

FINAL CLOSEOUT REPORT 100TH STREET STORM SEWER ABANDONMENT AND RELOCATION OPERABLE UNIT 3

102nd STREET LANDFILL SITE NIAGARA FALLS, NEW YORK

June 22, 1998

FLUOR DANIEL GTI Mariton, New Jersey

OCCIDENTAL CHEMICAL CORPORATION OLIN CORPORATION

FINAL CLOSEOUT REPORT

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OPERABLE UNIT 3

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FLUOR DANIEL GTI Mariton, New Jersey



P.O. BOX 248, 1186 LOWER RIVER ROAD, CHARLESTON, TN 37310

Phone: (615) 336-4000

June 22, 1998

Mr. Paul Olivo, Proj. Mgr.
New York/Caribbean Response Superfund Branch II
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
290 Broadway
New York, NY 10007-1866

RE:

102nd Street Landfill Site, Niagara Falls, NY Final Closeout Report and Remedial Action Report 100th Street Storm Sewer Abandonment and Relocation Operable Unit 3

Dear Mr. Olivo:

Enclosed are three (3) copies of the signed and sealed final version of the Final Closeout Report for Operable Unit 3 at the 102nd Street Landfill Site, dated June 22, 1998 (the "Report"). It includes, as an attachment, the revised Remedial Action Report for Operable Unit 3. The Remedial Action Report along with the associated drawings have been revised to address the comments received in the June 9, 1998 U.S. Environmental Protection Agency (USEPA) correspondence. The responses to comments have also been attached to this letter. The contents of the USEPA comments have been included and incorporated into this final version of the Report.

We believe the final version of this Report is thorough and complete, addresses the USEPA June 9, 1998 comments and meets the requirements of the USEPA guidance, however should you have any questions or comments, please contact us at 423/336-4549 or 716/773-8304.

Very truly yours,

Cliff h. Mous on David L. Cummings

Manager, Environmental Remediation

Olin Corporation

James C. Thornton, P.E.

Project Manager

Glenn Springs Holdings, Inc.

cc: Gary Kline - NYDEC (6 encl.)

Vincent Funigello - Malcolm Pirnie (3 encl.)

existing storm drain with 42" RCP west of existing manhole MH-2. Installed approximately 20 LF of new 42" RCP east of existing manhole MH-2 to Manhole SDMH-5 for a total of approximately 50 LF of new 42" RCP installed.

Comment 6: Remedial Action Report, Page 11, Section 4.4; Drawing 30K-04C

On Page 11, the 3rd paragraph of Section 4.4 states "An approximately 20 foot section of existing 42-inch RCP that ran south from former MH-2..." and Drawing 30K-04C states "Replaced Approx. 15 LF of exist. 42" storm drain and exist. MH-2." The Companies shall Correct these inconsistencies.

Response: The 3rd paragraph has been revised as follows: Also, an approximately 15 foot section of existing 42" RCP that traversed the Site in a southerly direction from existing MH-2 was removed to facilitate installation of the slurry wall...

Drawing 30K-04C states: Removed approximately 15 LF of existing storm drain and existing MH-2, and Note 7 has been revised as follows: Removed MH-2 and approximately 15 LF of existing 42" RCP that ran south from existing MH-2 and traversed the Site.

Comment 7: Remedial Action Report, Page 12, Section 4.4

On page 12, the 5th paragraph of Section 4.4 states "The installation of CB-7 is a field change and was documented in the FCA (Appendix G)." This field change approval shall be included in Appendix E and "(Appendix G)" shall be changed to "(Appendix G)." The Companies shall correct these inconsistencies.

Response: This has been changed to show that Field Change Approvals are in Appendix E, not Appendix G.

Comment 8: Remedial Action Report, Page 12, Section 4.4

On page 12, the description of the bedding material in 6th paragraph of Section 4.4 shall be revised by the Companies to reflect the two different bedding details on Drawing 30K-13.

Response: This paragraph has been revised to reference both bedding material details.

Comment 9: Remedial Action Report, Page 12, Section 4.4

Laboratory strength test results are included in Appendix D, not Appendix E, as stated in the 7^{th} paragraph of Section 4.4 on Page 12. The Companies shall correct this inconsistency.

Response: This has been changed to show that laboratory strength test results are in Appendix D, not Appendix E.

Comment 10: Remedial Action Report, Page 13, Section 4.4

Compaction test results are included in Appendix C, not Appendix D, as stated in the 7th paragraph of Section 4.4 on Page 13. The Companies shall correct this inconsistency.

Response: This has been changed to show that compaction test results are in Appendix C, not Appendix D.

Comment 11: Remedial Action Report, Page 13, Section 4.4

Field Change Approvals are included in Appendix E, not Appendix G, as stated in the 8th paragraph of Section 4.4 on Page 13. The Companies shall correct this inconsistency.

Response:

This has been changed to show that Field Change Approvals are in Appendix E, not Appendix G.

Comments 12: Remedial Action Report, Page 14, Section 4.8

Data verification reports are included in Appendix B, not Appendix C, as stated in the 1st paragraph of Section 4.8 on Page 14. The Companies shall correct this inconsistency.

Response:

This has been changed to show that data verification results are in Appendix B, not Appendix C.

Comment 13: Remedial Action Report, Page 15, Section 4.8

Compaction test results are included in Appendix C, not Appendix D, as stated in the 2nd paragraph of Section 4.8 on Page 15. The Companies shall correct this inconsistency.

Response:

This has been changed to show that compaction test results are in Appendix C, not Appendix D.

Comment 14: Remedial Action Report, Page 15, Section 4.8

Field change approval dated 8/9/96 states that the formed invert flow channels in SDMH-1, 4 & 5 were modified. Accordingly, the Companies shall change Drawing 30K-14 to show the modified formed invert channels.

Response: Drawing 30K-14 has been revised to show the modified form invert channels.

Comment 15: Remedial Action Report, Appendix E; Drawing 30K-01C

Field change approval dated 8/27/96 states the rim elevation of storm sewer MH-1 was raised to elevation 572.5, but the drainage structure schedule on Drawing 30K-01C shows the rim elevation of MH-1 at 573.95. The Companies shall correct this inconsistency.

Response:

The elevations stated in the FCA was a proposed modification. The 573.95 feet elevation reflects as built conditions.

Comment 16: Drawing 30K-02C

Manhole Nos. on the Drainage Structure Schedule shall be labeled by the Companies as "SDMH", not "MH".

Response: This drawing has been changed to show "SDMH".

Comment 17: Drawing 30K-02C

The relocation and tie-in of the water line and gas line in the northwest corner of the Site shall be labeled by the Companies and shall reference Notes 1 & 4. Likewise, the gas tie-in north of SDMH-9 shall reference Notes 1 & 4.

Response:

This drawing has been revised to show the labels of the relocation and tie-ins of the gas and water lines, and references Notes 1 and 4.

Comment 18: Drawing 30K-04C

The tie-in of the water line northeast of the Site shall be labeled by the Companies and Shall reference Notes 1 & 6.

Response:

This drawing has been revised to show the labels of the tie-ins of the water line and references Notes 1 and 6.

Comment 19: Drawing 30K-04C

The existing water service connections abandon on the north side of Buffalo Avenue between SDMH-5 and SDMH-4 shall be labeled by the Companies.

Response:

This drawing has been revised to show the labels of the existing water service connections abandoned between SDMH-5 and SDMH-4.

Comment 20: Drawing 30K-04C

The new hydrant on the north side of Buffalo Ave. located north of SDMH-4 and the new hydrant on the south side of Buffalo Ave. located east of SDMH-7 shall be labeled by the Companies.

Response:

This drawing has been revised to show the labels of the new hydrants.

Comment 21: Drawing 30K-04C

The existing storm drain that crosses Buffalo Ave. and ties in to SDMH-4 shall be labeled by the Companies.

Response:

This drawing has been revised to show the labels of the existing storm drain tie-in to SDMH-4.

Comment 22: Drawing 30K-04C

All the catch basin and manhole labels which reference General Note 3 shall be changed by the Companies to reference General Note 2.

Response:

This drawing has been revised to show the labels for the catch basins and manholes with reference to General Note 2, not General Note 3.

Comment 23: Drawing 30K-04C

General Note 2 shall be changed by the Companies and shall read "Refer to Dwg. No. 594000-30K-11, 13 and 14 for storm drainage sections and details and Dwg. No. 594000-30K-01C for storm drainage structure schedule."

Response:

General Note 2 has been revised.

Comment 24: Drawing 30K-04C

OCCIDENTAL CHEMICAL CORPORATION OLIN CORPORATION

FINAL CLOSEOUT REPORT 100TH STREET STORM SEWER ABANDONMENT AND RELOCATION OPERABLE UNIT 3

NYSDEC - REG. 9 FOIL

102nd STREET LANDFILL SITE NIAGARA FALLS, NEW YORK

June 22, 1998

FLUOR DANIEL GTI Mariton, New Jersey

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EXECUTIVE SUMMARY

This Final Closeout Report (COR) documents that the Occidental Chemical Corporation (OxyChem) and Olin Corporation (Olin), (the Companies) completed construction activities for the abandonment and relocation of the 42-inch 100th Street storm sewer, Operable Unit 3 (OU-3), that traversed the 102nd Street Landfill Site (Site). The Site is located in Niagara Falls, Niagara County, New York and consists of two separate properties owned by Occidental Chemical Corporation (OxyChem) and Olin Corporation (Olin), (the Companies), plus contiguous and related areas. The Site was operated as a disposal site for industrial wastes by both Companies and predecessors.

The objective of the remedial activities for OU-3, as presented in the Record of Decision (ROD) and ROD Amendment, was to abandon the existing 42-inch storm sewer in order to eliminate the transport of Site constituents of concern to the Niagara River via this pathway, and to provide a hydraulically equivalent pipeline that would be re-routed around the site. Activities at the Site were consistent with the ROD, ROD Amendment, and the remedial design (RD) for design and construction. The Remedial Action Report (RAR) contains the documentation of Quality Assurance/Quality Control (QA/QC) compliance and documentation of remedial activities.

The abandonment and relocation of the storm sewer provides assurance that transport of Site constituents of concern to the Niagara River via this pathway has been eliminated. The City of Niagara Falls will perform the Operation and Maintenance of the relocated storm sewer.

The United States Environmental Protection Agency (EPA)/New York State Department of Environmental Conservation (DEC) conducted a final inspection of the relocated storm sewer and determined that the remedy has been constructed in accordance with RD plans and specifications, and no further work is required.

1.0 INTRODUCTION

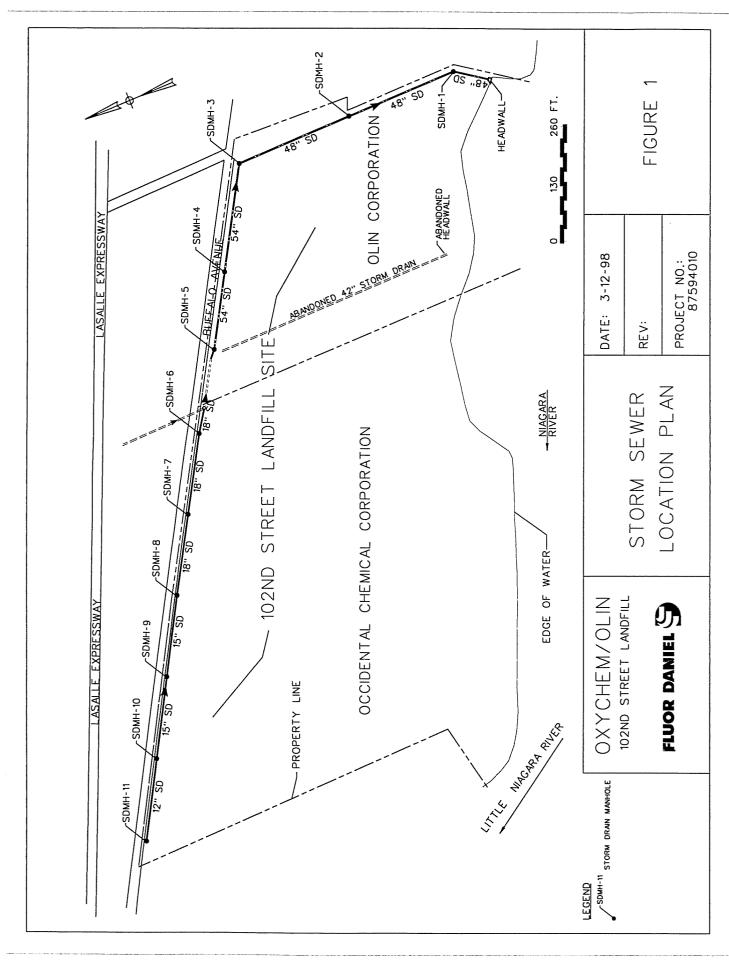
This Final Closeout Report (COR) documents that the Occidental Chemical Corporation (OxyChem) and Olin Corporation (Olin), (the Companies) completed construction activities for Operable Unit 3 (OU-3) in accordance with the U.S. Environmental Protection Agency (EPA) document Close Out Procedures for National Priorities List Sites, dated August 1995 (OSWER Dir. 9320.2-09) and Procedures for Completion and Deletion of National Priorities List Sites and Update (OSWER Directive 9320.2-3C). Operable Unit 3 consists of the Abandonment and Relocation of the 100th Street Storm Sewer at the 102nd Street Landfill Site (Site).

The United States Environmental Protection Agency (EPA)/New York State Department of Environmental Conservation (DEC) conducted a final inspection of the relocated storm sewer on October 29, 1996, and determined that the contractors have constructed the remedy in accordance with remedial design (RD) plans and specifications, and no further work is required.

2.0 SUMMARY OF SITE CONDITIONS

The Site covers approximately 22.1 acres and is located in Niagara Falls, Niagara County, New York. It consists of two separate properties owned, respectively, by OxyChem and Olin plus contiguous and related areas as defined in the September 26, 1990 Record of Decision (ROD) as amended on June 9, 1995. The Companies' properties are bordered on the south by the Niagara River, on the north by Buffalo Avenue, on the west by Griffon Park, and on the east by privately owned lands including the Belden site. The Site, as defined in the ROD for the purpose of the overall remediation, also includes the areas immediately adjacent to the northeast and to the west, the adjoining river sediments, as well as closely proximate areas necessary to carry out the remediation. The 100th Street storm sewer outfall, owned by the City of Niagara Falls, traverses the Site.

The former 42-inch diameter reinforced concrete pipe (RCP) storm sewer that traversed the landfill entered the Site from the north and discharged to the Niagara River via a headwall at the south edge of the Site (See Figure 1). The former storm sewer was abandoned in-place and a new storm sewer installed along the perimeter of the Site. Construction of the new storm sewer began along the river at the southeast corner of the Site where a headwall and flap gate were installed. From the headwall, a 48-inch high density polyethylene (HDPE) pipe was installed approximately 580 feet along the eastern property line to the northeast corner of the Site. Precast concrete storm drain manholes SDMH-1, SDMH-2, and SDMH-3 were installed at various intervals along this line. From SDMH-3, at the northeast corner of the site, 54-inch RCP was routed westward approximately 460 feet along Buffalo Avenue until being connected with the existing 42inch RCP. Storm drain manholes SDMH-4 and SDMH-5 were installed at various locations within this interval. The existing 42-inch RCP ran westward from this junction to existing manhole MH-3. Additional storm drain was installed westward along the south side of Buffalo Avenue from existing manhole MH-3 to the northwest corner of the Site. New 18-inch RCP was installed from existing manhole MH-3 westward to SDMH-8. Storm drain manholes SDMH-6 and SDMH-7 were installed at locations within this interval. New 15-inch RCP was installed westward from SDMH-8 to SDMH-10. Storm drain manhole SDMH-9 was installed within this interval. New storm drain manhole SDMH-11 was



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installed at the northwest corner of the site and new 12-inch RCP installed between it and storm drain manhole SDMH-10.

2.1 Background

The Site was operated as a disposal site for industrial wastes by both Companies and predecessors. OxyChem, and its predecessors, operated their 15.6-acre portion of the Site as a landfill from approximately 1943 until 1970. Olin operated their 6.5-acre portion (which occupies the eastern section of the overall Site) as a landfill from 1948 to 1970.

The Site was divided into three Operable Units (OU) for investigative and remedial alternative feasibility studies. The three OUs are:

OU-1: landfill residuals, perimeter soils, shallow groundwater, and non-aqueous phase liquids;

OU-2: sediments in the Niagara River within 300 feet of the shore;

OU-3: the portion of the 100th Street Storm Sewer that crosses the site.

This report addresses OU-3 only.

The selected remedial action for the Site was presented in the ROD. The Remedial Design Work Plan (RDWP) for the Site, which describes the overall approach to the design of remedial measures, was approved by EPA on May 6, 1992. The selected remedial alternative for the storm sewer was to clean the pipe and leave it in place, line it with a chemically resistant sleeve made of high density polyethylene (HDPE) plastic, and pressure-grout the annular space between the original pipe and the sleeve.

Predesign Field Activities (PFA) were conducted at the Site between September 22 to October 27, 1992. The PFA obtained information on the soil conditions along the perimeter of the Site for the engineering design. The Predesign Field Activity Report (PFAR), which documented the PFA, was submitted to the EPA on November 20, 1992.

In 1993, the Companies requested and the EPA determined that the storm sewer be to re-routed around the site rather than lining it in place. This decision was embodied in an Explanation of Significant Differences (ESD) issued by the EPA in 1993.

These documents provided the basis for a revised remedial alternative for OU-3 as presented in the Amended ROD issued on June 9, 1995. The selected remedial alternative was relocation of the 100th Street storm sewer outfall around the perimeter of the Site.

The Final Engineering was documented in the Final Engineering Report (FER) issued September 9, 1995 and revised February 5, 1996. The FER, including drawings and technical specifications, constitutes the RD Report as defined in the Site's Administrative Order (AO) for RD and Remedial Action (RA), September 30, 1991. The RD is consistent with the selected remedy described in the Amended ROD and has taken into account and accommodated applicable or relevant and appropriate requirements (ARARS).

In support of the design of the new storm sewer, an Addendum to the PFA Geotechnical Sampling and Testing Plan (GSTP) was issued on March 25, 1994. The GSTP and its Addendum for the Storm Sewer Relocation Drilling Program provided the procedures and methods that were used for soil sample collection and testing along the new storm sewer alignment. An Addendum to the PFAR for the Storm Sewer Relocation Drilling Program was issued on September 15, 1994 and presents the results of the geotechnical sampling and testing.

2.2 Remedial Construction Activities

On March 21, 1996, the Companies formerly awarded the RA contract, thereby initiating the RA. The Companies conducted the remedial activities as planned, and no additional areas of concern were identified. The EPA/DEC and Companies conducted a final inspection on October 29, 1996 and developed a list of minor outstanding construction

items which were addressed shortly thereafter. The RA activities were performed according to design specifications set forth in the 1996 RD.

3.0 DEMONSTRATION OF CONSTRUCTION ACTIVITY QUALITY ASSURANCE/QUALITY CONTROL

Activities at the Site were consistent with the ROD, ROD Amendment, and the RD for design and construction. The RD, including the Quality Assurance Project Plan (QAPP), incorporated the quality assurance and quality control (QA/QC) procedures and protocol. The Remedial Action Report (RAR) contains the documentation of QA/QC compliance and documentation of remedial activities (Attachment).

4.0 MONITORING RESULTS

Remedial activities for OU-3 were conducted in an area not impacted by constituents of concern, thus monitoring is not necessary.

5.0 SUMMARY OF OPERATION AND MAINTENANCE

The remedy of OU-3 was completed outside the area of the 102nd Street Landfill. Therefore OU-3 is not included in the Operation and Maintenance (O&M) Plan that will be prepared for the Landfill. The storm sewer will be dedicated to the City of Niagara Falls. O&M will be conducted by the City of Niagara Falls and will consist of general inspections and repairs as needed or as scheduled by the City.

6.0 PROTECTIVENESS

This Unit (OU-3) meets the completion requirements as specified in OSWER Directive 9320.2-3C, Procedures for Completion and Deletion of National Priorities List Sites and Update. The RAR verifies that the unit has achieved the objectives of the ROD and ROD Amendment. The abandonment and relocation of the storm sewer provides assurance that transport of Site constituents of concern to the Niagara River via this pathway has been eliminated. The City of Niagara Falls will perform the Operation and Maintenance of the relocated storm sewer. A bibliography of all reports relevant to the completion of this unit is attached.

7.0 FIVE YEAR REVIEW

Because there are no hazardous substances at the unit above health-based levels, there is no need for a five-year review.

8.0 BIBLIOGRAPHY

7/90	Remedial Investigation Final Report, Vol. 1 & 2 and the Feasibility Study Final Report, Vol. 1 & 2.
9/26/90	EPA ROD.
9/30/91	EPA Administrative Order (AO) for Remedial Design and Remedial Action, Index No. II CERCLA-10223.
5/6/92	Remedial Design Work Plan (RDWP).
11/20/92	Predesign Field Activities Report (PFAR).
3/3/93	Feasibility Review of Remedial Approach for 42-inch Storm Sewer including hydraulic analysis of existing Storm Sewer.
3/25/94	The PFA GSTP Addendum for the Storm Sewer Relocation Drilling Program.
8/94	Supplemental Offshore Boring Program Addendum to the PFAR.
9/94	Storm Sewer Relocation Drilling Program Addendum to the PFAR.
6/9/95	EPA ROD Amendment.
6/30/95	RAWP for the Perimeter Soils.
7/24/95	Remedial Action SATP for the Perimeter Soils.
9/9/95	Remedial Design Package including the <u>Engineering Report</u> and <u>Construction</u> <u>Management Plan</u> .

11/95	Remedial Program for Perimeter Soils Verification Data Summary Report.
2/5/96	Remedial Design Package including the <u>Engineering Report</u> and <u>Construction</u> <u>Management Plan</u> revised.
5/10/96	Final Excavation Plan.

ATTACHMENT

REMEDIAL ACTION REPORT

FOR

100TH STREET STORM SEWER ABANDONMENT

AND RELOCATION

OCCIDENTAL CHEMICAL CORPORATION OLIN CORPORATION

REMEDIAL ACTION REPORT 100TH STREET STORM SEWER ABANDONMENT AND RELOCATION OPERABLE UNIT 3

102nd STREET LANDFILL SITE NIAGARA FALLS, NEW YORK

June 22, 1998

FLUOR DANIEL GTI Mariton, New Jersey

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APPENDIX B - ANALYTICAL LAB DATA VALIDATION REPORTS - BACKFILL MATERIAL

APPENDIX C - IN-SITU BACKFILL DENSITY & MOISTURE TEST RESULTS

APPENDIX D - CONCRETE QUALITY CONTROL DOCUMENTATION

APPENDIX E - FIELD CHANGE APPROVALS

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594000-10Z-02	2	LEGEND AND ABBREVIATIONS
594000-30K-01C	8	MASTER SITE REMEDIATION PLAN: STORM DRAINAGE
594000-30K-02C	6	SITE REMEDIATION PLAN AREA 1: STORM DRAINAGE
594000-30K-04C	7	SITE REMEDIATION PLAN AREA 3: STORM DRAINAGE
594000-30K-05C	8	SITE REMEDIATION PLAN AREA 4: STORM DRAINAGE
594000-30K-11	7	UTILITY RELOCATION SECTIONS AND DETAILS
594000-30K-13	8	STORM DRAINAGE: SECTIONS AND DETAILS
594000-30K-14	6	STORM DRAINAGE: SECTIONS AND DETAILS

EXECUTIVE SUMMARY

This Remedial Action Report (RAR) documents the execution of the Remedial Action Program for the abandonment and relocation of the 42-inch 100th Street storm sewer, Operable Unit 3 (OU-3), that traversed the 102nd Street Landfill Site (Site). The Site is located in Niagara Falls, Niagara County, New York and consists of two separate properties owned by Occidental Chemical Corporation (OxyChem) and Olin Corporation (Olin), (the Companies), plus contiguous and related areas. The Site was operated as a disposal site for industrial wastes by both Companies and predecessors. Oversight for the remedial action was provided by the United States Environmental Protection Agency (EPA) and the State of New York (State).

The purpose of the Remedial Action Program for OU-3 was to prevent Site ground water from infiltrating the 42-inch storm sewer, to remove the potential for NAPL to infiltrate the storm sewer, and to eliminate the transport of constituents of concern to the Niagara River via this pathway.

The objective of the remedial activities for OU-3, as presented in the ROD and ROD Addendum, was to abandon the existing 42-inch storm sewer, and to provide a hydraulically equivalent pipeline that would be re-routed around the Site.

The Remedial Action Program for OU-3 was conducted between July 9, 1996 and October 4, 1996 and included installation of the storm sewer and appurtenances and storm sewer abandonment.

The 42-inch diameter reinforced concrete pipe (RCP) storm sewer that traversed the landfill entered the Site from the north, and discharged to the Niagara River via a headwall at the south edge of the Site. A new 54-inch RCP storm sewer was routed along the south right-of-way of Buffalo Avenue from where the existing storm sewer entered the site to a point at the northeast corner of the Site. From the northeast corner, a 48-inch HDPE storm sewer was routed south to discharge into the Niagara River. New 18-inch, 15-inch, and 12-inch RCP storm sewer was routed along the south right-of-way of Buffalo Avenue from the point where the existing storm

sewer crossed Buffalo Avenue to a point at the northwest corner of the property. Eleven precast storm drain manholes and eight catch basins were installed.

The abandonment of the existing 42-inch storm sewer was completed by clearing debris and sediment from the north and south ends of the pipe, pouring a lean concrete plug at each end with a 2-inch pipe cast in-place and pumping lean concrete through the 2-inch pipe. The required volume of 198 cubic yards of lean concrete was pumped into the pipe and was then considered abandoned.

Inspections, sampling, and testing were conducted routinely in accordance with the Site Construction Quality Assurance Project Plan (CQAPP) in order to document substantial conformance with the performance standards, project design, specifications and procedures. Field Change Approvals were utilized to document changes to the approved plans and specifications.

The final inspection was conducted on Tuesday, October 29, 1996 with the State/EPA representative, the Companies Representative, the Companies QA/QC oversight representative, and the construction contractors representative present. A "punch list" of items were observed and rectified according to plans and specifications.

The storm sewer will be dedicated to the City of Niagara Falls. Operation and maintenance will consist of general inspections and repairs as needed or as scheduled by the City of Niagara Falls.

The remedial activities implemented for the abandonment and relocation of the storm sewer were completed in substantial conformance with the requirements of the Remedial Design Documents, the ROD, ROD Addendum, and the Administrative Order.

1.0 INTRODUCTION

This Remedial Action Report (RAR) documents the execution of the Remedial Action Program for the abandonment and relocation of the 42-inch 100th Street storm sewer that traversed the site as presented in the Final Engineering Report (FER) (Fluor Daniel, Revised: February 5, 1996). The abandonment and relocation of the storm sewer constitutes Operable Unit-3 (OU-3) at the 102nd Street Landfill Site (Site). The design and selected remedial action (RA) for OU-3 will be described in detail in this RAR.

This RAR has been prepared in accordance with the United States Environmental Protection Agency (EPA) document Close Out Procedures for National Priorities List Sites, dated August 1995 (OSWER Dir. 9320.2-09).

1.1 Site Description

The Site covers approximately 22.1 acres and is located in Niagara Falls, Niagara County, New York. It consists of two separate properties owned by Occidental Chemical Corporation (OxyChem) and Olin Corporation (Olin), (the Companies), plus contiguous and related areas as defined in the September 1990 Record of Decision (ROD) as amended on June 9, 1995. The Companies property is bordered on the south by the Niagara River, on the north by Buffalo Avenue, on the west by Griffon Park, and on the east by privately owned land which includes the Belden site. The Site as defined for the purpose of the overall remediation also includes the areas immediately adjacent to the east, northeast, and to the west, the adjoining river sediments, as well as closely proximate areas necessary to carry out the remediation. The 100th Street storm sewer outfall, owned by the City of Niagara Falls, traversed the Site.

The existing 42-inch diameter reinforced concrete pipe (RCP) storm sewer entered the Site from the north, approximately 10 feet southwest of storm drain manhole (SDMH) -5, and discharged to the Niagara River via a headwall at the south edge of the Site (See Drawing No. 594000-30K-01C). The existing 42-inch storm sewer was abandoned in-

place by filling and plugging it with lean concrete.

Construction of the new storm sewer began along the river at the southeast corner of the Site where a headwall and flap gate were installed. From the headwall, a 48-inch high density polyethylene (HDPE) pipe was installed approximately 680 feet along the eastern property line to the northeast corner of the Site. Precast concrete storm drain manholes SDMH-1, SDMH-2, and SDMH-3 were installed at various intervals along this line. From SDMH-3, at the northeast corner of the site, 54-inch RCP was routed westward approximately 460 feet along Buffalo Avenue until being connected with the existing 42inch RCP. Storm drain manholes SDMH-4 and SDMH-5 were installed at various locations within this interval. The existing 42-inch RCP ran westward from this junction to existing manhole MH-3. Additional storm drain was installed westward along the south side of Buffalo Avenue from existing manhole MH-3 to the northwest corner of the Site. New 18-inch RCP was installed from existing manhole MH-3 westward to SDMH-8. Storm drain manholes SDMH-6 and SDMH-7 were installed at locations within this interval. New 15-inch RCP was installed westward from SDMH-8 to SDMH-10. Storm drain manhole SDMH-9 was installed within this interval. New storm drain manhole SDMH-11 was installed at the northwest corner of the site and new 12-inch RCP installed between it and storm drain manhole SDMH-10.

1.2 Background

The Site was operated as a disposal site for industrial wastes by both Companies and predecessors. OxyChem, and its predecessors, operated their 15.6-acre portion of the Site as a landfill from approximately 1943 until 1970. Olin, operated their 6.5-acre portion (which occupies the eastern section of the overall Site) as a landfill from 1948 to 1970.

The Site was divided into three Operable Units (OU) for investigative and remedial alternative feasibility studies. The three OUs are:

OU-1: landfill residuals, perimeter soils, shallow groundwater, and non-aqueous

phase liquids;

OU-2: sediments in the Niagara River within 300 feet of the shore;

OU-3: the portion of the 100th Street Storm Sewer that crosses the site.

This report describes the remedy of OU-3 only.

The selected remedial action for the Site was presented in the ROD issued on September 26, 1990. The Remedial Design Work Plan (RDWP) for the Site, which describes the overall approach to the design of remedial measures, was approved by EPA on May 6, 1992. The selected remedial alternative for the storm sewer was to clean the pipe and leave it in place, line it with a chemically resistant sleeve made of high density polyethylene (HDPE) plastic, and pressure-grout the annular space between the original pipe and the sleeve.

Predesign Field Activities (PFA) were conducted at the Site between September 22 to October 27, 1992. The PFA obtained information on the soil conditions along the perimeter of the Site for the engineering design. The Predesign Field Activity Report (PFAR), which documented the PFA, was submitted to the EPA on November 20, 1992.

In 1993, the Companies decided and the EPA agreed to re-route the storm sewer around the site rather than lining it in place. This decision was embodied in an Explanation of Significant Differences (ESD) issued by the EPA in 1993.

A boring program was completed in August 1994 along the proposed alignment for relocation of the 100th Street Storm Sewer. In support of the design of the new storm sewer, an Addendum to the PFA Geotechnical Sampling and Testing Plan (GSTP) was issued on March 25, 1994. The GSTP and GSTP Addendum for the Storm Sewer Relocation Drilling Program provided the procedures and methods that were used for soil sample collection and testing along the new storm sewer alignment. The results of the program were documented in the Storm Sewer Relocation Drilling Program Addendum to the PFAR issued on September 15, 1994.

This document provided the basis for a revised remedial alternative for OU-3 as presented in the Amended ROD issued on June 9, 1995. The selected remedial alternative was the relocation of the 100th Street storm sewer outfall around the perimeter of the Site.

The Final Engineering (FER), which incorporated and accommodated comments by the City of Niagara Falls, was documented in the FER issued September 9, 1995 and revised February 5, 1996. The FER, including drawings and technical specifications, constitutes the Remedial Design (RD) Report as defined in the Site's Administrative Order (AO) for Remedial Design and Remedial Action, September 30, 1991. The Remedial Design is consistent with the selected remedy described in the Amended ROD and has taken into account and accommodated applicable or relevant and appropriate requirements (ARARS).

1.3 Purpose/Scope of Work

The purpose of the remedial program for OU-3 was to prevent Site ground water from infiltrating the 42-inch RCP storm sewer, to remove the potential for NAPL to infiltrate the 42-inch RCP storm sewer, and to eliminate the transport of constituents of concern to the Niagara River via this pathway. The remedial action program for the storm sewer relocation included the following activities:

- clearing and grubbing,
- fencing/delineation of Work Zone,
- excavation/trenching
- traffic controls,
- stormwater/groundwater management,
- erosion and sediment control,
- survey for line, grade and elevation control,
- removal of select existing storm drain and manhole,
- installation of storm drain and appurtenances,
- load, hauling and placement of excavated soils under the landfill cap,

- pressure lean concrete and plug existing storm sewer,
- backfill and restoration of excavated areas.

This RAR documents the remedial activities that took place at OU-3 as specified in the Record of Decision (ROD).

2.0	CHRONOLOGY OF EVENTS
7/90	Remedial Investigation Final Report, Vol. 1 & 2 and the Feasibility Study Final Report, Vol. 1 & 2 were accepted by EPA Region II & State of New York.
9/26/90	EPA's Region II Administrator signed the ROD which included the installation and pressure grouting of an HDPE slipliner in the existing storm sewer as appropriate remedial action for OU-3.
9/30/91	EPA's Region II Assistant Regional Counsel signed the Administrative Order (AO) for Remedial Design and Remedial Action, Index No. II CERCLA-10223.
5/6/92	Remedial Design Work Plan (RDWP) issued.
9/22/92- 10/27/92	Predesign field activities (PFA) took place.
11/20/92	Predesign Field Activities Report (PFAR) issued.
3/3/93	Feasibility Review of Remedial Approach for 42-inch Storm Sewer including hydraulic analysis of existing Storm Sewer submitted.
3/25/94	The PFA GSTP Addendum for the Storm Sewer Relocation Drilling Program issued.
8/94	Storm Sewer Relocation Drilling Program was completed to determine subsurface characteristics along the proposed alignment.
9/94	Storm Sewer Relocation Drilling Program Addendum to the PFAR issued.

6/9/95	EPA's Region II Administrator signed the ROD Amendment which includes the in- place abandonment of the existing storm sewer instead of sliplining it in place, and re-routing of the storm sewer around the Site to the east.
9/9/95	Remedial Design Package including the <u>Engineering Report</u> and <u>Construction</u> <u>Management Plan</u> issued.
10/03/95	City of Niagara Falls approved the Storm Sewer Relocation Design Plans and Specifications.
11/07/95	EPA's Region II Chief approved the Storm Sewer Relocation Design Plans and Specifications.
2/5/96	Remedial Design Package including the <u>Engineering Report</u> and <u>Construction</u> <u>Management Plan</u> revised and issued.
3/21/96	Remedial Action Contract Awarded.
4/96	Site mobilization.
5/10/96	Final Excavation Plan issued.
5/96	Erosion and Sediment Control began.
7/9/96	Storm Sewer Excavation/Trenching and Installation began.
9/16/96	Existing Storm Sewer Abandonment Began.
9/20/96	Storm Sewer Excavation/Trenching and Installation complete.
10/4/96	Existing Storm Sewer Abandonment complete.

3.0 PERFORMANCE STANDARDS AND CONSTRUCTION QUALITY CONTROL

The objective of the remedial activities for OU-3, as presented in the ROD and ROD Addendum, was to abandon the existing 42-inch storm sewer in order to eliminate the transport of Site constituents of concern to the Niagara River via this pathway, and to provide a hydraulically equivalent pipeline that would be re-routed around the Site. The performance standard, or the design basis/criteria for the new storm sewer is that it be able to accommodate a 2-year, 24-hour storm event. The FER presents the design drawings and specifications for the new storm sewer construction and for the abandonment of the existing storm sewer. The following is a list of specifications that pertain to the storm sewer abandonment and relocation:

Specification 02200 - Earthwork

Specification 02725 - Underground Piping Systems

Specification 03300 - Cast-In-Place Concrete

Specification 03400 - Precast Concrete

This section provides a discussion on how the quality control (QC) objectives were met.

The EPA/State on-site representative and the Companies quality assurance representative provided oversite of the construction activities throughout the execution of the remedial action program. Inspections, sampling, and testing were conducted routinely in accordance with the Site Construction Quality Assurance Project Plan (CQAPP) in order to maintain compliance with the performance standards, project design, specifications and procedures. Inspections of construction equipment, materials, and site conditions and structures were performed and documented in specification checklists, non-conformance reports, quality control inspection reports, and daily and monthly summary reports.

Geotechnical and analytical tests were conducted on samples of the backfill material prior to placement at the Site. A summary of the test results are presented in Tables 1 and 2,

respectively. Laboratory reports for the backfill material geotechnical results are presented in Appendix A. A Laboratory Data Validation Report for the backfill material analytical results is presented in Appendix B.

In-situ backfill density (compaction) and moisture tests were performed during backfilling operations in order to verify that the specified backfill requirements were met. The results of the compaction tests are presented in Appendix C. Concrete placement and field testing reports, compression test results, and batch delivery tickets are provided in Appendix D. The requirements of the remedial design specifications and drawings were met. Field Change Approvals, which document changes to the approved plans and specifications, are included in Appendix E.

4.0 CONSTRUCTION ACTIVITIES

The Remedial Action Program for OU-3 was conducted between July 9, 1996 and October 4, 1996 and included installation of the storm sewer and appurtenances and storm sewer abandonment. Field activities were monitored by the EPA/State oversight representative and the Companies QA/QC representative.

4.1 Preconstruction Activities

The following activities were completed prior to commencing field work:

- Construction access agreements for properties adjoining the new storm sewer route were obtained.
- A pre-construction survey of the new storm sewer route was performed in April 1996.
- City of Niagara Falls permit for closure of Buffalo Avenue and re-routing of traffic was obtained in June, 1996. Inquiries were made to the New York State Department of Transportation (NYSDOT) for obtaining a Highway Work Permit, but NYSDOT did not require a Permit to be issued.

4.2 Fencing/Demarcation of Work Zone

The chain link fencing, removed prior to the excavation activities, was replaced with new temporary chain link fencing. The temporary fencing along the north side of the property was placed along the edge of Buffalo Avenue to facilitate operations for the Storm Sewer relocation. Buffalo Avenue was closed and traffic was re-routed onto Frontier Avenue according to the permit issued by the City of Niagara Falls. A permanent fence was installed on top of the retaining wall in 1997.

4.3 Equipment Cleaning

Trucks and excavation equipment were inspected for cleanliness upon mobilization to the Site and found to be acceptable. At the completion of excavation activities the excavation equipment was cleaned with a pressure washer.

4.4 Storm Sewer Excavation/Installation/Abandonment

Excavation began July 9, 1996 at the SDMH-1 location and proceeded north toward Buffalo Avenue and south toward the river. The soil was excavated and temporarily staged for potential use as backfill. If the soil did not pass the backfill criteria, it was transported and placed on the landfill.

The 48-inch HDPE pipe and precast concrete storm drain manholes SDMH-1, SDMH-2, and SDMH-3 were installed from the river to the northeast corner of the Site. Use of precast concrete manholes as opposed to cast-in-place manholes was a field change documented in the Field Change Approval (FCA) included in Appendix E, and "As Built" drawings. A precast concrete manhole was also used in place of the prefabricated HDPE manhole as originally designed for SDMH-2. The "As Built" drawings also present the actual location of SDMH-3 which was placed 5.36 feet from the design location. From SDMH-3, 54-inch RCP and SDMH-4 and SDMH-5 were installed along Buffalo Avenue westward approximately 460 feet. SDMH-5 was also installed at a location differing from the design, approximately 20 feet southeast of existing MH-2 (See Drawing No. 594000-30K-04C).

Existing MH-2, along with an approximately 30 foot long section of the existing 42-inch RCP storm sewer located west of MH-2, was removed, crushed, and placed on the landfill. The 30 foot long section of RCP was removed due to the unacceptable condition of the pipe joints for re-use as documented in the FCA (Appendix E). The 30 foot section was replaced with new 42-inch RCP. In addition, an approximately 20 foot long section of new 42-inch RCP was installed between existing MH-2 and SDMH-5. Also, an

approximately 15 foot section of existing 42-inch RCP that traversed the Site in a southerly direction from existing MH-2 was removed to facilitate installation of the slurry wall, and was crushed, and placed on the landfill.

New storm drain manholes, SDMH-6 through SDMH-11, and corresponding catch basins (CB) CB-1 through CB-6, respectively, were installed westward along Buffalo Avenue. Installation of new 18-inch RCP began at the location of existing MH-3 and continued west along Buffalo Avenue until reaching SDMH-8. New 15-inch RCP was installed between SDMH-8 and SDMH-10 and new 12-inch RCP was installed between SDMH-11.

Two additional catch basins were installed along Buffalo Avenue. CB-7 between SDMH-3 and SDMH-4 which drains into SDMH-4, and CB-8 with associated under-drain, between SDMH-6 and SDMH- 5 which drains into SDMH-5. The installation of CB-7 is a field change prompted by a change in the swale along the shoulder of Buffalo Avenue. This change in the swale is documented with an FCA found in Appendix E. The installation of CB-8 with associated under-drain is a field change and was documented in the FCA (Appendix E).

Bedding material for stable subgrade conditions included a 6-inch layer (minimum) of well graded granular gravel (#67 stone) that was placed prior to pipe installation. See detail on DWG. 594000-30K-13. Bedding material for unstable subgrade conditions included a 16 ounce non-woven geotextile fabric to line the trench and a 2 foot layer (minumum) of #3 stone placed on top of the fabric. See detail on DWG 594000-30K13. The procedure for stable subgrade conditions were followed thereafter. Following placement, the pipe was backfilled and the backfill compacted and tested as it was placed. The inverts of the manholes were formed with lean concrete to direct water from the inlet to the outlet of the manholes. An FCA was completed for the modification of the flow channel in SDMH-1, SDMH-4, and SDMH-5. A shallow invert replaced the high flow channel on the west side of SDMH-1. The height of the flow channel was changed from full height of the pipe to the spring line in SDMH-4 and SDMH-5.

Laying of pipe was completed on August 20, concrete forming of the insides of the manholes was completed on August 21, and backfilling of pipe and manholes was completed on August 26, 1996. The headwall was formed between September 11 and September 18, 1996. The new storm sewer installation required 14 concrete pours. Nine (9) sets of concrete cylinders were collected and laboratory tested for strength for QC purposes. The laboratory strength test results are included in Appendix D. One hundred twenty four compaction tests (troxler tests) of the backfill were completed on the soil, with a total of 25 failures. The failures were identified to the contractor, re-compacted and retested until they passed. The compaction test results are included in Appendix C.

An additional change in the original design, as documented in an FCA, was the installation of a strip drain along the base of the retaining wall to drain the landfill runoff (see Appendix E). The strip drains are designed and installed to drain to the catch basins (see "As Built" drawings).

Construction water that collected in the trench was pumped to the module tank and treated at the on-site treatment facility. The construction water was treated to within established discharge limits and discharged to the Niagara River.

The abandonment of the existing 42-inch sewer began on September 16, 1996 and was completed on October 4, 1996. The north and south ends of the pipe were cleared of debris and sediment and a lean concrete plug poured at each end. The plug at the north end of the sewer pipe had a 2-inch pipe cast in-place to allow connection to the concrete pump truck. An opening was left at the south end of the pipe to allow for visual inspection of the lean concrete as it arrived. After pumping 115 cubic yards of lean concrete into the pipe, back pressure built up. Two locations along the pipe line were excavated and observation holes cut into the pipe to determine how far the lean concrete had travelled. The first observation hole revealed recently poured lean concrete and the second observation hole revealed none. A 2-inch pipe was cast in-place at the southernmost endplug. The southernmost endplug was used to pump 83.5 cubic yards of lean concrete into the pipe for a total of 198.5 cubic yards. The second observation

hole was used to inspect for the arrival of the lean concrete. The required volume was 198 cubic yards of lean concrete was pumped into the pipe. The pipe was then considered abandoned.

4.5 Temporary Traffic Control

Buffalo Avenue was closed along the frontage of the Site and traffic was re-routed onto 102nd Street and Frontier Avenue. Reflective traffic warning signs, with top-mounted flashing lights, were placed along the edge of Buffalo Avenue and 102nd Street approaching the work area. A flagman was used to control traffic when trucks were entering and exiting Buffalo Avenue during excavation and backfilling activities.

4.6 Stormwater Management/Erosion Control

After excavation for the storm sewer relocation and prior to backfilling, construction water accumulated within some portions of the excavation. Water was removed from the excavation and transported to the module tank for treatment at the on-site facility. Silt fence was installed around the area of excavation and hale bails were placed around the drainage inlet grate for each catch basin to prevent runoff of sediment.

4.7 Placement of Excavated Soils

Excavated materials were re-used for backfill when suitable. If not suitable, the material was transported to a suitable location on the landfill and spread continuously in layers approximately 12 inches thick, and compacted. The material excavated from OxyChem's property and Olin's property was transported to their respective properties and placed under the future landfill cap. Sediment/erosion control measures are in place at the landfill as part of the work plan for operation and maintenance of the site.

4.8 Backfill/Restoration

Backfill material was obtained from the Frontier borrow source in Lockport, New York and Grand Island borrow source in Grand Island, New York. Results of the geotechnical and analytical tests conducted prior to placement of the backfill at the site are presented in Tables 1 and 2, respectively. The data reported by the analytical laboratory were QA/QC reviewed and found acceptable. The data validation report is included in Appendix B.

The backfill material was spread in layers approximately 12 inches thick and then compacted. In-situ compaction and moisture testing was performed during backfilling in order to verify that the specified backfill requirements were met. The results of the compaction testing, that substantiate compliance with the specification for compaction, are presented in Appendix C.

TABLE 1

GEOTECHNICAL TEST RESULTS BACKFILL MATERIALS

	Grand Island	Frontier
Maximum Dry Density	117.5	114.5 pounds per cubic foot
Optimum Moisture Content	14.5	16%
USCS Soil Classification	CL	CL
Atterberg Limits:		
Liquid Limit	35	31
Plastic Limit	16	18
Plasticity Index	19	-

TABLE 2

ANALYTICAL TEST RESULTS BACKFILL MATERIAL

STORM SEWER RELOCATION 102ND STREET LANDFILL SITE NIAGARA FALLS, NY

	CERRONE GI-01 Grand Island Backfill	FRONTIER 01 Frontier Backfill
	06/17/96	06/04/96
Units		
mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	11000 ND 5.0 5.4 100 ND 0.5 ND 0.5 160000 17 10 18 31000 28 700 38000 ND 0.5 18 2700 ND 0.5 ND 0.5 240 6.5 20	9400 ND 5.0 7.3 100 ND 0.5 ND 0.5 14000 14 9.2 14 17000 22 1200 690 ND 0.5 20 1900 ND 0.5 ND 0.5 ND 0.5 160 ND 5.0 16
mg/kg	100	46
	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	Grand Island Backfill 06/17/96 Units mg/kg 11000 mg/kg ND 5.0 mg/kg 5.4 mg/kg 100 mg/kg ND 0.5 mg/kg ND 0.5 mg/kg 160000 mg/kg 17 mg/kg 10 mg/kg 18 mg/kg 10 mg/kg 18 mg/kg 31000 mg/kg 28 mg/kg 700 mg/kg 38000 mg/kg 38000 mg/kg ND 0.5

ND 5.0 = Not Detected (Practical Quantifiable Limit)

ANALYTICAL TEST RESULTS BACKFILL MATERIAL

Sample I.D. Sample Description		CERRONE GI-01 Grand Island Backfill	FRONTIER 01 Frontier Backfill
Analysis Date		06/17/96	06/04/96
TCL - Volatiles, Method 8240			
Compound L	Units		
Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Acetone Carbon Disulfide 1,1-Dichloroethene 1,2-Dichloroethene (total) Chloroform 2-Butanone 1,2-Dichloroethane 1,1-Trichloroethane Carbon Tetrachloride Vinyl Acetate Bromodichloromethane 1,2-Dichloropropane Cis-1,3-Dichloropropene Trichloroethene Benzene Dibromochloromethane Trans-1,3-Dichloropropene 1,1,2-Trichloroethane Bromoform 4-Methyl-2-Pentanone 2-Hexanone 1,1,2,2-Tetrachloroethane Tetrachloroethene Toluene Chlorobenzene Ethylbenzene	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	ND 10	ND 10

ANALYTICAL TEST RESULTS **BACKFILL MATERIAL**

Sample I.D. Sample Description	CERRONE GI-01 Grand Island Backfill	FRONTIER 01 Frontier Backfill
Analysis Date	06/17/96	06/04/96
TCL - Volatiles, Method 8240 (Cont'd.)		

Compound	Units		
O & P-Xylene	ug/kg	ND 10	ND 10
M-Xylene	ug/kg	ND 10	ND 10

ANALYTICAL TEST RESULTS BACKFILL MATERIAL

	CERRONE GI-01 Grand Island Backfill 06/17/96	FRONTIER 01 Frontier Backfill 06/04/96
8270		
Units		
ug/kg ug/kg ug/kg ug/	ND 0.33	ND 0.33
ug/kg	ND 0.33	ND 0.33
	Units ug/kyggg/kygggg/kygggg/kygggg/kygggg/kygggg/kygggg/kygggg/kygggg/kygggg/kygggg/kygggg/kygggg/kygggg/kygggg/kygggg/kygggg/kyggggggykyggggykygggggyyyg/kygggggggg	Grand Island Backfill 06/17/96 8270 Units Ug/kg ND 0.33

ANALYTICAL TEST RESULTS BACKFILL MATERIAL

Sample I.D. Sample Description		CERRONE GI-01 Grand Island Backfill	FRONTIER 01 Frontier Backfill
Analysis Date		06/17/96	06/04/96
TCL - Semi-volatiles, Method	8270 (Cont'	d.)	
Compound	Units		
2,4-Dinitrophenol	ug/kg	ND 0.33	ND 0.33
4-Nitrophenol	ug/kg	ND 0.33	ND 0.33
Dibenzofuran	ug/kg	ND 0.33	ND 0.33
2,4-Dinitrotoluene	ug/kg	ND 0.33	ND 0.33
Diethylphthalate 	ug/kg	ND 0.33	ND 0.33
Fluorene	ug/kg	ND 0.33	ND 0.33
4-Nitroaniline	ug/kg	ND 0.33	ND 0.33
4-Chlorophenylphenylether	ug/kg	ND 0.33	ND 0.33
4,6-Dinitro 2-Methylphenol	ug/kg	ND 0.33	ND 0.33
N-Nitrosodiphenylamine	ug/kg	ND 0.33	ND 0.33
4-Bromophenylphenylether	ug/kg	ND 0.33	ND 0.33
Hexachlorobenzene	ug/kg	ND 0.33	ND 0.33
Pentachlorophenol	ug/kg 	ND 0.33	ND 0.33
Phenanthrene	ug/kg 	ND 0.33	ND 0.33
Anthracene	ug/kg 	ND 0.33	ND 0.33
Carbazole	ug/kg "	ND 0.33	ND 0.33
Di-n-butylphthalate	ug/kg	ND 0.33	ND 0.33
Fluoranthene	ug/kg	ND 0.33	ND 0.33
Benzidine	ug/kg "	ND 0.33	ND 0.33
Pyrene	ug/kg "	ND 0.33	ND 0.33
Butylbenzylphthalate	ug/kg "	ND 0.33	ND 0.33
3,3'-Dichlorobenzidine	ug/kg "	ND 0.33	ND 0.33
Benzo (a) Anthracene	ug/kg "	ND 0.33	ND 0.33
Chrysene	ug/kg	ND 0.33	ND 0.33
Bis (2-ethylhexyl) Phthalate	ug/Kg	ND 0.33	ND 0.33
Di-n-octylphthalate	ug/kg	ND 0.33	ND 0.33
Benzo (b) Fluoranthene	ug/kg	ND 0.33	ND 0.33
Benzo (k) Fluoranthene	ug/kg	ND 0.33	ND 0.33
Benzo (a) Pyrene	ug/kg	ND 0.33	ND 0.33
Indeno (1,2,3-cd) Pyrene	ug/kg "	ND 0.33	ND 0.33
Dibenzo (a,h) Anthracene	ug/kg	ND 0.33	ND 0.33
Benzo (g,h,i) Perylene	ug/kg	ND 0.33	ND 0.33

ANALYTICAL TEST RESULTS BACKFILL MATERIAL

Sample I.D. Sample Description		CERRONE GI-01 Grand Island Backfill	FRONTIER 01 Frontier Backfill
Analysis Date		06/17/96	06/04/96
TCL - Pesticides			
Compound	Units		
Endrin Endrin Ketone Endrin Aldehyde Heptachlor Heptachlor Epoxide Methoxychlor Toxaphene Aldrin Alpha-BHC Beta-BHC Delta-BHC Gamma-BHC (Lindane) Chlordane 4,4'-DDD 4,4'-DDE 4,4'-DDT Dieldrin Endosulfan II Endosulfan Sulfate	ug/kg	ND 0.002	ND 0.002
TCL - PCB, Method 8080			
Aroclor 1016 Aroclor 1221 Aroclor 1232 Aroclor 1242 Aroclor 1248 Aroclor 1254 Aroclor 1260	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	ND 0.033 ND 0.033 ND 0.033 ND 0.033 ND 0.033 ND 0.033 ND 0.033	ND 0.033 ND 0.033 ND 0.033 ND 0.033 ND 0.033 ND 0.033 ND 0.033

5.0 FINAL INSPECTION

The final inspection was conducted on Tuesday, October 29, 1996 with the DEC/EPA representative, the Companies Representative, the Companies QA/QC oversight representative, and the construction contractors representative present. The following is a "punch list" of items that were observed and addressed:

CB-5: hay and soil present inside basin have been removed,

SDMH-9: rim was knocked off center and has been moved back to center, mortar on inside of rim was broken and chipped and has been repaired,

CB-2: sealant between sections of CB was peeling/broken on SE side of CB and has been grouted,

SDMH-6: there was a half inch gap in the bricks on the western side of the riser.

The mortar on the outside was chipped/broken and has been filled with grout,

SDMH-5: the manhole was buried under the access road and has been uncovered and inspected with nothing to report,

SDMH-4: outside mortar was cracked/broken and has been repaired,

SDMH-2: rim/riser was knocked off by Geocon during slurry wall construction and has been replaced,

Headwall: riprap around headwall needed to be placed and has since been installed.

The "punch list" items have been addressed and rectified according to plans and specifications.

6.0 OPERATION AND MAINTENANCE PLAN

The storm sewer will be dedicated to the City of Niagara Falls. Operation and maintenance will consist of general inspections and repairs as needed or as scheduled by the City of Niagara Falls.

7.0 VERIFICATION THAT REMEDY MEETS PERFORMANCE STANDARDS

NEW YORK STATE PROFESSIONAL ENGINEER'S CERTIFICATION for <u>REMEDIAL</u>

<u>ACTION REPORT, 100th STREET STORM SEWER ABANDONMENT AND</u>

<u>RELOCATION, OPERABLE UNIT 3, 102nd STREET LANDFILL SITE, NIAGARA</u>

<u>FALLS, NEW YORK, dated 1/30/98.</u>

This report documents the remedial activities completed for the abandonment and relocation of the 100th Street Storm Sewer, 102nd Street Landfill Site. I certify that the remedial activities implemented for the abandonment and relocation of the storm sewer were completed in substantial conformance with the requirements of the Remedial Design Documents, the ROD, ROD Addendum, and the Administrative Order. The data presented is considered to be technically correct to the best of my knowledge. The accounts of the remedial activities executed during the abandonment and relocation of the storm sewer presented herein are a true and accurate summary of the observations made during the implementation period.

Charle Tolon p 6-23-98
Signature

Charles Taylor, State of New York Professional Engineer (073024)

APPENDIX A

GEOTECHNICAL LAB REPORTS - BACKFILL MATERIAL

GEOTECHNICAL LABORATORY TESTING DATA SUMMARY

PROJECT NAME: 102ND STREET LANDFILL REMEDIATION PROJECT - NIAGARA FALLS, N.Y. PROJECT NO. 55099.00 CLIENT: SMITH ENVIRONMENTAL TECHNOLOGIES CORP.

