



# MATERIAL SAFETY DATA SHEET

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PRODUCT CODE LGWM 1

DATE ISSUED: January 1, 1998

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Identity (As Used on Label and List): SKF Grease LGWM 1

Product Code: LGWM 1 Product Use: Bearing lubricant

Trade Name and Synonyms: LGWM 1/0.4; 1/5; 1/50; 1/180

Manufacturer's Name and Address: SKF Maintenance Products  
P.O.Box 1008 3430 BA Nieuwegein The Netherlands

Supplier's Name and Address: SKF USA Inc., 1510 Gehman Road Kulpsville,  
PA 19443

Emergency Telephone Number: Chemtrec: 1 (800) 424-9300

Telephone Number for Information: SKF Bearing Services Co.: 1 (610) 962-0830

Date Prepared/Issued: January 1, 1998

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The criteria for listing components in the composition section are as follows: carcinogens are listed when present at 0.1% or greater; components which are otherwise hazardous according to OSHA are listed when present at 1.0% or greater. This is not intended to be a complete compositional disclosure.

<u>Chemical Name</u>	<u>% by Weight</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Note</u>
Residual oils, solvent-dewaxes	90%	TWA 5mg/m <sup>3</sup> (Oil Mist)	TWA 5mg/m <sup>3</sup> STEL 10mg/m <sup>3</sup> (Oil Mist)	Misting of the base oils in this grease is unlikely to occur in normal use.
Hydrotreated heavy naphthenic petroleum distillates	~10%	TWA 5mg/m <sup>3</sup> (Oil Mist)	TWA 5mg/m <sup>3</sup> STEL 10mg/m <sup>3</sup> (Oil Mist)	

## 3. HAZARDS IDENTIFICATION

**Potential health hazard:** No hazard in normal industrial use.

**Primary routes of entry:** Eye and skin contact.

**Target organs:** Eye and skin.

**Medical conditions aggravated by exposure:** Preexisting skin disorders.

### Potential Health Effects:

Inhalation: Negligible hazard at normal temperature and handling. Elevated temperatures or mechanical action may form vapors, mists, or fumes which may be irritating to the eyes, nose, throat and lungs.

Eye contact: Eye contact may cause stinging and irritation.

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Skin contact:	Excessive or prolonged skin contact may lead to skin irritation.
Ingestion:	Ingestion of small quantities are not expected to have any effect, however large quantities may cause nausea.
Chronic:	No data available.
Carcinogenicity:	No data available.

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#### 4. FIRST AID MEASURES

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Eye contact:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Seek medical aid.
Skin contact:	In case of contact, wash skin with soap and water. Remove contaminated clothing. Seek medical aid if irritation persists. Wash clothing before reuse. Consult a physician immediately if the grease is injected under the skin from the misuse of high pressure greasing equipment.
Ingestion:	If swallowed, DO NOT induce vomiting. Give large quantities of water. Seek medical aid immediately. Never give anything by mouth to an unconscious person.
Inhalation:	Remove to fresh air. Treat symptoms. If irritation develops, get medical attention.

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#### 5. FIRE FIGHTING MEASURES

##### Flammable Properties

Flash point:	>302°F (COC)
Lower flammable limit:	Not available.
Upper flammable limit:	Not available.
Auto-ignition temperature:	Not available.
Fire & explosion hazards:	Combustible material, low hazard. The grease can form flammable mixtures or can burn only on heating above the flash point. However, minor contamination by hydrocarbons of higher volatility may increase the hazard.
Decomposition products:	Smoke and carbon monoxide in the event of incomplete combustion.

##### Extinguishing Media

Use foam, dry chemical powder (preferred) or carbon dioxide.

##### Fire-Fighting Instructions

Exercise caution when fighting any chemical fire. A self-contained breathing apparatus and protective clothing are essential.

**NFPA RATINGS:** Health = 1                      Flammability = 1                      Reactivity = 0

Hazard Rating Scale: 0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Serious, 4 = Severe

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## 6. ACCIDENTAL RELEASE MEASURES

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:** Wearing appropriate personal protective equipment, contain spill, collect onto inert absorbent and place into suitable container. Spilled product may make floor slippery; spills should be cleaned up immediately to prevent falls.

Prevent entry into sewers and waterways.

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## 7. HANDLING AND STORAGE

**Handling:** Warning. High pressure greasing equipment is capable of injecting grease under the skin. Such apparatus should be handled with care. If the product is injected under the skin, severe health consequences can result.

Provide suitable mechanical equipment for the safe handling of drums and heavy packages.

Do not heat above flash point (302°F). Keep containers closed. Handle and open containers with care to prevent leakage or spillage.

Avoid contact with eyes, skin and clothing. Avoid breathing mist/vapor if generated. Use with adequate ventilation. Wash thoroughly after handling. Do not ingest.

**Storage:** Store the product as a mineral oil product in cool (between 32°F and 104°F), well-ventilated surroundings, well away from sources of ignition.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Personal Protective Equipment:

Eye/face protection: Safety glasses/goggles with side shields.

Skin protection: Neoprene or nitrile gloves, other protective clothing as needed if prolonged/repeated skin contact.

Respiratory protection: Respiratory protection if exposure limits may be exceeded.

**Engineering Controls:** Use local exhaust ventilation where mist or spray may be generated.

**Work Practices:** An eye wash station should be accessible in the immediate area of use. Wash areas of skin contaminated with this product thoroughly with soap and water soon after exposure. Do not allow this product to remain on skin for prolonged periods.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Brown paste, with mineral oil odor.

Boiling Point: Not available                      Solubility in Water: Insoluble

Vapor Pressure: Not available                      Specific Gravity: .85 - .95g/cm<sup>3</sup>  
(Water = 1)

Vapor Density: Not available                      pH: 7.0  
(Air = 1)

Freezing Point: Not available                      Dropping Point: 356°F

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#### 10. STABILITY AND REACTIVITY

<b>Chemical Stability:</b>	Stable
<b>Conditions to Avoid:</b>	Do not expose to extreme temperature.
<b>Incompatibility:</b>	Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite or calcium hypochlorite.
<b>Hazardous Decomposition Products:</b>	Fumes, smoke, carbon monoxide, metal oxides in the case of incomplete combustion.
<b>Hazardous Polymerization:</b>	Will not occur.

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#### 11. TOXICOLOGICAL INFORMATION

<b>On Product:</b>	No information available on the formulated product.
<b>On Ingredients:</b>	No information available on the individual ingredients.

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#### 12. ECOLOGICAL INFORMATION

<b>On Product:</b>	Products containing mineral oils and additives are, in general, regarded as environmentally hazardous because these ingredients are not easily degradable. Contamination during use might increase this hazard.
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#### 13. DISPOSAL CONSIDERATIONS

<b>RCRA Status:</b>	Discarded product, as sold, would not be considered a RCRA Hazardous Waste.
<b>Disposal:</b>	Dispose of in accordance with local, state and federal regulations.

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#### 14. TRANSPORT INFORMATION

<b>DOT Classification:</b>	Not regulated.
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**15. REGULATORY INFORMATION**

**OSHA Hazardous Communication Status** Hazardous

**TSCA:** The ingredients of this product are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory.

**CERCLA:** No ingredients in this section.

**SARA Title III:**

Section 302 Extremely Hazardous Substances: No ingredients in this section.

Section 311 and 312 Health and Physical Hazards:

Immediate	Delayed	Fire	Pressure	Reactivity
[YES]	[NO]	[NO]	[NO]	[NO]

Section 313 Toxic Chemicals: No ingredients in this section.

**16. OTHER INFORMATION**

**HMIS RATINGS:** Health = 1 Flammability = 1 Reactivity = 0

Hazard Rating Scale: 0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Serious, 4 = Severe

**MSDS Revision Summary:** First issue prepared in accordance with ANSI Z400.1-1993. This MSDS supersedes all previous MSDS's for this product.

**Source of Key Data:** The recommendations presented in this Material Safety Data Sheet were obtained from SKF's suppliers. The suppliers had complied actual test data (when available), comparison with similar products, component information from their suppliers, and from recognized good practice.

**Disclaimer:** The information and recommendations contained herein are to the best of SKF Maintenance Products' knowledge and belief, accurate and reliable as of the date issued, but offered without any guarantee or warranty.



# Spartan Chemical Company, Inc.

## Material Safety Data Sheet

### SECTION I: PRODUCT INFORMATION

Product Name or Number (as it appears on label):  
**SC-200**

Product Division:  
**Janitorial**

Product Number: 2200

**Spartan Chemical Company, Inc.**

Product/Technical Information:  
**1-(800)-537-8990**

**1110 Spartan Drive  
Maumee OH 43537**

Medical Emergency:**1-(888)-314-6171 (24 hours)**  
Chemical Leak/Spill:**CHEMTREC 1-(800) 424-9300 (24  
Emergency:hours)**

Shipping Description:		Corrosive liquids, n.o.s., 8, UN 1760, II, (contains sodium hydroxide)	
<b>NFPA Ratings:</b>		<b>HMIS Ratings:</b>	
<b>Health:</b>	3 - Serious	<b>Health:</b>	*3 - Serious; Chronic Hazard
<b>Fire:</b>	0 - Minimal	<b>Fire:</b>	0 - Minimal
<b>Reactivity:</b>	0 - Minimal	<b>Reactivity:</b>	0 - Minimal
		<b>Pers. Prot. Equip.:</b>	See Section VIII

### SECTION II: HAZARDOUS INGREDIENTS

(Listed when present at 1% or greater, carcinogens at 0.1% or greater) All component chemicals are listed or exempted from listing on the "TSCA Inventory" of chemical substances maintained by the U.S. Environmental Protection Agency.

Chemical Name(s)	% W	CAS Registry No.	Table Z- 1 - A			NTP, IARC or OSHA Carcinogen
			TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	CEILING mg/m <sup>3</sup>	
*2-Butoxyethanol	5-10	111-76-2	120 (skin)	Not Established	Not Established	No
Nonyl phenol ethoxylate	1-5	9016-45-9	Not Established	Not Established	Not Established	No
Sodium xylene sulfonate	1-5	1300-72-7	Not Established	Not Established	Not Established	No
Sodium hydroxide	1-5	1310-73-2	2	Not Established	Not Established	No

Comment: \*This substance is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (SARA) and of 40 CFR 372.

▼ **SECTION III: PHYSICAL DATA**

Boiling Point:	210 °F	Vapor Pressure:	Unknown
Vapor Density (AIR = 1):	Unknown	Solubility in Water:	Complete
pH:	13.4 - 13.9	Specific Gravity (H <sub>2</sub> O=1):	1.063
Evaporation Rate (but.ace.=1):	<1	Percent Solid by Weight:	14-15
Physical State:	Liquid		
Appearance & Odor:	Red liquid, glycol ether odor		

▶ **SECTION IV: FIRE & EXPLOSIVE HAZARD DATA**

▶ **SECTION V: HEALTH HAZARD DATA**

▶ **SECTION VI: REACTIVITY DATA**

▼ **SECTION VII: SPILL OR LEAK PROCEDURES**

Steps to be Taken in Case Material is Released or Spilled:	Dike and contain spill with inert material (sand, earth, commercial absorbent, etc.) and transfer to containers for disposal. Rinse area with water and flush to sanitary sewer. Keep spill out of storm sewers and waterways.
Waste Disposal Method:	Dispose of in compliance with all federal, state and local laws and regulations.

▼ **SECTION VIII: SPECIAL PROTECTION INFORMATION**

Respiratory Protection:	Not normally required when good general ventilation is provided. However if exposure limits are exceeded (see Section II) or if respiratory irritation occurs, the use of a NIOSH approved respirator suitable for the use-conditions and chemicals listed in Section II should be considered.
Ventilation:	Provide good general ventilation. Local exhaust ventilation may be necessary for some operations.
Protective Gloves(Specify Type):	Solvent/alkali resistant gloves such as neoprene, nitrile or natural rubber.
Eye Protection(Specify Type):	Splash goggles are recommended to prevent eye contact.
Other Protective Equipment:	Solvent /alkali resistant boots, apron and other protective equipment is recommended when foot / body contact is likely. Eye wash stations and washing facilities should be readily accessible in areas where product is handled.. See 29 CFR 1910.132-138 for further guidance.

▼ **SECTION IX: SPECIAL PRECAUTIONS**

Precautions; Handling & Storing:	Keep container tightly closed. Store in a cool, dry area. Do not freeze. Do not store above 120°F. Do not mix with other chemicals. Keep out of reach of
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	children
Other Precautions:	California Proposition 65 Warning: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm..

© SCC 06/01/2004      Name:      Ronald T. Cook      Title:      Manager, Regulatory Affairs

SC-200      Effective      06/01/2004      Supercedes:      09/28/1999  
Date:

Ref: 29 CFR 1910.1200      Changes:      Update Sections I, II, III, IV, V, VII, VIII & IX  
(OSHA)

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# **Preliminary Transportation Assessment Report**

## **MARBLE RIVER WIND PROJECT CLINTON COUNTY, NEW YORK**

PREPARED FOR

AES-EHN NY Windpower LLC  
218 Frontier Drive  
Erie, PA 16505

PREPARED BY

ESS Group, Inc.  
888 Worcester Street, Suite 240  
Wellesley, Massachusetts 02482

Project No. A456-005

November 9, 2005

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## 1.0 INTRODUCTION

ESS Group, Inc. (ESS) has prepared a preliminary assessment of the potential Over-Size/Over-Weight (OS/OW) truck routes for the Marble River Wind Project. This report describes and evaluates potential routing to the site, describes and evaluates local transportation routes within the site boundaries, identifies potential transportation route deficiencies, outlines tasks required by outside agencies and contractors, and identifies NYSDOT permits required before the work can be performed. At the time this report was prepared, the general project area and some of the wind turbine locations were identified but specific wind turbine siting information was not available. The exact transportation routes to the turbine sites have not been identified and will be refined as turbine locations are finalized. Therefore, all local area road intersections that could potentially be used were visually inspected to identify possible construction vehicle maneuvering difficulties.

The Transportation Assessment included Off-Site highway OS/OW route planning from Interstate Route 87 (I-87) at Exit 34 (Keeseville, NY) to County Line Road in Clinton/Chateaugay, NY (referred to as OS/OW Route No.1); and from I-87 at Exit 42 (Champlain, NY) along US Route 11 (US 11) to County Line Road in Clinton/Chateaugay, NY (referred to as OS/OW Route No.2). The study also includes On-Site OS/OW route planning in the form of an inventory of the local area road network to determine the condition and safety of smaller local, low-volume roads to support the anticipated OS/OW cargo of wind turbine components carried by special heavy hauling transport trucks.

OS/OW Tractor-trailers for transporting wind turbine components are special heavy hauling vehicles of various lengths, widths and weights. The configurations of tractor and trailer are customized depending on the particular wind turbine part being transported. The following table is a sample of how OS/OW truck configurations match up with wind turbine parts:

**TABLE 1: OS/OW TRUCK CONFIGURATIONS**

Wind Turbine Part	Approx. Wt (lbs.)	Truck Description	Length (ft.)	Height (ft.)	Width (ft.)	Est. Gross Vehicle Wt. (lbs.)
Rotor Blade	13,200	5-Axle Double Drop Stretch	160*	14	11'-6"	45,000
Base Tower	120,000	6-Axle Stretch	108	16*	12'-6"	150,000
Mid Tower	137,000	6-Axle Stretch	113	15	11'-6"	167,000
Top Tower	95,000	6-Axle Stretch	113	15	11'-6"	125,000
Nacelle	155,000	11-Axle Low Profile	160*	16*	11'-6"	200,000*
Hub Assembly	46,000	8-Axle Stretch	102	15	14'-0"	75,000

\* SUPERLOAD (PERMITS) required by NYSDOT for any vehicle or combination of vehicles which exceed 16 feet in width; or 16 feet in height or greater; or greater than 160 feet in length; or 200,000 lbs. or greater GVW; or a combination of any of the above.

The planning parameters used to evaluate potential OS/OW routes included

- a.) Traffic Safety (i.e. accident data);
- b.) Traffic Capacity (i.e. traffic volume as a function of roadway capacity); and
- c.) Structural Capacity (e.g. roadway width, roadway condition, drainage structures, bridges, intersection geometry and roadway alignment).

Based on the above parameters, potential mitigation measures were identified to address specific roadway deficiencies resulting from OS/OW wheel loads, OS/OW vertical clearance and OS/OW vehicles paths as the large trucks negotiate tight-radius turns over the trucking route. Table 2 presents the mitigation measures that may be applied to particular roadway deficiencies.

**TABLE 2: POTENTIAL MITIGATION MEASURES**

<b>OBSERVED ROADWAY DEFICIENCY</b>	<b>POTENTIAL MITIGATION MEASURE</b>
Insufficient Roadway Width	Widen roadway for OS/OW transport trucks
Poor Roadway Condition	Roadway reconstruction and/or regrading
Insufficient Cover Over Structure	Add cover or steel plates over structure
Poor Structure Condition	Replace structure
Inadequate Bridge Capacity	Use bridge plates or jumpers
	Find alternative route
Low Overhead Wires	Coordinate raising wires with utility company
Insufficient Roadway Geometry	Construct large radius intersection geometry
	Find alternate route

## **2.0 OFF-SITE OS/OW ROUTE PLANNING**

Two OS/OW truck routes were identified and evaluated to determine the safest and most feasible route to the project area. Each route was videotaped and a mileage log was kept to record the locations of potential roadway deficiencies along the routes. Both routes are primarily flat, 2-lane highways with posted speed limits of 45-55 MPH with excellent visibility for stopping sight-distance. In general, no vertical curbing is present along the pavement edges to collect stormwater run-off. As a result, there are very few catch basins or drain manholes along the routes. All stormwater sheets off the paved surface and is either collected in drainage ditches and cross-culverts or simply infiltrates into the ground. MAP 1 shows these routes.

