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June 23, 2022 14180

Steven H. Levenson
Vice-President, Development
HomeFed Corporation
1903 Wright Place, Suite 220
Carlsbad, CA 92008

Subject: *Otay Ranch Village 8 West*
Development Area C
Acoustical Assessment

Dear Mr. Levenson:

Dudek has completed this site-specific acoustical assessment for the proposed Village 8 West (V8W) Parcel C portion (Project) of the Otay Ranch Project located in the City of Chula Vista, California (City). The Project plans a total of two hundred sixty seven (267) one- and two-bedroom units spread across six (6) 3 and 4-story tuck-under buildings, and a free-standing club/leasing building with a pool house. In total, four hundred nineteen (419) parking spaces are expected on-site. This letter report includes response to received City comments (via its consultant Eilar & Associates) per its review of the original acoustical assessment prepared on February 10, 2022.

This letter report includes exterior and exterior-to-interior noise analyses for sample occupied units of the proposed complex of multi-family homes and is intended to comply with mitigation measures 5.5-3 and 5.5-7 as appearing in the Otay Ranch Village 8 West Sectional Planning Area Plan and Tentative Map Mitigation Monitoring and Reporting Program [MMRP/EIR document]. These mitigation measures are reproduced as follows:

5.5-3 Site-Specific Acoustic Analysis – Multi-family Residences. Concurrent with design review and prior to the approval of building permits for multi-family areas where first and/or second floor exterior noise levels exceed 60 dBA CNEL and/or where required outdoor area (patios or balconies) noise levels exceed 65 dBA CNEL (Planning Areas B, C, E, F, H1, H2, I, J, L, M, and O), the applicant shall prepare an acoustical analysis demonstrating compliance with California's Title 24 Interior Noise Standards (i.e., 45 dBA CNEL) and the City's Exterior Land Use/Noise Compatibility Guidelines for outdoor use areas (i.e., 65 dBA CNEL). Design-level architectural plans will be available during design review and will permit the accurate calculation of transmissions loss for habitable rooms. For these areas, it may be necessary for the windows to be able to remain closed to ensure that interior noise levels meet the interior standard of 45 dBA CNEL. Consequently, the design for buildings in these areas may need to include a ventilation or air conditioning system to provide a habitable interior environment with the windows closed based on the result on the interior acoustical analysis.

5.5-7 Shielded Private Outdoor Usable Space for Town Center Residences. Private usable outdoor space for new residential or commercial development such as patios, balconies, or outdoor dining areas in the Town Center shall be located or protected from noise to ensure noise levels are below 65 dB CNEL. The proposed plan for private residential open space shall be designed to the satisfaction of the City Engineer prior to design review.

In summary, and based on Project design information to date, Dudek has determined that the sound insulation performance of the planned residential unit exterior facades (composed of wall assemblies, windows, and patio/balcony doors) should be sufficient for yielding an interior background sound level of 45 dBA CNEL or less within occupied spaces such as living rooms and bedrooms. A total of sixty-three (63) balconies from multiple floors of planned residential units that face the proposed major roadways (La Media Parkway and Main Street Westbound) are expected to experience future roadway traffic noise in excess of 65 dBA CNEL, and would thus need acoustical upgrading in the form of solid acrylic sheeting (or comparably performing material/assembly alternative with respect to sound insulation) added as a sound-blocking layer to the planned 42"-tall square-tubed metal railings.

1 Introduction

1.1 Acoustical Fundamentals

Although the terms may be used interchangeably in the right context, "sound" is defined as any gas or fluid pressure variation detected by the human ear, and "noise" is unwanted sound. The preferred unit for measuring sound is the decibel (dB), which by way of expressing the ratio of sound pressures to a reference value logarithmically enables a wide range of audible sound to be evaluated and discussed conveniently. On the low end of this range, zero dB is not the absence of sound energy, but instead corresponds approximately to the threshold of average healthy human hearing; and, on the upper end, 120–140 dB corresponds to an average person's threshold of pain.

The human ear is not equally responsive to all frequencies of the audible sound spectrum. An electronic filter is normally used when taking noise measurements that de-emphasizes certain frequencies in a manner that mimics the human ear's response to sound; this method is referred to as A-weighting. Sound levels expressed under the A-weighted system are sometimes designated dBA. All sound levels discussed in this report are A-weighted.

The equivalent continuous sound level (L_{eq}) is a single dB value which, if held constant during the specified time period, would represent the same total acoustical energy of a fluctuating noise level over that same time period. L_{eq} values are commonly expressed for periods of one hour, but longer or shorter time periods may be specified.

The noise descriptor Community Noise Equivalent Level (CNEL) is typically used when describing community noise. CNEL energy-averages the varying sound levels occurring over a 24-hour period, but imparts a 10-decibel penalty to sound occurring between the hours of 10:00 p.m.–7:00 a.m. and a 5-dB penalty for noise between the hours of 7:00–10:00 p.m. as a means to account for increased noise sensitivity during nighttime and evening hours, respectively.

Additional common acoustical descriptors and terms that may assist the reader in framing the evaluation and discussion of noise in this report are provided in Appendix A.

1.2 City of Chula Vista Standards

The City of Chula Vista General Plan Noise Element indicates that the maximum allowable exterior noise level for new residential developments is a Community Noise Equivalent Level (CNEL) of 65 A-weighted decibels (dBA) (City of Chula Vista 2005). Consistent with the California Building Code (CBC, Part 2, Title 24, California Code of Regulations) that stipulates "interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room," the City of Chula Vista also requires that interior noise levels not exceed a CNEL of 45 dB within residences.

Typically, with the windows open, building shells provide approximately 12-18 dB of noise reduction (OPR 2017). Therefore, rooms exposed to an exterior CNEL greater than 60 dB could result in an interior CNEL greater than 45 dB.

2 Methodology

2.1 Estimating Roadway Traffic Noise

The exterior noise analysis made use of the Federal Highway Administration (FHWA) Traffic Noise Model (TNM, version 2.5) (FHWA 2004) to predict future traffic noise exposure levels at multiple representative façade and balcony positions associated with the six-building project. Input data for the TNM modeling included the following: average daily traffic (ADT) volumes, vehicle speeds, and proportions of vehicle types. Year 2030 build-out ADT, representing an update from similar quantities presented in the V8W EIR, relied upon information from the December 9th dated "Village 8 West – Trip Generation Analysis and Internal ADT Estimation" memorandum (Chen Ryan 2019).

The future modeled traffic speed, forty miles per hour (40 mph), was assumed to be the anticipated speed limit for future roads. The truck percentages used in the noise model for existing and future scenarios on existing and future arterials were 2.0% medium trucks and 2.0% heavy trucks. This truck mix is based on vehicle surveys conducted for a number of similar roads in Chula Vista and San Diego County that allow truck traffic.

As part of the CNEL calculation process, based on typical travel patterns, the analysis assumed the average hourly traffic volume is approximately equal to 10% of the ADT. 10% of the ADT is generally accepted to be roughly equivalent to the worst-case hourly traffic volume; using this value in the noise model results in an average hourly equivalent noise level approximately equal to the CNEL for the corresponding ADT and actual hourly traffic distribution. Thus, this relationship results in a CNEL value that is representative of traffic noise resulting from typical daytime, evening and nighttime traffic distribution.

2.2 Estimating Interior Background Sound Level

An interior background noise analysis of habitable rooms with facades directly exposed to noise emission from nearby flows of roadway traffic was conducted by way arithmetically subtracting the façade's estimated net sound transmission class (STC) rating from the predicted exterior traffic noise level. By way of example, if the exterior noise level outside of a bedroom façade is 66 dBA CNEL, and the estimated net STC rating for the façade is 32, the expected interior background sound level would be 34 dBA CNEL and thus compliant with the aforementioned City and CBC standards. In summary, this technique emulates the U.S. Department of Housing and Urban Development (HUD) Noise Guidebook methodology for addressing exterior traffic noise (HUD 2009) intrusion to occupied interior spaces.

The STC rating of a single homogeneous construction element or assembly such as a wall, window, or door is derived from sound transmission loss (TL) values at one-third octave band center frequency (OBCF) that fit a standardized "curve" (within allowable tolerances) for the rating value. These TL values are typically the results of laboratory tests of the material or assembly. Because exterior facades of an inhabited building often include a combination of windows and doors that represent penetrations to an otherwise solid and uniform wall, a composite STC rating must be calculated to represent the overall exterior-to-interior sound insulating performance of the combination. The calculation considers the areas and individual TL values of each façade component (wall, windows, doors, and unobstructed openings), which results in a set of composite TL values from which an STC rating can be derived. (As an approximation, the STC rating number is the same TL value at 500 Hz.) This calculation of a net STC rating for the façade makes it possible for a combination of components, some of which (e.g., windows) may individually appear inadequate to provide the needed noise reduction, to "on average" yield a satisfactory result since it relies on the contribution of the wall assembly and its typically high STC rating.

3 Exterior Noise Analysis Results

3.1 Roadway Traffic Noise

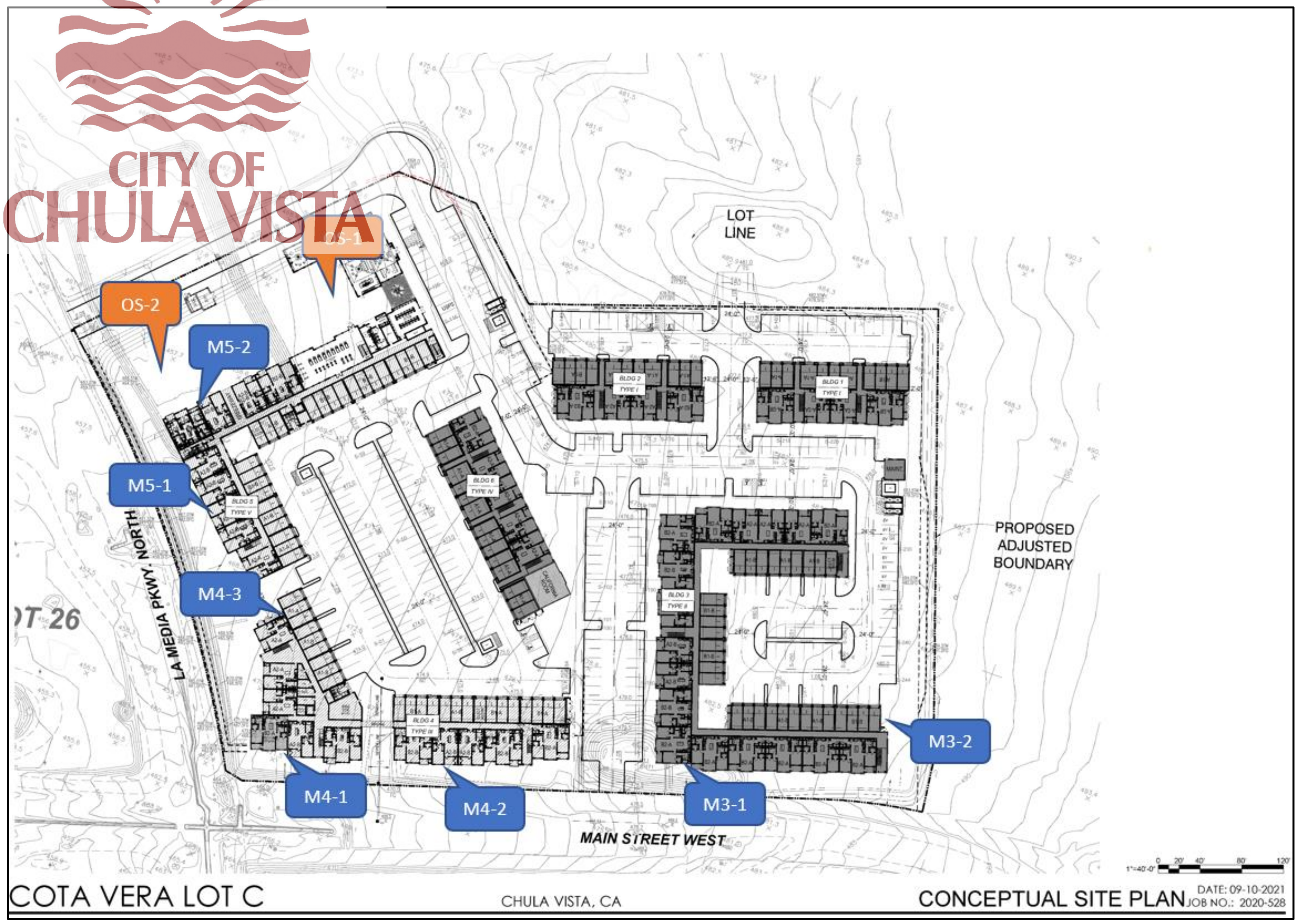
Traffic noise modeling was performed using the same traffic volumes as appearing in Figure 1 (Internal Average Daily Traffic Volumes) of the aforementioned December 9, 2019 Chen Ryan traffic analysis memo. Table 1 shows traffic volume inputs used in modeling based off the traffic analysis memo.

Table 1: Selected Traffic Noise Model (version 2.5) Input Parameters

Road Segment	ADT	10% ADT	Lane Split	Number of Cars	Number of Medium Trucks	Number of Heavy Trucks
Main Street	44908	4491	2245	2156	45	45
La Media Road	38000	3800	1900	1824	38	38

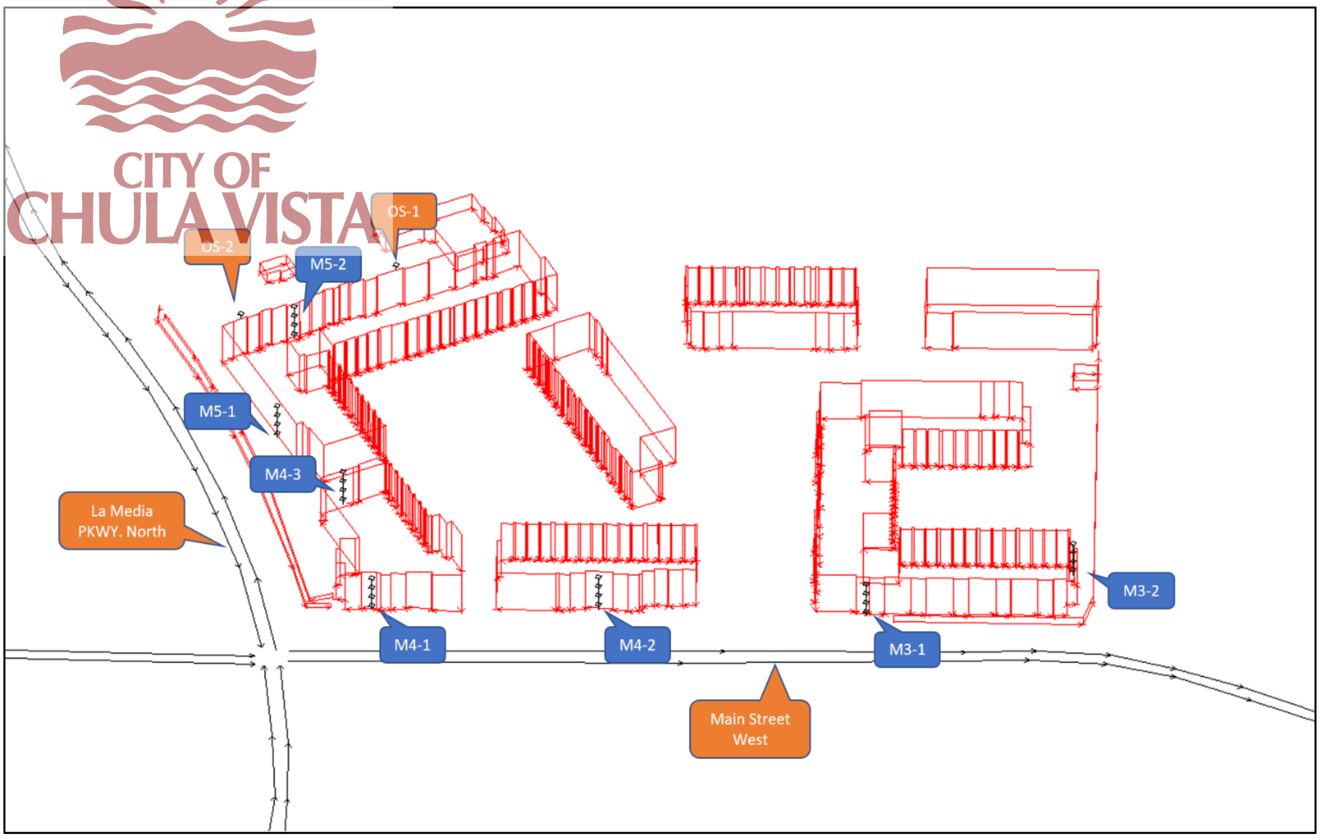
ADT = average daily traffic; N/A = not applicable

Detailed site plan information provided by Hunsaker & Associates San Diego was utilized to properly depict roadway segments (La Media Parkway northbound and Main Street westbound) and the facades, balconies, patios, and public outdoor use areas. Representative consideration of proposed topography was also included in the traffic noise model setup, as was the presence of retaining walls located around the Project parcels. Figure 1 of this document below shows a plan view of the Project tagged with pinpoints of open areas and representative modeled receivers near the street-facing facades of the six (6) Project buildings.



