DRAFT

EJ&E Railroad Noise Mitigation Study

Village of Lake Zurich

October 2011

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EJ&E Railroad Noise Mitigation Study

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Location and Existing Conditions

Background

The project is located in the Village of Lake Zurich along the Canadian National (CN) Railroad which was formerly the Elgin, Joliet and Eastern (EJ&E) Railroad. The study focuses on four specific study areas (labeled Study Area A through D) along the Railroad. See Exhibit 1-1 for a location map and Exhibit 1-2 for photos. The study areas were determined during the development of the Environmental Impact Statement (EIS) that was required by the Surface Transportation Board (STB) when the CN purchased the EJ&E. The EIS included an assessment of noise impacts resulting from the change in track usage and analyzed the cost-effectiveness of noise mitigation using criteria that the Illinois Department of Transportation uses to assess highway noise mitigation measures. According to the EIS, locations where noise mitigation measures were determined to be cost-effective should be given priority consideration when noise mitigation measures are implemented. Portions of Study Areas B and C met the criteria for cost-effective noise mitigation according to the EIS (See Exhibit 1-3 for the EIS noise exhibits). Exhibit 1-3 also indicates that noise mitigation in Study Areas A and D was determined to be not cost-effective.

Study Area A

This study area is in a subdivision known as Wicklow Village. The area is located in northeast Lake Zurich between Oakwood Road and the Village limits. On the west side of the tracks in this area there is a soccer field and homes along March Street and Cormar Drive. The closest home is approximately 160' from the tracks but the majority of the homes are at least 250' away from the tracks. 250' is the maximum distance that would see a benefit from noise mitigation measures. High voltage aerial electric lines run along the west side of the tracks. A wooden privacy fence and trees separate the railroad from the neighborhood. During the field survey conducted in 2010 it was noted that a section of fence approximately 50' long had fallen over. Industrial buildings and empty lots occupy the area east of the railroad tracks.

The Final EIS indicated that a noise barrier was not cost effective on the west side of the tracks and did not recommend any improvements for the Area. The Village of Lake Zurich performed its own investigation of Area A and noted that additional landscaping west of the tracks may be beneficial. Although the EIS did not recommend anything in the Area, the Village argued that mitigation was necessary during negotiations with the CN. The EIS did not present any recommendations for the east side of the tracks since there are no residences there. No drainage deficiencies were noted in this area. See Exhibit 2-1 for an aerial map of the study area.

Study Area B

This study area is located along the CN tracks between Main Street and Lake Zurich High School. Lake Zurich High School and May Whitney Elementary School are located west of the railroad tracks at this area. The northern building on the May Whitney campus had mold and asbestos issues and was demolished in the summer of 2011. The school is now using the southern building on the campus which is closer to the tracks than the northern building was. A large dumpster is located just west of the tracks at the southeast corner of the high school football stadium. This dumpster seems to be used by the high school but is located within the railroad ROW. A residential neighborhood with single family homes is located east of the tracks along Carolyn Court. Northeast of the single family homes is an apartment complex

called the Landings of Lake Zurich. A chain link fence separates the apartments from the tracks and ends at the north end of the apartment's parking lot. Where the fence ends there have been issues with students crossing the railroad tracks to get to the school on the other side.

The EIS recommended a noise wall along the east side of the tracks from Main Street to a location adjacent to the southeast corner of the high school football stadium. The EIS made no noise wall recommendations for the area west of the tracks but did recommend installing fencing on the west side since the schools are within 0.25 miles of the railroad right-of-way. During Lake Zurich's own investigation, noise wall was proposed on both sides of the tracks from northeast of Main Street to the end of the single family homes on Carolyn Court. The noise wall was added on the west side of the tracks to account for the building change by May Whitney School. Lake Zurich also recommended installing fencing on the west side of the tracks extending from the end of the proposed noise wall to the southeast end of the football stadium. In order to address pedestrian safety issues, extending the fencing on the east side of the tracks near the Landings of Lake Zurich apartments was also recommended.

Residents in Study Area B reported drainage problems at locations along the proposed noise wall route. The area on the southeast side of the railroad tracks, directly across from May Whitney Elementary School drains to a low point behind several residences. The runoff drains into a drainage structure at the low point and crosses under the tracks through an 18" pipe culvert located approximately 300' northeast of the Main Street railroad crossing. Residents have reported standing water in this low point and extending into back yards on private property. Expected flows to this culvert were determined using the delineated tributary area and HEC-HMS software. The culvert was analyzed using the HY-8 culvert software and is of sufficient size to convey flow from at least the one-percent-chance storm event (also known as the 100-year event). Maintenance work has been recently performed on the culvert to remedy the situation. See page 2 of Exhibit 1-2 for a photo of the drainage structure and Exhibit 2-2 for an aerial map of the study area.

Study Area C

This study area is located along the CN tracks between Rand Road (U.S. Route 12) and IL Route 22. A townhome development known as Concord Village is located along Rosehall Drive east of the tracks. The closest townhome buildings are approximately 80' away from the tracks. A wooden privacy fence starting 900' north of Rand Road and extending to IL Route 22 separates the townhomes from the railroad tracks. Townhomes and single family homes are located on the west side of the tracks with the closest homes located on the eastern end of Terrace Lane, Pine Avenue and Elm Place.

The EIS recommended approximately 1,000' of noise wall along the west side of the tracks beginning at Rand Road and proceeding north. On the east side of the tracks, approximately 1,200' of noise wall was recommended beginning at IL Route 22 and proceeding south. Following its internal investigation of the topography and proximity of residences, Lake Zurich recommended a noise wall along the west side of the tracks from Rand Road to Terrace Lane, a fence from Terrace Lane to Pine Avenue and then approximately 150' of noise wall from Pine Avenue to the north. Based on field conditions east of the tracks, Lake Zurich initially proposed landscaping near the detention ponds to the north and south of the townhomes and noise wall in the area adjacent to the townhomes.

There were no drainage problems reported by residents in Study Area C. During the field investigation, a drainage structure with deteriorating walls and no lid was noticed just north of Rand Road on the east side of the tracks. A corrugated metal pipe flows into the structure and was also observed to be in poor condition with failing joints and an uneven pitch. See page 6 of Exhibit 1-2 for a photo of the drainage structure and Exhibit 2-3 for an aerial map of the study area.

Study Area D

This study area is located along the east side of the CN tracks starting north of Cuba Road (County Highway A46) and ending approximately 1,200 feet southwest of Ela Road in southwest Lake Zurich. The study area includes single family homes in the Braemar subdivision along Braemar Lane, Dunwick Court and Berkshire Lane. The closest homes in this area are about 100' away from the tracks. There is no continuous fencing separating the tracks from the homes at this location but some individual homes have fences. The railroad tracks are typically higher than the residences in this area.

The Final EIS indicated that a noise barrier was not cost effective on the east or west side of the tracks and did not recommend any improvements for the area. Through its own investigation, Lake Zurich recommended installing fencing for continuity and safety as well as landscaping along the east side of the tracks in this area.

There are low spots east and west of the tracks near Dunwick Court in this area. Residents on the west side of the tracks have reported flooding issues. One resident on the west side filed a complaint with the US Army Corps of Engineers and was told that nothing could be done since the flooding area was a regulatory wetland. No culverts were found in the low area where the flooding was reported. See Exhibit 2-4 for an aerial map of the study area.

Proposed Improvement

a. Purpose and Need

The EJ&E Railroad, recently purchased by the CN, has a track running through the Village of Lake Zurich. The CN is planning on increasing the number of trains running on this line, thereby raising the noise pollution levels. The Village has received funding from the CN to study and implement noise abatement measures along the corridor. The initial funding amount proposed to the Village was $1.2 million for fencing and noise abatement in the sections of Areas B and C recommended by the EIS. The Village argued that this funding was not adequate for the three locations and there would be additional noise impacts beyond Areas B and C. Through negotiations the CN agreed to an increased final funding amount of $1.9 million. The $1.9 million would be used to construct the EIS recommended improvements to Areas B and C and any leftover funding would be used to mitigate other impacted areas within the Village.

b. Design Guidelines and Improvement Methodology

The noise mitigation evaluation was conducted based on the methodologies presented in the Federal Transit Administrations (FTA) *Transit Noise and Vibration Impact Assessment* document.

The decibel (dBA) is the standard unit used to measure sound levels. At a distance of 100 feet away from railroad tracks, a train horn can create sound of approximately 110 dBA, a freight engine can create sound up to 100 dBA and the train's wheels create sound levels of approximately 80 dBA. A 10 dBA increase in noise is perceived as twice as loud while a 10 dBA decrease is perceived as half as loud. A noise reduction level of 5 dBA or 8 dBA is easily perceived by humans but the relative difference between a 5 dBA and 8BA reduction in noise is not always discernable.

Locomotive horns are required to be sounded as a warning at public highway-rail crossings unless a quiet zone has been established. In order to reduce noise from train horns on the EJ&E tracks within the Village, Lake Zurich worked with the Federal Railroad Administration to establish a quiet zone. A 24 hour quiet zone was approved within Lake Zurich in the spring of 2008 and is still in effect.

Four types of mitigation were investigated as part of this study. The four options evaluated were dense vegetation, sight screening/fencing, building insulation and sound barriers. The dense vegetation and sight screening/fencing options would not provide measurable noise mitigation but could provide psychological relief to nearby residents by removing the visual impact of the noise source.

Building insulation or soundproofing can achieve 5 to 20 dBA reductions in noise through replacing old windows with triple pane windows and sealing gaps in building structures. The amount of noise reduction is dependent on how well the existing building is already insulated. This type of mitigation is effective on a building's interior only and would require windows to be closed.

Sound barriers are typically constructed from concrete or wood and can achieve 5 to 10 dBA noise reductions. Sound barriers can effectively reduce noise up to 250' behind the wall although their effectiveness is diminished at the ends of walls. Two noise abatement goals were analyzed; one for only wheel-to-rail noise and one for all train noise, including the engine. Two noise reduction goals were also evaluated, one for a 5 dBA reduction and the other an 8 dBA reduction. Reducing all train noise will require a taller wall than a wall constructed with the goal of reducing only wheel-to-rail noise. Likewise, an 8 dBA reduction will require a taller wall than a 5 dBA reduction in noise. A typical noise wall costs approximately $30 per square foot. Noise studies were based on data from the EIS. Separate field analysis was not performed as part of this study. The following table summarizes the average wall heights for the various options that were analyzed for Study Area B.

