE => 71170urk005.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1820 | PROJECT NUMBER & PHASE 07000000851

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	777	1475

REGISTERED CIVIL ENGINEER 04-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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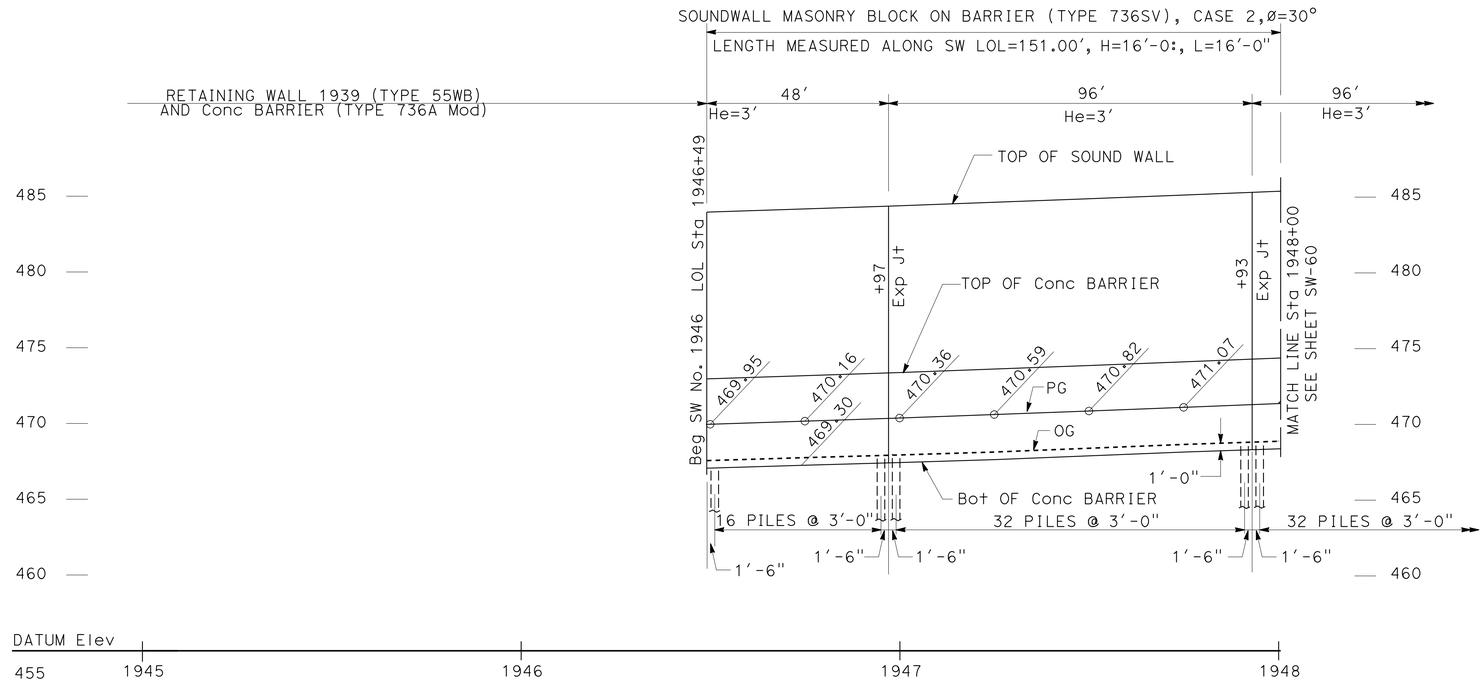
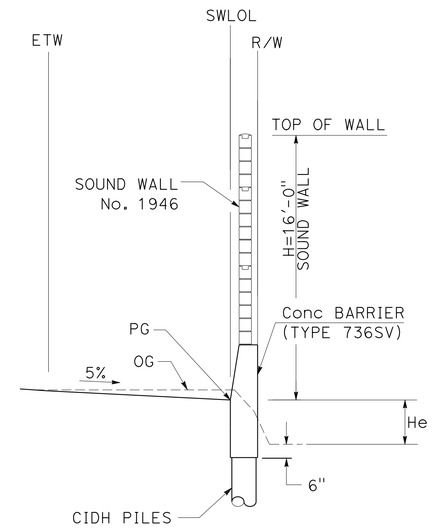


ELEVATION

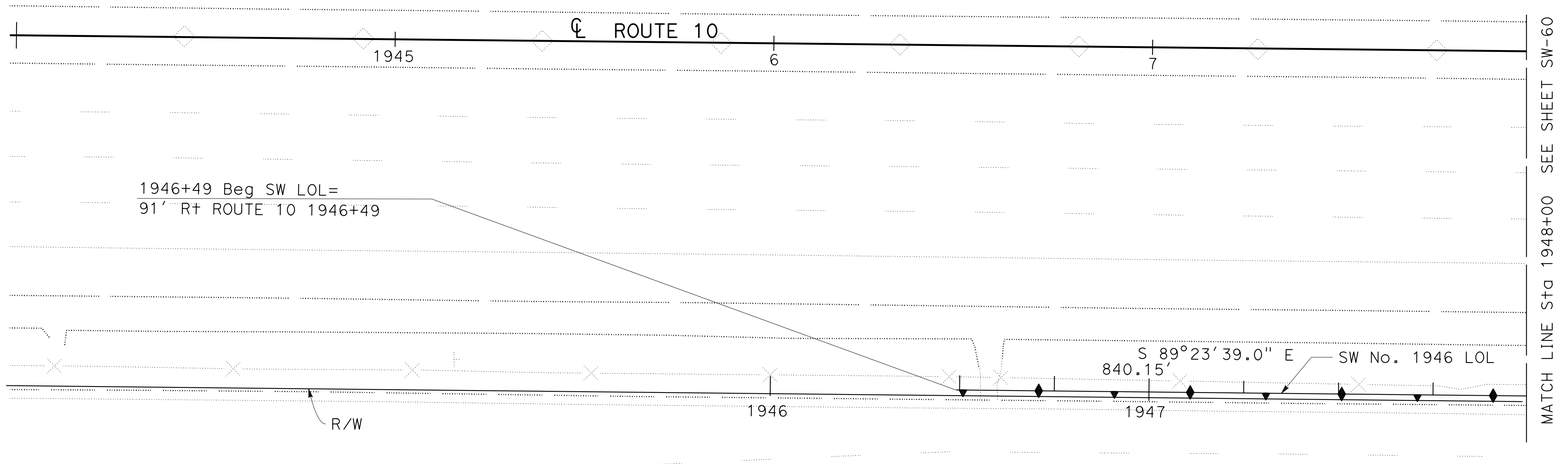
SCALE: Horiz 1" = 20'
Vert 1" = 5'



"SW 1946" 1946+49 TO 1948+00

TYPICAL SECTION

NO SCALE



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1946

SCALE AS SHOWN

SW-59

REVISED BY | DATE REVISED
JEROME ARABE | MOHAMED GHANNOUM
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR | NADER GOBRAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

LAST REVISION 00-00-00 | DATE PLOTTED => 26-JUN-2013 | TIME PLOTTED => 16:35

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	778	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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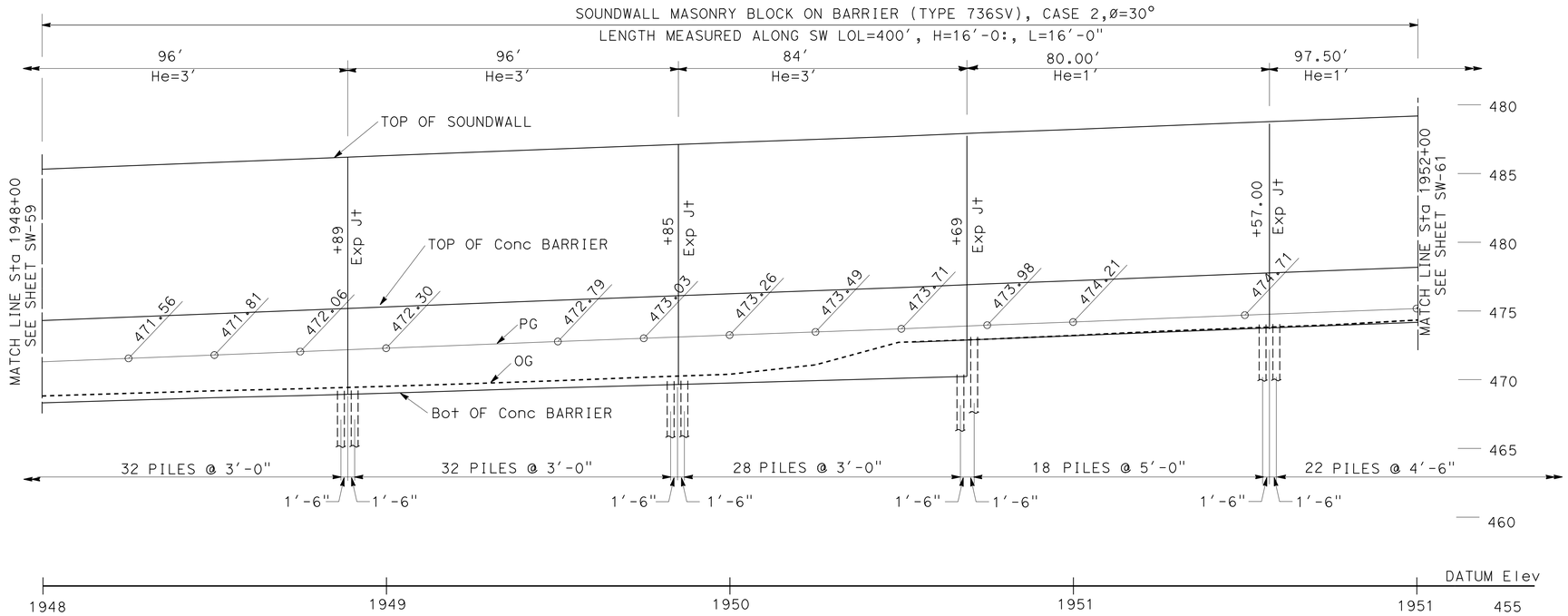
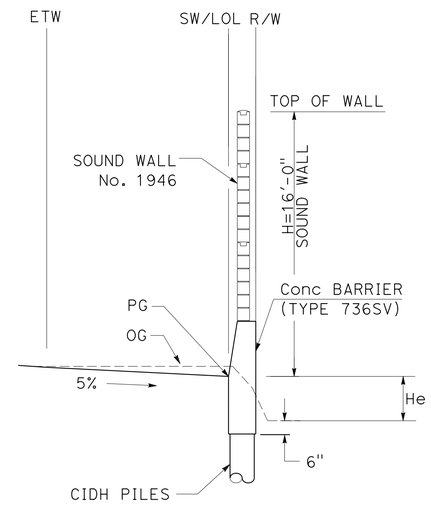


ELEVATION

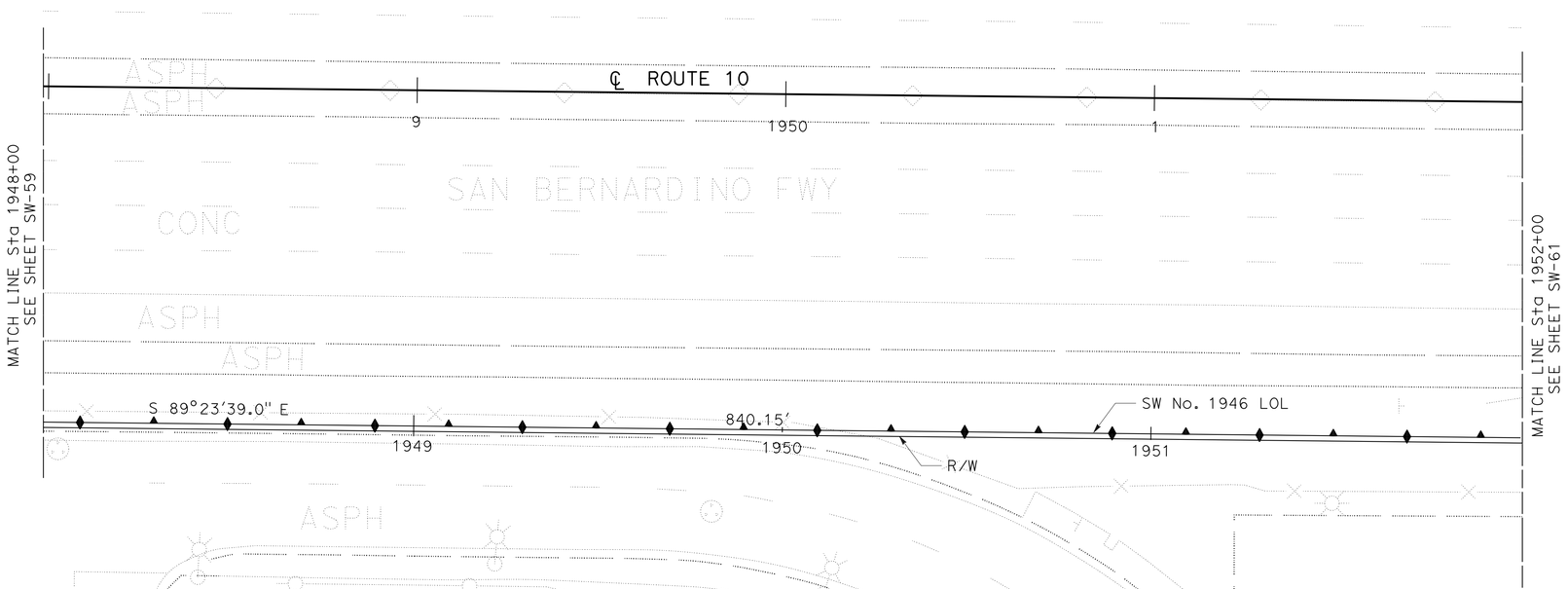
Horiz 1"= 20'
Vert 1"= 5'



"SW No. 1946" Sta 1948+00 TO 1952+54.51

TYPICAL SECTION

NO SCALE



PLAN

SCALE 1"= 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1946

SCALE AS SHOWN

SW-60

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:45

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	779	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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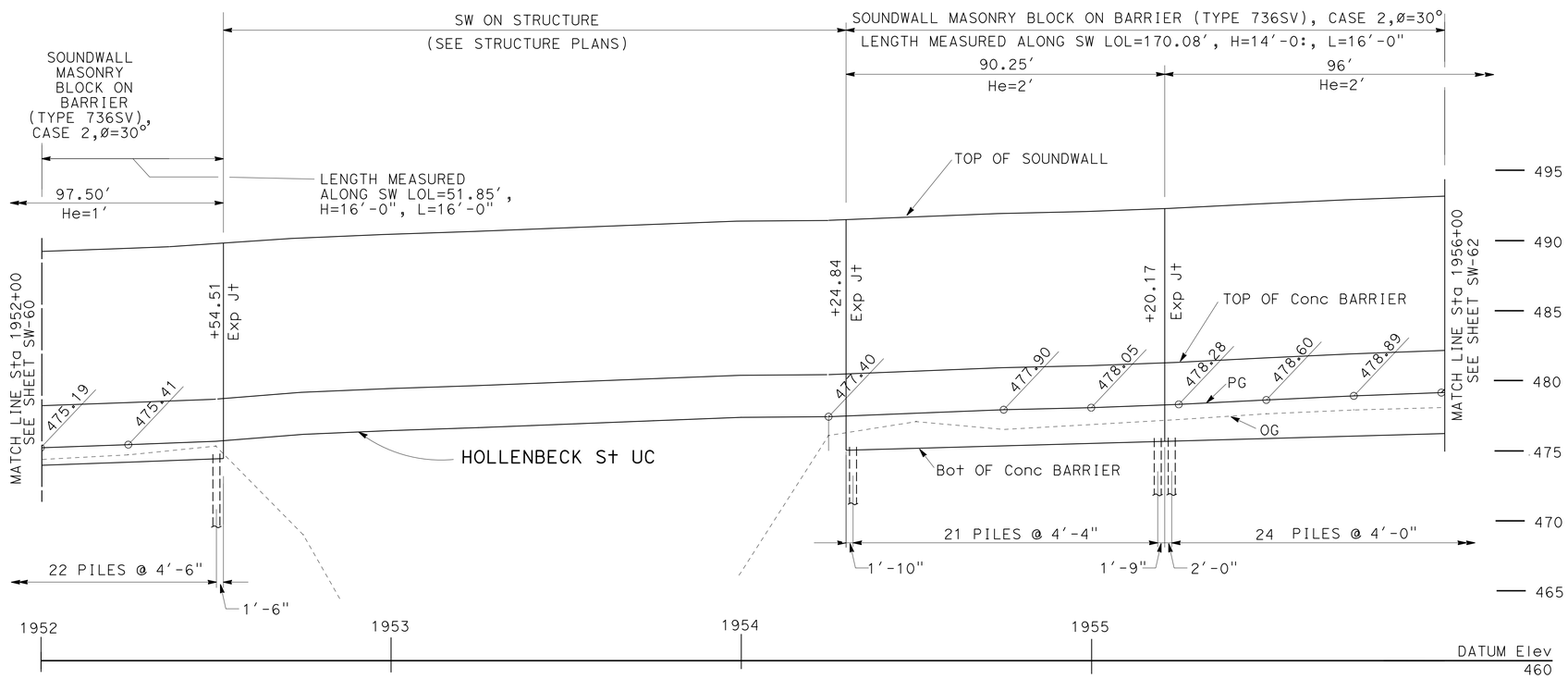
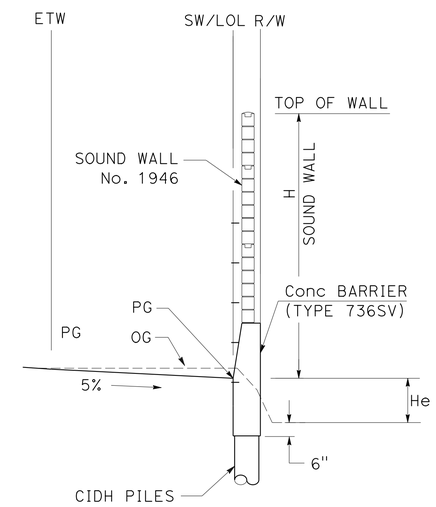