Sources: Hunsaker 2021, Dudek 2022

Figure 1. Plan View of Project Site and Tagged Representative Receptor Locations of the Traffic Noise Predictive Analysis (OS = open space; M = modeled residential unit exterior façade)



Source: Dudek 2022

Figure 2. Isometric View (looking North) of the Traffic Noise Model Developed for the Project Exterior Noise Analysis with Sample Modeled Project Features and Receptor Locations

Table 2 presents the predicted exterior noise levels at the studied nine (9) representative receptor locations appearing in both Figures 1 and 2. Bold values displayed in Table 2 are those that exceed 60 dBA CNEL, and bold italicized values represent predictions that exceed 65 dBA CNEL. Detailed input and output information from the TNM prediction model that supports these Table 2 values appear in Appendix B.

Table 2. Predicted Exterior Noise Levels due to nearby Future Roadway Traffic

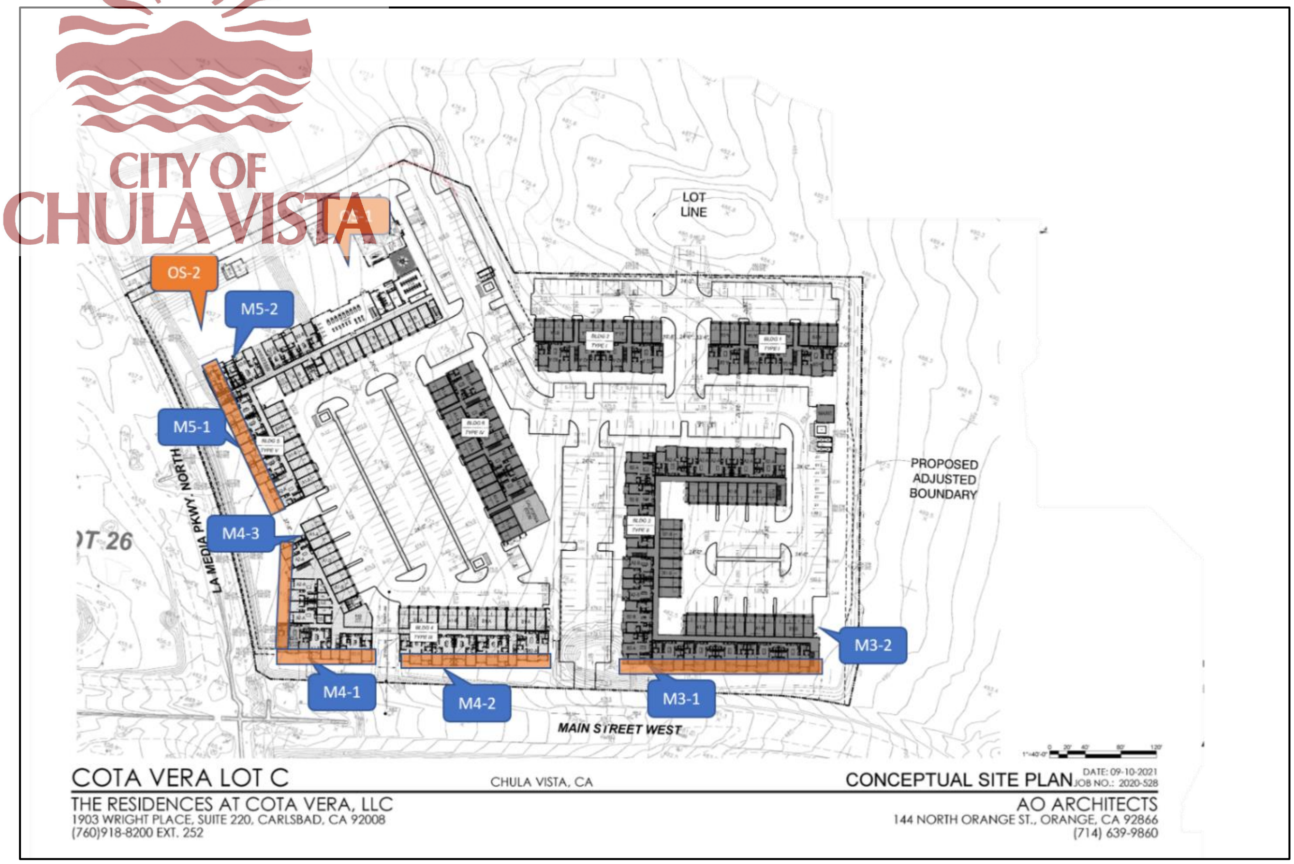
Project Building	Building Floor	Modeled Receiver Location (see Figure 1 or Figure 2)		
		1	2	3
3	1st	***69.8***	53.7	n/a
3	2nd	***70.1***	**61.1**	n/a
3	3rd	***69.8***	**61.1**	n/a
3	4th	***68.6***	**61.2**	n/a
4	1st	***70.1***	***68.9***	**62.6**
4	2nd	***70.1***	***69.4***	**64.4**

Table 2. Predicted Exterior Noise Levels due to nearby Future Roadway Traffic

Project Building	Building Floor	Modeled Receiver Location (see Figure 1 or Figure 2)		
		1	2	3
4	3rd	***69.7***	***69.1***	**63.9**
4	4th	***69.6***	***68.9***	**63.8**
5	1st	***67.8***	56.5	n/a
5	2nd	***67.6***	**60.5**	n/a
5	3rd	***67.4***	**61.2**	n/a
5	4th	***67.2***	**60.9**	n/a
Open Space 1		50.8 (near Leasing office)		
Open Space 2		61.6 (near pool area)		
N/A = not available (position not modeled)				

Predicted exterior sound levels presented in Table 2 that are higher than 60 dBA CNEL indicate locations where an exterior-to-interior noise study should be performed for the proximate occupied residential unit. Where predicted exterior noise levels exceed 65 dBA CNEL proximate to a first-floor patio, upper-floor balcony, or other usable outdoor space (e.g., open space or pool), such a location would need localized noise mitigation to yield an outdoor level compliant with the City's 65 dBA CNEL standard. Based on the predicted values shown in Table 2 that exceed 65 dBA CNEL, Figure 3 reproduces Figure 1 with added shaded regions to visually indicated where upper-floor balcony noise mitigation is anticipated.

Dudek understands that first-floor patios will be enclosed with stucco walls that are to be 36" tall above local grade. Because the local grade elevation at the boundaries of these patios tends to be several feet higher than the elevation of the nearby roadway segment grades, these 3-foot tall stucco walls are capable of reducing nearby roadway traffic noise level exposures at seated patio occupants due to barrier insertion losses (i.e., wall intervention of direct sound paths). Additionally, acoustical ground absorption attributed to nearby turf-covered easements between these enclosed patio areas and the nearby roadway traffic noise sources would help provide additional noise reduction. Thus, in combination, these noise reducing effects would be expected to yield the needed 4-5 dB of sound abatement at modeled sample first floor patio receptors shown in Table 2 and yield exterior noise levels that would be compliant with the 65 dBA CNEL standard.



Sources: Hunsaker 2021, Dudek 2022

Figure 3. Plan View of Project Site (anticipated exterior noise levels > 65 dBA CNEL at building facades shaded in orange, callouts show prediction model geographic locations)

Table 3 identifies the specific residential units that, based on the predicted noise levels of Table 2, would need exterior noise reduction at the usable balconies so as to lower predicted exterior noise levels to below 65 dBA CNEL and thus comply with the City's standard. A total of sixty-three (63) units with apparent usable balconies are represented by Table 3.

Table 3. Summary of Proposed Residential Units with Balconies and Anticipated Upgrade Need

Structure	Floor(s)	Quantity of Anticipated Occupied Units (per Floor) with Usable Patios or Balconies Needing Acoustical Upgrade
Building 3	2nd, 3rd, 4th	Six (6) southern façade units that face Main Street West
Building 4	2nd, 3rd, 4th	Seven (7) southern façade units that face Main Street West and three (3) western façade units that face La Media PKWY North
Building 5	2nd, 3rd, 4th	Five (5) western façade units that face La Media PKWY North

4 Interior Analysis

4.1 Required Sound Transmission Class

The prediction results from the preceding exterior noise analysis indicate that future traffic noise levels would range close to but not exceed 70 dBA CNEL. With the 45 dBA CNEL interior background sound level limit, this means the minimum composite STC rating for the exterior shell separating the habitable interior space from the outdoor sound level should be at least 25.

4.2 Exterior Wall Components

The composite STC rating for the portion of a building shell that separates an interior space from the outdoors is calculated from the area-dependent contributions of its elements: windows, wall assemblies, and doors.

4.2.1 Windows

Windows are typically the weakest sound isolation element of residential buildings. The minimum performance window option in occupied rooms is assumed to be single hung operable windows with a minimum of dual-glazing. California's Title 24 (Title 24, Part 6 of the California Code of Regulations) stipulates energy efficiency of new residential and nonresidential buildings, with each local community adopting building codes to achieve compliance with these regulations. With regard to windows, the City of Chula Vista has adopted a thermal efficiency standard of a minimum U-factor of 0.58 (Chula Vista Municipal Code Sections 110.6, 150.0(q)), which can only be achieved with a minimum of dual-glazed window assemblies. Based on these Title 24 requirements and the Chula Vista Code, this analysis presumes such dual-paned vinyl windows will be used for this project. A glazing manufacturer, Viracon, reports that a dual pane assembly composed of two 1/8"-thick glass panes separated by a 3/8" wide air-gap yields an STC rating of 31 (Viracon 2019).

4.2.2 Exterior Wall Assembly

For purposes of this analysis, it is assumed that the exterior wall assembly with a "1-hour" fire rating serves as the primary component of the building shell and includes the following materials: one layer of 5/8" gypsum wallboard (GWB) on the interior-facing side, 2"x4" wood studs, and glass fiber batt insulation in the stud cavities. The exterior-side materials are either: a 7/8"-thick exterior cement plaster attached to a weather-resistant barrier and wooden structural panels (that are attached to the studs), or fiber-cement siding attached to 5/8" GWB and underlying wooden structural panels (that are attached to the studs). For purposes of this analysis, and because acoustical test data was not found for these assemblies, it is assumed that each of these two types of exterior walls can be represented by an assembly featuring a dual-layer of 5/8" GWB on the exterior (i.e., a total GWB thickness of 1.25"), 2"x4" wooden studs, fiber batts in the stud cavities, and a single 5/8" GWB layer on the interior. Acoustical transmission loss (TL) data is available on this representative assembly (NRCC 1998), and because the dual-layer of GWB has mass considered comparable to either of the afore-stated Project exterior material assemblies for the two exterior wall types, this TL data is used as part of estimating the composite STC ratings as disclosed in Appendix C and with results summarized in Table 4.

4.2.3 Doors

Many of the residential units feature patios or balconies, for which access is provided by single-panel, out-swing fiberglass french doors with hinges (i.e., not sliding) comparable to a Milgard Essence series model (or similar from another manufacturer). For purposes of this analysis, these doors are assumed to feature a dual-pane glazing system similar to the window assembly (i.e., two 1/8"-thick glass panes separated by a 3/8" wide air-gap) in narrow-perimeter frames. The analysis also assumes that these door products feature good seals and related hardware, so that when closed, the effective sound insulating performance is represented by the glass. Viracon data indicates that such glazing should demonstrate an STC rating of 31 (Viracon 2019).

4.2.4 Wall Composite

Table 4 summarizes the calculated net STC ratings for a set of studied occupied room facades that are anticipated to be exposed to predicted exterior noise levels greater than 60 dBA CNEL. Details of these calculations that account for the façade surface area and its composite areas of exterior wall assembly, windows and doors appear in Appendix C.

Clearly, an open window or open door to an adjoining patio or balcony greatly compromises the sound insulation performance of the façade wall assembly. However, when such windows and doors are closed, all facades are anticipated to exhibit a predicted STC rating of at least 35, and thus would provide sufficient exterior-to-interior sound insulation from outdoor traffic noise to yield interior background sound levels that are less than 45 dBA CNEL and thus compliant with the City and state standards. Recall that none of the predicted exterior traffic noise levels at the studied receptor locations exceeded 70 dBA CNEL; thus, the STC rating value (for closed windows and doors) subtracted from these exterior noise values must result in interior noise levels of less than 45 dBA CNEL (e.g., 70 – 35 = 35 dBA CNEL, which is less than 45). This apparent requirement for closed windows and doors means that the design of these habitable rooms should feature mechanical ventilation or an air-conditioning system to provide interior comfort of the occupants.

Table 4. Predicted Net Sound Transmission Class of Occupied Room Facade

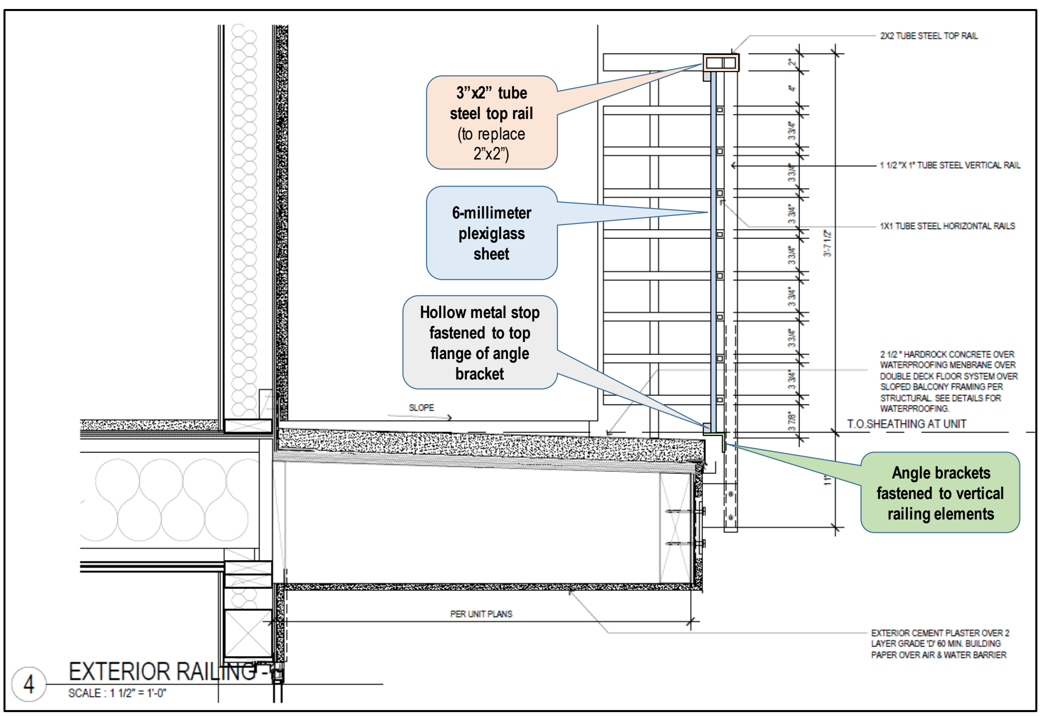
Unit	Occupied Room Facade	Predicted Net Sound Transmission Class (STC) for Scenario		
		Closed Window(s) and Door(s)	Open Window	Open Door
A2	Living Room	35	13	8
A2	Bedroom	35	11	n/a
B2	Living Room	35	13	8
B2	Bedroom	35	11	n/a

n/a = not applicable

5 Recommendations

5.1 Exterior Noise

As discussed in Section 3, a number of upper-floor residential units will need their balconies acoustically upgraded in order to reduce outdoor noise exposure for seated occupants to a level less than 65 dBA CNEL. Consistent with the recommended mitigation approach on previous Otay Ranch multi-family residential projects, such as Otay Ranch Village 3 North “Escaya” (Dudek 2017), one technique to provide this identified noise reduction need on the order of approximately 5 dBA is the addition of a solid and sufficiently massive material layer to the planned square-tubed metal railings on the balcony usable area perimeter. As depicted in Figure 4, showing detail from a previously studied project (and thus used merely for illustration purposes), proposed installation of a 6-millimeter (0.236 inch) sheet of plexiglass (acrylic) on the interior-facing side of the balcony railing structure would be expected to yield an effective STC rating of at least 15. Although the material itself has an STC rating of 29 (Arkema Group 2019), the approximate 1”-wide air gap between the bottom edge of the plexiglass panel and the balcony floor results in lower expected STC performance. In other words, the area of the gap as a fraction of the barrier material surface area causes the reduction in sound transmission loss performance. Other material options and designs are possible, subject to non-acoustical considerations such as desired barrier opacity, balcony deck drainage, etc., provided that the designed installation has barrier material having adequate mass and solidity, an approximate deck to top-edge height of 42 inches (3.5 feet), and with minimized air-gaps such as the sample appearing in Figure 4.



Sources: Humphreys 2019, Dudek 2022

Figure 4. Elevation view of a typical balcony railing, with the recommended 6-millimeter plexiglass element added for noise reduction

Also as discussed in Section 3, for the Project first-floor patios, surrounding stucco walls should have a top edge height at least three feet (3') above local grade. The presence of these partial-height barriers, in conjunction with acoustical ground absorption attributed to nearby turf-covered easements between the enclosed patio and the nearby roadway traffic noise source, should provide sufficient sound path occlusion to yield net noise level reduction for seated patio occupants.

