Appendix I

Level 3 Survey Performed by Enviroscan

Final Report
Geophysical Survey – Level 3 Utility Detection/Delineation
Exterior Portions – Garfield Avenue Group Site
Jersey City, NJ
Enviroscan Reference Number 071117

Prepared For: AECOM
Prepared By: Enviroscan, Inc.
September 16, 2011

1051 Columbia Avenue ● Lancaster, PA 17603 ● 717.396.8922 ● Fax 717.396.8746 ● email@enviroscan.com ● www.enviroscan.com

September 16, 2011

Mr. Richard Feinberg
AECOM
125 Rock Road
Horsham, PA 19044-2310

RE: Geophysical Survey – Level 3 Utility Detection/Delineation
Exterior Portions – Garfield Avenue Group Site
Jersey City, NJ
Enviroscan Reference Number 071117

Dear Mr. Feinberg,

Pursuant to the specifications of our proposal, dated July 18, 2011, Enviroscan, Inc. conducted a subsurface utility survey at the above-referenced site between August 16 through 29, 2011. The purpose of the survey was to provide non-intrusive geophysical scanning to locate underground metallic and non-metallic utilities (e.g. water, sewer, electric, and gas) beneath client-designated areas. Specifically the survey area included Garfield Avenue from Caven Point to rail line, Caven Point from Garfield Avenue to Pacific Avenue, Pacific Avenue to Carteret Avenue, Halliday Street to from Caven Point to Forrest Street, Forrest Street north of Halliday, Carteret Avenue from Garfield Avenue to Pacific Avenue, and a lot at the western intersection of Garfield and Union Street (Sheet 1 through 12).

Methods

The utility survey was completed using standard and/or routinely accepted practices of the geophysical industry and equipment representing the best available technology, including:

- a Radiodetection RD8000 Multi-Frequency pipe and cable tracer;
- a Radiodetection C.A.T. and Genny pipe and cable locator/tracer;
- a Fisher TW-6 electromagnetic (EM) pipe and cable locator/tracer;
- a Schoenstedt GA-72CD magnetic locator; and
- a GSSI SIR-2000 ground penetrating radar (GPR) system.

The principles of these techniques are detailed below.

RD8000

Utility tracing was conducted using a Radiodetection RD8000 digital cable and pipe tracer. The transmitter can be directly coupled to exposed portions of a metallic pipe, cable, or wire or indirectly (inductively) to a subsurface metallic utility of known location/orientation. The transmitter remains stationary and energizes the metallic utility at a frequency selected by the operator (512 Hz, 8 kHz, 33 kHz, or 65 kHz), which is received at the ground surface by the digital locator. When the transmitter is directly coupled to the metallic utility, the digital receiver can also calculate the depth of the utility to an accuracy of ±10% of the actual depth of the utility. Please note the close proximity to bends in the traced line or poor signal strength can result in erroneous depth estimations.

C.A.T. and Genny

The survey areas were also scanned with a Radiodetection C.A.T. and Genny pipe and cable locator and tracer. In Power mode, the C.A.T. detects the 50 to 60 Hertz (Hz) electromagnetic field generated by live power cables and other metallic utilities to which a live line is grounded. In Radio mode, the C.A.T. detects buried conductors (cables or metallic pipes) as they conduct and re-transmit commercial broadcast radio energy. In Genny mode, the C.A.T. detects signal generated by the Genny transmitter. The Genny transmitter can be coupled directly (conductively) to exposed portions of a metallic pipe, cable, or wire or inductively to a subsurface metallic utility with known location and orientation.

TW-6

In order to detect unknown utilities, Enviroscan employed a Fisher TW-6 pipe and cable locator and tracer. In pipe and cable search mode, the TW-6 is essentially a deep-sensing metal detector that detects any highly electrically conductive materials (e.g. metals) by creating an electromagnetic field with a transmitting coil. A receiving coil at a fixed separation from the transmitter measures the field strength. As the instrument is swept along the ground surface, subsurface metallic bodies distort the transmitted field. The change in field strength/orientation is sensed by the receiver, setting off an audible alarm and/or causing deflection of an analog meter. The TW-6 can nominally detect a 2-inch metal pipe to a depth of 8 feet and a 10-inch metal pipe to a depth of 14 feet.

In pipe and cable tracing mode, the TW-6 transmitter can be coupled directly (conductively) to exposed portions of a metallic pipe, cable, or wire or inductively to a subsurface metallic utility with known location and orientation. The transmitter remains stationary and energizes or excites the metallic utility to be traced with an 81.92-kilohertz signal that can be traced at the ground surface using the mobile TW-6 receiver wand or probe.

