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Noise Study Report

Proposed Reconstruction of I-75
M-102 to M-59
Oakland County, Michigan

Prepared for:

Michigan Department of Transportation

Prepared by:

The Corradino Group of Michigan, Inc.

October 2003

Summary

This report documents noise analysis performed for a lane addition, reconstruction (and related improvements) to I-75 between M-102 (8 Mile Road) and M-59 in Oakland County, Michigan.

Noise levels exceed established criteria already at many locations along the corridor. As the proposed project will increase the capacity of I-75 and, therefore, its noise levels, analysis must be performed and mitigation considered. The lane addition could be for general purpose use by all vehicles (GP alternative) or be restricted for use by High Occupancy Vehicles (HOV) during peak hours (HOV Alternative).

There would be no discernable difference between the HOV and GP alternatives with respect to noise. For most of the corridor the noise levels with the project will increase in an imperceptible way. In a situation where noise is already continuous, a doubling of traffic in the loudest hour must occur before most people can discern an increase in noise. This condition equates to a 3-decibel increase. Based on the proposed improvement in roadway capacity, the noise increase will be just over one decibel in most locations. Nevertheless, because many homes are already exposed to noise levels above abatement criteria, abatement is warranted in several locations.

The analysis found that 430 dwelling units, one school, and five churches would be exposed to noise levels exceeding the 66 dBA criterion under future no build conditions compared to 466 dwelling units, one school, and five churches with the proposed project. With the build alternatives, noise mitigation (likely walls) will be included as a normal part of the project's federal funding (subject to local review and approval of property owners). This mitigation will reduce the number of dwelling units exposed to undesirable noise levels by approximately 400 units.

With the build alternatives, noise mitigation will be included as a normal part of the I-75 project's federal funding (subject to local review and approval of property owners). With the No Build Alternative mitigation would be considered Type II, described as "retrofit" projects. While MDOT does undertake Type II projects, funding is limited.[1] Under MDOT's *Noise Policy* only the southern section of the corridor would be eligible for walls, as the communities to the north allowed residential development to occur in areas too close to the freeway.

This study used the FHWA's TNM2 computer model to find that approximately 4.3 miles of noise walls are warranted. These would provide at least a six-decibel noise reduction in the loudest hour, and "benefit" (defined as a 5-decibel reduction) almost 400 dwelling units.

[1] *Noise Abatement*, Michigan State Transportation Commission Policy, July 31, 2003.

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I-75, the main north-south roadway through Oakland County, is experiencing congestion in the peak periods that will get more severe and extend through greater portions of the day as the future unfolds. It provides three lanes in each direction through most of the county except for a section between Square Lake Road and a point west of M-24 (Figure 1-1). A fourth lane also is present between M-102 (8 Mile Road) and I-696, but this lane is considered an auxiliary lane,[2] not a through travel lane, as it serves the weave movements to and from the many ramps in this section.

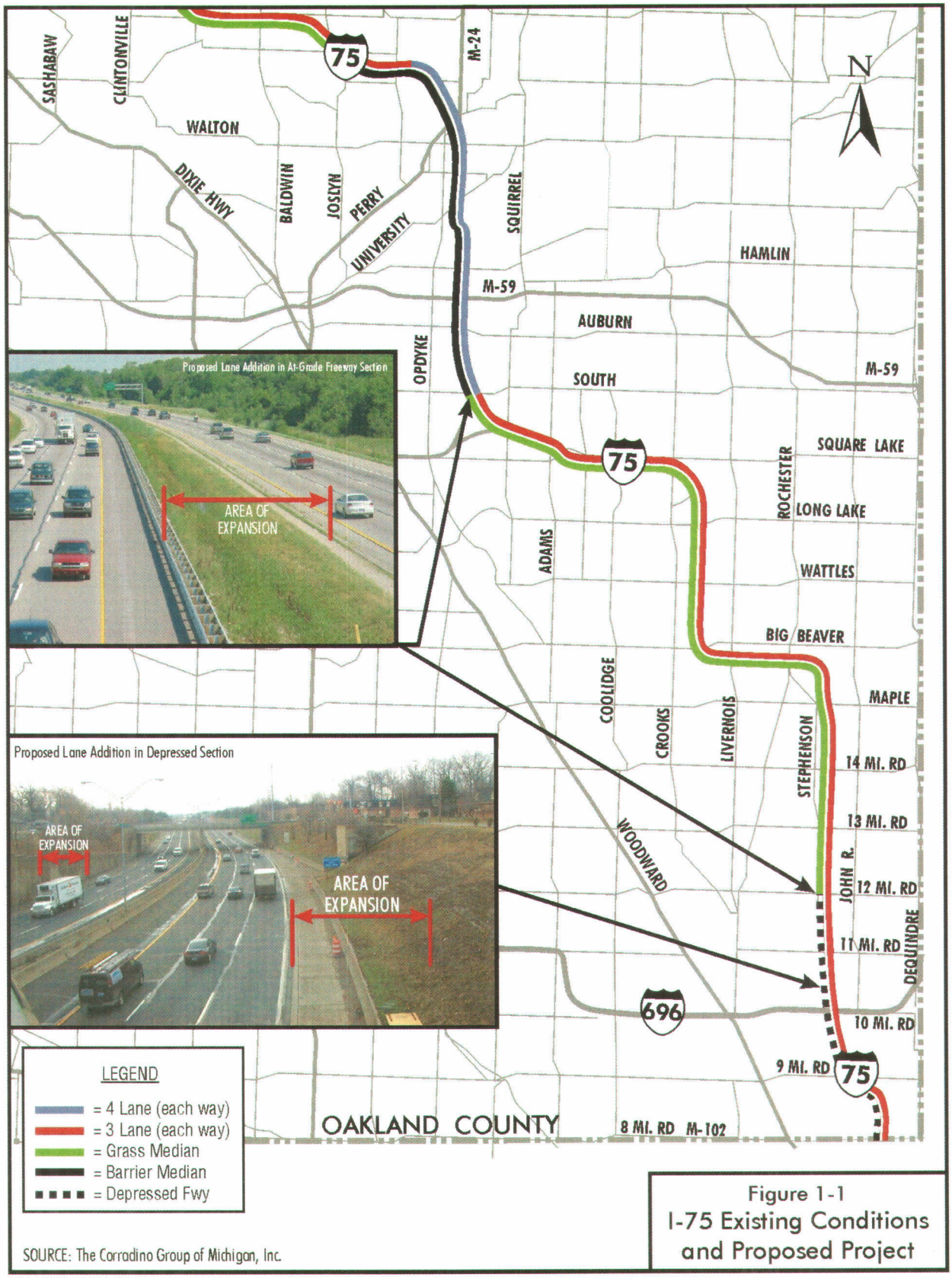
The *I-75 Corridor Study in Oakland County* (Feasibility Study),[3] completed in November 2000, recommended providing four through travel lanes in each direction throughout Oakland County. It also recommended the improvement of several interchanges and arterial streets near I-75. The federal action proposed by the Michigan Department of Transportation (MDOT) and covered by the Draft Environmental Impact Statement (DEIS) that this Noise Study Report supports, addresses the reconstruction of I-75 and its widening of I-75 from three to four through travel lanes in each direction between M-102 (8 Mile Road - exit 59) and M-59 (exit 77), a distance of 18 miles. The next six miles, north to Joslyn Road (exit 83) has already been widened. The Feasibility Study recommends that MDOT plan to widen I-75 north of Joslyn Road. However, the proposed improvements between M-102 and M-59 have independent utility, i.e., they can stand alone and provide transportation benefits without relying upon the development of other projects. The project will connect with the four-lane section north of Square Lake Road and south of M-102.

The proposed improvements include reconstructing the 12 Mile and 14 Mile Road interchanges. Modifications to the Crooks/Long Lake interchange and the I-75/M-59 interchange are separate projects and, as such, are not covered by the DEIS or this Noise Study Report. The I-75/M-59 project extends south to about South Boulevard. Therefore, the environmental analysis of the proposed project covered in the DEIS extends north to that point from M-102. Other independent, but related MDOT projects in the area include a new pedestrian bridge over I-75 south of Auburn Road and noise mitigation in the Square Lake Road area.

This Noise Study Report supports the I-75 Oakland County Planning/Environmental Study, which is listed in the Southeast Michigan Council of Government's (SEMCOG's) 2025 Regional Transportation Plan, in SEMCOG's Transportation Improvement Plan (TIP), and in the Michigan Department of Transportation's (MDOT's) Five-Year Road & Bridge Program (Volume V – 2003 to 2007) for the Metro Region.

[2] An auxiliary lane is one that begins as an on-ramp, but never fully merges with the mainline. Instead it continues as the rightmost lane of the freeway to the next exit, where is becomes an "exit only" lane. So it functions as a travel lane between two interchanges. The advantage is that it adds some mainline capacity and lengthens the decision-making distance and time for merges and diverges.

[3] *I-75 Corridor Study in Oakland County*; The Corradino Group for the Michigan Department of Transportation, the Southeast Michigan Council of Governments, the Road Commission for Oakland County and the Traffic Improvement Association; November 2000.



SOURCE: The Corradino Group of Michigan, Inc.

Figure 1-1
I-75 Existing Conditions and Proposed Project

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1. Description of the Proposed Project

I-75, the main north-south roadway through Oakland County, is experiencing congestion in the peak periods that will get more severe and extend through greater portions of the day as the future unfolds. It provides three lanes in each direction through most of the county except for a section between Square Lake Road and a point west of M-24 (Figure 1-1). A fourth lane also is present between M-102 (8 Mile Road) and I-696, but this lane is considered an auxiliary lane,[2] not a through travel lane, as it serves the weave movements to and from the many ramps in this section.

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2. Introduction

This Noise Study Report summarizes existing and future noise conditions and where noise walls have been identified for consideration.

The noise unit used herein is the decibel (dB). The sound spectrum is expressed for human hearing in terms of an A weighting, so the unit is called dBA. A 10-dBA increase is a ten-fold increase in sound energy, but is perceived as a doubling of loudness. A 3-dBA increase is a two-fold increase in sound energy and is generally the smallest change in noise perceptible to most people outside of a laboratory setting.

3. Definition of Impact Criteria

To double the energy of sound and get a perceptible increase in noise, there must be twice as much traffic or the distance between a sound source and receiver must be halved. Neither will be the case with the proposed widening of I-75. Rather, traffic has already grown over the years to the point that noise guidelines are exceeded in some places. As a result, when a new project is proposed along I-75, noise mitigation must be considered.

FHWA has promulgated noise abatement criteria, which have been incorporated into MDOT's Noise Policy (Table 3-1). For the exterior of residences, churches, hospitals, parks, and libraries, FHWA has established a noise guideline of 67 decibels (dBA), measured as an "average" of sound over a one-hour period (referred to as L_{Aeq1h}).[4] This level is not to be "approached or exceeded." Should the guideline at these sensitive receptors be approached or exceeded, noise abatement measures must be considered. "Approach" is defined in Michigan as a 1-dBA reduction from the maximum of 67 dBA. So, the effective criterion for consideration of mitigation is 66 dBA during the loudest hour of the day. Mitigation must also be considered if a project results in a substantial increase (10 dBA or more) in noise levels. Normally, mitigation is not considered in commercial areas.

Table 3-1
Noise Abatement Criteria
(Hourly A-Weighted Sound Level-decibels [dBA])

Activity Category	Abatement Level (in L_{Aeq})		Description of Activity Category
	FHWA	MDOT	
A	57	56 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and where the preservation of those qualities is essential, if the area is to continue to service its intended purpose.
B	67	66 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72	71 (Exterior)	Developed lands, properties, or activities not included in Categories A and B above.
D	--	--	Undeveloped lands.
E	52	51 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

Source: Based on Table 1 of 23 CFR 772 as found in MDOT's Noise Policy.

[4] Title 23, Code of Federal Regulations (CFR), Part 772, revised April 1998.

The frontage of I-75 includes low- and high-density residential areas, one school, and several churches. The 66-dBA criterion applies to all these areas. Noise modeling shows that many homes are exposed to noise levels exceeding abatement criteria today. Generally, these same areas will continue to exceed criteria with or without the project. But, where a new lane is built, noise will increase as a function of the increased traffic capacity (using 4 lanes instead of 3 lanes in each direction). Based on the mathematics of noise energy, if all other conditions are equal, the noise level increase associated with adding a lane in each direction would be only 1.2 dBA. This increase is imperceptible, but it adds to levels already above applicable criteria. So, mitigation must be considered. Noise level changes are, of course, also a function of the geometry of each site. When the road is reconstructed, this geometry changes. Noise modeling considers all these factors.

4. Identification of Noise Sensitive Land Uses and Existing Noise Levels

Existing Noise Conditions

Many of the receptors along I-75 today experience noise levels above 66 dBA. Noise measurements were made at 26 locations along the corridor following standard procedures with calibrated equipment.[5] Three five-minute measurements were averaged to obtain the existing noise levels. Measurements ranged from near 60 to over 80 dBA, with about half the measurements over 70 dBA (compared to the criterion of 66 dBA). In the southern, depressed section, measurement locations generally represented the building line as homes are very close to road right-of-way. Further north, where there is active residential yard space, measurements and modeling focused on a point 25 feet from the backs of homes towards the freeway (or in other appropriate areas, depending on lot orientations, single versus multiple-family use, and other special considerations).

Future Noise Conditions

The Transportation Noise Model (TNM2.1), available through FHWA, was used to predict noise levels based on: roadway geometry, the location of sensitive receptors, and traffic information such as speed and the mix of vehicles.[6] For analysis purposes, the corridor was divided into segments that have consistent roadway geometry and traffic. Model runs were made for existing, no-build, and build conditions. Model runs of existing conditions were compared to actual field measurements to ensure the accuracy of the work. These efforts allowed a determination of the number of homes that would be covered by the 66-dBA criterion under 2025 build and no build conditions (Table 4-1).

The result of this analysis found that 430 dwelling units, one school, and five churches would be exposed to noise levels exceeding the 66 dBA criterion under future no build conditions, compared to 466 dwelling units, one school and five churches with the proposed project. Future traffic would be closer to residences with the wider roadway in the depressed section of I-75, but with the new lane constructed into the embankment, it will tend to be shielded from sensitive receptors. In the northern, at-grade and elevated sections, the lane will be added in the median, so the center-of-road noise will actually move slightly away from receptors. And, the concrete median safety barrier proposed to be added with the project would provide some limited benefit.

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[5] Measurements were made in conformance with *Measurement of Highway Noise*, U.S. Department of Transportation, May 1996, and MDOT practice. A Quest Technologies Q-400 Type 2 dosimeter was used for measurements. It was calibrated before measurements.

[6] The *Traffic Analysis Report* developed for this project found that heavy congestion is anticipated in 2025 even with the project. So, future traffic levels of 1,600 vehicles per lane were used for TNM2 runs for both build and no-build conditions.

Table 4-1
Existing and Future Noise Levels
(Leq(h) Noise Levels in dBA)

	Segment	Modeled Receptors	Repre-senting	Modeled			Receptors over 66 dBA	
				Existing (2003)	No-Build (2025)	Build (2025)	No-Build (2025)	Build (2025)
1	8 Mile to Meyer Road	66	66	54-74	54-74	54-74	29	32
2	Meyer Road to 9 Mile	27	27	58-71	59-71	59-71	9	9
3	9 Mile to Woodward Heights	36	36	44-66	44-66	46-67	3	4
4	Woodward Heights to I-696	21	21	54-72	55-72	55-72	8	8
5	I-696 to Gardenia Ave.	44	44	NA[a]	NA[a]	47-71	NA[a]	8
6	Gardenia to north of 12 Mile	41	58	46-74	46-75	47-75	25	25
7	North of 12 Mile to 14 Mile	34	144	39-73	39-74	39-74	76	76
8	14 Mile to Rochester	16	28	60-74	60-74	60-74	17	17
9	Rochester to Livernois	57	198	62-74	62-74	62-75	153	153
10	Livernois to Wattles	43	105	45-77	45-77	46-79	45	61
11	Wattles to Coolidge	63	90	51-74	52-75	54-76	66	70
12	Coolidge to Square Lake	55	55	44-73	45-73	47-75	5	9
	Total						436	472

Source: The Corradino Group of Michigan, Inc.
[a] NA – a noise wall is already present at this location.

Noise Mitigation Considerations

The test of whether noise mitigation should be pursued rests on whether such mitigation is "feasible" and "reasonable." The "feasible" test relates to whether mitigation is physically or institutionally possible and can achieve the desired reduction in noise levels of at least five decibels. Feasible solutions can generally be achieved, but not always. For example, with noise walls, there are engineering limitations on height, especially on bridges. In other cases, there may be a noise source that cannot be controlled with a noise wall. Also, noise wall construction must adhere to safety design criteria, especially stopping sight distance, i.e., walls must be clear of intersections and be positioned in ramp merge areas so that motorists have a clear field of view.

The "reasonable" test addresses whether noise mitigation is cost-effective. This involves examination of how many sensitive receptors can benefit per dollar invested. The current inflation-adjusted value per benefiting dwelling unit is $34,200 (2003 dollars). This applies to those units that would experience at least a 5-decibel reduction in the loudest hour. The current costs to construct a noise wall are $23.77 per square foot, plus $219.60 per linear foot for wall foundation, drainage, and other considerations.

Noise mitigation falls into two general categories. "Type I" projects involve new roadway construction of a type that increases roadway capacity, i.e., in other words, projects that could serve greater traffic volumes and hence generate more traffic noise. These are eligible for federal funding through FHWA as a normal part of project construction. "Type II" projects may be described as retrofits, independent noise mitigation not related to any roadway capacity increase.

With the build alternatives, noise mitigation will be included as a normal part of the I-75 project's federal funding (subject to local review and approval of property owners). With the No Build Alternative mitigation would be considered Type II. While MDOT does undertake Type II projects, funding is limited:[7]

> "MDOT will construct Type II sound walls only in years when MDOT's Road and Bridge Program, excluding maintenance, exceeds $1.0 billion, adjusted to the Consumer Price Index (CPI) using 2002 as the base year. MDOT will not spend more than one half of one percent of the budget on sound walls. MDOT will give priority to those communities where the freeway was constructed through an existing neighborhood and where 80 percent or more of the existing residential units were there prior to the construction of the freeway. Communities must make application to MDOT and provide a local match of 10 percent of the cost of the sound wall."

It is evident from this policy that, under no-build conditions, only the southern section of the corridor would be eligible for walls. Communities to the north allowed residential development to occur in areas too close to the freeway, after the freeway was built in the 1960s.

A number of potential mitigation measures may be considered to reduce noises levels. These include lowering the roadway profile, restricting or prohibiting truck traffic, reducing traffic speeds, insulating public use or nonprofit institutional structures, and constructing noise berms or barriers. Some lowering of the roadway will occur in the depressed section of I-75 to gain more clearance under bridges. But, connections to the numerous ramps and the grades and tapers associated with these ramps limit the ability to lower the freeway. For these reasons, lowering the roadway profile is not considered feasible or reasonable.

Restricting or prohibiting truck traffic is not feasible because I-75 is an interstate highway. It is specifically designed to accommodate commercial traffic. Similarly, lowering the speed limits for noise reduction is counter to the purpose of moving people and goods in an efficient manner over the state highway system. MDOT is committed to maintaining speed limits that allow safe and efficient travel, which means maintaining a 55 mph minimum speed limit, and increasing it, where possible, up to the state limit of 70 mph.

Noise barriers consist of earthen berms or walls, or combinations of the two. Berms are cost-effective and can substantially reduce noise levels. However, they take up a lot of space. In the I-75 corridor such space is limited, primarily due to needs for drainage, the proposed lane addition, and the juxtaposition of private property with the road's right-of-way line. Construction of berms would require property acquisition, meaning additional relocations and wetland impacts, and local tax base loss. So, berms were not considered reasonable. This leaves noise walls as the preferred mitigation. Under special circumstances insulating public use or nonprofit institutional structures will be considered.

[7] *Noise Abatement*, Michigan State Transportation Commission Policy, July 31, 2003.

5. Prediction of Noise Levels at Sensitive Receptors, Comparison with Criteria, and Mitigation

Noise Barrier Analysis

Noise mitigation was examined for all residential areas along the corridor, where traffic-generated noise was expected to be 66 dBA or greater, except where development densities are very low. In the depressed section of I-75 south of 12 Mile Road, noise walls were modeled for placement between the mainline lanes and the service drives, or between ramps and service drives. In this position, they are effective in breaking the line-of-site between homes and mainline I-75 traffic. Where ramps are present, mainline and ramp walls were overlapped in the modeling to prevent gaps. The walls in this analysis were positioned with sight distance and clear-view angle distances taken into account in ramp areas and at intersections. So, walls must end some distance away from intersections. Often commercial uses are at these intersections. So, ending walls in these areas generally does not limit the protection afforded to residential locations.

Noise walls could be positioned between the service drive and adjacent homes. However, as the service drives are local streets (not MDOT-maintained roads), any positioning of such walls would require an agreement with the local government to take over ownership of the walls. Based on an agreement signed at the time of construction, MDOT would maintain the structural integrity of the wall for five years, and then the local jurisdiction would accept ownership and maintenance of the wall.

Because service drives provide direct access to homes, and/or connect to the many cross streets on which these homes front, positioning walls between the service drives and homes would cut access to the homes or streets. Closing connecting streets is not practical. Typically, cul-de-sacs must be provided for emergency vehicle turnarounds. These cul-de-sacs require right-of-way, which often means taking residential property, including homes. For this reason walls have not been positioned outside the service drives in the southern-most part of the corridor. Nevertheless, this option does remain, if the local community wishes to pursue it and is willing to take over ownership.

In sections of the corridor where I-75 is not in a depressed section, i.e., from 12 Mile Road to the north, walls would be positioned behind guards rails where possible, and at the right-of-way edge otherwise. When a road is at-grade or elevated, noise walls are usually most effective at the roadway edge, rather than the right-of-way edge. A final consideration is that typically walls are to be a minimum of 590 feet long. It is noted that safety, maintenance, and drainage issues encountered during roadway design could change the assumptions used in the analysis of noise for this EIS.

Barriers that were found reasonable and feasible are listed in bold in Table 5-1 and are shown on Figure 5-1. One wall would protect a church and another would protect a school. (For purposes of analysis, these institutions are counted as the equivalent of 10 dwelling units in the cost formula.) The existing noise wall in the northeast quadrant of the I-696 interchange will be removed by the proposed ramp braiding. It would be replaced with a new wall. A discussion of the results for each analysis segment follows.

It is noted that where noise walls are not found to be reasonable, i.e., where the cost exceeds $34,200 per benefiting dwelling unit, the local community can participate in funding to bring the cost down to the $34,200 level. Therefore, other walls could become reasonable, if a local community decided to participate in funding.

TNM2 Model Segments

The TNM2.1 model was run for 12 segments:

1. 8-Mile Road to Meyer Road
2. Meyer Road to 9 Mile Road
3. 9 Mile Road to Woodward Heights Boulevard
4. Woodward Heights Boulevard to I-696
5. I-696 to Gardenia Avenue
6. Gardenia Avenue to north of 12 Mile Road
7. North of 12 Mile Road to 14 Mile Road
8. 14 Mile Road to Rochester Road
9. Rochester Road to Livernois Road
10. Big Beaver Road to Wattles Road
11. Wattles Road to Coolidge Highway
12. Coolidge Highway to Square Lake Road

Segment 1 – 8 Mile Road to Meyer Road

Three noise walls were considered in this segment. Northbound, a wall was modeled between the lanes of I-75 and its service drive beginning at Hayes Avenue and extending north beyond Madge Avenue (this wall is called NB 1). The safety setback requirements were observed in setting the endpoints of the walls in the vicinity of the on-ramp near Hayes Avenue and Meyer Avenue.

Walls were modeled on the southbound (west) side of I-75 to protect residences on that side of the road from I-75 noise (SB 1 and SB 2). Two of the three walls modeled, NB 1 and SB 1, were considered to be reasonable, meaning the cost per benefiting receiver was less than $34,200 (see Wall 0 and Wall 1 in Figure 5-1a).

Table 5-1
Noise Barrier Analysis
(See Figures 5-1a to 5-1e)

	Location/Designation	Length (Feet)	Average Height	Cost	Benefiting Receivers	Cost per Ben. Rec.
Feasible and Reasonable Walls	8 Mile to Meyer Road					
	Wall 0 – NB 1	2117	10.5	$994,630	31	$32,085
	Wall 1 - SB 1	1,002	7.5	$397,831	12	$33,153
	Meyer Road to 9 Mile Road					
	Wall 2 - NB 1	644	10.0	$294,440	10	$29,444
	9 Mile to Woodward Heights Blvd.					
	Wall 3 - SB 1	594	8.0	$243,598	8	$30,450
	Woodward Heights Blvd. To I-696					
	Wall 4 - NB - Church counts as 10 dwellings[a]	669	10.0	$306,052	10	$30,605
	Wall 5 - SB 2 -School counts as 10 dwellings[a]	656	10.0	$300,119	10	$30,012
	I-696 to Gardenia Avenue					
	Wall 6 - Replacement Wall	1,368	10.0	$625,587	NA[b]	NA[b]
	Gardenia to North of 12 Mile Road					
	Wall 7 - SB1	598	13.0	$316,898	14	$22,636
	North of 12 Mile Road to 14 Mile Road					
	Wall 8 - NB 1	658	12.0	$332,325	12	$27,694
	Wall 9 - NB 2	3,310	12.7	$1,723,718	92	$18,736
	14 Mile Road to Rochester Road					
	Wall 10 - SB 1	1,223	10.0	$559,432	17	$32,908
	Rochester Road to Livernois Road					
	Wall 11 - NB1	695	10.9	$332,568	10	$33,257
	Wall 12 - NB2	1,143	11.9	$575,489	17	$33,852
	Wall 13 - SB1	646	10.0	$295,208	24	$12,300
	Wall 14 - SB2	2,381	13.1	$1,263,340	83	$15,221
	Livernois Road to Wattles Road					
	Wall 15 - SB 1	2,749	13.5	$1,486,948	56	$26,553
	Wattles Road to Coolidge Highway					
	Wall 16 - SB1 & SB2	2,078	12.5	$1,072,462	35	$30,642
	Totals	22,531		$11,120,645	441	$25,217
Walls Not Feasible or Reasonable	8 Mile to Meyer Road					
	SB 2	1,880	11.5	$927,153	5	$185,431
	Meyer Road to 9 Mile Road					
	NB Church - Church 10 dwellings	403	10	$184,074	6	$30,679[a]
	NB 2	600	8.8	$257,861	4	$64,465
	SB 1	1,323	7	$510,202	9	$56,689
	9 Mile to Woodward Heights Blvd.					
	NB 1	1,333	12.7	$693,555	15	$46,237
	Woodward Heights Blvd. To I-696					
	SB 1	465	16	$278,969	0	-
	Gardenia to North of 12 Mile Road					
	NB 1	447	14.6	$253,656	6	$42,276
	SB2	676	10	$308,921	0	-
	Wattles Road to Coolidge Highway					
	NB	1,596	10	$729,658	7	$104,237
	SB3	472	12	$238,524	22	$10,842
	Square Lake Noise Wall Project[c]					

Source: The Corradino Group of Michigan, Inc.

[a] These walls are considered reasonable if the school and churches are counted as 10 dwelling units.

[b] This wall functionally replaces the present wall, a portion of which would be removed by the project.

[c] Noise walls are to be built in 2003 in the Square Lake Road area as a separate project. See Figure 5.1e.

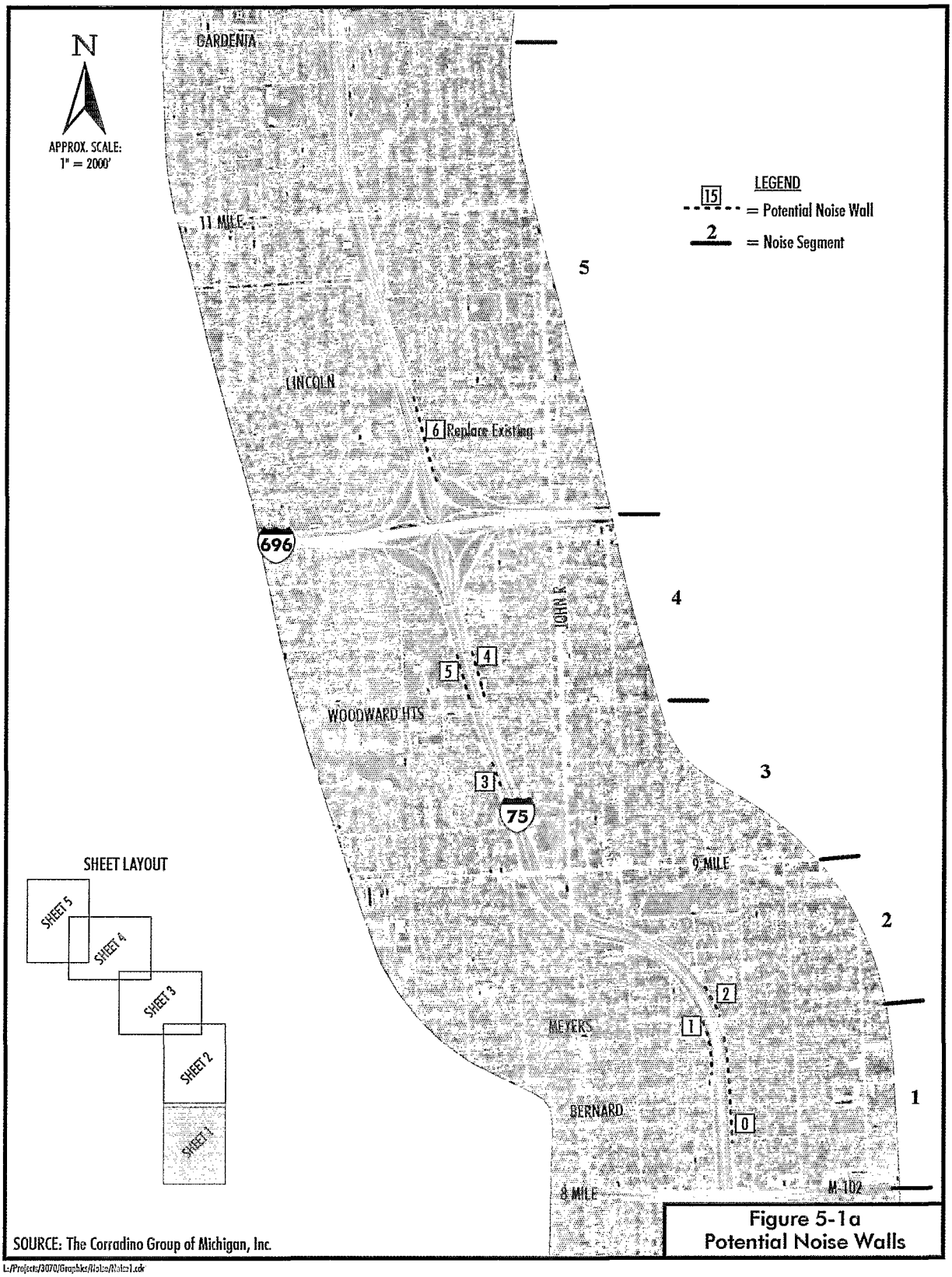

Figure 5-1a
Potential Noise Walls

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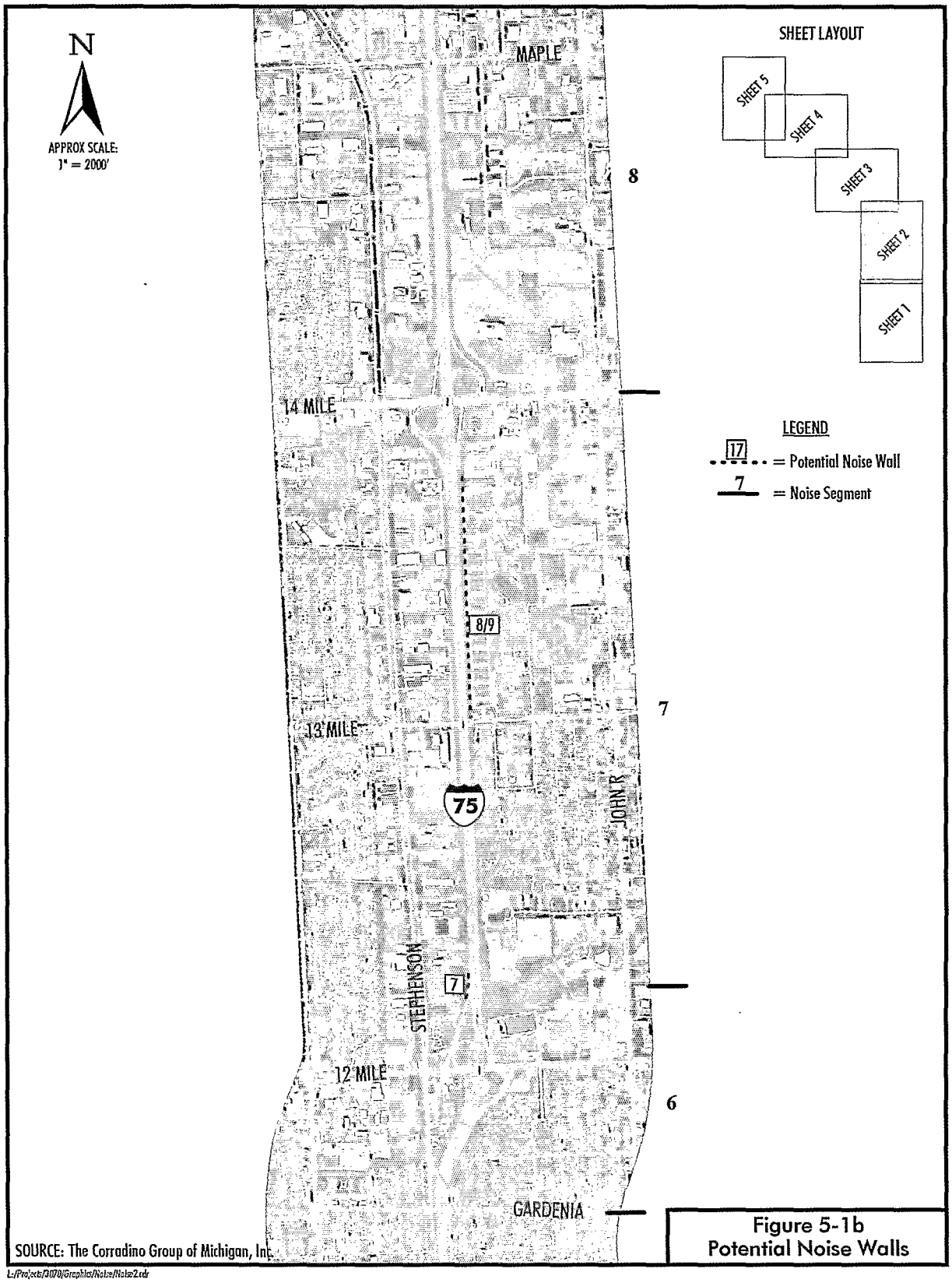

SOURCE: The Corradino Group of Michigan, Inc.

Figure 5-1b
Potential Noise Walls

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CORRADINO

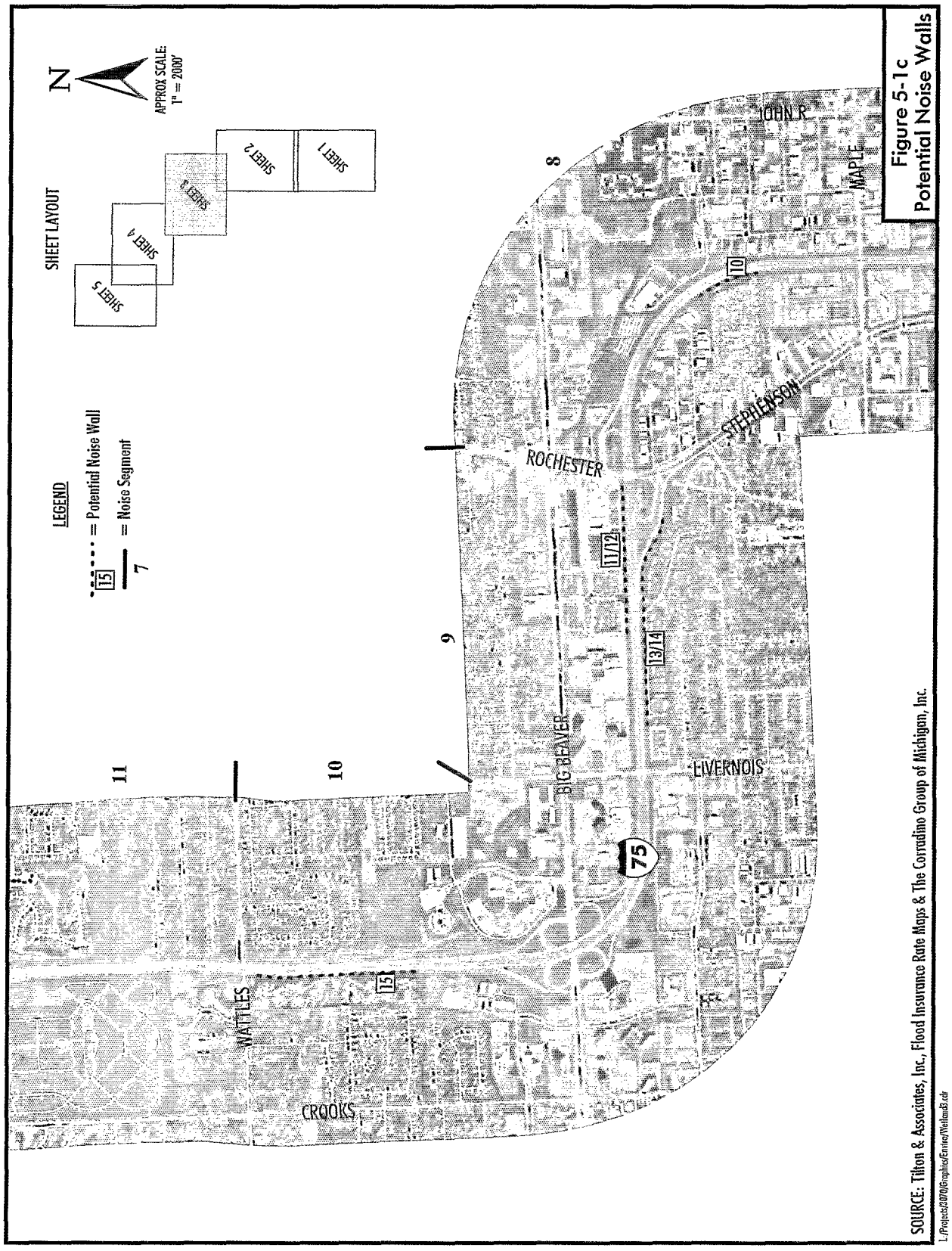
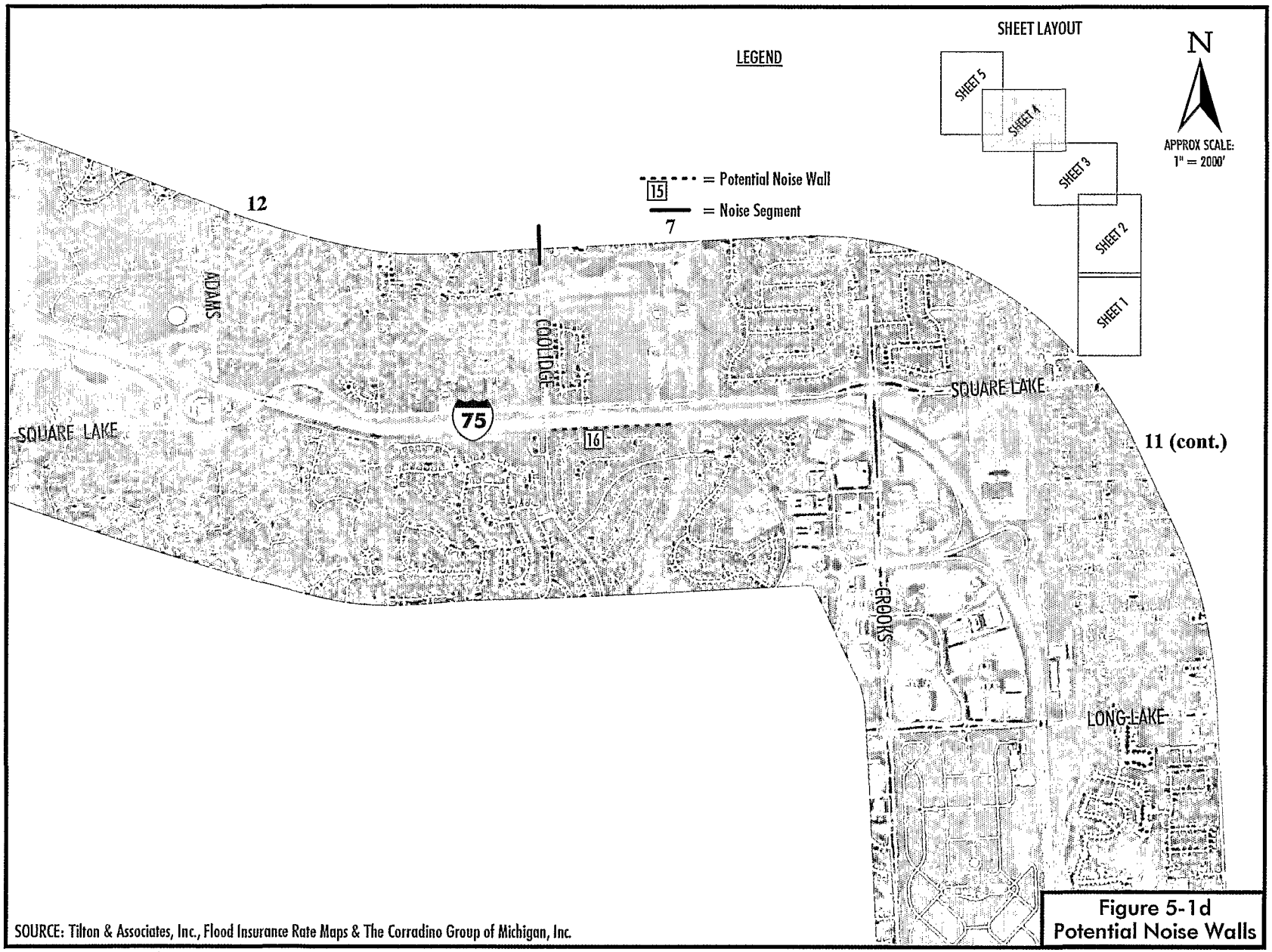


Figure 5-1c
Potential Noise Walls

SOURCE: Tilton & Associates, Inc., Flood Insurance Rate Maps & The Corradino Group of Michigan, Inc.

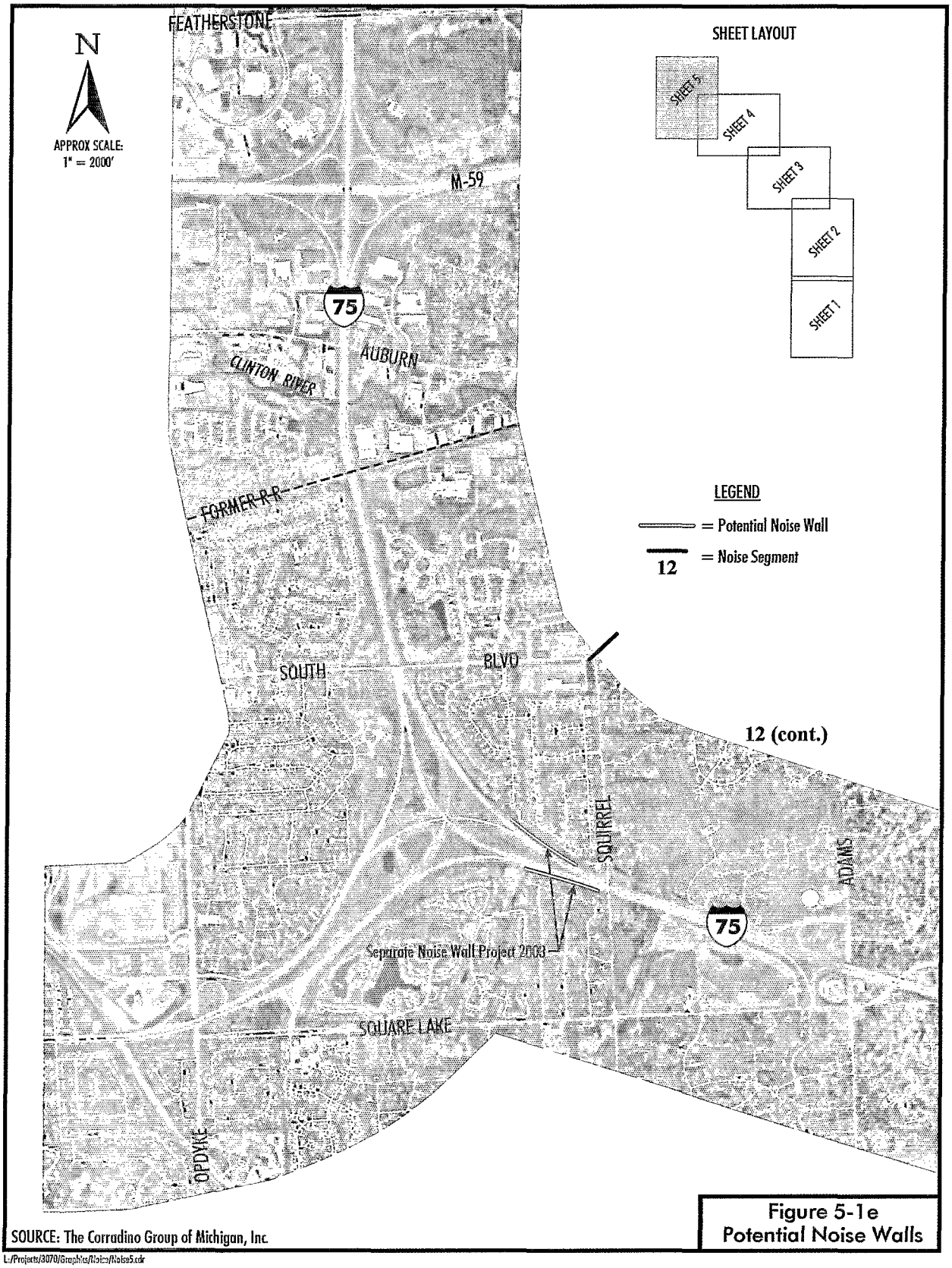
L:/Projects/5870/Graphics/Enviro/Wallmap3.dgn



SOURCE: Tilton & Associates, Inc., Flood Insurance Rate Maps & The Corradino Group of Michigan, Inc.