5.2 Interior Noise

No special recommendations are needed with respect to providing an interior background sound level that is 45 dBA CNEL or less from the intrusion of future outdoor traffic noise. So long as the following Project design features used in this analysis are represented in the final building designs, no additional noise reducing means are anticipated for the purpose of meeting this City and CBC standard for interior occupant comfort:

1. Air-conditioning or other forms of mechanical ventilation system are required for interior comfort and climate control of habitable rooms, since this analysis has determined that windows and patio doors within façades exposed to roadway traffic noise must be closed to ensure adequate exterior-to-interior sound insulation.
2. Windows should be double-paned with minimum 1/8"-thick glass lites separated by a 3/8"-deep air space.
3. Fiberglass french doors swing outward to the patios and balconies should also feature double-paned glazing like the above-mentioned windows (i.e., 1/8"-thick glass lites separated by 3/8"-deep air cavity).
4. Exterior wall assemblies must feature, at a minimum:
    a. 2" x 4" wood studs, creating 4"-deep cavities that should contain 2" or 3"-thick fibrous insulation media of typical density and material type (glass or mineral);
    b. single-layer gypsum wallboard (GWB, 5/8" thick) substrate attached to the wood studs on the interior-facing side of the assembly; and,
    c. on the exterior, either a 7/8"-thick plaster finish (and WRB) on wooden panels attached to the wood studs; cement siding atop a combination of 5/8"-thick GWB and wooden panels attached to the wood studs; or, an alternate material layer (or combination) that has comparable mass, density, and/or solidity such that it emulates a double-layer of GWB for purposes of sound insulation.

Dudek trusts that the results, findings, and recommendations presented in this letter report meet your needs for the Project at this time and represents appropriate completion of the approved scope of work. Should the City have comments on this report after its review, please let us know and we will address them at that time.

Sincerely,

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Connor Burke, INCE
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cc: Ryan Martin, Hunsaker & Associates San Diego, Inc.

6 References & Data Sources

6.1 Citations

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Ambient Noise Level

The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.

A-Weighted Sound Level (dBA)

The sound pressure level (SPL) in decibels as measured on a sound level meter (SLM) using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the measured sound in a manner similar to the frequency response of the average healthy human ear, and thus correlates well with assessment of environmental noise in a community setting where noise-sensitive receptors may be present.

Decibel (dB)

The unit for expressing SPL and is equal to 10 times the logarithm (to the base 10) of the ratio of the measured sound pressure squared to a reference pressure, which is 20 micropascals.

Equivalent Sound Level (L_{eq})

The value corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. TAV is designed to average all of the loud and quiet sound levels occurring over a time period.

Octave Band Center Frequency (OBCF)

Commonly discussed octave frequency bands are: 31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz and 16 kHz. Each of these “center frequencies” represents an octave band defined by a lower band limit equal to 0.707 times the center frequency, and an upper band limit equal to 1.414 times the center frequency.

Sound Transmission Loss (TL)

The amount of sound, in decibels (dB), that is isolated by a material or partition in a particular octave or 1/3 octave frequency band. Example: 1/2″ drywall has a TL at 125 Hz of 15 dB.[1]

Sound Transmission Class (STC)

A single-number rating that can be used to conveniently compare, acoustical isolation properties of different materials or assemblies. Generally, higher numbers indicate a material will provide more sound insulation when used as a barrier. Plotted against standardized STC curves, with established curve-fit tolerances, the TL of a material (in dB) at 500 Hz serves as the STC rating.

[1] https://www.sweetwater.com/insync/sound-transmission-loss/

<Organization?> 2 February 2022
<Analysis By?> TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: <Project Name?>
RUN: <Run Title?>

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
La Media North N	20.0	point1	1	6,337,131.0	1,800,817.0	463.00				Average	
		point2	2	6,337,082.5	1,800,902.5	460.00				Average	
		point3	3	6,337,018.5	1,800,997.4	457.00				Average	
		point4	4	6,336,940.5	1,801,091.6	458.00				Average	
		point5	5	6,336,872.0	1,801,160.1	459.00				Average	
		point6	6	6,336,820.5	1,801,204.9	460.00				Average	
		point7	7	6,336,787.5	1,801,234.6	460.00				Average	
		point8	8	6,336,741.0	1,801,289.5	460.00				Average	
		point9	9	6,336,691.0	1,801,360.0	460.00				Average	
		point10	10	6,336,611.0	1,801,476.6	460.00					
La Media North	20.0	point11	11	6,336,598.0	1,801,470.5	460.00				Average	
		point12	12	6,336,707.0	1,801,314.6	460.00				Average	
		point13	13	6,336,756.5	1,801,250.9	460.00				Average	
		point14	14	6,336,804.0	1,801,204.1	460.00				Average	
		point15	15	6,336,857.0	1,801,155.2	460.00				Average	
		point16	16	6,336,912.5	1,801,102.4	459.00				Average	
		point17	17	6,336,986.5	1,801,018.2	458.00				Average	
		point18	18	6,337,021.5	1,800,971.2	457.00				Average	
		point19	19	6,337,064.0	1,800,910.9	460.00				Average	
		point20	20	6,337,119.0	1,800,816.0	463.00					
Main Street West	30.0	point21	21	6,337,143.0	1,800,817.5	465.00				Average	
		point22	22	6,337,492.0	1,800,931.5	475.00				Average	
		point23	23	6,337,684.5	1,800,993.9	480.00				Average	
		point24	24	6,337,741.5	1,801,010.1	485.00				Average	
		point25	25	6,337,804.0	1,801,020.5	490.00				Average	

		point26	26	6,337,861.5	1,801,022.8	490.00				Average	
		point27	27	6,337,923.0	1,801,019.1	490.00				Average	
		point28	28	6,338,033.0	1,801,005.1	490.00				Average	
		point29	29	6,338,148.5	1,800,990.6	490.00				Average	
		point30	30	6,338,231.5	1,800,980.8	490.00				Average	
		point31	31	6,338,297.5	1,800,979.9	490.00				Average	
		point32	32	6,338,353.0	1,800,986.6	490.00				Average	
		point33	33	6,338,415.0	1,800,999.2	490.00				Average	
		point34	34	6,338,483.5	1,801,023.6	490.00					
Main Street West	12.0	point35	35	6,337,146.5	1,800,804.9	465.00				Average	
		point36	36	6,337,462.5	1,800,907.9	472.00				Average	
		point37	37	6,337,663.0	1,800,974.4	480.00				Average	
		point38	38	6,337,740.0	1,800,997.4	485.00				Average	
		point39	39	6,337,805.0	1,801,008.9	490.00				Average	
		point40	40	6,337,865.0	1,801,012.2	490.00				Average	
		point41	41	6,337,935.0	1,801,006.2	490.00				Average	
		point42	42	6,338,005.0	1,800,997.4	490.00				Average	
		point43	43	6,338,159.0	1,800,976.4	490.00				Average	
		point44	44	6,338,263.5	1,800,968.2	490.00				Average	
		point45	45	6,338,330.0	1,800,970.2	490.00				Average	
		point46	46	6,338,402.0	1,800,983.1	490.00				Average	
		point47	47	6,338,467.0	1,801,004.1	490.00				Average	
		point48	48	6,338,515.5	1,801,025.9	490.00					
La Media North n2	20.0	point49	49	6,337,236.0	1,800,541.2	462.00				Average	
		point50	50	6,337,206.5	1,800,637.5	464.00				Average	
		point51	51	6,337,182.5	1,800,705.2	464.00				Average	
		point52	52	6,337,141.0	1,800,798.9	464.00					
La Media North n1	20.0	point53	53	6,337,221.5	1,800,532.4	464.00				Average	
		point54	54	6,337,196.0	1,800,636.1	464.00				Average	
		point55	55	6,337,166.5	1,800,710.0	464.00				Average	
		point56	56	6,337,128.5	1,800,793.4	464.00					
Main Street West W1	30.0	point57	57	6,336,818.0	1,800,711.4	460.00				Average	
		point58	58	6,337,116.0	1,800,807.6	460.00					
Main Street West W	30.0	point59	59	6,336,821.0	1,800,700.5	460.00				Average	
		point60	60	6,337,120.0	1,800,797.5	460.00					

<Organization?> 2 February 2022
<Analysis By?> TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: <Project Name?>
RUN: <Run Title?>

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
La Media North N	point1	1	912	40	19	40	19	40	0	0	0	0
	point2	2	912	40	19	40	19	40	0	0	0	0
	point3	3	912	40	19	40	19	40	0	0	0	0
	point4	4	912	40	19	40	19	40	0	0	0	0
	point5	5	912	40	19	40	19	40	0	0	0	0
	point6	6	912	40	19	40	19	40	0	0	0	0
	point7	7	912	40	19	40	19	40	0	0	0	0
	point8	8	912	40	19	40	19	40	0	0	0	0
	point9	9	912	40	19	40	19	40	0	0	0	0
	point10	10										
La Media North	point11	11	912	40	19	40	19	40	0	0	0	0
	point12	12	912	40	19	40	19	40	0	0	0	0
	point13	13	912	40	19	40	19	40	0	0	0	0
	point14	14	912	40	19	40	19	40	0	0	0	0
	point15	15	912	40	19	40	19	40	0	0	0	0
	point16	16	912	40	19	40	19	40	0	0	0	0
	point17	17	912	40	19	40	19	40	0	0	0	0
	point18	18	912	40	19	40	19	40	0	0	0	0
	point19	19	912	40	19	40	19	40	0	0	0	0
	point20	20										
Main Street West	point21	21	1077	40	22	40	22	40	0	0	0	0
	point22	22	1077	40	22	40	22	40	0	0	0	0
	point23	23	1077	40	22	40	22	40	0	0	0	0

	point24	24	1077	40	22	40	22	40	0	0	0	0
	point25	25	1077	40	22	40	22	40	0	0	0	0
	point26	26	1077	40	22	40	22	40	0	0	0	0
	point27	27	1077	40	22	40	22	40	0	0	0	0
	point28	28	1077	40	22	40	22	40	0	0	0	0
	point29	29	1077	40	22	40	22	40	0	0	0	0
	point30	30	1077	40	22	40	22	40	0	0	0	0
	point31	31	1077	40	22	40	22	40	0	0	0	0
	point32	32	1077	40	22	40	22	40	0	0	0	0
	point33	33	1077	40	22	40	22	40	0	0	0	0
	point34	34										
Main Street West	point35	35	1077	40	22	40	22	40	0	0	0	0
	point36	36	1077	40	22	40	22	40	0	0	0	0
	point37	37	1077	40	22	40	22	40	0	0	0	0
	point38	38	1077	40	22	40	22	40	0	0	0	0
	point39	39	1077	40	22	40	22	40	0	0	0	0
	point40	40	1077	40	22	40	22	40	0	0	0	0
	point41	41	1077	40	22	40	22	40	0	0	0	0
	point42	42	1077	40	22	40	22	40	0	0	0	0
	point43	43	1077	40	22	40	22	40	0	0	0	0
	point44	44	1077	40	22	40	22	40	0	0	0	0
	point45	45	1077	40	22	40	22	40	0	0	0	0
	point46	46	34 7	40	22	40	22	40	0	0	0	0
	point47	47	1077	40	22	40	22	40	0	0	0	0
	point48	48										
La Media North n2	point49	49	912	40	19	40	19	40	0	0	0	0
	point50	50	912	40	19	40	19	40	0	0	0	0
	point51	51	912	40	19	40	19	40	0	0	0	0
	point52	52										
La Media North n1	point53	53	912	40	19	40	19	40	0	0	0	0
	point54	54	912	40	19	40	19	40	0	0	0	0
	point55	55	912	40	19	40	19	40	0	0	0	0
	point56	56										
Main Street West W1	point57	57	1077	40	22	40	22	40	0	0	0	0
	point58	58										
Main Street West W	point59	59	1077	40	22	40	22	40	0	0	0	0

		point60	60										

<Organization?> 2 February 2022
<Analysis By?> TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: <Project Name?>
RUN: <Run Title?>

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
M4-1-1	1	1	6,337,192.5	1,800,882.9	473.00	4.92	0.00	66	10.0	8.0	Y
M4-1-2	2	1	6,337,192.5	1,800,882.9	473.00	14.92	0.00	66	10.0	8.0	Y
M4-1-3	3	1	6,337,192.5	1,800,882.9	473.00	24.92	0.00	66	10.0	8.0	Y
M4-1-4	4	1	6,337,192.5	1,800,882.9	473.00	34.92	0.00	66	10.0	8.0	Y
M4-2-1	5	1	6,337,372.0	1,800,946.5	475.00	4.92	0.00	66	10.0	8.0	Y
M4-2-2	6	1	6,337,372.0	1,800,946.5	475.00	14.92	0.00	66	10.0	8.0	Y
M4-2-3	7	1	6,337,372.0	1,800,946.5	475.00	24.92	0.00	66	10.0	8.0	Y
M4-2-4	8	1	6,337,372.0	1,800,946.5	475.00	34.92	0.00	66	10.0	8.0	Y
M3-1-1	9	1	6,337,588.5	1,801,009.6	480.00	4.92	0.00	66	10.0	8.0	Y
M3-1-2	10	1	6,337,588.5	1,801,009.6	480.00	14.92	0.00	66	10.0	8.0	Y
M3-1-3	11	1	6,337,588.5	1,801,009.6	480.00	24.92	0.00	66	10.0	8.0	Y
M3-1-4	12	1	6,337,588.5	1,801,009.6	480.00	34.92	0.00	66	10.0	8.0	Y
M4-3-1	13	1	6,337,122.5	1,801,004.2	473.00	4.92	0.00	66	10.0	8.0	Y
M4-3-2	14	1	6,337,122.5	1,801,004.2	473.00	14.92	0.00	66	10.0	8.0	Y
M4-3-3	15	1	6,337,122.5	1,801,004.2	473.00	24.92	0.00	66	10.0	8.0	Y
M4-3-4	16	1	6,337,122.5	1,801,004.2	473.00	34.92	0.00	66	10.0	8.0	Y
M5-1-1	17	1	6,337,040.0	1,801,069.6	470.00	4.92	0.00	66	10.0	8.0	Y
M5-1-2	18	1	6,337,040.0	1,801,069.6	470.00	14.92	0.00	66	10.0	8.0	Y
M5-1-3	19	1	6,337,040.0	1,801,069.6	470.00	24.92	0.00	66	10.0	8.0	Y
M5-1-4	20	1	6,337,040.0	1,801,069.6	470.00	34.92	0.00	66	10.0	8.0	Y
M5-2-1	21	1	6,337,009.0	1,801,196.1	470.00	4.92	0.00	66	10.0	8.0	Y
M5-2-2	22	1	6,337,009.0	1,801,196.1	470.00	14.92	0.00	66	10.0	8.0	Y

M5-2-3	23	1	6,337,009.0	1,801,196.1	470.00	24.92	0.00	66	10.0	8.0	Y
M5-2-4	24	1	6,337,009.0	1,801,196.1	470.00	34.92	0.00	66	10.0	8.0	Y
OS-1	25	1	6,337,059.0	1,801,309.6	470.00	4.92	0.00	66	10.0	8.0	Y
OS-2	26	1	6,336,958.0	1,801,205.2	470.00	4.92	0.00	66	10.0	8.0	Y
M3-2-1	27	1	6,337,734.0	1,801,119.4	480.00	4.92	0.00	66	10.0	8.0	Y
M3-2-2	28	1	6,337,734.0	1,801,119.4	480.00	14.92	0.00	66	10.0	8.0	Y
M3-2-3	29	1	6,337,734.0	1,801,119.4	480.00	24.92	0.00	66	10.0	8.0	Y
M3-2-4	30	1	6,337,734.0	1,801,119.4	480.00	34.92	0.00	66	10.0	8.0	Y

<Organization?> 2 February 2022
<Analysis By?> TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: <Project Name?>
RUN: <Run Title?>