Magnetic Locator

Magnetic locators respond to distortions in the Earth's naturally-occurring magnetic field. These distortions may be caused by magnetically susceptible materials like iron or steel, or by hard-magnetized objects (i.e. ones that contain their own intrinsic magnetic field such as the mineral magnetite, permanently magnetized iron, or fired or heated rocks or ceramics). Thus, in subsurface utility surveys, magnetic locators are typically used to locate linear magnetic anomalies of the type that could represent cast iron or steel piping. The advantage of the magnetic locator is that it can detect these types of piping to much greater depths than the electromagnetic or GPR methods described above. Enviroscan utilized a Schoenstedt G72cd MAG instrument in open areas where minimal sources of cultural interference (e.g. reinforced concrete slabs, sidewalks, fences) were not present.

GPR

GPR systems produce cross-sectional images of subsurface features and layers by continuously emitting pulses of radar-frequency energy from a scanning antenna as it is towed along a survey profile. The radar pulses are reflected by interfaces between materials with differing dielectric properties. The reflections return to the antenna and are displayed on a video monitor as a continuous cross section in real time. Since the electrical properties of metal are distinctly different from soil and backfill materials, metallic pipes and other structures commonly produce dramatic and characteristic reflections. Fiberglass, plastic, concrete, and terra-cotta pipes and structures also produce recognizable, but less dramatic reflections. Scanning was performed using a GSSI SIR-2000 GPR controller with an internal hard drive and a color display, and a high-frequency, high-resolution 400 megaHertz (MHz) antenna or transducer.

EM-61 MK2

The EM-61 MK2 uses a one-meter by ½-meter coil to transmit 150 electromagnetic pulses per second into the ground at each measurement station. During the off-time between transmitted pulses, a receiver coil measures the decay of transient electrical currents induced by the transmitted pulses. The decay is characterized by recording the strength of the transient electrical currents (in milliVolts) at four different delays or time gates following shut-off of the applied field. Electrical currents in moderately conductive earth materials (e.g. electrolytic soils) dissipate rapidly, leaving the more prolonged currents due to buried metallic objects. The EM-61 MK2 measures the surficial electrical potential due to the prolonged subsurface currents, providing a digital read-out of the relative metallic content of the subsurface.

To complete the EM-61 MK2 survey, a system of profiles (at approximately 5-foot intervals) was surveyed by hand-towing the EM-61 MK2 in each survey area. Data were collected at a rate of four readings per second (for an average station spacing of approximately one foot). Location control was maintained using a Topcon GMS-110 global positioning system (GPS) receiver. The GPS positions were collected with real-time differential correction, using the corrections from a coastguard beacon in Annapolis, MD. The resulting differential GPS (DGPS) positions have an accuracy of better than two feet. GPS and EM data were fed simultaneously to a Juniper System Allegro data logger running Trackmaker 61 software by Geomar, Inc. This software allows display of the data coverage in real time to ensure complete site coverage. The EM survey data coverage is displayed in Sheet 12. Each small cross represents an EM measurement station.

Results of the EM-61 MK2 survey are depicted as contours of the individual EM-61 MK2 station measurements in Sheet 12. The EM-61 MK2 records four measurements spaced by time (time gates) after the initial transmit pulse. Gate 1 reads responses from metal targets of all depth and size within the range and sensitivity of the instrument. Gate 2 filters out the smallest targets. Gates 3 and 4 read responses from large targets, with Gate 4 showing the least interference from smaller targets. The purpose of this survey was to detect and delineate remnant structures, buried metallic debris caches, abandoned utilities, and active utilities; therefore, Gate 4 was selected for the best display of possible targets of interest.

Results Summary

The utility clearance survey results are represented in Sheets 2 through 12, with the sewer system on odd numbered sheets separated from the other utilities on even numbered sheets for clarity. Each utility line was traced from either off-site or from its above-ground origin. Utilities or anomalies that could not be traced further, due to loss of signal, are marked with a "?" on the figures as well as on the ground surface. Additionally, several suspected sewer lines, based on historical information provided by the client, are indicated on the sheets (marked with "?" lines) as not found. Please note that the location of these lines are **NOT** known and should **NOT** be used for planning purposes. Average depths below land surface (bls) are also indicated on Sheets 2 through 12 based on the geophysical survey, with sewer line invert elevations shown based on elevations provided by the client's previous surveys.

