

# State Route 57/State Route 60 Confluence Project



## Noise Abatement Decision Report

Reference: Noise Study Report, State Route 57/State Route 60 Confluence Project

City of Industry and Diamond Bar, California

07-LA-57-PM-R4.3/R4.5 and R4.5/R4.8

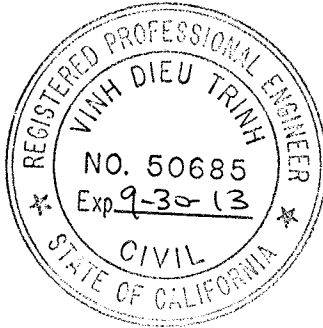
07-LA-60-PM-R23.7/R26.5

EA Number: 279100

June 2012



This Noise Abatement Decision Report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.



A handwritten signature in black ink, appearing to read "Vinh Trinh", written over a horizontal line.

VINH TRINH, REGISTERED CIVIL ENGINEER

7-2-2012  
DATE

## List of Abbreviated Terms

Caltrans	California Department of Transportation
CFR	Code of Federal Regulations
dB	A measure of sound pressure level on a logarithmic scale
dBA	A-weighted sound pressure level
FHWA	Federal Highway Administration
$L_{eq}$	Equivalent sound level (energy averaged sound level)
$L_{eq}[h]$	A-weighted, energy average sound level during a 1-hour period
Benefited residence	A dwelling unit expected to receive a noise reduction of at least 5 dBA from the proposed abatement measure
Critical design receiver	The design receiver that is impacted and for which the absolute noise levels, build vs. existing noise levels, or achievable noise reduction will be at a maximum where noise abatement is considered
Planned, designed, and programmed	A noise-sensitive land use is considered planned, designed, and programmed when it has received final development approval (generally the issuance of a building permit) from the local agency with jurisdiction
Date of public knowledge	The date that a project is approved—approval of the final environmental documentation (e.g., Record of Decision) is complete
NSR	Noise study report
NADR	Noise Abatement Decision Report
NAC	Noise abatement criteria
ED	Environmental document
Reasonable allowance	A single dollar value—a reasonable allowance per benefited residence that embodies five reasonableness factors

# 1. Introduction

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The Noise Abatement Decision Report (NADR) presents the preliminary noise abatement decision as defined in the Caltrans Traffic Noise Analysis Protocol (Protocol). This report has been approved by a California licensed professional civil engineer. The project level Noise Study Report (NSR) (ICF International, 2011) prepared for this project is hereby incorporated by reference.

## 1.1. Noise Abatement Assessment Requirements

Title 23, Code of Federal Regulations (CFR), Part 772 of the Federal Highway Administration (FHWA) standards (23 CFR 772), and the Caltrans Traffic Noise Analysis Protocol (Protocol) require that noise abatement be considered for projects that are predicted to result in traffic noise impacts. A traffic noise impact is considered to occur when future predicted design-year noise levels with the project “approach or exceed” Noise Abatement Criteria (NAC) defined in 23 CFR 772 or when the predicted design-year noise levels with the project substantially exceed existing noise levels. A predicted design-year noise level is considered to “approach” the NAC when it is within 1 dB of the NAC. A substantial increase is defined as being a 12-dB increase above existing conditions.

23 CFR 772 requires that noise abatement measures that are reasonable and feasible and are likely to be incorporated into the project be identified before adoption of the final environmental document.

The Protocol establishes a process for assessing the reasonableness and feasibility of noise abatement. Before publication of the draft environmental document, a *preliminary noise abatement decision* is made. The preliminary noise abatement decision is based on the *feasibility* of evaluated abatement and the *preliminary reasonableness determination*. Noise abatement is considered to be acoustically feasible if it provides noise reduction of at least 5 dBA at receivers subject to noise impacts. Other nonacoustical factors relating to geometric standards (e.g., sight distances), safety, maintenance, and security can also affect feasibility.

The preliminary reasonableness determination is made by calculating an allowance that is considered to be a reasonable amount of money, per benefited residence, to spend on abatement. This *reasonable allowance* is then compared to the engineer’s cost estimate for the abatement. If the engineer’s cost estimate is less than the allowance, the

preliminary determination is that the abatement is reasonable. If the cost estimate is higher than the allowance, the preliminary determination is that abatement is not reasonable.

The NADR presents the preliminary noise abatement decision based on acoustical and nonacoustical feasibility factors and the relationship between noise abatement allowances and the engineer's cost estimate. The NADR does not present the final decision regarding noise abatement; rather, it presents key information on abatement to be considered throughout the environmental review process, based on the best available information at the time the draft environmental document (ED) is published. The final overall reasonableness decision will take this information into account, along with other reasonableness factors identified during the environmental review process. These factors may include:

- impacts of abatement construction
- public and local agency input
- life cycle of abatement measures
- views/opinions of impacted residents
- social, economic, environmental, legal, and technological factors

At the end of the public review process for the ED, the final noise abatement decision is made and is indicated in the final ED. The preliminary noise abatement decision will become the final noise abatement decision unless compelling information received during the environmental review process indicates that it should be changed.

## **1.2. Purpose of the Noise Abatement Decision Report**

The purpose of the NADR is to:

- summarize the conclusions of the NSR relating to acoustical feasibility and the reasonable allowances for abatement evaluated
- present the engineer's cost estimate for evaluated abatement
- present the preliminary noise abatement decision

The NADR does not address noise walls or other noise-reducing treatments required as mitigation for significant adverse environmental effects identified under the California Environmental Quality Act (CEQA).

### **1.3. Project Description**

The City of Industry and the city of Diamond Bar (Diamond Bar), in cooperation with the California Department of Transportation (Caltrans), propose freeway improvements to the State Route (SR) 57/SR-60 confluence at the Grand Avenue interchange in Los Angeles County. The primary purpose of the proposed project is to improve traffic operations and safety on SR-57 and SR-60 at the Grand Avenue interchange. Portions of the proposed project are located within the City of Industry and Diamond Bar, with the project limits on SR-60 from 0.4 miles east of Brea Canyon Rd to 0.5 miles east of Diamond Bar, and on SR-57 from 0.8 miles south of Sunset Crossing Road to 1.2 miles north of Pathfinder Road.

This project proposes to reconfigure the existing Grand Avenue interchange, build an eastbound SR-60 bypass off-ramp to Grand Avenue west of the SR-57 & SR-60 merge, and build an eastbound bypass connector at the SR-57/SR-60 diverge east of Grand Avenue, to accommodate the future traffic volume of a rapidly growing region. A no-build alternative and two build alternatives are considered. The existing Grand Avenue overcrossing would be replaced with a wider and longer structure in the two build alternatives. The new Grand Avenue interchange would accommodate the projected traffic volume generated by the regional Southern California Association of Governments (SCAG) model for the year 2037.

Two build alternatives in addition to the no-build alternative are being evaluated. A summary of the alternatives are presented below in the PA/ED process.

#### **Alternative 1**

Alternative 1 is the no-build alternative. No improvement is proposed. This alternative would not alleviate the traffic and safety concerns and does not meet the need and purpose of the project.

#### **Alternative 2**

Alternative 2 and 3 are build alternatives that would address the need and purpose of the project. Common features of alternatives 2 and 3 include construction of eastbound SR-

60 bypass off-ramp, eastbound bypass connector at SR-57 diverge, southbound SR-57 auxiliary lane to Grand Ave, and realignment of the westbound SR-60 off-ramp and Grand Ave intersection.

Alternative 2 would maintain the existing interchange configuration (compact-diamond) for the eastbound on and off ramps on SR-60. The interchange configuration at Grand Avenue for Alternative 2 would remain as a combination of partial cloverleaf for the westbound SR-60 on- and off-ramps. An eastbound auxiliary lane would be added connecting the relocated two lane eastbound SR-60 on-ramp from Grand Avenue to the new connector that bypasses the north/east SR-57/SR-60 interchange.

For Alternative 2, the existing Grand Avenue overcrossing would be replaced by a 10-lane, 148 feet-wide structure over SR-60. The bridge would contain eight through lanes and two 450 foot-long double left-turn lanes for the southbound left turn at Grand Avenue to the eastbound on-ramp.

Under both Alternatives 2 and 3, a noise barrier is proposed as part of the project to be constructed on top of proposed retaining walls. The proposed noise barrier (Noise Wall G-1) would be located in the eastern portion of the Diamond Bar Golf Course and with the wall height of 12 feet. The barrier would have a length of approximately 3,000 feet (Station 1295+00 to Station 1326+01)

The Noise Study Report (NSR) and Noise Abatement Decision Report (NADR) will recommend reasonable and feasible noise barriers for both private and public property in addition to the golf course noise wall proposed as part of the project. Residential properties and outdoor areas of hotels in the study area were considered noise-sensitive resources with potential long-term exposure to noise.

### **Alternative 3**

Alternative 3 is similar to Alternative 2 with no differences in the WB SR-60 directions. The main difference of Alternative 3 when compared to Alternative 2 is the eastbound SR-60 interchange at Grand Avenue. Under Alternative 3 the existing eastbound on and off ramps at Grand Avenue, which form a compact diamond interchange, would be reconfigured as a partial cloverleaf interchange to include a loop on-ramp. The new loop on-ramp would allow right turn access for southbound Grand Ave traffic, reducing the signal phases at the intersection. The intersection of Grand Avenue and the new eastbound loop on ramp and relocated off ramp would be placed approximately 500 feet

south of the existing intersection, or about mid-way between the freeway and Golden Springs Drive. The existing eastbound on-ramp would be realigned to accommodate the widened Grand Avenue and additional freeway lanes.

Similar to Alternative 2, the existing Grand Avenue overcrossing would be replaced with a new overcrossing structure over SR-60. However, unlike Alternative 2, a double left-turn lane from southbound Grand Avenue to the eastbound on-ramp would not be required, since vehicles traveling on southbound Grand Avenue would access northbound SR-57 and eastbound SR-60 by way of the new loop on-ramp on the west side of Grand Avenue.

#### 1.4. Affected Land Use

Land uses in the project area have been grouped into a series of lettered analysis areas, which are shown in Figure 1.

**Area A: Areas east of South Diamond Bar Boulevard.** This area includes all locations in the study area east of Diamond Bar Boulevard, where SR-57 and SR-60 diverge. In this area, SR-60 is a 10-lane roadway (including one HOV lane in each direction) with paved shoulders. The SR-60 eastbound on-ramp extends along the southeast quadrant of the interchange. Land uses in this area consist of single-family residences (Activity Category B) and commercial uses (Activity Category F). Outdoor areas considered areas of frequent human use include the private yards associated with the residences.

**Area B: South of SR-60, South Prospectors Road to South Diamond Bar Boulevard.** This area is near the eastern convergence of SR-57 and SR-60. In this area, northbound SR-57 runs through a tunnel under SR-60, which is a 10-lane roadway (including one HOV lane in each direction) with paved shoulders. Land uses in this area consist of multifamily residences (Activity Category B), a hotel (Activity Category E), and commercial uses (Activity Category F). Outdoor areas considered areas of frequent human use include the tennis courts and swimming pool within the multifamily residential development. The hotel includes a swimming pool, which would be considered an area of frequent outdoor use.

**Area C: North of SR-57/SR-60, Grand Avenue to Rock River Drive.** This area is north of the SR-57/SR-60 confluence. In this area, SR-57/SR-60 is 14-lane roadway (including one HOV lane in each direction) with paved shoulders, transitioning to eight lanes on SR-57 at the divergence from SR-60. Land uses in this area consist of single-



family residences (Activity Category B) and Armstrong Elementary School (Activity Category C). Outdoor areas of frequent human use include the private yards associated with the residences and the school playground. This area also includes commercial use (Activity Category F) and undeveloped use (Activity Category G) adjacent to Grand Avenue.

**Area D: South of SR-57/SR-60, project western terminus to the intersection of Golden Springs Drive and Copley Drive.** This area is south of the SR-57/SR-60 confluence. In this area, SR-57/SR-60 transitions from a 14 lane roadway (including one HOV lane in each direction) to a roadway with a varying number of lanes as ramps for SR-57 and SR-60 separate from the confluence at the western end of the project area. Land uses in this area consist of hotels with outdoor swimming pools (Activity Category E), which are considered outdoor areas of frequent human use. There is also an outdoor use area associated with a day care facility (Activity Category C). The hotel properties with outdoor swimming pools and the day care facility are located on elevated terrain that faces the SR 57/SR-60 confluence.

**Area G: South of SR-57/SR-60, between Golden Springs Drive and South Prospectors Road.** Diamond Bar Golf Course is considered an outdoor area of frequent human use and therefore evaluated as an Activity Category C land use. Area G also contains a residential neighborhood adjacent to the golf course (Activity Category B).



Figure 1: Noise Monitoring Locations

## 2. Results of the Noise Study Report

The NSR for this project was prepared by ICF International on May 11, 2012 and approved by Caltrans on May 23, 2012.

### 2.1. Area A

Noise modeling results indicate that residences along Palomino Drive would approach or exceed the noise abatement criteria (NAC) under design-year conditions. The detailed modeling analysis for this section of Area A indicates that a wall up to 24 feet high would not meet the design goal of 7 dB reduction, and is determined not feasible. An existing berm adjacent to the on-ramp provides acoustical shielding and breaks the line of sight to SR-60 from residences along Palomino Drive.

Noise modeling results indicate that residences along Decorah Road and Navajo Springs Road would be exposed to traffic noise levels in the range of 58 to 73 dBA  $L_{eq}(h)$  under design-year build conditions. Traffic noise impacts as determined by the NAC noise limits would affect 43 residences in this area.

Noise Wall A-2 was evaluated for wall heights in the range of 6 to 16 feet. The wall evaluation is summarized in Table 1.

**Table 1. Summary of Wall A-2 Evaluation from Noise Study Report**

Wall	Location	Station	Height	Acoustically Feasible?	Number of Benefited Residences	Reasonable Allowance per Residence	Total Reasonable Allowance
A-2	Area A along Decorah Rd.	"A"1357+00 to "A" 1380+00	6	Yes	36	\$55,000	\$1,980,000
			8	Yes	36	\$55,000	\$1,980,000
			10	Yes	36	\$55,000	\$1,980,000
			12	Yes	36	\$55,000	\$1,980,000
			14	Yes	36	\$55,000	\$1,980,000
			16	Yes	41	\$55,000	\$2,255,000



Figure 2: Noise Wall Location Area A-2 Evaluated in the NSR

## 2.2. Area B

Traffic noise modeling results indicate that traffic noise levels at the hotel swimming pool in Area B would not approach or exceed the NAC under worst-hour conditions. Traffic noise impacts are not predicted to occur in Area B, and no noise abatement is considered.