Barrier Name	Type	Height Min	Max	If Wall $ per Unit Area	If Berm $ per Unit Vol.	Top Width	Run:Rise	Add'tnl $ per Unit Length	Points Name	No.	Coordinates (bottom) X	Y	Z	Height at Point	Segment Seg Ht Perturbs Incre-ment	#Up	#Dn	On Struct?	Important Reflec-tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier1	W	0.00	99.99	0.00				0.00	point1	1	6,337,078.0	1,801,354.6	469.00	15.00	0.00	0	0		
									point2	2	6,337,107.5	1,801,326.5	469.00	15.00	0.00	0	0		
									point3	3	6,337,125.0	1,801,344.9	469.00	15.00	0.00	0	0		
									point4	4	6,337,123.5	1,801,346.2	469.00	15.00	0.00	0	0		
									point5	5	6,337,140.0	1,801,363.2	469.00	15.00	0.00	0	0		
									point6	6	6,337,130.5	1,801,372.2	469.00	15.00	0.00	0	0		
									point7	7	6,337,132.5	1,801,374.4	469.00	15.00	0.00	0	0		
									point8	8	6,337,119.5	1,801,386.9	469.00	15.00	0.00	0	0		
									point9	9	6,337,117.5	1,801,384.6	469.00	15.00	0.00	0	0		
									point10	10	6,337,106.5	1,801,395.4	469.00	15.00	0.00	0	0		
									point11	11	6,337,105.0	1,801,394.0	469.00	15.00	0.00	0	0		
									point12	12	6,337,091.0	1,801,407.5	469.00	15.00	0.00	0	0		
									point13	13	6,337,066.0	1,801,381.6	469.00	15.00	0.00	0	0		
									point14	14	6,337,062.0	1,801,385.6	469.00	15.00	0.00	0	0		
									point15	15	6,337,049.0	1,801,372.1	469.00	15.00	0.00	0	0		
									point16	16	6,337,050.5	1,801,370.8	469.00	15.00	0.00	0	0		
									point17	17	6,337,026.0	1,801,345.4	469.00	15.00	0.00	0	0		
									point18	18	6,337,043.0	1,801,328.9	469.00	15.00	0.00	0	0		
									point19	19	6,337,067.5	1,801,354.4	469.00	15.00	0.00	0	0		
									point20	20	6,337,078.0	1,801,354.6	469.00	15.00					
Barrier2	W	0.00	99.99	0.00				0.00	point21	21	6,336,963.0	1,801,257.0	469.00	10.00	0.00	0	0		
									point22	22	6,336,952.0	1,801,267.6	469.00	10.00	0.00	0	0		
									point23	23	6,336,969.5	1,801,285.8	469.00	10.00	0.00	0	0		
									point24	24	6,336,982.5	1,801,273.2	469.00	10.00	0.00	0	0		
									point25	25	6,336,973.0	1,801,263.4	469.00	10.00	0.00	0	0		
									point26	26	6,336,971.0	1,801,265.2	469.00	10.00	0.00	0	0		
									point27	27	6,336,963.0	1,801,257.0	469.00	10.00					
Bld 5	W	0.00	99.99	0.00				0.00	point28	28	6,337,014.0	1,801,196.9	470.00	40.00	0.00	0	0		
									point29	29	6,337,013.0	1,801,197.6	470.00	40.00	0.00	0	0		
									point30	30	6,337,021.0	1,801,205.8	470.00	40.00	0.00	0	0		
									point31	31	6,337,019.0	1,801,207.6	470.00	40.00	0.00	0	0		
									point32	32	6,337,028.5	1,801,217.1	470.00	40.00	0.00	0	0		
									point33	33	6,337,027.0	1,801,218.1	470.00	40.00	0.00	0	0		
									point34	34	6,337,033.5	1,801,224.5	470.00	40.00	0.00	0	0		
									point35	35	6,337,034.5	1,801,223.5	470.00	40.00	0.00	0	0		

									point36	36	6,337,038.5	1,801,227.9	470.00	40.00	0.00	0	0		
									point37	37	6,337,037.5	1,801,229.0	470.00	40.00	0.00	0	0		
									point38	38	6,337,043.5	1,801,235.4	470.00	40.00	0.00	0	0		
									point39	39	6,337,045.0	1,801,234.2	470.00	40.00	0.00	0	0		
									point40	40	6,337,054.0	1,801,243.8	470.00	40.00	0.00	0	0		
									point41	41	6,337,056.0	1,801,241.9	470.00	40.00	0.00	0	0		
									point42	42	6,337,064.0	1,801,250.1	470.00	40.00	0.00	0	0		
									point43	43	6,337,062.5	1,801,251.4	470.00	40.00	0.00	0	0		
									point44	44	6,337,080.0	1,801,269.4	470.00	40.00	0.00	0	0		
									point45	45	6,337,082.0	1,801,267.5	470.00	40.00	0.00	0	0		
									point46	46	6,337,098.0	1,801,283.9	470.00	40.00	0.00	0	0		
									point47	47	6,337,096.0	1,801,285.8	470.00	40.00	0.00	0	0		
									point48	48	6,337,113.5	1,801,303.9	470.00	40.00	0.00	0	0		
									point49	49	6,337,115.5	1,801,301.8	470.00	40.00	0.00	0	0		
									point50	50	6,337,128.5	1,801,315.1	470.00	40.00	0.00	0	0		
									point51	51	6,337,126.0	1,801,317.2	470.00	40.00	0.00	0	0		
									point52	52	6,337,133.5	1,801,324.9	470.00	40.00	0.00	0	0		
									point53	53	6,337,135.5	1,801,323.0	470.00	40.00	0.00	0	0		
									point54	54	6,337,140.5	1,801,328.4	470.00	40.00	0.00	0	0		
									point55	55	6,337,138.0	1,801,330.9	470.00	40.00	0.00	0	0		
									point56	56	6,337,155.0	1,801,348.6	470.00	40.00	0.00	0	0		
									point57	57	6,337,184.5	1,801,320.1	470.00	40.00	0.00	0	0		
									point58	58	6,337,187.0	1,801,322.6	470.00	40.00	0.00	0	0		
									point59	59	6,337,204.0	1,801,306.1	470.00	40.00	0.00	0	0		
									point60	60	6,337,197.0	1,801,299.0	470.00	40.00	0.00	0	0		
									point61	61	6,337,198.5	1,801,297.6	470.00	40.00	0.00	0	0		
									point62	62	6,337,197.5	1,801,296.4	470.00	40.00	0.00	0	0		
									point63	63	6,337,196.0	1,801,297.8	470.00	40.00	0.00	0	0		
									point64	64	6,337,189.5	1,801,291.1	470.00	40.00	0.00	0	0		
									point65	65	6,337,191.0	1,801,289.8	470.00	40.00	0.00	0	0		
									point66	66	6,337,190.0	1,801,288.9	470.00	40.00	0.00	0	0		
									point67	67	6,337,188.5	1,801,290.2	470.00	40.00	0.00	0	0		
									point68	68	6,337,182.0	1,801,283.6	470.00	40.00	0.00	0	0		
									point69	69	6,337,183.5	1,801,282.2	470.00	40.00	0.00	0	0		
									point70	70	6,337,182.5	1,801,281.2	470.00	40.00	0.00	0	0		
									point71	71	6,337,181.0	1,801,282.6	470.00	40.00	0.00	0	0		
									point72	72	6,337,175.0	1,801,276.0	470.00	40.00	0.00	0	0		
									point73	73	6,337,176.5	1,801,274.6	470.00	40.00	0.00	0	0		
									point74	74	6,337,175.5	1,801,273.8	470.00	40.00	0.00	0	0		
									point75	75	6,337,174.0	1,801,275.1	470.00	40.00	0.00	0	0		
									point76	76	6,337,167.5	1,801,268.5	470.00	40.00	0.00	0	0		
									point77	77	6,337,169.0	1,801,267.1	470.00	40.00	0.00	0	0		
									point78	78	6,337,166.5	1,801,264.6	470.00	40.00	0.00	0	0		
									point79	79	6,337,165.0	1,801,266.0	470.00	40.00	0.00	0	0		
									point80	80	6,337,159.0	1,801,259.4	470.00	40.00	0.00	0	0		
									point81	81	6,337,160.0	1,801,258.0	470.00	40.00	0.00	0	0		
									point82	82	6,337,159.5	1,801,257.0	470.00	40.00	0.00	0	0		
									point83	83	6,337,158.0	1,801,258.4	470.00	40.00	0.00	0	0		
									point84	84	6,337,151.5	1,801,251.8	470.00	40.00	0.00	0	0		

point85	85	6,337,153.0	1,801,250.4	470.00	40.00	0.00	0	0
point86	86	6,337,152.0	1,801,249.5	470.00	40.00	0.00	0	0
point87	87	6,337,150.5	1,801,250.9	470.00	40.00	0.00	0	0
point88	88	6,337,144.0	1,801,244.2	470.00	40.00	0.00	0	0
point89	89	6,337,145.5	1,801,242.9	470.00	40.00	0.00	0	0
point90	90	6,337,144.5	1,801,241.9	470.00	40.00	0.00	0	0
point91	91	6,337,143.5	1,801,243.2	470.00	40.00	0.00	0	0
point92	92	6,337,137.0	1,801,236.6	470.00	40.00	0.00	0	0
point93	93	6,337,138.5	1,801,235.2	470.00	40.00	0.00	0	0
point94	94	6,337,136.0	1,801,232.9	470.00	40.00	0.00	0	0
point95	95	6,337,134.5	1,801,234.2	470.00	40.00	0.00	0	0
point96	96	6,337,128.5	1,801,227.6	470.00	40.00	0.00	0	0
point97	97	6,337,129.5	1,801,226.2	470.00	40.00	0.00	0	0
point98	98	6,337,129.0	1,801,225.4	470.00	40.00	0.00	0	0
point99	99	6,337,127.5	1,801,226.8	470.00	40.00	0.00	0	0
point100	100	6,337,121.0	1,801,220.1	470.00	40.00	0.00	0	0
point101	101	6,337,122.5	1,801,218.8	470.00	40.00	0.00	0	0
point102	102	6,337,121.5	1,801,217.8	470.00	40.00	0.00	0	0
point103	103	6,337,120.0	1,801,219.1	470.00	40.00	0.00	0	0
point104	104	6,337,113.5	1,801,212.5	470.00	40.00	0.00	0	0
point105	105	6,337,115.0	1,801,211.1	470.00	40.00	0.00	0	0
point106	106	6,337,114.0	1,801,210.2	470.00	40.00	0.00	0	0
point107	107	6,337,113.0	1,801,211.6	470.00	40.00	0.00	0	0
point108	108	6,337,106.5	1,801,205.0	470.00	40.00	0.00	0	0
point109	109	6,337,108.0	1,801,203.6	470.00	40.00	0.00	0	0
point110	110	6,337,106.5	1,801,202.4	470.00	40.00	0.00	0	0
point111	111	6,337,105.5	1,801,203.8	470.00	40.00	0.00	0	0
point112	112	6,337,097.0	1,801,195.4	470.00	40.00	0.00	0	0
point113	113	6,337,096.5	1,801,196.0	470.00	40.00	0.00	0	0
point114	114	6,337,088.0	1,801,187.2	470.00	40.00	0.00	0	0
point115	115	6,337,090.0	1,801,185.2	470.00	40.00	0.00	0	0
point116	116	6,337,089.0	1,801,184.0	470.00	40.00	0.00	0	0
point117	117	6,337,087.5	1,801,185.5	470.00	40.00	0.00	0	0
point118	118	6,337,081.0	1,801,178.9	470.00	40.00	0.00	0	0
point119	119	6,337,082.5	1,801,177.5	470.00	40.00	0.00	0	0
point120	120	6,337,081.5	1,801,176.5	470.00	40.00	0.00	0	0
point121	121	6,337,080.5	1,801,177.9	470.00	40.00	0.00	0	0
point122	122	6,337,074.5	1,801,171.8	470.00	40.00	0.00	0	0
point123	123	6,337,076.0	1,801,170.4	470.00	40.00	0.00	0	0
point124	124	6,337,074.5	1,801,168.9	470.00	40.00	0.00	0	0
point125	125	6,337,073.0	1,801,170.4	470.00	40.00	0.00	0	0
point126	126	6,337,067.0	1,801,164.2	470.00	40.00	0.00	0	0
point127	127	6,337,068.5	1,801,162.8	470.00	40.00	0.00	0	0
point128	128	6,337,067.0	1,801,161.4	470.00	40.00	0.00	0	9
point129	129	6,337,065.5	1,801,162.8	470.00	40.00	0.00	0	0
point130	130	6,337,059.5	1,801,156.1	470.00	40.00	0.00	0	0
point131	131	6,337,061.0	1,801,154.8	470.00	40.00	0.00	0	0
point132	132	6,337,059.5	1,801,153.6	470.00	40.00	0.00	0	0
point133	133	6,337,041.5	1,801,170.9	470.00	40.00	0.00	0	0

point134	134	6,337,020.0	1,801,148.8	470.00	40.00	0.00	0	0
point135	135	6,337,037.5	1,801,131.9	470.00	40.00	0.00	0	0
point136	136	6,337,040.5	1,801,135.0	470.00	40.00	0.00	0	0
point137	137	6,337,043.0	1,801,132.6	470.00	40.00	0.00	0	0
point138	138	6,337,057.5	1,801,147.5	470.00	40.00	0.00	0	0
point139	139	6,337,059.0	1,801,145.9	470.00	40.00	0.00	0	0
point140	140	6,337,058.0	1,801,144.4	470.00	40.00	0.00	0	0
point141	141	6,337,064.0	1,801,138.5	470.00	40.00	0.00	0	0
point142	142	6,337,065.5	1,801,140.0	470.00	40.00	0.00	0	0
point143	143	6,337,067.0	1,801,138.5	470.00	40.00	0.00	0	0
point144	144	6,337,065.5	1,801,137.1	470.00	40.00	0.00	0	0
point145	145	6,337,071.5	1,801,131.2	470.00	40.00	0.00	0	0
point146	146	6,337,073.0	1,801,132.6	470.00	40.00	0.00	0	0
point147	147	6,337,074.5	1,801,131.2	470.00	40.00	0.00	0	0
point148	148	6,337,073.0	1,801,129.9	470.00	40.00	0.00	0	0
point149	149	6,337,079.0	1,801,123.9	470.00	40.00	0.00	0	0
point150	150	6,337,080.5	1,801,125.4	470.00	40.00	0.00	0	0
point151	151	6,337,082.0	1,801,124.0	470.00	40.00	0.00	0	0
point152	152	6,337,080.5	1,801,122.5	470.00	40.00	0.00	0	0
point153	153	6,337,086.5	1,801,116.6	470.00	40.00	0.00	0	0
point154	154	6,337,088.0	1,801,118.1	470.00	40.00	0.00	0	0
point155	155	6,337,090.5	1,801,115.9	470.00	40.00	0.00	0	0
point156	156	6,337,089.0	1,801,114.4	470.00	40.00	0.00	0	0
point157	157	6,337,095.5	1,801,108.0	470.00	40.00	0.00	0	0
point158	158	6,337,097.0	1,801,109.5	470.00	40.00	0.00	0	0
point159	159	6,337,098.0	1,801,108.5	470.00	40.00	0.00	0	0
point160	160	6,337,096.5	1,801,107.1	470.00	40.00	0.00	0	0
point161	161	6,337,103.0	1,801,100.8	470.00	40.00	0.00	0	0
point162	162	6,337,104.5	1,801,102.1	470.00	40.00	0.00	0	0
point163	163	6,337,105.5	1,801,101.2	470.00	40.00	0.00	0	0
point164	164	6,337,104.0	1,801,099.9	470.00	40.00	0.00	0	0
point165	165	6,337,110.5	1,801,093.5	470.00	40.00	0.00	0	0
point166	166	6,337,112.0	1,801,094.9	470.00	40.00	0.00	0	0
point167	167	6,337,114.5	1,801,092.9	470.00	40.00	0.00	0	0
point168	168	6,337,113.0	1,801,091.4	470.00	40.00	0.00	0	0
point169	169	6,337,119.5	1,801,085.0	470.00	40.00	0.00	0	0
point170	170	6,337,121.0	1,801,086.5	470.00	40.00	0.00	0	0
point171	171	6,337,122.0	1,801,085.5	470.00	40.00	0.00	0	0
point172	172	6,337,120.5	1,801,084.1	470.00	40.00	0.00	0	0
point173	173	6,337,127.0	1,801,077.8	470.00	40.00	0.00	0	0
point174	174	6,337,128.5	1,801,079.1	470.00	40.00	0.00	0	0
point175	175	6,337,129.5	1,801,078.2	470.00	40.00	0.00	0	0
point176	176	6,337,128.0	1,801,076.8	470.00	40.00	0.00	0	0
point177	177	6,337,134.5	1,801,070.5	470.00	40.00	0.00	0	0
point178	178	6,337,136.0	1,801,071.9	470.00	40.00	0.00	0	0
point179	179	6,337,137.0	1,801,070.9	470.00	40.00	0.00	0	0
point180	180	6,337,096.5	1,801,028.6	470.00	40.00	0.00	0	0
point181	181	6,337,078.0	1,801,046.1	470.00	40.00	0.00	0	0
point182	182	6,337,076.5	1,801,044.4	470.00	40.00	0.00	0	0