Figure 5-1d
Potential Noise Walls

L:/Projects/3070/Graphics/Enviro/Wetland4.cdr



SOURCE: The Corradino Group of Michigan, Inc.

L:/Projects/3070/Graphics/Noise/Noise5.cdr

Figure 5-1e
Potential Noise Walls

The first wall found to be feasible and reasonable in this segment extends from north of the on-ramp from 8 Mile Road to north of Madge Avenue. The proposed design calls for shifting the on-ramp to northbound I-75 to the south from it present position. This shift has the effect of reducing the length of the service drive that carries the heavy traffic volumes from 8 Mile Road to I-75. That means a wall between I-75 and the service drift is not rendered ineffectual by the service drive volumes. The dwellings along the service drive are uniformly dense. So, 31 receivers would benefit from a five decibel reduction in noise if a wall about 2,100 feet long and 10.5 feet high were built. The cost per benefiting receiver would be $32,100.

The second reasonable and feasible wall in this section, SB 1, is on the west side of I-75 between Meyer Avenue and the southbound off-ramp to the service drive three blocks to the south. Here, all lots adjacent to the service drive are occupied by single-family dwelling units, the density on successive lots away from the service drive is high, and the service drive volume is relatively low. There are an estimated 12 benefiting receivers, at a cost per benefiting receiver of $33,200. The proposed wall is approximately 1,000 feet long and has been found reasonable at a height of 8 feet.

Segment 2 – Meyer Road to 9 Mile Road

The next segment considered was Meyer Road to 9 Mile Road. Three walls were tested in the northbound direction and one wall in the southbound direction. This section of I-75 curves to the west against the grain of the background grid street system. As a consequence, the residences along this section have a staggered position with respect to the travel lanes of I-75 and its parallel service drives. Commercial uses are also interspersed with the residential uses, principally at the north and south ends of the segment. There is a northbound off-ramp and southbound on-ramp in the vicinity of Highland Avenue. These ramps serve traffic destined to John R. and 9 Mile Roads or coming from those roads to I-75 south. The Free Will Baptist Church is on the northbound service drive two blocks north of Meyer Avenue, and the Tabernacle Baptist Church is on the southbound service drive

The location called NB Church was not found to be feasible and reasonable, even if the church were considered as 10 dwelling units. The noise wall would stretch only from north of Meyers Avenue, at the point at which sight distance allows, to Harry Avenue. This distance of 400 feet does not meet the minimum noise wall length specified in the Noise Policy of 590 feet.

The location called NB 1 was found to be feasible and reasonable, benefiting 10 dwelling units at a cost per unit of about $29,400. It would be approximately 640 feet in length and 10 feet in height, and stretch from East Pearl Avenue north one block to East Roberts Avenue, ending where the off-ramp from I-75 northbound meets the service drive (see Wall 3 on Figure 5-1a). I-75 through this section is closer to being at-grade than at points to the north and south where it passes under cross roads. Therefore, a wall provides better protection from this nearly at-grade portion of I-75.

The location called NB 2, extending from the exit ramp north to John R. Road, would be short and would be truncated by the U-turn channel bridge southeast of John R. Road. Traffic volumes on the service drive at this point were in the neighborhood of 500 per hour, which makes protection of the homes in this section difficult. Several of the fronting parcels are triangular and vacant in this section. Therefore, the density simply does not support a noise wall.

The only wall modeled southbound was from the point past the southbound on-ramp south to East Meyer Avenue. North of this point is the Tabernacle Baptist Church. The service drive volumes are too high to provide a feasible wall to mitigate noise at this church. Further south, a wall positioned between the service drive and mainline I-75 lanes would not protect a sufficient density of residences to be reasonable. As was the case in the northbound direction, there are several triangular lots that are vacant that have frontage to the service drive and I-75.

Segment 3 – 9 Mile Road to Woodward Heights Boulevard

Two noise walls were modeled in this segment, one on each side of I-75. On the east side (northbound) there is housing from Orchard Avenue north to Woodward Heights Boulevard. As is true further south in the corridor, the crossroads to the service drive are at a perpendicular and spaced such that only two dwellings occupy the end of each block. A wall (NB 1) was tested between the mainline lanes of I-75 and the service drive at the top of the slope. The low density resulted in a per-unit cost too high for the wall to be considered reasonable.

On the west side of I-75 (southbound) are two apartment houses and the First Baptist Church. No wall is feasible at the First Baptist Church because there is a southbound off-ramp right in front of the church. Sight distance requirements prevent a wall in this location. But, the apartments provide a sufficiency density of housing for a wall (SB 1) to be reasonable. Feasibility is aided in this segment by a service drive volume under 400 per hour. The proposed wall would be 594 feet long and 8 feet high (see Wall 3 in Figure 5-1a). The cost per benefiting receptor for eight units would be $30,450.

Segment 4 – Woodward Heights Boulevard to I-696

On the east side of I-75, north of Woodward Heights Boulevard, residential density is relatively sparse. St. Margaret's Episcopal Church and Calvary Baptist Church are located here.

Counting St. Margaret's Episcopal Church as a special case in the reasonability formula (10 dwelling units), a wall in front of the church can be justified, even though there are few homes to support the justification of this wall. This wall would be 670 feet long and 10 feet high (see Wall 4 in Figure 5-1a).

Providing a wall for the Calvary Baptist Church is not feasible. The Shelvin Avenue crossover bridge serving the I-696 interchange is in front of this church. The bridge and service drive generate noise. Meanwhile the presence of the bridge would prevent noise wall construction along a substantial portion of the church's frontage because of required sight distances on either side.

Southbound in this segment, there is insufficient density to find wall construction to be reasonable, except for the presence of the Roosevelt School. It faces the southbound service drive. A pedestrian bridge crossover occupies several of the lots on both sides of I-75, decreasing the residential density. Counting the school as 10 residences, a wall 660 feet long and 10 feet high could be considered reasonable (see Wall 5 in Figure 5-1a).

Segment 5 – I-696 to Gardenia Avenue

This segment through Madison Heights on the east and Royal Oak on the west, has noise walls today. These noise walls would remain, But some may be in a relocated position. Relocation could occur if the lane addition into the embankment through this depressed section is in jeopardy of undermining the wall.

With the proposed ramp braiding in the northeast quadrant of the I-696 interchange, the new northbound ramps from I-696 would be placed on the residential side of the existing noise wall. The northern section of the existing noise wall in this section could be left in place. A new wall could be placed along the reconstructed ramp edge. This wall would effectively replace the existing wall. It would be approximately 1,400 feet long and average 10 feet in height (see Wall 6 in Figure 5-1a).

Segment 6 – Gardenia Avenue to North of 12 Mile Road

A wall was modeled along the outside edge of the northbound exit ramp from I-75 to 12-Mile Road (NB 1). In this quadrant of the interchange there is very low-density residential development. This is especially evident in the area adjacent to I-75. The density increases as the distance away from I-75 increases. As a result of the low density, a noise wall is not considered reasonable in this area.

A wall was modeled on the west (southbound) side of I-75 from Gardenia Avenue for several hundred feet to Stephenson Highway (SB 2). There is a long two-story apartment house in this section. The wall, which was modeled at the top of the bank between the service drive and I-75, could require a break, if the storm sewer pump station located here were to remain. But, it was modeled with the assumption that the wall would be continuous. In spite of this, several factors prevent the reasonableness of a noise wall at this location: the southbound volumes from Stephenson Highway are relatively high; I-75 is in the deepest part of its cut section; and, the northbound service drive crossing I-75 at this point acts as a barrier for noise from the section of I-75 immediately to the north.

A wall was tested on the west side of I-75 just north of the 12 Mile interchange (SB 1), at the Red Run Mobile Home Park. Housing there is dense enough to support a reasonable wall about 600 feet long and an average of 13 feet in height. There would be approximately 16 benefiting units at a cost of $22,600 per unit (see Wall 7 in Figure 5-1b).

Segment 7 – North of 12 Mile Road to 14 Mile Road

The west side of this segment is all commercial. On the east side of I-75, two walls were tested along the extensive apartment complex development (Lexington Village Apartments) north of 13-Mile Road (NB 1 and NB 2) (see Wall 8/9 in Figure 5-1b). The first of these walls was placed in the simulation at the outside shoulder edge as I-75 crosses over 13-Mile Road. The noise wall would begin at the north end of this bridge and extend along the shoulder edge to the point that the guardrail ends. At this point, a second wall would overlap the first, placed at the right-of-way line and extending north along the entire frontage of the apartment units. It would end near the 14 Mile Road interchange, where the off-ramp diverges from the main lanes of I-75. Placing a wall along the edge of this shoulder is an effective way to intercept noise from the freeway. This can only be

done in a situation where there is a guardrail section so that the wall is protected from impact. The wall overlap would be sufficient to protect the apartment complex from noise escaping between the two walls and would allow for proper maintenance. The first wall segment would be approximately 660 feet long and 12 feet high. The second wall at the right-of-way line would be approximately 3,300 feet long and average about 13 feet in height. Combined, these walls would provide benefits to over 100 receptors at a cost of under $20,000 per benefiting receiver.

Segment 8 – 14 Mile Road to Rochester Road

A wall was tested on the west side of I-75 at Troy Mobile Home Villa located off Stephenson Highway. This wall would extend for approximately 1,200 feet at a height of 10 feet (see Wall 10 in Figure 5-1c). The wall would benefit some 17 homes at a cost of approximately $32,900 per home.

Segment 9 – Rochester Road to Livernois Road

Both sides of I-75 hold concentrations of apartment units in this segment. Two walls were modeled to protect the Charter Square Apartment complex on the north side of I-75 (northbound direction) (see Wall 11/12 in Figure 5-1c). The first (NB 1) would extend along the shoulder behind the guardrail from the west end of the bridge over Rochester Road, west approximately 700 feet with an average height of 11 feet. A second wall (NB 2) would continue along the right-of-way edge (with an overlap) for another 1,100 feet with a average height of 12 feet. In this apartment complex, the units on the first floor were found to be benefiting receivers where they have frontal exposure to the freeway. Second-story units were counted where the walls extend high enough to protect such units (as where the wall is built on the shoulder edge in elevated section). The first wall northbound would benefit 10 dwelling units at an average cost of approximately $33,300 per unit. The second wall would benefit at least 17 units at an average cost of approximately $33,900 per unit.

Two walls were similarly modeled southbound and found reasonable and feasible (see Wall 13/14 in Figure 5-1c). The northernmost of these two (SB 1) would be at the shoulder protected by a guardrail and would extend for approximately 650 feet at a height of 10 feet. The second wall further south (SB 2) would extend another 2,400 feet at the right-of-way edge, with an average height of 13 feet. The first wall would afford protection to approximately 24 dwelling units at a cost of $12,300 per unit. The second wall would benefit about 83 receivers at a cost of approximately $15,200 per unit.

Segment 10 – Livernois Road to Wattles Road

On the east side of I-75 between Big Beaver and Wattles Road, the Lane Drain occupies an extra-wide right-of-way contiguous with I-75, so 300 feet separates the centerline of I-75 from the east right-of-way line. The Lane Drain occupies this area. City of Troy parkland is on the east side in this section, including their Family Aquatic Center. A berm on the order of 20 to 25 feet high separates the roadway from the park area. This, in addition to the extra-wide right-of-way occupied by the Lane Drain results in no noise impacts to the park area. Further north, the same situation is true for the Meadowbrook Subdivision.

On the west side of I-75 in this segment, there is an extensive patio home/condominium development. There is an existing low berm that affords the development some noise protection. Analysis finds that a wall 2700 feet long would afford protection in this segment to about 50 units at a cost of $26,600 per unit (see Wall 15 in Figure 5-1c).

Segment 11 – Wattles Road to Coolidge Highway

The midsection of this segment falls within the separate Crooks/Long Lake interchange project. The southern section, which falls in the I-75 project, consists on the east side of very dispersed single-family residences that do not have sufficient density to make a noise wall in this area reasonable. On the west side of I-75 north of Wattles Road is the Three Oaks Apartment complex. The intervening distance between the apartments and I-75 would require a very long wall to provide adequate protection. The length of such a wall would make the cost prohibitive and not considered reasonable based on the number of units that could be protected.

West of Crooks Road, Square Lake Road parallels the north side of I-75. Single-family dwelling units face away from Square Lake to an internal subdivision road. Square Lake Road generates too much noise to allow a noise wall between I-75 and Square Lake Road to be feasible. This condition is also affected by the distance between I-75 and the dwelling units.

The south side of I-75 between Coolidge Highway and Crooks Road includes a subdivision street (Fleetwood Drive) that is part of Northfield Hills to the west and condominium/patio home development to the east. Each can be afforded reasonable and feasible walls. SB 1 & 2 (combined) would protect homes on Fleetwood Drive (see Wall 16 in Figure 5-1d). It would be 2,100 feet long and average 12 feet high, and would be located along the shoulder of I-75. The cost per benefiting unit would be $30,600. The condominium patio home area to the east did not have sufficient density to support a wall. The wall protecting the closest condominium patio homes was too short (SB 3). The distance of the units from I-75 varies, and not enough units are close enough to I-75 to benefit from a wall. A low berm is also present that makes a feasible wall difficult to achieve.

Segment 12 Coolidge Highway to North Project Limit

West and north of Coolidge Highway there is residential development, but it is of low density and/or set back farther from I-75 than homes further south. One subdivision to the south of I-75 has a substantial berm on private property (Beach Forest). Further west, near the I-75 crossing of Square Lake Road, the area to the south is elevated well above I-75 and noise measurements did not approach or exceed noise abatement criteria. West of Adams Road and north of I-75 is a patio home development (Adams Woods) with its own noise wall. This wall is effective enough that a new full height MDOT wall outside this private wall would not be feasible or reasonable, when considering the minimal additional noise mitigation the MDOT wall would provide.

At the Square Lake Road interchange, the existing noise wall will be lengthened and a new wall constructed by the fall of 2003. The location of these walls is shown on Figure 5-1e.

6. Conclusion

Based on the noise analysis, MDOT intends to implement the mitigation measures that are feasible and reasonable. Sixteen barriers totaling about 4.3 miles in length and protecting approximately 400 dwelling units meet the criteria. The wall in the northeast quadrant of the I-696 interchange would be replaced. Because the analysis of the noise impacts and mitigation measures are based on preliminary design (planning), the mitigation measures will be reviewed as a part of final design. A final decision on noise barrier installation will be made upon completion of the next phase (design) and the public involvement process.

Appendix A

MDOT Highway Traffic Noise Analysis and Abatement Policy

MDOT Michigan Department of Transportation

COMMISSION POLICY

IDENTIFIER	EFFECTIVE DATE
10136	July 31, 2003
SUPERCEDES DATED	
July 19, 2002	

RESPONSIBLE OGANIZATION: Executive Bureau

SUBJECT: Noise Abatement

Federal environmental regulation 23 CFR 772 defines two types of projects. Type I is "a proposed federal or federal-aid highway project for the construction of a highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes" (23 CFR 772.5[h]). If noise impacts are identified, noise abatement measures must be considered and implemented where reasonable and feasible. The Michigan Department of Transportation (MDOT) follows all Federal laws, regulations, and guidelines for Type I noise abatement.

Type II, or voluntary, abatement is a proposed federal or federal-aid highway project for noise abatement on an existing highway.

This policy addresses Type II noise abatement to limit the intrusion of highway noise into adjacent residential areas to reasonably achievable levels consistent with the U.S. Department of Transportation's Code of Federal Regulations (CFR), and taking into consideration MDOT's life-cycle cost analysis and safety requirements, as well as other technical and financial implications. To achieve this objective the Michigan State Transportation Commission (Commission) supports the following four approaches to alleviate traffic noise impacts:

1. *Reduction of Noise at the Source.* Reduction of traffic noise by design or treatment of the road surface is the most cost-effective noise control available to MDOT. Within the group of noise abatements that are reasonable and feasible under 23 CFR 772, and after MDOT's life-cycle cost analysis has selected a pavement type and other technical and financial constraints, MDOT will use the quietest surface texture available when repaving/reconstructing a freeway in residential areas.

2. *Noise Abatement.* MDOT will attempt to locate, design, construct and operate state highways to minimize the intrusion of traffic noise into adjacent areas. When noise impacts occur, they may be attenuated by the most reasonable and prudent means.

   MDOT will construct Type II sound walls only in years when MDOT's Road and Bridge Program, excluding maintenance, exceeds $1.0 billion, adjusted to the Consumer Price Index (CPI) using 2002 as the base year. MDOT will not spend more than one half of one percent of the budget on sound walls. MDOT will give priority to those communities where the freeway was constructed through an existing neighborhood and where 80 percent or more of the existing residential units were there prior to the construction of the freeway. Communities must make application to MDOT and provide a local match of 10 percent of the cost of the sound wall.

MDOT Michigan Department of Transportation

COMMISSION POLICY

IDENTIFIER	EFFECTIVE DATE
10136	July 31, 2003
SUPERCEDES DATED	
July 19, 2002	

RESPONSIBLE OGANIZATION: Executive Bureau

SUBJECT: Noise Abatement

3. *Encouraging Compatible Adjacent Land Use.* Cities and counties have the power to control development by adoption of land-use plans and zoning, and by subdivision, building or housing regulations. The Commission encourages those who plan and develop land, and local governments controlling development or planning land use near known freeway locations, to exercise their powers and responsibility to minimize the effect of highway vehicle noise through appropriate land-use control. Where such land-use regulations are not in place, cities, townships and counties will not be eligible for MDOT noise mitigation assistance.

4. *Noise Abatement by Others.* The Commission encourages developers and local governments to coordinate their efforts to mitigate highway noise. This effort must be done without encroachment of MDOT's property right-of-way unless it is determined to be necessary, and authority granted to permit others to construct a sound barrier in the state's right-of-way. The barrier's design must meet MDOT's geometric, structural, safety and maintenance standards. MDOT shall assume no review authority or responsibility of any kind for the structural integrity or the effectiveness of a sound barrier constructed by others.

MDOT will monitor noise mitigation best practices in other states and provide an activity report to the Commission annually.

The Department shall develop instructions for the implementation of this policy.
Adopted by the Michigan State Transportation Commission on July 31, 2003.

MICHIGAN DEPARTMENT OF TRANSPORTATION'S
Procedures and Rules for Implementation
of
State Transportation Commission Policy 10136
Noise Abatement

The following contains the procedures and rules for implementation of the Michigan Department of Transportation (MDOT) Commission Policy 10136, dated July 19, 2002. These rules are based on the Federal Highway Administration's (FHWA) *Highway Traffic Noise Analysis and Abatement Policy and Guidance* document of June 1995.

Definitions

Application

The request for Type II noise abatement.

Benefiting Dwelling Unit

A dwelling unit receiving 5 dBA Leq noise reduction or more.

Date of Public Knowledge

The date that the freeway construction project's final environmental analysis and documentation (i.e., Categorical Exclusion [CE], Finding of No Significant Impact [FONSI], or Record of Decision [ROD]) was approved by FHWA.

dBA

An A-weighted sound level on the logarithmic scale.

Dwelling Unit

Any room or set of rooms used as a living space by one or more persons. Public use areas such as parks, schools, libraries, and churches shall be counted as 10 dwelling units for each occurrence when they are within or adjacent to residential dwelling unit boundaries.

Feasible

This term refers to engineering considerations, such as can a noise barrier be built given the topography of the location; can a substantial noise reduction be achieved given certain access, drainage, safety, or maintenance requirements; are other noise sources present in the area? While every reasonable effort should be made to obtain a substantial noise reduction, a noise abatement measure is not feasible if it cannot achieve at least a 5 dBA noise reduction.

Leq

The ambient or steady state sound level. An averaging technique is used to produce an equivalent continuous sound level, Leq. For example, if a one hour sound measurement were taken and all the higher levels that occurred were used to fill in all the lower levels so the sound level would be the same for the whole hour, the result would be an equivalent sound level for one hour or Leq 1 h.

Noise Abatement Criteria (NAC)

See Appendix A.

Noise Impact

Where noise levels are one dBA below or greater than the federal noise abatement criteria, as shown in Appendix A, or are expected to increase 10 dBA above existing noise levels for existing conditions, as measured with a sound level meter.

Planned Development

A planned, designed, and programmed development where a building permit has been issued.

Reasonable

A noise mitigation project will be considered reasonable if the comparative construction cost will be $34,200 or less (in 2003 dollars) per benefiting dwelling unit. Additionally, the local jurisdiction(s) must have entered into the required agreements with MDOT regarding maintenance, land use policy, and funding participation. A majority of the affected residents must be in favor of abatement.

If during final design, the project cost becomes not reasonable (construction costs exceed the total benefited amount of $34,200 per unit), the local jurisdiction(s) will be asked if they wish to increase their financial participation in the noise abatement project to cover the excess cost per dwelling unit (the amount over $34,200 per unit), or have noise abatement dropped from further consideration.

Substantial Noise Reduction

A ten dBA Leq sound level reduction for at least one receptor.

Type I Projects

A Type I project is a proposed federal-aid project for the construction of a highway on a new location or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes. State highway agencies are then required by federal regulations to perform a noise analysis and mitigate noise impacts where feasible and reasonable.

Type II Projects

A Type II project is a federal-aid project for noise abatement along existing highways at residential locations that were in existence prior to 1976. The following conditions must exist:

- Eighty percent of the dwelling units within 500 feet of a limited access highway preceded the highway or the last pre-1976 major capacity improvement.
- Zoning and building regulations are in place to preclude future noise abatement needs.
- The majority of the residents are in favor of noise abatement.

If noise abatement measures were previously determined to be unreasonable or unfeasible as part of a Type I project, the application will not be considered (see Appendix B). Participation by MDOT is subject to State Transportation Commission Policy 10136, dated July 19, 2002.

Type I Projects Procedures and Rules

1. For a proposed highway project, a traffic noise analysis will be performed to determine if noise abatement is feasible and reasonable for developed land, undeveloped lands at planned development locations, and for local community land use planning.

2. Public meetings will be advertised in local news media and held in local facilities during the route location and planning stages of a roadway or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes, for the purpose of discussing the present and future environmental, social and economic impacts.

3. Comments on noise concerns will be solicited at public meetings from local residents, and officials of the jurisdiction(s) affected by the project. MDOT will use this information to draft the final environmental document. Once the final environmental document (i.e. CE, FONSI, or ROD) is approved by the FHWA, it is distributed to the local officials affected by the project to notify them of location approval. The FHWA approval date is the date of public knowledge.

4. If during final design the noise mitigation project is determined to be not reasonable, the local jurisdiction(s) will be asked if they wish to increase their financial participation in the noise abatement portion of the project to cover the cost per residence by the amount greater than $34,200 as set forth in this document, or have noise abatement dropped from further consideration.

5. Noise abatement will only be provided when feasible and reasonable for residential land use locations, public land use (parks), and non-profit institutional facilities such as hospitals, libraries, schools, and churches. (Public use facilities will be equated to ten dwelling units each.)

6. All sites will be considered. However, it is generally known that commercial and industrial sites prefer that there be no interference with the view to their establishments. Therefore, when commercial and residential sites expected to convert to a commercial or industrial land use (e.g., some of the residential units have converted to commercial/industrial, or the area has been rezoned commercial) are found to be reasonable and feasible, they will be asked if they want noise abatement. If they do not want it, it will not be provided.

7. Where negative noise impacts are expected to occur, noise abatement will be considered and will be implemented if found feasible and reasonable for existing developments, and future developments were approved before the date of public knowledge. After the date

of public knowledge, MDOT will not be responsible for providing noise abatement for new developments. The provision of noise abatement for new developments becomes the responsibility of local governments and private developers.

8. All noise abatement will follow MDOT design standards.

9. MDOT will maintain the structural integrity of the noise abatement structure and will be responsible for the aesthetic condition of the structure on the freeway side only. The exception being that when the structure is on the residential side of a service road, MDOT will maintain the structural integrity for five years, but will not be responsible for either side of structure's aesthetic condition, including the surrounding grounds.

10. Local authorities must agree, through agreements, resolutions, or ordinances, to provide:

    - A share of the state and local funding based on population (per State of Michigan Act 51).
    - Aesthetic maintenance on the residential side of the structure, or on both sides when the structure is on the residential side of a service road.
    - Structural maintenance after five years when the structure is on the residential side of a service road.

    Explanation of bullets two and three: These statements have been included because there is no right of way access to these walls for maintenance purposes.

    Failure to meet all of the above requirements will make the noise abatement project unreasonable.

11. Where an extreme noise impact is identified (80 dBA Leq or greater), special consideration may be warranted. These sites will be considered on an individual basis.

12. The type of noise abatement feature must provide the benefiting dwellings with a reduction of 5 dBA Leq.

Type II Project Procedures and Rules

1. Applications (see Appendix B) for Type II noise abatement projects will be considered by MDOT for each fiscal year when the road and bridge program exceeds $1 billion, excluding routine maintenance. Applications must be renewed annually.

2. MDOT will analyze the area to determine the number of dwelling units impacted per guidelines defined in this document and estimate the cost of noise abatement. MDOT will furnish results of all noise analyses to local authorities.

3. A prioritized eligibility list will be developed using the following formula to rank sites for consideration.

$$\frac{\text{dBA above the NAC (see Appendix A) X number of impacted dwelling units}}{\text{Total Cost / \$100,000}}$$

4. MDOT will develop noise abatement projects for the highest priority locations from the above annual list, within available funding limitations.

5. All noise abatement will follow MDOT design standards. Noise abatement will be provided along the shoulder only where a roadside barrier would otherwise be present.

6. MDOT will maintain the structural integrity of the noise abatement structure and will be responsible for the aesthetic condition of the structure on the freeway side only. The exception being that when the structure is on the residential side of a service road, MDOT will maintain the structural integrity for five years, but will not be responsible for either side of the structure's aesthetic condition.

7. If the project meets MDOT policy criteria, based on total project cost estimates, then local authorities, through agreements, resolutions, and/or ordinances, must agree to provide:

   - Ten percent of the cost of the noise abatement at the time of construction.
   - Aesthetic maintenance on the residential side of the structure or both sides when structure is on the residential side of a service road.
   - Structural maintenance after five years when the structure is on the residential side of a service road.
   - Have compatible land use zoning and/or building regulations in place precluding future noise abatement needs.

Failure to meet all of the above requirements will make the noise abatement project unreasonable.

Appendix A

Noise Abatement Criteria (NAC)[1] Hourly A-Weighted Sound Level - decibels (dBA)*			
Activity Category	**Leq(h)**	**L10(h)**	**Description of Activity Category**
A	57 (Exterior)	60 (Exterior)	Lands of which serenity and quiet are of extraordinary significance, serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	70(Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	--	Undeveloped lands.
E	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.
* Either L10 (h) or Leq(h), but not both, may be used on a project.			

[1] Copied from FHWA publication *Highway Traffic Noise Analysis and Abatement Policy and Guidance* by the U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch, Washington, D.C., June 1995.

Appendix B

Michigan Department
Of Transportation
1871 (04/03)

Application for Type II Noise Mitigation

Name of governmental authority making application:
Freeway adjacent to area for which application is being made:
Limits of area of application:

Side of Freeways: (N S E W Both)	
Beginning Point: (Crossroads, etc.)	
Ending Point:	

Number of dwelling units in area of application within 500 feet of the freeway: ☐

Number of above dwelling units built before the freeway: ☐

I certify all of the above information is correct.

Signature and Title of local official — Date

Print name and Title of local official — Date

Attach copies of local funding resolution, and zoning and building regulations precluding future heeds for noicse abatement along highways and mail to:

MDOT-Construction and Technology Support Area
Attention: Environmental Noise Group
P.O. Box 30049
8885 Ricks Road
Lansing, Michigan 48909

Michigan Department
Of Transportation
1871 (04/03)

INSTRUCTIONS FOR COMPLETING APPLICATION FOR TYPE II NOISE MITIGATION

Name of governmental authority making application:

This is the name of the city, county, township, etc. that is making application for a noise mitigation project and will be responsible for funding 10 percent of the cost of the project.

Freeway adjacent to area for which application is being made:

This is the number designation for the limited access freeway(s) which is believed to be the source of the noise. Type II mitigation is only available for limited access freeways. A noise barrier will provide no relief for residences more than 500 feet from it.

Limits of area of application:

Side of Freeway:

Please show the side of the freeway along which noise mitigation is proposed. This would be the same side of the freeway as the residents who are seeking protection. If there are qualifying residents on both sides of the freeway enter "Both".

Beginning Point:

This is a land mark, such as a cross road, marking the beginning point of the area to be protected by the proposed mitigation.

Ending Point:

This is also a land mark, such as a cross road, marking the ending of the area to be protected by the proposed mitigation.

Number of dwelling units in area of application within 500 feet of the freeway:

This is the number of dwelling units between the point of beginning and ending within 500 feet of the edge of right of way. If an apartment building is in this area, each apartment is to be considered as a separate dwelling unit. Public use areas such as parks, schools, libraries and churches within this area shall count as ten dwelling units each.

Number of dwelling units built before the freeway:

This is the number of dwelling units within the area of application that were built or platted before the date of public knowledge of the freeway, or the date of public knowledge of the last pre 1976 capacity improvement of the freeway.

Signature and Title of local official and Date:

This is the official who is certifying that all information is correct, funding resolution, and the required zoning and building regulations are in place as required by Commission Policy. Copies of such regulations are to be attached to the application.

Questions: *Please contact the Michigan Department of Transportation's Environmental Noise Group at 517-322-6138 or 517-322-1651.*

Appendix B

Noise Measurements

NOISE DATA SHEET

Job Number: 3070					AM/**PM**	Site # 1
Project: I-75 EIS					Date:	11-18-02
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	**M** T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		**Yes**/No
Location	South side of Evelyn Ave. E of I-75, at I-75 service drive				Temp.	38 F
Receptor Represents	Multiple single family service drives both sides of I-75				**Sunny**/ Clear Night/ Overcast Night	Heavy Overcast/Light Overcast/
Major Noise Source	I-75(northbound lanes closest to noise meter)				Humidity	%
Secondary Source	I-75 service drive, hourly volumes 200 to 1200 depending on location				Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene. Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	24 ft.	60	
Secondary Road					

Test 1 – 5 min.	From	12:56	To	1:01
Decibel Reading	72.3	L_{Aeq}	84.0	L_{max}

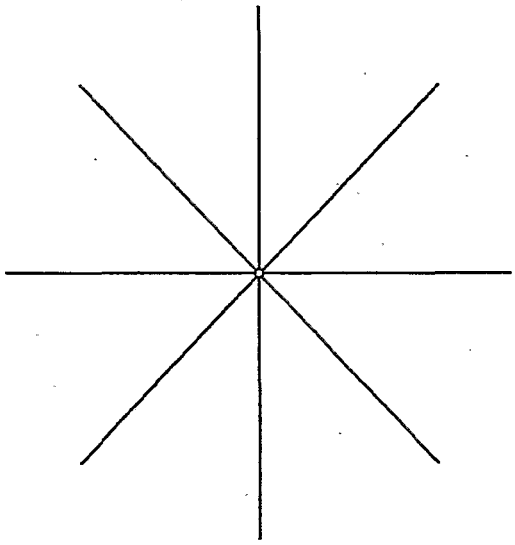
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	**SB**/WB
Cars	329	307		8
Medium Trucks (3-axle)	6	16		
Heavy Trucks	33	34		
Buses		1		
Motorcycles				

Test 2 – 5 min.	From	1:02	To	1:07
Decibel Reading	78.7	L_{Aeq}	87.5	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	361	336		15
Medium Trucks (3-axle)	9	13		
Heavy Trucks	23	29		
Buses				
Motorcycles				

Test 3 – 5 min.	From	1:08	To	1:13
Decibel Reading	72.6	L_{Aeq}	78.0	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	332	340		4
Medium Trucks (3-axle)	9	11		
Heavy Trucks	34	33		
Buses		1		
Motorcycles				



Mark North
Label Roads

Notes

NOISE DATA SHEET

Job Number: 3070					AM/PM	Site # 2
Project: I-75 EIS					Date:	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/No
Location	East Madge Ave., south side, E of I-75, at I-75 service drive				Temp.	F
Receptor Represents	Multiple single family on both sides of I-75 in depressed section				Heavy Overcast/Light Overcast/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (northbound lanes closest to noise meter)				Humidity	%
Secondary Source	I-75 service drive, hourly volume 130 to 800 depending on location				Pavement	Dry/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	24 ft.	60	
Secondary Road					

Test 1 – 5 min.	From	1:16	To	1:21
Decibel Reading	72.9	L_{Aeq}	89.9	L_{max}

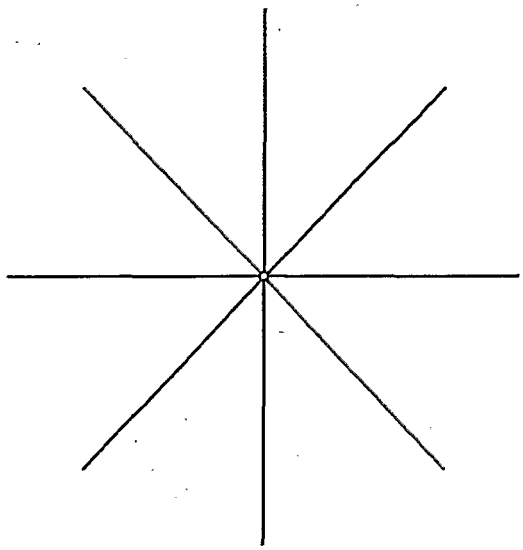
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	327	361	7	
Medium Trucks (3-axle)	9	21		
Heavy Trucks	28	42		
Buses		2		
Motorcycles				

Test 2 – 5 min.	From	1:24	To	1:29
Decibel Reading	65.1	L_{Aeq}	69.9	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	362	331	2	
Medium Trucks (3-axle)	10	17		
Heavy Trucks	25	27		
Buses		3		
Motorcycles				

Test 3 – 5 min.	From	1:30	To	1:35
Decibel Reading	65.3	L_{Aeq}	69.3	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	347	315	3	
Medium Trucks (3-axle)	14	14		
Heavy Trucks	26	33	1	
Buses				
Motorcycles				



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Notes

NOISE DATA SHEET

Job Number: 3070					AM/**PM**	Site # 3
Project: I-75 EIS					Date: 11-18-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed	11-18-02	Yes/**No**
Location	South side of Chestnut, E side of I-75, at the I-75 service drive (northbound lane)				Temp.	F
Receptor Represents					Heavy Overcast/Light Overcast/ **Sunny**/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (northbound lanes closest to noise meter)				Humidity	%
Secondary Source	Service drive volumes under 200				Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to –5 / Calm –1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	24 ft.	60	
Secondary Road					

Test 1 – 5 min.	From	2:10	To	2:15
Decibel Reading	71.1	L_{Aeq}	78.5	L_{max}

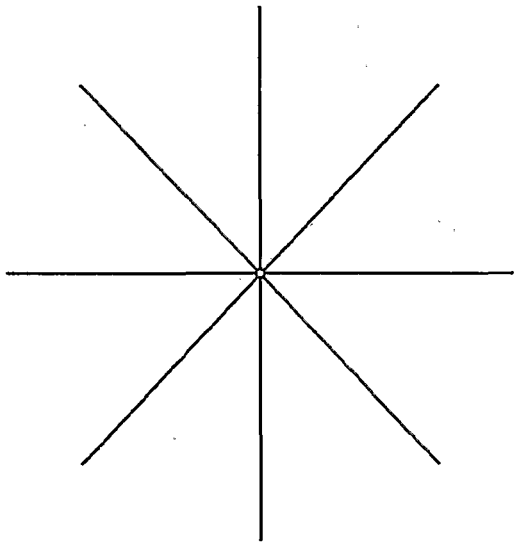
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	479	382		
Medium Trucks (3-axle)	22	16		
Heavy Trucks	33	27		
Buses	2			
Motorcycles		1		

Test 2 – 5 min.	From	2:16	To	2:21
Decibel Reading	75.9	L_{Aeq}	77.5	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	541	442		
Medium Trucks (3-axle)	9	15		
Heavy Trucks	21	32		
Buses		1		
Motorcycles				

Test 3 – 5 min.	From	2:22	To	2:27
Decibel Reading	72.9	L_{Aeq}	88.9	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	519	454		
Medium Trucks (3-axle)	14	19		
Heavy Trucks	35	27		
Buses				
Motorcycles				



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Label Roads

Notes

NOISE DATA SHEET

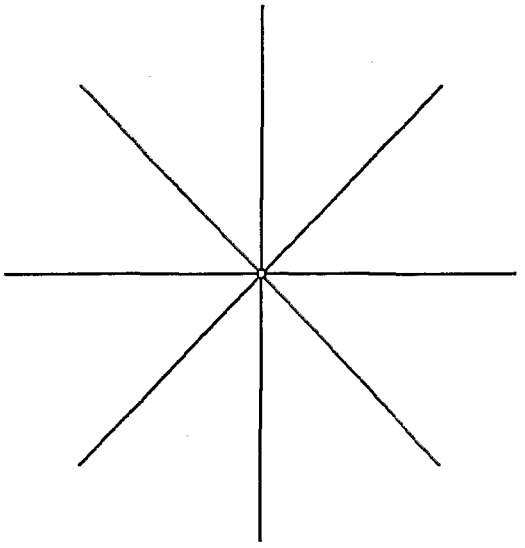
Job Number: 3070					AM/**PM**	Site # 4
Project: I-75 EIS					Date: 11-18-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	**M** T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB				Calibration Confirmed	**Yes**/No
Location	North side of Chestnut, W side of I-75, at the I-75 service drive (southbound lane)				Temp.	F
Receptor Represents					Heavy Overcast/Light Overcast/ **Sunny**/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)				Humidity	%
Secondary Source	Service drive volume 380				Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	24 ft.	60	
Secondary Road					

Test 1 – 5 min.	From	2:35	To	2:40
Decibel Reading	71.9	L_{Aeq}	81.5	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	508	435		
Medium Trucks (3-axle)	18	19		
Heavy Trucks	21	28		
Buses		1		
Motorcycles				

Test 2 – 5 min.	From	2:41	To	2:46
Decibel Reading	71.7	L_{Aeq}	81.6	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB.	**SB**/WB	NB/EB	SB/WB
Cars	613	466		
Medium Trucks (3-axle)	14	13		
Heavy Trucks	24	37		
Buses				
Motorcycles				

Test 3 – 5 min.	From	2:47	To	2:52
Decibel Reading	71.3	L_{Aeq}	77.3	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	597	493		
Medium Trucks (3-axle)	19	12		
Heavy Trucks	28	22		
Buses				
Motorcycles				



Mark North
Label Roads

Notes

NOISE DATA SHEET

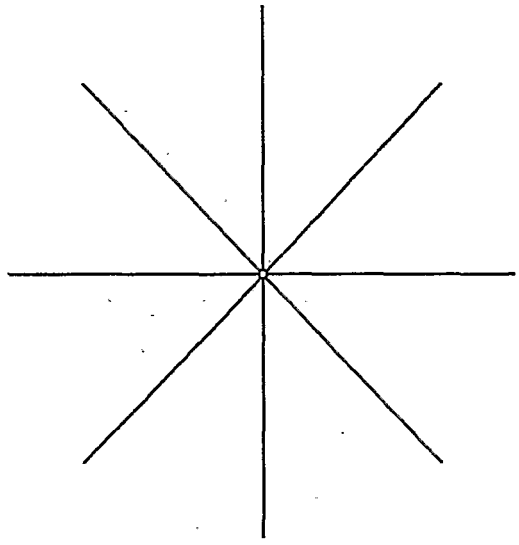
Job Number: 3070					AM/**PM**	Site # 5
Project: I-75 EIS					Date:11-18-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	**M** T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/**No**
Location	North side of of Annabelle Ave, W of I-75, one lot back from I-75 service drive (*southbound side*)				Temp.	F
Receptor Represents					Heavy Overcast/Light Overcast/ **Sunny**/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)				Humidity	%
Secondary Source	*Service drive volume 300*				Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to –5 / Calm –1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	24 ft.	60	
Secondary Road					

Test 1 – 5 min.	From	3:02	To	3:07
Decibel Reading	68.1	L_{Aeq}	71.3	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	553	425		
Medium Trucks (3-axle)	7	12		
Heavy Trucks	23	28		
Buses	1			
Motorcycles				

Test 2 – 5 min.	From	3:08	To	3:13
Decibel Reading	70.9	L_{Aeq}	84.4	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	582	429		
Medium Trucks (3-axle)	13	16		
Heavy Trucks	23	30		
Buses		1		
Motorcycles				

Test 3 – 5 min.	From	3:14	To	3:19
Decibel Reading	67.6	L_{Aeq}	72.1	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	522	443		
Medium Trucks (3-axle)	9	7		
Heavy Trucks	18	26		
Buses	1	1		
Motorcycles				



Mark North
Label Roads

Notes

1. Hard to see lane in southbound direction closest to the camera.
2. Roadway appears to be depressed.
3. Service drive between noise meter and camera. The service drive could not be seen on the camera thus was not counted.

NOISE DATA SHEET

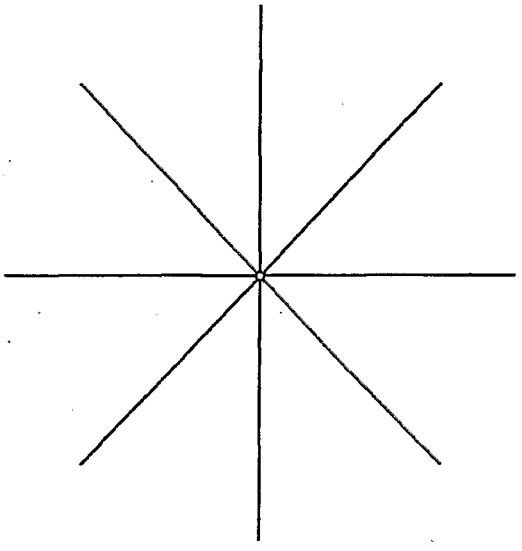
Job Number: 3070						AM/**PM**	Site # 6
Project: I-75 EIS						Date:	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3					Day of Week	**M** T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB				Calibration Confirmed		Yes/**No**
Location	20 feet from end of Coy Ave, W of I-75, near the I-75 and I-696 interchange					Temp.	F
Receptor Represents						Heavy Overcast/Light Overcast/ **Sunny**/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)					Humidity	%
Secondary Source	3 lane ramp from I-696 to I-75 SB. Ramp volume on the order of 2,400 hourly.					Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind	Upwind -1 to –5
							Calm –1 to +1
							Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	24 ft.	60	
Secondary Road					

Test 1 – 5 min.	From	3:29	To	3:34
Decibel Reading	69.3	L_{Aeq}	80.7	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	339	289		207
Medium Trucks (3-axle)	9	9		4
Heavy Trucks	18	7		13
Buses		2		1
Motorcycles				1

Test 2 – 5 min.	From	3:35	To	3:40
Decibel Reading	69.2	L_{Aeq}	88.8	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	386	283		207
Medium Trucks (3-axle)	8	6		9
Heavy Trucks	11	9		10
Buses				1
Motorcycles				

Test 3 – 5 min.	From	3:41	To	3:46
Decibel Reading	68.1	L_{Aeq}	77.7	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	352	291		209
Medium Trucks (3-axle)	7	8		5
Heavy Trucks	3	12		13
Buses	1			1
Motorcycles				



Mark North
Label Roads

Notes

1. The 3 lane ramp from I-696 to SB I-75 is the closest road to the noise meter.
2. The I-75 counts were taken in between the area where cars exit off I-75 to I-696 and where cars enter from I-696.
3. Service drive between noise meter and camera. The service drive could not be seen on the camera thus was not counted.

NOISE DATA SHEET

Job Number: 3070						AM/**PM**	Site # 7
Project: I-75 EIS						Date: 11-19-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3					Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB				Calibration Confirmed		**Yes**/No
Location	North side of Gardenia on service drive/Stephenson Hwy (west side of I-75) at approximate setback of Royal Estates Apartments to the north.					Temp.	F
Receptor Represents						Heavy Overcast/Light Overcast/ **Sunny**/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)					Humidity	%
Secondary Source						Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind	Upwind -1 to -5 Calm -1 to +1 Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	24 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	1:38	To	1:43
Decibel Reading	71.3	L_{Aeq}	79.2	L_{max}

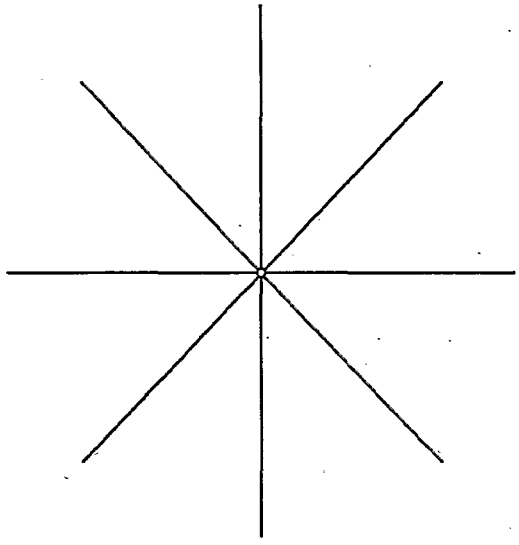
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	452	437		
Medium Trucks (3-axle)	9	20		
Heavy Trucks	29	29		
Buses	2	2		
Motorcycles				

Test 2 – 5 min.	From	1:44	To	1:49
Decibel Reading	69.2	L_{Aeq}	78.1	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	452	416		
Medium Trucks (3-axle)	15	16		
Heavy Trucks	25	32		
Buses	2			
Motorcycles				

Test 3 – 5 min.	From	1:50	To	1:55
Decibel Reading	68.6	L_{Aeq}	75.1	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	441	448		
Medium Trucks (3-axle)	21	15		
Heavy Trucks	27	26		
Buses	1	1		
Motorcycles				



Mark North
Label Roads

Notes

1. Service drive between noise meter and camera. The service drive could not be seen on the camera thus was not counted.

NOISE DATA SHEET

Job Number: 3070					AM/**PM**	Site # 8
Project: I-75 EIS					Date: 11-19-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/**No**
Location	Hampden St. and end of cul-de-sac				Temp.	F
Receptor Represents					Heavy Overcast/Light Overcast/ **Sunny**/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (northbound lanes closest to noise meter)				Humidity	%
Secondary Source	Northbound off-ramp				Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to –5 / Calm –1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	2:05	To	2:10
Decibel Reading	72.3	L_{Aeq}	77.0	L_{max}

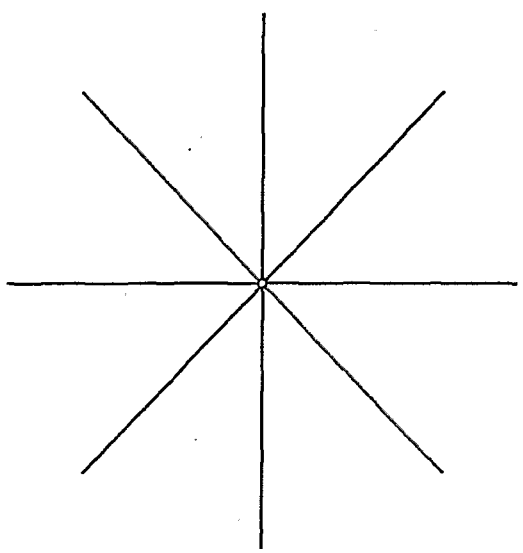
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	2:11	To	2:16
Decibel Reading	73.5	L_{Aeq}	82.6	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	2:17	To	2:22
Decibel Reading	75.1	L_{Aeq}	84.5	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. View was obstructed. Traffic could not be counted.