MATERIAL SOURCE: GRAND ISLAND SOURCE - GRAND ISLAND, N.Y. DATE REPORTED: 8/8/96 HO.

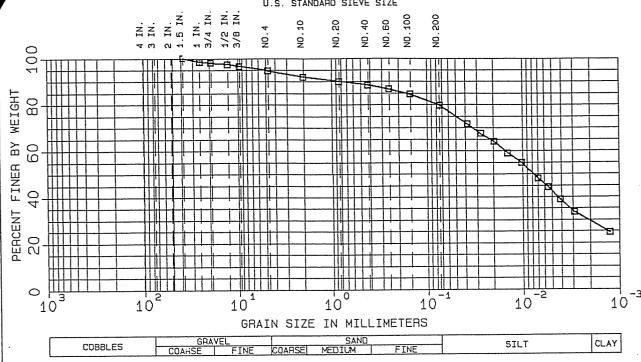
Reddish Brown Lean Clay with Sand (CL) SOIL DESCRIPTION LABORATORY LGG WATER 13.2 DRY UNIT WT 115.9 PERMEABILITY TEST σ_ς psf 720 TYPE OF TEST 꿏 PERME-ABILITY CM/Sec. 2.9E-07 OPT. WATER CONTENT % MOISTURE-DENSITY RELATIONSHIP 13.0 (Standard) See Geotechnical Laboratory Test Procedures for specific test procedures completed. Notes: 1) See Legend for Geotechnical Laboratory Testing Data Summary. MAX. DRY DENSITY 121.5 bcf HYD. -2μ % 53 GRAIN SIZE ANALYSIS SIEVE -200 % 8 15 ATTERBERG LIMITS Id 16 л % 31 7 % □ WATER CONTENT 19.3 % DEPTH IDENTIFICATION SAMPLE NUMBER 96126 BULK (6 4 SAMPLE TYPE

GZA GeoEnvironmental of New York Engineers and Scientists

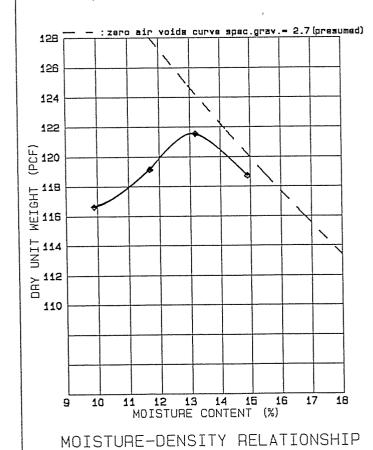
July Sales

PARTICLE-SIZE DISTRIBUTION

U.S. STANDARD SIEVE SIZE



Hydrometer sample dispersed with a mechanical stirring device, Type A, for 1 min. Dispersed sample was separated on a No. 200 sieve. Hydrometer readings obtained on fraction finer than No. 200 sieve.



SOIL PROPERTIES

SOIL DESCRIPTION: Reddish Brown Lean Clay with Sand (CL)

OPT. WATER

MAX. DRY UNIT WT. 121.5 pcf CONTENT 13

LIGUID PLASTIC SPECIFIC 31 % LIMIT 16 % GRAVITY LINIT

COMPACTION METHOD

D698-91 PROCEDURE ASTN TEST METHOD AASHTO TEST 4.59 in. MOLD DIA. 4 in. MOLD HEIGHT 25 Ε NO. LAYERS BLOWS/LAYER 5.5 lbs. OROP HEIGHT 12 in. HANNER WT. SAMPLE PREPARATION - DRY METHOD COMPACTED BY MECHANICAL RAMMER

> 102ND STREET LANDFILL REMEDIATION PROJECT - NIAGARA FALLS, NEW YORK

> PARTICLE-SIZE ANALYSIS MOISTURE-DENSITY RELATIONSHIP

EXPLOR. NO. BULK SAMPLE SAMPLE NO. 06216-1 DEPTH STOCKPILE HAK/RAR REVIEWER RAR

SOURCE

WORK ORDER 7/1/96 DATE FILE 55099.00

GRAND ISLAND SOURCE GRAND ISLAND, N.Y.

GZA GeoEnvironmental of New York Engineers and Scientists

102ND STREET REMEDIATION PROJECT NIAGARA FALLS, NEW YORK

HYDRAULIC CONDUCTIVITY USING A FLEXIBLE WALL PERMEAMETER ASTM D 5084 - 90

GZA FILE: 55099.0 GZA WORK ORDER NO. 2644 COMPLETED: July 1, 1996

SAMPLE NUMBER:

06216-1

MATERIAL SOURCE:

GRAND ISLAND SOURCE - GRAND ISLAND, N.Y.

SAMPLE TYPE:

RECONSTITUTED USING HAND RAMMER AND 5 LIFTS

TEST SERIES NO.: Kr9.1

Edi BEKIES Ko..

INITIAL	FINAL
2.831 .	2.832
1.970	1.963
13.2	16.2
115.9	116.2
	2.831 1.970 13.2

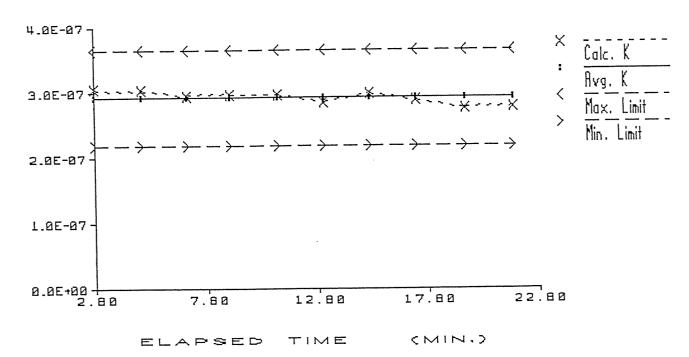
TEST PARAMETERS:

TOTAL BACK PRESSURE (psi.)	80
MAXIMUM EFFECTIVE STRESS (psi.)	5
MINIMUM EFFECTIVE STRESS (psi.)	3
INITIAL HYDRAULIC GRADIENT	31
FINAL HYDRAULIC GRADIENT	30
PERMEANT LIQUID	DEAIRED TAP WATER

AVERAGE HYDRAULIC CONDUCTIVITY (cm./sec.)

2.9E-07

PERMEABILTY VS TIME



GZA GeoEnvironmental of New York Engineers and Scientists AUG 8 1996

(CM./BEC.)

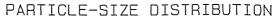
X

GEOTECHNICAL LABORATORY TESTING DATA SUMMARY

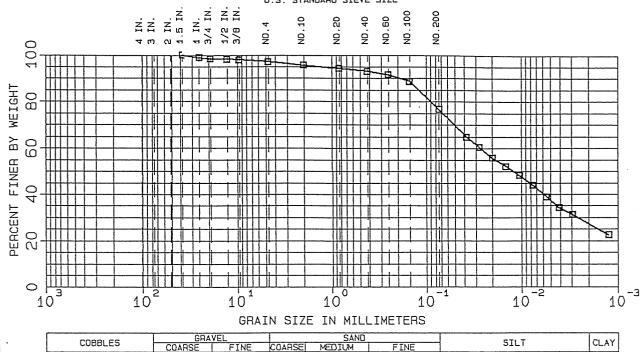
PROJECT NAME: 102ND STREET LANDFILL REMEDIATION PROJECT - NIAGARA FALLS, N.Y. PROJECT NO. 55099.00 CLIENT: SMITH ENVIRONMENTAL TECHNOLOGIES CORP.

MATERIAL SOURCE: GRAND ISLAND SOURCE 2ND AREA - GRAND ISLAND, N.Y.
DATE REPORTED: 8/8/96
LOSS NO. 2652

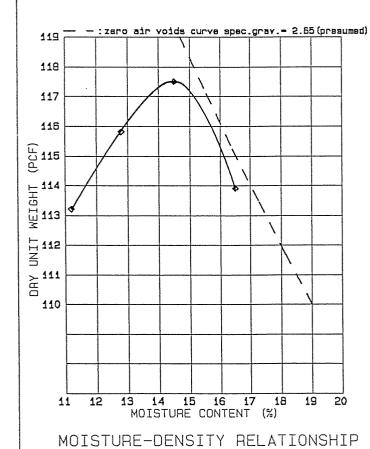
LABORATORY LOG	SOIL DE	Dark Brown Lean Clay with Sand (CL)			
	WATER CONTENT	14.6			
TEST	DRY UNIT WT Pcf	106.4			
PERMEABILITY TEST	σ _ς psf	720			
PERMEA	TYPE OF TEST	Kr			
	PERME- ABILITY cm/sec.	1.3E-06			
MOISTURE-DENSITY RELATIONSHIP (Standard)	MAX. DRY OPT. WATER DENSITY CONTENT pcf %	14.5		st	
MOISTURE RELATI (Star	MAX. DRY DENSITY pcf	117.5	l l l l l l l l l l l l l l l l l l l	See Geotechnical Laboratory Test Procedures for specific test procedures completed.	
SIZE	ΗΥD. -2μ %	27	sting Da	es for s	
GRAIN SIZE ANALYSIS	SIEVE -200 %	77	l atory Te	Procedur	
RG	PI	19	abor	st	
ATTERBERG LIMITS	% P.	16	1 F	, Ţ	
ATT	"LL	35	ı ınica	ato	
WATER	%	15.5	r Geotec	cal Labou mpleted.	
	ОЕРТН ft.		egend fo	See Geotechnical Labo procedures completed.	
IDENTIFICATION	SAMPLE NUMBER	06286- 1	1) See L	2) See G proce	
IDEN	SAMPLE TYPE	BULK	Notes: 1		



U.S. STANDARD SIEVE SIZE



Hydrometer sample dispersed with a mechanical stirring device, Type A, for 1 min. Dispersed sample was separated on a No. 200 sieve. Hydrometer readings obtained on fraction finer than No. 200 sieve.



SOIL PROPERTIES SOIL DESCRIPTION: Dark Brown Lean Clay with Sand (CL) OPT. MATER CONTENT 14.5 % UNIT WT. 117.5 pcf LIGUID PLASTIC SPECIFIC LIMIT 35 % LIMIT 16 % GRAVITY

	COMPACTION	N METHOD		
ASTN TEST	D69 8 -91	PROCEDURE	A	
AASHTO TEST		METHOD		
NOLD HEIGHT	4.59 in.	MOLO DIA.	4	in.
NO. LAYERS	Ε	BLOWS/LAYER		25
HANNER WT.	5.5 lbs	. DROP HEIG	нт	12 in.
SAMPLE PREPA	ARATION -	DRY METHOD		
COMPACTED B	Y MECHANIC	AL RAMMER		

102ND STREET LANDFILL REMEDIATION PROJECT - NIAGARA FALLS, NEW YORK

PARTICLE-SIZE ANALYSIS
MOISTURE-DENSITY RELATIONSHIP

EXPLOR. NO. BULK SAMPLE SAMPLE NO. 06296-1 DEPTH TECH. HAK REYIEMER RAR

SOURCE

WORK ORDER NO. 2652 DATE 7/25/96 FILE 55099.00

HAR GRAND ISLAND SOURCE 2ND AREA

102ND STREET LANDFILL REMEDIATION PROJECT NIAGARA FALLS, NEW YORK

HYDRAULIC CONDUCTIVITY USING A FLEXIBLE WALL PERMEAMETER ASTM D 5084 - 90

GZA FILE: 55099.0 GZA WORK ORDER NO. 2652 COMPLETED: July 11, 1996

SAMPLE NUMBER:

06286-1

MATERIAL SOURCE:

. GRAND ISLAND SOURCE - 2ND AREA

SAMPLE TYPE:

RECONSTITUTED USING HAND RAMMER AND 5 LIFTS

TEST SERIES NO.:

Kr10.1

SAMPLE DATA:	INITIAL	FINAL
DIAMETER (in.)	2.830	2.835
LENGTH (in.)	1.975	1.935
WATER CONTENT (%)	14.6	19.2
DRY UNIT WEIGHT (pcf.)	106.4	108.2

TEST PARAMETERS:

THE CONTRACT OF THE CONTRACT O	D-13 D-10	ma n	
FINAL HYDRAULIC GRADIENT		16	
INITIAL HYDRAULIC GRADIENT		17	
MINIMUM EFFECTIVE STRESS (psi.)		4	
MAXIMUM EFFECTIVE STRESS (psi.)		5	
TOTAL BACK PRESSURE (psi.)		80	

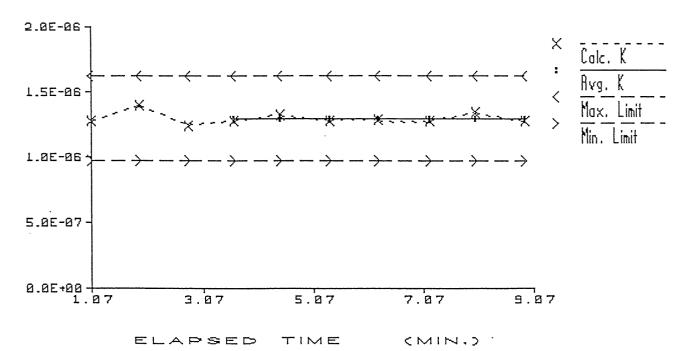
PERMEANT LIQUID

DEAIRED TAP WATER

AVERAGE HYDRAULIC CONDUCTIVITY (cm./sec.)

1.3E-06

PERMEABILTY VS TIME



GZA GeoEnvironmental of New York Engineers and Scientists AUG 8 1996

OM. / SEC.

X

GEOTECHNICAL LABORATORY TESTING DATA SUMMARY

PROJECT NAME: 102ND STREET LANDFILL REMEDIATION PROJECT - NIAGARA FALLS, N.Y. PROJECT NO. 55099.00 CLIENT: SMITH ENVIRONMENTAL TECHNOLOGIES CORP.

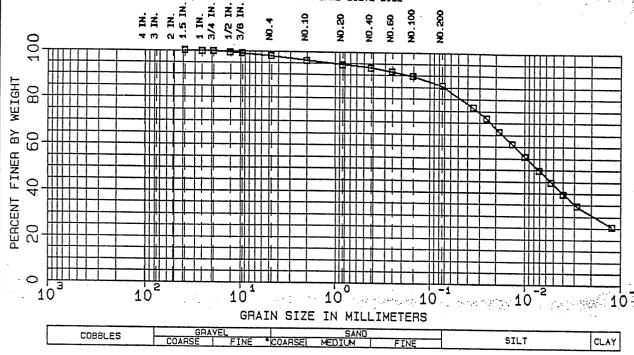
MATERIAL SOURCE: VARIES DATE REPORTED: 6/3/96

2573 WORK ORDER NO.

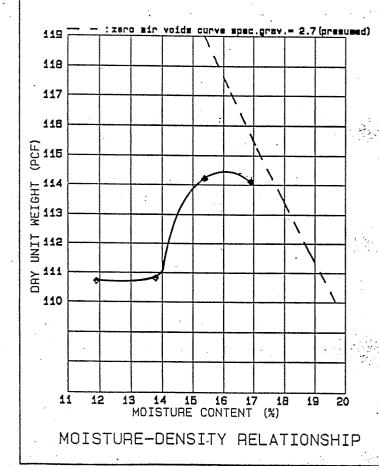
וג רספ	IPT10N	ay (CH) Borrow Pit	ilay (CL) ne Quarry	ilt (ML) 1 Borrow Pit		- }												্র কুর্ কুর্								74 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
LABORATORY LOG	SOIL DESCRIPTION	Brownish Gray Fat Clay (CH) Source: Surmit Park Borrow Pit	Reddish Brown Lean Clay (CL) Source: Frontier Stone Quarry	Reddish Brown Sand Silt (ML) Source: Wheeler Road Borrow Pit						· · · · ·	egera egera eg		ed X		 	e e e e e e e e e e e e e e e e e e e	4.20								****	
	WATER CONTENT	22.1	16.0	8.9												•					3					
EST	DRY UNIT WT pcf	92.7	103.6	115.7			-				-			,-			•	7		. F.S	-c-			ýašíj		
PERMEABILITY TEST	o o pst	720	720	720	•															-						
PERME!	TYPE OF TEST	Κr	늄	אַ							. > .				. •		-			2.				, se jir Sejeri		
	PERME- ABILITY cm/sec.	4.9E-08	9.1E-08	4.7E-05					•											,	/	,	-		67	
MOISTURE-DENSITY RELATIONSHIP (Standard)	OPT. WATER CONTENT	22.0	16.0	9.0		sheet.	st	•			•	•						200	4.7							
MOISTURE RELATI · (Stan	MAX. DRY DENSITY pcf	103.0	114.5	128.5		ing Data Summary sheet.	for specific test	_																		
SIZE	HYD. -2# %	8	31	8		sting De																	·			
GRAIN SIZE ANALYSIS	SIEVE -200	86	8	52		ratory Te	Procedur	_					·	-			,							.:	, str	
BERG	L PI	4 27	8 13	m.	+	Labo	Test	_																<u>.</u>		_
ATTERBERG LIMITS	רו פר א א	51 24	31 18	17 14	+	ical	tory	~	<u>.</u>														•			
WATER A	. *	23.4 5	17.6 3	10.2 1		. Geotechr	al Labora	pleted.	-								,				1. g	1.				
	DEPTH ft.	N. Bank -2 ft.	S. Bank Surface	N. Bank Surface	+	Notes: 1) See Legend for Geotechnical Laboratory Test	See Geotechnical Laboratory Test Procedures	procedures completed.																		
IDENTIFICATION	SAMPLE	05176-	05176-	05176- 3		1) See L	2) See G	proce							1				1							(1) A
IDEN	SAMPLE TYPE	BULK	BULK	BULK		Notes:													•		:	•				



U.S. STANDARD SIEVE SIZE



Hydrometer sample dispersed with a mechanical stirring device. Type A, for i min. Dispersed sample was separated on a No. 200 sieve. Hydrometer readings obtained on fraction finer than No. 200 sieve



SOIL	PROPERTIES
SOIL DESCRIPTION	Reddish Brown Lesn Clay (CL)
OPT. WATER CONTENT 16 %	MAX. DRY UNIT WT. 114.5 pcf
LIQUID PL	ASTIC SPECIFIC MIT 18 % GRAVITY

COMPACTIO	N METHOD
ASTN TEST DECR-91	PROCEDURE A
AASHTO TEST	METHOD
NOLD HEIGHT 4.59 in.	MOLD DIA. 4 in.
NO. LAYERS 3	BLOWS/LAYER 25
HANNER WT. 6.6 1ba	. DROP HEIGHT 12 in.
SAMPLE PREPARATION -	DRY METHOD
COMPACTED BY MECHANIC	AL RAMMER

102ND STREET REMEDIATION PROJECT NIAGARA FALLS, NEW YORK

PARTICLE-SIZE ANALYSIS
MOISTURE-DENSITY RELATIONSHIP

EXPLOR. NO. BULK SAMPLE
SAMPLE NO. 0517E-2
DEPTH
SUMFACE
DEW
REVIEWER
SOURCE
FRONTIER STONE QUARKY
SOUTH BANK

WORK ORDER
NO. 2579
DATE 5/23/26
F/23/26
FILE 5099.00

102ND STREET REMEDIATION PROJECT NIAGARA FALLS, NEW YORK

HYDRAULIC CONDUCTIVITY USING A FLEXIBLE WALL PERMEAMETER ASTM D 5084 - 90

GZA FILE: 55099.0 GZA WORK ORDER NO. 2579 COMPLETED: June 2, 1996

SAMPLE NUMBER:

05176-2

MATERIAL SOURCE: FRONTIER STONE - LOCKPORT, NEW YORK

SAMPLE TYPE:

RECONSTITUTED USING HAND RAMMER AND 5 LIFTS

TEST SERIES NO.: Kr3.1

SAMPLE	DATA:		INITIAL	FINAL
	DIAMETER (in.)	•	2.831	2.807
	LENGTH (in.)		1.971	1.930
	WATER CONTENT (%)		16.0	20.3
	DRY UNIT WEIGHT (pcf.		103.6	107.6

TEST PARAMETERS:

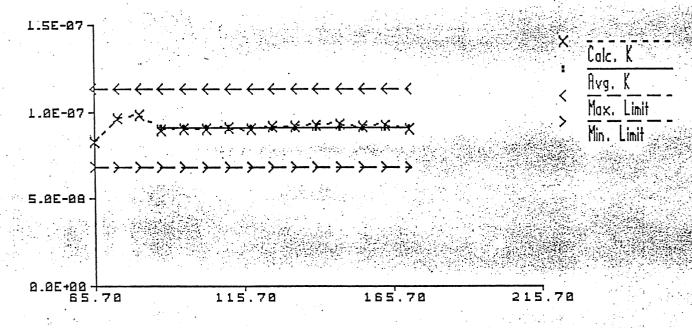
TOTAL BACK PRESSURE (psi.)	100
MAXIMUM EFFECTIVE STRESS (psi.)	5
MINIMUM EFFECTIVE STRESS (psi.)	3
INITIAL HYDRAULIC GRADIENT	31
FINAL HYDRAULIC GRADIENT	28

PERMEANT LIQUID

AVERAGE HYDRAULIC CONDUCTIVITY (cm./sec.)

DEAIRED TAP WATER

PERMEABILTY vs TIME



ELAPSED TIME

GZA GeoEnvironmental of New York Engineers and Scientists

Y

APPENDIX B

ANALYTICAL LAB DATA VALIDATION REPORTS - BACKFILL MATERIAL

TreaTek-CRA

MEMO

Bill Shoron

2055 Niagara Falls Boulevard Suite Three Niagara Falls, New York 14304 (716) 297-2160 (716) 297-2265 Telecopier

TO:

Jim Thornton

REFERENCE NO: 9920

FROM:

Denise Tuhovak/ms/16

DATE: February 5, 1998

(REVISED: February 6, 1998)

RE:

102nd Street Source Materials

CC:

A. Weston, L. Miller

EXECUTIVE SUMMARY

Representative soil samples were collected and analyzed for target compound list/target analyte list (TCL/TAL) organics and metals to characterize the soils for use as backfill at the 102^{nd} Street landfill. Based on the results of these analyses, it was determined that these soils are acceptable for this use.

INTRODUCTION

Composite samples were collected between 1996 and 1997 from six different soil sources. The samples were analyzed for TCL/TAL organics and metals to characterize the material for use as backfill at the 102^{nd} Street Landfill. A QA/QC review was performed on the data and a copy is attached to this memo.

RESULTS

A copy of the analytical results is summarized in the attached Table 1. Organic compounds were not detected in the samples with the exception of some very low level bis(2-ethylhexyl)phthalate (a common laboratory artifact). Various metals were detected in the samples at different concentrations.

Based on the QA/QC review, these data were acceptable for use in characterizing the soil material.

DISCUSSION

The analytical data were compared to New York State Department of Environmental Conservation (NYSDEC) criteria to determine if the soils could be recommended for use at the 102nd Street Landfill. Since the 102nd Street Landfill is a secured area, the organic data for these samples were compared to the Soil Cleanup Objectives to Protect Groundwater Quality (TAGM, January 1994) and the sample results met these levels.

Metals results are normally compared to site background levels; the TAGM Eastern USA Background Level were used for reference purposes only. Four metals exceeded the TAGM Eastern USA Background Levels. The exceedances were as follows:

Metal	Eastern USA Background Level (ppm)	Sample Result (ppm)
Cadmium	0.1-1	ND-1.1
Calcium	130-3500	1000-160000
Nickel	0.5-2.5	3.2-31
Zinc	9-50	28-100

The exceedances for cadmium, nickel and zinc are minor, and the concentrations are comparable to the site background levels expected in an industrial area such as Niagara Falls. Calcium is not a heavy metal and the high calcium concentrations are not a concern.

CONCLUSION

The soil samples contain various metals and low levels of bis(2-ethylhexly)phthalate. Based on the analytical results, it was determined that the soils are acceptable for use at the 102nd Street Landfill.

TABLE 1

ANALYTICAL RESULTS SUMMARY 102ND STREET SOURCE MATERIALS OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK

1996-1997

	Soil Source Units	FRONTIER-01	CERRONEGI-01	CARL WALCK	SUMMIT PARK	HELMICK	CHESTNUT RIDGE
TCL Volatiles							
Chloromethane	ug/Kg	ND 10		ND 11			
Bromomethane	ив/Кв	ND 10		ND 11	ND 13		
Vinyl chloride	μg/Kg	ND 10	ND 10	ND 11	ND 13	ND 12	ND 300
Chloroethane	µg/Kg	ND 10		ND 11	ND 13		
Methylene chloride	µg/Kg	ND 10			ND 13		
Acetone	μg/Kg	ND 10			ND 13		
Carbon disulfide	µg/Kg	ND 10		ND 11	ND 13		
1,1-Dichloroethene	µg/Kg	ND 10			ND 13		
1,1-Dichloroethane	μg/Kg	ND 10			ND 13		
1,2-Dichloroethene (total)	μg/Kg	ND 10			ND 13		
2-Butanone	µg/Kg	ND 10			ND 13		
Chloroform	μg/Kg	ND 10			ND 13		
1,2-Dichloroethane	µg/Kg	ND 10			ND 13		
1,1,1-Trichloroethane	µg/Kg	ND 10			ND 13		
Carbon tetrachloride	μg/Kg	ND 10			ND 13		
Bromodichloromethane	μg/Kg	ND 10			ND 13		
1,2-Dichloropropane	µg/Kg	ND 10			ND 13		
cis-1,3-Dichloropropene	µg/Kg	ND 10		ND 11	ND 13		
Trichloroethene	µg/Kg	ND 10			ND 13		
Benzene	μg/Kg	ND 10			ND 13		
Dibromochloromethane	μg/Kg	ND 10			ND 13		
trans-1,3-Dichloropropene	нв/Кв	ND 10			ND 13		
1,1,2-Trichloroethane	μg/Kg	ND 10			ND 13		
Bromoform	μg/Kg	ND 10			ND 13		
4-Methyl-2-pentanone	µg/Kg	ND 10			ND 13		
2-Hexanone	μg/Kg	ND 10			ND 13		
Tetrachloroethene	µg/Kg	ND 10			ND 13		
1,1,2,2-Tetrachloroethane	μg/Kg	ND 10		ND 11	ND 13		
Toluene	μg/Kg	ND 10		ND 11	ND 13		
Chlorobenzene	μg/Kg	ND 10		ND 11			
Ethyl benzene	μg/Kg	ND 10		ND 11	ND 13		
Styrene	$\mu \mathrm{g}/\mathrm{Kg}$	ND 10		ND 11			ND 300
Xylene (total)	µg/Kg	ND 10	ND 10	ND 11	ND 13		

TABLE 1

ANALYTICAL RESULTS SUMMARY 102ND STREET SOURCE MATERIALS OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK 1996-1997

	Soil Source Units	FRONTIER-01	CERRONEGI-01	CARL WALCK	SUMMIT PARK	HELMICK	CHESTNUT RIDGE
TCL Semi-Volatiles							
Phenol	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
bis(2-Chloroethyl) ether	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2-Chlorophenol	μg/Kg	ND 410			ND 420	ND 410	
1,3-Dichlorobenzene	μg/Kg	ND 410			ND 420		ND 330
1,4-Dichlorobenzene	μg/Kg	ND 410	ND 400	ND 330	ND 420		ND 330
1,2-Dichlorobenzene	µg/Kg	ND 410	ND 400	ND 330	ND 420		ND 330
2-Methylphenol	µg/Kg	ND 410	ND 400	ND 330	ND 420		ND 330
2,2'oxybis(1-Chloropropane)	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
4-Methylphenol	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
n-Nitroso-di-n-propylamine	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Hexachloroethane	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Nitrobenzene	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Isophorone	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2-Nitrophenol	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2,4-Dimethylphenol	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
bis(2-Chloroethoxy)methane	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2,4-Dichlorophenol	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
1,2,4-Trichlorobenzene	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Naphthalene	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
4-Chloroaniline	μg/Kg	ND 410	ND 400	099 QN	ND 420	ND 410	ND 330
Hexachlorobutadiene	$\mu g/Kg$	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
4-Chloro-3-methylphenol	μg/Kg	ND 410	ND 400	099 QN	ND 420	ND 410	ND 330
2-Methylnaphthalene	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Hexachlorocyclopentadiene	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2,4,6-Trichlorophenol	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2,4,5-Trichlorophenol	$\mu g/Kg$	ND 1000	066 QN	ND 330	ND 1100	ND 1000	ND 1600
2-Chloronaphthalene	$\mu g/Kg$	ND 410		ND 330	ND 420		ND 330
2-Nitroaniline	μg/Kg	ND 1000		ND 1600	ND 1100		ND 1600
Dimethyl phthalate	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Acenaphthylene	µg/Kg	ND 410		ND 330	ND 420		ND 330
2,6-Dinitrotoluene	µg/Kg	ND 410			ND 420	ND 410	ND 330
3-Nitroaniline	µg/Kg	ND 1000	066 QN		ND 1100		ND 1600
Acenaphthene	µg/Kg	ND 410	-	ND 330	ND 420		ND 330
2,4-Dinitrophenol	μg/Kg	ND 1000					
4-Nitrophenol	$\mu \mathrm{g}/\mathrm{Kg}$	ND 1000	ND 990	ND 1600	ND 1100	ND 1000	ND 1600
Dibenzofuran	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330

TABLE 1

ANALYTICAL RESULTS SUMMARY 102ND STREET SOURCE MATERIALS OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK 1996-1997

	Soil Source Units	FRONTIER-01	CERRONEGI-01	CARL WALCK	SUMMIT PARK	HELMICK	CHESTNUT RIDGE
TCL Semi-Volatiles (Cont'd.)							
2,4-Dinitrotoluene	μg/Kg	ND 410	ND 400		ND 420	ND 410	ND 330
Diethylphthalate	µg/Kg		ND 400	ND 330	ND 420	ND 410	ND 330
Fluorene	µg/Kg	ND 410			ND 420	ND 410	ND 330
4-Chlorophenyl phenyl ether	μg/Kg	ND 410		ND 330	ND 420	ND 410	ND 330
4-Nitroaniline	µg/Kg			099 QN	ND 1100	ND 1000	ND 1600
4,6-Dinitro-2-methylphenol	μg/Kg			ND 1600	ND 1100	ND 1000	ND 1600
n-Nitrosodiphenylamine	μg/Kg	ND 410		ND 330	ND 420	ND 410	ND 330
4-Bromophenyl phenyl ether	µg/Kg		ND 400	ND 330	ND 420	ND 410	ND 330
Hexachlorobenzene	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Pentachlorophenol	μg/Kg		ND 990	ND 1600	ND 1100	ND 1000	ND 1600
Phenanthrene	µg/Kg		ND 400	ND 330	ND 420	ND 410	ND 330
Anthracene	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Carbazole	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Di-n-butyl phthalate	μg/Kg		ND 400	ND 330	ND 420	ND 410	ND 330
Fluoranthene	μg/Kg		ND 400	ND 330	ND 420	ND 410	ND 330
Pyrene	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Butyl benzyl phthalate	μg/Kg		ND 400	ND 330	ND 420	ND 410	ND 330
Benzo(a)anthracene	µg/Kg		ND 400	ND 330	ND 420	ND 410	ND 330
3,3'-Dichlorobenzidine	µg/Kg	ND 410	ND 400	099 QN	ND 420	ND 410	099 QN
Chrysene	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
bis(2-Ethylhexyl)phthalate	µg/Kg	ND 410	ND 400	ND 330	67J	57]	ND 330
Di-n-octyl phthalate	μg/Kg	ND 410	ND 400	ND 330			ND 330
Benzo(b)fluoranthene	μg/Kg	ND 410	ND 400	ND 330	ND 420		ND 330
Benzo(k)fluoranthene	μg/Kg	ND 410		ND 330			ND 330
Benzo(a)pyrene	μg/Kg	ND 410	ND 400	ND 330	-	ND 410	ND 330
Indeno(1,2,3-cd)pyrene	μg/Kg	ND 410		ND 330	-		ND 330
Dibenzo(a,h)anthracene	µg/Kg	ND 410	-	ND 330	ND 420	ND 410	ND 330
Benzo(g,h,i)perylene	µg/Kg	ND 410	ND 400	ND 330	ND 420		ND 330

TABLE 1

	Soil Source	FRONTIER-01	CERRONEGI-01	CARL WALCK	SUMMIT PARK	HELMICK	CHESTNUT RIDGE
	Units						
Pesticides/PCBs							
alpha-BHC	µg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
beta-BHC	μg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
delta-BHC	µg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
gamma-BHC (Lindane)	µg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
Heptachlor	µg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
Aldrin	μg/Kg	ND 2.1	ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
Heptachlor epoxide	ug/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
Endosulfan I	µg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
Dieldrin	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
4,4'-DDE	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
Endrin	µg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
Endosulfan II	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
4,4'-DDD	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
Endosulfan sulfate	µg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
4,4'-DDT	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
Methoxychlor	μg/Kg		ND 20	ND 19	ND 21	ND 21	ND 21
Endrin ketone	µg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
Endrin aldehyde	μg/Kg	ND 4.0	ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
alpha-Chlordane	µg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
gamma-Chlordane	μg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
Toxaphene	μg/Kg		ND 200	ND 190	ND 210	ND 210	ND 210
Aroclor-1016	μg/Kg		ND 39	ND 38	ND 42	ND 41	ND 41
Aroclor-1221	μg/Kg		ND 79	ND 76	ND 84	ND 83	ND 83
Aroclor-1232	µg/Kg		ND 39	ND 38	ND 42	ND 41	ND 41
Aroclor-1242	µg/Kg		ND 39	ND 38	ND 42	ND 41	ND 41
Aroclor-1248	µg/Kg	ND 40	ND 39	ND 38	ND 42	ND 41	ND 41
Aroclor-1254	µg/Kg		ND 39	ND 38	ND 42	ND 41	ND 41
Aroclor-1260	$\mu \mathrm{g}/\mathrm{Kg}$		ND 39	ND 38	ND 42	ND 41	ND 41

TABLE 1

TAL Metals	Soil Source Units	FRONTIER-01	CERRONEGI-01	CARL WALCK	SUMMIT PARK	НЕГМІСК	CHESTNUT RIDGE
Aluminum	mg/Kg	9400	11000	4300	20000.0	12000	4400
Antimony	mg/Kg	ND 5.0	ND 5.0	ND 5.3	0.81	ND 5.0	ND 5.4
Arsenic	mg/Kg	7.3]	5.4J	ND 0.5	4.8	8.6J	3.9]
Barium	mg/Kg	100	100	35	140	100	27
Beryllium	mg/Kg	ND 0.5	ND 0.5	ND 0.5	1.0	ND 0.5	ND 0.5
Cadmium	mg/Kg	ND 0.5	ND 0.5	1.1	ND 0.03	ND 0.5	ND 0.5
Calcium	mg/Kg	14000	160000	29000	22000	51000	1000
Chromium	mg/Kg	14	17	9.9	29	15	4.3
Cobalt	mg/Kg	9.2	10	3.0	14	6.6	ND 1.1
Copper	mg/Kg	14	18	6.1	27	23	2.2
Iron	mg/Kg	17000	31000	2000	32000	22000	4400
Lead	mg/Kg	22	28	ND 5.3	12	21	22
Magnesium	mg/Kg	12000	38000	4600	14000	10000	530
Manganese	mg/Kg	069	200	340	610	580	22
Mercury	mg/Kg	ND 0.5	ND 0.5	ND 0.5	ND 0.06	ND 0.5	ND 0.5
Nickel	mg/Kg	20	18	7.7	31	18	3.2
Potassium	mg/Kg	1900	2700	099	5300	1300	180
Selenium	mg/Kg	ND 0.5	ND 0.5	ND 0.5	ND 0.30	ND 0.5	ND 0.5
Silver	mg/Kg	ND 0.5	ND 0.5	ND 0.5	ND 0.10	ND 0.5	ND 0.5
Sodium	mg/Kg	160	240	130	300	140	55
Thallium	mg/Kg	ND 5.0	6.5	77	ND 0.24	120	31
Vanadium	mg/Kg	16	20	6.2	40	18	7.5
Zinc	mg/Kg	46	100	77	70	50	28

Notes:

Not Applicable.
Estimated.
Not detected at or above x.
Polychlorinated Biphenyls.
Data Rejected. NDx PCBs R TAL TCL

Target Analyte List. Target Compound List.

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1.0 EXECUTIVE SUMMARY

Soil was obtained from six different sources for use as backfill at the 102nd Street Landfill. Representative composite samples were collected from each source and analyzed for target compound list/target analyte list (TCL/TAL) organics and metals to characterize the material.

A quality assurance/quality control (QA/QC) assessment was performed on the data and all results were judged to be acceptable. The results were all non-detect with the exception of some low level bis(2-ethyhexyl)phthalate concentrations and various concentrations of some metals.

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2.0 QA/QC REVIEW

Introduction

Composite soil samples were collected between June 1996 and July 1997 from sources of material for use as backfill at the 102nd Street Landfill. The samples were analyzed for TCL organics and TAL metals. Upon initial review of the data, it was determined that supporting QA/QC data were not available for some of the analytical reports. Additional samples were collected from these sources and analyzed for the appropriate parameters. A sampling and analysis summary is presented in Table 1 and the analytical methods used are summarized in Table 2. The analytical results are summarized in Table 3.

Final sample results and supporting QA/QC results (including spike recoveries, duplicate results, surrogate recoveries internal standard recoveries and laboratory blank results) were assessed to determine whether the data were acceptable for their intended use - characterization of the backfill material.

The criteria by which these data were assessed are outlined in the analytical methods and the guidance documents entitled "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA 540/R-94-012, February 1994 and "USEPA Contract Laboratory Program National Function Guidelines for Inorganic Data Review, February 1994, EPA 540/R-94/013.

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Sample Holding Times

The sample holding time criteria used were as follows:

Parameter	Holding Time
Volatiles	14 days from collection to extraction
Semi-Volatiles	14 days from collection to extraction,
	40 days from extraction to analysis
Pesticides/PCBs	14 days from collection to extraction,
	40 days from extraction to analysis
Metals (Except Mercury)	180 days from collection to analysis
Mercury	28 days from collection to analysis

As summarized in table 4, all samples were prepared and analyzed within the required holding times with the exception of two volatiles samples which were analyzed one day outside of the holding time. The volatiles results reported for these samples were judged to be acceptable based on the minor extent of the exceedance.

Surrogate Analyses - Organics

Surrogates were added to all samples, blanks, and QC samples prior to extraction and/or analysis for organic parameters, and the recoveries are summarized in Table 5. All recoveries were acceptable showing acceptable analytical accuracy.

Internal Standard Analysis - Volatiles and Semi-volatiles

The proper internal standard (IS) compounds were added to all samples, blanks, standards, and spiked samples prior to analysis. All IS recoveries were acceptable with the exception of sample the from Chestnut Ridge which had one low semi-volatile IS recovery. All associated sample results were

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non-detect and were judged to be acceptable based on the minor extent of the exceedance.

Method Blank Analyses

Method blanks were extracted and/or analyzed for all parameters, and the results are summarized in Table 6. The results were non-detect with the following exceptions:

- i) Low level concentrations of methylene chloride and acetone (common laboratory artifacts) were detected in one of the blanks. Associated sample results at concentrations near the blank levels were qualified nondetect.
- ii) Some metals were detected in one of the laboratory blanks at low concentrations. The concentrations of these metals in the associated sample were significantly higher than the levels in the blank and the results would not have been affected.

Blank Spike (BS) Analyses

BSs containing a representative set of the analytes of interest were prepared and analyzed for all parameters. BS recoveries were assessed against general control limits and are summarized in Table 7. All BS recoveries were within the control limits showing acceptable overall analytical accuracy.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses - Organics

MS/MSD samples were prepared and analyzed for the organic parameters and the results are summarized in Table 8. The spike recoveries showed acceptable accuracy and precision with the following exceptions:

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- Slightly high recoveries were reported for a few volatile compounds.
 These compounds were not detected in the samples and the data would not have been affected by a potential high bias.
- ii) there was a low endrin recovery for the MSD analysis. Based on acceptable recoveries for the MS and the BS for this compound, and the fact that this compound and its decomposition metabolites were not detected in associated samples, the results for this compound were judged to be acceptable.

Duplicate Analyses - Metals

Two separate portions of one composite sample were prepared and analyzed separately for all metals of interest (see Table 9). The results compared well showing good overall analytical precision.

Graphite Furnace Analyses

Several of the arsenic and selenium analyses exceeded the specified post-digestion spike recoveries or coefficients of variation criteria. All associated positive sample results were qualified as estimated, all non-detect results were judged to be acceptable based on sufficient analyte recovery.

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3.0 <u>CONCLUSION</u>

Based on the QA/QC review, the data reported in Table 3 were judged to be acceptable for their intended use with the qualifications noted.

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SAMPLING AND ANALYSIS SUMMARY 102ND STREET SOURCE MATERIALS OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK 1996-1997

Location	Sample ID	Date	Parameters
Frontier-01	GNN6265	06/04/96	TCL VOCs, TAL Metals
	Comp B	12/11/97	TCL SVOCs, Pesticides/PCBs
Cerrone GI-01	GNN62AL	06/17/96	TCL VOCs, TAL Metals
	Comp E	12/11/97	TCL SVOCs, Pesticides/PCBs
Summit Park	GNN633C-1	09/23/96	(1)
	Comp F	12/15/97	TCL VOCs, TCL SVOCs, TCL Pesticides/PCBs, TAL Metals
Helmick	HAT722Z	05/27/97	TAL Metals
	Comp A	12/11/97	TCL VOCs, TCL SVOCs, TCL Pesticides/PCBs
Chestnut Ridge	GNN72K4-1	07/29/97	TCL VOCs, TCL SVOCs, TAL Metals
Ü	Comp D	12/11/97	TCL Pesticides/PCBs
Carl Walck	GNN72MA-2	08/07/97	TCL SVOCs, TAL Metals
	Comp C	12/11/97	TCL VOCs, Pesticides/PCBs

Notes:

(1) Analytical results for this sample were not used due to the unavailability of supporting QA/QC data.

PCBs Polychlorinated Biphenyls.

SVOC Semi-Volatile Organic Compounds.

TAL Target Analyte List.

TCL Target Compound List.

VOCs Volatile Organic Compounds.

ANALYTICAL METHODS 102ND STREET SOURCE MATERIALS OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK 1996-1997

Parameter	Method (1)
TCL VOCs	8240
TCL SVOCs	8270
TCL Pesticides/PCBs	8080
TAL Metals	6010/7060/7471/7740

Notes:

(1) Methods referenced from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, SW-846, September 1986 (with revisions).

PCBs Polychlorinated Biphenyls.

SVOC Semi-Volatile Organic Compounds.

TAL Target Analyte List.TCL Target Compound List.

VOCs Volatile Organic Compounds.

TABLE 3

	Soil Source Units	FRONTIER-01	CERRONEGI-01	CARL WALCK	SUMMIT PARK	НЕГМІСК	CHESTNUT RIDGE
TCL Volatiles							
Chloromethane	µg/Kg	ND 10	ND 10		ND 13		
Bromomethane	ug/Kg	ND 10	ND 10		ND 13		
Vinyl chloride	µg/Kg	ND 10	ND 10	ND 11	ND 13	ND 12	ND 300
Chloroethane	µg/Kg	ND 10	ND 10		ND 13		
Methylene chloride	µg/Kg	ND 10	ND 10		ND 13		
Acetone	нв/Кв	ND 10	ND 10		ND 13		
Carbon disulfide	µg/Kg		ND 10		ND 13		
1,1-Dichloroethene	µg/Kg	ND 10	ND 10		ND 13		
1,1-Dichloroethane	µg/Kg		ND 10		ND 13		
1,2-Dichloroethene (total)	µg/Kg	ND 10	ND 10		ND 13		
2-Butanone	µg/Kg	ND 10	ND 10		ND 13		
Chloroform	μg/Kg		ND 10		ND 13		
1,2-Dichloroethane	µg/Kg		ND 10		ND 13		
1,1,1-Trichloroethane	μg/Kg	ND 10	ND 10		ND 13		
Carbon tetrachloride	μg/Kg	ND 10	ND 10		ND 13		
Bromodichloromethane	μg/Kg	ND 10	ND 10		ND 13		
1,2-Dichloropropane	μg/Kg	ND 10	ND 10		ND 13		
cis-1,3-Dichloropropene	μg/Kg	ND 10	ND 10		ND 13		
Trichloroethene	µg/Kg		ND 10		ND 13		
Benzene	µg/Kg		ND 10		ND 13		
Dibromochloromethane	μg/Kg		ND 10		ND 13		
trans-1,3-Dichloropropene	µg/Kg	ND 10	ND 10		ND 13		
1,1,2-Trichloroethane	µg/Kg	ND 10	ND 10		ND 13		
Bromoform	μg/Kg	ND 10	ND 10		ND 13		
4-Methyl-2-pentanone	µg/Kg	ND 10	ND 10		ND 13		
2-Hexanone	µg/Kg		ND 10		ND 13		
Tetrachloroethene	ug/Kg	ND 10	ND 10		ND 13		
1,1,2,2-Tetrachloroethane	μg/Kg		ND 10		ND 13		
Toluene	µg/Kg	ND 10	ND 10		ND 13		
Chlorobenzene	µg/Kg	ND 10	ND 10		ND 13		ND 300
Ethyl benzene	µg/Kg	ND 10	ND 10		ND 13		
Styrene	µg/Kg	ND 10	ND 10		ND 13	ND 12	ND 300
Xylene (total)	μg/Kg	ND 10	ND 10		ND 13		

TABLE 3

	Soil Source Units	FRONTIER-01	CERRONEGI-01	CARL WALCK	SUMMIT PARK	НЕГМІСК	CHESTNUT RIDGE
TCL Semi-Volatiles							
Phenol	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
bis(2-Chloroethy1) ether	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2-Chlorophenol	μg/Kg	ND 410	-		ND 420		ND 330
1,3-Dichlorobenzene	μg/Kg	ND 410	-		ND 420		ND 330
1,4-Dichlorobenzene	μg/Kg	ND 410		ND 330	ND 420	ND 410	ND 330
1,2-Dichlorobenzene	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2-Methylphenol	µg/Kg	ND 410		ND 330	ND 420	ND 410	ND 330
2,2'oxybis(1-Chloropropane)	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
4-Methylphenol	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
n-Nitroso-di-n-propylamine	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Hexachloroethane	μg/Kg		ND 400	ND 330	ND 420	ND 410	ND 330
Nitrobenzene	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Isophorone	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2-Nitrophenol	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2,4-Dimethylphenol	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
bis(2-Chloroethoxy)methane	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2,4-Dichlorophenol	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
1,2,4-Trichlorobenzene	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Naphthalene	нв/Кв	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
4-Chloroaniline	μg/Kg	ND 410	ND 400	099 QN	ND 420	ND 410	ND 330
Hexachlorobutadiene	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
4-Chloro-3-methylphenol	μg/Kg	ND 410	ND 400	099 QN	ND 420	ND 410	ND 330
2-Methylnaphthalene	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Hexachlorocyclopentadiene	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2,4,6-Trichlorophenol	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
2,4,5-Trichlorophenol	μg/Kg	ND 1000	ND 990		ND 1100	ND 1000	ND 1600
2-Chloronaphthalene	μg/Kg	ND 410	ND 400		ND 420	ND 410	ND 330
2-Nitroaniline	μg/Kg	ND 1000	ND 990		ND 1100	ND 1000	ND 1600
Dimethyl phthalate	μg/Kg	ND 410	ND 400		ND 420	ND 410	ND 330
Acenaphthylene	μg/Kg	ND 410			ND 420	ND 410	ND 330
2,6-Dinitrotoluene	μg/Kg			ND 330	ND 420	ND 410	ND 330
3-Nitroaniline	μg/Kg	ND 1000		ND 330			ND 1600
Acenaphthene	μg/Kg	ND 410		ND 330			ND 330
2,4-Dinitrophenol	µg/Kg						ND 1600
4-Nitrophenol	μg/Kg		06 QN	ND 1600	ND 1100	ND 1000	ND 1600
Dibenzofuran	µg/Kg	ND 410	ND 400	ND 330			ND 330

TABLE 3

	Soil Source Units	FRONTIER-01	CERRONEGI-01	CARL WALCK	SUMMIT PARK	HELMICK	CHESTNUT RIDGE
TCL Semi-Volatiles (Cont'd.)							
2,4-Dinitrotoluene	µg/Kg	ND 410	ND 400		ND 420	ND 410	
Diethylphthalate	μg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Fluorene	μg/Kg	ND 410	ND 400		ND 420	ND 410	
4-Chlorophenyl phenyl ether	µg/Kg		ND 400		ND 420	ND 410	
4-Nitroaniline	µg/Kg		ND 990		ND 1100	ND 1000	
4,6-Dinitro-2-methylphenol	µg/Kg		06 QN		ND 1100	ND 1000	
n-Nitrosodiphenylamine	µg/Kg	ND 410	ND 400		ND 420	ND 410	
4-Bromophenyl phenyl ether	µg/Kg	ND 410	ND 400		ND 420	ND 410	
Hexachlorobenzene	µg/Kg	ND 410	ND 400		ND 420	ND 410	
Pentachlorophenol	µg/Kg	ND 1000	ND 990		ND 1100	ND 1000	
Phenanthrene	μg/Kg	ND 410	ND 400		ND 420	ND 410	
Anthracene	µg/Kg	ND 410	ND 400		ND 420	ND 410	
Carbazole	µg/Kg		ND 400		ND 420	ND 410	
Di-n-butyl phthalate	µg/Kg	ND 410	ND 400		ND 420	ND 410	
Fluoranthene	µg/Kg	ND 410	ND 400		ND 420	ND 410	
Pyrene	µg/Kg	ND 410	ND 400		ND 420	ND 410	
Butyl benzyl phthalate	µg/Kg	ND 410	ND 400		ND 420	ND 410	
Benzo(a)anthracene	µg/Kg	ND 410	ND 400		ND 420	ND 410	
3,3'-Dichlorobenzidine	µg/Kg	ND 410	ND 400		ND 420	ND 410	
Chrysene	µg/Kg	ND 410	ND 400		ND 420	ND 410	
bis(2-Ethylhexyl)phthalate	µg/Kg		ND 400		67]		
Di-n-octyl phthalate	µg/Kg	ND 410	ND 400		ND 420		
Benzo(b)fluoranthene	µg/Kg	ND 410	ND 400		ND 420		
Benzo(k)fluoranthene	µg/Kg	ND 410	ND 400				
Benzo(a)pyrene	µg/Kg	ND 410	ND 400		•	ND 410	
Indeno(1,2,3-cd)pyrene	μg/Kg	ND 410	ND 400	ND 330	•		
Dibenzo(a,h)anthracene	µg/Kg	ND 410	ND 400	ND 330	ND 420	ND 410	ND 330
Benzo(g,h,i)perylene	µg/Kg	ND 410			•		

TABLE 3

	Soil Source Units	FRONTIER-01	CERRONEGI-01	CARL WALCK	SUMMIT PARK	HELMICK	CHESTNUT RIDGE
Pesticides/PCBs							
alpha-BHC	μg/Kg	ND 2.1	ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
beta-BHC	μg/Kg	ND 2.1	ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
delta-BHC	µg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
gamma-BHC (Lindane)	μg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
Heptachlor	μg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
Aldrin	μg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
Heptachlor epoxide	μg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
Endosulfan I	μg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
Dieldrin	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
4,4'-DDE	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
Endrin	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
Endosulfan II	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
4,4'-DDD	µg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
Endosulfan sulfate	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
4,4'-DDT	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
Methoxychlor	μg/Kg		ND 20	ND 19	ND 21	ND 21	ND 21
Endrin ketone	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
Endrin aldehyde	μg/Kg		ND 3.9	ND 3.8	ND 4.2	ND 4.1	ND 4.1
alpha-Chlordane	μg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
gamma-Chlordane	μg/Kg		ND 2.0	ND 1.9	ND 2.1	ND 2.1	ND 2.1
Toxaphene	µg/Kg		ND 200	ND 190	ND 210	ND 210	ND 210
Aroclor-1016	µg/Kg		ND 39	ND 38	ND 42	ND 41	ND 41
Aroclor-1221	µg/Kg		ND 79	ND 76	ND 84	ND 83	ND 83
Aroclor-1232	µg/Kg		ND 39	ND 38	ND 42	ND 41	ND 41
Aroclor-1242	μg/Kg		ND 39	ND 38	ND 42	ND 41	ND 41
Aroclor-1248	μg/Kg		ND 39	ND 38	ND 42	ND 41	ND 41
Aroclor-1254	μg/Kg		ND 39	ND 38	ND 42	ND 41	ND 41
Aroclor-1260	нв/Кв		ND 39	ND 38	ND 42	ND 41	ND 41

TABLE 3

	Soil Source Units	FRONTIER-01	CERRONEGI-01	CARL WALCK	SUMMIT PARK	HELMICK	CHESTNUT RIDGE
TAL Metals							
Aluminum	mg/Kg	9400	11000	4300	20000.0	12000	4400
Antimony	mg/Kg	ND 5.0	ND 5.0	ND 5.3	0.81	ND 5.0	ND 5.4
Arsenic	mg/Kg	7.3]	5.4]	ND 0.5	4.8	8.6J	3.9)
Barium	mg/Kg	100	100	35	140	100	27
Beryllium	mg/Kg	ND 0.5	ND 0.5	ND 0.5	1.0	ND 0.5	ND 0.5
Cadmium	mg/Kg	ND 0.5	ND 0.5	1.1	ND 0.03	ND 0.5	ND 0.5
Calcium	mg/Kg	14000	160000	29000	22000	51000	1000
Chromium	mg/Kg	14	17	9.9	29	15	4.3
Cobalt	mg/Kg	9.2	10	3.0	14	6.6	ND 1.1
Copper	mg/Kg	14	18	6.1	27	23	2.2
Iron	mg/Kg	17000	31000	2000	32000	22000	4400
Lead	mg/Kg	22	28	ND 5.3	12	21	22
Magnesium	mg/Kg	12000	38000	4600	14000	10000	530
Manganese	mg/Kg	069	200	340	610	580	22
Mercury	mg/Kg	ND 0.5	ND 0.5	ND 0.5	ND 0.06	ND 0.5	ND 0.5
Nickel	mg/Kg	20	18	7.7	31	18	3.2
Potassium	mg/Kg	1900	2700	099	2300	1300	180
Selenium	mg/Kg	ND 0.5	ND 0.5	ND 0.5	ND 0.30	ND 0.5	ND 0.5
Silver	mg/Kg	ND 0.5	ND 0.5	ND 0.5	ND 0.10	ND 0.5	ND 0.5
Sodium	mg/Kg	160	240	130	300	140	55
Thallium	mg/Kg	ND 5.0	6.5	77.	ND 0.24	120	31
Vanadium	mg/Kg	16	20	6.2	40	18	7.5
Zinc	${ m mg/Kg}$	46	100	77	70	50	28

Notes:

Not Applicable. Estimated.