									point183	183	6,337,069.5	1,801,051.1	470.00	40.00	0.00	0	0		
									point184	184	6,337,065.5	1,801,047.1	470.00	40.00	0.00	0	0		
									point185	185	6,336,963.0	1,801,146.1	470.00	40.00	0.00	0	0		
									point186	186	6,336,970.5	1,801,154.2	470.00	40.00	0.00	0	0		
									point187	187	6,336,970.0	1,801,154.9	470.00	40.00	0.00	0	0		
									point188	188	6,336,978.5	1,801,164.1	470.00	40.00	0.00	0	0		
									point189	189	6,336,979.5	1,801,163.5	470.00	40.00	0.00	0	0		
									point190	190	6,336,987.5	1,801,171.8	470.00	40.00	0.00	0	0		
									point191	191	6,336,986.5	1,801,172.5	470.00	40.00	0.00	0	0		
									point192	192	6,336,988.5	1,801,174.6	470.00	40.00	0.00	0	0		
									point193	193	6,336,987.5	1,801,175.8	470.00	40.00	0.00	0	0		
									point194	194	6,336,994.0	1,801,182.0	470.00	40.00	0.00	0	0		
									point195	195	6,336,995.0	1,801,181.0	470.00	40.00	0.00	0	0		
									point196	196	6,337,004.0	1,801,190.5	470.00	40.00	0.00	0	0		
									point197	197	6,337,006.0	1,801,188.6	470.00	40.00	0.00	0	0		
									point198	198	6,337,014.0	1,801,196.9	470.00	40.00					
Barrier4	W	0.00	99.99	0.00				0.00	point199	199	6,337,255.5	1,801,258.2	472.00	40.00	0.00	0	0		
									point200	200	6,337,247.5	1,801,266.0	472.00	40.00	0.00	0	0		
									point201	201	6,337,224.5	1,801,242.0	472.00	40.00	0.00	0	0		
									point202	202	6,337,225.5	1,801,240.8	472.00	40.00	0.00	0	0		
									point203	203	6,337,208.0	1,801,222.1	472.00	40.00	0.00	0	0		
									point204	204	6,337,209.0	1,801,221.1	472.00	40.00	0.00	0	0		
									point205	205	6,337,210.0	1,801,222.5	472.00	40.00	0.00	0	0		
									point206	206	6,337,217.0	1,801,216.2	472.00	40.00	0.00	0	0		
									point207	207	6,337,215.5	1,801,214.8	472.00	40.00	0.00	0	0		
									point208	208	6,337,216.5	1,801,213.9	472.00	40.00	0.00	0	0		
									point209	209	6,337,218.0	1,801,215.2	472.00	40.00	0.00	0	0		
									point210	210	6,337,224.5	1,801,208.9	472.00	40.00	0.00	0	0		
									point211	211	6,337,223.0	1,801,207.5	472.00	40.00	0.00	0	0		
									point212	212	6,337,224.0	1,801,206.5	472.00	40.00	0.00	0	0		
									point213	213	6,337,225.5	1,801,208.0	472.00	40.00	0.00	0	0		
									point214	214	6,337,232.0	1,801,201.6	472.00	40.00	0.00	0	0		
									point215	215	6,337,230.5	1,801,200.1	472.00	40.00	0.00	0	0		
									point216	216	6,337,232.5	1,801,198.2	472.00	40.00	0.00	0	0		
									point217	217	6,337,234.5	1,801,200.1	472.00	40.00	0.00	0	0		
									point218	218	6,337,237.0	1,801,197.4	472.00	40.00	0.00	0	0		
									point219	219	6,337,235.5	1,801,195.5	472.00	40.00	0.00	0	0		
									point220	220	6,337,239.0	1,801,192.1	472.00	40.00	0.00	0	0		
									point221	221	6,337,240.5	1,801,193.6	472.00	40.00	0.00	0	0		
									point222	222	6,337,247.0	1,801,187.2	472.00	40.00	0.00	0	0		
									point223	223	6,337,245.5	1,801,185.8	472.00	40.00	0.00	0	0		
									point224	224	6,337,248.0	1,801,183.2	472.00	40.00	0.00	0	0		
									point225	225	6,337,249.5	1,801,184.6	472.00	40.00	0.00	0	0		
									point226	226	6,337,256.0	1,801,178.2	472.00	40.00	0.00	0	0		
									point227	227	6,337,254.5	1,801,176.9	472.00	40.00	0.00	0	0		
									point228	228	6,337,256.5	1,801,175.4	472.00	40.00	0.00	0	0		
									point229	229	6,337,257.5	1,801,176.8	472.00	40.00	0.00	0	0		
									point230	230	6,337,264.5	1,801,170.5	472.00	40.00	0.00	0	0		
									point231	231	6,337,263.0	1,801,169.0	472.00	40.00	0.00	0	0		

									point232	232	6,337,265.5	1,801,166.5	472.00	40.00	0.00	0	0		
									point233	233	6,337,267.0	1,801,167.9	472.00	40.00	0.00	0	0		
									point234	234	6,337,273.5	1,801,161.5	472.00	40.00	0.00	0	0		
									point235	235	6,337,272.0	1,801,160.1	472.00	40.00	0.00	0	0		
									point236	236	6,337,275.5	1,801,156.8	472.00	40.00	0.00	0	0		
									point237	237	6,337,277.5	1,801,158.6	472.00	40.00	0.00	0	0		
									point238	238	6,337,280.5	1,801,155.9	472.00	40.00	0.00	0	0		
									point239	239	6,337,278.5	1,801,154.0	472.00	40.00	0.00	0	0		
									point240	240	6,337,280.5	1,801,152.1	472.00	40.00	0.00	0	0		
									point241	241	6,337,282.0	1,801,153.5	472.00	40.00	0.00	0	0		
									point242	242	6,337,288.5	1,801,147.1	472.00	40.00	0.00	0	0		
									point243	243	6,337,287.0	1,801,145.8	472.00	40.00	0.00	0	0		
									point244	244	6,337,288.0	1,801,144.8	472.00	40.00	0.00	0	0		
									point245	245	6,337,289.5	1,801,146.2	472.00	40.00	0.00	0	0		
									point246	246	6,337,296.0	1,801,139.9	472.00	40.00	0.00	0	0		
									point247	247	6,337,294.5	1,801,138.4	472.00	40.00	0.00	0	0		
									point248	248	6,337,295.5	1,801,137.5	472.00	40.00	0.00	0	0		
									point249	249	6,337,297.0	1,801,138.9	472.00	40.00	0.00	0	0		
									point250	250	6,337,303.5	1,801,132.6	472.00	40.00	0.00	0	0		
									point251	251	6,337,302.0	1,801,131.1	472.00	40.00	0.00	0	0		
									point252	252	6,337,304.0	1,801,129.4	472.00	40.00	0.00	0	0		
									point253	253	6,337,305.5	1,801,130.8	472.00	40.00	0.00	0	0		
									point254	254	6,337,312.0	1,801,124.4	472.00	40.00	0.00	0	0		
									point255	255	6,337,310.5	1,801,123.0	472.00	40.00	0.00	0	0		
									point256	256	6,337,311.5	1,801,122.0	472.00	40.00	0.00	0	0		
									point257	257	6,337,313.0	1,801,123.5	472.00	40.00	0.00	0	0		
									point258	258	6,337,320.0	1,801,116.9	472.00	40.00	0.00	0	0		
									point259	259	6,337,318.5	1,801,115.5	472.00	40.00	0.00	0	0		
									point260	260	6,337,325.5	1,801,108.8	472.00	40.00	0.00	0	0		
									point261	261	6,337,328.0	1,801,106.0	472.00	40.00	0.00	0	0		
									point262	262	6,337,329.5	1,801,107.5	472.00	40.00	0.00	0	0		
									point263	263	6,337,336.0	1,801,101.1	472.00	40.00	0.00	0	0		
									point264	264	6,337,335.0	1,801,099.6	472.00	40.00	0.00	0	0		
									point265	265	6,337,336.0	1,801,098.8	472.00	40.00	0.00	0	0		
									point266	266	6,337,337.0	1,801,100.1	472.00	40.00	0.00	0	0		
									point267	267	6,337,344.0	1,801,093.9	472.00	40.00	0.00	0	0		
									point268	268	6,337,342.5	1,801,092.4	472.00	40.00	0.00	0	0		
									point269	269	6,337,343.5	1,801,091.5	472.00	40.00	0.00	0	0		
									point270	270	6,337,344.5	1,801,092.9	472.00	40.00	0.00	0	0		
									point271	271	6,337,351.5	1,801,086.5	472.00	40.00	0.00	0	0		
									point272	272	6,337,350.0	1,801,085.1	472.00	40.00	0.00	0	0		
									point273	273	6,337,353.5	1,801,081.6	472.00	40.00	0.00	0	0		
									point274	274	6,337,373.0	1,801,101.9	472.00	40.00	0.00	0	0		
									point275	275	6,337,370.0	1,801,104.6	472.00	40.00	0.00	0	0		
									point276	276	6,337,369.0	1,801,103.2	472.00	40.00	0.00	0	0		
									point277	277	6,337,344.0	1,801,127.4	472.00	40.00	0.00	0	0		
									point278	278	6,337,366.5	1,801,150.8	472.00	40.00	0.00	0	0		
									point279	279	6,337,272.5	1,801,241.1	472.00	40.00	0.00	0	0		
									point280	280	6,337,273.0	1,801,241.5	472.00	40.00	0.00	0	0		

									point281	281	6,337,265.0	1,801,249.2	472.00	40.00	0.00	0	0		
									point282	282	6,337,265.5	1,801,250.0	472.00	40.00	0.00	0	0		
									point283	283	6,337,256.5	1,801,259.0	472.00	40.00	0.00	0	0		
									point284	284	6,337,255.5	1,801,258.2	472.00	40.00					
Barrier5	W	0.00	99.99	0.00				0.00	point285	285	6,337,345.5	1,801,358.5	477.00	40.00	0.00	0	0		
									point286	286	6,337,348.0	1,801,359.4	477.00	40.00	0.00	0	0		
									point287	287	6,337,349.0	1,801,357.0	477.00	40.00	0.00	0	0		
									point288	288	6,337,352.5	1,801,358.2	477.00	40.00	0.00	0	0		
									point289	289	6,337,352.0	1,801,360.8	477.00	40.00	0.00	0	0		
									point290	290	6,337,356.5	1,801,362.4	477.00	40.00	0.00	0	0		
									point291	291	6,337,357.0	1,801,360.5	477.00	40.00	0.00	0	0		
									point292	292	6,337,366.0	1,801,363.5	477.00	40.00	0.00	0	0		
									point293	293	6,337,365.0	1,801,365.4	477.00	40.00	0.00	0	0		
									point294	294	6,337,368.5	1,801,366.5	477.00	40.00	0.00	0	0		
									point295	295	6,337,369.0	1,801,364.6	477.00	40.00	0.00	0	0		
									point296	296	6,337,378.0	1,801,367.6	477.00	40.00	0.00	0	0		
									point297	297	6,337,377.0	1,801,369.6	477.00	40.00	0.00	0	0		
									point298	298	6,337,379.5	1,801,370.2	477.00	40.00	0.00	0	0		
									point299	299	6,337,380.0	1,801,368.4	477.00	40.00	0.00	0	0		
									point300	300	6,337,388.5	1,801,371.4	477.00	40.00	0.00	0	0		
									point301	301	6,337,388.0	1,801,373.2	477.00	40.00	0.00	0	0		
									point302	302	6,337,391.5	1,801,374.5	477.00	40.00	0.00	0	0		
									point303	303	6,337,392.0	1,801,372.6	477.00	40.00	0.00	0	0		
									point304	304	6,337,400.5	1,801,375.6	477.00	40.00	0.00	0	0		
									point305	305	6,337,400.0	1,801,377.5	477.00	40.00	0.00	0	0		
									point306	306	6,337,404.5	1,801,379.1	477.00	40.00	0.00	0	0		
									point307	307	6,337,405.5	1,801,376.6	477.00	40.00	0.00	0	0		
									point308	308	6,337,409.0	1,801,377.9	477.00	40.00	0.00	0	0		
									point309	309	6,337,408.5	1,801,380.4	477.00	40.00	0.00	0	0		
									point310	310	6,337,411.0	1,801,381.4	477.00	40.00	0.00	0	0		
									point311	311	6,337,411.5	1,801,379.4	477.00	40.00	0.00	0	0		
									point312	312	6,337,420.5	1,801,382.5	477.00	40.00	0.00	0	0		
									point313	313	6,337,419.5	1,801,384.4	477.00	40.00	0.00	0	0		
									point314	314	6,337,421.0	1,801,384.8	477.00	40.00	0.00	0	0		
									point315	315	6,337,421.5	1,801,382.9	477.00	40.00	0.00	0	0		
									point316	316	6,337,430.0	1,801,385.9	477.00	40.00	0.00	0	0		
									point317	317	6,337,429.5	1,801,387.8	477.00	40.00	0.00	0	0		
									point318	318	6,337,431.0	1,801,388.2	477.00	40.00	0.00	0	0		
									point319	319	6,337,431.5	1,801,386.4	477.00	40.00	0.00	0	0		
									point320	320	6,337,440.0	1,801,389.4	477.00	40.00	0.00	0	0		
									point321	321	6,337,439.5	1,801,391.2	477.00	40.00	0.00	0	0		
									point322	322	6,337,441.0	1,801,391.8	477.00	40.00	0.00	0	0		
									point323	323	6,337,449.5	1,801,367.2	477.00	40.00	0.00	0	0		
									point324	324	6,337,451.0	1,801,367.9	477.00	40.00	0.00	0	0		
									point325	325	6,337,462.0	1,801,336.4	477.00	40.00	0.00	0	0		
									point326	326	6,337,451.5	1,801,332.8	477.00	40.00	0.00	0	0		
									point327	327	6,337,452.0	1,801,331.8	477.00	40.00	0.00	0	0		
									point328	328	6,337,439.5	1,801,327.6	477.00	40.00	0.00	0	0		
									point329	329	6,337,439.5	1,801,328.5	477.00	40.00	0.00	0	0		

									point330	330	6,337,428.5	1,801,324.8	477.00	40.00	0.00	0	0		
									point331	331	6,337,428.5	1,801,325.2	477.00	40.00	0.00	0	0		
									point332	332	6,337,362.5	1,801,302.4	477.00	40.00	0.00	0	0		
									point333	333	6,337,362.5	1,801,301.9	477.00	40.00	0.00	0	0		
									point334	334	6,337,352.0	1,801,298.1	477.00	40.00	0.00	0	0		
									point335	335	6,337,352.5	1,801,297.1	477.00	40.00	0.00	0	0		
									point336	336	6,337,340.0	1,801,293.0	477.00	40.00	0.00	0	0		
									point337	337	6,337,340.0	1,801,293.9	477.00	40.00	0.00	0	0		
									point338	338	6,337,329.5	1,801,290.2	477.00	40.00	0.00	0	0		
									point339	339	6,337,327.5	1,801,295.2	477.00	40.00	0.00	0	0		
									point340	340	6,337,324.5	1,801,294.2	477.00	40.00	0.00	0	0		
									point341	341	6,337,315.5	1,801,320.9	477.00	40.00	0.00	0	0		
									point342	342	6,337,313.5	1,801,320.2	477.00	40.00	0.00	0	0		
									point343	343	6,337,305.5	1,801,344.5	477.00	40.00	0.00	0	0		
									point344	344	6,337,307.0	1,801,345.1	477.00	40.00	0.00	0	0		
									point345	345	6,337,307.5	1,801,343.1	477.00	40.00	0.00	0	0		
									point346	346	6,337,316.0	1,801,346.2	477.00	40.00	0.00	0	0		
									point347	347	6,337,315.5	1,801,348.1	477.00	40.00	0.00	0	0		
									point348	348	6,337,317.0	1,801,348.5	477.00	40.00	0.00	0	0		
									point349	349	6,337,317.5	1,801,346.6	477.00	40.00	0.00	0	0		
									point350	350	6,337,326.0	1,801,349.6	477.00	40.00	0.00	0	0		
									point351	351	6,337,325.5	1,801,351.5	477.00	40.00	0.00	0	0		
									point352	352	6,337,326.5	1,801,352.0	477.00	40.00	0.00	0	0		
									point353	353	6,337,327.5	1,801,350.1	477.00	40.00	0.00	0	0		
									point354	354	6,337,336.0	1,801,353.1	477.00	40.00	0.00	0	0		
									point355	355	6,337,335.5	1,801,355.0	477.00	40.00	0.00	0	0		
									point356	356	6,337,336.5	1,801,355.4	477.00	40.00	0.00	0	0		
									point357	357	6,337,337.5	1,801,353.5	477.00	40.00	0.00	0	0		
									point358	358	6,337,346.0	1,801,356.5	477.00	40.00	0.00	0	0		
									point359	359	6,337,345.5	1,801,358.5	477.00	40.00					
Barrier7	W	0.00	99.99	0.00				0.00	point481	481	6,337,663.5	1,801,373.2	479.00	10.00	0.00	0	0		
									point482	482	6,337,670.0	1,801,354.2	479.00	10.00	0.00	0	0		
									point483	483	6,337,651.0	1,801,347.8	479.00	10.00	0.00	0	0		
									point484	484	6,337,644.5	1,801,366.6	479.00	10.00	0.00	0	0		
									point485	485	6,337,663.5	1,801,373.2	479.00	10.00					
Barrier8	W	0.00	99.99	0.00				0.00	point486	486	6,337,742.0	1,801,081.2	480.00	40.00	0.00	0	0		
									point487	487	6,337,750.5	1,801,084.1	480.00	40.00	0.00	0	0		
									point488	488	6,337,742.0	1,801,108.1	480.00	40.00	0.00	0	0		
									point489	489	6,337,739.0	1,801,107.1	480.00	40.00	0.00	0	0		
									point490	490	6,337,737.5	1,801,111.5	480.00	40.00	0.00	0	0		
									point491	491	6,337,734.0	1,801,110.4	480.00	40.00	0.00	0	0		
									point492	492	6,337,727.5	1,801,129.9	480.00	40.00	0.00	0	0		
									point493	493	6,337,726.0	1,801,129.2	480.00	40.00	0.00	0	0		
									point494	494	6,337,726.5	1,801,127.4	480.00	40.00	0.00	0	0		
									point495	495	6,337,718.0	1,801,124.4	480.00	40.00	0.00	0	0		
									point496	496	6,337,717.0	1,801,126.2	480.00	40.00	0.00	0	0		
									point497	497	6,337,716.0	1,801,125.9	480.00	40.00	0.00	0	0		
									point498	498	6,337,716.5	1,801,124.0	480.00	40.00	0.00	0	0		
									point499	499	6,337,708.0	1,801,121.0	480.00	40.00	0.00	0	0		