ELEVATION

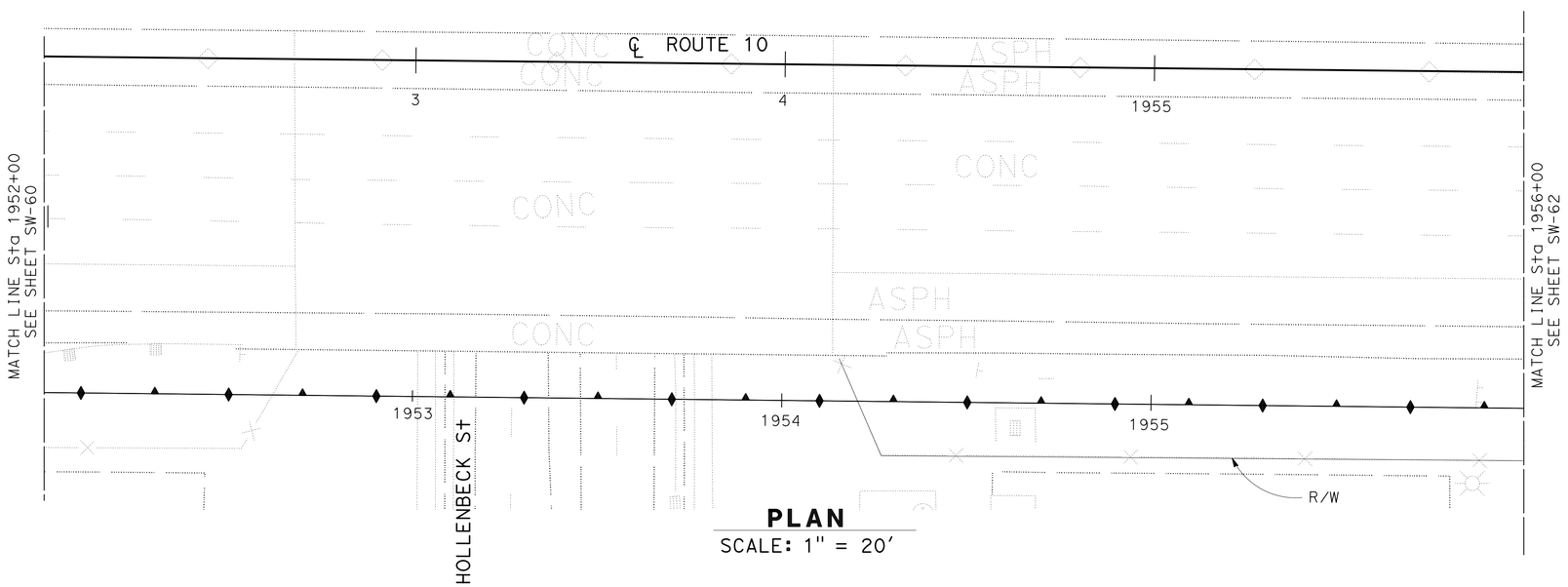
SCALE: Horiz 1" = 20'
Vert 1" = 5'



"SW No. 1946" Sta 1954+24.84 TO 1956+00

TYPICAL SECTION

SW ON CONCRETE BARRIER
(TYPE 736SV) (CASE 2)
NO SCALE



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

NOTE:

FOR SOUND WALL 1946 ON STRUCTURE
SEE STRUCTURE PLANS

SOUND WALL PLAN

SOUND WALL No. 1946

SCALE AS SHOWN

SW-61

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	780	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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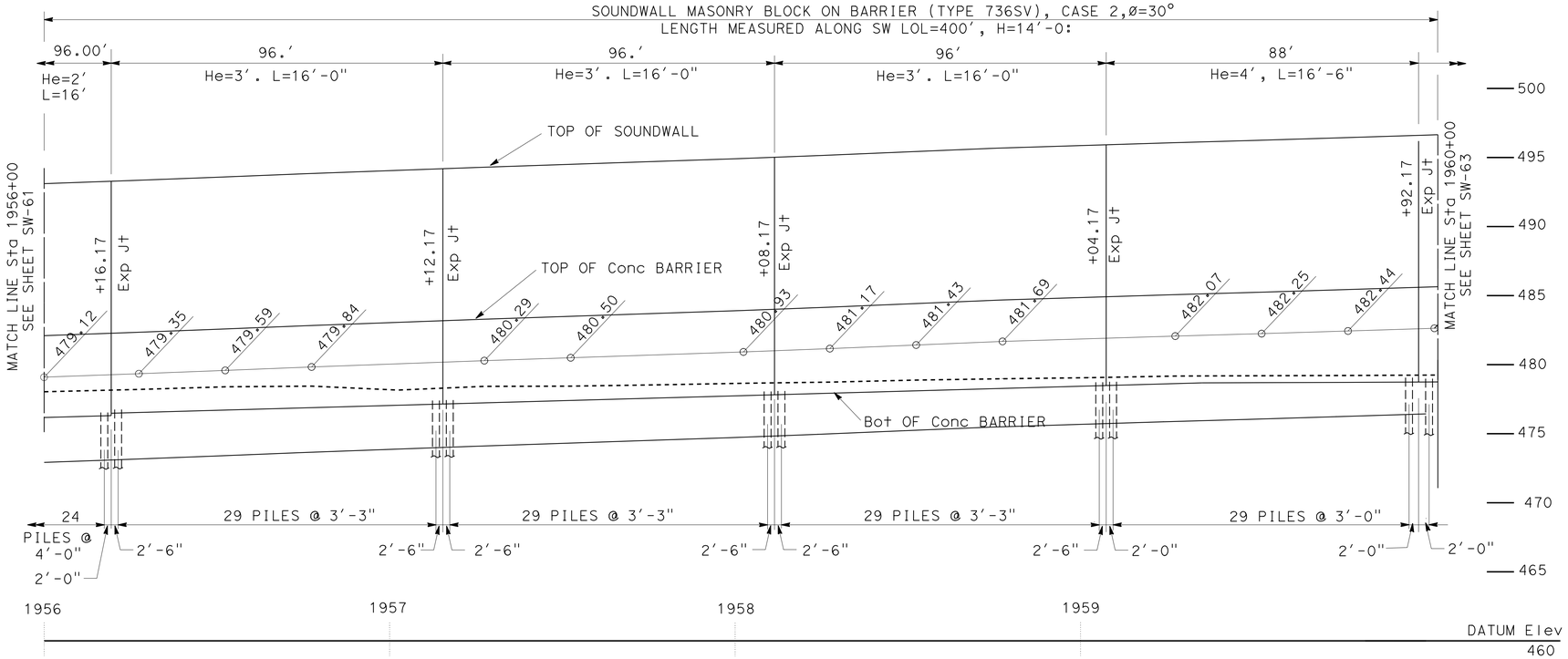
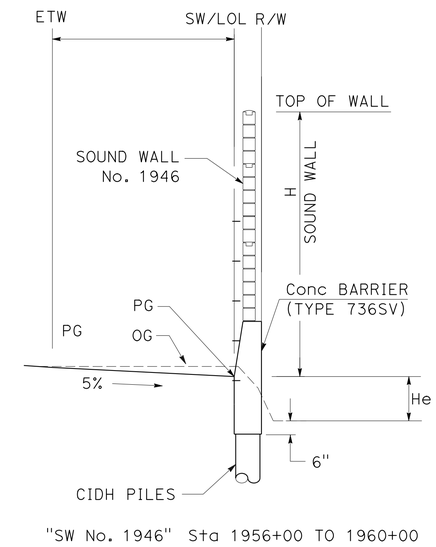


ELEVATION

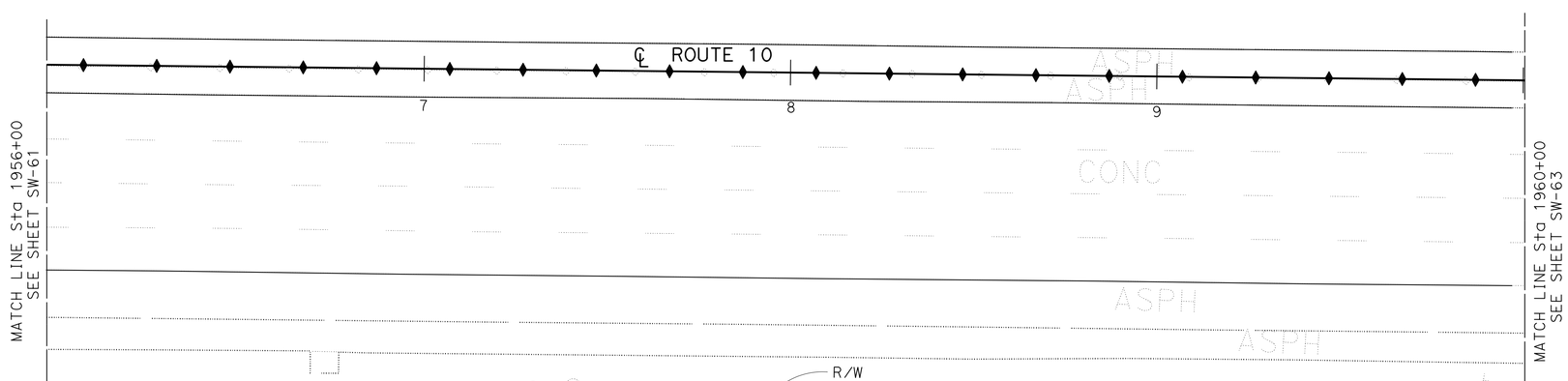
SCALE: Horiz 1" = 20'
Vert 1" = 5'



"SW No. 1946" Sta 1956+00 TO 1960+00

TYPICAL SECTION

SW ON CONCRETE BARRIER
(TYPE 736S/SV) (CASE 2)
NO SCALE



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1946

SCALE AS SHOWN

SW-62

REVISED BY	DATE REVISED

JEROME ARABE — MOHAMED GHANNOUM

CALCULATED-DESIGNED BY — CHECKED BY

FUNCTIONAL SUPERVISOR — NADER GOBRAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

LAST REVISION 00-00-00 — DATE PLOTTED => 20-JUN-2013 — TIME PLOTTED => 11:16

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	781	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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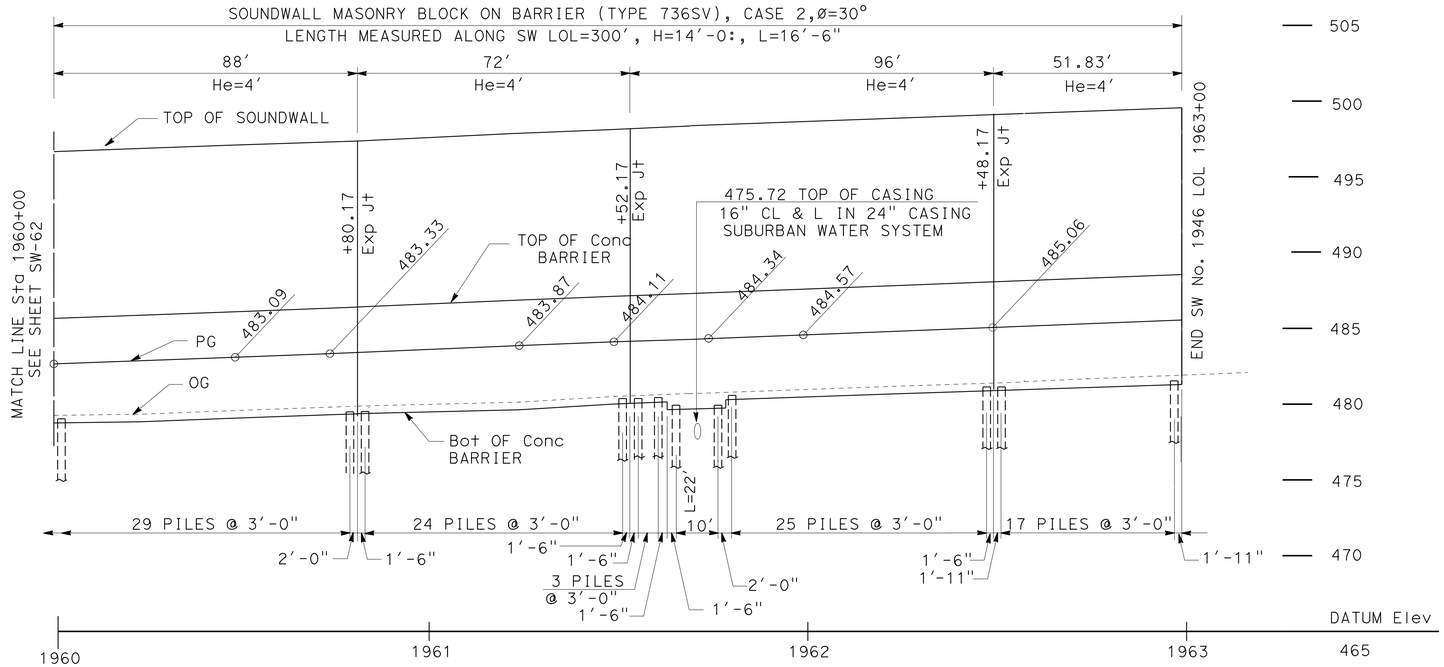
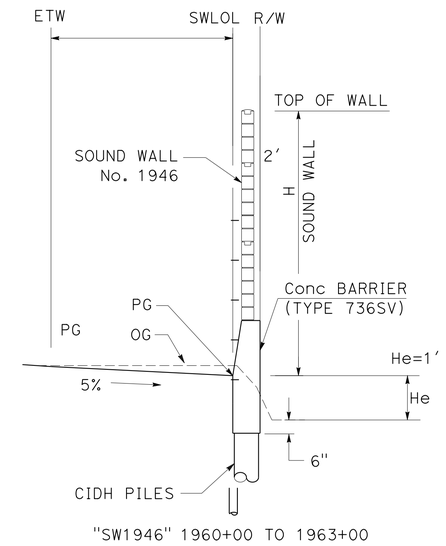


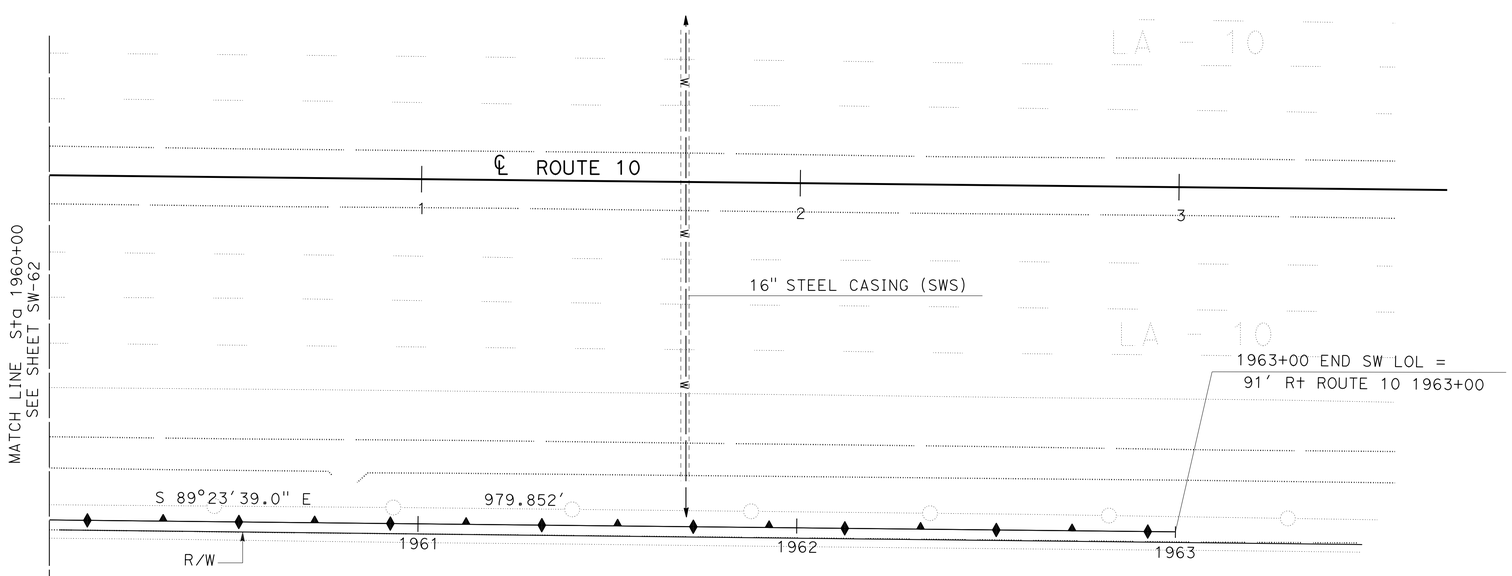
ELEVATION

SCALE: Horiz 1" = 20'
Vert 1" = 5'