Not detected at or above x. Polychlorinated Biphenyls. NDx

Data Rejected. Target Analyte List. Target Compound List. PCBs R TAL TCL

HOLDING TIME SUMMARY 102ND STREET SOURCE MATERIALS

OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK 1996-1997

	Sample	Extraction	Analysis	Holding Time E	xceedance (days)
Sample ID	Date	Date	Date	to Extraction	to Analysis
VOCs					
Frontier Stone	06/04/96	•	06/05/96	-	0
Summit Park	12/15/97	•	12/19/97	-	0
Cerrone GI	06/17/96	-	06/18/96	-	0
Carl Walck	12/11/97	-	12/19/97	-	1
Chestnut Ridge	07/29/97	-	07/30/97	-	0
Helmick	12/11/97	· -	12/19/97	-	1
SVOCs					
Frontier Stone	12/11/97	12/16/97	12/18/97	0	0
Summit Park	12/15/97	12/16/97	12/18/97	0	0
Cerrone GI	12/11/97	12/16/97	12/18/97	0	0
Helmick	12/11/97	12/16/97	12/18/97	0	0
Carl Walck	08/07/97	08/11/97	08/11/97	0	0
Chestnut Ridge	07/29/97	07/31/97	08/04/97	0	0
Pesticides/PCBs					
Frontier Stone	10 /11 /07	10/16/07	10/01/07	0	0
Summit Park	12/11/97	12/16/97	12/31/97	0	0
Cerrone GI	12/15/97	12/16/97	12/31/97	0	0
Helmick	12/11/97	12/16/97	12/31/97	0 0	0 0
Carl Walck	12/11/97	12/16/97	01/01/98	=	
	12/11/97	12/16/97	12/31/97	0	0
Chestnut Ridge	12/11/97	12/16/97	12/31/97	0	0
Metals except Mercury					
Frontier Stone	06/04/96	-	06/96	•	0
Summit Park	12/15/97	-	1/98	-	0
Cerrone GI	06/17/96	-	06/96	-	0
Helmick	05/27/97	-	05/97	-	0
Carl Walck	08/07/97	-	08/97	-	0
Chestnut Ridge	07/29/97	-	07/97	-	0
Mercury					
Frontier Stone	06/04/96	-	06/05/96	-	0
Summit Park	12/15/97	-	12/23/97	_	0
Cerrone GI	06/17/96	-	06/18/96	-	0
Helmick	05/27/97	-	05/28/97	-	0
Carl Walck	08/07/97	•	08/08/97	-	0
Chestnut Ridge	07/29/97	-	07/30/97	-	0

Notes:

Dup Duplicate. Not Applicable.

PCBs Polychlorinated Biphenyls.
'OC Semi-Volatile Organic Compounds.

√OCs Volatile Organic Compounds.

SURROGATE RECOVERY SUMMARY (PERCENT) 102ND STREET SOURCE MATERIALS OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK 1996-1997

Surrogate: Recovery Limits:	DCA 70-121	TOL 81-117	BFB 74-121					
VOCs								
Frontier Stone	88	104	94					÷
Summit Park	88	95	86					
Cerrone GI	94	100	100					
Carl Walck	91	86	85					
Chestnut Ridge	93	101	95		,			
Helmick	89	98	82					
Surrogate:	2-FP	PHL	2CP (1)	DCB (1)	NBZ	FBP	TBP	ТРН
Recovery Limits:	25-121	24-113	20-130	20-130	23-120	30-115	19-122	18-137
SVOCs								
Frontier Stone	80	85	80	70	72	64	60	67
Cerron GI	78	86	7 9	70	70	63	59	66
Helmick	77	84	77	67	74	65	60	65
Carl Walck	63	7 5	-	_	68	7 1	77	109
Chestnut Ridge	72	90	-	-	84	96	89	111
Summit Park	78	85	7 9	69	71	66	58	68
Surrogates:	TCMX	TCMX	DCBP	DCBP			•	
Control Limits:	60-150	60-150	60-150	60-150				
Pesticides								
Helmick	81	106	88	98				
Frontier Stone	101	94	105	95				
Carl Walck	80	74	95	87				
Chestnut Ridge	91	89	92	89				
Cerrone GI	82	81	92	79				
Summit Park	87	93	94 .	92				

Notes:

Optional surrogate, not required. (1)

Not available

Surrogates:

Surroga	ites:
BFB	Bromofluorobenzene
DCA	Dichloroethane-d4.
TOL	Toluene-d4.
FBP	2-Fluorobiphenyl.
TBP	2,4,6-Tribromophenol.
2-FP	2-Fluorophenol.
PHL	Phenol-d6.
NBZ	Nitrobenzene-d5.
TPH	Terphenyl-d14.
DCBP	Decachlorobiphenyl
CMX	Tetrachloro-m-xylene
_P	2-Chlorophenol-d4
DCB	1,2-Dichlorobenzene-d4

9920-DV-3

TABLE 6

e	FCL Volatiles	Analysis Date: Units	96/92/90	96/81/90	07/30/97	12/19/97
Hg/Kg ND 10		µg/Kg	ND 10		ND 10	ND 10
Hg/Kg ND 10 ND 10 <t< td=""><td></td><td>μg/Kg</td><td></td><td></td><td>ND 10</td><td>ND 10</td></t<>		μg/Kg			ND 10	ND 10
Hg/Kg ND 10 ND 10 <t< td=""><td></td><td>µg/Kg</td><td></td><td></td><td>ND 10</td><td>ND 10</td></t<>		µg/Kg			ND 10	ND 10
Hg/Kg ND 10 ND 10 ND 10 Hg/Kg ND		µg/Kg		-	ND 10	ND 10
Hg/Kg ND 10 ND 10 ND 10 Hg/Kg ND	de	μg/Kg			ND 10	33
Hg/Kg ND 10 ND 10 ND 10 Hg/Kg ND		μg/Kg			ND 10	2]
Hg/Kg ND 10 ND 10 <th< td=""><td></td><td>µg/Kg</td><td></td><td></td><td>ND 10</td><td>ND 10</td></th<>		µg/Kg			ND 10	ND 10
1) 18, Kg ND 10 N	ne	µg/Kg			ND 10	ND 10
1)	ne	µg/Kg			ND 10	ND 10
Hg/Kg ND 10	ne (total)	µg/Kg			ND 10	ND 10
Hg/Kg ND 10		µg/Kg			ND 10	ND 10
Hg/Kg ND 10		µg/Kg			ND 10	ND 10
нg/Kg ND 10 ND 10 ND 10 нg/Kg N	ne	μg/Kg			ND 10	ND 10
Hg/Kg ND 10	hane	µg/Kg			ND 10	ND 10
нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg	ride	µg/Kg			ND 10	ND 10
нg/Kg ND 10	ethane	µg/Kg			ND 10	ND 10
нg/Kg ND 10	ane	µg/Kg		ND 10	ND 10	ND 10
не нg/Kg ND 10 ND	ropene	µg/Kg		ND 10	ND 10	ND 10
не нg/Kg ND 10 ND		μg/Kg		ND 10	ND 10	ND 10
ме		μg/Kg		ND 10	ND 10	ND 10
репе µg/Kg ND 10 ND 10 ND 10	ethane	µg/Kg		ND 10	ND 10	ND 10
нg/Kg ND 10 ND 10 ND 10	opropene	µg/Kg		ND 10	ND 10	ND 10
цg/Kg ND 10 ND 10 ND 10	nane	μg/Kg		ND 10	ND 10	ND 10
нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10		µg/Kg		ND 10	ND 10	ND 10
нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10	none	µg/Kg		ND 10	ND 10	ND 10
нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10 нg/Kg ND 10 ND 10 ND 10 ND 10		μg/Kg		ND 10	ND 10	ND 10
µg/Kg ND 10 ND 10 ND 10	Ð	µg/Kg		ND 10	ND 10	ND 10
ND 10 ND 10 ND 10 ND ND ND ND 10 ND	oethane	µg/Kg		ND 10	ND 10	ND 10
ND 10		µg/Kg		ND 10	ND 10	ND 10
ND 10		µg/Kg		ND 10	ND 10	ND 10
ND 10 ND 10 ND		µg/Kg		ND 10	ND 10	ND 10
ND 10 ND 10 ND		µg/Kg		ND 10	ND 10	ND 10
		μg/Kg			ND 10	ND 10

Extra	Extraction Date:	08/11/97	07/31/97	12/16/97
	umts			
TCL Semi-Volatiles				
Phenol	μg/Kg	ND 330	ND 330	ND 330
bis(2-Chloroethy1) ether	µg/Kg	ND 330	ND 330	ND 330
2-Chlorophenol	µg/Kg	ND 330	ND 330	ND 330
1,3-Dichlorobenzene	µg/Kg	ND 330	ND 330	ND 330
1,4-Dichlorobenzene	µg/Kg		ND 330	
1,2-Dichlorobenzene	μg/Kg		ND 330	ND 330
2-Methylphenol	μg/Kg		ND 330	ND 330
2,2'-oxybis(1-Chloropropane)	μg/Kg		ND 330	ND 330
4-Methylphenol	μg/Kg			ND 330
n-Nitroso-di-n-propylamine	µg/Kg	ND 330	ND 330	ND 330
Hexachloroethane	µg/Kg	ND 330	ND 330	ND 330
Nitrobenzene	µg/Kg		ND 330	ND 330
Isophorone	μg/Kg			
2-Nitrophenol	μg/Kg			
2,4-Dimethylphenol	$\mu g/Kg$			
bis(2-Chloroethoxy)methane	µg/Kg			ND 330
2,4-Dichlorophenol	$\mu g/Kg$			
1,2,4-Trichlorobenzene	μg/Kg		ND 330	ND 330
Naphthalene	μg/Kg			ND 330
4-Chloroaniline	μg/Kg			ND 330
Hexachlorobutadiene	μg/Kg			
4-Chloro-3-methylphenol	$\mu g/Kg$			
2-Methylnaphthalene	µg/Kg		ND 330	ND 330
Hexachlorocyclopentadiene	µg/Kg	ND 330	ND 330	ND 330
2,4,6-Trichlorophenol	µg/Kg	ND 330	ND 330	ND 330
2,4,5-Trichlorophenol	$\mu \mathrm{g}/\mathrm{Kg}$		ND 1600	
2-Chloronaphthalene	μg/Kg	ND 330	ND 330	ND 330
2-Nitroaniline	$\mu g/Kg$		ND 1600	ND 830
Dimethyl phthalate	µg/Kg	ND 330	ND 330	ND 330
Acenaphthylene	$\mu g/Kg$	ND 330	ND 330	ND 330
2,6-Dinitrotoluene	нв/Кв	ND 330	ND 330	ND 330

TABLE 6

Extra	Extraction Date:	08/11/97	07/31/97	12/16/97
TCI Somi-Volatiles (Cout'd)	Units			
3-Nitroaniline	110/Κο	ND 330	ND 1600	ND 830
Acenaphthene	го, то цд/Кд			
2,4-Dinitrophenol	μg/Kg			
4-Nitrophenol	µg/Kg	ND 330	ND 1600	ND 830
Dibenzofuran	μg/Kg	ND 330	ND 330	ND 330
2,4-Dinitrotoluene	μg/Kg	ND 330	ND 330	ND 330
Diethylphthalate	µg/Kg	ND 330	ND 330	ND 330
Fluorene	μg/Kg		ND 330	ND 330
4-Chlorophenyl phenyl ether	µg/Kg	ND 330	ND 330	ND 330
4-Nitroaniline	µg/Kg	ND 330	ND 1600	ND 830
4,6-Dinitro-2-methylphenol	µg/Kg		ND 1600	ND 830
n-Nitrosodiphenylamine	µg/Kg	ND 330	ND 330	ND 330
4-Bromophenyl phenyl ether	µg/Kg	ND 330	ND 330	ND 330
Hexachlorobenzene	μg/Kg		ND 330	ND 330
Pentachlorophenol	μg/Kg		ND 1600	
Phenanthrene	µg/Kg		ND 330	
Anthracene	μg/Kg			ND 330
Carbazole	μg/Kg			
Di-n-butyl phthalate	μg/Kg			
Fluoranthene	µg/Kg		ND 330	
Pyrene	$\mu \mathrm{g}/\mathrm{Kg}$			
Butyl benzyl phthalate	$\mu \mathrm{g}/\mathrm{Kg}$			
Benzo(a)anthracene	µg/Kg			
3,3'-Dichlorobenzidine	µg/Kg			
Chrysene	μg/Kg	ND 330	ND 330	ND 330
bis(2-Ethylhexyl)phthalate	$\mu \mathrm{g}/\mathrm{Kg}$	ND 330	ND 330	ND 330
Di-n-octyl phthalate	µg/Kg			
${ m Benzo}({ m b})$ fluoranthene	μg/Kg	ND 330	ND 330	
Benzo(k)fluoranthene	μg/Kg	ND 330	ND 330	
Benzo(a)pyrene	$\mu \mathrm{g}/\mathrm{Kg}$	ND 330	ND 330	
Indeno(1,2,3-cd)pyrene	μg/Kg	ND 330	ND 330	
Dibenzo(a,h)anthracene	μg/Kg	ND 330		
Benzo(g,h,i)perylene	нв/Кв	ND 330	ND 330	ND 330

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TCL Pesticides/PCBs		
alpha-BHC	µg/Kg	ND 1.7
beta-BHC	µg/Kg	ND 1.7
delta-BHC	µg/Kg	ND 1.7
gamma-BHC(Lindane)	µg/Kg	ND 1.7
Heptachlor	µg/Kg	
Aldrin	µg/Kg	ND 1.7
Heptachlor epoxide	µg/Kg	
Endosulfan I	µg/Kg	-
Dieldrin	μg/Kg	
4,4'-DDE	μg/Kg	ND 3.3
Endrin	μg/Kg	
Endosulfan II	μg/Kg	ND 3.3
4,4'-DDD	μg/Kg	
Endosulfan sulfate	μg/Kg	
4,4'-DDT	μg/Kg	
Methoxychlor	µg/Kg	
Endrin ketone	μg/Kg	
Endrin aldehyde	µg/Kg	ND 3.3
alpha-Chlordane	μg/Kg	
gamma-Chlordane	$\mu g/Kg$	
Toxaphene	$\mu \mathrm{g}/\mathrm{Kg}$	
Aroclor-1016	μg/Kg	
Aroclor-1221	µg/Kg	_
Aroclor-1232	µg/Kg	ND 33
Aroclor-1242	μg/Kg	
Aroclor-1248	$\mu g/Kg$	ND 33
Aroclor-1254	$\mu \mathrm{g}/\mathrm{Kg}$	ND 33
Aroclor-1260	$\mu \mathrm{g}/\mathrm{Kg}$	ND 33

TABLE 6

OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK METHOD BLANK RESULTS SUMMARY 102ND STREET SOURCE MATERIALS

1996-1997

	Digestion Date: 06/04/96 Units	06/04/96	96/90/90	96/81/90	05/28/97	07/29/97	26/20/80	26/80/80	1/2/98	12/22/97
TAL Metals										
Aluminum	mg/Kg	ND 5.0	•				ı	ND 5.0	1.5	1
Antimony	$m_{ m S}/{ m Kg}$	ND 5.0	1				1	ND 5.0	ND 0.25	1
Arsenic	mg/Kg	ND 0.5	,				ND 0.5		ND 0.11	1
Barium	mg/Kg	ND 0.5	ı				t	ND 0.5	0.74	t
Beryllium	mg/Kg	ND 0.5	•				1	ND 0.5	ND 0.010	ŧ
Cadmium	mg/Kg	ND 0.5	ı				ı	ND 0.5	ND 0.020	1
Calcium	mg/Kg	ND 10	ı					ND 10	7.0	t
Chromium	mg/Kg	ND 1.0	ı				ı	ND 1.0	0.59	ı
Cobalt	mg/Kg	ND 1.0	1				1	ND 1.0	ND 0.13	
Copper	mg/Kg	ND 1.0	•				1	ND 1.0	0.12	ı
Iron	mg/Kg	ND 5.0					1	ND 5.0	1.3	1
Lead	mg/Kg	ND 5.0	ι				1	ND 5.0	ND 0.07	t
Magnesium	mg/Kg	ND 5.0	1				•	ND 5.0	1.0	1
Manganese	mg/Kg	ND 0.5	•				ı	ND 0.5	0.063	,
Mercury	mg/Kg	•	ND 0.5				ND 0.5	1		ND 0.050
Nickel	mg/Kg	ND 2.0	ı	ND 2.0	ND 2.0	ND 2.0	ı	ND 2.0	ND 0.16	ı
Potassium	mg/Kg	ND 100	ı				ı	ND 100		•
Selenium	mg/Kg	ND 0.5	ı				ı	ND 0.5		1
Silver	$m_{ m g}/{ m Kg}$	ND 0.5	ı				ND 0.5	i	0.10	ı
Sodium	mg/Kg	ND 10	ı				ı	ND 10		ŧ
Thallium	$m_{\rm g}/{ m Kg}$	ND 5.0	ı				1	ND 5.0	ND 0.19	i
Vanadium	mg/Kg	ND 1.0	ı				1	ND 1.0		t
Zinc	mg/Kg	ND 2.0	1					ND 2.0	0:30	ı

Notes:

TCL Target Compound List.TAL Target Analyte List.Not Applicable.

TABLE 7

BLANK SPIKE RECOVERY RESULTS (PERCENT)
102ND STREET SOURCE MATERIALS
OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION
NIAGARA FALLS, NEW YORK
1996-1997

	Analysis Date: Control Limits	96/50/90	96/18/90	07/30/97	12/19/97
TCL Volatiles					
Chloromethane	56-128	122	124	118	114
Bromomethane	60-134	106	106	110	06
Vinyl chloride	48-137	92	102	112	120
Chloroethane	64-124	112	108	106	102
Methylene chloride	76-114	110	106	104	95
Acetone	31-171	,	ı	116	54
Carbon disulfide	46-137	ı	1	106	92
1,1-Dichloroethene	58-129	100	104	90	91
1,1-Dichloroethane	67-125	106	106	102	88
1,2-Dichloroethene (total)	73-115	86	94	108	92
2-Butanone	38-170	ı	ı	108	72
Chloroform	75-113	112	110	104	78
1,2-Dichloroethane	79-111	108	100	106	2/9
1,1,1-Trichloroethane	69-118	102	104	96	73
Carbon tetrachloride	62-124	106	108	96	75
Bromodichloromethane	80-109	104	106	100	80
1,2-Dichloropropane	80-111	112	112	108	68
cis-1,3-Dichloropropene	77-111	112	120	98	84
Trichloroethene	69-118	108	110	102	80
Benzene	73-115	104	106	102	98
Dibromochloromethane	80-109	112	110	86	81
trans-1,3-Dichloropropene	79-109	104	86	96	84
1,1,2-Trichloroethane	81-110	120	116	102	85
Bromoform .	74-116	112	110	96	87
4-Methyl-2-pentanone	68-118	1	1	8	06
2-Hexanone	42-169	ı	ţ	96	64
Tetrachloroethene	59-124	118	116	86	77
1,1,2,2-Tetrachloroethane	75-116	116	116	96	87
Toluene	71-115	104	108	104	81
Chlorobenzene	74-113	112	114	96	92
Ethyl benzene	58-149	110	112	86	77
Styrene	68-118	1	ı	96	26
m-Xylene	67-118	1	1	94	•
o/p-Xylene	67-118	j	•	95	ı
Xylene (total)	67-118	ı	1	1	87

TABLE 7

BLANK SPIKE RECOVERY RESULTS (PERCENT) 102ND STREET SOURCE MATERIALS OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK

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·	Extraction Date: Control Limits	76/11/80	12/16/97
<i>I CL Semr-voucines</i> Phenol	30-126	87	89
bis(2-Chloroethyl)ether	23-119	1	80
2-Chlorophenol	32-122	80	76
1,3-Dichlorobenzene	39-111	1	71
1,4-Dichlorobenzene	38-116	9/	72
1,2-Dichlorobenzene	40-112	1	20
2-Methylphenol	27-141	1	77
2,2'-oxybis(1-Chloropropane)	39-108	ı	104
4-Methylphenol	15-141	1	79
n-Nitroso-di-n-propylamine	19-133	06	91
Hexachloroethane	39-111	ı	73
Nitrobenzene	39-129	1	80
Isophorone	30-126	ı	75
2-Nitrophenol	37-121	1	20
2,4-Dimethylphenol	31-133	1	82
bis(2-Chloroethoxy)methane	46-112	ı	20
2,4-Dichlorophenol	40-124	1	69
1,2,4-Trichlorobenzene	48-114	81	99
Naphthalene	46-118	ı	74
4-Chloroaniline	13-121	1	32
Hexachlorobutadiene	49-115	1	64
4-Chloro-3-methylphenol	39-135	98	73
2-Methylnaphthalene	49-121	ı	71
Hexachlorocyclopentadiene	14-98	1	32
2,4,6-Trichlorophenol	37-133	ı	20
2,4,5-Trichlorophenol	16-148	1	89
2-Chloronaphthalene	47-125	1	73
2-Nitroaniline	33-135	1	80
Dimethylphthalate	49-127	ı	72
Acenaphthylene	47-119	1	79
2,6-Dinitrotoluene	48-120	1	20
3-Nitroaniline	11-171	ı	21
Acenaphthene	49-127	82	75
2,4-Dinitrophenol	10-99	ı	53
4-Nitrophenol	10-166	72	99

TABLE 7

BLANK SPIKE RECOVERY RESULTS (PERCENT) 102ND STREET SOURCE MATERIALS OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK 1996-1997

Extra	Extraction Date: Control Limits	08/11/97	12/16/97
TCL Semi-Volatiles (Cont'd.)			
Dibenzofuran	48-120	ı	73
2,4-Dinitrotoluene	46-118	88	69
Diethylphthalate	50-128	1	74
Fluorene	50-122	1	75
4-Chlorophenyl-phenylether	51-123	ι	69
4-Nitroaniline	14-118	•	69
4,6-Dinitro-2-methylphenol	29-137	1	65
n-Nitrosodiphenylamine	52-124	1	78
4-Bromophenyl-phenylether	55-127	ı	71
Hexachlorobenzene	55-127	ı	70
Pentachlorophenol	13-123	2/9	62
Phenanthrene	54-126	ı	78
Anthracene	58-124	•	77
Carbazole	44-146	1	81
Di-n-butylphthalate	50-128	ı	83
Fluoranthene	48-120	1	83
Pyrene	46-124	122	78
Butylbenzylphthalate	42-132	ı	83
Benzo[a]anthracene	48-120	1	80
3,3'-Dichlorobenzidine	23-123	1	22
Chrysene	47-125	•	81
bis(2-Ethylhexyl)phthalate	29-127	ı	8
di-n-Octylphthalate	41-125	•	78
Benzo[b]fluoranthene	35-119	ı	73
Benzo[k]fluoranthene	40-136	1	85
Benzo[a]pyrene	49-121	ı	71
Indeno[1,2,3-cd]pyrene	34-130	1	75
Dibenz[a,h]anthracene	35-131	1	71
Benzo[g,h,i]perylene	29-131	1	73

BLANK SPIKE RECOVERY RESULTS (PERCENT) 102ND STREET SOURCE MATERIALS OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK 1996-1997

	Extraction Date: Control	12/16/97
TCL Pesticides/PCBs	CHILLIA	
alpha-BHC	37-134	101
beta-BHC	17-147	79
delta-BHC	19-140	79
gamma-BHC (Lindane)	32-127	114
Heptachlor	34-111	93
Aldrin	42-122	92
Heptachlor epoxide	37-142	95
Endosulfan I	45-153	83
Dieldrin	36-146	103
4,4'-DDE	30-145	91
Endrin	30-147	105
Endosulfan II	10-202	93
4,4'-DDD	31-141	104
Endosulfan sulfate	26-144	81
4,4'-DDT	25-160	78
Methoxychlor	58-199	114
Endrin ketone	57-166	103
Endrin aldehyde	10-128	26
alpha-Chlordane	19-150	115
gamma-Chlordane	44-144	110

TABLE 7

BLANK SPIKE RECOVERY RESULTS (PERCENT)
102ND STREET SOURCE MATERIALS
OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION
NAGARA FALLS, NEW YORK
1996-1997

	Digestion Date: Control Limits	06/04/96	96/20/90	06/18/96	05/28/97	07/29/97	01/02/98	12/22/97
TAL Metals								
Aluminum	57-143	26	1	26	101	108	118	•
Antimony	65-205	26	ı	96	102	104	68	1
Arsenic	74-126	105	•	95	100	110	103	ı
Barium	77-123	94	ı	95	94	100	104	ı
Beryllium	78-122	94	ı	94	86	103	101	1
Cadmium	77-123	96	1	96	102	106	103	i
Calcium	68-132	94	,	95	101	104	101	•
Chromium	80-120	95	ı	95	100	101	103	i
Cobalt	80-120	95	1	95	101	105	100	i
Copper	80-120	95	1	94	66	101	102	ì
Iron	52-148	93	ì	94	66	104	129	•
Lead	76-124	96	ì	86	103	105	105	1
Magnesium	72-128	93	ı	95	101	103	104	•
Manganese	75-125	94	1	95	100	102	106	ì
Mercury	64-136	1	105	66	66	104	ı	96
Nickel	78-122	95	1	95	101	106	102	1
Potassium	66-134	95	1	66	98	100	101	ı
Selenium	74-126	06	1	100	108	104	100	ι
Silver	74-126	94	ı	66	66	108	105	i
Sodium	68-133	86	1	104	26	95	100	ı
Thallium	65-135	94	1	96	94	92	107	1
Vanadium	68-131	94	1	96	96	92	100	1
Zinc	77-123	95	1	95	102	104	107	1

Notes:

Not Applicable. Blank Spike. Polychlorinated Biphenyls. Target Analyte List. Target Compound List.

BS PCBs TAL TCL

TABLE 8

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY (PERCENT) 102ND STREET SOURCE MATERIALS OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK 1996-1997

	MS/MSD	RPD				
	Control	Control	Co	mposite	eA	
Parameters	Limits	Limits	MS	MSD	RPD	
Volatiles						
Chloromethane	56-128	20	132*	136*	3	
Bromomethane	60-134	20	105	106	1	
Vinyl chloride	48-137	20	131	139*	6	
Chloroethane	64-124	20	112	119	6	
Methylene chloride	76-114	20	104	107	3	
Acetone	31-171	20	112	129	14	
Carbon disulfide	46-137	20	85	93	9	
1,1-Dichloroethene	58-129	20	95	100	5	
1,1-Dichloroethane	67-125	20	103	104	2	
1,2-Dichloroethene(total)	73-115	20	120*	120*	0	
2-Butanone	38-170	20	135	136	0	
Chloroform	<i>7</i> 5-113	20	90	90	1	
1,2-Dichloroethane	79-111	20	92	90	3	
1,1,1-Trichloroethane	69-118	20	93	93	0	
Carbon tetrachloride	62-124	20	85	86	2	
Bromodichloromethane	80-109	20	98	93	5	
1,2-Dichloropropane	80-111	20	115	110	4	
cis-1,3-Dichloropropene	<i>77-</i> 111	20	98	90	9	
Trichloroethene	69-118	20	90	94	4	
Benzene	73-115	20	106	101	4	
Dibromochloromethane	80-109	20	98	92	6	
trans-1,3-Dichloropropene	<i>7</i> 9-109	20	91	88	3	
1,1,2-Trichloroethane	81-110	20	110	104	5	
Bromoform	74-116	20	104	91	13	
4-Methyl-2-Pentanone	68-118	20	149*	140*	6	
2-Hexanone	42-169	20	142	140	1	
Tetrachloroethene	59-124	20	84	93	11	
1,1,2,2-Tetrachloroethane	75-116	20	116	94	21*	
Toluene	<i>7</i> 1-115	20	97	103	5	
Chlorobenzene	<i>7</i> 4-113	20	103	110	7	
Ethylbenzene	58-149	20	89	89	0	
Styrene	68-118	20	91	91	0	
Xylene(total)	67-118	20	120*	127*	6	

TABLE 8

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY (PERCENT) 102ND STREET SOURCE MATERIALS OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK 1996-1997

	MS/MSD	RPD			
	Control	Control	Co	omposite	$\geq A$
Parameters	Limits	Limits	MS	MSD	RPD
Semi-Volatiles					
Phenol	26-90	35	77	77	0
2-Chlorophenol	25-102	50	7 1	74	4
1,4-Dichlorobenzene	28-104	27	67	67	0
N-Nitroso-di-n-propylamine	41-126	38	86	86	0
1,2,4-Trichlorobenzene	38-107	23	62	62	0
4-Chloro-3-methylphenol	26-103	33	68	<i>7</i> 1	4
Acenaphthene	31-137	19	<i>7</i> 1	71	0
4-Nitrophenol	11-114	50	68	65	5
2,4-Dinitrotoluene	28-89	47	62	62	0
Pentachlorophenol	17-109	47	52	42	21
Pyrene	35-142	36	76	76	0
Pesticides					
gamma-BHC (Lindane)	46-127	50	95	88	8
Heptachlor	35-130	31	86	81	6
Aldrin	34-132	43	86	80	7
Dieldrin	31-134	38	95	82	15
Endrin	42-139	45	111	11*	164*
4,4'-DDT	23-134	94	13		

Notes:

Value outside of associated control limit.

Matrix Spike. MS

MSD Matrix Spike Duplicate. RPD Relative Percent Difference.

LABORATORY DUPLICATE RESULTS 102ND STREET SOURCE MATERIALS OCCIDENTAL CHEMICAL CORPORATION, OLIN CORPORATION NIAGARA FALLS, NEW YORK 1996-1997

		Ca	Composite A				
Parameter	Units	Original	Duplicate	RPD			
Metals							
Aluminum	mg/Kg	13000	14000	7			
Antimony	mg/Kg	1.3	1.3	1			
Arsenic	mg/Kg	8.0	8.2	2			
Barium	mg/Kg	190	180	5			
Beryllium	mg/Kg	0.73	0.70	3			
Cadmium	mg/Kg	11	9.5	15			
Calcium	mg/Kg	50000	49000	2			
Chromium	mg/Kg	94	93	1			
Cobalt	mg/Kg	9.2	9.1	1			
Copper	mg/Kg	110	110	0			
Iron	mg/Kg	23000	23000	0			
Lead	mg/Kg	220	210	5			
Magnesium	mg/Kg	16000	15000	6			
Manganese	mg/Kg	360	360	0			
Mercury	mg/Kg	0.99	0.90	10			
Nickel	mg/Kg	48	51	6			
Potassium	mg/Kg	2700	3400	23			
Selenium	mg/Kg	0.49	0.35	33			
Silver	mg/Kg	4.5	4.3	5			
Sodium	mg/Kg	1200	1200	0			
Thallium	mg/Kg	0.30	ND 0.26	*			
Vanadium	mg/Kg	28	29	5			
Zinc	mg/Kg	270	240	12			

Notes:

RPD cannot be calculated due to one or more non-detect value(s).

NDx Not detected at or above x. RPD Relative Percent Difference.

APPENDIX C

IN-SITU BACKFILL DENSITY & MOISTURE TEST RESULTS

Test#	Date	GZA#	Location	Soil Type	Water(%)	% Proctor	Pass/Fail	Corrective Measures
1	July 17	3	30 feet S. of MH#2	GI	10.9	99.9	Pass	
2	July 18	4	Near MH-2	GI	13.7	94.2 95.4	Pass Pass	
3	July 18	5	Near MH-2	GI GI	9.4 11.9	99.5	Pass	
4 5	July 18 July 19	6 4	Near MH-2 150 ft S . of Buffalo Ave., 1 ft above pipe	GI	13.4	93.9	Pass	
6	July 19	5	220 ft N of River, final grade	GI	11.9	95.1	Pass	
7	July 22	1	100 ft S. of Buffalo Ave, 2-3 feet above pipe	GI	11.4	95.6	Pass	
8	July 22	2	150 ft S. of Buffalo Ave, 3-4 feet above pipe	On-site soil	12.0	95.6	Pass	
9	July26	3	100 ft east of MH#3, lift #1	Frontier	13.1	92.9	Pass	
10	July26	4	100 ft east of MH#3,lift #2	Frontier	12.8	99.2	Pass	
11	July26	5	80 ft east of MH#3, lift #3	On-site soil	18.2	92.0 96.4	Pass Pass	
12	July26	6	Near MH#3, lift #1	On-site soil Gl	16.2 15.6	94.0	Pass	•
13 14	July 29 July 29	1 9	Between MH#3 & 4 15 ft from MH#3	On-site soil	17.6	87.8	Failed	Retested - #11, 7/29
15	July 29	10	40 ft from MH#3	On-site soil	17.8	88.6	Failed	Retested - #11, 7/29
16	July 29	11	Retest of #9	On-site soil	16.9	92.8	Pass	•
17	July 29	12	Retest of #10	On-site soil	14.9	92.9	Pass	
18	July 30	5	Between MH3/4, 2nd lift	GI	13.8	97.3	Pass	
19	July 30	6	Between MH3/4, 2nd lift	GI	15.2	93.3	Pass	
20	July 30	7	Between MH3/4, 1st lift	GI GI	15.2 15.7	96.6 97.5	Pass Pass	
21	July 30	8	Between MH3/4, 3rd lift Between MH3/4	GI	21.6	72.6	Failed	Area wet, allowed to dry and reworked following week
22 23	July 31 July 31	8 9	Between MH3/5	GI	20.2	87.5	Failed	Area wet, allowed to dry and reworked following week
24	July 31	10	Between MH3/6	Gi	18.2	87.5	Failed	Area wet, allowed to dry and reworked following week
25	August 2	5	Near MH#2, 1st lift	GI	10.1	103.1	Pass	
26	August 2	8	Near MH#2, 2nd lift	GI	11.7	96.8	Pass	
27	August 2	9	Near MH#3, 1st lift	GI	15.5	91.4	Pass	
28	August 2	10	Near MH#3, 2nd lift	GI	15.2	91.9	Pass	
29	August 2	11	Near MH#3, 3rd lift	GI	12.1	91.7	Pass	
30	August 5	3	Between MH#4 & 5, , 1st lift	GI GI	13.8 17.4	90.7 87.0	Pass Failed	Retested - #5,8/6
31 32	August 6 August 6	4 5	Just east of MH-3, 1 st lift Retest of #4	GI	14.3	91.2	Pass	Released - #0,00
33	August 6	6	Just east of MH-3, 2nd lift	GI	26.2	72.9	Failed	Retested - #10,8/6
34	August 6	10	Retest of #6	GI	15.3	90.0	Pass	
35	August 6	11	Just east of MH-3, 3rd lift	GI	16.4	91.1	Pass	
36	August 6	12	Between existing MH and MH-6, 1 st lift	GI	18.2	88.6	Failed	Retested - #14,8/6
37	August 6	13	Just east of MH-3, 4th lift	GI	15.9	92.2	Pass	
38	August 6	14	Retest of #12	GI	18.1	90.7	Pass	
39	August 6	15	Just east of MH-3, 5th lift	GI GI	17.6	90.1 73.5	Pass Failed	Reworked August 16 & 20
40	August 7	2 3	Just NE of MH-1, 1st lift	GI	19.0 14.1	89.1	Failed	Retested - #6 & 11, 8/7
41 42	August 7 August 7	4	Just SE of MH-3 Between existing MH and MH-6, 1st lift	GI	19.7	86.0	Failed	Retested - #4, 8/7
42	August 7	5	Retest of #2	GI	16.1	84.3	Failed	Reworked August 16 & 20
44	August 7	6	Retest of #3	GI	16.9	86.0	Failed	Retested - #11, 8/7
45	August 7	7	Retest of #4	GI	18.7	89.2		Allowed to pass after signifigant compaction
46	August 7	8	Just E of MH-1, 2 nd lift	GI	17.9	92.7	Pass	
47	August 7	9	Just E of MH-1, 3 rd lift	GI	19.5	86.6	Failed	Retested - #10, 8/7
48	August 7	10	Retest of #9	GI	19.9	90.0	Pass	
49	August 7	11	Retest of #3	GI GI	14.1 18.6	94.1 84.9	Pass Failed	Retested - #14,16,17, &18, 8/7
50	August 7	13	30 ft east of MH-6, 1st lift	GI	19.6	87.0	Failed	Retested - #16,17, &18, 8/7
51 52	August 7 August 7	14 15	Retest of #13 Retest of #4	GI	15.7	90.1	Pass	Trotostou in official and
53	August 7	16	Retest of #13	GI	17.3	89.2	Failed	Retested - #17, &18, 8/7
54	August 7	17	Retest of #13	GI	18.5	88.0	Failed	Retested - #18, 8/7
55	August 7	18	Retest of #13	GI	17.2	92.6	Pass	
56	August 7	19	30 ft east of MH-6, 2nd lift	GI	18.2	87.0	Failed	Retested - #20, 8/7
57	August 7	20	Retest of #19	GI	19.3	90.3	Pass	
58	August 8	1	70 ft west of MH-6, 1st lift	GI	16.1	93.9	Pass	
59	August 8	3	40 ft west of MH-6, 2nd lift	GI	15.2	95.9	Pass	
60	August 8	4	8 ft from MH-4, 1st lift	GI	20.3	90.0	Pass	
61	August 8	5	8 ft from MH-4, 2nd lift	GI GI	14.3 13.2	97.3 96.4	Pass Pass	
62 63	August 8 August 9	6 1	8 ft from MH-4, 3rd lift Just west of MH-6. 1 st lift	Frontier	14.6	95.9	Pass	
64	August 9	ż	67 ft west of MH-6, 1st lift	Frontier	14.7	92.6	Pass	
65	August 9	3	87 ft west of MH-6, 2nd lift	Frontier	11.6	105.0	Pass	
66	August 9	6	107 ft west of MH-6, 3rd lift	Frontier	13.5	98.2	Pass	
67	August 12	3	10 ft west of MH-6, 1st lift	GI	16.6	88.0	Failed	Retested - #5, 8/12
68	August 12	4	5 ft east of MH-7, 1st lift	GI	11.4	94.8	Pass	
69	August 12	5	Retest of #3	GI	15.3	91.1	Pass	
70	August 12	6	8 ft North of MH-2, 1 st lift Near MH-7, 2 nd lift	GI GI	14.3 13.8	94.4 94.2	Pass Pass	
71 72	August 12 August 12	7 12	75 ft west of MH-7, 3rd lift	GI	16.3	90.1	Pass	
73	August 12	13	50 ft west of MH-7, 4th lift	GI	15.8	90	Pass	
74	August 12	14	20 ft west of MH-7, 5th lift	Ğİ	16.5	91.4	Pass	
75	August 13	1	10 ft west of MH-2, 1st lift	GI	13.4	95.3	Pass	
76	August 13	2	140 ft west of MH-7, 1st lift	GI	19.8	81.6	Failed	Retested - #3, 8/14
77	August 13	3	10 ft southeast of MH-3, 1st lift	GI	14.1	98.9	Pass	- · · · · · · · · · · · · · · · · · · ·
78	August 13	4	6 ft east of MH-4, 1st lift	GI	16.8	88.2	Failed	Retested - #5, 8/13
79	August 13	5	Retest of #4	GI	17.6	90.5	Pass	
80	August 14	1	20 west of MH-4, 1st lift	GI	11.6	16.8	Pass Pass	
81 82	August 14	2 3	75 ft south of MH-3, 1st lift ?	GI GI	15.3 15.6	94.9 91.2	Pass Pass	
82 83	August 14 August 14	4	r 100 ft east of MH-4	Gi	15.4	98.1	Pass	
84	August 14 August 15	4	17 ft west of MH-3, 1st lift	GI	13.1	95.5	Pass	
85	August 15	6	10 ft west of MH-4,1st lift	Frontier	14.0	97.8	Pass	
86	August 15	8	50 ft west of MH-5, 1st lift	Frontier	13.9	94.5	Pass	
87	August 15	9	45 ft east of MH-7, 1st lift	Frontier	13.7	90.1	Pass	
88	August 15	10	35 ft west of MH-5, 2nd lift	Frontier	11.5	100.8	Pass	
89	August 16	1	25 ft east of MH-7,1st lift	Frontier	14.8	97.0	Pass	
90	August 16	2	6 ft west of existing MH, 1st lift	Frontier Frontier	12.8 12.9	104.6 103.1	Pass Pass	
91	August 16	3	10 ft west of MH-6, 1 st lift	rionaei	12.5	100.1	1 033	

Fluor Daniel GTI
Summary Table of Storm Sewer Compaction Tests

Test#	Date	GZA#	Location	Soil Type	Water(%)	% Proctor	Pass/Fail	Corrective Measures
92	August 16	4	25 ft west of MH-5, 1st lift	Frontier	12.6	101.0	Pass	
93	August 16	7	25 ft east of MH-5, 1 st lift	Frontier	14.5	98.0	Pass	
94	August 16	9	4 ft east of MH-1, 1st lift	Frontier	12.3	102.8	Pass	
95	August 16	11	40 ft east of MH-9, 1st lift	Frontier	15.7	92.5	Pass	
96	August 19	1	70 ft west of MH-9, 1st lift	GI	16.5	86.0	Failed	Retested - #1, 8/19
97	August 19	2	Retest of #1	GI	13.7	97.1	Pass	
98	August 19	3	1 ft south of MH-9, 1st lift	GI	16.2	92.3	Pass	
99	August 19	4	1 ft south of MH-7, 1st lift	GI	10.6	91.4	Pass	
100	August 19	5	1 ft south of MH-6, 1st lift	GI	11.1	102.6	Pass	
101	August 19	7	40 ft west of MH-9, 2nd lift	Gl	13.0	94.7	Pass	
102	August 20	1	7 ft east of MH-5, 1st lift	GI	10.4	90.6	Pass	
103	August 20	3	30 ft west of MH-9,1 st lift	GI	13.8	96.5	Pass	
104	August 20	4	15 ft east of MH-5, 2nd lift	GI	10.9	91.5	Pass	
105	August 20	5	1 ft west of MH-1, 1st lift	Gl	7.9	99.8	Failed	Retested - #7, 8/20
106	August 20	6	45 ft west of MH-10, 1st lift	GI	14.4	90.6	Pass	
107	August 20	7	1 ft west of MH-10, 1st lift	GI	10.3	93.9	Pass	
108	August 20	8	36 ft east of MH-11, 1st lift	GI	9.6	96.9	Pass	
109	August 26	1	Just west of MH-5, 1st lift	GI	10.6	100.9	Pass	
110	August 26	2	Just south of MH-5, 2nd lift	GI	15.9	89.6	Failed	Retested - #2, 8/26
111	August 26	3	Retest of #2	Gl	14.9	90.0	Pass	
112	August 26	4	South of MH-5, 3rd lift	GI	12.2	90.9	Pass	
113	August 26	5	South of MH-5, 4th lift	GI	15.9	90.2	Pass	
114	August 26	6	South of MH-5, 5th lift	GI	14.9	90.0	Pass	
115	August 26	7	South of MH-5, 6th lift	GI	16.0	91.8	Pass	
116	August 26	8	South of MH-5, 7th lift	GI	15.2	93.2	Pass	
117	August 26	9	South of MH-5, 8th lift	GI	16.2	91.5	Pass	
118	August 26	10	South of MH-5, 9th lift	GI	16.3	91.8	Pass	
119	August 26	12	South of MH-5, 10th lift	GI	15.2	93.4	Pass	
120	August 26	13	South of MH-5, 11th lift	Gl	15.8	90.0	Pass	
121	August 26	14	South of MH-5, 12th lift	GI	15.6	92.4	Pass	

DAILY FIELD SUMMARY	DATE 7/17/96 FILE No. 55099
	REPORT No. <u>DFS-28</u> SHEET / of 4
PROJECT 102 nd Strant Landful	11 Site LOCATION Nissora Falls, Now York
OWNER Oxy Chem Jolin	CONTRACTOR South Formontal Toch I
WEATHER CONDITIONS Class:	trap 70 to 85°F; wind light
REMARKS	
NEWATTO	
REPORT	
900 Left the office	
930 Amic at site.	
9. 11/1/100 0/ 3/16.	
Mot with P. Porter	
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	BEVIEWED BY: JOHN J. DANZEZ, P.E.
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Total Time	
	Gary Klawinshi
- CONTRACTOR EN	PREPARED BY

REPORT No. DFS-28.

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SULTS	X PROCTOR DENSITY	102.1	98.0	99.9	101.5	94.1	90,5						MATERIAL TYPE AND SOURCE					
PEST RI	PROCTOR COOE	U	V	J	7	U	J						MATERIA					
NSITY'	UATER CONTENT (X)	12.8	10,3	10.9	9.9	4.21	11.4									1011		
IN-PLACE DENSITY TEST RESULTS	DRY DENSITY (PCF)	7:021	115.3	117.6	118.6	110.8	106.5							1 Motoriil		Muteria		
IN-PI	DEPTH OR ELEV.	15t 1.ft todaz	2-4	`	1,7+	2-1/t	ンナー・ノナ							٠,	Motorial	Island	٠,	
11/ Ken Tach (0:10		to poinotin		30 xx 50cts	5, to perinit									Love Corn	DCF MA	Grand I.		
or Falls, NY Falls, NY	TEST LOCATION	Post of 5,70	1	line beckfill along kast side	x 0 + 10	11	11						OPTIMUM WATER CONTENT (X)	15.0	19.0	/3,6	but proctor	
102 nd		100 th cost		Along storm lin	404								MAXIHUM DRY DENSITY (PCF)	113.5	108,5	7.711	7	
Project Location Contractor	TEST NO.		1	0	4	7	√o	7	B	8	10		PROCTOR COOE	A	\mathcal{B}	0	REMARKS	
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FOX DRFRG-701MO ASSOCIATES OF NEW YORK, P.C.

DAILY FIELD SUMMARY	DATE 7/18/96 FILE No. 55099
·	REPORT No. DFJ - 29 SHEET / of 4
PROJECT 102 nd Street Landfi	11 Site LOCATION Nissora Falls, Now York
	CONTRACTOR Snith Formontal Toch
	, 1; tong 70 to 80 °F; wind light
REMARKS	*
REPORT	
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930 Amou at sita.	
	- mustice / density sense (SN 20203)
Sta-Ac-1176 1/04/0	- mistant diasity sousi (Sie 20003)
MS 645	-0.2%) -0.2% } Von
ps 2658	-0.2°/ ₅ 5 0 M
Made in-place mo	esture dusity tests on permitire soils fortis. See tocation shitch for details.
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01/56-2	and of coffee Dam. Noce final
	cloration.
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12 a Arriva . FFIa	
	REVIEWED BY:
	REVIEWED BY: JOHN J. DANZER, P.E.
Field Time	W
	techol Duily Accounting Summery
Office Time > Jes 4/7	
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	Gary Klawinshi
	PREPARED BY

Reson No. DFS-29 IN-PLACE DENSITY TEST RESULTS

102nd Street Landfill Ren

Location

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Page Zof 4

Date 7/4/96 File No. 55099 Technician 6.1/1/4/11 To m from out too "In the out % of from opt REMARKS TEST DEPTII 7 7 7 ω ∞ α 566 107.6 95. £ X PROCTOR DENSITY 102.4 7.46 PROCTOR CODE J V V Ŋ J UATER CONTENT (X) 10,7 10.9 913.7 4,4 11.9 6.7 1/07.7 120.5 117.1 DRY DENSITY (PCF) 110.9 112.3 9.921 157 1.4. 70.7 1.7 DEPTH OR ELEV. 1+ +W `` = 31.1 Smith Envisormental Tech Corp North side of site perimeter back Fill. TEST LOCATION 36 WOL $\stackrel{\sim}{\sim}$ > 7 1 Storn Alons 50, 15 Contractor TEST NO. 3 Ø 2

> Asy ter 100%

GOLDBERG-ZOING ASSOCIATES OF NEW YORK, P.C.

MATERIAL TYPE AND SOURCE

Materia

Grand Island

proctor

REMARKS: O Stordord

DCF Motoria,

Love Coral Materia

15.0

19.0

108,5 113.5

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117.7

OPTIMUM WATER CONTENT (X)

MAXIMUM DRY DENSITY (PCF)

PROCTOR COOE

DAILY FIELD SUMMARY	DATE 7/19/16 FILE No. 55099
	REPORT No. <u>DFJ - 30</u> SHEET <u>/</u> of <u>4</u>
PROJECT 102 nd Street Landfill S.	te LOCATION Nissara Fulls, Now York
	CONTRACTOR Snith For won montal Toch I.
	top 70 +0 80 %; high will
REMARKS	
REPORT	
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Studendiza Troxler many	tur. I density gargo (SN 20803)
MS 653	1.3 % Z 0.4 % Z
ps 2671	0.4 % 5
Mode in-place mosture	Idesity tests on nextheride ut
site primeter siib.	
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3° Food day	
	·
4.4	
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	REVIEWED BY: JOHN J. DANZEZ, P.E.
Field Time	V
Field Time	
Office Time \ See attack	hol Duily Accounting Summary
Total Time	
	Gory Klawinshi
	PKEPAKEU DI

Report No. DFS-30

Page 2of ₹ Date 7/19/96 Paye 2015 File No. 55098 Technician 6.4/awinjhi

> IN-PLACE DENSITY TEST RESULTS 102nd Street Landfill Rom

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NIOSOLA FALLS, MY

Too motor out John from apt % M from out % on from opt % of free opt REMARKS TEST DEPTH 7 MATERIAL TYPE AND SOURCE $\mathcal{G}o$ Q \mathcal{O} 103,7 97.7 X PROCTOR DENSITY 93.9 98.1 95. PROCTOR CODE U V U 6'11 UATER CONTENT (X) 10,7 10,6 About 110,5 13,4 traffice 110,5 13,4 3.7+ 115.4 12.3 Firsts 111, 9 01511 DRY DENSITY (PCF) 122,0 14. DEPTH OR ELEV. 157 ~ 150ft South of Mety Av. DErmotor a 200 ft posts of river Contractor Smith Environmental Tech Corp of Sterm sower 2176 OPTIMUM NATER CONTENT (X) TEST LOCATION location. No. 14 51 do 07 2 MAXIHUM DRY DENSITY (PCF) Wost side 1176 1/105 PROCTOR COOE 4 5

proctor REMARKS: O Standord

Muteria

Grand DCF

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113.5 108,5

19.0

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Motorini Island

DAILT FIELD SUMMART DATE 7/24/96 FILE No. 33099
REPORT No. DFJ-31 SHEET / of 4
PROJECT 102 nd Street Landfill Site LOCATION Niagara Falls, Now York
OWNER Oxy Chem / Olin CONTRACTOR Snith For womental Toch I
WEATHER CONDITIONS Cloor; tomp 70 to 80 %; wind light
REMARKS
DEDORT
REPORT
915 Left the office
945 Acrivo at site
Standardiza Traxler moisture Idensity gause SN 20803
MS = 648 0.2 %) DS = 7660 D %) Von
DS = 7660 D % 3
Modo in-place moisture Identity tosts on month side of site
porineta soils. See location shotch and surroug of results.
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170 Arria at Frontier Stone with smith.
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07226-1 < 3 meh size meterial from surge pile
07226-2 Clinch size mutual from Bird
Island pila
200 Lift the Frent in site
C Lit + 7 46 F 111 - 3/70
2 30 Arrive at office
Donn J. Danzer, P.E.
VV
Field Time
Travel Time Office Time See attached Duily Accounting Summery Total Time
Total Time
Gary Klawinshi

PREPARED BY

Report No. DFS-31

Page Tof A. Date 7/2/96 File No. 5509 Technician 6.11 TEST IN-PLACE DENSITY TEST RESULTS UATER | PROCTOR Envicencestal Tech Corp Street Landfill Ren Project 102 nd 57
Location Wessen F

Contractor Smith Fa

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рерти	01	v	9	8	0				·			SOURCE				
X PROCTOR DENSITY	95,6	1	7'06	479	978							MATERIAL TYPE AND SOURCE				
PROCTOR CODE	J	On site Matural Soils	U	U	U				•			MATERIA				
UATER CONTENT (X)	11.4		13.9	13.9	14.0										1011	•
DRY DENSITY (PCF)	112.6	111.8	2'90/	P. 21 114.6 13.9	115.2 14.0								Material		Materia	
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TEST LOCATION	+ 1,0 & Buck Fill A			11	"							OPTIMUM WATER CONTENT (%)	15.0	19,0	/3,6	id Proctor
	Stord sewer line backfill.	11 145 44 500 34 60x	North Sido Pormota	1			The state of the s	The state of the s				MAXIHUM DRY DENSITY (PCF)	113.5	108,5	7.711	REMARKS: O Standond
TEST NO.	-	2	3	4	5							PROCTOR CODE	¥	B	V	REMARKS

COLDBERG-ZOING ASSOCIATES OF NEW YORK, P.C.

DAILY FIELD SUMMARY DATE 7 26 96 FILE No. 55099
REPORT No. DFS-35 SHEET 1 of 7
PROJECT 10200 ST LANDFILL ROMED LOCATION NIAGARA FALLS N.Y.
OWNER OXY CHEM OLID CONTRACTOR SMITH ENVIRONMENTAL
WEATHER CONDITIONS SULLY TO PARTY CLOUDY 70°5
REMARKS SITE IS GENERALLY DRY
ALMARKO JITE IS GEDEUACT DICK
REPORT
7:00 Annives ON SiTE
STANDARDIZED TROXLER MOISTURE / DOUSITY GAUGE
BAUGE 5/N 20803 DS-7674 (VAN. 0.2%) MS-646 (VAN-0.6%)
D5-7614 (VAIC. 0.2 16) 111 5 646 (VAIC 0.8 16)
PERFORMED FIELD Soil TESTS (IN PLACE DENSITY/MOISTURE;
POCKET POLETROMETOR, TORVAUE) ON FRONTIER STONE MATERIAL
PLACED FON COFFENDAM, AS REQUESTED BY SMITH EUVINONMENTAL.
TEST WERE TAKEN AT TWO TEST PITS DUG INTO COFFENDATI.
SEE SMEETS 2 AUD 3 FOR TEST LOCATIONS AND TEST DATA.
PORTURED IN-PLACE DOUSITY MOISTURE TESTS FOR PENIMETER
SOIL BACKFILL AND STORMWATER DRAINAGE SYSTEM BACKFILL
PLACED ALONG BUFFALD AVE. BY ARMAND LETRONE, INC.
SEE SHEETS 4 AUD 5 FOR TEST LOCATIONS AND STICET
6 FOR TEST RESULTS.
MODITORED COUCHETE PLACEMENT FOR PIPE CONNECTION WITH
STORM DRAID MANHOLE MH-3.
- COUCHETE SUPPLIEN: EMPINE BUILDERS SUPPLY TUC THULK 108
- CONCRETE MIX: 4000 PSI MIX No. 67 AE W/ ASH
- TIME BATCHED : 12:30
- Time ON SITE : 12:50 - Time OF PLACEMENT: 12:55 - 1:45
- No. C.Y.S PLACEO : 41 C.Y.
- SLUMP: 21/2 INCHES MEASURED BY GZA
- Prepared 3 Cylinders (C-4, C-5. & C-6) For smooth
TESTI U6
1/15 - 1 Circ (20 D-)
4:15 pm Leave Size for 67A Office
Field Time 8 75 kmg
Field Time 8.75 MNS Travel Time 0.5 MNS
Office Time
Total Time 9.25 Mrs





GZA GeoEnvironmental of New York Engineers and Scientists

Page No. 5 0= 7
REPORT No. DFS-35

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Subject	19 TABAIOA	7,10,17	Checked	By	J. DADEER
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Pace 6 of 7 : REPORT NO. DFS-35

IN-PLACE DENSITY TEST RESULTS

Soil BACKFILL APPORNS SIMIAN VITALIS 1.2% OF OPT MOISONG WITHIS 2.9% OF OPT MOISIUME With 10 0.7 % OB OPT MOSTURE Soil BACKFILL APPONS SINION TO GLAVO ISLAND MATERIAL WITH I 1.4% OF OPT MOISHINE TECHNICIAN J. DAURGO 7/26/90/7 S5099 REMARKS LOVE CAUPL FILE No. _ p = DATE _ MATERIAL TYPE AND SOURCE PROCTOR DENSITY 0,26 96,4 +00 95,6 +81 99.2 6.28 67.9 Bonnow Material PROCTOR CODE Ó Ú V < S MATERIA CORP WATER CONTENT 18.2 12.8 12,2 16.2 7.0 12.9 12,1 13.1 TEHNOLOGIES, ALOFILL REMEDIATION STANK COWST. DRY DENSITY (PCF) 04,15 4. 60 106.0 109.4 116.7 19.3 115,2 116.9 AUPL Frohim 300 STUPE りてみつり しいし 2 COST した。一下が 2 60 Z 15t LIFT DEPTH かくのし OR Elev. トニアナ 2 Cle CONTRACTOR Smith Euxinoumanne Permater Soil Excavation Bacuful Alough Bufface Ane. Perimeter Soil Expadatios Bruffild Alous Buttal Ave Stonn Sexier Thear BACKFILD Stone Buffer Brown Brakful ALOUE BUFFALO AVE STONIN SELEN TROOK BACKFILL STORM SECRETARION BACKFILLS
ALONG BUFFALD AVE, Perimeter Soil Excavation WATER CONTENT PERLINETER SOIL EXCONDIOS BACKFILL ALONG BUFFALD AVE. MIRGARD FALLS 102⁰⁰ Smeer (TEST LOCATION DESCRIPTION OPTIMUM 15,0 50.0 13.6 (%) ALOWED BUPFALO AYE DRY DENSITY MAXIMUM 113.5 14.5 (PCF) PROJECT LOCATION PROCTOR CODE Δ ◁ TEST NO. ഗ S ٩ 4 1



REMARKS	

DAILY FIELD SUMMARY	DATE 7/29/96	FILE No. <u>55099</u>
		SHEET _/ of _6
PROJECT 102 nd Street Landfil	11 Site LOCATION Nia	sora Falls, Now York
OWNER Oxy Chem / Olin		
WEATHER CONDITIONS Clear; 7		
REMARKS		
REPORT		
900 Loft the office		
930 Arrivo at site.		
Mot with P. Portor.		
		C. (a 4007
Standardize Troxler mois	1 ture / density gauge.	5N 20803
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DS = 2645 -0.9	% 5 0K	
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Made in-place density + sever backfill. See a	Hached summer of	f dota and
location shotch.		
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30° L. ft tho site		
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4 or End of day		
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	Jono J	J. DANZER, P.E.
Field Time		00
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Travel Time See att	ainon purry necous	
Total Time		
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	<u>G 27</u>	PREPARED BY

REPORT No. DFS-36. Page 2of 6

Date 7/29/96 Fig. File No. 55099 Technician 6.4/au

IN-PLACE DENSITY TEST RESULTS

102 nd Street Landfill for

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too mater of -1.8 % M from out -2.1 % M from opt +0.7 % M from opt 1 m fin ont You for out +2.0 % M from opt 1, F F1.2 REMARKS 1/2 -0.0 0.9 0 1 1 12 \mathcal{O} MATERIAL TYPE AND SOURCE TEST DEPTII \mathcal{Q} 60 φ 00 ω $\boldsymbol{\varphi}$ ω ω φ 87.8 68.6 1.03 872 94.0 (6):9 92.3 PROCTOR DENSITY 35.6 8 1/8 91.8 01/6 Grand Island Matoria, $\bar{Q}_{\mathcal{O}}$ PROCTOR CODE Ú V U V U V V U 13.6 14.9 104.3 17.8 15.6 12.7 WATER CONTENT 107.4 17.6 96.4 14.8 103.6 12.8 109.2 16.9 11.5 112.5/11.8 Materia 107.1 107.1 1.801 106.1 110.7 Love Conal Materisi DRY DENSITY (PCF) above 15+1.4+ Grand Island 1.11.4 tolas * DOF MATERIA. ` today 2.24 DEPTH OR ELEV. 4+4 = 7, Storn Sever Bock till along Duttil Parimeter Soils along the worth side g Storm sour backfill. About 15 Envicenmental Tech Corp ~ parimet. Soils along north lide 50, 6,510,100 ¥ Abut Skitch OPTIMUH UATER CONTENT (X) Marhola TEST LOCATION 15.0 10 ca tion foot south wont of 19.0 5 1 trial Rote, + of 5 D Standord 10 Retut of tho 5, te = HAXIMUM DRY DENSITY (PCF) _ : 7 South wort Ave. 500 117.7 108. 113. (1) REMARKS: Contractor PROCTOR COOE \mathcal{D} 01 TEST NO. φ O 6 W

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CONDBERG-ZOING ASSOCIATES OF NEW YORK, P.C.

