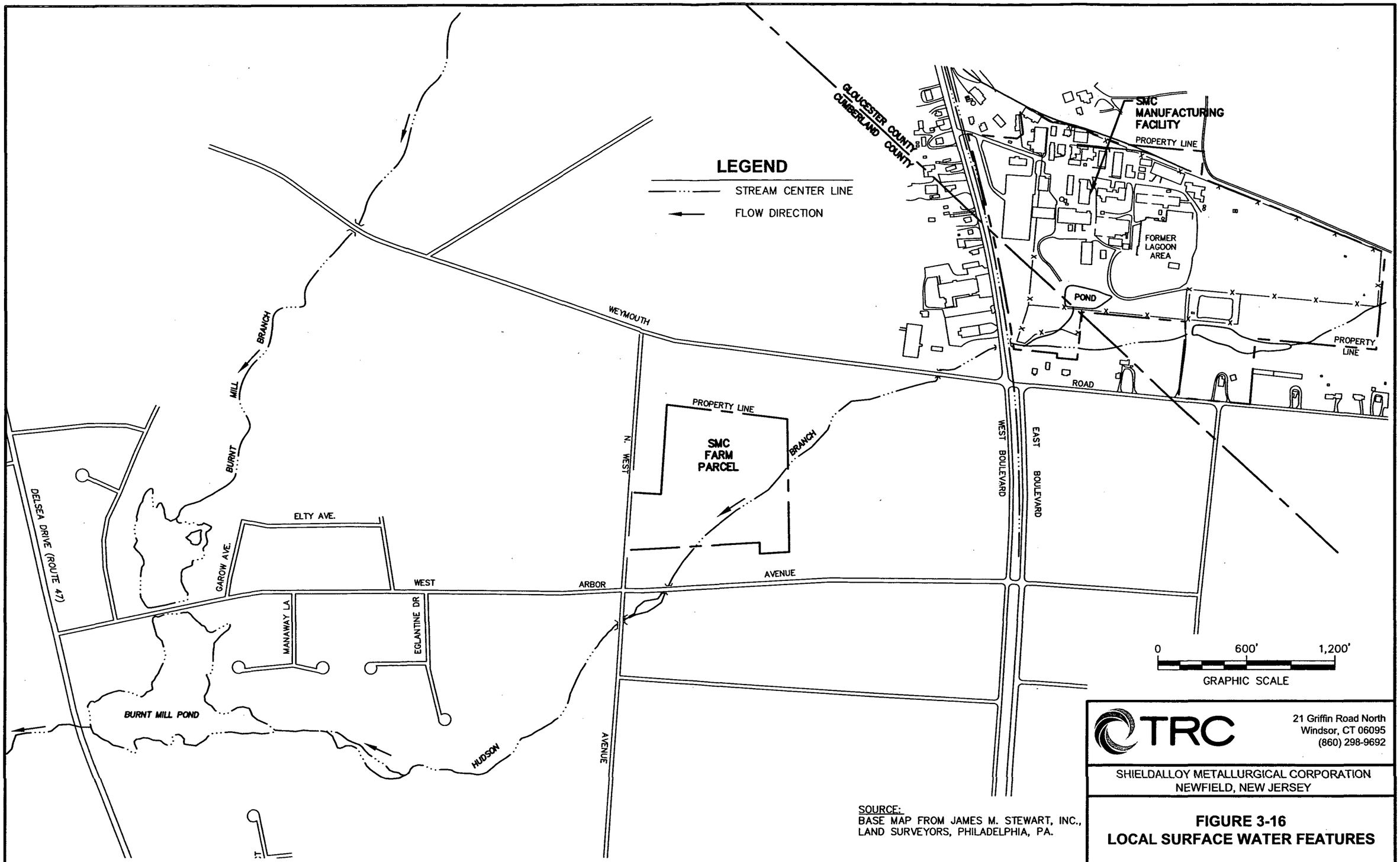


SOURCE:
BASE MAP FROM JAMES M. STEWART, INC., LAND SURVEYORS, PHILADELPHIA, PA.

J:\CAD\105106\000100\Decommisioning Plan Environmental Report\
Plate-4.dwg Layout:FIGURE 3-16 July 13, 2009-11:56AM khollenbeck

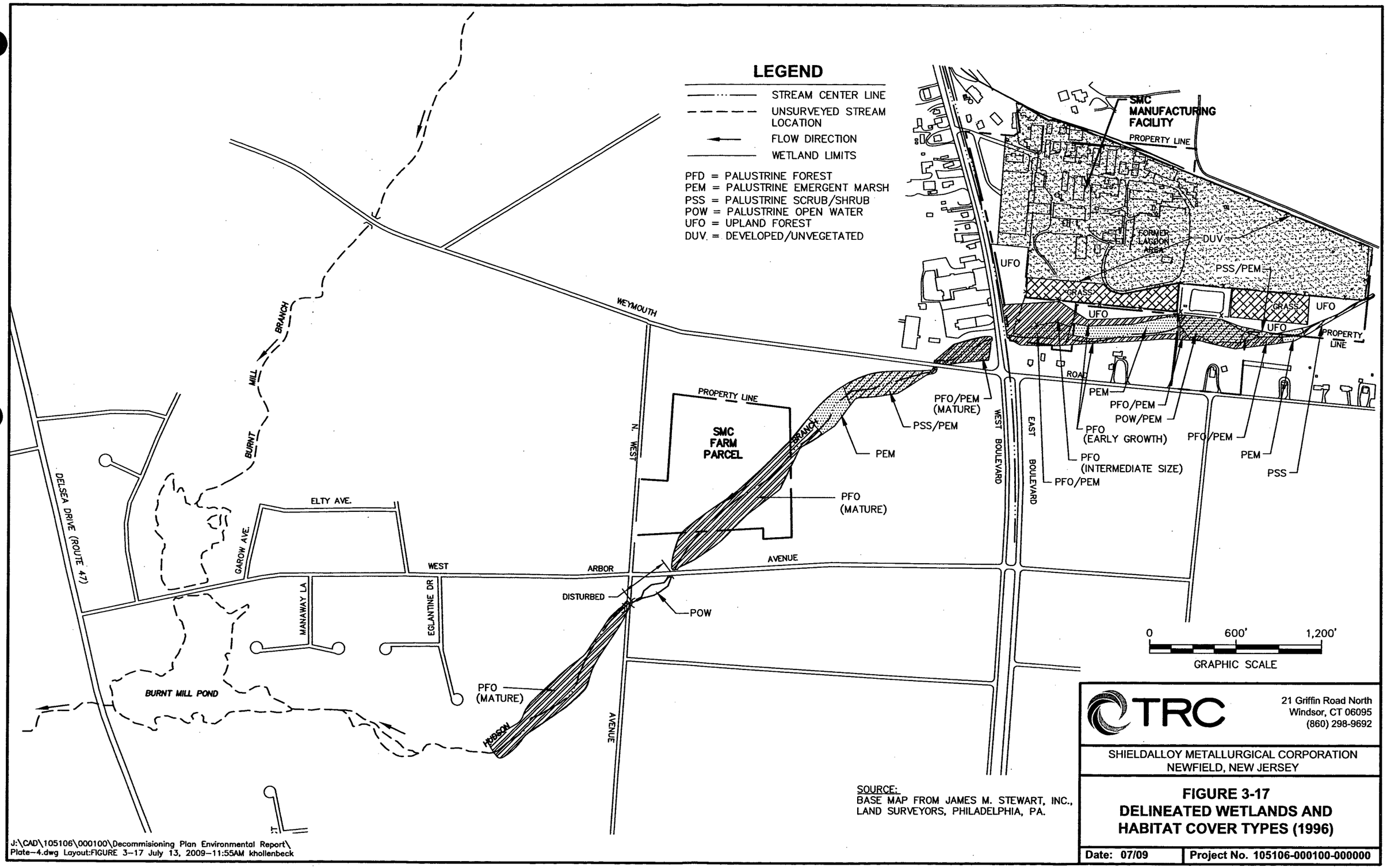
TRC

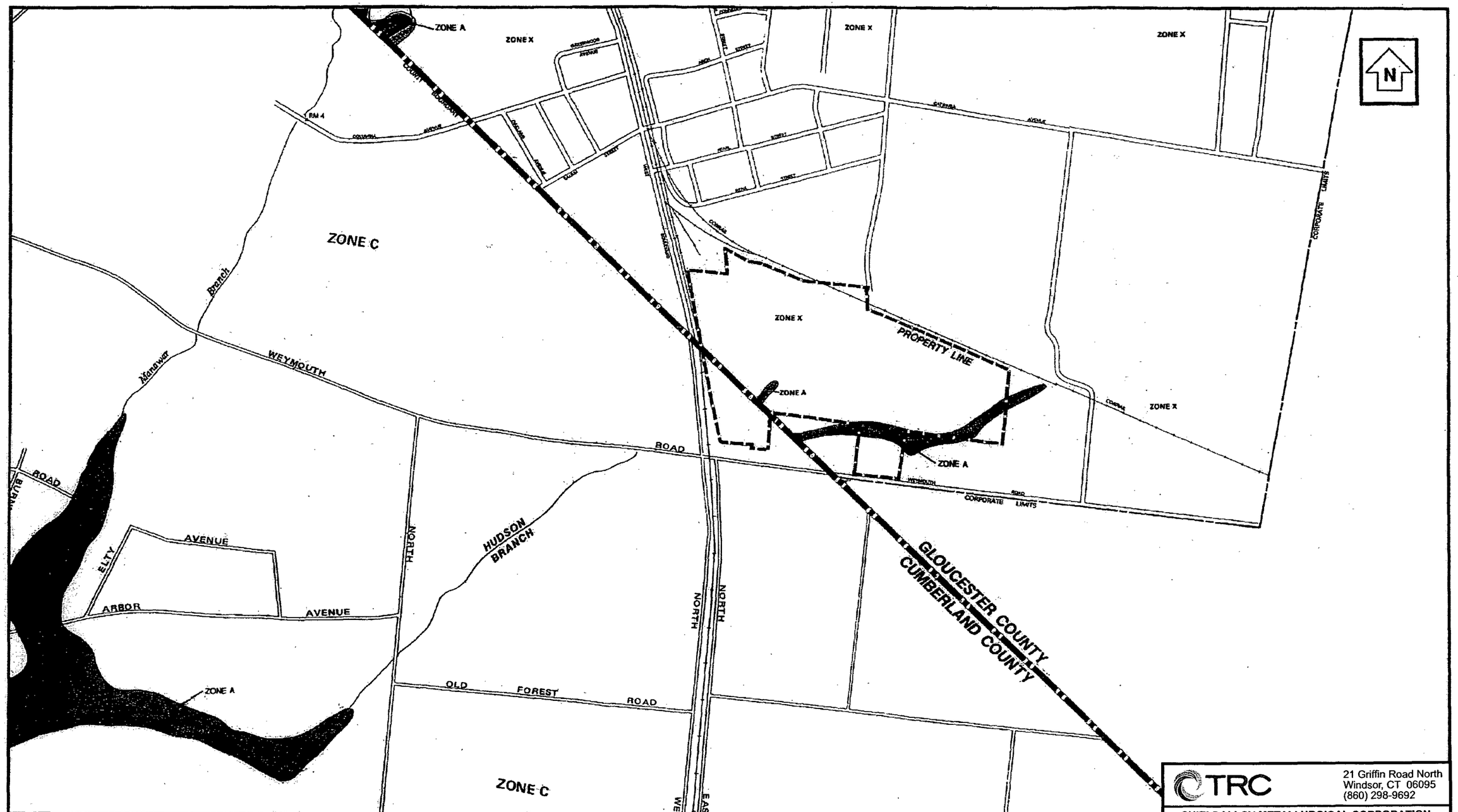
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