The easterly limit of the OS/OW route planning is I-87 (The Northway). It is assumed that I-87 will be part of the approved truck route from the point of origin. This study only covers the final leg of the truck route from I-87 to the Clinton/Franklin county line.

### **2.1 OS/OW Truck Route No.1**

Route No.1 begins at the Intersection on Route 9N (Exit 34 off I-87, Keeseville) and State Route 22 (SR 22) North.

- Turn left on SR 22 North, 7.2 miles to
- Turn left on Military Turnpike (aka Old Turnpike Extension), 7.0 miles to SR 3 intersection
- Straight ahead on SR 190 West, 31.4 miles to
- County Line Road (Clinton/Franklin). **END ROUTE.**
- **ROUTE LENGTH: 45.6 miles.**

This route goes through the following eight communities in Clinton County: Ausable, Peru, Schuyler Falls, Plattsburgh, Beekmantown, Altona, Ellenburg and Clinton.

This route was suggested by the NYSDOT Regional Traffic and Safety Office as a truck route most likely to get NYSDOT approval.

#### **Traffic Safety:**

Accident Data was requested from the NYSDOT (Region 7) Traffic & Safety Office and reviewed for OS/OW Route No.1. The accident data collected covers a period of approximately 3 years (July 9, 1999 and May 31, 2002) as reported in the NYSDOT Safety Information Management System (SIMS) database.

OS/OW Route No. 1 is divided into three sections:

- 1) SR 22 North (mile 0.0) to Military Turnpike (mile 7.2)
- 2) Military Turnpike (mile 7.2) to SR 3 / SR 190 West (mile 14.2); and
- 3) SR 190 West (mile 14.2) to County Line Road (mile 45.6)

#### **SECTION 1 ACCIDENT DATA:**

From July 9, 1999 to May 31, 2002, there were a total of 56 accidents according to the NYSDOT SIMS database. Of the 56 accidents, 27 occurred at intersections and 29 occurred at non-intersection locations (includes 1 collision with an animal). Of the 56 accidents reported, 1 resulted in a fatality and 31 resulted in an injury. The frequency of accidents involving personal injury is 4.4 accidents per mile for this 7.2 mile section.

#### **SECTION 2 ACCIDENT DATA:**

From January 15, 2001 to May 31, 2002, there were a total of 33 accidents according to the NYSDOT SIMS database. Of the 33 accidents, 16 occurred at intersections and 17

occurred at non-intersection locations (includes 2 collisions with an animal). Of the 33 accidents reported, 3 resulted in a fatality and 13 resulted in an injury. The frequency of accidents involving personal injury is 2.3 accidents per mile for this 7.0 mile section.

**SECTION 3 ACCIDENT DATA:**

From January 31, 2000 to May 31, 2002, there were a total of 391 accidents according to the NYSDOT SIMS database. Of the 391 accidents, 82 occurred at intersections and 309 occurred at non-intersection locations (includes 60 collisions with an animal). Of the 391 accidents reported, 6 resulted in a fatality and 105 resulted in an injury. The frequency of accidents involving personal injury is 3.5 accidents per mile for this 31.4 mile section.

**TABLE 3: ACCIDENT SUMMARY**

SECTION	LENGTH	ACCIDENTS**			
		INTERSECTION	NON-INTERSECTION	FATAL	INJURY
1	7.2 mi.	27	29	1	31
2	7.0 mi.	16	17	3	13
3	31.4 mi.	82	309	6	105
TOTAL	45.6 mi.	125	355*	10	149

\* includes 63 collisions with an animal

\*\* 35 months period (July 1999 to May 31, 2002)

The above SIMS data includes accidents that occurred early in the morning, late at night, in the rain, snow and ice with poor visibility. The NYSDOT Special Hauling permit specifically prohibits operating in these conditions. The one exception is a waiver for peak-hour restriction which may allow OS/OW transports between 7-9AM and 4-6PM which NYSDOT considers as "curfew hours". The NYSDOT Special Hauling permit requires several full-time vehicle escorts, several police escorts, requires speed limit restrictions and hours of operation limited to daytime-only, preferably in the summer.

**Traffic Capacity**

Highway Sufficiency Ratings data (through 2003) was obtained from NYSDOT to determine if any sections of the truck route were experiencing traffic capacity problems that may adversely impact the decision to select this as the primary truck route. Table 4 summarizes the Highway Sufficiency data for Route No. 1.

**TABLE 4: HIGHWAY SUFFICIENCY**

ROUTE NO.	NO. LANES	PAVED SHOULDER WIDTH (ft.)	PAVEMENT WIDTH (ft.)	AADT RANGE (estimated)
SR 22	2	6-7	22-23	2340-7590
MILITARY TPKE.	2	0-1	22-23	Not available
SR 190	2	4-8	22-24	980-7590

AADT=Average Annual Daily Trips

The lower range of the AADT is at the west end of the truck route at the Clinton/Franklin county line in the middle of farm country. The upper range of the AADT is in the Plattsburgh area of the truck route. Even at the upper range of the AADT, the estimated traffic volume is still very low and would not pose a problem during OS/OW load transport. Conversations with the NYSDOT Planning & Programs Office (Region 7) confirm that there are no current problems with traffic capacity along this route.

#### **Structural Capacity**

**ROADWAY WIDTH.** In general, the roadway width is at least 26 feet (two 12-foot lanes with a 1-foot shoulder). In areas approaching populated urban centers and busy intersections, the shoulders are widened up to 8-foot resulting in roadway width of 40-feet (two 12-foot lanes with 8-foot shoulders).

**ROADWAY CONDITION.** At the time of this study (10/10/05), the condition of the pavement was very good and the pavement markings were clear and well-defined (e.g. double-yellow centerlines, painted white edge lines). Advance warning and regulatory signs were in good condition and properly located to notify motorists of upcoming roadway changes and conditions.

**DRAINAGE STRUCTURES.** Inventory of drainage culvert size, culvert type, depth of cover and general condition of culverts to be performed by an experienced Route Surveyor to determine probability of pipe failure under overweight construction vehicle loads. The route surveyor will submit a route plan to NYSDOT for review and NYSDOT will query the NYSDOT GIS database for a drainage report to identify drainage structures along the route.

**RAILROAD CROSSINGS.** None encountered.

**BRIDGES.**

**UNDERPASSES.** None encountered.

OVERPASSES. Physical characteristics such as allowable weight loads, bridge type and condition to be performed by NYSDOT Structures Division during the actual Special Hauling Permit application process. The route surveyor will submit a route plan to NYSDOT for review and NYSDOT will query the NYSDOT GIS database for a bridge report to identify potential bridge related problems along the route.

The following bridges and culverts were identified along the route.

**TABLE 5: Route No. 1 Bridge/Culvert Inventory (partial list only)**

LOCATION (mile mark)	DESCRIPTION	COMMENT
1.1	Bridge over I-87	BIN 1017250
1.5	Culvert for Dry Mill Brook	Not checked
5.6	Bridge over Little Ausable River (tributary)	Not checked
7.2	Bridge over Little Ausable River (tributary)	Not checked
11.0	Bridge over Salmon River	Not checked
12.3	Bridge 1 over Saranac River	Not checked
12.3	Bridge 2 over Saranac River	Not checked
16.05	Culvert (unknown stream)	Not checked
23.5	Culvert (unknown stream)	Not checked
28.6	Bridge over unknown brook at Miner Lake	Not checked
29.4	Bridge over Chazy River at Miner Lake	Not checked
31.0	Culvert over Spring Brook	Not checked
33.2	Bridge over Graves Brook	Not checked
37.3	Bridge over North Branch Chazy River	Not checked
38.4	Possible culvert	Not checked
39.1	Culvert for North Branch Chazy River	Not checked

BIN = Bridge Identification Number  
See MAP 1.

#### INTERSECTION GEOMETRY AND ROADWAY ALIGNMENT.

The preliminary assessment of OS/OW Route No.1 identified several locations where the roadway geometry appears problematic for construction vehicle turning movements. The locations are as follows:

**SECTION 1 (mile 0.0).** Left turn from SR 9N to SR 22 North. There appears to be insufficient roadway width and intersection fillet radius on the inside corner for an oversize construction vehicle turning left. Detailed intersection geometry is required to engineer a solution.



**SECTION 1** (mile 6.4). Immediately following the intersection of SR 22B, there is a sharp bend to the right (approx. 45-degrees). The paved width at the apex of the curve is approximately 36 feet. It is likely that the vehicle path of the oversize construction vehicle may not be able to stay within the paved roadway. Detailed intersection geometry is required to engineer a solution.

**SECTION 2** (mile 7.2). Left turn from SR 22 North to Military Turnpike. There appears to be insufficient roadway width and intersection fillet radius on the inside corner for an oversize construction vehicle turning left. Detailed intersection geometry is required to engineer a solution.

**SECTION 3** (mile 37.3). Left turn from SR 190 West to SR 190 West (just before US 11, Ellenburg Corners). There appears to be insufficient roadway width and intersection fillet radius on the inside corner for an oversize construction vehicle turning left. Detailed intersection geometry is required to engineer a solution. See APPENDIX A Figure 5.

**SECTION 3** (mile 37.7) Right turn from SR 190 West to SR 190 West (leaving Ellenburg Corners). There appears to be insufficient roadway width and intersection fillet radius on the inside corner for an oversize construction vehicle turning right. Detailed intersection geometry is required to engineer a solution.

Examples of possible solutions to tight-radius 90-degree turns for oversize construction vehicles are shown in APPENDIX A, Figures 6-14.

### **2.2 OS/OW Truck Route No. 2**

The second potential OS/OW Truck Route we reviewed begins at I-87 North (The Northway) at Exit 42 (Route 11, Champlain), then US 11 South to County Line Road. OS/OW Route No. 2 is as follows:

- I-87 North off-ramp (mile 0.0) to end of ramp, 0.1 miles to
- Turn left on US 11 South to Mooers Center, 6.5 miles then
- Right on US 11 South to Ellenburg Corners (JCT SR 190 West), 14.3 miles then
- Straight on US 11 South to County Line Road (Clinton/Franklin), 9.6 miles. **END ROUTE**
- **ROUTE LENGTH: 30.5 miles.**

This route goes through the following three communities in Clinton County: Champlain, Mooers and Clinton. This route was selected for inclusion in this study because it is the most direct route from I-87 to the project area and has far fewer obstacles to avoid along

the route. It has fewer 90-degree tight-radius turns, fewer bridge and drainage structures to examine, and fewer intersections and low overhead wire crossings. See MAP 1.

**ASSUMPTION:**

For purposes of this study, it is assumed that OS/OW transports without vertical height restrictions can use I-87 between Exit 34 (Keeseville) and Exit 42 (Chaplain) to access US11, the start of OS/OW Route No. 2. OS/OW transports with height restricted load will have to get off I-87 at Exit 34 because there are low bridges on I-87 between Exits 34 and 42.

**Traffic Safety**

Accident Data was requested from the NYSDOT (Region 7) Traffic & Safety Office and reviewed for OS/OW Route No.2. The accident data collected covers a period of approximately 3 years (July, 1999 and May 31, 2002) as reported in the NYSDOT Safety Information Management System (SIMS) database.

**ACCIDENT DATA:**

From July 2, 1999 to May 31, 2002 there were a total of 265 accidents reported according to NYSDOT SIMS database. Of the 265 accidents, 52 occurred at intersections and 213 accidents occurred at non-intersection locations (including 29 collisions with an animal). Of the 265 accidents reported, 4 resulted in a fatality and 72 resulted in an injury. The frequency of accidents involving personal injury is 2.5 accidents per mile for this 30.5-mile route. This is significantly lower than the accident rate for OS/OW Route No. 1 (3.5 accidents/mile). The lower accident rate for Route No. 2 could be attributed to the fact that the route is 15 miles shorter, has half as many intersections and more importantly does not pass through densely populated urban centers with heavier traffic volumes such as Plattsburgh. See Table 6.

**TABLE 6: ACCIDENT SUMMARY**

SECTION	LENGTH	INTERSECTION	ACCIDENTS**		
			NON-INTERSECTION	FATAL	INJURY
1	30.5 mi.	52	213*	4	72

\* includes 29 collisions with an animal

\*\* 35 months period (July 1999 to May 31, 2002)

**Traffic Safety Summary of OS/OW Route No. 2**

The above SIMS data includes accidents that occurred early in the morning, late at night, in the rain, snow and ice with poor visibility. The NYSDOT Special Hauling permit specifically prohibits operating in these conditions. The one exception is a waiver for peak-hour restriction which may allow OS/DW transports between 7-9AM and 4-6PM which NYSDOT considers as "curfew hours". The NYSDOT Special Hauling permit requires several full-time vehicle escorts, several police escorts, requires speed limit restrictions and hours of operation limited to daytime-only, preferably in the summer.

### Traffic Capacity

Highway Sufficiency Ratings data (through 2003) was obtained from NYSDOT to determine if any sections of the truck route were experiencing traffic capacity problems that may adversely impact the decision to select this as the primary truck route. Table 7 summarizes the Highway Sufficiency data for Route No. 2.

**TABLE 7: HIGHWAY SUFFICIENCY**

<b>ROUTE NO.</b>	<b>NO. LANES</b>	<b>PAVED SHOULDER WIDTH (ft.)</b>	<b>PAVEMENT WIDTH (ft.)</b>	<b>AADT RANGE (estimated)</b>
US 11	2	8-12	22-24	2950-7810

The lower range of the AADT is at the west end of the truck route at the Clinton/Franklin county line in the middle of farm country. The upper range of the AADT is the east end of the truck route at the "Mall Entrance" at the I-87 interchange. Here the roadway widens to a 4-lane section to accommodate turning lanes into and out of the retail shopping area. Even at the upper range of the AADT, the estimated traffic volume is still very low and would not pose a problem during OS/DW load transport. Conversations with the NYSDOT Planning & Programs Office (Region 7) confirm that there are no current problems with traffic capacity along this route.

### Structural Capacity

**ROADWAY WIDTH.** In general, the roadway width is at least 40 feet (two 12-foot lanes with 8-foot breakdown lanes) for the first 10 miles then the width narrows to 32 feet (two 12-foot lanes with 4-foot paved shoulders) for the remainder of the route.

**ROADWAY CONDITION.** At the time of this study (10/10/05), the condition of the pavement was very good and the pavement markings were clear and well-defined (e.g. double-yellow centerlines, painted white edge lines). Advance warning and regulatory signs were in good condition and properly located to notify motorists of upcoming roadway changes and conditions.

**DRAINAGE STRUCTURES.** Inventory of drainage culvert size, culvert type, depth of cover and general condition of culverts to be performed by an experienced Route Surveyor to determine probability of pipe failure under overweight construction vehicle loads. The route surveyor will submit a route plan to NYSDOT for review and NYSDOT will query the NYSDOT GIS database for a drainage report to identify drainage structures along the route.

**RAILROAD CROSSINGS.** None encountered.

**BRIDGES.**

**UNDERPASSES.** None encountered.

**OVERPASSES.** Physical properties such as allowable weight loads, bridge type and condition to be performed by NYSDOT Structures Division during the actual Special Hauling Permit application process. The route surveyor will submit a route plan to NYSDOT for review and NYSDOT will query the NYSDOT GIS database for a bridge report to identify potential bridge related problems along the route.

The following bridges and culverts were identified along this route.

**TABLE 8; Route No. 2 Bridge/Culvert Inventory (partial list only)**

LOCATION (mile mark)	DESCRIPTION	COMMENT
0.2	Bridge over I-87	BIN 1009070
3.1	Bridge over Great Chazy River	BIN 1009060
3.1	Bridge 1 over Great Chazy River	BIN 1009050
5.1	Bridge 2 over Sperry Brook	BIN 1004080
9.8	Bridge over Great Chazy River	Not checked
13.3	Bridge over Spring Brook	Not checked
15.3	Bridge over Graves Brook	BIN 1009020
18.5	Bridge over Great Chazy River	Not checked
22.9	Concrete Culvert (stream unknown)	See LaFrancis Rd.
24.0	Bridge over Brandy Brook	Not checked
26.5	Culvert (stream unknown)	Not checked
29.8	Bridge over Marble River	BIN 1008990
30.5	END ROUTE	

See MAP 1.

#### INTERSECTION GEOMETRY AND ROADWAY ALIGNMENT.

The preliminary assessment of OS/OW Route No. 2 identified only 2 locations where the roadway geometry appears problematic for construction vehicle turning movements. The locations are as follows:

**MILE 0.1/OFF-RAMP.** Left turn from end of I-87 NB off-ramp to US 11 South. There appears to be insufficient roadway width and intersection fillet radius on the inside corner for an oversize construction vehicle turning left. Detailed intersection geometry is required to engineer a solution.

**MILE 6.6/MOOERS CENTER.** Right turn on US 11 in the center of town. There appears to be insufficient roadway width and intersection fillet radius on the inside corner for an oversize construction vehicle turning right. Detailed intersection geometry is required to engineer a solution.

#### **2.3 Summary and Follow-up for Off-Site OS/OW Route Planning**

Based on available traffic safety data, OS/OW Route No. 2 (Route 11) appears to experience fewer accidents than Route No. 1. This may be attributed to the following reasons:

1. Route No. 2 is 15 miles shorter.

2. Route No. 2 avoids Plattsburgh which has heavier traffic volume and more accidents.
3. Route No. 2 has fewer intersections along its route where the potential for accidents resulting in injury is higher.