TYPICAL SECTION

SW ON CONCRETE BARRIER
(TYPE 736S/SV) (CASE 2)
NO SCALE



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1946

SCALE AS SHOWN

SW-63

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	782	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp 6/30/14 CIVIL STATE OF CALIFORNIA

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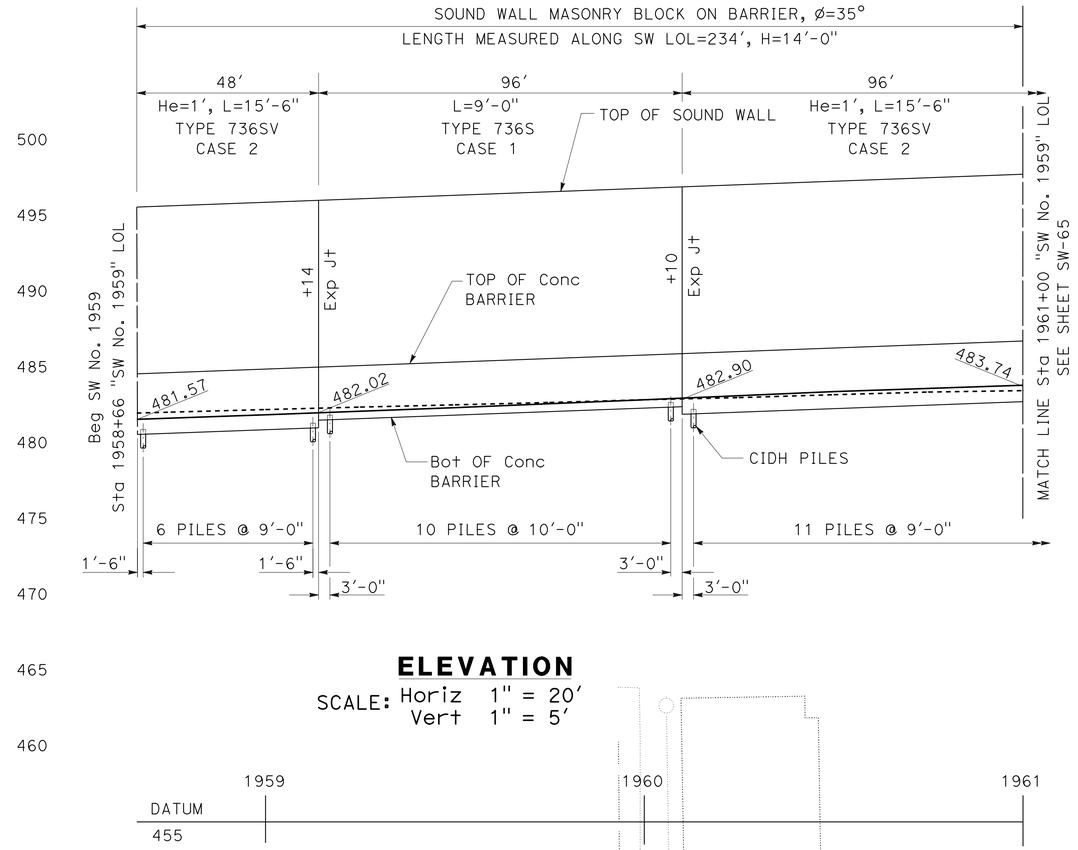
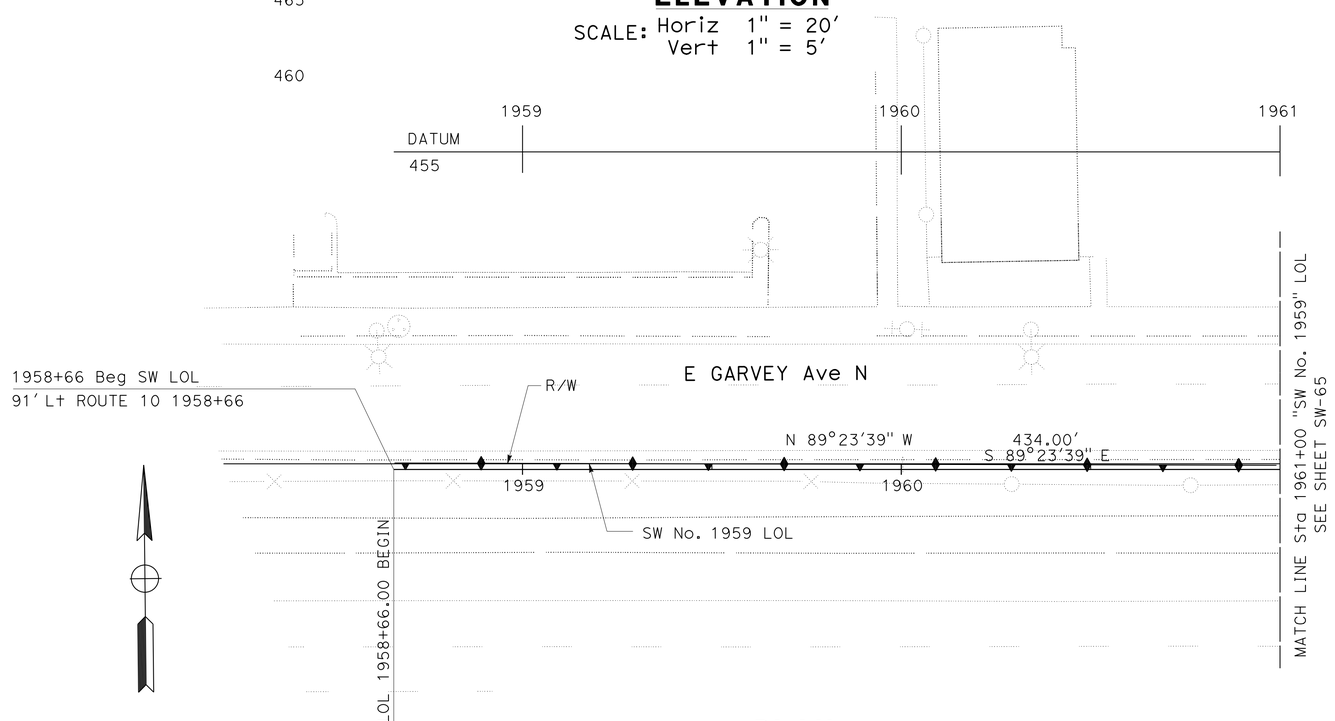


ELEVATION

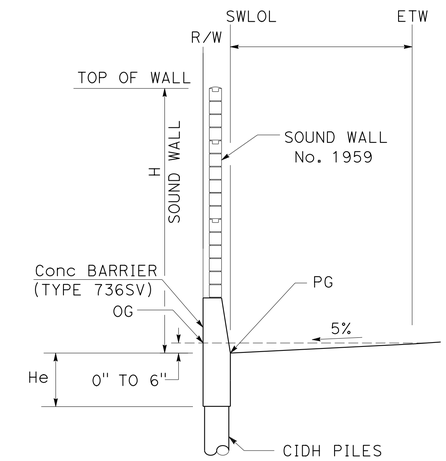
SCALE: Horiz 1" = 20'
Vert 1" = 5'



PLAN

SCALE: 1" = 20'

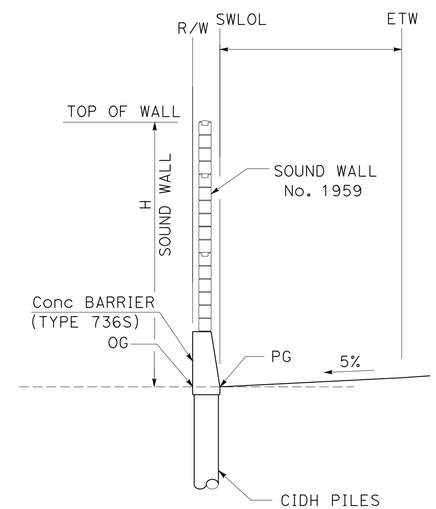
APPROVED FOR SOUND WALL WORK ONLY



FROM Sta 1958+66 TO 1959+14 "SW 1959" LOL

TYPICAL SECTION

NO SCALE



FROM Sta 1958+14 TO 1960+10 "SW 1959" LOL

TYPICAL SECTION

NO SCALE

SOUND WALL PLAN

SOUND WALL No. 1959

SCALE AS SHOWN

SW-64

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

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CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	783	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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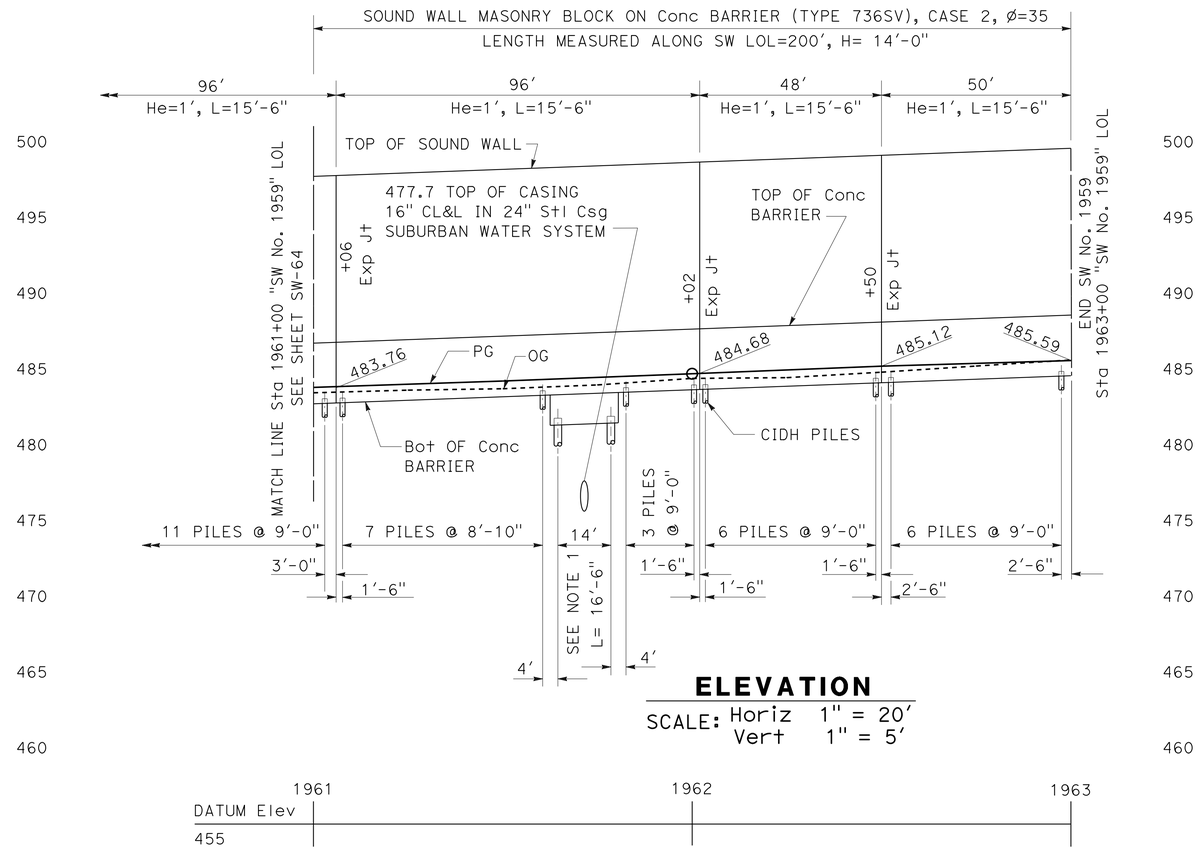
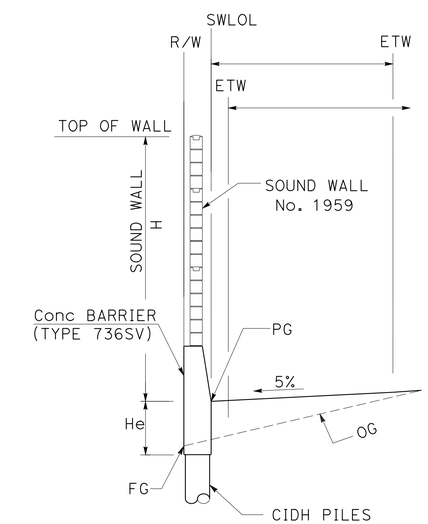


ELEVATION

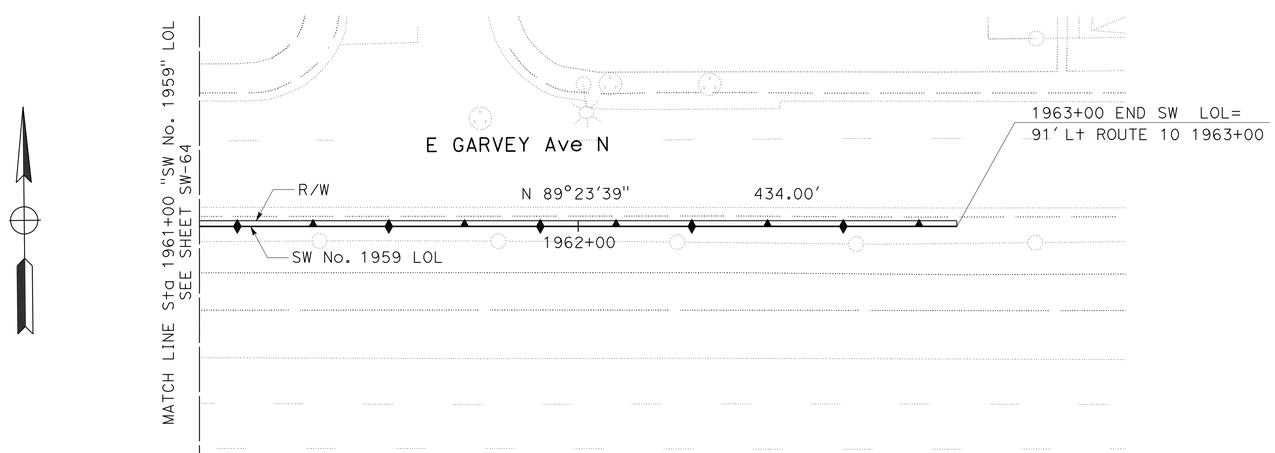
SCALE: Horiz 1" = 20'
Vert 1" = 5'



FROM Sta 1960+10 TO 1963+00 "SW 1959" LOL

TYPICAL SECTION

NO SCALE



PLAN

SCALE: 1" = 20'

APPROVED FOR SOUND WALL WORK ONLY

SOUND WALL PLAN

SOUND WALL No. 1959

SCALE AS SHOWN

SW-65

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

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CALCULATED-DESIGNED BY: JEROME ARABE
CHECKED BY: MOHAMED GHANNOUM
REVISED BY / DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => 13-JUN-2013 | TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	784	1475

4-17-12
REGISTERED CIVIL ENGINEER DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
MOHAMED GHANNOUM
No. 72051
Exp. 6/30/14
CIVIL
STATE OF CALIFORNIA