	5 dBA Noise Reduction	**8 dBA Noise Reduction**
	Avg. Wall Height	Avg. Wall Height
All Train Noise	10.3 ft	12.8 ft
Wheel-to-Rail Noise	8.8 ft	10.1 ft

The type of improvement proposed for each location was determined through a survey of the residents in each area and through consultation with the Village of Lake Zurich. The resident survey process is described in the Public Involvement section of this report. Based on the results of the survey, a set of proposed improvements has been determined as follows:

c. Proposed Improvements

Proposed improvements in Study Area A consist of either landscaping or building insulation for residences within 250' of the railroad tracks. As part of the public involvement survey, the residents preferred choice was to have a noise wall constructed. Installation of dense landscaping was their second choice. A noise wall was deemed not cost effective at this location per the EIS since the installation cost would be high and the benefit would be minimal since most of the houses are located more than 250' away from the tracks.

Proposed improvements in Study Area B consist of a noise wall on the east side of the tracks and fencing on the east and west side of the tracks. The noise wall was the preferred mitigation per the survey of residents east of the tracks. The noise wall should be constructed as an absorptive wall in order to avoid reflective noise impacts to the schools on the opposite side of the tracks. Regrading work will be required to ensure adequate drainage around the noise wall and to mitigate existing drainage problems noted by the residents. Removal of approximately 0.1 acres of vegetation along with several individual trees will be necessary to construct the wall. Landscaping is not part of the improvements but areas disturbed by construction would be restored with seeding or sod. The proposed fence on the east and west sides of the tracks will improve safety by preventing students from crossing the tracks to access nearby schools. No utility conflicts are anticipated with the proposed improvements but several abandoned power poles may need to be removed east of the tracks. The dumpster that is currently located on CN ROW near the high school football stadium should be moved onto the school's property. See Exhibit 2-2 for the Proposed Improvement Plan for Study Area B.

Lions Park was not located within any of the four study areas but providing funding to the Lions Club to construct safety fencing as part of the improvements is being considered. Installing fencing at the park will meet the terms of the EIS which recommended providing fencing at parks or schools within 0.25 miles of the railroad right-of-way. Park Avenue and Mionske Drive were also not included with any of the study areas but residents on those streets within 250' of the tracks will receive funding for building insulation as they are impacted similar to Study Areas A and D.

Insulation was the preferred mitigation method indicated in the resident survey for Study Area C. Proposed improvements in this Study Area will consist of building insulation for buildings within 250 feet of the railroad tracks as well as fencing and landscaping improvements. The deteriorating drainage structure and pipe on the east side of the tracks just north of Rand Road should be rehabilitated by the CN.

Per the EIS, a noise wall was deemed not cost effective on either side of the tracks in Study Area D and no mitigation was required. The Village had proposed landscaping and safety fencing on the east side of the tracks. When surveyed, insulation was the preferred mitigation method indicated by residents for this Study Area. Proposed improvements in Study Area D will consist of building insulation for buildings within 250 feet of the railroad tracks.

d. Current Cost Estimate

The CN has allocated $1.9 million to the Village of Lake Zurich for noise mitigation. The funds will be distributed for fencing, landscaping and building insulation improvements as

well as to construct the noise wall in Area B. See Exhibit 3-1 for a cost breakdown and Exhibit 3-2 for a detailed cost estimate for Study Area B.

Right of Way

The existing railroad ROW is 100' wide in all the Study Areas. No need for additional ROW is anticipated for Study Areas A, C and D. At Study Area B, access agreements will be required with the CN and with the property owners adjacent to the railroad tracks for construction and construction access.

Environmental

a. Wetlands

Wetland delineation has not been performed for this project. For the purposes of this study, general wetland locations were based on the Lake County Wetland Maps. In Area A, wetlands are identified on the east side of the tracks. In Area B, wetlands are identified in the ditches on both sides of the tracks. The maps show larger pond shaped wetlands in the area between the single family homes and the Landings of Lake Zurich apartments. According to the mapping, there are several large wetlands east of the tracks in Area C and one large wetland on the west side of the tracks near IL Route 22. There are large wetlands to the north and south of Study Area D and a small wetland west of the tracks in the middle of the Study Area.

Once the wetland delineation has been completed, a wetland jurisdictional determination will be needed to determine whether the wetlands are under the jurisdiction of the U.S. Army Corps of Engineers or the Lake County Stormwater Management Commission. Any proposed wetland impacts will require a permit from the jurisdictional agency.

b. Other Permits

The installation of the noisewall and any associated grading work will require a Watershed Development Permit for stormwater impacts. The Village of Lake Zurich is certified to issue this permit themselves since the public development does not occur in a regulatory floodplain. An NPDES permit may be required, since the total disturbed area may be greater than one acre.

c. Special Waste

The Village of Lake Zurich did not have any knowledge of special waste located within the project area. A review of various environmental databases did not identify any issues within the improvement limits of Study Area B. The databases did contain reports of leaking underground storage tanks close to the improvement area on the Lake Zurich Community Unit School District 95 property (May Whitney School).

Public Involvement

Extensive public involvement was performed for this study. A public meeting was held at the Lake Zurich Village hall on 3/22/2011 (see Exhibit 4-1 for sign in sheet). Residents from the study areas were invited to the meeting. A presentation was given discussing the various Study Areas and noise

mitigation options. Display boards were also used to illustrate the various mitigation options. The mitigation options presented were dense landscaping, sight screens/fencing, building insulation and construction of noise walls. The meeting was attended by 27 people. Comment sheets and surveys were distributed to the attendees (see Exhibit 4-2). The survey asked residents to rank the type of noise mitigation measures they would most like to see in their neighborhood. Survey and comment sheets were also mailed to residents in the Study Areas who did not attend the meeting. Most of the residents in Study Area A wanted a noise wall constructed for mitigation. The second most popular choice for these residents was the installation of dense landscaping. The residents in Study Area B east of the railroad tracks also wanted a noise wall constructed for mitigation. The residents of Study Areas C and D were almost evenly split on preferring landscaping or building insulation. See Exhibit 4-3 for the full resident survey results.

Construction Access

The construction access plan for Study Area B will be critical to the project. The existing conditions in the area include a ¾ mile long CN siding track that runs east of the mainline track starting just north of Main Street. This siding track serves an industrial area at Rose Road and Oakwood Road. The CN railroad also has an existing aggregate access road on the west side of the tracks. There is an existing ditch on the east side of the tracks. In order to construct the noise wall on the east side of the tracks, access for construction equipment will need to be provided from either the railroad or residential side of the proposed noise wall. Several options exist for construction access.

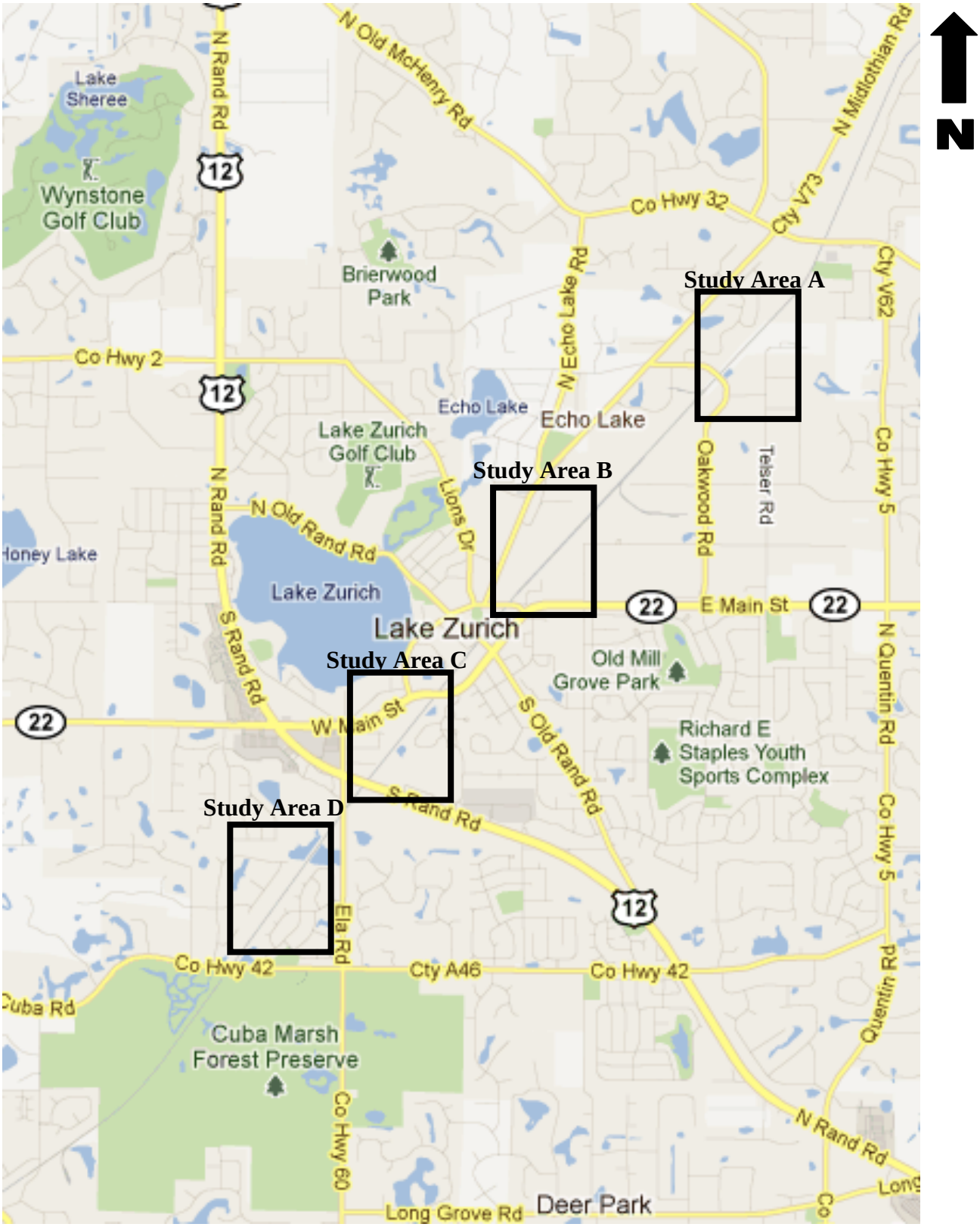
One option is to have the noise wall panels brought in by railroad on the siding track and set with a rail mounted crane. This option would require close coordination with the CN railroad since the siding track in the construction area would probably need to be closed for the duration of construction. It appears that railroad access to the siding track and industrial area would still be possible north of the proposed noise wall location. The CN may require their own forces to perform this work.