It should be noted that both routes would be very safe for OS/OW truck transport given the amount of effort required to execute the NYS DOT Special Hauling Permit to guarantee public safety during OS/OW transports.

Preliminary estimates indicate that up to 900 OS/OW truck trips will be required for this project. This is based on 100 turbines requiring 9 truck trips to bring the component parts to the site. Available traffic capacity data indicates Route No. 2 (Route 11) appears to have better physical roadway characteristics to support multiple OS/OW hauling trips than Route No. 1. This is attributed to the following reasons:

1. Route No. 2 is wider and has more capacity to handle the large number of OS/OW loads required to complete the job.
2. Route No. 2 has only three signalized intersections and two of those are at the very beginning of the route at the I-87 off-ramps. Route No. 1 has seven signalized intersections several of which go through Plattsburgh. Hundreds of OS/OW truck trips would be delayed as they move through the signalized portion of the route causing substantial frustration for motorists over an extended period of time.

It should be noted that both routes currently have very low traffic volumes and the roadway infrastructure has plenty of capacity to handle the additional 900 OS/OW truck trips generated by this project. However, selecting a final truck route should take into account the magnitude of delays caused by multiple signalized intersections spaced relatively close together.

Based on the number of problematic 90-degree tight-radius turns for each OS/OW route examined in this study, Route No. 2 is the preferred route. Route No. 2 has only two problem intersections where the roadway geometry appears to be insufficient for large-radius turns. Route No. 1 has five problem intersections.

Finally, based on the number of bridge and culvert crossings encountered along each route, Route No. 2 appears to be the preferred route. The extreme gross vehicle weight of the OS/OW loads being considered requires the complete and thorough inspection of each bridge and culvert crossing along the route. It was observed (but not confirmed) that Route No. 2 has 12 such crossings whereas Route No. 1 has 16 crossings.

### 2.4 Recommendation

The results of this OS/OW transportation route study are preliminary, but give clear direction as to where to direct efforts in planning the final route for this project. The following action plan is recommended as this project moves forward.

1. Work closely with NYSDOT Special Hauling Permits Division (Albany) and get them involved early in the process. Allow a minimum of 6 to 9 months for NYSDOT permitting.
2. Contact an experienced Route Surveyor who will submit a final route (required by NYSDOT).
3. Provide accurate highway survey information for problem intersections in order to determine engineering solutions to construction vehicle turning movements.
4. Understand where vertical clearance problems occur along the route especially as they relate to low overhead electric wires. The Route Surveyor should provide this.
5. Contact the appropriate utility companies 6 to 9 months in advance of the first OS/OW truck trip to notify them that they need to raise wires above the road.
6. Select a heavy hauling transportation contractor (e.g. Lone Star Transportation, Fort Worth, TX) specializing in wind energy transports. Heavy haul contractors use different truck/trailer configurations for different wind turbine components. This could have serious implications on final truck route selection.

### 3.0 ON-SITE OS/OW ROUTE PLANNING

This section of the Preliminary Transportation Assessment addresses traffic safety and the physical capacity of the local area road network that serves the project area. It is over these smaller local roads that the wind turbine components will travel to reach their final destinations. For purposes of this study, each drainage structure was located to the nearest 0.1 mile as each road was field inspected to complete the inventory. The roadway width and condition was also recorded in a mileage logbook and photographs were also taken. The following Table identifies the roads included in this study. See MAP 2 at the back of this report.

**TABLE 9: LOCAL AREA ROAD NETWORK**

ROAD NAME	ACCIDENTS*	LENGTH (miles)	TYPE
SR 189	19**	5.7	paved State Highway
CLINTON MILLS RD	2	6.2	paved collector
CANAAN RD	2	4.2	paved collector
BOHEN RD	1	1.1	paved collector
CAMPBELL RD	1	3.2	paved collector
GAGNIER RD	0	2.4	paved collector
LOOBY RD	3	2.4	paved collector
PATNODE RD	na	3.6	paved/gravel minor
LA FRANCIS RD	na	4.2	paved/gravel minor
BULL RUN RD	na	4.4	paved minor
ROGERS RD	na	0.6	broken paved, minor
SOUCIA RD	na	0.2	gravel, unsafe, dead end
COLGAN RD	na	0.4	gravel minor, dead end
LAGREE RD	na	1.6	gravel minor
SWAMP RD	na	0.3	gravel minor, dead end
WHALEN RD (Looby- Merchia)	na	1.3	paved minor
MERCHIA RD (Merchia-SR 189)	na	2.4	paved minor
NUMBER 5 RD (Ryan-Campbell)	na	1.0	paved minor
JONES RD	na	1.0	paved minor, dead end
LIBERTY POLE RD	na	1.6	gravel minor, dead end

\* NYSDOT SIMS database (July 1999-May 31,2002)

\*\* Includes 6 collisions with an animal

- NOTE: The following local roads were not included in this study for the reasons indicated:
- County Line Rd. Beyond project area.
- Lost Nation Rd. Beyond project area
- Ryan Rd. Beyond project area
- Santamore Rd. Beyond project area.
- McNierney Rd. Beyond project area.
- Merchia Rd. (County Line Rd. to Whalen Rd.). Beyond Project area.
- Jones Rd. (Merchia Rd. to Frontier Rd.). Posted private property
- Frontier Rd. Beyond Project area.
- Brandybrook Rd. Beyond project area.
- Cashman Rd. Beyond project area.
- Robare Pond Rd. Private road.
- Bombard Rd. Beyond project area.
- Bull Run Rd. Beyond project area.
- Lamb Rd. Beyond project area.
- Poplar Hill Rd. Posted private property.



- Smith Rd. Residential area, access to turbine not likely.
- Broad St. Residential area, access to turbine not likely.
- Baker Rd. Beyond project area.
- Keegan Rd. Beyond project area.

### **3.1 State Route (SR) 189 and Local Roads**

For purposes of on site route planning, local roads (including county and town roads) and State Route 189 were evaluated.

#### **Traffic Safety**

The safety record for these local collector and minor roads is very good. Traffic volume in this area is very low and mostly consists of local residential traffic and farm vehicles. About half the roads studied are low speed gravel roads through forest and farmland. The roads are laid out straight in a grid with 90-degree intersections and very good visibility for stopping sight-distance.

#### **Structural Capacity**

This section summarizes the physical characteristics of the local area road network. In general, the paved and unpaved roads were in good conditions and capable of supporting the anticipated heavy construction vehicle loads with the exception of the following roads: Soucia Rd., Colgan Rd., Swamp Rd., Liberty Pole Rd., Rogers Rd., and Patnode Rd. (lower section).

Soucia, Colgan, Swamp and Liberty Pole are all dead ends that terminate at private property boundaries. No maintenance on these roads is performed between December and April. Rogers Rd. is a short half-loop road beginning and ending at Clinton Mills Rd. The width becomes very narrow and the asphalt pavement is very old and broken. Patnode Rd. (south section between SR 190 and Gagnier Rd.) is a narrow gravel road in poor condition and should be avoided.

The major roadway deficiencies observed in the field were 1) Insufficient intersection geometry with roadway approach-widths of 20 feet or less, and 2) Shallow cover over drain pipe culverts.

**INSUFFICIENT INTERSECTION GEOMETRY.** This is the single most common problem observed in the field. Almost all of the 3-way and 4-way intersections have 90-degree tight-radius intersections with obstacles present on the inside corners such as traffic signs, utility poles, and drainage culverts. Often times there is also a significant difference in grade between the road (higher elevation) and the adjacent ground (lower elevation) on the inside corner. See Potential Mitigation Techniques.

**SHALLOW COVER OVER STRUCTURES.** Drainage culverts are prevalent in the project area. Wetlands and waterways dominate the landscape and the roadway network that bisects the region is generally only a few feet above the wetlands so there are plenty of small diameter culverts with less than 18 inches of cover that connect the wetlands on either side of the road.

Bridge and culvert data and roadway characteristics were gathered in the field (Oct. 11-12, 2005) to assess the impact and frequency of possible culvert failure or roadway deficiencies under the weight of Q5/QW wheel loads for a given road. The results of the drainage and roadway survey can be found in APPENDIX B.

**SUMMARY OF FINDINGS.** A total of 35 culverts were located that had 18 inches of cover or less. This does not include culverts on dead end roads such as Colgan, Soucia, Liberty Pole and Swamp Roads. Of the 35 culverts, 8 culverts crossed gravel roads (4 on Lagree, 2 on Patnode South, 2 on La Francis); and the other 27 culverts crossed paved county roads.

In conversations with the Clinton County Highway Department, they expressed a preference for using steel plates to cross over shallow-cover culverts on county roads, but have concerns about snow plows hitting the plates during snowstorms (October-April).

The number of culverts actually requiring protective measures will most likely be reduced as the local truck routes become better defined. For purposes of this study, we are assuming all the roads will be used for wind turbine transport.

**LOCAL BRIDGES.** During the study of local roads, we encountered seven bridges spanning brooks and streams which will require more detailed inspections before final local truck routes are selected. These bridges are located as shown on the Table below:

**TABLE 10: LOCAL AREA BRIDGES**

LOCAL ROAD	MILE	DESCRIPTION
SR 189	5.5	Concrete bridge over brook. Check with NYSDOT for BIN
SR 189	5.0	Concrete bridge over brook. Check with NYSDOT for BIN
LOOBY RD	0.6	Concrete bridge over brook. Check with CC Hwy. Dept
CLINTON MILLS RD	4.0	Concrete bridge over stream. Check with CC Hwy. Dept.
BOHEN/CAMPBELL	2.7	Concrete bridge over brook. Check with CC Hwy. Dept
BOHEN/CAMPBELL	3.9	Concrete bridge over brook. Check with CC Hwy. Dept
SOUCIA RD	0.01	Steel grate bridge over stream. Unsafe. Do not use.

See MAP 2

CC Hwy. Dept = Clinton County Highway Department

Of the seven bridges listed above, two of them will probably not be used. One bridge on SR 189 is too far north of the project area and will not be part of the local truck route. The second bridge is at the start of Soucia Rd (at Clinton Mills Rd). This bridge is very old and not capable of withstanding heavy loads. It has a steel grate deck on steel I-beam supports. The abutment walls are fieldstone. It is also narrow, only 12'-9" wide by 11'-6" long. The only way to access Soucia Rd. with heavy equipment is to completely rebuild the bridge.

**USE OF BRIDGE PLATES.** If necessary, bridge plates or jumpers may be placed on the road to span the other four bridges in the project area to increase the weight bearing capacity of the bridge structures when heavy loads need to pass.

**BRIDGE UNDERPASSES.** None.

**RAILROAD CROSSINGS.** None.

**INSUFFICIENT ROADWAY WIDTH.** All local roads appeared to have adequate width or had available shoulder width for temporary widening to accommodate wide loads. The only exception is at intersections where wide turns are necessary to change direction along the route. See the following Section on Insufficient Roadway Geometry.

**INSUFFICIENT ROADWAY GEOMETRY.** The most difficult OS/OW truck turning maneuver along the truck routes is the 90-degree turn. Intersections where the turning angle is greater than 90-degrees should be avoided. The 90-degree turn is made even more difficult on the local county roads because the roadway widths are narrower than those on state roads. To facilitate 90-degree turning movements on the local roads it will be necessary to widen the roadway width with compacted gravel. This temporary widening may occur:

- 1) On the approach road (upstream)
- 2) On the inside corner of the intersection and/or
- 3) On the receiving road (downstream)

For more detail on these temporary intersection improvements, refer to APPENDIX A at the back of the report. Depending on specific intersection constraints, any combination of the above may be necessary. For purposes of this report, we have used the largest turning radius generated by the OS/OW transport truck that will carry the turbine rotor blades. This special hauling vehicle may be in excess of 175' long with the blade and has a critical inside turning radius of 150'. The vehicle path of the turbine rotor blade truck is the basis for evaluating truck turning movements at local intersections.

TRUCK TURNING MOVEMENTS. MAP 3 in the back of this report has been prepared to illustrate the possible 90-degree turns at each intersection within the local road network. The preliminary evaluation of the truck turning movements is based on field observations, intersection photographs (as shown in APPENDIX C) and the estimated vehicle path of the wind turbine blade truck (APPENDIX A). The probability of successful 90-degree turns takes into account that some intersection corner widening (or combination of widenings) will be required. It should be noted that intersection corner widening may require that Stop signs, Yield signs and Street signs be removed and reset to make way for large-radius truck turns.

### **3.2 Summary and Follow-up for On-Site OS/OW Route Planning**

As the siting of the proposed wind turbine access roads becomes final, we should be able to narrow down the study area and focus in on specific intersections where filling, regrading and traffic sign removal and resetting will be necessary. Additional intersections may need to be evaluated as truck route planning becomes more finalized. At that time, it will also be necessary to work closely with state, county and town highway departments to determine the best and safest methods for widening existing roads and reinforcing drainage structures and bridges while at the same time causing minimal inconvenience to the motoring public.

### **3.3 Recommendation**

The results of this OS/OW transportation route study are preliminary, but give clear direction as to where to direct efforts in planning the final route for this project. The following action plan is suggested as this project moves forward.

1. Work closely with NYSDOT Special Hauling Permits Division (Albany) and get them involved early in the process. Allow a minimum of 6 to 9 months for NYSDOT permitting.
2. Contact an experienced Route Surveyor who will submit a final route (required by NYSDOT).
3. Contact the County Highway and Town Highway Departments to understand the procedures for performing work on public roads.
4. Provide accurate highway survey information for problem intersections in order to determine engineering solutions to construction vehicle turning movements.
5. Understand where vertical clearance issues occur along the route especially as they relate to low overhead electric wires.
6. Contact the appropriate utility companies 6 to 9 months in advance of the first OS/OW truck trip to notify them that they need to raise wires above the road.
7. Select a heavy hauling transportation contractor (e.g. Lone Star Transportation, Fort Worth, TX) specializing in wind energy transports.
8. Obtain all necessary state, county and local permits.
9. Conduct more fieldwork along local roads (e.g. Brandybrook Rd, Ryan Rd, Lost Nation Rd, Sancomb Rd.) where new wind turbine access roads are proposed within the project area.

#### **4.0 PROJECT CONTACT INFORMATION**

The following sources of information were contacted in the preparation of this evaluation.

Joseph Lee-Civalier  
NYSDOT  
Special Hauling Permits  
Albany, NY  
(518) 485-2448

Doug Miller  
Lone Star Transportation  
Fort Worth, TX  
1-800-541-8271  
(817) 230-0242

Lorraine Turturro  
NYSDOT Region 7  
Office of Traffic & Safety  
317 Washington St. / 9<sup>th</sup> Floor  
Watertown, NY 13601  
(315) 785-2321

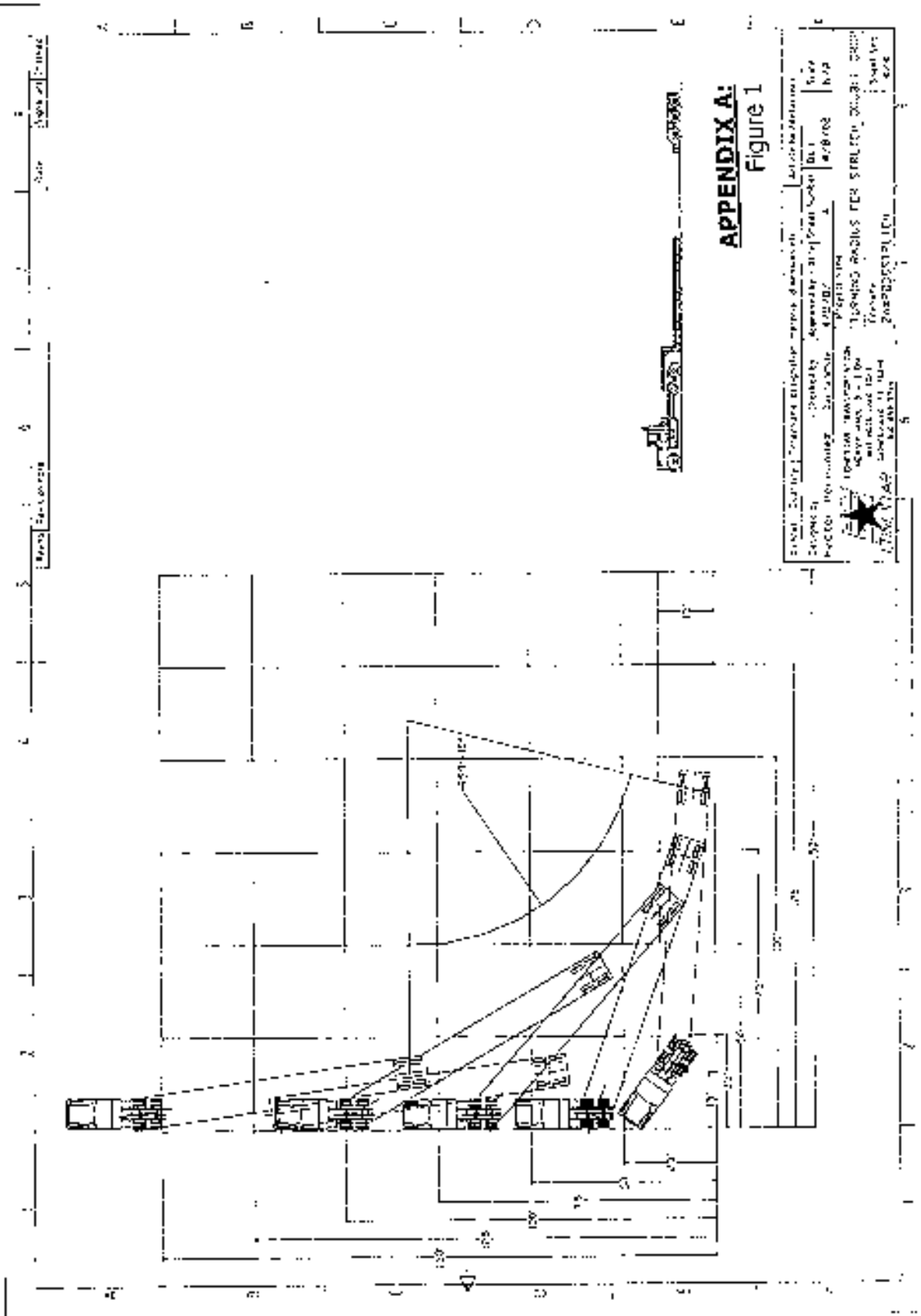
Mary Joyce  
M&T Escorts  
3536 Walls Road  
Randolph, NY 14772  
(716) 358-2303