NOISE DATA SHEET

Job Number: 3070					AM/**PM**	Site # 9
Project: I-75 EIS					Date: 11-19-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/**No**
Location	End of Marie Lane approximately 20 feet from right-of-way fence.				Temp.	F
Receptor Represents					Heavy Overcast/Light Overcast/ **Sunny**/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to –5 / Calm –1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	2:41	To	2:46
Decibel Reading	72.3	L_{Aeq}	77.0	L_{max}

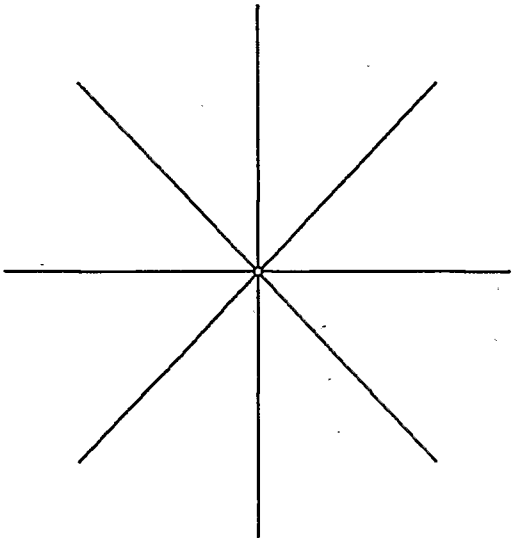
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	2:47	To	2:52
Decibel Reading	74.0	L_{Aeq}	79.9	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	2:53	To	2:58
Decibel Reading	75.0	L_{Aeq}	80.7	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. View was obstructed. Traffic could not be counted.

NOISE DATA SHEET

Job Number: 3070					AM/**PM**	Site # 10
Project: I-75 EIS					Date: 11-19-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/**No**
Location	Site 10 (north of 13 mile road) Lexington Village Apartments. Edge of parking lot nearest to northbound travel lane.				Temp.	F
Receptor Represents	48 first-floor apartments.				Heavy Overcast/Light Overcast/ **Sunny**/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (northbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to –5 / Calm –1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	3:10	To	3:15
Decibel Reading	75.8	L_{Aeq}	81.7	L_{max}

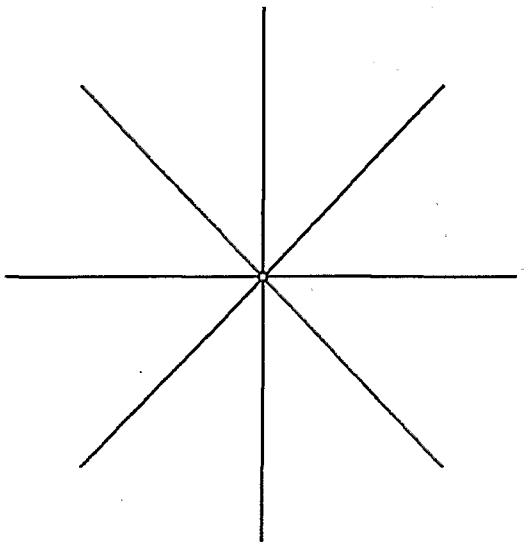
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	453	464		
Medium Trucks (3-axle)	13	8		
Heavy Trucks	17	23		
Buses	2			
Motorcycles				

Test 2 – 5 min.	From	3:16	To	3:21
Decibel Reading	75.9	L_{Aeq}	81.2	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	498	423		
Medium Trucks (3-axle)	5	6		
Heavy Trucks	21	18		
Buses	1			
Motorcycles				

Test 3 – 5 min.	From	3:22	To	3:27
Decibel Reading	76.5	L_{Aeq}	83.4	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	512	433		
Medium Trucks (3-axle)	7	12		
Heavy Trucks	17	22		
Buses				
Motorcycles				



Mark North
Label Roads

Notes

NOISE DATA SHEET

Job Number: 3070						AM/PM	Site # 11
Project: I-75 EIS						Date: 11-19-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3					Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB				Calibration Confirmed		Yes/No
Location	Site 11 (south of 14 mile road) at approximate setback of near apartment units to freeway					Temp.	F
Receptor Represents	20 first-floor apartments					Heavy Overcast/Light Overcast/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (northbound lanes closest to noise meter)					Humidity	%
Secondary Source						Pavement	Dry/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind	Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	3:35	To	3:41
Decibel Reading	74.1	L_{Aeq}	78.2	L_{max}

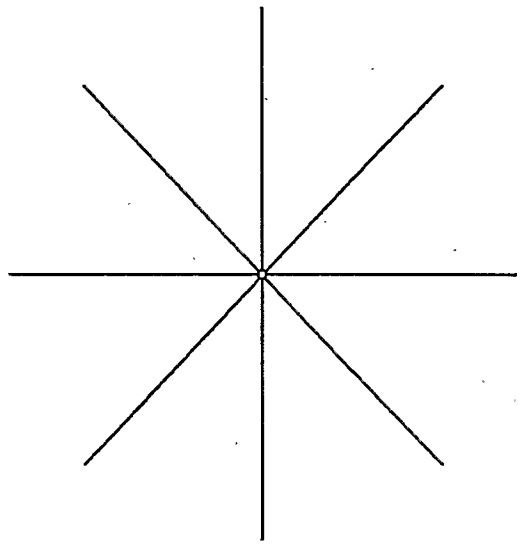
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	495	427		
Medium Trucks (3-axle)	9	4		
Heavy Trucks	19	19		
Buses				
Motorcycles				

Test 2 – 5 min.	From	3:42	To	3:47
Decibel Reading	74.2	L_{Aeq}	77.4	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	465	380		
Medium Trucks (3-axle)	3	6		
Heavy Trucks	17	31		
Buses				
Motorcycles				

Test 3 – 5 min.	From	3:48	To	3:53
Decibel Reading	74.8	L_{Aeq}	78.9	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	494	373		
Medium Trucks (3-axle)	5	2		
Heavy Trucks	13	22		
Buses	2			
Motorcycles				



Mark North
Label Roads

Notes

1. Hard to see vehicles on the far side (southbound side) from the camera.
2. At times traffic backed up on the southbound side.

NOISE DATA SHEET

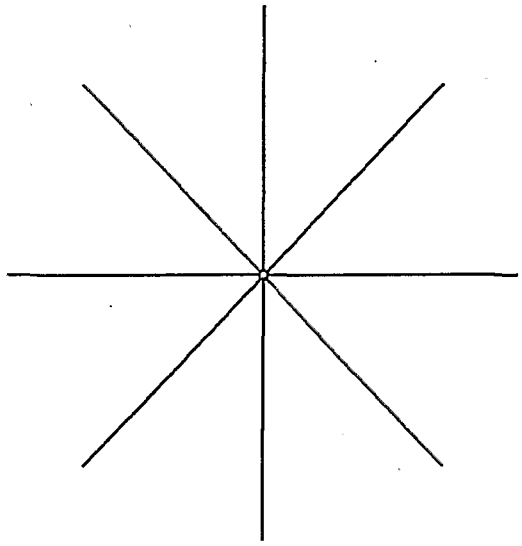
Job Number: 3070						AM/PM	Site # 13
Project: I-75 EIS						Date: 11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3					Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB				Calibration Confirmed		Yes/No
Location	Troy Villa Estates (mobile home park) E sidewalk of Kevin Drive near S limit of Kevin Drive					Temp.	43 F
Receptor Represents						Heavy Overcast/Light Overcast/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)					Humidity	%
Secondary Source						Pavement	Dry/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind	Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	8:10	To	8:15
Decibel Reading	68.2	L_{Aeq}	80.0	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	8:16	To	8:21
Decibel Reading	67.2	L_{Aeq}	75.2	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	8:22	To	8:27
Decibel Reading	68.1	L_{Aeq}	76.2	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. View was obstructed. Traffic could not be counted.

NOISE DATA SHEET

Job Number: 3070						AM/PM	Site # 14
Project: I-75 EIS						Date: 11-19-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3					Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB				Calibration Confirmed		Yes/No
Location	Site 14 (west of Rochester Road, east of Liberty) 4th apartment's horseshoe West of Rochester Road at setback equivalent to nearest apartments to northbound I-75.					Temp.	F
Receptor Represents	54 first-floor apartments.					Heavy Overcast/Light Overcast/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (northbound lanes closest to noise meter)					Humidity	%
Secondary Source						Pavement	Dry/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind	Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	4:15	To	4:20
Decibel Reading	73.9	L_{Aeq}	79.7	L_{max}

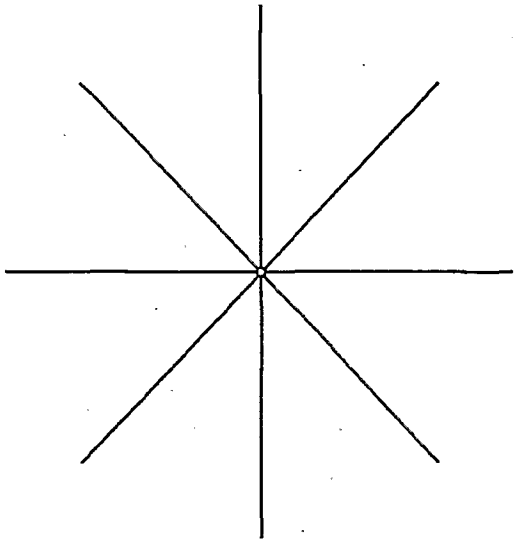
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	374	378		
Medium Trucks (3-axle)	5	2		
Heavy Trucks	11	13		
Buses		1		
Motorcycles	1			

Test 2 – 5 min.	From	4:21	To	4:26
Decibel Reading	74.4	L_{Aeq}	80.5	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	421	349		
Medium Trucks (3-axle)	2	4		
Heavy Trucks	9	10		
Buses				
Motorcycles				

Test 3 – 5 min.	From	4:27	To	4:32
Decibel Reading	77.1	L_{Aeq}	86.1	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	425	292		
Medium Trucks (3-axle)	3	2		
Heavy Trucks	9	9		
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. View was partially obstructed on both sides of the road. Counts maybe low due to limited visibility.

NOISE DATA SHEET

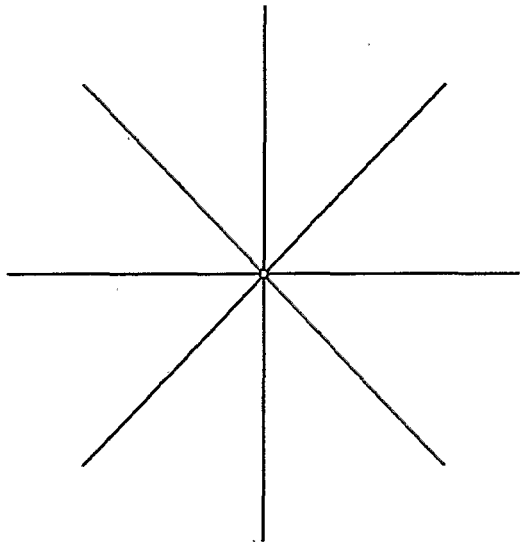
Job Number: 3070					AM/PM	Site # 15
Project: I-75 EIS					Date: 11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/No
Location	Eagles Landing condominium complex (west of Rochester Road, east of Livernois) South of I-75				Temp.	43 F
Receptor Represents	54 first-floor condominiums				Heavy Overcast/Light Overcast/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	Dry/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	9:39	To	9:44
Decibel Reading	71.1	L_{Aeq}	75.8	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	9:45	To	9:50
Decibel Reading	71.4	L_{Aeq}	76.2	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	9:51	To	9:56
Decibel Reading	71.0	L_{Aeq}	75.9	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. View was obstructed. Traffic could not be counted.

NOISE DATA SHEET

Job Number: 3070					AM/PM	Site # 16
Project: I-75 EIS					Date: 11-20-02	
					Day of Week	M T W T F
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3					
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/No
Location	Apartment complex on Century (Big Beaver and Rochester Road)				Temp.	F
Receptor Represents	30 first-floor apartments.				Heavy Overcast/Light Overcast/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (northbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	Dry/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to –5 / Calm –1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	10:27	To	10:32
Decibel Reading	73.1	L_{Aeq}	83.0	L_{max}

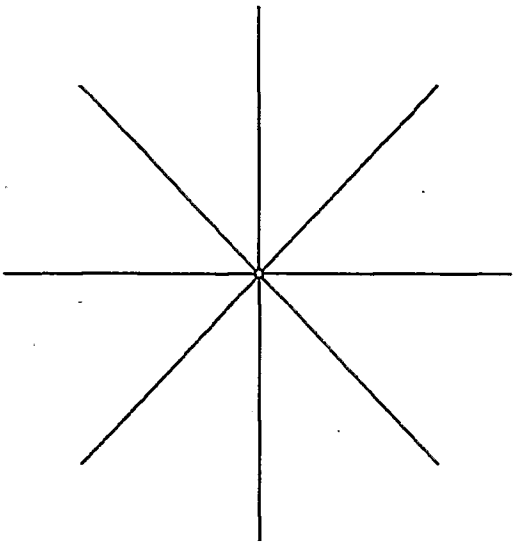
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	221	250		
Medium Trucks (3-axle)	7	4		
Heavy Trucks	31	18		
Buses				
Motorcycles				

Test 2 – 5 min.	From	10:35	To	10:40
Decibel Reading	70.2	L_{Aeq}	74.9	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	240	255		
Medium Trucks (3-axle)	8	6		
Heavy Trucks	13	32		
Buses		1		
Motorcycles				

Test 3 – 5 min.	From	10:41	To	10:46
Decibel Reading	71.1	L_{Aeq}	76.1	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars	259	262		
Medium Trucks (3-axle)	3	4		
Heavy Trucks	28	26		
Buses	1			
Motorcycles	1			



Mark North
Label Roads

Notes

NOISE DATA SHEET

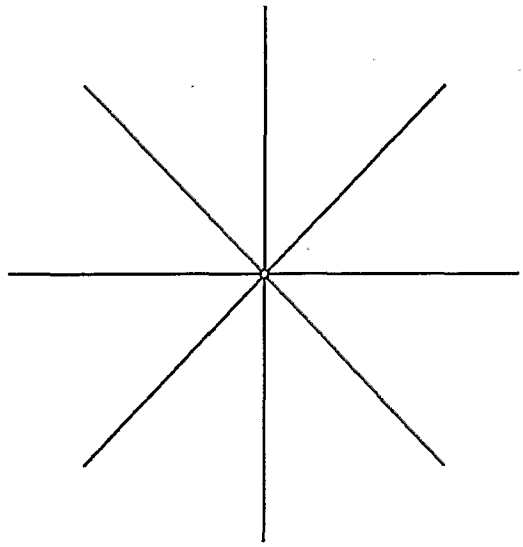
Job Number: 3070					AM/PM	Site # 17
Project: I-75 EIS					Date: 11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/No
Location	Village Park apartment complex at apartment setback (west of Rochester Road, east of Livernois)				Temp.	43 F
Receptor Represents					Heavy Overcast/Light Overcast/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	Dry/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	9:16	To	9:21
Decibel Reading	70.4	L_{Aeq}	74.9	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	9:22	To	9:27
Decibel Reading	69.7	L_{Aeq}	73.0	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	9:28	To	9:33
Decibel Reading	69.5	L_{Aeq}	73.7	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. View was obstructed. Traffic could not be counted.

NOISE DATA SHEET

Job Number: 3070					AM/PM	Site # 18
Project: I-75 EIS					Date: 11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/No
Location	Kirk Lane				Temp.	F
Receptor Represents	2 end homes				Heavy Overcast/Light Overcast/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (Northbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	Dry/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to –5 / Calm –1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road					
Secondary Road					

Test 1 – 5 min.	From	10:52	To	10:57
Decibel Reading	62.7	L Aeq	67.2	L max

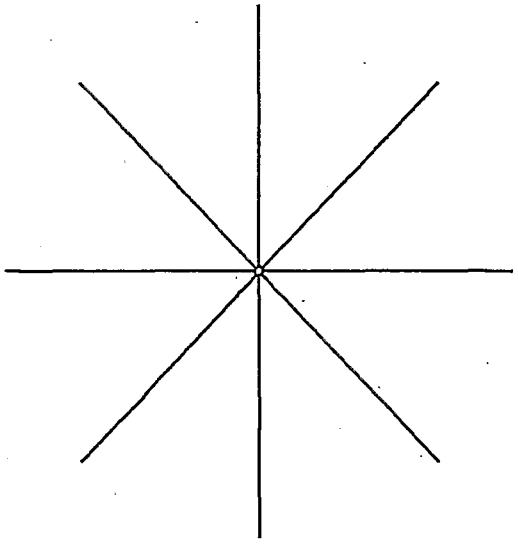
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	10:58	To	11:03
Decibel Reading	64.4	L Aeq	81.4	L max

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	11:04	To	11:09
Decibel Reading	63.4	L Aeq	66.9	L max

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. Trees and bern obstructed view. Could not count location.

NOISE DATA SHEET

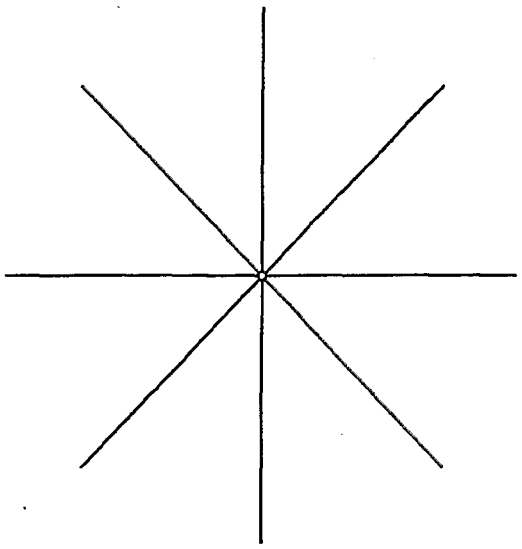
Job Number: 3070				AM/PM	Site # 18A
Project: I-75 EIS				Date: 11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3			Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed	Yes/No
Location	Meadowbrook and Scottsdale (Troy Meadows Subdivision) west sidewalk of Meadowbrook			Temp.	F
Receptor Represents	14 homes on Meadowbrook - Midday			Heavy Overcast/Light Overcast/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (Nouthbound lanes closest to noise meter)			Humidity	%
Secondary Source				Pavement	Dry/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior
				Wind	Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road					
Secondary Road					

Test 1 – 5 min.	From	11:20	To	11:25
Decibel Reading	64.0	L Aeq	86.3	L max
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	11:26	To	11:31
Decibel Reading	59.3	L Aeq	69.7	L max
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	11:32	To	11:37
Decibel Reading	60.3	L Aeq	71.1	L max
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. Trees and bern obstructed view. Could not count location.

NOISE DATA SHEET

Job Number: 3070					AM/**PM**	Site # 18A
Project: I-75 EIS					Date: 11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T **W** T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/**No**
Location	Meadowbrook and Scottsdale (Troy Meadows Subdivision) west sidewalk of Meadowbrook				Temp.	F
Receptor Represents	14 homes on Meadowbrook - PM				Heavy Overcast/**Light Overcast**/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (Northbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to –5 / Calm –1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road					
Secondary Road					

Test 1 – 5 min.	From	5:30	To	5:35
Decibel Reading	59.8	L_{Aeq}	68.4	L_{max}

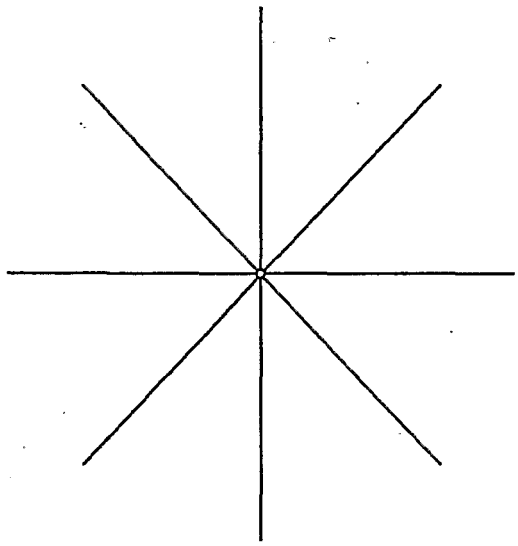
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	5:36	To	5:41
Decibel Reading	60.2	L_{Aeq}	66.9	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	5:42	To	5:47
Decibel Reading	61.2	L_{Aeq}	67.3	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. Trees and bern obstructed view. Could not count location.

NOISE DATA SHEET

Job Number: 3070					AM/**PM**	Site # 19
Project: I-75 EIS					Date: 11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T **W** T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/**No**
Location	Old Creek Rd.				Temp.	F
Receptor Represents	77 front row condos				Heavy Overcast/**Light Overcast**/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to –5 / Calm –1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road					
Secondary Road					

Test 1 – 5 min.	From	5:30	To	5:35
Decibel Reading	59.8	L_{Aeq}	68.4	L_{max}

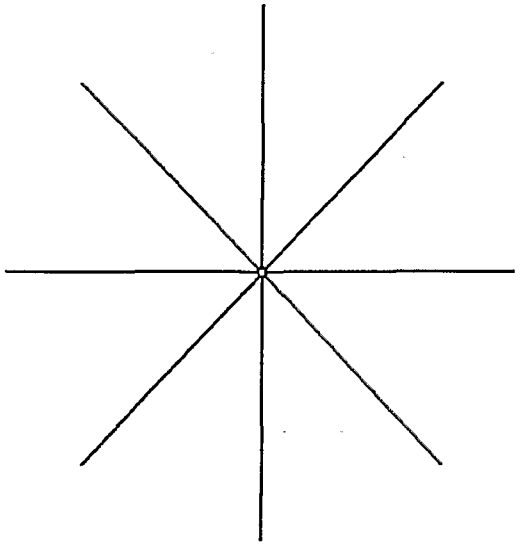
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	5:36	To	5:41
Decibel Reading	60.2	L_{Aeq}	66.9	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	5:42	To	5:47
Decibel Reading	61.2	L_{Aeq}	67.3	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. Trees and fence obstructed view. Could not count location.

NOISE DATA SHEET

Job Number: 3070					AM/PM	Site # 20
Project: I-75 EIS					Date: 11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/No
Location	Three Oaks apartment complex at the NW corner of I-75 and Wattles Rd., setback of apartments				Temp.	F
Receptor Represents	12 apartments				Heavy Overcast/Light Overcast/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	Dry/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	12:24	To	12:29
Decibel Reading	67.6	L_{Aeq}	72.1	L_{max}

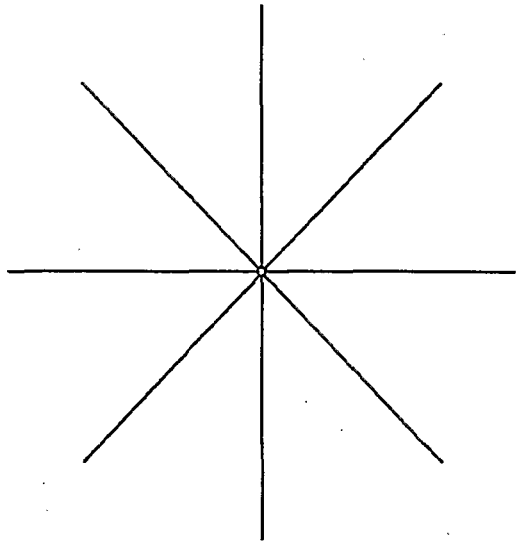
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	12:30	To	12:35
Decibel Reading	67.9	L_{Aeq}	71.4	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	12:36	To	12:41
Decibel Reading	68.8	L_{Aeq}	72.4	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. View was obstructed. Traffic could not be counted.

NOISE DATA SHEET

Job Number: 3070					AM/**PM**	Site # 21
Project: I-75 EIS					Date: 11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T **W** T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/**No**
Location	Peirce and Paragon (N of Wattles Road, east side of I-75)				Temp.	F
Receptor Represents	6 end homes on three streets				Heavy Overcast/**Light Overcast**/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (northbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	12:50	To	12:55
Decibel Reading	73.7	L_{Aeq}	80.5	L_{max}

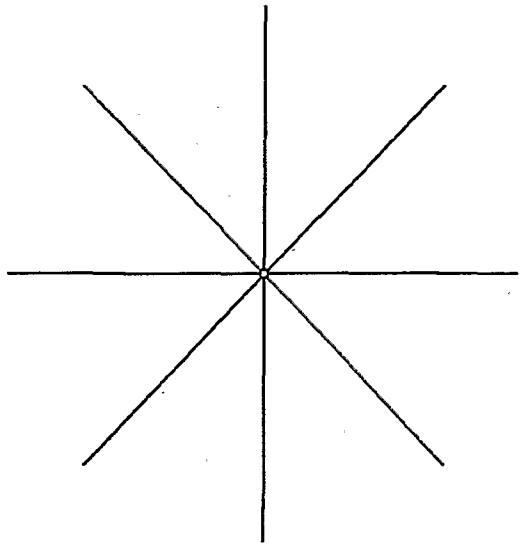
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	279	252		
Medium Trucks (3-axle)	6	8		
Heavy Trucks	30	21		
Buses		1		
Motorcycles				

Test 2 – 5 min.	From	12:56	To	1:01
Decibel Reading	74.7	L_{Aeq}	82.5	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	266	266		
Medium Trucks (3-axle)	5	9		
Heavy Trucks	28	26		
Buses				
Motorcycles				

Test 3 – 5 min.	From	1:02	To	1:07
Decibel Reading	73.1	L_{Aeq}	78.7	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	256	245		
Medium Trucks (3-axle)	6	8		
Heavy Trucks	21	19		
Buses				
Motorcycles				



Mark North
Label Roads

Notes

NOISE DATA SHEET

Job Number: 3070					AM/PM	Site # 22
Project: I-75 EIS					Date: 11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/No
Location	South end of Hedgewood Drive (NE of I-75 Wattles Road)				Temp.	F
Receptor Represents	4 southern-most homes				Heavy Overcast/Light Overcast/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (northbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	Dry/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	1:18	To	1:23
Decibel Reading	69.7	L_{Aeq}	88.2	L_{max}

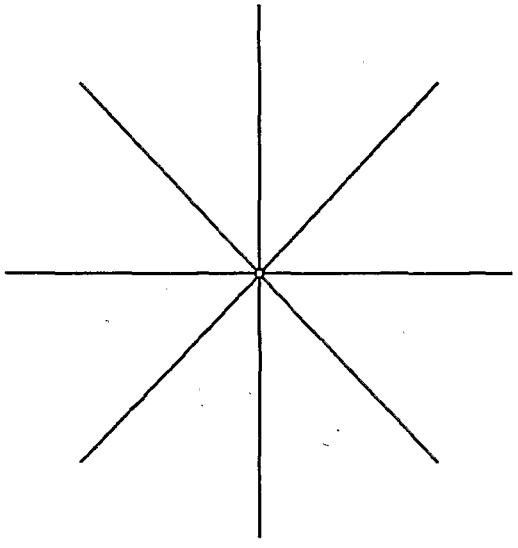
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	1:24	To	1:29
Decibel Reading	63.8	L_{Aeq}	72.2	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	1:30	To	1:35
Decibel Reading	62.5	L_{Aeq}	68.9	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. View was obstructed. Traffic could not be counted.
2. Protected by private berm.

NOISE DATA SHEET

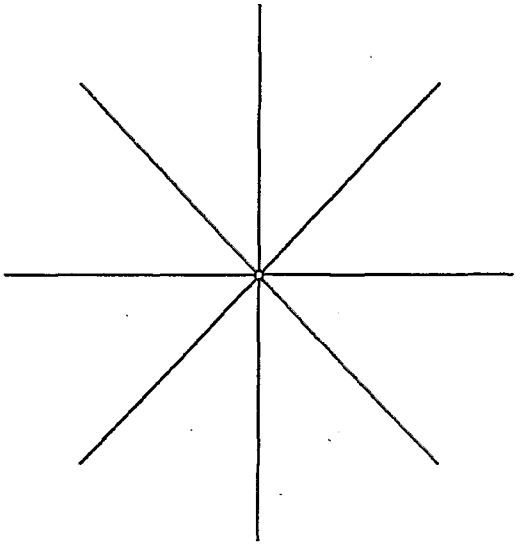
Job Number: 3070						AM/PM	Site # 23
Project: I-75 EIS						Date: 11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3					Day of Week	M T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB				Calibration Confirmed		Yes/No
Location						Temp.	F
Receptor Represents						Heavy Overcast/Light Overcast/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)					Humidity	%
Secondary Source						Pavement	Dry/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind	Upwind -1 to –5 Calm –1 to +1 Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From		To	
Decibel Reading		L_{Aeq}		L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From		To	
Decibel Reading		L_{Aeq}		L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From		To	
Decibel Reading		L_{Aeq}		L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	SB/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. View was obstructed. Traffic could not be counted.

NOISE DATA SHEET

Job Number: 3070					AM/**PM**	Site # 24
Project: I-75 EIS					Date: 11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T **W** T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		Yes/**No**
Location	Site 24 Square Lake Road and Justine Drive at setback of homes along Square Lake Road				Temp.	F
Receptor Represents	15 single-family dwellings.				Heavy Overcast/**Light Overcast**/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (northbound lanes closest to noise meter)				Humidity	%
Secondary Source	Square Lake Road				Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	2:30	To	2:35
Decibel Reading	65.1	L_{Aeq}	71.1	L_{max}

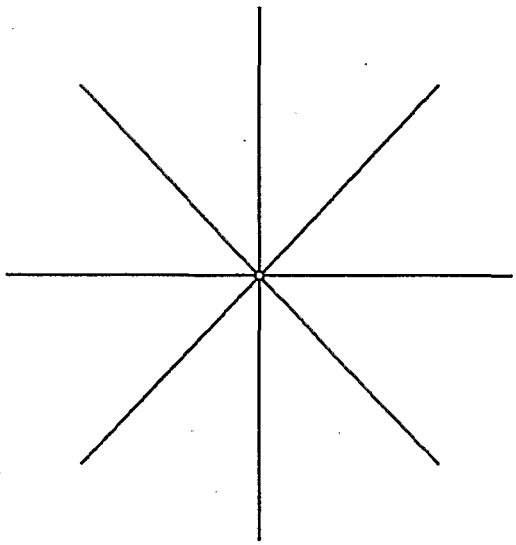
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	292	302		
Medium Trucks (3-axle)	7	9		
Heavy Trucks	21	26		
Buses		1		
Motorcycles				

Test 2 – 5 min.	From	2:36	To	2:41
Decibel Reading	66.9	L_{Aeq}	83.2	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	311	294		
Medium Trucks (3-axle)	9	12		
Heavy Trucks	20	19		
Buses		3		
Motorcycles				

Test 3 – 5 min.	From	2:42	To	2:47
Decibel Reading	66.5	L_{Aeq}	74.2	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars	332	321		
Medium Trucks (3-axle)	3	11		
Heavy Trucks	22	21		
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. Can hear wind on tape in the third time period.

NOISE DATA SHEET

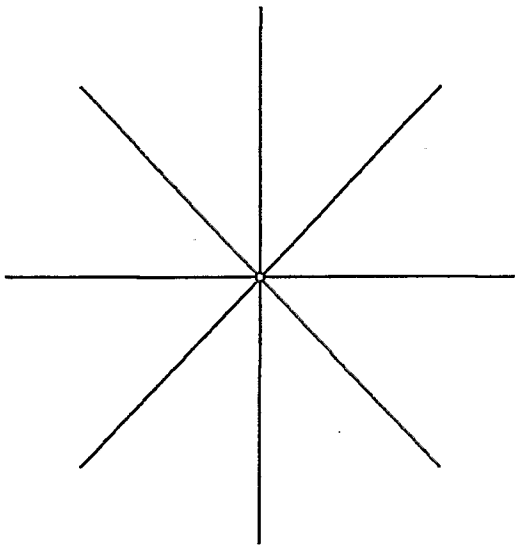
Job Number: 3070					AM/**PM**	Site # 25
Project: I-75 EIS					Date:11-18-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	**M** T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB			Calibration Confirmed		**Yes**/No
Location	Between Adams Rd. and Crooks Rd. Forest View Village subd. between ROW line behind houses on Fleetwood & travel lanes approx. 50' from near edge of near travel lane				Temp.	F
Receptor Represents	24 single-family dwellings.				Heavy Overcast/Light Overcast/ **Sunny**/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to –5; Calm –1 to +1; Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	10:31	To	10:36
Decibel Reading	74.3	L_{Aeq}	87.6	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars		197		
Medium Trucks (3-axle)		7		
Heavy Trucks		27		
Buses				
Motorcycles				

Test 2 – 5 min.	From	10:38	To	10:43
Decibel Reading	74.1	L_{Aeq}	80.4	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars		242		
Medium Trucks (3-axle)		9		
Heavy Trucks		26		
Buses				
Motorcycles				

Test 3 – 5 min.	From	10:45	To	10:50
Decibel Reading	73.7	L_{Aeq}	81.4	L_{max}
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars		221		
Medium Trucks (3-axle)		7		
Heavy Trucks		22		
Buses				
Motorcycles				



Mark North
Label Roads

Notes
1. Can't see far side of road (*northbound*).
2. Can hear wind on tape; second time period.

NOISE DATA SHEET

Job Number: 3070					AM/**PM**	Site # 26
Project: I-75 EIS					Date:11-18-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	**M** T W T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB				Calibration Confirmed	**Yes**/No
Location	Andover Dr. just past first driveway S of Lundway.				Temp.	F
Receptor Represents	10 single-family dwellings at various distances from I-75.				Heavy Overcast/Light Overcast/ **Sunny**/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (southbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to -5 / Calm -1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	9:44	To	9:49
Decibel Reading	64.5	L_{Aeq}	70.0	L_{max}

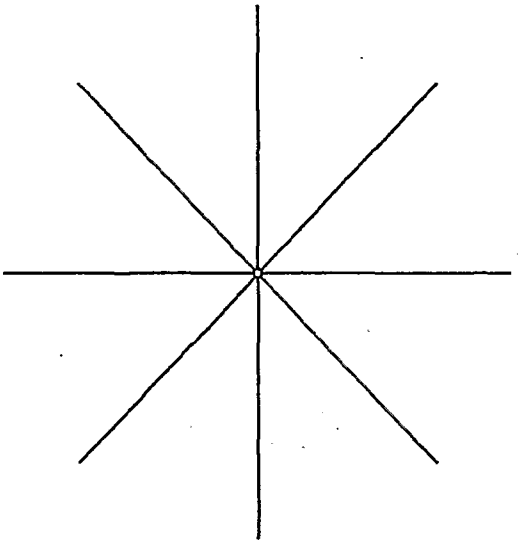
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	9:51	To	9:56
Decibel Reading	64.6	L_{Aeq}	73.0	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	9:58	To	10:03
Decibel Reading	63.8	L_{Aeq}	69.1	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

1. View Obstructed. Traffic could not be counted.

2. Homes are up a 10 – 15 foot slope.

NOISE DATA SHEET

Job Number: 3070					AM/**PM**	Site # 27
Project: I-75 EIS					Date:11-20-02	
Instrumentation	Q-400 Logging Noise Dosimeter, slow response, A-weighting, exchange rate = 3				Day of Week	M T **W** T F
	Q-400 Logging Noise Dosimeter Calibrator @ 114 dB				Calibration Confirmed	Yes/**No**
Location	Timberview Rd near stop sign				Temp.	F
Receptor Represents					Heavy Overcast/**Light Overcast**/ Sunny/ Clear Night/ Overcast Night	
Major Noise Source	I-75 (northbound lanes closest to noise meter)				Humidity	%
Secondary Source					Pavement	**Dry**/Wet
Land Use Category	A-57dBA Serene Park	B-67dBA Rec/Park/Res/Church/Hosp	C-72dBA Developed Lands	D-NA Undevel. Lands	E-52dBA Interior	Wind: Upwind -1 to –5 / Calm –1 to +1 / Downwind +1 to +5

	# Lanes	Lane Width	Median Width	Posted Speed	*Observed Speed
Major Road	3	12	48 ft.	65	
Secondary Road					

Test 1 – 5 min.	From	3:19	To	3:24
Decibel Reading	67.0	L_{Aeq}	74.4	L_{max}

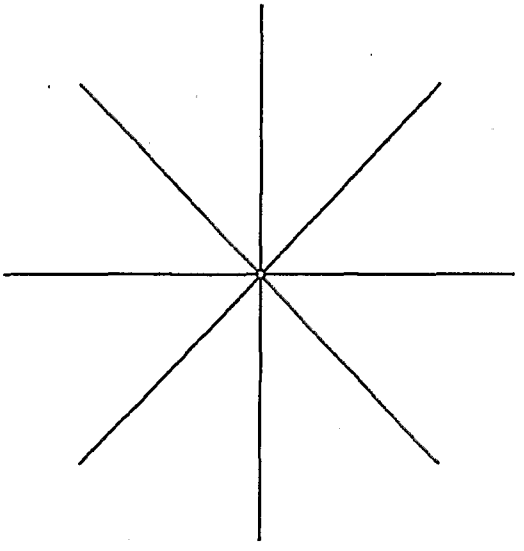
Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 2 – 5 min.	From	3:25	To	3:30
Decibel Reading	66.4	L_{Aeq}	69.3	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				

Test 3 – 5 min.	From	3:31	To	3:36
Decibel Reading	68.4	L_{Aeq}	81.2	L_{max}

Traffic Volumes	Major Road		Secondary Road	
	NB/EB	**SB**/WB	NB/EB	SB/WB
Cars				
Medium Trucks (3-axle)				
Heavy Trucks				
Buses				
Motorcycles				



Mark North
Label Roads

Notes

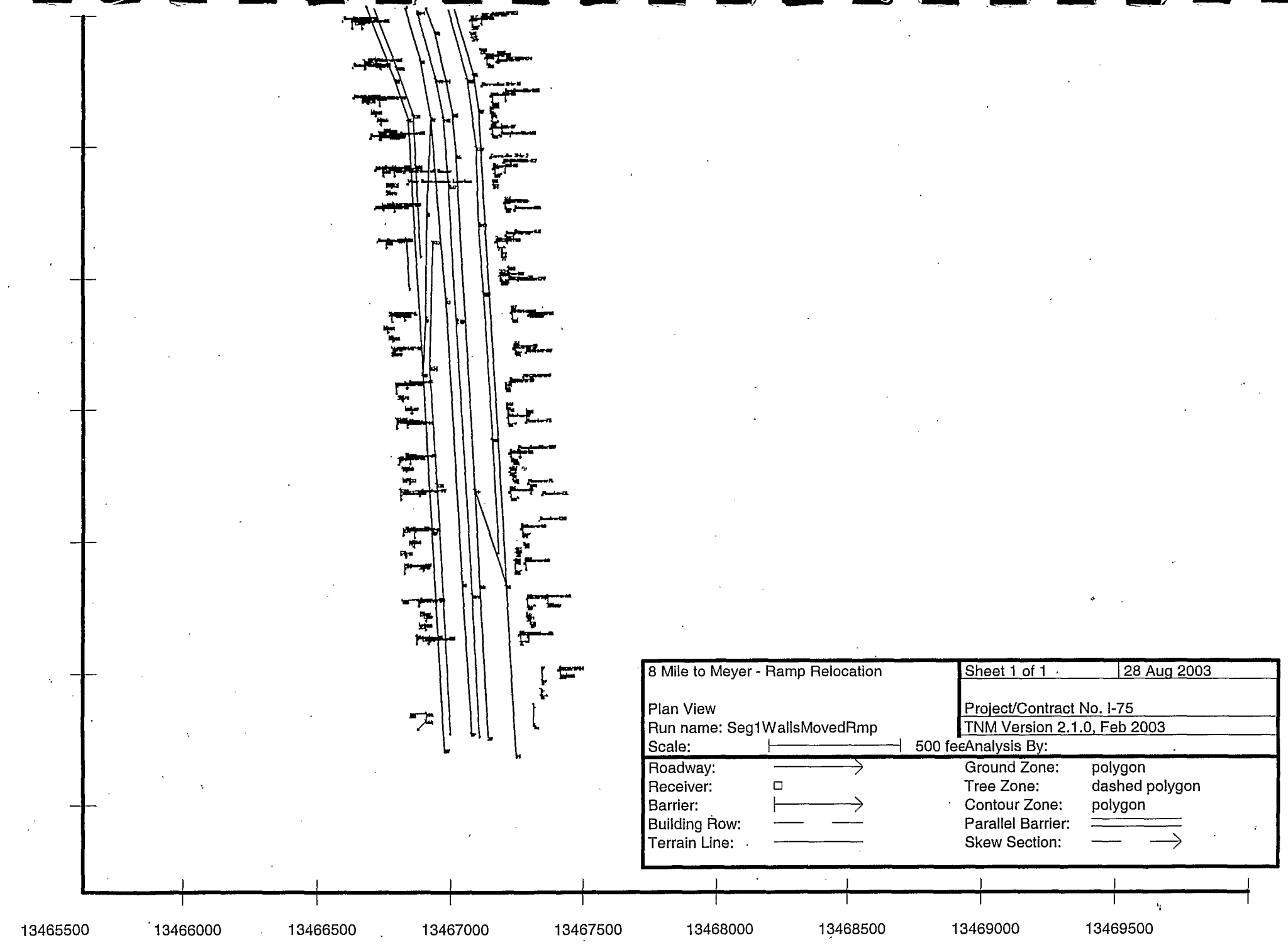
1. View Obstructed. Traffic could not be counted.
2. School bus stopped in front of meter during third test.
3. 8 – 10 foot existing private noise wall.