FIGURE 3-16
LOCAL SURFACE WATER FEATURES

Date: 07/09 | Project No. 105106-000100-000000


LEGEND
STREAM CENTER LINE
UNSURVEYED STREAM LOCATION
FLOW DIRECTION
WETLAND LIMITS
PFD = PALUSTRINE FOREST
PEM = PALUSTRINE EMERGENT MARSH
PSS = PALUSTRINE SCRUB/SHRUB
POW = PALUSTRINE OPEN WATER
UFO = UPLAND FOREST
DUV. = DEVELOPED/UNVEGETATED
SMC MANUFACTURING FACILITY
PROPERTY LINE
FORMER LAGOON AREA
DUV
PSS/PEM
GRASS
UFO
PROPERTY LINE
ROAD
PEM
PFO/PEM
POW/PEM
PFO (EARLY GROWTH)
PFO (INTERMEDIATE SIZE)
PFO/PEM
PEM
PSS
PFO/PEM (MATURE)
PSS/PEM
PEM
PFO (MATURE)
PROPERTY LINE
SMC FARM PARCEL
BRANCH
WEYMOUTH
N. WEST
WEST BOULEVARD
EAST BOULEVARD
BURNT MILL BRANCH
DELSEA DRIVE (ROUTE 47)
ELTY AVE.
GAROW AVE.
WEST ARBOR AVENUE
MANAWAY LA
EGLANTINE DR
DISTURBED
POW
PFO (MATURE)
HUDSON
AVENUE
BURNT MILL POND
0 600' 1,200'
GRAPHIC SCALE
SOURCE:
BASE MAP FROM JAMES M. STEWART, INC., LAND SURVEYORS, PHILADELPHIA, PA.
TRC
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692
SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY
FIGURE 3-17
DELINEATED WETLANDS AND HABITAT COVER TYPES (1996)
Date: 07/09
Project No. 105106-000100-000000
J:\CAD\105106\000100\Decommisioning Plan Environmental Report\Plate-4.dwg Layout:FIGURE 3-17 July 13, 2009-11:55AM khollenbeck



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
Zone A - No Base Flood Elevations Determined

OTHER AREAS
Zone X - Areas Determined to be Outside 500-year Flood Plain
Zone C - Areas of Minimal Flooding

0 800
SCALE FEET

FROM:

FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP & STREET INDEX, BOROUGH OF NEWFIELD, NJ, GLOUCESTER COUNTY, 340549 0001 B, 6/17/91 AND CITY OF VINELAND, NEW JERSEY CUMBERLAND COUNTY, 340176 0005 B 7/5/82

TRC
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

FIGURE 3-18
DELINEATED FLOOD HAZARD AREAS NEAR SMC FACILITY

Date: 07/09 | Project No. 105106.000100.000000

NEW JERSEY WATER WITHDRAWALS, USES, TRANSFERS & DISCHARGES - Watershed Management Area Summary

V 2.5

WMA: *Maurice, Salem, and Cohansey*

17

Click on the box to the left and use the pull down menu to select a WMA.

Subject to Revision — See the 'User's Guide' worksheet for more information. — Subject to revision.

Table 12. Freshwater Withdrawals, Imports & Exports in WMA 17 (millions of gallons)

Withdrawals (Q)	Year 1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
surface water	14,930	23,621	30,836	24,864	27,509	27,527	20,316	27,217	21,133	17,594	23,555
ground water	21,601	22,563	20,524	23,024	25,629	26,828	23,631	27,238	26,653	26,427	24,412
total Q	36,531	46,184	51,359	47,887	53,138	54,356	43,947	54,455	47,787	44,021	47,966
imports	433	457	434	448	373	404	355	374	385	367	403
exports	16	167	177	495	983	1,130	1,105	1,322	1,444	1,296	814
net	418	290	257	(47)	(609)	(726)	(750)	(947)	(1,059)	(929)	(410)

Table 13. Freshwater imports to WMA 17 in 1999

Source WMA	MG received	% of all water withdrawn in source WMA in 1999	% of all potable water used in WMA 17 in 1999
15	303	1.2%	2.5%
16	0	0.0%	0.0%
18	64	0.1%	0.5%
sum:	367		3.0%

Table 14. Freshwater Exports from WMA 17 in 1999

Destination WMA	MG sent	% of all water withdrawn in WMA 17 in 1999	% of all potable water used in destination WMA in 1999
15	136	0.3%	0.9%
18	1,161	2.6%	3.8%
sum:	1,296	2.9%	

Table 15. Use of Fresh Water in WMA 17 (millions of gallons) (includes imports, excludes exports)

Use Group	Year 1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
agricultural	3,912	8,021	4,538	6,583	5,844	8,769	4,511	8,992	7,814	6,888	5,965
commercial	26	55	57	83	44	41	45	17	16	14	40
industrial	8,217	9,154	7,944	8,752	10,040	9,657	9,631	8,420	7,978	7,304	8,710
irrigation	97	87	103	188	139	118	74	120	122	112	113
mining	13,895	19,433	27,742	20,388	24,380	25,098	18,161	25,780	18,856	17,029	21,076
potable supply	10,833	11,752	11,231	11,872	12,081	11,951	10,832	12,424	12,065	12,089	11,713
power generation	0	0	0	0	0	0	0	0	0	0	0
total volume	36,979	48,502	51,615	47,843	52,529	53,630	43,254	53,753	46,851	43,216	47,617
consumed volume	7,370	10,145	9,616	10,836	10,754	11,614	8,537	11,801	11,660	10,326	10,266
consumed percent	20%	22%	19%	23%	20%	22%	20%	22%	25%	24%	22%

Table 16. Sewage Transfers & Reclaimed-Water Discharges in WMA 17 (millions of gallons)

Sewage/Reclaimed Water	Year 1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
imported to WMA	0	0	0	0	0	0	0	0	0	0	0
exported from WMA	1,117	1,202	1,400	988	1,510	1,389	1,590	1,671	1,552	1,527	1,395
generated in WMA	3,996	4,563	4,753	4,472	5,122	4,566	5,315	5,048	4,924	5,019	4,778
discharged in WMA	2,879	3,361	3,353	3,484	3,612	3,177	3,725	3,376	3,372	3,491	3,383

Table 17. Destination of Reclaimed-Water Discharges in WMA 17 (millions of gallons)

Destination	Year 1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
fresh water	1,341	1,508	1,561	1,897	1,730	1,587	1,817	1,869	1,892	1,802	1,840
brackish water	1,538	1,853	1,792	1,787	1,882	1,590	1,909	1,708	1,680	1,689	1,743
salt water	0	0	0	0	0	0	0	0	0	0	0

Table 18. Nonconsumptive Water Returns to WMA 17 (millions of gallons)

Water Use	Year 1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
potable purveyors	7,200	7,983	7,520	8,020	8,181	8,026	7,056	8,425	8,051	8,057	7,852
domestic wells	2,370	2,385	2,412	2,439	2,469	2,496	2,518	2,539	2,563	2,587	2,478
ind + comm + mining	19,639	25,378	31,603	25,873	30,526	30,807	24,685	30,277	23,784	21,567	26,414
ag + irrig	401	611	464	675	598	688	459	711	794	678	608
power generation	0	0	0	0	0	0	0	0	0	0	0
sum:	29,609	36,357	41,999	37,008	41,774	42,017	34,717	41,952	35,191	32,890	37,351

notes:
- Volumes include an estimate of domestic-well withdrawals and their consumptive use.
- Consumed refers to water evaporated in the watershed, it does not include exports.
- This does not account for water released from onstream reservoirs for downstream intakes.
- No accounting for intakes or use of salt-water.
- The allocated volume is based on users with allocation permits.
- Sewage and reclaimed-water transfers and discharges based on sewer service areas and NJPDES discharge volumes.
- Withdrawals for offstream reservoirs in WMAs 03, 08, and 12 are problematic and complicate Figure 1.
- See the 'User's Guide' worksheet for more information.
- Subject to revision.

Figure 12. Freshwater Withdrawals, Use, Imports & Exports

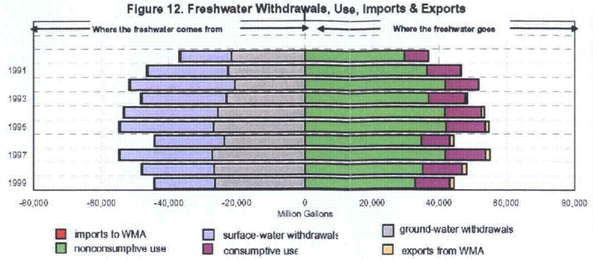


Figure 13. 1999 Freshwater Import & Export Details

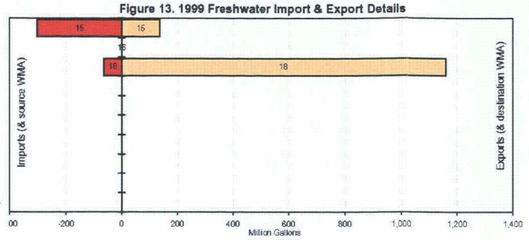


Table 19. Water Allocations in WMA 17 by Water Source

Water Source	Million Gallons/Year
surface water	24,082
ground water	105,998
total	130,080

Figure 14. Use of Fresh Water in WMA

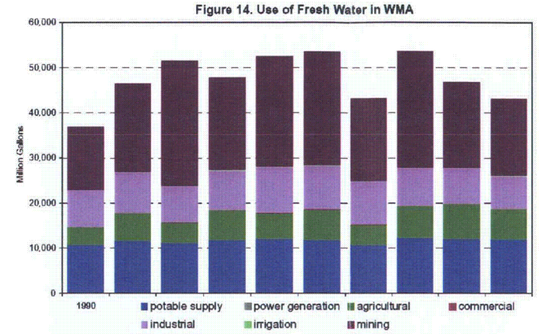


Figure 15. Monthly Consumptive & Nonconsumptive Water Use in WMA

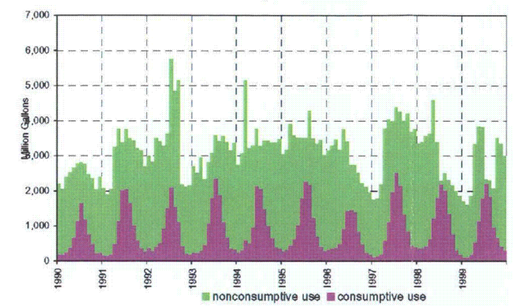


Table 20. Water Allocations in WMA 17 by Water Use Group

Use Group	Million Gallons/Year
agricultural	50,541
commercial	298
industrial	14,941
irrigation	663
mining	50,159
potable supply	13,479
power generation	0
sum	130,080

Table 21. Descriptive Statistics for WMA 17

-- Area:	1,233.3	sq mi.
-- Population:		
year	population	change
1940	123,835	--
1950	150,151	21.3%
1960	184,557	22.9%
1970	206,443	11.9%
1980	233,065	12.9%
1990	245,154	5.2%
2000	255,187	4.1%
-- Withdrawals per square mile (average):		
surface	19.1	mg/sq mi
ground	19.8	mg/sq mi
-- Land Use:		
type	Year 1986	1995
ag.	28.1%	27.1%
barren	0.9%	0.9%
forest	26.1%	25.7%
water	5.2%	5.5%
urban	10.9%	12.3%
wetlands	28.9%	28.5%
-- % of WMA in:		
	Pinelands:	5.8%
	Highlands:	0.0%

Figure 16. Sewage Generation, Transfers and Reclaimed-Water Discharges

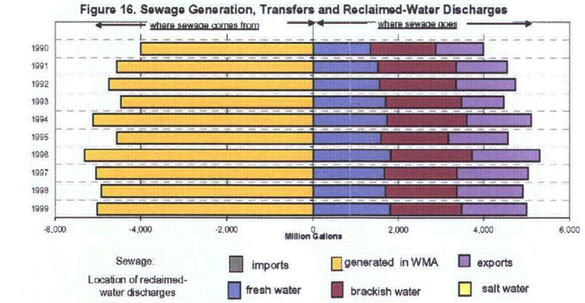


Figure 17. 1999 Sewage Import & Export Details

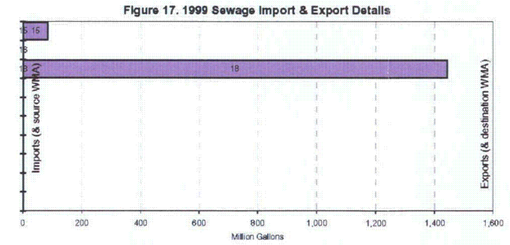
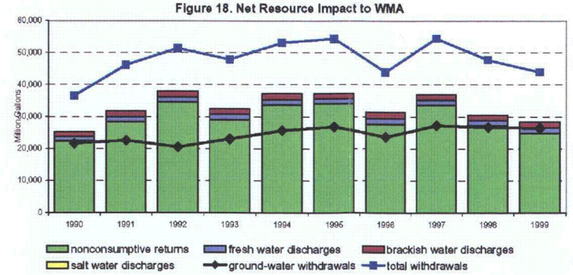


Figure 18. Net Resource Impact to WMA



See the 'Metadata' worksheet for more information.