Scott Docteur  
NYSDOT  
Planning Office  
317 Washington St. / 7<sup>th</sup> Floor  
Watertown, NY 13601  
(315) 785-2354

David Langlois  
Clinton County Highway Dept.  
736 Route 3  
Plattsburgh, NY 02901  
(518) 565-4626

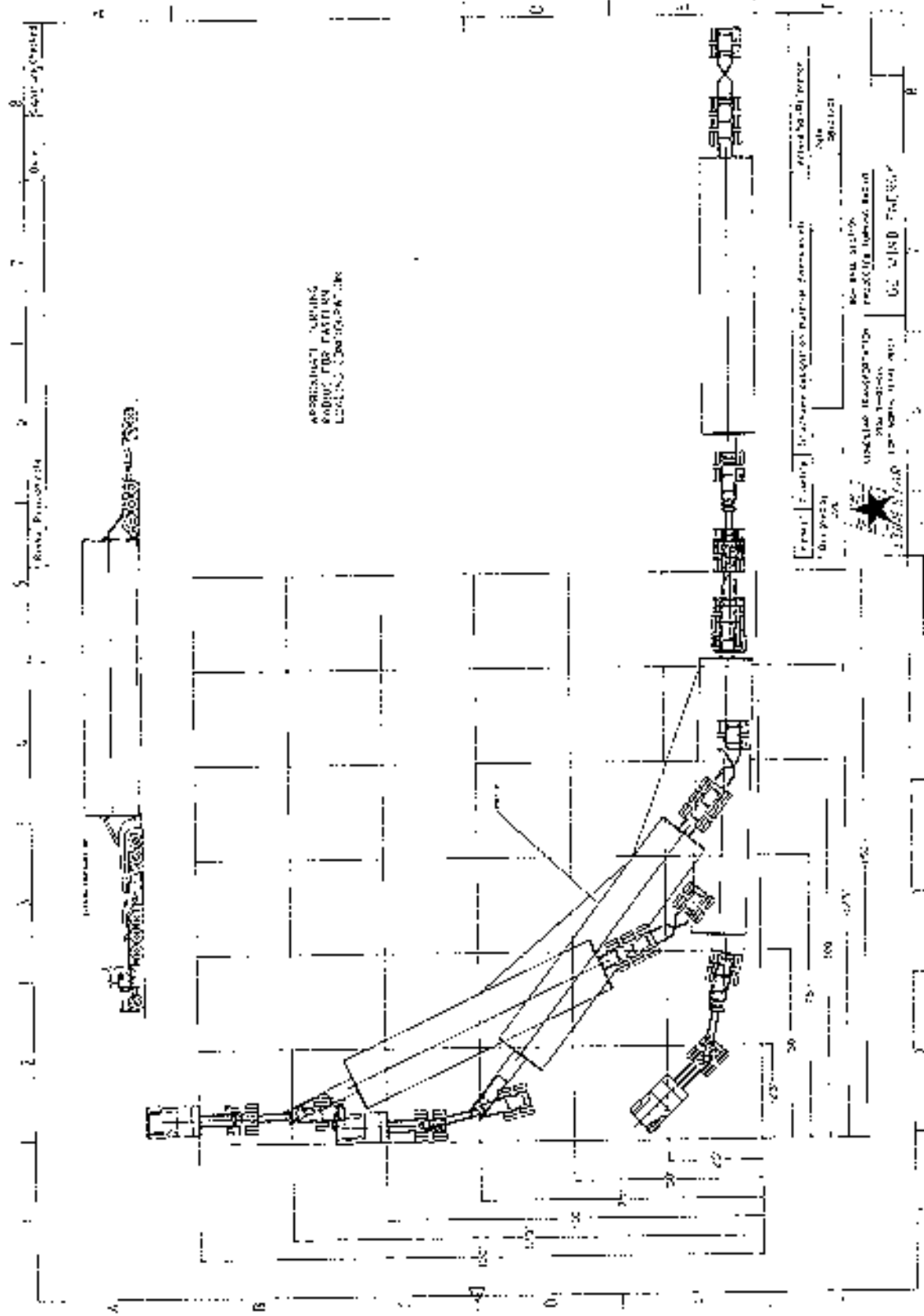
Steve Matthews  
Town of Clinton Highway Department  
PO Box 576  
Route 189  
Churubusco, NY 12923  
(518) 497-6296 (Tel/Fax)

New York State Electric & Gas Corp. (NYSEG)  
1-800-572-1111  
[www.nyseg.com](http://www.nyseg.com)



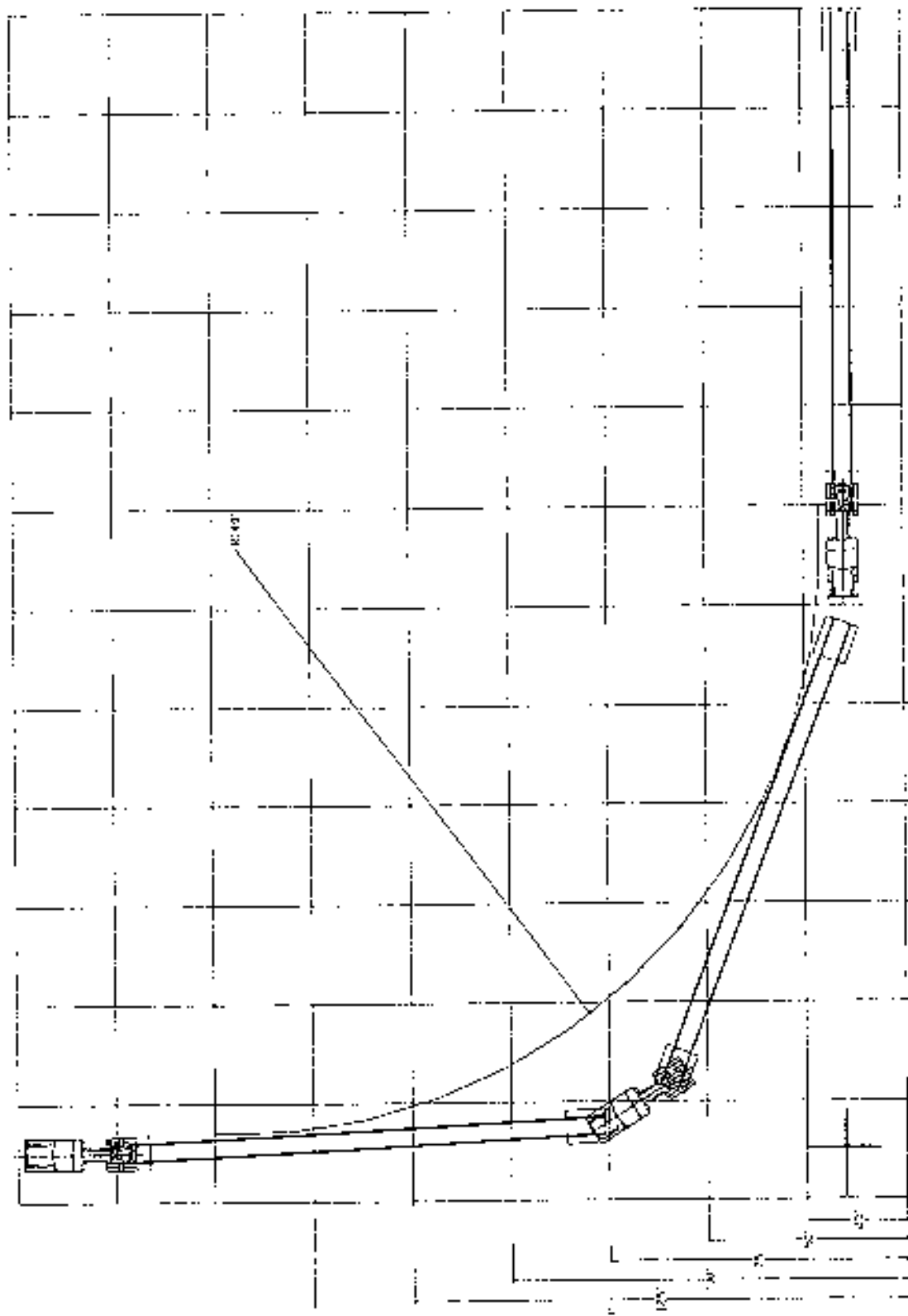
**APPENDIX A:**  
Figure 1

Project Name	Project Number	Project Date	Project Location
Project Description	Project Status	Project Phase	Project Budget
Project Manager	Project Engineer	Project Designer	Project Checker
Project Client	Project Consultant	Project Contractor	Project Subcontractor
Project Start Date	Project End Date	Project Duration	Project Completion
Project Milestones	Project Risks	Project Issues	Project Recommendations



**APPENDIX A:**  
Figure 2





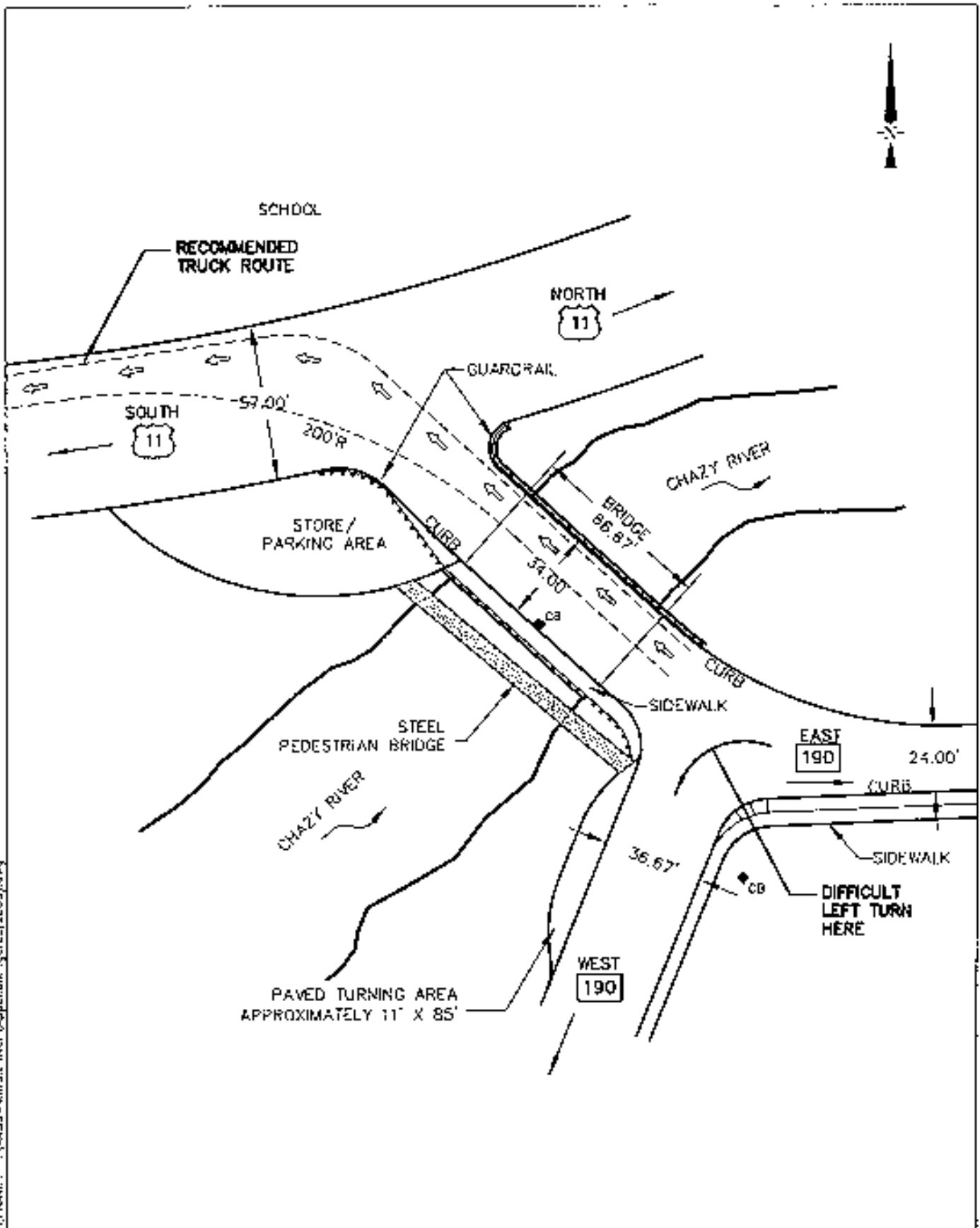
**APPENDIX A:**  
**Figure 3**

Project	Country	Initial Name	Designation	Project No.	Scale
PROJECT NAME					
Designed by	Checked by	Approved by	Project No.	Scale	
PROJECT NAME	PROJECT NAME	PROJECT NAME	PROJECT NAME	PROJECT NAME	
<b>TURNING RADIUS FOR M510</b> FINANCE: BANKRUPTCY					
Sheet No. 1/1					



**APPENDIX A:**  
Figure 4

Item #	Quantity	Description, Material, Dimensions	Part Number
			474/02
Designed by	Checked by	Approved by - date	Sheet Number
		4/24/02	1
Project Number	Drawn by	Project Name	
		LESTER TRANSPORTATION	
		HEAVY DUTY DIVISION	
		1010 MASS LANE, 2ND	
		SAUBOUILLET, LA 70601	
		330-330-5044	
			Date 4/24/02
DRAWING FOR 31 AXLE			



Engineers  
 Scientists  
 Consultants

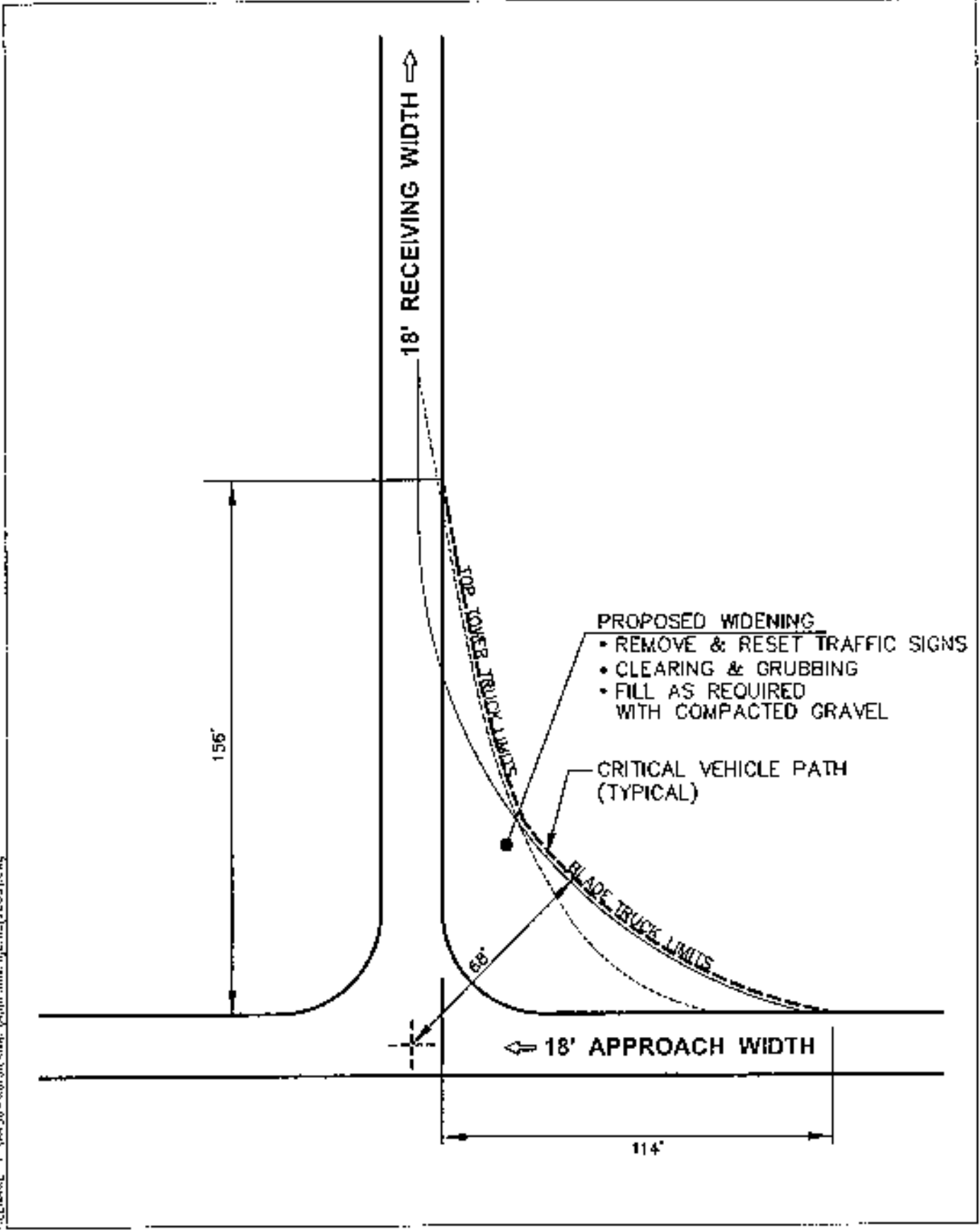
MARBLE RIVER WIND PROJECT  
 Preliminary Transportation Assessment  
 Clinton County, New York