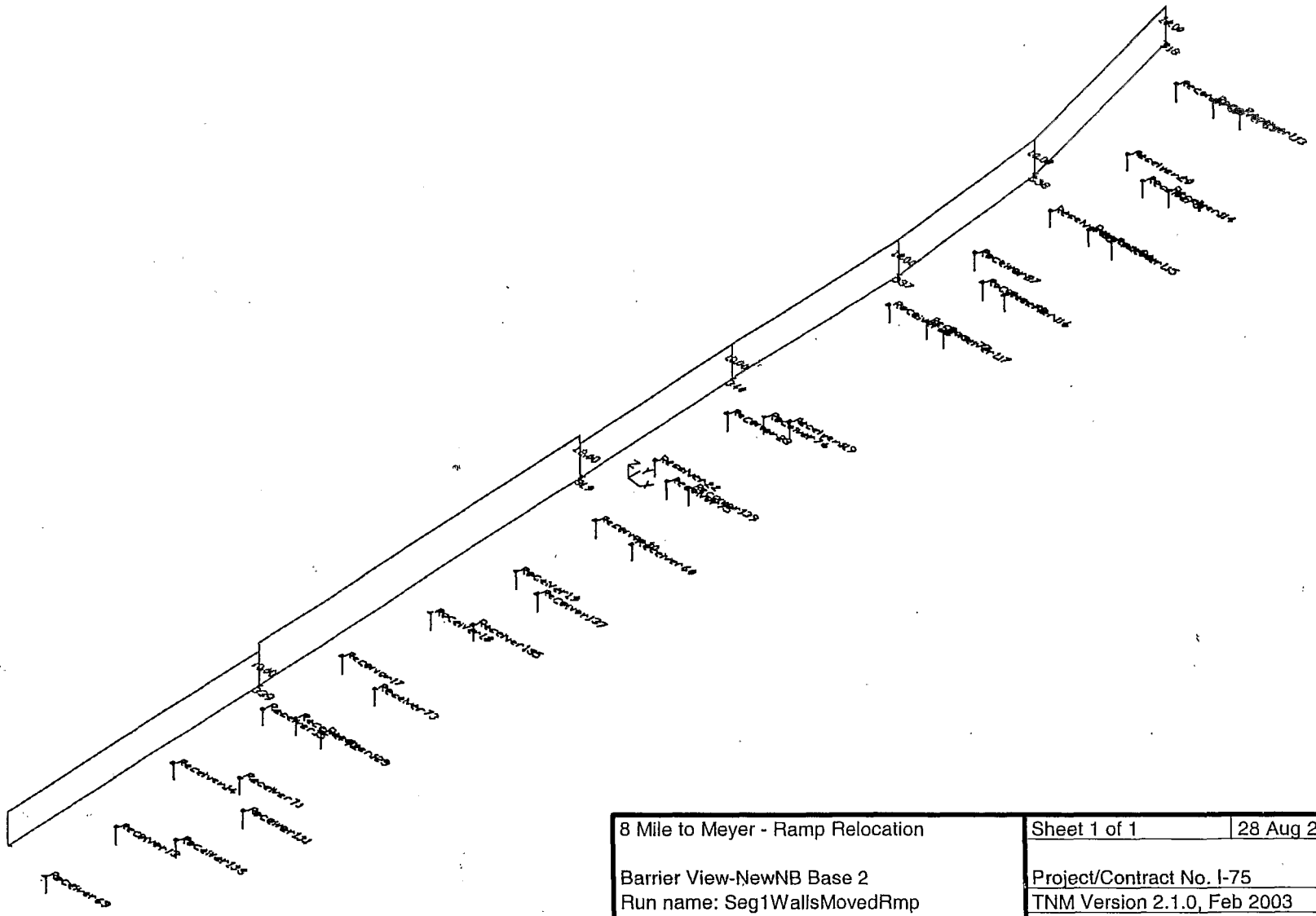
Appendix C

TNM Output

Segment 1

8 Mile to Meyer Road


8 Mile to Meyer - Ramp Relocation
Sheet 1 of 1
28 Aug 2003
Plan View
Project/Contract No. I-75
Run name: Seg1WallsMovedRmp
TNM Version 2.1.0, Feb 2003
Scale:
500 fee
Analysis By:
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
13465500
13466000
13466500
13467000
13467500
13468000
13468500
13469000
13469500



8 Mile to Meyer - Ramp Relocation	Sheet 1 of 1	28 Aug 2003
Barrier View-NewNB Base 2	Project/Contract No. I-75	
Run name: Seg1WallsMovedRmp	TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>	Analysis By:	

Roadway:	——→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢——→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 28 August 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: 8 Mile to Meyer - Ramp Relocation
BARRIER DESIGN: NewNB Base 2

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB 1	W	10.00	10.53	12.00	2117	22290				994630
									Total Cost:	994630

<Organization?>
<Analysis By?>

28 August 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: 8 Mile to Meyer - Ramp Relocation
BARRIER DESIGN: NewNB Base 2

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB 1	W	point338	318	10.00	10.00	10.00	309	3090				141316
		point338	338	10.00	10.00	10.00	260	2597				118746
		point337	337	10.00	10.00	10.00	286	2861				130856
		point340	340	10.00	10.00	10.00	265	2653				121321
		point356	319	12.00	12.00	12.00	562	6747				283865
		point339	339	10.00	10.00	10.00	434	4341				198526

<Organization?>
<Analysis By?>

28 August 2003
TNM 2.1
Calculated with TNM 2.1

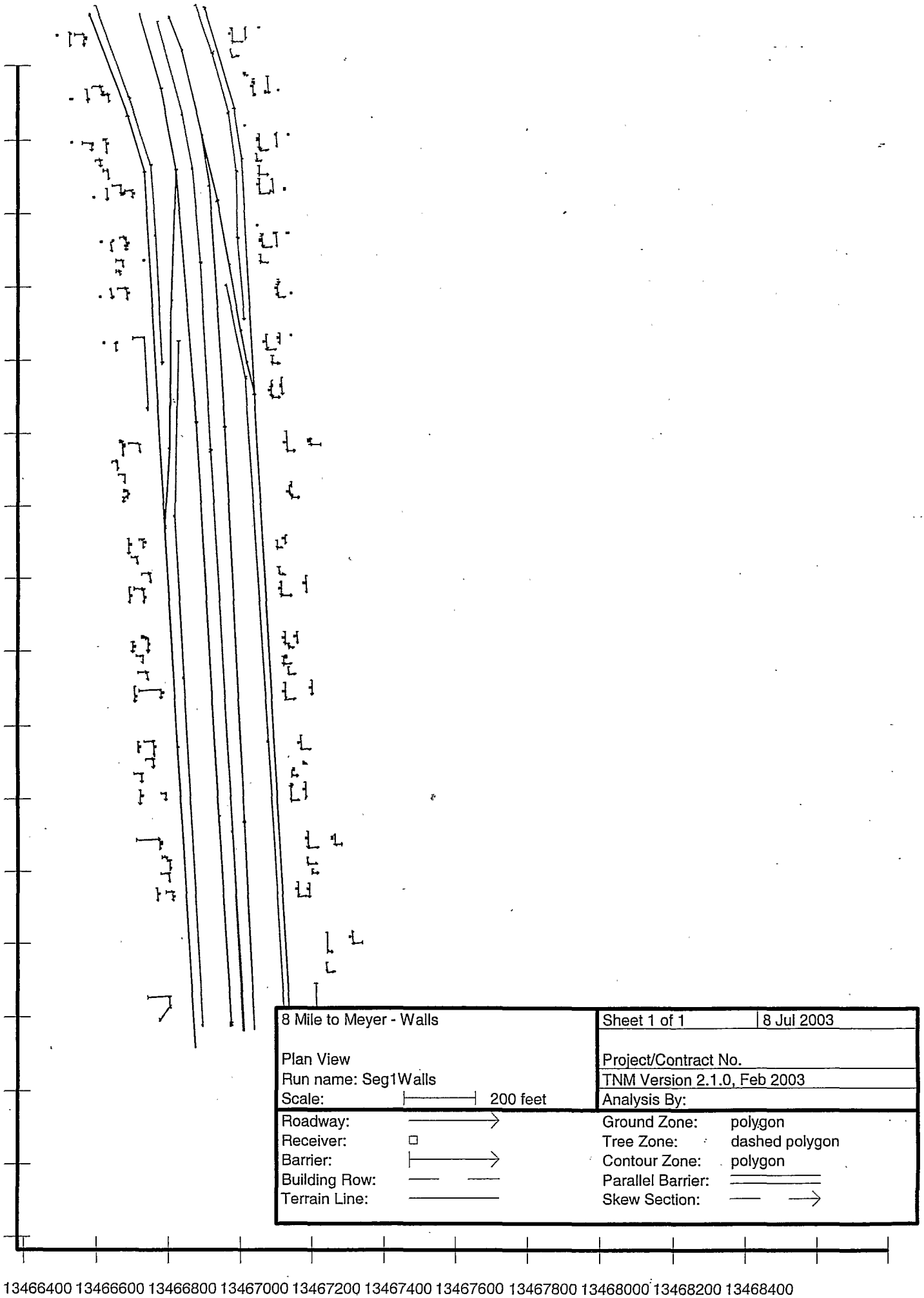
RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: 8 Mile to Meyer - Ramp Relocation
BARRIER DESIGN: NewNB Base 2
ATMOSPHERICS: 68 deg F, 50% RH

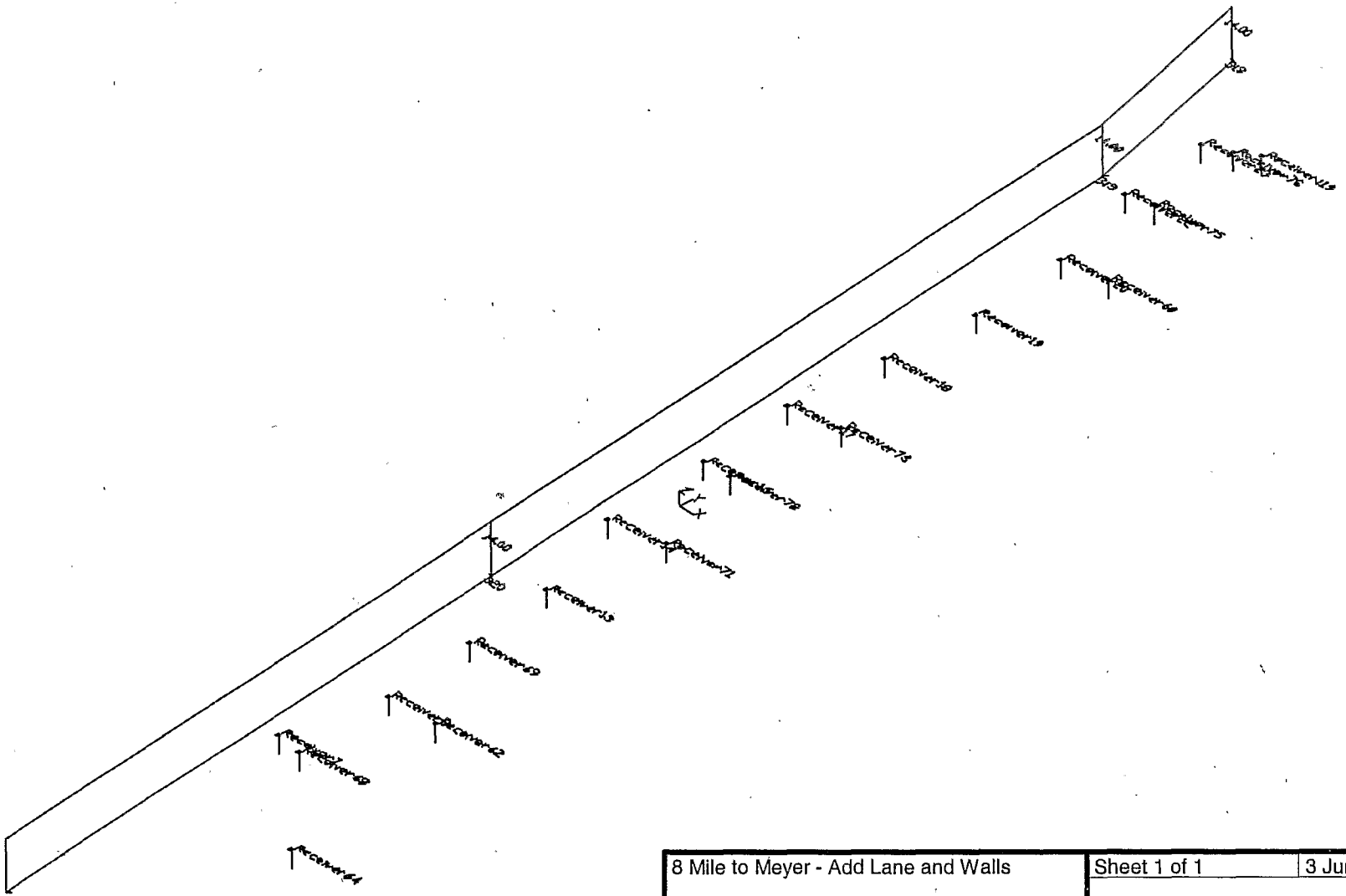
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

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
Receiver60	60	1	0.0	63.3	66	63.3	10	----	58.1	5.2	5	0.2
Receiver113	113	1	0.0	61.9	66	61.9	10	----	57.5	4.4	5	-0.6
Receiver83	83	1	0.0	63.0	66	63.0	10	----	55.1	7.9	5	2.9
Receiver30	30	1	0.0	72.4	66	72.4	10	Snd Lvl	62.7	9.7	5	4.7
Receiver114	114	1	0.0	62.1	66	62.1	10	----	57.0	5.1	5	0.1
Receiver81	81	1	0.0	65.2	66	65.2	10	----	58.9	6.3	5	1.3
Receiver29	29	1	0.0	71.4	66	71.4	10	Snd Lvl	62.9	8.5	5	3.5
Receiver115	115	1	0.0	60.6	66	60.6	10	----	56.6	4.0	5	-1.0
Receiver80	80	1	0.0	63.2	66	63.2	10	----	57.2	6.0	5	1.0
Receiver28	28	1	0.0	72.9	66	72.9	10	Snd Lvl	63.8	9.1	5	4.1
Receiver27	27	1	0.0	74.9	66	74.9	10	Snd Lvl	65.6	9.3	5	4.3
Receiver79	79	1	0.0	67.5	66	67.5	10	Snd Lvl	61.3	6.2	5	1.2
Receiver116	116	1	0.0	64.7	66	64.7	10	----	59.5	5.2	5	0.2
Receiver117	117	1	0.0	65.1	66	65.1	10	----	60.0	5.1	5	0.1
Receiver77	77	1	0.0	67.0	66	67.0	10	Snd Lvl	60.7	6.3	5	1.3
Receiver26	26	1	0.0	76.6	66	76.6	10	Snd Lvl	66.4	10.2	5	5.2
Receiver119	119	1	0.0	67.2	66	67.2	10	Snd Lvl	61.3	5.9	5	0.9
Receiver76	76	1	0.0	68.9	66	68.9	10	Snd Lvl	61.6	7.3	5	2.3
Receiver23	23	1	0.0	75.1	66	75.1	10	Snd Lvl	65.7	9.4	5	4.4
Receiver139	139	1	0.0	65.1	66	65.1	10	----	58.9	6.2	5	1.2
Receiver75	75	1	0.0	66.9	66	66.9	10	Snd Lvl	59.7	7.2	5	2.2
Receiver22	22	1	0.0	74.6	66	74.6	10	Snd Lvl	65.7	8.9	5	3.9
Receiver20	20	1	0.0	70.8	66	70.8	10	Snd Lvl	63.1	7.7	5	2.7

Receiver137	137	1	0.0	64.4	66	64.4	10	----	58.7	5.7	5	0.7
Receiver19	19	1	0.0	70.1	66	70.1	10	Snd Lvl	62.5	7.6	5	2.6
Receiver135	135	1	0.0	65.8	66	65.8	10	----	59.9	5.9	5	0.9
Receiver18	18	1	0.0	70.3	66	70.3	10	Snd Lvl	63.1	7.2	5	2.2
Receiver17	17	1	0.0	74.5	66	74.5	10	Snd Lvl	64.6	9.9	5	4.9
Receiver73	73	1	0.0	65.0	66	65.0	10	----	58.9	6.1	5	1.1
Receiver129	129	1	0.0	63.8	66	63.8	10	----	58.8	5.0	5	0.0
Receiver72	72	1	0.0	65.9	66	65.9	10	----	58.6	7.3	5	2.3
Receiver15	15	1	0.0	73.4	66	73.4	10	Snd Lvl	64.4	9.0	5	4.0
Receiver14	14	1	0.0	72.4	66	72.4	10	Snd Lvl	65.2	7.2	5	2.2
Receiver71	71	1	0.0	63.8	66	63.8	10	----	60.5	3.3	5	-1.7
Receiver131	131	1	0.0	60.2	66	60.2	10	----	55.5	4.7	5	-0.3
Receiver133	133	1	0.0	60.7	66	60.7	10	----	56.4	4.3	5	-0.7
Receiver13	13	1	0.0	67.4	66	67.4	10	Snd Lvl	64.3	3.1	5	-1.9
Receiver69	69	1	0.0	64.0	66	64.0	10	----	61.3	2.7	5	-2.3

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	38	2.7	6.6	10.2
All Impacted	19	3.1	7.9	10.2
All that meet NR Goal	31	5.0	7.2	10.2


8 Mile to Meyer - Walls
Sheet 1 of 1
8 Jul 2003
Plan View
Project/Contract No.
Run name: Seg1Walls
TNM Version 2.1.0, Feb 2003
Scale:
200 feet
Analysis By:
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
13466200 13466400 13466600 13466800 13467000 13467200 13467400 13467600 13467800 13468000 13468200 13468400



8 Mile to Meyer - Add Lane and Walls	Sheet 1 of 1	3 Jun 2003
Barrier View-NB 1 6 dB Goal	Project/Contract No.	
Run name: Segment 1 Walls	TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>	Analysis By:	

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: 8 Mile to Meyer - Add Lane and Walls
BARRIER DESIGN: NB 1 6 dB Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB 1	W	14.00	14.00	14.00	2047	28657				1130701
									Total Cost:	1130701

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: 8 Mile to Meyer - Add Lane and Walls
BARRIER DESIGN: NB 1 6 dB Goal

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB 1	W	point338	318	14.00	14.00	14.00	260	3639				143573
		point356	319	14.00	14.00	14.00	997	13957				550684
		point339	320	14.00	14.00	14.00	790	11062				436444

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1
Calculated with TNM 2.1

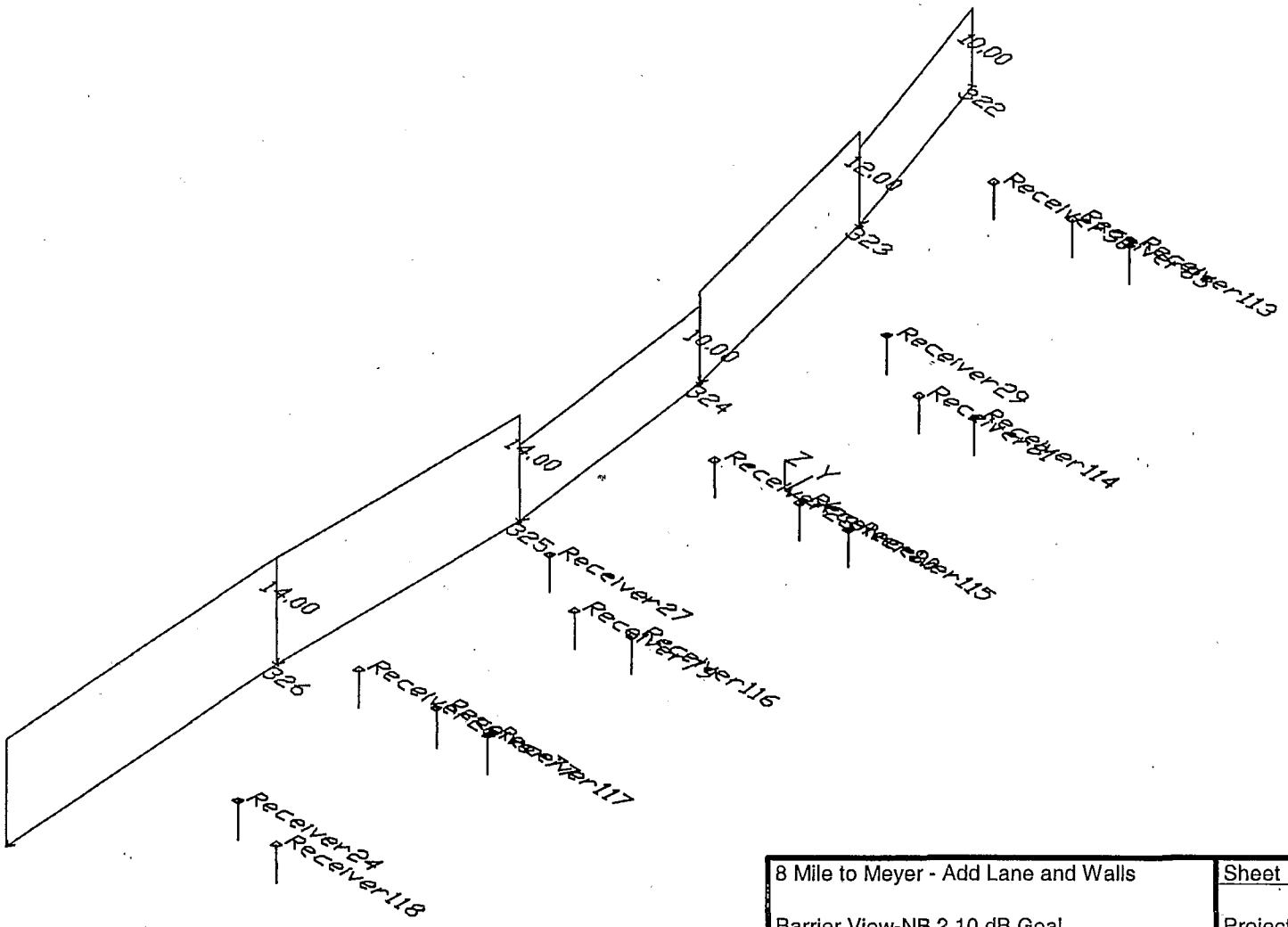
RESULTS: SOUND LEVELS
PROJECT/CONTRACT: <Project Name?>
RUN: 8 Mile to Meyer - Add Lane and Walls
BARRIER DESIGN: NB 1 6 dB Goal
ATMOSPHERICS: 68 deg F, 50% RH

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					With Barrier			
				LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver119	119	1	0.0	62.0	66	62.0	10	----	60.2	1.8	8	-6.2
Receiver76	76	1	0.0	63.3	66	63.3	10	----	61.1	2.2	5	-2.8
Receiver23	23	1	0.0	70.4	66	70.4	10	Snd Lvl	66.5	3.9	5	-1.1
Receiver75	75	1	0.0	63.6	66	63.6	10	----	59.3	4.3	5	-0.7
Receiver22	22	1	0.0	72.6	66	72.6	10	Snd Lvl	69.7	2.9	5	-2.1
Receiver60	60	1	0.0	60.7	66	60.7	10	----	58.1	2.6	5	-2.4
Receiver20	20	1	0.0	67.2	66	67.2	10	Snd Lvl	64.8	2.4	5	-2.6
Receiver19	19	1	0.0	65.8	66	65.8	10	----	64.4	1.4	5	-3.6
Receiver18	18	1	0.0	65.8	66	65.8	10	----	64.6	1.2	5	-3.8
Receiver17	17	1	0.0	70.9	66	70.9	10	Snd Lvl	70.1	0.8	5	-4.2
Receiver73	73	1	0.0	59.5	66	59.5	10	----	58.5	1.0	5	-4.0
Receiver72	72	1	0.0	60.0	66	60.0	10	----	59.3	0.7	5	-4.3
Receiver15	15	1	0.0	70.4	66	70.4	10	Snd Lvl	69.7	0.7	5	-4.3
Receiver71	71	1	0.0	61.5	66	61.5	10	----	58.4	3.1	5	-1.9
Receiver14	14	1	0.0	72.0	66	72.0	10	Snd Lvl	71.1	0.9	5	-4.1
Receiver13	13	1	0.0	66.5	66	66.5	10	Snd Lvl	64.6	1.9	5	-3.1
Receiver69	69	1	0.0	62.4	66	62.4	10	----	59.0	3.4	5	-1.6
Receiver62	62	1	0.0	57.6	66	57.6	10	----	55.4	2.2	5	-2.8
Receiver8	8	1	0.0	68.4	66	68.4	10	Snd Lvl	64.7	3.7	5	-1.3
Receiver68	68	1	0.0	61.9	66	61.9	10	----	58.4	3.5	5	-1.5
Receiver7	7	1	0.0	75.0	66	75.0	10	Snd Lvl	70.6	4.4	5	-0.6
Receiver64	64	1	0.0	58.1	66	58.1	10	----	55.8	2.3	5	-2.7

Dwelling Units	# DUs	Noise Reduction

		Min	Avg	Max
		dB	dB	dB
All Selected	22	0.7	2.3	4.4
All Impacted	9	0.7	2.4	4.4
All that meet NR Goal	0	0.0	0.0	0.0



8 Mile to Meyer - Add Lane and Walls		Sheet 1 of 1	3 Jun 2003
Barrier View-NB 2 10 dB Goal		Project/Contract No.	
Run name: Segment 1 Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: 8 Mile to Meyer - Add Lane and Walls
BARRIER DESIGN: NB 2 10 dB Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB 2	W	10.00	12.23	14.00	873	10684				445777
									Total Cost:	445777

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS

PROJECT/CONTRACT: <Project Name?>
RUN: 8 Mile to Meyer - Add Lane and Walls
BARRIER DESIGN: NB 2 10 dB Goal

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB 2	W	point341	322	10.00	10.00	10.00	142	1419				64911
		point342	323	12.00	12.00	12.00	169	2026				85234
		point343	324	10.00	10.00	10.00	160	1596				72987
		point344	325	14.00	14.00	14.00	184	2571				101438
		point345	326	14.00	14.00	14.00	219	3072				121207

<Organization?>
<Analysis By?>

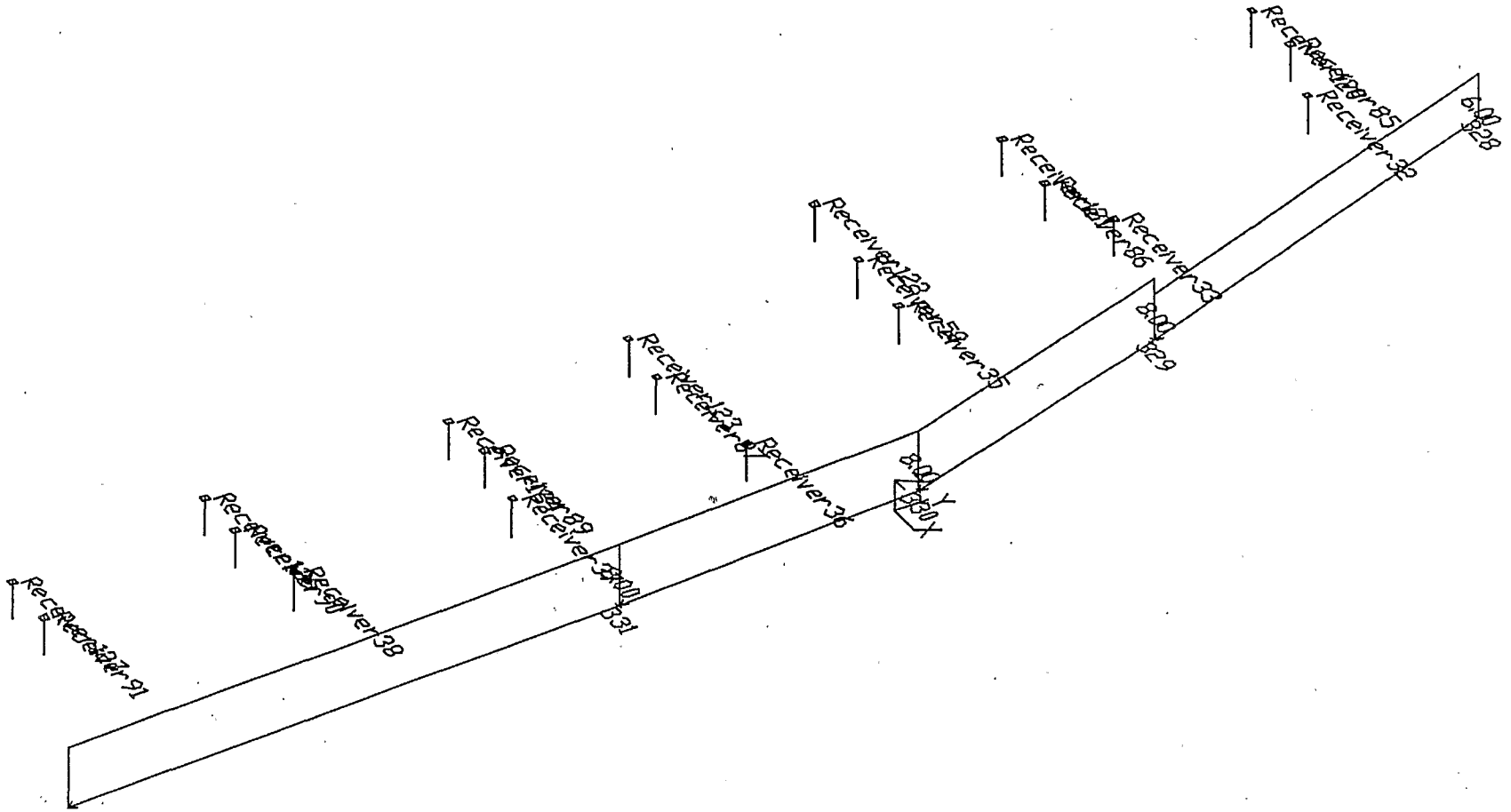
3 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: <Project Name?>
RUN: 8 Mile to Meyer - Add Lane and Walls
BARRIER DESIGN: NB 2 10 dB Goal
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
Receiver118	118	1	0.0	59.2	66	59.2	10	----	57.9	1.3	8	-6.7
Receiver24	24	1	0.0	67.3	66	67.3	10	Snd Lvl	62.0	5.3	5	0.3
Receiver117	117	1	0.0	60.6	66	60.6	10	----	56.3	4.3	8	-3.7
Receiver77	77	1	0.0	63.6	66	63.6	10	----	57.5	6.1	5	1.1
Receiver26	26	1	0.0	73.1	66	73.1	10	Snd Lvl	63.1	10.0	5	5.0
Receiver116	116	1	0.0	60.7	66	60.7	10	----	55.4	5.3	8	-2.7
Receiver79	79	1	0.0	59.3	66	59.3	10	----	53.0	6.3	5	1.3
Receiver27	27	1	0.0	71.8	66	71.8	10	Snd Lvl	63.2	8.6	5	3.6
Receiver115	115	1	0.0	59.8	66	59.8	10	----	55.6	4.2	8	-3.8
Receiver80	80	1	0.0	62.1	66	62.1	10	----	56.9	5.2	5	0.2
Receiver28	28	1	0.0	70.0	66	70.0	10	Snd Lvl	61.6	8.4	5	3.4
Receiver114	114	1	0.0	58.7	66	58.7	10	----	55.0	3.7	8	-4.3
Receiver81	81	1	0.0	61.8	66	61.8	10	----	56.7	5.1	5	0.1
Receiver29	29	1	0.0	68.9	66	68.9	10	Snd Lvl	61.3	7.6	5	2.6
Receiver113	113	1	0.0	58.4	66	58.4	10	----	55.1	3.3	8	-4.7
Receiver83	83	1	0.0	58.2	66	58.2	10	----	53.2	5.0	5	0.0
Receiver30	30	1	0.0	71.0	66	71.0	10	Snd Lvl	61.6	9.4	5	4.4

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	17	1.3	5.8	10.0
All Impacted	6	5.3	8.2	10.0
All that meet NR Goal	11	5.0	7.0	10.0



8 Mile to Meyer - Add Lane and Walls		Sheet 1 of 1	30 May 2003
Barrier View-SB 1 10 db Goal		Project/Contract No.	
Run name: Segment 1 Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: 8 Mile to Meyer - Add Lane and Walls
BARRIER DESIGN: SB 1 10 db Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB 1	W	6.00	7.46	8.00	1002	7477				397831
									Total Cost:	397831

<Organization?>
<Analysis By?>

30 May 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS

PROJECT/CONTRACT: <Project Name?>
RUN: 8 Mile to Meyer - Add Lane and Walls
BARRIER DESIGN: SB 1 10 db Goal

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB 1	W	point347	328	6.00	6.00	6.00	271	1624				98017
		point348	329	8.00	8.00	8.00	190	1522				77950
		point349	330	8.00	8.00	8.00	192	1539				78815
		point350	331	8.00	8.00	8.00	349	2793				143049

<Organization?>
<Analysis By?>

10 July 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: <Project Name?>
RUN: 8 Mile to Meyer - Walls
BARRIER DESIGN: SB 1 6 db Goal
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.

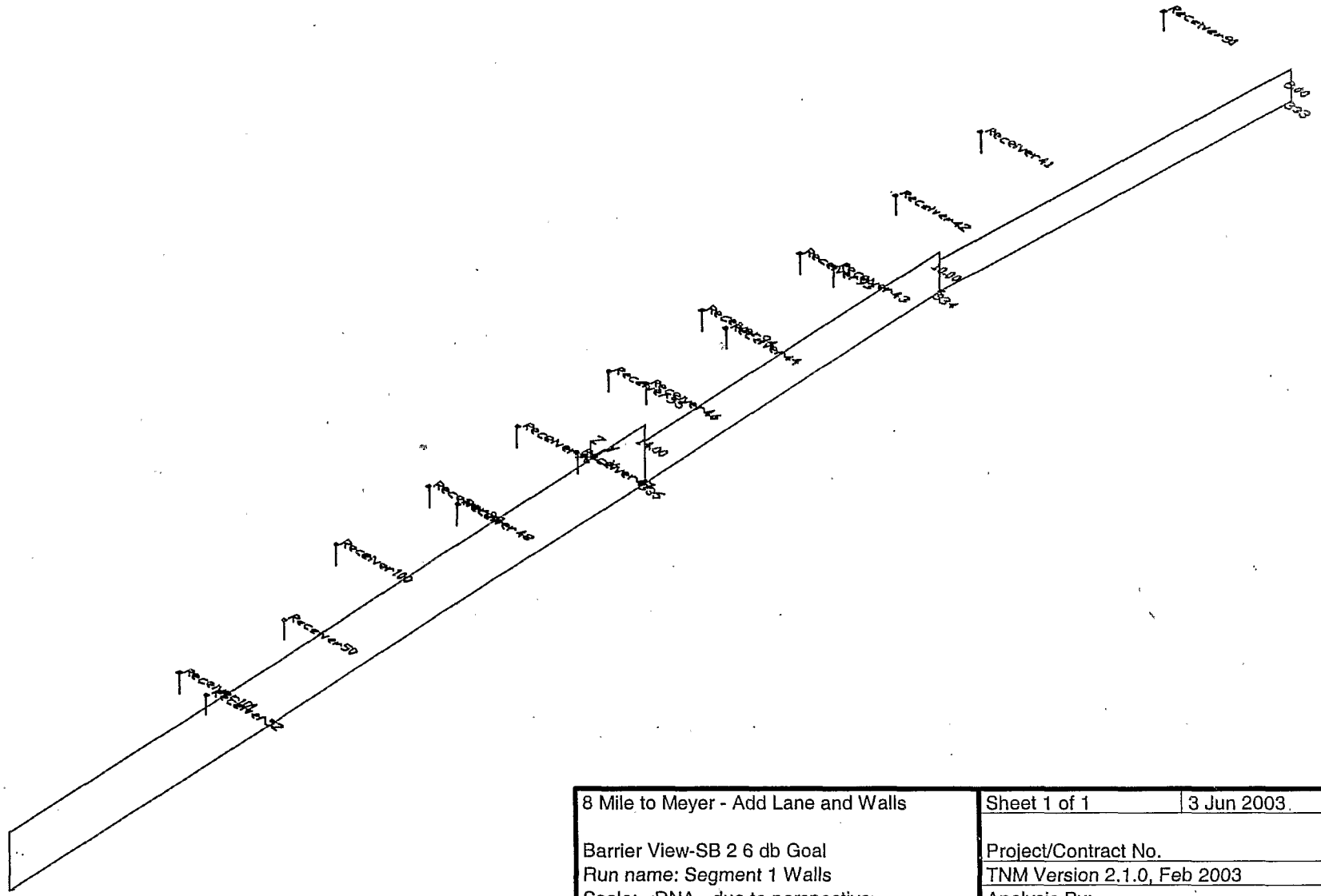
Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier			
				LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver120	120	1	0.0	55.6	66	55.6	10	----	51.1	4.5	5	-0.5
Receiver85	85	1	0.0	64.0	66	64.0	10	----	56.3	7.7	5	2.7
Receiver32	32	1	0.0	73.4	66	73.4	10	Snd Lvl	62.5	10.9	5	5.9
Receiver91	91	1	0.0	62.1	66	62.1	10	----	58.6	3.5	5	-1.5
Receiver127	127	1	0.0	60.0	66	60.0	10	----	56.4	3.6	5	-1.4
Receiver38	38	1	0.0	69.2	66	69.2	10	Snd Lvl	62.8	6.4	5	1.4
Receiver90	90	1	0.0	60.8	66	60.8	10	----	56.9	3.9	5	-1.1
Receiver126	126	1	0.0	58.9	66	58.9	10	----	56.2	2.7	5	-2.3
Receiver37	37	1	0.0	70.7	66	70.7	10	Snd Lvl	63.6	7.1	5	2.1
Receiver89	89	1	0.0	63.7	66	63.7	10	----	58.5	5.2	5	0.2
Receiver124	124	1	0.0	61.3	66	61.3	10	----	56.2	5.1	5	0.1
Receiver36	36	1	0.0	74.1	66	74.1	10	Snd Lvl	65.8	8.3	5	3.3
Receiver87	87	1	0.0	64.8	66	64.8	10	----	59.1	5.7	5	0.7
Receiver123	123	1	0.0	61.5	66	61.5	10	----	57.8	3.7	5	-1.3
Receiver35	35	1	0.0	68.7	66	68.7	10	Snd Lvl	61.3	7.4	5	2.4
Receiver58	58	1	0.0	64.2	66	64.2	10	----	58.5	5.7	5	0.7
Receiver122	122	1	0.0	61.0	66	61.0	10	----	57.0	4.0	5	-1.0
Receiver33	33	1	0.0	73.3	66	73.3	10	Snd Lvl	62.8	10.5	5	5.5
Receiver86	86	1	0.0	60.9	66	60.9	10	----	57.2	3.7	5	-1.3
Receiver121	121	1	0.0	60.2	66	60.2	10	----	54.8	5.4	5	0.4

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB

RESULTS: SOUND LEVELS

<Project Name?>

All Selected	20	2.7	5.7	10.9
All Impacted	6	6.4	8.4	10.9
All that meet NR Goal	12	5.1	7.1	10.9



8 Mile to Meyer - Add Lane and Walls		Sheet 1 of 1	3 Jun 2003
Barrier View-SB 2 6 db Goal		Project/Contract No.	
Run name: Segment 1 Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: 8 Mile to Meyer - Add Lane and Walls
BARRIER DESIGN: SB 2 6 db Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB 2	W	8.00	11.51	14.00	1880	21636				927153
									Total Cost:	927153

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: 8 Mile to Meyer - Add Lane and Walls
BARRIER DESIGN: SB 2 6 db Goal

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB 2	W	point352	333	8.00	8.00	8.00	483	3867				198090
		point355	334	10.00	10.00	10.00	446	4459				203917
		point353	335	14.00	14.00	14.00	951	13310				525146

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: <Project Name?>
RUN: 8 Mile to Meyer - Add Lane and Walls
BARRIER DESIGN: SB 2 6 db Goal
ATMOSPHERICS: 68 deg F, 50% RH

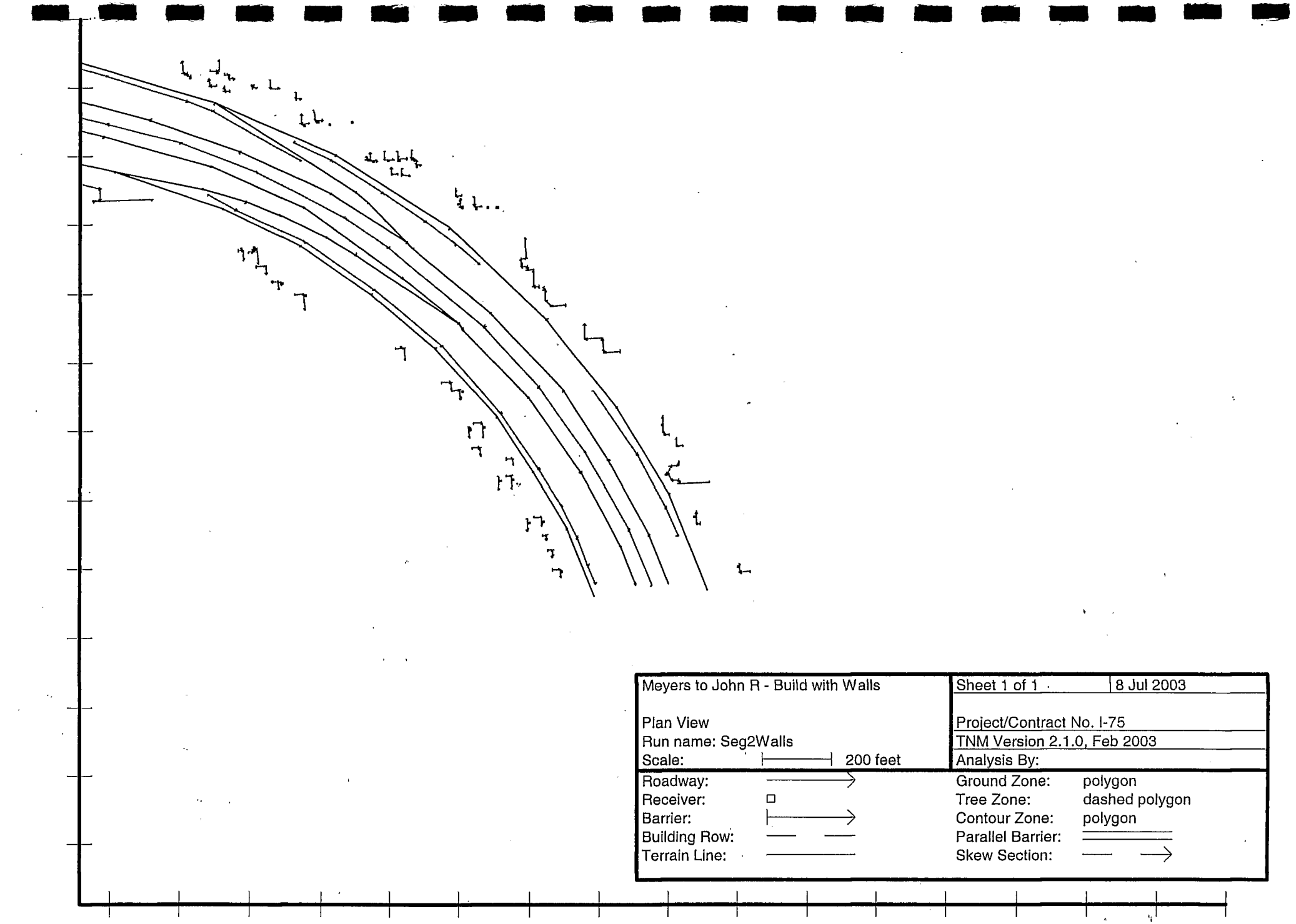
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

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
Receiver91	91	1	0.0	62.1	66	62.1	10	----	62.0	0.1	5	-4.9
Receiver93	93	1	0.0	58.5	66	58.5	10	----	56.0	2.5	5	-2.5
Receiver94	94	1	0.0	55.7	66	55.7	10	----	51.1	4.6	5	-0.4
Receiver95	95	1	0.0	53.4	66	53.4	10	----	48.4	5.0	5	0.0
Receiver96	96	1	0.0	58.9	66	58.9	10	----	53.8	5.1	5	0.1
Receiver99	99	1	0.0	57.2	66	57.2	10	----	53.3	3.9	5	-1.1
Receiver100	100	1	0.0	63.3	66	63.3	10	----	59.3	4.0	5	-1.0
Receiver101	101	1	0.0	65.0	66	65.0	10	----	60.6	4.4	5	-0.6
Receiver52	52	1	0.0	74.1	66	74.1	10	Snd Lvl	69.5	4.6	5	-0.4
Receiver50	50	1	0.0	68.0	66	68.0	10	Snd Lvl	64.2	3.8	5	-1.2
Receiver48	48	1	0.0	64.6	66	64.6	10	----	61.2	3.4	5	-1.6
Receiver47	47	1	0.0	65.4	66	65.4	10	----	58.4	7.0	5	2.0
Receiver46	46	1	0.0	62.1	66	62.1	10	----	56.4	5.7	5	0.7
Receiver44	44	1	0.0	59.9	66	59.9	10	----	53.5	6.4	5	1.4
Receiver43	43	1	0.0	62.3	66	62.3	10	----	58.8	3.5	5	-1.5
Receiver42	42	1	0.0	60.1	66	60.1	10	----	56.0	4.1	5	-0.9
Receiver41	41	1	0.0	59.6	66	59.6	10	----	56.3	3.3	5	-1.7

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	17	0.1	4.2	7.0
All Impacted	2	3.8	4.2	4.6
All that meet NR Goal	5	5.0	5.8	7.0

Segment 2

Meyer Road to 9 Mile


Meyers to John R - Build with Walls
Plan View
Run name: Seg2Walls
Scale: 200 feet
Sheet 1 of 1
8 Jul 2003
Project/Contract No. I-75
TNM Version 2.1.0, Feb 2003
Analysis By:
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
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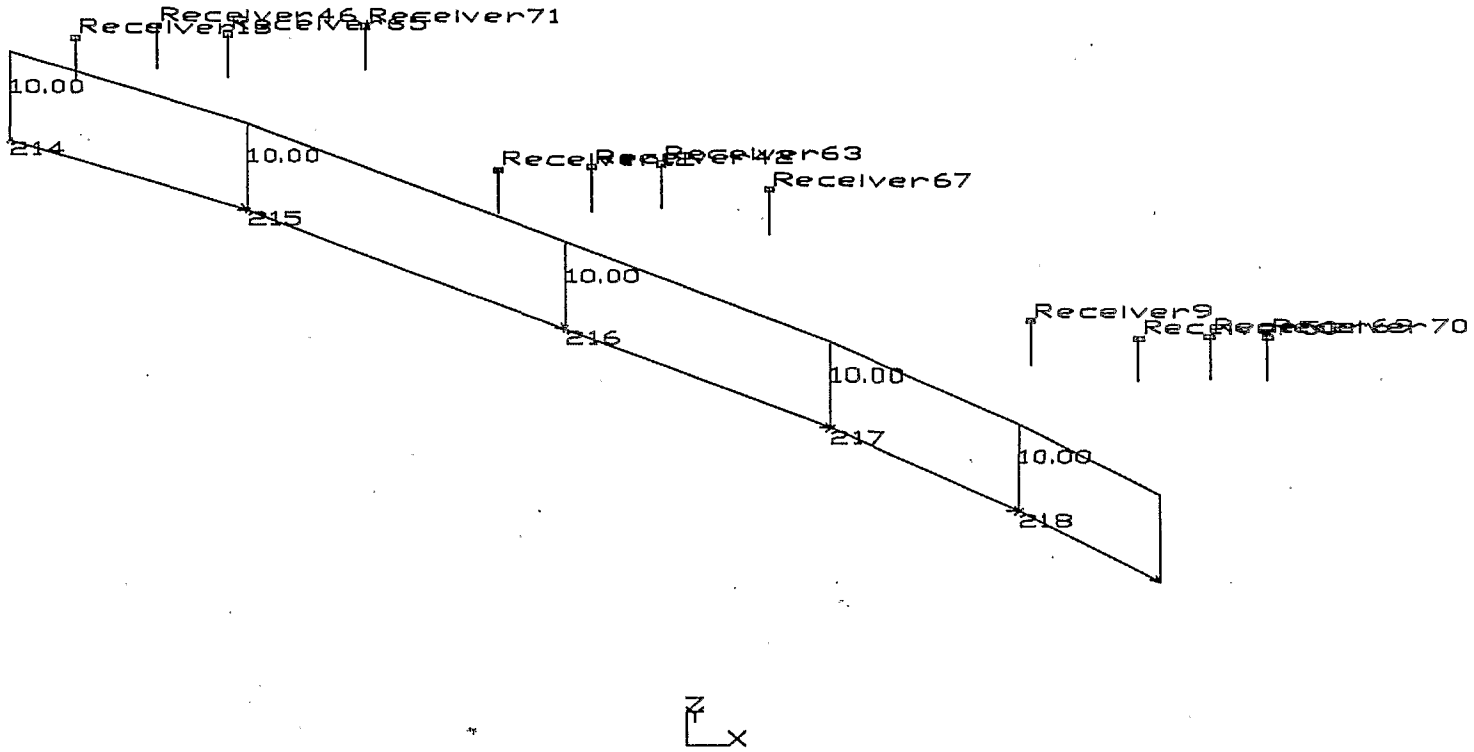


Meyers to John R - Build with Walls		Sheet 1 of 1	30 May 2003
Barrier View-Base Case NB 1 w/more receivers		Project/Contract No. I-75	
Run name: Seg2Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Meyers to John R - Build with Walls
BARRIER DESIGN: Base Case NB 1 w/more receivers

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB 1	W	10.00	10.00	10.00	644	6439				294440
									Total Cost:	294440

<Organization?>
<Analysis By?>

30 May 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: *Meyers to John R - Build with Walls*
BARRIER DESIGN: Base Case NB 1 w/more receivers

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB 1	W	point214	214	10.00	10.00	10.00	123	1233				56369
		point215	215	10.00	10.00	10.00	176	1760				80478
		point216	216	10.00	10.00	10.00	147	1473				67365
		point217	217	10.00	10.00	10.00	109	1095				50068
		point218	218	10.00	10.00	10.00	88	878				40161