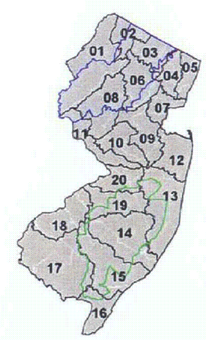


Figure 11. Watershed Management Areas & Counties in New Jersey

WMA boundaries and numbers in black.
County boundaries in white.
Pinelands outer border in green.
Highlands outer border in blue.

July 24, 2009

New Jersey Water Supply Plan
NJ Department of Environmental Protection - Land Use Management - New Jersey Geological Survey

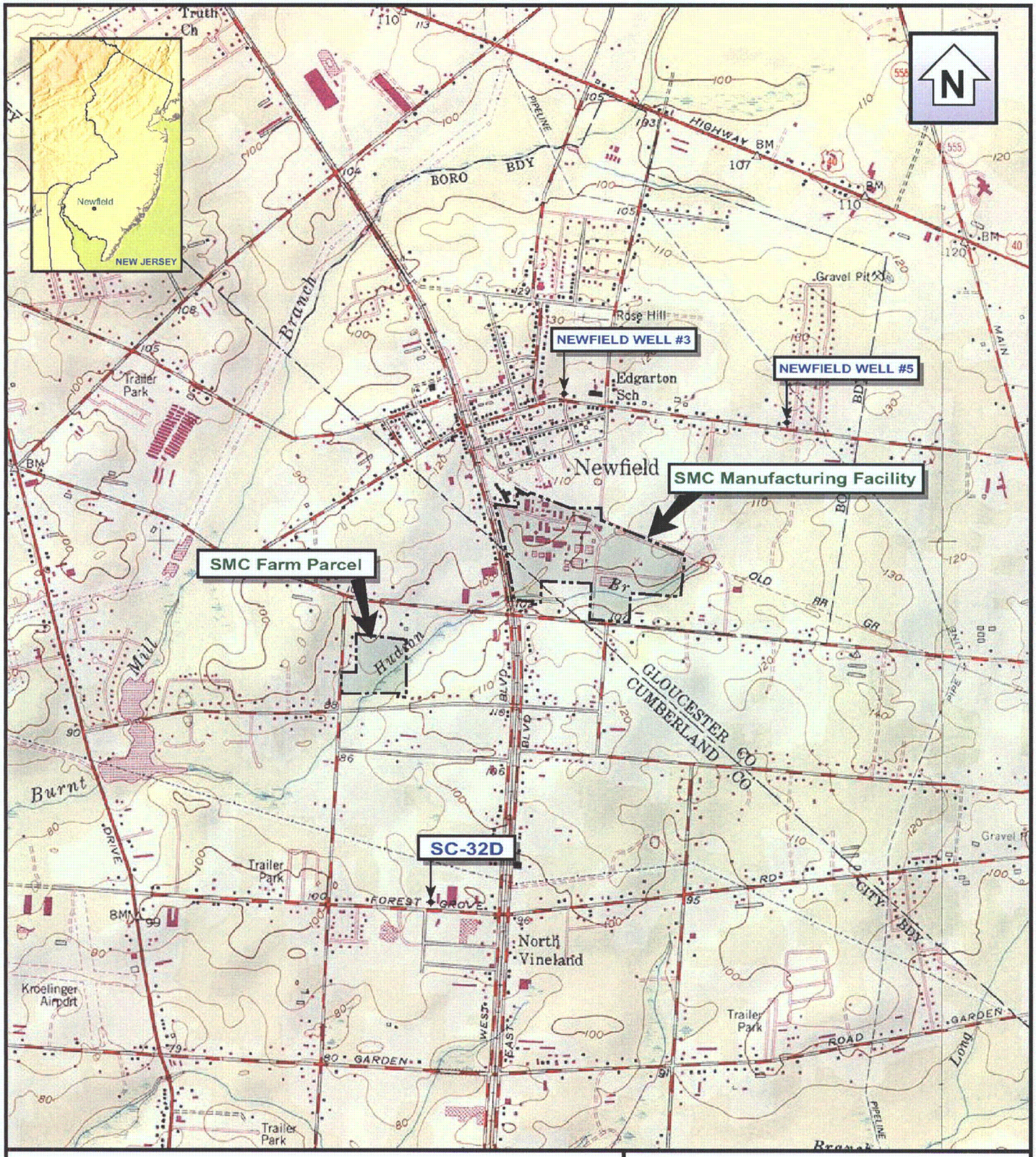
G:\Jwaleszczyk\HAZ\26770 SMC\[wmatransfers25.xls]WMA Details

TRC
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

FIGURE 3-19
WATER USE SUMMARY MAURICE, SALEM & COHANSEY WATERSHED MANAGEMENT AREA

Date: 07/09 | Project No. 105106.000100.000000



0 2000
SCALE FEET

0 1
SCALE MILE

1:24000

BASE CREATED WITH TOPO™ © 1996 WILDFLOWERS PRODUCTIONS, www.topo.com
7.5' NEWFIELD, NJ USGS TOPOGRAPHIC MAP

TRC
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

FIGURE 3-20
MONITORING WELL SC-32D AND NEWFIELD WELLS 3 & 5 LOCATION MAP

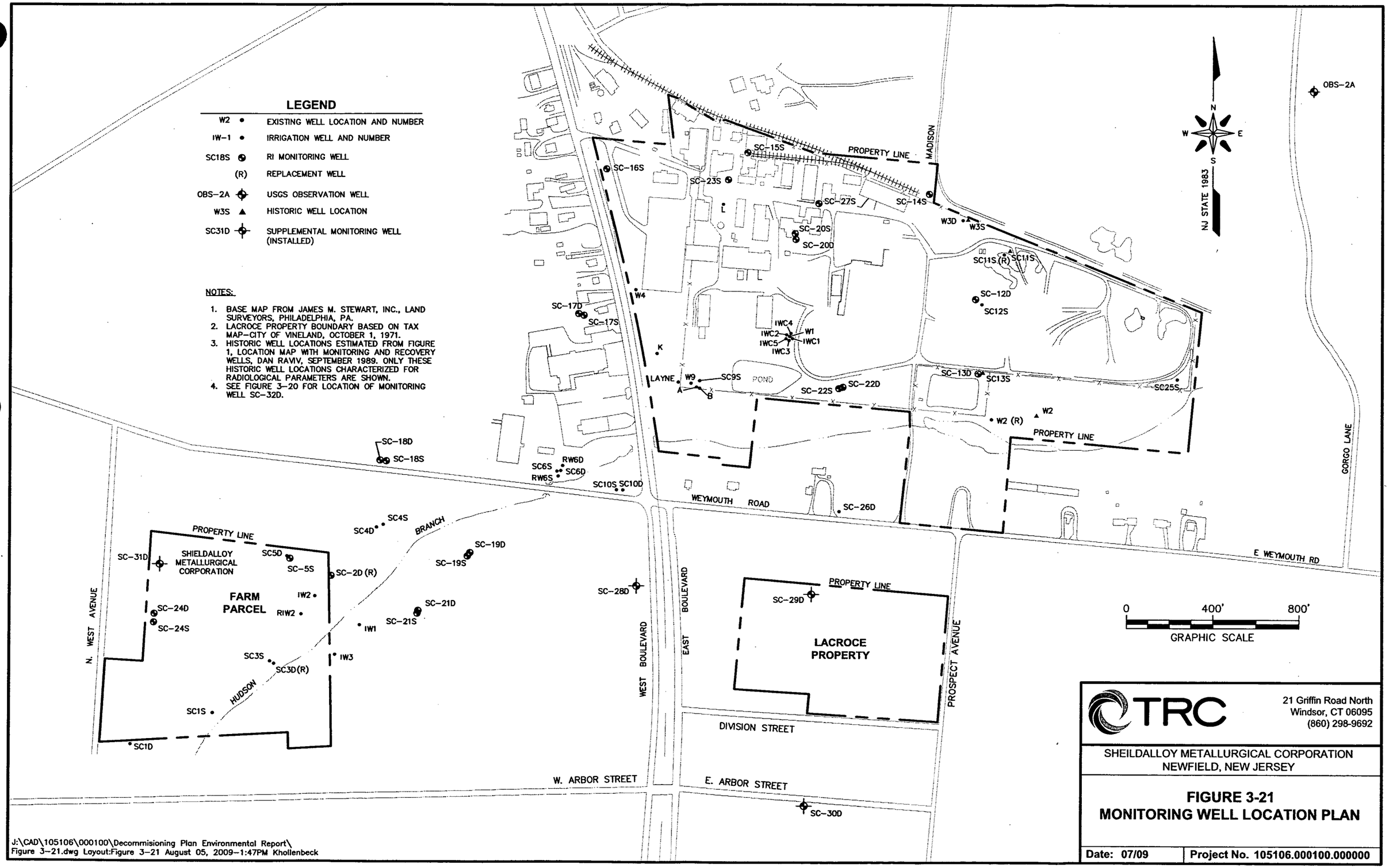
Date: 07/09 | **Project No.** 105106.000100.000000

LEGEND

W2 •	EXISTING WELL LOCATION AND NUMBER
IW-1 •	IRRIGATION WELL AND NUMBER
SC18S	RI MONITORING WELL
(R)	REPLACEMENT WELL
OBS-2A	USGS OBSERVATION WELL
W3S ▲	HISTORIC WELL LOCATION
SC31D	SUPPLEMENTAL MONITORING WELL (INSTALLED)

NOTES:

1. BASE MAP FROM JAMES M. STEWART, INC., LAND SURVEYORS, PHILADELPHIA, PA.
2. LACROCE PROPERTY BOUNDARY BASED ON TAX MAP-CITY OF VINELAND, OCTOBER 1, 1971.
3. HISTORIC WELL LOCATIONS ESTIMATED FROM FIGURE 1, LOCATION MAP WITH MONITORING AND RECOVERY WELLS, DAN RAVIV, SEPTEMBER 1989. ONLY THESE HISTORIC WELL LOCATIONS CHARACTERIZED FOR RADIOLOGICAL PARAMETERS ARE SHOWN.
4. SEE FIGURE 3-20 FOR LOCATION OF MONITORING WELL SC-32D.