Prior to Enviroscan's survey, water, gas, electric, sewer (combined storm and sanitary), and communication utilities were identified around the border of the site within the utility right-of-way along each of the roadways by the New Jersey One-Call system. Enviroscan then performed conductive and inductive as well as passive signal tracing on each of the marked utilities to confirm the location of the paint marks, determine the approximate depth of that utility line, and search for additional laterals that may not have been marked or have been abandoned. Enviroscan also applied active and passive tracing within the survey areas, including GPR and EM-61 scanning. Additionally, all accessible manholes and covers were opened and compared to previous survey results. Please note that access was limited in the area of the former building pad (the exclusion zone); however, a large portion of the exclusion zone has already been excavated by others.

GPR scanning was attempted both outside the fence and within the facility; however, GPR signal penetration depths were limited to approximately 2 to 3 feet below grade in most areas – possibly due to the presence of conductive and/or disturbed soils as well as reinforced concrete pads. Additionally, the TW-6 deep-sensing metal detector was severely limited due to signal saturation from suspected high concentrations of metal (e.g. slag material) within the soils as well as reinforced concrete in several areas of the site.

EM-61 scanning of the open accessible area of the site (Sheet 12) indicated an elevated EM response over the majority of the survey area. Analysis of the data indicates the presence of two suspected former above ground storage tank foundations, as well as numerous suspected buried utility lines in the northern corner of the survey area which are also shown of Sheet 8 without the color contours. Unfortunately, the elevated response over the majority of the survey area (primarily in the southern area) made identifying individual utilities difficult if not impossible. Additionally, several of the linear anomalies may be related to building foundations and other structural features rather than abandoned underground utility lines.

The geophysical survey detected three suspected unknown underground utilities located north and east of the former building pad in the northern portion of the site. These unknown utilities are marked with “?” on Sheet 6 and in the field. The line near the southeastern corner of the former building pad appears to be a lateral between the two former buildings, while the other two on the northern side of the pad may be abandoned utility lines that extended from the former building. Neither historical information nor the geophysical scanning in this area indicates a major active or possibly active utility line (lateral) from Garfield Avenue or the railroad line to the former building that would be in the vicinity of these unknown utility lines.

Sheet 6 shows two abandoned lateral gas lines extending from Garfield Avenue to the former building pad that were drawn on a former drawing provided by the client. The geophysical survey could not detect these laterals; however, they were placed on the figure as a precaution. Additionally, one of the two former laterals from Garfield Avenue to the existing concrete building pad (south of the removed pad) could not be traced from Garfield Avenue to the pad; however, a piece of exposed pipe in this location was energized with the RD equipment. The beginning and end of this pipe (i.e. the suspected lateral) is marked with “?” symbols on Sheet 6 and on the ground surface.

Sheets 3, 5, 7, 9, and 11 show the traced shallow (i.e. less that approximately 10 feet) portions of the sewer system. Note that historical information also indicates the presence of a much deeper 96” steel line, as well as a similarly deep 60” and 78” steel line and a 36” brick line within Garfield Avenue (Sheet 3, 7, and 11). Passive scanning was able to detect the suspected 96” steel line within Carteret Avenue; however, passive scanning could not trace the 60” and 78” steel line within Garfield Avenue due to the presence of multiple utility lines that have passive signals (gas, water, electric, and communication lines). Additionally, the brick lines cannot be traced without an active source such as a tracer wire or sonde inside the line. However, the brick line appears to extend from manhole to manhole. Given the size, construction design, and other limiting factors of the steel line, placing an active source within the line does not appear to be an option at this time. The approximate location of the 60” and 76” steel line is labeled on Sheets 3, 7, and 11 between the gas and shallow sewer line along Garfield Avenue based on historical information provided to Enviroscan. Additionally, the brick lines are believed to be within the boundaries of Garfield and Carteret Avenues and appear to extend from manhole to manhole.

Please note that historical information indicates the presence of a 45”x 38” sewer line from Claremont Avenue through an existing building to a 48” RCP sewer line that extends from Caven Point to Carteret Avenue (Sheets 3 and 7). A 54” RCP sewer line is also reported to extend from the same manhole on Carteret Avenue through the Garfield Avenue Group Site to a manhole located outside the fenced area along the railroad line (Sheet 7). Access is limited in several areas along these suspected lines due to buildings, concrete pads, chain link fences, and other sources of interference. Given the size and assumed depth of these lines, it is unlikely these lines can be traced without an active source such as a tracer wire or sonde inside the line.

Please note that no visible piping from Carteret Avenue through the Garfield Avenue Group Site was observed in the manhole located adjacent the railroad line.

Limitations

The above-referenced geophysical survey was completed using standard and/or routinely accepted practices of the geophysical industry and equipment representing the best available technology. Enviroscan does not accept responsibility for survey limitations due to inherent technological limitations or unforeseen site-specific conditions. However, we make every effort to identify and notify the client of such limitations or conditions. In particular, please note the following specific limitations and recommendations:

- Enviroscan's field markings should be given a clearance of approximately +/-18 inches for single lines. In contrast, since electromagnetic tracing of duct banks provides only a centerline, banks may extend for 2 to 3 feet beyond the marked trace.