<Organization?>
<Analysis By?>

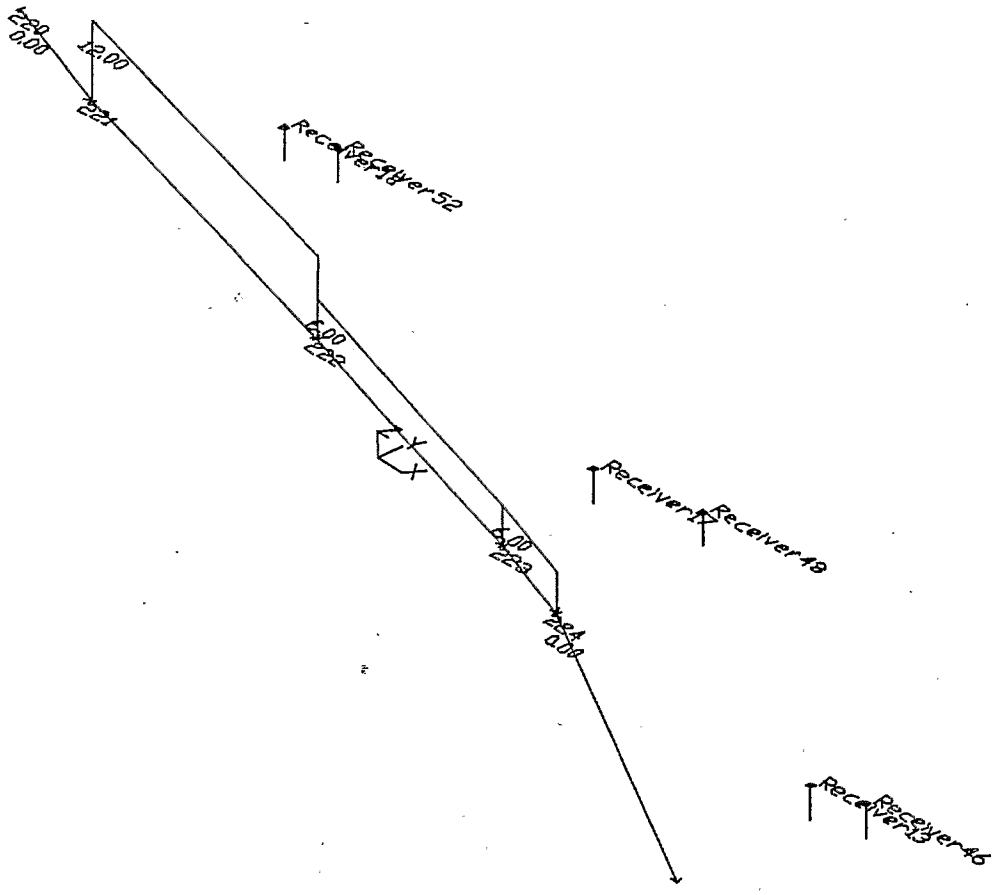
30 May 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Meyers to John R - Build with Walls
BARRIER DESIGN: Base Case NB 1 w/more receivers
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
Receiver71	71	1	0.0	67.8	66	67.8	10	Snd Lvl	62.3	5.5	5	0.5
Receiver65	65	1	0.0	69.5	66	69.5	10	Snd Lvl	66.2	3.3	5	-1.7
Receiver46	46	1	0.0	67.5	66	67.5	10	Snd Lvl	59.7	7.8	5	2.8
Receiver13	13	1	0.0	71.3	66	71.3	10	Snd Lvl	68.6	2.7	5	-2.3
Receiver67	67	1	0.0	69.7	66	69.7	10	Snd Lvl	59.8	9.9	5	4.9
Receiver63	63	1	0.0	66.3	66	66.3	10	Snd Lvl	57.4	8.9	5	3.9
Receiver42	42	1	0.0	71.2	66	71.2	10	Snd Lvl	60.6	10.6	5	5.6
Receiver12	12	1	0.0	73.3	66	73.3	10	Snd Lvl	63.1	10.2	5	5.2
Receiver70	70	1	0.0	67.0	66	67.0	10	Snd Lvl	60.4	6.6	5	1.6
Receiver69	69	1	0.0	67.4	66	67.4	10	Snd Lvl	60.3	7.1	5	2.1
Receiver50	50	1	0.0	68.2	66	68.2	10	Snd Lvl	60.8	7.4	5	2.4
Receiver9	9	1	0.0	70.9	66	70.9	10	Snd Lvl	61.2	9.7	5	4.7

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	12	2.7	7.5	10.6
All Impacted	12	2.7	7.5	10.6
All that meet NR Goal	10	5.5	8.4	10.6



Meyers to John R - Build with Walls		Sheet 1 of 1	3 Jun 2003
Barrier View-NB 2 6 dB Goal		Project/Contract No. I-75	
Run name: Seg2Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Meyers to John R - Build with Walls
BARRIER DESIGN: NB 2 6 dB Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB 2	W	6.00	8.84	12.00	600	5304				257861
									Total Cost:	257861

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Meyers to John R - Build with Walls
BARRIER DESIGN: NB 2 6 dB Goal

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB 2	W	point220	220	0.00	0.00	0.00	0	0				0
		point221	221	12.00	12.00	12.00	284	3406				143297
		point222	222	6.00	6.00	6.00	240	1437				86774
		point223	223	6.00	6.00	6.00	77	460				27790
		point224	224	0.00	0.00	0.00	0	0				0

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Meyers to John R - Build with Walls
BARRIER DESIGN: NB 2 6 dB Goal
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
Receiver46	46	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	5	-5.0
Receiver13	13	1	0.0	71.3	66	71.3	10	Snd Lvl	71.3	0.0	5	-5.0
Receiver48	48	1	0.0	72.0	66	72.0	10	Snd Lvl	66.4	5.6	5	0.6
Receiver17	17	1	0.0	75.2	66	75.2	10	Snd Lvl	68.7	6.5	5	1.5
Receiver52	52	1	0.0	77.1	66	77.1	10	Snd Lvl	67.9	9.2	5	4.2
Receiver18	18	1	0.0	79.0	66	79.0	10	Snd Lvl	68.8	10.2	5	5.2

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	6	0.0	5.2	10.2
All Impacted	6	0.0	5.2	10.2
All that meet NR Goal	4	5.6	7.9	10.2

Meyers to John R - Build with Walls	Sheet 1 of 1	26 Jun 2003
Barrier View-NB Church 6 dB Goal	Project/Contract No. I-75	
Run name: Seg2Walls	TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>	Analysis By:	

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

<Organization?> 26 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Meyers to John R - Build with Walls
BARRIER DESIGN: NB Church 6 dB Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
NB Church Wall	W	10.00	10.00	10.00	403	4025				184074
									Total Cost:	184074

<Organization?> 26 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Meyers to John R - Build with Walls
BARRIER DESIGN: NB Church 6 dB Goal

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
NB Church Wall	W	point252	252	10.00	10.00	10.00	227	2266				103632
		point253	253	10.00	10.00	10.00	176	1759				80442
		point254	254	0.00	0.00	0.00	0	0				0

<Organization?>
<Analysis By?>

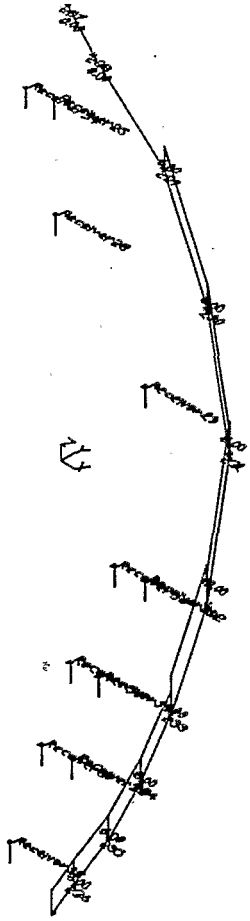
26 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Meyers to John R - Build with Walls
BARRIER DESIGN: NB Church 6 dB Goal
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
Receiver2	2	1	0.0	67.3	66	67.3	10	Snd Lvl	66.8	0.5	5	-4.5
Baptist Church	3	5	0.0	68.2	66	68.2	10	Snd Lvl	60.5	7.7	5	2.7
Receiver5	5	1	0.0	64.9	66	64.9	10	----	59.9	5.0	5	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	7	0.5	4.4	7.7
All Impacted	6	0.5	4.1	7.7
All that meet NR Goal	6	5.0	6.3	7.7



Meyers to John R - Build with Walls		Sheet 1 of 1	3 Jun 2003
Barrier View-SB 6 dB Goal		Project/Contract No. I-75	
Run name: Seg2Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	⟶	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢⟶	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—⟶

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Meyers to John R - Build with Walls
BARRIER DESIGN: SB 6 dB Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB	W	6.00	6.98	10.00	1323	9240				510202
									Total Cost:	510202

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Meyers to John R - Build with Walls
BARRIER DESIGN: SB 6 dB Goal

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB	W	point227	227	0.00	0.00	0.00	0	0				0
		point228	228	0.00	0.00	0.00	0	0				0
		point229	229	6.00	6.00	6.00	245	1472				88843
		point230	230	6.00	6.00	6.00	253	1519				91724
		point231	231	8.00	8.00	8.00	261	2087				106872
		point232	232	10.00	10.00	10.00	195	1950				89184
		point233	233	6.00	6.00	6.00	125	748				45181
		point234	234	6.00	6.00	6.00	103	615				37148
		point235	235	6.00	6.00	6.00	86	515				31073
		point236	236	6.00	6.00	6.00	56	334				20177

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Meyers to John R - Build with Walls
BARRIER DESIGN: SB 6 dB Goal
ATMOSPHERICS: 68 deg F, 50% RH

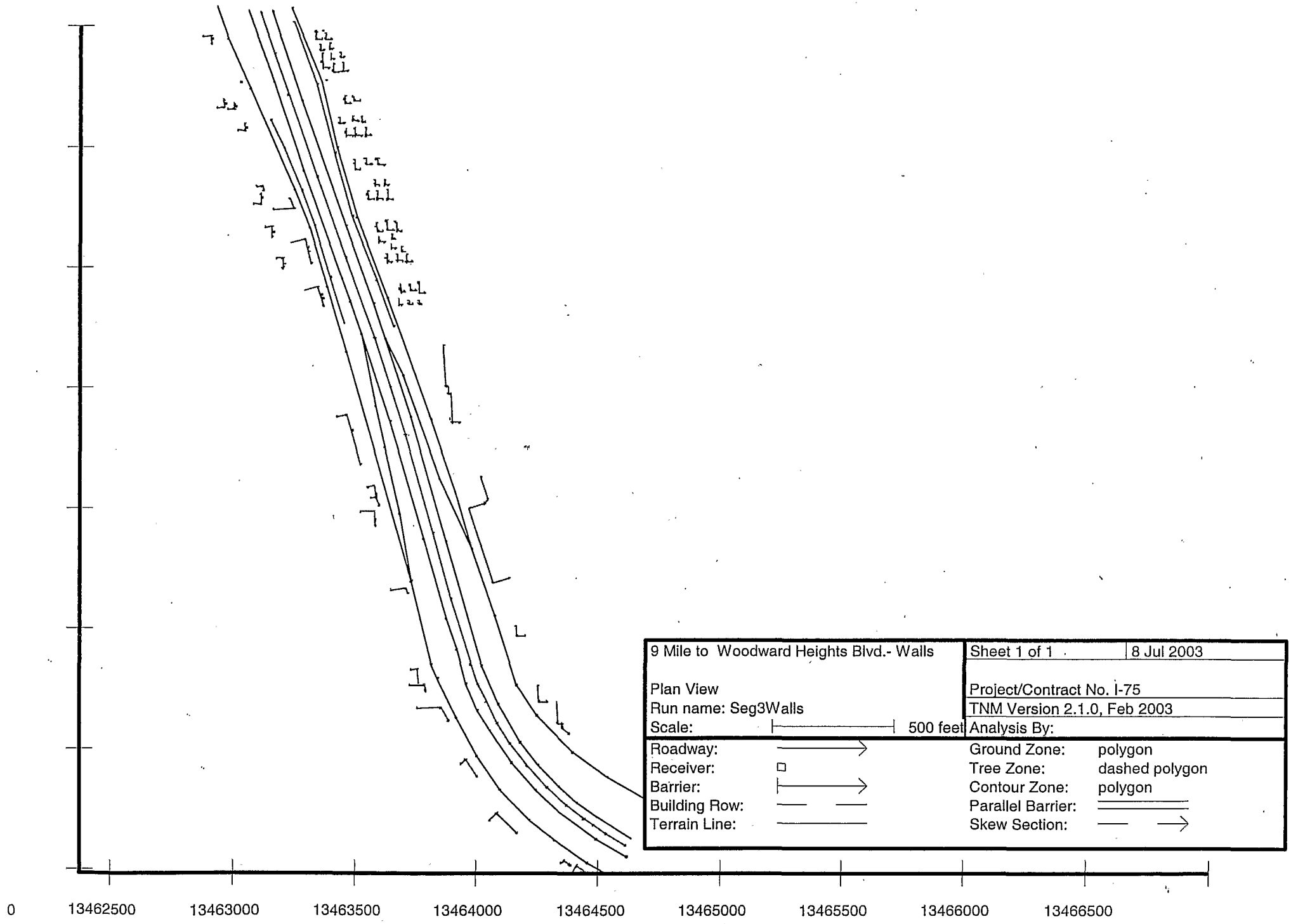
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

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
Receiver38	38	1	0.0	64.9	66	64.9	10	----	59.2	5.7	5	0.7
Receiver60	60	1	0.0	63.8	66	63.8	10	----	55.0	8.8	5	3.8
Receiver35	35	1	0.0	64.7	66	64.7	10	----	57.5	7.2	5	2.2
Receiver58	58	1	0.0	67.0	66	67.0	10	Snd Lvl	56.7	10.3	5	5.3
Receiver33	33	1	0.0	62.4	66	62.4	10	----	55.0	7.4	5	2.4
Receiver56	56	1	0.0	66.4	66	66.4	10	Snd Lvl	58.9	7.5	5	2.5
Receiver31	31	1	0.0	70.4	66	70.4	10	Snd Lvl	62.1	8.3	5	3.3
Receiver29	29	1	0.0	70.0	66	70.0	10	Snd Lvl	63.4	6.6	5	1.6
Receiver28	28	1	0.0	66.1	66	66.1	10	Snd Lvl	60.3	5.8	5	0.8
Receiver25	25	1	0.0	69.6	66	69.6	10	Snd Lvl	69.1	0.5	5	-4.5
Receiver54	54	1	0.0	67.6	66	67.6	10	Snd Lvl	67.5	0.1	5	-4.9

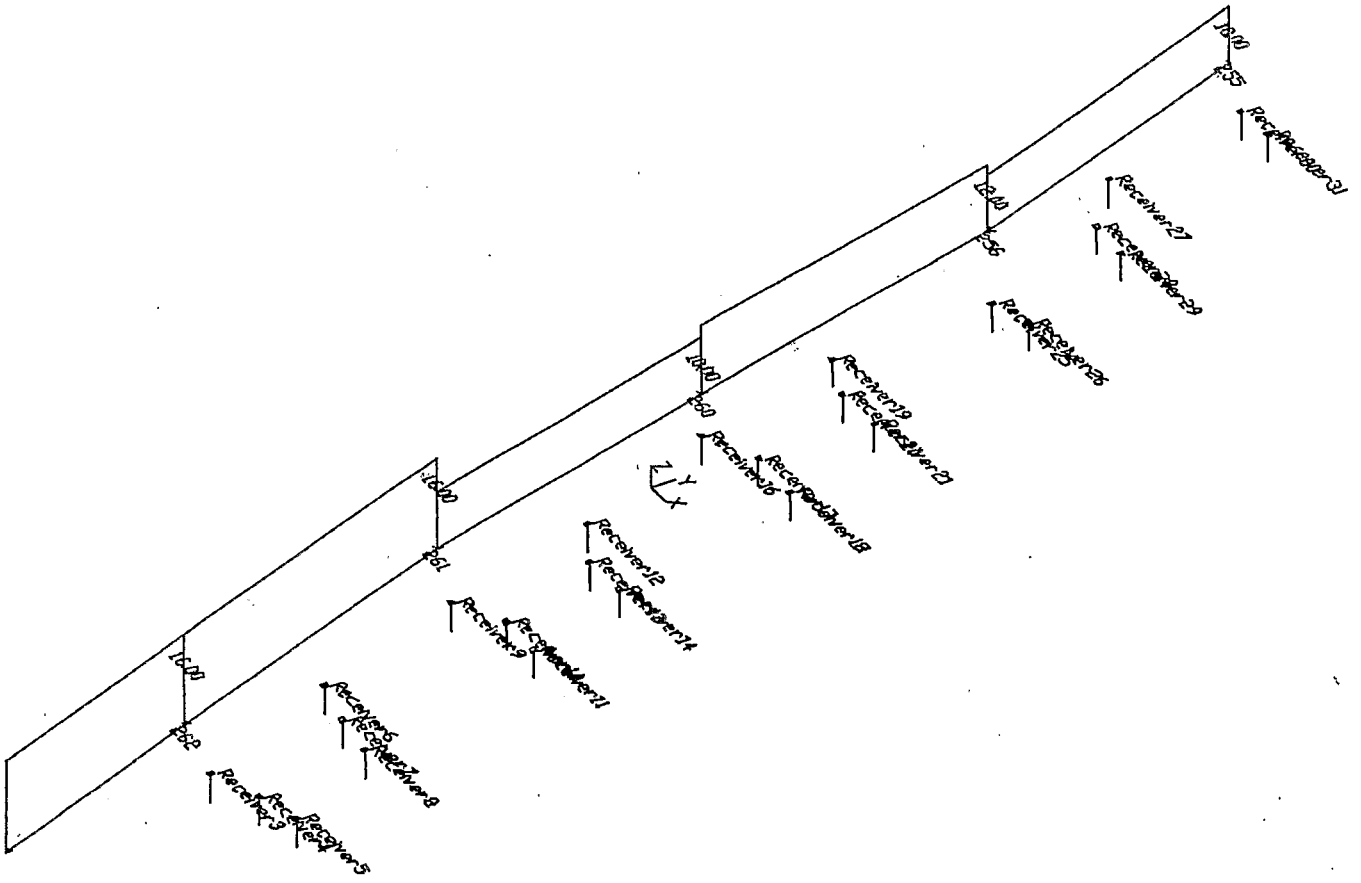
Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	11	0.1	6.2	10.3
All Impacted	7	0.1	5.6	10.3
All that meet NR Goal	9	5.7	7.5	10.3

Segment 3

9 Mile to Woodward Heights Blvd.



9 Mile to Woodward Heights Blvd.- Walls		Sheet 1 of 1	8 Jul 2003
Plan View		Project/Contract No. I-75	
Run name: Seg3Walls		TNM Version 2.1.0, Feb 2003	
Scale:	500 feet	Analysis By:	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	



John R to Woodward Heights Blvd.- Walls	Sheet 1 of 1	9 Jun 2003
Barrier View-NB 6 db Goal 3rd run	Project/Contract No. I-75	
Run name: Seg3Walls	TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>	Analysis By:	

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

<Organization?> 9 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: John R to Woodward Heights Blvd.- Walls
BARRIER DESIGN: NB 6 db Goal 3rd run

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB	W	10.00	12.65	16.00	1333	16863				693555
									Total Cost:	693555

<Organization?>
<Analysis By?>

9 June 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: John R to Woodward Heights Blvd.- Walls
BARRIER DESIGN: NB 6 db Goal 3rd run

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB	W	point255	255	10.00	10.00	10.00	276	2762				126302
		point256	256	12.00	12.00	12.00	293	3513				147795
		point260	260	10.00	10.00	10.00	273	2726				124638
		point261	261	16.00	16.00	16.00	288	4603				172589
		point262	262	16.00	16.00	16.00	204	3260				122231

<Organization?>
<Analysis By?>

9 June 2003
TNM 2.1
Calculated with TNM 2.1

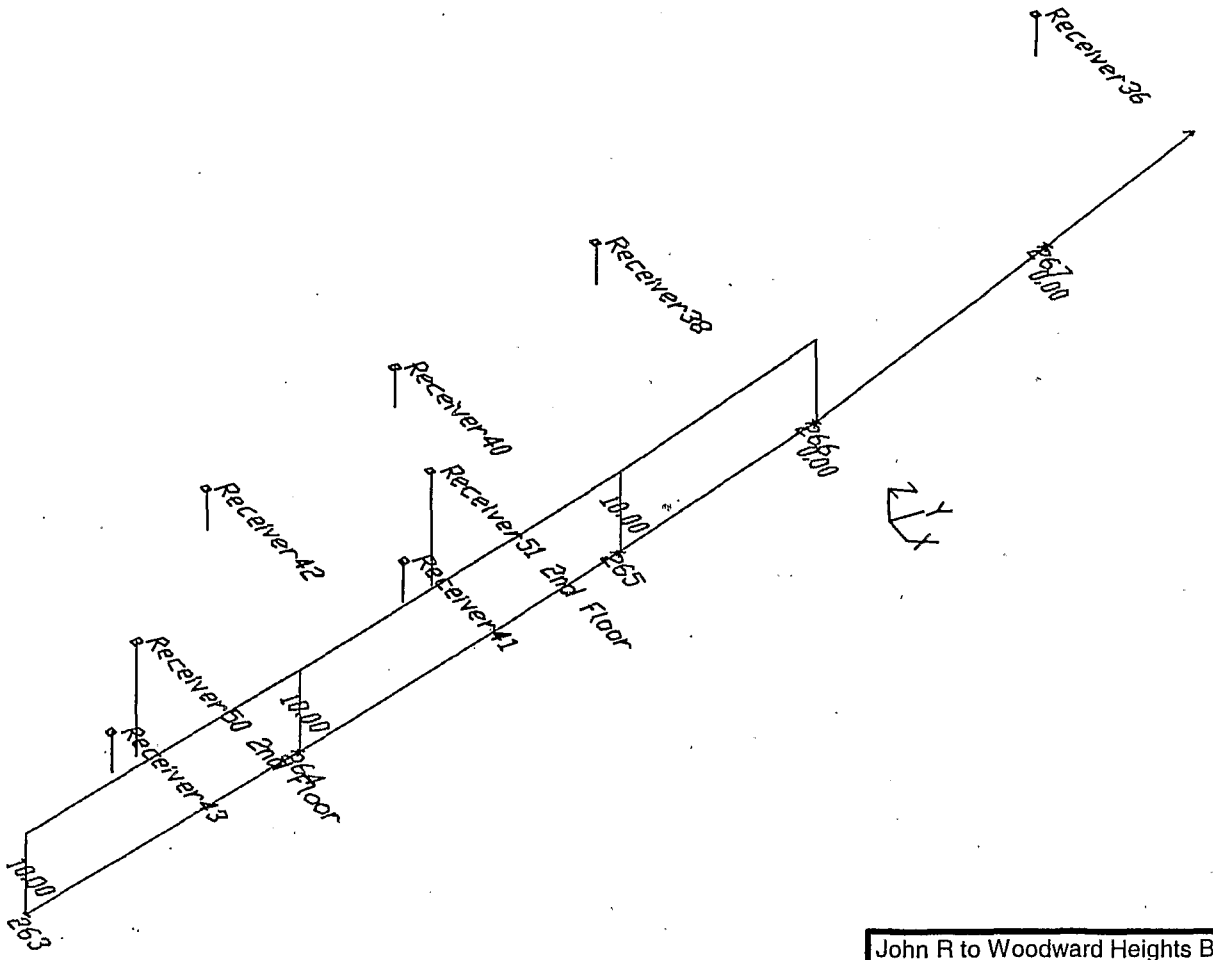
RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: John R to Woodward Heights Blvd.- Walls
BARRIER DESIGN: NB 6 db Goal 3rd run
ATMOSPHERICS: 68 deg F, 50% RH

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
Receiver5	5	1	0.0	52.5	66	52.5	10	----	52.2	0.3	5	-4.7
Receiver4	4	1	0.0	57.3	66	57.3	10	----	57.1	0.2	5	-4.8
Receiver3	3	1	0.0	65.5	66	65.5	10	----	58.3	7.2	5	2.2
Receiver8	8	1	0.0	59.4	66	59.4	10	----	53.1	6.3	5	1.3
Receiver7	7	1	0.0	61.4	66	61.4	10	----	54.1	7.3	5	2.3
Receiver6	6	1	0.0	63.6	66	63.6	10	----	56.4	7.2	5	2.2
Receiver11	11	1	0.0	50.8	66	50.8	10	----	48.3	2.5	5	-2.5
Receiver10	10	1	0.0	54.0	66	54.0	10	----	52.2	1.8	5	-3.2
Receiver9	9	1	0.0	61.2	66	61.2	10	----	55.2	6.0	5	1.0
Receiver14	14	1	0.0	52.8	66	52.8	10	----	49.1	3.7	5	-1.3
Receiver13	13	1	0.0	56.4	66	56.4	10	----	51.2	5.2	5	0.2
Receiver12	12	1	0.0	59.6	66	59.6	10	----	54.4	5.2	5	0.2
Receiver18	18	1	0.0	47.8	66	47.8	10	----	47.0	0.8	5	-4.2
Receiver17	17	1	0.0	57.5	66	57.5	10	----	52.0	5.5	5	0.5
Receiver16	16	1	0.0	60.6	66	60.6	10	----	53.7	6.9	5	1.9
Receiver21	21	1	0.0	54.6	66	54.6	10	----	50.2	4.4	5	-0.6
Receiver20	20	1	0.0	50.0	66	50.0	10	----	46.2	3.8	5	-1.2
Receiver19	19	1	0.0	61.4	66	61.4	10	----	53.8	7.6	5	2.6
Receiver26	26	1	0.0	57.7	66	57.7	10	----	52.5	5.2	5	0.2
Receiver25	25	1	0.0	60.0	66	60.0	10	----	53.3	6.7	5	1.7
Receiver29	29	1	0.0	47.9	66	47.9	10	----	43.6	4.3	5	-0.7
Receiver28	28	1	0.0	61.3	66	61.3	10	----	54.1	7.2	5	2.2
Receiver27	27	1	0.0	67.9	66	67.9	10	Snd Lvl	57.7	10.2	5	5.2

Receiver31	31	1	0.0	55.6	66	55.6	10	----	51.6	4.0	5	-1.0
Receiver30	30	1	0.0	64.1	66	64.1	10	----	56.3	7.8	5	2.8

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	25	0.2	5.1	10.2
All Impacted	1	10.2	10.2	10.2
All that meet NR Goal	15	5.2	6.8	10.2



John R to Woodward Heights Blvd.- Walls		Sheet 1 of 1	9 Jun 2003
Barrier View-SB 6 db Goal		Project/Contract No. I-75	
Run name: Seg3Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 9 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: John R to Woodward Heights Blvd.- Walls
BARRIER DESIGN: SB 6 db Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB	W	10.00	10.00	10.00	581	5811				265756
									Total Cost:	265756

<Organization?> 9 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: John R to Woodward Heights Blvd.- Walls
BARRIER DESIGN: SB 6 db Goal

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB	W	point263	263	10.00	10.00	10.00	198	1977				90418
		point264	264	10.00	10.00	10.00	234	2338				106898
		point265	265	10.00	10.00	10.00	150	1497				68440
		point266	266	0.00	0.00	0.00	0	0				0
		point267	267	0.00	0.00	0.00	0	0				0

<Organization?>
<Analysis By?>

9 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: John R to Woodward Heights Blvd.- Walls
BARRIER DESIGN: SB 6 db Goal
ATMOSPHERICS: 68 deg F, 50% RH

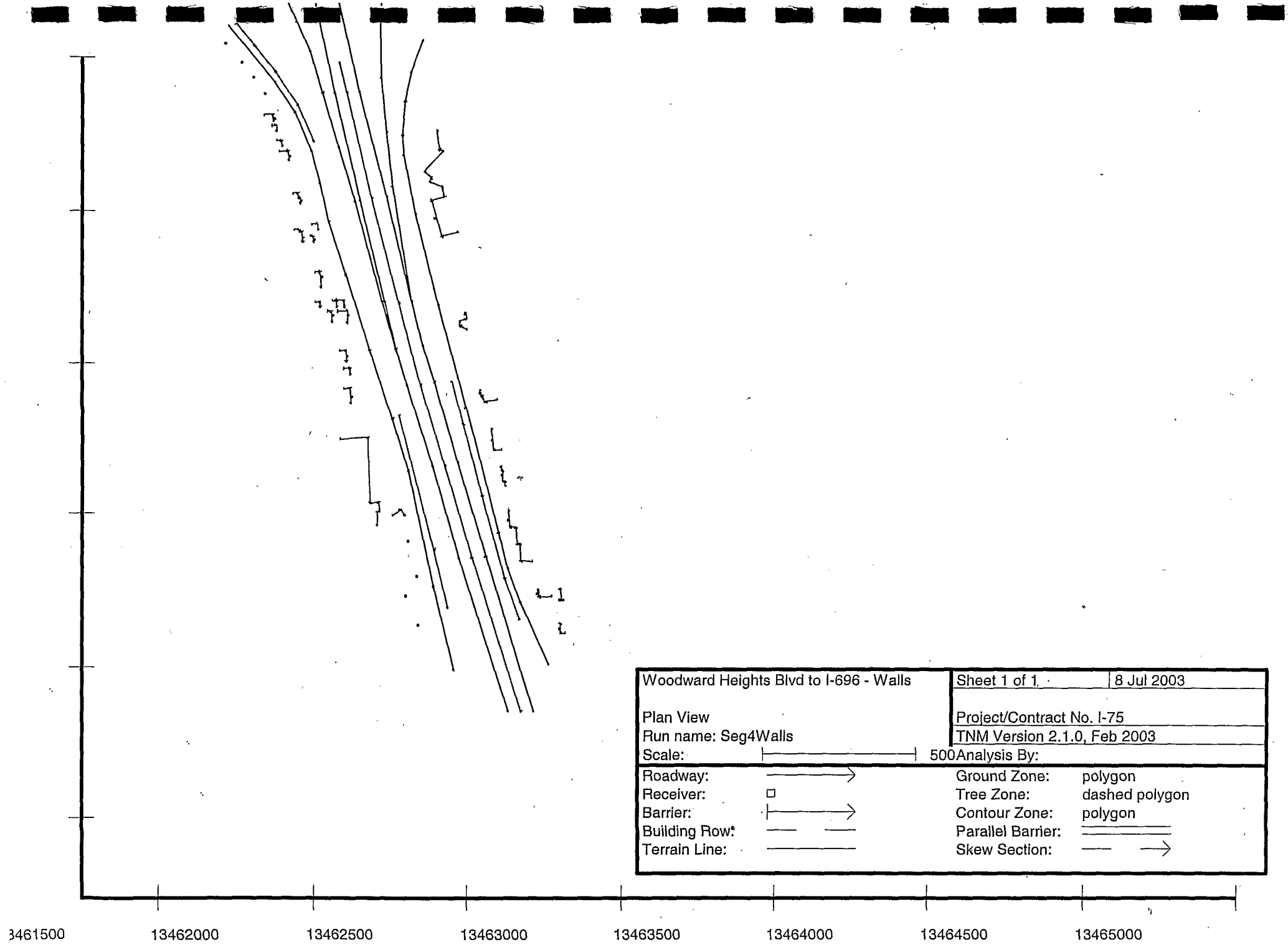
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

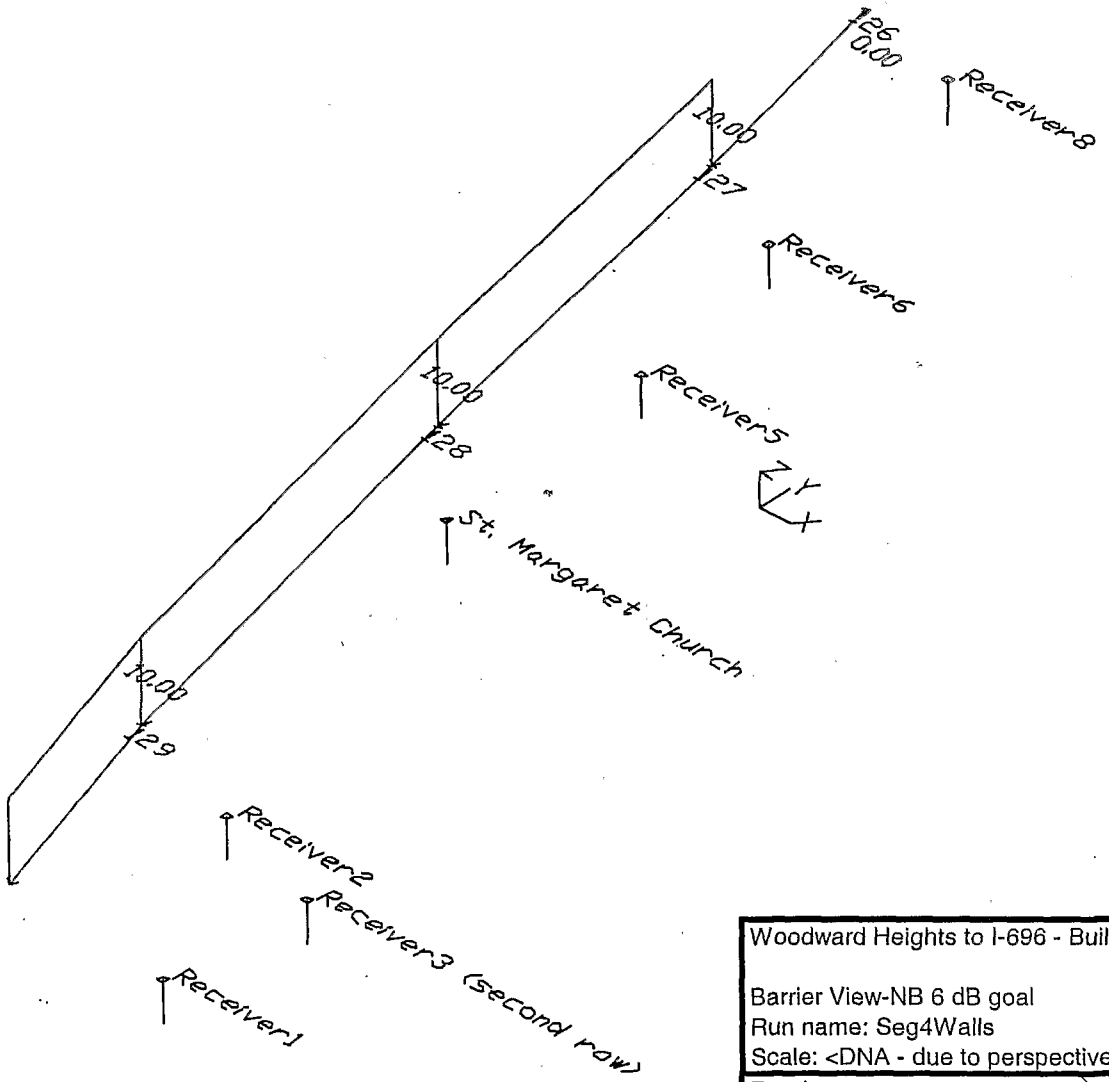
Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier			
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver43	43	2	0.0	65.9	66	65.9	10	----	64.5	1.4	5	-3.6
Receiver50 2nd Floor	50	2	0.0	72.3	66	72.3	10	Snd Lvl	69.1	3.2	5	-1.8
Receiver41	41	8	0.0	60.7	66	60.7	10	----	58.6	2.1	5	-2.9
Receiver51 2nd Floor	51	8	0.0	66.4	66	66.4	10	Snd Lvl	60.5	5.9	5	0.9
Receiver42	42	1	0.0	54.3	66	54.3	10	----	53.5	0.8	5	-4.2
Receiver40	40	1	0.0	54.7	66	54.7	10	----	54.4	0.3	5	-4.7
Receiver38	38	1	0.0	47.1	66	47.1	10	----	46.9	0.2	5	-4.8
Receiver36	36	1	0.0	61.8	66	61.8	10	----	61.7	0.1	5	-4.9

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	24	0.1	1.8	5.9
All Impacted	10	3.2	4.6	5.9
All that meet NR Goal	8	5.9	5.9	5.9

Segment 4

Woodward Heights Blvd. To I-696


Woodward Heights Blvd to I-696 - Walls
Sheet 1 of 1
8 Jul 2003
Plan View
Project/Contract No. I-75
Run name: Seg4Walls
TNM Version 2.1.0, Feb 2003
Scale:
500
Analysis By:
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
3461500
13462000
13462500
13463000
13463500
13464000
13464500
13465000



Woodward Heights to I-696 - Build		Sheet 1 of 1	24 Jun 2003
Barrier View-NB 6 dB goal		Project/Contract No. I-75	
Run name: Seg4Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

<Organization?> 24 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Woodward Heights to I-696 - Build
BARRIER DESIGN: NB 6 dB goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB	W	10.00	10.00	10.00	669	6693				306052
									Total Cost:	306052

<Organization?> 24 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Woodward Heights to I-696 - Build
BARRIER DESIGN: NB 6 dB goal

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB	W	point126	126	0.00	0.00	0.00	0	0				0
		point127	127	10.00	10.00	10.00	248	2478				113311
		point128	128	10.00	10.00	10.00	279	2787				127435
		point129	129	10.00	10.00	10.00	143	1428				65306

<Organization?>
<Analysis By?>

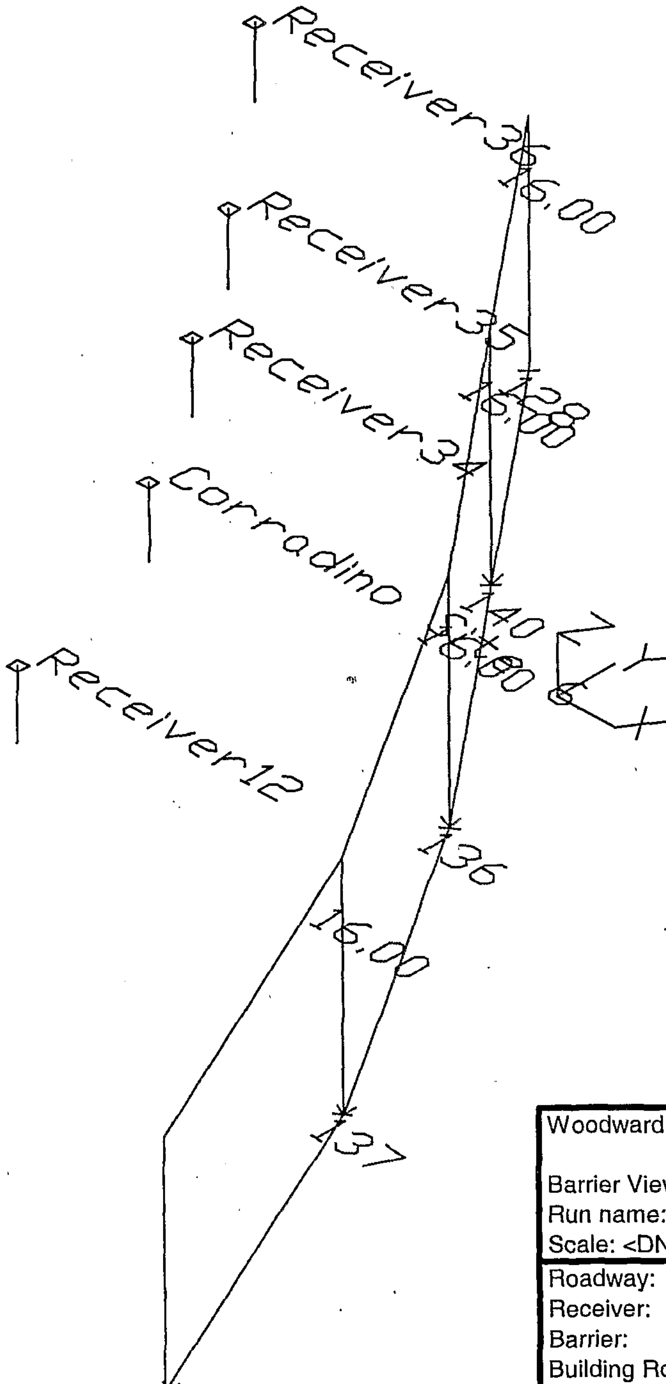
24 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Woodward Heights to I-696 - Build
BARRIER DESIGN: NB 6 dB goal
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
Receiver8	8	1	0.0	60.7	66	60.7	10	----	56.9	3.8	5	-1.2
Receiver6	6	1	0.0	62.1	66	62.1	10	----	55.8	6.3	5	1.3
Receiver5	5	1	0.0	64.0	66	64.0	10	----	56.7	7.3	5	2.3
St. Margaret Church	4	7	0.0	68.6	66	68.6	10	Snd Lvl	59.4	9.2	5	4.2
Receiver2	2	1	0.0	72.1	66	72.1	10	Snd Lvl	67.5	4.6	5	-0.4
Receiver3 (second row)	3	1	0.0	67.0	66	67.0	10	Snd Lvl	65.0	2.0	5	-3.0
Receiver1	1	1	0.0	70.1	66	70.1	10	Snd Lvl	68.9	1.2	5	-3.8

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	13	1.2	4.9	9.2
All Impacted	10	1.2	4.2	9.2
All that meet NR Goal	9	6.3	7.6	9.2



Woodward Heights to I-696 - Walls	Sheet 1 of 1	3 Jun 2003
Barrier View-SB 6 dB goal	Project/Contract No. I-75	
Run name: Seg4Walls	TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>	Analysis By:	

Roadway:	⟶	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	├⟶	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═
Terrain Line:	——	Skew Section:	— ⟶

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Woodward Heights to I-696 - Walls
BARRIER DESIGN: SB 6 dB goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB	W	16.00	16.00	16.00	465	7440				278969
									Total Cost:	278969

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Woodward Heights to I-696 - Walls
BARRIER DESIGN: SB 6.dB goal

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB	W	point128	128	16.00	16.00	16.00	96	1530				57372
		point140	140	16.00	16.00	16.00	109	1743				65360
		point136	136	16.00	16.00	16.00	129	2068				77557
		point137	137	16.00	16.00	16.00	131	2098				78681

<Organization?>
<Analysis By?>

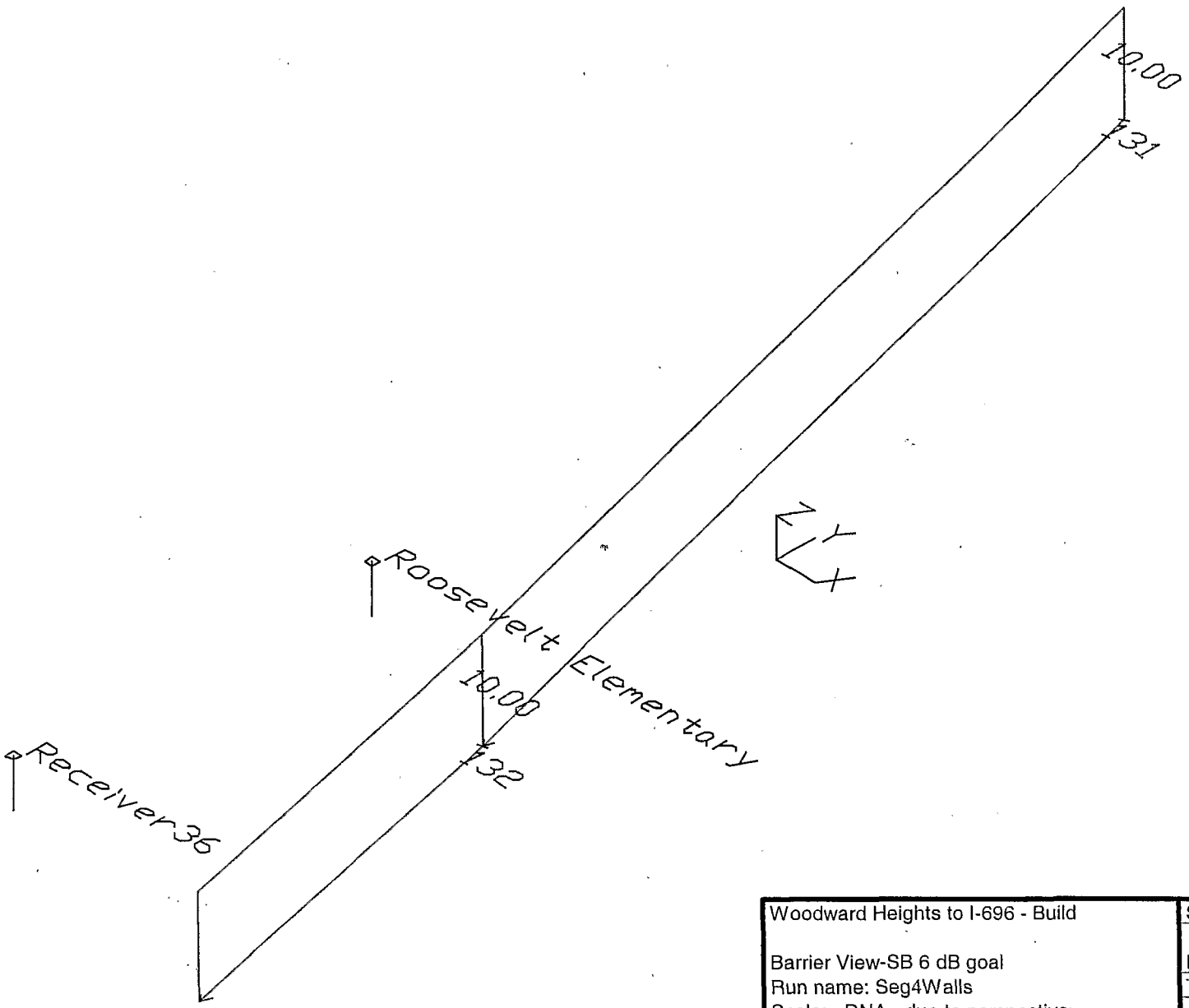
3 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Woodward Heights to I-696 - Walls
BARRIER DESIGN: SB 6 dB goal
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
Receiver36	36	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	5	-5.0
Receiver35	35	1	0.0	69.0	66	69.0	10	Snd Lvl	69.1	-0.1	5	-5.1
Receiver34	34	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	5	-5.0
Corradino Site 6	31	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	5	-5.0
Receiver12	12	1	0.0	66.8	66	66.8	10	Snd Lvl	66.7	0.1	5	-4.9

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	5	-0.1	0.0	0.1
All Impacted	5	-0.1	0.0	0.1
All that meet NR Goal	0	0.0	0.0	0.0



Woodward Heights to I-696 - Build		Sheet 1 of 1	24 Jun 2003
Barrier View-SB 6 dB goal		Project/Contract No. I-75	
Run name: Seg4Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 24 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Woodward Heights to I-696 - Build
BARRIER DESIGN: SB 6 dB goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB	W	10.00	10.00	10.00	656	6563				300119
									Total Cost:	300119

<Organization?> 24 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Woodward Heights to I-696 - Build
BARRIER DESIGN: SB 6 dB goal