TRC

21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHEILDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

FIGURE 3-21
MONITORING WELL LOCATION PLAN

Date: 07/09	Project No. 105106.000100.000000

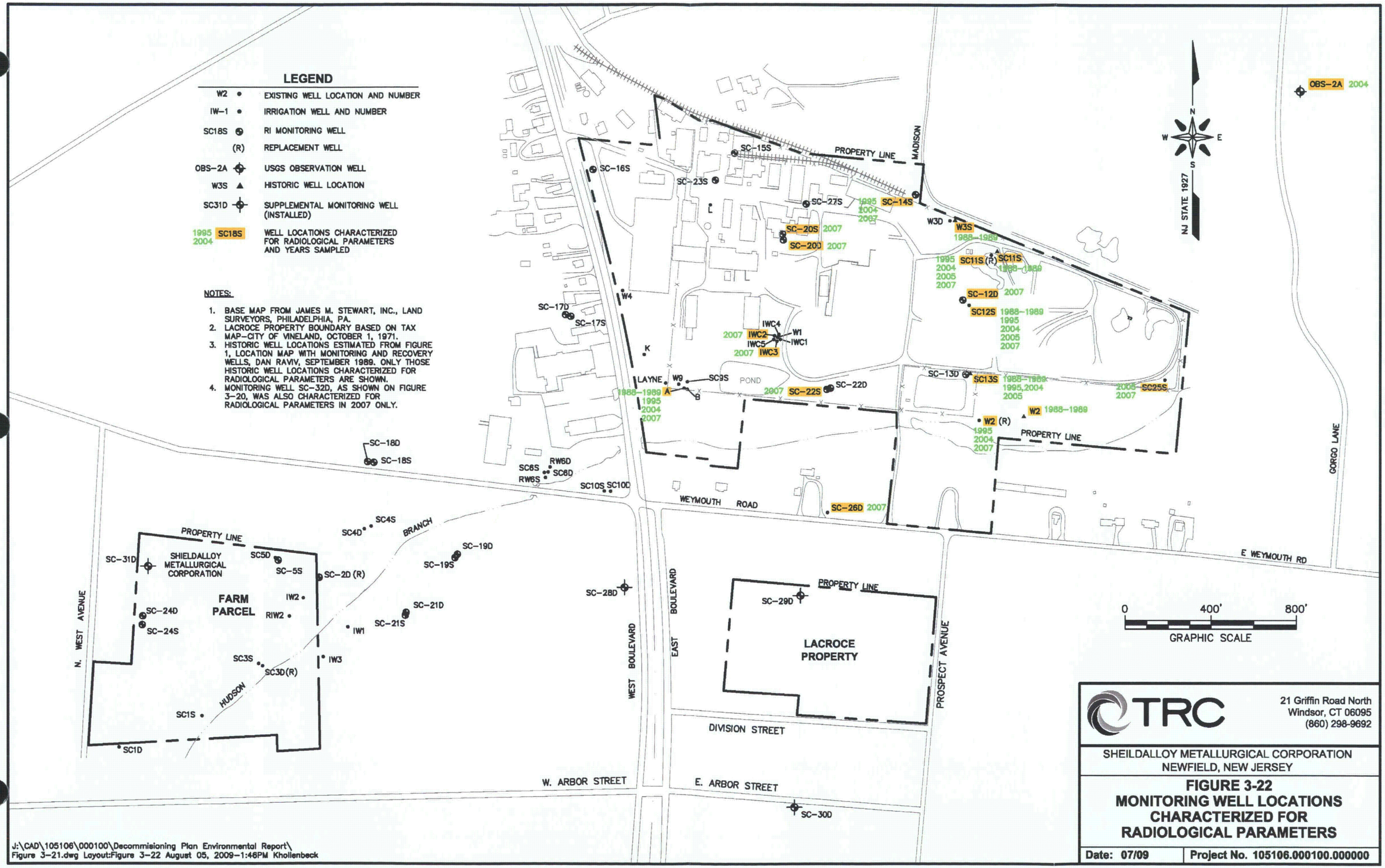
J:\CAD\105106\000100\Decommisioning Plan Environmental Report\
Figure 3-21.dwg Layout:Figure 3-21 August 05, 2009-1:47PM Khollenbeck

LEGEND

W2 •	EXISTING WELL LOCATION AND NUMBER
IW-1 •	IRRIGATION WELL AND NUMBER
SC18S	RI MONITORING WELL
(R)	REPLACEMENT WELL
OBS-2A	USGS OBSERVATION WELL
W3S ▲	HISTORIC WELL LOCATION
SC31D	SUPPLEMENTAL MONITORING WELL (INSTALLED)
1995 2004 SC18S	WELL LOCATIONS CHARACTERIZED FOR RADIOLOGICAL PARAMETERS AND YEARS SAMPLED

NOTES:

1. BASE MAP FROM JAMES M. STEWART, INC., LAND SURVEYORS, PHILADELPHIA, PA.
2. LACROCE PROPERTY BOUNDARY BASED ON TAX MAP-CITY OF VINELAND, OCTOBER 1, 1971.
3. HISTORIC WELL LOCATIONS ESTIMATED FROM FIGURE 1, LOCATION MAP WITH MONITORING AND RECOVERY WELLS, DAN RAVIV, SEPTEMBER 1989. ONLY THOSE HISTORIC WELL LOCATIONS CHARACTERIZED FOR RADIOLOGICAL PARAMETERS ARE SHOWN.
4. MONITORING WELL SC-32D, AS SHOWN ON FIGURE 3-20, WAS ALSO CHARACTERIZED FOR RADIOLOGICAL PARAMETERS IN 2007 ONLY.



TRC

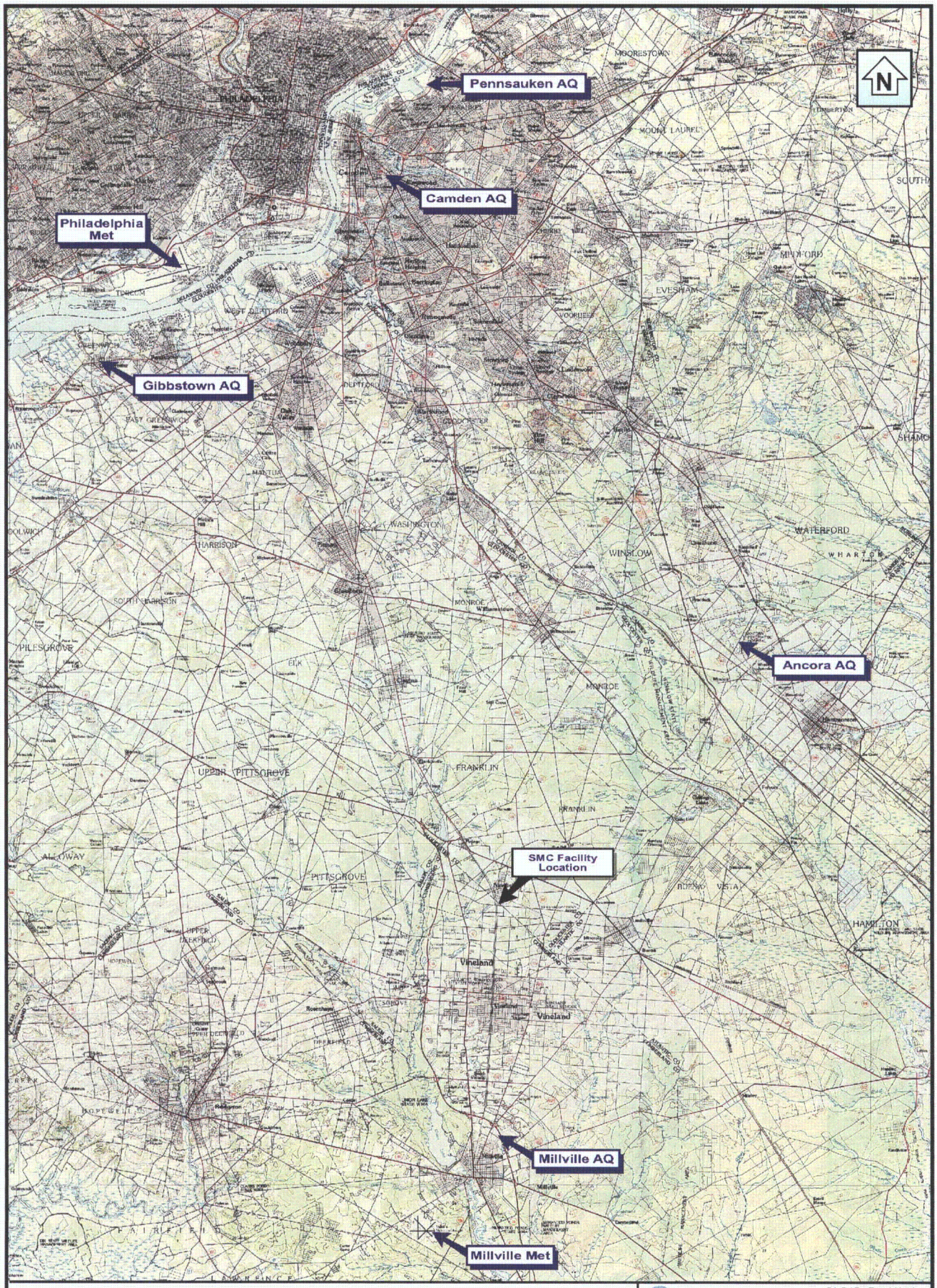
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHEILDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

FIGURE 3-22
MONITORING WELL LOCATIONS CHARACTERIZED FOR RADIOLOGICAL PARAMETERS

Date: 07/09 | Project No. 105106.000100.000000

J:\CAD\105106\000100\Decommisioning Plan Environmental Report\
Figure 3-21.dwg Layout:Figure 3-22 August 05, 2009-1:46PM Kholienbeck



0 8000
SCALE FT

0 4
SCALE MILES

BASE CREATED WITH TOPO™ © 1996 WILDFLOWERS PRODUCTIONS, www.topo.com
7.5' USGS TOPOGRAPHIC MAP

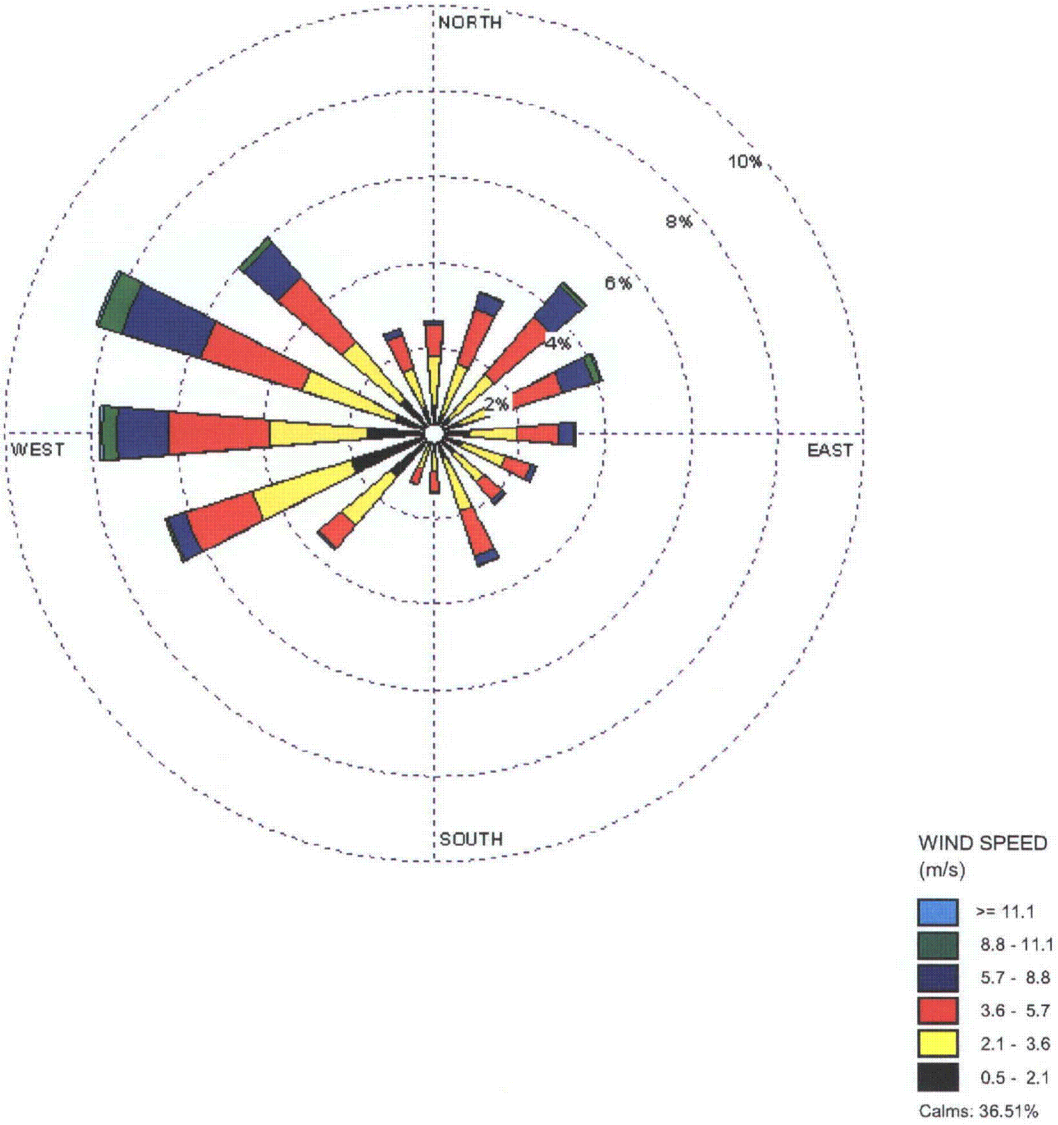
PERSUWALESZCZYK/AIR/SMC 26770.FH10

TRC
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

FIGURE 3-23
METEOROLOGICAL (MET) AND AIR QUALITY (AQ) MONITORING SITE LOCATIONS

Date: 07/09 | Project No. 105106.000100.000000



TRC
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

FIGURE 3-24
ANNUAL WINDROSE FOR MILLVILLE MUNICIPAL AIRPORT

Date: 11-08 | Project No. 105106

WIND SPEED (m/s)