## 2.3. Area C

Noise modeling results indicate that residences in Area C would be exposed to traffic noise levels in the range of 61 to 77 dBA  $L_{eq}(h)$  under design-year build conditions. Traffic noise impacts as determined by the NAC noise limits would affect 60 residences in Area C.

NSR indicated that there are 24 residents west of North Prospectors Road on Rock River Road that have a 4 to 12' high sound wall. The NSR indicated that noise level in these residents would increase by 1 dBA by the build alternative of the project. Per Caltrans Highway Design Manual Section 1102.3.2, the maximum allowed sound wall height is 14 feet when located 15 feet or less from the edge of traveled way, and 16 feet when located more than 15 feet from edge of traveled way. By increasing the existing sound wall height to 16', the noise level would be reduced by 1 to 3 dBA. The design goal of 7 dBA reduction would not be met, thus deemed infeasible. Noise wall C was modeled to follow and extend this existing sound wall west, and noise wall C-2 was modeled to be built east of the existing sound wall. (See Figure 3)

In the course of the NSR phase, three possible options of wall alignments for Noise Wall C were studied as shown in Figure 4: Evaluated Potential Noise Wall C Alignment Options. The noise wall alignments were evaluated for the following placements:

- Option 1, Along the edge of shoulder of WB SR-60
- Option 2, On the slope within the state controlled right-of-way
- Option 3, On top of slope outside the state controlled right-of-way (All within private properties)

As indicated in the correspondence with the noise modeler included in Appendix E, it was determined that "... extending the [noise] wall within the [state controlled] right-of-way to the west does not provide any additional benefit to [Rock River Road] receivers." Options 1 and 2 do not provide acoustical benefits to those residences and are deemed

impractical and unfeasible. Option 3 is the only option that would provide acoustical benefits to these residences.

Noise Wall C was evaluated for wall heights in the range of 6 to 16 feet. The wall evaluation is summarized in Table 2.

**Table 2. Summary of Wall C Evaluation from Noise Study Report**

Wall	Location	Station	Height	Acoustically Feasible?	Number of Benefited Residences	Reasonable Allowance per Residence	Total Reasonable Allowance
C (Option 3)	Area C	"A"1309+25 to "A" 1330+50	6	No	0	\$55,000	\$0
			8	No	0	\$55,000	\$0
			10	No	0	\$55,000	\$0
			12	Yes	33	\$55,000	\$1,815,000
			14	Yes	35	\$55,000	\$1,925,000
			16	Yes	35	\$55,000	\$1,925,000

Noise Wall C-2 was evaluated for wall heights in the range of 6 to 16 feet. The wall evaluation is summarized in Table 3.

**Table 3. Summary of Wall C-2 Evaluation from Noise Study Report**

Wall	Location	Station	Height	Acoustically Feasible?	Number of Benefited Residences	Reasonable Allowance per Residence	Total Reasonable Allowance
C-2	Area C	"B-4" 336+75 to "B-4" 350+12	6	Yes	16	\$55,000	\$880,000
			8	Yes	16	\$55,000	\$880,000
			10	Yes	16	\$55,000	\$880,000
			12	Yes	16	\$55,000	\$880,000
			14	Yes	16	\$55,000	\$880,000
			16	Yes	16	\$55,000	\$880,000



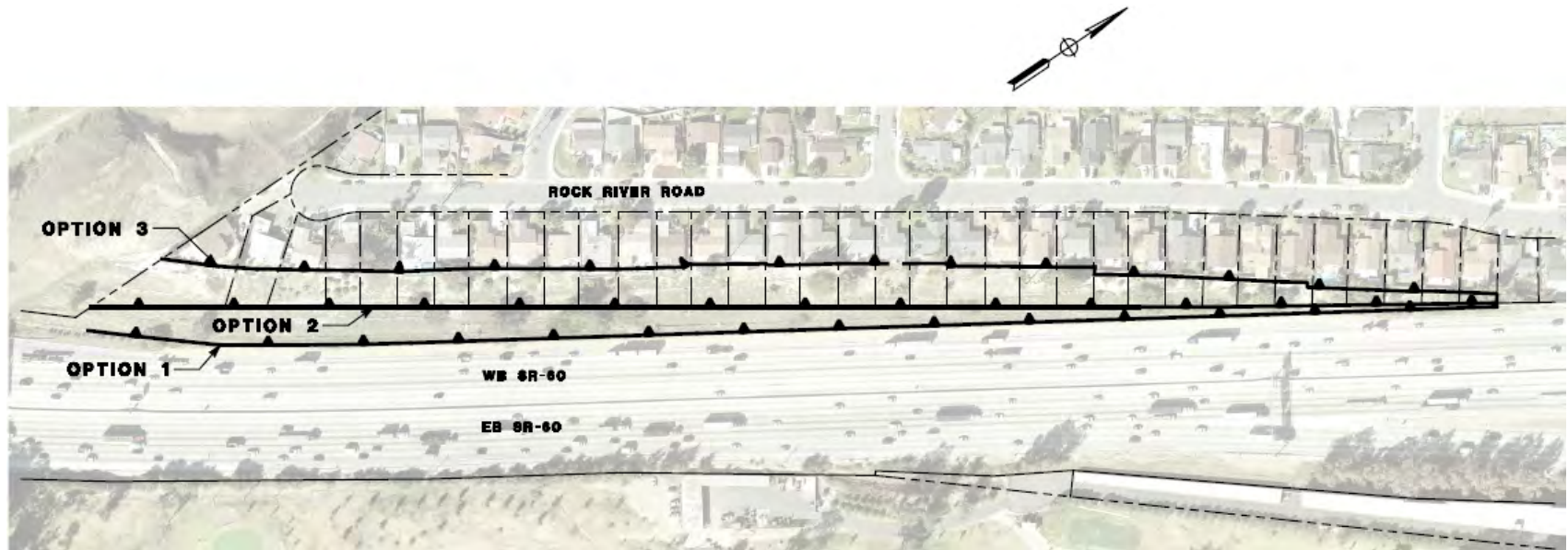


Figure 4: Evaluated Potential Noise Wall C Alignment Options



## 2.4. Area D

Noise modeling results indicate that hotel and outdoor areas with frequent human use in Area D would be exposed to traffic noise levels in the range of 68 to 75 dBA  $L_{eq}(h)$  under design-year conditions. Therefore, traffic noise levels are predicted to approach or exceed the NAC under design-year conditions. The detailed modeling analysis for the Area D indicates that a wall up to 24 feet high would not meet the design goal of 7dB noise reduction, and is determined not feasible due to the elevation of the outdoor areas being significantly higher than that of the highway and the potential noise wall.

## 2.5. Area G

Noise modeling results indicate that outdoor areas of frequent human use at Diamond Bar Golf Course would be exposed to traffic noise levels in the range of 61 to 81 dBA  $L_{eq}(h)$  under design-year build conditions. Therefore, traffic noise levels are predicted to approach or exceed the NAC of 67 dBA  $L_{eq}(h)$  for active sporting areas. The NSR studied 20 sites under Category C; G6 to G20 are located behind Barrier G-1 and G1 to G5 are located behind Barrier G-2 shown in Figure 5. Table 4 summarizes the number of prediction sites approach or exceed NAC.

**Table 4. Prediction Sites Exceeding NAC**

	Prediction Sites	Sites exceeding NAC Limits
Area G-1	15	10
Area G-2	5	4

Noise wall G would consist of two walls placed along the edge of the freeway shoulder where a retaining wall is being proposed. This sound wall will be supported on the retaining walls with evaluated wall heights of 6 to 16 feet. Noise wall G-1 was evaluated from the eastbound on-ramp to the east end of the golf course property behind an existing private storage facility with an approximate length of 2,970 feet. Noise wall G-2 was evaluated from the west end of the golf course property to the eastbound off-ramp at Grand Ave with an approximate length of 2,220 feet. The wall evaluation is summarized in Table 5. The locations of Noise Wall G that was evaluated in the NSR is shown in Figure 5.

**Table 5. Summary of Wall Evaluation from Noise Study Report**

Wall	Location	Station	Height	Acoustically Feasible?	Number of Benefited Receptor	Reasonable Allowance per Residence	Total Reasonable Allowance
G-1	East of Grand Ave	"A" 1295+00 to "A" 1326+01	6	No	0	\$55,000	\$0
			8	Yes	2	\$55,000	\$110,000
			10	Yes	5	\$55,000	\$275,000
			12	Yes	7	\$55,000	\$385,000
			14	Yes	7	\$55,000	\$385,000
			16	Yes	7	\$55,000	\$385,000
G-2	West of Grand Ave	"A" 1260+43 to "A" 1282+03	6	No	0	\$55,000	\$0
			8	No	0	\$55,000	\$0
			10	No	0	\$55,000	\$0
			12	Yes	1	\$55,000	\$55,000
			14	Yes	1	\$55,000	\$55,000
			16	Yes	1	\$55,000	\$55,000

The results of the NSR confirms that Wall G-1 with a height of 12 feet will achieve required noise reductions to 7 out of 10 sites exceeding NAC limits. Wall G-1 with height of 12 feet is proposed as part of the proposed project improvement. Noise wall G-2 with a height of 14 feet will achieve required noise reductions to 1 out of 5 sites exceeding NAC limits.



Figure 5: Noise Wall Location Area G Evaluated in the NSR

## 3. Preliminary Noise Abatement Decision

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### 3.1. Cost Estimate Methodology

The cost estimates developed in this NADR assumes the most cost effective and economical sound walls and retaining walls with optimistic conditions such as noise walls placed on the top hinge of the slope with the common cross slope. Additional field survey will be required to accurately design the retaining walls. Actual conditions are likely to be similar or more costly than this ideal condition. The sound walls must satisfy the reasonability conditions with the cost estimates developed in this report in order to be recommended.

### 3.2. Area A: Summary of Key Information

Table 6 presents a summary of the noise wall evaluation used in making the preliminary noise abatement decision for Area A along Decorah Road. According to the NSR results, a 6 foot sound wall measuring from the building pad elevation is required to benefit 36 residents. The noise wall will have to be aligned within and outside of the state controlled right-of-way to provide the acoustical design goal of 7 dB reduction. Within the state controlled right-of-way, the construction of Wall A-2 would require a 10 foot wide permanent access road along the wall and a 10 foot wide permanent maintenance access ramp allowing access from the WB SR-60 as shown in Appendix A. Outside the state controlled right-of-way, a 5 foot wide permanent maintenance access to provide and facilitate permanent maintenance access and a 10 foot wide temporary construction access is proposed. Both the west and east ends of wall A-2 are required to be located outside of the state controlled right-of-way. The majority of sound wall A-2 will be constructed on the existing non-standard cross slope, and would require a retaining wall. Two structural concepts for this retaining wall were evaluated to develop the preliminary cost estimate for this sound wall, and are shown in Appendix A.

#### Structural Concept 1

Structural Concept 1 is based on building a 12 to 15 foot high masonry block wall (includes 6 foot sound wall) on concrete spread footing. There would be a 5 to 10 foot maintenance access along this wall, which would require approximately 6 to 9 feet of retaining condition. To construct this wall, temporary shoring would be required. Additionally, walls outside the state controlled right-of-way would require a 10 foot wide temporary construction access. This would be accomplished with temporary MSE walls

built on the existing slope. Standard sound wall on spread footing per Caltrans Standard Plan B15-1 would be used where soil retaining is not necessary.

### Structural Concept 2

Structural Concept 2 is based on building a 12 foot high masonry block wall (includes 6 foot sound wall) on concrete trench footing. There would be 5 to 10 foot permanent maintenance access along this wall, which would require approximately 6 feet of retaining condition and an 11 foot deep footing. The 10 foot permanent access within the state controlled right-of-way will be accomplished with a permanent MSE wall. To construct the sound wall, temporary shoring would be required. Additionally, walls outside the state controlled right-of-way would require a 10 foot wide temporary construction access. This would be accomplished with temporary MSE walls built on the existing slope. Standard sound wall on spread footing per Standard Plan B15-1 would be used where soil retaining is not necessary.

The engineering cost analysis indicates that Structural Concept 1 (building on shallow foundation) provides the most cost efficient structure.

**Table 6. Summary of Abatement Key Information for Noise Wall A-2**

Wall	Height (Feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost**	Cost Reasonable?
A-2	6*	Yes	36	\$1,980,000	\$3,068,000	No

\* Noise wall height is measured from the building pad elevation. Cost Estimates include masonry block wall taller than 6 feet to provide the same acoustical benefits of a 6 foot wall on the building pad. The NSR Results assumes the wall alignment to be at the top of the slope.

\*\* Based on Structural Concept 1. The Estimated Construction Cost includes a Temporary Construction Easement cost of \$511,000.

The engineer's cost estimate summary is included in Appendix B. This cost estimate assumes an ideal condition to construct the two structural concepts, where the wall is placed on the top hinge of the side slope. In addition to constructing the noise walls and retaining walls, the cost estimates include other considerations such as:

- Landscape removal and restoration
- Drainage improvement associated with the noise walls
- Existing fence removal
- Temporary Construction Easement
- Temporary Construction Access Road and Permanent Maintenance Access

- Shoring construction

Noise wall would be constructed with masonry blocks following Caltrans' standard plans B15-6.

### 3.3. Area C: Summary of Key Information

Table 7 presents a summary of the noise wall evaluation used in making the preliminary noise abatement decision for Noise Wall C and C-2. The table includes the location of the noise wall, height, number of benefited residences, total noise wall allowance, and the engineer's cost estimate.

For Noise Wall C, 6 to 10 foot sound walls were not considered since these walls are not acoustically feasible. A 12 foot noise wall would benefit all but 2 residences at the easterly end of Noise Wall C; a 14 foot wall would be able to mitigate the noise for these 2 residences.

For Noise Wall C-2, a 6 foot sound wall is deemed feasible for 16 residents of the Rock River Road frontage. Sound wall heights of 8 to 16 feet will not provide any additional benefitted receptors; thus, the 6 foot sound wall is the only option to consider.

Within these residents, there are privately built improvements in the backyard, such as outlook deck patios extended beyond the top of slope, pools, decorative fencing and walls, miscellaneous landscape, and hardscape. Construction of this noise wall would result in partial or total removal of those improvements. The properties affected would be partially restored up to the new noise wall. Similar to Wall A-2, a 10 foot temporary construction access road and a 5 foot permanent maintenance access is proposed.