Another option is a temporary access road east of the siding track from Main Street to the north end of the work zone. This would require regrading of the area and may require temporary easements or access agreements from the adjacent residents. The access road would likely be built partly on the CN ROW and partly on the residential property depending on the existing topography. This option may also require a temporary railroad crossing at the northeast end of the noise wall in order to allow the contractor to turn around from the temporary access road to the existing access road on the west side of the tracks. A temporary railroad crossing for construction vehicles would likely require I.C.C. approval.

Another option to provide construction access is through the backyards of adjacent residential properties. This would only be possible at a few locations, since trees, fences and structures prohibit access from most residences. This option would require temporary easements or access agreements from the residents.

Any plan for construction access will require extensive coordination with the railroad and local residents. See Exhibit 5-1 for a plan view of some of the access options.

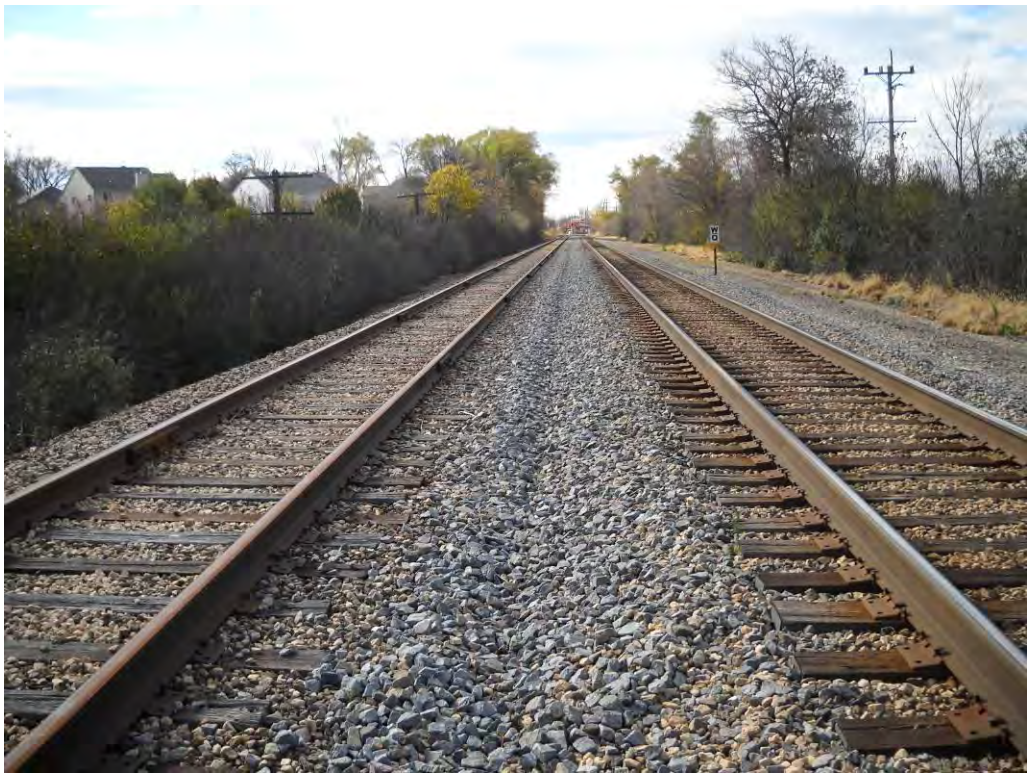
EXHIBITS



Location Map
Village of Lake Zurich
Exhibit 1-1

Looking northeast along the tracks at Study Area A

Looking west at the fence and homes along Cormar Drive near the tracks in Study Area A



Looking southwest along the tracks north of Main Street in Study Area B

Blocked manhole/catch basin along the east side of the tracks 300 feet north of Main Street in Study Area B

Looking east at the Landings of Lake Zurich Apartments in Study Area B

The north end of the chain link fence north of the Landings of Lake Zurich Apartments in Study Area B

Looking southwest along the service road west of the tracks in Study Area B

Looking northeast along the tracks just north of US 12 in Study Area C

Looking northeast along the tracks at the Concord Village townhomes in Study Area C

Looking southwest along the tracks from the IL 22 crossing in Study Area C

Open drainage structure in Study Area C along the east side of the tracks north of U.S. Route 12

Looking southwest along the tracks at Dunwick Court in Study Area D

Looking southwest along the tracks in Study Area D

Looking west towards the tracks from Braemar Lane in Study Area D

Looking northwest from the tracks at a wetland in Study Area D.