- >= 11.1
- 8.8 - 11.1
- 5.7 - 8.8
- 3.6 - 5.7
- 2.1 - 3.6
- 0.5 - 2.1

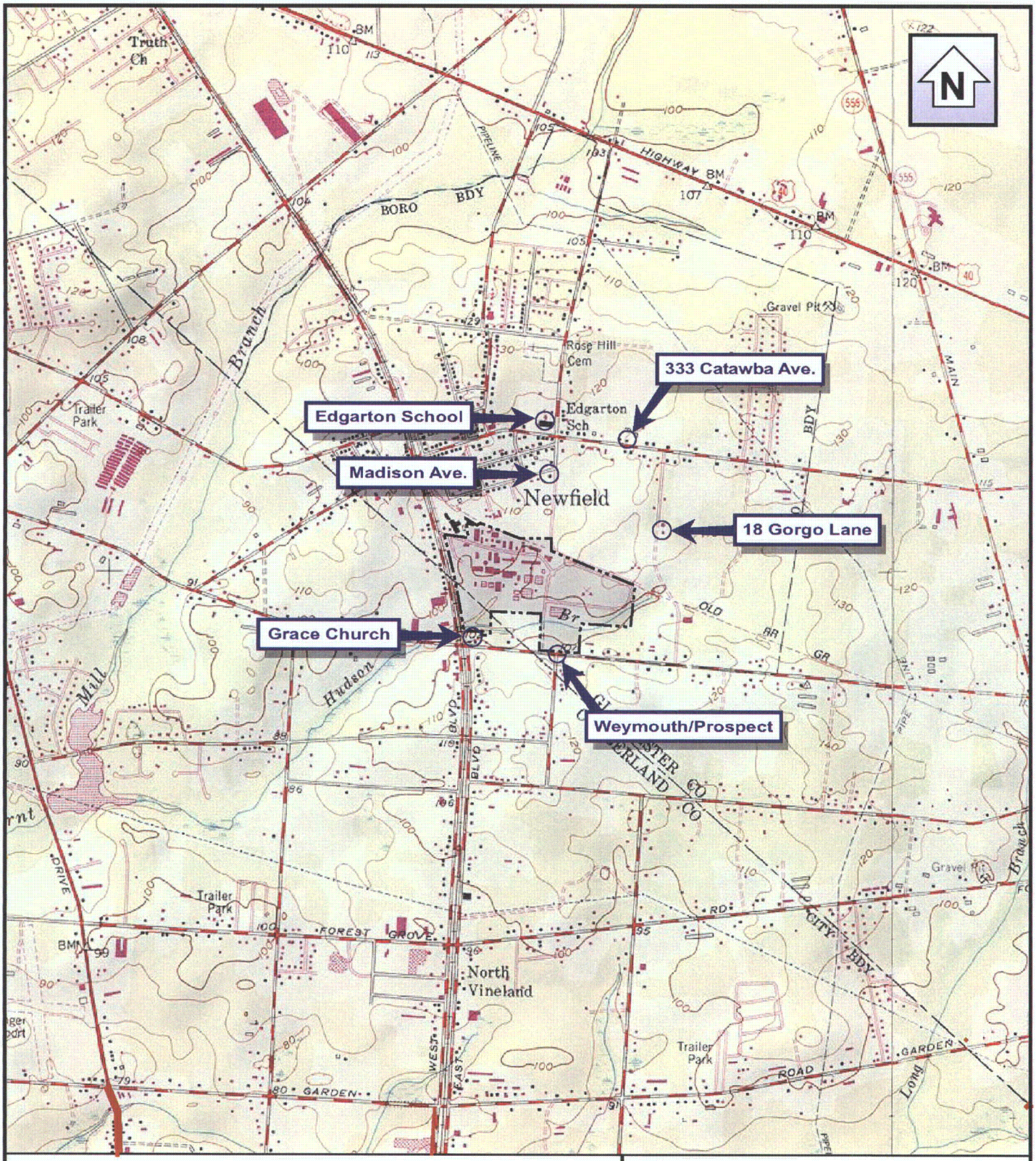
TRC
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

FIGURE 3-25
MONTHLY WINDROSES FOR MILLVILLE MUNICIPAL AIRPORT

Date: 11-08 | Project No. 105106

PERS/JWALESZCZYK/AIR/105106 SMC.FH10



0 2000
SCALE FEET

0 1
SCALE MILE
1:24000

BASE CREATED WITH TOPO™ © 1996 WILDFLOWERS PRODUCTIONS, www.topo.com
7.5' USGS TOPOGRAPHIC MAP

TRC
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

FIGURE 3-26
NOISE MONITORING LOCATIONS

Date: 07/09 | **Project No.** 105106.000100.000000

HAZ/26770 SMC/26770 SMC NML.fh9

Existing Viewshed of Current Site Elevation Obtained from Site Aerial Survey . Maximum Elevation of Existing Pile 129.1 feet

Site Plan

1 Mile Site Radius

Abstract:

Visibility Analysis was produced using a bare earth Digital Elevation Model (DEM) with New Jersey Land Cover Data Set added to compensate for areas with vegetation. Site specific survey information for the proposed and existing footprints was utilized to adjust for elevation differences in this vicinity.

DEM Information: (10- by 10-m data spacing, elevations in decimeters) Elevation_resolution_ is 1 decimeter (0.1 meter). Elevation accuracy is 24,000 contour data, i.e. plus/minus half the contour interval.

0 500 1,000 2,000 3,000 Feet

N

Source Data:
ProMaps, Moorestown, NJ, 2005;
New Jersey Department of Environmental Protection, 2005

Base Map:
New Jersey High Resolution Orthography, 2007

NEW JERSEY

SITE LOCATION

TRC
21 Griffen Road North
Windsor, CT 06095
860-298-9692

SHIELDALLOY METALLURGICAL CORPORATION NEWFIELD, NEW JERSEY

PROJECTED STORAGE YARD VIEWSHED EXISTING CONDITIONS

FIGURE 3-27 | **JUNE 2009**

R:\Projects\GIS_2009\105106_ShieldAlloy\mxd\Viewshed_Existing.mxd

Viewpoint Location

Capped Pile Engineered Barrier Area

Site Plan

1 Mile Site Radius

0 500 1,000 2,000 3,000 Feet

N

Source Data:
ProMaps, Moorestown, NJ, 2005;
New Jersey Department of Environmental Protection, 2005

Base Map:
New Jersey High Resolution Orthography, 2007

NEW JERSEY

TRC
21 Griffen Road North
Windsor, CT 06095
860-298-9692

SHIELDALLOY METALLURGICAL CORPORATION NEWFIELD, NEW JERSEY

VIEWPOINT LOCATIONS

FIGURE 3-28 | **JUNE 2009**

R:\Projects\GIS_2009\105106_ShieldAlloy\mxd\Viewpoints.mxd

Photo 1. View of northern portion of storage yard taken just west of the storage yard.

Photo 2. View of southern portion of storage yard taken from the unpaved SMC access road.

TRC
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORP.
NEWFIELD, NEW JERSEY

FIGURE 3-29

POINTS OF STORAGE YARD VISIBILITY-VIEWPOINTS 1 AND 2

Date: 07/09 | **Project No.** 105106.000100.0000

pers/jw/haz/26770 smc/photos.fh10

Photo 3. View toward storage yard, taken near the SMC pond

Photo 4. View toward storage yard, from near the SMC administration building.

