

SR-60/World Logistics Center Parkway Interchange Project NADR



Noise Abatement Decision Report

City of Moreno Valley

08-RIV-60 PM 20.0/22.0

EA No. 0M590

Project No. 0813000109

August 2019



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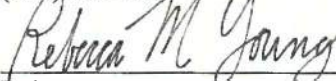
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August 2019

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List of Abbreviated Terms

Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of Moreno Valley
cy	cubic yards
dB	decibels
dBA	A-weighted decibels
ED	Environmental Document
EMWD	Eastern Municipal Water District
FHWA	Federal Highway Administration
ft	foot/feet
HOV	high-occupancy vehicle
IS/EA	Initial Study/Environmental Assessment
kV	kilovolt
L_{eq}	equivalent continuous sound level
LOS	levels of service
mi	mile/miles
MND/FONSI	Mitigated Negative Declaration/Finding of No Significant Impact
mph	miles per hour
MWD	Metropolitan Water District of Southern California
NAC	Noise Abatement Criteria
NADR	Noise Abatement Decision Report
NEPA	National Environmental Policy Act
PM	Post Mile
project	State Route 60/World Logistics Center Parkway Interchange Project
Protocol	Traffic Noise Analysis Protocol
RCFCWCD	Riverside County Flood Control and Water Conservation District
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SCAG	Southern California Association of Governments
SCE	Southern California Edison

SR-60	State Route 60
TNM	Traffic Noise Model
USC	United States Code
vplph	vehicles per lane per hour
WLC Pkwy	World Logistics Center Parkway
WMWD	Western Municipal Water District

Chapter 1. Introduction

This Noise Abatement Decision Report (NADR) presents the preliminary noise abatement decision as defined in the California Department of Transportation (Caltrans) Traffic Noise Analysis Protocol (Protocol) (2011). This report has been approved by a California licensed professional civil engineer. The Noise Study Report (NSR) for the State Route 60/World Logistics Center Parkway Interchange Project (LSA 2019) 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 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” the 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 decibel (dB) of the NAC. A substantial increase is defined as being 12 A-weighted decibels (dBA) or more over the corresponding existing noise level.

The FHWA standards (23 CFR 772) require that noise abatement measures that are reasonable and feasible and that are likely to be incorporated into the project be identified before adoption of the final environmental document (ED).

The Protocol establishes a process for assessing the reasonableness and feasibility of noise abatement. Before publication of the Draft Environmental Document (ED), 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 a noise reduction of 5 dBA or more at receptors 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.

This 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. This 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 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 include:

- The noise reduction design goal,
- The cost of noise abatement, and
- The viewpoints of benefited receptors (including property owners and residents of the benefited receptors).

At the end of the public review process for the Draft 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 ED phase 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 *Noise Study Report* (NSR) (2019) relating to acoustical feasibility and the reasonable allowances for abatement evaluated;
- Present the engineer's cost estimate for evaluated abatement;
- Present the engineer's evaluation of nonacoustical feasibility issues;
- Present the preliminary noise abatement decision; and
- Present preliminary information on the secondary effects of abatement (e.g., impacts on cultural resources, scenic views, hazardous materials, biological resources).

This NADR does not address noise barriers 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

Theodore Street has been renamed to World Logistic Center Parkway (WLC Pkwy) between Hemlock Avenue to its southern terminus at Davis Road. The State Route 60/Theodore Street Interchange Project will now be referred to as the State Route 60/World Logistics Center Parkway Interchange Project (project).

The City of Moreno Valley (City), in cooperation with Caltrans District 8, proposes to reconstruct and improve the SR-60/WLC Pkwy interchange. The majority of the project site is located in Moreno Valley; however, the northeast quadrant of the site is located within unincorporated Riverside County but also within the City's Sphere of Influence. The purpose of the project is to alleviate existing and future traffic congestion at the SR-60/WLC Pkwy interchange ramps during peak hours, to improve traffic flow along the freeway and through the interchange, to improve safety by upgrading the geometry at the current interchange, and to provide standard vertical clearance for the WLC Pkwy Overcrossing.

The project will be funded with a variety of funding sources including federal and local funds and, as such, will be required to comply with both CEQA and the National Environmental Policy Act (NEPA). Caltrans is the Lead Agency for CEQA, the City is a Responsible Agency under CEQA, and the FHWA is the federal Lead Agency for NEPA. Caltrans will carry out the environmental review, consultation, and any other action required in accordance with the applicable federal laws for this project under its assumption of responsibility pursuant to 23 United States Code (USC) 327. Therefore, preparation of the NEPA compliance documents, including the technical studies and the environmental document, will have oversight from Caltrans District 8. An Initial Study/Environmental Assessment (IS/EA) (i.e., a joint CEQA/NEPA document) is being prepared and is anticipated to result in a Mitigated Negative Declaration/Finding of No Significant Impact (MND/FONSI).

The City's General Plan Circulation Element designates Theodore Street/WLC Pkwy as a Minor Arterial (two lanes in each direction) north of Eucalyptus Avenue, and WLC Pkwy as a Major Arterial (three lanes in each direction) south of Eucalyptus Avenue. Existing Theodore Street/WLC Pkwy through the project limits is one travel lane in each direction, including the overcrossing over SR-60. Existing SR-60

between Redlands Boulevard and Gilman Springs Road is two mixed-flow travel lanes in each direction. The proposed project would construct modifications to the existing SR-60/WLC Pkwy interchange from Post Mile (PM) 20.0 to PM 22.0 on SR-60, a distance of approximately 2 miles (mi). Major improvements to the interchange will include:

- Reconstruction of the westbound and eastbound on- and off-ramps to SR-60;
- Replacement of the existing WLC Pkwy Overcrossing with a four-lane overcrossing (two through lanes in each direction) with a minimum 16.5-foot (ft) vertical clearance and reconstruction of WLC Pkwy between the southern limits of the project and the eastbound SR-60 ramps, and
- Construct three lanes in each direction on WLC Pkwy between the eastbound SR-60 ramps and Eucalyptus Avenue west (Eucalyptus Avenue west of WLC Pkwy); construct two lanes in each direction and grade for three lanes in each direction on WLC Pkwy between Eucalyptus Avenue west and Eucalyptus Avenue east (Eucalyptus Avenue east of WLC Pkwy); south of Eucalyptus Avenue east WLC Pkwy would narrow to one lane in each direction.

The proposed improvements to the on- and off-ramps would extend west and east of the proposed overcrossing on SR-60 for proposed auxiliary lanes in each direction. The proposed improvements to Theodore Street/WLC Pkwy would extend north of SR-60 to Ironwood Avenue and south of SR 60 to south of Eucalyptus Avenue. Contingent upon full funding of all phases, construction could begin in 2022.

Three alternatives and two design variations will be evaluated in the environmental document for the proposed project: Alternative 1 (No Build Alternative [no project]), Alternative 2 (Modified Partial Cloverleaf), Alternative 6 (Modified Partial Cloverleaf with Roundabout Intersections), Alternative 2 with Design Variation 2a and Alternative 6 with Design Variation 6a. The Design Variations for each Build Alternative are similar and would realign the Eucalyptus Avenue to join WLC Pkwy approximately 900 ft south of the existing Eucalyptus Avenue/WLC Pkwy intersection. Both Build Alternatives and Design Variations would require full right-of-way acquisitions. Design Variation 6a would require the same amount of acquisitions with an additional full acquisition in the southeast quadrant of the interchange that would result in one residential displacement. There would be partial right-of-way acquisitions within all four quadrants of the interchange.

During the construction phase of the proposed project, removal of the existing overcrossing and construction of the new overcrossing and ramps would interfere with access to the SR-60 at WLC Pkwy. The WLC Pkwy overcrossing is being evaluated for closure during construction of the proposed project. Therefore, if not done prior to this project, Eucalyptus Avenue would be extended a between WLC Pkwy and Redlands Boulevard to provide a detour route to SR-60. The improvements to Eucalyptus Avenue will be constructed early in the construction schedule, prior to the closure of the WLC Pkwy overcrossing. North of the freeway, access to SR-60 during construction would be provided via Ironwood Avenue and Redlands Boulevard. South of the freeway, access to SR-60 would be provided via Alessandro Boulevard and Gilman Springs Road and via Eucalyptus Avenue and Redlands Boulevard. Additional intersection improvements are proposed along the detour routes to facilitate vehicle movement. As a result, widening is proposed at the Redlands Boulevard/Ironwood Avenue, WLC Pkwy/Alessandro Boulevard, and Alessandro Boulevard/Gilman Springs Road intersections. Consequently, signal modifications are proposed at the Redlands Boulevard/Ironwood Avenue and Redlands Boulevard/Eucalyptus Avenue intersections. A new signal would be installed at the Gilman Springs Road/Alessandro Boulevard intersection due to the high through movements on Gilman Springs Road conflicting with left turns to and from Alessandro Boulevard. The improvements required for the detour routes also include utility adjustments and/or relocations at Redlands Boulevard/Ironwood Avenue, WLC Pkwy/Alessandro Boulevard, and Alessandro Boulevard/Gilman Springs Road.

Project construction would also involve the import of soils to the project site from a Borrow Site. One borrow site, the City Stockpile, is located at the northwest corner of the intersection of Alessandro Boulevard/Nason Street, approximately 2.3 mi from the western boundary of the project site. Approximately 50,000 cubic yards of import material will be imported to the project from the City Stockpile borrow site. The City Stockpile will be environmentally cleared with this project. Additional fill material beyond the 50,000 cubic yards will be necessary for the project and will come from another site(s) to be determined during future phases of the project.

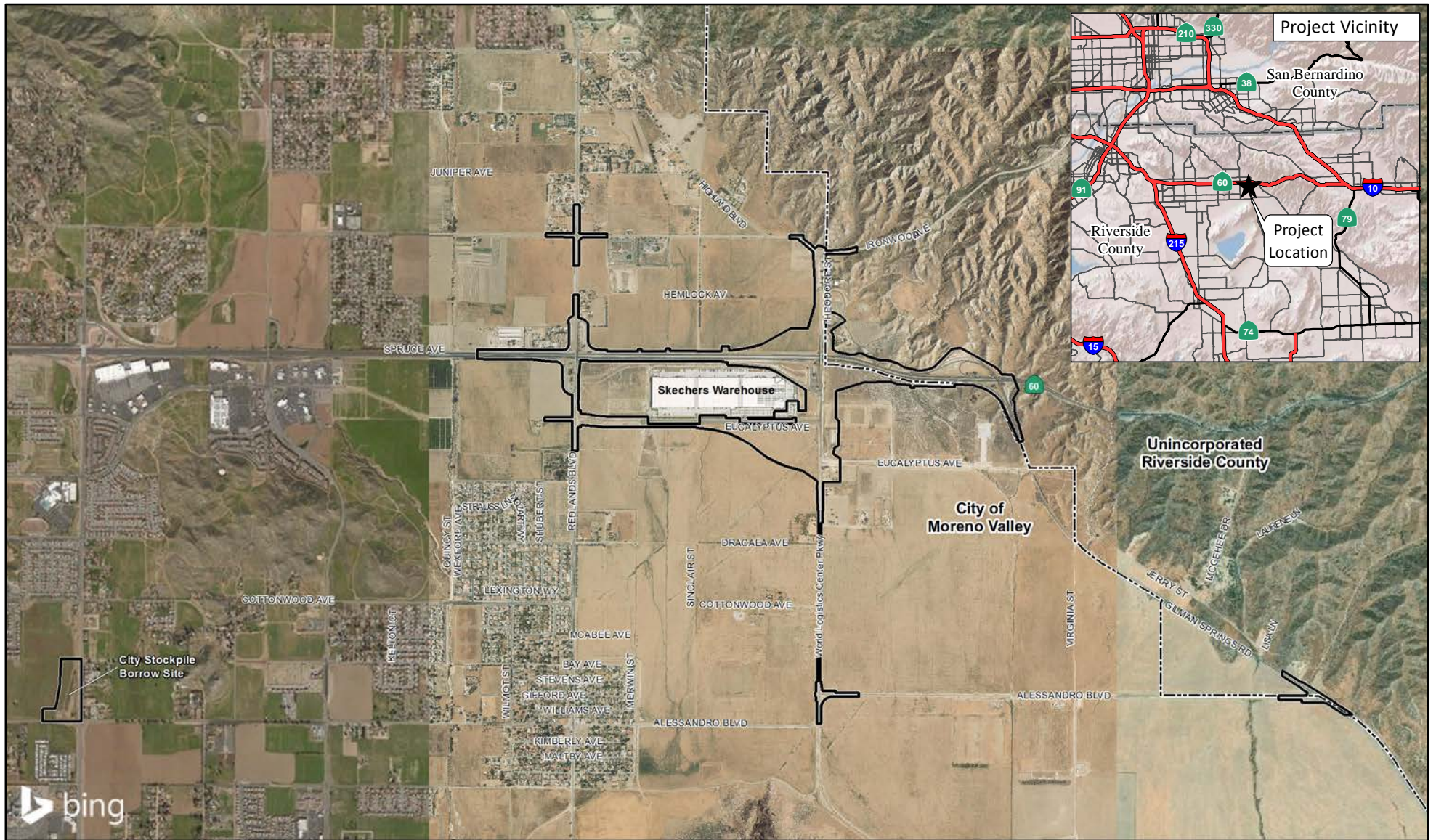
Figure 1-1 shows the project location and vicinity map.

1.3.1. Purpose and Need

1.3.1.1. Purpose

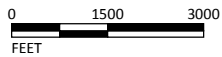
The purpose of the proposed project is to:

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LEGEND

- Project Area
- City Boundary



SOURCE: Bing (2015); MBI (9/2018); ESRI (07/2012)

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FIGURE 1-1

*SR-60/World Logistics Center Pkwy
Interchange Project*

Project Location and Vicinity

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- Provide increased interchange capacity, reduce congestion, and improve traffic operations to support the forecast travel demand for the 2045 design year;
- Improve existing and projected interchange geometric deficiencies; and
- Accommodate a multimodal facility that has harmony with the community and preserves the values of the area.

1.3.1.2. Need

The proposed project is needed for the following reasons:

- According to the demographics and growth forecast prepared for the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), between 2012 and 2040, Riverside County's population is expected to increase by 41 percent, job growth is anticipated to increase by 90 percent, and the number of households is anticipated to increase by 51 percent. For Moreno Valley specifically, between 2012 and 2040, population is anticipated to increase by 30 percent, household jobs are anticipated to increase by 165 percent, and households are anticipated to increase by 51 percent. Without improvements, in the year 2045, the eastbound and westbound on- and off-ramps are anticipated to operate at unacceptable levels of service (LOS) (LOS E in the a.m. peak hour and LOS F in the p.m. peak hour, respectively) and the ramp intersections with WLC Pkwy are anticipated to operate at LOS F for both the a.m. and p.m. peak hours. The westbound mainline segment on SR-60 between WLC Pkwy and Redlands Boulevard is anticipated to operate at LOS E during the a.m. peak hour. The Theodore Street intersection with Ironwood Avenue, and the WLC Pkwy intersections with the SR-60 westbound and eastbound ramps and Eucalyptus Avenue are forecast to operate at LOS F in the p.m. peak hour.
- The overcrossing bridge at the interchange was hit by a truck in January 2015 and a costly emergency repair project was required, so there is a need to bring vertical clearance up to current standards. In addition, the WLC Pkwy Overcrossing is geometrically deficient and needs additional capacity to accommodate projected future travel volumes.
- This project will fulfill the need to accommodate the movement of people using multiple modes of transportation by community-based design while taking into consideration the natural environment, social environment, transportation behavior, cultural characteristics, and economic environment.

1.3.2. No Build Alternative (Alternative 1)

The No Build Alternative assumes that no improvements will be made to the freeway mainline or to the SR-60/WLC Pkwy interchange. Without the planned improvements proposed as part of the project, the LOS at the on- and off-ramps and traffic operations at the interchange would continue to worsen over time. The No Build Alternative was determined to not meet or satisfy the project purpose and need.

1.3.3. Common Design Features for Both Build Alternatives

As described further in Sections 1.3.3 and 1.3.4, Alternatives 2 and 6 both propose to modify the SR-60/WLC Pkwy interchange and share several common design features. These common design features are discussed below by type of improvement.

1.3.3.1. Interchange On- and Off-Ramp Improvements

The proposed interchange is located approximately 1 mi east of the SR-60/Redlands Boulevard interchange and 0.7 mi west of the SR-60/Gilman Springs Road interchange. The new on- and off-ramps and the new bridge overcrossing would provide a direct and continuous alignment for WLC Pkwy traffic crossing SR-60. In accordance with the Caltrans *Ramp Metering Design Manual* (April 2016), all interchange on-ramps would be two-lane and/or three-lane metered ramps, with sufficient right-of-way to accommodate vehicle storage, ramp meter equipment, and California Highway Patrol enforcement areas. Additionally, all on-ramps would provide high-occupancy vehicle (HOV) preferential lanes.

1.3.3.2. Roadway Improvements

Roadway improvements associated with the proposed project include the following:

- Widening of WLC Pkwy through the proposed project limits
- Improvements along WLC Pkwy to include a parkway, sidewalk, and multi-use trail
- Improvement of Eucalyptus Avenue between Redlands Boulevard and WLC Pkwy
- Addition of one auxiliary lane in each direction between the Redlands Boulevard and Gilman Springs Road interchanges with SR-60

The WLC Pkwy improvements listed above would have a design speed of 45 miles per hour (mph). Aside from the improvements listed above, no additional future widening on WLC Pkwy is planned within the interchange limits. The proposed overcrossing would be designed to the ultimate width.

1.3.3.3. Non-Vehicular and Pedestrian Access Improvements

The proposed project includes construction of a number of non-vehicular and pedestrian access improvements. These include a sidewalk on the east side of WLC Pkwy along the limits of the WLC Pkwy improvements, a sidewalk on the west side of WLC Pkwy between the southern project limits and Eucalyptus Avenue. Additionally, a multi-use trail would be constructed on the east side of WLC Pkwy between Eucalyptus Avenue and Ironwood Avenue.

The proposed project would also accommodate a future multi-use trail on the north side of Eucalyptus Avenue between Redlands Boulevard and WLC Pkwy. A grade-separated trail and pedestrian crossing over the eastbound SR-60 direct on-ramp could potentially be provided with the proposed project based on available funding.

1.3.3.4. Utility and Right-of-Way Requirements

The proposed project would require relocation or protection in-place of several utility facilities. To prevent impacts to utility facilities and services during construction, the following utilities have been contacted regarding the proposed project: Eastern Municipal Water District (EMWD), Metropolitan Water District of Southern California (MWD), Western Municipal Water District (WMWD), Riverside County Flood Control and Water Conservation District (RCFCWCD), Riverside County Waste Management, Moreno Valley Electric Utility, Time Warner Cable, Charter Communications, Southern California Edison (SCE), Southern California Gas Company, Questar Southern Trails Pipeline Company, Sunesys, Verizon, and AT&T. The existing SCE overhead 115-kilovolt (kV) transmission line and 12 kV distribution line that are currently adjacent to the west side of WLC Pkwy would be relocated to the east side of WLC Pkwy between the westbound ramps intersection and the southern limits of the proposed project. North of the westbound ramps intersection, the SCE utility lines will cross WLC Pkwy and be relocated to the parkway on the west side of WLC Pkwy. In order to accommodate future utilities, the proposed overcrossing would incorporate conduits for Moreno Valley Electric Utility, SCE, and other utility companies as requested.

Alternatives 2 and 6 and Design Variation 2a would each require a total of six full acquisitions: one full acquisition in the northwest quadrant and five full acquisitions in the southwest quadrant. Design Variation 6a will require the same amount of acquisitions with an additional full acquisition in the southeast quadrant of the interchange. There would be partial right-of-way acquisitions within all four

quadrants of the interchange. The full acquisition for Design Variation 6a in the southeast quadrant of the interchange would require one residential displacement.

1.3.3.5. Additional Considerations

Geotechnical investigations would be required during final design of the WLC Pkwy overcrossing and the interchange improvements.

Highway planting would potentially be provided and coordinated with Caltrans and the City.

Infiltration basins will be proposed in the undeveloped areas between the on-/off-ramps and SR-60.

1.3.4. Alternative 2 (Modified Partial Cloverleaf)

Alternative 2 proposes to reconstruct the SR-60/WLC Pkwy interchange in a modified partial cloverleaf configuration. Improvements under Alternative 2 would include the construction of a new westbound direct on-ramp and a new westbound loop off-ramp in a cloverleaf configuration in the northwest quadrant of the interchange. A new eastbound direct off-ramp, a new eastbound loop on-ramp, and a new eastbound direct on-ramp would be constructed in the southwest and southeast quadrants in a partial cloverleaf configuration.

Alternative 2 would also remove the existing two-lane (one lane in each direction) WLC Pkwy Overcrossing and replace it with a new four-lane (two lanes in each direction) overcrossing. The proposed overcrossing would accommodate turn lanes in the northbound and southbound directions.

Additional improvements as part of Alternative 2 include the installation of signals at both the proposed eastbound and westbound ramp intersections as well as at the intersection of Eucalyptus Avenue/WLC Pkwy. Bike lanes would be provided on both sides of WLC Pkwy and Eucalyptus Avenue throughout the project limits..

1.3.5. Design Variation 2a (Alternative 2 with Design Variation)

Design Variation 2a will have the same features as Alternative 2 with the exception of the location of the Eucalyptus Avenue/WLC Pkwy intersection. Design Variation 2a will consist of moving the current Eucalyptus Avenue/WLC Pkwy intersection approximately 900 ft south of its current location. The shift will cause a partial realignment of Eucalyptus Avenue from approximately 2,600 ft west of WLC Pkwy to connect with the west side of WLC Pkwy.

1.3.6. Alternative 6 (Modified Partial Cloverleaf with Roundabout Intersections)

Alternative 6 proposes to reconstruct the SR-60/WLC Pkwy interchange in a modified partial cloverleaf configuration. Improvements under Alternative 6 would include the construction of a new westbound direct on-ramp and a new westbound loop off-ramp in a partial cloverleaf configuration in the northwest quadrant. New eastbound direct off- and on-ramps would be constructed in the southwest and southeast quadrants, respectively, in a partial cloverleaf configuration.

Similar to Alternative 2, Alternative 6 would also remove the existing two-lane (one lane in each direction) WLC Pkwy Overcrossing and replace it with a new four-lane (two through lanes in each direction) overcrossing. Additional improvements included as part of Alternative 6 include the installation of roundabouts at both the proposed eastbound and westbound ramp intersections as well as at Eucalyptus Avenue/WLC Pkwy. On WLC Pkwy north of the Eucalyptus Avenue intersection and on Eucalyptus Avenue, bike lanes are provided on both sides within the width of the proposed shoulders. Bicyclists would have the option to merge with vehicular traffic to navigate through the roundabout or exit the travel lane prior to each roundabout and cross the roundabout with pedestrian traffic.

1.3.7. Design Variation 6a (Alternative 6 with Design Variation)

Design Variation 6a will have the same features as Alternative 6 with the exception of the location of the Eucalyptus Avenue/WLC Pkwy intersection. Design Variation 6a will consist of moving the current Eucalyptus Avenue/WLC Pkwy intersection approximately 900 ft south of its current location. The shift will cause a partial realignment of Eucalyptus Avenue from approximately 2,600 ft west of WLC Pkwy to connect to the west side of WLC Pkwy. Construction of the roundabout at WLC Pkwy and Eucalyptus Avenue east would result in one residential displacement in the southeast quadrant of WLC Pkwy and Eucalyptus Avenue east.

1.4. Affected Land Uses

Developed and undeveloped land uses in the project vicinity were identified through land use maps, aerial photography, and site inspection. Within each land use category, sensitive receptors were identified. Existing land uses in the vicinity of the project area include single-family residences, agriculture, vacant land, and industrial uses. Existing land uses in the project area are described below in further detail.

- **North of SR-60 between Redland Boulevard and Theodore Street¹:** Land use in this area includes only vacant land. Land uses in this area ranges from approximately 5 ft lower in elevation than SR-60 to approximately 2 ft higher in elevation than SR-60.
- **North of SR-60, East of Theodore Street¹:** Land uses in this area include a single-family residence and a race track. Land uses in this area are located approximately 25 to 55 ft higher in elevation than SR-60.
- **South of SR-60 between Redlands Boulevard and WLC Parkway:** Land uses in this area include vacant land and an industrial facility. Land uses in this area are located approximately 4 to 30 ft lower in elevation than SR-60.
- **South of SR-60, East of WLC Parkway:** Land use in this area includes only vacant land. Land in this area ranges from approximately 30 to 50 ft lower in elevation than SR-60.
- **Along WLC Parkway, South of Eucalyptus Avenue:** Land uses in this area include single-family residences, vacant land, and agriculture. Land uses in this area are similar in elevation to Theodore Street.
- **Along Theodore Street¹, North of SR-60 Westbound Ramps:** Land uses in this area include single-family residences, vacant land, and agriculture. Land uses in this area are similar in elevation to Theodore Street.

¹ The City is currently renaming Theodore Street to WLC Pkwy from the SR-60 westbound ramps to Ironwood Avenue.

Chapter 2. Results of the Noise Study Report

The NSR for this project was prepared in April 2019.

2.1. Noise Impact Locations

The noise study was conducted to determine the future traffic noise impacts at receptors located within the project area. Potential long-term noise impacts associated with project operations are solely from traffic noise. Traffic noise was evaluated for the worst-case traffic condition. Using coordinates obtained from the topographic maps, 38 receptor locations were evaluated in the model. Figure 2-1 shows these receptor locations (all figures have been positioned at the end of this chapter to enhance the readability of the text).

Future traffic noise levels at all 38 receptor locations were determined with existing walls using 2045 a.m. peak-hour traffic volumes obtained from the *Methodology and Traffic Volumes Report* (WSP 2018a) and supplemental traffic data provided by WSP as described in Section 5.3 of the NSR. The a.m. peak-hour traffic volumes were used because the long-term noise level measurement shows the noise level during the a.m. peak hour is higher than the p.m. peak hour. For roadway segments that exceed the worst-case traffic volume of 1,950 vehicles per lane per hour (vplph) for the mainline freeway, 1,500 vplph for freeway auxiliary lanes, and 900 vplph for on-ramps, the worst-case traffic volumes were used instead of the a.m. peak-hour traffic volumes. The modeled future noise levels with the project were compared to the modeled existing noise levels (after calibration) from Traffic Noise Model (TNM) 2.5 to determine whether a substantial noise increase would occur. The modeled future noise levels for Alternative 2, Design Variation 2a, Alternative 6, and Design Variation 6a were also compared to the NAC to determine whether a traffic noise impact would occur.