#### Structural Concept

There are several structural options on building a 10 to 18 foot high masonry block wall (includes 6 to 14 foot sound wall) for Wall C and C-2 such as wall on deep foundation (pile) and wall on trench footing. Similar to Wall A-2, the engineering cost analysis concluded that the most cost effective structural concept for this area is a concrete spread footing option. There would be a 5 foot maintenance access along this wall, which would require approximately 4 feet of retaining condition. To construct this wall, 10 feet of temporary construction access will be required. This will be accomplished with temporary MSE walls on the existing slope. The cross section used to develop the cost estimate can be found in Appendix C.

The engineer's cost estimate summary by lot numbers is included in Appendix D. In addition to constructing the noise walls and retaining walls, the cost estimates include other considerations such as:

- Backyard deck and terrace deck removal and modification
- Temporary Construction Easement
- Temporary Construction Access Road and Permanent Maintenance Access
- Landscape removal and restoration
- Drainage improvement associated with the noise walls
- Existing fence and wall removal

**Table 7. Summary of Abatement Key Information for Area C**

Wall	Height (Feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost**	Cost Reasonable?
C	12*	Yes	33	\$1,815,000	\$2,645,000	No
	14*	Yes	2	\$110,000	\$180,000	No
C Total			35	\$1,925,000	\$2,825,000	No
C-2	6*	Yes	16	\$880,000	\$1,367,000	No

\* Noise wall height is measured from the building pad elevation. Cost Estimates include masonry block wall taller than listed wall height to provide the same acoustical benefits of 6 to 14 foot wall on the building pad. The NSR Results assumes the wall alignment to be at the top of the slope.

\*\* The Estimated Construction Cost includes a Temporary Construction Easement cost of \$646,000 for noise wall C and \$383,000 for noise wall C-2.

### 3.4. Area G: Summary of Key Information

Table 8 presents a summary of the noise wall evaluation used in making the preliminary noise abatement decision for Area G. Noise wall G-1 was evaluated at 12 feet because no taller wall would provide benefits to additional receptors. Similarly, Noise wall G-2 was evaluated at 14 feet.

**Table 8. Summary of Abatement Key Information for Area G**

Wall	Height (Feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Reasonable?
G-1	12	Yes	7	\$385,000	\$1,061,000	No*
G-2	14	Yes	1	\$55,000	\$933,000	No

\* Noise Wall G-1 is proposed as part of the project.

In addition to constructing the noise walls and retaining walls, the cost estimates include other considerations such as:

- Landscape removal and restoration,
- Drainage improvement associated with the noise walls.

Noise wall G-1 (east half of the golf course) was recommended as a “measure to minimize harm to the Section 4(f) property” as identified in the Draft Programmatic Section 4(f) Evaluation report for the Confluence Project. Therefore, noise wall G-1 is considered reasonable because it satisfies a project requirement as stated in the referenced 4(f) report.

### **3.5. Preliminary Recommendation and Decision**

Noise wall for Area A along Palomino Drive would not meet the design goal of 7dB noise reduction, and is not recommended for this project.

Noise wall A-2 along Decorah Road was determined to be acoustically feasible; however, the wall is deemed not reasonable because the estimated construction costs exceed the reasonable allowance. Noise wall A-2 is not recommended for this project.

Noise walls for Areas B are not required for this project as they do not approach or exceed the noise abatement criteria.

Noise wall C and C-2 were determined to be acoustically feasible, but not cost reasonable. The noise walls would not meet the reasonableness criteria because estimated construction costs exceed the reasonable allowances. Noise wall C and C-2 are not recommended for this project.

Noise wall for Area D would not meet the design goal of 7dB noise reduction. Noise wall D is not acoustically feasible, and is not recommended for this project.

Noise wall G-1 is proposed as part of the project that would be constructed on the edge of shoulder with a sound wall height of 12 feet above the roadway. Noise wall G-2 was determined to be acoustically feasible, but not cost reasonable. The estimated construction costs would exceed the reasonable allowance, and is not recommended for this project.



## 4. References

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ICF International, 2012. Noise Study Report, State Route 57/State Route 60 Confluence Project. May, 2012.

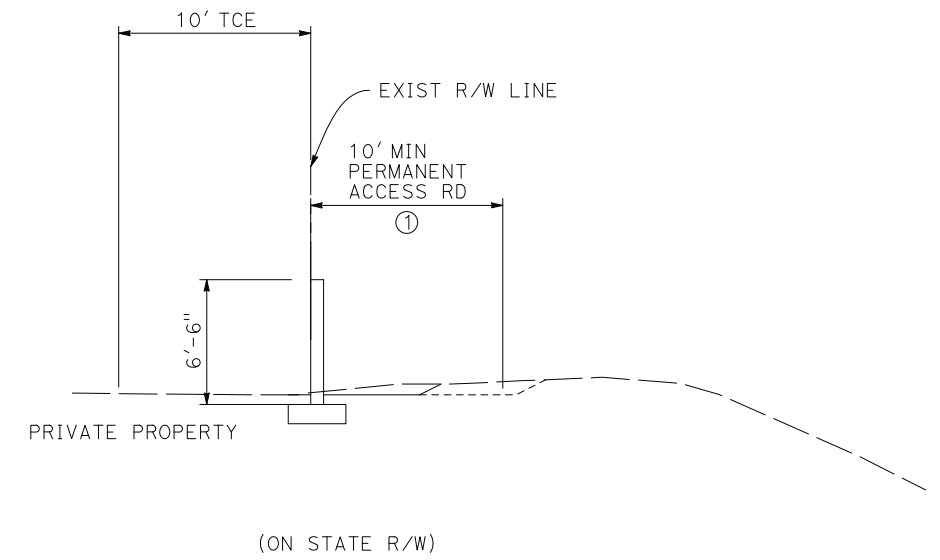
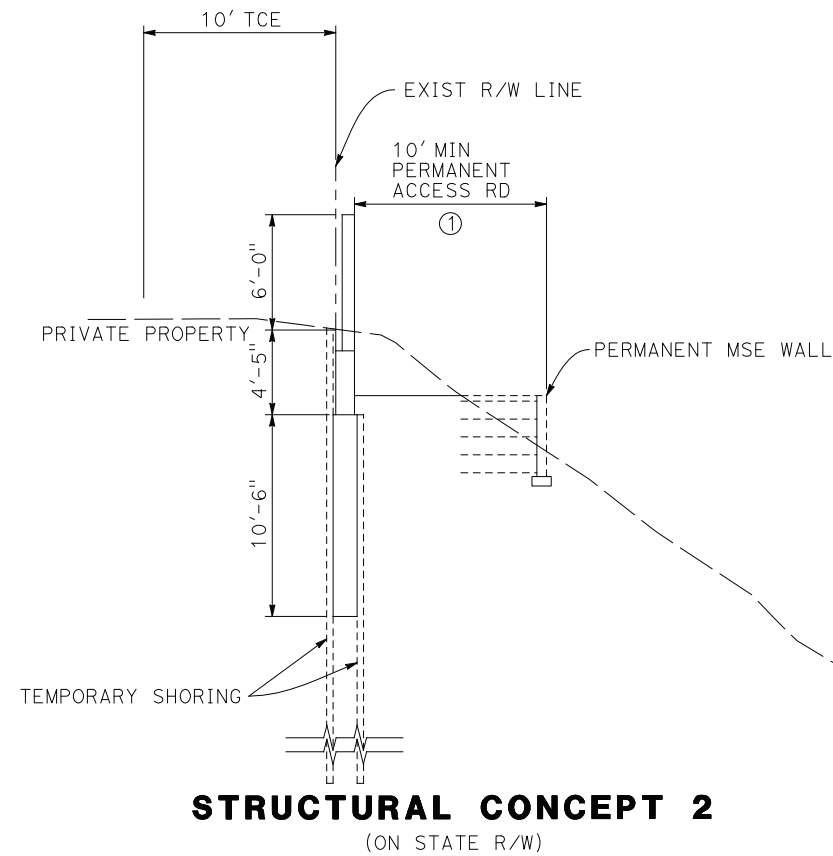
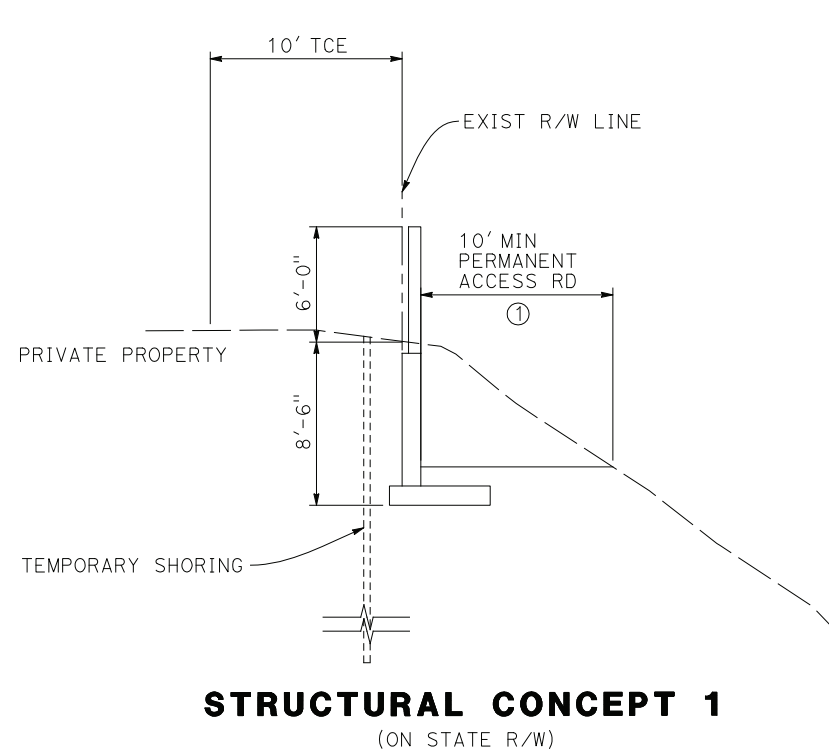
ICF International, 2012. Draft Programmatic Section 4(f) Evaluation, State Route 57/State Route 60 Confluence Project. April, 2012.

23 CFR Part 772, 2003. Procedures for Abatement of Highway Traffic Noise and Construction Noise, 23 Codes of Federal Regulations, Part 772. April 1, 2002.

Caltrans 2011. California Department of Transportation. Traffic Noise Analysis Protocol. May 2011.

# Appendix A Area A-2: Noise Wall Plan and Cross-Sections

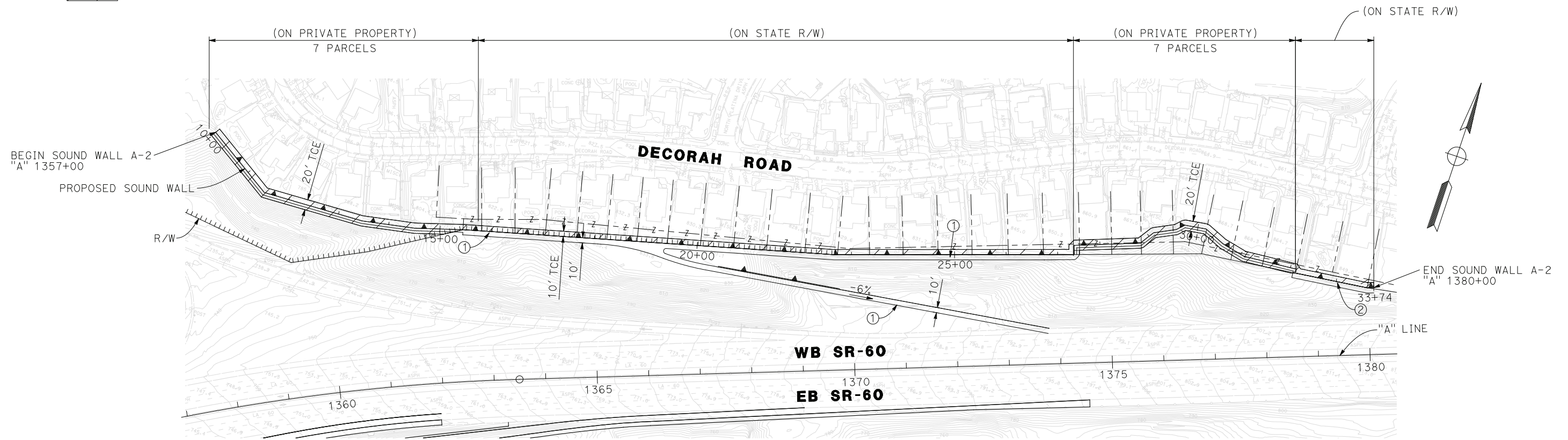
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**TYPICAL CROSS-SECTIONS**  
NO SCALE

**LEGEND**  

 TEMPORARY CONSTRUCTION EASEMENT



**NOTE:**  
 ① 10' PERMANENT MAINTENANCE ACCESS ROAD AND 10' CONSTRUCTION ACCESS ROAD  
 ② 5' PERMANENT MAINTENANCE ACCESS AND 10' CONSTRUCTION ACCESS ROAD