point500	500	6,337,707.0	1,801,122.9	480.00	40.00	0.00	0	0
point501	501	6,337,706.0	1,801,122.4	480.00	40.00	0.00	0	0
point502	502	6,337,706.5	1,801,120.5	480.00	40.00	0.00	0	0
point503	503	6,337,698.0	1,801,117.5	480.00	40.00	0.00	0	0
point504	504	6,337,697.5	1,801,119.4	480.00	40.00	0.00	0	0
point505	505	6,337,696.0	1,801,119.0	480.00	40.00	0.00	0	0
point506	506	6,337,696.5	1,801,117.0	480.00	40.00	0.00	0	0
point507	507	6,337,688.0	1,801,114.0	480.00	40.00	0.00	0	0
point508	508	6,337,687.5	1,801,115.9	480.00	40.00	0.00	0	0
point509	509	6,337,684.5	1,801,114.9	480.00	40.00	0.00	0	0
point510	510	6,337,685.0	1,801,113.0	480.00	40.00	0.00	0	0
point511	511	6,337,676.5	1,801,110.0	480.00	40.00	0.00	0	0
point512	512	6,337,675.5	1,801,111.9	480.00	40.00	0.00	0	0
point513	513	6,337,674.5	1,801,111.4	480.00	40.00	0.00	0	0
point514	514	6,337,675.0	1,801,109.5	480.00	40.00	0.00	0	0
point515	515	6,337,666.5	1,801,106.5	480.00	40.00	0.00	0	0
point516	516	6,337,666.0	1,801,108.4	480.00	40.00	0.00	0	0
point517	517	6,337,664.5	1,801,108.0	480.00	40.00	0.00	0	0
point518	518	6,337,665.0	1,801,106.1	480.00	40.00	0.00	0	0
point519	519	6,337,656.5	1,801,103.0	480.00	40.00	0.00	0	0
point520	520	6,337,656.0	1,801,105.0	480.00	40.00	0.00	0	0
point521	521	6,337,653.0	1,801,104.0	480.00	40.00	0.00	0	0
point522	522	6,337,653.5	1,801,102.1	480.00	40.00	0.00	0	0
point523	523	6,337,645.0	1,801,099.0	480.00	40.00	0.00	0	0
point524	524	6,337,644.5	1,801,101.0	480.00	40.00	0.00	0	0
point525	525	6,337,643.0	1,801,100.5	480.00	40.00	0.00	0	0
point526	526	6,337,644.0	1,801,098.6	480.00	40.00	0.00	0	0
point527	527	6,337,635.0	1,801,095.6	480.00	40.00	0.00	0	0
point528	528	6,337,634.5	1,801,097.5	480.00	40.00	0.00	0	0
point529	529	6,337,633.0	1,801,097.0	480.00	40.00	0.00	0	0
point530	530	6,337,634.0	1,801,095.1	480.00	40.00	0.00	0	0
point531	531	6,337,625.0	1,801,092.1	480.00	40.00	0.00	0	0
point532	532	6,337,624.5	1,801,094.0	480.00	40.00	0.00	0	0
point533	533	6,337,621.5	1,801,093.0	480.00	40.00	0.00	0	0
point534	534	6,337,622.5	1,801,091.1	480.00	40.00	0.00	0	0
point535	535	6,337,613.5	1,801,088.1	480.00	40.00	0.00	0	0
point536	536	6,337,613.0	1,801,090.0	480.00	40.00	0.00	0	0
point537	537	6,337,612.0	1,801,089.6	480.00	40.00	0.00	0	0
point538	538	6,337,612.5	1,801,087.8	480.00	40.00	0.00	0	0
point539	539	6,337,604.0	1,801,084.8	480.00	40.00	0.00	0	0
point540	540	6,337,603.0	1,801,086.6	480.00	40.00	0.00	0	0
point541	541	6,337,602.0	1,801,086.1	480.00	40.00	0.00	0	0
point542	542	6,337,602.5	1,801,084.2	480.00	40.00	0.00	0	0
point543	543	6,337,594.0	1,801,081.2	480.00	40.00	0.00	0	0
point544	544	6,337,593.0	1,801,083.1	480.00	40.00	0.00	0	0
point545	545	6,337,592.0	1,801,082.6	480.00	40.00	0.00	0	0
point546	546	6,337,600.5	1,801,058.4	480.00	40.00	0.00	0	0
point547	547	6,337,572.0	1,801,048.5	480.00	40.00	0.00	0	0
point548	548	6,337,557.0	1,801,090.8	480.00	40.00	0.00	0	0

									point549	549	6,337,581.5	1,801,099.1	480.00	40.00	0.00	0	0		
									point550	550	6,337,581.0	1,801,100.8	480.00	40.00	0.00	0	0		
									point551	551	6,337,579.0	1,801,100.0	480.00	40.00	0.00	0	0		
									point552	552	6,337,576.0	1,801,108.8	480.00	40.00	0.00	0	0		
									point553	553	6,337,578.0	1,801,109.4	480.00	40.00	0.00	0	0		
									point554	554	6,337,577.5	1,801,110.6	480.00	40.00	0.00	0	0		
									point555	555	6,337,575.5	1,801,110.0	480.00	40.00	0.00	0	0		
									point556	556	6,337,572.5	1,801,118.6	480.00	40.00	0.00	0	0		
									point557	557	6,337,574.5	1,801,119.2	480.00	40.00	0.00	0	0		
									point558	558	6,337,574.0	1,801,120.5	480.00	40.00	0.00	0	0		
									point559	559	6,337,572.0	1,801,119.9	480.00	40.00	0.00	0	0		
									point560	560	6,337,569.0	1,801,128.5	480.00	40.00	0.00	0	0		
									point561	561	6,337,571.0	1,801,129.2	480.00	40.00	0.00	0	0		
									point562	562	6,337,570.5	1,801,130.5	480.00	40.00	0.00	0	0		
									point563	563	6,337,568.5	1,801,129.8	480.00	40.00	0.00	0	0		
									point564	564	6,337,565.5	1,801,138.5	480.00	40.00	0.00	0	0		
									point565	565	6,337,567.5	1,801,139.1	480.00	40.00	0.00	0	0		
									point566	566	6,337,566.5	1,801,142.4	480.00	40.00	0.00	0	0		
									point567	567	6,337,564.5	1,801,141.8	480.00	40.00	0.00	0	0		
									point568	568	6,337,561.5	1,801,150.4	480.00	40.00	0.00	0	0		
									point569	569	6,337,563.5	1,801,151.1	480.00	40.00	0.00	0	0		
									point570	570	6,337,563.0	1,801,152.4	480.00	40.00	0.00	0	0		
									point571	571	6,337,561.0	1,801,151.6	480.00	40.00	0.00	0	0		
									point572	572	6,337,558.0	1,801,160.4	480.00	40.00	0.00	0	0		
									point573	573	6,337,560.0	1,801,161.0	480.00	40.00	0.00	0	0		
									point574	574	6,337,559.5	1,801,162.2	480.00	40.00	0.00	0	0		
									point575	575	6,337,557.5	1,801,161.6	480.00	40.00	0.00	0	0		
									point576	576	6,337,554.5	1,801,170.2	480.00	40.00	0.00	0	0		
									point577	577	6,337,556.5	1,801,170.9	480.00	40.00	0.00	0	0		
									point578	578	6,337,556.0	1,801,172.1	480.00	40.00	0.00	0	0		
									point579	579	6,337,554.0	1,801,171.5	480.00	40.00	0.00	0	0		
									point580	580	6,337,551.0	1,801,180.1	480.00	40.00	0.00	0	0		
									point581	581	6,337,553.0	1,801,180.9	480.00	40.00	0.00	0	0		
									point582	582	6,337,552.5	1,801,182.4	480.00	40.00	0.00	0	0		
									point583	583	6,337,528.0	1,801,174.0	480.00	40.00	0.00	0	0		
									point584	584	6,337,515.0	1,801,211.1	480.00	40.00	0.00	0	0		
									point585	585	6,337,517.5	1,801,211.9	480.00	40.00	0.00	0	0		
									point586	586	6,337,516.0	1,801,217.0	480.00	40.00	0.00	0	0		
									point587	587	6,337,542.0	1,801,226.1	480.00	40.00	0.00	0	0		
									point588	588	6,337,550.5	1,801,201.9	480.00	40.00	0.00	0	0		
									point589	589	6,337,551.5	1,801,202.2	480.00	40.00	0.00	0	0		
									point590	590	6,337,551.0	1,801,204.1	480.00	40.00	0.00	0	0		
									point591	591	6,337,559.5	1,801,207.2	480.00	40.00	0.00	0	0		
									point592	592	6,337,560.5	1,801,205.2	480.00	40.00	0.00	0	0		
									point593	593	6,337,561.5	1,801,205.8	480.00	40.00	0.00	0	0		
									point594	594	6,337,561.0	1,801,207.6	480.00	40.00	0.00	0	0		
									point595	595	6,337,569.5	1,801,210.6	480.00	40.00	0.00	0	0		
									point596	596	6,337,570.5	1,801,208.8	480.00	40.00	0.00	0	0		
									point597	597	6,337,571.5	1,801,209.2	480.00	40.00	0.00	0	0		

									point598	598	6,337,571.0	1,801,211.1	480.00	40.00	0.00	0	0		
									point599	599	6,337,579.5	1,801,214.1	480.00	40.00	0.00	0	0		
									point600	600	6,337,580.0	1,801,212.2	480.00	40.00	0.00	0	0		
									point601	601	6,337,583.0	1,801,213.2	480.00	40.00	0.00	0	0		
									point602	602	6,337,582.5	1,801,215.1	480.00	40.00	0.00	0	0		
									point603	603	6,337,591.0	1,801,218.1	480.00	40.00	0.00	0	0		
									point604	604	6,337,591.5	1,801,216.2	480.00	40.00	0.00	0	0		
									point605	605	6,337,593.0	1,801,216.6	480.00	40.00	0.00	0	0		
									point606	606	6,337,592.5	1,801,218.5	480.00	40.00	0.00	0	0		
									point607	607	6,337,601.0	1,801,221.5	480.00	40.00	0.00	0	0		
									point608	608	6,337,601.5	1,801,219.6	480.00	40.00	0.00	0	0		
									point609	609	6,337,603.0	1,801,220.1	480.00	40.00	0.00	0	0		
									point610	610	6,337,602.0	1,801,222.0	480.00	40.00	0.00	0	0		
									point611	611	6,337,611.0	1,801,225.0	480.00	40.00	0.00	0	0		
									point612	612	6,337,611.5	1,801,223.1	480.00	40.00	0.00	0	0		
									point613	613	6,337,614.5	1,801,224.1	480.00	40.00	0.00	0	0		
									point614	614	6,337,613.5	1,801,226.0	480.00	40.00	0.00	0	0		
									point615	615	6,337,622.5	1,801,229.0	480.00	40.00	0.00	0	0		
									point616	616	6,337,623.0	1,801,227.1	480.00	40.00	0.00	0	0		
									point617	617	6,337,624.5	1,801,227.5	480.00	40.00	0.00	0	0		
									point618	618	6,337,623.5	1,801,229.4	480.00	40.00	0.00	0	0		
									point619	619	6,337,632.5	1,801,232.5	480.00	40.00	0.00	0	0		
									point620	620	6,337,633.0	1,801,230.5	480.00	40.00	0.00	0	0		
									point621	621	6,337,634.0	1,801,231.0	480.00	40.00	0.00	0	0		
									point622	622	6,337,633.5	1,801,232.9	480.00	40.00	0.00	0	0		
									point623	623	6,337,642.0	1,801,235.9	480.00	40.00	0.00	0	0		
									point624	624	6,337,643.0	1,801,234.0	480.00	40.00	0.00	0	0		
									point625	625	6,337,644.0	1,801,234.5	480.00	40.00	0.00	0	0		
									point626	626	6,337,643.5	1,801,236.4	480.00	40.00	0.00	0	0		
									point627	627	6,337,652.0	1,801,239.2	480.00	40.00	0.00	0	0		
									point628	628	6,337,642.0	1,801,267.8	480.00	40.00	0.00	0	0		
									point629	629	6,337,635.0	1,801,265.4	480.00	40.00	0.00	0	0		
									point630	630	6,337,624.5	1,801,296.4	480.00	40.00	0.00	0	0		
									point631	631	6,337,614.0	1,801,292.8	480.00	40.00	0.00	0	0		
									point632	632	6,337,613.5	1,801,293.8	480.00	40.00	0.00	0	0		
									point633	633	6,337,601.5	1,801,289.5	480.00	40.00	0.00	0	0		
									point634	634	6,337,601.5	1,801,288.5	480.00	40.00	0.00	0	0		
									point635	635	6,337,591.0	1,801,284.8	480.00	40.00	0.00	0	0		
									point636	636	6,337,591.0	1,801,284.4	480.00	40.00	0.00	0	0		
									point637	637	6,337,496.0	1,801,251.2	480.00	40.00	0.00	0	0		
									point638	638	6,337,497.0	1,801,248.5	480.00	40.00	0.00	0	0		
									point639	639	6,337,465.5	1,801,237.5	480.00	40.00	0.00	0	0		
									point640	640	6,337,469.0	1,801,227.0	480.00	40.00	0.00	0	0		
									point641	641	6,337,468.0	1,801,226.6	480.00	40.00	0.00	0	0		
									point642	642	6,337,472.5	1,801,214.5	480.00	40.00	0.00	0	0		
									point643	643	6,337,473.5	1,801,214.9	480.00	40.00	0.00	0	0		
									point644	644	6,337,477.0	1,801,204.0	480.00	40.00	0.00	0	0		
									point645	645	6,337,475.5	1,801,203.5	480.00	40.00	0.00	0	0		
									point646	646	6,337,476.5	1,801,200.6	480.00	40.00	0.00	0	0		

									point647	647	6,337,475.0	1,801,200.1	480.00	40.00	0.00	0	0		
									point648	648	6,337,478.0	1,801,191.8	480.00	40.00	0.00	0	0		
									point649	649	6,337,479.5	1,801,192.2	480.00	40.00	0.00	0	0		
									point650	650	6,337,483.5	1,801,179.9	480.00	40.00	0.00	0	0		
									point651	651	6,337,486.5	1,801,180.8	480.00	40.00	0.00	0	0		
									point652	652	6,337,490.0	1,801,169.9	480.00	40.00	0.00	0	0		
									point653	653	6,337,487.5	1,801,169.0	480.00	40.00	0.00	0	0		
									point654	654	6,337,488.5	1,801,166.1	480.00	40.00	0.00	0	0		
									point655	655	6,337,487.0	1,801,165.6	480.00	40.00	0.00	0	0		
									point656	656	6,337,490.0	1,801,157.4	480.00	40.00	0.00	0	0		
									point657	657	6,337,491.5	1,801,157.9	480.00	40.00	0.00	0	0		
									point658	658	6,337,495.5	1,801,145.4	480.00	40.00	0.00	0	0		
									point659	659	6,337,498.5	1,801,146.2	480.00	40.00	0.00	0	0		
									point660	660	6,337,504.5	1,801,127.8	480.00	40.00	0.00	0	0		
									point661	661	6,337,503.5	1,801,127.2	480.00	40.00	0.00	0	0		
									point662	662	6,337,511.5	1,801,103.6	480.00	40.00	0.00	0	0		
									point663	663	6,337,513.0	1,801,104.1	480.00	40.00	0.00	0	0		
									point664	664	6,337,517.0	1,801,093.2	480.00	40.00	0.00	0	0		
									point665	665	6,337,514.5	1,801,092.4	480.00	40.00	0.00	0	0		
									point666	666	6,337,518.5	1,801,080.0	480.00	40.00	0.00	0	0		
									point667	667	6,337,517.0	1,801,079.5	480.00	40.00	0.00	0	0		
									point668	668	6,337,520.0	1,801,071.1	480.00	40.00	0.00	0	0		
									point669	669	6,337,521.5	1,801,071.6	480.00	40.00	0.00	0	0		
									point670	670	6,337,522.5	1,801,068.8	480.00	40.00	0.00	0	0		
									point671	671	6,337,525.0	1,801,069.6	480.00	40.00	0.00	0	0		
									point672	672	6,337,529.0	1,801,058.8	480.00	40.00	0.00	0	0		
									point673	673	6,337,526.5	1,801,057.9	480.00	40.00	0.00	0	0		
									point674	674	6,337,530.5	1,801,045.5	480.00	40.00	0.00	0	0		
									point675	675	6,337,529.0	1,801,045.0	480.00	40.00	0.00	0	0		
									point676	676	6,337,532.0	1,801,036.6	480.00	40.00	0.00	0	0		
									point677	677	6,337,533.5	1,801,037.1	480.00	40.00	0.00	0	0		
									point678	678	6,337,534.5	1,801,034.2	480.00	40.00	0.00	0	0		
									point679	679	6,337,535.0	1,801,034.5	480.00	40.00	0.00	0	0		
									point680	680	6,337,539.0	1,801,023.6	480.00	40.00	0.00	0	0		
									point681	681	6,337,538.0	1,801,023.4	480.00	40.00	0.00	0	0		
									point682	682	6,337,542.0	1,801,011.2	480.00	40.00	0.00	0	0		
									point683	683	6,337,543.0	1,801,011.5	480.00	40.00	0.00	0	0		
									point684	684	6,337,547.0	1,801,001.0	480.00	40.00	0.00	0	0		
									point685	685	6,337,578.5	1,801,012.0	480.00	40.00	0.00	0	0		
									point686	686	6,337,579.5	1,801,009.5	480.00	40.00	0.00	0	0		
									point687	687	6,337,590.0	1,801,013.2	480.00	40.00	0.00	0	0		
									point688	688	6,337,590.5	1,801,012.2	480.00	40.00	0.00	0	0		
									point689	689	6,337,602.5	1,801,016.5	480.00	40.00	0.00	0	0		
									point690	690	6,337,602.0	1,801,017.4	480.00	40.00	0.00	0	0		
									point691	691	6,337,623.5	1,801,024.9	480.00	40.00	0.00	0	0		
									point692	692	6,337,623.5	1,801,023.9	480.00	40.00	0.00	0	0		
									point693	693	6,337,636.0	1,801,028.1	480.00	40.00	0.00	0	0		
									point694	694	6,337,635.5	1,801,029.0	480.00	40.00	0.00	0	0		
									point695	695	6,337,657.0	1,801,036.5	480.00	40.00	0.00	0	0		