Traffic noise impacts occur when either of the following occurs: (1) if the traffic noise level at a receptor location is predicted to “approach or exceed” its NAC, or (2) if the predicted traffic noise level is 12 dBA or more over the corresponding modeled existing noise level at the receptor locations analyzed. When traffic noise impacts occur, noise abatement measures must be considered.

Of the 38 modeled receptors, 2 receptors (Receptors R-10 and R-25) under Alternative 2, Design Variation 2a, and Alternative 6 conditions, and 1 receptor (Receptor R-10) under

Design Variation 6a conditions would approach or exceed the NAC. Of the 38 modeled receptors, 2 receptor locations (Receptors R-25 and R-28) under Alternative 2, Design Variation 2a, and Alternative 6 conditions would experience a substantial noise increase of 12 dBA or more over their corresponding modeled existing noise level. One receptor location (Receptor R-28) under Design Variation 6a conditions would experience a substantial noise increase of 12 dBA over its corresponding modeled existing level. Receptors R-25 and R-27 would be fully acquired as part of the project under Design Variation 6a conditions.

The following receptor locations would be or would continue to be exposed to noise levels that approach or exceed the NAC and/or a substantial noise increase under Alternative 2, Design Variation 2a, and Alternative 6:

- **Receptor R-10:** This receptor location represents an existing residence along the east side of WLC Pkwy north of SR-60. Currently, there is no existing wall that shields this residence. One noise barrier (NB No. 1) was modeled at the top of slope on private property. Noise barriers were not evaluated within the State right-of-way or edge of shoulder because the receptor is approximately 30 ft higher in elevation than the area within the State right-of-way and the barrier would not be feasible at that location.
- **Receptor R-25:** This receptor location represents an existing residence along the east side of WLC Pkwy south of SR-60. Currently, there is no existing wall that shields this residence. One noise barrier (NB No. 2) was modeled along the City right-of-way and private property line.
- **Receptor R-28:** This receptor location represents an existing residence along the east side of WLC Pkwy south of SR-60. Currently, there is no existing wall that shields this residence. One noise barrier (NB No. 3) was modeled along the City right-of-way and private property line.

The following receptor locations would be or would continue to be exposed to noise levels that approach or exceed the NAC and/or a substantial noise increase under Design Variation 6a:

- **Receptor R-10:** This receptor location represents an existing residence along the east side of WLC Pkwy north of SR-60. Currently, there is no existing wall that shields this residence. One noise barrier (NB No. 1) was modeled at the top of the slope on private property. Noise barriers were not evaluated within the State right-of-way or edge of

shoulder because the receptor is approximately 30 ft higher in elevation than the area within the State right-of-way and the barrier would not be feasible at that location.

- **Receptor R-28:** This receptor location represents an existing residence along the east side of WLC Pkwy south of SR-60. Currently, there is no existing wall that shields this residence. One noise barrier (NB No. 3) was modeled along the City right-of-way and private property line.

2.2. Locations for Evaluated Noise Abatement

Noise abatement measures such as noise barriers were considered to shield receptors along the proposed SR-60/WLC Pkwy interchange where receptors exist and would continue to be exposed to traffic noise levels approaching or exceeding the NAC or would experience a substantial noise increase of 12 dBA or more over their corresponding existing noise level. All properties requiring abatement consideration are classified under Category B (67 dBA L_{eq} NAC). Noise barriers were analyzed for each of these sensitive receptor locations. At each location, six noise barrier heights were analyzed: 6, 8, 10, 12, 14, and 16 ft. The locations of the noise barriers under Alternative 2, Design Variation 2a, Alternative 6, and Design Variation 6a are shown on Figures 2-2 through 2-5.

The following noise barriers were analyzed to shield receptor locations that would be exposed to traffic noise levels approaching or exceeding the NAC or would experience a substantial noise increase of 12 dBA and/or more over their corresponding existing noise level for Alternative 2, Design Variation 2a, and Alternative 6:

- **NB No. 1:** A 339 ft long barrier along the top of slope on private property on the east side of WLC Pkwy north of SR-60 was analyzed to shield Receptor R-10.
- **NB No. 2:** A 223 ft (Alternatives 2 and 6) and 206 ft (Design Variation 2a) long barrier along the City right-of-way and private property line on the east side of WLC Pkwy south of SR-60 was analyzed to shield Receptor R-25.
- **NB No. 3:** A 453 ft (Alternatives 2 and 6) and 434 ft (Design Variation 2a) long barrier along the City right-of-way and private property line on the east side of WLC Pkwy south of SR-60 was analyzed to shield Receptor R-28.

The following noise barriers were analyzed to shield receptor locations that would be exposed to traffic noise levels approaching or exceeding the NAC and/or would experience a substantial noise increase of 12 dBA or more over their corresponding existing noise level for Design Variation 6a:

- **NB No. 1:** A 339 ft long barrier along the top of slope on private property on the east side of WLC Pkwy north of SR-60 was analyzed to shield Receptor R-10.
- **NB No. 3:** A 414 ft long barrier along the City right-of-way and private property line on the east side of WLC Pkwy south of SR-60 was analyzed to shield Receptor R-28.

2.3. Feasible Noise Barriers

Section 3 of the Protocol (dated May 2011) states that a minimum noise reduction of 5 dBA must be achieved at the impacted receptors for the proposed noise abatement measure to be considered feasible. Greater noise reductions are encouraged if they can be reasonably achieved. Feasibility may also be restricted by the following factors: (1) topography, (2) access requirement for driveways, (3) presence of local cross streets, (4) underground utilities, (5) other noise sources in the area, and (6) safety considerations.

Table 2.1 summarizes the feasibility of the modeled noise barriers and lists the noise barrier heights, approximate lengths, the highest noise attenuation, the number of benefited units/receptors, the total reasonable allowance, noise barrier location, beginning and ending station number, and the beginning and ending top of wall elevation for Alternative 2, Design Variation 2a, Alternative 6, and Design Variation 6a. All three modeled noise barriers evaluated for Alternative 2, Design Variation 2a, and Alternative 6 were determined to be feasible. The two modeled noise barriers evaluated for Design Variation 6a were also determined to be feasible.

Table 2.1 Summary of Feasible Noise Barriers from the Noise Study Report

Alternative	Noise Barrier No.	Height (ft)	Approximate Length (ft)	Highest Noise Attenuation (dBA)	Number of Benefited Receptors/Units ¹	Total Reasonable Allowance ²	Noise Barrier Location	Noise Barrier Station Number		Top of Wall Elevation		
								Begin	End	Begin	End	
2	1	6	339	5	1	\$107,000	PL	489+10	491+15	1,817.00	1,828.00	
		8	339	6	1	\$107,000				1,819.00	1,830.00	
		10	339	7	1	\$107,000				1,821.00	1,832.00	
		12	339	8	1	\$107,000				1,823.00	1,834.00	
		14	339	9	1	\$107,000				1,825.00	1,836.00	
	16	339	10	1	\$107,000	1,827.00	1,838.00					
	2	2	8	233	5	1	\$107,000	ROW/PL	175+40	176+47	1,708.96	1,712.45
			10	233	6	1	\$107,000				1,710.96	1,714.45
			12	233	10	1	\$107,000				1,712.96	1,716.45
			14	233	11	1	\$107,000				1,714.96	1,718.45
	3	3	10	453	5	1	\$107,000	ROW/PL	170+52	172+17	1,697.90	1,702.00
			12	453	8	1	\$107,000				1,699.90	1,704.00
			14	453	8	1	\$107,000				1,701.90	1,706.00
			16	453	9	1	\$107,000				1,703.90	1,708.00
	2a	1	6	339	5	1	\$107,000	PL	489+10	491+15	1,817.00	1,828.00
8			339	6	1	\$107,000	1,819.00				1,830.00	
10			339	7	1	\$107,000	1,821.00				1,832.00	
12			339	8	1	\$107,000	1,823.00				1,834.00	
14			339	9	1	\$107,000	1,825.00				1,836.00	
16		339	10	1	\$107,000	1,827.00	1,838.00					
2		2	8	206	5	1	\$107,000	ROW/PL	175+40	176+32	1,708.96	1,712.36
			10	206	7	1	\$107,000				1,710.96	1,714.36
			12	206	9	1	\$107,000				1,712.96	1,716.36
			14	206	10	1	\$107,000				1,714.96	1,718.36
3		3	10	434	6	1	\$107,000	ROW/PL	170+52	172+17	1,697.90	1,702.12
			12	434	8	1	\$107,000				1,699.90	1,704.12
			14	434	9	1	\$107,000				1,701.90	1,706.12
			16	434	9	1	\$107,000				1,703.90	1,708.12

Table 2.1 Summary of Feasible Noise Barriers from the Noise Study Report

Alternative	Noise Barrier No.	Height (ft)	Approximate Length (ft)	Highest Noise Attenuation (dBA)	Number of Benefited Receptors/Units ¹	Total Reasonable Allowance ²	Noise Barrier Location	Noise Barrier Station Number		Top of Wall Elevation	
								Begin	End	Begin	End
6	1	6	339	6	1	\$107,000	PL	489+10	491+15	1,817.00	1,828.00
		8	339	6	1	\$107,000				1,819.00	1,830.00
		10	339	7	1	\$107,000				1,821.00	1,832.00
		12	339	8	1	\$107,000				1,823.00	1,834.00
		14	339	9	1	\$107,000				1,825.00	1,836.00
	16	339	9	1	\$107,000	1,827.00	1,838.00				
	2	8	233	5	1	\$107,000	ROW/PL	175+40	176+47	1,708.96	1,712.45
		10	233	6	1	\$107,000				1,710.96	1,714.45
		12	233	10	1	\$107,000				1,712.96	1,716.45
		14	233	11	1	\$107,000				1,714.96	1,718.45
	3	16	233	11	1	\$107,000	1,716.96	1,720.45			
		10	453	5	1	\$107,000	ROW/PL	170+52	172+17	1,697.90	1,702.12
		12	453	8	1	\$107,000				1,699.90	1,704.12
		14	453	8	1	\$107,000				1,701.90	1,706.12
	16	453	9	1	\$107,000	1,703.90				1,708.12	
6a	1	6	339	6	1	\$107,000	PL	489+10	491+15	1,817.00	1,828.00
		8	339	6	1	\$107,000				1,819.00	1,830.00
		10	339	7	1	\$107,000				1,821.00	1,832.00
		12	339	8	1	\$107,000				1,823.00	1,834.00
		14	339	9	1	\$107,000				1,825.00	1,836.00
	16	339	9	1	\$107,000	1,827.00	1,838.00				
	3	10	414	5	1	\$107,000	ROW/PL	170+52	172+17	1,697.90	1,702.12
		12	414	7	1	\$107,000				1,699.90	1,704.12
		14	414	8	1	\$107,000				1,701.90	1,706.12
		16	414	8	1	\$107,000				1,703.90	1,708.12
16		414	9	1	\$107,000	1,705.90				1,709.12	

Source: Compiled by LSA Associates, Inc. (2019).

¹ Number of receptors/units that are attenuated by 5 dBA or more by the modeled barrier.

² Calculated by multiplying the number of benefited receptors by \$107,000 (reasonable allowance per benefited receptor/unit).

dBA = A-weighted decibels

ft = foot/feet

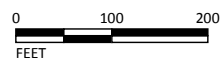
PL = property line

ROW = right-of-way



LEGEND

- ▲ Short-Term Monitoring Locations
- Modeled Receptor Locations
- Long-Term Monitoring Location
- Existing Right-of-Way



SOURCE: Google Imagery (2012); RBF (7/31/2013)

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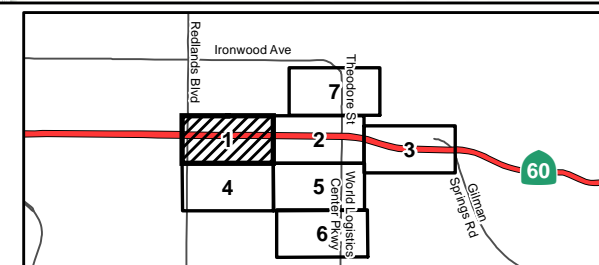


FIGURE 2-1

Sheet 1 of 7

SR-60/World Logistics Center Pkwy Interchange Project

Monitoring and Modeled Receptor Locations

08-RIV-60 PM 20.0/22.0

EA No. 0M590

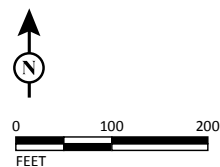
Project No. 0813000109

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LEGEND

- ▲ Short-Term Monitoring Locations
- Modeled Receptor Locations
- Long-Term Monitoring Location
- Existing Right-of-Way



SOURCE: Google Imagery (2012); RBF (7/31/2013)

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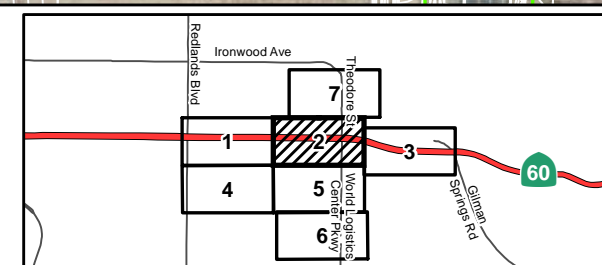


FIGURE 2-1

Sheet 2 of 7

SR-60/World Logistics Center Pkwy Interchange Project

Monitoring and Modeled Receptor Locations

08-RIV-60 PM 20.0/22.0

EA No. OM590

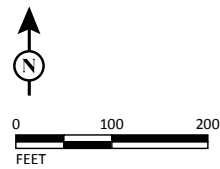
Project No. 0813000109

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LEGEND

- ▲ Short-Term Monitoring Locations
- Modeled Receptor Locations
- Long-Term Monitoring Location
- Existing Right-of-Way



SOURCE: Google Imagery (2012); RBF (7/31/2013)

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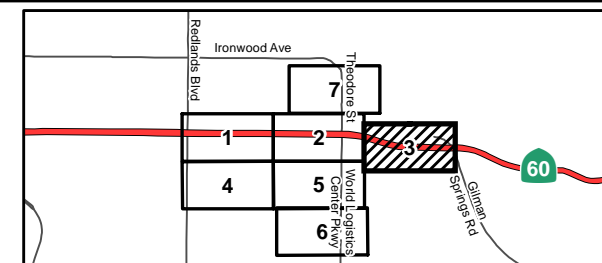


FIGURE 2-1

Sheet 3 of 7

SR-60/World Logistics Center Pkwy Interchange Project

Monitoring and Modeled Receptor Locations

08-RIV-60 PM 20.0/22.0

EA No. OM590

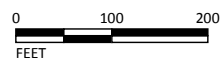
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LEGEND

- ▲ Short-Term Monitoring Locations
- Modeled Receptor Locations
- Long-Term Monitoring Location
- Existing Right-of-Way



SOURCE: Google Imagery (2012); RBF (7/31/2013)

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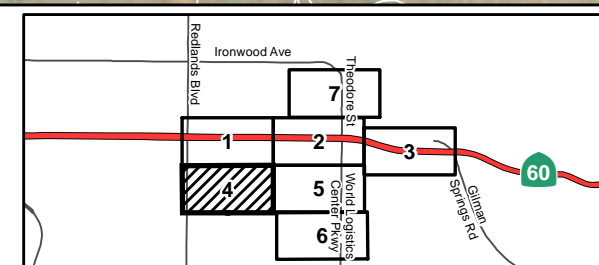


FIGURE 2-1

Sheet 4 of 7

SR-60/World Logistics Center Pkwy Interchange Project

Monitoring and Modeled Receptor Locations

08-RIV-60 PM 20.0/22.0

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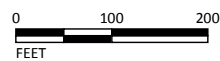
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LEGEND

- ▲ Short-Term Monitoring Locations
- Modeled Receptor Locations
- Long-Term Monitoring Location
- Existing Right-of-Way



SOURCE: Google Imagery (2012); RBF (7/31/2013)

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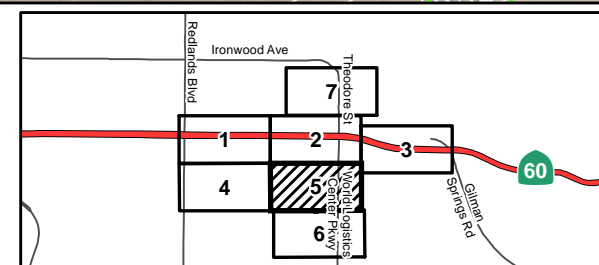


FIGURE 2-1

Sheet 5 of 7

SR-60/World Logistics Center Pkwy Interchange Project

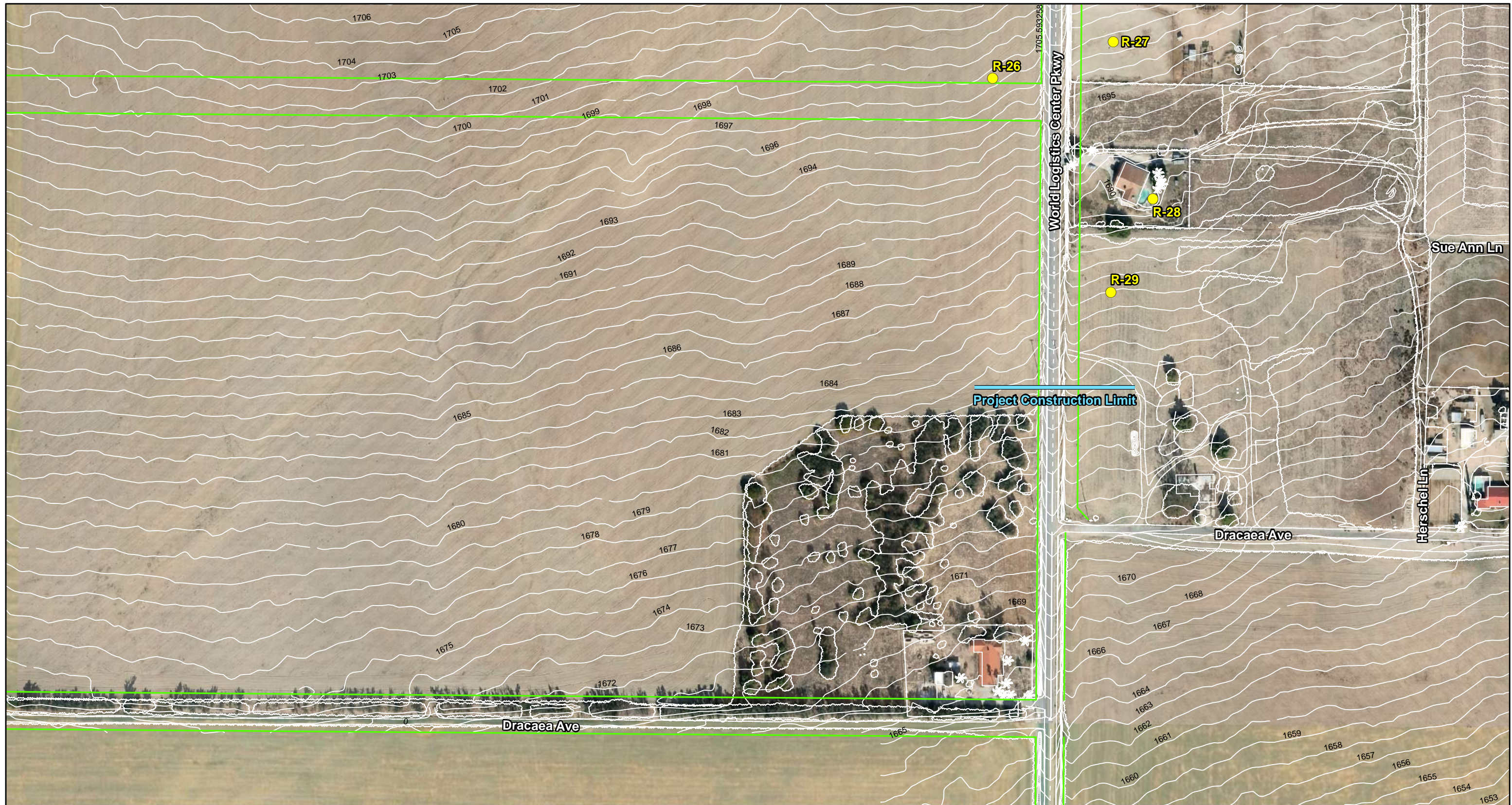
Monitoring and Modeled Receptor Locations

08-RIV-60 PM 20.0/22.0

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LEGEND

- ▲ Short-Term Monitoring Locations
- Modeled Receptor Locations
- Long-Term Monitoring Location
- Existing Right-of-Way

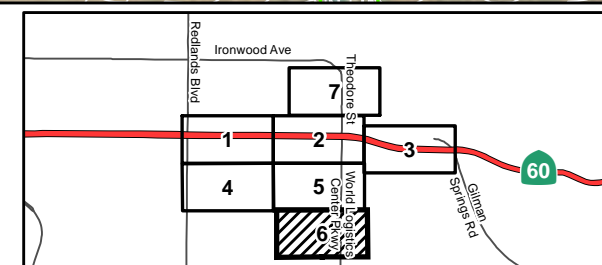
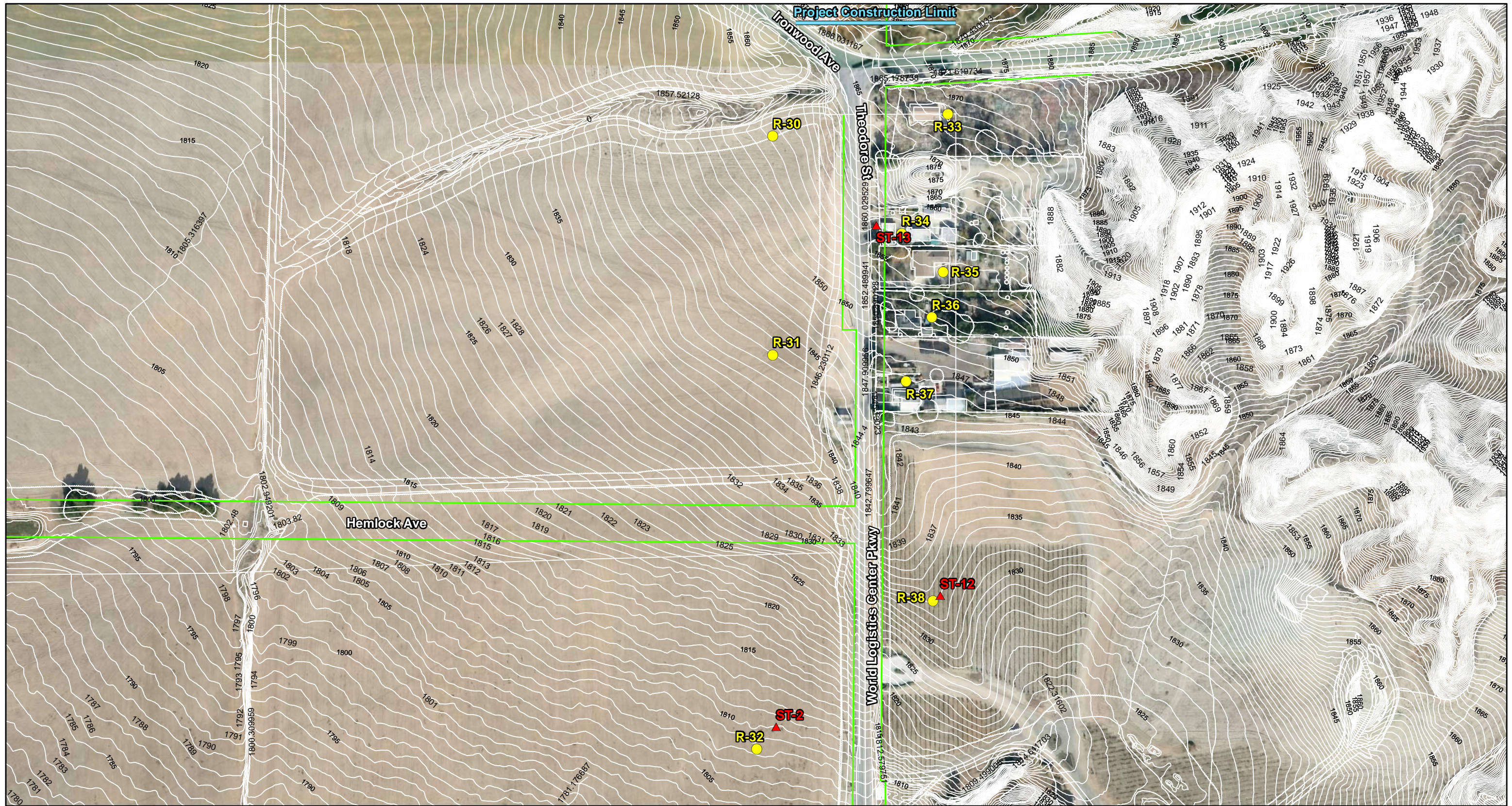


FIGURE 2-1
Sheet 6 of 7

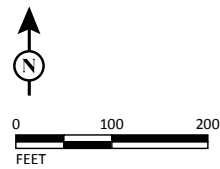
SR-60/World Logistics Center Pkwy Interchange Project
Monitoring and Modeled Receptor Locations
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 EA No. 0M590
 Project No. 0813000109

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LEGEND

- ▲ Short-Term Monitoring Locations
- Modeled Receptor Locations
- Existing Right-of-Way



SOURCE: Google Imagery (2012); RBF (7/31/2013)

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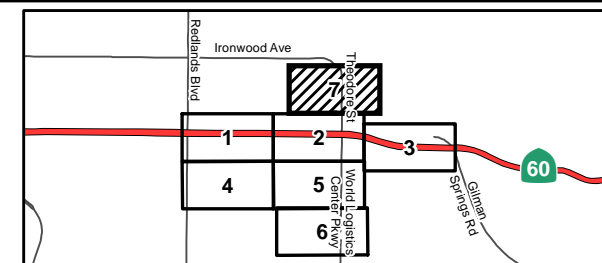