REPORT NO. DFS-36.

IN-PLACE DENSITY TEST RESULTS

Date 7/8/96 Page 30f 6 File No. 55098

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Page No. 4 of 6
REPORT No. DFS-36

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DAÎLY FIELD SUMMARY DATE 7/30/16 FILE No. 55099
REPORT No. <u>DFJ - 37</u> SHEET <u>/</u> of <u>4</u>
PROJECT 102 nd Street Landfill Site LOCATION Nissara Falls, Now You
OWNER Oxy Chem / Olin CONTRACTOR South Favirenmental Too
WEATHER CONDITIONS Hoary rain fost night; Overest; trap 70 to 85 °F; in
REMARKS
REPORT
11° Lift the office
1130 Arrivo et site
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Stu-landiza Traxlor muistres Idanity gange SN 20803
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$MS = 649$ 0.3 % $\frac{7}{90}$ $DS = 2664 - 0.1 9/0 300$
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Manholo No 3 according to the contractor. No testing
rog-rodby GZA.
REVIEWED BY: JOHN J. DANZER, P.E.
JOHO J. DANZEIC, F.E.
Field Time
Travel Time See attached Duily Accounting Sunnery Total Time
Office Time \ See affection Dairy Accounting Source
Gony Klawinshi
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REPORT No. DFS-37

1/2/16

IN-PLACE DENSITY TEST RESULTS

102 nd Street Landfill Rom

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Date 7/39/96 File No. 55099 Technician 6.4/a toot % M from out Exempted down to 1st 40,3 % M from opt +1,7 % M from ont of an flor opt +2,2 % M from opt +1.6 1, m from ont % A free opt 2/0 M 1100 +0.7 % M fre REHARKS 1.2 % M fra 1116 +2./ 7/ 2 7/ 7/ 21 TEST DEPTH \mathcal{Q} MATERIAL TYPE AND SOURCE φ ω 96.6 93.3 97.5 90,8 97.3 9.06 PROCTOR DENSITY 92.3 93.9 PROCTOR CODE U V V U U U U 15,2 15.7 13,8 15.3 7 WATER CONTENT (X) 15.1 15,8 13.9 15, Materia 108.7 $^{\sim}$ 104.8 9.201 15+1/113.7 114.8 9'011 106.6 Love Conal Materini DRY DENSITY (PCF) 14. 1.0pox 2-11/4 + mart 2.24/1.44 1+11/4 J. dry tudes 13+114 Island Zact lit Mataria stern sower becktill along 2. Alist yoly But to lo for the shift to hay DEPTH OR ELEV. 1.4. = worth side of site permeter Contractor Smith Envisormental Tech Corp 2 stoke 5 that Grand DCF proctor OPTIMUM WATER CONTENT (%) TEST LOCATION 15.0 Location of 13.6 19.0 1 7 = > D 5tandon = 50,11.500 MAXIMIM DRY DENSITY (PCF) 13.5 108,5 REMARKS: PROCTOR CODE Project Location $|\mathcal{Q}|$ TEST NO. 4 \sim N2 / ∞

COLDBERG-ZOINO ASSOCIATES OF NEW YORK, P.C.

		GZA GeoEnvironmental of New York	` .	Page No. 3 of 4	-
•		Engineers and Scientists	ŀ	REPORT No. DFS-37	
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DAILY FIELD SUMMARY	DATE 7/31/96	FILE No. <u>55099</u>
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PROJECT 102 nd Straat Landfil	_	, , , , , , , , , , , , , , , , , , , ,
OWNER Oxy Chem / Olin		
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REMARKS		,
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	Jone J. D.	ANZER, P.E.
Field Time		1 ' 2
Travel Time Office Time See att	eachor Duily Account	ting summary
Total Time		
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	<u>6 07</u>	PREPARED BY
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REPORT No. DFS-38

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Date 7/1// File No. 5

Page Zof A

IN-PLACE DENSITY TEST RESULTS

102 nd Street Landfill Rem

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11.4 % M from opt gon from out % of from out % of from opt notain raneved. for find gom from ap Mitorial ranowing 2/0 M from REMARKS moternol romand 41,4 7 7/ $75.0~\mathcal{B}$ MATERIAL TYPE AND SOURCE \mathcal{Q} TEST DEPTH φ φ \mathscr{D} 0 Q \mathcal{O} 0 ಶ 103.3 12.8 93.0 27.5 87.5 PROCTOR DENSITY 94.2 91.9 9.26 91.6 9 1/6 1.4% PROCTOR CODE U J V U V V 2.02 15,0 18.2 14.9 UATER CONTENT (X) 14.6 14.4 112.0 13.6 21.6 50,5 15,0 108.2 | 14.1 13. 103.0 109.5 85.5 107.8 110,9 0301 103.0 103.0 110.3 Love Caral Material DRY DENSITY (PCF) 107.8 bolow. 7 1.77 1.4+ t; ; 14 Materia + 1 DEPTH OR ELEV. 100 300 ? Contractor Smith Environmental Toch Corp poron ston DCF 5010 ひっかん ひそっと とくて 5,70 OPTIMUM NATER CONTENT (X) TEST LOCATION 5,70 15,0 Back f.1 0'61 Lut 100 0 1 > No. 4h 5, cho of S. < : 7 = ` ~ Su-+h 5.d. MAXIMUM DRY DENSITY (PCF) North side , sol ; chios 108,5 13.5 PROCTOR CODE φ = TEST NO. 01 4 ∞ Y \sim 9 6

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REMARKS: O Standond

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Page No. 3.74
REPORT No. DFS-38

File No. 550 99 1 Project 102 and Stroot Loadfill Sita Date 7/31/96 By GIM ² Location Checked Ву Subject Based on Revised In-place Donsity Tost Location 个 Shotch, North Side of Site Pormotor Soils Buffelo Avo Edso . + p. 11 12 13 14 3 3 15 16 (6) **②** 1 17 18 19 20 Lin. I of 21 Excaration 22 23 24 In-place Desit Tout Location 25 Shakeh. North side of site Steen 26 27 Sewor Backfill 28 29 Menhole + 30 P-14 13 31 32 Acra (9) (8) 33 Excention 34 35 36 Material from this 37 aron romund today 38 Wot 39 40 Provide phad 41 South Side of Side Berne let Ild phant + total today 42 43 44 45 (12) 46 47 270 ++ 48

DAILY FIELD SUMMARY	DATE 8/2/96 FILE No. 55099
	REPORT No. DFS-40 SHEET / of 5
PROJECT 102 nd strot Loute	11 Site LOCATION Niasona Fulls, MY
OWNER OxyChon /Ohi	CONTRACTOR Smith Environmetal Inch I.
WEATHER CONDITIONS Cloor;	tong 70-80 ° willisht. Hours rain last
REMARKS	nuht
REPORT	
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No 2 and No 3. So	attacked data short and location shotch.
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	BEVIEWED BY: JOHN J. DANZER, P.E.
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Field Time \int \int a	+ tached Daily Accounting Sunney
Office Time	
Total Time	
	Gory Klaninshi
	PREPARED BY

REPORT No, DFS-40

Page 2 of S

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Technician Pate No.

IN-PLACE DENSITY TEST RESULTS

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Project __ Location

20/5 5000 REMARKS + 4 410 Lower aroa Upper aroa 0/0 2000 : ---7 -nddn 13.74 ω TEST DEPTII ω MATERIAL TYPE AND SOURCE φ ∞ ω \mathcal{O} ∞ ω Ø ∞ ω 6.26 8.96 616 7.86 103.2 X PROCTOR DENSITY 97.8 4.14 9:16 111 35 103. PROCTOR CODE S Ũ V 0 V V \mathcal{U} 0.71 MATER CONTENT (X) 12.6 10.1 0. 1. 12. 107.9 107.8 9.101 108.1 7 113,9 9/5/1 DRY DENSITY 111.9 4 1/5, (PCF) 116. 121 1.40 DEPTH OR ELEV. 1.14 22 : 151 7,0 5 por inete. 1061100160 ζ_1 OPTIMUM WATER CONTENT (X) 3 N 2110 TEST LOCATION 1000 4100 5,40 Ħ Ħ Į ma- 4.10 men hulo morhole 1 \ 40 = Ó ` MAXIMUM DRY DENSITY (PCF) worth rido Nord 6, 7, 16. 100 V 50.7, 7000 200 Contractor 4 \varnothing 10 TEST HO. 6 N ~

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REMARKS:

GOLDBERG-ZOINO ASSOCIATES OF NEW YORK, P.C. GEOTECHNICAL-GEOMYDROLOGICAL CONSULTANTS

REPORT No DF3-40

8/2 /46 Page 301 S. 55091 654 Date 8/2 File No. 5 Technician REMARKS TEST DEPTH MATERIAL TYPE AND SOURCE 0 IN-PLACE DENSITY TEST RESULTS 98.3 X PROCTOR DENSITY PROCTOR CODE 4 UATER CONTENT (X) 14.6 111.5 DRY DENSITY (PCF) DEPTH OR ELEV. Ca. 2. . 5-0 west Top center 1000 OPTIMUM WATER CONTENT (X) material TEST LOCATION Covor MAXIHUM DRY DENSITY (PCF) 102 2 1 100 REMARKS: Contractor PROCTOR COOE T 2 TEST NO.

COLDBERG-ZOINO ASSOCIATES OF NEW YORK, P.C. GEOTECHNICAL-GEOMYDROLOGICAL CONSULTANTS

G	GZA GeoEnvironmental of New York Engineers and Scientists	
roject	102 nd street Ladfill	_
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Page No. 4 of 5 REPORT No. DFS-40

	d street Landfull		No. 55099
Location		Date 8/2/97	
Subject		Checked	By
Based on		Revised	By
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D'AILY FIELD SUMMARY	DATE <u>8/5/96</u>	FILE No. <u>55099</u>
		SHEET _/_ of
PROJECT 102 nd Street	•	ra Falls, NY
	CONTRACTOR	
WEATHER CONDITIONS clear; to		
REMARKS		
TEMONIO		
REPORT		
7 30 Left the office. Pich	up Torvane and ben	tonite pellets.
8°° Arrive at site.		
Standardize Traxler	moisture Idensity go	auge (SN 20803).
Mousture Standard Coun Density Standard Cou	nt 2649 (-0.7	°/0 vo1)
storm sewer line back	Lill see affect to	- place denity test
results and location	Shetch.	-pc. 7:311 3 /11/
(Bulkhead Soil) alona compactod. No testing	placing Frantier sto	ene material
(Bulk head Soil) along	dine by GZA on fint	1. ft as requested
by Smith.		
	705 - 1 C 1:	C/ C'/
According to Smith 27, placed in the coffer	dam General is sem	012/25.
p.0000 13 13 6 201 11.		
	4 .a / / ## / /	# 7 (and Lat./)
Concrete Placement at Supplier: Empire Build	den Supply	J (ONE BOICH)
Truck No: 128		
Betch Time: Not on Placement Time: 200-	tick of (2 yds)	,
Mix No: 67	L' pm	
GZA Mosserd Stup:	5 inches	
Water added to batch:	4 50/	
* Soc attacked	ticket for additional	1010.
Builindors collected	Sot No 4, C-10, C-11,	C-70
Field Time	tached accounting s	(
Office Time \ \int_{\sigma} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	tacked accounting s	CAMINY
Total Time		
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	<u>(50</u>	ory Klawinshi
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DAILY FIELD SUMMARY	DATE 8/5/96 FILE No. 550	99
	REPORT No. DFS-41 SHEET 2 of	
PROJECT 102 nd stroot		
	CONTRACTOR Saits For Tock	
WEATHER CONDITIONS Soc show	· T /	
REMARKS		
REPORT		
	L E L' M. LL # 7	
Concreto Placement al	+ Existing Manhole # 3	
Supolier: Empire 1	Buildons Supply & No cylinders take.	
Truch No: 118	Buildons Supply # No cylinders take. as requested by Isnith	024
Truch No: 118 Batch Time: 335 pm Placenet Time: 400-	1 /snith	
Placement Time: 400-	- 4"pm	
Mix No: 67	3 7 5 19-601	
Water added to betch	: No .	
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See attached posults a	-d location shotch.	
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500 Loft the site.		

	REVIEWED BY:	\
	REVIEWED BY! JOHN J. DANZER P.E.	!
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Field Time		
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Total Time		
ACCEPTANCE OF THE PROPERTY OF	<u>.</u>	
	Gary Klawinsi	hi
	PREPARED BY	
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REPORT No. DFS-41 Page Jof 8

55099

Date File No.

8/5/96

Technician GIK

IN-PLACE DENSITY TEST RESULTS

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Location

150x Lift is about 6 note below Butiful Litis about 1.5 ft bulus 19uth Aun about 1 xx dolow sounds Ave Lift is about Enches bolow But Ave 7 Lift is about 3.3 ft bolow out Ave Lift is about 6 inches bolow Butthous List is about love I with Buts Auc Torvons = 0,45x 2,5= 1,13 K36-= 0.45 x 2.5 = 1.13 Nota: 1st 1, Ft not tosted REMARKS Torvano . 2 + 17 MATERIAL TYPE AND SOURCE TEST DEPTH ω ω OO ω 00 ω ω ω ω 100,4 93.4 18.7 93.8 X PROCTOR DENSITY ∞ 91.3 70,7 3 77. 1/6 11/6 PROCTOR CODE Q 0 U Q S V \mathcal{U} V 0 15.3 2 0 14.5 UATER CONTENT (X) 9 ∞ 19.8 ω 14. 4 Ġ. 13. /3, 14 107,5 115.0 113,0 1.801 110,4 9.801 DRY DENSITY 110.0 107,5 1 (PCF) . '90/ 4+41.11 2-d11/t tuder today 2 11 1/1/ today 134 1164 40804 today 3.4 h.F 15+1.4 to day ンナッグ today DEPTII OR ELEV. today > ; Satwoon skotch 54070 0 X site bulk hoad Soils, North side Sul 13 ; No. 44 51.40 Nu+4 5.06 1114c4x111 SKOTC plan 1014113 4014 10.00/12 OPTIMUM VATER CONTENT (X) TEST LOCATION Sca location lecution 01270 S. 1. 8. Parimeter Soils; > = 500th 5140 OF 1 50,00 MAXIMUM DRY DENSITY (PCF) 50~1 4 sid m. foriil. Perineter 4110400 Pountin Min 40 5,4000 Contractor PROCTOR CODE TEST NO. 1 φ D 0 4 4 \sim

GOLDBERG-ZOINO ASSOCIATES OF NEW YORK, P.C. GEOTECHNICAL-GEOMYDROLOGICAL CONSULTANTS

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REMARKS

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GZA GeoEnvironmental of New York Engineers and Scientists

Page No. 5 of 8
REPORT No. DFS-41

Project 102 nd Street Landfill File No. 55099 Date 8/5/96 Location Niggara Fulls, NY 6JK Subject Checked Ву Based on Вγ Revised Perimeter Soils In-place Density Test Location - Shotch Buffalo AVE Eds. of Parament 7 P-29 P - 28 A P-27B P-28B 10 12 51.11.-, cut 6 (2) 13 Aroa of Facav. Aron of Soil 14 placed to about ation work > +035FF Ocepsio Cut (1) In norning 15 6 mules below Buff Ð Ave 16 17 K- 2011 -> 18 Limit of 19 Excavation 20 21 22 of Printer 5.1 Placement at 10°am 24 25 Somer Pipe Bock fill In- Place 26 27 Dority Tost Location Shotch 28 Butfalo Ave > 29 30 Edgiot 31 P-18 P-17 32 55 FF 33 34 35 Approx 36 (3) 17 Ft 37 38 Limit of clay placement 39 40 Limit of 41 Munholo No 4 clay Placement 42 at 10 an 43 44 45 46 47 48

DAILY FIELD SUMMARY	DATE 8/6/96 FILE No. 55099
	REPORT No. <u>DFS - 42</u> SHEET / of 7
PROJECT 102nd Stroot Lordfi	11 LOCATION Na Falls, NY
	CONTRACTOR Smith Env Tech
	tonp 70 to 90 °F; wind light
REMARKS	
REPORT	
7 30 Loft for the site.	
8° Arrivo at site.	
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Moisture Standard Con	-+ 646 (-0.1 % va) } -+ 2660 (-0.2 % va) } ou
Dansity Standard Con	-t 2660 (-0.2 1, vo.) 5 ° "
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somer backfill and bu	Idensity touts on perimeter soils, storm The head soils. See summers of results
and location shotch at	tached,
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Aron) for luborating tout	+ Frontier Stone Material (Bull Hoad
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Notation to the second of the	
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	REVIEWED BY! JOHN J. DAHZER, P.E.
Field Time	, W
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Total Time	•
	Gary Mlawin, hi
	PREPARED BY

Respons No. DFS-42

Date 80. File No.

IN-PLACE DENSITY TEST RESULTS:

Project 102 1, 5+1.00 Las 14.11

REMARKS
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COLDBERG-ZOINO ASSOCIATES OF NEW YORK, P.C. GEOTECHNICAL-GEONYDROLOGICAL COMSULTANTS.

REMARKS:

Report No. 0FS-42 Page 3 of 7.

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Date 🤚

IN-PLACE DENSITY TEST RESULTS

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Lift is a buit of tax tibolio But A Aus BUTH AVE ローエア・ノイン アライエー И - · ų K5/67 45/en かった、ろんのよ ゆっ REMARKS * Ž 4 a 5.2 x 4.0 V 5th 1.Ft tot. 4 Botween 6x12 ろっよと Ŏ. ω 00 7 TEST DEPTH MATERIAL TYPE AND SOURCE Ò ω Tion, ω 88.6 7:26 1 6.76 47.3 X PROCTOR DENSITY 81/6 90.1 -, -90. Ţ. Į. T. PROCTOR CODE (() Q U U J 0 \mathcal{U} 16.8 15.18 17.6 WATER CONTENT 2 1:3/ MATERIAL Soic ટ 3 17 4 108.51 110.9 106.7 0.201 1.801 104.6 DRY DENSITY (PCF) STAJE GLAST DELADO 14 14 12 x DEPTII OR ELEV. 2+4 574 127 Ŧ Frestien 6, ... 1 Istend Ch. + Nate. 150. Good Islad Chy & Materal Son Non+4 51 NO 9 N Bock 1.11. 13004111 5,70 合 OPTIMUM VATER CONTENT (X) TEST LOCATION to trad 0151 7.70 13,6 2 Pointter Suils = Sawer ころかのグーいるのから MAXIHUM DRY DENSITY (PCF) South wast N 71717 <u>-</u> A. V.E Ritort 24.5 12.12 Contractor PROCTOR CODE Location 9 J 7 <u>į. į</u> 5 20 TEST NÖ. * V

COLDBERG-ZOINO ASSOCIATES OF NEW YORK, P.C. GEOTECHNICAL-GEOMYDROLOGICAL COMSULTANTS

REMARKS:

.		GZA GeoEnvironmental			Page	No. 40+7
		of New York		Rem		o. DFS-42
		Engineers and Scientists				
1		Street Landfill			No.	55099
2	Location		Date 8/6	196	Ву	GTR
3	Subject		Checked		By	
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DAILY FIELD SUMMARY	DATE 8/7/96 FILE No. 55099
3	REPORT No. DFS - 43 SHEET / of 8
PROJECT 102-d Street Lordt	LOCATION Ning and Falls, NY
	CONTRACTOR South Env Toch
	tomp 70 to 90 °F; wind light
REMARKS	
REPORT	
700 Arrivo at office. Drup of	Submit sumples for testing. Pick up for Smith.
bas sample 08066-1.	Submit sumples for testing. Pich up
166 data Transmittal	Ter 3/1/10.
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820 Amis at site.	
Standardiza Troxlor mai	, turo / donsity 9 4036 (SN 20803)
Manitum Standard Count	649 (0.1 % v.,)
Don'ty Standard Court	t 2687 (0.1 % v) 3 on
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and storm somer line b	backfill. Soc attached tost results short
and location sketch.	
12° Louis (20 nin)	
	anholo # 4. See attached concert. test
roport and ticket.	
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	REVIEWED BY: JOHU J. DANZER, P.E.
Field Time	VV
Field Time 7	tached accounting sunney
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Total Time	
	Gary Klawishi

PREPARED BY

REPORT NO DFS-43 Page 2 of B

Date 8/7 File No. Technician

IN-PLACE DENSITY TEST RESULTS

Project Location Contractor	102 nd	Strast Lundfill							Date おハバモ File No. <u>55099</u> Technician ビ び水
TEST NO.		TEST LOCATION	DEPTII" OR ELEV.	DRY DENSITY (PCF)	UATER CONTENT (%)	PROCTOR COOE	X PROCTOR DENSITY	TEST DEPTH	REMARKS
	Both head as	0100. No 18 (3/6/96)	١	/10.3	(16.1)	0	76.4	8	. 474 /147 40 40) Torrang: 0,4, 0,45, 0,4, 0,4, 0.45 Aug Torrang: 0,41×2.5= 1,05 Kg/cm²
1.	الم الم الم	Bock till.	15 4 4	86.5	19.0	U	77.5	φ	
8 ~		B = 1 (1)	15 7	104.9	14.1	U	(89.1)	80	o Liftis about loud with Topor Mr 3.
1 4	Story Source	Back fill; Botwood	154	101.7	19.7	2	(86.0)	8	o Astrony is a mix of Grand Isto-L notanish and motions 50.15.
1	1 1	No. 2		99.2	16.1	2	(64.3)	8	Material and natural Soils.
	Kotost of	W 2 ()	101.	6.31	V	(86.0)	00	
1	10	1	1	104.9	18.7	U	(89.2)	8	noter placed + + + of
000	Stor Sawi	· 18406/11	220	109.1	17.9	V	72.7	Ø	material 13 min of Grand & Street
0	"		7	101.9	19,5	V	(86.6)	ω	"
,	Rotost of No. 9	(No. 9 (rocon,uts)	-	105.1	19.9	U	90.0	00	
=	Kotut of No. 3	(No. 3 (1000-11.11)		4.111	14.1	U	94.1	Ø	
PRÓCTOR CODE	TOR DRY DENSITY E (PCF)	OPTIMUM HATER CONTENT (X)		÷.		MATERIA	HATERIAL TYPE AND SOURCE	SOURCE	
	114.5	16.0 Frontier	5+00,		Jateria				
0	7/2/2	13.6 Grand	Island	Ma	46-111				
REHA	REMARKS:								

GOLDBERG-ZOTNO ASSOCIATES OF NEW YORK, P.C. GEOTECHNICAL-GEOHYDROLOGICAL CONSULTANTS

REPORT No. DFS-43

25099

Date 8/ File No. Technician

36/2/8

IN-PLACE DENSITY TEST RESULTS

102 al 3tint

Location

Torvane readings : 0.52, 0.40, 0.66, 0.51, 0.42 Towars roading: 0.46, 0.40, 0.56,0.49, 0.40 But A Alle notice to see Island clay mix To the state of Aus Terross = 0.50 x 2.5 * のろしナ ブイト ダットツ REMARKS 14, Tunne = 0,46 x 2.5 ルラニ 1.t. 1. 1. · Mata ... · Tota TEST DEPTH ω MATERIAL TYPE AND SOURCE 00 ∞ 9 $\boldsymbol{\varphi}$ ω ρ φ 8 90 (88.0) 97,4 87.0) (89.2) 87.0 90.3 9.26 PROCTOR DENSITY. 84.9 A 90.1 96 PROCTOR CODE S V U 0 U S 0 Q 15,7 17.2 3 16,2 \sim $^{\prime}$ 17.3 NATER CONTENT 19.6 14.1 19, દ B i, $\dot{\varphi}$ 108.01 106.3 111.5 0.701 100.0 102.4 105.0 102.4 103,6 DRY DENSITY (PCF) 9.711 1,4 1,6 + 4000y 441, area today 12+1.44 DEPTII OR ELEV. ١ ١ ١ Juseth Drum Kotost of NO 13 (rocommital) Rocomportal No 13 preconnited Kitost of No 13 Gironning Storm Sower Buckfill OPTIMUM VATER CONTENT (%) 2013 TEST LOCATION Roth of No A 12.41.11 118 x 3 10 cation Jakote 1/3 00/0 1.7 11:1 Kotis of Rotostot Storn Sower Refut of MAXIHUM DRY DENSITY (PCF) Bulh Hond 13.11. hoad REMARKS: PROCTOR CODE Contractor 1 1 2 $\bar{\omega}$ 9/ 92 TEST NO. 4 12 Ñ 19

GOLDBERG-ZDINO ASSOCIATES OF NEW YORK, P.C.. GEOTECHNICAL-GEOMYDROLOGICAL COMSULTANTS

GZA GeoEnvironmental of New York
Engineers and Scientists

Page No. 4. F8
REPORT No. DES-43

	Engineers and Scientists		•
	nd Strest Landfill	File No	
Location			y GJK
Subject Based on	Checked Revised	В	y Y
Daseu on	nevised		'Y
	Bulk Hoad Material In- place		
J. Z	Density Fast Location Sketch		
• •	(Not to Seale)		
			Y
			N
* * *	c		
		(**	
	River	\ a	
	Botton River Bottom	\3	
	Dack fill		
	(stockpile)		
	O Approx		\ \
(TZ			
	7 84r		\
$\sqrt{2}$	59++ - 182+		
Rotest D /)	5944 - 1804	7	
Keier			
	Storm Samueline Back Fill		N
	Storm Sewer Line Backfill In-place Density Test Location		^
	Skotch (Not to Scale)	1+(20)	·@
		Koti,	Katort (12)
	Rotes+ (3)		1.7.1.+ Q V
: :	here to from the		1 Kotu Klus
	Aron of	2047	1
	N MH	· 7/	1
	n ⊕	(19) (1	3
		← 33 / 1	
	Edge of parament		
E + M			
L>15 /10	Buttalo Avo ->		
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Page No. 50 F 8
REPORT No. DFS-43

Project 102nd Sz	troot Landfill			55099
ocation		Date 8/7/96	Ву	6 J K
Subject		Checked	Ву	
Based on		Revised	Ву	
				,,
· · · · · · · · · · · · · · · · · · ·	Storm Sower Line Bo	ich fillins		
	In-place Density Tost	Lucation		1
	Shotah last to			
	Shotah (to	50.10)		
	Manhole 1			
	71144016			
		Iron of Mutorial		
		Placement		
	377 7 3	Rotost S		
		Rotest 5 Rotest 6 Rotest 7V		
	MH + +++	•		
		Koto,+(16)		
	34+			
	7/2/24/24/2000			<u> </u>
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	Manhola 3			
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DAILY FIELD SUMMARY	DATE 8/8/96 FILE No. 55099
	REPORT No. DFS-44 SHEET 1 of 4
PROJECT 102 nd Street La	andfill LOCATION Niason Falls, NY
	CONTRACTOR South Environment.
•	overcast, top 70 to 80°F; und light
REMARKS	, LE 1134)
NEWATING	
REPORT	
830 Acrivo at the site.	Heory rain
•	
Maha plans to do a g	gradation tost on Rip Raput Frontie St.
Standardine Trox 16- moist	turo / donsity sause (SN 20803)
mustice Starland Court	(52 (0.7% vo.)
Density Standard Cours	652 (0.7% vo.) } + 2672 (0.2% vo.) } on
•	
Miho in -place mostre	te // situ test on Stern sewer line buch
AZZ OGIA NEIZE MATTER	The second of th
12 W Lunch (30mm) Horry	7
foo Left the site	
7 20 116 3776	
	REVIEWED BY:
	JOHN J. DANZER, P.E.
Field Time	VI
Travel Time \(\int_{\circ} \) \(\alpha \) \(\alp	een die Juneary
Office Time	
10101 Time	•
	Gray Wlains!
	PREPARED BY

Report No. DFS-44

Page 2 of 4

Date 8/0/16 File No. 55019 Technician 65x1

IN-PLACE DENSITY TEST RESULTS

1201

Project

ナジノント a boot local with town Mist + 3.5xt bolow Butt Ave 10/6~2 o Lift is about 1.5 ft bolo top of MA 4 natural is mix ox Good tolond and · Turvoro Roadings; O. 42, O. 45 (Houry Kein) Material 1) caix of Grand Island cont 1 6. 44 5 a but 0.5/+ 60h. tup · Aus Torvare 0, 43x 2.5 x 1.1 French stra Mite · Fe antin Stene markeni a Frent it is the a material REHARKS Lift is about TEST DEPTH 2 7 77 MATERIAL TYPE AND SOURCE ω ω ω 76,4 8'26 X PROCTOR DENSITY 95.9 93,9 9.26 90.0 PROCTOR CODE U Q V U Q 20.3 15.2 \sim WATER CONTENT (X) 4 16,1 Materia 4 13 4. Materia 106.6 109.8 113.5 105.9 110,5 DRY DENSITY (PCF) 11.8 54016 tudey 40012 15+11/4 DEPTH OR ELEV. 2-2 · 8/t 001 8 Ft 00, t 4-44 GAS Fron 11.74.10 000 II 1,00 back fill 15a. 41.11 OPTIMUM WATER CONTENT (X) TEST LOCATION Back 1.11 0.9/ no10 ・アンノしとりしてん 10.34 Gait Storn Sawer South rast Sturn Sumir 70 11 5 Sturn Somer south brit MAXIMUM DRY DENSITY (PCF) Bulh 40006 114.5 Contractor Saith 117. 51000 700 REMARKS: PROCTOR CODE Q V TEST HO. 4 7

COLDBERG-ZOIMO ASSOCIATES OF NEW YORK, P.C.. GEOTECHNICAL-GEONYDROLOGICAL CONSULTANTS GZA GeoEnvironmental of New York
Engineers and Scientists

Page No. 3 of 4
REPORT No. DFS-44

	L'Engineers and Scientisis	
1	Project 102nd Street Landfill	File No. 55099
2	Location	Date 8/0/16 By 67h
3	Subject	Checked By
4	Based on	Revised By
5		
6	Buth Hoad material In-	
7	Danity Tost Location	Shotch
8	(Not to seal	(€)
9		
10		
11		
12		Coff
13		Coffee
14	Kiv bottom	E>15-15-15
15		Kivo- Botton
16	back 1.11 Stock p.16	KING- Putton
17	Stock p.16	
18		
19		k 25 ≠ + →
20		
21	5+6 lift	and the company of th
22	5th lift 50+ placed overall	
23	overall	354 672 1, FA
24		25++ 6+6 1, ++ placed everall
25		
26		2004+
27		
28		
29	Storm Sewer Line Buc In- Place Donity Tost	\(\frac{1}{1} \) \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
30		
31	Shotch (No+ to S	C4 (6)
32		
33 34		Least of Frenchia
35 36		
37		
38		
39		Fls. of 1000000
40	12+r ->	
41	70+	<u>* </u>
42	Agricof 1	
43		
44	MH6 Buttalo	Ave
45		
45		
46		
48		
48	I	

DAILY FIELD SUMMARY	DATE <u>8/9/96</u>	FILE No. <u>55099</u>
7.		SHEET <u>/</u> of <u>4</u>
PROJECT 102 nd Stroot Londf.		
OWNER Oxy / Olin		
WEATHER CONDITIONS 6/000;		
REMARKS		last night.
REPORT		
REPORT		
815 Lott for the site		
B 45 Arrive of the site.		
Studadina Truxlum	turo Idenist, que	e (SN 20803)
		•
Moisture Standard Co. Pensity Standard Co.	52 + 2674	(+0.1 % ve-) 5
Callected bas sample at	Fruntier Stune Mar	torial for Soil Jobantes
Made in-place donits Storm Source Line bock	tosts on Bulk He	said material and
storm Sower Line boch	4.11 Mutorial. Jos 4:	ttached tost 100175
12 0 L-ne h		
430 Loff + 40 site		
	REVIEWED BY JOHN J. DAN	
	JOHN J. DAN	UZER, P.E.
Field Time		٧٠
Travel Time Office Time 50. a + f	tacked accounting	Summery
Total Time		,
	<u>८</u>	ay Klawnshi
	· •	PREPARED BY

IN-PLACE DENSITY TEST RESULTS

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F-201

Project Location __

ps four

cleet

8/9/96 Page Zof4

Date 8/9/96 File No. 55099 Technician 67A

REPORT No. DFS-45

Turren Arg = 0.39 x 2,5= 6.97 4/2 olift is about 3.5 ft bolow Buff Aus · Litt is about 0.5ft bite KuthAus olita is about 1.0ft boll- But Ave otravers Avg = 0.42 × 2, 5= (1.04 13/en · Lift is a bout 0, 54+ boh - But & Auc 170, vano riodins; 10.38, 0.42, 0.40, 0.35 · Torvers readuris. 6.70, 0.51, 0.38, 0.42 REMARKS material placed 7 J 7 7/ TEST DEPTII 7 7/ 102.2 proviously 105.0 4 PROCTOR DENSITY. 95.9 103.2 7.26 8 PROCTOR COOE Q \mathcal{Q} Ó Q 0 200 14.3 14.3 tono Matorial WATER CONTENT (X) 13.5 9.41 1 4 11/2 Silty) 11/2021 106.2 118.1 112.5 109.8 117.0 DRY DENSITY (PCF) observed to be 1.4.4 1.0.4.4 runtion ELEV. DEPTH OR 1,5 This test represents a mix of 26/6/8 line bockfill 1100 to the site on TEST LOCATION 120 Alex Location 11105 Storn Some = = > 1. c. ti. Y " " 1/4 52.74 Stern harlon Contractor TEST HO. 4 S 7 ~

-			
PROCTOR CODE	PROCTOR DRY DENSITY CODE (PCF)	OPTIMUM Y UATER CONTENT (X)	MATERIAL TYPE AND SOURCE
0	114.5	114.5 16.0 Fintin	Frentie Stand Material 14-18%
2 your and a			
KEMAKKS			

COLDBERG-ZOINO ASSOCIATES OF NEW YORK, P.C. GEOTECHNICAL-GEONIYDROLOGICAL COMSULTANTS

GZA GeoEnvironmental Page No. 3 of 4 of New York
Engineers and Scientists REPORT No. DFS-45 Project 102nd Street Landfill 55099 File No. 2 Date 65K Location Checked Subject Ву Ву Based on Revised Aron In-place Locations (Not to scale) Coffer Don 10 11 12 Bulh hard 13 14 River Sidement Bucker 15 16 17 18 19 20 21 placed (1st lift) 22 0.38 23 Line Buckfill. 24 25 Lind of 26 27 28 29 30 31 32 33 34 Parent 35 37 38 39 40 41 42 43

DAILY FIELD SUMMARY DATE 8/12/96 FILE No. 55099
REPORT No. <u>DFS-46</u> SHEET / of 5
PROJECT 102 nd Stroot Landfill LOCATION Nigguru Folls, NY
OWNER CONTRACTOR Smith Environmental Tech
WEATHER CONDITIONS clour; tomp 65 to 75 "F; wind 1.5ht
REMARKS
REPORT
7th Arrivo at office. Drop off soil and concrete sample for fasting.
8 toft the office. 8 to Acrivo at the site.
Standardia Troxlor monturo Idensity gauge SN 20803
Mossture Standard Count 651 (0.4 % van)
Mossture Standard Count 651 (0.4 % var) Density Standard Count 2649 (-0.7 % var)
Mudo 'in-place moisture Idensit, tosts on buchtill for sturm drain, one fill material on north side of lordfill and bulk hoad material. See attacked results and location shotch.
material. See attacked rosults and location shotch.
12° Luch (30 mm)
Snith west with 62A (Don Welt) to test the gradation of Rip - Mays
Muteral at Frantic Stone.
Bulk hand material from Frontier Stone was not harland to
the site in the oftenoon.
Reviewed BT!
JOHN J. DANZER P.E.
Field Time —
Travel Time / c 14 / / accounting sommers
Office Time \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Gary Klaminch.

REPORT No. DFS-46

Date 6 File No.

IN-PLACE DENSITY TEST RESULTS

Project Location Contractor	10221	Street Landfill			, ,				File No. 55099 Technician ETM
TEST NO.	TE	TEST LOCATION	DEPTH OR ELEV.	DRY DENSITY (PCF)	UATER CONTENT (X)	PROCTOR COOE	X PROCTOR DENSITY	TEST DEPTII	ARKS
	Bulk head mu	nutural	Existing	119.8	14.3	Q	104.6	12	0.39
7			15+ 1.4+ today	109.2	14.6	Q	95.3	12	.35, 0.5 2,5°=(
2	Storn Sewer	bachfill. 10th west	15 4	103.5	9.9/	V	88.0	12	·
4	onhole 7.	backfill. Stt cast of	15t t 1.5t t 1.5t t	111.6	11.4	7	94.8	7/	ol. H.s about 45th bolow Buth Ave
7	Roto, to F	No. 3	ı	107.2	15.3	V	91.1	12	
9	, , ,	. back fill . 8 ft north	13+6+	1111.1	14.3	U	94.4	12	oliffig about str bilow Birt Aut
<u> </u>	//	60014111 to 1000 +		110.9	13,8	V	7.46	2/	" Lift is about 4 th bolo Mit A vo
00	14 5, do 00	lastill noor Deall.	11 -	115.5	8.4	3/13	42.4	01	o fill material pageadod four
5	tist	location as No.8 at BS depth		102.0	9,7	F.11		135	
01	Worth side of	flustfill noar Deall	1 5 t t t t t t t t t t t t t t t t t t	109.0	11.9	FILE	87.2	0	
1 /	5010r	lain as tost No 10	"	99.7	13,7	FILE		α	. Tost requested by oxy / flour
PROCTOR CODE	MAX IHUM DRY DENSITY (PCF)	OPTIMUM WATER CONTENT (%)				MATERIA	MATERIAL TYPE AND SOURCE	SOURCE	
9	114.5	16.0 Frestin	2	* 1000 x	Materia	/.			
U	7.711	13,6 Grand	Is la	7	The second se				
E	0.221	11.5 FII M	Materi:	_					(A)
REMARKS:	RKS:								

COLDBERG-ZOINO ASSOCIATES OF NEW YORK, P.C. GEOTECHNICAL-GEOMYDROLOGICAL COMSULTANTS

REPORT No. DF5-46

Page 30f5

Date 8/12/96

File No. 55-08?

Technician 65-08

IN-PLACE DENSITY TEST RESULTS

Project 102nd

Contractor	5m,+h	Fariana 6. 7. 1							
TEST NO.	4	TEST LOCATION	DEPTII OR ELEV.	DRY DENSITY (PCF)	UATER CONTENT (X)	PROCTOR COOE	X PROCTOR DENSLTY	TEST DEPTH	REHARKS
,	1	buch fill. 75 ft wort	300	1.79/	16.3	7	90.1	17	114
7 7	2000	1			15.8	U	90.0	12	. Lift is about 3 th bolow Buff Are
1 4	2 2 2	back fill, 20 ft wort	24.4		16.5	V	41.4	12	· 1,44 is. about 2,500 bolow ANAMA
15/	13014 hoad a	9.00	1, to 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	114.8	14.3	Q	100, 2	17	Novemb roadings; 0.36, 0.50, 0.42, 0.39, 0.36
1/2/2/	7	100	1	109.9	14.4	Q	96.0	7/	· Torver roading 1012, 0.44,0.55,0.54
		T.							
PROCTOR	HAXIMUM TOR DRY DEHSITY IE (PCF)	OPTIMUM UATER CONTENT (X)				MATER!/	MATERIAL TYPE AND SOURCE	SOURCE	
								-	
BENA	BEHARKS:								

COLDBERG-ZOINO ASSOCIATES OF NEW YORK, P.C.

DAILY FIELD SUMMARY	DATE <u>8/13/96</u>	FILE No. 53	5099
	REPORT No. DFJ-47	· · · · · · · · · · · · · · · · · · ·	
PROJECT 102 nd Stroot Londo	· · · · · · · · · · · · · · · · · · ·		
OWNER Dxy / olin	-		
WEATHER CONDITIONS 6/600;			and the second second
REMARKS			
			•
REPORT			
830 Arrive of the site.			
Mot with P. Porter.		-	
Standardiza Troxlor Mon.	ture I density sause	SN 20803	
M. tu (to lak	651 (0	2 % v.,))	:
Mostus Standard	2659 (-0.	2 % vo.)) 3 % vo.) J	2
Made in -place moisture,	Idensity Toits on ST	Torn, sewer lin	6 back
1200 Lunch.			
			=4,
	BEVIEWED BY:		•
	JOHO J. DANZER,	F. E. M	
Field Time	, •		
Travel Time S6. acco	intins survey		esest Section
Total Time	•		. din
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	6	ay Illamin	, 4,
		DDEDARED I	·

Report No. DFS: 47

Page 2 of 7 Date 8/13/96 File No. 55019 Technician 614

Project	102 no	Stoot Laudfull		IN-PI	LACE DE	NSITY	I-PLACE DENSITY TEST RESULTS	SULTS		Date $\frac{\partial}{\partial J}/96$ File No. $\frac{55019}{61\%}$
TEST NO.		TEST LOCATION		DEPTH OR ELEV.	DRY DENSITY (PCF)	WATER CONTENT (X)	PROCTOR COOE	PROCTOR DENSI,TY	TEST DEPTII	REHARKS
	Storm Sewer	Storn sever backfill. lott wast	Kt wast	77.77	//1./	13,4	U	95.3	B	a bout
7	Storm 56-61	backfell. 140 ft wort	ft worr	17.4	1	19.8	J	(8/.6)	75	DFS-48 FOR RETEST
~	57.00 S6.00	bach fill, 10 ft southers	t southers	127	111.4	14.1	J	96.9	ω	· Litt is food with two of his s
4	5 ter 30 00	buch 6.11. 6++	+ sostor	134	103,8	16.3	U	88.2	Ø	. Lift; about 3 ++ 8010 Top of 1714+
\	7 7 7 7	4,1%		1	106.5	17,6	U	90,5	Ø	. "
	19 (9/9)									
										-
								,		
PROCTOR COOE	MAXINUM FOR DRY DENSITY	OPTIMUM WATER CONTENT (X)	•				MATERIA	HATERIAL TYPE AND SOURCE	SOURCE	
V	7.7//	13.6	Grand J	7,14, JC	. 1					
) 0			7 1	5	,					

COLDRERG-ZOING ASSOCIATES OF NEW YORK, P.C.

REMARKS:

DATE 8/14/96	FILE No. 550	99
		_
(Ap 101003 , WI)	/· / · / · / · / · / · / · / · / · / ·	
the site:		e . waa wax y . wax ay .
// >/		
10 /d1-112, 50-50	SNZOEOG	
54 (0 % Var)	7	
·67 (0 °/0 Vo-)	J on	
11 1 4 4 10 14		
	- Secon	
***************************************	And the second s	
	•	
Keviewed By:	100 PE W	-
JOHO J. DAN	, , , , ,	
	• • •	
x accounting sommer	>	
	-	
; · · · · · · · · · · · · · · · · · · ·	* . *	**************
	ory Wlawns	· At a
	REPORT No. DFJ - 48 // LOCATION	10 /dinit, gange SNZ0803 54 (0% var) 67 (0% var) 10 0 1, to to to strong sever 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

5667

IN-PLACE DENSITY TEST RESULTS

Resor No. 0F5-48

Date 8/1 + 196 File No. 55099 Technician 674

Project Location Contracto	102 nd 2000	Struct Locatill								Date B//7/76 File No. 55099 Technician 670
TEST NO.		TEST LOCATION		DEPTII OR ELEV.	DRY DENSITY (PCF)	WATER CONTENT (X)	PROCTOR COOE	X PROCTOR DENSLIY	TEST DEPTH	REHARKS
	1:	9	20 ft wort	15+ 1, 1/2	1/3.9	11.6	V	8.76	8	9
. 7	240,00 J	backfill.	75 ft	15+6+		15.3	V	94.9	8	. Lift is loved with Manhola
8 6	total de	of Nola	9/13/96		167.3	15.6	V	91.2	8	
4	57.1.56	Backs	oo ft cost	127	115.5	15.4	U	98.1	Ø	. Lift is 1th bolow two or form
	0							•		•
% 8	PROCTOR DRY DENSITY COOL (PCF)	TY VATER CONTENT (X)	•				MATERIA	MATERIAL TYPE AND SOURCE	SOURCE	
	C 117.	7 13.6	611-1 FS	5 14-L						
					-		,			
REI	REMARKS:				·					

CONDRERG-ZOING ASSOCIATES OF NEW YORK, P.C.

DAILY FIELD SUMMARY	DATE 8/15/96 FILE No. 55099
	REPORT No
PROJECT 102 nd Stroot Landfill	LOCATION Najora Falls, NY
OWNER Axy / 0/-	CONTRACTOR Smith Environmental Tuch
•	
	onp 70 to 85 °F; wind moderate
REMARKS	
REPORT	
830 Acris at site	
Mit with P. Portor.	
Stade die Torrhe muit	funo Idensity gauge sw20e03
Mustino Studend Co	+ 640 (-0.60/000)) + 2674 (0.50/000)
Donsity Studied Co	on t 2674 (0.5 %), vo.) 5
Made in place mousture	Identity tosts on stom sower
backfill, bulk hood	material and at Lovol C PRE on
la-1/11 clear fill.	
1200 Land (30mm)	
•	
3 3° Lift the site	
	REVIEWED BY!
	REVIEWED BY! JOHN J. DANZER, P.E.
Field Time	\sim
Travel Time See daily	accounting survey
Total Time	
	Gary Klanin, L'

Report No. DFS-49

nate 6/15/96 111e No. 55099

IN-PLACE DENSITY TEST RESULTS

		10007	v 							7 + 5	0000 0000 0000 0000 0000 0000 0000 0000 0000	- .	
File No. 55099 Technician 6. Klamak	REHARKS		- 1	forester water must be 163.0 mg.	15.77 15 17 00000 10 0000 10 000 10 000 10 000 10 000 10 000 10 000 10 000 10 000 10 0	mending; 0.46, 0.51	1.14 1) 144 6010 x 40 00 00 10 10 10 10 10 10 10 10 10 10 10		544 61100 12001		Lift is 3 ft bolo But Audin		
	TEST DEPTII	12	77	12	12		/ / /	72	2/	·	OP		SOURCE
	X PROCTOR DENSITY	95.7	94.9	27:1	95.5	95.4	17.8	95.4	94.5	10.1	100.8		MATERIAL TYPE AND SOURCE
	PROCTOR COOE	E	4	7	J	0	9	3-	Q	a	0		HATER!/
	WATER CONTENT (X)	10.3	13.3	13.2	13.1	16.0	14.0	12.7	13.9	13.7	11.5		
• :	DRY DENSITY (PCF)	119.7	118.7	111.4	4.211		1,2.0	119,3	111, 2	8.901	118.7	7.00	
	DEPTII OR ELEV.	At Subico	16+ 60/0- Surface	2.5 6+ bblow 3016016	1:7	2.2. 1.4.4. 0.00.011	+ C/	100	12.	12,74	12.7		
0,14,11 Y	110N	of carbing landfull		-	steen somer backfill; 1744 wort of	, , , , , , , , , , , , , , , , , , ,	Storm sover book till; lott went at	Kiscado of axistis loadell	5+10- 56 wer 10 64 111: 50 4+ 2000+	Stein Same bock full; 454+ Cast	Stor Save Brechtily 35th Wist of		ALH NITENT
Fulls: NY	TEST LOCATION	A 44	1	1	Dackfill	head miterial;	Juck 7.11	6×15 +1.	Vo 14 +1	10.44	breht.		OPTIMUM WATER CONTENT (X)
102201 57]] ;	16. 60cc, 10. 18c5code of			1000 SOWEL &	Bulkhead	Sterm sover 6	Kiscado of axistis lostili	5400 58000	576, 50 Se C.	Stor Sove Brechell		R DRY DENSITY (PCF)
Project Location	TEST KÔ.		7	8	4		-	1	1 ~		, 01		PROCTOR COOE

CON DRERG-ZOING ASSOCIATES OF NEW YORK, P.C.

REMARKS:

60001 John

16.0

DAILY FIELD SUMMARY	DATE 8/16/96 FILE No. 55099
	REPORT No. DFS - 50 SHEET _ 1 of _ 4
PROJECT 102 nd Stroot Lo-dt	LOCATION Nogara Falls, NY
	CONTRACTOR Smith Environmental To
WEATHER CONDITIONS proceed	timp 65 to 75°F; wind light
REMARKS	•
REPORT	
900 Loft the office	
93" Arrivo at site.	
Standardizo Trador M	oisture / density gauge SN 20803
Muisturo Standard	Court 653 (03% Vor) Court 2662 (0.0% Vor)
Donsity Stondard	Court 2662 (0.0% Vor)
Mode in-place density	moistone tests on storm sewer bockfil
and bulk hand mater	rial. Soo attached results and location
shotch.	
12 dunch. (14,	
415 Lift th. s. ta	
4 / Lit / h. 3, re	
	REVIEWED BY: JOHN J. DANZER, P.E.
Field Time	La grand to
Travel Time Office Time Total Time So o deil	y access of
Total Time	
	Gary Klaminshi
	Gary Riaminsai

REPORT No. DFS-50

Page 2 of 4

IN-PLACE DENSITY TEST RESULTS

+ on1+5 10 201

Pro Ject

Technician 6. Pate No.

K3/622 (m)3: 0.37, 0.52, 0.44, List is 2.5 year bolow Bush Ask · Aus Turnoro = 0.44 x 2.5 = 1.1 x3/6-1,46, 8,54;); 0.44, 0.38, 0.61, 0.46, 8.54;); 0.44, 0.38, 0.61, x ox 0.47 1 3 x Ś 1+13 1,5 1+ 60% · Torver - reidings ; 0. 61, 0.44, 1,4 is 144 boloutopos xx bolow · Aug Tervoro = OAK x 2.5 a Lift; 1,5 ft below Lift is 2 xt to bolo-REHARKS 414 13 · Turver. 1000 レイナン 21 7 7 φ MATERIAL TYPE AND SOURCE TEST DEPTH 7 \mathcal{O} φ φ ϕ φ 97.5 0101 101.2 98.0 7 101.2 90.0 8.201 PROCTOR DENSITY 076 104.6 103, 96. PROCTOR COOE P Q 141 0 Q Q Q Q Ń 15.7 Ц 14.8 12.3 WATER CONTENT (X) 6 12.6 14.8 4 12. 4. 12 4 17 105.9 117.8 112.2 112,6 12.521 119.8 115.9 115.6 DRY DENSITY (PCF) 116.1 . . . _ 540 11 11000 154 DEPTII OR ELEV. 6 tt south of rouloss 10-1. 3rd/476 1. 12 overall 25 44 6017 714 3 (enited) 1. 6 84 VII + カロイメバル ハロイナ ひのけ ナーションナナカ tell national North South of rom Froi Load 7664 11.00 8 tot souther location En 41862 mental backfill. OPTIMUM UATER CONTENT (X) 60ckf111. back 4.11. TEST LOCATION 4 f.t South 0410 0 13,6 e Bulkhoad mutoni attached 1000 01 6 tin 5+20 Sever 737 05 MAXINUM DRY DENSITY (PCF) しゃくらり 7000 HU 1 40 Ft Gast Stern Sour イタート ちゅしょく 7 Ň 13014 412 0.521 U * + + 1 0 5 Regue 4001 /// Å Gastot 54010 5+012 Contractor PROCTOR COOE REHARKS Location 4 00 0 TEST HO. 2 7 ~ 9 \sim

COLDBERG-ZOING ASSOCIATES OF NEW YORK, P.C.

DAILY FIELD SUMMARY	DATE 8/19/96 FILE No. 35099
	REPORT No. <u>DFS- 51</u> SHEET / of 7
PROJECT 102 nd Stroot Lord F.	LOCATION Nagara Falls, NY.
	CONTRACTOR Smith Favironmental Inc
	timp 70 to 85°F; wind light
REMARKS	, , , , , , , , , , , , , , , , , , ,
TEMATINO	
REPORT	
93° Loft for the site.	
1000 Arriva at site.	
Mit with P. Portor.	
observe remonting and	grading operation as requested by Smith.
Studendiza Traxlor mais	tur, Ida-sity sausa SN 20803.
Musture Sterdard: Con.	+ 644 (-1.2 % Vor)
Dirsity Standard Com	+ 644 (-1.2 % Vor) + 2669 (0.1 % Vor) & Vx
12 15 Lunch	
Collected by somple of	Frontier Stone material from Bulk hour
aron of cell 2. Sun,	pl. No 08196-1
415 Lift the site	<u> </u>
443 Return to othin to d	-op off semplos
	Beviewer GT:
	JOHO J. DANZEN, P.E.
Field Time	V
Travel Time So. do./s	accounting sunsay
Total Time	- -
	Gary Klaminshi

Report No. DFS-51

Date 8/9/96
File No. 55099
Technician 6 6/9/96

IN-PLACE DENSITY TEST RESULTS

Contractor	5-17									Technician 6. Klowing
TEST NO.	11	TEST LOCATION		DEPTH	DRY DENSITY	VATER	PROCTOR COOE	PROCTOR	TEST DEPTH	REMARKS
				ELEV.	(PCF)	3		DENSI (1		
	1 200g	11.77 pt. 9	2.5 foot 61100,	134	1001	16.5	V	(86.0)	12	Material is mix of correct sience
	17+ 6-HU	South 0 F 1000	60,70	400+						
7	Rotist of	10/)	114.3	13.7	U	97.1	7/	- 1.
۲	Stern sewer	back f.11.	1 / x + 300 + 4	127	100.7	7.91	V	92.3	12	naturalismix of 6 minusions
,	Storn Some bock till.		14+ 300+4	12	1.14	1		9,4	1	e Material was composited or
4	of MH-7.		1 ft b.l. top of Butthur	7.167	101.5	0 /2/	١. ١	11.7	1/	8/16/16
1	Stin Some bo	6 7	1 4 4,11. 1 ft 500th	` :	120.8	//:/	U	9.701	``	
	127		2	47.	120.3	15.3	a	105.1	12	2nd lift overill.
0	100 / 6 CaT 1 Ca	6160		7000						***
										Aus Terroco = 0,43 x 2,5 - 1.1 Ks/en 2
1	1 '	buch f. 11. 9	1 1/2	22.	711.5	13,0	U	94.7	2/	-514 south of orbo of Buth Aur
- 0	V 7H-1.	6.5 77 00160	1779	1						
0										
6										
9								,		
PROCTOR CODE	HAXIHUM TOR DRY DENSITY E (PCF)	OPTIMUM WATER CONTENT (X)	-				HATER!/	MATERIAL TYPE AND SOURCE	SOURCE	
0	7.7.7	13.6	Grand Is	5/2-1						
2	114,5	0'91	Frontin.	54.00	¥					
1										

CONDRERG-ZOING ASSOCIATES OF NEW YORK, P.C.