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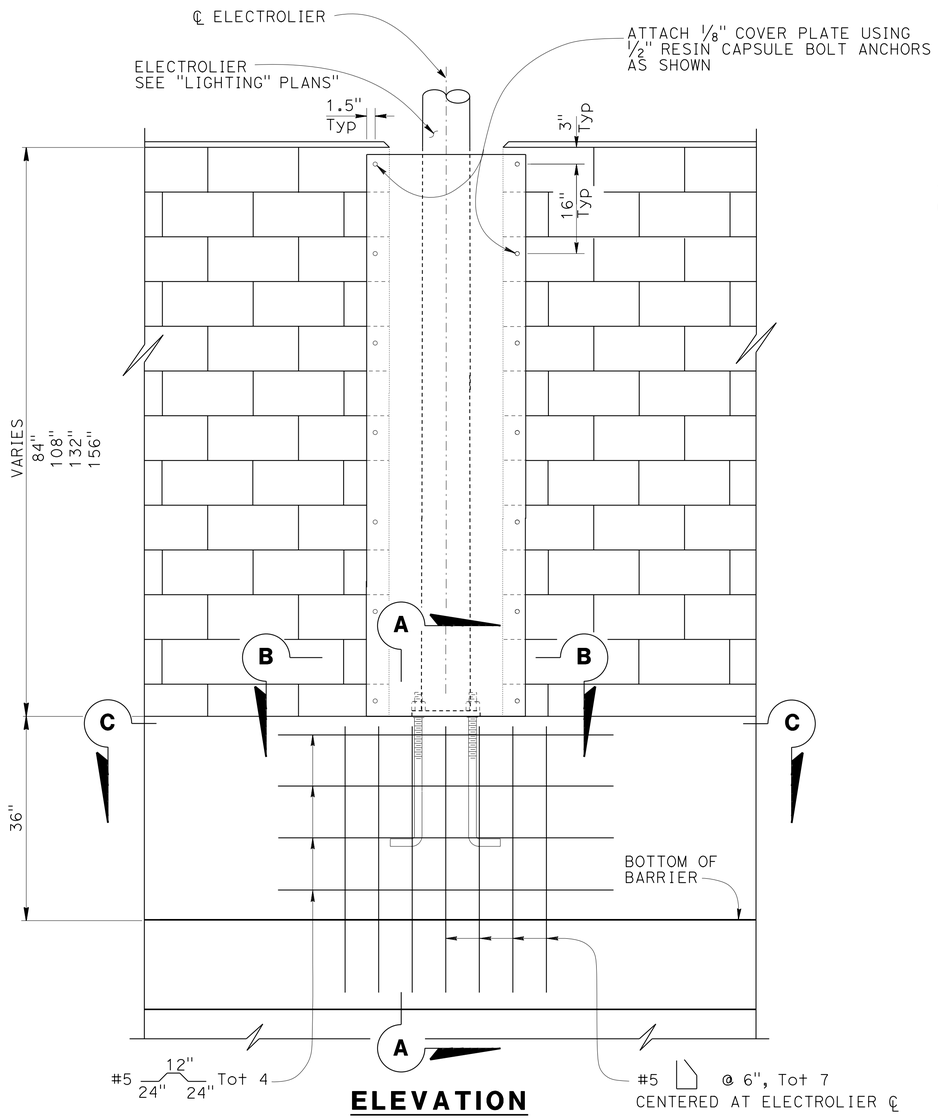
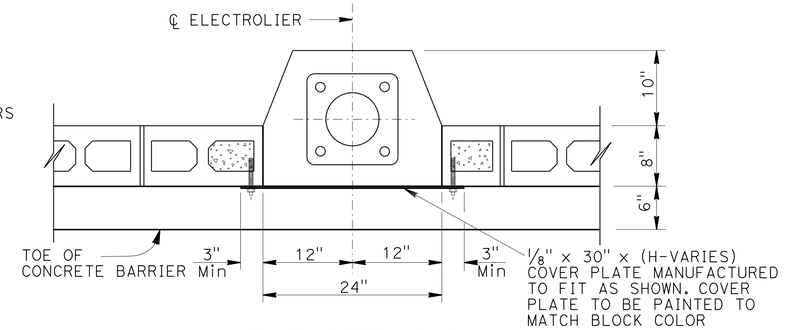
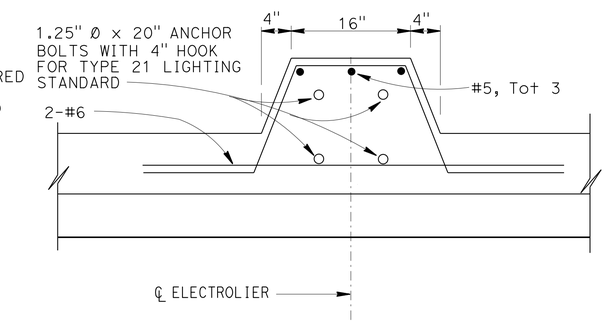


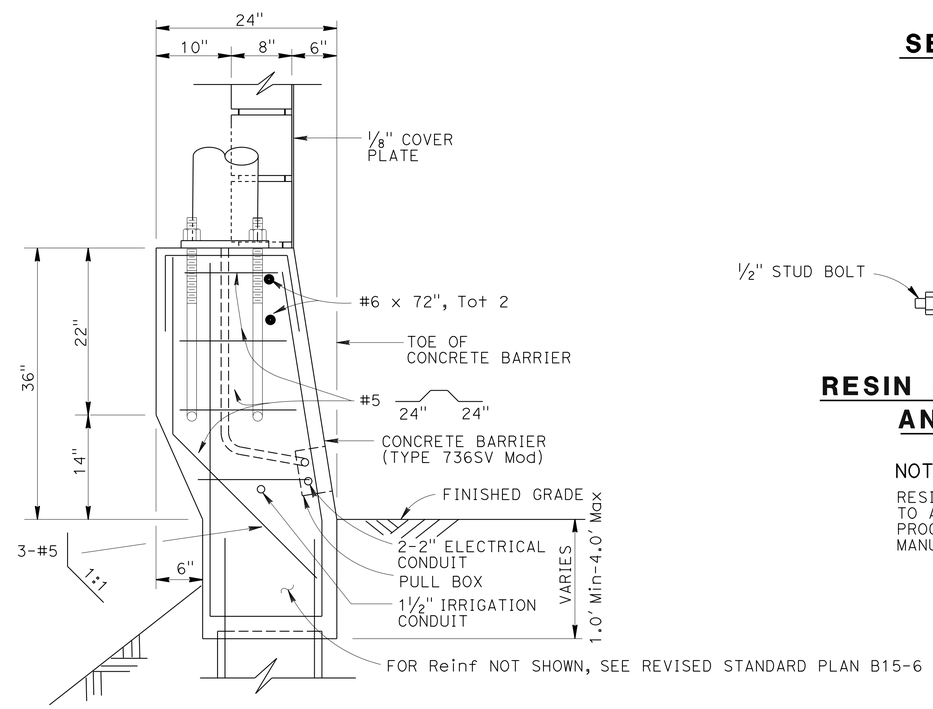
ELEVATION



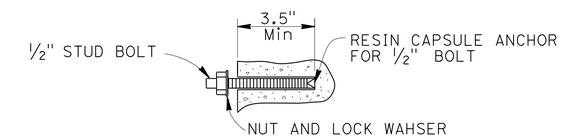
SECTION B-B



SECTION C-C



SECTION A-A



RESIN CAPSULE BOLT ANCHORAGE

NOTE:

RESIN CAPSULE ANCHORAGE IS SUBJECT TO APPROVAL OF ENGINEER. INSTALLATION PROCEDURES SHALL COMPLY WITH MANUFACTURER'S INSTRUCTIONS.

SOUND WALL ON CONCRETE BARRIER 736SV MODIFIED TYPE 21 ELECTROLIER DETAILS

NO SCALE

SW-66

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: SUSHIL CHAUDHARI
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	785	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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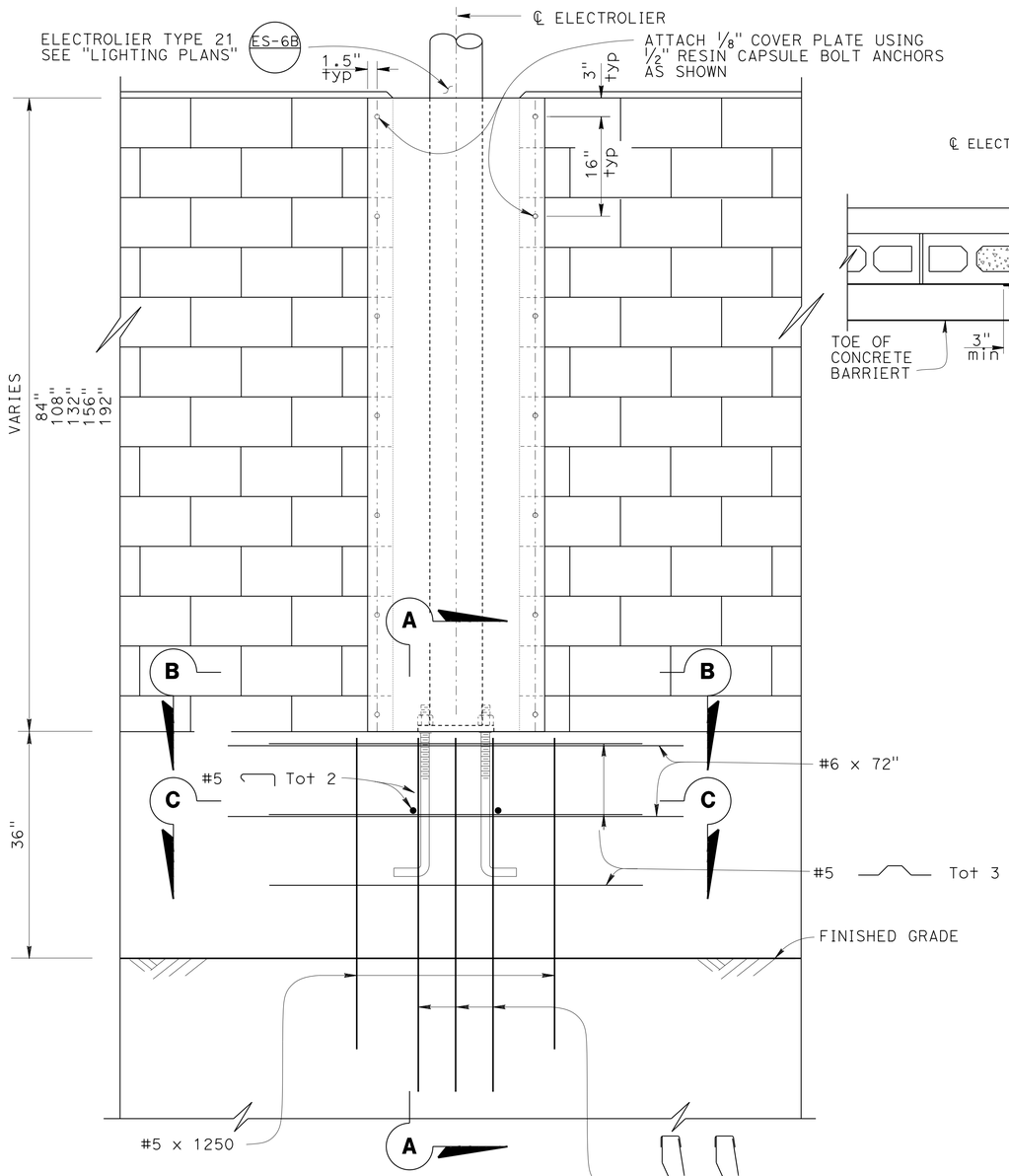
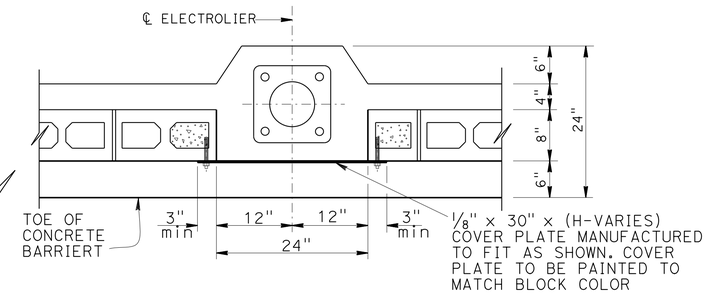
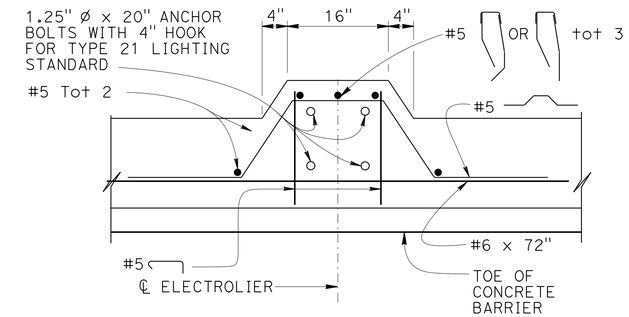


ELEVATION



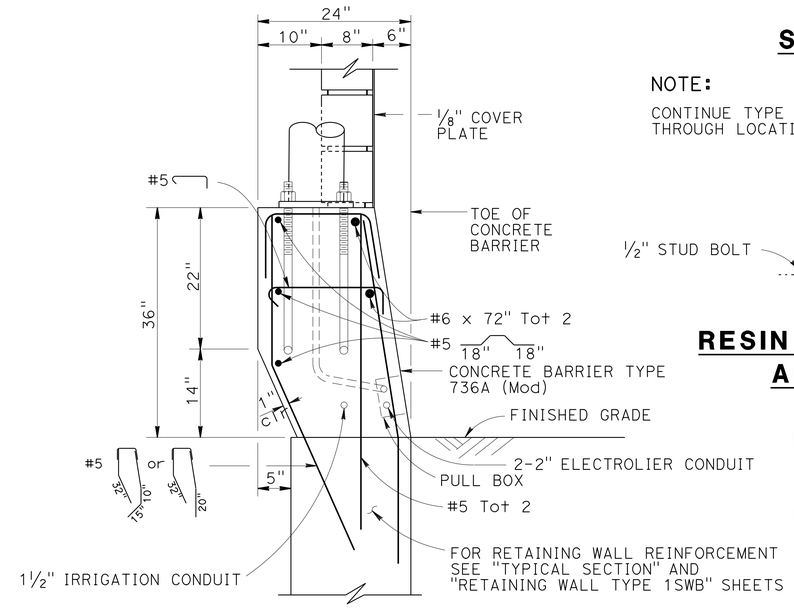
SECTION B-B



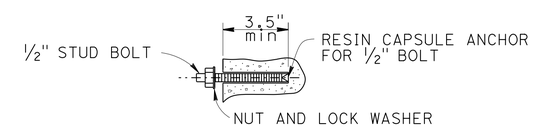
SECTION C-C

NOTE:

CONTINUE TYPE 736A BARRIER REINFORCEMENT THROUGH LOCATIONS MODIFIED FOR ELECTROLIER.



SECTION A-A



RESIN CAPSULE BOLT ANCHORAGE

NOTE:

RESIN CAPSULE ANCHORAGE IS SUBJECT TO APPROVAL OF ENGINEER. INSTALLATION PROCEDURES SHALL COMPLY WITH MANUFACTURER'S INSTRUCTIONS.

SOUND WALL ON CONCRETE BARRIER 736A MODIFIED TYPE 21 ELECTROLIER DETAILS

NO SCALE

SW-67

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

FUNCTIONAL SUPERVISOR: NADER GOBRAN
CALCULATED-DESIGNED BY: SUSHIL CHAUDHARI
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 13-JUN-2013
TIME PLOTTED => 08:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	786	1475

LICENSED LANDSCAPE ARCHITECT

6-10-13
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT GENE KIMMEL NO. 5104 Signature 10-31-12 Renewal Date 5-5-12 Date STATE OF CALIFORNIA

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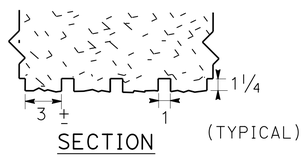
LEGEND

SYMBOL	NOMINAL SIZE	TEXTURE	COLOR
	8" x 8" x 16"	PRECISION	LIGHT TAN *
	8" x 8" x 16"	SCORED SPLIT FACE 2 SIDES	LIGHT TAN *
	8" x 8" x 16"	SPLIT FACE 2 SIDES	LIGHT TAN *

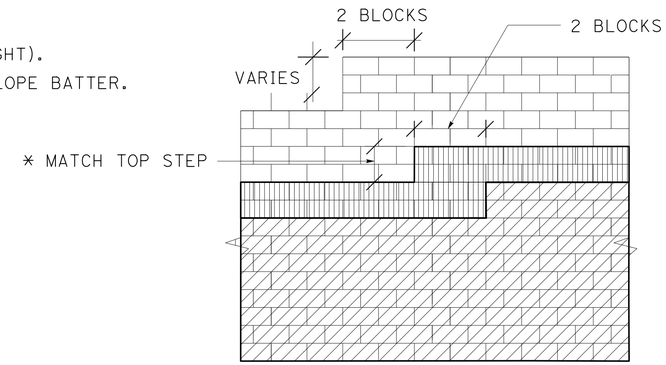
NOTES:
1. BOND (TYPE 1) RUNNING BOND.
2. MORTAR COLOR TO MATCH BLOCK.
3. TOOLED JOINTS.
4. BLOCKS ON BRIDGE SHALL BE PRECISION (MEDIUM WEIGHT).
5. ENDS OF SOUNDWALLS ARE TO BE TYPE 1 WITH 2:1 SLOPE BATTER.

* TO MATCH FEDERAL COLOR INDEX #13531.