FIGURE 2-1

Sheet 7 of 7

SR-60/World Logistics Center Pkwy Interchange Project

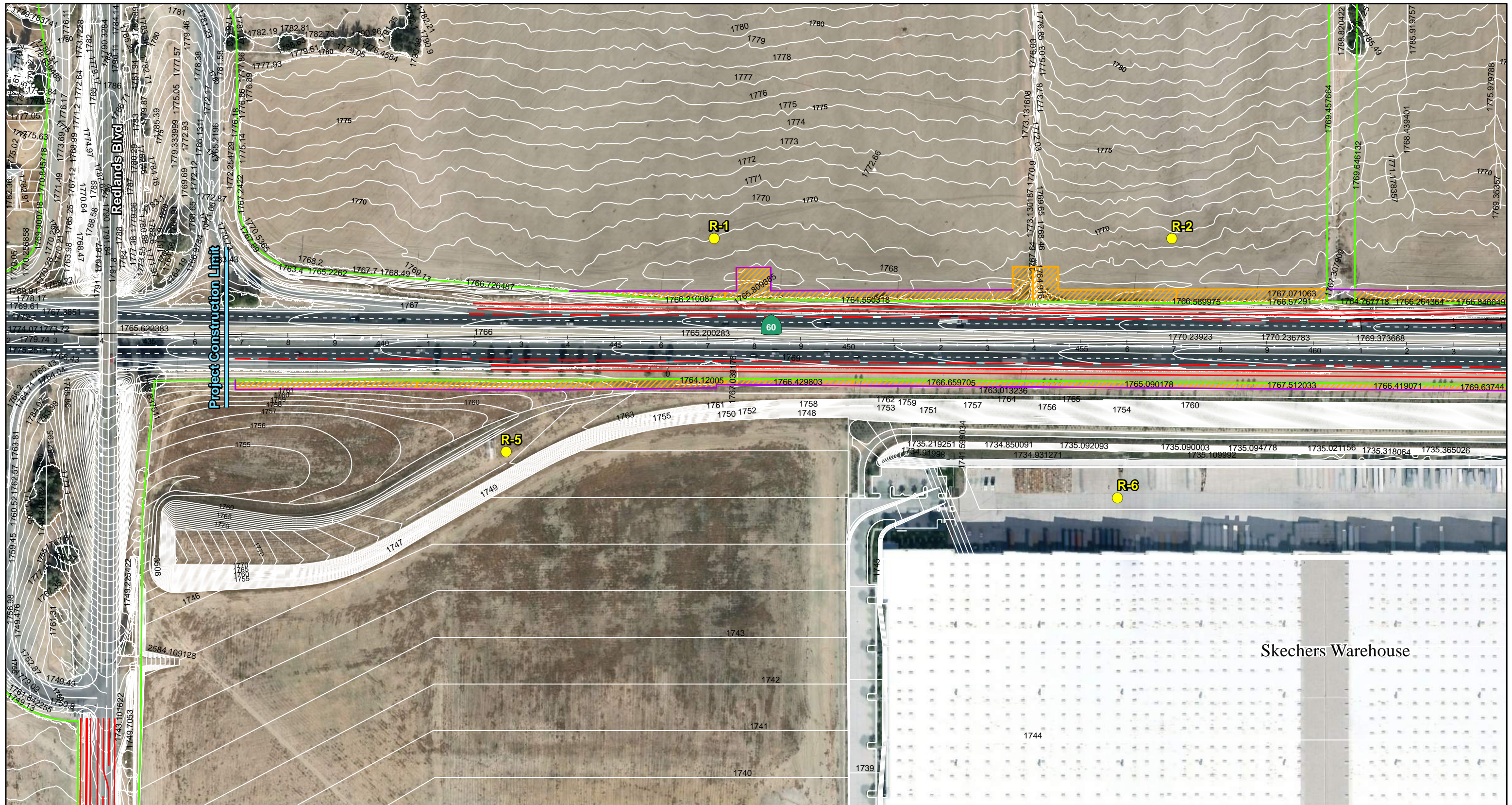
Monitoring and Modeled Receptor Locations

08-RIV-60 PM 20.0/22.0

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Project No. 0813000109

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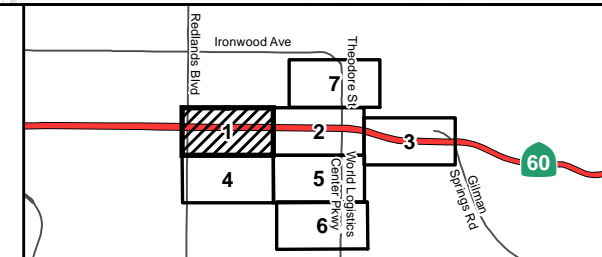
- Modeled Receptor Locations
- Existing Right-of-Way
- ▨ Parcel Acquisition
- ▨ Modeled Noise Barrier
- Proposed Right-of-Way
- ▨ Full Acquisition
- Alternative 2 Improvements
- ▨ Partial Acquisition



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FEET

SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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Skechers Warehouse

FIGURE 2-2

Sheet 1 of 7

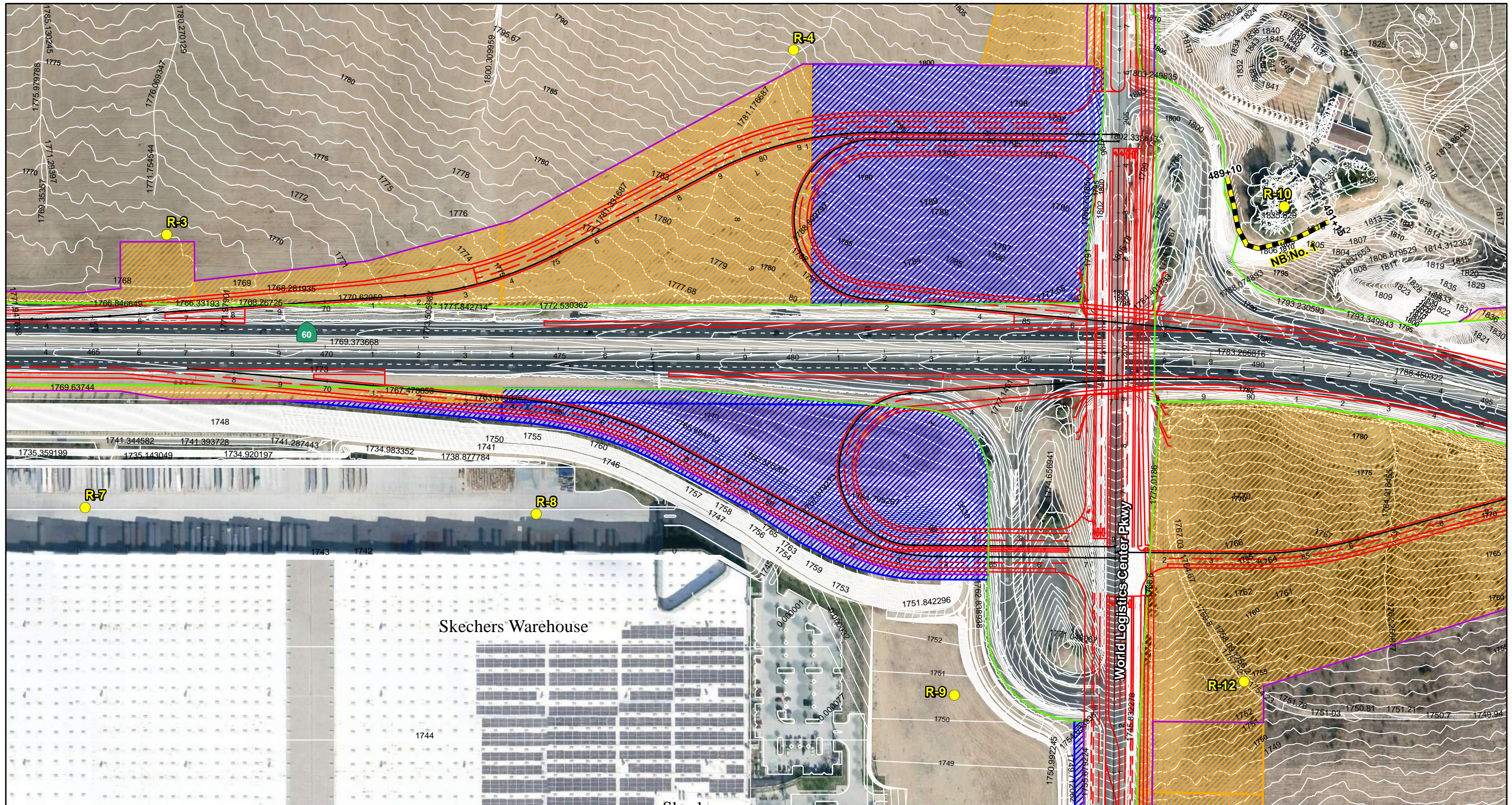
SR-60/World Logistics Center Pkwy
Interchange Project
Modeled Noise Barrier and
Receptor Locations for Alternative 2

08-RIV-60 PM 20.0/22.0

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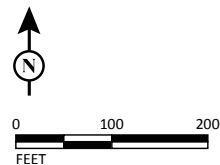
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LEGEND

- Modeled Receptor Locations
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Noise Barrier
- Alternative 2 Improvements
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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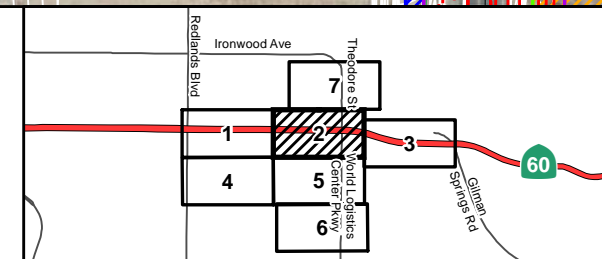


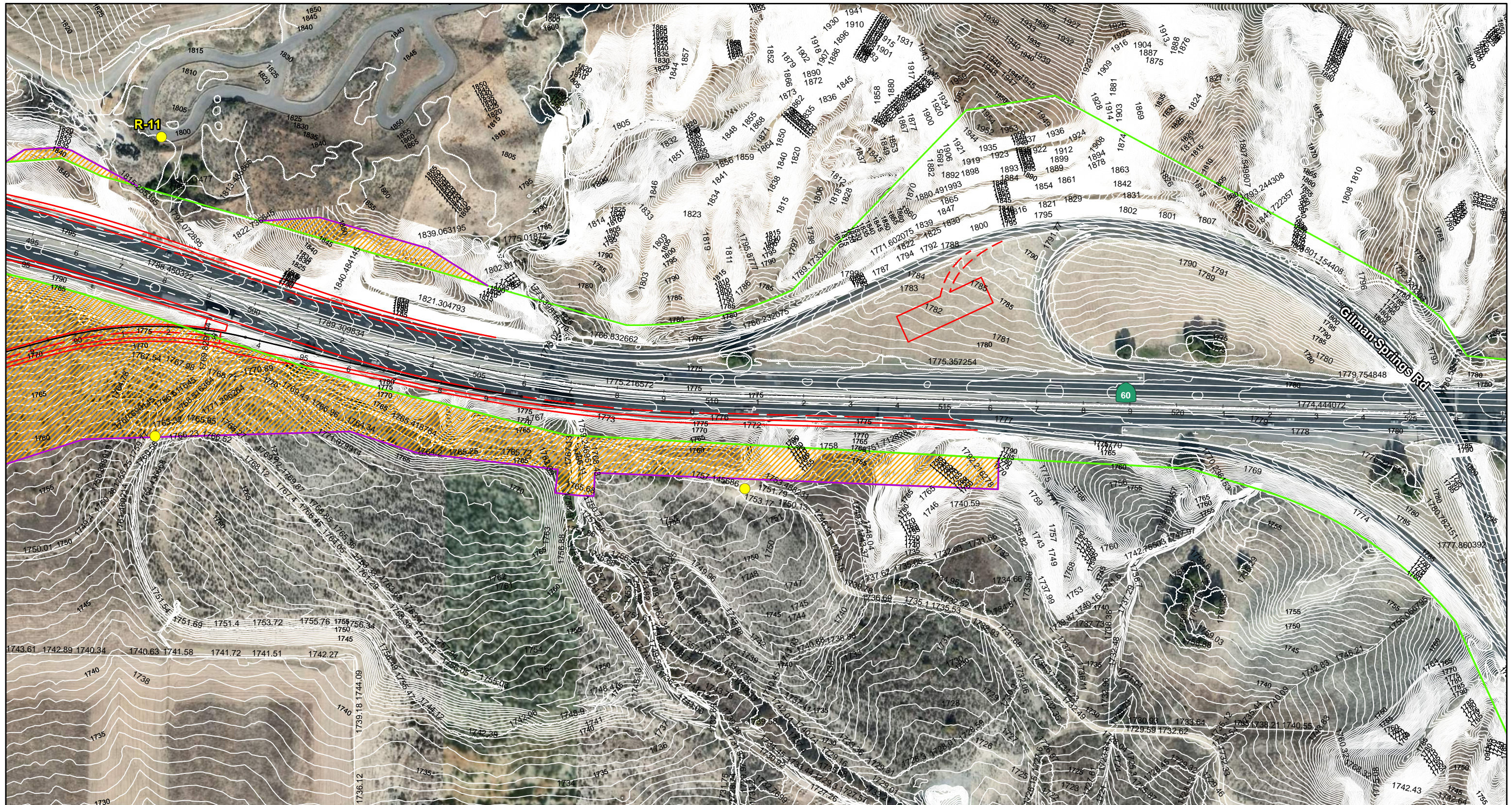
FIGURE 2-2

Sheet 2 of 7

SR-60/World Logistics Center Pkwy Interchange Project
Modeled Noise Barrier and Receptor Locations for Alternative 2

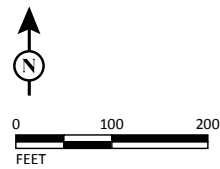
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 Project No. 0813000159

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LEGEND

- Modeled Receptor Locations
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Noise Barrier
- Alternative 2 Improvements
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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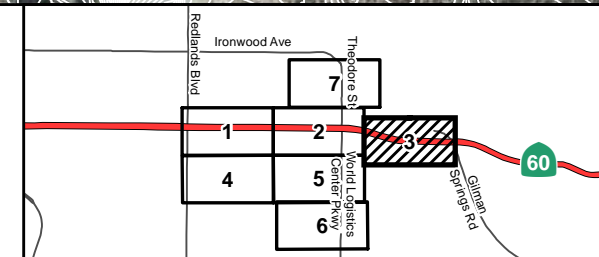


FIGURE 2-2

Sheet 3 of 7

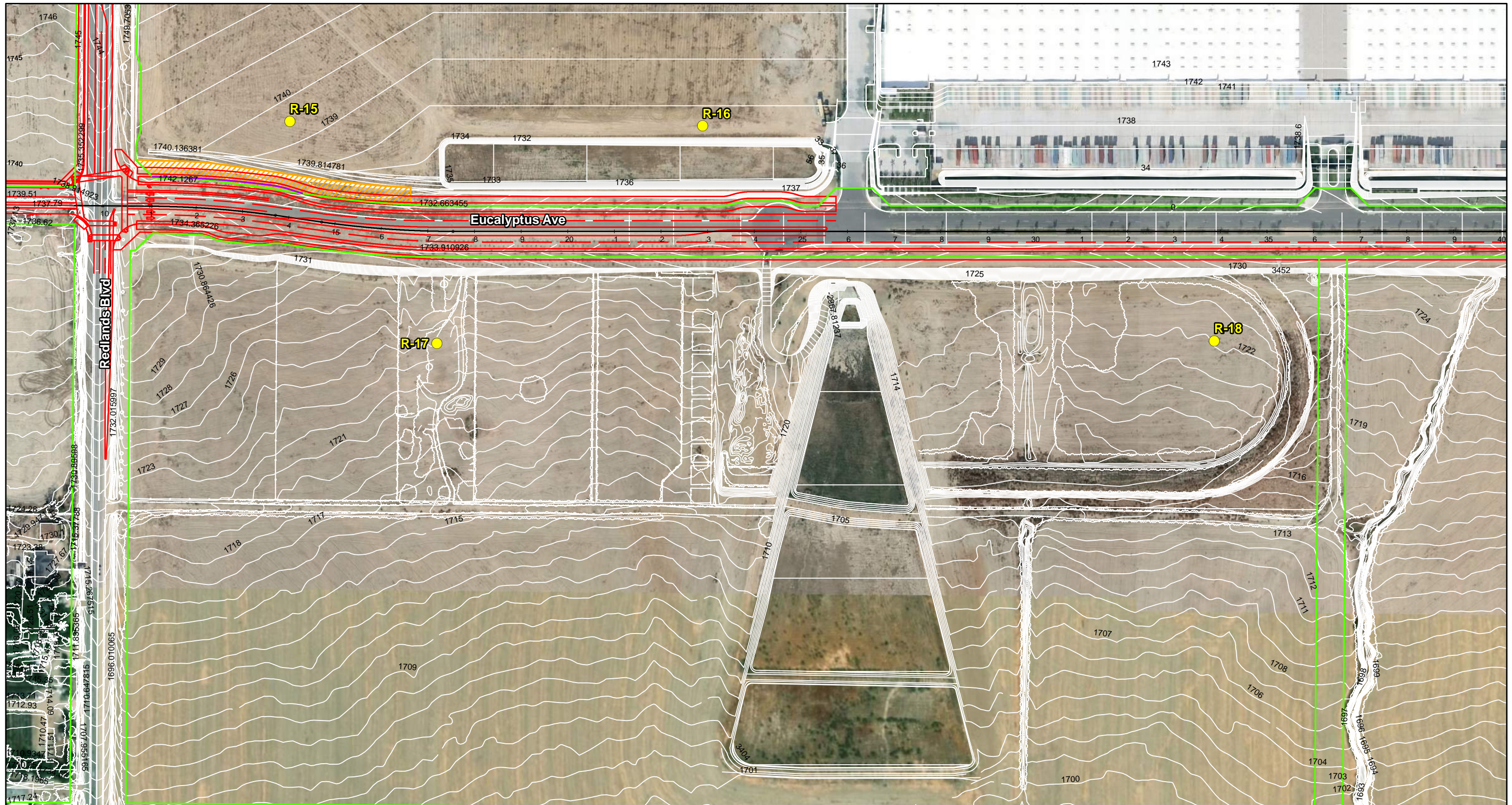
**SR-60/World Logistics Center Pkwy
Interchange Project
Modeled Noise Barrier and
Receptor Locations for Alternative 2**

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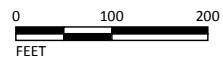
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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Alternative 2 Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Parcel Acquisition
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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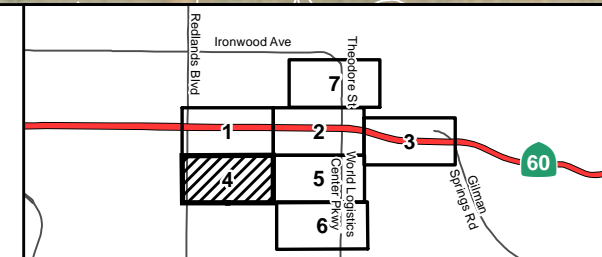
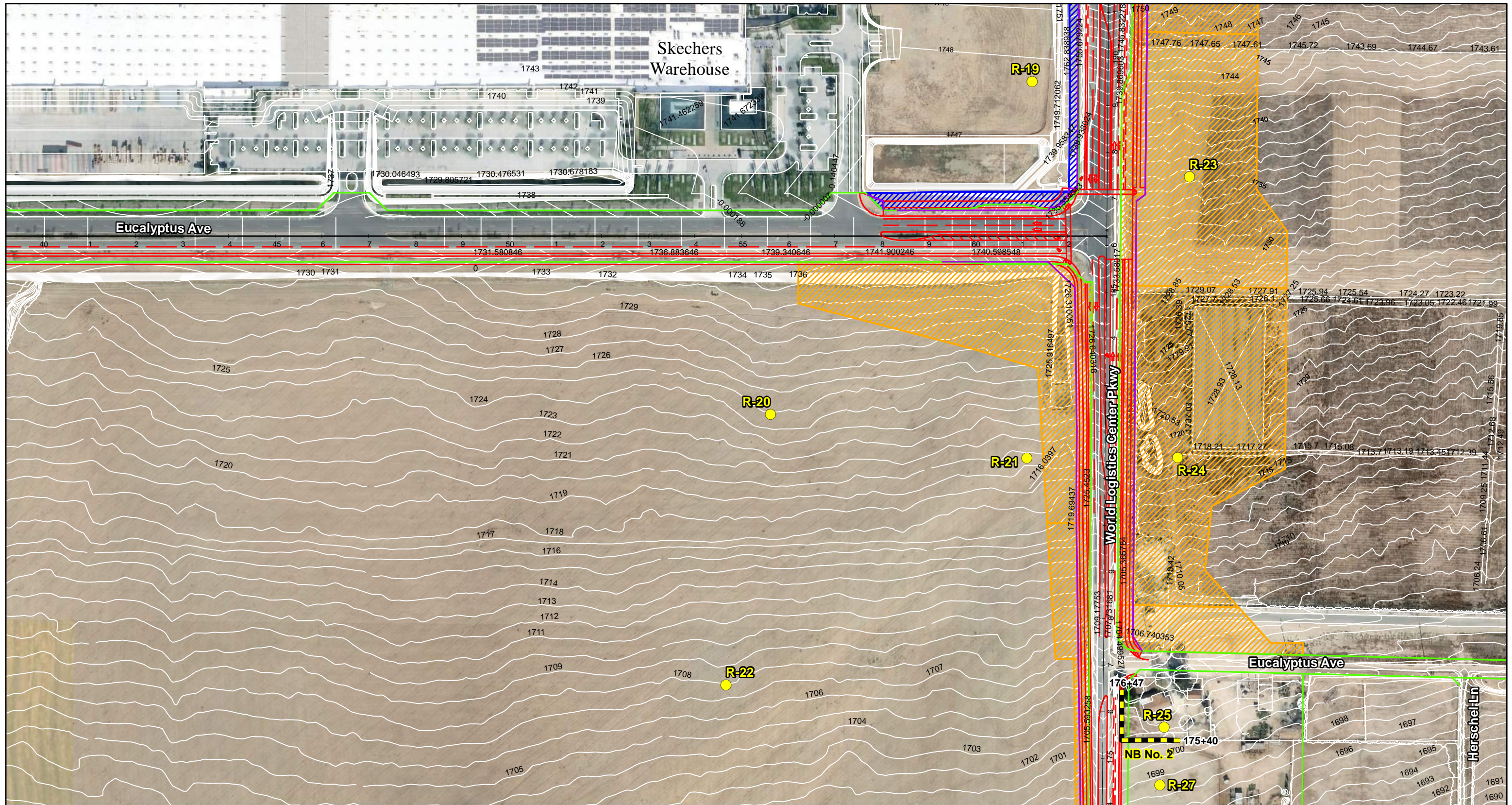


FIGURE 2-2
Sheet 4 of 7

**SR-60/World Logistics Center Pkwy
Interchange Project
Modeled Noise Barrier and
Receptor Locations for Alternative 2**

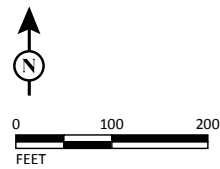
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EA No. 0M590
Project No. 0813000109

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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Alternative 2 Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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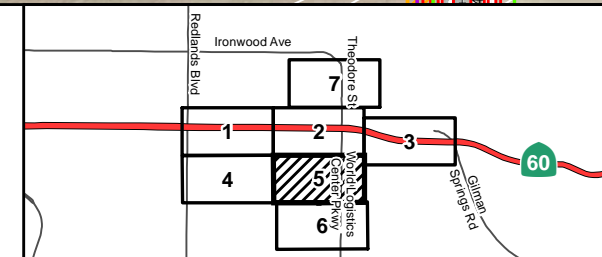


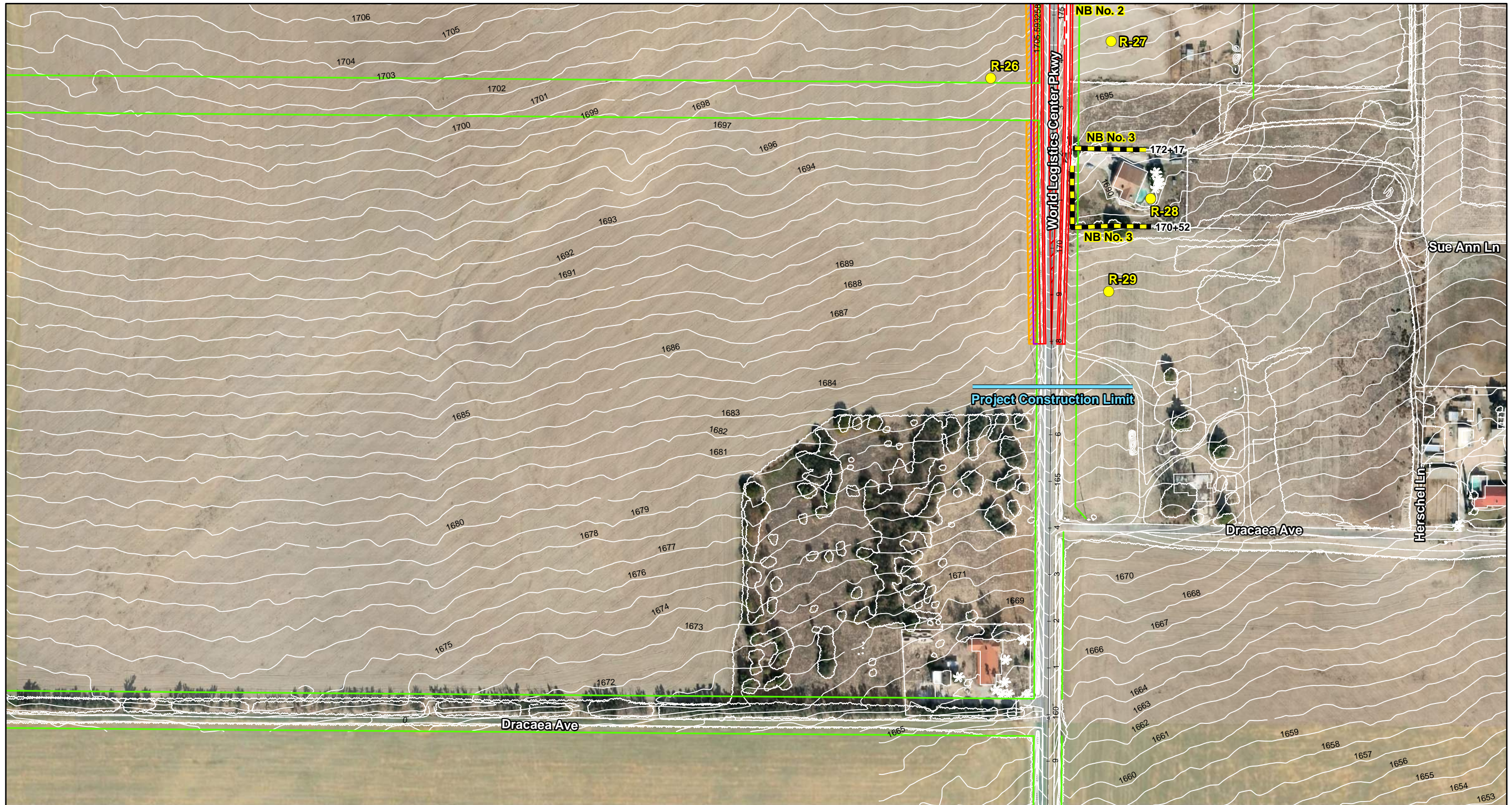
FIGURE 2-2

Sheet 5 of 7

**SR-60/World Logistics Center Pkwy Interchange Project
Modeled Noise Barrier and Receptor Locations for Alternative 2**

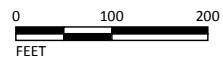
08-RIV-60 PM 20.0/22.0
EA No. 0M590
Project No. 0813000109