									point696	696	6,337,657.5	1,801,035.6	480.00	40.00	0.00	0	0		
									point697	697	6,337,669.5	1,801,039.9	480.00	40.00	0.00	0	0		
									point698	698	6,337,669.0	1,801,040.8	480.00	40.00	0.00	0	0		
									point699	699	6,337,690.5	1,801,048.1	480.00	40.00	0.00	0	0		
									point700	700	6,337,691.0	1,801,047.2	480.00	40.00	0.00	0	0		
									point701	701	6,337,703.0	1,801,051.4	480.00	40.00	0.00	0	0		
									point702	702	6,337,702.5	1,801,052.4	480.00	40.00	0.00	0	0		
									point703	703	6,337,724.0	1,801,059.9	480.00	40.00	0.00	0	0		
									point704	704	6,337,724.5	1,801,058.9	480.00	40.00	0.00	0	0		
									point705	705	6,337,736.5	1,801,063.1	480.00	40.00	0.00	0	0		
									point706	706	6,337,736.5	1,801,064.1	480.00	40.00	0.00	0	0		
									point707	707	6,337,747.0	1,801,067.8	480.00	40.00	0.00	0	0		
									point708	708	6,337,742.0	1,801,081.2	480.00	40.00					
Bld 4	W	0.00	99.99	0.00				0.00	point709	709	6,337,339.0	1,800,932.9	475.00	40.00	0.00	0	0		
									point710	710	6,337,292.0	1,800,916.5	475.00	40.00	0.00	0	0		
									point711	711	6,337,278.0	1,800,956.2	475.00	40.00	0.00	0	0		
									point712	712	6,337,281.5	1,800,957.5	475.00	40.00	0.00	0	0		
									point713	713	6,337,274.0	1,800,978.8	475.00	40.00	0.00	0	0		
									point714	714	6,337,283.5	1,800,982.0	475.00	40.00	0.00	0	0		
									point715	715	6,337,282.5	1,800,983.9	475.00	40.00	0.00	0	0		
									point716	716	6,337,284.0	1,800,984.4	475.00	40.00	0.00	0	0		
									point717	717	6,337,284.5	1,800,982.5	475.00	40.00	0.00	0	0		
									point718	718	6,337,293.5	1,800,985.5	475.00	40.00	0.00	0	0		
									point719	719	6,337,292.5	1,800,987.4	475.00	40.00	0.00	0	0		
									point720	720	6,337,294.0	1,800,987.9	475.00	40.00	0.00	0	0		
									point721	721	6,337,294.5	1,800,985.9	475.00	40.00	0.00	0	0		
									point722	722	6,337,303.5	1,800,988.9	475.00	40.00	0.00	0	0		
									point723	723	6,337,302.5	1,800,990.9	475.00	40.00	0.00	0	0		
									point724	724	6,337,304.0	1,800,991.2	475.00	40.00	0.00	0	0		
									point725	725	6,337,304.5	1,800,989.4	475.00	40.00	0.00	0	0		
									point726	726	6,337,313.0	1,800,992.4	475.00	40.00	0.00	0	0		
									point727	727	6,337,312.5	1,800,994.2	475.00	40.00	0.00	0	0		
									point728	728	6,337,315.5	1,800,995.4	475.00	40.00	0.00	0	0		
									point729	729	6,337,316.0	1,800,993.5	475.00	40.00	0.00	0	0		
									point730	730	6,337,325.0	1,800,996.5	475.00	40.00	0.00	0	0		
									point731	731	6,337,324.0	1,800,998.4	475.00	40.00	0.00	0	0		
									point732	732	6,337,325.5	1,800,998.8	475.00	40.00	0.00	0	0		
									point733	733	6,337,326.0	1,800,996.9	475.00	40.00	0.00	0	0		
									point734	734	6,337,335.0	1,800,999.9	475.00	40.00	0.00	0	0		
									point735	735	6,337,334.0	1,801,001.8	475.00	40.00	0.00	0	0		
									point736	736	6,337,335.5	1,801,002.2	475.00	40.00	0.00	0	0		
									point737	737	6,337,336.0	1,801,000.4	475.00	40.00	0.00	0	0		
									point738	738	6,337,344.5	1,801,003.4	475.00	40.00	0.00	0	0		
									point739	739	6,337,344.0	1,801,005.2	475.00	40.00	0.00	0	0		
									point740	740	6,337,345.5	1,801,005.6	475.00	40.00	0.00	0	0		
									point741	741	6,337,346.0	1,801,003.8	475.00	40.00	0.00	0	0		
									point742	742	6,337,354.5	1,801,006.8	475.00	40.00	0.00	0	0		
									point743	743	6,337,354.0	1,801,008.8	475.00	40.00	0.00	0	0		
									point744	744	6,337,357.0	1,801,009.8	475.00	40.00	0.00	0	0		

									point745	745	6,337,357.5	1,801,007.9	475.00	40.00	0.00	0	0		
									point746	746	6,337,366.5	1,801,010.9	475.00	40.00	0.00	0	0		
									point747	747	6,337,365.5	1,801,012.8	475.00	40.00	0.00	0	0		
									point748	748	6,337,367.0	1,801,013.2	475.00	40.00	0.00	0	0		
									point749	749	6,337,367.5	1,801,011.4	475.00	40.00	0.00	0	0		
									point750	750	6,337,376.5	1,801,014.4	475.00	40.00	0.00	0	0		
									point751	751	6,337,375.5	1,801,016.2	475.00	40.00	0.00	0	0		
									point752	752	6,337,377.0	1,801,016.6	475.00	40.00	0.00	0	0		
									point753	753	6,337,377.5	1,801,014.8	475.00	40.00	0.00	0	0		
									point754	754	6,337,386.0	1,801,017.8	475.00	40.00	0.00	0	0		
									point755	755	6,337,385.5	1,801,019.6	475.00	40.00	0.00	0	0		
									point756	756	6,337,388.5	1,801,020.8	475.00	40.00	0.00	0	0		
									point757	757	6,337,389.5	1,801,018.9	475.00	40.00	0.00	0	0		
									point758	758	6,337,398.0	1,801,021.9	475.00	40.00	0.00	0	0		
									point759	759	6,337,397.5	1,801,023.8	475.00	40.00	0.00	0	0		
									point760	760	6,337,398.5	1,801,024.1	475.00	40.00	0.00	0	0		
									point761	761	6,337,399.0	1,801,022.2	475.00	40.00	0.00	0	0		
									point762	762	6,337,408.0	1,801,025.2	475.00	40.00	0.00	0	0		
									point763	763	6,337,407.0	1,801,027.2	475.00	40.00	0.00	0	0		
									point764	764	6,337,408.5	1,801,027.6	475.00	40.00	0.00	0	0		
									point765	765	6,337,409.0	1,801,025.8	475.00	40.00	0.00	0	0		
									point766	766	6,337,418.0	1,801,028.8	475.00	40.00	0.00	0	0		
									point767	767	6,337,417.0	1,801,030.6	475.00	40.00	0.00	0	0		
									point768	768	6,337,418.5	1,801,031.1	475.00	40.00	0.00	0	0		
									point769	769	6,337,419.0	1,801,029.2	475.00	40.00	0.00	0	0		
									point770	770	6,337,427.5	1,801,032.2	475.00	40.00	0.00	0	0		
									point771	771	6,337,427.0	1,801,034.1	475.00	40.00	0.00	0	0		
									point772	772	6,337,428.5	1,801,034.6	475.00	40.00	0.00	0	0		
									point773	773	6,337,448.0	1,800,978.8	475.00	40.00	0.00	0	0		
									point774	774	6,337,437.5	1,800,975.1	475.00	40.00	0.00	0	0		
									point775	775	6,337,438.0	1,800,974.1	475.00	40.00	0.00	0	0		
									point776	776	6,337,426.0	1,800,970.0	475.00	40.00	0.00	0	0		
									point777	777	6,337,425.5	1,800,970.9	475.00	40.00	0.00	0	0		
									point778	778	6,337,414.5	1,800,967.1	475.00	40.00	0.00	0	0		
									point779	779	6,337,415.0	1,800,965.2	475.00	40.00	0.00	0	0		
									point780	780	6,337,406.0	1,800,962.0	475.00	40.00	0.00	0	0		
									point781	781	6,337,407.5	1,800,957.8	475.00	40.00	0.00	0	0		
									point782	782	6,337,404.5	1,800,956.8	475.00	40.00	0.00	0	0		
									point783	783	6,337,405.0	1,800,955.4	475.00	40.00	0.00	0	0		
									point784	784	6,337,396.5	1,800,952.5	475.00	40.00	0.00	0	0		
									point785	785	6,337,396.0	1,800,953.9	475.00	40.00	0.00	0	0		
									point786	786	6,337,384.0	1,800,949.5	475.00	40.00	0.00	0	0		
									point787	787	6,337,383.0	1,800,952.0	475.00	40.00	0.00	0	0		
									point788	788	6,337,361.5	1,800,944.5	475.00	40.00	0.00	0	0		
									point789	789	6,337,362.0	1,800,942.0	475.00	40.00	0.00	0	0		
									point790	790	6,337,350.0	1,800,937.8	475.00	40.00	0.00	0	0		
									point791	791	6,337,350.5	1,800,936.2	475.00	40.00	0.00	0	0		
									point792	792	6,337,342.0	1,800,933.4	475.00	40.00	0.00	0	0		
									point793	793	6,337,341.5	1,800,934.8	475.00	40.00	0.00	0	0		

									point794	794	6,337,338.5	1,800,933.8	475.00	40.00	0.00	0	0		
									point795	795	6,337,339.0	1,800,932.9	475.00	40.00					
Barrier10	W	0.00	99.99	0.00				0.00	point796	796	6,337,153.5	1,800,903.4	473.00	40.00	0.00	0	0		
									point797	797	6,337,156.5	1,800,904.4	473.00	40.00	0.00	0	0		
									point798	798	6,337,152.5	1,800,916.2	473.00	40.00	0.00	0	0		
									point799	799	6,337,164.0	1,800,920.2	473.00	40.00	0.00	0	0		
									point800	800	6,337,167.0	1,800,923.1	473.00	40.00	0.00	0	0		
									point801	801	6,337,113.5	1,800,974.9	473.00	40.00	0.00	0	0		
									point802	802	6,337,117.0	1,800,978.8	473.00	40.00	0.00	0	0		
									point803	803	6,337,110.0	1,800,985.6	473.00	40.00	0.00	0	0		
									point804	804	6,337,130.5	1,801,006.9	473.00	40.00	0.00	0	0		
									point805	805	6,337,134.5	1,801,011.1	473.00	40.00	0.00	0	0		
									point806	806	6,337,133.5	1,801,012.4	473.00	40.00	0.00	0	0		
									point807	807	6,337,151.5	1,801,030.8	473.00	40.00	0.00	0	0		
									point808	808	6,337,152.5	1,801,029.6	473.00	40.00	0.00	0	0		
									point809	809	6,337,151.0	1,801,028.2	473.00	40.00	0.00	0	0		
									point810	810	6,337,157.5	1,801,021.9	473.00	40.00	0.00	0	0		
									point811	811	6,337,159.0	1,801,023.2	473.00	40.00	0.00	0	0		
									point812	812	6,337,160.0	1,801,022.4	473.00	40.00	0.00	0	0		
									point813	813	6,337,158.5	1,801,020.9	473.00	40.00	0.00	0	0		
									point814	814	6,337,165.0	1,801,014.5	473.00	40.00	0.00	0	0		
									point815	815	6,337,166.5	1,801,016.0	473.00	40.00	0.00	0	0		
									point816	816	6,337,167.5	1,801,015.0	473.00	40.00	0.00	0	0		
									point817	817	6,337,166.0	1,801,013.6	473.00	40.00	0.00	0	0		
									point818	818	6,337,173.0	1,801,007.2	473.00	40.00	0.00	0	0		
									point819	819	6,337,174.0	1,801,008.8	473.00	40.00	0.00	0	0		
									point820	820	6,337,175.0	1,801,007.8	473.00	40.00	0.00	0	0		
									point821	821	6,337,174.0	1,801,006.4	473.00	40.00	0.00	0	0		
									point822	822	6,337,180.5	1,801,000.0	473.00	40.00	0.00	0	0		
									point823	823	6,337,181.5	1,801,001.4	473.00	40.00	0.00	0	0		
									point824	824	6,337,184.5	1,800,999.0	473.00	40.00	0.00	0	0		
									point825	825	6,337,183.0	1,800,997.5	473.00	40.00	0.00	0	0		
									point826	826	6,337,189.5	1,800,991.1	473.00	40.00	0.00	0	0		
									point827	827	6,337,191.0	1,800,992.6	473.00	40.00	0.00	0	0		
									point828	828	6,337,192.0	1,800,991.6	473.00	40.00	0.00	0	0		
									point829	829	6,337,190.5	1,800,990.2	473.00	40.00	0.00	0	0		
									point830	830	6,337,197.0	1,800,983.9	473.00	40.00	0.00	0	0		
									point831	831	6,337,198.5	1,800,985.2	473.00	40.00	0.00	0	0		
									point832	832	6,337,199.5	1,800,984.4	473.00	40.00	0.00	0	0		
									point833	833	6,337,198.0	1,800,983.0	473.00	40.00	0.00	0	0		
									point834	834	6,337,204.5	1,800,976.6	473.00	40.00	0.00	0	0		
									point835	835	6,337,206.0	1,800,978.0	473.00	40.00	0.00	0	0		
									point836	836	6,337,207.0	1,800,977.1	473.00	40.00	0.00	0	0		
									point837	837	6,337,205.5	1,800,975.6	473.00	40.00	0.00	0	0		
									point838	838	6,337,212.0	1,800,969.2	473.00	40.00	0.00	0	0		
									point839	839	6,337,213.5	1,800,970.8	473.00	40.00	0.00	0	0		
									point840	840	6,337,215.0	1,800,969.5	473.00	40.00	0.00	0	0		
									point841	841	6,337,220.0	1,800,974.8	473.00	40.00	0.00	0	0		
									point842	842	6,337,229.0	1,800,966.0	473.00	40.00	0.00	0	0		

									point843	843	6,337,232.5	1,800,969.8	473.00	40.00	0.00	0	0		
									point844	844	6,337,246.5	1,800,956.1	473.00	40.00	0.00	0	0		
									point845	845	6,337,264.0	1,800,906.8	473.00	40.00	0.00	0	0		
									point846	846	6,337,240.5	1,800,898.6	473.00	40.00	0.00	0	0		
									point847	847	6,337,239.5	1,800,902.1	473.00	40.00	0.00	0	0		
									point848	848	6,337,219.0	1,800,895.1	473.00	40.00	0.00	0	0		
									point849	849	6,337,220.0	1,800,892.6	473.00	40.00	0.00	0	0		
									point850	850	6,337,207.5	1,800,888.2	473.00	40.00	0.00	0	0		
									point851	851	6,337,208.0	1,800,886.9	473.00	40.00	0.00	0	0		
									point852	852	6,337,200.0	1,800,883.9	473.00	40.00	0.00	0	0		
									point853	853	6,337,199.5	1,800,885.4	473.00	40.00	0.00	0	0		
									point854	854	6,337,196.5	1,800,884.4	473.00	40.00	0.00	0	0		
									point855	855	6,337,196.0	1,800,886.0	473.00	40.00	0.00	0	0		
									point856	856	6,337,184.0	1,800,881.9	473.00	40.00	0.00	0	0		
									point857	857	6,337,184.5	1,800,880.5	473.00	40.00	0.00	0	0		
									point858	858	6,337,171.5	1,800,876.0	473.00	40.00	0.00	0	0		
									point859	859	6,337,167.0	1,800,888.4	473.00	40.00	0.00	0	0		
									point860	860	6,337,160.0	1,800,885.8	473.00	40.00	0.00	0	0		
									point861	861	6,337,153.5	1,800,903.4	473.00	40.00					
Barrier14	W	0.00	99.99	0.00				0.00	point1272	1272	6,337,613.5	1,801,009.2	481.00	7.00	0.00	0	0		
									point1273	1273	6,337,764.0	1,801,061.5	480.00	8.00	0.00	0	0		
									point1274	1274	6,337,761.5	1,801,092.6	479.00	8.00	0.00	0	0		
									point1275	1275	6,337,657.0	1,801,393.2	479.00	9.00					
Barrier16	W	0.00	99.99	0.00				0.00	point1281	1281	6,336,885.5	1,801,205.8	459.00	4.00	0.00	0	0		
									point1282	1282	6,336,889.5	1,801,187.5	459.00	4.00	0.00	0	0		
									point1283	1283	6,336,946.5	1,801,131.1	459.00	4.00	0.00	0	0		
									point1284	1284	6,337,001.0	1,801,070.9	458.00	4.00	0.00	0	0		
									point1285	1285	6,337,039.0	1,801,022.2	459.00	4.00	0.00	0	0		
									point1286	1286	6,337,107.0	1,800,924.0	461.00	4.00	0.00	0	0		
									point1287	1287	6,337,136.0	1,800,876.8	464.00	4.00	0.00	0	0		
									point1288	1288	6,337,156.0	1,800,884.4	464.00	4.00					
Barrier17	W	0.00	99.99	0.00				0.00	point1289	1289	6,337,515.5	1,801,355.2	479.00	40.00	0.00	0	0		
									point1290	1290	6,337,498.0	1,801,409.9	479.00	40.00	0.00	0	0		
									point1291	1291	6,337,634.0	1,801,456.6	479.00	40.00	0.00	0	0		
									point1292	1292	6,337,650.0	1,801,407.0	479.00	40.00	0.00	0	0		
									point1293	1293	6,337,646.5	1,801,406.4	479.00	40.00	0.00	0	0		
									point1294	1294	6,337,648.5	1,801,400.5	479.00	40.00	0.00	0	0		
									point1295	1295	6,337,538.0	1,801,363.4	479.00	40.00	0.00	0	0		
									point1296	1296	6,337,538.0	1,801,361.4	479.00	40.00	0.00	0	0		
									point1297	1297	6,337,516.0	1,801,355.1	479.00	40.00					
Barrier18	W	0.00	99.99	0.00				0.00	point1298	1298	6,337,155.0	1,800,891.2	469.00	5.00	0.00	0	0		
									466	1299	6,337,137.0	1,800,883.2	466.00	3.00	0.00	0	0		
									point1300	1300	6,337,050.5	1,801,017.2	463.00	4.00	0.00	0	0		
									point1301	1301	6,337,007.0	1,801,073.1	463.00	4.00	0.00	0	0		
									point1302	1302	6,336,964.0	1,801,119.1	464.00	4.00	0.00	0	0		
									point1303	1303	6,336,936.5	1,801,150.4	464.00	4.00	0.00	0	0		
									point1304	1304	6,336,894.5	1,801,191.6	464.00	4.00					