- The completion of this survey does not relieve any party of applicable legal obligations to notify the appropriate One-Call center prior to digging or drilling.

We appreciate this opportunity to have worked with you. If you have any questions, please do not hesitate to contact me.

Sincerely,
Enviroscan, Inc.

Charles H. Rhine, M.Sc., P.G.
Senior Geophysics Project Manager

Technical Review By:
Enviroscan, Inc.

Felicia Kegel Bechtel, M.Sc., P.G.
President

enc.: Sheet 1: Geophysical Survey Results – Sheet Alignment
Sheet 2: Geophysical Survey Results – Northwest Area Utilities
Sheet 3: Geophysical Survey Results – Northwest Area Sewer System
Sheet 4: Geophysical Survey Results – Southwest Area Utilities
Sheet 5: Geophysical Survey Results – Southwest Area Sewer System
Sheet 6: Geophysical Survey Results – Northeast Area Utilities
Sheet 7: Geophysical Survey Results – Northeast Area Sewer System
Sheet 8: Geophysical Survey Results – Southeast Area Utilities
Sheet 9: Geophysical Survey Results – Southeast Area Sewer System
Sheet 10: Geophysical Survey Results – Lot 186 Area Utilities
Sheet 11: Geophysical Survey Results – Lot 186 Area Sewer System
Sheet 12: Geophysical Survey Results – EM-61 Response

General Notes:

The information depicted on this drawing represents survey results on the date surveyed and can only be considered to be indicative of the general conditions existing on that survey date.

Coordinates in New Jersey State Plane, NAD-83 Datum.

Base map information from Enviroscan DGPS survey and client-supplied drawing by Borbas Surveying & Mapping, LLC (J. Peter Borbas).

Underground utilities identified with various geophysical instruments. See report for specific equipment and techniques used.

Prepared by:		Geophysical Survey Sheet Alignment	PPG Industries Sites Jersey City, NJ	Sheet 1
ENVIROSCAN, INC.	Enviroscan, Inc. 1051 Columbia Avenue Lancaster, PA 17603 (717) 396-8922	No. / Revision/Issue / Date 1 / 071117.DWG / 9/16/11	Project Number 071117 Survey End Date 08/20/11 Original Scale 1" = 80'	Drawn by: CHR Approved by: FKB

General Notes:

The information depicted on this drawing represents survey results on the date surveyed and can only be considered to be indicative of the general conditions existing on that survey date.

Coordinates in New Jersey State Plane, NAD-83 Datum.

Base map information from Enviroscan DGPS survey and client-supplied drawing by Borbas Surveying & Mapping, LLC (J. Peter Borbas).

Underground utilities identified with various geophysical instruments. See report for specific equipment and techniques used.

Geophysical Survey Legend

COM — COM	Communication Line
E — E	Electric Line
G	Gas Line
OE	Overhead Utility Line
W	Water Line
	Fire Hydrant
GM GV	Gas Meter/Valve
	Utility Pole
	Manhole
WM WV	Water Meter/Valve

Scale (ft)

0 15 30 45 60

Prepared by:

ENVIROSCAN, INC.

Enviroscan, Inc.
1051 Columbia Avenue
Lancaster, PA 17603
(717) 396-8922

Geophysical Survey Results - Northwest Area Utilities

PPG Industries Sites
Jersey City, NJ

Sheet 2

No.	Revision/Issue	Date
1	071117.DWG	9/16/11

Project Number: 071117
Survey End Date: 08/20/11
Drawn by: CHR
Original Scale: 1" = 30'
Approved by: FKB

General Notes:

The information depicted on this drawing represents survey results on the date surveyed and can only be considered to be indicative of the general conditions existing on that survey date.

Coordinates in New Jersey State Plane, NAD-83 Datum.

Base map information from Enviroscan DGPS survey and client-supplied drawing by Borbas Surveying & Mapping, LLC (J. Peter Borbas).

Underground utilities identified with various geophysical instruments. See report for specific equipment and techniques used.

Geophysical Survey Legend

S	Sewer Line
S	Sewer Line (Steel)
?	Suspected Sewer Line (NOT FOUND)
	Catch Basin/Inlet
	Manhole

Scale (ft)

0 15 30 45 60

Prepared by:

ENVIROSCAN, INC.