Source: Fieldwork 10/12/05  
 Scale: 1" = 50'

**APPENDIX A:**  
 Ellenburg Corners  
 Intersection Alignment  
 Ellenburg, NY

Figure  
 5

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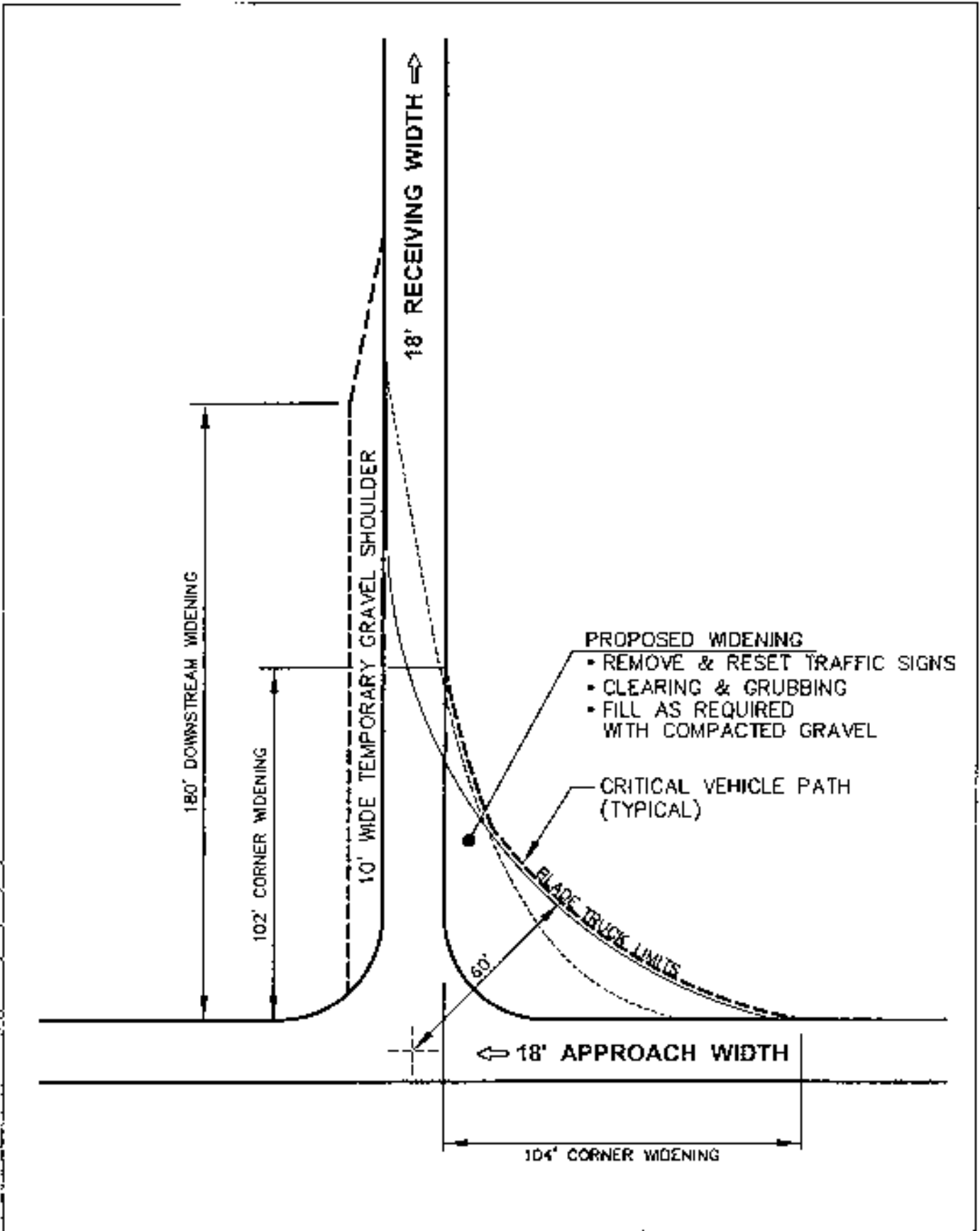
MARBLE RIVER WIND PROJECT  
 Preliminary Transportation Assessment  
 Clinton County, New York

Source: Fieldwork 10/12/05  
 Scale: 1"=40'

**APPENDIX A:**  
**Intersection Improvements**  
**Corner Widening Only**  
**Local & County Roads**

Figure  
 6

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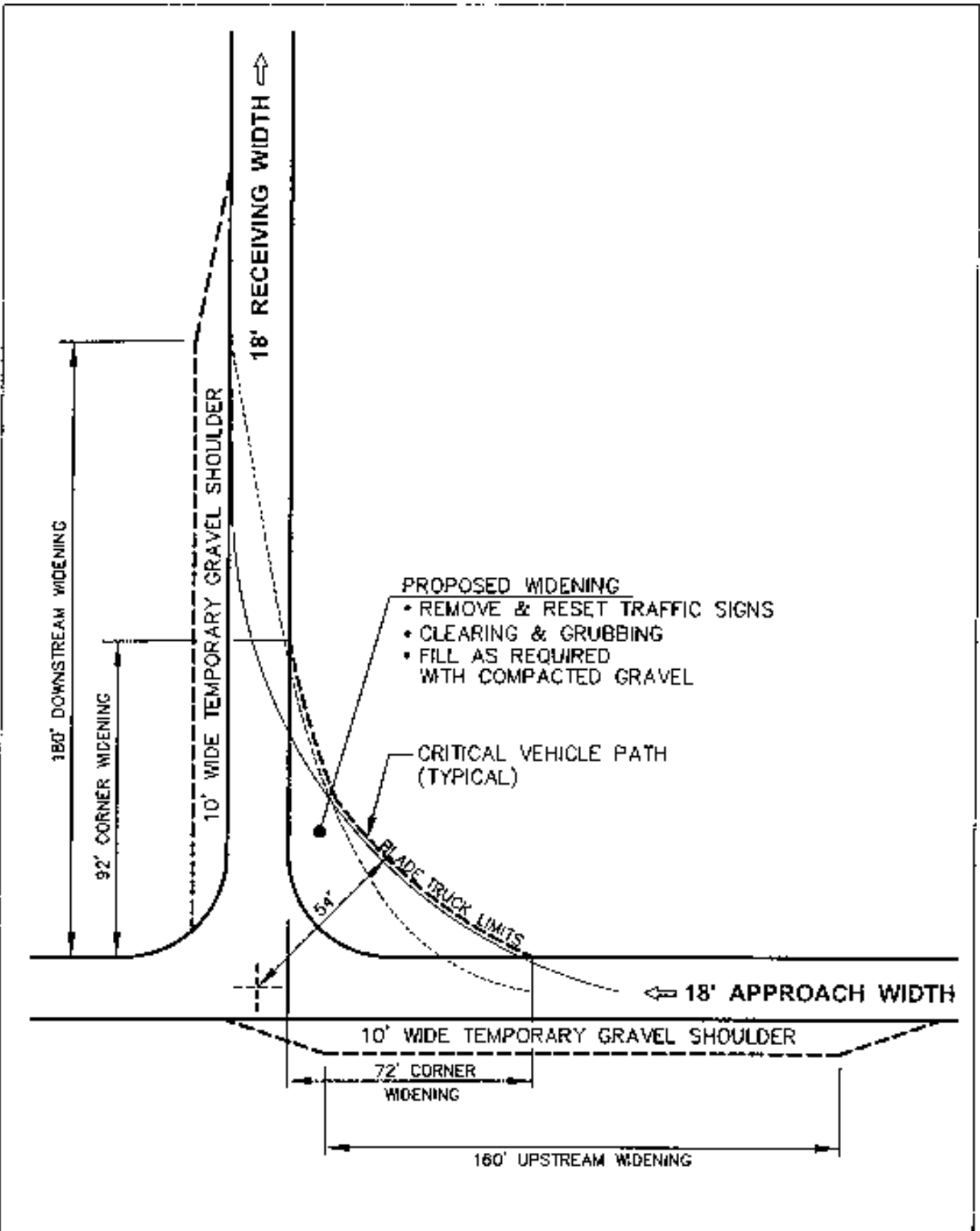
Engineers  
 Scientists  
 Consultants

MARBLE RIVER WIND PROJECT  
 Preliminary Transportation Assessment  
 Clinton County, New York

Source: Fieldwork 10/12/05  
 Scale: 1" = 40'

**APPENDIX A:**  
**Intersection Improvements**  
**Downstream / Corner Widening**  
**Local & County Roads**

Figure  
 7



Engineers  
 Scientists  
 Consultants

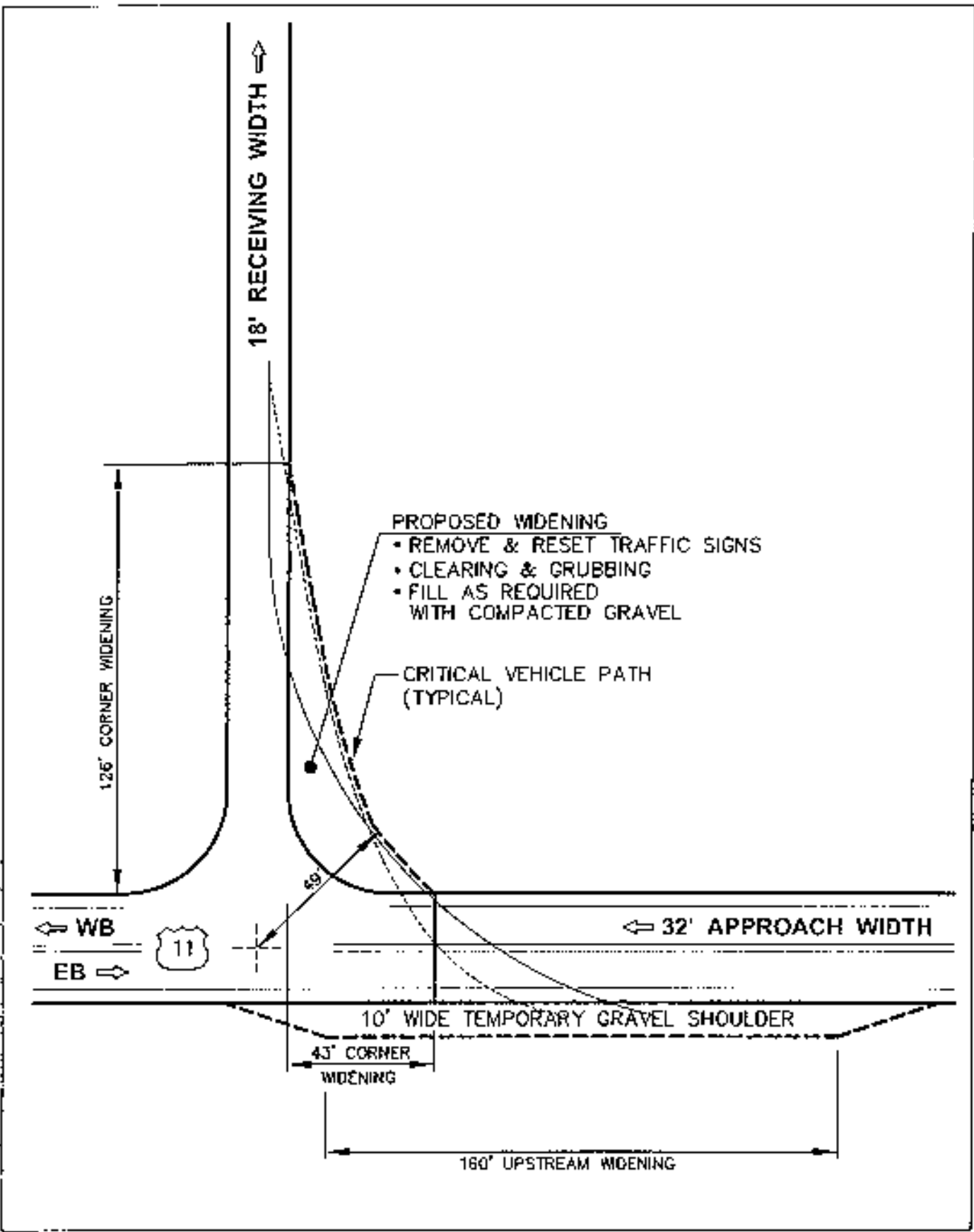
MARBLE RIVER WIND PROJECT  
 Preliminary Transportation Assessment  
 Clinton County, New York

Source: Network 10/12/05  
 Scale: 1"=40'

**APPENDIX A:**  
**Intersection Improvements**  
**Upstream / Corner / Downstream**  
**Widening: Local & County Roads**

Figure  
 8

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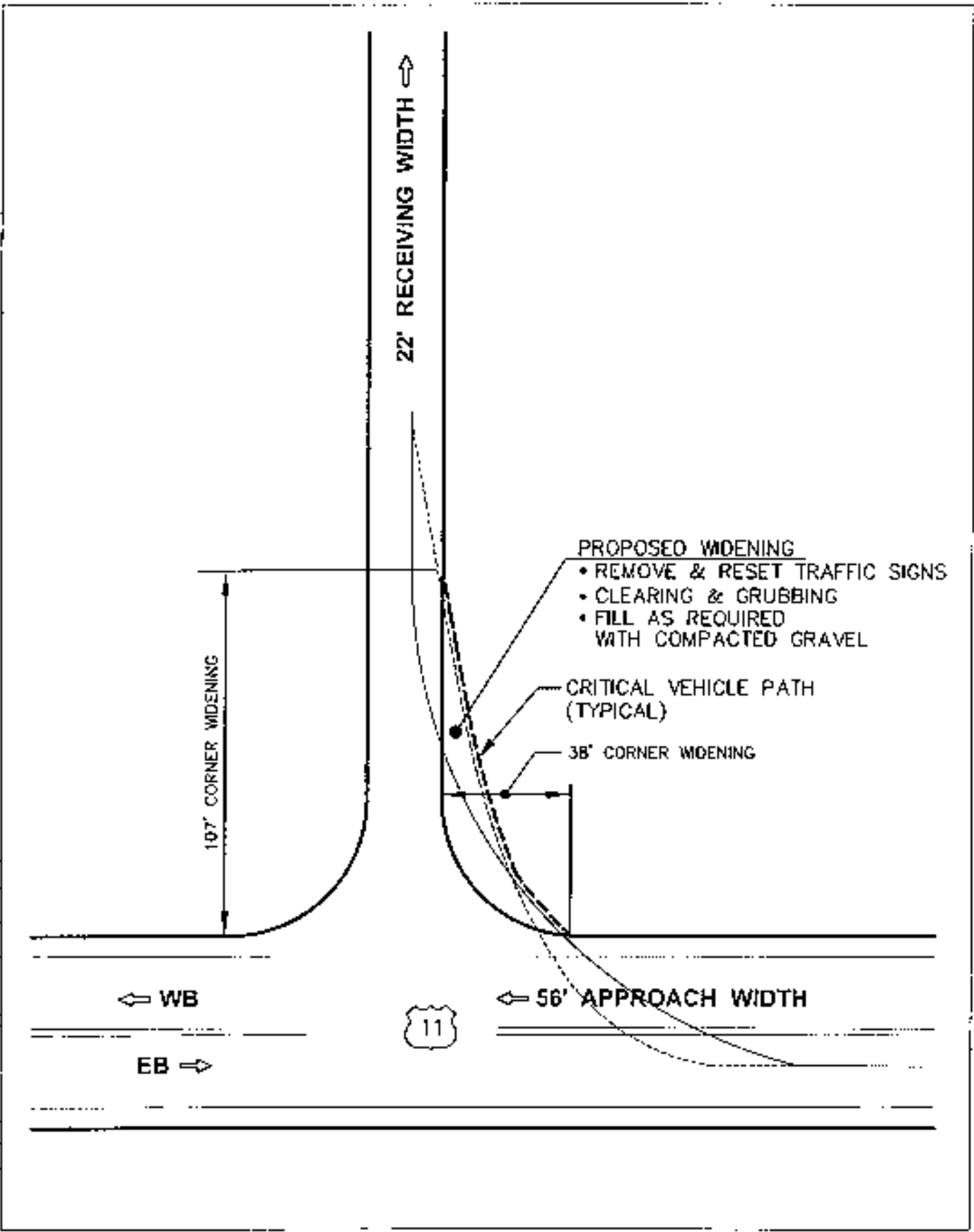


MARBLE RIVER WIND PROJECT  
 Preliminary Transportation Assessment  
 Clinton County, New York

Source: Fieldwork 10/12/05  
 Scale: 1" = 40'