<Organization?>
<Analysis By?>

2 February 2022
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:	<Project Name?>
RUN:	<Run Title?>
BARRIER DESIGN:	INPUT HEIGHTS
ATMOSPHERICS:	68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
M4-1-1	1	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
M4-1-2	2	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
M4-1-3	3	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
M4-1-4	4	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
M4-2-1	5	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
M4-2-2	6	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
M4-2-3	7	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
M4-2-4	8	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
M3-1-1	9	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
M3-1-2	10	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
M3-1-3	11	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
M3-1-4	12	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
M4-3-1	13	1	0.0	62.6	66	62.6	10	----	62.6	0.0	8	-8.0
M4-3-2	14	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
M4-3-3	15	1	0.0	63.9	66	63.9	10	----	63.9	0.0	8	-8.0
M4-3-4	16	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
M5-1-1	17	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
M5-1-2	18	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
M5-1-3	19	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
M5-1-4	20	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0
M5-2-1	21	1	0.0	56.5	66	56.5	10	----	56.5	0.0	8	-8.0
M5-2-2	22	1	0.0	60.5	66	60.5	10	----	60.5	0.0	8	-8.0
M5-2-3	23	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0
M5-2-4	24	1	0.0	60.9	66	60.9	10	----	60.9	0.0	8	-8.0

OS-1	25	1	0.0	50.8	66	50.8	10	----	50.8	0.0	8	-8.0
OS-2	26	1	0.0	61.6	66	61.6	10	----	61.6	0.0	8	-8.0
M3-2-1	27	1	0.0	53.7	66	53.7	10	----	53.7	0.0	8	-8.0
M3-2-2	28	1	0.0	61.1	66	61.1	10	----	61.1	0.0	8	-8.0
M3-2-3	29	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0
M3-2-4	30	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0
Dwelling Units		**# DUs**	**Noise Reduction**									
			Min	**Avg**	**Max**							
			dB	**dB**	**dB**							
All Selected		30	0.0	0.0	0.0							
All Impacted		16	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

Unit B2, Living Room with ***Closed Window***

35 = approx. STC

	qty	width	height	Square feet	
material or element #1				66	exterior wall assembly
material or element #2	3	3	7	63	vinyl window (dual pane)
material or element #3	1	3	8	24	french door glazing (dual pane)
material or element #4				0	opening
total surface		17	9	153	arbitrary total surface area

Octave Band Center Frequency (OBCF, Hz)

TL Data Source		125	250	500	1000	2000	4000
NRC-CNRC IC-IR-761 (p. 25: G16_WS90(406)_MFB90_2G16)	exterior wall assembly	16	40	41	48	43	52
2 x 5/8" GWB, 2"x4" wood, 24" o.c., fiber batt fill, 1 x 5/8" GWB	material #1 τ	0.02512	0.0001	7.9E-05	1.6E-05	5E-05	6.3E-06
available TL data for comparable assembly:	vinyl window (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #2 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
available TL data for comparable assembly:	french door glazing (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #3 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
	opening	0	0	0	0	0	0
	material #4 τ	1	1	1	1	1	1
	composite TL	19	25	29	37	45	38
enter desired STC value 35	prospective STC curve	19	28	35	38	39	39
sum of negative differentials -10	differentials	0	-3	-6	-1	6	-1

Unit A2, Living Room with ***Open Door***

8 = approx. STC

	qty	width	height	Square feet	
material or element #1				66	exterior wall assembly
material or element #2	3	3	7	63	vinyl window (dual pane)
material or element #3	0	0	0	0	french door glazing (dual pane)
material or element #4	1	3	8	24	opening
total surface		17	9	153	arbitrary total surface area

Octave Band Center Frequency (OBCF, Hz)

TL Data Source		125	250	500	1000	2000	4000
NRC-CNRC IC-IR-761 (p. 25: G16_WS90(406)_MFB90_2G16)	exterior wall assembly	16	40	41	48	43	52
2 x 5/8" GWB, 2"x4" wood, 24" o.c., fiber batt fill, 1 x 5/8" GWB	material #1 τ	0.02512	0.0001	7.9E-05	1.6E-05	5E-05	6.3E-06
available TL data for comparable assembly:	vinyl window (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #2 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
available TL data for comparable assembly:	french door glazing (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #3 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
	opening	0	0	0	0	0	0
	material #4 τ	1	1	1	1	1	1
	composite TL	8	8	8	8	8	8
enter desired STC value 8	prospective STC curve	-8	1	8	11	12	12
sum of negative differentials -11	differentials	16	7	0	-3	-4	-4

Unit A2, Living Room with ***Open Window***

13 = approx. STC

	qty	width	height	Square feet	
material or element #1				65.997	exterior wall assembly
material or element #2	3	3	6.167	55.503	vinyl window (dual pane)
material or element #3	1	3	8	24	french door glazing (dual pane)
material or element #4	1	3	2.5	7.5	opening
total surface		17	9	153	arbitrary total surface area

Octave Band Center Frequency (OBCF, Hz)

TL Data Source		125	250	500	1000	2000	4000
NRC-CNRC IC-IR-761 (p. 25: G16_WS90(406)_MFB90_2G16)	exterior wall assembly	16	40	41	48	43	52
2 x 5/8" GWB, 2"x4" wood, 24" o.c., fiber batt fill, 1 x 5/8" GWB	material #1 τ	0.02512	0.0001	7.9E-05	1.6E-05	5E-05	6.3E-06
available TL data for comparable assembly:	vinyl window (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #2 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
available TL data for comparable assembly:	french door glazing (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #3 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
	opening	0	0	0	0	0	0
	material #4 τ	1	1	1	1	1	1
	composite TL	12	13	13	13	13	13
enter desired STC value 13	prospective STC curve	-3	6	13	16	17	17
sum of negative differentials -11	differentials	15	7	0	-3	-4	-4

Unit A2, Bedroom with ***Closed Window***

35 = approx. STC

	qty	width	height	Square feet	
material or element #1				48	exterior wall assembly
material or element #2	2	3	7	42	vinyl window (dual pane)
material or element #3				0	french door glazing (dual pane)
material or element #4				0	opening
total surface		10	9	90	arbitrary total surface area

Octave Band Center Frequency (OBCF, Hz)

TL Data Source		125	250	500	1000	2000	4000
NRC-CNRC IC-IR-761 (p. 25: G16_WS90(406)_MFB90_2G16)	exterior wall assembly	16	40	41	48	43	52
2 x 5/8" GWB, 2"x4" wood, 24" o.c., fiber batt fill, 1 x 5/8" GWB	material #1 τ	0.02512	0.0001	7.9E-05	1.6E-05	5E-05	6.3E-06
available TL data for comparable assembly:	vinyl window (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #2 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
available TL data for comparable assembly:	french door glazing (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #3 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
	opening	0	0	0	0	0	0
	material #4 τ	1	1	1	1	1	1
	composite TL	18	26	30	38	44	39
enter desired STC value 35	prospective STC curve	19	28	35	38	39	39
sum of negative differentials -8	differentials	-1	-2	-5	0	5	0

Unit A2, Bedroom with ***Open Window***

11 = approx. STC

	qty	width	height	Square feet	
material or element #1				48	exterior wall assembly
material or element #2	2	3	5.75	34.5	vinyl window (dual pane)
material or element #3	0	0	0	0	french door glazing (dual pane)
material or element #4	1	3	2.5	7.5	opening
total surface		10	9	90	arbitrary total surface area

Octave Band Center Frequency (OBCF, Hz)

TL Data Source		125	250	500	1000	2000	4000
NRC-CNRC IC-IR-761 (p. 25: G16_WS90(406)_MFB90_2G16)	exterior wall assembly	16	40	41	48	43	52
2 x 5/8" GWB, 2"x4" wood, 24" o.c., fiber batt fill, 1 x 5/8" GWB	material #1 τ	0.02512	0.0001	7.9E-05	1.6E-05	5E-05	6.3E-06
available TL data for comparable assembly:	vinyl window (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #2 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
available TL data for comparable assembly:	french door glazing (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #3 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
	opening	0	0	0	0	0	0
	material #4 τ	1	1	1	1	1	1
	composite TL	10	11	11	11	11	11
enter desired STC value 11	prospective STC curve	-5	4	11	14	15	15
sum of negative differentials -12	differentials	15	7	0	-3	-4	-4

Unit B2, Bedroom with ***Closed Window***

35 = approx. STC

	qty	width	height	Square feet	
material or element #1				48	exterior wall assembly
material or element #2	2	3	7	42	vinyl window (dual pane)
material or element #3				0	french door glazing (dual pane)
material or element #4				0	opening
total surface		10	9	90	arbitrary total surface area

Octave Band Center Frequency (OBCF, Hz)

TL Data Source		125	250	500	1000	2000	4000
NRC-CNRC IC-IR-761 (p. 25: G16_WS90(406)_MFB90_2G16)	exterior wall assembly	16	40	41	48	43	52
2 x 5/8" GWB, 2"x4" wood, 24" o.c., fiber batt fill, 1 x 5/8" GWB	material #1 τ	0.02512	0.0001	7.9E-05	1.6E-05	5E-05	6.3E-06
available TL data for comparable assembly:	vinyl window (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #2 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
available TL data for comparable assembly:	french door glazing (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #3 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
	opening	0	0	0	0	0	0
	material #4 τ	1	1	1	1	1	1
	composite TL	18	26	30	38	44	39
enter desired STC value 35	prospective STC curve	19	28	35	38	39	39
sum of negative differentials -8	differentials	-1	-2	-5	0	5	0

Unit B2, Bedroom with ***Open Window***

11 = approx. STC

	qty	width	height	Square feet	
material or element #1				48	exterior wall assembly
material or element #2	2	3	5.75	34.5	vinyl window (dual pane)
material or element #3	0	0	0	0	french door glazing (dual pane)
material or element #4	1	3	2.5	7.5	opening
total surface		10	9	90	arbitrary total surface area

Octave Band Center Frequency (OBCF, Hz)

TL Data Source		125	250	500	1000	2000	4000
NRC-CNRC IC-IR-761 (p. 25: G16_WS90(406)_MFB90_2G16)	exterior wall assembly	16	40	41	48	43	52
2 x 5/8" GWB, 2"x4" wood, 24" o.c., fiber batt fill, 1 x 5/8" GWB	material #1 τ	0.02512	0.0001	7.9E-05	1.6E-05	5E-05	6.3E-06
available TL data for comparable assembly:	vinyl window (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #2 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
available TL data for comparable assembly:	french door glazing (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #3 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
	opening	0	0	0	0	0	0
	material #4 τ	1	1	1	1	1	1
	composite TL	10	11	11	11	11	11
enter desired STC value 11	prospective STC curve	-5	4	11	14	15	15
sum of negative differentials -12	differentials	15	7	0	-3	-4	-4

Unit B2, Living Room with ***Closed Window***

35 = approx. STC

	qty	width	height	Square feet	
material or element #1				66	exterior wall assembly
material or element #2	3	3	7	63	vinyl window (dual pane)
material or element #3	1	3	8	24	french door glazing (dual pane)
material or element #4				0	opening
total surface		17	9	153	arbitrary total surface area

Octave Band Center Frequency (OBCF, Hz)

TL Data Source		125	250	500	1000	2000	4000
NRC-CNRC IC-IR-761 (p. 25: G16_WS90(406)_MFB90_2G16)	exterior wall assembly	16	40	41	48	43	52
2 x 5/8" GWB, 2"x4" wood, 24" o.c., fiber batt fill, 1 x 5/8" GWB	material #1 τ	0.02512	0.0001	7.9E-05	1.6E-05	5E-05	6.3E-06
available TL data for comparable assembly:	vinyl window (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #2 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
available TL data for comparable assembly:	french door glazing (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #3 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
	opening	0	0	0	0	0	0
	material #4 τ	1	1	1	1	1	1
	composite TL	19	25	29	37	45	38
enter desired STC value: 35	prospective STC curve	19	28	35	38	39	39
sum of negative differentials: -10	differentials	0	-3	-6	-1	6	-1

Unit B2, Living Room with ***Open Door***

8 = approx. STC

	qty	width	height	Square feet	
material or element #1				66	exterior wall assembly
material or element #2	3	3	7	63	vinyl window (dual pane)
material or element #3	0	0	0	0	french door glazing (dual pane)
material or element #4	1	3	8	24	opening
total surface		17	9	153	arbitrary total surface area

Octave Band Center Frequency (OBCF, Hz)

TL Data Source		125	250	500	1000	2000	4000
NRC-CNRC IC-IR-761 (p. 25: G16_WS90(406)_MFB90_2G16)	exterior wall assembly	16	40	41	48	43	52
2 x 5/8" GWB, 2"x4" wood, 24" o.c., fiber batt fill, 1 x 5/8" GWB	material #1 τ	0.02512	0.0001	7.9E-05	1.6E-05	5E-05	6.3E-06
available TL data for comparable assembly:	vinyl window (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #2 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
available TL data for comparable assembly:	french door glazing (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #3 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
	opening	0	0	0	0	0	0
	material #4 τ	1	1	1	1	1	1
	composite TL	8	8	8	8	8	8
enter desired STC value: 8	prospective STC curve	-8	1	8	11	12	12
sum of negative differentials: -11	differentials	16	7	0	-3	-4	-4

Unit B2, Living Room with ***Open Window***

13 = approx. STC

	qty	width	height	Square feet	
material or element #1				65.997	exterior wall assembly
material or element #2	3	3	6.167	55.503	vinyl window (dual pane)
material or element #3	1	3	8	24	french door glazing (dual pane)
material or element #4	1	3	2.5	7.5	opening
total surface		17	9	153	arbitrary total surface area

Octave Band Center Frequency (OBCF, Hz)

TL Data Source		125	250	500	1000	2000	4000
NRC-CNRC IC-IR-761 (p. 25: G16_WS90(406)_MFB90_2G16)	exterior wall assembly	16	40	41	48	43	52
2 x 5/8" GWB, 2"x4" wood, 24" o.c., fiber batt fill, 1 x 5/8" GWB	material #1 τ	0.02512	0.0001	7.9E-05	1.6E-05	5E-05	6.3E-06
(plus 5 dB for add'l GWB mass and insulation in cavity)							
	vinyl window (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #2 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
available TL data for comparable assembly:	french door glazing (dual pane)	23	23	27	35	47	36
Viracon 5/8" overall - 1/8" glass + 3/8" airspace + 1/8" glass	material #3 τ	0.00501	0.00501	0.002	0.00032	2E-05	0.00025
	opening	0	0	0	0	0	0
	material #4 τ	1	1	1	1	1	1
	composite TL	12	13	13	13	13	13
enter desired STC value: 13	prospective STC curve	-3	6	13	16	17	17
sum of negative differentials: -11	differentials	15	7	0	-3	-4	-4