Enviroscan, Inc.
1051 Columbia Avenue
Lancaster, PA 17603
(717) 396-8922

Geophysical Survey Results - Northwest Area Sewer System

PPG Industries Sites
Jersey City, NJ

Sheet 3

No.	Revision/Issue	Date
1	071117.DWG	9/16/11

Project Number 071117
Survey End Date 08/20/11
Drawn by: CHR
Original Scale 1" = 30'
Approved by: FKB

General Notes:

The information depicted on this drawing represents survey results on the date surveyed and can only be considered to be indicative of the general conditions existing on that survey date.

Coordinates in New Jersey State Plane, NAD-83 Datum.

Base map information from Enviroscan DGPS survey and client-supplied drawing by Borbas Surveying & Mapping, LLC (J. Peter Borbas).

Underground utilities identified with various geophysical instruments. See report for specific equipment and techniques used.

Geophysical Survey Legend

COM — COM	Communication Line
E — E	Electric Line
G	Gas Line
OE	Overhead Utility Line
W	Water Line
	Fire Hydrant
GM GV	Gas Meter/Valve
	Utility Pole
	Manhole
WM WV	Water Meter/Valve

Scale (ft)

0 15 30 45 60

Prepared by:

ENVIROSCAN, INC.

Enviroscan, Inc.
1051 Columbia Avenue
Lancaster, PA 17603
(717) 396-8922

Geophysical Survey Results -Southwest Area Utilities

PPG Industries Sites
Jersey City, NJ

Sheet 4

No.	Revision/Issue	Date
1	071117.DWG	9/16/11

Project Number: 071117
Survey End Date: 08/20/11
Drawn by: CHR
Original Scale: 1" = 30'
Approved by: FKB

General Notes:

The information depicted on this drawing represents survey results on the date surveyed and can only be considered to be indicative of the general conditions existing on that survey date.

Coordinates in New Jersey State Plane, NAD-83 Datum.

Base map information from Enviroscan DGPS survey and client-supplied drawing by Borbas Surveying & Mapping, LLC (J. Peter Borbas).

Underground utilities identified with various geophysical instruments. See report for specific equipment and techniques used.

Geophysical Survey Legend

S	Sewer Line
S	Sewer Line (Steel)
?	Suspected Sewer Line (NOT FOUND)
	Catch Basin/Inlet
	Manhole

Scale (ft)

0 15 30 45 60

Prepared by:

Enviroscan, Inc.
1051 Columbia Avenue
Lancaster, PA 17603
(717) 396-8922

ENVIROSCAN, INC.

Geophysical Survey Results -Southwest Area Sewer System

PPG Industries Sites Jersey City, NJ

Sheet 5

No.	Revision/Issue	Date
1	071117.DWG	9/16/11

Project Number: 071117
Survey End Date: 08/20/11
Drawn by: CHR
Original Scale: 1" = 30'
Approved by: FKB

General Notes:

The information depicted on this drawing represents survey results on the date surveyed and can only be considered to be indicative of the general conditions existing on that survey date.

Coordinates in New Jersey State Plane, NAD-83 Datum.

Base map information from Enviroscan DGPS survey and client-supplied drawing by Borbas Surveying & Mapping, LLC (J. Peter Borbas).

Underground utilities identified with various geophysical instruments. See report for specific equipment and techniques used.

Geophysical Survey Legend

COM	Communication Line		Fire Hydrant
E	Electric Line	GM GV	Gas Meter/Valve
G	Gas Line		Utility Pole
OE	Overhead Utility Line		Manhole
W	Water Line	WM WV	Water Meter/Valve

Scale (ft)
0 15 30 45 60

Prepared by: Enviroscan, Inc. 1051 Columbia Avenue Lancaster, PA 17603 (717) 396-8922	Geophysical Survey Results -Northeast Area Utilities		PPG Industries Sites Jersey City, NJ		Sheet 6
	No.	Revision/Issue	Date	Project Number 071117	Survey End Date 08/20/11	Drawn by: CHR
	1	071117.DWG	9/16/11	Original Scale 1" = 30'		Approved by: FKB

General Notes:

The information depicted on this drawing represents survey results on the date surveyed and can only be considered to be indicative of the general conditions existing on that survey date.

Coordinates in New Jersey State Plane, NAD-83 Datum.

Base map information from Enviroscan DGPS survey and client-supplied drawing by Borbas Surveying & Mapping, LLC (J. Peter Borbas).

Underground utilities identified with various geophysical instruments. See report for specific equipment and techniques used.

Geophysical Survey Legend

S — Sewer Line
S — Sewer Line (Steel)
? — Suspected Sewer Line (NOT FOUND)
Catch Basin/Inlet
Manhole

Scale (ft)
0 15 30 45 60

Prepared by:

Enviroscan, Inc.
1051 Columbia Avenue
Lancaster, PA 17603
(717) 396-8922

ENVIROSCAN, INC.