REMARKS:

DAILY FIELD SUMMARY	DATE <u>8/20/96</u> FILE No. <u>5</u>	5099
	REPORT No. <u>DFS-52</u> SHEET /	
PROJECT 102 and Street Lastell	(LOCATION Non Falls, N	
	CONTRACTOR Sm, +4 Faviron	_
	; tomp 70 to 85°F wind moder	
REMARKS	,,	
REPORT		
900 Lott for the site.		
930 Arrivo at site.		
Standarding Traylor	moisture Idensity SN 2080	3
Manita Stander	d Count 647 (-0.4 % var)	<i>y</i>
3		
Mode in-place musture and	density touts on storm sower beck 2. So attacked tout results and	location
shitch	2, 30, 47, 40, 7, 87, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7	
12 00 Line h (3dmin)		
430 Lift the site		
500 Amis at office. P	Prop off slung wall fost somple	5
•		
	Beneveo BY:	<u></u>
	BENEWED BY: JOHN J. DANZER, P.E.	
Field Time		W
Travel Time See de la	, accounting summary	1
Total Time	-	
	Gory Klan	`
	boy Klan	1-141

REPORT No. DFS-52

Date 8/20/16 File No. 55099 Technician 6. K/Lumini

IN-PLACE DENSITY TEST RESULTS

1000

102 201

Location

1. Litt is a but 14th bolu 13 LIANO carported · Lift is a sout 1 ft bolow BirthAuc x3/67 · Torvers roadings: 0.44, 0.40, 0.50, · Lift is about 2.5 ft bolow Buti · Ans Torvero, O. 46x 2.5 = 1.1 REMARKS 1.24 mis placed 0 7 7 12 h MATERIAL TYPE AND SOURCE TEST DEPTH 7/ 7 103.4 76.5 91.5 99.8 D PROCTOR DENSITY 9.06 30.6 93,9 96. PROCTOR CODE 0 V U V V S U V 10.9 14.4 10.3 10.4 7.9 UATER CONTENT (X) 13,8 9.6 11076 14. 7470-12 106.7 110.5 106.7 7.701 117.4 113.9 118.4 6.511 113.6 DRY DENSITY (PCF) **メロ**かん 1,4+ 1.4+ 4.11.1 1.6/y 154 DEPTII OR ELEV. L. Ft ; 3 to bolow to B. HAW 18-61AV6 601- 15.81Av. E, 0- 7111 414 to yot 11/4 . 36 ft Gost 50000- Buckfill. 15 ft 0017 45 to west ノイナラシナ was t 61. 74+ 6417 06,00 30 Kt South ox OPTIMUM VATER CONTENT (X) TEST LOCATION bach 1.11. Stin Sower Back fill. 5+1.1 50-- Buch #11 0 Lift is 10001 ď GFF SOUTH OF ij 13. Aron 1010 + 1 MAXINUM DRY DENSITY (PCF) Storn Samer Stern James 1+00 Jone Stern Sour 1.7 + Bulkhord of MH10. 07 MH11. 777 6 HW ンナットル 0 F 7 7 F 01 # 1 ハン・ハ Contractor PROCTOR CODE D TEST ₽. $\mathcal{L}\mathcal{O}$ 7

COLDBERG-ZOINO ASSOCIATES OF NEW YORK, P.C.

REHARKS:

DAILY FIELD SUMMARY	DATE <u>8/21/96</u>	FILE No. <u>55099</u>
		SHEET / of 5
PROJECT 102nd Street Londfor		
		_
		•
TLIMATICO		
REPORT		
900 Loft the office		
030 A + c.+.		
7 /7//// 4/ 3///		
Mot with P. Porter.		
Standardiza Traxlor ma	isture I density gove	SN 20803
Moisture Standed Count	+ 2050 (-0	2.6 % VII) / VOK
Corrent placed concreto	in invent of MH	9. 10 and 11. Time of
placement according to	Corrono was 8 to	9 Doc attached
PROJECT 102 nd Street Londfill LOCATION Niesara Falls, NY DWNER Oxy 101in CONTRACTOR Smith Envir Toch WEATHER CONDITIONS cloar: temp 70 to 85°F; wind light REMARKS REPORT 7°° Loft the office 9°° Loft site.		
	C + 44 / 1	4, 5, 4,
		6Jh
Mado in-place moistore	Idonity tosts on 1	Horm Some Buckett
and Bull had mutarias	(Aron 2)	
315 Loft thosito		
343 Arrive at office. Dr.	op off Summet fit	sumplus
		· · · · · · · · · · · · · · · · · · ·
	Reviews	BY: MM
	Jone J.	DANZER, P.E.
Field Time		3 0 ·
Travel Time	ly accounting sum	anery.
Office Time		
	/	Sary Klaninshi
		PREPARED BY

075-53 2 万	Date 2/2//96 Page of File No. 35099	
	IN-PLACE DENSITY TEST RESULTS	TEST X OPPORTOR X TEST
•	CE DENSITY	031411
	IN-PLA	
	02 nd Strint Leadfill	(2,14

ontrac	ontractor Jm, 75								-		
TEST NO.		TEST LOCATION		DEPTH OR ELEV.	DRY DENSITY (PCF)	UATER CONTENT (X)	PROCTOR COOE	X PROCTOR DENSIIY	TEST DEPTH	REHARKS	
-	70004	F.11 A1000		154	7.811	(13.5)	0	103.6	7		
J	2nd 1.tt	01011		4000			1	-			
7	North of	to,t No 1		11	115.8	(12.3)	1	101, 1	4		
M		to, t , wo !		1	118.9	(3,2)	,,	103.8	12		
4	14	1.4 No1		1	115,2	14.5	11	9.001	12		
1	10	10 test 2001			119.0 ((13.8)	,,	103.9	12	Secretary, yetra dela el compressione del secretario del del compressione	,
7	10.d	FIN A100	5,11 A100 (R, to, t of Ne)	` `	118.2	14.2	0	103.2	12	Any Towners : 0.45 x 25 - 11 10/6 12	•
0 1	1. ho. h	11		"	116.4	14.5	O	9.101	12	Turner Kondin; 10.40, 0.44, 0.44, 0.44, 0.44	
PROCTOR COOE	MAXIMUM FOR DRY DENSITY (PCF)	OPTIMUH WATER CONTENT (X)					MATERIA	MATERIAL TYPE AND SOURCE	SOURCE		
2	114.5	16.0	Frontin	548	20					•	
			;								

CX DBERG-ZOING ASSOCIATES OF NEW YORK, P.C.

REMARKS:



Page No. 3. 15
REPORT No. DFS-53

1	Project 102nd Street Landfill File No. 55099
2	Location Date 8/2:/96 By 65N
3	Subject Checked By
4	Based on Revised By
5	
7	Both Hoad In-place Density Tost Location Shotch (not to scale)
9	Location Shorter (not to see)
10	
11	
12	
13	
14	Coffee dim
15	
16	Aron of Sand Buchfill Placent
17	
18	
19	2-1
20	
21	1/27 (3) (3)71 R-P
22	placed 4 / my (3) (4) - 7
23	
- [70,100
	Rotest
25	Rotest 1
25 26	Rotest
25 26 27	Rotat of #1 Born
25 26 27 28	Born Born
25 26 27 28 29	Born Born
25 26 27 28 29 30	Born Born 1 placed
25 26 27 28 29 30 31	Born Born 1 placed
25 26 27 28 29 30 31 32	Born Born
25 26 27 28 29 30 31 32 33	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34 35	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34 35 36	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34 35 36 37	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34 35 36 37 38	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34 35 36 37 38	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	Born Born 1 placed
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46	Born Born 1 placed
33 34 35 36 37 38 39 40 41 42 43 44	Born Born 1 placed

			THE YORK 142		
ALOAD TIME SEALEAVE	PLANTAGE ARRIVE OB SITE		FINISH DISCHARGE 751E		PARRIVE PLANT
· <u>~ 8 · 10 · 8</u>	25 S	9 00	7.25		
FET CONCRETE CAN CAUSE INJ	ARNING JURY TO THE EYES AND SKIN RNS. TAKE THESE PRECAUTIONS:	a minimu	NS: Free unloading time will m of 15 min. per load. Addition	ial time will be chard	ed at the rate of \$1 nn 🚟
Avoid all contact with eyes.	ughly with water.	the reque	60.00 per hr.). Any water adde st of and at the purchaser's ris by the owner, contractor or h	k. Acceptance by sig	mature or navment of 😤
3. Avoid skin contact whenever possib Wear rubber boots, gloves and appr if irritation persists, get medical atte		lts agents	of any responsibility for any omoroved road or right of way	damage caused by many this also includes	loving vehicle beyond
Keep children away.		etc. onto	pavement by vehicles ordered	off said property.	
GAL X		x		TEST TAK	
16 6 6 6 7	PER NO. TRUCK NO. LOAD SIZE MIX 43 410 3.50 40	00 PSI SIZE	57 AE/ASH LA	SLUMP DATE	-Aug-96
SOLD TO SOLD TO CERRO	ONE INC\ARMAND		P.O. NO	PROJECT NO	
102ND. STREET &	RIVER RD.	MAP PAGE	USE DRIVER UNKNOWN		TIME DUE
STRUCTIONS LANDFILL	Frank Stro				4
CEVITINADO CONTRACO	CORDERED TO PRODUCT TO COLOR T	PRODUCTIDES	CRIPTION S LINIT OF A	PRICE: LA	AMOUNT
3.50 3.50	3.50 440572	4000 #57	AE/A 41 YD		
		1			
		3			
	1011				
				SUB TOTAL TAX	
				TOTAL	
					ou No. DFS-
A CONTRACTOR OF THE PROPERTY O				insr Insr	ECTOR COPY 2

SHEET A SES REPORT No. DFS-53

DAILY FIELD SUMMARY	DATE 8/22/96	FILE No. 55088
	REPORT No. DFJ - 54	SHEET 1 of 4
PROJECT 102nd Stroot Londs	LOCATION No	gora Folls, MY
OWNER Oxy Jolis		
WEATHER CONDITIONS _cloor; >	ting 70 to 85 °F; w.	id moderate
REMARKS		
REPORT	•	
9 10 Lott for the site		
1000 Arrivat site		
Studa-diza Troxlor	h / d	5N 2 0803
Moiston stundard Posity stordard	co-nt 645 (-0.	3 % v · -)
Mude in-place desity test results and loca	to, to on Bulkhand m	etail 566
test results and loca	tei shotch.	
tion Bulkhand Area	plo of Fration 57	tene Mute, al
from Bulh hand Area	(66/12) 08226-	1,
12 ° Lunch (30mm)		
Made in -, slace density	tost on Steen sewer	bach + 11/ pormotes
43° Loft the site		
	Reviewed	BY!
	Jone J	DANZER, P.E.
Field Time		ω
Field Time Travel Time Office Time Total Time	accomting	
Total Time	neg	
		•
	6.	y Klaninshi
		PREPARED BY

Report No. DFS-54
Date 8/22/92

IN-PLACE DENSITY TEST RESULTS

	`	7,0,4								-				
File No. <u>55099</u> Technician <u>6アベ</u>	REHARKS	Towner Aug = 0,42x 2,5 = 1.0 x3/2.2		•									Mixture	
	TEST DEPTH	7	80		-						D SOURCE		2	
	X PROCTOR DENSITY	78.7	97.4								MATERIAL TYPE AND SOURCE		10/	
	PROCTOR COOE	0	4								MATERI		501	4.
	WATER CONTENT (X)	14.8	15.0									10-11	(0,10)	
	DRY DENSITY (PCF)	//3.1	110.6		-		7					· M.t	Marken	
	DEPTH OR ELEV.	15.7 1.4.7 2.0.4.2	154			-						Ston	Caral	
/, //		2 471.64 numeral	501/5, East								-	Frontie	Love	
5400 + 60-16	TEST LOCATION	11, Coll	Botwee Mr	1 1							OPTIMUM VATER CONTENT (X)	16.0	e'51	
102.01		head	540 56001/201/ 5,000/ 5,000/								MAXIHUM DRY DENSITY (PCF)	114.5	113.5	
Project Location Contractor	TEST NO.	8	7	~	4	~					PROCTOR COOE	0	₹	REMARKS:

COLDBERG-ZOING ASSOCIATES OF NEW YORK, P.C.

DAILY FIELD SUMMARY	DATE 8/26/96	FILE No. 55099
		SHEET / of 5
PROJECT 102 nd Stroot Lords		
OWNER Oxy / 0/13	CONTRACTOR S	mith Env Toch
WEATHER CONDITIONS offer;		
REMARKS		
REPORT		
910 Lift the office.		
9 to Arrivo at site.		
Standardize Truxlen A	maisture I density says	x 5N 20803
Monstres Stendent	Count 640 (-0.	6 % Var)
Pensity Standard (ount 2653 (-Di	1 0/2 1/00 }
For the antition of	with tast and	a stren
Some builful ner	MH5 and Bulkhing	Lactionil coll 2
12 44 / / / / /		
12 4 Linch (45min)		
500 life the site		
	Reviewed By Jone J.	25 1
	ال صدول	DANZER, P.E.
Field Time	,	V
Travel Time \ Son \all all	b accounting sum	7-11.
Total Time		
	600	x Klowinski'
		PREPARED BY

Report No. DFS-56

Date 80. File No. Technician

IN-PLACE DENSITY TEST RESULTS

Project Location Contractor	10620	Strast Leadtill							File No. 55089 Technician 614
TEST NO.		TEST LOCATION	DEPTH OR ELEV.	DRY DENSITY (PCF)	WATER CONTENT (X)	PROCTOR COOE	X PROCTOR DENSITY	TEST DEPTH	REMARKS
	Storn Sewer	Storm Sower Back till. 3. Street.	134	118.8	9.01	V	100.9	77	
1 7	1. 1. Lot be		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	105.2	15.9	J	69.6	9/	
2	Roteit of	20 %	1	5:501	14.9	C	80.08	77	
4	Storm Sewer Buchtill.	ver Back 411. 5.5 ft	301	107.0	77.2	7	90.9	7	
7	6.10	Butt	4.46	7.901	15.9	v	90.2	12	
2	+,	~ B. F.	544, 1.04 4.04ey	105.6	14.9	v	90.0	12	
7	3.5 FF DE	below Euff Ave	6 1 h 4 ' V + 4 ' V (:)	108.1	16.0	U	91.8	0/	
00	3.0 ft bel	3.0 tt below Butt Ave	444 4,104	109.7	15.2	U	93.2	72/	
6	2.5 ft ba	2.5 tt bolow Buff Ave	41,00	107.7	7.91	v	2.5	2/	
01	2,0 tt bo	2,0 tt bolow Butt Aux	44.0	108.1	16.3	V	91.6	7/	137.0.61
	Bulkhead area. See location plan	aroa, Collz.	12.7 1.6.7 4.0.6.4	115.4	15.9	Q	100.7	7/	K3/67
PROCTOR COOE	HAXIHUM STOR DRY DENSITY OF (PCF)	OPTIMUM WATER CONTENT (X)				MATER1	MATERIAL TYPE AND SOURCE	SOURCE	
Q	114.5	16.0 Frontier	- Stone	1	Matoria				
U	. //7.7	13.6 Grand ,	Is land	14,	Matural				
						,			
REMA	REMARKS:								

GOLDBERG-ZOINO ASSOCIATES OF NEW YORK, P.C. GEOTECHNICAL-GEONYDROLOGICAL CONSULTANTS

6/26/96 of Resont No. DFS-56

Date 8/26/96 File No. 55089 Technician 67K

IN-PLACE DENSITY TEST RESULTS

Location

REMARKS 7 TEST DEPTH 7 7/ 93.4 90.0 X PROCTOR DENSITY 92.4 PROCTOR COOE 0 U V 15.2 WATER CONTENT (%) 15.8 15.6 105,5 108.8 108.8 DRY DENSITY (PCF) 1044 12+4 1142 DEPTH OR ELEV. Storn Scror Back f.11. 1.5 fort bolow Ave. Sas location plan Butt Ave 1.0 17 bolow Butt Ave TEST LOCATION N. 490, 5.115 0.5 ft bolo-Contractor 4 2/ TEST NO. 1 /8

GOLDBERG-ZOIWO ASSOCIATES OF NEW YORK, P.C. GEOTECHNICAL-GEOMYDROLOGICAL CONSULTANTS

REMARKS:

MATERIAL TYPE AND SOURCE

OPTIMUM NATER CONTENT (X)

MAXIMUM DRY DENSITY (PCF)

PROCTOR CODE

	GZA GeoEnvironmental Page No. 4-45
ĺ	of New York REPORT NO. DES-51-
	- I Engineers and Scientists
1	Project 102nd Street Landfill File No. 55099 Location Date 8/26/96 By 6. Klavinshi
2	
4	Subject Checked By Based on Revised By
5	
6	Bulh Hoad In-place Donsity Tost
7	Location Skotch (not to scale)
8	20071017
9	
10	
11	Cotton Dan
12	
13	Area of South Fill
15	
16	
17	
18	
19	Rimp
20	
21	
22	Berm
24	
25	
26	· · · · · · · · · · · · · · · · · · ·
27	5th 1.1+ placed and
28	tosted today
29	
30	
21	
31 32	
31 32 33	
32	
32 33	Storm Seven
32 33 34	Storm Serven
32 33 34 35 36 37	Storm Seven
32 33 34 35 36 37	Storm Seven
32 33 34 35 36 37 38 39	
32 33 34 35 36 37	(a) (b) (c) Retart No 2
32 33 34 35 36 37 38 39 40	(a) (b) (c) (c) (d) (d) (d) (d) (d) (d) (d) (d) (d) (d
32 33 34 35 36 37 38 39 40	(a) (b) (c) Retart No 2
32 33 34 35 36 37 38 39 40 41 42	(a) (b) (c) Retart No 2
32 33 34 35 36 37 38 39 40 41 42 43	(a) (b) (c) Retart No 2
32 33 34 35 36 37 38 39 40 41 42 43	(a) (b) (c) Retart No 2
32 33 34 35 36 37 38 39 40 41 42 43 44	(a) (b) (c) Retart No 2
32 33 34 35 36 37 38 39 40 41 42 43 44 45	(a) (b) (c) Retart No 2

DAILY FIELD SUMMARY	DATE 8/27/96 FILE No. 55099
	REPORT No. DFS-57 SHEET / of 3
PROJECT 102nd Stroot Lord	LOCATION Ningary Fulls, NY
	CONTRACTOR South Envir Toch Inc
•	t. rain; temp 60 to 75°F; wind moderate
REMARKS	
REPORT	•
915 Left the office	
945 Amis + site. Hoavy	rain 945 to 10 +5
Complete daily report for	e/z6
Standardia Troxlar musture	e Idenity gause SN 20803
Marity Standard Const	+ 649 (1.1 %, va) 7 + 2685 (1.0 %va) 3 V OK
12° Leach (45 min)	
made in -place don	sity tosts on parineter suils / storm
Sower backfill aron	-L MH-1.
Contracted started	trench execution at sta 2+00
moving north.	
330 Loft the site.	
3° /077 7h: 31/8.	
400 Rotronol to office.	
	REVIEWED BY: John J. Dauton, P.E.
	JOHN J. DAUZON, P.E. HILL
Field Time	11 11 like and the cut
Office Time Soca	Atucked dails accounting surrey
Total Time	
	Gary Wlawinshi

Report No. DFS-57 Anim Mare

Date 80. 55 File No. 55 Technician

IN-PLACE DENSITY TEST, RESULTS

Project 102 and Location Markey

COLDBERG-ZOIMO ASSOCIATES OF NEW YORK, P.C. GEOTECHNICAL-GEONYDROLOGICAL CONSULTANTS

APPENDIX D

CONCRETE QUALITY CONTROL DOCUMENTATION

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CONCRETE COMPRESSIVE STRENGTH REPORT ASTM C-39

102nd Street Remedi	ation
	L _ T _ A F NIV
Maria Pill.	1 M
ontractor: Smith Environment Fep Fep Fep Fundament	ort No.: <u>CT-1A</u>
roject No.: Bi-96-027 rep Supplier: Empire Builder	s Supply
supplier:	
***********	*********
Mix Data: Set Date Molded: 07-23-96 Date Recaived: Good	No.: #1
Mix Data:	re Rec'd: 7-29-96
Date Molded: 07-23-50 Good Condition Received: Good	
Placement Location: Manhole	
Placement Location	
1 71-003	
Cubic Yards Placed: G. Kla	awinski
Concrete Temperature:	Air Content:
STUMP:	
Remarks:	3000 PSI
Strength Specification @ 28 Days:	

COMPRESSIVE STRENGTH DATA

(Cylinder Size: 6" x 12" Unless Otherwise Noted)

Laboratory Number	Date Tested	Age (Days)	Cross- Sectional Area (im²)	Maximum Load (lbs)	Compressive Strength (PSI)
GZ 4999	7-30-96	7	28.27	89220	3150
GZ 5000	8-20-96	28	28.27	151980	5380
GZ 5001	8-20-96	28	28.27	150380	5320
!					
		<u></u>			

AUG 2 6 ISTO

Warren, PA Office 920 Pennsylvania Avenue West Warren, Pennsylvania 16365 Phone and Fax (814) 726-1988 Respectfully Submitted,
Quality Inspection Services, Inc.

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CONCRETE COMPRESSIVE STRENGTH REPORT ASTM C-39

Project: <u>Luzna Street Rem</u>	ediation
Client: GZA - GEO Enviro	nmental of NY
Contractor: Smith Environm	ental Technologies Corp.
Project No.: <u>BT-96-027</u>	Report No.: CT-2A
Supplier: Empire Buil	ders Supply

Mix Data: 4000 PSI AE W/ASH	Set No.: <u>#2</u>
Date Molded: 07-26-96	Date Rec'd: <u>08-02-96</u>
Condition Received:Go	od
Placement Location: Storm	Orain MH-3 Fipe Connection.
Cubic Yards Placed:	
Specimens Cast By:	Danzer
Time Specimens Made: 1:15 PM	
Concrete Temperature:	Air Temperature: "19°
Slump: 2.5"	Air Content:
Remarks:	
Strength Specification @ 28 Days	s:4000 PSI

COMPRESSIVE STRENGTH DATA

(Cylinder Size: 6" x 12" Unless Otherwise Noted)

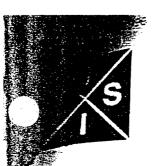
Laboratory Number	Date Tested	Age (Days)	Cross- Sectional Area (in²)	Maximim Load (1bs)	Compressive Strength (PSI)
GZ 5044 GZ 5045	8-2-96 8-23-96	7 26	28.27 28.27	105020 139900	3700 4950
GZ 5046	8-23-96	28	28.27	140150	4960

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CONCRETE COMPRESSIVE STRENGTH REPORT ASTM C-39

Project: <u>102nd Street Rem</u>	<u>ediation</u>	
Client: <u>GZA - GEO Enviro</u>	nmental of NY	
Contractor:Smith Environm	<u>ental Technologi</u>	es Corp.
Project No.: <u>BT-96-027</u>	Report No.:	CT-3A
Supplier: Empire Buil	ders Supply	
***********	***********	
Mix Data: <u>4000 PST AE/ ASM LA</u>		
Date Molded: <u>08-01-96</u>	Date Rec'd:	08-08-96
Condition Received: <u>Go</u>		
Placement Location: <u>Manhole</u>	#4 - Pipe Conne	ctions.
Cubic Yards Placed:	5	
Specimens Cast By:G.		
Time Specimens Made: 4:00 PM		118
Concrete Temperature:	Air Temperat	are: <u>80°</u>
	Air Content:	
Remarks:		
Strength Specification @ 28 Days	s:4500 PS	-

COMPRESSIVE STRENGTH DATA

(Cylinder Size: 6" x 12" Unless Otherwise Noted)

Laboratory Number	Date Test e d	Age (Days)	Cross- Sectional Area (in³)	Maximum Load (1bs)	Compressive Strength (PSI)
GZ 5151	8-8-96	7	28.27	95410	3390
GZ 5152	8-29-96	28	28.27	;49630	5290
GZ 5153	8-29-96	28	28.27	144310	5110



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CONCRETE COMPRESSIVE STRENGTH REPORT ASTM C-39

Project:102nd Street Remedi	ation
Client: GZA - GEO Environme	
Contractor: Smith Environment	
Project No.: BT-96-027 Rep	
Supplier: Empire Builder	
**********	*****
Mir Data: 4000 DCT AE/ ACM IA Cot	No · #A
Mix Data: 4000 PSI AE/ ASM LA Set	. No
Date Molded: 08-05-96 Dat	
Condition Received:Good	
Placement Location: <u>Manholes</u>	#1 and #3 Pipe Connection.
Cubic Yards Placed:	
CUDIC IGIGO FIGUROS.	
Specimens Cast By: G. Kla	awinski
Time Specimens Made: 2:00 PM	Truck No.:128
Concrete Temperature:	Air Temperature:90°
Slump: 5.0"	Air Content:
Remarks:	
Strength Specification @ 28 Days:	4000 PSI
******	*****

COMPRESSIVE STRENGTH DATA

(Cylinder Size: 6" x 12" Unless Otherwise Noted)

Laboratory Number	Date Tested	Age (Days)	Cross- Sectional Area (in²)	Maximum Load (lbs)	Compressive Strength (PSI)
GZ 5154	8-12-96	7	28.27	86050	3040
GZ 5155	9-2-96	28	28.27	116310	4110
GZ 5156	9-2-96	28	28.27	118700	4200
,					

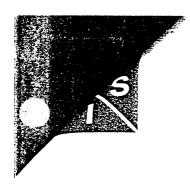
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For Jon Foxis Bloth A I Wink Quality



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CONCRETE COMPRESSIVE STRENGTH REPORT ASTM C-39

Project: 102nd Street Remedi	iation
Client: <u>GZA - GEO Environme</u>	
Contractor: Smith Environmen	tal Technologies Corp.
Project No.: <u>BT-96-027</u> Rep	port No.:CT-5A
Supplier: Empire Builder	rs Supply
***********	************
Mix Data: 4000 PSI AE/ ASM LA Set	No.: #5
Date Molded:08-07-96	ce Rec'd:08-13-96
Condition Received:Good	
Placement Location: Pipe Conne	ction to Storm Drain Manhole MM-4.
Cubic Yards Placed:	1
Specimens Cast By: G. Kla	awinski
Time Specimens Made: 1:30 PM	Truck No.:117
Concrete Temperature:	Air Temperature: 85-90°
Slump:3.5"	Air Content:
Remarks:	
Strength Specification @ 28 Days:	4000 PSI
**********	**********

COMPRESSIVE STRENGTH DATA

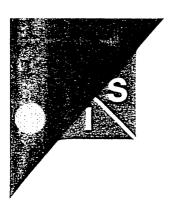
(Cylinder Size: 6" x 12" Unless Otherwise Noted)

Laboratory Number	Date Tested	Age (Days)	Cross- Sectional Area (in²)	Maximum Load (lbs)	Compressive Strength (PSI)
GZ 5209	8-14-96	7	28.27	88050	3120
GZ 5210	9-4-96	28	28.27	130990	4630
GZ 5211	9-4-96	28	28.27	131850	4660

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CONCRETE COMPRESSIVE STRENGTH REPORT ASTM C-39

SEP | 6 1996 RIJEFAL

Project: <u>102nd Street Reme</u>	ediation (32A-BOTTALE
Client: <u>GZA - GEO Enviror</u>	nmental of NY
Contractor: <u>Cerrone Inc / F</u>	Armond Technologies Corp.
Project No.: <u>BT-96-027</u> F	Report No.: <u>CT-6A</u>
Supplier: Empire Build	ders Supply
*********	**********
Mix Data: 4000 PSI AE/ ASM LA	Set No.:#6
Date Molded: 08-13-96	Date Rec'd: <u>08-20-96</u>
Condition Received:God	od
Placement Location: <u>Manhole</u>	5 Around Gast Pipe; Manhole 4 Around
Mouth Pipe; Manhole 1 Cast Wall I	invert/Wall, Part Invest at Manhole 6
Cubic Yards Placed:	2.5
Specimens Cast By: G. 1	Klawinski
Time Specimens Made: 11:00 AM	Truck No.:117
Concrete Temperature:	Air Temperature:
Slump: <u>2.5"</u>	Air Content:
Remarks:	
Strength Specification @ 28 Days	s:4000 PSI

COMPRESSIVE STRENGTH DATA

(Cylinder Size: 6" x 12" Unless Otherwise Noted)

Laboratory Number	Date Tested	Age (Days)	Cross- Sectional Area (in²)	Maximum Load (lbs)	Compressive Strength (PSI)
GZ 5246	8-20-96	7	28.27	114100	4040
GZ 5247	9-10-96	28	28.27	152340	5390
GZ 5248	9-10-96	. 28	28.27	154510	5470

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CONCRETE COMPRESSIVE STRENGTH REPO ASTM C-39

	1 1
Project:102nd Street Remed	diation L. DIEFAL
Client: <u>GZA - GEO Environ</u>	mental of NY GZA-BUFFALO
Contractor:Smith Envornment	
Project No.: <u>BT-96-027</u> Re	eport No.: CT-7A
Supplier:Empire Build	ers Supply
********	**********
Mix Data: <u>57 AE/A 41</u> Se	et No.: #7
Date Molded:09-11-96	
Condition Received: Good	d
Placement Location: <u>Head Wall</u>	l at South End of Storm Sewer
(Bo	ttom Concrete Pad)
Cubic Yards Placed:	4.5
Specimens Cast By:G. K	lawinski
Time Specimens Made: 3:00 PM	
Concrete Temperature:78°	Air Temperature:80°
Slump:3.5"	
Remarks:	
Strength Specification @ 28 Days	: 4000 PSI

COMPRESSIVE STRENGTH DATA

(Cylinder Size: 6" x 12" Unless Otherwise Noted)

Laboratory Number	Date Tested	Age (Days)	Cross- Sectional Area (in²)	Maximum Load (lbs)	Compressive Strength (PSI)
GZ 5541	9-18-96	7	28.27	101450	3590
GZ 5542	9-18-96	7	28.27	95370	3370
GZ 5543	10-8-96	28	28.27	148850	5270
GZ 5544	10-8-96	28	28.27	141770	5020
GZ 5545	Hold	H			
GZ 5546	Hold	Н			

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CONCRETE COMPRESSIVE STRENGTH REPORT ASTM C-39

OCT 2 8 1996

Project: 102nd Street Remed	diation G74-BUFFALC
Client: <u>GZA - GEO Environ</u>	mental of NY
Contractor: Smith Envornment	al
Project No.: BT-96-027 Re	eport No.: <u>CT-8A</u>
Cumplian: Empire Builde	ers Supply
**********	********
Mix Data: <u>57 AE/A 40</u> Se	et No.: #8
Date Molded: 09-18-96 Date Molded: 09-18-96	ate Rec'd:09-24-96
Condition Received: Good	d · · · · · · · · · · · · · · · · · · ·
Placement Location: Head Wall	<u>l at South End of Storm Sewer</u>
· (V	Vall & Pipe)
Cubic Yards Placed:	1.5
Specimens Cast By: T.Se	<u>ider</u>
Time Specimens Made: 1:30 PM	Truck No.:133
Concrete Temperature: 72°	Air Temperature:
Slump: 1.75"	Air Content: 4.1%
Remarks:	
Strongth Specification @ 28 Days	: 4000 PSI
ottength opecanication e as any	++++++++

COMPRESSIVE STRENGTH DATA

(Cylinder Size: 6" x 12" Unless Otherwise Noted)

Laboratory Number	Date Tested	Age (Days)	Cross- Sectional Area (in²)	Maximum Load (lbs)	Compressive Strength (PSI)
GZ 5622	9-25-96	7	28.27	109580	3880
GZ 5623	9-25-96	7	28.18	112290	3980
GZ 5624	10-16-96	28	28.27	158130	5590
GZ 5625	10-16-96	28	28.27	138440	4900
GZ 5626	Hold	Н			
GZ 5627	Hold	H			

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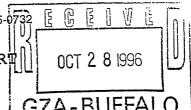
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CONCRETE COMPRESSIVE STRENGTH REPORT

Project:	102nd Stre	et Remedi	ation		GA-DOLLA
Client:	000	Environme	ntal of NY		
	Smith En	vornmenta	1		
Project No.:	BT-96-027	Rep	ort No.:	<u>CT-9A</u>	
	7	aan Cancr			
****	*****	****	·*****	*****	****
Date Molded:	$\frac{09-19-96}{1}$	Dat Good	Set No.:e Rec'd:		
Cubic Yards I	Placed:		5.5		
a december Co.	-+ D:7.	G. Kla	awiaski		
(~	ns Made:l	<u>:30 PM</u> 70°	Air Temperat	Lure	
Slump:	3.0"		Air Content:		4.5%
Remarks: Strength Spe	1 - 1 - 1 - A	28 Days:	3000 P	<u>ST</u> *****	*****
****			amperionii Dama		

COMPRESSIVE STRENGTH DATA

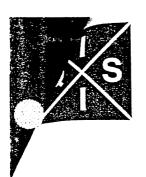
(Cylinder Size: 6" x 12" Unless Otherwise Noted)

Laboratory Number	Date Tested	Age (Days)	Cross- Sectional Area (in²)	Maximum Load (1bs)	Compressive Strength (PSI)
GZ 5600	9-26-96	7	28.27	76010	2690
GZ 5601	9-26-96	7	28.27	86480	3060
GZ 5602	10-17-96	28	28.27	114810	4060
GZ 5603	10-17-96	28	28.27	130850	4630
GZ 5604	Hold	Н			
GZ 5605	Hold	Н			

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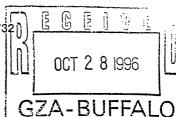


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(710) 000-0101 11 ax (710) 000 0000

CONCRETE COMPRESSIVE STRENGTH REPORT ASTM C-39



Project:102nd Stre	<u>et Remediation</u>		
Client:GZA - GEO	Environmental	of NY	
Contractor: Smith En			
Project No.: <u>BT-96-027</u>		o.:CT-10	λ
Supplier:Empir	e Concrete		
******		*****	*****
Mix Data: <u>#57 AE/A 40</u>	Set	No.:	#10
Date Molded:09-20-96			
Condition Received:			
Placement Location:E	ast & West Win	g Walls at Sou	th End
	New Storm Sev	=	
Cubic Yards Placed:	1.5		
Specimens Cast By:			
Time Specimens Made: 1	:20 PM Truc	k No.:	4699
Concrete Temperature:	78° Air	Temperature: _	80°
Slump:2.0"		Content:	
Remarks:			
Strength Specification @	28 Days:	3000 PSI	
******			*****

COMPRESSIVE STRENGTH DATA

(Cylinder Size: 6" x 12" Unless Otherwise Noted)

Laboratory Number	Date Tested	Age (Days)	Cross- Sectional Area (in²)	Maximum Load (1bs)	Compressive Strength (PSI)
GZ 5678	9-27-96	7	28.27	132490	4690
GZ 5679	9-27-96	7	28.27	126520	4480
GZ 5680	10-18-96	28	28.27	172960	6120
GZ 5681	10-18-96	28	28.27	175770	6220
GZ 5682	Hold	Ħ			
GZ 5683	Hold	Н			

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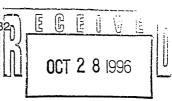
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CONCRETE COMPRESSIVE STRENGTH REPORT



Project:102r	nd Street Rem	mediation		CCA-DOLL
-		onmental of NY		
Contractor:Sn				
Project No.: BT-9			CT-11A	
Supplier:		-		
*****			*****	*****
Mix Data:	4	Set No.:	#	11
Date Molded:09-	-20-96	Date Rec'd: _	09-27-	96
Condition Received:	G	ood		
Placement Location:	South	<u>End Storm Sewe</u>	r Line Plu	g
	((Old Storm Sewe	r Line)	
Cubic Yards Placed:		8.5		
Specimens Cast By:				
Time Specimens Made	e: <u>3:30 Pi</u>	M Truck No		207
Concrete Temperatur				
Slump: 2.0"		Air Conte	nt:	5.0%
Remarks:				
Strength Specificat	tion @ 28 Da	ys:3000) PSI	
++++++++++++++++	+++++++++++	++++++++++++++	********	******

COMPRESSIVE STRENGTH DATA

(Cylinder Size: 6" x 12" Unless Otherwise Noted)

Laboratory Number	Date Tested	Age (Days)	Cross- Sectional Area (in²)	Maximum Load (lbs)	Compressive Strength (PSI)
GZ 5669	9-27-96	7	28.27	853500	3020
GZ 5670	9-27-96	7	28.27	827000	2930
GZ 5671	10-18-96	28	28.27	126860	4490
GZ 5672	10-18-96	28	28.27	128750	4550
GZ 5673	Hold	Н			
GZ 5674	Hold	Н			

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CONCRETE COMPRESSIVE STRENGTH REPORT ASTM C-39

Project: <u>102nd Street Remedi</u>	ation
Client:GZA - GEO Environme	ental of NY
Contractor:Smith Envornmenta	1
Project No.: <u>BT-96-027</u> Rep	ort No.:CT-12A
Supplier: Empire Builders	Supply
	•
*********	*********
Mix Data:4000 PSI	Set No.: #12
Date Molded: 11-26-96 Date	
Condition Received: Good	
Placement Location: Catch Basi	n Along Buffalo Avenue
Cubic Yards Placed:2	2
Specimens Cast By:	TRS
Time Specimens Made: 3:00 PM	Truck No.:125
Concrete Temperature: 55°	
Slump:3.0"	-
Remarks:	
Strength Specification @ 28 Days:	4000 PSI
-	
*********	*******

COMPRESSIVE STRENGTH DATA

(Cylinder Size: 6" x 12" Unless Otherwise Noted)

Laboratory Number	Date Tested	Age (Days)	Cross- Sectional Area (in²)	Maximm Load (lbs)	Compressive Strength (PSI)
GZ 6450 GZ 6451	12-03-96 12-24-96	7 28	28.37 28.27	87710 145620	3090 5150

JAN - 6 1997

GZA-BUFFALO

Warren, PA Office 920 Pennsylvania Avenue West Warren, Pennsylvania 16365 (814) 726-1988 • Fax (814) 726-7850 Respectfully Submitted
Quality Inspection Services, Inc.

East Syracuse Office 6730 Myers Road East Syracuse, New York 13057 (315) 431-4291 • Fax (315) 431-4292

For Job Satisfaction - Think Quality

TERMS NET 15 DAYS CONTROL NO. (CO. USE ONLY) INVOICE NO. JOB ADDRESS A 177 7 0 MIT	SYSTEM REQUIRED MATERIAL PUMPED CACEPTED BY NAME (PLEASE PRINT) RENTAL CONTRACT CONDITIONS: The contractor agrees to furnish water to concrete pump, accept responsibility for delays caused by varying job conditions, improper scheduling of trucks, changes in graduation of aggregate or incorrect batching of concrete.	Back charges are not accepted for machine down time, lost concrete, costs due to uncompleted pours or equipment failure if stand-by pump is not hired. Overtime hours are charged as defined in the local prevailing Union Agreement. The above signed customer by placing of this order or the acceptance of this involce agrees to pay reasonable attorney's fees. 18% interest charges and collection charges in the event action hereinafter becomes necessary for the collection of the due value of the work herein authorized.
CONTRACTOR SATE (10014/94)	OFFICE PHONE NO. P.C. OPERATOR ON JOB \$ C C DESCRIPTION HOURS X = OP. OVERTIME X = TOTALS OP. OVERTIME X = = HELP. OVERTIME X = = MACH. RENTAL X = = VOL. PUMPED \$ X = = RADIOS MISC CHARGES = =	MACHINE TOTAL NET TOTAL Tax w ⁰ % Tax w ⁰ % Total AMOUNT

ķ . . 439-8320 439-8323 439-8158 CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of /15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or Its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles ordered off said property. ල ARRIVE PLANT 安林縣 清林縣 经条件 00:60 08:13:41 10/04/96 AMOUNT 04-0ct-96 TIME DUE 35 7 TAKEN: DATE PROJECT NO DISPATCH: 7 T.PHE DATE PRICE MAK OFFICE: Š TOTAL SUB TOTAL CEAVE JOBS F.O.X : TABE WORN ON JOBSITE F. 7. S : 4 SLUMP ROBERT L/T WILLIAMS RD UNIT OF MEASURE DRIVER FINISH DISCHARGE GORDEN PHENDET DESCRIPTION FORMULA CODE MISC. P.O. NO. SEX SX SX 325 START DISCHARGE 转锋转转转转转锋 01. ASSIZES मुध् ΣÏX RD RZT NIA. FALTS TECH, CORP MAP PAGE 8.00 3.00 GROUT <u>ක</u>ව කුව Avold skin contact whenever possible and wash exposed skin promptly with water. Wear rubber boots, gloves and appropriate eye protection. If irritation persists, get medical attention promptly. \$12E B\$2 WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: 1. Avoid all contact with eyes. ž PRODUCT ARIVE JOB SITE 8.00 SAFETY ENUIRONMENTAL LOAD SIZE - NIA. FALLS GROUT 1.0A.b 01.701. TRUCK NO. () () OCKFORT RD L/T WALMORE ORDERED In case of eye contact FLUSH thoroughly with water. (HAR) HAT & 90"00 LOCKPORT, NEW YORK 14094 特特特的海特特特 LEAVE PLANT ORDER NO. 3768 LB 271 GL 5168 861 10.0 87 22950 LA $\overline{}$ SAN RICHFIELD STREET Û 9829 BUFFALD AVE SMITH TIME 00:17:42 MAD TARES@B AMERICAN CONCRETE CUMULATIVE :-SOLD TO 8.00 . NON NON 1 1,008362 GAL X UFFALO AVE #### 李章 李章 李章 李章 董章 李章 李章 李章 Keep children away TICKET NO. **JELIVERY ADDRESS** CEM 01 UATER LOAD TIME DOC COL 1915800 TRUCK LOAD SUSTOMER NO. NSTRUCTIONS 00.0 7 CONCRETE DELIVERY TICKET

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LOCKPORT, NEW YORK 14094 500 RICHFIELD STREET

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OFFICE: FAX:

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CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with

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a minimum of 15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles ordered off said property.	TEST TAKEN:	o∧те @4 ~0 c t ~96	NO.	TIME DUE	32	UNIT MAMOUNT				00:18:53 10/04/96	•	•		90 90
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CONCRETE DELIVERY TICKET

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HILL THOUGH OFFICE:

FAX:

ARRIVE PLANT ******* LEAVE JOB SITE FINISH DISCHARGE START DISCHARGE ARRIVE JOB SITE LEAVE PLANT LOAD TIME

WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:
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CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles ordered off said property. FE CIV ARRIVE PLANT, 0.9:13 经特殊的特殊 04-0ct-96 TIME DUE ლ. TAKEN: PROJECT NO. LEAVE JOB SITE L/T WILLIAMS RD W/T BE WORN ON JOBSITES <u>U</u>) Ξ S ₹ DRIVER P.O.T. FINISH DISCHARGE GORDEN USE C. HIT SILS. P.O. NO. START DISCHARGE · GROUT HIX-32 NIA. FACT S. RO GLASSES, HOST **科特特特特特特特** × TECH, CORP MAP PAGE À WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:
1. Avoid all contact with eyes.
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4. Wear rubber boots, gloves and appropriate eye protection.
5. Irritation persists, get medical attention promptly.
6. Keep,ontitren awav. ARRIVE JOB SITE 00.0 RD RVT SAFETY ENVIRONMENTAL TOAD SIZE MIM. FALLS TRUCK NO-21.0 LOCKPORT RD L/T WALMORE ಯ (HARED HAT 特件特替纳纳特 LEAVE PLANT : ORDER NO. Œ 9829 MUFFALO AVE SOLD TO 1000366, GAL X BUFFALO AVE 特特特特特特特特 DELIVERY ADDRESS LOAD TIME 1915800 CUSTOMER NO. INSTRUCTIONS PLANT

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500 RICHFIELD STREET LOCKPORT, NEW YORK 14094

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OFFICE: FAX: LEAVE JOB SITE OF SERVINE PLANT 排件替付款银铁铁 START DISCHARGE FINISH DISCHARGE 经移转经约许 经处理 ARRIVE JOB SITE LEAVE PLANT 特特特神神科特特 計報報報報 對報報報 LOAD TIME

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CONCRETE DELIVERY TICKET

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OFFICE:

F.A.X:

ARRIVE PLANT ** ** ** ** ** ** ** ** LEAVE JOB SITE FINISH DISCHARGE 3 : () START DISCHARGE **特格特特特特** ARRIVE JOB SITE WARNING *********** LEAVE PLANT LOAD TIME

WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:

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SGØ RICHFIELD STREET LOCKPORT, NEW YORK 14094

OFFICE: 439-8320 FAX: 439-8158

22 CONDITIONS. Free unloading time will be allowed at a rate of 5 min, per yd, with a minimum of 15 min, per load, Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles ordered off said property. ___ AMOUNT, (3.00 (3.00 (3.00 00:55:15 10:15 ARRIVE PLANT ***** 04-0ct-96 TIME DUE e G TEST TAKEN: DATE PROJECT NO DATE PHOE E CX D ~ TOTAL मित्र किस्ता आस LEAVE YOB SIT L/T WILLIAMS RD R/T BE WORN ON JOBSITÉ 10 SLUMP ROBERT ć. 200 DRIVER UNIT OF MEASURE - B I GORDEN FORMULA EN DUCT DESCRIPTION MTSC. FINISH P.O. NO. USE AXC 01 79 START DISCHARGE RAT NIA, PALLS RD GLASSES MUST XIE 17 41 48 41 12 44 14 42 × ン. 二 エ TECH, CORP. MAP PAGE 0.60 8.88 GROUT 1 1000 0000 0000 Avoid skin contact whenever possible and wash exposed skin promptly with water. Wear rubber boots, gloves and appropriate eye protection. If Irritation persists, get medical attention promptly. 1 ARIBIVE JOB SITE 812E 882 WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: PRODUCT CODE 00"9 SAFETY ENUIRONMENTAL LOAD SIZE NIA, FALLS GROUT \odot 10AD 81/81 ë. <u>1</u>2 DXX DXT 990 TRUCK NO. T SI SI 1. Avoid all contact with eyes.
2. In case of eye contact FUSH thoroughly with water.
3. Avoid skin contact whomas WALMORE (HARD HAT & OHDERED OHDERED 80.00 WARNING **LEAVE PLANT** ŧ ORDER NO. 2004 2004 2004 70 07 2360M LB OJ. 9829 BUFFALO AVE 3740 230 SOLD TO 900 09:59:16 TARES CUMULATIVE ... 6.4.00 GAL X 1000377 AUE 3 Keep children away TICKET NO. *** CEM 01 WATER ACC 02 **JELIVERY ADDRESS** LOAD TIME RETOR TRUCK OCKPORT 1915800 LOAD TIME END AXA AXE UFFALO CUSTOMER NO. INSTRUCTIONS S. 000 PLANT

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 In case of eye contact FLUSH thoroughly with water.
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 Wear rubber, boots, gloves and appropriate eye protection.
 If irritation persists, get medical attention promptly.
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AHHIVE PLANI	CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto payement by vehicles ordered off said property.	TEST TAKEN:	рате (94 — О с. t. — 9.6	PROJECT NO.	TIME DUE 1.1.1.06	38	AMOUNT	7		[10:54:53 E 10/04/96		4 4 00 GL 00 CZ
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STAN DISCHARGE		×	U MIX 32	TECH, CORP. GO	MAP PAGE USE	OLASSES MUST BE	/ PRODUCT PRODUCT DESCRIPTION	GROUT MIX SE		8.00 FORMULA 6.00 CODE		8 1.8 · CEM 8 02. BAC 8 02. · AXG
λ (:)/	TOUCRETE CAN CAUSE INJURY TO THE EYES AND SKIN RITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: Avoid all contact with eyes. Avoid skin contact whenever possible and wash exposed skin promptly with water. Avoid skin contact whenever possible and wash exposed skin promptly with water. If irritation presists, get medical attention promptly. Keep children away.		3 C. G.	1	NIA. FALLS	RD R/T NIA.FALL SAFETY OLASSES	/ PRODUCT	GROUTA B		UCAN SIZE (a.	000 000 000 000 000 000 000 000 000 00
***************************************	WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: 1. Avoid all contact with eyes. 2. In case of eye contact FLUSH thoroughly with water. 3. Avoid skin contact whenever possible and wash exposed skin promptly with 4. Wear tubber boots, gloves and appropriate eye protection. 5. Il tritation persists, get medical attention promptly. 6. Keep children away.	-	ORDER NO. TRUCK NO.	SOLD TO SMUTRONMENTAL	AVE	ZT WALMORE CHARD HAT &	TIVE ORDERED	16, 88, 88		6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	23150 LB NC 3790 LB 275 GL	25 00
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CONTRACTOR	CONTROL NO.	(co. USE ONLY) INVOICE NO.	JOB ADDRESS 7 117.1			M C C	MATERIAL DILINGED (7) (1)	LOWING CO.	7	DAMAGE	DOWN TIME / 45 - 4	REASON	BOOM SIZE MORE V	•	ACCEPTED BY	NAME (PLEASE PRINT)
	MO DV YR	DATE 6,9/1.196	2W/1		,		LEFT JOB / 20	\$ TOTALS	11		li .		LABOUR TOTAL	11	11 ,	- 11
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			SMI).		ноияѕ						9	`^	160
		CUST.NO.	CONTRACTOR	ADDRESS		OFFICE PHONE NO.	OPERATOR ON JOB	DESCRIPTION	OPERATOR REG.	OP. OVERTIME	Y N HELPER REG. U U	HELP, OVERTIME		TRAVEL TIME	MACH. RENTAL	VOL. PUMPED

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RENTAL CONTRACT CONDITIONS:

The contractor agrees to furnish water to concrete pump, accept responsibility for delays caused by varying job conditions, improper scheduling of trucks, changes in graduation of aggregate or incorrect batching of concrete.

MACHINE TOTAL

11 11

MISC CHARGES

RADIOS

NET TOTAL Tax @ % Tax w % TOTAL AMOUNT

Back charges are not accepted for machine down time, lost concrete, costs due to uncompleted pours or equipment failure if stand-by pump is not hired.

The above signed customer by placing of this order or the acceptance of this invoice agrees to pay reasonable attorney's fees. 18% interest charges and collection charges in the event action hereinalter becomes necessary for the collection of the dun value. Overtime hours are charged as defined in the local prevailing Union Agreement.

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LUCKPORT, NEW YORK 14094 SHIGHTIELD STREET

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WARNING

WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:

Avoid all contact with eyes.

In case of eye contact FLUSH thoroughly with water.

Avoid skin contact whenever possible and wash exposed skin promptly with water.

Wear rubber boots, gloves and appropriate eye protection.

If irritation persists, get medical attention promptly.

Keep children away.

CONDITIONS: Free unloading time will be allowed at a rate of 5 min, per yd. with a minimum of 15 min, per load, Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving whicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles ordered off sald property.

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	32	P.O. NO. GORDEN	USE NISC.	L/T WILL	ESCRIPTION		FORMULA		CEM DXC AXG	
×	SKOUT MIX	TECH, CORP.	MAP PAGE	NIA.FALLS RD LZT WILLIAMS	PRODUCT DESCRIPTION	GROUT MIX	6. 80 0. 00		108 LT 86 02 89 02	
	LOAD SIZE M	Į.	NIA.FALLS	RD RZT NIG	PRODUCT	вкоот В	1000 SIZE 81741 182	9 5		
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- 11	PLANT TICKE 1. 1.00	CUSTOMER NO. 1915666	PACS RUFFALO	INSTRUCTIONS LOCKFORT BUFFALO	1	8. Ba	BATCH	MAT TE AGG 02 CEM 03	TIME END AXG AXG	

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SOO RICHFIELD STREET LOCKPORT, NEW YORK 14094

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OFFICE:

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ARRIVE PLANT 非特殊特殊特特特 START, DISCHARGE SEINISH, DISCHARGE STEAVE, JOB SITERS. 李章李李李 李章 李章 李章李李 ARRIVE JOBISTRA LOAD, TIME SLAW, LEAVE, PLANT \$6 \$4 \$4 \$4 \$5<u>*</u>\$5 \$4 \$4 \$4 特特特特特特特

WARNING

WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:

1. Avoid all contact with eyes.

2. In case of eye contact Handward possible and wash exposed skin promptly with water.

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4. Wear rubber boots, gloves and appropriate eye protection.

5. If Irritation persists, get medical attention promptly.

Keep children away

CONDITIONS: Free unloading time will be allowed at a rate of 5 min, per yd, with a minimum of 15 min, per load. Additional time will be charged at the rate of \$1,00 properties. per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles ordered off said property.

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- 6	TAKEN:	рате 24-5ер-96	l NO.	TIME DUE 0.9 a.1.0	32	AMOUNT		08:41:32 09724796		0 0 0	
F	12	SLUMP 6	PROJECT NO.	RT T.	RZT	UNIT IV		TIME	SUB TOTAL. TAX TOTAL	MAT 0XD	
•				ROMERT	LIAMS RD	UNIT OF	۲)	19 n		10 LB 09 02 08 02	·
		32	P.O. NO. GURDEN	USE MTSC.	RD L/T WILLIAMS RD R/T	SCRIPTION	AIX 3E	FORMULA		CEM PXC PXG	S
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		LOAD SIZE MIX		.L.s	RD R/T NIA, FALLS	SDUCT		SIZE	ម មា	#156 #156	
		TRUCK NO. LC	ENVIRONMENTAL	NIA.FALLS	WALMORE RD	7	00.40	1,040	MC	AXB DXXB FF	
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		PLANT TICKET NO	CUSTOMER NO.	9629 RUFFALO	INSTRUCTIONS LOCKFORT RD I	LOAD COURTER CO	8. 88	BATCH P	WAT TRIM AGG 02 2 CEM 01 WATER	TIME Ø8: END TF AXA AXE	
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ARRIVE PLANT 计特种特殊特特特 LEAVE JOB SITE FINISH DISCHARGE START DISCHARGE 经转移特别转移 ARRIVE JOB SITE 80 BELLOAD TIME SELVE LEAVE PLANTED 转转转转转转转 外替社类外特种特

WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. <u>TAKE THESE PRECAUTIONS:</u> WARNING

1. Avoid all contact with eyes.
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3. Avoid skin contact whenever possible and wash exposed skin promptly with water.
4. Wear rubber boots, gloves and appropriate eye protection.
5. If irritation persists, get medical attention promptly.
6. Keep children away.

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CONCRETE DELIVERY TICKET

CONDITIONS: Free unloading time will be allowed at a rate of 5 mln. per yd. with a minimum of 15 mln. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or tils agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dir, etc. onto pavement by vehicles ordered off said property.