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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Alternative 2 Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Parcel Acquisition
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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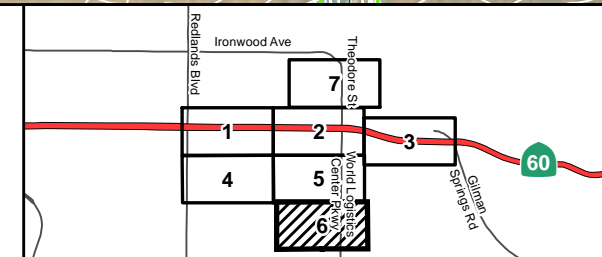
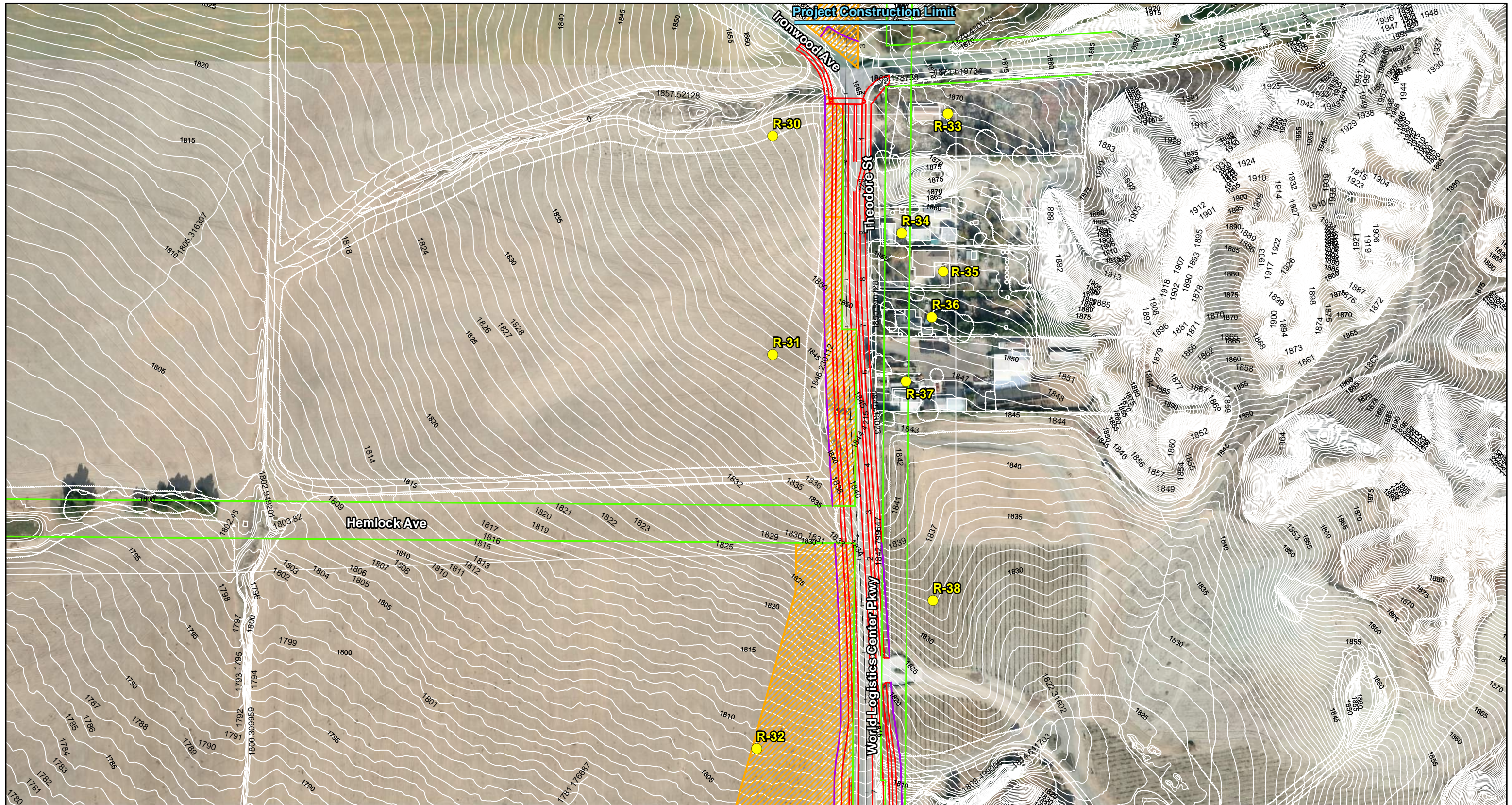


FIGURE 2-2
Sheet 6 of 7

SR-60/World Logistics Center Pkwy Interchange Project
Modeled Noise Barrier and Receptor Locations for Alternative 2

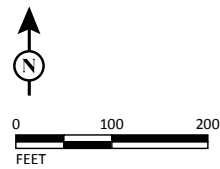
08-RIV-60 PM 20.0/22.0
EA No. 0M590
Project No. 0813000109

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LEGEND

- Modeled Receptor Locations
- Existing Right-of-Way
- Proposed Right-of-Way
- Alternative 2 Improvements
- Modeled Noise Barrier
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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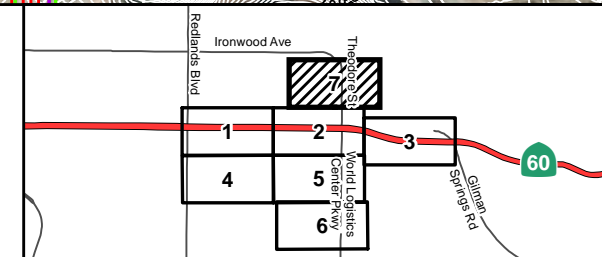
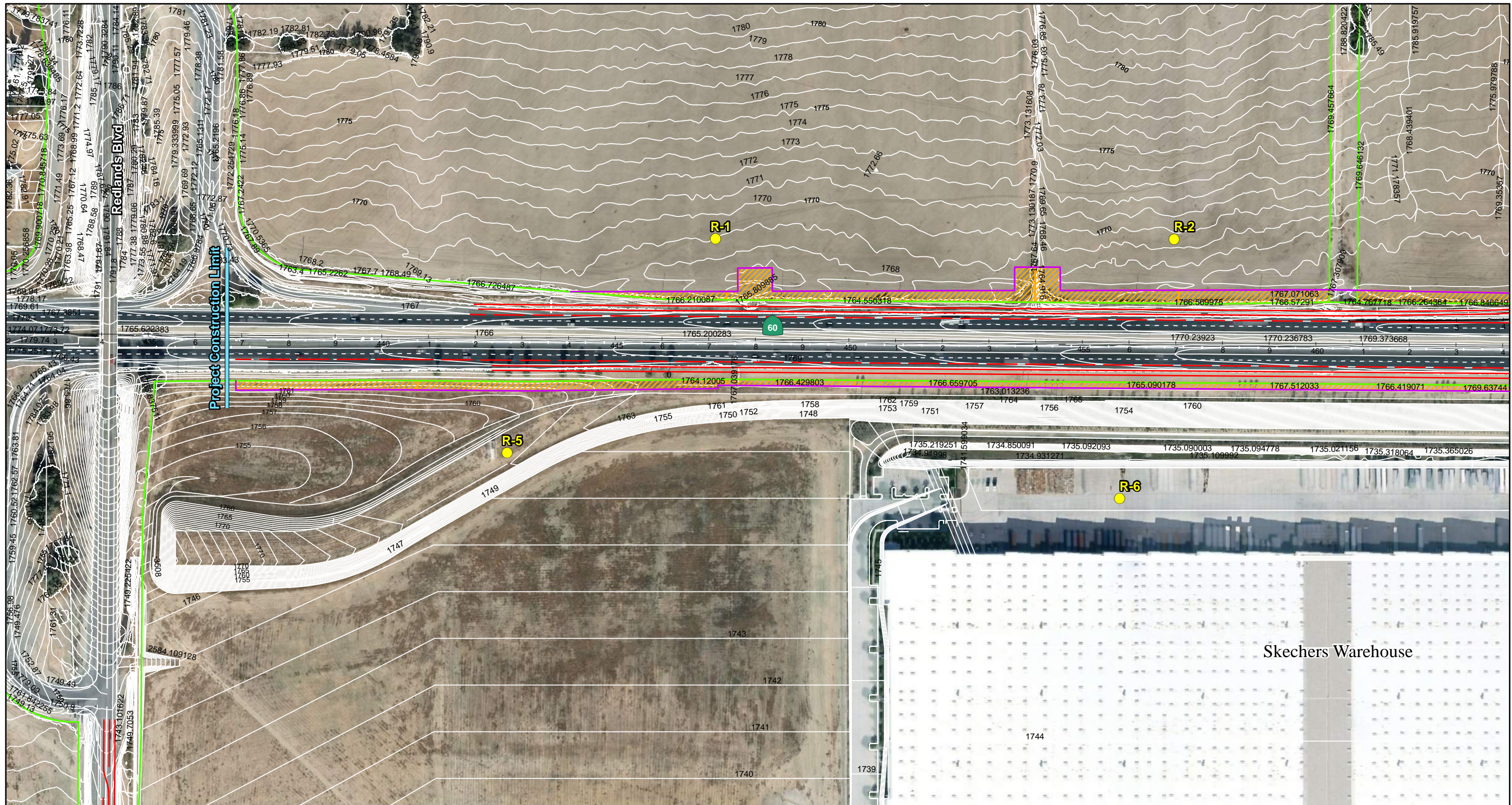


FIGURE 2-2
Sheet 7 of 7

**SR-60/World Logistics Center Pkwy
Interchange Project
Modeled Noise Barrier and
Receptor Locations for Alternative 2**

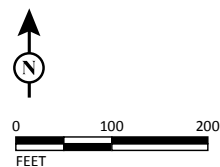
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Project No. 0813000109

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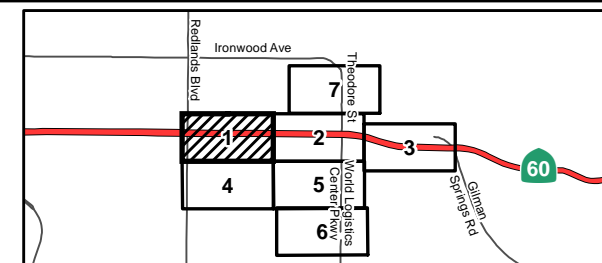
LEGEND

- Modeled Receptor Locations
- Existing Right-of-Way
- Design Variation 2a Improvements
- Modeled Noise Barrier
- Proposed Right-of-Way
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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Skechers Warehouse

FIGURE 2-3

Sheet 1 of 7

SR-60/World Logistics Center Pkwy
Interchange Project

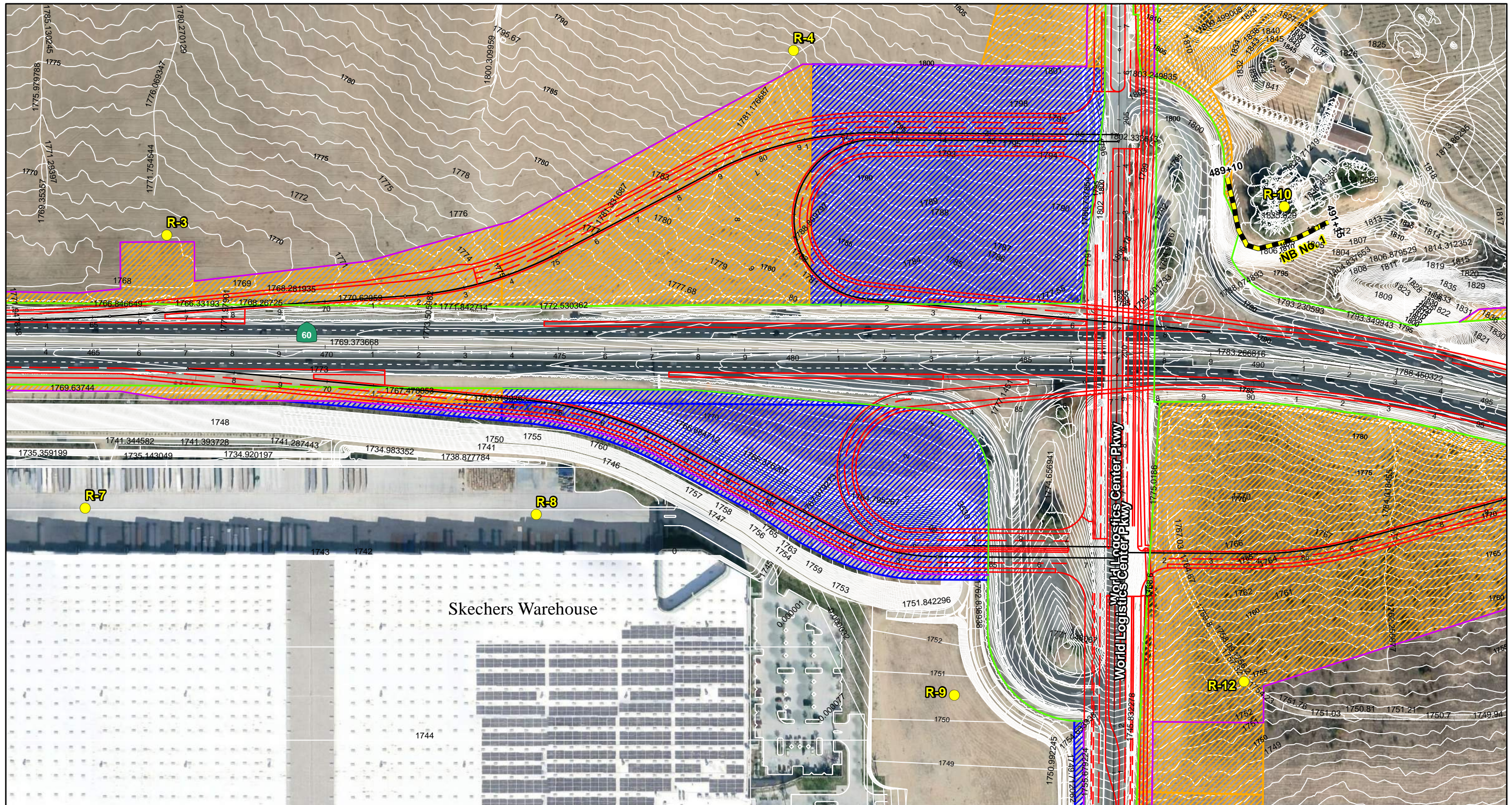
Modeled Noise Barrier and
Receptor Locations for Design Variation 2a

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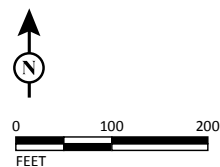
Project No. 0813000109

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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Design Variation 2a Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Parcel Acquisitions
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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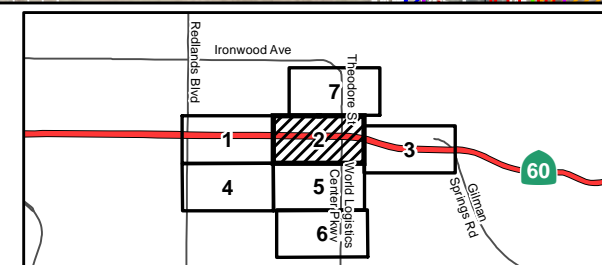


FIGURE 2-3

Sheet 2 of 7

*SR-60/World Logistics Center Pkwy
Interchange Project*

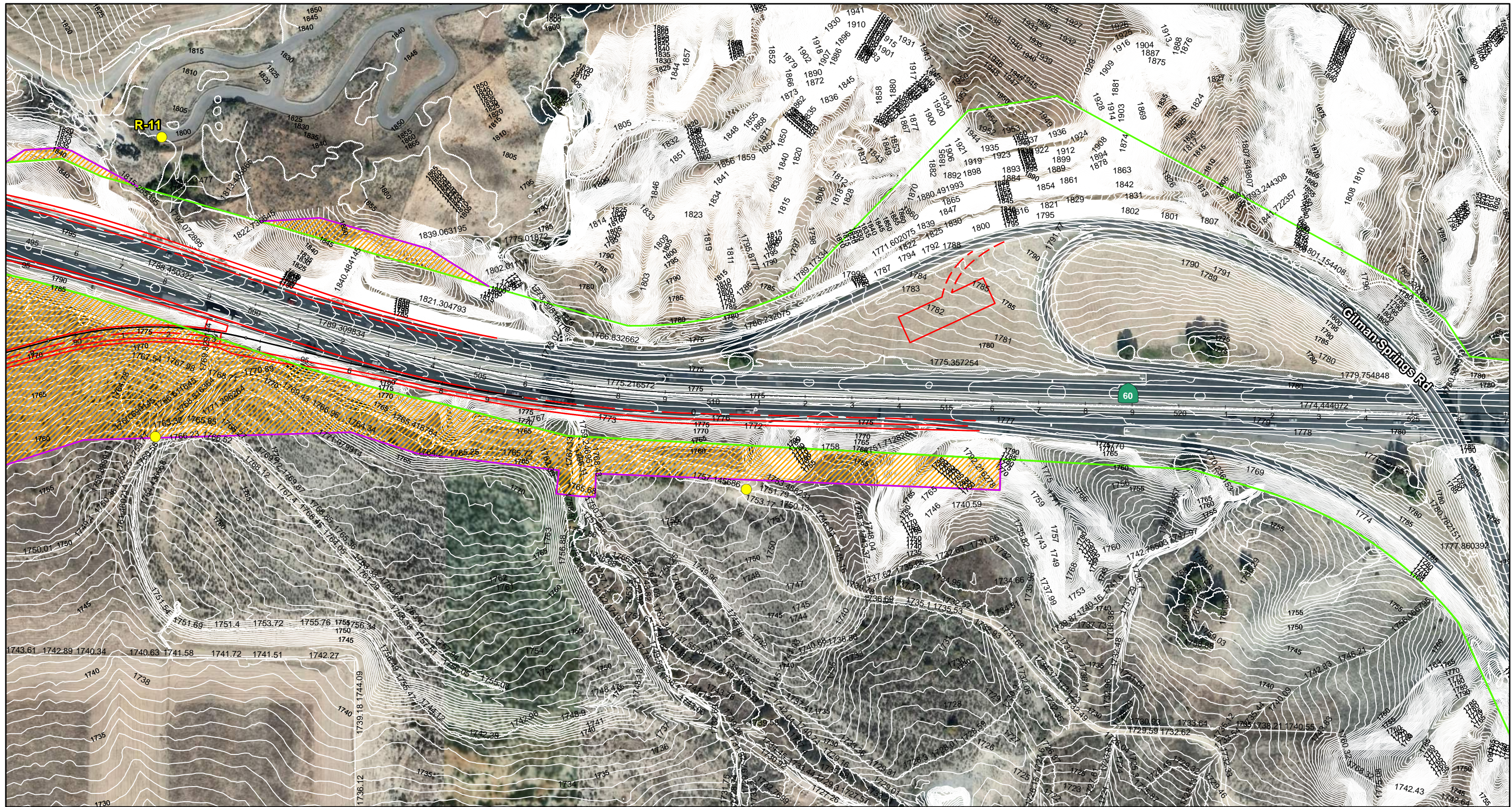
**Modeled Noise Barrier and
Receptor Locations for Design Variation 2a**

08-RIV-60 PM 20.0/22.0

EA No. 0M590

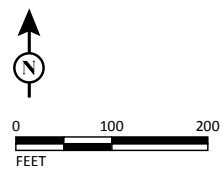
Project No. 0813000109

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LEGEND

- Modeled Receptor Locations
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Noise Barrier
- Design Variation 2a Improvements
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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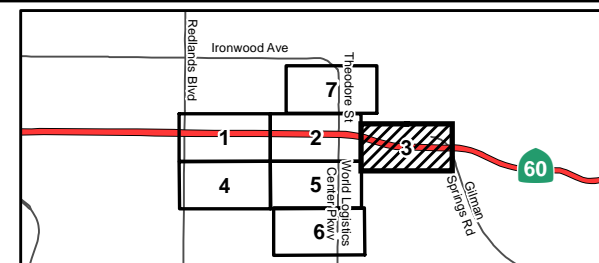


FIGURE 2-3

Sheet 3 of 7

SR-60/World Logistics Center Pkwy Interchange Project

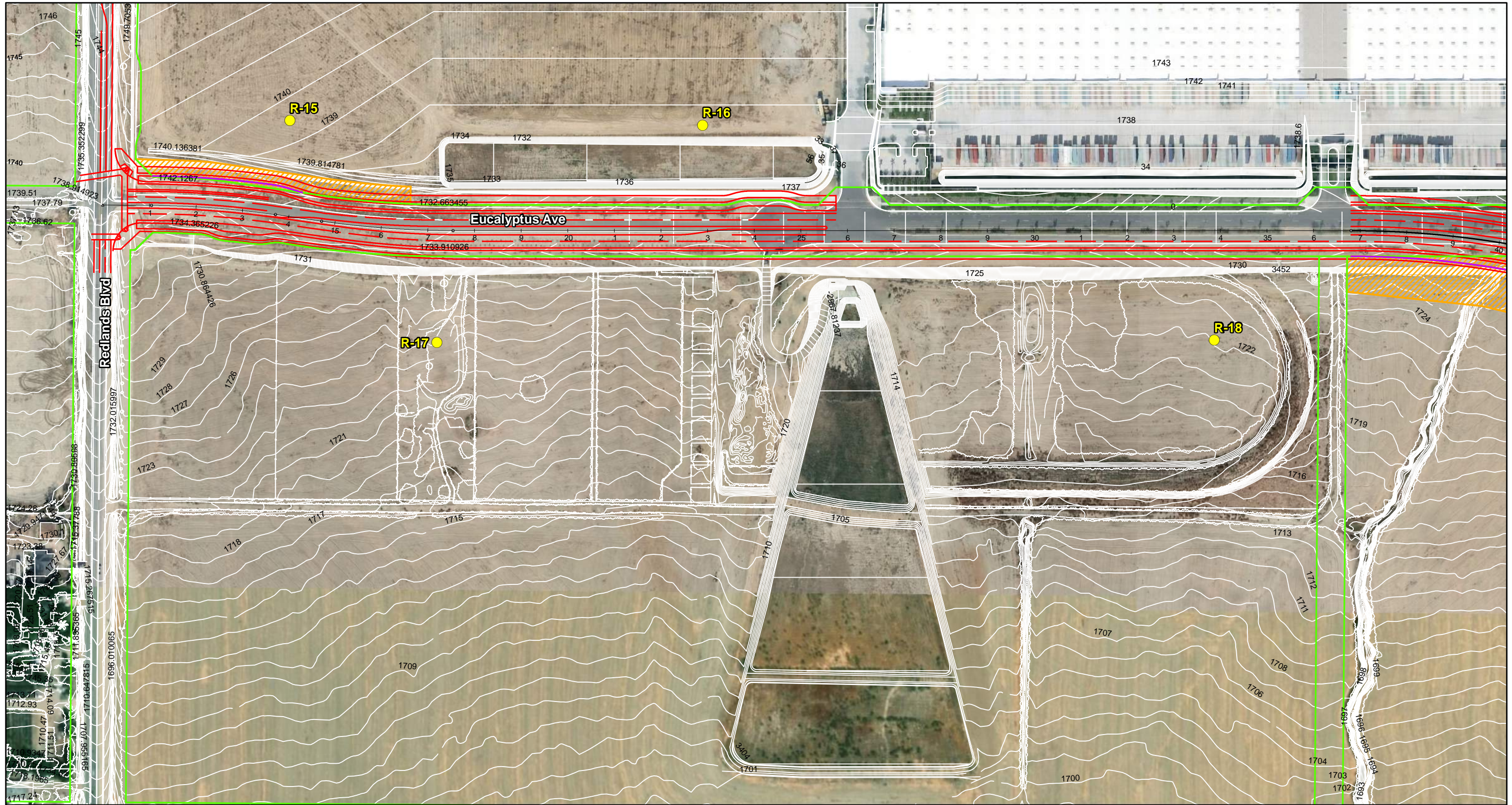
Modeled Noise Barrier and Receptor Locations for Design Variation 2a

08-RIV-60 PM 20.0/22.0

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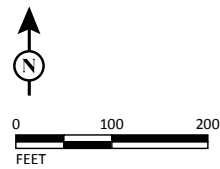
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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Design Variation 2a Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Parcel Acquisitions
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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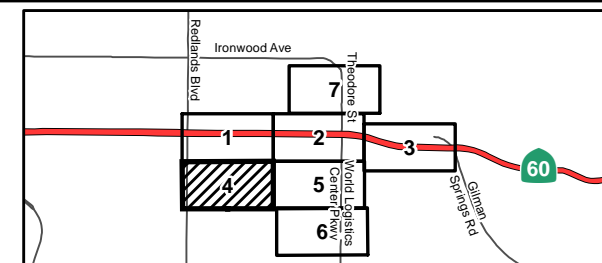