**AREA A-2 NOISE WALL PLAN AND CROSS SECTIONS**

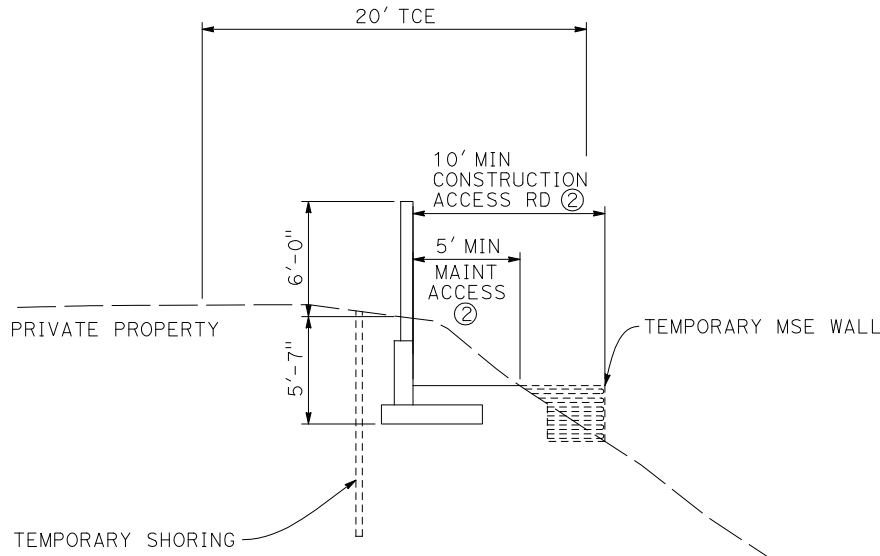
REVISOR  
DATE

DESIGNED BY  
CHECKED BY

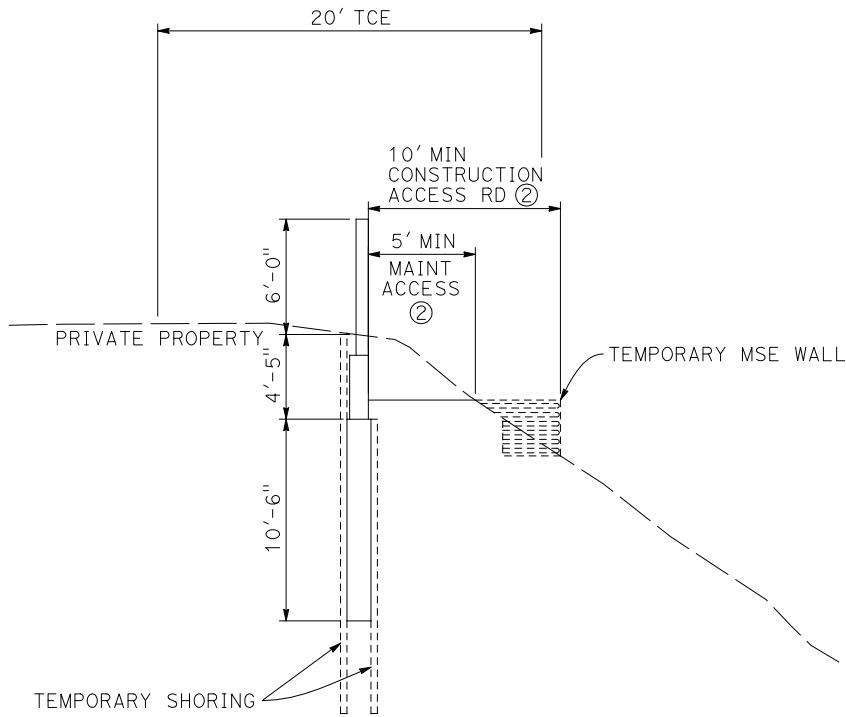
CONSULTANT SUPERVISOR

DEPARTMENT OF TRANSPORTATION

STATE OF CALIFORNIA



**STRUCTURAL CONCEPT 1**  
(ON PRIVATE PROPERTY)



**STRUCTURAL CONCEPT 2**  
(ON PRIVATE PROPERTY)

**AREA A-2 NOISE WALL PLAN AND CROSS SECTIONS**

# Appendix B Area A-2: Preliminary Cost Estimate and Reasonableness Check

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### Noise Wall A-2: Preliminary Cost Estimate Summary

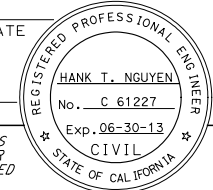
Lot No.	Lot Width	Wall Length	Recommended Wall Height (ft)	Noise Attenuation (dBA)	Reasonable Allowance	Estimated Construction Cost	Acoustically Feasible?	Cost Reasonable?
8703 003 002	72	84.849	6	1	\$ -	\$ 117,740.79	No*	No
8703 003 042	70	70.000	6	1	\$ -	\$ 97,259.58	No*	No
8703 003 043	66	87.847	6	5	\$ 55,000.00	\$ 124,972.54	Yes	No
8703 003 044	62	63.423	6	5	\$ 55,000.00	\$ 90,423.58	Yes	No
8703 003 045	58	64.627	6	6	\$ 55,000.00	\$ 92,126.70	Yes	No
8703 003 007	59	68.405	6	6	\$ 55,000.00	\$ 97,470.87	Yes	No
8703 003 008	62	68.400	6	5	\$ 55,000.00	\$ 97,463.80	Yes	No
8703 003 009	58	58.052	6	5	\$ 55,000.00	\$ 82,826.04	Yes	No
8703 003 046	62	62.304	6	6	\$ 55,000.00	\$ 88,840.70	Yes	No
8703 003 047	70	87.873	6	6	\$ 55,000.00	\$ 127,090.71	Yes	No
8703 003 012	68	68.224	6	7	\$ 55,000.00	\$ 98,989.06	Yes	No
8703 003 013	70	70.225	6	7	\$ 55,000.00	\$ 100,814.56	Yes	No
8703 003 048	66	66.214	6	8	\$ 55,000.00	\$ 95,377.35	Yes	No
8703 003 015	68	67.774	6	8	\$ 55,000.00	\$ 97,338.30	Yes	No
8703 003 016	67	64.803	6	8	\$ 55,000.00	\$ 93,314.59	Yes	No
8703 003 017	66	62.581	6	8	\$ 55,000.00	\$ 90,108.49	Yes	No
8703 003 049	66	63.577	6	8	\$ 55,000.00	\$ 91,376.60	Yes	No
8703 003 050	74	74.377	6	8	\$ 55,000.00	\$ 106,320.40	Yes	No
8703 003 051	60	64.273	6	8	\$ 55,000.00	\$ 92,897.59	Yes	No
8703 003 052	60	64.273	6	8	\$ 55,000.00	\$ 29,580.71	Yes	Yes
8703 002 030	64	64.273	6	9	\$ 55,000.00	\$ 28,646.23	Yes	Yes
8703 002 031	59	58.741	6	9	\$ 55,000.00	\$ 26,616.06	Yes	Yes
8703 002 032	59	58.871	6	9	\$ 55,000.00	\$ 26,475.25	Yes	Yes
8703 002 033	59	58.871	6	9	\$ 55,000.00	\$ 26,549.44	Yes	Yes
8703 002 034	61	61.112	6	7	\$ 55,000.00	\$ 89,179.48	Yes	No
8703 002 035	53	58.592	6	7	\$ 55,000.00	\$ 84,769.17	Yes	No
8703 002 036	65	65.147	6	6	\$ 55,000.00	\$ 93,905.64	Yes	No
8703 002 037	53	81.800	6	6	\$ 55,000.00	\$ 69,546.79	Yes	No
8703 002 009	70	76.559	6	8	\$ 55,000.00	\$ 109,005.11	Yes	No
8703 002 010	86	71.292	6	8	\$ 55,000.00	\$ 101,554.67	Yes	No
8703 002 011	84	90.002	6	7	\$ 55,000.00	\$ 128,020.89	Yes	No
8703 002 012	86	90.553	6	7	\$ 55,000.00	\$ 128,800.31	Yes	No
8703 002 013	89	85.937	6	7	\$ 55,000.00	\$ 122,270.75	Yes	No
8703 002 014	83	84.434	6	7	\$ 55,000.00	\$ 120,144.78	Yes	No
8703 016 016	93	0	0	5	\$ 55,000.00	\$ -	Yes	Yes**
8703 016 017	101	0	0	5	\$ 55,000.00	\$ -	Yes	Yes**
8703 016 018	86	0	0	5	\$ 55,000.00	\$ -	Yes	Yes**
8703 016 019	83	0	0	5	\$ 55,000.00	\$ -	Yes	Yes**
<b>Total</b>	<b>2637.4</b>	<b>2388.285</b>			<b>\$ 1,980,000.00</b>	<b>\$ 3,067,817.52</b>	<b>Yes</b>	<b>No</b>

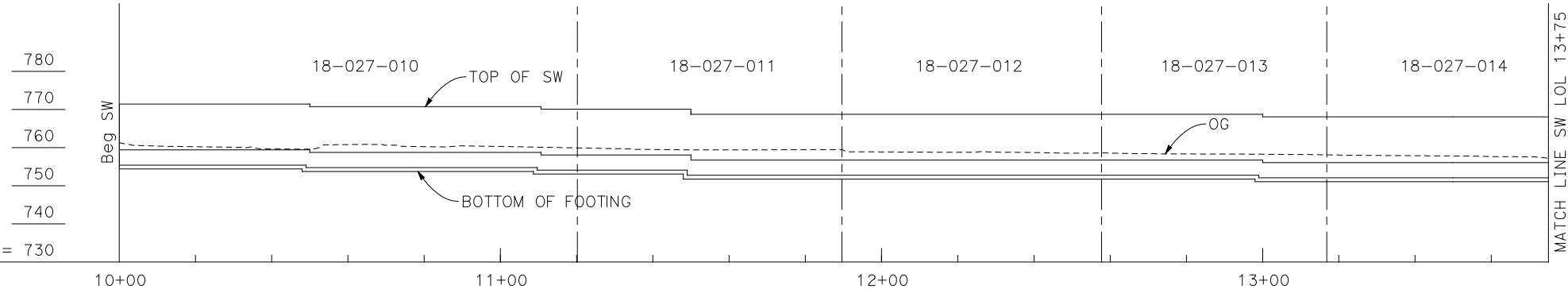
\* Sound wall is not acoustically feasible for these homes, but need to be constructed to close the opening between the proposed and existing sound wall.

\*\* These homes are located behind the homes with the sound walls. Noise reductions would be achieved with the noise wall behind Lot No. 8703-002-037, 8703-002-009, 8703-002-010, 8703-002-011, 8703-002-012, 8703-002-013, 8703-002-014.

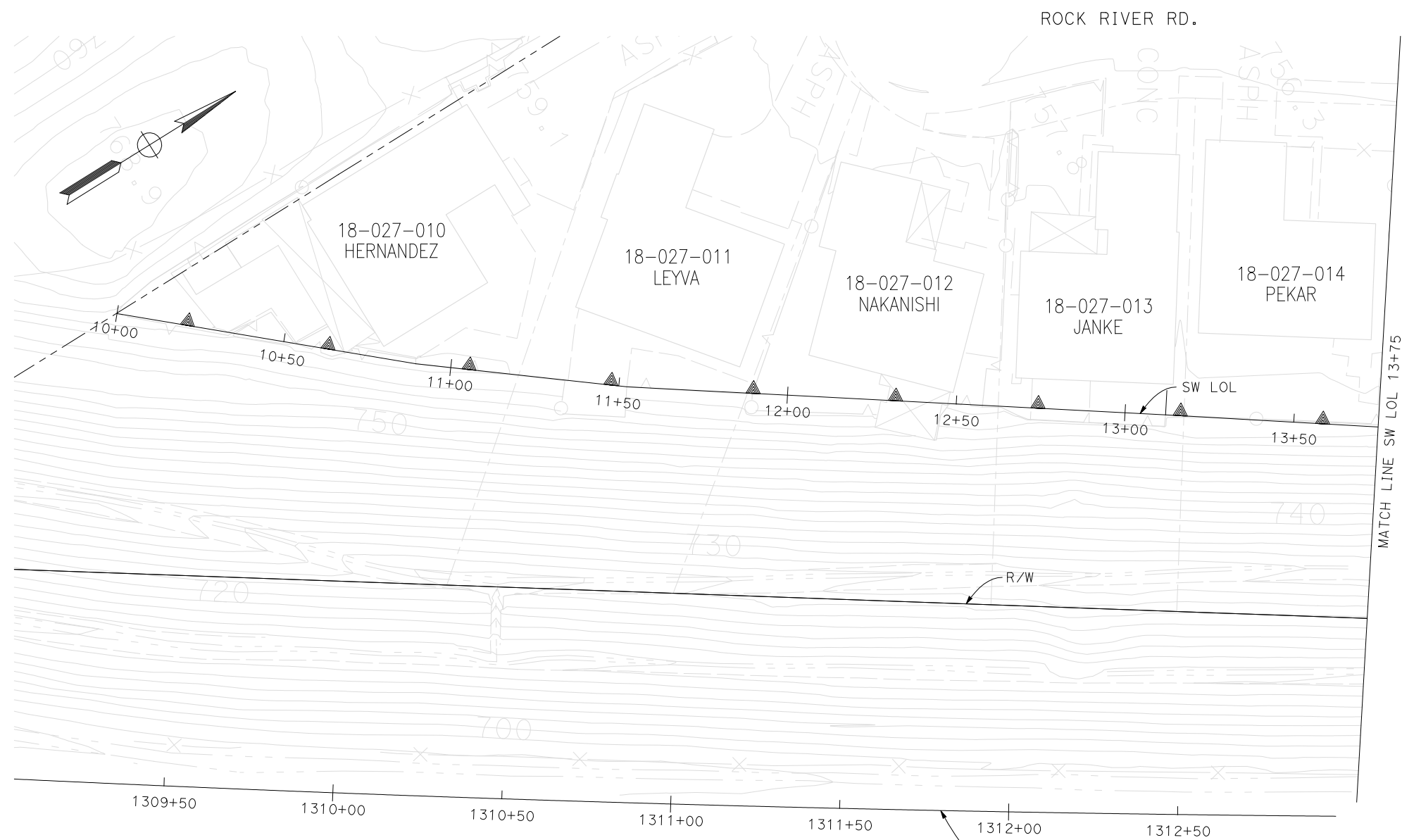
## Appendix C Area C: Noise Wall Plan, Profile, and Typical Cross-Section

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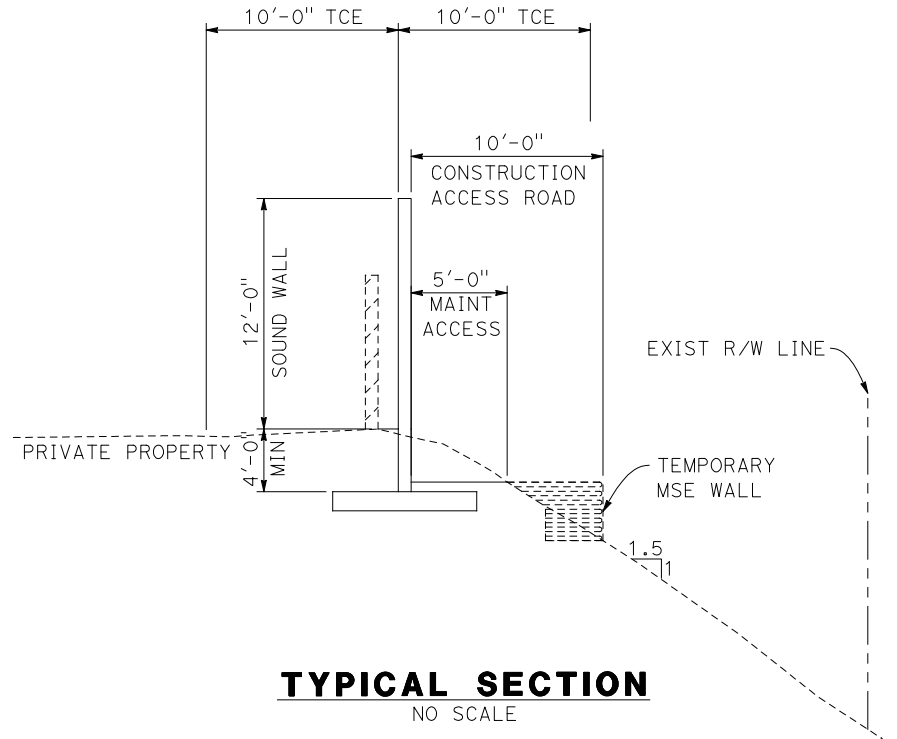
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REGISTERED CIVIL ENGINEER DATE					
					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
<b>CITY OF INDUSTRY</b> 15651 EAST STAFFORD STREET CITY OF INDUSTRY, CA 91744			<b>WKE, INC</b> 400 N. TUSTIN AVENUE SUITE 285 SANTA ANA, CA 92705		