TRC
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

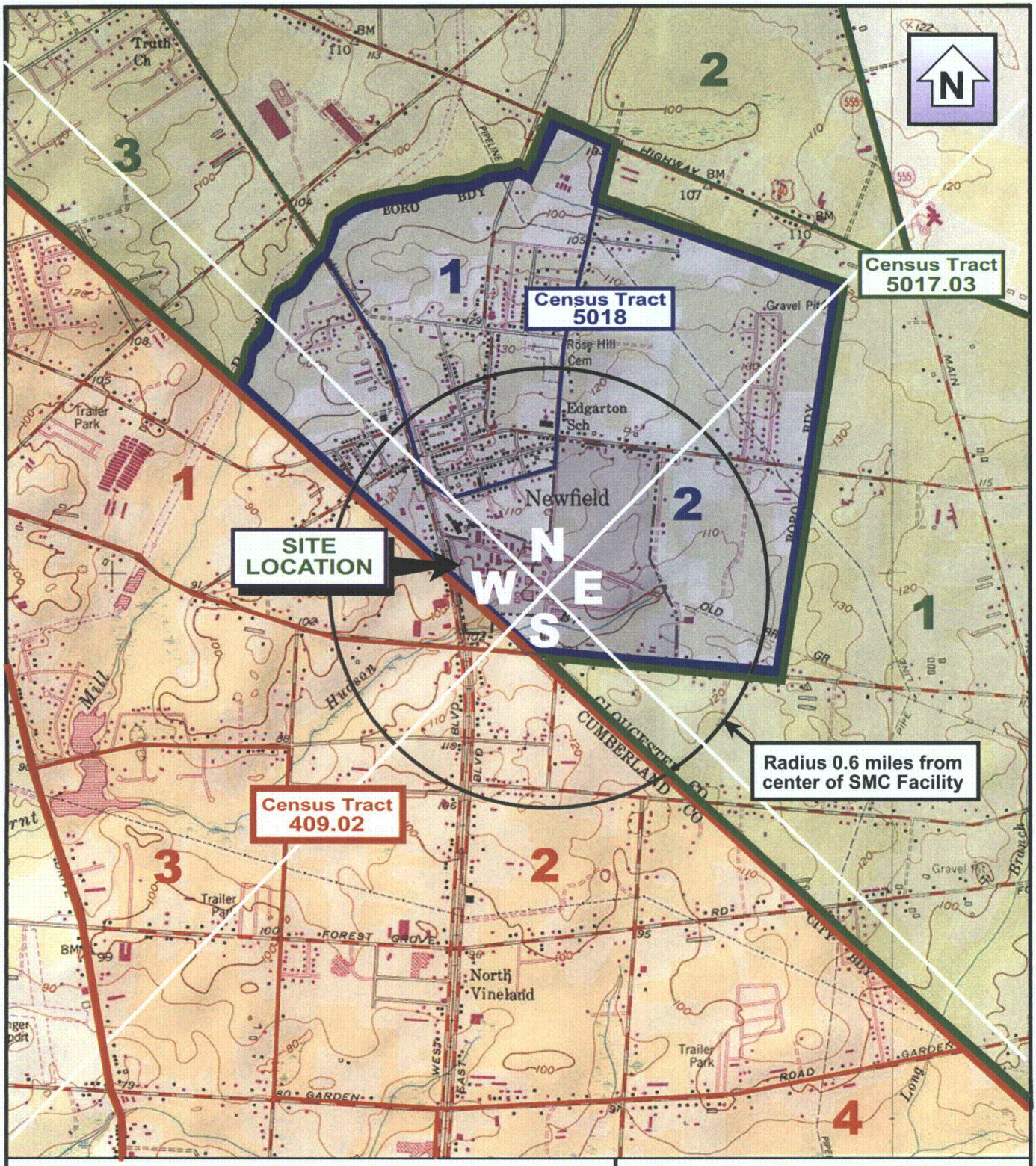
SHIELDALLOY METALLURGICAL CORP.
NEWFIELD, NEW JERSEY

FIGURE 3-30

POINTS OF STORAGE YARD VISIBILITY-VIEWPOINTS 4 AND 5

Date: 07/09 | **Project No.** 105106.000100.0000

pers/jw/haz/26770 smc/photos.fh10



0 2000
SCALE FEET

0 1
SCALE MILE
1:24000

BASE CREATED WITH TOPO™ © 1996
WILDFLOWERS PRODUCTIONS,
www.topo.com 7.5' USGS
TOPOGRAPHIC MAP

2 Block Group Number

Defines Census Tract Boundary

N Northern Quadrant

S Southern Quadrant

W Western Quadrant

E Eastern Quadrant

TRC

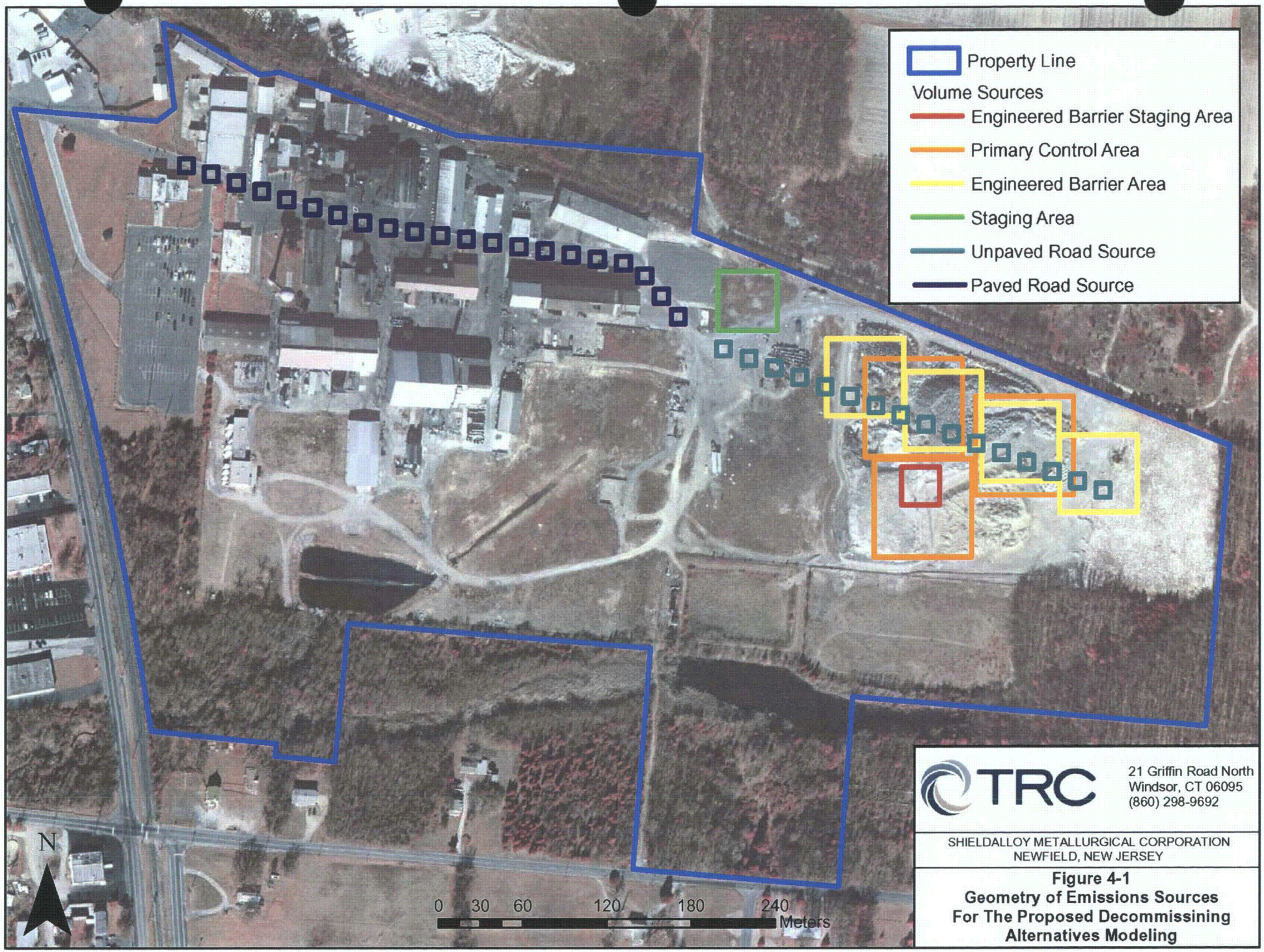
21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

FIGURE 3-31
2000 CENSUS TRACT AND BLOCK GROUP LOCATIONS WITH POPULATION DISTRIBUTION QUADRANTS

Date: 07/09 | **Project No.** 105106.000100.000000

105106 smc/Fig 3-31 Site location map.fh10

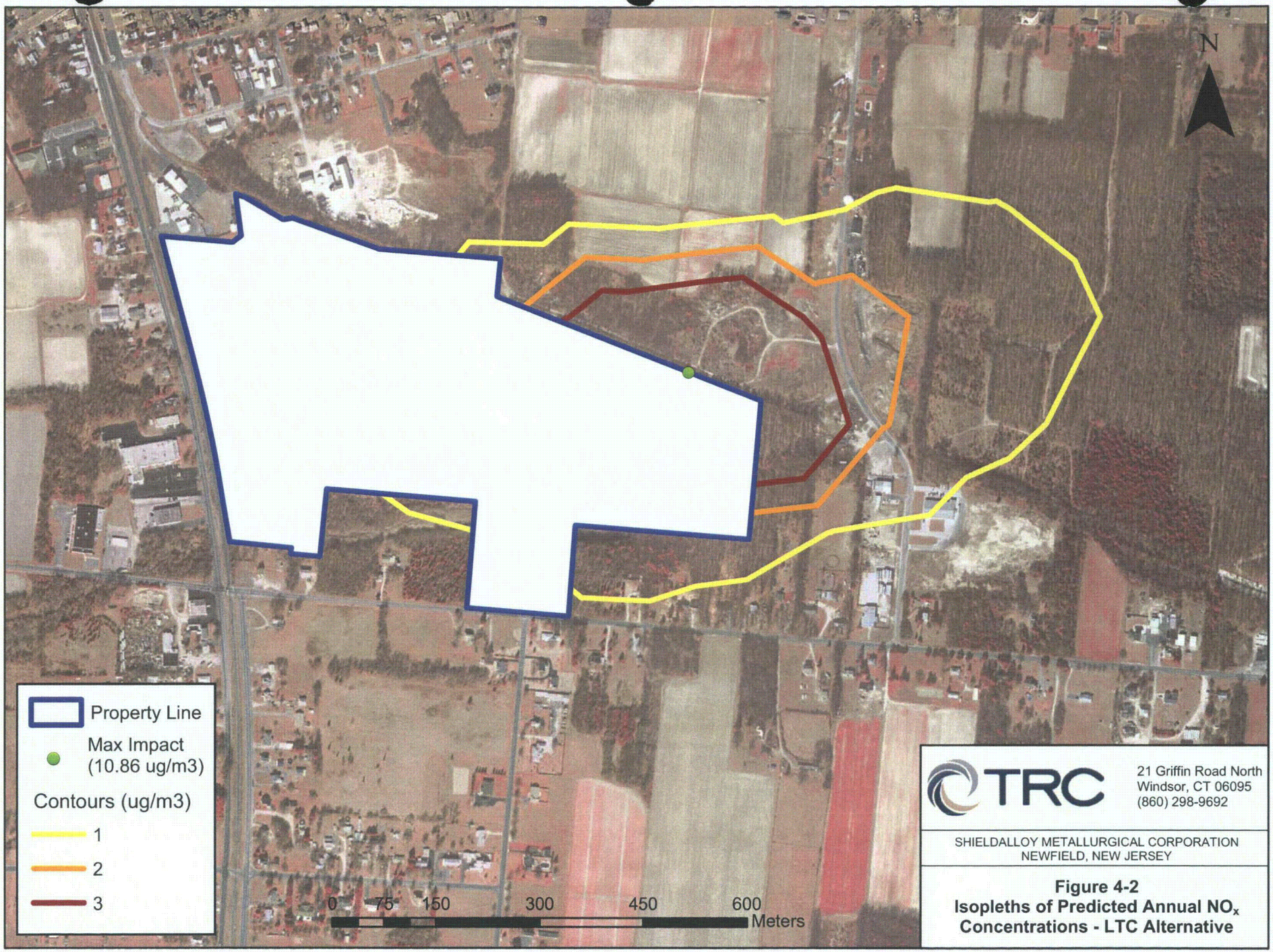


TRC

21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

Figure 4-1
Geometry of Emissions Sources For The Proposed Decommissining Alternatives Modeling