FIGURE 2-3

Sheet 4 of 7

*SR-60/World Logistics Center Pkwy
Interchange Project*

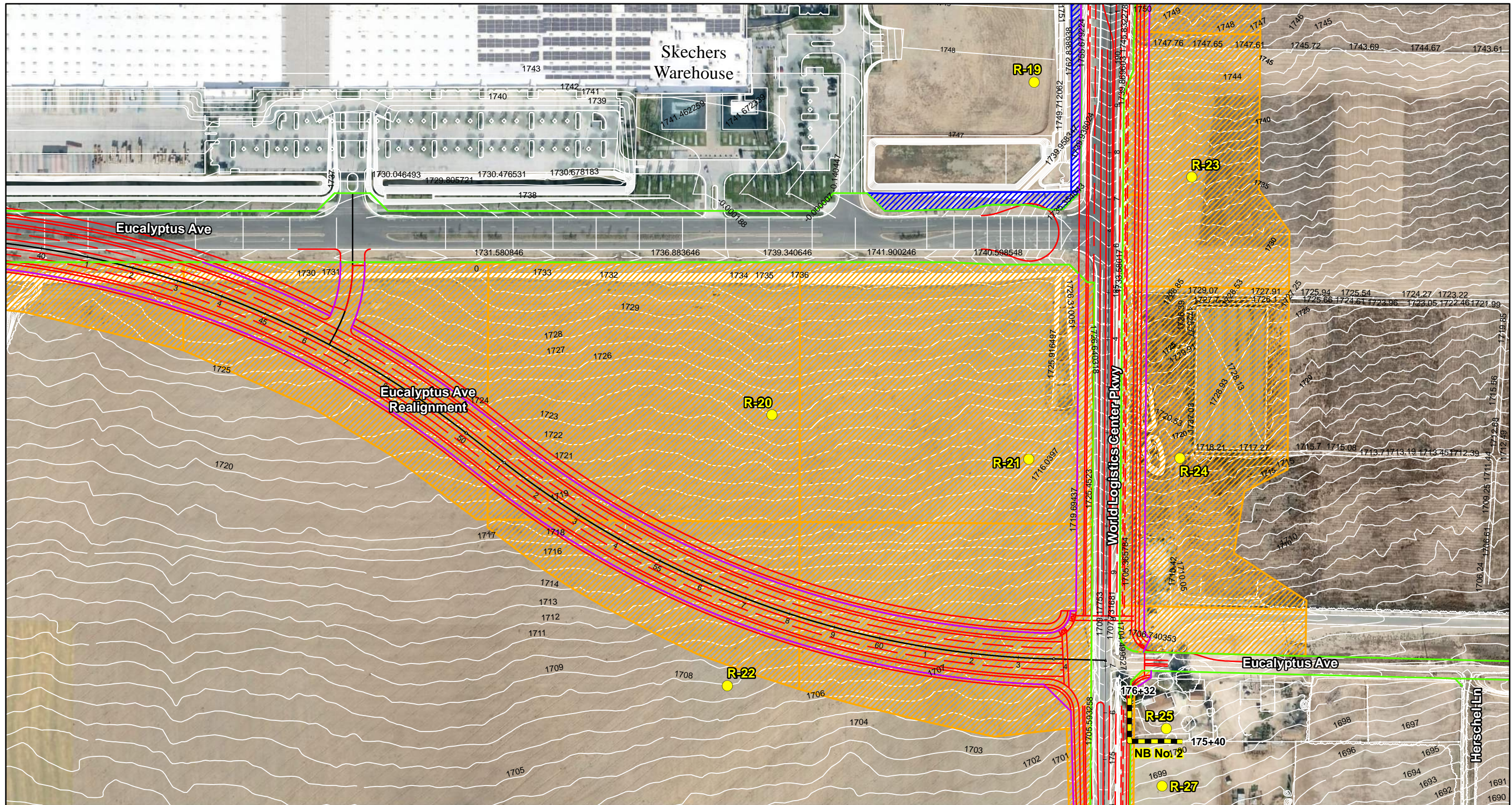
**Modeled Noise Barrier and
Receptor Locations for Design Variation 2a**

08-RIV-60 PM 20.0/22.0

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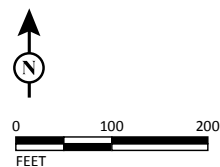
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LEGEND

- Modeled Receptor Locations
- Existing Right-of-Way
- Proposed Right-of-Way
- Design Variation 2a Improvements
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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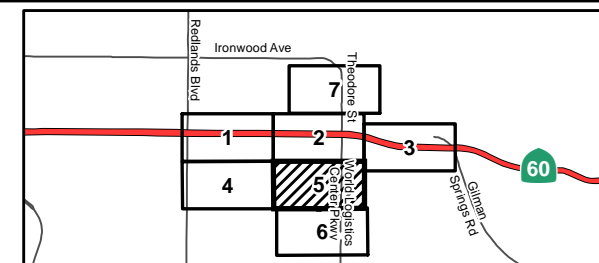
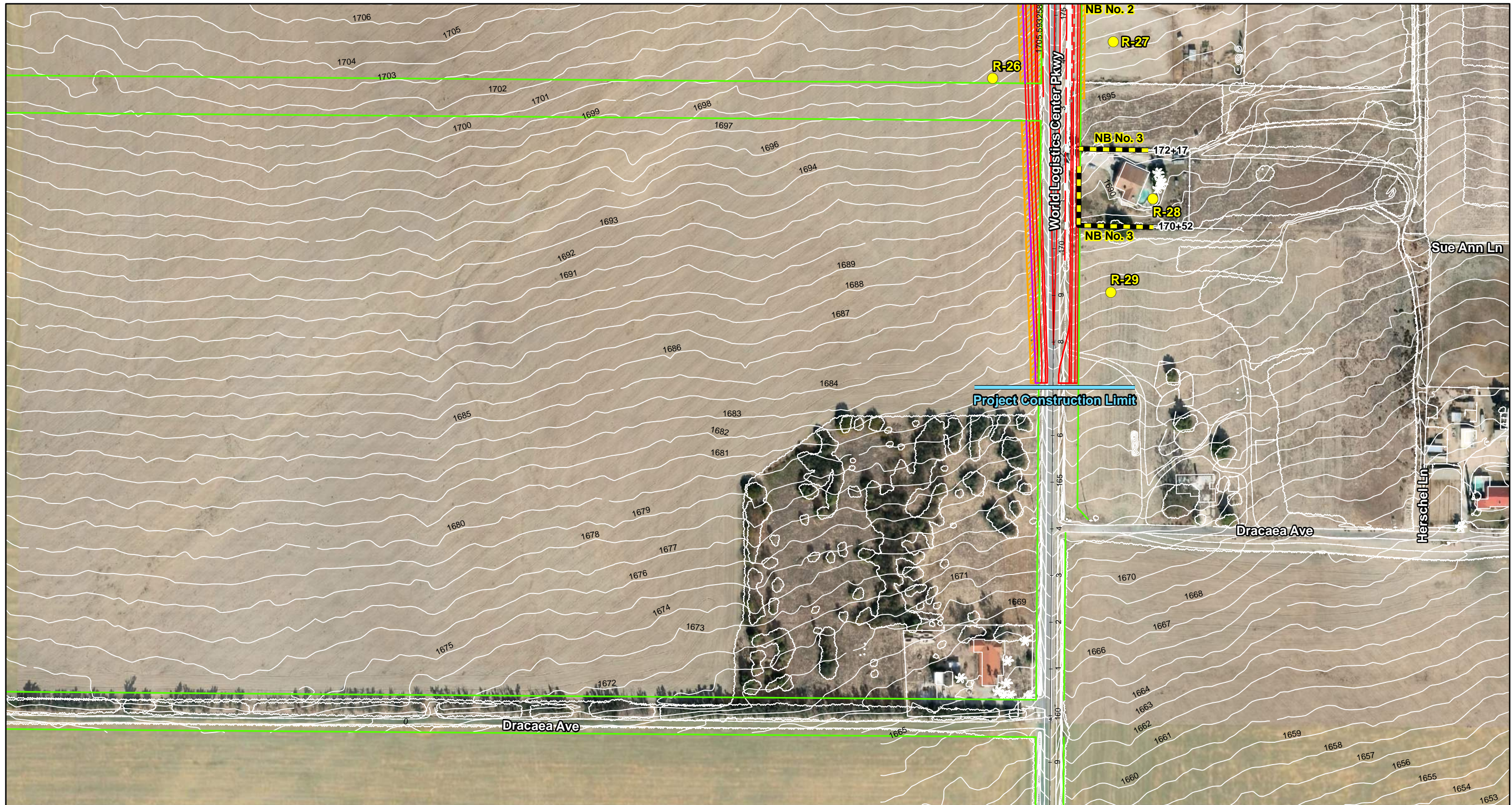


FIGURE 2-3
 Sheet 5 of 7
 SR-60/World Logistics Center Pkwy
 Interchange Project
 Modeled Noise Barrier and
 Receptor Locations for Design Variation 2a

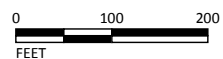
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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Design Variation 2a Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Parcel Acquisitions
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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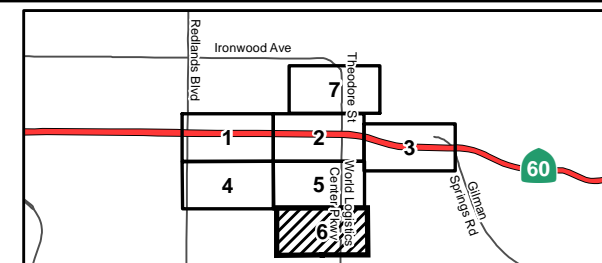


FIGURE 2-3

Sheet 6 of 7

SR-60/World Logistics Center Pkwy
Interchange Project

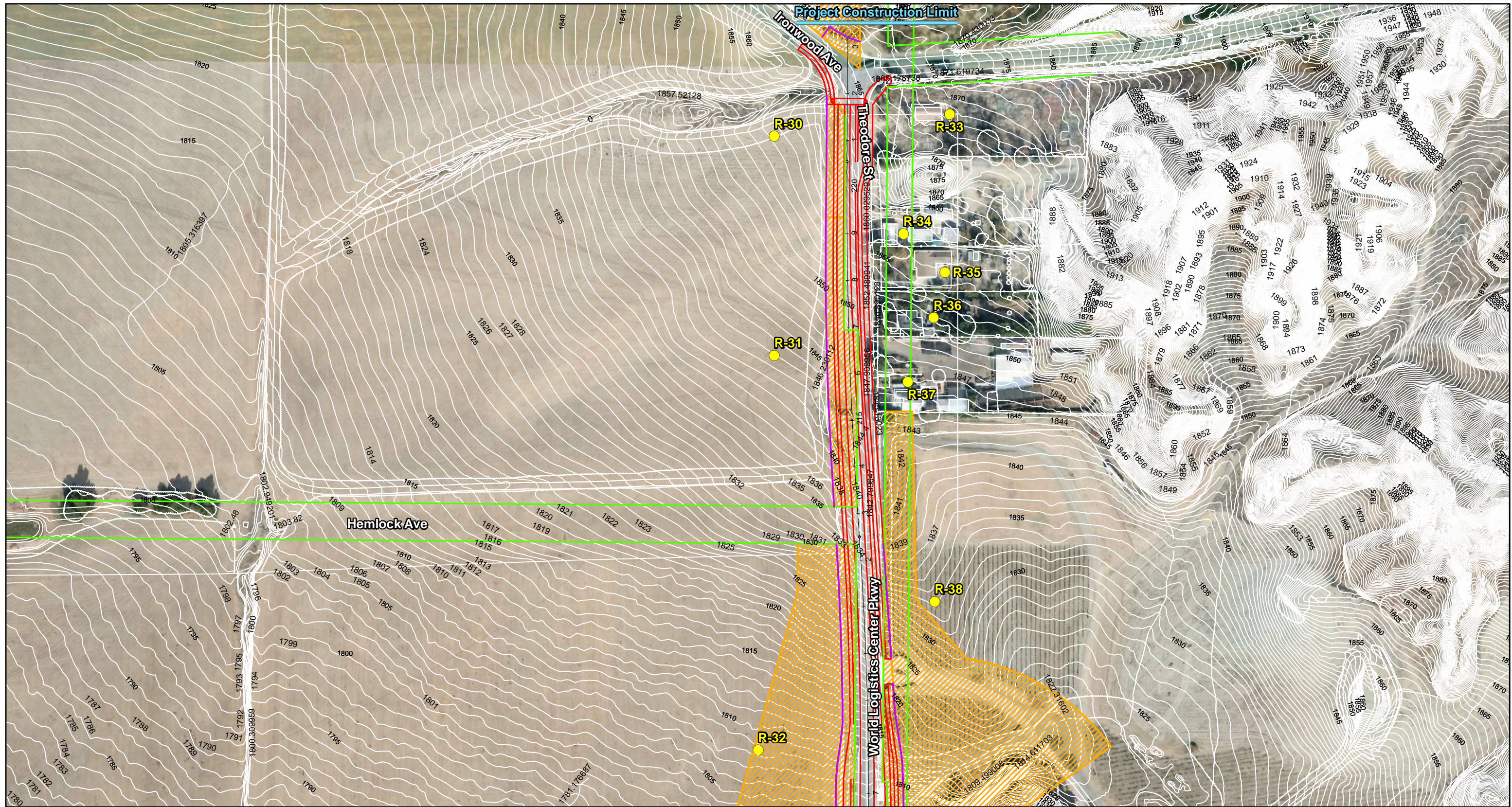
Modeled Noise Barrier and
Receptor Locations for Design Variation 2a

08-RIV-60 PM 20.0/22.0

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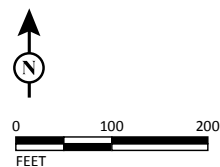
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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Design Variation 2a Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Parcel Acquisitions
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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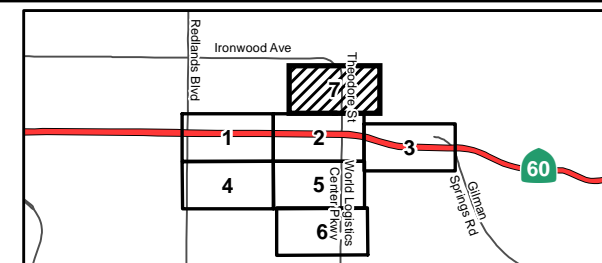


FIGURE 2-3

Sheet 7 of 7

SR-60/World Logistics Center Pkwy Interchange Project

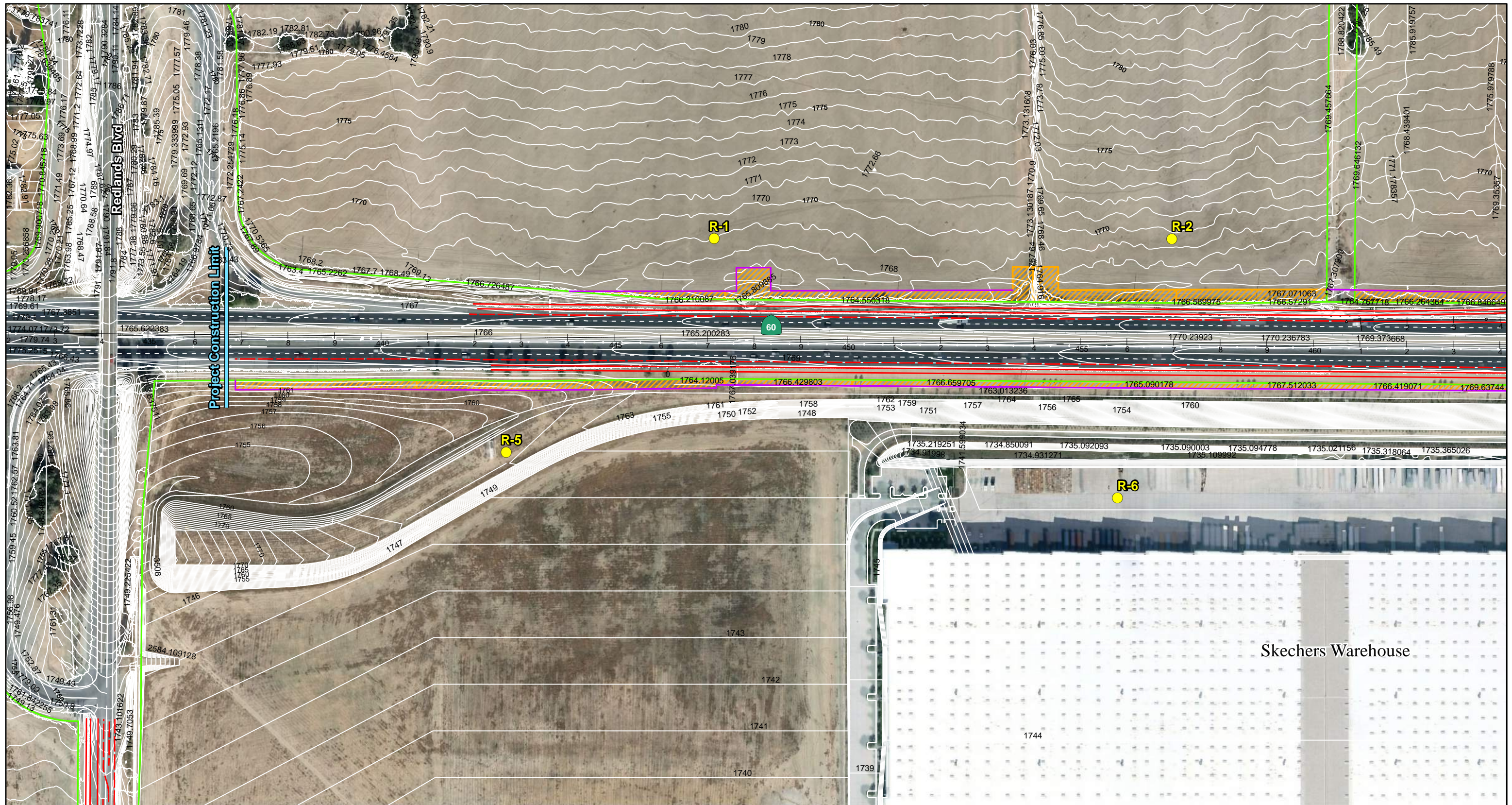
Modeled Noise Barrier and Receptor Locations for Design Variation 2a

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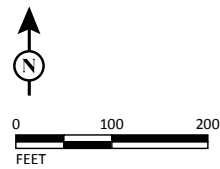
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LEGEND

- Modeled Receptor Locations
- Existing Right-of-Way
- Alternative 6 Improvements
- Modeled Noise Barrier
- Proposed Right-of-Way
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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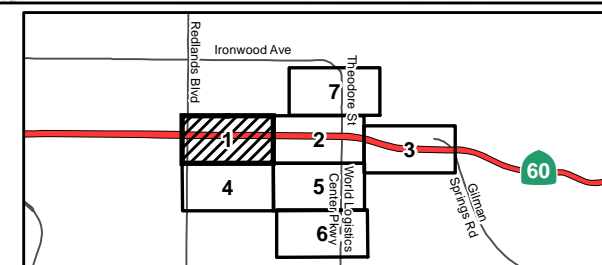


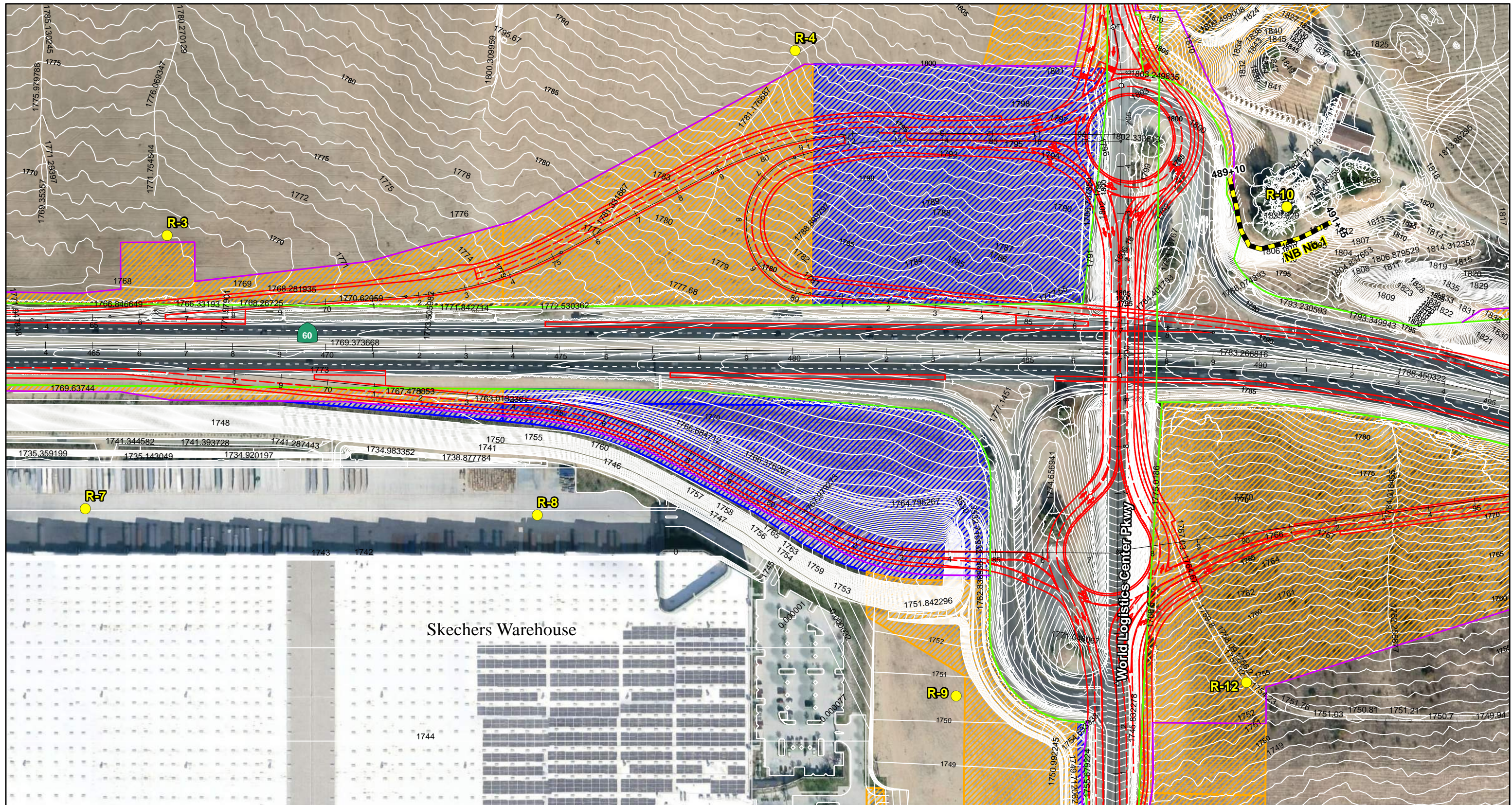
FIGURE 2-4

Sheet 1 of 7

**SR-60/World Logistics Center Pkwy Interchange Project
Modeled Noise Barrier and Receptor Locations for Alternative 6**

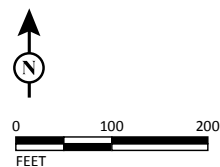
08-RIV-60 PM 20.0/22.0
EA No. 0M590
Project No. 0813000109

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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Alternative 6 Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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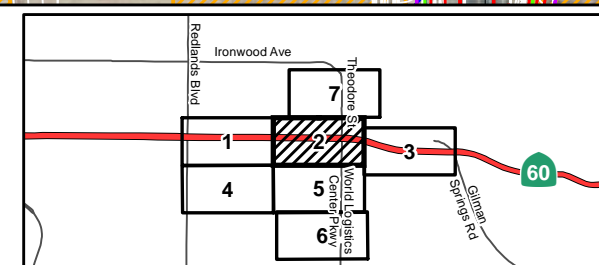


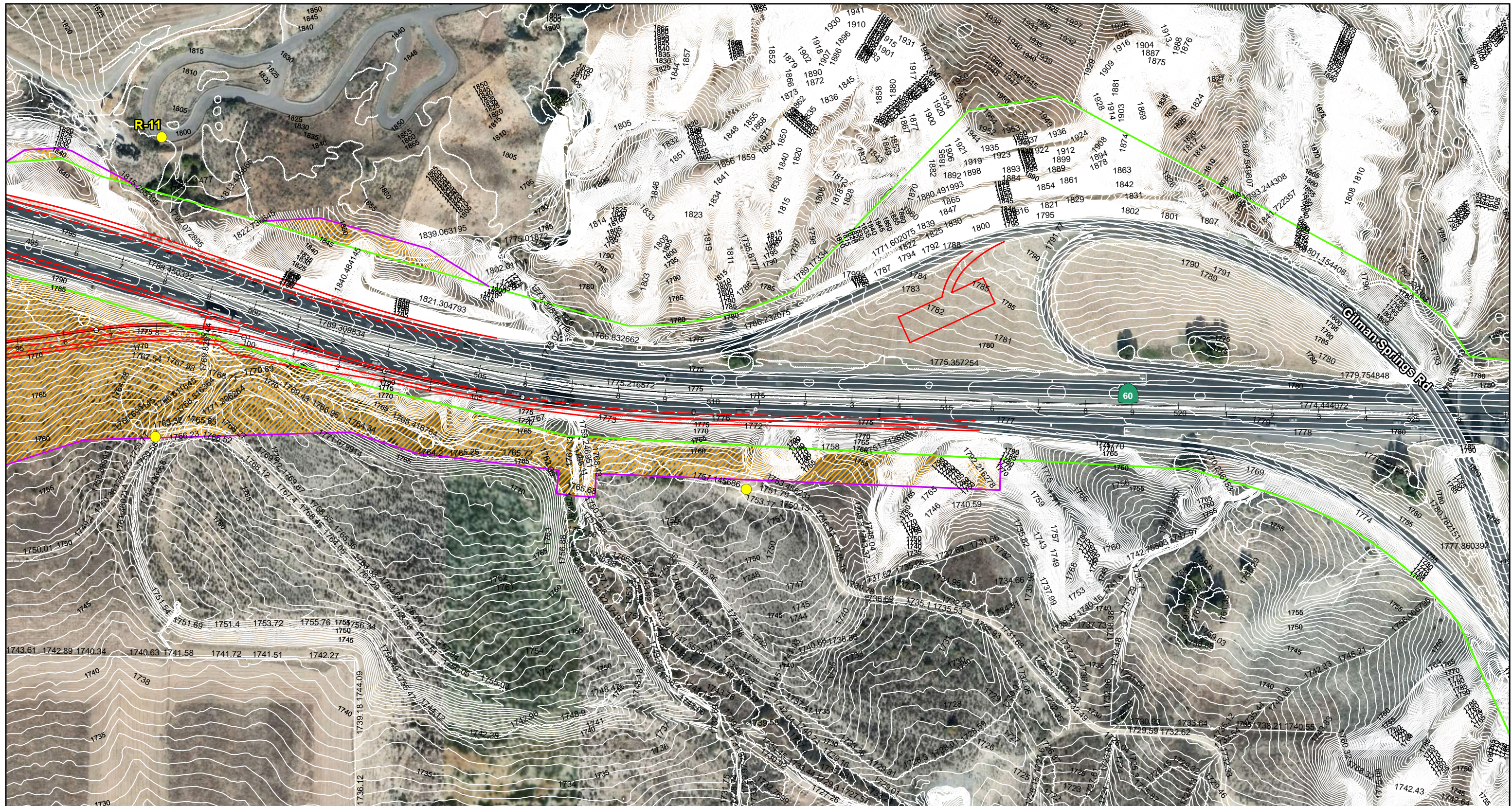
FIGURE 2-4

Sheet 2 of 7

**SR-60/World Logistics Center Pkwy Interchange Project
Modeled Noise Barrier and Receptor Locations for Alternative 6**

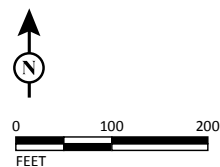
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EA No. 0M590
Project No. 0813000109