**ELEVATION**  
SCALE: 1" = 20'



**PLAN**  
SCALE: 1" = 20'



**TYPICAL SECTION**  
NO SCALE

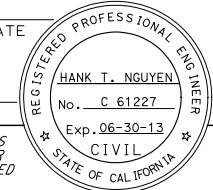
**NOISE WALL PLAN AND PROFILE**

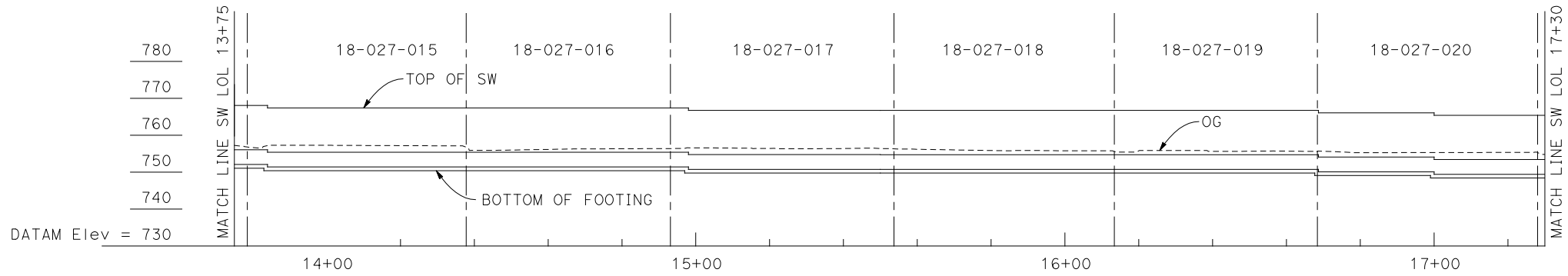
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 CONSULTANT FUNCTIONAL SUPERVISOR  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 REVISOR BY  
 DATE REVISOR  
 DATE REVISOR  
 DATE REVISOR



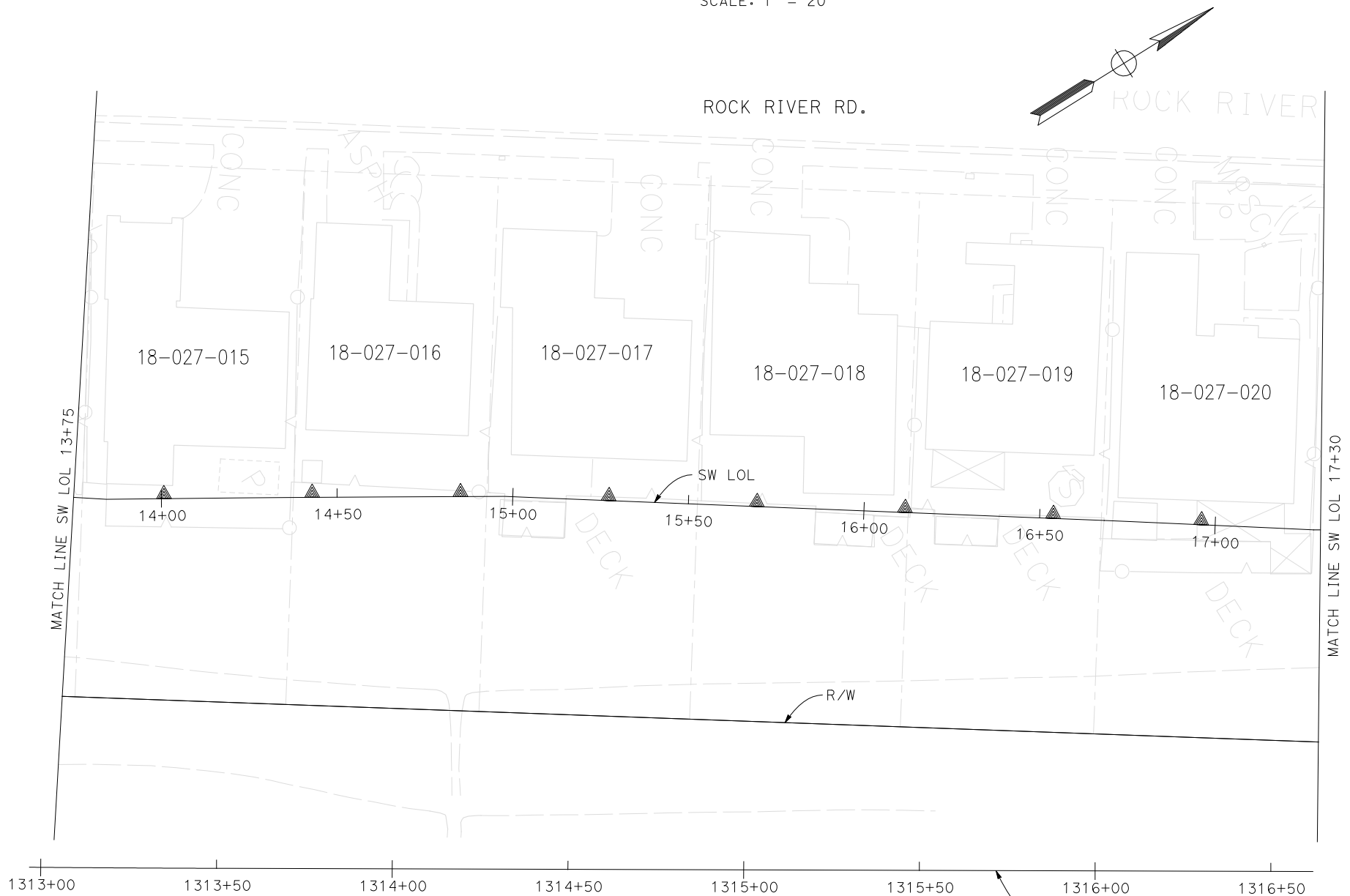
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REGISTERED CIVIL ENGINEER DATE					
					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
<b>CITY OF INDUSTRY</b> 15651 EAST STAFFORD STREET CITY OF INDUSTRY, CA 91744			<b>WKE, INC</b> 400 N. TUSTIN AVENUE SUITE 285 SANTA ANA, CA 92705		



**ELEVATION**  
SCALE: 1" = 20'



**PLAN**  
SCALE: 1" = 20'

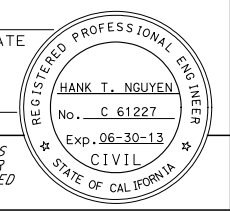
"A" LINE (FOR REFERENCE ONLY, NOT TO SCALE)

**NOISE WALL PLAN AND PROFILE**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 CONSULTANT FUNCTIONAL SUPERVISOR  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	SR-57 SR-60	R4.3-4.5/4.5-4.8 R23.6-R26.5		

REGISTERED CIVIL ENGINEER DATE

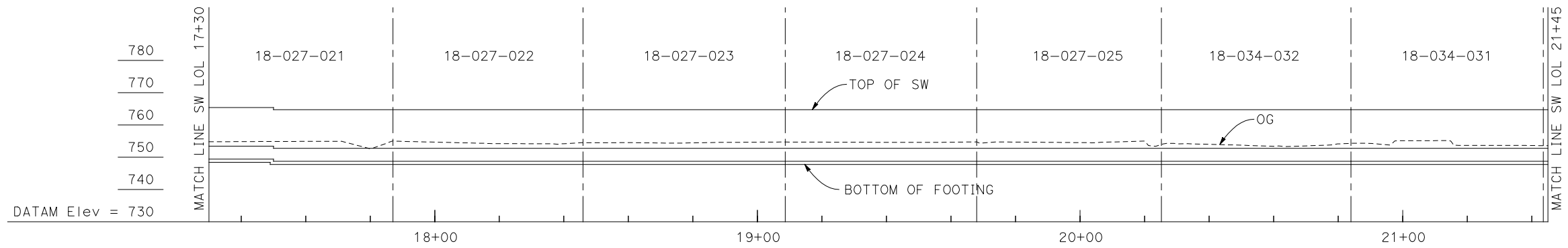


PLANS APPROVAL DATE

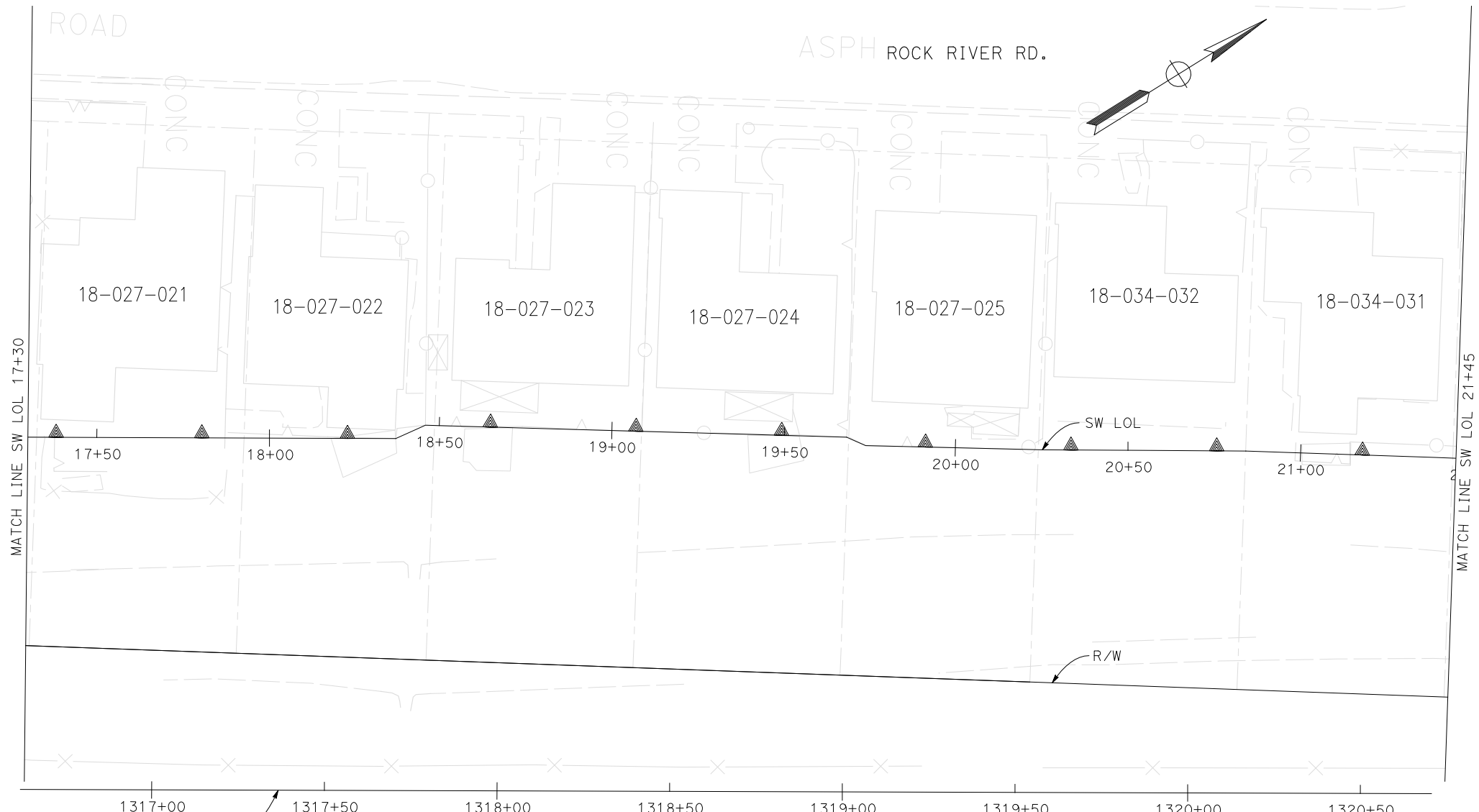
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**CITY OF INDUSTRY**  
15651 EAST STAFFORD STREET  
CITY OF INDUSTRY, CA 91744

**WKE, INC**  
400 N. TUSTIN AVENUE  
SUITE 285  
SANTA ANA, CA 92705



**ELEVATION**  
SCALE: 1" = 20'



**PLAN**  
SCALE: 1" = 20'

**NOISE WALL PLAN AND PROFILE**

"A" LINE (FOR REFERENCE ONLY, NOT TO SCALE)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 CONSULTANT FUNCTIONAL SUPERVISOR  
 CALCULATED BY  
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 REVISOR  
 DATE  
 REVISOR  
 DATE





Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	SR-57 SR-60	R4.3-4.5/4.5-4.8 R23.6-R26.5		

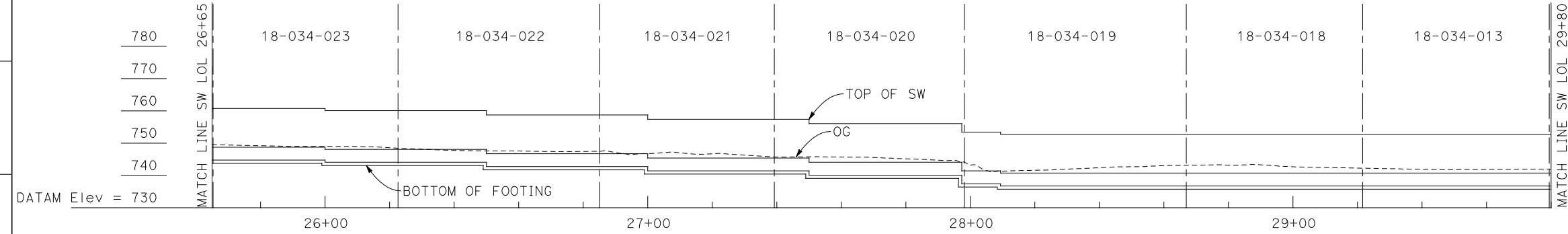
REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 HANK T. NGUYEN  
 No. C 61227  
 Exp. 06-30-13  
 CIVIL  
 STATE OF CALIFORNIA