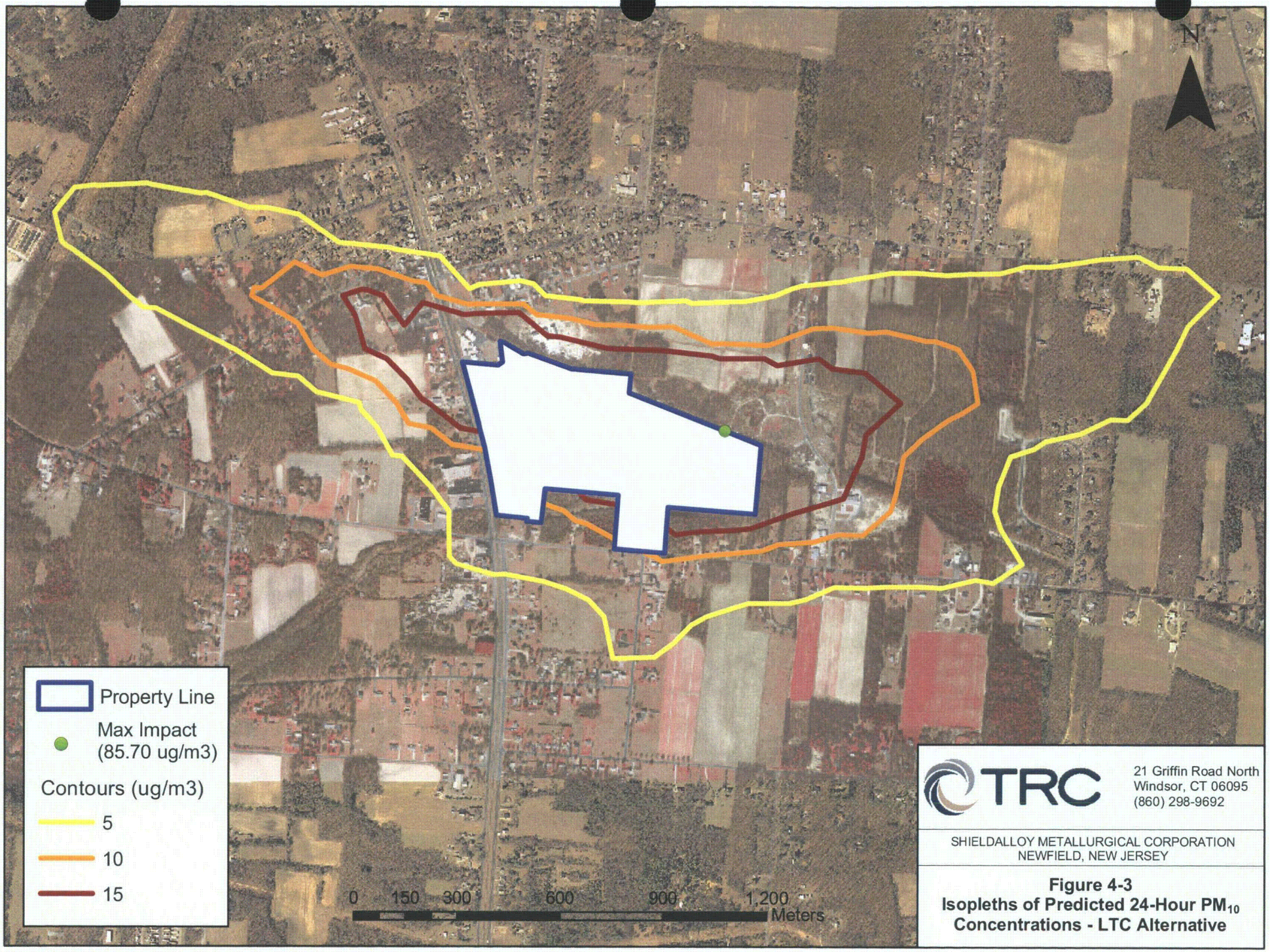


TRC

21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

Figure 4-2
Isopleths of Predicted Annual NO_x Concentrations - LTC Alternative

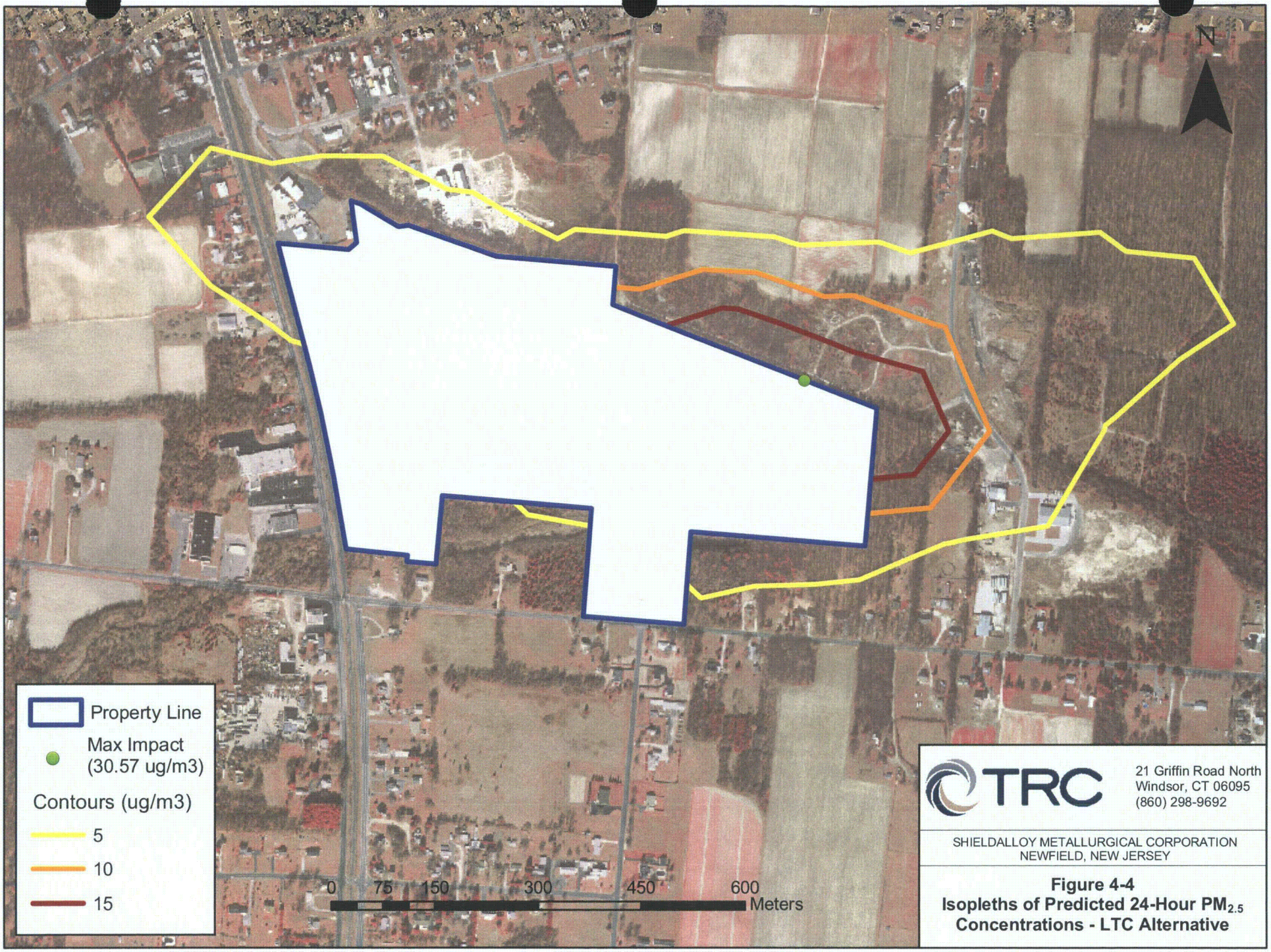


TRC

21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

Figure 4-3
Isopleths of Predicted 24-Hour PM_{10} Concentrations - LTC Alternative

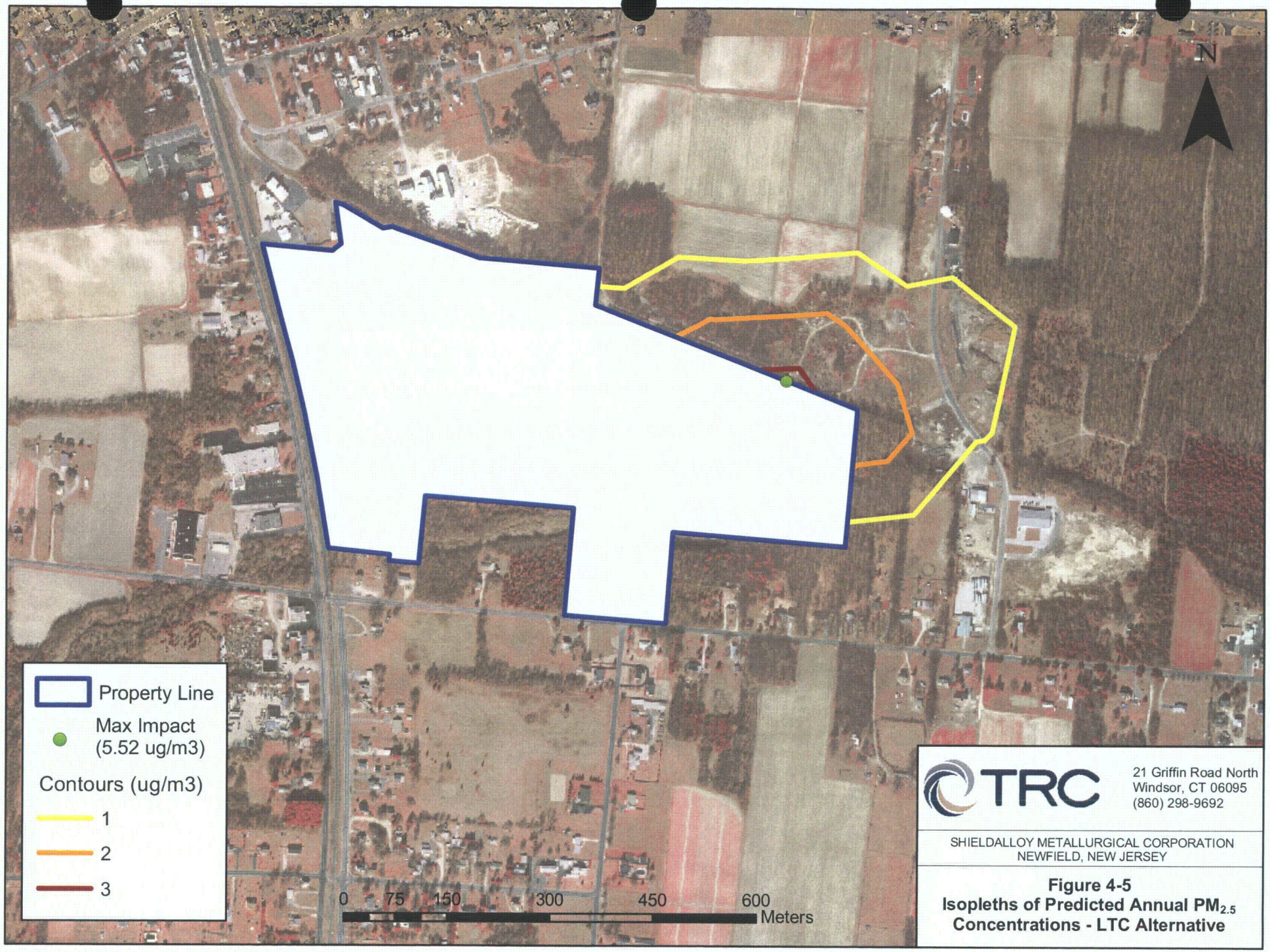


TRC

21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

Figure 4-4
Isopleths of Predicted 24-Hour $PM_{2.5}$ Concentrations - LTC Alternative

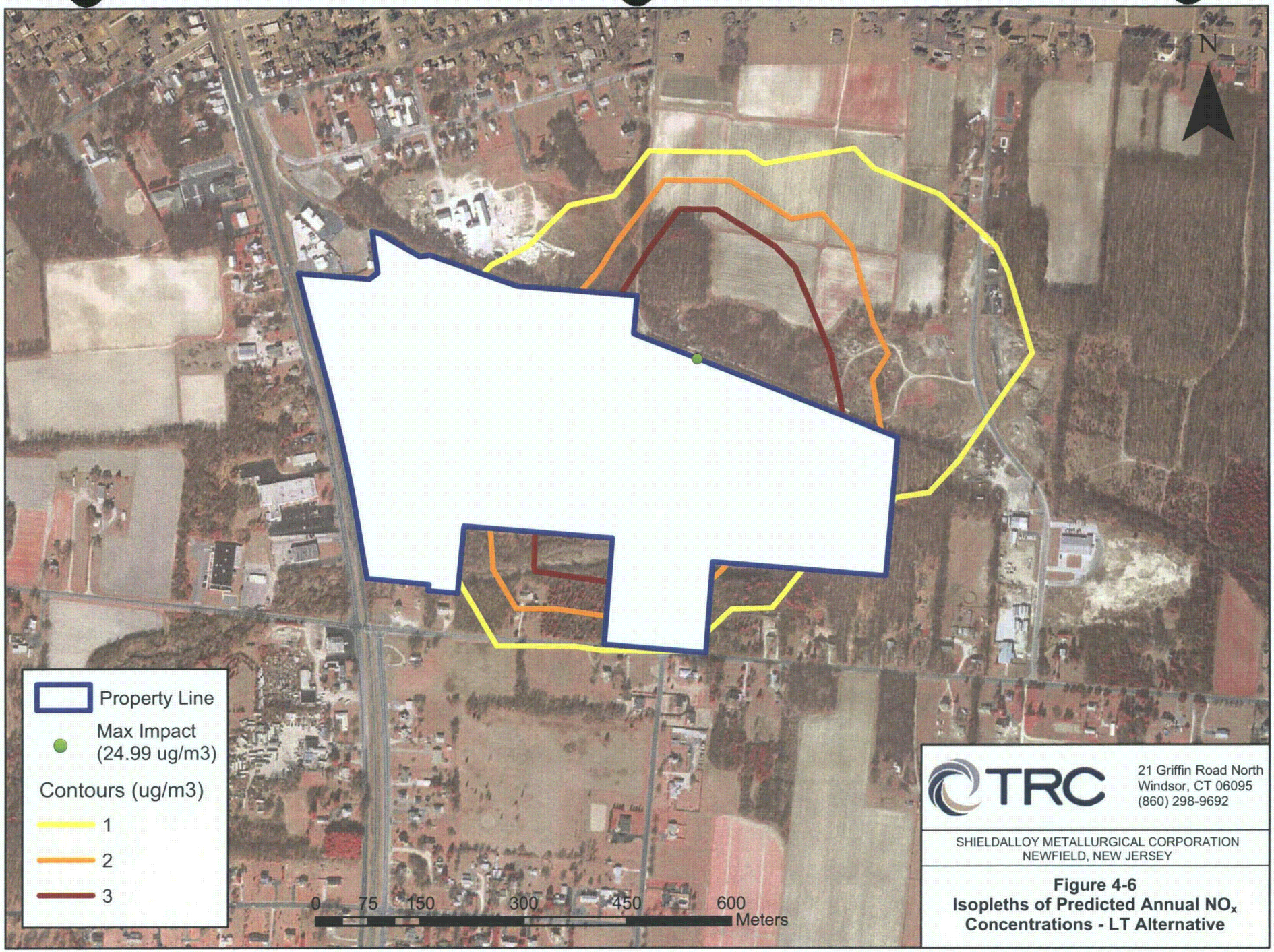


TRC

21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

Figure 4-5
Isopleths of Predicted Annual $PM_{2.5}$ Concentrations - LTC Alternative