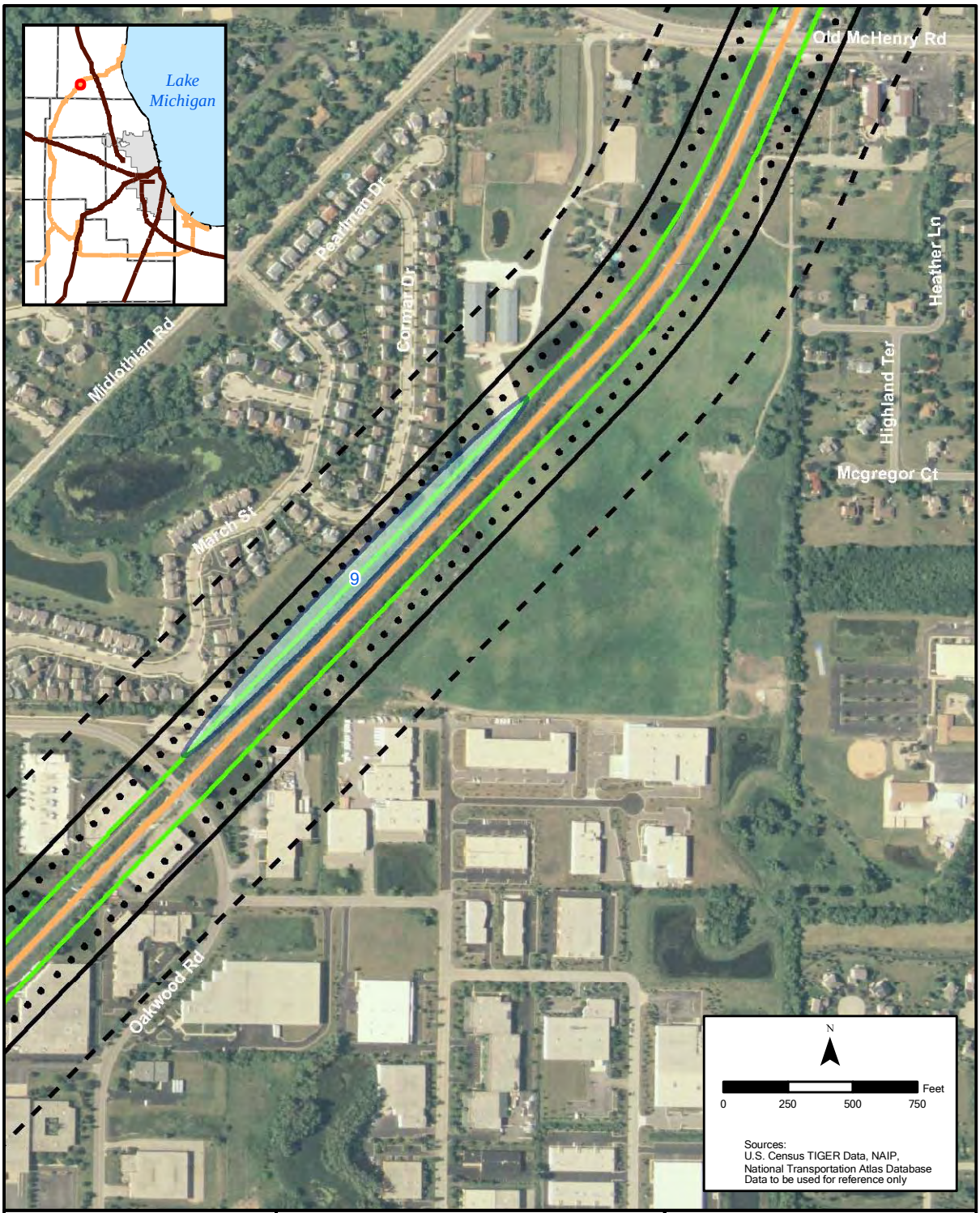


Figure L-1

Noise and Vibration Contours

Sheet 8 of 139

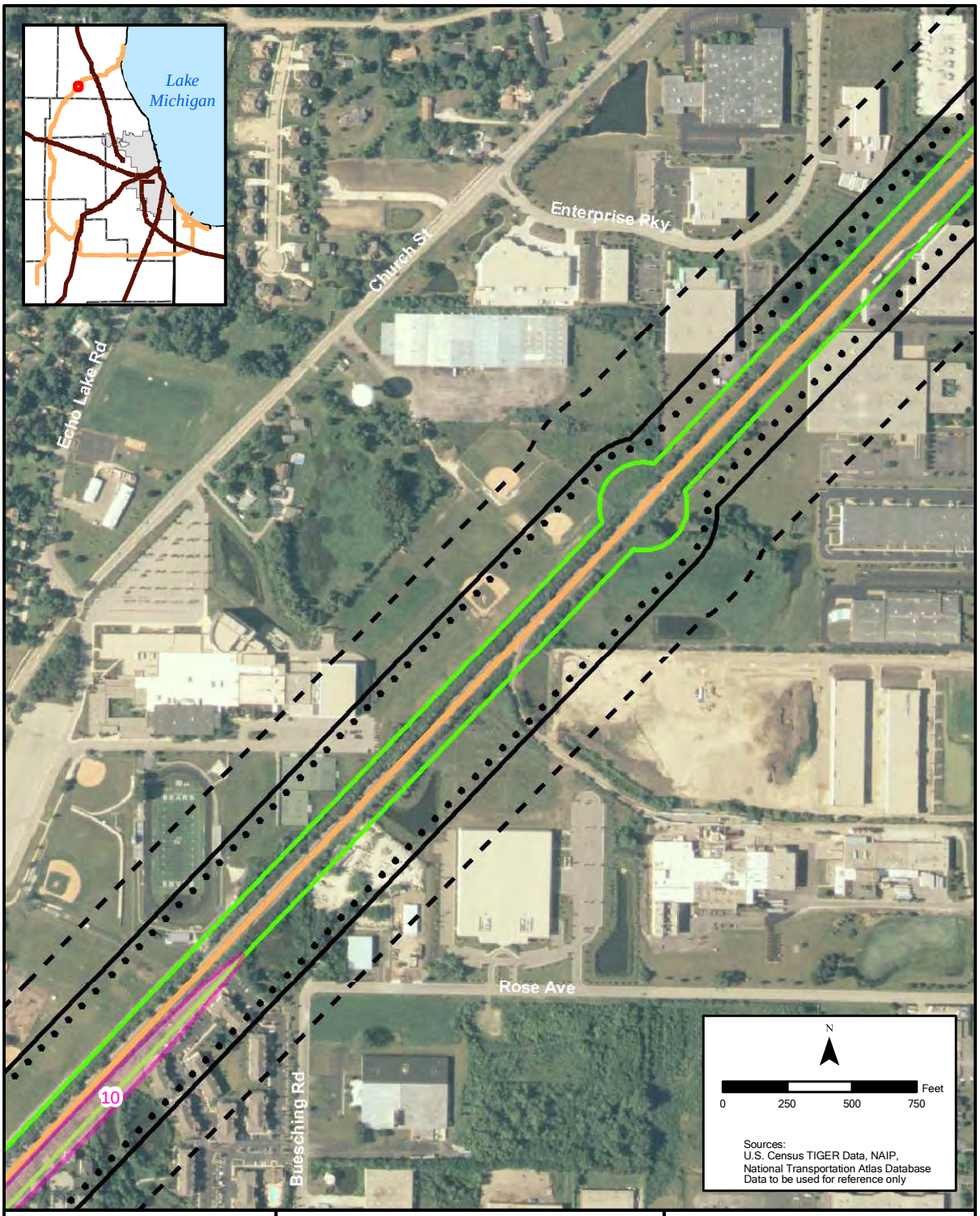
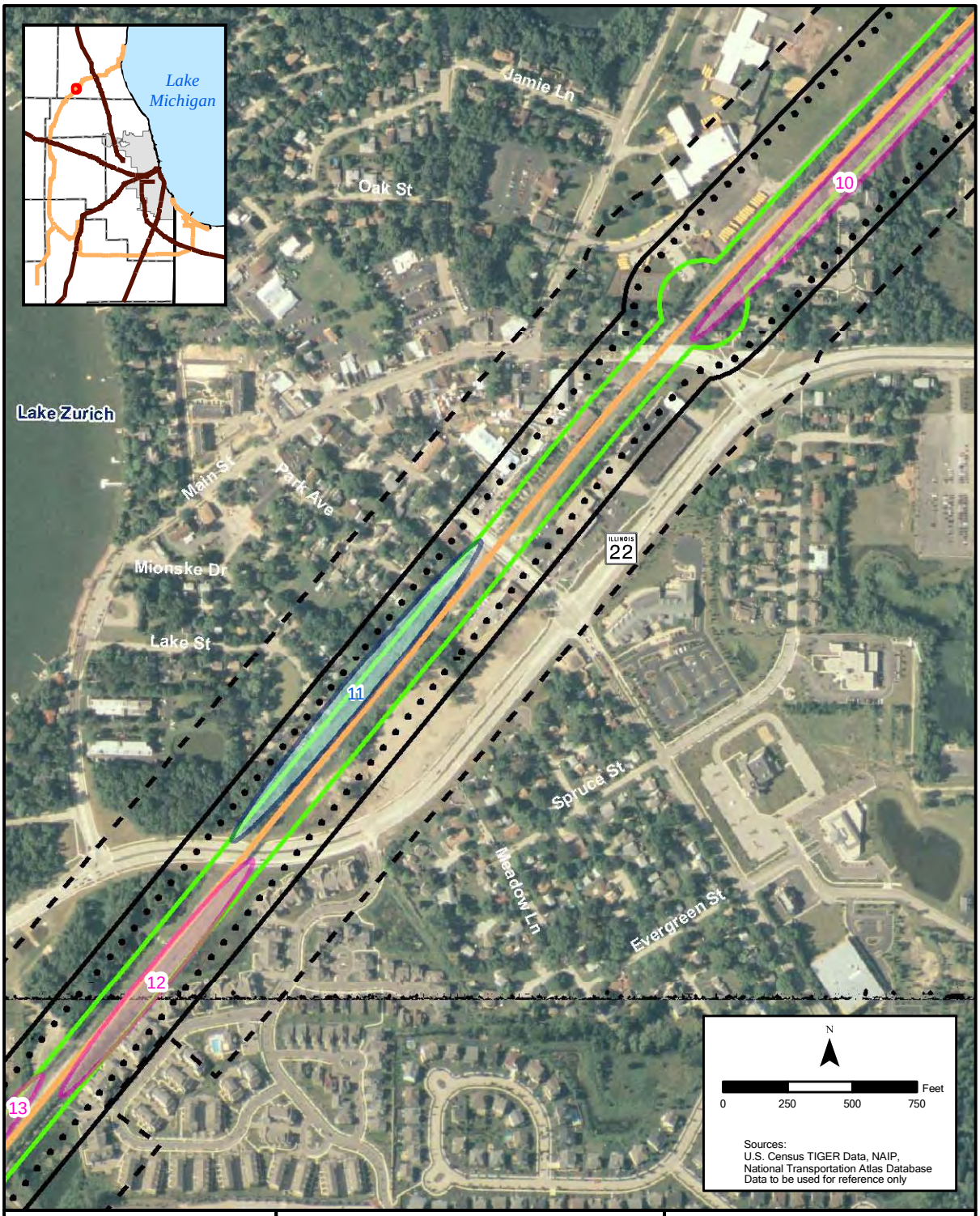


Figure L-1

Noise and Vibration Contours

Sheet 9 of 139



CN | EJ&E
Environmental Impact Statement

- CN Rail Line
- EJ&E Rail Line
- Proposed Track
- Construction Limits
- Cost-Effective Barrier
- Barrier Not Cost-Effective

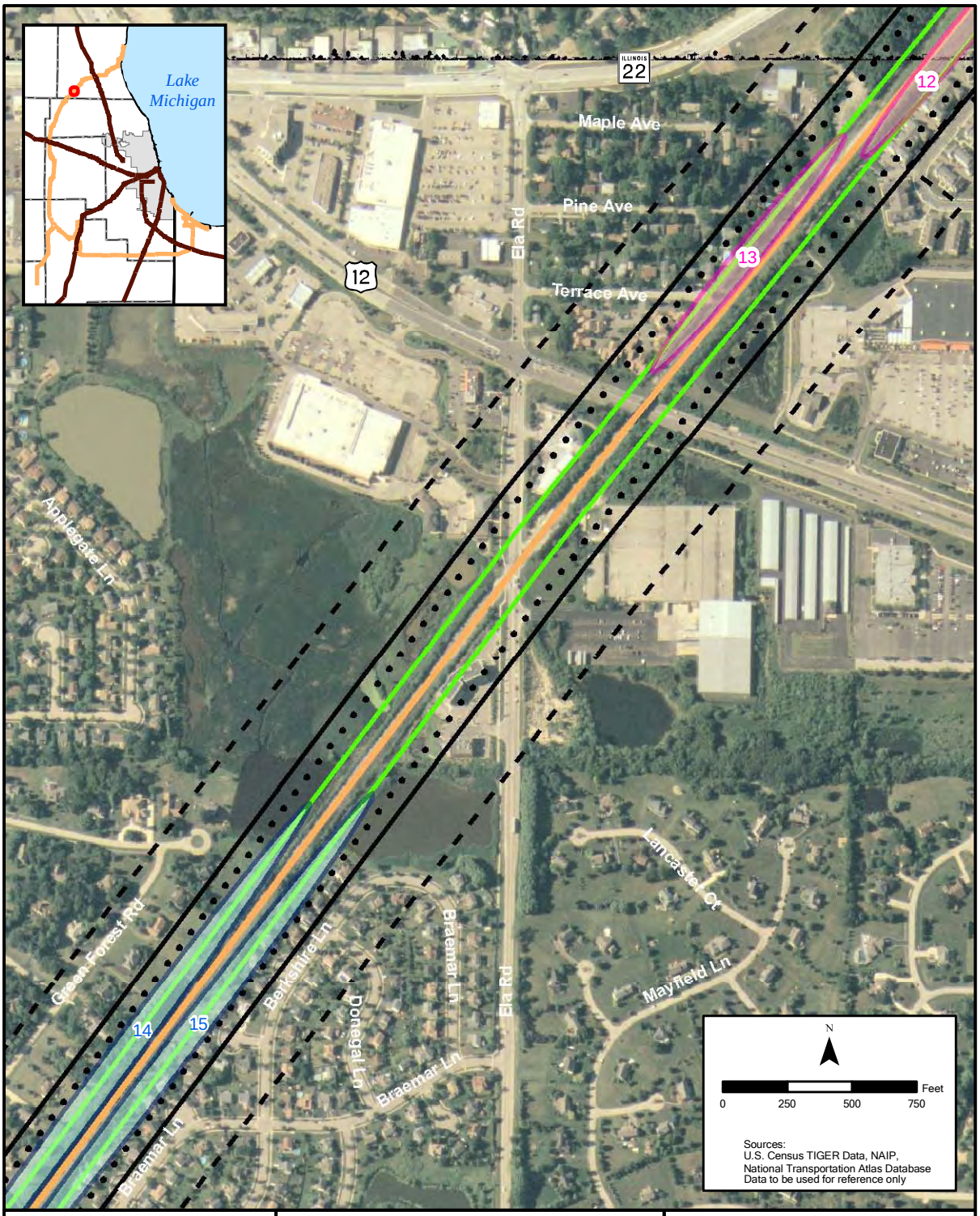
Existing
- 65 dBA Contour

Proposed Action
- 65 dBA Contour
- 70 dBA Contour
- Vibration Contour

Figure L-1

Noise and Vibration Contours

Sheet 10 of 139



Environmental Impact Statement

CN | EJ&E

CN Rail Line
EJ&E Rail Line
Proposed Track
Construction Limits
Cost-Effective Barrier
Barrier Not Cost-Effective