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB	W	point131	131	10.00	10.00	10.00	463	4628				211623
		point132	132	10.00	10.00	10.00	194	1935				88496

<Organization?>
<Analysis By?>

24 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Woodward Heights to I-696 - Build
BARRIER DESIGN: SB 6 dB goal
ATMOSPHERICS: 68 deg F, 50% RH

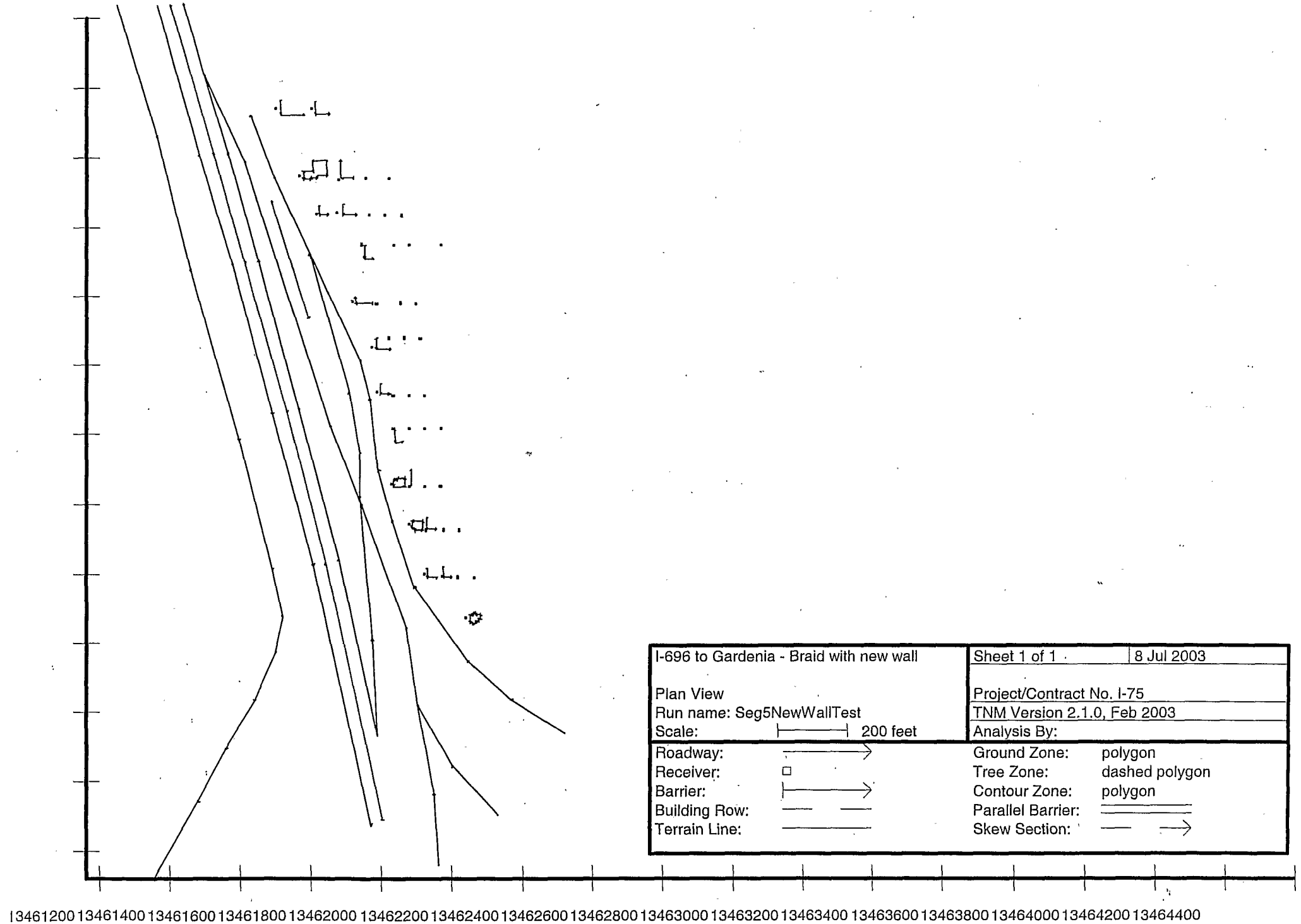
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

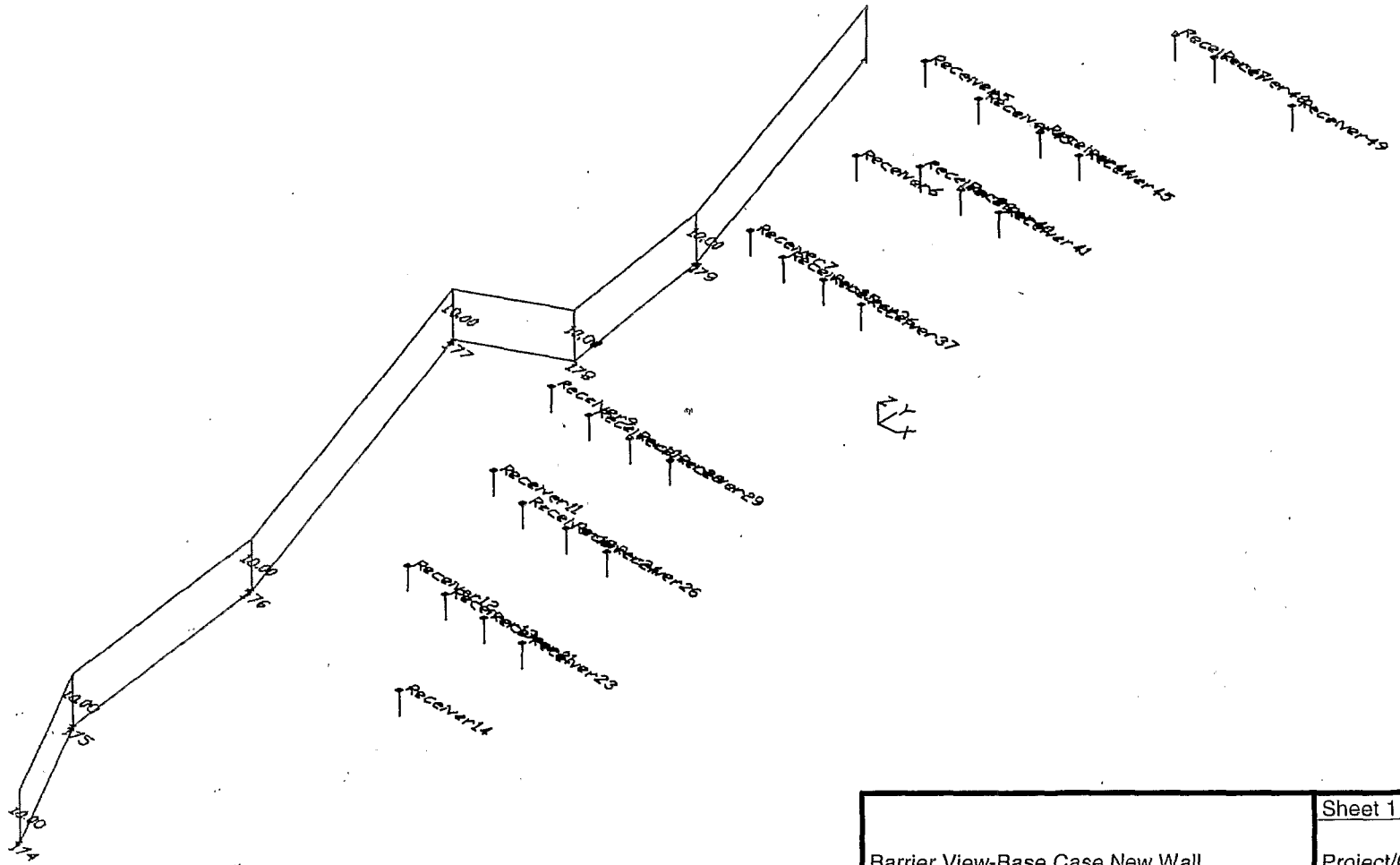
Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Roosevelt Elementary	44	9	0.0	67.1	66	67.1	10	Snd Lvl	56.7	10.4	5	5.4
Receiver36	36	1	0.0	66.1	66	66.1	10	Snd Lvl	62.5	3.6	5	-1.4

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	10	3.6	7.0	10.4
All Impacted	10	3.6	7.0	10.4
All that meet NR Goal	9	10.4	10.4	10.4

Segment 5

I-696 to Gardenia


I-696 to Gardenia - Braid with new wall
Sheet 1 of 1
8 Jul 2003
Plan View
Project/Contract No. I-75
Run name: Seg5NewWallTest
TNM Version 2.1.0, Feb 2003
Scale: 200 feet
Analysis By:
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
13461200 13461400 13461600 13461800 13462000 13462200 13462400 13462600 13462800 13463000 13463200 13463400 13463600 13463800 13464000 13464200 13464400



		Sheet 1 of 1	27 Jun 2003
Barrier View-Base Case New Wall		Project/Contract No.	
Run name: SEGMENT4A		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	——→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢——→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 27 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: <Run Title?>
BARRIER DESIGN: Base Case New Wall

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
New Wall	W	10.00	10.00	10.00	1368	13680				625587
									Total Cost:	625587

<Organization?>
<Analysis By?>

27 June 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: <Run Title?>
BARRIER DESIGN: Base Case New Wall

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
New Wall	W	point174	174	10.00	10.00	10.00	158	1575				72029
		point175	175	10.00	10.00	10.00	225	2253				103014
		point176	176	10.00	10.00	10.00	372	3717				169986
		point177	177	10.00	10.00	10.00	148	1480				67668
		point178	178	10.00	10.00	10.00	159	1590				72731
		point179	179	10.00	10.00	10.00	306	3065				140159

<Organization?>
<Analysis By?>

27 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: <Project Name?>
RUN: <Run Title?>
BARRIER DESIGN: Base Case New Wall
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.

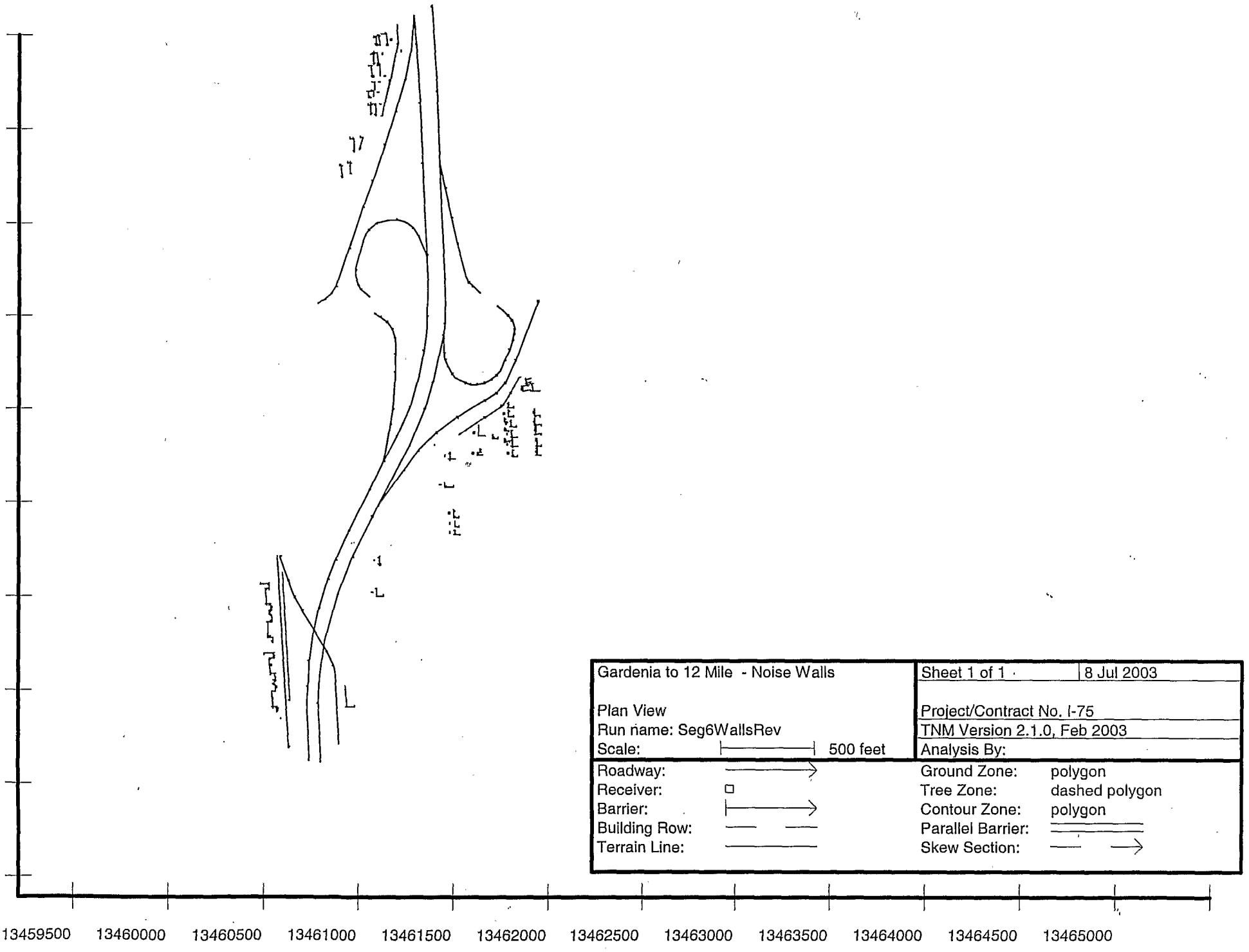
Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier			
				LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver49	49	1	0.0	48.9	66	48.9	10	----	48.4	0.5	8	-7.5
Receiver48	48	1	0.0	50.5	66	50.5	10	----	50.2	0.3	8	-7.7
Receiver47	47	1	0.0	52.0	66	52.0	10	----	51.8	0.2	8	-7.8
Receiver5	5	1	0.0	59.3	66	59.3	10	----	57.2	2.1	8	-5.9
Receiver43	43	1	0.0	55.7	66	55.7	10	----	55.2	0.5	8	-7.5
Receiver44	44	1	0.0	53.2	66	53.2	10	----	52.8	0.4	8	-7.6
Receiver45	45	1	0.0	51.5	66	51.5	10	----	51.1	0.4	8	-7.6
Receiver6	6	1	0.0	56.5	66	56.5	10	----	54.8	1.7	8	-6.3
Receiver39	39	1	0.0	47.1	66	47.1	10	----	46.9	0.2	8	-7.8
Receiver40	40	1	0.0	51.9	66	51.9	10	----	51.2	0.7	8	-7.3
Receiver41	41	1	0.0	52.3	66	52.3	10	----	51.9	0.4	8	-7.6
Receiver37	37	1	0.0	48.4	66	48.4	10	----	47.4	1.0	8	-7.0
Receiver36	36	1	0.0	49.6	66	49.6	10	----	48.4	1.2	8	-6.8
Receiver35	35	1	0.0	53.3	66	53.3	10	----	51.6	1.7	8	-6.3
Receiver7	7	1	0.0	56.6	66	56.6	10	----	54.3	2.3	8	-5.7
Receiver9	9	1	0.0	59.0	66	59.0	10	----	53.9	5.1	8	-2.9
Receiver10	10	1	0.0	55.4	66	55.4	10	----	51.6	3.8	8	-4.2
Receiver28	28	1	0.0	53.0	66	53.0	10	----	50.7	2.3	8	-5.7
Receiver29	29	1	0.0	52.2	66	52.2	10	----	50.8	1.4	8	-6.6
Receiver26	26	1	0.0	55.5	66	55.5	10	----	53.7	1.8	8	-6.2
Receiver24	24	1	0.0	55.9	66	55.9	10	----	53.3	2.6	8	-5.4
Receiver19	19	1	0.0	58.3	66	58.3	10	----	54.5	3.8	8	-4.2
Receiver11	11	1	0.0	59.5	66	59.5	10	----	55.5	4.0	8	-4.0

Receiver23	23	1	0.0	60.9	66	60.9	10	----	58.2	2.7	8	-5.3
Receiver21	21	1	0.0	61.7	66	61.7	10	----	58.9	2.8	8	-5.2
Receiver13	13	1	0.0	62.9	66	62.9	10	----	60.7	2.2	8	-5.8
Receiver12	12	1	0.0	65.1	66	65.1	10	----	63.4	1.7	8	-6.3
Receiver14	14	1	0.0	65.5	66	65.5	10	----	63.7	1.8	8	-6.2

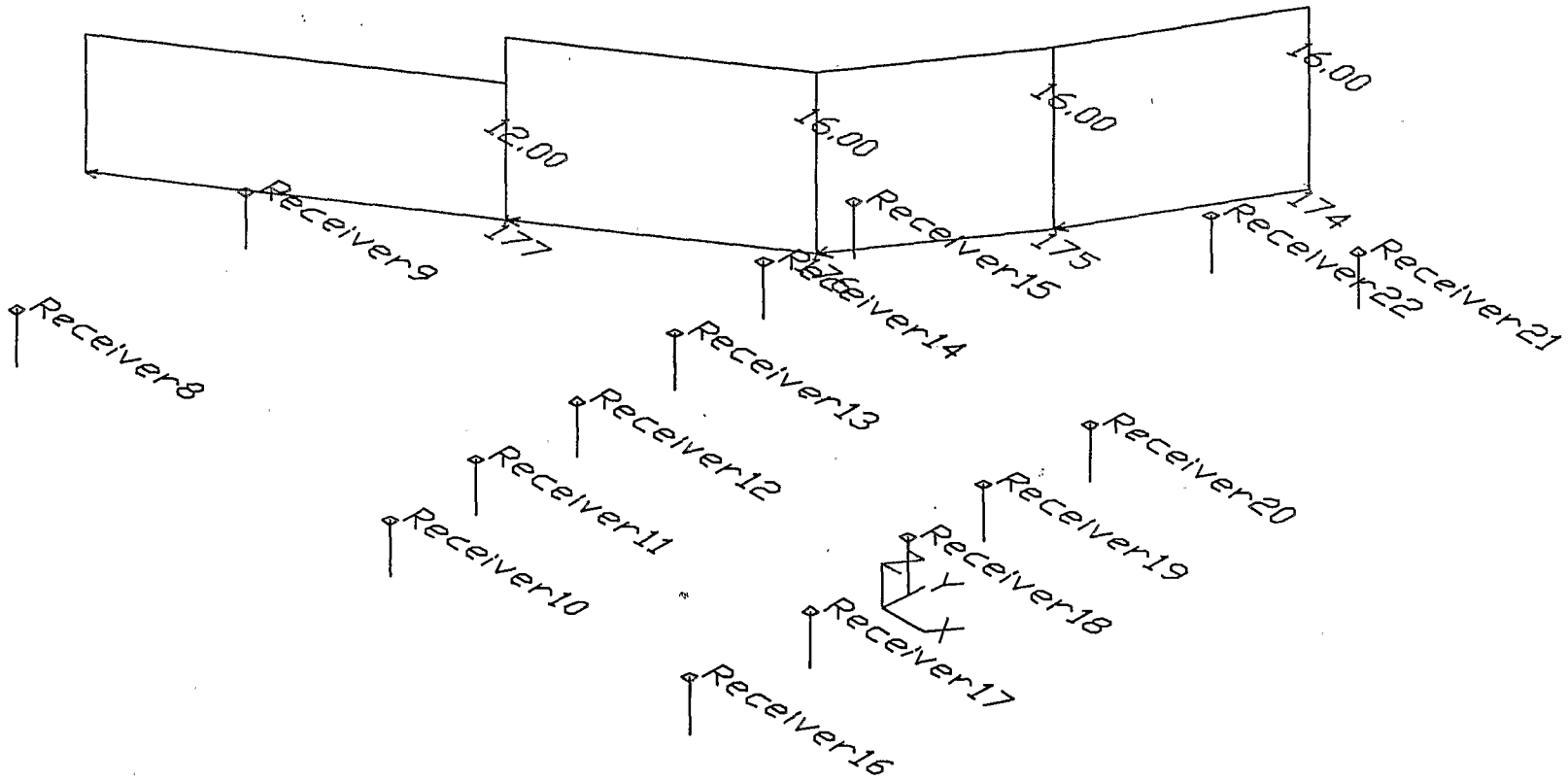
Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	28	0.2	1.8	5.1
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Segment 6

Gardenia to 12 Mile



Gardenia to 12 Mile - Noise Walls		Sheet 1 of 1	8 Jul 2003
Plan View		Project/Contract No. I-75	
Run name: Seg6WallsRev		TNM Version 2.1.0, Feb 2003	
Scale:	500 feet	Analysis By:	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	



Gardenia to N. of Huntington - Wall		Sheet 1 of 1	3 Jun 2003
Barrier View-NB 6 dB Goal		Project/Contract No. I-75	
Run name: Seg5WallsRev		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Gardenia to N. of Huntington - Wall
BARRIER DESIGN: NB 6 dB Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB	W	12.00	14.63	16.00	447	6541				253656
									Total Cost:	253656

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Gardenia to N. of Huntington - Wall
BARRIER DESIGN: NB 6 dB Goal

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB	W	point174	174	16.00	16.00	16.00	95	1517				56880
		point175	175	16.00	16.00	16.00	86	1381				51769
		point176	176	16.00	16.00	16.00	113	1803				67611
		point177	177	12.00	12.00	12.00	153	1840				77396

<Organization?>
<Analysis By?>

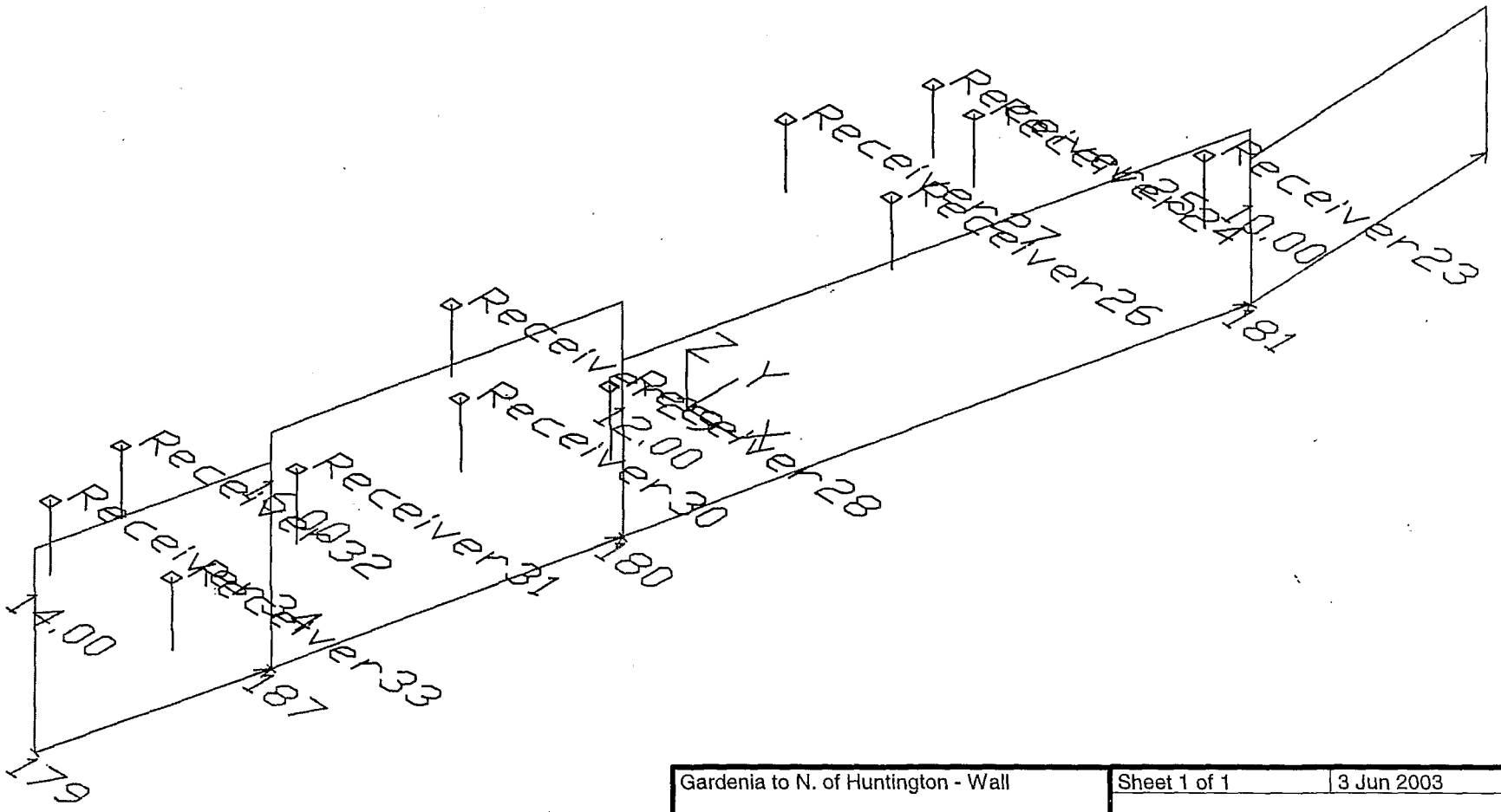
3 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Gardenia to N. of Huntington - Wall
BARRIER DESIGN: NB 6 dB Goal
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
Receiver21	21	1	0.0	46.6	66	46.6	10	----	46.0	0.6	5	-4.4
Receiver22	22	1	0.0	61.5	66	61.5	10	----	51.6	9.9	5	4.9
Receiver16	16	1	0.0	56.2	66	56.2	10	----	51.7	4.5	5	-0.5
Receiver17	17	1	0.0	56.1	66	56.1	10	----	51.2	4.9	5	-0.1
Receiver18	18	1	0.0	55.8	66	55.8	10	----	50.0	5.8	5	0.8
Receiver19	19	1	0.0	55.7	66	55.7	10	----	50.2	5.5	5	0.5
Receiver20	20	1	0.0	55.8	66	55.8	10	----	49.2	6.6	5	1.6
Receiver15	15	1	0.0	62.4	66	62.4	10	----	52.5	9.9	5	4.9
Receiver14	14	1	0.0	60.4	66	60.4	10	----	55.3	5.1	5	0.1
Receiver13	13	1	0.0	52.1	66	52.1	10	----	51.1	1.0	5	-4.0
Receiver12	12	1	0.0	51.7	66	51.7	10	----	51.7	0.0	5	-5.0
Receiver11	11	1	0.0	54.2	66	54.2	10	----	54.2	0.0	5	-5.0
Receiver10	10	1	0.0	60.2	66	60.2	10	----	59.3	0.9	5	-4.1
Receiver9	9	1	0.0	64.9	66	64.9	10	----	64.7	0.2	5	-4.8
Receiver8	8	1	0.0	61.6	66	61.6	10	----	60.8	0.8	5	-4.2

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	15	0.0	3.7	9.9
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	6	5.1	7.1	9.9



Gardenia to N. of Huntington - Wall		Sheet 1 of 1	3 Jun 2003
Barrier View-SB 1 6 dB Goal Revised		Project/Contract No. I-75	
Run name: Seg5WallsRev		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	= =
Terrain Line:	———	Skew Section:	—→

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: *Gardenia to N. of Huntington - Wall*
BARRIER DESIGN: SB 1 6 dB Goal Revised

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB 1	W	10.00	12.85	16.00	498	6393				261257
									Total Cost:	261257

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Gardenia to N. of Huntington - Wall
BARRIER DESIGN: SB 1 6 dB Goal Revised

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB 1	W	point179	179	14.00	14.00	14.00	76	1069				42160
		point187	187	16.00	16.00	16.00	116	1862				69817
		point180	180	12.00	12.00	12.00	207	2480				104324
		point181	181	10.00	10.00	10.00	98	983				44956

<Organization?>
<Analysis By?>

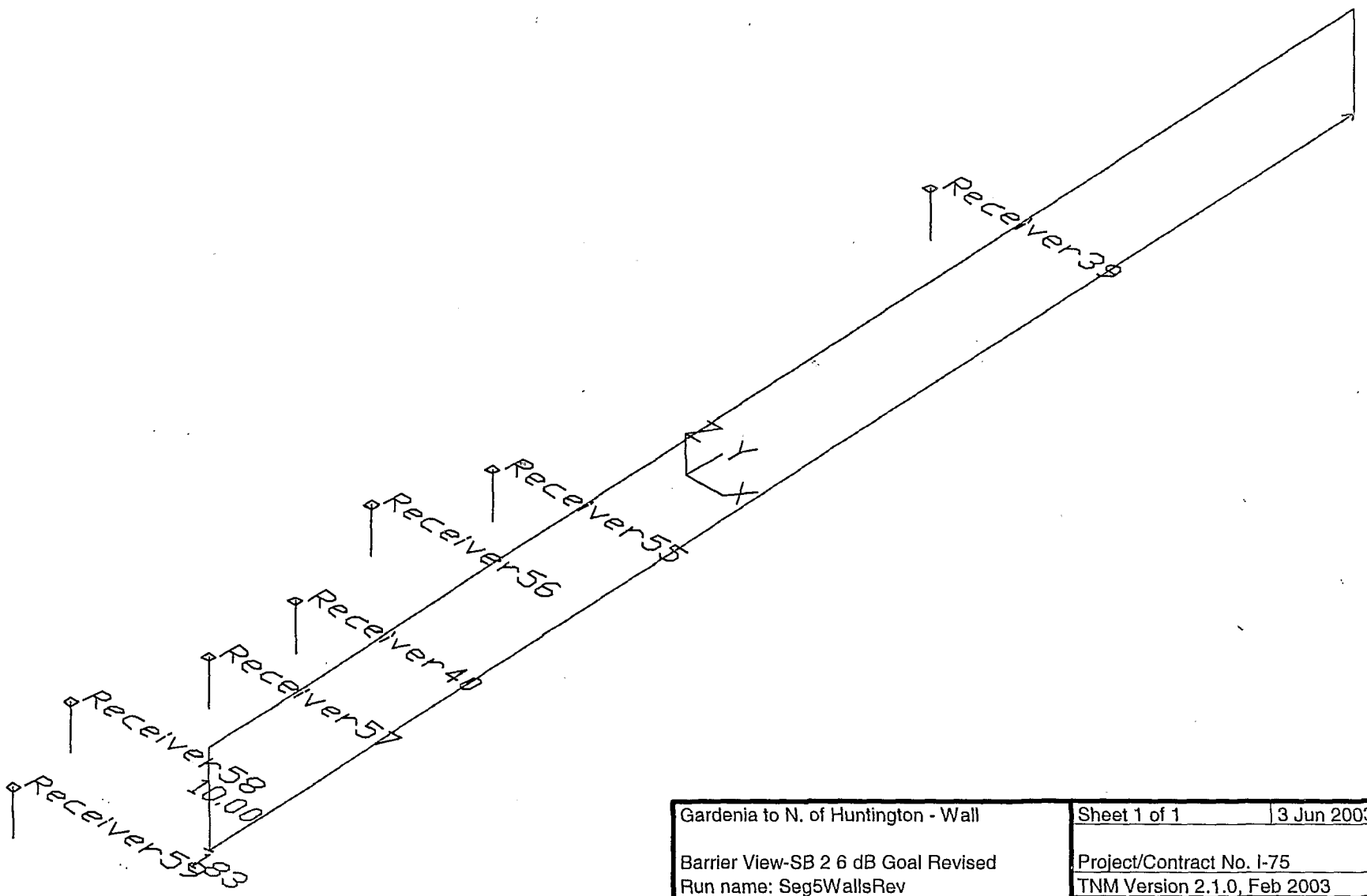
3 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Gardenia to N. of Huntington - Wall
BARRIER DESIGN: SB 1 6 dB Goal Revised
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
Receiver23	23	1	0.0	72.0	66	72.0	10	Snd Lvl	62.7	9.3	5	4.3
Receiver24	24	1	0.0	61.1	66	61.1	10	----	55.9	5.2	5	0.2
Receiver25	25	1	0.0	55.4	66	55.4	10	----	53.6	1.8	5	-3.2
Receiver27	27	1	0.0	63.3	66	63.3	10	----	56.9	6.4	5	1.4
Receiver26	26	1	0.0	67.4	66	67.4	10	Snd Lvl	59.7	7.7	5	2.7
Receiver29	29	1	0.0	55.4	66	55.4	10	----	51.5	3.9	5	-1.1
Receiver28	28	1	0.0	63.6	66	63.6	10	----	56.7	6.9	5	1.9
Receiver30	30	1	0.0	62.0	66	62.0	10	----	55.9	6.1	5	1.1
Receiver31	31	1	0.0	60.5	66	60.5	10	----	55.1	5.4	5	0.4
Receiver32	32	1	0.0	53.8	66	53.8	10	----	53.1	0.7	5	-4.3
Receiver34	34	1	0.0	58.9	66	58.9	10	----	56.1	2.8	5	-2.2
Receiver33	33	1	0.0	59.7	66	59.7	10	----	53.2	6.5	5	1.5

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	12	0.7	5.2	9.3
All Impacted	2	7.7	8.5	9.3
All that meet NR Goal	8	5.2	6.7	9.3



Gardenia to N. of Huntington - Wall		Sheet 1 of 1	3 Jun 2003
Barrier View-SB 2 6 dB Goal Revised		Project/Contract No. I-75	
Run name: Seg5WallsRev		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Gardenia to N. of Huntington - Wall
BARRIER DESIGN: SB 2 6 dB Goal Revised

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB 2	W	10.00	10.00	10.00	676	6755				308921
									Total Cost:	308921

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Gardenia to N. of Huntington - Wall
BARRIER DESIGN: SB 2 6 dB Goal Revised

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB 2	W	point183	183	10.00	10.00	10.00	676	6755				308921

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Gardenia to N. of Huntington - Wall
BARRIER DESIGN: SB 2 6 dB Goal Revised
ATMOSPHERICS: 68 deg F, 50% RH

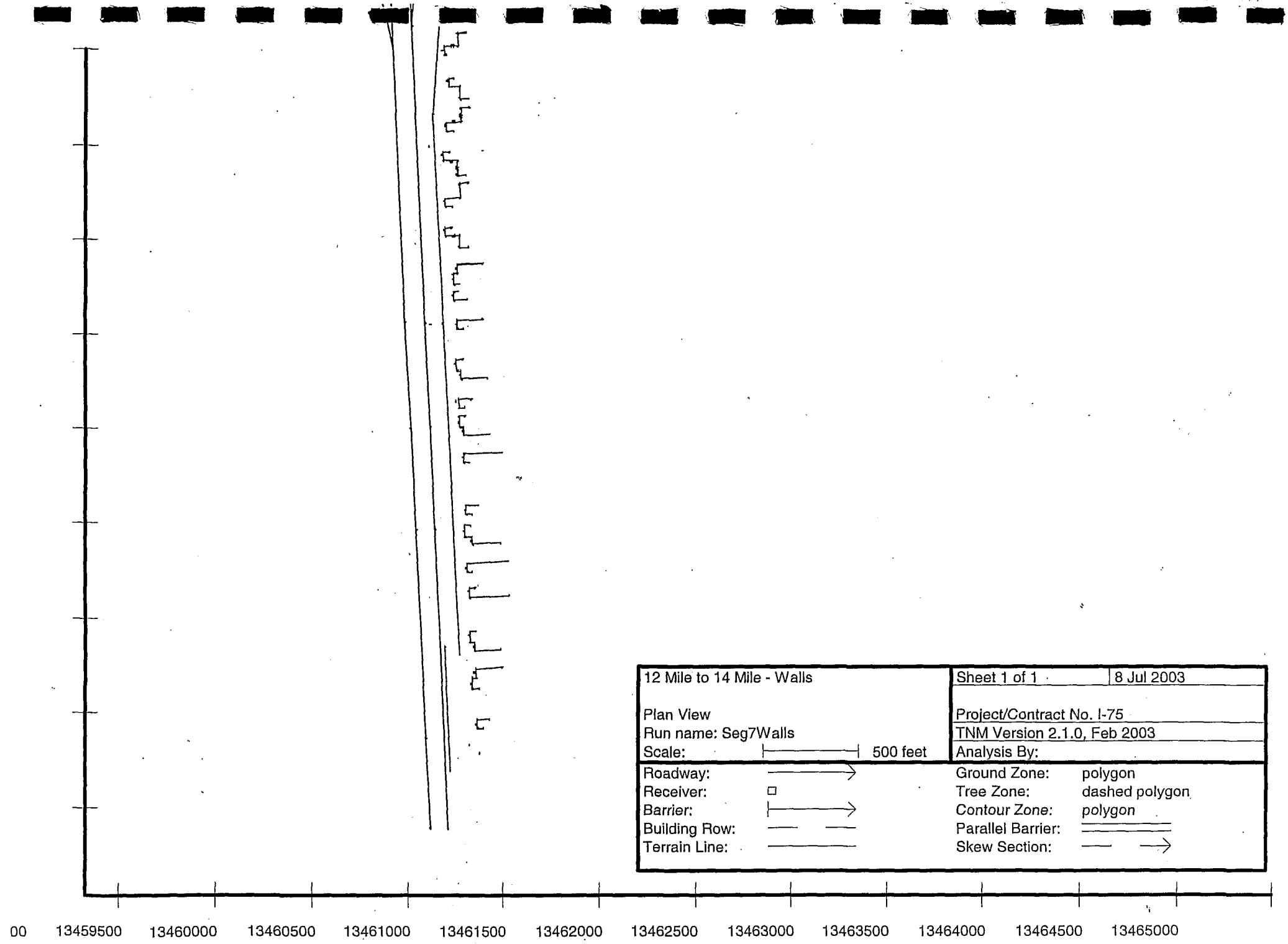
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

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
Receiver39	39	12	0.0	66.1	66	66.1	10	Snd Lvl	64.8	1.3	5	-3.7
Receiver55	55	2	0.0	66.9	66	66.9	10	Snd Lvl	64.8	2.1	5	-2.9
Receiver40	40	2	0.0	67.6	66	67.6	10	Snd Lvl	65.4	2.2	5	-2.8
Receiver56	56	2	0.0	64.8	66	64.8	10	----	61.9	2.9	5	-2.1
Receiver57	57	2	0.0	67.9	66	67.9	10	Snd Lvl	66.2	1.7	5	-3.3
Receiver58	58	2	0.0	65.8	66	65.8	10	----	65.3	0.5	5	-4.5
Receiver59	59	2	0.0	68.7	66	68.7	10	Snd Lvl	68.5	0.2	5	-4.8

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	24	0.2	1.6	2.9
All Impacted	20	0.2	1.5	2.2
All that meet NR Goal	0	0.0	0.0	0.0

Segment 7

12 Mile to 14 Mile


12 Mile to 14 Mile - Walls
Plan View
Run name: Seg7Walls
Scale: 500 feet
Sheet 1 of 1
8 Jul 2003
Project/Contract No. I-75
TNM Version 2.1.0, Feb 2003
Analysis By:
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
00
13459500
13460000
13460500
13461000
13461500
13462000
13462500
13463000
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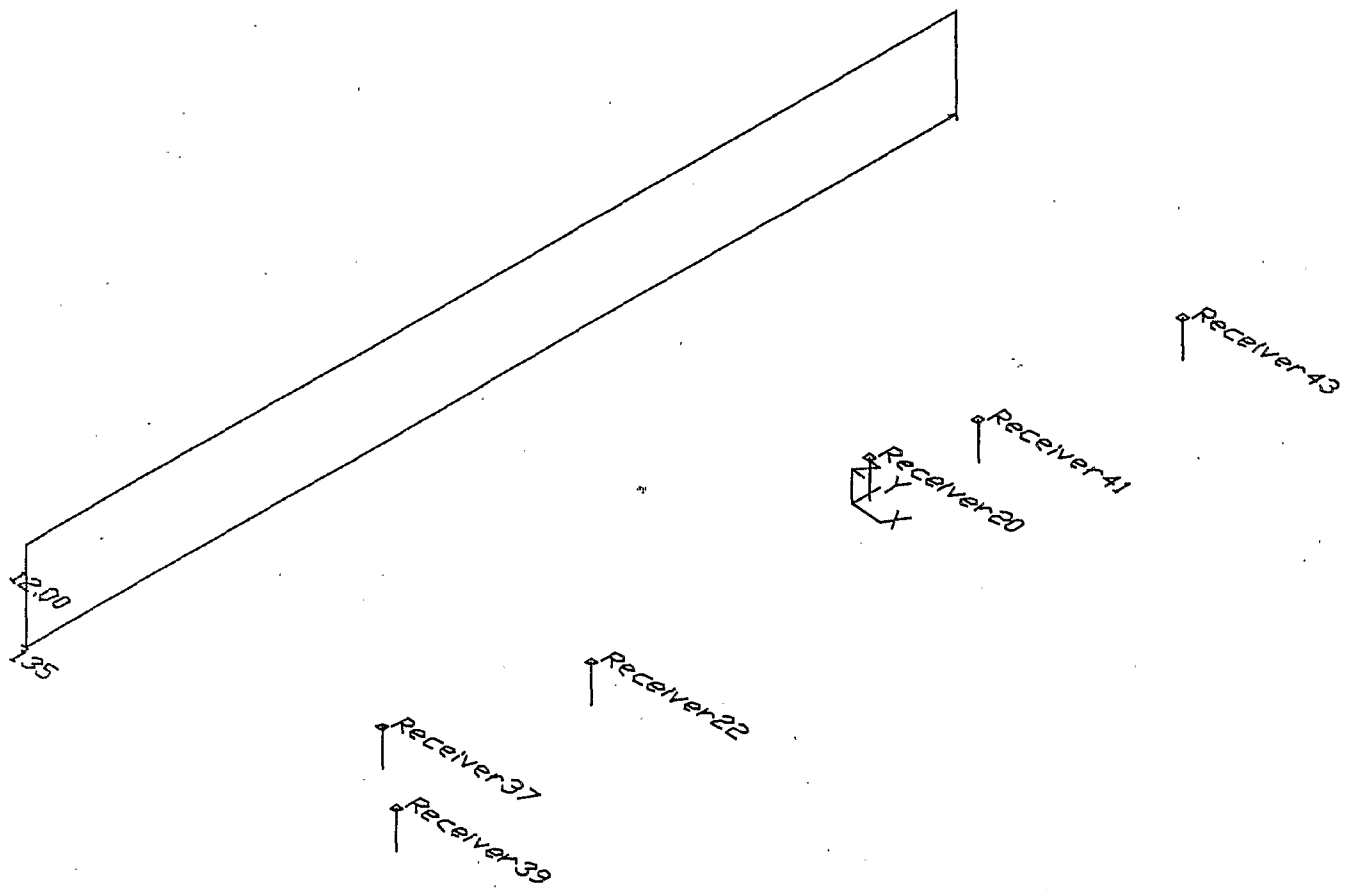
13465000



12 Mile to 13 Mile - Walls		Sheet 1 of 1	9 Jun 2003
Barrier View-NB 1 6 dB Goal 4		Project/Contract No. I-75	
Run name: Seg6Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

<Organization?> 9 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: 12 Mile to 13 Mile - Walls
BARRIER DESIGN: NB 1 6 dB Goal 4

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB 1	W	12.00	12.00	12.00	658	7899				332325
									Total Cost:	332325

<Organization?> 9 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: 12 Mile to 13 Mile - Walls
BARRIER DESIGN: NB 1 6 dB Goal 4

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB 1	W	point135	135	12.00	12.00	12.00	658	7899				332325

<Organization?>
<Analysis By?>

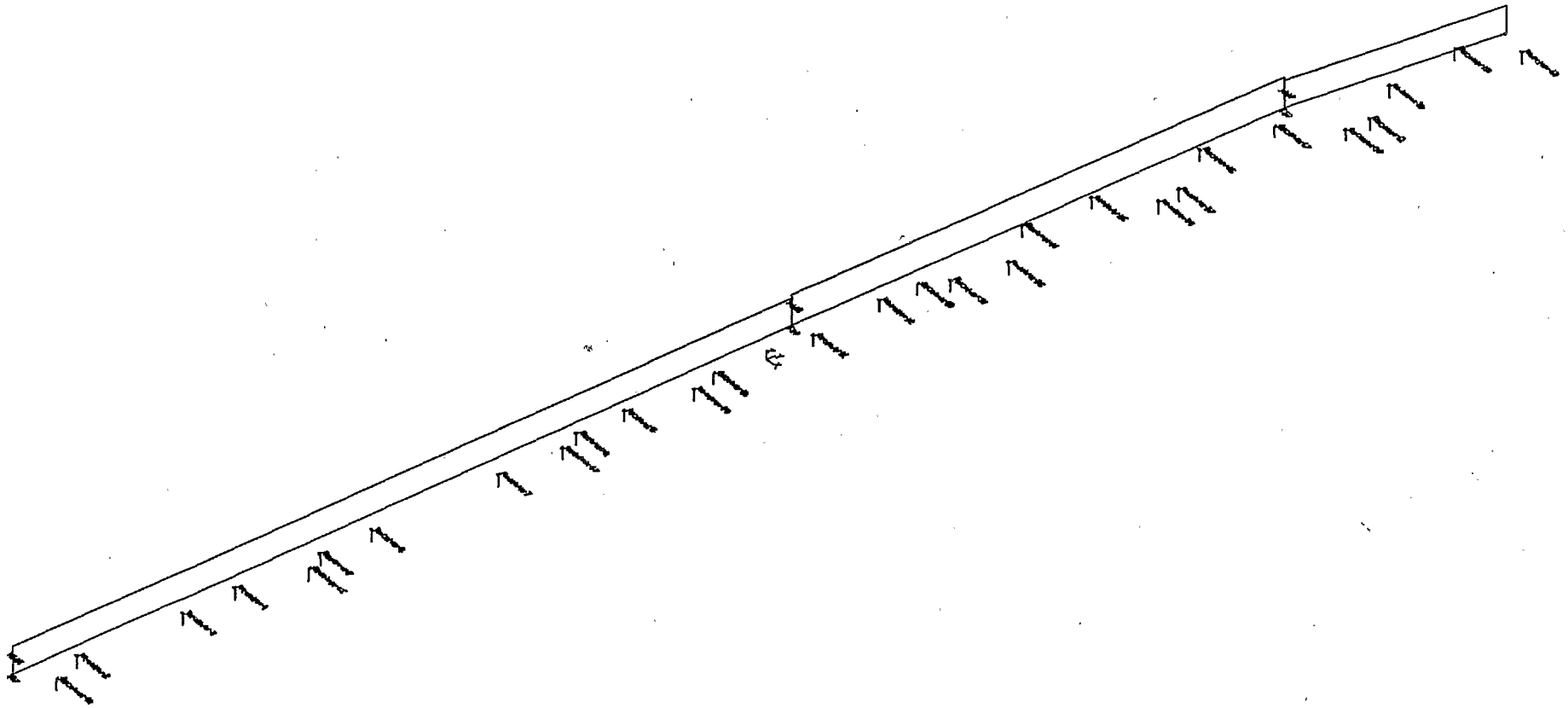
9 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: 12 Mile to 13 Mile - Walls
BARRIER DESIGN: NB 1 6 dB Goal 4
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
Receiver43	39	4	0.0	57.4	66	57.4	10	----	52.4	5.0	5	0.0
Receiver41	38	8	0.0	56.6	66	56.6	10	----	52.4	4.2	5	-0.8
Receiver20	20	8	0.0	62.2	66	62.2	10	----	58.2	4.0	5	-1.0
Receiver22	22	4	0.0	66.7	66	66.7	10	Snd Lvl	61.4	5.3	5	0.3
Receiver37	36	4	0.0	70.3	66	70.3	10	Snd Lvl	64.6	5.7	5	0.7
Receiver39	37	4	0.0	69.0	66	69.0	10	Snd Lvl	65.1	3.9	5	-1.1

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	32	3.9	4.7	5.7
All Impacted	12	3.9	5.0	5.7
All that meet NR Goal	12	5.0	5.3	5.7



12 Mile to 13 Mile - Walls		Sheet 1 of 1	30 May 2003
Barrier View-NB 2 6 dB Goal		Project/Contract No. I-75	
Run name: Seg6Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: 12 Mile to 13 Mile - Walls
BARRIER DESIGN: NB 2 6 dB Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB 2	W	12.00	12.67	14.00	3310	41934				1723718
									Total Cost:	1723718

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: 12 Mile to 13 Mile - Walls
BARRIER DESIGN: NB 2 6 dB Goal

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB 2	W	point137	137	12.00	12.00	12.00	1750	20997				883332
		point138	138	14.00	14.00	14.00	1105	15470				610384
		point139	139	12.00	12.00	12.00	456	5467				230002

<Organization?>
<Analysis By?>

30 May 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: 12 Mile to 13 Mile - Walls
BARRIER DESIGN: NB 2 6 dB Goal
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.