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· , ·	24-8ep-96		TIME DUE (09:15	ณฑ	# FAMOUNT	
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	32	P.O. NO. GURDEN	USE MISC.			CEM AXC AXG
×	GROUT MIX 3	TECH, CORP.	MAP PAGE	FOLLS ED	B. BB FORMULA B. BB CODE	50 LR 00 02 02 02
	LOAD SIZE M	1	NIA. FALLS	RD R/T NIA.FALLS RD L/T WILLIAMS RD R/T	GKUUI GKUUI LOAD SIZE 61701 BSZ	
. 20	ОRDER NO. ТЯИСК NO. 1. 205	H ENVIRONMENTAL	l W	WALMORE	200 00	A OZ AXB
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	PLANT TICH	CUSTOMER NO. 1.915000	9829 BUF	INSTRUCTIONS LOCKFORT RD GUFFALO AVE	BATCH TRUCK WAT TR OCM 01	(正面) (A) (A) (A) (A) (A) (A) (A) (A) (A) (A)

439-8320 439-8158 CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min, per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on Rest ARRIVE PLANT the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or Its agents of any responsibility for any damage caused by moving vehicle beyond ilmits of improved road or right of way. This also includes carrying of mud, dir, etc. onto pavement by vehicles ordered off said property. 特特特特特特特 TIME DUE 09:25 рате 24-Sep-96 02 02 02 AMOUNT E M 09:26:31 09/24/96 00 00 00 TAKEN: PROJECT NO. LEAVE JOB SITE TIME TOTAL SUB TOTAL UNIT WAT OXD SLUMP 5. 0 RD'LZT~WILLIAMS RD RZT Ξ DRIVER F. A.T. · UNIT OF ... MEASURE FINISH DISCHARGE 2220 (100 (00) P.O. NO. GORDEN PRODUCT DESCRIPTION USE MISE. FORMULA CODE START DISCHARGE 特特特特教育特特特 32 ļ STUDY THEY × MIX TECH, CORP. R/T NIA.FALLS MAP PAGE GROUT 3.00 1.00 Avoid skin contact whenever possible and wash exposed skin prompily with water. Wear rubber boots, gloves and appropriate eye protection. If Irritation persists, get medical attention promptly. 0 0 2 7 0 7 ARRIVE JOB SITE WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: PRODUCT CODE :: ଉଷ୍ଟର ଅଧିକ୍ର × 8.00 SIZE ENVIRONMENTÁL LOAD SIZE NIA. FALLS £3 ອ ທີ TRUCK NO. 101 LOAD In case of eye contact FLUSH thoroughly with water, ORDERED ORDERED WALMORE दिवयः मुख 特特特松特特特 WARNING LEAVE PLANT ORDER NO. ļ AVE SOLD TO 70 07 OCKPORT RD L/T CUMULATIVE OUANTITY \bar{c} 9829 BUFFALO 3750 23000 32.00 89:38:03 TARES LOAD TIME GAL X LOOKET NO. 李本 李本 李本 李章 李章 李本 李本 李本 UFFALO AVE NO. CUSTOMER NO. 1.91.5800 ELY LOAD Ø. BATCH WATER RUCK TIME CEM AGG AXA AXE CONCRETE DELIVERY TICKET : 7.

UFFICE:

SOW RICHFIELD STREET LOCKPORT, NEW YORK 14094

ARRIVE PLANT 特件经信贷补补件 LEAVE JOB SITE ... START DISCHARGE FINISH DISCHARGE 计移转标转移转 ARRIVE JOB SITE LEAVE PLANT

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WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:

1. Avoid all contact with eyes.

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4. Wear rubber boots, gloves and appropriate eye protection.

5. It irritation persists, get medical attention promptly.

6. Keep children away. WARNING

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TAKEN:	DATE 24-Sep-96	PROJECT NO.	ТІМЕ DUE 10 : 00	0 0 0	AMOUNT		6 09 30 44 6 09 28 44 6 09 28 4 26					
	SLUMP 5. 0	PROJE	JOE P.	MS RD R/T	UNIT OF PRICE		36 TIME 32 DATE 'SUB TOTAL TAX TOTAL					
× .	. 0	P.O. NO. GORDEN		WALMORE RD RZT HIA.FALLS RD LZT WILLIAMS RD RZT		i)	CDDE					
	GROUT MIX 32	CH, CORF.	сн, сокр.	ECH, CORP.	≡сн, сокР.	≡сн, сокР.	ЕСН, СОКР.	есн, сокь.	MAP PAGE	IA.FALLS RD	PRODUCT DESCRIPTION	
	ORDER NO. TRUCK NO. LOAD SIZE MIX	SMITH ENVIRONMENTAL TECH, CORF.	AVE - NIA.FALLS	KE RD RZT N	PRODUCT		LOAD SIZE 01/01 BSZ MC 5.6					
GAL X	TICKET NO. 11 CHDER NO. 17 L	1915800 SMITH ENVIR	PELIVERY ADDRESS SELIFF ALO AVE - NJ	NSTRUCTIONS LOCKPORT RD L/T WALMOR BUFFALO AVE	CONTRACTOR CONTRACTOR CONDENED COUNTRY		HATCH NO. 4724 TRUCK NO 219 WAT TRIM + 15.0 AGG 02 22900 LB CEM 01 3740 LB WATER 325 GL					
	PLANT.	custo 1.9.	DELIVE 49 ();	EUFI	13.9 ¢							

CONCRETE DELIVERY TICKET.

LOCKPORT, NEW YORK 14094 500 RICHFIELD STREET

ARRIVE PLANT 转转转移转转转 LEAVE JOB SITE FINISH DISCHARGE RELEAVE PLANTAGE ARRIVE JOB SITE START DISCHARGE 经特殊特别特 **机材料料料料料** LOAD TIME 3. 3. 5. 45° 5. 5. 5. 5. 5.

439-8320 439-8158

OFFICE: FAX:

> WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:
>
> 1. Avoid all contact with eyes.
>
> 2. In case of eye contact FLUSH thoroughly with water.
>
> 3. Avoid skin contact whenever possible and wash exposed skin promptly with water.
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>
> 5. Il Irritation persists, get medical attention promptly.
>
> 6. Keep children away. WARNING

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TAKEN:

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	DATE 24-Sep-96	5.	TIME DUE 10:05	ಜ	AMOUNT			09:37:44 09/24/00			0 00
	SLUMP DATE 5.4	PROJECT NO.	.8.	R/T TE)	UNIT PRICE		······································	TIME	SUB TOTAT	TOTAL	WAT AXB
	<u> </u>		KEVIN	L/T WILLIAMS RD R/T BE WORN ON JOBSITE)	NONIT OF MEASURE	(I \			ZO 00 ZO 00		10 LB 00 02 00 02
	C.	P.O. NO. GURDEN	USE M.T.S.C.,	L/T WILL BE WORN	SCRIPTION	7 H		FORMULA COME	AXC		CEM AXC AXG
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	SROUT MIX 38	TECH, CORP.	MAP PAGE	NIA.FALLS RD GLASSES MUST	*PRODUCT DESCRIPTION	GROUT MIX			88 02 88 02		100 LB 00 02 80 02
	LOAD SIZE MI	-1	NIA. FALLS	RD R/T NIA SAFETY GLA	PRODUCT 1	GRUUT		LOAD SIZE	₩		A S B B B B B B B B B B B B B B B B B B
	ОЯОЕЯ NO. ТЯИСК NO. 1. (2. (3.4)	ENVIRONMENTAL	l u	JALMORE D HAT &	ORDERED	<u>aa. aa.</u>		ហិន ស	702 0.02 0.03 1.03) LB 0L	7.0 7.0 7.0 7.0
- 11	1.007913	SOLD TO SMITH	SS IFFALO AV	RD L/T AVE (HAR	CUMULATIVE	क्षा विव		ODWOD:24	230062 23006	326	09:42:55 TARES 000
	PLANT TICKET	CUSTOMER NO. 1.9.1.5.8.00	DELIVERY ADDRESS 9029 RUFFALO	INSTRUCTIONS OCKPORT RUFFALO	COAD	8.00		TO THE STATE OF TH	ENERGY OF THE PROPERTY OF THE	CEM Ø1 WATER	TIME END AXA AXE

CONCRETE DELIVERY TICKET

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500 RICHFIELD STREET LOCKPORT, NEW YORK 14094

439-8320, 439-8158 ARRIVE PLANT 特特特特特特特 OFFICE: LEAVE JOB SITE FAX: FINISH DISCHARGE 0 START DISCHARGE £2, 42 04 84 45 45 26 34 ARRIVE JOB SITE . LEAVE PLANT 特务等等等等等等 LOAD, TIME #######

WARNING

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TE 4-Sep-96	NO.	1.0 a.1.22	ਹ _ਿ	"AMOUNT	. ••	~	09:43:46	•	· .	0 00 0 00 0 0	
SLUMP DA	PROJECT	, , , , , , , , , , , , , , , , , , ,	D R/T	UNIT ?			TIME DATE	SUB TOTAL TAX TOTAL		D WAT	4
	7	DRIVER F.T.C.	LIAMS R ON JOB							988 989 700	
· ·	GORDEN	USE MTSC.	L/T WIL BE WORN	SCRIPTION	•		ORMULA			E C C C C C C C C C C C C C C C C C C C	
M.Y.X	H, CORF.	MAP PAGE	FALLS RD BSES MUST	PRODUCT DE			8.00 8.00	•		L.B 0.2 0.2	
SAD SIZE MIX GR	1	ILLS	1 :	PRODUCT SAN CODE	•		D SIZE	5.6		٠	٠
10. TRUCK NO. LC	4V I RONME	1	E ≪	20.35	-		_	MC			
3-7-57	SOLD TO SMITH EI	AVE	T/T HAH)	SQUAUTHYSIS SOUNDS				828 876 376 378	30.48.05		
PLANT TICKET	CUSTOMER NO.	DELIVERY ADDRES	LUCKFORT BUFFALO	LOAD ()			BATCH	MAT T AGG 000 CEM 000 WATER			
	TICKET NO TOWN ONDER NO. TRUCK NO. LOAD SIZE MIX TOWN OF THE BLACK OF THE CALLS SIZE	TICKET NO TOUCH THUCK NO LOAD SIZE WIX 3.00 GROUT MIX 3.2 S.UMP SILOMP S	TIOKELNO TABLE OF THUCKNO COAD SIZE MIX AND THUCKNO COAD SIZE MAP PAGE USE USE OF THE CHAPPAGE WE BUTCH THE CHAPPAGE WAS BUT	NOTIFIED ONDER NO. THUCKNO. LOAD SIZE MIX. SOLDTO FOR THUCKNO. LOAD SIZE MIX. SOLDTO FOR THUCKNO. LOAD SIZE MAP PAGE USE RD L/T WALMONDE RD R/T NIA, FALLS RD L/T WILLIAMS RD R/T RD L/T WALMONDE RD R/T NIA, FALLS RD L/T WILLIAMS RD R/T AVE. CHARD HAT & SAFETY GEASSES MUST BE WORN ON JOBSITE?	SOUNT ORDER NO. THUCKNO. 93.00 WX ORDER NO. ORDER NO.	RD L/T WALMORE RD R/T NIA FALLS RD L/T WILLIAMS RD R/T ALCONOMINATION COMMUNITY SECTION TO A SAFETY GLASSES MUST BE WORN ON JOBSITE) SOUND TO A VE NIA FALLS RD L/T WALMORE RD R/T NIA FALLS RD L/T WILLIAMS RD R/T A VE CHARD HAT & SAFETY GLASSES MUST BE WORN ON JOBSITE) SOUND TO A VE NIA FALLS RD L/T WALMORE RD R/T NIA FALLS RD L/T WILLIAMS RD R/T A VE CHARD HAT & SAFETY GLASSES MUST BE WORN ON JOBSITE) SOUND TO BROWN THE BOOM TO BE THE WORN ON JOBSITE) SOUND TO BE THE BOOM TO BE THE BOOM TO BE THOSE THOSE THE BOOM TO BE THOSE THO	RD L/T WALMORE RD R/T NIA, FALLS RUST BE WORN ON YOBSITE) SOUNDYNIA SAFETY GLASSES MUST BE WORN ON YOBSITE) SOUNDYNIA SAFETY GROUT MIX 32	SOUND SOUND TRUCK NO. PRODUCT SOUND SOUND	SOUTH ENVIRONMENTAL TECH, CORF. GORDEN PROJECT NO. SOUTH S	SPITITE PROJECT PROJ	SWITTH ENVIRONMENTAL TECH, CORF. GORDEN SWW PROJECT NO SWITTH ENVIRONMENTAL TECH, CORF. GORDEN SWITTH ENVIRONMENTAL TECH, CORF. GORDEN SWITTH ENVIRONMENTAL TECH, CORF. GORDEN SWITTH ENVIRONMENTAL STATE SWITTH ENVIRONMENTAL S

СОИСВЕТЕ DELIVERY TICKET

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LOCKPORT, NEW YORK 14094 SOO RICHFIELD STREET . THE RESERVE OF

うじつローにつき LIDIMICIT OFFICE:

439-8320 439-8158

FAX:

LEAVE JOB SITE. ARRIVE PLANT 特特特特特特特 FINISH DISCHARGE START DISCHARGE 经特种特种特特 ARRIVE JOB SITE LOAD TIME SELL SELEAVE PLANT SEL 认为特特特特特

WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:

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TEST TAKEN:	3 24-Sep-96	PROJECT NO.	10 1.18	77 32	UNIT PRICE ROLL ROLL BY BURNE BOY E4/96 TOTAL	WAT 80 GL AXD 02
	SLUMP 5.0	e de la companya de l	DRIVER L TITTE TO	L/T WILLIAMS RD R/T BE WORM ON JORSITE)	MEASURE Y I/ 3.2 3.2 S.U.	20 LR 00 OZ 00 OZ
×	× 38 `	COKDEN GOKDEN	MISCL	RD JST	BRODUCT DESCRIPTION G. 00 F. 0 RMUL. A G. 00 C. C. DE	CEM AXC AXG
· .	MIX BROUT MIX	TECH, CORP.	MAP PAGE	NIA.FALLS GLASSES ML	PRODUCT OR DUCT OF THE STREET	66 LR 86 DZ 88 OZ
	ORDER NO. TRUCK NO. LOAD SIZE	ENVIRONMENTAL	- NIG, FALLS	WALMORE RD R/T D HAT & SAFETY	ONDERED PRODUCTS COOR COOR COOR COOR COOR COOR COOR COO	AGG AXB AXF
GALX	1.007.9.1.5	SOLD TO	AVE	RD L/T AVE CHAR	6.4.00 6.4.00 NO. 47 NO. 47 NO. 47 S.3050 3.790 3.790	09:53:42 TARES 00 OZ 00 OZ
	PLANT TICKE	CUSTOMER NO.	DELIVERY ADDRESS	INSTRUCTIONS LOCKPORT BUFFALO	BATCH TRUCK WATER GEM 81	TIME END AXA AXE

CONCRETE DELIVERY TICKET

SØØ RICH-1ELD STREET LOCKPORT, NEW YORK 14094

439-8320 439-8158 ... ARRIVE PLANT LEAVE JOB SITE, FAX: FINISH DISCHARGE is START DISCHARGE ARRIVE JOB SITE • LEAVE PLANT

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2. In case of eye contact FLUSH thoroughly with water.
3. Pavoid skin contact whenever possible and wash exposed skin promptly with water.
4. Wear rubber boots, gloves and appropriate eye protection.
5. It infritation persists, get medical attention promptly.
6. Keep children away. SIZE WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: LOAD SIZE R/T ENVIRONMENTAL SAFETY NIA. FALLS THOUSE STOCK 100p TRUÇXAO COANTITY COUNTITY CODANTITY COUNTITY CO œ WAL MORE (HARD HAT WARNING 14 14 to 35'04 14 14 14 ! ORDER NO. 728 AVE SOLD TO OFLIVERY ADDRESS FOLO 7 0 9 1007916 GAL X 2 BUFFALO AVE LOAD TIME 建铁铁铁铁铁铁 CUSTOMER NO. NSTRUCTIONS T BATCH TRUCK WAT T PLANT

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0<u>L</u> 00 00 MA CX CX TOTAL Σ× SUB TOTAL MAG COL -000 000 CEE DXC DXC 0.72 0.72 0.73 N 20 0 0 0 0 0 Ü E) AXXA AXXA 20.00 20.00 7 + 12.0 23090 LB 3740 : 325 09:59:32 TARES CEM Ø1 WAYER 3

TIME END AXA AXE

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CONCRETE DELIVERY, TICKET

Despisor of

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LOCKPORT, NEW YORK 14094 500 RICHFIELD STREET

439-8320 יוטט-נייוי

CASH MIGHT

OFFICE:

439-0158 ARRIVE PLANT ######### 00 LEAVE JOB SITE FAX: FINISH DISCHARGE ARRIVE JOB SITE START DISCHARGE WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:

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EN:	DATE 24-Sep-96). (C	1.0 : 2.9	ed en	AMOUNT:	10:10:05 09/24/96) 68 69
CA TAKEN:	_	PROJECT NO.	807 S.	S RD R/T JOBSITE)	PRICE	TIME DATE	l:	LE OZ AXD OZ
Me			LEROY	TAM	UNIT OF	200 200 200		# B # B B B B B B B B B B B B B B B B B
101	32	P.O. NO. GORDEN	USE MISC.		ESCRIPTION	FORMULA CODE:		CEE DAXC DAXC DAXC
	GROUT MIX	TECH, CORP.	MAP PAGE	NIA.FALLS RD GLASSES MUST	PRODU	· •	:	88 1.8 88 0.2 88 0.2
	LOAD SIZE M	1	NIA, FALLS	RD R/T NIC SAFETY GLO	PRODUCT (V)	LOAD SIZE		0 <u>e</u> r
	ORDER NO. TRUCK NO.	ENVIRONMENTAL)	L/T WALMORE I	ONDERED ()		LB MC LB MC GL	AGG OZ AXB
GAL X	TICKET NO. 1 OF 1 T CO. 1 OF 1 T CO. 1 OF 1 T CO. 1 T	SOLD TO SMITH	FALO AVE	RD L/T (CUMULATIVE	0. 40.	Ħ	10:15:11 TARES 80
	/PLANT TICKET.	1.915800	DELIVERY ADDRESS 9829 BUFFAL	INSTRUCTIONS LOCKPORT RUFFALO	CUANTITY (2)	BATCH	WAT TR AGG 02 CEM 01 WATER	TIME END END PXB PXB

CONCRETE DELIVERY TICKET

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LOCKPORT, NEW YORK 14094 SOW RICHFIELD STREET

ARRIVE PLANT **科科科科科科科科** LEAVE JOB SITE FINISH DISCHARGE • • ; START DISCHARGE. 特特特特特特特特特 ARRIVE JOB SITE .. (b) 特特特性特特特特 LEAVE PLANT LOAD TIME 特排特性特特特

439-8320 439-8158

OFFICE: FAX:

WARNING

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	-96-		тіме	35	UNIT	10:15:56 09/24/96		88 CL 88 CZ
TAKEN:	₂₄ Sер-96	ON .	ĒĦ		AMC	• •		9
4T		PROJECT NO		T)	UNIT AMOUNT	TIME	SUB TOTAL TAX TOTAL	WAT AXD
	SLUMP 15 (Ø		DRIVER 1. EROY	L/T WILLIAMS RD R/T BE WORM ON JOBSITE)	UNIT OF MEASURE	7.1)	ड	10 LB 80 02 80 02
× ×	el el	P.O. NO. GORDEN	use MISC.	L/T WILL BE WORM		, se FORMULA CODE	:	D X C D X C D X C D X C
	GROUT NIX 32	тесн, сокр.,	MAP PAGE, FRILLS EX)	NIA.FALLS RD GLASSES MUST	PRODUCT.DESCRIPTION	0.000 () M.X.X.000 () M.X.X.		00 CB 02:000
	LOAD-SIZE MI	1	NIA, FALLS	RD R/T NIA SOFETY GLA	PRODUCT	OAD SIZE	2.6	ASG AXE AXE
	оврев NO. Тяцск NO. 1. (2.6) (2.	ENUIRONMENTAL	- NIO.F	可会	ONDERED.	 [36] 	프 프 프	02 02 03 03 03
GAL X	TICKET NO. 1. 6 (2.1.6)	SMITH E	ITH NVE	\z \z \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\			IN + 15.0 22950 LB 3740 LB 326 GL	10.20 TARES 00 0
5	PLANT TICKET NO	CUSTOMER NO.	OELIVERY ADDRESS 9029 BUFFALO	NSTRUCTIONS - OCKPORT R	3.20 7.20	BATCH TRUCK	©COL ∰	TIME 10 END AXA' AXE
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CONCRETE DELIVERY TICKET

/パロング ロエキキ (十つこ)

LOCKPORT, NEW YORK 14094 500 RICHFIELD STREET

LEAVE JOB SITE STARRIVE PLANT FINISH DISCHARGE APRIVE JOB SITE, | START DISCHARGE 一种特性特别特特特 LEAVE, PLANT **州林级馆好特特投** COAD TIME <u>असमित्रम</u>

439-8320 439-8158

OFFICE: FAX:

WARNING

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TAKEN:	олте 24-8ер-96	NO.	TIME DUE	ಡ ೮	AMOUNT		49/24/96	88
TA	SLUMP STUMP	PROJECT NO.	Ĥ.	R/T TE)	UNIT	•	TIME DATE SUB TOTAL TAX TOTAL	TAW GXC
	18 18		PRED	IAMS RD ON JOBSI	MEASURE (T.1)		THE CONTRACTOR OF THE CONTRACT	10 LR 00 0Z 00 0Z
The state of the s		P.O. NO. GURDEN	use MTSC.	L/T WILLIAMS RD R/T BE WORN ON JOBSITE)	CRIPTION 3.2	·	CODE	AXC DXC AXC
ے × -	T MIX 32	CORP.	MAP PAGE	l .	PRODUCT DESCRIPTION CROUT HIX 32		8, 80 E	02 02 03 04
	e MIX 10 GROUT	IL TECH, CORP.		RD K/T, NI'A. FALLS RD SAFETY OLASSES MUST	金统		SIZE	© © © 17 © ©
	TRUCK NO. LOAD SIZE	H ENVIRONMENTAL	NIA. FALLS				10AD 81/81 MC 5.6	0000 0000 0000
	ORDER NO. TR	TH ENVI	AVE - N	T WALMORE ARD HAT &	COUNTITY OUR COUNTITY		Pr 0.885	326 GL 10:34 10:34 10:2 10:34
GAL X	1.0007.920	SOLD TO SMIT'I	1	F RD L/T	COMULATIVE COUNTY OF STATE OF			B.30.
	PLANT TICKE	CUSTOMER NO.	DELIVERY ADDRESS 9.02.0	INSTRUCTIONS LOCKPORT RUFFALO	COOP COOP		TRUCK WAT T AGG 01	WATER 1
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CONCRETE DELIVERY TICKET

LOCKPORT, NEW YORK 14094 SOW RICHFIELD STREET

-ARRIVE JOB SITE

LEAVE PLANT

LOAD TIME

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经转级性管特殊经

OFFICE: FAX:

439-8320 439-8158

LEAVE JOB SITE

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Wear rubber boots, gloves and appropriate eye protection.

If irritation persists, get medical attention promptly.

Keep children away.

OATE 24-Sep-96 PROJECT NO. SLUMP 5. G P.O. NO. GORDEN (C) XIV TECH, CORP GROUT LOAD SIZE ENVIRONMENTAL TRUCK NO. ORDER NO. SOLD TO . GAL X 1007921 CUSTOMER NO.

LANT

TIME DUE 10:57 L/T WILLIAMS RD R/T Ξ DRIVER J.() [J USE MISC. NIP. FALLS MAP PAGE RD RZT NIA, FALLS NOTIFICATIONS OF THE MALMORE : AVE DELIVERY ADDRESS 9829 RUFFALO

300 BE WORN ON JORSITE) GLASSES MUST SAFETY (HARD HAT & SUFFALO AVE

10.2	1 -	
AMOUNT	Ý	10:35:48 09/24/96
- PRICE		TIME
UNIT OF MEASURE	û k	3.E
PRODUCT DESCRIPTION	SS XIA	FORMULA
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ODUCT CO	_	LOAD SIZE 01/01 BSZ
a Pa	0086	1.000 01.701
ORDERED	<u> </u>	4733 205
CUMULATIVE	<u> </u>	NO.
LOAD	6. 98	BATCH

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CONCRETE DELIVERY TICKET 1. . .

LUCKFORT, NEW YORK 14094 500 RICHFIELD STREET

439-8320 OFFICE? FAX:

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439-8158 LEAVE JOB SITE AND ARRIVE PLANT 特特特特特特特特 ARRIVE JOB SITE START DISCHARGE FINISH DISCHARGE 铁铅铁铁铁铁铁 **6** LOAD TIME LEAVE, PLANT 针纱粉粉粉粉件件 11 11 11 11 11 11 11 11

WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS, TAKE THESE PRECAUTIONS: WARNING

Avoid all contact with eyes. In case of eye contact FLUSH thoroughly with water. Avoid skin contact FLUSH thoroughly with water. Wear rubber boots, gloves and appropriate eye protection. If Irritation persists, get medical attention promptly.

Keep children away

CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles ordered off said property.

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TEST TAKEN:	олте 24-Sep-96	, ON	1.1. 1.1.2.	20 m	AMOUNT		10:40:37 09/24/96		00 GL 06 DZ
TEST TAKE	SLUMP DA	PROJECT NO		R/T TE)	PRICE		TIME	SUB TOTAL TOTAL	MAT AXD
	<u>20.5.1</u>		DRIVER P.A.T. M	L/T WILLIAMS RD R/T BE WORN ON JORSITE)	MEASURE	2	20 20 20 20		20 LB 00 02 00 02
	32	60KDEN	USE MTSC.	- E	-		FORMULA CODE		OEEM AXC AXG
 	SROUT MIX 3	TECH, CORP.	MAP PAGE	NIA, FALLS RD GLASSES MUST	PRODUCT DESCRIPTION	_	6.88 8.88		88 L8 88 02 88 02
	LOAD SIZE MI	ENVIRONMENTAL TEC	MIA.FALLS	RD R/T SAFETY	PRODUCT: *CODE:		LOAD SIZE	#C % 6	AGG AXB AXF
	ORDER NO. TRUCK NO.	I	AVE - NIF	ZZ WALMORE CHARD HAT &	ORDERED OUNTITY CONTROL	00.00	4734 215		01 00 02 00 02
GAL X	1.00 7.923	SOLD TO	DELIVERY ADDRESS 9829 BUFFALO	RD I	CUMULATIVE		NO. NO.	7KIN + 11 02 22900 01 3740 18 326	10,53, TARES
	PLANT TIO	CUSTOMER NO.	DELIVERY ADD	CCKPORT CCKPORT RUFFALO	COAD	0 40	BATCH	MAT TR AGG 02 CEM 01 WATER	TIME END AXA AXE

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LOCKPORT, NEW YORK 14894 SOW RICHFIELD STREET

ARRIVE PLANT ######### LEAVE JOB SITE FINISH DISCHARGE START DISCHARGE \$2 \$6 \$6 \$4 \$4 \$5 \$6 86 86 ARRIVE JOB SITE LEAVE PLANT 44.20% 特特特特特 H4447444 LOAD TIME

439-8320 439-8158

OFFICE:

FRX:

WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: 1. Avoid all contact with eyes.

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It irritation persists, get medical attention promptly.

Keep children away.

conditions: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min. per load. Additional time will be charged at the rate of 51.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the requests of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any famage caused by moving vehicle beyond limits of improved road or right of way. This slip program or much dirt, etc. onto pavement by vehicles ordered to said program.

TEST

1.1. # 30 11:03:44 09/24/96 AMOUNT олте 24-5ер-96 38 TAKEN PROJECT NO TIME PRICE TAX TOTAL SUB TOTAL L/T WILLIAMS RD R/T WORN ON JOBSITE) တ် SLUMP 5...0 DRIVER KEUIN UNIT OF MEASURE PRODUCT DESCRIPTION P.O. NO. GURDEN FORNULA USE MISC. RE 35 SAFETY GLASSES MUST NIA, FALLS RD XIL × TECH, CORP. MAP PAGE 00. 00. GROUT SIZE BSZ RD R/T TRUCK NO. LOAD SIZE 204 8. 00 ENVIRONMENTAL NIA. FALLS ು : Ci 10AD 61/01 3 ORDERED L/T WALMORE œ <u>200.00</u> (HARED HAT 10. 4737 NO 200 1 + 15.0 22990 LB ORDER NO. į AVE SOLD TO 3760 326 QUANTITY COMULATIVE 120.00 9029 RUFFALO 1007925 GAL X TRIM 02 E AVE OCKPORT RD CEM 01 WATER BATCH TRUCK UNT T 1.915800 UFFALO AG6 3.00 PLANT

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LOCKPORT, NEW YORK 14094 500 RICHFIELD STREET

ARRIVE PLANT	特特特特特特特
LEAVE JOB SITE	• •
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UP-FIUE: FAX:

> WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:
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> 2. In case of eye contact FLUSH thoroughly with water.
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TEST TAKEN:	DATE 24-Sep-96		1.1.1.4.2	35	AMOUNT		٠.			11:13:46			
LOON TA	2 0 °C 2 0 °C	PROJECT NO.	DRIVER)	s Kp R/T	UNIT OF PRICE (*)					32 TIME 32 DATE	SUB TOTAL TAX TOTAL		
ore to	38	GONDEN	. USE MISC.	MORE RD R/T NIA, FALLS RD L/T WILLIAMS KD R/T	SCRIPTION	MIX 32				FORMULA			
×	E MIX GROUT MIX	L TECH, CORP.	MAP PAGE	RD RZT NIA.FALLS RD SAFETY GLASSES MUST		<u> </u>				SIZE 0.00	1		
	OHDER NO. TRUCK NO. LOAD SIZE	ENVIRONMENTAL TECH, CORP.	- NIA, FALLS		ORDERED OF PRODUCT	.1				4739 LOAD 3	MC 5.	7.0	
XIVE	37 m	CUSTOMER NO. SOLD TO SMITTH	9829 BUFFALO AVE	NOTRECTIONS L/T WAL	LOAD	1.28.00	,		· ·	BATCH NO. 47	E	WATER 326 GL	•
	1@_	<u>lo,,</u>	10,	<u> ≦7.85</u>	1 1111	<u> </u>		:					

CONCRETE DELIVERY TICKET

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LOCKPORT, NEW YORK 14094 SOO RICHFIELD STREET

START DISCHARGE | FINISH DISCHARGE | LEAVE JOB SITE | STARTINE PLANT ***** 特性特特特特特 ARRIVE JOB SITE 特特特特特特特特 LEAVE PLANT LOAD TIME

439-8320 439-8158

OFFICE: FAX:

WARNING

WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:

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TAKEN:	DATE 24-Sep-96	NO.	1.1. : 4.8	32	AMOUNT	11.25.07	0 00 C
TA TA	SLUMP DY	PROJECT NO	, m,	R/T (TE)	UNIT	TIME DATE SUB TOTAL TAX	MAT AXB
	w _n ,		DRIVER J. CJ-IN	WILLIAMS RD R/T JORN ON JOBSITE)	UNIT OF	38	22 88 02 03 03 03 03
		SONDEM GONDEM	USE MISC.	L/T WILLIAMS RD R/T BE WORN OH JOBSITE)	SCRIPTION	FORMULA	08 0 0 0 0
×	UT MTX 32	TECH, CORP.	MAP PAGE	NIA, FALLS RD GLASSES MUST	UCT DE	8.00.8 7 99.8	0.2. 0.2. 0.2.
	LOAD SIZE MIX 6.00 GROUT	1	1.	RD R/F NIA. SAFETY GLAS	PRODUCT CODE	SIZE	000 000 000
	TRUCK NO.	H ENUIRONMENTAL	NIA. FALLS	五 %	137	7 000 N	AGG AXB AXB
×	ORDER NO.	SOLD TO SMITH ENU	ודם שמב	L/T (HAR		NO. 4748 NO. 4748 IM + 15.8 22909 LB 3740 LB	11:34:30 TARES 00 0Z
GAL X	1 TICKET NO 1 1 0 0 7 9 2 0	CUSTOMER NO.	PELVERY ADDRESS. FALO AV	<u>"SCKFORT RD</u> RUFFALO AVE	23%	BATCH NO TRUCK NO AS	TIME 11: END TAI AXA AXE
	PLANT.	CUST 1. 1.	16 m	EU E	ō		

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LOCKPORT, NEW YORK 14094 SOO RICHFIELD STREET THE OWNER WHICH THE

439-8320 439-8158 - ARRIVE PLANT OFFICE: LEAVE JOB SITE FAX: FINISH DISCHARGE START DISCHARGE ARRIVE JOB SITE LEAVE PLANT

449-6323

DISPHILM:

CONDITIONS: Free unloading time will be allowed at a rate of 5 min, per yd. with a minimum of 15 min, per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, 特特特特特特特特 etc. onto pavement by vehicles ordered off said property. 转移特特特特特特 1. Avoid all contact with eyes.
2. In case of eye contact FLUSH thoroughly with wher.
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5. Il Irritation persists, get medical attention promptly.
6. Keep children away. WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: WARNING 铁铁铁铁铁铁铁铁 *** LOAD TIME

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	24-Sep-96	:	TIME DUE 1.2 : 09	380	AMOUNT	·	135:06		20 00 00 CF
TEST TAKEN:	SLUMP DATE	PROJECT NO.	DRIVER LAKKY W.		MEASURE 1 PRICE TO TUNITY OF THE PRICE TO TH		32 TIME 11 32 DATE 09,	SUB TOTAL TOTAL	э L в инт э 0.2 нхр э 0.2
The (M	Q	P.O. NO. GORDEN	USE N.T.S.C.	L/T WILLIAMS RD R/T BE WORN ON JOBSITÉ)	SCRIPTION MEA		FORMULA CODE		CEM, 20 AXC 800 AXG 000
×	MIX GROUT MIX 32	TECH, CORP.	MAP PAGE	NIA.FALLS RD GLASSES MUST	PRODUCT DESCRIPTION GROUT MIX 32		8.00 8.00		88 LB: 88 02 80 02
* *	LOAD SIZE	EMUIRONMENTAL "	NIA, FALLS	RE RD R/T & SAFETY	Second Se		LOAD SIZE 01/01 BSZ	MC 52.6	AAG AXX F
GAL X	1007929 1 214	CUSTOMER NO. SOLD TO S	PARS BUFFALO AVE	NSTRUCTIONS LOCKFORT RD L/T WALMORE BUFFALO AVE (HARD HAT &	CONDUCTIVE COUNTITY OUT		RATCH NO. 4741 TRUCK NO 214 WAT TRIM 4 15.8	666 02 22900 LB CEM 01 3770 LB WATER 325 GL	TIME 11:41:29 END TARES AXA TARES ON OZ AXE
	PLANT :	CUSTC 1.9.	96.	S C C C C C C C C C C C C C C C C C C C	786				Linge

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LOCKPORT, NEW YORK 14094 SAM RICHFIELD STREET

ARRIVE PLANT 经转转转转转转 LEAVE JOB SITE FINISH DISCHARGE START DISCHARGE 特特特特特特特特 ARRIVE JOB SITE LEAVE PLANT H # # # # # # # LOAD TIME

439-8320 439-8158

OFFICE: FAX:

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WARNING

WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:

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i.	DATE 24-5ep-96		TIME DUE 1.2:09	<u>ಷ</u>	AMOUNT	· · · · · · · · · · · · · · · · · · ·	1.1.45.33 19724796		00 GL 00 OZ
TEST TAKEN:	SLUMP DATE	PROJECT NO.	i :	R/T	UNIT PRICE		SU) 	WAT AXD
			DRIVER E.T. L L	L/T WILLIAMS RD R/T BE WORN ON JOBSITE)	E 175.	G A	38 m		10 LB 00 02 00 02
	32	P.O. NO.	USE MISC.		DESCRIPTION	x 32	FORNULA CODE		CEM AXC AXC
×	GROUT MIX	TECH, CORP.	MAP PAGE	NIA.FALLS RD GLASSES MUST	PRODUCT DESCRIPTION	GROUT M.X	8.00		50 LE 00 02 (
And the state of t	TRUCK NO. LOAD SIZE MIX 2.90 8.00 GF	ENVIRONMENTAL TEC	NIA. FALLS	RD R/T SAFETY	PHODUCT CODE	GROUT	LOAD SIZE #1/01 B6Z MC 5.6		960 АХВ АХЕ
GAL X	ORDER NO.	SOLD TO SMITH	OGLIVERY ADDRESS 9029 BUFFALO AVE - NI	ST RD L/T. WALMORE	LOAD CUMULATIVE OBDERED OUANTITY OUANTITY	152.00	NO. 47	81 326 GL 326 GL	: 11:49:40 TARES 00 02
	PLANT TIO	1915809	9829 I	INSTRUCTIONS COCKPORT RUFFALO	LOAD	aa " s	BATCH TRUCK WAT T	CEN BL	TIME END AXA AXE

CONCRETE DELIVERY TICKET

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439-8320 439-8158 りびつコーアフォ a minimum of 15 min, per load, Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of Its agents of any responsibility for any damage caused by moving vehicle beyond ilmits of improved road or right of way. This also includes carrying of mud, dirt, CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with this order by the owner, contractor or his representative relieves this Company or j. 1,849:58 1784/96 TIME DUE 特特特特特特特特 A AMOUNT 24-Sep-96 ຸດ ຕຸ AT TAKEN: PROJECT NO. U.S.H.L. TIME etc. onto pavement by vehicles ordered off said property. UNIT OF A LANDING THE OFFICE: TOTAL SUB TOTAL FAX: ģ RD RZT NIA: FALLS, RD CZT WILLIAMS RD KZT SAFETY GLASSES MUST RE WORN ON JOBSITE) DRIVER LEROY in in MM ARRIVE JOB SITE ASTART DISCHARGE FINISH DISCHARGE ESCHIPTION TECH, CORPAGE 1 GORDEN INTESC. FORMULA. * رب ربا 特性性的特殊特殊 PRODÚCT.DI HIX × MAP PAGE 78. BB MIX GROUT Avoid skin contact whenever possible and wash exposed skin promptly with water. SIZE BSZ WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: 7 PRODUCT. AD SIZE 8.00 SHITH ENVIRONMENTAL WIN FALLS ១ ព 10/ OUD N Wear rubber boots, gloves and appropriate eye protection. 三 In case of eye contact FLUSH thoroughly with water. If Irritation, persists, get medical attention promptly. CCKFORT RD LAT WALMORE SUFFICE AVE CHARD HAT & "V" ORDERED ... LOAD TIME USE SECTEAVE PLANT CCKPORT, "- NEW YORK 14094 66 48 44 55 44 69 58 58 56 · WARNING ORDER NO. 0 E 744 500 RICHFIELD STREET BORS BUILTAND AVE 11.56.32 TARES@@ (ะะ๑ดต์ 3760 3255. AMERICAN CONCRETE SCOMULATIVE PRODUCTIVE STATES 1. Avoid all contact with eyes.
2. In case of eye contact FLUS.
3. Avoid skin contact whenever 1888/9339 20.5 GAL X 铁铁铁铁铁铁铁 Keep children away CEM 01 WATER BATCH USTOMER NO. THE HERE 999

CONCRETE DELIVERY TICKET

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Its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by yetticles of dered off said property. a minimum of 15 min, per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or 82:60 ARRIVE PLANT CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. 96-107-60 <u>.</u> TIME DUE AMOUNT TEST TAKEN: DATE PROJECT NO. EGGERGAMERONOEMBERTY DIV. OF BUFFALD, NEW YORK 14211-1798 LEAVE JOB SITE, SHE FOLVE TOTAL UNIT COUNCRETS TO FOR :5 SLUMP f- : DRIVER 57 "AF / 145H | A COMMUNICATION SOUNDITATION OF THE PROPERTY OF THE PRODUCT OF THE PRODUCT DESCRIPTION MEASURE 7 FINISHADISCHARGE 17:14 4.1 96-6 4 GIG #57 CE/A P.O. NO. USE 771 S START DISCHARGE O: O× र हारायेल १५८१ MAP PAGE WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. <u>TAKE THESE PRECAUTIONS</u>:

1. Avoid all contact with eyes.
2. In case of eye contact FLUSH thoroughly with water.
3. Avoid skin contact whenever possible and wash exposed skin promptly with water.
4. Wear tubber boots, gloves and appropriate eye protection.
5. It irritation persists, get medical attention promptly.
6. Keep children awasts. 446572 ARRIVE JOB SITE CERRONE INCLORATION (35) DINGENE DND GNEET OF LOAD SIZE TRUCK NO. Livit 7.50 NIAGARA FALLS WARNING く。 。 LEAVE PLANT ORDER NO. <u>0.</u> D 7.50 TICKETANO 3 SOLD TO GAL X I LOAD, TIME ĺ 345000 LANDFILL DELIVERY ADDRESS 50 CUSTOMER NO. INSTRUCTIONS <u>ب</u> AVE PLANT соисиете региену покет в 🕾 :

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LEAVE JOB SITE FINISH DISCHARGE NUFFRILL, NEW START DISCHARGE ARRIVE JOB SITEM 13.0% LEAVE PLANT 李青

WARNING

LOAD TIME 8 T CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN SITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: Avoid all contact with eyes.

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	X		dWITE	TAKEN:	
TICKET NO. ORDER NO. TRUCK NO. LOAD SIZE	MIX 4 READ 1951 - 51 ZE - 62 - OUZONSHI H- G - 51 TE	Z OCZOSTI	FO STIF	0715 071 (41.11]=-96	
sold to	P.C	P.O. NO.		PROJECT NO.	
CERRONE INCLUMENTS		3-76			
	MAP PAGE US	USE	DRIVER	TIME DUE	
STREET & STREET	-	HNKMORN		10: N	ומנ
IUFFALO AVE.				**************************************	
CUMULATIVE ORDERED CODANTITY CODE	PRODUCT DESCRIPTION	IIPTION . WE	UNIT OF, UNIT	E AMOUNT.	
6.000 1.000 440072	7.5 qqqm 467 nb/n e3). (I. k.	ş	
				- 11.4 - 11.4 - 4	······································

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SPISARRAPIZAPENERIPPLY DIV. OF BUILFELLO, NIEW YORK 14213-179A

AHRIVE PLANT	CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hir.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, onto pavement by vehicles ordered oif said property.	TEST TAKEN:	DATE (75)-13111111-1315	РЯОЈЕСТ NO.	TIME DUE 1.6 : 0.2	6.3	The Propuct of PRODUCT, DESCRIPTION AND WATER PRICE AND					
LEAVE JOB SITE	will be allowed at a ditional time will be added to the mix as 's risk. Acceptance or his representality any damage caused way. This also inc		SLUMP	PROJ	DRIVER		EST CONT				SUB TOTAL SUB TOTAL	
FINISH DISCHARGE	CONDITIONS: Free unloading time will be allowed at a rate of a minimum of 15 min, per load. Additional time will be charged per min (\$60.00 per hr.). Any water added to the mix as furnish the request of and at the purchaser's risk. Acceptance by sign this order by the owner, contractor or his representative relievits agents of any responsibility for any damage caused by more ilmits of improved road or right of way. This also includes cate. onto pavement by vehicles ordered off said property.	-	SIZE 67 AFZASH LA	P.O. NO. 9 (5 (5	USE I TELLETINI DELL		CRIPTION NEASUR	4E.ZO 6.8 YD				
START DISCHARGE		×	AND PST STZE		MAP PAGE		PRODUCT. DESC	4000 #67 AEZN 63		JU(6 10		
ARRIVE JOB SITE	WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN HRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: 1. Avoid all contact with eyes. 2. In case of eye contact FLUSH thoroughly with water. 3. Avoid akin contact withenever possible and wash exposed skin promptly with water. 4. Wear rubber boots, gloves and appropriate eye protection. 5. If Irritation persists, get medical attention promptly. 6. Keep children away.		TRUCK NO. LOAD SIZE MIX 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	THENDERFORD	7 190		PRODUCT (PACE)	200 445672				400 + 10
LEAVE PLANT 343	WARNING WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN HRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIO 1. Avoid all contact with eyes. 2. In case of eye contact FLUSH thoroughly with water. 3. Avoid skin contact whenever possible and wash exposed skin promptly 4. Wear trubber boots, gloves and appropriate eye protection. 5. If Irritation persists, get medical attention promptly. 6. Keep children away.	×	3761 SH	SOLD TO CEFRICIAL 11	HET A ROUFD RO.		VE ORD	8. 88 (S)	•	7		Placed
LOAD TIME S:35	WET CONCRETE CAN CAN IRRITATION WITH POSSIB 1. Avoid all contact with eyes. 2. In case of eye contact FLUS 3. Avoid skin contact whenever 4. Wear rubber boots, gloves is it Irritation persists, get med 6. Keep children away.	GAL X	ET N		DELIVERY ADDRESS 1 (APMI) _ STREE	INSTRUCTIONS [_FINIDF_] [_	1	1.60			-2	
	·						- on because			:		1 (4 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

EUCKRAMILY OR URACHOPIEN DIV. OF AL BUFFALD, NEW YORK 14211-1798 ARRIVE JOB SITE (START DISCHARGE FINISH DISCHARGE) LEAVE JOB SITE

2

CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles ordered off said property. ARRIVE PLANT WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:
1. Avoid all contact with eyes.
2. In case of eye contact FLUSH theroughly with water.
3. Avoid skin contact FLUSH theroughly with water.
4. Wear tubber boots, gloves and appropriate eye protection.
5. If Irritation persists, get medical attention promptly.
6. Keep children away. LOAD TIME ... LEAVE PLANT WARNING ĵ ٠.

TEST TAKEN:	DATE VIS-Aug-96	40.	TIME DUE	8	AMOUNT	
TES		PROJECT NO.			NIT	
	SLUMP				D d	
		***************************************	DRIVER		UNIT OF	G.A.
	67 AEZASI	P.O. NO. C) (-, F:	USE UMKMOMH		SRIPTION	4EZD 6.3
X	MIX 4 APART 1912 BIZE 67 AEZASH LA		MAP PAGE		PRODUCT DESCRIPTION MEASURE C	4000 167 AEZD 6.3
		AFRIGHTO	0.		ONDERED: 4A PROPUCT COUNTY CODE	440672
	ORDER NO. TRUCK NO. LOAD SIZE	RROWL OFFICE AFRICATION	& RIVER RD.		ORDERED, 47, QUANTITY	(A17
GAL X		SOLD TO	TPEEL	-	-CUMULATIVE	େ, ମର
***************************************	PLANT TICKET, NO 3754	CUSTOMER NO.	DELIVERY ADDRESS 1 QIEMD, STRIFF	INSTRUCTIONS L.ANUF 11.1.	LOAD	ବ୍ୟ ବ୍ୟ ବ୍ୟ
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TOTAL.

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CONCRETE PLACEMENT AND FIELD TESTING REPORT

OXYCHEM/OLIN 102nd STREET LANDFILL REMEDIATION NIAGARA FALLS, NEW YORK

Client: Si	nith Envir	Client: Smith Environmental Technologies Corp.	hnologies C		Report No.: DFS-40	155-40	Dat	ا ن	8/7/86	
Concrete	Contractor Placement	Concrete Placement Location: Menhor	611 40/6	# 4 01011-0	Orovado Goneroda Aliviras	Voullet. Clear Trans		7	,,,,,	
Concrete Cubic Yau	Concrete Supplier: Engire		yu, 10/6.3 }	1,.,.,	V Time of	Mix No.: 5	57 120 +0 1	35 24		
Field Obs	Field Observations and Tests:	ınd Tests:								
Truck No.	Cubic . Yards	Time Batehed Tracket	Time-On Site	Time of Placement	Water Added After Batching	Slump (inches) ⁽¹⁾	Air Content (%) ⁽²⁾	Concrete Temp (°F) ⁽³⁾	Test Cylinder Set No. ⁽⁴⁾	No. of Cylinders
7//		14:21	1250	mi) 1 1 1 1 1 1	20	7.0 61.1		-	5	3
						3 5 Field				
									A STATE OF THE STA	
Concrete Test (ASTM C31)	Tests: (1)	Slump (ASTM C143)	M C143); (2	Air Content (A	(STM C173); ((3) Concrete 1	cmp (ASTM o	C1064); (4) Te	Concrete Tests: (1) Slump (ASTM C143); (2) Air Content (ASTM C173); (3) Concrete Temp (ASTM C1064); (4) Test Cylinder Fabrication (ASTM C31) ** いっちょうしょうしょうしょうしょうしょうしょうしょうしょうしょうしょうしょうしょうしょ	ication
Remarks:				The state of the s						
					GZA Technician		1, T.M.			
	٠				70.1 1/20					



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	ARBIVE PLANT	Vi.	k 4
14211-1798	SE STEAVE JOB SITE	••	
), MEW YORK	INISH DHOHAR	ţ	×.
BUFFALO,	ARRIVE JOB SITE START DISCHARGE F	/7: 7/	11
	ARRIVE JOB SITE	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
	LEAVE PLANT AND A	//>: </td <td>12</td>	12
	LOAD TIME ANTI-	•	

WARNING

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CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on

WARNING WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: 1. Avoid all contact with eyes. 2. In case of eye contact FLUSH thoroughly with water. 3. Avoid skin contact whenever possible and wash exposed skin promptly with water. 4. Wear rubber boots, gloves and appropriate eye protection. 5. It irritation persists, get medical attention promptly. 6. Keep children away.		4S: Free unloadin of 15 min. per los 100 per hr.). Any 1000 per hr.). Any 100 the owner, con 3y the owner, con of any responsibili aproved road or ravement by vehic	CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yo. with a minimum of 15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles ordered off said property.	it a rate of 5 min. per obe charged at the rate as furnished, shall be ce by signature or pay ative relieves this Comsed by moving vehicle ncludes carrying of meride.	d. with strong such such such such such such such such
GAL X	× ×			TEST _ TAKEN:	
ORDER NO. TRUCK NO. LOAD SIZE	480 951 81 26 97 NEZASH LA	57 AEZAS	SLUMP SLUMP SLUMP	рате - 1377 — Анд — 9 6	
CUSTOMER NO. SOLD TO 345GRAD CERRONE TNEXARRAND		P.O. NO.	E	PROJECT NO.	
DELIVERY ADDRESS LOZDET & KTURR RD.	MAP PAGE	USE FIMICINGIAN	DRIVER	TIME DUE	ie
INSTRUCTIONS		· ***		1 47	-
COUNTITY COUNTITY COUNTITY COUNTITY CODE	PRODUCT DESCRIPTION	· ·	UNIT OF UNIT MEASURE : PRICE	AMOUNT	
1.88 1.80 1.80 448578	4000 #57 GEZA 4.	1E/0 41	Υij		**************************************
		Name of Street, Street			,

71011. 705

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TOTAL

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OXYCHEM/OLIN 102nd STREET LANDFILL REMEDIATION NIAGARA FALLS, NEW YORK

Client: Smith Environmental Technologies Corp. Re	Report No.: 122.5 - + +	Date: 8/13/96
Concrete Contractor; Corrent	Weather; also seems 19 - 18 11	
Concrete Placement Location: Manholo 5 around for	5 5 around cost side pipe; Marhole to account mosth side poises;	and neeth side poise;
Mushelf 1 60st well fill onl port	and port of mont at mushals 6.	
Frair 19. Her	Mix No.: 4000 16 27 AE/A 41	7 AE/A 41
Cubic Yards Placed: 2.5	Time of Placement: 10 to 40 1/30	

Field Observations and Tests:

No. of Cylinders	M						
Slump Air Content Concrete Test Cylinder No. of (inches) ⁽¹⁾ (%) ⁽²⁾ Temp (°F) ⁽³⁾ Set No. ⁽⁴⁾ Cylinders							
Concrete Tenip (°F) ⁽³⁾							
Air Content (%) ⁽²⁾);		17.0			
Slump (inches) ⁽¹⁾	0 2	7.5 Airson	7.1.12 -1				
Water Added After	Batching						
Time of Placement	06 11-12"						
Time-On Site	05/1756						
Truck Cubic Time No. Yards Batched	980						
Cubic . Yards	\ \)					
Truck No.	7//						

Concrete Tests: (1) Slump (ASTM C143); (2) Air Content (ASTM C173); (3) Concrete Temp (ASTM C1064); (4) Test Cylinder Fabrication (ASTM C31)

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Remarks: -x So.

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GZA Technician 6.7%	GZA GeoEnvironmental of New York

ELL ABARLEYOR BENDHALLY DIV. OF BUFFALD, NEW YORK 1421-1798

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ARRIVE PLANT	rate of 5 min. per yd. with charged at the rate of \$1.00 turnished, shall be only on by slighature or payment of the felleves this Company or by moving vehicle beyond udes carrying of mud, dirt, tty."	DATE 1.3-Aug-96	TIME DUE I G # Ø Ø	41	AMOUNT	\$ 2 2			2,5 m.h sha
14711-1798	will be allowed at a rate of the mind be charge added to the mix as furning a risk. Acceptance bysill or his representative feliany damage caused by may. This also includes ered off said property.	SLUMP SLUMP S. (2)	DAIVER		EX NUNTS TO SEE	,		SUB TOTAL.	25.5
NEW YORK	CONDITIONS: Free uploading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hin.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptaince by signature or payment of this order by the owder conjector or his representative fellewes this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles organged off said property:	57 AF/ASH LA PO.NO.	USE NMCJKINICI		J. W.		ř.	601.4 61.66 Johns -	
BUFFALO, start discharge.		1.25	MAP PAGE .		PRODUCT DESCRIPTION	4000 #57 AE/A 41		2000 1 60 1 50 1 10 10 10 10 10 10 10 10 10 10 10 10	A Property of the second
ARRIVE JOB SITE	EYES AND SKIN ESE PRECAUTIONS: bosed skin prompily with wa	LOAD SIZE IL	RD,		PHODUCT CODE	440578		p .*	1
LEAVE PLANT	WARNING WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS, TAKE THESE PRECAUTIONS: 1. Avoid My contact with eyes. 2. In case of eye contact FLUSH thoroughly with water. 3. Avoid skin contact whenever possible and wash exposed skin promptly with water. 4. Wear rubber boots, gloves and appropriate eye protection. 5. Il tritation persists, get medical attention promptly. 6. Keep children away.	GORDEN NO. 1	. & RIVER	<i>*</i>	ORD OUA	න ග් න		60 11016	
LI LOAD TIME	WET CONCRETE CAN CAUSE IN RAITATION WITH POSSIBLE I. Avoid My contact with eyes. 2. In case of eye contact FLUSH th 3. Avoid skin contact whenever po 4. Wear rubber boots, gloves and 16. It irritation persists get medical 6. Keep children away.		DELVERY ADDRESS 102ND. STREET	INSTRUCTIONS LAND'F IL.).	Ticular Strong	ณ รูก ณ์		10 01	1055-1
· .		10		<i>₹</i>	2.42				

CONCRETE PLACEMENT AND FIELD TESTING REPORT

OXYCHEM/OLIN 102nd STREET LANDFILL REMEDIATION NIAGARA FALLS, NEW YORK

lient: Smith Environmental Technologies Corp. Report No.: $DFS - 44$ Date: $B/13/96$		nent Location: Manholo 6 and minihala 7 musts	ccd: 44000 2.5 Time of Placement: 330-4 "
Client: Smith Environmental	Concrete Contractor: 6 errend	Concrete Placement Location: 12. 4.	Concrete Supplier: Francis By Isless

Field Observations and Tests:

No. of Cylinders		c -o to.					• •
Test Cylinder No. of Set No. ⁽⁴⁾ Cylinde		Loan concreto					
Concrete Test Cylin Temp (°F) ⁽³⁾ Set No. ⁽⁴⁾		g sired.					
Air Content Concrete (%) ⁽²⁾ Temp (°F) ⁽³⁾		No 1.1.4.1) (9 1.1.20					
Slump (inches) ⁽¹⁾	3.0	1/3	Andready and the state of the s				
Water Added After Batching	2002						
Time of Placement	330- 4W						
Time-On Site							
Time Batched	Jos. K. 7						
Cubic Time Yards Batche	2.5 114	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					7
Truck No.	611						

GZA Technician_ Concrete 1 ests: (1) Sittinp (AS 1191 C143); (2) Air Content (AS 11) (ASTM C31) Remarks:



Roll Lyng General Ford States

REPORT OF NOTE YOURS LAND OF THE PARTY

-	Him by son cim 3 to o	CONDITIONS: East misseline time will be allowed at a fact and a faith	No. Erro contraction	OLIGINOS		CNINAAW	•
	••	• •			••	• •	
_	ARRIVE PLANT	LEAVE JOB SITE	FINISH DISCHARGE	START DISCHARGE	EAVE PLANT ARRIVE JOB SITE START DISCHARGE FINISH DISCHARGE LEAVE JOB SITE ARRIVE PLANT	LEAVE PLANT	LOAD TIME
			Company of the second of the s				

WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS, TAKE THESE PRECAUTI<u>ONS</u>:

Avoid all contact with eyes.
 In case of eye contact FLUSH thoroughly with water.
 Avoid skin contact PLUSH thoroughly with water.
 Wear tubber boots, gloves and appropriate eye protection.
 If irritation persists, get medical attention promptly.