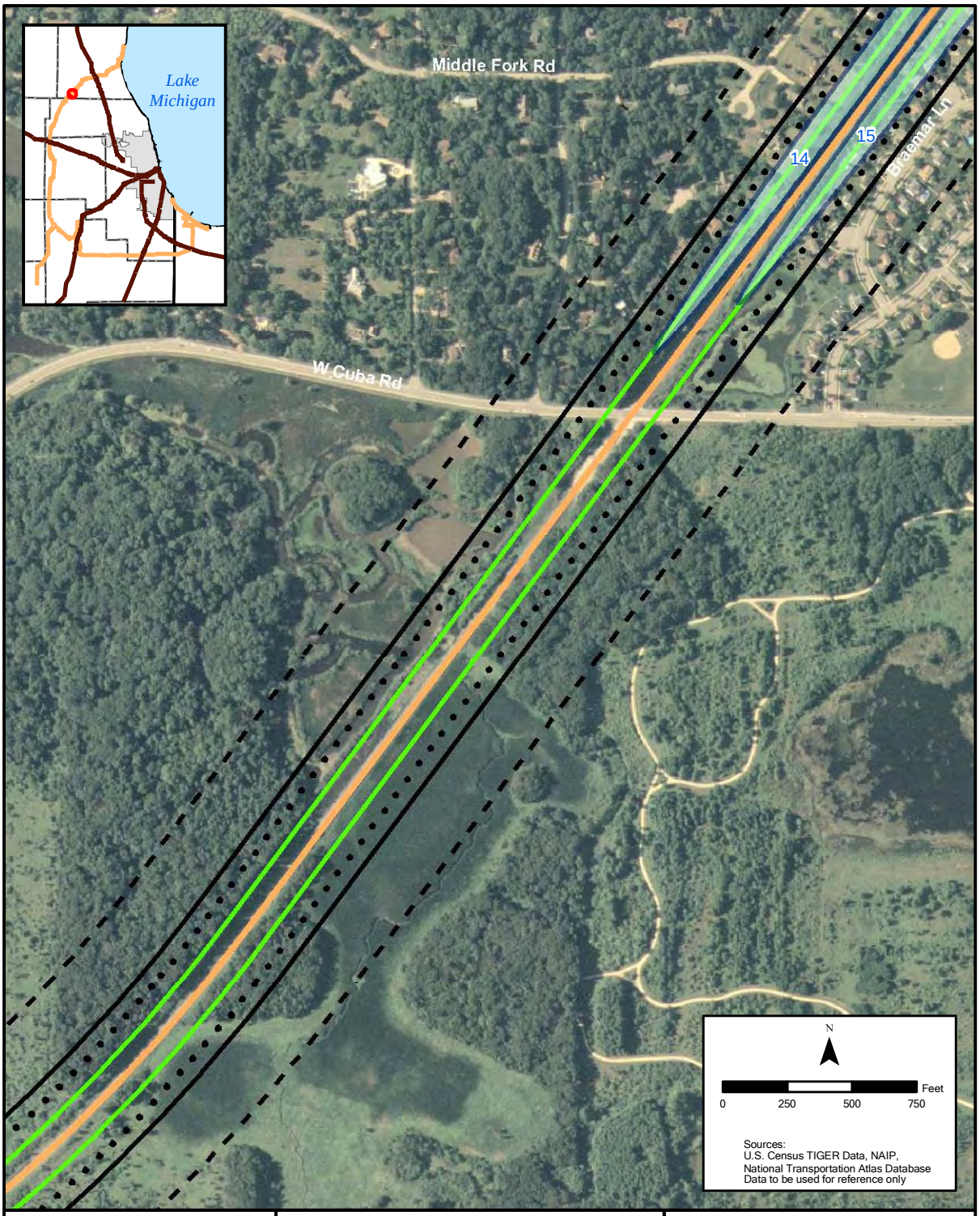
Existing
65 dBA Contour

Proposed Action
65 dBA Contour
70 dBA Contour
Vibration Contour

Figure L-1

Noise and Vibration Contours

Sheet 11 of 139



CN | EJ&E

Environmental Impact Statement

CN Rail Line
EJ&E Rail Line
Proposed Track
Construction Limits
Cost-Effective Barrier
Barrier Not Cost-Effective

Existing
65 dBA Contour

Proposed Action
65 dBA Contour
70 dBA Contour
Vibration Contour

Figure L-1

Noise and Vibration Contours

Sheet 12 of 139

OAKWOOD ROAD

MARCH STREET

PETERS COURT

CORMAR DRIVE

WICKLOW VILLAGE

POTENTIAL LANDSCAPING IMPROVEMENTS

EXISTING FENCE

EXIST R.O.W

400 405 410 415

43' 57'

EXIST R.O.W

BEGIN STUDY AREA A

EXISTING E.J.&E. RR ℄

END STUDY AREA A

COMMERCE DRIVE

TELSER ROAD

FLEX COURT

0 100' 200' 300' — 1" = 100'

N

FILE NAME = \\SVR202\Public\PROJ\0003395.00\Roadway\Proposed Plan\Alternates\AERIAL MOSAICS 100 SCALE\3395_PLN_A_100SCALE1.dgn

Ciorba Group, Inc. CONSULTING ENGINEERS 5507 North Cumberland Avenue, Suite 402 Chicago, Illinois 60656 Tel. 773.775.4009 Fax 773.775.4014	USER NAME = mthomas	DESIGNED -	REVISED -	VILLAGE OF LAKE ZURICH
		DRAWN -	REVISED -	
	PLOT SCALE = 200.0000 ' / IN.	CHECKED -	REVISED -	
	PLOT DATE = 10/26/2011	DATE - 1/17/2011	REVISED -	

NOISE MITIGATION STUDY **EXHIBIT 2-1**
E.J.&E. RAILROAD
NORTH OF OAKWOOD ROAD (STUDY AREA A)

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		LAKE	1	1
		CONTRACT NO.		
FED. ROAD DIST. NO. -	ILLINOIS	FED. AID PROJECT		

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USER NAME = mthomas	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 200.0000 ' / IN.	CHECKED -	REVISED -
PLOT DATE = 9/22/2011	DATE - 1/17/2011	REVISED -

VILLAGE OF LAKE ZURICH

NOISE MITIGATION STUDY **EXHIBIT 2-2**
E.J.&E. RAILROAD
NORTH OF IL RTE 22 (STUDY AREA B)

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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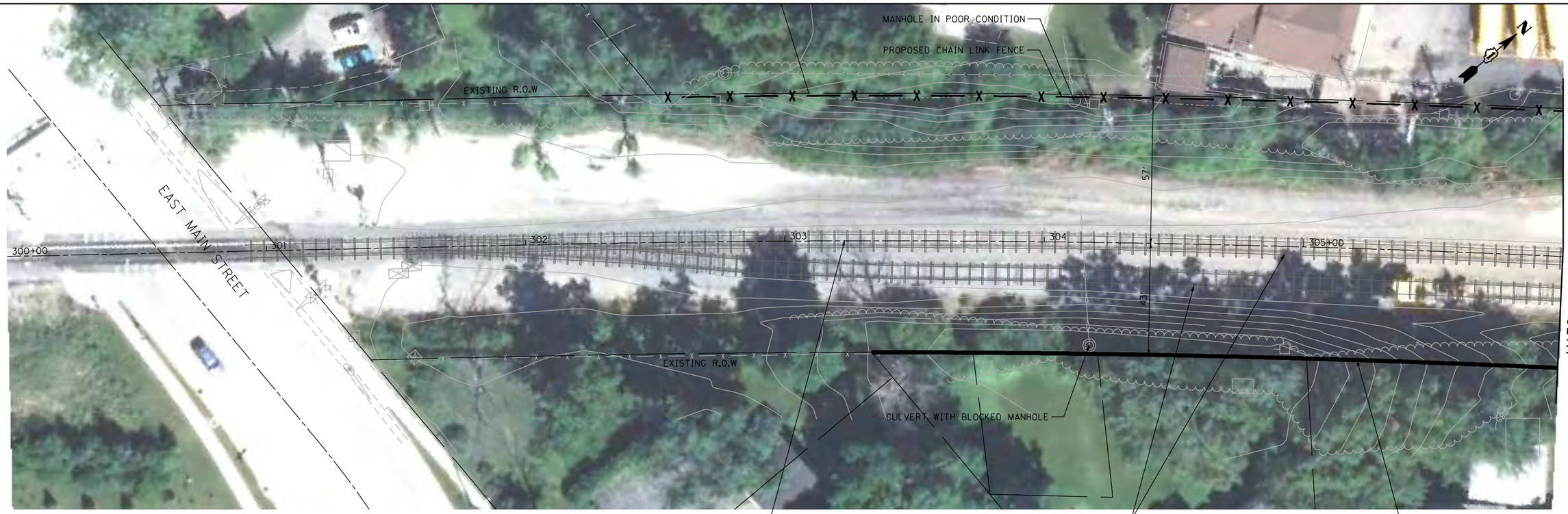
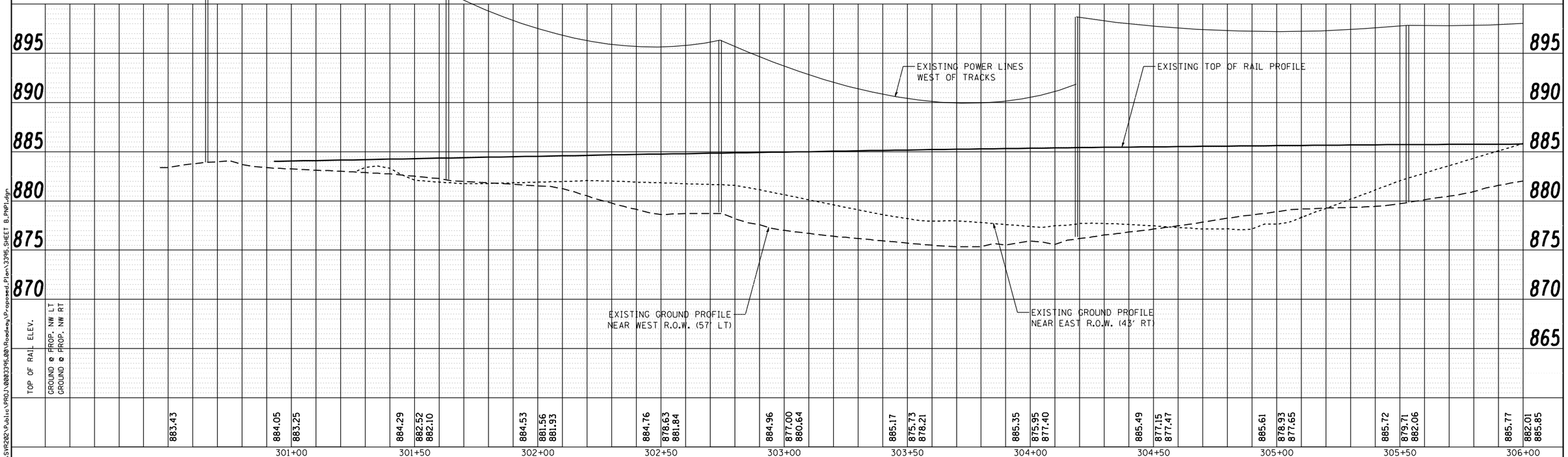
		CONTRACT NO.		