**APPENDIX A:**  
**Intersection Improvements**  
**Upstream / Corner Widening**  
**Local & County Roads**

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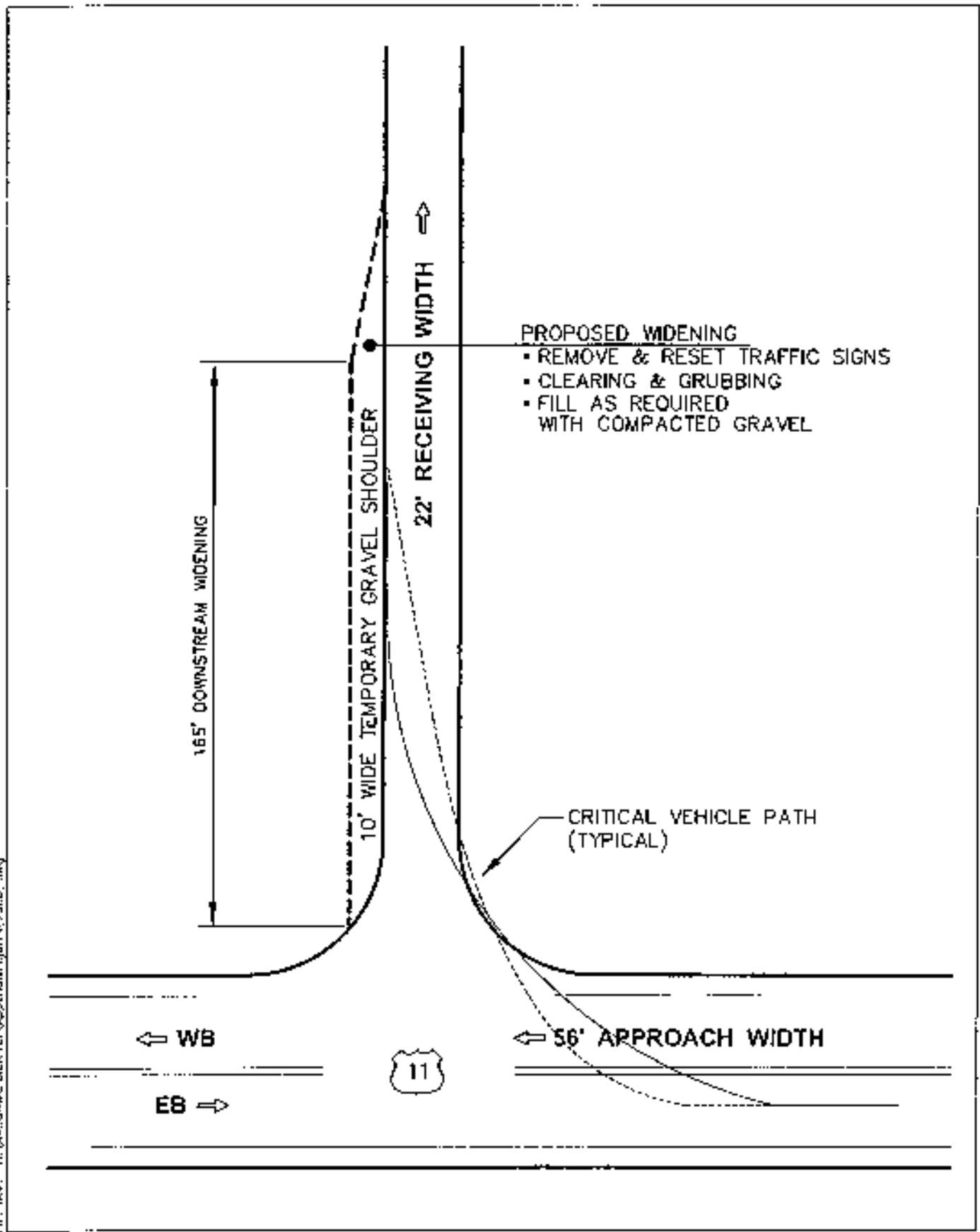
MARBLE RIVER WIND PROJECT  
 Preliminary Transportation Assessment  
 Clinton County, New York

Source: Fieldwork 10/12/05  
 Scale: 1"=40'

**APPENDIX A:**  
**Intersection Improvements**  
**Corner Widening Only**  
**Local & County Roads**

**Figure**  
**10**





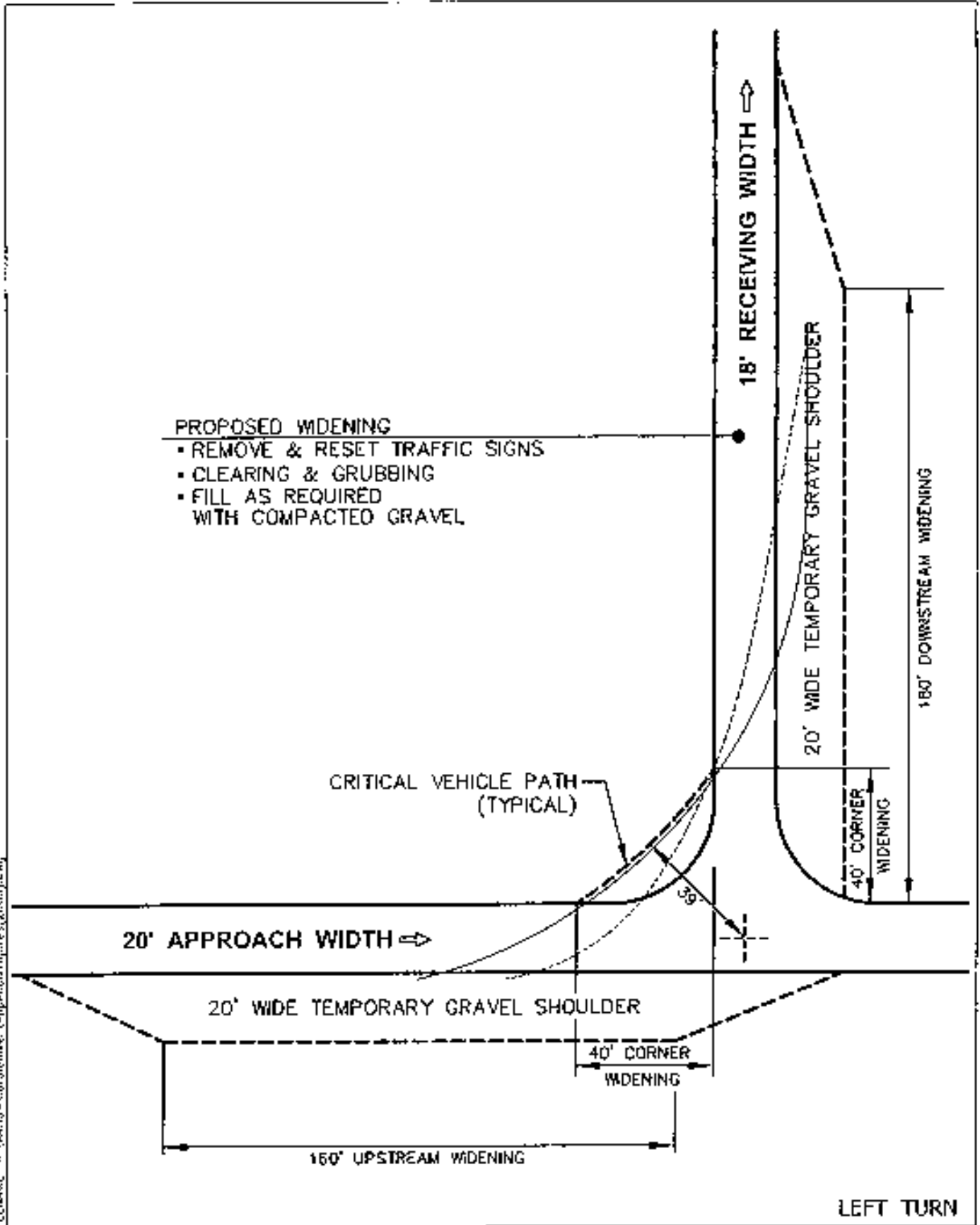
MARBLE RIVER WIND PROJECT  
 Preliminary Transportation Assessment  
 Clinton County, New York

Source: Fieldwork 10/12/05  
 Scale: 1"=40'

**APPENDIX A:**  
**Intersection Improvements**  
**Downstream Widening Only**  
**Local & County Roads**

Figure  
 11

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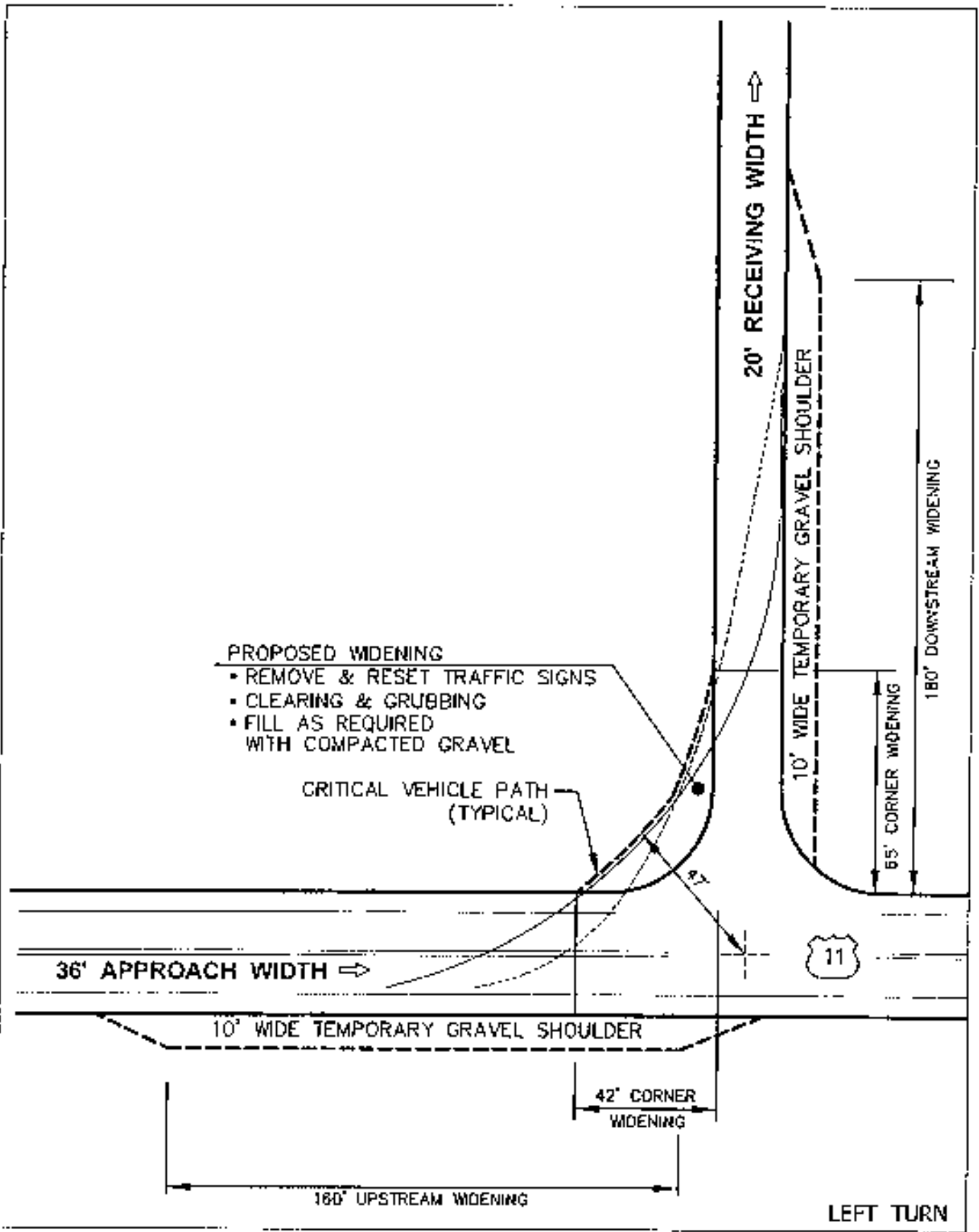
MARBLE RIVER WIND PROJECT  
 Preliminary Transportation Assessment  
 Clinton County, New York

Source: Fieldwork 10/17/05  
 Scale: 1" = 40'

**APPENDIX A:**  
 Intersection Improvements  
 Upstream / Corner / Downstream  
 Widening: Local & County Roads

Figure  
 12





Engineers  
 Scientists  
 Consultants

MARBLE RIVER WIND PROJECT  
 Preliminary Transportation Assessment  
 Clinton County, New York

Source: Fieldwork 10/12/05  
 Scale: 1"=40'

**APPENDIX A:**  
 Intersection Improvements  
 Upstream / Corner / Downstream  
 Widening: Local & County Roads

Figure  
 14

**Roadway Drainage Inventory / Cover over Structure**

LIBERTY POLE RD	TOWN RD	EXISTING DRAINAGE						NOTES
		MATERIAL	PIPE D (IN)	ARCH		COVER (IN)		
				SPAN (IN)	HEIGHT (IN)			
0.00							21' WIDE PAVED	
0.10							LOW WIRE	
0.40		CPP		33	33	102		
0.50		CPP	24			16		
1.00		CPP	15			10	15' WIDE PAVED	
1.50							8' WIDE GRAVEL	
1.60							DEAD END. BEGIN 12' DIRT PATH	
END								

**LEGEND:**

CPP CORRUGATED PLASTIC PIPE

**COMMENTS:**

1. Dead End. Not recommended for use without constructing truck turning area or getting permission to access private property beyond 1.5 miles.



**Roadway Drainage Inventory / Cover over Structure**

LOOBY ROAD	COUNTY RD	EXISTING DRAINAGE							NOTES
		MILE	MILE	MATERIAL	PIPE D (IN)	SPAN (IN)	BOX HEIGHT (IN)	COVER (IN)	
WEST FROM SR 189									
0.00		2.40							SR 189. 20.5' WIDE PAVED
0.10		2.30		CPP	18			18	
0.60		1.80		CPP	24			40	JONES ROAD=18' BIT.
1.60		0.80							WHALEN RD INTERSECTION
1.70		0.70		CMP	24			26	
1.80		0.60		CONC		204	78	16	BRIDGE
2.40		0.00							ROUTE 11
END		START							

LEGEND:

- CPP CORUGATED PLASTIC PIPE
- CMP CORRUGATED METAL PIPE
- CONC CONCRETE

COMMENTS:

1. 2 culverts with 18" cover or less

**Roadway Drainage Inventory / Cover over Structure**

WHALEN RD - TOWN RD NORTH FROM LOOBY	EXISTING DRAINAGE			NOTES
	MATERIAL	PIPE D (IN)	COVER (IN)	
MILE 0.00	METAL	12	16	FILLED? 18' WIDE PAVED
0.20	RCP	36	32	
0.30	RCP	18	36	
0.70	RCP	42	12	
1.00				PAVEMENT ENDS - 12' DIRT BEGINS
END				END AT MERCHIA RD

**LEGEND:**

RCP REINFORCED CONCRETE PIPE

**COMMENTS:**

1. 2 culverts with 18" cover or less.



**Roadway Drainage Inventory / Cover over Structure**

MILE	MATERIAL	EXISTING DRAINAGE		NOTES
		PIPE D (IN)	COVER (IN)	
0.00				12' WIDE GRAVEL - GOOD CONDITION
1.50				18' WIDE PAVED
1.80				JONES RD INTERSECTION
1.80	CPP	15	10	JUST BEFORE JONES RD
1.80	CPP	30	6	JUST AFTER JONES RD
2.00	CPP	18	28	
2.40	CMP	48	12	SR 189
END				

**LEGEND:**

- CPP CORRUGATED PLASTIC PIPE
- CMP CORRUGATED METAL PIPE

**COMMENTS:**

1. 3 culverts with 18" cover or less.

**Roadway Drainage Inventory / Cover over Structure**

LAGREE RD - TOWN RD EAST FROM US 11		EXISTING DRAINAGE			NOTES
		MATERIAL	PIPE D (IN)	COVER (IN)	
MILE					
0.00					12.5' WIDE PAVED
0.10					12.5' WIDE GRAVEL
0.50		CMP	15	<3	
1.10		CMP	18	10	
1.11		CMP	21	10	35"X21" ELLIPTICAL
1.60		CMP	36	18	
END					SR 189

**COMMENTS:**

- 4 culverts with 18" cover or less.

SWAMP RD - TOWN RD EAST FROM SR 189		EXISTING DRAINAGE			NOTES
		MATERIAL	PIPE D (IN)	COVER (IN)	
MILE					
0.00					10' WIDE DIRT - FAIR
0.20		CPP	15	10	
0.30					PRIVATE PROPERTY POSTED
END					DEAD END

**LEGEND:**

- CMP CORRUGATED METAL PIPE
- CPP CORRUGATED PLASTIC PIPE

**COMMENTS:**

- Dead End. Do not recommend use without constructing truck turning area or getting permission for access onto private property
- Dirt road in poor condition.

**Roadway Drainage Inventory / Cover over Structure**

JONES RD - TOWN RD NORTH FROM LOOBY	EXISTING DRAINAGE			NOTES
	MATERIAL	PIPE D (IN)	COVER (IN)	
0.00				18' WIDE PAVED
0.10	RCP	15	25	
0.10	CMP	15	27	
0.40	CMP	24	10	
0.90				END AT MERCHIA RD
1.0+				BECOMES PRIVATE RD
END				

LEGEND:

- RCP REINFORCED CONCRETE PIPE
- CMP CORRUGATED METAL PIPE

COMMENTS:

1. 1 culvert with less than 18" cover.
2. Paved road condition very good.