SECTION (TYPICAL)

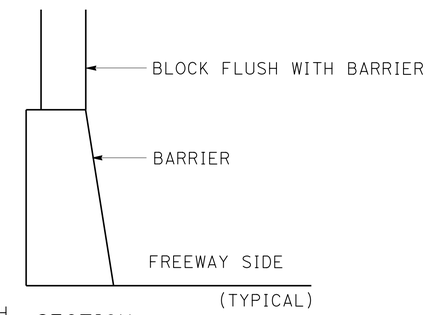
SCORED SPLIT FACE BLOCK



SECTION

STEP

* SCORED SPLIT FACE TO MATCH STEP ON TOP OF WALL



(TYPICAL)

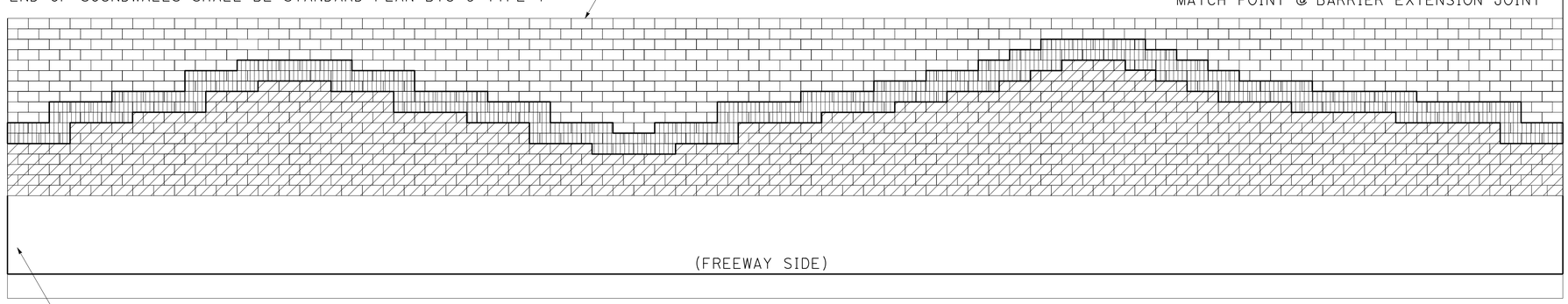
SECTION

BARRIER

PATTERN REPEATS
APPROXIMATELY 66' ON CENTER
MATCH POINT @ BARRIER EXTENSION JOINT
END OF SOUNDWALLS SHALL BE STANDARD PLAN B15-9 TYPE 1

MORTAR CAP

PATTERN REPEATS
APPROXIMATELY 66' ON CENTER
MATCH POINT @ BARRIER EXTENSION JOINT



ON GRADE, RETAINING WALL, PILE CAP OR BARRIER

ELEVATION

WALL HEIGHT SHALL BE ADJUSTED BY ADDING TO PRECISION BLOCK.

SOUNDWALL PATTERN

APPROVED FOR SOUNDWALL AESTHETIC FEATURES ONLY

SOUNDWALL AESTHETIC FEATURES

NO SCALE **SW-68**

REVISED BY | DATE REVISED
RICH KESTER | JENNIFER TAIRA
CALCULATED-DESIGNED BY | CHECKED BY
SENIOR LANDSCAPE ARCHITECT | JENNIFER TAIRA
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® LANDSCAPE ARCHITECTURE

LAST REVISION 00-00-00 | DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:14

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	787	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/12 CIVIL STATE OF CALIFORNIA

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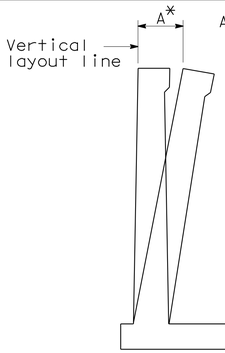
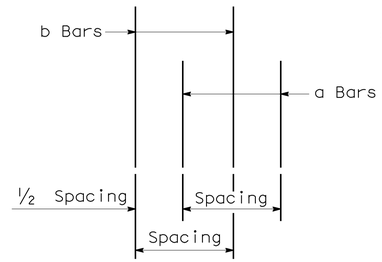
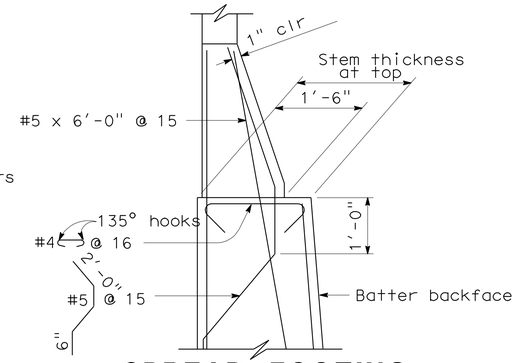


A* Offset = ½" per 10' of wall stem height

WALL OFFSET
NO SCALE
Values for offsetting forms to be determined by the engineer



DETAIL A
NO SCALE



SPREAD FOOTING SECTION WITHOUT HAUNCH
NO SCALE

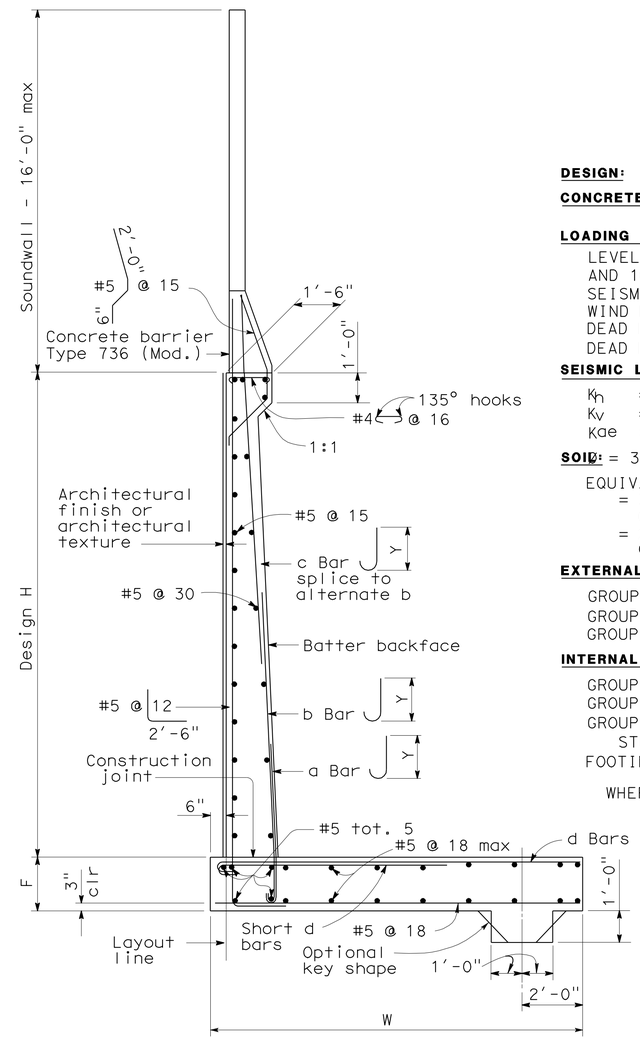
TABLE 1 : TABLE OF REINFORCING STEEL DIMENSION AND DATA

STEM WITH HAUNCH

DESIGN H	6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'	32'
W	8'-6"	8'-6"	9'-3"	10'-0"	11'-3"	12'-3"	13'-3"	14'-6"	15'-9"	17'-0"	18'-6"	20'-0"	21'-3"	22'-9"
F SPREAD FTG.	1'-3"	1'-3"	1'-3"	1'-6"	1'-6"	1'-9"	2'-0"	2'-0"	2'-3"	2'-6"	3'-0"	3'-3"	3'-9"	4'-0"
BATTER	0	½:12	½:12	½:12	½:12	½:12	½:12	½:12	½:12	⅝:12	¾:12	⅞:12	1:12	1:12
STEM THICKNESS @ HAUNCH	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
a BARS				#6@18**	#7@18**	#8@18**	#9@18**	#10@18**	#8 @ 9*	#8 @ 9*	#7 @ 6*	#10@12**	#9 @ 9*	#11@12**
Y				8'-0"	6'-6"	7'-6"	8'-0"	9'-0"	9'-6"	11'-0"	11'-6"	13'-0"	14'-0"	15'-6"
b BARS	#5 @ 12	#5 @ 12	#5 @ 9	#6@18**	#7@18**	#8@18**	#9@18**	#10@18**	#8 @ 9*	#8 @ 9*	#7 @ 6*	#10@12**	#9 @ 9*	#11@12**
Y	CONT	CONT	CONT	CONT	10'-6"	13'-0"	15'-0"	17'-6"	19'-6"	21'-0"	18'-6"	19'-0"	25'-6"	23'-6"
c BARS					#6 @ 18	#6 @ 18	#6 @ 18	#6 @ 18	#6 @ 18	#6 @ 18	#6 @ 12	#7 @ 12	#7 @ 18	#7 @ 12
SHORTd BARS	#5 @ 12	#5 @ 9	#6 @ 9	#7@18**	#8@18**	#8@18**	#9@18**	#10@18**	#8 @ 9*	#8 @ 9*	#7 @ 6*	#10@12*	#9 @ 9*	#11@12**
X	CONT	CONT	CONT	5'-6"	6'-6"	7'-6"	8'-0"	8'-6"	9'-6"	10'-6"	11'-6"	12'-6"	13'-6"	15'-0"
d BARS				#7@18**	#8@18**	#8@18**	#9@18**	#10@18**	#8 @ 9*	#8 @ 9*	#7 @ 6*	#10@12*	#9 @ 9*	#11@12**
X				CONT	CONT	CONT	CONT	CONT	CONT	CONT	CONT	CONT	CONT	CONT
ULTIMATE BEARING CAPACITY REQUIRED k/sf	6.3	7.8	8.8	10.3	11.4	13.2	15	16.2	17.8	19.4	21.1	22.4	24.4	25.8

TABLE 2 : TABLE OF REINFORCING STEEL DIMENSION AND DATA

	STEM WITH HAUNCH							STEM WITHOUT HAUNCH						
DESIGN H	6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'	32'
W		8'-6"	9'-0"	9'-9"	10'-6"	12'-6"	13'-3"	14'-3"	16'-3"	17'-0"	18'-9"	20'-3"	21'-3"	22'-6"
F SPREAD FTG.		1'-3"	1'-3"	1'-3"	1'-3"	1'-6"	1'-6"	1'-9"	2'-3"	2'-3"	2'-9"	3'-3"	3'-9"	3'-9"
BATTER		0	0	0	0	0	0	0	0	0	¼:12	½:12	½:12	½:12
STEM THICKNESS @ HAUNCH		1'-0"	1'-0"	1'-0"	1'-0"	1'-3"	1'-3"							
STEM THICKN @ TOP								1'-6"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"
a BARS				#6@12**	#5 @ 6*	#8@12**	#8 @ 9*	#9@12**	#9@12**	#7 @ 6*	#7 @ 6*	#7 @ 6*	#9 @ 9*	#11@12**
Y				5'-6"	5'-6"	6'-0"	6'-6"	8'-0"	8'-6"	9'-6"	11'-0"	12'-6"	13'-6"	14'-6"
b BARS		#5 @ 9	#6 @ 9	#6@12**	#5 @ 6*	#8@12**	#8 @ 9*	#9@12**	#9@12**	#7 @ 6*	#7 @ 6*	#7 @ 6*	#9 @ 9*	#11@12**
Y		CONT	CONT	CONT	CONT	8'-6"	11'-0"	11'-0"	11'-6"	17'-0"	19'-6"	21'-6"	24'-0"	24'-0"
c BARS						#6 @ 12	#7 @ 18	#7 @ 12	#7 @ 12	#6 @ 12	#6 @ 12	#6 @ 12	#7 @ 18	#7 @ 12
SHORTd BARS		#5 @ 9	#6 @ 9	#7@18**	#5 @ 6*	#8@12**	#8 @ 9*	#9@12**	#9@12**	#7 @ 6*	#9 @ 6*	#9 @ 6*	#9 @ 9*	#8 @ 6*
X		CONT	CONT	6'-0"	5'-6"	7'-0"	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"
d BARS				#7@18**	#5 @ 6*	#9@18**	#8 @ 9*	#9@12**	#9@12**	#7 @ 6*	#9 @ 6*	#9 @ 6*	#9 @ 9*	#8 @ 6*
X				CONT	CONT	CONT	CONT	CONT	CONT	CONT	CONT	CONT	CONT	CONT
ULTIMATE BEARING CAPACITY REQUIRED k/sf		7.8	9	10.3	11.8	12.6	14.3	16.2	17.3	19.1	20.6	22.3	24.5	25.8



SPREAD FOOTING SECTION
NO SCALE

CONT = CONTINUOUS
* = a AND b [SHORT d & d] BARS ARE BUNDLED TOGETHER.
** = ALTERNATE a AND b BARS AS SHOWN IN DETAIL A.
= ALTERNATE SHORT d AND d BARS.

DESIGN DATA

DESIGN: LOAD FACTOR DESIGN (LFD)

CONCRETE: REINFORCED CONCRETE, fc = 3600 psi
fy = 60000 psi

LOADING CASE:

LEVEL GROUND WITH 240 psf SURCHARGE AND 16' SOUNDWALL.
SEISMIC LOAD = 0.3 DEAD LOAD
WIND LOAD = 30 psf
DEAD LOAD OF SOUNDWALL = 1414 lb/lf
DEAD LOAD OF BARRIER = 372 lb/lf

SEISMIC LOAD: SOIL

K_h = 0.3g
K_v = 0.0
K_{ae} : MONOBE-OKABE METHOD

SOIL: = 34° γ = 120 pcf

EQUIVALENT FLUID PRESSURE:
= 36 pcf MAX. FOR DETERMINATION OF TOE PRESSURE
= 27 pcf MAX. FOR DETERMINATION OF HEEL PRESSURE

EXTERNAL STABILITY:

GROUP 1 : D+E = SC
GROUP 2 : D+E+SC+W
GROUP 3 : D = PYM

INTERNAL STABILITY (LFD):

GROUP A : βD+1.7E+1.7SC
GROUP B : βD+1.7E+1.7SC+W
GROUP C :
STEM : 1.0D+1.0E+1.0EQD+1.0EQE
FOOTING : D+PYM

WHERE : β = 1.0 OR 1.3 WHICHEVER CONTROLS DESIGN
D = DEAD LOAD
E = LATERAL EARTH PRESSURE
SC = SURCHARGE
W = WIND LOAD
EQD = SEISMIC DEAD LOAD
EQE = SEISMIC LATERAL EARTH PRESSURE
PYM = PROBABLE YIELD MOMENT (1.3* NOMINAL YIELD MOMENT OF STEM)

GENERAL NOTES

1. FOR SOUNDWALL AND RETAINING WALL ARCHITECTURAL FINISH OR TEXTURE SEE DETAILS ELSEWHERE IN PROJECT PLANS.
2. FOR DETAILS NOT SHOWN AND DRAINAGE NOTES SEE B3-8
3. FOOTING COVER, 1'-6" MINIMUM.
4. FOR SOUNDWALL REINFORCEMENTS, SEE "SOUNDWALL MASONRY BLOCK" SHEETS IN STANDARD PLANS.

STANDARD DRAWING
FILE NO. xs14-350x
APPROVAL DATE July 2011

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

BRIDGE NO. X
POST MILE X

SW-69
SOUND WALL ON RETAINING WALL TYPE 5SWB

DS OSD 2147A (ENGLISH STANDARD DRAWING "XS" BORDER REV. (02-02-11)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: X
PROJECT NUMBER & PHASE: X
CONTRACT NO.: X

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES | SHEET X | OF X

FILE => 71170urn004.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:04

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	788	1475

REGISTERED CIVIL ENGINEER — DATE 4-17-12

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — MOHAMED GHANNOUM — No. 72051 — Exp. 6/30/14 — CIVIL — STATE OF CALIFORNIA

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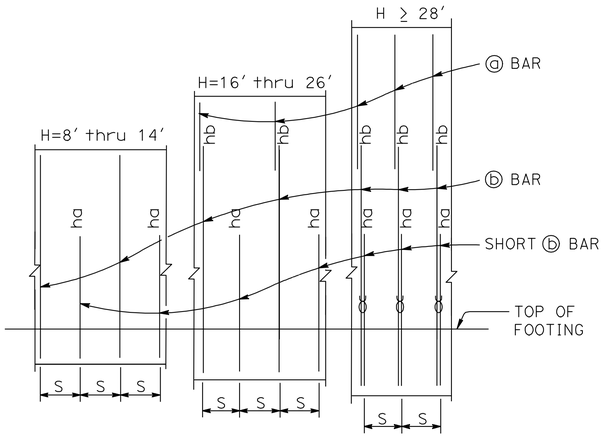
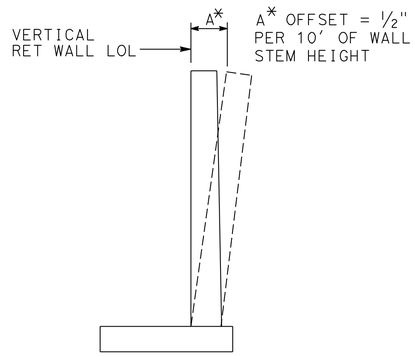


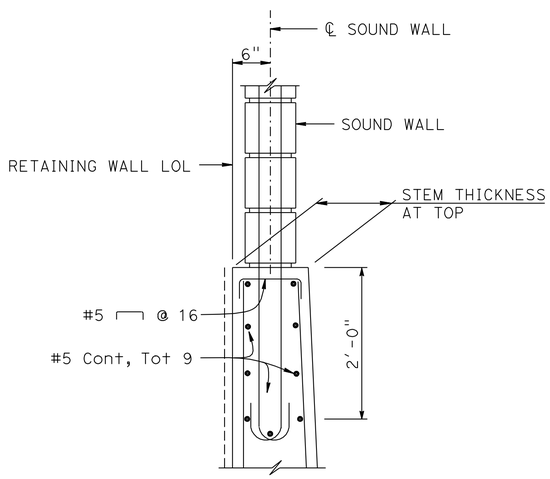
ELEVATION
No Scale

NOTES:
"ha", "hb" above ⓑ bars indicate distance from top of footing to upper end of ⓑ bars, see table.
"S" is ⓑ bar spacing, see table.