Keep children away

CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or lis agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt,

15:1A AMOUNT 13-809-96 4.1 TIME DUE TEST TAKEN: DATE PROJECT NO UNIT X 2 27 T 21 - 11 T .2 SLUMP (37) W. UNIT OF 57 OF 703H LD <u>:</u> THE SECTION IN PRODUCT DESCRIPTION OE 78 4 P.O. NO. USE P61, 817F 4000 HEZ \times MAP PAGE 46600 PRODUCT CODE 4400572 3 4.5W **UMITABLE VINIT** TRUCK NO. LOAD SIZE A RELEGIO ORDERED S. 58 CEPRONF ORDER NO. F. يخ COUNTINE STOUNDATIVE 7.00 TICKET NO. 15 SOLD TO STREET GAL X 345000 LANDF ILL DELIVERY ADDRESS 4.50 I DEND. CUSTOMER NO. INSTRUCTIONS 9 PLANT

TOTAL.

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OX CURTOURED FOR DISTRIBUTION OF THE PROPERTY
Concrete Placement Location: Trucked at 170 B and 2111 The Second of 110 according to 180 Block Concrete Placement Location: Trucked at 170 B and 2111 The Mix No. 2000 111 Concrete Supplier: Engine Survival All Time of Placement.	
(,,,	
J / 7 / 2/2	
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7000	
27.2	
1. (1. r.	
Weather: 6/22 2/22 6/ 6217 11/20 27 11/2 1/20 6/20 1/20 6/20 1/20 6/20 1/20 2/20 2/20 2/20 2/20 2/20 2/20 2	
1000 J	
Z X No.:	
Cte./. Mi	
Weath	
Weat	
3105 LWIN.	
12 (2-2)	
Chemter Smith Environmental Technologies Concrete Placement Location: Investigated Concrete Supplier: Environmental Technologies	
ocation	7
Savitor actur. ment L	Cubic Yards Placed: 3
Smith I	ards P
neret neret	ic)

Field Observations and Tests:

Field Observations and Tests:	rvations a	nd Tests:							Test Cylinder No. of	No. of
					Water	Sumo	Air Content	Concrete	(4)	Cylinders
Truck	Cubic Lime Yards Batche	Line Batched—	Time-On Site	Time of Placement	Added	Ξ	(%) ₍₂₎	Tenp (°F)(°) Set No.``	Set No.	
		Loove Plant			Batching					
711	3	9:50	02 //= 0/	0211-5101	No		+12	7) 10,000	(6,000000000000000000000000000000000000	
										,
	-									
					1001133	(2) Concrete	Temp (ASTM	C1064); (4) T	(4) Test Cylinder Fabrication (ASTM C1064), (4) Test Cylinder Fabrication	orication
Concrete	Tests: (1	Concrete Tests: (1) Slump (ASTM C143); (2)	[M C143); (2) Air Content (/	AS1M C1/3),	(c)				

670 did not absence the placement GZA Technician GZA GeoEnvironmental of New York Remarks: * See attackot Ticket (ASTM C31)

AND CONTRACTOR OF THE AND ASSESSED.

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4. ÉARRIVE-PLANT		CONDITIONS: Free unloading lime will be allowed at a rate of 5 min. per yd. with a minimum of 15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles ordered off said property.	Z.	VTE 9 1 11 11 9 4. NO.	TIME DUE 1 か : のゆ	4 1	A AMOUNT				
1.4.9.1 i 1.79.7i		be allowed at a rate nat time will be charge ed to the mix as furnit sk. Acceptance by sig- nis representative relit damage caused by m 4. This also includes	TEST TAKEN	SLUMP DATE			WUNDOPS: ROW UNIT WAS MEASURE.		\$		SUB FOTAL TAX
FINISH DISCHARGE LI		CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min. per load. Additional time will be charged at the rate of \$1.00 per min (\$60.00 per hir.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond timits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles ordered off said property.		AEZASM LO	E DRIVER INKINCTUM		ION: MEASURE	1 4 1 YD			110211
START DISCHARGE FINIS		CONDITIONS: Fre a minimum of 15 per min (\$60.00 p the request of an this order by the its agents of any limits of improve etc. onto paveme	× .	31 ST 715 57 (. nsi		PRODUÇT DESCRIPTION	4000, #57 AE/A 41	_ (<i>ب</i> ،
F	_	SKIN AUTIONS: rompily with water.		IZE MIX IIŽI AVIUNIVI PSST	INI) MAP PAGE		obers (* PRD	440578 406	A	7	MH-8 +MI-5
SALOAD: TIMES (ANTEAVE PLANT) ARRIVE JOB SITE		WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: 1. Avoid all contact with eyes. 2. In case of eye contact FLUSH thoroughly with water. 3. Avoid skin contact wherever possible and wash exposed skin promptly with water. 4. Wear tubber boots, gloves and appropriate eye protection. 5. Il Irritation parsists, get medical attention promptly. 6. Keep whildren away.			IVER RD.		CADANGERED !!! TO PRODUCT !!	3.00		7	M K
Serve TALEAVE PL	, 6	ET CONCRETE CAN CAUSE INJURY THE EYES RITATION WITH POSSIBLE BURNS. TAKE THESE F Avoid all contact with eyes. In case of eye contact FLUSH thoroughly with water. Avoid skin contact FLUSH thoroughly with water. Wear tubbin contact whenever possible and wash exposed a Wear tubben contact gloves and appropriate eye protection. It inflation persists, get medical attention promptly.	GAL X	4036 10 000ER 1	STREET & R	·	ossi seguinamora	3.00		·	. Inverts
LOAD TIME		WET CONCRETE CAN CAI IRRITATION WITH POSSIB 1. Avoid all contact with eyes. 2. In case for eye contact FLUS 2. Avoid akin contact FLUS 3. Avoid akin contact whenever 4. Wear rubber boots, gloves 5. If irritation persists, get me 6. Keep whildren away.		PLANT THOKET.N	S183 1	INSTRUCTIONS .	A TOTAL ON THE	3.00			

· Eust Pipe @ MH-5 (Top of Pipe)

CONCRETE PLACEMENT AND FIELD TESTING REPORT

OXYCHEM/OLIN 102nd STREET LANDFILL REMEDIATION NIAGARA FALLS, NEW YORK

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50 ZI I I	Soncrete Supplier: EMP.1/2 E Time of Placement: / 5 / 3	7756 7556		Time Time-On Time of Water Slump Alf Content Temp (°F) ⁽³⁾ Batched Site Placement After		1,5 12:34 1:10 1:15 00				Colinder Fabrication	(ASTM C173) (3) Concrete Temp (ASTM C1004), (4) 1231 C)
nmental:	enpu	3	and Tests:	Time	(5.45) 4.5.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.						
nith Envir Contractor Placement	Supplier:	rds Placed	ervations a	Cubic Yards		1.5					. '
Client: St Concrete Concrete C	Concrete	Cubic Ya	Field Obs	Truck No.		133					

Concrete Tests: (1) Slump (ASTM C143); (2) Air Content (ASTM C31), (2) Concrete Tests: (1) Slump (ASTM C143); (2) Air Content (ASTM C31)

Remarks: * See attached copy of ticket.

GZA Technician Torr



함목도성 Crient INICPERTOR COPY 9 - UNIT THE AMOUNT the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond Ilmits of improved road or right of way. This also includes carrying of mud, dirt, CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min, per load. Additional time will be charged at the rate of \$1,00 per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on April 1 . 4 ARRIVE PLANT Ø+0 PROJECT NO. TIME DUE ţ TEST. TAKEN: Fig. 16.10 Co.a.. BONEAGA A TURN CHEES DATE VLEAVE JOB SITE etc. onto pavement by vehicles ordered off said property. <u>``</u> TOTAL SUB FOTAL SLUMP MEASURE ... DRIVER 57/ OF / OSH 1.03 2 FINISH AUSCHARGE PRODUCT DESCRIPTION. \(\frac{1}{2}\) 4000 HS7 0F70 USE START DISCHARGE + × 18:1 0000 MAP PAGE > Avoid skin contact whenever possible and wash exposed skin promptly with water. Wear rubber boots, gloves and appropriate eye protection. If irritation persists, get medical attention promptly. PRODUCT 440572 WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: ARRIVE JOB SITE 一大学はん 13 LOAD SIZE TRUCK NO. ONDERED 1.50 in case of eye contact FLUSH thoroughly with water. WARNING . -. LEAVE PLANT जानात जा ORDER NO. 2 ٠. 11.11.11 1.50 CUMULATIVE solp To Avoid all contact with eyes.
 In case of eye contact FLUSH
 Avoid skin contact whenever
 Wear rubber boots, gloves an
 Il Irritation persists, get modific
 Keep children away. GÁĽX LOAD TIME ICKET NO. 345000 DELIVERY ADDRESS :: S: : CUSTOMER NO. NSTRUCTIONS OUANTITY 1 02ME · · PLANT accoun Travel Time ممح Office Time Total Time

PREPARED

CONCRETE PLACEMENT AND ! ... D TESTING REPORT

OXYCHEM/OLIN 102nd STREET LANDFILL REMEDIATION NIAGARA FALLS, NEW YORK

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Client: S	mith Envir	Client: Smith Environmental Technologics Corp.	chnologies C	J	Report No.: DFS- CB	87-5		Date: 9 /19/16	18/16	The second secon	
Concrete Concrete	Concrete Contractor: Concrete Placement L	رسرکر ocation:	10.41, 0	10,00 /00 /0.	Weather: 3	500 7/10/0/ 10/00	٠٠/٠٠٠ الم				
							,				
Concrete Supplier:	Supplier:	Acresio.	, (,,,,	* * * * /	Σ	Mix No.: *	1 16.30	10 1411	The state of the s		
Cubic Ya	Cubic Yards Placed;		7	the state of the s	Time of P	Time of Placement:	160-153	Ţ		**************************************	
Field Obs	crvations a	Field Observations and Tests:	~				A-3 A.c.	A-3 A. To-10 75	, v		
Truck No.	Cubic Yards	Time Batched	Time-On Site	Time of Placement	Water Added	Slump (inches) ⁽¹⁾	Air Content (%) ⁽²⁾	Concrete Temp (°F) ⁽³⁾	Test Cylinder Set No. ⁽⁴⁾	No. of Cylinders	
					After Batching						
1.12	6.5	42.21	1 19 00	181-21	1001 154	4.	4.5	0.2	6	9	
											,
							And the last of th				
Concrete Test (ASTM C31)	Tests: (1) { 31)	Concrete Tests: (1) Slump (ASTM C143); (2) (ASTM C31)	4 C143); (2)		STM C173); (3	3) Concrete T	emp (AST'M (C1064); (4) Tes	Air Content (ASTM C173); (3) Concrete Temp (ASTM C1064); (4) Test Cylinder Fabrication	cation	
Remarks.	ر در عر	2 12'n, ho,	ب س	+1717 117							
1											
					GZA Technician		6.16				

GZA GeoEnvironmental of New York

this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond itmits of improved road or right of way. This also includes carrying of mud, dirt, 01. 03/2 7 13:00 ARRIVE PL 96-deg-TIME DUE 12:25:32 00,13.00 **AMOUNT** ٠,-003 200 200 CUSTOMER CON TEST TAKEN: PROJECT NO. DATE LEAVE JOB SITE etc. onto pavement by vehicles ordered off sald property. TOWE TOWALL SHIR TOTAL E CX UNIT RO PET THE FOLLS PETET WILLIAMS RD RZY SLUMP Œ DRIVER : E MEASURE FINISH DISCHARGE 3370 1.0 20 DU 20 DU 97 DB 17100 · -CONDITIONS: Free ur PRODUCT STATE STATE OF THE SCRIPTION F. OPERIULA F. CORRIGIO Ş K तिसार लड्ड 0 USE CEM OZ . : == START DISCHARGE 5/4-1/2 ノインシ इंडोबारी १२३३ MAP PAGE 6..56 6..58 3000 A CONTRACT OF THE CONTRACT OF Avoid skin contact whenever possible and wash exposed skin promptly with water. Wear rubber boots, gloves and appropriate eye protection. If irritation persists, get medical attention promptly. Keep children away. 70 = -WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS, <u>TAKE THESE PRECAUTIONS</u>: 05:1 Ξ E G G ARRIVE JOB : 930555 317E LOAD SIZE गणना इसाम्यान्त्रात्रा सद्दान्त्र 1 02:/ ; 6, II . ن، (10.1) ٠. ٦ TRUCK NO Avoid all contact with yeas.
 In case of eye contact with yeas.
 Avoid skin contact HUSH thoroughly with water.
 Avoid skin contact wherever possible and wash expo.
 Wear rubber boots, gloves and appropriate eye protec.
 If tirtidation persists, get medical attention promptly.
 Keep children. 16 11 11 100 E OCKLORY, NO 1-2Y BUT MORE WARNING LEAVE PLANT ONDERED OUANTITY Ξ Ξ 17.11 17.7 ON DEOR ٠ ن AT DEST अंतर्क प्रमाणिता । एक TELESTON TO 70 00 00 07 CUMULATIVE : : QUANTITY SOLD TO : --57 : 27 : 59 Fiftes 6. 30 GAL X 1007625 4051.002 90 7.07 C.1 Ξ - Well-elasted as belongered TICKET NO. LUAD TIME DELIVERY ADDRESS CUSTOMER NO. LOAD OSO US USIN OS NOTER 11031 NSTRUCTIONS TEHER HELL LUB C. . Tiri . G OU. 9 PLANT I N N بالمقار والم ٦ CONCRETE DELIVERY TICKET Elevary Parts ابتء UTTICE Total Time Gary PREPARED

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OXYCHEM/OLIN 102nd STREET LANDFILL REMEDIATION NIAGARA FALLS, NEW YORK

Date: 1/21/97	(111)	and of now stron so wer	Mix No.: E 57 A E / 40	Time of Placement: 100 to 120
Report No.: DF5-69	Weather: So. M 1. (come . t (51 4)	11, 12 to 1/1, 0 to 500 th		
Client Smith Environmental Technologies Corp.	Concrete Contractor: Cerren &	Concrete Placement Location: Figter / West wing will at south and of now stren same	Concrete Sunnlier F Rev. 1860 - S. rack	Cubic Yards Placed: /, 5

Field Observations and Tests:

		 	,	 	 	
No. of Cylinders	9					
Test Cylinder No. of Set No. ⁽⁴⁾ Cylinde	10					<u> </u>
(%)(2) Temp (°F)(3)	2,86					H (1) (1) (1)
Air Content (%) ⁽²⁾	4.5					
Slump (inches) ⁽¹⁾	2					
Water Added After Batching	2/0					
Time of Placement	ra 1 " t " 1					
Time-On Site	011					
Time Batched	1.5 M. t. c. t.					
Cubic Time Yards Batche	1.5					
Truck No.	12					

Concrete Tests: (1) Slump (ASTM C143); (2) Air Content (ASTM C175); (3) Concrete (ASTM C31)

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Remarks:	

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GZA GeoEnvironmental of New York	andmoors and Scientists
9	- F7

GEORGIAN GUERIDE RUERTRO, NIW YORK JAZIT-175

LOAD TIME	LEAVE PLANT	ARRIVE JOB SITE	START DISCHARGE	FINISH DISCHARGE LEAVE JOB SITE	GE LEAVE J	LEAVE JOB SITE	ARRIVE PLANT
	• •	••	••	• •		9 2	• •
WET CONCRETE CAN CA IRRITATION WITH POSSIB 1. Avoid all contact with eyes 2. In case of eye contact FLUS 3. Avoid skin contact FLUS 4. Wear tubber boots, gloves 5. If irritation persists, get me 6. Keep children away.	WARNING WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS: 1. Avoid all contact with eyes. 2. In case of eye contact FLUSH thoroughly with water. 3. Avoid skin contact whenever possible and wash exposed skin prompily with water. 4. Wear rubbe boots, gloves and appropriate eye protection. (2): 5. If irritation presists, get medical attention prompily. (3): 6. Keep children away.	HESE PRECAUTIONS; er. xposed skin prompily with v		CONDITIONS: Free unloading time will be allowed at a rate of 5 min, per yd. with a minimum of 15 min, per load. Additional time will be charged at the rate of \$1.0 a minimum of 15 min, per hard. Additional time will be charged at the rate of \$1.0 the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company of its agents of any responsibility for any damago caused by moving vehicle beyon-limits of improved road or right of way. This also includes carrying of mud, direct. onlo pavement by vehicles ordered off said property.	if time will be allow. Additional time water added to the water added to the sactor or his reproperty for any damaging of way. This es ordered off sa	wed at a rate of will be charged e will be charged the mix as furnish captance by sign (e captantive relieured by more also includes and property.	5 mln. per yd. w 1 at the rate of \$1. ted, shall be only ted, shall be only tes this Company ving vehicle beyo ving vehicle beyo
/ GAL X	* * * * * * * * * * * * * * * * * * *	a taget in	, ', x	, ,		TEST TAKEN:	
PLANT TICKET NO.	ORDER NO TRUCK NO	LOAD SIZE	MIX FELL	TT (BB)/BB /S/TV	SLUMP		оате ∃ИSер-96
CUSTOMER NO	SOLD TO	THC STREPTORD		P.O. NO.		PROJECT NO.	
DELIVERY ADDRESS I. V. C. F. L. U. 1.	WUR UD.		MAP PAGE	USE IT IT IT IT IT	DRIVER		TIME DUE FISOID
INSTRUCTIONS PARTITION OF THE LESS	LS REW YORK			,	7		40
LOAD CUMULATI	CUMULATIVE 'OHDERED OUANTITY OUANTITY	PRODUCT	PRODUCT DESCRIPTION	-	ONIT OF MEASURE /-	UNIT PRICE /	АМОЙИТ
े जिल्हा रा	9021 8 GC-1	44057.7	नुषालुक्त स्थाप्त गर्दे रहा	7/11 aw). (3		
	· ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	3 56-111	3 5 %			AUC BAZA	
*			7 2/ % (s	Astá comixed nois to polacimo	+	<u>;</u>	· · ·

Copie d. O by Scara (From), mothered

per min (\$60.00 per hr.). Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving vehicle beyond limits of improved road or right of way. This also includes carrying of mud, dirt, CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with 1111 ARRIVE PLANT 5 **AMOUNT** TIME DUE 1 50,7 TAKEN: PROJECT NO. DATE START DISCHARGE FINISH DISCHARGE LEAVE JOB SITE etc. onto pavement by vehicles ordered off sald property. TOTAL SHIR TOTAL . UNIT 70705 SLUMP Ÿ DRIVER UNIT OF ... MEASURE 11 11/11 11 ON P. d 1 1 1 1 1 5. वस्तरिक ११५१ में १११ वर्ष PRODUCT DESCRIPTION į ! ' USE × MAP PAGE WET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN IRRITATION WITH POSSIBLE BURNS. TAKE THESE PRECAUTIONS:

1. Avoid all contact with eyes.

2. In case of eye contact FLUSH thoroughly with water.

3. Avoid skin contact whenever possible and wash exposed skin promptly with water.

4. Wear rubber boots, gloves and appropriate eye protection.

5. If inflation persists, get medical attention promptly. ARRIVE JOB SITE . . 121 101 6 PRODUCT CODE LOAD SIZE V TRUCK NO 1315 MIDGERS FOLLS MED YORK ORDERED WARNING .. LEAVE PLANT ORDER NO. 121-21-171-1-13 CUMULATIVE 1.50 Soud To TICKET NO. GAL X DELIVERY ADDALSE LOAD TIME LOAD совтомен но. INSTRUCTIONS PLANT ٧: _____ יוריקא גייסעקא. บ้า″⊐ฑิ∃คือหัด′ับ".

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CONCRETE PLACEMENT AND FIELD TESTING REPORT

OXYCHEM/OLIN 102nd STREET LANDFILL REMEDIATION NIAGARA FALLS, NEW YORK

Client: S	Client: Smith Environn Concrete Contractor:	뇓	ental Technologies Corp.	1.7.	Report No.: Weather:	rt No.: $DFS - GP$ Weather: $Ste_{a} \neq C_{b} $	+ 1,77	_ Date:	9/10/1/5	
Concrete	Placement	ü	54011	Sauce 21.10	1 12/23 4 4	, t . Su. tt.	, , , , ,			,
Concrete	Concrete Supplier:	Anoricin	. ;],		Time of	Mix No.: ≠	715-345			
Field Obs	Field Observations and Tests:	ind Tests:								
Truck No.	Cubic . Yards	Time Batched	Time-On Site	Time of Placement	Water Added	Slump (inches) ⁽¹⁾	Air Content (%) ⁽²⁾	Concrete Temp (°F) ⁽³⁾	Test Cylinder Set No. ⁽⁴⁾	No. of Cylinders
					After Batching			A-6 7:-1		
207	8.5	2 15,0	3 /0	315-7467	20	7	7	78.1	//	9
Concrete Test (ASTM C31)	Tests: (1) ?	Slump (AST)	M C143); (2,	Concrete Tests: (1) Slump (ASTM C143); (2) Air Content (ASTM C173); (3) Concrete Temp (ASTM C1064); (4) Test Cylinder Fabrication (ASTM C31)	STM C173);	(3) Concrete	Րշուր (ASTM (C1064); (4) Te	st Cylinder Fabr	ication
Remarks:	*	Remarks: X Connarks		5.11,116 Aucks	7:3					



GZA Technician

7	(with on the state of the state	dir.										02 03
430	ARRIVE PLANT	L { } { } { } { } { } { } { } { } { } {	s carrying of mud,	TAKEN: DATE	NO.	15:80	*7	AMOLINT	5			14:14:30 90728.96	9 00 9 00
F (4X :	LEAVE JOB SITE	CONDITIONS: Free unloading time will be allowed at a rate of 5 min. per yd. with a minimum of 15 min. per yd. with per min (\$60.00 per hin.) Any water added to the mix as furnished, shall be only on the request of and at the purchaser's risk. Acceptance by signature or payment of this order by the owner, contractor or his representative relieves this Company or its agents of any responsibility for any damage caused by moving wehicle.	limits of improved road or right of way. This also includes carrying of mud, dirt, etc. onto pavement by vehicles ordered off said property.	SLUMP DATE	PROJE	Ŗ,	D RZT	TINO	.			SUB FOTAL TIESHL TOPALE	WAT UXD
	FINISH DISCHARGE	unloading time willing the control of the control o	road or right of wa by vehicles ordere	0 HJX 4	DRIVER	DAH R.	WILLIAMS RD RZY	N 7 UNIT OF	0,1,			27.309 1.6 4400 LB	20 gu 20 96 87 68
	<u> </u>	CONDITIONS: Free a minimum of 15 m per min (\$60.00 per min (\$60.00 per the request of and this order by the ow its agents of any re	Ilmits of improved etc. onto pavement	์ สามาคลายาก	P.O. NO.	MISS.	[m + 1 + 03]	PRODUCT DESCRIPTION	FILS 4		· ·	FORBING FORB AND OF CLM OF	<u> </u>
	έ.			міх ्रसिस्ति (१५) ।	TECTE C. (1131)		ED OLT OILS	PRODUC	3666		;	0 00 00 00 00 00 00 00 00 00 00 00 00 0	
ŀ	. ARRIVE JOB SITE	WARNING ET CONCRETE CAN CAUSE INJURY TO THE EYES AND SKIN RITATION WITH POSSIBLE BURNS: TAKE THESE PRECAUTIONS; Avoid all contact With eyes. In case of eye contact FLUSH thoroughly with water, Avoid skin contact Whenever possible and wash exposed skin promptly with water. West rubber bools, gloves and appropriate eye protection.	ly.	LOAD SIZE	Ξ	MO, LOILS	R9 RZ1	PRODUCT	825086	2 0/05	3 4 5/	Lunio 21,71 01 01 853 01 51.8 02.6 7	
	LEAVE PLANT	WARNING ET CONCRETE CAN CAUSE INJURY TO THE EYES RITATION WITH POSSIBLE BURNS: TAKE THESE F Avoid all contact with eyes. In case of eye contact FLUSH thoroughly with water. Wear rubber boots, gloves and appropriate eye protection.	dical attention prompt	ORDER NO. TF	2 =	DW - HI	T WALFORD	'E ORDERED / 'COUANTITY'	A. Sel	512-	3,		50 v
74117	LOAD LIME	WET CONCRETE CAN CAU IRRITATION WITH POSSIBL. 1. Avoid all contact with eyes. 2. In case of eye contact FLUSS. 3. Avoid skin contact wherever an eye and skin contact wherever an eye in termination of the eye and expense and eye in termination.	Keep children away. GAL X	1.007.773		FULL OF U	187 P.0 L./ .0 n.9E	CUMULATIVE Y. QUANTITY	A. 50				1988
		WET CC IN MET CC IN Avoid 2. In cas 3. Avoid 4. Wear 1.		PLANT TICK	1 º 1 5 A Ø () DELIVERY ADDRESS	INSTRUCTIONS	COCKPORT SUFEALD	QUANTITY	0.50			PETER PETER	
 	}	1		* * • • * 1•	र हैं।	~ ::13	BY TICKE	 ספרועם	STERS	CON			and the a second-many south state that a

APPENDIX E

FIELD CHANGE APPROVALS

FIELD CHANGE APPROVAL (FCA)

Project Name:	Project Number:	AWA Number:	Date:
102ND ST LANDFILL		3/	11-5-96
Identification of Area and Item:			1, 0, 70
BID ITEM IH - RETAINING	WALL		
	•		
Description of Change:		• •	
INSTALL DARAIN LINE & DI	RAIN INTO	EXISTING (P	LUS ONE NEW
CATCH BASINS MANHOLES ALD	NG BUFF AL	DE. THIS 15	,
TO ELIMINATE FROST ACTION	ON RETAIL	SING WALL	_
WATER WOULD BE TRAPPED U	SITHOUT DR	AINAGE.	
THIS IS APPROVED BY CIT	-4 OF NIAG	FALLS	
Authorization/Acknowledgment:	/2		
Owner's Field Construction Manager:	Ju U/	Je.	Date: 11/7/94
Contractor's Site Representative:	TATY.	20-	Date: 11/2/90
Owner's Project Managers/Environmental:	JC Wometon Switt Laurence fo	St. Sel-00	_Date://_ <i>f7/\$(</i>
Owner's Construction QualityAssurance:	SwI Lawrence fo	2 Cliff Mays PE	Date: 14/2/20
NYSDEC Comments:	U		
2			
Approved:			
NYSDEC Construction Inspection	Date: 1/25	191.	
Distribution:	Date. 11/20	7 10	
NYSDEC: T. Robinson Fluor Daniel: C. Mars S. Lawrence	Olin: J.T. Serfass L.M. Miller	OCC: L. Nigro G. Catlir	1
	R. Taylor	B. Hout J. Thom	ton
c:\excel\forms\fca102nd.xls		File	· · · · ·



October 15, 1996

Mr. Kevin O'Brien
City Engineer
Engineering Department
City Hall
Niagara Falls, New York 14302

Dear Mr. O'Brien,

This letter is in regards to our conversation on Thursday regarding the 102nd Street Landfill project being undertaken by Occidental Chemical and Olin Corporation. At that time we discussed the crib wall structure which is being installed along the south side of Buffalo Avenue. I mentioned that the wall is installed 1' below grade but the original design did not indicate a need for underdrain to remove water from this area.

We are proposing to install an underdrain system composed of AKWADRAIN prefabricated soil strip drain. Some information on this product is attached. It is a plastic geogrid type of material with filter fabric around the exterior. We would install this material on the north side of the wall at the same level as the bottom of the wall structure. This would be approximately 13' south of the south edge of Buffalo Avenue. The area around the AKWADRAIN would be filled with 1a stone. The drain would be fitted with tees and end connectors with schedule 80 PVC pipe to connect to the existing storm sewer manholes and catchbasins along Buffalo Avenue. I have attached some sketches indicating the plan location and elevation of the drain system.

I have also included an overall view of the location of the crib wall. We would like to connect the new system to SDMH-3, SDMH-4, CB-1, CB-2, CB-3, CB-4, CB-5, and CB-6.

If you need additional information please call me at 773-8304.

Sincerely yours,

James C. Thornton P.E.

Civil Engineer

. cc

(with attachments)

J. Serfass - Olin Corporation

G. Catlin

R. Hout ~

T. Robinson - NYSDEC

UNDERD.KOB G:\...\102ND

AKWADRAIN

Prefabricated soil strip drain

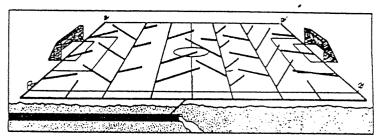
AKWADRAIN strip drain is a prefabricated, high flow drainage system that offers better drawdown of water than pipe while costing around 60 % less to install.

AKWADRAIN strip drain consists of a formed polymeric core surrounded by a geotextile filter fabric. The fabric allows water to pass into the core while restraining soil particles which might clog the core. The core allows water to flow to designated drain exits. **AKWADRAIN** strip drain is 1" thick by 4" wide and is available in 100' long rolls.

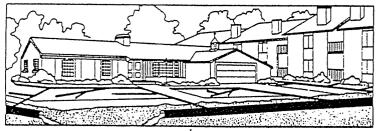
With a crush strength of 4,000 or 8'000 psf. **AKWADRAIN'S** core easily withstands the pressures of backfilling and compaction during installation with no loss of flow area. And the multichannel structure of the formed polyethylene core provides significantly increased water flow. The tough non-woven, needle-punched polypropylene filter fabric covering prevents core clogging while allowing water entry through every inch of its surface.



r golf course tees, fairways and greens



For other athletic fields or recreational areas

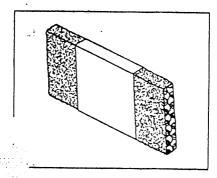


For residential and commercial properties

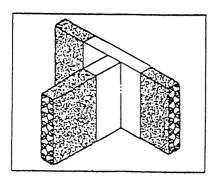


For parking areas and planters

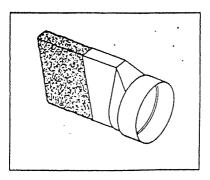
Standard AKWADRAIN strip drain fittings



Splice to connect sections of drain



Tee to make 90° connections



End connector to attach strip drain to 4" PVC or corrugated polyethylene sewer pipe

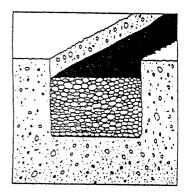
Typical AKWADRAIN™ strip drain product properties

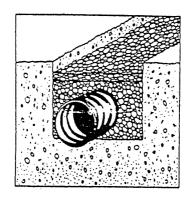
Fabric Properties

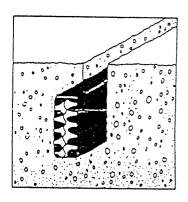
Weight, oz/sq yd Grab strength, lbs Puncture strength, psi Trapezoidal tear, lbs Burst strength, psi Elongation, % EOS Permeability, cm/sec Flow rate, gpm/sq ft Permittivity, sec-1	4.0 135 70 60 240 80 70 0.20 120 1.96
	1.96 Growth

Core Properties

Thickness, in Compressive strength, lbs/sq ft 4,000/8,000 Flow capacity, gpm/sq ft of width 30 Specific gravity 0.951 Water absorption, % at 24 hours .01 Tensile strength, psi at yield 3800 Fungus resistance No Growth







French Drain

11611	ch brain
Pipe	None required
Fabric	· Yes
Stone or Sand	Yes
Backhoe	Yes
Trencher	No
Dump Truck	Yes
Pickup	Yes
Laborers	3 minimum
Trench Width	12" minimum
BOTTOM LINE	-

Pipe Drain

K."	
	4" minimum
	Yes
	Yes
	Yes
	No
	Yes
	Yes
	3 minimum
	12'' minimum

Strip Drain

Not required Already on core Not required Not required 2" Trencher Not required Yes 1 **PROFIT**

AMERICAN WICK DRAIN CORPORATION

316 Warehouse Drive Matthews, NC 28105

ones: (800) 438-9281 (704) 821-7681

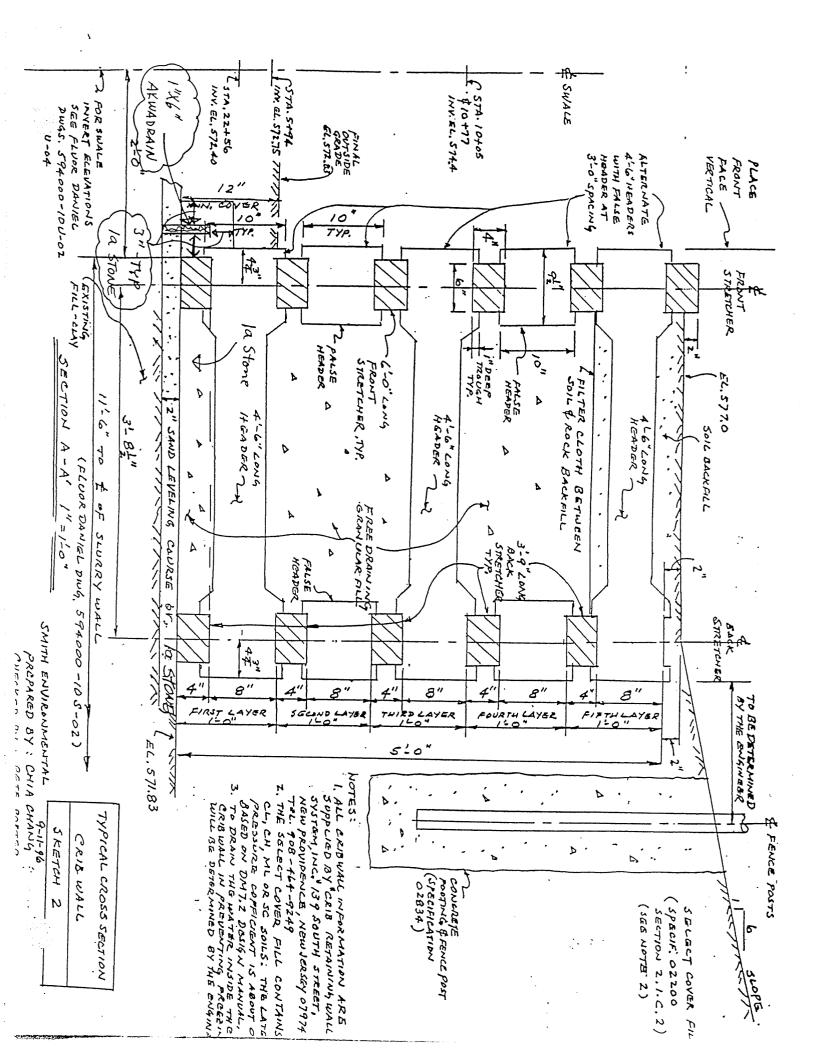
Form Services, Inc. P.C. Box 30

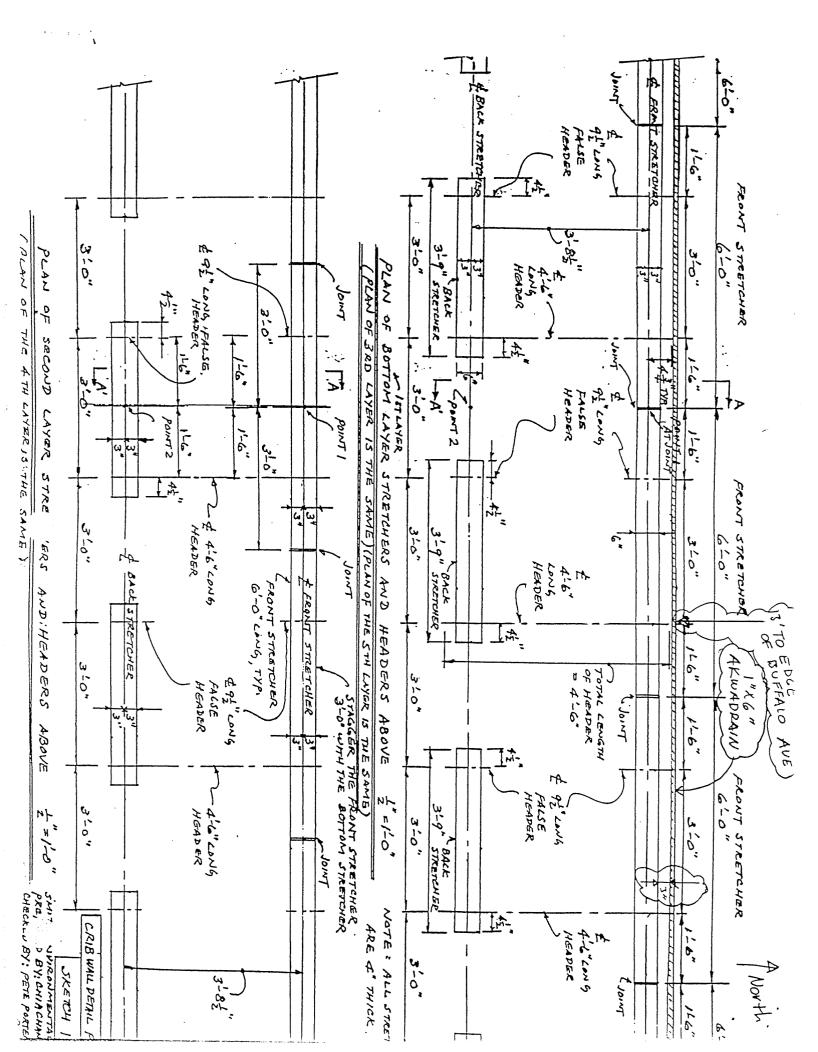
Linthicum Highs., MD 21096-30-Local: 789-5900 MD: 800-492-2

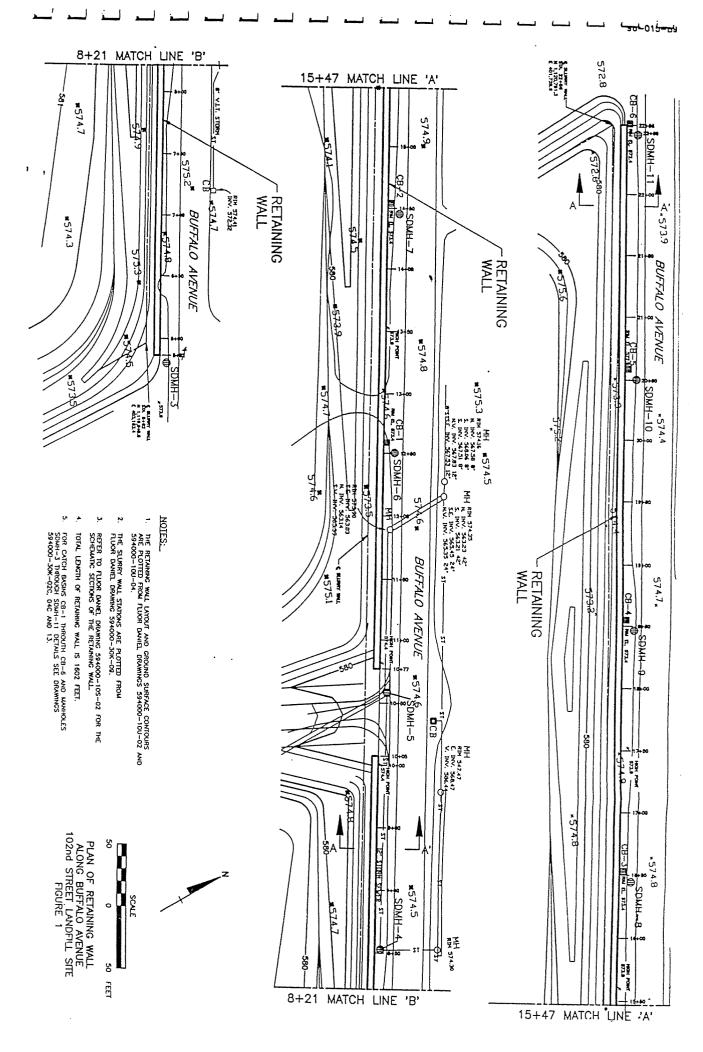
Out of State: 800-638-3395

Fax (704) 821-644 Telex 572385

SD-0689-10







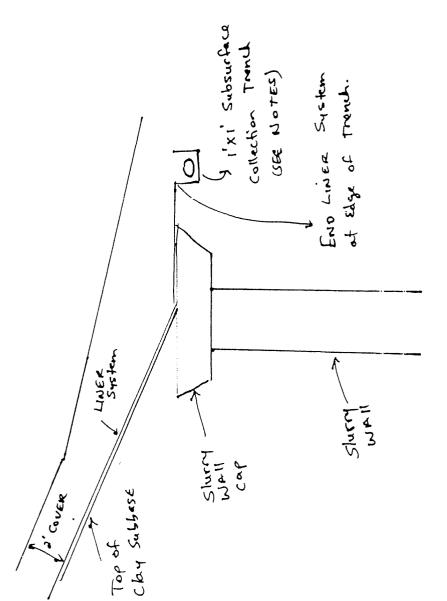
Project Name:			
· - w/	Project Number:	AWA Number:	Date:
102nd Street, LANOFILL			7-23-47
Identification of Area and Item:			1 2 11
Center Access ROAD at Buffel	lo Avenue		
Description			
Description of Change:			
Install 50' long subsurface colle	ection trans	C and an	hal Gos
to connect with Storm Drain	Marilanta		- OHSIN
to connect with stain stain	Transie # S	. Collection	1 renih
to be I wide and contain a 4"			j
he connected to cutch Basin and MH	-5. See atta	ached Drawin	45.
Authorization/Acknowledgment:			·
Ourodo Field Occupation	XY &		/ ,
Owner's Field Construction Manager:	Lary G		Date: 7/23/5
Contractor's Site Representative:	12/10	2	Date: 7/77/97
Owner's Project Manager /	11 2	77/	- / / -
Owner's Project Managers/Environmental:	pm Dum y	Monta	Date: 7-23-17
Owner's Construction QualityAssurance:	Scott Lauren		Date: 1-2'5 4'7
NYSDEC Comments:	J J CONT		Date. (-2.5 ()
Approved: form Returning on Uff	& Nia-City	OK'd	
NYSDEC Construction Inspection	Date: 7/24/6	. –	
Distribution:	Date: 1/67/5/	/ /	
NYSDEC: I Dobinson El -	I Barns		
NYSDEC: T. Robinson Fluor Daniel: C. Mars	Olin: J.T. Serfass	OCC: L. Nigro	
S. Lawrence	L.M. Miller R. Taylor	G. Catlin	
	ix. raylur	B. Hout J. Thomto	on
:\excel\forms\fca102nd.xls		File	

Rin EVEU 573.48 402785.28 E Cribwall 574.00 570.00 569.00 > Manhole #5 Rin Elev. Invert PVC pipe Invert pipe to mHS Sump elev. * Subsurface collection Trench (See Detail) l' wive x so' Lang New Cath A LORD cribuall Slurry 743

Manhole AS Coordinates

1120187.99 N

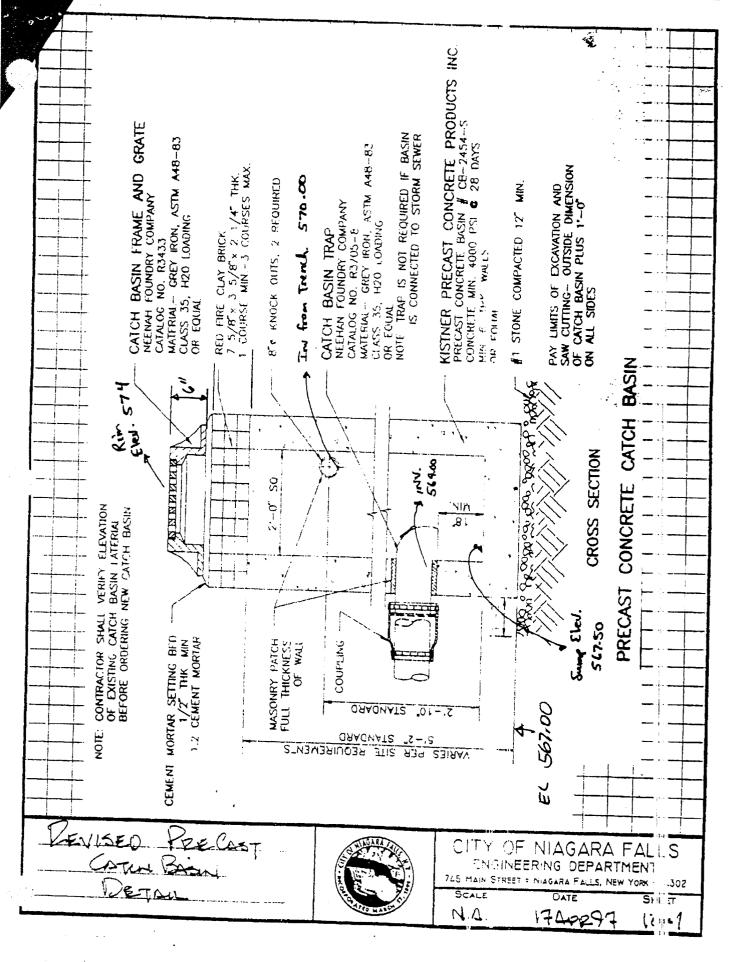
Im. Slev 56366

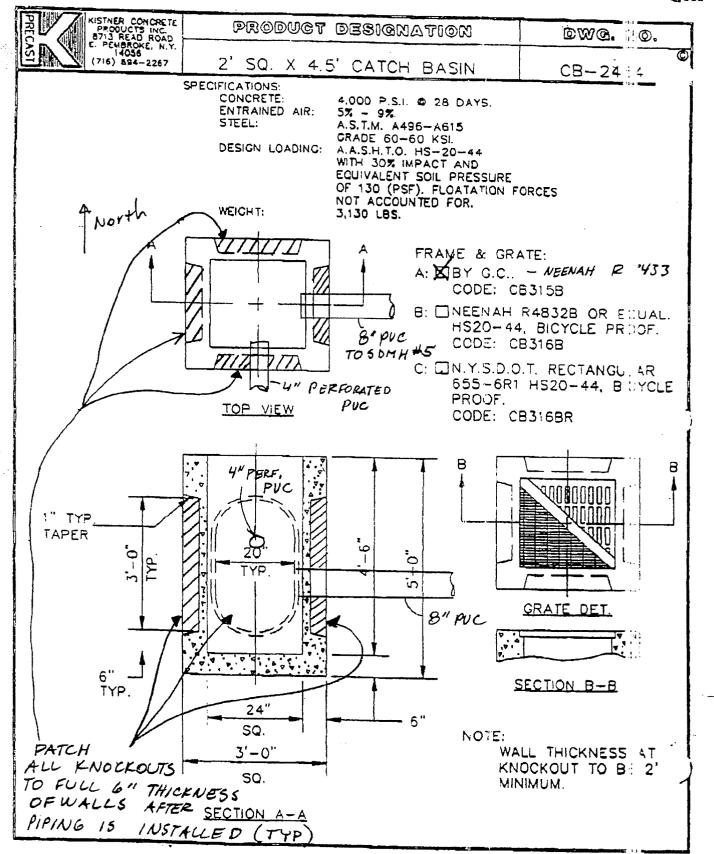


1. Collection pipe shall be 4" fVC
2. USE 1A Stone AS BACKFIL
3. Line Transh with a woven
Scotextic.

4. Connect collection pipe to New Cutch Basin. Connect catch basin to MH-5 with 8" Pipe.

5. Location of Tranch will be determined in the field by Oxychem (Fluor by Oxychem (Fluor by Slope trench to the Weat.

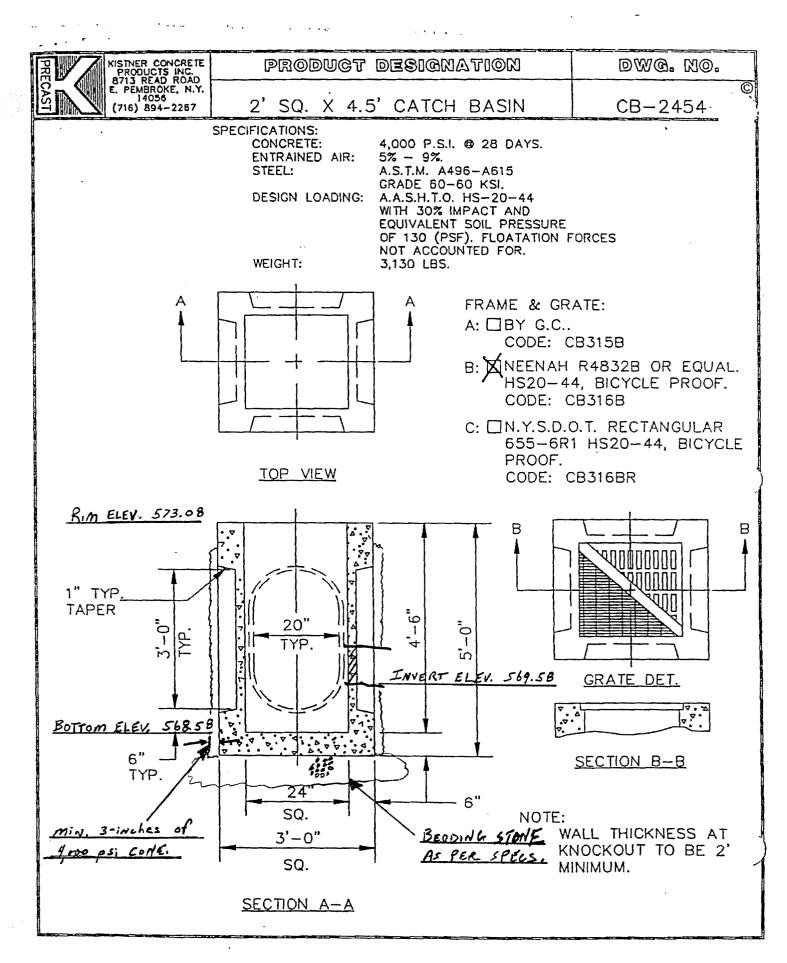




	i		
Project Name:	Project Number:	AWA Number	ID-4
10200 ST LANDFILL		_	Date:
Identification of Area and Item:		33	11-5-96
DRAINAGE SWALE ALONG	BUFF AUE	5	
			•
Description of Change:			
ELIMINATE TOPSOIL & SEEDIN	JG IN THE	AREA BETW	DEEN
EDGE OF ASPHALT SHOULDER &	CRIB WALL	L É REPLACE	EIT
WITH STONE		• • • • • • • • • • • • • • • • • • • •	- '
CHECKED WITH THE CITY OF	NIAG FALL	5 WHO 15 12)	
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Authorization/Acknowledgment: A MAINTENA	NE PROBLEM	1	- CATE
Owner's Field Construction Manager:		yw 1	
Contractor's Site Representative:			1
•	0 N 1.	00	Date: 11/2/96
Owner's Project Managers/Environmental:	4CT homton	ON Senters [Date:/o/7/5/
Owner's Construction QualityAssurance:	at faurere for (Oum . T	1/0/0
NYSDEC Comments:	- rowers for c	eg was pe	Date: 11/ 9/9/
approved: Thorn form			
YSDEC Construction Inspection Istribution:	Date:		
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YSDEC: T. Robinson Fluor Daniel: C. Mars	<u>Dlin:</u> J.T. Serfass	OCC: L. Nigro	
S. Lawrence	L.M. Miller	G. Catlin	
	R. Taylor	B. Hout J. Thomton	
excel\forms\fca102nd.xls		5. Thornton File	

Project Submittal 102nd Street Landfill Site - Remedial Action Niagara Falls, New York

mith Environmental	Technologies Corp.	Project Numbe	er: 96-0	015
800 Canonie Drive Porter, Indiana 46304		Priority:X	Normal Urgent (ASAI	?)
Submittal Number: Submittal Description: Contract Drawing Nun		 tch Basin (Extra)		
	ed to backfill the excavation with 8" DIP using non shring attached.		Conection to SD	MH #4
Certification Statement	nt:			
field construction criteria	by represent that I have detendant in the detendant in th	alog numbers, and si	milar data and I	have
Signature:	Dut of the		Date:	11/21/96
•	omittals 102, Remedial Action	Jac Lori Jan	Date: f Mars, Fluor Dark Serfass, Olin (raine Miller, Olin nes Thornton, Or n Robinson, NYS	niel (2) 1) (1) (y (1)
Signature: ttn: Engineering Sub Contract No. FP-E-NI-	omittals 102, Remedial Action	Jac Lori Jan	Mars, Fluor Dai k Serfass, Olin (raine Miller, Olin nes Thornton, O	1) (1) ky (1)
Signature: ttn: Engineering Sub Contract No. FP-E-NI- 102nd Street Landfill	omittals 102, Remedial Action	Jac Lori Jan Tori	Mars, Fluor Dai k Serfass, Olin (raine Miller, Olin nes Thornton, O n Robinson, NYS	niel (2) 1) (1) (y (1)



Project Name:	Project Number:	AWA Number:	Date:
102 nd Street Landfill			7-10-96
Identification of Area and Item:			
Storm drain manholes precas	+ alternate	و	
Drawing Numbers: 59400-3	BOK - 042.		
59400-3	0K-14		
	,		
BiD ITEM WO# 3/205 Description of Change:	-700 - 10E		
Use precast manholes and			
storm sewer relocation in		cast in	
place or block catch bas	ins,		
	-	_	
Authorization/Acknowledgment:			
	12 , -	7/	
Owner's Field Construction Manager:	The O	lique	Date 7/1/91
Contractor's Site Representative:	DE470		Date: 1/11/94
Owner's Project Managers/Environmental:	Wyhamter S	7/11/9	Sate: 7/11/77
Owner's Construction QualityAssurance:	Churs T N	V	
NYSDEC Comments:			Date: 7-10-46
M			
		I	
Approved: Spena Poten			
NYSDEC Construction Inspection D	7/	15/91	
Distribution:	ate:	. / /6	
NYSDEC: T. Robinson Fluor Daniel: C. Mars O	din: IT Com-	/	
S. Laurence	llin: J.T. Serfass L.M. Miller	OCC: L. Nigro G. Catlin	
	J. Taylor	B. Hout	Agr.
fca102nd.xls)		J. Thomton File	

Project Name:	Project Number: AWA Number:	Date:
IOZNO STREET LANDEILL		
		7-10-96
Identification of Area and Item:		
BID ITEM 31208-700-10H		
Relocation of SD MH #5		
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Description of Change:		
11 (A. 1	
"See attached Sylonittal	10 mber 03400-600	-
	_	
		
Authorization/Acknowledgment:	1	
		ai
Owner's Field Construction Manager:	The Muyer	Date: //// 9
Contractor's Site Representative:	DATE:	Date: 1111/91
	7/4/ / 10	7/1/96
Owner's Project Managers/Environmental:	- 1/1cm to	Date: 1/11/91
Ournalis Camata at the Control		
Owner's Construction QualityAssurance:	Much I ale PE	Date: 7-10-96
NYSDEC Comments:	/ /	
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Approved:		
Approved.		
NYSDEC Construction Inspection	7/15/61	
Distribution:	Date: ///5/9/	
- Carlotte	/ /	
NYSDEC: T. Robinson Fluor Daniel: C. Mars	, Oli 17 5 1	
	Olin: J.T. Serfass OCC: L. Nigr	
S. Laurence	L.M. Miller G. Catli	n
	J. Taylor B. Hout	
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Project Submittal 102nd Street Landfill Site - Remedial Action Niagara Falls, New York

Canonie Drive	Technologies Corp.	Project Number:	96-015	
porter, Indiana 46304			Normal	
Submittal Number: Submittal Description Contract Drawing Num Notes: See attache	. 10/004/10/10/0/	SDMH #5 4 & 594000-10U-04	Jrgent (ASAP)	
Certification Stateme	nt:			
		10100 Busham		
			Date:	7/5/96
Attn: Engineering Sui Contract No. FP-E-NI- Told Street Landfill	102, Remedial Action	J	Cliff Mars, Fluor Da ack Serfass, Olin ((1)
Signaturo	11 , — ,		orraine Miller, Olin ames Thornton, O	
Signature:	Chuch Tolor, PE			xy (1)
Signature:	Approved (APP) Approved as Noted (AAN)		ames Thornton, O	xy (1)
Signature:	Approved (APP) Approved as Noted (AAN) Approved as Noted and Res Disapproved (DIS)		ames Thornton, O	xy (1)
Signature:	Approved (APP) Approved as Noted (AAN) Approved as Noted and Res		ames Thornton, O	xy (1)

NOTES

Submittal No. 03400-600C Relocation of SDMH #5

Reason for change

- 1. The Manhole can be installed prior to interrupting the flow of the existing manhole and sewer.
- 2. Minimize the shut down for the existing sewer during the connection.