PLANS APPROVAL DATE \_\_\_\_\_

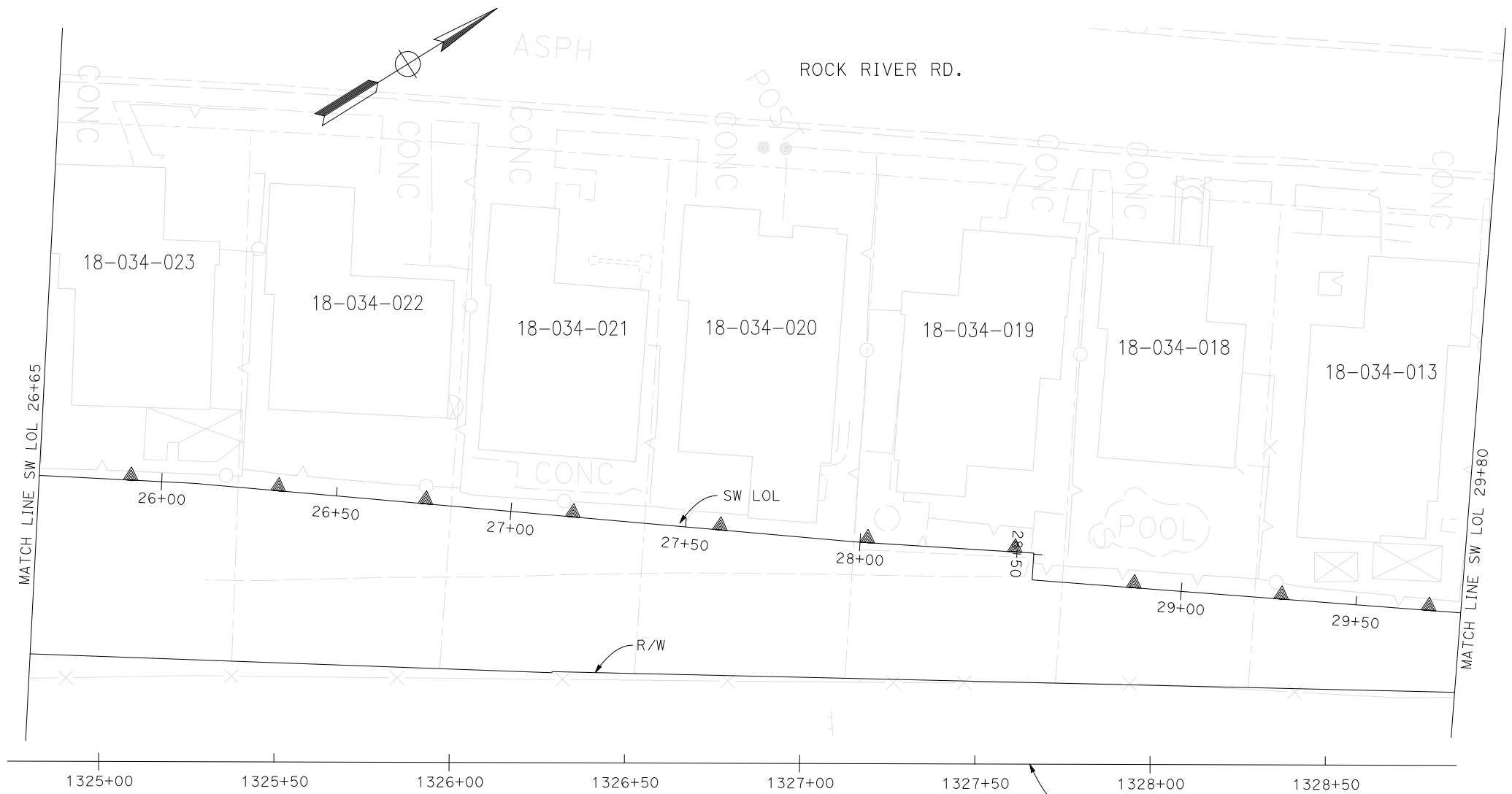
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**CITY OF INDUSTRY**  
 15651 EAST STAFFORD STREET  
 CITY OF INDUSTRY, CA 91744

**WKE, INC**  
 400 N. TUSTIN AVENUE  
 SUITE 285  
 SANTA ANA, CA 92705



**ELEVATION**  
 SCALE: 1" = 20'



**PLAN**  
 SCALE: 1" = 20'

**NOISE WALL PLAN AND PROFILE**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 CONSULTANT FUNCTIONAL SUPERVISOR  
 CALCULATED-DRAWN BY  
 DESIGNED BY  
 CHECKED BY  
 REVISOR  
 DATE  
 REVISOR  
 DATE



LAST REVISION DATE PLOTTED => #DATE  
 00-00-00 TIME PLOTTED => #TIME

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	SR-57 SR-60	R4.3-4.5/4.5-4.8 R23.6-R26.5		

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_

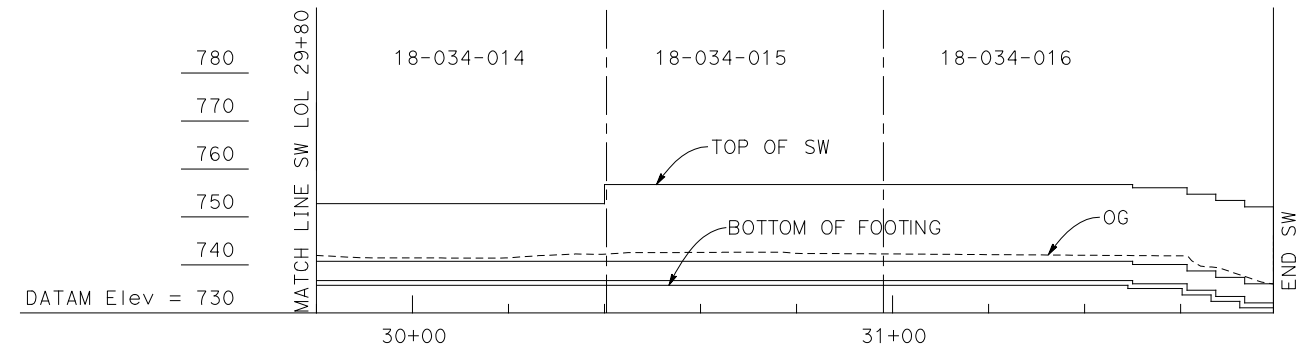
PLANS APPROVAL DATE \_\_\_\_\_

HANK T. NGUYEN  
No. C 61227  
Exp. 06-30-13  
CIVIL  
STATE OF CALIFORNIA

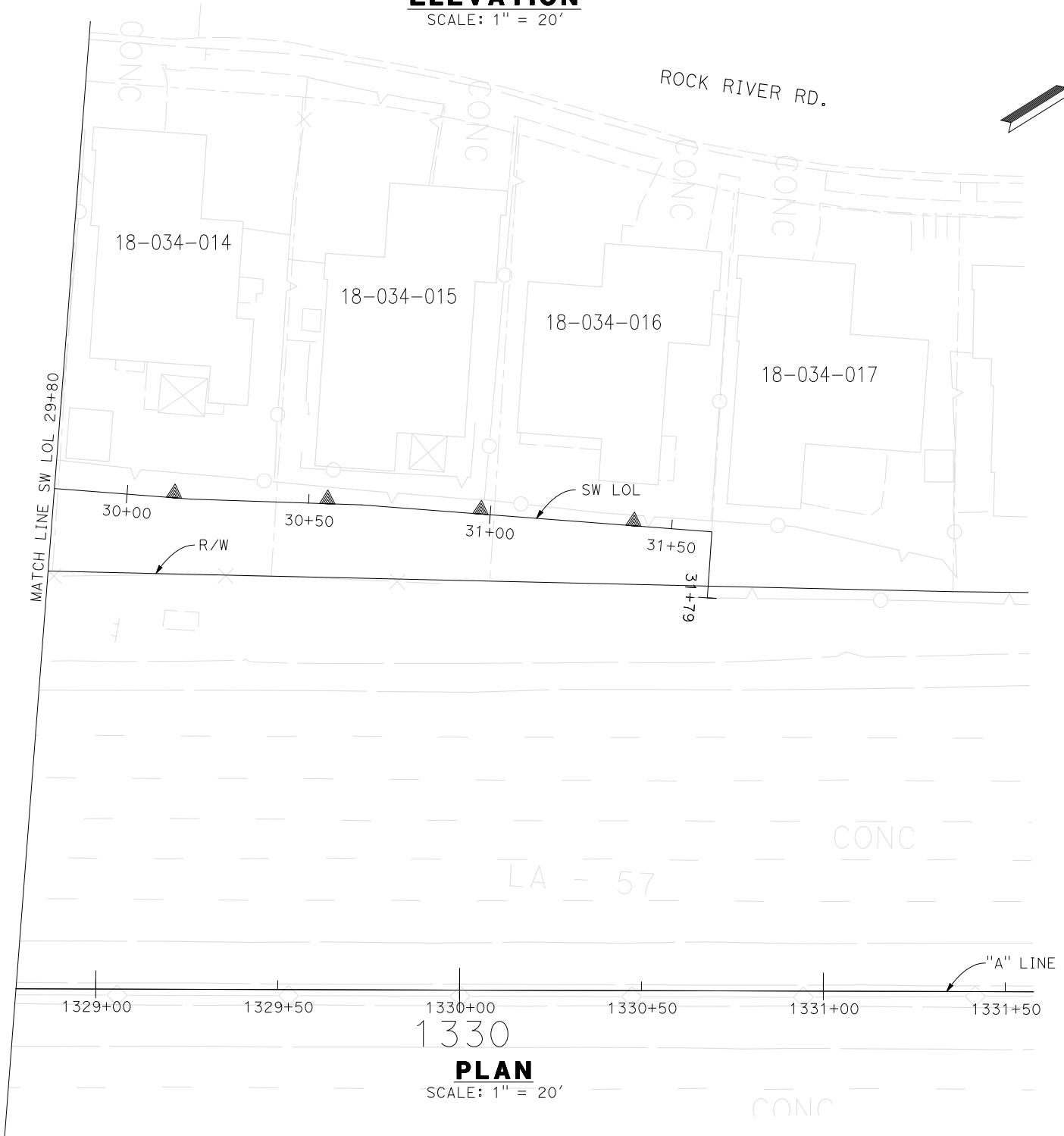
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**CITY OF INDUSTRY**  
15651 EAST STAFFORD STREET  
CITY OF INDUSTRY, CA 91744

**WKE, INC**  
400 N. TUSTIN AVENUE  
SUITE 285  
SANTA ANA, CA 92705



**ELEVATION**  
SCALE: 1" = 20'



**PLAN**  
SCALE: 1" = 20'

**NOISE WALL PLAN AND PROFILE**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DRAWN BY

DESIGNED BY

CHECKED BY

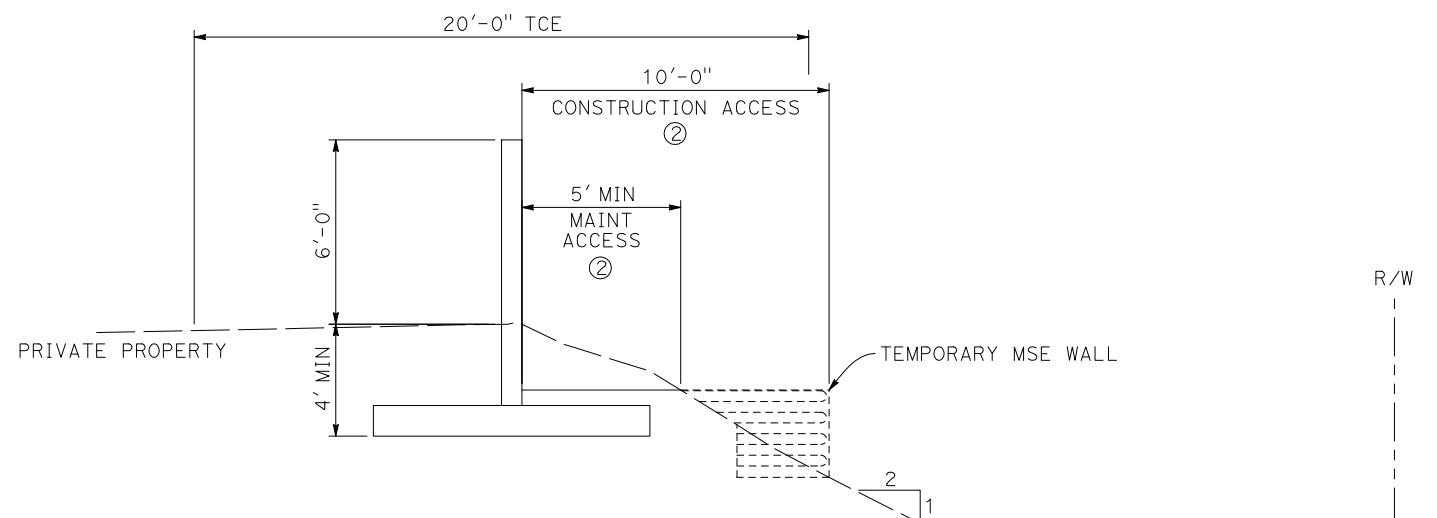
REVISOR

DATE

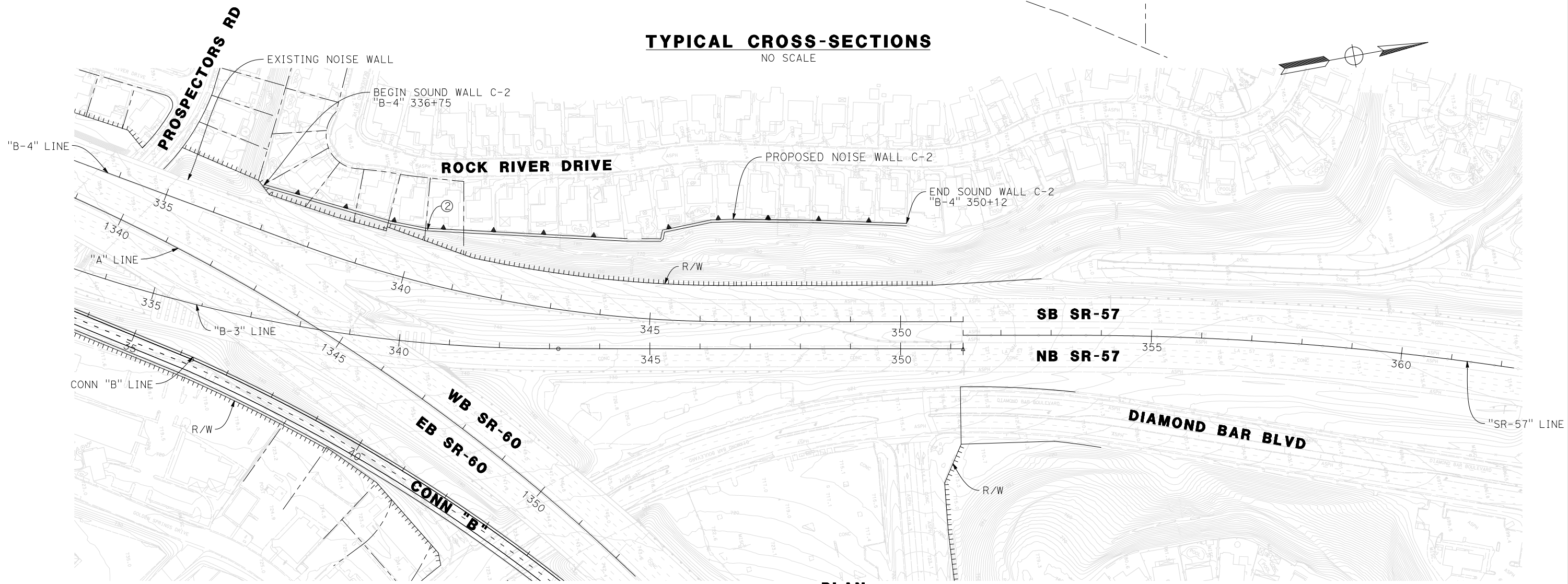
REVISION



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 CONSULTANT FUNCTIONAL SUPERVISOR  
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 DATE REVISOR