FED. ROAD DIST. NO. - | ILLINOIS | FED. AID PROJECT





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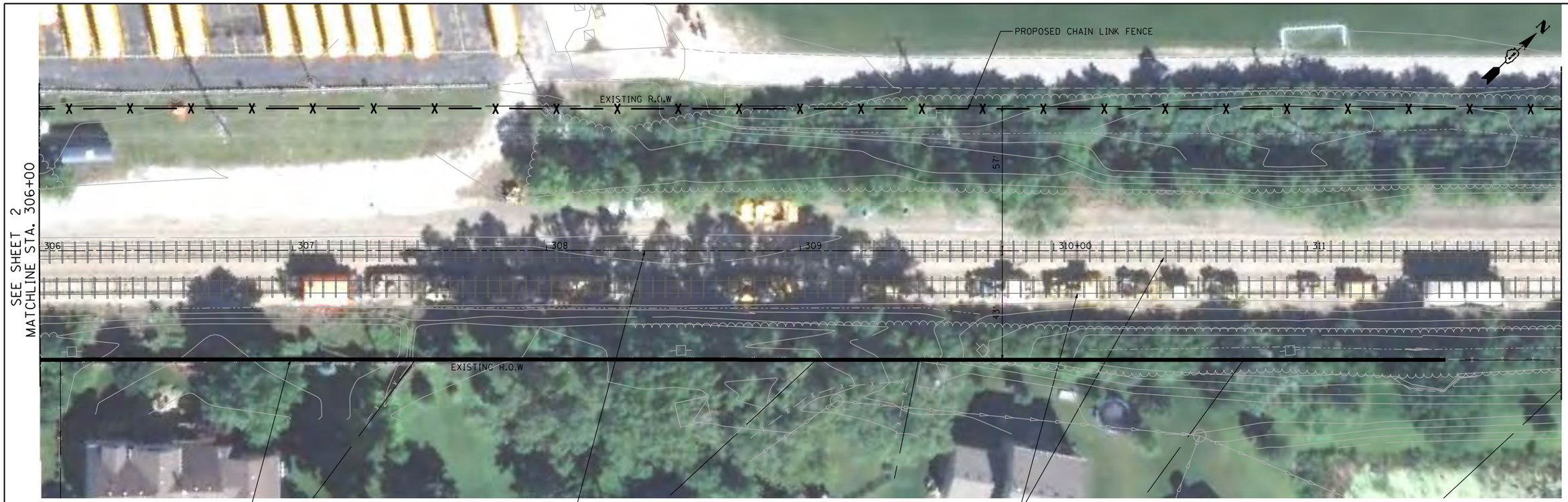
USER NAME = mthomas	DESIGNED - _____	REVISED - _____
	DRAWN - _____	REVISED - _____
PLOT SCALE = 40.0000 ' / IN.	CHECKED - _____	REVISED - _____
PLOT DATE = 9/15/2011	DATE - 9/15/2011	REVISED - _____

VILLAGE OF LAKE ZURICH

NOISE MITIGATION STUDY **EXHIBIT 2-2**
E.J.&E. RAILROAD
NORTH OF IL RTE 22 (STUDY AREA B)

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		LAKE	5	2
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			



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Ciorba Group, Inc.
CONSULTING ENGINEERS
5507 North Cumberland Avenue, Suite 402
Chicago, Illinois 60656
Tel. 773.775.4009 Fax 773.775.4014

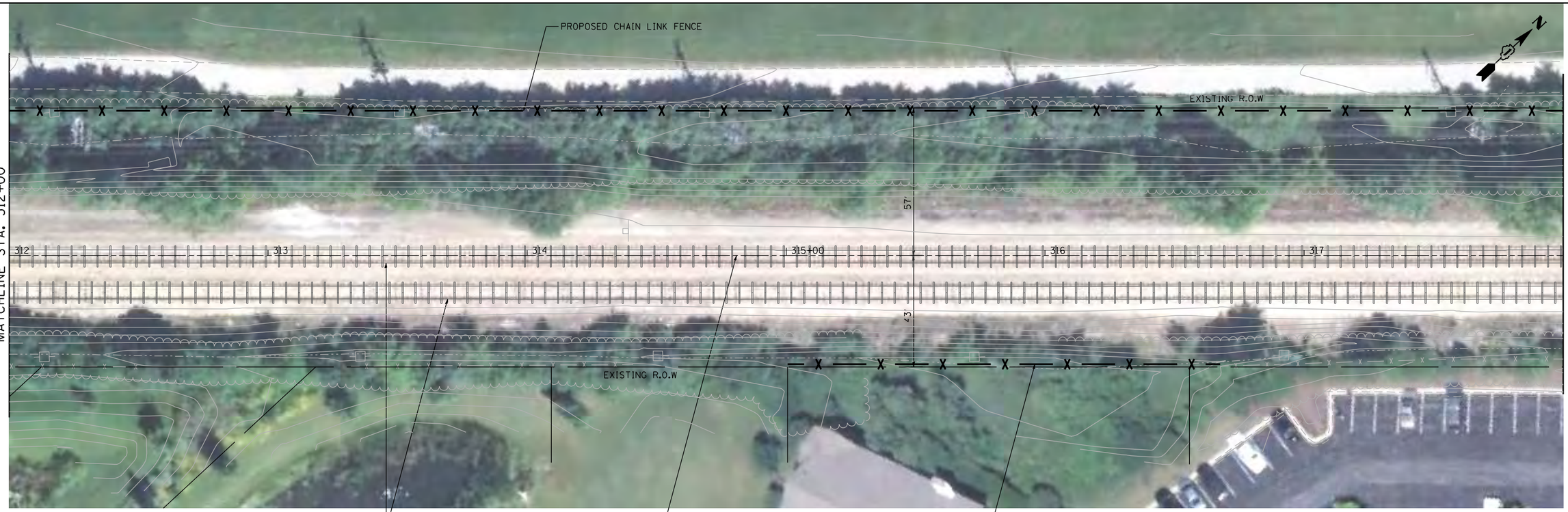
USER NAME = rrado	DESIGNED - _____	REVISED - _____
	DRAWN - _____	REVISED - _____
PLOT SCALE = 40.0000 ' / IN.	CHECKED - _____	REVISED - _____
PLOT DATE = 9/8/2011	DATE - 9/8/2011	REVISED - _____

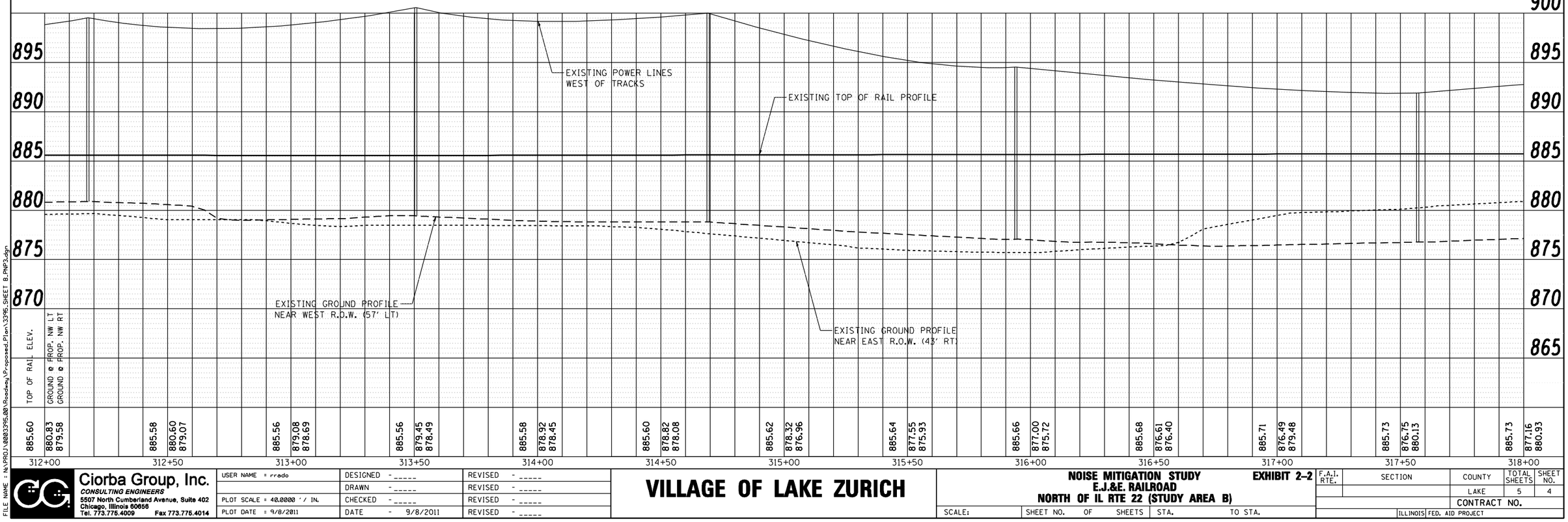
VILLAGE OF LAKE ZURICH

NOISE MITIGATION STUDY **EXHIBIT 2-2**
E.J.&E. RAILROAD
NORTH OF IL RTE 22 (STUDY AREA B)

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		LAKE	5	3
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		





	312+00	312+50	313+00	313+50	314+00	314+50	315+00	315+50	316+00	316+50	317+00	317+50	318+00
TOP OF RAIL ELEV.	885.60	885.58	885.56	885.56	885.58	885.60	885.62	885.64	885.66	885.68	885.71	885.73	885.73
GROUND @ PROP. NW LT	880.83	880.60	879.08	879.45	878.92	878.82	878.32	877.55	877.00	876.61	876.49	876.75	877.16
GROUND @ PROP. NW RT	879.58	879.07	878.69	878.49	878.45	878.08	876.96	875.93	875.72	876.40	879.48	880.13	880.93

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USER NAME = rrado	DESIGNED - _____	REVISED - _____
	DRAWN - _____	REVISED - _____
PLOT SCALE = 40.0000 ' / IN.	CHECKED - _____	REVISED - _____
PLOT DATE = 9/8/2011	DATE - 9/8/2011	REVISED - _____

VILLAGE OF LAKE ZURICH

NOISE MITIGATION STUDY **EXHIBIT 2-2**
E.J.&E. RAILROAD
NORTH OF IL RTE 22 (STUDY AREA B)

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		LAKE	5	4
		CONTRACT NO.		
		ILLINOIS	FED. AID PROJECT	