**Roadway Drainage Inventory / Cover over Structure**

PATNODE RD - TOWN RD		EXISTING DRAINAGE				NOTES
SOUTH FROM US 11		MATERIAL	PIPE D (IN)	COVER (IN)		
MILE	MILE					
0.00	3.60				US 11	
0.30	3.30	RCP	42	>8'	20' WIDE PAVED	
0.70	2.90	CPP	30	12		
0.75	2.85	CMP	18	<6		
1.30	2.30	CPP	30	12		
1.40	2.20				GAGNIER RD INTERSECTION	
1.40	2.20				PAVEMENT ENDS → 10' GRAVEL	
1.70	1.90				STEEP SECTION	
1.80	1.80			3	COLLAPSED CULVERT, C<3"	
1.90	1.70	RCP	12	12	9' WIDE GRAVEL - POOR CONDITION	
2.10	1.50	RCP	36	32	CONC. HEADWALL/TIMBER STRUCTURE	
2.60	1.00				POWER CO. EASEMENT	
3.00	0.60				STEEP SECTION	
3.60	0.00				SR 190	
END	START					

**LEGEND:**

- RCP REINFORCED CONCRETE PIPE
- CPP CORRUGATED PLASTIC PIPE
- CMP CORRUGATED METAL PIPE

**COMMENTS:**

1. 5 culverts with less than 18" cover.
2. Paved road condition very good between Gagnier Rd. and US 11.
3. Gravel road condition poor between Gagnier Rd. and SR 190.

Roadway Drainage Inventory / Cover over Structure

		EXISTING DRAINAGE				COVER (IN)	NOTES
		MATERIAL	PIPE D (IN)	BOX SPAN (IN)	HEIGHT (IN)		
COLGAN RD - TOWN RD NORTH FROM CLINTON MILLS RD							
MILE							
	0.00						18' WIDE PAVED
	0.40						END PAVED - BEGIN 8' GRAVEL - POOR
	END						DIRT PATH

		EXISTING DRAINAGE				COVER (IN)	NOTES
		MATERIAL	PIPE D (IN)	BOX SPAN (IN)	HEIGHT (IN)		
SOUCHIA RD - TOWN RD NORTH FROM CLINTON MILLS RD							
MILE							
	0.00						10' DIRT - POSTED NO MAINT DEC. - APRIL
	0.00	STONE		153			11.5' LONG - STEEL GRATE BRIDGE (POOR)
	0.70						POSTED PRIVATE PROPERTY
	END						

		EXISTING DRAINAGE				COVER (IN)	NOTES
		MATERIAL	PIPE D (IN)	BOX SPAN (IN)	HEIGHT (IN)		
ROGERS RD - TOWN RD EAST FROM CLINTON MILLS RD							
MILE							
	0.00						12' WIDE PAVED - FAIR CONDITION (WEST END)
	0.05	RCP	42		24		
	0.10						10' GRAVEL SPUR ROAD TO NORTH - POOR
	0.10						BEGIN 8' WIDE PAVED - POOR CONDITION
	0.20						8' WIDE PAVED - POOR CONDITION
	0.60						CLINTON MILLS RD (EAST END)
	END						

COMMENTS:

- Colgan is a dead end. Check property ownership for access beyond paved section (0.4 miles).  
Truck turning area may be necessary at end of paved road if access is not allowed beyond 0.4 miles.
- Souchia Rd. has an unsafe steel grate bridge at the beginning. Do not use Souchia for access.
- Rogers Rd. is becomes an 8' wide road with very old broken pavement. It could be good access to a "laydown area" because it loops back to Clinton Mills Rd. However, it would need major free clearing at the edge of road if used for "laydown". Check property ownership along Rogers Rd.

**Roadway Drainage Inventory / Cover over Structure**

CLINTON MILLS RD - COUNTY RD		EXISTING DRAINAGE				COVER (IN)	NOTES
MILE	MATERIAL	PIPE D (IN)	SPAN (IN)	BOX			
				HEIGHT (IN)			
0.00						32' WIDE PAVED	
0.60	CPP	36			33		
1.10	CPP	24			24		
1.40	CPP	36			18	TWIN CULVERTS	
1.40	CMP	30			18		
1.50						20' WIDE PAVED	
1.50	RCP	24			60		
1.70	RCP	24			72		
2.10	CPP	36			18		
2.30	CMP	18			66		
2.80	CPP	24			36		
2.90	CPP	30			20		
3.50	CMP	18			>96		
3.70	CPP	24			32		
4.00	RCP		144	54	20	CONCRETE BRIDGE	
4.40	CPP	36			18	TWIN 18" CULVERTS	
4.40	CPP	36			18		
4.70	CPP	36			48		
5.20	CPP	36			24		
5.30						BULL RUN RD INTERSECTION	
5.60	CPP	24			60		
5.80	CPP	24			36		
6.00	CPP	15			24		
6.05	CPP	18			26		
6.10	CPP	24			26		
6.20						BEGIN CANAAN RD	
END							

**LEGEND:**

- CPP CORRUGATED PLASTIC PIPE
- RCP REINFORCED CONCRETE PIPE
- CMP CORRUGATED METAL PIPE

**COMMENTS:**

1. 4 culverts with 18" cover or less.
2. Clinton Mills Rd. is the primary East-West road through the project area. Access to specific WGT sites will likely be from this road.

**Roadway Drainage Inventory / Cover over Structure**

LA FRANCIS RD - TOWN RD SOUTH FROM CLINTON MILLS RD		EXISTING DRAINAGE							NOTES
MILE	MILE	MATERIAL	PIPE D (IN)	SPAN (IN)	BOX HEIGHT (IN)	COVER (IN)			
0.00	4.15							CLINTON MILLS RD	
0.50	3.65	IRON	30			36		ROLLING HILLY ROAD	
1.20	2.95							POPLAR HILL ROAD (POSTED PRIVATE)	
1.90	2.25							STEEP HILL	
2.00	2.15							12' WIDE PAVED - POOR CONDITION	
2.40	1.75	CMP	21			12			
2.80	1.35							16' WIDE PAVED	
2.90	1.25	CPP	36			30			
3.10	1.05	CPP	18			28			
3.20	0.95	CPP	15			28			
3.40	0.75	CMP	48			24			
3.40	0.75	RCP	42			36			
3.40	0.75	RCP	42			36			
3.60	0.55	CMP	15			16			
3.65	0.50	CMP	18			15			
3.65	0.49	CPP	18			12			
4.00	0.15	CMP	15			18			
4.10	0.05	RCP	15			18			
4.15	0.00							16' WIDE PAVED	
4.15	0.00			42	60	28		CONC. CULVERT UNDER US 11, EAST SIDE OF LA FRANCIS	
END	START							US 11	

**LEGEND:**

- CPP CORRUGATED PLASTIC PIPE
- RCP REINFORCED CONCRETE PIPE
- CMP CORRUGATED METAL PIPE

**COMMENTS:**

1. 7 culverts with less than 18" cover.
2. 4-mile paved road in good condition running North-South. Look for potential laydown areas along this road.

Roadway Drainage Inventory / Cover over Structure

BOHEN/CAMPBELL RD - COUNTY RD		EXISTING DRAINAGE				COVER (IN)	NOTES
MILE	MATERIAL	PIPE D (IN)	SPAN (IN)	BOX HEIGHT (IN)			
0.00						18' WIDE PAVED - GOOD CONDITION	
0.30	CPP	30			24		
0.80	CPP	30			30		
0.85	CPP	30			30		
1.00	RCP	36			>72		
<b>1.10</b>						<b>NUMBER 5 RD/END BOHEN RD/BEGIN CAMPBELL RD</b>	
1.20	CPP	15			18		
1.70	CPP	30			18		
2.00	CPP	15			24		
2.10						GAGNIER RD INTERSECTION	
2.20						20' WIDE PAVED	
2.70			120	60	20	CONCRETE BRIDGE	
2.75	CPP	36			24		
2.90	CONC	24			12	1W/ 8' LONG CONC. HEADWALL	
3.10						LAMB RD INTERSECTION	
3.20	CPP	18			15		
3.90			180	72	20	CONCRETE BRIDGE	
4.10	CPP	36			36		
4.25						US 11	
END							

LEGEND:

- CPP CORRUGATED PLASTIC PIPE
- RCP REINFORCED CONCRETE PIPE
- CONC CONCRETE

COMMENTS:

1. 4 culverts with less than 18" cover.
2. Very good paved road running North-South along the west project boundary.
3. Campbell Rd is a county road from US 11 south to Gagnier Rd.



**Roadway Drainage Inventory / Cover over Structure**

<b>NUMBER 5 RD - TOWN RD</b>		<b>EXISTING DRAINAGE</b>			<b>NOTES</b>
<b>WEST FROM BOHEN/CAMPBELL</b>					
<b>MILE</b>	<b>MILE</b>	<b>MATERIAL</b>	<b>PIPE D (IN)</b>	<b>COVER (IN)</b>	
0.00	1.00				BOHEN/CAMPBELL RD
0.20	0.80	RCP	18	30	18' WIDE PAVED
0.21	0.79	CMP	36	32	
0.22	0.78	CPP	24	24	
0.28	0.71	RCP	18	26	
0.40	0.60	CPP	24	12	
0.45	0.55	CPP	24	8	
0.60	0.40	CPP	18	16	
1.00	0.00				RYAN RD
END	START				16' WIDE PAVED

**LEGEND:**

- CPP CORRUGATED PLASTIC PIPE
- RCP REINFORCED CONCRETE PIPE
- CMP CORRUGATED METAL PIPE

**COMMENTS:**

1. 3 culverts with less than 18" cover.
2. Paved road very good condition.

**Roadway Drainage Inventory / Cover over Structure**

GAGNIER RD - COUNTY RD WEST FROM US 11		EXISTING DRAINAGE			NOTES
MILE	MILE	MATERIAL	PIPE D (IN)	COVER (IN)	
0.00	2.40				22' WIDE PAVED. US 11
0.20	2.20				SHOULDER DECREASES
1.30	1.10				PATNODE RD INTERSECTION
1.50	0.90	7	?	>95	IN USE?
1.70	0.70	CPP	18	23	
2.00	0.40	CPP	18	28	
2.20	0.20	CPP	48	34	
2.35	0.05	CPP	18	24	
2.40	0.00				CAMPBELL RD
END	START				

**LEGEND:**

CPP CORRUGATED PLASTIC PIPE

**COMMENTS:**

1. No apparent cover over structures problems.
2. Very good paved road running East-West.



1a. La Francis Rd. at US 11 - NE Corner



1b. La Francis Rd. at US 11 - NW Corner



1c. La Francis Rd. (paved) - Southbound



1d. La Francis Rd. (unpaved) - Southbound



2a. La Francis Rd. at Clinton Mills Rd. – SW Corner



2b. La Francis Rd. at Clinton Mills Rd. – SE Corner



2c. Rogers Rd. (East) at Clinton Mills Rd.



2d. Rogers Rd. (West) - Eastbound



**3a. Rogers Rd. at Clinton Mills Rd. – NE Corner**



**3b. Rogers Rd. at Clinton Mills Rd. – NW Corner**



**3c. Soucia Rd. - Northbound**



**3d. Soucia Rd. – Steel grate bridge**



4a. Colgan Rd. - Northbound



4b. Colgan Rd. at Clinton Mills Rd. - NE Corner



4c. Colgan Rd. at Clinton Mills Rd. - NW Corner



4d. Patnode Rd. (South) at SR 190



5a. Patnode Rd. (South) - Southbound



5b. Patnode Rd. (South) at Gagnier Rd. - Southbound



5c. Patnode Rd. (North) at Gagnier Rd. – NE Corner



5d. Patnode Rd. at Gagnier Rd. – NW Corner



6a. Patnode Rd. (North) - Southbound



6b. Patnode Rd. (North) - Southbound



6c. Patnode Rd. (North) at US 11 - SW Corner



6d. Patnode Rd. (North) at US 11 - SE Corner





7a. Swamp Rd. - Eastbound



7b. Swamp Rd. at SR 189 – SE Corner



7c. Swamp Rd. at SR 189 – NE Corner



7d. Swamp Rd. at SR 189 - Eastbound



8a. Lagree Rd. at SR 189 – NW Corner



8b. Lagree Rd. at SR 189 – SW Corner



8c. Lagree Rd. - Eastbound



8d. Lagree Rd. - Eastbound



9a. SR 189 at US 11- NE Corner



9b. SR 189 at US 11 – NW Corner



9c. SR 189 – New Overlay - Northbound



9d. Merchia Rd. at SR 189 – NW Corner



10a. Merchia Rd. at SR 189 – SW Corner



10b. Merchia Rd. at Jones Rd. – SW Corner



10c. Merchia Rd. at Jones Rd. – NE Corner



10d. Merchia Rd. at Jones Rd. – SE Corner



11a. Looby Rd. at Whalen Rd. – Gravel By-pass



11b. Whalen Rd. at Looby Rd. with Gravel By-pass



11c. Whalen Rd. - Northbound



11d. Whalen Rd. at Looby Rd. – NW Corner



12a. Lagree Rd. - Eastbound



12b. US 11 at Looby Rd. / Lagree Rd.