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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Alternative 6 Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Parcel Acquisitions
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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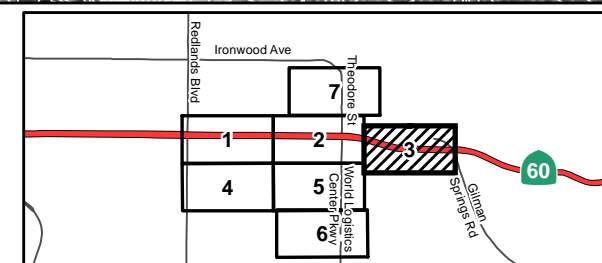


FIGURE 2-4

Sheet 3 of 7

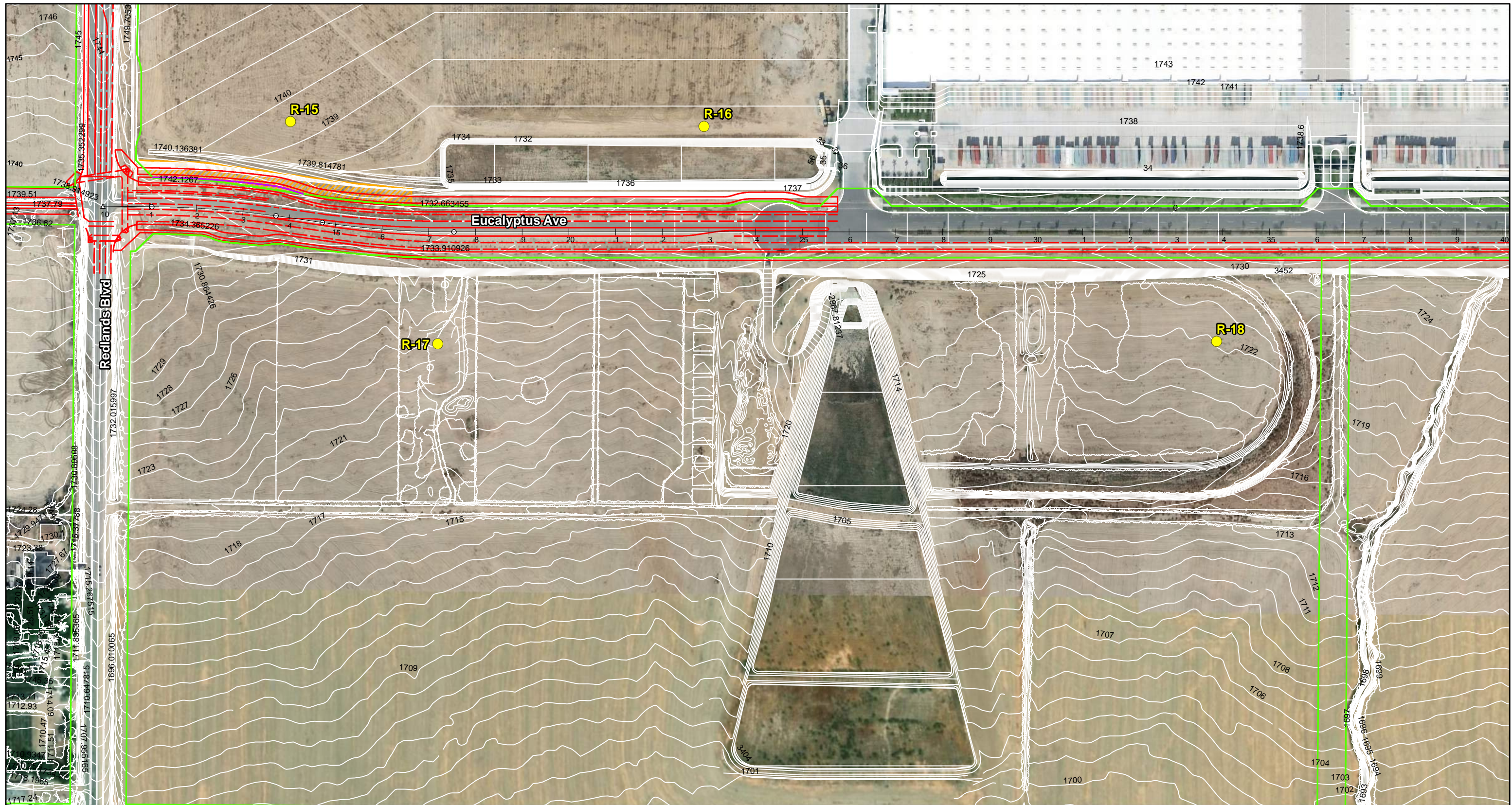
**SR-60/World Logistics Center Pkwy
Interchange Project
Modeled Noise Barrier and
Receptor Locations for Alternative 6**

08-RIV-60 PM 20.0/22.0

EA No. 0M590

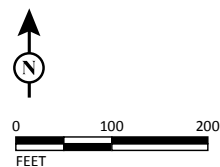
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LEGEND

- Modeled Receptor Locations
- Existing Right-of-Way
- Proposed Right-of-Way
- Alternative 6 Improvements
- Modeled Noise Barrier
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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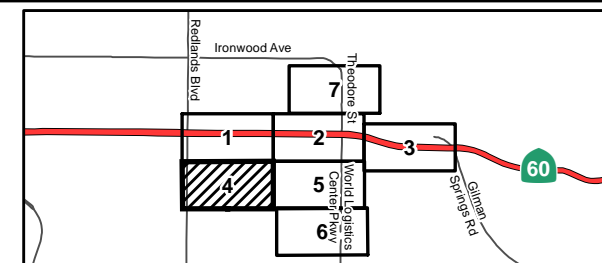


FIGURE 2-4

Sheet 4 of 7

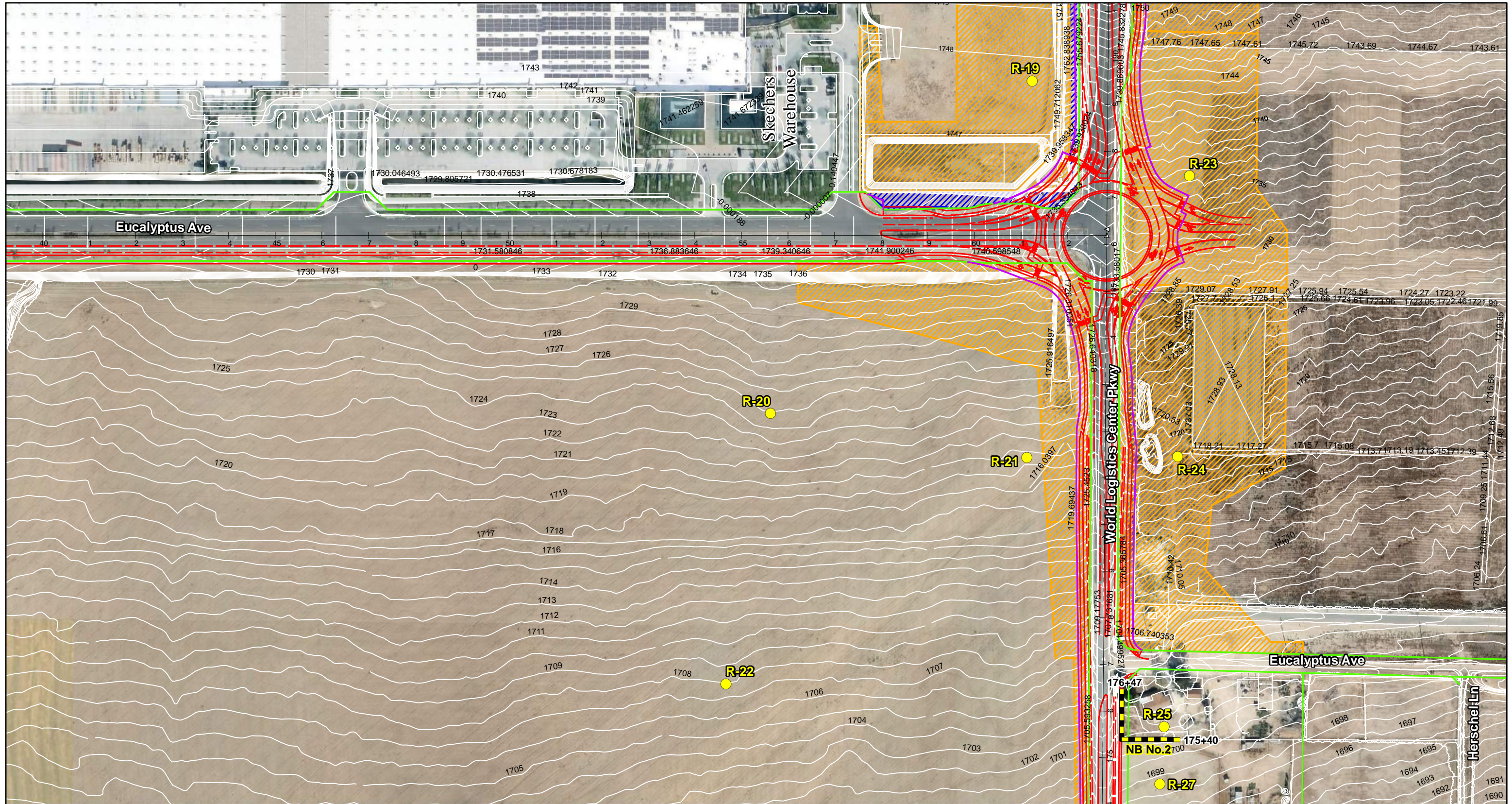
**SR-60/World Logistics Center Pkwy
Interchange Project
Modeled Noise Barrier and
Receptor Locations for Alternative 6**

08-RIV-60 PM 20.0/22.0

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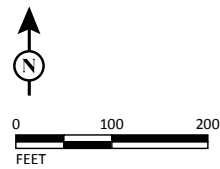
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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Alternative 6 Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Parcel Acquisitions
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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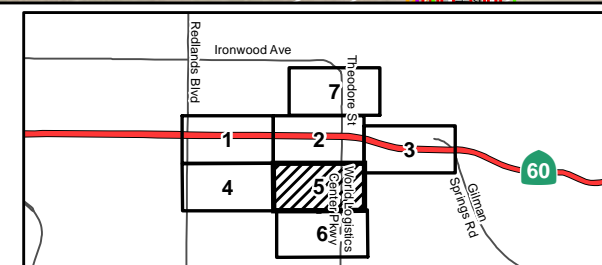


FIGURE 2-4

Sheet 5 of 7

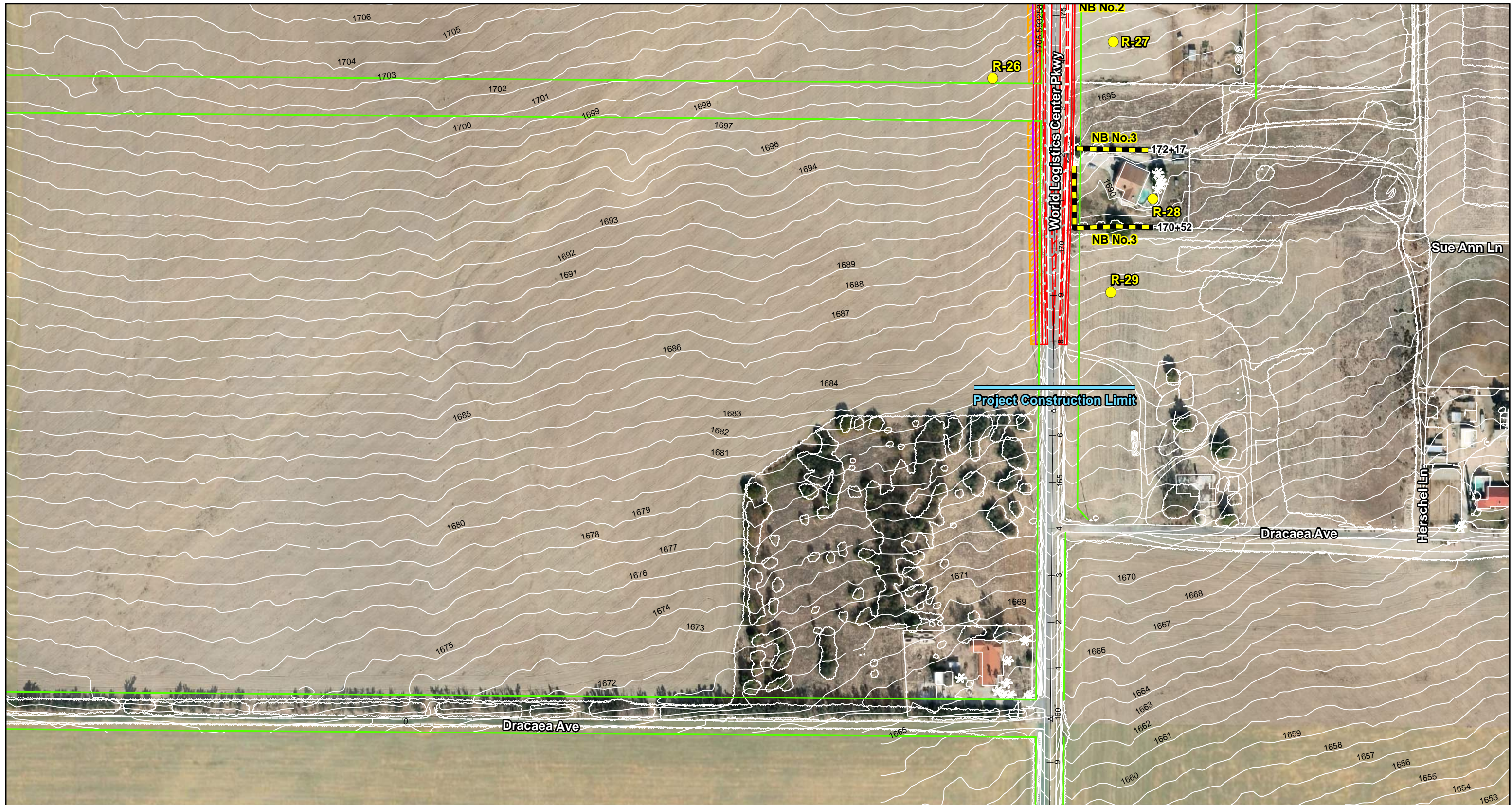
**SR-60/World Logistics Center Pkwy
Interchange Project
Modeled Noise Barrier and
Receptor Locations for Alternative 6**

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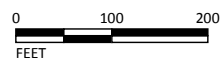
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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Existing Right-of-Way
- Proposed Right-of-Way
- Alternative 6 Improvements
- Parcel Acquisitions
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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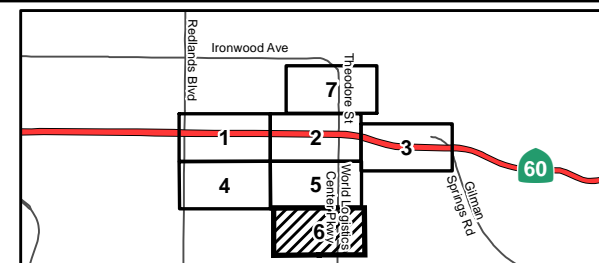


FIGURE 2-4

Sheet 6 of 7

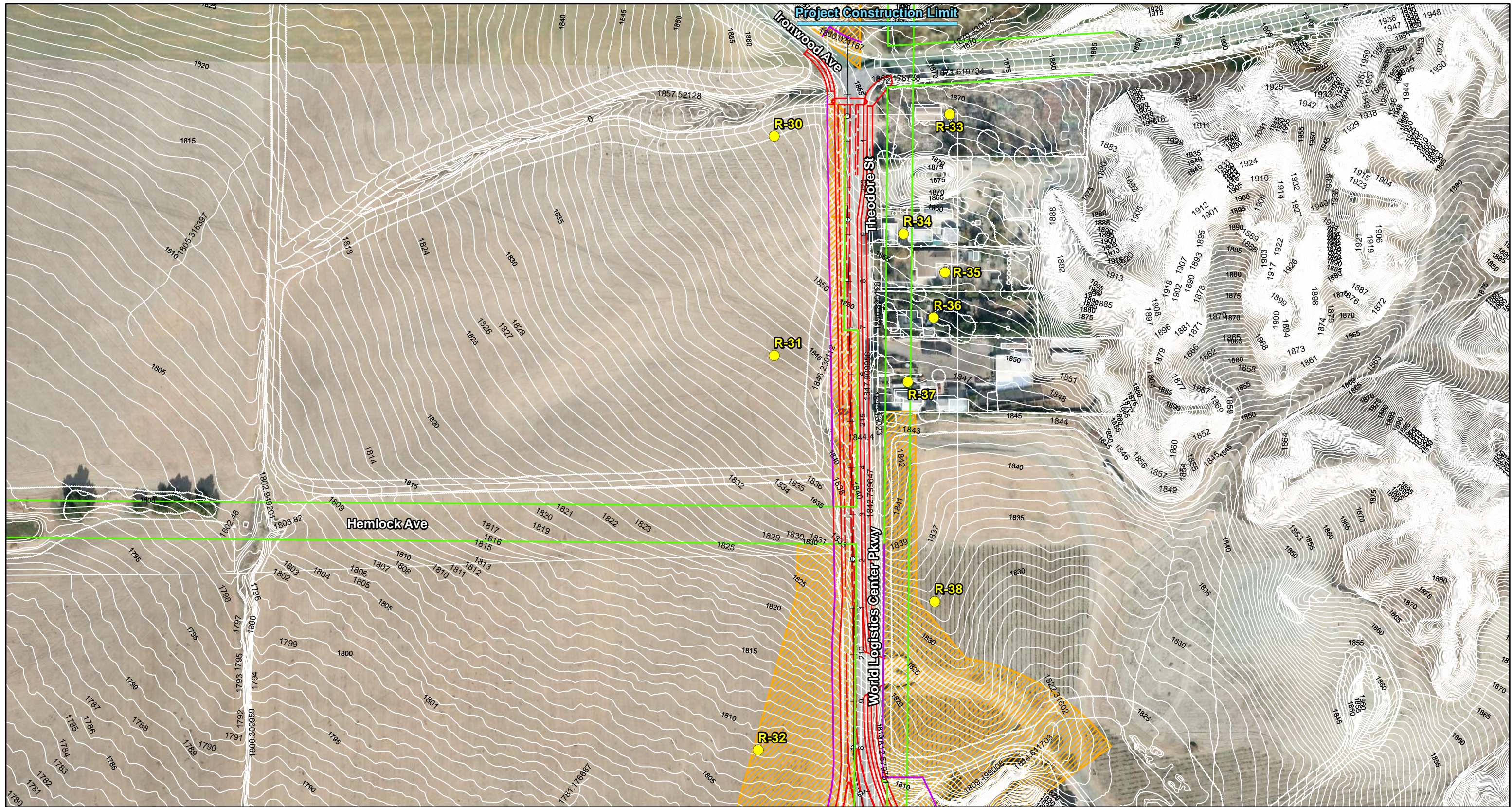
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Modeled Noise Barrier and Receptor Locations for Alternative 6**

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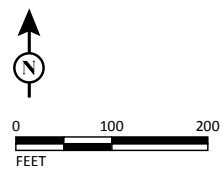
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LEGEND

- Modeled Receptor Locations
- Existing Right-of-Way
- Proposed Right-of-Way
- Alternative 6 Improvements
- Modeled Noise Barrier
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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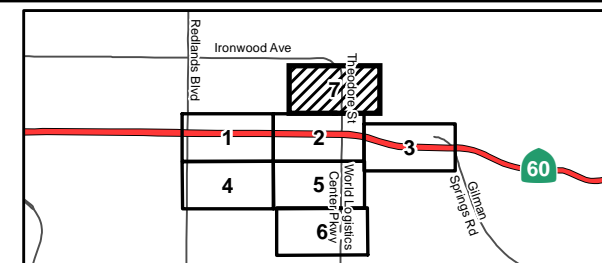


FIGURE 2-4

Sheet 7 of 7

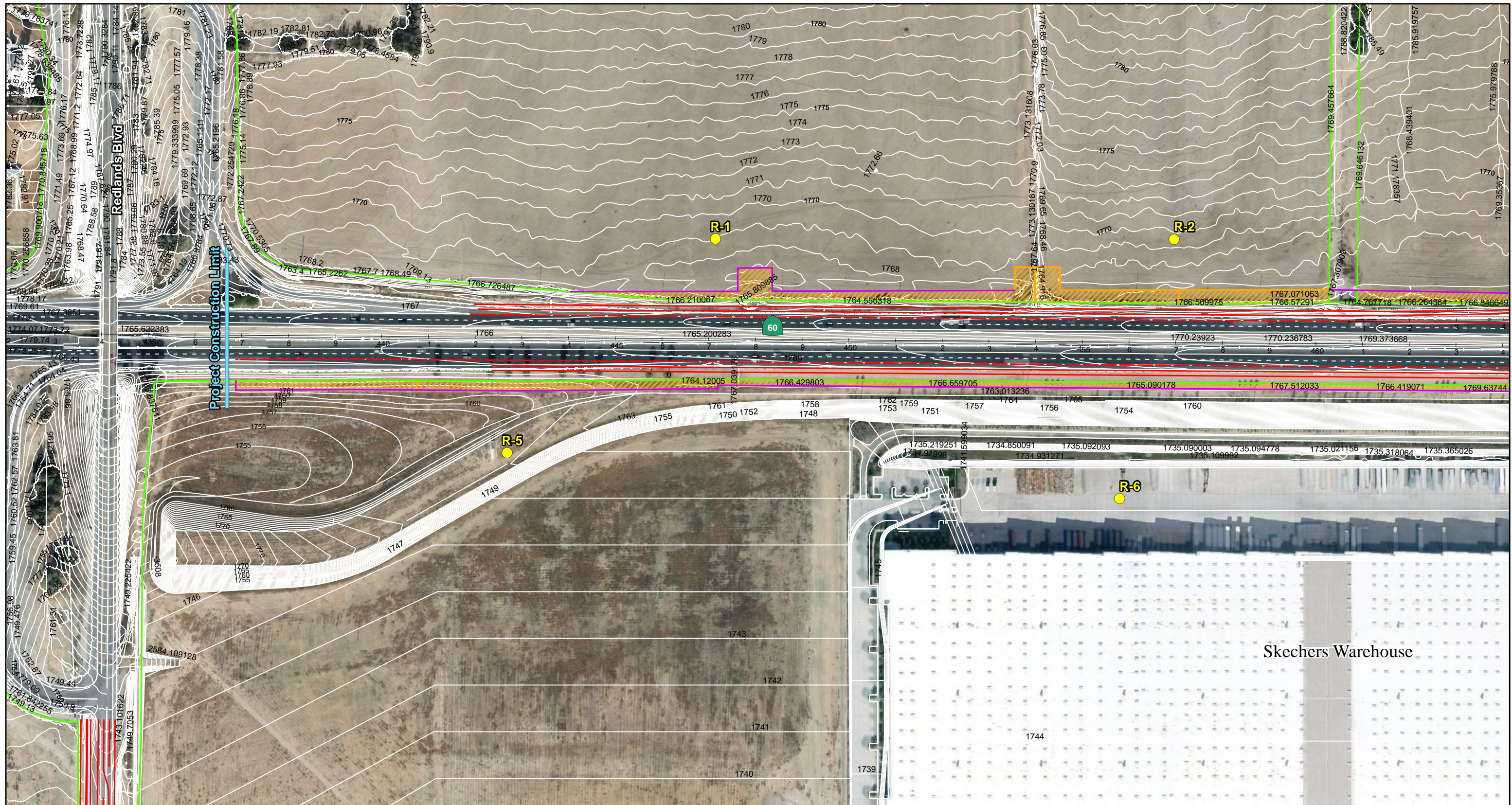
**SR-60/World Logistics Center Pkwy Interchange Project
Modeled Noise Barrier and Receptor Locations for Alternative 6**

08-RIV-60 PM 20.0/22.0

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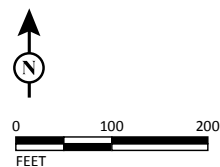
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LEGEND

- Modeled Receptor Locations
- Existing Right-of-Way
- Design Variation 6a Improvements
- Modeled Noise Barrier
- Proposed Right-of-Way
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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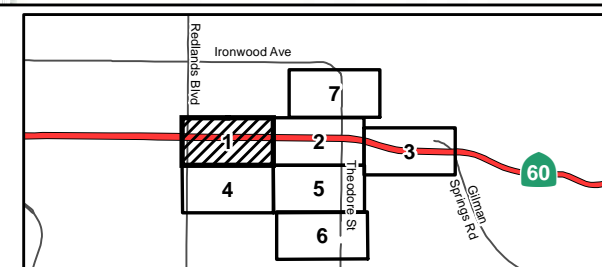