	TOP OF RAIL ELEV.	GROUND @ PROP. NW LT	GROUND @ PROP. NW RT
318+00	885.73	877.16	880.93
318+50	885.72	877.71	881.57
319+00	885.72	880.47	881.50
319+50	885.68	882.08	882.27
320+00	885.64	883.76	882.82
320+50	885.59	884.07	883.07
321+00	885.54	884.59	884.22
321+50	885.46	884.31	881.76
322+00	885.38	883.51	880.41
	881.20		
	880.85		

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USER NAME = rrado	DESIGNED - _____	REVISED - _____
	DRAWN - _____	REVISED - _____
PLOT SCALE = 40.0000 ' / IN.	CHECKED - _____	REVISED - _____
PLOT DATE = 9/8/2011	DATE - 9/8/2011	REVISED - _____

VILLAGE OF LAKE ZURICH

NOISE MITIGATION STUDY **EXHIBIT 2-2**
E.J.&E. RAILROAD
NORTH OF IL RTE 22 (STUDY AREA B)

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		LAKE	5	5
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

ELA ROAD
MAPLE AVENUE
ROBERTSON AVENUE
W MAIN STREET
IL RTE 22 (BYPASS)
PINE AVENUE
TERRACE LANE
ELM PLACE
US RTE 12 (S RAND ROAD)
EXISTING E.J.&E. RR ℄
EXIST R.O.W
200
205
210
215
220
225
EXISTING DRAINAGE STRUCTURE WITHOUT LID
EXISTING TOP OF BERM ℄
BEGIN STUDY AREA C
END STUDY AREA C
ROSEHALL DRIVE
CONCORD VILLAGE
JUNE TERRACE
FIFTH THIRD BANK
HOME DEPOT
N
0 100' 200' 300' — 1"= 100'

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Ciorba Group, Inc.
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Chicago, Illinois 60656
Tel. 773.775.4009 Fax 773.775.4014

USER NAME = mthomas	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 200.0000 ' / IN.	CHECKED -	REVISED -
PLOT DATE = 9/22/2011	DATE - 1/17/2011	REVISED -

VILLAGE OF LAKE ZURICH

NOISE MITIGATION STUDY **EXHIBIT 2-3**
E.J.&E. RAILROAD
NORTH OF US RTE 12 (STUDY AREA C)

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A., RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		LAKE	1	1
		CONTRACT NO.		
FED. ROAD DIST. NO. -	ILLINOIS	FED. AID PROJECT		

Exhibit 3-1

FILE NAME = \\SVR202\Public\PROJ\0003395.00\Roadway\Proposed Plan\Alternates\AERIAL MOSAICS 100 SCALE\3395_PLN_D_100SCALE1.dgn

Ciorba Group, Inc. CONSULTING ENGINEERS 5507 North Cumberland Avenue, Suite 402 Chicago, Illinois 60656 Tel. 773.775.4009 Fax 773.775.4014	USER NAME = mthomas	DESIGNED -	REVISED -	VILLAGE OF LAKE ZURICH	NOISE MITIGATION STUDY EXHIBIT 2-4 E.J.&E. RAILROAD NORTH OF CUBA ROAD (STUDY AREA D)
		DRAWN -	REVISED -		
	PLOT SCALE = 200.0000 ' / IN.	CHECKED -	REVISED -		
	PLOT DATE = 9/22/2011	DATE - 1/17/2011	REVISED -		SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		LAKE	1	1
		CONTRACT NO.		
FED. ROAD DIST. NO. -	ILLINOIS	FED. AID PROJECT		

Noise Mitigation Study Along the EJ&E Railroad
Lake Zurich

Total Cost Breakdown
10/26/2011

Study Area B (Improvements Required by EIS)		
$	625,000	Carolyn Court Noise Wall Construction Costs
$	61,000	Fencing Costs (May Whitney School and Landings of Lake Zurich)
$	**686,000**	**Subtotal**
Study Area C (Improvements Required by EIS)		
$	472,300	Soundproofing Costs (Concord Village)
$	70,000	Landscaping Costs (Concord Village)
$	43,800	Fencing Costs (Terrace Lane Townhomes)
$	51,800	Soundproofing Costs (Terrace Lane Townhomes)
$	69,900	Soundproofing Costs for Elm Place, Pine Avenue and Terrace Lane
$	**707,800**	**Subtotal**
Study Area A		
$	38,100	Soundproofing/Landscaping Costs
$	**38,100**	**Subtotal**
Study Area D		
$	158,800	Soundproofing Costs
$	**158,800**	**Subtotal**
Other Areas		
$	25,000	Fencing Costs for Lions Park (Improvements Required by EIS)
$	38,300	Soundproofing Costs for Park Avenue and Mionske Drive
$	**63,300**	**Subtotal**
Miscellaneous Costs		
$	105,000	Phase I Study
$	38,000	Phase II Design
$	5,000	Railroad Access Permit and Insurance (for design and environmental work)
$	18,000	Phase III Construction Layout/Shop Drawing Review
$	13,000	Wetland Delineation
$	13,000	PESA/PSI
$	8,000	Soil Borings
$	46,000	Contingency
$	**246,000**	**Subtotal**
$	**1,900,000**	**Total Costs**

Lake Zurich Noise Wall Cost Estimate
7/15/2011
Area B

ITEM #	DESCRIPTION	UNIT	TOTAL	UNIT COST	TOTAL COST
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	85	$20.00	$1,700
20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	165	$25.00	$4,125
20101100	TREE TRUNK PROTECTION	EACH	10	$150.00	$1,500
20101200	TREE ROOT PRUNING	EACH	10	$75.00	$750
20101300	TREE PRUNING (1 TO 10 INCH DIAMETER)	EACH	10	$50.00	$500
20101350	TREE PRUNING (OVER 10 INCH DIAMETER)	EACH	10	$75.00	$750
20200100	EARTH EXCAVATION	CU YD	185	$30.00	$5,550
20400800	FURNISHED EXCAVATION	CU YD	135	$30.00	$4,050
21101625	TOPSOIL FURNISH AND PLACE, 6"	SQ YD	600	$4.00	$2,400
25000210	SEEDING, CLASS 2A	ACRE	0.2	$2,000.00	$400
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	7	$2.00	$14
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	7	$2.00	$14
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	7	$2.00	$14
25100115	MULCH, METHOD 2	ACRE	0.2	$1,500.00	$300
25100630	EROSION CONTROL BLANKET	SQ YD	600	$1.00	$600
28000500	INLET AND PIPE PROTECTION	EACH	5	$300.00	$1,500
28000510	INLET FILTERS	EACH	5	$200.00	$1,000
40201000	AGGREGATE FOR TEMPORARY ACCESS	TON	530	$30.00	$15,900
550A0680	STORM SEWERS, CLASS A, TYPE 3 18"	FOOT	200	$40.00	$8,000
60200305	CATCH BASINS, TYPE A, 4'-DIAMETER, TYPE 3 FRAME AND GRATE	EACH	5	$2,500.00	$12,500
67100100	MOBILIZATION	L SUM	1	$30,000.00	$30,000
X0301423	NOISE ABATEMENT WALL, GROUND MOUNTED	SQ FT	12300	$30.00	$369,000
Z0022800	FENCE REMOVAL	FOOT	560	$5.00	$2,800
Z0013796	SEDIMENT CONTROL, STABILIZED CONSTRUCTION ENTRANCE	SQ YD	250	$11.00	$2,750
Z0048665	RAILROAD PROTECTIVE LIABILITY INSURANCE	L SUM	1	$20,000.00	$20,000
1	CN FLAGMAN	DAYS	25	$840.00	$21,000
2	PROPERTY RESTORATION	L SUM	1	$14,000.00	$14,000
	SUBTOTAL				$521,117
	CONTINGENCY	20%			$104,223
				TOTAL	**$625,340**
	Quantities cover the proposed noise wall for the south side of Area B. Quantities do NOT include land acquisition, Phase II design costs, Area B fencing costs or any items for Study Areas A, C, or D.				

Public Meeting - Register

Project: Noise Mitigation Study Along the EJ&E Railroad

Location: Lake Zurich Village Hall Date: March 22, 2011

	Name (Please Print)	Address	Representing
1	Rich Pipala	1244 Yorkshire 60010	Self ☐ Other: BHO.
2	Judy Scalzitti	1153 Berkshire Ln. 60010	Self ☒ Other:
3	Kent Mary Jox	90 Park Ave Lake Zurich	Self ☑ Other: Park Ave Residents
4	Tom Poynton	980 Old Hillgrove Rd LZ	Self ☐ Other:
5	Michael Engel	SD 95 District	Self ☐ Other:
6	John W. Brown	321 Seaton Ct	Self ☐ Other: Concord HOA
7	Carol + Chuck Rowe	22 Elm Pl LZ	Self ☒ Other:
8	Michael Gouwens	37H Terrace Ln. Lake Zurich IL 60047	Self ☒ Other:
9	Patty Cameron	200 Rosehill Drive #238 Lake Zurich	Self ☒ Other: Concord Condo Assn.
10	John Kelly	Wauconda	Self ☐ Other: Daily Herald
11	Nick Patitsas	606 Braemar Ln Barrington, IL	Self ☒ Other:
12	Dave Laroche	1157 Berkshire Barrington IL	Self ☐ Other:
13	Ted Claiborne	37A Terrace Ln LZ	Self ☐ 847-239-2504 Other: Terrace Lane Assoc
14	Al Magistrelli	592 Braemar LZ	Self ☐ Other:
15			Self ☐ Other:
16			Self ☐ Other:

Public Meeting - Register

Project: Noise Mitigation Study Along the EJ&E Railroad

Location: Lake Zurich Village Hall Date: March 22, 2011

	Name (Please Print)	Address	Representing
1	LAURIE WILHOIT	574 BRAEMAR LN	Self ☒ Other:
2	Sean McLaughlin Lisa Anderson	240 Rosehill Dr Unit 150	Self ☒ Other:
3	STEVE CALLAHAN	1198 BERKSHIRE LN	Self ☐ Other: BRAEMAR H.O.
4	PATRICK FINLAN	200 MOHAWK TRL L.Z	Self ☐ Other: LZPD
5	Vicki Clement	596 Braemar Ln.	Self ☒ Other:
6	JOE BANM	558 BRAEMAR LN	Self ☒ Other:
7	POLLY TED WATERHOUSE	260 ROSEHAL L2 #140	Self ☐ Other:
8	Brent Bann	1141 Berkshire Ln	Self ☒ Other:
9	Muffi Painter	200 Rosehall # 140	Self ☐ Other:
10	KEN DUYER	5 DUNCICK CT BRAEMAR	Self ☐ Other:
11			Self ☐ Other:
12			Self ☐ Other:
13			Self ☐ Other:
14			Self ☐ Other:
15			Self ☐ Other:
16			Self ☐ Other:

Public Meeting - Register

Project: Noise Mitigation Study Along the EJ&E Railroad

Location: Lake Zurich Village Hall Date: March 22, 2011

	Name (Please Print)	Address	Representing
1	Kevin Gallo	550 Braemar Ln. Barrington, IL 60010	Self ☐ Other: Braemar Homeowners
2	JEFF HALEN	154 S. PLEASANT LAKE ZURICH IL 60047	Self ☒ Other:
3	Lyle Svstad	CUSA 95	Self ☐ Other: Astract 95
4			Self ☐ Other:
5			Self ☐ Other:
6			Self ☐ Other:
7			Self ☐ Other:
8			Self ☐ Other:
9			Self ☐ Other:
10			Self ☐ Other:
11			Self ☐ Other:
12			Self ☐ Other:
13			Self ☐ Other:
14			Self ☐ Other:
15			Self ☐ Other:
16			Self ☐ Other:

COMMENT SHEET

Please write any comments or questions regarding the proposed improvements and place the completed form in the comment box.