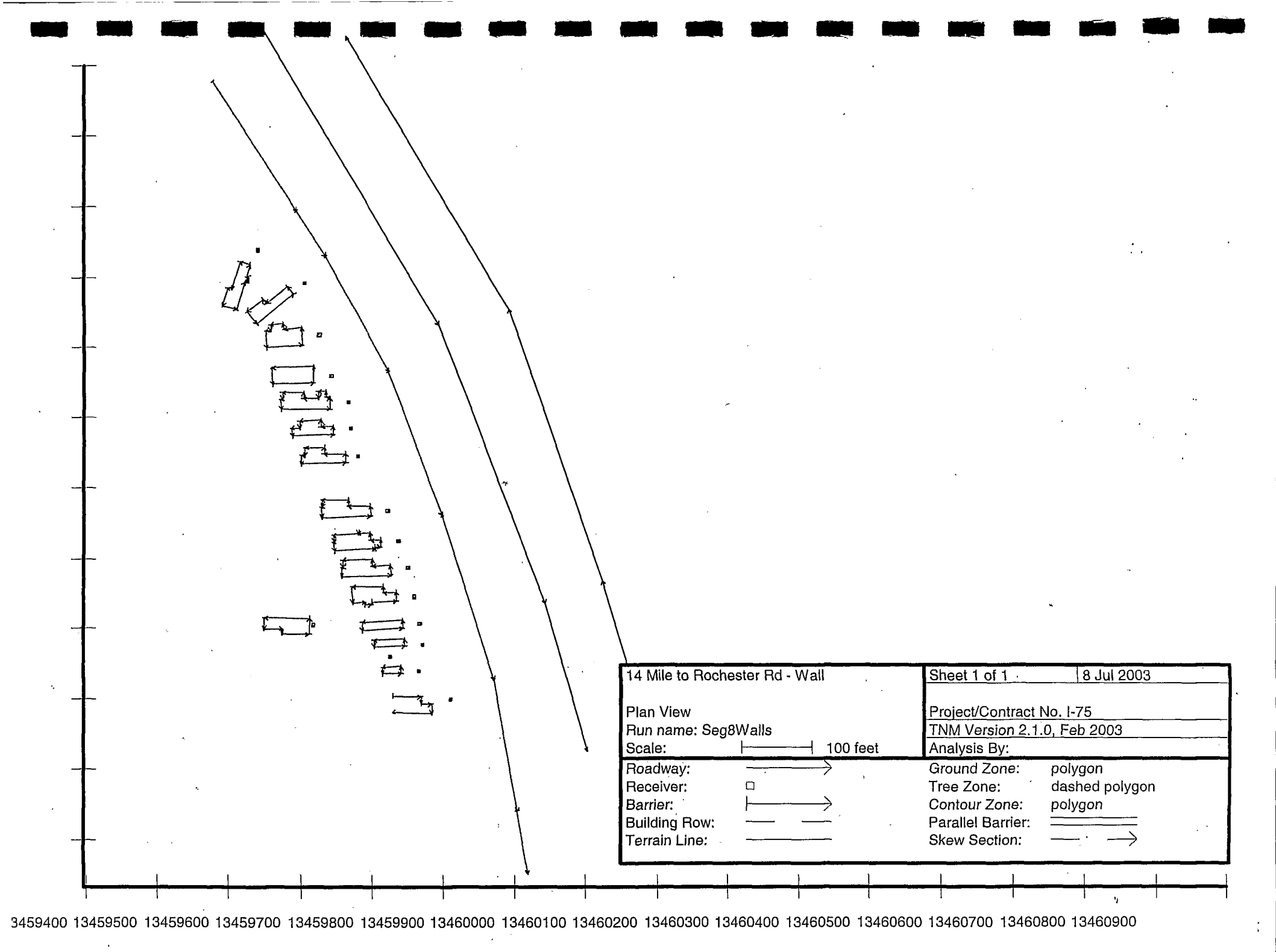
Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver63	49	4	0.0	71.7	66	71.7	10	Snd Lvl	69.5	2.2	5	-2.8
Receiver19	19	4	0.0	73.4	66	73.4	10	Snd Lvl	62.8	10.6	5	5.6
Receiver18	18	4	0.0	72.5	66	72.5	10	Snd Lvl	63.2	9.3	5	4.3
Receiver61	48	4	0.0	66.4	66	66.4	10	Snd Lvl	60.2	6.2	5	1.2
Receiver59	47	4	0.0	66.8	66	66.8	10	Snd Lvl	60.5	6.3	5	1.3
Receiver17	17	4	0.0	70.8	66	70.8	10	Snd Lvl	61.7	9.1	5	4.1
Receiver16	16	4	0.0	72.1	66	72.1	10	Snd Lvl	61.0	11.1	5	6.1
Receiver57	46	4	0.0	68.3	66	68.3	10	Snd Lvl	59.2	9.1	5	4.1
Receiver55	45	4	0.0	69.0	66	69.0	10	Snd Lvl	59.2	9.8	5	4.8
Receiver15	15	4	0.0	74.3	66	74.3	10	Snd Lvl	60.5	13.8	5	8.8
Receiver14	14	4	0.0	72.2	66	72.2	10	Snd Lvl	59.9	12.3	5	7.3
Receiver53	44	4	0.0	70.1	66	70.1	10	Snd Lvl	58.2	11.9	5	6.9
Receiver51	43	4	0.0	68.4	66	68.4	10	Snd Lvl	59.3	9.1	5	4.1
Receiver13	13	4	0.0	69.3	66	69.3	10	Snd Lvl	59.5	9.8	5	4.8
Receiver12	12	4	0.0	70.0	66	70.0	10	Snd Lvl	59.3	10.7	5	5.7
Receiver11	11	4	0.0	68.5	66	68.5	10	Snd Lvl	58.2	10.3	5	5.3
Receiver10	10	4	0.0	65.1	66	65.1	10	----	56.6	8.5	5	3.5
Receiver49	42	4	0.0	59.8	66	59.8	10	----	51.1	8.7	5	3.7
Receiver9	9	4	0.0	63.2	66	63.2	10	----	55.1	8.1	5	3.1
Receiver8	8	4	0.0	61.9	66	61.9	10	----	54.2	7.7	5	2.7
Receiver47	41	4	0.0	46.6	66	46.6	10	----	43.7	2.9	5	-2.1
Receiver7	7	4	0.0	60.2	66	60.2	10	----	53.1	7.1	5	2.1
Receiver6	6	4	0.0	58.7	66	58.7	10	----	51.7	7.0	5	2.0

Receiver5	5	4	0.0	60.2	66	60.2	10	----	51.0	9.2	5	4.2
Receiver45	40	4	0.0	38.9	66	38.9	10	----	39.1	-0.2	5	-5.2
Receiver4	4	4	0.0	57.7	66	57.7	10	----	52.1	5.6	5	0.6
Receiver3	3	8	0.0	58.2	66	58.2	10	----	54.2	4.0	5	-1.0
Receiver2	2	4	0.0	58.5	66	58.5	10	----	57.1	1.4	5	-3.6
Receiver43	39	4	0.0	57.4	66	57.4	10	----	57.4	0.0	5	-5.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	120	-0.2	7.6	13.8
All Impacted	64	2.2	9.5	13.8
All that meet NR Goal	92	5.6	9.2	13.8

Segment 8

14 Mile to Rochester Road


14 Mile to Rochester Rd - Wall
Sheet 1 of 1
8 Jul 2003
Plan View
Project/Contract No. I-75
Run name: Seg8Walls
TNM Version 2.1.0, Feb 2003
Scale:
100 feet
Analysis By:
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
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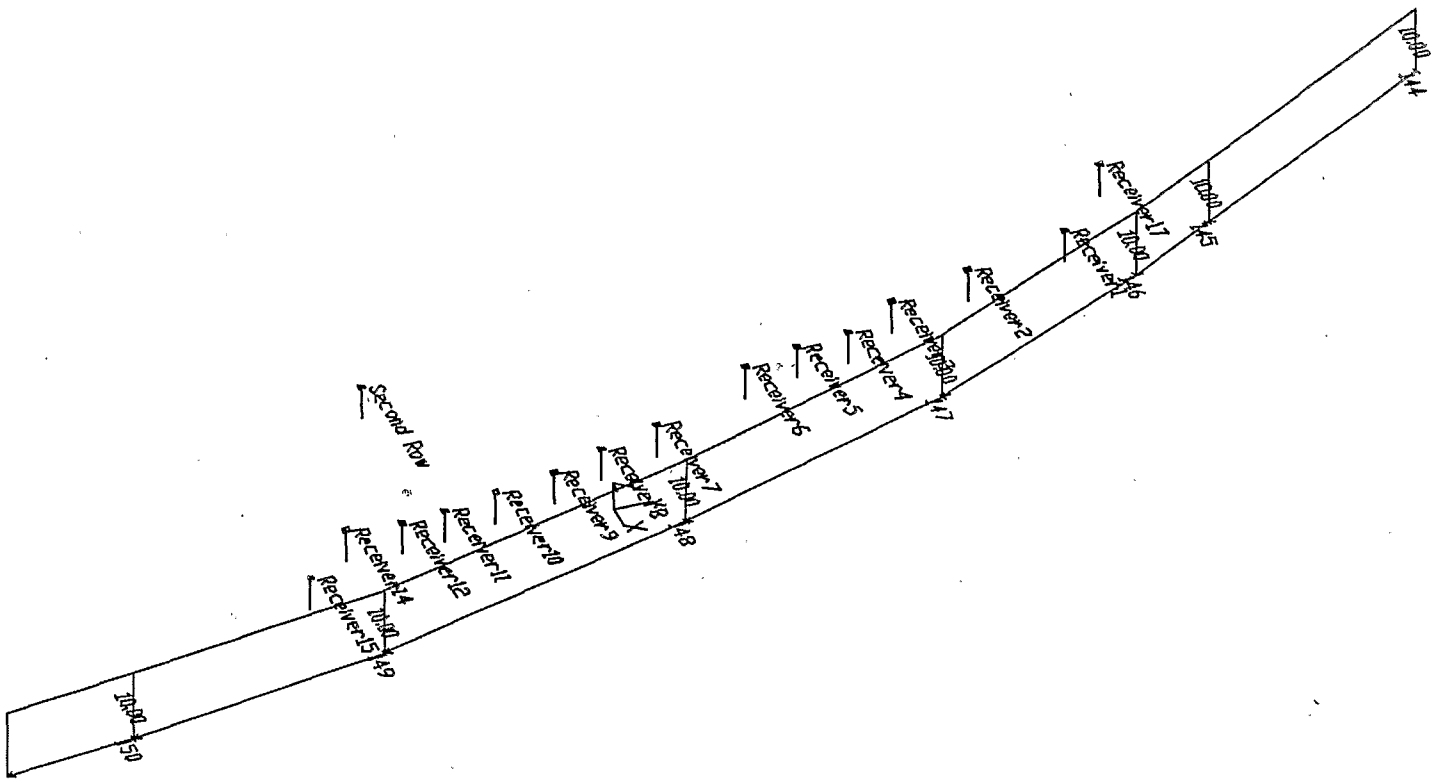


Mobile Homes North od Maple Rd-Wall		Sheet 1 of 1	30 May 2003
Barrier View-SB 6 dB goal		Project/Contract No. I-75	
Run name: Seg7Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Mobile Homes North od Maple Rd-Wall
BARRIER DESIGN: SB 6 dB goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB	W	10.00	10.00	10.00	1223	12233				559432
									Total Cost:	559432

<Organization?>
<Analysis By?>

30 May 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Mobile Homes North od Maple Rd-Wall
BARRIER DESIGN: SB 6 dB goal

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB	W	point144	144	10.00	10.00	10.00	218	2180				99699
		point145	145	10.00	10.00	10.00	76	758				34671
		point146	146	10.00	10.00	10.00	186	1863				85175
		point147	147	10.00	10.00	10.00	219	2188				100075
		point148	148	10.00	10.00	10.00	244	2441				111619
		point149	149	10.00	10.00	10.00	189	1890				86414
		point150	150	10.00	10.00	10.00	91	914				41779

<Organization?>
<Analysis By?>

30 May 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Mobile Homes North od Maple Rd-Wall
BARRIER DESIGN: SB 6 dB goal
ATMOSPHERICS: 68 deg F, 50% RH

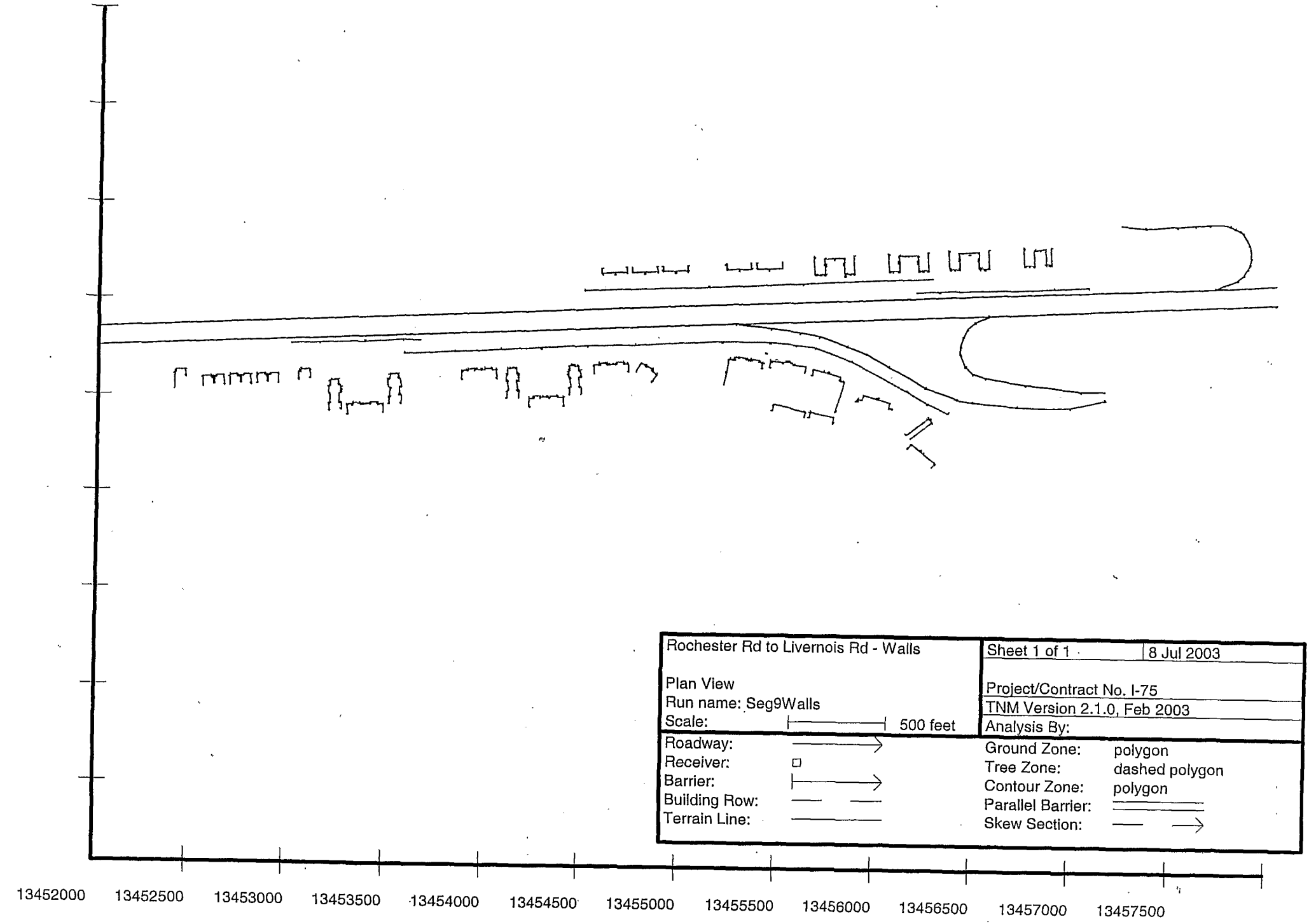
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

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
Receiver17	21	1	0.0	73.1	66	73.1	10	Snd Lvl	66.8	6.3	5	1.3
Receiver1	1	1	0.0	74.3	66	74.3	10	Snd Lvl	66.6	7.7	5	2.7
Receiver2	2	1	0.0	73.4	66	73.4	10	Snd Lvl	66.3	7.1	5	2.1
Receiver3	3	1	0.0	72.7	66	72.7	10	Snd Lvl	65.8	6.9	5	1.9
Receiver4	4	1	0.0	72.4	66	72.4	10	Snd Lvl	65.3	7.1	5	2.1
Receiver5	5	1	0.0	71.9	66	71.9	10	Snd Lvl	65.0	6.9	5	1.9
Receiver6	8	1	0.0	71.2	66	71.2	10	Snd Lvl	64.6	6.6	5	1.6
Receiver7	9	2	0.0	70.9	66	70.9	10	Snd Lvl	63.7	7.2	5	2.2
Receiver8	10	1	0.0	70.7	66	70.7	10	Snd Lvl	63.4	7.3	5	2.3
Receiver9	11	1	0.0	70.6	66	70.6	10	Snd Lvl	63.3	7.3	5	2.3
Receiver10	12	1	0.0	70.6	66	70.6	10	Snd Lvl	63.0	7.6	5	2.6
Receiver11	15	1	0.0	70.4	66	70.4	10	Snd Lvl	62.9	7.5	5	2.5
Receiver12	16	1	0.0	70.1	66	70.1	10	Snd Lvl	62.7	7.4	5	2.4
Receiver14	18	1	0.0	69.6	66	69.6	10	Snd Lvl	62.4	7.2	5	2.2
Receiver15	19	2	0.0	70.0	66	70.0	10	Snd Lvl	62.0	8.0	5	3.0
Second Row	17	11	0.0	60.3	66	60.3	10	----	57.0	3.3	5	-1.7

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	28	3.3	7.0	8.0
All Impacted	17	6.3	7.2	8.0
All that meet NR Goal	17	6.3	7.2	8.0

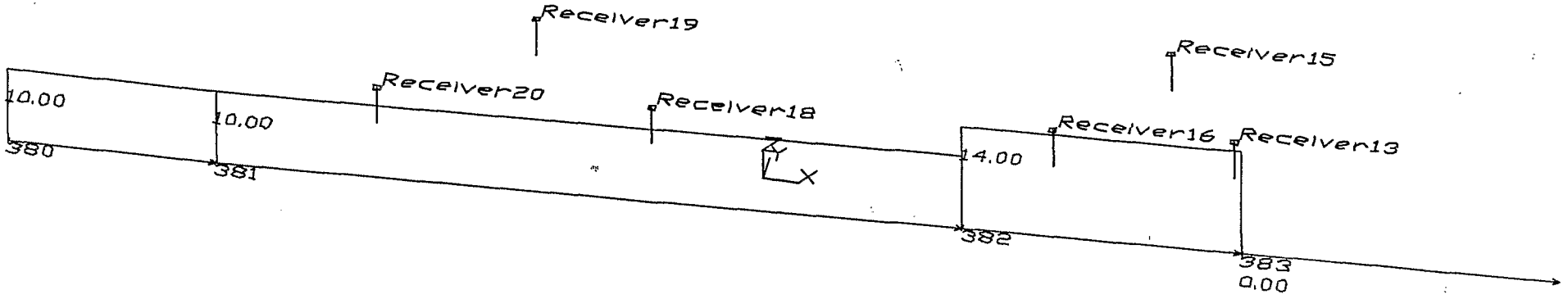
Segment 9

Rochester Road to Livernois Road



Rochester Rd to Livernois Rd - Walls	Sheet 1 of 1 | 8 Jul 2003
Plan View	Project/Contract No. I-75
Run name: Seg9Walls	TNM Version 2.1.0, Feb 2003
Scale: 500 feet	Analysis By:

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	



Stephenson Hwy to Livernois Rd - Walls		Sheet 1 of 1	30 May 2003
Barrier View-NB 1 10 dB Goal Revised		Project/Contract No. I-75	
Run name: Seg8Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Stephenson Hwy to Livernois Rd - Walls
BARRIER DESIGN: NB 1 10 dB Goal Revised

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB 1	W	10.00	10.91	14.00	695	7574				332568
									Total Cost:	332568

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Stephenson Hwy to Livernois Rd - Walls
BARRIER DESIGN: NB 1 10 dB Goal Revised

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB 1	W	point380	380	10.00	10.00	10.00	117	1171				53553
		point381	381	10.00	10.00	10.00	420	4202				192180
		point382	382	14.00	14.00	14.00	157	2201				86835
		point383	383	0.00	0.00	0.00	0	0				0

<Organization?>
<Analysis By?>

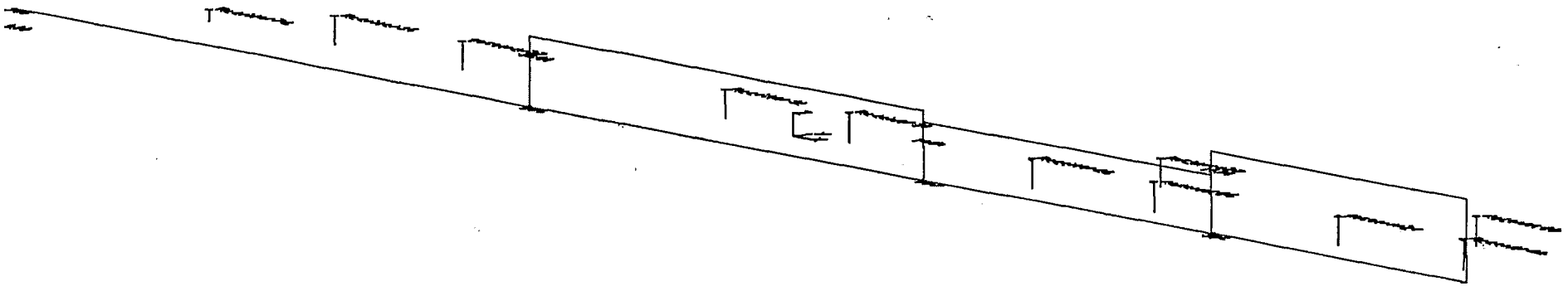
30 May 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Stephenson Hwy to Livernois Rd - Walls
BARRIER DESIGN: NB 1 10 dB Goal Revised
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
Receiver15	15	3	0.0	63.4	66	63.4	10	----	57.2	6.2	5	1.2
Receiver13	13	1	0.0	72.0	66	72.0	10	Snd Lvl	69.7	2.3	5	-2.7
Receiver16	16	2	0.0	71.9	66	71.9	10	Snd Lvl	67.9	4.0	5	-1.0
Receiver18	18	2	0.0	72.7	66	72.7	10	Snd Lvl	67.4	5.3	5	0.3
Receiver19	19	3	0.0	67.5	66	67.5	10	Snd Lvl	59.7	7.8	5	2.8
Receiver20	20	2	0.0	73.0	66	73.0	10	Snd Lvl	67.9	5.1	5	0.1

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	13	2.3	5.1	7.8
All Impacted	10	2.3	4.9	7.8
All that meet NR Goal	10	5.1	6.1	7.8



Stephenson Hwy to Livernois Rd - Walls	Sheet 1 of 1	30 May 2003
Barrier View-Base Case NB 2 revised	Project/Contract No. I-75	
Run name: Seg8Walls	TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>	Analysis By:	

Roadway:		Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Stephenson Hwy to Livernois Rd - Walls
BARRIER DESIGN: Base Case NB 2 revised

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB 2	W	10.00	11.93	14.00	1143	13647				575489
									Total Cost:	575489

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Stephenson Hwy to Livernois Rd - Walls
BARRIER DESIGN: Base Case NB 2 revised

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB 2	W	point385	385	0.00	0.00	0.00	0	0				0
		point386	386	12.00	12.00	12.00	482	5779				243115
		point387	387	10.00	10.00	10.00	350	3496				159881
		point388	388	14.00	14.00	14.00	312	4372				172492

<Organization?>
<Analysis By?>

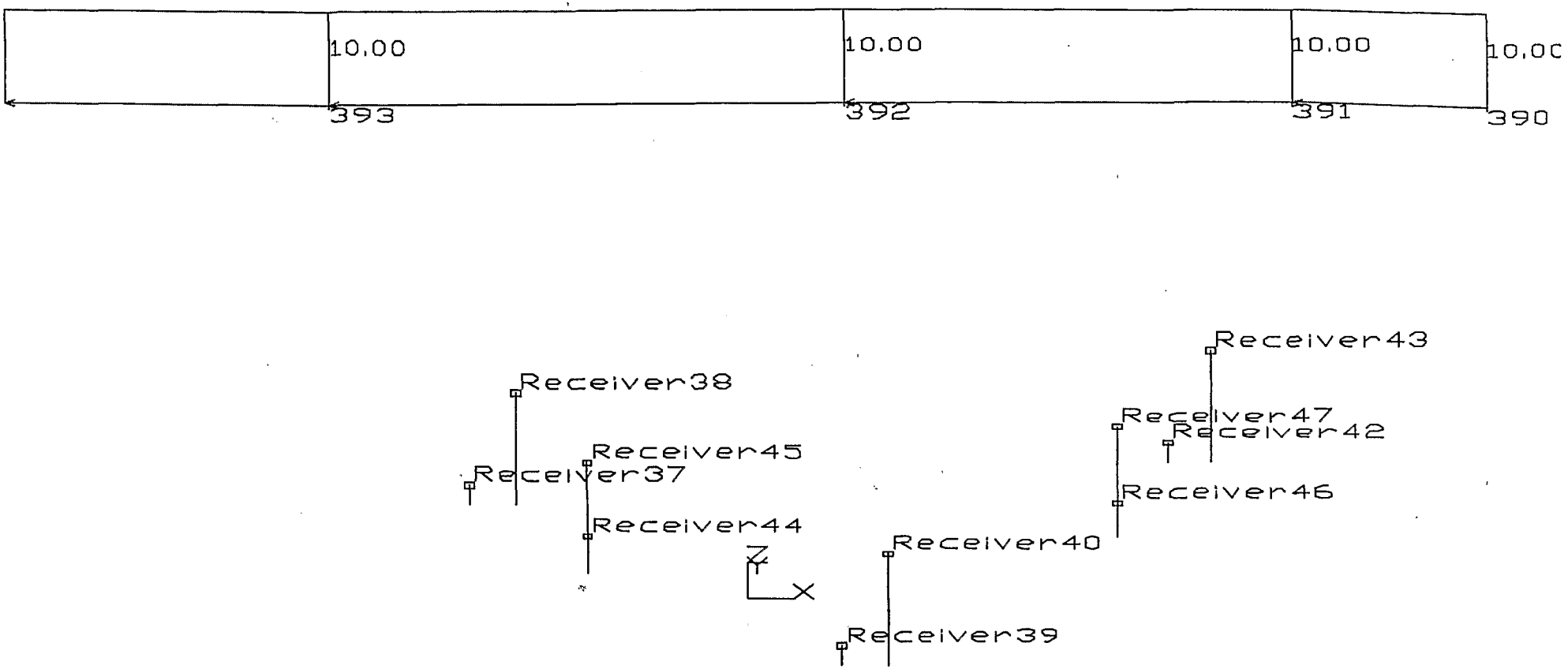
30 May 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Stephenson Hwy to Livernois Rd - Walls
BARRIER DESIGN: Base Case NB 2 revised
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
Receiver22	22	2	0.0	73.2	66	73.2	10	Snd Lvl	68.0	5.2	5	0.2
Receiver23	23	3	0.0	67.0	66	67.0	10	Snd Lvl	61.6	5.4	5	0.4
Receiver24	24	2	0.0	73.4	66	73.4	10	Snd Lvl	66.2	7.2	5	2.2
Receiver26	26	2	0.0	73.7	66	73.7	10	Snd Lvl	67.6	6.1	5	1.1
Receiver27	27	3	0.0	67.9	66	67.9	10	Snd Lvl	64.3	3.6	5	-1.4
Receiver28	28	2	0.0	73.8	66	73.8	10	Snd Lvl	67.8	6.0	5	1.0
Receiver30	30	3	0.0	73.0	66	73.0	10	Snd Lvl	67.3	5.7	5	0.7
Receiver31	31	3	0.0	73.2	66	73.2	10	Snd Lvl	67.5	5.7	5	0.7
Receiver33	33	3	0.0	70.3	66	70.3	10	Snd Lvl	69.7	0.6	5	-4.4
Receiver34	34	3	0.0	68.3	66	68.3	10	Snd Lvl	67.9	0.4	5	-4.6
Receiver76	76	6	0.0	64.8	66	64.8	10	----	64.4	0.4	5	-4.6

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	32	0.4	4.2	7.2
All Impacted	26	0.4	4.6	7.2
All that meet NR Goal	17	5.2	5.9	7.2



Stephenson Hwy to Livernois Rd - Walls		Sheet 1 of 1	30 May 2003
Barrier View-SB1 6dB Goal		Project/Contract No. I-75	
Run name: Seg8Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Stephenson Hwy to Livernois Rd - Walls
BARRIER DESIGN: SB1 6dB Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB 1	W	10.00	10.00	10.00	646	6455				295208
									Total Cost:	295208

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Stephenson Hwy to Livernois Rd - Walls
BARRIER DESIGN: SB1 6dB Goal

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB 1	W	point390	390	10.00	10.00	10.00	84	840				38430
		point391	391	10.00	10.00	10.00	195	1951				89241
		point392	392	10.00	10.00	10.00	225	2253				103015
		point393	393	10.00	10.00	10.00	141	1411				64523

<Organization?>
<Analysis By?>

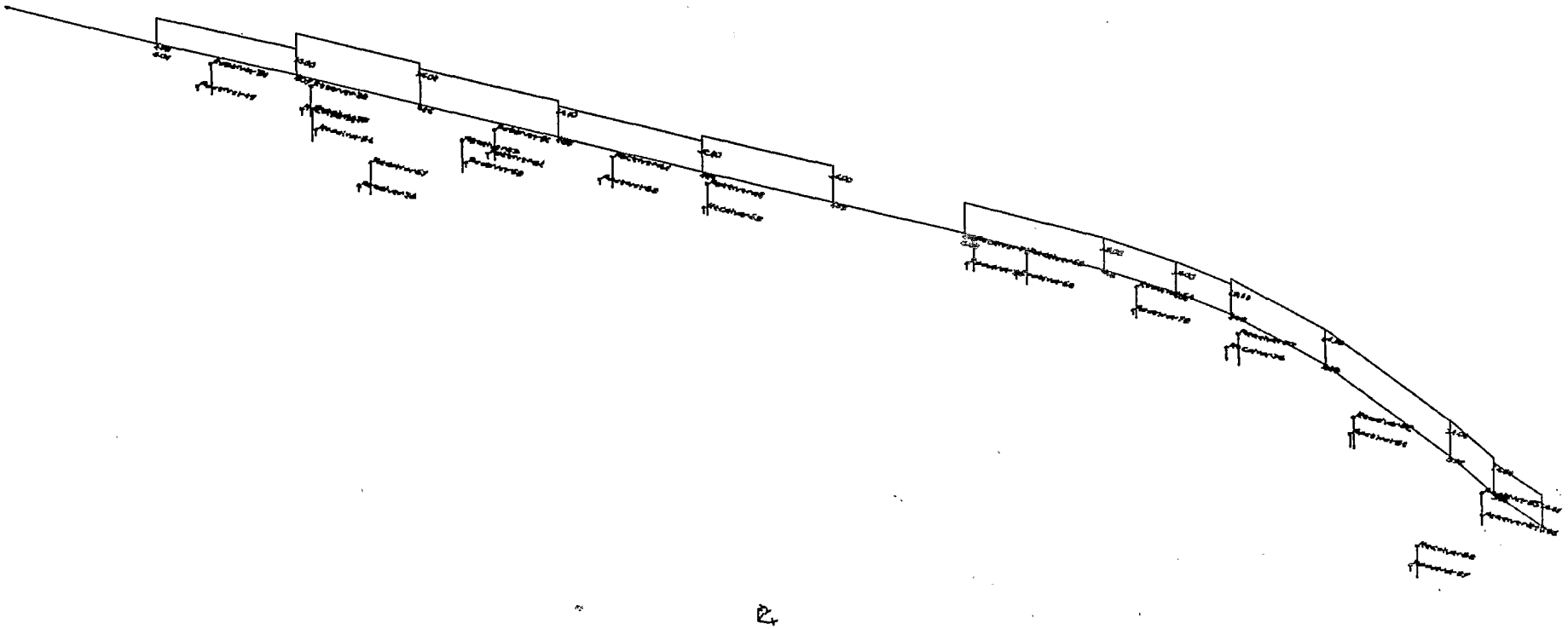
30 May 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Stephenson Hwy to Livernois Rd - Walls
BARRIER DESIGN: SB1 6dB Goal
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
Receiver43	43	4	0.0	73.0	66	73.0	10	Snd Lvl	69.1	3.9	5	-1.1
Receiver42	42	4	0.0	69.5	66	69.5	10	Snd Lvl	64.9	4.6	5	-0.4
Receiver46	46	2	0.0	65.7	66	65.7	10	----	58.1	7.6	5	2.6
Receiver47	47	2	0.0	68.5	66	68.5	10	Snd Lvl	61.4	7.1	5	2.1
Receiver40	40	6	0.0	67.7	66	67.7	10	Snd Lvl	58.2	9.5	5	4.5
Receiver39	39	6	0.0	64.0	66	64.0	10	----	53.6	10.4	5	5.4
Receiver45	45	2	0.0	68.6	66	68.6	10	Snd Lvl	62.6	6.0	5	1.0
Receiver44	44	2	0.0	65.7	66	65.7	10	----	58.2	7.5	5	2.5
Receiver38	38	2	0.0	71.7	66	71.7	10	Snd Lvl	66.4	5.3	5	0.3
Receiver37	37	2	0.0	68.6	66	68.6	10	Snd Lvl	63.1	5.5	5	0.5

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	32	3.9	6.7	10.4
All Impacted	22	3.9	6.0	9.5
All that meet NR Goal	24	5.3	7.4	10.4



Stephenson Hwy to Livernois Rd - Walls		Sheet 1 of 1	30 May 2003
Barrier View-SB 2 6 dB Goal		Project/Contract No. I-75	
Run name: Seg8Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Stephenson Hwy to Livernois Rd - Walls
BARRIER DESIGN: SB 2 6 dB Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB 2	W	10.00	13.08	16.00	2381	31148				1263340
									Total Cost:	1263340

<Organization?>
<Analysis By?>

30 May 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Stephenson Hwy to Livernois Rd - Walls
BARRIER DESIGN: SB 2 6 dB Goal

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB 2	W	point395	395	12.00	12.00	12.00	116	1386				58311
		point396	396	14.00	14.00	14.00	125	1747				68915
		point397	397	14.00	14.00	14.00	319	4461				176023
		point398	398	14.00	14.00	14.00	201	2820				111269
		point399	399	12.00	12.00	12.00	105	1262				53093
		point400	400	12.00	12.00	12.00	130	1565				65839
		point401	401	12.00	12.00	12.00	242	2904				122171
		point402	402	0.00	0.00	0.00	0	0				0
		point403	403	14.00	14.00	14.00	221	3097				122211
		point404	404	12.00	12.00	12.00	242	2907				122284
		point405	405	14.00	14.00	14.00	237	3323				131112
		point406	406	16.00	16.00	16.00	208	3332				124939
		point407	407	10.00	10.00	10.00	234	2344				107173
		point408	408	0.00	0.00	0.00	0	0				0

<Organization?>
<Analysis By?>

30 May 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Stephenson Hwy to Livernois Rd - Walls
BARRIER DESIGN: SB 2 6 dB Goal
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.

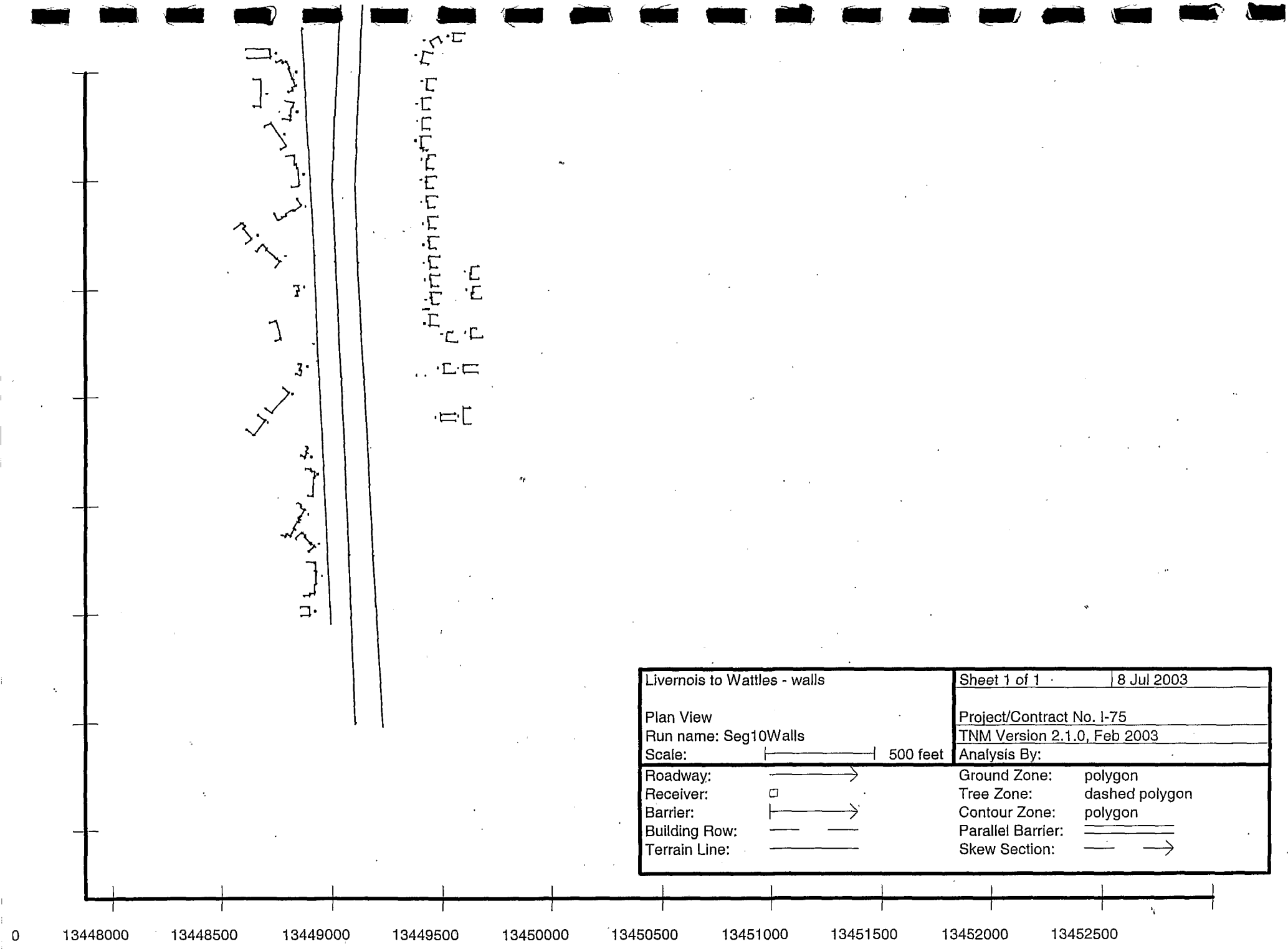
Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver49	49	6	0.0	69.3	66	69.3	10	Snd Lvl	65.8	3.5	5	-1.5
Receiver50	50	6	0.0	73.8	66	73.8	10	Snd Lvl	72.9	0.9	5	-4.1
Receiver51	51	2	0.0	69.8	66	69.8	10	Snd Lvl	64.1	5.7	5	0.7
Receiver52	52	2	0.0	74.2	66	74.2	10	Snd Lvl	70.2	4.0	5	-1.0
Receiver54	54	2	0.0	66.3	66	66.3	10	Snd Lvl	60.0	6.3	5	1.3
Receiver55	55	2	0.0	70.4	66	70.4	10	Snd Lvl	63.8	6.6	5	1.6
Receiver56	56	6	0.0	62.0	66	62.0	10	----	58.1	3.9	5	-1.1
Receiver57	57	6	0.0	68.7	66	68.7	10	Snd Lvl	62.8	5.9	5	0.9
Receiver59	59	2	0.0	70.6	66	70.6	10	Snd Lvl	65.5	5.1	5	0.1
Receiver58	58	2	0.0	65.8	66	65.8	10	----	61.0	4.8	5	-0.2
Receiver60	60	2	0.0	70.2	66	70.2	10	Snd Lvl	63.8	6.4	5	1.4
Receiver61	61	2	0.0	74.7	66	74.7	10	Snd Lvl	69.0	5.7	5	0.7
Receiver63	63	6	0.0	70.6	66	70.6	10	Snd Lvl	64.0	6.6	5	1.6
Receiver64	64	6	0.0	74.8	66	74.8	10	Snd Lvl	69.0	5.8	5	0.8
Receiver66	66	3	0.0	74.7	66	74.7	10	Snd Lvl	69.4	5.3	5	0.3
Receiver65	65	3	0.0	71.3	66	71.3	10	Snd Lvl	65.1	6.2	5	1.2
Receiver70	70	2	0.0	73.0	66	73.0	10	Snd Lvl	68.2	4.8	5	-0.2
Receiver71	71	2	0.0	75.5	66	75.5	10	Snd Lvl	71.5	4.0	5	-1.0
Receiver68	68	6	0.0	73.6	66	73.6	10	Snd Lvl	65.8	7.8	5	2.8
Receiver69	69	6	0.0	76.3	66	76.3	10	Snd Lvl	70.6	5.7	5	0.7
Receiver73	73	6	0.0	72.7	66	72.7	10	Snd Lvl	63.9	8.8	5	3.8
Receiver74	74	6	0.0	75.3	66	75.3	10	Snd Lvl	69.5	5.8	5	0.8
Receiver76	76	1	0.0	72.5	66	72.5	10	Snd Lvl	63.4	9.1	5	4.1

Receiver77	77	6	0.0	73.4	66	73.4	10	Snd Lvl	67.8	5.6	5	0.6
Receiver80	80	6	0.0	70.4	66	70.4	10	Snd Lvl	60.2	10.2	5	5.2
Receiver82	82	6	0.0	71.1	66	71.1	10	Snd Lvl	64.0	7.1	5	2.1
Receiver84	84	2	0.0	69.3	66	69.3	10	Snd Lvl	56.1	13.2	5	8.2
Receiver85	85	2	0.0	69.1	66	69.1	10	Snd Lvl	63.2	5.9	5	0.9
Receiver87	87	6	0.0	63.0	66	63.0	10	----	61.1	1.9	5	-3.1
Receiver88	88	6	0.0	64.0	66	64.0	10	----	62.9	1.1	5	-3.9

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	121	0.9	5.8	13.2
All Impacted	101	0.9	6.2	13.2
All that meet NR Goal	83	5.1	6.9	13.2

Segment 10

Livernois to Wattles


Livernois to Wattles - walls
Plan View
Run name: Seg10Walls
Scale: 500 feet
Sheet 1 of 1
8 Jul 2003
Project/Contract No. I-75
TNM Version 2.1.0, Feb 2003
Analysis By:
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
0
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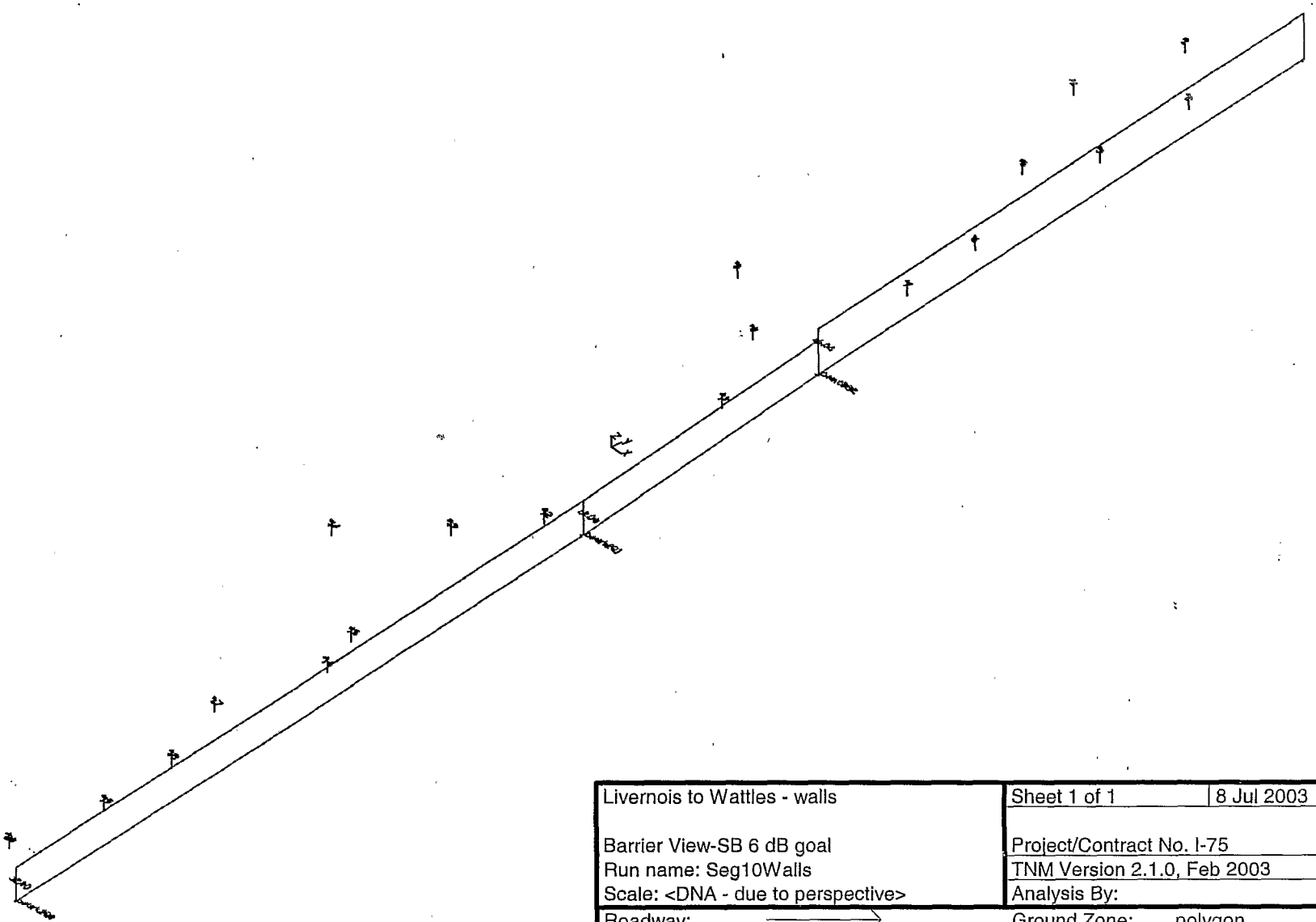


Livernois to Wattles - walls		Sheet 1 of 1	8 Jul 2003
Barrier View-SB 6 dB goal		Project/Contract No. I-75	
Run name: Seg10Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

<Organization?> 8 July 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Livernois to Wattles - walls
BARRIER DESIGN: SB 6 dB goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB	W	12.00	13.52	16.00	2749	37159				1486948
									Total Cost:	1486948

<Organization?> 8 July 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-75
RUN: Livernois to Wattles - walls
BARRIER DESIGN: SB 6 dB goal

Barriers		Segments										
Name	Type	Name	No.	Heights First Point	Average	Second Point	Length	If Wall Area	On Struc?	Important Reflections?	If Berm Volume	Cost
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB	W	point280	280	12.00	12.00	12.00	1212	14549				612071
		point281	281	12.00	12.00	12.00	494	5923				249191
		point282	282	16.00	16.00	16.00	1043	16687				625687

<Organization?>
<Analysis By?>

8 July 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Livernois to Wattles - walls
BARRIER DESIGN: SB 6 dB goal
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.