FIGURE 2-5

Sheet 1 of 7

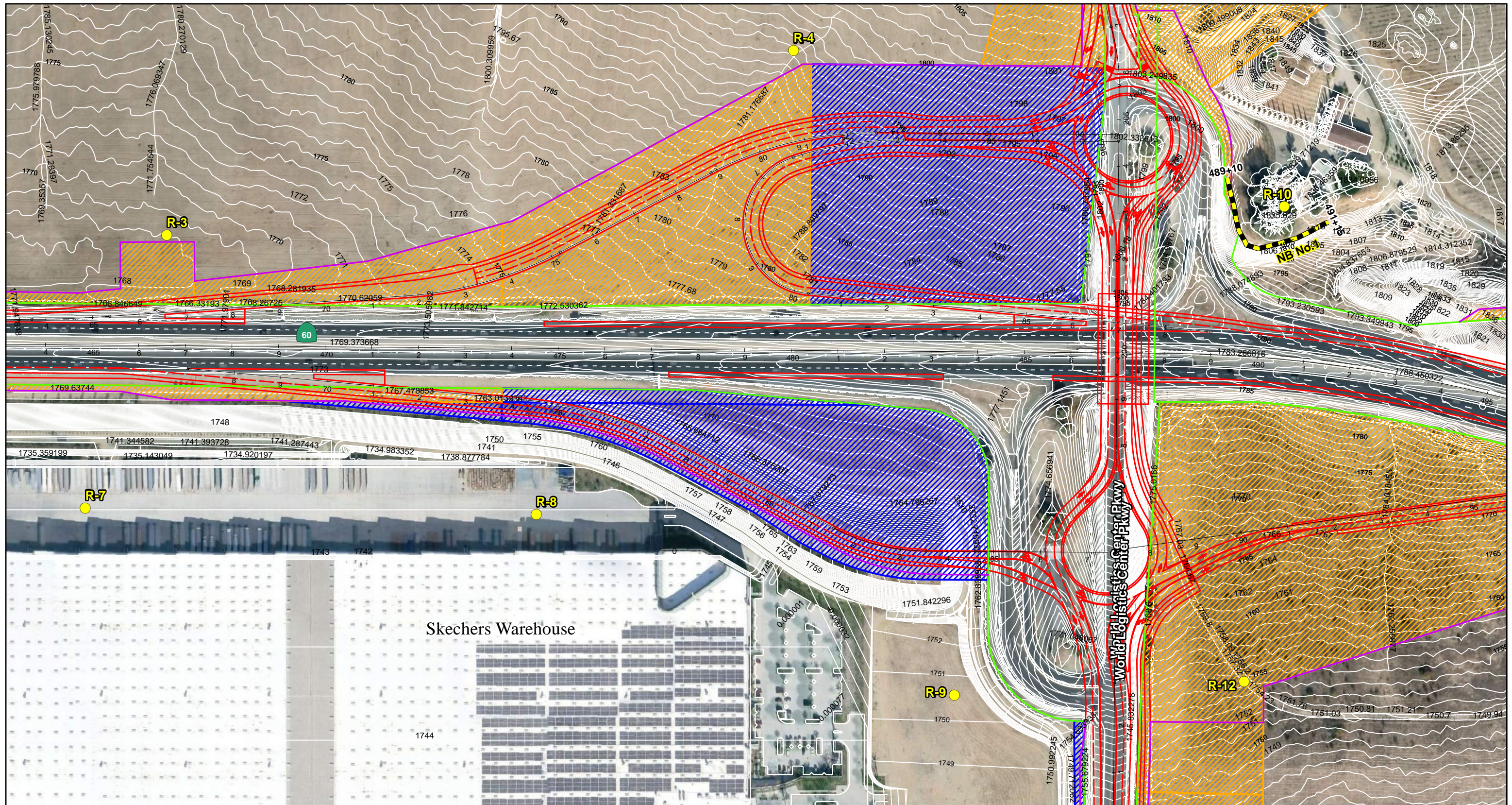
**SR-60/World Logistics Center Pkwy Interchange Project
Modeled Noise Barrier and Receptor Locations for Design Variation 6a**

08-RIV-60 PM 20.0/22.0

EA No. 0M590

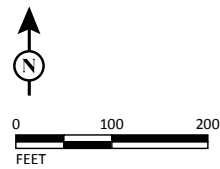
Project No. 0813000109

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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Design Variation 6a Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Parcel Acquisitions
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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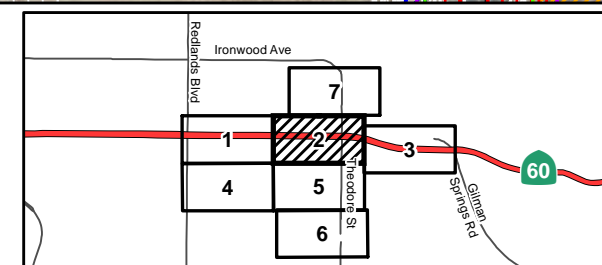


FIGURE 2-5

Sheet 2 of 7

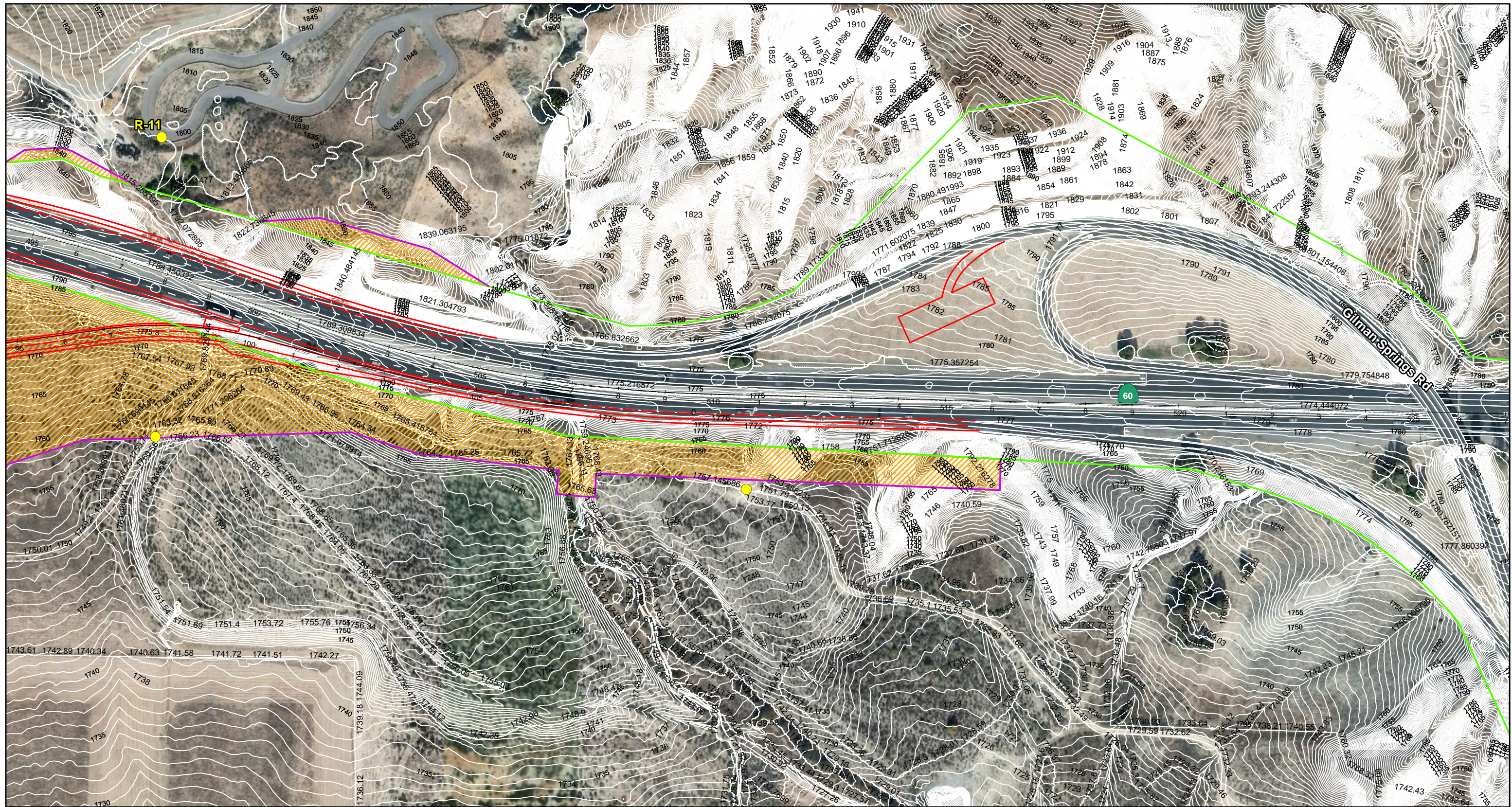
**SR-60/World Logistics Center Pkwy
Interchange Project
Modeled Noise Barrier and
Receptor Locations for Design Variation 6a**

08-RIV-60 PM 20.0/22.0

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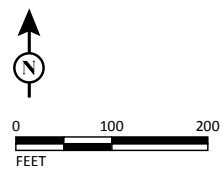
Project No. 0813000109

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LEGEND

- Modeled Receptor Locations
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Noise Barrier
- Design Variation 6a Improvements
- Full Acquisition
- Partial Acquisition



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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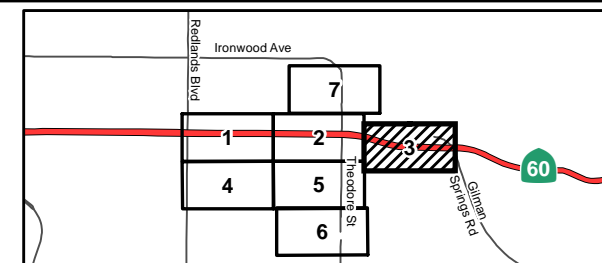


FIGURE 2-5

Sheet 3 of 7

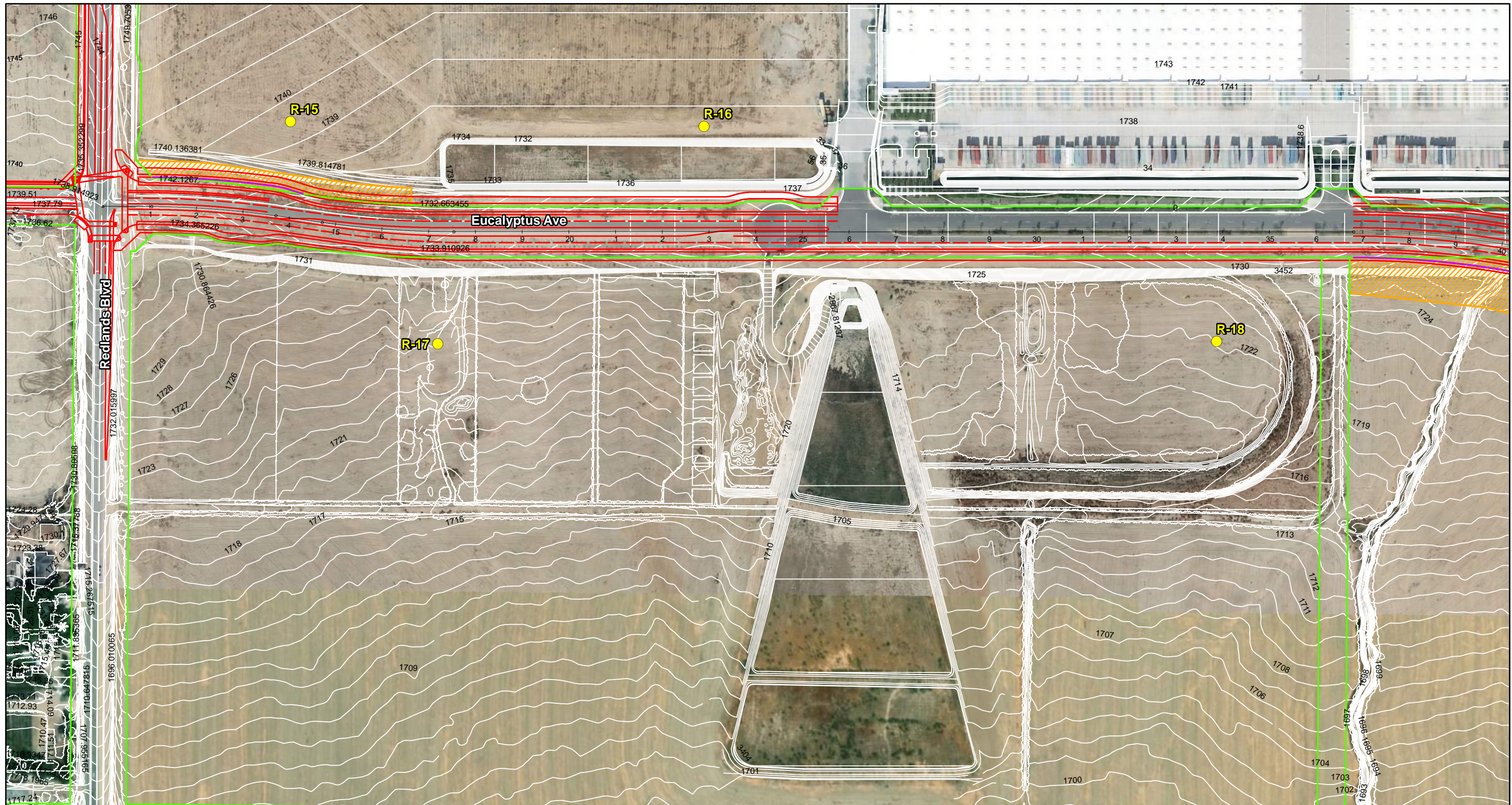
**SR-60/World Logistics Center Pkwy Interchange Project
Modeled Noise Barrier and Receptor Locations for Design Variation 6a**

08-RIV-60 PM 20.0/22.0

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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Design Variation 6a Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Parcel Acquisitions
- Full Acquisition
- Partial Acquisition

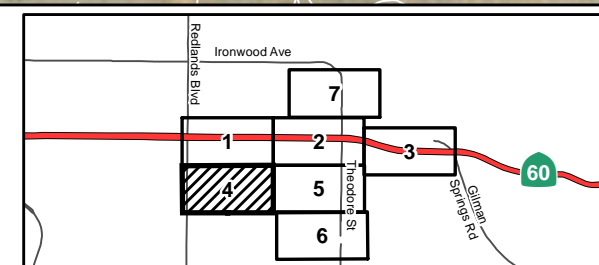


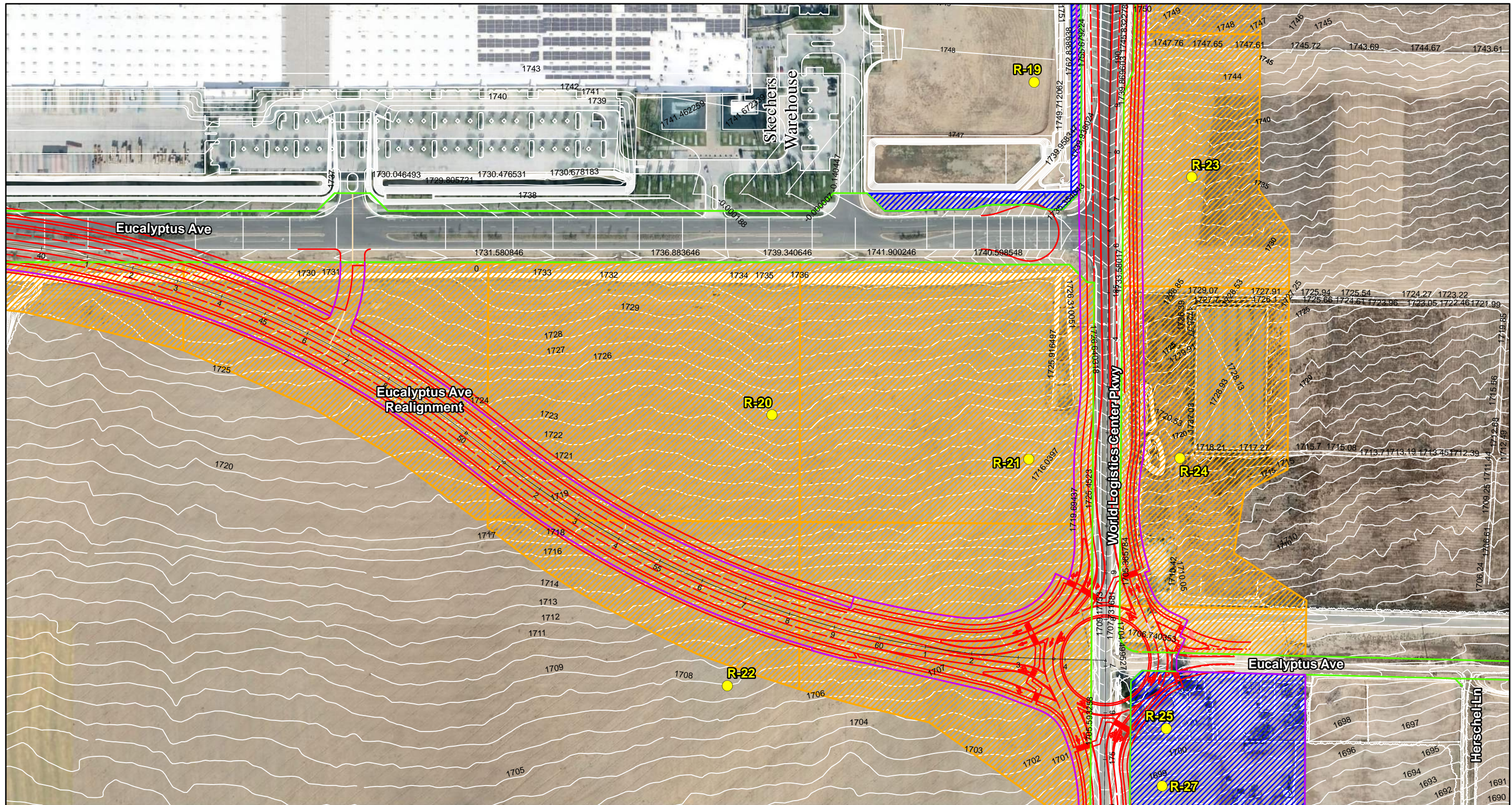
FIGURE 2-5

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SR-60/World Logistics Center Pkwy Interchange Project
Modeled Noise Barrier and Receptor Locations for Design Variation 6a

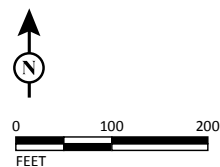
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 EA No. 0M590
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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Design Variation 6a Improvements
- Existing Right-of-Way
- Proposed Right-of-Way
- Full Acquisition
- Partial Acquisition
- Parcel Acquisitions



SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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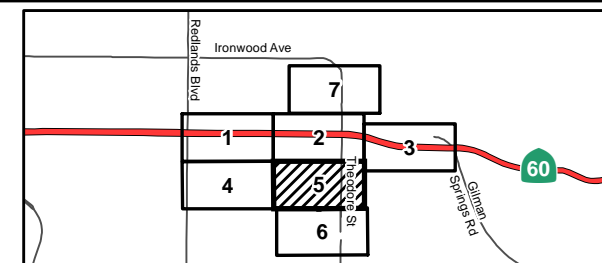


FIGURE 2-5

Sheet 5 of 7

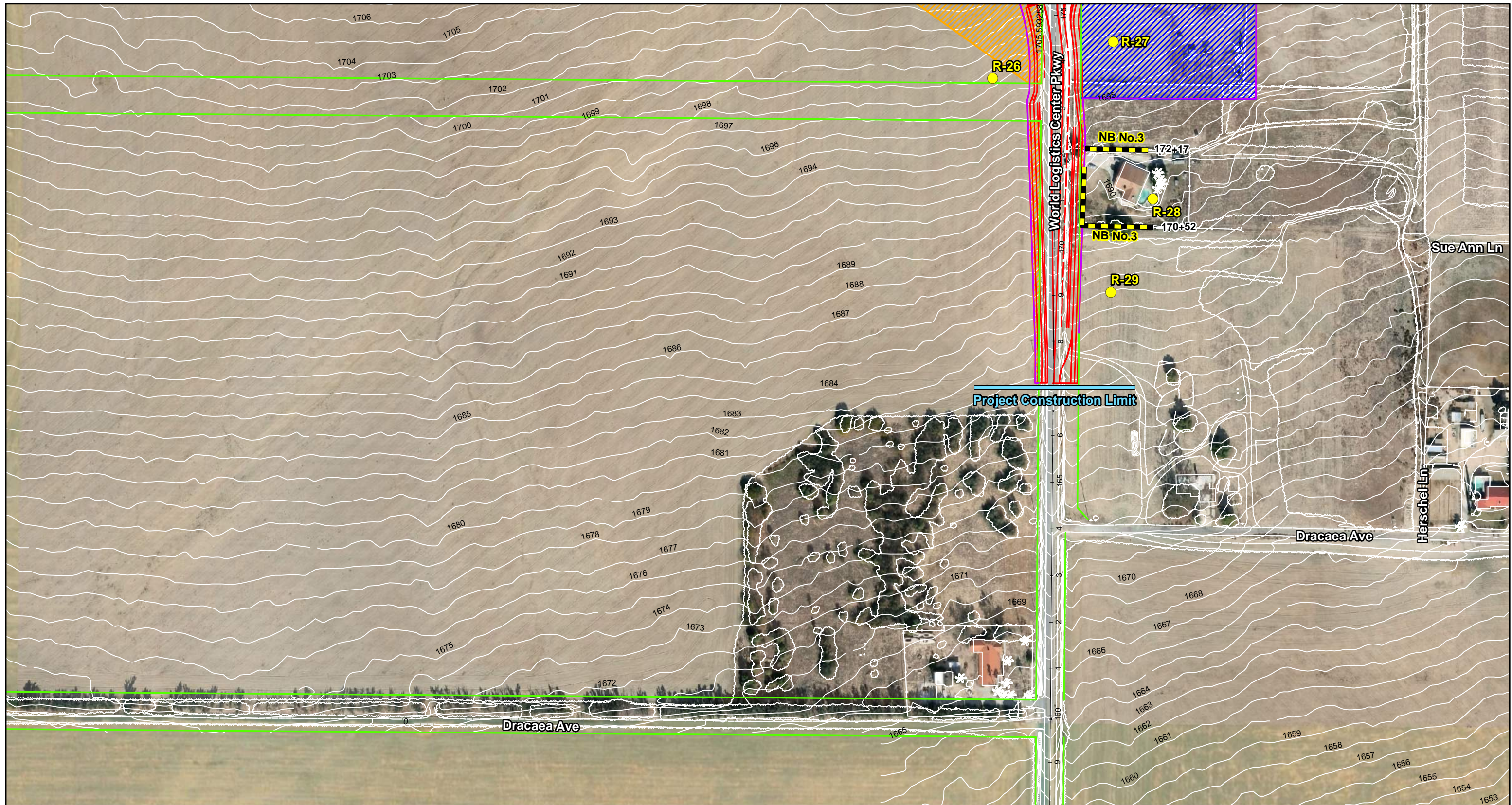
**SR-60/World Logistics Center Pkwy
Interchange Project
Modeled Noise Barrier and
Receptor Locations for Design Variation 6a**

08-RIV-60 PM 20.0/22.0

EA No. 0M590

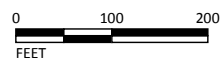
Project No. 0813000109

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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
- Design Variation 6a Improvements
- Existing Right-of-Way
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SOURCE: Google Imagery (2012); Michael Baker Intl (11/20/2018)

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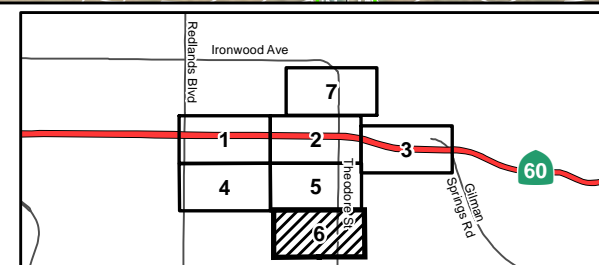


FIGURE 2-5

Sheet 6 of 7

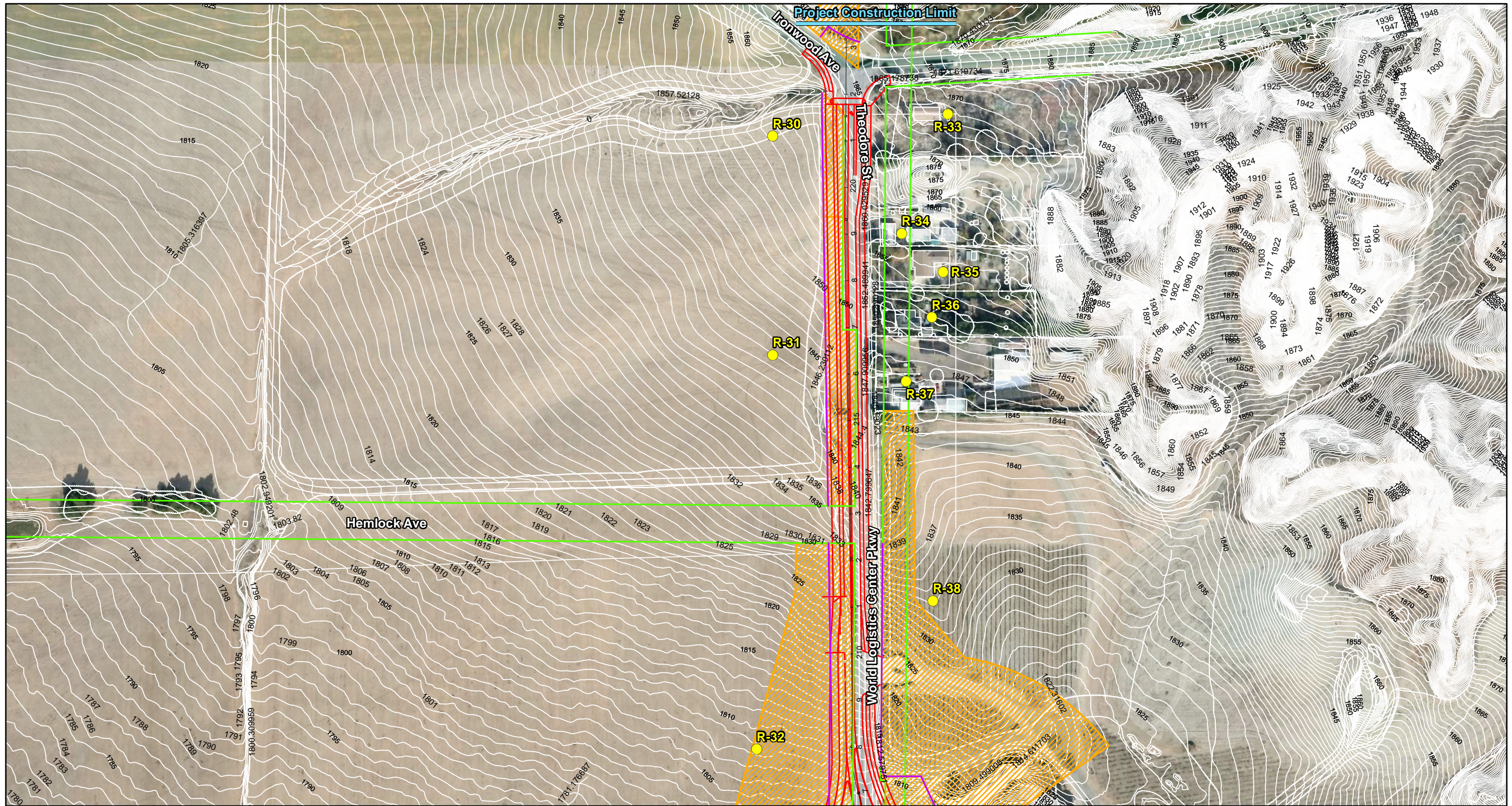
SR-60/World Logistics Center Pkwy Interchange Project
Modeled Noise Barrier and Receptor Locations for Design Variation 6a

08-RIV-60 PM 20.0/22.0

EA No. 0M590

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LEGEND

- Modeled Receptor Locations
- Modeled Noise Barrier
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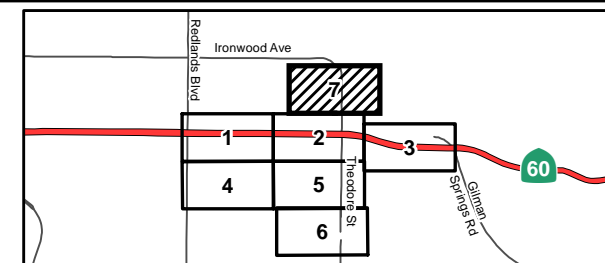


FIGURE 2-5

Sheet 7 of 7

**SR-60/World Logistics Center Pkwy
Interchange Project
Modeled Noise Barrier and
Receptor Locations for Design Variation 6a**

08-RIV-60 PM 20.0/22.0
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Chapter 3. Preliminary Noise Abatement Decision

3.1. Summary of Key Information

Table 3.1 is a summary of abatement information and lists all the feasible noise barriers, their approximate lengths, heights, noise attenuation ranges, numbers of benefited units, noise barrier locations, reasonable allowances per unit, total reasonable allowances, and estimated noise barrier construction costs, as well as whether the noise barriers are reasonable.