NOTE:  
 ② 5' PERMANENT MAINTENANCE ACCESS AND 10' CONSTRUCTION ACCESS ROAD



## Appendix D Area C: Preliminary Cost Estimate and Reasonableness Check

---

### Noise Wall C: Preliminary Cost Estimate Summary

Lot No.	Lot Width	Wall Length	Recommended Wall Height (ft)	Noise Attenuation (dBA)	Reasonable Allowance	Estimated Construction Cost*	Acoustically Feasible?	Cost Reasonable?
18 027 010	120	120.21	12	5	\$55,000.00	\$157,410.31	Yes	No
18 027 011	70	69.39	12	5	\$55,000.00	\$94,649.48	Yes	No
18 027 012	75	68.14	12	5	\$55,000.00	\$96,662.23	Yes	No
18 027 013	55	59.11	12	5	\$55,000.00	\$80,627.33	Yes	No
18 027 014	60	61.66	12	5	\$55,000.00	\$77,377.14	Yes	No
18 027 015	60	59.28	12	5	\$55,000.00	\$84,093.59	Yes	No
18 027 016	55	55.34	12	5	\$55,000.00	\$69,446.17	Yes	No
18 027 017	60	60.54	12	6	\$55,000.00	\$82,577.88	Yes	No
18 027 018	60	59.71	12	6	\$55,000.00	\$81,445.75	Yes	No
18 027 019	55	55.01	12	5	\$55,000.00	\$75,034.84	Yes	No
18 027 020	60	59.66	12	5	\$55,000.00	\$84,632.65	Yes	No
18 027 021	60	59.03	12	5	\$55,000.00	\$83,738.94	Yes	No
18 027 022	55	58.88	12	5	\$55,000.00	\$80,313.61	Yes	No
18 027 023	65	62.70	12	5	\$55,000.00	\$85,524.17	Yes	No
18 027 024	60	59.33	12	5	\$55,000.00	\$80,927.42	Yes	No
18 027 025	55	57.26	12	6	\$55,000.00	\$71,855.58	Yes	No
18 034 032	60	58.75	12	6	\$55,000.00	\$73,725.38	Yes	No
18 034 031	60	59.62	12	5	\$55,000.00	\$81,322.98	Yes	No
18 034 030	55	29.59	12	5	\$55,000.00	\$41,974.44	Yes	Yes
18 034 029	60	59.47	12	6	\$55,000.00	\$74,628.91	Yes	No
18 034 028	60	61.55	12	6	\$55,000.00	\$77,239.10	Yes	No
18 034 027	55	56.36	12	6	\$55,000.00	\$70,726.17	Yes	No
18 034 026	60	59.03	12	6	\$55,000.00	\$80,518.21	Yes	No
18 034 025	60	60.59	12	6	\$55,000.00	\$76,034.40	Yes	No
18 034 024	55	68.31	12	6	\$55,000.00	\$85,722.23	Yes	No
18 034 023	60	57.32	12	7	\$55,000.00	\$71,930.88	Yes	No
18 034 022	60	62.41	12	7	\$55,000.00	\$78,318.32	Yes	No
18 034 021	60	54.21	12	7	\$55,000.00	\$68,028.14	Yes	No
18 034 020	60	58.92	12	7	\$55,000.00	\$73,938.72	Yes	No
18 034 019	60	68.79	12	7	\$55,000.00	\$86,324.58	Yes	No
18 034 018	55	54.66	12	7	\$55,000.00	\$68,592.84	Yes	No
18 034 013	60	57.83	12	7	\$55,000.00	\$72,570.87	Yes	No
18 034 014	60	60.98	12	7	\$55,000.00	\$76,523.81	Yes	No
18 034 015	60	57.67	14	6	\$55,000.00	\$75,056.07	Yes	No
18 034 016	60	81.23	14	6	\$55,000.00	\$105,718.82	Yes	No
<b>Total</b>	<b>2145</b>	<b>2152.54</b>			<b>\$1,925,000.00</b>	<b>\$2,825,211.96</b>	Yes	No

\*Estimated Construction Costs include appropriate contingency factor (2011 Construction Dollars)



### Noise Wall C-2: Preliminary Cost Estimate Summary

Lot No.			Wall Length	Recommended Wall Height (ft)	Noise Attenuation (dBA)	Reasonable Allowance	Estimated Construction Cost	Acoustically Feasible?	Cost Reasonable?
18	010	003	104.12	6	6	\$ 55,000.00	\$ 116,589.37	Yes	No
18	010	002	113.69	6	6	\$ 55,000.00	\$ 127,386.22	Yes	No
18	010	001	80.71	6	8	\$ 55,000.00	\$ 91,343.32	Yes	No
18	009	001	86.54	6	8	\$ 55,000.00	\$ 91,159.67	Yes	No
18	009	002	86.47	6	6	\$ 55,000.00	\$ 91,081.72	Yes	No
18	009	003	76.64	6	6	\$ 55,000.00	\$ 80,727.05	Yes	No
18	009	004	75.80	6	6	\$ 55,000.00	\$ 79,842.21	Yes	No
18	009	005	71.75	6	6	\$ 55,000.00	\$ 75,581.31	Yes	No
18	009	006	77.12	6	5	\$ 55,000.00	\$ 81,235.83	Yes	No
18	009	007	79.17	6	5	\$ 55,000.00	\$ 83,397.35	Yes	No
18	009	008	61.66	6	5	\$ 55,000.00	\$ 64,951.71	Yes	No
18	009	009	67.17	6	5	\$ 55,000.00	\$ 70,753.70	Yes	No
18	009	010	75.50	6	5	\$ 55,000.00	\$ 79,527.25	Yes	No
18	009	011	67.50	6	5	\$ 55,000.00	\$ 71,098.15	Yes	No
18	009	012	77.22	6	5	\$ 55,000.00	\$ 81,341.16	Yes	No
18	009	013	76.66	6	5	\$ 55,000.00	\$ 80,752.33	Yes	No
<b>Total</b>			<b>1277.71</b>			<b>\$ 880,000.00</b>	<b>\$ 1,366,768.35</b>	<b>Yes</b>	<b>No</b>

## Appendix E Area C: NSR Correspondence

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**From:** Wei Koo  
**Sent:** Wednesday, February 02, 2011 6:10 PM  
**To:** Trisal, Shilpa; Volk, Jason; Anaya, Mario  
**Cc:** Vinh Trinh; Hank Nguyen  
**Subject:** Re: EA 279100 SR-57/SR-60 Confluence Project - Noise Study Report

Jason:

I have a couple of questions.... if we were to place the noise wall half way on the slope, do we still assume a 14' wall? We haven't analyzed that condition in the NADR, but it will almost for sure to cost more than 50k for those houses perched on the slope... will this wall meet the min 5db rule?

If we build the noise wall in the private properties, CT will not take responsibility for those walls. Those residents would then be responsibility for these walls... would that work?

We'll layout the wall on the R/W line, and will send you that file for your review....

Wtk

**From:** Volk, Jason  
**Sent:** Wednesday, February 02, 2011 6:25 PM  
**To:** 'Wei Koo'; Trisal, Shilpa; Anaya, Mario  
**Cc:** Vinh Trinh; Hank Nguyen  
**Subject:** RE: EA 279100 SR-57/SR-60 Confluence Project - Noise Study Report

Hi Wei,

We would model a range of wall heights from 6 to 16 feet and test for acoustical feasibility. The wall would have to provide 5 dB of noise reduction for at least one residence to be acoustically feasible. I think it would make sense to look at 2 alternatives for the wall – one would be the wall as currently analyzed, at the parcel boundary of the Rock Ridge residences, and the second alternative would be a wall sited at the top of Caltrans ROW.

J

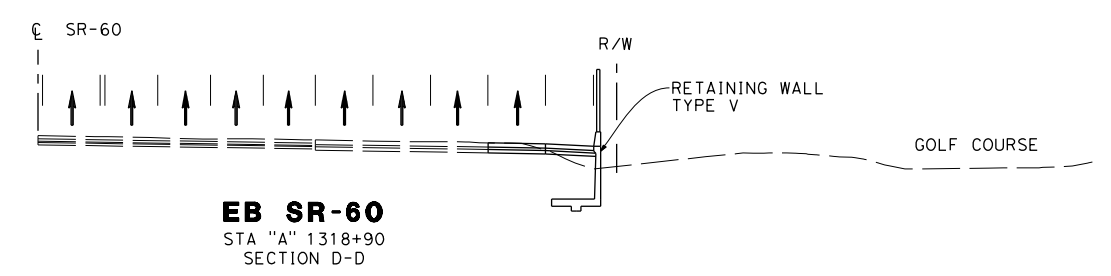
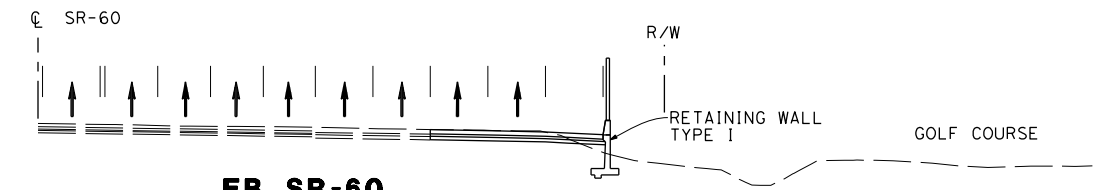
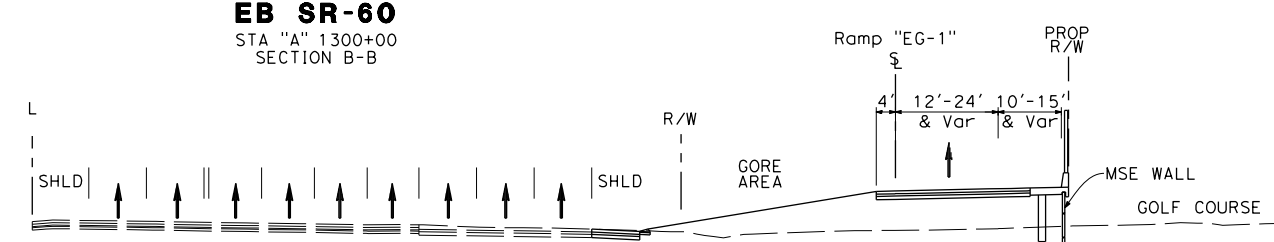
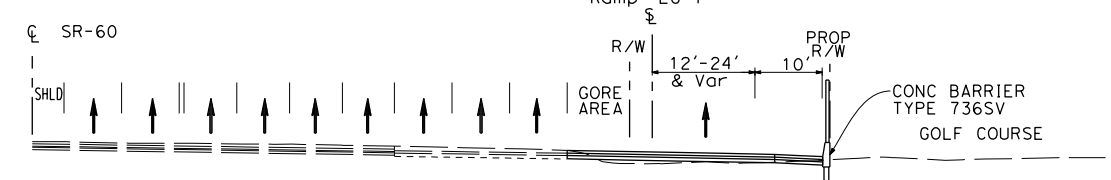
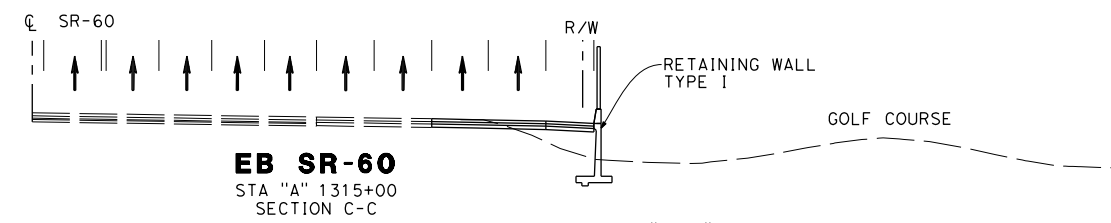
**From:** Volk, Jason  
**Sent:** Friday, February 11, 2011 2:23 PM  
**To:** Wei Koo; Trisal, Shilpa; Anaya, Mario  
**Cc:** Vinh Trinh; Hank Nguyen  
**Subject:** RE: EA 279100 SR-57/SR-60 Confluence Project - Noise Study Report

I revised the TNM model using the wall layout provided by WKE. The results indicate that the revised Wall C would marginally benefit one receiver, C10, with 5.0 dB of noise reduction at a maximum wall height of 16 feet. This result makes sense to me because the wall footings are located far enough down the slope relative to the string of first-row receivers that the wall would not break the line of sight at the maximum height of 16 feet. C10 is located at the eastern end of the wall where the elevation difference is lowest and the modeled wall abuts the existing 12 foot wall. If we are limited to building a wall within the ROW, we can evaluate extending the existing 12-foot wall in front of C1 to C9 slightly to benefit the single receiver at C10. It would likely not be cost-reasonable to do that, but it would be feasible. The evaluation of that wall in the report would indicate that extending the wall within the ROW to the west does not provide any additional benefit to receivers C11 through C29. For receivers C11 through C29, I suggest we keep the analysis of Wall C as we currently have it in the report since it is the only option that would result in an acoustically effective wall for those receivers. We can discuss the approach further on Monday.