Geophysical Survey Results -Northeast Area Sewer System

PPG Industries Sites
Jersey City, NJ

Sheet 7

No.	Revision/Issue	Date
1	071117.DWG	9/16/11

Project Number: 071117
Survey End Date: 08/20/11
Drawn by: CHR
Original Scale: 1" = 30'
Approved by: FKB

General Notes:

The information depicted on this drawing represents survey results on the date surveyed and can only be considered to be indicative of the general conditions existing on that survey date.

Coordinates in New Jersey State Plane, NAD-83 Datum.

Base map information from Enviroscan DGPS survey and client-supplied drawing by Borbas Surveying & Mapping, LLC (J. Peter Borbas).

Underground utilities identified with various geophysical instruments. See report for specific equipment and techniques used.

Geophysical Survey Legend

COM	Communication Line		Fire Hydrant
E	Electric Line	GM GV	Gas Meter/Valve
G	Gas Line		Utility Pole
OE	Overhead Utility Line		Manhole
W	Water Line	WM WV	Water Meter/Valve

Prepared by: ENVIROSCAN, INC.	**Enviroscan, Inc.** 1051 Columbia Avenue Lancaster, PA 17603 (717) 396-8922	Geophysical Survey Results -Southeast Area Utilities		PPG Industries Sites Jersey City, NJ	Sheet 8
		No.	Revision/Issue	Date	
		1	071117.DWG	9/16/11	
		Project Number 071117	Survey End Date 08/20/11	Drawn by: CHR	
		Original Scale 1" = 30'		Approved by: FKB	

General Notes:

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Coordinates in New Jersey State Plane, NAD-83 Datum.

Base map information from Enviroscan DGPS survey and client-supplied drawing by Borbas Surveying & Mapping, LLC (J. Peter Borbas).

Underground utilities identified with various geophysical instruments. See report for specific equipment and techniques used.

Geophysical Survey Legend

- S — Sewer Line
- S — Sewer Line (Steel)
- ? — Suspected Sewer Line (NOT FOUND)
- Catch Basin/Inlet
- Manhole

Scale (ft)
0 15 30 45 60

Prepared by:

ENVIROSCAN, INC.

Enviroscan, Inc.
1051 Columbia Avenue
Lancaster, PA 17603
(717) 396-8922

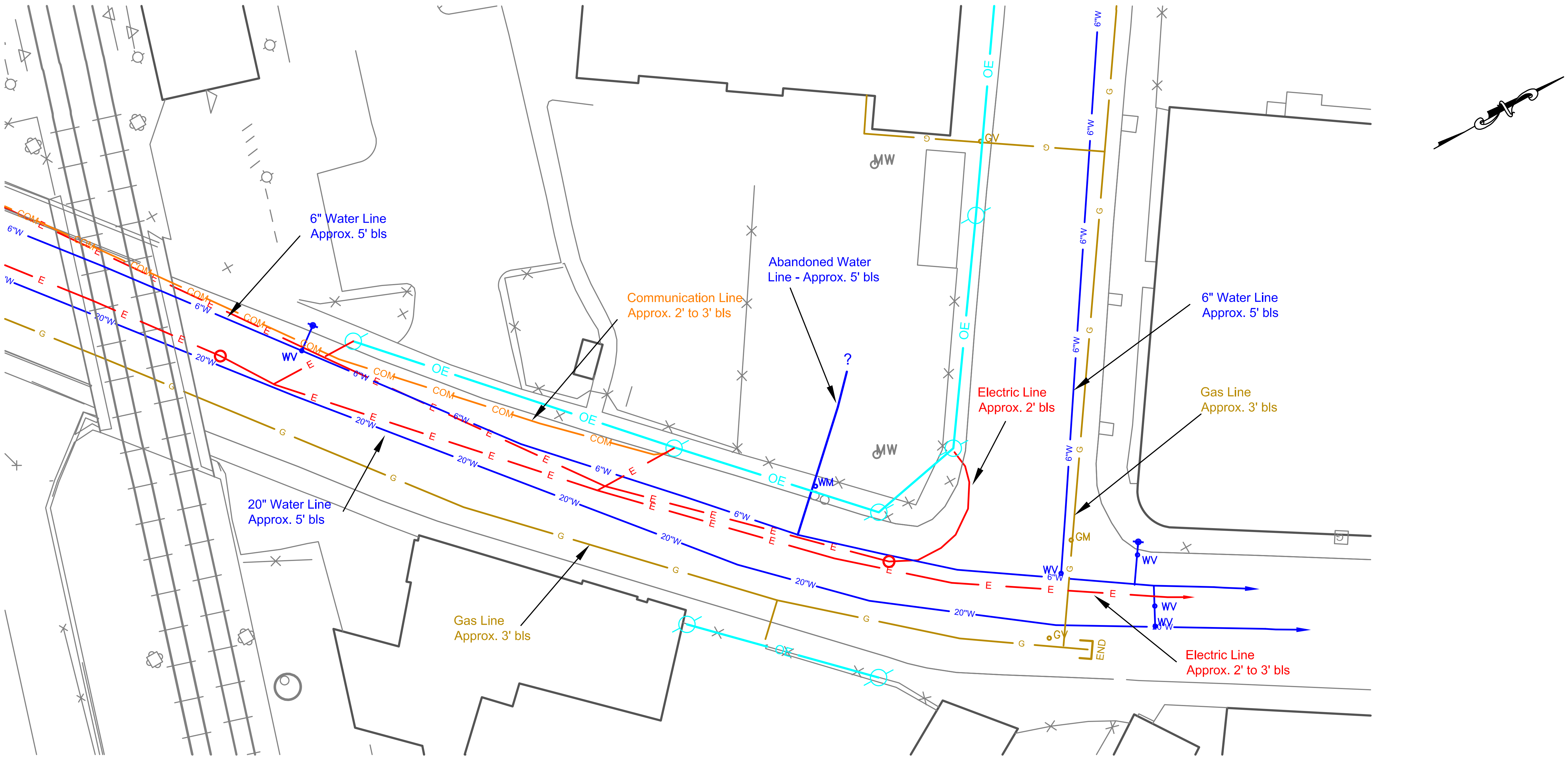
Geophysical Survey Results -Southeast Area Sewer System