WALL OFFSET
No Scale

Values for offsetting forms to be determined by the Engineer



DETAIL A
1" = 1'-0"

DESIGN DATA

Design: AASHTO LRFD Bridge Design Specifications, 4th edition with California Amendments

WS: 33 psf on Sound wall

LS: Varied surcharge on level ground surface

EQE: Mononabe-Okabe Method
K_h = 0.3
K_v = 0.0

Soil: Ø = 34°
γ = 120 pcf

Reinforced Concrete: f'c = 3600 psi
fy = 60,000 psi

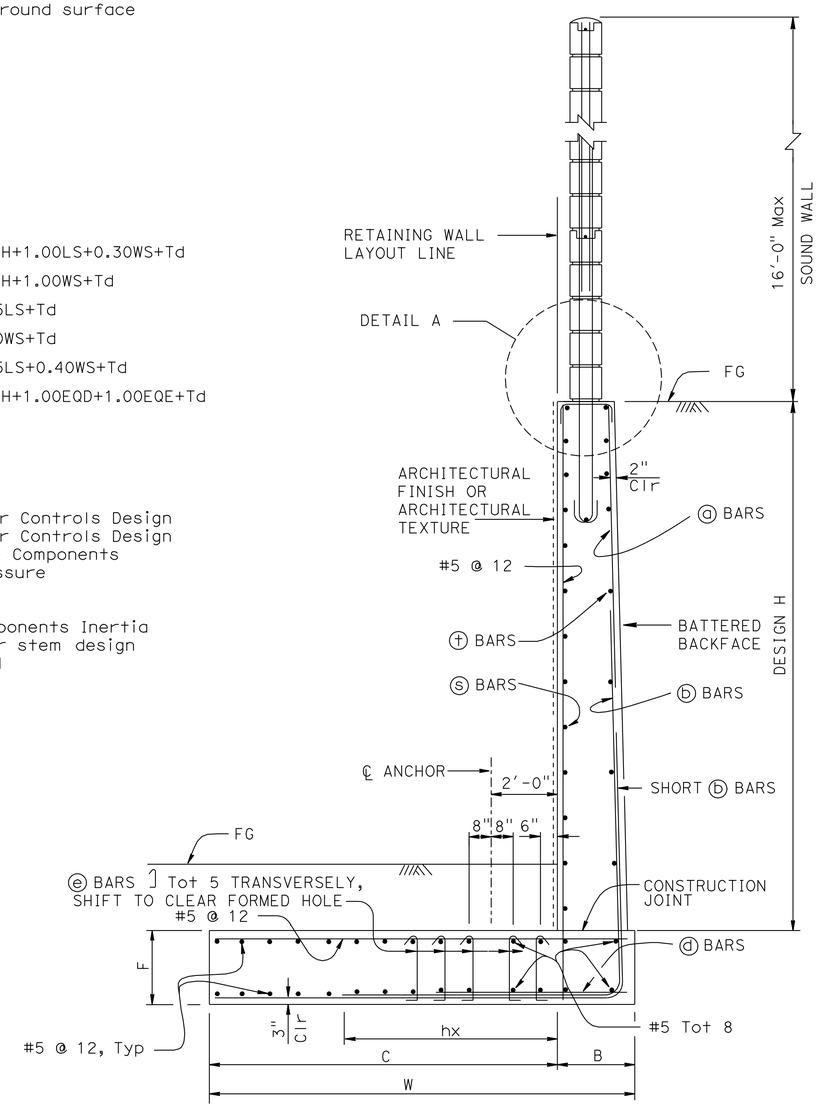
Load Combinations and Limit States

Service I	Q=1.00DC+1.00EV+1.00EH+1.00LS+0.30WS+Td
Service II	Q=1.00DC+1.00EV+1.00EH+1.00WS+Td
Strength I	Q=aDC+βEV+1.50EH+1.75LS+Td
Strength III	Q=aDC+βEV+1.50EH+1.40WS+Td
Strength V	Q=aDC+βEV+1.50EH+1.35LS+0.40WS+Td
Extreme I	Q=1.00DC+1.00EV+1.00EH+1.00EQD+1.00EQE+Td

Where:
- Q: Force Effects
- a: 1.25 or 0.90, Which ever Controls Design
- β: 1.35 or 1.00, which ever Controls Design
- DC: Dead Load of Structure Components
- EV: Vertical Earth Fill Pressure
- LS: Live Load Surcharge
- EQE: Seismic Earth Pressure
- EQD: Soil and Structure Components Inertia Soil inertia ignored for stem design
- WS: Wind Load on Sound wall
- Td: Anchor Design Load

NOTES:

1. For Sound wall and Retaining wall Architectural finish or texture see Details elsewhere in Project Plans
2. For Details not shown and Drainage Notes see (3-5)
3. Footing cover, 2'-0" minimum.
4. For Sound wall reinforcement details, see "SOUND WALL - MASONRY BLOCK ON RETAINING WALL" sheet.
5. Shift ⓑ bars and ⓓ bars as required to clear formed hole for ground anchor.
6. Footing is designed to resist 1.33 Td assuming the maximum anchor spacing shown in the table.



SPREAD FOOTING SECTION
No Scale

STANDARD DRAWING		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES	BRIDGE NO. X / POST MILE	SW-70
FILE NO. xs14-380-1	APPROVAL DATE July 2011				SOUND WALL ON RETAINING WALL TYPE 7SW - DETAILS NO.1

DS OSD 2147A (ENGLISH STANDARD DRAWING "XS" BORDER REV. (02-02-11)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: X
PROJECT NUMBER & PHASE: X
CONTRACT NO.: X

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES | SHEET X | OF X

FILE => 71170urn005.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:04

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	789	1475

REGISTERED CIVIL ENGINEER 4-17-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MOHAMED GHANNOUM No. 72051 Exp. 6/30/14 CIVIL STATE OF CALIFORNIA

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TABLE OF WALL DIMENSIONS, REINFORCING STEEL, AND BEARING STRESS

DESIGN H	8′	10′	12′	14′	16′	18′	20′	22′	24′	26′	28′	30′	32′
W	6′-9"	7′-6"	7′-0"	7′-6"	8′-6"	9′-3"	10′-3"	11′-3"	12′-3"	13′-0"	14′-3"	15′-3"	16′-3"
C	5′-6"	6′-3"	5′-6"	6′-0"	6′-9"	7′-3"	8′-0"	8′-6"	9′-6"	10′-0"	10′-10"	11′-6"	12′-5"
B	1′-3"	1′-3"	1′-6"	1′-6"	1′-9"	2′-0"	2′-3"	2′-9"	2′-9"	3′-0"	3′-5"	3′-9"	3′-10"
F	1′-6"	2′-0"	2′-4"	2′-4"	2′-6"	2′-6"	2′-9"	2′-9"	3′-0"	3′-3"	3′-6"	3′-9"	4′-0"
STEM THICKNESS AT TOP	1′-0"	1′-0"	1′-3"	1′-3"	1′-7"	1′-9"	2′-0"	2′-0"	2′-0"	2′-0"	2′-0"	2′-3"	2′-3"
BATTER	0	0	0	0	0	0	0	1/4:12	1/4:12	1/4:12	1/2:12	1/2:12	1/2:12
ⓐ BARS					#5 @ 14	#6 @ 13	#6 @ 13	#6 @ 13	#6 @ 11	#7 @ 12	#7 @ 11	#7 @ 10	#8 @ 11
ⓑ BARS	#5 @ 6	#5 @ 5.5	#6 @ 5	#6 @ 5	#8 @ 7	#8 @ 6.5	#9 @ 6.5	#9 @ 6.5	#9 @ 5.5	#10 @ 6	#10 @ 11ϒ	#10 @ 10ϒ	#11 @ 11ϒ
ha	7′-10"	9′-10"	5′-3"	6′-0"	6′-9"	7′-6"	7′-3"	9′-0"	9′-9"	9′-3"	11′-3"	13′-0"	13′-0"
hb					13′-0"	13′-0"	13′-0"	14′-6"	15′-6"	18′-6"	20′-6"	21′-6"	23′-0"
hx	5′-3"	6′-0"	5′-3"	5′-9"	6′-6"	7′-0"	7′-9"	7′-6"	8′-3"	9′-9"	10′-0"	11′-0"	12′-2"
ⓓ BARS	#5 @ 12	#5 @ 11	#5 @ 10	#5 @ 10	#5 @ 14	#5 @ 13	#5 @ 13	#5 @ 13	#5 @ 11	#5 @ 12	#5 @ 11	#5 @ 10	#5 @ 11
ⓓ BAR LENGTH	3′-6"	3′-6"	3′-6"	3′-6"	4′-6"	7′-0"	7′-6"	10′-9"	11′-9"	12′-6"	13′-9"	14′-9"	15′-9"
ⓔ BARS								#4 @ 13	#4 @ 11	#4 @ 12	#4 @ 11	#4 @ 10	#4 @ 11
ⓢ Bars	#4 @ 12	#4 @ 12	#5 @ 15	#5 @ 15	#5 @ 12	#5 @ 12	#6 @ 12	#6 @ 12	#6 @ 12	#6 @ 12	#6 @ 12	#7 @ 12	#7 @ 12
ⓣ Bars	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 12
Td (KIPS/FT)	0	0	5.25	7.5	9.0	11.25	12.75	15.0	16.5	21.0	21.75	24.75	27.75
To (KIPS/FT)	0	0	*	*	*	*	*	*	*	*	*	*	*
Tp = Larger of 1.33 Td & 1.25 To (KIPS/FT)	0	0	*	*	*	*	*	*	*	*	*	*	*
Max ANCHOR SPACING			10′-6"	9′-6"	7′-9"	6′-3"	7′-9"	6′-6"	8′-0"	6′-3"	6′-0"	5′-3"	4′-9"
SER I: B′(ft), q'_0 (ksf)	6.3, 0.6	6.9, 0.7	5.7, 2.1	6.1, 2.4	7.4, 2.4	8.1, 2.7	9.1, 2.8	9.8, 3.0	10.9, 3.0	11.4, 3.5	12.6, 3.5	13.6, 3.7	14.7, 3.8
STR Ia: B′(ft), q_0(ksf)	6.5, 1.3	6.7, 1.6	5.4, 3.3	5.7, 3.7	6.7, 3.8	7.4, 4.2	8.2, 4.3	8.9, 4.8	9.8, 4.9	10.1, 5.5	11.2, 5.6	12.1, 5.9	12.8, 6.2
STR, Ib: B′(ft), q_0(ksf)	5.7, 1.2	5.7, 1.5	4.6, 3.3	5.0, 3.7	5.9, 3.8	6.6, 4.0	7.3, 4.2	7.9, 4.6	8.7, 4.7	9.1, 5.3	10.0, 5.4	10.8, 5.7	11.5, 6.0
STR, IIIa: B′(ft), q_0(ksf)	5.0, 1.9	5.7, 2.6	4.9, 4.0	5.4, 4.4	6.4, 4.0	7.2, 4.5	8.2, 4.6	9.0, 4.9	10.0, 4.9	10.4, 5.4	11.6, 5.4	12.6, 5.7	13.4, 5.8
STR, IIIb: B′(ft), q_0(ksf)	3.7, 2.3	4.2, 2.8	4.0, 4.2	4.5, 4.5	5.6, 4.2	6.3, 4.5	7.2, 4.5	8.0, 4.8	8.9, 4.7	9.4, 5.3	10.4, 5.3	11.3, 5.3	12.1, 5.6
STR, Va: B′(ft), q_0(ksf)	6.0, 1.4	6.4, 1.7	5.2, 3.4	5.5, 3.8	6.6, 3.9	7.3, 4.3	8.2, 4.5	8.8, 4.8	9.8, 4.9	10.2, 5.6	11.2, 5.5	12.2, 5.9	12.9, 6.1
STR, Vb: B′(ft), q_0(ksf)	5.0, 1.3	5.2, 1.6	4.4, 3.4	4.8, 3.8	5.7, 3.8	6.4, 4.2	7.2, 4.4	7.8, 4.7	8.7, 4.8	9.1, 5.5	10.0, 5.4	10.9, 5.8	11.6, 6.0
Ext I: B′(ft), q_0(ksf)	3.4, 2.0	3.1, 3.6	2.4, 6.5	2.6, 8.1	3.0, 7.7	3.3, 9.0	3.5, 9.4	3.9, 10.1	4.3, 10.4	4.4, 11.9	4.9, 11.9	5.3, 12.7	5.5, 13.4

NOTE:

ⓔ Bar spacing shown is along the length of the retaining wall.
* denotes values to be determined by designer, and this note is removed afterwards.

SYMBOLS:

SER: service limit state
STR: strength limit state
EXT: extreme event limit state
B′: effective footing width (ft)
q'_0: net bearing stress (ksf)
q_0: gross uniform bearing stress (ksf)
ϒ: 2 bar bundle
To: Anchor Lockoff Load
Tp: Anchor Factored Test Load

STANDARD DRAWING

FILE NO. xs14-380-2

APPROVAL DATE July 2011

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

BRIDGE NO. X
POST MILE X

SW-71

SOUND WALL ON RETAINING WALL TYPE 7SW - DETAILS NO.2

DS OSD 2147A (ENGLISH STANDARD DRAWING "XS" BORDER REV. (02-02-11)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: X
PROJECT NUMBER & PHASE: X
CONTRACT NO.: X

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES | SHEET X | OF X

FILE => 71170urn006.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:04

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	790	1475

4-17-12
REGISTERED CIVIL ENGINEER DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
MOHAMED GHANNOUM
No. C72051
Exp. 6/30/14
CIVIL
STATE OF CALIFORNIA

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NOTE:

(*) FOR ADDITIONAL QUANTITIES, SEE STRUCTURE PLAN AND RETAINING WALL PLAN.