Comments

Noise Mitigation Study Along the EJ&E Railroad

Public Meeting
March 22, 2011
70 East Main Street
Lake Zurich, IL 60047

Exhibit 4-2

Welcome to the Meeting
Welcome to the public meeting for the Noise Mitigation Study Along the EJ&E Railroad. Personnel from the Village of Lake Zurich and our consultants, Ciorba Group, Inc. and Huff and Huff, Inc. are here to answer your questions and receive your input regarding the proposed project. Your opinions and comments are an important part of this meeting and you are encouraged to submit written comments on the back of this brochure.

Potential Mitigation Options
Four primary options are being considered for noise mitigation along the EJ&E Railroad:

Sound Barriers – Walls typically constructed of concrete or wood. Walls could be constructed either on railroad ROW or on private property.

Sight Screens/Fencing – Generally not as dense as noise walls. Would provide little noise reduction but would reduce the visual impact of the noise source.

Dense Landscaping – Would require year round foliage. Would provide little noise reduction but would be aesthetically pleasing and would reduce visual impact of the noise source.

Building Insulation – Replace windows, caulk & seal gaps, provide additional insulation, etc. to reduce interior noise.

Exhibit 4-2

Your comments are important to making this project a success. Please complete the survey and fill in your contact information. Comments can be written on the back page and the completed form placed in the comment box or mailed to the Village by April 12th.

Please rank the noise mitigation measures for your neighborhood on a scale of 1-4 with 1 being your favorite option and 4 being your least favorite option.

1. Sound Barriers ____
2. Sight Screens/Fencing ____
3. Dense Landscaping ____
4. Building Insulation ____

Name: _____

Address: _____

_____

Phone Number: _____

Email: _____

LAKE ZURICH NOISE MITIGATION SURVEY RESULTS

STUDY AREA A

Area	Subdivision	Street Name		Sound Barrier	Sight Screens Fencing	Dense Landscaping	Building Insulation		Comment
A	Wicklow Village	March Street		4	2	1	3	X	
A	Wicklow Village	March Street		1	3	4	2	X	
A	Wicklow Village	March Street		1	4	3	2	X	
A	Wicklow Village	March Street						X	
A		March Street		1	2	3	4	X	
A		Cormar Drive		1				X	
A	Wicklow Village	Cormar Drive		1	4	2	3	X	
A	Wicklow Village	Cormar Drive		1				X	
		Grand Total	Total	10	15	13	14		
			# Responding	7	5	5	5		
			Average	1.4	3.0	2.6	2.8		
		Adjacent to Tracks	Total	10	15	13	14	X	
			# Responding	7	5	5	5	X	
			Average	1.4	3.0	2.6	2.8	X	

Residents were asked to rank the mitigation measures on a survey with 1 being their favorite option and 4 being their least favorite option.

Exhibit 4-3

X Indicates the property is adjacent to the tracks

LAKE ZURICH NOISE MITIGATION SURVEY RESULTS

STUDY AREA B

Area	Subdivision	Street Name		Sound Barrier	Sight Screens Fencing	Dense Landscaping	Building Insulation		Comment
B		Main Street		2	3	4	1		
B	Downtown	Main Street		1	2	3	4	X	
B		Carolyn Court		1	4	3	2		
B		Carolyn Court		1				X	
B		Carolyn Court		1	4	3	2	X	
B		Carolyn Court		1	4	3	2		
B		Carolyn Court		1				X	
B		Carolyn Court		1	3	4	2	X	
B		Carolyn Court		1	3	4	2	X	
		Grand Total	Total	10	23	24	15		
			# Responding	9	7	7	7		
			Average	1.1	3.3	3.4	2.1		
		Adjacent to Tracks	Total	6	12	14	10	X	
			# Responding	6	4	4	4	X	
			Average	1.0	3.0	3.5	2.5	X	

Other, SW B		Park Avenue		1			1		Comment Sheet marked with X's
		Grand Total	Total	1			1		
			# Responding	1			1		
			Average	1.0			1.0		
		Adjacent to Tracks	Total					X	
			# Responding					X	
			Average					X	

Residents were asked to rank the mitigation measures on a survey with 1 being their favorite option and 4 being their least favorite option.

Exhibit 4-3

X Indicates the property is adjacent to the tracks

LAKE ZURICH NOISE MITIGATION SURVEY RESULTS

STUDY AREA C

Area	Subdivision	Street Name		Sound Barrier	Sight Screens Fencing	Dense Landscaping	Building Insulation		Comment
C	Concord Village	June Terrace						X	Returned - Vacant
C	Concord Village	June Terrace		4	3	1	2	X	
C	Concord Village	June Terrace		4	3	1	2	X	
C	Concord Village	June Terrace		1	4			X	
C	Concord Village	June Terrace						X	Returned - Vacant
C	Concord Village	June Terrace						X	Returned - Vacant
C	Concord Village	June Terrace		1	2	3	4	X	
C	Concord Village	Rosehall Drive		2	3	4	1	X	
C	Concord Village	Rosehall Drive		1	4	2	3	X	
C	Concord Village	Rosehall Drive		3	2	1	4	X	
C	Concord Village	Rosehall Drive						X	Returned - Vacant
C	Concord Village	Rosehall Drive				2	1	X	
C	Concord Village	Rosehall Drive						X	Returned from Post Office
C	Concord Village	Rosehall Drive						X	Returned - Vacant
C	Concord Village	Rosehall Drive		4	3	2	1	X	
C	Concord Village	Rosehall Drive						X	Returned - Vacant
C	Concord Village	Rosehall Drive		2	3	3	2	X	
C	Concord Village	Rosehall Drive		1				X	Comment Sheet Marked with X
		Grand Total	Total	23	27	19	20		
			# Responding	10	9	9	9		
			Average	2.3	3.0	2.1	2.2		
		Adjacent to Tracks	Total	23	27	19	20	X	
			# Responding	10	9	9	9	X	
			Average	2.3	3.0	2.1	2.2	X	

C, West		Elm Place		3	4	2	1	X	
C, West		Elm Place		1	2	3	4	X	
C, West		Elm Place		2	3	1	4	X	
C, West		Pine		4	3	2	1		
C, West		Terrace Lane		1	1	1	1		
C, West		Terrace Lane		3	4	2	1	X	
		Grand Total	Total	14	17	11	12		
			# Responding	6	6	6	6		
			Average	2.3	2.8	1.8	2.0		
		Adjacent to Tracks	Total	9	13	8	10	X	
			# Responding	4	4	4	4	X	
			Average	2.3	3.3	2.0	2.5	X	

Residents were asked to rank the mitigation measures on a survey with 1 being their favorite option and 4 being their least favorite option.

X Indicates the property is adjacent to the tracks

Exhibit 4-3

LAKE ZURICH NOISE MITIGATION SURVEY RESULTS

STUDY AREA D

Area	Subdivision	Street Name		Sound Barrier	Sight Screens Fencing	Dense Landscaping	Building Insulation		Comment
D	Braemar	Berkshire Lane		4	3	2	1	X	
D	Braemar	Berkshire Lane		4	3	2	1	X	
D	Braemar	Berkshire Lane		4	3	2	1	X	
D	Braemar	Berkshire Lane		1	3	2	4	X	
D	Braemar	Braemar Lane		1	2	3	4		
D	Braemar	Braemar Lane		4	3	2	1	X	
D	Braemar	Braemar Lane						X	Returned from Post Office
D	Braemar	Braemar Lane		1	3	4	2	X	
D	Braemar	Braemar Lane				1	1	X	Comment Sheet marked with X's
D	Braemar	Braemar Lane		4	3	1	2	X	
D	Braemar	Braemar Lane		4	3	1	2	X	
D	Braemar	Braemar Lane		1	3	4	2	X	
D	Braemar	Braemar Lane		4	3	1	2	X	
D	Braemar	Dunwick		1	3	2	4		
D		Dunwick		4	3	1	2	X	
		Grand Total	Total	37	38	28	29		
			# Responding	13	13	14	14		
			Average	2.8	2.9	2.0	2.1		
		Adjacent to Tracks	Total	35	33	23	21	X	
			# Responding	11	11	12	12	X	
			Average	3.2	3.0	1.9	1.8	X	

Residents were asked to rank the mitigation measures on a survey with 1 being their favorite option and 4 being their least favorite option.

Exhibit 4-3

X Indicates the property is adjacent to the tracks

FILE NAME = \\SVR202\Public\PROJ\0003395.00\Roadway\MOT\3395_MOT_Exhibit.dgn

Ciorba Group, Inc.
CONSULTING ENGINEERS
5507 North Cumberland Avenue, Suite 402
Chicago, Illinois 60656
Tel. 773.775.4009 Fax 773.775.4014

USER NAME = mthomas	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 80.0000 ' / IN.	CHECKED -	REVISED -
PLOT DATE = 10/12/2011	DATE - 1/17/2011	REVISED -

VILLAGE OF LAKE ZURICH

NOISE MITIGATION STUDY **EXHIBIT 5-1**
E.J.&E. RAILROAD
CONSTRUCTION ACCESS AREA B

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A... RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		LAKE		
		CONTRACT NO.		
FED. ROAD DIST. NO. -	ILLINOIS	FED. AID PROJECT		