PPG Industries Sites
Jersey City, NJ

Sheet 9

No.	Revision/Issue	Date
1	071117.DWG	9/16/11

Project Number: 071117
Survey End Date: 08/20/11
Drawn by: CHR
Original Scale: 1" = 30'
Approved by: FKB



Geophysical Survey Legend

- Communication Line (COM)
- Electric Line (E)
- Gas Line (G)
- Overhead Utility Line (OE)
- Water Line (W)
- Fire Hydrant
- GM GV Gas Meter/Valve
- Utility Pole
- Manhole
- WM WV Water Meter/Valve

Scale (ft)

0 15 30 45 60

General Notes:

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Coordinates in New Jersey State Plane, NAD-83 Datum.

Base map information from Enviroscan DGPS survey and client-supplied drawing by Borbas Surveying & Mapping, LLC (J. Peter Borbas).

Underground utilities identified with various geophysical instruments. See report for specific equipment and techniques used.

Prepared by:

ENVIROSCAN, INC.

Enviroscan, Inc.
1051 Columbia Avenue
Lancaster, PA 17603
(717) 396-8922

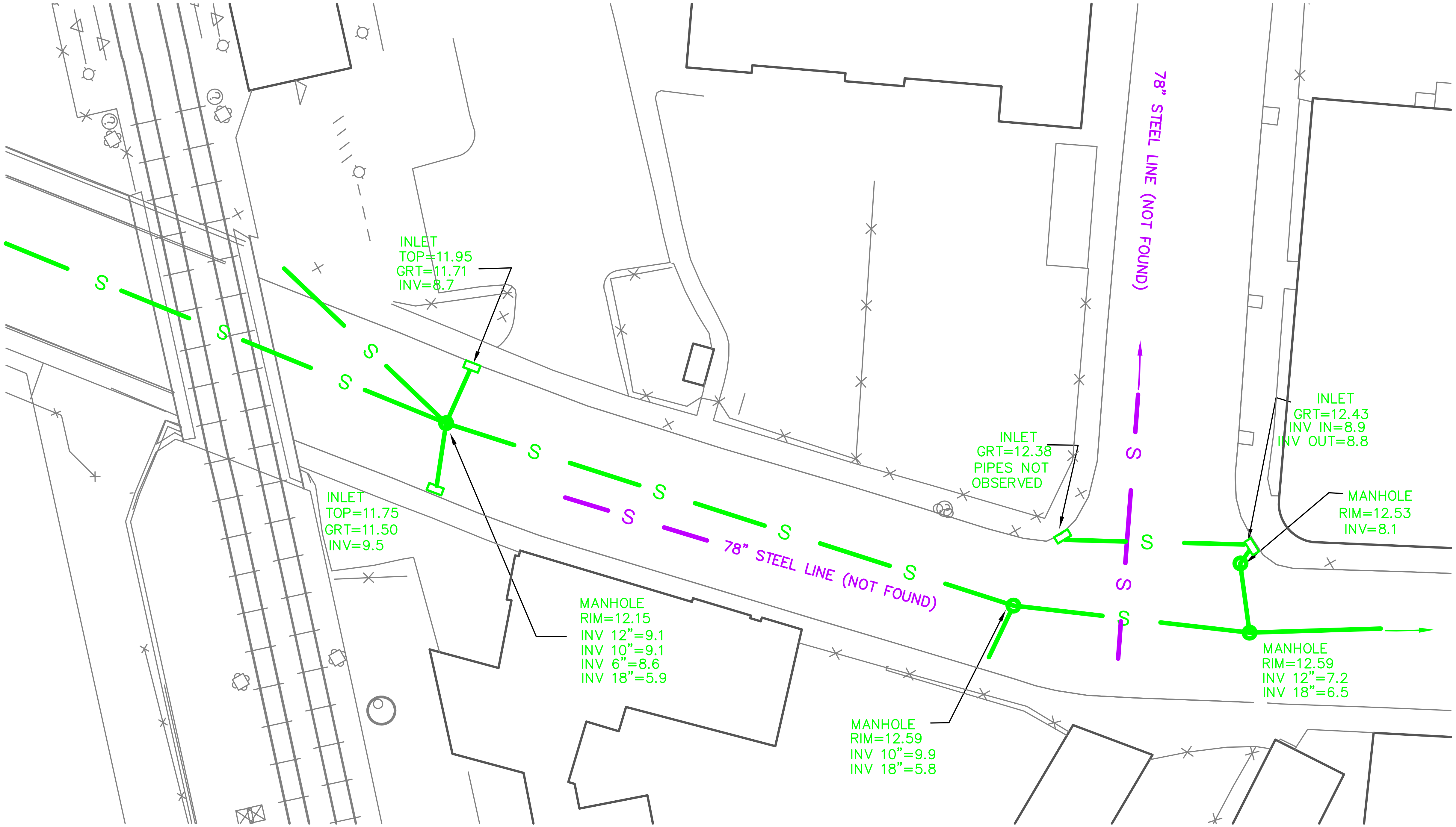
Geophysical Survey Results -Lot 186 Area Utilities

PPG Industries Sites
Jersey City, NJ

Sheet 10

No.	Revision/Issue	Date
1	071117.DWG	9/16/11

Project Number	Survey End Date	Drawn by:
071117	08/20/11	CHR
Original Scale 1" = 30'		Approved by: FKB



Geophysical Survey Legend

- S Sewer Line
- S Sewer Line (Steel)
- ? Suspected Sewer Line (NOT FOUND)
- Catch Basin/Inlet
- Manhole

Scale (ft)

0 15 30 45 60

General Notes:

The information depicted on this drawing represents survey results on the date surveyed and can only be considered to be indicative of the general conditions existing on that survey date.