SOUND WALL QUANTITIES

SOUND WALL	(*) BAR REINFORCING STEEL, RETAINING WALL	(*) STRUCTURAL CONCRETE, RETAINING WALL	(*) MINOR CONCRETE (GUTTER)	(*) PERVIOUS BACKFILL MATERIAL (RETAINING WALL)	(*) 16" CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WALL)	24" CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WALL)	SOUND WALL (MASONRY BLOCK)	CONCRETE BARRIER (TYPE 736SV)	(*) CONCRETE BARRIER (TYPE 736S)	CONCRETE BARRIER (TYPE 736A Mod)	CONCRETE BARRIER (TYPE 60D)	CONCRETE BARRIER (TYPE 736SV-S MODIFIED)
	LB	CY	CY	CY	LF	LF	SQFT	LF	LF	LF	LF	LF
SW 1758	3302.4	34.24			883.75		3873.31	505.33		48.00		
SW 1770					9421.25	178.50	40,304.00	3664.00				
SW 1775					9449.00	88.00	25,146.00	2139.33	96.00			107.34
SW 1805					3250.50		8615.00	685.00	160.00			
SW 1831					1660.25		8536.00	134.66	534.00			107.34
SW 1847	11250.4	117			6212.00		28,155.20	1624.83	574.00	164.00		107.67
SW 1871					8359.50		28,242.61	1951.80	593.38			107.34
SW 1888	23529.6	243.96			6197.00		31,807.44	3107.16			342.00	
SW 1899	40467	139	7	7.75	6304.00		26,833.73	1139.00	215.80			
SW 1935					4596.00	41.00	20,311.50	1139.00	5745.00			107.34
SW 1946					7104.00	44.00	19,372.01	1480.67				
SW 1959					694.50	33.00	4774.00	338.00	96.00			
TOTAL	78549.4	534.2	7	7.75	64,131.75	384.50	245,970.80	17,908.78	8014.18	212.00	342.00	537.03

CALCULATED-DESIGNED BY: NEIL LIANG
CHECKED BY: MOHAMED GHANNOUM
REVISED BY
DATE REVISED
FUNCTIONAL SUPERVISOR: NADER GOBRAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® OFFICE OF DESIGN D

SOUND WALL QUANTITIES

SW-72

LAST REVISION 00-00-00
DATE PLOTTED => 20-JUN-2013
TIME PLOTTED => 11:16

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	791	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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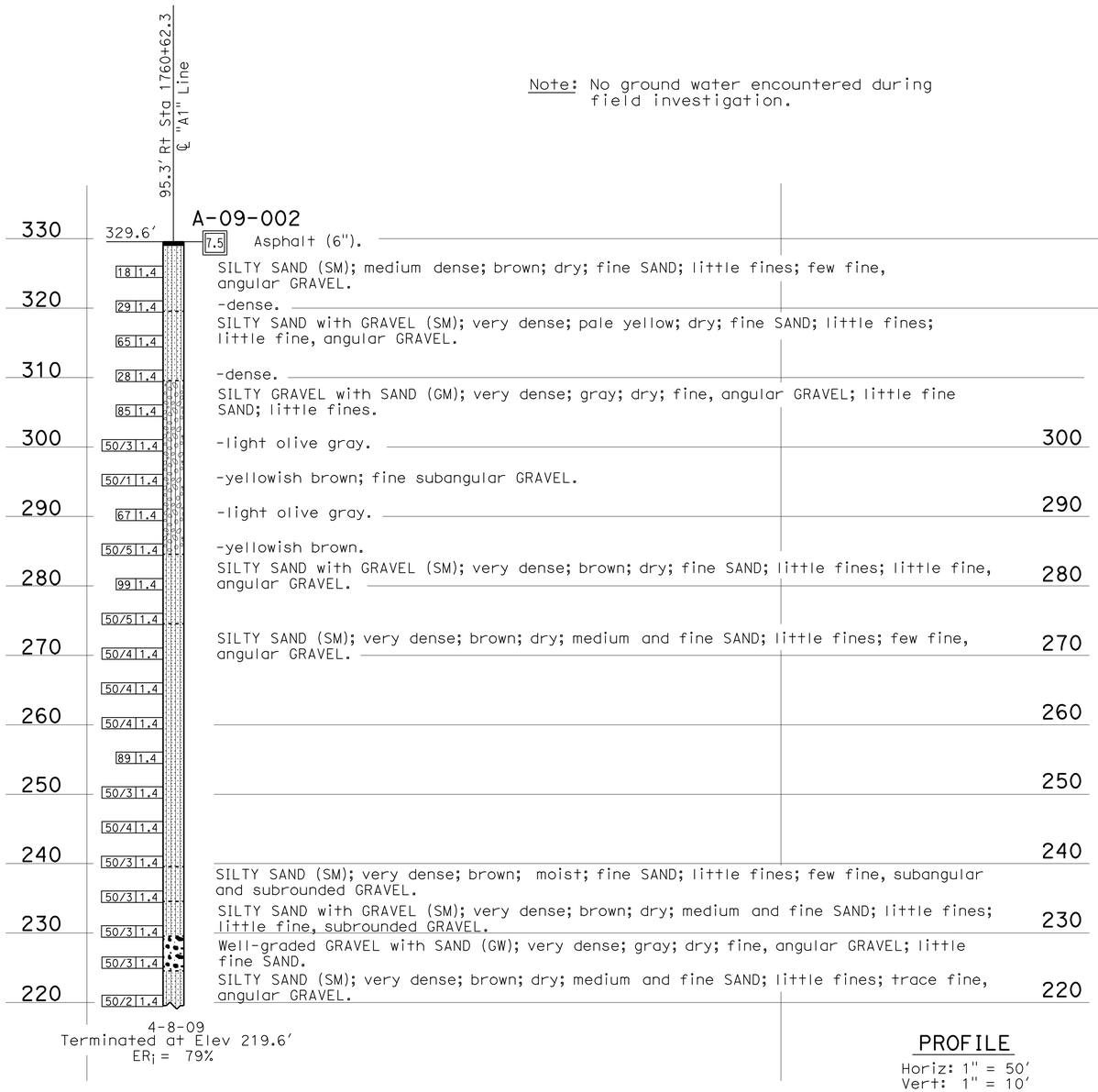
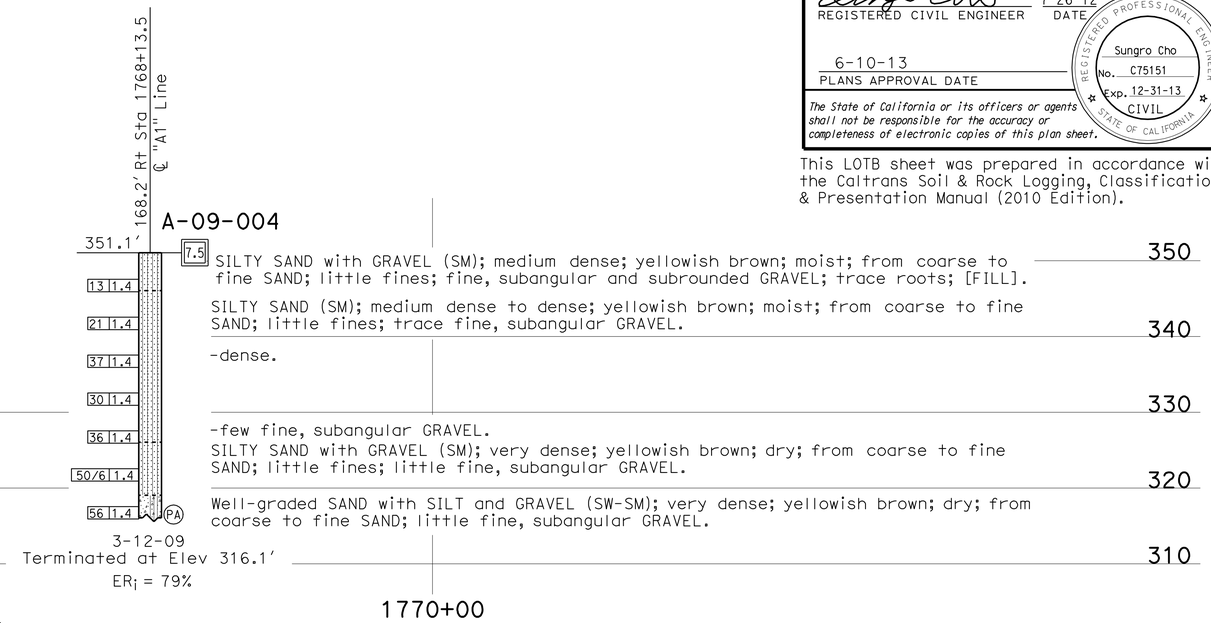
This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).

Note: No ground water encountered during field investigation.



PROFILE
Horiz: 1" = 50'
Vert: 1" = 10'



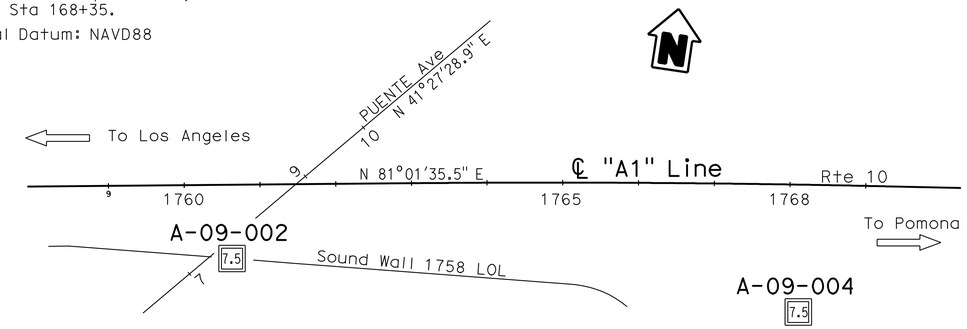
BENCH MARK

BM #11-B-43 Elev 346.47'
Lead and conc nail in sidewalk of Auto Ct. cabin #825 on N. side Gavey Ave 200'± of Puente Ave, 71' Lt Sta 181+30.5.

BM #12-B-43 Elev 352.54'
Lead and conc nail in W. end of p.c.c. porch step to frame house on N. side Gavey Ave, 91' Lt Sta 193+81.

TBM Elev 341.93'
Chiseled knob on p.c.c wall, 33.4' Rt Sta 168+35.

Vertical Datum: NAVD88



PLAN
1" = 100'

SW-73

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. SW 1758 POST MILE 33.4/37.1	SOUND WALL NO. 1758 LOG OF TEST BORINGS 1 OF 3
FUNCTIONAL SUPERVISOR NAME: D. Jang	DRAWN BY: I.G-Remmen CHECKED BY: H. P. Yang	FIELD INVESTIGATION BY: S. Cho			

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 08-16-11 07-12-12 05-24-13 SHEET X OF X

FILE => 71170urp001.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:04

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	792	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

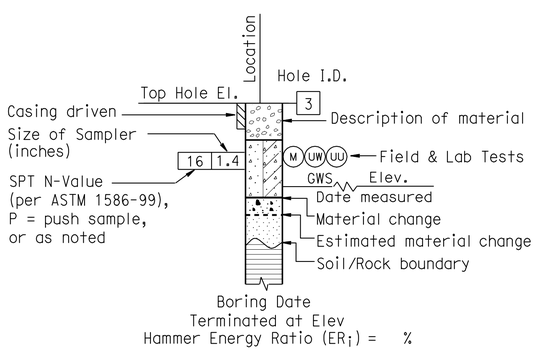
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R RC	Rotary drilled diamond core Rotary drilled rock core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
⬚	O	Other (note on LOTB)

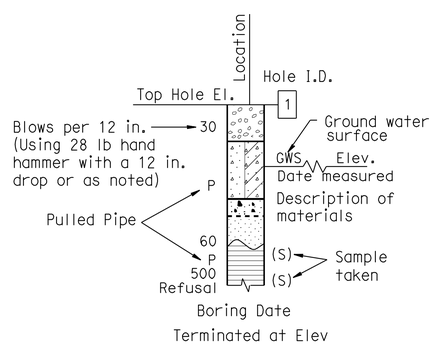
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

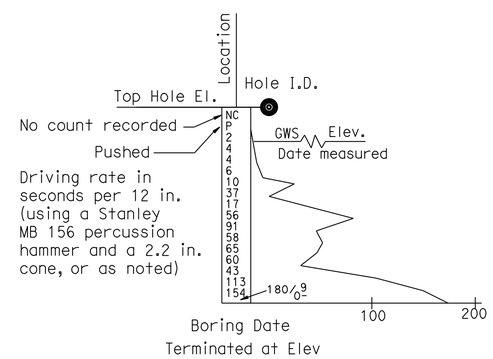
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



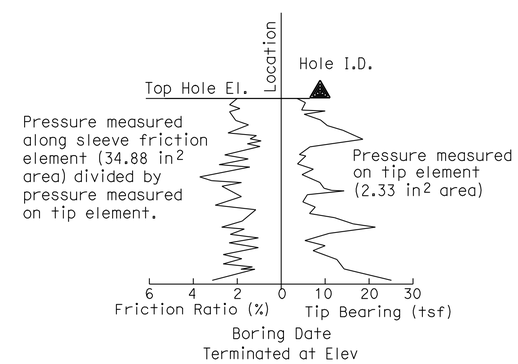
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

SW-74

ENGINEERING SERVICES	MATERIALS AND GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. SW 1758 POST MILE 33.4/37.1	SOUND WALL NO. 1758 LOG OF TEST BORINGS 2 OF 3
	PREPARED BY: I.G-Remmen				

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
04-17-12				X	X

FILE => 71170urp002.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:04

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	793	1475

REGISTERED CIVIL ENGINEER — DATE 7-26-12

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Sungro Cho — No. C75151 — Exp. 12-31-13 — CIVIL — STATE OF CALIFORNIA

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GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

SW-75

ENGINEERING SERVICES

MATERIALS AND GEOTECHNICAL SERVICES
PREPARED BY: I.G-Remmen

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH X

BRIDGE NO. SW 1758
POST MILE 33.4/37.1

SOUND WALL NO. 1758
LOG OF TEST BORINGS 3 OF 3

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851
CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES | SHEET X | OF X

FILE => 71170urp003.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:04

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	794	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).

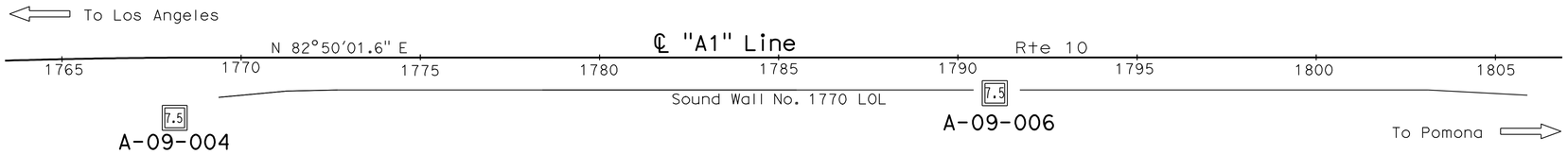
BENCH MARK

BM #11-B-43 Elev 346.47′
Lead and conc nail in sidewalk of Auto Ct. cabin #825 on N. side Gavey Ave 200′± of Puente Ave, 71′ Lt Sta 181+30.5.

BM #12-B-43 Elev 352.54′
Lead and conc nail in W. end of p.c.c. porch step to frame house on N. side Gavey Ave, 91′ Lt Sta 193+81.

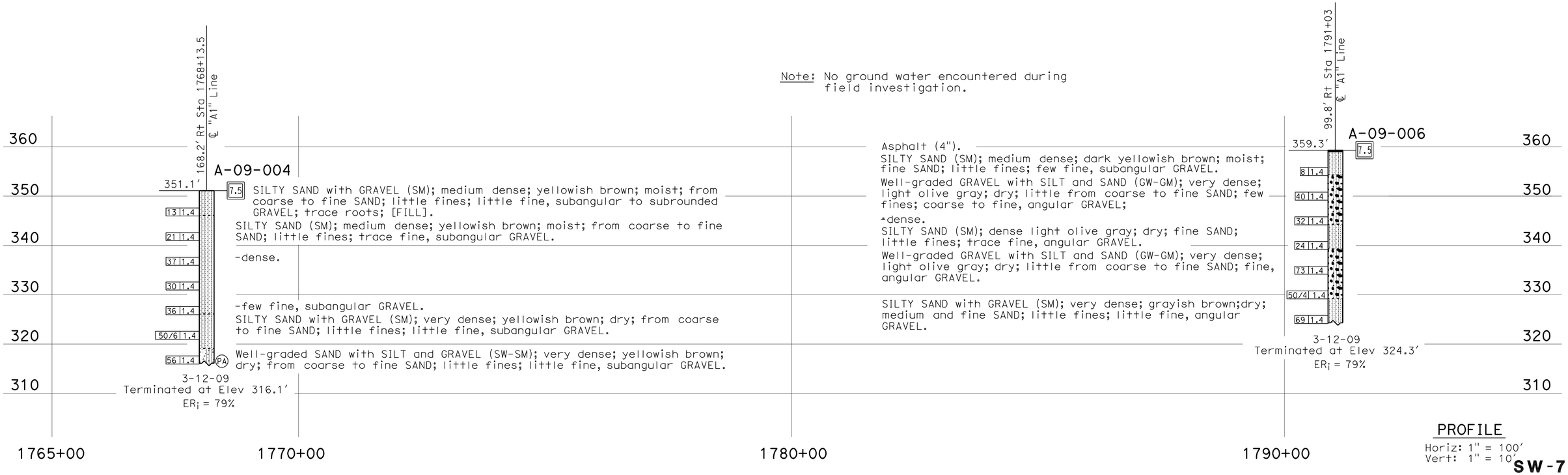
TBM Elev 341.93′
Chiseled knob on PCC wall, 33.4′ Rt Sta 168+35.

Vertical Datum: NAVD88



PLAN
1" = 200′

Note: No ground water encountered during field investigation.