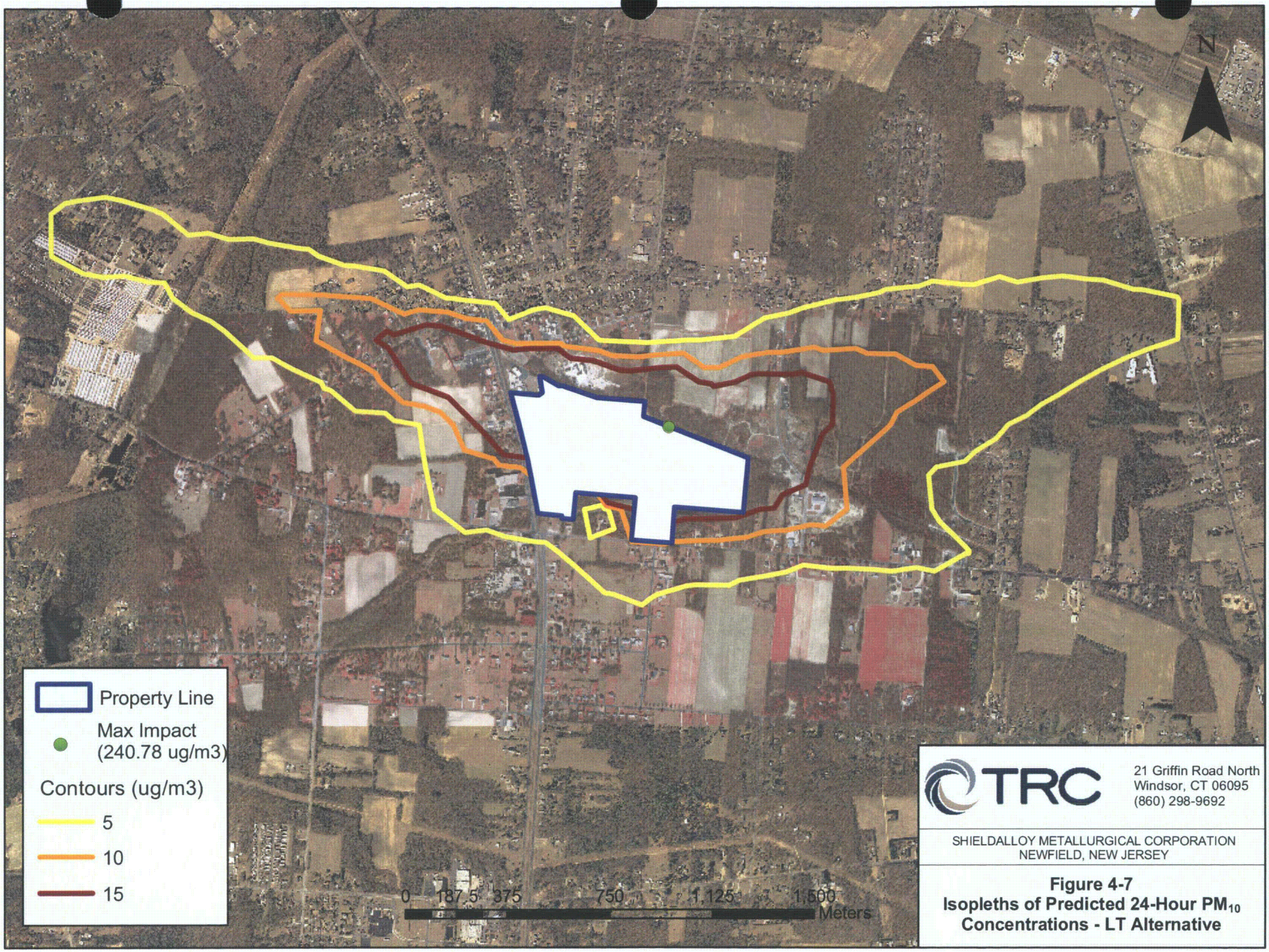


TRC

21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

Figure 4-6
Isopleths of Predicted Annual NO_x Concentrations - LT Alternative

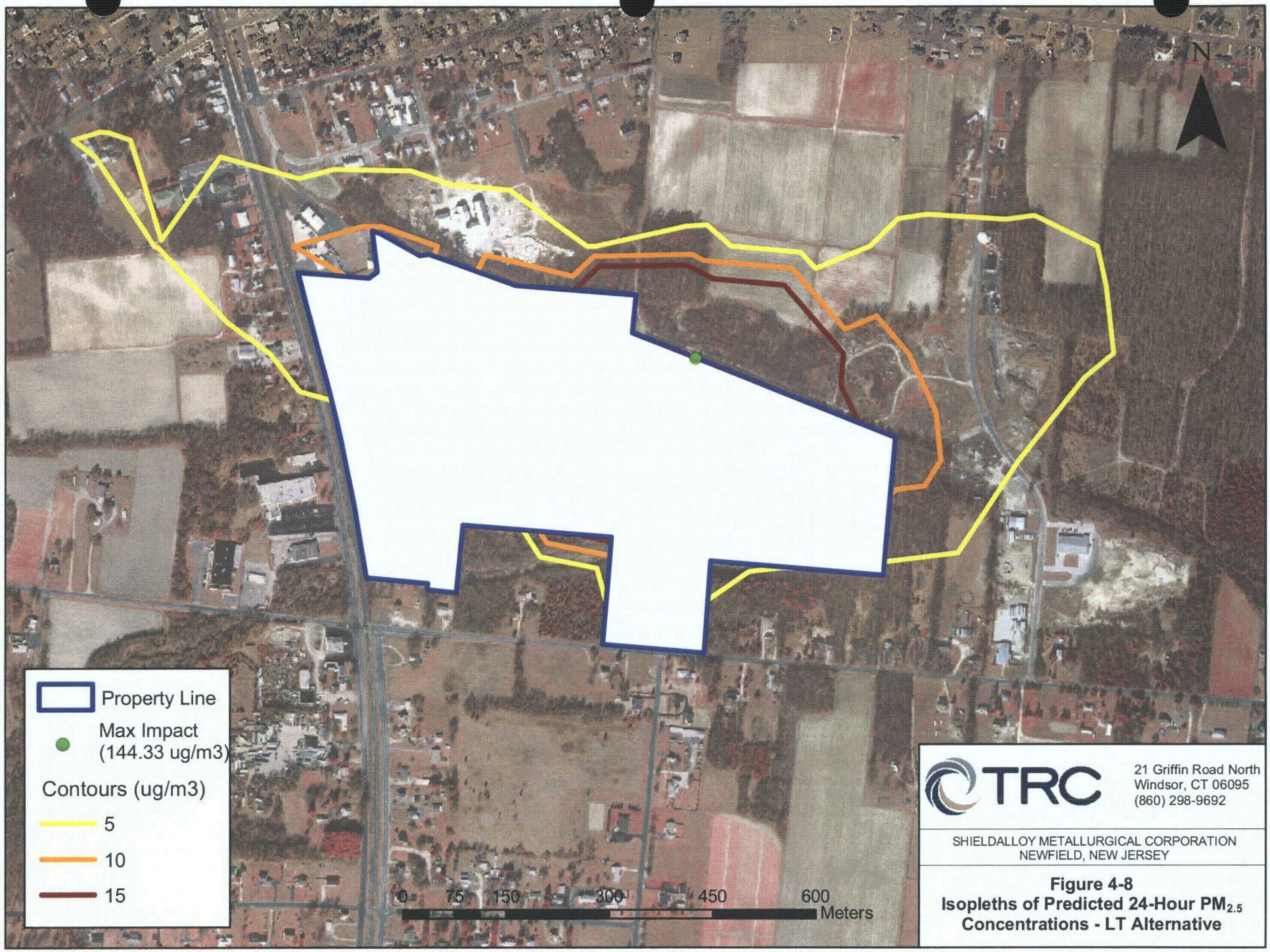


TRC

21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

Figure 4-7
Isopleths of Predicted 24-Hour PM_{10} Concentrations - LT Alternative

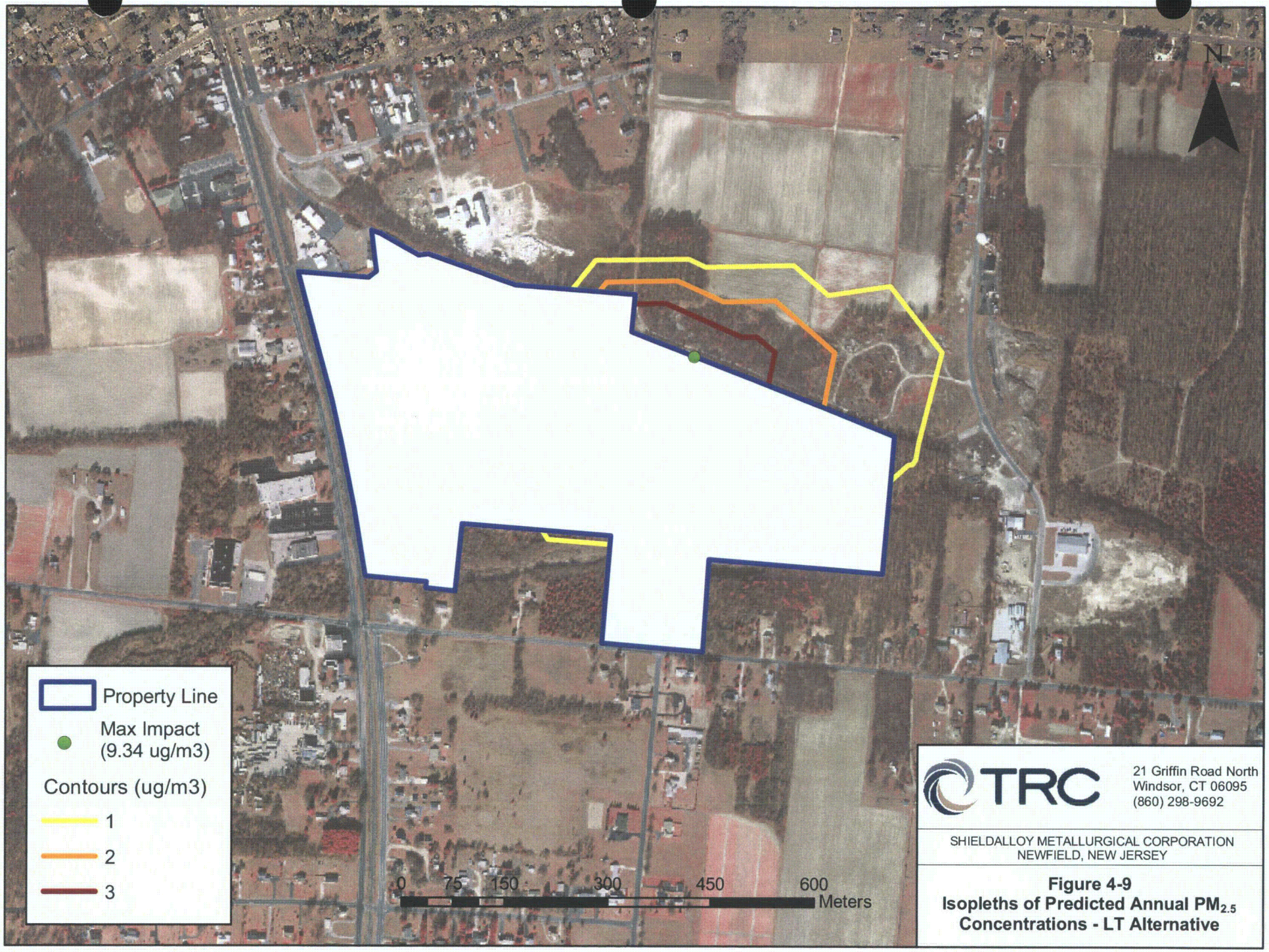


TRC

21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

Figure 4-8
Isopleths of Predicted 24-Hour $PM_{2.5}$ Concentrations - LT Alternative



TRC

21 Griffin Road North
Windsor, CT 06095
(860) 298-9692

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

Figure 4-9
Isopleths of Predicted Annual $PM_{2.5}$ Concentrations - LT Alternative