3. Speed up the installation of SDMH #5.

"Acceptable"

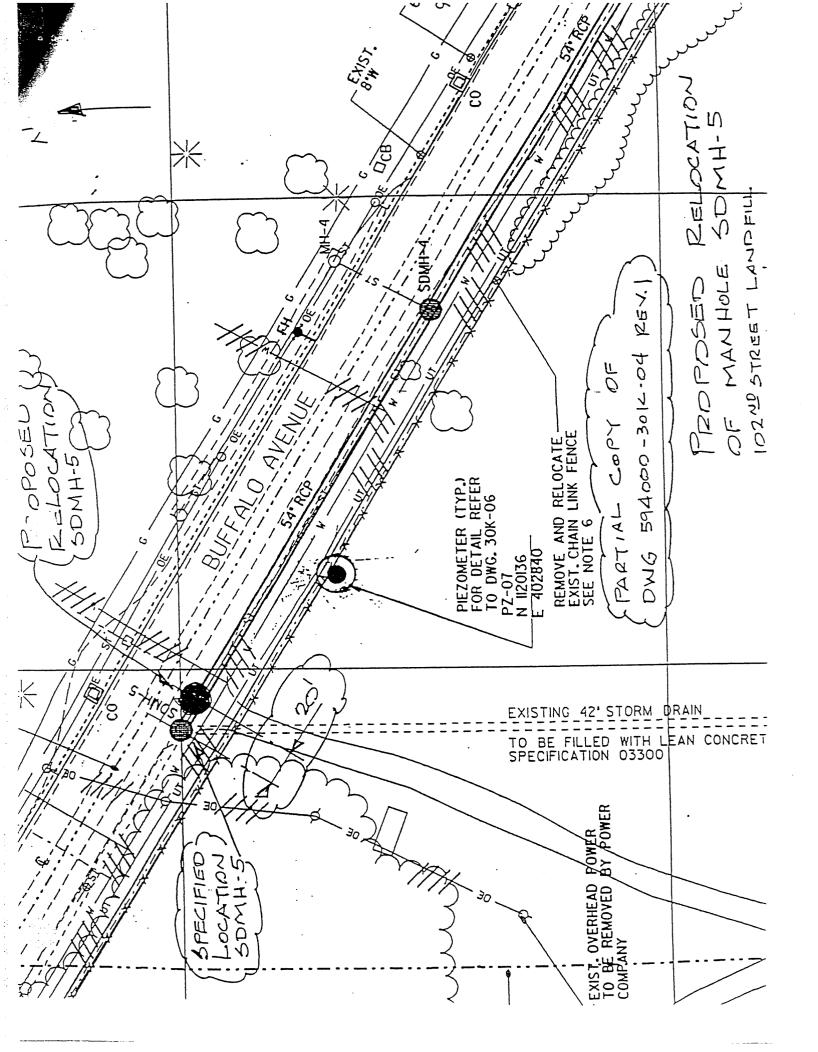
Procedure

1. Install SDMH #5 in accordance with the specifications.

2. Remove existing manhole. 3. Excavate back to the first joint of the existing 42" RCP.

4. Install new 42" RCP from the existing 42" RCP to the new location of SDMH #5. Installation of the new 42" RCP will be in accordance with the project specifications.

4625 Witmer Rd. AGARA FALLS, NEW YORK 14305 LETTER OF TRANSMITTAL "FAX (716) 282-1270 (716) 282-1218 PETER PORTER MITH ENVIRONMENTAL INC JUAGARA PALL, NY NIAGARA FACES. WE ARE SENDING YOU ★ Attached □ Under separate cover via _____ ___the following items: ☐ Shop drawings ☐ Prints ☐ Plans □ Samples ☐ Specifications ☐ Copy of letter ☐ Change order COPIES DATE SK-RG614-THESE ARE TRANSMITTED as checked below: For approval ☐ Approved as submitted ☐ Resubmit _____copies for approval ☐ For your use ☐ Approved as noted ☐ Submit _____copies for distribution ☐ As requested ☐ Returned for corrections ☐ Return _____corrected prints For review and comment ☐ FOR BIDS DUE_ _____ PRINTS RETURNED AFTER LOAN TO US REMARKS WE PROPOSE THE RELOCATION OF SOMH-5 FOR FOLLOWING REASONS THE MANHOLE CAN BE INSTALLED PLIOR TO INTERUTTI, OF THE EXISTING MH AND SEWER. DEMOLITION OF THE EXISTING MANHOLE AND PLUS THE CONNECTION OF THE EXISTING PIPE CON BE PERFORMED IN MINIMAL REQUIRE LESS SHUT DOWN OF THE EXISTING Mew.



Project Name:	Project Number	034/0 2/	
102 nd St. Landfill	Project Number: 96 · 015	AVVA Number:	Date:
Identification of Area and Item:	16 019		8-9-96
Cast In-Place M	lanholes		
(Formed Invert Flow Chan	•	DMH #1,4	(, 45)
ITEM # 10	ЭН		
Description of Change:			
Modification of the flow channel a shallow invert will as	in Some		
Side. For SOMH # 4 # # 4 # 5 +1.	The high flow	channel on	1
change from full height of pip	r height of the sp	ring line.	nnel will
Authorization/Acknowledgment:			
Owner's Field Construction Manager:	Lu 1) 7	ligre	Data 5/15/6
Contractor's Site Representative:	Jelson Pe	117	Date 5-/5-9
Owner's Project Managers/Environmental:	conto 8/0/96		Date:
Owner's Construction QualityAssurance: NYSDEC Comments:	Scott Lauren		Date: 8/11/96
ox - 5,54 - 1	!	,	
y - nott naved per	- Cliffem - or		
Approved:			
Monre Poting		;	
NYSDEC Construction Inspection Distribution:	ate:		
NYSDEC: T. Robinson, Fluor David a con-	Nin: LT Cod		
S. Laurence	<u>Nin:</u> J.T. Serfass L.M. Miller J. Taylor	OCC: L. Nigro G. Catlin	
	5 ayıoı	B. Hout J. Thomton	
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GENERAL SITE DEVELOPMENT

4625 WITMER ROAD • NIAGARA FALLS, NEW YORK 14305 • PHONE (716) 282-1218 FAX (716) 282-1270

August 1,1996

Mr. Kevin P. O'Brien, P.E. City Engineer City of Niagara Falls Engineering Department P.O. Box 69 Niagara Falls, New York 14302-0069

Re:

102 nd Street Landfill

Formed Invert Flow Channels in Storm Drainage Manholes 1, 4 and 5

Dear Mr. O'Brien,

Cerrone is in the process of building the 42" Storm Sewer relocation into the 54" RCP and 48" HDPE storm sewer along Buffalo Avenue and the east side of Olin's property. After completing the formed invert flow channels for SDMH #2 and #3 and a review of the design documents we are requesting a revision of the construction details.

For SDMH #1 we are proposing to eliminate the high bulkhead flow channel on the west side. The high bulkhead wall on the east and south sides will still be installed. On the west side we will cast a sloped shallow invert to allow access in to the manhole. If the high bulkhead were to be cast as designed the head room clearance would be restricted to 9 1/4" from the roof to the bulkhead. Refer to sketches SK-102-731-A & B for the proposed changes and SK-192-731-C & D for the original design.

For SDMH 4 & 5 we are proposing to lower the height of the bulkhead flow channel from the full height of the pipe to the spring line of the 54" RCP. This is a more normal configuration and will allow greater head room for maintenance crews. Refer to Sketches SK-102-731-E for the proposed change and Sketches SK-102-731-C & F for the original design.

Based on past experience with Smith Environmental Services and the owners, (OxyChem and Olin), we will have to obtain City acknowledgment and acceptance of the changes in writing before they will consider them. To expedite the process we are requesting your approval first. Cerrone here-in requests the Cities acceptance of the revisions to the manhole flow channels.

If you have any questions pertaining to the above please feel free to contact me at 283-4534 or Norm Williamson at 282-1218.

Sincerely yours

Russell R. Galbo Project Engineer

Approved By______Date

Kevin O'Brien, P.E. City Engineer

NO OPINION ...

RETUR TO DESIGN

ENGINBER - NOT

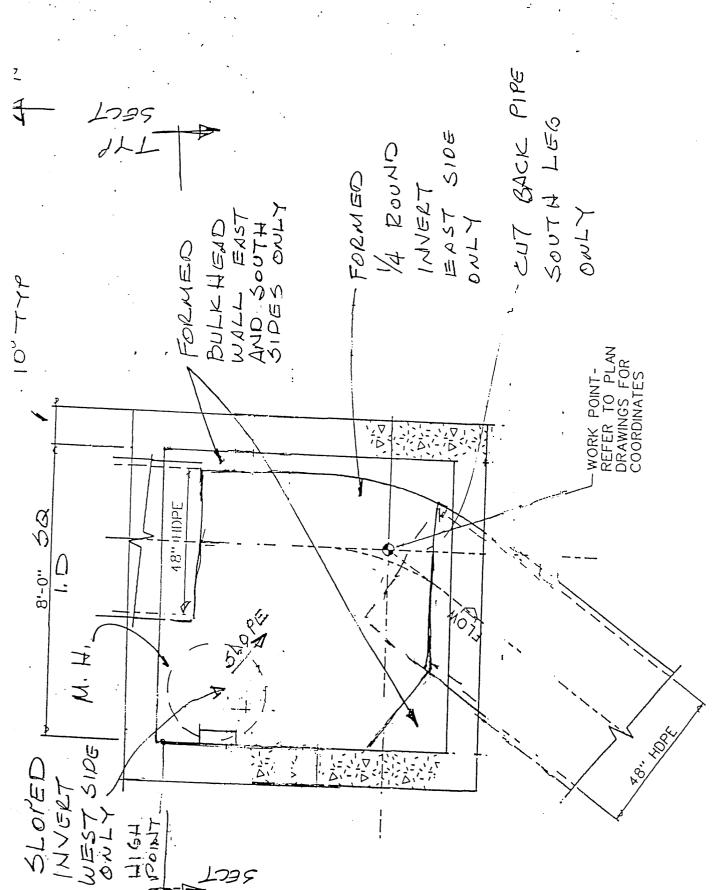
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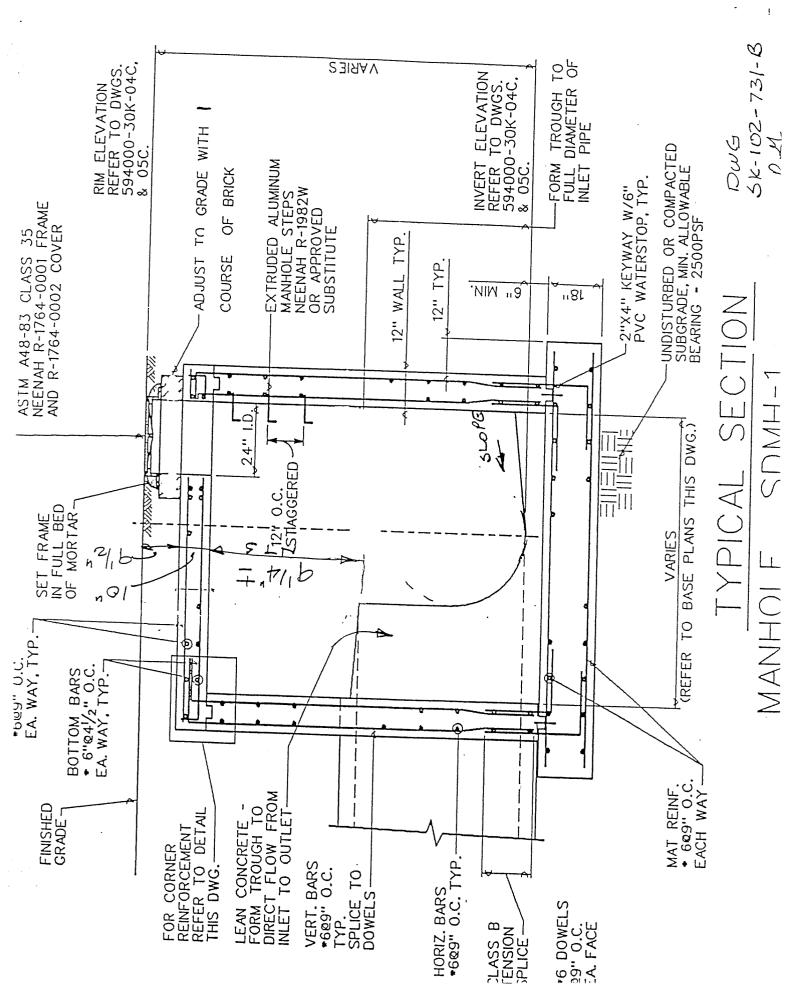
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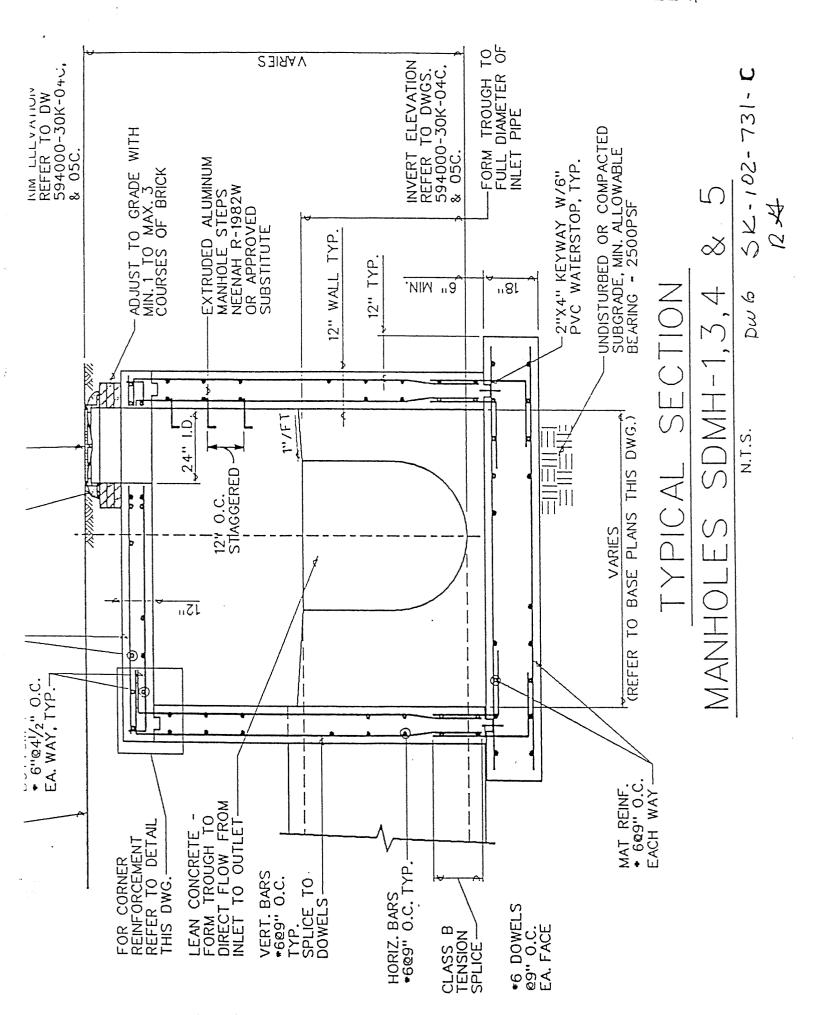
P. Porter, Chief Construction Engineer, Smith

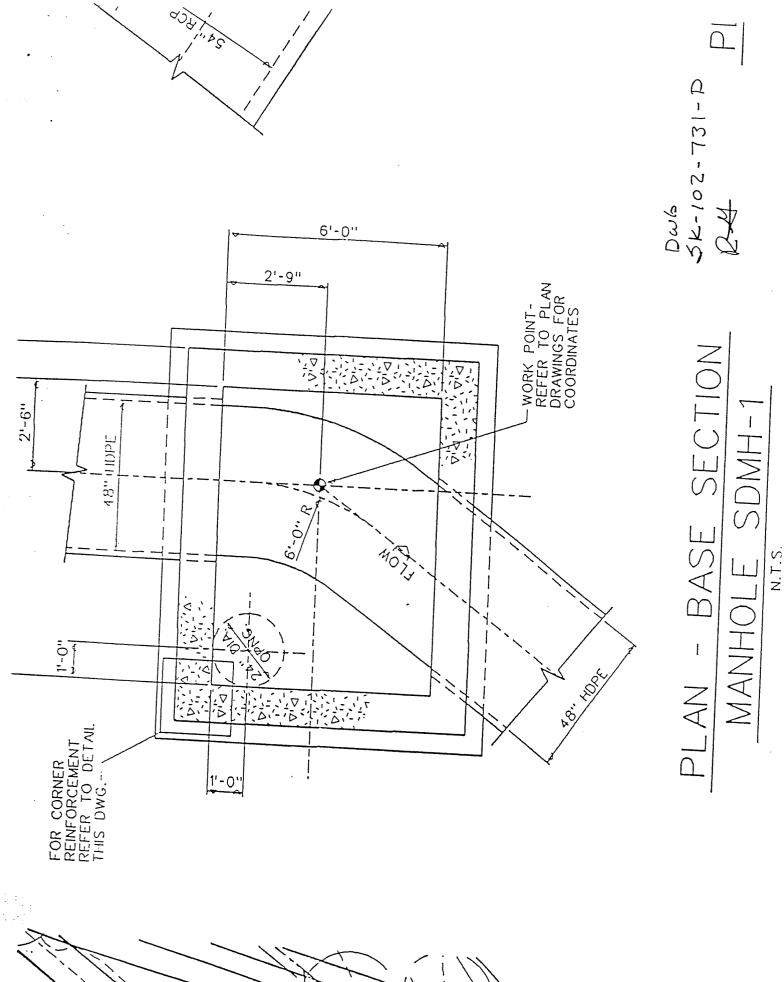
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CC:



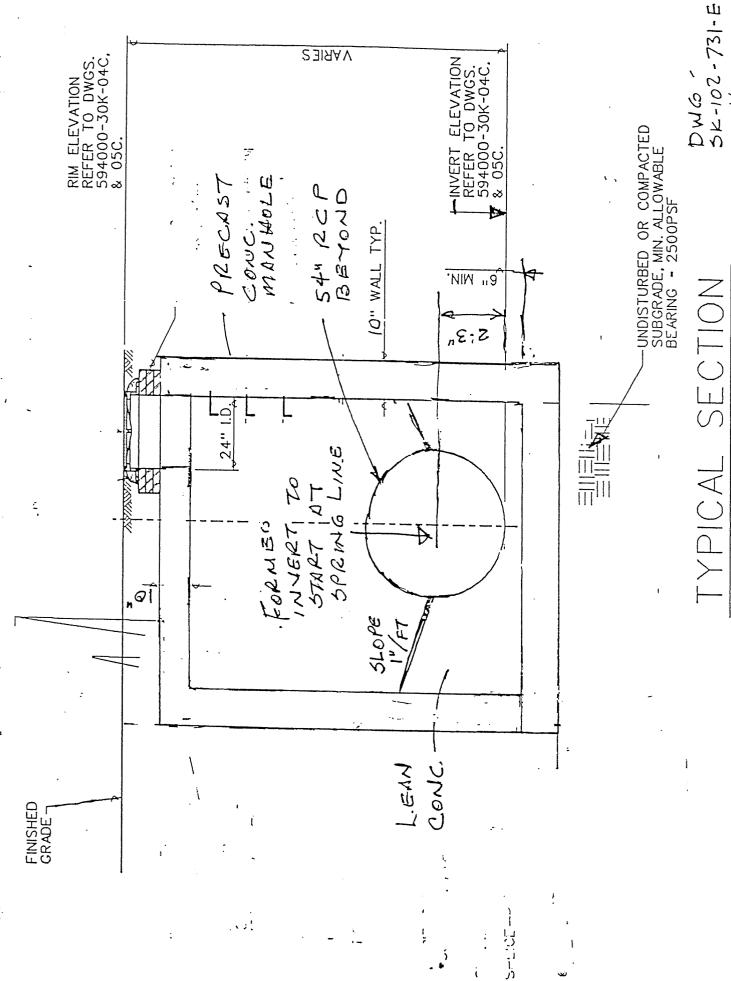




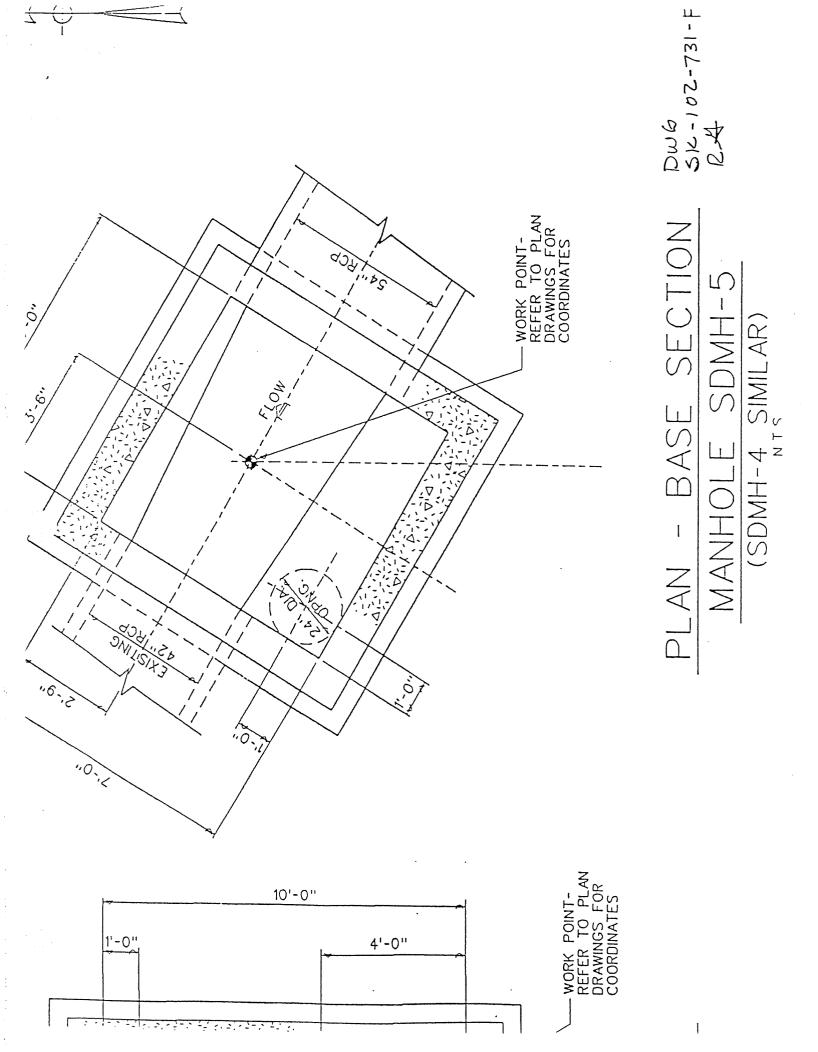


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Project Submittal 102nd Street Landfill Site - Remedial Action Niagara Falls, New York

ੇ mith Environmental Technologies Corp ਂਹ OCanonie Drive	o. Project Number:	96-015
Porter, Indiana 46304		rmal ent (ASAP)
	Drain Manholes (SDMH #1, 3, 4, and - 30k -04C, 30K - 05C, 30K - 14	
Notes: City of Niagara Falls Approval Le Data was submitted on May 10th		-
Certification Statement:		
By this submittal, I hereby represent that I hereby represent the I hereby re	ions, catalog numbers, and similar da	ata and I have
Signature:	TNO 0	Date: 6/7/96
Attn: Engineering Submittals Intract No. FP-E-NI-102, Remedial Action 102nd Street Landfill Site	on Jac Lori	f Mars, Fluor Daniel (2) k Serfass, Olin (1) raine Miller, Olin (1) n Nowocien , Oxy (1)
ntract No. FP-E-NI-102, Remedial Action	on Jac Lori Ton	k Serfass, Olin (1) raine Miller, Olin (1)
ntract No. FP-E-NI-102, Remedial Action 102nd Street Landfill Site Signature: Approved (APP) Approved as Noted	Jacoban Jacoban Loring Ton Con Con Con Con Con Con Con Con Con C	k Serfass, Olin (1) raine Miller, Olin (1) n Nowocien , Oxy (1)

4525 WITTH BE HOLD -> PHACKEA FAILS, HEW YORK 14365 -> PHONE (TIE) 262 1216 FAX (TIE) 262-1270

May 30, 1996

Mr. Kevin P. O, Brien, P.E. City Engineer City of Miagara Falls Engineering Department P.O. Box 69 Miagara Falls, New York 14302-0069

Fat 102nd Street landfill use of precast manholes and catch basins for storm sewer relocation.

Liear Mr. O'Brien;

Armand Cerrone Construction Company inc. is hereby requesting approval to utilize precast manholes and catch basins in ligu of cast in place or block eatch basins for the above noted project. All material and structural loading requirements will meet or exceed project specifications in accordance to City of Magara Falls requirements and pending approval of shop drawing a sent to the Design Engineer Flour Daniels.

If you should have any questions please contact our chibe.

Approved Sy <u>A Garage</u> A Garage Kevin O'Grien 2.E.

City Engineer

Approved By Flour Daniels Design Engineer

Sincerely;

Mick V. Soroka

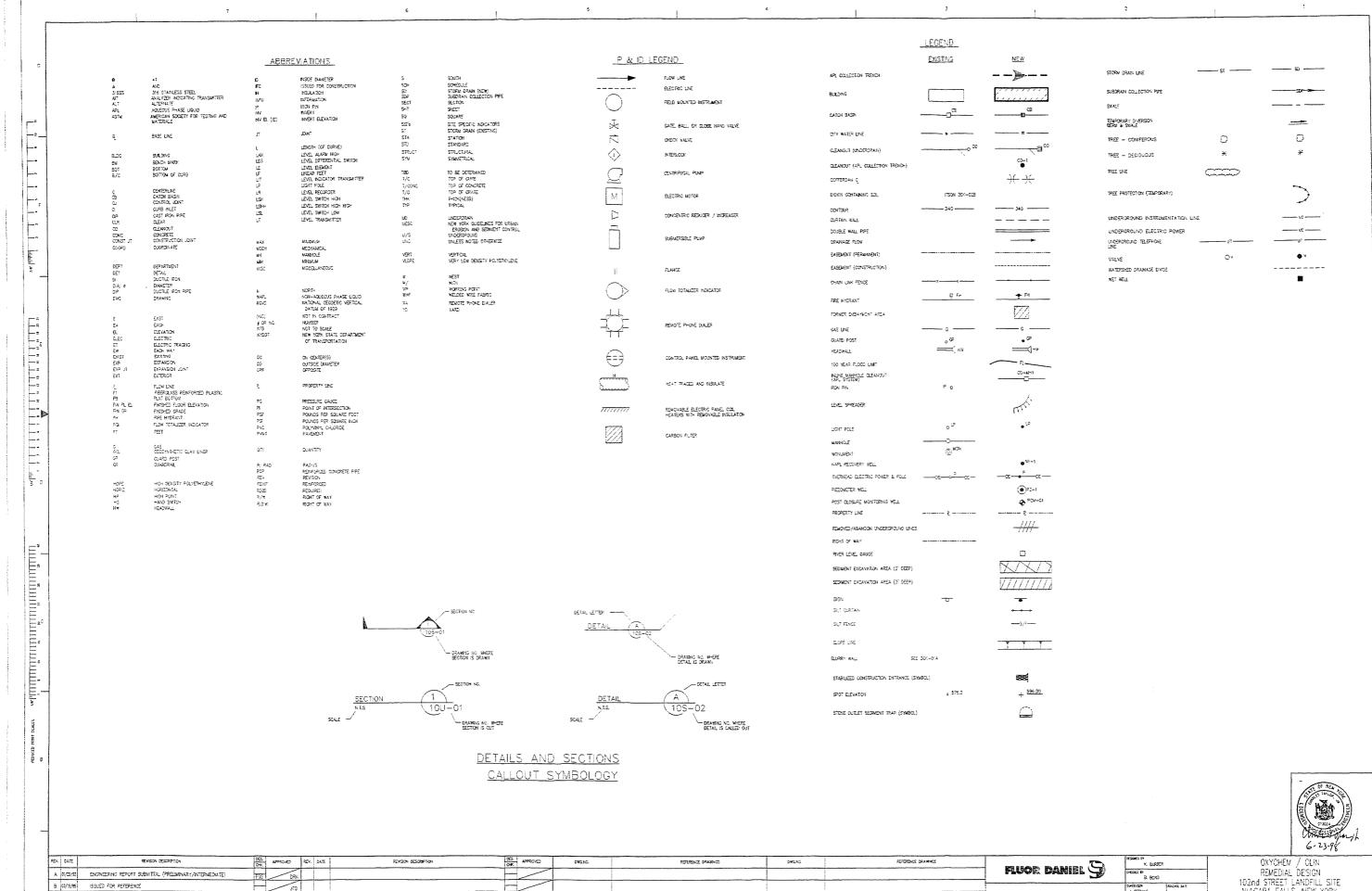
Nide Y Sone Rav-

Project Engineer

Project Name:	••		
	Project Number:	AWA Number	Dators/ /-
102ND STREET LANDFILL		The state of the s	Date 8/27/96
Identification of Area and Item:			7/29/02
or raca and item;			11112
1 1 2 40" 123- 01			
Temp. 48" HDPE StoRM	Sewel Exten	sion.	
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Doogledi			
Description of Change:			
Culvert under CoffeRDA	in in a	0 11 0	
		H 110WAGE	method
to allow Storm water to	Reach Riv	rel. Culver	T will
replace entire length of pipe.			
Authorization/Acknowledgment:			
	0 -	1	
Owner's Field Construction Manager:	X(1) 7	May	0/5/6
_	420/	lyw	Date: 7/3/91
Contractor's Site Representative:	14.1		Date: 9/-/9
Owner's Project to	2 11		Date: 7/5/96
Owner's Project Managers/Environmental:	1 houtes 9/5/90	2	
Owner's Construction Owner.	2 0		Date:
Owner's Construction QualityAssurance:	cott Saurence for	Cliff whicer	Data: 8/27/60
· ·		To the Constitution of the	Date. 0/21/16
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pproved:			
YSDEC Concerns			
YSDEC Construction Inspection Distribution:	ate:		
esting though:			
YSDEC: T Robinson Fluor Barrier a			
YSDEC: T. Robinson Fluor Daniel: C. Mars OI	in: J.T. Serfass	OCC: L. Nigro	
S. Laurence	L.M. Miller	G. Catlin	
	J. Taylor	B. Hout	
	•	J. Thomton	
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			*

Project Name:	Project Number:	AWA Number:	Date: 8/2/6
102ND STREET LANDFILL			8/20/06
Identification of Area and Item:			01-1116
Storm Sewer MH-1			
		•	
Description			
Description of Change:			
Rim Elevation was n	a Losio	(1.5	
	0360 TO	elevation	570.5
due to slurry wall re-alignme	nt le-gradin	9 •	
		·	Ė
Authorization/Acknowledgment:			
Owner's Field Construction Manager:	Lu D /	igu	Date: 9/5/9/
Contractor's Site Representative:	TAT/	34	Date: 9/5/96
Owner's Project Managers/Environmental:	Thoutar 1/5/	76	Date:
Owner's Construction QualityAssurance:	cot favence for	child may co-	Date: 8/27/96
NYSDEC Comments:	V	00	<u> </u>
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Approved:			v iii
NYSDEC Construction Inspection	Date:		
Distribution:			
NYSDEC: T. Robinson Fluor Daniel: C. Mars	Olini II Osefs	000	rica de la companya d
S. Laurence	Olin: J.T. Serfass L.M. Miller	OCC: L. Nigro G. Catlin	
	J. Taylor	B. Hout	
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DRAWINGS



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MANUAL CHANCES WATE - YES II NO II

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102nd STREET LANDFILL SITE NIAGARA FALLS, NEW YORK THE DESTROYS

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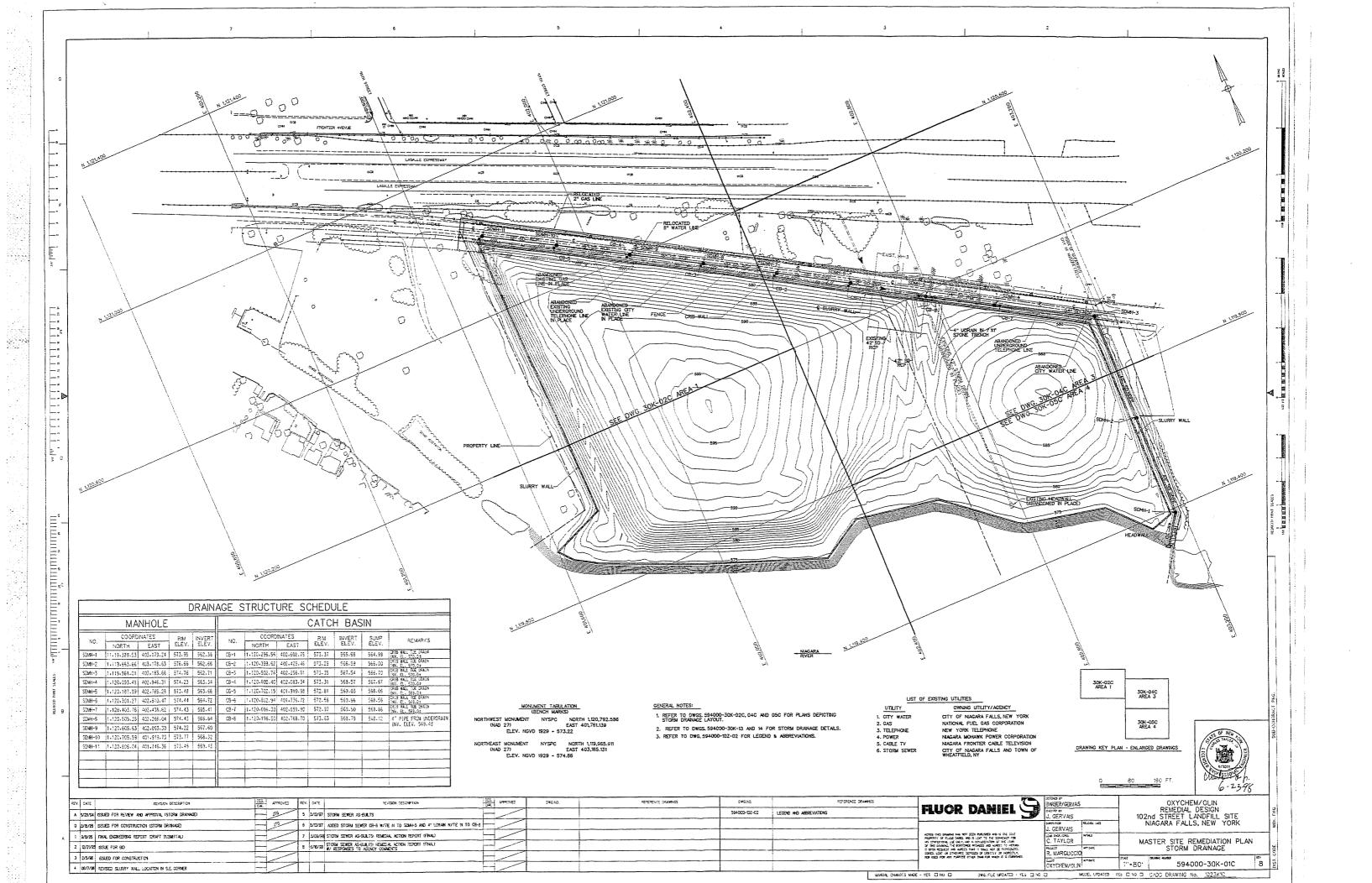
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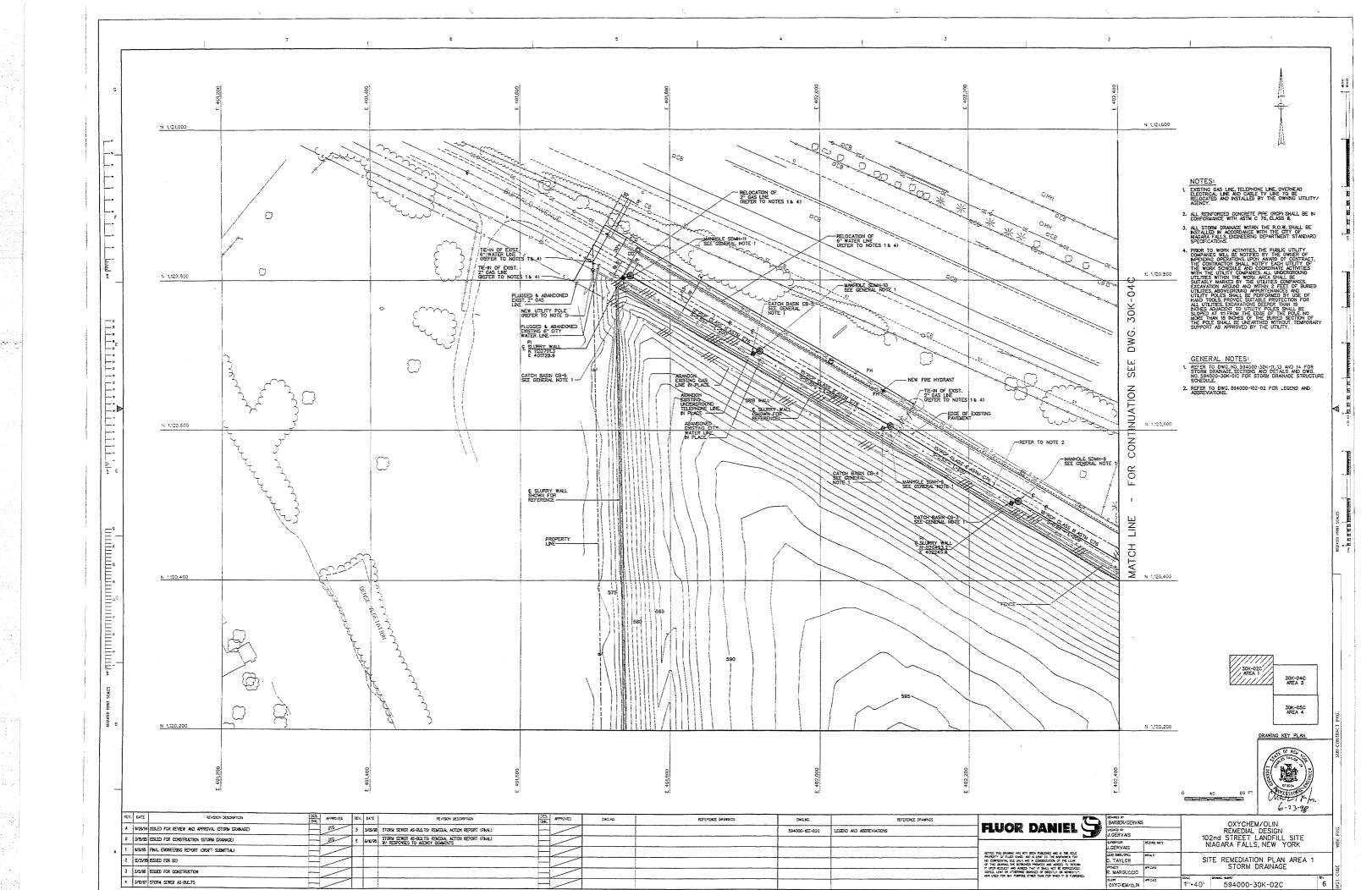
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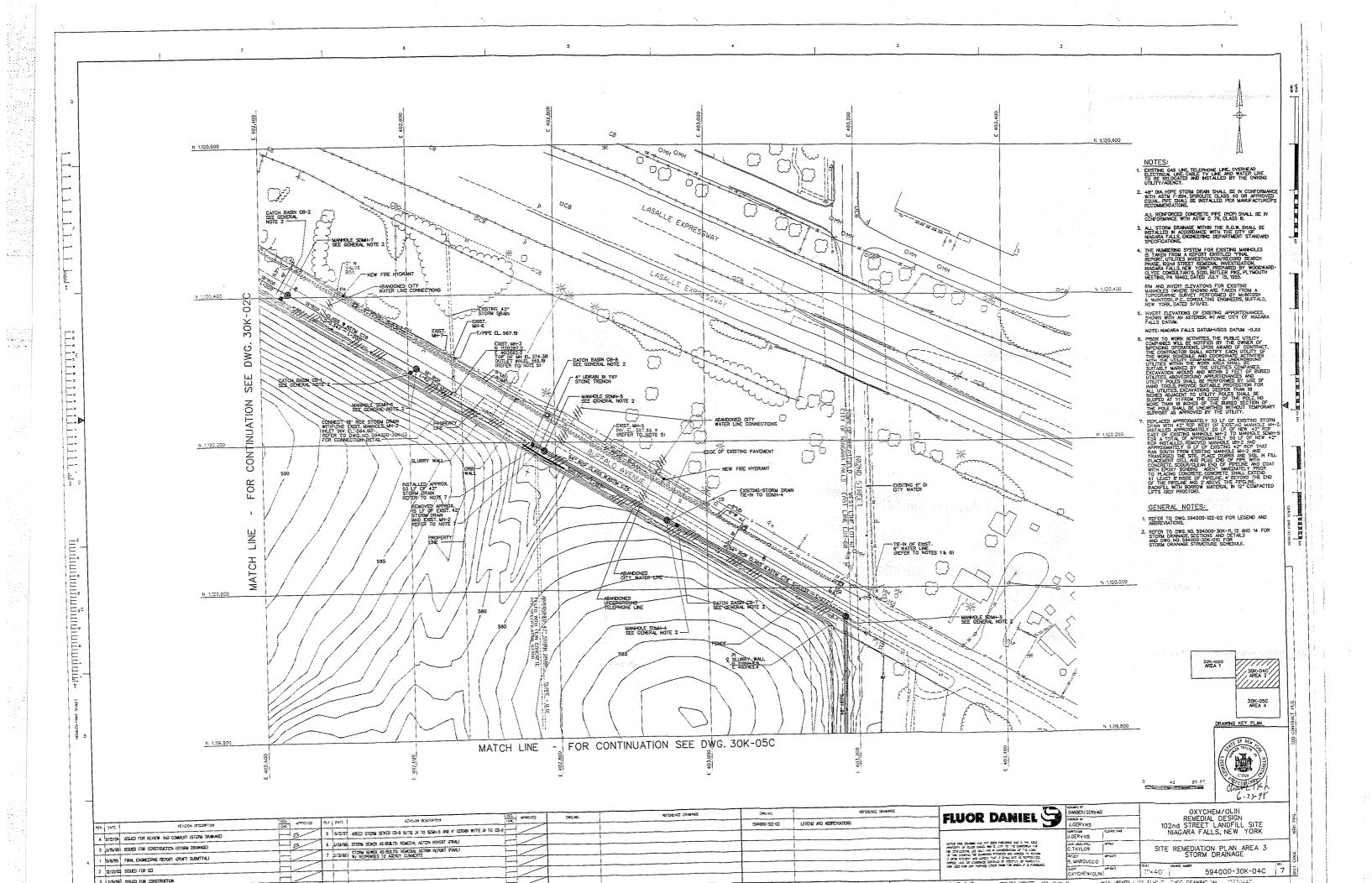
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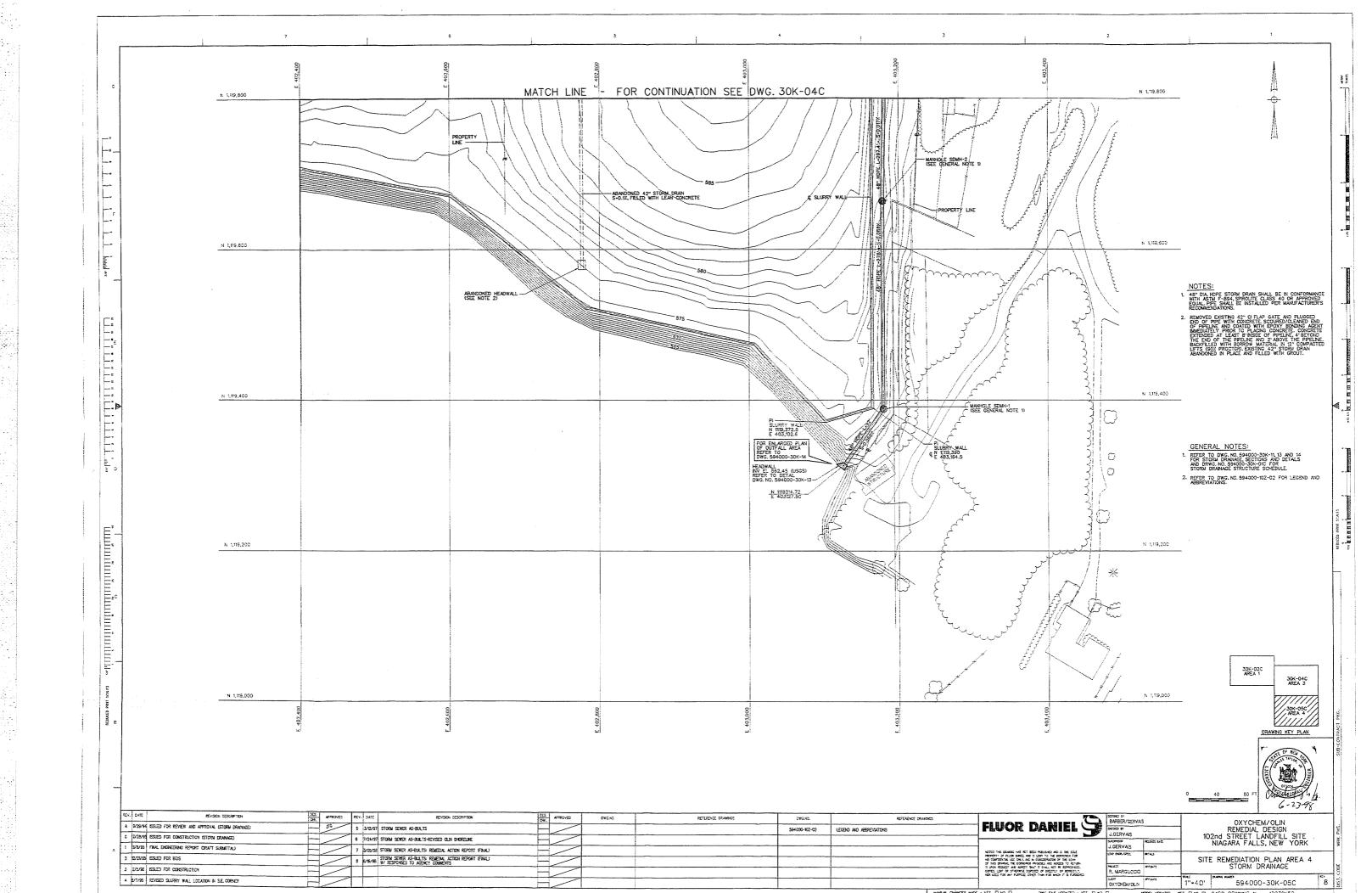
THE DESTROYS

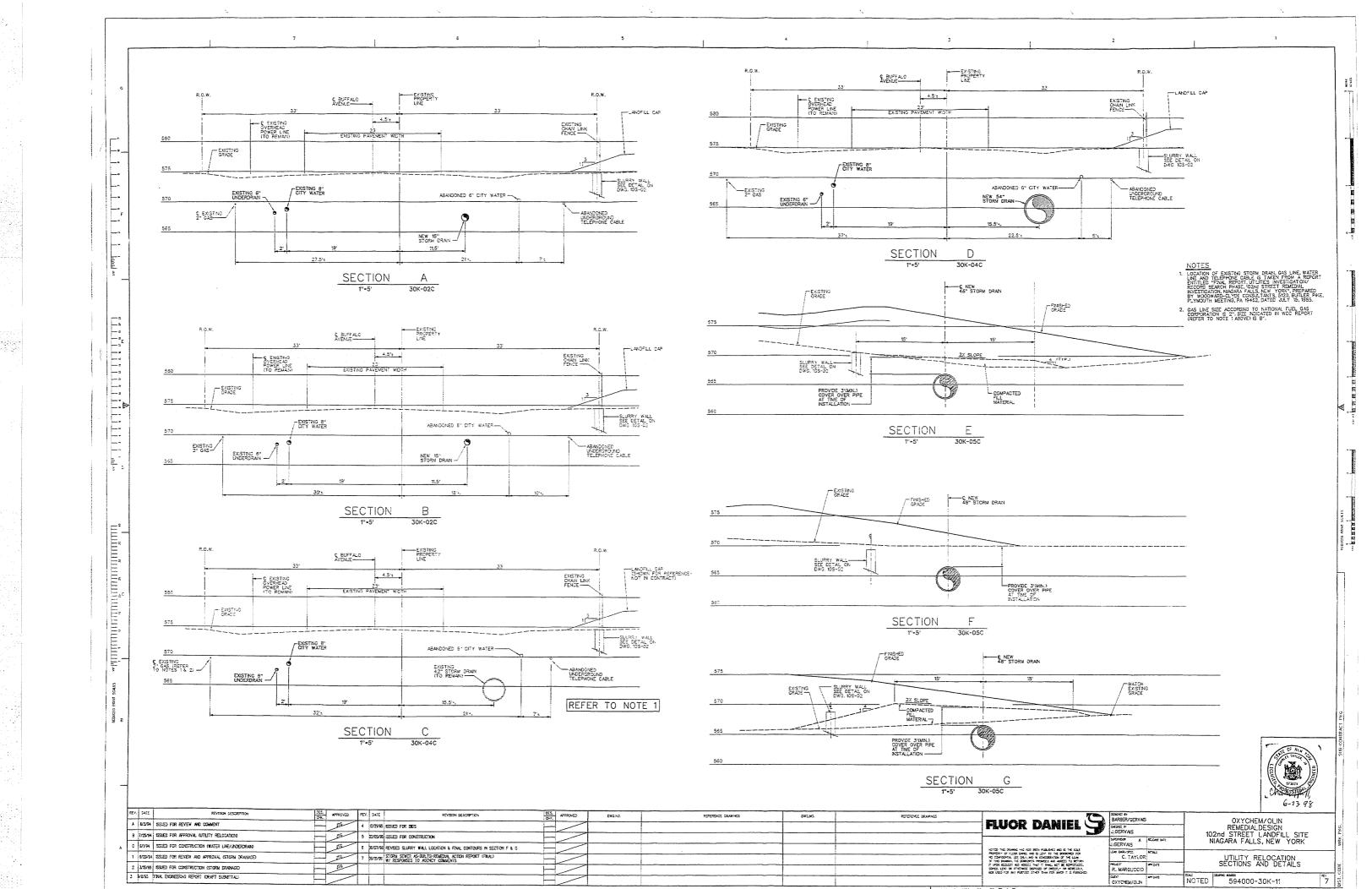
THE C 19/55/26 FINAL ENGINEERING REPORT (DRAFT SUBMITTAL) LEGEND AND ABBREVIATIONS 0 12/21/45 ISSUED FOR 810 R MARGAGOS 9/13/95 1 2/5/96 ISSUED FOR CONSTRUCTION 2 6/16/98 STORM SEWER AS-BULTS: REMONAL ACTION REPORT (FENAL) W/ RESPONSES TO AGENCY COMMENTS

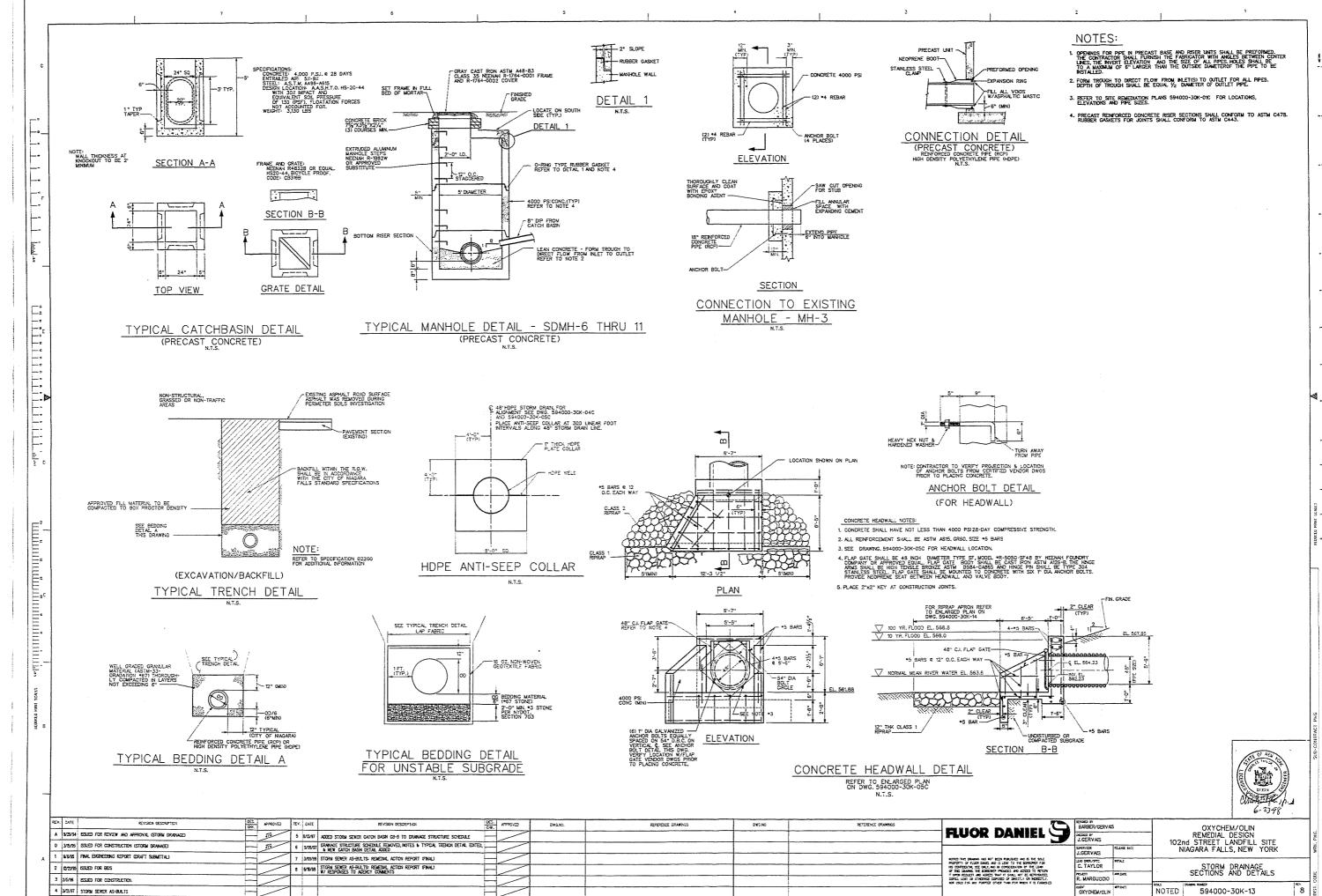












NOTED 594000-30K-13