PROFILE
Horiz: 1" = 100′
Vert: 1" = 10′

SW-76

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. SW 1770 POST MILE 33.4/37.1	SOUND WALL NO. 1770 LOG OF TEST BORINGS 1 OF 3
FUNCTIONAL SUPERVISOR NAME: D. Jang	DRAWN BY: C. Christian, I.G-Remmen CHECKED BY: H. P. Yang	FIELD INVESTIGATION BY: S. Cho			

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 08-16-11 07-13-12 07-26-12 SHEET X OF X

FILE => 71170urp004.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:04

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	795	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

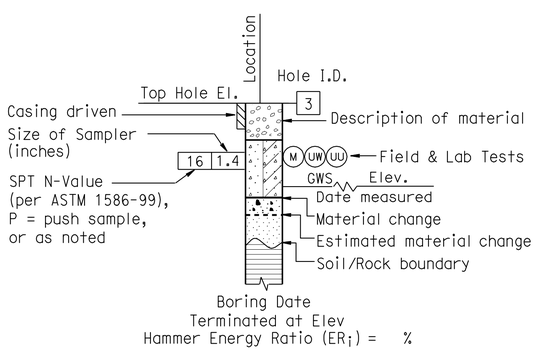
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R RC	Rotary drilled diamond core Rotary drilled rock core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
⬚	O	Other (note on LOTB)

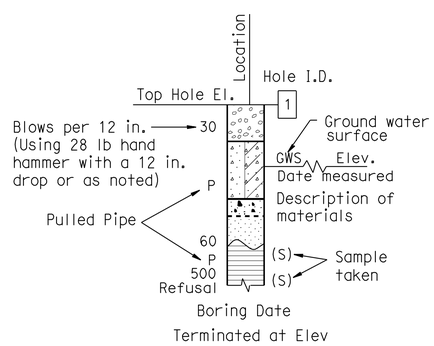
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

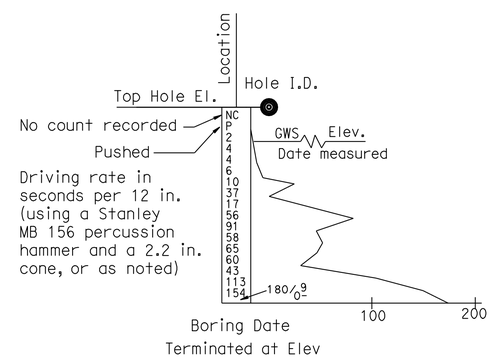
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



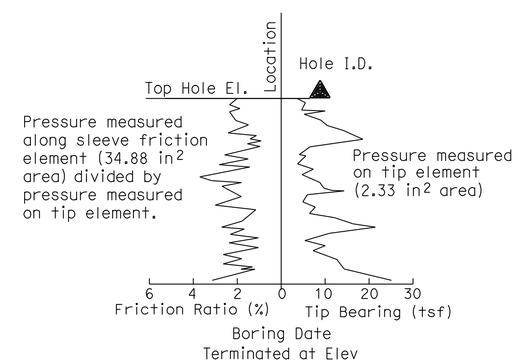
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

SW-77

ENGINEERING SERVICES	MATERIALS AND GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. SW 1770 POST MILE 33.4/37.1	SOUND WALL NO. 1770 LOG OF TEST BORINGS 2 OF 3
	PREPARED BY: I.G-Remmen				

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
04-17-12				X	X

FILE => 71170urp005.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:04

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	796	1475

REGISTERED CIVIL ENGINEER — DATE 7-26-12

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Sungro Cho — No. C75151 — Exp. 12-31-13 — CIVIL — STATE OF CALIFORNIA

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GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
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- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

SW-78

ENGINEERING SERVICES

MATERIALS AND GEOTECHNICAL SERVICES
PREPARED BY: I.G-Remmen

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN
DESIGN BRANCH X

BRIDGE NO. SW 1770
POST MILE 33.4/37.1

SOUND WALL NO. 1770
LOG OF TEST BORINGS 3 OF 3

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851
CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES | SHEET X | OF X

FILE => 71170urp006.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:04

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	797	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).

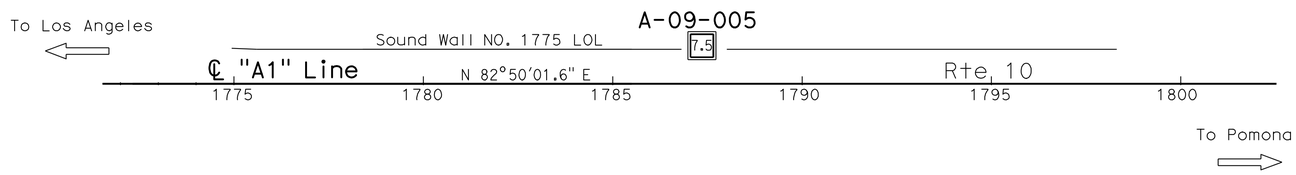
BENCH MARK

BM #11-B-43 Elev 346.47′
Lead and conc nail in sidewalk of Auto Ct. cabin #825 on N. side Gavey Ave 200′± of Puente Ave, 71′ Lt Sta 181+30.5.

BM #12-B-43 Elev 352.54′
Lead and conc nail in W. end of p.c.c. porch step to frame house on N. side Gavey Ave, 91′ Lt Sta 193+81.

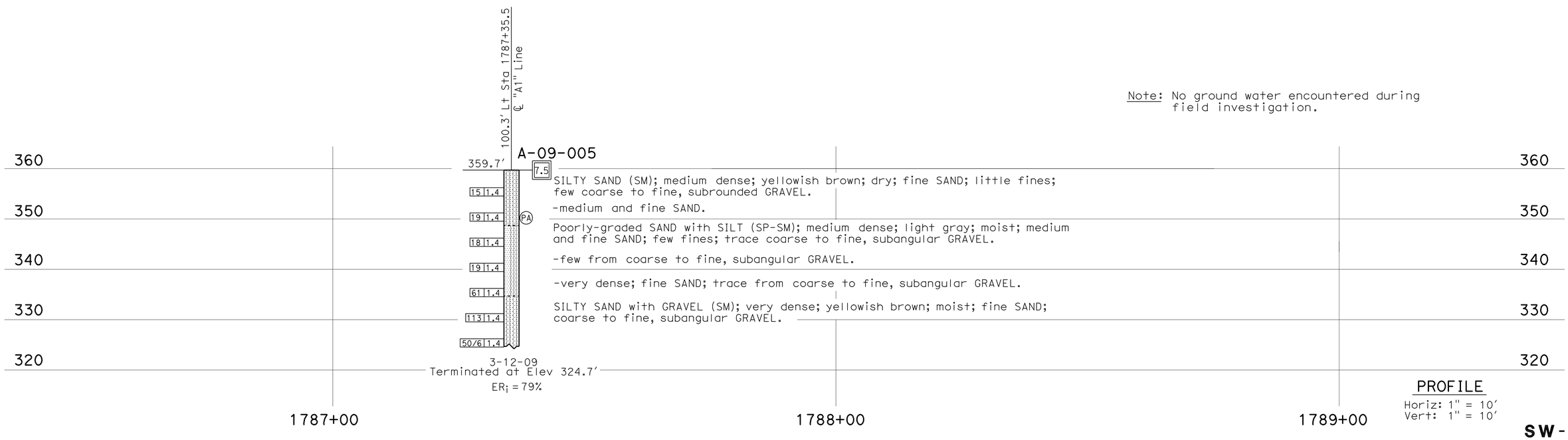
TBM Elev 341.93′
Chiseled knob on PCC wall, 33.4′ Rt Sta 168+35.

Vertical Datum: NAVD88



PLAN
1" = 200′

Note: No ground water encountered during field investigation.



PROFILE
Horiz: 1" = 10′
Vert: 1" = 10′

SW-79

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. SW 1775 / POST MILE 33.4/37.1	SOUND WALL NO. 1775
FUNCTIONAL SUPERVISOR NAME: D. Jang	DRAWN BY: C. Christian, I.G-Remmen / CHECKED BY: S. Han	FIELD INVESTIGATION BY: S. Cho			LOG OF TEST BORINGS 1 OF 3

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 08-18-11 08-19-11 10-18-11 07-12-12 SHEET X OF X

FILE => 71170urp007.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:04

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	798	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

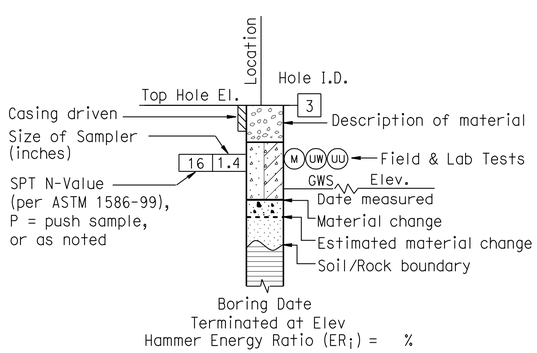
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R RC	Rotary drilled diamond core Rotary drilled rock core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
⬚	O	Other (note on LOTB)

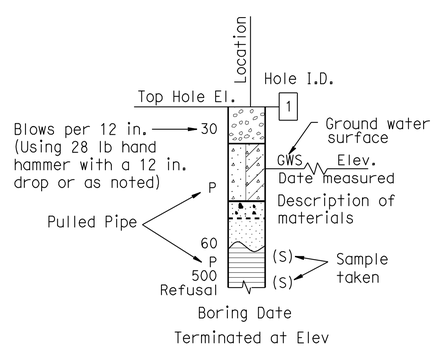
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

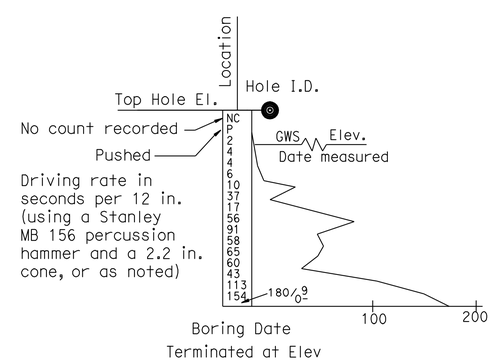
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



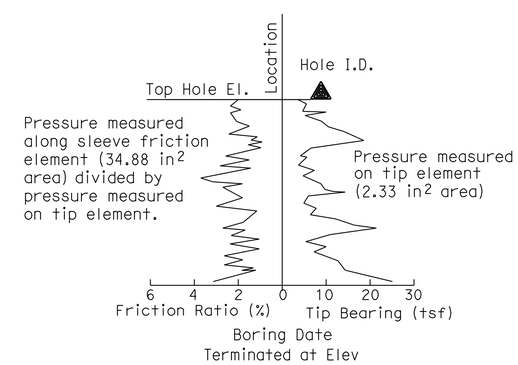
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

SW-80

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. SW 1775 / POST MILE 33.4/37.1	SOUND WALL NO. 1775 LOG OF TEST BORINGS 2 OF 3
	PREPARED BY: F. Nguyen				

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 10-13-11 | SHEET X | OF X

FILE => 71170urp008.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:04

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	799	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

SW-81

ENGINEERING SERVICES

GEOTECHNICAL SERVICES
PREPARED BY: F. Nguyen

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH X

BRIDGE NO. SW 1775
POST MILE 33.4/37.1

SOUND WALL NO. 1775
LOG OF TEST BORINGS 3 OF 3

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851
CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 10-13-11

SHEET X OF X

FILE => 71170urp009.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:05

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	33.2/37.2	800	1475

REGISTERED CIVIL ENGINEER 7-26-12 DATE

6-10-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sungro Cho No. C75151 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

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This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).

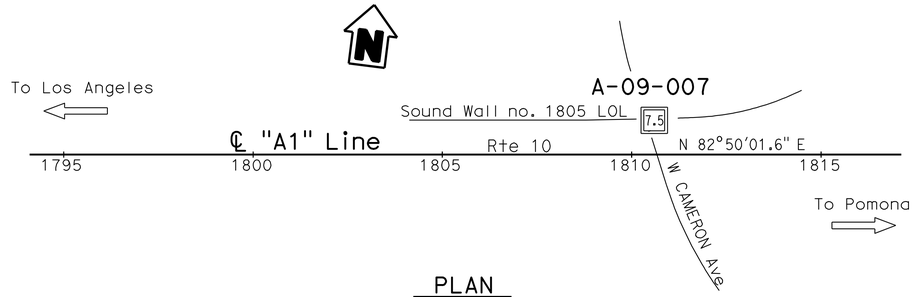
BENCH MARK

BM #11-B-43 Elev 346.47′
Lead and conc nail in sidewalk of Auto Ct. cabin #825 on N. side Gavey Ave 200′± of Puente Ave, 71′ Lt Sta 181+30.5.

BM #12-B-43 Elev 352.54′
Lead and conc nail in W. end of p.c.c. porch step to frame house on N. side Gavey Ave, 91′ Lt Sta 193+81.

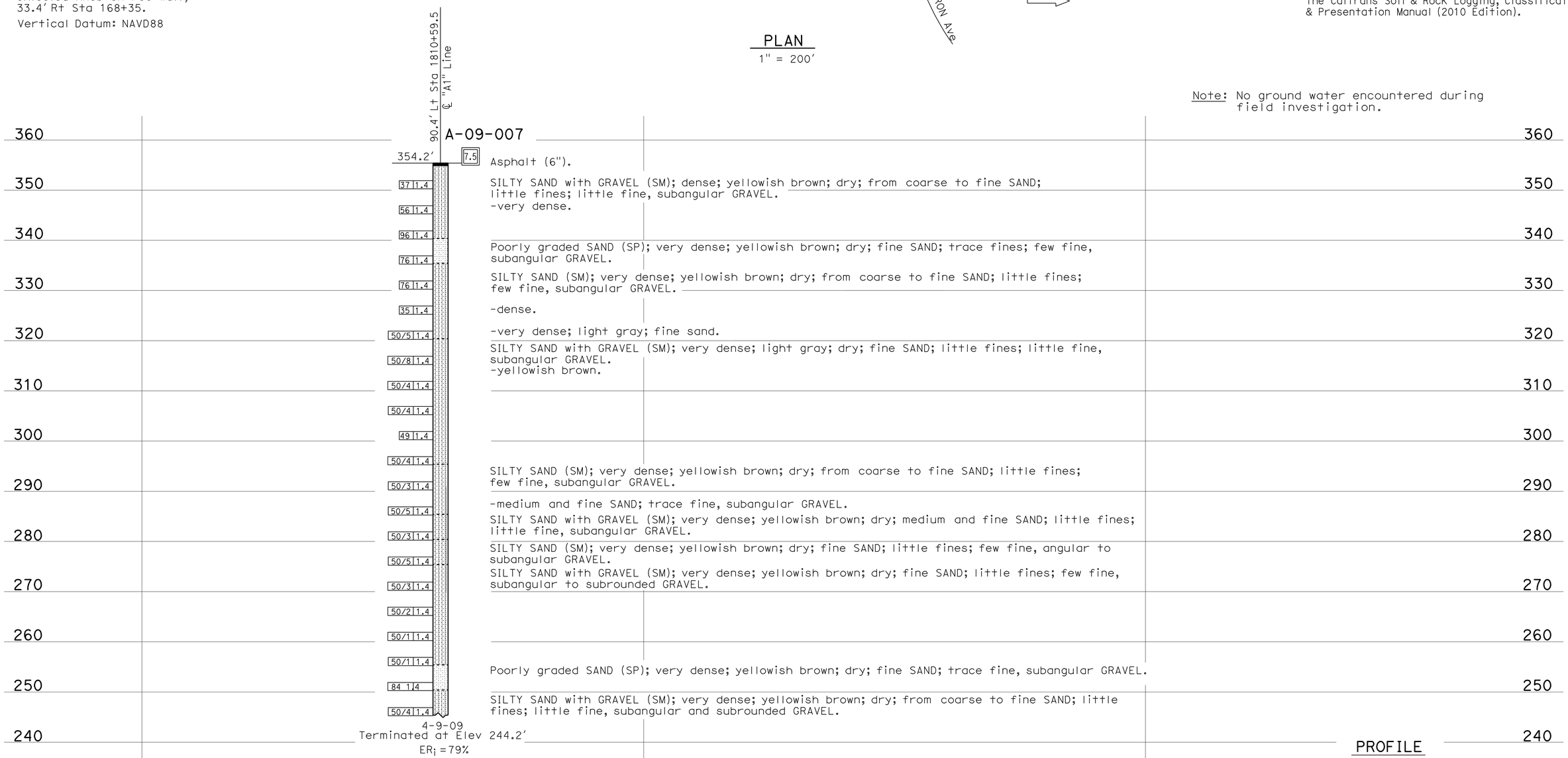
TBM Elev 341.93′
Chiseled knob on PCC wall, 33.4′ Rt Sta 168+35.

Vertical Datum: NAVD88



PLAN
1" = 200′

Note: No ground water encountered during field investigation.



PROFILE
Horiz: 1" = 10′
Vert: 1" = 10′

SW-82

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO. SW 1805 POST MILE 33.4/37.1	SOUND WALL NO. 1805 LOG OF TEST BORINGS 1 OF 3
FUNCTIONAL SUPERVISOR NAME: D. Jang	DRAWN BY: C. Christian, I.G-Remmen CHECKED BY: S. Han	FIELD INVESTIGATION BY: S. Cho			

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3643
PROJECT NUMBER & PHASE: 07000000851 CONTRACT NO.: 07-1170U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 08-16-11 07-12-12 05-30-13 SHEET X OF X

FILE => 71170urp010.dgn

USERNAME => s114640 DATE PLOTTED => 13-JUN-2013 TIME PLOTTED => 08:05