The reasonableness of a noise barrier was determined by comparing the estimated cost of the noise barrier construction against the total reasonable allowance. The total reasonable allowance was determined based on the number of benefited residences multiplied by the reasonable allowance per residence. The estimated noise barrier construction cost was provided by Michael Baker International (August 2019). The cost estimate breakdown for each noise barrier is provided in Appendix A. If the estimated noise barrier construction cost exceeds the total reasonable allowance, the noise barrier is determined to be not reasonable. However, if the estimated noise barrier construction cost is within the total reasonable allowance, the noise barrier is determined to be reasonable. Table 3.1 provides the reasonableness determination of the feasible noise barriers. As shown in Table 3.1, all feasible noise barriers were determined to be not reasonable because the estimated construction cost exceeded the total reasonable allowance.

3.2. Nonacoustical Factors Relating to Feasibility

Because all feasible noise barriers identified in Table 3.1 were determined to be not reasonable, there are no nonacoustical factors related to feasibility.

3.3. Preliminary Recommendation and Decision

Because all feasible noise barriers identified in Table 3.1 were determined to be not reasonable, no noise barriers would be recommended.

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Table 3.1 Summary of Abatement Information

Alternative	Noise Barrier No.	Noise Barrier Location	Height (ft)	Approximate Length (ft)	Noise Attenuation Level (dBA)	Number of Benefited Receptors/ Units ¹	Total Reasonable Allowance ²	Estimated Construction Cost (Without ROW Donation) ³	Reasonable ?	Estimated Construction Cost (With ROW Donation) ³	Reasonable ?	
2	1	PL	6	339	5	1	\$107,000	-- ⁴	No	-- ⁴	No	
			8	339	6	1	\$107,000	--	No	--	No	
			10	339	7	1	\$107,000	\$147,220	No	\$128,820	No	
			12	339	8	1	\$107,000	\$164,662	No	\$146,262	No	
			14	339	9	1	\$107,000	\$181,324	No	\$162,924	No	
	2	2	ROW/PL	16	339	10	1	\$107,000	\$197,986	No	\$179,586	No
				8	233	5	1	\$107,000	--	No	--	No
				10	233	6	1	\$107,000	--	No	--	No
				12	233	10	1	\$107,000	\$140,734	No	\$129,334	No
		3	ROW/PL	14	233	11	1	\$107,000	\$152,308	No	\$140,908	No
				16	233	11	1	\$107,000	\$163,882	No	\$152,482	No
				10	453	5	1	\$107,000	--	No	--	No
				12	453	8	1	\$107,000	\$191,614	No	\$178,114	No
	2a	1	PL	14	453	8	1	\$107,000	\$213,748	No	\$200,248	No
				16	453	9	1	\$107,000	\$235,882	No	\$222,382	No
6				339	5	1	\$107,000	--	No	--	No	
8				339	6	1	\$107,000	--	No	--	No	
10				339	7	1	\$107,000	\$147,220	No	\$128,820	No	
2		ROW/PL	12	339	8	1	\$107,000	\$164,662	No	\$146,262	No	
			14	339	9	1	\$107,000	\$181,324	No	\$162,924	No	
			16	339	10	1	\$107,000	\$197,986	No	\$179,586	No	
			8	206	5	1	\$107,000	--	No	--	No	
		3	ROW/PL	10	206	7	1	\$107,000	\$121,900	No	\$110,500	No
				12	206	9	1	\$107,000	\$132,958	No	\$121,558	No
				14	206	10	1	\$107,000	\$128,236	No	\$116,836	No
				16	206	10	1	\$107,000	\$138,514	No	\$127,114	No
6		1	PL	10	434	6	1	\$107,000	--	No	--	No
				12	434	8	1	\$107,000	\$187,942	No	\$172,942	No
	14			434	9	1	\$107,000	\$209,164	No	\$194,164	No	
	16			434	9	1	\$107,000	\$230,386	No	\$215,386	No	
	6			339	6	1	\$107,000	--	No	--	No	
6	1	PL	8	339	6	1	\$107,000	--	No	--	No	
			10	339	7	1	\$107,000	\$147,220	No	\$128,820	No	
			12	339	8	1	\$107,000	\$164,662	No	\$146,262	No	
			14	339	9	1	\$107,000	\$181,324	No	\$162,924	No	
			6	339	6	1	\$107,000	--	No	--	No	

Table 3.1 Summary of Abatement Information

Alternative	Noise Barrier No.	Noise Barrier Location	Height (ft)	Approximate Length (ft)	Noise Attenuation Level (dBA)	Number of Benefited Receptors/ Units ¹	Total Reasonable Allowance ²	Estimated Construction Cost (Without ROW Donation) ³	Reasonable ?	Estimated Construction Cost (With ROW Donation) ³	Reasonable ?
6	1	PL	16	339	9	1	\$107,000	\$197,986	No	\$179,586	No
	2	ROW/PL	8	233	5	1	\$107,000	--	No	--	No
			10	233	6	1	\$107,000	--	No	--	No
			12	233	10	1	\$107,000	\$140,734	No	\$129,334	No
			14	233	11	1	\$107,000	\$152,308	No	\$140,908	No
			16	233	11	1	\$107,000	\$163,882	No	\$152,482	No
	3	ROW/PL	10	453	5	1	\$107,000	--	No	--	No
			12	453	8	1	\$107,000	\$192,766	No	\$178,306	No
			14	453	8	1	\$107,000	\$214,900	No	\$200,440	No
			16	453	9	1	\$107,000	\$237,034	No	\$222,574	No
6a	1	PL	6	339	6	1	\$107,000	--	No	--	No
			8	339	6	1	\$107,000	--	No	--	No
			10	339	7	1	\$107,000	\$147,220	No	\$128,820	No
			12	339	8	1	\$107,000	\$164,662	No	\$146,262	No
			14	339	9	1	\$107,000	\$181,324	No	\$162,924	No
	3	ROW/PL	16	339	9	1	\$107,000	\$197,986	No	\$179,586	No
			10	414	5	1	\$107,000	--	No	--	No
			12	414	7	1	\$107,000	\$186,898	No	\$167,968	No
			14	414	8	1	\$107,000	\$207,160	No	\$188,230	No
			16	414	9	1	\$107,000	\$227,422	No	\$208,492	No

Source: Compiled by LSA Associates, Inc. (2019).

¹ Number of receptors/units that are attenuated by 5 dBA or more by the modeled barrier.

² Calculated by multiplying the number of benefited receptors by \$107,000 (the dollar amount per benefited receptor/unit).

³ Construction cost estimate provided by Michael Baker International (2019).

⁴ Shaded area represents barrier heights that have been determined to be not reasonable because the barrier would not reduce noise levels by 7 dBA or more.

dBA = A-weighted decibels

ft = foot/feet

ROW = right-of-way

Chapter 4. Secondary Effects of Abatement

Because all feasible noise barriers identified in Table 3.1 were determined to be not reasonable, noise abatement measures would not have any secondary effects (e.g., cultural, scenic views, hazardous materials, and biology) on other resources.

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Chapter 5. References

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Michael Baker International. 2019. Noise Barrier Construction Cost Estimate. August.

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Appendix A. Noise Barrier Construction Cost Estimate

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Table A-1. Noise Barrier Construction Cost Estimate

Alternative	Noise Barrier No.	Noise Barrier Location	Height (ft)	Approximate Length (ft)	Noise Attenuation Level (dBA)	Number of Benefited Units/Receptors	Total Reasonable Allowance	Cost of Demolition	Cost of Sound Wall	Cost of Retaining Wall	Misc Construction Costs (5% of SW)	Traffic Control Cost	Utility Relocation	Landscaping for Graffiti Abatement Cost (Arch %5)	Total ROW Costs	ROW Support Costs	Mobilization (10%)	Contingency (10%)	Estimated Construction Cost (Without ROW Donation)	Reasonable?	Estimated Construction Cost (With ROW Donation)	Reasonable?		
2	1	PL	6	339	5	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No	
			8	339	6	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			10	339	7	1	\$107,000	\$ -	\$ 93,450	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 12,185	\$ 12,185	\$ 147,220	No	\$ 128,820	No
			12	339	8	1	\$107,000	\$ -	\$ 107,985	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 13,639	\$ 13,639	\$ 164,662	No	\$ 146,262	No
			14	339	9	1	\$107,000	\$ -	\$ 121,870	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 15,027	\$ 15,027	\$ 181,324	No	\$ 162,924	No
	16	339	10	1	\$107,000	\$ -	\$ 135,755	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 16,416	\$ 16,416	\$ 197,986	No	\$ 179,586	No		
	2	ROW/PL	8	233	5	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			10	233	6	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			12	233	10	1	\$107,000	\$ -	\$ 82,545	\$ -	-	-	-	\$ 5,000	\$ 10,000	\$ 10,000	\$ 11,400	\$ 1,000	\$ 10,395	\$ 10,395	\$ 140,734	No	\$ 129,334	No
			14	233	11	1	\$107,000	\$ -	\$ 92,190	\$ -	-	-	-	\$ 5,000	\$ 10,000	\$ 10,000	\$ 11,400	\$ 1,000	\$ 11,359	\$ 11,359	\$ 152,308	No	\$ 140,908	No
			16	233	11	1	\$107,000	\$ -	\$ 101,835	\$ -	-	-	-	\$ 5,000	\$ 10,000	\$ 10,000	\$ 11,400	\$ 1,000	\$ 12,324	\$ 12,324	\$ 163,882	No	\$ 152,482	No
	3	ROW/PL	10	453	5	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			12	453	8	1	\$107,000	\$ -	\$ 135,345	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 13,500	\$ 1,000	\$ 15,885	\$ 15,885	\$ 191,614	No	\$ 178,114	No
			14	453	8	1	\$107,000	\$ -	\$ 153,790	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 13,500	\$ 1,000	\$ 17,729	\$ 17,729	\$ 213,748	No	\$ 200,248	No
			16	453	9	1	\$107,000	\$ -	\$ 172,235	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 13,500	\$ 1,000	\$ 19,574	\$ 19,574	\$ 235,882	No	\$ 222,382	No
2a	1	PL	6	339	5	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No	
			8	339	6	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			10	339	7	1	\$107,000	\$ -	\$ 93,450	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 12,185	\$ 12,185	\$ 147,220	No	\$ 128,820	No
			12	339	8	1	\$107,000	\$ -	\$ 107,985	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 13,639	\$ 13,639	\$ 164,662	No	\$ 146,262	No
			14	339	9	1	\$107,000	\$ -	\$ 121,870	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 15,027	\$ 15,027	\$ 181,324	No	\$ 162,924	No
	16	339	10	1	\$107,000	\$ -	\$ 135,755	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 16,416	\$ 16,416	\$ 197,986	No	\$ 179,586	No		
	2	ROW/PL	8	206	6	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			10	206	7	1	\$107,000	\$ -	\$ 66,850	\$ -	-	-	-	\$ 5,000	\$ 10,000	\$ 10,000	\$ 11,400	\$ 1,000	\$ 8,825	\$ 8,825	\$ 121,900	No	\$ 110,500	No
			12	206	9	1	\$107,000	\$ -	\$ 76,065	\$ -	-	-	-	\$ 5,000	\$ 10,000	\$ 10,000	\$ 11,400	\$ 1,000	\$ 9,747	\$ 9,747	\$ 132,958	No	\$ 121,558	No
			14	206	10	1	\$107,000	\$ -	\$ 84,630	\$ -	-	-	-	\$ 5,000	\$ 10,000	\$ 10,000	\$ 11,400	\$ 1,000	\$ 10,603	\$ 10,603	\$ 128,236	No	\$ 116,836	No
			16	206	10	1	\$107,000	\$ -	\$ 93,195	\$ -	-	-	-	\$ 5,000	\$ 10,000	\$ 10,000	\$ 11,400	\$ 1,000	\$ 11,460	\$ 11,460	\$ 138,514	No	\$ 127,114	No
	3	ROW/PL	10	434	6	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			12	434	8	1	\$107,000	\$ -	\$ 130,785	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 15,000	\$ 1,000	\$ 15,579	\$ 15,579	\$ 187,942	No	\$ 172,942	No
			14	434	9	1	\$107,000	\$ -	\$ 148,470	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 15,000	\$ 1,000	\$ 17,347	\$ 17,347	\$ 209,164	No	\$ 194,164	No
			16	434	9	1	\$107,000	\$ -	\$ 166,155	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 15,000	\$ 1,000	\$ 19,116	\$ 19,116	\$ 230,386	No	\$ 215,386	No
6	1	PL	6	339	6	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No	
			8	339	6	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			10	339	7	1	\$107,000	\$ -	\$ 93,450	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 12,185	\$ 12,185	\$ 147,220	No	\$ 128,820	No
			12	339	8	1	\$107,000	\$ -	\$ 107,985	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 13,639	\$ 13,639	\$ 164,662	No	\$ 146,262	No
			14	339	9	1	\$107,000	\$ -	\$ 121,870	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 15,027	\$ 15,027	\$ 181,324	No	\$ 162,924	No
	16	339	9	1	\$107,000	\$ -	\$ 135,755	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 16,416	\$ 16,416	\$ 197,986	No	\$ 179,586	No		
	2	ROW/PL	8	233	5	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			10	233	6	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			12	233	10	1	\$107,000	\$ -	\$ 82,545	\$ -	-	-	-	\$ 5,000	\$ 10,000	\$ 10,000	\$ 11,400	\$ 1,000	\$ 10,395	\$ 10,395	\$ 140,734	No	\$ 129,334	No
			14	233	11	1	\$107,000	\$ -	\$ 92,190	\$ -	-	-	-	\$ 5,000	\$ 10,000	\$ 10,000	\$ 11,400	\$ 1,000	\$ 11,359	\$ 11,359	\$ 152,308	No	\$ 140,908	No
			16	233	11	1	\$107,000	\$ -	\$ 101,835	\$ -	-	-	-	\$ 5,000	\$ 10,000	\$ 10,000	\$ 11,400	\$ 1,000	\$ 12,324	\$ 12,324	\$ 163,882	No	\$ 152,482	No
	3	ROW/PL	10	453	5	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			12	453	8	1	\$107,000	\$ -	\$ 135,345	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 14,460	\$ 1,000	\$ 15,981	\$ 15,981	\$ 192,766	No	\$ 178,306	No
			14	453	8	1	\$107,000	\$ -	\$ 153,790	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 14,460	\$ 1,000	\$ 17,825	\$ 17,825	\$ 214,900	No	\$ 200,440	No
			16	453	9	1	\$107,000	\$ -	\$ 172,235	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 14,460	\$ 1,000	\$ 19,670	\$ 19,670	\$ 237,034	No	\$ 222,574	No
6a	1	PL	6	339	6	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No	
			8	339	6	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			10	339	7	1	\$107,000	\$ -	\$ 93,450	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 12,185	\$ 12,185	\$ 147,220	No	\$ 128,820	No
			12	339	8	1	\$107,000	\$ -	\$ 107,985	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 13,639	\$ 13,639	\$ 164,662	No	\$ 146,262	No
			14	339	9	1	\$107,000	\$ -	\$ 121,870	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 15,027	\$ 15,027	\$ 181,324	No	\$ 162,924	No
	16	339	9	1	\$107,000	\$ -	\$ 135,755	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,400	\$ 1,000	\$ 16,416	\$ 16,416	\$ 197,986	No	\$ 179,586	No		
	3	ROW/PL	10	414	5	1	\$107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No	-	No
			12	414	7	1	\$107,000	\$ -	\$ 125,985	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,930	\$ 1,000	\$ 15,492	\$ 15,492	\$ 186,898	No	\$ 167,968	No
			14	414	8	1	\$107,000	\$ -	\$ 142,870	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,930	\$ 1,000	\$ 17,180	\$ 17,180	\$ 207,160	No	\$ 188,230	No
16			414	9	1	\$107,000	\$ -	\$ 159,755	\$ -	-	-	-	N/A	N/A	\$ 10,000	\$ 18,930	\$ 1,000	\$ 18,869	\$ 18,869	\$ 227,422	No	\$ 208,492	No	

SR-60/WLC Pkwy - Estimated Cost of Soundwall

EA: 0M590

PN: 08-13000109

**NOISE BARRIER
ALTERNATIVES
WALL LENGTH**

**1
2, 6, 2a, 6a
339**

TABLE A-1 TOTALS

Height = 10'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	80	x	65.00	=	\$ 5,200
Soundwall (precast concrete panel)	SF	3,390	x	20.00	=	\$ 67,800
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	5,700	x	2.00	=	\$ 11,400
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	2800	x	2.50	=	\$ 7,000
TOTAL						\$ 121,850

Length 339
Height 10

\$ 93,450 Wall Cost
\$ 18,400 R/W
\$ 10,000 Landscaping
N/A Utility
N/A Traffic Control

Height = 12'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	95	x	65.00	=	\$ 6,175
Soundwall (precast concrete panel)	SF	4,068	x	20.00	=	\$ 81,360
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	5,700	x	2.00	=	\$ 11,400
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	2800	x	2.50	=	\$ 7,000
TOTAL						\$ 136,385

Length 339
Height 12

\$ 107,985 Wall
\$ 18,400 R/W
\$ 10,000 Landscaping
N/A Utility
N/A Traffic Control

Height = 14'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	100	x	65.00	=	\$ 6,500
Soundwall (precast concrete panel)	SF	4,746	x	20.00	=	\$ 94,920
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	5,700	x	2.00	=	\$ 11,400
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	2800	x	2.50	=	\$ 7,000
TOTAL						\$ 150,270

Length 339
Height 14

\$ 121,870 Wall
\$ 18,400 R/W
\$ 10,000 Landscaping
N/A Utility
N/A Traffic Control

Height = 16'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	105	x	65.00	=	\$ 6,825
Soundwall (precast concrete panel)	SF	5,424	x	20.00	=	\$ 108,480
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	5,700	x	2.00	=	\$ 11,400
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	2800	x	2.50	=	\$ 7,000
TOTAL						\$ 164,155

Length 339
Height 16

\$ 135,755 Wall
\$ 18,400 R/W
\$ 10,000 Landscaping
N/A Utility
N/A Traffic Control

SR-60/WLC Pkwy - Estimated Cost of Soundwall

EA: 0M590

PN: 08-13000109

NOISE BARRIER 3
ALTERNATIVE 2
WALL LENGTH 453

TABLE A-1 TOTALS

Height = 10'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	80	x	65.00	=	\$ 5,200
Soundwall (precast concrete panel)	SF	4,530	x	20.00	=	\$ 90,600
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	4,500	x	2.00	=	\$ 9,000
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	1800	x	2.50	=	\$ 4,500
TOTAL						\$ 139,750

Length 453
 Height 10

\$ 116,250 Wall
 \$ 13,500 R/W
 \$ 10,000 Landscaping
 N/A Utility
 N/A Traffic Control

Height = 12'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	95	x	65.00	=	\$ 6,175
Soundwall (precast concrete panel)	SF	5,436	x	20.00	=	\$ 108,720
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	4,500	x	2.00	=	\$ 9,000
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	1800	x	2.50	=	\$ 4,500
TOTAL						\$ 158,845

Length 453
 Height 12

\$ 135,345 Wall
 \$ 13,500 R/W
 \$ 10,000 Landscaping
 N/A Utility
 N/A Traffic Control
 7942.25

Height = 14'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	100	x	65.00	=	\$ 6,500
Soundwall (precast concrete panel)	SF	6,342	x	20.00	=	\$ 126,840
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	4,500	x	2.00	=	\$ 9,000
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	1800	x	2.50	=	\$ 4,500
TOTAL						\$ 177,290

Length 453
 Height 14

\$ 153,790 Wall
 \$ 13,500 R/W
 \$ 10,000 Landscaping
 N/A Utility
 N/A Traffic Control

Height = 16'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	105	x	65.00	=	\$ 6,825
Soundwall (precast concrete panel)	SF	7,248	x	20.00	=	\$ 144,960
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	4,500	x	2.00	=	\$ 9,000
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	1800	x	2.50	=	\$ 4,500
TOTAL						\$ 195,735

Length 453
 Height 16

\$ 172,235 Wall
 \$ 13,500 R/W
 \$ 10,000 Landscaping
 N/A Utility
 N/A Traffic Control

SR-60/WLC Pkwy - Estimated Cost of Soundwall

EA: 0M590

PN: 08-13000109

NOISE BARRIER 3
ALTERNATIVE 6
WALL LENGTH 453

TABLE A-1 TOTALS

Height = 10'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	80	x	65.00	=	\$ 5,200
Soundwall (precast concrete panel)	SF	4,530	x	20.00	=	\$ 90,600
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	4,890	x	2.00	=	\$ 9,780
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	1872	x	2.50	=	\$ 4,680
TOTAL						\$ 140,710

Length 453
 Height 10

\$ 116,250 Wall
 \$ 14,460 R/W
 \$ 10,000 Landscaping
 N/A Utility
 N/A Traffic Control

Height = 12'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	95	x	65.00	=	\$ 6,175
Soundwall (precast concrete panel)	SF	5,436	x	20.00	=	\$ 108,720
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	4,890	x	2.00	=	\$ 9,780
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	1872	x	2.50	=	\$ 4,680
TOTAL						\$ 159,805

Length 453
 Height 12

\$ 135,345 Wall
 \$ 14,460 R/W
 \$ 10,000 Landscaping
 N/A Utility
 N/A Traffic Control
 7990.25

Height = 14'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	100	x	65.00	=	\$ 6,500
Soundwall (precast concrete panel)	SF	6,342	x	20.00	=	\$ 126,840
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	4,890	x	2.00	=	\$ 9,780
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	1872	x	2.50	=	\$ 4,680
TOTAL						\$ 178,250

Length 453
 Height 14

\$ 153,790 Wall
 \$ 14,460 R/W
 \$ 10,000 Landscaping
 N/A Utility
 N/A Traffic Control

Height = 16'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	105	x	65.00	=	\$ 6,825
Soundwall (precast concrete panel)	SF	7,248	x	20.00	=	\$ 144,960
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	4,890	x	2.00	=	\$ 9,780
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	1872	x	2.50	=	\$ 4,680
TOTAL						\$ 196,695

Length 453
 Height 16

\$ 172,235 Wall
 \$ 14,460 R/W
 \$ 10,000 Landscaping
 N/A Utility
 N/A Traffic Control

SR-60/WLC Pkwy - Estimated Cost of Soundwall

EA: 0M590

PN: 08-13000109

NOISE BARRIER 3
ALTERNATIVE 2a
WALL LENGTH 434

TABLE A-1 TOTALS

Height = 10'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	80	x	65.00	=	\$ 5,200
Soundwall (precast concrete panel)	SF	4,340	x	20.00	=	\$ 86,800
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	4,500	x	2.00	=	\$ 9,000
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	2400	x	2.50	=	\$ 6,000
TOTAL						\$ 137,450

Length 434
 Height 10

\$ 112,450 Wall
 \$ 15,000 R/W
 \$ 10,000 Landscaping
 N/A Utility
 N/A Traffic Control

Height = 12'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	95	x	65.00	=	\$ 6,175
Soundwall (precast concrete panel)	SF	5,208	x	20.00	=	\$ 104,160
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	4,500	x	2.00	=	\$ 9,000
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	2400	x	2.50	=	\$ 6,000
TOTAL						\$ 155,785

Length 434
 Height 12

\$ 130,785 Wall
 \$ 15,000 R/W
 \$ 10,000 Landscaping
 N/A Utility
 N/A Traffic Control
 7789.25

Height = 14'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	100	x	65.00	=	\$ 6,500
Soundwall (precast concrete panel)	SF	6,076	x	20.00	=	\$ 121,520
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	4,500	x	2.00	=	\$ 9,000
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	2400	x	2.50	=	\$ 6,000
TOTAL						\$ 173,470

Length 434
 Height 14

\$ 148,470 Wall
 \$ 15,000 R/W
 \$ 10,000 Landscaping
 N/A Utility
 N/A Traffic Control

Height = 16'

Item	Unit	Quantity		Unit Price (\$)	=	Cost
Piles	LF	105	x	65.00	=	\$ 6,825
Soundwall (precast concrete panel)	SF	6,944	x	20.00	=	\$ 138,880
Pile Cap	CF	370	x	35.00	=	\$ 12,950
TCE	SF	4,500	x	2.00	=	\$ 9,000
Structure Excavation (Soundwall)	CY	100	x	25.00	=	\$ 2,500
Structure Backfill (Soundwall)	CY	100	x	50.00	=	\$ 5,000
Landscaping (Including tree removal)	LS	1	x	10,000.00	=	\$ 10,000
Right of Way	SF	2400	x	2.50	=	\$ 6,000
TOTAL						\$ 191,155

Length 434
 Height 16

\$ 166,155 Wall
 \$ 15,000 R/W
 \$ 10,000 Landscaping
 N/A Utility
 N/A Traffic Control