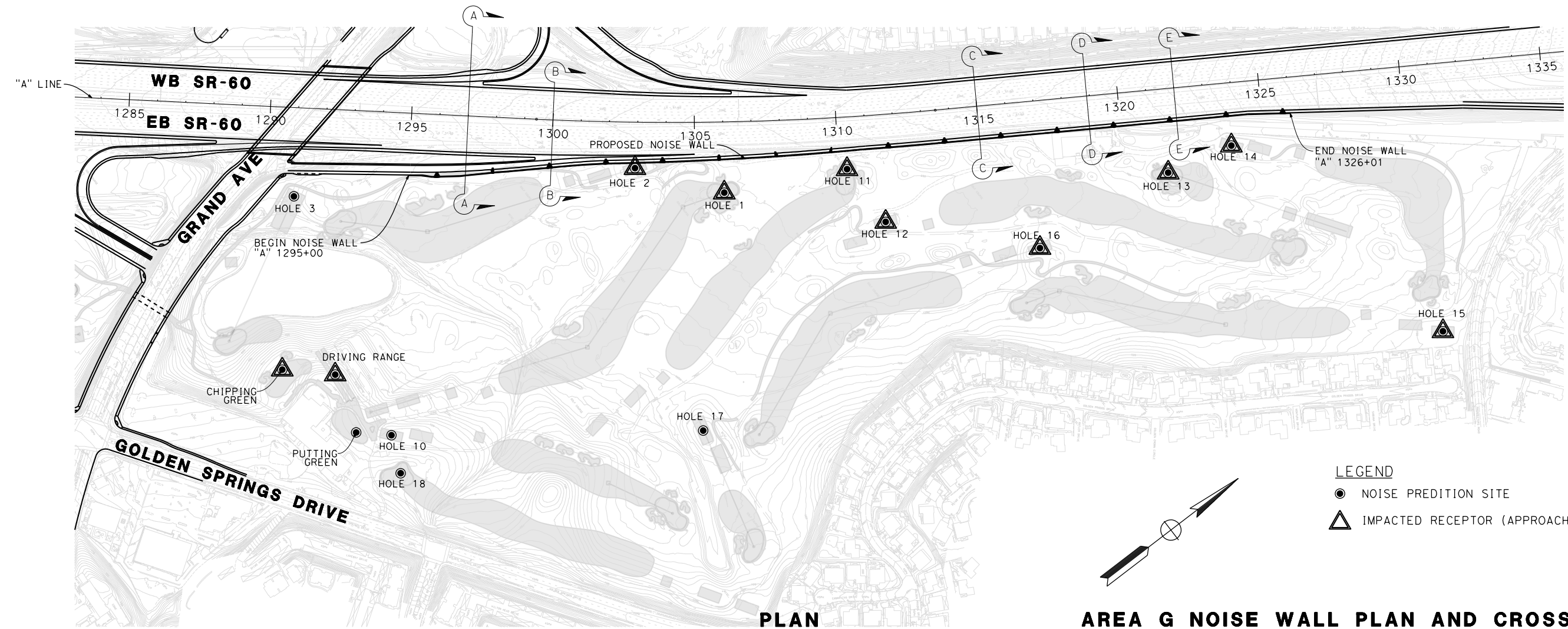
# Appendix F Area G: Noise Wall Plan and Cross-Sections

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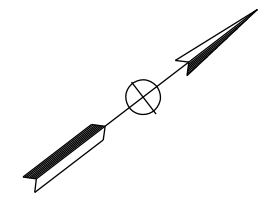
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Caltrans		CHECKED BY	DATE
			REVISION



**TYPICAL CROSS-SECTIONS**  
NO SCALE

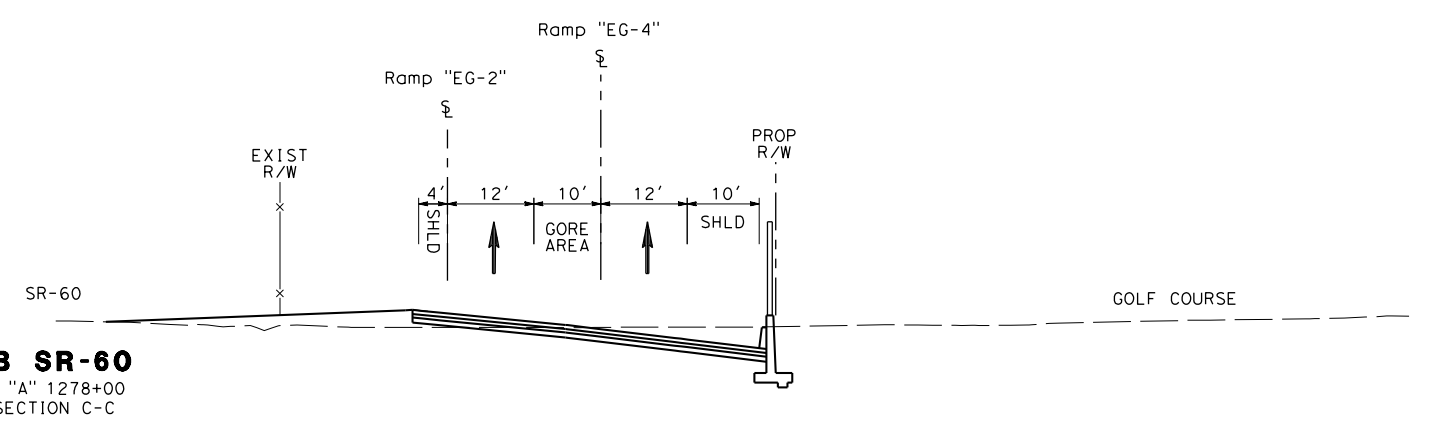
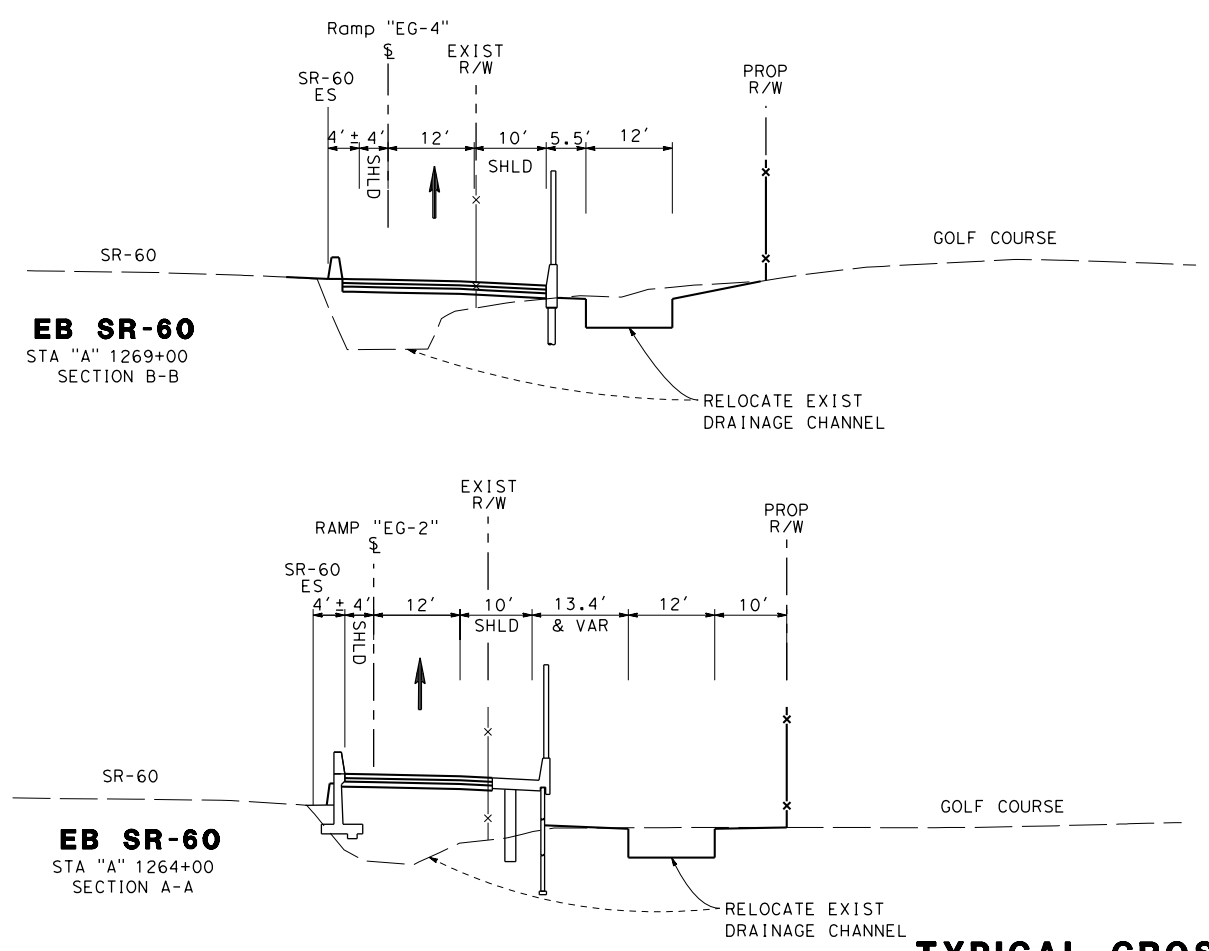


- LEGEND**
- NOISE PREDICTION SITE
  - △ IMPACTED RECEPTOR (APPROACH OR EXCEED NAC)

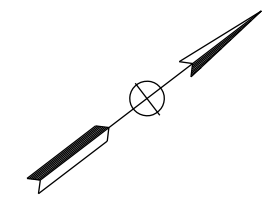
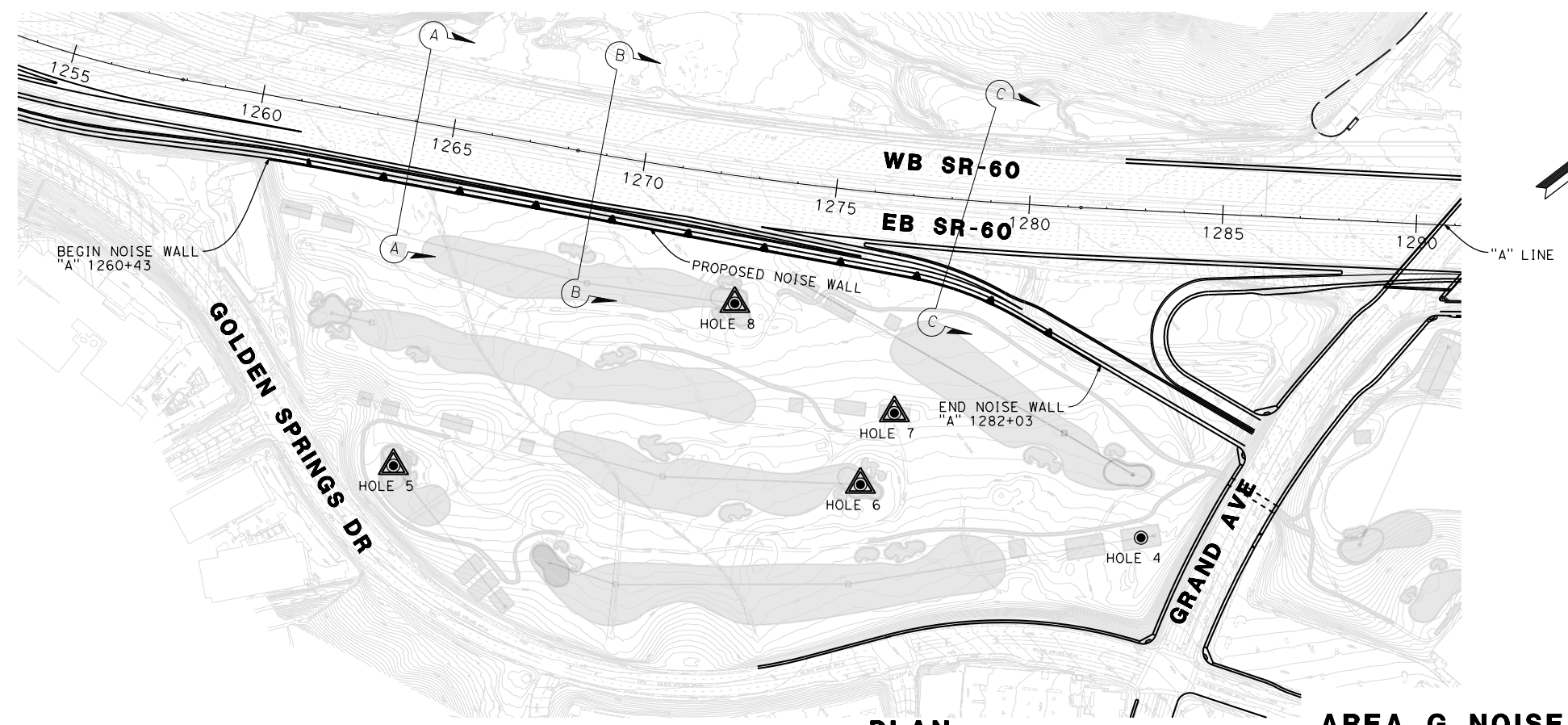


**AREA G NOISE WALL PLAN AND CROSS SECTIONS**  
**EAST DIAMOND BAR GOLF COURSE**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Ettrans		CHECKED BY	DATE



**TYPICAL CROSS-SECTIONS**  
NO SCALE



- LEGEND**
- NOISE PREDICTION SITE
  - △ IMPACTED RECEPTOR (APPROACH OR EXCEED NAC)

# Appendix G Area G: Preliminary Cost Estimate

### Area G: Preliminary Cost Estimate

Retaining Walls Below SW				
Noise Wall	Type of RW	Design H (ft)	Length (ft)	Estimated Cost
G-1 (12FT SW)	Type I	8	384	\$ 103,514.11
		10	475	\$ 138,827.42
		12	768	\$ 234,715.97
	Type V	8	144	\$ 42,950.74
		10	96	\$ 29,018.74
		12	48	\$ 14,897.20
	MSE	VAR	294	\$ 90,202.88
736 SV	3	761	\$ 406,830.60	
Total			2970	\$ 1,060,957.64

Retaining Walls Below SW				
Noise Wall	Type of RW	Design H (ft)	Length (ft)	Estimated Cost
G-2 (14FT SW)	Type I	8	384	\$ 119,066.11
		10	240	\$ 79,864.38
		20	144	\$ 51,644.69
	MSE	VAR	772	\$ 268,125.25
	736 SV	3	680	\$ 414,149.14
Total			2220	\$ 932,849.58



# Appendix H Noise Wall G 5dB Noise Reduction Contours

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Location of 5 dB Barrier Noise Reduction Contours