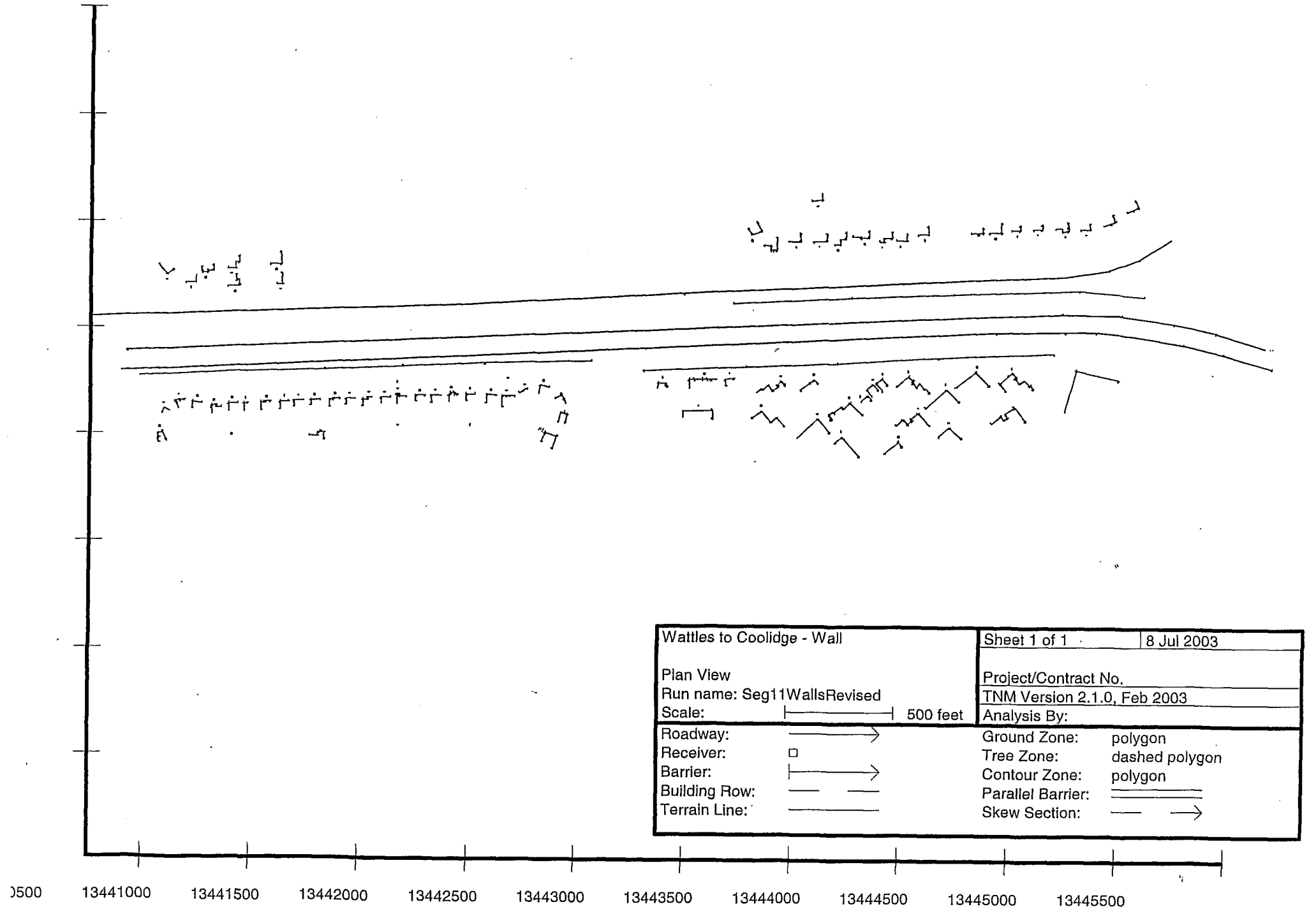
Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	78.5	66	78.5	10	Snd Lvl	72.9	5.6	5	0.6
Receiver2	2	5	0.0	73.4	66	73.4	10	Snd Lvl	62.3	11.1	5	6.1
Receiver4	4	5	0.0	63.1	66	63.1	10	----	58.0	5.1	5	0.1
Receiver3	3	4	0.0	73.9	66	73.9	10	Snd Lvl	62.9	11.0	5	6.0
Receiver5	5	4	0.0	71.0	66	71.0	10	Snd Lvl	61.8	9.2	5	4.2
Receiver6	6	7	0.0	74.5	66	74.5	10	Snd Lvl	62.2	12.3	5	7.3
Receiver7	7	6	0.0	70.1	66	70.1	10	Snd Lvl	59.9	10.2	5	5.2
Receiver8	8	3	0.0	52.9	66	52.9	10	----	49.7	3.2	5	-1.8
Receiver9	9	4	0.0	66.3	66	66.3	10	Snd Lvl	61.4	4.9	5	-0.1
Receiver10	10	4	0.0	70.3	66	70.3	10	Snd Lvl	61.1	9.2	5	4.2
Receiver12	12	4	0.0	68.9	66	68.9	10	Snd Lvl	60.9	8.0	5	3.0
Receiver13	13	4	0.0	63.6	66	63.6	10	----	59.6	4.0	5	-1.0
Receiver14	14	4	0.0	60.4	66	60.4	10	----	56.7	3.7	5	-1.3
Receiver15	15	3	0.0	67.8	66	67.8	10	Snd Lvl	63.5	4.3	5	-0.7
Receiver16	16	5	0.0	63.5	66	63.5	10	----	57.7	5.8	5	0.8
Receiver17	17	5	0.0	64.2	66	64.2	10	----	60.2	4.0	5	-1.0
Receiver18	18	4	0.0	68.8	66	68.8	10	Snd Lvl	62.7	6.1	5	1.1
Receiver19	19	7	0.0	71.2	66	71.2	10	Snd Lvl	65.0	6.2	5	1.2
Receiver20	20	2	0.0	70.7	66	70.7	10	Snd Lvl	66.3	4.4	5	-0.6

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	81	3.2	6.8	12.3

All Impacted	55	4.3	7.9	12.3
All that meet NR Goal	56	5.1	8.3	12.3

Segment 11

Wattles to Coolidge Hwy.


Wattles to Coolidge - Wall
Sheet 1 of 1
8 Jul 2003
Plan View
Project/Contract No.
Run name: Seg11WallsRevised
TNM Version 2.1.0, Feb 2003
Scale:
500 feet
Analysis By:
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
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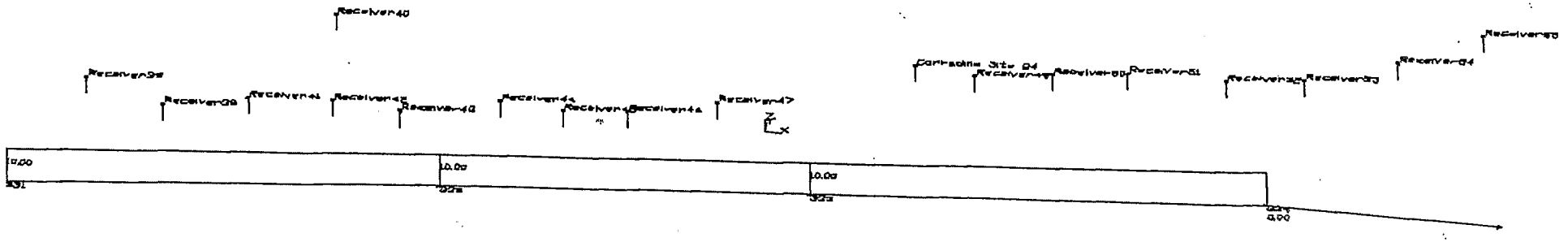


Crooks to Coolidge - Build		Sheet 1 of 1	3 Jun 2003
Barrier View-NB 6 dB Goal		Project/Contract No.	
Run name: Seg10Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 3 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: Crooks to Coolidge - Build
BARRIER DESIGN: NB 6 dB Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall NB	W	10.00	10.00	10.00	1596	15956				729658
									Total Cost:	729658

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: Crooks to Coolidge - Build
BARRIER DESIGN: NB 6 dB Goal

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall NB	W	point331	331	10.00	10.00	10.00	549	5489				251021
		point332	332	10.00	10.00	10.00	469	4693				214597
		point333	333	10.00	10.00	10.00	577	5774				264040
		point334	334	0.00	0.00	0.00	0	0				0

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1
Calculated with TNM 2.1

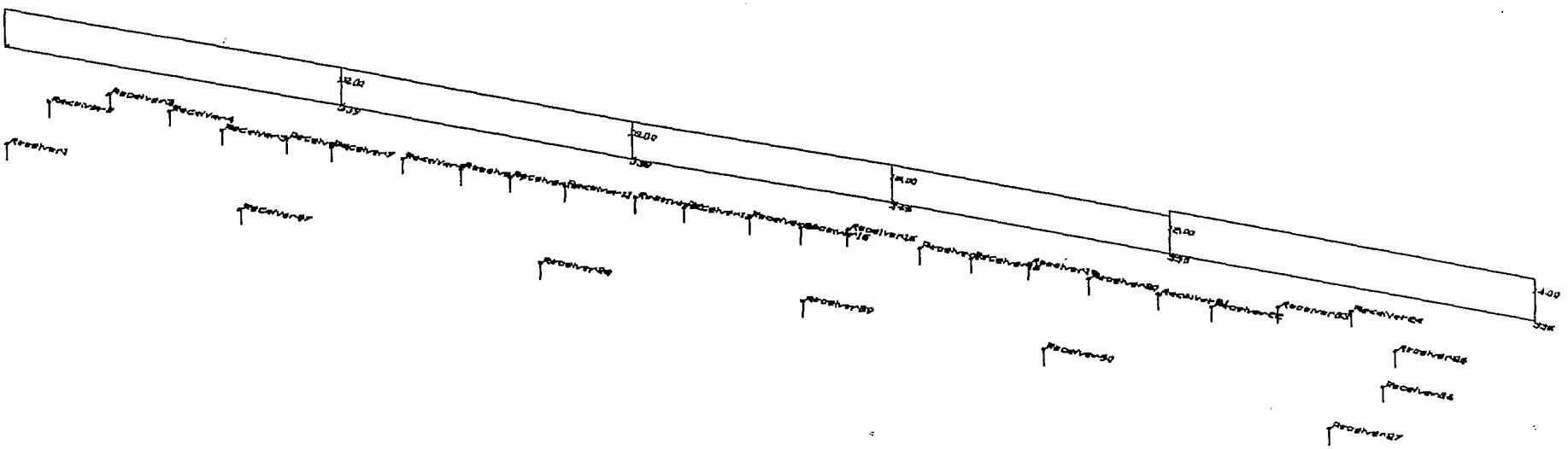
RESULTS: SOUND LEVELS
PROJECT/CONTRACT: <Project Name?>
RUN: Crooks to Coolidge - Build
BARRIER DESIGN: NB 6 dB Goal
ATMOSPHERICS: 68 deg F, 50% RH

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
Receiver55	55	1	0.0	61.2	66	61.2	10	----	57.1	4.1	5	-0.9
Receiver54	54	1	0.0	65.8	66	65.8	10	----	57.2	8.6	5	3.6
Receiver53	53	1	0.0	67.5	66	67.5	10	Snd Lvl	60.9	6.6	5	1.6
Receiver52	52	1	0.0	68.0	66	68.0	10	Snd Lvl	61.0	7.0	5	2.0
Receiver51	51	1	0.0	68.6	66	68.6	10	Snd Lvl	61.4	7.2	5	2.2
Receiver50	50	1	0.0	69.2	66	69.2	10	Snd Lvl	61.7	7.5	5	2.5
Receiver49	49	1	0.0	69.7	66	69.7	10	Snd Lvl	62.1	7.6	5	2.6
Corradino Site 24	48	1	0.0	69.9	66	69.9	10	Snd Lvl	62.4	7.5	5	2.5
Receiver47	47	1	0.0	59.7	66	59.7	10	----	56.9	2.8	5	-2.2
Receiver46	46	1	0.0	60.1	66	60.1	10	----	57.2	2.9	5	-2.1
Receiver45	45	1	0.0	60.3	66	60.3	10	----	57.5	2.8	5	-2.2
Receiver44	44	1	0.0	60.4	66	60.4	10	----	57.7	2.7	5	-2.3
Receiver43	43	1	0.0	60.7	66	60.7	10	----	58.1	2.6	5	-2.4
Receiver42	42	1	0.0	60.7	66	60.7	10	----	58.3	2.4	5	-2.6
Receiver41	41	1	0.0	60.8	66	60.8	10	----	58.6	2.2	5	-2.8
Receiver38	38	1	0.0	61.0	66	61.0	10	----	59.1	1.9	5	-3.1
Receiver39	39	1	0.0	60.6	66	60.6	10	----	59.2	1.4	5	-3.6
Receiver40	40	1	0.0	58.6	66	58.6	10	----	56.7	1.9	5	-3.1

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	18	1.4	4.4	8.6
All Impacted	6	6.6	7.2	7.6

All that meet NR Goal	7	6.6	7.4	8.6



Crooks to Coolidge - Build		Sheet 1 of 1	20 Jun 2003
Barrier View-SB1 6db 1 & 2 revised2		Project/Contract No.	
Run name: Seg10WallsRevised		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		*Parallel Barrier:*	
Terrain Line:		Skew Section:	

<Organization?> 20 June 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: Crooks to Coolidge - Build
BARRIER DESIGN: SB1 6db 1 & 2 revised2

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB 1	W	12.00	12.48	14.00	2078	25922				1072462
									Total Cost:	1072462

<Organization?>
<Analysis By?>

20 June 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS

PROJECT/CONTRACT: <Project Name?>
RUN: Crooks to Coolidge - Build
BARRIER DESIGN: SB1 6db 1 & 2 revised2

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB 1	W	point336	336	14.00	14.00	14.00	494	6919				272994
		point350	350	12.00	12.00	12.00	378	4539				190948
		point349	349	12.00	12.00	12.00	355	4254				178978
		point338	338	12.00	12.00	12.00	398	4779				201038
		point339	339	12.00	12.00	12.00	453	5432				228504

<Organization?>
<Analysis By?>

20 June 2003
TNM 2.1
Calculated with TNM 2.1

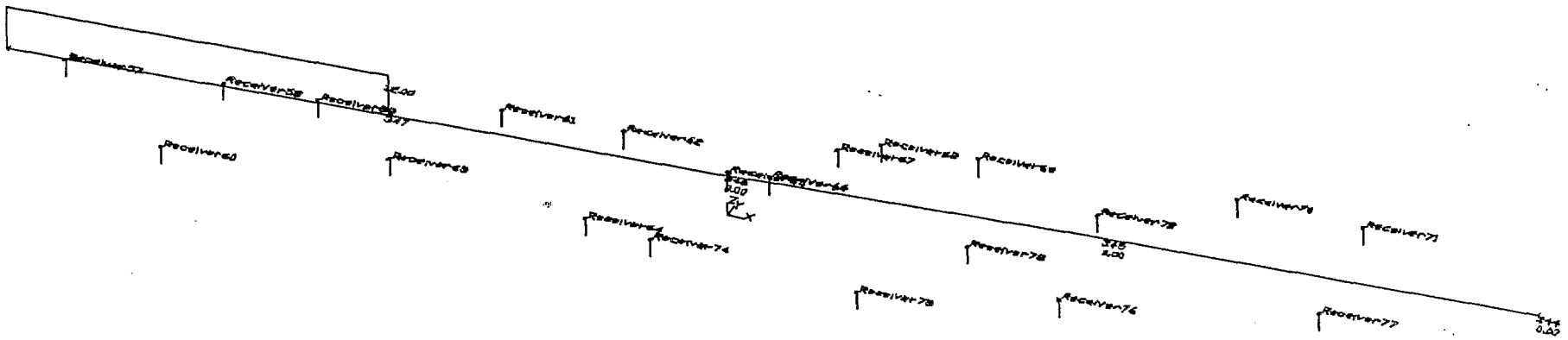
RESULTS: SOUND LEVELS
PROJECT/CONTRACT: <Project Name?>
RUN: Crooks to Coolidge - Build
BARRIER DESIGN: SB1 6db 1 & 2 revised2
ATMOSPHERICS: 68 deg F, 50% RH

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
Receiver90	90	3	0.0	63.9	66	63.9	10	----	57.4	6.5	5	1.5
Receiver89	89	3	0.0	63.7	66	63.7	10	----	56.5	7.2	5	2.2
Receiver87	87	4	0.0	63.6	66	63.6	10	----	56.3	7.3	5	2.3
Receiver28	28	1	0.0	63.4	66	63.4	10	----	56.4	7.0	5	2.0
Receiver27	27	1	0.0	63.5	66	63.5	10	----	61.8	1.7	5	-3.3
Receiver26	26	1	0.0	67.3	66	67.3	10	Snd Lvl	65.9	1.4	5	-3.6
Receiver25	25	1	0.0	72.3	66	72.3	10	Snd Lvl	67.0	5.3	5	0.3
Receiver24	24	1	0.0	76.2	66	76.2	10	Snd Lvl	66.3	9.9	5	4.9
Receiver23	23	1	0.0	75.0	66	75.0	10	Snd Lvl	65.4	9.6	5	4.6
Receiver22	22	1	0.0	73.6	66	73.6	10	Snd Lvl	64.5	9.1	5	4.1
Receiver21	21	1	0.0	74.0	66	74.0	10	Snd Lvl	64.9	9.1	5	4.1
Receiver20	20	1	0.0	74.4	66	74.4	10	Snd Lvl	65.3	9.1	5	4.1
Receiver19	19	1	0.0	75.1	66	75.1	10	Snd Lvl	65.6	9.5	5	4.5
Receiver18	18	1	0.0	74.5	66	74.5	10	Snd Lvl	65.4	9.1	5	4.1
Receiver17	17	1	0.0	74.6	66	74.6	10	Snd Lvl	65.4	9.2	5	4.2
Receiver16	16	1	0.0	75.3	66	75.3	10	Snd Lvl	65.8	9.5	5	4.5
Receiver15	15	1	0.0	74.4	66	74.4	10	Snd Lvl	65.4	9.0	5	4.0
Receiver14	14	1	0.0	74.6	66	74.6	10	Snd Lvl	65.5	9.1	5	4.1
Receiver13	13	1	0.0	74.5	66	74.5	10	Snd Lvl	65.4	9.1	5	4.1
Receiver12	12	1	0.0	74.6	66	74.6	10	Snd Lvl	65.4	9.2	5	4.2
Receiver11	11	1	0.0	74.5	66	74.5	10	Snd Lvl	65.3	9.2	5	4.2
Receiver10	10	1	0.0	74.5	66	74.5	10	Snd Lvl	65.4	9.1	5	4.1
Receiver9	9	1	0.0	74.4	66	74.4	10	Snd Lvl	65.2	9.2	5	4.2

Receiver8	8	1	0.0	74.5	66	74.5	10	Snd Lvl	65.3	9.2	5	4.2
Receiver7	7	1	0.0	74.3	66	74.3	10	Snd Lvl	65.1	9.2	5	4.2
Receiver6	6	1	0.0	74.4	66	74.4	10	Snd Lvl	65.1	9.3	5	4.3
Receiver5	5	1	0.0	74.0	66	74.0	10	Snd Lvl	64.9	9.1	5	4.1
Receiver4	4	1	0.0	75.2	66	75.2	10	Snd Lvl	65.5	9.7	5	4.7
Receiver3	3	1	0.0	76.0	66	76.0	10	Snd Lvl	66.2	9.8	5	4.8
Receiver2	2	1	0.0	73.2	66	73.2	10	Snd Lvl	66.0	7.2	5	2.2
Receiver1	1	1	0.0	65.9	66	65.9	10	----	61.5	4.4	5	-0.6

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	38	1.4	8.1	9.9
All Impacted	25	1.4	8.7	9.9
All that meet NR Goal	35	5.3	8.7	9.9



Crooks to Coolidge - Build		Sheet 1 of 1	30 May 2003
Barrier View-SB 3 6 dB Goal		Project/Contract No.	
Run name: Seg10Walls		TNM Version 2.1.0, Feb 2003	
Scale: <DNA - due to perspective>		Analysis By:	
Roadway:	→	Ground Zone:	polygon
Receiver:	□	Tree Zone:	dashed polygon
Barrier:	⊢→	Contour Zone:	polygon
Building Row:	— —	Parallel Barrier:	═══
Terrain Line:	———	Skew Section:	—→

<Organization?> 30 May 2003
<Analysis By?> TNM 2.1

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: Crooks to Coolidge - Build
BARRIER DESIGN: SB 3 6 dB Goal

Barriers

Name	Type	Heights along Barrier			Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Wall SB 3	W	12.00	12.00	12.00	472	5670				238524
									Total Cost:	238524

<Organization?>
<Analysis By?>

30 May 2003
TNM 2.1

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: <Project Name?>
RUN: Crooks to Coolidge - Build
BARRIER DESIGN: SB 3 6 dB Goal

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Wall SB 3	W	point344	344	0.00	0.00	0.00	0	0				0
		point345	345	0.00	0.00	0.00	0	0				0
		point346	346	0.00	0.00	0.00	0	0				0
		point347	347	12.00	12.00	12.00	472	5670				238524

<Organization?>
<Analysis By?>

30 May 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: <Project Name?>
RUN: Crooks to Coolidge - Build
BARRIER DESIGN: *SB 3 6 dB Goal*

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

ATMOSPHERICS: 68 deg F, 50% RH

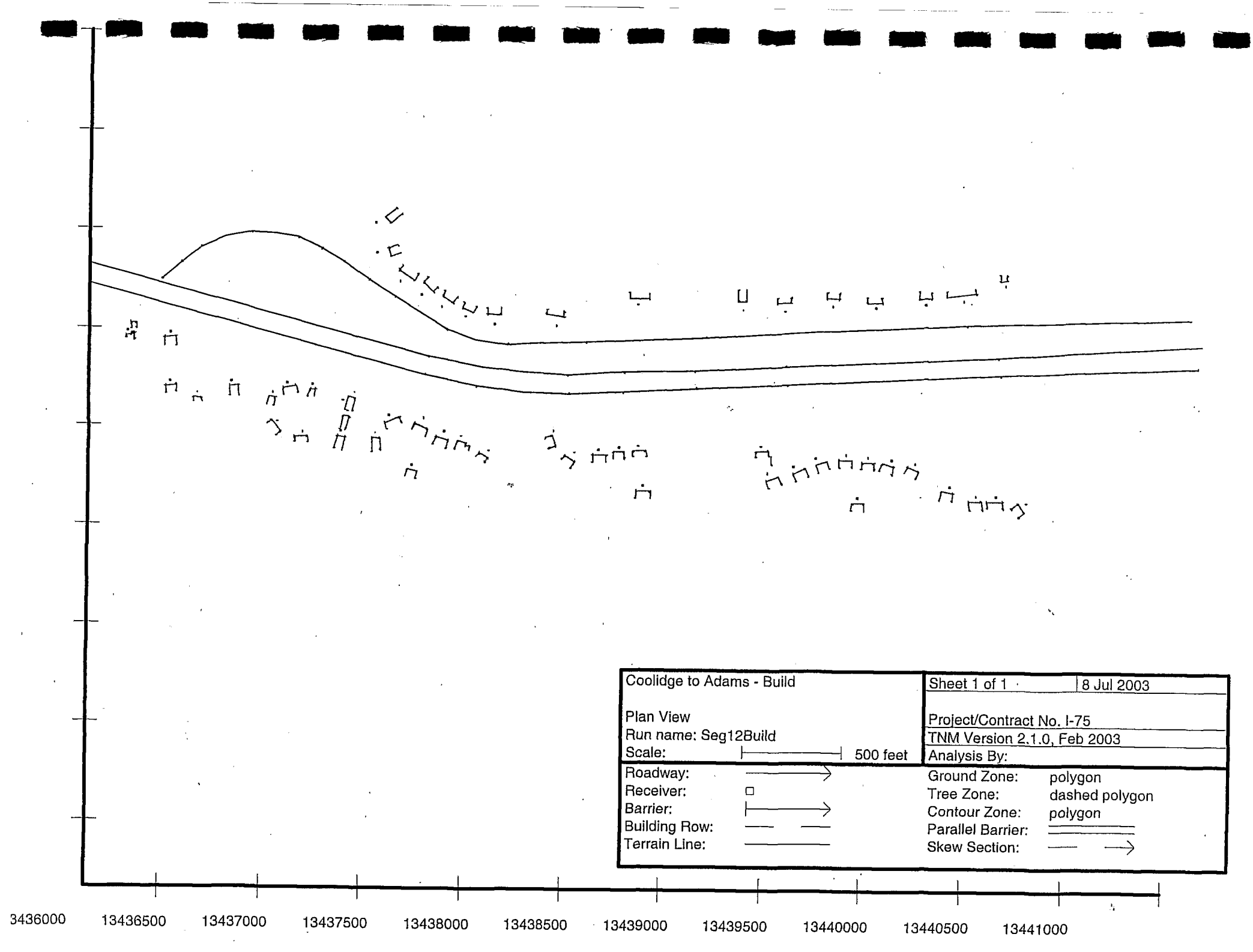
Receiver													
Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier			
				LAeq1h		Increase over existing		Type Impact	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		LAeq1h	Calculated	Goal	Calculated *minus* Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver77	77	4	0.0	62.3	66	62.3	10	----	62.3	0.0	5	-5.0
Receiver71	71	4	0.0	73.4	66	73.4	10	Snd Lvl	73.4	0.0	5	-5.0
Receiver70	70	4	0.0	76.8	66	76.8	10	Snd Lvl	76.8	0.0	5	-5.0
Receiver72	72	4	0.0	75.0	66	75.0	10	Snd Lvl	75.0	0.0	5	-5.0
Receiver68	68	4	0.0	77.5	66	77.5	10	Snd Lvl	77.5	0.0	5	-5.0
Receiver67	67	4	0.0	76.7	66	76.7	10	Snd Lvl	76.7	0.0	5	-5.0
Receiver69	69	4	0.0	77.6	66	77.6	10	Snd Lvl	77.6	0.0	5	-5.0
Receiver76	76	4	0.0	54.1	66	54.1	10	----	54.1	0.0	5	-5.0
Receiver73	73	4	0.0	62.5	66	62.5	10	----	62.5	0.0	5	-5.0
Receiver75	75	4	0.0	59.2	66	59.2	10	----	59.2	0.0	5	-5.0
Receiver66	66	4	0.0	74.1	66	74.1	10	Snd Lvl	74.1	0.0	5	-5.0
Receiver65	65	4	0.0	74.3	66	74.3	10	Snd Lvl	74.3	0.0	5	-5.0
Receiver74	74	4	0.0	58.9	66	58.9	10	----	58.9	0.0	5	-5.0
Receiver64	64	4	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	5	-5.0
Receiver62	62	4	0.0	75.2	66	75.2	10	Snd Lvl	75.2	0.0	5	-5.0
Receiver61	61	4	0.0	75.3	66	75.3	10	Snd Lvl	75.3	0.0	5	-5.0
Receiver63	63	4	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	5	-5.0
Receiver60	60	6	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	5	-5.0
Receiver59	59	8	0.0	74.7	66	74.7	10	Snd Lvl	67.8	6.9	5	1.9
Receiver58	58	6	0.0	74.7	66	74.7	10	Snd Lvl	66.9	7.8	5	2.8
Receiver57	57	8	0.0	74.5	66	74.5	10	Snd Lvl	68.8	5.7	5	0.7

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max

		dB	dB	dB
All Selected	96	0.0	1.0	7.8
All Impacted	76	0.0	1.3	7.8
All that meet NR Goal	22	5.7	6.8	7.8

Segment 12

Coolidge Hwy. To Square Lake


Coolidge to Adams - Build
Plan View
Run name: Seg12Build
Scale: 500 feet
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Sheet 1 of 1
8 Jul 2003
Project/Contract No. I-75
TNM Version 2.1.0, Feb 2003
Analysis By:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
13436000
13436500
13437000
13437500
13438000
13438500
13439000
13439500
13440000
13440500
13441000

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Coolidge to Adams - Existing
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
Receiver1	1	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
Receiver2	2	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
Receiver3	3	1	0.0	55.5	66	55.5	10	----	55.5	0.0	8	-8.0
Receiver4	4	1	0.0	52.5	66	52.5	10	----	52.5	0.0	8	-8.0
Receiver5	5	1	0.0	54.4	66	54.4	10	----	54.4	0.0	8	-8.0
Receiver6	6	1	0.0	55.9	66	55.9	10	----	55.9	0.0	8	-8.0
Receiver7	7	1	0.0	58.4	66	58.4	10	----	58.4	0.0	8	-8.0
Receiver8	8	1	0.0	59.3	66	59.3	10	----	59.3	0.0	8	-8.0
Receiver10	10	1	0.0	50.6	66	50.6	10	----	50.6	0.0	8	-8.0
Receiver11	11	1	0.0	51.4	66	51.4	10	----	51.4	0.0	8	-8.0
Receiver12	12	1	0.0	52.2	66	52.2	10	----	52.2	0.0	8	-8.0
Receiver13	13	1	0.0	56.6	66	56.6	10	----	56.6	0.0	8	-8.0
Receiver14	14	1	0.0	57.6	66	57.6	10	----	57.6	0.0	8	-8.0
Receiver15	15	1	0.0	60.4	66	60.4	10	----	60.4	0.0	8	-8.0
Receiver16	16	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
Receiver17	17	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
Receiver18	18	1	0.0	51.2	66	51.2	10	----	51.2	0.0	8	-8.0
Receiver19	19	1	0.0	44.8	66	44.8	10	----	44.8	0.0	8	-8.0
Receiver20	20	1	0.0	47.2	66	47.2	10	----	47.2	0.0	8	-8.0
Receiver21	21	1	0.0	44.4	66	44.4	10	----	44.4	0.0	8	-8.0
Receiver22	22	1	0.0	45.0	66	45.0	10	----	45.0	0.0	8	-8.0
Receiver23	23	1	0.0	51.4	66	51.4	10	----	51.4	0.0	8	-8.0
Receiver24	24	1	0.0	51.7	66	51.7	10	----	51.7	0.0	8	-8.0

Receiver25	25	1	0.0	50.8	66	50.8	10	----	50.8	0.0	8	-8.0
Receiver26	26	1	0.0	50.5	66	50.5	10	----	50.5	0.0	8	-8.0
Receiver27	27	1	0.0	49.7	66	49.7	10	----	49.7	0.0	8	-8.0
Receiver28	28	1	0.0	48.6	66	48.6	10	----	48.6	0.0	8	-8.0
Receiver29	29	1	0.0	49.3	66	49.3	10	----	49.3	0.0	8	-8.0
Receiver30	30	1	0.0	50.7	66	50.7	10	----	50.7	0.0	8	-8.0
Receiver31	31	1	0.0	45.5	66	45.5	10	----	45.5	0.0	8	-8.0
Receiver32	32	1	0.0	46.9	66	46.9	10	----	46.9	0.0	8	-8.0
Receiver33	33	1	0.0	47.3	66	47.3	10	----	47.3	0.0	8	-8.0
Receiver34	34	1	0.0	48.9	66	48.9	10	----	48.9	0.0	8	-8.0
Receiver35	35	1	0.0	47.4	66	47.4	10	----	47.4	0.0	8	-8.0
Receiver36	36	1	0.0	52.7	66	52.7	10	----	52.7	0.0	8	-8.0
Receiver37	37	1	0.0	53.5	66	53.5	10	----	53.5	0.0	8	-8.0
Receiver38	38	1	0.0	55.9	66	55.9	10	----	55.9	0.0	8	-8.0
Receiver39	39	1	0.0	56.7	66	56.7	10	----	56.7	0.0	8	-8.0
Receiver40	40	1	0.0	58.8	66	58.8	10	----	58.8	0.0	8	-8.0
Receiver41	41	1	0.0	60.8	66	60.8	10	----	60.8	0.0	8	-8.0
Receiver42	42	1	0.0	55.8	66	55.8	10	----	55.8	0.0	8	-8.0
Receiver43	43	1	0.0	47.5	66	47.5	10	----	47.5	0.0	8	-8.0
Receiver44	44	1	0.0	52.5	66	52.5	10	----	52.5	0.0	8	-8.0
Receiver45	45	1	0.0	53.4	66	53.4	10	----	53.4	0.0	8	-8.0
Receiver46	46	1	0.0	71.7	66	71.7	10	Snd Lvl	71.7	0.0	8	-8.0
Receiver47	47	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
Receiver48	48	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
Receiver49	49	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
Receiver50	50	1	0.0	57.3	66	57.3	10	----	57.3	0.0	8	-8.0
Receiver51	51	1	0.0	56.9	66	56.9	10	----	56.9	0.0	8	-8.0
Receiver52	52	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
Receiver53	53	1	0.0	61.3	66	61.3	10	----	61.3	0.0	8	-8.0
Receiver54	54	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
Receiver55	55	1	0.0	72.7	66	72.7	10	Snd Lvl	72.7	0.0	8	-8.0
Receiver56	56	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0
Corradino Site 26	59	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	56	0.0	0.0	0.0
All Impacted	5	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Coolidge to Adams - No Build
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					With Barrier			
				LAeq1h		Increase over existing		Type Impact	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
Receiver2	2	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
Receiver3	3	1	0.0	56.2	66	56.2	10	----	56.2	0.0	8	-8.0
Receiver4	4	1	0.0	53.2	66	53.2	10	----	53.2	0.0	8	-8.0
Receiver5	5	1	0.0	55.1	66	55.1	10	----	55.1	0.0	8	-8.0
Receiver6	6	1	0.0	56.6	66	56.6	10	----	56.6	0.0	8	-8.0
Receiver7	7	1	0.0	59.1	66	59.1	10	----	59.1	0.0	8	-8.0
Receiver8	8	1	0.0	60.1	66	60.1	10	----	60.1	0.0	8	-8.0
Receiver10	10	1	0.0	51.3	66	51.3	10	----	51.3	0.0	8	-8.0
Receiver11	11	1	0.0	52.1	66	52.1	10	----	52.1	0.0	8	-8.0
Receiver12	12	1	0.0	52.9	66	52.9	10	----	52.9	0.0	8	-8.0
Receiver13	13	1	0.0	57.3	66	57.3	10	----	57.3	0.0	8	-8.0
Receiver14	14	1	0.0	58.3	66	58.3	10	----	58.3	0.0	8	-8.0
Receiver15	15	1	0.0	61.0	66	61.0	10	----	61.0	0.0	8	-8.0
Receiver16	16	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
Receiver17	17	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
Receiver18	18	1	0.0	51.9	66	51.9	10	----	51.9	0.0	8	-8.0
Receiver19	19	1	0.0	45.5	66	45.5	10	----	45.5	0.0	8	-8.0
Receiver20	20	1	0.0	47.9	66	47.9	10	----	47.9	0.0	8	-8.0
Receiver21	21	1	0.0	45.1	66	45.1	10	----	45.1	0.0	8	-8.0
Receiver22	22	1	0.0	45.7	66	45.7	10	----	45.7	0.0	8	-8.0
Receiver23	23	1	0.0	52.1	66	52.1	10	----	52.1	0.0	8	-8.0
Receiver24	24	1	0.0	52.4	66	52.4	10	----	52.4	0.0	8	-8.0

Receiver25	25	1	0.0	51.5	66	51.5	10	----	51.5	0.0	8	-8.0
Receiver26	26	1	0.0	51.2	66	51.2	10	----	51.2	0.0	8	-8.0
Receiver27	27	1	0.0	50.4	66	50.4	10	----	50.4	0.0	8	-8.0
Receiver28	28	1	0.0	49.3	66	49.3	10	----	49.3	0.0	8	-8.0
Receiver29	29	1	0.0	50.0	66	50.0	10	----	50.0	0.0	8	-8.0
Receiver30	30	1	0.0	51.4	66	51.4	10	----	51.4	0.0	8	-8.0
Receiver31	31	1	0.0	46.2	66	46.2	10	----	46.2	0.0	8	-8.0
Receiver32	32	1	0.0	47.6	66	47.6	10	----	47.6	0.0	8	-8.0
Receiver33	33	1	0.0	48.0	66	48.0	10	----	48.0	0.0	8	-8.0
Receiver34	34	1	0.0	49.6	66	49.6	10	----	49.6	0.0	8	-8.0
Receiver35	35	1	0.0	48.1	66	48.1	10	----	48.1	0.0	8	-8.0
Receiver36	36	1	0.0	53.4	66	53.4	10	----	53.4	0.0	8	-8.0
Receiver37	37	1	0.0	54.2	66	54.2	10	----	54.2	0.0	8	-8.0
Receiver38	38	1	0.0	56.6	66	56.6	10	----	56.6	0.0	8	-8.0
Receiver39	39	1	0.0	57.4	66	57.4	10	----	57.4	0.0	8	-8.0
Receiver40	40	1	0.0	59.5	66	59.5	10	----	59.5	0.0	8	-8.0
Receiver41	41	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
Receiver42	42	1	0.0	56.5	66	56.5	10	----	56.5	0.0	8	-8.0
Receiver43	43	1	0.0	48.2	66	48.2	10	----	48.2	0.0	8	-8.0
Receiver44	44	1	0.0	53.2	66	53.2	10	----	53.2	0.0	8	-8.0
Receiver45	45	1	0.0	54.1	66	54.1	10	----	54.1	0.0	8	-8.0
Receiver46	46	1	0.0	72.4	66	72.4	10	Snd Lvl	72.4	0.0	8	-8.0
Receiver47	47	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0
Receiver48	48	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
Receiver49	49	1	0.0	63.9	66	63.9	10	----	63.9	0.0	8	-8.0
Receiver50	50	1	0.0	58.0	66	58.0	10	----	58.0	0.0	8	-8.0
Receiver51	51	1	0.0	57.6	66	57.6	10	----	57.6	0.0	8	-8.0
Receiver52	52	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
Receiver53	53	1	0.0	62.0	66	62.0	10	----	62.0	0.0	8	-8.0
Receiver54	54	1	0.0	62.2	66	62.2	10	----	62.2	0.0	8	-8.0
Receiver55	55	1	0.0	73.4	66	73.4	10	Snd Lvl	73.4	0.0	8	-8.0
Receiver56	56	1	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
Corradino Site 26	59	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	56	0.0	0.0	0.0
All Impacted	5	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

<Organization?>
<Analysis By?>

3 June 2003
TNM 2.1
Calculated with TNM 2.1

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-75
RUN: Coolidge to Adams - Build
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
Receiver1	1	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
Receiver2	2	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
Receiver3	3	1	0.0	57.3	66	57.3	10	----	57.3	0.0	8	-8.0
Receiver4	4	1	0.0	53.8	66	53.8	10	----	53.8	0.0	8	-8.0
Receiver5	5	1	0.0	56.2	66	56.2	10	----	56.2	0.0	8	-8.0
Receiver6	6	1	0.0	57.7	66	57.7	10	----	57.7	0.0	8	-8.0
Receiver7	7	1	0.0	61.0	66	61.0	10	----	61.0	0.0	8	-8.0
Receiver8	8	1	0.0	60.9	66	60.9	10	----	60.9	0.0	8	-8.0
Receiver10	10	1	0.0	52.3	66	52.3	10	----	52.3	0.0	8	-8.0
Receiver11	11	1	0.0	53.0	66	53.0	10	----	53.0	0.0	8	-8.0
Receiver12	12	1	0.0	54.0	66	54.0	10	----	54.0	0.0	8	-8.0
Receiver13	13	1	0.0	57.9	66	57.9	10	----	57.9	0.0	8	-8.0
Receiver14	14	1	0.0	59.2	66	59.2	10	----	59.2	0.0	8	-8.0
Receiver15	15	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
Receiver16	16	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
Receiver17	17	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
Receiver18	18	1	0.0	52.6	66	52.6	10	----	52.6	0.0	8	-8.0
Receiver19	19	1	0.0	46.5	66	46.5	10	----	46.5	0.0	8	-8.0
Receiver20	20	1	0.0	48.5	66	48.5	10	----	48.5	0.0	8	-8.0
Receiver21	21	1	0.0	46.7	66	46.7	10	----	46.7	0.0	8	-8.0
Receiver22	22	1	0.0	46.8	66	46.8	10	----	46.8	0.0	8	-8.0
Receiver23	23	1	0.0	52.6	66	52.6	10	----	52.6	0.0	8	-8.0
Receiver24	24	1	0.0	52.4	66	52.4	10	----	52.4	0.0	8	-8.0

Receiver25	25	1	0.0	52.8	66	52.8	10	----	52.8	0.0	8	-8.0
Receiver26	26	1	0.0	51.8	66	51.8	10	----	51.8	0.0	8	-8.0
Receiver27	27	1	0.0	52.5	66	52.5	10	----	52.5	0.0	8	-8.0
Receiver28	28	1	0.0	51.8	66	51.8	10	----	51.8	0.0	8	-8.0
Receiver29	29	1	0.0	52.0	66	52.0	10	----	52.0	0.0	8	-8.0
Receiver30	30	1	0.0	52.3	66	52.3	10	----	52.3	0.0	8	-8.0
Receiver31	31	1	0.0	47.1	66	47.1	10	----	47.1	0.0	8	-8.0
Receiver32	32	1	0.0	47.1	66	47.1	10	----	47.1	0.0	8	-8.0
Receiver33	33	1	0.0	49.1	66	49.1	10	----	49.1	0.0	8	-8.0
Receiver34	34	1	0.0	49.9	66	49.9	10	----	49.9	0.0	8	-8.0
Receiver35	35	1	0.0	48.7	66	48.7	10	----	48.7	0.0	8	-8.0
Receiver36	36	1	0.0	54.5	66	54.5	10	----	54.5	0.0	8	-8.0
Receiver37	37	1	0.0	55.2	66	55.2	10	----	55.2	0.0	8	-8.0
Receiver38	38	1	0.0	56.7	66	56.7	10	----	56.7	0.0	8	-8.0
Receiver39	39	1	0.0	57.6	66	57.6	10	----	57.6	0.0	8	-8.0
Receiver40	40	1	0.0	60.4	66	60.4	10	----	60.4	0.0	8	-8.0
Receiver41	41	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
Receiver42	42	1	0.0	57.0	66	57.0	10	----	57.0	0.0	8	-8.0
Receiver43	43	1	0.0	48.6	66	48.6	10	----	48.6	0.0	8	-8.0
Receiver44	44	1	0.0	55.6	66	55.6	10	----	55.6	0.0	8	-8.0
Receiver45	45	1	0.0	54.8	66	54.8	10	----	54.8	0.0	8	-8.0
Receiver46	46	1	0.0	72.4	66	72.4	10	Snd Lvl	72.4	0.0	8	-8.0
Receiver47	47	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
Receiver48	48	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
Receiver49	49	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
Receiver50	50	1	0.0	60.5	66	60.5	10	----	60.5	0.0	8	-8.0
Receiver51	51	1	0.0	58.2	66	58.2	10	----	58.2	0.0	8	-8.0
Receiver52	52	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
Receiver53	53	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
Receiver54	54	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
Receiver55	55	1	0.0	75.4	66	75.4	10	Snd Lvl	75.4	0.0	8	-8.0
Receiver56	56	1	0.0	71.7	66	71.7	10	Snd Lvl	71.7	0.0	8	-8.0
Corradino Site 26	59	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	56	0.0	0.0	0.0
All Impacted	10	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0