12c. Looby Rd. at US 11 - Southbound



12d. Looby Rd. at US 11 - Southbound



13a. Looby Rd. at SR 189 – NW Corner



13b. Looby Rd. at SR 189 - Churubusco



13c. Clinton Mills Rd. at SR 189 – SE Corner



13d. Looby Rd. at SR 189 – SW Corner



14a. Looby Rd. - Westbound



14b. SR 189 – New Overlay - Southbound



14c. SR 189 – Canadian Border - Northbound



14d. Liberty Pole Rd. at SR 189 - Westbound





15a. Campbell Rd. at US 11 - Southbound



15b. Campbell Rd. at US 11 – SW Corner



15c. Campbell Rd. at US 11 – SE Corner



15d. Campbell Rd. - Northbound



16a. Number 5 Rd. - Westbound



16b. Number 5 Rd. at Campbell Rd. – NW Corner



16c. Number 5 Rd. at Campbell Rd. – SW Corner



16d. Bohem Rd. at SR 190 - Northbound



17a. Bohen Rd. at SR 190 – NE Corner



17b. Bohen Rd. at SR 190 – NW Corner



17c. Gagnier Rd. at Campbell – SE Corner



17d. Gagnier Rd. at Campbell – NE Corner



18a. Gagnier Rd. - Westbound



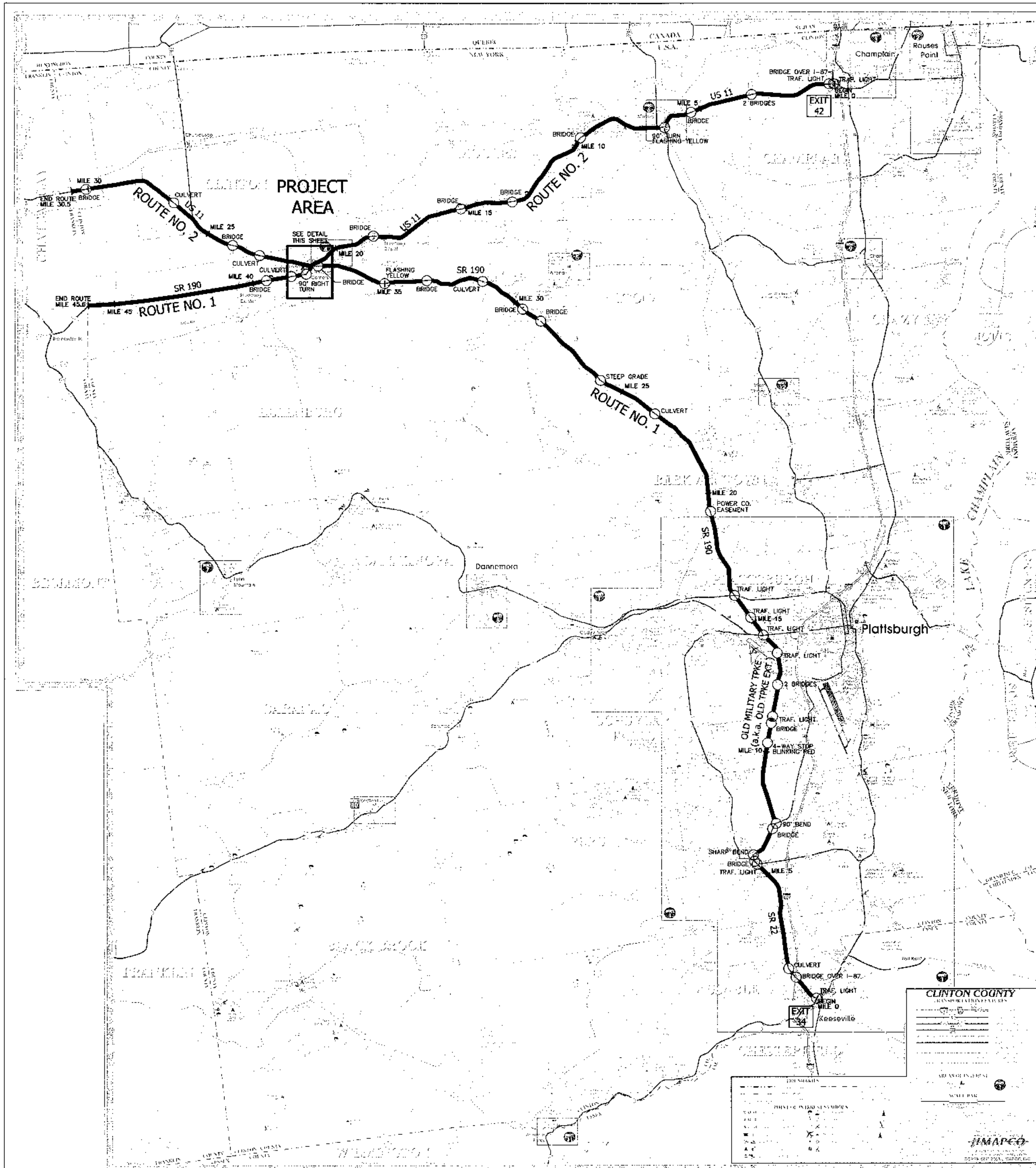
18b. Gagnier Rd. at US 11 - Westbound



18c. Gagnier Rd. at US 11 – NW Corner



18d. Gagnier Rd. at US 11 – SW Corner



**OS/OW ROUTE SUMMARY**

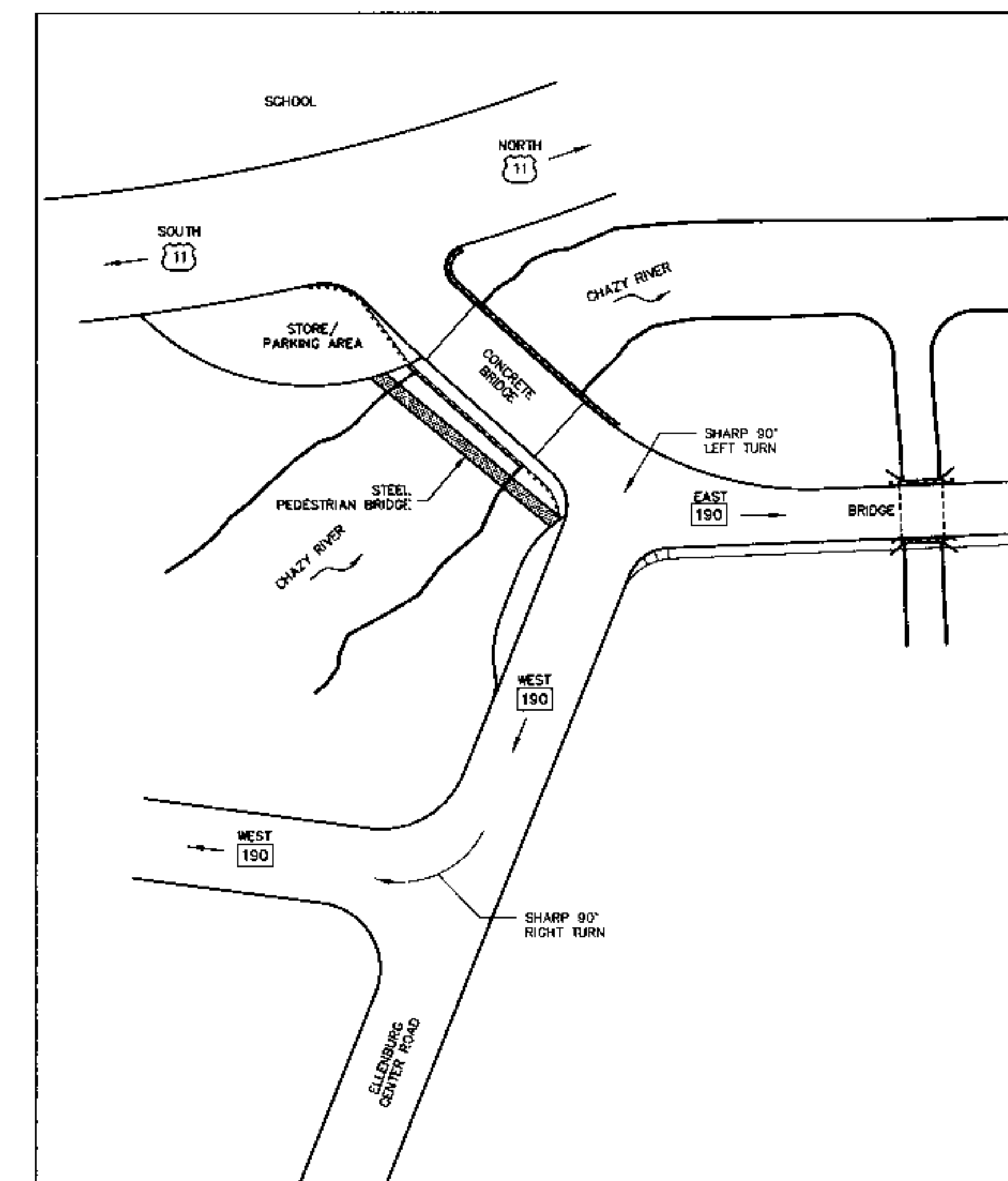
**ROUTE No. 1**

LOCATION (MILE)	OS/OW VEHICLE ISSUE OR CONCERN
STATE ROUTE 22	0.0 TRAFFIC LIGHT/INSUFFICIENT ROADWAY GEOMETRY 1.1 BRIDGE OVER 1-87 1.5 CULVERT 5.55 TRAFFIC LIGHT/SR 442 5.6 BRIDGE OVER WATER 5.65 CURVE RIGHT/INSUFFICIENT ROADWAY GEOMETRY 7.2 BRIDGE OVER WATER 7.2 90° TURN LEFT/INSUFFICIENT ROADWAY GEOMETRY
OLD TURNPIKE EXT.	10.2 BLINKING RED LIGHT/SALMON RIVER RD 11.0 BRIDGE OVER WATER 11.1 TRAFFIC LIGHT/IRISH SETTLEMENT RD 12.3 BRIDGE OVER WATER 12.31 BRIDGE OVER WATER 13.4 TRAFFIC LIGHT/RUGAR RD 14.2 TRAFFIC LIGHT/ROUTE 3
STATE ROUTE 190	15.0 TRAFFIC LIGHT/TOM MILLER RD 16.0 TRAFFIC LIGHT/ROUTE 374 23.5 CULVERT 28.6 BRIDGE OVER WATER 29.4 BRIDGE OVER WATER 31.0 CULVERT 33.2 BRIDGE OVER WATER 34.6 FLASHING YELLOW LIGHT/PLANK RD 37.3 BRIDGE OVER WATER 37.31 ELLENBURG CORNERS/INSUFFICIENT ROADWAY GEOMETRY 37.7 SR 190 TURNS RIGHT/INSUFFICIENT ROADWAY GEOMETRY 38.4 CULVERT 39.1 BRIDGE OVER WATER 45.6 COUNTY LINE RD/END OF ROUTE
<b>SUMMARY</b>	
NUMBER OF BRIDGES: 11 NUMBER OF TRAFFIC LIGHTS: 9 (2 FLASHING) NUMBER OF 90° TURNS: 5	

**ROUTE No. 2**

LOCATION (MILE)	OS/OW VEHICLE ISSUE OR CONCERN
STATE ROUTE 11	0.1 TRAFFIC LIGHT/INSUFFICIENT ROADWAY GEOMETRY 0.2 BRIDGE OVER 1-87 0.2 TRAFFIC LIGHT/1-87 OFF RAMP 3.1 BRIDGE OVER WATER 3.1 BRIDGE OVER WATER 5.1 BRIDGE OVER WATER 6.6 FLASHING YELLOW LIGHT/INSUFFICIENT ROADWAY GEOMETRY 9.8 BRIDGE OVER WATER 13.3 BRIDGE OVER WATER 15.3 BRIDGE OVER WATER 18.5 BRIDGE OVER WATER 20.9 TRAFFIC LIGHT AT JCT 190 22.9 CULVERT 24.0 BRIDGE OVER WATER 26.5 CULVERT 29.8 BRIDGE OVER WATER 30.5 COUNTY LINE RD/END OF ROUTE
<b>SUMMARY</b>	
NUMBER OF BRIDGES: 10 NUMBER OF TRAFFIC LIGHTS: 4 (1 FLASHING) NUMBER OF 90° TURNS: 2	

0 1.8 3.6  
ONE INCH EQUALS 1.60 MILES



**ESS Group, Inc.**  
Engineers  
Scientists  
Consultants

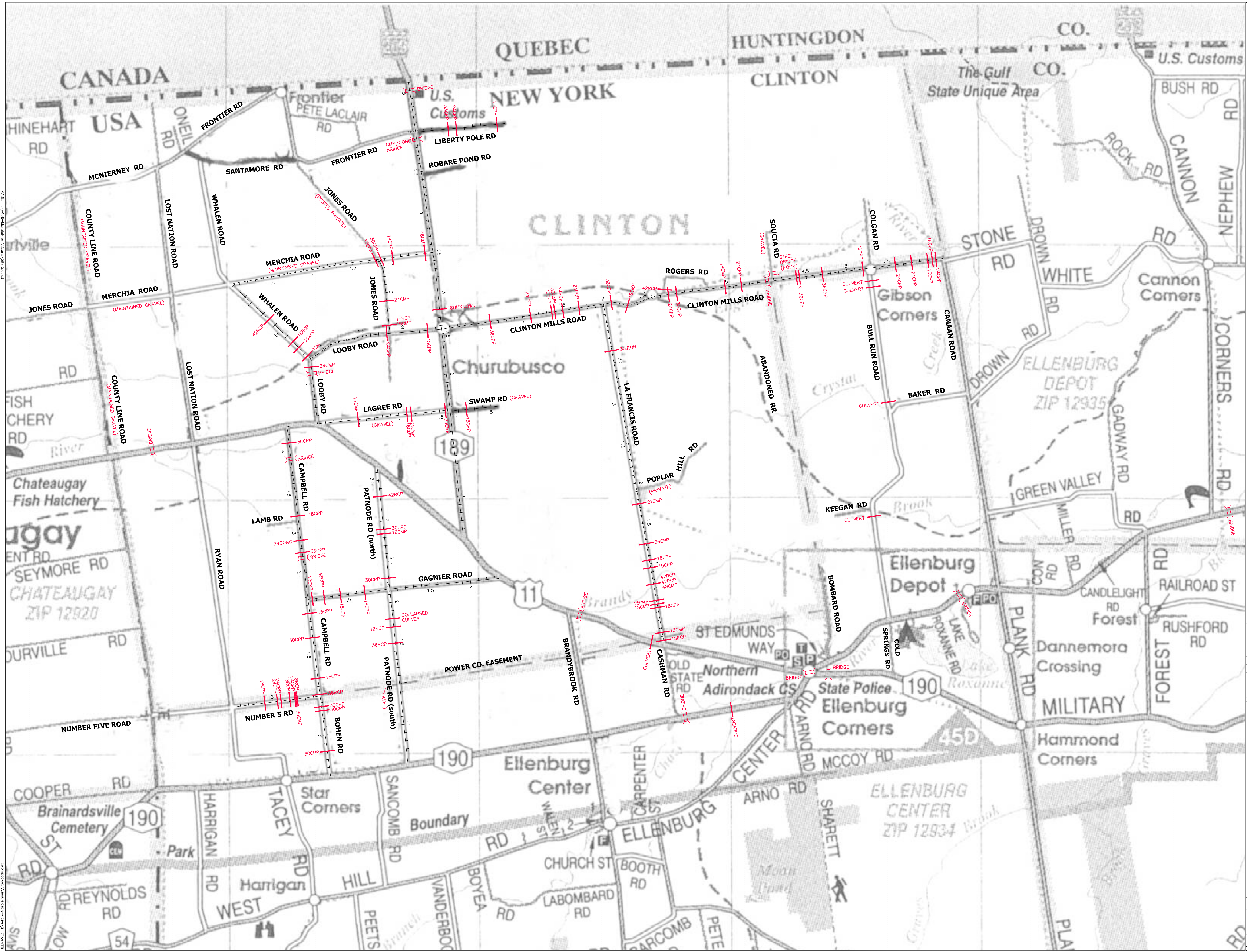
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No. 11/15/09 DATE APP BY  
DRAWN BY: JSC CHECKED BY: RAH  
DESIGNED BY: APPROVED BY: RAH

**Marble River  
Wind Project  
Clinton County, New York**

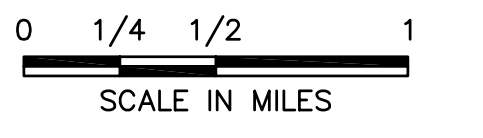
**Off-Site Highway  
Map For OS/OW  
Route Planning**

PROJECT No.: A458-005.B DRAWING No.  
DATE OF ISSUE: November 4, 2005  
SHEET No.: 1 of 3 **Map 1**  
SCALE: AS SHOWN



**DRAINAGE KEY:**

- M METAL PIPE
- RCP REINFORCED CONCRETE PIPE
- CPP CORRUGATED PLASTIC PIPE
- CMP CORRUGATED METAL PIPE
- CONC CONCRETE



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No.	REVISION	DATE	APP BY

DRAWN BY: JSC CHECKED BY: RAH  
DESIGNED BY: APPROVED BY: RAH

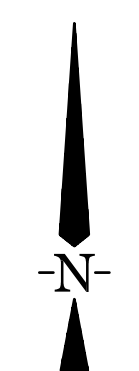
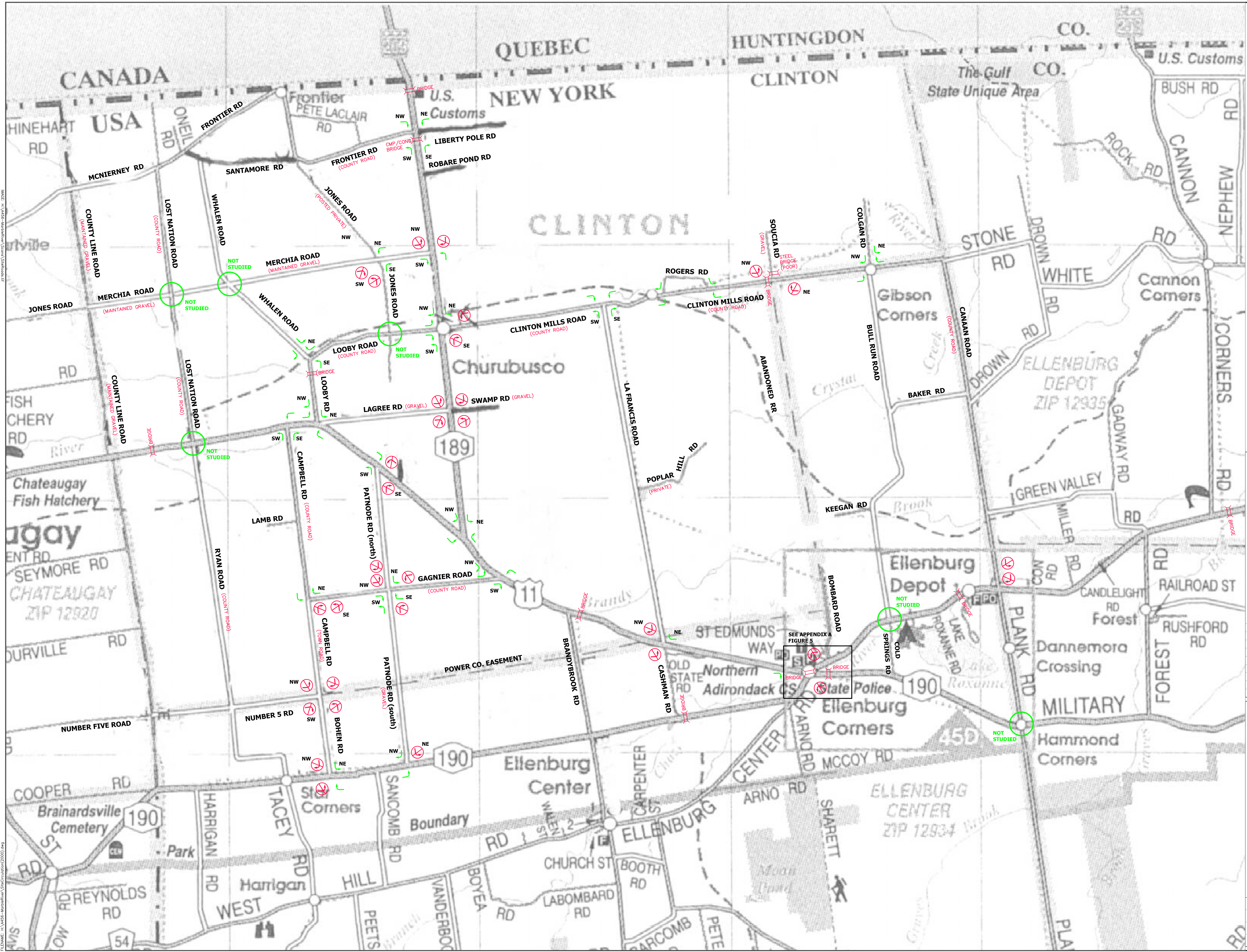
Marble River  
Wind Project  
Clinton County, New York

On-Site Roadway  
& Drainage Map for  
OS/OW Route Planning

PROJECT No.: A456-005.6 DRAWING No.  
DATE OF ISSUE: November 4, 2005  
SHEET No.: 2 of 3  
SCALE: AS SHOWN

# Map 2

DATE: Nov 04, 2005 4:39PM FILENAME: \\A456-MarbleRiver\SiteRoads.dwg



**TRUCK TURNING KEY:**

- POSSIBLE RIGHT TURN WITH INTERSECTION IMPROVEMENTS
- POSSIBLE LEFT TURN WITH INTERSECTION IMPROVEMENTS
- NO RIGHT TURN POSSIBLE
- NO LEFT TURN POSSIBLE

NOTE: ALL ROADS ARE TOWN ROADS  
UNLESS OTHERWISE NOTED

0 1/4 1/2 1  
ONE INCH EQUALS 0.5 MILES

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No.	REVISION	DATE	APP BY

Marble River  
Wind Project  
Clinton County, New York

On-Site Truck  
Circulation Map for  
OS/OW Route Planning

PROJECT No.: A456-005.6  
DRAWING No.  
DATE OF ISSUE: November 4, 2005  
SHEET No.: 3 of 3  
SCALE: AS SHOWN

**Map 3**

DATE: Nov 09, 2005 - 8:49AM  
FILENAME: \\A:\95-MarbleRiver\Site\Circulation\0000.dwg