Coordinates in New Jersey State Plane, NAD-83 Datum.

Base map information from Enviroscan DGPS survey and client-supplied drawing by Borbas Surveying & Mapping, LLC (J. Peter Borbas).

Underground utilities identified with various geophysical instruments. See report for specific equipment and techniques used.

Prepared by:

ENVIROSCAN, INC.

Enviroscan, Inc.
1051 Columbia Avenue
Lancaster, PA 17603
(717) 396-8922

Geophysical Survey Results -Lot 186 Area Sewer System

PPG Industries Sites
Jersey City, NJ

Sheet 11

No.	Revision/Issue	Date
1	071117.DWG	9/16/11

Project Number: 071117
Survey End Date: 08/20/11
Drawn by: CHR
Original Scale: 1" = 30'
Approved by: FKB

General Notes:

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Underground utilities identified with various geophysical instruments. See report for specific equipment and techniques used.

Increasing Metallic Responce

0 10 20 30 50 75 120 200

EM-61MK2 Channel 4 Response (mV)

Geophysical Survey Legend

- Communication Line
- Electric Line
- Gas Line
- Overhead Utility Line
- Water Line
- Fire Hydrant
- Gas Meter/Valve
- Utility Pole
- Manhole
- Water Meter/Valve

Scale (ft)

0 15 30 45 60

Prepared by:

Enviroscan, Inc.
1051 Columbia Avenue
Lancaster, PA 17603
(717) 396-8922

Geophysical Survey Results - EM-61 Response

PPG Industries Sites
Jersey City, NJ

Sheet 12

No.	Revision/Issue	Date
1	071117.DWG	9/15/11

Project Number: 071117
Survey End Date: 08/20/11
Drawn by: CHR
Original Scale: 1" = 30'
Approved by: FKB